ARCHITECTURAL RECORD

9

September 1961

Idlewild feature

The Hartford Building, Chicago

Building Types Study: Hotels-Motels

Full Contents on Pages 4 & 5
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Architectural Engineering

ENGINEERING AT IDLEWILD:

AIRCRAFT MAINTENANCE AND SERVICE FACILITIES 180
Idlewild is a compendium of engineering techniques. A report on some of these techniques, as applied to hangars and auxiliary buildings for servicing aircraft.

AIR CARGO FACILITIES 184
Idlewild is an airport for cargo, as well as for people. An examination of the engineering of its air cargo center facilities.

TECHNICAL HIGHLIGHTS 186
Idlewild is filled with engineering accomplishments in structure and systems. Selected examples give an indication of the range of these accomplishments.

PASSENGERS AND BAGGAGE 189
Idlewild devices for the handling of passengers and their baggage are numerous and varied.

BUILDING COMPONENTS 195
Shielded Rooms for Electronic Equipment
Electronic equipment in hospitals, military installations and industry whose operation is disturbed by extraneous radio waves is being shielded by panelized enclosures.

PRODUCT REPORTS 197

OFFICE LITERATURE 198

Cover:
The master plan of N.Y. International Airport familiarly called Idlewild.

Advertising Index 320

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Architects and Buildings

BRUNE, WALTER. Country House, Alasce, France ........127
CHURCHILL, CHESTER L. Eastern Air Lines Terminal, International Airport, New York City ..........175
CURTIS AND DAVIS, Charterhouse Motor Hotel, Lymn, Mass. ..........140: Hotel, British West Indies ........142
GRÜENER, VICTOR, ASSOCIATES. Charterhouse Motor Hotel, Anahiem, Calif. ........144
KAHN AND JACOBS, American Airlines Terminal, International Airport, New York City ..........170
PEL, LM., ASSOCIATES. Multi-Airlines Terminal, International Airport, New York City ..........168
SAARINEN, EERO, AND ASSOCIATES. Trans World Airlines Terminal, International Airport, New York City ..........162
SKIDMORE, OWINGS & MERRILL. Hartford Building, Chicago ..........172; International Arrivals and Airline Wing Buildings, International Airport, New York City ..........175; United Air Lines Terminal, International Airport, New York City ..........172
TABLER, WILLIAM B. Buenos Aires Intercontinental Hotel, Argentina ..........133; Conde Beach Hotel, Southampton, Bermuda ..........135; Karachi Intercontinental Hotel, Pakistan ..........134; Puente Intercontinental Hotel, Ponce, Puerto Rico ..........153; Marriott Motor Hotel, Balboa Cynwyd, Pa. ..........139
TIPPERTON-ABBOTT-MCCARTHY-STRATTON. Pan American World Airways Terminal, International Airport, New York City ..........165
WESTON, EUGENE, JR. Islandia Hotel, San Diego, Calif. ..........146
WHITE AND MARIAN, Northwest, Northeast, Braniff Airlines Terminal, International Airport, New York City ..........178
YOSHIMURA, JUNZO. Hotel Kowaki-en, Hakone, Japan ..........148

Authors and Articles

CRAIG, JAMES S. "The Architect's Role in Hotel-Motel Design" ..........131
HUNT, DUDLEY, JR. "How Idlewild Was Planned for the Jet Age"
"SHIELDED ROOMS FOR ELECTRONIC EQUIPMENT" ..........135
Features

IDLEWILD—NEW YORK INTERNATIONAL AIRPORT 151 A complete report on the great complex, its planning, architecture, and the engineering of its structures and systems for passengers, cargo, service, and maintenance. The significance of Idlewild and its lessons in current professional philosophy and practice

NEW PATTERN FOR A TALL BUILDING 121 In exploiting the formal characteristics of a multi-story flat slab structure, SCM comes up with a bold, graceful, and unusual expression for Chicago's newest high-rise office building

A MANY-TERRACED VILLA IN FRANCE 127 Walter Brune makes the most of magnificent views of the Alsatian vineyards in a hilltop country house

Building Types Study 298: Hotels-Motels

THE ARCHITECT'S ROLE IN HOTEL-MOTEL DESIGN 131
An interview with James S. Craig, vice president of the Hotel Corporation of America, Staff Services Planning Division

PLANNED FOR HIDDEN ECONOMY: FIVE HOTELS-MOTELS BY W. B. TABLER 133
1. Buenos Aires Intercontinental, Argentina 133
2. The Carlton Beach, Bermuda 135
3. Karachi Intercontinental, Pakistan 136
4. El Ponce Intercontinental Hotel, Puerto Rico 138
5. Marriott Motor Hotel, Philadelphia 139

FLEXIBLE, EXPANDABLE MOTOR HOTEL ON A TIGHT BUDGET 140
Curtis and Davis provide all the comforts for $15.00 per square foot in Lynn, Mass. Motor Hotel

ADAPTABLE PROJECT FOR BRITISH WEST INDIES 142
Basic hotel elements designed by Curtis and Davis combine in a variety of ways to meet different site requirements and to allow for changing needs

GOOD SITE PLAN MAKES PARKING CONVENIENT, BUT NOT OBTRUSIVE 144
A recently completed motor hotel by Victor Gruen in which guests are effectively separated from their cars

WELL-DESIGNED HOTEL CONFORMS TO A NEW SET OF RESTRICTIONS IN SAN DIEGO'S MISSION BAY AREA 146

A JAPANESE MOUNTAIN RESORT 148 Designed by Yoshimura to meet the needs of both Japanese and Western travellers
Coming in the Record

ARCHITECTURE NOT FOR FASHION

The work of Edward Larrabee Barnes is characterized by a personal modesty rarely found in combination with so high a degree of intellectual and visual creativity. His buildings are inventive as well as sensitive in their responses to purpose and place; but they perceive the client rather than asserting the architect. A major presentation of significant examples of his current work may suggest the creative result possible from the highest architectural expression of the will, not of the architect, but of the client.

HOW ARCHITECTS DESIGN VALUE INTO SCHOOLS

Isn't the budget always a problem (whether admittedly "minimum" or not)? And doesn't the architect spend the most significant part of his effort to produce the highest possible quality at whatever budget level? Next month's Building Types Study on Schools will provide impressive testimony to the architectural results of such efforts, and some encouraging indications of the triumphs of technological innovation, architecturally applied, in the solution of contemporary school planning problems.
Magnificent is the word for McCormick Place... the largest and finest exposition center in the world. Larger than the Coliseum of ancient Rome... designed by twentieth century experts and built with the latest and best of building materials to endure longer than the Pyramids of Egypt. Because of the lakefront location special attention was given to the selection of products to be used to waterproof and vapor-proof this outstanding structure. We are justifiably proud that the Sealight Products (left) were used to provide this important protection against moisture migration. McCormick Place is now one more of the thousands of important architectural structures that have been moisture-protected with Sealight products.
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Precast Concrete Curtain Walls and Column Covers—The problem here was to design a building in harmony with the Tudor Gothic of the upper campus. Precast concrete curtain walls made with Trinity White portland cement were selected. The fins are white cement and quartz; the interior of the diamond is white cement and very coarse aggregate mixed with orange-colored crushed glass; the column covers and end walls are coarse aggregate with the matrix tinted slightly to a tan. Precast exposed aggregate concrete (Mo-Sai) by Olympian Stone Company. Wick Construction Company, General Contractors. Harmon, Pray & Detrich, Architects.
Recognition for Engineers

We were regretting (this space, last month) the almost disdainful response of young architectural professors to the call of technology in the training of architectural students. The real point in it all is that we need better technology in building design than we commonly get. Nobody is specifically trained for the technical or engineering problems of building design—not architect, nor engineer.

Not engineer, not architect. If a young man were to feel an urge to study building design in the technical sense, he would be pretty well barred from advancing his ambitions in our current college curricula. If he were in architectural school, he would have to concentrate so heavily on aesthetic design that, unless he were really gifted there, he would not be able to graduate from an architectural course. If he were an engineer, say electrical, he would have to study motor-generator design, transmission systems, electronics, and what not. He would probably get smart and go into missile programs.

The result of this, as Robert Hastings, of Smith, Hinchman and Grylls, has pointed out, is that we don't offer much recognition either to the "architect-engineer" or to the engineer interested in buildings; we lose that kind of lad to other professions. We are not offering good enough attractions to engineers to attract them to building design either before or after their schooling.

The point is enforced, indirectly perhaps, by Clinton Gamble, A.I.A., in a letter of transmittal for his little piece (to come) on how his office has used architectural and engineering draftsmen interchangeably (to a certain extent.) He writes:

"... There are still some kind of built-in antagonisms in the engineering designers. When I try to pinpoint it I find it goes on even between the designers themselves. You see, basically I have an idea the design of mechanical equipment is a matter of making a lot of personal empirical decisions. Even the catalog information winds up being in this category. So a fierce personal defense by the designer is constantly necessary. I feel like an innocent bystander caught in a gun battle between rival mobs. Probing this matter deeply in the pages of the RECORD would very likely lead to bloodshed...

"My point is, of course, that we have moved so rapidly into the extensive mechanization of our spaces that we have borrowed a lot of engineering services from other fields, not building oriented. When we get mechanical designers who only know how to work exclusively on building problems perhaps they will feel comfortable enough in this environment to not be constantly antagonized by the interference and probing of laymen like myself. This cannot happen over night but I'd like to think our small changeover in our own office is a small step in the right direction."

Well, I doubt if bloodshed is imminent. But Gamble's comment does highlight the need for attention to the technical problems of building design, among both architects and engineers. His plan of attack is to get architectural and engineering draftsmen working together. But maybe a little recognition wouldn't be a bad idea.

—Emerson Goble

ARCHITECTURAL RECORD September 1961
Speaking of Architecture

WHY AREN’T ARCHITECTS PLANNING U.S.A. INSTEAD OF MONUMENTS?

Architect Edward Durell Stone Asks a Big Question
In Interview with Architectural Student Jonathan Barnett

Are you supposed to ask me questions, or can I just start with something that has been on my mind for a long time [Mr. Stone began]?

Go ahead, by all means. What I would really like to do is indulge in a little simple arithmetic. It seems to me that an architect is not entrusted with any important works until he is about fifty. Maybe there are some exceptions to this; but, in general, architecture is just not a young man’s profession. It belongs to the men who are, say, between forty-five and sixty-five. There are just about twenty years when people trust you enough to let you work with large sums of money—and all building projects today involve millions of dollars, no matter how innocent they seem in the beginning.

So let us say you have twenty years. Now I think of the architect as a creative person. I think that ideally his buildings should bear his stamp and signature. Buildings have grown so complicated technically, and involve so many consultants, that it seems to me it would be difficult for such an architect to account for more than two or three buildings a year.

So that in twenty years’ time you might do fifty buildings.

To me, that seems a very modest attainment, measured against the tremendous volume of building done in this country. What I’m leading up to is that buildings have become so demanding of the architect’s time that, as the years go by, the architect is becoming less and less accountable for the overall building of our country.

At some juncture architects have to reflect on their destiny. They must decide whether placing potential masterpieces in the midst of chaos and disorder—as you must acknowledge most of our cities are—is the career that they had bargained for.

We are turning out bits of consumer goods for a prosperous society which refuses to face any of the important issues of planning.

I’m not chronically a pessimistic person; in fact I’m constitutionally more a Pollyanna type: but these are the stern realities.

With private ownership of property it is very difficult to make drastic changes. We have dropped 50 million automobiles into cities that were planned for the horse and buggy. Without some drastic overall planning, our living conditions will continue to get steadily worse, instead of improving. Twenty years from now we may find that our cities are obsolete.

The skill of individual architects in Russia is not what ours is, and never has been—traditionally. Nevertheless, working on the plan for rebuilding Moscow alone there are thirteen divisional offices, with 200 architects in each. This is the kind of work I think architects here should be doing.

But, as you say, it is difficult to produce such sweeping changes in a democratic society. How could such reforms be accomplished here?

I hope that this could be accomplished by education and the willingness of communities to establish high standards of excellence that would combat the negative forces. And I think that, first of all, the government has to be made to see this.

Then you would support the proposal for a Department of Urban Affairs?

I think that such a department will have to be. I’ve thought about this for a long time. We don’t seem to realize that what is built is an enormous part of our national wealth. I’ve always said that the Department of Agriculture would be a good prototype. Look at the progress in contour plowing and flood control we have had in the last generation. We should have a similar educational force to guide the planning, the physical destiny, of our whole country.

I think this is very important. The situation is desperate. In my time I have seen Long Island ruined, it used to be a park. Cape Cod used to be a reminder of our past, but anything is considered progress as long as you can turn a fast buck.

If you keep your eyes open as you travel across the country, you see how ugly, how pathetically ugly, everything has become. And it hasn’t taken us long to get it that way.

All these things point out the futility of architecture as we practice it today. You might, if you’re lucky, produce a great building. In the meantime, the country is a shambles.

What about the theory that modern architecture would reestablish a vernacular, and thus restore the vitality of all building?

The office building is now in a pretty well-formulated vernacular. Are you very encouraged by that?

But couldn’t you say that the architect’s job is to develop prototypes?

I used to think that was what we were doing; but when you see the debasement of these ideas by commercial approximations of them—why, they look pretty depressing.

I’ve about given up the idea.

How then would you define the architect’s task?

I think that as informed observers it is beholden to us to point out to our communities and to the Federal Government the shambles that we have, to try to make everyone else see as we do.

I think the architects and planners and landscape architects of each state should be retained by the Federal government to undertake the planning of each state: its villages, its towns, its cities. We always build in this country as if we were tenants. Now we have to husband our resources, we have to think of future generations. We need plans, overall plans, that anticipate 50 or a 100 years of growth.

I think that too often architects are engaged in a game among themselves. It is a delightful game, to try and find new and unusual and beautiful things; but we aren’t working on fundamental problems of real concern to the future of our country.
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WINNERS ANNOUNCED IN
THIRD ANNUAL MASTIC TILE COMPETITION

Winners have been selected in the Third Annual $25,000 Architects' Competition sponsored by the Mastic Tile Division of the Ruberoid Company.

Extending the concept of two previous competitions which were concerned with housing, educational and recreational facilities for middle-income families, the third competition called for the development of hospital facilities on the same project site devoted to the community educational-recreational plant. "Long-Range Planning for the Medical Care Facilities in the Community" was the 1961 theme.

The program asked development of a coordinated hospital system on the general framework formulated by the U.S. Public Health Service. Suggested was consolidation of the community clinic with the rural hospital to form a suburban general hospital. This would be expanded into a larger district hospital with full complement of specialty services and staff teaching programs.

Jury panel head was E. Todd Wheeler, F.A.I.A., director of hospital planning, Perkins and Will, Chicago, and chairman of the A.I.A. Committee on Hospitals and Health. Other jury members were: Donald S. Nelson, F.A.I.A., Broad and Nelson, Dallas; Donald E. Neupane, A.I.A., Neupane & Thomas and Associates, Pasadena, Calif.; James J. Souder, A.I.A., Kiff, Coleen, Voss and Souder, New York; Ray E. Brown, director of the graduate program in Hospital Administration, University of Chicago. Professional adviser was A. Gordon Lorimer, F.A.I.A., New York.

Two categories of prizes were awarded. All 100 qualified entries were eligible for national awards with a special group of prizes for students. For the first time a major prize was won by a group of students. Shown on these pages are the national grand, second and third prize winners. $500 national merit awards went to: Miller Edward Gerardy and Richard W. Cramer, Oklahoma State University; Masao J. Itabashi and Harutun Vaporsian of Smith, Hinchman & Grylls Associates, Inc., Detroit; Pacifico Balcalzo and Borivoj Rieb of A. Epstein & Sons, Inc., Chicago; Marvin Berman and Stanley S. Kogan of Berman & Kogan, Los Angeles; Alan Bentley Glass, Forrest L. Johns and David M. Griffin, Oklahoma State University; Ted Granzow of Skidmore, Owings & Merrill, New York, Robert D. Guss Jr. of Edward Durell Stone, New York, and Dellas H. Harder, Ohio State University.

The $2000 first student prize winner is also shown. $1000 second prize went to Miller Edward Gerardy and Richard W. Cramer, Oklahoma State University; $500 third prize, to Don Dommer and Gordon Kowall, North Dakota State University; $250 merit awards to: Stanley E. Abercrombie Jr. and John M. Ellis, M.I.T.; Blythe S. Brewster, Pratt Institute; John L. Lawler, University of Minnesota; William E. Pedersen Jr., University of Minnesota.

$10,000 Grand Prize: Victor A. Cusack and Ronald Meza of Charles J. Luckman Assoc., Beverly Hills, Calif., and James S. Moore of Medical Planning Assoc., Beverly Hills. "A well-conceived, well-balanced plan for hospital operation and economy of hospital construction, relating well to present services and those to be added in future... expresses the suburban quality called for"
$5000 Second Prize: Jimmy W. Bruza, James F. Knight, James S. Daley and William C. Watson Jr., Oklahoma State University. “One whose concept captures the best of accepted hospital planning received, with an architectural approach, technique that is direct and concise . . . pleasing mass relationships.”

$2500 Third Prize: John V. Sheoris of Harley Ellington, Cowin and Stirton, Inc., Detroit, and William J. Johnson and Clarence Roy of Johnson/Roy, Ann Arbor, Mich. “A very ingeniously thought out scheme . . . its non-hospital look, through dispersion, attempts to recognize the countryside atmosphere of the site.”

$2000 First Prize (Student Group): Alan Bentley Glass, Forrest L. Johns and David M. Griffin, Oklahoma State University. “A good clean standard solution, pleasantly disposed on the site, grows easily and has an overall expansion plan well thought out . . . economically the plan would fit into a suburban financial program.”
A new $75 million Madison Square Garden Sports and Entertainment Center designed by Charles Luckman Associates will be built over Pennsylvania Station, New York City. Another year will be required to complete architectural and engineering specifications for the 3½ million sq ft center and two additional years for construction. The site of nearly nine acres and air rights over Penn Station facilities and tracks is to be acquired by Madison Square Garden Center, Inc., formed by Graham-Paige Corp. and the Pennsylvania Railroad.

The project will comprise a new, larger Madison Square Garden to seat 25,000; a 4000-seat auxiliary arena and roof-top ice palace, a 750-room hotel of 28 stories, a 34-story commercial building which will include a major bowling center and shopping areas.

Of the total floor area, the Center will occupy 2,347,000 sq ft and Penn Station, 1,092,000 sq ft. The existing Penn Station will continue to operate during the construction period. At its completion, an all new Penn Station will occupy the concourse level areas. Complete facilities of the station will continue to function at concourse level throughout construction.

Peripheral commercial areas, intercommunicating circulation and service areas for the entire Center will be contained in the Plaza Building, which will rise three stories above street level and cover the entire site.

Shown on this page is a rendering of the presently proposed Madison Square Garden Center, a site plan and a cross section. Also shown is a rendering of an earlier design for the Center by Charles Luckman Associates, announced last year for an undisclosed location.

The principal structure of the Center, the new Garden, will consist of radial reinforced concrete cantilever ribs, rising upward and outward to support the seating and terminating in an elliptical concrete compression ring at top.
Michigan State University Oakland Students' Residence Units, designed by Louis G. Redstone, Architects, Inc., Avner Naggar, Assoc. Architect, will be grouped to form villages. Each dorm's two wings will have "flexible connection," a one-story lounge and house-master apartment.

Buildings in the News

(far left) To be built under New York City's newly adopted zoning code, this $36 million 32-story office building designed by Skidmore, Owings & Merrill will occupy little over half the site. Structure will have masonry facade with horizontal sunshades. For two major tenants it will be divided in half functionally, with separate entrances, lobbies, elevator banks. Owner: Erwin S. Wolfson; contractor: Diesel Construction Co.

(left) Construction has begun on $5 million 17-story First National Bank Building, Albuquerque, N.M., to be focal point of a 5½ acre site known as First National Center. With an exterior of white reinforced concrete and gold ceramic tile and glass panels, the 212-ft structure will be supported by outer walls and core. Architects are Flatow, Moore, Bryan and Fairburn; general contractor: the Webb Corp.

Addendum:

Through a printer's error, the captions on those photos (August, p. 15) were transposed.

(right) Vincent Kling designed this 28-story square office building for Baltimore. To be completed by fall 1962, the 360-ft-high structure comprises approximately 400,000 sq ft. Exterior metal and glass wall provides deeply splayed window jambs for built-in sun control. Developers: Blaustein and McCloskey & Co.

(far right) United States Gypsum Building, Chicago, designed by Perkins & Will, is diagonally placed on site, providing space for street-level plaza. Each face of 17-story building has four white masonry material columns with black spandrel area between each floor. Completion is slated for early 1963.
New... from CECO
Aluminum windows and curtainwalls
with double-hung, single-hung or fixed windows

At last, here's a curtainwall that permits imaginative building design—enabling the architect to create a "character unto itself" for each building. And the components are of heavier-than-average aluminum, of custom manufacture. They can be anodized in Ceco's new, large-unit Alumilizing plant, the most modern in America. They are practical and reasonably priced, made so through design engineering.

This new series (160 for double-hung windows, and 165 for single-hung) means erection speed for the architect and contractor, and minimum maintenance for the building owner. Here are some of the reasons why:

• Slewing mullions are an integral part of each unit... conventional mullions are not needed. This new product permits shadow-line construction at low cost, while providing the same strength as add-on mullions. Material and labor costs are reduced. Available in large units, easy to erect.

• Double-contact weather stripping on vertical and horizontal sections of operating sash give maximum protection from air and dirt. For minimum maintenance, windows can be furnished with inside bead glazing. This facilitates replacement of broken glass... from inside the building.

• There are no projections with double-hung, single-hung or fixed windows. Windows of this type are ideal for ground level exteriors.

• Panels of porcelain, ceramic, plastic, steel or stone can be used in several depths without modification of the curtainwall elements, offering the architect creative freedom. This feature allows use of thin panels when back-up walls are required, and thicker panels to satisfy U values without back-up walls.

• To maintain a neat exterior face, all window frames are designed with offsets so exterior screens can be inserted flush with the surface of the curtainwall.

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CURRENT TRENDS IN CONSTRUCTION

H(M)OTELS LOOK BIG

THE EXPLOSIVE GROWTH of “motel” and “hotel” building in the late 1950's has raised the inevitable questions. How durable is the trend? Are we in danger of overbuilding, particularly in the “motel” field? Current construction statistics on “motels and tourist courts” are far from gloomy but do contain a cautionary note. After a more than doubling of their dollar volume between 1956 and 1959, contract awards for motels abruptly leveled off in 1960 at $315 million, fractionally under the 1959 mark. For the first half of 1961, contracts declined three per cent from the same period last year. Sharply contrasting with the recent slackening in the pace of “motel” building, however, is the record of its companion, “hotel” building. Spurred on in particular by the revival of large-scale construction in New York City, contracts for hotels by midyear 1961 had soared 80 per cent over their 1960 level.

BUT WHAT IS A H(M)OTEL? Even within large cities, it has become increasingly difficult to classify many of the new hostleries as distinct motels or hotels. The emergence of the “motor hotel,” combining features of both building types, has made the statistical compiling job a minor nightmare. If, therefore, we consider the two categories as a whole, we find a steadier upward trend in contracts for the period 1956 through the first half of 1961 than exhibited by either “motels” or “hotels” alone. Together these building types provided a more than half billion dollar market for construction materials and services last year, easily an all-time high for any complete year. Another record high was set for the first half totals this year.

LARGELY RESPONSIBLE for the growth of this market has been the increasing popularity of the “motor hotel.” As an illustration, take the case of the heavily-travelled stretch of Maine coastline between the New Hampshire border and Portland, Maine. In the peak of the recent summer season, you would have found many “tourist courts” on and off Route 1 practically deserted. Some of the older resort hotels in the area were in serious financial trouble from lack of patronage while operating costs continued to mount. A few had closed down completely. But business was brisk at some of the newer and larger “motels” or “motor hotels.” These were offering the auto traveler both the flexibility of the small motel and many of the “extras” of the luxury hotel.

THE “MOTOR HOTEL” certainly appears to represent the “wave of the future” in hostelry building. Some of the reasons are obvious: the increasing importance of the automobile and airplane for business and pleasure traveling (airports make excellent sites for motor hotels); the massive highway construction program; the lengthening of vacation periods and vacation trips. But further-more, travelers in general are becoming more selective in their choice of lodgings. The traveling public is demanding the combination of convenience and special services that the motor hotel is best equipped to provide.

The decade of the Sixties presents a bright prospect for hotel-motel building. True, the fantastic percentage gains in contracts during the late 1950's probably will not be repeated during the next few years. In this sense, the “splurge” will not last. But the 1960's will be a period of solid growth from the high level of the recent past. That seems assured. Most important to the architectural profession, however, the new hotel-motel market is offering greater and greater opportunities for its active participation. Anyone can design a box cabin with outhouse: but a “motor hotel,” that's something else.

EDWARD A. SPEAGUE, Associate Economist
F. W. Dodge Corporation
A McGraw-Hill Company
This recently completed, six-million-dollar development in downtown Norfolk contains more than 32,000 feet of Anaconda Copper Tube in sizes from ½" through 5" for hot and cold water lines. Why Anaconda Copper Tube? Howard C. Robinette, Division Manager for Hicks & Ingle, says, "We used Anaconda Copper Tube because of the ease in handling and quicker installation. We found it very advantageous in confined areas . . ."

Add to these cost-saving installation advantages, longer life and less maintenance and you have the reasons why Anaconda Copper Tube is so often the choice of those who demand quality in plumbing materials. For complete information about Copper Tube and Fittings for general plumbing, heating, air conditioning and refrigeration, write for free copy of Publication B-1, Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.
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.
New Architectural Uses for Aluminum Grating

Here . . . new applications for aluminum grating . . . exacting installations where quality equal only to BORDEN'S will do:

1 This shows BORDEN aluminum grating used in a system of drain trenches throughout Mellon Square Park, Pittsburgh, Pennsylvania.
   Architects: Mitchell and Ritchey, Pittsburgh, Pennsylvania

2 BORDEN pressure-locked type grating, of gold-anodized aluminum, forms the facade of this dramatic new structure. The Congregation Beth El Synagogue, South Orange, New Jersey.
   Architects: Davis, Brody and Wisniewski, New York, New York

3 BORDEN pressure-locked aluminum grating fabricated as foot scrapers for use at a school in East Orange, New Jersey.
   Architect: Emil A. Schmidlin, East Orange, New Jersey

4 BORDEN pressure-locked aluminum grating used for maintenance-free fencing at J. L. Hudson's Northland Shopping Center, Detroit Michigan.
   Architect: Victor Gruen & Associates, Detroit, Michigan

5 Sunshades of BORDEN pressure-locked aluminum grating permit passage of light and air while screening strong sunlight at the Lone Star Gas Company Office Building, Dallas, Texas.
   Architect: George L. Dahl, Dallas, Texas

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Caudill Appointed Chairman, Rice U. Architecture Dept.

William W. Caudill, partner of Caudill, Rowlett and Scott of Houston, Oklahoma City and Stamford, has been appointed chairman of the Department of Architecture, Rice University. He was to have assumed full responsibility for the teaching program and administration for the Department on September 1. Prof. Caudill will continue to practice architecture, and there will be no major changes in his firm.

When asked by ARCHITECTURAL RECORD for comment, the new dean had this to say: "This may sound strange coming from Texans, but we at Rice have absolutely no ambition for bigness. We do have high hopes for increased excellence. This should be achieved because our students are highly selected. Every student comes to Rice on a scholarship. The potentials for architectural leadership are tremendous. Who knows, in a few years, we might even have a great school of architecture, and that would be a switch—to discover that architects can be raised on the Gulf Coast as well as the Atlantic Coast. Of course, we would not wish to disturb the ecology of the architect to the endangernment of the profession, but the profession is already living dangerously."

"About pedagogy: For the time being, Rice is committed to integrated subject matter and team teaching."

"About aims: Rice's purposes are to teach architecture, to create concepts, to see that practitioners apply these concepts, and to produce creative leadership in our profession."

"About teachers: We have three new ones. Bill Lacy, a Caudill, Rowlett and Scott designer, will be my new administrative assistant. Paul Grillo, a highly theoretical and stimulating architect-teacher, will be the fifth year critic. Then, of course, Rice will have me, a hard-nosed practitioner, as the new chairman."

A former teacher and research architect at Texas A & M and a visiting critic at such schools as Princeton, Cornell and Washington University, Prof. Caudill holds a Bachelor of Architecture from Oklahoma State University and a Master of Architecture from M.I.T. He was awarded an Honorary Doctor of Laws Degree by Eastern Michigan University in 1957.

Leon Chatelain Jr. F.A.I.A. was to begin his first term as president of the Building Research Institute on July 1. A past president of the American Institute of Architects, Mr. Chatelain is a partner in the Washington, D.C., architectural firm of Chatelain, Gauger and Nolan.


Two past BRI presidents, Charles H. Topping, senior architectural &...
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Elevators by Westinghouse
Meetings and Miscellany
continued from page 23

civil consultant, E. I. du Pont de Nemours & Co., and Harold L. Humes, vice president, Baldwin-Ehret-Hill, Inc., were appointed ex-officio members of the BRI Board of Governors.

Illinois U. Students Win Awards: A.I.S.I. Competition
Three advanced design students at the University of Illinois, Urbana, Ill., have won top places in a special competition for the design of a repetitive refreshment stand for the 1964 New York World's Fair Grounds. The competition, open to intermediate and advanced design students, was sponsored by the Committee of Stainless Steel Producers, American Iron and Steel Institute.

A jury of architects selected the winners from among 79 entries. First prize of $800 was awarded Robert L. Amico; second prize of $600, Richard R. Bermann; and third prize of $400, Anthony Frangella.

The program required the design to be 1) easily identified 2) unitized, modular and demountable 3) exciting and inviting 4) easily maintained 5) have food preparation, dispensing, storage and trash space within a 400 sq ft area.

Sullivan Mosaics, Stencils Found in Garrick Building
Unknown examples of mosaic and stencil work by architect Louis H. Sullivan were found in Chicago's famed Garrick Building in its final weeks of demolition. Although it was not possible to prevent the destruction of the building, much significant ornament was saved by the combined efforts of the Chicago Chapter of the American Institute of Architects, the Chicago Chapter of the Society of Architectural Historians and the Chicago Landmarks Commission. A jointly sponsored team of preservationists, directed by Richard Nickel, often worked around the clock to save as much of the ornament from the Garrick as possible.

Beneath the plain asphalt tile of two floor landings, rich mosaic designs of delicate intertwining leaf and tendril motif were found. Because of the imminent demolition of these landings, there was no time for the usual method of moving the design—transferring each of the thousands of tiny pieces of colored mosaic to a new bed of cement. Instead, the team of workers removed the entire concrete floor landings, each weighing more than three tons, intact. Jacked up and cut into sections, the landings were transported by stonemason's truck to Chicago's Navy Pier for storage.

Delicate stencils by Sullivan were discovered under old coats of paint on the theater gallery ceiling and on walls in other parts of the building. Whole wall sections were cut out and transported, as the mosaics, for storage.

New Observation Tower for Niagara Falls
The 282-ft glass-walled Prospect Point Observation Tower designed by Praeger-Kavanagh-Waterbury, engineers and architects, gives sightseers a new view of Niagara Falls. Visitors approach the tower from an observation deck which sweeps out 376 ft over Niagara Gorge. From this they ride up to the top of the tower or down to its base in two elevators. The tower frame is of high carbon steel, box welded to require a minimum of bolting or riveting. The tower and upper elevator walls are high-strength solar-reducing glass. The tower is enclosed in 7 ft sq sheets of this glass set in rubber gaskets in the steel and aluminum frame. Exterior frame is aluminum. General contractor was White Plains Iron Works, Inc.

Architecture as Sculpture
The Whitney Museum of American Art plans to devote its entire building to a retrospective exhibition of the work of Bernard Reder, to be held from September 27th to the 7th of November. Mr. Reder is primarily a sculptor, the author of such works as "Two Women in the Jungle," above, but the show will include drawings and a group of eight architectural fantasies. In view of the opinion, held by Philip Johnson and others, that architecture is primarily sculpture, it is interesting to see what happens when a sculptor tries his hand at architectural design. A number of the designs, including the house, below, have been analyzed by Buckminster Fuller's firm, Synergetics, Inc., who have made dimensioned drawings of them and believe them to be capable of realization.

more news on page 66
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This book was originally conceived as a centennial history of the American Institute of Architects to be published during the anniversary celebration of 1957. The authors, however, have enlarged upon the earlier plan, and the result is a cultural history of American architecture intended for the general reader. It is the most comprehensive book yet published on this subject, and while previous historians may have the advantage on certain points—Fiske Kimball on the importance of Jefferson, for example, and Lewis Mumford on the larger context of architectural events—they recognize that American architecture of the Twenties actually took place during that decade and was not merely a curtain call for an earlier epoch.

The only point on which the authors seem uncertain is the manner in which they wish to present their material. They have clearly been at pains to put the general reader at his ease. They begin with a lengthy discussion of the nature of architecture, which may seem a rather tiresome project, but is actually an excellent introduction to the philosophical complexities of the subject. They then divide their history into five large chapters. The first is a sweeping description of American architecture from the earliest settlements to the Civil War; the last four, the bulk of the book, cover the years from the Civil War to the present. Within each chapter, the authors seek to build a picture of the period they describe from pieces of information that are in themselves fragmentary and often very specialized. They also include many elements of cultural and social history as points of reference for the general reader. There is interesting material on every page; but it is difficult to know whether such an impressionistic approach can be intelligible to someone with only a slight previous acquaintance with the subject. In the end, the balance of the work may have been lost from bending over backward to avoid the stigma of the textbook.

The specialist must inevitably find points of disagreement, and the student will still require more detailed texts. Therefore, one hopes that the rather diffuse nature of the presentation does not make this history too difficult for the general reader to assimilate; for, if it does, he will miss much that is excellent.

—JONATHAN BARNETT

Europe in Technicolor

With due respect to the authors, it must be said that in this book the pictures are all—or almost all. The publishers understandably boast on the jacket about the 112 full-page color plates inside the volume. They are all handsome. Lovers of picture books may well find the rather stiff price of $22.50 worth it.
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44 ARCHITECTURAL RECORD September 1961
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Accurate, responsive individual room thermal control is maintained by flexible Herman Nelson ceiling-mounted unit ventilators. Here Roswell School Board Chairman Grady Southworth (left) and Superintendent of Schools H. F. Allred are shown outside the windowless Del Norte school—one of three air conditioned schools in their progressive school district.
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Required Reading
continued from page 40

Europe . . .

R. Furneaux Jordan's text, subtitled "From the Greeks to the Nineteenth Century," is a very basic introduction to the subject—sufficient to the purpose, but unlikely to seem very adventurous to the professional. Because on the whole it is an adequate and a comprehensible brief history, readers will probably not be inclined to argue minor points, although it would be possible to disagree with, for example, the statement that the Houses of Parliament are "probably the greatest single architectural monument of the 19th century." Someone, it seems, has already disagreed, since the ultimate photograph is of the Opera in Paris.

The relatively long captions, written by Dr. Cichy, comprise some specifics on the buildings displayed, and these, too, are comprehensible to the novice. The buildings chosen rank in time from the temples at Paestum to the Paris Opera, and in space from the cathedral at Monreale to the stave churches of Norway, from Westminster Abbey to St. Basil's Cathedral in the Kremlin. No photo credits are given, but the photographs appear to have been, if not specially, certainly recently taken.

Collegiate Study Habits

STUDENT REACTIONS TO STUDY FACILITIES. With Implications for Architects and College Administrators. By Stuart M. Stoke, Robert F. Grose, David W. Lewit, Michael Olmsted and Bulkeley Smith Jr. 60 pp.

This study was undertaken by a committee from four colleges—Mount Holyoke, Smith, Amherst and the University of Massachusetts. The committee gathered from students at these colleges both objective data on their study habits and subjective opinion on "ideal" study facilities. Not all of the conclusions were immediately apparent: large reading rooms in main libraries, for instance, were used by students just short of half their total study time, but it appeared after questioning that there were any number of reasons for this, continued on page 58
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This efficient office layout is partitioned with new J-M floor-to-ceiling Class A High Walls, and uses Class A Low Walls as space dividers. These fireproof walls can be easily and quickly relocated, and all materials re-used. The floor in this office is J-M Terraflex®, and overhead is a J-M Sanacoustic® Ceiling.

Everywhere you look
This impressive office suite incorporates four different J-M products. Partitions are of J-M Colorchip®, an integrally-colored, structurally strong asbestos-cement material. The blue panel at right is of granitized J-M Corrulux®, a translucent material reinforced with strong J-M fiber glass. The ceiling is of new J-M domed fiber glass panels. And J-M solid vinyl is the floor tile in the immediate foreground.

For more specific information, write to Johns-Manville, Box 158, Dept. AR-9, New York 16, N.Y. In Canada: Port Credit, Ont. Cable: Johnmanvil.
Cooling Tower Silencers
Water, fan and air noises are eliminated by Aircoustat Cooling Tower Silencers. Basic elements include intake sound proofing as well as exhaust mufflers. Because every building's requirements are special, every system is individually designed.

Return Air Vent Silencers
Block voices and other noises transmitted through transfer grills. Aircoustat Return Air Vent Silencers trap sound but not air. Available in three configurations and six stock sizes. Adaptable to a variety of installations—doors, walls, ceilings, etc.

Standard Duct Silencers
These low-cost, pre-engineered units assure a lifetime of trouble-free, maintenance-free service. Pre-determined values eliminate guesswork, guarantee the right attenuation. More than 60 stock models, fabricated in six lengths, available "off the shelf." No local job adjustments, no fabrication.

Circular Silencers
High velocity air system sounds need not be excessive if proper consideration is given to attenuation. An Aircoustat Circular Silencer adjacent to the fan does the job. Designed especially for higher pressure systems as well as for standard cylindrical ductwork. A full range of standard sizes available.

Selecting performance guaranteed Aircoustat units is quick and accurate. We'll be pleased to supply you with complete technical and ordering information on any or all silencers in the line. Write: KOPPERS COMPANY, INC., 3009 Scott Street, Baltimore 3, Maryland.

SOUND CONTROL
Engineered Products Sold with Service
At CORBIN—art, engineering and fine craftsmanship combine to give you the true Unit Lock... all assembled and aligned at the factory in one-piece, solid brass frames. In brass, bronze, aluminum or stainless steel trim... in a variety of functions... and a wide choice of smart, modern designs. APPROVED FOR CLASS B, C, D AND E LABEL DOORS. Easily installed in commercial, institutional and public buildings—and at cost-saving speeds.

It pays to make it CORBIN—throughout!
Have you discovered the wonderful decorative possibilities of HORIZON

FREE COLOR PALETTE of actual tiles showing complete range of 58 different available colors will be sent without cost to architects and designers who write on their professional letterhead to Dept. AR-619.
TILE

...the new
glazed ceramic mosaic
produced in the U.S.A.
by Suntile

Here's a sure-fire way of giving your interior wall
designs an interesting fresh appearance . . .
*Design them with HORIZON TILE.* This new, colorful
wall tile has an informal, handcrafted appearance
that's beautiful beyond description.

HORIZON TILE achieves its distinctive appearance
through the intentional variation and irregularity of
its shape, its surface texture and its 58 beautiful
color shades that range from soft pastels to solid
or textured tones.

Whether you use HORIZON TILE to create a beautiful
mosaic mural, like the one shown here, or use one of
the many interesting "Buckshot" or "Striped Pattern"
designs created by Suntile's Design Department,
you'll find that HORIZON TILE adds greatly to the
beauty of your finished wall.

HORIZON TILE, made in America by Cambridge,
is available through your local Suntile dealer.
His name is listed in the Yellow Pages of your
telephone directory.

OUR DESIGN DEPT.
under the direction of George Limke
is ready to assist you with your tile
design or layout problems. Send us
your plans or elevations for sug­
gested tile applications, or let
us put your own tile de­
signs in layout form.

THE CAMBRIDGE TILE
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P.O. Box 71, Cincinnati 15, Ohio

The Crucifixion —
an 11' x 15' mosaic mural
St. Andrew's Church
Columbus, Ohio
Muralist: Charles L. Madden
Resurgere Associates,
Phila., Pa.
The Record Reports

ART FOR ARCHITECTURE AVAILABLE ON LEASE

The works of two artists, recently on special exhibition at the Graham Gallery in New York, are now available to new residential or commercial buildings for installation on a trial basis.

One of the works is a single painting—a four panel abstract mural, 8 by 24 ft, by Norman Bluhm.

"Oz," an abstract mural in four sections (each panel 8 ft x 6 ft) by Norman Bluhm

The other is a group of cylindrical paintings, ranging in size from 3 ft high and 7 ft in diameter to 12 ft high and 2 ft in diameter, by Elaine de Kooning.

Painted "columns": Elaine de Kooning

Realizing that many of the abstract painters today work in a scale beyond the pocketbook and hanging space of the small collector and that this same scale renders works of this sort particularly suitable for architectural installation, Robert Graham for several years has had the idea of staging such an exhibition. His goal was to make available to architects, on a trial basis, portable works that could be immediately placed in restaurants, banks and lobbies of modern buildings.

Mr. Graham felt that two artists who could present his case were Norman Bluhm and Elaine de Kooning, both New York painters associated with the New York school of abstract painting.

The Graham Gallery, 1014 Madison Avenue, New York, is now prepared to receive inquiries from architectural firms engaged in buildings where the Bluhm mural or the de Kooning columns might be housed. The art works may be leased for a year for the fee of 20 per cent of the sales price. If the renter decides to buy the work at the end of the year, he may deduct the 20 per cent from the total.

more news on page 76
world's hospitals to new heights of patient protection in the 60's

LABORATORY STERILIZERS
- Cyclomatic and Isothermal Controls perform Insufflation, Pasteurization, Fractional Sterilization and Pressure Steam Sterilization procedures.
- Ideal for processing heat-sensitive or heat-coagulable media and fluids.
- Square chambers... recessed and cabinet mountings.

MODEL M. E. RECTANGULAR STERILIZERS
- Long recognized as the "workhorse" of Central Service.
- Ideal for solutions, dressings, utensils, instruments, milk formula and laboratory supplies.
- Fully automatic Cyclomatic Control. Also available as a utility M. E. with enameled exterior.

CRYOTHERM "COLD" STERILIZER
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- Ideal for Urology, Surgery, Central Service, Pharmacy and Laboratory.
- Cryochrome gas supplied in 16-pound cylinders.

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- Especially designed for decontaminating mattresses, blankets, pillows, bassinets, incubators, etc.
- Amply microbial factor to kill STAPH or the communicable disease pathogens.
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COMBINATION GAS-STEAM CENTRAL SERVICE STERILIZERS
- Ideal for sterilizing heat- or moisture-sensitive equipment and supplies.
- Dual, fully automatic controls.
- May be used 24 hours a day.
- Adaptable to any ethylene-oxide mixtures.

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- For Sub-sterilizing Rooms or Central Instrument Clean-up.
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- Designed for Surgical Supply, Milk Formulas and Pressure Instrument applications... with minor modifications for each use.
- Square chambers increase load capacity.
- Fully automatic Cyclomatic Control.

CYLINDRICAL STERILIZERS
- Cyclomatic Control ensures correct sterilizing cycle.
- Single or double wall chambers.
- Wide choice of sizes... open or recessed mounted.
- Economical initial cost.
It takes a special kind of water heater to handle the high-temperature, high-volume hot water needs of today's commercial demands.

The new, improved line of Ruud Copper Sanimaster Commercial Gas Water Heaters are designed and built specifically for this purpose. Each of the nine models available is a self-contained, automatic storage water heater. Their compact design saves space and provides the contractor with greater installation flexibility. In addition, expandability of the system is simple and economical with the Ruud Equa-Flow Manifold system.

Sanimasters are warranted for five years and carry industry seals of the N.S.F., A.G.A., and A.S.M.E. The new Ruud Engineer's Manual now provides full facts about every model and the Certified Sizing Guides, available for 23 use-classifications permit easy, accurate selection.

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Subsidiary of Rheem Manufacturing Company

Manufacturers of commercial and residential water heaters of the highest quality

The Record Reports
continued from page 80

been established to interview each applicant. This effort to select the student best fitted for the five year design course, says Dean Harlan E. McClure, is aimed at weeding out the students not capable of handling their mathematics-English courses and also the extensive basic design work. According to Dean McClure, the "mortality rate" sharply decreased last year due to selectivity in the program—i.e., the percentage of students dropping architecture due to disinterest or failure to maintain passing averages in other courses has declined.

1961-62 Program

Clemson's 1961-62 schedule includes 12 lecturers from throughout the United States speaking on subjects centered on the many forms of visual arts. These and other educational adjuncts are financed through Clemson's Architectural Foundation.

An integral part of the program is the showing of exhibits of recognized contemporary artists in the fields of painting, photography and sculpture in the newly dedicated Rudolph Lee Gallery. Both the lectures and art exhibits are open to the public and student body.

A recent staff addition at Clemson has been sculptor John Acorn. A native of New Jersey and former teaching assistant at Cranbrook Academy in Michigan, he will teach basic design and an elective course in sculpture. One more faculty addition will be a South American Fulbright architect replacing Professor George Means, himself a Fulbright scholar, who will lecture in Turkey next year.

Students Win Competitions

In the past year three Clemson students won first place in national architectural contests. They were: Robert Johnson, Koppers Roofers Award for a hospital design; Kemp Mooney, Garden Rowhouse National Competition with an urban apartment for Milwaukee, Wis.; and John Preston, A.I.A. Medal as outstanding fifth-year architectural student at Clemson and an A.I.A. National Scholarship for graduate study in city planning.

more news on page 96
Nothing's a better-looking building investment than the modern concrete masonry wall. Nothing's sounder—especially when reinforced with Dur-o-wal, the engineered steel rod reinforcement with the patented trussed design. Can more than double flexural wall strength, outfunctions brick-header construction. Write to any Dur-o-wal address below for 44-page Armour Research Foundation test report.

DUR-O-WAL
Masonry Wall Reinforcement and Rapid Control Joint

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In your specifications it pays to name products with finishes protected by CrysCoat

When you specify Oakite CrysCoat as a pre-paint treatment for the steel products in your plans, you are specifying a top quality phosphating process for bonding paint to metal. It means the products will be protected against under-paint corrosion, unsightly peeling, and creeping rust surrounding accidental paint damage.

To the advantage of architects and building owners everywhere, a wide variety of steel products is now being CrysCoated. Write for more information about CrysCoated products. Oakite Products, Inc., 83 Rector Street, New York 6, N. Y.

CrysCoat paint-bonding treatment makes architectural products look better...last longer
PHILADELPHIA DISCOVERS that traffic congestion either ends at curbside or extends into building lobbies—depending upon the kind of elevatoring used. Why? Because there is more to completely automatic elevatoring than simply leaving the operator out of the car! Any elevator installation that fails to provide complete automation for all of the constantly changing, widely varying traffic patterns that occur throughout the day and night—institutes curtailed service, long waits and traffic congestion. This applies in a like degree to the greatest skyscraper and the smallest commercial or institutional building. How do tenants and visitors react? After all, they are people. They react in a like manner to elevator service. And a building’s reputation soon reflects their reactions. The mark of a CLASS “A” building—large or small—is completely automatic AUTOTRONIC® elevatoring. It accurately predicts and delivers a magnificent performance. Since 1950, more than 1,100 new and modernized buildings across the United States and Canada have contracted for AUTOTRONIC elevatoring by OTIS—the world’s finest!
large interlocking MARMET grid sections...

SAVE CURTAIN WALL ERECTION COSTS

on huge Rockwood Manor

in Spokane

mating joints

automatically seal on assembly

with MARMET's series 6442

Resplendent atop a hill, outside Spokane, Washington, Rockwood Manor gleams with the brilliance of MARMET's 6442 Series aluminum curtain wall. Wisely chosen for its economies in assembly, as well as initial cost... the Series 6442 is fabricated in large gridwall sections... well adapted to either single level or multi-level structures. Each large grid section, a complete unit from the factory, simply interlocks into the next grid section with a special mating joint (internally weatherstripped) for an automatic seal on assembly.

Note the detailed panel at right. These special joints absorb cumulative expansion horizontally and/or vertically in structures such as Rockwood Manor. Frames for operating sash and doors are built into the grid sections to save the cost of installing lintels and jambs on the job.

When you select curtain wall for your next job... whatever the requirements may be... compare costs on an erected price basis with any one of MARMET's four basic curtain wall series.

Variations possible in each series provides a beautiful window wall for every purpose... all engineered to achieve a more effective result at lower erection cost.

The man from MARMET

When any unusual site conditions require special technical assistance, the MARMET field engineer is available on 24 hour call to expedite job progress. During the construction of Rockwood Manor, extensive field service was provided by MARMET technical men. Write or phone for complete details on this service.

For additional information on the complete line of MARMET products:

— consult Sweet's Catalog File No. 38

or write to MARMET

CORPORATION

300 Q Bellis Street • Wausau, Wisconsin
the beauty of wood brought to light...

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MODULAR SUSPENSION SYSTEMS
LUMINOUS . . . INTEGRATED . . . ACOUSTIC
2' x 2', 2' x 4', 4' x 4' Modules
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WOOD-BEAM 4' x 4' FIXTURES
SURFACE . . . RECESSED . . . PENDANT
One fixture for all installations. Designed for individual mounting, or in any pattern...furnished for six 48" rapid start lamps, any 2' x 2

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Sizes up to 48" x 96"...¾" cube cell ALUMINUM louvers, baked enamel or anodized finishes...For use with Neo-Ray's companion extruded aluminum grid system or as
INTRA-TEX trackless non-modular system for completely unbroken wall to wall ceiling treatment.

See Neo-Ray's new QUIET-CEL
Louvered Ceiling
at the
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Dept. AR-9 315 EAST 22nd STREET, NEW YORK 10, N.Y.
for innovators in reinforced new 1/2" dia. structural wire fabric
concrete... increases slab strength, lowers costs

Here's a new Structural Wire Fabric that permits high working stresses for all reinforced concrete jobs such as this parking garage. Structural Wire Fabric is prefabricated to your exact specifications from cold-drawn wire up to ½" diameter and spaced as close as 2" on centers in both directions. Its minimum tensile strength is 75,000 psi with a minimum yield strength of 60,000 psi. All intersections are electrically welded... provides positive mechanical anchorage in the concrete. Structural Wire Fabric is delivered to the job in cut-size sheets that can be quickly and more accurately placed... inspection is simplified. It eliminates thousands of time-consuming placing and tying operations required by bars... goes in at least ½ faster and saves on placement costs. If your current or future designs call for a departure from yesterday's limitations, consider Structural Wire Fabric. We'll be glad to assist you or your structural consultant with complete technical recommendations. Just contact our nearest sales office or write American Steel and Wire, Dept. 252, Rockefeller Building, Cleveland 13, Ohio.

Innovators in wire
This is the cooler that pioneered a trend

Just a little over a year ago no one ever saw a cooler like this. We call it the Wall-Mount, truly a Halsey Taylor first.

It mounts on the wall...no exposed fittings, no space behind cabinet to catch dirt or grime! Off the floor...room underneath for easy cleaning! The answer to maintenance-free installation and, like all Halsey Taylor fixtures, gives years of trouble-proof service.

The Halsey W. Taylor Co., Warren, Ohio

Write for latest catalog, or see Sweet's or the Yellow Pages.

The Record Reports continued from page 84

A.S.C.E. Awards for 1961 Announced


Winners of all awards and prizes have been invited to receive them at the annual meeting of the Society in New York City in October.

Urban University Expansion Studied in E.F.L. Report

How can the downtown university in today’s urban overcrowding and congestion find the space for classrooms and laboratories that serve over half the entire college population of the country?

continued on page 104
Hundreds of gallons of P&L finishes were chosen on color schedules and specifications for this superbly beautiful passenger terminal at New York International Airport.

Believed to be the world's largest stained glass wall, a 317-foot abstract design by Robert Sowers creates a gem-bright, many-colored sun breaker on the southern side of the terminal.

Strong emphasis on color styling in ceramic, glass and metal decorative effects throughout this 700-foot-long building called for superior quality in the matching and harmonizing paints. The specifications of Kahn & Jacobs included Pratt & Lambert Lyt-all Flowing Flat, Double Duty Primer and Vitralite Enamel.

Pratt & Lambert representatives offer architects sound, practical counsel on all finishing problems ... surface preparation, color styling ... and on the right materials to provide best protection. Call your P&L representative or write: Pratt & Lambert Architectural Service Department, 3301 38th Ave., Long Island City 1, N.Y.; 4900 S. Kilbourn Ave., Chicago 32, Ill.; 75 Tonawanda St., Buffalo 7, N.Y.; 254 Courtwright St., Fort Erie, Ontario.
Why more and more architects are designing

Adaptable to nearly all architectural forms, precast

Precast concrete moves ahead year after year

As first choice of more architects for industrial, commercial and public buildings, schools, parking

Projects, stadiums, motels and many other structures.

Pre-stressed concrete

Combines two basic materials to give you the best of both.
Prestressed concrete recommends itself to the creative architect seeking an expressive, exciting, contemporary medium—a bold and imaginative construction method. The wide variety of prefabricated prestressed concrete units available may be further varied to meet architectural requirements of each job. Girders, beams, columns, wall panels, floor and roof units and other members become an integral part of the total design concept in performance of their structural function.

Favored with an honest natural finish that is striking alone, prestressed concrete combines well with other materials in important visual areas. A compelling spatial end structural interest is created wherever it is used.

For more economical and effective designs of enduring structures consider prestressed concrete.
please

don't make me a garbage collector!

If you must handle soggy garbage even dream kitchens can turn into nightmares!

For my new home, I insist on a new, beautiful In-Sink-Erator disposer*. Unlike others, In-Sink-Erator prevents jams thanks to exclusive, patented, automatic reversing feature. It swishes garbage down the drain never to be seen, smelled, or touched again... a good reason to specify, even with septic systems.

Write for full information, or a personal demonstration by an In-Sink-Erator representative. Address Dept. AR-761, In-Sink-Erator Manufacturing Company, 1225 14th St., Racine, Wis.

*Bally pre-fab walk-ins all-metal coolers and freezers

Sectional construction! Expandable any time! Costs less than built-ins!* Newest concept in refrigeration storage makes construction of "built-ins" on the job obsolete. Precision made pre-fab sections permit installation anywhere, any size, any shape. Easy to increase in size or disassemble for relocation. Aluminum or galvanized steel are standard finishes. Stainless Steel and acid-resistant Porcelain also available. All finishes remain sanitary... odor-free... rodent and vermin proof.

Free architect's fact file...
Includes guide for specification writers...16-page Walk-In book...portfolio of 48 installation drawings and specifications. Also included is a Walk-In description form to request plans and specifications from Bally engineers for individual installations. Write on your company letterhead.

See Sweet's File section 26a/Ba.

*Bally Case and Cooler, Inc.
Bally, Pennsylvania
NINE B&G BOOSTER PUMPS PROVIDE CONTROLLED COMFORT IN ST. LAWRENCE SEAWAY CORPORATION'S ADMINISTRATION BUILDING, Massena, N.Y.

The forced circulation hot water equipment in this outstanding office building is made by B&G... Booster Pumps, Flo-Control Valves, Airtrol Systems and Reducing Valves.

The building is divided into nine zones for better temperature control, with each zone served by a B&G Booster. A bronze Booster is used for circulating domestic hot water.

Over 3,500,000 Boosters are in service today... clinching evidence that their superior quality and performance has never been challenged. The reasons why they so completely dominate their field are not hard to find. Above all they are quiet—vibrationless... the prime essentials of a forced hot water circulating pump. They are dependable and profitable — not a cause of endless service and customer dissatisfaction. Sound design and sturdy construction of best materials assure efficient performance for years.

B&G Hydro-Flo Products are made by a company which offers help in any problem of design or installation—and with nation-wide distributors and service organizations.
New from Koppers

25 years of bonded

KOPPERS
ROOF BOND

This 27 year old store of the J. C. Penney Company in Milwaukee has been given a million-dollar-plus remodeling job which involved everything but the water-cooled roof. Although the Koppers coal-tar pitch roof has been constantly under water for 27 summers, it is still in excellent condition, and should last many more years.

The original 20 year bond on the John A. Nichols School in Syracuse expired more than 12 years ago, but this Koppers roof continues to give trouble-free service year after year. Its coal-tar base is totally resistant to water penetration. No other built-up roofing material can offer 32 year service records like these.
roof protection for the cost of 20!

So many Koppers roofs have been maintenance-free for twenty-five, thirty and even thirty-five years that Koppers has decided to introduce the Plus-25 Koppers Roof Bond, with no extra premium charge! The two roofs illustrated at left are examples of why we're offering architects this new 25-year roof bond. These roofs are typical of numerous installations that have established 25-year plus service records.

Koppers roofs have stood up against blustery winter extremes and sizzling summer heat. Coal tar, with its natural cold-flow characteristics, heals hairline cracks and stops real trouble before it can start. Coal tar also is completely resistant to water penetration, the most serious threat to long roof life; in fact, it is well-known that coal tar is the most water-resistant roofing material in existence.

So when you're specifying a roof for your next building, take advantage of the longer protection you'll receive with a Plus-25 Koppers Roof Bond. It costs no more than the 20-year guarantee available on other roofing materials. And you'll protect your building with a cover made of nature's finest protective material—coal tar—processed by the industry's most experienced manufacturer, Koppers Company, Inc.

Ask your Koppers representative to tell you more.
AIR WAS USED AT IDLEWILD TO PROVIDE A BASE FOR ROOFING

PORETHERM, an insulating cellular concrete, was chosen for the roof and promenade area of the huge International Arrivals Building.

Poretherm, with mechanically produced air-bubbles is an insulating concrete used in combination with corrugated steel decking. It is applied as a continuous surface with no seams or cracks and the "dead air" spaces act as an air-concrete blanket that produces good insulating qualities.

Poretherm, an inert material, is permanent and cannot deteriorate. In combination with corrugated steel deck it provides a lightweight, fire-resistant roof with high structural strength.

If your plans call for construction meeting these characteristics specify Poretherm insulating cellular concrete.

OTHER CANTILE PRODUCTS WERE USED ON THE FOLLOWING BUILDINGS AT IDLEWILD:

INTERNATIONAL ARRIVALS BUILDING
Architects and Engineers: Skidmore, Owings & Merrill

PAN AMERICAN OVERHAUL BUILDING & TEST FACILITY
Engineers: Burns and Bar, Inc.

AMERICAN AIRLINES TERMINAL
Architects: Kahn & Jacobs
Structural Engineers: Severud, Elstad, Krueger Associates

FOOD PRODUCTION CENTER
Architect: Louis Allen Abramson
Structural Engineers: Fassnacht, Blum, Yesselman

BUS GARAGE AND MAINTENANCE BUILDING
Architects: Brookly, Hegd and Adler
Engineers, Thompson & Czarke

TELEPHONE BUILDING
Architects: Varheis, Walker, Smith, Smith and Haines

SWISSAIR TERMINAL
Engineers: Amman & Whitney

For further information or details call or write us—
See our catalog in Sweets'
Vendors for Kotex napkins lower absenteeism—eliminate embarrassment—raise morale

3 types to choose from!

1. **Recessed vendor** holds 63 individually wrapped napkins. Available in white enamel, satin chrome, polished chrome and stainless steel. Can also be surface-mounted, if desired.

2. **Surface mounted vendor** for boxed Kotex, holds 15 individually boxed napkins. Adjustable for free, five-cent or ten-cent vending. White enamel, bright chrome or satin chrome finishes.

3. **Surface mounted vendor** for envelope Kotex, dispenses 22 individually packaged napkins. Sturdy, 20-gauge steel cabinet available in white enamel, satin chrome or bright chrome. Operates as nickel, dime or free vendor.

The great convenience of restroom vendors is appreciated by both tenants and employees. And only Kotex offers three types—making it the most complete personal service available for your building. All are easy to install—all have trouble-free, longer-wearing cold-rolled steel coin mechanism.

**Vending machines** for Kotex belts augment this needed service.

More women prefer Kotex feminine napkins than all other brands

Kimberly-Clark Corporation, Department Number AR-91, Neenah, Wisconsin

Please send complete information on vending machine service for Kotex feminine napkins.

Name
Title
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City
Zone
State

ARCHITECTURAL RECORD September 1961 105
LUPTON aluminum curtain walls create striking patterns in color at Yonkers’ new Walt Whitman Junior High School

The bold, imaginative use of colors and patterns... in interiors and exteriors... is the most dramatic feature of ultra-modern, new, three-story Walt Whitman Junior High School, Yonkers, N.Y.

On two sides of the building, the architect utilized LUPTON Aluminum Curtain Walls... their spandrels forming attractive random patterns of several colors.

The Walt Whitman Junior High School illustrates the exciting design possibilities for you inherent in LUPTON Aluminum Curtain Walls. A wide range of colors, windows in various styles, panels of metal or glass allow you unlimited creativity in design. This handsome modern wall construction provides striking visual effects when used alone or with brick, stone, and other materials.

LUPTON Aluminum Curtain Walls and Windows offer you such dollars-and-cents features as: low initial cost, virtually no maintenance, and effective thermal insulation (two metal skins form a built-in vapor barrier).

Installation is worry-free because LUPTON assures you of accurate fitting and alignment of all component parts. It offers you a single source of responsibility for both the manufacture and the erection of the entire assembly.

See the LUPTON Aluminum Curtain Wall and Window Catalog in Sweet’s (sections 3 and 17). Then talk to your local LUPTON man or write to us for details.
OTHER LUPTON PRODUCTS THAT MAY SOLVE PROBLEMS FOR YOU ARE:

**Double Hung Windows.** LUPTON DH-A2 aluminum double hung windows are custom built for installation in masonry construction or metal curtain walls. Woven-pile weatherstrip and barrel type suspension give smooth operation and weathertight closing.

**Projected Windows.** LUPTON “Master” windows in projected or casement types—used equally well in curtain walls or in masonry construction. Tubular ventilator members for extra rigidity...double weatherstripping, bronze hardware.

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Main Office and Plant: 700 East Godfrey Avenue, Philadelphia 24, Pa., West Coast Office and Plant: City of Industry (Los Angeles County), California.

SALES OFFICES: Stockton, California; Chicago, Illinois; New York City; Cincinnati, Ohio; Dallas, Texas. Representatives in other principal cities.

ARCHITECTURAL RECORD September 1961 107
High speed mail distribution streamlines the paper flow in new Kaiser Center

At Kaiser Center's towering new 28-floor office building, mail is distributed every half hour. Yet it's all done without the usual cost and confusion of interfloor mailboy traffic.

Instead, a modern and efficient Standard Conveyor Recordlift whisks the mail, interoffice correspondence and other vital business records to central dispatching mailrooms . . . rapidly, economically, automatically.

Dispatching is simple, speedy, selective. The operator merely puts the material in the container, pushes the button for the proper floor and Recordlift delivers it in minutes. Mailboy hours are saved . . . speed and efficiency are gained.

If you have a multi-story building project pending, remember Recordlift, the modern mail system. It saves your client the cost and clutter of interfloor mailboys . . . with push-button speed, economy and efficiency!

Write today for illustrated data file . . . or simply clip this ad to your letterhead and mail it.

Check into these typical Standard Recordlift Installations

- Atlantic Coast Line Railroad Company
  Jacksonville, Florida

- State of Minnesota Department of Highways
  St. Paul, Minnesota

- Ohio Oil Company, Findlay, Ohio

- Ontario Hospital Services Commission
  Toronto, Ontario, Canada

- Bank of America Service Center Building
  San Francisco, California

- Bankers Life Company, Des Moines, Iowa

- State of California Compensation Insurance Fund Building
  San Francisco, California

- State of Minnesota State Office Building
  St. Paul, Minnesota

- State of Oregon, Salem, Oregon

- Western Electric Company, New York, N.Y.

- First National Bank, Minneapolis, Minnesota

- Lincoln National Life Insurance Company
  Fort Wayne, Indiana

- City of Minneapolis, Public Library Division
  Minneapolis, Minnesota

- Great West Life Assurance Company
  St. Boniface, Manitoba, Canada

- Mutual Service Insurance Company
  St. Paul, Minnesota

- State of Texas Employment Commission
  Austin, Texas

- David Wohl Memorial Hospital
  Washington University Clinic
  St. Louis, Missouri

- State of California, California State Teachers Association, Burlingame, California

- Ohio National Life Insurance Company
  Cincinnati, Ohio

- State of California, California State Teachers Association, Burlingame, California

- State of Oregon, Salem, Oregon

- Western Electric Company, New York, N.Y.

- State of Minnesota State Office Building
  St. Paul, Minnesota

- State of California, California State Teachers Association, Burlingame, California

- Ohio National Life Insurance Company
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- State of California, California State Teachers Association, Burlingame, California

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INSTITUTIONAL CHARACTER
AT COMPETITIVE COST

The Hartford Building, Chicago, Illinois
Skidmore, Owings & Merrill, Architects
Carl A. Morse, Owner's Construction Consultant
George A. Fuller Co., General Contractor
Constructed to provide rental return as well as owner occupancy, the new building in Chicago for the Hartford Insurance Group is notable for its high quality, prestige type design—built at a sq ft cost competitive with strictly speculative buildings.

For economy, a flat slab concrete frame with 22 square bays was chosen, and floors were set at 11 ft 6 in., providing 9 ft ceilings. The building was made almost square in plan (7 by 9 bays) to reduce peripheral wall area. The glass curtain was recessed 4 ft 6 in. to furnish sun-shading, cut the air conditioning load, and provide balconies for window cleaning. The light gray granite cladding meets the owner’s request for a masonry exterior.

Esthetically, this concept offered the chance to exploit the formal characteristics of a flat slab structure—the thin, slab-edge horizontals (as opposed to the more familiar wide bands of drooped spandrel beams), and the rounded haunch connections at the column verticals. The result is a bold yet graceful expression of structure, in keeping with the "Chicago School" tradition. The columns are tapered (nearly 8 in. top to bottom), an SOM refinement that adds visual subtlety to the façades.
Good design at competitive cost came about through the close four-way teamwork of the owner, architects, owner’s consultant, and general contractor, who made all decisions with those basic twin objectives in mind.

The plan—with its off-center core—provides two types of rental space: that of a proper depth for private plus secretarial offices; and the larger, deeper space appropriate for a general office clerical or stenographic pool.

The plan above shows how a second building might be placed on the owner’s property, a common plaza serving to link the two towers at ground level. No date has been set for such a development. The present plaza (now in the design stage) is not yet complete.
OUTSIDE COLUMN DIMENSIONS IN INCHES

<table>
<thead>
<tr>
<th>FLOORS</th>
<th>W</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 TO 4</td>
<td>30'4</td>
<td>28</td>
<td>30</td>
<td>25½</td>
</tr>
<tr>
<td>5 TO 7</td>
<td>28'4</td>
<td>26½</td>
<td>28½</td>
<td>24</td>
</tr>
<tr>
<td>8 TO 10</td>
<td>27'4</td>
<td>25</td>
<td>27</td>
<td>22½</td>
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<td>11 TO 13</td>
<td>25'4</td>
<td>23½</td>
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<tr>
<td>14 TO 16</td>
<td>24½</td>
<td>22</td>
<td>24</td>
<td>19½</td>
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<tr>
<td>17 TO ROOF</td>
<td>22½</td>
<td>20½</td>
<td>22½</td>
<td>18</td>
</tr>
</tbody>
</table>

TYPICAL FLOOR SECTION

- Pin Floor L/W Conc Fill
- Structural Slab
- Mechanical
- Suspended Ceiling
- Ext Column
- Window
- Induction Unit
- Pin Floor L/W Conc Fill
- Corner Flashing
- Built-Up Roofing with Limestone Chips
- 3/8" x 3" x 10'5" U Slotted Holes
- 1/2" Nailers
- Curved Conc Column Cap
- Anchors
The Hartford Building, Chicago:
CONSTRUCTION DETAILS

The exposed flat slab structure is sheathed with 2 in. slabs of light gray Cold Spring granite; details on left page. The table of dimensions explains how both typical and corner columns are tapered. For the corner columns, the outer exposed arris was held to a plumb line; for the typical columns, the outer face was kept in wind with a vertical plane.

Details of the aluminum and gray glass curtain wall, on this page, reveal how over-all economy was achieved by simplified sections, since all glass is sealed—except for four access windows at each level. The under-window induction units will be painted in accordance with tenants' demands; built-in vertical blinds will be provided for every floor.
The Hartford
Building, Chicago:
INTERIORS

Above and left are shown views of the lobby (note the characteristic flat slab column haunches), a corner office, and an upper floor elevator lobby.

The dark gray slate paving for the plaza has been carried through as the lobby floor, and helps tie these spaces together. Plaza paving has been loosely set so that any given modular blocks may be removed to make way for planting boxes, pools, etc. as the plaza is landscaped and developed.
A MANY-TERRACED VILLA IN FRANCE

Country House in Alsace, France
Walter Brune, Architect
Houses

Ernst Uglelie

SECOND FLOOR

LR

FIRST FLOOR

LR

DR

K.

BR

Second Floor

LR

First Floor

128 ARCHITECTURAL RECORD September 1961
Country House in France

This neatly designed house was created to take the greatest possible advantage of its magnificent site: a hilltop overlooking the valleys and villages of the vineyard country in Alsace, France. Broad glass areas and outdoor terraces are located to make the most of the views.

The house is a large and luxurious one, with parents’ bedroom and living areas (including a swimming pool and deck) on the main floor, and four bedrooms and a second sitting area for children and guests on the upper floor.

The house is steel framed, which permitted a suspension over—and non-disturbance of—the rolling landscape. Quarry stone is used to enclose the massive basement, the pool area, and some of the major rooms of the house. Other walls are made of panels of lightweight concrete. Ceilings and built-in cabinets are of natural-finished wood. Built-ins were carefully planned to minimize the need for furnishings other than seats, tables and beds. The resulting spacious rooms were planned to show off a beginning art collection to greatest advantage.

Outdoor decks and terraces are planned as supplemental outside “rooms” to the house, and each is planned with considerable privacy from others.

The major orientation of the house is to the south, with living room, library, and pool facing in this direction. All bedrooms are oriented to the east. The north façade turns mostly solid walls to the cold winter winds. A series of high windows line the west bedroom corridor.
Country House in France

The front of this house by Dusseldorf architect Walter Brune presents a partially enclosed motor court geared to enhance both the sense of arrival and the subsequent wide vistas of the major rooms of the house (center photo).

The much-abused corner window arrangement is put to excellent, and valid, use in most rooms to emphasize the outlook. The photo of the library at the top of the page is a good example of this.

The entrance hall (left) is spacious and underfurnished—establishing at once the quality of the house, and affording ample display areas for changing collections of art.
The Architect’s Role in Hotel-Motel Design

Architectural Record interviews James S. Craig, Vice President of the Hotel Corporation of America, Staff Services Planning Division

Do architects play a major role in the basic programming of the hotels and motels you build?

I would say that the firms we work with certainly do, and even many architects designing hotels or motels for the first time know more about the way a hotel should be planned than the client. The hotel or motor hotel is somewhat related to a hospital, and rather like a miniature city. The architect is controlling a complex team of specialists and so are we. Ours know all about kitchens, bars, restaurants, linen storage and employee’s facilities. The common problem we share with our architects is implicit in the fact that when you have two complex planning organizations working together over a period of two or three years, nothing is static. Specialists change their roles, responsibilities overlap, and a certain amount of friction is inevitable.

How do the main responsibilities for programming divide up?

The basic program concerns the size and number of guest rooms, which are set by management using criteria based on market surveys, financial arrangements, value of the land ... if you are building on land worth two or three million the land value often dictates the program. Size of kitchens and other public and service areas are worked out by our own planning group. The architect’s job as we see it is to coordinate and fit together all elements into a coherent, efficient and pleasing whole.

From your point of view does the architect have blind spots in understanding your objectives?

Sometimes. The blind spot that bothers me the most occurs after our specialists and the architect have blocked out the program and its elements and the architect starts to develop shapes. What so often gets in the way is not so much a pre-conceived idea of what the design will be, but a too early fixing of the design at a time when pretty drastic changes may still be called for. It is not pre-conceiving, it is early conceiving, and it is too bad. From then on we find ourselves trying to tailor the shape the architect has fixed, and the architect tries to tailor our ideas to fit his shape. Some architects don’t freeze that early but will go away with the revised program and come back with a different solution that fits the new needs. They will make drastic changes in the way of looks and plan.

What are the areas of research and study in the hotel field which are within the architect’s realm and are not being adequately explored?

The problem that is not getting the attention it deserves is that of flexibility of use. The architect
Building Types Study: Hotels Motels

should design for flexibility now, and for whatever changes may be necessary to prevent obsolescence forty years in the future. The economics require that hotel spaces be used for more than one purpose. Morning to noon use can be different from noon to dinner use; room uses change with the season. There are different uses on weekdays and weekends. Now at last we are building in some flexibility, but we are less able to change the character of rooms as we change their size and purpose. I have always been intrigued by how easily things are changed in the theater. It seems to me that more of these techniques could be used in changing the atmosphere of a room.

Multi-purpose rooms are almost never pleasant for any of their purposes. When the dividing partitions are folded back and you have the big room which is the ballroom . . . some ballroom. It isn't right as an assembly room either, and then you put your partitions back and you have your smaller conference rooms and they are grim. You call in a decorator and the decorator doesn't know how to do it. Too many purposes . . . what note can he strike? It seems logical to attempt to solve the problem with lighting.

Lighting is a major factor in creating this versatility. The architects we are working with are interested and feel that the lighting effects specialist can fill an important need. On every job we do we have a lighting specialist.

So often hotel areas are used for exhibitions but one rarely sees an installation in a room that has the proper facilities for exhibition. The merchant puts up his panels and puts out his products and they are never properly lit. Are architects and lighting engineers studying this problem for you?

It is being done. At the Edgewater Beach we are putting in a big “ballroom” but its primary use will be for exhibition space. It will have everything it must have. There is a grid in the floor which includes electrical power, telephone and television to allow exhibit servicing without exposed cables. In addition we are bringing in extra heavy electrical power, and are providing water supply and floor drains. There are outlets for overhead spots. Other older hotels will be forced to do this kind of remodelling.

A complete change of furniture must be often called for in multi-purpose rooms. Do the architects provide enough storage for equipment not in use?

There is seldom enough storage planned but the owner is generally to blame. He compromises on storage area in order to increase revenue producing space ending up with a relatively unworkable space.

Are there other areas in which there should be more thought and research?

More thought should be devoted to traveler needs. Bedroom arrangements need further study.

There is a tendency to leave doors off closets now. Of course there is a repetitive economy there.

We don't.

Do you feel that this is pushing cost paring too far?

Some very brilliant people give some very crazy reasons for leaving off closet doors . . . such as so people won't leave things behind.

Owners leave the closet doors off in the less expensive rooms and leave them on in the more expensive rooms. This must be on the assumption that people paying more are less likely to leave their clothes behind.

The reason for leaving them off is cost of course, but we put them on.

Your organization is clearly oriented toward good architecture. How does this happen?

Investing in a good architect is the best protection against obsolescence. We are in the food business as long as our food stays good. Our hotels will stay ahead of the competition until someone builds better ones, and we won't let that happen.
Planned for Hidden Economy: Five Hotels-Motels by W. B. Tabler

How to save hotel-motel construction costs, reduce service and maintenance expense, yet maintain comfort, suggest luxury and send the traveler on his way happy. Architect William B. Tabler knows how to save money in ways that don’t show, one of the reasons he is currently engaged in the design of thirty-four hotels and motels costing an approximate total of $247,165,000.

1. Buenos Aires Intercontinental

The tower of this proposed sixteen-story reinforced concrete frame hotel is shaped like a double wedge to allow a central rather than a perimeter elevator and stair core. The typical small hotel of this size has its elevator and stair element at some point on the exterior wall, thus pre-empting valuable bedroom space while increasing the amount of expensive perimeter wall. Since a hotel does not require as many elevators as an office building of an equivalent number of floors (no morning, noon and evening peak loads in hotels as in offices), and since hotels cannot utilize non-perimeter space as office buildings do, a rectangular core within a rectangular plan is impractical as it takes up more space than a small hotel requires. The wedge-shape core requires less elevator and service space to fill it and is therefore more practical. Note in plan the placement of stairs at opposite ends of the double wedge. This permits it to taper down to a width of 5 ft, which prevents each hall beyond from becoming excessively wide.

Projecting concrete fins will reduce the air conditioning loads on the tower. The hotel will provide 608 guest rooms, a swimming pool, laundry, ballroom, meeting rooms, a coffee shop, cocktail lounge, restaurant and bar and shops. Estimated cost: $8,000,000.

ARCHITECT: William B. Tabler
David P. Davis, Associate in Charge
LOCATION: Buenos Aires, Argentina
Spaces which require uninterrupted column-free floor area such as the ballroom and dining rooms are covered by wide spans and grouped in a low element separate from the tower. The plan is organized to position the tower and its columns conveniently over the entrance drive, lobby, and service spaces.

Typical double bedrooms. Second bed doubles as sofa providing a small but workable living area.
2. The Carlton Beach

In this nearly finished $3,000,000 resort hotel, construction and maintenance costs have been pared by a reduction in public and service spaces achieved by designing these areas for maximum flexibility and locating them so that they may be served by a single kitchen. The night club can be subdivided into meeting rooms by means of a new type of moveable partition with a continuous pneumatic gasket at the top of each panel which permits the partition to be located against any firm ceiling. No floor or ceiling tracks are required. The pneumatic rubber gasket is inflated by an applied air cartridge and makes a tight ceiling connection. When a different space arrangement is required, air is released from the gaskets and the panels can be easily rearranged or stored.

The guest room wing hugging the coral reef has been designed as a long low element with a double-loaded corridor two stories high on one side and three on the other. Guests walk down or up one flight only. This design provides the maximum income-producing bedroom space available to a scheme which saves money by eliminating elevators. Since this is a resort rather than a do-it-yourself motel, bellboys will carry bags down the long corridor. The corridor carpet has been specially woven with a line pattern which follows the curve as it disappears ahead.

Owners and architect point out that in addition to saving elevator costs, the long low scheme adapts to the site, and brings guests physically closer to the marina on one side of the spit of land and the swimming bay on the other. It is in character with much of the local building which is low.

ARCHITECT: William B. Tabler. Raymond C. Giedraitis, Associate in Charge
OPERATOR: Hotel Corporation of America
LOCATION: Southampton, Bermuda
STRUCTURAL ENGINEER: Wayman C. Wing
MECHANICAL ENGINEERS: Cosentini Associates
LANDSCAPE ARCHITECTS: Zion & Breen
LIGHTING CONSULTANT: William Richardson
CONTRACTOR: Aberthaw Construction Company
OWNER: Southampton Hotel Company Limited

Basic room size permits four different room arrangements. At lobby level certain bedrooms can become meeting rooms for local business groups. Flexibility of this type helps pay for hotel operation during the off season.
3. Karachi Intercontinental

“We have been criticized for doing an American type hotel abroad,” said architect Tabler in discussing this projected $7,400,000 hotel for Pakistan. His critics contend that in a country where servants earning a pittance stand around all day to be available to perform one or two brief tasks, Tabler’s efforts to cut payrolls by making fewer servants necessary are a bit needless. They ask why the hotel magnates he works for can’t provide, in these over­populated outposts at least, the same good old fashioned luxury well staffed by humans, that the finest local hotels may still provide. Tabler, who used to figure one employe per room in American hotels and who has been forced to continue to refigure that proportion downwards, because of ever rising wages, asserts that eventually in countries like Pakistan wages will reach a level which will make the hotels there as anxious to cut the payroll as they are anywhere else.

In his design for Karachi, therefore, Tabler keeps the public areas to a minimum and provides a ballroom which can be divided into small private dining rooms or meeting rooms, or easily shut down during the slow season. The plan is organized to permit ballroom, restaurant, coffee shop and bar to be served from one big kitchen.

Karachi Intercontinental will have an economical structure of a type not yet permitted by the ACI code, but allowed to be constructed abroad. The eleven­story reinforced concrete frame tower will use long narrow columns 5 in. or 6 in. wide, rather than the familiar 8 in. or 10 in. wide round or roughly square columns now required by the code. These narrow columns act as wall partitions (see thickened walls on room plan on opposite page), and fit into interior planning better than square or round ones. Used as partitions and room dividers they are an integral part of the design and cut costs of partition and wall construction. Spans are shorter, making floor slabs thinner. The long narrow vertical spandrel column combined with the horizontal line of the thin floor slab creates a thin refined exterior frame. As shown in the rendering opposite, the frame will be filled with a pre­cast concrete screen which acts as a sunshade reducing the air conditioning load, and protects the window glass from sand storms.
Rooftop cocktail lounge seats eighty people, affords a view.

Room module accepts conventional and studio type furniture arrangements. Floors will be of terrazzo with throw rugs. Short thick walls placed in one direction on balcony and in the opposite direction between paired closets and bedrooms serve structurally as columns, reduce spans and double as partitions, an economical system.
According to Tabler, this new $3,500,000 resort hotel is currently breaking even at 40% occupancy when usually at least 70% occupancy is considered essential for a hotel to hold its own. The casino on the lobby floor helps, he admits; but so does the maintenance-reducing design of the compact, low public and service element beyond the lobby.

Every hotel man knows that bedrooms are the greatest income producers; the greater the proportion of bedroom area to public and service area, the more economical the hotel. To obtain as many bedrooms as possible at Ponce, their size was held to an absolute minimum as the bedroom and studio bedroom plans show. A more generous suite is achieved by combining the last two bedrooms on either end of both sides of the corridor as shown. Circular balconies curved toward the view of the Caribbean make the spaces seem larger to their occupants. The totem-like element on the south face of the tower is a special stair giving access to the pool.
The client wanted this $5,000,000 motor hotel to have 60% of the bedrooms on a two-story walkup and favored parking which adjoins bedrooms with direct access to and from cars. Tabler believes that a bedroom tower combined with his customary low service element would have crowded the land less, been a better solution. The traveler, who looks out over his car unless he pays a higher price for a room on the interior court, can enjoy the terrace and pool, a serene oasis protected from the rush of highway traffic by the hotel's four enclosing wings. He has three different-priced restaurants to choose from and four kinds of guest rooms, all with oversize beds. There are studio rooms with one double bed and studio couch; twin bedrooms; singles with one double bed; and the studio executive room with a studio bed and a large 7-ft desk which can double as a bar with a small built-in refrigerator. (See second photo from the top right.) As shown in photo at bottom right, in all bathrooms the lavatory and toilet are ingeniously arranged to double as dressing table and seat, an amenity which takes no additional space.
The cost of this motor hotel was kept to $15 per sq ft. A simple steel frame with wood joists and wood stud load-bearing partitions was used. Materials throughout are simple and inexpensive, the welcoming atmosphere is achieved through imaginative use of color, texture and light. A hotel man's rule of thumb is to charge a dollar in room rent for every thousand dollars of construction cost per room. The cost per room was $8,895, which should permit management to price their rooms within reach of the average traveler. The building, opened in December 1960, has so far enjoyed a high occupancy rate. Total cost of the 70-room unit, including landscaping, parking, drives and pool, but excluding movable furniture and kitchen equipment, was $622,661.36.

The most interesting feature of this motor hotel is the partially elevated guest room wing with parking under cover on the south side. See first floor plan at right. Most of the parked cars tuck under the overhanging second floor, are close to the guest rooms, but do not mar the view of the harbor beyond. The master plan for the site provides for an eventual 200-room development including a health club, additional dining space and some retail area, which will transform the L shape into a U. The existing kitchen has been designed to accommodate the additional dining space planned.

The Hotel Corporation of America requires that dining space be made as flexible as possible in all the hotels and motels which it operates. At this motor hotel the dining area is divided into three separate eating spaces, a cafe and a bar, to cater to diverse tastes and incomes at different times of the day. See plan above. Kitchen is adjacent on right.
Effective use of light to attract motorists passing at night

Photographs by Robert D. Harvey

Main parking space at entrance is not overlooked by bedrooms

Wood grilles baffle sun, create privacy

Folding slatted door on guest room closet is inexpensive, neat
Adaptable Project for British West Indies

Curtis and Davis, architects of this scheme, state that this design is flexible enough to cope with most limitations imposed on it by site conditions or number of rooms required, both initially or in the future. They assert that this projected physical plant can compete on equal terms with hotel units costing a great deal more.

The plan is constructed around two basic modules as follows: 1. the two- or three-story module with four or six rooms arranged on the seaward side of an open corridor with balconies toward the sea, or an identical arrangement minus balconies; 2. the two- or three-story module with eight or ten rooms arranged on both sides of a central corridor running perpendicular to the sea, the rooms and balconies being angled toward the view.

These various modules are then combined together into room blocks as shown at 1A. and 2A.

These room blocks are served by an expandable core shown in sketch 3. containing: bar, dining room, game room, kitchen, lobby, desk and office, shops, swimming pool and terraces, storage and toilets. This scheme illustrates a core for approximately 100 rooms. The core unit illustrated, together with the various room blocks, form the elements of a plan which can be arranged in many ways, depending on the site and number of rooms required. Sketch 4. shows five ways in which the elements may be arranged.

Finally sketch 5. shows the development of a plan for a 100-room unit either two or three stories high, illustrated in perspective on opposite page.
A first look at this ingenious plot plan reveals that parking is kept a minimum distance of approximately 50 ft from the bedrooms which face parking areas, and that the other half of the bedrooms in these double-loaded units face partially enclosed planted spaces. Only the blind ends of buildings are immediately adjacent to the parking. From these ends a baggage ramp designed for electric-powered baggage carts connects the second story guest room corridor to the parking lot. The first story corridor has direct access to parking in each unit. See photograph at bottom of opposite page.

In the planning of this motor hotel, located in a citrus grove directly across the highway from Disneyland, a principle of strict separation of automobile traffic and pedestrian traffic was observed. Guests may drive to individual parking areas immediately adjacent to the two-story unit they are staying in, yet they may reach the main building on foot along pathways leading through partially enclosed spaces planted with orange trees. For the guest who prefers to ride, and for general utility uses also, electrically powered carts are provided.

Guest suites in each of the four dispersed two-story buildings are joined by a unique corridor down the center. Above the roof level, a curved, plastic-covered canopy extends the length of the building, slightly wider than the corridor itself. It is transparent at the top and open at the sides, in clerestory fashion. Natural light and air floods the upper corridor almost as if there were no roof at all. To permit the same light and air to penetrate the lower corridor a series of railed rectangular openings in the floor of the upper corridor were introduced, alternating on both sides of the extra wide hallway. The openings admit light to the lower corridor, and directly below each opening is a planting area of similar size where trees will reach toward the light above. See photograph on opposite page, center left.

Thus each guest room entrance, both lower and upper is afforded the necessary protection from wet weather while retaining an outdoor atmosphere.

Buildings are wood frame with exterior surfaces of wood, plaster, tile and masonry.
No traffic interrupts interconnecting paths.

Guest rooms were designed by the HCA planning staff.

Patio and balconies.

Plastic sky light illuminates and shelters corridors.

Pool establishes resort character.

Blind walls abut parking. Ramps link guest room corridors to parking and are used by electric baggage carts.
Well-Designed Hotel
Conforms to a New Set of Restrictions in San Diego's Mission Bay Area

Islandia is the first hotel planned and built to conform with the official master plan for the development of the 6,400-acre Mission Bay recreation area which in ten years is expected to be the country's largest aquatic park. The city of San Diego commissioned the Community Facilities Planners (Smith, Williams and Eckbo) to prepare the plan. It recommends shake shingles for roofs instead of gravel, redwood siding, and four trim colors...white, charcoal, turquoise and persimmon. Signs can be no higher than 20 ft, building identification must be small. Buildings must be set back 40 ft from the nearest road and a 15-ft promenade must skirt the waterfront throughout the park area. The architects of Islandia have interpreted the spirit of these rules so well that this motor hotel may become the pace setter for the entire recreation area.
Slatted cupolas open second floor corridors to the sky and have great style.

Restaurant is raised 15 ft above water on concrete piers.

Units are raised 3 ft above the ground for view.

First floor guest room as seen from porch.
Yoshimura has described his hotel as follows: “Built on the edge of a deep gorge descending to a river, the plan and form of the hotel were developed so that the building would harmonize with the undulations of the site, and would permit the occupants to enjoy unobstructed views of the beautiful surroundings.

“The hotel is located in the heart of the beautiful National Park of Fuji-Hakone and contains 162 rooms. The structural frame is of lightweight concrete. Hot water is supplied to the bathrooms and pools from hot springs on the site. Heating is by natural steam. The climate does not require air conditioning.

“The amusement center was placed apart from the quiet hotel rooms. The pools visible from the access road as it approaches the entrance bridge across the gorge were placed there as an inviting feature to passing motorists. The design objective was to create a spacious and serene atmosphere to which people might retreat from the clamor and hustle of city life.”
Japanese dining room. Note footwarming pits with removable tatami cover.

Western dining room. Japanese room beyond platform.
Building Types Study: Japanese Mountain Resort

Japanese guest room. **Top:** bedding in closet, shoji open to balcony. **Above:** arranged for sleeping

Western guest room

Japanese and Western rooms alternate along corridors

Bathroom
<table>
<thead>
<tr>
<th>IDLEWILD</th>
<th>NEW YORK INTERNATIONAL AIRPORT</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HOW IDLEWILD WAS PLANNED FOR THE JET AGE</td>
<td>152</td>
</tr>
<tr>
<td>2. INTERNATIONAL ARRIVAL AND AIRLINE WING BUILDINGS</td>
<td>157</td>
</tr>
<tr>
<td>3. TRANS WORLD AIRLINES</td>
<td>162</td>
</tr>
<tr>
<td>4. PAN AMERICAN WORLD AIRWAYS</td>
<td>165</td>
</tr>
<tr>
<td>5. MULTI-AIRLINE TERMINAL</td>
<td>168</td>
</tr>
<tr>
<td>6. AMERICAN AIRLINES</td>
<td>170</td>
</tr>
<tr>
<td>7. UNITED AIR LINES</td>
<td>172</td>
</tr>
<tr>
<td>8. EASTERN AIR LINES</td>
<td>175</td>
</tr>
<tr>
<td>9. NORTHWEST, NORTHEAST, BRANIFF AIRLINES</td>
<td>178</td>
</tr>
<tr>
<td>10. AIRCRAFT MAINTENANCE AND SERVICE FACILITIES</td>
<td>180</td>
</tr>
<tr>
<td>11. AIR CARGO FACILITIES</td>
<td>184</td>
</tr>
<tr>
<td>12. TECHNICAL HIGHLIGHTS</td>
<td>186</td>
</tr>
<tr>
<td>13. PASSENGERS AND BAGGAGE</td>
<td>189</td>
</tr>
<tr>
<td>14. AUXILIARY BUILDINGS</td>
<td>190</td>
</tr>
</tbody>
</table>
The story of Idlewild is essentially the story of how literally hundreds of architects, engineers, planners, and owners go about solving a planning problem that never holds still. Just when it would seem a solution is at hand, the problem changes. To make matters worse, the problem of planning an Idlewild is composed of a fantastic number of elements, a great scale, involved functions, and complex relationships between the various parts.

What is Idlewild? It is, of course, the major metropolitan New York airport for overseas and long-haul domestic travel. It is master planning on a grand scale. It is an encyclopedia of engineering technology. It is a lexicon of contemporary architecture. Idlewild has robust vitality. One can easily be caught up in the feel of it; the activity, the big jets, the flags, the fountains, the exotic public address announcements; all are part of it. People are part of it: school children and sightseers; ordinary travelers and world figures; cab drivers and customs inspectors. To these, Idlewild is a vigorous city, carnival, a world fair, as well as a world airport. Most importantly perhaps, Idlewild is a vast storehouse of information on the philosophy and practice of architecture in our time.

HOW IDLEWILD CAME INTO BEING

Idlewild is one of four existing airports in the New York region. Provisions for a fifth are now under study. All of these are part of the regional air travel plan. While the others provide facilities for domestic medium- and short-haul passengers and cargo, private and non-scheduled flying, Idlewild has as its basic function, or mission, the provision of facilities for overseas and long-haul domestic flight.

Construction of Idlewild was begun by the City of New York, 1942. After basic fill, major utilities, six runways, and a small administration building had been completed at a cost of $60 million, the Port of New York Authority leased the airport from the city in 1947. The basic plan at this time (Fig. 1), called for a tangential runway system with all passenger facilities located at the center. Hangars were to be placed alongside the runways. Outlying areas not needed for aeronautical purposes were to be developed as leased office buildings or industrial properties. In this way, the economic feasibility of the airport would be improved. The state of development, in 1947, of this scheme is shown in figure 2. The airport began operations in 1949. Over the next few years, while master planning went ahead, additional hangars and the control tower frame were constructed.

In 1949, based on the planning studies, the tangential runway system was discarded in favor of dual runways at approximately right angles to each other and an instrument runway at about a 45 degree angle to the others. This scheme, shown in figure 3, was ultimately developed into the master plan shown across-page. Other than the runway changes, the original scheme has been adhered to except that the terminal was moved outside the central area leaving it for passenger use.

THE SCOPE OF IDLEWILD

The realities of the size, complexity, and great scale of Idlewild are not easy to grasp. Just how big it is can be indicated, to a degree by some of its statistics. Fifteen miles from midtown Manhattan, it occupies a site of some 4900 acres, over five miles long. Almost 30,000 people work here and the annual payroll is over $191 million. Fifty-six buildings are now in existence or under construction. The investment at Idlewild to date is around $350 million. Last year, nearly
LEGEND

1. Office Buildings
2. International Arrival and Airline Wing Buildings
3. Trans World Airlines
4. Pan American World Airways
5. Multi-Airline Terminal
6. American Airlines
7. United Air Lines
8. Eastern Air Lines
9. Northwest, Northeast, Braniff
10. Hangars and Maintenance
11. Air Cargo
12. Heating and Refrigerating
13. Automobile Service Station
14. Chapel Site
15. Food Production Center
16. Animalport
17. Airmail Facility
18. Medical Building
19. Telephone Building
20. Bus Garage
21. Bank
22. Industrial Buildings
23. International Hotel
25. Fuel Storage Tanks

Idlewild has been planned, financed, constructed, and operated by the Port of New York Authority, John R. Wiley, Director of Aviation and John M. Kyle, Chief Engineer, since July 1, 1947 when the airport was leased from the City of New York. Terminal City was planned by the Port Authority Aviation Planning Division then under the direction of Thomas M. Sullivan, with the consultation of Wallace K. Harrison, Architect. Mr. Sullivan is now First Deputy Director of Aviation, Port of New York Authority.
Fig. 1. Decentralized, or unit terminal, master plan as visualized by City of New York planners in 1947

Fig. 2. Early 1948 version of centralized terminal building scheme developed by the Port Authority

Fig. 3. Variation of the centralized scheme, with air cargo facilities added, developed by P. of N.Y.A. in 1949

CRITERIA FOR TERMINAL CITY PLAN

The basic decision behind the development of Idlewild was the definition of its mission as the handling of half of the long-haul domestic traffic of the area, one-fourth of the short- and medium-haul, and all of the overseas flights. From this, it was determined that the airport must provide for 100 movements (take-offs or landings) an hour. Early in the planning, certain criteria were established. Among these were: 1. passenger convenience—direct, unimpeded circulation, 2. efficiency—a sound operational plan for airlines and airport operators, 3. economic feasibility—maximum concession development, and 4. flexible planning—versatility required for future adaptability.

The criteria led to assumptions that: 1. existing airline passenger handling and flight clearance procedures would be followed, 2. facilities should be adaptable to single airline or consolidated operations, 3. aircraft, regardless of future types, would continue to be brought close to the building to facilitate passenger loading.

In arriving at data on which to base projected needs for space and facilities, airport planners rely most heavily on: 1. Definition of mission, 2. Traffic forecasts, 3. Space uses, and 4. Potential revenue. Accurate projections are difficult in any type of building project, but the difficulties are magnified in airport planning by the great rate of change in air travel habits and in the aircraft themselves. Thus, the mission of the airport may be revised, as it has been here over the years. Traffic forecasts are hazy indicators at best. At Idlewild, for example, the early 1953 forecast predicted 3.4 million passengers annually by 1965. This was revised, late in 1953, to indicate the same number by 1960. In actuality, traffic at Idlewild exceeded this figure by a half million by 1958, and had grown to 9 million by 1960. Space...
uses change with the changing years and revenue potentials are extremely difficult to tie down.

**EVOLUTION OF TERMINAL CITY PLAN**

From the first, important principles of the planning of Terminal City were that the facilities should be scaled to the capacity of the runways and that they should be planned for expansion as travel volume expanded. Each succeeding stage should be complete in itself and self-supporting. From the beginning, the major problem was the question of a centralized versus a decentralized scheme. Was it better to combine facilities for all airlines in one building or to build unit terminals, each self-sufficient for the needs of one or, at most, a few airlines? The earliest thinking veered toward an extremely decentralized scheme, as shown in figure 1. Soon after the Port Authority took over, this plan was discarded, since a centralized plan seemed to have advantages in space economy, versatility, potential concession income, and improved operations. Some of the centralized schemes considered are shown in figures 2 through 4.

By 1953, it became apparent that the centralized terminal scheme had serious defects related to the fast growth of the airport. A much larger building than that originally visualized would be required and regardless of its size, it would need some sort of remote or satellite buildings to provide the necessary number of gate positions. This involved special transportation for passengers and other problems. Walking distances would be prohibitive, even within the building; operations would be inefficient. About this time, a few airlines began to consider individual terminals. They felt they would like to set up their operations in their own way and develop their own concessions. In 1954, the decision to go to unit terminals resulted in the plan shown in figure 5. As it turned out, the present plan, shown in figure 6, provides a combination of unit and centralized terminals. In some terminals such as the Wing Building Arrival and Multi-Airline Buildings, a number of airlines are housed. In others, only one or two.

**PLANNING THE TERMINALS**

The basic attitude of the planners toward the individual buildings has been one of tolerance of the aims and desires of the airlines and architects, as long as they are compatible with the more important objectives of the master plan. Terminal locations, site relationships to other buildings, the roadways, the runways, and the like are controlled. Such details as signs, which have an effect on the over-all appearance of the airport were restricted. In many respects, individual expression was allowed both airlines and architects. The result of this attitude has been a building group which adheres generally to the master plan, but which is composed of single buildings without much relationship to each other in massing or appearance. The buildings represent an extreme diversity of opinion on what con-
Idlewild

The problems of automobile traffic were solved in Terminal City by a one-way, dual lane, recirculating roadway system, with grade-separated crossings. Metered short-term parking is located across from each terminal and parking for longer periods provided for in large lots with automatic ticketing at entrances.

Idlewild—A Judgment

Perhaps the most difficult part of judging what has been accomplished at Idlewild is the choice of a reasonable position for judgment. Surely, if the position should be that of the all-knowing, all-reasonable, all-talented, sitting on cloud nine, Idlewild would come off pretty badly. It is equally certain that judged from the position of the proponents of the “I have the creative training and ability—I know what is right—I’ll design it and you can fit yourselves into it as best you can”—school of thought, Idlewild would be a failure. It does not, on the other hand, improve the state of architecture to take the position of the realists, saying with Dr. Pangloss, “this is the best of all possible worlds . . .”, therefore we do what we must.

Perhaps a more helpful position to assume in order to judge Idlewild would be a sort of reasonable idealism, meaning the kind of idealism of good architects and engineers who strive to do the best work they are capable of, but who realize that there are certain realities involved in getting the job done. They realize, for example, that architecture tends to reflect its times. They realize that no matter how you work it, people have a way of getting into the act. They realize that these people—clients, airline presidents, public—never in actuality, act as some sort of average behavior statistic might lead you to believe. Uncontrollable factors, such as the effect of weather on flying operations and the unpredictable rate of growth of air travel, would be outside the area of judgment. Only factors that can be controlled would be judged. And then only on the basis of creative planning, design, and engineering within the framework of the needs of the client and users of the buildings, and within the limitations of economics, technology, and art.

Judged by such standards, Idlewild comes off pretty well. It works efficiently, if one doesn’t get too far out of step with the systems of the place. It all hangs together somehow in spite of the extreme variations in the individual buildings. All in all, Idlewild is exciting. It functions well as an airport for the most part. It is of its time. In architecture, are these not signs of success?
The complex problems solved in this building involved providing common facilities for incoming passengers, with the necessary health, immigration, and customs facilities and separate offices for some 20 foreign airlines, together with the facilities required for departing passengers.

The largest and most complex building—actually a group of buildings—at Idlewild consists of the International Arrival Building, its two connected Airline Wing Buildings, and the airport control tower. This is the heart of Idlewild. From the control tower, the actions of the aircraft in the pattern above the airport and on the runways, taxiways, and aprons are controlled. In the arrival building, almost all incoming overseas flights, of domestic as well as foreign airlines, are handled. Customs, health, and immigration are located here. The Airline Wing Buildings house most of the foreign airlines at Idlewild and serve them as ticket offices, lounges, and general areas for handling their outbound passengers.

In such a large and extremely complex building as this, the problems of circulation, function, and architectural treatment are magnified. The building must serve many masters. It must serve as a focal point for the entire Idlewild composition. It must be capable of providing for large numbers of passengers and visitors, most of them unfamiliar with the building, many of them foreigners ignorant of ways in the U. S. and the language. In spite of the complexity of the requirements, the building performs its function elegantly and with a minimum of confusion.
2. International Arrival and Airline Wing Buildings

The major problem in the design of the International Arrival and Airline Wing complex was providing for the large number of airlines serving a great number of people. Passenger and guest circulation had to be comfortable and efficient and allow operating personnel to go about their jobs in an orderly fashion. As actually planned, the circulation works in this way: incoming and outbound passengers are separated into circulation patterns in the Arrival Building and Airline Wing Buildings respectively. Incoming passengers enter the building within the center U-shaped area on the apron. They may then proceed directly to health, immigration, and customs offices. In the customs area passengers pick up their bags, have them inspected, and pass directly out of the area into the main hall and then may go to ground transportation. Outbound passengers are handled in the Wing Building offices. Schematic diagrams of the process are shown on the following page.

Shown here is an aerial view of the entire complex and below, from the left, two views of the great passenger hall and a view of customs showing super-market type inspection system.
Most of the foreign airlines occupying space in Airline Wing Buildings have ticket areas on ground floor, lounges on the second floor. Some also occupy third floor space. Circulation in all offices is similar to that shown in plan and section. Outbound passengers enter on ground level, are ticketed and check bags. If they have time, they may then go to upper lounges. When flight is called, passengers proceed along upper level corridors and descend to first level for boarding outbound aircraft through gate positions.
2. International Arrival and Airline Wing Buildings

The exterior treatment of the arrival and wing buildings consists of simple rectangular masses with contrasting elements in the parabolic arch of the arrival portion and the vertical element of the tower. Inside the arrival section, the feeling of the exterior is repeated, but in the wing sections, the interiors are individual expressions of the airlines' own preferences. These offices are the work of many individual architects or interior designers. Each airline office stands on its own as a design; none has much in common with the others. In style, they vary from extreme simplicity to the ornate. Some indication of the treatment of interiors may be gained from illustrations on preceding page.

GENERAL

—airport control tower connected to building by covered second-level walkway
—arrival area serves all incoming passengers required to pass through government health, immigration, or customs inspections; incoming passengers and guests may enter building under cover at main entrance or through tower from parking lot
—wing buildings contain complete airline offices of foreign airlines and serve as departure areas for foreign flights of these airlines; passengers may enter individual airline offices from ground transportation directly in front of each office
—ticketing and baggage checking for outbound passengers handled individually by airlines; incoming baggage transported directly to apron side of two large customs areas, and delivered to passengers who then proceed through supermarket-type customs check
—guests of outbound passengers may accompany them to gate positions, those of incoming passengers may observe their progress from glassed-in area of second floor overlooking the customs areas

STRUCTURE

—structural steel frame

MATERIALS

—exterior walls aluminum, plate and spandrel glass
—interior walls hollow metal partitions or ceramic tile
—flooring terrazzo, ceramic or rubber tile, carpeting
—windows aluminum; entrance doors glass; interior doors hollow metal
—ceilings acoustical plaster
—roofing stainless steel on parabola, built-up elsewhere

SYSTEMS

—building completely air conditioned and heated
—main hall lighted with luminous ceiling, fluorescent fixtures; other areas fluorescent, incandescent
—entrance doors automatic, doormat-operated
—public address system for announcements in all areas
Eero Saarinen says his intention was to "...relate the building to its surroundings, but still have it assert itself as a dramatic accent. The architecture would express the excitement of travel and reveal the terminal not as a static enclosed space, but a place of movement."

This terminal, at first glance, would seem to conform not at all to the master plan of Idlewild. It would appear to have little in common with the other unit terminals. The building is frankly experimental in form and structure. The others at Idlewild, except for Pan American, are mostly straightforward expressions of accepted structural systems and the more usual forms of architecture. This building soars; the others at Idlewild seem, for the most part, earthbound. This building expresses something of the flight experience itself. Most of the other terminals, judging from what meets the eye, might house any of a number of functions other than that of preparation for flight.

Oddly enough, this terminal actually fits quite well into the master scheme of Idlewild. Its curves are related to the curves of the master plan. It fits its site well. As symbolic and abstract as the form is, it houses an efficient and workable airline operation. In the main, the plan differs from the others on the airport in shape, not in function. A major difference is the provision of satellite buildings serving as departure lounges and operations buildings for aircraft servicing. These are connected to the main building by covered walkways, but would perform as well or better if moving sidewalks or mobile lounges were used.
3. Trans World Airlines

Some of the qualities of the form of this terminal can be gathered from the exterior and interior illustrations shown here. As may be seen, the structure consists of four intersecting barrel vaults, separated from each other by narrow strip skylights. The vaults are varied in shape and are supported on columns which carry the loads—and shapes—down to the ground. In the exterior illustration may be seen how the wings at either side of the building curve to conform to the plan of the roadway in front. As one moves through the interior, the form of the building presents a series of subtly changing shapes and patterns. To further heighten the soaring qualities of the building, the entire interior—walls, roof, and floor—will be finished in white. Accent colors will be carmine—derived from the airline’s own colors—and will be used in carpets, signs, and other smaller details. At the left in the lower interior view may be seen one of the air fountains designed to direct flow of heated or conditioned air against the ceiling for the best distribution in the irregular interior spaces.

GENERAL
—single level passenger circulation beginning at front entrance, continuing through terminal, covered walkway to ramp house, and telescoping loading bridges to aircraft
—continuous marquee over sidewalk at front of building
—slight changes in level in main circulation system by low-pitched ramps
—outbound passengers are checked in or ticketed on one side of great hall, incoming passengers reclaim baggage on other
—main waiting area depressed and furnished with theatre-like seating arranged in tiers
—ground level of terminal and ramp houses devoted to operational functions
—concessions located on main passenger level and on mezzanine (third) level

STRUCTURE
—essentially four reinforced concrete intersecting barrel vaults of varying shapes, supported on four Y-shaped columns
—vaults separated at intersections by skylights

MATERIALS
—exterior enclosed with glass
—main hall floors and walls white marble terrazzo
—some floors carpeted

SYSTEMS
—passenger loading by covered telescoping bridges connecting the ramp buildings with the aircraft; two bridges per aircraft, one at front, one at rear
—baggage handling with conveyors and containers which can be packed with bags and loaded directly into baggage compartments of aircraft
—building completely air conditioned and heated; unique parts of system are air fountains which will direct flow of air against ceilings
PAN AMERICAN WORLD AIRWAYS

Reduction of walking distances for passengers and protection from weather for passengers, crew, baggage, and aircraft were achieved in this open, oval-shaped structure with a steel framed cantilever roof extending out over the aircraft which nose directly into the building.

While most terminals at Idlewild and other airports rely on some system of fingers or satellite buildings for getting the aircraft into position for passenger loading, the PAA terminal breaks all of the rules. Instead of moving the passengers to the airplanes, here the airplanes are brought to the passengers. Here, the aircraft are literally nosed into the building—or at least—nosed under the building overhang. Thus, from the passenger areas inside the terminal, it is only a few steps, at most, to the aircraft.

The result of this concept is a building with a striking oval shape and a great umbrella-like canopy all around, the airplanes nesting into it. For passengers and operations personnel alike, the concept leads to less steps, protection from the weather, and savings in time and energy. It is not, however, an unmixed blessing. By placing the aircraft around the terminal and nosed into it, the maximum number of aircraft that can be handled at a given time has been exactly fixed. There is no apparent way to expand the facilities within the present design concept. And while the aircraft come into the terminal under their own power, they must be towed away from the terminal upon departure, before they can start their own engines.
4. Pan American World Airways

In the exterior views on this page and the aerial view across-page may be seen the general configuration of this terminal, an oval umbrella of steel and concrete cable suspended over a glass-enclosed interior space. Roadways approach the building on two levels under the cover of the cantilevered roof. The upper level is used by outbound passengers, the lower by incoming. Outside the roadway may be seen a glass windscreen, placed here to protect the front entrance and roadways from wind and blowing rain. Attached to the windscreen are the Pan American sign and 12 bronze sculptures representing the signs of the zodiac, all executed by Milton Hebald. The interior views show, on the left, the main hall of the terminal from the roadway at the front, and on the right, the main hall looking toward the concessions. In the interior illustration on the left is the large air door entrance.
GENERAL
- terminal design based on grouping aircraft around the building to reduce walking distances, solve exposure problems
- outbound passengers reach terminal, under cover of overhang, from ground transportation
- lounge areas located near gate positions; aircraft in full view of passengers
- ticketing, baggage checking located on main level
- major concessions located on mezzanine, others such as newsstands on the main level
- most PAA incoming passengers arrive at International Arrival Building; those arriving here may reclaim baggage near front exit and board ground transportation under cover

STRUCTURE
- oval, cable hung, cantilevered roof consisting of 32 prestressed steel girders, radiating outward from a hub of 32 reinforced concrete piers
- inner hub of six tension columns to resist upward thrust; set in elongated hexagonal plan with skylight in center
- roof sloped toward center; downspouts located in the support columns

MATERIALS
- exterior walls glazed brick, mosaic tile, glass
- interior walls concrete block, painted plaster, ceramic veneer, ceramic tile, movable partitions
- flooring vinyl asbestos, terrazzo
- ceiling acoustical cellular glass
- windows stainless steel with double glazing or spandrel glass

SYSTEMS
- passenger loading bridges from terminal to aircraft
- conveyors for outgoing and incoming baggage
- air door at entrance, 10 ft high by 89 ft long
- building completely air conditioned and heated
- built-in ground air conditioning system for aircraft
MULTI-AIRLINE TERMINAL

Winner of a competition for a terminal to house the ten domestic airlines which do not have their own buildings, the scheme shown is being developed into a glass enclosed, rectangular two-story building with a flat space frame roof structure supported on massive free-standing columns.

This building will be occupied by ten or so domestic airlines. In architectural concept, it is quite unlike any of the other terminals at Idlewild. A great, spacious, open glass box, the building itself appears almost to disappear, the form is so light and airy. Its plan is quite different from those of the other terminals. In this building, outbound passengers approach from ground transportation on the street side of the building, while those arriving on flights will enter autos or buses on the apron side. By dividing the circulation in this manner, some of the problems of passenger cross-traffic have been minimized. The problems of automobile traffic have been almost eliminated.

Inside the building, the outgoing passengers will proceed directly to ticket counters on the ground floor, check their baggage, then go to the second floor via escalators and out the fingers to the aircraft. Incoming passengers will enter the terminal from the fingers, go down escalators to the first level, claim their baggage, and depart on the apron side. Major concessions will be located on the second level. The building will be constructed in two phases, each phase replacing approximately half of the present temporary terminal. Construction is scheduled for completion in 1964.
GENERAL
—passenger vehicle access to building on front and field side; passenger loading arcades bridged over roadways on field side
—ticketing and baggage check on main floor, waiting and concessions on island mezzanine

STRUCTURE
—free-standing concrete columns supporting space-frame roof, composed of pre-assembled steel pipe tetrahedrons
—concrete slab deck with tension cables, steel pipe compression members on underside

MATERIALS
—two-story high glass walls on all four sides, placed on interior side of exterior columns
—ceiling of prefabricated stamped aluminum panels with reflective finish
For passenger comfort and convenience, contacts with the activities of aircraft servicing have been minimized, incoming and outgoing passengers are separated, and passengers are protected from the weather from the time ground transportation arrives until they enter the aircraft.

Whether one is favorably impressed by the big stained glass mural on the facade of this building, or impressed with the terminal in spite of the mural is a subject for conjecture. It is certain that the mural stands out as the big feature of the building as it is approached from the Idlewild roadway. Once inside the building, the functional aspects of the plan assert themselves.

This is a building that is easy on the passenger. Ticket counters are just inside the entrance in a perfectly obvious location, yet out of the path of general traffic. From here, it is a shorter than average walk—all on the same level—to the departure lounges and through the covered loading bridges to the aircraft. Inbound passengers gain access to their luggage after a short walk and an escalator ride to the ground floor and may depart the building under cover on this level. Baggage is handled by conveyors; flight announcements are pre-recorded and made at frequent intervals; showers and dressing rooms are available for passengers; concessions are conveniently placed. Operations offices and all of the service and housekeeping functions are removed from the passenger areas. All of this adds up to a terminal which functions well from the standpoint of both passengers and operating personnel.
GENERAL
—outbound passengers gain access to building via covered roadway on the upper level and proceed through ticketing, baggage checking, waiting lounges on this level
—incoming passengers reclaim baggage on lower level and proceed under cover to roadway at this level
—restaurant and other concessions at second level
—thirty foot high glass behind ticket counters allows unrestricted view of aircraft movements on ramp

STRUCTURE
—steel frame with steel decking and concrete floor and roof structures

MATERIALS
—exterior walls combination of granite, terra cotta, concrete block, brick, metal siding, glass, and large stained glass mural by Robert Sowers
—interior walls finished with travertine, ceramic tile, rosewood, plastic wall covering, and paint
—windows aluminum framed, pivoted, double glazed with heat reducing glass; doors glass-aluminum entrance type or hollow metal
—flooring terrazzo, vinyl-asbestos, quarry tile, marble tile, carpeting
—ceilings acoustical or plaster

SYSTEMS
—departure lounges with movable, covered, passenger-loading runways connecting with aircraft
—baggage handling by a system of conveyors
—general lighting luminous ceiling and individual fluorescent fixtures
—complete air conditioning and heating throughout the terminal building
—automatic doormat operated entrance doors
—pre-recorded flight message system broadcasts automatic announcements throughout terminal when three-digit code is dialed by an agent
Ease of entry from ground transportation, efficient and comfortable passenger circulation, simplified baggage handling, and provisions for modification if necessitated by changing tastes or procedures are expressed in clarity of plan and architectural treatment of this air terminal.

**ARCHITECTS:**
Skidmore, Owings & Merrill

**STRUCTURAL ENGINEERS:**
Severud-Elsad-Kruiger Associates

**MECHANICAL ENGINEERS:**
Syska & Henessey, Inc.

**AIRFIELD PAVING CONSULTANTS:**
Moran, Proctor, Mueser & Rutledge

**CONTRACTOR:**
Humphreys & Harding, Inc.

Better than any other, this terminal seems to fit the over-all concept at Idlewild. Having designed the International Arrival and Airline Wing Buildings and the Heating and Refrigeration building to conform with each other in style, SOM continued the development here and ultimately in the bank. Perhaps, if the other Idlewild architects had been more inclined to let these early buildings determine more of the design concepts of the other unit terminals, Idlewild might have come off better as a unified concept (though some of its excitement might have been lost).

The simple, direct, logical form of this building reflects the same attributes in the design philosophy behind it and in the plan. Lines of circulation are clearly defined without gimmicks or experimentation. Functional centers of activity such as the ticket counters are placed in logical locations. The plan and treatment of the interior are straightforward. To the passenger, all of this adds up to a lack of confusion and an easy-to-use building. To complete the picture, every current mechanical device is available for making the passenger's procedures more orderly, comfortable, and fast—escalators for changing levels, movable covered bridges for aircraft loading, automatic entrance doors, automatic baggage weighing, check-in, and handling.
7. United Air Lines

The simple, logical treatment of the exterior of this building is indicated in the illustration above. The canopy extends over the sidewalk for the length of the building. Temporary parking for passengers is available along the entire length. This makes it possible for a passenger to depart ground transportation directly in front of one of the ticket counters located just inside the entrance doors. At the present time, Delta Airlines leases a portion of the building from United. The Delta space is located in the near end of the building as shown in the illustration. In the air view at the right, the United finger is in the foreground, the Delta in the background. Both views give some indication of the curved shape of the long building. In the air view may be seen some of United’s telescopic covered passenger bridges. The interior view shows one of United’s express ticketing and baggage check-in counters. Passengers place their bags on the scale-conveyor where they are automatically weighed and the overweight charges, if any, calculated. After tagging, the bags are moved by the conveyor through an opening in the counter down to the baggage room for sorting and removal to aircraft.

GENERAL
—building shared with Delta by United Air Lines; each airline has its own operating facilities
—entry or exit from ground transportation on single level at front of 691 ft long building
—entire length of sidewalk covered by canopy
—ticketing and baggage checking immediately inside the entrance doors
—outbound passengers take escalators to one of two second floor waiting rooms, and proceed to aircraft through fingers and covered aircraft loading bridges; telescoping UAL bridges allow front and rear or plane loading, those of Delta single entry loading
—incoming passengers repeat process in reverse, reclaiming their bags on the main level

STRUCTURE
—structural steel frame with steel deck and concrete roof structure

MATERIALS
—glass and aluminum curtain walls, precast concrete panels
—interior walls precast concrete panels with plastic laminate, wood veneer or ceramic tile finishes, or movable partitions
—windows aluminum glazed with plate glass
—flooring terrazzo, ceramic, quarry or asphalt tile, or asphalt paving block
—ceilings acoustical plaster or tile

SYSTEMS
—passenger loading with covered bridges; UAL version fully maneuverable in three dimensions and telescopic
—baggage handling with conveyors and automatic scales; reclaim has automatic baggage diverter which distributes baggage along claim area table
—building completely air conditioned and heated
—outgoing baggage sorted and placed in containers which are loaded intact into aircraft cargo spaces
In this building, the largest of the unit terminals, important design considerations were adequate space for passengers, operations, concessions, and expansion and provision for unimpeded passenger circulation by ramps inclined downward in the general direction of traffic.

Perhaps the most striking effect of this terminal is its size. It is said to be the largest individual airline unit terminal in the world. It is certainly larger than any other at Idlewild. Just how big it is can be gathered by the size of the main hall—almost 30,000 sq ft. This is larger than the arena of Madison Square Garden or the concourse at Grand Central Station. Just why the terminal was planned so large is somewhat obscure, the architect having died and most of the Eastern officials concerned with its design having moved on.

The size of this building and its capacity—ultimately 6 million passengers a year—pose a question that currently seems unanswerable. Admittedly, it is almost impossible to accurately predict the growth of air travel. So far at Idlewild, the growth has surpassed the most optimistic of projections. In the long run, Eastern could prove to be the only airline at Idlewild with a building large enough to grow at a rate paralleling the growth rate of air travel itself. If this should come to be, the other airlines at Idlewild may eventually find themselves spilling out of their buildings, while Eastern continues to expand within its present structure. On the other hand, it would seem apparent that this building is oversized, at least for the present.
The illustrations on this page and the plan give some indication of the great size of the Eastern Air Line Terminal. At the top of the page is a view of the exterior at the front, showing the two-level driveway entering the building. The façade shown here is 620 ft long and encloses three lane driveways on each level. The upper driveway is for outbound passengers, the lower for incoming. The view of the lobby shows, on the right, the main entrance doors. Above these may be seen the automatic flight announcement board. In the center is the seat selector counter, and in the background may be seen the ticket and check-in counters. To the left are the entrances to passenger arcades and concession areas. Overhead may be seen the form of the roof imparted by the 16 reinforced concrete girders which span this space. In the view on the left is a portion of the passenger circulation ramp system. As may be seen, the ramps are placed so that traffic moves along the ramps in the direction of the gate positions or the main building.
GENERAL
—two level covered roadway at front of building: upper level for outbound, lower for incoming passengers
—ticketing and baggage checking in large upper level lobby; passengers reach aircraft through fingers in which passageways are ramped down to grade
—incoming passengers reclaim baggage on lower level and proceed directly to ground transportation
—numerous concessions on upper level; space for additional ones on lower level

STRUCTURE
—reinforced concrete frame

MATERIALS
—aluminum and glass curtain walls and granite and limestone solid areas
—interior walls of four different kinds of marble, ceramic tile, wood paneling, movable metal partitions
—windows aluminum with glare-reducing glass
—floors terrazzo in public areas; vinyl tile, vinyl asbestos, ceramic tile, or exposed concrete in other areas
—ceilings suspended acoustical metal pans, plaster, or exposed concrete

SYSTEMS
—no special devices for passenger loading
—baggage for outbound passengers placed on conveyors leading directly from ticket counters down to lower level baggage room and loaded on aircraft
—building completely air conditioned and heated
—general lighting of main hall with fluorescent strip fixtures; other areas lighted with various combinations of fluorescent and incandescent
—tower on roof of building for direction of the airline’s traffic
NORTHWEST, NORTHEAST, BRANIFF

The straightforward, functional design of this terminal permits three airlines to share public spaces, yet maintain separate ticketing and baggage facilities. Ground transportation brings passengers close to ticket counters, from which they may proceed directly to holding lounges.

The design of this terminal, for three airlines, is based on getting the passenger and the airplane together in the shortest time and with the least number of steps. Yet, the airlines wished to keep construction costs to the minimum consistent with the functions of the terminal. To accomplish these objectives, the architects planned what is essentially a simple rectangular building with ticketing and baggage checking facilities near the front entrance, aircraft gate positions surrounding the passenger area, and the aircraft themselves parked close to the building. Because of these things, passenger circulation is simple, short, and direct.

The plan of the terminal reflects the simplicity of the over-all concepts of the program. Main passenger services are located on the main floor—each airline having its own ticketing and baggage facilities. Departure, lounges and such concessions as newsstands are also on this level for the convenience of the hurried passenger. On the mezzanine are the hold lounges, and the restaurant and other concessions. On the ground level are located most of the operations offices, employee lounge and cafeteria, and baggage handling facilities. Also on this level, but separated from the operations areas, is the passenger baggage reclaim area and the lower street level passenger exit.
Portion of Exterior at Passenger Gate Position

MAIN LOBBY: Ticket Counters From Main Lobby

GENERAL
—two level covered roadway at front of building; outbound passengers enter terminal from second level adjacent to ticket counters; incoming passengers depart from terminal at lower level near the baggage claim area
—aircraft gate positions placed around terminal itself rather than in fingers or satellites
—separate ticketing and baggage facilities, common public spaces for three airlines
—building design allows passengers to view aircraft operations on the ramp outside
—second level loading for outbound passengers, ground floor circulation for incoming
—concessions on main (second) floor

STRUCTURE
—steel columns in 36 ft square bays, with modified concrete flat plate waffle slab domes on three ft module; mezzanine floor slabs cantilevered

MATERIALS
—exterior side and rear walls alternating glass and light-weight block with porcelainized aluminum, inside and out, on second level; first level glazed masonry; front continuous glass wall
—windows fixed gray glass in aluminum frames
—main hall ceiling exposed waffle slab; suspended ceilings in other areas

SYSTEMS
—interior departure lounges with movable, covered passenger walkways to aircraft at selected positions; types of loading devices at other positions to be determined later
—building completely air conditioned and heated
—main lighting fixtures recessed into concrete waffle slab ceiling
—jet fueling, electric power, and other services located in apron at aircraft positions
Engineering at Idlewild has all the diversity that goes into the building of any city, plus some extraordinary solutions peculiar to a gigantic, international airport: hangars that grow to service huge jets, transfer of goods, terminal construction, and environment control.

**AIRCRAFT MAINTENANCE AND SERVICE FACILITIES**

Under central coordination of the Port of New York Authority, an international diversity of engineering talent has been brought to bear on a whole new city comprising a single transportation facility of enormous complexity. "More than any other engineering project, New York International Airport typifies the wide activities of the civil engineer: technical and city planning, construction, highway development, hydraulics, irrigation and drainage, sanitation, and structural engineering." This was part of the accolade of Glen W. Holcomb, president of the American Society of Civil Engineers, in presenting that Society's 1961 award to Idlewild as the outstanding civil engineering achievement of the year.

Achievements in other branches of engineering at Idlewild have also been publicized: the Illuminating Engineering Society's award for terminal city lighting, the Haire Airport trophy, the award of the American Institute of Steel Construction, a world-famous heating and refrigeration system, plans for a central fueling system which will provide plane-side hydrant service to each terminal.

**EVOLUTION OF THE HANGAR**

Less spectacular than the terminal buildings, but perhaps typical of the engineering progress notable at Idlewild are the hangars. The evolution of these utility buildings in size and structural ingenuity can be observed in the examples which have been built within the past decade at this single airport.

When the Port of New York Authority in 1947 entered into a 50 year lease with the city of New York to develop Idlewild, the city had already constructed two general purpose hangars in the then-conventional steel truss design. The Port of New York Authority immediately built hangars 3, 4, and 5, much larger in scale and designed to handle airplanes of a size which had scarcely been contemplated at that time. These hangars are 300-ft steel arch span structures open on both ends of their 200 ft depth. The large span of these hangars together with their 70-ft height proved realistic in design by subsequent developments. They can accommodate aircraft of any and every size; past, present and projected future.

Even as hangars 3, 4, and 5 were completed, specific requests for hangar space were made by National Air Lines and Lockheed Air Service. National Air Lines constructed a six bay steel bowstring arch structure with each bay having a 40 ft span on the basis of the DC-6 aircraft. Lockheed desiring more flexibility, selected a double-ended cantilever design.

The cantilevered hangar has important advantages: columns are eliminated; flat ceiling permits easier heating; lateral expansion of the building is feasible; costs are low.

John M. Kyle, chief engineer of the Port of New York Authority describes development of the cantilever hangar as a search for economy in the construction of larger unobstructed spaces. The firm of Ammann & Whitney collaborated with PNYA engineers in development of the exposed steel cantilever system used in hangar 7 for Lockheed and a roofed-in, cantilevered truss variant used in hangars 8, 9, and 10 for United, Eastern, and American. This system was selected on the basis of studies showing that it was possible to design a structure having a central core which can be used for shop and office space and that a successful cantilever could be developed in conventional steel, re-enforced concrete or prestressed concrete. Actual competitive bidding on these forms established that, in 1954, cantilevered steel construction
was 8 per cent less expensive than concrete for the same span and load conditions and 30 to 40 per cent less over-all than a three-barrel steel arch hangar.

It was found that radiant heating, although a very fine operational feature as demonstrated in earlier hangars, raised the unit cost approximately 2.2 per cent. In the hangars built at Idlewild since 1955 most heating systems are hot water serving down-blow unit heaters at doorways with conventional radiation in interior areas.

Using cantilever construction, it is possible to use large individually motorized sliding doors deriving power from overhead rails. A system of horizontally hinged door sections with a hip offset has been developed to take care of any roof movement. For safe operation, doors must be protected by devices which immobilized the mechanism when a man-door is opened or when a moving door comes up against any object in its path. Electric heating cable is used at door channels to prevent accumulation of snow or ice.

The next advance in hangar construction occurred in 1956 when Ammann & Whitney built a TWA hangar in Kansas City featuring a long-span, folded plate, concrete, suspended roof. This same construction was used for Pan American and TWA at Idlewild in 1958. The TWA roof extends 150 ft on each side of an 80-ft wide anchor structure, and the Pan American roof extends 130 ft each way from an anchor building 100 ft wide. Both allow 50-ft tail clearance at the perimeter. These are cable-supported cantilevers with attachment of cables to the reinforced upper member of anchor walls extending above and across the central core on 30-ft centers. Construction of these hangars has been described in detail in the ARCHITECTURAL RECORD for March 1958 and elsewhere.

Hangar floors are designed for aircraft weighing 300,000 lbs having approximately 90 per cent of the loading concentrated on the main wheels. Roofs are designed for 40 lbs per sq ft vertical downward live loads and 35 lbs per sq ft for uplift loads.

Facilities furnished in a typical hangar are varied. The quantity of space assigned to each function averaged by Ammann & Whitney from eleven hangars is listed in Table 1 with figures for Idlewild's Pan American and TWA hangars added.

### TABLE 1. SPACE REQUIREMENTS IN HANGAR BUILDINGS

<table>
<thead>
<tr>
<th>Space</th>
<th>Average Per Cent of Total Area</th>
<th>Pan Am</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hangar area</td>
<td>34.0</td>
<td>60.0</td>
<td>46.5</td>
</tr>
<tr>
<td>Shops</td>
<td>12.5</td>
<td>8.5</td>
<td>12.0</td>
</tr>
<tr>
<td>Stores</td>
<td>7.5</td>
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<td>9.0</td>
</tr>
<tr>
<td>Offices</td>
<td>11.5</td>
<td>11.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Traffic</td>
<td>4.5</td>
<td>4.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Rest rooms</td>
<td>2.5</td>
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<tr>
<td>Food Units</td>
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<td>2.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Medical</td>
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<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Mechanical</td>
<td>2.0</td>
<td>2.0</td>
<td>2.5</td>
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<td>1.0</td>
</tr>
<tr>
<td>Laundry</td>
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<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Misc.</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Interior of steel arch hangar, 300 by 218 ft, style 1 on page opposite, a PNYA design completed in 1950

Idlewild's Hangar 7, completed in 1954 for Lockheed is world’s first cantilevered hangar, style 3 opposite, a development of PNYA with Ammann & Whitney

Cantilevered trusses soar over 43-ft tail of Boeing 707 in American Airlines’ Hangar 10, a Kahn and Jacobs design in style 4, opposite, completed in 1958

Ammann & Whitney's prestressed folded plate, style 5, gives 50-ft clearance at TWA's Hangar 12, has less heated space overhead; note cable ties at beam ends

ARCHITECTURAL RECORD September 1961 181
Pan American's Hangar 14 by Churchill, 1958, another cantilevered folded plate of A&W design, style 5, with motorized hipped doors on rails adding 10 ft.

Air view of Hangar 14 shows how fin-like anchor walls for cables provide space for cooling towers and boiler.

Hangar 17 has cable-supported cantilevered steel beams (above), a variant of style 6, a PNYA design.

Still another cantilever type construction is represented in the PNYA design for hangar 17 constructed for foreign flag airlines. This is a cantilever steel beam construction with cable suspension as illustrated in third photo from top at left.

The Boeing 707 requires a space 140 ft wide and 150 ft from front to rear with tail clearance of at least 45 ft in height. PNYA engineers designed hangar 17 with 45 ft tail clearance and aircraft stations 170 ft wide, 180 ft from front to rear including a nose pocket extending into the core area of the hangar. There are three aircraft stations on each side with provisions for additional bays to be built as needed in the future. Cable suspension enabled engineers to use cantilevered girders only 5 ft deep and 3 ft wide for the necessary span of 158 ft. The usual uncabled design of a cantilever truss would have meant a unit 23 ft deep at midpoint. Cable suspension eliminated the dead space inherent with deep trusses and was appreciably less costly. Roof framing for hangar 17 cost about $4.50 per sq ft. A comparable through-truss cantilever roof would have cost about $7.50 per sq ft.

Ammann & Whitney in general discussions of hangar construction have pointed out that folded plate concrete cantilevers without strand supports at the outer end are usually limited to bay depths of 130 ft with the over-all depths of the folded plate varying from 3 ft at the outer end to 12 ft at the center core. This span can be increased, but the average unit cost increases quite rapidly with the further increase in span.

The unit cost of cantilever hangar construction has been increasing considerably with the growing length of new aircraft. Accordingly, vault type hangars, variants of the original hinged steel arch, offer considerable promise for jet aircraft hangars. A multiple of vault bays, each accommodating a single large plane, would permit a more flexible and accessible arrangement of either lean-to buildings or central core for use as shop-storage-office areas. The upward sweep of the vaults needed for structural economy furnishes space capable of receiving any tail height likely to be used on new aircraft.

Not all new hangars are huge. SAS' blue aluminum shed and brick lean-to by Kahn and Jacobs is adequate.

JET ENGINE OVERHAUL AND TESTING FACILITIES

A specialized complex within the hangar area is Pan American's engine overhaul building and test facility, designed by Burns & Roe. This group consists of two buildings, the larger of which is a fully equipped facility for dismantling jet engines, testing, cleaning and repairing components, and reassembling. The smaller building houses two cells for testing the completed engines.

The larger building is 332 by 162 ft arranged with disassembly shops near ramp entries on the East side. Other areas in a work flow pattern include cleaning, plating, machining, marshalling and reassembly arranged so that the final assembly area is near a ramp exit to the engine testing building. Personnel entry at the North end opens into a foyer adjacent to office space. Mechanics and shop employees by-pass offices through a corridor leading to locker areas. A second story over 62 ft of the North end of the building houses a lunch room, conference room, additional lockers and small parts storage. Boiler room on the first floor adjoins an accessory and drives test area acoustically isolated by concrete walls and acoustical surfacing.
Burns and Roe faced a more demanding problem in the engine testing facility. Although jet engines are fully assembled with mufflers, the noise of a jet engine operating in an enclosure is unendurable. Test cells are therefore of heavy concrete construction with special viewing windows through which an operator in the control room between cells can observe not only the instruments recording sound, fuel consumption, turbine rotation, and combustion temperatures, but can also see the operation.

Combustion air supply and exhaust are accomplished through stacks 20 and 22 feet square respectively. Acoustical treatment in the stacks, consisting of porous slat grating illustrated at right below, keeps engine noise within tolerable limits outside the building. Horizontal rolling steel doors seal off stacks when not in use. Access doors to the test chamber are sound proof.

AIRCRAFT FOOD SUPPLY
An adjunct to the servicing and maintenance of aircraft is preparation of food for service to passengers aloft. TWA maintains a commissary building exclusively for this service. Another larger facility is the Brass Rail commissary located in the cargo area and providing kitchen, storage, packaging, and loading areas sufficient not only for plane services but also providing basic preparation of foods for delivery to kitchens at the many Brass Rail concessions at the airport. Kitchen facilities in the commissary building are located near truck loading platforms. Food is prepared in serving trays and placed in insulated containers for delivery by truck to aircraft. Bonded liquor storage space is isolated from the main building by separate entrances and loading platforms. Louis Abramson, A.I.A., designed the building.
The nine-building air cargo center at Idlewild, soon to have two more buildings adding 126,000 sq ft of floor, handles the international transfer of millions of pounds of goods on passenger and cargo planes of about thirty tenant airlines, each having separate space and access.

Five buildings totaling 307,000 sq ft on the 80-acre site of International Cargo Terminal were placed under contract in July 1955 and completed in mid-1956 at a cost of $2 million dollars. Two new one-story buildings will add 126,000 sq ft more general cargo space by mid-1962. These, with present auxiliaries, will total 11 buildings.

Prelude to actual architectural and engineering design, said John P. Veerling, chief of the Aviation Planning Division, PNYA, describing the cargo center to a terminal facilities planning group, was development of a basic functional diagram indicating the inter-relationships of cargo and passenger terminals, runways, taxiways, hangars and the urban area that the airport serves. From these broad relationships, the airport master plan located the air cargo terminal on the peripheral taxiway system with direct vehicular access from major highways and, via the peripheral service road, to the several unit terminals. This last condition is significant because the major portion of air cargo today is carried on passenger or combination-type aircraft, rather than specialized air freight carriers.

In the cargo buildings themselves, each of 27 tenants desires an area for exclusive use for parking aircraft, truck backup, and automobile parking for employees and visitors. In addition, operations at Idlewild demand federal inspection headquarters (Public Health, Immigration, Customs and the Department of Agriculture), offices for brokers and forwarders, and in-bond storage warehousing.

The basic site plan contains four airline cargo buildings and one cargo service building. The service building is a two-story structure with in-bond storage and warehousing on the ground floor and brokers' offices and federal inspection offices on the second floor. Each of the one-story cargo buildings is divisible in 150-ft modules, each with parking area for 30 cars and aircraft parking pavement sufficient for one aircraft of current configuration. Interior columns are limited to one row effecting a 40-ft span in 30-ft bays. The interior building clearance is 12.5 ft based on equipment clearance requirements and maximum truck heights.

A point of interest is the floor level, 3 1/2 ft above grade with flat ramping down to the aircraft apron. With this cross-section, cargo can be rolled from truck to building to aircraft and vice-versa with no abrupt vertical change in grade.

Desirability of an unloading dock for the full length of the cargo building was considered, but analysis showed that lateral movement on such a dock would be negligible inasmuch as each of the tenants is operationally a separate entity.
The buildings are steel frame structures with brick masonry walls and built-up roofing over insulation and metal decking on open web steel joists. Ground floors are designed to 250 lbs per sq ft. The cargo doors are manually operated, wooden, overhead types; the windows, metal security sash.

The Port of New York Authority, as landlord, provides a basic building shell with block walls between tenants, a basic toilet facility for each tenant, and general heating and lighting. All other interior work—partitions, ceiling, differential lighting and so on—is performed by the individual tenant.

The Port of New York Authority would have liked at the outset, said Mr. Veerling, to incorporate into this cargo terminal facility, mechanical devices which would permit direct loading between cargo building floor and airplane. However, neither predictability of size and floor levels of aircraft nor experience with available equipment seemed to warrant a mechanical device which would represent an annual rental of approximately $15,000.

Pan American World Airways announced in June of this year that they plan to put into use a new palletized cargo loading system called AirPak at a cost of about $500,000 per plane for ten all-cargo DC-7Fs.

ANIMAL HAVEN

A.S.P.C.A. Animalport designed by the office of Alfred Easton Poor, provides a central, enclosed, unloading area, facilities for housing, caging, feeding, and exercising small animals on one side and large animals on the other. On the second floor is an apartment—the only residential space at Idlewild—where a veterinary doctor and his wife live.

AIRPORT MAIL FACILITY

A 56,000 sq ft Airport Mail Facility (Cort, Glickman, Goldsmith, and Leinhardt) processes air mail in the cargo center and provides regular U.S. Post Office service for air travelers and employees.
Engineering control of the Idlewild environment, thermal, acoustical, and visual, includes some large and handsome accomplishments: a 655-acre heating and cooling system, the world's largest air door, acoustical treatment vs. the jets, a 4-acre cartwheel, a 3000-yard concrete bird

Size, number, and complexity, rather than innovation, characterize most of the technical accomplishments at Idlewild. Hundreds of miles of pipe and duct, interlocking control systems, untold design hours devoted to systems for heating, cooling, fueling, lighting, communications and traffic control; these have helped to create at Idlewild a veritable city whose 30,000 regular inhabitants are transported in and out of the area each day to serve the goings and comings of an even larger traveling population.

CENTRAL HEATING AND COOLING SYSTEM
Centrally located with its glass façade overlooking the fountain-decked mall leading to the control tower is the central heating and refrigeration plant. This Skidmore, Owings and Merrill design is an exhibition hall for the rows of huge white absorption chillers and darkly colored high temperature water boilers with their pastel forest of color-coded piping and clean tile surroundings. The building serves the district heating and cooling system designed by Seelye, Stevenson, Value & Knecht. This is the world's largest application of high temperature water as an energy source for both heating and absorption cooling.

The distribution piping transports hot water at 400°F and 250 psi for heating and chilled water at 45°F for cooling to each terminal building. The original plant consisted of four La Mont type boilers with a total capacity of 160 million btu per hr and nine absorption refrigerating units of 750 tons capacity each for cooling. Two additional boilers and four new absorption units will add capacity to handle the new terminals for TWA, Northeast, and the proposed multi-airline terminal.

Central heating and cooling makes it possible for terminal buildings to eliminate boiler rooms, fuel storage, cooling towers and other space-consuming appurtenances of environment control. At each terminal a heat exchange arrangement, such as the Pan American unit shown at left below, generates low temperature hot water which is used in conventional systems for heating the individual buildings.

Chilled water at 45°F from the central system is piped directly to coils in fan rooms at convenient locations in each building and returned to the central system at 55°F.

The underground distribution system was installed in reclaimed land where the water table is about 4 to 6 ft below grade. Therefore, the six miles of hot water piping had to be installed in a pulverized natural asphalt insulation which was poured around the pipe in the open trenches and precured before back filling. Chilled water mains run adjacent to hot water mains separated by about 2 ft. These are insulated by expanded plastic.

Fuel for the boilers is stored in a 5000 barrel spherical tank above grade adjacent to the central building. Three cooling towers serve the refrigeration system. Automatic valves in the hot and chilled water lines maintain constant chilled water temperature and balance the load automatically among the absorption machines.

An interesting feature of the plant, says Charles Broder, PNYA mechanical engineer, is the valve pit directly in front of the building. Supply and return mains go into the pit through pipe trenches. Four distribution zones are fed from these mains. By installing zone controls outside the plant building, the cost of enlarging the building for this additional equipment was saved.
AIRPLANE COOLING
Most of the airlines cool parked planes by conventional refrigeration trucks which are run up to the plane. The Pan American terminal has a system of underground ducting from four 60-ton refrigeration machines, separate from the central cooling system, serving hydrant stations on the apron from which flexible duct connections are made to parked planes.

AIR DOOR AND ACOUSTICS
The Pan American terminal has the world's largest air curtain door at the inbound traffic entrance. The opening is 89 by 10 ft. Six 75-hp fans on the roof of the terminal move 600,000 cfm of recirculated air downward through a glass plenum which forms the front wall over the doorway. Bottom of the plenum is an 8-ft wide, full length adjustable louver capable of directing the air stream at a favorable outward angle according to wind pressure from the outside. The air stream velocity can be adjusted to three speeds. At its highest velocity and widest outward angle, the air stream can withstand the inward pressure of a 20 mile an hour breeze. The air curtain enters a wide floor grille which is ducted around the ends of the door for return to the fan room. The air door was designed by architects, Tippetts, Abbet-McCarthy, & Stratton and Ives, Turano and Gardner with Sulzer Bros., Inc.

The air door in combination with the 114-ft overhang of the elliptical roof of Pan American terminal under which jet planes approach loading positions created an acoustical problem. In addition to its esthetic qualities and practical utility as a shelter, it presents a large flat underside which could be a sounding board for the noise of jets.

Lewis S. Goodfriend and Associates, consulting engineers in acoustics, recommended treatment for the building. Their analysis of scale models showed the following to be of importance: (1) Acoustical material on the underside of the canopy; (2) thickness and mounting of glass walls; (3) shielding for the air curtain door; (4) noise control at loading gates. (5) Noise control for the air curtain system and for air conditioning equipment.

The architects desired a monolithic appearance for the underside of the canopy and a transparent inner structure with as little opaque wall as possible. Treatment for the underside of the canopy required a material that was incombustible, resistant to moisture, could be cast in place at reasonable cost, and was acoustically similar to foamed glass. A manufacturer (Pittsburgh Corning) had been experimenting with acoustical cellular glass. They supplied about four acres of their new product in 3-in. thick, 18 by 24-in. blocks on which a non-bridging paint presents a monolithic appearance.

The consultant's studies showed that sound control screens should be placed at each end of the air door, full height to the roof, and ex-
Framing for cantilevered canopy over PAA car ramp

Laying steel on forms for a poured shell at TWA

Leap-frogging counterforms creep up steep TWA sides as pourers lead and finishers follow, a timing tour de force to make a monolithic shell in one pour

Transparent tunnel for passengers is also pressurized fresh air supply for satellite to keep jet fumes out

A thing of beauty is an underground pumping system tending 54 ft toward the ramp. The architects, however, demurred, so a 10-ft screen, minimum to shield the door against cross winds, was used. This, says Lewis Goodfriend, is a serious acoustical compromise which permits sound levels to exceed design (NC-55 at the information desks vs. 65 outside) but only at brief peaks during taxi-out conditions. Personnel have no difficulty with speech interference at the two information desks or at baggage check-in counters.

All other Goodfriend acoustical recommendations were accepted by architects and owners. These include selection of 1/2-in. plate glass resiliently mounted for wall sections; vestibules with considerable acoustic treatment at gate positions; treatment of fan systems with glass fiber duct lining; careful entry and turning arrangements, etc.

**TWO CONCRETE SHELLS**

The variety of structural techniques at Idlewild comprises an encyclopedia of method from the conventional to the most unusual. Contrasting examples of the unusual are the cantilevered carousel roof of the Pan American building and the poured concrete shell of TWA.

Over four acres in area, framing of the Pan American roof is like a huge elliptical wheel with 32 spokes. Spokes are prestressed steel beams centrally anchored to tension columns and supported at about mid-point by a series of piers. A stanchion mounted over each pier provides bridging for six 21/2-in. cables attached at the hub and at the outer end of each beam, 114 ft beyond the piers. Welded wire fabric reinforces a 4 in. thick lightweight concrete slab between the radial girders to achieve a concrete canopy designed for a snow load of 40 psf. Acoustical glass block was laid on formwork hung from girders before pouring began and formed the surface of the ceiling.

The roof of the TWA terminal consists of four arched shells arranged symmetrically about a North-South axis. Each shell tapers downward on either side to buttresses at grade level. Shells meet along the axis in a junction which tapers downward tying all four together.

Resident architect for Eero Saarinen is Ralph W. Yeakel, who shepherded this complex structure through raising of concrete forms and around-the-clock pouring. He describes how the initial concept of the building shape was translated through a series of models modified by structural analysis. Architectural plans were drawn concurrently with Ammann & Whitney's structural design—an unusual trial and error approach which proved practical because of the many unknowns.

The next task confronting the architect was to interpret the design for execution by the construction contractor, Grove, Shepherd, Wilson & Krume. The problem of forming 3200 cu yds of concrete, through continuous and simultaneous pourings, into four perfectly balanced monolithic roof sections 60 ft above ground, free of cracks, shrinkage stresses, and construction joints was monumental. A complete manual was prepared covering every detail from forming to finishing. Time, the all important factor, was pinpointed with unforgiving tolerances.

A jungle of scaffolding was built, with 1800 columns of tubular steel to support the face roof form. Work stations were numbered and, when pouring began, 1-yd buckets of concrete were coded to assure delivery to their proper area. Inspection crews at ground level observed a system of hanging plumbs under the roof. The slightest movement in formwork was radioed to a central control station so that the next bucket load of concrete could be directed to a compensating point.

Concrete mixes for shell and buttresses were varied in density and setting time according to a precise schedule, but all were required to produce an over-all uniform appearance. Haller Testing Laboratory and Master Builders Company assisted in the design of mixes.

Five reflecting pools and four fountain pools enhance the terminal plaza at Idlewild. Largest of these, Liberty Fountain, is 200 ft in diameter. It has a 600-gpm center jet 70 ft high and eight satellite jets 30 ft high, all surrounded by a 10-ft curtain of water 75 ft in diameter from 860 jets discharging 1700 gpm. Recirculating pumps vary the discharge of each unit by a cam-controlled program. Lighting in three colors is synchronized with pump operation.
PASSENGERS AND BAGGAGE

To get six million passengers a year and all their baggage on and off planes and through customs without loss or damage or exposure to weather requires some large spaces and ingenious devices: telescopic corridors from lounge to plane, conveyor belts that think, acres of customs counters

PAASSENGER LOADING

(Left) Truck-motorized stairways for fair-weather passengers on BOAC
(Right) Self-propelled, telescoping corridors to and from lounge nuzzle up to UAL jets

(Left) PAA’s canopy-protected ramps swing on radius to plane position
(Right) AAL has short, enclosed, telescoping ramp with weather seal at plane door

BAGGAGE HANDLING

(Left) Check-in counter at PAA where baggage is weighed, then belt-conveyed to lower level for loading
(Right) Supermarket counters and carts for customs inspection area

(Left) Hand delivery from trucks to sloped metal pick-up counter
(Right) Belt delivery to pick-up area with automatic kicker that spaces bags on sloped counter. Visible at far end, kicker mechanism proceeds along belted track as bags are delivered
AUXILIARY BUILDINGS

The major buildings at Idlewild are, of course, the ones which cater to the passengers, the cargo, and the aircraft. However, no picture of Idlewild can be complete if it does not include the service and other buildings that are integral parts of the over-all planning concept.

There is a great variety of auxiliary buildings at Idlewild. Some are vital to the functioning of the complex as an airport. Others are here simply because space was available that was not needed for aeronautical purposes, but was perfectly adaptable for income-producing properties. Buildings of the first type contribute directly to the feasibility of Idlewild as an airport, the second type to its economic feasibility.

Among the buildings which are part of the master functional plan are the following: Central Telephone Building (Architects: Voorhees, Walker, Smith, Smith, Haines)—under construction at present time, the building will house complete equipment for handling the 7500 telephones and 2 million calls a week at Idlewild. The First National City Bank Building (Architects: Skidmore, Owings & Merrill) provides a complete banking service for the businesses and employees. International Hotel (Architect: Williams, Tabler) has 520 rooms and complete facilities for conventions and other occasions. Several other hotels are located near the airport property. The Carey Transportation Bus Garage (Architects: Brody, Hopf & Adler) provides office space and required facilities for garaging and maintaining the buses used for transportation between the buildings of Terminal City and to and from the airport.

Several buildings at Idlewild were designed by the professional staff of the Port Authority. Among these is the Port Authority Office and Grounds Maintenance Building. This building provides space for repair and maintenance of grounds vehicles, and such shops as electrical, sheet metal, and plumbing. Catholic, Protestant, and Jewish chapels have been programmed for the airport. These are in the preliminary design stage in the offices of the architects: George J. Sole (Catholic), Edgar Tafel (Protestant) and Block and Hesse (Jewish). The centrally located Gulf Service Station (Architect: Edward D. Stone) serves the public and the operating personnel of the airport. The Medical Building (Architect: Joseph Schafran) contains complete facilities for the medical practice of three doctors. In addition, it has been designed for handling special testing and treatment required by the airlines or their passengers. Other structures which are part of the Idlewild operation include the Water Pumping Station and the Fuel Storage facilities. In addition to the services occupying separate buildings, a number of smaller facilities are located in the International Arrival Building and the individual terminals. Among these are such things as newsstands, restaurants, a dentist’s office, and many others.

In order to make Idlewild economically feasible as an airport operation, much of the area not used for aeronautical or related purposes has been developed as leased office building and industrial properties. Among these properties are the Seaboard & Western Office Building (Architects: Kahn & Jacobs) and the Federal Office Building (Architects: Edwards & Hjorth). Several industrial plants were designed and constructed by the Port Authority. Two existing buildings are to be removed in the near future: the temporary passenger terminal which will be replaced by the new Multi-Airline Terminal and the Catholic Chapel to be torn down when the new chapel has been built.

ARCHITECTURAL RECORD articles on airport planning, published in the past two years, include: Jet Airports—Passenger Terminal Building Design Principles and A New Airport for Jets—Dulles International Airport, both in March 1960; Memphis Airport, April 1960; Four Airports, September 1960. The majority of the photographs appearing in the Idlewild story are by Joseph W. Molitor or staff photographers, Port of New York Authority; others by David Hirsch, Felix Gilbert, Joseph Knight, and Ezra Stoller.
Acoustical Tectum, for walls and ceilings, offers unique textures in a variety of forms. The conference room above is typical. Near perfect acoustics are achieved using Tectum suspended ceiling panels and special wall panels painted in harmonizing shades. The walls augment the sound absorption qualities of the ceiling materials. Ceiling tiles are 24 x 60; all Tectum acoustical products are available in both standard and special sizes.

Tectum Pan-L-Art Decorative Acoustic Products include Sculptured Wall Blocks, Multi-Plane Ceilings and Geometric Panels for wall acoustics. Available in 23 decorator colors. Pan-L-Art offers distinctive textures for both walls and ceilings in unlimited design combinations. Write Tectum Corporation, 535 East Broad Street, Columbus 15, Ohio.
Kahn & Jacobs, a.i.a., design an **air terminal**

Observers familiar with air traffic expansion predict that more than 2000 jet transports, each carrying approximately 200 passengers, will fill the airways by the end of the decade of the sixties. To these transport flights must be added a growing number of private passenger planes which even today total more than 75,000. These figures do not take into account the non-jet flights which airlines are expanding to serve an increasing number of communities.
view of this prospect of burgeoning passenger traffic, though airports which are barely adequate for present needs, the architectural firm Kahn & Jacobs, A.I.A., New York City designed their prototype air terminal after a commission from Carey.

The details of this Kahn & Jacobs project suggest uses a number of Carey building products. The purpose of the detail drawings is to propose solutions for similar problems which could show up on the boards in any office, anytime. Carey materials specifications as incorporated in the Kahn & Jacob details have been assembled in a convenient file folder for your personal use. May we send you a copy?

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  - Confessionaire for the hard of hearing
  - Exhaust fans for air control
  - Ornate metal work on oak or birch door
  - Sanitary screen-o-fane translucent
  - confession screen
- Quality at low cost

Acoustical qualities are achieved by the composite use of sheet metal and sound absorbing components. The automatic traffic control lights are operated by a pressure switch contained in the padded kneelers. Confessionaires for the hard of hearing are electrical, switch operated hand receivers. A 24" x 75½" single leaf, 2" thick door with an intake register grill that assists the exhaust fans in air control. The inside compartment dimensions are:

Middle Section—2'6" wide x 3'2" deep x 7' high
Each Side—3' wide x 3'4" deep x 7' high

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When sensitive electronic equipment is to be used in a building, the architect must take this fact into account in the design of spaces surrounding the equipment. The problem is to prevent *radio frequency interference* from disrupting the operation of electronic devices in such buildings as military structures, electronic manufacturing facilities and well-equipped modern hospitals.

Typical of recent installations are those by Skidmore, Owings & Merrill, N. Y., in the design of operating rooms for Bellevue, Columbia Presbyterian, and Temple University hospitals; Rogers & Butler, N. Y., for a number of electronic hospital facilities; Metcalf & Eddy, Boston, and Elheimer & Wagner, N. Y., for ballistic missile early warning stations in Greenland; and Sanders & Thomas, Philadelphia, for the FAA's National Vibration Experiment Facility at Atlantic City.

**Need for Shielding**

A simple example of radio frequency interference is the disturbing pattern which sometimes appears on the TV set with the passing of an airplane, a power mower, or a trolley. Though only a minor annoyance to some entertainment, these disturbances can be critical in military electronic work or during a medical operation. Even non-military interference is generally in violation of regulations of the FCC, and violators can be prosecuted.

Electronic interference is a two-way proposition. In most cases it is necessary to prevent external influences from disturbing critical internal work. In others it is necessary to prevent internal influences from disturbing electronic receivers in the surrounding community.

The method used is an electronically shielded enclosure built entirely around the space in question. Just as building helps to keep temperature influences in or out, a shielded enclosure helps to keep invisible electronic influences in or out.

In such facilities, electronic shielding must be included in the architectural design. It is necessary to call on specialists for this work since conventional constructions will not block the passage of radio frequencies, and a knowledge of electronics is vital to meet the many variables involved. Here, ninety-nine percent perfection is no better than failure, for one electronic leak renders the entire enclosure practically worthless.

**Types of Enclosures**

A simple shielded enclosure of today consists of a number of interchangeable modular panels which are bolted together in a special manner (often solid-type enclosure has modular panels covered with copper or galvanized iron sheets. The panels are fastened to channels of copper-plated or electro-galvanized steel). The panelized enclosures covered with wire screen or metal sheets. Special techniques are required to insure complete efficacy of the installation.

Cell-type enclosure has wire cloth wrapped around wooden frames to provide a double electronic shield. Enclosures can be finished with conventional materials.
Building Components

with special structural elements designed to prevent electronic leakage) to form the walls, ceiling and floor of a working area. They are made as small as a bench box for production line manufacture of electronic components, and have been made as large as 100 by 50 by 18 ft high.

The panels are made of any of a number of materials depending upon the electrical parameters, the physical requirements, and the cost. Most common is the "cell type" which consists of 22-mesh copper wire cloth wrapped and fastened around wooden frames to provide a continuous double electronic shield, each shield being one inch apart from the other. Inner and outer layers are connected by being overlapped firmly around the periphery of the panel frame. Single shield enclosures of 22-mesh copper or galvanized steel wire cloth are also available for less critical applications.

Another basic panel type is the "solid" shield made of copper sheet (16 oz weight, .031 in. thick) or galvanized annealed iron sheet (24 gauge, .028 in. thick) joined together by a combination of rigid, copper-plated or electro-galvanized steel channels and tensioners which assure maximum freedom from interference leaks. Although developed later than the "cell-type" enclosure, this enclosure is requested more frequently today because of its sound reduction properties, the privacy it provides, and its flexibility of use either indoors or out.

In addition to the basic shielding panels, there are a number of special panels to accommodate different types of use. Access doors, for example, can be hand-operated and no larger than a single panel, or as large as an entire side, operated automatically by an electric or hydraulic mechanism including complicated interlocks.

In most cases doors are made of the same material as the wall panels. Contact with the walls, necessary to maintain the continuous shield, is effected through two sets of phosphor bronze contact strips around the periphery of the door. These strips are usually placed at right angles to each other and positioned so as to straddle effectively the outside corner of the door jamb. The strips make contact against a copper or brass covered door buck or saddle. The door buck, in turn, must be installed so that the integrity at the joints between any two wall panels is maintained. Normally the contact strips are arranged so that one set wipes into the door buck and the other is in compression. This seal requires a wedge-type locking system capable of applying the required pressure. Shielded doors are available as complete units and are not to be confused with ordinary hollow metal doors and metal door bucks which cannot be expected to meet the electronic requirements.

Other special panels include service entries to accommodate the passage of materials and filter panels to permit entry of various services such as air, gas, electricity, water etc. Each of these must be designed so that they permit no interference leakage when the room is in use. Shielded enclosures are usually erected at the point of use. They can be installed in both new building and old. Wall, floor, and ceiling panels can be set within 2 in. of the surrounding construction. If desired, they can be anchored directly to the surrounding construction materials, regardless of type—masonry, steel, wood, composition board, etc. Type of fastening is critical, however, since improper fastening can destroy the shield. If the building is new, enclosure panels can be bolted to the rough finish interior—furring masonry, steel, etc.

Once the enclosure is erected it can be used as is or its interior can be finished further with all conventional materials including paneling, acoustical materials and even carpeting or concrete for the floor. In this attachment of such finishes great care must be taken to avoid piercing the shield with nails, screws, staples, etc. On "cell-type" rooms, attachment can be made with short heavy gauge screws which do not penetrate both shields. A better procedure is to use closet bolts which can be soldered to the screen at the point of penetration. The best practice is to install furring strips against the shield walls by means of closet hangers and to apply the finish material to the furring. This method produces an air space which provides additional protection against accidental damage or grounding of the shield. On the solid enclosure, furring is attached directly to the framing with machine screws at a point which does not permit penetration of the shield.
KNOLL ASSOCIATES INTRODUCE RESIDENTIAL FURNITURE

Knoll Associates' expanded collection of residential furniture includes the group of chests at left and the night table above right. The chests are of teak, placed on a chromed steel base. The night table has a shelf and a drawer with plastic fittings. The top is available in walnut, teak, or white plastic. Knoll Associates, Inc., 320 Park Ave., New York 22, N.Y.

FIBERGLAS REINFORCED ACRYLIC PANELING

Owens-Corning Fiberglas Corporation has introduced a series of translucent panels, made of acrylic plastic reinforced with glass fiber, under the name of "Fiberglas Daylighting Panels." The panel is of three-ply construction, a heavy center ply of Fiberglas reinforcing mat is sandwiched between the surfacing mat on each face of the panel. An acrylic resin is employed as the bonding agent, which is said to improve both weather resistance and light-diffusing qualities.

The panels are available in four colors: "Industrial Frost," with 80 per cent light transmission; white and light green, with 75 per cent light transmission; and medium green, with 60 per cent light transmission, for use in reducing direct sun, heat, or glare. Applications suggested by the manufacturer include skylights, partitions, replacements for existing ash and glazing, and equipment housings. The panel is shatterproof, and is not subject to rot, rust or corrosion. Owens-Corning Fiberglas Co., 17 Fifth Ave., New York, N.Y.
Swimming Pools
The Paddock Pool Equipment Co. has announced the release of an 112-page Design Manual. It includes information on the requirements of the A.A.U. and other athletic organizations and the minimum standards of the National Swimming Pool Institute. A number of typical pools and equipment installations are shown, and 44 pages are devoted to specifications. A final chapter contains data relating to the size of recirculating piping. 

Lighting Troffers
A new 44-page illustrated handbook of recessed fluorescent equipment is now available from Globe Lighting Products. The catalog describes the company's line of modular troffer units which are available with plastic lenses as well as a number of glass and metal shieldings. Details and data are provided for a wide variety of sizes. 

Fan Capacities
A new 44-page illustrated catalog describing the American-Standard line of HS Fans is now obtainable. The bulletin discusses construction features of the fans and describes available drive arrangements, configurations, and types of drive. Capacity tables are also included for all 12 sizes in both single-inlet, single-width and double-inlet, double-width designs. Outline drawings are keyed to tabulated dimensional data to provide working layout dimensions. A typical specification is also provided. 

Electrical Supports
A new 24-page catalog that illustrates basic slotted channel, fluorescent hanging systems and fittings for electrical supports is available from the Power-Strut Div. of Van Huffel Products, Inc., Warren, Ohio. 

Fire Protection
The National Fire Protection Association has announced the publication of four pamphlets: "Fire Doors and Windows" (70 pages, $1.00), "Air Conditioning Systems for Other Than Residences" (26 pages, sixty cents), "Warm Air Heating and Air Conditioning Systems for Residences" (24 pages, fifty cents), and "Water Cooling Towers" (11 pages, fifty cents). 

Make-Up Air Systems
The Reznor Manufacturing Co. has produced an eight page introduction to the principles of designing make-up air systems, that is, methods of providing replacement air for areas where mechanical exhaust equipment is in use. The booklet also includes information on the appropriate Reznor furnaces and blowers. 

Cafeteria Counters
The Southern Equipment Co. has released a revised catalog of sectional cafeteria counters. Consisting of 40 pages, the catalog is divided into two sections, one listing 30 in. wide sectional units and one listing 24 in. units. All the sections manufactured are itemized, and both general and mechanical specifications are included. Front elevation drawings, dimensional drawings, and roughing-in details have been provided. Also listed are optional accessories, types of front panels available, and suggested floor plan layouts. 

Light Gage Steel Manual
The American Iron and Steel Institute has published a 1961 edition of the Light Gage Cold-Formed Steel Design Manual and a companion Commentary volume. This third edition of the Design Manual includes the 1960 edition of the specification, and the supplementary information, charts and tables have been considerably expanded. The Commentary is intended for both the practicing engineer and the teacher. It presents the characteristics and performance of formed steel structural members and describes the reasoning and justification of the various provisions of the Specification. Manual $1.00, Commentary fifty cents. 

Built-Up Roofing
A new 28-page catalog lists data and specifications of Carey Bonded Built-Up Roofs. The manual includes a Roof Selector Guide, an explanation of the Carey Bond, and general requirements for built-up roofing specifications on nailable and non-nailable decks and materials. Application information includes details on steep deck and dead level roofs, insulation, and the sealing of joints. Also included are flashing details for various typical situations, such as vent pipes, gravel steps and gutters, expansion joints and so on. The catalog is available at Carey district offices or from The Philip Carey Mfg. Co., 320 S. Wayne Ave., Cincinnati 15, Ohio. 

*Additional product information in Sweet's Architectural File

more literature on page 234
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ARCHITECTURAL RECORD September 1961 211
Inside...outside...the colorful look

Dearborn Township School, Wayne County, Mich.

South Lyon Elementary School, South Lyon, Mich.

Ray M. Hatton Elementary School, Bridge City, Texas
Architect—Goleman & Rofe, Orange, Texas


Central Elementary School, Warsaw, N. Y.
Architect—Trevor Rogers, Buffalo, N. Y.
of AmBridge Modular Construction

The architects who designed these schools all used AmBridge Modular Construction. Yet, each school has its own distinctive character because it was individually designed.

In a matter of a few months you can have a spacious, colorful new school designed to fit your needs and budget. AmBridge Modular School components are precision-fabricated before they reach the job site, so it takes only a handful of men to erect them. Think of the time and money that saves.

These distinctive schools will look just as bright and colorful years from now because baked enamel or vinyl interior partitions sparkle with an occasional pipe, and normal rainfall keeps the porcelainized exterior walls apple clean.

The steel walls are less than 3" thick, yet provide unexcelled sound control and better insulation than conventional 12" wall plus plaster. And because walls are so much thinner, they provide about 5% more floor space compared to conventional construction.

There it is. Fast construction. More space. Competitive cost. Style. If you'd like to have more information, write for our 24-page booklet. American Bridge Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

American Bridge Division of United States Steel
DIAMOND HEIGHTS, RED ROCK HILL
Choicest and fairest in all San Francisco, will be sold on a simple dollar bid basis October 24, 1961. Here in the City's heart is a twenty-two acre residential site, pre-designed and developed for about one thousand apartments. Available to developers are four architectural designs, chosen in national competition. Write to San Francisco Redevelopment Agency, 525 Golden Gate Avenue, San Francisco 2, for Developers Guide Statement, DIAMOND HEIGHTS, RED ROCK HILL.

MERELY SAN FRANCISCO’S FINEST VIEW

The MITCHELL MOTIF | A new concept in Controlled Brightness

The “Control-lens” offered in Mitchell’s MOTIF assures ideal low brightness illumination to provide the ultimate in comfortable visual environment. Not just a diffuser, but a lens of refractor prisms that directs high-level illumination without glare. The smartly styled shallow-profile of the MOTIF (apparent depth 2 3/4” thin) lends itself to modern interiors. Write for complete engineering and photometric data.

LIGHTING DIVISION
COMPCO CORP., 1800 N. SPAULDING AVE. CHICAGO 47, ILL.

FOR SAFER, MORE COMFORTABLE, ENJOYABLE LIVING

NEW TALK-A-PHONE ALL TRANSISTOR HOME INTERCOM-RADIO SYSTEM

Everyone in the family will enjoy the comfort, convenience, and peace of mind this system provides. From any room in the house you can . . .
- Listen-in on baby, children, or sick room.
- Answer outside doors without opening door to strangers.
- Talk to anyone—upstairs and downstairs, inside and out.
- Enjoy radio in every room with the simple flick-of-a-switch.


World Honored for Style, Quality, and Dependability,

TALK-A-PHONE CO.
Dept. AR-2 5013 N. Kedzie Ave., Chicago 25, Illinois

A.I.A. File No. 31-21
The Russwin Citation Lever Design for "10-Strike" Mortise Locks features sag-proof construction.

the russswin "R"
...what it means in pace-setting styling

The addition of the new Citation lever design provides a smart "Continental" look to the popular "Ten Strike" line of mortise locks. Pace-setting styling... unsurpassed quality... unique construction... the Russwin "R" assures all this, and more. It assures the services of a specialist, your Russwin distributor. He offers the finest in doorware... and competent help with doorware problems. Let him serve you.
NEW FROM
A SERIES OF SEATS TO

Check These Beneke Benefits
✓ HEAVY SECTION / HEAVY DUTY
✓ HIGH-IMPACT POLYSTYRENE
✓ BLACK / WHITE / FIXTURE COLORS
✓ STAIN PROOF AND FADE PROOF
✓ RESISTS MOISTURE / OIL / ACID
✓ SUPER-SMOOTH SURFACE NEVER PITS, PEELS, DENTS OR CRACKS
✓ MATCHING MOLDED HINGES WON'T CORRODE—EASY TO KEEP CLEAN
✓ Sized to fit all standard bowls—regular and elongated
✓ POLYETHYLENE BUMPERS OUTLAST RUBBER, YET ARE REPLACEABLE

OPEN FRONT—LESS COVER
No. 423 designed for regular bowls.
No. 523 designed for elongated bowls.

CHOOSE THE RIGHT HINGE FOR EACH APPLICATION FROM 5 BENEKE TYPES

Regular  Check  Self-Sustaining  Self-Sustaining Check  Self-Raising
CLOSED FRONT—WITH COVER
No. 420 designed for regular bowls.
No. 520 designed for elongated bowls.

CLOSED FRONT—LESS COVER
No. 422 designed for regular bowls.
No. 522 designed for elongated bowls.

* Beneke... the first name in toilet seats—now the last word in specification quality seats.

BENEKE CORPORATION
DISTRIBUTED BY PLUMBING WHOLESALERS
Since 1958 American Airline's Hangar #10 has been protected by Balfour Automatic Rolling Steel Fire Doors. These doors combine automatic fire protection with the dependable service essential to quick aircraft maintenance in this jet age hangar.

Aluminum Swimming Pool
A typical installation of a Chester all-aluminum pool is on the sixth floor rooftop deck of the new Robert Meyer Hotel in Jacksonville, Fla., William B. Tabler, architect. The pool is 20 ft by 40 ft, and 3 ft to 8 ft 6 in. deep. The pool can be installed on rooftops or setbacks, on top of slabs, or suspended between buildings. It can be relocated in the event of remodeling or expansion. Lighter than conventional swimming pool construction, it is warranted against cracks, rust, or seepage. It has built-in recirculating ducts and all welded fittings. The pool is delivered to the site in factory fabricated sections. Construction is of an aluminum, magnesium, manganese alloy; joints are sealed by M. I. G. arc welding, smooth-finished, and vacuum tested for watertightness. The pool can be converted to an ice-skating rink by the addition of special inserts, and can be adapted to serve as the water tower for a sprinkler system. It comes equipped with a self-contained Diavac filter which does not require a special filter room. Piped, wired, andvalved at the factory, the filter system needs only be positioned and connected when it arrives at the site. The pool can be obtained in a variety of shapes, including "T", "L", Wedge, and "Z". Chester Products, Inc., Belle Ave. and B & O R.R., Hamilton, Ohio

Product Reports
continued from page 208
What’s News in Rubber...

LIGHTWEIGHT, DURABLE, permanently flexible and applied cold – that’s the colorful new Butyl roofing system at Longway Planetarium, Flint, Mich., designed by Smith, Hinchman & Grylls Associates, Inc. (Detroit).

PROTECTION FOR BUILDING FOUNDATIONS from both hydrostatic pressure and water infiltration is provided by sheeting of Enjay Butyl rubber. Butyl’s high tear strength withstands rough handling on the job site.

Enjay Butyl...for top-to-bottom protection

Enjay Butyl, when properly compounded and processed, offers outstanding resistance to aging, ozone and oxidation; high tear strength and low permeability to gases and moisture.

Enjay supplies raw material to manufacturers of Butyl rubber products for the building industry. We will be glad to furnish a list of reliable manufacturers, or to work with you in the development of new Butyl applications. For your copy of our new folder, “The Versatile Rubber for Modern Building Design,” write to Enjay, 15 W. 51st Street, New York 19, New York.

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY
A DIVISION OF HUMBLE OIL & REFINING COMPANY
The British and Swiss Embassies in Washington are recent examples of fine masonry work on which John McShain, Inc. has used Lehigh Mortar Cement.

They know from long experience that the workability and plasticity of Lehigh Mortar Cement help masons do top quality work—that its uniformity and durability contribute to clean, strong, weathertight walls.

Whether you design embassies or ranchers, traditional or modern, you can approve Lehigh Mortar Cement with assurance that it exceeds the most rigid Federal and A.S.T.M. specifications. Lehigh Portland Cement Company, Allentown, Pa.
A complete line of Vertical Enclosed Shaft Non-Clog Pumps

FOR HEAVY DUTY PUMPING OF SEWAGE, SUMP AND STORM WATER, CONTAINING SOLIDS

Chicago pumps are durably built units featuring micrometer ball bearing adjustment of rotating elements, tongue and groove registering, and oversized bearings. The Chicago two port non-clog impeller remains in natural hydraulic balance throughout the pumping cycle. All impellers are also dynamically balanced.

Manufactured by Chicago Pump, with over 52 years of unequalled experience in the design and manufacturing of non-clog pumps. Backed by a reputation for excellence in design and outstanding service to its thousands of satisfied customers. Write for Bulletin 124-G.

HIGHER CAPACITY VCS PUMPS

Pumps range from 4" thru 10" discharge size available for single or duplex installation. All pumps incorporate the same high grade materials and machined tolerances for extended life.

EXCLUSIVE SEALTRODE

"Sealtrode", sealed electrode floatless pump controller is a dependable control for any installation. Electrodes cannot become coated or insulated with grease, oil, soap or solids. Elements never corrode as they are sealed from the liquid being pumped.

10" VCS Pumps pass 5" spheres.

HYDRODYNAMICS DIVISION

CHICAGO PUMP

©1961—CP-FMC

ARCHITECTURAL RECORD September 1961
... provides permanent
WALKING SAFETY!

In all types of buildings where foot traffic is very heavily
concentrated, stairways, floors and ramps of NORTON
ALUNDUM Terrazzo Aggregate provide a rare combination
of lasting beauty and permanent walking safety.

The use of Norton ALUNDUM Aggregate makes it pos­
sible to enjoy the outstanding advantages of terrazzo in many
locations where its regular use might not be practical. Used
in the surface in the proper proportion, Norton ALUNDUM
Aggregate provides terrazzo walking areas, either mono­
lithic or precast, which are
permanently non-slip, wet or
dry, and exceptionally resis­
tant to wear.

Illustrations show precast treads of
Norton ALUNDUM Terrazzo in the Dunbar
Vocational School, Chicago, Ill.

Full specifications in Norton Pages
in SWEET'S or on request from us or
from the National Terrazzo and Mosaic
Association, Washington, D. C.
Holds 9,385 times its own weight. Permanently.

The fastener you see is a Ramset #3601. It weighs a scant 120 grains, red tip and all. Because we’re a conservative lot—and build in safety factor upon safety factor—we rate its designed holding power at 160 pounds, anchored in 3,500 psi concrete. Almost 10,000 times its own weight.

(In a series of controlled tests, our austempered Eye Pin averaged 2,000 pounds holding power in tension. Almost 120,000 times its weight. Hmmm. Move over Archimedes. With a big enough fastener, we could hold the world.) Astonishingly enough, Ramset powder-driven fasteners do their job with incredible speed. “In place” in less than 30 seconds. For setting an Eye Pin. For fastening steel to concrete or steel, wood to concrete or steel.

For a copy of our informative, 48 page “Fastener Handbook,” with specifications and recommended applications, simply drop us a line on your company letterhead.

Ramset WINCHESTER-WESTERN DIVISION

3101 Winchester Ave., New Haven 4, Conn.

ARCHITECTURAL RECORD September 1961
SKYLINER FEATURES

1 Armor-coated heating section—gas-fired, two-pass, heavy-duty type, with all joints and surfaces coated, inside and out, with fire-fused A-19 corrosion resistant ceramic coating. A.G.A. approved.

2 Cooling evaporator coil—aluminum finned-copper tube type for peak performance. Located downstream of heating unit, adjacent to outlet.

3 Factory-wired electrical panel—standardized and tested to simplify installation and eliminate costly troubleshooting.

4 Permanently lubricated blower assembly—heavy-duty, lube-packed, sealed ball bearings in blower and motor eliminate need for periodic lubrication service.

5 Fresh air inlet—provides for blending of filtered make-up air with return air. Adjustable up to 1/3 of total volume.

6 Conditioned air outlet—connects directly to a short, pre-insulated combination supply-return duct. There are no transmission losses.

7 Quality Compressor—operates up to 125°F. outside temperatures. Standard Tecumseh or Copeland, easily serviced or replaced in any section of the country.

8 Oversize Condensing Coil—the larger area dissipates more heat to provide greater cooling efficiency.

TECHNICAL INFORMATION SERVICE

Detailed information and product specification sheets on the Skyliner may be obtained from your local Janitrol representative or by writing the factory. There's no obligation, so why not bring your files up to date?
NEW ROOF TOP
HEATING-COOLING SYSTEM
HAS BROAD COST & COMFORT
ADVANTAGES for single story buildings

SKYLINER
by JANITROL

DOESN'T USE INSIDE SPACE...ELIMINATES DUCT SYSTEM...ALLOWS
REDUCTION IN BUILDING HEIGHT...INSTALLS FAST WITH LESS LABOR

Whether you should specify the Janitrol Skyliner depends on the job, of course. But if the budget is tight, and you're looking for ways to chop costs without penalizing quality, by all means consider the Skyliner.

Shipped completely factory assembled, tested and ready for installation on the roof, the Skyliner "package" provides really economical heating, cooling or year 'round conditioning. Conditioned air is circulated through a ceiling diffuser (located beneath the unit) in the conditioned area. No duct system is needed...total building height can be reduced. It has an unobtrusive, low silhouette...no stack is required...flue gas exhauster is furnished. And not a single cubic foot of usable inside space is used by the Skyliner system!

One or more Skyliner units may be used to provide a simple, efficient zone-controlled comfort system, with each Skyliner controlled by its individual thermostat. A wide range of capacities is offered to match the needs of each zone.

The Skyliner is completely enclosed in a weatherproof, insulated, aluminized steel cabinet. The unit has been operationally tested in 60 m.p.h. winds and for two hours at 12-inch/hr. rainfall. No water or sewage service, no refrigerant piping or charging and no complicated electrical wiring are required. All important factors in cutting costs and speeding up installation!

Here are Some Points to Remember about the Janitrol Skyliner

Multiple Unit Zone Control Type—You can have an individually sized and controlled unit for each occupancy area. Each unit operates only for its own zone, without standby or transmission losses. Multiple units assure continuity of service, since the shut down of a single unit for service or maintenance will not affect performance of other units.

Low Installed System Cost—A Skyliner packaged system offers substantial savings over a conventional site-fabricated central system by:

- Elimination of equipment room.
- Elimination of duct system.
- Elimination of wiring, assembly, installation and checking of individual system components.
- Elimination of water or sewage service.

Meets or exceeds national standards—All Skyliner units carry the certification seal for capacity and performance according to the rigid standards of the Air-Conditioning and Refrigeration Institute. Components are listed by Underwriters' Laboratory and the American Gas Association.

Leasing Plan to Save Capital Investment—A complete Skyliner system can be leased on a long-term basis. Permits owners to keep their working capital working.

HEATING & AIR CONDITIONING
A DIVISION OF MIDLAND-ROSS CORPORATION, COLUMBUS 16, OHIO
IN CANADA: MOFFATS LTD., TORONTO 15

ARCHITECTURAL RECORD September 1961 225
**MAKE AIR WORK FOR YOU**

391 Standard Models To Choose From

PLUS Complete Facilities To Design

And Manufacture Special Ventilators

<table>
<thead>
<tr>
<th>BURT VENTILATOR</th>
<th>TYPE</th>
<th>CAPACITY (CFM)</th>
<th>SIZES</th>
<th>MODELS</th>
<th>DISCHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREE-FLOW GRAVITY</td>
<td>Gravity</td>
<td>113 to 35,560</td>
<td>16</td>
<td>16</td>
<td>Upward</td>
</tr>
<tr>
<td>LO-HYT GRAVITY</td>
<td>Gravity</td>
<td>AS REQUIRED</td>
<td>18</td>
<td>18</td>
<td>Downward</td>
</tr>
<tr>
<td>MONITOR</td>
<td>Gravity</td>
<td>MADE TO ORDER</td>
<td>1</td>
<td>1</td>
<td>Upward</td>
</tr>
<tr>
<td>MONOVENT (Ridge)</td>
<td>Gravity</td>
<td>48 to 5,184</td>
<td>18</td>
<td>15</td>
<td>Upward</td>
</tr>
<tr>
<td>REVOLVING</td>
<td>Gravity</td>
<td>123 to 10,931</td>
<td>17</td>
<td>17</td>
<td>Sideward</td>
</tr>
<tr>
<td>STANDARD GRAVITY</td>
<td>Gravity</td>
<td>35 to 24,890</td>
<td>19</td>
<td>19</td>
<td>Upward</td>
</tr>
<tr>
<td>THERMAVENT</td>
<td>Gravity</td>
<td>MADE TO ORDER</td>
<td>2</td>
<td>2</td>
<td>Upward</td>
</tr>
<tr>
<td>CENTRIFLOW</td>
<td>Power</td>
<td>65 to 36,430</td>
<td>56</td>
<td>184</td>
<td>Downward</td>
</tr>
<tr>
<td>FREE EXHAUST FAN</td>
<td>Power</td>
<td>5,000 to 75,550</td>
<td>7</td>
<td>17</td>
<td>Upward</td>
</tr>
<tr>
<td>FREE FLOW FAN</td>
<td>Power</td>
<td>1,040 to 99,050</td>
<td>15</td>
<td>35</td>
<td>Upward</td>
</tr>
<tr>
<td>LOW TYPE</td>
<td>Power</td>
<td>337 to 47,400</td>
<td>15</td>
<td>60</td>
<td>Downward</td>
</tr>
<tr>
<td>STANDARD FAN</td>
<td>Power</td>
<td>685 to 15,000</td>
<td>10</td>
<td>10</td>
<td>Upward</td>
</tr>
</tbody>
</table>

There is a type of Burt Ventilator to meet any ventilating problem that Roof Ventilators can solve. Burt's specialized engineering, equipment and craftsmanship—from 60 years of designing and building ventilators—is your assurance of complete satisfaction. Cost economies are assured from almost 400 standard models that are quickly available. Write for Burt's Complete Line Data Book—it's free!

**VENTILATORS • LOUVERS • SHEET METAL SPECIALTIES**

The Burt Manufacturing Company

48 E. South Street
Akron 11, Ohio

MEMBER AIR MOVING & CONDITIONING ASSOCIATION, INC.

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Product Reports

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Permanent Forms

The photograph above shows the placing of Wheeling's Tensiform prior to the pouring of a concrete roof deck. The uniform sides and ends are designed for overlapping and a neat fit. With a hung plaster ceiling, such an assembly can achieve a four hour fire rating, left exposed, it has a one hour rating. Tensiform is available in uncoated and galvanized finishes. Other Wheeling products include Super-Rib steel roof decking and Wheeling Long Span, designed to span up to 22 ft. Wheeling Steel Co., Wheeling, W. Va.

Laboratory Equipment

The Metalab Equipment Co. has announced their Style-Scope and Mobilescope series of laboratory wall tables and center tables. Instead of conventional drawers and cupboards, the units either slide or roll out and are fitted with removable plastic trays. Mobilescope units are portable and independent of the structural members of the table, so that supplies and apparatus can readily be rolled to any lab station where they are needed. Metalab Equipment Co., Hicksville, L. I., N. Y.

more products on page 230
Miami International Airport, Dade County, Florida, one of the busiest airports in the United States and a world leader in air cargo. Building above is protected from loss of utility power with a dependable Cat Diesel Electric Set.

In the path of Caribbean hurricanes, one of the world’s busiest air terminals has a higher than average risk of utility power loss. Cat Electric Sets were part of the planning; power outages last only a few seconds as automatic controls furnish emergency power to equipment and lighting in the main passenger terminal. The Cat D397 provides power as long as the utility power is interrupted.

In another terminal area—the Pan American World Airways’ ticketing and passenger section—a Cat D311 Electric Set stands by to immediately provide power in the event utility power fails.

When you plan buildings where people gather to work, to live, to shop, to dine, to relax or to recuperate, add dependable Cat Diesel or Natural Gas Electric Set protection. A Cat Standby Set has the power to safeguard lives, prevent panic, looting and loss of revenue.

It enhances the value of the building. A single power loss will attest to the wisdom of Cat standby power.

When properly installed, Cat Electric Sets will start in as little as 6 seconds after a utility power outage occurs. Installation requires little or no special or additional construction. Fuel storage for Cat Diesels requires no special protection against explosion because they use non-explosive diesel or furnace oil. Cat Natural Gas Engines are equally simple to install.

The cost of owning, as well as the cost of buying, Cat standby power is low. Caterpillar’s 4-cycle operation . . . the fuel system—the inherent design simplicity—mean extreme reliability with a minimum of maintenance.

Caterpillar power is dependable power. See Sweet’s File for specification data. Call your Caterpillar Dealer for specification help and complete information.

A Caterpillar D311 Electric Set, rated at 30 KW, furnishes additional power for the Pan American World Airways terminal area. There are Cat Electric Sets rated up to 600 KW suitable for application either as single or multiple units for larger KW loads.

This Cat Diesel Electric Set—Model D397—can furnish 350 KW to Miami International Terminal. This set safeguards people in building, enables work to continue and furnishes power to guide air traffic.

Engine Division, Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR
Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.
The RVBEROID Co. Mastic Tile Division

Announces the Awards in the

$25,000 3rd Annual Design Competition

to stimulate a major contribution to “Long-range Planning for the Medical Care facilities in the Community”

The objective of the RUBEROID-MASTIC program has been to encourage architectural thinking in terms of projects of public interest. The First Annual Competition was “Better Living for the Middle Income Family.” The 1960 competition enlarged on this with “Education for Youth and Adult Recreation for all the Family.” Now, the 1961 Competition provides still further demonstration of how the architectural profession can contribute importantly to community improvement.

THE JURY READING FROM LEFT TO RIGHT:
E. Todd Wheeler, FAIA, Chairman, AIA Committee on Hospitals and Health
• James J. Snider, AIA • Donald E. Neptune, AIA • Raymond Brown,
School of Hospital Administration, University of Chicago • Donald S. Nelson,
FAIA • A. Gordon Lorimer, FAIA, Professional Advisor.
NATIONAL AWARDS

Grand Prize... $10,000
Victor A. Cusak, AIA, and Charles J. Luckman Associates
Ronald Meza
James S. Moore, AIA
Beverly Hills, Calif.

Second Prize... $5,000
Jimmie W. Bruza, James F. Knight
Oklahoma State University
James S. Daley and William C. Watson, Jr.
Stilwater, Okla.

Third Prize... $2,500
John V. Shoeris, AIA
Harley, Ellington, Cowin & Stirton, Inc.

$500 Merit Awards
1. Miller Edward Gerardy and Richard W. Cramer
   Oklahoma State University, Stillwater, Okla.
2. Masao J. Itabashi and Harutun Vaporcayan
   Smith, Hinchman & Grylls Assoc., Inc., Detroit, Mich.
3. Alan Bentley Glass, Forrest L. Johns and David M. Griffin
   Oklahoma State Univ., Stilwater, Okla.
4. Pacifico Bacalzo and Borivoj Rieb
   A. Epstein & Sons, Inc., Chicago, Ill.
5. Marvin Berman, AIA, and Stanley S. Kogan, AIA
   Berman & Kogan, Los Angeles, Calif.
   Skidmore, Owings, & Merrill, New York, New York

CITATIONS
1. Stanley E. Abercrombie, Jr. and John M. Ellis
   Massachusetts Institute of Technology, Cambridge, Mass.
2. Firoz Rustum Mistry
   Lester C. Haas, AIA, Shreveport, La.
3. David Leash
   Merrill Jew, San Francisco, Calif.
4. Earl Matthews Farnham
   University of Illinois, Urbana, Ill.

SPECIAL STUDENT AWARDS

First Prize... $2,000
Alan Bentley Glass
Oklahoma State University
Forrest L. Johns and David M. Griffin
Stilwater, Okla.

Second Prize... $1,000
Miller Edward Gerardy and Richard W. Cramer
Oklahoma State University
Stillwater, Okla.

Third Prize... $500
Don Dommer and Gordon Kovell
North Dakota State University
West Fargo, N. D.

$250 Merit Awards
1. Stanley E. Abercrombie, Jr. and John M. Ellis
   Massachusetts Institute of Technology, Cambridge, Mass.
2. Blythe S. Brewster
   Pratt Institute, Brooklyn, N. Y.
3. John L. Lawler
   University of Minnesota, St. Paul, Minn.
4. William E. Pedersen, Jr.
   University of Minnesota, St. Paul, Minn.

Ready in late 1961. Elaborate 14" x 11" album brochure reproducing prize-winning plans in large scale and full detail. (Limited quantities of 1959 and 1960 award brochures still available.) Write on your company or professional letterhead, include $1.00 to cover mailing and handling cost, to: Award Brochure, The RUBEROID Co., 733 Third Ave., New York 17, N. Y.
WILL YOUR BUILDINGS BE ADEQUATE WHEN WATER RATES SKYROCKET?

Read these plain facts about the coming water shortage—and how you can prepare your buildings for it right now.

By 1970, water consumption in the U.S. will increase 25%. Yet available water will increase only 10%. One sure consequence of this shortage-to-be: boosted water rates.

Will your buildings be ready for these increased water rates? Not if they're still pouring water wastefully through uncontrolled showers and fixtures! For the only way to keep operating costs down when water rates go up is to use less water.

There is a way to specify less water in showers and fixtures...and still assure a completely satisfying flow!

The answer is a remarkable device called Autoflo. Available in Speakman fittings, it reduces water consumption by 50%—yet the user cannot tell!

With Autoflo the flow of water flexes its one moving part, a neoprene diaphragm (B) on nylon orifice (C)...maintaining a set rate of flow regardless of inlet pressure.

In a single shower, used daily, Autoflo saves over 6,000 gallons a year

<table>
<thead>
<tr>
<th>water p.s.i.</th>
<th>average shower time</th>
<th>gallons used per minute</th>
<th>gallons used per shower</th>
<th>gallons used annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>conventional shower</td>
<td>50</td>
<td>5 min.</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Speakman shower with Autoflo</td>
<td>50</td>
<td>5 min.</td>
<td>4.5</td>
<td>22.5</td>
</tr>
</tbody>
</table>

And remember, this is just one shower used once daily! The savings are far greater with multiple installations and/or more frequent use. Best of all, Autoflo savings don't stop with shower water alone. Autoflo also lowers fuel costs, stretches hot water supplies, and reduces overload on waste disposal systems and septic fields at the same time!

Autoflo is available now in a wide range of famed Speakman showers and plumbing fittings. Get full details before you specify a single plumbing item on your next project. Mail coupon today!

SPEAKMAN COMPANY
WILMINGTON 99, DELAWARE
In Canada write Cuthbert-Speakman, Montreal 3, Canada

---mail this now---

SPEAKMAN COMPANY, Dept. AR, Wilmington 99, Delaware
Please send me your free Autoflo catalogue S-99-A.

Name
Company
Address
City Zone State

Product Reports

Portable Photocopyer
The Anken Co. has introduced a portable photocopying machine built into an attaché case. It weighs 12½ pounds and its dimensions are 17½ by 12½ by 4½ inches. The company also produces a second model, called the Contura, which contains an attachment for copying large sheets and pages from bound volumes. Anken Chemical & Film Corp., Newton, N. J.

Portable Drafting Machine
A small portable drafting machine for 8½ by 11 in. paper is being marketed by the Draftette Co. The scale and machine are of aluminum, the case is vinyl, and the whole unit weighs only a pound and a half. Draftette Co., P.O. Box 794, Beverly Hills, Calif.

Miniature Lamp
The Tensor model 5979 sub-miniature All Purpose Utility Lamp is a small sized, but high intensity, light source. It can be folded so that it is 3 in. high by 7 in. long by 2 in. wide. The lamp shade is 1½ in. in diameter and uses a G.E. 55 bulb. The foot-long arm rotates at its base, and at an elbow joint, and the lamp housing can also be rotated. Tensor Electric Development Co., 1873 Eastern Parkway, Brooklyn 32, N. Y.
This floor-ceiling construction resists fire for 3 hours or more

Whenever fire-resistance is a primary requirement ... the Bethlehem Open-Web Steel Joist construction shown above is hard to beat. It provides fire protection of 3 hours or more, as required for Class A fireproof structures such as stores, schools, hospitals, and apartments.

The top slab is 2½-in. reinforced concrete. Ceiling is a 1-in. layer of gypsum-vermiculite plaster applied on metal lath and proportioned in the range 2:1 to 3:1 gypsum to heat-expanded vermiculite by weight. Bethlehem Slabform provides an excellent solid steel centering for the slab.

The nearest Bethlehem sales office will be glad to give you full details on both steel joists and Slabform or any other of the many steel products made by Bethlehem for building construction. And, if you wish, one of our engineers will visit you and discuss your building. No obligation, of course.
FROM THE LEADER . . .
A CREATIVE CLASSIC IN
EXTRUDED ALUMINUM . . .

by TITUS
LINEAR AIR DIFFUSERS

Sharp clear notes of vibrant extruded aluminum—highlighted against a recessed background of anodized black. Available in endless patterns to harmonize with, or accent, any architectural motif. That's superb new Titus Staccato Line ... with design so decidedly different IT GIVES A STARTLING NEW DIMENSION TO THE LINEAR CONCEPT!

And here's air diffusion efficiency to match the breathtaking beauty! Staccato Line is perfect for in-line use on sidewall or ceiling ... for heating, cooling or ventilating.

Available in a wide variety of extruded aluminum border styles. Furnished in many standard widths, in any length.

© DESIGN COPYRIGHT 1961, TITUS MFG. CORP.
CIRCLGRID  
Light Diffuser  
An effective design tool for the architect

Unique Circlgrid pattern combines both low and standard brightness louvers at:  
ROCHESTER GAS & ELECTRIC CO.  
ROCHESTER, NEW YORK

200 FC — Brightness Ratio 2 to 1

Circlgrid Light Diffusers offer flexibility in design—by size—by translucencies—by color—and with or without perforations. You’ll find Circlgrids extremely rigid yet weighing only 3 1/2 oz. per square foot. Circlgrids, with 500 openings per square foot, circulate cooling air, reduce dust settling 44%, appreciably trap sound in the plenum, and, most important, are approved for installation under sprinklers.

Whatever luminous ceiling pattern you plan, you can be sure that Circlgrid will give up to 25% more comfort light than other louvers.

Write for sample and illumination test data.

Box 655, Erie, Pa.

Circlgrid Light Diffusers offer flexibility in design—by size—by translucencies—by color—and with or without perforations. You’ll find Circlgrids extremely rigid yet weighing only 3 1/2 oz. per square foot. Circlgrids, with 500 openings per square foot, circulate cooling air, reduce dust settling 44%, appreciably trap sound in the plenum, and, most important, are approved for installation under sprinklers.

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Box 655, Erie, Pa.

Office Literature  
continued from page 198

Plexiglas Signs

Rohm & Haas Co. has published a handbook of technical information on the design, lighting and assembly of signs made from Plexiglas. Although intended primarily for sign companies, the booklet should be useful to anyone interested in sign construction. Rohm & Haas Co., Philadelphia 5, Pa.*

Heat Exchangers

A new 16-page bulletin on U-tube heat exchangers has been published by Killebrew Engineering Co. The exchangers have solid bronze baffles or tube supports as a standard feature. The bulletin contains sizing information, dimensions, and a selection chart that indicates the lowest-cost unit for the desired capacity. Killebrew Engineering Co., 8640 Pardee Lane, St. Louis 26, Mo.

Shower Fixtures

The Logan Mfg. Co. has released a series of brochures describing their multiple unit shower fixtures. Included are descriptions of both surface-mounted and free-standing types, and the company’s line of “vandalproof” fittings. Logan Mfg. Co., P.O. Box 111, Glendale, Calif.

Dust Filter Selection


Plastic Window Units

The Plyco Co. has published a file of information on their plastic window units and fabricated wall systems. It includes details, photographs of installations, reports of tests, and outline specifications. Plyco Co., Elkhart Lake, Wis.

Compressed Air and Gas

A revised and expanded third edition of the Compressed Air and Gas Handbook, 592 pages, 323 illustrations, is available at $8.00 from the Compressed Air and Gas Institute, 55 Public Square, Cleveland 13, Ohio

*Additional product information in Sweet's Architectural File

more literature on page 238
Great new things are shaping up in concrete block


Atlas Masonry Cement provides the right mortar

New designs in masonry construction require both a functional and decorative material. That's why more architects are utilizing concrete grille block indoors and out. These attractive masonry units can be used for solar screens, accent walls, partitions, perforated facades. They can be used to control light, air, wind or sun — substantially reducing air-conditioning and heating costs. Inquire about sizes and designs at your local block producer. □ For laying up grille block, specify ATLAS MASONRY CEMENT for mortar. It helps produce a smooth, workable mix; saves labor; cuts waste; assures a good bond; provides joints that are uniform in color. Complies with ASTM & Federal Specifications. For literature, write: Universal Atlas, Dept. M, 100 Park Avenue, New York 17, N. Y.

Universal Atlas Cement Division of United States Steel

"USS" and "Atlas" are registered trademarks.

OFFICES: Albany • Birmingham • Boston • Chicago • Dayton • Kansas City • Milwaukee • Minneapolis • New York • Philadelphia • Pittsburgh • St. Louis • Waco
ANDERSEN WINDOWS SOLVE PROBLEMS IN ANY TYPE OF LIGHT CONSTRUCTION
Removable diamond-lights heighten "Gothic Appearance" of this contemporary church

Stock Andersen Casements are used in sanctuary of Our Savior's Lutheran Church in Madison, Wis.

The diamond-light wood grilles in these Casements are removable. Normal maintenance and painting can be done easily and at minimum cost.

The handsome finely-finished millwork complements the natural beauty of the rough stone, wood siding and the dramatic post and beam construction.

Andersen Windows offer maximum design flexibility for any light construction project; 7 kinds of windows, 30 different types, 685 cataloged sizes, thousands of combinations.

Check Sweet's File—and contact your local distributor for Tracing Detail File and additional information. Andersen Windows are available from lumber and millwork dealers throughout the United States and Canada.

Andersen Windows
ANDERSEN CORPORATION • BAYPORT, MINN.
America's most wanted windows
More than 300 reasons why DUKANE AUTOMATIC NURSES’ CALL SYSTEMS provide unmatched performance in nurse-patient contact!

The installation of a DUKANE Automatic Nurses’ Call System boosts staff efficiency and increases the functional potential of the nursing staff. Needless trips are automatically eliminated through two-way, audio-visual, nurse-patient communication.Incoming patient calls are registered audibly and visually on Master Station annunciator panel and outside corridor lights. Strategic positioning of answering stations eliminates needless steps for nursing staff in answering simple patient needs. Combine all of these much-wanted features with a nationwide network of DUKANE Sales Engineering Distributors and you have assured customer satisfaction. Over 300 local DUKANE Distributors are ready to assist you with planning a nurses’ call system to meet your need and budget, supervision of installation and servicing your needs for complete satisfaction for years to come.

AUTOMATIC NURSES’ CALL SYSTEM
DUKANE Systems provide human-engineered nurse-patient fingertip control, functional flexibility, installation simplicity, improved service, increased staff efficiency and speed plus boosting staff morale and patient security.

WRITE TODAY FOR COMPLETE INFORMATION

DUKANE CORPORATION
Dept. AR-91 St. Charles, Illinois

Office Literature
continued from page 234

Fire Doors
The Overly Co. has published a 1961 edition of their Fire Doorater, which contains a review of the company’s products tested by the Underwriters’ Laboratories. A guide to the selection of hardware for fire doors and fire-exit doors is given in chart form, examples of Overly’s 90 different door styles are shown, and information is provided on U/L label requirements for hollow metal doors. Overly Manufacturing Co., 530 West Otterman, Greensburg, Pa.*

Heating and Ventilating
A comprehensive catalog of their heat diffusers and large heating and ventilating units has been produced by the Carrier Co. It contains selection charts for steam and hot water coil capacities, fan motor ratings, and dimensions of all models and sizes available. The units, designed for commercial and institutional use, have air capacities ranging from 1,500 to 32,000 cfm, Btu capacities from 47,000 to 2,990,000. Carrier Air Conditioning Co., Syracuse, N. Y.*

Timber Foundation Piles
The American Wood Preservers Institute has issued a second edition of their book on pressure treated timber piles for permanent foundations, revised and brought up to date from its first publication in 1955. The book contains 12 articles on various aspects of the subject and costs $1.50. American Wood Preservers Institute, 111 W. Washington St., Chicago 2, Ill.

*Additional product information in Sweet’s Architectural File

Literature Requested
The Washington State Parks and Recreation Commission, Construction Division, 522 South Franklin St., Olympia, Washington, wishes to be placed on mailing lists for literature and catalogs published by manufacturers of building materials.
REDWOOD'S K FACTOR OF 0.76 HELPS CUT HEATING COSTS. In regions where sub-zero temperatures and roof-high drifts are commonplace, redwood is held in high esteem by architects and cost-conscious boards. Not only does Certified Kiln Dried redwood provide exceptional insulation value (redwood one-inch thick equals concrete 15 inches thick), but it can also be depended upon to stay weathertight and resist weather checking. And in every part of the country, in every climate, the friendly warmth and natural beauty of redwood have made it the hallmark of the best in contemporary school architecture.

Architect: Alonzo J. Harriman, Inc.
I MEAN, LOOK AT THIS ROOF DECK HERE. WE LEFT THE REINFORCEMENT OUT OF IT. SO IT DEFLECTS A LITTLE, SO WHO CARES? (HAVE A CIGAR).

CRACKS? THEY ALL CRACK. THESE CRACKS JUST HAPPEN TO BE BIGGER. BUT SO WHAT? (CAREFUL, DON'T GET YOUR FOOT CAUGHT).

YOU CAN'T GET AN HOURLY FIRE RATING WITHOUT REINFORCEMENT? DON'T BE SUCH A WORRY WART. HOW MANY BUILDINGS BURN DOWN?

LISTEN, STOP WORRYING, WHAT DO YOU NEED IMPACT RESISTANCE FOR? WHO COMES UP HERE BUT BIRDS? BESIDES IT'S GOT ENOUGH IMPACT RESISTANCE WITHOUT REINFORCEMENT. LOOK, I'LL SHOW YOU.
This advertisement published in the interest of people who want a roof over their heads, not around their ears.

KEYSTONE STEEL & WIRE COMPANY
Peoria, Illinois
MANUFACTURERS OF KEYDECK

(a remarkably good roof deck reinforcement)

WHY DOESN'T SOMEONE SAVE ME FROM MYSELF?
Only MEDUSA Offers
PORTLAND CEMENTS

To meet exacting requirements for every concrete and mortar design.

Whether your design calls for gray, white or tinted, plain or waterproofed concrete or concrete units; white or colored mortar to harmonize with certain brick, block, or stone, each use is best met by specifying one of the eleven Medusa Portland Cements listed at the right.

Medusa manufactures more different types of special cements than any other cement manufacturer. An understanding of these cements and their uses enables you to make specifications that assure beautiful, reliable concrete and masonry. Write today for A.I.A. Literature including specifications for any of these Medusa Portland Cements.

HENRY FORD HOSPITAL GARAGE, Detroit, Michigan
Sub Contractor: The Truscon Div. of Devoe & Raynolds (pre-cast units) Detroit, Mich.

Over 65 years of Concrete progress

MEDUSA PORTLAND CEMENT COMPANY
P. O. Box 5668 • Cleveland 1, Ohio

ST. JOHNS CHURCH—United Church of Christ, Freeport, Ill.
Geni. Contractor: Kemper & Krueger, Freeport, Ill.
the most exciting ideas take shape in fir plywood
1. PITCHED BEAMS are tapered box beams, with exterior plywood webs and lumber flanges.

2. STRESSED SKIN ROOF PANELS. Exterior plywood skins, pressure glued to lumber framing.

3. WING BEAMS are also lightweight box beams of regular or overlaid fir plywood.

4. PLYWOOD GUSSET PLATES, nailed to each side, make a rigid connection between beams.

THE DELTA SYSTEM PERMITS LIMITLESS DESIGN VARIATIONS

Supermarket has circular folded roof; wings radiate from center.

School is a series of Delta units with cantilevered wings joined.

Pool, under Delta section, is flanked by plywood-vaulted cabanas.

DELTA STRUCTURES—Based on a revolutionary new building system keyed to engineered plywood components—combine distinctive appearance, speed and ease of construction and remarkable design flexibility. They also offer important cost advantages.

Named for its dominant triangular profile, the Delta System was developed and engineered by Douglas Fir Plywood Association to meet the need for an attractive, versatile and low-cost commercial-industrial building with large clear floor area and non-load-bearing walls. Several Delta structures have been built to date, besides the one shown at left.

The simplicity of the structural scheme, which depends on only four basic plywood components, permits almost limitless design variations. Length and width may be varied by changing the size and number of basic Delta frames or the length of wing beams. DFPA has prepared design recommendations for 608 structural variations.

For more information on Delta System and other plywood components, and name of fabricator nearest you, write Plywood Fabricator Service, Inc., Chicago 17, Ill. Delta components are made and sold only by PFS licensees, and are available in most parts of the country. For basic plywood design data, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Washington.
Cure, Dustproof, Harden and Seal Newly Laid Concrete in ONE OPERATION

One application of TREMCO TREMCRETE — after final troweling and when floors can be walked on — can cure, dustproof, harden, and seal newly laid concrete floors at an applied cost that is substantially lower than the lengthy conventional moisture curing method. Tremcrete dries to a tack-free stage in 2-3 hours. . . possesses superior abrasion resistance . . . protects against wear, most solvents and alkalis. . . repels oils, greases and resists various types of staining commonly found during construction. Cleaning of floors are facilitated prior to turning the building over to the owner. The application of paint, asphalt tile and other decorative coverings can be made directly over Tremcrete treated floors when construction is completed.

An Independent Testing Laboratory reports the following performance of Tremcrete: "After 3 days, more than 97% of the original water content of the slab was still present. After 7 days, more than 95% was still present."

TREMCREETE meets ASTM Specifications C-309-58, Type I. For additional information contact your Tremco Representative or write: The Tremco Manufacturing Company, 10701 Shaker Blvd., Cleveland 4, Ohio or The Tremco Manufacturing Company (Canada) Limited, 220 Wicksteed Avenue, Toronto 17, Ontario. See our Catalogs in SWEET'S.

"When you specify a Tremco Product . . . you specify a Tremco Service!"

The Record Reports

On the Calendar

September

20-22 1961 annual convention, The Producers' Council, Inc.; theme: better communication of the elements of a company, its capabilities and its products to the customer — Pittsburgh
24-28 63rd annual conference, American Institute of Park Executives; theme: "Parks and Recreation — The Years Ahead" — Rochester, N.Y.
24-29 Annual National Technical Conference, Illuminating Engineering Society—Chase Park Plaza Hotel, St. Louis, Mo.
25-28 Fall meeting, the American Welding Society—Adolphus Hotel, Dallas
25-28 1961 Industrial Building Exhibition and Congress — The Coliseum, New York City
27th International Conference on Heating, Ventilating and Cooling, The Institute of Heating Ventilating Engineers; through Oct. 4 — London

October

1-6 43rd National Recreation Congress, sponsored by the American Recreation Society and the National Recreation Association; cooperating agencies: Recreation Association of Michigan, Detroit Dept. of Parks and Recreation and Federation of National Professional Organizations for Recreation; theme: "Recreation in a Mobile America" — Cobo Hall, Detroit
5-8 Annual meeting, American Society of Industrial Designers; theme: "Design Explorations" — Santa Catalina Island, Calif.
6-15 Second Annual Decorating Show, "Decoration & Design' 1962," sponsored by the Resources Council of the American Institute of Interior Designers, the New York Chapter; continued on page 25

246 ARCHITECTURAL RECORD September 1961
Joy Axivane® Fans create air curtain for world's largest "Doorless-Door" at PAN AM Terminal

An eighty-nine foot wide air curtain seals out the weather at the Pan American Passenger Terminal at Idlewild. This transparent entrance provides an unobstructed sweep of the entire terminal, and contributes to the effect of the "floating" four-acre canopy roof.

Six Joy vanaxial type fans supply up to 600,000 cubic feet of air per minute to make this architectural masterpiece possible. Located on the roof, they are controlled automatically to supply the required amount of warm or cool air for an air curtain 89 feet wide, ten feet high and seven feet deep. When the curtain air is heated, (whenever outside temperatures drop below 65°) thermistor elements register any deflection in the curtain, and the guide vanes automatically change the angle of air flow to correct the deflection. In warm weather, a second control system which is actuated by elements sensitive to wind direction and velocity control these vanes.

Joy Axivane Fans are engineered to operate with complete dependability in the pressure and volume ranges needed for such applications as the Pan American Terminal's unusual doorway. Whenever you have a ventilating problem, it will pay you to consult with your Joy representative. Joy Axivane Fans will provide superior service in any installation. For complete details on these fans, write for Bulletin 2560-98.
A TRIUMPH OF LIGHTING FIXTURE DESIGN FROM DAY-BRITE

Introducing

TIARA

... the new measure of lighting quality for offices, stores and schools

Just 3 3/8" slim! New Day-Brite TIARA provides a clean, modern look never before possible with a surface-mounted unit. A distinctive glow around its wafer-thin frame softens brightness for high visual comfort, and gives the fixture a luminous floating appearance. Pure enchantment for any interior!

Precision Pyramid lenses create additional ceiling interest. There is no noticeable variation in surface brightness ... no hot spots. Lighting quality is definitely Day-Brite.

For those who want the very finest, it's new Day-Brite TIARA ... the crowning achievement in lighting fixture design. For complete information, contact your Day-Brite representative or write for free 8-page TIARA booklet. Day-Brite Lighting, Inc., 6200 N. Broadway, St. Louis 15, Mo., and Santa Clara, Calif. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ont.

NATION'S LARGEST MANUFACTURER OF COMMERCIAL AND INDUSTRIAL LIGHTING EQUIPMENT

Lens by Holophane Co., Inc.
PEELLE PRODUCTS

in the New York International Airport and other Port of New York Authority Projects.

A remarkable planning, architectural and engineering achievement. Peelle is proud of its effort to deliver a better job more economically in its field of motorstairs and specialized doors... a partial listing of installations follows:

PEELLE MOTORIZED HANGAR DOORS

Above a portion of the 820' x 50' TWA hangar access door. The complete installation consists of four banks of horizontal sliding doors, three panels to a bank. Peelle also manufactured and installed doors for the Pan American Jetliner hangar and Lockheed hangar.

PEELLE MOTORSTAIRS

Peelle manufactured and installed the motorstairs in the Terminal Building. In the PORT OF NEW YORK AUTHORITY BUS TERMINAL, when expansion is completed, 41 Peelle Motorstairs will expedite great crowds.

PEELLE FREIGHT ELEVATOR DOORS AND CAR GATES

Motorized and manual installations. INTERNATIONAL AIRPORT, TWA Hangar 12, Arrival and Airline Wing Bldg., Hangar 8, American Airlines Passenger Terminal, Pan-American Airways, Brass Rail Restaurant, Golden Door • NEWARK AIRPORT - Passenger Terminal • UNION FRT TERMINAL, Station 3 • SPRING ST. BUILDING, Frt Station #2 • PCRT OF NEW YORK AUTHORITY, Elevators 11, 12, 19 & 24 • INLAND TERMINAL.

DUMBWAITER DOORS & PASS WINDOWS & OTHERS

INTERNATIONAL AIRPORT, Air France Compagne, Eastern Air Lines, International Hotel, Swiss Air Transport, Hangar #15 • BUS TERMINAL (trash chute doors) • GEORGE WASHINGTON BRIDGE, Damper operating mechanism in ventilation building.

PEELLE PLANNING SERVICE

Without obligation, Peelle Engineers will suggest the most advantageous use of its products in new or existing installations. Call or write.

THE PEELLE COMPANY, 47 Stewart Ave., Brooklyn 37, N. Y.
RICHMOND FIREPROOF DOOR CO., Richmond, Indiana

The Record Reports
continued from page 246

of the American Institute of Interior Designers and the New York Herald Tribune—Seventh Regiment Armory, New York City
7-10 Western Building Industries Exposition, sponsored by Associations of the Western Building Industries Council—Great Western Exhibit Center, Los Angeles
9-18 8th Advanced School for Home Builders, co-sponsored by Univ. of Illinois Small Homes Council-Building Research Council and the National Association of Home Builders, in cooperation with the Division of University Extension—University of Illinois campus, Urbana, Ill.
10-12 National Conference on Standards, American Standards Association—Rice Hotel, Houston
10-13 1961 National Planning Conference, Community Planning Association of Canada; theme: "Regional Planning"—Nova Scotia Hotel, Halifax
10-14 Annual meeting, American Council of Independent Laboratories, Inc.—Sheraton Hotel, Philadelphia
12-16 Annual conference, National Trust for Historic Preservation—Waldorf-Astoria Hotel, New York City
15-19 1961 convention, the Prestressed Concrete Institute; theme: "New Opportunities in Structural Design"—Cosmopolitan and Brown Palace hotels, Denver
16-20 Annual convention, American Society of Civil Engineers; theme: "Metropolis-1980"—Hotel Statler Hilton, New York
16-20 1961 National Safety Congress, annual convention of the National Safety Council—Chicago
23-27 National Metal Exposition—Detroit

November

1-3 14th regional meeting, American Concrete Institute—Dinkler-Tutweiler Hotel, Birmingham, Ala.

continued on page 258
Better walls start with better mortar. To be sure of top quality, specify mortar made with masonry cement. This cement is a blend of materials that gives a good balance of the desirable properties in mortar. Except for sand and water, everything is delivered in one bag. Mixing calls for no special skills . . . when workability is right, water content is right. It makes a "fat" mortar that promotes better workmanship. Tighter joints, uniform color and dependable strength are assured. For the best in wall performance with any masonry unit—concrete, brick, tile, stone or glass—architects everywhere specify masonry cement. Write for free literature. (U.S. and Canada only.)
No. 27 CLOSER solves door control problem at New York Univ. Medical Center in two-year test installation

“The first door control to stop glass breakage caused by strong East River winds...”
says P. W. Barton, CONSTRUCTION COORDINATOR

These New York University Medical Center south entrance doors are exposed to powerful East River winds which blow from both directions. Before the No. 27 closers were installed there was frequent glass breakage and closer damage.

The back-check of the No. 27 closers, locally adjusted for firm resistance, together with the positive dead stop, now keep the opening action of these doors under constant control. The closing action of the doors is under dependable hydraulic check with closing and latching speeds each independently adjusted to cope with the wind conditions.

Complete literature and details on the No. 27 offset hung and No. 28 center hung closers will be mailed on request.

THE OSCAR C. RIXSON COMPANY

9100 west belmont ave.
franklin park, illinois

CANADIAN PLANT:
43 Racine Road
(Rexdale P.O.) Toronto, Ont.
By shutting out glare, new TWI-LITE introduces freedom of glass design without concern for expensive overhangs or “window-dressing.” Clear glass transmits 85% of solar energy. TWI-LITE “purges” glare from transmitted light by absorbing solar energy 60%-80% more efficiently than clear glass. TWI-LITE’s gradations of grey tone offer a choice of 28% or 9% transmission strength. Excess energy is re-radiated—half outward, half inward—below the vision line. This subdued light transmission provides a pleasantly illuminated environment with unobstructed visibility at all times.

Besides eliminating the substantial initial cost of shading devices, TWI-LITE does away with the accompanying nuisance costs of periodic cleaning, repair and replacement of drapes, shades and blinds. And, since less heat energy penetrates TWI-LITE, air conditioning requirements can be lowered. Moreover, TWI-LITE’s shatter-resistance—intrinsic to all laminated safety glass—effects savings in decreased breakage and replacement labor. Color stability is guaranteed against fading.

As a functional visual element, glare-free TWI-LITE adds a salable feature to property, increasing its market value. Mail the coupon now for our free brochure on this exciting design development in architectural glass. TWI-LITE is available in sizes up to 60 x 120 at glass distributors everywhere.
It moves
...powered and controlled by Westinghouse

Press a button—an indoor auditorium becomes an open air stadium in 2½ minutes—and behind that button is an unparalleled story of engineering and construction cooperation.

Architectural and engineering teamwork has given Pittsburgh the world’s first movable roof auditorium. This versatile structure adds to the city’s renaissance, in one building, a 14,000 seat sports arena, a convention hall, open air amphitheater, and an exhibit center. Westinghouse products bring the facilities to life, give precision control for the delicate manipulation of six 300-ton movable leaves.

Outwardly, the new auditorium is a 400’ stainless steel...
umbrella, suspended from a space frame cantilevered from the ground. That is one outstanding construction teamwork story.

Inside, coordination culminates in a control console located high above the seating area. From this station the

Construction Motivators: The Authority & Industry

1 to r seated: Judge A. L. Walk, Vice Chmn.; N. Stabile, Sec'y Treas.; W. B. McFall, Chairman; H. R. Edelman, Jr., Pres. Heyl & Patterson; and D. J. McDonald, Vice Chmn.

Standing: C. B. Jansen, Member; J. E. Payne, V. P. Westinghouse; and Edw. Fraher, Exec. Director
The six movable roof leaves are driven by Westinghouse right angle gearmotors, five to each leaf. Photo shows base of one of the movable leaves with the acoustic ceiling panels removed.


A unique movable roof drive system is activated. An AC reactor control scheme keeps all six movable leaves in step throughout open and close cycles. Each leaf is driven by Westinghouse Moduline® gearmotors, with opposite leaves being operated in pairs.

Close cooperation among architects, engineers, owner, contractors and Westinghouse helped to provide a system flexible enough to serve varying building demands, with the high degree of electrical reliability required.

For more complete information on the electrical aspects of construction, write to: Westinghouse, P. O. Box 868, Pittsburgh 30, Pennsylvania.

5KV metal-clad switchgear contains a tie-breaker to provide emergency switching between two incoming 4160-V lines. Seen here: N. J. Grady, V. P., Ernst, C. J. Long, and A. B. Janaszek.

Checking construction progress are C. J. Long and F. J. Sarknas, Westinghouse. In background, 1500 kva power center supplies power for building auxiliary and air conditioning compressor motors.

Westinghouse Motor Control Center located in the Mechanical Room centralizes auxiliary motor controls. Discussing installation advantages are H. R. Helvenston, C. J. Long and N. J. Grady.

Three 125 hp Lifeline A motors drive freon compressors to chill brine supply for ice rink piping. Seen here are P. F. Schad, Limbach, and C. G. Falkenstein, Westinghouse.
Operator's view from roof control console high above the spectator area. Visible through the glass front is the juncture of the first two movable leaves of the roof.

One of main power transformers rated 2500 kva at 11.6 kv to 4160 volts. Discussing the power supply are C. J. Long, Electrical Engineer, M. A. Geffel, Ernst, and A. B. Janaszek, Westinghouse.

Westinghouse

Builder: Public Auditorium Authority of Pittsburgh & Allegheny County: Resident Engineer & Supt. of Construction: H. Rey Helvenston
Architects: Mitchell & Ritchey, Pittsburgh
Roof Designers & Engineers: Ammann & Whitney, N.Y.
Electrical Engineer: Carl J. Long & Associates, Pittsburgh
Mechanical Engineer: John Mullin & Associates, Pittsburgh
General Contractor: Dick Corporation, Large, Pa.
Electrical Contractor: E. C. Ernst, Inc., Pittsburgh
Mechanical Contractor: Limbach Company, Pittsburgh
Drive System Contractor: Heyl & Patterson, Inc., Pittsburgh

Another Westinghouse power center, this 300 kva ASL dry type supplies lighting and auxiliary power. Discussing its component parts are C. J. Long, A. B. Janaszek, M. A. Geffel and Albert Simon, Ernst.

Type M Electric Stairway transports 8,000 persons /hr. Top to bottom: E. R. Gallagher, supervising architect; H. R. Helvenston, resident engineer; and A. Simmonds, Westinghouse Elevator.

Fan room equipped with series 8000 Air-Foil centrifugal fan and air conditioning coils. W. Y. Humphreys, Westinghouse, with John Mullin, Consulting Engineer, air conditioning and ventilation system designer.

Westinghouse mercury vapor parking area and floodlighting are operated from this remote control panel located in the mechanical room. M. A. Geffel, Ernst, tests lighting circuits.
There’s a “Powerful Difference” in KINNEAR Motor Operated Rolling Doors!

The Kinnear Motor Operator is NEW in every detail -- AND BUILT EXCLUSIVELY FOR DOOR SERVICE

Kinnear’s new Power Operator for rolling doors is a specific-purpose unit. All features are uniquely integrated for door control that combines highest efficiency and durability.

Its reserve power assures smooth action that defies wind pressure, drifted snow, collected grime, or extra years of usage.

Special thermal protection prevents overload troubles — the motor cuts out before damage can occur.

New worm gearing takes “stop and go” action in its stride!

A new centrifugal clutch transmits motor action to the door without shock, increasing protection against motor stalls and overload damage.

The new power unit permits easy removal for servicing without disturbing the auxiliary hand-chain operator.

Seven sizes fit all door needs without costly “over-powering.” Can be installed vertically or horizontally... bracket-mounted on the door or wall, or for through-the-wall operation.

Kinnear originated the door with the curtain of interlocking slats that opens upward, coils compactly overhead, and saves floor, wall and ceiling space. This new Power Operator brings the basic efficiency of Kinnear Doors to a new high in dependable, push-button convenience. Write for complete information on Kinnear Rolling Door and Power Operators.

The KINNEAR Manufacturing Company

The Record Reports
continued from page 250

4-7 National Retail Lumber Dealers Association Eighth Annual Building Materials Exposition —McCormick Place Exhibit Hall, Chicago

6-9 46th edition, National Hotel Exposition—The Coliseum, New York City

6-9 1961 Conference and Atom Fair atomic exhibit, sponsored by the Atomic Industrial Forum and the American Nuclear Society—Conrad Hilton, Chicago


14-16 Building Research Institute 1961 Fall Conferences—Shoreham Hotel, Washington, D.C.

Office Notes

Offices Opened

Henningson, Durham & Richardson has opened an office in Charlotte, N.C. Robert Southworth has been named manager of the new office of this engineering and architectural firm which also has offices in Omaha, Colorado Springs, Phoenix and Dallas.

New Firms, Firm Changes


Serge P. Petroff, director of architecture for the planning-architecture-engineering firm of Charles Luckman Associates, has been elected a vice president of the organization.

Herman G. Pietrolungora announces the formation of his new firm at 1305 Heeney Ave., Johnstown, Pa.

The firm name of L. W. Davidson & Associates, 3142 Wilshire Blvd., Los Angeles, has been changed to Davidson and Maurer Incorporated, Architects and Engineers.

With the retirement from business continued on page 264
The durability of Terne roofing is almost unique—its measurement of performance is in generations rather than years. This time-tested metal has other notable advantages... among these are a natural affinity for color and linear modulation which permits any visibly significant roof to become a basic component in design, a positive factor in architectural expression. And the cost can be surprisingly moderate. May we send you detailed literature?
"THE FIREPROOFING QUALITY OF GYPSUM IS IMPORTANT TO THIS GROWING CITY"...says Frank J. Nicolosi, Plastering Contractor, Cleveland, Ohio. "The trouble-free quality of Bestwall Lath and Plaster products is a valuable aid in meeting demanding specifications. Especially notable are Satin Spar and Sunflower plasters that never 'bounce back'.” Bestwall Gypsum Company, Ardmore/Pa.
wood folding partitions
give sturdy beauty to space control

PELLA WOOD FOLDING PARTITIONS are handsome enough for classroom, auditorium, church or club—sturdy enough for recreation halls and other active areas. The play of light and shadow on any one of six genuine wood veneer grains can add interest and warmth to your building interiors. The stabilized wood core of each panel plus patented "live-action" spring hinging maintains panel alignment, assures years of trouble-free service. Even the largest units operate with surprising ease. Massive 10 3/4" x 1 3/4" panels. Available for any opening width and any height to 20'1". Call your PELLA distributor in the Yellow Pages for specifications and literature. ROLSCREEN COMPANY, PELLA, IOWA.

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Kohler plumbing went into 7 out of 10 new major buildings in New York City

Quite a compliment. But not surprising. We could rattle off a long, long list of Kohler installations going up, or completed, in N.Y. The point is that the number of architects and contractors who rely on Kohler gets bigger by the day. They find Kohler precision manufacturing makes for easier, faster, neater installation. Kohler chrome plated, All-Brass fittings with the Valvet have demonstrated ability to stand up under the most demanding use with minimum maintenance, maximum efficiency.

These are some of the reasons builders in New York, and from coast to coast, find it pays to specify Kohler. Your nearby Kohler distributor will tell you more reasons.

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ENAMELED IRON AND VITREOUS CHINA PLUMBING FIXTURES - ALL-BRASS FITTINGS - ELECTRIC PLANTS - AIR-COOLED ENGINES - PRECISION CONTROLS
wood multi-purpose windows

combine into major design attraction

Whenever you place design emphasis on glass division, PELLA WOOD MULTI-PURPOSE WINDOWS instantly meet the challenge. In this case, M-P vent and fixed units form an 8-window pattern that pleasingly repeats itself. In all, 15 vent or fixed and 5 fixed picture sizes put hundreds of combinations at your pencil tip. For variety, WOOD M-P WINDOWS may be arranged as awning, hopper or casement units. Even with expansive glass areas, these handsome wood windows contribute to the efficiency of both heating and air conditioning systems. Screens and storm panels are self-storing. Roto operators are also available. Full specifications in SWEET'S or consult the classified telephone directory for the name of the nearest U.S. or Canadian distributor. ROLSCREEN COMPANY, PELLA, IOWA.
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It was not by chance that, in so many cases, Weinman Pumps were specified to meet the water requirements of this jet-age facility. Airlines and hotels sell service. Comfort and convenience are vital parts of this service. That's why air travel is so popular. And fast, dependable service is why Weinman Pumps are so often specified.

At International, Weinman Pumps perform behind the scenes ... 24 hours a day ... every day ... in each of these buildings of the complex:

- American Airlines Terminal
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- International Hotel
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and Weinman Pumps are ready to give the same dependable service in the soon-to-be-completed Trans-World Airlines Terminal.

Whether you design a single building or an intricate complex like International, there's a right solution to your water circulation problems.

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Joining mullions for angular or circular bays can be made in any angle. 30°, 45° and 60° mullions are standard items. The design versatility of PELLA WOOD CASEMENT WINDOWS is expressed here in the bow arrangement and its harmony with the PELLA WOOD TWINLITE® WINDOWS in the rest of the house. Features like self-storing screens (PELLA WOOD CASEMENTS feature the famous ROLSCREEN® that rolls up like a window shade) and storm sash—plus muntin bars that snap in and out for easy painting and glass cleaning—enable you to combine traditional styles with the most advanced window conveniences. For maximum design freedom, PELLA WOOD CASEMENTS include 18 ventilating units up to 24" x 68" glass size and an exceptional range of fixed units. For full specifications, consult SWEET'S or your nearest U. S. or Canadian PELLA distributor in your classified telephone directory. ROLSCREEN COMPANY, PELLA, IOWA.
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Moe Light is the new dimension in Recessed Lighting, as they have 65 variations in type, trim and glass, which permit complete architectural flexibility. They have been engineered and laboratory tested for maximum illumination efficiency and job-tested for simplified installation.

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Personalized comfort in any season. That's what Norfolk's luxurious Golden Triangle hotel-motel gives guests in each of its 400 rooms, and saves money too.

Crane Fan Coil Units heat, cool, take little space. Never interfere with radio or television reception. They're truly economical.

Cost less to install because there is no expensive ductwork needed.

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American-Marietta's precasting and prestressing factories supply such structural units as concrete wall panels, roof and floor systems, beams, columns and foundation grade beams. With these components it is possible to provide an infinite variety of architectural designs—and construct buildings in record time.

Architects, builders and owners are impressed with low original costs and maintenance savings of A-M precast concrete building units. For complete information contact your nearest American-Marietta office or write direct to:
COBO HALL, world's largest, occupies 16 acres of Detroit's civic center. It provides 400,000 square feet of exhibit area. Its 10,000 kVA of power is distributed and controlled by *Square D* equipment which includes 11 substations (one of them is shown at right), 37 control centers, 28 switchboards, 550 panelboards, 19,000 feet of lay-in duct.

EL SAN JUAN INTERCONTINENTAL
One of the Caribbean's most beautiful resorts. *Square D* equipment distributes and controls the electricity throughout this modern structure. ABOVE—*Square D* control center centralizes all motor control for air-conditioning lobby, offices, dining rooms, night club, and casino. *Square D* feed-in duct brings power from substation.
electricity is distributed and controlled

KROGER BUILDING
Its 29 stories contain more floor space under one roof than any other office building in Cincinnati—over 500,000 square feet. Square D equipment is on duty throughout this beautiful building. BELOW—a Square D switchboard which handles a multitude of protection, distribution and measuring functions. Panel in foreground visually reports entire system's performance.

AUTOMATIC ELECTRIC
This 1,520,000 sq. ft. plant, located at Northlake, Illinois, replaces 17 multi-story buildings—outstanding example of more capacity per square foot through straight-line production design. Square D equipment plays an important part in many key operations. ABOVE—Square D combination starters in plating department. There are hundreds of them serving dozens of departments. RIGHT—Square D lighting panelboards (hundreds of them) are used throughout the plant and offices.

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of Electrical Distribution and Control Equipment

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EXECUTIVE OFFICES • PARK RIDGE, ILLINOIS
Plastic design of Georgia armory cuts weight of steel frame 15 per cent

Rigid-frame bents spanning 120 feet set new U.S. record for longest plastic-designed clear span

The Georgia National Guard Armory in Savannah, scheduled for completion late this summer, includes three steel-framed buildings linked by covered walkways. The central structure contains two headquarters and administration wings, and a column-free drill hall which will seat 5,000 when used as a sports arena. The two flanking buildings are each large enough to hold four company-size units.

Frames are outside of buildings

Seven 120-ft-long, rigid-frame bents, 20 feet center-to-center, span the drill hall. Clear height is 30 feet. Each of the 15-ton bents was fabricated from 33 WF 152 lb sections, giving a depth-span ratio of 1:44. Eight-inch purlins are framed into the bottom of the wide-flange sections, to expose the major portion of the frame outside the building.

The architects also derived an aesthetic as well as a functional use of the steel frame in the flanking buildings by exposing the columns. These support 12-inch channels which act as a fascia, and 12-inch light beams which frame the roof.

15 per cent savings in steel

By using plastic design, the architects were able to reduce by 15 per cent the amount of structural steel needed to frame the buildings, as compared with the requirements necessary under the elastic method.

Steel design by the plastic method is a new development in design technique, and generally results in a more efficient structure with less steel required to achieve the same strength. It also saves on the cost of engineering, since it demands less engineering time on the part of the designers.

If you would like a copy of a 10-page AISC booklet on "Supplementary Rules for Plastic Design and Fabrication and Rolled Beam Properties for Plastic Design," write to us at Bethlehem, Pa.
Steel is used extensively throughout the Georgia National Guard Armory, not only as a structural system, but also as frames for windows, canopies, and glass curtain walls. Architects and Engineers: Thomas-Driscoll-Hutton. General Contractor: Hugh Jackson. Steel Fabricator: Owen Steel Company. Steel Erector: Steel Erectors, Inc. The major portion of the 310 tons of structural and miscellaneous steel was supplied by Bethlehem.

Light weight of plastic-designed steel frame minimized difficulties created by poor subsoil conditions and led to economies in foundation construction.
NEW SUPER-
Soundguard X-8
FIRST in SOUND REDUCTION
and FIRST in BEAUTY

The new Super-Soundguard Foldoor X-8 provides the greatest sound reduction of any steel frame single folding partition in the 8-1/2" profile class. Average attenuation for 9 frequencies is 35.8 db. Tested to ASTM Std. E90-55 by Geiger and Hamme of Ann Arbor, Michigan.

Beauty is inherent in all Foldoor installations. Decorator fabrics available in a wide selection of colors and textures.

Practical and handsome, Foldoor fabrics meet the most rigid fire codes, shrug off wear, stay bright and beautiful for years to come.

See your Foldoor distributor for Super-Soundguard specifications, sound test results, and fabric samples—or mail this coupon.

The Record Reports
continued from page 264
sity of Washington—$800; John Anton Berg, Tempe, Ariz., Arizona State University—$500; Gary D. Forbush, Salt Lake City, Utah, University of Utah—$800; and Fred Maxwell Babcock, Pocatello, Idaho, University of Utah—$800.

The National Board makes this, the eighth such grant for scholarships, in recognition of the importance of the architect in the proper design of buildings.

Kansas State Awards First Master of Regional Planning

Kansas State University has awarded its first master of regional planning to George P. Miller. He is the first to complete requirements for the degree, which was authorized by the Kansas Board of Regents in 1959. The degree is offered on an interdepartmental basis but it is coordinated by the department of architecture and allied arts.

"The degree is unique to K-State in two respects," according to Murlin R. Hodgell, associate professor of architecture and regional planning and major adviser for the graduate degree. "It requires two years of graduate work beyond the bachelor's degree (most master's degrees require only one year), and it is a change from the specialization of many master programs. The regional planning degree consists of a series of broadening courses as well as a core curriculum. The professional program develops from this broad base."

The interdepartmental nature of the degree permits majors to receive their undergraduate degrees in architecture, civil or architectural engineering, landscape design or in related social sciences. They also study in these areas, adjusting their programs individually to help overcome undergraduate deficiencies for planning.

Program policies are decided by an interdepartmental committee. The chairman of the committee is the head of the department of architecture and allied arts because much of the core curriculum is taught in that department.

The degree is general because planning involves a coordination of continued on page 278
LEE MEMORIAL METHODIST CHURCH, NORWICH, CONN.

A specially designed continuous Wasco Skydome surmounts the deeply pitched roof of this church sanctuary, enabling the congregation to see the open sky above while preserving an atmosphere for quiet contemplation below. The side aisles are enclosed by solid brick walls, yet receive evenly diffused, glare-free daylight through standard self-flashing Wasco Skydomes — molded of Acrylite®, the shatterproof, weathering plastic. Wasco welcomes other opportunities to combine daylighting with advanced architectural ideas. Write our Custom Engineering Department.
NEW! Pilot-lighted directory on a new style G-E Master Selector Switch shows instantly which of 12 circuits are ON. Also has tiny locator light (permanently ON) that permits reading the directory and operating the switch in the dark.

From General Electric—new Remote-control increases lighting convenience in homes, you provide step-saving convenience when you specify this modern low-voltage control system. All important lights can be controlled from a single location; and additional switches per light can be installed at surprisingly low cost.

In commercial buildings, G-E Remote-Control switching can reduce installation costs, make it easier to relocate office partitions, help lower the cost of operating and maintaining lighting circuits. And now, with this new, more complete line of General Electric switches, you have greater flexibility than ever before in designing a remote control system to your specific needs.

There's a new standard, push-button G-E Remote-Control wall switch, well marked for ON and OFF — plus a locking type — plus a trig...
NEW! Switches that are easy to find in the dark. Now G-E Remote-Control wall switches are available with or without built-in locator lights.

NEW! Switches with built-in red pilot light. This new type of G-E Remote-Control switch is just the thing for controlling "hidden" lights.

NEW! Trigger and locking types. If your customers prefer an up-and-down "trigger" to the standard G-E Remote-Control push button, they can have it. You can suggest the locking type to prevent children from operating dangerous power tools.

NEW! "Plug-in" relay box. Provides quiet operation, easier tracing and changing of circuits if needed. It impresses customers—simplifies your wiring. A bus bar connects relays to line voltage, automatically, as they're plugged in—to give you a neat, orderly installation.

For detailed information, call your nearest G-E distributor—or write to General Electric company, Wiring Device Dept., Providence 7, R. I.

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ARCHITECTURAL RECORD  September 1961  277
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Plus the Compatible Architectural Look

Attractive, custom-made Cookson Grilles are adaptable to a wide variety of standard and special applications. You can specify a side-coiling grille, such as the one shown here, or the overhead rolling type; made in stainless steel, galvanized steel or aluminum, with sturdy 5/16" diameter rods joined by pre-assembled, straight-line connecting links; and you have a selection of five types of operation—from manual to push-button automatic.

Exclusive features include pressure-applied bar-end caps that prevent rods from snagging or jamming in guides or brackets; wool-pile inserts on both faces of the guide that eliminate metal-to-metal contact, insure cushion-quiet operation.

And you can count on The Cookson Company for those important innovations of design and development that satisfy the individual requirements of architects, owners and contractors. See our catalog in Sweet's... or write for your personal copy to: The Cookson Company, 1525 Cortland Avenue, San Francisco 10, California. Sales and service in principal cities.

COOKSON
ROLLING DOORS • FIRE DOORS • GRILLES • COUNTER DOORS • COILING PARTITIONS

The Record Reports
continued from page 274

engineering, architecture, government, municipal law, economics, sociology, geography, geology and many other fields related to urban life. A planner must recognize the important interrelationships of these areas to his own profession and be concerned for “what, where, when and why,” leaving the details of “how” to other professionals.

“The program is building faster than was expected,” Professor Hodgell observed. Although no special effort has been made to publicize the regional planning degree, this fall 15 majors are expected and five will take courses as minors.

Mr. Miller, the first to receive the degree, completed his course work in January and since then has been working on his thesis, “The Historical Aspects of Community Development in Kansas”.

New Institute Secretary
Appointed by R.A.I.C.

The appointment of Maurice G. Holdham of Ottawa, as secretary of the Royal Institute, has been announced by Harland Steele, president of the Royal Architectural Institute of Canada. Mr. Holdham joins Institute headquarters following nearly 33 years of service with the Royal Canadian Air Force. His appointment fills the position left vacant by the death of the late Leonard Fallis.

Florida Architecture
Wins Graphic Award

One of three top winners in Mead Papers' second Grand National Award of Excellence in graphic arts competition was Florida Architecture-Architecture International. Its editorial advisory board composed of prominent architects throughout the state of Florida, the volume was cited for its “incomparable printing and breathtaking color photography” as well as its “excellent translation of ideas within the bounds imposed by the format.” Florida Architecture-Architecture International is produced by McMurray Printers and Printing Inc. for Florida Architecture, Inc.

more news on page 282
From any angle, Nickel Stainless mullions and external service tower give this new 22-story building top-to-bottom beauty. Interesting design note: colored Nickel Stainless strips are used on the service tower for strong vertical emphasis.

New building keeps full floor space on every level with outside service tower of Nickel Stainless Steel

In Pittsburgh's new Four Gateway Center Building, The Equitable Life Assurance Society of the United States gets 400,000 square feet of virtually uninterrupted floor space. All 22 stories are left uncluttered, thanks to an external service tower that houses all elevators, mechanical and electrical equipment.

The windowless service tower, completely sheathed in Type 302 Nickel Stainless Steel, gives a strong vertical emphasis. This is accentuated by Type 302 Nickel Stainless mullions that run top to bottom on the main building in combination with colored glass. This new building shows how architects can use the versatility of Nickel Stainless Steel to effect their own ideas of modern design. Here are four reasons why architects choose this gleaming metal.

Competitive in cost. Its high strength-to-weight ratio means that lighter sections can be used, generally at an initial cost competitive with ordinary building metals.

Easy to maintain. Nickel Stainless is probably the easiest of all architectural metals to keep clean. It resists pitting from the atmosphere, and its surface stays so smooth that rainfall alone helps keep it clean.

Lasting good looks. High corrosion resistance means long-lasting beauty for the life of the building. And Nickel Stainless resists unsightly staining from adjacent materials, such as other metals, brick, or mortar.

Easy to fabricate. Nickel Stainless forms and fabricates easily. It punches, shears, and welds readily. New roll-forming methods can often mean important fabrication economies.


THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.
POST-TENSIONED PRESTRESSED CONCRETE BEAM
HOLDS ROOF OF 42,500 SQ. FT. BOWLING ALLEY!

3½" thick folded plate lightweight prestressed concrete roof covers entire 252 ft. x 140 ft. building that has only two interior columns.

Three cast-in-place post-tensioned, prestressed concrete beams tied together with Prescon stressing tendons into one long unit make possible the unique structure of a 48 lane bowling alley that has no support columns in the lane area.

The Buccaneer Bowl in Corpus Christi, Texas was constructed at a cost of only $8.40 per square foot using a concrete roof and support beam prestressed by the Prescon System of post-tensioning. This price includes a partial basement, a mezzanine restaurant, observation deck and a luxurious lobby—all air conditioned. The cost of the folded plate and the supporting beams was $1.36 per square foot of area.

Forms built of 4' x 8' plywood sheets ready for pouring of folded plate roof. Stressing tendons provide strength for 70' span.

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Raising even a large RoWay Overhead Commercial Door is virtually as easy as opening a residential garage door. This important advantage comes from "Power-Metered" springs — a RoWay exclusive. Every door is exactly counterbalanced with a custom-wound spring, a process made possible by RoWay's all-under-one-roof fabrication system. The manufacturing of all components in the RoWay plant also assures you of strict quality control. Mechanical perfection goes hand in hand with the modern proportions of RoWay doors and the durability of lifetime-guaranteed Masonite Dor-lux panels. For year 'round functional convenience, RoWay Doors are completely weathertight to seal out snow, rain and dust. Motor operators are available for all RoWay Doors. On your next industrial or commercial job, put quality into action with RoWay Overhead Doors.

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ARCHITECTURAL RECORD September 1961 281
C.H.P.C. Report Finds New Housing Approach

A new approach to the design of low-rent public housing is revealed in a new publication of the Citizens' Housing and Planning Council of New York, Inc. Entitled "Housing Design: A Social Theory," the 32-page report was written by Council consultant Elizabeth Wood, former executive director of the Chicago Housing Authority, under a grant from the Phelps-Stokes Fund.

The new approach is based on a theory of what kind of social structure is desirable in a project and how to use design to get it. According to the study, such a theory would be expressed almost exclusively in the design of the space outside the dwelling units—public spaces: corridors, lobbies, grounds and the non-dwelling facilities and buildings.

The social theory of housing begins with the needs of people, the author suggesting five categories of needs that must be served outside the dwelling: need for active exercise; need for sunshine and fresh air; need to get "out"; need to go somewhere; need to do some household chores better done outdoors, such as washing the car.

The average public housing project, charges Miss Wood, serves these needs without richness or imagination, with the result that "resources for leisure time activities ... are more limited than in the slums."

Four principles to guide the architect in design for social structure are suggested: 1) design for visibility, so that tenants seeing their neighbors, accept them, thereby diminishing the impact of one or a few undesirable families; 2) design for loitering in lobbies and in areas between buildings as a form of recreation; 3) design leading to the easy formation of informal groups, made possible by facilities calling for group use and by purposeful arrangements of benches and ground equipment; and 4) design for social controls, through which widespread acquaintanceships are promoted and a general recognition of a community of feeling about the project among tenants, with the result that tenants themselves take care of the property.

Among the recommended design features to encourage rather than deter freedom of action and tenant-to-tenant communication are: spacious exterior corridors, glass-enclosed, well-lighted lobbies suited to recreation or lounging, playgrounds for children of different ages located so mothers can exercise control, areas where teenagers can gather.

"Design," says the report, "can facilitate the social fabric out of which a tenant organization grows."

The illustrated report is available at $1.00 a copy from the Citizens' Housing and Planning Council of New York, Inc., 20 W. 40th St., New York 18.
When you need to divide space and multiply utility, consider these exclusive Coil-Wal features: The beauty of solid or veneered vertical wood slats on multiple airplane cables, fitting together snugly on tongue-and-groove joints. Coils (like a roll desk top placed on edge) into small vertical storage box. Light weight (less than 3 lbs./sq. ft.), supported on light-weight traverse track—requires no structural reinforcement even in old buildings. Can be installed for great strength with or without floor guide. Follows simple or compound curve or turns corner—permits hinged access door when wall is in use. New, Twin Coil-Wal with sound-deadening air space available for sound reduction up to 43 db. average. Coil-Wal costs far less than conventional frame and fabric types. Can be operated manually or with power. Practically no size limits—installations 30 feet high and 150 feet long are in satisfactory use. Available in a variety of woods, factory prefinished, or impervious laminates in faithfully reproduced wood grains.
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284 ARCHITECTURAL RECORD September 1961
New strippable plastic film
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Protects your product quality during handling and fabrication while offering these eight distinct advantages:

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Strippable plastic protection is intended as a safeguard only during ordinary handling, storage and fabrication—not as a barrier for weather, water damage, undue abrasion, impact or foreign substance. Once removed it will not adhere again.

Want more information or a test sample? Write to Product Development Dept., Washington Steel Corporation, 9-E Woodland Ave., Washington, Pa.

WASHINGTON STEEL CORPORATION
“House of Freedom”: Experiment in Housing for Elderly

The “House of Freedom,” an experimental demonstration home for the elderly, was opened at the White House Conference on Aging in January. Built in downtown Washington, D.C., by the Douglas Fir Plywood Association in cooperation with the National Retired Teachers Association and the American Association of Retired Persons, “Freedom House” had as its purpose focusing national attention on the specific housing needs of the elderly. It was shown to demonstrate what can be done in a single family dwelling unit. The sponsors felt it would stimulate better low-cost housing programs by private builders and public agencies.

The house was designed by D.F.-P.A. staff architect Robert B. Waring. Architectural consultant was Professor Alexander Kira, assistant director, Housing Research Center, Cornell University, Ithaca, N.Y. Providing 888 sq ft of living space plus 392 sq ft in the garage and attached hobby room, the design of the house is characterized by a central courtyard. Windows around the court allow the owners to completely open its interior if desired. Carefully planned areas of glass, combined with an interior ceiling which follows the roofline in the living areas, and doors and hallways 6 in. wider than normal are intended to give a sense of spaciousness.

Floor plan of Freedom House

Features designed to make the house easy to maintain are: no window glass higher than 6 ft 8 in. from floor level; pull-down light fixtures to simplify bulb changing; easy-care floor and wall surfaces inside and out; and a sit-down kitchen.

Other features are: no changes in level; electrical outlets 18 in. from floor; light switches and doorknobs a convenient 36 in. high; master light switches at both entrances and in master bedroom; high and uniform light levels; bathroom equipped with tub-seat and grab-bars; nonskid surfaces on all floors.

It is said that House of Freedom is capable of a large number of architectural variations and of being combined as a duplex, “fourplex” or as a unit in row or tract housing.

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Anything goes on Erecta-Shelf. Each steel rod shelf has been load tested to 1,000 pounds of distributed weight. Shelves are adjustable. No nuts or bolts. Assembles in minutes . . . and that saves money. Economically priced. Variety of sizes. Fits into any layout.

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286 ARCHITECTURAL RECORD September 1961

continued from page 282
New from Haughton Elevonics*

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ELEVATOR CONTROL

The Miracle in Motion That Sets New Standards for Speed and Comfort in Vertical Transportation

Haughton Dynaflite achieves the high speeds required for efficient handling of heavy elevator traffic with incredible smoothness. Acceleration and deceleration are so subtle—so finely controlled—that passengers scarcely feel any motion at all. This means passenger comfort and confidence that no conventional control system can provide.

The Dynaflite system is fully automatic, thoroughly reliable. Each run is as precisely controlled as those that preceded it, and those that will follow. Haughton quality in materials and workmanship brings tight-fisted economy in upkeep, too.

Haughton Dynaflite Control is ready to serve your buildings today, thanks to Elevonics*... the well-spring of progress in vertical transportation for multi-floor buildings. Include Dynaflite's distinctive advantages in your building or modernization plans. Ask your Haughton representative for complete information, without obligation. Or, write today.

* Haughton's advanced program in elevator systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Registered in U. S. Patent Office.

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There's a "plus" that Eggers Plywood brings to any building project: Confidence. When you specify an Eggers Door or Eggers Paneling—you know that promised performance is backed by 75 years of experience and craftsmanship. For your protection, all Eggers Doors are covered by the Standard Door Guarantee. Eggers Doors of almost any length or width may be ordered to your exact specifications, or you may select your doors from the wide range of stock sizes— from 2'-0" x 6'-8" x 1½" or 1¾" to 4'-0" x 7'-0" x 1¾". Eggers Doors, used on your next building project, will prove to be custom-crafted for both durability and appearance. See Sweet's Arch. File 16/E9.

ARCHITECTS: LOEBL, SCHLOSSMAN & BENNETT, CHICAGO

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SEATS OVER 8000 PEOPLE when open.....
87% of seating area recovered when closed!

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This Medart installation occupies nearly 22,000 square feet of floor space when opened and seats 8100 people! When closed, 19,000 square feet are restored for normal daily use.

Huge installations like this become thoroughly practical because of Medart's floating telescopic seat supports and interlocked twin rollers under each upright. Time and effort for opening and closing are cut to a minimum. Complete safety is insured by the free-standing steel understructure which will support over 400 pounds per lineal foot of seat row. Wood members add even more strength. Staggered dual-angle uprights distribute weight evenly over floor area—not on casters, walls, diagonal braces, other stress-bearing devices.

Compare the extra safety, durability, lower upkeep, and easier operation of "the industry's best buy" with any other retractable gym seat. Ask for check chart and catalog.

Medart Telescopic Gym Seats are available with 10½" or 11½" row rise and 22" or 24" row spacing.

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Medart Products, Inc.
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STEEL LOCKERS • GYM SEATS • BASKETBALL BACKSTOPS
Quality Products Since 1888
The Record Reports
continued from page 286

style is more costly than a simple version. It probably would be possible to reduce the cost to about $8000 if the carport and hobby room were eliminated and if the roof treatment were adapted to trussed rafters. This would vary with local costs.

Construction techniques studied and recommended in this house can reduce on-site labor to a minimum.

The basic plan is adaptable to a number of cost and time-cutting plywood building techniques, e.g. the builder fabricated entire plywood wall sections in the demonstration model and then simply tilted them into place. Other methods are panelization, in which walls, floors and roof can be assembled from pre-framed components of specific thickness and types of plywood; componentization, in which even larger "building blocks" go together at the site after being assembled under factory conditions. There are four basic alternates in floor construction, all utilizing the large size and strength of full-size plywood sheets, and all more economical and more practical than old-fashioned methods. They are: a method in which pre-framed 4 x 8-ft panels are simply fastened in place over girders 4 ft apart; 2.4.1 Tongue-and-Grooved panels, 1½-in. thick plywood that acts as both subfloor and underlayment over the same girder system; stressed skin panels, "sandwiches" of two plywood layers, with heat ducts and lumber framing between; and conventional plywood subflooring and underlayment, which was used on the demonstration model.

Almost 5000 people inspected the house during the 3-day conference. Following its enthusiastic reception, Donald A. Jaenicke, D.F.P.A. special projects director, said, "It's obvious there's a big, diverse market here . . . for the tract builder . . . for the small local builder. It's also obvious that the market exists everywhere and that many people in the 55-plus age bracket can pay for what they want."

An "encyclopedia" of information on retirement housing that includes study plans for House of Freedom is available by writing to Douglas Fir Plywood Association, Tacoma, Wash.

now available for the first time in English

ELEMENTARY STATICS OF SHELLS
Second Edition

by Alf Pflüger
Translated by Ervin Galantay

Here is a simple and methodical introduction to shell design. Newly translated, this compact work is designed to meet the urgent demands of practicing engineers and architects.

Written by a noted authority on surface structures, ELEMENTARY STATICS OF SHELLS is essentially a visual presentation of the spatial interplay of forces in shells. Its approach is more elementary than those studies which employ such highly advanced mathematical tools as tensorial equations and vector analysis in a system of curved coordinates. All given equations are capable of visual interpretation. Once the basic equations are set down, their results can be practically interpreted in tables and graphs. Thus, you are led to the intuitive understanding of shells which all authorities consider the key to their design.

Special features of this manual: an approximate method for the calculation of shells of revolution subjected to loads of rotational symmetry, and a 19-page appendix with tabulated values of the solutions of the Membrane Theory.

Concise in both aims and methods, ELEMENTARY STATICS OF SHELLS will help you meet today's demand for designers who can perform a dual task: 1. calculating and building shells, 2. explaining these structures and their limitations to architects.

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006
THE MAN FROM DEVOE is a color expert who can put at your fingertips all the facts you need to know about paint, its decorative and protective qualities. Relieve you of time consuming details. Even build you a color reference library or create color schemes for your use—whether your project is commercial, industrial, institutional or residential.

An illustration is the 11-story $4,500,000 Blair Building, now under construction. This handsome addition to the Chicago skyline will serve both as a general office building, and as Chicago headquarters for the John W. Blair Company. Office space totals 175,714 sq. ft. The interior features Devoe Velour Flat and Semi Gloss Enamels.

James W. Coburn, a MAN FROM DEVOE, furnished the architects with the Devoe Library of Colors system (1086 colors, perfect color matching and mixing, and duplication of color in interior and exterior finishes). He also supplied paint samples. Worked closely with the designers who made the final selection of paints and colors.

THE MAN FROM DEVOE in your area will gladly analyze costs, usage, climate and maintenance conditions for you, as well as aid in color selection. All of his services are without cost or obligation.

For details, write or phone: Devoe Color Consultation Service at your nearest Devoe office.
When the architectural firm of Leo A. Daly designed the

Courtyard scene at new home offices of Leo A. Daly Company, Omaha, Nebraska. This unusual building was custom-designed by Leo A. Daly Company for the working needs,
GAS and CARRIER absorption refrigeration for full-time efficiency in year-round air conditioning

The Leo A. Daly Company, having specified gas air conditioning for many of their clients, took their own advice when they designed their spectacular new home offices. For summer cooling, they chose Carrier absorption refrigeration, energized by the same gas-fired boiler that heats in winter.

This puts their gas-fired boiler on a year-round paying basis. Full-time efficiency. The Carrier unit converts low pressure hot water into chilled water for cooling. Operation is quiet, vibration-free, automatic. And thrifty gas keeps fuel costs low.

New high in efficiency at partial loads! An exclusive Carrier solution-capacity-control gives partial load efficiency unsurpassed by any other type of cooling system. Add to this all the advantages of modern gas air conditioning: clean, circulated air, safety, dependability and unbeatable fuel economy.

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American Gas Association

“I like the way this unit automatically adjusts itself to varying loads. I really can't think of an easier system to maintain,” says Fred Lodes, Stationary Engineer, shown here at the 80-ton, gas-operated Carrier absorption unit, Leo A. Daly Building, Omaha, Nebraska.

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STEP 1. Pour foundation and slab on ground. Flexicore precast concrete slabs used over basement utility rooms.

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Skidmore, Owings and Merrill, Architects—Engineers

How Air Force Academy Got New Buildings Under Cover Quickly

The Bachelor Officers' Quarters and Visiting Officers' Quarters at the new Air Force Academy have precast Flexicore floor and roof decks because they provided fast erection, a fireproof structure and a reasonable cost.

For more information on this project, ask for Flexicore Facts 84. Write The Flexicore Co., Inc., Dayton, Ohio, Flexicore Manufacturers Association, 297 S. High St., Columbus 15, Ohio, or look under "Flexicore" in the white pages of your telephone book.
Plenty of Pittsburgh Polished Plate Glass means more natural light, less eyestrain for Finneytown High pupils.

This school was designed with eyesight...

Wherever you look around the Finneytown High School in Finneytown, Ohio, there's glass—PPG Glass that lets in plenty of natural light, adds an extra measure of beauty to the buildings, and provides an ideal learning environment.

Two PPG Glass products play a big part in making this school the bright, spacious place that it is: Pittsburgh Polished Plate Glass and PENNVERNON® GRAYLITE™14 Glass. Polished Plate Glass is used in areas that demand maximum light transmission where natural light is essential. PENNVERNON GRAYLITE is used where glare is a problem. GRAYLITE 14 is heat-absorbing glass that has a pleasant neutral shade which is undetectable to occupants, does not change outdoor colors, yet substantially reduces glare that can be so hard on the eyes helps keep the school cooler and more comfortable in warm months, too.

Inside and out, this is a modern, attractive school building . . . as beautiful as it is functional . . . thanks to glass from PPG. For more information on PPG products, write Pittsburgh Plate Glass Company, Room 1162, 632 Fort Duquesne Blvd., Pittsburgh 22, Pennsylvania.
Pittsburgh Plate Glass products enhance the appearance and help make the Finneytown school a pleasant place to attend.

PENNVERNON GRAYLITE 14 reduces the sun's glare and helps make this school a cooler and more comfortable building during the warm months.

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ARCHITECTURAL RECORD September 1961 297
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The Record Reports
continued from page 291

Ford Foundation Grants: Creative Arts Studies

The Ford Foundation is again offering a limited number of fellowships to assist persons not regularly associated with academic institutions to undertake or complete studies in the creative arts. Letters of application for consideration in this third year of the fellowship program should be submitted before Oct. 16.

Part of the broader Ford Foundation program in Humanities and the Arts which explores needs and opportunities in music, the theater, the visual arts, literature, the dance and other creative fields, the fellowships are for research and study. They are not designed to support advanced training, artistic creations, performances, or any projects not requiring research or study. In reviewing applications primary attention will be directed not to the art concerned but to the individual applicant and the potential significance of his contribution to others interested in the field.

Fellowships will not be made for consecutive periods of less than three months, and generally not for a period longer than one year. The amount of each fellowship will vary in relation to the applicant's estimate of cost, but in general will not exceed $7500 for a 12-month period.

The fellowships for Studies in the Creative Arts are available to U.S. citizens who are not regularly members of academic faculties eligible for consideration under other fellowship programs designed to assist scholarly research and publication. Eligible for consideration are: creative artists wishing to undertake particular studies useful to others in their fields; curators, directors, conductors, and other persons associated with non-academic institutions in the arts, such as museums, theaters, and orchestras; and critics or laymen with particular interest in surveying artistic subjects.


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Superb in its simplicity...bold in its quality...dramatically down-to-earth in concept and design. Here is the sparkling new Series A730...double-hung aluminum window by the master craftsmen of Albro. Some features of interest:

- easily installed in single or multiple units
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Imagine what
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For structures of every type, creative architects know that monolithic reinforced concrete provides greater opportunity for individuality in building design and construction.

Suggestive of a huge bird poised for take-off, the new TWA Terminal Building at Idlewild Airport is a testimonial to the flexibility of this construction method. Its huge concrete shell roof is an arch cantilever design in four continuous monolithic reinforced concrete sections.

On your next project, design with greater freedom—design for monolithic reinforced concrete.

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Associated Architects: Ives, Turano and Gardner.  
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**SARALOY® 400**

frees design from conventional flashing limitations, cuts flashing labor costs 25% for new air terminal

45,000 square feet of Saraloy 400 roof flashing provide hundreds of permanent moisture seals for this ultra-modern air terminal. Among the many critical flashing problems solved by Saraloy 400 were: sealing 875 acute and obtuse angles created by almost inaccessible junctures of structural steel beams and purlins; flashing steel-to-concrete joints and lining scupper holes. The design of the terminal's elliptical cantilevered roof produced 144 different odd shapes and angles where beams, purlins and equipment housing shells meet. Flashing with conventional materials would require that each seal be specially cut and custom-fitted, often to match curved contours. The labor costs for installing metal flashing would have been prohibitive. Because Saraloy 400 could be quickly and easily cut and formed on the job, labor costs were about 25% less than the cost of installing conventional flashing materials. And each seal is permanent.

Saraloy 400 is Dow's brand of flexible roof flashing. It can be bonded to almost any construction material, such as concrete, wood, metal, ceramic, and it can be painted. It provides a permanent watertight seal which won't check, peel or crack... and which moves with building contraction and expansion. For more information write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Dept. 1501 N9.

Saraloy accomplishes difficult flashing of bolted girder-purlin intersection

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Century's Control System

heart of the art of stage lighting...

Century, the largest manufacturer of electronic switchboards, offers its experienced engineering staff to assist architects and engineers in planning lighting control systems. C-CORE® units (Century's trade mark for back to back silicon controlled rectifier dimmers) are designed for flexibility, compactness and simplicity of operation. Of the many Century systems installed, the two-scene preset, shown above, with selective sub-mastering permits the handling of many complex cues. This Century unit was recently installed at the Madison Township High School in New Jersey. Architect: Merchant, Seidel & Hickey / Engineer: Fred S. Dubin, Associates / Electrical Contractor: James H. Delaplaine, Inc.

Write for full descriptive literature

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Quickly installed over old or new walls, Marlite offers almost unlimited decorating possibilities in remodeling or new construction. The large 4’ x 8’ panels or 16” x 8’ planks are easy to cut and fit. They reduce your “in place” costs, help you meet promised completion dates.

Get complete details from your building materials dealer, consult Sweet’s File, or write Marlite Division of Masonite Corporation, Dept. 905, Dover, Ohio.
DIVIDEND ENGINEERING FORECASTS A $30,500 SAVING ON EQUIPMENT AND $2,250 IN YEARLY OPERATING COSTS AT NEW SHOPPING CENTER, NEW ORLEANS, LA.

DIVIDEND ENGINEERING DOLLAR-SAVING PROPOSAL

<table>
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<th>Cost of Heating &amp; Cooling Equipment</th>
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<td>Original Specifications $277,500</td>
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<td>Dividend Engineering Specifications $246,500</td>
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<td>Predicted Saving $30,000</td>
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<th>Additional Insulation Cost (in place)</th>
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<th>Projected Annual Operating Costs</th>
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*A service Owens-Corning will provide to demonstrate to builders, designers, management and financial groups that optimum use of Fiberglas materials can result in reduced initial and operating costs and improved building performance.*
A $25,500 INVESTMENT IN ADDITIONAL INSULATION PREDICTS THESE SAVINGS:

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Original specifications called for a light-weight concrete roof slab and Fiberglas Perma Ply® Built-up Roofing. A Dividend Engineering analysis forecast that installing 1 3/4" of Fiberglas Roof Insulation at a cost of $25,500 would reduce the equipment cost by $30,500—a $5,000 net saving to the owner.

$2,250 FORECAST SAVINGS IN ANNUAL OPERATING COSTS

Dividend Engineering calculations also forecast a $1,361 saving in power for cooling, and another $889 in heating costs.

Let us show you how Dividend Engineering forecasts a high return on the owner’s investment, and makes the benefits of year-round air conditioning economically feasible for more and more industrial and commercial buildings. Just talk to your Fiberglas representative, or write: Owens-Corning Fiberglas Corp., Industrial & Commercial Division, 717 Fifth Ave., New York 22, or Santa Clara, California.
New Drawing Society Plans Program

The Drawing Society, a national foundation of art collectors, artists and museum curators, was formed last fall to inspire public interest in the art of drawing and to encourage high standards of craftsmanship among American artists, designers and architects. Its first president is James Biddle, head of the American Wing at the Metropolitan Museum of Art.

John Harris, of the Royal Institute of British Architects, is a member of the National Committee which includes directors and curators of 23 major museums in 15 cities.

The Society's program was inaugurated by a series of grants to American museums for the purchase of drawings.

Over the next six years, the Society plans to present a series of exhibitions entitled, "The Uses of Drawing," to explore the function of drawing in architecture, stage design, illustration and decoration.

"This emphasis on the uses of drawing," Mr. Biddle commented, "reflects our conviction that drawing is not only an independent art form, but the foundation of all visual arts."

Meeker Granted Danish Government Fellowship

David O. Meeker Jr., a principal in the architectural firm of James Associates, Indianapolis, Ind., has been granted a fellowship by the Danish government for a year's advanced study and research at a graduate school of the University of Denmark in Copenhagen.

The fellowship was one of three such awarded to Americans this year by the Danish government. Mr. Meeker will do advanced research in educational techniques for religious education and prepare a report for the Danish Ministry of Education in addition to his own program of study.

A graduate of Yale University, Department of Architecture, Mr. Meeker serves on the Architects Advisory Committee of the Metropolitan Plan Commission.
Do you have an answer for Mr. Quibble?

Mr. Quibble is a well-meaning school executive. He believes in air conditioning and would like to have it in his new school. But he is apprehensive about the opinions of board members and taxpayers. So he is apt to forego this basic requirement for maximum learning and build a school that will be sadly lacking through the coming decades.

Only his architect and engineer can show him how to have air conditioning with proper regard for economy and without sacrifice of beauty and utility. The revolution in education is bringing a revolution in schoolhouse design predicated upon a fully controlled year-round environment in every learning space. Mr. Quibble's quandary is a challenge to your designing skill.

Nesbitt—with a long experience in the school field—offers a slide film presentation, case studies, cost data, and many other services to help you give Mr. Quibble the right answer.
Only star performers in this arena

Because of the persistence of business and civic leaders, skillful engineering, and close cooperation of material suppliers, Pittsburgh can now boast of the world’s largest dome and the only one that moves. The dome is as high as a 12-story building, 415 feet in diameter, and it’s supported by a 1,400-ton steel tripod that holds the eight-leaved roof like a hand holding the top of a cap. Six of the eight leaves are free to roll back and let in a view of the sky. For theatrical performances, a section of 2,100 seats can be raised hydraulically to uncover a 114’ by 130’ stage... another first.

On the opposite page are three examples of how careful planning and quality building materials from Koppers helped the Public Auditorium Authority insure permanence and star performance from its world-famous Arena. They show how Koppers products can also give you greater design flexibility because they protect the basic construction materials. And this greater flexibility and permanence are frequently possible with lower initial costs and lower maintenance cost.

Sound traps keep the fans quiet

The auditorium's powerful ventilating system moves 130,000 cubic feet of air per minute—and to stifle the roar of the high-powered fans, the engineers installed 118 AIRCOUSTATS, designed and manufactured by Koppers. The AIRCOUSTATS are located in the ductwork of air intakes and in the 24 huge metal pylons which discharge heated or cooled air into the auditorium. AIRCOUSTATS' scientific sound-trap design muffles all frequencies of fan noise—but doesn't block the smooth passage of air. AIRCOUSTATS are economical. They're easy to install in new or existing ductwork and are permanent, trouble-free, sturdy, dust-free, and fireproof. For more information on completely quiet air circulation, check the coupon.

Pressure-treated wood provides light, strong, permanent anchor

Wood—one of the oldest construction materials, proved to be the best material for the vertical nailing strips that anchor the dome's stainless steel sheets. Wood is light, yet is strong enough to hold screws that attach the batten assemblies and prevent blow-off of the stainless steel sheets. Wood also provides insulation and prevents condensation within the blanket insulation. To make this wood as permanent as the roof itself, the 90,000 lineal feet of 2-by-2's were pressure-treated by Koppers. A chemical preservative was forced deep into the wood fibers where it gives permanent protection against moisture and decay.

In addition, WOLMANIZED® pressure-treated lumber was used in the promenade deck expansion joints. NON-COM® fire-protected wood was used to attach corkboard insulation for damping the vibration of the air-handling equipment. Check the coupon for information about wood that is pressure-treated for permanence.

Coal-Tar Waterproofing Pitch protects rooms under exposed promenade deck

An open, 50-ft.-wide walkway with a view of the Golden Triangle encircles the base of the dome. Thousands will walk on this promenade deck, which serves as a roof for exhibit and meeting rooms below. To keep this section absolutely dry at all times, workmen applied a coat of Koppers Coal-Tar Pitch over the reinforced concrete base. Then, after a layer of rigid insulation, came five more applications of Coal-Tar Pitch with alternate layers of tarsaturated fabric and felt. Over this waterproofing, the patterned concrete walking surface was placed. The multi-ply membrane under the concrete walking surface prevents water penetration, spalling of concrete, and rusting of reinforcing steel. In fact, Coal-Tar Pitch is such a waterproof material that it is often used on roofs that are permanently flooded. Check the coupon for details on Koppers Coal-Tar Pitch for Built-Up Roofs and waterproofing.
SG-3920 SERIES DOOR HOLDERS were selected for their fully adjustable holding power, smoothness of operation and design to facilitate hospital cleanliness. The clean contours of the case with its concealed attaching screws are pleasing in appearance, and discourage dirt collection. The smoothly rounded strike permits power scrubbing and polishing machines to ride over and around it, virtually eliminating unclean and unsanitary areas.

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