THE TABRIZ CONSULATE BY EDWARD LARRABEE BARNES
AIR CONDITIONING: HOW CHANGING TECHNOLOGY AFFECTS ARCHITECTS
HOUSE FOR A WOODED SITE BY GEORGE NEMENY
BUILDING TYPES STUDY: RECREATION—OPPORTUNITIES FOR INNOVATIVE DESIGN
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COMING IN THE RECORD

HOSPITALS: PLANNING FOR THE CHANGING TECHNOLOGIES

Medical centers will get special attention in next month’s Building Type Study, which will underscore the importance of flexibility in developing master plans that can adapt over many years to new technologies as they emerge. Some new applications of advanced techniques of automation in the design of hospitals will also be analyzed.

PUBLIC BUILDINGS AS ARCHITECTURE

Heartening words have been spoken in recent years, and in the highest circles, about the need for the highest quality in Federal architecture. But the test of conviction in architecture is in architectural results, and there should be particular interest in a forthcoming feature presenting the design concepts for some important new buildings on the Mall in the nation’s Capital.
Would all Americans kindly leave the page?

(Except for those designing jobs for locations outside the U.S.)

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A observer has made it a habit to keep himself some thoughts about certain building designs; I have in fact announced a conviction that too negative criticism damages not only the building question, but also the architectural case. In this case, however—this case is the proposed new headquarters building the American Institute of Architects—they have asked for it. They got it, the other day, from the Arts Commission of Washington, D.C., which rejected the scheme for the building. At the moment, one presumes, there is confusion around the Octagon, for the Commission has the power to prevent its construction, and the Commission left little hope for compromise by modification of the design. It said the building was “too domineering and out of keeping with the feeling of Octagon house.” And: “The whole concept is classically wrong, and there is little they could do to alter the basic design.”

I certainly agree that the design would be domineering, and perhaps that’s enough to say. But it’s a bit ambiguous. The building, if constructed, would dominate the site, and tower over the little Octagon Building. It might also be considered to be domineering as an architectural precept, or concept, and here are plenty of good architects today who would question this idea of architectural objectives. A tour de force is always a temptation, but it is not always good architecture.

As most readers know, the design, the work of Mitchell and Giurgola, won a nationwide A.I.A. competition for the new office building and was later revised. So architects themselves are the clients; they wrote the program; they chose the jurors; and they are bound to carry on according to competition rules. It would be my thought that any criticism of this design should be widely distributed. Any entrant naturally tries to assess the purposes and preferences of the client and the jury; it was plain in this instance that the idea was to make it a stage setting for the Octagon. And the jury is responsible for picking a winning design; they opted for “domineering.”

But the nice little Octagon is no subject for such glaring attention. It is a small, mild-mannered, modest little building. It has important historical claims, but it would not be so bold as to claim architectural achievement. So that mammoth glass monster that would be behind it should surely embarrass the little thing, and such glaring attention would focus on history, not architecture.

There’s a nice little old lady have, as an escort, somebody equally modest and well mannered? Wouldn’t the escort try to enhance her style, her mannerisms? Wouldn’t he, in fact, dress modestly and let the old girl have what dignity she could manage?

The new building design seems to do everything glaringly inappropriately. It would tower over the little building; it would steal the show with its own tour de force. And in fact sort of laugh at the building it was supposed to revere.

Not to mention the fact that all this glare would focus on the little old lady’s posterior. That particular little old lady has a posterior no more attractive than any other lady’s or any show girl’s. Would the famous topless gals of Paris’s Lido like always to face the rear of the stage, and have the spotlights on their backs?

Henry Saylor, long editor of the A.I.A. Journal, spent a lot of years developing a nice garden setting behind the Octagon, including some rather large flowering trees. Visitors to the present A.I.A. office building, behind the Octagon, may not realize how that garden contributes to the charm of the old building, and to the receptions staged within.

But obviously the new building would mean removing the graceful garden, leaving an unseemly rear fully exposed. Thus its inhabitants, who would be supposed to bow low each time they get near the glass front, would be looking at a bare and unbeautiful scene.

And think of the torture they would suffer in a tortured building. One look at the model shows how the functions of an office building have been sacrificed for this wall of glass. There are no other windows, and spaces would have to be staggered around the center.

More to the point, however, is the fact that strong architectural thought is turning ever more insistently toward making new buildings settle in comfortably and peaceably with their neighbors.

Can anybody point to any corresponding attributes of that prize winner? Or is anybody ready to argue that that proposed building would do any good for the profession of architecture?

—Emerson Gable
Architect as contractor? Horrible thought dept.

Of course it is not a new thought that the architect might consider taking on the duties of the contractor, even if the architectural standards frown on such a mixing of responsibilities. But at the recent A.I.A. convention I listened with considerable interest to an architect friend who bent my ear on this theme. He was not making a positive statement that the architect should reach for this role; he was just running over the considerations.

I shall not put them all down here, but rather summarize them in the thought that the architect is now charged with so many responsibilities for matters he cannot control, that in self-defense he might have to act. He does not control the actions or policies of the general contractor; nor those of any subs. His actual control of labor, costs, deliveries, and so on is rather nebulous. Yet to the client it is the architect who disapproves him when the building is delayed, the costs run too high, the workmanship or materials are faulty. Legal decisions these days are frightening architects with charges of responsibility, when the architect has a natural tendency to think of himself as an adviser to the owner, not a contractor.

The trouble is that clients are not content with advice. They want a building, on time, on cost budget, on specified functional considerations. These are what the "package dealer" offers to the client. 

Esthetics? Who knows about esthetics? How many clients (say, building committees) can stand up in front of the board of directors and argue that the architect was right, even though the building cost too much, or came in much behind schedule? What building committee can argue that quality was the factor, that the architect was protecting their interests; as was his obligation.

I am told that manufacturers of most items these days have committees of experts studying ways of cutting costs. As for myself, I should like to have paid $10 more for my car than the $100 it cost me one day because the radiator was under-designed.

Some of these responsibilities are needing to be re-thought.

Any one for bridge? Sounds profitable

Alan Truscott, bridge writer for the New York Times, had something to say about what types of people make good bridge players. He mentioned actors, accountants, authors, bankers, dentists and doctors, engineers, and others, with an especially strong mention of lawyers. Then:

"Architects and artists are conspicuously absent from the list, suggesting that three-dimensional visualization is quite different from the mental pictures of the unseen cards that the expert must conjure up during the play of the hands."

It looks like architects should avoid bridge games with lawyers. Or, to my way of thinking, it would be simpler just to avoid lawyers.

Architects learn to draw, but what about thinking?

That canard (this page) about architects not being good bridge players (really, you know, the man didn't mention how busy architects are these days) does suggest, however, a recent remark by an architect. He also was mentioning architects' training in drawing, but he didn't give it the usual charge.

It is a familiar remark that architects are trained to draw, but not to write. Lamen: worse: "Architects trained to draw, but not to think."

Not to think. Well, I think I could lose him in semantics. What is thinking anyway? Architects are, as the bridge writer said, trained in three-dimensional visualization. No thinking in that? What do you mean by "thinking"? Analy. Lawyers would be trained to analyze words, or perhaps abstractions stated words. Engineers analyze numerical matters; doctors, medical troubles. Do architects analyze anything?


"Trained to draw, but not to think." That might be changed to "Trained to draw, in order to encourage creating thinking."

The A.I.A. building again and its neighborliness

That attack (previous page) on the promised design for the new A.I.A. head quarters building considered it only the light of its neighborliness to the old Octagon Building. But when the Fine Arts Commission of Washington rejected the design, what the Commission had in mind no doubt was the effect of "domineering" a design on the surrounding city.

I can't drop my own charge without questioning whether, in this respect, the architectural fraternity ought to be more concerned than it seems to be. If it is too overpowering, too arrogant, to settle down quietly behind the Octagon, isn't it also too injudicious a venture to perpetrate on the city of Washington? Isn't it a rather daring statement for the official architectural group to make? —E.G.
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Clean, crisp appearance. Controlgrid's rectangular grid pattern gives it the trim, lean, unobtrusive look so popular in contemporary interiors. The grid pattern of slightly raised ridges gives Controlgrid a unique modular look and helps keep the lens rigid no matter how large the lens area.

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Precision light control. Controlgrid's prismatic structure is carefully engineered to deliver the maximum amount of glare-free, prisma­tically-controlled illumination uniformly over horizontal surfaces. You get more light where you need it. And Controlgrid has exceptionally low and even lens brightness—it never intrudes on your design.
Holophane's new 6100 Controlens has the slim styling and specialized performance you need for lighting corridors, library stacks and similar areas.

Full ceiling and wall illumination. The 6100 is a slender, one-lamp wrap-around lens designed to distribute light prismatically onto ceiling and walls as well as floor. This eliminates all dark areas, makes any corridor or aisle safe, cheerful and inviting.

Uniform, glare-free illumination. A combination of longitudinal and transverse prisms on bottom of lens distributes glare-free light uniformly over a broad area, not just under the fixture. This means you can space units more than twice the aisle width apart and still get completely uniform illumination.

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You can specify both the Controlgrid and 6100 lens in the fixtures of dozens of leading manufacturers. For full information on these newest Holophane lenses, write: Dept. H-8, Holophane Company, Inc., 1120 Avenue of the Americas, New York, N.Y. 10036.

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Smooth white precast window units contrasted with flat precast panels with exposed aggregate of Letcher Granite... make an attractive facade for this 36-story hospital housing "original."

In addition, the planters in the garden and plaza... the panels and load-bearing columns in the core... are precast of true-white Medusa White... the architect's aristocrat of White Portland cement... his most moldable, aesthetic medium for creative "originals."

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ARCHITECTURAL RECORD August 1967 27
And in such language! But... can you blame an owner whose heating and cooling costs are going up and up? Now it looks as if he may have blown an account by deciding to use that bargain insulation.

It worked all right at first. But gradually it lost efficiency. Why? Maybe the vapor barrier? He knew vapor barriers weren't foolproof. They deteriorate. Maybe building movement split it. Then moisture permeated the insulation. Condensation may have complicated things... dragged down insulating efficiency. There is a better insulation. It's STYROFOAM® brand plastic foam. The very best. Retains its effectiveness. Resists water and rarely requires a vapor barrier. Rot and mold are not problems. Flame retardant. Lightweight and easy to install. Use the Miller System: Apply paneling decorative wallboard directly STYROFOAM brand plastic foam: use a base for wet plaster; or as a perimeter insulation for foundations and slabs.

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(He just found out!)
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Exclusive trapezoid shape invites access from either side, or front, saving over a foot of aisle space. Seven models serve from 73 to 180 office workers per hour. Hot water accessory available.

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Would Tufted Broadloom best answer your carpet specifications? The textural, design and color versatility of Berven Tufted Broadloom might prove most interesting... plus its dollars-and-cents practicality. Berven offers you a wide sweep of qualities ranging from acrylic, nylon, polyester and poly-propylene olefin fibers to traditional pure wool. Tufted Broadloom, in turn, is but one of 10 basic lines manufactured or distributed by Berven Of California to offer you one of the widest selections of carpeting and services in the Nation. And behind all of this is a sure sense of color and textural styling that springs from a most knowledgeable Custom Carpet heritage. Perhaps we might be helpful. We'd surely like to try.

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Anemostat diffusers—silent, efficient performers at the Los Angeles Music Center

Air diffusers for the $33.5-million Music Center of Los Angeles County had to meet these primary criteria—blend with the elegant decor, deliver effective air flow patterns in huge halls as well as smaller areas, and be quiet enough not to disturb the sensitive ears of music lovers.

Several types of Anemostat diffusers were chosen for the trio of outstanding buildings. In the Dorothy Chandler Pavilion and Ahmanson Theatre, for example, Anemostat’s ALD Architectural Linear Diffusers became unobtrusive elements of the interiors. These linear units distribute 250,000 CFM of air to the pavilion with no audible hisses or hums.

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BUFFUMS' PALOS VERDES
Architect: Killingsworth, Brady and Associate, A. I. A.

BUILDING PROFILE

GENERAL DESCRIPTION
Two-story building
43,000 square feet department store
Reinforced brick masonry construction

ELECTRIC LOAD
Connected Lighting and Miscellaneous Load — 600 KW
Electric Air Conditioning (125 Tons — 3 Units) — 160 KW
Electric Supplementary Heating — 92 KW
Electric Water Heating — 40 KW

INSTALLED COSTS
Air Conditioning System — $1.25 sq. ft.
Electrical System — $1.90 sq. ft.

OPERATING COSTS
Total Electrical Operating Cost for a Six Day Schedule — $0.38 per sq. ft. per year

SPACE CONDITIONING
Direct expansion, refrigerated, air cooled cooling system.
Heat supplied by lights supplemented by electric heating coils as needed.

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Los Angeles is sprouting a skyline... most of the newest, the tallest, the last and the finest buildings are gas conditioned. Why this trend to gas? Leading architects and engineers give four important reasons:

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"All I know is one evening in our living room, my wife and I decided it was a good idea to join the Peace Corps. So we did."

What the David Kadanes did puzzled and puzzled a lot of people. Maybe because the Kadanes weren’t anywhere near twenty years old anymore. Maybe because they gave up two years’ worth of a lot of salary, two years’ worth of a big job as General Counsel for the Long Island Lighting Company, two years’ worth of a life they had spent their whole lives building ... just to join the Peace Corps.

But what a lot of people don’t realize is that the Peace Corps isn’t just a place for just-out-of-college kids with strong arms and heads and good-size hearts. The Peace Corps is a place for people who want to do something and can do something. It’s a place for people who want to see things and do things firsthand and closeup. People who want to give other people a chance to get to know and understand their country and themselves as they really are. People who care about the world and other people maybe even as much as they care about themselves.

And, maybe more than anything, the Peace Corps is a place for people who, for some reason, are willing to give up whatever they have to give up to do something they feel they have to do. And the David Kadanes are two of those people.

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For more data, circle 28 on inquiry card
Architect proposes city core of 326 units to be built on pontoons over water rights

Shape/21, an "urban matrix" of multiple aluminum and glass units intended to extend from and expand upon the existing core of the city, has been conceived and designed by Chicago architect Stanley Tigerman and introduced by holds Metals Company. The basic unit of the matrix, which would be built in water using a system of pontoons on which the entire structural system is supported, is shaped like a truncated tetrahedral pyramid, or pentahedron, and is repeated 326 times in a pinwheel arrangement. Each unit is 600 feet on a side and 100 feet thick and is divided into 46 floors with the units being segmented into residential, commercial and communal functions. The units are connected by hollow trusses which serve as an integral transportation system and distribution network for utilities.

The pontoons, on which the complex would be supported, would be stabilized by anchored cables. The pontoons would vary in area from 360,000 square feet to 3,240,000 square feet each for a total area of 17,640,000 square feet of essentially open space. The complex would provide nearly 23 million square feet for residential application, over 82 million square feet for commercial use and nearly 106 million square feet for communal functions such as entertainment, educational, sports, civic and governmental use. City Shape/21 would require an area of about one and one half square miles, expanding the average city core by about 100 per cent without destroying the desirable water edge, since, says Mr. Tigerman, "the matrix would be located a sufficient distance from the shore to preserve esthetic and recreation values of the edge."

Although the project is solely conceptual, Mr. Tigerman has made a complete technological and structural qualitative study with structural engineers and technical consultants. "This study was made," said Mr. Tigerman, "using the existing properties of aluminum such as bending moments, deflection, modulus of elasticity and coefficient of expansion. From these data we have concluded that City Shape/21 can be constructed from existing materials either available now or which can be fabricated using existing equipment."

Continuing education series will be presented in six cities

A series of seminars for architects and engineers on "Developments in Architectural Technologies," presented last fall in New York and Cambridge, Massachusetts, as part of the Cambridge acoustical consulting firm of Bolt Beranek and Newman's program of Continuing Education in Architecture, will be repeated in six cities in 1967-68. The series, which will consist of five day-long seminars on the topics of acoustics, mechanical systems, lighting, structures, and computers, will be given by outstanding lecturers from universities and from leading consulting and research groups. The series will be offered in Cambridge, New York, Washington, Chicago, Los Angeles, and San Francisco for one day each month for five months (usually on Saturday). The $325 tuition for the series includes lunches and seminar literature. A second series, "Developments in Architectural Materials," is now in preparation.

Fletcher named to head public housing program

Thomas W. Fletcher, formerly city manager of San Diego, has been put in charge of the public housing program with his appointment as deputy assistant secretary of the Department of Housing and Urban Development. Marie McGuire, commissioner of the Public Housing Administration in the old Housing and Home Finance Agency, will remain with HUD as a special assistant on problems of the elderly and handicapped.

Grant by architectural firm enables educators to travel

A grant established by the Omaha-based architectural firm, Leo A. Daly Company, will permit faculty members of the School of Architecture at the University of Nebraska to visit geographical areas related to their teaching. The new grant is a revision of the former Daly Scholarship Fund which has provided an annual $2,000 four-year undergraduate scholar-
ship since 1956. Under terms of the new fund are one travel grant each year for a third-year student as well as a faculty grant, probably to be awarded every third year. The first recipient of the faculty grant is Ronald E. Hess, assistant professor of architecture, who is spending this summer visiting Egypt, Jerusalem, Lebanon, Greece, Cyprus, Turkey, Crete and countries in Southern Europe.

August F. Hoenack cited for excellence in hospital design

August F. Hoenack, chief of the Architectural, Engineering and Equipment Branch of the Division of Hospital and Medical Facilities, Public Health Service, has been presented the Superior Service award of the United States Department of Health, Education, and Welfare. Mr. Hoenack, a pioneer in hospital architecture whose 30 years of government service has included 25 years with the Public Health Service, was cited "in recognition of his exceptional contribution to national health facility construction programs through excellence in hospital design and architecture."

Mr. Hoenack is currently the Public Health Service representative to the American Institute of Architects' Committee on Hospitals as well as being a member of its Ad Hoc Committee on Architecture and Engineering in Government. He is a consultant to the American Hospital Association's Committee of Design and Construction, and a member of the American Standards Association's Committee on Making Buildings Accessible to and Usable by the Physically Handicapped.

Department of Transportation announces awards competition

The Federal Department of Transportation has announced the initiation of an annual highway beauty awards competition to "recognize and cite the interest and participation of governments, authorities, organizations, businesses and industries in the national program of highway beauty." The competition will result in the annual presentation, beginning next January, of 11 awards to agencies of state, county or local governments, and four awards to social, civic, professional or other organizations and private industry.

"Design concept teams" urged for highways by A.I.A.

George E. Kassabaum, first vice president and president-elect of the American Institute of Architects, has called for use of "design concept teams" of specialists as a required part of the Federal Government's interstate road program.

Speaking for the A.I.A. before a Senate Committee of Public Works as part of hearings underway on the Highway Beautification Act of 1965, Mr. Kassabaum said that architects were "convinced that this approach will produce a highway that is part of the community, rather than one that takes the community apart."

The design concept teams are panels of engineers, economists, sociologists, planners and architects who focus on the "complete social, economic and physical impact" that an expressway will have on a community.

Obituaries

Llewellyn W. Pitts, a 1966 candidate for the office of First Vice President-President-elect of The American Institute of Architects and from 1964 chairman of its Commission on Public Affairs and director of the A.I.A. To Region, died June 23 at the age of after a long illness. Mr. Pitts was a senior partner in the firm of Pitts, Mebane Phelps, architects and engineers, Beaumont, Texas. Mr. Pitts received architectural degree from the Georgia Institute of Technology. He was elected the College of Fellows of the A.I.A. 1958 for Design and Public Service, was made an honorary member of the American Institute of Architects of Mexico in 1961. Mr. Pitts served as president of Southeast Texas Chapter A.I.A. in 1961, a member of the A.I.A. Committees on Education, the National Capital and the Madison Library, and director of the A.I.A. Foundation.

Henry J. Toombs, senior partner the architectural firm of Toombs, Arianso and Wells, Atlanta, died June 15 of the age of 71. Mr. Toombs, who received his bachelor's and master's degrees from the University of Pennsylvania in 1919 and 1922, was elected to the College of Fellows of the A.I.A. in 1949. His firm has been responsible for many distinguished buildings in Atlanta and in the South including the John Knox Presbyterian Church in Marietta, Georgia, which won a 1967 A.I.A. Honor Award, and the Atlanta Memorial Cultural Center, no under construction.
Shown above is Deca-Grid style Borden Decor Panel used as a facade for the Pargas, Inc. building in Waldorf, Maryland. Set off by piers of white precast stone, the sturdy aluminum Deca-Grid panels are finished in blue HINAC, Pennsalt's new finish for metals.

This Deca-Grid installation has tilted spacers, a feature called the Slant-Tab variation wherein spacers may be mounted at angles of 30°, 45°, 60° or 90° as desired. The Slant-Tabs may be further altered by use of non-standard angles, or lengthened tabs.

All the Borden Decor Panel styles, including Deca-Grid, Deca-Gril, Deco-Ring and Decor-Plank, are highly versatile in design specification and in application as facades, dividers, grilles, fencing and the refacing of existing buildings. In standard or custom designs, Borden Decor Panels provide a handsome, flexible, maintenance-free building component.

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For more data, circle 29 on inquiry card
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New Single-zone Lennox Comfort System goes hand-in-hand with Multiple-zone DMS

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Where both single-zone and multiple-zone comfort control requirements exist, the new GCS3 can be combined with the Lennox DMS (Direct Multizone System).

Whatever your building — office, school, restaurant, plant, clinic, laboratory, apartment or other high-occupancy space — Lennox has the system (or combination of systems) for it.

For details, write Lennox Industries Inc., 104 S. 12th Avenue, Marshalltown, Iowa.
RESIDENCE-GALLERY DESIGNED BY Le CORBUSIER IS DEDICATED IN SWITZERLAND

The residence and private gallery designed by Le Corbusier shortly before his death in 1965 for a lake-front site in Zurich was completed and dedicated last month. This building for Mrs. A. Heidi Weber, who has for a long time been Le Corbusier's representative for painting, sculpture and graphic work in Zurich, will now become a memorial and exhibition pavilion.

The design brings together a number of recurring themes from Le Corbusier's work: a roof structure composed of two hyperbolic paraboloids of opposed directions, which eliminates the need for a central support; the separation of the roof structure from the building; and the use of a 7-foot 5-inch module. The sheet-metal roof structure, weighing 40 tons and painted battleship grey, prefabricated, and then trucked to the construction site where it was fixed six pillars. The entire structure is into a concrete base which incorporates ground floor and basementassen hall. The walls consist of brightly ored porcelain enamel panels.

The residence portion of the vilion is located to the left in the pl with the gallery portion to the right, gallery portion being a two-story re with further display space located on balcony overlooking the first floor. ramps lead to an outdoor terrace un the shelter of the roof.

Supervising architects for the $31 000 building were Alain Taves and Rob Rebutato.
1. terrace
2. entry
3. living room
4. coat room
5. kitchen
6. office
7. gallery
8. bedroom
9. curator
10. storage
A corporate headquarters and distribution center for Ilford Inc., Paramus, New Jersey, designed by Zywotow & Eckert, will have its office section constructed of a modular, precast concrete wall system with tinted glass set in deeply recessed window openings. The distribution center at the rear will be faced with earth-colored brick and precast concrete trim. The headquarters section will contain executive offices, technical services, demonstration suites and general offices. The five-story structure will contain 40,000 square feet in its first stage with provision for 20,000 square feet in expansion. General contractor is the B. D. Malcolm Company.

A warehouse for the Pleasantdale Corporation, Atlanta, designed by Martin & Bainbridge, is one of 11 winners in the fifth annual awards program of the Prestressed Concrete Institute "to recognize excellence in design using precast and/or prestressed concrete." The 150-by-230-foot warehouse, with all wall and roof members of standard 8-foot-wide prestressed concrete double-tees, was praised by the jury for "... how, with simple standard materials and imagination, fine architecture can be achieved within a competitive cost range for a warehouse."

The Central Heating and Cooling Plant, University of Saskatchewan, Regina, designed by Clifford Wiens, is another winner in the P. C. I. awards program. Precast post-tensioned A-frame construction supports the cooling towers and permits concentration of roof penetrations at the apex for mechanical and plumbing vents. The jury commented: "What might have been a jarring anachronism becomes a handsome feature consistent with the environment and landscaping ... demonstrating excellent use of prestressed concrete members." Serving on the jury were architects Charles M. Nes, Jr., Guy Desbarats MacDonald Becket, and engineers Earle Andrews and Thomas M. Linville.

The Faculty Office Building for the Harvard Law School, Cambridge, Massachusetts, designed by Benjamin Thompson & Associates Inc., is a five-story building containing 41,800 square feet. The building will contain an entire floor devoted to a faculty library, periodical room and lounge "in order to maintain the law school faculty's sense of community and exchange of ideas." A companion five-story building designed by Mr. Thompson will provide classrooms and administrative offices. Both of the new buildings will have reinforced concrete structures with a reddish brown textured brick and bush-hammered concrete exterior in order to relate to existing older buildings.
University Center Building under construction at Wayne State University, Detroit, designed by Alden B. Dow & Associates, is a framed structure faced with a skin of red thin wall latex concrete, which will house religious, recreational and educational facilities of the school. Located in a three-story tower which will be cantilevered approximately 15 feet out from the four-story building, it will be facilities for religious groups. In case, there will be lounges, meetings rooms and dining facilities. General contractor for the million building, which will contain 300 square feet, is the Lerner-Linden Construction Company.

Headquarters building for the Olivetti Wood Corporation in Seattle, designed by Paul Bouillon, A.I.A., and Associates, will be an 8,000-square-foot office building, with offices rising over a surface parking area for 26 automobiles. The building, of precast poured concrete construction with deep-set windows for sun control, will be faced on a landscaped triangular site. Structural engineers are Olsen and Ratti and the general contractor is the Hugh S. Ferguson Company.

Pittsburgh National Bank headquarters building in Pittsburgh, designed by Welton Becket and Associates, Architects—Engineers, will be a 30-story office building with the elevator and service core expressed as a separate element on the east side of the building. The design calls for clear-span construction with 70-foot-long, high-tensile-strength steel trusses, and with load-bearing exterior columns on the facade. The columns, recessed handrails and elevator core will be sheathed in black granite. The ground-floor banking space will be column-free with a 25-foot luminous ceiling. The building, which will contain 300,000 square feet of flexible space, is expected to be completed by 1971.

The Equitable Life Assurance Society office building in Los Angeles, designed by Welton Becket and Associates, Architects—Engineers, will rise 34 stories and will be set on a two-level landscaped plaza. Precast fins of beige concrete mixed with a beige Texas limestone aggregate then exposed by sandblasting, will rise nearly the height of the tower. Retail shops will be located on two plaza levels as well as in a separate one-story structure. The second story, which will house banking facilities, will be an extra-height floor cantilevered outward 11 feet on all sides. The $30-million building, constructed on a 4-foot 8-inch module (expressed on the facade by fins) will contain 780,000 square feet.

An Operations Center for the Manufacturers National Bank of Detroit, now under construction in Detroit, designed by Louis G. Redstone Associates, Inc., will be an 11-story structure containing 552,500 square feet to house the bank's computer center and a new branch bank. The building, which is located in the center of a proposed 20-foot-high pedestrian mall, will be faced with black granite, stainless steel and gray glass. Below mall level the building will be faced with carved stone bas-reliefs. The building will have a two-story lobby with an open well which will overlook the banking office. The project will provide parking for 260 cars on three sub-levels and will be topped by a heliport. General contractor for the underground work is the Barton-Malow Company.
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ON THE CALENDAR

AUGUST


SEPTEMBER

19-22 46th Annual Meeting of the Producers' Council. Workshops on "Import of Building Systems on Construction of the '70s" and "Cities—New and Newed"-Hotel America, Houston.

OCTOBER


9-12 Architectural Aluminum Manufacturers Association Annual Meeting-Statler-Hilton Hotel, Dallas.

31ff. Fall Convention, American Concrete Institute—Hotel Fort Des Moines, Des Moines, Iowa. Through November 3.

OFFICE NOTES

OFFICES OPENED

Mel E. Bartholomew has opened a new office specializing in total site engineering at 1962 Springfield Ave., Maplewood, N.J.

Architect Richard W. Coyle, A.I.A., has opened an office in Omaha, Nebr.

Geoffrey W. Fairfax, A.I.A., has opened an office for the practice of architecture and planning at 1210 Ward Ave., Honolulu.


Harlan E. Sherman Architect has opened an office at 13224 Shaker Square, Cleveland.

Piedmont Engineers and Architects of Greenville, S.C. have opened an office at 166 East Bay St., Charleston. S.C. James L. Townsend, Jr. will head the architectural division in Charleston.

continued on page 61
We’re not saying commercial carpeting is obsolete, but...

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Spancrete contributes to "structural integrity" of tradition-free church design by Belluschi & Ware

Spancrete ceilings of soft textured concrete, massive poured-in-place concrete beams, and board and batten redwood panels characterize the new Unitarian Church in Rockford, Illinois. The 40-inch-wide exposed Spancrete roof planks with V-groove joints provide the desired scale in relation to other materials and building design. The choice of materials was influenced by a desire to create a natural warmth conducive to worship. Not too ornate but with simplicity — relying on good proportions, effective lighting and honest materials.

Photos by: Hedrich-Blessing

For more data, circle 43 on inquiry card
continued from page 54


Bodin & Lamberson, Architects announce the reorganization of the firm to include Robert B. Plunkett, A.I.A. and Edward H. Shirley, A.I.A. as partners and R. L. Wooddall, Jr. as an associate. The new firm is Lamberson, Plunkett & Shirley, Architects; R. L. Wooddall, Jr., Associate located at 410 Forsyth Bldg., Atlanta.

Environmental Research Associates, Inc. has been formed by Ralph K. Morrill and Edward E. Pickard, Architects, A.I.A. to provide comprehensive environmental research, planning and design services. The new corporation is located at 404 E. Magnolia St., Auburn, Ala.

A new firm known as Freidin, Kleiman, Kelleher has been formed by its partners, Jack Freidin, A.I.A.; Joseph Kleiman, A.I.A. and Daniel Kelleher, A.I.A. It is located at 342 Madison Ave., New York City.

Frid, Ferguson & Mahaffey, Architects have named Howard H. Perry a partner and the firm's new name is Frid, Ferguson, Mahaffey and Perry, Architects. The firm is at 750 Main St., Hartford.

Batey M. Gresham, Jr. and Fleming W. Smith, Jr. announce the formation of a partnership for the practice of architecture to be known as Gresham and Smith Architects—A.I.A. at 535 Church St., Suite 1106, Nashville.

William A. Gould & Associates, Architects and City Planners, 1404 East 9th St., Cleveland announce that Harry J. Roberts, William H. Wiechelman, Jr. and Harry A. Henshaw have been named associates with the firm.

Peter G. Koltnow has joined the Los Angeles office of Victor Gruen Associates as project director.

Robert E. Sudbring, architect has joined the staff of Gale A. Hill & Associates A.I.A. located at 11722 Studt Ave., St. Louis.

Arthur W. Buttery has been made Chief Mechanical Engineer by Holforty Winding O'Neill & Associates Inc., Consulting Engineers at 177 West Big Beaver Rd., Troy, Mich.

Lois Baker is now Director of Interior Design at Frank L. Hope & Associates, San Diego architects and engineers.

Keene/Mac Rae Associates, Inc. an architectural and engineering firm has

continued on page 84
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new low-income site plan readied by FHA

The Federal Housing Administration (FHA) is developing a new method of planning that could, according to initial estimates, result in new, single family detached homes in the $10,000 range.

Key to the new plan, dubbed the "Modular Site Concept," lies in small-sized lots and one-way narrow streets. "A combination, happy or unhappy, of the small-sized lots of the 1940's, sized lots and one-way streets of trailer parks, and the common-ground open spaces idea of newer townhouses," says a prominent land planning executive.

FHA's plan, according to several architects and land planners who have reviewed it privately, will depend in large measure on the excellence of design of individual homes and on the local community's acceptance of the much higher density: 8.2 homes per acre, well above the national average of four.

Despite the design drawbacks, and probable local resistance to the zoning aspects, all of the experts who screened FHA's idea strongly favored the thought that FHA was trying to come up with some solutions to the high cost of new housing. In doing so, the agency had to toss out some of the most persuasive underwriting principles—that larger lots provide better resale potential, and that homeowners want larger houses.

FHA's experts feel an 800-square-foot house, at $10/square foot, can go on the 5,000-square-foot lot (85 feet deep on longest line, 37.3 feet wide with 43-feet street frontage) at a total cost of $10,500. This includes $2,000 per acre for the "model" 28.13 acres and $316,481 in total development costs on common areas and lots (streets, sewers, etc.). This works out, including 20 per cent land profit, to $1,563 per lot for 243 lots.

Possibility of international practice gains ground

The recent convention of the National Council of Architectural Registration Boards (N.C.A.R.B.) in New York, the port of the Committee on Foreign Evaluations, which was approved by the council, contained a significant breakthrough in the area of international reciprocity. A Memorandum of Agreement to permit registered British and American architects to practice freely in either country was ratified at the convention, and the appropriate machinery set in motion to bring it into effect. The agreement was the result of two meetings—one in New York and one in London—when representatives of the C.A.R.B. and the Architects Registration Council of the United Kingdom (A.R.C.U.K.) first explored the possibilities of international reciprocity and then drew up the memorandum of agreement.

Other countries are interested in developing international practice

The meetings were also attended by representatives of the Royal Architectural Institute of Canada; the Commonwealth Association of Architects; the Pan American Federation of Associations of Architects; the International Union of Architects and the Royal Institute of Architects of Ireland.

Other meetings were conducted in a great spirit of cordiality and constructiveness, and the continued interest of all the countries represented suggests that this initial two-nation agreement may be only a prelude to a much broader reciprocity. Once in effect, the scheme will permit registered architects of Britain and the U.S. to practice freely in each other's country, subject only to their passing an examination testing professional practice and practical experience.

A survey of foreign schools will determine relative standards

The establishment of reciprocal agreements obviously depends in large part on mutual confidence in the equivalence of educational standards in the countries concerned. The Foreign Evaluation Committee of the N.C.A.R.B. has therefore been concerned to establish an effective means of studying and recording the
curricula of foreign schools of architecture and to relate these to the training offered by accredited schools of architecture in this country. The N.C.A.R.B. has therefore appointed Professor William Muschenheim of Michigan University School of Architecture to undertake the task of surveying foreign schools in the capacity of "Evaluator of Foreign Schools of Architecture." Professor Muschenheim's task will involve actual visits to as many schools as possible, and—with the help of the N.C.A.R.B. in Washington—the preparation of appropriate questionnaires to send to schools not yet surveyed and to those whose records require updating.

Other professions discuss international practice
That related professions are thinking along similar lines is evidenced by conclusions reached at a meeting on international engineering procedure held last February in Washington and attended by representatives of the resulting Engineers Council, the Association of General Contractors and the Agency for International Development. The meeting recommended the adoption of an international standard form of contract, subject to certain provisions in the case of AID-financed projects, and the use of a glossary to clarify the meaning of terms not in current use in this country. Other subjects discussed at the meeting included ways to improve contract mates and methods of financing.

Dodge's mid-year forecast sees building upturn
F. W. Dodge Company reports that the second half of 1967 is expected to bring a bigger total of contracts for new construction. The stronger months ahead will bring the Dodge index to 149 from last year's 145.3 (1957-1959=100).

The rate of both commercial and industrial building will be climbing again during the next six months, reports George A. Christie, Dodge's chief economist. Total commercial contracting, he said, will finish 1967 at close to last year's record $5.835-billion amount. Industrial contracting, which declined due to tax credit and depreciation rulings of last September and the excessive inventories during the early months of this year, have proved only temporary problems. Though total industrial contract values may not quite equal the record $3.6 billion set last year, they should come within 1 or 2 per cent of it, Christie predicted. Total institutional contract values, Christie said, should about equal last year's $8.4 billion with a 3 per cent gain expected in educational construction offsetting the anticipated declines in hospital (-10 per cent) and religious building (-3 per cent) activity.

Housing, up 8 per cent to $19.3 billion, is the most unstable market at mid-1967. Despite the monetary ease resulting from a switch in monetary and fiscal policies, interest rates began to stiffen again during the second quarter due to heavy demands by both business and government and the anticipation by lenders of even stronger borrowing needs in the second half. However, the administration and the Federal Reserve Board have committed to the support of a housing recovery this year, and hopefully, Christie said, "this commitment will be reflected in a balanced use of both fiscal and monetary policies rather than another money squeeze." The rate of housing starts should total 1.3 million units for the year, bringing total contract values for one- and two-family houses to $13.8 billion this year, a 12 per cent increase over the depressed 1966 level. Total 1967 contract values for apartm

Briefs
FHA to insure group medical facilities. Under a new program, the FHA will insure private mortgages to finance group medical practice facilities through new construction or rehabilitation of existing structures. The Public Health Service will advise FHA on medical aspects of project proposals. FHA will insure mortgages covering up to 90 per cent of the value of the facility, including equipment.

Architectural firm supports research. Diversified research projects in architecture will be undertaken within Kansas State University's College of Architecture and Design in the next three years with the assistance of a $30,000 grant from Smith, Hinchman and Grylls Associates, Inc. Presentation of a $10,000 check for the first year's research was made by Robert F. Hastings, president of the firm, to Dean Emil Fischer at the annual meeting of the A.I.A. in May. The research will be supervised by Henry Wright, K.S.U.'s Regents Distinguished Professor of Environmental Technology.

Mortgage lending revives. Statistics on mortgage lending in May show that home financing by savings and loan associations increased by 32 per cent from April to May, and for the first time in 15 months topped the volume for the same month of a year earlier. Associations closed an estimated $1.8 billion in mortgage loans in May as compared with $1.3-billion in April.

Housing for the elderly. Over 35,000 housing units designed for senior citizens of moderate income have been completed or are now under construction, financed by loans to non-profit organizations made by HUD and its predecessor agencies implementing Sec. 202 of the Housing Act of 1959. Total cost of the program through January 1967 was $42,312,000. As of the end of January, 19 states and Puerto Rico had taken advantage of the program.

Psychoarchitectonics. That's the word used to describe an itinerant international exhibit of psychiatric and mental health facilities now being organized for Italy. U.S. architects are invited to submit exhibit materials consisting of print, model photos and one-page written report to arrive not later than October 31 at: Centro Psicographico di Maser, via Dalmazia, 14, Montebelluna (Treviso, Italy, for the attention of Professor Ennio Miotto.)
second boom in school building

Last month's column it was noted that the current record rate of educational building is the result of powerful forces that have been behaving quite predictably for many years. These forces—steady growth and changing composition of the nation's student body, and the stimulus of several recent Federal construction aid programs—are largely responsible for today's very high level of spending.

There is every indication that the demand for educational construction will remain strong both this year and next. There are also signs that after two decades of expansion, an important change is coming in school building. This change will be in the rate of growth of school enrollments—the single most important factor governing the need for new educational facilities. Since 1960 total school enrollments have been growing at a rate of more than 3 per cent per year—almost exactly double the rate of growth for the population as a whole. The table below shows, during the first half of the sixties the proportion of the population attending school increased from 25.6 per cent to 28.0 per cent. That increase meant a need for new classroom space for nine million.

But from here on (through 1975, at least) things will be quite different. It's not that we'll suddenly be faced with empty classrooms or anything like that, but just the same, the boom years for school building are coming to an end. For the next 10 or so years, total school enrollment will be increasing by an average of only 1 per cent per year, instead of the more than 3 per cent annual growth in the first half of the sixties. In relation to the population as a whole, enrollment growth will slow down to just about the same rate, rather than double its pace. And that means that by 1975, we'll actually have a smaller proportion (27.6 per cent) of the total population in school than today.

Demographically speaking, it's little more than a matter of put-and-take. In the years ahead, the students who were born during the peak birth rate years of the early fifties will be taken out of the educational system by graduation and will be replaced at the beginning grades by kids born in the middle-sixties when the birth rate was much lower. As this happens, the impact on the nation's educational system will be progressive.

Elementary (K-8)—enrollments have already leveled off and will actually begin to decline around 1970. By 1975, total grade school enrollments will be about two million less than today.

High School (9-12)—enrollments are still growing, but at a slower rate than during the early sixties. Expansion stops by 1975, and then decline sets in.

College—Plenty of growth left here. Enrollments are currently a bit more than six million, up from three and a half million in 1960. They'll expand somewhat more slowly to nine million by 1975, with further gains anticipated in the years beyond.

Building activity: monthly contract tabulations

<table>
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<tr>
<th>$ (BILLIONS)</th>
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<td>1966</td>
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New Fleming Warehouse in Houston, has over 8 acres of roof...

More than 75 affiliated food stores will be served from the new Fleming Company distribution center now under construction in Houston, Texas. The building, with more than 350,000 square feet, features some of the most modern warehousing facilities in the country. Automatic dockboards, indoor loading facilities, air curtain walls, and computer controlled transportation, inventory and accounting are some of the features that make this warehouse unique.

The huge flat roof of the warehouse is supported by Sheffield Steel Joists; 428 total. There were good reasons for the selection of Sheffield Joists for roof support: they are completely standardized as to length, depth, load carrying capacities as well as meeting all the specifications of the Steel Joist Institute.

In addition, joists provide easy passage of pipes and conduit through the open webs. This eliminates the need for cost furred ceilings. Also important, a coat of red-oxide primer paint is applied to Sheffield Joists at no additional cost. This efficient, non-bleeding primer is one of the best that can be provided for the protection of the joists.

Investigate the advantages of joist construction. Call the Armco sales office in your city, write, Armco Steel Corporation, Department W-777AA, 700 Roberts Street, Kansas City, Missouri 64125.
study weighs the effect of wage rates on building costs
generally assumed that the sizable differences in the cost of a building from city to city stem primarily from the relatively large differences in wage rates among cities.

New York City as a base, a labor cost index can be compiled. The wages used are 1966-67 rates including fringes and are adjusted for an 8-hour workday where applicable. As these rates are renegotiated, the index can be updated.

A brief explanation about this index: the weights (per cent of total job cost) for each trade are not the same in each city, and neither are the differences in these weights simply proportionate to the differences in hourly wage rates.

So while the index shows Atlanta's labor costs for school buildings to be 55 per cent of school labor costs in New York, it does not mean that the total building cost for a school in Atlanta is 55 per cent of the cost in New York.

To convert the labor cost index to a building cost index, it is necessary to take the weighted labor cost in each city and add a constant representing cost of materials. When this is done using New York prices the following indexes occur.

Checking the relationships expressed in this index against various published indexes produced some interesting results. In fact, most of the figures proved to be quite close.

Since the original purpose of this study was to test the notion that wage differentials are the primary determinant of building cost differentials from city to city, this could be taken as some measure of "proof". The accuracy lost by assuming constant material's prices was undoubtedly offset to a substantial degree by the use of weighted wage rates for the particular building type.

In these index numbers labor productivity was not taken into account. Short run market conditions, mainly influenced by the degree of contractor competition, were also not considered.

As has been suggested previously, the ideal method for determining these factors is via thorough research of the city in question.
A near-miss in Illinois on single vs. separate contracts

Some of the political aspects of the contest between proponents of separate contract bids and those who advocate a single general contract were underscored in a recent series of events in Illinois.

Owner-architect judgment should set bidding format

Previous columns (January, March) have stressed the importance of bidding systems which permit the owner, under advice of his architect, to exercise judgment in determining which format—whether separate or single bid—best serves his project needs. The trend in recent years has been to legislate the separate bid or split contract system into a must for public agencies.

The split contract is a format wherein separate bids are taken and contracts awarded for general construction work, plumbing, HVAC, and electrical work. Under this system, for a single building there may be as many as four (in some states the number is greater) separate prime contractors working on the job.

Illinois courts permit agency's choice of method

In Illinois, in 1966, the courts determined that the Illinois Building Authority was not bound by the separate bidding provisions of the State Purchasing Act. Since that time the I.B.A. has contracted some 40 projects, employing with considerable success both separate and single contract bids as circumstances warranted.

The subcontractor groups, understandably, were unhappy with this development. Separate bids had been required on all public work in Illinois since 1959. As a consequence, the subcontractors urged upon the recent legislature an amendment of the purchasing act which would specifically include the I.B.A. within the mandatory split contract provisions. The I.B.A., many architects, general contractors, and other interested parties, including our firm, opposed the amendment.

Committee's bill would extend choice to all agencies

The debate before the House Committee considering the matter must have been lively, because the bill as reported out (and as previously passed by the State Senate) would have not only preserved the exclusion of the I.B.A. from the obligation to award split contracts, but would have excluded all other state agencies as well. It would have restored to all public building in the state the option of selecting a contract format—whether single or split—which in the judgment of the agency involved most suited the needs of the project at hand.

But house reverses stand and requires separate bids

Unfortunately—and this is the development that caused a hurried revision of this month's article—the bill as passed by the house was further amended. The strides made by the house committee toward flexibility and the exercise of judgment in taking construction bids were reversed. In final form, the bill required that all agencies—including the Illinois Building Authority—take separate bids for the major mechanical and electrical trades. The agency may also invite split bids for the entire construction package if it so chooses, but the award must be made to the bid or combination of bids which results in the least cost.

Single and separate bids just won't work together

This approach has been used elsewhere and it simply doesn't work. Subcontractors soon demonstrate that, confronted with this choice, their bids to the general contractor are much higher than those tendered to the agency. Indeed in many instances, subcontractors decline the invitation and refuse to submit any bid whatever to the general contractors.

It is hoped that Governor Keen will veto the Bill. If he does, this issue will be reopened and hotly debated in the next session of the legislature.

Mandatory format weakens project control

Clearly, the choice—whether single or single contract—belongs with the agency and its architects, and not with the subcontractors affected. As we pointed out before, mandatory separate bids encourage abuse and weaken project control.

Whatever the outcome, one might read some encouragement in the episode. The problems implicit in a mandatory separate bidding formula have been recognized, and this recognition can quite close to reversing a trend which many observers, both for and against, had thought to be irreversible.

Shopping centers dominate merchants' building plans

Shopping centers have almost completely dominated new construction plans for some types of stores, with one result being that centers are gaining on the total retail trade market at the rate of 2 per cent a year.

W. Donald Calomiris, Washington, D.C. president of the Institute of Real Estate Management, made this observation while addressing delegates attending the annual convention of Realtors from New England at Dixville Notch, New Hampshire, June 30. Irem is a professional affiliate of the National Association of Real Estate Boards.

Mr. Calomiris said that variety, general merchandise, department, and shoe chain stores all placed more than 90 per cent of their new units in shopping centers in 1966 and plan about the same ratios this year.

Nevertheless, he said, the demand for center-city retail outlets is still strong. Most central business district stores are enjoying higher absolute retail sales volume, even while continuing to lose their former high relative proportion of total retail sales.

"There are several trends of interest affecting the demand for central business district retail stores," he went on. "One is the increased amount of business being developed by serving a record number of office workers located in the central business district."

An additional factor is the emerging trend back to the central city by apartment residents, particularly in the luxury rental classes.

"Urban renewal," Mr. Calomiris advised, "has been at least partially responsible for helping to reverse the previous trend away from the city." The flow at present is rather mixed.

A third factor affecting demand for the success of modern retail merchant in achieving higher sales volumes per square foot of retail area. This has made it possible for merchants to accommodate a greater volume of sales in a smaller area than was possible a decade ago, and it has permitted them to absorb some of the increase in the cost of doing business in the central business district.

"The real victims, if they can be called that, of the trends in retail trade are the so-called strip stores and the secondary retail areas peripheral to or outlying from the central business district," Mr. Calomiris concluded. "It is in these categories that most of the vacancies and marginal uses are found."
The one period are 33% higher than the costs in the other. Also, costs in the second city are 80% of those in the first (8.0=10.0=80%) or they are 20% lower in the second city.

The information presented here indicates trends of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). Information is included on past and present costs, and future costs can be projected by analysis of past trends.

STORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES

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Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200:0) divided by the index for a second period (150:0) equals 133%, the costs in

ARCHITECTURAL RECORD August 1967 73
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The Mining and Mineral Products Group of General Refractories Company

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UR ROOF?

Seal photos taken at Marineland of the Pacific, Los Angeles.
NEW FIRMS, FIRM CHANGES

continued from page

eXH X

enlarged the scope of its service
merging with Richard Paul Mille
other principal design members of
now dissolved firm of Wiley and
Inc. The firm’s main office is at
California Rd., Elkhart, Ind.

Kennedy, Brown & Associates
architects announce the change of
to Kennedy, Brown & True
architects at 3925 North College
Indianapolis.

Edward A. Kern and Hermen
Weber, Jr. have formed a partner
for the practice of architecture with
the name of Kern & Weber, A
818 Baldwin Building, Erie, Pa.

Arthur A. Edwards, partner in
firm Krey and Hunt, announces the cl
ing of his own office for the practi
mechanical and electrical engineer
as Ben H. Krey and Darl H. Hunt
ounce their retirement. The new
will be located at 551 Fifth Ave.,
York City.

The architectural firm of Lawrie
Green announces that J. Harlan L
A.I.A. has become a partner. The
is at 321 North Front St., Harrisburg

Sherman Schneider, A.I.A. has ap
appointed executive architect of Ch
Luckman Associates, planners and
chitects in New York and Los Ang

Herbert K. Hopp has joined the Y
York office as project architect.

Clinton Marr, A.I.A. architect
Riverside, Calif., has named two ass
ates, Lee Tracy and Richard P. Frick
firm will be known as Clinton Marr &

ates, architecture and planning.

The firm of Yosh Nakazawa &
sociates, Inc., Architect-Engineer,
nounces the appointment of Willia
Cobb, A.I.A., Walter S. Hallen, Jr., D
ald H. Garbowicz and Harry E. Pat
t as associate architects. The firm is loca
at 53 W. Jackson Blvd., Chicago.

P & W Engineers, Inc. announces an
appointment of E. Alfred Picardi as
ecutive vice president in charge of E
ern operations. The firm is at 309
Jackson Blvd., Chicago.

John B. Parkin Associates, Archit
and Engineers announce that Lloyd
Lalit has become permanently locat
the Los Angeles office of the firm
vice president/design. The office is
1801 Avenue of the Stars, Los Angel

Joseph L. Pellis and Donald J. Le
rich announce the formation of a pa
ership Pellis & Leitrich for the pract
of architecture with offices located at
124 West Pittsburgh St., Greensburg, P

Henry A. Pfisterer, Consulting E

continued on page

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NAME

TITLE

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continued from page
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on the job

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The same thin-profile, architecturally-styled NELSON/aire cabinet units are available in 289 models for systems that feature central system heating and chilled water cooling. These units feature money-saving "Damper guard" control system for maximum dehumidification (moisture removal); an anti-blow through venting damper; and your choice of up to 25% or 100% fresh air damper arrangements for ventilation requirements. NELSON/aire heating, ventilating and air conditioning units are available in a complete range of CFM sizes. Both decorator and standard models available in choice of colors.

NELSON/aire cabinet units for central systems. For more data, circle 61 on inquiry card

NELSON/aire cabinet unit self-contained air conditioning) can be installed through the wall without disrupting service to surrounding areas. Complete assortment of temperature control packages helps you get the most from your fuel costs—in any installation. Unit is completely insulated and weather sealed. Slide-in refrigeration section is equipped with handles for easy maintenance. Two-speed operation with color-coded pushbutton controls. Choice of filters to fit any maintenance program—throwaway, renewable, permanent or polyurethane. Pop-out front panels (optional) make filter changing fast and easy—for anybody. Decorator or standard models available in choice of colors. Cabinet top and sides are 16-gauge metal. Thin profile projects only 7% into room. Fits any wall thickness.

NELSON/aire cabinet unit

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Heery and Heery Architects and Engineers, 1705 Commerce Drive, N.W., Atlanta.


Win Hoffman Architect, 600 Hempstead Tpke., West Hempstead, N.Y.


Stone, Marraccini and Patterson, Architects and Planners, 455 Beach St., San Francisco.

R. Bruce Widstrom Associates Architects, Place 90, 8998 "L" St., Omaha.

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1000 Lake Shore Plaza Apartments, Chicago, Illinois
Developer: Harold L. Perlman
Architects: Sidney H. Morris & Associates
Structural Engineers: William Schmidt & Associates
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Dur-O-waL is versatile, like masonry. Available everywhere, like masonry.
Barnes' Tabriz Consulate... a sophisticated statement of ribbon arches and domes
Tradition, which has been creeping back into architectural vocabularies under various guises for some time, has a handsome new representation in the United States Consulate for Tabriz, Iran.

In his development of the design, Edward Larrabee Barnes has given reasoned sway to his theory of "continuity" in architecture—that "any single building is conditioned by what is around it, and by what came before". The conditioning, in this case, came from the native Iranian villages, with their mud-covered brick walls, domes, walled compounds and gardens.

"In an advanced industrialized country such as the United States", Barnes has written, "the likelihood is that, if the architect resorts to primitive means of construction, such as solid masonry walls laid out by hand, or a mosaic floor, he is doing it for effect. Such effects have their place, but they are essentially decorative and peripheral to the main courses of architectural development... However, in backward countries, the architect who employs advanced techniques imported from industrialized countries may be forcing the impractical. Where labor is cheap, the work of human hands becomes a part of a matrix of an architecture reserved for special locations. In northern Iran, where there is still a strong use of brick vault construction, it seemed to me that the natural idiom for architecture would be just that—brick."
Revolt, in the sense of some degree of architectural assertiveness, is one quality which Barnes pits against that of architectural continuity. In this consulate, assertion is made by its color.

"For hundreds of miles around Tabriz," Barnes comments, "the little mud brick villages are self-sufficient and primitive. The soil is red-brown, so are the towns, and when the dust blows so are the people." In contrast to this ambience, Barnes has injected white-stuccoed, strongly shadowed and sculptural angularities which forcibly recall snapshots of the buildings on the Greek island of Mykonos.

The original brick walls of a farm and almond grove previously occupying the site have been retained, with an arched white gate leading into the compound of offices, consul's residence, and a few existing buildings which have also been retained. Staff apartments have been planned for later construction. Each of the buildings is given its own inner court by white walls and rows of poplar trees.

The structural shapes of the ribbon arches, barrel vaults, thin-shell domes and buttresses have been carefully studied and refined into a sophisticated, abstract sculpture, as can be clearly seen in the photos. The larger office building is a cascade of repeated domes, while the consul's residence (three detail photos this page) has three elliptical domes, abutting six barrel vaults.
Synthesis of age-old construction methods with contemporary engineering has been made in the buildings. “What luxury to find a fully-developed, highly-refined system of compression architecture, 2,000 years old, with craftsmen able to carry it out,” Barnes has commented. “All we added to the local esthetics was, we hope, a sophistication and refinement not found in their architecture. Our buildings are disciplined for the engineering, it is true, and proportions and spaces are carefully considered. We took care of the earthquake problem by keeping buildings one-story and by adding an earthquake ring—a poured concrete beam around the periphery which binds it together. Our whole vocabulary consisted of the arch (and its extension, the barrel vault), the dome (which is essentially the intersection of two arches), and the elliptical dome (which is a logical next step).”

The progressive stages of the brick construction are seen in the tinted photos at left: the ribbon arches in place (1), addition of the domes (2), addition of the infilling walls (3), and topping the roof (4). The exteriors are all stuccoed, and the finished interiors are plastered. Both the office building and the consul’s residence are somewhat formally planned with regular bays, and a dome or vault over each.

The only significant change from the original sketch (upper left) is the shifting of the residence from the central axis.
Timelessness is a possibly-not-unexpected quality achieved through Barnes' approach to the design of the Tabriz Consulate. Though it is decisively contemporary in its simplicity, strength and sophistication, there is an inherent romantic recall in the mere use of flowing curvilinear shapes. Such forms are in themselves a significant departure from Barnes' usual concern with the varied disposition of flat planes. However, he has developed them in much the same manner: use of a single material, adherence to and repetition of a single strong design idea.

In addition to reflecting the local village construction and scale, the flat compound and domes of the consulate also echo the terrain—a plain edged with rounded mountains near the Russian border.
A seminary library
sets a high
architectural standard
for the archdiocese
of Boston

St. John’s Seminary’s new library in Boston’s Brighton district occupies a wooded rise within sight of the large and imposing official residence of Richard Cardinal Cushing, located just within the border of the St. John’s Seminary campus. Because the new library was to be constructed in the Cardinal’s back yard, so to speak, the religious institution’s directors and the Cardinal himself were eager to build a distinguished work of architecture. In addition, function as well as proximity seemed to justify major architectural effort, since the library was planned not only as a facility for the college, but also as a resource center for the entire archdiocese, the many pastors and curates, and 17 small missionary seminaries in the greater Boston area.

Architects Paul J. Carroll and Sanford R. Greenfield have produced an essentially symmetrical building of poured-in-place and precast concrete constructed upon a strict module established by the spacing of book stacks. Within this rigid discipline they have achieved a strong basic shape, excellent interior spaces and a well-integrated mechanical and electrical system.

The seminary’s administrators, intrigued and pleased by their interesting and good new building, have recently improved their curriculum by the addition of a well-attended course in architectural design.
GROUND FLOOR

FUTURE

MECH

FIRST FLOOR

SECOND FLOOR

SECTION A-A

SECTION B-B

ARCHITECTURAL RECORD August 1967
basic structural system for book stack areas, as shown on plans and sections at left, is of one-way ribbed slabs reinforced concrete spanning 7 feet by 27-foot bays. The ribs are 7 inches on center to correspond with stack spacing and are 16 inches wide. The voids left by the ribs are 20 inches wide and 16 inches deep. Every other stack space is equipped with a fluorescent troffer, and becomes a reader casting light upon the shelves and the aisles between them. Corridor and auxiliary spaces are located within a 2-foot-6-inch by 27-foot column. Perimeter bays of the second floor are punctuated at projecting outside edges by a continuous band of 30-inch-by-12-inch-by-12-inch-deep domes. These form a very handsome soft light can be seen in the photograph at the right. Fan coil units and pipes are located within the regular space at this cornice as shown in the section. Air intakes and ducts for the coil units are located in a continuous joint at the perimeter.

The ratio of reader space to volumes in open stacks is relatively high as called for by the program, which accounts for the absence of large reading areas and the relatively high percentage of small carrels. The central well facilitates visual control of all levels from the main desk.
Central skylighted wells of the type shown at the right are not permitted by the technologically outdated building codes still in force in Boston. The Boston Building Commission, after a formal appeal, made their first major exception for this three-story vertical space.

Interior spaces are well lit, as in the periodical room shown above. Broad expanses of glass shaded by deep overhangs and surrounding trees bring a generous amount of daylight to reading areas, technical and office space, and stacks. Adjacent to the periodical room is a reference area, shown at left.
The pleasant informality of this house—so well attuned to its wooded site—is in fact the result of considerable design sophistication shown most clearly in the straightforward plan, the carefully balanced exterior massing, and the meticulous detailing.

The plan, a simple though unusual one, provides excellent zoning by placing the master bedroom on the ground floor separated by the living pavilion from the two-story guest, children’s and service wing at the other end of the house. The master bedroom is itself separated from the living area by a dominant rubble-stone fireplace wall. In addition to the wall’s importance inside, its height and mass balance the two-story bedroom wing outside.

The architect has accomplished an easy and natural relationship between the house and the outdoors through the use of glass walls that give direct access to the garden and visual continuity of indoor and outdoor spaces.

Exteriors are of vertical cypress siding—stained dark grey—to blend quietly and effectively with the surrounding woodlands.

Natural stone retaining and fireplace walls contrast effectively with the wood and glass and give an added strength and sense of permanence to the structure. The living room gains considerable character by having one wall of stone, the strength of which is to some extent balanced by the exposed ceiling beams and some well-designed, but fairly solid modern furniture. The structure of the house is wood frame on concrete foundation with stained cypress walls and a built-up roof. Cypress is also used extensively on interior partitions. Other interior materials include: white plaster ceilings, blue stone floors in the living areas and ceramic tile in the bathrooms. Construction cost—exclusive of lot, landscaping and furniture—was about $60,000.
Well-planned and well-executed details are an important factor in the success of any building, but perhaps particularly so in a house of this kind, where so much reliance is placed on restrained, uncluttered form and the textural effect of natural materials. Fenestration is especially important in this context and if mishandled can considerably detract from the over-all design. In the Costello house, although there is considerable variation of window treatment, the placing, detailing and careful juxtaposition of sizes, and of projected and recessed glazing gives vitality to the elevations without in any way destroying the unity of the total scheme. The same care and attention to detail can be seen throughout the interior.
RECREATION:

a chance for
innovative urban design

More people, more free time, more people with free time—and a mounting need for recreation within the boundaries of the places where people are, the already crowded cities. Solving such a problem takes imagination and vision, and one city—perhaps the least likely, New York—is setting the pace for the country in using both imagination and vision to provide a program of recreation activities and facilities for the creative use of leisure.

The key to New York’s innovative program is its insistence that only the best design is acceptable for its program. With the goal of making the city a more pleasant place to live, it should do no less. The Department of Parks’ recognition that design is its most potent tool for effecting quality is a giant step toward achieving its goal.

Clearly (see following pages) architects and allied designers have the talent to share the challenge and the responsibility.

—Elisabeth Kendall Thompson

From top to bottom:
Rochdale Village Park, Queens.
Architect: Richard Stein.
River Walk, Hudson River Parkway, Manhattan.
Landscape architects: Zion & Breen.
Fountain Cafe, Central Park, Manhattan.
Architect: James Lamantia.
Riding Stables and Police Precinct Station, Central Park, Manhattan.
Architects: Kelly & Gruzen.
OPEN SPACE DESIGN: NEW YORK SHOWS HOW IN ITS PARK PROGRAM

By Arthur Rosenthal, A.I.A.
First Deputy Administrator
Recreation and Cultural Affairs
Administration
Department of Parks, New York City

Among the assets of urban living for which New York City is noted, mention is seldom if ever made of the city’s open spaces and recreational opportunities. And for good reason. In amount and quality of open space and recreational facilities, New York is and has been—like so many cities—for a long time notably deficient.

But New York has begun to make up for its apathy, and its beginning is more than just modest, even though the accomplishment still falls short of the need. The problem of overcoming the many years of marking time is not easy, interwoven with politics and personalities, the changing economic mix in our cities and stagnation of urban facilities.

What can a city do in the face of such obvious need for breathing spaces, particularly in the most crowded lower-income neighborhoods? What can it hope to do without the most creative analysis of the problems and the most creative search for solutions? What can it hope to do without calling upon the best talents of the best designers for the maximum (and most innovative) contribution they can make? But how often does “the art of the possible” become the limit of the policy-maker’s horizon?

The history of New York City’s Department of Parks from 1934 to 1965 is one of decreasing attention to open space and recreational needs. Although Robert Moses, commissioner of parks from 1934 to 1959, was responsible in the early years of his administration for some of the Parks Department’s proudest accomplishments, in the later years his incredible civic energies seemed to be focused in other directions.

First arterial highways, then a World’s Fair, distracted his attention from a primary concern for parks and playgrounds, and from

To meet new urban problems:
a new kind of urban park with
an “endless variety of activities”

CORONA-FLUSHING MEADOWS SPORTS PARK,

Corona-Flushing Meadows Sports Park—programmed by Lawrence Halprin & Associates with architectural consultants Marcel Breuer and Kenzo Tange-Urtec—will be a new kind of urban park, designed to meet the needs of people with more free time, and more discretionary time. It is to be a park with something for nearly everyone to do, a park in the realm of providing not one passive activity (in the old rus in urbe way) but a multitude of activities of all kinds, recreational and cultural.
ive and passive, for participant
for spectator, an "endless
ety of activities." These will in-
d outdoor playing fields of all
ds, indoor courts, tracks, ski
toboggan runs, ingenious de-
es for improving one's game
thing in a romantic, spa-like en-
onment, where statuary, plants,
se music (from platforms sus-
pended over the pools and baths)
puld recall San Francisco's fa-
d Sutro Baths; and cultural ac-
ties such as arts and crafts,
amateur orchestra and choral
inging, dancing and dramatic
arts. There is ample room for all
this on the site, where two
World's Fairs have taken place.
The site plan skillfully deals with
the problems of the site, diking
some of the areas which periódic-
ally flood (this is an old flood
plain and a river bed) with the
sculptured land forms which are
an important visual element in the
over-all design. It turns the park
inward, away from its mediocre
surroundings, to make its own en-
vironment, and to minimize some
of the noise from the various
transit ways all around it. It creates
a great open court—between the
recreation-performing arts com-
plex and the indoor arena swim-
bath complex—which will be the
meeting place, the place for
events, the focal point of the
park, and a central point for in-
ternal circulation. Some 100,000
persons at a time will use the park,
38,000 in specific activities, the
others walking around its 1,257.6
acres, sitting or picnicking.
his early insistence on excellence of design, for which he had used the talent of some of the liveliest and ablest young designers of that day. In his new interest in parkways and fairs, Mr. Moses left the design of parks and playgrounds to parkway engineers whose true dedication was (not unnaturally) to parkways rather than to urban parks. The Parks Commissioner became a conservator rather than an innovator; and after the late Newbold Morris succeeded Mr. Moses in 1959, Mr. Morris continued in that role.

But the election of Mayor John V. Lindsay in late 1965, and his stated objective of making New York City “a city for people and for living,” resulted in, among many other actions, a White Paper on parks and recreation—written by Thomas P. F. Hoving—scholar, art historian and at that time curator of The Cloisters, the Metropolitan Museum of Art’s unique medieval department. The White Paper called for sweeping reform of the parks and a renewed pleasure in their use: and their use by all the people.

In Mr. Hoving’s 14-month tenure as commissioner everything about the park department underwent change. As a beginning, he initiated a program to fill the parks at night—through a series of events and “happenings” designed to draw the people back into the parks they had been afraid to use, and to prove that, by their very presence and continuing use, the parks could be both safe and pleasant.

Design excellence: tool for the new purposes
To implement his program of making the Department of Parks the leader, not only in recreation and culture, but in architectural quality as well, Mr. Hoving’s reforms were both internal and external. Internally, he instituted (with private funds because city funds were not available for such a policy-level position) the office of design consultant, which he asked me to fill. The position subsequently became that of director of design, and when Mr. Hoving left in March of 1967 to become director of the Metropolitan Museum of Art, and August Heckscher became administrator of

An exuberant outdoor center to give vitality and identity to a city neighborhood


This outdoor recreation center, with its competition-sized pool, looks not only handsome but lively—and can act as strong focal point for the crowded Bedford-Stuyvesant neighborhood in Brooklyn. The bathhouse is half a level below grade to permit use of its roof for a children’s playground, where exhaust fan housings are designed as pyramid slides and vent stacks as climbing poles. The line of the exterior walls is varied—voids and solids alternate—to invite participation.
recreation and cultural affairs, I was named first deputy administrator.

Externally, this program sought the finest design talent anywhere to carry out its proposed developments. But wanting this kind of talent and actually enlisting it to do work were two different things, given the past history of the Department of Parks and the cynicism generated by the old era. But the imagination and flair of the Moving program, the dynamic personality of the commissioner himself and some of the immediate results of his appointment—the happenings, the events in the parks and the people's response—caught the attention of the professionals. Among the architects and landscape architects who answered our call and who are now doing or have done work for the Department are Paul Rudolph, Marcel Breuer, Felix Candela, Edward Larrabee Barnes, Kenzo Tange, John Carl Warnecke & Associates, Davis, Brody and Associates, Conklin and Rossant, Ulrich Franzen, Lawrence Halprin and Associates, Philip Johnson, Hoberman and Wasserman, Paul Friedberg and Associates, Richard Stein. Less well known, younger architects and landscape architects also have been engaged: Richard Dattner, Norman Jaffe, Albert Barash, Robert Malkin, Rolf Myller.

To get the participation of such firms, the Department's existing fee schedule, out of line even with other city agencies, had to be re-evaluated and up-dated. The new schedule, with consultant's fees on a par with those of other departments, recognizes the variety of recreation facilities and of the services required for them, and provides separate fee curves for innovative playgrounds, for instance, and for large structures such as swimming pools, recreation buildings, restoration of historic monuments, and so forth. We are now reviewing these new schedules for further improvement.

The capital improvement program on which the Department has embarked includes great variety: from a small sitting park in Queens to a youth center in Chelsea, from "vest pocket playgrounds" to a riding stable and police facility in Central Park, from "portable" play...
The handsome design for this recreation center and amphitheater answers special considerations of program and of maintenance. Located in a “hard-use area” of the city, the building’s windowless walls discourage vandalism (and provide wall space for hanging in the arts and crafts room), and its materials (brick finish for exterior and interior walls, quarry tile floors, asphalt block paving, copper batten roof on insulating concrete plank) are to be durable and need little maintenance. But the eye-catching forms, color and texture show how the architects have made their design express a conviction that minimum maintenance and maximum durability do not necessarily mean minimum visual quality. The complex consists of a one-story building with skylighted rooms for arts and crafts, rehearsal and various group activities; a band shell and 1,600-seat amphitheater; a comfort station and concessioners’ stand. Grouped, these form a backdrop and baffle for the stage.
areas to a vast recreation complex on the old World’s Fair site. The architects for all these projects, and the others in our program, have the opportunity to develop the programs for their jobs, and are given free rein—even to the point of levity—in their design. The city has at last assumed the role of enlightened client, of client understanding and tolerant of innovation.

**Competitions—and an unusual precaution**

In its search for talent, the Department has turned to architectural competitions and has so far carried through two—one open, one closed—and is planning a third, open competition for the redesign and development of Von Breisen Park, overlooking New York Bay, on Staten Island. The first, for a refreshment kiosk in Central Park, was won by William Maurer, a 29-year-old Harvard graduate. The second was for a $5.7-million combined riding stable-police precinct station in Central Park. The invited contestants were the firms of Marcel Breuer, Conklin and Rossant, Kelly and Gruzen, Edward Larrabee Barnes and Philip Johnson. Kelly and Gruzen were named winners by a jury made up of architects Paul Rudolph, I. M. Pei, William Breger and Lewis Davis, landscape architect Paul Friedberg, the commissioners of parks and of police, and myself.

Competitions are time-consuming and expensive, but with proper controls they are worth while. In the stable-police station competition we took an unusual precaution: an estimating firm was assigned to each contestant to ensure that the winning design could be built within the budget. Also, we required that the $15,000 entrance commission and the right to compete be forfeited if the submission exceeded the budget. All five of the contestants in this competition honored these requirements.

Both of these competitions were privately financed.

**Portable parks, pocket parks**

If there is one guiding principle—beyond that of architectural excellence—which has motivated the Department, it is that parks should...
In midtown Manhattan, a small park located "where the people are"

A park in the center of a busy commercial area should not be an astonishing sight, but it is. When Samuel Paley Memorial Park was opened a few months ago on the site of the Stork Club in midtown Manhattan, people hesitated to enter it until a sign was posted that it was "open to the public." This small park—its plot is 45 by 100 feet—makes space with what its designers call "vertical lawns" of vines on the side walls; delights the eye with a "water wall", 20 feet high, which falls into a pool 6 feet wide; and canopies its white tables and chairs with the branches of trees planted at 12-foot intervals. Mahogany-colored granite, with pink granite borders, is used for paving. Pink granite is also used for sitting walls and for the sidewalk in front of the park entrance. A refreshment stand is in one of the gate houses, storage in the other; pumping equipment for the water wall is in the basement. As the photographs show, this little park already serves as a humane oasis in the city's heart.
be where the people are, especially where there are lots of people. And that is what we have been doing since the revitalization of the Department. One of the most ingenious means of putting parks where people are is the portable park program developed by landscape architect Paul Friedberg under a grant from the Department of Housing and Urban Development. Mr. Friedberg has designed a variety of kinds of play equipment which can be placed on city-owned, unused vacant lots—and easily demounted and moved elsewhere when necessary. Even if a lot is available for only a brief time, the neighborhood will be improved by its development, for vacant lots are eyesores (and worse) in the poorer, more densely populated parts of the city. Some of these lots are only 20 feet wide and 75 feet deep, but with our pre-packaged, prefabricated parks and equipment we can quickly install a pleasant oasis in an area which otherwise has no outdoor play areas except the street. This fall we will begin construction of 10 prototype "portable parks," thanks to the HUD grant. Ten "vest pocket parks" have already been completed.

Recreation and culture on Flushing's Meadows

At the other end of the scale in size is the Department's largest single project: Corona-Flushing Meadows Sports Park, a great complex of recreational facilities, some enclosed, some in the open air. This will be built at Flushing Meadows Park, recently turned over to the city by the 1964 World's Fair Corporation. But the administration of the Parks Department has felt that the role of Flushing Meadows Park could be much greater—that we might perhaps invent for it a role unique to the 20th Century, that we might make of it a truly urban park. The City's need for sports sites is great and growing. Baseball diamonds are booked solid throughout the season; tennis courts, handball courts and other athletic fields operate from morning to dusk, and until midnight where there is night-lighting. The line forms at four in the morning for golfers hoping to use our public golf courses.

For city dwellers, renewed contact with nature in study-play parks

TWENTY-NINTH STREET "VEST POCKET" PARK.

The vest pocket park at East 29th Street and Second Avenue is both playground and nature study center, an innovation for the city, and a possible prototype for other parks, each focusing on a different facet of natural science. Here the center is a planetarium, placed below grade to free the playground surface area. Its dome is a pyramid for climbing, so no play area is sacrificed. A laboratory has work tables for individual study. Center and play area work together educationally.
Open-ended playthings for portable playgrounds on vacant city lots

The portable playground developed for the Department of Parks by landscape architect Paul Friedberg is an ingenious system of modular play equipment which requires no foundation, can be bolted together, is quickly assembled and demounted, and quickly transferred from one site to another. In fact, the elements—pipe frame and concrete modules, lengths of wood, pipe and cable units—can be stockpiled and used by any designer. The four systems above show prototype uses: rigid steel frames for climbing, with slides, balls, swings and seesaws; concrete U and V-shaped modules to put together in many ways; wood logs, shown here bolted as a climbing pyramid. Many of the objects can be moved during play. Ten portable playgrounds are being developed under a HUD grant. Temporarily vacant lots, some as small as 20 by 75 feet, are being converted into play areas for a two- or three-year period. A welcome respite in crowded areas.
For Flushing Meadows we have evolved a program that would make it not only a great sports park but the cultural center for Queens (largest and second most densely populated borough of the City). In an unusual marriage of unusual talents, the Department has engaged Lawrence Halprin and Associates, Marcel Breuer and Kenzo Tange and Urtec to design this new park. Site planning and programming is being done by the Halprin firm; Marcel Breuer and Kenzo Tange are each doing two buildings which will house facilities for the performing arts—amateur theater, choral and orchestral, arts and crafts—and indoor athletics.

A “fun palace” for the young
Municipal recreation and community centers in Manhattan are usually the last places that young people—for whom they are intended—want to go. Most of these centers are undistinguished in architecture, boring, listless places whose banal appearance does little to attract youngsters, and nothing to provide beauty for the community. When an existing such center had to be replaced because of a new post office building, the Department of Parks engaged Davis-Brody and Associates, architects of the unique “Waterside” river development on the East River, to design the new Chelsea Recreation Center (see page 114). This young, energetic firm is designing a great “fun palace” which we hope will be brilliantly illuminated—like a theater—and which, because of its design, will draw young people into it. What we wanted was the kind of building that a private entrepreneur would build. The Center will have the things that young people want but do not find in the usual municipal recreation center: a dance floor with a juke box, overlooking a swimming pool, club rooms, game rooms, sports courts. This Center has excitement and creates a positive environment in a community and on a street desperately in need of a better environment.

At Mount Morris Park in Harlem (see page 115), we cancelled an old contract that would have provided a standardized rehabilitation

Adventures in play at a playground designed as “landscape for kids”

This playground in Central Park is the first of five “Adventure Playgrounds,” privately sponsored and developed. A “landscape for kids” (the architect's words), the playground has a variety of spaces, different but related to each other. Imaginative mounds and pyramids for climbing and sliding, tunnels, “volcanoes”, tree-houses and a wooden stockade were designed by the architect to permit a wide range of interpretation by children and to stimulate their own invention.
of the park and substituted what the people of the area wanted; a community swimming pool. Now we are about to start construction of a unique amphitheater, designed by the young firm of Lundquist and Stonehill.

The Bedford-Stuyvesant area of Brooklyn, is going to have a delightfully flamboyant recreation complex and Olympic-size swimming pool, designed by the architects of some of the world's most luxurious hotels and pools, Morris Lapidus and his associates. In the same area we have initiated a tree-matching program in which we give approximately four trees for each tree paid for by the local residents.

At Central Park, change without changes
The changes at Central Park have particular importance because the park is a focus for the whole city. These have been sensitively made so that the essential character of the park has been kept intact; there have been no encroachments on the natural beauty of the place. The Fountain Cafe (RECORD, December 1966) on Bethesda Terrace, a site of great beauty, is such a change: in its installation nothing—not a blade of grass, not a shrub, not a tree—was disturbed. Its design, entirely contemporary, nevertheless complements the park's Victorian design. The restaurant has brought life to a place long deserted after dark.

An "adventure" playground at 67th Street and Central Park West provides imaginative play equipment for children of a wide age range. Its delightful environment and the happy kinds of play it offers attract children and parents from all parts of the city. This playground, privately financed by the Estee Lauder Foundation, was designed after thorough interchanges between a citizens' committee and the architect. This sort of interchange is fostered by the Parks Department's Community Relations Division, established out of the belief that only by discovering what the people want can the designers develop programs for new buildings or parks which are uniquely suited to their locations.

Two design solutions, similar in size, opposite in character


New Dorp park, in a single-family area of Richmond Borough (Staten Island), and 138th Street park, in a densely populated part of the Bronx, are identical in size—but their concepts are opposite, meeting each location's needs. New Dorp's central lawn, serpentine walk, sitting and play areas are suburban. Urban 138th Street's central pool and fountain are for wading by day; and can be drained for plays and dancing. New Dorp is city-financed; 138th is privately sponsored.
No easy way to a renaissance
It would be misleading to imply that this program, for all of its exciting overtones, has dispelled the problems and frustrations of doing business with a bureaucratic system. Doing business with the City of New York is no easy task, particularly for architects committed to good architecture. Negotiating contracts with the city is a long-drawn out process, for there are delays in approvals for contracts from the Parks Department, the budget director, and the comptroller. First the writing of programs is time-consuming; then acceptance of the programs by various participating city agencies takes time. And the approval of submissions encounters delays. Vouchers for payment of consultants are subject to delays by the comptroller. Distinguished architects of long experience, as much as the younger architects, have had these same problems.

What is gratifying is that these consultants have stuck to their commitments. For in staying with the job regardless of the problems, they have paved the way for greater creativity, imagination and vision in civic architecture and landscape architecture. The first year of the new administration was difficult; the second is proving more productive. Problems that seemed insurmountable are being ironed out. We hope that the third and fourth years will see the end of time-consuming, bureaucratic, red-tape delays, and bring even greater design accomplishment.

Quality design pays off. Excellence in civic architecture can change the environment of entire areas of a city, not only evoking further physical improvement but lifting the spirit of those who live in such areas.

Our program—under the imaginative and thoughtful leadership of August Hecksher—is to expedite the construction of remarkable and exciting park facilities so that New York City will in fact lead the nation in a renaissance of urban space design, and create for the city an administration environment that not only encourages good architecture and urban environment—but insures it.

Imaginative play areas on garage roof and deck over train tracks

Combining a playground with a parking garage has gained a lot of otherwise unused space for recreation. The garage roof will be a sports playfield; a deck over the adjacent ravine (and railroad tracks) will be a children's playground. To encourage creative play experiences, "standard equipment in unstandard uses"—slides pressed into "mountains", sculptured stepping stones (with spray heads for hot weather), playful structural frames for shade—was especially designed.
Air conditioning: new interpretation for architects

Numerous factors influence the selection and design of air-conditioning systems, from type of building, to type of equipment available, to the ever-changing nature of the design professions and the construction field. One of the most significant developments in equipment is the trend toward pre-engineered packages of larger size and variety, and of greater sophistication. Architects and engineers are re-examining education and training as owners increasingly demand "guaranteed" performance and more exacting cost evaluations. Both parts of this article have been prepared in collaboration with F. J. Walsh, consulting engineer.

—Robert E. Fischer

While paradoxical at first thought, today's trend in air conditioning is toward larger central systems on the one hand, and toward decentralized unitary installations on the other. Common to both, but perhaps not readily apparent, is the fact that advancement of these two seemingly opposite approaches stems largely from advances in packaged equipment which is smaller, quieter, more reliable, and available in larger capacities and with a wider range of components and controls. The trend toward larger central systems is aided by the availability of more sophisticated and complex control systems which, combined with the computer, promise greater optimization of system operation.

Room-by-room and zone-by-zone unitary air conditioners are, in effect, complete air-conditioning systems in a single unit. Today's unitary equipment is highly reliable, increasingly more quiet (particularly in room-size units), capable of operating at lower outdoor temperatures, and can even be designed for remotely located control panels for start-stop, sequential starting, and other similar features.

Most architects are familiar with "pre-engineered" residential heating systems. Heating systems are, of course, simpler than air conditioning systems or combined heating-air-conditioning systems. There is little "design" involved with packaged heating systems—pipe and duct sizes really do not have to be calculated since runouts are relatively short. The systems usually function properly as long as heating elements or outlets are properly placed, and the thermostats properly located.

The trend toward larger central systems involves larger unitary central systems as well as built-up central systems using packaged components. Unitary air conditioners are available in sizes up to 100 tons of refrigeration, for example. What is more important than mere physical size of unitary equipment, however, is the increasing application of the more flexible and sophisticated multi-zone and double-duct unitary air conditioner, used in sizes up to perhaps 50 tons. This type of unitary system is particularly significant because of the manufacturer's selection of all unit controls, zone controls, ventilation-air-ratio controls, etc.

Each of the major elements going into any over-all air-conditioning system—with the exception of the air-and-water distribution system and various system controls—is in itself a "package." That is, it is a matched combination of standard components, either preassembled at the factory or designed for simple field assembly.

The package approach has expanded
mainly because of increasing problems in field installation, involving both cost of labor and the shortage of trained mechanics and technicians. And it was logical for “packages” to grow larger and larger, since today's components are higher speed, lighter in weight and smaller in size for the same capacity. Packaged absorption and hermetic chillers are available in sizes up to 1000 tons, and steam and high-temperature water generators also are available in extremely large sizes. Packaged fan-coil units, filters, etc., are available in capacities up to perhaps 40,000 cfm, for all pressure ranges.

The application of packages is limited mainly by problems of physical transport (i.e., trucking and rigging), although labor union restrictions are also a factor. Obviously, a built-up central system, consisting of multiple packages is possible up to almost any size. For a unitary central system, however, the over-all size is limited by the size of the air-moving and conditioning (fan-coil) package.

The architect really does not have to understand what is in the various packages of a built-up central system—it is enough to merely recognize and identify them. It is more important for him to be familiar with the most advanced unitary room-by-room equipment, and with unitary multi-zone and double-duct air conditioners, because he will be more directly involved with these.

While the first unitary, packaged multi-zone air conditioner (cooling only) was on the market over 10 years ago, application was not as rapid as might have been expected, and various operating problems related to the use of air-cooled condensers and part-load operation had to be overcome. These problems were, in general, resolved several years ago.

It now makes sense to consider much more extensive application of unitary air conditioners than was the case until recently. As long as five years ago, certain members of the Air Conditioning and Refrigeration Institute outlined future applications of central unitary air conditioners, including double-duct, multi-zone and variable-air-volume applications. Knowledgeable engineers should use such equipment now for custom-designed installations. Some manufacturers may not be particularly eager to proceed in this direction, however, for two reasons. First, they cannot afford to develop sophisticated equipment for which there may not be a market. Secondly, they are concerned that, in some cases, such equipment might be misapplied and give them a bad name. Certain manufacturers, while they do not make multi-zone unitary air conditioners, will quite often cooperate with knowledgeable consulting engineers in the custom design of an identical type system using a central-station air conditioner with a direct-expansion refrigeration coil and a custom-selected cooling unit package.

The extent to which unitary-center manufacturers will get involved in producing equipment packages for sophisticated application is conjectural. For one thing, consulting engineers are not sufficiently familiar with refrigeration cycles in unitary equipment, and are reluctant to become involved in other than standard applications. Often, they equate roof-top equipment with very speculative, low-cost building projects.

The fact that it is practical to design and produce central unitary air conditioners having a two-fan system for double-duct distribution or a table-air-volume fan, utilizing mixing types of air and air-and-water terminals has never really been explored despite the obvious potential. It is obvious however, that it would take practically a “guaranteed” market—such as the volume purchasing approach of the School Construction Systems Development project to induce any manufacturer to design modification of his existing unitary packages, particularly if the basic approach favors built-up packaged systems rather than unitary.

From the standpoint of possible application of large unitary air conditioners to multi-story buildings, the architect should give special attention to space installation and noise problems.

Despite machinery advances, lack of standards on equipment and system noise—for use at a practical design load—has been, and still remains, a problem. This area of design is complex, problems are more likely to occur because of today's use of low-mass, rigid structures.

Acoustical performance ratings for system elements start, naturally enough, with those elements that occur in occupied spaces such as air outlets, fan-coil units, induction units, etc. More meaningful ratings are being developed for high-speed, through-the-wall and small air conditioning equipment. These new standards have grown out of owner complaints about noise levels. Industry standards for larger equipment will be longer in coming; however, architects should insist on a guaranteed ratio of noise according to various available ratios of air to heat.

Special tests can be arranged at additional cost, and the results and test data can be certified.
The role of the engineer, the manufacturer and the client

Building services consulting engineering—like architecture—is in transition, with owners expecting an expanded scope of services in specialty areas of engineering such as energy plant design. But beyond this there has been a growing demand from owners for greater engineer involvement in balancing, testing, adjusting, and operating and maintenance procedures for air-conditioning systems. Centralized responsibility is a compelling concept that management is anxious to buy. Client management is also interested in the sometimes rather vague and abstract approaches which purportedly will allow them to evaluate whether or not proper decisions have been made—some of the key words are systems engineering, feasibility study, value engineering and cost effectiveness, performance, criteria, etc.

To a large extent, many owners and architects do not really understand how the consulting engineer approaches and handles system design—what he does and does not do.

Building service engineering might in one sense be called, "engineering of the catalog." The reason is that each system and sub-system is composed of an assemblage of standard components and "packages" which can be "tied together" by means of a fluid-flow (air, gas, water, steam) network and terminated in energy distribution outlets (i.e., air outlets or terminal units, or room-type unitary air conditioners). Beyond this are the superimposed electrical, electronic and pneumatic controls.

The major problem for the consulting mechanical engineer—aside from budgetary and, to some extent, systems analysis considerations—has always been the design and drafting required to coordinate the selected systems with the building envelope, floor layout and the structure.

Whether or not air-conditioning systems are termed "built-up central systems" or "packaged systems," is somewhat irrelevant, since the real difference between the two is the extent to which "packaged" equipment is utilized, and the range of components and controls within the "packages."
Packaged components range all the way from hot and cold fluid generators, to flow movers and conditioners, to control devices.

The basic component packages of air-conditioning systems

**Hot or cold packaged fluid energy generators** may or may not constitute a complete plant. The generator is a complete plant if the thermal fluid energy produced is ready for utilization merely by making final conditions (liquid flow mover is required for hot or chilled water unit). If the heating or cooling energy is supplied by a fuel or electric power, rather than from a separate steam or hot water supply, then the equipment comprises a unitary (self-contained) plant.

A parallel can be drawn between a unitary packaged chiller and a unitary packaged conditioner. They are identical in function except that the fluid in one case is water, in the other case it is air.

**The cooling tower** is an auxiliary package for rejection of refrigeration cycle waste heat.

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**COOLING TOWER PACKAGE**

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128 ARCHITECTURAL RECORD  August 1967
Heat-exchange wheel abstracts heat from lowest temperature level space air. High-ormance filters are required for each air stream before it enters the wheel. Cross-connection is small, and special designs can suing this effect to a minimum.

Other packages involving heat recovery at other temperature levels are:
- heat recovery lighting fixtures utilizing spent room or circulating water
- impinging of heat-utilizing refrigeration machines fixed direction of refrigerant flow, with cooling of spent exhaust air and utilization of higher-temperature water or air discharged from the condenser, reversible direction of refrigerant flow (heat pump). Conventional cooling with the ability to abstract heat from an internal source, as above, or from external sources, e.g., outdoor air, well water, etc.

**Basic unitary air-conditioning packages**. Reference to sketches and notes for the hot and cold fluid generating packages as well as to those for air-flow moving and conditioning packages will indicate the types of sub-pack-
ages employed. With the unitary air conditioner, a more limited selection of air-flow moving and conditioning package generally applies, and varies considerably depending on the manufacturer.

**Ventilation supply- and exhaust-ratio control packages**. These are an important feature of any air-conditioning system, being necessary to insure positive outside ventilation air and to utilize outside air for "free" cooling. Control must be properly sequenced with heat, cooling, and humidity control provided for the package. Design of the return air duct system must be carefully checked against the static-pressure exhaust capability of the package. The dry air "free" cooling can be supplemented and followed by an evaporative cooling package, but this adds complexity to the related controls. Further, the water sprays used will require that an outside air preheater and its control be added to the package.

**Air-powered terminal units**. These packages are designed for either room or zone application. The induction type, where used with a water coil, can be applied for either a two-, three- or four-pipe system, similar to fan-coil system application.

**Packaged control systems**. Standardized (but not packaged) control systems are recommended by many control and equipment manufacturers, but the integration of these into a multi-function package by an air-conditioning equipment manufacturer necessarily limits choices and options. This is particularly true with unitary heating and cooling plants which are an integral part of a unitary air conditioner (e.g., for the complete package including a direct gas-fired heater, a condition of approval is the complete listing of all related controls).

Air-powered terminal units often have integral, packaged air-powered damper controls for the room unit, powered from system air pressure.

Water-and-air and water-type room terminal units can have the unit water valve controlled from the thermal expansion of fluid in a power bulb placed in the recirculation air stream.

**TWO-FAN SECTION**

**TWO DUCT**

**AIR FLOW MOVING AND CONDITIONING (FAN-COIL) PACKAGES**. The additional packaged functions which can be added, related to conditioning of the air, in addition to basic heating and cooling are:
- 1) automation of filter renewal or cleaning,
- 2) air purification (removal of odors, vapors),
- 3) preheating of air (to prevent coil freeze-up too low an air temperature to spaces),
- 4) reheating of air (related to temperature and humidity control),
- 5) dehumidification (beyond that incidental to moisture removal when air is cooled, e.g., utilization of solid or liquid absorbents or absorbents),
- 6) humidification by steam, evaporation from sprays, pans or grids, or by "atomization"),
- 7) evaporative cooling (extends range of "free" cooling).
GLOSSARY OF TERMS RELATED TO PACKAGE EQUIPMENT

BOILER—Term used to describe steam or hot water generators used in the residential and small commercial building market.

BOILER-BURNER UNIT—A packaged hot fluid generator comprised of a fuel burner and controls, a matching combustion chamber, a direct contact heater and auxiliary trim and safety valves.

COMBUSTION CHAMBER—An insulated enclosure designed for high temperature to provide efficient air-fuel mixing and burning.

COMPONENT—A single basic element or device in a multi-component assembly or an over-all system (e.g., a fan; a motor for a fan; a pump; a pump impeller; a thermostat; an air outlet; a baseboard heating element; etc.).

DIRECT CONTACT AIR HEATER—A direct fired heater in which the combustion gases (intermediate fluid) transmit heat to the primary fluid (air) through a heat exchanger. Alternately, an electric resistance heater in the primary air stream.

DIRECT EXPANSION AIR CONDITIONING—Cooling by means of the expansion of the refrigerant into a vapor contained within the tubes of an air cooling coil.

EVAPORATIVE COOLING—Cooling of primary air by means of the evaporation of sprayed water into vapor (used as the refrigerant) within the primary air stream. Applicable only when outside air moisture content is low relative to desired room conditions.

FLOW MOVER—A device such as a fan, a pump or a compressor, which is utilized to move or pressurize a thermal fluid.

FLOW MOVING AND CONDITIONING (FAN-COIL) PACKAGE—A matched assembly containing in the basic package an air flow mover, an air filter, a heating element and a cooling coil. The basic process of conditioning supply air is done by this unit. Many other functions can be included.

HEAT REJECTION—The dissipation of waste heat to the outside (air, well water, etc.) which is generated in conjunction with the operation of (1) engines producing shaft power from the energy in fuel (2) refrigeration machines.

HERMETIC—A term applied to completely sealed equipment—usually applied to refrigeration equipment.

INTERMEDIATE FLUID—A thermal fluid used to transmit heating, cooling or humidification effect to the primary fluid, through the medium of heat exchange.

MULTI-ZONE AIR CONDITIONER—A fan coil unit with air heating and cooling arranged in two parallel streams with zone mixing provisions integral within the unit rather than at remote terminal units (as in a double duct system). Units may be completely unitary for both cooling and heating (in this case the fan coil section would be part of the complete package) or the condensing unit only might be unitary with the fan coil package separately selected.

PACKAGE—A matched grouping of two or more component packages capable of fulfilling a definable function (e.g., baseboard heating with integral thermostat; standard in-line non-overloading pump motor combination; a unitary air conditioner, etc.)

PACKAGED COLD FLUID GENERATOR—A central packaged secondary energy generating unit producing chilled water by means of a refrigeration machine.

PACKAGED CONTROL SYSTEMS—Manufacturer pre-selected system controls, e.g., for any or all of the following: (1) central energy producing unit-heating and cooling; (2) ventilation air ratio control; (3) zone control—either for multi-zone, double duct, variable air volume or other types of control; (4) humidity control; (5) evaporative cooling control; (6) reheat control.

PACKAGED HERMETIC REFRIGERATION COMPRESSOR—A compressor in a sealed refrigeration unit which is driven by an electric motor placed in the inlet vapor stream entering the compressor. Any heat due to motor inefficiency or starting power surges is removed from the motor windings by the flow of refrigerant suction vapor.

PACKAGED HOT FLUID GENERATOR—A central packaged secondary energy generating unit producing steam or hot water by means of a direct contact heater, waste heat exchanger, heat pump, etc.

PRE-ENGINEERING—The selective matching by a single manufacturer of limited groupings of standardized components, packages and controls to suit a range of anticipated application engineering design requirements of actual systems.

PRIMARY FLUID—Conditioned supply air (in an air-conditioning system).

THERMAL FLUID—Heat transfer fluid (air, water, gas, vapor) circulated within a system to produce heating or cooling either by direct mixing or by conductive heat exchange in a heat exchanger.

UNITARY AIR CONDITIONER SPLIT SYSTEM PACKAGES—Matched, multi-package assemblies wherein the condenser package only or the condensing unit package is remote from the evaporator blower (fan-coil) package.

UNITARY PACKAGED CONDENSING UNIT—A refrigeration unit similar to that contained in a unitary air conditioner, complete except for the evaporator-blower section. Units can always be matched with fan-coil packages designed for "built-up package" air-conditioning systems—even though some are designed specifically for application with matching evaporator-blower "split system" unitary air-conditioner packages.

UNITARY PACKAGED EQUIPMENT—(1) Completely self-contained secondary energy producing plant (with integral provisions for thermal fluid flow moving); (2) a unitary air conditioner for cooling only or cooling and heating, which includes such plants.

WASTE HEAT—Secondary energy in the form of exhaust gases, engine jacket water heat, space exhaust air, warm refrigeration machine condenser air or water, lighting fixture heat, etc. which is normally dissipated to the surrounding ambient.
actually, there can be no such thing completely pre-engineered general air-conditioning system. It is possible to come close to this with packages or unitary central systems where complete standardization of design and construction for an entire building of a specific architectural type. But, in practice, complete pre-engineering is not possible because: 1) heat loss and gains must always be made and weeded, 2) thermal fluid distribution mains always require careful sizing and boiling is more serious today because of the complexity of the design and the maintenance of the space thermostat is highly important, and its location within the space must be carefully selected.

The designer of an air-conditioning system is not expected to be an expert on design of system components and equipment; conversely, the manufacturer is not likely to be proficient in the system design of the components. Obviously, the consulting engineer must be fully conversant with industry standards on equipment; further, this, he must know how to indicate on detail drawings what components are to be furnished and their location in the specifications in such a way that the contractor will be obliged to provide them.

It is understandable that industry standards are, necessarily, minimum qualification criteria; thus the prudent engineer will want to familiarize himself with important detailed information on the elements in a package. The problem is more serious today because packages include a much wider range of components, and the manufacturer may furnish information on all the components since he takes responsibility for the matched selection of the components.

Basically the function of industry standards is to establish a minimum quality to which the members of a manufacturers' association agree to meet as requirement for product certification listing. A secondary function of real importance is protection of the public's interest. The result is, of course, lower costs to manufacturer and consumer.

All manufacturers are involved to a lesser or lesser extent in providing application information, and with the increasing variety and scope of packages, the information is even more important to the engineer.

With larger central systems, manufacturers involvement in providing overall all system application guidance is relatively at a minimum. The manufacturer is concerned mainly with the proper physical installation of each package, particularly with respect to proper connections, foundation, and provision for clearances for proper operation and maintenance.

The engineer, by his very nature, must be "systems oriented," while the manufacturer does not have to be. When there were fewer system types and combinations, the manufacturer was able to afford more "back-up" engineering services to the engineer in the systems selection and appraisal phase of preliminary design. Obviously, the manufacturer whose product line contains a broad range of components can afford to provide more application engineering information. He, of course, will want to limit the cost of his involvement—his objective is to furnish adequate information to help insure that plans and specifications for the systems using his components are correct and adequate.

The mechanical engineer's available sources of important design information and guidance are considerable. The trend, however, is toward short-form load calculations, standardization of design details and system selection. Some reference sources, while valuable for detailed information, may seldom be referred to because the information is too diffuse and detailed for practical day-to-day use. Various manufacturers, the Air Conditioning and Refrigeration Institute, and individual engineering firms have all developed reference data in easy-to-use form. The danger is that such data can be used indiscriminately if the limits of use are not clearly set forth.

Architects should realize that mechanical engineering for buildings is hardly a precise science. Manufacturers do not guarantee equipment capacity closer than 5 per cent; air balance cannot be closer than, say, 10 per cent. Thus the presumption that design accuracy on any commercial or institutional installation is closer than 10 to 15 per cent at best is highly unrealistic. It is important, therefore, that there be flexibility for balance and adjustment within the system to meet actual, "as-built" load conditions.

All consulting engineering firms of any size, and most particularly those in heavy industrial, power plant and process industry field, have engineering design manuals for "in-house-only" use. Further, various government agencies such as the General Services Administration, Department of Defense, Post Office Department, Corps of Engineers, and the Navy have set forth many standards for the guidance of outside consultants.

While the engineer is not heavily involved in detailed information on separate components of packages, the installing contractor and the building owner's operating engineers—who will be involved in replacement and service—will be concerned with this sort of information.

Today, the design of the more complex air-conditioning systems and their supporting energy plants involves knowledge in a good many different areas, frequently beyond the range of any one person. And unfortunately, the most knowledgeable engineers involved in field analysis of installations do not have time to commit their knowledge to writing. On the other hand, some problems arise because of the misapplication of components or controls within a system or because of misapplication of the package, itself, within the system. (An example of the latter is the use of a package water chiller with no provision for capacity control in a system operating much of the time at low load.)

Manufacturer involvement must be at a maximum when the "package" is a combination of smaller packages. An example is a unitary heating-cooling air conditioner with pre-selected packaged controls for sophisticated multi-zone application. In this case the manufacturer must furnish complete and detailed application information on over-all system design and on any application limitations. Another factor the manufacturer must account for is the nature of the building in which the package is to be used. If, for example, the system relies on overhead air circulation, it is important for the manufacturer to emphasize that the architect insulate on-grade floor slabs and give attention to exterior window and wall construction.

While such systems have been termed "pre-engineered" systems, this is to some extent a misnomer, since the manufacturers make it very clear that the equipment package has certain application limitations, and that load calculations, design of the air distribution system and the selection of air outlets is very much a custom design. The big advantage in the use of such a system is single-manufacturer responsibility, with single-source back-up engineering, service and maintenance responsibility.

The last 15 years or so have seen many improvements in equipment such as fans, pumps, compressors, boilers, cooling towers, etc.

Dimensions of units—both components and packages are smaller, per unit of capacity. While "miniaturization" may not be the proper word to use, "size-reduction"—a less romantic term—has been the order of the day.
Of all the systems the architect deals with affecting the physical environment, air conditioning is by far the most complex in an engineering sense.

How much should the architect know about air conditioning?

This is a most difficult question to answer since air conditioning, beyond its effect on human comfort, exerts an influence on over-all ownership and operating costs of a building, its appearance, the selection and design of its structural system; and involves the acoustical considerations of noise and vibration.

At the very least, the architect should appreciate the fact that, while thermal environmental control systems can be designed to cope with very severe loading conditions caused by sun, lights and people, costs can be outrageous, and optimum comfort conditions may be very difficult to provide, particularly when there are wide fluctuations in the Btu load due to sun.

It is true that even the most elementary air-conditioning system can help people avoid extremes of discomfort. And, despite the vagaries of peoples' subjective reactions to the thermal environment, most people can be provided not only acceptable conditions, but even pleasant ones.

What is not realized by many building designers is that it is much more difficult to provide a pleasant thermal environment for a system providing cooling than one providing heating. Air movement and humidity control become critical in the cooling situation. This calls for both careful selection and design of the basic system, and proper selection and location of room air-supply inlets. Some investigators have suggested that “built-in” fluctuations in air velocity can provide more stimulating conditions. For example: one scientist found that in calm air at 66 F, with mild air current impinging on the face, a sudden increase of speed from 12 to 30 fpm was enough to produce a just-perceptible feeling of coolness. Air speeds below 15 feet per minute, or so, at head level cause complaints about stagnant air; speeds of 25 fpm are considered favorable, and 50 fpm is approaching the maximum tolerable velocity for seated persons in an air-conditioned environment. Another investigator found that 30 fpm velocity was perceptible at 54 F, while 120 fpm was just perceptible at 86 F.

Everyone is aware that excessive humidity is a cause of discomfort. Construction practice recommendations are that relative humidity be confined to a range from 40 to 60 per cent for office space. Relative humidity above 60 per cent is undesirable.

With air conditioning, the refrigeration apparatus supplies both cooling supply air and control of its humidity. For optimum comfort conditions, there must be always a certain amount of air movement in the space, and that swings in humidity be limited. An example of less-than-optimum conditions is that of a typical room with an air conditioner operating at low conditions. If room temperature conditions are satisfied, the refrigeration compressor goes off, but the fan is still moving room air. It is possible then, for room humidity to swing up because recirculated room air can pick up moisture from the air conditioner’s cooling coil. Such a situation can be avoided by selecting a unit which artificially keeps the compressor at low demand and keeps it running continuously.

How good is good enough for the air-conditioned environment?

One of the things that makes air-conditioning system design difficult is that there are so many different possible ways to do it for a given building. Many architects probably feel that the crux of the air-conditioning problem is the physical coordination of pipes and ducts with the structure, coordination of room air distribution devices in the ceiling system and at the perimeter; and working out equipment rooms so that as little usable area as possible is consumed for cooling equipment and fans.

While these are among the more obvious considerations of air conditioning that the architect must deal with, he must now recognize that there may be other more basic considerations which will affect system selection and determine the impact of the air-conditioning system on a given building. Examples include:

1) the relative economics of various energy sources, 2) the write-off period for the equipment, 3) the importance of operating costs, 4) the availability of and cost of supervisory and operating personnel, and 5) the impact of air conditioning on the physical environment.
The large-size pre-engineered package air conditioner assumes more and more importance as the industrialized building systems and volume purchasing concepts continue to grow. The first major application of this approach was the School Construction Systems Development project which employed 22-in., roof-top, multi-zone packaged units. In order that there be maximum professional involvement in the building system design process and participation in the development of future advanced air-conditioning systems employing pre-engineered packages, the following approach is suggested:

1. Inclusion of knowledgeable consulting engineers, application engineers, and installation and maintenance engineers in any advisory group involved in a "volume purchasing" approach.
2. Development of specific system performance criteria by owners and designers.
3. Development of standards with greater regard to requirements of the system as a whole. This implies the establishment of meaningful standards by volume purchasers that go beyond those of A.R.I. to more adequately reflect the many operating conditions met in practice. Standards for large-size packages should include standard sound ratings and cover the dynamic unbalance.

A manufacturer's approach to pre-engineered systems for S.C.S.D. The manufacturer who was awarded the contract for the air-conditioning system component of the School Construction Systems Development project could not supply equipment "off-the-shelf." He therefore specially developed a low-outline, lightweight, multi-zone air conditioner which suited the project's requirements as to function, appearance and weight. Lacking a multi-zone unit, a custom- appearance unit was developed by the manufacturer which then became a part of his standard line. From his pre-S.C.S.D. product line and pre-engineered systems approach, the manufacturer was able to employ certain of his standard components such as the ventilation supply and exhaust ratio control package; separate unitary cooling and heating packages matched with the air-control package; an over-all system and sub-system pre-engineered control package.

All of these sub-system components were combined in a newly designed, low-profile package. In addition newly-developed matching air outlets and air-mixing terminal units were provided. The over-all system and sub-system control package was completely pre-engineered, following the manufacturer's pre-S.C.S.D. approach.

Over-all system design with pre-engineered unitary systems. The steps involved in applying pre-engineered unitary systems, and the suggested respective responsibilities of consulting engineer and manufacturer are as follows:

1. Fluid-distribution system design (involving stability, noise problems, heat loss or gain) will be performed by the consulting engineer.
2. Proper matching of the air-flow mover and ventilation supply and exhaust will be done by the consulting engineer.
3. Matching of the energy generating packages with auxiliaries, and the co-ordination of the energy packages with energy output control is the responsibility of the manufacturer.
4. Matching of the energy generator output with the air-flow distribution system is the manufacturer's responsibility, while matching capacities for ranges of heating and cooling loads is the engineer's role.
5. Co-ordination of the over-all and sub-system control packages will be done by the consulting engineer, but the consulting engineer will need to understand the various control functions and know what the limits are.
6. System design for distribution of energy into the space, including proper thermostat location is the consulting engineer's job.
sonnel, 5) the criticality of the air-conditioning effect in relation to people and equipment, 6) the growing demand for greater flexibility in adapting to short-term and long-term changes in building layout.

Obviously, these are all matters that concern the architect in his programing of a particular building—and matters that should have a significant influence in his over-all planning. How, then, can the practicing architect gain more knowledge about the efficacy of different approaches, beyond that he has acquired in his own practice?

Perhaps the most effective way is to make personal inspections of a number of buildings similar to the one he is designing, make his own critical evaluations of such subjective factors as comfort and noise, and find out from operating personnel how well the system performs in terms of energy usage and maintenance. What may have seemed to be a most logical choice on paper may, in fact, pose problems that only a behind-the-scenes examination will bring to light.

Further, it now is important to the architect to familiarize himself a great deal more with air-conditioning system components and thermal environmental effects, particularly as the "performance concept" becomes an increasingly used business management tool. In the first place, this will help the architect in making a more sophisticated and knowledgeable presentation to a client. It is bound to be helpful in the early design stages.

Architects, of course, have the greatest familiarity with the visible elements of air-conditioning systems such as diffusers and terminal elements. Beyond the architect's concern for how these affect room appearance, he can help make physical coordination of various system elements easier by knowing what sort of installation space is required for such components.

Space requirements for duct runs, shafts and equipment rooms are probably next in order of interest to the architect. He would prefer to have some general rules of thumb that he might use in his early planning. It is doubtful that many architectural firms have accumulated this kind of information on an organized basis. Many consulting engineers working in the building field have, however, over a long period of time developed "design standards" which include quick methods for determining sizes of pipes, ducts, fan rooms, and the like. Most of this information is available only to the consultant's own personnel. There is no reason, of course, why the architect can't develop more general guidelines for his own special purposes. Hopefully, the architect will call in his mechanical consultant very early in preliminary planning. But obviously in some of the early studies on a given project he would find some general rules helpful.

It has become very apparent in the last few years that greater architect-engineer communication is required at the programing stage to avoid inordinate costs and operational problems with mechanical systems. For example, excessive radiant effects from the sun or even lights, can cause difficulties with system design. A building space that alternately calls for heating and cooling during the fall and winter requires a more expensive system, and poses possible control difficulties, e.g., three- or four-duct all-air systems or dual-duct all-air system.

Now that mechanical refrigeration is the rule, it seems that less attention is paid to site conditions than was the case when natural breezes were relied on. This neglect is unfortunate, because microclimate and orientation factors can aid or adversely affect mechanical systems. Often forgotten are the implications of depressed sites which miss the breeze and lie in stagnant air; or the reflection and absorption of the sun's heat by such as reflecting pools or parking lots.

Another area requiring careful discussion among architect, engineer and client is that of energy source selection. The architect should recognize the special plants such as total energy, dual-use engines (normal use, refrigeration drive; emergency use, standby power) and district heat are more difficult to design.

Competition between opposing utilities on the one hand, and improved energy utilization equipment on the other, puts architects and engineers in the position of having to make recommendations concerning on-site electric power generation, all-electric buildings, engine-driven refrigeration, engine-heat recovery, and district heating and cooling distribution. Today the architect and owner are often uncertain as to the relative advantages and disadvantages of the various types of energy plants. Previously choices were less numerous and the plants, themselves, were simpler. And the consulting engineer, unless he has developed some expertise in these areas, may be overwhelmed by the vast amount of engineering details, and studies prepared by various fuel and energy advocates to sell to clients directly. Much of the equipment used in on-site power plants is unfamiliar to the build-services consultant. The energy cycles are complex, and the controls, sophisticated.
Intertwining relationships of architect, engineer, manufacturer, contractor and owner are complex, nonetheless, definable. And sources of design information multidinous.

Education: undergraduate, post-graduate, professional

By and large, most mechanical courses in architectural schools still are generalized surveys of mechanical equipment, together with some elementary problem solving—heat-loss calculations and pipesizing exercises. As a matter of fact, it is probably not possible to give a very comprehensive mechanical course in the basic architectural curriculum. At the minimum, however, undergraduates should be given some instruction on how heating and cooling effects get to a space; how heat gains and losses are offset, and what their relative magnitudes are. They should be given a layman's analysis of basic system components—what they are and how they work. It would be helpful if they were made aware of the importance of quality materials and workmanship and of proper specifications. But most of all, students should have an opportunity of seeing systems as they are being installed in buildings, so they will have an appreciation for the scale of various components, how they are put together for various sub-systems, where they are located, how the sub-systems combine to form a total system, and how the total system relates to the building as a whole. This should be augmented by visits to working installations, particularly during severe loading conditions so that impressions can be formed of system characteristics and efficacies.

At the graduate level, it should be possible to develop new courses in thermodynamics and control theory which would comprise an explanation of concepts and terms in layman's language. Armed with this sort of knowledge, the architect, once in practice, will be better able to appraisal various approaches to energy utilization: economics of various fuels, heat recovery techniques, heat pump applications, etc. As a matter of fact, these courses in engineering schools might benefit from a similar approach. Basically, the trouble is that students learn how to manipulate the mathematics and memorize the laws and rules without ever understanding their practical implications.

Few engineering schools offer undergraduate courses in mechanical engineering for buildings. Such courses
are being dropped rather than added, and this trend is likely to continue. For that matter, it is doubtful that any formalized academic programs can be developed and sustained to train mechanical engineers for the building field. Consulting engineering firms now find it difficult to attract graduate engineers, and this trend is likely to continue. To a lesser extent, manufacturers of air-conditioning equipment find it more difficult to attract graduate engineers. Consulting engineers will continue to get their engineering personnel as they have formerly—from manufacturers, from industrial-type consulting engineers, from contractors, and through in-house and technical-institute training. The nature of consulting mechanical engineering for buildings has changed somewhat in recent years, although it still has the attraction for the engineer of greater individual expression than many businesses. Practice has changed in the sense that, because of the increased complexity of buildings themselves, from 80 to 90 per cent of the total effort (percentage of fee) is represented by design (system layout) and drafting. Thus only 20 to 10 per cent involves “real” engineering which includes review and analysis in special areas.

In an effort to get away from the hackneyed equipment-survey approach in mechanical courses, some architectural schools have called in practicing consulting mechanical engineers for lectures and seminars. This can afford a greater sense of realism related to current practice, and possibly stimulate thinking in regard to better system integration and space planning.

The consultant as a lecturer would probably be of most help to students if he were to outline first of all what consultants do and how they function; then present rules of thumb (order of magnitude or degree, not design) relating to system choice, space requirements, load calculations, etc.; tell what goes on the engineering drawings, and why; describe how a typical job proceeds through the office in terms of system selection, design and drafting; describe problems that arise in physical coordination and space allocation; outline what the engineer does during the installation phase, and then later on during initial system start-up, and during the balancing, testing and adjustment phase; and explain what the owner and his maintenance people will do regarding system operation during occupancy.

It is doubtful that discussions of “sample” jobs are of very much value, unless they are used to give general ideas of relative differences in system performance—minimum acceptable performance to optimum performance. A more helpful and instructive activity would be critiquing of student work from an over-all viewpoint. The hazard of the sample-job approach is that it offers only a limited, and perhaps biased, point of view; and, in addition may encourage students to look for architectural design statements and novel approaches rather than to achieve an understanding of basic principles.

Similarly, it would seem worthwhile to invite participation from manufacturers and various mechanical and electrical contractors. Even now there are the beginnings of manufacturer participation in environmental control courses at some schools. Manufacturers have the resources to do this. And, of course, it is to their own best interests to have such involvement as architectural decisions continue to have an ever-increasing influence on mechanical systems.

At the professional level, “continuing education” programs have been developed for the various architectural technology subjects. Also, manufacturers, professional and trade organizations have initiated various types of educational and reference aids as well as professional courses in air-conditioning topics.

Background for this series has been supplemented by discussion and consultation with all elements related to the air-conditioning field.

The RECORD wishes to express appreciation to numerous individuals for their contributions. Organizations contacted included architectural and consulting engineering firms, manufacturers, building owners, contractors and government agencies.
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INTERNAL COMMUNICATIONS / A page quick-reference illustrated catalog is directed toward school, office, industrial, church, hotel, and sport-recreation installations. Various systems and components are described. * Dukane Corporation, St. Charles, Ill.*

Circle 414 on inquiry card

ANODIC FINISHES / A 12-page book includes sections on color and alloy selection, design and fabricating considerations, and descriptions of pre-and post-treatments and finishes. * Kaiser Aluminum & Chemical Corporation, Oakland, Calif.*

Circle 415 on inquiry card

BUILDING CERAMICS / An 8-page booklet demonstrates the design possibilities of Brickplate, showing that an almost limitless variety of custom design effects for walls, floors, and siding can be developed through the use of special colors, textures, shapes and patterns. * Gail International, San Francisco.*

Circle 416 on inquiry card

PLYWOOD / Three recent guides include: 1) sheathing for floors, walls, and roofs; 2) use with concrete forms; and 3) sidings. * American Plywood Association, Tacoma, Wash.*

Circle 417 on inquiry card

* Additional product information in Reader Service Inquiry Card pages 221-222

For more information circle selected item numbers on Reader Service Inquiry Card, pages 221-222
Which sealant would you use in your next building?

Random samples of silicone and Tested-Approved polysulfide-base sealant compared in expansion test.

Result: silicone (photo above left) fails cohesively at 50% stretch. Polysulfide (photo right) holds up at 50%, 100%, 150% elongation—and recovers.

Conclusion: Tested-Approved polysulfides promise a true seal of security even in face of most pronounced joint movement.

For sheer strength—the kind that keeps buildings leak-free and sound at the joints under severest conditions—no sealants can touch Thiokol Tested-Approved LP polysulfide base compounds.

Their adhesive bond to all materials, even without priming, is virtually indestructible. Their cohesive muscle and rubbery flexibility permits greatest expansion and contraction—and return to normal dimension without rupture.

Tested and Approved polysulfide base sealants are formulated to meet the industry's most demanding performance specifications. They are identified by Thiokol's "Seal of Security"—your guide to total long-term weatherproofing protection.

SEALANT SAMPLES BEFORE AND AFTER TEST
(Samples used in test were of same dimensions, used same substrate, cured in accordance to manufacturers' recommendations. Sets of comparable samples were also immersed in water for 48 hours and then tested to determine effects of exposure to water. Photographic results shown below.)

For more data, circle 67 on inquiry card
REFACING / A building refacing made from .050 gauge aluminum has basic patterns, a diamond and an oval. The two may be alternated, gerated, or intermixed in a panel. Modular units are 8 in. by 3 in. by 3 in. and are available in a range of clear and color finishes. Erection is by screw anchorage of top and groove panels to horizontal members, either continuous aluminum angle or wood furring. • Construction Specialties, Inc., Cranford, N.J.

Circle 305 on inquiry card

BUILDING PANELS / Foamwall is a building panel of flat embossed aluminum sheets permanently bonded to foam in-place rigid urethane insulation to form the complete unit. The panels are custom-designed and factory-fabricated and delivered ready to erect in thickness from 1 in. to 3 in. Depending on thickness it is possible to span up to 15 ft or more with no intermediate supports. Double-faced panels can form both exterior and interior walls. Concealed fasteners give an over-all smooth exterior. There are no insulating voids, and no hot or cold conducting areas. • Elwin Smith & Co., Inc., Pittsburgh.

Circle 306 on inquiry card

ROOF DECK / Type FN Roof Deck is steel decking that can be nested together when being shipped or stored. Roof deck panels are made of light-gauge steel and are suggested for commercial and light manufacturing construction. Panels are 30 in. wide and 50 ft long. Wide rib openings allow fast and easy plug welding. • Wheeling Corrugating Company, Wheeling, W. Va.

Circle 307 on inquiry card

For more products on page 148

For more data, circle 68 on inquiry card

Wade

Constant product improvement... a Wade tradition since 1867!

WADE CARRIER-FITTINGS

Wade's entire line of rugged commercial and industrial Carrier-Fittings have been redesigned and improved to provide the ultimate in quick installation and life-time service. A complete selection for every modern application is available — vertical or horizontal; standard or extra-long spigots. All have these new, improved features . . .

1. EXCLUSIVE WADE BOWL-SAVER NUT prevents breakage of siphon-jet water closets.
2. NEOPRENE POSITIVE SEAL GASKET insures trouble-free service and quick unit assembly.
3. FACE PLATE GROOVED FOR EASY CUTTING . . . permits variations of floor-fill and fixture rough-in dimensions.
4. FITTINGS CAST WITH HUBS AND PLAIN-END SPIGOTS for use with Ty-Seal gaskets or lead and oakum.

WADE CARRIER-FITTINGS

to serve your needs best, specify . . . Wade

A DIVISION OF TYLER PIPE INDUSTRIES

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144 ARCHITECTURAL RECORD August 1967
ARCHITECTURAL HARDWARE

signs to fit any style... any function

hardware specialist at your Corbin distributor is the man to
for the Corbin "Gallery of Design Ideas."

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PRODUCT REPORTS

MEMBRANE SYSTEM / Thio-Deck C.T. is a two-component, elastomeric, black compound that produces a 30 to 50 mil thickness in one application and cures at ambient temperatures above 40 deg F. The membrane becomes a chemical resistant rubber sealant compound that remains serviceable in temperatures of —40 deg F. to 175 deg F. without loss of bond or elasticity. It resists water, salts, alkali, acid solutions and remains inert to other natural elements and bacterial attack. This heavy-duty membrane waterproofing is mixed and applied at the job site, and forms a continuous self flexible impervious membrane. It is used in above- and below-grade installations for two-course concrete slabs, parking decks, bridges, roadway mall areas. It may be applied as a proofing adhesive, under concrete terrazzo and quarry tile, as a roofin subject to later topping with con and as flashing in roofing system.

Toch Brothers, Inc., Paterson, N.J. Circle 311 on inquiry

“Ty-Seal gaskets saved me more than 500 man hours on this job”

THE MAN: Robert E. Layton, Jr., Professional Mechanical Engineer and President of Layton Engineering Company, Tyler, Texas.

THE PROJECT: A recently finished 2 million dollar high school. Mr. Layton’s firm installed the entire waste and drainage system. “I furnished Ty-Seal joint gaskets with Tyler pipe and fittings because I could actually reduce costs without cutting quality. I estimate Ty-Seal gaskets saved me more than 500 man hours on this job. This, coupled with the 50-year guarantee backing each gasket against failure, make Ty-Seal an outstanding product in my opinion.” No wonder more and more architects and engineers are specifying Ty-Seal. Why not join them?

FLOOR ARMOR / Hexteel, a steel surface floor armor, promises to prolong the life of industrial surfaces exposed to severe traffic conditions. It will withstand rolling and standing loads on flat ramps, docks, and aisles. Hexteel can be imbedded in fresh concrete or used as a surface wood or concrete floors. It is applied with mastic (asphalt cement), hot or cold asphalt, or magnasite. A continuous colored floor can be attained by side-end-clinching the panels on-site. Standard panel sizes are 10 ft by 3 ft. Panels are available in 1010 carbon steel, stainless steel and offer resistance to corrosion and oxidation. • Klemp Corporation, Chicago.

Circle 312 on inquiry

SUN CONTROL / A Sun Control promises to solve four fenestration problems: solar heat gain, sun glare, sun and sound transmission. Unit consists of two fully tempered panes of glass separated by a 2-in. air space, hermetically sealed. In the air space, hollow aluminum louvers, 1 1/2 in. wide and free-span, rotate through 180 deg to control heat and light. • Polarpaine Corporation, Passauken, N.J.

Circle 313 on inquiry

TYLER PIPE INDUSTRIES

TYLER PIPE INDUSTRIES
TYLER PIPE DIVISION, TYLER, TEXAS • MADE DIVISION, TYLER, TEXAS • EAST PENN DIVISION, MACUNGIE, PA

For more data, circle 80 on inquiry card

For more products on page 4

For more data, circle 79 on inquiry card
Terne, Mansard Fascia & Contemporary Architecture

Probably no comparable architectural element has been so widely utilized in significant contemporary design as the traditional mansard concept. This is, of course, a striking example of the manner in which "we make out of the very old the very new" (to borrow a descriptive phrase which the late Frank Lloyd Wright once applied to Terne itself). And wherever mansard fascia is employed, the unique functional characteristics of Follansbee Terne, along with its notable affinity for both color and form, are available at relatively moderate cost.

FREEWAY OFFICE PARK, Atlanta, Georgia
Architect: HEERY & HEERY, Architects & Engineers
Roofing Contractor: THERREL ROOFING COMPANY

FOLLANSBEE STEEL CORPORATION
Follansbee, West Virginia
PRODUCT REPORTS

Hydroment®

Add life to new concrete with colorful Hydroment.

Make a hit with everybody, by specifying colorful Hydroment. Hydroment hardens, densifies and colors concrete so it lasts longer and looks better. This floor in terra cotta looks just as handsome in Erin Green, Tile Red, Brown, etc. Specify Hydroment on your next job! You’ll be thanked by everyone.

in 10 popular colors:
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- Tan
- Terra Cotta
- French Gray
- Erin Green
- Brown
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Hydroment is a specially formulated cementitious material which is applied by the dust coat method. Requires no additives or mixing. It’s odorless, waterproof and non-toxic. Write for color card and new brochure. We’re in Sweet’s, too.

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a subsidiary of
United Shoe Machinery

For more data, circle 88 on inquiry card

WATERPROOFING / A waterproochemical for wood, Chemstop, can penetrate to a depth of \frac{1}{2} in. to seal the porous structure of wood from within with a clear liquid that has no silicone and therefore serves as a primer for oil-based or water-base paints. For shingles, shake, decorative woods to be left a natural color, no finish or coating is necessary after applying Chemstop. A preservative in the chemical prevents rot due to fungi, bacteria, and chemicals. • Chemstop Manufacturing and Sales Corp., Los Angeles, Calif.

Circle 317 on inquiry card

POWER SCAFFOLD / This power-operated window-washing scaffold is a self-contained unit that reaches every point on the facade. A double-jib arm design affords three-dimensional movement—horizontal, vertical, and to-and-from the building facade. Access to and from the platform can be made safely from the roof. The cable control system is operated by one operator and movement occurs only when the operator depresses the button. Electric conductors are encased in steel hoist cables. • Patent Scaffolding Co., Long Island City, N.Y.

Circle 318 on inquiry card

DIFFUSER / The Air Control Season Changer is a floor diffuser with a reversible face that provides two complete and different air patterns. For heating, the diffuser directs a wide blankettig pattern toward the ceiling. For cooling, the diffuser directs high velocity air column toward the ceiling. No tools are required to change the diffuser. • Leigh Products, Inc., Coopersville, Mich.

Circle 319 on inquiry card
BEFORE YOU DECIDE WHICH LIGHTING PANEL, TRY ONE OF OURS FOR 25 YEARS.


All the reasons why are to be found in a bulletin we've prepared for you. Write for a copy. Building Products Dept. 8508, Corning Glass Works, Corning, N. Y. 14830.
Handsprint shakes have a way of saying what you want them to.

Take the church meeting house above.

To capture the rich character and heritage of the Mennonite Church, the architect combined contemporary design with materials long associated with Mennonite architecture: masonry, heavy timbers and handsprint shakes. The result is a structure with strong traditional feeling that, thanks in part to the versatility and timeless popularity of red cedar, still relates beautifully to its location and to present day tastes.

Because of their excellent insulating qualities, red cedar shakes provide maximum protection from heat and cold, too. And only red cedar offers such longevity and stubborn resistance to wind damage.

Before your next project—whatever you're trying to say—why not consider the advantages of Certi-Split handsprint shakes or Certigrade shingles? For information, just see our Sweet's Catalog listing 21d/Re, call or write:

RED CEDAR SHINGLE & HANDSPLIT SHAKE BUREAU
5510 White Building, Seattle, Washington 9810
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For more data, circle 90 on inquiry card.
insures this building's lasting beauty

The zinc on over 100 tons of hot dip galvanized reinforcing steel will prevent "undercover corrosion" from defacing the new Civic Center designed by Edward Durell Stone for Pine Bluff, Arkansas. The galvanized reinforcing rod is being used in 130 giant umbrellas of pre-cast concrete. These umbrellas are interconnected to form a colonnade around and through the complex, dividing the three buildings, a reflecting pool and two garden courts. Each umbrella is comprised of a 12" square x 19' high column, a 16' square x 4' deep cap and a 7" square x 4" thick slab cover. Galvanized steel rod was specified for the entire umbrella structure by Engineering Consultants, Inc. of Little Rock to prevent subsurface rusting which could cause staining, cracking and spalling of the concrete surface. When you specify materials remember that no other material gives you the combination of strength, corrosion resistance and economy found in galvanized steel.

ST. JOSEPH LEAD COMPANY
250 Park Avenue, New York, New York 10017
St. Joe is a Major Supplier of Zinc to the Galvanizing Industry
Carlisle Sure-Seal is specified time and time again, for both above and below grade waterproofing, for installations that demand top product integrity.

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Ten years experience in manufacturing rubber waterproofing has not only qualified Carlisle as a leader in this field, but has built an outstanding portfolio of construction applications employing Sure-Seal.

Write today for complete information and list of Carlisle Sure-Seal installations.
Mosaic Quarry Tile.
It gives you more to work with. (11 rich colors.)

When the need is for a floor of quarry tile, why feel walled in? You've got Mosaic Quarry Tile to work with. It comes in eleven colors — considerably more than anybody else. Seven different sizes, too. And that gives you plenty of room to move around in.

No matter which color you select, you'll find it goes along with anything else you have in mind. Color compatibility is built into every Mosaic Quarry Tile.

Our Carlyle Russet 170, above, is a good example. Notice how it harmonizes with the wall colors (background, 6448 Parchment; with vertical abstract in 1511 Venetian Pink, 6451 Fawn Beige and 6447 Gold Dust). Like to see our ten other warm, down-to-earth colors?

Contact any Mosaic Regional Manager, Branch Manager or Tile Contractor for samples, colors, prices and availability.

See Yellow Pages “Tile-Ceramic-Contractors.” Or write: The Mosaic Tile Co., 55 Public Square, Cleveland, Ohio 44113. In the western states: 909 Railroad St., Corona, Calif. 91720.

"Mosaic" is the trademark of The Mosaic Tile Company.
dependable door controls for busy buildings

"Fine Door Controls Since 1947" is more than just a slogan at Ronan & Kunzl. Pride in workmanship and habitual emphasis on quality and performance constitutes a way-of-life at R&K. Our automatic controls for swinging or sliding doors are precision built for easy installation and trouble-free service.

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Marshall, Michigan 49068

"It's good business to help colleges"

"Our colleges and universities must have enormous quantities of new money almost constantly if they are to be enabled to serve society as it needs to be served. Every business institution benefits today from the money and labors that those now dead have put into the building of these institutions. We are all dependent upon them for future numbers of educated young men and women from which to choose, and for the continued expansion of man's knowledge of the world he inhabits.

"We owe these institutions a great debt, and we can pay this debt in two ways: By supporting them generously with contributions of money and time, and by upholding their freedom to remain places of open discussion, and to pursue truth wherever it is to be found.

"Last year our company contributed to colleges and universities more than $310,000 which represented 1.2% of profit before tax."

J. Irwin Miller, Chairman
Cummins Engine Company

A major problem in the education of students is rising costs. If companies wish to insure the availability of college talent, they must help support colleges with financial aid.

SPECIAL TO CORPORATE OFFICERS - A new booklet of particular interest if your company has not yet established an aid-to-education program. Write for: "How to Aid Education—and Yourself", Box 36, Times Square Station, New York, N.Y. 10036

COLLEGE IS BUSINESS' BEST FRIEND

Published as a public service in cooperation with The Advertising Council and the Council for Financial Aid to Education
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Our mercury vapor line brightens them all

With versatile Art Metal mercury vapor fixtures you’ll shed brighter, longer-lasting light on: basketball players in arenas, parked cars in garages, theater crowds and shoppers under marquees, students in corridors ... just name your subject.

Art Metal’s complete mercury vapor line—all with integral high power factor ballasts—includes recessed and surface “rounds” and “squares” for interior and exterior ceilings, decorative surface aluminum downlights, outdoor brackets for economical local area lighting ... something for every interior and exterior application.

When you light your subject with Art Metal mercury vapor lights you not only get outstanding design ... but other advantages which may be even more important to you: whiter, brighter light, longer lamp life, better light output and distribution, less maintenance. Plus a comprehensive range of watt sizes and models. In short, we put an ultimate lighting package at your disposal. Why not write for our new mercury vapor lighting brochure and/or call your Art Metal representative. It could be the brightest move you’ve ever made.

ITT Environmental Products Division, International Telephone and Telegraph Corporation, 1814 E. 40th St., Cleveland, Ohio 44103.

For more data, circle 109 on inquiry card
A single climate conditioning system for each campus bui
I be fine...if you had no outside rooms in your plans.

There are places like that. But they're not schools. Today's schools have both inside and outside rooms. And if you choose one type of system—unit or central—to handle both types of situations, you're compromising.

That's why we make the range of equipment we do today. Without compromising anything, you can select the matched equipment that best fits your needs. And you can use the most economical fuel available in your area whatever the equipment.

For instance, you'd probably select our Nesbitt Rooftop Multizone Unit for flexible learning areas. It can individually service up to twenty-two separate zones through flexible ducting which can later be altered easily to meet changing space requirements.

Then again, in those fixed-wall perimeter classrooms, you may find Nesbitt Unit Ventilators most economical. They can be installed with steam, hot water, electric or gas heating. Mechanical cooling can be added now or later using a central chilled water system or individual condensing units mounted remotely or adjacent to the unit.

Where glass is used extensively, Nesbitt Wind-o-line Radiation is designed to offset the radiant heat loss and prevent chilling downdrafts.

Whether you're designing a new school or an addition, call your Nesbitt man. He has the heating, ventilating and air conditioning equipment to meet your requirements better. After all, he's a specialist in schools. And that's what you're building, isn't it?

Nesbitt Operation, ITT Environmental Products Division, Philadelphia, Pa. 19136.

For more data, circle 770 on inquiry card

ARCHITECTURAL RECORD August 1967 201
The business of architecture


Morris Lapidus—an architect best noted among his colleagues, perhaps, for the business acumen and architectural eloquence with which he has caught the spirit of $12.25.

Publishing Corporation, 430 Park Avenue, The business of architecture just as the doctor or lawyer sits in his offices and at the same time maintain a financial and business success of their own offices or are about to do so.

Architecture: a Profession and a Business is primarily concerned to demonstrate to architects that there is no inherent reason why they cannot make a financial and business success of their offices and at the same time maintain their professional integrity. Lapidus goes on to examine in detail the kind of office procedures, accounting methods, partnership agreements and client-architect relationships that make success possible. Occupational hazards, popular fallacies, frequently-made errors of administration and organization also come in for discussion.

Lapidus is well aware of many of the deeply ingrained prides and prejudices which make architects hesitant to sell their skills too vigorously to prospective clients, but he vigorously scoffs at any such inhibiting delicacy of feeling: "Architecture must be sold like any other commodity" he says. "You will probably object to this statement, saying that architecture is a personal service, and just as the doctor or lawyer sits in his office and waits for patients and clients, so, too, the architect should wait for his clients to come to him. This idea went out with the artist's smock and the flowing black tie. . . . This is the day of the soft or hard sell. Whichever it is, the architect should present himself to possible clients. . . . Although the ethics of the architectural profession prohibit advertising, every good businessman has learned how to sell his product or service. Many and varied are the techniques used. It is just as important for the architect to have some method of projecting himself, his services and his work to the buying public—his potential clients. Hiding your light under a bushel will only draw insects not clients."

There are some very good chapters on cost and job control in which Lapidus emphasizes the importance of establishing an accepted system and style of work, of making sure that all employees know and follow the established office procedure, of making constant checks on time and expenditure involved in individual jobs. All this is illustrated by detailed examples of working, programing and control systems for jobs and offices of varying size and complexity.

The reader should not be misled by the simple style of writing or the careful statement of what may seem obvious to the seasoned practitioner into dismissing this book as trivial or irrelevant. On the contrary, as Thomas Creighton says in his introduction: "I don't know where else you can find such penetrating, realistic discussions of such subjects as the risks of partnerships, the ways to achieve budget control, the methods of assaying and negotiating fees and many other down-to-earth matters" which are, after all, a critical part of the profession.

Urban low-rise group housing

ROW HOUSES AND CLUSTER HOUSES, AN INTERNATIONAL SURVEY. By Hubert Hoffmann. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 176 pp., illus. $18.50.

Urban low-rise group housing, although not a new invention, is one which, this author concludes, can satisfy the owner's desire for a home of his own to the same extent as has the conventional free-standing one-family structure. He does not see an exclusive application of this method of housing but rather the use of this building type in an amalgamation of small building units of various types, with the inhabitants a mixture of different occupations, income classes, educational levels and family ages.

Many opponents of low-rise group housing have given economic, sociological and psychological objections to use. This author has taken exception to these objections in his discussion of technical and economic comparisons of low-rise and multi-story housing, and sociological and psychological concepts of such grouping. A principal argument against low-rise housing in urban areas is the allegedly greater area required—a feeling arrived at from spontaneous association with the suburban sprawl surrounding cities. Studies are cited which provide convincing proofs that the area gain obtained by multi-story housing is minute if built-up areas of the residential district are related to the gross areas of the town. And finally, the advantages of diagrid arrangement—Habitat—and the particularly favorable industrial prefabrication of such housing are discussed.

After the author's worthwhile assessment of the advantages and drawbacks of this method, an internamiento selection of row and cluster houses makes up the larger part of the book.

BOOKS RECEIVED


GEORGIAN ARCHITECTURE IN AUSTRALIA. By Monica Herman. Taplinger Publishing Co., Inc., 29 East 31 Street, New York, N.Y. 10003. 148 pp., illus. $12.50.

CITIES IN A RACE WITH TIME. By Jeanne R. Low Random House, Inc., 457 Madison Avenue, New York, N.Y. 10002. 607 pp., illus. $10.00.


PROGRESS REPORT 1965-1966 of HUD Low Income continued on page 2
In this now famous building, GJ DOOR CONTROL was specified for every floor. This quality hardware can be depended upon to function through the years. GJ is always the SAFE specification.
Name your building. Chances are American Bridge can show you how to save money with steel.

American Bridge can fabricate and erect the steel for any type of building—no matter how large or how small—and we can save you money in any stage of your building, especially in the planning stage. We’ve been involved in more different types of steel construction than any other fabricator-erector in the country. You name it—office buildings, industrial buildings, bridges, stadiums, tanks, schools—American Bridge has built it.

Modern buildings have structural steel frames for some very good reasons. For instance, new high strength structural steels cut costs and weight because they’re two to three times stronger than carbon steels. Steel is weldable and makes bracing and fastening much simpler. With steel you can integrate structural and architectural space for low unit cost and low unit weight per square foot of floor area. You can use a combination of steels at different strength levels to achieve almost any aesthetic effect while you cut costs. There’s no special season for steel, either. It goes up fast any time of the year. And when it’s time to remodel, steel makes it less expensive and easier. Only steel can be safely altered, extended or reinforced without damaging the integrity of the building’s structure.

We’re steel specialists—so we can give you the best structural work possible for the least cost. American Bridge starts from scratch on every job—no matter what the size—to find ways to fabricate and erect your structure as efficiently as possible. Talk to American Bridge first about any building or remodeling project. Write American Bridge, Room 4770, 525 William Penn Place, Pittsburgh, Pa. 15230.
specify

WAGNER

GARAGE DOORS

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Wood commercial doors

Wood residential doors

Fiberglass aluminum residential doors

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WAGNER MFG. CO., WATERLOO, IOWA 50705
Division of Chamberlain Manufacturing Corporation

For more data, circle 112 on inquiry card
MORE BUILDING OWNERS LOOK TO THE LEADER...McQUAY®

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For more data, circle 114 on inquiry card

ARCHITECTURAL RECORD August 1967 207
Charlie isn't big on small talk.

It's not that Charlie doesn't care about the weather. Or the latest movies. Or the length of girls' skirts.

He just prefers to talk about something he has all the facts on. Like paint. Vinlys. Acrylics. Epoxies and sealers.

He'll go on in detail about new Devoe low-luster latex enamel. About glaze coatings, water-repellents, masonry coatings and rust-inhibitors. And when it comes to colors, he positively waxes eloquent.

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You can depend on the Man from Devoe.
WHY ARCHITECTS AND ENGINEERS FIND ARCHITECTURAL RECORD 'MOST HELPFUL' IN THEIR WORK

Because the Record continually grows with the profession—improving its 'helpfulness' whenever possible—such as the redesign of the magazine in 1966, the Architectural Business feature introduced last January, and the Architectural Engineering Special Report, unveiled in the July issue.

Because the Record has the largest editorial staff in the architectural field with 15 full-time editors.

Because Record's staff brings to its work over 250 years' background in architecture, journalism, engineering, teaching and the graphic arts.

Because Architectural Record editors take a no-nonsense approach to the profession—stressing 100 per cent editorial concentration on architects and engineers—with every page reflecting their working information needs and interests.

Because the Record staff is imaginative—creating a unique editorial climate that attracts the greatest architectural and engineering authorities of our time.

Because the Record offers architects and engineers the most editorial pages in the field—with most on nonresidential and residential buildings...the most photographs, drawings, four-color, the work of the most architects.

These are just some of the reasons why, in three recent independently sponsored readership studies, the margin of preference for Architectural Record widened to over 50 per cent. Here are the results of these studies, in response to the question, “Which architectural magazine do you find most helpful in your work?”

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Why you will find Architectural Record 'most helpful' in your sales efforts.

Because architects and engineers find the Record most helpful in their work, they spend more time with the Record, giving you a better climate to tell your advertising story. And they are the active architects and engineers. Over 90 percent of all architect-designed nonresidential and large residential building is in the hands of Record subscribers.

Sell your building products to architects and engineers in the magazine they prefer...more building product manufacturers do.
The Beach Avenue Apartment Building, Vancouver, British Columbia
Consulting Engineers: Kiwain and Chencoper
Drawing by Davis Bibe
ADVERTISING INDEX

Pre-filed catalogs of the manufacturers listed below are available in the 1967 Sweet’s Catalog File as follows.

A Architectural File (green)
I Industrial Construction File (blue)
L Light Construction File (yellow)

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