

ARCHITECTURAL RECORD



Copyright 1951 by F. W. DODGE CORPORATION, with all rights reserved • Publishing Director, Magazine Division, H. Judd Payne • Business Manager, Robert F. Marshall • EDITORS: Editor-in-Chief, Harold D. Hauf, A.I.A., A.S.C.E.; Managing Editor, Emerson Goble; Senior Associate Editor, Frank G. Lopez, A.I.A.; Associate Editor, Florence A. van Wyck; Associate Editor (Engineering), Robert E. Fischer; Western Editor, Elisabeth Kendall Thompson; Assistant Editor, Herbert L. Smith, Jr., A.I.A.; Assistant Editor (News), Jeanne M. Davern; Contributing Editors, Ernest Mickel (Washington), Frederic A. Pawley, John Caulfield Smith, M.R.A.I.C. (Canada); Editorial Assistants, Dorothy C. Jackson, Jeanne G. Whitbeck • DESIGN: Consultant, M. Peter Piening; Director, Frances Torbert; Assistant, Elaine Sehnert; Drafting, Sigman-Ward • CONSULTANTS: Industry Relations Consultant, Thomas S. Holden; Statistical Consultant, Clyde Shute; Field Research Consultant, Clifford Dunnells, Jr.; Public Relations Consultant, Samuel C. Pace.

Architectural Record (combined with American Architect and Architecture) is published monthly by F. W. Dodge Corporation, 10 Ferry St., Concord, N. H., with Editorial and Executive Offices at 119 West 40th Street, New York, N. Y. Western Editorial Office, 2813 Channing Way, Berkeley, Calif. Thomas S. Holden, Pres.; Howard J. Barringer, Vice-Pres. and Treas.; Irving W. Hadsell, Vice-Pres.; Chauncey L. Williams, Vice-Pres.; Sanford D. Stockton, Jr., Secy.; Walter F. De Saix, Asst. Treas.; Edwin H. Freed, Asst. Treas.; Irving B. Sartin, Asst. Treas. Member Audit Bureau of Circulation and Associated Business Papers Inc. Architectural Record is indexed in Reader's Guide, Art Index, Industrial Arts Index and Engineering Index. Subscription rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, and Spain, \$4.50 the year, \$7.50 for two years, \$9 for three years; elsewhere, \$6.50 the year, \$11.50 for two years, \$15 for three years. Single copy \$1. Circulation Manager: Marshall T. Ginn. Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage. Other Dodge Services: Real Estate Record & Builders' Guide, Sweet's Files, Home Owners' Catalog, Dodge Reports & Dodge Statistical Research Service.

COVER:

Ewing Galloway Photo. Cover design by Peter Piening

THE RECORD REPORTS.....	9
News from Washington. By Ernest Mickel.....	15
News from Canada. By John Caulfield Smith.....	16
Construction Cost Indexes.....	26
REQUIRED READING.....	28
ESSO OFFICE BUILDING, BATON ROUGE, LA.....	85
Lathrop Douglass, Architect. Carson & Lundin, Associate Architects	
THE ARCHITECTURAL LIFE.....	91
By William W. Wurster	
HILLSIDE APARTMENTS, BERKELEY, CALIF.....	95
Campbell & Wong, Architects	
DETROIT CIVIC CENTER BEGINS TO GROW.....	100
Veterans' Memorial Building and City-County Building. Harley, Ellington & Day, Architects and Engineers	
FIVE-LEVEL HOUSE IN BELMONT, MASS.....	108
Carl Koch Associates, Architects. Leon Lipshutz, Associate	
BUILDING TYPES STUDY NO. 170 . . . AIRPORT DESIGN	
AIRPORT DESIGN: ITS ARCHITECTURAL ASPECTS.....	112
By Walther Prokosch, A.I.A.	
LOGAN INTERNATIONAL AIRPORT, EAST BOSTON, MASS.....	118
Thompson & Lichtner Engineering Co. Inc., and Coolidge, Shepley, Bulfinch & Abbott, Associated Engineers and Architects	
STAPLETON AIRFIELD, DENVER, COLO.	126
G. Meredith Musick, Architect	
YUMA AIRPORT, ARIZ.....	130
Edward L. Varney Associates, Architects & Engineers	
ARCHITECTURAL ENGINEERING	
TECHNICAL NEWS AND RESEARCH	
PARTITIONS FUNCTION AS COLUMNS.....	134
In Apartment Buildings. Olgyay and Olgyay, Architects. Bela Kiss, Structural Engineer	
BACKGROUND FOR BUILDING CODE PROGRESS....	140
By Leonard G. Haeger and John H. Reed	
PRODUCTS . . . For Better Building.....	142
TIME-SAVER STANDARDS.....	143
Hardware — 19, 20, 21: Lock Functions	
MANUFACTURERS' LITERATURE.....	144



NEW KAWNEER STOCK SASH
CUSTOM-STYLED FOR
MODERN ARCHITECTURE

THE RECORD REPORTS

ARCHITECTS SPEED PARTICIPATION IN CIVIL DEFENSE

*A.I.A. Chapters Study First Report from National Defense Committee;
Portland Joint Group Advises on Shelters; Planners Talk Dispersion*

COMMITTEE STUDY MAKES BASIS FOR LOCAL ACTION

AS A GRIM NATION heard the President's Proclamation of a National Emergency, the National Defense Committee of the American Institute of Architects last month was sending to local representatives in its 97 chapters copies of the first of a series of reports to guide architect participation in civil defense.

This initial report outlines some aspects of the architect's role in planning to meet the threat of attack. It touches on problems of evacuation and housing, discusses the bomb shelter problem. It was prepared by Harry M. Prince, chairman of the A.I.A.'s Civilian Defense Committee, with the aid of his committee, and approved by the National Defense Committee at a meeting in Washington December 13.

The report, which stresses the special competence and responsibility of architects in preparation of shelter and other civil defense plans, discusses some points which are still in the area of controversy—but its publication is expected to stimulate constructive revision as well as action.

Later reports in the series will provide a type-by-type study of buildings in the civilian defense program. In preparation, the National Defense Committee has been conferring with representatives of the National Association of Building Owners and Managers, the American Municipal Association and the Council of State Governments. The idea is to have first-hand information on how architects can best collaborate with other responsible groups.

Last month's meeting of the committee discussed standards for office buildings, considered the best start for the type-by-type survey. Chairman Slocum Kingsbury of the A.I.A. Committee on Hospitalization and Public Health was present for a discussion of correlating his committee's work with the Defense

(Continued on page 11)

ARCHITECTS AND ENGINEERS RUN CITY BUILDING SURVEY

ARCHITECTS and engineers are working together in Portland, Ore., to help city officials meet the problem of providing public bomb shelters.

Nobody thinks the problem has been solved, but nearly 100 per cent cooperation from the membership of three major participating organizations has produced a working beginning.

A joint committee has prepared a six-page outline of instructions as a guide for evaluating existing buildings and a check sheet to be used for rating them as possible shelter areas. Architect and engineer volunteers were organized into three-man squads to make the survey.

The project got under way in November, when Mayor Dorothy M. Lee asked John A. Corenbaum, president of the Professional Engineers of Oregon, if his organization could advise the city on

which buildings might be utilized as bomb shelters in case of need. Portland has no subways or other extensive underground facilities that could provide shelter for large groups of people.

Mr. Corenbaum turned over to R. Evan Kennedy, president of the Structural Engineers of Oregon and a member of the Professional Engineers, the job of forming a committee to study the problem and come up with recommendations that could be passed on to the city.

The committee then set up included representatives of the Oregon Chapter of the American Institute of Architects, the Oregon Section of the American Society of Civil Engineers, the Structural Engineers Association of Oregon, the Professional Engineers of Oregon, the Heating and Ventilating Engineers, the city building department, the city fire department and the city civil defense department.

(Continued on page 12)

USAF Photo



Bombs on Korea: a recent photograph that reminds us what kind of problem we face



Assoc. Prof. William L. C. Wheaton and Harvard symposium speakers. Left to right: William G. Holford, G. Holmes Perkins, Prof. Wheaton, Albert Mayer, David S. Geer

sources Board official, and Frederick Gutheim, Washington, author and planner, who is also a member of the executive staff of the American Institute of Architects.

"New Towns for American Defense" was the title of the symposium sponsored by the Department of Regional Planning of Harvard's Graduate School of Design.

Four planning authorities discussed proposals for orderly decentralization of industry and housing as a defense measure. Architect Albert Mayer of New York declared "half-way decentralization" is no answer. He called for building of satellite towns of about 50,000 population near existing cities, with a five-mile "greenbelt" between them to insure the protection of space in time of war.

Prof. G. Holmes Perkins of Harvard, who has been designated dean of the University of Pennsylvania School of Fine Arts, felt that new towns would be no greater burden to the defense economy than "extending the present sprawl."

Prof. William G. Holford of the University of London described Britain's "new-town" program. Planned communities in America before and during World War II were discussed by Planning Consultant David S. Geer.

Mr. Geer said the last war demonstrated the need for new towns for war production and cited such specially-built cities as Oak Ridge, Los Alamos, New Mex., and Richland, Wash.

CITY PLANNERS AT TWO MEETINGS STRESS DANGERS OF UNRESTRICTED URBAN GROWTH

URBAN PLANNING and development as a factor in national defense occupied the experts at two meetings in university settings last month.

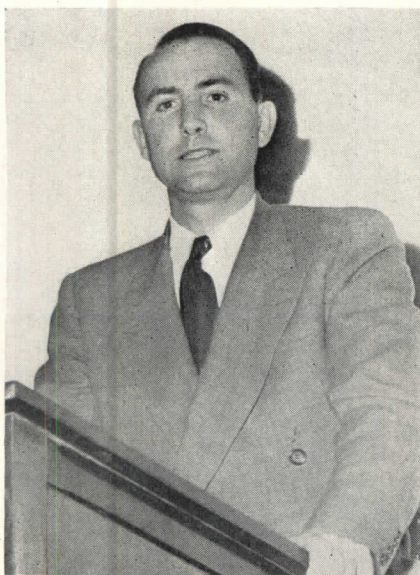
At Yale, the fifth annual Connecticut Community Development Clinic ended a two-day session with the announcement that a series of seminars will be held at three cities in the state to meet an urgent need for increasing the numbers of people participating in the urban planning movement.

The clinic, sponsored by the Connecticut Development Commission and

the Yale University Department of Architecture, brought together more than 200 city, state and university officials, to deal with the problems faced by the "urban core" of Connecticut in what Commissioner Director Elmer R. Coburn described as "the twilight zone of war and peace in which we find ourselves."

Need for curbing present unrestricted growth of large metropolitan communities is underscored by the emergency, all the speakers agreed. Speakers included Ralph R. Kaul, National Security Re-

At Yale: Ralph R. Kaul, NSRB official



At the speakers' table for dinner session of Community Development Clinic at Yale: Christopher Tunnard, professor of city planning, Yale Department of Architecture; Frederick Gutheim; Chairman George Howe, Yale Department of Architecture; Elmer R. Coburn, research and planning director, Connecticut Development Commission



**WORK OF ROTCH SCHOLARS FROM 1884 TO 1950:
AN EXHIBIT SPONSORED BY BOSTON ARCHITECTS**

THE ROTCH IN RETROSPECT, an exhibit sponsored by the Boston Society of Architects, last month brought together examples of the work of winners of the Rotch Travelling Scholarship, oldest architectural and first foreign travel fund in the United States.

Twenty of the 40 living Rotch scholars were present at the opening private view and dinner, attended by some 200 architects and their guests.

The exhibit was arranged under the chairmanship of Isidor Richmond, with the cooperation of the Boston Institute of Contemporary Art and the Public Services Department of the John Hancock Mutual Life Insurance Company.

The exhibit, set up on the 26th floor of the John Hancock Building, included work of the late Clarence H. Blackall, first Rotch winner in 1884. With his partner, the late George Newton, winner in 1886, Mr. Blackall designed Boston's Tremont Temple, Metropolitan Theater and Little Building.

Henry Bacon (1889) was represented by photographs, blueprints, water colors and memorabilia of the Lincoln Memorial. William T. Partridge (1890), oldest living Rotch winner, had on display drawings of his Washington plan.

Other Rotch winners whose work was on display included: Walter H. Kilham, 1893; Otto Faeltz, 1907; Israel P. Lord, 1908; the late Joseph McGinnis, 1910; Niels H. Larsen, 1911; Charles Cameron Clark, 1912; Frederick R. Witton, 1915.

Ralph T. Walker, 1916; Frank S. Carson, 1921; Wallace K. Harrison, 1922; Isidor Richmond, 1923; Carney Goldberg,

1931; Walter Bogner, 1925; Louis Skidmore, 1926; Gordon Bunshaft, 1935; William E. Hartmann, 1939; Edward D. Stone, 1927; Charles St. George Pope, 1929.

Barnett Sumner Gruzen, 1930; Carroll Coletti, 1932; George S. Lewis, 1933; Nembhard N. Culin, 1934; George R. McClellan, 1940; Martin Rosse, 1941; Melverne C. Ensign, 1946; Victor A. Lundy, 1948.

BERNARD MAYBECK NAMED FOR 1951 A.I.A. GOLD MEDAL

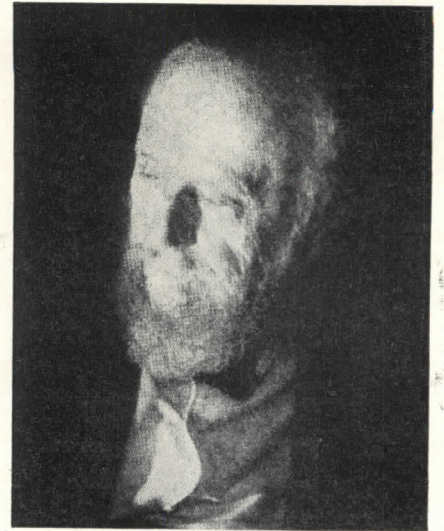
BERNARD R. MAYBECK of California will receive the 1951 Gold Medal of the American Institute of Architects at the 83rd annual convention of the Institute May 8-11 at the Edgewater Beach Hotel in Chicago.

Mr. Maybeck, who is 88 years old, was honored by the Institute once before — with a memorial for his work in connection with the Hearst Plan for the University of California. That was in 1900. An ARCHITECTURAL RECORD article in 1948 reviewed his contributions to American architecture (January 1948: "Bernard Ralph Maybeck, Architect, Comes Into His Own").

"Humanity, Our Client" will be the general theme for the convention.

The series of technical seminars relating the fundamental sciences to building design will be continued as a convention feature, with the emphasis this year on sound and acoustics.

The major findings of the Commission for the survey of education and registra-



tion will be reported in one of the major sessions of the convention.

John W. Root heads a committee of the Chicago chapter which is collaborating with national headquarters on arrangements.

A.I.A. DEFENSE COMMITTEE
(Continued from page 9)

Committee project.

The decision to support the concept of universal military service urged by Dr. James B. Conant, president of Harvard University, also was made at the Committee's December 13 session. The Conant plan calls for military service for all men to begin at 18 or on graduation from high school, whichever is later, and to continue for two years.

Former Rotch Scholars at exhibit preview. Standing—William Hartmann, 1939; Leon Hyzen, 1936; Victor Lundy, 1948; Eugene Kennedy Jr., 1924; James Holden, 1917; George Lewis, 1933; Gordon Bunshaft, 1935; B. Sumner Gruzen, 1930; Frederick Witton,

1915; Cameron Clark, 1912; Louis Skidmore, 1926; Carroll Coletti, 1932. Seated—John Valtz, 1937; Carney Goldberg, 1931; Niels Larsen, 1911; Walter Bogner, 1925; Isidor Richmond, 1923; Wallace Harrison, 1922; Ralph Walker, 1916; George McClellan, 1940

James Coyne Photo





Gene Dauber Photo

E. K. Abberly addressing construction industry session of National Standardization Conference. Seated: Lessing W. Williams, Norman P. Mason, and Harry C. Plummer

STANDARDIZATION AND BUILDING ARE REVIEWED

IMPORTANCE of standardization to building and the judicial role of the American Standards Association as correlator of conflicting standards were the major themes at the construction industry session of the National Standardization Conference in New York.

The place of standardization in construction was related from three points of view by the speakers: Lessing W. Williams, A.I.A. — "As the Architect Sees It"; Harry C. Plummer, director of engineering and research, Structural Clay Products Institute — "As the Materials Producer Sees It"; and E. K. Abberly, project executive and director, Turner Construction Company — "As the Contractor Sees It." Norman P. Mason, chairman of the construction and civic development department of the U. S. Chamber of Commerce, presided.

At the annual luncheon meeting of the

A.S.A. following the morning session, the speakers' words were sharply underlined by the remarks of Hon. Lowell B. Mason of the Federal Trade Commission. Mr. Mason offered a Swiftian analysis of "Non Parallelia," a country where standards would not exist as "vicious" products of "conscious parallel action."

NEW JERSEY FIGHTS BACK

NEW JERSEY ARCHITECTS concerned over a growing tendency to forget the architect on the way to real estate and builders' offices have come back with a public education program of their own.

The Architects League of Northern New Jersey has been running a display ad in five leading New Jersey newspapers: "It Pays to Consult an Architect Before You Build." Responses are serviced with literature and a membership list.

PORTLAND BUILDING SURVEY

(Continued from page 9)

Material was gathered from such sources as were immediately available — including Circular No. 3, from the office of Gen. Lucius D. Clay, chairman of New York State's Civilian Defense Commission — and discussed at some length.

A subcommittee was organized to formulate standards or criteria, as a basis for comparison of buildings and their possible usefulness as shelter areas. This was intended to provide a structural picture of potential shelter. Deficiencies in an area otherwise satisfactory were to be noted so they could be remedied if and when funds and further information are available.

The result was the check sheet, plus the instructions indicating the problem and outlining the items which make a shelter effective.

Manpower for the survey itself was the next problem — a considerable one, especially since the fastest possible action was wanted. But when Mayor Lee wrote to members of the three major organizations asking them to give their time to get the job done, the response was nearly 100 per cent.

This is how the survey works:

Three-man squads organized by the city building department from the volunteers examine the buildings assigned to them until all those specifically in mind are rated. Then areas with no specific buildings previously chosen, because no major structures were available, are assigned to squads. They are instructed to locate any shelter at all available, since it is felt that something, however inadequate, is better than nothing at all.

Selections made by the squads are final. The only additional examination is by other engineers — for instance, heating and ventilating engineers, who may recommend steps to make selected shelters safer, like turning off gas valves, locating valves, and turning off ventilating systems. Such directions will be followed by the warden assigned to each building.

Success of the call for volunteers is ascribed by Mr. Kennedy to the cooperative efforts of Herman Brookman, Oregon A.I.A. president, and R. E. Cushman, Oregon Civil Engineers president. They sat down with Mr. Kennedy and mapped out the approach that should be made to their members. The resulting letter, signed by the Mayor with few revisions, did the job.



The Port of New York Authority opened its union bus terminal, largest of its kind in the world, December 14. The \$24,000,000 brick and steel structure just off Times Square connects directly with the Lincoln Tunnel by elevated ramps, eliminates an estimated 4500 bus movements a day from streets. The new terminal has four levels and roof parking area for 450 private cars (ARCHITECTURAL RECORD, August 1949)

NEWS FROM WASHINGTON by Ernest Mickel

Deepening Crisis Centers Attention on Defense Planning — Funds for Civil Defense, Bomb Shelter Needs, Proposal For Building Dispersal; Credit Control Studies Continue; Industry Eyes Labor Supply; Apprentice Program Reviewed

THE NEW ANXIETY which settled like a pall over lame-duck Washington last month was bringing increased attention to planning and construction for defense even before the President's proclamation made the national emergency official.

Congress turned to the consideration of voting huge sums for construction of communal bomb shelters for American cities. The legislation was made a "must" for the short session as soon as it arrived on Capitol Hill.

The General Services Administration and its Public Buildings Service asked approval of plans for construction of low, sprawling block-type structures on a 15- to 20-mile perimeter of Washington to house key personnel from federal government agencies.

These developments firmed up previous assurances that preparation for a stronger defense would continue. It dispelled some earlier fears in high places that the public, and Congress, might not support swiftly moving mobilization programs. The staggering news from Korea removed all doubts.

From the National Security Resources Board came a drafted civil defense plan which called for expenditures of \$3.1 billion. The largest single item in the breakdown of this amount was \$2250 million for the building of bombproof shelters in America's most congested areas. The early plan, as sent to Congress by the Administration, suggested the federal government pay half the cost of this construction, the other half to be borne by state and local governments.

What Kind of Shelters?

The type of shelters to be considered remained a question. There was a promise from NSRB that tests of various types in the field would get underway at once. James J. Wadsworth, who went

from the Board to the office of acting deputy administrator of the newly formed Civil Defense Administration, testified before Congress early in December that "a series of field tests of a number of potential shelter types is planned for the immediate future. When these tests are completed, specifications for more adequate and improved shelter types for individual and community use will be announced."

Surveys of potential existing shelters are now being made, he said.

On another occasion, Wadsworth indicated the shelters would be used primarily for rest purposes. But there was growing pressure, from city officials, for the federal government to assist in the construction of huge underground

caverns that could produce revenue as automobile parking spaces in peacetime and be converted quickly to shelter the populace in event of enemy attack.

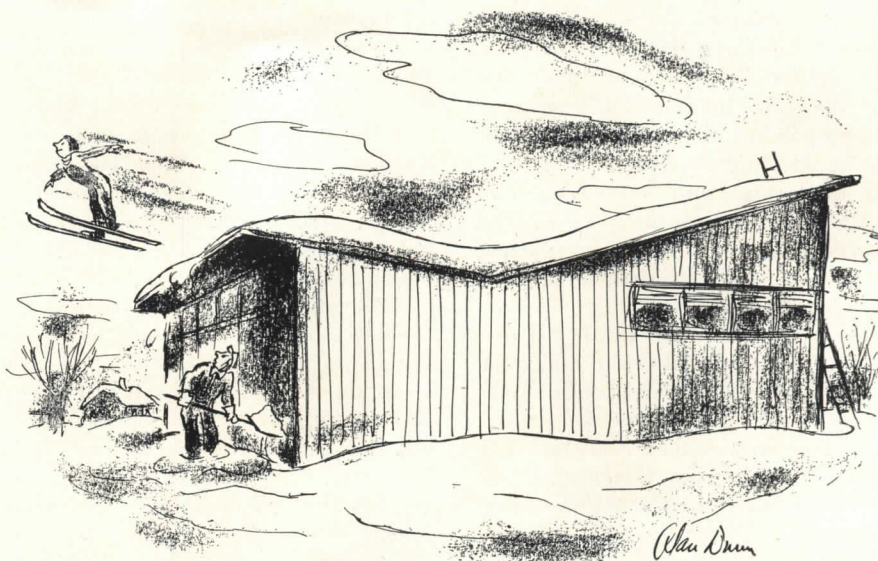
Here is how Wadsworth explained the federal viewpoint:

Never during the entire course of the last war, he said, did more than one seventh of the London population take refuge in mass shelters. Along toward the end of the war, the London shelters were only 40 per cent occupied, despite the last-minute use of rockets and buzz-bombs by the Nazi. Mass shelters are necessary and useful things in case of prolonged attack. Our cities must have them, and will have them — but they will be used primarily for rest purposes.

To quote him directly: "The record shows that, under civilian bombardment, people become exhausted under the burden of watchfulness and tension in their own homes. It is not surprising that, when the strain becomes too great, they should need and seek relief from that burden. Mass shelters then become places where a family can enjoy a night of uninterrupted sleep — but home is still the place where the average family prefers to be, as long as that home still stands."

So, this question was being posed: If huge shelters are constructed nationwide, will they be put to a dual purpose, serving their local communities usefully when not occupied as defense against an enemy?

(Continued on page 16)



— Drawn for the RECORD by Alan Dunn

WASHINGTON

(Continued from page 15)

Building Dispersal Urged

Meanwhile, the GSA concentrated more sharply on its plan for moving 40,000 government workers out of downtown Washington, D. C., into eight new structures it planned to erect on a circle generally 15 to 20 miles from the White House. This dispersal as protection against atomic attack was a controversial pro-and-con issue expected to draw fire in Congress. The GSA program was to ask Congressional authorization of the plan, then seek construction funds from the 82nd Congress this year.

Architects are watching closely as details of this plan unfold. The basic proposal called for the possible selection of eight building sites on this perimeter. No more than four structures would be erected initially, however, with room for expansion to eight later.

When construction funds were asked of Congress last year, and refused, the estimated cost was placed at \$139 million. Now, it is expected the project will entail an outlay of at least \$200 million for all the work involved in the first stage. Besides the buildings, an extensive network of highways and other communication facilities would have to be provided.

Public Buildings Commissioner W. E. Reynolds told ARCHITECTURAL RECORD that his office had no intention of proposing construction of bombproof structures. Considering dispersal to be the best defense, PBS has designed a structure not unlike the federal buildings now going up in Washington. These conform to the latest government trend toward the block-type, with exterior windows but no interior courts or wings. The Service has drawn plans for lower structures, not more than three or four stories in height.

Light- and air-conditioned, the dispersed buildings would have ramps for principal floor access and banks of elevators as well. Each of the four in the original plan would house 5000. Rooms large enough to house Congress, should it have to leave the Capitol, are being provided.

GSA Administrator Larson estimated it would take from 18 to 20 months after

(Continued on page 18)



Jewish Community Center in Toronto will be of reinforced concrete construction with brick curtain walls. Besides an auditorium with seating capacity of 600, there will be swimming pool, gymnasium, hand-ball and squash courts and lounges. Page & Steele of Toronto are architects; Kaplan and Sprachman are associate architects

NEWS FROM CANADA by John Caulfield Smith

Building Boom Continues; October Sets New Record

THERE'S NO BRAKE on the building boom in Canada — superlatives hardly serve to describe it any longer. Hardly a month passes without its setting a new record, pushing dollar volume for the year that much farther ahead of 1949.

October was no exception.

Construction contract awards for the month reached \$251.3 million, according to MacLean Building Reports. This is close to three times the amount for the same month a year ago. Added to the award sum for the first nine months of 1950, it represents a gain on the year of \$380.6 million.

Biggest single item was the Quebec North Shore & Labrador Railway at \$100 million. However, even without this thumping figure, engineering was up more than \$37 million. The other three categories also led.

Figures for October 1950 contracts awarded, by categories, in millions of dollars, follow:

Residential — 54.8, up 23 per cent from October 1949, off three per cent from September 1950.

Commercial and Institutional — 43.7, up 32 per cent from October 1949 and two per cent from September 1950.

Industrial — 9.4, up 79 per cent from October 1949, off 17 per cent from September 1950.

Engineering — 143.3, up 2210 per cent from October 1949 and 670 per cent from September 1950.

Total — 251.3, up 180 per cent from October 1949 and 95 per cent from September 1950.

Latest Housing Figures Show More Starts, Fewer Finished

LATEST FIGURES on housing from the Dominion Bureau of Statistics — for August — record a greater number of starts, fewer completions.

Building starts during August totaled 9306, including 283 in Newfoundland, which was not included in the August 1949 figure of 8542.

For the first eight months of this year, starts totaled 61,700 or, excluding Newfoundland, 60,603 against 57,827 in 1949.

Completions in August numbered 8717 or, excluding Newfoundland, 8464 against 9109 in August 1949, making an eight-month total of 51,538 compared with 55,435 last year.

Dwellings under construction in August numbered 67,616, or 65,919 excluding Newfoundland, compared with 58,677 a year earlier.

N.H.A. Loans Up 145 Per Cent For First 10 Months of 1950

CENTRAL MORTGAGE & Housing Corporation's refusal to recognize current costs in establishing lending values has had no adverse effect on its volume of mortgage business.

(Continued on page 216)

WHAT AIR INFILTRATION WILL WINDOWS DEVELOP?

Research and Testing
Provide the Answer on

Auto-Lok

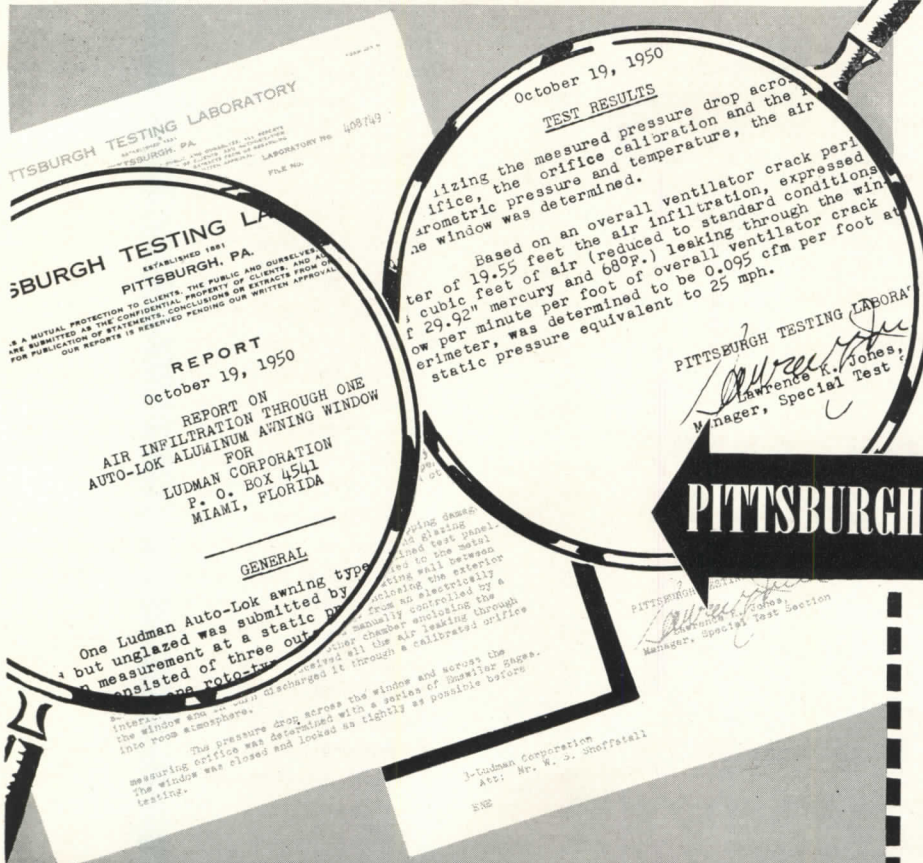
PATENTED

WEATHERSTRIPPED ALUMINUM
AWNING WINDOW

Here is the REPORT of

PITTSBURGH TESTING LABORATORY

The report states simply and convincingly that our **AUTO-LOK** Aluminum Awning Window showed air infiltration of only "0.095 cfm per ft. at a static pressure equivalent to 25 mph."



A CLOSURE TEN TIMES AS TIGHT!

A rate of air infiltration of only 0.095 cfm is *amazingly* low, and is reflected in *performance* tests in all sections of the country.

This is the equivalent of a closure at least *ten* times as tight as the generally established requirements for casement and projected windows.

AT LAST! You need not compromise when specifying a window. Auto-Lok's amazing tight closure assures maximum comfort...eliminates unhealthy drafts (when window is closed) ... reduces fuel bills, and air conditioning costs. Yet, when you want it... Auto-Lok gives 100% ventilation, even when it's raining. A child can operate Auto-Lok with ease.

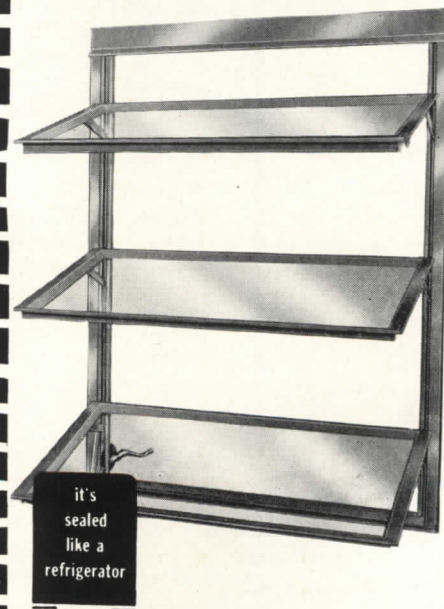
AUTO-LOK THE ALL-CLIMATE WINDOW -- winning architectural acceptance everywhere because it:

- reduces air infiltration to a minimum.
- provides positive protection against all climatic extremes.
- reduces maintenance costs.
- assures draft-free ventilation...even when it's raining.
- slashes fuel bills.
- can be cleaned entirely from the inside.
- makes air conditioning more economical.

Consult SWEET'S, or write for name of nearest distributor. For free folder, "What Is Important in a Window?" address Dept. -- AR-1

LUDMAN CORPORATION

P. O. Box 4541, Miami, Florida



Only patented AUTO-LOK (automatic locking) Hardware closes vents tight against the frame and compresses the elastomeric vinyl weatherstripping against the entire perimeter of each vent. This action actually "seals Auto-Lok like a refrigerator."

any appropriations are made available to choose the sites and complete the buildings.

The present thinking on architectural treatment is a switch from earlier plans to fortify the structures as a defense measure. Instead of being windowless, fortress-like buildings, with thick and heavily reinforced concrete walls, the construction will be conventional. Rein-

forced concrete is called for with architectural concrete or stone exterior.

One treatment relatively new in PBS architecture is the inclusion of double ceilings in specifications for large federal buildings. This is a feature of the dispersed buildings now planned. It involves placement of the regular concrete floor slab. Next, most of the conduits for utilities are installed under this

slab, giving workmen plenty of space for operation. Then, a conventional ceiling is suspended under the utility work. There is not so much extra expense involved in going a little higher, Commissioner Reynolds explained. It's sprawling out on high cost land that makes the big cost difference.

Credit Control Studies

What started out to be a series of individual studies of the effects of Regulation X and related federal government controls mushroomed into a combined effort involving the energies of government, industry, labor, veterans and consumer groups. A month or so after the curbs were announced in October, the National Association of Home Builders revealed it planned a comprehensive analysis of housing conditions throughout the country to prove its case against severity of the restrictions on real estate transactions. Shortly thereafter, the Veterans of Foreign Wars approved a wide-spread effort along the same lines — aimed at getting facts on volume of new housing starts in 1951 as the year progressed.

Purpose behind these moves by the home builders and the veterans was the accumulation of data to show the Federal Reserve Board and the Housing and Home Finance Agency that their regulations were unnecessarily strong, that the curbs endangered a safe housing volume. The private groups were convinced that the government moves would push the 1951 quantity of new non-farm housing started to a point far below the 800,000 to 850,000 units announced by federal officials as the target. The veterans, of course, were concerned about the dropping of the no-down-payment provisions used so widely before the restrictions were imposed.

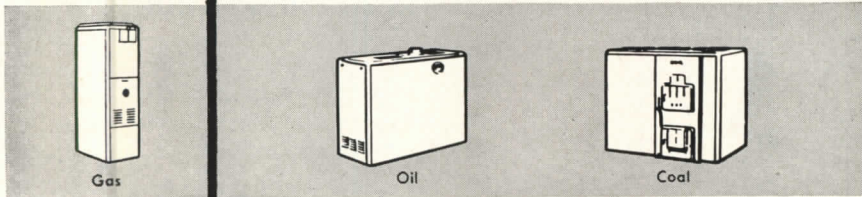
Just a month ago two new committees held their first meetings under guidance of the Housing and Home Finance Agency. Their aims and purposes are determination of the effects of real estate credit controls on housing.

With all this effort directed at the single goal, there should be fairly accurate information centered in Washington soon. Many observers are convinced no reliable estimates of the credit curb influence can be obtained till they appear with the beginning of the 1951 construction season.

One committee promoted by HHFA is composed of industry and labor representatives. It is called the Technical

(Continued on page 20)

**FOR YOURSELF,
YOU'D CHOOSE**



**WEIR-MEYER
FURNACES • AIR CONDITIONERS**

When you know the facts about WEIR-MEYER steel warm air heating equipment, you'll see why you'd choose it for your own home. At least, we've reason to believe that you would, for many architects and consulting engineers in our own home town have done just that.*

Of course, we don't know *nationally* how many architects and consulting engineers own WEIR-MEYER, but we do know that many continue to specify our equipment year after year. And we believe that the reason is this: *WEIR-MEYER performance pleases home owners.* After all, isn't that what you want?

* Names on request.

Whatever the fuel — gas, oil or coal — there is a WEIR-MEYER warm air steel unit to fit your plans. Outputs range from 35,000 Btu/hr through capacities of 1,000,000 Btu/hr and greater for schools, churches, factories and other large installations.



WEIR-MEYER MEANS Modern HEAT

THE MEYER FURNACE CO. Peoria 2, Illinois
Manufacturers of Weir & Meyer Furnaces • Air Conditioners
for Gas — Oil — Coal • Factories: Peoria and Peru, Illinois

The Meyer Furnace Co.
Professional Service Division
Peoria 2, Illinois

Please send AIA File Catalog on the complete WEIR-MEYER line.

Name _____

Street _____

City _____ State _____

FILL OUT OR CLIP COUPON TO YOUR LETTERHEAD

Keep WEIR-MEYER data on hand for reference. Send for complete AIA File Catalog on WEIR-MEYER Equipment.

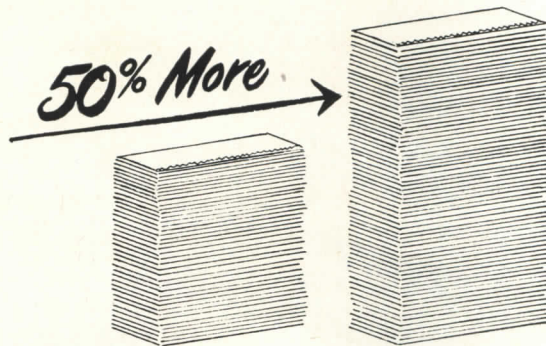
SPECIFY
NIBROC[®]
CABINETS

**-World's Largest Selling
Towel for Industrial
and Institutional Use**



NIBROC gives

your clients wider choice of towels because Nibroc offers widest range—singlefold and multifold, white or buff—to meet every washroom requirement.



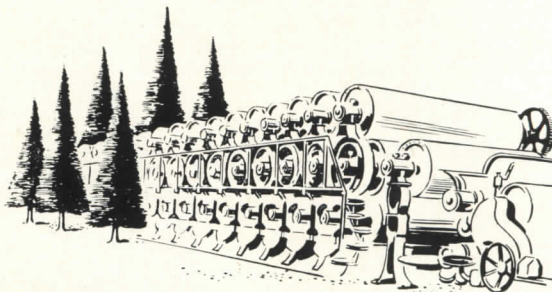
NIBROC Cabinets

hold up to 50% more towels than ordinary dispensers. No gadgets to fuss with. Reduce washroom congestion.



NIBROC means

a fast towel delivery service to your clients. Nationwide distribution and high mill production assure a steady stream of these towels *where* and *when* wanted in any desired quantity.



NIBROC means

a dependable supply of these quality towels year in and year out—made by one company from timber-cutting to finishing. One Brown Company machine, called "Mister Nibroc," can produce nearly 30 million towels daily.

BE SURE YOU SPECIFY NIBROC CABINETS FOR WASHROOMS. They fit into modern washroom planning. They dispense fresh, soft, absorbent, lint-free, economical and hygienic Nibroc towels for everyone.

Send Coupon Today for Facts on Nibroc Cabinets and Nibroc Dependable Towel Supply Service!

NIBROC TOWELS
GET YOU BONE DRY



NIBROC TOWELS

A PRODUCT OF



BROWN

Company

Berlin, NEW HAMPSHIRE

GENERAL SALES OFFICES: 500 FIFTH AVENUE, NEW YORK 18, N. Y.

Branch Sales Offices: Portland, Me., Boston, Chicago, St. Louis, San Francisco, Montreal
SOLKA & CELLATE PULPS • SOLKA-FLOC • NIBROC PAPERS • NIBROC TOWELS • NIBROC
KOWTOWLS • BERMICO SEWER PIPE, CONDUIT & CORES • ONCO INSOLES • CHEMICALS

BROWN COMPANY, Dept. AR-1
500 Fifth Avenue, New York 18, N. Y.

Please send me data on Nibroc Cabinets and information about Nibroc Dependable Supply Service.

Name _____

Address _____

City _____ Zone _____ State _____

THE RECORD REPORTS

WASHINGTON (Cont. from p. 18)

Advisory Committee on Credit and Production Statistics. This group is concerning itself with effect of the curbs on production and financing of home construction. The Federal Reserve System is joining with the housing agency in forming this committee.

The second group is composed of representatives of veterans organizations, labor and consumer people. It is known

as the Technical Advisory Committee on Housing Consumer Statistics. It will study the impact of real estate credit and other defense controls on the ability of consumers to obtain housing.

In announcing these two bodies, Housing Administrator Raymond M. Foley said: "Both the government on the one hand, and the industry, labor and consumer groups on the other, have

a vital interest in securing all the essential facts that reflect the impact of credit controls on the construction and financing of homes."

Mr. Foley said the Federal Reserve System and his agency have recognized from the start the need for maintaining a close watch over the real estate market and its responses to the credit controls. Repeating his oft-spoken promise that changes will be made if justified, Mr. Foley commented, "It is a stated policy that adjustments in such restrictions will be made when warranted in the light of market facts and considerations of national security."

Committee Purposes Outlined

The functions of the two committees are similar. Broadly, here are their objectives in their respective fields:

1. To identify types of information needed to supplement available facts on the effect of credit controls.
2. To develop ways and means of securing this additional information.
3. To review the statistics gathered with particular attention to their dependability.

It was explained carefully that both committees will be advisory in nature. They will aid in getting adequate and dependable information and with technical problems of interpreting the information. They will not engage in establishment of policy or program.

Labor Worries Builders

The many-faceted problem of adequate building labor supply was bringing new worries to the industry. There was the draft with its increasingly heavy toll. Piracy of labor was being mentioned in some quarters as growing in seriousness. The current transfer of emphasis to production for war prompted establishment of the new Office of Defense Manpower within the Department of Labor. Labor Secretary Maurice J. Tobin named Robert C. Goodwin, director of the Bureau of Employment Security, to serve as ODM executive director. Three advisory groups were named to work with Mr. Goodwin.

Against this background the U. S. Chamber of Commerce issued a statement by its construction and civic development department subcommittee on apprenticeship and training calling for a new look at apprenticeship programs. It was evident the committee

(Continued on page 22)

Convert AC to DC

RICHARDSON-ALLEN SELENIUM RECTIFIERS

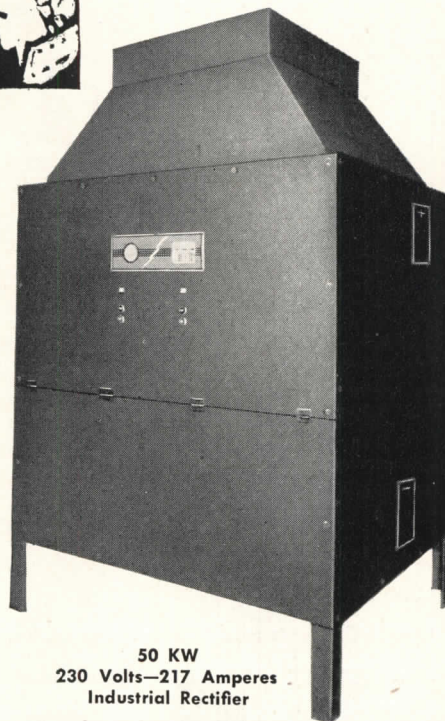


Attention: Consulting Engineers!

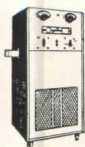
D.C. voltage is required for running passenger and freight elevators, printing presses, dumb-waiters, controls, solenoids, stand-by power sources, etc., in industrial plants, stores, offices, schools and most all public buildings.

Richardson-Allen Selenium Rectifiers offer the most efficient, economical method of converting standard A.C. input circuits to D.C. output.

The engineering facilities of Richardson-Allen Corp. are at your disposal for designing any type rectifier to meet your electrical requirements. Full information on request.



50 KW
230 Volts—217 Amperes
Industrial Rectifier

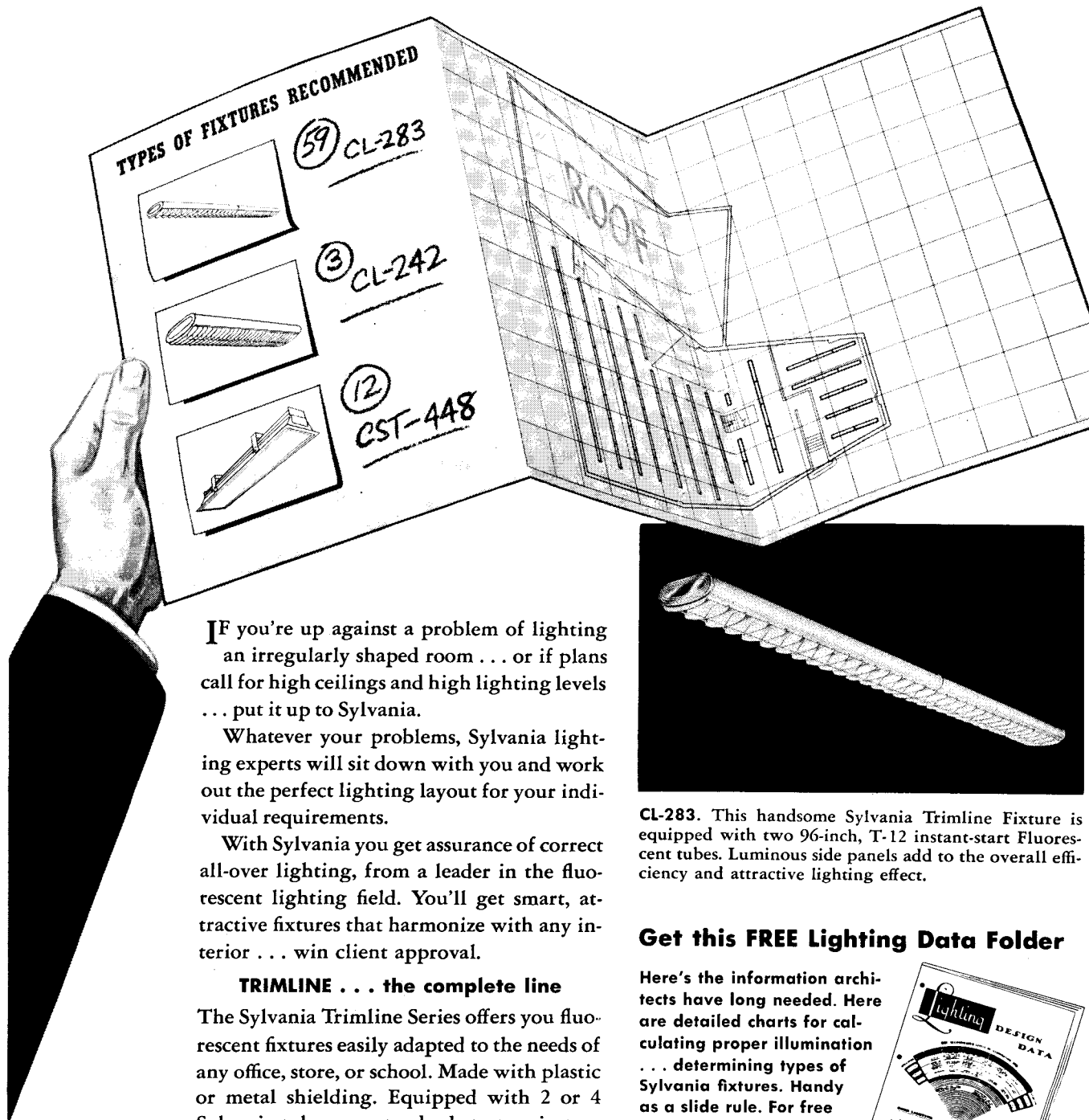


RICHARDSON-ALLEN
CORPORATION
RECTIFIER SPECIALISTS



116-15 Fifteenth Ave.,
College Point, Long Island, N. Y.

See how SYLVANIA solves your lighting layout problems



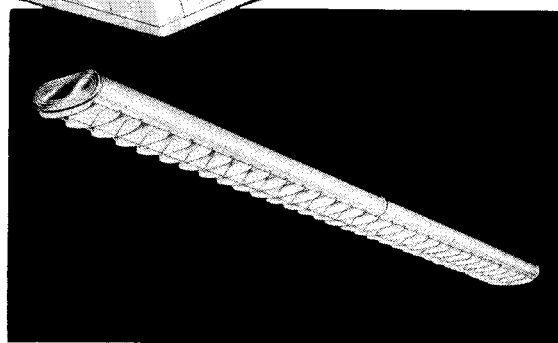
IF you're up against a problem of lighting an irregularly shaped room . . . or if plans call for high ceilings and high lighting levels . . . put it up to Sylvania.

Whatever your problems, Sylvania lighting experts will sit down with you and work out the perfect lighting layout for your individual requirements.

With Sylvania you get assurance of correct all-over lighting, from a leader in the fluorescent lighting field. You'll get smart, attractive fixtures that harmonize with any interior . . . win client approval.

TRIMLINE . . . the complete line

The Sylvania Trimline Series offers you fluorescent fixtures easily adapted to the needs of any office, store, or school. Made with plastic or metal shielding. Equipped with 2 or 4 Sylvania tubes . . . standard start or instant start . . . in 4-foot or 8-foot lengths.



CL-283. This handsome Sylvania Trimline Fixture is equipped with two 96-inch, T-12 instant-start Fluorescent tubes. Luminous side panels add to the overall efficiency and attractive lighting effect.

Get this FREE Lighting Data Folder

Here's the information architects have long needed. Here are detailed charts for calculating proper illumination . . . determining types of Sylvania fixtures. Handy as a slide rule. For free copy mail the coupon now.



FLUORESCENT TUBES;
FIXTURES, SIGN TUBING;
WIRING DEVICES; LIGHT
BULBS; RADIO TUBES;
TELEVISION PICTURE
TUBES; ELECTRONIC
PRODUCTS; ELECTRONIC
TEST EQUIPMENT; PHOTO
LAMPS; TELEVISION
SETS

SYLVANIA ELECTRIC

Sylvania Electric Products Inc.
Dept. L-5001, 1740 Broadway, New York 19, N. Y.
Please send me FREE copy of your new Lighting
Design Data Folder.

Name _____

Company _____

Street _____

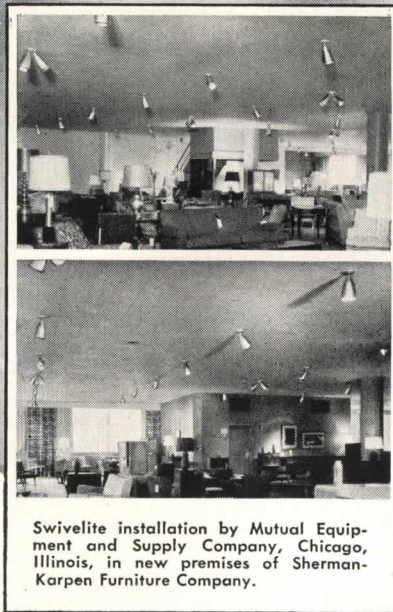
City _____ Zone _____ State _____

The facts prove it!

YOUR BEST BUY . . .

AMPLEX SWIVELITES

YOU GET EVERYTHING with Amplex Swivelites. Smartest design! Aluminum with a permanent finish! A unique double-ball swivel with fingertip control! Hoods with coolest, air-flow ventilation! And every Amplex Swivelite consists of a few basic units which can be interchanged with every other! Changing your lighting effects is quicker, easier, far less expensive. It will pay you to get the full Amplex Swivelite story, now!



Swivelite installation by Mutual Equipment and Supply Company, Chicago, Illinois, in new premises of Sherman-Karpen Furniture Company.

WRITE TODAY . . .

Amplex Corporation,
Dept. D-1, 111 Water St.,
Brooklyn 1, New York

AMPLEX

Sealed-Beam Reflector Lamps, Colorbeam Lamps, Spotlites and Floodlites, Industrial Infra-Red Heat Lamps, Vibration and Rough Service Lamps, Street Lighting Lamps, Traffic Signal Lamps, Incandescent Lamps, Fluorescent Tubes, Display Accessories.

THE RECORD REPORTS

WASHINGTON

(Continued from page 20)

was concerned with a slowing down in training programs recently and the failure to institute new programs fast enough. Impending manpower demands, both military and civilian, make imperative the assurance of a continuing, adequate supply of skilled men for the construction industry, it said.

This message was carried in a pamphlet — "Related Instruction, A Key to Apprentice Training in Construction."

Sound apprenticeship programs, it said, should provide for adequate and thorough training of young men in the crafts of their choice. It discusses responsibilities of interested groups in education, industry, labor and government. A chart shows the scope of the effort of each group. The role of vocational education in the related technical and supplemental instruction of apprentices is stressed.

Manpower Gets Attention

Meanwhile, the Labor Department ODM began to function, looking toward a fair distribution of available manpower supplies. Its policies include these:

— Employers are asked to place all orders for employees with local offices of the State Employment Service. Plant-wide inventories of manpower are urged.

— Public employment offices are being revised to enable them better to meet the demands from defense mobilization.

— Studies, analyses and reports are being made by government agencies on problems connected with defense.

— Local employment offices are recruiting workers. They are trying to bring about a better use of skills. Every effort is exhausted to use local labor fully before outside labor is called in.

— Technical assistance is given employers.

— Pirating and hoarding of workers is discouraged.

— Of course top priority goes to factories working on defense and to agriculture.

— When movement of men from present employment to critical jobs is necessary, transfers will be arranged through negotiations with unions and management.

H. E. Foreman, managing director of the Associated General Contractors of America, Inc., summed up the availability of workers as follows: "There have been times when it was almost possible to prove statistically that there were not enough workmen to execute all the work which was in sight. But the fact is that the construction industry always has found some way to man the job and complete the work."

Public Works Planning Slows

The Communities Facilities Service remains in business though its energies have been directed almost wholly to financing plans and specifications for those public works which contribute to current defense needs and satisfy essential civilian requirements.

Relatively few new projects were granted planning funds during the fourth quarter of last year. At the end of August the advance planning loans were suspended while the program was re-examined. Entirely new criteria for examining applications from states and local bodies were established. The second advance planning program, however, should get its second wind and show more activity in the first quarter of the new year.

Here is what has been accomplished:

More than 1000 non-federal public works projects now have been approved to receive assistance in their planning. These projects, if and when they are built, will cost \$640 million in 1950 prices. Loans totaling \$18.5 million have been advanced by CFS. There can be added to this second program volume the 6669 applications approved in the first advance planning program. Under the initial phase, the construction agency advanced \$50,108,000 in loans for the engineering studies, plans and blueprints necessary to eventual building of these community facilities.

Between 800 and 900 other applications from cities, towns, counties, state school and sanitary districts are being reviewed in central and field offices of the CFS.

The agency now is operating under Housing and Home Finance Agency. It was transferred from General Services Administration last May when Congress approved Reorganization Plan No. 17.

The second program was created in October 1949 when \$100 million was authorized for operation over a two-year period. The first program operated from

(Continued on page 24)

FREE Facts on PARKAY



**New Bulletin
Describes Quality and
Economy Features of
This Modern, Ready-Finished,
Hardwood Flooring**

Here's a new, illustrated bulletin giving complete design and installation data on Parkay. Tells you how this 3/16"-thick ready-finished flooring saves time and money on both new construction and remodeling work.

Whether your major interest is homes, apartments, offices or public buildings, this bulletin will show you where and why beautiful, yet practical, Parkay has a place in your flooring plans. Fill out and mail coupon below now! The new Parkay bulletin will be on its way to you by return mail.

WOOD-MOSAIC CO., INC., Dept. AR, Louisville 9, Ky.

Please send me new bulletin describing Parkay ready-finished hardwood for floors and walls.

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

PARKAY
READY-FINISHED HARDWOOD FOR FLOORS AND WALLS



May 1945, through June 1947.

Original purpose of the federal fund program was to establish a sizeable reserve of state and local public works completely planned and shelved, but ready to move into the construction phase if economic conditions should warrant. The money for planning is loaned out without charge for interest to qualifying state and local communities.

Repayment to the U. S. Treasury begins with start of construction.

Sewer and sewage projects have led the lists in both programs for number of applications received and approved. Early in December 1950, 402 such projects had been approved to receive planning funds amounting to \$6,860,419. Their construction would cost \$256,982,154. Other categories of non-federal

public works falling under the CFS programs include highways, bridges, airports, water facilities, schools, hospitals, parks and recreational facilities, and miscellaneous public installations.

Housing Trends Attacked

What kind of houses best serve the needs of families?

Lee F. Johnson, executive vice-president of the National Housing Conference, posed this question before the Midcentury White House Conference on Children and Youth in Washington last month. He left it for architects and builders to answer but did make some pointed remarks on environmental housing construction of the modern type.

There are certain basic standards of space, density, livability and community services below which we dare not venture, he said. Pressures are mounting to reduce standards in order to achieve lower costs. Smaller and fewer rooms are being urged. Some recommend dropping community facilities, not because they are not essential to community living, but because they are costly.

Mr. Johnson deplored all this with the hint that modern housing trends might be perpetuating blight by building tomorrow's slums. He also deplored the slow progress of the federal public housing program. But he had no ready answer to the higher cost problem. The fact that hopes for lower construction costs went out the window with the coming of the Korean conflict was nobody's fault, he acknowledged.

Mr. Johnson's concern centered on the trend toward smaller housing units and the creeping pace of the public housing program. He said:

"There is a tendency to reach into the sky with elevator apartments, plunked in the center of dense slum areas, in order to reduce per unit land costs and jam more families into a given area. In today's era of runaway costs I can understand why such proposals are put forward, but I predict that if we yield to temptation and accept such methods of cost reduction, the housing program for families of low and middle income will be destroyed."

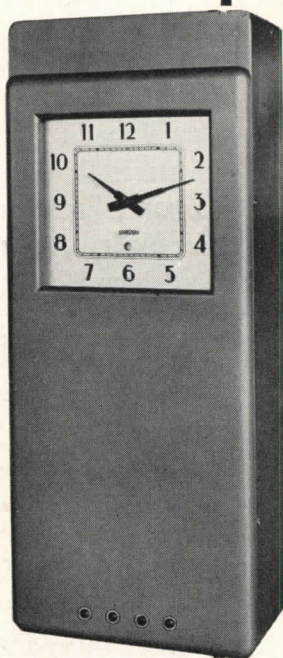
Good housing alone is no cure to the social ills emanating from slums, but it is a basic first step, Mr. Johnson contended. It cleans the wound in order that other processes of healing may be effective.

(Continued on page 192)

• NINE EXCELLENT REASONS WHY ARCHITECTS

**SPECIFY "STANDARD"
CLOCK SYSTEMS
FOR SCHOOLS**

1. Only one (heavy duty industrial type) motor used in the entire system.
2. Program mechanism continues during power failures; signals sound on correct time immediately on resumption of power.
3. Time dial and program are geared together — always synchronized.
4. No batteries of any kind — reserve power always available.
5. Simplest setting of program schedules; punch printed ribbon and place it on drum.
6. Special schedules may be set up on spare ribbons and interchanged in a moment. Extra ribbons furnished without charge.
7. Bell board allows placing any signal on any program schedule by changing position of plug on board; also permits manual ringing of any signal when required.
8. Automatic reset feature for secondary clocks allows individual setting — not only groups — keeping all clocks together.
9. Entire system is simple in design; fewer parts to require attention.



Master-Program
Controller, Type SYN-5.
Approx. Dimensions,
15" x 38" x 9".

See our complete open
specifications
in Sweet's
Architectural File.

S-1

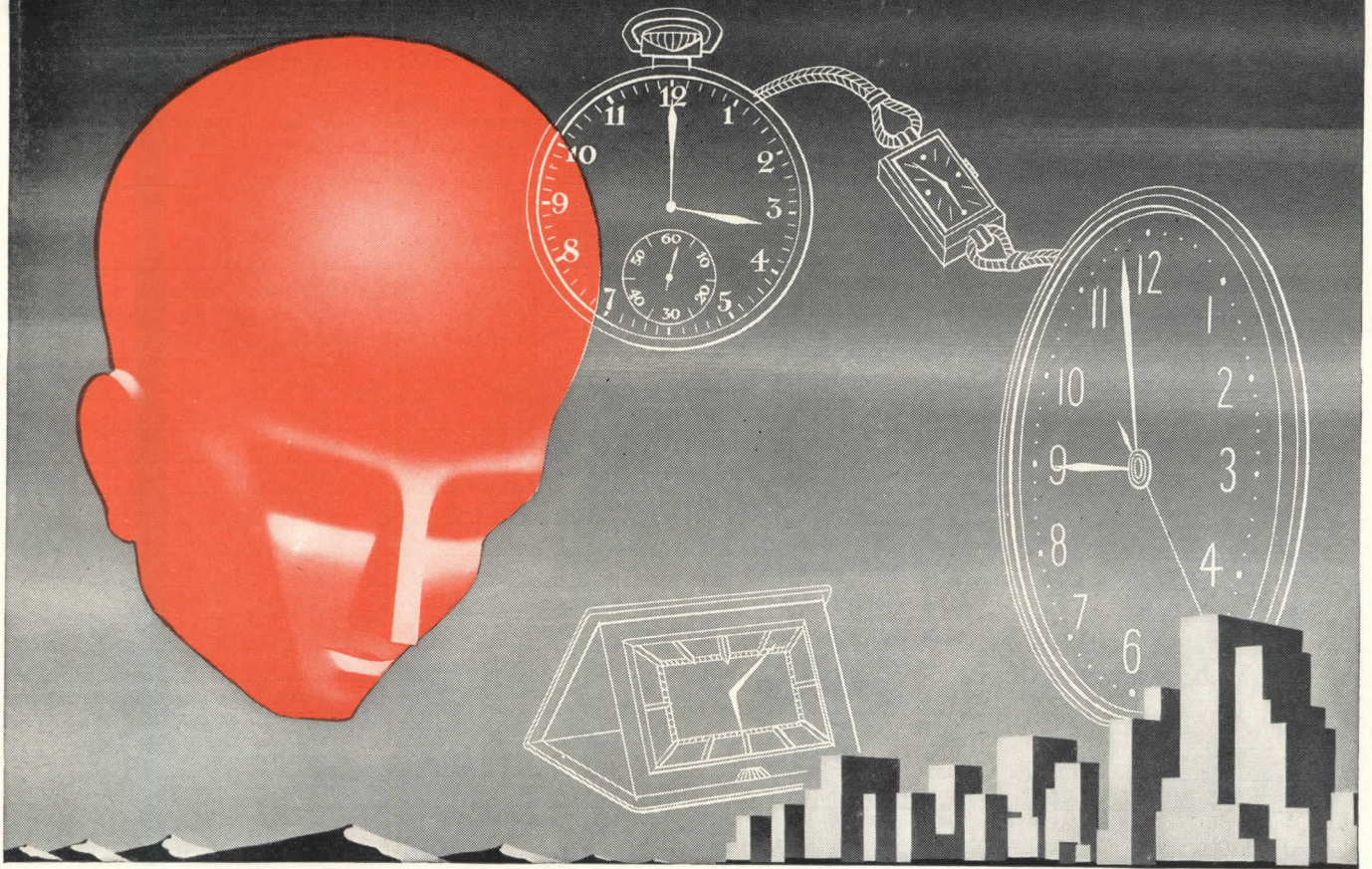
Other "Standard" Products for Schools: Fire Alarm Systems • Laboratory Panels (for Physics, Chemistry, Electrical Shops and Laboratories, Pharmacology, Psychology, etc.)



THE STANDARD ELECTRIC TIME CO.

81 LOGAN STREET • SPRINGFIELD, MASSACHUSETTS

THERE'S A NEW ERA IN ELEVATOR SERVICE



How the world's smartest elevator system adds important minutes to your day

How many times have you wished somebody would develop an elevator system that would never keep you waiting . . . speed you between floors . . . and empty or fill a building in the shortest possible time?

To do just that . . . to help you save those seconds that count so much, Westinghouse developed Selectomatic—the elevator system with an “electrical brain.”

This “electrical brain” *instantly and automatically* matches calls to cars to floors. Result—there's always a car on its way to answer your calls quickly. Your travel time between floors is dramatically shortened by the new Westing-

house automatic landing control, Synchro-Glide. And—this, the world's smartest elevator system, also increases the number of people handled in rush periods by as much as 30%.

All over the country new buildings and buildings being modernized are installing Selectomatic Elevators. If you're building or modernizing and are concerned with elevators—*test ride Selectomatic before you decide.*

For information on Selectomatic installations in your locality, call or write Westinghouse Electric Corp., Elevator Division, Dept. D-1, Jersey City, New Jersey.

Selectomatic Elevators

J-98593

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

CONSTRUCTION COST INDEXES

Labor and Materials

United States average 1926-1929 = 100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

ATLANTA

Period	Residential		Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.		Brick and Steel	Residential		Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.		Brick and Steel
	Brick	Frame		Brick	Steel		Brick	Frame		Brick	Steel	
1925	121.5	122.8	111.4	113.3	110.3		86.4	85.0	88.6	92.5	83.4	
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	
1940	126.3	125.1	132.2	135.1	131.4		91.0	89.0	96.9	98.5	97.5	
1945	160.5	161.7	156.3	158.0	155.4		132.1	133.9	123.2	122.8	123.3	
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	246.4	240.0		189.3	189.9	180.6	180.8	177.5	
Aug. 1950	264.5	265.0	252.1	253.3	251.1		201.5	204.1	188.9	187.2	190.0	
Sept. 1950	266.0	265.5	254.9	256.9	252.7		199.1	200.9	189.4	187.6	190.7	
Oct. 1950	264.7	263.7	255.1	257.1	252.7		199.2	201.4	191.2	188.4	191.6	
	% increase over 1939						% increase over 1939					
Oct. 1950	114.3	115.4	95.2	92.7	94.2		130.8	142.4	101.1	93.4	102.3	

ST. LOUIS

SAN FRANCISCO

Period	Residential		Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.		Brick and Steel	Residential		Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.		Brick and Steel
	Brick	Frame		Brick	Steel		Brick	Frame		Brick	Steel	
1925	118.6	118.4	116.3	118.1	114.4		91.0	86.5	99.5	102.1	98.0	
1930	108.9	108.3	112.4	115.3	111.3		90.8	86.8	100.4	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	
1940	112.6	110.1	119.3	120.3	119.4		106.4	101.2	116.3	120.1	115.5	
1945	152.8	152.3	146.2	148.5	145.6		146.2	144.3	144.5	146.8	147.9	
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	
Aug. 1950	240.0	238.6	224.9	228.6	225.0		236.7	234.8	225.4	226.1	225.1	
Sept. 1950	240.2	238.8	225.5	229.0	226.4		236.2	234.1	225.6	226.2	225.6	
Oct. 1950	238.7	236.7	225.9	229.4	226.5		235.2	232.7	225.8	226.4	225.6	
	% increase over 1939						% increase over 1939					
Oct. 1950	116.6	121.2	90.3	91.5	90.3		122.7	134.3	92.3	85.7	93.6	

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926-29 for that particular type — considered 100.

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.

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

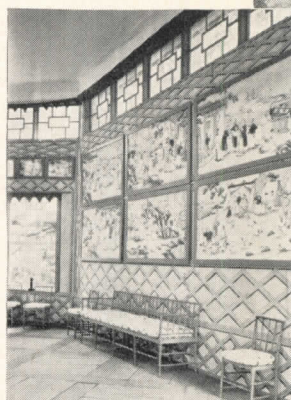
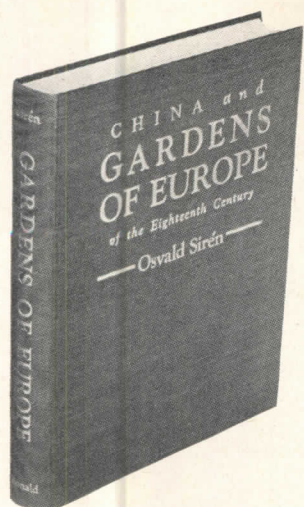
Conversely: costs in B are approximately 14 per cent lower than in A.

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

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.

These index numbers will appear regularly on this page.



Sharawaggi, the careless grace that came from Chinese esthetics is reflected in European gardens, their little lakes, summer houses and simple arches

THE ORIGINAL SHARAWAGS

China and Gardens of Europe. By Oswald Sirén. The Ronald Press Co. (15 East 26th St., New York 10, N. Y.), 1950 9¾ by 12½ in. xiv + 452 pp., illus. \$30.00.

REVIEWED BY CHRISTOPHER TUNNARD

Although eighteenth-century architects like Sir William Chambers knew it well, *sharawaggi* is a word not to be found in most modern dictionaries. The writer of this review reintroduced it to the architectural reading public a dozen years ago; since then the term has been much discussed in the schools and magazines of the British profession. The idea, which in essence implies an esthetic of careless or disorderly grace, has never found much favor in the United States — perhaps this is just as well; we have enough disorder already and need a stronger discipline than one of studied irregularity to redeem our architectural and civic future.

But architects ought to know about all design influences; and now we have a book which puts to shame all previous efforts to describe the immediate effects of this occult philosophy. Professor Sirén is a well-known scholar, an expert on Far Eastern art, and an excellent man with the camera. He has captured for us in this handsome volume the spirit of Sharawaggi as it was first interpreted by Westerners in the latter half of the eighteenth century. For this movement, combining as it did a new attitude to nature and the beginnings of respect for oriental art, had a profound effect on Western culture. Imagine the possibility of discovering today an unexplored corner of the world in which

an isolated race of people had developed an art completely different in forms, material and content from any that we know now, and you can guess at the excitement which greeted returning Jesuit missionaries and other 17th century travelers in China, with their descriptions of an art based on irregular rather than straight lines, on subtle atmospheric touches rather than rigid formal control.

The influence was first felt in gardens. "As to Sharawaggi's of China, I have little or no ideas of 'em," wrote the poet Pope to a friend in 1724, yet he had absorbed something of the new theory, as his small irregular garden at Twickenham (now destroyed) bore witness. Soon it spread to buildings; Horace Walpole, that knowing amateur architect, declared in 1750: "I am almost as fond of the Sharawaggi, or Chinese want of symmetry, in buildings as in grounds or gardens." Before long everyone had taken up the vogue, the classical French characteristically limiting it to unimportant buildings and lesser parts of the grounds (the garden of the Petit Trianon is the most famous French example), while the English swallowed the bait hook, line and sinker, proceeding to remake their formal parks in the new irregular landscape style. "Everyone knows that English gardens are but copies of the Chinese," remarked a French writer in 1770, but perhaps the most avid Sharawags were the little princes of Germany, a country which unfortunately Professor Sirén was unable to visit in preparing his book. It is to be hoped that he will add material

on the Hanoverian states and Austria before all evidence disappears. Many of the places illustrated are already in ruins or have made way for subdivisions.

The book includes hundreds of photographs, prints and colored drawings of gardens and buildings in England, France and Sweden, the author's homeland. But garden art of the eighteenth century "transmitted only fugitive reflexes or faint echoes from the broad undercurrent of thought which had been released by the contact with Far Eastern culture." The movement spread to literature and painting . . . the new attitude to nature was one of romantic pantheism and the concept of Sharawaggi became fused with the cult of the Picturesque. A whole century was thus influenced by this strange revolution . . . we find Frederick Law Olmstead in the 1860's laying out Central Park on Oriental principles and even including Chinese buildings in the design. And who will deny that our moderns have felt the influence, with their emphasis on occult balance of architectural elements and their sometimes overly-romantic attitudes toward nature . . . bringing her in, over and under the house, or planning cities in which the buildings are all camouflaged by trees and have become part of the landscape? Sharawags, these, in modern dress.

Professor Sirén's book should be read by everyone interested in that phenomenon we call architectural taste. Superficially, nothing could be more different than the objects in these photographs from the taste of our own day,

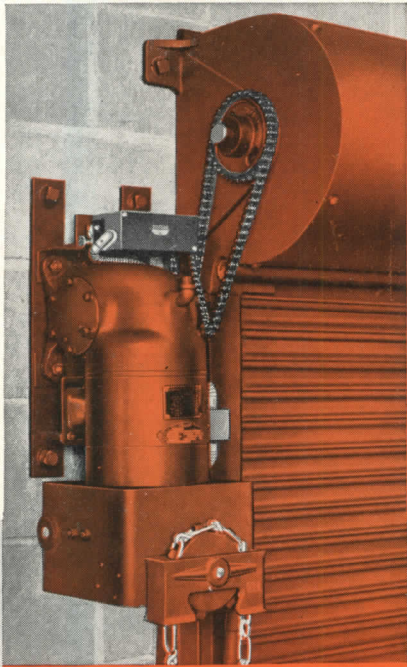
(Continued on page 30)

Rolling Steel

DOORS

Manually, Mechanically, or Power Operated

When selecting doors for industrial or commercial buildings, particularly for shipping openings, your first considerations should be economy of space, permanence and reliability . . . opening and closing speed is also important, not only because it affects heating costs, but from a standpoint of time-saving door efficiency in daily operation. The quick opening, quick closing rolling steel door provides all of these desirable features . . . open or closed it occupies no usable space inside or outside the opening . . . its all-metal construction provides permanence and maximum protection, and its simple vertical action assures a lifetime of continuous trouble-free service. If you buy Mahon Rolling Steel Doors, you can rest assured that you will get the finest materials, finest workmanship, and the latest developments in doors of this type. Comparison will convince you. See Sweet's Files for complete information including specifications, or write for Catalog G-50.



**MAHON STANDARD
POWER OPERATOR 920-P**

T H E R . C . M A H O N C O M P A N Y

Detroit 34, Michigan • Western Sales Division, Chicago 4, Illinois

Representatives in all Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters Labeled Rolling Steel Doors and Fire Shutters; Insulated Metal Walls, Steel Deck for Roofs, Partitions, Acoustical Ceilings, and Permanent Concrete Floor Forms.

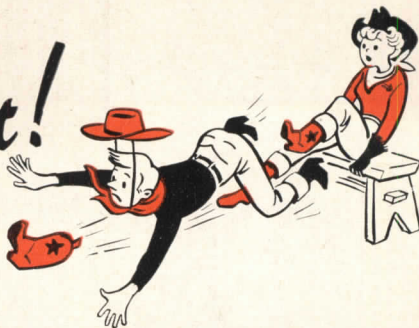


ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Typical Installation of Two Power Operated Mahon Rolling Steel Doors in two double-truck openings to an enclosed shipping dock. These doors are 22 Ft. x 14 Ft. and are operated by remote push-button controls.

MAHON

*a Force Fit
is a Good Fit!*



All

Sealuxe Browne
"Folding-Flue" Windows

have a FORCE-FIT closure

BY LABORATORY TEST... Air infiltration less than 1/2 cu. ft./min./ft. of sash perimeter under static air pressure of 25 mph wind. (Test window 4 ft. x 6 ft.)

**DIRT PROOF!
DUST PROOF!
NOISE PROOF!
DRAFT PROOF!**



... because SEALUXE-BROWNE "Folding-Flue" Windows close to a force fit against resilient, pure wool felt weather cushions that last the life of the window.

100% controllable, draft-free ventilation... when opened slightly, fresh air comes in at the bottom and foul air goes out at the top. No drafts. No wind-blown rain.

eliminate "Flying" window washer... both sides can be safely cleaned from the inside.

long, trouble-free life... fold at finger-tip pressure yet stay put. Resist tarnish, rust and corrosion.

more light—greater beauty... streamlined to admit more light; set off any architectural treatment.

design freedom... choice of standard or custom in aluminum, stainless steel or bronze. With or without muntins; reversible mullions for any width partition; inside screens; mechanical or manually operated; with or without stool, sills. Models include: Monumental, Residential, Underwriter-labeled and escape-proof Psychiatric "windows without bars."

See our catalog in Sweet's Architectural file.

SEALUXE-Engineered Products are

Miracles in Metals!

MEMBER



Please send me more information about SEALUXE—Engineered Products.

NAME

ADDRESS

FIRM

OTHER SEALUXE PRODUCTS

WINDOWS—Picture, Store Front, Commercial and Monumental Casement, Thermo (insulated) • SOLAR CONTROLS—Fins, Canopies, Shades, Louvres • BUILDING ACCESSORIES—Pilasters, Spandrels, Fascias, Trim • ENTRANCE ACCESSORIES—Building Directories, etc. • DOOR ACCESSORIES • CROWD CONTROL EQUIPMENT. For more information you are invited to clip and mail the coupon at right.

J. P. TRAVIS
President

Universal CORPORATION
6710 DENTON DRIVE
DALLAS 9, TEXAS
DISTRICT SALES OFFICES, AGENTS AND DISTRIBUTORS IN ALL ARCHITECTURAL CENTERS...

REQUIRED READING

(Continued from page 28)

yet they are the forefathers of the designs of our pioneers like William Morris and Frank Lloyd Wright. We can learn much from the author's exploration of this neglected field and have nothing but admiration for a superbly produced volume, well worth its somewhat out-of-the-ordinary cost.

INSULATION DATA

Heat Insulation. By Gordon B. Wilkes. John Wiley & Sons, Inc. (440 Fourth Ave., New York 16, N. Y.), 1950. 5 1/2 by 8 1/2 in. 224 pp., illus. \$4.00.

Professor Wilkes has spent over 35 years in experimental work on thermal insulation, starting work on reflective types as early as 1929. He fulfills a great need of architects and engineers by assembling in this book data that hitherto has been scattered in varied, unrelated sources.

Besides a host of technical data and fundamental formulas for calculating rates of heat flow through materials and their combinations, the book gives a great deal of practical information.

One chapter lists the various insulating materials available and classifies them according to usage such as refrigeration, house insulation and for various temperature ranges.

A very important one sets down the basic principles of reflective insulation to help the reader understand what are the most effective means for applying this type; drawings illustrate suggested methods of installation. The writing here takes a great deal of the mystery out of this subject for the ordinary reader.

Wilkes also brings out in a later chapter the reason for condensation in walls and lists precautions to prevent it.

Of importance, too, is the explanation of how to figure insulation economies.

NEW EDITIONS

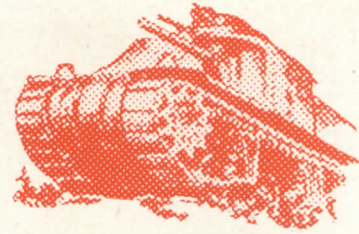
Underpinning. By Lazarus White & Edmund Astley Prentis. Columbia University Press (2960 Broadway, New York 27, N. Y.), 2nd ed., 1950. 6 by 9 1/4 in. xxiv + 374 pp., illus. \$10.00.

Book describes underpinning and foundation work in detail. Underpinning methods and applications for foundation construction have been brought up to date with the inclusion of a chapter on moving heavy structures and other new material.

(Continued on page 32)

CLAY IS NOT A CRITICAL RAW MATERIAL!

Conserve vital materials



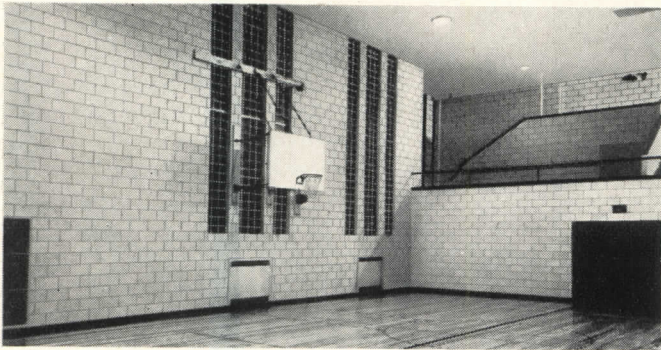
by building essential structures

with **BRICK** and **TILE!**

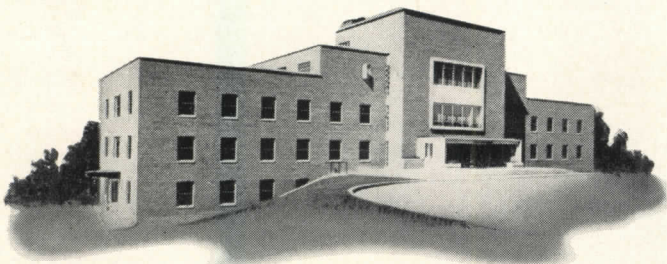


INDUSTRIAL PLANTS

Albert Kahn, Inc. Hedrich-Blessing



SCHOOLS



HOSPITALS

14 regional offices to help you

- Structural Clay Products Institute
- New Haven 10, Conn. 341 State Street
- New York 17, N. Y. 1949 Grand Central Terminal
- Canton, Ohio 306 Market Avenue, North
- Pittsburgh 22, Pa. 502 Benedum Trees Building
- Chicago 1, Illinois 228 North LaSalle Street
- Ames, Iowa 120½ Welch Avenue
- Council Bluffs, Iowa 257 Elmwood Drive
- Minneapolis 4, Minnesota 206 Wesley Temple Building
- Denver 2, Colorado 208 Kittredge Building
- Phoenix, Arizona 1538 West McDowell Road
- San Francisco 5, California 55 New Montgomery Street
- Seattle 4, Washington Central Building
- Clay Products Association of the Southwest
- Austin, Texas Littlefield Building
- Oklahoma City, Oklahoma First National Building

This nation has taken on a big job—arming the free world while filling our tremendous civilian needs.

The job requires more production than ever before. Controls and materials shortages, already upon us, undoubtedly will increase. Some types of buildings will be *more essential* than others.

In such an economy your reliance on structural clay products—brick and tile—is even more justified. Clay is not a critical raw material, there is plenty available.

By designing and building with structural clay products you free vital raw materials for essential military use in guns, tanks and planes—and for approved civilian use.

By selecting brick and tile for industrial buildings, military and naval facilities, warehouses, power plants, schools, hospitals and other essential buildings, you help increase our nation's productive capacity and you avoid construction delays due to raw materials shortages.

You also erect buildings that will remain attractive, require little repair or maintenance and protect the building investment through quality construction.

Let us help you plan your building programs. Any one of our offices is able to help you on problems of design, types of products, scheduling and other details. Please call on us for information or service. We welcome your inquiry.



MAIN OFFICE

STRUCTURAL CLAY PRODUCTS INSTITUTE

1520 18th Street, N. W. Washington 6, D. C.

EYE-EASY

lighting

COST-EASY

maintenance

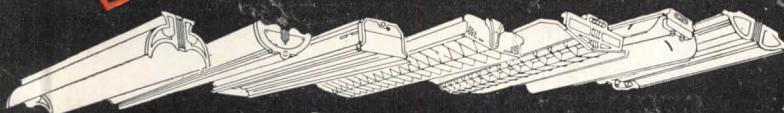
GUTH
4 ft. *slimline*

- + Quick starts
- + No starters or starter troubles
- + Lowest fluorescent maintenance
- + Easy-to-handle—one man can get it through a door
- + Single pin—simple to change
- + Available in every two and four 40W fluorescent fixture in the entire GUTH line

For full details, call your nearest Guth resident engineer or write:

Guth **LIGHTING**

THE EDWIN F. GUTH COMPANY / ST. LOUIS 3, MISSOURI



Leaders in Lighting Since 1902

REQUIRED READING

(Continued from page 30)

Cofferdams. By Lazarus White & Edmund Astley Prentis. Columbia University Press (2960 Broadway, New York 27, N. Y.), 2nd ed., 1950. 6 by 9½ in. xxii + 311 pp., illus. \$10.00.

This new volume deals exclusively with the scientific design of cofferdams and is considerably larger than the first edition. There are 201 drawings and photographs, a glossary of terms and a bibliography.

BOOKS RECEIVED

Architecture—Five Thousand Years of Building. By Joseph Watterson. W. W. Norton Co., Scranton, Pa.—A straightforward history of architecture.

Dwellings of Colonial America, The. By Thomas Tileston Waterman. University of North Carolina Press, Chapel Hill—Domestic colonial architecture summed up in provocative text, many photographs.

English Cathedrals, The. By John Harvey. B. T. Batsford, Ltd., New York and London—Chronological study of English church architecture from point of view of the religious development in England.

Fenster. By Alfonso J. Wacker, (136) Nandlstadt, Oby., Germany—Describes and illustrates all types of windows and window hardware from the earliest to the most modern. (In German.)

Knoll. Knoll Associates and H. G. Knoll International, New York—Catalog of designs of equipment for living: chairs, tables, chests, cabinets, beds, textiles.

Elementary Theory and Design of Flexural Members. By Jamison Vawter and James G. Clark. John Wiley & Sons, Inc., New York—Basic theory of flexure as applied to common structural materials.

Foundations of Structures. By Clarence W. Dunham. McGraw-Hill Book Co., New York—Discusses the planning and dimensioning of foundations for structures.

Planning Together for Better School Buildings (Bulletin No. 412). By Lee M. Thurston, Superintendent of Public Instruction, Lansing, Mich.—Designed to stimulate better design in the planning of school buildings.

Recommended Program of Public Improvements. Philadelphia City Planning Commission—Improvement projects scheduled for six years in Philadelphia.



Gottscho-Schleisner Photo

ESSO OFFICE BUILDING, BATON ROUGE

Esso Standard Oil Company of Louisiana

John W. Harris Associates, Inc., Construction Management; Lathrop Douglass, Architect

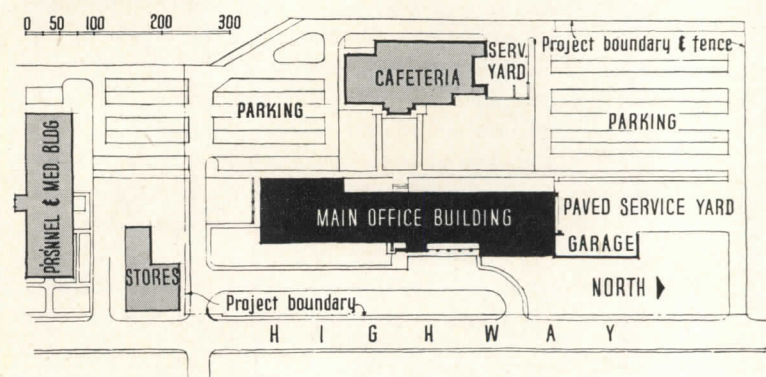
WHEN office buildings escape the arbitrary patterns of downtown sites, architects find increasing opportunities to make them both utilitarian and expressive. Here is one that finds its expression in a highly functional floor plan, though the architects are quick to assert that some of the details of the final design are purely arbitrary.

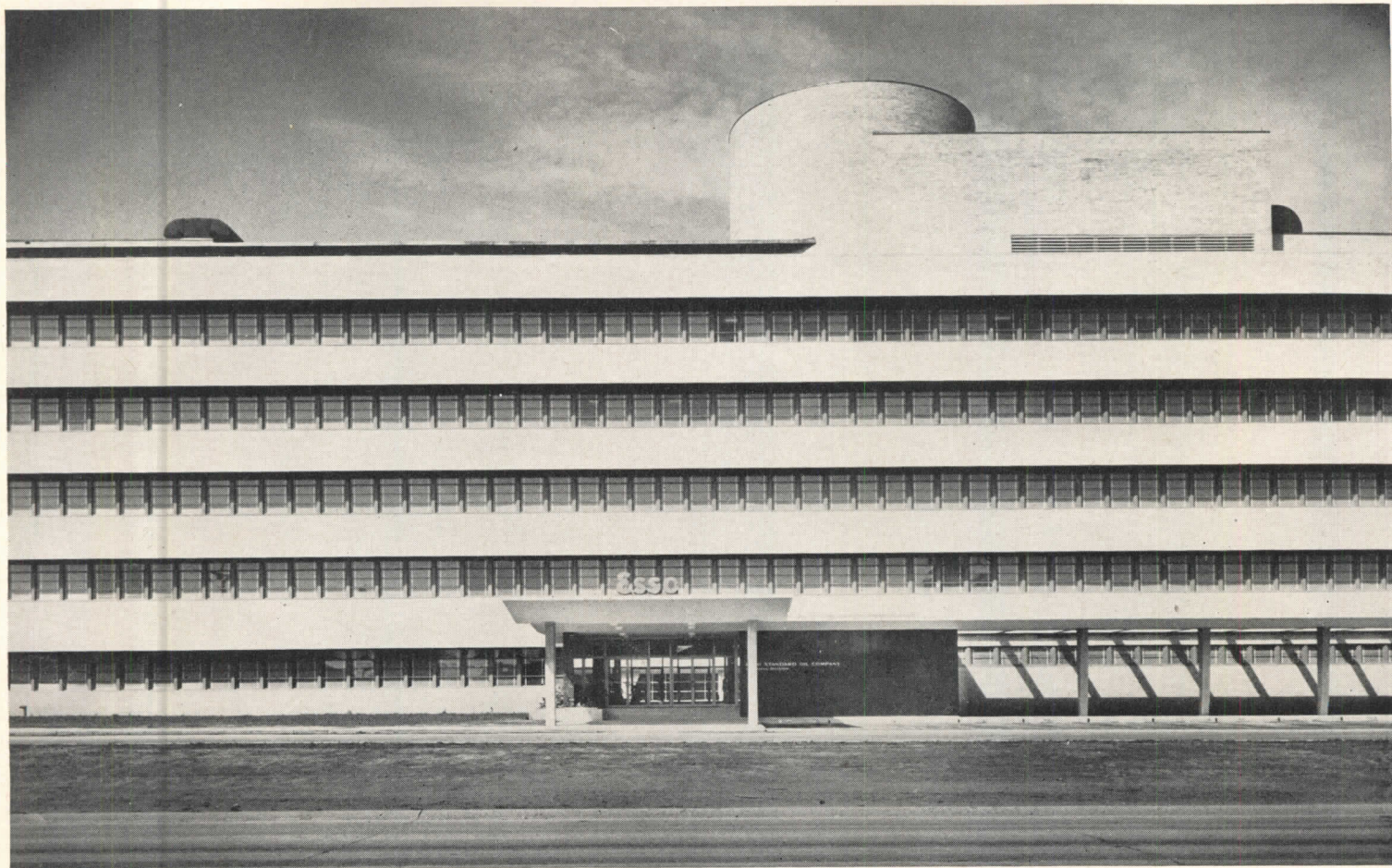
This apparent paradox springs from a complex set of circumstances, which were detailed in an earlier study of this building in *ARCHITECTURAL RECORD*, Jan., 1949. Briefly, the long, narrow site permitted a disposition of office space with all advantages of direct and easy circulation, utmost in space flexibility, full use of daylight, idea space proportions. Planning for these resulted in the long, clean lines, the simple, pleasing masses. But the site also prescribed certain other conditions affecting design. The orientation was fixed on a north-south axis, the soil has no hardpan, the climate is hot and humid. Thus the sun-control eye-brows are purely

Carson & Lundin, Associate Architects

Guy B. Panero, Mechanical Engineers

Strobel & Salzman, Structural Engineers





arbitrary — they do help protect against glare and solar heat, but it would be impossible for any static devices to do the whole job. In any case, the climate demanded full air conditioning, not merely sun control.

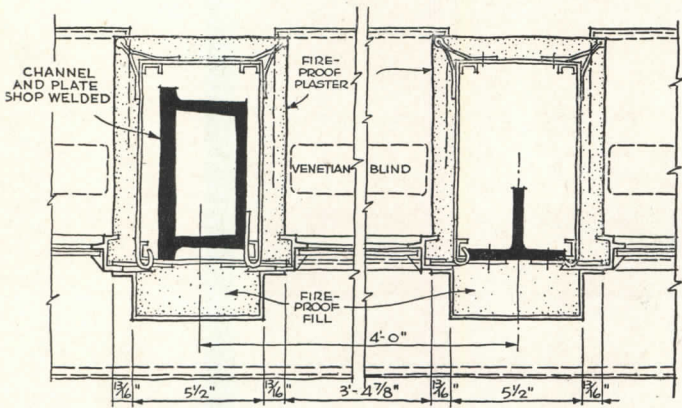
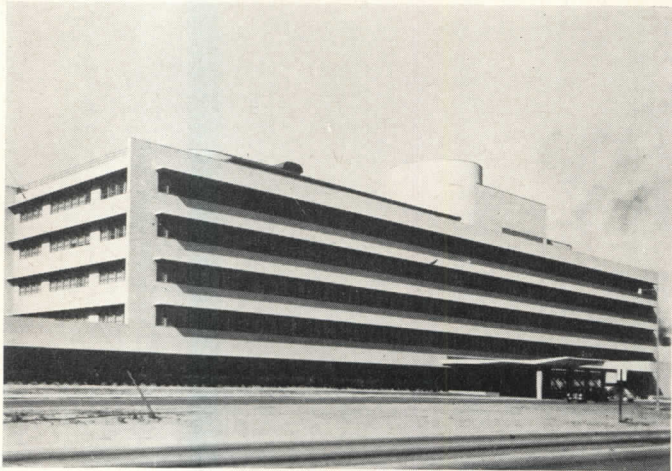
The soil condition made necessary a low, light building; also made a basement virtually impossible. Air conditioning and other machinery is therefore accommodated in various spaces appurtenant to the building, at first floor and penthouse, with a slightly cluttering effect. There was one happy result, however — the necessity for lightness fitted in with the desire to eliminate columns at exterior walls. A simple combination of a channel and a plate welded together (detail opposite page), makes a fireproofed column less than eight inches wide overall and completely contained within the depth of the wall. These alternate with light T-section columns in the same width, on four-foot centers. There is, then, a four-foot module for office space which is maintained continuously. Interior design keeps the module intact in air conditioning outlets, lighting and controls. Also floors and ceilings are continuously finished, so partitioning can be done at will.

Interior furnishings were also specified by Architect Lathrop Douglass, so that the promise of the exterior is maintained *throughout* the building.

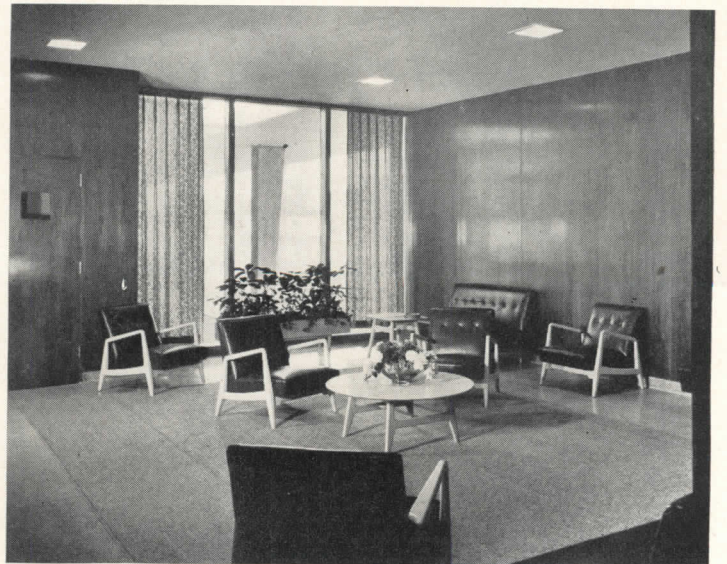
Gottscho-Schleisner Photos



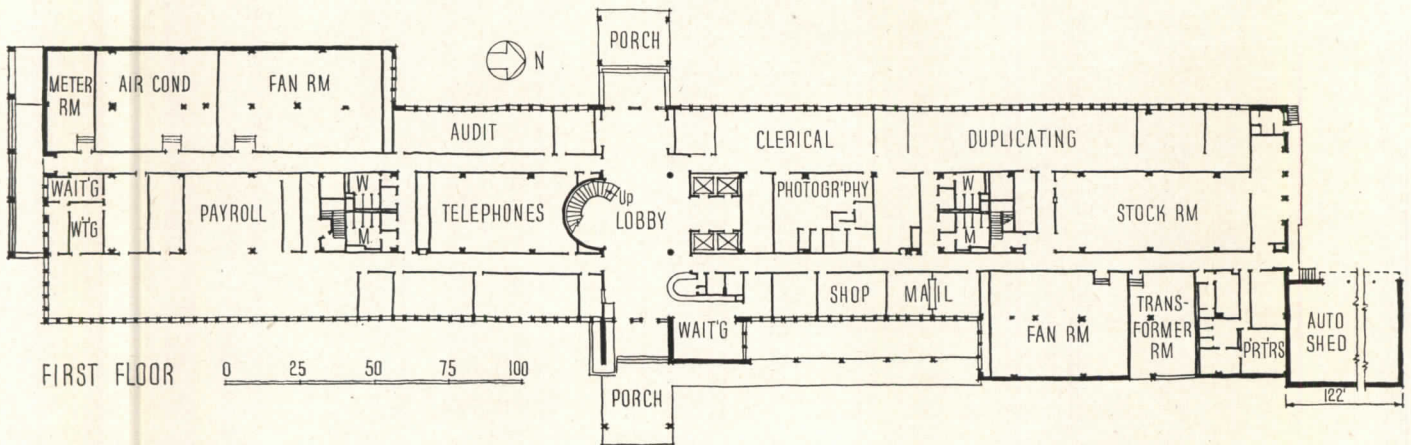
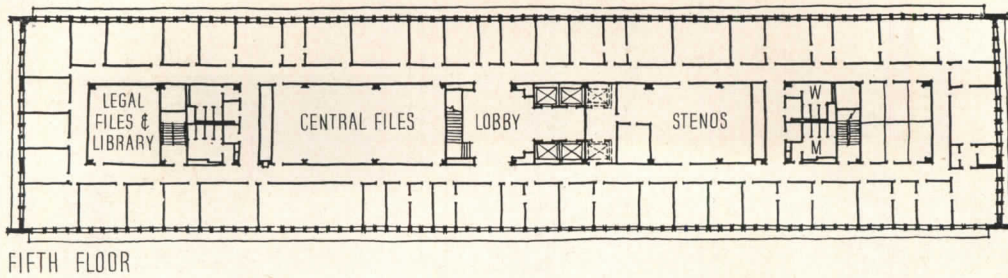
Main lobby, looking toward front entrance



View from waiting room toward lobby



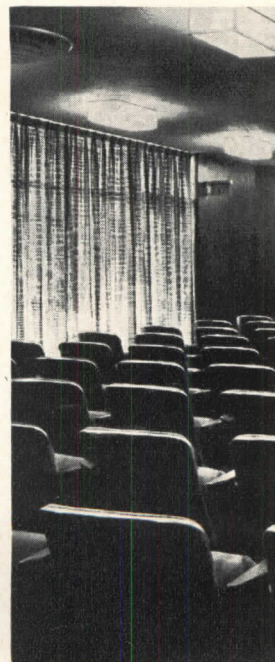
View directly into waiting room



Main portion of building is 336 ft long, 72 ft deep. Length is figured at just about the maximum for acceptable walking distance. Depth gives exterior private offices 15 ft deep, and a good allowance of interior space for utilities, files and "bull pen" space

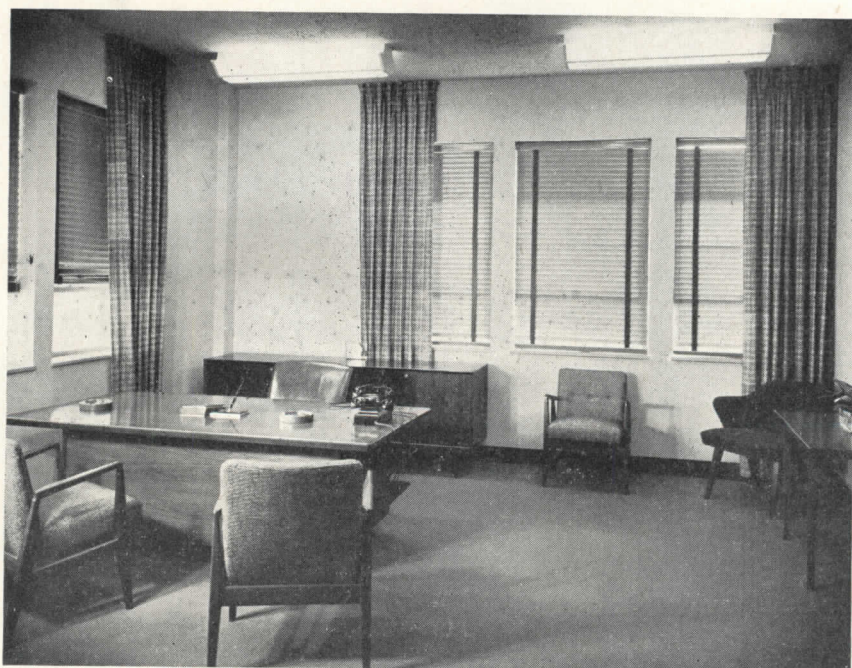
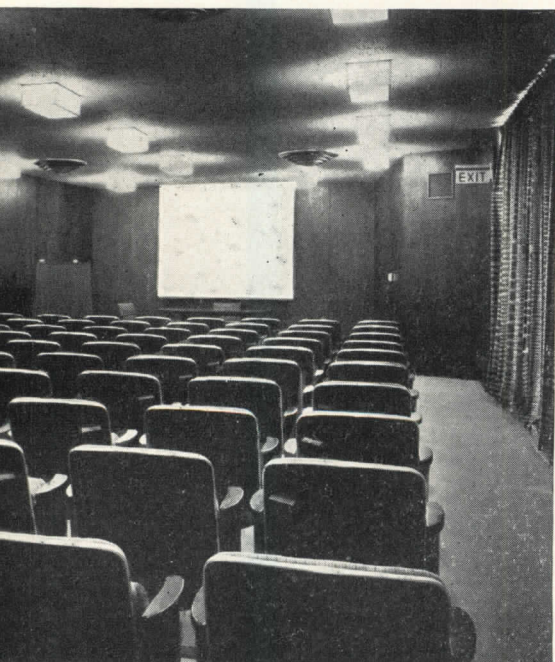
Gottschö-Schleisner Photos

Photograph shows appearance of exterior wall unbroken by projecting columns. Space along outside walls can be used to full effectiveness, whether the area is partitioned or open



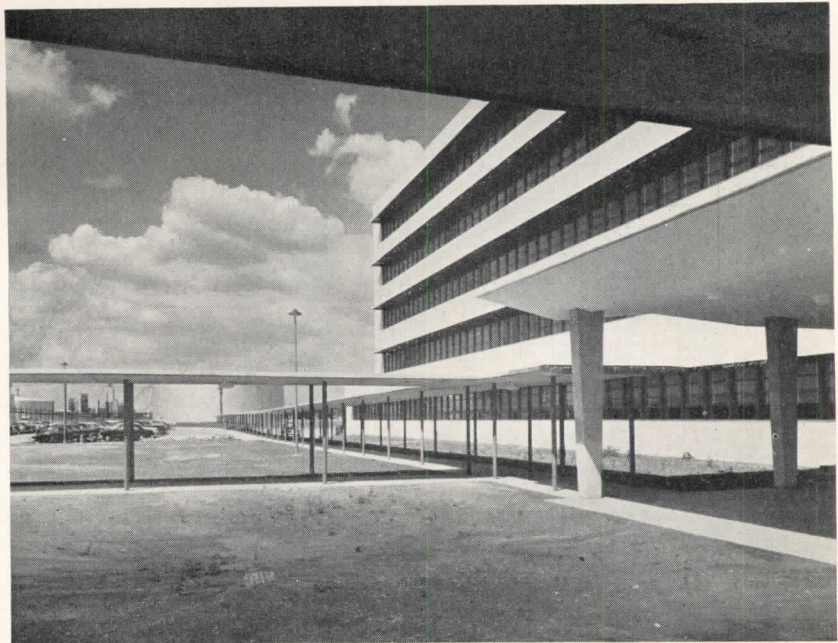


Though this photograph does not show full use of space, office layouts were intensively studied, for open as well as private offices, before depth of building was set

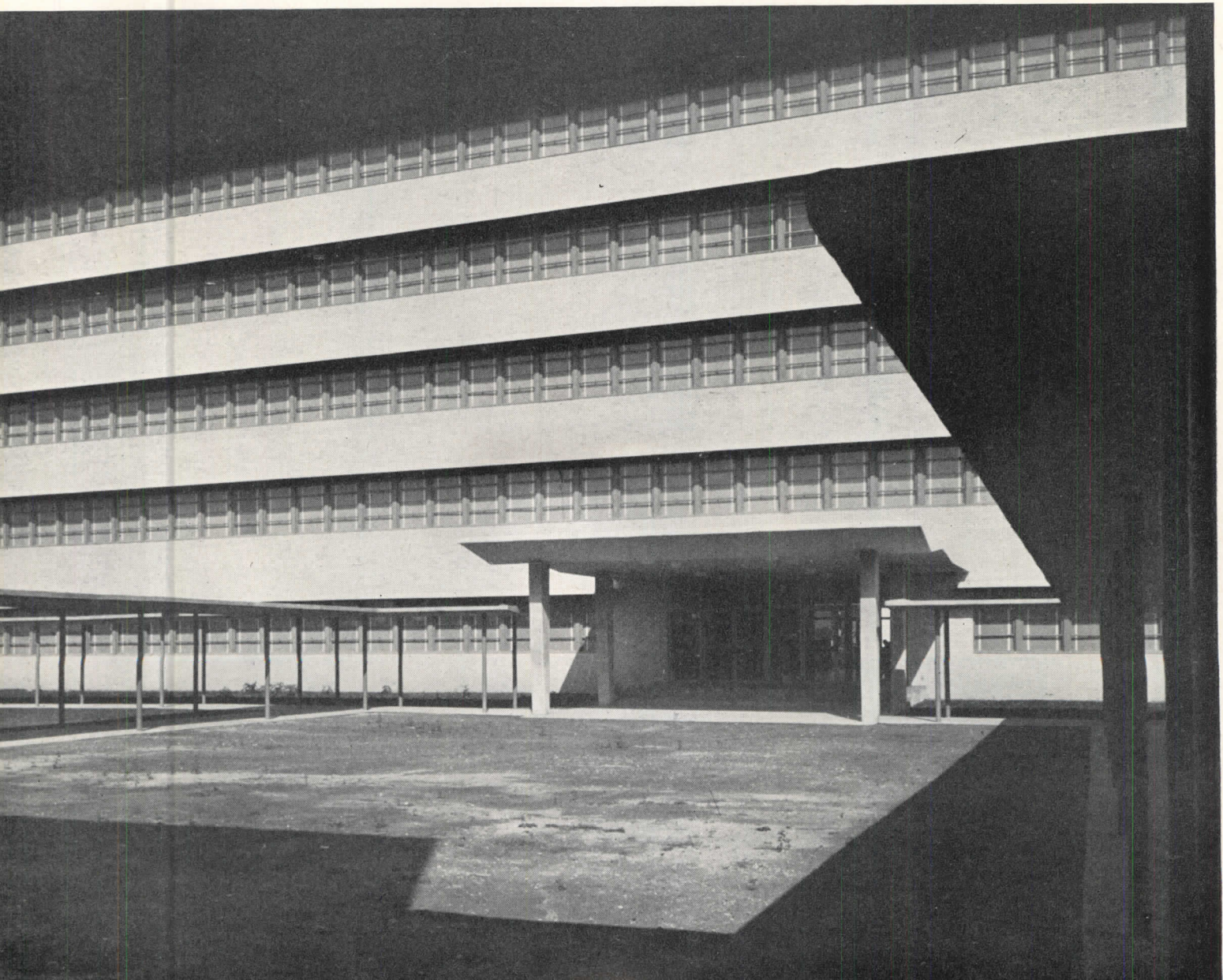


Interior design for private offices as well as special rooms was done by the architect, uses, with some restraint, the style, color and efficiency of modern furnishings

Rear of Esso Building looks almost exactly like the front, but has covered walks leading to the cafeteria and other accessory buildings, also to parking areas. Since, as explained in the text, the sunshade design was arbitrary anyway, it was kept uniform on all sides



Gottscho-Schleisner Photos



THE ARCHITECTURAL LIFE

by *William W. Wurster,*
Dean of Architecture, University of California

*Based on a talk given before the A.I.A.
Central States District Conference,
Omaha, Nebraska, October 14, 1950.*

THE architectural life could mean many things but I am thinking of it in quite a literal sense. That is, a description of the different phases as an individual saunters down the professional road. All of it is education in the broad measure but, like specifications, it is easier to deal with particular segments when it comes to a discussion. The phases are:

First, the architect's school education; *second*, his office education; *third*, his examination and registration; and *fourth*, mature office responsibility and the ethics of practice.

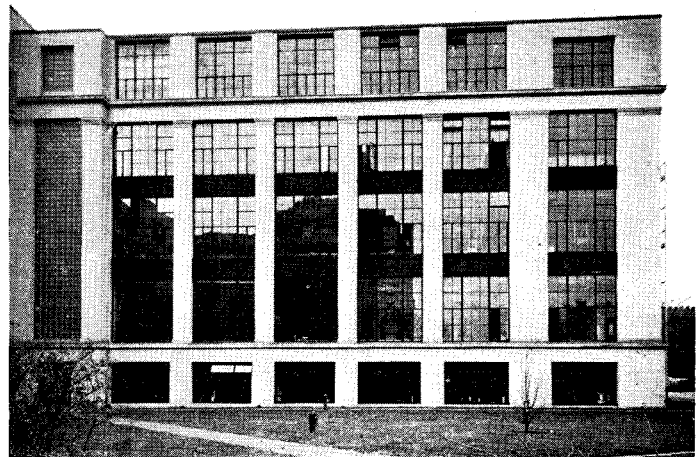
One of the reasons I attempt the approach in this way is the desire to retain the feeling that architecture is individual effort even when expressed in group action. For the emerging result of the group comes from the sum of the individuals.

SCHOOL education has two main aspects: the skills which are the tools of the craft and, far more important, the philosophy which sets the goal. It is in these items that so much misunderstanding exists. I appreciate it is largely skill with the pencil that is the language of the architect. But I constantly have the feeling that skill is apt to overshadow the context — in terms of language, the architect may be eloquent but have too little to say. May we not admit that the education of an architect *must* be directed toward both skill and content?

On the skill side we have the need for drawing and more drawing. It should become effortless but always as the way to express a meaning in architectural terms.

Massachusetts Institute of Technology, Cambridge, Mass. — front (left), and rear of the Architecture wing (right)

George M. Cushing Photos



Basic training in architecture which has sprung up in most of the schools uses drawing as one aspect; but it also uses space, models, texture, colors, exhibition techniques, typography and photography. This is an enlargement on the old training. Let me be specific. For six years I worked in the great gray limestone building of M.I.T. I feel sure the training which produced that building never encouraged the draftsman to actually *see* the building. No, I feel he saw the stretched Whatman and the India ink washes *even* when he later looked at the building as accomplished fact. To the eye uninterested in this abracadabra of "rendering," the rear of M.I.T. seems the more beautiful reality. It is here that great windows give on to the drafting rooms which are so fine in the interior. What it really had to say, it was ashamed of, and put on the back.

How much of building is artistry and how much engineering? Certainly the rift between these fostered by the great eclectic architectural wave of the past 100 years resulted in false answers to this question. We must go back to primer facts. No ugly thing is successful architecture. The hall which fails acoustically, materials which fail under wear, and the lighting which fails to illumine, are all ugly. This means to me that we must have enough skill in the many technical directions to take them all into account — to bring them all to beauty in a co-ordinated result.

The Bauhaus did much to break down the eclectic surge. It quite honestly felt the need of knowing materials to the extent of laying bricks or sawing wood yourself. Europe and even America were so overwhelmed with history there was great need of coming clean to structure without a study of history. This I honestly believe was needed to avoid defeat from suffocation. That battle has been won but now we must pause. However, the slavish copying of *new* masters is just as overwhelming, just as suffocating, as that of the *old* masters. Arbitrary choice and emphasis of engineering forms can be as tyrannical as the insistence of classical columns.

Let us regard all phases of architecture as capable of producing unity. Certainly we shall need skills — all that we can get — but *not* at the expense of content. We need engineers so that our buildings are sound in concept and execution. We need the capacity for social and economic analysis. And we need *history*; not a mere smattering of architectural styles, but real familiarity with the role of man-made environment in human affairs, and with the changing process of building and design under shifting social conditions. Some solid feeling for the social sciences and architectural history is necessary in this complicated world, if the architect is to achieve human satisfaction with the results of his work. He has revolted against the state cliches of the past, irrevocably, and he must often push for design solutions that may seem strange and novel to his clients and the public. But if he has real social understanding he will not promote the bizarre for its own sake, nor be contemptuous of the familiar just because it isn't novel.

My plea for schools is that they be more scholarly. In the old days there was apt to be too little of the practicing architect's viewpoint. Now the opposite seems true quite often. Let us have a real core of history and social science; a real core of drawing and esthetic expression; and a real core of technology. Each of these should be rich in its own right, taken straight, not slanted or compromised from a draftsmen's trade school viewpoint; and not given with an architectural slant as only a tool. In the old days an architect was supposed to be first and foremost a "gentleman," a sort of cultivated amateur; now the architect is clearly a responsible professional, but he must also be a well-rounded human being, an artist and a technician with a mature sense of social responsibility.

Thus I stress that architectural education in a university should avoid a trade school slant. Our schools should not focus on state registration; rather lead to the university ideal — the rich and full life with training for leadership. I have always understood that the famous law school at Harvard never sets the passing of the bar examination as its goal.

Architecture has left its narrow role as mere facade making. It is now recognized that one must know and even evaluate the social and economic reasons behind a structure before one can produce a defensible solution in technical and esthetic terms. To my mind this adequately explains why the teaching of architecture belongs in a university at all. All of us know that a great deal was sacrificed when the apprentice or pupilage system was given up in favor of nesting architectural education in the university system. If we insist that techniques be predominant then a more efficient job could be done in the practical world; but it might result in the architect being only a technician — a narrow specialist, an accusation which has been directed at us on occasion with good reason.

And so our neophyte comes down through the five or six years of school. He has received much at other's hands; all his theoretical engineering training, all his history, the rich design courses which make the real core of architectural training. He is now ready for the office.

OFFICE experience can mean many things. In the roaring twenties it merely meant you had worked in a big New York office. Perhaps you had detailed toilet stalls or windows or service stairs for a year. Beyond a modicum of discipline this meant nothing. Too often the office of this sort is not a place of hope, or the kind of real "experience" that leads to maturity.

Our individual should be an integral part of the process of planning and building from the very start. His contributions are often valuable just because he has a fresh eye, and his work should never be reduced to a listless routine. His job should be rotated so he is part of conferences and preliminary sketches, working draw-

ings, specifications and supervision. See to it that he looks at the property before he undertakes a drawing. And lastly, a matter so often pushed aside, plan that the draftsman sees the building in use. This brings breadth to his experience for there are many things upon which he has spent time which are likely to pale beside the real need which hasn't even occurred to him. It makes him question things — makes him leave less to chance. In an office one can forgive an error in judgment but never sheer inadvertence.

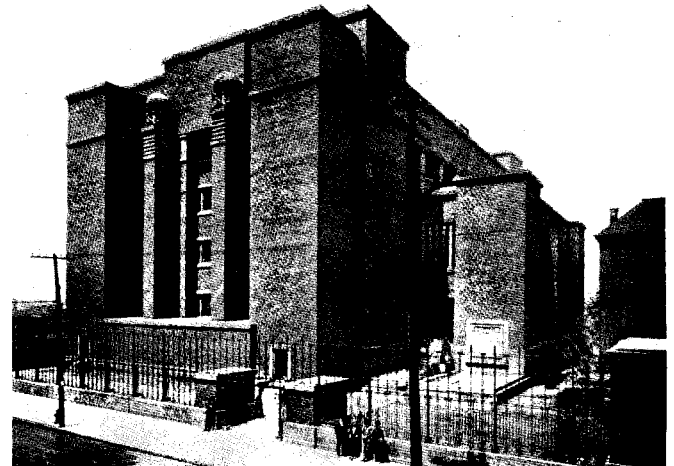
This is the point where the school and office adventures merge. And the real education is a combination of these two. I do not lend an ear to the architect who would make us a school for draftsmen, and in my office I ask for a well trained open mind — not an experienced performer. In drafting neatness and clarity are more important than smoothness.

THE time has now come when the architectural life approaches maturity. Our student has received what he could from teachers and employers. He has tried to correlate what he has learned and experienced with his own creative aspirations and dreams and wants to assume real responsibility. In most of our states this means the time has come for him to seek his license to practice. At this point there are serious questions in my mind. First, why shouldn't he be permitted to take the examination on his schooling at the time of graduation? This is when his broad intellectual and technical training is fresh, and it would seem appropriate in many ways. Or perhaps you share my views that the degree from a school should be the only thing needed for a license? (Or a single examination following the same five years of experience.) Even as I speak of this, rumor reaches me that the State of California now plans to do this very thing — that is, give the examination on theory at the immediate close of training.

Second, why after a certain number of years could he not be given an examination which deals with matters of experience he has had in practice, a test of his maturity of *judgment*. But I doubt the reasonableness or advisability of dealing with matters of esthetic design in *any* examination. I would allow the use of the word *architect* in some form immediately following the five years of school or five years of experience. Perhaps a term could be thought of, which would describe this stage: just as there is an intern in medicine, there might be an "intern-architect." This would do away with the present vacuum during which time there is no legal way he can carry on with proper designation. After all, he has spent years of his life in preparation and it seems like summary treatment to keep him from laying claim to his share in the field. I fail to find good for the profession which I can trace directly to registration, just as I fail to find good in too much regimentation of the educational process. Much could be said about the old apprentice system, when practiced at its best.

Now lastly, our individual comes to his own final experience — either as participant in a large group or in his own firm. As you note, I have divided this paper into chunks of time. They all really merge; and in particular, this last stage of mature office responsibility and the ethics of practice must never really leave education. Architecture has broadened its base. Our individual is called on to deal with a hundred matters not present in earlier simpler years. Taxes, traffic, mechanical devices — all clamor for a share in his time. The healthy democracy of America has removed any sense of distance between groups so we need never fear that the fulfilled architect may be aloof from the problems of today, nor that he feels removed from the workman who translates his plans into actual structure. This has become particularly true since the architect became concerned with the everyday and modest structures. Gone are the days when importance lay in permanence in a shifting society. It is the idea and its relation to living which now is the important thing. This at times brings sad loss. Witness the destruction of the Larkin Building of Frank Lloyd Wright in Buffalo; but it had outlived its practical use, so down it came. In turn, it gives another generation the opportunity for building anew for today's needs.

Architectural Record, April 1908



Larkin Office Building, Buffalo, N. Y.

The time has come to dignify architectural positions of trust in government employ or as a member of a large group. These can and should be treated as an equal to the man practicing under his name. I have only to cite the Farm Security work in California under Cairns and DeMars to prove the point. The same applies to responsible positions in large architectural offices. With the complexities of modern life it becomes increasingly important to recognize the ethics and need of this procedure.

I particularly want to emphasize one aspect of the ethics of practice. I am not dealing here with our rela-

THE ARCHITECTURAL LIFE

tion to our fellow architects. No, for while that is important, there is the fact that we meet as equals. Nor am I thinking of our relation to the client, which receives constant professional consideration. The ethical issue I want to stress is the need for every active architectural office to employ a new, inexperienced student each year; pay him a living wage; and guide him with a sense of responsibility on our part that will give him a complete round of experience. This refers back to what I said before and I will repeat it in part. All draftsmen should be an integral part of the process of planning and building from the very start. Their contributions are valuable and should never be reduced to a listless routine. Their jobs should rotate so they are a part of conferences and preliminary sketches, working drawings, specifications and supervision. Arrangements should be made so that the draftsman sees the building in use.

All of this points up in the individual the need for avoidance of the *specialist*. For with individuals as spe-

cialists and firms as specialists we are apt to remove completely the artistry of change and experiment from our architectural world. In my observation of architecture it has often occurred to me that the early work (often the first job) is the great work. Walter Gropius in his early factories and the Bauhaus; Van der Rohe in the Tugendhat House; Roland Wank at TVA; Morris Ketchum in his first commercial ventures; Aalto in his Viipuri Library: all of these were *first ventures*, not the result of specialization.

It is no accident that the architect is apt to do his best work on a fresh problem. His specialty is not in the design of one particular kind of building but in coordinating and unifying all the specialized knowledge and processes that go into whatever problem confronts him. For this job he needs a variety of experience, the stimulus to make *new* syntheses; which brings me back to my main point, that what the architect needs is well-rounded training and the capacity for mature leadership.

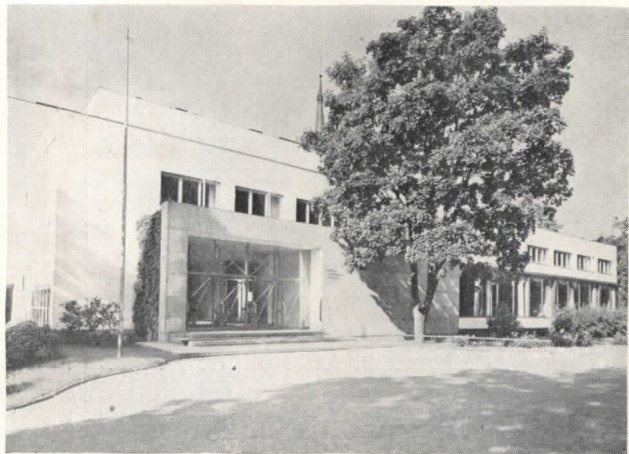
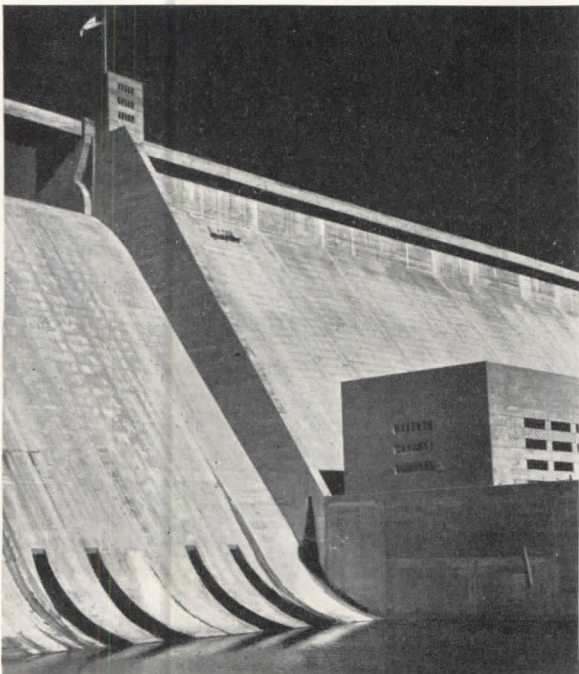
Photos Courtesy Museum of Modern Art



Bauhaus, Dessau, Germany ▲



Tugendhat House, Brno, Czechoslovakia ▲



Municipal Library, Viipuri, Finland ▲

Kidder-Smith Photo

◀ Spillway, TVA's Norris Dam, Tennessee



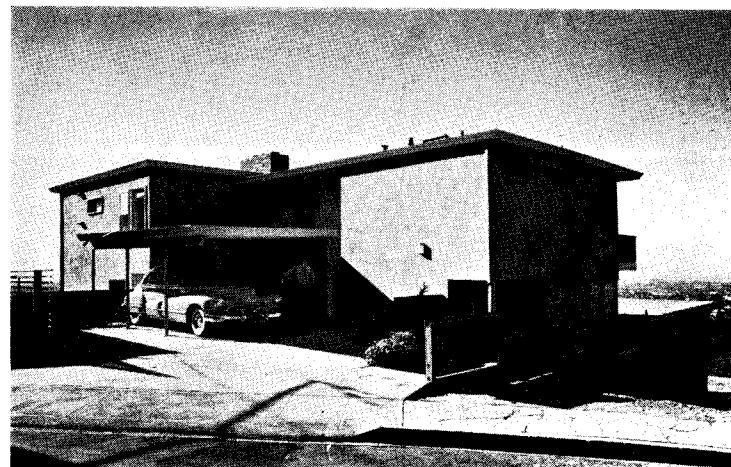
HILLSIDE APARTMENTS, BERKELEY, CAL.

Golden Fine, Owner

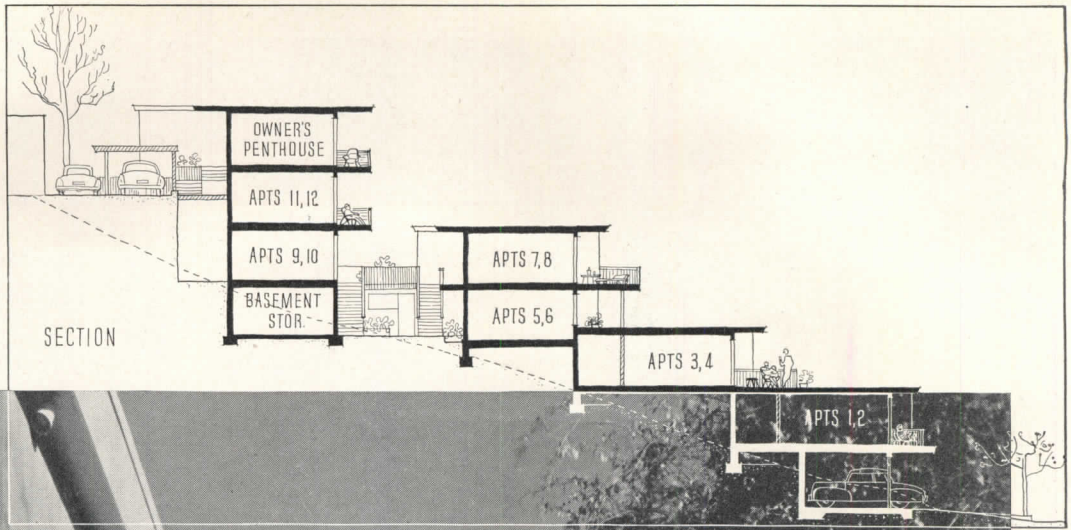
Campbell & Wong, Architects

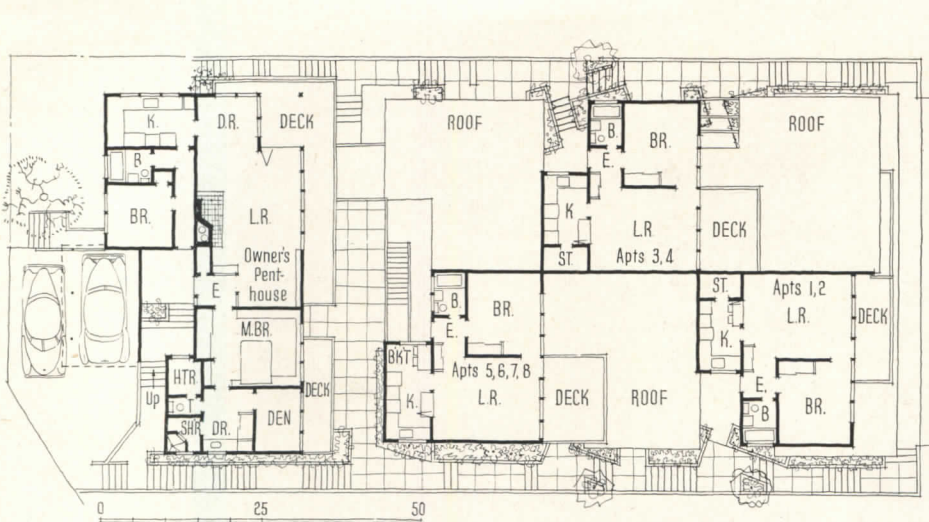
STARTING with the perennial desire for better living in rental apartments, the program here omitted nothing in the line of desires — maximum number of units, separate exterior entrances, maximum car storage, outdoor living space, maximum privacy, and attractive landscaping, not to mention costs and profits. The normal program — except that the site slopes rather crazily, in two directions. Slope toward the front is as much as 25 degrees, 15 degrees in a sidewise direction. But the site did offer the irresistible pull of grand views over the University of California campus toward the Bay and San Francisco, clear to the Golden Gate (on a clear day).

But in architecture, as in mathematics, negatives sometimes combine to make a positive; the solution for the site and outdoor living problems is a series of steps up the hillside, so that one unit uses the roof of the next

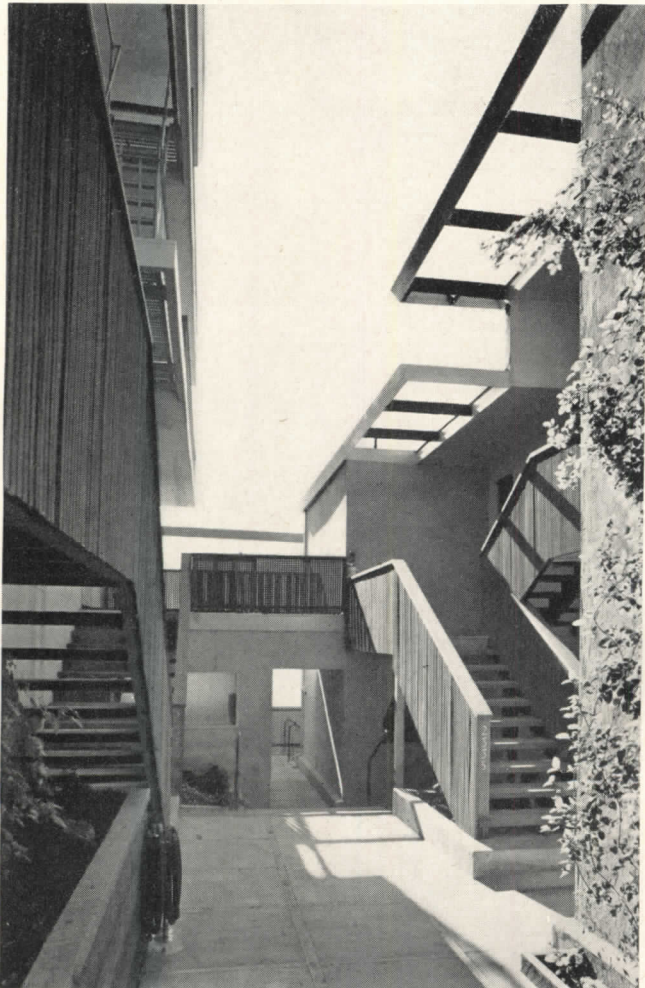


Roger Sturtevant Photos





Composite plan, with section on opposite page, shows how apartments step up the hillside, utilizing each other's roofs to provide outdoor decks on an unusually steep site



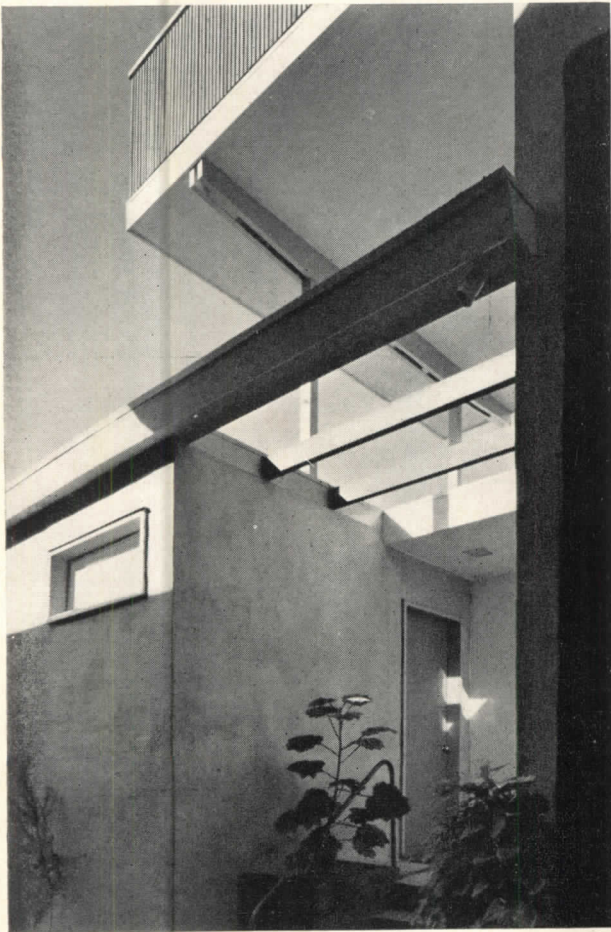
Roger Sturtevant Photos

for a terrace (section, next page). The separate entrances are reached by outside stairs that become quite attractive with deft touches of planting. Fortunately there is street frontage at the top as well as the bottom, so that the total climb is by no means the full height of the hill.

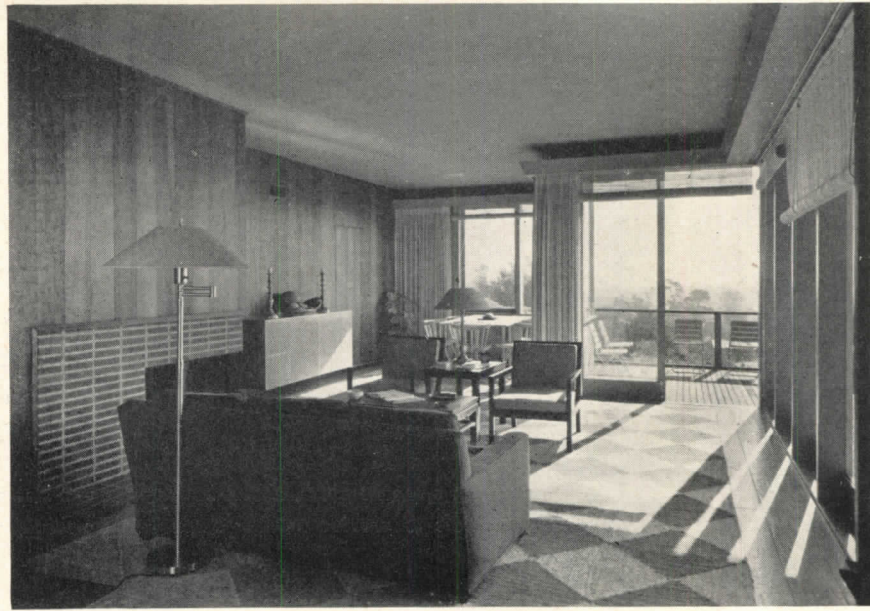
The side slope was utilized to stagger the units in the second direction, contributing a great deal to the privacy of the terraces and balconies. All units in this scheme get the Bay view, but the effect becomes that of owning a private scene, not one shared equally by others in the building. From the standpoint of cost, this staying with the side slope kept the buildings close to the ground, and saved the cost of retaining walls which grading would have made necessary.

The building actually is two separate structures, the lower one containing eight units in one- and two-story combinations, each of identical plan, the upper one having four units plus a special apartment for the owner. The two structures are separated by a courtyard, paved in concrete with redwood dividers, and attractively planted. (Eckbo, Royston and Williams were consulting landscape architects.)

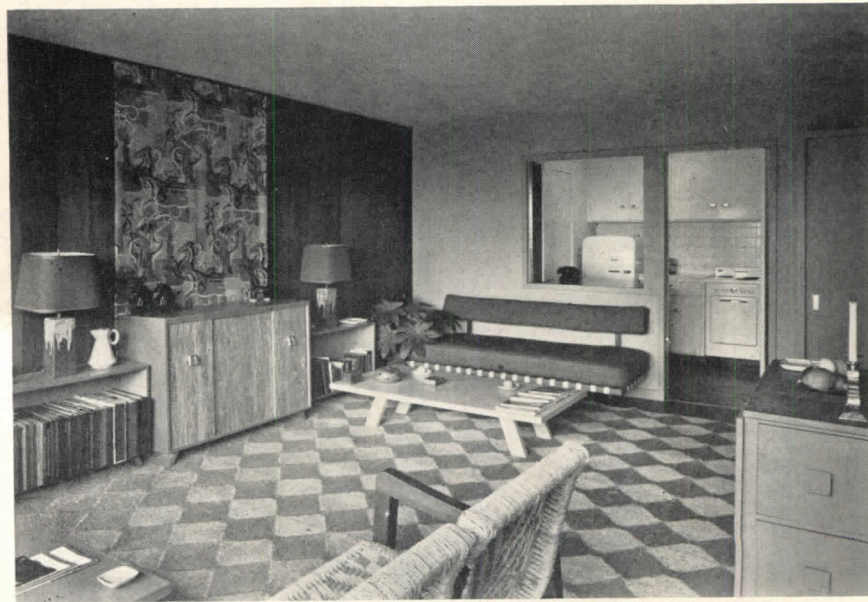
The typical units have a living room, bedroom, bath, kitchen, entry, storage room and outdoor deck. Tenants have additional storage space in basement areas. Cars are garaged at both street levels. And tenants may dry wash on clothes lines at the upper level.



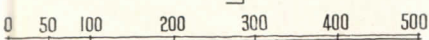
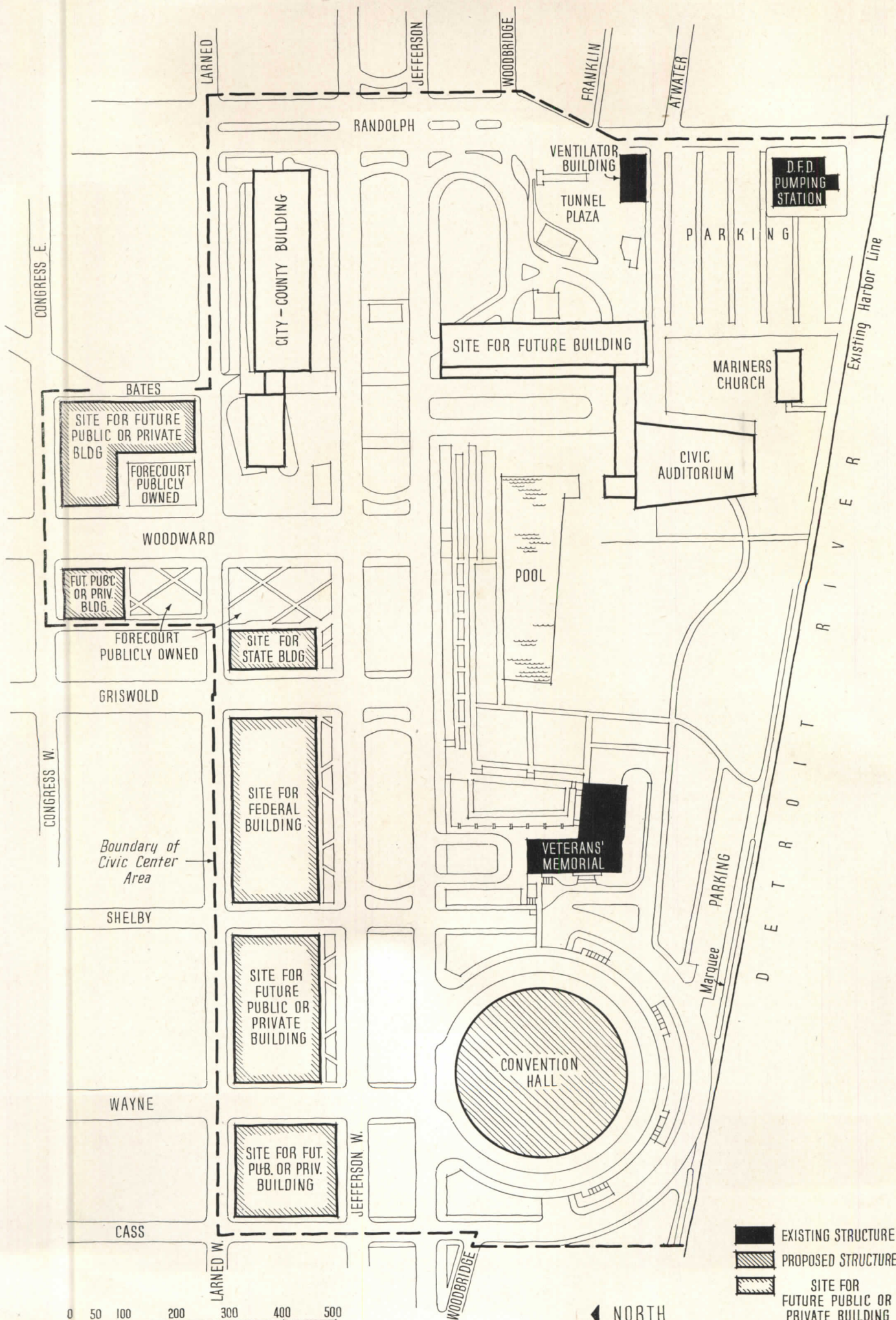
The structure becomes a bit complicated as the buildings go up the hill, but the effect is quite pleasant, as each separate apartment entrance has a private, intimate character. Plantings tend to soften the hard note of so many structural members as stairs climb up



Owner's "penthouse apartment" at the top level (above and on opposite page) has unobstructed view of Campanile and campus of University of California, with the Bay and San Francisco in the background. Views below and on opposite page show typical apartments with living room open to side deck





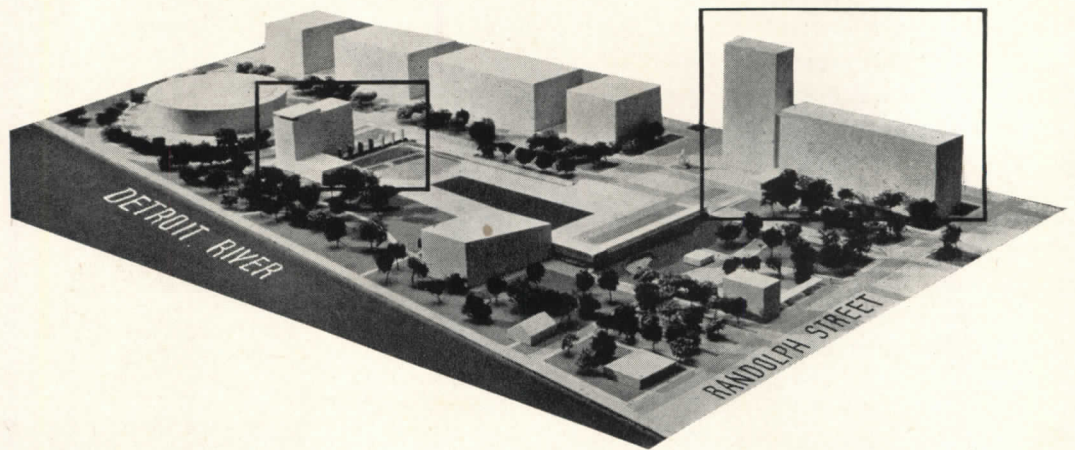


← NORTH

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SITE FOR FUTURE PUBLIC OR PRIVATE BUILDING



Detroit's 60-year-old plans for a Civic Center at last are being realized. Under the aegis of the specially appointed Memorial Hall Commission, the operating agency, the first building has been completed. The general site plan has been developed by the City Plan Commission with Saarinen, Saarinen and Associates as consultants



DETROIT CIVIC CENTER BEGINS TO GROW

SIXTY years ago one Hazen Pingree, Mayor of Detroit and later Governor of Michigan, told the citizens of Detroit that they needed a Civic Center. That Center, he suggested, should be located at the foot of Woodward Avenue, along the banks of the Detroit River. For half a century thereafter the proposed development was talked of and planned for. And finally, in 1944 the city's Common Council officially approved a site for it — at the foot of Woodward Avenue. Much as the city had changed, that location was still the most logical:

it was within a few blocks of the commercial heart of the city, it took advantage of the natural beauty of the river, and it encompassed property which badly needed redeveloping. The Common Council immediately began acquiring the land required.

In the past six years the Civic Center has turned from a 60-year-old dream into a present-day reality. The boundaries of the site have been enlarged to the 58.3 acres outlined above; the city now owns 60 per cent of the property and has ordered another 15 per

DETROIT CIVIC CENTER

cent condemned; one building has been completed and is in use, another is in the working-drawing stage; architects have been appointed for a third. Plans for the whole development are progressing rapidly under the direction of the Memorial Hall Commission, the operating agency.

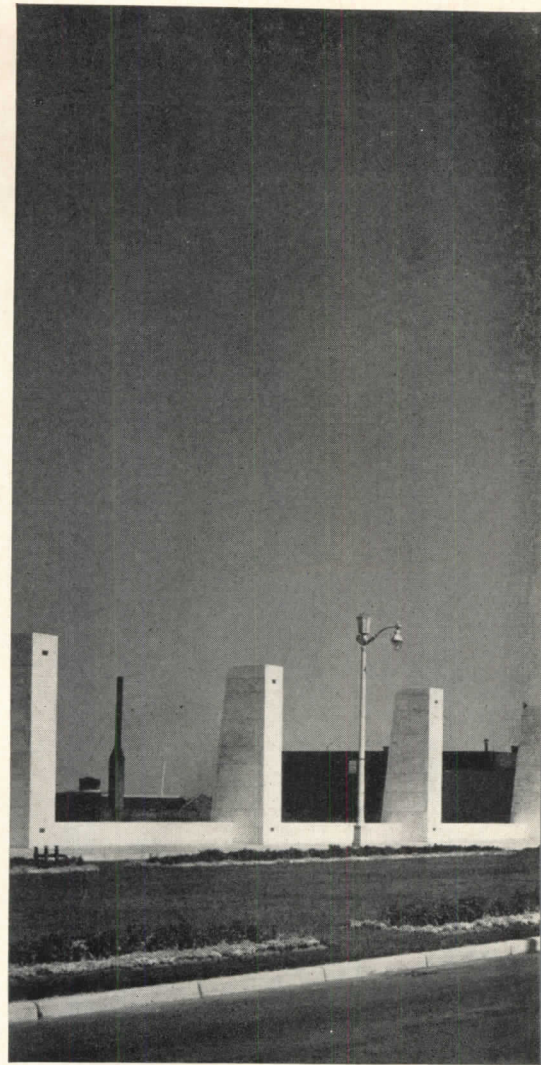
FIRST building in the Center to be completed is the Veterans' Memorial, dedicated in June, 1950, to the memory of all veterans of Metropolitan Detroit. Erected at a cost of approximately \$6,000,000, including land acquisition and development, it was paid for completely by the city. The building was planned as a "living memorial," to be used by the various veterans' organizations in the metropolitan district as their headquarters. It is located on a two-block area overlooking the Detroit River, and takes full advantage of the 24-ft drop in elevation from Jefferson Avenue to the river. Its main mass is at right angles to Jefferson Avenue to give a river view to almost every room. At a lower level is a separate wing housing the ballroom (plan, page 104).

The planning of this first building was complicated by the location of a main interceptor sewer bisecting the site parallel to Jefferson Avenue. The approved site plan called for the location of the building at the back of the property, and a Jefferson Avenue (high-elevation) entrance was mandatory. A relieving structure with flat slab construction was built in the area over the sewer, and an underground parking space resulted. The Griswold Street entrance was limited to service, with a ramped driveway providing generously for truck turn-arounds and a loading dock at the level below the Ballroom, concealed from general view without loss of efficiency.

The entire site of this first building is landscaped and developed for integration with the whole Civic Center plan. The series of 30-ft-high pylons with incised carvings by Marshall Fredericks depicting the major military events in the history of Detroit will terminate the western end of the Civic Center Plaza.

THE second building of the Civic Center group will be the City-County Building (page 107), for which Harley, Ellington & Day were commissioned architects in March of 1950. Financing (total cost estimated at \$15,000,000) has been arranged, and the building is now in the working-drawing stage.

Third building in the group will be the Henry and Edsel Ford Memorial Auditorium (designated Civic Auditorium on the site plan, page 100), which is being financed by the Ford Dealers of America and the Ford Motor Company. It will be designed by O'Dell, Hewlett and Luckenbach, in association with C. Howard Crane Associates. O'Dell, Hewlett and Luckenbach also have been appointed architects for the Civic Center Plaza.



VETERANS' MEMORIAL BUILDING

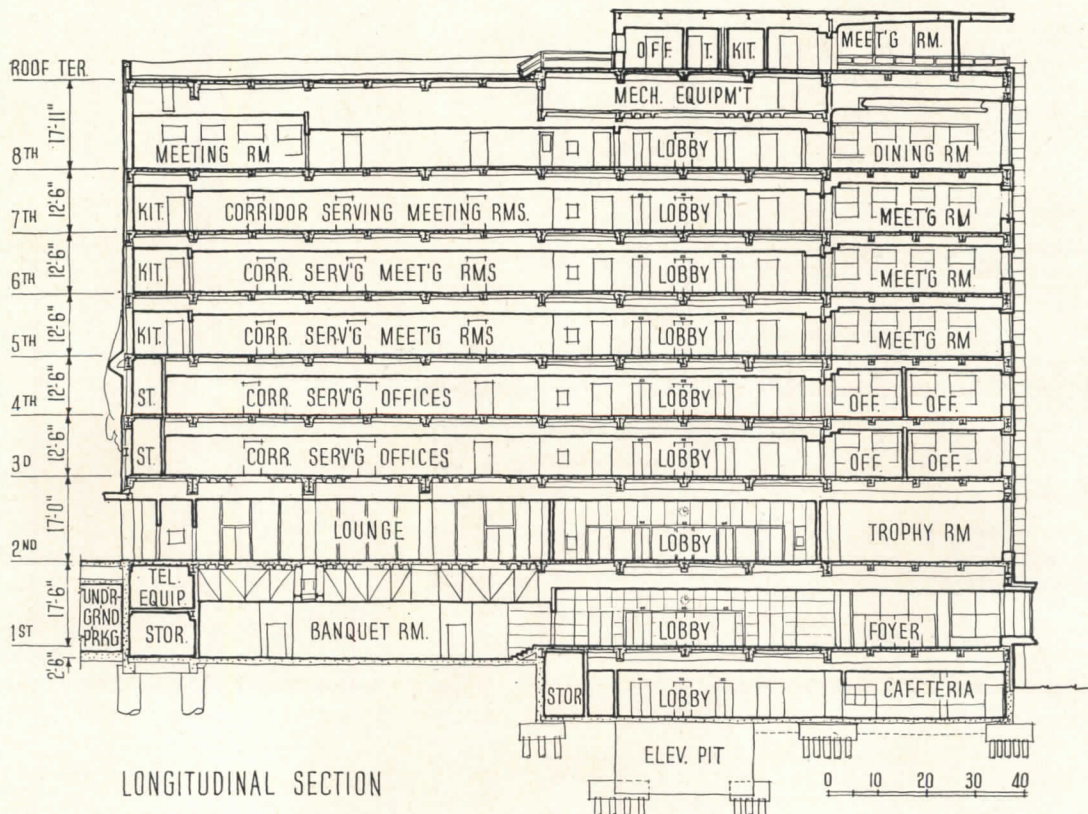
Harley, Ellington & Day

Architects and Engineers

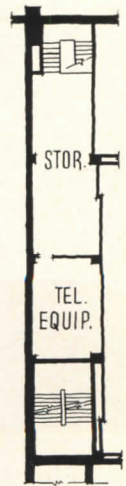
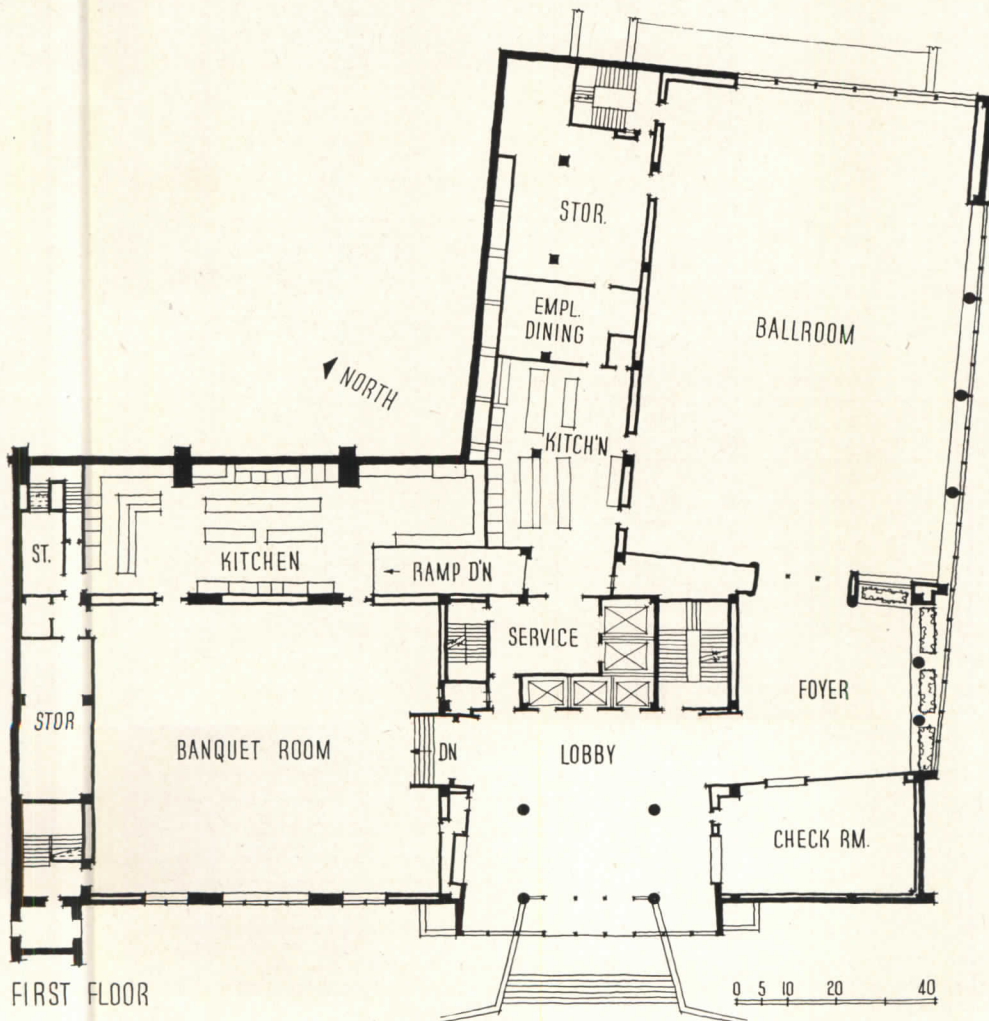
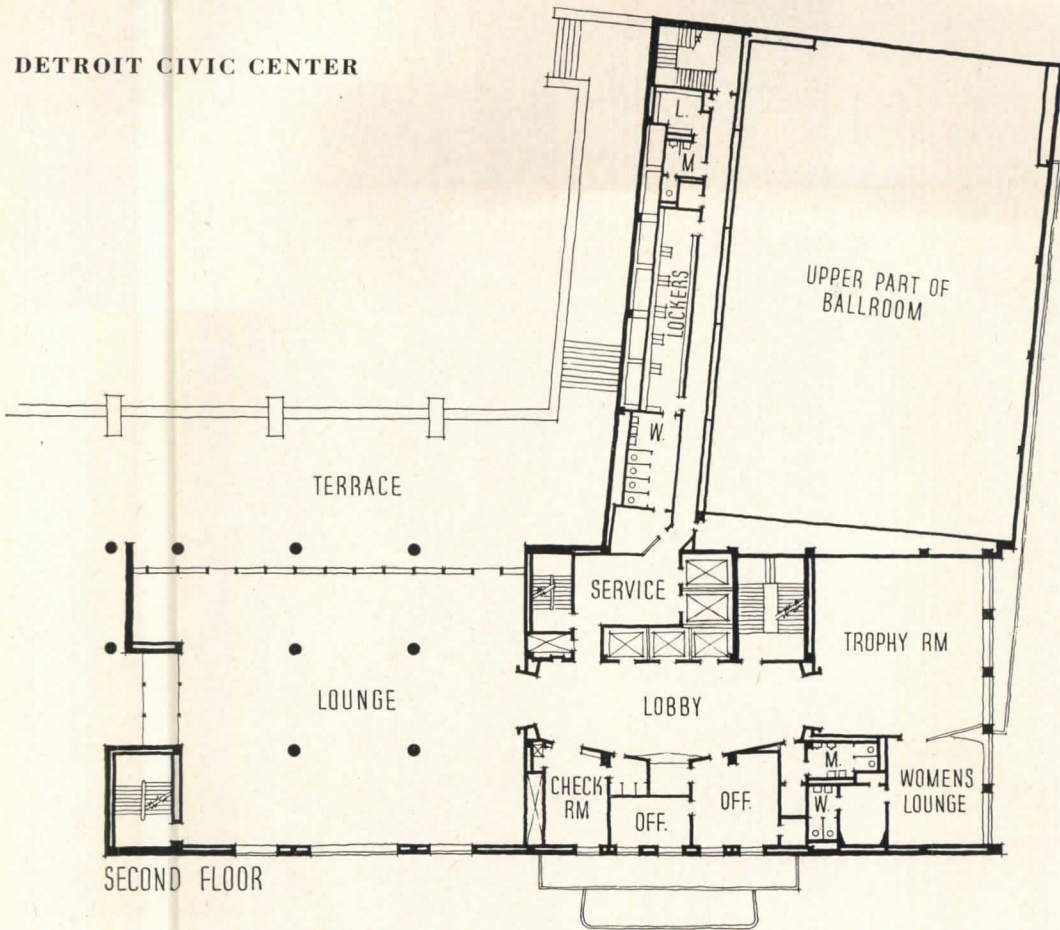


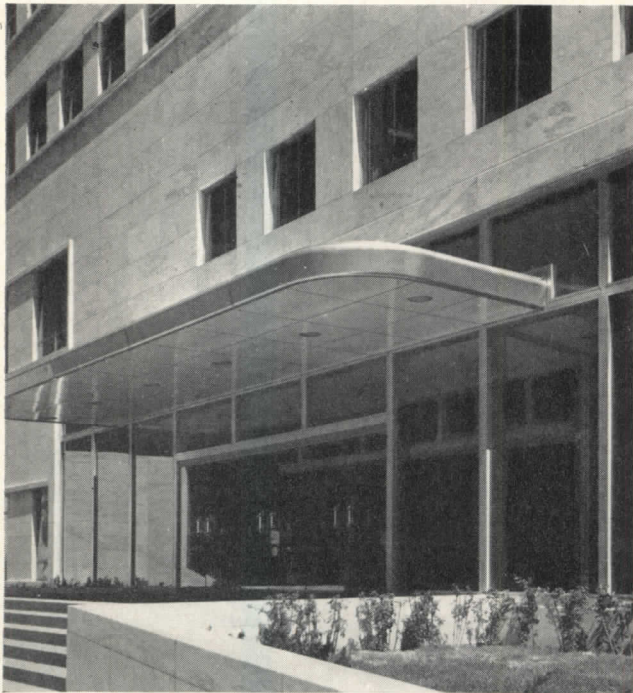


Elmer L. Astleford Photos



DETROIT CIVIC CENTER





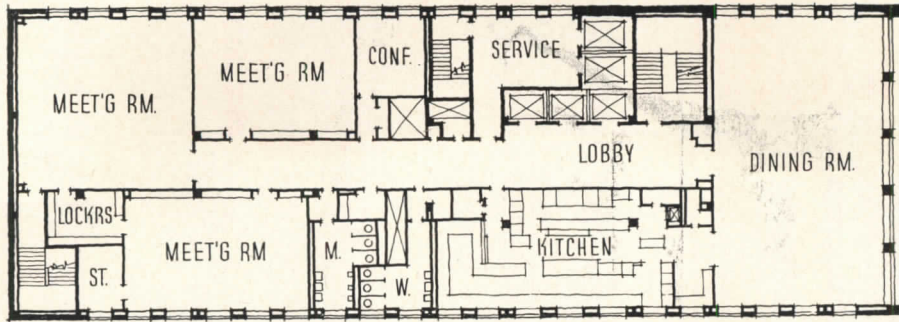
Shelby Street entrance (above) shows close relationship of Civic Center to downtown Detroit; entrance leads to lobby on first floor (opposite). The 28-ft marble eagle on Jefferson Avenue facade (right) was designed by Marshall Fredericks; it projects 4½ ft beyond the face of the building. Memorial bronze plaque (right, below) is just inside Jefferson Ave. entrance to main lounge on second floor (opposite). Exterior of the building is marble, framing is steel and concrete slab. Furniture was designed by the architects



Elmer L. Astleford Photos



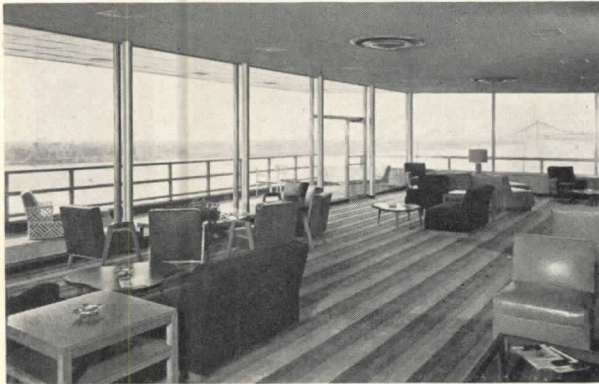
DETROIT CIVIC CENTER



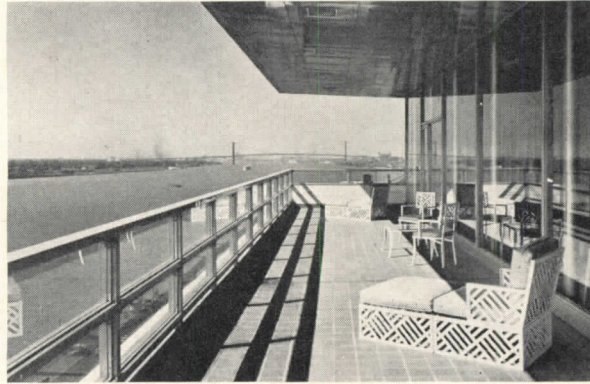
EIGHTH FLOOR

Third and fourth floors (section, page 103) provide office space for veterans' organizations. Above are three floors of meeting rooms ranging in size from 64 by 30 to 12 by 18 ft; each of these floors is equipped with two small kitchens. Eighth floor (above) has a 144-seat public dining room in place of the large meeting room, and a large special kitchen

Elmer L. Astleford Photos



Penthouse lounge



Penthouse lounge terrace



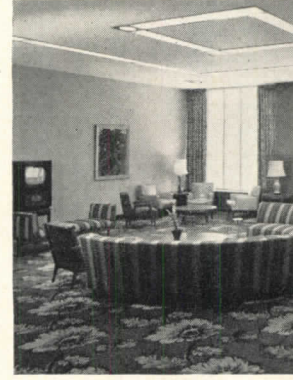
View from terrace



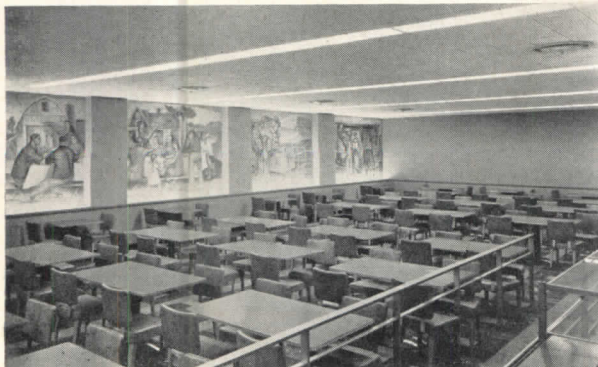
Ballroom foyer



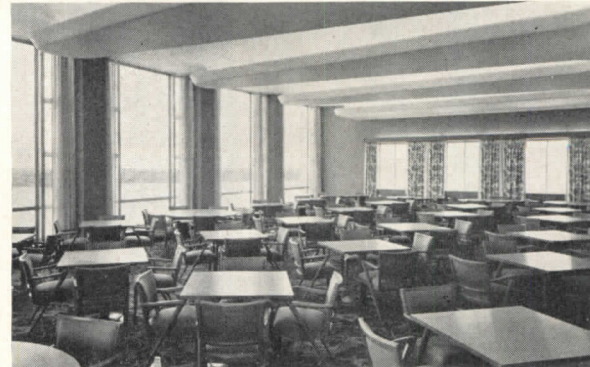
Typical meeting room



Television room, 2nd floor



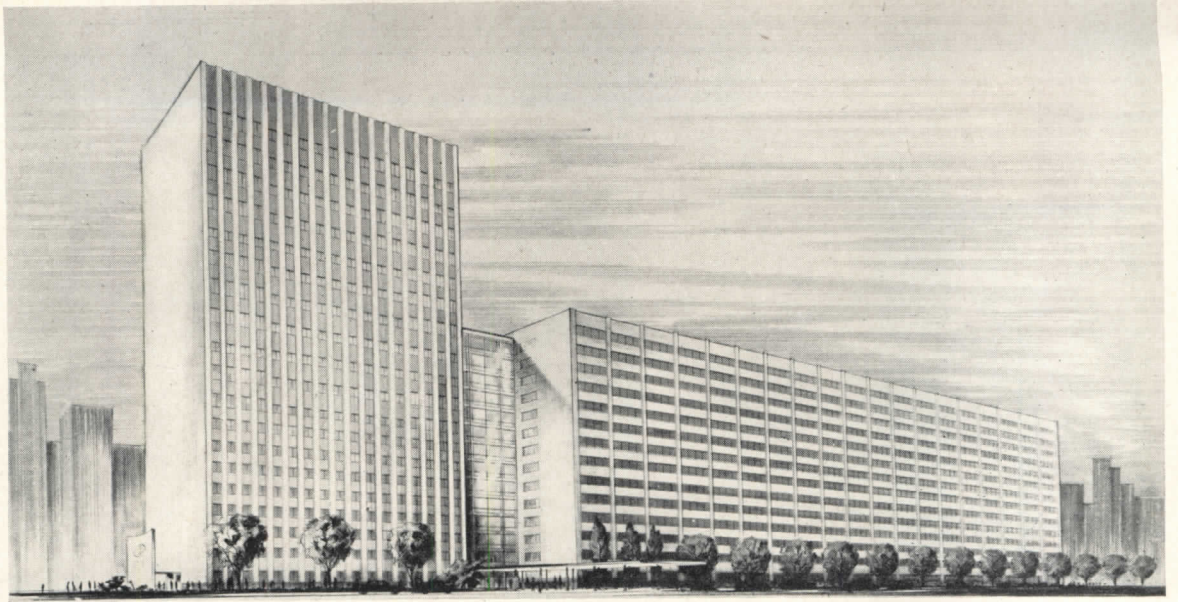
Basement cafeteria; murals by Clifford West



Dining room, 8th floor



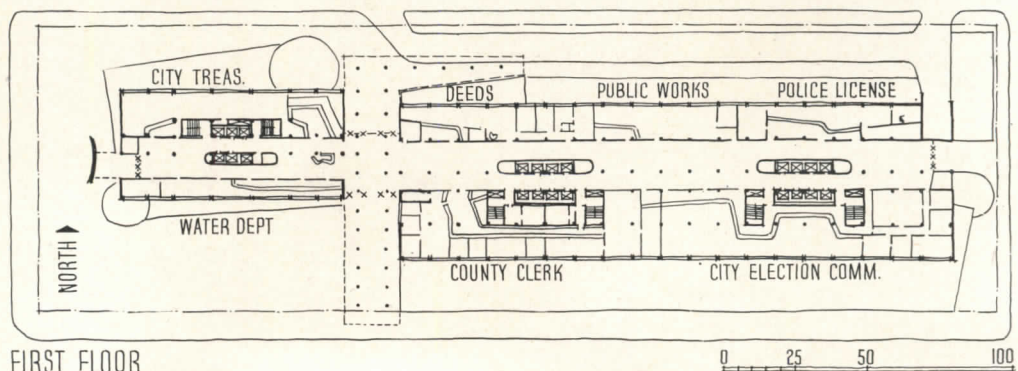
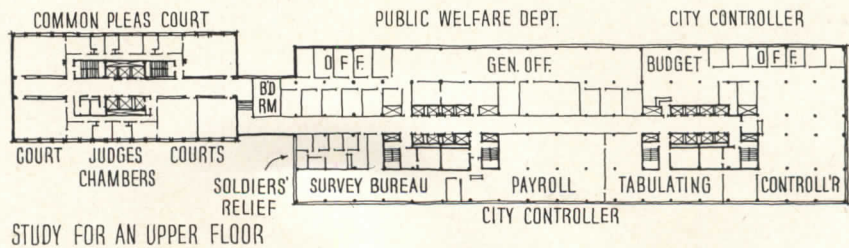
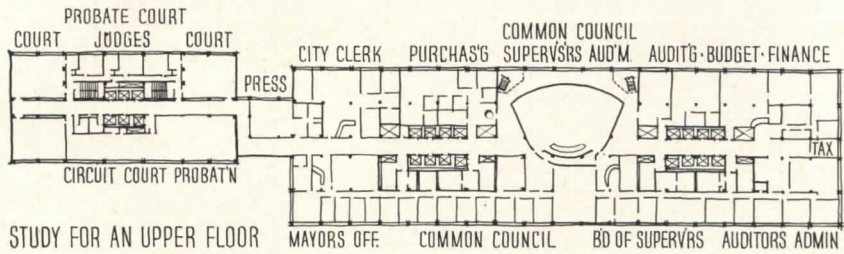
Lounge, 2nd floor



CITY-COUNTY BUILDING

Harley, Ellington & Day, Inc., Architects & Engineers

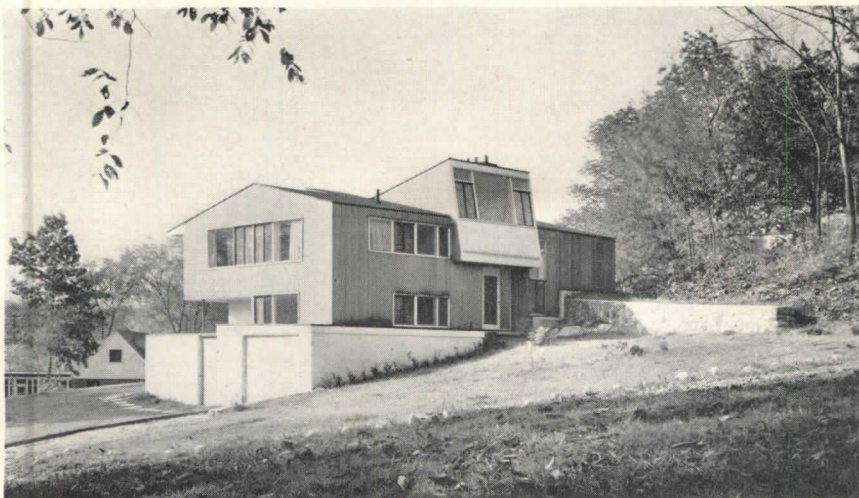
SECOND Civic Center unit to get under way is the \$15 million City-County Building, now in the working-drawing stage. Designed by the Veterans' Memorial architects, it will house the administrative offices of the City of Detroit and the County of Wayne. No City courts will be provided for, but all County courts — Circuits, Probate and Common Pleas — will be housed in the tower section. The building will be of steel construction, with a white marble exterior to harmonize with the Veterans' Building.





FIVE-LEVEL HOUSE IN BELMONT, MASS.

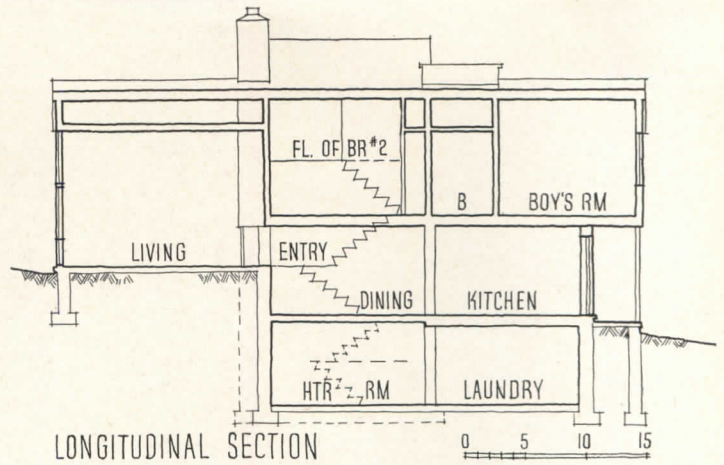
For Dr. and Mrs. Joseph J. Michaels



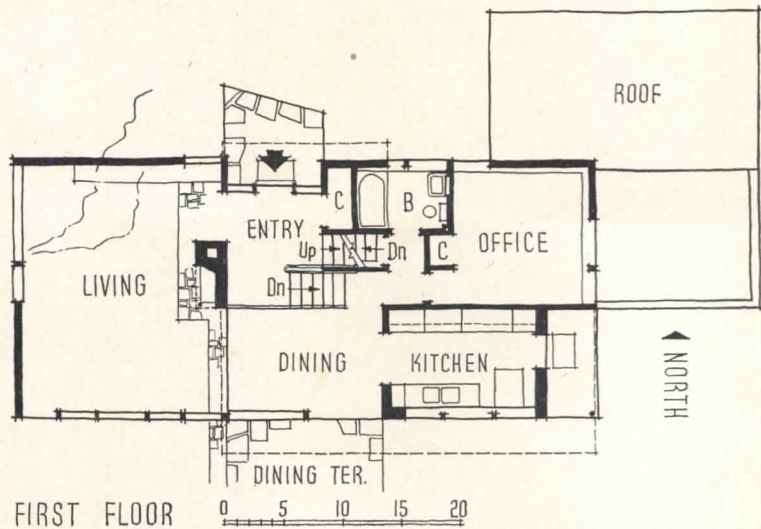
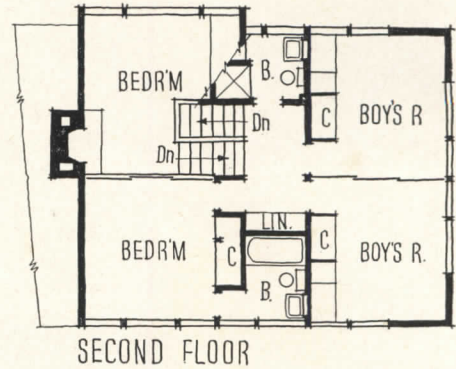
Ezra Stoller: Pictor

*Carl Koch Associates
Architects*

*Leon Lipshutz
Associate*



The many levels of the house follow land contours and relate similar activities. The lower level contains laundry, utility room and garage. Above this are the dining room and kitchen, with a flagstone terrace, and the office-study. The central level includes entry, living room, and grass terrace to the west. A half level above are the bedrooms. At the top is a studio-bedroom, separated from the master bedroom by sliding panels



STEEP slopes and rocks on a small corner lot were developed into distinct assets in the planning of this multi-level house. Following the natural lay of the land, the architects have placed major living areas so that each has good orientation and a separate terrace. Large glazed areas were provided to satisfy the clients' desire for a feeling of space and as much direct contact as possible with the outdoors from the living room, dining room and kitchen. With a certain vigor, an outcropping of ledge rock was made into a garden in the west corner of the living room. Extensive use of natural materials, a characteristic of the work of this office, helps key the house to its site.

The Michaels family is an active one, and required rooms which could double for many uses. Dr. Michaels is a well known Harvard psychiatrist and required a study that could double as an office. A studio-bedroom was provided for Mrs. Michaels, who is a painter by avocation. Bedrooms for their two boys, aged ten and twelve, were designed with a folding partition between the rooms to give a large area for hobbies. Sliding panels used in many of the rooms give a sense of space, provide privacy when needed.

FIVE-LEVEL HOUSE



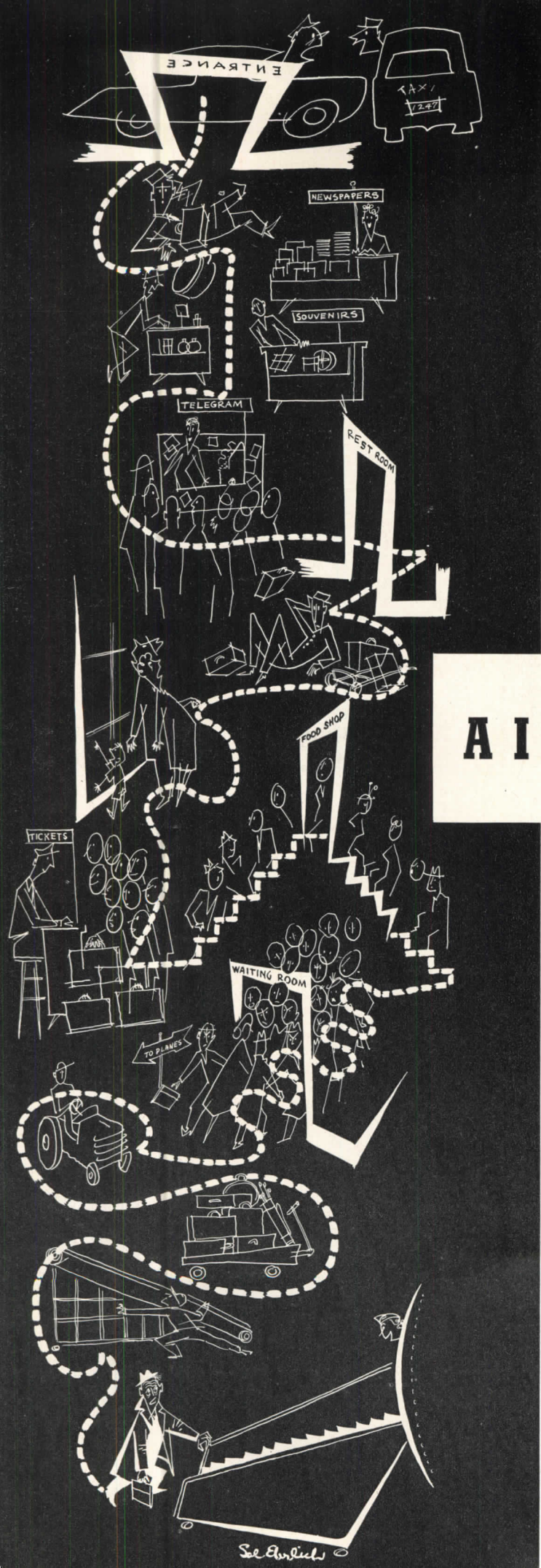
Ezra Stoller: Pictor

A great sense of openness has been realized in the living and dining areas (above and two photos, right). This was achieved mainly by the use of natural materials and large areas of glass. The ledge-rock garden is echoed by the stone fireplace and dining room walls. Exterior fir siding carries through to form one wall of the living room. The remaining walls are rough, unpainted plaster. Floors in the entry and dining room are flagstone, those of the living room are waxed concrete



The roof line of the house has been carried up over the studio-bedroom to permit large windows for north lighting. A sliding panel (right) between this room and the master bedroom increases the sense of space and affords cross ventilation for hot summer months. Finishes in the bedrooms are kept simple; walls are rough plaster, floors are varnished oak. The multi-level division of the house gives seclusion for the individual activities of the family, and permits short flights of stairs (below) for easy access to the various areas





Of all types of facilities built to serve the needs of modern man, the airport probably demands a higher degree of collaboration among the design professions than any other. There was a time when an airport was primarily a facility for handling airplanes. Under such a premise the engineering aspects of airports dominated their design. However, with the growth of civil air transportation airports have become primarily facilities for handling people—that is, the emphasis has shifted from “planes flying” to “people flying.” If airborne freight increases in volume, another shift in emphasis is to be expected. Under such an appraisal, the architectural aspects of airport design have an importance at least equal to the engineering considerations.

We are using the term *architectural* in its broadest sense to connote the designing and planning activities that determine the organization of space so as to fulfill the human and functional requirements that bring a project into being. This ap-

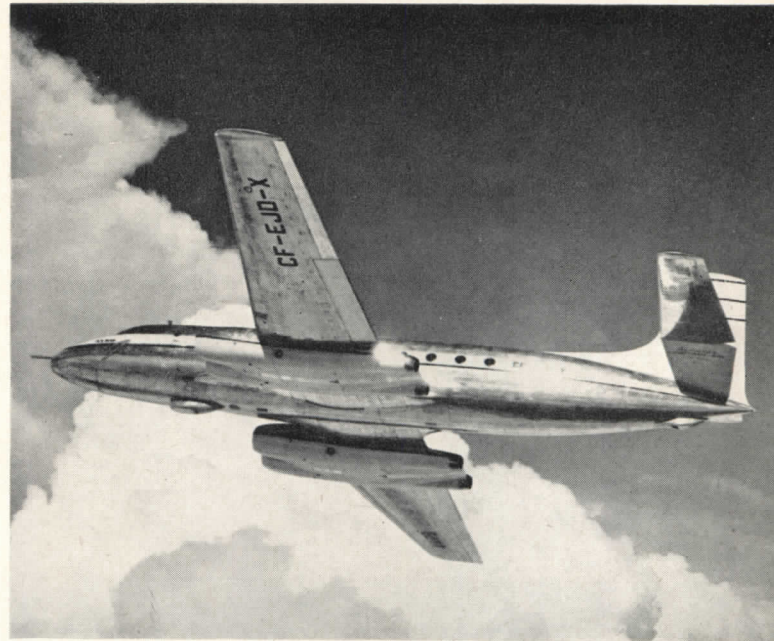
AIRPORT DESIGN:

WHAT constitutes an airport, which renders it susceptible to study by the architect? Every airport, from the smallest to the most complex, from civilian to military, is very much akin to a town plan or neighborhood development. A complex of structures has to be organized in relation to each other as well as with relationship to the runway pattern. A system of streets must be laid out—frequently with separation of high-speed and local traffic; separation of trucks from passenger vehicles. Vehicular parking lots must be laid out in relation to the various buildings they will serve, and sized to accommodate the volume of traffic which each building will generate. Many of the problems confronting the designer of a shopping center will be found since considerable attention must be paid to development of non-aviation revenues. A firehouse and police station must be planned to serve both the building groups and the airfield area. Many airports have, as part of their program, the development of recreational areas to serve both the visiting public and the working population—which will number from one hundred or so upwards to many thousand people. In many cases, the areas sur-

proach affords the sharpest distinction between architecture and engineering. Although the runways may have a ground area many times larger than that of the terminal, administrative and maintenance portions, the latter facilities return several times as much revenue to the airport. A scheme which unduly compresses the terminal area so as to hamper design, limit future expansion, or hinder the flow of passenger and cargo traffic (all *architectural* considerations) will also limit airport income disproportionately and increase the dependence upon subsidy.

The interrelation of functional requirements, engineering considerations, operational procedures, and economic practicability demands the highest degree of collaboration and understanding among the various design professions involved. The study which follows emphasizes the architectural aspects of design of the airport as a whole, a phase of the problem which has not received sufficient consideration in the past.

— THE EDITORS



ITS ARCHITECTURAL ASPECTS

*By Walther Prokosch, A.I.A.**

rounding airports are well suited for development for industry, or parks, or housing, or commerce, or a combination of all of these. All these facilities and many more, including water and sanitary systems, electric power distribution and communications, must be related to the topography and local climate; to the population center which the airport serves; to the neighborhood developments which surround it.

The foregoing remarks apply primarily to civilian airports. For military airbases city planning talents are called for to an even greater extent; here, in addition, provision must be made for housing, community facilities, schools, transportation — in short, every component of a town plan.

Truly, the well conceived airport calls for the intimate collaboration of architect and engineer; for the highest degree of professional service which each can offer. Although the original determination of the runway pattern will result from the studies of the specialist in this field, the inclusion of the architect in the original team will insure that the areas allocated for development of facilities will be adequate and suitable.

THE PROGRAM

The evolution of a program for the various facilities needed on an airport consists of a complex series of calculations which are generally prepared by the airport specialist. However, the steps which are taken in this process should be of interest to the architect since an understanding of them will permit him to be of greater service when the detailed design of structures gets underway. Also, the basic problem is one of circulation, human and vehicular, and hence of coordination of the various parts of the scheme, a problem with which the architect is familiar since this is fundamental to the design of almost every structure. Thus, his participation during this phase can become a healthy stimulant to the thinking of the specialist.

Every study must begin with preparation of traffic forecasts for passenger, airmail and cargo volumes. Forecasts are compounded from a study of the economic character of the community to be served, indications of future economic and industrial growth or stability together with past history of air traffic. Recent compre-

* Associate, Knappen Tippetts Abbott Engineering Co.; formerly Architect, Engineering Division, Eastern Air Lines

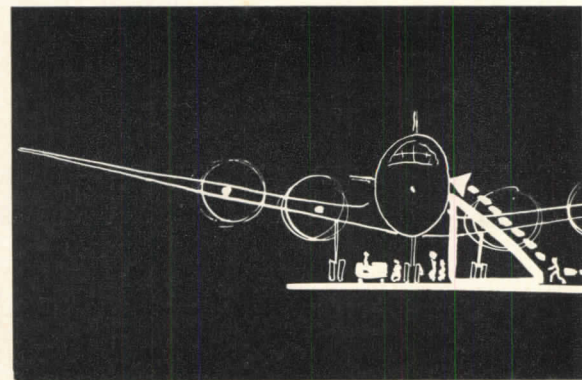
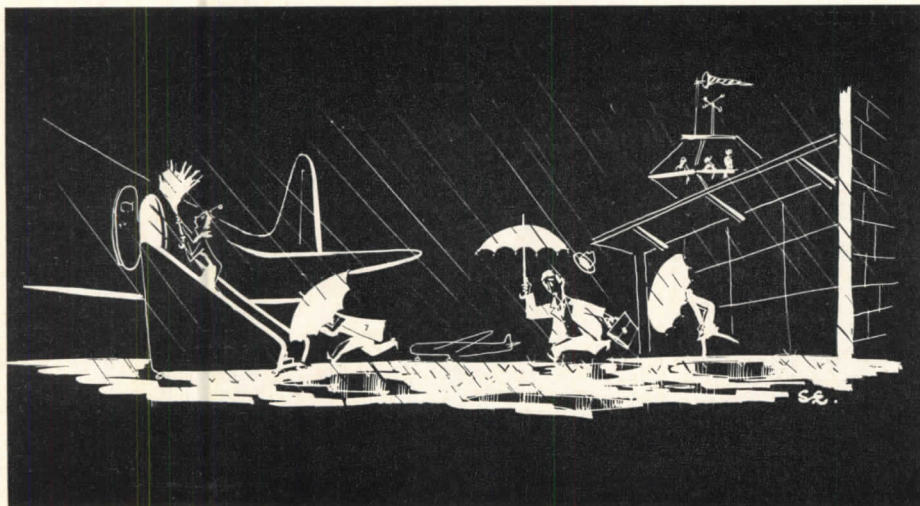


hensive national traffic estimates have been prepared by the staff of the Port of New York Authority. These indicate an upward trend in air traffic through 1980 based on (1) a continued rise in population, (2) an increase in national income exceeding the rate of growth of population, and (3) progressive improvements in the *technological* and service characteristics of aircraft which will serve to increase the airline share of total inter-city travel. Thus, it would appear that for all communities, except those which have reached a definite level of stability in population and economic vigor, an air traffic growth rate roughly proportionate to the national average may be anticipated for at least the next thirty years.

Annual traffic estimates are then reduced to estimates of peak hour traffic since the design must be able to accommodate a normal peak period's traffic. An evalua-

analyzing the space requirements of each of the users of the airport. These include air carriers, governmental agencies, local flying establishments (fixed-base operators), concessionaires and the public-passengers and visitors.

The air carriers will furnish their space requirements for various categories such as ticket counters, operations, cargo areas, maintenance shop and overhaul space. The government agencies (Civil Aeronautics Administration, Weather Bureau and others) will, likewise, give their requirements. As a rule, these figures will apply only to the immediate future — for a five- to ten-year period. The designer will have to project these figures to a 20-year requirement so that the Master Plan may provide for future growth. He should evaluate independently the figures given him, to make sure they do not reflect a potential user's possibly undue optimism.



Must the passenger puddle-hop from waiting room to plane,

tion is then made of typical aircraft types which may serve the airport during the period under consideration. A further study is made of the efficiency of utilization of loading positions which may be anticipated.

The division of the peak-hourly traffic by the airplane size (at a given load-factor), and by the utilization factor, will determine the number of airplane loading positions required at the terminal building. This figure is the key to later planning since it determines the size of both the building and the loading apron. The traffic estimates will furnish an indication as to whether the community will be able to support cargo operations in a separate cargo terminal or whether this traffic can be accommodated in the passenger building. If future volume appears sizable and a separate building becomes a part of the program, the steps outlined previously for passenger traffic will be taken in modified form to determine the number of loading positions required for the cargo building.

The next step in building the program consists of

Facilities and structures to be built immediately cannot be designed for this ultimate growth for obvious reasons. It becomes necessary, therefore, for the planner to prepare at least two sets of space requirements: those upon which design for immediate construction will be based; and a set which will indicate the probable limits of expansion.

For every terminal or service area, then, a Master Plan should be prepared. Even though the traffic figures may vary from those predicted when the next stage of construction is required, the Master Plan will have provided space for expansion. Lack of such space has been one of the most serious problems confronting airport management in the past.

In preparing the Master Plan, the designer must examine each component in sufficient detail to permit expansion to be effected economically and with the least possible interference with airport operations. The ultimate pattern of air routes has not been established. Nor has the ultimate in aircraft design — passenger or

cargo — been detailed. The extent and timing of the plateau of air traffic volumes can be predicted only within general limits. Thus, the most important consideration, as the planner tackles detailed design of the various buildings and services, becomes flexibility, to be applied to interior arrangement, to increase in overall size and to changes in shape.

NEW TRENDS IN TERMINAL DESIGNS

Most of the following suggestions are oriented toward the terminal which is designed to accommodate a larger volume of traffic, and may not be directly applicable to the more numerous intermediate or smaller stations.

Mechanical Docking

For many years the bane of passenger handling — at least from the passengers' viewpoint — has been the fact

. The longitudinal spacing of *airplane loading positions* can be reduced by some 35 ft per position with an attendant reduction in terminal extent and walking distance;

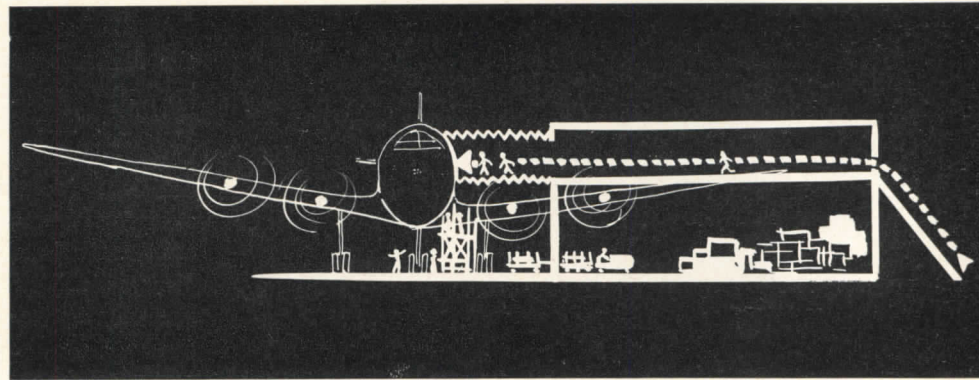
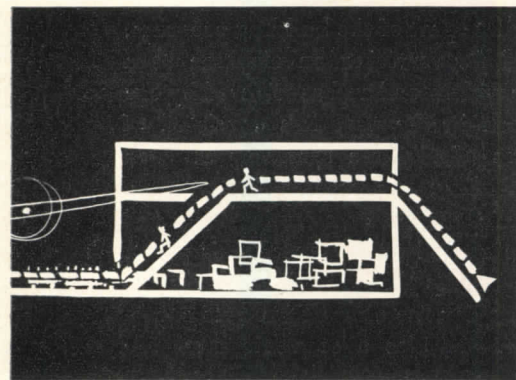
B. A number of movable pieces of *airplane servicing equipment* can be eliminated with attendant reduction in service personnel and increase in working safety;

C. *Service facilities* such as fueling and cabin air-conditioning can be installed and operated with greater economy;

D. A *two-level plan of circulation* can be effected with passengers on the upper level, operations on the lower (this is described in greater detail below);

E. Mechanical means of *handling baggage and cargo* can be introduced, reducing manpower and handling time;

F. *The entire cycle of airplane docking, unloading,*



or climb to an exalted upper level only to descend again and mix ingloriously with the baggage? Oh, for some way to get him directly from upper level to plane!

that loading an airplane cannot be accomplished with protection from the elements. Extensible canvas awnings were used at a few airports with meager success. The ubiquitous umbrella almost lent a touch of comedy to the loading process as passenger and agent leaped among the puddles in a dash toward the cabin door.

Recently a device has been developed with the intent of alleviating the loading problem; it is similar to the locomotive transfer table in general use in railroad repair shops. It consists of a pair of tracks each of which supports a dolly. The airplane taxis onto a dolly with each of its main tires, and is then brought toward the loading gate by means of electric-powered cables. Projecting from the terminal is a fixed two-story "finger" with, at its outer end, a short ramp which can be adjusted to varying cabin sill heights.

In addition to permitting the loading of passengers or cargo to proceed on a level and under cover, use of this device permits a number of changes which should increase the efficiency of terminal operation:

loading and departure can be speeded up. (Here lies the key to efficient terminal organization. The investment in terminal facilities is so great that every device must be pressed into service to effect the maximum usefulness of all parts of the terminal.)

G. The estimated *cost of mechanical docking equipment* is such that it will almost be balanced by savings in loading apron paving, such as placing certain service facilities above ground rather than in pits, and other economies.

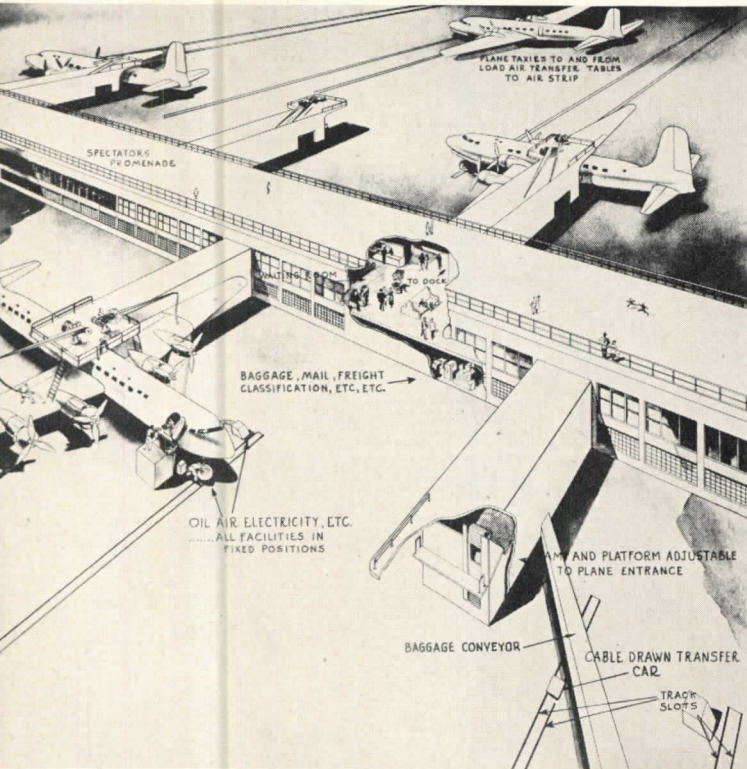
Two-Level Circulation

A number of existing airport terminal buildings have some form of two-level circulation. The best known example is at Washington National Airport. However, the full measure of planning efficiency has not been explored or attained; at some point the passenger must still go from the upper level down to the ground, and then up to cabin level again. The development of a practical method of loading passengers directly from an



upper level onto an airplane gives designers the opportunity to explore and take full advantage of improvements in plan which can result. The fact that many larger railroad terminals have been organized on this basis has caused the normal passenger to expect to be subjected to the operational aspects of a transportation terminal as little as possible. One really cannot assume that a form of transportation has reached maturity until the passenger makes the transition from terra firma to vehicle smoothly and at no personal hazard. The point at issue is that although a number of two-

Illustration courtesy Whiting Corp., New York



Whiting "Loadair", the loading device discussed in the text, draws planes into position on dollies running on sunken tracks

level schemes exist, there remains a real challenge to develop a plan which will carry this part to a higher stage of efficiency.

Arrival and Departure Areas

The study of traffic trends, discussed previously, should also give an indication of the type of passenger traffic which will be encountered, i.e. whether preponderantly in-transit or terminating. If the latter predominates, loading positions may be organized on the basis of arrival gates segregated from departure gates. This will result in a number of possible improve-

ments. Actual airplane processing can be speeded up if only one type of operation is handled at a designated gate. The entire terminal plan can be organized around two principal passenger areas — a departure lobby and an arrival lobby. This, in turn, will simplify public circulation; will make it easier for departing passengers to find their way; will make it easier for friends to meet arriving passengers. Concessions can be grouped in a manner which will enhance their effectiveness by making them more accessible to those passengers who have the time and inclination to patronize them. Other advantages will become readily apparent as the problem is studied.

Almost every airport will have some in-transit operation even if the preponderant volume is terminating. The loading gates designated for in-transit traffic can be located between arrival and departure positions so that access for connecting flights can be provided as well as access to departure and arrival lobbies.

Apron Service Facilities

While not an immediate part of the building program, the facilities provided for servicing an airplane at a loading gate should be understood and considered by the designer. The approach in the past has consisted of providing many forms of airplane servicing at each position, including fueling, air-conditioning, water, compressed air, electric power, communications and others. Obviously, the capital outlay entailed is great. Further, this practice implies that a loading position is not only a place for loading the aircraft with its cargo, animate or inanimate, but also a convenient service station.

For the smaller terminal, which caters predominately to in-transit traffic, such an approach will probably continue; it would be uneconomical to unload a few passengers, move the aircraft to another location for servicing and then move it back again to take on more passengers for the next leg of the flight. However, for the "terminating" terminal, serious consideration and analysis must be devoted to determining whether the overall function of the terminal may not be increased and the capital cost reduced by designing the loading gates exclusively for loading (or unloading), and by providing separate service positions within reasonable proximity of, but removed from, the terminal. Again, the objective is to increase the rate of "turn-over" at the loading gates, as it is in every other form of transportation.

Cargo Terminals

Forecasting cargo potential is even more difficult and surrounded with more mystery than forecasting passenger traffic. That a sizable potential does exist is generally admitted, but a precise definition of "sizable" is hard to come by. It is probably safe to say that at smaller terminals the necessity for segregation of cargo from passenger traffic does not present a serious prob-

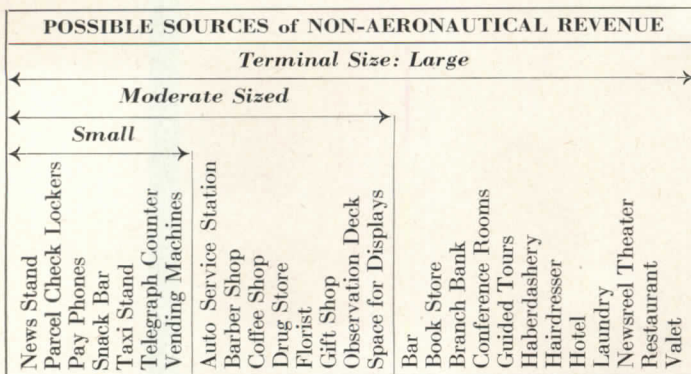
lem. At the intermediate terminal a cargo wing will probably provide the necessary separation of activity. At larger stations, however, consideration should be given to a separate cargo terminal.

While simple in general outline, a cargo terminal will contain elements which require the consideration of competent designers, and again, pioneering effort to develop a new plan peculiarly suited to a new set of conditions. In addition to general warehouse space, the building will contain office space, refrigerated storage space, bonded warehouse space for international terminals, strong rooms for valuable cargo storage and other facilities. The relationship of cargo terminal to service areas must be carefully worked out to provide *good operating characteristics* for the air carrier.

Concessions

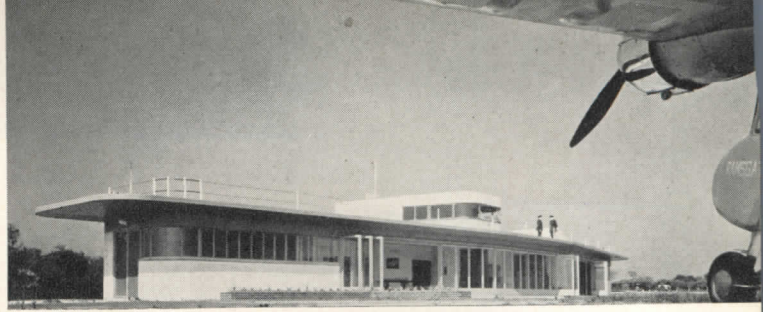
In recent years tremendous emphasis has been placed on the development of concessions at airports. In some cases more income is derived from these sources than from the strictly aeronautical sources, and "economic studies" of revenue potential are the order of the day. This, a serious phase of terminal design, must not be neglected; the taxpayer should be relieved of subsidizing airport expenditures as much as possible. For this phase of the work, the architect might be well advised to team up with a financial advisor to determine the types and sizes of concessions to be included.

However, caution must be exercised to preserve the terminal for its primary function: handling passengers. While concessions should be well located and convenient of access, they should not interfere with the direct flow of passenger traffic. In some circles the belief exists that concessions will be more heavily patronized if the passenger must wend his way through a labyrinth of coffee shops and branch banks to get from front door to ticket counter. Actually the reverse is true, as has been amply proved in better planned railroad terminals. The well designed terminal provides first for the most direct circulation of passengers, and then will afford a variety of auxiliary services commensurate with the volume of traffic flowing through the building.



Note: Specific concessions which a terminal can support must be determined for each project.

Dell and Wainwright Photo



Orville K. Blake Photo

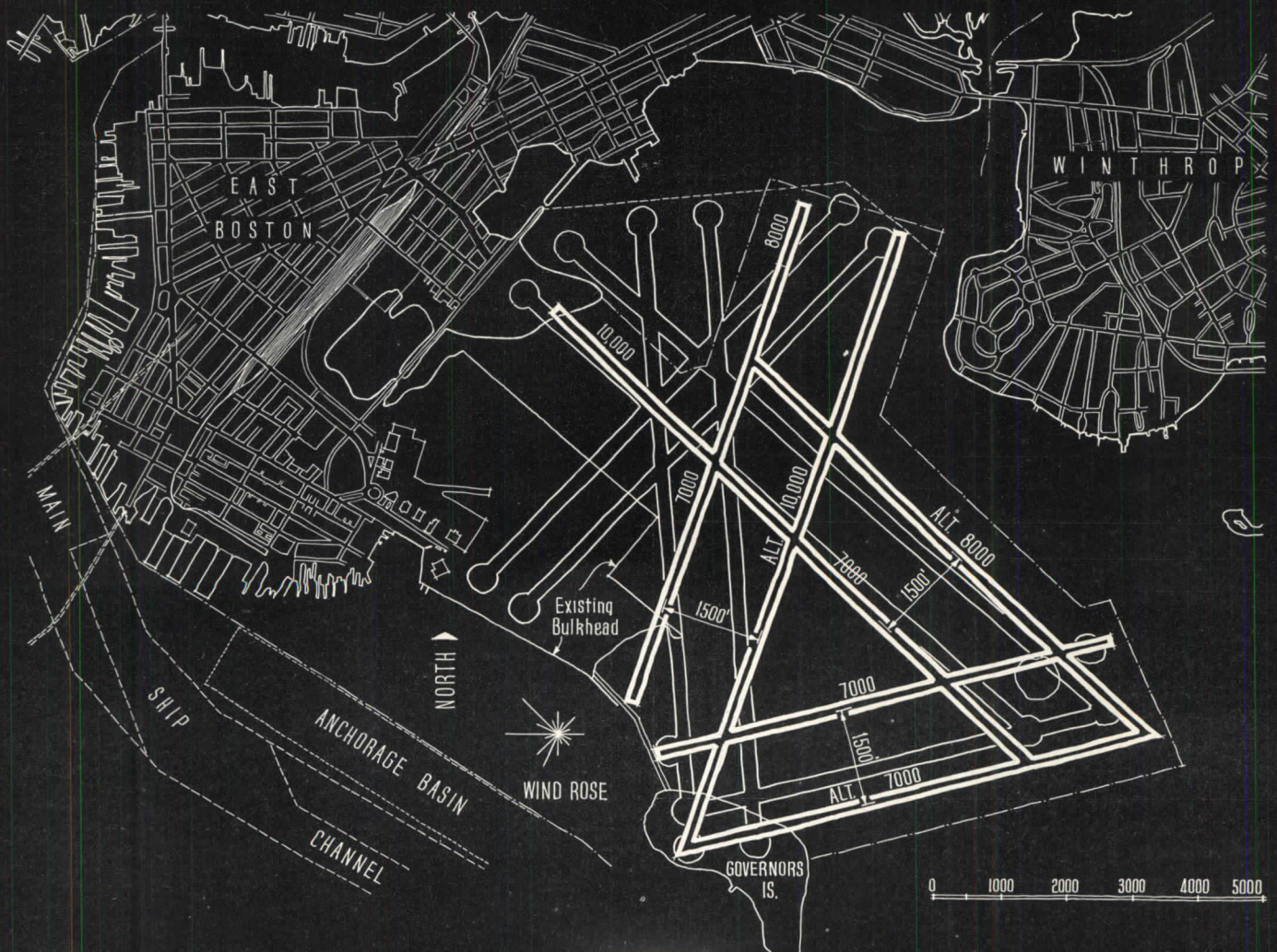


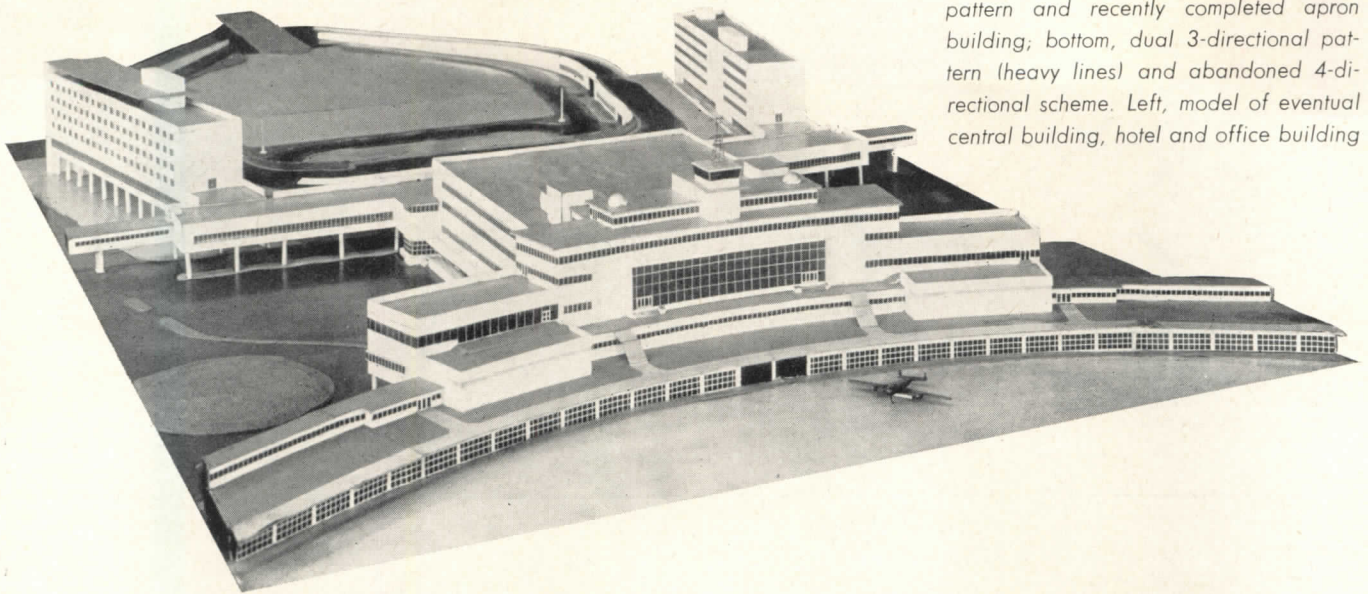
Municipal Airport building, Ramsgate, England; D. Pleydell Bouverie, Architect. Below that, view of Washington, D. C., terminal building (Howard L. Cheney, Architect), showing possibility for future expansion as well as excellent location for concessions

Below, two views of New York's International Airport, Idlewild, which at present has temporary central terminal buildings. At bottom, interior of a recent addition. The transitory nature of this and many another air terminal accurately reflects the many changes within the aviation industry. These cause a confusion of planning ideas which the designer must resolve

Photos Courtesy of The Port of New York Authority







Facing page: top, 3-directional runway pattern and recently completed apron building; bottom, dual 3-directional pattern (heavy lines) and abandoned 4-directional scheme. Left, model of eventual central building, hotel and office building

LOGAN INTERNATIONAL AIRPORT EAST BOSTON, MASSACHUSETTS

*Thompson & Lichtner Company, Inc., and
Coolidge, Shepley, Bulfinch & Abbott, Associated Engineers and Architects*

Design and supervision of construction of facilities carried out under direction of State Airport Management Board, Department of Public Works, and Massachusetts Public Buildings Commission by the associated engineers and architects with special engineering features by Office of Hollis French (heating, ventilation), Thompson Engineering Co. (electrical), Hayden, Harding & Buchanan (drainage), Coffin & Richardson (water supply), Eugene Groden (field lighting).

SINCE 1922 there has been an airfield of some sort on the State-owned property, most of it recently filled land, now occupied by Logan International Airport. In 1923 the first plane landed there. In 1928 the City of Boston leased the airport; in 1941 the State took it back; in mid-1944 a committee was formed to select a firm to design the facilities shown in these pages. Coolidge, Shepley, Bulfinch & Abbott applied for the job on the basis that the design problem required architectural as much as engineering services. In applying they agreed to associate with the Thompson & Lichtner Co., consulting and management engineers, and when

this engineer-architect combination was awarded the job, Thompson & Lichtner Co. were made the principals. The design team has functioned well; the entire airport has been studied as an architectural problem; four of the six runways have been put in operation and recently the apron building, first of several public terminal structures, was opened.

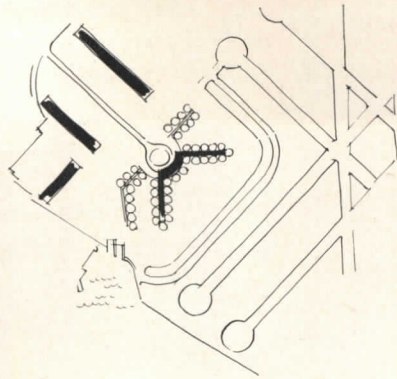
Before any designing was undertaken the design team was commissioned to survey the terminal facilities required. They took as basic the following factors: 1, a dual, 4-directional runway pattern was already established; 2, minimum distance from the city, with good roads and transit; 3, minimum taxiing distance for planes; 4, continued use of airport during construction; 5, adequate eventual facilities for the type and volume of air traffic expected; 6, provision for future growth; 7, flexibility to permit minimum construction at first, together with adaptability of initial construction to future expansion.

Although the 4-directional runway pattern was well established, none of the six airlines using the airport was satisfied with it. After serious study a 3-directional pattern was unanimously recommended; it was estimated that this would save \$2,000,000 in fill, paving, lighting and drainage, and that considering direction,

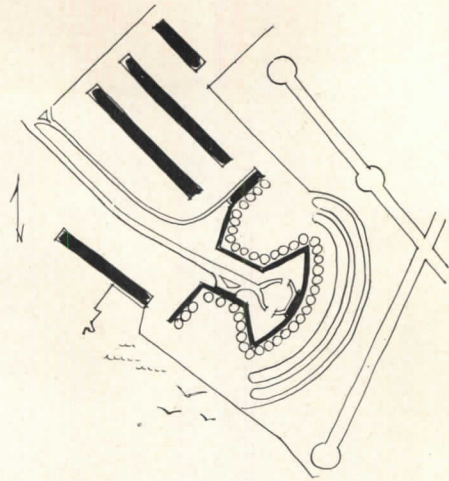


LOGAN INTERNATIONAL AIRPORT

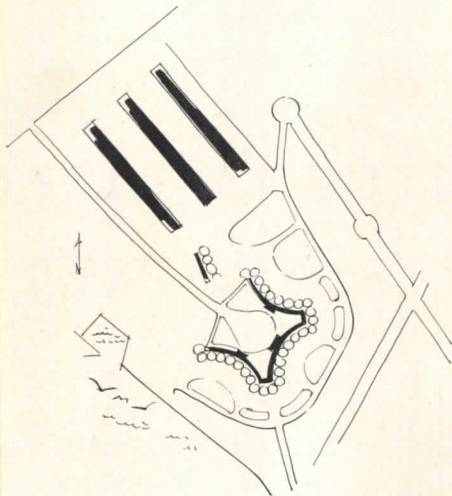
1



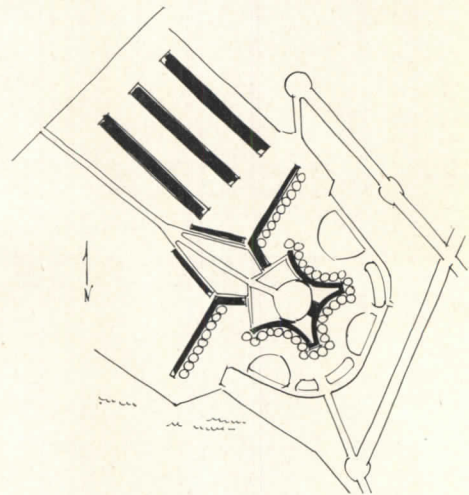
2



5



6



intensity and duration of prevailing winds, eliminating the fourth set of runways would not hamper operations more than $\frac{1}{4}$ of 1 per cent of the time. With the 3-directional scheme, also, terminal buildings and control tower could be placed closer to the runways. After much discussion the recommendation was adopted. It was subsequently found that the saving to the Commonwealth, based on actual runway construction costs, was \$7,000,000.

A passenger traffic estimate was made by Thompson & Lichtner for the 5th, 10th and 20th post-war years. This, now proving of extraordinary accuracy, predicted 3,000,000 passengers per year in 1955, half arrivals and half departures. From these figures peak hourly traffic, the criterion for design, was arrived at from a survey of airport traffic throughout the world. For 1955 the peak hourly estimate was 1852 passengers,* which, in terms of known conventional types of aircraft, would require 84 plane movements (42 landings, 42 take-offs) per hour. A single-runway system can accommodate 60 plane movements per hour; therefore dual runways would be needed by 1955. These, CAA and the airlines agreed, would require a minimum of 30 plane positions on the apron. They also established the size of a plane position as a 150-ft circle on an apron 200 ft wide, or

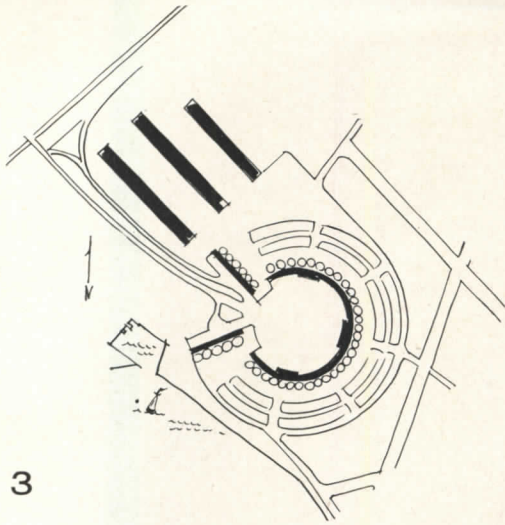
Building development: Fig. 1, airlines proposed "finger" scheme with 2nd-floor passenger loading for which, at the time, devices had not been perfected; passengers would have to walk, baggage be carried, long distances (see text for discussion). Figs. 2 through 6, schemes for handling passenger, cargo, and international traffic (which must be segregated for customs reasons). Fig. 7, horse-shoe scheme, suggested to increase parking near apron, was found to lengthen walking distances. Figs. 8 and 9 provide parking for 2300 near central building and apron, separate the types of air traffic, and connect buildings to highways leading through Sumner Tunnel under main ship channel to downtown Boston, also to rapid transit system

4500 linear ft of apron for 30 positions. This set the minimum apron for the contemplated runway system.

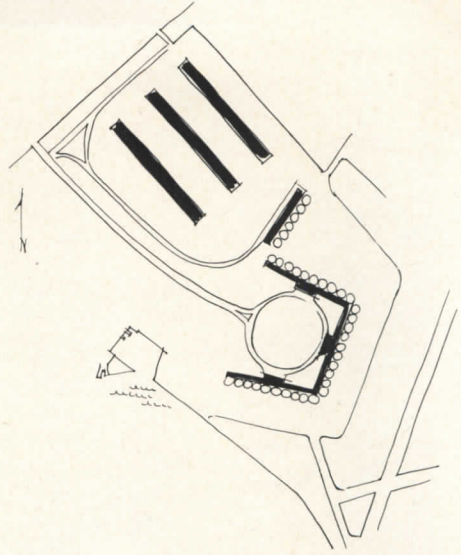
Centralized vs. decentralized operation was another decision made only after thorough investigation. Washington, D. C., airport is centralized; emplaning passen-

*The survey established the peak month as 1/10 of yearly traffic; peak day, 1/27 of monthly traffic; peak hour, 1/6 of daily traffic. Hence:

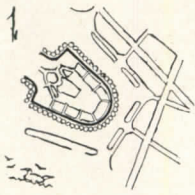
$$\frac{3,000,000}{10 \times 27 \times 6} = 1852$$



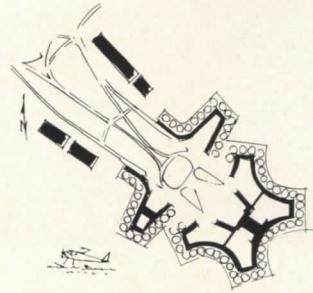
3



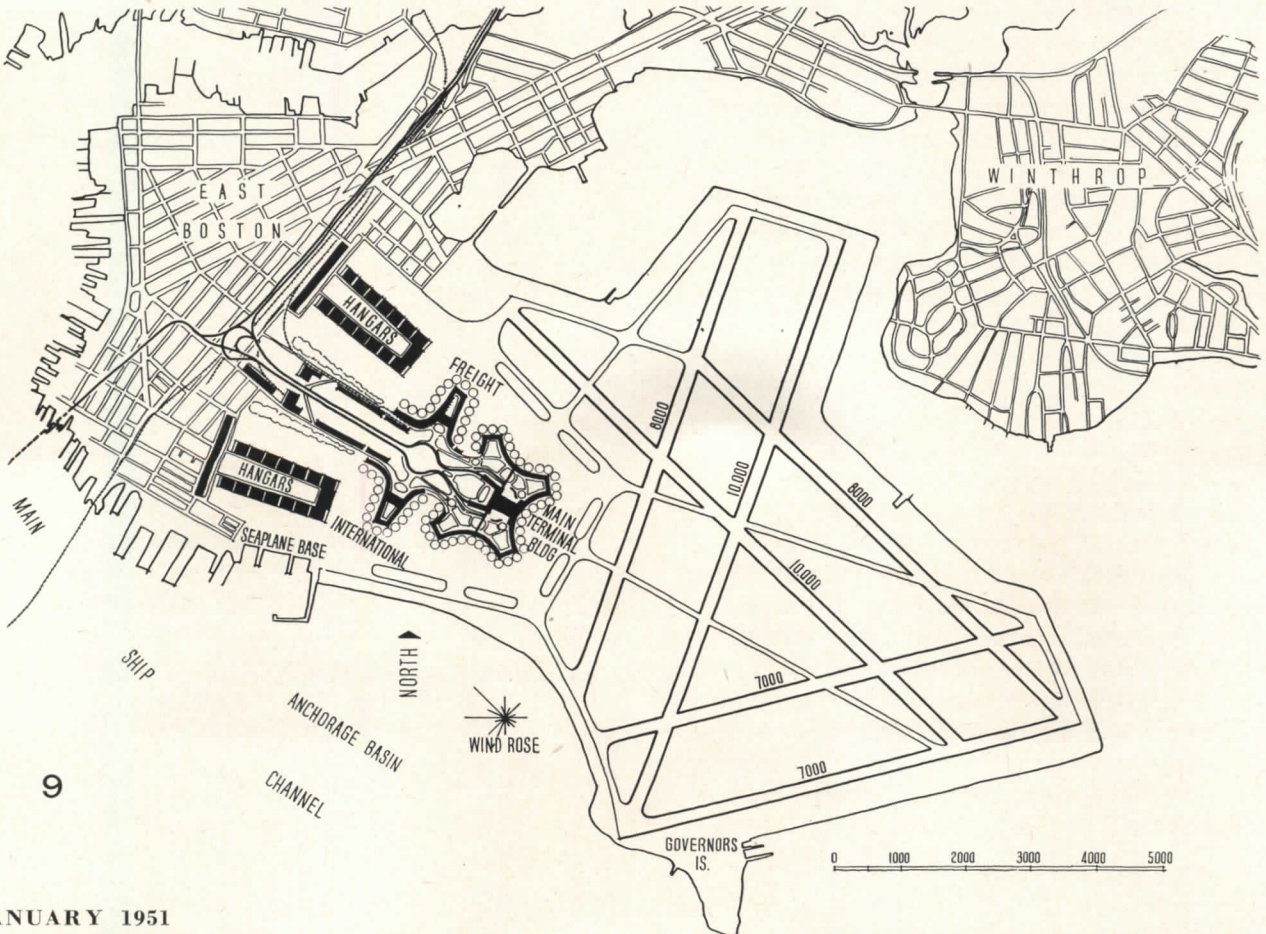
4



7



8



9

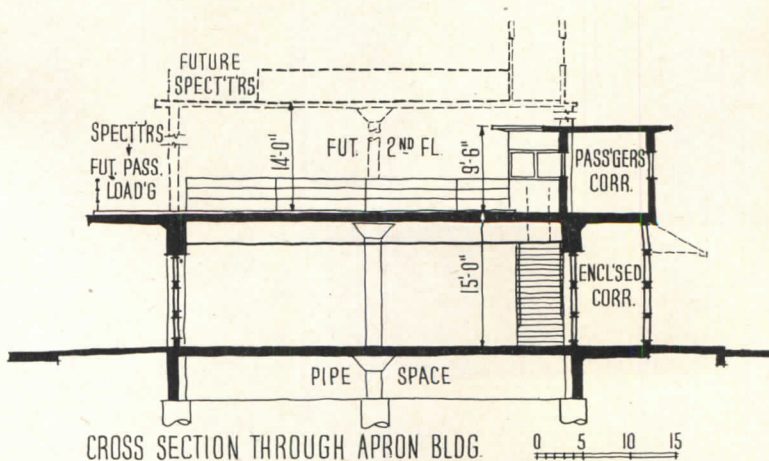


Fay Photo Service Photos

gers go through the central building to their plane; deplaning passengers likewise traverse the central building, going upstairs to the main entrance for a taxi or bus. Centralized baggage checking, both in- and out-bound, further complicates centralized operation; reclaiming baggage takes much too much time. At New York's La Guardia Airport, on the other hand, the apron building, detached, is in front of the central building; taxis and buses meet passengers and baggage close to the plane station. This speeds traffic, but since the central building is separated from the landing field by the apron building, La Guardia's concessions are diminished in value. At Logan, the aim has been to maintain the advantages of both, affording direct access by taxi or bus to the apron building yet preserving for the central building a fine view of the field.

To reach this goal numerous studies were made; several are shown in Figs. 1 through 9 (see page 120). The "finger" plan (1), a favorite of the airlines, was eventually discarded because it committed the airport to centralized operations, limited future development, caused congestion of passenger and plane traffic, increased hazards due to fire and snow, and for several other reasons. Figure 8 shows the scheme ultimately adopted, and 9 is a closely similar scheme shown in relation to the city, to vehicular travel via Sumner Tunnel under the harbor, and to the proposed rapid transit extension.

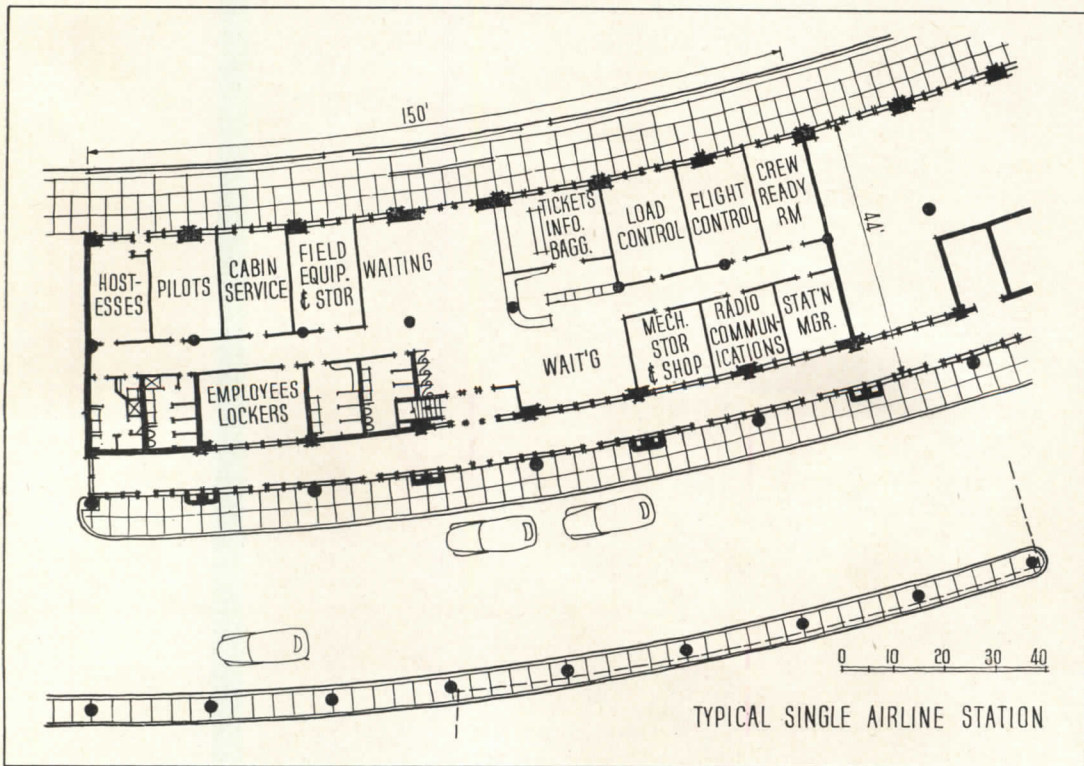
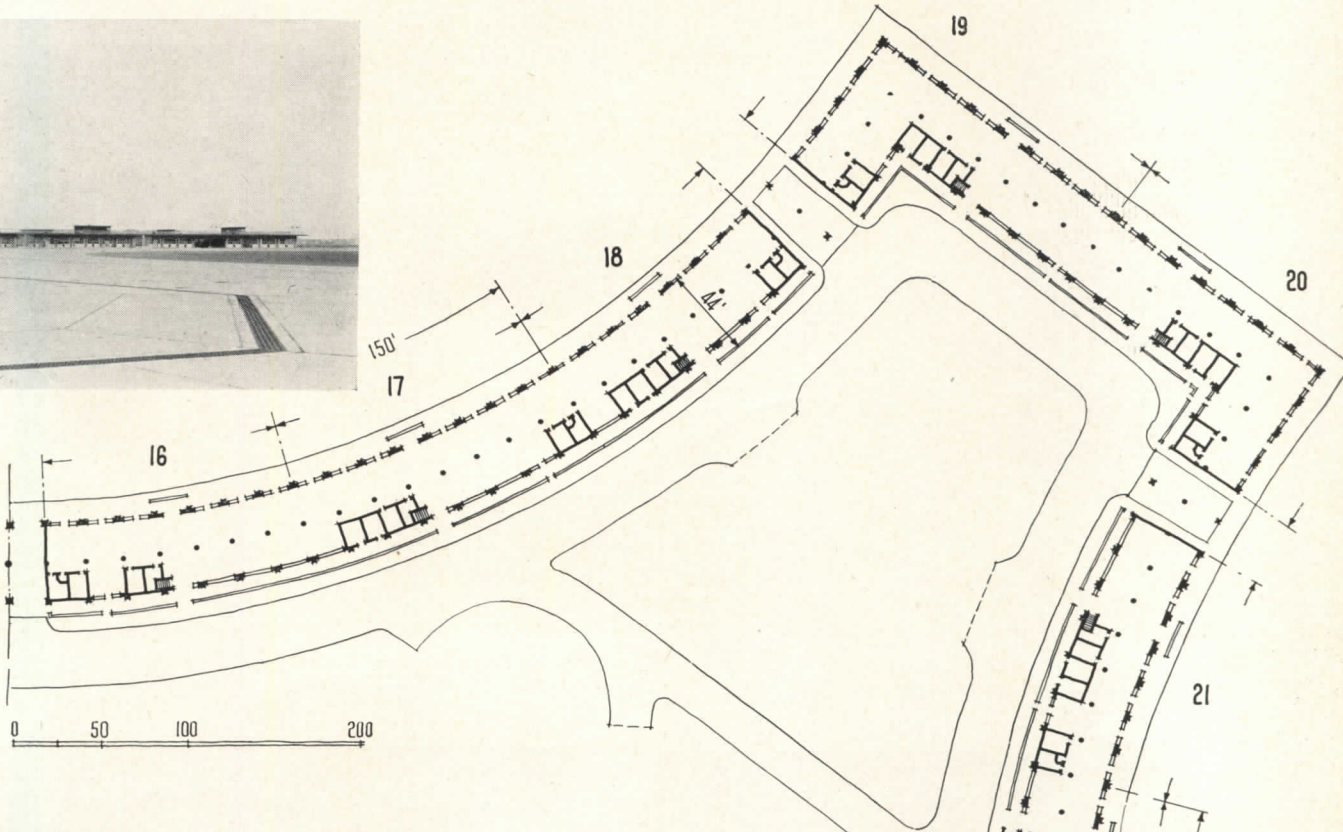
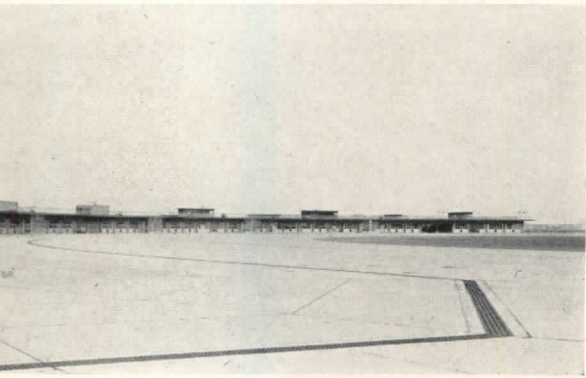
Requirements for a single airline station, checked with all lines using the airport, determined area (about 6000 sq ft) per station. Note direct access by bus or taxi. Section below shows provisions for second story, designed to permit second-floor loading when this becomes feasible



LOGAN INTERNATIONAL AIRPORT

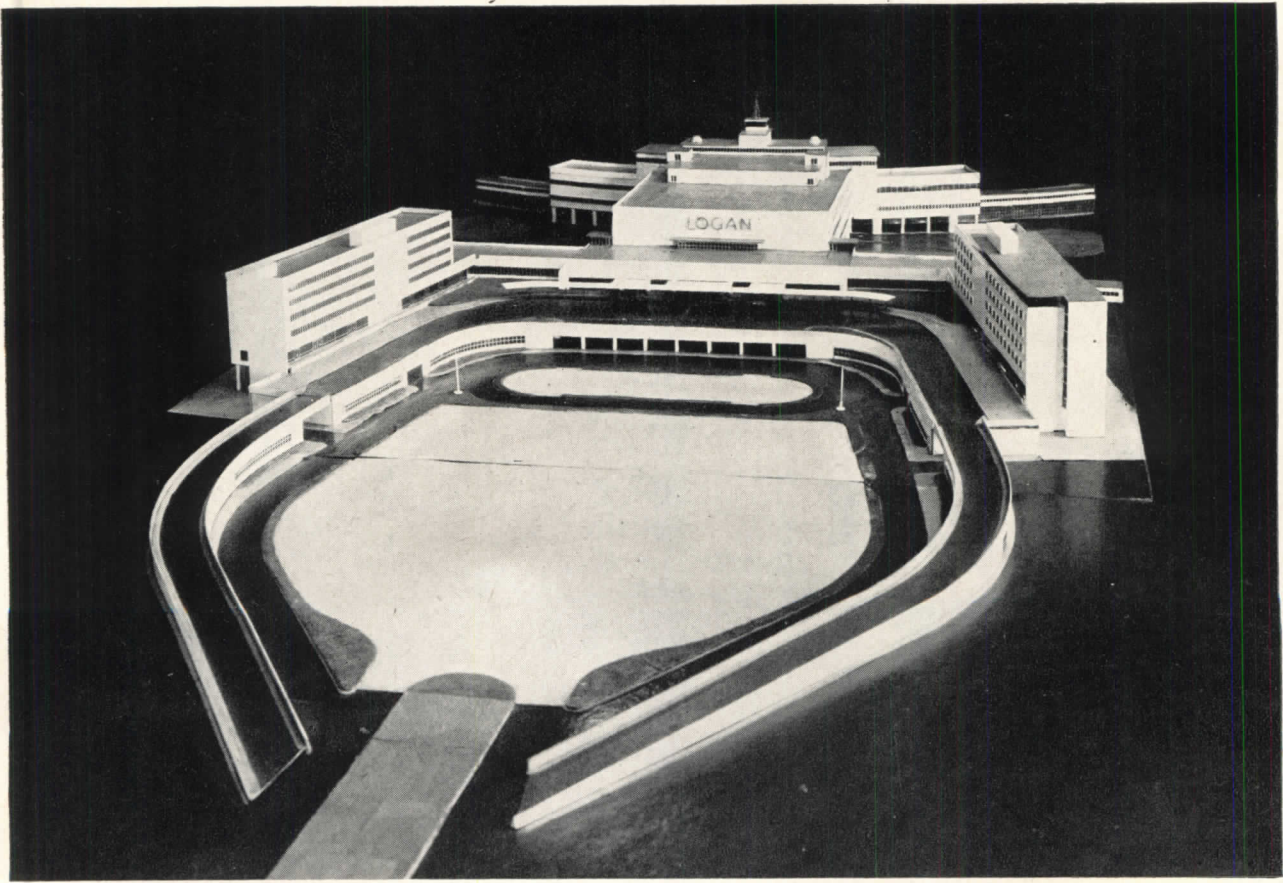
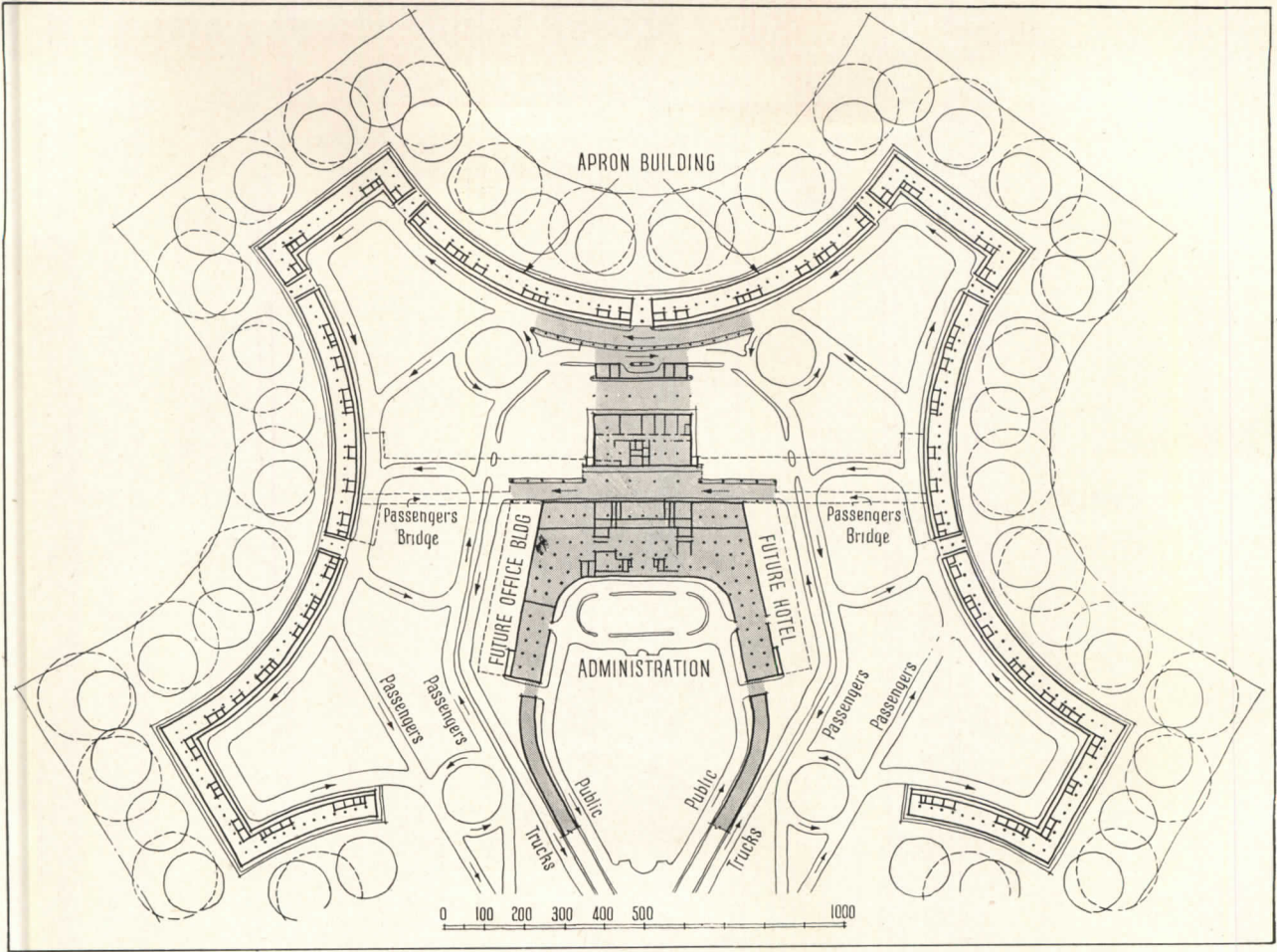


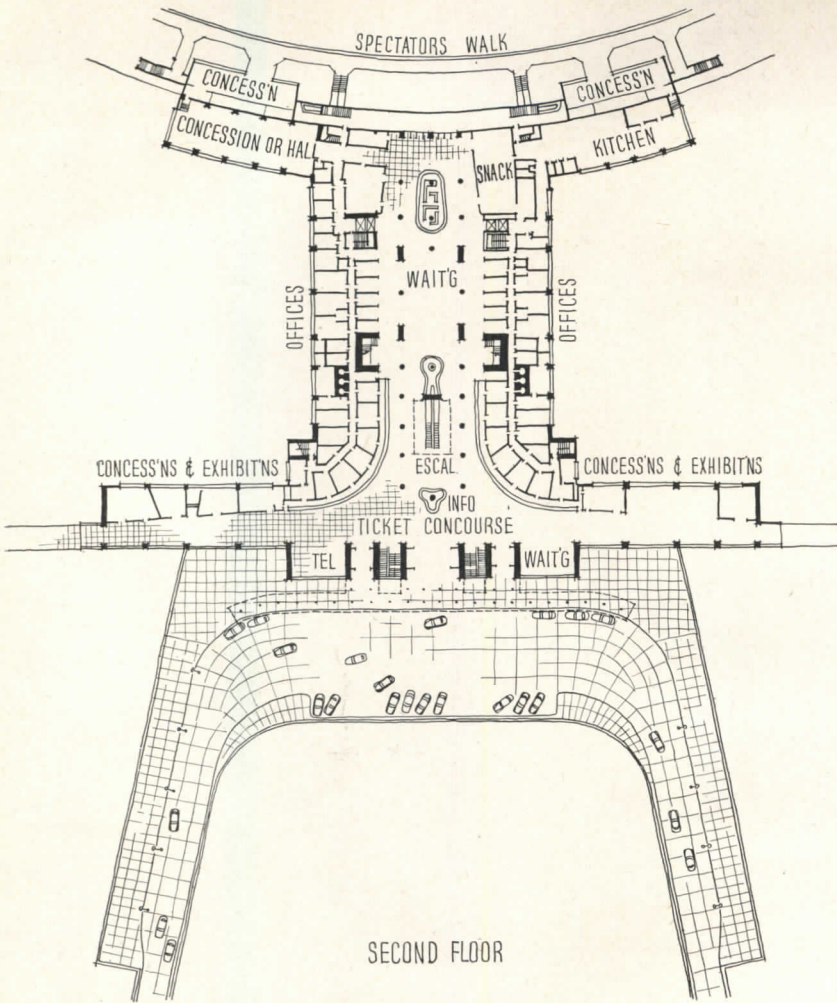
Ground floor of Apron Building has recently been completed. In it, permanent partitions are provided only around toilets and mechanical rooms. Remainder have been developed according to each airline's needs



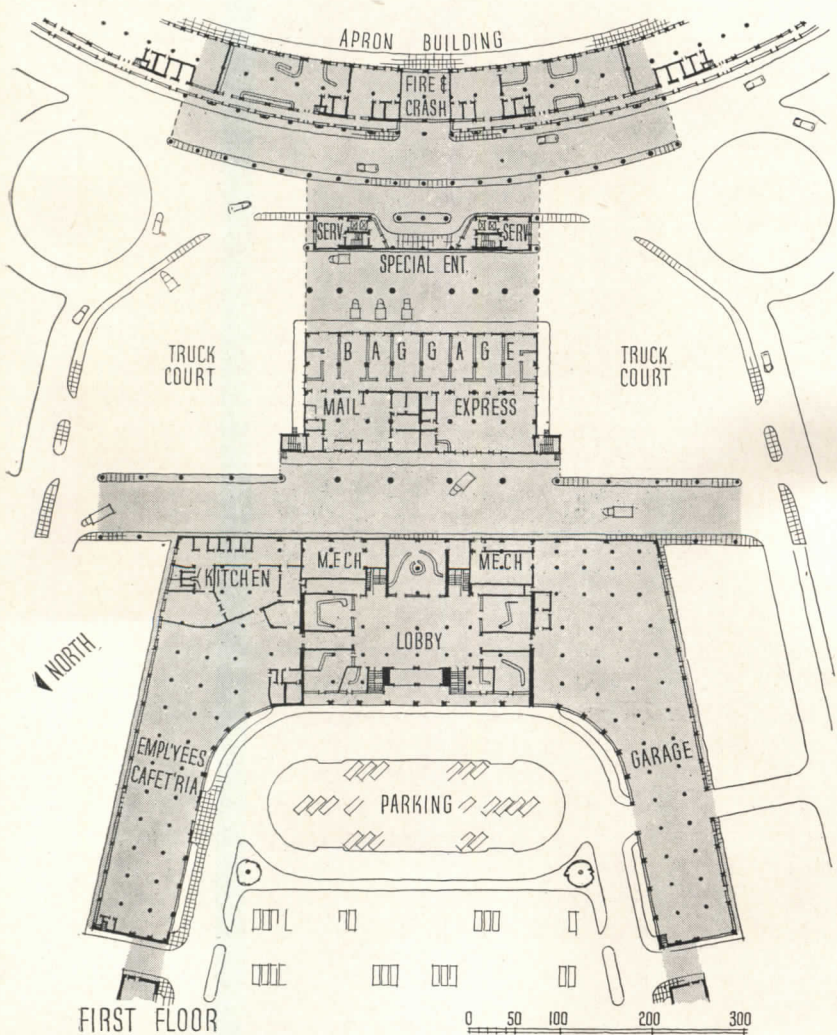


LOGAN INTERNATIONAL AIRPORT

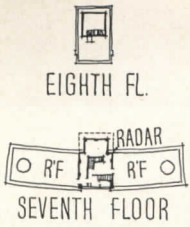
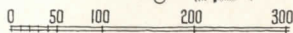




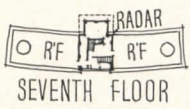
SECOND FLOOR



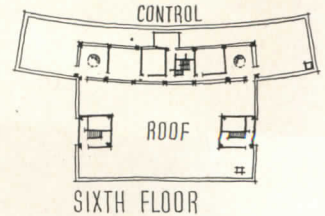
FIRST FLOOR



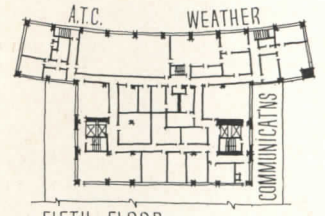
EIGHTH FL.



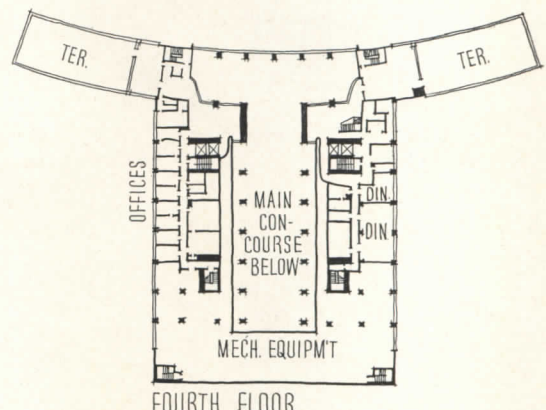
SEVENTH FLOOR



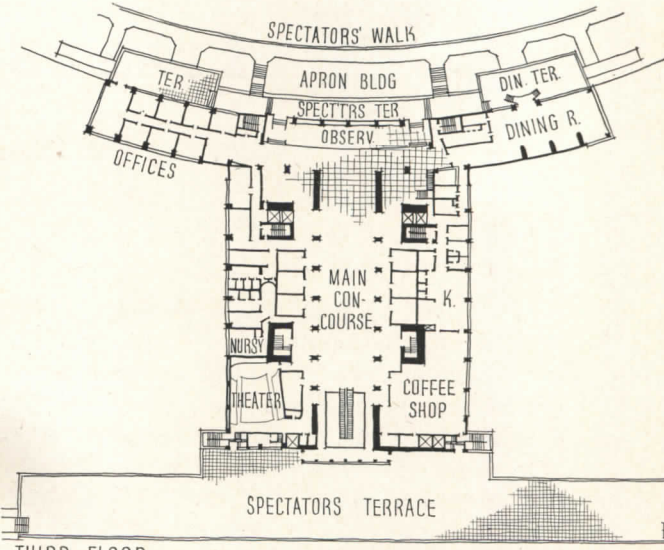
SIXTH FLOOR



FIFTH FLOOR



FOURTH FLOOR



THIRD FLOOR

Central Building at Logan, planned to connect at second floor with midpoints of Apron Building arcs: on first floor baggage, etc., goes directly to its own quarters, is transferred to airport trucks which carry it through openings in Apron Building to planes. Passengers come to second floor via vehicular ramp or by escalator from below; second and third floors also house concessions, exhibition space. Upper floors are for offices, airport operation. Ultimately contemplated are a hotel and office building along the entrance ramps, and the International and Cargo Terminals—see page 121



STAPLETON AIRFIELD, DENVER,

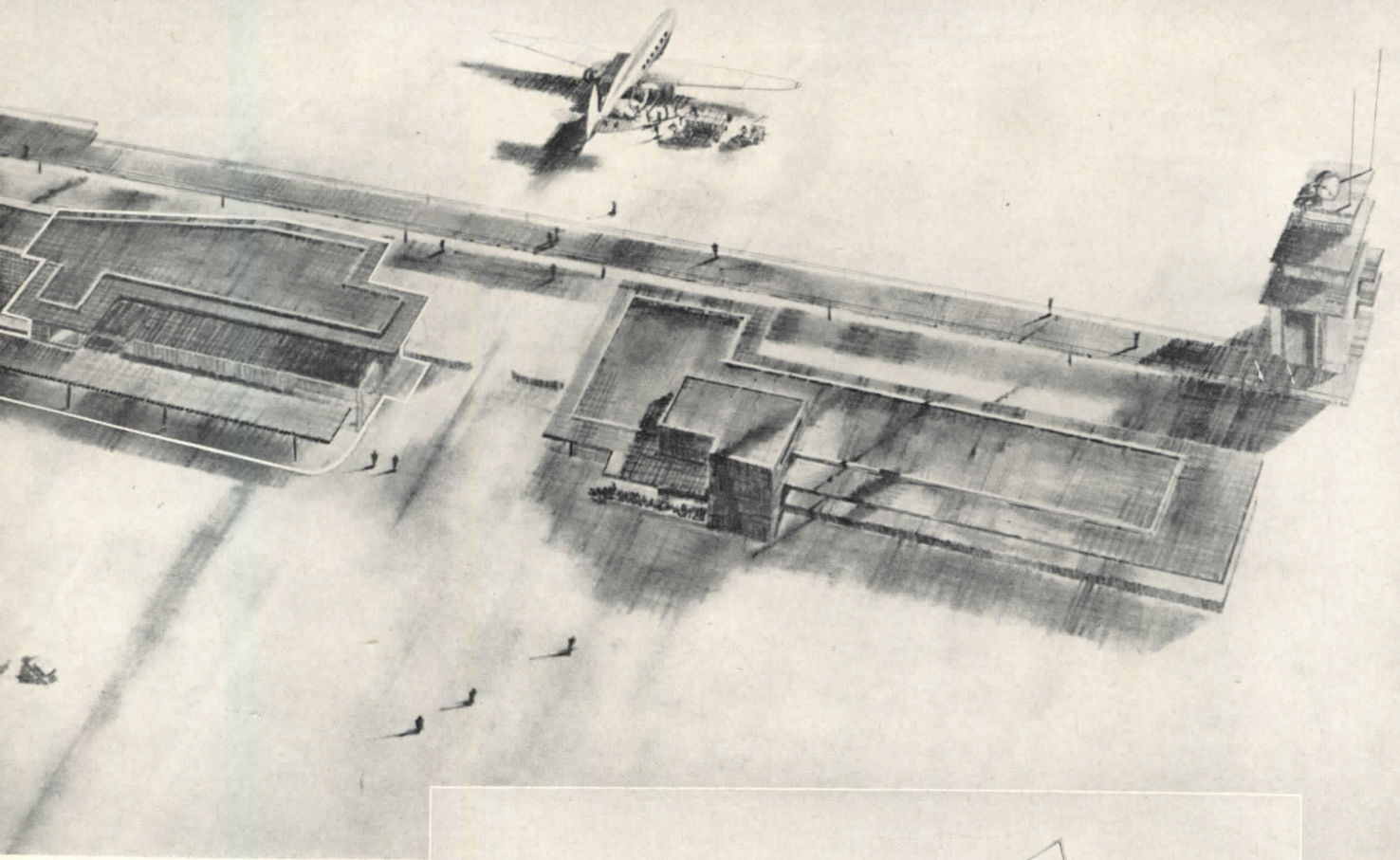
G. Meredith Musick, Architect

THE design of Denver airport's terminal facilities, like those of most airports large and small throughout the country, has undergone many changes over a period of several years. Shifts in airline and municipal policies, changes in aircraft design, post-World-War-II conditions such as availability of materials, costs of construction, all affected the terminal's status. Complicating the problem further is the fact that one of the largest airlines, United, has selected Stapleton Airfield as the site for its Operating Base. Now it appears that the nearly three million dollar scheme shown in the rendering above will achieve substantial completion: its central portion (outlined in white), containing public spaces and restaurants, was completed early this year; a second unit, the airlines office building (at left of rendering) is out for bid as this is written.

The architectural firm of G. Meredith Musick was retained by the City of Denver in the winter of 1944-45 to work on the terminal buildings. In 1947, with average scheduled aircraft movements at just over 100 per day, Denver ranked 10th in air traffic in the country;

the situation is hardly less acute today. To relieve it, plans for the successive steps into which the entire project is divided are to be released as soon as possible for bidding. Of these, Schedule 1 is the office building referred to; it comes first to make way for succeeding steps. Schedule 1-A, one of the key steps, includes ticket offices, remodeling and material expansion of the present 3-story administration building (see following pages) and not only facilities for getting passengers to and from planes under cover, but also complete mechanical baggage-handling systems and other travel conveniences. Schedule 1-B comprises services: sanitary and storm sewers, and a new steam main. Schedule 2 includes the 5-level control tower (rendering at right) which, it is expected, will be built at the same time as the office building. Schedule 3, the detached building between the control tower and the completed structure, is to house the U. S. Post Office and to provide space for air cargo.

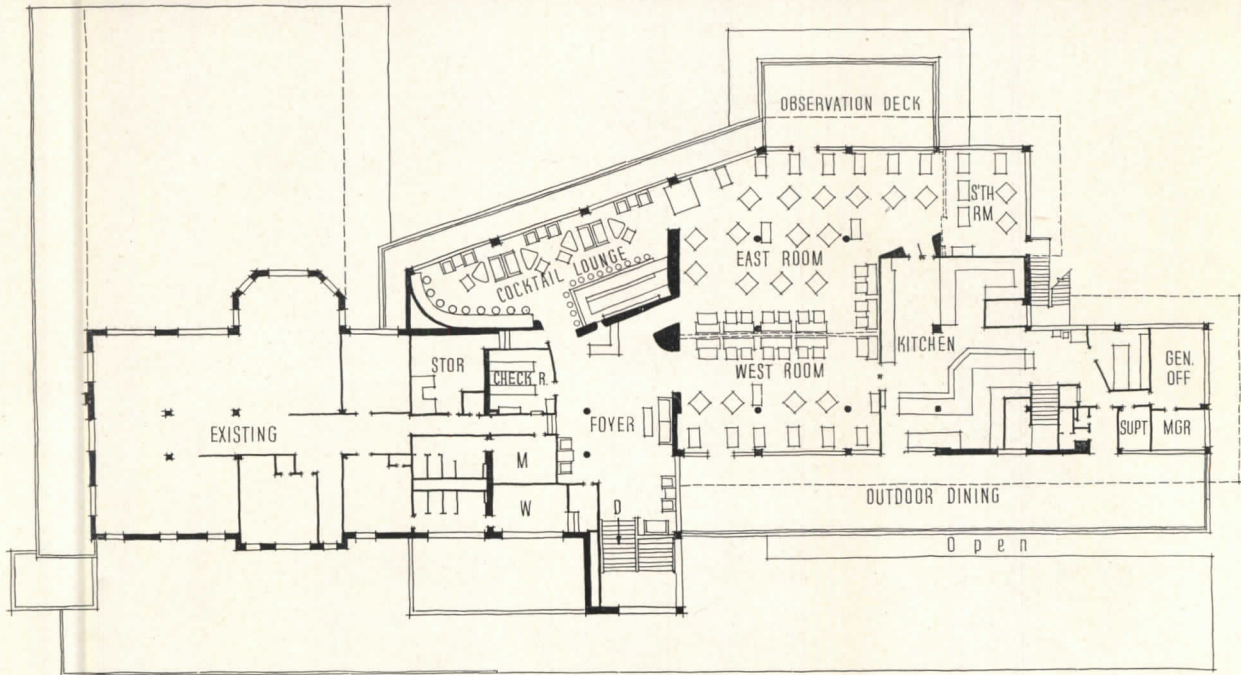
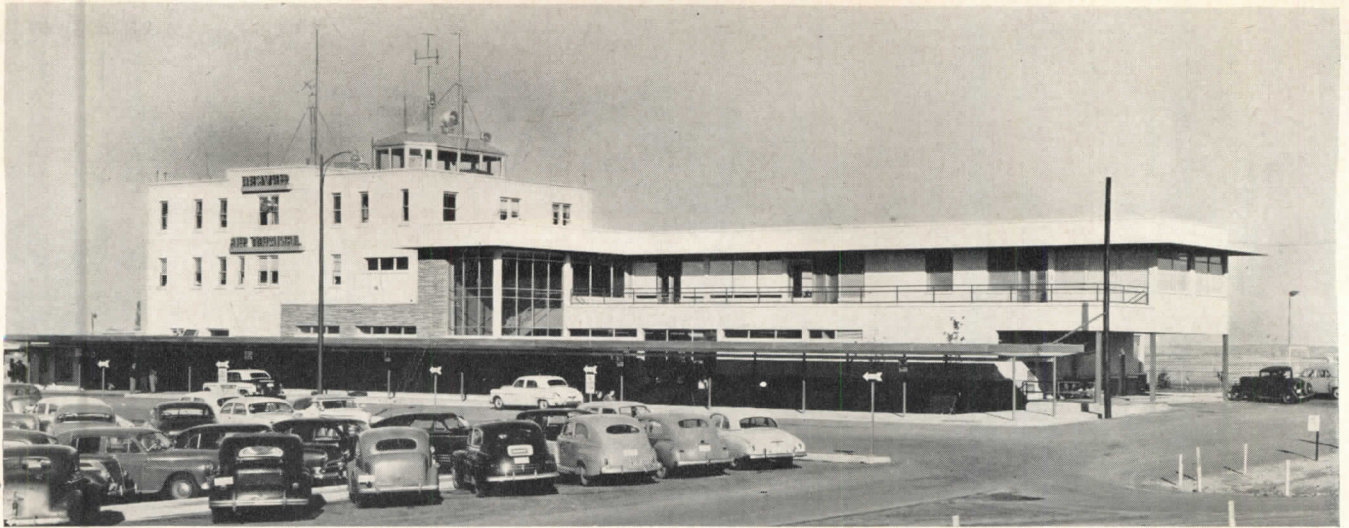
In arriving at this design, the architect had the advantage of being early appointed a member of an ad-



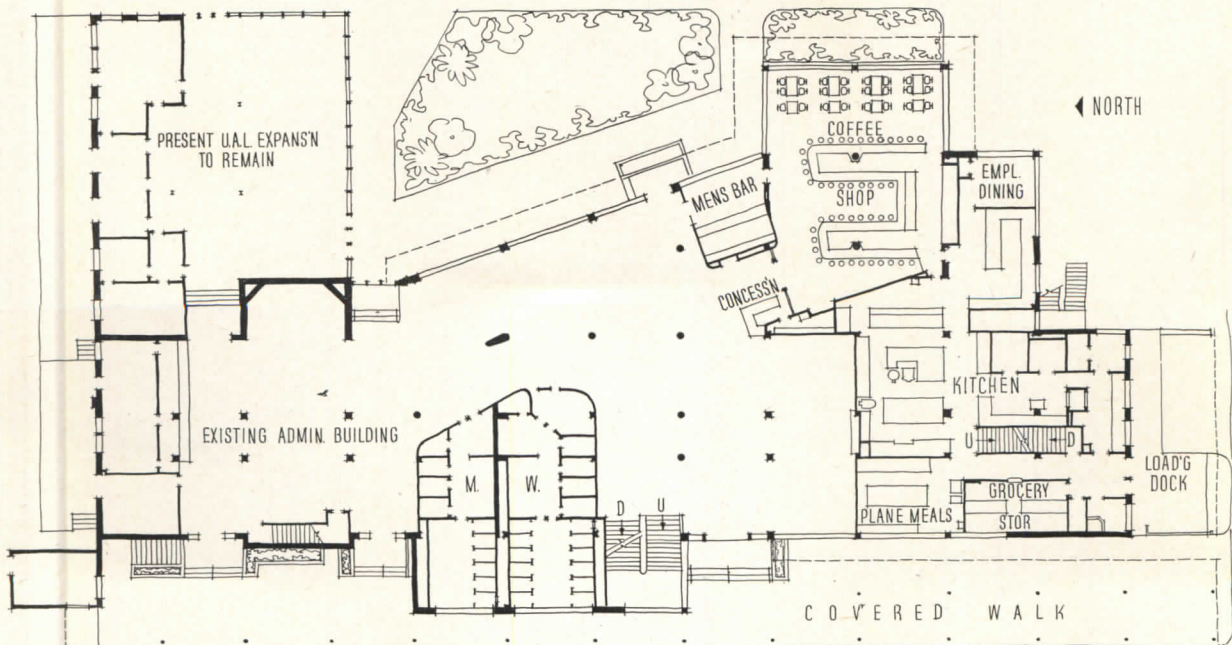
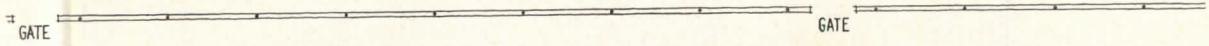
COLORADO

Rendering above shows ultimate building development being undertaken in stages: left, airlines office building; center unit, airport administration, passenger facilities and concessions; right, post office and cargo terminal; above that and detail at right, control tower

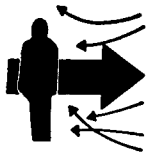




SECOND FLOOR



FIRST FLOOR



STAPLETON AIRFIELD, DENVER

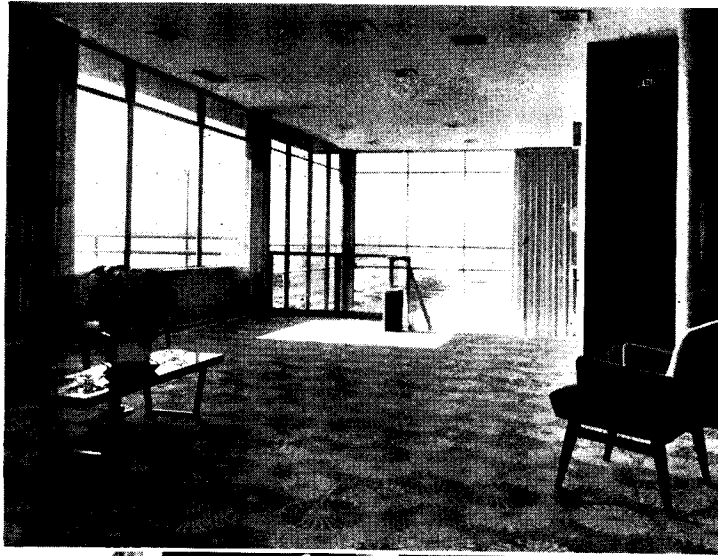
visory committee which was formed to study the terminal problem. Other members were representatives of the major airlines concerned; the committee's chairman was then Mr. George E. Cranmer, at that time Denver's Manager of Improvements and Parks. The committee was concerned with the over-all airport problem, including many phases beyond the architect's immediate concern, ranging from future runways to zoning of the surrounding area. Location of the passenger terminal building was thus determined with full knowledge of the other airport factors involved, including airport-to-city transportation and access roads.

One early solution for the terminal building placed public and other non-operating spaces to one side, in a reverse-curved plan; at first this was highly regarded, but thorough consideration brought the realization that such a scheme virtually prevented future expansion. Eventually the "unit" system, with units in a straight line and with no projecting "fingers", was adopted. (The architect, in discussing the scheme before the Chicago Chapter, A.I.A., in February 1947, deplored what was then an apparently insurmountable difficulty: getting passengers from terminal to plane without exposing them to the weather!)

It is estimated that the new Airlines Office Building, Schedule 1 of the project, will cost over \$1,300,000 to build. It is to be

Portion of central building now completed is shown above on facing page, from parking area. Before the existing three-story office unit can be remodeled, the new airlines office building is to be built, after that, administrative and passenger facilities will be added to the present structure, much of which houses concessions. Photos show new Sky Chef areas: second floor foyer, bar and restaurant

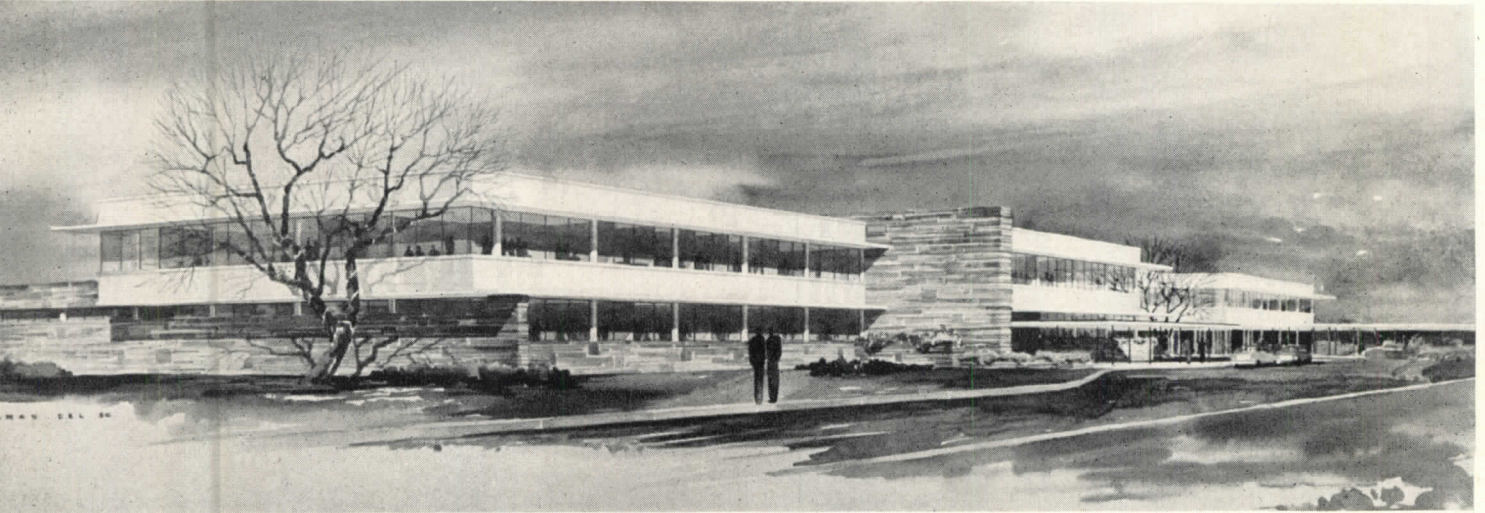
D. L. Hogwood Photos



STAPLETON AIRFIELD, DENVER

460 ft long, 2 stories high, with part basement, and will contain 82,000 sq ft. It is to have an unusual, dual heating and ventilating system, using steam from a central boiler plant at Stapleton's Modification Center. Tempered ventilating air is to be supplemented by room convectors which will be connected to refrigerated water for summer cooling as well as to hot water for winter heating. There are to be under-floor ducts for all wiring, and, probably, thin-tube fluorescent lighting.

Below, rendering, Airlines Office Building on which bids have just been taken. Extensive space is needed because United Air Lines maintains its Operating Base at Stapleton



Rendering Courtesy United Air Lines



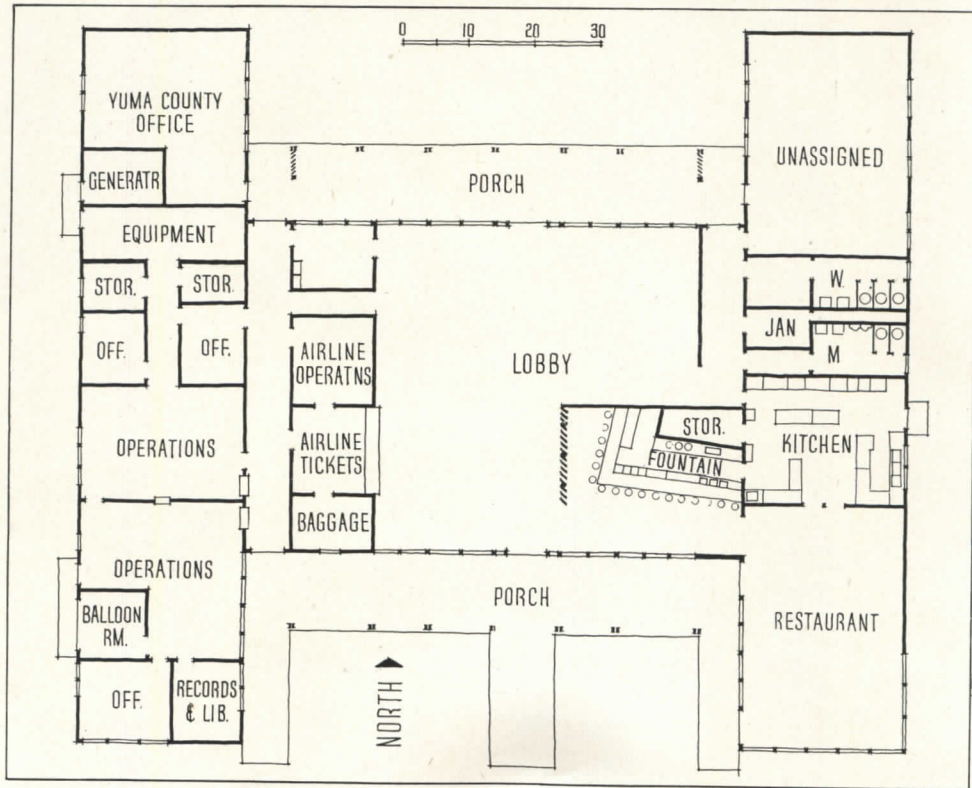
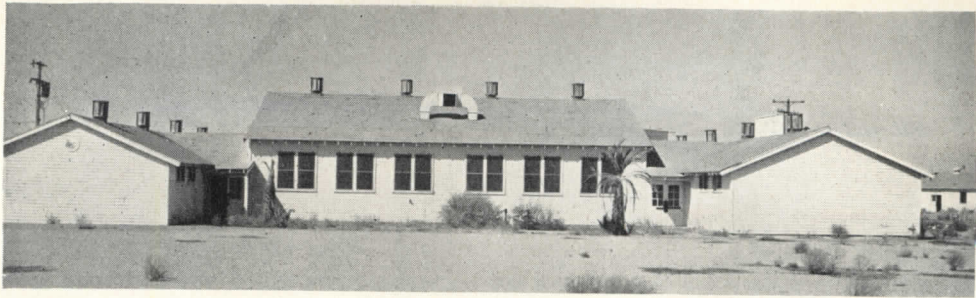
AIRPORT, YUMA COUNTY, ARIZONA

Edward L. Varney Associates, Architects and Engineers

YUMA COUNTY'S airport is an example of the small "way station" type. Yuma is a town of about 10,000, located on the Arizona-California border. One air line now connects Yuma with Los Angeles, which means two planes a day. It is expected that another air line will soon connect it with Phoenix and the East; and since the surrounding truck farming region is growing rapidly as irrigation is extended, there are commercial possibilities.

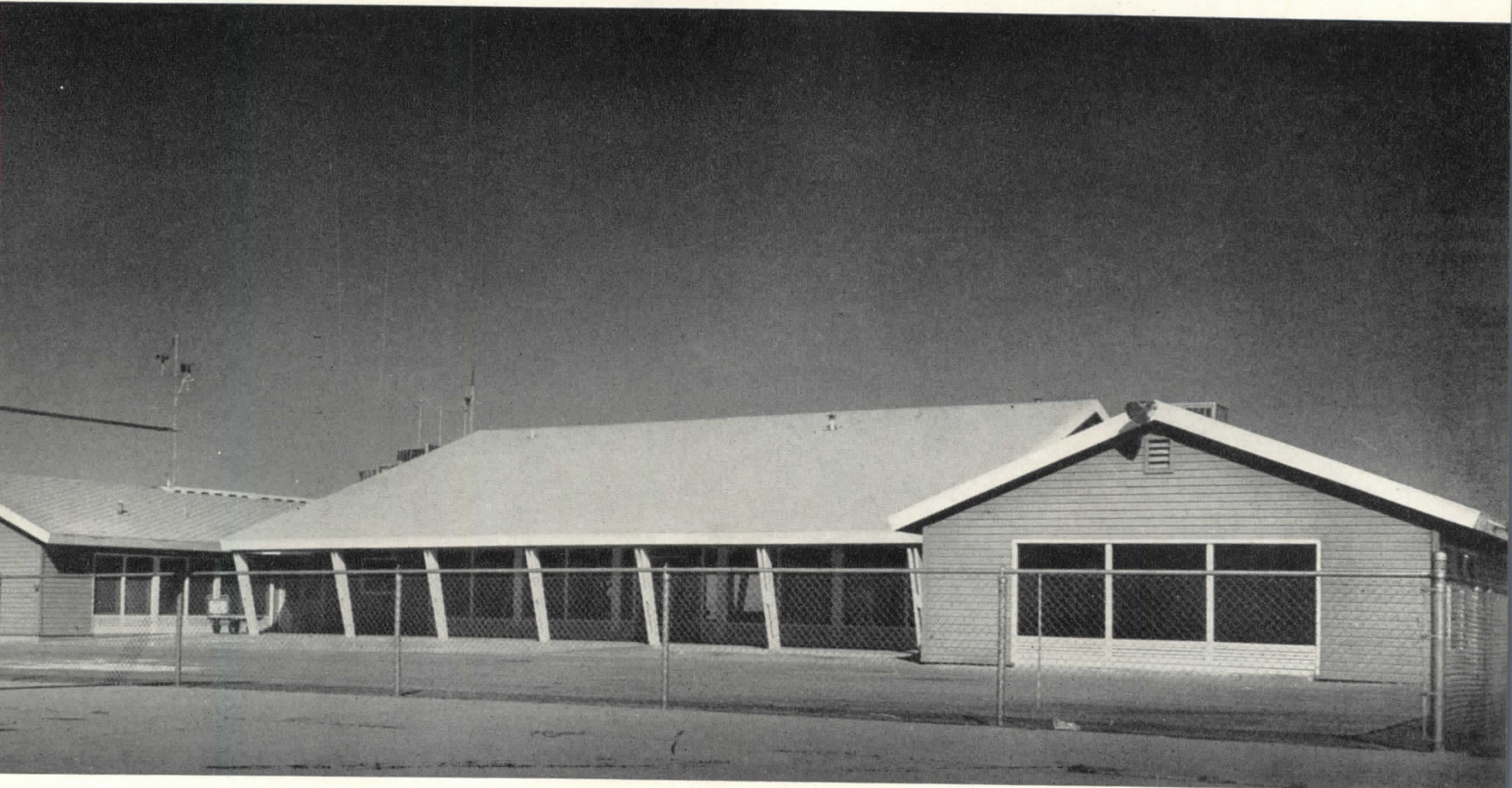
These and other factors influenced the County authorities to provide more extensive facilities than present traffic justifies. The field, a former Army training field, has three excellent runways; the terminal building has been remodeled from an old World War II structure which cost the County nothing to acquire. The building was moved across the field, set on new concrete foundations and floors, and its interior was subdivided as indicated in plan. The fenestration was revamped and porches were added East and West to shield the new glass walls of the main portion. Construction cost was slightly over \$52,300. Much of the contract cost went for mechanical services and electrical requirements of the Weather Bureau and C.A.A.





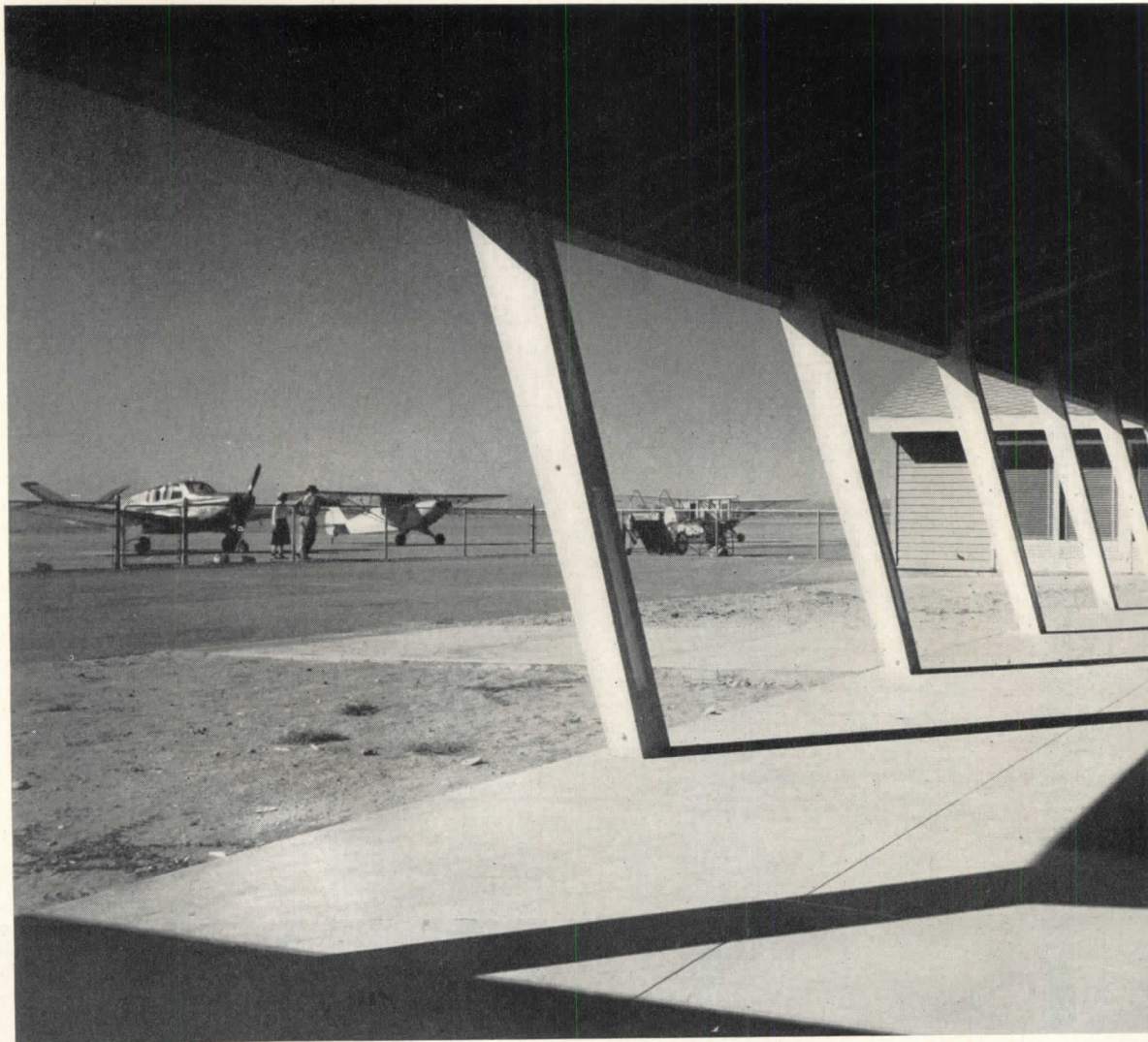
Top of page, old Army structure which was moved across Yuma Airport's field and remodeled into the pleasant terminal building shown below

Stuart Weiner Photo

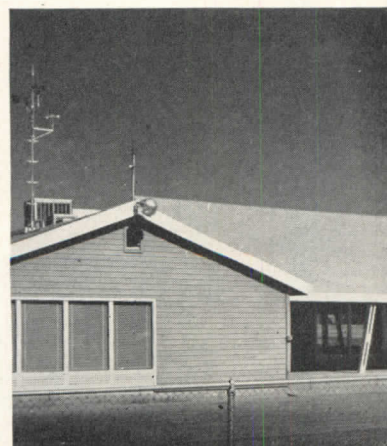
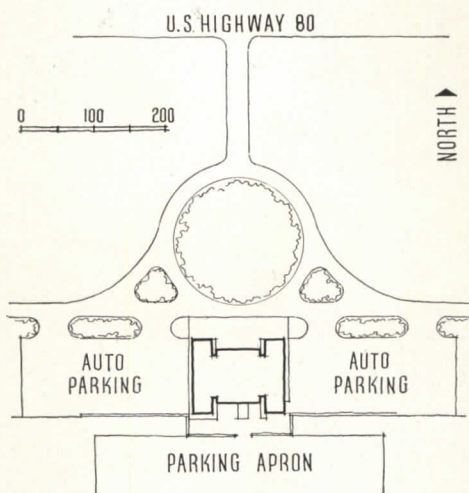




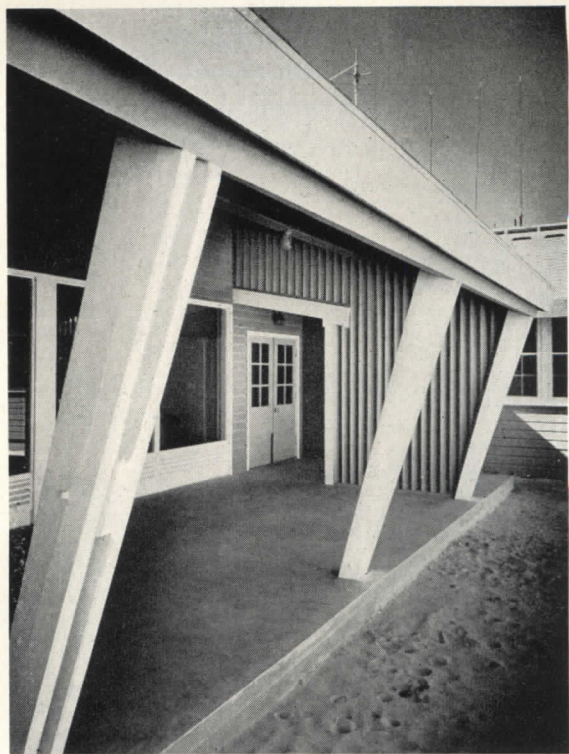
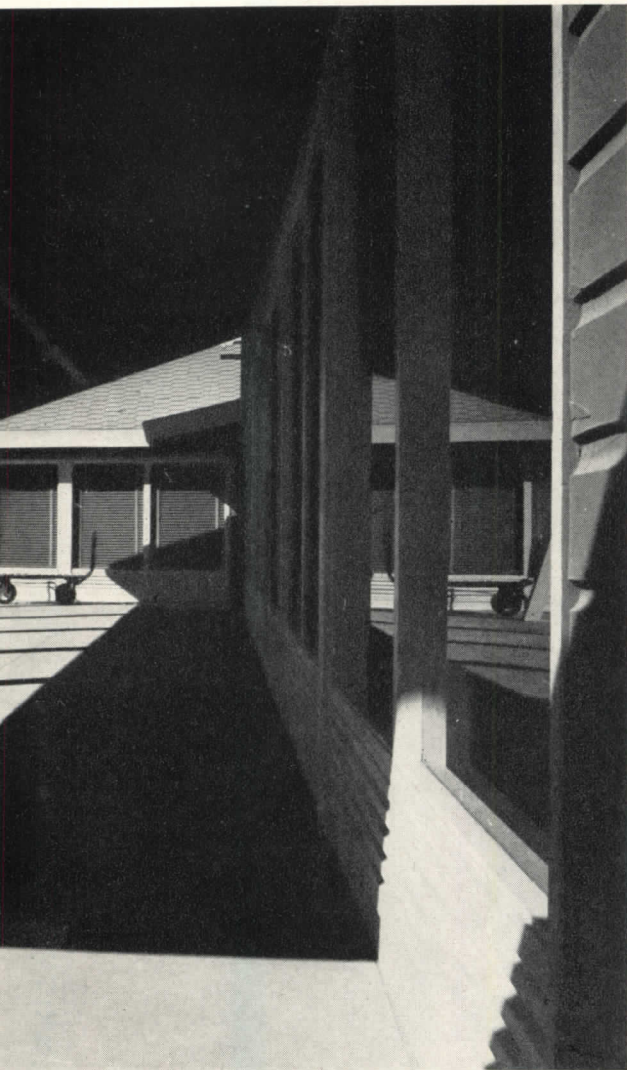
YUMA COUNTY, ARIZONA, AIRPORT



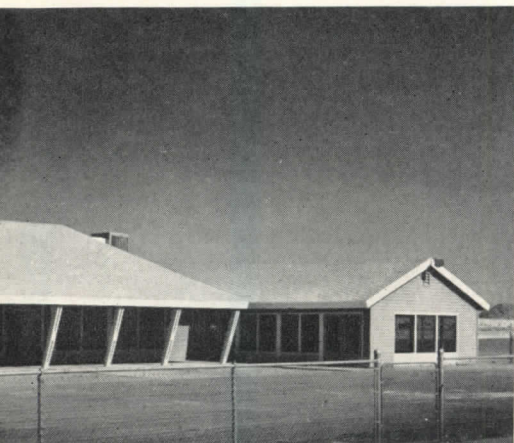
Stuart Weiner Photos



Wide porches shelter the glass walls of the lobby. Terminal, larger than present traffic requires, was economically converted from an existing disused military structure



Snack bar and fountain, below, are partially shielded from lobby by a louvered wood screen



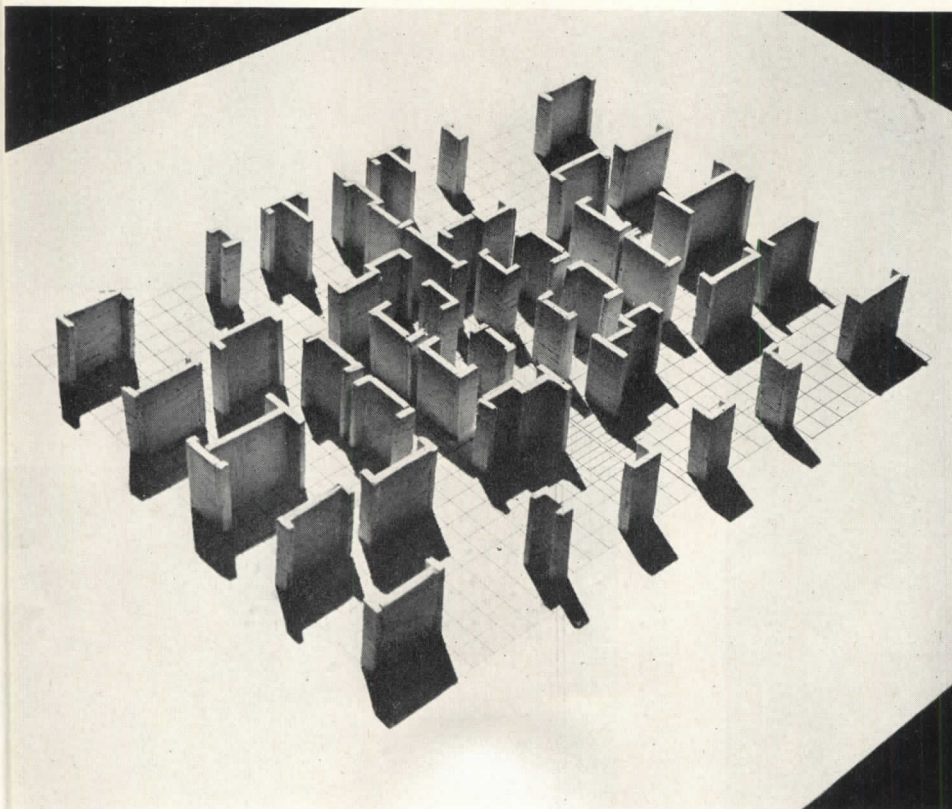
PARTITIONS FUNCTION AS COLUMNS

In Scheme For Apartment Buildings

Olgyay and Olgyay, Architects, Notre Dame University

Bela Kiss, Structural Engineer, Budapest

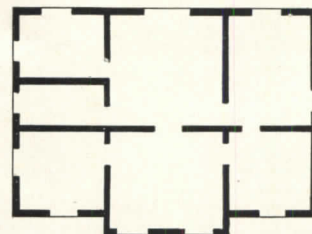
Comments by Paul Weidlinger



Model of floor in walk-up-type apartment pictures how concrete partitions work as columns



Various types of partitions



1.

THERE is a growing tendency in some phases of building, just as there has been in the aviation and automotive industries, to depart from "frame and enclosure" types of structures. That is, those structures which separate load-bearing elements from the rest of the construction. For example, "stressed skin" type of construction employed in airplanes also has found application in load-bearing plywood walls for prefabricated houses.

Architects, Olgyay, and engineer, Bela Kiss, have encouraged this tendency with their system of multi-story construction: *reinforced concrete partition walls become the supporting elements, eliminating separate columns.* Broken shaped partitions, especially suitable for apartments, and two-way ribbed floors

work together to carry imposed loads.

Efficiency of building construction often is expressed on the basis of ratio of total dead load to utilizable live load — efficiency varying inversely with this ratio. The system of construction presented here, called *cellular* by the architects, is aimed at reducing this ratio to a practical minimum.

Partitions, by virtue of their shape, obtain maximum utilization of strength of materials, following somewhat the idea of light gage steel construction. The partitions are functional otherwise in that horizontal ribs used to stiffen the vertical sections can serve as shelves.

System Originated in Europe

This method of construction is one of the many advanced methods which have

come to us from Europe, where the importance of saving materials has given the impulse to a number of new developments. Innovations, based on an economic system and material and labor cost relationship which are quite different from ours, often are not suitable to adaptation here.

Of many such ideas, only those which represent fundamentally new and sound structural concepts are destined for application in the U. S. The recent successful "Americanization" of prestressed concrete is an example of this. *Cellular* construction, if introduced here, might become the next contender.

What's New About It

It is in many respects a basic development in the spirit of advanced building

technology. These are as follows.

1. It is the next logical step in development of the flat slab, which represented the transition from linear column-girder construction into the three dimensional rigid frame.

With *cellular* construction, the linear, one-dimensional column is replaced by the two-dimensional wall. (It is interesting to note the reappearance of the "load-bearing" partition in its new form.)

2. In the quest for elimination of all

unnecessary weight from structures, full utilization of new building materials of high strength and uniformity has become a problem. Structural elements are now reduced to critical cross-sectional areas; and instead of strength, elastic stability (i.e. the over-all or local buckling of the members) becomes the controlling factor in design. This is clearly expressed, at present, in structural elements and shapes developed for light gage steel, aluminum and also plywood.

The very same problem is faced and solved now in this new method of construction in reinforced concrete. Load-

bearing elements are thin-walled concrete shapes, stiffened to avoid local buckling through stiffening flanges very similar to those of light gage steel studs (see top drawings on this page).

3. Structurally, this system is one which only a decade ago would have been nearly impossible to analyze. Even today, the design of a flat slab with irregularly placed supports requires a complex and time consuming analysis. The design of a slab supported and restrained by irregularly placed thin wall sections is even more complex.

Similarly, the design of concrete wall sections to avoid over-all torsional and local buckling is no simple task. However, the challenge presented by these problems can be met today with advanced methods of engineering analysis, but would not have been practicable a short time ago.

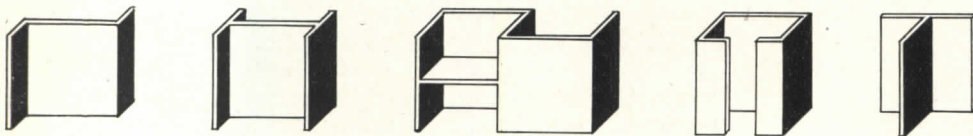
4. Finally, because of the complexity of the engineering analysis, successful application of this system requires the disciplined approach and structural understanding of the contemporary architect. It is a structural system which requires honest architecture.

All these are sure signs that one is faced here with a fundamental innovation which is bound to have beneficial influence on our building technology, if it is given a chance for application in this country. The advantages to be gained are clearly shown in the two apartment house designs that follow: one, an elevator-type and the other, a walk-up type. These buildings were projected originally for the rebuilding program of Budapest, Hungary. The apartments actually built were modified because of the urgency for residential construction and the economic situation abroad.

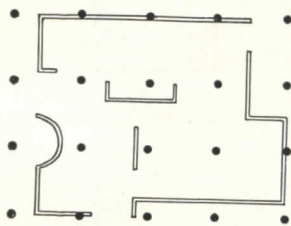
How Apartments Are Built

Concrete partitions are poured in forms (or molds) which remain in the construction; molds serve as internal insulation and outside finish. Before concrete is poured, vertical and horizontal reinforcing is inserted in the molds. The molds are expanded gypsum and lime. Concrete in contact with the molds loses its water content and gets rigid immediately, shrinkage being less than in normal concrete construction. Molds are prefabricated in various shapes to permit precise and easy placement of the reinforcing.

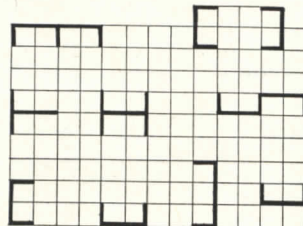
Floors are grids of two-way beams with the open spaces being filled by



designed to get high strength and consequent thinness of section using reinforced concrete



2.



3.

Comparison of conventional framing with cellular construction

1. The load-bearing wall system utilizes all faculties of the material: bearing capacity, space enclosure and insulation value. Between limits it is still the most economical. But above a certain height, it becomes impractical because of necessary wall thickness. At the same time, its cumbersome nature makes free planning quite difficult

2. Skeleton framing yields the essential advantages of economy in floor space, flexible planning and light structure. However, walls function only for space enclosure and insulation. Structurally they are only dead loads

3. Scheme of cellular construction. Vertical concrete slabs in various shapes act both as load-bearing elements and walls. They can be shaped, within a certain discipline to the grid, to fit a desired plan. Floors are two-way beams poured monolithically with the partitions. Structure thus works in all three dimensions. Forms may be permanent, providing both insulation and facing

hollow-core gypsum blocks. First these blocks are laid on formwork, and then concrete for the beams is poured in between. Where partitions are located, the beams are poured monolithically with them.

In a six-storied apartment in Budapest, the load-bearing partitions were built 2 to 3½ in. thick. Spans of the floor grid varied, with 24 ft as maximum.

Care has to be taken in design that the load-bearing partitions are placed in more or less equal "density." Due to the two-way floor grid it is not necessary that they line up. The amount of reinforcing necessary depends on how close partitions are spaced.

Implications for U. S.

Material saving aspects of *cellular* construction should gain added importance in the present economic situation. The feasibility of low cost walk-up apartment buildings in fire-resistant construction should be welcomed by all, including city planners and insurance companies. Elimination of all columns means increased floor area. Reduced depth of floor construction means reduced building height. Lightness of structure means smaller footings. All these spell more economical construction.

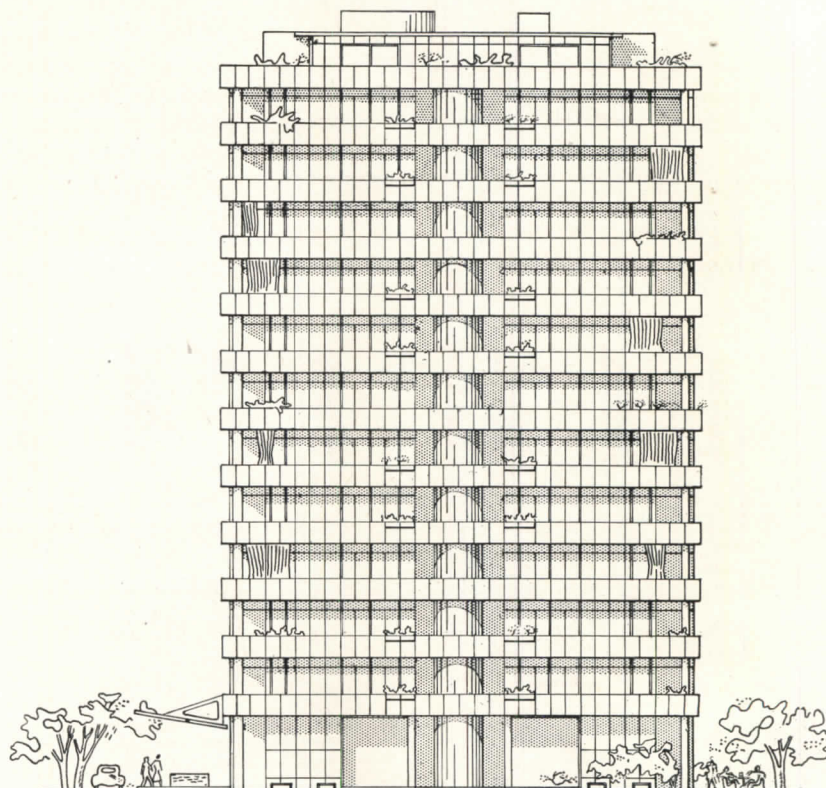
Many details of this system need modification and simplification to reduce the amount of hand labor required in its present form. The floor could be designed and built like our present "flat plate" construction or like the two-way concrete joist systems, such as the so-called "Grid System."

Wall sections possibly could be pre-cast in standardized sections, or special steel forms might be developed. The European method of using permanent forms which serve as a finished wall surface could also be well adapted to our needs.

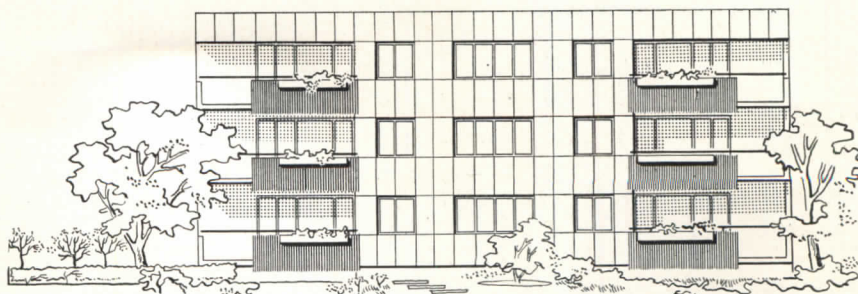
Simplified Design Method

Before general application can be attempted, a simplified method of design acceptable to building codes needs to be developed. This should not be too difficult, with present methods of experimental stress analysis. Recent commercial availability of the photo reflective stress analysis (*Presan*), developed especially for flat slab design, would seem to be adaptable to this type of work. As a matter of fact, it seems very likely that an adapted form of the *cellular* construction should bring about quite a few simplifications in both design and building in reinforced concrete.

ARCHITECTS' DESIGN FOR ELEVATOR-TYPE APARTMENTS

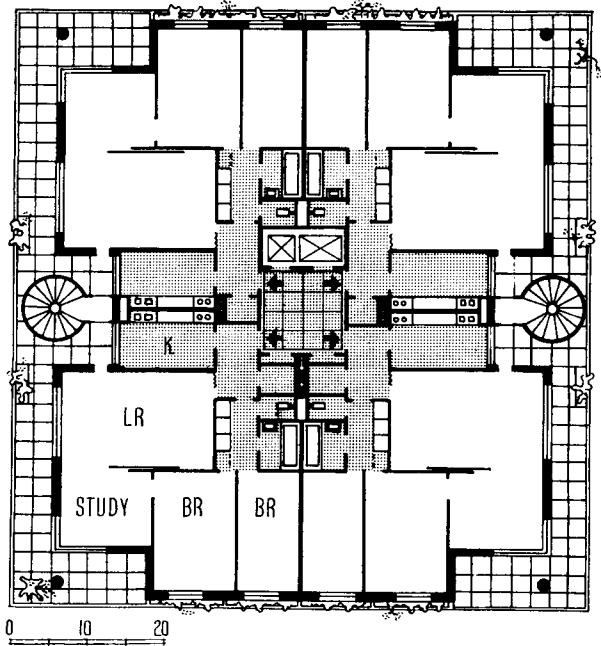


ARCHITECTS' DESIGN FOR WALK-UP-TYPE APARTMENTS

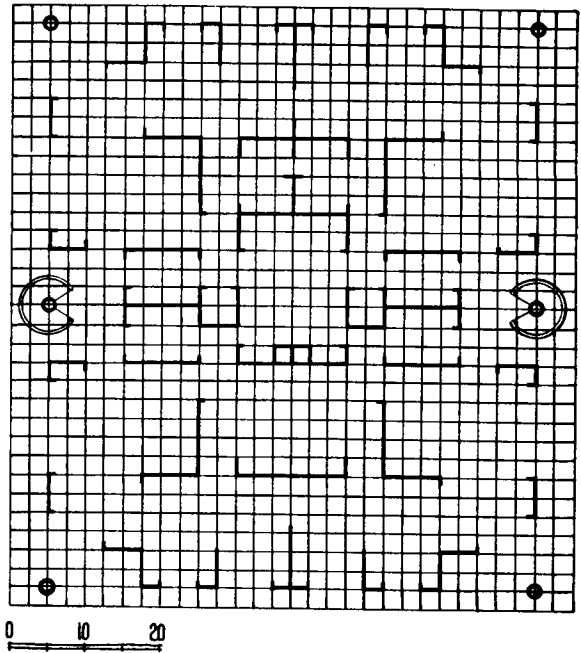


Elevator-type building designed with 12 floors. Four apartments on each floor are symmetrically arranged around the elevator lobby. The fire stairs are located outside the building itself, being accessible from terraces off the kitchens. There are four mechanical cores going through the building, ventilated by a central fan at the top

One module equals 2½ ft



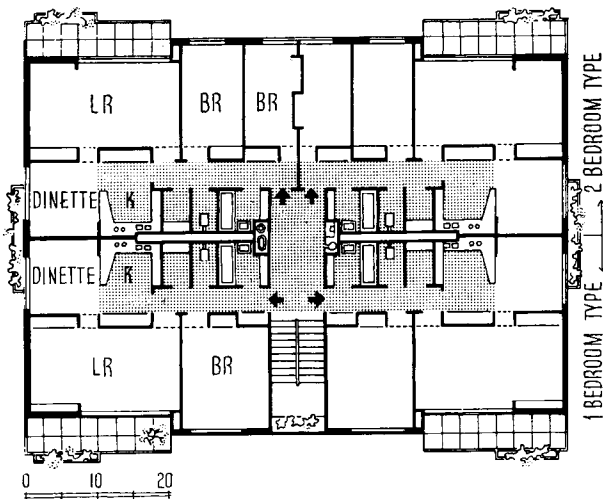
Typical Floor Plan



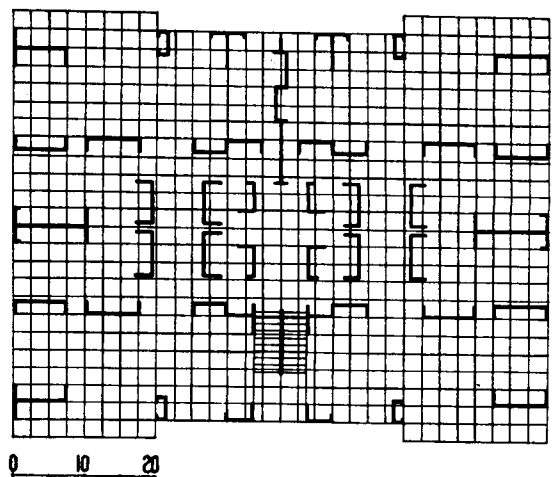
Plan of Load-bearing Partitions Only

Walk-up-type building with three floors. Each floor has two, 2-bedroom type, and two, 1-bedroom type apartments. Service areas are in the interior, and living areas around the edge; mechanical equipment is in two cores. Outside wall area is only 65 per cent of floor area

One module equals 2½ ft

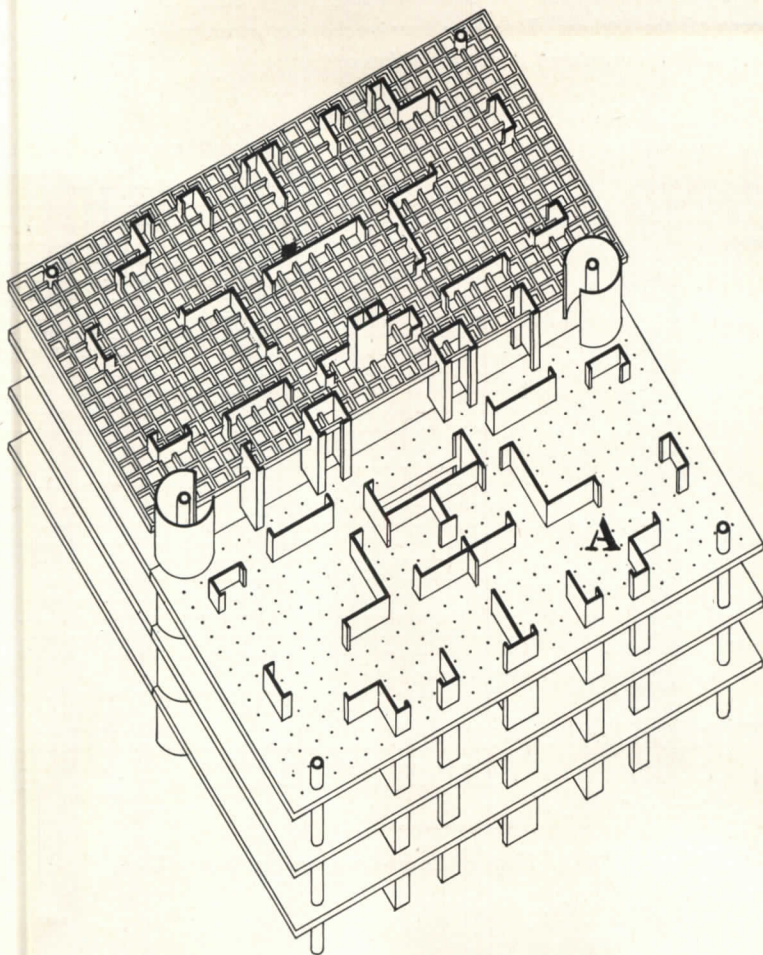


Typical Floor Plan



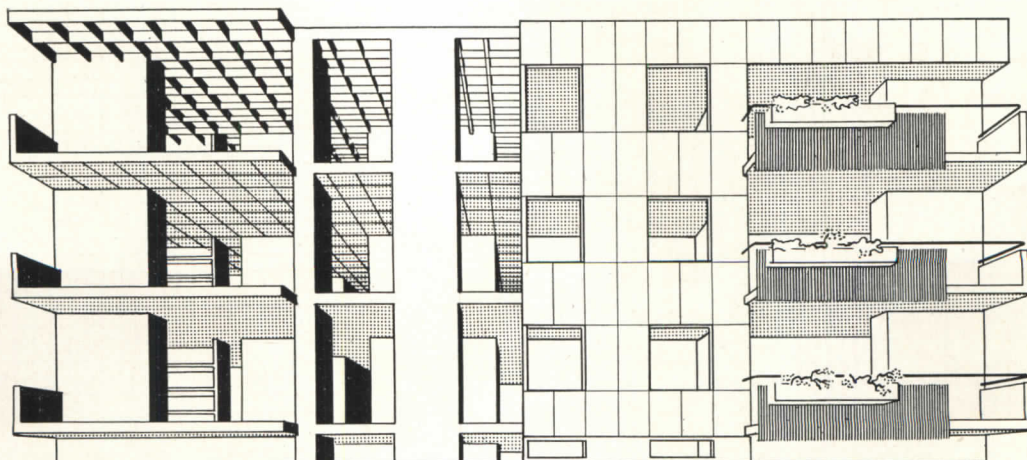
Plan of Load-bearing Partitions Only

ARCHITECTS' DESIGN FOR ELEVATOR-TYPE APARTMENTS



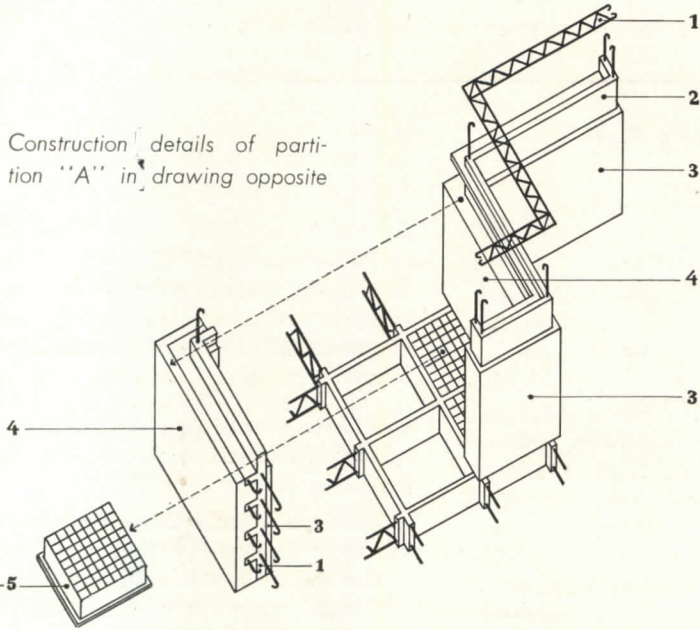
Upper floor in this structural sketch shows the two-way beam grid and how the load-bearing partitions lace through it. In the system as proposed for use in Europe, hollow core gypsum blocks fill in the spaces between the beams. These blocks may be left out to provide space for lighting fixtures. Ceilings are plastered and various types of flooring materials may be placed on top of the blocks. Partition "A" is shown enlarged at right

ARCHITECTS' DESIGN FOR WALK-UP-TYPE APARTMENTS



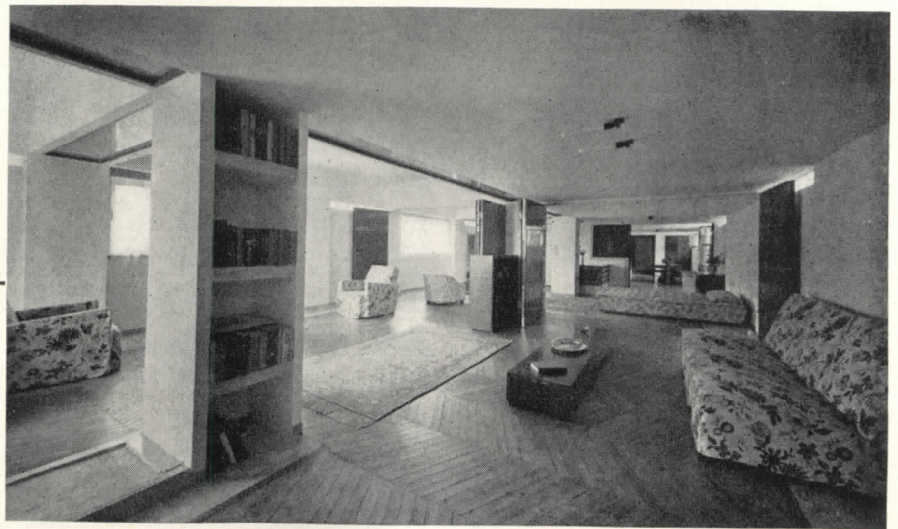
Perspective showing structural and facing elements of construction

Construction details of partition "A" in drawing opposite

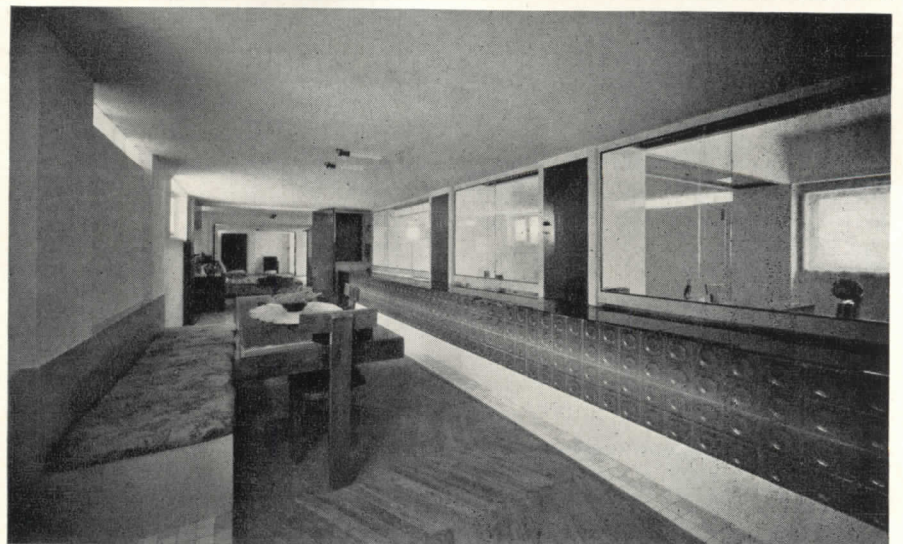


LEGEND

- 1. reinforcing in the horizontal stiffening rib
- 2. concrete slab
- 3. precast exterior form serving as final finish
- 4. precast interior form serving as insulation
- 5. hollow core gypsum blocks



Top photo: apartment similar to ones illustrated on foregoing pages, but designed with fewer amenities for lower cost. Middle load-bearing walls are "U" shaped, with horizontal ribs being used as book shelves. Note glazed lighting strips which are easily formed in hollow spaces left in the ceiling. Bottom photo: here the load-bearing walls form cupboards. Spaces between them are filled with movable glass panes; glazed tile is underneath. Outside walls have one row of glass block at top



BACKGROUND TO BUILDING CODE PROGRESS

Study of code history points way for architect and engineer participation in modernization

By Leonard G. Haeger, A.I.A., and Joseph H. Reed *

ARCHITECTS and engineers take issue with many building codes because the codes have not kept pace with building technology. The functional difficulty with today's codes, however, is not a lack of technical data but one of administration. The most modern code, with the best technical content, will be effective only when the local building department can carry out the intent of building ordinances.

This means first of all that the building department must be adequately staffed with trained personnel, with the sole authority being delegated to them for administration of the code.

It also means that construction methods approved by the building code must fit the performance requirements of structures in the particular community for which the code is adopted.

In order that a municipal building department can administer the code judiciously, the technical sections must be fully comprehensible to the local building official and to the architect and contractor as well. Hence building code specifications should not refer to standards which might be confusing or which are difficult for the architect and contractor to find.

What can the architect and engineer do to insure workable codes? In order to suggest some course of action, it is first necessary that the evolution of today's codes be investigated, bringing out the reasons for the present chaos and ways to remedy it.

No Historical Pattern

Actually, there is little historical pattern or precedent for the American type municipal building code outside the United States. This local administrative law function does not find its origin in a criminal prohibition against killing through faulty construction of a house, as in the Code of Hammurabi of 2031 B.C.; or in a survey of wall construction to prevent the communication of fires, as in the Fitz-Elwyne's Assize of London in 1189 A.D., as many students of codes would have you believe.

* Division of Housing Research, HHFA.

Character of Building Regulations

Early building construction regulations relied principally on city ordinances of a prohibitory character, confining themselves to saying what should not be done. This evolved to the next stage of maturity with the ordinance saying *this shall not* be done, and *this shall* be done, in the regulation of the construction of buildings. These legal forms of "shall nots" and "shalls" were clearly an inadequate attempt on the part of the municipal government to stay abreast of the technological advances in building construction.

Coupled with this inadequacy were the fiscal obstacles encountered, such as the inadequacy of the fees collected for issuing building permits (to defray the cost of operating the building department) and the diversion of fees collected from the building department to the general fund.

Evolution of Standards

The increasing influence of the fire insurance industry and of some material producers resulted in the issuance of standards, which were the recommendation of the usage of particular materials in an approved construction manner. These standards were a boon to the hard pressed municipality since the permit fee approach to building construction regulation could not or would not support a technical staff adequate for a municipal determination of the quality of a material or design. So at this stage the municipal government executed its governmental function by referring to the standards of the material producers or the fire interests as the authoritative pattern.

Role of Testing Organizations

The municipality was later somewhat relieved of its governmental responsibility in building code administration by the presence and availability of at least two testing organizations of national importance and recognition, to whose generally approved testing procedures the municipal ordinance might

point and say, "When done that way it meets with our approval." The authority to adopt codes by reference is a convenient device for furthering this governmental transfer of responsibility to private groups.

Further Devolution of Administration to Architects and Engineers

Additional reliance on other private groups by the municipal building official in the administration of his office was authorized when compliance with requirements of the building ordinance was attested to by a registered engineer or architect. Hence the program of assisting the municipality in its governmental function proceeds first from the creation by private groups of the content of the Code and then to its actual administration by private citizens.

Reliance on Industry Standards and Private Occupational Groups

It must be kept in mind that this operation at all times purports to be one akin to statute law, the legal execution of a municipal governmental function. There has been no commission approach to the problem by the municipality. Reliance is placed on a building commissioner as guided by an appellate board, both of whom are dependent on industry for standards, and private occupational groups for discharge of administrative duties.

Insignificant Influence of the Courts

Few legal cases concerning building codes ever reach the law courts. For example, Alexandria, Virginia, has had a building code for the last 14 years, but no court action involving it has ever taken place.

Even the few cases that have reached the law courts do not include a questioning of the administrative process. In the administrative process the building officer, on his own initiative, investigates for the violation of the provisions of the building code, holds informal hearings and makes a finding on the

facts before him and issues appropriate orders of enforcement.

Although some members of the building industry (since only the permit seeker is a party before the court) may be unjustly penalized by a code in trying to introduce a material, a piece of equipment or a construction technique, they will generally abide by the building official finding rather than incur prohibitive court costs.

Use of Standard Codes

The tendency toward surrender by the municipal government of its official function was further hastened by the advent of the so-called private building code writing groups. Over half of the municipalities in the United States have a building code obtained from some such organization. This means that an entire building code can be secured from some outside source as a unit and made a piece of local legislation simply by council adoption.

There are hazards in adopting standard codes by reference, if cognizance is not taken of local building conditions. A current trend attracting much attention is the development of state building codes. Here the code is brought closer to the local level and costs can be borne by the state which only the large cities could afford.

In the New York State Building Code, municipalities will not only have access to a performance-type code which will be administered and enforced at the local level, but also to construction details illustrating methods of compliance. This latter feature is considered unique by the New York State Building Code Commission, and expected by them to have considerable influence in getting safe buildings at lower cost.

Reasons for Failure to Follow Commission Approach

The failure of the municipalities to use the commission approach to the regulation of building construction is due to the fact that the accumulated knowledge and experience—a prerequisite for municipal operation of its building department—was all located outside of the municipal government.

Construction standards were prepared and revised by private groups. Testing procedures were developed and revised by private groups; and recently inspections and endorsement of plans and the approval of the construction have, by ordinance, become the work of private corporations and occupational groups.

The magnitude of the technical and

legal job was far beyond the comprehension and the capacity of the local governmental building department, and American business and engineering ingenuity filled in the gap. The splendid technical contributions of these groups, without any unifying development on the part of the building industry or of the local government, is the single greatest contribution to the woeful inadequacy of municipal building code administration. The greatest potential contribution by the architect and the engineer is in acting as the unifying agent in the correction of this inadequacy.

Code Technical Content

Code chapters are usually to set off particular materials, such as concrete, wood and masonry, with a cross reference to these chapters by other chapters on the basis of an occupational classification. The requirements of these chapters are set out in minute detail in the form of elaborate specifications. At many points these specifications contain references to a national standard often not available and often not within the technical comprehension of the local building official, or local contractor or even local architect.

The specifications in the local building code were originally predicated upon local empirical knowledge as to the "known" or customary manner in which building elements would behave. Later, with the infiltration of business and professional experience into the locality, the specifications became the pattern of compromise of the material producers' groups.

Potential Role of the Architect and Engineer

The architect and engineer must seek to bring order out of this chaos—in spite of the multiplying chaos of our day. The broader comprehension of the building code problem more than technical facts is needed. The architect and engineer must be willing to participate in his proper role—beyond the limits of mere technical competence. The architect and the engineer in his role as the unifying agent must be the one who suggests to the mayor, the chamber of commerce, the parents-teachers association, the League of Women Voters, the local medical society, the local bar, etc., the need and opportunity for building code reform.

He must spark plug the organization of a committee to act, with the architect in the role of a technician, in carrying

to the community the objectives of building regulation.

The architect and engineer must encourage the daily press and the radio to recognize and tell to the community the vital role of the building department in the community's growth. He must, by his conversation and action, be the spokesman for the building department before all segments of the community.

He must work through his daily contacts with his clubs and other organizations—in short, through all collective forces in the city to see to it that construction is regulated, not only in the light of the most up-to-date technology, but also in the light of the interests of the entire community in health, safety and general welfare.

The building department must continue to be the local authority, and we must make sure that its prestige will continue to grow in the community. We must see to it that the local building official is the one person charged with responsibility for all building, plumbing, electrical work, zoning and housing, with membership on the health board and the planning board, since only through this unified approach can businesslike administration be promoted.

The architect and engineer must make sure that the laboratories, the universities, the standard-making groups and the mass-producing industries are, and will continue to be, the scientific guidance centers for the operation of the local building department.

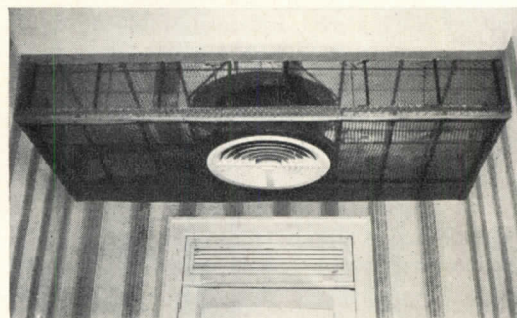
He must make sure that the building department itself will be an agency for the execution of general rules laid down by the city council in ordinance form which must contain informed legislative standards that will insure all the citizens of the community of just treatment.

By this kind of new authority the building department will be enabled to meet the new changes in construction practices which technological progress promises.

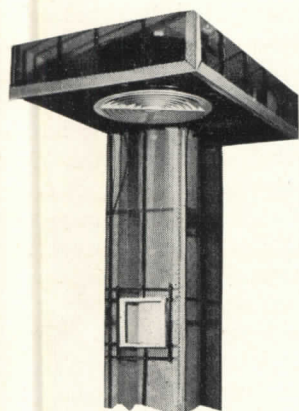
The architect and engineer must be certain that the building department is adequately staffed with trained personnel, with salaries and tenure which will attract and hold competent people.

Finally, he must see to it that the city attorney is a participant with the building department official in the creation of a system which, under law and with the use of effective public administration methods, will enable the building department to function as a self-sufficient agency in promoting local understanding of the job.

PRODUCTS for Better Building



High pressure diffuser (left) uses compact ducts which may be placed in closets or in corners, as shown in construction photos above and below left



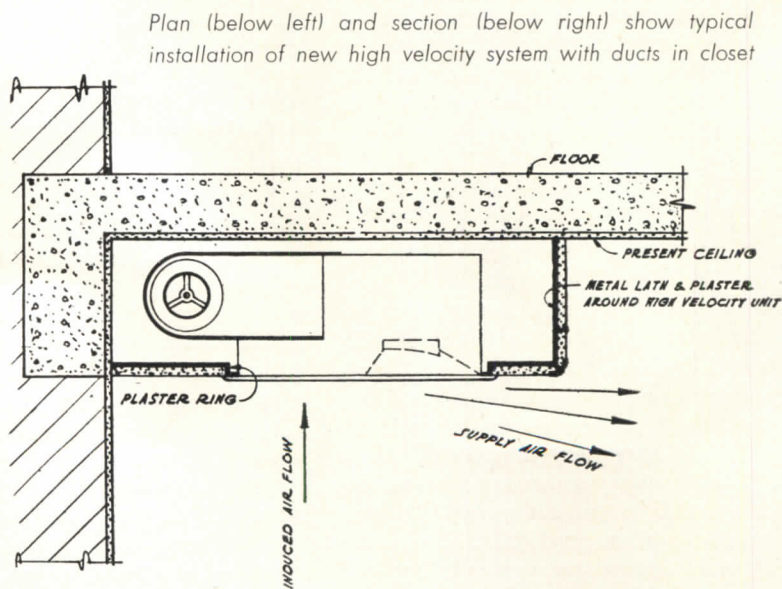
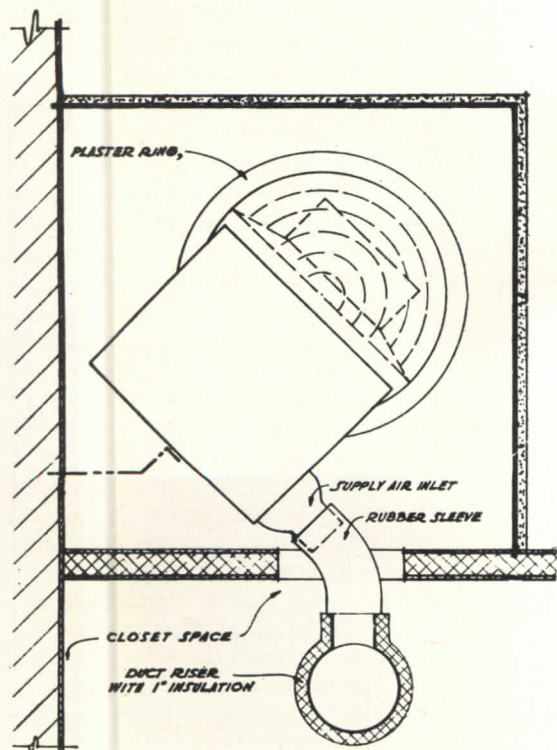
High Velocity Air Conditioning Systems

A new method of air conditioning has recently been perfected to overcome problems often encountered in extending air conditioning to all rooms of hotels, offices and other multi-room buildings. These problems have included high installation costs and operating expenses, and the need for a large amount of space for ducts. Lack of space has been especially critical in adapting systems to existing buildings.

The new method of air conditioning, referred to as a high velocity or high pressure system, restricts the primary air quantity supplied by the ducts to a minimum of air volume required, and uses conduits of small diameter for transmission. High velocities, from 2500 fpm to 6000 fpm, can be maintained in the supply conduits without requiring excessive fan power. Static pressures range from 1- to 6-in. water gage.

One of the pioneer installations of such a system has been made recently

(Continued on page 162)



Plan (below left) and section (below right) show typical installation of new high velocity system with ducts in closet

HARDWARE-19: Lock Functions

Prepared by Seymour Howard, Architect, Instructor at Pratt Institute, with the cooperation of the American Society of Architectural Hardware Consultants

LINE NO.	MORTISE LOCKS		UNIT LOCKS	CYLINDRICAL LOCKS	TUBULAR LOCKS
	CYLINDER	BIT-KEY	Functions same as mortise, unless noted	Fed. Spec. No. 160 Series & 161 Series	Functions same as cylindrical
1 KNOB LATCH	 86N, 87N Latch bolt by knob from either side. For turn knob on inside, add "CS" to Fed. No., as 3D-CS	 3D, 184; 5D, 185	 90N, 98N (Fire door)	 Latch bolt by knob from either side. Also available with turn knob on inside; or with outside knob always fixed, bolt dead-locked when door closed	 2B(2B-9CS With turn knob inside) Also available with outside knob fixed, similar to cylindrical
2 PRIVACY	 86L Latch bolt by knob from either side. Dead bolt by turn knob from inside. 6B and 6BR (rabbeted front) for French doors with lever handles both sides	 3B, 5B; 6B, 6BR	 90L	 Latch bolt by knob from either side, except when outer knob is locked by push button on inside knob. Turning inside knob or shutting door automatically releases push button. Also available with turn button for locking outer knob, which is not automatically released	 Similar function to cylindrical. Also available with knob which is pushed toward door to lock, pulled to unlock
3 BATH ROOM	 86L Specify emergency key Latch bolt by knob from either side. Dead bolt by turn knob from inside and emergency key (screwdriver or pointed tool) from outside	 3B, 5B	 90L, Spec. em. key	 Same functions as above, except emergency access provided. Not dead-locked when door closed	 2A Also available with push button on knob instead of locking device on rose. Also with knob which is pushed toward door to lock
4 COMMUNICATING DOOR	 86M Latch bolt by knob from either side. Dead bolt by turn knob from either side, each locking against the other. Also available with cylinder key on each side instead of turn knob	 3C, 5C	 90M	 Latch bolt by knob from either side, except when knob on opposite side is locked by turn button on either knob. Also available with keys in both knobs, each locking opposite knob	
5 OFFICE	 85D, 86D Latch bolt by knob from either side; outer knob locked by stop in face; when outer knob is locked, latch bolt by key from outside. Inner knob always free		 90D	 Latch bolt by knob from either side, except when outer knob is locked by push button on inside knob, then by key from outside. Push button released by turning knob, but not by shutting door	
6 FRONT DOOR	 85A, 86A Latch bolt by knob from either side. Stop in face locks outer knob; with outer knob locked, latch bolt by key from outside; dead bolt by key from outside, turn knob from inside. 121A, 122A: thumb-piece, handle outside, knob inside. 8A, 8AR rabbeted front: French door, lever handles both sides		 90A	 Latch bolt by knob from either side, except when outer knob is locked by turn button on inside knob, then by key from outside. Latch bolt dead-locked when door closed. Also available with thumb-piece and handle on outside	 Functions same as cylindrical. Also available with knob which is pushed in and turned 1/4 turn to lock (instead of turn button)

Notes: Numbers shown for locks and latches are U. S. Federal Specification numbers from FF-H-106a, dated 23 November, 1948. Locks shown without numbers are available,

though not included in Federal Specs. Although lock types are arranged according to similarity of function, all locks in one line are not necessarily suitable for all types of

buildings. Choice of lock should be made with consideration to weight, durability and security appropriate to the specific use.

(Continued on page 157)

MANUFACTURERS' LITERATURE



Cover for new booklet on aluminum windows, published by the Universal Window Co., shows window types covered in text

Aluminum Windows

Donovan Universal Aluminum Windows. Booklet gives construction and operation features of the line of aluminum windows. Several types of sash are illustrated, each with size and weight tables and section details. Installation details are given for head, jamb and sill in different types of construction. General specifications are also included. 8 pp., illus. Universal Window Co., 950 Parker St., Berkeley 10, Calif.

Steam Unit Heaters

Standard Code For Testing and Rating Steam Unit Heaters (Bulletin No. 10). Second Edition of a code prepared and adopted jointly by the Industrial Unit Heater Assn., and the American Society of Heating & Ventilating Engineers. The revision was made to incorporate data on equipment, instruments and techniques developed since the original publication in 1930; the basic engineering principles of the original have not been changed. 19 pp., illus. Industrial Unit Heater Assn., 2159 Guardian Bldg., Detroit 26, Mich.

* Other product information in Sweet's File, 1950.

Metal Lath

Metal Studs and Metal Lath Hollow Partitions (Metal Lath News, Vol. 14, No. 3). This issue features assemblies of prefabricated metal studs and metal lath for the construction of hollow building partitions. The various type studs and floor and ceiling track systems are illustrated. Tables give fire resistance ratings and sound transmission factors. Details are included for stud anchorage and for typical door bucks. Illustrations show typical applications in various phases of construction. 16 pp., illus. Metal Lath Manufacturers Association, 636 Engineers Bldg., Cleveland 15, Ohio.

Metal Partitions And Bookstacks

VMP Architects' & Builders' Manual Data Sheets. A series of 12 new data sheets have been issued to supplement the previously issued VMP Manual on doors and partitions. Door details and fittings, such as door locks and louvers, are presented on eight of the sheets. Two are devoted to book shelf details and standard bookstack nomenclature. The remaining sheets give specifications and features of metal partitions. 12 pp., illus. Virginia Metal Products Corp., Orange, Va.*

Floor Tiles

The New Vitachrome By Tile-Tex. Folder discusses features of a resin-asbestos tile flooring. Colors and sizes of available tiles are illustrated and described. Several suggested designs for floor patterns, and a typical installation are also pictured. Brief specifications cover material, foundations, thickness, colors, designs, installation and guarantee. 4 pp., illus. The Tile-Tex Div., The Flintkote Co., Chicago Heights, Ill.*

Unified Lighting

Incandescent Unified Lighting and Germicidal Equipment (Catalog 550). Catalog contains data required for interior incandescent lighting systems. An additional section of the book describes

air sanitation with ultraviolet germicidal equipment for use in offices, stores, schools, hospitals, restaurants and factories.

Cross section details, coefficient of utilization tables, light distribution curves, etc., accompany material on lighting. The section on germicidal equipment gives typical layouts as well as specification data.

Types of lights described are surface attached, recessed (square and round), louver, spot and flood lights, indirect, semi-indirect and miscellaneous types including exit lights.

Germicidal units are for upper-air disinfection — wall, recessed wall and two-lamp pendant types. 46 pp., illus. The Art Metal Co., Cleveland 3, Ohio.

Lightweight Aggregates

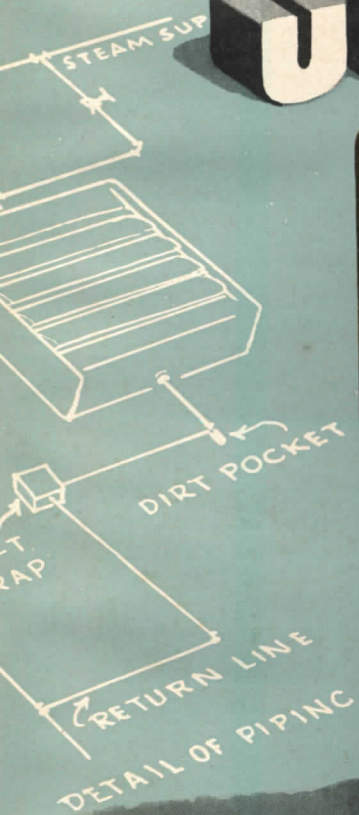
Permalite Lightweight Aggregates — Job Data. Brochure illustrates typical industrial, commercial, institutional and residential buildings, located throughout the country, which used either lightweight Permalite plaster or concrete. Each is covered with such data as: the name of the architect, the general contractor, the sub-contractor, and the amount of Permalite and how it was used. 50 pp., illus., Great Lakes Carbon Corp., Building Products Div., 18 E. 48th St., New York 17, N. Y.

Stainless Steel

Strength of Stainless Steel Structural Members As Function of Design. Handbook gives basic properties of light gage stainless steel strip of various tempers at room temperature, and methods for calculating the allowable loads for structures made from it. The book was written by Michael Watter, Director of Research for The Budd Co., and Rush A. Lincoln, Metallurgist for Allegheny Ludlum Steel Corp. Many charts and tables for structural design of stainless steel members are included. 171 pp., illus. Price, \$5.00. Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh, Pa.*

(Continued on page 184)

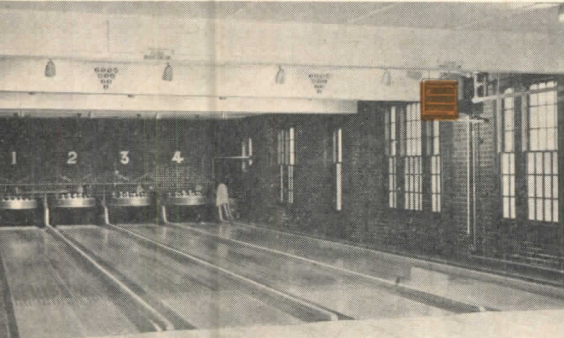
FEDDERS UNIT HEATERS



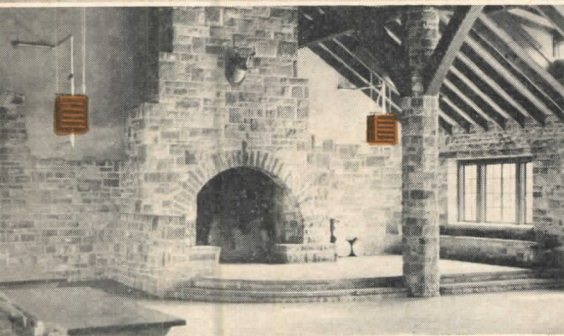
FEDDERS-QUIGAN CORPORATION, Buffalo 7, N. Y.



UNIT HEATERS MAKE



Bowling
Alleys



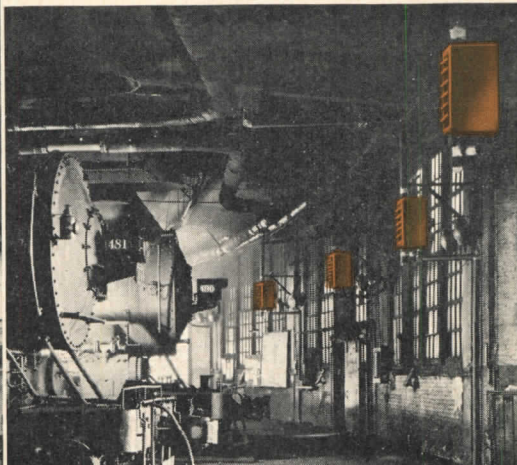
Public
Recreation
Rooms



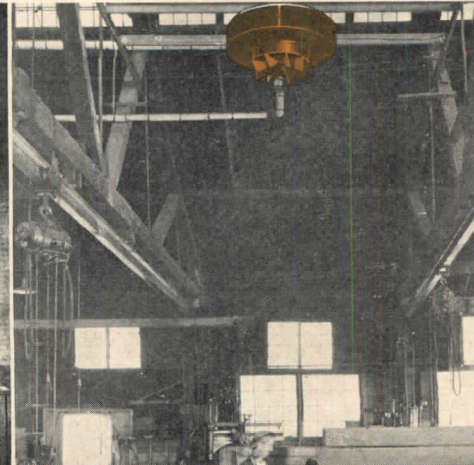
Department
Stores



Boat Building Plants



Railroad Roundhouses



Steel Fabricating Shops

HEAT TRANSFER SPECIALISTS SINCE 1896

The performance of Fedders Unit Heaters is the result of over 50 years of specialized experience in designing and manufacturing heat transfer equipment. Fedders products are widely used in the automobile, electric refrigeration, air conditioning and heating fields.

ADVANCED DESIGN

The advanced design of Fedders Unit Heaters has earned a reputation for satisfactory performance under the exacting conditions of industrial and commercial heating requirements everywhere.

FEDDERS-QUIGGA

WARM FRIENDS EVERYWHERE

ADAPTABILITY

Their operating characteristics combine high heat transfer efficiency, directional placement of heat, quick warm-up, easy installation and quiet operation.

COMMERCIAL AND INDUSTRIAL APPLICATIONS

The attractive design and finish of Fedders unit heater cabinets makes them harmonize with the decorative treatment of modern plant, office, store and other interiors.

SAVE SPACE

They are well adapted to installations where floor and wall space is at a premium. For example, in modern supermarkets they release all shelf and floor

space for profitable display and traffic use. Likewise, in factories they do not interfere with machinery, stock bins or materials handling systems.

100 TO 1,000 EDR

Fedders Unit Heaters are built in a well-graduated range of sizes and capacities for use with steam or hot water.

COMPACT, EFFICIENT HEATING

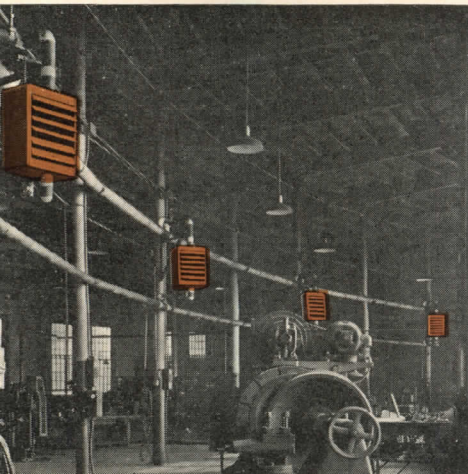
The photographs show typical installations under a wide variety of conditions where comfort is essential in the working zone.

COMPLETE DATA

The following pages give complete performance data and specifications.

CORPORATION, BUFFALO 7, NEW YORK

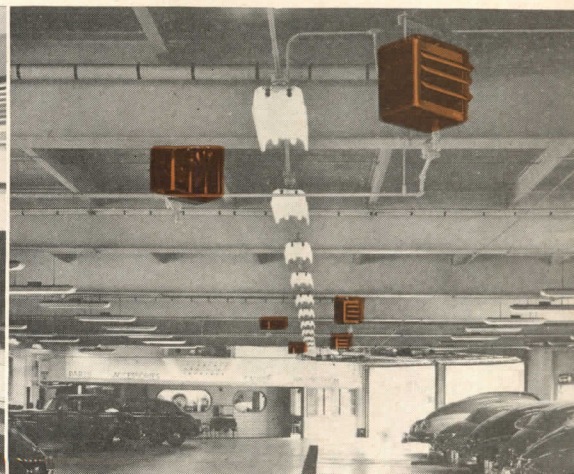
Machine Shops



Automobile Showrooms



Automobile Service Stations



Fedders

The Inside Story of

Men who specify, sell, install and use unit heaters appreciate their many engineering features which make Fedders Series 15 Unit Heaters give service—not require it. All-copper heating elements, streamline tubes and modern broad blade fans combine thermal and aero-dynamic efficiency. Complete protection against expansion stresses between heating element and cabinet as well as between individual tubes is an important factor contributing to life-long, trouble-free operation. They have been proved and approved in thousands of installations throughout business and industry.



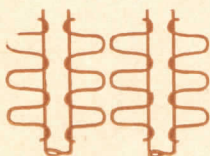
ELECTRICALLY WELDED CABINET STRENGTH

Handsome, mono-piece cabinets combine light weight, ruggedness, rigidity and one-piece simplicity. Rich brown, morocco-like finish is baked on for permanence.



STREAMLINE COPPER TUBES

Tubes of 3:1 ratio provide quiet, streamlined air flow and efficient heat transfer.



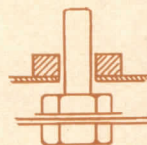
PATENTED SADDLE FINS

Fins are metallicly bonded to each tube. Individual design of fins leaves each tube free to "give" laterally thus relieving differential expansion stresses between adjacent tubes,—an important design feature contributing to reliable, leakproof performance.



FLANGED HEADER OPENINGS

Deep, die formed flanges extruded into headers give abundant tube brazing area for maximum protection against leaks.



FULL-FLOATING ELEMENT MOUNTINGS

Expansion stresses between core assembly and cabinet are relieved by Fedders full-floating element mountings. This method of mounting eliminates hazards of forced bending of tubes under sudden changes in operating temperatures.



MAXIMUM COMFORT

Low final temperatures and high CFM assure ideal comfort conditions in working zone.



QUIET OPERATION

Latest type broad blade fans provide maximum air handling with minimum noise.



RESILIENT MOTOR MOUNTINGS

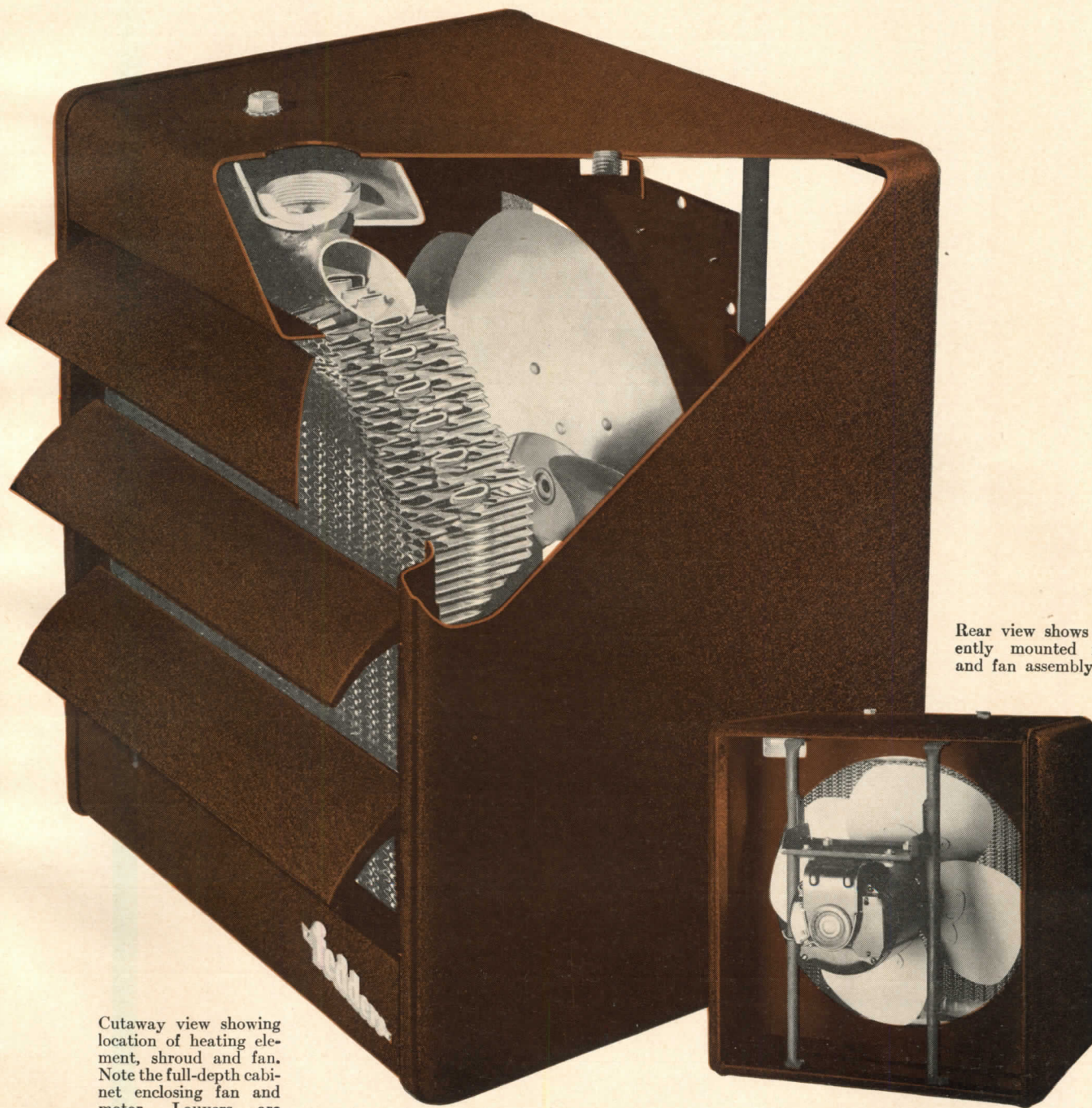
Motor and fan assembly are mounted in rubber to isolate vibration and deaden noise.

HEAT
TRANSFER
SPECIALISTS
SINCE 1896

fedders

Series 15

UNIT HEATERS



Cutaway view showing location of heating element, shroud and fan. Note the full-depth cabinet enclosing fan and motor. Louvers are adjustable for desired placement of heat.

Rear view shows resiliently mounted motor and fan assembly.

fedders

CAPACITY DATA

fedders

SERIES 15 UNIT HEATERS

BASED ON 2 LBS. STEAM PRESSURE AT HEATER AND 60° F. ENTERING AIR

MODEL No.	CAPACITY		MOTOR			AIR			
	E.D.R.	B.T.U. /Hr.	Speed	R.P.M.	H.P.	C.F.M. 70° F.	Final Temp.	Outlet Air Vel., F.P.M.	Cond. Lbs./Hr.
15B100 STAND.	100	24,000	TOP	1500	1/30	420	113	715	25
	87	20,900	MED.	1160		325	122	552	22
	72	17,300	LOW	860		240	129	410	18
15B125 STAND.	125	30,000	TOP	1500	1/30	510	108	995	32
	109	26,200	MED.	1160		395	113	760	27
	93	22,300	LOW	860		292	121	570	23
15C150 STAND.	150	36,000	TOP	1500	1/30	597	116	705	37
	130	31,200	MED.	1160		462	122	544	32
	109	26,200	LOW	860		342	129	404	27
15C175 STAND.	175	42,000	TOP	1500	1/30	785	111	900	44
	153	36,700	MED.	1160		606	115	695	38
	129	30,900	LOW	860		450	123	516	32
15D200 STAND.	200	48,000	TOP	1140	1/20	817	114	730	50
	163	39,200	MED.	800		572	123	512	41
	135	32,400	LOW	600		430	130	384	34
HIGH SPEED	200	48,000	TOP	1500	1/30	820	114	731	50
	173	40,500	MED.	1160		632	121	573	43
	145	34,800	LOW	860		470	128	418	36
SLOW SPEED	175	42,000	TOP	860	1/30	617	123	640	44
	121	29,000	MED.	600		430	127	446	30
	106	25,400	LOW	470		337	132	350	26
15E250 STAND.	250	60,000	TOP	1140	1/20	1038	113	780	62
	200	48,000	MED.	800		548	122	730	50
	176	42,300	LOW	600		412	129	546	44
HIGH SPEED	250	60,000	TOP	1600	1/20	1040	113	781	62
	219	52,600	MED.	1250		812	119	55	610
	180	43,200	LOW	900		585	127	45	438
SLOW SPEED	220	52,500	TOP	860	1/30	784	122	685	54
	180	43,200	MED.	600		546	125	478	45
	156	37,400	LOW	470		424	131	374	39
15F300 STAND.	300	72,000	TOP	1140	1/20	1195	116	770	74
	239	57,400	MED.	800		838	122	540	60
	211	50,700	LOW	600		628	129	406	53
HIGH SPEED	300	72,000	TOP	1600	1/12	1180	117	760	74
	264	63,500	MED.	1250		922	119	66	592
	216	51,800	LOW	900		664	128	54	428
SLOW SPEED	260	62,500	TOP	860	1/30	905	124	675	65
	210	50,400	MED.	600		632	125	472	53
	183	44,000	LOW	470		494	131	369	46
15F350 STAND.	350	84,000	TOP	1140	1/12	1540	111	920	86
	308	74,000	MED.	800		1080	116	654	77
	234	56,200	LOW	600		810	122	494	58
SLOW SPEED	295	70,800	TOP	860	1/30	1160	114	698	73
	238	57,200	MED.	600		815	120	492	59
	204	49,400	LOW	470		635	126	390	51

HEAT
TRANSFER
SPECIALISTS
SINCE 1896



SERIES 15 UNIT HEATERS

CAPACITY DATA



BASED ON 2 LBS. STEAM PRESSURE AT HEATER AND 60°F. ENTERING AIR

MODEL No.	CAPACITY		MOTOR			AIR			
	E.D.R.	B.T.U./Hr.	Speed	R.P.M.	H.P.	C.F.M. 70° F.	Final Temp.	Outlet Air Vel., F.P.M.	Cond. Lbs./Hr.
15G400 STAND.	400	96,000	TOP	1140	1/20	1510	118	780	99
	319	76,700	MED.	800		1060	122	547	80
	282	67,600	LOW	600		794	129	411	70
SLOW SPEED	350	84,000	TOP	860	1/30	1140	123	685	87
	308	74,000	MED.	600		796	128	478	77
	265	63,600	LOW	470		623	131	374	66
15G450 STAND.	450	108,000	TOP	1140	1/12	1680	117	815	111
	333	79,900	MED.	800		1180	120	566	82
	296	71,000	LOW	600		885	127	430	73
SLOW SPEED	379	91,000	TOP	860	1/12	1270	119	608	94
	321	77,000	MED.	600		890	123	428	79
	279	67,000	LOW	470		682	127	338	68
15H500 STAND.	500	120,000	TOP	1140	1/12	1988	116	750	124
	410	98,400	MED.	800		1390	123	527	102
	337	80,800	LOW	600		1042	130	395	84
SLOW SPEED	435	104,500	TOP	860	1/12	1503	124	660	109
	353	84,800	MED.	600		1050	126	460	88
	307	73,600	LOW	470		823	131	361	77
15J600 STAND.	600	144,000	TOP	1140	1/8	2490	114	815	149
	494	119,000	MED.	800		1750	120	572	124
	416	99,800	LOW	600		1310	127	424	104
SLOW SPEED	520	125,000	TOP	860	1/12	1885	121	715	130
	427	102,500	MED.	600		1315	123	498	107
	366	88,000	LOW	470		1030	129	391	93
15K700 STAND.	700	168,000	TOP	1140	1/6	3190	109	780	175
	575	138,000	MED.	800		2240	121	547	144
	485	116,600	LOW	600		1680	128	412	121
SLOW SPEED	640	154,300	TOP	860	1/12	2410	119	600	161
	517	124,000	MED.	600		1680	127	418	129
	425	104,000	LOW	470		1320	133	328	106
15K800 STAND.	800	192,000	TOP	1140	1/4	3500	111	725	199
	660	158,500	MED.	800		2460	124	510	165
	572	137,400	LOW	600		1840	130	382	143
SLOW SPEED	695	167,000	TOP	860	1/8	2630	118	635	174
	562	135,200	MED.	600		1830	126	443	141
	462	111,000	LOW	470		1440	132	347	116
15L900 STAND.	900	216,000	TOP	1140	1/4	3780	113	790	225
	740	177,600	MED.	800		2650	119	554	185
	622	149,200	LOW	600		1990	129	416	155
SLOW SPEED	800	192,000	TOP	860	1/8	2860	122	610	199
	646	155,000	MED.	600		2000	127	425	162
	558	134,000	LOW	470		1565	133	333	140
15L1000 STAND.	1000	240,000	TOP	1140	1/3	4520	110	920	248
	832	199,600	MED.	800		3170	117	645	207
	706	169,500	LOW	600		2380	124	484	177
SLOW SPEED	870	209,000	TOP	860	1/6	3420	116	806	217
	717	172,200	MED.	600		2390	120	562	180
	618	148,500	LOW	470		1180	127	440	155



fedders

fedders

CONVERSION FACTORS

FOR DETERMINING CAPACITIES FOR VARIOUS STEAM PRESSURES AND ENTERING AIR TEMPERATURES (BASED ON STANDARD CONDITIONS OF 2 LBS. GAGE STEAM PRESSURE AND 60°F ENTERING AIR TEMPERATURE)

Steam Pressure Lbs. per Sq. In. Gauge	Latent Heat of Steam	Temperature of Steam Degrees F.	TEMPERATURE OF ENTERING AIR											
			-10°	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0	970.2	212.0	....	....	....	....	....	1.110	1.034	0.956	0.881	0.809	0.739	0.671
2	966.1	218.5	....	....	....	....	....	1.155	1.076	1.000	0.926	0.853	0.782	0.713
5	960.7	227.2	1.640	1.550	1.456	1.370	1.289	1.206	1.127	1.050	0.974	0.901	0.829	0.760
10	952.4	239.4	1.730	1.639	1.545	1.460	1.375	1.290	1.211	1.131	1.056	0.982	0.908	0.838
15	945.5	249.7	1.799	1.708	1.614	1.525	1.441	1.335	1.275	1.194	1.117	1.043	0.970	0.897
20	939.3	258.8	1.861	1.769	1.675	1.584	1.498	1.416	1.333	1.251	1.174	1.097	1.024	0.952
30	928.5	274.1	1.966	1.871	1.775	1.684	1.597	1.509	1.429	1.346	1.266	1.190	1.115	1.042
40	919.3	286.7	2.058	1.959	1.862	1.771	1.683	1.596	1.511	1.430	1.349	1.270	1.194	1.119
60	903.9	307.3	2.196	2.094	1.997	1.902	1.811	1.725	1.640	1.555	1.472	1.393	1.314	1.239
80	891.1	329.9	2.312	2.211	2.112	2.015	1.925	1.836	1.748	1.660	1.577	1.497	1.418	1.342
100	880.2	337.9	2.409	2.307	2.204	2.108	2.015	1.927	1.836	1.749	1.633	1.581	1.502	1.424
125	867.8	352.9	2.518	2.408	2.309	2.213	2.123	2.025	1.936	1.848	1.760	1.675	1.596	1.516
150	856.9	365.9	2.610	2.498	2.393	2.294	2.198	2.105	2.015	1.925	1.842	1.758	1.673	1.596

To determine capacity at any Steam Pressure and Entering Air Temperature, multiply rated capacity at 60° F. Entering Air Temperature and 2 Pounds Steam Pressure by correct factor from table above.

PROPERTIES OF SATURATED STEAM

Gauge Pressure Lbs. Sq. In.	Temperature Degrees F.	Latent Heat B.T.U./Lb.	Gauge Pressure Lbs. Sq. In.	Temperature Degrees F.	Latent Heat B.T.U./Lb.
0	212.0	970.2	60	307.3	903.9
1	215.3	968.2	65	311.8	900.5
2	218.5	966.2	70	316.0	897.3
3	221.5	964.3	75	320.1	894.0
4	224.4	962.4	80	323.9	891.1
5	227.2	960.5	85	327.6	888.2
6	229.8	958.8	90	331.2	885.4
7	232.4	957.2	95	334.6	882.6
8	234.8	955.6	100	337.9	880.0
9	237.1	954.0	105	341.1	877.4
10	239.4	952.5	110	344.2	874.9
15	249.7	945.5	115	347.2	872.5
20	258.8	939.3	120	350.1	870.0
25	266.9	933.6	125	352.9	867.8
30	274.1	928.5	130	355.7	865.5
35	280.6	923.8	135	358.3	863.3
40	286.7	915.1	140	360.9	861.1
45	292.4	913.3	145	363.4	859.0
50	297.7	911.2	150	365.9	856.9



STANDARD HOT WATER CAPACITIES

200°F. ENTERING WATER TEMPERATURE - 60°F. ENTERING AIR TEMPERATURE

fedders

FOR 20° WATER TEMPERATURE DROP									
Model No.	CAPACITY		MOTOR		AIR			WATER	
	Sq. Ft. E.D.R. (150B.T.U./Hr. per Sq. Ft.)	B.T.U. per Hr.	R.P.M.	H.P.	C.F.M. @ 70° F.	Final Temp.	Outlet Air Velocity	Flow G.P.M.	Pressure Drop Millinches
15 B100	90	13,400	1500	1/30	420	90	686	1.4	300
15 B125	110	16,500	1500	1/30	510	91	965	1.7	370
15 C150	143	21,400	1500	1/30	597	94	666	2.2	530
15 C175	159	23,800	1500	1/30	785	89	865	2.5	610
15 D200	202	30,300	1140	1/20	817	95	706	3.1	700
15 E250	246	37,000	1140	1/20	1038	94	754	3.8	2,050
15 F300	290	43,500	1140	1/20	1195	95	742	4.5	2,080
15 F350	333	49,600	1140	1/12	1540	91	890	5.1	2,610
15 G400	371	56,000	1140	1/20	1510	95	747	5.8	1,660
15 G450	396	59,500	1140	1/12	1680	94	778	6.2	1,860
15 H500	528	79,300	1140	1/12	1988	98	727	8.2	3,870
15 J600	627	94,200	1140	1/8	2490	96	790	9.7	3,470
15 K700	795	119,200	1140	1/6	3190	96	762	12.3	4,980
15 K800	826	124,000	1140	1/4	3500	94	704	12.9	5,320
15 L900	1040	156,000	1140	1/4	3780	100	772	16.1	6,020
15 L1000	1140	171,000	1140	1/3	4520	96	895	17.6	8,050

FOR 10° WATER TEMPERATURE DROP									
15 B100	110	15,800	1500	1/30	420	95	690	3.3	1,220
15 B125	137	19,800	1500	1/30	510	96	974	4.1	1,780
15 C150	173	24,600	1500	1/30	597	99	672	5.1	2,100
15 C175	197	28,300	1500	1/30	785	94	873	5.8	2,640
15 D200	243	35,000	1140	1/20	817	100	712	7.2	3,940
15 E250	293	42,200	1140	1/20	1038	98	760	8.7	5,970
15 F300	346	50,000	1140	1/20	1195	99	748	10.3	8,090
15 F350	396	57,000	1140	1/12	1540	95	900	11.7	11,400
15 G400	547	63,400	1140	1/20	1510	100	755	13.0	5,820
15 G450	472	68,000	1140	1/12	1680	98	786	14.0	6,520
15 H500	612	88,400	1140	1/12	1988	102	735	18.2	11,400
15 J600	740	106,000	1140	1/3	2490	100	798	21.9	14,200
15 K700	915	131,000	1140	1/6	3190	99	770	27.0	19,400
15 K800	953	137,000	1140	1/4	3500	97	710	28.2	21,100
15 L900	1180	170,000	1140	1/4	3780	102	778	35.0	30,800
15 L1000	1290	185,000	1140	1/3	4520	99	902	38.2	38,800

NOTE: Satisfactory performance of Fedders Series 15 Unit Heaters with hot water as the heating medium requires:

1. Positive circulation of the water by means of a pump or circulator.
2. A minimum entering water temperature of 160° F.

CONVERSION FACTORS FOR DETERMINING HOT WATER CAPACITIES OF FEDDERS SERIES 15 UNIT HEATERS

for various inlet water temperatures and entering air temperatures. (Based on standard conditions of 200°F. entering water and 60°F. entering air).

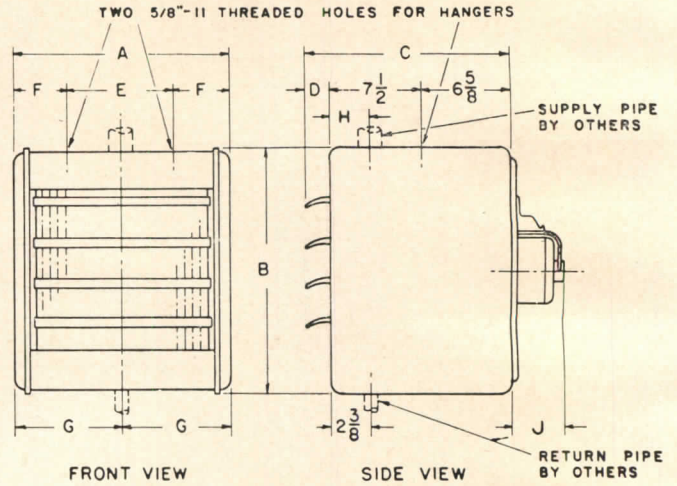
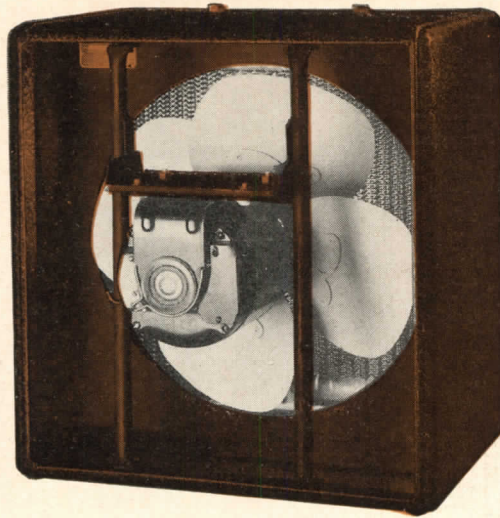
Entering Air ° F.	ENTERING WATER TEMPERATURES ° F.								
	160°	170°	180°	190°	200°	210°	220°	230°	240°
30	0.93	1.00	1.07	1.14	1.21	1.29	1.36	1.43	1.50
40	0.86	0.93	1.00	1.07	1.14	1.21	1.29	1.36	1.43
50	0.79	0.86	0.93	1.00	1.07	1.14	1.21	1.29	1.36
60	0.71	0.79	0.86	0.93	1.00	1.07	1.14	1.21	1.29
70	0.64	0.71	0.79	0.86	0.93	1.00	1.07	1.14	1.21
80	0.57	0.64	0.71	0.79	0.86	0.93	1.00	1.07	1.14
90	0.50	0.57	0.64	0.71	0.79	0.86	0.93	1.00	1.07
100	0.43	0.50	0.57	0.64	0.71	0.79	0.86	0.93	1.00

To determine the capacity of a Fedders Unit Heater using hot water at entering water and air temperatures other than 200°F. water and 60°F. air, multiply the rated hot water capacity by the correct factor from table above.

HEAT
TRANSFER
SPECIALISTS
SINCE 1896

fedders

DIMENSIONS *fedders* Series 15 UNIT HEATERS



Note:—Dimensions shown hereon correct at time of catalog publication. However, because our policy is one of continuous improvement, we reserve the right to make minor changes in specifications or dimensions without incurring obligation. Purchaser may request certified dimension print if necessary for a particular job.

DIMENSIONAL DATA

Unit Model No.	A	B	C	D	E	F	G	H	J App.	Supply Conn. F.P.T.	Return Conn. F.P.T.	Fan Dia.	Approx. Net Wt.	Approx. Ship. Wt.
15B100	13 ³ / ₄	14 ¹ / ₈	15 ¹ / ₄	1 ¹ / ₈	8 ¹ / ₂	2 ⁵ / ₈	6 ⁷ / ₈	2 ³ / ₈	2 ¹ / ₄	1	1	10	46	65
15B125	13 ³ / ₄	14 ¹ / ₈	15 ¹ / ₄	1 ¹ / ₈	8 ¹ / ₂	2 ⁵ / ₈	6 ⁷ / ₈	2 ³ / ₈	2 ¹ / ₄	1	1	10	46	65
15C150	15 ⁷ / ₈	16 ¹ / ₈	15 ¹ / ₄	1 ¹ / ₈	8 ¹ / ₂	3 ¹¹ / ₁₆	7 ¹⁵ / ₁₆	2 ³ / ₈	2 ¹ / ₄	1	1	12	54	75
15C175	15 ⁷ / ₈	16 ¹ / ₈	15 ¹ / ₄	1 ¹ / ₈	8 ¹ / ₂	3 ¹¹ / ₁₆	7 ¹⁵ / ₁₆	2 ³ / ₈	2 ¹ / ₄	1	1	12	54	75
15D200	17 ¹ / ₄	19 ³ / ₈	16 ¹ / ₄	2 ¹ / ₈	8 ¹ / ₂	4 ³ / ₈	8 ⁵ / ₈	2 ³ / ₈	5 ³ / ₈	1 ¹ / ₂	1	14	87	113
15E250	20	19 ³ / ₈	16 ¹ / ₄	2 ¹ / ₈	11 ¹ / ₂	4 ¹ / ₄	10	2 ³ / ₈	5 ³ / ₈	1 ¹ / ₂	1	14	93	126
15F300	20	21 ³ / ₈	16 ¹ / ₄	2 ¹ / ₈	11 ¹ / ₂	4 ¹ / ₄	10	2 ³ / ₈	5 ³ / ₈	1 ¹ / ₂	1	16	97	130
15F350	20	21 ³ / ₈	16 ¹ / ₄	2 ¹ / ₈	11 ¹ / ₂	4 ¹ / ₄	10	2 ³ / ₈	5 ³ / ₈	1 ¹ / ₂	1	16	97	130
15G400	22	23 ³ / ₈	16 ¹ / ₄	2 ¹ / ₈	13	4 ¹ / ₂	11	2 ¹¹ / ₁₆	5 ³ / ₈	2	1 ¹ / ₂	18	109	149
15G450	22	23 ³ / ₈	16 ¹ / ₄	2 ¹ / ₈	13	4 ¹ / ₂	11	2 ¹¹ / ₁₆	5 ³ / ₈	2	1 ¹ / ₂	18	109	149
15H500	23 ³ / ₈	27 ⁷ / ₈	16 ¹ / ₄	2 ¹ / ₈	13	5 ³ / ₁₆	11 ¹¹ / ₁₆	2 ¹¹ / ₁₆	5 ³ / ₈	2	1 ¹ / ₂	20	125	168
15J600	26 ¹ / ₈	27 ⁷ / ₈	16 ¹ / ₄	2 ¹ / ₈	13	6 ³ / ₁₆	13 ¹³ / ₁₆	2 ¹¹ / ₁₆	6 ³ / ₈	2	1 ¹ / ₂	20	133	178
15K700	29 ³ / ₈	31 ⁷ / ₈	16 ¹ / ₄	2 ¹ / ₈	16	6 ¹³ / ₁₆	14 ¹³ / ₁₆	2 ¹¹ / ₁₆	6 ¹⁵ / ₁₆	2	1 ¹ / ₂	24	159	212
15K800	29 ³ / ₈	31 ⁷ / ₈	16 ¹ / ₄	2 ¹ / ₈	16	6 ¹³ / ₁₆	14 ¹³ / ₁₆	2 ¹¹ / ₁₆	6 ¹⁵ / ₁₆	2	1 ¹ / ₂	24	159	212
15L900	34 ³ / ₈	31 ⁷ / ₈	16 ¹ / ₄	2 ¹ / ₈	16	9 ³ / ₁₆	17 ³ / ₁₆	2 ¹¹ / ₁₆	6 ¹⁵ / ₁₆	2	1 ¹ / ₂	26	199	258
15L1000	34 ³ / ₈	31 ⁷ / ₈	16 ¹ / ₄	2 ¹ / ₈	16	9 ³ / ₁₆	17 ³ / ₁₆	2 ¹¹ / ₁₆	6 ¹⁵ / ₁₆	2	1 ¹ / ₂	26	199	258

HEAT
TRANSFER
SPECIALISTS
SINCE 1896

GENERAL SPECIFICATIONS

fedders

1. Ratings are based on tests made in accordance with the "Standard Code for Testing and Rating Steam Heaters" adopted by the Industrial Unit Heater Association and the American Society of Heating and Ventilating Engineers.

2. Ratings are true only when units are recirculating air with free inlet and discharge.

3. Capacities are based on 2 lb. steam pressure at the unit and 60° F. entering air temperature.

4. The C.F.M. is based on entering air at 60° F. and is corrected to standard air weighing .07488 lbs. per cubic foot, which corresponds to dry air at 70° F.

5. Outlet velocity is based on the delivery face area of the heating element and the final temperatures obtained with 2 lbs. steam pressure and 60° F. entering air.

6. The copper heating element will withstand operating saturated steam pressure up to 150 pounds gauge. It is preferable, however, to operate on pressures below 30 pounds gauge. See note 13.

7. When unit heaters are to handle air at temperatures below freezing, not less than 5 lbs. gauge must be maintained at the unit.

8. Unit Heaters are preferably supported by hangers made from $\frac{5}{8}$ " diameter rods or some other means.

9. Series 15 Unit Heaters are equipped with G.E., Century and other nationally known motors. Waste packed sleeve bearings and thrust bearings are standard.

10. Single speed motors are not furnished with switches at the list price.

11. All single phase motors may be used on any one phase of two or three phase circuits of the same frequency.

12. Before putting a unit heater into operation, make sure that the motor bearings are free and that they have sufficient oil. Oil not less than every 90 operating days.

13. Fedders heating products herein listed are warranted to be free from defects in material and workmanship under normal conditions and service when made part of a properly functioning heating system; and our obligation under this warranty is limited to making good at our factory any part or parts thereof which shall, within one year from date of shipment from our factory, be returned to our factory with all transportation charges prepaid and which our examination shall disclose to have been defective. For purpose of this guarantee, normal conditions and service require boiler water maintained at normal alkalinity and atmosphere uncontaminated with corrosive gases.

This warranty does not apply to any equipment which shall have been repaired or altered outside of our factory in a way so as, in our judgment, to affect its stability, nor which has been subject to misuse, negligence, or operating conditions in excess of those stated herein.

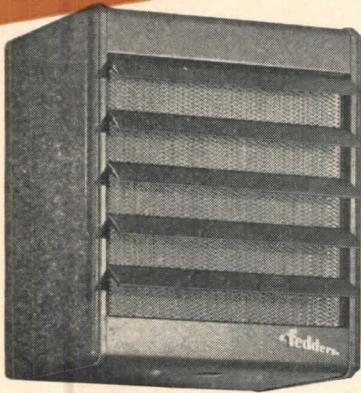
This warranty does not cover any labor charges for replacement of any part or parts, adjustments, repairs, or any work done whatsoever, nor does it assume responsibility of consequential damages of any nature, and the purchaser or user, by acceptance of this equipment assumes the responsibility for the consequences of its use or misuse. Equipment and parts made by others are subject to the warranty of their respective manufacturers.

14. The right to change specifications without notice is hereby reserved.

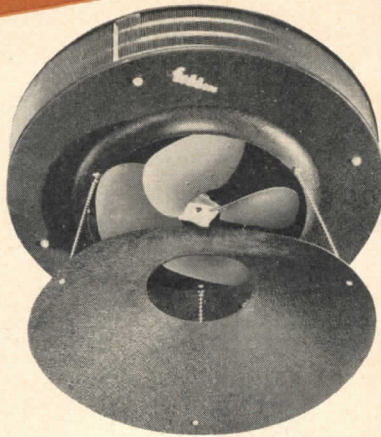




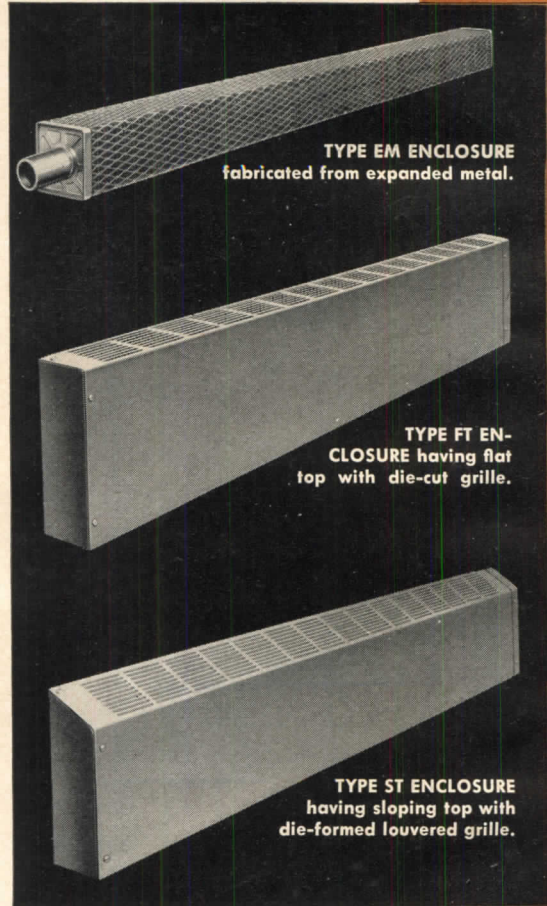
Complete Line of Heating Equipment



FEDDERS Series 15
UNIT HEATER



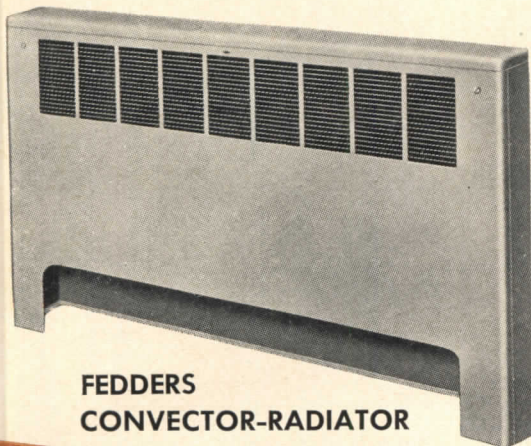
FEDDERS DOWN BLOW
UNIT HEATER



TYPE EM ENCLOSURE
fabricated from expanded metal.

TYPE FT EN-
CLOSURE having flat
top with die-cut grille.

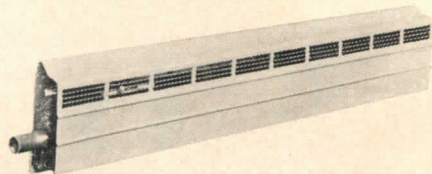
TYPE ST ENCLOSURE
having sloping top with
die-formed louvered grille.



FEDDERS
CONVECTOR-RADIATOR

FEDDERS
WALL
RADIATION

FEDDERS
BASEBOARD
RADIATION



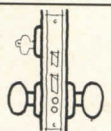
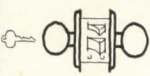
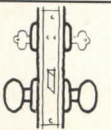
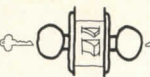

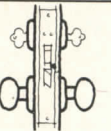
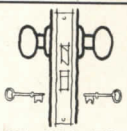
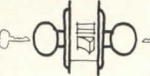

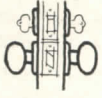
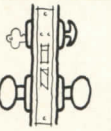
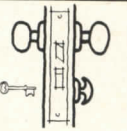
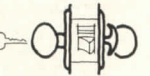

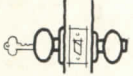
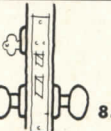
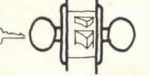


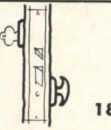

The Fedders-Quigan policy is one of continuous improvement, and therefore the right is reserved to make changes without notice.

FEDDERS-QUIGAN CORPORATION
BUFFALO 7, NEW YORK

HARDWARE-20: Lock Functions

Prepared by Seymour Howard, Architect, Instructor at Pratt Institute, with the cooperation of the American Society of Architectural Hardware Consultants

(Continued from page 143)

LINE NO.	MORTISE LOCKS		UNIT LOCKS	CYLINDRICAL LOCKS	TUBULAR LOCKS
	CYLINDER	BIT-KEY	Functions same as mortise, unless noted	Fed. Spec. No. 160 Series & 161 Series	Functions same as cylindrical
7 OFFICE	 85E, 86E, 87E Latch bolt by knob from either side; by key from outside when outer knob is locked by stop in face. When door is closed, auxiliary bolt shall dead lock latch bolt and stops		 90E, 98E (Fire door)		Use same lock as shown in line 6
8 APARTMENT, OFFICE AND PUBLIC TOILET	 86G, 87G Latch bolt by knob from either side; stop works controlled by inside key; latch bolt by key from outside when outer knob locked; when door is closed, auxiliary bolt deadlocks latch bolt. 123B: same, thumb pieces and handles both sides		 90G, 98G (Fire door)		Latch bolt by knob from either side, except when outer knob is locked by inside key, then by key from outside. Inside knob always free
9 LATCH AND DEAD-LOCK	 85C, 86C Latch bolt by knob from either side; dead bolt by key from either side. (86CR, rabbeted front) 123A: same, thumb pieces and handles both sides. 6A, 6AR (rabbeted front), same for French doors, lever handles both sides	 3A, 3AA, 5A, 5AR, 6A, 6AR	 90C		 181M 2B Latch bolt by knob from either side except when locked. Key in either knob locks both knobs
10 LATCH AND DEAD-LOCK	 85B, 86B Latch bolt by knob from either side; dead bolt by key from outside, turn knob from inside. (86BR, rabbeted front)		 90B		 Same functions as cylindrical
11 WIRE & PIPE SHAFT	 85EW, 86EW Latch bolt by key from outside, by knob from inside. Outer knob always fixed; inner knob always free. 85DW, 86DW, similar but without auxiliary deadlocking latch		 90DW, without auxiliary latch 90EW, auxiliary latch		 Same functions as cylindrical
12 NIGHT LATCH	 183 Latch bolt by turn knob inside and key from outside. When door is closed auxiliary bolt shall automatically dead-lock latch bolt. Bolt may be held back by stop in front				 182B By key one side, turn knob one side. Turn knob or slide stop permits latch to be held in retracted position. Dead-locking guard bolt. 182A same, but no dead-locking

Notes: Numbers shown for locks and latches are U. S. Federal Specification numbers from FF-H-106a, dated 23 November, 1948. Locks

shown without numbers are available, though not included in Federal Specs.

(Continued on page 159)

Architectural Engineering
TIME-SAVER STANDARDS



Chemistry Building, Chicago

ILLINOIS INSTITUTE of TECHNOLOGY

Architect
Ludwig Mies van der Rohe

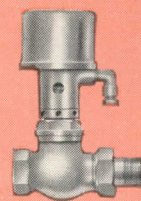
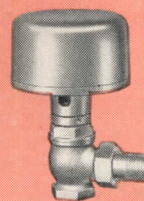
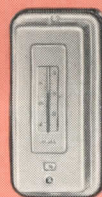
Associate Architects: Friedman, Alschuler & Sincere; and Holabird & Root & Burgee

Consulting Engineer: Robert E. Hattis

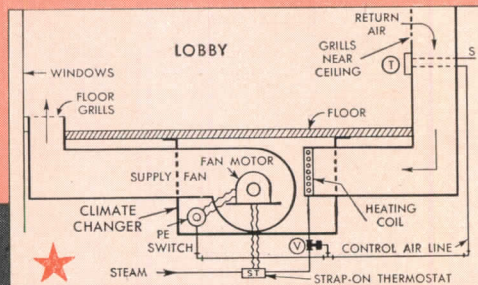
Heating Contractor: Economy Plbg. & Heating Co., All of Chicago, Ill.



POWERS



Modern gradual acting pneumatic thermostats and control valves fit every requirement.



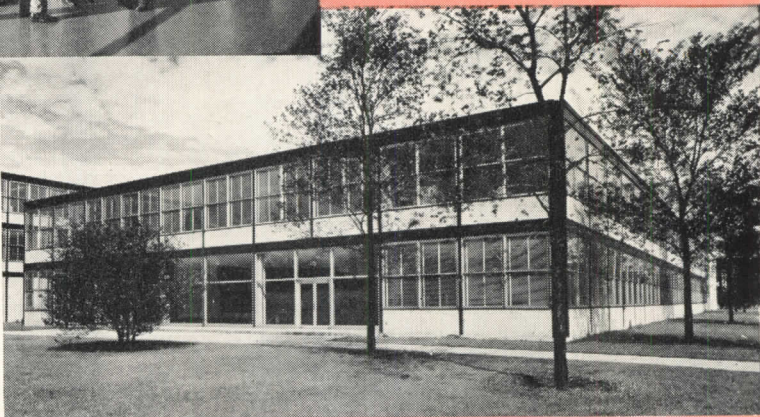
★ NOTE the novel solution to problem of supplying heat and ventilating in an unobtrusive manner. Strap-on-thermostat prevents operation of fan when no steam is available. Pressure electric switch stops fan after valve is closed.

Left: View from inside Metallurgical and Chemical Engineering Building shown below.

POWERS

Pneumatic Systems of TEMPERATURE CONTROL are installed in the following buildings

Chemistry Building • Metallurgical and Chemical Engineering • Institute of Gas Technology • Association of American Railroads • Alumni Memorial Hall • Network Calculator Laboratory • Spund Laboratory • Armour Research Laboratory • Machinery Hall



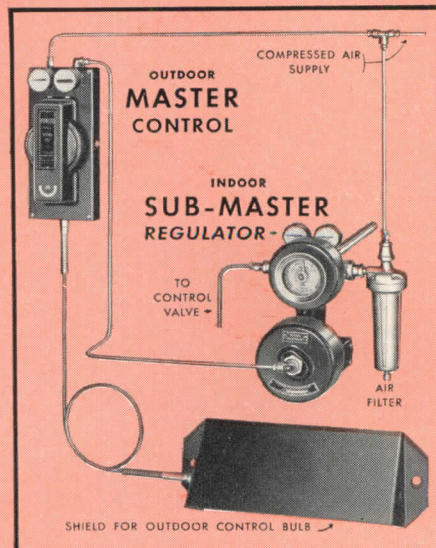
In 1990 will the Powers installations at Illinois Tech still be giving dependable control?... Nearby, in the Drake Public School, a Powers pneumatic system of temperature control is still giving reliable service after 49 years.

Many users report 25 to 40 years of low cost control from Powers regulation. So, with the better modern equipment now being used, 1990 may be only the half-way mark for present day Powers systems.

When you want temperature control that will provide maximum comfort and fuel savings with lower operating and maintenance cost, contact Powers nearest office. There's no obligation.

THE POWERS REGULATOR CO.

Established 1891 • OFFICES IN OVER 50 CITIES • See Your Phone Book
CHICAGO 14, ILL., 2752 Greenview Ave. • NEW YORK 17, N.Y., 231 E. 46th St.
LOS ANGELES 5, CAL., 1808 West 8th St. • TORONTO, ONT., 195 Spadina Ave.
MEXICO, D. F., Edificio "La Nacional" 601

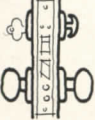


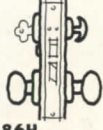
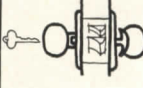

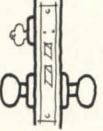
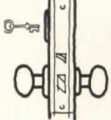







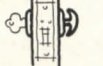
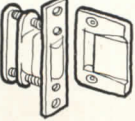





POWERS MASTROL-SYSTEM OF CONTROL FOR FORCED HOT WATER HEATING SYSTEMS.

HARDWARE - 21: Lock Functions

Prepared by Seymour Howard, Architect, Instructor at Pratt Institute, with the cooperation of the American Society of Architectural Hardware Consultants

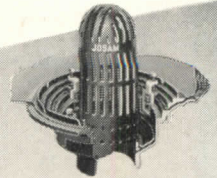
(Continued from page 157)

LINE NO.	MORTISE LOCKS		UNIT LOCKS	CYLINDRICAL LOCKS	TUBULAR LOCKS
	CYLINDER	BIT-KEY	Functions same as mortise, unless noted	Fed. Spec. No. 160 Series & 161 Series	Functions same as cylindrical
13 EXIT DOOR	<p>MORTISE LOCKS</p> <p>CYLINDER</p>  <p>86F</p> <p>Latch bolt by knob inside at all times and by knob outside except when locked by stop in face; by key outside when outer knob locked. Dead bolt by key outside and turn knob inside. When dead bolt thrown, 1/4 turn of inside hand knob retracts both latch and dead bolts. 86F W: no stop works; same operation but outside knob always operates latch</p>				
14 CLASS- ROOM DEAD- LOCK	<p>CYLINDER</p>  <p>191</p>		<p>BIT-KEY</p> <p>Dead bolt by key from outside and by turn knob from inside. Turn knob shall withdraw but shall not project dead bolt</p>		 <p>188</p>
15 HOTEL	 <p>86H</p> <p>Latch bolt by key from outside, by knob from inside. Outside knob rigid. Dead bolt from outside by display and emergency key only; from inside by turn knob. Outside indicator shows when door locked from inside. Emergency key operates dead- and latch-bolts. Note: at least 15 types of hotel locks available with slight variations. Special study required</p>		 <p>90H</p>	 <p>Latch bolt from outside by guest, display, master, grand-master and emergency key (knob fixed); bolt dead-locked when closed; by knob at all times from inside (except when locked by shut-out key from inside). Push button on inside locks outer knob to all except display and emergency key; indicator button on outside shows when push button operates</p>	
16 CLASS- ROOM	 <p>86J</p>	 <p>187</p>	 <p>90J</p>	 <p>Locked or unlocked by key from outside. Inner knob always free. Latch dead-locked when door closed</p>	
17 DEAD- LOCK	 <p>86T, 190M</p>	 <p>189, 192 192A, B, C</p>	 <p>Same as cylindrical</p>	 <p>Latch bolt by key in either knob. Both knobs always fixed. Latch bolt dead-locked when door closed</p>	 <p>181M</p> <p>Same as mortise</p>
18 DEAD- LOCK	 <p>86P, 190K</p> <p>Bolt by key from one side and turn knob from other</p>			<p>MISCELLANEOUS</p>  <p>193</p>	
19 DEAD- LOCK	 <p>86S, 190L</p> <p>Dead bolt by key from one side</p>		 <p>Latch bolt by key from outside. Outside knob always rigid. Latch dead-locked when door closed</p>	<p>Hospital Door Roller Latch. By push or pull on door</p>  <p>194, 195, 196</p> <p>Rim Night Latch (tubular) Latch by key from outside; turn knob from inside. Slide stop to hold latch retracted</p>	

Notes: Numbers shown for locks and latches are U. S. Federal Specification numbers from FF-H-106a, dated 23 November, 1948. Locks shown without numbers are available, though not included in Federal Specs.

Architectural Engineering

TIME-SAVER STANDARDS



Main Roof Drain
Series No. 410

How would you select the

DRAINAGE PRODUCTS

for a school building?

The selection of the correct drainage products — the products charged with the responsibility of carrying away the waste water in a school — is an extremely important task. You might spend months studying the drainage requirements . . . you might spend weeks studying drawings and other data . . . and still not be certain that your selection of drainage products was the best.

Drainage, too, is only a small part of a school's requirements, therefore you cannot afford to waste costly time trying to find the right plumbing drainage products to use. How then, can you be certain of your selection? Simply by remembering two facts: (1) Josam has the widest range of plumbing drainage products in the world. (2) Josam is specified and installed in more buildings, than all other makes combined.

For these reasons, you can call on Josam today, knowing that it offers a product for every drainage condition . . . a product that has been proven correct in thousands of installations. That's why it is important to call on Josam whenever drainage is required — there's no time wasted, there's no guesswork, and you pay no more for Josam quality.

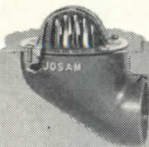
Select your drainage products by allowing proven experience to do this work for you — put Josam on the job — then you know your job will be done right!



JOSAM MANUFACTURING COMPANY

REPRESENTATIVES IN ALL PRINCIPAL CITIES

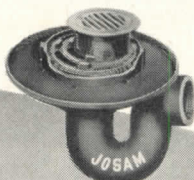
FLOOR, SHOWER AND ROOF DRAINS • INTERCEPTORS • BACKWATER VALVES • SHOCK ABSORBERS



Carnice and Sill Drain
Series No. 4870-B



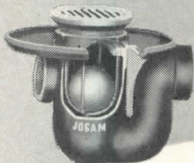
Shower or Floor Drain
Series No. 300-C-35C



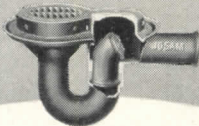
Urinal Drain
Series No. 280



Toilet and Wash Room Drain
Series No. 510



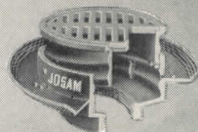
Drinking Fountain Drain
Series No. 230-V



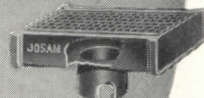
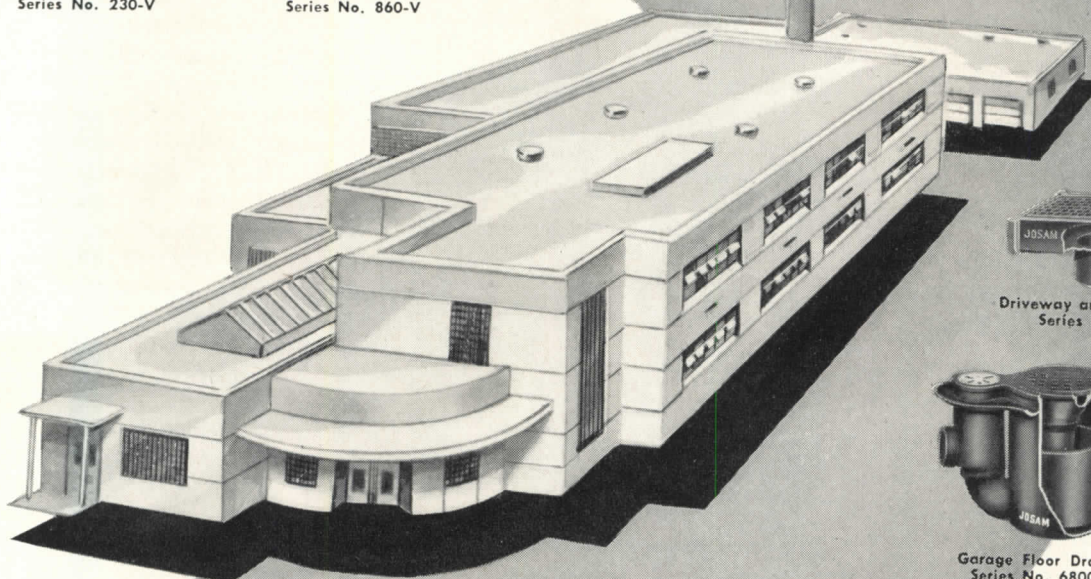
Floor Drain
with Backwater Control
Series No. 860-V



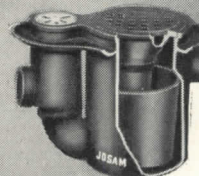
Kitchen Floor Drain
Series No. 5440



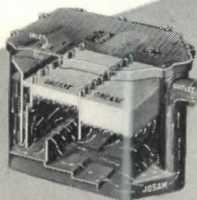
Basement Floor Drain
Series No. 3510



Driveway and Ramp Drain
Series No. 0300



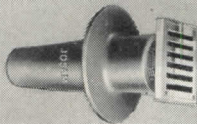
Garage Floor Drain
Series No. 6800



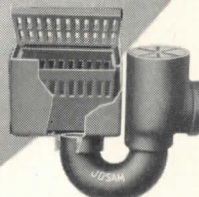
Grease Interceptor
Series No. JA



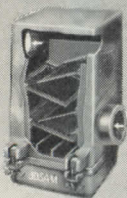
Backwater Sewer Valve
Series No. 1170-T



Swimming Pool Fittings
Series No. 0710-B



Boiler Room Drain
Series No. 6040



Sediment Interceptor
Series No. H-30



Anti-Scald Shower Mixing Valve
Series No. 1435-HH



Shock Absorber for Water Hammer
Series No. 1470

Illustrated above are a few of the many types of Josam products now being widely used in school and institutional buildings. For further information send coupon below.

MAIN SALES OFFICE
Josam Building, Cleveland, Ohio
MANUFACTURING DIVISION
Michigan City, Indiana

SHOWER MIXING VALVES • SWIMMING POOL PRODUCTS

JOSAM MANUFACTURING CO.
302 JOSAM BUILDING • CLEVELAND 13, OHIO

Please send information on the following products:

- | | |
|-------------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Shower Mixing Valves | <input type="checkbox"/> Drains |
| <input type="checkbox"/> Shock Absorbers | <input type="checkbox"/> Backwater Valves |
| <input type="checkbox"/> Swimming Pool Products | <input type="checkbox"/> Interceptors |

FIRM.....

BY.....

ADDRESS.....

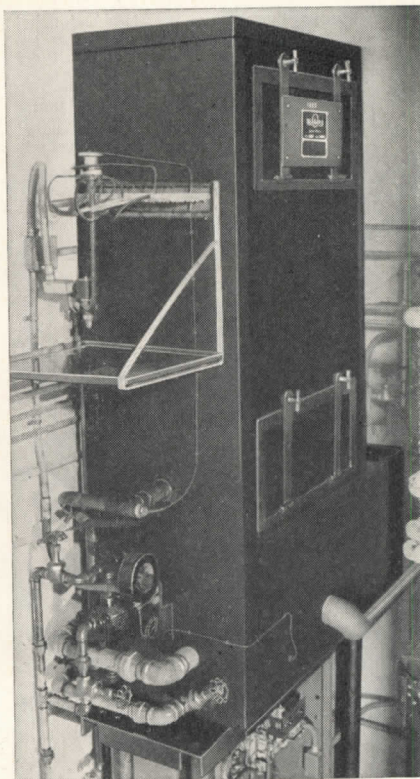
CITY & STATE.....

New "Controlled Humidity" Method Gives a Better Solution to Air Conditioning Problems

"Hygrol" Absorbent Liquid Dehumidifies Fresh Air Without Refrigeration

NIAGARA Air Conditioners or Dehumidifiers using "Hygrol" liquid absorbent give precise control of air temperature and humidity... at lower operating cost, with large savings in space and with smaller and less expensive equipment, in many applications.

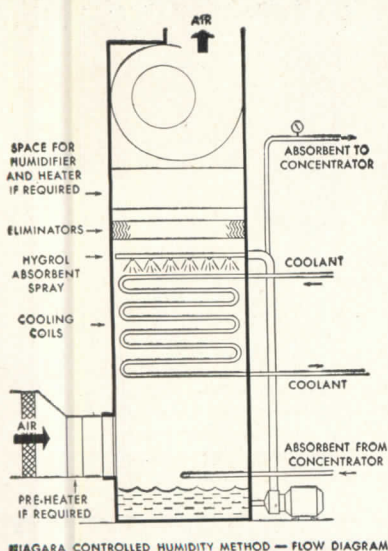
This method dehumidifies the air by passing it through a chamber in which "Hygrol" spray removes its moisture and produces a low dew point. The "Hygrol" solution resulting is continuously and automatically re-concentrated, providing always full capacity in



air conditioning and assuring always a constant dehumidifying capacity and a trustworthy, constant condition for your material, apparatus, process or room to be conditioned.

"Hygrol" is a liquid, not a salt solution; it stays pure and non-corrosive; it does not cause maintenance or operating troubles in food plants or in chemical processes.

Investigate this new Niagara Method for "comfort" air conditioning as well as to protect quality in hygroscopic material, or processes or instruments, or to prevent condensation damage to metals, parts or products.



Write for Bulletin 112

NIAGARA BLOWER COMPANY

Over 35 Years Service in Industrial Air Engineering

Dept. AR, 405 Lexington Ave.

New York 17, N. Y.

Experienced District Engineers in all Principal Cities

Architectural Engineering

PRODUCTS

(Continued from page 142)

on the six upper floors of the Kentucky Hotel, Louisville, Ky. For economy the same type of equipment was used in all rooms, independent of their location. The system uses *Anemostat High Pressure Units* with aspirating air diffusers. The high pressure units consist of supply air inlet, sound absorbing plenum chamber with induction nozzles and control assembly, pre-induction chamber with room air intake and aspirating diffuser. Air volume is controlled by a damper in each unit, actuated manually by remote cable and control knob. The units are size 15, 17.5 and 20 with 2½-, 3- and 4-in. diam inlet connection. Typical risers are of Fibreglas-insulated steel, and measure 12 in. at top and 6 in. at bottom. They are installed in existing closets or along outside walls. There are no return ducts; air is taken out through louvers in door transoms.

Supply air and room air are pre-mixed in the pre-induction chamber in a ratio of 1:1, then supplied to the diffuser. The system is designed for 30 F temperature differential, with primary air at 45 F to keep the room at 75 F; air passing through the air diffuser is 60 F. The velocity in the risers is 6000 fpm.

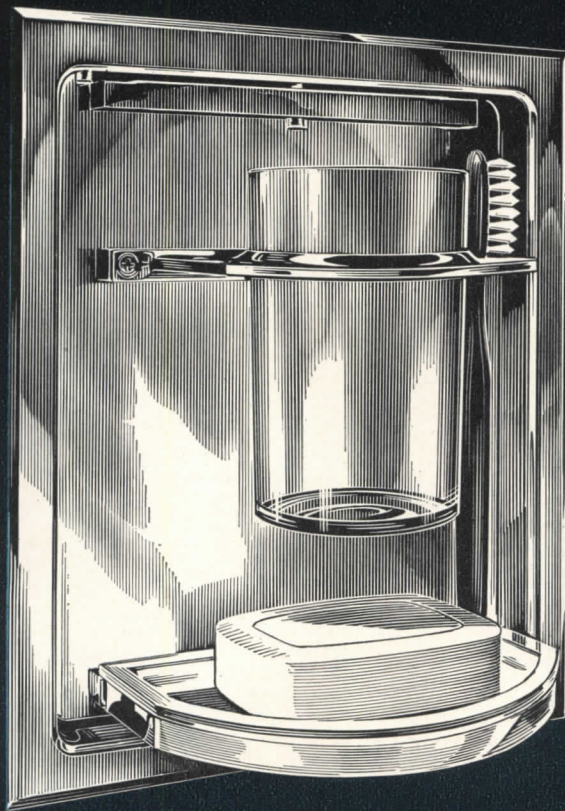
The system is said to have resulted in considerable savings in the cost of ductwork, installation and operation expenses. It is also said to be very quiet in operation. Anemostat Corporation of America, 10 E. 39th St., New York 16, N. Y.

Fraction Calculator

A new circular computer, called the *Fractionator*, adds or subtracts fractions and converts them to complete decimal equivalents. The device is said to be precision built, of sturdy construction, lightweight and pocket size. It consists of three discs. The scale on the outer disc shows fractions in ½ increments and the inner disc indicates fractions in ¼ths. The center disc revolves and is dialed with a pencil point. The answer automatically appears in a slot together with its decimal equivalent. The device is claimed to be 100 per cent accurate. Charles E. Wells, P.O. Box 25, Montrose, Calif.

(Continued on page 164)

HALL-MACK QUALITY ACCESSORIES



...for every bathroom style and budget

Line for line, piece for piece, Hall-Mack Bathroom Accessories give you extra style and construction. This Concealed Lavatory Unit, for example, is an exclusive Hall-Mack Accessory that combines distinctive modern style, utmost convenience, and finest construction throughout. And you will find similar

quality carried through in every bathroom accessory made by Hall-Mack.

Regardless of your bathroom budget, Hall-Mack Quality is never out of reach.

HALL-MACK®

HALL-MACK COMPANY

1344 W. Washington Blvd., Los Angeles 7, Calif.
7455 Exchange Avenue, Chicago 49, Illinois

Bathroom Accessories Are Important

Since you build a bathroom for a lifetime of use—

make sure you get Hall-Mack's lasting style and quality.





Look what MODERN SCIENCE HAS DONE FOR WOOD WINDOW UNITS

"Good for a lifetime" is no empty slogan when applied to wood window units. Today, water-repellent preservative treatment has amazingly increased the durability of wood—giving it extra resistance to stain, decay, insect attack and humidity.

But that's not half the story!

Modern stock design windows are precision made—available as completely assembled units for quick, easy installation. Standard size screens and storm windows can be used without additional framing expense.

Wood windows today are ultra-modern in *operation*, with sash balances which permit finger-tip opening and closing. And wood, as always, offers greater resistance to the passage of heat and cold—keeps houses more comfortable the year 'round—discourages annoying condensation. Wood Window Information Service, 38 South Dearborn Street, Chicago 3, Ill.

**See your local lumber dealer
for wood window units**

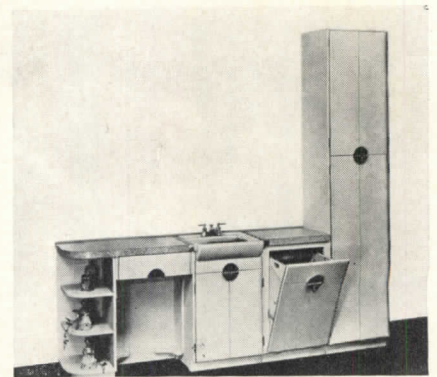
Architectural Engineering

PRODUCTS

(Continued from page 162)

Bathroom Storage Cabinets

The *Bath Maid* line of bathroom cabinets, consisting of eight different units plus a three-purpose vanity seat, have been designed for use with the *Dresslyn Lavatory* made by American Radiator & Standard Sanitary Corp. Varying combinations of the units permit many storage arrangements for bathrooms.



A wide variety of storage arrangements is possible with new series of bath cabinets

The models available include: cabinets for 20- or 24-in. lavatories; counter-height or 84-in. high linen storage units; a kneehole vanity; a hamper unit; and right or left hand open end shelves. The vanity seat also serves as a child's step and as a place for storing shoe cleaning material, etc. The units are built of selected hardwood with enameled preswood doors and aluminum drawers. Counter tops are of plastic. A variety of colors and counter-top patterns are available. The units may be ordered in combinations or separately. Bath Maid, Inc., Div. of The Kitchen Maid Corp., Andrews, Ind.

Elevator Landing System

The *Westinghouse Synchro-Glide* elevator landing system is claimed to considerably soften the operation of an elevator, and to save enough time to increase the passenger-handling capacity of a car up to 10 per cent. The mechan-

(Continued on page 166)



*Stainless
requires careful
selection, too!*

Before you marry your product to stainless steel, make certain that you've chosen the right analysis. *Stainless* is a broad term applied to a whole host of steels, each with its own characteristics. And to get the most out of stainless you must select with care.

That's why Crucible, a pioneer in the development of this specialty, offers you the services of a staff of metallurgists, well qualified by experience with hundreds of applications, to help you put stainless to work properly.

For more than half a century, Crucible has been the leader in the specialty steel field. There is no substitute for Crucible background — take full advantage of it. When you think of stainless — call in Crucible. CRUCIBLE STEEL COMPANY OF AMERICA, Chrysler Building, New York 17, N. Y.

CRUCIBLE

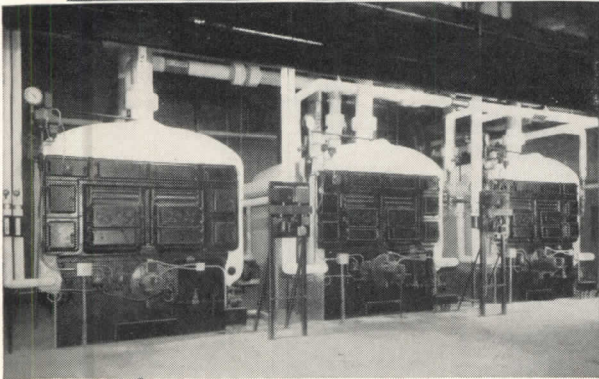
first name in special purpose steels

51 years of *Fine* steelmaking

STAINLESS STEELS

STAINLESS • HIGH SPEED • TOOL • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS

the WORLD'S LARGEST UNION motor truck terminal



Battery of three No. 60-S-17 H. B. Smith oil-fired cast iron boilers, each with net steam rating of 12,925 sq ft. Owner, Architects and Engineers of Terminal: The Port of New York Authority, New York. Heating Contractors: August Arace & Sons, Inc., Elizabeth, New Jersey.

chooses *H. B. Smith* BOILERS

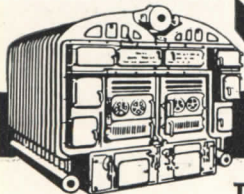
To assure trouble-free heating and hot water supply, The Port of New York Authority selected H. B. Smith cast iron boilers in the new Union Motor Truck Terminal at Newark, N. J.

For the 31,000 feet of steam radiation, three No. 60-S-17 Smith oil-fired cast iron boilers do an eminently competent job, as does the No. 340-W-11 Mills boiler in the adjacent maintenance building.

In winter, four No. 608 Smith Manifold Indirect Heaters provide a total hot water capacity of 1680 GPH at 100°F. temperature rise, while in summer, one No. 34-W-11 Smith oil-fired unit with capacity of 1596 GPH is adequate.

7-A

Since 1853



H. B. Smith

CAST IRON BOILERS

THE H. B. SMITH CO., Inc., Westfield, Mass.

Most complete line in the world of cast iron boilers for heating

Architectural Engineering

PRODUCTS

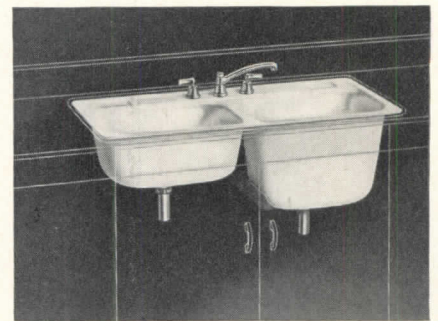
(Continued from page 164)

ism is said to permit cars to delay slowing until it arrives at a point 20 in. from the floor while traveling at 250 ft per minute. As a car reaches this point, the landing system is set into operation automatically. Door opening is synchronized with the car's slowdown. Cars are claimed never to overrun the floor, thus saving time often needed for releveling.

In operation, a series of magnets, called inductors and mounted vertically on top of each elevator car, are energized. Each of these inductors in turn, as it comes closer to the floor, signals a speed control to reduce the car's motor speed until it is stopped. Speed is reduced according to a predetermined pattern. Slowdown is said to be gradual and smooth. Westinghouse Elevator Div., 150 Pacific Ave., Jersey City, N. J.

Budget Sink

The *Kohler Westover* combination sink and laundry tray has been designed for apartment and low-cost housing kitchens. The enameled, cast iron unit is made for building into counter tops



Inexpensive sink and laundry tray combination is designed for built-in cabinets

and cabinets. The overall size is 42- by 21-in. The finish is acid-resisting. Features include a 3-in. ledge at the back with integral soap dishes, and a mixer fitting and swing spout to serve both sink and tray. Kohler Co., Kohler, Wis.

(Continued on page 168)

for

extra whiteness

use Trinity White Cement

Whenever whiteness is called for in masonry, specify Trinity white—the whitest white cement. Use it in architectural concrete units, stucco, terrazzo, cement paint. Trinity is a true portland cement that meets ASTM and Federal specifications. Trinity Division, General Portland Cement Co., 111 West Monroe Street, Chicago 3; 305 Morgan Street, Tampa 2; Volunteer Building, Chattanooga 2; Republic Bank Building, Dallas 1; 816 West 5th, Los Angeles 5.

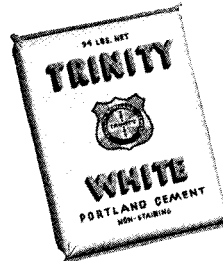
As white



as snow

TRINITY WHITE
Portland Cement

plain or waterproofed

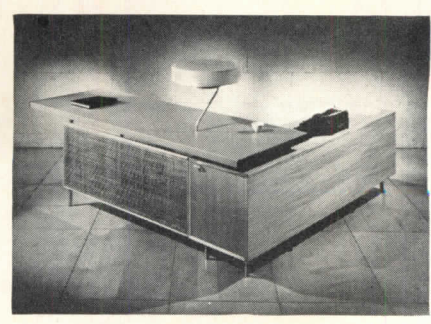


PRODUCTS
(Continued from page 166)

Formed Plastic Letters

- Plastic letters, made of Lucite and Plexiglas, are said to be completely weatherproof, and able to withstand extremely low and high temperatures for outdoor use. Called *Durable Formed*

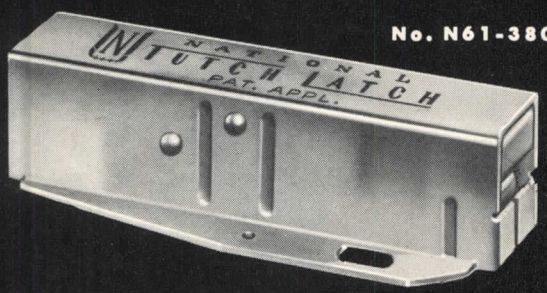
Letters, the units conduct light, and can be made transparent, translucent, or opaque, and lighted from within or from the outside. They are made in a wide range of sunfast colors. The letters are said to cost less than metal, and to be cheaper to install. They are cleaned with soap and water. The letters are made in standard sizes from 2-in. to 3-ft high. The 3-ft letters weigh less than 5 lbs. Installation is said to be quick and easy. Durable Formed Products, Inc., 329 Canal St., New York, N. Y.



Trimly styled cabinets and desk tops combine into efficient office work centers



**new...unique...convenient...
appeals to every homeowner**



No. N61-380



**OPENS CABINET DOORS
AUTOMATICALLY...
WITH GENTLE TOUCH OF
FINGER, WRIST, OR ELBOW**

Nothing else like it!

**Close door gently or slam shut... Tutch Latch holds.
Easily installed on upper or lower cabinet doors.
Eliminates need of any cabinet knobs and pulls.**

WRITE US FOR FULL DETAILS

NATIONAL LOCK COMPANY
ROCKFORD, ILLINOIS • MERCHANT SALES DIVISION
DISTINCTIVE HARDWARE...ALL FROM | SOURCE



Office Furniture

The *Herman Miller Executive Office Group* includes a variety of desk tops and storage cabinets which may be combined to form desks for offices or homes. The series was designed by George Nelson, and is said to permit between 150 and 175 different arrangements.

The desk top or slab comes in four sizes, ranging from 30- by 72-in., to 36- by 84-in. Finishes include a choice of two types of wood, five hard plastic colors or plastic fabric. The top may be wall-mounted, or supported at one end by a metal H-leg and at the other by a storage cabinet. Accessories available with the tops include: suspended file baskets; built-in fluorescent lamp; three-drawer suspended storage cabinet; and a hidden intercom system. A woven cane screen may be used to form a front.

The majority of the arrangements are built around an L-shaped plan in which the desk top rests on one of several storage units. These units may be fitted with a variety of cabinets with sliding doors, trays, shelves, files, etc. A portion may be left open, if desired, to provide knee space for typing. A built-in waste basket is also available. Herman Miller Furniture Co., 1 Park Ave., New York, N. Y.

(Continued on page 170)

Architects Approve...



HILLYARD PRODUCTS—a complete line of floor treatment, maintenance and sanitation materials recommended by leading architects from coast to coast. When you specify any Hillyard product, you guarantee your clients maximum protection on their investment in floors.

Materials

HILLYARD-TRAINED "Maintainers"—a nation-wide staff of expert floor consultants, schooled to work hand-in-hand with architects. Call the "Maintainer" in your locality. He'll help you in every way possible, including actual job supervision, to get the job done right . . . absolutely without charge or obligation.

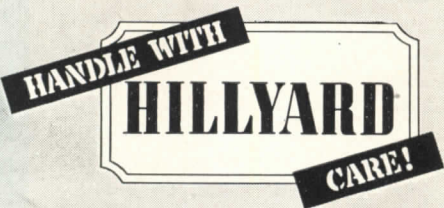
Methods

HILLYARD'S AIA DATA FOLDER—specifies when and where to use each Hillyard product for best results. Condensed in handy, ready-reference style. Keeps clear, concise specifications at your fingertips.

Specifications

YOURS FOR THE ASKING

Send for your free copy of Hillyard's AIA Data Folder. You'll find it genuinely valuable in your office for quick answers to scores of floor treatment questions.



St. Joseph, Missouri
U. S. A.

USF
MAKES STEEL DOOR HISTORY!

FIRST

TO DESIGN a 1 3/8" Hollow Steel Door that meets the ASTM-1 1/2 hour FIRETEST requirements and receive approval of the New York Board of Standards and Appeals.

FIRST

TO RECEIVE approval by the Underwriters' Laboratories, Inc. of a 1 3/8" Hollow Steel Door for "B" Label requirements.

FIRST

TO OFFER architects and builders a complete line of matching interior and apartment entrance doors.

It's the
USF
"Wooster Door"



UNITED STEEL FABRICATORS, INC.
WOOSTER, OHIO

PRODUCTS

(Continued from page 168)

Aluminum Venetian Blinds

The *Plastic Lume* "400" venetian blinds are made with convex shaped slats of a special aluminum alloy with a plastic enamel finish. They are said to be durable and to have a "spring-flexibility" to prevent any sagging, dis-

tortion or kinking. A zinc coating is used over the aluminum to bond the wax-impregnated plastic enamel permanently to the slats. The finish is claimed to shed dust readily and to be resistant to finger marks and stains. The slats are available in 16 colors, and have a soft texture to prevent glare. Lando Products, Inc., 780 Golden Gate Ave., San Francisco 2, Calif.

Bulletin Boards

Armstrong bulletin board material, made of cork composition, features a

self-sealing surface to prevent defacement by tack holes, and a choice of two colors, willow green and desert tan. Both colors have a light reflectance of 28 per cent. The surface is soft and closely grained; color extends throughout the material to do away with the need for refinishing or painting.

The material is made in continuous roll form. Boards up to 5-ft high by 60-ft long can be installed in one piece. The back is pebble grained to help adhesives form a tight bond to wall surfaces. *Armstrong Cork Co.*, Liberty and Mary St., Lancaster, Pa.

Screens For Pipe-Organs

Lumite woven Saran fabric has been used as organ screens in the new Christ Lutheran Church, Minneapolis, Minn., designed by Saarinen, Saarinen and Assocs. The fabric is claimed to help maintain a high quality of tone transmission, as sound passes over, instead of through, the non-absorbent strands, and is not muffled or lost.

"A Proved Chimney Construction That Saves Floor Space and Costs in One Story Houses..."

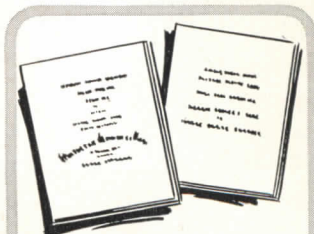
says
DEAN F. HILFINGER
A. I. A.

accepted
proved

Van-Packer PACKAGED CHIMNEY
with zero clearance* of floor, ceiling and roof

"Van-Packer Chimney helped me utilize the floor space in my own home to better advantage. I found the Van-Packer compact . . . readily adaptable to any location desired . . . and economical, too. The ceiling suspended model in my home came packaged complete . . . Took less than 3 hours to install. There were no additional materials or installation problems. We are specifying the Van-Packer Chimney in many one or two story homes as a practical cost-cutting installation."

Van-Packer CORPORATION
Room 1749 • 126 WEST ADAMS ST., Chicago 3, Illinois



* This U. L. Report, plus a test report on operating efficiency, are available upon your request.

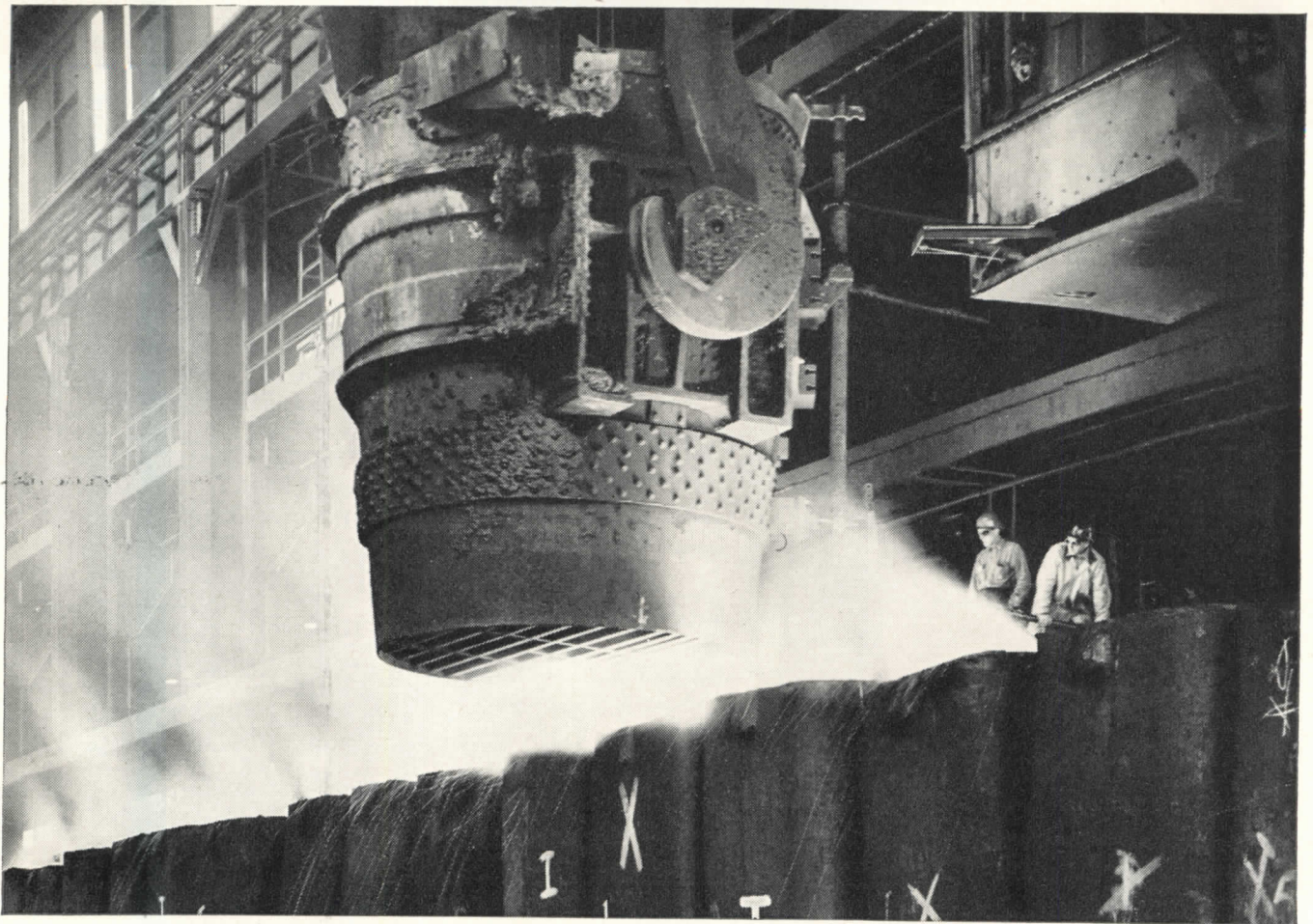
Van-Packer cross section is 5/8" fire clay tile liner, with 3" vermiculite wall.



Plastic fabric used to screen pipe-organs gives good tone quality, cleans easily

The fabric, in a light tan honeycomb weave, covers the organ pipe section and extends beyond to form a wall. Two such screens were used. The lower part of each consists of flush oak panelling, with an access panel at either end to allow entrance for servicing the organ. The fabric was applied to rough framing before screen installation was erected in place, and can be cleaned without removal. *Lumite Div.*, *Chicopee Mfg. Corp.*, 40 Worth St., New York 13, N. Y.

(Continued on page 172)



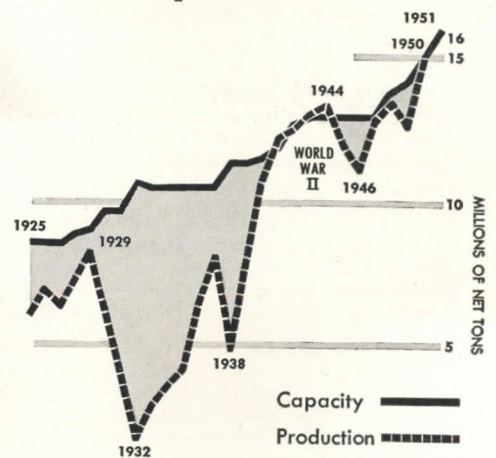
MILLION TONS MORE STEEL

Latest Increase in Bethlehem's Annual Capacity Climaxes 5 Years of Postwar 3,100,000-Ton Expansion

On January 1 of this year Bethlehem's steel making capacity stood at 16 million ingot-tons annually—an increase of 1 million tons over a year ago.

Since the war ended we have increased our annual steelmaking capacity 3,100,000 tons, or 24 per cent.

Moreover, as the chart at the right shows, Bethlehem's steel capacity has nearly doubled in 25 years. Additional capacity can and will be created as it is needed.



BETHLEHEM STEEL ★

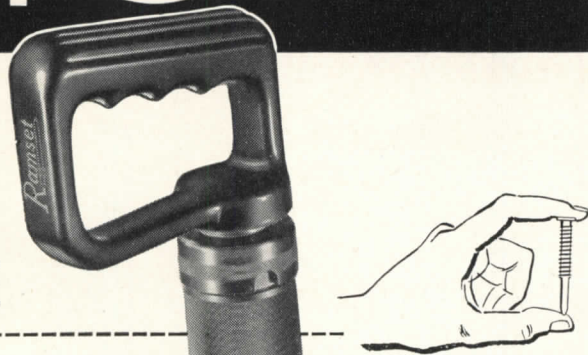


★

ONLY

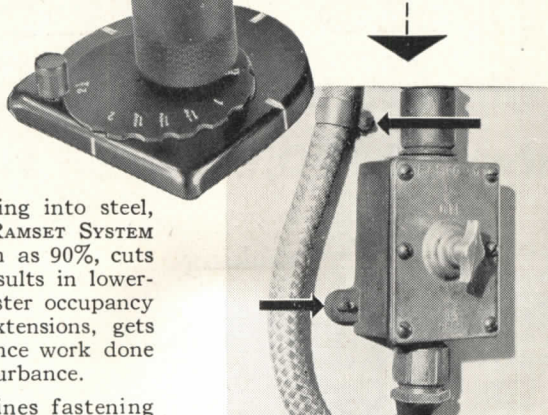
40 SECONDS

FROM HERE



to fasten into steel or concrete, for installing electrical equipment and services, heating, plumbing, air conditioning, steel windows, doors and partitions, sheet metal or composition roofing, walls and sidings, furring strips, and countless other fastening jobs in any type of building.

TO HERE



For fastening or anchoring into steel, concrete and masonry, RAMSET SYSTEM reduces time by as much as 90%, cuts costs up to 75%. This results in lower-cost construction and faster occupancy of new buildings and extensions, gets alterations and maintenance work done quicker and with less disturbance.

RAMSET SYSTEM combines fastening tool, power charge and 76 sizes and types of fasteners, all *engineered* together to provide fastenings with holding power equal to or greater than conventional methods... at substantial reductions in time and cost.

Your local RAMSET Specialist will demonstrate the value of RAMSET SYSTEM for any project now being designed or under construction, and will help you select the fastening work for which RAMSET is especially advantageous. Write us for special Architectural Folder, showing typical applications, fastener specifications and other details. Ramset Fasteners, Inc., 12117 Berea Road, Cleveland 11, Ohio.

Ramset Fastening System
Pioneer in powder-actuated fastening



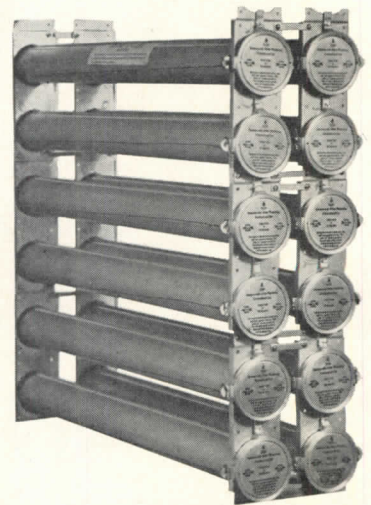
Architectural Engineering

PRODUCTS

(Continued from page 170)

Plan Depository

The *Plan Keeper* has been designed to provide a safe, insect-proof depository for building plans and construction data. The aluminum units are adaptable to any type of construction, and make plans readily available for future repairs or alterations to buildings in which they are installed.



Aluminum plan depositories provide safe built-in storage for valuable blue prints

The units consist of tubes 30- or 36-in. long, with an inside diam of $2\frac{9}{16}$ in. Models may be obtained for built-in installations or to fit into a corner of a completed structure. Front collars, welded to the tubes, have flanges which provide spacing for $\frac{3}{4}$ - or $\frac{5}{8}$ -in. plaster grounds. The rear ends of the tubes are fitted with flanges for nailing or wiring in place. Tubes are sealed with rubber gaskets at each end. Channels formed in the tubes house pull rods for removing plans. Caps are equipped with catch mechanisms to discourage unauthorized opening. Frames are available for masonry construction. Each houses two tubes, and may be combined to hold any number. Mann Metal Products Co., St. Petersburg, Fla.

(Continued on page 174)

THE *Front* LINE...
 ADVANCED
Architectural Metal
 STORE FRONT
 CONSTRUCTION

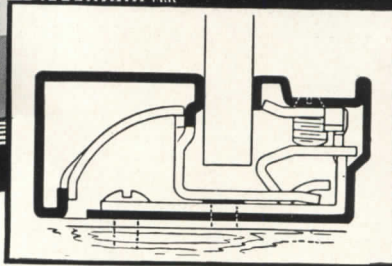


Architect: Everett Woods, Memphis, Tenn.

by *Brasco*

CATALOG

PERMANENT BEAUTY • STRUCTURAL EXCELLENCE • MODERN



*Get
 this..*

IT'S THE
NEW
 1951
BRASCO
CATALOG

Featuring

the vital, time-tested Brasco setting mechanism . . .
 deeper, safer glass grip . . . low sash height . . . self-locating lead
 covered aluminum setting block . . . beautiful, versatile stock assemblies
 in heavy gauge stainless steel and anodized aluminum.

★ A COMPLETE LINE FOR EVERY DESIGN ★

Brasco
SAFETY-SET
STORE FRONTS

For More Than Forty Years

— MAIL COUPON FOR YOUR FREE COPY —

BRASCO MANUFACTURING CO., HARVEY, ILLINOIS R101

Send the NEW BRASCO CATALOG to

Name

Firm

Address

City..... Zone..... State.....

THE ONLY FORM FOR
STEEL JOIST CONCRETE
FLOORS AND ROOFS

Corruform



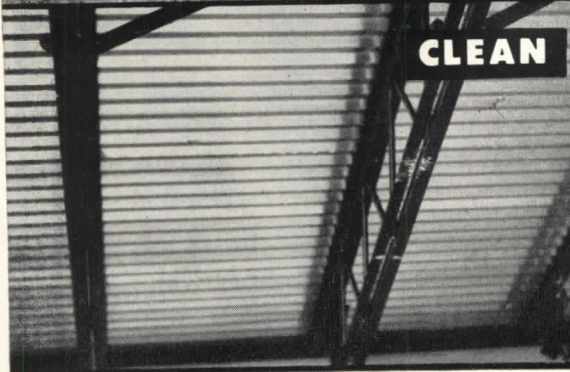
CORRUFORM

sheets are easily placed. Fasteners are positive for all common joists and beams. Lapping is automatic. No sag or material waste. Concrete is placed and finished by common practice.



CORRUFORM

is nearly twice as strong as ordinary steel of equal weight. Tough tempered to spring back under abuse. Provides a secure form for trades and concrete—no side pull on joists, beams, or walls.



CORRUFORM

is true and level. No cleanup necessary on floors below, no unsightly leakage. Bright, decorative corrugated pattern for exposed ceilings. Corruform is available plain, galvanized or vinyl-primed for painting.

SPECIFICATION

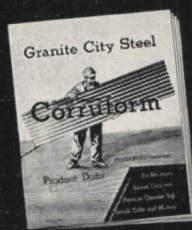
Standard weight Corruform with 2 3/16 inch wide, 1/2 inch deep corrugations. Weight .72 lbs. per sq. foot. Guaranteed average strength of 100,000 psi.—single test minimum strength 95,000 psi.

GRANCO STEEL PRODUCTS

(Subsidiary of GRANITE CITY STEEL CO.)

Granite City, Illinois

SEND FOR FREE
AIA FILE TODAY



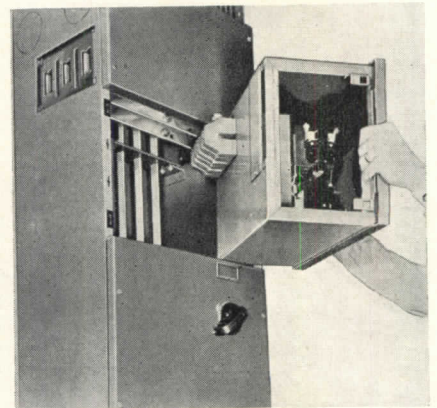
Architectural Engineering

PRODUCTS

(Continued from page 172)

Prefabricated Switchboard

The *Centr-A-Power* switchboard consists of a series of vertical rigid steel troughs, into which are inserted all types of switching devices. The latter are prefabricated in standardized sizes. The switchboard is designed to centralize power and lighting switches in a single dead-front, free-standing package.

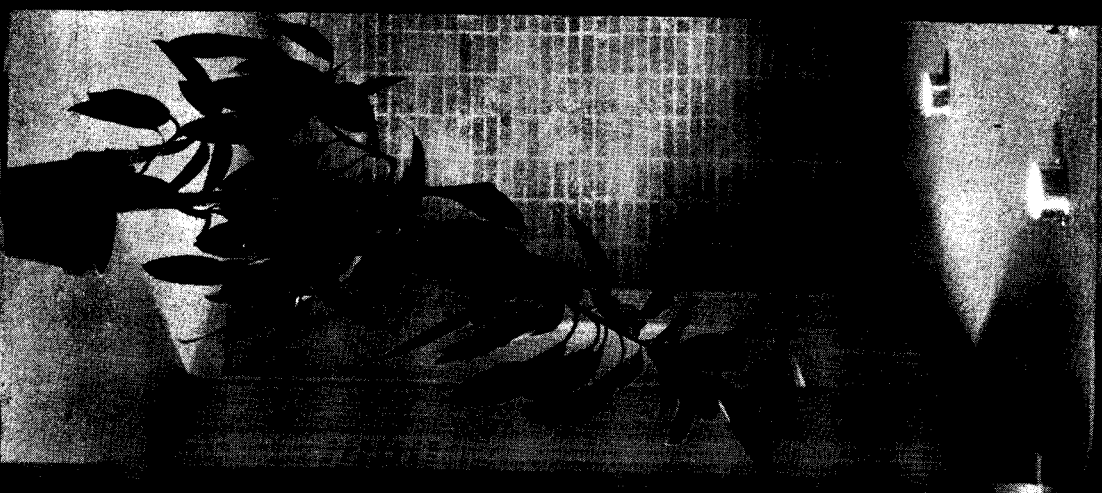
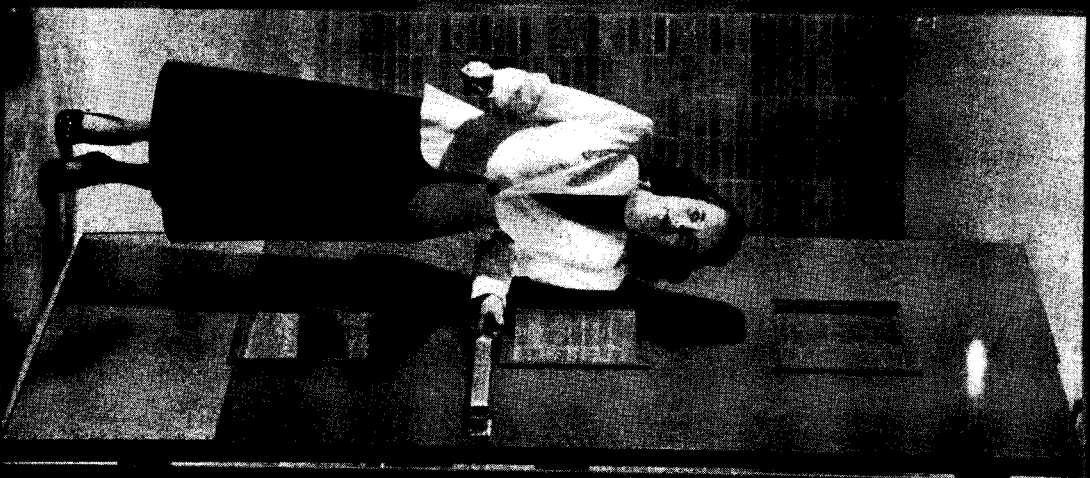


Standardized switching units clip into fixed frame of new packaged switchboard

All troughs are connected by a continuous power bus, which may be fed from the bottom or top of the trough. Individual switchboard units take power from silver-plated, vertical bus bars by means of spring-loaded stabs attached to the backs of the units. They clip in place, and are self-aligning, making them easy to remove or replace. Each unit is mechanically and electrically isolated from others in case of faults or short circuits. All are accessible from the front. Safety door interlocks prevent unauthorized handling.

All troughs are 90-in. high. Standard widths are 18-, 22- and 28-in. They are available for use with fusible devices up to a 1200 amp max, and for circuit breakers up to 1600 amp max. Trumbull Electric Mfg. Co., 40 Woodford Ave., Plainville, Conn.

(Continued on page 176)



MODERN DOOR CONTROL BY *LCM* • CLOSER CONCEALED IN HEAD FRAME

OTTUMWA COUNTRY CLUB, OTTUMWA, IOWA

Harold Spitznagel, Architect

LCN CATALOG 11-E ON REQUEST OR SEE SWEETS • LCN CLOSERS, INC., PRINCETON, ILLINOIS



for Privacy in Hospitals or anywhere ...
specify "Modernfold" doors

Here's how a hospital ward gets privacy . . . whenever it's needed. With the "Modernfold" accordion-type doors closed, the patient has a private room, undisturbed by other patients. With the doors folded against the wall, the room is one undivided ward.

no limit to application

And you can specify "Modernfold" doors wherever privacy is needed . . . in schools, stores, clubs, restaurants, hotels and homes. Thanks to the beauty, efficiency, and investment value of "Modernfold" doors, architects have been using them since 1936. Also, small "Modernfold" doors are used in small normal openings where their accordion-like action saves about 8 square feet of floor space over a conventional door.

smart, distinctive in appearance

Whenever you specify "Modernfold" doors, you are sure of outstanding beauty. Vinyl coverings and colors harmonize with any color scheme. Flame resistant . . . and no chipping, peeling or cracking! Only soap and water required for cleaning! Under this sturdy covering is a precision built frame of lifetime steel. Maintenance costs are practically nothing, and doors last for years and years.

Find out about the low cost and many advantages of "Modernfold" doors today . . . by looking up our installing distributor under "doors" in your classified telephone book . . . or mail coupon.

For the full "Modernfold" story see our insert in "Sweet's."

NEW CASTLE PRODUCTS
 New Castle, Indiana

In Canada: Modernfold Door Company of
 Canada, Ltd., Montreal



the doors that fold
 like an accordion

modernfold
 DOORS

by NEW CASTLE

COPYRIGHTED NEW CASTLE PRODUCTS 1951

SOLD AND SERVICED NATIONALLY

New Castle Products
 P.O. Box 816
 New Castle, Indiana
 Gentlemen: Send information on "Modernfold" doors.

Name.....

Address.....

City.....County.....State.....

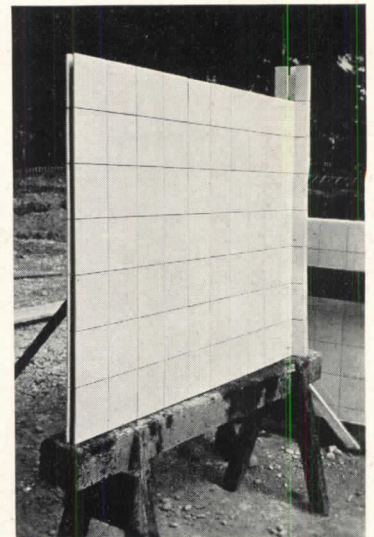
Architectural Engineering

PRODUCTS

(Continued from page 174)

Prefabricated Tile Walls

A new method of manufacturing ceramic tiles joined in larger units and slabs has been developed by Willibald Hartlmaier in Germany. The large sheets are attached to walls with mortar in the standard manner. Prefabricated, double-sided tile units are also made for use as partition walls in bath rooms and closets.



Tiles prefabricated in large sheets reduce on-job installation time and labor

The process was devised to reduce time and labor in fitting and installing individual tiles over extensive wall areas. Although the tiles are currently produced only in Germany, a U. S. patent has been applied for, and manufacturers and distributors are being sought for American production. Willibald Hartlmaier, Ludwig-Thoma-Strasse 19, Munich-Grunwald, Germany.

Emergency Lighting Installation

The recently re-built House of Commons in London has been equipped with a system of pilot lights to prevent the danger of a complete lighting black-

(Continued on page 178)

Over
7 MILLION SQUARE FEET OF

KAYLO
 INSULATING
ROOF TILE

... Placed in the 2½ Years
 Since its Introduction



EASY APPLICATION of Kaylo Insulating Roof Tile expedites the completion of flat or pitched roofs. Standard roofing materials are used over a Kaylo roof deck.

Kaylo Insulating Roof Tile is selected for more and more buildings of all kinds because it offers a combination of advantages unmatched by any other roof deck material:

- Incombustibility** of Kaylo Tile assures protection against fire;
- Insulating Value** eliminates the need for additional insulating materials under all but severe conditions;
- Structural Strength** is more than adequate for typical roof loads;
- Light Weight** permits the use of lighter supporting structural members;
- Inorganic Composition** resists rot—moisture does not damage Kaylo Insulating Roof Tile.

It will pay you to investigate these advantages.



KAYLO ... FIRST IN CALCIUM SILICATE

... pioneered by

OWENS-ILLINOIS GLASS COMPANY

Kaylo Division • Toledo 1, Ohio

SALES OFFICES: Atlanta • Boston • Buffalo • Chicago • Cincinnati • Cleveland • Detroit
 Houston • Minneapolis • New York • Oklahoma City • Philadelphia
 Pittsburgh • St. Louis • Washington

SEND COUPON FOR KAYLO ROOF TILE LITERATURE!

OWENS-ILLINOIS GLASS COMPANY
 Kaylo Division, Dept. N-121 • Toledo 1, Ohio

Gentlemen: Please send me literature on Kaylo Roof Tile.

NAME.....

FIRM.....

ADDRESS.....

CITY..... STATE.....



PRODUCTS
(Continued from page 176)

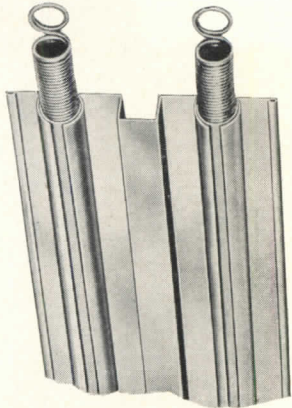
out. The pilot lights are located in the main chamber, the lobbies, corridors, exits and elevators. They are kept constantly illuminated, and are supplied either from the regular electrical system or by a large emergency battery operating on a system called *Keepalite*. The battery has sealed-in type cells, and is able to supply a load of more than 10

kw at 240 volts for 3 hours. An automatic switch changes the load over to the battery in case of a power interruption. The battery is kept fully charged by a small trickle charge from the electrical system. There is provision for quick re-charge after emergency use. Chloride Batteries Ltd., 6-10 Whitfield St., London, W. 1.

One-Piece Jamb

Zegers Dura-seal one-piece jamb member combines metal weatherstrip, sash balance, 2 sash runway members and a

metal parting stop. Housings are of aluminum, cut to the pitch of the sill. The back surface is concave, and uses the flexibility of the metal to maintain



Metal jamb combine runways, parting stop, sash balances and weather striping in a single prefabricated unit

a constant air seal and provide easy window operation. These housings are attached to the jambs of a plank frame and fit into the grooves at both sides of stock sash. Sash balances are cadmium-plated steel coil springs, and are completely enclosed. *Zegers Inc.*, 8090 S. Chicago Ave., Chicago, Ill.

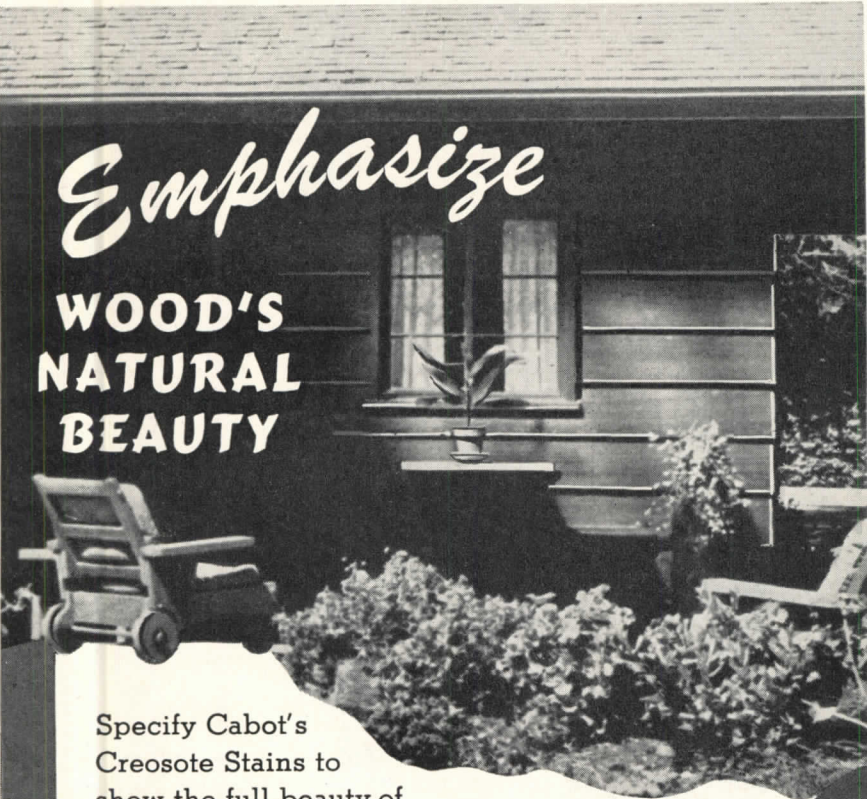
Remote-Control Garage Door

A new low cost, automatic garage door operator is designed to work either by remote-control from the car or by direct contact from the garage or house. Automatic locking takes place when the door is closed. The unit will also control driveway and garage lights. The operator is made especially for overhead sectional or one-piece type doors with horizontal tracks. It is stated that alteration of garage designs are not ordinarily required, and that the unit is easy to install. Max door sizes range from single doors 9-ft wide by 7-ft high, or 16-ft wide by 8-ft high for double doors. Production units utilize 110-volt single phase motors. *H. W. Crane Co.*, 1447 W. Lake St., Chicago, Ill.

Wall Vent

The *LD Series Midget Lower* is designed to permit greater transmission of air into building walls for condensation control. The unit is made for use where there is no danger of rain reaching its face, as in eaves, dormer windows

(Continued on page 180)



Emphasize

**WOOD'S
NATURAL
BEAUTY**

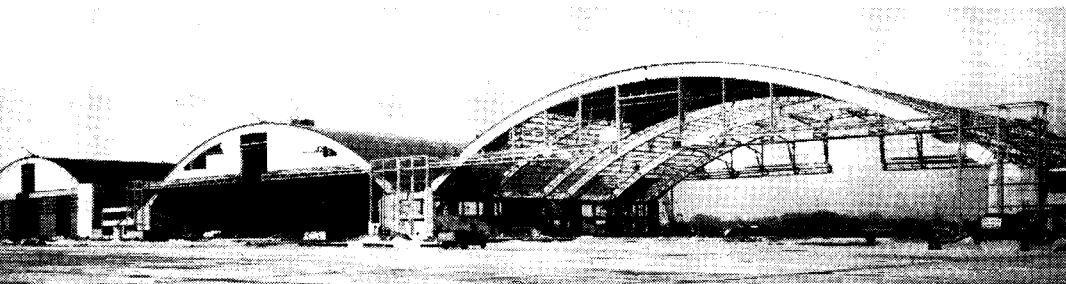
Specify Cabot's Creosote Stains to show the full beauty of grain and texture in wood siding, clapboard and shingles. A wide range of colors—brilliant lasting hues to weathering grays and browns—permits selection of the right color for any house in any site.

Cabot's Stains are inexpensive . . . cost only 1/3 as much as good paint . . . quick and easy to apply. The high content of creosote oil (60-90%) gives years of low cost protection against termites and decay.

WRITE TODAY for color card and complete information. *Samuel Cabot, Inc.*, 129 Oliver Building, Boston 9, Mass.

CABOT'S CREOSOTE STAINS

HUGE STEEL-ARCH HANGARS go up fast!



▲ Principal roof members are curved, riveted plate girders. Pinned at supports and crown, they have a constant depth, back to back of flange angles of 5 ft. 7 in. and rise 49 ft. 11 in. to provide a clear height at center of 75 ft.

◀ Interconnected by 2-story steel frame lean-tos ranging in width from 39 to 103 ft., the hangars form a building 1,148 ft. long and 219 ft. wide. Each hangar provides a 300 ft. clear floor space.

302' Steel-Arch Spans SIMPLIFY ERECTION . . .

PROVE MOST ECONOMICAL TYPE OF CONSTRUCTION

PROJECT: Three hangars and interconnecting lean-tos at New York International Airport, Queens, New York City.

DESIGNED BY: Port of New York Authority, Roberts and Schaefer Company, Consulting Engineers. Lorimer and Rose, Associate Architects.

GENERAL CONTRACTOR: Stock Construction Corporation.

STRUCTURAL STEEL: 3,600 Tons. Fabricated and erected by American Bridge Company.

Erected in 13 months (complete with heating, fire-alarm and lighting systems) the three giant, 300'-wide, 219'-long hangars with interconnecting 2-story lean-tos have set a record for this type of construction—both as to length of spans and speed of construction.

Erected in four sections, the 302'-steel arches are pinned at the supports and crown to provide a clear height at the center of 75 ft. Each hangar is large enough to accommodate 6 Douglas DC-6 transports or four double-deck Boeing Stratocruisers. In addition, parking aprons on both sides of

the building can take 15 aircraft of the type having a turning circle of 175 ft., or 19 of the smaller type having a turning circle of 150 ft.

The decision to use long panels between solid web steel arches for this important project was made after studied consideration of other types of construction materials. And again steel proved most economical by meeting all comers in competitive bids.

If you'd like to know more about the advantages of American Bridge Company *fabricated* and *erected* steel construction, just call our nearest office.

AMERICAN BRIDGE COMPANY

General Offices: Frick Building, Pittsburgh, Pa.

Contracting Offices in: AMBRIDGE • BALTIMORE • BOSTON • CHICAGO • CINCINNATI
CLEVELAND • DENVER • DETROIT • DULUTH • ELMIRA • GARY • MINNEAPOLIS • NEW YORK
PHILADELPHIA • PITTSBURGH • PORTLAND, ORE. • ST. LOUIS • SAN FRANCISCO • TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



AMERICAN BRIDGE

UNITED STATES STEEL

PRODUCTS

(Continued from page 178)

and interior walls. Units are made in 5 sizes from 1- to 4-in. diam. They are simply installed, without nails or screws, by drilling a hole of proper diam and *tapping* the ventilator into place. A slotted collar provides tight-holding tension. Wedged shoulders are designed to provide additional anchorage in wood or masonry. The unit is made of rust-

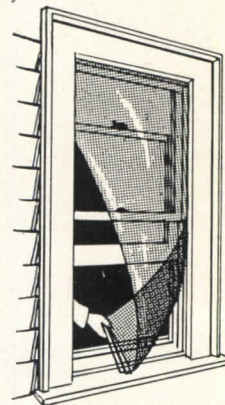
proof aluminum, and has a built-in screen to keep out insects. Models with louvered deflectors are available for use in exposed areas. Midget Louver Co., 6-8 Wall St., Norwalk, Conn.

Frameless Screens

The *Columbia-Matic* aluminum frameless screens are designed with automatic tensioning devices to keep the screens tight against the window blind stops. This is said to eliminate any need for side frames, and to insure a perfect seal. The tension locks are at the sides

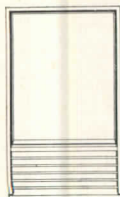
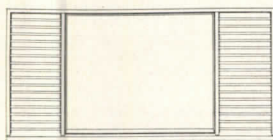
of the window, leaving the sill free of obstructions. The screening is of fine mesh aluminum wire, which is claimed not to stain house or require seasonal repainting.

The screen is said to be simply and quickly installed, and easily opened and closed for washing windows. It may



Frameless aluminum screens open easily for washing windows, don't obstruct sills

**NEW, VERSATILE . . .
REVOLUTIONARY**



SOLAR AIR-FLO®

ENGINEERED ALL-WEATHER Windows

FOR DRAFTLESS VENTILATION

Louvered sections are placed at top, bottom or sides of stationary window pane, according to design requirements. Units may be used singly or in groupings.

STOCK SIZES FOR A WIDE VARIETY OF DESIGN

Adjustable baffle doors regulate circulation of fresh air, winter and summer. Screens concealed in *air-flo* section, may be removed from inside for cleaning. Solar Air-Flo units fit into all kinds of walls, masonry or wood . . . permit originality of design for all types of homes and buildings . . . provide weathertight insulation.

Solar Air-Flo windows allow the use of narrow mullions, come assembled with all exterior trim. Sill height and number of louvers may be varied to meet ventilation requirements. No precision work or special tools are needed for installation. Frames and sectional parts are made of wood, treated for permanent protection.

Beautiful Solar Air-Flo windows are in keeping with the modern trend . . . give individuality and distinction to exteriors, lend charm and an air of spaciousness to interiors. WRITE NOW for free descriptive literature and specification data, without obligation.

SOLAR AIR-FLO, INC.
ELKHART, INDIANA

MAIL COUPON NOW!

SOLAR AIR-FLO, INC.
DEPARTMENT 104, ELKHART, INDIANA

Send free literature on Solar Air-Flo windows.
I am Architect Dealer Contractor.

Name _____

Firm _____

Address _____ Zone _____

City _____ State _____

be rolled up for storage. The units consist of top rail, wire cloth and bottom rail. The wire cloth is woven with two selvage edges to fit standard double-hung sash. It is available also in made to order sizes. The max width is 60 in.; the max length is 84 in. The Columbia Mills, Inc., Room 1141, 225 Fifth Ave., New York 10, N. Y.

- The Aluminum Window Manufacturers Association and the Aluminum Window Institute merged their organizations at a recent joint meeting. The new Association will represent eighteen large aluminum window manufacturers.

- The American-Marietta Co., of Chicago, Ill., announces expansion in the chemical and building material field through the acquisition of the Master Builders Co., of Cleveland, Ohio. The Master Builders Co. is a manufacturer of Pozzoloth and other admixtures, aggregates and protective coatings for concrete.

- Nine manufacturers of architectural terra cotta and ceramic veneer have joined the Structural Clay Products Institute, national trade association of the brick and tile industry. The new affiliate will be known as the Architectural Terra Cotta Institute.

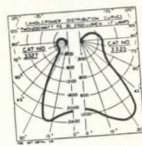
ART METAL speeds Specification

Writing and Installation Planning for all types of INCANDESCENT LIGHTING

... by detailing product performance and construction

SURFACE ATTACHED

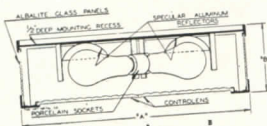
TWO-LIGHT—8 1/4" AND 12" HOLOPHANE CONTROLS*



These candlepower distribution curves were made with Two-light units using 2-200 Watt I.F. Lamp. Multiply by 1.62 for 300 Watt I.F. Medium Base Lamp. The controlled widespread light distribution characteristic of Catalog No. 3323 provides even light distribution with units installed on spacing not to exceed one and one-quarter times the mounting height above the work plane. The concentrating light distribution characteristic of Catalog No. 3324 provides even light distribution in high ceiling areas with units installed on spacing not to exceed 3 times the mounting height above the work plane.

No. 3323 No. 3324

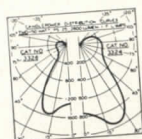
Coefficients of Utilization on Opposite Page for Nos. 3324 and 3325.



No.	A	B
3324-3325	18 1/4" x 11"	31"
3323-3327	24 1/4" x 14 1/4"	7 1/4"

Approved by Underwriters' Laboratories, Inc.

* © Helioscope Co., Inc.
Page 6



These candlepower distribution curves were made with Two-light units using Two-150 Watt I.F. Lamps. The controlled widespread light distribution characteristic of Catalog No. 3324 provides even light distribution with units installed on spacing not to exceed one and one-quarter times the mounting height above the work plane. The concentrating light distribution characteristic of Catalog No. 3325 provides even light distribution in high ceiling areas with units installed on spacing not to exceed 3 times the mounting height above the work plane.

No. 3325 No. 3326

SPECIFICATIONS
The lamps operate in a horizontal position. The side panels are Ribbed Alabaine Glass. The spherical reflectors are made of 20 gauge Aluminum, finished specular, and operate in correct design position with the Holophane Controls. These units are constructed of 337 steel. The box is constructed without cross members between the lenses. All parts are treated with a rust resisting primer to prevent corrosion. The Seta Aluminum finish is baked on. Adequate knock-outs are provided. Units are practically dust-tight. The lens plates slip in from the bottom. A half-inch wiring recess is provided. Mounting to the ceiling by means of expansion studs or toggle bolts through holes provided. All units approved by Underwriters' Laboratories, Inc.

Cat. No.	Distribution	Lens Size	#Max. Watts	Length	OVERALL DIMENSIONS ON CEILING		Depth
					Width	Depth	
3324	Widespread	8 1/4"	200 (2 150)	18 1/4"	11"	31"	5 1/2"
3325	Widespread	8 1/4"	#150 (2 100)	18 1/4"	11"	31"	5 1/2"
3326	Concentrating	12"	200 (2 150)	24 1/4"	14 1/4"	7 1/4"	7 1/4"
3327	Concentrating	12"	#200 Watt Medium Base	24 1/4"	14 1/4"	7 1/4"	7 1/4"

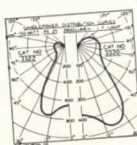
Available with square solid metal sides.
UNITS CAN BE BUTTED TOGETHER FOR MULTIPLE INSTALLATION.

Approved by Underwriters' Laboratories, Inc.

* © Helioscope Co., Inc.
Page 6

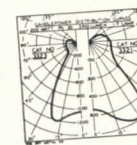
ONE-LIGHT—8 1/4" AND 12" HOLOPHANE CONTROLS*

SURFACE ATTACHED



No. 3322 No. 3320

These candlepower distribution curves were made with One-light units using a 150 Watt I.F. Lamp. The controlled widespread light distribution characteristic of Catalog No. 3320 provides even light distribution with units installed on spacing not to exceed one and one-quarter times the mounting height above the work plane. The concentrating light distribution characteristic of Catalog No. 3322 provides even light distribution in high ceiling areas with units installed on spacing not to exceed 3 times the mounting height above the work plane.

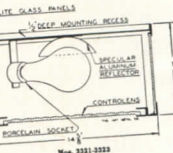
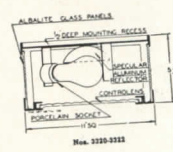
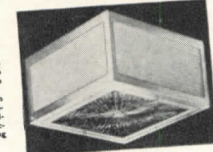


No. 3323 No. 3321

These candlepower distribution curves were made with One-light units using a 200 Watt I.F. Lamp. Multiply by 1.62 for 300 Watt I.F. Medium Base Lamp. The controlled widespread light distribution characteristic of Catalog No. 3321 provides even light distribution with units installed on spacing not to exceed one and one-quarter times the mounting height above the work plane. The concentrating light distribution characteristic of Catalog No. 3323 provides even light distribution in high ceiling areas with units installed on spacing not to exceed 3 times the mounting height above the work plane.

Ceiling	Wall	Cath. No.	SP		TS		SP		TS	
			11"	12"	11"	12"	11"	12"	11"	12"
1	1	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2	2	2	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
3	3	3	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
4	4	4	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
5	5	5	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20

Maintenance Factor—85 Clean 75 Average



SPECIFICATIONS
The lamp operates in a horizontal position. The side panels are Ribbed Alabaine Glass. The spherical reflector is made of 20-gauge Aluminum, finished specular, and operates in correct design position with the Holophane Controls. These units are constructed of 337 steel. Buses and Face Trim are completely constructed of 337 steel. All parts are treated with a rust resisting primer to prevent corrosion. The Seta Aluminum finish is baked on. Adequate knockouts are provided. Units are practically dust-tight. The lens door is drop hinged. A half-inch wiring recess is provided. Mounting to the ceiling by means of expansion studs or toggle bolts through holes provided. All units approved by Underwriters' Laboratories, Inc.

Cat. No.	Distribution	Lens Size	#Max. Watts	OVERALL DIMENSIONS ON CEILING		Depth
				Width	Depth	
3320	Widespread	8 1/4"	150	14 1/4"	11"	7 1/4"
3321	Widespread	8 1/4"	#200	14 1/4"	11"	7 1/4"
3322	Concentrating	12"	150	14 1/4"	11"	7 1/4"
3323	Concentrating	12"	#200	14 1/4"	11"	7 1/4"

One Lamp—Positive Horizontal. Reflector Specular Aluminum.
FINISH: Baked Seta Aluminum.
Available with square solid metal sides.
UNITS CAN BE BUTTED TOGETHER FOR MULTIPLE INSTALLATION.

Approved by Underwriters' Laboratories, Inc.

* © Helioscope Co., Inc.
Page 7

Explicit Catalog Data

- 99 Product Illustrations
- 51 Cross Section Details
- 47 Light Distribution Curves
- 24 Coefficient of Utilization Tables
- .. Detailed Product Specifications
- .. Applications
- .. Data
- .. General Engineering Information

Write on your letterhead for free catalog, INCANDESCENT UNIFIED LIGHTING

THE ART METAL COMPANY • CLEVELAND 3, OHIO

Manufacturers of Unified Lighting Equipment for Office, Store, School, Hospital and Hotel

There's an Art Metal Incandescent Unit for every lighting need.

Art Metal Unified Lighting, standardizes the design, style and finish of each unit, to achieve an architecturally integrated installation.

31-YEAR-OLD 6-STORY WAREHOUSE BECOMES MODERN OFFICE BUILDING

Frigidaire air conditioning plays vital role in the transformation

FRIEDMAN, ALSCHULER & SINCERE, Architects
HARPER RICHARDS, Designer
ROBERT E. HATTIS, Consulting Engineer
OWNER: Foote, Cone & Belding

Toward the close of World War I, the Army Quarter-Master Corps built a warehouse at 155 E. Superior Street, Chicago. It was simply a rectangular brick shell enclosing six concrete floors with a full basement. And it remained little more than that for over 31 years.

Then, last year, it was completely remodeled—to become the new home of the Chicago office of a large advertising agency.

Fitting the building for its new role involved at least one very serious problem, that of providing proper temperature and humidity conditions the year around. Because not only outside space, but even central floor area, had to be partitioned into a series of private offices for agency personnel. And without courtyard or air shafts, the problem was even more difficult.

The best solution was found in the advantages of Frigidaire central system air conditioning equipment. Without air conditioning, the interior offices could have been little more than hot, humid cells.

But, of course, the air conditioning installation does far more than simply meet the original architectural problem. The draft-free supply of cool, dry air which it provides for the building, including most of the basement, enables the whole agency to function at top efficiency in even the hottest, muggiest weather.

Then, too, this Frigidaire-powered system is not an ordinary one, and it offers certain advantages that many systems cannot give.

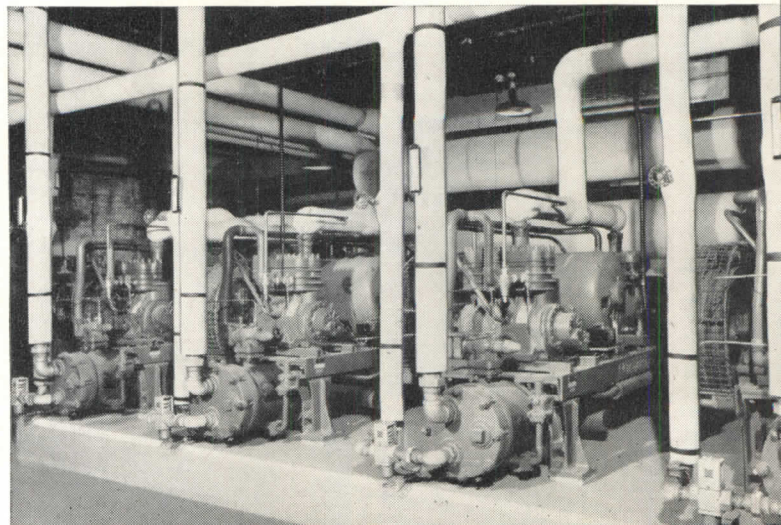
The 200 tons of refrigeration needed are supplied by a battery of eight 25 h.p. Frigidaire compressors—each compressor coming into play as needed. Say, for example, that the need for air conditioning at a certain hour can be met by 25 tons of refrigeration. With one 25 h.p. compressor in operation, the capacity of the Frigidaire equipment in use is equal to the amount of conditioning required. This is in striking contrast to a system using two 100 h.p. compressors. For, with such a system, at least one 100 h.p. compressor must be in operation when *any* amount of cooling is required. This fact alone results in greater economy of operation with the Frigidaire-powered system.

The economy is further heightened by the fact that all air conditioning is zoned—by floors and within each floor. If part of the agency personnel work overtime, the zones not in use can be shut off at a central control panel so that only a few of the compressors operate.

Yet another advantage is the extra margin of security which results from the use of eight Frigidaire compressors. Servicing—if necessary—would remove only a small part of the *total capacity* instead of taking out all or a sizable portion of capacity as in the case of many systems.



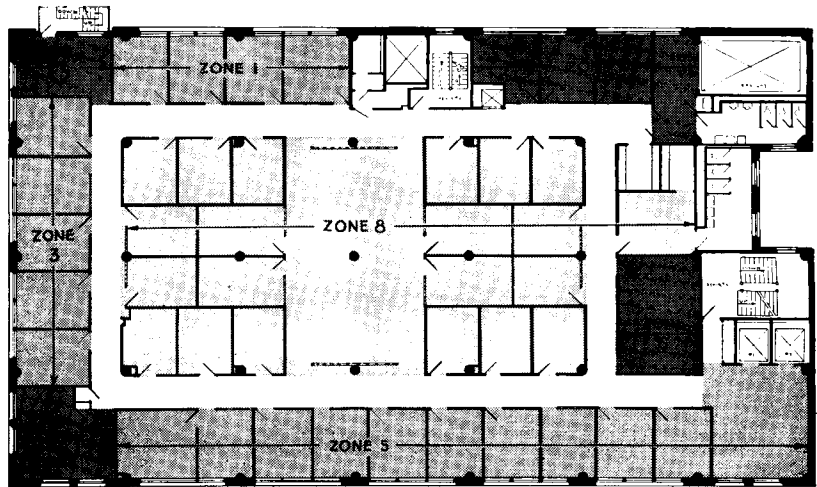
Shown here is half of the refrigeration battery of eight 25 h.p. Frigidaire compressors. Located in the basement, their job is to chill a moving column of water to constant temperature. Pumped up to the building penthouse, the water is there circulated through coils which cool electronically filtered air.



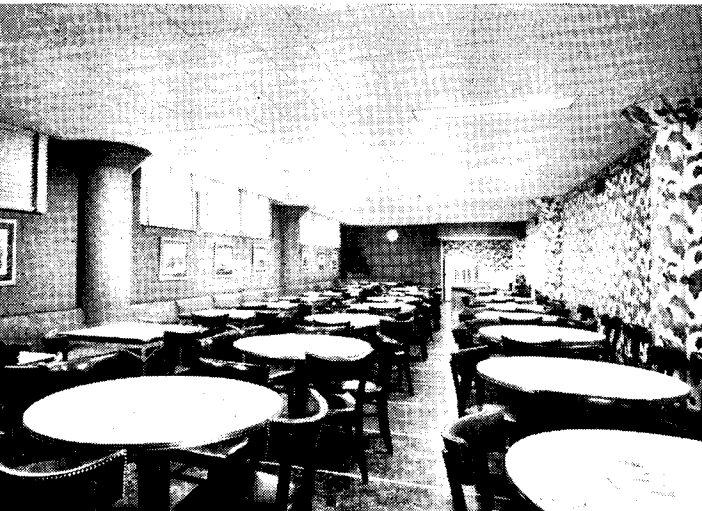
There's absolutely no heating or cooling equipment to clutter the interior of any of the 147 private offices. Conditioned air enters through a small grill high on the wall, leaves through door louvers. For maximum insulation, all windows are double panes of fixed glass with a half inch of air space between them.



Floor plan indicates how air conditioning has been zoned. Each zone has been further divided by locating within it two control points. These permit temperature variation to suit individuals within the zone. Notice that virtually no floor space has been wasted. Thanks to air conditioning, every square foot of floor area has been put to valuable use.



Air conditioning made possible the use of basement space for this attractive lunchroom which serves agency personnel. Air conditioning also permits the basement to be safely used for central storage of office supplies and for the agency's photostat room.



A phone call will bring you detailed information on all Frigidaire Air Conditioning—on all Frigidaire Appliances for kitchen and laundry. Call your Frigidaire Dealer—or the Frigidaire Distributor or Factory Branch that serves your area. Look for the name in the Yellow Pages of your phone book. Or write Frigidaire Division of General Motors, Dayton 1, Ohio. In Canada, Leaside 12, Ontario.

FRIGIDAIRE

Air Conditioning

Refrigerators • Food Freezers • Water Coolers
 Electric Ranges • Home Laundry Equipment • Electric Water Heaters
 Electric Dehumidifier • Kitchen Cabinets and Sinks

Be sure to visit Frigidaire Exhibit, National Association of Home Builders, Jan. 21-25—Hotel Stevens, Chicago. Spaces 74, 75 and 76.

School Architects
specify...
Boards of Education
demand..

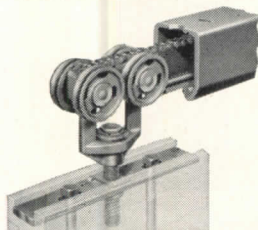
FoldeR-Way
AUTOMATIC
Folding Partitions
by Richards-Wilcox



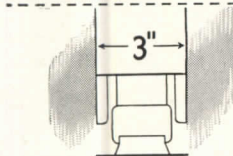
Because Richards-Wilcox offers these
EXCLUSIVE FEATURES



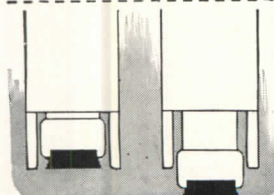
1. **Fully Automatic.** All folding, unfolding, locking, unlocking, and sound-proofing operations are accomplished by the electric operator and its auxiliary mechanism. You turn the switch key—R-W does the rest.



2. **Positive, Silent Action Roller Chain Drive.** Will not slip, stretch, or break.



3. **Friction-Proof Track.** Ball-bearing hanger wheels are machined to provide a line contact with the $\frac{5}{8}$ " round cold-rolled steel bar runways of the track, assuring minimum friction and silent operation.



4. **Gymnasium Doors Are Full Three Inches Thick Over Entire Area.** This provides flush surface similar to a solid wall. Eliminates protruding butt-hinges in players' contact zone below seven foot level.

5. **Fully Automatic Floor Seals.** Self-adjusting to uneven spots in floor. No levers or manual effort required to operate.

DON'T SPECULATE—investigate the advantages of FoldeR-Way Automatic Folding Partitions by Richards-Wilcox. Check the installation nearest to you. For details, telephone, write, or wire, today.

OPERATING LOCKED

See an R-W FoldeR-Way Automatic Partition in operation at any of the schools in the partial list at right, or write for address of installation nearest you.

Kent State University, Kent, Ohio—Opening: 114' x 20'
Hinsdale Community High School, Hinsdale, Illinois—Opening: 127' x 28'
Arvin High School, Arvin, California—Opening: 143' x 26'
Kinkaid School Gymnasium, Houston, Texas—Opening: 71' x 21'
High School, Brookline, Mass.—2 Openings: 100' x 20' and 130' x 20'
Banks School, Bay City, Michigan—Opening: 50' x 18'

Richards-Wilcox Mfg. Co.
"A HANGER FOR ANY DOOR THAT SLIDES"
AURORA, ILLINOIS, U. S. A. • Branches in all principal cities

1880 1951
RICHARDS WILCOX
FOLDE R-WAY
AURORA ILL. U.S.A.
OVER 71 YEARS

Architectural Engineering

LITERATURE
(Continued from page 144)

Communication by Electronics

When Tomorrow is Too Late — Use Acme Telephoto Today! Applications of the photo transmission described include maps, drawings, legal documents and aerial photos. The what's and how's of telephoto equipment briefly are indicated. 12 pp., illus. Acme Teletronix, NEA Service, Inc., West Third and Lakeside, Cleveland 13, Ohio.

Concrete Form and Reinforcement

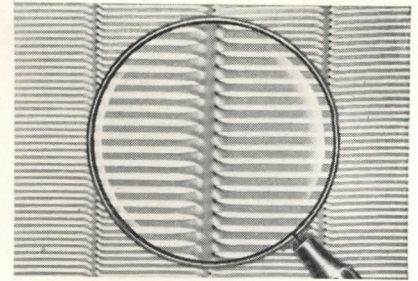
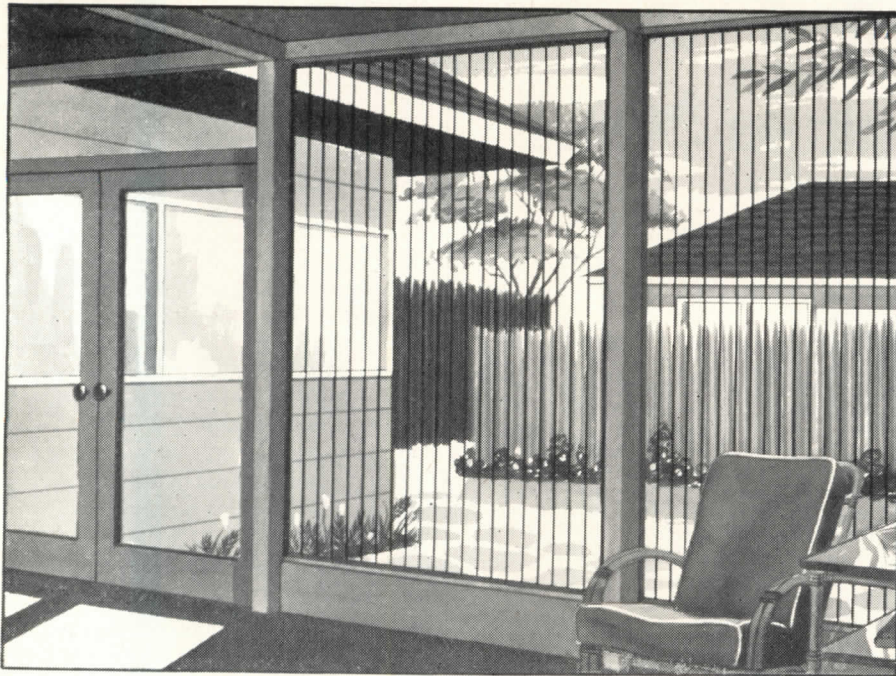
Cofar Concrete Slab Reinforcing and Form (Technical Bulletin No. 501). Describes corrugated steel sheets made for use in concrete floors. Construction methods with the material are described and illustrated. A series of standard details, several design data charts, and tables of tests and analyses are also included. 16 pp., illus. Granco Steel Products Co., Granite City, Ill.

Lighting

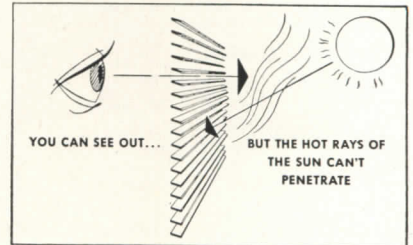
• *New Ideas in Fluorescent Lighting.* This is a complete new catalog of many lighting fixtures including commercial, open-, glass-, and louver-bottom troffers, panelux and industrial luminaires. Descriptions, specification data and list prices of units and accessories are given. The fluorescent lighting equipment is designed for many structures: industrial, commercial, educational, etc. 52 pp., illus. Lighting Products, Inc., Highland Park, Ill.

• (1) *For Classroom Lighting;* (2) *Luminous Lens Ceiling by Litecontrol.* First leaflet presents a slimline fixture also available in a bipin type. Detail drawings and classroom layout accompany the text. Second leaflet describes qualities of an illuminated ceiling. Installation details are given in addition to a chart showing the relationship of area to intensity in lighting with luminous ceilings. Each 4 pp., illus. Litecontrol Corp., 36 Pleasant St., Watertown 72, Mass.

(Continued on page 186)



THIS MAGNIFIED VIEW shows the tiny louvers of Kaiser Aluminum Shade Screening that block the sun's hot rays but not the view.

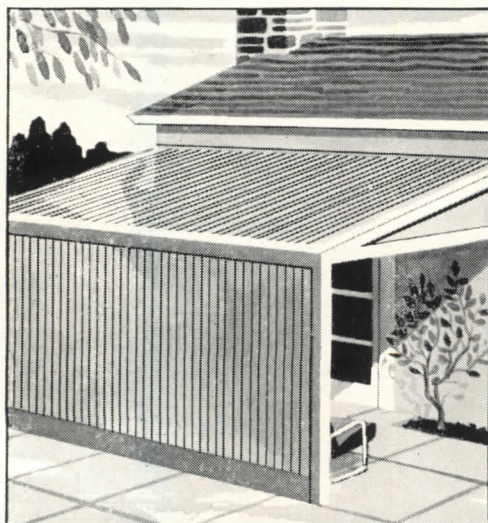


This cooling device gives you 5 extra selling features!

It's low-cost Kaiser Aluminum Shade Screening. And it does *five* big jobs—gives your buildings *five* extra selling features:

- 1 *It cools.* Tiny, one-inch louvers, set close together at an angle against the sun, deflect the sun's rays. Hottest rooms can be as much as 15° cooler with Kaiser Aluminum Shade Screening.
- 2 *It screens.* Pesky flying insects, such as mosquitoes
- 3 *It shades.* Kaiser Aluminum Shade Screening keeps direct rays of the sun out of the room.
- 4 *It protects* interior upholstery, draperies, rugs from sun fading.
- 5 *It gives daytime privacy.* People inside can see out—people outside can't see in!

and flies, can't get through the narrow slits.



NEW IDEA FOR PATIOS AND PORCHES!

Porch and patio areas, equipped with handsome Kaiser Aluminum Shade Screening, are more attractive, give more privacy. They're cooler, too.

LONG LASTING...HANDSOME!

Made of tough, high grade aluminum. Can't rust or stain. Never needs painting. No moving parts. Nothing to get out of order.

Low-cost Kaiser Aluminum Shade Screening comes in regular or tension frames from sash and

screen manufacturers, and in 50-foot rolls from jobbers.

Plan now to use it on offices, plants, homes, stores. Send coupon below for complete information, free AIA file and name of nearest manufacturer or jobber.

Kaiser Aluminum SHADE SCREENING

Kaiser Aluminum & Chemical Sales, Inc.
Kaiser Building, Oakland 12, Calif.

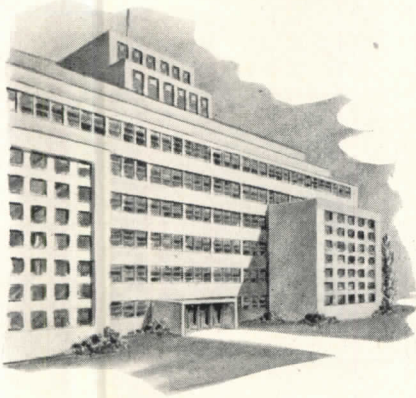
I'd like complete information on Kaiser Aluminum Shade Screening!

Please send me an AIA file and the name of the nearest manufacturer or jobber.

NAME _____
STREET _____
CITY _____ ZONE _____ STATE _____

MAIL THIS COUPON NOW

Draw on any of **M-C & S's** **Many Construction Skills**

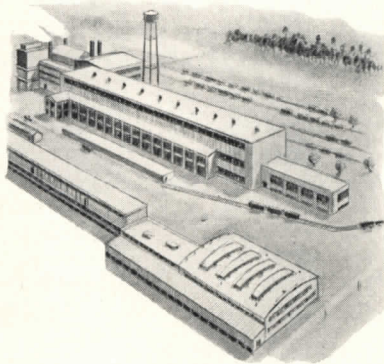


HOSPITALS

Merritt-Chapman & Scott's ability to produce the highest standard of work at the lowest possible price has been sharpened by wide experience in hospital construction. Among recent M-C & S hospital projects are three for the Veterans Administration, two of which have been completed and the third now under construction at West Haven, Conn. *Illustrated is the recently completed 475-bed VA hospital at Wilkes-Barre, Pa. Kelly & Gruzen—Architects.*

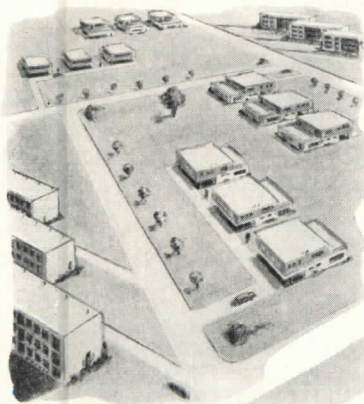
INDUSTRIAL AND COMMERCIAL

Whatever your project, it will not be "out of our line," for Merritt-Chapman & Scott's vast experience is based on a broad range of construction assignments. In the pulp and paper industry, for example, M-C & S has put its specialized skills to work building new plants or additions for 12 companies within the past 10 years. *Illustrated is Alabama Pulp & Paper Company's kraft mill and bag factory at Cantonment, Fla.—Hardy S. Ferguson, Consulting Engineers.*



LARGE SCALE HOUSING

Whether it is a housing project, chemical or process plant, M-C & S men are equally at home with the construction problems involved...for they possess the experience and ingenuity that assure fast, on-the-spot solutions to meet every challenge. *Illustrated is the 453-unit garden apartment housing project recently completed for the Atomic Energy Commission, Oak Ridge, Tenn. Skidmore, Owings & Merrill—Architects.*



MERRITT-CHAPMAN & SCOTT CORPORATION

Founded in 1860...now in our 90th year

General Offices

17 Battery Place, New York 4, N. Y.

CLEVELAND • BOSTON • NEW LONDON



Architectural Engineering

LITERATURE

(Continued from page 184)

Drafting Standards For Aluminum Extrusions

A Manual Of Drafting Standards For Aluminum Extrusions. Stated purpose of the manual is "to outline certain basic practices that are necessary to extruded products and to standardize those practices as far as at this time seems practical."

Definitions and identifications of aluminum extrusions are given, along with data on standard tolerances, dimensioning, and standard abbreviations. Recommendations on arrangement and lettering of drawings also are given. 52 pp., illus. The Aluminum Association, 420 Lexington Ave., New York 17, N. Y.

Tile Installation

Vikon Tile Manual of Specifications and Installation. The manual is designed "to assist the inexperienced worker in developing the essential techniques for the installation of Vikon Metal Tile." Information is included on the selection of tools, planning layouts, preparing the surface, setting the tiles, and maintenance. 74 pp., illus. Price \$1.00. Vikon Tile Corp., 130 N. Taylor St., Washington, N. J.*

Adhesives

3M Adhesives, Coatings, Sealers. Booklet contains a series of charts giving pertinent data and notes on the products. The charts include formula numbers, color, base, solvents, viscosity, solids content, weight, application, characteristics and uses of each item. 32 pp., illus. Minnesota Mining and Manufacturing Co., 900 Fauquier St., St. Paul 6, Minn.

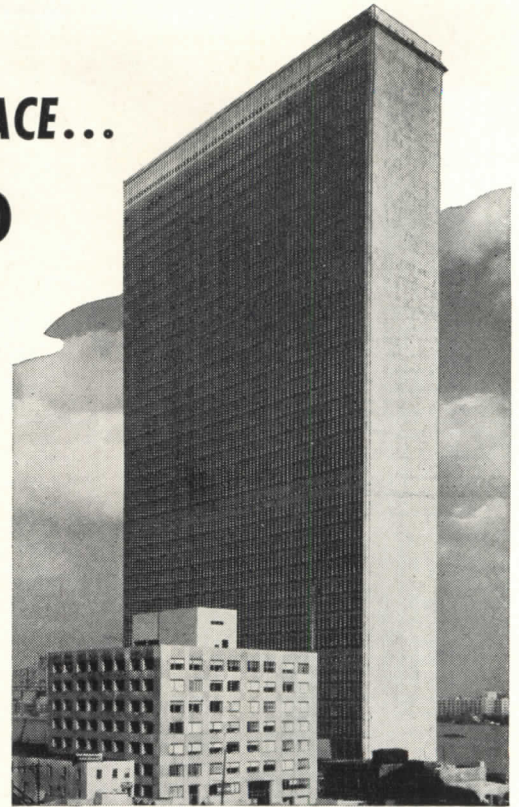
Heating Equipment

Home Heating Equipment (Form A645D). The many types of heaters described include: central heaters, gas and oil forced air furnaces and floor furnaces, gas wall heaters, gas and oil water heaters. Installations, specifications of the various models are given. 20 pp., illus. The Coleman Co., Inc., 2nd & St. Francis, Wichita 1, Kan.*

(Continued on page 188)

This building was planned for PEACE...

Its roofing, for PEACE of MIND



United Nations photo
 General Contractor: Fuller-Turner-Walsh-Slatery, Inc.
 Architect: United Nations Headquarters Planning Office.
 Sheet Metal Contractor: A. Munder & Son, Inc.

You probably recognize this recent addition to the midtown New York skyline.

It's the 39-story Secretariat Building, permanent headquarters of the United Nations.

On the roof, high above the busy East River, are some 8,000 pounds of MONEL® Roofing Sheet in the form of flashings and expansion joints.

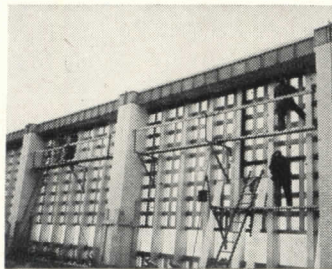
For applications like these, Monel is a particularly wise choice. Stronger and tougher than structural steel, it resists severe stresses, stands firm against strain and flexure. And it resists corrosion by salt air and water, industrial

fumes and smoke.

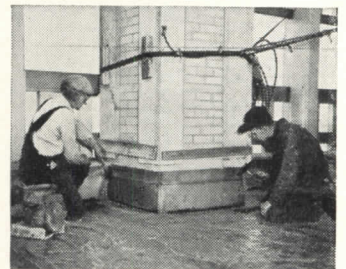
Right now, of course—with all metals in short supply because of the demands of the national rearmament and defense program—substitutes may have to be used on some of the jobs you've planned. But the time will come again when there is enough Monel available to meet normal roofing needs.

Remember, then, that on the U. N. Secretariat—and on factories, laboratories, public buildings, schools and institutions—Monel stands for long-lasting, trouble-free roofing. It's the "life-of-the-building" metal that brings your clients *permanent peace of mind.*

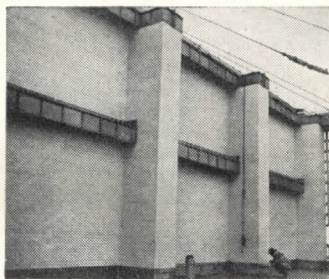
WORKMEN PUT FINISHING 1▶ touches on aluminum-sheathed steel lattice work on roof of the U. N. Secretariat Building. Masonry-sealing flashings at top and bottom are Monel.



VIEW OF MONEL FLASHING 2▶ at base of masonry column. Thanks to its soft temper, Monel Roofing Sheet is easily cut, bent, formed and soldered into a trim, watertight job.



◀3 **NO SPECIAL TECHNIQUES** needed. A. Munder & Son, Inc., Long Island City, N. Y., fabricators who made this installation, report: "Our men work with Monel just as they do with other roofing metals."



◀4 **INSPECTING COMPLETED FLASHINGS** on one side of the roof. In all, approximately 8,000 pounds of long-lasting, corrosion-resisting Monel were used for flashings and expansion joints on this building.

ARCHITECTS! Valuable Reference Material — USE COUPON

Architectural Section

The International Nickel Company, Inc.
 67 Wall Street, New York 5, N. Y.

Please send me, without obligation, literature I have checked:

- One Metal Roof for the life of your building
- Monel Roofing Sheet — Basic Application Data

NAME.....
 FIRM.....
 STREET.....
 CITY..... ZONE..... STATE.....

AR-1-51

MONEL
"For the Life of the Building"
THE INTERNATIONAL NICKEL COMPANY, INC.
 67 WALL STREET NEW YORK 5, N. Y.

LITERATURE

(Continued from page 186)

Plumbing

Plumbing. (University of Illinois Bulletin, Vol. 48, No. 15. Circular Series G5.0). Circular discusses the do's and don'ts concerning installation of new plumbing and checking plumbing in existing houses. Water supply system, drainage system, sound control, actual plumbing installation, water heaters and softeners are dealt with. There is also a two-page guide to the selection of plumbing fixtures. Care of fixtures, plumbing codes, and prefabricated plumbing units are considered. The booklet is designed for plumbing economy and maximum satisfaction for the home owner. Such tips are given him as specifications of materials for different parts of plumbing throughout the house, in addition to the best location for plumbing fixtures. Single copies may be obtained without charge until 1 Feb., 1951. 12 pp., illus. Small Homes Council, University of Illinois, Urbana, Ill.

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

William Hudson Borthwick, A.I.A., 43 Kenneth St., Hartford 6, Conn.

Dan Branch, Box 2763, University Station, Gainesville, Fla.

Central Engineering Corporation, Box 233, Sidney, Mont.

Joseph De Winter, Apartado 2704, Caracas, Venezuela, South America.

Thomas J. Doneghue, Designer, 1846 Ash St., Detroit 8, Mich.

Graham & Irwin, Architects, 2014 17th Ave., Vero Beach, Fla.

The Hubbell & Benes Company, Architects, 4500 Euclid Ave., Cleveland 3, O.

Nick A. Pilolla, Jr., 856 N. Springfield Ave., Chicago 51, Ill.

Tuttle, Holyroyd & Matheny, Architects, 3201 W. Broad St., Columbus 4, O.

Victor R. Vela, Chief Architect, Municipal Housing Authority of the Capital of Puerto Rico, Box 3672, San Juan 17, P. R.

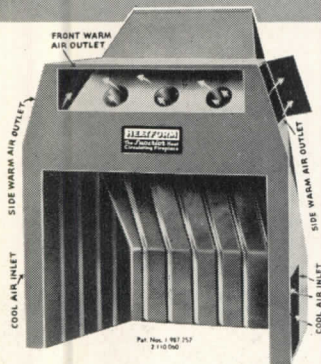
- architects
- designers
- draftsmen
- engineers

Write today

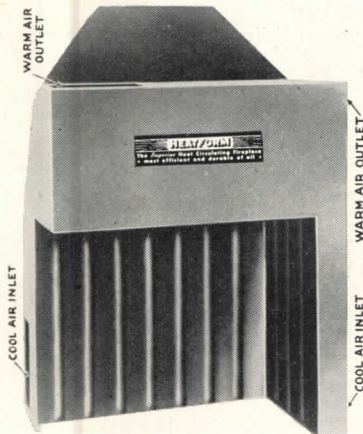
(Identifying your trade)

FOR YOUR COMPLIMENTARY BOOK OF

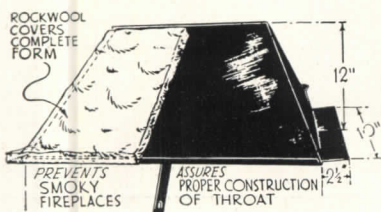
HEATFORM* FIREPLACE DESIGNS



HEATFORM Model "A"
Eight stock sizes 24" to 72"



HEATFORM Model "S"
View of Fire from Front & Side



SUPERIOR FORM DAMPER
The Architects' Friend

This 36-page book contains 50 beautiful interiors and fireplace designs. These photographs were selected from our National Photo Prize Contest. The book contains elevations, sections and plans for installation of three HEATFORM Models: A, C and S. It also shows proper location of fireplace for best heating results; how to heat adjacent rooms on first and second floor, and other valuable fireplace information you will want.

HEATFORM

● Model "A" is the standard HEATFORM used in homes throughout America for the past 30 years. Complete information on Model "A" and Superior Form Dampers is contained in:

1950—Sweet's Architectural File, Section 29g/7

1950—Sweet's Builder's File, Section 4-c/26

1951—Sweet's Architectural File, Section 29k/Su

1951—Sweet's Builder's File, Section 4-d/Su

1950-51—Western States A-E-C Catalog File

Model C and S are completely described in Book of HEATFORM Fireplace Designs.

SUPERIOR FORM DAMPER

— the Architects' Friend — always building good fireplaces without your personal supervision. It saves in labor time — no forms to build, no bricks to cut, no throat to plaster. Cracking of masonry is eliminated by use of rock wool and detached lintel bar. It is constructed of heavy steel for lifetime service.

* T. M. Reg.

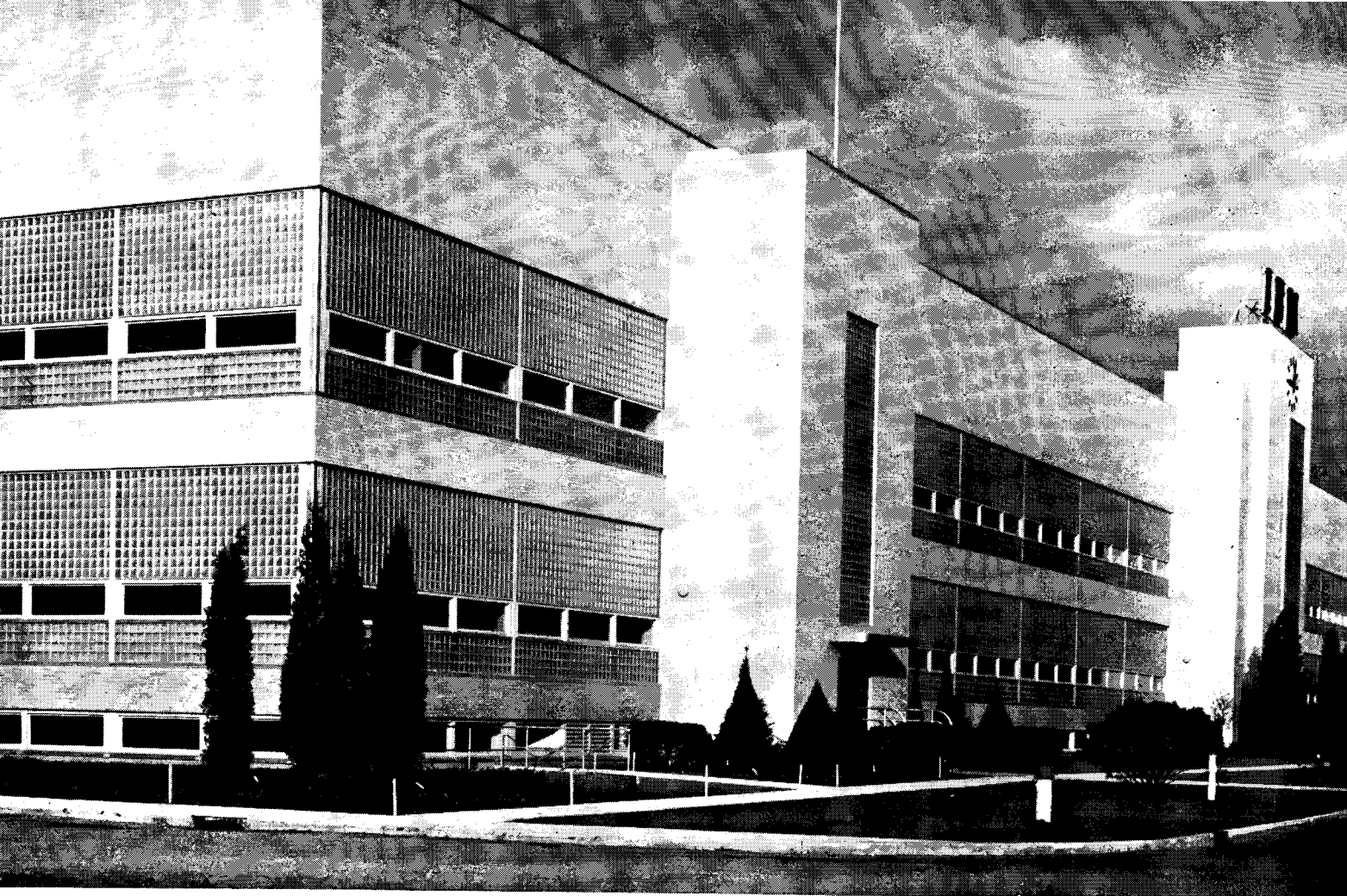
SUPERIOR FIREPLACE CO.

1706-C East 15th St.
Los Angeles 21, Calif.

601-J North Point Road
Baltimore 6, Maryland

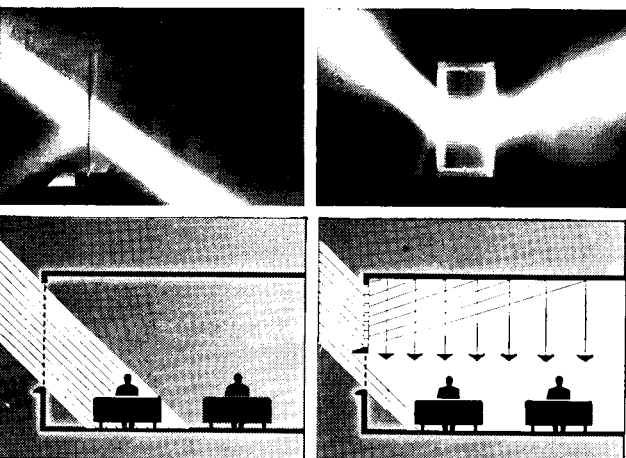
Pioneer manufacturers of heat circulating fireplaces and Form Dampers. Nationally advertised to millions of potential users. Sold through leading building supply dealers everywhere.

HEATFORM The SUPERIOR heat circulating **FIREPLACE**
most efficient and durable of all



Daylight Engineered—International Business Machines Plant No. 2, Poughkeepsie, New York.
 Architect: Seelye, Stevenson & Value. Contractor: G. D. Campbell Builders Co., Inc.

HOW TO MAKE DAYLIGHT WORK OVERTIME ... THROUGH Daylight Engineering



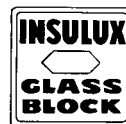
Direct sun causes uncomfortable brightness near windows, extreme contrast in other parts of room. Insulux Fenestration (glass block plus vision strip) directs and spreads daylight to ceiling, keeps brightness at comfortable levels, provides vision and ventilation.

You can make free daylight work overtime for any client for whom you are planning a building.

Daylight Engineers can help you create an Insulux Fenestration System that will practically turn your building with the sun all day. It eliminates objectionable glare—morning, noon, or afternoon.

An Insulux Fenestration System will insure privacy with light . . . provide protection against dust, dirt, and prowlers. It is permanent, low in maintenance, sanitary, sound reducing, thermal insulating, and fire resisting.

For detailed information, write: Daylight Engineering Laboratory, Dept. A.R.-1, Box 1035, Toledo 1, Ohio. Insulux Division, American Structural Products Company, subsidiary of Owens-Illinois Glass Company.



INSULUX FENESTRATION SYSTEMS

— by the pioneers of Daylight Engineering

Create distinctive functional and decorative designs

with low-cost **KENTILE FLOORS**

**schools • stores • clubs
public buildings • offices • homes**

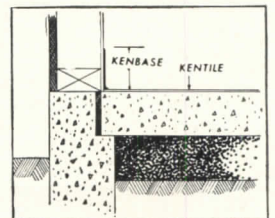


THE ALMOST unlimited design flexibility possible with durable Kentile makes it more than America's leading asphalt tile floor! The variety of ways Kentile Floors can be used are limited only by the floor space available and the client's individual requirements.

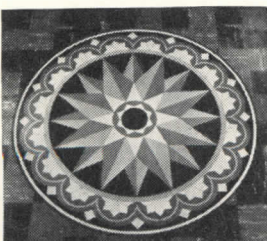
Kentile's 25 new colors alone permit just about any design imaginable... add Feature Strip... die-cut ThemeTile and Kenserts... a special insignia custom-made by Kentile designers, and you can create a floor that will direct traffic... identify a lodge... departmentalize a store... instruct school age children.

The initial low cost of Kentile Floors... the economical installation and the minimum maintenance required, combine to make *Kentile Floors* ideal for decades of constant hard usage. To keep a Kentile Floor sparkling clean and new looking requires only mild soap and water plus an occasional no-rub waxing. Colors are permanent... can't wear off because they go clear through each tough tile and the smooth Kentile surface locks dirt and grime out.

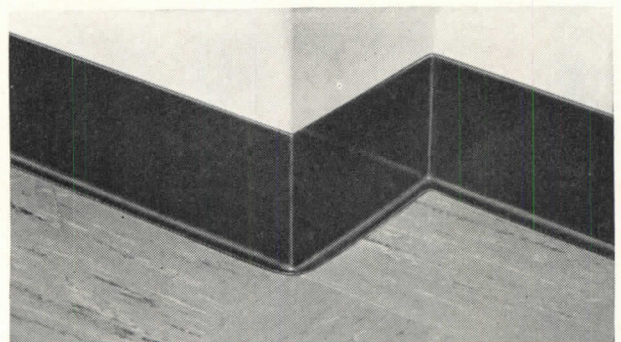
Kentile goes down any place... even over concrete in direct contact with the earth!



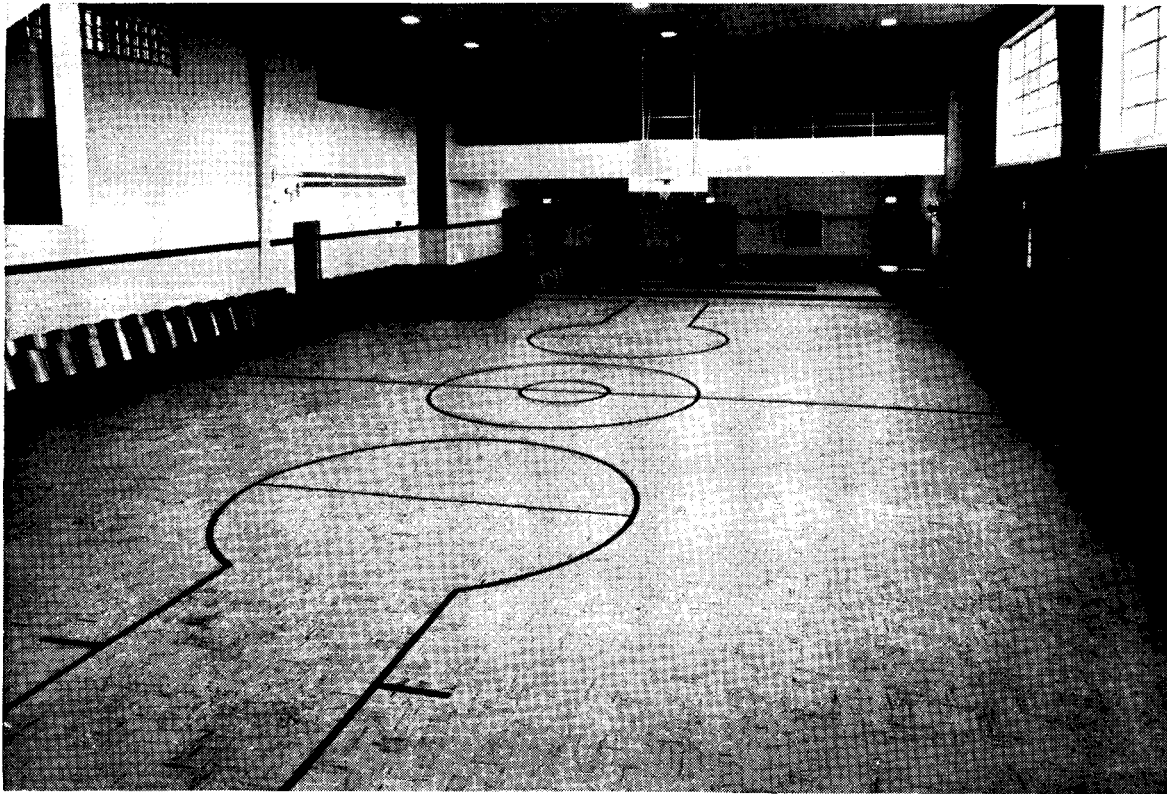
Direct traffic flow—relieve congestion and increase efficiency with floors like this. No matter how heavy the wear, Kentile will keep its light, bright colors... its quiet comfortable feeling underfoot.



Kentile designers will create your insignia or emblem to your specifications and colors. Just as durable and easy-to-install as regular Kentile, this design will serve for a lifetime.



The perfect companion to a Kentile Floor is Kenbase! It can be applied against any smooth wall where it meets the floor area and effectively seals dirt-catching cracks and crevices. It never needs painting... scuff and mop marks won't show.



Schools, gymnasiums and public facilities can use this full-sized basketball court. It goes down as quickly and economically as regular Kentile...never needs repainting...colors and markings can't wear off.

Here is a Kentile Floor that could easily be adapted for a nursery or a children's playroom. The scuffing of young feet won't harm the floor and it is good for years and years of trouble-free service with the least amount of upkeep effort.

Identify departments or merchandise with a floor like this. What's more, the light, airy, colorful Kentile Floor meets customer approval...bringing business back and back again.



KENTILE®

The Asphalt Tile of
Enduring Beauty



KENTILE • KENCORK • KENTILE RUBBER TILE

KENTILE, INC., 58 Second Ave., Brooklyn 15, N. Y. • 350 Fifth Ave., New York 1, N. Y. • 705 Architects Bldg., 17th and Sansom Sts., Philadelphia 3, Pa. • 1211 NBC Bldg., Cleveland 14, Ohio • 225 Moore St., S.E., Atlanta 2, Ga. • Kansas City Merchandise Mart Inc., 2201-5 Grand Ave., Kansas City 8, Mo. • 1440 11th St., Denver 4, Colo. • 4532 South Kolin Ave., Chicago 32, Ill. • 1113 Vine St., Houston 1, Texas • 4501 Santa Fe Ave., Los Angeles 58, Calif. • 95 Market St., Oakland 4, Calif. • 452 Statler Bldg., Boston 16, Mass.

WASHINGTON

(Continued from page 24)

AWARD-WINNING DESIGN



**Executed with architectural concrete slabs
made with ATLAS WHITE CEMENT**

Bold colors dramatize the strikingly simple lines of the Washington, D. C., handsome new Cafritz Parking Garage. It is faced with architectural concrete slabs made with Atlas White Cement.

For the first floor level, architect LeRoy L. Werner chose blue-green glass aggregate that gives the slabs a rich turquoise color. Upper floors are finished in a delicate pink with contrasting trim made of opaque quartz.

Because of its excellent design and planning, the Washington Board of Trade gave the building its coveted "Architectural Award of Merit."

Slabs made with Atlas White Cement give you the opportunity for equal originality and beauty in the buildings you design. The range of patterns and colors is infinite. And because Atlas White Cement is a true white, it brings out the rich values of color pigments and aggregates you select.

Atlas White Cement complies with ASTM and Federal Specifications for portland cement. For further information, see SWEET'S Catalog, Section 4E/7a and 13C/5, or write to Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

AR-C-30

FOR BEAUTY AND UTILITY

ATLAS WHITE CEMENT

FOR TERRAZZO, PAINT, SLABS, STUCCO



"THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel Subsidiaries
Sunday Evenings—NBC Network

What are local housing authorities doing to combat high costs?

They are cooperating with the Administration and with each other in exploring every possible means of securing lower bids on their contemplated projects. Many bids have been rejected; many plans of the local bodies have been rejected by the Public Housing Administration because they were too elaborate and costly.

Now the local authorities are exchanging experiences and ideas in design. Those with greater experience in the design field will assist those with less. The local authorities are going to make sure, Mr. Johnson claimed, that ample bids are secured on their projects and that any tendency to pad such bids or obtain higher costs through collusion is ferreted out and eliminated.

Only after doing a complete job of self-discipline and finding that prices in some areas are still too high to permit public acceptance of homes built for low-income families, will the authorities defer such construction, he said.

President Truman ordered the public housing program cutback to no more than 30,000 units started during the last half of 1950. This, it developed, was hardly necessary. Because of general conditions, fewer than 12,000 were begun in the period.

Shorts

- The Atomic Energy Commission selected 250,000 acres of South Carolina soil in Aiken and Barnwell counties for future erection of its \$260 million H-bomb materials plants. An architect-engineering firm was to have been selected quickly to start design of the many new buildings required. And construction was to start early this year, AEC hoped. Immediate need will be temporary housing for construction workers, then much permanent housing will have to be provided although the Commission does not intend to construct a town, or towns, as it has done on A-bomb projects. The H-bomb, if it can be made, will not be manufactured at the site; only materials for its assembly.

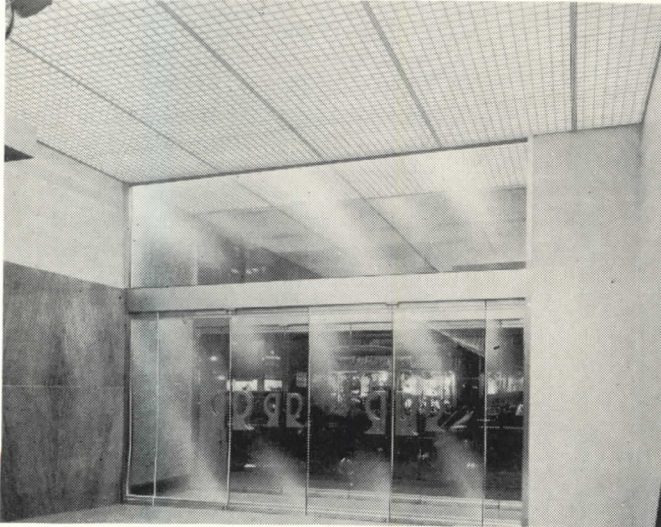
(Continued on page 194)



Look Around . . . You'll See

NEO-RAY LOUVRED CEILINGS

With Patented Perfect Alignment *Everywhere*



In Office Buildings . . .

Neo-Ray Louvred Ceiling adds beauty to lobby of Robinson Bldg., Philadelphia.



In Stores . . .

Russeks Dep't. Store assures correct lighting and customer comfort with Neo-Ray Louvred Ceiling.



In Show Windows . . .

Neo-Ray Louvred Ceiling helps attract customers to show windows at Wallachs newest store.



In Hotels . . .

Hotel Astor, Times Square, New York, relies on Neo-Ray Louvred Ceiling in marquee to maintain perfect alignment under all climatic conditions.

Look around — in any city . . . in every type of installation . . . you'll see Neo-Ray Louvred Ceilings. Why? Because Neo-Ray Louvred Ceilings maintain perfect alignment under all conditions . . . are adjustable to every type of ceiling . . . cost so little to install. Before specifying ordinary louvred ceilings . . . check the many exclusive and patented features of Neo-Ray.

SEND FOR NEW 64 PAGE CATALOG
Gives complete engineering data and lighting tables for each item in our complete line of fluorescent, slimline, and incandescent fixtures.

PLUS New simplified spot lamp tables for computing light intensities in show windows and all highlighted areas.

See our catalogue in Sweet's
Architectural File for 1950, sec. **31a**
16

NEO-RAY PRODUCTS, Inc.

315 East 22nd St.

New York 10, N. Y.

Security

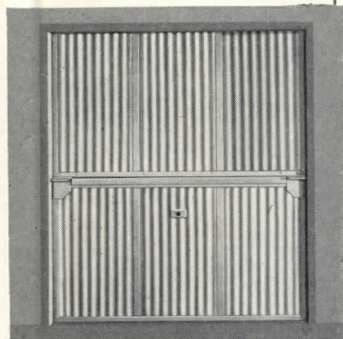
FREIGHT ELEVATOR DOORS

FOR OVER **30** YEARS
PIONEERS IN ADVANCED CONSTRUCTION

FIRST:

1. To receive underwriters' approval of Electric Interlocking Equipment.
2. Adjustable Anti-Friction Shoes.
3. Rigid Stay-Set Trucking Supports.
4. Plug-Proof Interlocks
5. Uni-Motor Individual Door Operators.
6. Practical Engineering.

which, combined with long experience and constant field checking and servicing have kept Security as leaders in meeting constantly changing industrial needs.



➔ **YEARS AGO—ALL STEEL**
now obsolete and frequently replaced by Security Metal Clad Doors.

1951 UNDERWRITERS LABELED DOORS

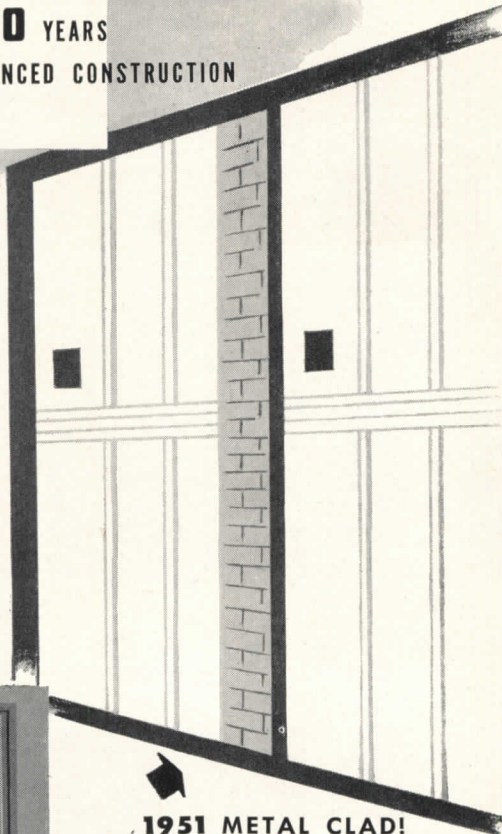
provide *minimum* standards for hatchway entrance protection. Security's Underwriters labeled doors are specifically designed for the *maximum* requirements of each individual job so that they will give the better and *lasting* protection that owners seek,

THIS ASSURES CONTINUED

Lowest fire insurance rates
Lowest casualty insurance rates

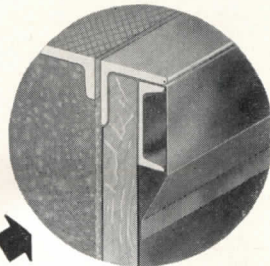
Security FIRE DOOR CO.

3046 LAMB DIN AVE. • ST. LOUIS 15, MO.



➔ 1951 METAL CLAD!

The proven construction for maximum life and endurance to withstand rough usage and abuse of modern power trucking.



➔ 1951 REINFORCED TRUCKING BARS

Modern Security Doors are known for the reinforced construction of their trucking bars. Individually engineered for each installation, these heavy duty trucking bars adequately handle the job indefinitely.

THE RECORD REPORTS

WASHINGTON
(Continued from page 192)

• John T. Dunlop, widely known in construction circles for his work as impartial chairman of the Joint Board for Settlement of Jurisdictional Disputes in the construction industry, has been sworn in as a public member of the nine-man Wage Stabilization Board.

• NSRB announced a series of surveys to determine adequacy of the nation's airports in time of emergency. Thirteen cities are included in the group being studied: Minneapolis-St. Paul, Kansas City, Denver, Spokane, Seattle, San Francisco-Oakland, Los Angeles, Long Beach, Houston, New Orleans and Atlanta. Survey teams will report on, and recommend, plans for airport development, maintenance and use agreements in time of emergency or in a "state of readiness."

• Chairman Stuart Symington, National Security Resources Board, signed and issued the first necessity certificates designed to encourage the expansion of productive capacity for defense purposes. Eight such certificates were issued in the first batch, all to Jones and Laughlin Steel Corp. These benefits assure a shortened amortization period for tax purposes for some \$144 million worth of new J and L facilities.

• There was a new cause for worry on manpower—the scarcity of engineers. A minimum of 30,000 new engineers annually is needed, it was said by experts. Yet, at the present rate of enrollment, within four years the annual output from colleges and universities will fall below 10,000. The mobilization program, of course, piles added demands on top of civilian needs for engineering talent. The predicted figure would not be high enough even to meet civilian requirements.

• The atom is going into the airport construction business. Civil Aeronautics Administration is sponsoring a Cornell University project aimed at developing a device using radioactive material to measure moisture content and density

(Continued on page 196)



Control Room: Radio Station WFDR, New York, N. Y.
 Architect: Robin and Vogel, New York, N. Y.
 Engineer: Fred L. Moesel Associates, New York, N. Y.
 Mechanical Contractor: The J. M. Fink Co., New York, N. Y.

Twice beautiful to the engineer's eye...

kno-draft adjustable air diffusers

Beautiful to look at, of course...with an unobtrusive simplicity that is as much at ease amid the crystal chandeliers of a ballroom as in the stark severity of a broadcasting studio.

But the engineering eye sees also the functional beauty of Kno-Draft Adjustable Air Diffusers . . . the uncomplicated cleverness of engineering and design that assures an even distribution of air *without draft*.

Kno-Draft Air Diffusers are adjustable *after* installation. Both the volume of air and its direction can

be screw-driver controlled to balance temperature and distribution *exactly as required* throughout the entire conditioned area.

Still a third "beauty" of Kno-Draft Adjustable Air Diffusers is the complete satisfaction they give on the job. Types and sizes to meet every need.

KNO-DRAFT DATA BOOK: Complete specifications, engineering and installation data on Kno-Draft Adjustable Air Diffusers. To get your copy, simply fill in and mail the coupon. No obligation, of course.



TRADE MARK "KNO-DRAFT" REG. U. S. PAT. OFF.

W. B. CONNOR ENGINEERING CORP.

Danbury, Connecticut

Air Diffusion • Air Purification • Air Recovery

In Canada: Douglas Engineering Co., Ltd.,
 190 Murray Street, Montreal 3, P. Q.

W. B. CONNOR ENGINEERING CORP.
 Dept. E-11, Danbury, Connecticut

Please send me, without obligation, my copy of the Kno-Draft Air Diffuser Data Book.

Name

Position

Company

Street

City..... Zone..... State.....

THE RECORD REPORTS

WASHINGTON (Cont. from page 194)

of soil under airport pavements. A pilot model will be tested on the Indianapolis, Indiana, municipal airport. Arrangements may be made to leave the detecting device with its radioactive material in place permanently. This could give a continuous reading transmitted to a remote point by wire or radio.

- The outstanding development in the

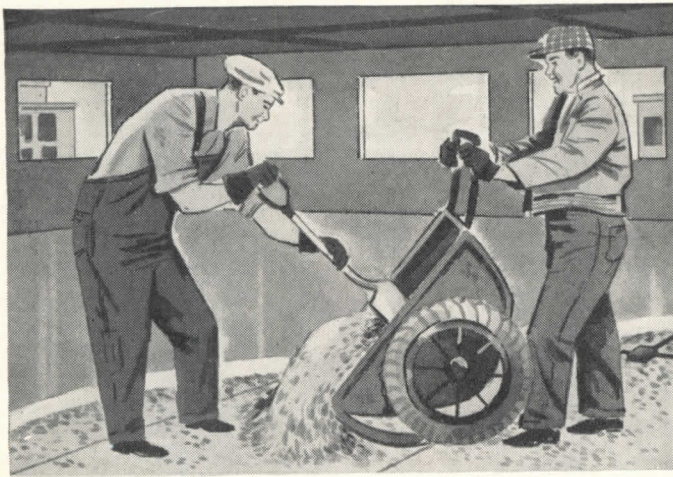
prefabrication industry during the past year has been increasing stabilization, the BLS reports. About 100 prefabricated housing firms are producing this year. Sixty of these have been in operation for some time. The composition of the industry has remained about the same for more than a year now, in contrast to the rapid entry and withdrawal of firms before that time, particularly

during 1946 and 1947. About 150 plants were in operation then. For the first time since the war, some companies reached capacity production during late 1949. Unit sales may reach 50,000 this year compared with 35,000 in 1949 and 30,000 in 1948.

- Technical Bulletin No. 14 of the Housing and Home Finance Agency points out economies in row house construction for rental properties. Cost-saving methods utilized in both one-story and two-story construction are discussed. Schematic plans are provided. The bulletin also carries stories on prevention of dampness in basements and on the ratproof construction of new dwellings.

- The Army Corps of Engineers in announcing the \$209 million initial phase of its fiscal 1951 construction program said the policy to perform by lump sum contract let after competitive bidding would be continued. Only exceptions will be where national security or "other compelling reasons" dictate the use of negotiated contracts. The Corps executes its construction programs through a decentralized organization of division engineers. Two thirds of the initial program recently announced is construction outside continental United States, most of it scheduled for Alaska.

- Union wage scales of building trades workers advanced five per cent during the first nine months of 1950 compared with a three per cent advance in the same period of 1949 and eight per cent in 1948. Since June 1939, union hourly scales have advanced approximately 81 per cent, Bureau of Labor Statistics said.



for lightweight concrete... use

WAYLITE AGGREGATE

**Save up to 35% in deadweight...
design up to 4,000 psi**

When you want lightweight structural concrete with adequate strength, specify the use of Waylite aggregate.

Waylite is a cellular aggregate made by processing molten slag. Its air cells are completely sealed giving lightness and strength. Design for strength with Waylite as in ordinary plain or reinforced concrete. Handles similarly. Approved by Board of Standards and Appeals, New York City. Waylite Concrete 2,000 psi weighs 100 pounds per cubic foot... 4,000 psi Waylite weighs 108 pounds.

Waylite offers many important economies and advantages in structural design. Also widely used as floor and roof fills. See data in Sweet's—for additional information and quotations write The Waylite Co., 105 W. Madison St., Chicago 2, or Box 30, Bethlehem, Pa.

**WAYLITE
AGGREGATE**

ON THE CALENDAR

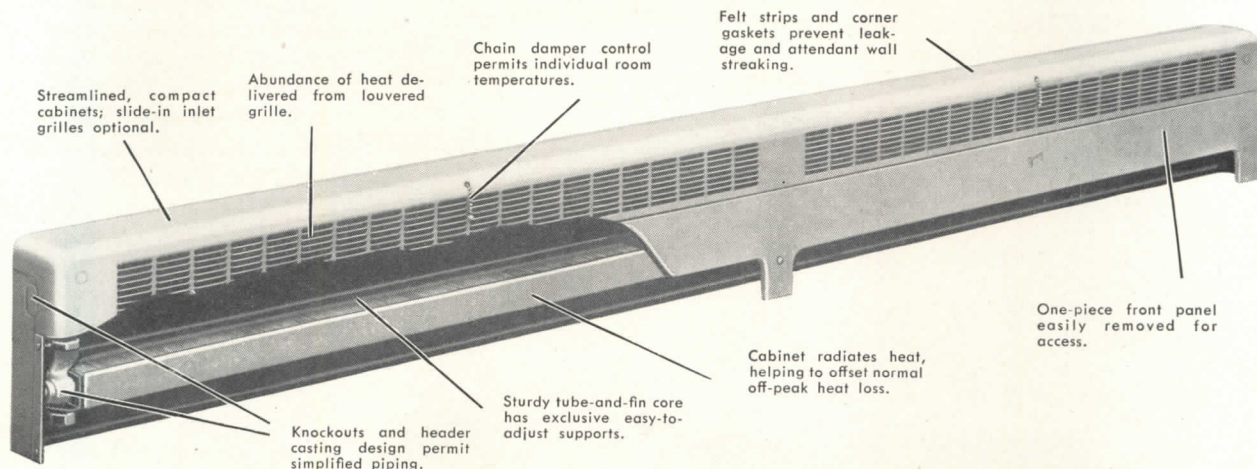
Jan. 7-Feb. 11: Last five of a nine-week series of lectures by Erik Lassen, chief curator of the Danske Kunstinstitut, Copenhagen, and co-editor of the Danish art magazine *Kunstbladet*. *Jan. 7*—The Artistic Spirit of an Isolated Peasantry; *Jan. 14*—The Gentle Art of Graceful Living; *Jan. 21*—The Age of Silver; *Jan. 28*—Royal Manufactures; *Feb. 4*—The

(Continued on page 198)

ANNOUNCING YOUNG...

Low-Level Convectector-Radiators

FOR INSTALLATION
BENEATH PICTURE WINDOWS



Streamlined, compact cabinets; slide-in inlet grilles optional.

Abundance of heat delivered from louvered grille.

Chain damper control permits individual room temperatures.

Felt strips and corner gaskets prevent leakage and attendant wall streaking.

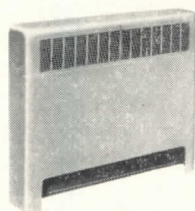
One-piece front panel easily removed for access.

Cabinet radiates heat, helping to offset normal off-peak heat loss.

Sturdy tube-and-fin core has exclusive easy-to-adjust supports.

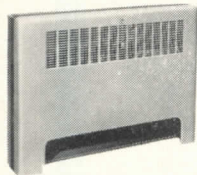
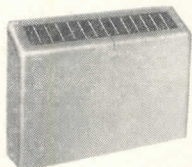
Knockouts and header casting design permit simplified piping.

OTHER STANDARD TYPES



Free Standing Type "F"
—Suitable for either free-standing or semi-recessed installation.

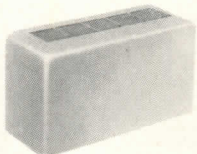
Wall-Hung Type "S"
—Sloping top grille. Wall-hung model facilitates cleaning of floors.



Partially-Recessed Type "R"
—Cabinet fits into wall recess conserving valuable floor space.

Type "FR," Fully Recessed Model. Designed for full utilization of room space.

Bathroom Type "B"
—Compact wall-hung unit permits installation under average lavatory fixture.



Here is a Convectector-radiator just 12" high, yet capable of providing a blanket of warm air for the "room with a view."

It's the Type "FL" model—the latest addition to the Young line of Convectector-radiators—for use with any hot water or two-pipe steam system. Low-level cabinets are available in a wide selection of sizes, ranging from 20" to 112" in length, 4", 6", and 8" in depth, and for either free standing or semi-recessed installations.

Specify "Young" for your convectector-radiator requirements. All models are tested and rated in accordance with Commercial Standards CS 140-47, as developed cooperatively by the trade and national Bureau of Standards, U. S. Department of Commerce.

Catalog No. 4150, just released, gives roughing-in dimensions, ratings, etc. Write now for your copy.

YOUNG

Heat Transfer Products
for Automotive and Industrial Applications.



Heating, Cooling, Air
Conditioning Products
for Home and Industry.

Reg. U. S. Pat. Off.

YOUNG RADIATOR COMPANY

DEPT. 611-A, RACINE, WISCONSIN

Plants at Racine, Wisconsin and Mattoon, Illinois

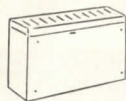
Sales and Engineering Representatives in All Principal Cities



"YAC" Air Conditioners



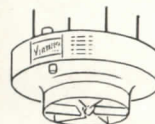
Horizontal Unit Heaters



Cabinet Unit Heaters



Heating - Cooling Coils



"Vertiflow" Unit Heaters

(Continued from page 196)

Homes of Our Grandfathers; Feb. 11 — Present Times. Designers and Makers. Lectures are open to the public without charge. 3:30 p.m. — The Metropolitan Museum of Art, Fifth Ave. at 82nd St., New York City.

Jan. 15-18: Plant Maintenance Show and Conference on Plant Maintenance Techniques — Auditorium, Cleveland.

Jan. 15-Feb. 9: Exhibit of architectural works, 1951 National Gold Medal Exhibition — The Architectural League of New York, 115 E. 40th St., New York City.

Jan. 15 throughout 1951: 1951 Good Design, second in the series of annual exhibitions of well-designed home furnishings, sponsored by the Museum of

Modern Art, New York City, and The Merchandise Mart, Chicago — The Merchandise Mart, Chicago.

Through Jan. 28: "Good Design," an exhibition of the best designs in home furnishings for the year 1950 as chosen by the Museum of Modern Art Selection Committee — The Museum of Modern Art, 11 W. 53rd St., New York City.

Jan. 17-Mar. 18: Exhibition of prize-winning designs from Lamp Competition — Museum of Modern Art, 11 W. 53rd St., New York City.

Jan. 18-20: Louisiana Engineering Society Annual Meeting — St. Charles Hotel, New Orleans, La.

Jan. 18-20: Seventh Annual National Technical Conference, Society of Plastics Engineers, Inc. — Hotel Statler, New York City.

Jan. 19: Great Lakes Regional Seminar, American Institute of Architects (postponed from Dec. 1-2) — Oliver Hotel, South Bend, Ind.

Jan. 21-25: Seventh Annual Convention, National Association of Home Builders — Stevens and Congress Hotels, Chicago.

Jan. 22-25: 57th Annual Meeting, American Society of Heating and Ventilating Engineers — Bellevue-Stratford Hotel, Philadelphia.

Jan. 22-26: 10th International Heating and Ventilating Exposition — Commercial Museum, Philadelphia.

Feb. 9-10: Midyear Conference of American Hospital Association — Drake Hotel, Chicago.

Feb. 13-14: Midwinter Housing Conference sponsored by Southwest Research Institute's Division of Housing and Construction Technology — Statler Hotel, Washington, D. C.

Feb. 17-22: Annual National Convention, American Association of School Administrators — Atlantic City.

Feb. 28-Mar. 2: Sixth Annual Technical Session, Society of the Plastics Industry — Edgewater Beach Hotel, Chicago.

Mar. 5-9: Spring Meeting and Committee Week, American Society for Testing Materials — Cincinnati.

Mar. 7-10: Annual Convention, Michigan Society of Architects.

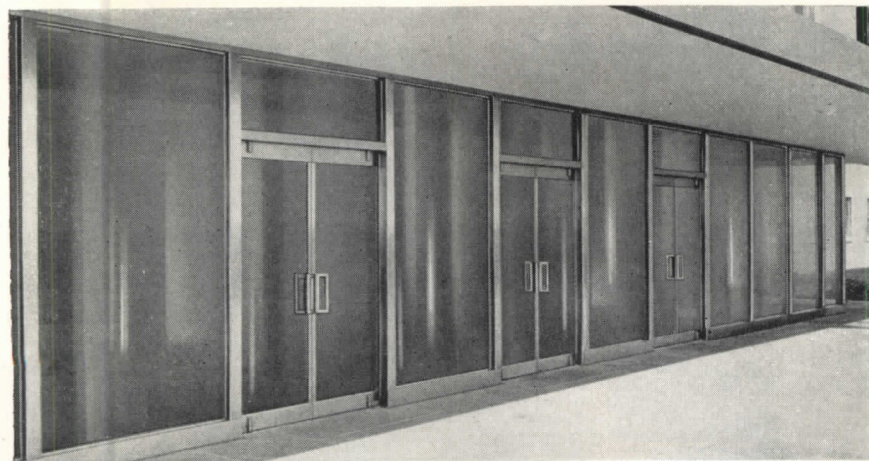
Mar. 16-May 13: Art Students League Diamond Jubilee Exhibition of Painting and Sculpture — The Metropolitan Museum of Art, Fifth Ave. at 82nd St., New York City.

Mar. 19-23: Seventh Western Metal Congress and Exposition — Civic Auditorium, Oakland, Calif.

(Continued on page 200)



the Balanced Door AT IDLEWILD INTERNATIONAL AIRPORT



Enduring Beauty • Ease of Operation • Economy of Maintenance



The Door that lets
TRAFFIC through QUICKLY

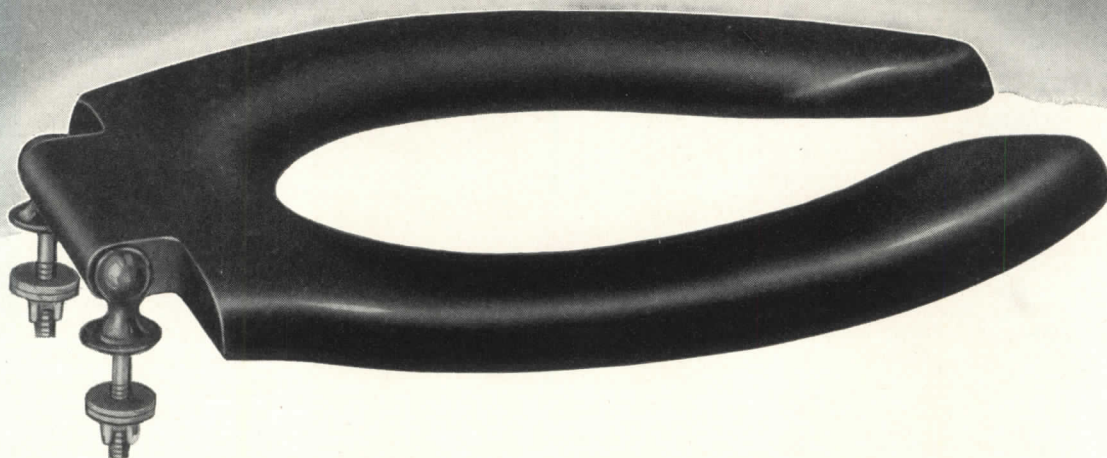
Ellison
the **BALANCED DOOR**

ELLISON BRONZE CO.

Jamestown, New York

representatives in 71 principal cities

Overwhelming Choice



No. 9500
CHURCH MOLTEX Seat

Church Seats

"THE BEST SEAT IN THE HOUSE"

C. F. CHURCH MFG. CO., HOLYOKE, MASS.
Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

THERE are good sound reasons why architects have made Church the overwhelming choice in toilet seats, whether for home, factory, school or institution.

Their styling and design is a compliment to the buyer's taste . . . their unmistakable quality a mark of good judgment—and the name "CHURCH" stamps them as *the best*.

Where hard use—even abuse—is anticipated, Church MOLTEX® Seats offer the architect the assurance of *lasting* quality, lowest cost *per year of service*.

With MOLTEX, first cost is last cost. They never need replacing.

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

(Continued from page 198)

OFFICE NOTES

Offices Opened, Reopened

- The Leo A. Daly architectural firm has announced the formation of a new site planning section to serve its Omaha, Neb., and St. Louis offices. Claire E. Oneal of Chicago heads the new unit.
- Kelly & Gruzen, architects-engineers

with offices in New York, Paterson and Jersey City, have opened a new office at 73 Tremont St., Boston 8, Mass. William Davies, formerly chief architect for Thomas Worcestor, has joined the firm as associate and will be in charge of the Boston office.

- Smith & Hegner, Architects, announce the opening of new offices at 1659 Grant St., Denver 5, Colo.

• Frank J. Stepnoski & Son, Architects, have moved to their own new office building at 25 E. Merrill Ave., Fond du Lac, Wisc.

• The New York Chapter of the American Institute of Decorators has opened offices at 211 E. 49th St., New York 17, N. Y. Miss Helen Hutchins is executive secretary.

New Firms, Firm Changes

• Welton Becket and Associates, Architects, announce the association with the firm of Kelvin C. Vanderlip, realtor and housing specialist, as chief of the firm's newly-organized Land Development Division.

• Formation of the new firm of Bourne, Connor, Nichols & Whiting, Architects, Engineers, Housing Consultants, has been announced. Members of the firm are Philip W. Bourne, Neil A. Connor, G. Seth Nichols and G. Clarke Whiting.

• Robert E. Buchner, A.I.A., and A. Blaine Imel announce formation of the firm of Robert E. Buchner, Architects, with offices at 1341 South Boston, Tulsa 3, Okla.

• Daniel, Mann and Johnson, Architects, have combined with the engineering firm of Irvan F. Mendenhall to form a new partnership to be known as Daniel, Mann, Johnson and Mendenhall, Architects and Engineers.

• William E. Graham and Edgar S. Irwin announce the formation of a partnership under the name of Graham & Irwin, Architects, with offices at 2014 17th Ave., Vero Beach, Fla.

New Addresses

The following new addresses have been announced:

A. Godfrey Bailey, Architect, 3616 W. Pico, Los Angeles 19, Calif.

Millard P. Buck, Architect, Johnstone Bldg., Bartlesville, Okla.

John Hancock Callender, Architect, 33 W. 42nd St., New York 18, N. Y.

Marwell Construction Co. Ltd. and Western Construction & Engineering Co. Ltd., 1500 W. Georgia St., Vancouver, B. C.

N. H. McLennan Co., Acoustical Engineers, 510 N. Dearborn St., Chicago 10, Ill.

F. H. McGraw & Co., engineers and
(Continued on page 202)



Feralun Safety Treads after 23 years of service at the Ketterlinus Lithographic Manufacturing Co., Philadelphia, Pa.

“... no signs of wear after 23 years”

There's a lot of daily traffic between departments of this busy lithographic company, yet for 23 years Feralun Safety Treads have withstood the punishment of thousands of hurrying feet—with “no signs of wear.”

A quarter-century of resistance to wear—a quarter-century free from maintenance and repairs—and a quarter-century of underfoot safety, too, on Feralun's non-slip surface with many years of service ahead.

Examples like this show why architects, engineers and builders insist on Feralun treads, nosings and plates. Made of cast iron with wear-resistant abrasive particles securely embedded in walking surfaces, including the nosings, Feralun provides a sure-footed “grip” that keeps feet from slipping—and wears and wears. The coupon below will bring you full information on Feralun. Send it today.

Also available in Bronze, (Bronzalun)—Aluminum, (Alumalun)—and Nickel Bronze, (Nicalun).

*Reg. U.S. Pat. Off.

**AMERICAN
ABRASIVE METALS CO.**

463 Coit Street
Irvington 11, N. J.

Gentlemen: Please send me full information on Feralun.

Name..... Title.....
Company.....
Street.....
City..... State.....

At the 10th Air Conditioning Exposition in Philadelphia . . .

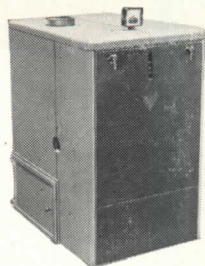
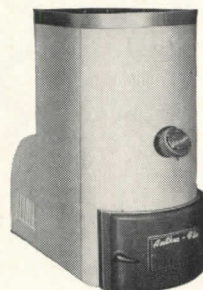


. . . See these high-efficiency automatic Anthracite heating units

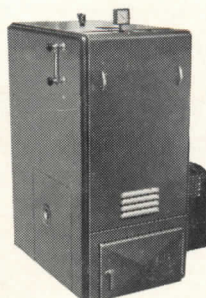
America's best fuel buy is Anthracite

With these modern Anthracite-burning units, you can offer your clients and customers the ultimate in clean heat—even heat—economical heat—trouble-free heat in abundance. See the newest models at the show, or write for descriptive literature to Anthracite Institute, 101 Park Avenue, New York City, N. Y.

ANTHRAFLO—An entirely different type of boiler-burner, with many points of design never before found in home burners. Fully automatic . . . the coal feeds direct from bin across the stationary grate. Ashes discharge into container within unit. All working parts are accessible from outside the unit. For steam, hot-water and warm-air systems. Provides year-round hot water.



ANTHRATUBE—The revolutionary design that operates at a *proved efficiency of over 80%*. The "whirling heat" principle, supported by several other field-tested innovations, give Anthratube faster response and superior performance . . . the very peak of fuel-burning efficiency! Provides year-round hot water.



MODERN ANTHRACITE STOKERS—Automatic conversion stokers are available for installation in existing boilers or furnaces—specially designed in complete boiler-burner units, such as *Motor Stoker, Electric-Furnaceman* and others. All offer high efficiency, small size and economical operation. All are completely automatic from bin to ash removal. Provides year-round hot water.

ANTHRACITE (HARD COAL) INSTITUTE

THE RECORD REPORTS

(Continued from page 200)

constructors, Western Office, Wasatch Oil Bldg., Salt Lake City, Utah.

Archie G. Parish, A.I.A., and Robert B. Crowe, 112 Rutland Bldg., St. Petersburg, Fla.

ELECTIONS APPOINTMENTS

• Otto Lucien Spaeth, industrialist, philanthropist and art patron, has been

named director of the American Federation of Arts. Burton Cumming, recent director of the Milwaukee Art Institute, has been named assistant director. An expanded program of activity is planned by the Federation.

• Marshall Morrison of Beverly Hills, Calif., has been appointed president of the American Society of Designers.

Louis Gould is vice president and secretary is Ed Burnside.

• Paul B. Christensen, vice president and chief engineer of Merchants Refrigerating Co., New York City, has taken office as president of the American Society of Refrigerating Engineers. Other officers for 1951 are: Edward Simons, San Francisco, and Richard C. Jordan, Minneapolis — vice presidents; Donald K. Tressler, Chicago — treasurer. Members of the Council are: C. M. Ashley, Syracuse; Leon Puehler, Jr., Chicago; Oliver C. Eckel, Boston; Milton Kalischer, Springfield, Mass.; D. C. McCoy, Dayton; and J. R. Hornaday, Muskegon, Mich.

• Frank R. Simpson has been appointed director of research and development for the Kuljian Corp., engineers and constructors, of Philadelphia. Mr. Simpson has for the past eight years directed research projects for the Franklin Institute of Philadelphia.

• Frank Sutton, who has operated his own consulting engineering firm in New York for many years, has joined the staff of Guy B. Panero, Engineers, of New York and Washington.

• A. A. Landi of Landi Marble Corp., New York, has been elected president of the Marble Institute of America. Other officers elected are: J. W. Fisher, San Diego — vice president; A. H. Coerver, St. Louis — secretary; F. J. Plimpton, Proctor, Vt. — treasurer.

• Smith W. Storey of Kenilworth, Ill., president of the General Portland Cement Co. and the Consolidated Cement Corp. of Chicago, has been elected chairman of the Board of Directors of the Portland Cement Association. New directors include Donald S. McBride, Philadelphia; F. A. Weibel, Catasauqua, Pa.; Eugene D. Hill, Louisville, Ky.; and Harold M. Scott, Philadelphia.

• C. Forrest Tefft of Columbus, Ohio, has been elected president of the Structural Clay Products Institute. Mr. Tefft is president of the Claycraft Co. Other officers for 1951 are: L. S. Meyer, St. Louis — vice president; George Gammie, Chicago — treasurer; and Joseph J. Cermak, Washington, D. C. — secretary.

(Continued on page 204)

THESE FAMOUS
DOORS
HAVE BEEN OPENED
OVER 200 Million
TIMES!

CHICAGO THEATER
Built 1921
RAPP and RAPP, Architects



and brought to
a quiet close with

RIXSON

CHECKING FLOOR HINGES

• Ruggedly built with careful precision, to withstand the hard, rough usage given doors in public entrances... this is your assurance of faithful, trouble-free service through the years... when you SPECIFY RIXSON.

THE OSCAR C. RIXSON COMPANY Established 1900

4450 Carroll Avenue, Chicago 24, Illinois

Telephone MA nsfield 6-5050

Sales Representatives:

ATLANTA, GA.	Walter S. Johnson, 917 St. Charles Ave., Phone: Vernon 4725
LOS ANGELES, CALIF.	George E. Tupper, 1010 W. Olympic Blvd., Phone: Prospect 0924
SAN FRANCISCO, CALIF.	George E. Tupper, 1030 Arlington Ave., El Cerrito, Phone: Landscape 4-5834
SEATTLE, WASH.	S. G. Kirkland, 845 Bellevue Ave., N., Phone: East 8855
NEW YORK, N. Y.	Fred G. MacKenzie, 107 Read St., Phone: Barclay 7-6852
PHILADELPHIA, PA.	G. Norris Williams, 211 Greenwood Ave., Wyncote, Pa., Phone: Ogontz 1929
WASHINGTON, D. C.	Lloyd R. Anderson, 4318 Rosedale Ave., Bethesda, Md., Phone: Oliver 4873
CANADA	The Richards-Wilcox Canadian Co., Ltd., London, Ont., Phone: Fairmont 2800
HONOLULU, T. H.	B. F. Schoen, Ltd., P. O. Box 3464, Phone: 83284

Specify
Janitrol
GAS-FIRED UNIT HEATERS

for these advantages

- ★ Eliminates need of expensive central-heating system and labor costs of operating and maintenance men.
- ★ Minimum of installation space required and no fuel to order and store.
- ★ Flexible operation, heat is used only when and where it is needed.
- ★ Low operating costs resulting from the efficient use of clean gas heat, automatically controlled.
- ★ Engineering layout service assures sound installation planning to meet individual heating requirements.
- ★ Heating can be combined with ventilating or summer air-conditioning distribution systems.

**30 SIZES
 AND TYPES OF
 UNIT HEATERS**

SUSPENDED MODELS

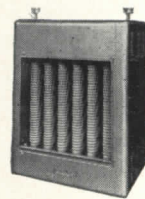
Equipped with Propeller Fans or Blower Units.



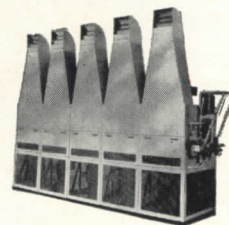
18 sizes and types provide capacities ranging from 50,000 to 450,000 Btu/hr. Features include individual ribbon burners converting heat to separate heat exchangers to provide greater efficiency in less space. Blower equipped units are used to quietly circulate warm air against higher static resistance, permitting the use of ducts.

DUCT HEATERS

No fan or motor is required for these units as installations are made to temper ventilating air or to supply heat through summer air-conditioning duct work where air is circulated by a blower system. 5 sizes provide capacities from 85,000 to 225,000 Btu/hr.



HEAVY DUTY FLOOR MODELS



Sectional construction of units permits heating capacities up to 1,500,000 Btu/hr. Sections can be equipped with directional diffuser outlets or to connected duct work. Units widely used for heating large areas such as airplane hangars, warehouses and plants handling large assemblies.

Write today! for helpful guide on the practical use of unit heaters for commercial and industrial installations. Ask for A.I.A. File 30-C-43.



SURFACE COMBUSTION CORPORATION • TOLEDO, OHIO

(Continued from page 202)

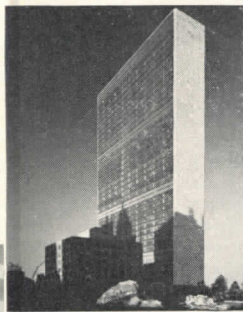
- Thompson-Starrett Co. Inc. has named Leon P. O'Connor of Chicago a vice president and general manager in charge of its new department of foreign operations. Mr. O'Connor has been general manager of the overseas construction division of Pan American Airways.
- Justin V. Smith has been elected president of the Board of Directors of the

Walker Art Center, Minneapolis. Edgar V. Nash is vice president and D. S. Defenbacher is secretary-treasurer.

- Officers for the coming year of the Detroit Chapter of the American Institute of Architects are: Andrew R. Morrison, president; Eero Saarinen, vice president; Eugene T. Cleland, secretary; Paul B. Brown, treasurer. Robert

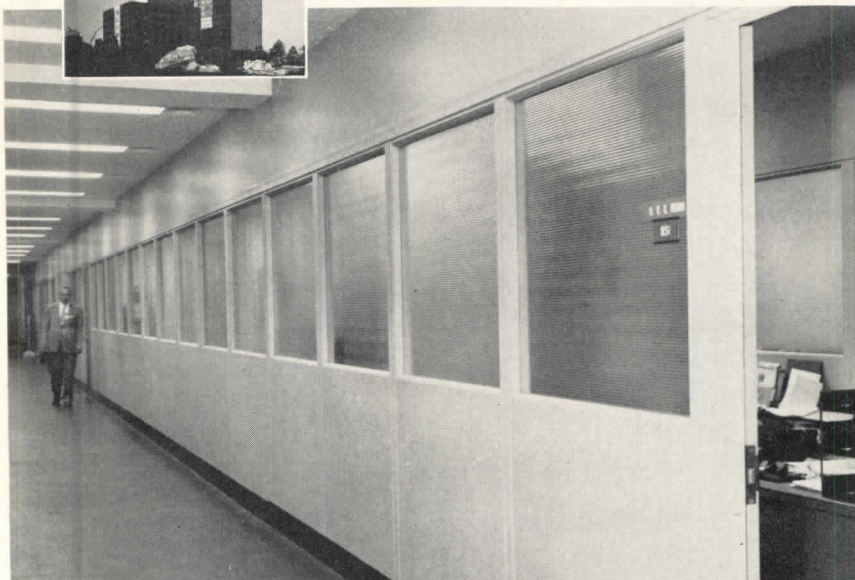
Blakeslee was named to the Board of Directors to succeed Malcolm R. Stirton, whose term expired.

- Carl C. Britsch of Toledo was elected president of the Architects Society of Ohio at its 16th annual convention in Toledo. Other officers elected were: William B. Huff, first vice president; Rollin L. Rosser, second vice president; John W. Hargrave, third vice president; Horace W. Wachter, secretary; and C. Melvin Frank, treasurer. George Voinovich, past president, remains on the Board.



PARTITIONS GLAZED with PLURALITE GLASS BRIGHTEN and BEAUTIFY INTERIOR of UN SECRETARIAT BUILDING

Photo by Pictorial Services, Inc.



Architect, Harrison & Abramovitz
Contr. Fuller-Turner-Walsh
& Slattery, Inc.
Steel Partitions by
E. F. Hauserman Co.

Flooding offices in the UN Secretariat with mellow illumination and at the same time assuring strict privacy is the twofold function of Pluralite Glass throughout the interior of this impressive new structure.

Over 30,000 square feet of Pluralite Glass provide the practical separation of working areas without sacrificing valuable light.

Glazed horizontally in Hauserman steel partitions, the attractively fluted, straightline effect achieved by Pluralite also helps to create the perfect medium for attaining interiors that combine distinction with functional simplicity.

Figured glass by Mississippi is available in a wide variety of patterns and surface finishes to meet any requirement. Available at leading distributors of quality glass everywhere.



Send for Latest Catalog
For details see
Sweet's Architectural File
Samples on request

MISSISSIPPI Glass COMPANY
SAINT LOUIS 7, MO.
NEW YORK • CHICAGO • FULLERTON, CAL.



WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS

AT THE COLLEGES

Housing Research Program Is Undertaken by Cornell

A new Housing Research Center at Cornell University will seek to bring scientific research to bear on the nation's housing problems.

The program, to be directed by Glenn H. Boyer, professor of housing and design, will provide for study of questions ranging from housing technology to the influence of human behavior on shelter requirements.

Three basic objectives for the new center are listed as follows: (1) to coordinate a program of basic research in the field of housing, both urban and rural; (2) to stimulate graduate study in the subject; and (3) to act as a central clearing house for housing information.

The program will be developed around a nucleus of housing research projects already in motion, such as studies of heating in the College of Engineering and others concerning rural housing in the Colleges of Agriculture and Home Economics.

Regional Planning Conference Sponsored at North Carolina

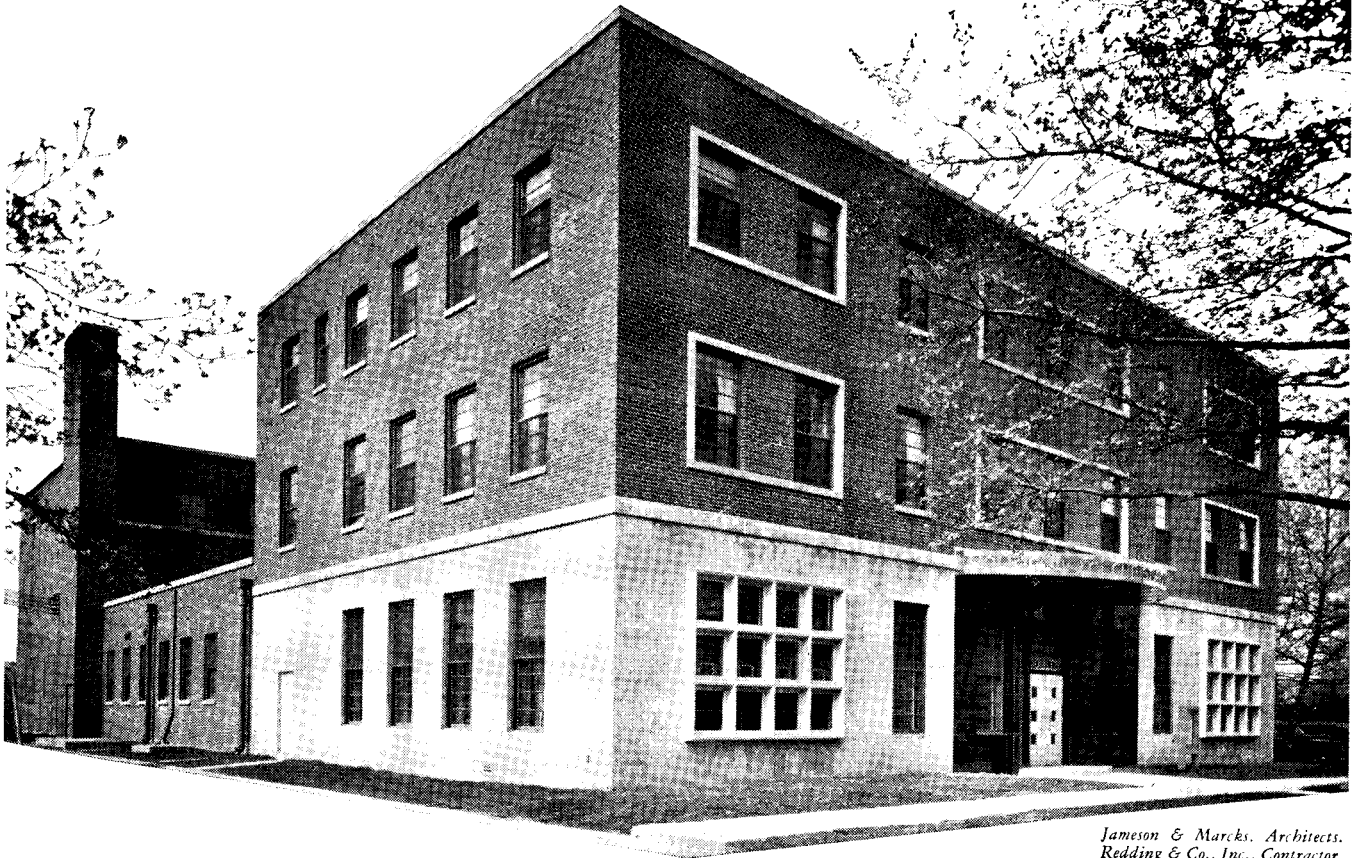
The need for a program of education, research and service in the field of regional planning and development was the theme of a recent conference at the University of North Carolina at Chapel Hill.

The two-day conference, attended by representatives of 19 groups, was sponsored by the University's Department of City and Regional Planning and the Institute for Research in Social Science.

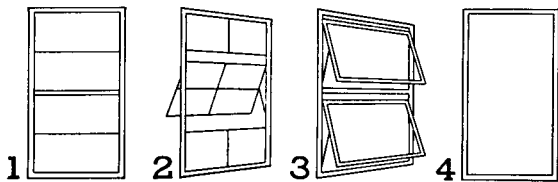
Dr. John Gaus, professor of government at Harvard University, made the

(Continued on page 206)

TRUSCON... a name you can **build** on



*Jameson & Marcks, Architects.
Redding & Co., Inc., Contractor.*



so very versatile!

Highly stimulating to creative ingenuity . . . and extremely practical for a wide range of lighting and ventilating needs, these Truscon Steel Windows were used with great satisfaction in the Y.M.C.A. Building, Baltimore, Md.

1 Truscon Series 46 Double-Hung Steel Window. Spring balanced type, combines pleasing architectural design with high utility, durability, simplicity of operation, and economy of cost.

2 Truscon Commercial Projected Steel Window. Strong, durable, low in cost. Design provides simplicity of screening and of shade arrangement.

3 Truscon Donovan Awning Type Steel Windows. Ventilators operate in unison, either by manual control or completely concealed mechanical operators.

4 Truscon Fixed Steel Windows. Available in standard sizes up to 5'9 $\frac{3}{8}$ " x 5'3" for unusual picture window effects. Note framing treatment on first floor, front elevation of Y.M.C.A. Building above.



See SWEET'S for complete details on the entire line of Truscon Steel Windows for every purpose; and write for detailed literature on all other Truscon Steel Building Products.

TRUSCON® STEEL COMPANY YOUNGSTOWN 1, OHIO
Subsidiary of Republic Steel Corporation

(Continued from page 204)

keynote address, "The Emerging Field of Regional Planning and Development."

A resolution passed at the end of the conference asked the University of North Carolina to explore further the possibilities and feasibility of developing a curriculum in regional planning.

Agencies and organizations represented at the conference were: Office

of the Chief of Engineers, Department of the Army; Department of the Interior; Department of Agriculture; National Security Resources Board; Tennessee Valley Authority; President's Council of Economic Advisers; Bureau of the Budget; Housing and Home Finance Agency; Board of Control for Southern Regional Education; Alabama State Planning Board; Tennessee State

Planning Commission; Virginia Division of Planning and Economic Development; North Carolina Department of Conservation and Development; American Institute of Planners; American Planning and Civic Association; Regional Development Council of America; General Education Board; and Duke University.

Detroit University Revises Its Curricula for Engineers

Some 250 course revisions and a number of additional options for seniors will be recorded when the forthcoming bulletin of the University of Denver College of Engineering is published.

Dean Clement J. Freund explains that the changes have been made to adjust the curricula to trends in engineering practice and industry changes and to achieve fullest utilization of staff and laboratory resources.

Remodeling Is Started at Princeton's Pyne Library

Part of Princeton's old Pyne Library, which for years housed many of the university's rare manuscript collections and other treasures, is now being remodeled to accommodate administrative offices. The entire building ultimately will be converted for this purpose.

The first step is a partial conversion of the south stacks. Two floors are expected to be ready for occupancy by next September. The two floors above will be only roughly finished, but with the basic structure and outlets for new utilities completed, so that they can be easily finished later when additional funds are available.

Fellowships, Scholarships

Lowell M. Palmer Fellowship In Architecture Is Announced

Applications will be received until March 1 from candidates for the 1951 Lowell M. Palmer Fellowship in Architecture at Princeton University.

Applicants must be citizens of the United States, holders of a bachelor's degree, less than 27 years old on Oct. 1, 1951 and in good physical condition. The award will be announced April 1.

The Palmer Fellow will receive a stipend of \$1200, from which tuition will be taken during his year of residence at Princeton. He will be entitled to all

(Continued on page 208)



FOR LOWER MAINTENANCE SPECIFY *Pella* VENETIAN BLINDS

Neat, efficient Pella Venetian Blinds are the logical choice in blinds for commercial and institutional use because Pella's many quality features minimize maintenance problems. Highest standards in the selection of materials, ingenious designing and expert workmanship combine to make Pella Venetian Blinds the preferred choice of architects today.



Write for new FREE BOOK on "Pella Venetian Blinds" for commercial and institutional applications.

ROLSCREEN COMPANY
Department C-3, Pella, Iowa

Without obligation, please send FREE new booklet "Pella Venetian Blinds."

NAME _____
 FIRM NAME _____
 ADDRESS _____
 CITY & ZONE _____ STATE _____

QUALITY FEATURES SOLVE BLIND MAINTENANCE PROBLEMS . . .

- Fully Enclosed Headmember
- Slip Proof Tilting
- Positive Locking Control
- Long-Lasting Nylon Cords
- All Types of Slats
- Custom Made

10 YEAR GUARANTEE

All of Pella's Metal Headmembers are guaranteed for ten years. In case of defect, a new Headmember will be furnished.





GOLD BOND Again!

*New Metropolitan
Life Insurance Building
used 550 tons
of Gold Bond Plaster*

**NEW METROPOLITAN LIFE INSURANCE
BUILDING, MADISON AVE.
AND 24TH ST., NEW YORK CITY**

Architect: (Third Unit)
Arthur O. Angilly, New York City

General Contractor:
Starrett Bros. & Eken, Inc., New York City

Plastering Contractor:
James Kane & Company, New York City

GOLD BOND Products are designed to work together, and when they are used together, responsibility for results is centered in one reputable manufacturer—National Gypsum Company. The more than 150 Gold Bond products are fully described in Sweet's.

*Lath, Plaster, Lime, Sheathing, Wall Paint, Rock
Wool Insulation, Metal Lath, Sound Control Products,
Fireproof Wallboards and Decorative Insulation Boards.*

**You'll build or
remodel better with**

Gold Bond

NATIONAL GYPSUM COMPANY, BUFFALO 2, N. Y.

THE RECORD REPORTS

(Continued from page 206)

the privileges of a Fellow of the University, including — if he is unmarried — residence in the Graduate College buildings.

The purpose of the Fellowship is to assist a student of unusual promise to undertake the advanced study of architecture at Princeton. He benefits from research in architectural composition at the architectural laboratory and from

the opportunities offered through the close affiliation of the School of Architecture, the Bureau of Urban Research, the Department of Art and Archaeology and other graduate departments of the University.

In awarding the Fellowship, particular consideration will be given to (1) achievement in architectural design; (2) personal qualifications; (3) scholas-

tic record; (4) professional experience.

Application blanks may be obtained by addressing: The Secretary, School of Architecture, Princeton University, Princeton, N. J.

Applications Are Invited For Steedman Fellowship

Applications to participate in the twentieth competition for the James Harrison Steedman Memorial Fellowship in Architecture will be accepted by the School of Architecture, Washington University, St. Louis, Mo., until January 31.

The competition, which will be held in the spring, offers an award of \$3000 for a year of study and travel in foreign lands. The competition is open to all graduates of accredited architectural schools in the United States who have had at least one year of practical work in an architect's office, including one year's residence in St. Louis. Candidates must be between 21 and 31 years of age at the time of appointment.

The competition consists of a 15-hour preliminary sketch followed by a six-week development period. The preliminary exercise will be held February 17.

Faculty Appointments

Interim Architecture Head Named at Denver University

Earl C. Morris of Denver has been named interim director of the University of Denver's School of Architecture and Planning.

Mr. Morris succeeds Carl Feiss, now chief of the Community Facilities Service of the Housing and Home Finance

(Continued on page 210)

Mojud Hosiery Co., Inc., 385 Fifth Ave., N. Y. C. Designer: M. Wrighton Swicegood, Amos Parrish & Co., Inc.



IT'S NICE (LEG) WORK IF YOU CAN GET IT . . . and Bergen usually does!

MOJUD is dedicated to making America's female underpinnings more eye-appealing. Bergen Cabinet was called in to help make Mojud's new Showroom more sales-appealing. Now, everybody's happy.

That's always the result when you "call for Bergen". For that's what BERGENIZING really means: not only aged-in-the-wood craftsmanship, but efficient,

inspired, down to the last detail planning by an organization that has a sales-healthy respect for the business of its clients.

In a way, our superb service is a "gift". One that is leavened by experience, ingenuity, and sweat. We're always willing to share our "gift" with you . . . and usually do for America's blue-chip architects and companies.

Write to Dept. A for our Portfolio of "Jobs Well Done." It's worth seeing

Bergen—sure the success of your modernization program with



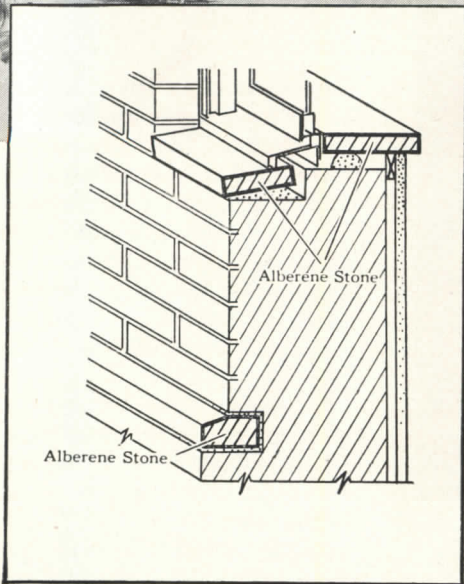
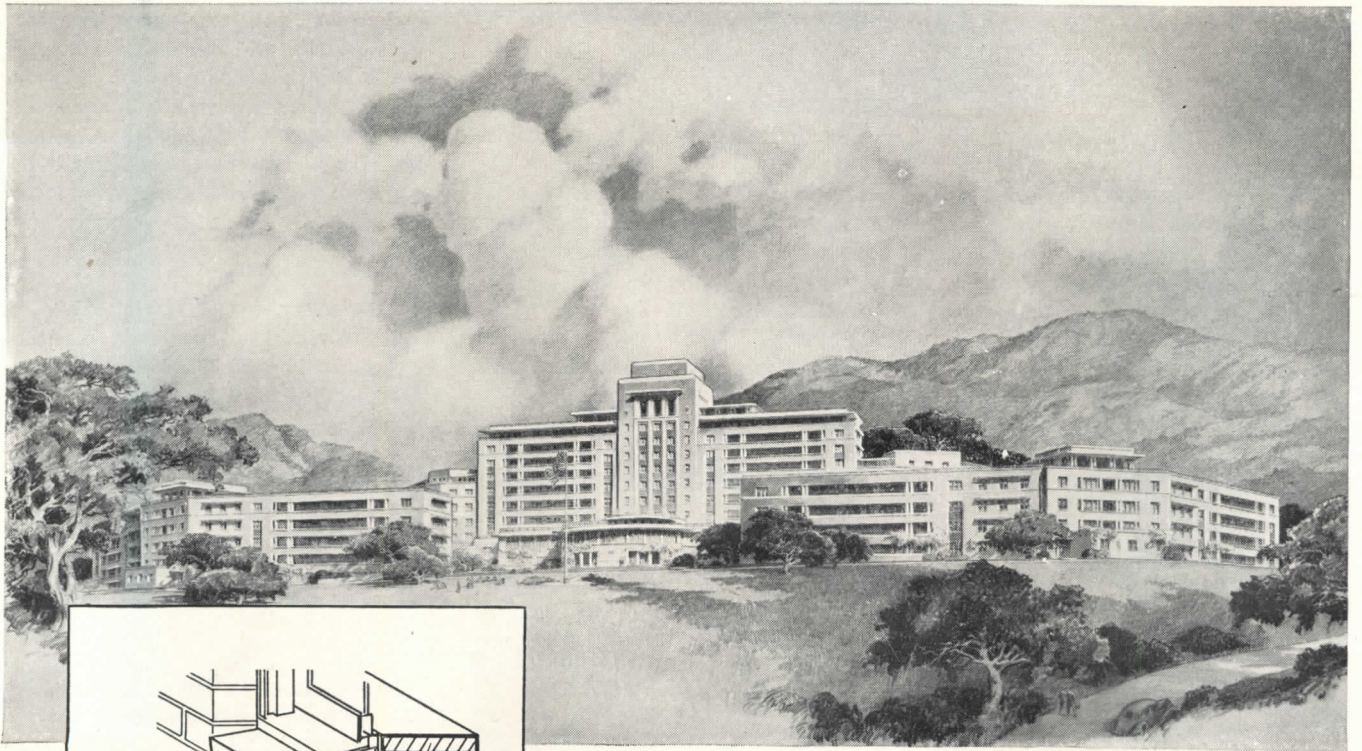
Architectural woodwork that makes the designer's plan an enduring reality

1552-56 BERGEN STREET, BROOKLYN, N. Y.

Phone: PRESIDENT 2-3121



Earl C. Morris, appointed to new post



Detail showing $1\frac{1}{2}$ " thick slip sill with $1\frac{1}{4}$ " stool and $2\frac{1}{4}$ " belt course.

Tripler General Hospital, U. S. Army Medical Dept., Hawaii
 — Architects: York and Sawyer, New York City. $1\frac{1}{2}$ "
 Alberene slip sills.

sills, stools, and trim
 of **ALBERENE** stone are
DURABLE and ECONOMICAL

Regular Grade Alberene Stone is an ideal material for exterior trim because it can be cut into thin sections, permitting substantial economies. It offers freedom to the designer — by making possible greater reveal, to give just one example.

The stone has no cleavage planes, is dense, non-absorbent, and chemically-resistant. It is free of maintenance cost. Its color — silver gray in rubbed finish and a pleasing blue gray when honed — harmonizes well with almost any color scheme.

Where a darker color is desired, we suggest

Alberene Serpentine. It is a darker gray in rubbed finish, black when honed, and black with a slight greenish cast when polished.

The high chemical resistance of both stones, which has made them favorites for use in laboratory equipment, also makes them ideal for *window stools* in laboratory buildings.

Since there is a decided difference in price between Alberene *Regular Grade* and *Serpentine*, architects' specifications should be carefully worded so as to clearly call for the type desired. Ample supplies of both materials are available.

ALBERENE STONE CORPORATION

419 Fourth Avenue, New York 16, N. Y.

Branches in Principal Cities

THE RECORD REPORTS

(Continued from page 208)

Agency. Mr. Feiss terminated a leave of absence from the Denver post last Spring.

The new interim director is a graduate of the Columbia University School of Architecture. He was the 1928-29 holder of the LeBrun Traveling Fellowship of the American Institute of Architects.

In 1935 Mr. Morris opened an office in Denver with the late F. W. Frewen.

He will continue operation of his office while administering the Denver school.

- Dr. Hans H. Bleich has been named an associate professor of civil engineering at Columbia University. Dr. Bleich has been a lecturer in civil engineering at the University since 1946.

- Thomas Schmid of Zurich and Glarus,

Switzerland, has been appointed visiting lecturer in the University of Minnesota's School of Architecture for the winter and spring quarters. Mr. Schmid is a graduate of Technische Hochschule in Zurich and has been practicing architecture in Zurich and Glarus for the past two years.

- Appointment of five visiting critics in Yale University's Department of Architecture for the current academic year has been announced by Chairman George Howe. The newly-appointed critics are: Richard J. Neutra, Los Angeles; Philip C. Johnson, New York; Paul Schweikher, Roselle, Ill.; Paul Weidlinger, Washington, D. C.; and Victor Christ-Janer, New Canaan, Conn., and New York.

- The School of Design at North Carolina State College announces the return of Lewis Mumford as visiting professor for the third year and a similar appointment on the faculty for Dean Joseph Hudnut of the Harvard University Graduate School of Design. Both Mr. Mumford and Mr. Hudnut will conduct a series of lectures and seminars during each of the three terms of the current year.

The school has also announced the appointment of R. Buckminster Fuller, Chloethiel Woodard Smith, Naum Gabo and Christopher Tunnard as visiting lecturers for 1950-51.

Visiting critics who will spend a month each conducting problems with the fifth year class in architecture are Basil Yurchenco, A. W. Geller, Huson Jackson and Alonzo J. Harriman.



HERE'S AID TO ARCHITECTS and ENGINEERS in planning SOUND SYSTEMS!

ARCHITECTS and their engineers are invited to make full use of the experience of RCA Sound System engineers and the great RCA research and engineering laboratories, in planning and engineering sound systems.

You can get practical help on sound systems for every type of building: Schools . . . Hospitals . . . Hotels . . .

Factories and Offices . . . Churches . . . Department Stores . . . Airports and Terminals . . . Warehouses and Garages . . . Auditoriums . . . Recreational Centers . . . Institutions . . . Stadiums.

• • •

Call on RCA Sound System engineers while your plans are still in formative stage. *No obligation, of course.*


COMPETITIONS

Worldwide Entries Sought On Herzl Memorial Design

Prizes totaling 5000 pounds (about \$14,000) will be awarded in a worldwide architectural competition for a memorial to be built in Jerusalem to honor the late Dr. Theodore Herzl, founder of modern Zionism.

The memorial will comprise a tomb and surrounding park on Mt. Herzl, Jerusalem's highest peak, where the Zionist leader's body now lies. Detailed

(Continued on page 212)



SOUND PRODUCTS
RADIO CORPORATION of AMERICA
ENGINEERING PRODUCTS DEPARTMENT, CAMDEN, N. J.

3-A

Please have one of your sound system engineers call on us.

NAME _____

FIRM _____

STREET _____

CITY _____ STATE _____

FORCED CIRCULATING FLOW CONTROL HOT WATER HEATING



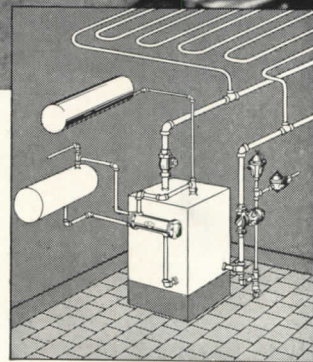
THRUSH

Radiant Heat...

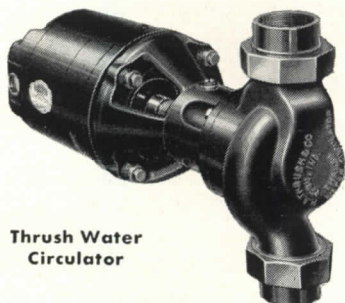
BETTER CONTROL AT LOWER COST

PLEASED customers tell their friends. That's the way to increase business . . . and profit. Forced Circulating Thrush Hot Water Heat, whether you use radiant panels, radiant baseboards, radiators or convectors, is simple, completely automatic, easy to install and low in cost.

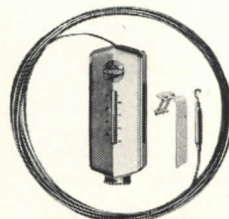
It assures your customers automatic comfort in any kind of weather. There is no fuel waste because there is no over heating. It maintains a constant flow of radiant heat and provides plenty of hot water for kitchen, laundry and bath the whole year through. If you are not familiar with Thrush Flow Control System and heating specialties, see our catalog in Sweet's or write Dept. J-1.



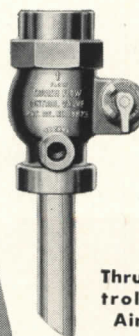
The Complete Forced Circulating Thrush Flow Control System of Hot Water Heat



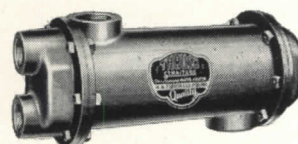
Thrush Water Circulator



No. 201 Radiant Heat Control



Thrush Flow Control Valve with Air Vent Tube



Thrush Hot Water Heater

THE RECORD REPORTS

(Continued from page 210)

plans and blueprints submitted for the competition will be relayed to Israel for judging by a committee of leading architects.

The competition, which is open to all American architects and sculptors, closes May 15. Inquiries should be directed to the Herzl Memorial Committee, 16 E. 66th St., New York City. The committee includes representatives

of the American Technion Society and the American Section of the Jewish Agency for Palestine.

Carpet Design Contest Offers \$2000 in Prizes

New designs for carpets are sought in the First Annual National Carpet Design

Competition sponsored by the Arthur Fleischman Company of Detroit. Closing date is February 1.

Prizes totaling \$2000 are being offered by the sponsor, with a first prize of \$1000, second prize of \$500, third prize of \$300, and four honorable mentions of \$50 each.

Details are available from the Competition Committee, Arthur Fleischman Co., 12585 Gratiot Ave., Detroit 5, Mich.

Magazine of Art Sponsors Competition in Art Essay

Prizes for three essays on art subjects are being offered to persons 35 years of age or younger by *Magazine of Art*, publication of the American Federation of Arts.

An award of \$150 will be given for the best essay on each of the following subjects: (1) The designing of subjects for use in everyday living; (2) American painting or sculpture of the past 50 years; and (3) Baroque or rococo painting, sculpture or architecture of the late 16th to 18th century.

Two honorable mentions in each of the three fields will be awarded, and all prize articles will be published in *Magazine of Art*.

The awards for essays in the first category were made possible through the generosity of a group interested in modern design, including Mr. and Mrs. Hans Knoll of Knoll Associates, New York City; Stanley Marcus of Neiman-Marcus, Dallas; and The Miller Company of Meriden, Conn.

Essays, which may not be longer than 3000 words, must be submitted by February 1. The articles, accompanied by photographs suitable for illustration, should be sent to the editorial office of *Magazine of Art*, 22 E. 60th St., New York 22, N. Y.

Rules Are Announced for 1950 A.I.D. Annual Awards

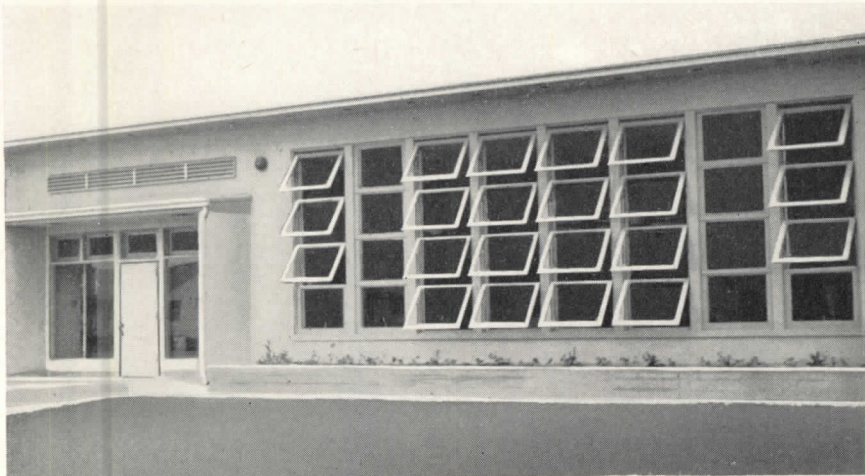
Entry forms and copies of the program for the 1950 annual A.I.D. awards are now available from the national headquarters of the American Institute of Decorators, 41 E. 57th St., New York City.

The competition will honor outstanding work in fabrics, furniture, floor coverings, wall coverings and lighting with Certificates of Merit. The object

(Continued on page 214)

better control of VENTILATION
better control of LIGHT
with *Dalmo*

AUTOMATIC MULTIPLE WINDOWS
Wood Projected Awning Type



Grayland Avenue School, Norwalk, California. Kistner, Curtis & Wright, Architects and Engineers

Dalmo Windows give full control of ventilation from 1% to 100% of the window opening. The angle of the open sash directs air currents upwards, eliminating drafts. The air diffuses from the ceiling and circulates evenly through the room. The open sash sheds rain, deflects wind and allows controlled ventilation under all weather conditions.

Dalmo Windows allow the use of venetian blinds or window shades. The sash can be operated without disturbing blind or shade. Window shades may be attached to the sash itself to control daylight illumination and give uniform light distribution without interfering with ventilation.

DALMO WOOD

WINDOW HARDWARE

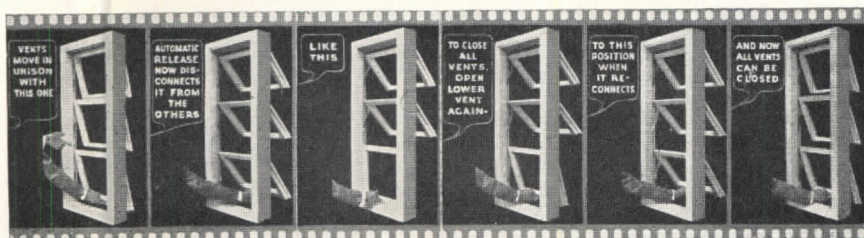
For the Nation's Schools



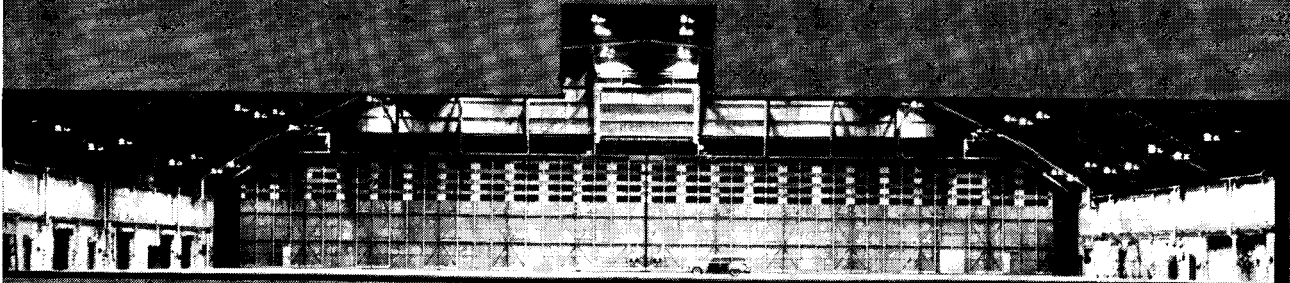
1304 Wilshire Boulevard, Los Angeles 17, California

Eastern Sales Office: Thorntown Indiana

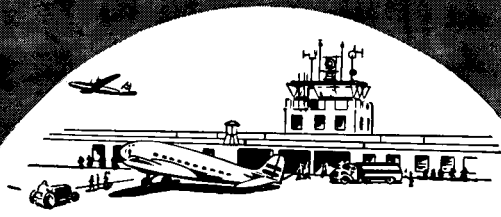
DALMO THE PIONEER OF AWNING TYPE WINDOWS



Holophane gives the International Airport the Best-Lighted Hangars Ever Built . . .

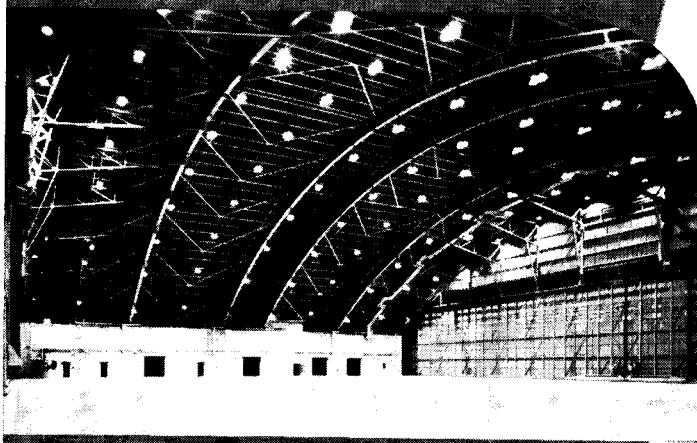


Hangars 3, 4, 5 at New York International Airport
 Roberts & Schaefer Co. Engineers; Lorimer & Rose, Associate Architects;
 Karunsky, Weller & Gooch, Consultants.

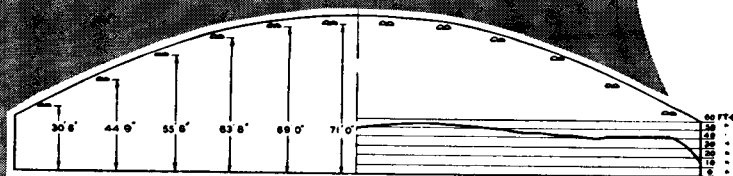


Holophane specifics are designed for many airport areas: Hangars, Waiting-Rooms, Administration Buildings, Restaurants . . . Repair Shops, Airplane Factories and all Outdoor Servicing Areas.

Selection of the lighting system in the hangars at "Idlewild" (New York International Airport) was made after exhaustive survey and cost analysis of airport lighting all over the country . . . Holophane combination mercury-incandescent lighting was chosen by the Port of New York Authority as the most effective, efficient and economical hangar illumination for this largest and most modern airport. The Holophane Engineering Staff will be glad to consult with engineers and architects, without charge, on any specific airport lighting project.



Interior Hangar No. 4.



Section, Hangar Lighting.



HOLOPHANE COMPANY, Inc.
 Lighting Authorities Since 1898 • 342 MADISON AVENUE, NEW YORK 17, N.Y.
 THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

EXHIBITIONS

School Exhibits Invited for A.A.S.A. Convention Display

of the citations is to make known to the consumer public what the market offers in good design and to commend designers who in the opinion of the jurors have created the best designs in these fields.

Submissions are not limited in number, but an entry form designating number of submissions must reach the A.I.D. not later than February 5.

Architects have once again been invited to submit exhibits of school buildings for an architectural exhibit at the annual national convention of the

American Association of School Administrators.

Success of last year's exhibit created a widespread demand for a second edition at this year's convention at Atlantic City February 17-22. Entries must be received by midnight February 12.

All registered architects are eligible to submit as many as three buildings. The schools, for age groups below college level, must have been erected since Jan. 1, 1946 or be under contract for erection in this country or U. S. territories or possessions.

Buildings will be selected for the exhibit by a jury appointed by A.A.S.A., to include at least three members of the American Institute of Architects experienced in school building design and three non-architect educators representing the National Council on Schoolhouse Construction. Seals of Merit will be awarded by the Jury to not more than 24 of the exhibits. It is specified that not more than four awards may be given in any of the six regional divisions established for the country.

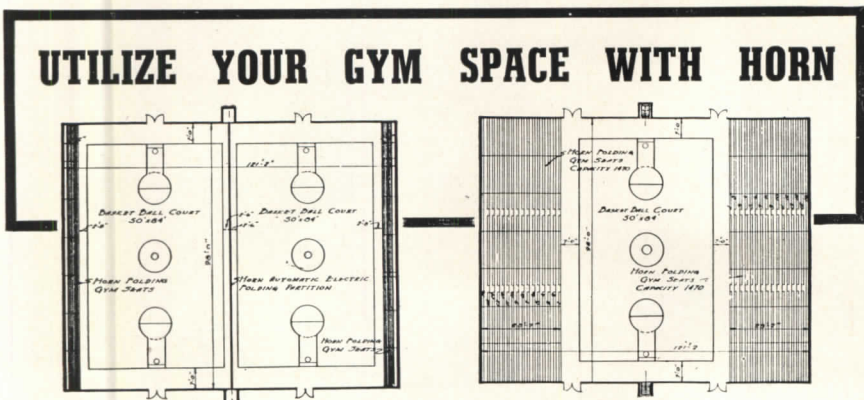
Full details of submission rules and entry blanks are available by addressing: American Association of School Administrators; Atten. Dr. Shirley Cooper, 1201 16th St., N. W., Washington 6, D. C.

Historical Society Exhibits McKim, Mead and White Works

The architectural firm of McKim, Mead and White, from 1879 to the present, will be remembered in an exhibit of photographs and drawings which opens January 10 at The New-York Historical Society, Central Park West at 77th Street, New York City.

Some 100 items are being arranged to trace the work of the firm over the years. Examples of the firm's early work will include the W. G. Low shingled cottage at Bristol, R. I., and the casinos at Newport and Short Hills. From a later period are photographs and drawings of the old Madison Square Garden, the Herald Building, Pennsylvania Station, Columbia University buildings and many others. More recent work is represented by drawings of the New York Municipal Building, Statler Hotel, Savoy Plaza and the U. S. Post Office.

Material for the exhibition is drawn from the almost complete records of the firm recently presented by them to the Society. The exhibition will continue until April 8

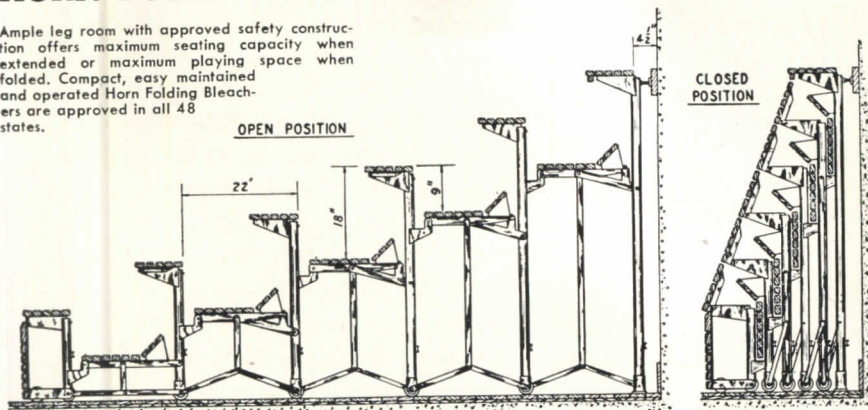


Two regulation basketball courts separated by a Horn Automatic Electric Folding Partition. Horn Folding Bleachers in folded position.

HORN FOLDING BLEACHERS extended increases the seating capacity for the BIG GAME! Horn Folding Bleachers will meet your requirements.

HORN FOLDING BLEACHERS

Ample leg room with approved safety construction offers maximum seating capacity when extended or maximum playing space when folded. Compact, easy maintained and operated Horn Folding Bleachers are approved in all 48 states.

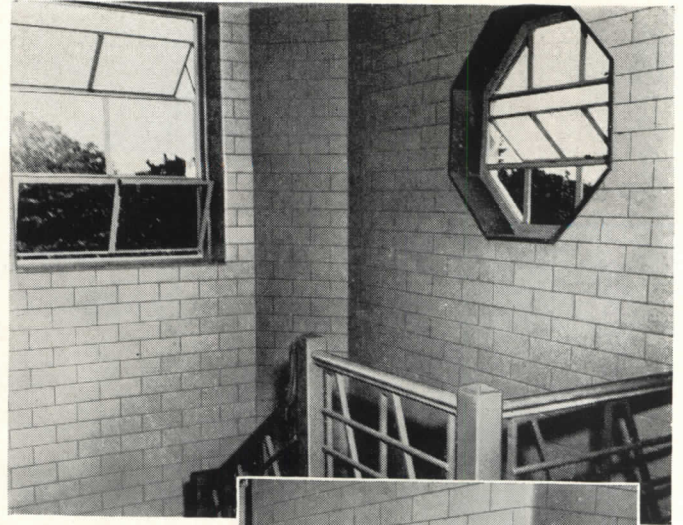
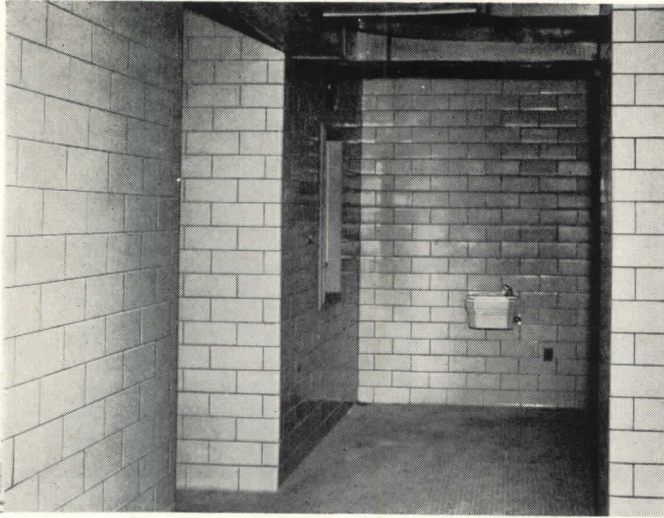


ROWS	FLOOR SPACE		**HEIGHT	ROWS	FLOOR SPACE		**HEIGHT
	IN USE	*CLOSED			IN USE	*CLOSED	
3	4' 9"	1' 8 3/4"	3' 0"	12	21' 3"	4' 3 1/2"	9' 9"
4	6' 7"	2' 0 1/2"	3' 9"	13	23' 1"	4' 6 1/2"	10' 6"
5	8' 5"	2' 3 1/2"	4' 6"	14	24' 11"	4' 9 1/2"	11' 3"
6	10' 3"	2' 6 1/2"	5' 3"	15	26' 9"	5' 1 1/2"	12' 0"
7	12' 1"	2' 10 1/4"	6' 0"	16	28' 7"	5' 4 3/8"	12' 9"
8	13' 11"	3' 1 5/8"	6' 9"	17	30' 5"	5' 8"	13' 6"
9	15' 9"	3' 5"	7' 6"	18	32' 3"	5' 11 3/8"	14' 3"
10	17' 7"	3' 8 3/8"	8' 3"	19	34' 1"	6' 2 3/8"	15' 0"
11	19' 5"	3' 11 3/4"	9' 0"	20	35' 11"	6' 6 1/8"	15' 9"

*Dimension includes 1/2 in. space between top seat and wall.
 **Height in open position same as closed. For Bleachers higher than 20 Rows write for complete details and dimensions.



HORN BROTHERS COMPANY
 DIVISION OF HORN INDUSTRIES FORT DODGE, IOWA, U.S.A.



Interior views, Graduate School, Harvard University, "Commons," Cambridge, Mass. Natco Ceramic and Clear Glazed Vitritile, 6T series and Natco 8512 series Buff Unglazed Facing Tile used. Architects—Collaborative. Contractors—George A. Fuller Company, Boston, Mass.

**ADD UP THE FEATURES,
MULTIPLY THE ADVANTAGES—**

CORRECT ANSWER:

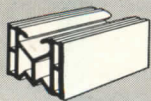
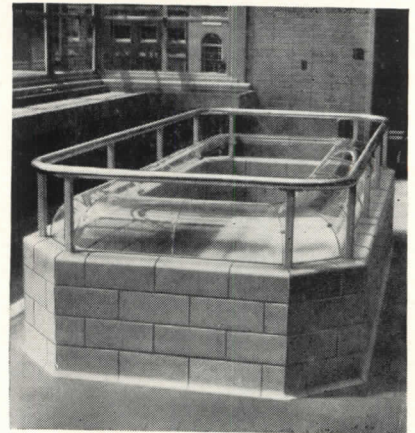
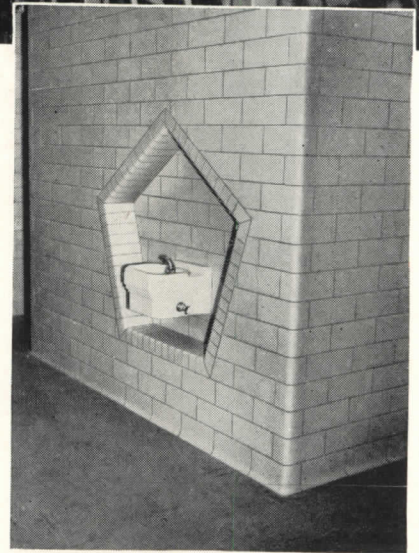
NATCO Structural Clay Tile FOR SCHOOL WALLS

The right solution of your new school or college wall problem is easy when you build with Natco Structural Clay Tile.

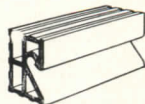
First of all, it is structurally strong and enduring. It is attractive, firesafe, sanitary. It is available in easy-to-set-up modular sizes. This assures good workmanship, low material waste, no costly time delays.

When used for interior walls, Natco Glazed Structural Facing Tile provides bright, colorful, cheerful rooms, halls, corridors, stairways that stay beautiful and unmarred through year after year of hard service. Above all there is no maintenance except occasional soap and water washing.

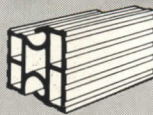
Each tile is marked NATCO—your proof of uniform high quality. Write for a copy of Catalog SA-50.



Buff Unglazed and Manganese
Spot Dri-Speedwall Tile
5 1/3" x 12" Nom. Face Size



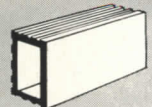
Raggle Blocks
Red Mingled Shades
4" x 5 1/3" x 12" Nom. Size



Speed-A-Backer Tile For
backing Brick Faced Walls
12" long. Varying Heights



Ceramic Glazed Vitritile
8" x 16" Nom. Face Size



Ceramic Glazed Vitritile
5 1/3" x 12" Nom. Face Size

NATIONAL FIREPROOFING CORPORATION

327 FIFTH AVENUE • PITTSBURGH 22, PA.

Branches: New York • Syracuse • Detroit • North Birmingham, Alabama
Chicago • Philadelphia • Boston • Toronto 1, Canada



Joint loans made under the National Housing Act during October tallied 162 per cent more than in October 1949. Aggregate approvals for the first 10 months of 1950 are \$234.5 million against \$95.5 for the corresponding period of 1949, an increase of 145 per cent.

During October, 2623 loans were approved to assist in financing 3059 units valued at \$22.1 million, compared with

1310 loans for 1426 units valued at \$8.5 million in October of last year, and 3109 loans for 3453 units valued at \$24.4 million in September this year.

All 1950 loans are based on construction costs prevailing on January 1. Costs rose about 16 per cent in the intervening period.

Sharpest hike in lending has occurred since July.

Observers are saying that disinclina-

tion of the federal government to continue rental controls beyond their present expiration date undoubtedly backs the continuing high level of shelter demand. Fear of further inflation helps magnify Canadians' urge to convert savings into real property.

Official Denies Charges of Housing Program Inadequacy

Vigorous exception to claims that Canada's housing program has been inadequate was taken by George Prudham, M. P., parliamentary assistant to the Minister of Resources & Development, when he recently addressed a meeting of the Toronto Metropolitan Home Builders Association.

Quoting statements made by labor leaders to the effect that federal efforts on housing have been nothing short of a national scandal, with the situation crying to heaven for vengeance, Mr. Prudham lashed out: "I would say . . . that they and the people they allegedly speak for have as big or bigger responsibility for the high cost of housing today as any other single group."

Since the war, building labor rates have increased in some cases as much as 50 per cent. In 1945 the average weekly wage in the construction industry was \$34.03. In 1949 it was \$44.37, an increase of about 33 per cent. In addition to this the industry went from a 44- to a 40-hour week, causing a further hike of 13 per cent. Compulsory holiday pay in most provinces adds still another four per cent to the 1945 cost.

Mr. Prudham maintained that the most effective effort that could be made to lower the cost of housing would be for labor unions to return to the 44-hour week.

"It would not work a hardship on anyone," he asserted. "Rather, labor would benefit by the increased wages. Labor should realize that they, who stand to benefit most by cheaper houses, have to a large extent the control of cost in their own hands.

"We are only kidding ourselves if we think we can work shorter hours and maintain a higher standard of living and at the same time defend our country and help defend the other free nations of the world."

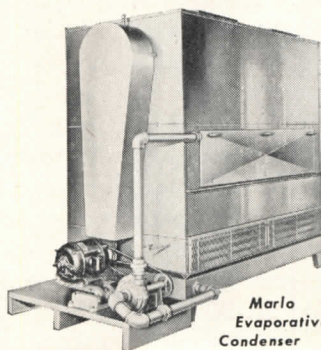


DON'T LET MONSTERS SPOIL YOUR BUILDING BEAUTY

Specify . . .
Compact *Marlo*
Evaporative Condensers
and Cooling Towers . . .

**Designed for Easy
Installation Indoors**

Architects find they can make their buildings more beautiful by specifying Marlo Cooling Towers and Evaporative Condensers — space-tailored for easy installation indoors . . . or on the roof below the skyline. Efficient Marlo Units save up to 95%



Marlo Evaporative Condenser

of normal water demand and offer these advantages too—4-way protection against corrosion for longer life . . . mastic-coated sound deadening interiors and resilient-mounted motors and pumps for quieter operation.

Write for full details for "roughing in" for your specific requirements.

MARLO = HEAT TRANSFER
Since 1925

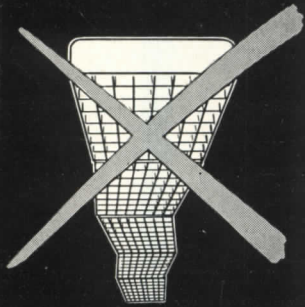


Marlo COIL CO. • 6135 Manchester Rd. • St. Louis 10, Mo.

Foundation Walls Poured For Pentecostal Church

Foundation walls have now been poured for the Pentecostal Church at
(Continued on page 218)

Eliminate
**FIXTURE
ZIGZAG!**

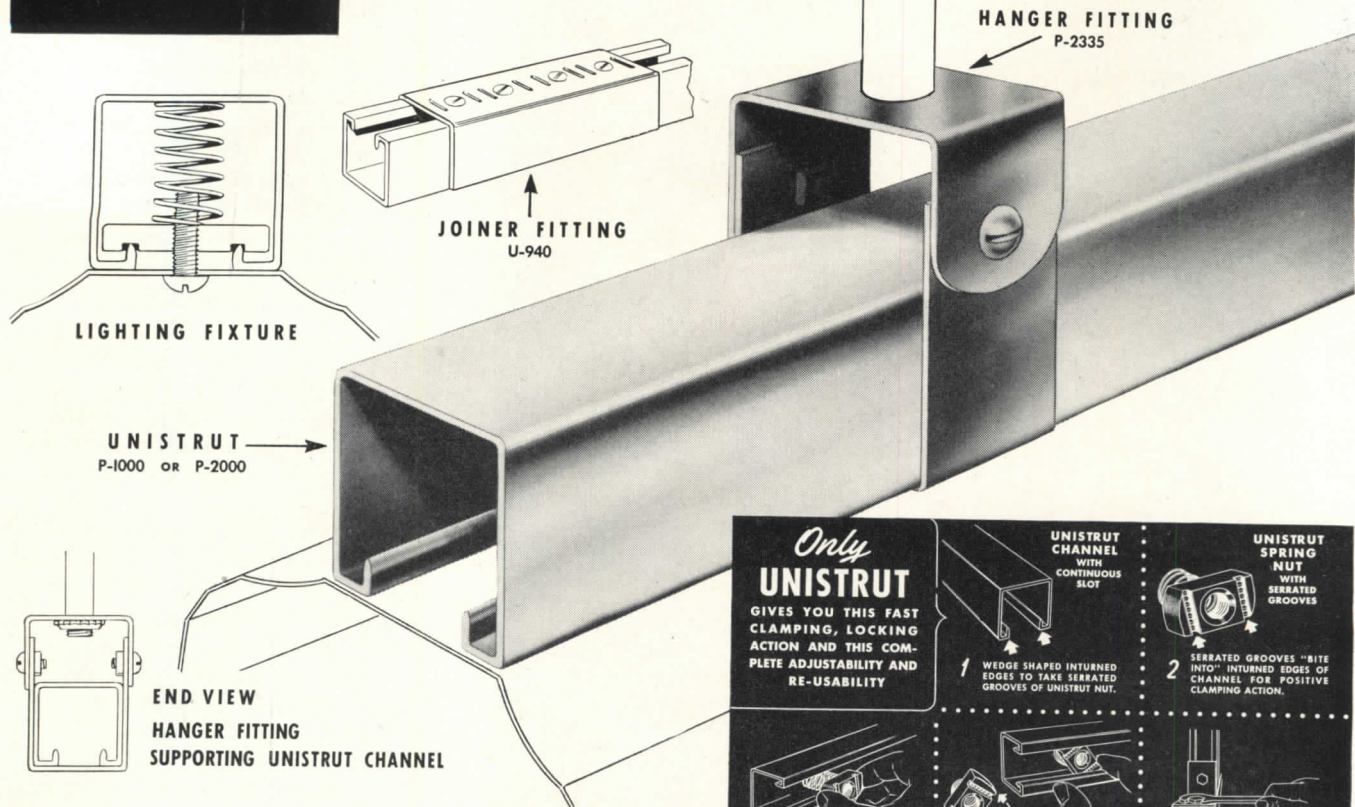


**For Perfect Alignment, Safety and
Low Cost**

USE

UNISTRUT

*The Completely Modern Method of Supporting
Fluorescent Fixtures!*



Only
UNISTRUT
GIVES YOU THIS FAST CLAMPING, LOCKING ACTION AND THIS COMPLETE ADJUSTABILITY AND RE-USABILITY

- 1 WEDGE SHAPED INTURNED EDGES TO TAKE SERRATED GROOVES OF UNISTRUT NUT.
- 2 SERRATED GROOVES "BITE INTO" INTURNED EDGES OF CHANNEL FOR POSITIVE CLAMPING ACTION.
- 3 INSERT SPRING NUT ANYWHERE ALONG CONTINUOUS SLOT OF CHANNEL...
- 4 ROUNDED EDGES OF NUT PERMIT EASY INSERTION. SPRING (YOUR THIRD HAND) HOLDS NUT SNUGLY IN PLACE FOR BOLTING.
- 5 ASSEMBLE FITTING, NUT AND BOLT—A TURN OF THE WRENCH, IT'S DONE.

Unistrut assures perfect alignment, requires fewer hanger stems and canopies, is completely adjustable, saves installation time, gives added safety and improved appearance. Unistrut is fully tested and proved by contractors on thousands of installations demanding the finest in lighting.



Prompt Delivery from Warehouse Stocks
in Principal Cities—consult your Telephone Directories

U. S. Patent Numbers
2327587 2363382
2329815 2380379
2345650 2405631
Other patents pending

The World's Most Flexible All-Purpose Metal Framing

Free Copy of Unistrut Bulletin!



UNISTRUT PRODUCTS COMPANY
1013 W. Washington Blvd.,
Chicago 7, Illinois, Dept. R 1

Please send me your Fluorescent Fixture Support Bulletin No. FF-3, without obligation.

Name _____
Company _____

Address _____
City _____ Zone _____ State _____

UNISTRUT PRODUCTS COMPANY

1013 W. WASHINGTON BLVD. • CHICAGO 7, ILLINOIS

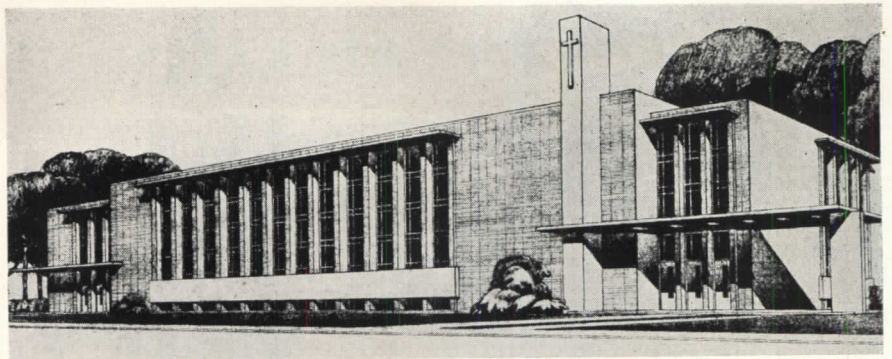
THE RECORD REPORTS

CANADA

(Continued from page 216)

London, Ont. Cost is expected to be less than \$140,000, with the excavating and some interior painting, etc., done by the church.

Philip Carter Johnson of London is architect for the building, which will



Rendering of Pentecostal Church for London, Ont. Philip Carter Johnson, Architect

WEATHER STRIPS FOR SLIDING DOORS



Slide and Glide

WITH "ACCURATE"

Outside Sliding Doors and Gliding Windows need weather protection. "Accurate" assures this protection winter, summer and always. Illustrated is one of 19 wide window openings at Guy Lombardo's East Point House, Freeport, L. I., for which Edmond Lumley, Jr., was the Architect, all "Accurate" equipped. More doors and windows roll on "Accurate" Metal Weather Strip and accessory hardware than all other sliding doors and windows combined. For unqualified protection and ease of operation there's no substitute for "Accurate."

Write for working drawings to fit your immediate needs. Or, if you prefer,

ASK FOR ILLUSTRATED FOLDER

ACCURATE METAL WEATHER STRIP CO., Inc.

215 EAST 26th STREET, NEW YORK 10, N. Y.

contain auditorium and balcony with total seating capacity of 1200. In the basement will be another auditorium, 40 by 60 ft, men's classroom, six Sunday School classrooms and two offices besides the boiler room. The church will also have a large foyer and (on the balcony) a nursery.

Exterior walls will be 16-in-long gray brick and 8-in slag block on poured concrete foundations. Pylon near main entrance houses chimney and fresh air intake for ventilation. Cross is aluminum.

U.S.-Type Building Controls Not Anticipated at Present

Though the Canada-U.S. defense production agreement recently signed in Washington provides for coordinated controls for distributing critical materials, it is considered doubtful that restrictions of the type imposed on certain classifications of building in the U.S. will jump the border—for the present, at least.

The Essential Materials Act passed last session does not appear to give Trade Minister Howe power to control construction directly. But under this legislation he has complete authority over the distribution of steel and other commodities vital to the defense program.

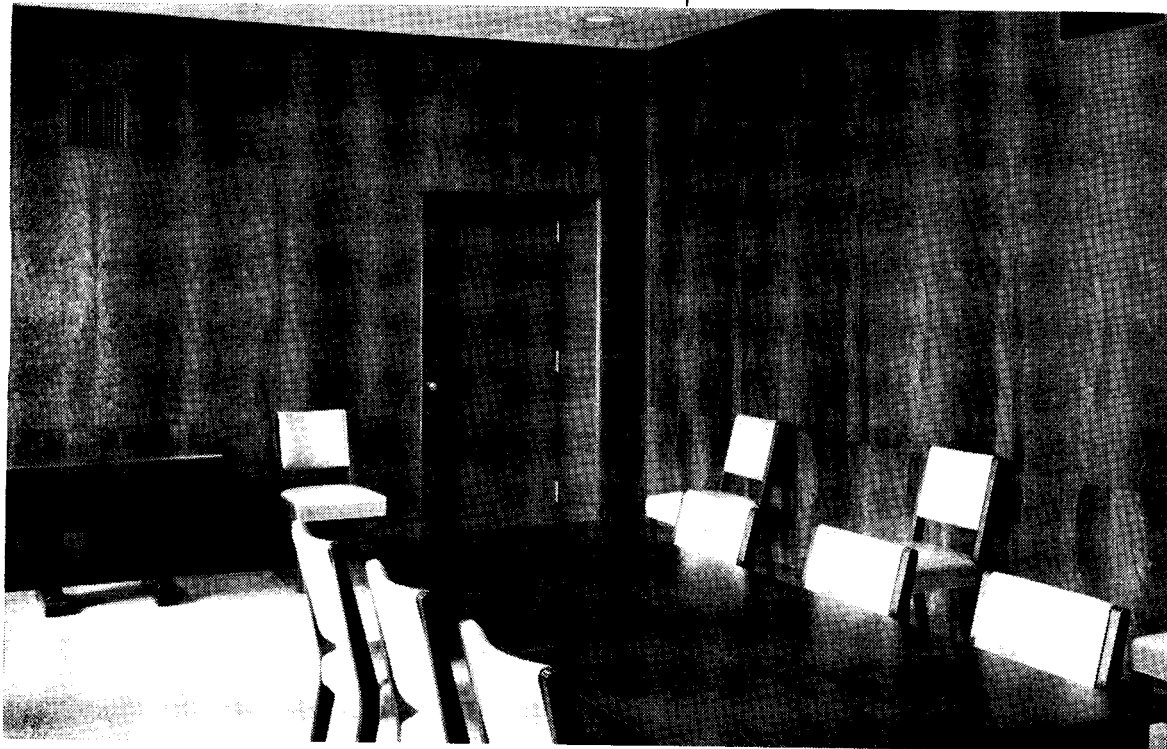
The Minister says that for the present the only controls imposed will be voluntary and indirect ones. "Our economy," he is quoted as saying, "being smaller, is easier to handle than the U.S. economy." He points out that there is an understanding with our four or five primary producers of steel as to who will get their output, and that this arrangement can be extended to other lines as well.

(Continued on page 220)

YOU CAN'T AFFORD TO MISS A STEP



IN PLYWOOD MANUFACTURE



Ten Steps to Roddiscraft Quality

There's no shortcut to quality. Roddiscraft quality plywood is manufactured step by step—no shortcuts, no skip steps. You can depend on Roddiscraft quality.

The first step — quality veneers — followed by careful matching, seasoning, moisture control—then the best adhesives, applied in modern hot plate presses — exact machine sanding, final inspection and proper storage.

Quality manufactured Roddiscraft Plywood is available in Birch, Maple, Walnut, Oak, Mahogany, Blonde Limba, Prima Vera, Avodire, Chen Chen, Gum and

Douglas Fir from warehouse stocks. Other woods are available on special order. No matter what your paneling plans, you can safely specify Roddiscraft plywood.

First Cost Is Practically Last Cost with Roddiscraft Hardwood Plywood

Figures obtained from well known building authorities indicate that over a period of ten years or less, based on using 1/4" plywood, the average cost of a paneling job will be no more than that of an ordinary plaster job using paper or paint finishes requiring constant maintenance. Beyond that period, the negligible amount of maintenance needed to preserve a Roddiscraft paneled wall results in real savings to the building owner.

Roddiscraft

RODDIS PLYWOOD CORPORATION
MARSHFIELD, WISCONSIN

NATIONWIDE Roddiscraft WAREHOUSE SERVICE

Cambridge, Mass. • Charlotte, N. C. • Chicago, Ill. • Cincinnati, Ohio • Dallas, Texas • Detroit, Michigan • Houston, Texas • Kansas City, Kan. • New Hyde Park, L. I., N. Y. • Los Angeles, Calif. • Louisville, Ky. • Marshfield, Wis. • Milwaukee, Wis. • New York, N. Y. • Port Newark, N. J. • Philadelphia, Pa. • St. Louis, Mo. • San Antonio, Texas • San Francisco, Calif.



VA Hospital,
Omaha, Nebraska.
Architects and engineers:
Ellerbe & Co., and Leo A. Daly & Co.

Grover Transitubes shrink the distance between hospital departments and buildings — operate quickly and so quietly that a light is needed to signal the carrier's arrival. Records, instructions — even small instruments and medicines — streak through the tubes at 40 feet a second!

... Other Buildings, Too!

In modern offices, factories, stores, or institutions, Grover systems handle routine paperwork, money and small packages. Some installations link just a few departments. Others are large and intricate. All provide the speed and efficiency that present-day methods demand.

Grover engineers work closely with architects in designing and estimating. Most systems are fabricated from standard parts for economy, yet are custom built to meet present and future needs. Grover Bulletins describe pneumatic tube systems for any kind of building. Write for yours today.

GROVER



THE GROVER COMPANY
DETROIT 19 • MICHIGAN

THE RECORD REPORTS

CANADA

(Continued from page 218)

The test will come when the supply pinch begins. Because of the difficulty of enforcing them, regulations governing construction were probably the least effective of all Canada's wartime controls. In 1944, for instance, it is estimated that total building was twice the volume covered by permits. Prosecutions were few and penalties soft.

Escalator Clause Returns To Plague Construction

Much as architects may regret it, the escalator clause is back. It's being included in all subcontractor's building bids.

During and just after the war, nearly all work was done on a cost-plus basis. But as circumstances improved, the construction industry succeeded in restoring the firm contract to its prewar status as the normal standard of operations.

But this is likely to become just a memory.

Subcontractors have to pay prices prevailing at the date their supplies are delivered, not those quoted at the time of ordering. Naturally, they want to pass on the risk of possible increases. Thus the general contractor loses control over a large segment of the cost of construction. He won't want to sign a firm contract with an owner if there's a chance that his overhead and profit will be squeezed.

The alternative is to use the cost-plus contract.

Except on extraordinary occasions, owners are reluctant to accept the kind in which the general contractor's fee is a percentage of the cost of construction. They much prefer a fixed fee paid in addition to the cost of construction.

The latter type of contract has been agreeable to architects and general contractors in the past and it will probably be seen much more in future.

Leave It to the Ladies: So Says Housing Expert

Women help mold the physical appearance of our new subdivisions, ac-

(Continued on page 222)

GET
**Lowest
Power
Costs!!**

INSIST ON

TODD BURNERS

-GAS OR OIL

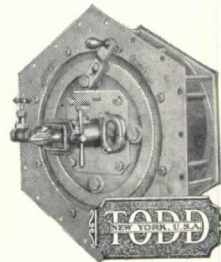
Whether you burn gas, oil or a combination, you'll be amazed how Todd Burners cut your fuel and maintenance costs . . . give you savings up to 10%, increased power capacity. For utmost economy in your boiler plant — let skilled Todd specialists, backed by 35 years of Todd experience, engineer your replacement of obsolete equipment or new installations.

Oil Burners

Gas Burners

Combination

Oil and Gas
Burners



COMBUSTION EQUIPMENT DIVISION

TODD SHIPYARDS CORPORATION

81-16 45th Ave., Elmhurst, Queens, N. Y.

See the Classified Telephone Book

NEW YORK • BROOKLYN • ROCHESTER • BUFFALO • HOBOKEN • NEWARK • PHILADELPHIA • HARRISBURG • YORK • PITTSBURGH • CHICAGO • RALEIGH • CHARLESTON, S. C. • BOSTON • SPRINGFIELD, MASS. • BALTIMORE • WASHINGTON • RICHMOND, VA. • ATLANTA • BIRMINGHAM • CLEVELAND • DETROIT • GRAND RAPIDS • TAMPA • GALVESTON • SAN ANTONIO • DALLAS • HOUSTON • TULSA • MOBILE • NEW ORLEANS • SHREVEPORT • DENVER • SALT LAKE CITY • LOS ANGELES • SAN FRANCISCO • SEATTLE • MONTREAL • TORONTO • BARRANQUILLA • BUENOS AIRES • LONDON

marble . . . is practical . . .

beautiful . . .

economical!

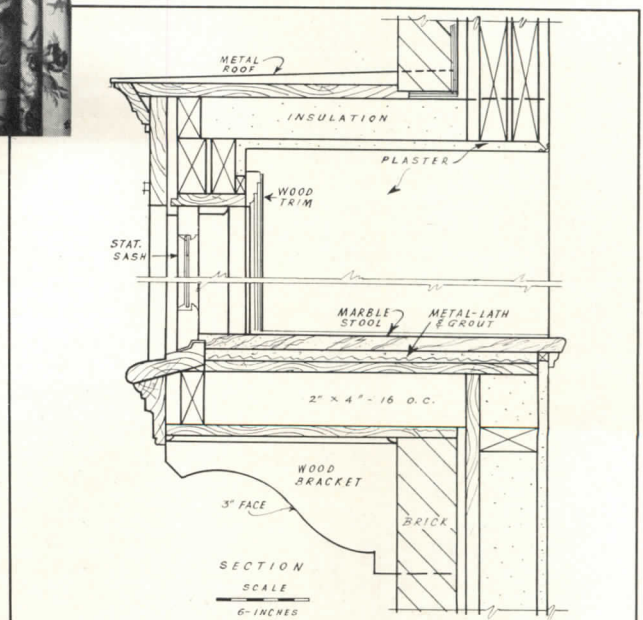


George Spinti, Architect

Marble is *practical* in ways that few other materials can match — *at any price!* Heat or cold have no effect on it. Dampness and water will not rot or rust it. Sunshine will not discolor it. Hard knocks seldom mar or disfigure it. Marble is the one intrinsically beautiful material which maintains its lustre and usefulness through years of hard wear.

And Marble is *economical!* Initially, it may be as expensive as other fine materials, but the savings in low maintenance it affords year after year by eliminating costly redecoration or refinishing, makes Marble one of the most economical of all construction materials.

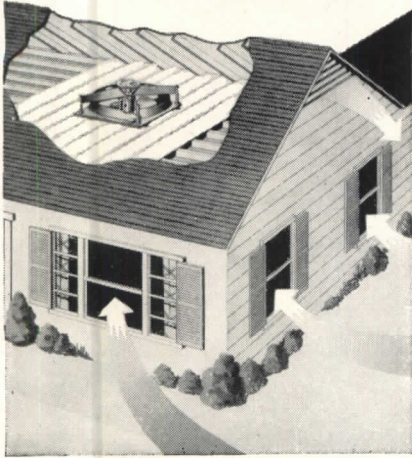
There are dozens of places in both residential and non-residential construction where Marble can be used with greater economy than any other material. Window stools, toilet partitions, shower stalls, entrance saddles and furniture tops are a few such uses. Many others are listed and illustrated in FREE LITERATURE quickly obtained by stating your needs when writing to:



MARBLE  NSTITUTE OF AMERICA, INC.

108 FORSTER AVENUE, MOUNT VERNON, NEW YORK

LOW-COST HOME COOLING IS HERE!



Easily installed attic unit gives cool comfort in hottest weather

No investment can give home owners as much comfort and pleasure as a Hunter Attic Fan. This modern convenience is now being used in thousands of houses and apartments throughout the nation. Low in initial cost and with no upkeep expense, the Hunter Attic Fan is practical for homes in all price ranges.

Installation of Hunter's new, compact package fan is simple and inexpensive. Fan, motor, suction box and shutter are all in one unit that requires only a ceiling opening in hallway and 18" clearance in attic. Four models, ranging from 4750 CFM to 9500 CFM, to fit any home size and climate. Quiet, powerful, dependable. Manufactured by Hunter, exclusive fan makers for 65 years.

Mail for Booklet

Hunter Fan and Ventilating Company
396 South Front Street,
Memphis, Tenn.

Send copy of "How to Cool for Comfort" to:

Name _____

Address _____

City & State _____

Hunter Package Attic Fans

On Display at NAHB Show

THE RECORD REPORTS

CANADA

(Continued from page 220)

According to David B. Mansur, president of the Central Mortgage & Housing Corporation, in an address reported at the Ottawa convention of the Community Planning Association of Canada.

The corporation offers three booklets of house designs free to would-be owners. Forty bungalows, one-and-a-half and two-story houses are illustrated. In 1949, 378,000 of these booklets were distributed, and from them 10,000 sets of plans were sold for the nominal sum of \$10 per set. Wives far outnumbered husbands as purchasers.

Mr. Mansur said that while regional tastes differed — the house most popular in Vancouver might not be wanted at all in Quebec, and vice versa — the ladies always picked the most economical, practical designs. "In fact," he said, "their selection of what's best coincides with that of the corporation's own experts."

Visiting British Architect Speaks at Toronto Dinner

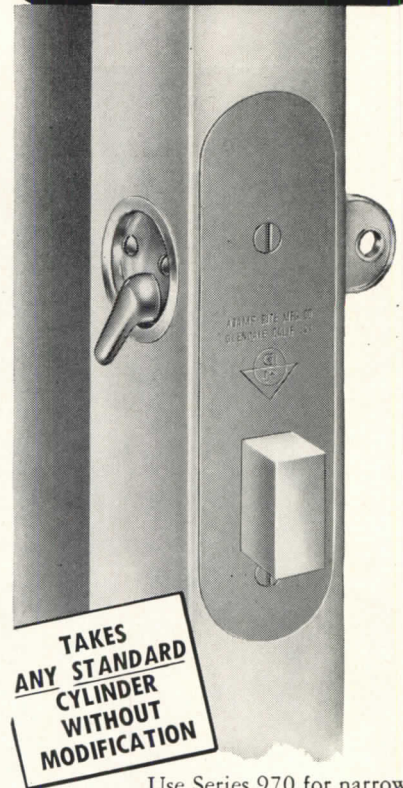
Sir Giles Gilbert Scott, recently in the news in connection with his restoration of the British House of Commons, was guest of honor at a dinner given by the Toronto Chapter, Ontario Association of Architects.

The modest, unassuming dean of British architects — looking far younger than his years and speaking with expressive gestures — told members that while he believes much modern work is empty and unsatisfying, the young architects of today are fortunate because for the first time since the Middle Ages, architecture is expressing group thinking. "I do not mean mass uniformity or some conformation imposed on society," he added. "I mean something more like a common ideal.

"Modern architecture has resulted from a revolution in thought and has started at zero. It still has not a big enough vocabulary. Change comes with revolution, but quality comes only slowly. However, I am tremendously hopeful about the modern style as time may be expected to bring increased quality. I tell my own son that he is fortunate to be a part of it."

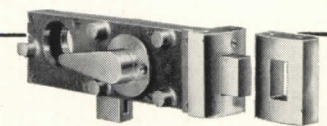
(Continued on page 224)

THIS ADAMS-RITE DEADLOCK HAS A 7/8" BACKSET!



TAKES ANY STANDARD CYLINDER WITHOUT MODIFICATION

Use Series 970 for narrow-extruded aluminum, steel or wood stiles. Depth is only 1-1/2". Will take 1 or 2 standard cylinders which can be keyed to job, or Adams-Rite Thumb Turn (as shown) for emergency one-side operation. Locks and turns are reversible. Fifteen other standard backsets to 1-3/4". Series 980 is identical except for 3/4" diameter, 5-pin tumbler cylinder and 15/16" backset. Rugged steel and brass construction, armored bolt with 5/8" throw. Bronze or aluminum face and strike. Radius, flat and bevelled face interchangeable. Write for complete data.



HORIZONTAL LOCKS FOR DOORS WITHOUT STILES

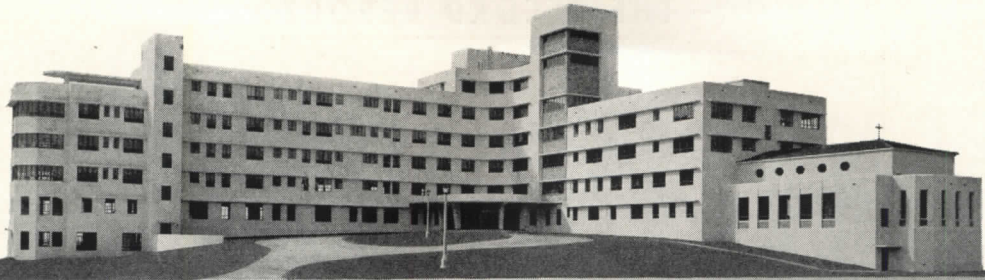
Takes the place of 2 locks. Has single or double bolts and 1 or 2 cylinders. Can be installed in any tempered glass door, top or bottom channel. Four sizes.

50TH ANNIVERSARY



1900-1950

ADAMS-RITE MANUFACTURING CO.
540 WEST CHEVY CHASE DRIVE, GLENDALE 4, CALIFORNIA, U.S.A.



Thorsealing can be Beautiful

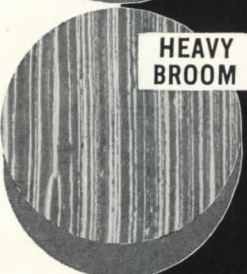
WHISK
BROOM



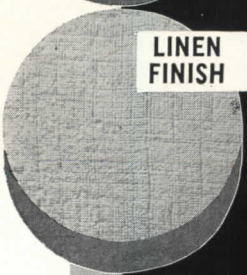
STIPPLED
FINISH



HEAVY
BROOM



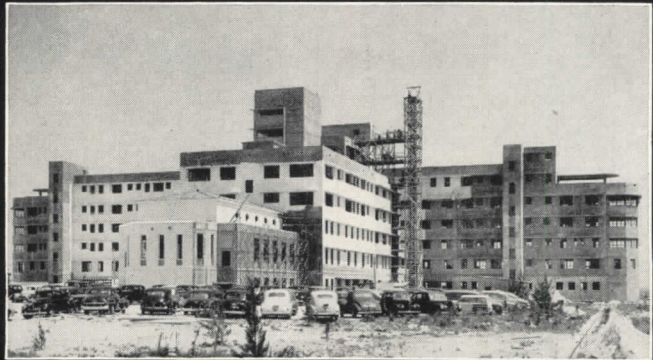
LINEN
FINISH



THOROSEALING gives to the architect and builder, aside from masonry protection, distinctive textures and the opportunity to present finish coats of QUICKSEAL, in sixteen beautiful tints, without reflection or glare.

ACTUAL PHOTOGRAPHS OF THOROSEAL TEXTURES

With very little effort, many distinctive textures can be produced by the workman with THOROSEAL.



Mercy Hospital, Miami, Florida. Commencing of THOROSEAL applications. Architect—Steward and Skinner, Miami, Florida. Contractor—J. Y. Gooch Co., Miami, Florida.

The finished THOROSEAL job is shown at the top of the page.

Complete Masonry Protection

Can be secured from foundation to roof with THOROSEAL.

Beautiful finish coats of QUICKSEAL can be secured without hiding the THOROSEAL texture.

WATERPLUG

To Stop Leaks

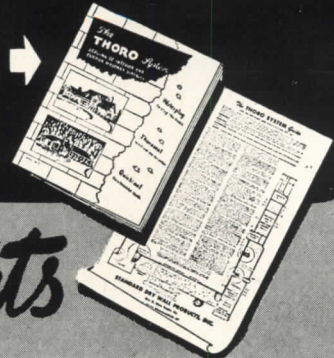
THOROSEAL

To Seal Surface

QUICKSEAL

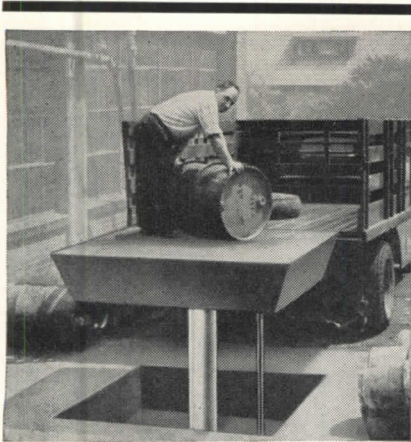
For Beautiful Finish

Write today for our new 20 page brochure 17-A and designer's wall chart.



Standard DryWall Products

NEW EAGLE PENNSYLVANIA



GLOBE LOADING LIFT

You can specify some real cost reductions for your industrial clients with this Globe Platform Lift. For plants and warehouses, it speeds-up loading and unloading... raises and lowers goods, in half the usual time, with half the work.



Eliminates need for ramps, gang-planks, up-hill hand trucking... saves costly hand-lifting... reduces injuries and breakage. Accurate Air/Oil or motor pump. Simple installation, inside or outside. Recesses flush with floor when not in use. Quickly pays for itself in time and work savings. Mail coupon today for specifications and complete details.

Whenever lifting or materials handling installations are involved, experienced Globe Lifting Engineers will be happy to offer suggestions or estimates. Mail coupon for New Illustrated Catalog showing Globe materials handling Lifts of all types.

MAIL COUPON TODAY

GLOBE HOIST COMPANY
1000 E. Mermaid Lane
Philadelphia 18, Pa.

Please send New Catalog A151 showing illustrations and specifications on Globe Loading Lift and other Globe materials handling Lifts.

Company.....

Name..... Title.....

Street..... City..... State.....

GLOBE HOIST COMPANY

Des Moines 6, Iowa

Philadelphia 18, Pa.



THE RECORD REPORTS

CANADA

(Continued from page 222)

Sir Giles is a man whose career, on superficial notice, might appear to be operating in reverse.

Winner when aged 20 of the competition for Liverpool Cathedral, largest building of its kind to be erected in many centuries, he is now, at 70, designing a small chapel. It will be at Trinity College of the University of Toronto. George & Moorhouse is the associated firm.



Aluminum Company of America Photo

Montreal pastry shop featuring glass and aluminum trim. Gabriel Jerry is architect

Construction Group Plans Awards for Student Theses

University talent should be encouraged to undertake research likely to benefit the building industry. So the Canadian Construction Association believes. It has set up three prizes to be awarded for the best theses on construction topics.

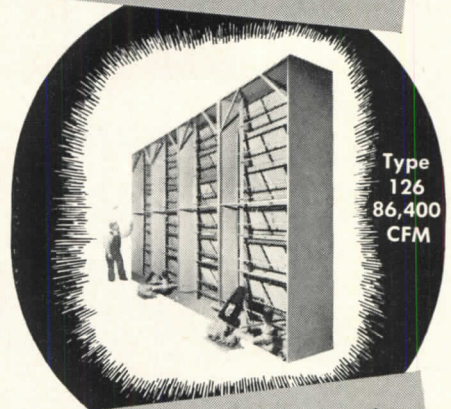
Contenders will be engineering students who, in their final year, must write theses as a condition of graduation. To win a prize a thesis may be on any aspect of building. It may, for instance, deal with new applications of electricity on a job site. Or improved structural design, handling of materials or chemical formulae.

Judging plans call for each university dean to submit the two theses he considers best to a C.C.A. examining board which will award the prizes. Amounts involved are \$300, \$200 and \$100. Only condition is that \$50 of each prize be used to buy technical books.

(Continued on page 226)

FAR-AIR*

offers you...

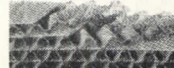


Completely Automatic air filtration!

FAR-AIR Self-Washing Filters are a sound and profitable investment. The many *plus* features engineered into each unit assure outstanding performance. For instance, cleaning and re-oiling at the proper time for peak efficiency is controlled automatically, which virtually eliminates all maintenance except for periodic inspections. Other features include the prevention of oil entrainment, elimination of messy oil sumps (water and dirt are quickly flushed away), automatic fire control and ease of installation.

FAR-AIR Self-Washing Filters are adaptable to most air cleaning uses because they will handle any CFM requirement. The Farr Company engineer near you will be glad to suggest an installation to meet your specific problem. Complete literature is available upon request. Write Farr Company, 2615 Southwest Drive, Los Angeles 43, California.

FAR-AIR FILTERS



"Better by Farr"

*Trade Mark Reg.

FARR COMPANY

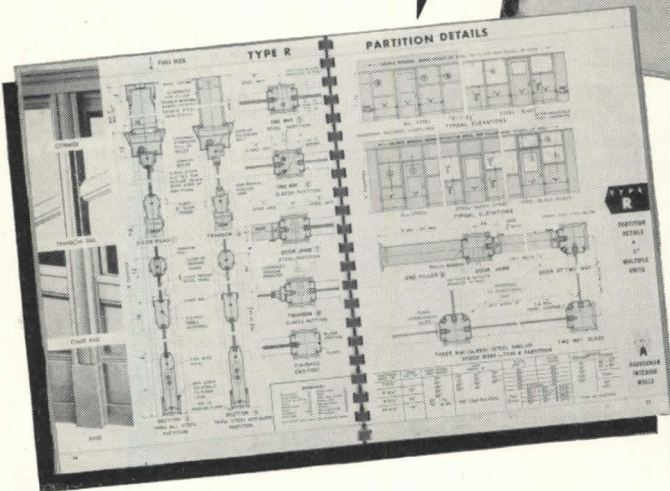
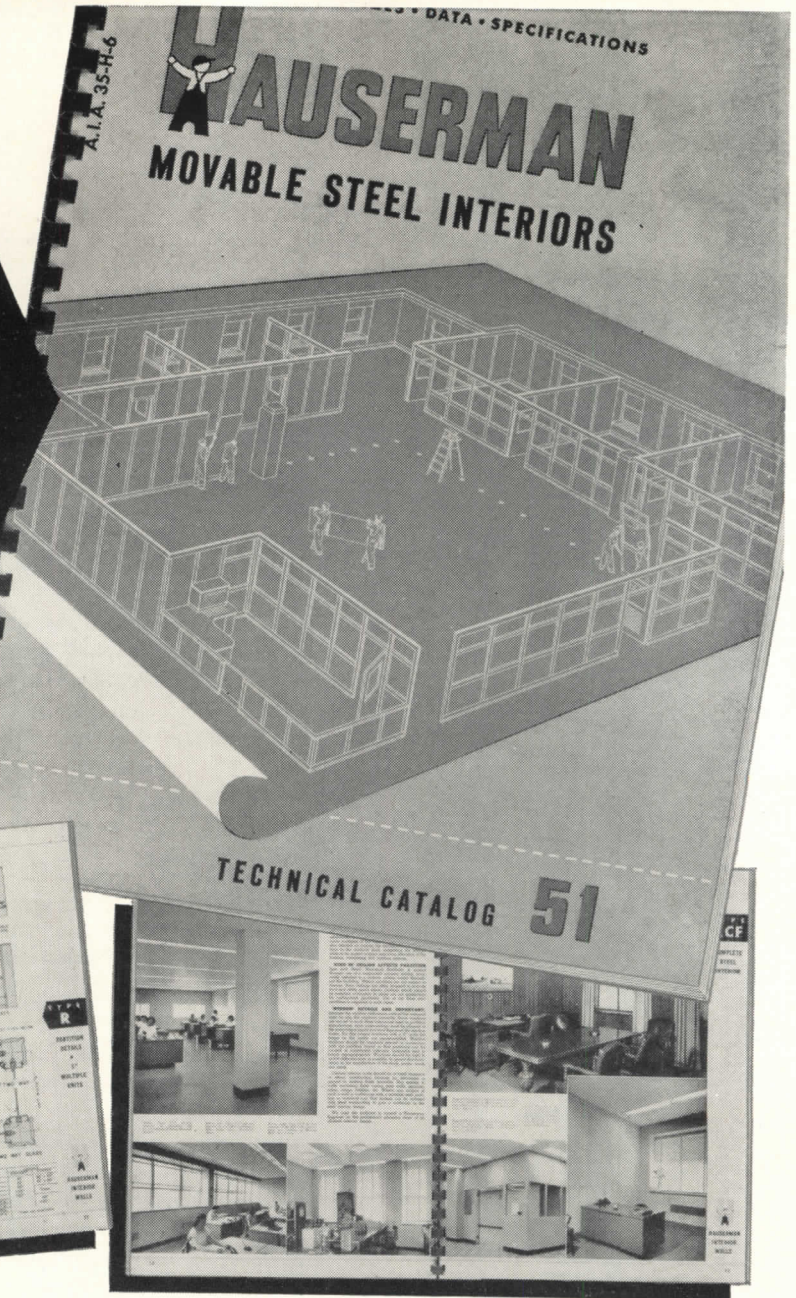
Manufacturing Engineers

Los Angeles • Chicago • New York

Mfd under license by

Control Equipment Co., Ltd., Montreal

**You'll want
these facts
for your
files!**



Send for your 1951 Hauserman Catalog now!

This new 1951 Hauserman Catalog is packed with technical information on Hauserman *Movable Steel Interiors* for every type of commercial, industrial and institutional building.

Contents include all wall types and their various uses; installation and technical data; sectional drawings; installation photographs and a wealth of other essential information.

This new 1951 Catalog, plus the help of



Hauserman personal engineering service in *your* office, makes it easy for you to specify Hauserman *Movable Steel Interiors* . . . the most modern interiors available.

Send for Hauserman Catalog 51 today. The E. F. Hauserman Company, Home Office, 7151 Grant Avenue, Cleveland, Ohio. Branch Offices in Principal Cities. See "Partitions" in your classified telephone directory.

ORGANIZED FOR SERVICE NATIONALLY SINCE 1913

PARTITIONS • WAINSCOT • RAILINGS • COMPLETE ACCESSORIES

THE E. F. HAUSERMAN CO.
7151 Grant Ave., Cleveland 5, Ohio

Please send me your new Hauserman Technical Catalog 51.

Name

Title

Company

Street

City State

**USE THE
WORLD'S BEST
at
NO EXTRA COST**

1. CASTELL DRAWING 9000
2. CASTELL LOCKTITE REFILL HOLDERS 9400—Black or Colored
3. CASTELL IMPORTED REFILL LEADS 9030

These encompass every mood of genius for drawing, drafting, tracing, sketching, blueprinting, etc.



• Premium products at regular prices. See your dealer today.

AW FABER-CASTELL
PENCIL COMPANY INC. NEWARK, N.J.

THE RECORD REPORTS

CANADA

(Continued from page 224)

I.L.O. Committee Studies Shelter for Oil Workers

International Labor Office, Geneva, reports that 14 major petroleum-producing countries, including Canada, are tackling the problem of shelter as it affects the world's oil workers.

A subcommittee of the I.L.O.'s Petroleum Committee is considering the merits of temporary versus permanent housing, the provision of pure water supplies, roads, ventilation, refrigeration and insect control.

Also to be studied are the kinds of accommodation needed and the rentals to be charged, if any. Other matters: should the dwellings built by oil companies remain their property or should ownership by workers be encouraged? Should housing projects be located in separate areas or near centers of population?

Engineers Volunteer for Civil Defense Planning

A central advisory committee has been formed by the Association of Professional Engineers of Ontario to help the provincial government with its civil defense planning.

Chairman is K. F. Tupper, dean of the faculty of applied science and engineering, University of Toronto. Mr. Tupper formerly was director of the engineering division of the atomic research project at Chalk River. There are eight other members.

Col. T. M. Medland, executive director of the Association, will act as secretary.

Building Materials Tight

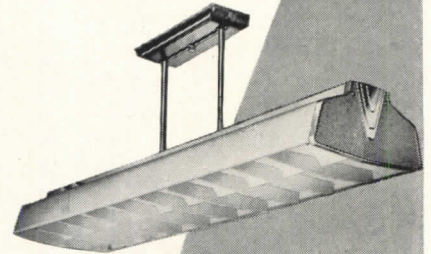
Lumber Supply is fair to poor, reports the Toronto Purchasing Agents' Association. Brick and tile, wallboards, nails, wire, metal lath and plywood are extremely short. Cement demand continues far in advance of availability. Likewise rigid conduit and certain other electrical items.

Raw materials in the paint and varnish category are increasingly hard to get, and aluminum and copper have joined steel in the critical metals category.

(Continued on page 228)

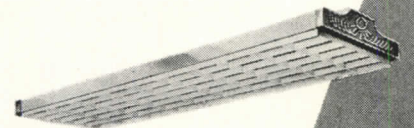


**COMPACT
and USEFUL**

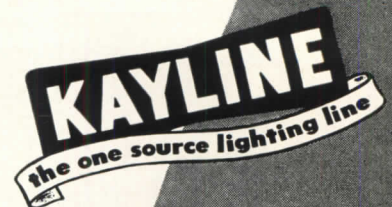


Yes, Compact and Useful, that's the way architects are describing the new 64-page Kayline Catalogue #50. You too, will find this catalogue, covering our full range of incandescent, fluorescent and slimline, residential, industrial and commercial lighting, useful to you. Send for it today.

See Sweet's Architectural File Section 31A-12



THE KAYLINE CO.
2480 East 22nd St.
Cleveland, Ohio



American Blower—a time-honored name in air handling



In New Orleans, as in other cities, American Blower Air Handling Products serve commerce, industry and public utilities. For air handling data in New Orleans, call American Blower—Raymond 5936. In other cities, consult your phone book.



Look before you buy. Comparison tests prove the superiority of American Blower Products. There's a big difference in quality, design, quietness, operating costs and efficiency between American Blower and other air handling equipment.

Air is free . . . use it profitably!

AS AN architect, we believe you'll be vitally interested in these two facts:

- (1) Modern air handling equipment averages less than 4% of the total cost of a building.
- (2) Yet its use saves millions each year in many industries . . . actually adds millions to profits in others.

Building better equipment for handling air and putting air to profitable use has been American Blower's business since 1881.

When you specify American Blower Air Handling Products, your clients get equipment which is built by a reputable manufacturer with a background of more than 69 years' experience—equipment which is tested and rated in accordance with the Standard Test Code as adopted jointly by the N.A.F.M. and the American Society of Heating and Ventilating Engineers. All ratings are Certified.

If you consider the merits of the air handling equipment you are about to specify in the light of these advantages, we're certain you'll agree that American Blower offers more value per dollar invested.

Phone our nearest branch office for data.

AMERICAN BLOWER CORPORATION, DETROIT 32, MICHIGAN
CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONTARIO

Division of AMERICAN RADIATOR & Standard Sanitary CORPORATION

YOUR BEST BUY

AMERICAN BLOWER

AIR HANDLING EQUIPMENT

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

Here's help in
Specifying

EMERGENCY ELECTRIC POWER!

SEND FOR
THIS FREE BOOKLET



Model 10EL
10,000 watts

● Our special folder on Emergency Electric Plants contains helpful information on computing wattage requirements of standby systems, engineering and installation details. Complete specifications of Onan Emergency Electric Plants are included.

We also offer free engineering service on problems involving standby electricity. Write us on any question. There is no fee or obligation.

Onan Builds Standby Plants for any Type of Building
Many sizes—1,000 to 35,000 watts, for hospitals, radio stations, hatcheries, schools, industrial plants and many others.



Send coupon today

D. W. ONAN & SONS INC.
5147 Royalston Ave., Minneapolis 5, Minn.

Please send Standby Folder.

NAME _____

ADDRESS _____

CITY _____ STATE _____

THE RECORD REPORTS

CANADA

(Continued from page 226)

Some declines are reported as a result of freeing the Canadian dollar but "unless purchasing power is reduced, the pressure on the decreased supply of goods will force prices up, with corresponding wage demands following in the usual pattern."

British Festival Hall Arches Made of Canadian Douglas Fir

The biggest arches of their kind ever constructed in Europe may be made of Douglas fir from Canada.

The British Columbia Lumbermen's Association presented 47 tons of Douglas fir to be turned into laminated arches to roof the main exhibition building at the 1951 Festival of Britain.

The arches, believed to be the largest of their type in European construction history, are shaped like parabolas. Each weighs four and a half tons, is 60 ft high and has a span of 100 ft.

The great arches will create the first impression of the Festival gained by most visitors, since most must enter through this building.

British Columbia has also donated the huge flagpole which will dominate the London exhibition. Of the finest Douglas fir, it is 108 ft high and weighs seven tons.

Edmonton Cited as Leader In Town Planning Field

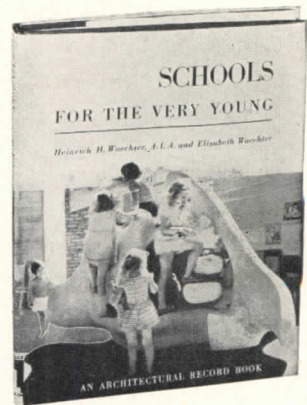
Edmonton, Alberta, is one of the most progressive cities in Canada in the field of town planning. So claims Walter Bowker, in charge of the National Capital Plan display now on cross-country tour.

"Edmonton is in some ways further ahead than we are," he states. "Quebec is the only other city besides Ottawa with plans as far advanced."

Formal approval has been given by the city council for erection of a \$3.5 million, 500-unit housing scheme in southeast Edmonton. A 25-acre site has been sold to Alvin Enterprises of Montreal for \$75,000. The development will be the largest and most costly single undertaking of its type ever to be launched in the prairie provinces.

Schools for the Very Young

by HEINRICH H. WAECHTER, A.I.A.
and ELISABETH WAECHTER



THOUGH many volumes have been written about school design, "Schools for the Very Young," a brand new book just off the press, is — so far as we know — the first in which an architect and a child educator have collaborated to provide an up-to-date treatise on the requirements of the particular type of school demanded for the proper training of the very young child.

Beginning with a brief yet adequate historical and philosophical background, in which the development of the theory and practice of child education is discussed, the book goes on to describe the pre-school in action, noting the events of the school day and the corresponding environmental needs of the children and their teachers. Examples of existing pre-schools are presented with critical comment. Detailed information is given concerning the space apportionments and arrangements called for by the activities peculiar to such institutions. Since one of the authors is especially concerned with city planning, the relation of the pre-school to its neighborhood and community is analyzed, and the many different types of pre-schools that have developed to meet special conditions are enumerated and explained.

The outdoor space and its proper equipment are thoroughly covered from the standpoint of a capable architect who has given much thought to the problem. Technological problems of construction, lighting, ventilation, mechanical equipment, etc., are scrutinized in the light of the most recent practice. A wealth of illustrations add both interest and information, and a selective bibliography will aid further study.

You can be among the first to have a copy of this new book by placing your order now. 208 pages, 7 $\frac{3}{8}$ x 10, stiff binding. Price \$6.50.

Book Department, *Architectural Record*
119 West 40th Street, New York 18, N. Y.

Enclosed is \$_____ for _____ copy(s) of "Schools for the Very Young" by Heinrich H. and Elisabeth Waechter at \$6.50 per copy. (Add 13¢ for N.Y.C. delivery — \$6.63.)

Name _____

Address _____

City _____ Zone _____ State _____



✓ **FIRST** in architect and engineer circulation.

Among all publications reaching the building market, Architectural Record has the largest architect and engineer circulation. Architectural Record also has the highest subscription renewal percentage of any architectural magazine.

This clear-cut picture of coverage leadership results in large measure from the exclusive facilities of F. W. Dodge Corporation—providing demonstrated coverage of building planning and specifying activity—regionally, nationally, and by types of building.

Start your program for 1951 by making Architectural Record the “pivot paper” on your building products lists. We’ll be glad to supply you with any details you need to help your planning. Just call the nearest Record office.

and you’ll use

Architectural Record

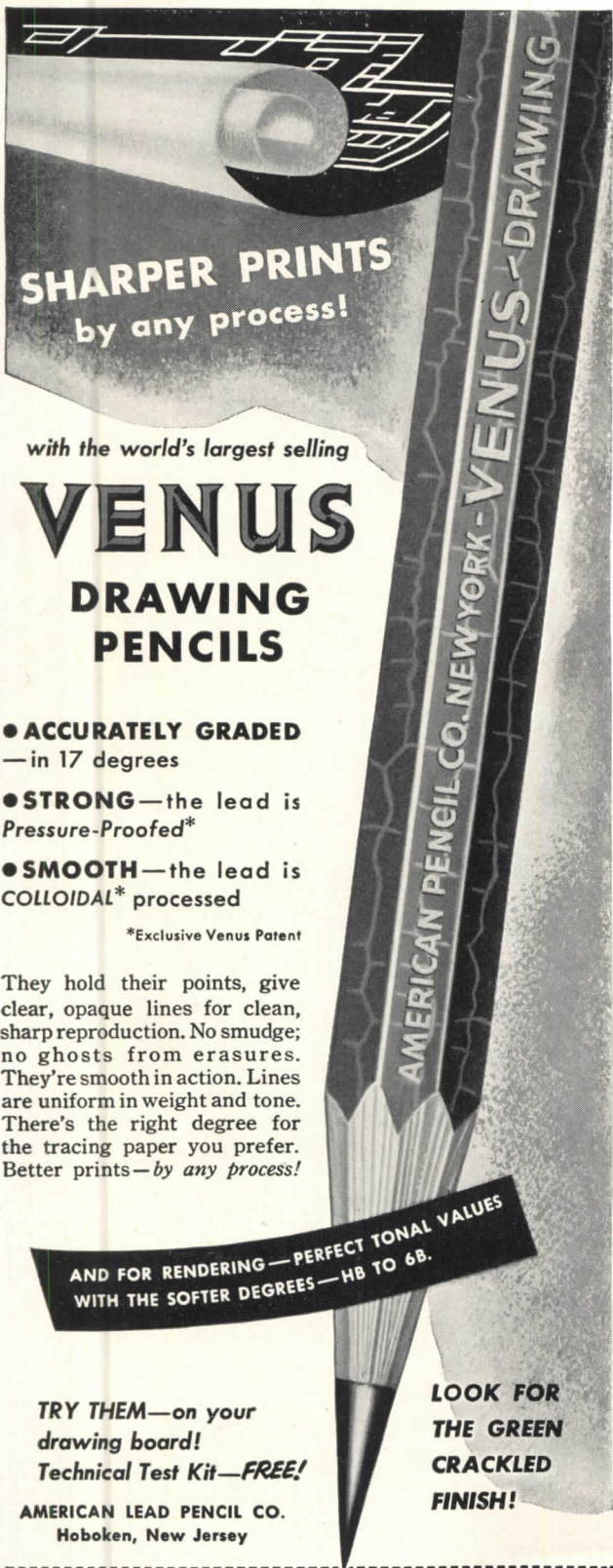
“workbook
of the
architect-engineer”

- ✓
- first** in architect and engineer circulation
 - first** in preference among architects and engineers
 - first** in number of advertisers and volume of advertising
 - first** in architects and engineers reached per dollar

published
by



119 West Fortieth St.
New York 18, N.Y.
LOngacre 3-0700



SHARPER PRINTS
by any process!

with the world's largest selling

VENUS DRAWING PENCILS

- **ACCURATELY GRADED**
— in 17 degrees
- **STRONG**—the lead is
*Pressure-Proofed**
- **SMOOTH**—the lead is
*COLLOIDAL** processed

*Exclusive Venus Patent

They hold their points, give clear, opaque lines for clean, sharp reproduction. No smudge; no ghosts from erasures. They're smooth in action. Lines are uniform in weight and tone. There's the right degree for the tracing paper you prefer. Better prints—*by any process!*

**AND FOR RENDERING—PERFECT TONAL VALUES
WITH THE SOFTER DEGREES—HB TO 6B.**

**TRY THEM—on your
drawing board!
Technical Test Kit—FREE!**

AMERICAN LEAD PENCIL CO.
Hoboken, New Jersey

**LOOK FOR
THE GREEN
CRACKLED
FINISH!**

American Lead Pencil Company Dept. No. AR1-51
Hoboken, New Jersey

Please send me free *Technical Test Kit* featuring two Venus Drawing Pencils—in these degrees: () ().

NAME _____

COMPANY _____

STREET _____

CITY _____ STATE _____

EMPLOYMENT OPPORTUNITIES AVAILABLE

Advertising rates on request

Positions Open

ARCHITECTURAL DRAFTSMEN: able to develop working drawings without guidance. Experience necessary. Principally schools and hospitals. Location Kansas City. Pleasant working conditions. Salary dependent on ability to produce. Submit all qualifications including training, experience, sample of drafting, and starting salary required. Box 520, *Architectural Record*, 119 W. 40th St., New York 18.

ARCHITECTS and Squad Leaders for immediate employment in our Omaha and St. Louis Offices. Give full particulars, including experience, education and salary requirements. Leo A. Daly Company, 633 Insurance Bldg., Omaha, Nebr.

"Marcel Breuer: Architect and Designer"

... the fascinating life story of the great contemporary architect, Marcel Breuer, as told by Peter Blake, Curator of Architecture and Design, Museum of Modern Art.

This book, replete with actual reproductions of Breuer's work, will strike a responsive chord in the heart of every architect and designer; it is a book that will instruct and inspire you, and one which you will be proud to own. 196 illustrations, 128 pages. Stiff cloth binding. Price \$4.00.

Address your order to Book Department, *Architectural Record*, 119 West 40th Street, New York 18, New York.

STOP *that* WATER *with* FORMULA # 640

A clear liquid sealer which penetrates deeply into masonry surfaces.

The hydrocarbon solvent in Formula No. 640 evaporates, leaving the pores filled with a balanced formula of seven different waxes and resins.

For complete specifications and a description of our other products—cement hardener, floor mastic, rubberized enamel, foundation coating, plaster bond, etc.—see our catalog under "Waterproofing and Dampproofing."

WRITE OUR ENGINEERING DEPARTMENT for office test kit, technical data, or regarding any special problem

J. Wilbur Haynes, Engineer

HAYNES PRODUCTS CO.

4007 FARNAM STREET • OMAHA 3, NEBRASKA

