Armstrong offers the widest variety of resilient floors. The best is the one that suits your design.

At the Haydon Burns Library the best floor is Tessera Vinyl Corlon

The architects for this $2.5 million Jacksonville library had two primary reasons for choosing Tessera Vinyl Corlon—the practicality of vinyl combined with a striking, modern design that complements contemporary interiors.

First, consider practicality. By selecting Tessera, the architects minimized maintenance on 45,000 sq. ft. of floor subjected to heavy traffic. Tessera’s subtly textured vinyl surface helps to hide scuffs, scratches, and unsightly heel marks. A sheet vinyl flooring, almost seamless, Tessera cleans up quickly, easily, and retains its good looks longer. (Already in service for two years, the library’s floors show little of the effects of punishing day-to-day traffic.)

Next, consider design. Tessera Corlon’s random, cube-like design matches the form and mood of the library. And by combining Armstrong Vinyl Corlon Decorator Strips with Tessera, the architects added a distinctive, expansive look to their bold interiors.

Would Tessera Vinyl Corlon be the right floor for your next project? Possibly. It all depends upon your needs. Your Armstrong Architect-Builder-Contractor Representative will be glad to work with you to determine what would be best. He has the world’s largest line of resilient flooring behind him, so you can be sure of an objective recommendation. Call him. Or write Armstrong, 309 Rock Street, Lancaster, Pennsylvania 17604.

SPECDATA, TESSERA VINYL CORLON • Colored vinyl chips inlaid in translucent vinyl all the way to the backing. • Moisture-resistant Hydrocord backing. • Sheet material 6 feet wide up to 90 feet long. • Overall gauge .090”. • Excellent durability, ease of maintenance, resistance to heel damage; superior grease, stain, and chemical resistance. • Can be installed above, on, or below grade or directly over existing resilient floors using the Armstrong Perimiflor Installation System.

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ARCHITECTURAL RECORD September 1967
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usy buildings (and busy architects)
TOWARD AN ARCHITECTURE OF JOY AND HUMAN SENSIBILITY

Benjamin Thompson asks his fellow architects to “give first priority to the individual, see each person as more than a statistic in the population explosion, and give man the central place in his plans.”

A CHALLENGING COLLABORATION FOR TAC

The Architects Collaborative is one of the few architectural offices in the United States to design and build an office building for its own use. The new structure, on Harvard Square, effectively accommodates their unique form of practice.

FIVE BUILDINGS BY ALDEN B. DOW

A nature study center, a Presbyterian church, a small-city Y.W.C.A. building, and two suburban houses by Michigan architect Dow.

FOUR PUBLIC LIBRARIES

Two central libraries and two smaller branches demonstrate the variety with which the new generation of library buildings is responding to today’s demands.

FENNEL RESIDENCE, WILTON, CONNECTICUT

This spacious summer and weekend house provides an interior display on five different levels. Robert W. Van Summern, Architect.

HOSPITALS: COPING WITH OBSOLESCENCE

Architects and hospital administrators find many ways to meet the demands of technical change despite the long time between concept and completion of a hospital building.

COLOGNE’S DRIVE-IN HOSPITAL: TRAFFIC IN THREE DIMENSIONS


ARCHBISHOP BERGAN MERCY: GROWTH ON A NEW SITE

Leo A. Daly Company, Architects.

EVANSTON HOSPITAL: UPDATING IN A NEW WING

Mittelbusher & Tourtelot, Architects.
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COMING IN THE RECORD

SCHOOLS FOR TODAY'S CITIES

Next month's Building Types Study on schools will explore some of the many problems of the city school today and will present some of the emerging architectural solutions to the replacement or remodeling of over-crowded, obsolescent existing facilities, with attention not only to new educational but new community needs as well.

CURRENT WORK OF ULRICH FRANZEN

Franzen's projects include a wide variety of building types—a college dormitory, a suburban church, an office building for a religious organization and an administration facility for the National Parks Service at Harpers Ferry. All four structures are not only well adapted to their surrounding environments—they have indeed been shaped by them.

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THE TROUBLE IS THE GHETTO? OR LET'S TAKE ANOTHER LOOK

You were to check the word "ghetto" the dictionary—don't bother—you would find that the original meaning lied a forcible restriction of some up, essentially racial, to a certain rict. When we in America talk about otos we should remember that we have freedom here, and therefore a etter" is not a forced but a natural elopment.

Now keep cool just a minute. I am a nasty old conservative who is ng to argue that ghettos are desir e. I am just going to raise a point ut them that affects urban planning i housing policies; and perhaps I II indulge in some cynicism.

Let me assume the mantle of an "in-eptual," so we don't get too emo nal. I read recently a definition of tellectual as one who speaks uritoratively on matters in which he no competence. An older definition s that an intellectual is a glib and iculate wishful thinker. I shall admit t as to the first definition, but not e second.

In other words, I don't have any bertise on ghettos, in sociological minology; I just have a long history living in cities and their suburbs. A story, I might add, that has seen so my wishful ideas go down the drain. please forgive that cynicism, and t take a look at ghettos.

It's no wonder ghettos get blamed many current ills. They do concent rate disadvantaged groups—some racial, me not—and so seem to perpetuate all manner of troubles of those groups. They concentrate disillusionment; they concentrate deteriorating family problems; also fury and anger.

What I am getting around to asserting is that the ghetto as a concept is not the underlying reason for current troubles. And, therefore, that the solution is not as simple as just breaking up the ghettos. Concentrations of various groups—national, racial, economic—are a perfectly natural development, and if they were broken up they would de velop again.

I live in a ghetto, in a New York suburb. And I can complain about it, and frequently do. Many years ago, when my children were small, we tried to pick out a suburb where the children would be brought up in as nearly "nor mal" a community as possible. We meant going to school with children of rich and poor, of different trade back grounds, of different racial backgrounds. We wanted them to have a broad understanding. But our suburb is now just as classified as any ghetto. It is a bedroom town of bright young executives, with large families. The PTA age group controls everything in town. And it's too expensive for most of the people who work in the town—clerks, mechanisms, school teachers, etc.—they have to live elsewhere and drive in to their jobs. And it's too expensive and too stratified for retirees; when our friends retire they all move away.

Ghettos formed naturally in the great immigration rush of 50 to 60 years ago. In New York the Germans gathered around 86th Street, the Greeks around Ninth Avenue, the Chinese in you know where. They went where they could speak a common language, where their customs and needs would be under stood, where they could get help and companionship. Many of these concentr ations have since broken up, as immi grants became citizens and as their chil dren found new opportunities. But you will still find a natural tendency to gravitate toward those older centers.

So I am questioning the generally accepted principle that in urban re housing, various groups should be housed together. Income groups, racial groups, language groups. I haven't heard anybody shouting "Vivre les Sinos Libre!" Everybody seems to agree that everybody should all live together in the same development or housing groups. And thus would we force an interming ling and a growing understanding.

Well, maybe we would; I should hope it would happen that way. But I remain outside the intellectual group distinguished by wishful thinking. I shall stay with those eggheads who speak knowingly about something they don't really have competence in.

I shall just raise the question as to whether or not it will work. I should be afraid that disadvantaged groups would merely feel more disadvantaged; that different income level groups would feel their varied statuses more keenly. I have to believe—forget the egghead pose—that those desirable understand ings and friendships and sympathies are not arranged by fiat, but by mutual effort.

Naturally the declassification is a political necessity. But I shall have to be convinced that it will be a social success.

—Emerson Goble

ARCHITECTURAL RECORD  September 1967 9
Suburban museums needed for 250,000 visitors

Overcrowding of museums is a current nuisance, according to the Regional Plan Association (New York region). And on a typical Sunday in the year 2000 there will probably be a half-a-million Sunday visitors to museums in the metropolitan area, something more than double the present Sunday attendance. (I trust they all go to church before starting out for the museums.)

What the Association suggests is that we build suburban museums, which might take care of roughly half of those Sunday viewers. For, as it points out, suburbs are growing outward, and distances to the shows are growing. It is evident now, the release goes on, that an undue proportion of museum visitors come from the city, indicating that suburbanites are missing out.

And suburban museums might stimulate local art, with local shows, permanent local exhibits, and what not. Well, we have heard of the population explosion, the proliferation of this and that, increases in everything. Just think of the art explosion that would be necessary to keep those new museums stocked. And, worse yet, think of the art explosion that might follow local classes in the suburbs. And now excuse me and I’ll get back to my water colors.

If you can’t join ‘em, lick ‘em, or something

One architect, Douglas Buck, fed to the teeth with bad architecture and red tape around local community buildings, decided to do something about it, like running for president of the New Castle (Del.) County Council. He ran, and he won.

From the bulletin of the Delaware Chapter of the A.I.A. we have this comment:

“Mr. Buck’s concern for architecture was a major factor in his deciding to enter the political arena. For years he had complained bitterly about the political dominance and red tape which resulted in bad architecture and unpremeditated ugliness throughout our great community. The evidence screams at from the edges of our strip-zoned areas of transportation and from virtually every sector of our urban development. The efforts of architects and concerned citizens did not appear to be enough to meet the crisis, and for Mr. Buck it appeared that he would finally have to put up or shut up. The opportunity to make something seemed to present itself within the framework of the reorganization of community government and Doug decided to run for office. Last November he was elected.

“In the five months since the establishment of the new government significant changes have been made. Political channels have become less numerous and more clearly defined in terms of individual authority and responsibility. Steps are being taken to combine and coordinate planning on the local, county, and state levels. Substantial restrictions are being proposed for the safety and sightliness of highways throughout the county. Limited access to major roads, control of outdoor advertising, and limitations on intensity of illuminated signs are all beyond the dreaming stage. Another item on Buck’s agenda is finding a solution to preserving open land. The power to tax potential land value and the right of eminent domain as lever arms are being examined carefully. Although taste cannot be dictated, Doug Buck believes that government can become much more effective with the assistance of the architect, the artist, the educator, and the entire intellectual community.”

—E. C.
storage space, designed to hold linens, silver and china, a fine furniture look in this serving area.

dignity—rich walnut doors harmonize with richly textured cabinets in Horizon Blue.

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...says A. B. Favero

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32-4 ARCHITECTURAL RECORD September 1967
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Buffums' Palos Verdes is the fourth All-Electric department store in the Buffums' chain, another example of the remarkable economy the All-Electric building concept.

By going All-Electric, Buffums' was able to make more efficient use of their money in several ways.

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Space saving was another factor. In this case, the space was the equivalent of a complete shoe department.

Buffums' lighting was designed in accordance with the nationally recognized standards of the Illuminating Engineers Society. It not only lit without glare and highlights Buffums' quality merchandise but, most importantly, is the prin...
source of heat for the entire store.

Flameless, quick-recovery, water heating serves Buffums' beauty shop and washroom areas.

Another important benefit of the All-Electric concept is the architectural freedom of design. All-Electric systems are flexible, and can be incorporated in a great variety of building designs, rather than forcing the architect to design the building around traditional systems.

The All-Electric Building Award for Buffums' Palos Verdes testifies that this building has met recognized engineering standards for lighting, heating, and air conditioning.

Buffums', like so many other companies, has found that lower first cost, lower maintenance expense, and competitive operating costs add up to lower total annual cost in All-Electric buildings. We can give you all the money-ahead facts and figures on All-Electric buildings, including hundreds of case histories. Write Marketing Engineering, P.O. Box 62, Terminal Annex, Los Angeles 90051.

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 — $3.38 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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How? Can you find loving parents for her, give her good health, adjust her to the realities of normal living, remedy any physical or other problems troubling her? Probably not.

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For more data, circle 23 on inquiry card
THE ALUMINUM FACADE — BORDEN DECOR PANEL

The versatile lightweight aluminum facade is a popular use for Borden Decor Panel. Shown on the New Haven Branch Post Office above, the handsome facade emphasizes the style of the building and adds practical features of sun screening and great durability.

This application uses Deco-Grid style, type IV modified, Borden Decor Panel with Duranodic finish 312E. The panels span 16 ft. between the brick piers; spacers are tilted 30° off the vertical, and alternately reversed, to partially close the openings in what is known as the Slant-Tab Variation. With the Slant-Tab Variation spacers may be mounted at virtually any angle and the spacers may also be altered in length, depending on angle of mounting chosen.

Deco-Grid and the other basic Borden Decor Panel styles, Deco-Gril, Deco-Ring and Decor-Plank, are very amenable to design specification; they are available in both standard and custom designs. In addition to use as facades and refacing of existing buildings, Borden Decor Panel finds widespread application as dividers, grilles, fencing, stairway railing panels, doors, entryways, and sunshades.

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For more data, circle 24 on inquiry card
Architectural League continues experimental activities; seeks broader membership

Architectural League of New York, in its second year under the direction of architect Ulrich Franzen, president, has stepped up its program of experimental exhibitions and is instituting weekly lecture series in order to broaden its scope and influence. At the same time, the League is undertaking a membership drive to gain further port and interest in its activities. Starting off the year is an exhibition, "Environment IV: Corridors" by architect John Lobell and sculptor Michael Steiner (see model photograph), which will run from September 14 to October 6. In Corridors, initiated by architect and sculptor Martin Growald and sponsored by the League and the American Federation of Arts (which will circulate the show nationally for a two-year period), the three-room gallery space will be filled with 8-foot-high hollow door columns set within an arbitrary 2-foot 9-inch diagonal grid, thus forming a series of diagonal corridors. Each of the corridors will be activated by an "electric eye" mechanism which will be tripped as a spectator enters each corridor. Therefore, the gallery will be transformed into a musical instrument of architectural scale that plays itself as the spectator walks through the environment. The feasibility of the scheme was developed by systems engineer Edwin Hodder of Hubert Wilke Communication Facilities Consultants.

Other exhibitions will include: a "Tree Show" by landscape architect Robert Zion, which will take place from October 10 to 27, in which photographs of trees in different seasons of the year will be displayed; "Diamonds" by architect John Hejduk and painter Robert Slutzky, November 2 to 24, in which "the idea relative to the diamond and the diagonal with regards to form, space and color will be presented in architecture through a series of drawings and models and in painting through a series of paintings; Environment V: Vibrations, by artists-in-residence Jackie Cassen and Rudi Stern, December 14 to January 13, which promises to be a comprehensive statement of an environment of light, utilizing experimental rear projection techniques, fiber optics, black light, revolving sculpture, and water; and an exhibition with the Regional Plan Association of New York, February 15 to March 8, in which the new regional plan will be exhibited in a series of drawings and models as well as historical precedents such as the regional plan of 1929 and the Grand Central Station complex.

The weekly lecture series, organized by architectural designer Peter Hoppen, will be three concurrent series of talks. The three series are: "Problems of the City," in which representatives of government, business, industry, and neighborhood groups will explore the urban crisis; "Prefabrication and the Future of Housing," and an "Architect-Artist" series in which practitioners will discuss their own work.

The membership drive, under the direction of architect Martin Growald, is seeking not only national members from the field of architecture and its allied arts (dues $35 for those under age 35 and $75 for those over 35) but also lay members—"associate members" (whose dues are $25). Applications for membership can be obtained by writing Mr. Growald, The Architectural League of New York, 41 East 65th Street, New York, New York 10021.

George A. Dudley will leave U.C.L.A., work for State of New York

George A. Dudley will leave his post of chairman of the newly-established School of Architecture and Urban Planning at the University of California, Los Angeles, to become chairman of New York State's Pure Water Authority and chairman of the new State Council on Architecture. The five-man Council on Architecture (members still to be named) was created to assist the state in striving for high-quality design in state and other construction activities. Mr. Dudley will continue for the next few months to devote a portion of his time to the affairs of the School of Architecture and Urban Planning, pending the selection of his successor.

Bill introduced to authorize FDR Memorial construction

A bill has been introduced in the Senate by Senator Eugene J. McCarthy of Minnesota, chairman of the Franklin Delano Roosevelt Memorial Commission, which would authorize construction of the FDR Memorial in Washington, D.C., designed by Marcel Breuer and Herbert Beckhard, architects. A companion measure has been introduced in the House of Representatives by Representative Frank Thompson, Jr. of New Jersey.

These bills follow the rejection of the Breuer-Beckhard design by the Commission on Fine Arts in Washington last January. "Rather than raising a question of interpreting the power and authority of the Commission on Fine Arts," said Senator McCarthy, "we are bypassing these problems in a clean way by presenting this bill. If Congress rejects this bill, then the design will be rejected. If the bill passes, we will proceed to get appropriations. It is our hope that approval of the legislation . . . will enable the Memorial to be completed by the time of the 25th anniversary of the death of President Roosevelt."

ARCHITECTURAL RECORD September 1967 35
RECORD editor is cited by Public Health Service

Emerson Goble, editor of ARCHITECTURAL RECORD, has received a citation—the first it has ever given—from the Division of Hospital and Medical Facilities of the United States Public Health Service in ceremonies held last month in New York. The citation was presented by Dr. Harald M. Graning, Assistant Surgeon General and director of the Division.

Mr. Goble was cited for his “leadership in interpreting and reporting the objectives of the Hill-Burton program... thus contributing immeasurably toward elevating the quality of design from both a functional and an esthetic standpoint;... keen personal interest in the promotion and development of Building Types Studies and other articles on hospitals published in ARCHITECTURAL RECORD which have been a major contributing factor to the continuing improvement in hospital design; and... efforts in giving us the benefits of [his] knowledge of the architectural field and [his] judgment of quality design which have been of invaluable assistance to those of us who have had the responsibility for developing these architectural guidelines, particularly during the early critical years of the program.”

New members named to Commission of Fine Arts

Architect Chloethiel Woodard Smith and John Walker, director of the National Gallery of Art, have been named to four-year terms on the Commission of Fine Arts, Washington, D.C., replacing Burnham Kelly and John Carl Warnecke. The Commission reviews all Federal construction projects in the Capital as well as private construction in Georgetown and areas flanking the city’s monumental core.

Asked to remain on the Commission for an additional year in order to reestablish staggered four-year terms were architect Gordon Bunshaft, sculptor Theodore Roszak, and “lay member” Aline B. Saarinen. William Walton, chairman, and Hideo Sasaki, landscape architect, have been reappointed for four-year terms.

A.I.P. conference will explore “The Next Fifty Years”

As part of its 50th anniversary celebration, The American Institute of Planners is holding a series of three conferences to explore “The Next Fifty Years/1967-2017.” The second in this series of conferences is scheduled to take place in Washington, D.C. from October 1-6, dealing with the subject “The Future Environment of a Democracy.” The first conference was held in August 1966, and focused on the subject “The Optimum Environment with Man As The Measure.” The third part of the series will consist of six to ten regional conferences to be held in 1968.

The conference series is part of a three-year multi-disciplinary exploration launched by the A.I.P. to “search for concepts and plans of action that it hopes will lead to the creation of a more humane environment in an age of rapid technological and social change.”

The Washington conference, which will be attended by some 3,000 professionals and decision-makers concerned with creating the future environment, will be highlighted by the presentation of 28 commissioned papers by a multi-disciplinary group of world authorities.

Urban Coalition formed; holds emergency convocation

An Urban Coalition of national leaders of five groups—business, labor, religion, civil rights and city government—was formed on July 31 and immediately called upon the leaders of all segments of society “to publicly commit themselves to programs enabling the disadvantaged minorities to share in all of the benefits of our society.”

The Urban Coalition also called for an “Emergency Convocation” of 1,000 leaders of the five groups to be held August 24 in Washington to mobilize for action programs to deal with urban problems.

Chairmen of the coalition are Andrew Heiskell, chairman of the board of Time, Inc. and also of Urban America Inc., and A. Philip Randolph, president of the Brotherhood of Sleeping Car Porters.

The Coalition came about as a result of a meeting held last January in Washington, D.C. of the mayors of 11 cities. The meeting, called by the late Stephen R. Currier, president of Urban America Inc., was held so that the mayors could discuss their common problems. Out of this meeting came the idea for the Coalition, and the mayors called for Urban America Inc., the United States Conference of Mayors, and the National League of Cities to act as catalysts in its formation. Steering committees were formed to meet with representatives of the five groups, with the hope of forming the Coalition in September. The July 31 meeting at which the Coalition was formed ahead of schedule was called by Mayors Joseph M. Barr of Pittsburgh and John V. Lindsay of New York in reaction to the rioting in cities across the country.

The Convocation was scheduled to discuss three major programs: Fed. emergency work and training program for the urban poor; major expansion of private sector activities to train and provide jobs for the hard-core unemployed; and a long-range program for the physical and social reconstruction of American cities “to break up the vicious cycle of the ghetto.”

Obituary

Clair W. Ditchy, F.A.I.A., of Detroit, president of the American Institute Architects from 1953-1955, died July 1 in Royal Oak, Michigan, at the age of 78.

Mr. Ditchy, who received his architectural degree from the University of Michigan in 1915, first established his own firm in 1921 and had been in private practice every since. Mr. Ditchy was active in A.I.A. affairs, joining the organization in 1924. He served as director, secretary, vice president and president of the Detroit chapter, director, vice president, and president of the Michigan Society of Architects, and as regional director for Michigan from 1938-1945. He was elevated to Fellowship in 1945 and served on the Jury of Fellows from 1955-1964. In 1955 Mr. Ditchy received the Gold Medal of the Detroit chapter.

Present at the ceremonies were, from Alston Cuttersen, consultant on Mental Health Facilities to the Public Health Service; Dr. H. M. Graning; Emerson Goble; August Hoechlin, Architectural, Engineering and Equipment Branch, Division of Hospital and Medical Facilities; and Wilbur Taylor, deputy chief, Architectural, Engineering and Equipment Branch.
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BUILDINGS IN THE NEWS

The Loutit Hall of Science, Grand Valley State College, Allendale, Michigan, designed by Meathe, Kessler and Associates, Inc., is one of 12 winners selected in the eighth annual competition for "beautiful steel-framed buildings" sponsored by the American Institute of Steel Construction. Serving on the award jury were President Robert L. Durham and Vice President Robert F. Hastings of the American Institute of Architects and architect David N. Yerkes; engineer Henry J. Degkolb, and Walter Sharp, director, Tennessee Fine Arts Center, Nashville. In addition to the 12 awards, the A.I.S.C. Board voted a Special Award for Excellence to Eero Saarinen's Louis Gateway Arch as "an outstanding achievement in technology and esthetic expression of its function."

The Washington & Lee High School Gymnasium, Montross, Virginia, designed by Stevenson Flemer, Eason Cross, Harry Adre Associates, Architects, is another winner of the A.I.S.C. competition. Commenting on the project, the jury said: "The main body of this building is very finely designed. The exterior reveals its purpose and is a wonderful expression of what happens in the building. The result is an extraordinary honest design...

The nearly completed Sumitomo Bank building in the Little Tokyo section of Los Angeles, designed by Kajima International, Inc., and Victor Gruen Associates, is a key element in the redevelopment of the Little Tokyo area. The $3-million project, which will contain 184,417 square feet, is an 18-story building with a 15-story tower located over and incorporated with a three-story base containing office space, parking, and street-level shops. The general contractor is the William Simpson Construction Company.
The Westinghouse Building in Gateway Center, Pittsburgh, designed by Harrison and Abramovitz and owned and operated by The Equitable Life Assurance Society of the U.S., will be a 23-story office building of steel-frame construction with cellular steel floor decks. The building, which will contain 500,000 square feet, will have an all-electric system, with the heat from the lighting system utilized for needs within the building.

The corporate headquarters and research and development laboratories for the Armstrong Rubber Company, New Haven, designed by Marcel Breuer in conjunction with Robert F. Gatje, will house the research and development laboratories in a two-story base with a four-story office tower above. The office floors will be hung by roof trusses from 14 compression columns which rise the height of the building. The $6.5-million building will contain approximately 100,000 square feet in the base and 70,000 square feet of office space. The steel-framed structure will be sheathed in precast and poured-in-place concrete, and will be located on a 20-acre site.

The Ford Foundation headquarters building, New York City, designed by Kevin Roche, John Dinkeloo and Associates, is nearing completion. The 10-story-high glass walls, which are hung from two upper floors, are now in place, enclosing a 100-foot-square skylit court. The 12-story granite-faced structure is in the shape of a “C” with right angle corners surrounding the garden court, which will also serve as an extension of an adjacent park. The general contractor is the Turner Construction Company.
A hummingbird house for the Philadelphia Zoological Garden, designed by Kneedler Mirick Zantzinger Pearson Ilveno Batcheler, architects. It will have an interior described by the architects as "like a tropical rain forest with a waterfall, pond, palm trees, flowering trees and shrubs." The central space will be an area about 50 feet square and 26 feet high topped by a pyramidal glass roof. Smaller wings with 15-foot-high ceilings will flank the main space. Observation platforms 18 feet square, located in the wings, will be connected by a bridge through the central space with rough grade on the floor. The space will be climate-controlled and interior walls will be made of a special glass resembling bamboo to discourage the 150 birds from flying fatal crashes.

The Postal Terminal Building, Toronto, designed by Gordon S. Adamson and Associates, is a six-story facility over 1,000 feet long, 380 feet wide and over 150 feet high. The $47-million building will be used for mail handling purposes only and will have a gross area of 1,773,159 square feet. Mail trucks and railroad cars will be accommodated within the structure. The building has a steel frame and has exterior walls of precast concrete and poured-in-place concrete (for the exposed structural stair framing). The 25-foot-high ceiling levels serve the functional requirements of mail handling.

The Hampton Roads Coliseum and Colis Park, Hampton, Virginia, designed by A. Odell, Jr. & Associates, will be a circular structure approximately 320 feet in diameter set within a 75-acre site that will provide parking for 3,500 cars and a 14-acre landscaped park. The column-free structure will be roofed by a steel cable structure supported by a series of precast concrete panels which form the exterior of the structure. The Coliseum is designed to accommodate trade shows, conventions and a variety of athletic and other events, providing 78,000 square feet of exhibition space and seating for 6,000 to 9,500, depending upon the type of use. The cost of the project is $5.1 million with landscaping to cost an additional $1.4 million.

An IBM office building in Albuquerque, New Mexico, designed by Leroy B. Miller, is a two-story sales and service facility which will contain 34,000 square feet. Three considerations affected the design: severe summer climatic conditions; exposed site; and west-facing main facade. "Natural light and view on the west elevation," says the architect, "is attained by bending the main building wall outward at 45-degree angles to create north-facing glass protected from direct sunlight." The steel-frame structure will be faced with exterior brick walls.
all-faiths chapel at Rockford College, Rockford, Illinois, designed by Larry Anderson of the Perkins and Will Partnership, has a pyramidal wood-shingle roof structure raised three feet above a triangular structure of sandblasted concrete wall which encloses the chapel. The top of the wall structure is designed as a pool for light to pass through in indirectly lighting the interior. The chapel area is very flexible with a movable pulpit, and will seat up to 275, depending upon its use.

The Cathedral at the Crossroads, Castro Valley, California, designed by Welton Becket and Associates, is a three-building, interconnected complex which will cost $2.75 million. The Cathedral itself, which dominates the complex, is a fully-equipped 1,600-seat theater for dramatic presentations of the church program. Other elements in the complex are classrooms located around a landscaped court, with one corner devoted to a 300-seat chapel, and a gymnasium dormitory (for servicemen on weekend leaves).

master plan for Bergen Community College, Paramus, New Jersey, prepared by Frank Grad & Sons, Architects & Engineers, calls for a single concrete and masonry structure designed on three levels. The levels will include interconnected areas, relating academic disciplines to one another and to the library, the nucleus of the plan. Outdoor terraces and patios connect separate elements of the building as well as interior corridors. The first phase of construction, scheduled for completion by 1970, will cost $17 million, contain 400,000 square feet, and provide facilities for 2,000 full-time and 4,000 part-time students. Included in the first phase are library, administration and fine arts buildings, student union, science and humanities and physical education buildings. A second phase will expand the facilities to 1,000,000 square feet, providing facilities for 5,000 full-time and 10,000 part-time students.

The Hirshhorn Museum and Sculpture Garden, on the Mall in Washington, D.C., designed by Gordon Bunshaft of Skidmore, Owings & Merrill, will consist of a cylindrical structure integrated with a sculpture garden—sunken seven feet to preserve the vista from the Capital to the Washington Monument and the Lincoln Memorial—organized around a reflecting pool 80 feet wide and almost 500 feet long. The cylindrical museum will be supported 15 feet above plaza level on four piers and will have five levels: the sculpture garden level, which includes a restaurant and 16,000 square feet of exhibition space; plaza level with main lobby; and three levels of exhibition space. The structure surrounds a glazed circular court, which is located off center to vary the exhibition spaces that surround it. Light from the court will illuminate circulation spaces, with exhibition spaces to be artificially lit. The north side of the building will be penetrated by a large window and balcony. The marble-clad building and its garden will cost $15 million.
The first stage of development of Skyline Urban Renewal Project proposed a medium-density solution for a 37-block area which was originally the core of the city, but which has now been deserted by retail activity. The plans, prepared by the Denver Urban Renewal Authority, Baume, Polivnick & Hatami, Architects, design consultants, and Sasaki, Dawe & DeMay Associates, Inc., special consultants, are not intended as detailed design solutions, but represent the concept goals, principles and standards to be carried on during the execution of the project.

There are six general design objectives: elimination of surface parking use of underground parking and park structures and landscape screening of essential surface parking areas; a circulation system that separates vehicles from pedestrian activities; provision for civic open spaces and small intimate spaces "to generate activities and to set the stage for major cultural and commercial buildings"; establishment of "orderly and esthetically pleasing streetscape . . . through elimination of undeniably business and municipal signage, relocation of utility equipment, visit wires and lines"; control of building density and height "to improve and control the visual impact of the cityscape"; and rehabilitation objectives which are to be based upon economic and structural analysis of the buildings.

more Buildings in the News on page
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YOUR MOVE

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What price conviction?
The words "concept," "bold design," "interrelationship of spaces," "parameters," and "functional aspects" keep going round and round, and the stuff that comes out the other end is gargantuan in great big ugly concrete hunks, some as pyramids regular, and amazingly, some as pyramids inverted. It has been a long time since the words "beautiful" and "handsome" can be truthfully applied to very much of the stuff being built these days. Veneers of red plush and gold leaf are scarcely enough.

Somewhere, I hope my friend Emerson Goble can find a way to invite professional architects to be professional and responsive to their community obligations rather than seek publicity because they do queer things at a very high price.

Ruminating and plagiarizing on what I read, these thoughts come to me. From the scientist shooting for the moon to the lowest graduate trying for his master's degree, professional people as a group bear the imaginative burden of progress for all of mankind. It has ever been so.

If professional people truly aspire to discharge that noble duty, can we realize such a vision while we permit the world leadership, international position and moral power of the United States to suffer major erosion abroad and in our own eyes?

As professionals do we have the courage and fortitude to oppose the massive political power that drains our substance nationally to a central government, only to return benignly a mere fraction of it as a Federal grant, while dictating in legal mumbo jumbo exactly how the majority of the project, our own money, shall be spent?

Is it politically incomprehensible that anyone should endanger his public career simply out of conviction? In addition to this question the Washington Post says, "Merely to admit this possibility would challenge and endanger the tranquil consciences of the hundreds who are busy every day enforcing a policy they do not believe in." These are the people that prudently now call themselves bureaucrats. I ask you who is there to stand in dissent of all this, if not the professional man?

Columnist E. P. Morgan says, "Life has changed more radically in the generation since World War II than at any other time since American civilization began. We have more liberty, luxury, leisure, licentiousness—crime, reckless driving, (but also) in the very pollution of the air, the ultimate lethal nuclear cloud which lurks above us."

He continues, "It is amazing how sanctimonious Congress can get over symbols without coming to grips with basic problems which threaten to tear our society apart at the seams."

Interstate roads rip our cities apart and scarify the country-side. Urban renewal bulldozes large areas of our cities into formless filing cabinets for people. And our professional people abet these crimes shamefully for the sake of a fee. These are the happenings that should concern us under the graceless Federal regulations that bind us, consciously in their legalities. I contend the same laws under different verbiage and different regulations could have been written to permit form and grace for our people had the professional man in government and out, been alert to his professional responsibilities.

Quoting the Washington Post again, and proudly, "It is the blessing of our own system that we not only permit, but urge, each man to follow the inner call of his conscience to the most spacious limits of our legal and constitutional freedoms."

With such freedoms what do we professional people propose to do now, today, to generate the climate in our communities that will demand of our public agencies and private enterprise the firmness, commodity and delight essential to a civilized environment? It is to these far horizons and this brighter day that all professional men, in my view, should be dedicated and rededicated fearlessly.

Everybody is so busy making money, or suing somebody, I wonder if anybody is listening, and if he is, how he is facing up to his professional conscience.

E. Silling, F.A.I.A.
C. E. Silling & Associates
Charleston, West Virginia

Computer-aided design conference
In reference to your article reporting the events at the second conference on computer-aided design held at M.I.T. (April, p. 219), I see in it more evidence of the growing dilemma of our times: the enormous gulf between layman and expert in any field of technology; to the separation between architect-layman (with respect to computers) and "computer-aided design expert" whose ranks I do not include myself. The evidence is not so much in what article talks about as in the article itself which seems quite content to substitute an ambiguous philosophy, "gallows mor" and high-speed verbal sideswipe for serious and considered presentation of the issues raised in earnest at the conference. Thus, the article stands in limbo, it is neither a presentation meaningful for the architect-layman, nor is it a record discussion useful to those other "experts" who may not have attended. Thus it does little to solve the dilemma to which I refer. My authority for making these statements: I had the privilege to chair the subcommittee working on problems of design evaluation.

To correct the records, I would like to present in summary form some of the issues which were raised. The article is fortunate enough to have identified a key issue—that of "computerized design versus "computer-aided" design" but fails to follow up either on this subject or upon its relation to other discussions and issues.

This particular issue is the key issue in the battle of computers and/or architecture, for involved in the resolution of this issue is the definition of what the architect and what architecture shall be in the future. I think it is fair to say while it may seem brash, that in the future it will be as impossible to operate a professional practice without a computer as it is impossible today to operate a telephone or T-square. But decisions as to how to use the computer are both possible and necessary (contrary to determinist views on the impact of technology). The article presents two of these choices—the "optimization route" or the "interaction" route, as represent...
to mend a muscle

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ARCHITECT-MISSIONARY SERVES "THE LIVES AND WORK OF MEN" IN THAILAND

Taylor M. Potter, an architectural graduate of Pennsylvania State University in 1950, who received a Bachelor of Divinity Degree from San Francisco (Presbyterian) Theological Seminary in 1954, feels that "...[the church] must concern itself with all kinds of buildings as they involve the lives and work of men—not simply the church building. The church must concern itself more creatively in a public way with all that involves the welfare of mankind." To this end, the Presbyterian Church sent Mr. Potter as an architect-missionary to Thailand from 1956-61 and 1962-66 where he became involved with the architectural problems of the Church of Christ in Thailand.

In Thailand, Mr. Potter established an architectural office which designed such diverse projects as schools, hospitals, recreational facilities, and residences, as well as churches, five of his projects being shown on these pages. Assisting Mr. Potter in his work for various periods of time have been Tholin, consulting engineer, who worked for the Chicago Department of Public Works; Ed Sue, Hong Kong architect; T. Merrill Prentice, New York architect; and civil engineer Elihu Geer, professor at the University of Detroit. At the present time Mr. Potter is a visiting fellow at Princeton University and Princeton Theological Seminary exploring the subject of "Christian Worship and its Expression Through Architecture."

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Buildings in the News

Chapel-auditorium, Thailandological Seminary, Chiangmai, dedicated February, 1966. The main canopy made of four hyperbolic, field-laminated membranes, which serves outdoor amphitheater seating.

City Church, Chiangmai, construction was started in January, 1966.

Chapel-auditorium, Dara Church, Chiangmai, which was dedicated on December 14, 1965.

Nam Dai Church in Phae dedicated in 1962.

Bahn Laow Church in Lampang, which was dedicated in October, 1962.

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To explain how these choices may effect change in the profession of architecture, let us examine how the designer would approach the two systems developed around such alternatives. Approaching the computerized design system, he would say: "This is my exact problem; here are the procedures I would use to solve it; in the course of solving it, I expect to encounter these problems—in exactly the same sense that would make those decisions; and finally, here is how I know when I have gotten the best solution." All of this must be stated in highly structured, probably mathematical ways, with no ambiguity of logic or definition, and with virtual problem completeness. Now, clearly, such an approach to design would require that the architect have far different skills, would require far greater understanding and possible redefinition of the design process, and finally would also require "oversimplification" of design problems—in exactly the same sense that working drawings, perspective renderings, and other elements of project process are "oversimplifications", nonetheless useful for certain decisions.

On the other hand, when the signer approaches a computer-aided system, he says: "Here is a solution I have thought up and it is none of your business how I thought it up or what decisions I made along the way; that is my job. You take it and tell me if it stands up and how much it might cost. Whether it passes the code and if there will be stack-ups at the elevator a o'clock." In short, such systems center around providing certain information handling capability, limited problem solving capability, and other features but they principally service acts of evaluation, sharpening feedback on the consequences of design decisions. Thus the development of computer-aided approaches is heavily dependent upon problems in design evaluation, a point which was emphasized in the report to the my group to the general session of the conference. Moreover, when we talk about computer-based design evaluation techniques, we may sensibly talk of computerization of certain aspects of the design process, and may well find great use for techniques of optimization. Two points here are two: first, the choice which exist in the development computer-aided design systems are complex; second, the layman is likely to want to oversimplify these. As evidence of this, I propose that the "two alternatives presented in the article are oversimplifications and are fabricated alternatives."

Returning to the main point, however, it is clear that computer-aided systems can more readily accommodate existing professional skills. If approaches to such systems are simplified, through the developments of computer-graphic techniques and by the introduction of "user-oriented" languages, which permit access to the computer without much training, then it is quite conceivable that the computer can enter the world of architecture and design with little requirement that the skills of the architect be changed. Now, are these not serious alternatives to be presented to and considered by the layman-architect?

As a third point, I would like to state that the above discussions also are intended to illustrate a point which the article misses completely: that all subjects considered at the conference—evaluation, decision, theory, graphics, etc.—are complexly interrelated, and are but aspects of dealing with the larger problem, i.e. how to augment and improve affairs.
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ARCHITECTURAL RECORD September 1967 63
prove design capability. This observation brings me to my final point, and my main point. As these issues are complex and interrelated, they will escape discussion by the layman, and often defy discussions by the experts. Nonetheless, the computer experts are far deeper into understanding the mysteries of the design process than it is comfortable for architects to admit. They sense and/or understand the complex issues in design, and for the most part this understanding is accompanied by sensitivity toward the purpose of design and the creative aspects thereof. As a result, they are not afraid to raise issues, to cast systematic doubt upon themselves, or to have open, frank, and often vehement discussions. I think there is an implicit understanding that in what they do, they are shaping the future of the profession, and they take this responsibility seriously. But such events often, upon outward appearances, give the impression that no one knows what is going on; that “murky waters” are explored at the expense of “well-defined and easily managed problems”;

that “cultural anthropology” is substituted for “decision theory that makes of computers”; and that the people “for all the world like a group of architects arguing modular standards.”

That is not to say that some decision does not exist, nor that the ahead is clear, but that, of course, the point of inquiry in the conference The article is content to glibly point the difficulties and shortcomings of an inquiry, while dealing shortsighted and with occasional misinformation concerning the issues involved. That is tolerate as the possible consequence of the layman-expert issue. However, the serious inquiry of a layman (how unfortunate the fact that the inquiry stated as a conclusion) is dismissed with a perfunctory “alas”, then I am move anger.

That man, after all, is the issue is the point of concern and inquiry: he is, what he does, how he does it, he can be helped or perhaps ever placed, as some would have it. He more important than “whether the capacity of a machine is used.” He serves attention; he deserves explanation over and over and over and over a until he is willing to try the machine which point he will begin to underst and can help to resolve the issues have raised. He cannot be bull frightened, or alas into this. But need him.

I do not know how to solve layman-expert issue, but my good architect-type intuition (non-comp type) tells me that I would gladly the 60 minutes of conversation with that for a thousand articles of this kind.

Gary K. Stonebi
Kensington, Md

Anyone who has the temerity to try ing as an intermediary between archit and computer experts must stand re to be clonked on the head by both ties; and I would gladly alienate conceptions of architects and computer technologists, if by doing so I could them to talk meaningfully to each ot

The difficulty is that we are dea with two different kinds of expert, e of whom assumes the other is a layn

The architect, secure in the kno edge that his is the most complex and sophisticated of the design discipli considers the computer a gadget, s able for processing the payroll and do a little cost estimating now and th

The possibility that the computer mi be of real use in the design process itv strikes him as highly unlikely.

The computer technologist, sec

more letters on page
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ARCHITECTURAL RECORD September 1967 67
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continued from page 64

in his knowledge of higher mathematics, considers it a pity that architects don’t grasp design problems at the conceptual level. He doesn’t think architects should take part in the development of computer design techniques until all the basic assumptions are established.

The consequences of this expert-confrontation are likely to be very serious, until and unless each side is ready to acknowledge that it is able to learn from the other.

The architect is likely to delay learning about computer technology until the time when the universal acceptance of which Mr. Stonebraker speaks causes a painful dislocation of the entire profession and invalidates the education of a generation of architectural students.

The technologist, on the other hand, will be tempted to try his hand at design problems that are beyond his training and experience. Systems engineers are already designing new towns, and computer techniques are producing housing unit plans. Such is the mystique surrounding today’s technology that some of these projects are likely to be built before anyone evaluates their limitations.

At the risk of becoming non grata at all future technological conferences, I would assert that you cannot have a complete discussion of computer-aided building design without hearing from experienced practitioners of conventional building design. Such practitioners don’t need to have it pointed out that the subjects dealt with at such a conference are “complexly interrelated,” and are but aspects of the larger problem: “how to augment and improve design capability.”

That, surely, goes without saying, particularly in a periodical written for design professionals.

At the same time, it seems rather silly for the architect to insist upon having everything explained—and I quote Mr. Stonebraker—“over and over and over again until he is willing to try the machine.” The architect ought to be willing to do a little research and reading on his own.

A two-page report on a single conference can hardly serve as an introduction to the entire subject of computer-aided building design; but I was careful to include a reference to Design Quarterly 66/67, which is a useful introduction; and some of my earlier articles in the RECORD have contained bibliographical references that would help the reader to begin his own research.

Jonathan Barnett
New York City Planning Department

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Model 90-C at right, 50-C below, available in all five colors. Ask about Haws remote chillers for hidden cold-water source.

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Planning a hospital?

Send for New MILNOR booklet on safe hospital laundry systems

Latest information on system for avoiding cross-infection in hospital laundries. Prepared by America’s leading manufacturer of commercial washer-extractors. Outlines essential features of double-door pass-through design, shows STAPH-GUARD® laundry system, lists specifications. For your free copy, write PELLERIN MILNOR CORPORATION, P. O. BOX 19264, NEW ORLEANS, LA. 70119.

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Octagonal Therm-O-Proof insulating glass units allow design flexibility in Dairy Bull Barn.

Fifty octagonal Therm-O-Proof units were custom fabricated to fit the unusual 8-sided openings formed by precast concrete T-beams. Therm-O-Proof units were used in this Dairy Bull Barn to reduce inside condensation on windows caused by high relative humidity, and to permit the control temperatures necessary for proper handling of the animals.

This is another way Therm-O-Proof insulating glass made more ways to fit more ideas — over 200 configurations and combinations are available.

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Those are lamp holders below easy access wireways.

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For more data, circle 50 on inquiry card
Redirecting leadership's thinking

Walter Wagner's recent speech at the Koppers Company, Inc. Awards Dinner in Atlanta forced me to re-read the July '66 issue of RECORD. I appreciate your views regarding architects and their social and political community. I have been a member of the City Commission for several years in the small town of Decatur (about 23,000 pop.) and have struggled with the lack of concept of the architect that my fellow commissioners and citizens are afflicted with (or better said 'without'). It will, in my opinion, require great participation on the part of architects throughout the nation to properly redirect public leadership's thinking so that it frames itself in good urban planning techniques, approaches and considerations.

Contact to date with city planners leaves me with the opinion that they have (within the view I have seen) become obsessed with the use of statistics, traffic counts and opinions of politicos and monied persons to the exclusion of humanistic considerations, pedestrian values and other views that seem to be only espoused by architects these days, and by them only too faintly.

Such limited experience as mine cannot, however, be a measure of the trends existing nation-wide. Perhaps averaged in, it gives some reasonable touch to the flavor of larger views to which you are privileged. The sometimes dismal feeling that there is no hope, is greatly averted by such well-presented publications as yours effort and talent make available to those like me who have no over-all view other than that you so ably provide.

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William Breen, Architect
Decatur, Georgia

Convincing savings

We have read your June article entitled "Engineers achieve surprising savings by post-tensioning apartment flat plate slabs" with great interest. The article is very well written and enumerates the advantages of post-tensioning better and more accurately than any other article we have seen to date.

We are involved in the field of post-tensioning in Canada, and have done a number of flat plate apartments with very similar cost results. We have found that in some cases our claims to savings create only abject disbelief with our clients—so much so that in some cases they actually refuse to accept our substantiated figures and suggest they are merely salesman's propaganda.

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design professions are finding con-
sumers hesitant to knock out the
 statutory 6 per cent limit on A/E fees with-
replacing the ceiling with something
The General Accounting Office last
suggested to Congress that the 6
cent fee limit bears no relationship
the actual work involved on a given
ject and should be eliminated, and
design professions agreed.

still urges
ations on professional fees
feels that competitive negotiations,
paying price during the latter stages
election the A/E firm, should become
standard operating procedure. Sena-
William Proxmire (D.-Wisc.), intro-
ing a bill for GAO, selected that
od in his discussion about what his
—which merely deletes all mention
the 6 per cent fee—would accomplish.

profession believe
tract officers should negotiate
American Institute of Architects, in
junction with the engineering profes-
ial societies, is leading the drive to

r asks planners for shorter-range plans
Assistant Secretary Charles Haar is
ently trying to persuade planners,
ough administration of the 701 plan-
grant program, to come up with
- and two-year objectives as well as
- and ten-year plans.

The vehicle by which this change in
phasis will take place hasn't been
olved by Haar and his planning lieu-
ants. However, the planners' embrace
"PPBS"—Planning, Programing, Budg-
ging Systems—is expected to be the

keystone of the new focus on shorter-ange planning.

An academic lawyer knowledgeable
about land policies, Haar took over the
direction of the basic planning function
within the Federal Government and
began to focus on how to make it effec-
tive. For instance, he relates a story of
talking with a young planner who was
concerned about making sure short-ange planning was implemented. "I
asked him, finally, 'What do you mean
by short-range planning?' And it turned
out to be five years." Five years is "a
long time in the lives of elected officials,"
Haar noted wryly, "What can a decision-maker do, and what helps him? This is what should be regarded as the main contribution of the planning process."

Haar pleads for relevance and economy of effort
Haar acknowledges that HUD's role is essentially passive in the local planning process. "We're not a reviewing court..."

The nation's hospitals plan to spend $20 billion on new facilities over the next decade—and expect the Federal government to pick up 40 per cent of the tab. That's 70 per cent more than they spent in the previous decade—and at least twice the Federal support Uncle Sam plans.

These are key projections from a survey of more than 500 hospitals conducted by Walter Kidde Constructors, Inc., New York.

The survey also indicated that automation, computers and closed circuit TV figure heavily in hospital planning. A shortage of trained nurses will continue as the number one staffing problem, followed by lack of trained technicians and doctors.

More than 2000 hospitals were polled and 552 responded with facts on their plans, attitudes and major problems. The response represents about 17 per cent of all non-Federal hospitals with 50 beds or more.

Spending to climb 69%
Respondents indicated that in the next decade, they plan to spend 54 per cent more for separate new facilities than in the past 10 years. Expenditures to expand existing facilities will rise 69 per cent. Modernization will run 137 per cent ahead.

Planned expenditures totalled $2.8 billion for the 458 hospitals which provided financing data. This compares with $1.67 billion spent by them in the last ten years.

"At this rate, expenditures in the next 10 years should total $20 billion, the 3,300 U.S. hospitals having 50 or more," Charles E. DeAngelis, vice president, says.

Government funding clearly to the list of expected sources for such spending based on a profile of respondents to a typical hospital expects to receive per cent of its capital needs from Federal appropriations, 23 per cent from commercial financing, 22 per cent from activities and 15 per cent from operating income.

"Hospitals are counting on government support to the tune of about $8 billion a year, yet present appropriations amount to less than $500 million a year," Mr. DeAngelis says. "Filling this gap will make the difference between success or failure of our hospital system."

**U.S. hospitals to spend $20 billion on facilities by 1977**

The A.I.A. Committee on the Health Environment, under a contract with the National Institute of Mental Health, is sponsoring a workshop on programming community mental health centers, October 2-3, 1967, in Washington. Attendance will be limited to the first 150 applicants and a $35.00 registration fee will be charged. Registration forms are available from A.I.A., 1735 N.Y. Ave. N.W., Washington, D.C.

California's "frivolous-suits" law may liability claims. A bill recently signed by Gov. Brown gives a new interpretation to the law permitting any licensed architect, engineer, landscape architect, land surveyor or building designer named in a suit to damages to request a court order requiring the defendant to provide by affidavit or undertaking of $500.00 for each defendant named, not to exceed $3,000.00. If the defendant cannot support by affidavit the contention that the complaint is "frivolous," the suit is dismissed.

The 1967 Dodge Construction Pricing and Scheduling Manual, 170 pages of timating information tabulated by trade is now available at $9.95 from 330 W 42nd Street, New York, N.Y. 10036,
artment building on upswing again

By the end of 1965, the decline had leveled off and it looked as though apartment building was ready to pick up again. But, then, in rapid succession, came the extreme credit pinch of 1966, and the suspension of accelerated depreciation. Credit scarcity put the entire housing market—apartments and one-family homes alike—into a tailspin; the loss of the fast write-off bore down selectively on apartments. Together, these events brought a second round of multi-family building cutbacks.

The 1966 decline in apartment building was nation-wide rather than regional, as before. And it was a whole lot more severe than the earlier reversal. From the fourth quarter of 1963 (when multi-family building hit its peak at an annual rate of more than 600,000 units) through the first quarter of 1966, volume had drifted down by some 150,000 units—an average loss of 17,000 units per quarter. By contrast, in the brief period between the opening quarter of 1966 and the first quarter of 1967 (the period that spans the credit crisis), the rate of apartments building fell an additional 175,000 units, or at a rate of almost 45,000 units per quarter.

In the first three months of the current year the decline was halted, but not until the rate of apartment building had been driven down to less than half that of 1963's best quarter. Recovery during April, May, and June was very strong as the rate of apartment building jumped by nearly half.

There's been an unusual flavor to this recent pickup. Mortgage credit began to ease as early as last November, and the one-family home building market responded with an immediate gain. Apartments continued to decline, though, and the difference between the two residential markets narrowed down to the accelerated depreciation angle. Once it became clear that the quick write-off would be restored—and only then—multi-family building joined in with a sharp increase of its own.

With this final restraint lifted, further expansion of apartment building is only a matter of the availability of funds to finance it. The need for such housing is all too apparent as the rental vacancy rate, after a long period of stability, began declining early last year and now stands at the lowest point it has been in the past eight years.

Building activity: monthly contract tabulations

<table>
<thead>
<tr>
<th>Year</th>
<th>Nonresidential Building</th>
<th>Residential Building</th>
<th>Total Building</th>
</tr>
</thead>
<tbody>
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<td>1966</td>
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<td>4.0</td>
</tr>
<tr>
<td>1967</td>
<td>2.0</td>
<td>3.0</td>
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In 1961
Zurn Introduced
“Control-Flo®”
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Cost studies point up risks of index misuse

Cost studies of construction costs for national buildings in New York and elsewhere have underscored the complexity of local factors bearing upon estimates. No cost index, however fully compiled, can be accurately expected to account for those factors in estimating up-coming jobs. The index, as it must be on historical average, cannot possibly pinpoint the cost particular current or future job. This pecially true in large-scale, statewide programs in which the individual job phases can strongly affect local market conditions.

Furthermore, as was clearly demonstrated in a review of Delaware school construction costs, the language of such phrases as "square-foot" or "pupil" costs is by no means universal denoting what goes into the figures in use as indices.

Wide university programs raise some local markets
A number of states, efforts to expand state university systems have led to initiation of large and comprehensive building programs within a comparative brief span of time. Because the various campus sites are well distributed geographically within each state, they are influenced by a wide range of economic conditions. Often, the locales for campus development are in small towns in the rural areas.

This combination of factors extensive construction over a short period of time; and a variety of sites, many of which are small and even isolated towns creates a number of problems which an index, most refined index cannot account for in a projection of cost escalation. For one reason, the most commonly used indices are based on data gathered from large urban centers. Further, they lack into account those factors which most significantly contribute to short-range fluctuations in building costs: the availability of labor and materials at the time of construction; the strain which level of construction activity places such availability; the number of contractors likely to bid on projects of various sizes; and the attitude of contractors at the time of the bidding as determined by their expectations of future work, labor problems, competitors' bids, etc.

All these factors are likely to influence the cost of campus projects and yet are beyond the practical scope of an index. The short-run fluctuations that are the result of these conditions should be, nonetheless, of prime interest to architects and owners.

The index describes it does not predict
It permits comparison of past costs only. Of course, there is never any guarantee that past cost patterns will be repeated. In the case of a small town selected as a campus site, there is every reason to believe that past trends will not be repeated since construction activity in such an area is usually multiplied many times over by the introduction of campus projects into the local construction market.

Three New York sites pose three estimating problems
In three typical college construction market studies recently completed in the State of New York, each campus site was located outside a metropolitan region. In each area, the level of construction activity prior to the start of campus building was quite low. The pattern of cost escalation that existed before these major programs were initiated differed markedly from the pattern of cost escalation that followed.

Had an index been prepared for any of these towns on the basis of building costs in the years prior to campus construction, it would have failed as a predictive device. Existing construction cost data for these towns were far too limited to be of any real value; the number and kinds of buildings constructed in each locale provided a small and irrelevant sample. And even if the data had been adequate, an index based on previous construction would have been insensitive to those short-run local market factors which influence cost escalation.

One project boosted cost increase rate 5 per cent
In one study, the yearly level of construction activity in the town prior to the initiation of campus construction was $500,000. Cost escalation on various projects was about 4 per cent per year. In the past four years, however, $25 million of construction has been completed on the campus, and costs have risen by almost 9 per cent per year.

No index based, as it would have to be, on past cost figures, could have predicted such a pattern. Further research into the structure of the construction market and into potential market conditions led to a projection of an even steeper escalation of costs. Again, even an index revised to fit the most recent trends could not have accounted for anticipated problems almost certain to lead to a further rise in cost.

Another raised the market to a higher, steady level
In other market circumstances, cost increases may eventually level off as the local construction market adapts to meet new conditions. This was the case in a second study. Research revealed strong grounds for expecting that both construction volume and capacity would reach a new, higher level of activity and remain there. As a consequence of campus construction, laborers had entered the area and decided to remain; new demand for housing, shopping, and services had been created by the establishment of a college community and the town was soon to embark upon a program of urban renewal. So although some abnormally high short-run cost increases were expected, the situation with respect to both availability of labor and contractor interest had improved. As a result, cost increases seemed likely to level off as the structure of the market stabilized at the higher level.

A third community took the new campus in stride
Here, it was clear that although the town was experiencing large-scale campus
construction, local capacity would neither expand nor be strained because of the town's proximity to a large urban center. Since the increased demand would be absorbed by the capacity of the metropolitan area, an index could have proved helpful. But, in fact, a study of those market conditions revealed critical factors which were almost certain to alter any linear pattern of cost escalation.

As a part of a large urban development, some $350 million in construction was about to be sent out for bid. The strain on the city's construction capacity would be felt for miles around; especially shortages of labor, which would almost certainly lead to premium wages and travel allowances. In order for projects at the campus site to compete for labor it was clear that contractors would not only have to pay travel time but would probably also have to outbid the premium wages that the workers in the urban center were being paid.

A cost index, blindly applied, would have obscured differences

Initially, the problems in each of these studies seemed quite similar—small towns with little construction activity being sharply affected by large-scale campus construction. The economics of each situation, however, proved to be quite different. And in each area a cost index would have been of little use to the architect in predicting the rapid cost increases that developed.

Delaware school study underscores definition problems

Doubts concerning the accuracy of various reported costs and building cost indices led to a study of school construction costs in the State of Delaware. Various published data had been gathered from time to time and comparisons were made between costs in that state to prevailing school costs in other states. These were usually presented in the form of regional or state averages on either a per-square-foot or per-pupil basis. The study indicated how misleading some of these figures could be.

It is not that reported costs for school construction are any less accurate than reported costs for other types of construction. But because school costs directly affect tax rates, they are much more in the public eye. As a result comparative cost figures are often used to back up points raised in support or in criticism of state school construction programs. Also, schoolboards and architects may be unjustly accused of excessive programming of a project on the basis of comparison with figures that are not really comparable. But the fact is that even the most general conclusions are subject to doubt when supported by this ill-defined type of data.

Methods of reporting costs vary from state to state

Inaccuracies stem from the methods of measuring and reporting "costs." These methods are not standardized and they vary significantly from state to state. In reporting the "cost" of a school, one state might include such items as the cost of site acquisition, site work costs (such as recreation fields), the cost of movable equipment, furnishings or supplies, or design fees. Yet a neighboring state might exclude some or all of these considerations. Similarly, the cost of a school might be designated by the contract award figure or by the amount eventually paid to the contractor.

Number of pupils—or square feet—depends on who's counting

As a basis for reporting the "number of pupils" in a school, a state might choose among the actual pupil enrollment, the number of pupils designated for funding purposes, or the number of pupils for whom the building was designed.

Similar discrepancies occur in designating the square feet of building area. The number of "square feet" reported might or might not include such items as basements, crawl spaces, partially enclosed spaces, curved walks, large canopies, etc. When the methods of calculating these costs vary substantially, a meaningful reference to state-to-state costs per square foot or per pupil cannot be made.

In each of these studies, the many pitfalls that can occur from the misuse of a cost index became quite evident. An index can serve a useful function for general studies of construction costs. But when close dollars-and-cents accuracy is required for predicting or comparing building costs, an index simply will not do the job right.

First-hand knowledge is more accurate than an index

These and earlier discussions of the limited usefulness of indices may leave the architect feeling that he has no practical alternative. Yet he has: first-hand knowledge of the markets and the project when the project goes out for bid.

The local market is a key factor

The volume of other construction, especially important if it is substantial greater than in previous years, is equally important to know what and size projects this over-all volume represents. These other jobs may or may not compete with the project.

The capacity of a construction market is the ability of local labor, material suppliers and contractors to absorb certain volume of construction. If capacity is exceeded and, for some reason, is not flexible, inflationary trends most likely will develop. Premium wages and travel pay may have to be paid to attract labor. A scarcity of skilled trades may lead to lower productivity and non-standard work. Both situations can cause contractors to put higher contingencies in their bids. And bids in general will erage higher if contractors can see work from many different jobs.

After data on labor costs and availability, materials' prices, volume of construction, contractor availability, etc., gathered, the information must be assessed for relative importance. There really no substitute for this approach. The investment of a few hours in a study of the local conditions that will affect future costs is minor compared to the potential cost of redesign if the bud is exceeded.

New York City plans to pay architects more

Mayor Lindsay and Controller Mario Procaccino have announced that New York City would pay more in architectural and engineering fees to "achieve the very best in the design of its buildings." With the exception of housing designs, the new fee schedules will apply to all contracts not yet officially approved by the Mayor's office.

Frederick Hayes, the budget director, said the higher fees might actually mean a saving for the city. He said it would now demand faster and more effective work and consequently might save on construction costs.

The present basic fee formula will be increased 5 per cent across the board. The adjusted formula will then be increased by a further 15 per cent for "the most complex structures" such as major hospitals, comprehensive high schools or science buildings, and by amounts up to 15 per cent for other buildings.
EMER 1967 BUILDING COST INDEXES

1941 averages for each city = 100.0

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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 divided by the index for a second period (150.0/100.0 equals 150%), the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0/200.0 equals 75%) or they are 25% lower in the second period.

The information presented here indicates trends of building instruction 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 trends.
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Mechanical Contractor: Scott Co. of California, San Francisco

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Airport planning: a growing field for architects

Architects' involvement in airport planning is not new, but is certain to increase as we approach the era of high-speed, high-capacity jet transport. Construction at every major airport, as in the straight-down view of New York's J. F. Kennedy Airport, means that something must be done. And despite complexities of ownership and regional problems of responsibility, urgent steps are being taken at dozens of cities to cope for the new age of long- and short-haul transport. The reason: the supersonic plane will almost certainly be flying before we have learned to live with it on the ground. As a result these much larger and much faster planes, more people will be disgorged simultaneously, putting an unbearable strain on present facilities. If air fares continue to go down, opening up the possibility of air travel to a whole new sector of the public, the over-all volume of travel will increase dramatically, making large-scale new developments urgent necessity. Indeed, one prediction doubles the number of passenger miles traveled per year within the next 10 years. The development of new facilities, the upgrading of existing ones, the relation of long- and short-haul traffic to ground transport, are becoming problems that cannot be dealt with as individual projects, but must be considered on a national, and even a world scale.

The Federal government is well aware of the scale and urgency of the problem and is taking steps to meet the challenge. A study group under the leadership of Alan S. Boyd, secretary of transportation, and Charles S. Murphy, chairman of the Civil Aeronautics Board has been charged with finding a "new approach" to planning a national system for air transport. More recently, President Johnson is reported to be considering asking Congress to set up a $2-billion revolving fund to accelerate airport construction by making loans to municipalities for all types of airport development. The fund would be administered by a quasi-governmental institution, under the direction of Transportation Secretary Boyd.

The importance of regional planning is being stressed at all levels

For the first time, in its 1968-72 National Airport Plan, the Federal Aviation Administration has identified potential sites for regional airports and is urging planners to give these higher priority than improvements to local facilities. At a joint meeting of the Airport Operators Council International and the American Society of Civil Engineers aero-space transport division, Clifton A. Moore, first deputy general manager of the Los Angeles Department of Airports, emphasized that the key to solving airport problems lay in integrating airports into regional transportation networks, and he advocated the establishment of regional airports which go beyond political, economic, and geographic areas. The disadvantages of the present system, he said, were clearly exemplified in Southern California, where privately owned city and county airports "are presently planned, organized and operated largely as independent entities without regard to integrated long-term needs". To counteract this trend, the Southern California Aviation Council is trying to get a grant from the Department of Housing and Urban Development to finance a study for a comprehensive regional airport system centered on Los Angeles. More recently (June 28) the Los Angeles Board of Airport Commissioners adopted a resolution authorizing the issuance of $75 million in revenue bonds, first in a series to finance a $500-million master plan development program by the Los Angeles Department of Airports. Funds will be used for expansion projects to handle anticipated traffic increases at Los Angeles International Airport through the year 1975.

San Francisco's Public Utilities Commission, also in June, opened the door to architect-engineer involvement in planning the San Francisco International Airport by approving a $25,000 study of future ground traffic as a first step in

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<th>Passengers at PA air terminals</th>
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Charts are from 1966 annual report of the Port of New York Authority.
A regional plan for New York has already been proposed

Walter Kidde Constructors, Inc., the well-known architectural-engineering firm, has already come up with an original and far-sighted approach to the New York regional airport plan that is geared to take account of the related problems of ground transportation and to accommodate industrial development and population growth as these occur. Its Satell-Air concept conceives of a system of specialized airports ringing the metropolitan area like satellites, and hinges on the conversion of existing general airports into specialized facilities, with each individual airport handling a particular kind of traffic—long-haul, cargo or major maintenance. The system would connect with short-haul airfields right in the city and a rapid-transit ground system would link all the airports to each other as well as to the city core.

In New York, this might mean using Kennedy and La Guardia for medium-range trips, constructing a new jetport for long-haul travel, converting Newark to a cargo base, and reserving Teterboro for private aviation. This combination of specialization and rapid transit would mean that a passenger arriving at Teterboro, for example, could go direct to Kennedy, with his airport ticket doubling as the rapid-transit fare. Once at Kennedy, an underground conveyor would whisk him right to his plane. The Kidde group feels that this scheme has the advantage of assuring that the passenger, rather than the cargo, is the essential planning unit at all passenger airports—a point often lost today.

Airports are part of regional plan for Paris

An interesting comparison—and contrast—can be drawn at Paris, where a large new airport is being planned 15 miles northeast of the city. Paris-Nord is part of the over-all development plan for the region and is intended to out Le Bourget and to operate in conjunction with an improved and extended Orly Airport. When completed, in 1980, the new airport will be capable of handling 25-million passengers a year. As part of the regional plan, Paris-Nord is placed on a superhighway which will dip below ground to cross the airport. New road connections and a possible subway link with the city center are part of the plan. The airport will be organized into five multiple lo-bays, each one equipped to handle all of today's or 15 of the new jet-sized variety. Two separated parallel east-west runways will be able to handle simultaneous landings and takeoffs.

Multi-level ground facilities may help ease congestion

Most projections see new airport facilities in multi-level terms, with an increase in computer-guided cargo handling. Multi-level approach roads, multi-level parking and multi-level terminal buildings—in which passengers are classified and dealt with and even the plane from a specific level—are central to most planning concepts. Some planners, like the Walter Kidde group, prefer separation of the plane from the terminal to relieve congestion at gates and passageways, but others—as in the American Airlines scheme—prefer to bring the aircraft right to the terminal. The American Airline scheme saves space and makes use of the multi-level concept, by raising a line of planes on hydraulic stilts allowing overlapping wing span, and loading and unloading passengers from different planes at different levels in the building.

The New York firm of Tippetts, Bett-McCarthy-Stratton (TAMS) has been involved with plans for a new airport to serve the Dallas-Fort Worth area. The present proposals call for the erection of a two-mile-long, six-level structure spine with roadways, baggage-handling and passenger-transport routes at different levels running the entire length of the building. Shorter routes intersect...
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TWA is also planning an extension to Eero Saarinen’s Trans World Flight Center at Kennedy airport. The $19.8-million new facility will be a second flight loading wing, and be designed by Kevin Roche, John Dinkeloo and Associates (successors to the Saarinen firm). It will continue the theme of Saarinen’s building but will provide “telescopic jetways” leading from the flight wing to aircraft entrances and parking positions which will be capable of accommodating the new supersonic planes, jumbo jets, and conventional jet aircraft.

Plans for a new $150-million jet airport to serve the Kansas City area already are quite well advanced, and financing has been arranged. The architectural firm of Kivett and Myers have designed a crescent-shaped passenger terminal building, so arranged as to allow cars to be parked within the hollow of the crescent conveniently near to the aircraft boarding gates.

From long-haul to short-haul, by V/STOL craft using in-city terminals? The question of regional, inter-city and short-distance air transport is of course complicated by the large amount of space needed for the take-off and landing of conventional aircraft, which has led to most airfields being sited inconveniently far from metropolitan centers.

Los Angeles is considering a scheme to place the entire passenger terminal below ground—with only domed sky-lights showing above—to free the roof surface for the planes themselves. Passengers would use mechanically operated “snorkle” escalators to ascend directly from the boarding area right into the waiting aircraft.

In the Philadelphia area, two architectural firms, Arnold W. Thompson Associates and Paul Stafford Associates are working on plans for a $50-million air freight terminal called Air Cargo City, which would use computer-guided conveyors to handle as much as 200,000 pounds of freight in less than half-an-hour. The cargo terminal is part of a master plan for the development of Philadelphia International Airport, which already includes proposals for a $75-million extension of passenger terminal

The solution to this problem seems to lie with the development of a satisfactory system of vertical or short take-off-and-landing (V/STOL) aircraft and appropriate airports, and the problem is in fact being tackled from both ends. There are already a number of single- and two-engined planes which are capable of coming to a halt within 300 feet of touching down. Now, the US Department of Commerce has announced the publication of a “study on the feasibility of V/STOL concepts for short-haul transport aircraft”—NASA CR-670, price $3.00 from Clearinghouse, Springfield, Va., 22151. The study, carried out by Ling-Temco-Vought, Inc., is based on the development of 18 prototype aircraft around three different propulsion concepts, four different operational capabilities and three passenger load capacities.

Airports for such aircraft might well be developed in the heart of metropolitan areas, particularly where adjacent water would give additional space. Proposals for such an airport on the Hudson waterfront near Manhattan’s proposed World Trade Center have already put forward.

A study by Rutgers University for Transportation Studies, under direction of Mr. Cooper B. Bright, Professor Edward G. Navy, has come with an ingenious suggestion to construct a series of “aquadromes”—saucer-shaped FLOATING CONCRETE AIRLINES which could be anchored in the Hudson or East Rivers. Planes, after landing, would descend by elevator to a lower level—where passengers would deplane and/or board—and when loaded, would ascend to the surface for take-off.

In all these proposals, problems of noise, fumes, and possible danger to surrounding buildings would have to be studied in great detail before they could become an everyday reality.

Promise of a more stable future Although the advent of the super-sersonic aircraft heralds dramatic changes in scope and organization of air travel in the design of related facilities in the next decade or so, there is a suggestion that once this change is made, we may enter a period of relative stability.

Arthur Clarke, scientist, inventor and science-fiction writer, in an imaginative address to the 1967 A.I.A. Convention in New York, speculated about some of the possible directions for the future of mankind, and came up with what he called “a bag of assorted futures with different price-tags attached!” He said that although it was technically possible to transport human beings in rockets at a speed many times faster than that of the supersonic jet, he felt that it was unlikely that people would tolerate routine travel at that speed and in that form—at least in the foreseeable future. Further, he projected that with dramatic advances in the use of international telephone, communications satellites and remote control operations, people would be able to control much more of the work from greater distances and the need for commercial travel might become substantially reduced. Thus he predicted an ultimate leveling off in the speed, volume and techniques of long-distance transportation.

With this in mind, architects faced with the problem of designing airport facilities, may gain some comfort from the thought that if they are sufficiently far-sighted now, they may catch up with the future!
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ARCHITECTURAL RECORD September 1967 123
Must reading for every professional individual who now has (or is planning to form) a partnership.

How a partnership buy-out agreement can protect your practice, and your estate.

This comprehensive book will bring you up-to-date on the latest developments in the professional partnership field, and the benefits that you can expect from a sound partnership-purchase agreement. It is written by authorities in a direct, easy-to-comprehend style. Every professional individual who now has, or is planning to form a partnership with one or more members of his profession will want to read "Professional-Partnership Purchase Plans".

The book covers how best to protect your own estate and your partnership with an adequately funded buy-out agreement. What tax benefits you should look for. How the goodwill of each partner can be provided for. Through the study of a typical case history, the book will increase your ability to judge and select the proper plan to fit your own situation when you sit down with your attorney to review or set up your partnership-purchase agreement.

Why you should have a purchase plan.

Without a partnership-purchase agreement a large part of the value that you have built up in your practice over the years may disappear at your death. While your partner or partners may wish to compensate your estate for your share of the firm's assets and for the continuing practice your reputation brings in, a precise cash value is difficult to determine. Frequently, this situation leads to costly litigation and delays in settling your estate. Alternatively, as a surviving partner, you are faced with the problem of compensating your deceased associate's estate.

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The book was written by Alden Guild, J. D., in collaboration with Deane C. Davis, Chairman of the Board of National Life of Vermont, and David F. Hoxie, Vice President.

Here are a few of the subjects covered in this book. They will help you protect your partnership interests, and your estate.
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Detroit answers the jet-age challenge with massive airport expansion

Prestressed concrete used extensively in passenger concourses and parking deck

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Also aware that convenient automobile parking is essential for comfortable air travel today, a 3-level parking deck in the infield area adjacent to the passenger terminals has been opened to supplement 2000 other parking spaces. The deck can accommodate 2400 cars. Vertical and horizontal expansion can be provided in the future for greater capacity.

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Haskell & Connor were the architects and Welliver Construction Co., Inc., both of Elmira, were the General Contractors.

For full details write to The Ruberoid Co., a division of General Aniline & Film Corporation, 733 Third Ave., New York, N.Y. 10017. Dept. RA-97

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One of the problems still dogging the fast-developing Alaskan frontier is the high cost of shipping essential materials and supplies from the lower states. Insulating materials, for example, are critically essential to the construction of large commercial buildings such as the new J. C. Penney store in Fairbanks. But the cost of shipping lightweight, high-bulk materials long distances can often exceed the value of the materials themselves.

One answer to this problem was found in a unique and highly advantageous feature of rigid urethane foam — the fact that it is a cellular material that may be produced from liquid chemicals anytime, anywhere. Since the liquid chemicals have only 1/30 the volume of the expanded foam, savings in long-haul shipments, which are usually based on cubic volume, can be considerable — $5800 in this example, F.O.B. Seattle.

But shipping cost savings came purely as a bonus feature. The real motivation behind the decision to use rigid urethane foam in the Penney store was the 6-month arctic-style winter during which lows of −40°F are average. The 48,800-sq. ft. building was originally designed to be insulated with locally produced styrene board and the project was already underway when the architects were introduced to the idea of creating a seamless, joint-free, monolithic insulated environment with urethane foam. They were so impressed with the benefits to be gained that wall sections and detailing were revised to take advantage of the urethane method.

Every square inch of the exterior wall surface of the huge windowless structure is insulated with urethane foam, either sprayed on or poured in place. Foam was poured to fill a 2 1/2-inch space behind previously installed pedestrian-height concrete panels. Other sections of the concrete walls were sealed with urethane sprayed over wire mesh, then covered with several types of facings in a series of horizontal bands. Urethane foam was also applied as a frost barrier on the footings to a depth of 2 ft. below grade. Despite temperature ranging down to −40°F, installation of the urethane was fast and did not interfere with interior finishing operations going on at the same time.

Insulating huge interior in far north environment posed a unique problem for store designers and led to quick switch in technique.
The world around us:

toward an architecture of joy and human sensibility

We live today in a cool, cool age when there is almost a national phobia about the expression of private feelings, especially on the subject of that obsolete quality called "beauty." Not so long ago men felt free to admit they loved the meander of a river, a field of devil's paintbrush, or a woman's crazy loveliness. Today such a display of emotion makes us squirm. Do we dare to express delight at the sight of a soft summer sky? Can we still cry out at the anguish of our fellow man? Or does the cold shell of logic reduce us to apathy?

I believe that all knowledge begins with self-awareness, so unless the doorway to the senses is open and lighted, can we sing out, or write, or draw? Can we design a happy environment for others? So perhaps the central question of the age should be "Can we be free without LSD?"

I believe we can. In order to explain my position, I want to address two central questions: does it really matter—all this ugliness and confusion? Does it affect anyone except "us", the so-called ingroup? What is causing the problem, and is it our responsibility to stop it?
First of all ugliness does matter immensely because every sensory experience has a deep effect. This is not just a theory. Scientists have recently proved what artists have known all along. Man is an adjustable creature and one way he adjusts is to insensitize himself. When physical or emotional conditions are severe in the various blitzes of life, his very survival hangs on his ability to shut down part of his circuitry so that the destructive messages won't tear his system apart. In doing this, however, he shuts off his potential; he is only half alive. So today people no longer see the ugliness which surrounds them, but at the same time they miss the birth of the spring grass.

Before we can write, or sing, or draw or plan an environment for others, I believe we have to accept the senses as partners of the intellect. We have to turn off the verbotens and inhibitions that spoil life and our landscape, and encourage people (especially young people) to respond with all eight cylinders. We have, since Freud, seen a breakthrough in psychology. We are now seeing
Throughs in biology, physics and education.

New knowledge points to the fact that man is a complex organism, standing right at the center of things.

Shifting focus is from outer to inner awareness.

It has been expressed in painting for more than half century—it is very slowly moving into architecture, which brings me to the question of human scale.

Human scale by my definition refers to what happens to us as we view things from our own level. In the market or beneath the skyscraper, we relate first to what happens at ground and eye level; the feel and contour of the earth under our feet, trees, grass, windows, signs and other faces—things within immediate visual reach. We extend outward and upward visually and try to relate to things that beyond our physical imaginations. Human scale is not a measure, nor an eternal proportion or tidy modular.

If we move on the ground in speeding cars, we rise in elevators and airplanes, we see with changing speed and perspective...
But even in the space age, the basic need for consideration of human scale, or scales, has not changed. The living, breathing pattern of city streets has to be scaled to the perceptions of man, in terms of space, shapes, textures, colors and materials.

Mobility, instant communication, advanced technology, equal rights, increased leisure, the population explosion and of course, the urban crisis—as words they are almost cliches, but the problems they pose are hardly resolved. The implications on the architectural scene are enormous. The designers must deal with vast numbers of figures, complex systems and multitudes of materials old and new. Resolution will only come with a whole new attitude about the meaning of building.

An architect works on a new community on paper. But that is only the beginning. He then deals directly with mud, bricks and steel, with old buildings and new, with wind and sun—and let's not forget the most vital ingredient—people. The architect's designs are tempered by other people's joy and fears, sense of isolation and belonging, by chaos and splendor, compromise and determination. He must project himself and his own understanding into the environment he creates.

The young architect leaves the drafting room with his slide rule greased and golden mean all shined up to confront a world he never knew—of bricklayers and goldbrickers, and relentless human contradictions. It is a world of people who neither act or react the way he expects. They store coal in the bathtubs, they walk and even sit on the grass. They have fears and foibles and furthermore, they don't care about the abstract values of proportion and line that juries and critics swear by.

To build a great city or even a little square, we must understand before we begin to design, for the values in our work, whatever they are, reflect the values in our own lives. The architect should encourage the sun which pours in his buildings, morning and afternoon. He should respect the trees and the changing seasons. He should not be tempted to suppress the varied, untidy human life that cloj our streets, remembering that one of the glories of life is its rich chaos.

These values inevitably turn up in our designs. I believe that the architect must be an artist—a person of perception, openness and wholeness of insight. But he cannot expect to work as a pure "fine artist" using the world as a fresh canvas for his personal fantasies. Architecture is both a personal statement and a human service involving collaboration with others. Both sides are important to everybody. They are not mutually exclusive, but should flow from each other and it isn't easy.

But we are living in the age of the mammoth institution, the multiversity and the giant corporation. The population explodes at our door. Yet how big is big? If something good is big, is it better if it's bigger?

Cecil B. DeMille believed so, P. T. Barnum believed so—and Cadillac still does! Who is to argue against these giants except perhaps a lonely Giacometti whose sculpture reflects the scaleless aloneness of people swallowed by the vacuumed city. Who can take the reins to halt the new imperialism of overscale unless it is the very men who are creating overscale in the first place?

Individual man loses his sense of humanity in an overextended society such as ours, so the architect must now give first priority to the individual, see each person as more than a statistic in the population explosion, and give man the central place in his plans.

As we sit working alone on the ninetieth floor the telephone's wiry tentacles invade our privacy to keep us in total touch. The challenge of such superscale communication, mobility and construction bears down on us. We are plugged into a giant system and there is no place to go. Can we call up the human nature within ourselves? How can we rediscover our deeper creative and emotional links to the vital natural world which an artist like Klee knew? Again it is not going backward, it is moving forward to the nearest task, the next
The challenge—the acceptance of our own primitive sources. Recent brain research has reinforced the primitive ideas of many leading educators on the importance of the senses in learning. Every small child must use his eyes, mouth, fingers and nose. This is the method of learning by doing, not simply means using the brain, muscles, nervous sensory apparatus as the single integrated system it is. The senses are the source of everything a brain knows, and the source of its growth.

Reception, conceptual thought and imagination all die when one loses touch with the sights, sounds and smells around us. At this point, I am not advocating a movement back to re. I suggest something much harder and more challenging: forward to nature, to an understanding of our inner natures and to the reality of the nature within people whom we as architects design for.

People disconnected from nature lose contact with their inner resources and are in danger of losing their essential humanity...
The natural environment outside us is simply a means of achieving that inner identification, that self-awareness, from which all knowledge springs. So, the first step is just seeing—learning to use the eyes for something besides distilled abstract verbal information. But even that is not enough, because vision, as a sense, cannot be isolated. It is taught, unfortunately, too much in isolation. "Visual specialists" can be as incomplete and harmful as "intellectual-verbal specialists." The imperative next step is learning to see not only selectively and sensitively, but compassionately and completely.

Klee called all this the Thinking Eye, but I like to think he meant the feeling eye, that could see within the framework of an emotional value system. If we can really accept the interconnection of the senses and put the idea into practice, then it is possible that education can become whole again. Maybe then we could look forward to a freer and more joyous world created by people who know how to see with the understanding of the heart. That's a bright future for architects.

Finally then, what is the central issue for designers and architects? Does ugliness breed insensitivity and insensitivity breed more ugliness? Is deterioration beyond our immediate control? Shouldn't we examine what we are doing for people and to people in the descending spiral of sensibility? Because in spite of the objectivity of computers, methodology and new technology, people, that original marvelous invention, are still the crux of the matter.

Man is the reason buildings are planned and built in the first place. If we contribute anything to a better environment, then seeing people as masses of statistics and pretty circulation diagrams will not be sufficient. What will be sufficient is almost too much to imagine at this point. I have no master plan—only a few road signs.

In practice we must stop designing for ourselves and the critics and instead begin to identify with the joys and terrors of the man who will spend his life in what we build. That means we must design for people. But if we stop to analyze people, we'll never make it. The process of understanding and empathy must be as instinctive as understanding ourselves. For we know by now we cannot inhabit ivory towers. We must speak from the very middle of things.

And we must take newly appraised responsibility for the education of the new age who are coming along, in a spirit true to their exciting new world and not to our own aging one. This will require revolutionary methods devoid of fixed curricula, standard methodology and academic-professional prejudices. Education must anticipate what is coming the yet unknown. Much can be learned from the anthropopo of civilization which displays to us the essentials of our own present. Such study is vital for architects, who must transcend the security of their precious present beliefs, to predict and design for the future. The professionals must actively help in bringing education to the mainstream. In such a changing world, they themselves have much to learn.

I believe we must involve our clients and co-workers in new ways of work which attack the problem of scale. Most drawings and programs are difficult to understand on paper, as space-occupying actualities. We must intimately visualize the life lived within the three-dimensional walls.

I have used such devices as progressive working models brought to a larger and larger size so that clients, architects and consultants can understand and visualize the buildings in development. Reality can be found in new working processes, otherwise we will design paper plans for paper dolls, not people. The client and the designer should continually share in the development of projects.

Most of all we must accept the connectedness of our senses, not vision alone because we can become visual idiots too. Vision as total feeling identity is what I mean. We must acknowledge the value of sky and trees and mud underfoot. And if we, as architects and designers, wish to accept the role of creative men, we must dare to feel as artists and be unafraid to cry at the splendor of a mountain sunset. We must be willing to stand alone for what we believe. What I suggest will not be easy. We cannot change overnight, but we could begin by designing with love instead of disdain.
CHALLENGING COLLABORATION FOR TAC: In the design, financing and construction of its new office building in Harvard Square, The Architects Collaborative became its own client—budget-minded, yet exacting; demanding an organization of space tailored to its own particular style of working, yet flexible enough to accommodate unforeseen changes. TAC’s architects have proved equal to the conflicting goals they imposed upon themselves. Their new structure, adaptable and low cost, is handsome and enduring as well.
Until The Architects Collaborative moved into its own new building, its quarters were located in a small, old charming frame house rented from Cliffe. Work had long since expanded six additional drafting and office space occupying a number of nondescript bridge buildings located at some distance from each other. Each of these had functioned as a studio under the direction of one or two principals. When Cliffe, embarking on a new building program, terminated TAC's lease, the firm began in earnest to examine a problem which had now become urgent: how to gather its sizable, widely dispersed staff under one roof for greater efficiency without changing TAC's image into that of "bigness".

The Architects Collaborative is the largest architectural office in New England, and one of the biggest in the United States. The work produced by its staff of approximately 150 is both national and international in its reach, while at the same time the firm is responsible for some of the best contemporary buildings in the region. Despite its rapid growth over twenty-one years since it was founded, TAC has avoided organizing its practice into any system which could eventually resemble the over-specialized pecking orders of some larger organizations. No principal concentrates on one phase of the firm's activities. In addition to his over-all responsibilities as a TAC partner, he is fully responsible for a given number of jobs. For each of these commissions he forms a team of associates and draftsmen which works together in a space of its own. The principal functions in this respect like the head of a small architectural office, and his team resembles a small office staff with its shared responsibility and control of detail. Unlike their counterparts in smaller organizations, TAC architects combine a disdain for the usual appurtenances of status with a preference for informality. Dr. Grop is addressed as "Grope" by all, and for years Alex Cvijanovic's Gordon Set kept his master company at work.

continued on page
Economies in plan and structure reflect TAC's self-imposed budget of $20 per square foot, not including air conditioning. The building is five stories high instead of the four which zoning regulations normally permit. TAC gained an extra floor by allocating a portion of their site to an entrance court.

The major entrance, linked to the central core, faces this entrance court which opens onto Brattle Street, Cambridge's principal avenue. The secondary entrance, shown in the photograph opposite, provides access from a side street. A scissors stair scheme within the central core was devised as the most compact and efficient way to provide the two separate means of egress called for by the building code. Bays are 18 feet square, forming eight and four bay spaces which are appropriately sized for an operation like TAC's. Since the staff has always been divided into small flexible groups sharing a common space under the leadership of a principal, large drafting areas have never been desired. Concrete shapes have been kept as uncomplicated as possible, as shown in the wall section at left.
Enrichment of the concrete surface has been achieved by simple wooden lath forms left in the bottom of the formwork combine with raked joints to form a handmade well-scaled pattern as shown in the photograph at left. The sandstone surface reveals a dense matrix that reveals an attractive quality of dark gravel which contrasts well with the bronze colored glass of the windows. Sidewalks in the courtyard are also of brick.

The main floor reception area shown in the top and middle photo at the right. Wooden partitions shown in the top photo conceal the main blueprint room located near the entrance for maximum convenience. The treasurer and his administrative staff occupy the office space shown in the middle photo. Permanent interior walls are of 8 inch thick pumice block, or red brick.

A library and information center located in the basement, is administered by a full time librarian. Gathered in one spot are books, magazines, photographs, slides, and a world drawing file.
continued from page 160

The new five-story building in the heart of Cambridge has been carefully designed to accommodate this informal, studio-centered organization. On each floor, two spaces of 2,592 square feet and 1,296 square feet respectively are connected by a central core. The smaller of the two spaces serves one principal and the larger permits two or three to function with their teams. Each space has its own reception room opening from the central core, offices for the principals, cubicles for clerical personnel, drafting space, and a conference room.

This solution which works so well was not easily arrived at. TAC's architects studied many alternatives to the one they finally chose. The purchase and remodeling of a large book bindery was contemplated. This would have provided maximum floor space and expansibility at a minimum cost. The firm considered moving into one of the old warehouses on Boston's wharf. Several principals who wished to build rather than remodel stressed the economies of building outside of Cambridge in a semi-rural area near a major highway. There, zoning regulations would have permitted a long, low, two-story building which would have been cheaper to construct.

While these alternatives were being studied, Walter Gropius continued to insist upon the importance of building upon land they owned near Harvard Square. Offsetting the higher initial cost of this alternative were several important points. TAC had enjoyed a Harvard Square location for many years, forming close ties with Harvard University, its libraries and its life. In addition, the Square is well served by public transportation, restaurants and shops, and is very much in the center of things. Gropius won his partners over to his point of view and TAC's new building has been constructed in a lively urban environment.

TAC's architects say that their handsome, low cost, well detailed and well constructed headquarters attracts clients. "We hope it proves right away that we know what we're doing," says Gropie.

—Mildred F. Schmertz
A typical principal's studio includes, in addition to the reception room shown above, secretarial spaces, drafting areas which provide both drafting and research space for each person, a conference room and the principal's office.

THE ARCHITECTS COLLABORATIVE INC. OFFICE BUILDING, Cambridge, Massachusetts. Architects: The Architects Collaborative Inc.; structural engineers: Souza & True; mechanical engineers: Reardon & Turner; electrical engineers: Vernon Norman; general contractor: George A. Fuller Co.
I believe that if all the professions could come to a clearer understanding of the relationship between science and art, a great new era of creativity might follow. Art is personal, intuitive knowledge that springs from our feelings and our sensitivities. Science, on the other hand, is the idea that once was a feeling that has become fact. It tells us a bridge across a stream must have a certain cross-section of steel and concrete to perform its task. If we are to do something new and creative with such facts, we shall have to let man’s feelings express themselves. The feeling for a subject is the art of that subject, and this art of a subject directs the facts or science of the subject—which in turn offer stepping stones for new feelings or a new art. There would never be a new fact or a new science if there were not a personal feeling involved. New feelings can develop around old facts, but new facts demand new feelings. Consider, for example, the effect of a new instrument upon music, or of a powerful electrical battery upon transportation. Art is always the inventor—science is material for building. —Alden B. Dow
Dow: The Kalamazoo Nature Center entered by walking across a bridge spans a wooded valley between the trance road and the building property. Trees in the valley will eventually grow over the bridge so that crossing it will be like walking through the branches of the trees. One is thus led into a circular, glass-domed space enclosing a rainwater winding down to the floor below. The principal space of the center, is called the "Rain Room," and symbolizes the beginning of growth on the earth. At the lower level, a series of exhibits circle the area tells the history of the natural growth of this part of Michigan. From the circular room, a tunnel flares out through a ridge to open upon a beautiful glen where one may stroll in today's world.

Dow: The design module for this Presbyterian church in Dearborn is a 4-foot equilateral triangle which is, in turn, the module of a hexagon. The blocks that jacket the structural steel columns emphasize the triangular motif; right and left forms of the blocks lock together to make an organic pattern. The pattern, which results from the structural system, is used on the columns and for the walls of the chapel (photos at left).

Seating in the nave is arranged in two large groupings—each hexagonal in shape. The ceiling rises through a series of steps to a maximum height of 50 feet for the central, 12-foot-wide portion, which extends from the front to the rear of the church. Thus, the reverberation time over the pulpit and lectern is a minimum, and in the center—under the high ceiling—at a maximum. The choir is located directly over the narthex and center aisle to take advantage of the added reverberations for sound reinforcement. Stairs on either side of the sanctuary enable the processional to proceed from the central aisle up to the flanking balconies and encircle the congregation.

Dow: This house represents the same approach to structure as the Rietveld house (page 174), yet is in principle a prefabricated house. The walls are all redwood and fir sandwich panels containing 1 3/8 inches of foam insulation. Similar panels were used for the roof. The system of double and interlocking roof beams made it a simple matter to vary roof elevations and add clerestory windows, for a rich overhead effect and a well expressed three-dimensionality.

The 4,160-square-foot house is completely modular in plan, and all clerestory windows are therefore identical in size and shape. In this house they are made of a double layer of vacuum-formed sheet plastic.

The weakness of most prefabricated house ideas is their inflexibility as far as structure goes. In this case, there are many ways of varying the structure, and the resulting freedom makes more variety of form possible.

ELABORATED STRUCTURE
A MAIN FEATURE OF THIS YWCA

Dow: All of the social spaces in this 49,500-square-foot YWCA building are clustered about a centrally located swimming pool, and are arranged on two levels about it. As the dominant feature of the interior, it lends a lively, youthful touch in both daytime and evening.

The reinforced concrete structural frame is clearly expressed on the exterior as well as inside the building. To soften the harsh pattern of rectilinear concrete frame and brick infilling, the columns were shaped to become brackets which, in turn, support concrete planting boxes that hang free of the wall. The angular form of the boxes obviates the problem of winter freezing of the earth they contain, and adds visual interest to the building's exterior. Since the planting has had only one year in which to develop, its eventual, richer effect is not apparent in the photographs.

INTERLOCKING BEAM SYSTEM MAKES POSSIBLE GREATER ROOF SPANS AND CLERESTORIES

Dow: The Riecker house makes use of a structural system that is the feature of the design and controls the pattern of the ceiling above. Cross beams and span beams are interlocked, as seen in the pictures, in a way that makes greater spans possible and results in a ceiling pattern rich in form. This method of framing the roof makes clerestory windows or different elevations in the roof directly related to the inside framing. In other words, the clerestory windows become a natural or organic development of the roof framing. The clerestory windows make it possible to have an inside living room which opens to the outside through the dining room area only. Putting the dining room on a lower level helps to make the view through the dining room more open.

ALDEN B. DOW: RIECKER HOUSE

The interesting and attractive effect the structural system yields inside the house becomes its leading visual feature and sets its character. Note also how the carefully detailed cabinetry and spatial dividers are integrated with the structure.
Four Public Libraries

They demonstrate the variety with which the new generation of library buildings is responding to today's demands. Thanks to Title II of the Library and Services Act, many communities are now able to obtain Federal funds to supplement their local bond issues for replacement of the aging Carnegie grant buildings which played so important a role in development of American educational opportunities. Two of the buildings shown here are main libraries, one for a city and county; two are new branches representing an expanding system. To an encouraging degree, works of art are integral with the design of several of these buildings.
This handsome library—the last building to be designed by the late Francis Joseph McCarthy of San Francisco—serves as main library for the city of Santa Rosa and the county of Sonoma, and as a reference center for adjacent counties in the North San Francisco Bay area. Located in the Santa Rosa business district where it can encourage drop-in patronage, the building is important as a center for cultural meetings and exhibitions in its Forum Room. Specially commissioned works of art (2 per cent of construction cost was allocated for this)—sculptured fence, clerestory stained glass windows and others yet to come—add to its cultural role. Open stacks for 100,000 books (capacity is 330,000) and public services are on the main floor, semi-public activities on a mezzanine, and closed stacks, work room, etc., below. The building is steel framed with flecked brown brick finish and architect-designed redwood screens.

The new building replaces an old Carnegie library, some of whose stone is used for the wall. The interior colors are brown, amber and olive, with gold and black accents. The public areas of the library are fully carpeted.
The beautiful grove of redwood trees in which the new Mill Valley, California, library is situated was a strong factor in the building's design. Essentially simple and subordinated to the grandeur of the trees, the building fits into its location and the community with rare appropriateness. Its size and shape were limited by the trees, none of which were damaged or destroyed. The density of the trees, however, permits only filtered light on the site. To get a maximum amount of light into the building, full-length windows are used at each end and, along the length of the building, tall windows extend into glass-sided dormers. The sloping site made possible a one-story street front, and a two-story rear. This informal kind of building, and the warm, inviting character of the interior, reflect the character of the community. Exterior walls are of tilt-up concrete; the interior is finished in redwood boards. The budget provided for two per cent of the building cost to be used for works of art, commissioned to local artists or purchased, a provision for custom-designed furnishings.

MILL VALLEY PUBLIC LIBRARY, Mill Valley, California. Architects: Wurster, Bernardi & Emmons; structural engineers: Gilbert-Forbes-Diekmann-Schmidt; mechanical and electrical engineers: Cayner Engineers; landscape architects: Lawrence Halprin and Associates; general contractor: Ira W. Coburn, Inc.
The charm of this small branch library in one of Seattle's many neighborhoods (once small communities which still retain much of their identity) comes from the modesty of its architectural solution, the unaffected residential scale appropriate to the area it serves, and the delightful use it makes of its wooded hill site. Taking as a premise that the library should be “so like a living room that users would treat it as if it were in their own homes”, the architects have de-institutionalized the library function without reducing its efficient operation. Stacks are grouped in “browsing alcoves” which project in pairs from the building line, freeing large wall areas for windows with views to the surround trees and shrubs. Clerestories daylight the reading room and allow variation in ceiling height. Night lighting is indirect from fixtures in the lengthwise beam. Tables and chairs were custom-designed by George Nakashima. The building was wood framed, with exterior surfacing of red cedar shingles, left natural.

The plan, open yet compact, provides excellent control of all areas. Three clerestories, over adult, children's and reference areas, punctuate the main volume of the interior.
Civic dignity in a commercial area

The entrance is through a paved court enclosed by wrought iron gates by sculptor George Tsutakawa. The building is designed for a capacity of 40,000 volumes.


The strong architectural treatment of the brick walls and the few low arched openings in this branch library building make it an appropriately dignified and distinctive civic building, and minimize the impact on it of the unattractive commercial area in which it is located. Handsome bronze gates lead to a paved entrance court. The interior space is restful and inviting, the flexibility of its clear span space permitting a variety of arrangements to delineate special areas: adult reading, children's section, even a browsing area near one of the arched windows. The exterior walls are of reinforced brick, the roof structure is made up of steel trusses and wood decking.
This spacious summer and weekend house offers a big surprise: from the street the exterior, which is quiet and serene and blends so well with its calm environment, conceals an interior disposed on five different levels. This change of level—under a constant roof line—has been fully exploited to give visual and spatial excitement to every room. Further, the multi-level solution is a good one for the steeply-sloping Connecticut woodland site.

Because terraces, courts, pools and fountains were an important program requirement, the architect has organized a plan that not only focuses on these outdoor spaces, but also makes them an integral part of the over-all scheme. The tiled entrance walk and enclosed inner court with its central fountain and pool give an air of seclusion and traditional formality to the house. In contrast, the rear elevation, totally in glass, opens on a series of terraces with another fountain and a swimming pool. The two upper bedrooms have generous, cantilevered balconies overlooking the backyard pool area.

The approach leads from the drive-way to the entrance gate, garage and tiled walk on the first level. The next level contains the inner court with its fountain, pool and outdoor seating, and the dining-kitchen/entry-balcony area. From the entry-balcony a short flight of steps leads up to the two main bedrooms, and a longer flight leads down to the two-story high music room. The guest bedroom, adjoining living room, outdoor terrace and pool are on the lowest level. A glass-sided gallery flanks one side of the bedroom wing giving a view over the entrance court; one bedroom has an opening overlooking the music room, and both have balconies that give a view of the pool, terraces and woodlands at the back of the house.
The modular construction system uses brick columns with steel-beam framing and wood joists spanning between beams. The constant roof line creates a strong white fascia effect all around the house, giving unity to the building as a whole. The roof line is set back from the edge of the masonry columns. Exterior walls are vertical cedar boards, redwood trim and areas of glass.

The carefully detailed pools and fountains and the quarry tile in walks, terraces and courtyards give an almost classical elegance to the landscaping of the house. The variety of formal and informal outdoor areas makes some kind of outdoor living possible most of the year.
The most difficult condition confronting architects in the design of hospitals is the need—despite extremely long periods of project development—to cope with an extremely rapid evolution in medical technology. Five to 10 years is not an unusual lapse of time between inception and completion of a hospital project, and indeed there was a 20-year period between master plan and near-completion of the U.C.L.A. Center for Health Sciences, page 198. Over such long time-spans there have been radical changes demanding architectural attention, not only in the hardware of medicine—the operating room, its lighting, equipment and air supply; diagnostic and radiological suites; rehabilitation devices, etc.—but also in the very nature and arrangement of spaces required. Within recent years, for example, layout of the nursing unit itself has evolved through circles, triangles and racetrack corridors. The list of areas affected by new ideas and technology—intensive care; cardiac units; hyperbaric chambers; ambulatory, extended and advanced care units—is long and growing daily. How does the architect cope with it?

Flexibility is too pat an answer, although basic to any architectural approach. Advanced concepts of expansibility and mechanization give some assurance of long-term usefulness—as at Cologne, page 190. Deliberate obsolescence or moving to a new site—page 194—may offer a solution. New wings—at Evanston, page 196, or Long Beach, page 204,—often make possible the redesign of existing facilities. The examples of long-term planning on these pages all show awareness, adventure, and adroitness.

—William B. Foxhall
"Truly a drive-in hospital" says John Ryan, Cologne project manager for hospital consultants Gordon A. Friesen International. Traffic and distribution patterns develop logically from the architect’s placement of related functions. Patient care is centered in the new three-unit cluster at top comprising treatment and diagnostic wings incorporated into the base of a bed tower.
Traffic control in its broadest sense was approached with fresh inventiveness in this 1,000-bed, multibuilding addition to the medical teaching complex of Cologne University. The original design of architects Heinle & Wischer won an international competition.

Especially at home with the concept of well-defined areas flexibly linked by underground passageways and garage-reception areas is the U. S. consultant firm of Gordon A. Friesen International, Inc., whose recommended systems of central supply preparation and distribution, automatic cart transport and other conveyors were well adapted to the Cologne situation.

Patient reception and treatment areas are centered in an interlocking, three-unit clustered structure consisting of a three-floor examination and treatment block, a diagnostic and operating block and a bed tower linked together and to a three-level underground garage by below-grade passages and reception areas as indicated above and in the exploded diagram overleaf.

Emergency patients arrive (from the highway at left in the model photo) at an enclosed area big enough for six ambulances and 12 cars. This area is adjacent to both emergency and x-ray departments. Contiguous to the 17-room emergency department is a 54-room suite of examination-treatment rooms normally used by the outpatient department but available to emergency in case of disaster. Access to the outpatient department and to the main lobby of the bed tower is from the center of the complex by underground drive-in from the upper garage level or by pedestrian walkway over a planted forum atop the garage. These routes traverse the center of the complex from a cross street. Placement of faculty suites on the top level of the exam-treatment block permits rapid access via two staff elevators directly to emergency or, at the same level, to surgery.

Admissions other than emergency are directed from an information center near the entrance to an appointment center visible at the mid-level of the exam-treatment block reached by moving stairs. From here, an admissions officer from a nearby administrative control center assigns the patient to one of the exam-treatment rooms and puts basic personal data into a central computer system. A doctor, assigned on the basis of these data, next comes to the same room and adds his findings to the computer input. Via intercom (or computer) he arranges any needed appointments with the diagnostic department, then calls a lab technician who collects needed specimens and places them on a mobile lab station. The patient is then escorted either to appointments or to a bedroom, while the technician continues other collections, ultimately placing the specimen cart into the automatic cart transport system which takes it to the lab in the research block. For more immediate tests a pneumatic tube system is used.

Outpatient traffic is similarly controlled from an appointment center at each level, from which patients are directed to color-coded control centers, each of which has visual and intercom contact with no treatment rooms.

Reversible flow of patients and personnel to and from their point of contact in x-ray, O.R., or treatment room promotes both asepsis and privacy. Note that offices and preparation areas for personnel are arranged on one side of the working area of each department, while patient approaches and control centers are on the other.

The treatment room has a desk, a fold-out dressing counter, a lavatory, and a counter which also houses a through-the-wall, two-chamber high-the-wall, two-chamber high-the-wall, two-chamber high-the-wall, two-chamber high-the-wall, two-chamber for receiving clean and soiling soiled supplies.
In addition to providing for modernization and expansion, a move from the city area of Omaha, Nebraska to a western suburb has enabled the new Archbishop Bergan Mercy Hospital to draw patients and staff from the growing residential area. The move has proved so successful, that in order to relieve a 98 per cent occupancy rate, a 193-bed addition originally planned for 1970 is already nearly completed.

The 500-bed facility offers three phases of progressive patient care—intensive, intermediate, and ambulatory. The first floor accommodates an 11-bed intensive care unit, and a 21-bed self-care unit. The double-corridor racetrack plan, with bedrooms about the perimeter, nurses' station at one end, and service areas in a central island, is typical for the maternity, pediatric, medical and surgical units. In the new addition, this design has been altered to more efficiently locate the nurses station in the center of the oval design serving each 52-bed unit. Also, to expand critical working area, the medicine-preparation area has been tripled in size. The mostly semi-private bedrooms are equipped with private baths, and serviced by a heating-cooling coil with a high-velocity induction system for ventilation. All air is exhausted directly to the outside to prevent cross infection.

Elevations are face brick, relieved by four-story window wall panels. Roof and floor slabs project four feet and support the dramatic, automatically movable vertical louvers which act as sunshades.

ARCHBISHOP BERGAN MERCY HOSPITAL, Omaha, Nebraska. Architects: Leo A. Daly Company; mechanical engineers: Natkin & Company; electrical engineers: David A. Baxter & Sons, Inc.
Evanston Hospital: Updating in a New Wing

The design of the new John J. Louis addition to Evanston (Ill.) Hospital illustrates the trend toward highly specialized facilities in hospital design.

The fifth floor houses an intensive care unit consisting of 18 glass-enclosed private cubicles, 10 for critically ill post-surgical patients, eight for patients with severe heart conditions. The rooms are arranged around an open central area where two nursing stations are located, one for each type of ailment. In the cardiac cubicles, special equipment continuously monitors the patient's heart action on an oscilloscope above the patient's bed, in view of the nurse, and on another "scope" in the nursing station.

A special-disease unit on the fourth floor is equipped with ventilation and air-conditioning devices for the control of cross-infection, two high-humidity rooms, gown and scrub alcoves outside each pair of rooms, corridor doors to limit the isolation area, and three rooms designed especially for children.

Ground and first floors of the building provide facilities for modern group private practice. On the first floor, the hospital's doctors share 11 examining rooms with adjoining consultation rooms. No space or equipment is permanently assigned. A central core consisting of nursing facilities, laboratories and proctology services this private practice area as well as the adjoining complex of seven "hotel-type" rooms designed to accommodate those visiting the hospital for an annual health checkup. A suite of three large offices opposite the physical therapy department on the ground floor provides private practice facilities for the hospital's chiefs of staff.

A noteworthy design feature of the second, third and fourth floor semi-private surgical-nursing bedrooms is a mirror-washbasin-cabinet assembly separated from the bathroom by a partition which thus permits their simultaneous—yet private—use.

Cross corridor doors and scrub areas promote asepsis in specialized areas.

Ground floor physical therapy department is equipped for acute care and hydrotherapy.
The giant, 2-million-square-foot U.C.L.A. Center for the Health Sciences, which entered construction in 1951, is embarking on its final phase of design and construction. With completion of the building—the Reed Neurological Research Center—in 1970, the complex will become the largest single building in Southern California. It will represent a total building cost of $75 million, and a total project cost of $106.75 million, including garages and equipment. Welton Becket and Associates have been continuously engaged as architects and engineers on the project since 1948 in both master planning and design.

The center includes three basic activities: medical, dental, nursing and social welfare education; (2) research; and (3) teaching and research in hospitals and outpatient clinics.

The architects decided to unite these related activities in one structure and integrate them horizontally so that students and professors engaged in one service, surgery for example, could move between classrooms and laboratories at one floor level and hospital patients at the same level.

At the same time, it was decided that the center would have to be constructed in increments with enlargement of original units and with new units capable of being appended over a period of 20 years or more years vertically and horizontally in all four directions.

In order to permit this kind of growth in the basic structure which would provide ample light and air, the original medical center building was designed in the shape of a double Lorraine Cross with common center arms. This created large interior courtyards and provided 10 exterior positions at which additional structures could be added to the project developed.
In the fall of 1958, construction started on the Neuropsychiatric and Brain Research Institutes. Attached to the main structure's two westward arms, this addition enclosed a third interior courtyard. The Neuropsychiatric segment consists of a six-level cross shaped building with a 188-bed hospital, clinic and research facilities, while the brain research segment, consisting of a 10-story L-shaped wing attached to one arm of the cross, contains extensive neurosurgical, neurological and research facilities. The two were completed in January 1961.

The U.C.L.A. Mental Retardation Unit is a four-story addition being built of structural steel on top of the Neuropsychiatric Institute as shown at left in the photo opposite. It will include 66 beds, and completion is set for February 1969.

All of these mental facilities are integrated over a podium of admissions, examination and teaching spaces.

Spacious classrooms provide for rehabilitation and observation of young mental patients in school-like situation.

Outdoor recreation space is atop reinforced concrete podium of the psychiatric complex.
The Marion Davies Children's Clinic, completed in 1962, is a four-level structure, reinforced concrete with brick exterior, designed for future expansion to 10 levels. It houses the outpatient pediatrics department and research laboratories and extends, with its own forecourt and entrance, southward from the original outpatient wing, to which it is connected at each level.

Construction of this clinic is followed by an eye clinic (opposite), school of dentistry (1967), school of public health (1968), and top floor additions and renovations already scheduled.
The Jules Stein Eye Institute, one of the largest centers of ophthalmic research in the United States, went into construction in September 1964 and is nearing completion. It is a five-level building for teaching, research and treatment, containing first-floor outpatient clinics, a basement surgery suite with viewing galleries, seminar and library rooms and a 50-bed nursing unit. Cost was over $5 million including $640,000 in special equipment for operating rooms and laboratories.

CENTER FOR THE HEALTH SCIENCES, UNIVERSITY OF CALIFORNIA AT LOS ANGELES. Architects and engineers: Welton Becket and Associates; structural engineers: Stacy & Meadville, Inc.; for the university Office of Architects and Engineers: Carl McElvy and Vernon Barker (to 1963) and (since 1963) James E. Westphall, chief, and Asa Smith, project architect.
Planned expansion of medical teaching facilities at Western Reserve University takes long-term advantage of multi-discipline and shared teaching spaces in a five-acre, two-level structure which serves as a podium for three schools—medical, nursing and dental. The basement of the podium houses animal facilities, parking and experimental surgery areas. A dental clinic and nurses’ laboratories, lounge areas and additional parking are located at the ground level. Atop the planted podium, superstructures of the three schools emerge.

The Nursing School will be three stories high with the first-floor housing offices, conference and lounge areas. Geared to graduate student activity, the second floor will provide space for extensive behavioral science research. The third floor will include faculty offices, mechanical equipment, and a simulated hospital ward.

First- and second-year dental students will do most of their studying in the two large multi-discipline laboratory areas on the second floor of the three-story School of Dentistry. The first floor will house a dental museum and lounge areas, and the third floor will provide space for graduate research.

The seven-story East Wing of the Medical School will contain all the classroom, study area and student multi-discipline laboratory facilities of the school, permitting conversion of the existing building into a basic science research building.

This two-unit addition to Memorial Hospital of Long Beach provides specialized spaces for patient and outpatient rehabilitation, and a service called "advanced care" which is similar in concept to ambulatory and self-care units but is adapted to pre-discharge care of rehabilitation patients. Special features of the rehabilitation units include a speech and audiometric evaluation center, an "activities of daily living" apartment designed to simulate a home environment, and a long, many-surfaced area in the gymnasium (including wood, gravel, concrete, grass, and blacktop) which provides training for wheelchair and ambulatory patients under virtually every condition.

Memorial West, the 86-bed advanced-care unit, is sensitively designed. Each two-bed room is equipped with individual climate control, intercom, full bath, personal storage space, coffee maker, and wheelchair-height vanity.

Exterior design is straightforward, pleasant, and functional. Foundations and structure are designed to allow for expansion to four floors.


Body whirl pools, Hubbard tanks, sauna bath, showers, and a 30-by 40-foot tile pool equip the rehabilitation unit for extensive hydrotherapy. Occupational therapy areas include the crafts and gymnasium rooms shown above, and an adjacent glass-enclosed power tool and shop workroom.
Wind, sun, rain
and the exterior wall

The curtain wall has many faces and places—the United States Steel building in Pittsburgh, Hartford Plaza in San Francisco, the Libbey-Owens-Ford building in Toledo shown here are but a microscopic sample of the seemingly endless array of design concepts, materials and systems that have been used to date. And still more are lurking on the horizon. In the glass area alone, there are countless developments. Among them: lightweight, high-strength glass; flexible glass; glass which changes color with the light; glass-ceramic panels for building cladding; suspended glass; glass mullions. . .

With such a vast field, one can only skim a few of the highlights in a report such as this: NAAMM’s new tentative standards for wind loads; Eliot Noyes’ further explorations into the precast window wall; curtain wall details of New York’s pending World Trade Center; a glimpse at some of the new analysis and research developments; and an occasional recall of some of the many comprehensive articles from past issues of ARCHITECTURAL RECORD that bear on the subject of fenestration and the exterior wall.

Perhaps the most important development in the whole area is the increasing tendency for concern, care, and co-operation of all concerned in the construction of a curtain wall building. In the May-June 1967 issue of Building Research, L. J. Heitmann, structural and test engineering manager of Cupples Products Corporation, is quoted as saying much the same thing: “In my capacity as a representative of a metal curtain-wall manufacturer, I find myself constantly engaged in evaluation and performance testing of complete curtain-wall assemblies . . . we must be concerned with evaluating all of the materials in the wall, both on an individual and interaction basis. Failure of any one of the components (causes) unsatisfactory results in the over-all wall.”
Wind variations across the country are indicated on the map above, which shows maximum annual extreme-mile wind velocities, 30 ft. above the ground, predicted by the U.S. Weather Bureau for a 50-year recurrence interval.

Local conditions, or terrain roughness, also affect wind velocity, as can be seen in the graph at left, based on work by A. G. Davenport.

### The problem of wind loads versus a building's shape, height and locale

With the increasing attention being given to the problems of wind loads on buildings of ever-mounting size, height, glass area, many new and more sophisticated engineering approaches are being developed, with increasing attention conditions in the immediate vicinity of the project. Some of these, including special analysis, and the testing of scale models, are being pursued for very tall buildings in "An Engineering Approach To Designing G-For Wind", ARCHITECTURAL RECORD, February 1967. As these methods are applied to more and more major buildings, no doubt the fund of knowledge thus acquired will eventually lead to a very authoritative and precise set of standards on the nature of wind for all and their effects in our cities.

In the interim, a more simplified and handy method of estimating design wind loads has been proposed by the National Association of Architectural Metal Manufacturers in their recent publication "Tentative Standard for Design Wind Loads for Walls of Rectangular Buildings" (NAAMM Standard WL-67). Although it reflects much of the current knowledge on wind design procedures, NAAMM stresses that the standard is necessarily tentative, and further revisions may be anticipated.

In a 1-2-3 procedure, the applicable wind loads for walls of rectangular buildings are determined as follows:

1. Find the wind velocity given the geographic location of the building on U.S. Weather Bureau map (top left).
2. Determine which type of exposure governs (Table A, B or C, left).
3. Find the design loads to be used for various heights from the corresponding Design Wind Pressure Table (A, B, C), and in the column headed by the appropriate velocity from the map.

For intermediate heights not listed in the tables, a supplementary graph (right) showing continuous values may be substituted in a general formula to find the design load:

\[
\text{Design Wind Pressure} = \frac{q_{fa}}{K_{h}} \times G \times (C_{p0} + C_{c})
\]

in which \(q_{fa}\) = velocity pressure at 30-ft. height = .00256 \(V^{2}\) (\(V_{30}\) = gust factor)

\(G = \) gust factor \(0.65 + 4T_{s}\)

\(C_{p0} = \) external pressure coefficient

The value \(+0.9\) is used

\(C_{c} = \) internal pressure coefficient

The value \(\pm 0.2\) is used.

---

NAAMM stresses the importance of a building's surroundings in its new "Tentative Standard for Design Wind Loads for Walls of Rectangular Buildings" by providing charts for three basic types of exposure:

Table A: heavily built-up urban sites protected by tall buildings, or sites protected by such natural barriers as hills or mountains.

Table B: suburbs, towns, wooded areas or rolling terrain, where nearby barriers provide general protection on all sides.

Table C: unprotected sites in flat, open country or near shorelines of large bodies of water, fully exposed to a long fetch of wind.
For large cities, as New York (above), with very tall buildings, engineers Worthington, Skilling, Helle & Jackson plot 20-minute extreme winds versus return years or probability (right) to help decide wind loads to design for.

NAAMM provides a graph (left) to obtain design wind loads for building heights not given in the charts at far left. Values of $K_h$ (height factor) and $K_e$ (exposure factor) for any height may be substituted in the general formula given in the text.

Wind tunnel tests on models by Worthington, Skilling, Helle & Jackson show (below and left) how wind direction can create negative pressures, or suctions, as well as positive ones, and how wind pressure can vary over a facade (in percentages of gradient wind velocity).
The effect of loads of different duration of time on various strength glass is shown in the table, top right. The lower table shows the probable effects of employing different factors of safety.

The smaller the coefficient of variation, the fewer lights of glass would have a given percentage of strength less than the mean. A figure of 42 per cent less than the mean is used in the probability curves top left as an example. The two lower charts show how both the coefficient of variation and the total number of lights in a building change the required safety factor.

**THE RELATIONSHIP OF LOADING TO BREAKING STRESSES**

<table>
<thead>
<tr>
<th>Type of Loading</th>
<th>Approx. Duration</th>
<th>Plate Glass P.S.I.</th>
<th>Window Glass P.S.I.</th>
<th>Heat Strengthened P.S.I.</th>
<th>Fully Tempered P.S.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sonic Booms, Blasts*</td>
<td>0.1 second</td>
<td>6,000</td>
<td>6,600</td>
<td>15,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Wind Gusts</td>
<td>5-10 seconds</td>
<td>5,500</td>
<td>6,060</td>
<td>13,750</td>
<td>27,500</td>
</tr>
<tr>
<td>Fastest Mile Wind</td>
<td>1 minute</td>
<td>4,000</td>
<td>4,400</td>
<td>10,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Long Term 2 hours/minute</td>
<td></td>
<td>3,000</td>
<td>3,300</td>
<td>7,500</td>
<td>15,000</td>
</tr>
</tbody>
</table>

*The complex nature of these loads requires special engineering study when design criteria are to be established.

**THE RELATIONSHIP OF SAFETY FACTORS TO THE STATISTICAL PROBABILITY OF FAILURE**

<table>
<thead>
<tr>
<th>SAFETY FACTOR</th>
<th>Probable Number of Lights* Which Will Break at Initial Occurrence of Design Load (of each 1,000 loaded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>500</td>
</tr>
<tr>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>2.5</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>1.3</td>
</tr>
<tr>
<td>5</td>
<td>0.7</td>
</tr>
<tr>
<td>6</td>
<td>0.2</td>
</tr>
<tr>
<td>8</td>
<td>0.15</td>
</tr>
</tbody>
</table>

*Rectangular lights adequately supported on four edges in a weather-tight cavity, assuming statistically normal strength distribution and a coefficient of variation of 25%.

The strength of any glass is a variable factor

Statistical analysis, especially as it applies to the variability in strength for any type of glass, is becoming increasingly important when determining the factor of safety for glass, as it is in determining the loads of very tall buildings. As pointed out in the article, "Engineered Glass: An Illustrated Design Guide," the Architectural Record, February 1967, there are always some minute variations in glass, and more in polished plate than sheet glass. The obvious difference in strength from flaws causes similar differences in probability of breakage, expressed as a coefficient of variation (Cv), its current values are 0.25 for annealed glass, 0.20 for heat-strengthened glass and 0.15 for fully tempered glass.

The last two processes tend to heal flaws and strengthen the glass, and create a lower coefficient. What this means to the safety and the probable failure of breakage can be noted in the graph at left. Incidentally, the safety factor followed for in most manufacturers' load charts is 2.5; a more complete tabulation of safety factors is given below left.

Without doubt, statistical methods applied to predicting probability of failure of glass can be very useful to the structural designer. Ed Michalik, of Pittsburgh Plate Glass, points out, that a difference exists between laboratory test data, which assume statistically normal strength distributions with a coefficient of variation of 25 per cent, and actual job exposures. The design should be aware that various fabrication techniques and job-site exposure conditions may influence the coefficient of variation. When it is larger than 25 per cent, more breaks per thousand can be expected; or when the coefficient is less than 25 per cent, fewer breaks per thousand would need to be expected.

"An areal effect is related to the conjectured areal distribution of the number and intensity of flaws in the surface. Evidence shows that large lights of glass fracture at a lower applied stress than smaller lights.

"Glass reacts differently also to loads of short duration and to loads of long duration [see chart top right]. The tensile strength of glass for short duration loads [in seconds] is higher than the tensile strength under long-term loads [months]. For normal surface quality glazed, the ratio is approximately 2 to 1.

It is also interesting to note the effects on glass strength of such "minor" damage as a label, as in chart at right.

Cost versus strength

Of course, the usual problem these days is not to find a glass strong enough...
The graph at top plots the variations encountered in load/time tests on different glasses, and illustrates them as roughly hour-glass shapes. It is interesting to note in the next chart down that most all glass changes from compression to tension at about 21 per cent of the depth. The third chart plots the effects of different abrasions on glass. Note the effect of tempering before and after the abrasion. The charts below indicate the effect of using thicker glass on both costs and probability of breakage.

Damage to glass after installation

It is becoming more evident that a number of conditions can significantly damage the surface of glass after installation. Otto F. Wenzler, of Libbey-Owens-Ford Glass Company, pointed out a number in recent speech at the University of Wisconsin: "Damage to the surfaces of glass can be caused by the alkalis which may be leached from precast concrete panels by rain. Damage to glass may also be caused by fluorides in the washoff from concrete floors which have been treated for hardening with solutions of zinc or magnesium fluosilicates. These materials will stain or etch the surface of glass if allowed to remain for a few days. There is no practical method for restoring the glass surfaces. The corrosive materials leached will appear as white streaks.

Such staining will be more noticeable on the tinted heat-absorbing type glasses and on the darker colors of opaque glass because of the greater contrast between the generally light color of the stain or etch and the darker glass. There is nothing in the composition of these glasses which will influence their susceptibility to staining and etching, as compared to regular plate or sheet glass.

"The best way to avoid this problem is to wash the glass just as soon as practical following rain or other washoff conditions. Protection of glass against damage is usually the responsibility of the general contractor and it is therefore good practice to advise him that the windows should be washed during construction so that the washing may be included in his job bid. It may be advisable to alert the building owner of this condition when the building is turned over to him because the glass should be washed until the alkalis are no longer leached from the concrete.

"Installation of neoprene structural gaskets on the surrounding frame and the installation of the glass and neoprene locking strips are facilitated when a lubricant is used. A lubricant which is highly alkaline should not be used because the washoff due to rain can stain or etch the glass. Cases are known where a household liquid detergent was used as a lubricant that contained the alkali sodium silicate and the washoff stained the glass.

"We suggest that the gasket manufacturer recommend a suitable lubricant. One manufacturer recommends a small amount of glycerine in water.\"
A sampling of many of the ways that sun and view control has been integrated in precast window walls by Eliot Noyes and Associates. The panel at center right offers a wide, but sun-baffled view, and incorporates a ventilation system below each window.

New directions for sun control range from precast innovation to reflecting glass buildings

In addition to continuing studies and laboratory research to improve the effectiveness of such orthodox sun shading devices as blinds and drapes, there is a growing trend toward the use of dark and deeper glass, the new reflecting glasses, and precast window units occasionally highly unorthodox shapes and projections.

One of the architectural offices which was one of the forerunners—still a constant innovator in developing integral sun shading in precast wall panels—is that of Eliot Noyes & Associates. When questioned about their many variations (see sketches and below right), Arthur DeSalvo, Jr., associate of the firm, made the following comments:

“Our continuing study of concrete building walls has been a serious effort to find new architectural solutions, within the vocabulary of advanced technology, that will provide better solutions to problems of environment. Each individual study is related to a specific use of the building and its surrounding environment, yet it also is related to the processes and results of preceding projects. We feel that each project, with its individual requirements and conditions, is a new challenge, but that there is a thread of continuity in the entire series based on knowledge gained through the process of development and execution.

In our studies, we consider the total building fabric, which is made up of voids and solids, as a series of units that in their total assembly, produce both the wall and the window. Traditionally, the window has three basic functions: it transmits natural daylight; it provides means of ventilation, and it provides view (sometimes undesirable) for the occupants of the building. In our air-conditioned buildings, only the former and the latter become real considerations.

Through observation, we became more and more aware that windows facing direct sunlight produced an excessive heat gain within the building, and ceased to function as window because blinds were dropped to the sill blocking the view from the building. In our studies, we have tried to overcome this problem by providing a limited unobstructed view through openings in the wall turned away from direct sunlight. The sunlight still enters the building in limited amounts, but falls in areas that are no objectionable to the occupant. In more designs, the need for any blinds or exter...
The changing aspects of the new reflective mirrored glass are illustrated above in Expo 67's Quebec Pavilion by architects Papineau, Gerin-Lajoie, Leblanc & Durand. Below: glare and heat control are augmented by light-gray glass walls and a darker-gray sunscreen.

Courtesy of American Saint Gobain

Probably a logical development from Eliot Noyes' separate panel studies is this scheme which uses a number of differently fenestrated panels, which, in combination, permit windows to be placed most anywhere on the plan as desired, and with most any kind of directional view. The section of a typical panel is shown at left.
When solar radiation strikes a sheet of glass it is either reflected, transmitted or absorbed. Chart compares transmittance of various glasses, including special glasses available with low transmittance to the sun's infrared heat.

Thermal comfort studies rank among the current research projects of PPG Environmental Laboratory. The chart at left gives the vote among the current research projects of the PPG Environmental Laboratory. The chart at left gives the vote of sensation of warmth-cool is determined from the correlation of high temperature radiation and low temperature radiation as found in the experiments. Room air was 75 F.

Tinted glass glazing recommendations by Pittsburgh Plate Glass include: tinted clean-cut edges; protection of edges; no glass-metal contact; resilient glazing compound; do not nip or damage edges; do not sandblast.

However, custom (extra cost) factory fabrication is stated to be required if any of the conditions sketched at left apply: A. when glass-shade space is less than 1 in. or non-vented or shading between glass or in spandrels; B. heat source between glass and shade; C. concrete or other framing with large heat capacity (not recommended for tinted glass unless tight tolerance control is kept); D. bent glass; E. pattern cuts when thickness is over 1/4 in.; F. edge area over 200 sq in.; G. outdoor shading with double diagonal shade lines; H. pattern cuts with notches or holes.

Solar control with glass
Probably the major trend at the moment, however, is toward more and larger panes of glass, and the use of glass itself to cope with the sun. Much has been written in the past several months on the burgeoning field of heat-absorbing solar-reflective glass. And the architectural profession has been extraordinarily receptive. Already, the elegant dark glass facade is a familiar sight in most of our cities, and the shimmering mirror quality of the Quebec pavilion at Expo 67 is having its due recognition. Data on properties and performance of the various types of glass currently on the market is readily available from the various manufacturers (for a summary of the characteristics of special glass, see John L. Yellott’s article “How materials react to solar energy,” ARCHITECTURAL RECORD, June 1966).

And, of course, special properties often bring special problems; many of them are reviewed in “Glazing recommendations for tinted glass,” RECORD, December 1966.
World Trade Center

tain wall details

ss latest ideas

ably the most newsworthy of current
num and glass curtain walls being
oped are those of New York City's
Trade Center. As everyone cer-
knows, the center will include twin
rs which, when completed by archi-
Minoru Yamasaki and Associates
Emery Roth & Sons, will be the tall-
buidings in the world. Because of the
est in the project, and because the
ning behind its curtain wall system
ents a sort of primer of much cur-
thinking on the subject, the next
ages are devoted to basic details on
and why this particular system is
developed for the center.

The criteria set up for the integrated
wall system were as follows:* 

- Weatherproofing against infiltra-
of water, air, and dust as well as
rol of vapor transmission and con-
station, utilizing creative engineering
metalcraft to avoid primary reliance
esile gaskets and compounds.

- Engineering compatibility of the
with the structure it encloses, with-
ding all imposed live and dead loads,
iding adequate insulation for com-
and fireproofing, relieving or con-
ing all differential thermal move-
ts

- Simplicity of design to minimize
pts and other points of vulnerability,
lication to minimize space, cost
cheduling problems, of erection for
ed, flexibility and safety.

- Erection details and techniques
ch permit freedom of weather effects,
edom of sequence and conflict with
er trades, easy replacement of dam-
 components, and convenient ad-
ment to permissible tolerances of the
uctural frame.

- A finish developed to comple-
the character of World Trade Cen-
accomplishing the designer's esthetic
ent with maximum life and minimum
inance.

- A favorable performance/cost re-
onship.

To meet these ideals, a great num-
of ideas were explored, including
olithic column covers of aluminum
ded to fireproofing; absorption of ex-
sion in compressive stress; one piece
multiple extruded column covers;
automated field welded joints; "boot-
ap" erection utilizing window cleaner
icks; board and foamed-in-place ure-
ane; and fireproofing of several basic
material in this report is from a presentation by
imum Company of America and Cupples Prod-
s Corporation for the development of the curtain

Pressure equalization to prevent
leakage stems from the following
bervations: difference in pressure
from wind loads sucks water
through tiniest openings (above
left); flashing gutters do not prevent
water build-up under constant
ure differential (above right).

A pressure tight inner wall equal-
izes pressure, but too large a void,
combined with narrow air path
above left still permits overspray.
A smaller void and wide air path
above right) help by giving imme-
diate equalization response. Wide
aperture reduces air velocity and
stops overspray.

The horizontal section above shows
ow the pressure equalization the-
ory is adapted to glazing.

The World Trade Center curtain
wall spandrels use steel structure
as inner wall to achieve pressure
equalization.

The cut-away detail above shows
the flashing gutter, which is con-
inuous around the entire building at
every floor.
For relief of vertical expansion in the curtain walls of the World Trade Center, no structural connection exists between vertical bays except sliding alignment pins. Column covers and window-spandrel assemblies are secured only at anchor castings.

Horizontal joint widths at sills and column covers are dimensioned to permit full "hot travel" and still provide sufficient aperture for pressure equalization.

The metal curtain wall is designed to resist total design loads and transfer them into the building frame. Direct wind loads on washer and wall are not considered additive due to air voids between them.

Horizontal thermal movement is relieved by accordion action of column covers, indicated by dotted lines.

The heat flow characteristics of column, spandrel and fireproofing are shown in this diagram.

The basic standardized components which assemble to form the curtain wall are shown in the diagrammatic sketch above.

The horizontal column section (left) shows relationship of the vapor resistant envelope to the vented void which also separates the inner wall from the outer wall to accomplish pressure equalization.
Series of materials—cast, extruded, laminated, \( D \), and poured in place.

**Prevention of leakage**

A major factor in developing a water-stop wall, according to Irving E. Ger-ard, partner in charge of design for Ky Roth & Sons, was the adoption of a single-wall system to equalize pressure on both sides of the exposed exterior surface. This technique is based on the concept that three conditions must be simultaneously before rain penetrates the wall: an opening, water at the opening, and force to drive water through the opening. Due to the extreme difficulty of eliminating any of these conditions in windy, rainy weather, the double wall system (utilizing pressure equalization) takes it for granted that there will be openings in the outer wall—provided deliberately by design requirements or inadvertently by thermal movement. Such openings in the outer wall are designed as "gravity shed" of water and are lined up to such a degree that air pressure outside from wind and gusts is immediately reflected and equalized in the void between outer and inner wall. By eliminating the pressure differential, there is no force to carry water through the opening. The elimination of force repeatedly also greatly reduces wind loads on the outer wall (in this case, the minimum curtain wall), and transfers them to the inner wall (the steel structure) which is designed with few openings to minimize air infiltration.

The glazing is not treated as a "double wall", but as glass is an impermeable membrane it was considered only necessary to pressure equalize the glazing seal and carry the seal to the inner wall. To confirm the actual performance of the system, a complete wall section, 8 feet wide by 26 feet high, was put through a series of wind and water infiltration tests.

**Thermal considerations**

Movement in the curtain wall due to thermal expansion has been provided for vertically (see sketches on preceding page) by having no structural connection between vertical bays except sliding alignment pins, which are also designed to resolve horizontal loads equally between vertical bays. Column covers and window spandrel assemblies are secured only at anchor castings. Thermal movement is planned to occur vertically in the direction without restriction of the selected hole fasteners or spring-type anchors. Horizontal thermal movement is efficiently relieved by an accordion action of the column covers.

For thermal insulation to be applied
to the structural steel components of the wall (columns and spandrels), a sprayed mineral fiber was selected which reportedly serves to control column temperature to a minimum of 50 degrees with 70 degrees inside and 0 degrees outside; provides fireproofing to meet a four-hour test on a heavy column; and minimizes heat loss and gain to satisfy HVAC requirements. The sprayed insulation will be used on the three exterior sides of the column and both sides of the spandrel plate. The room side of the column will be covered with gypsum plaster to meet fireproofing requirements with a relatively high "K" value to permit heat migration to the steel and thus hold steel temperatures above specified minimum during extreme and prolonged cold periods.

As fireproofing materials can deteriorate with trapped moisture, particularly under freeze and thaw cycles, a vapor barrier is provided on the warm side of the wall, coupled with free breathing to a vented void on the cold side. This is, of course, a standard safeguard against damage from unvented vapor transfer, weather change condensation and existence of any minor leaks or siphonage. To prevent any "poultice corrosion" of the aluminum facing, which can occur under close long-term contact with moisture-laden materials that are markedly acidic or alkaline, the metal wall is separated by the same vented void from contact with the absorptive fireproofing. To prevent possible corrosion from dissimilar metal contact, a stainless steel which is a film forming material and compatible with aluminum was selected for a window washer track.

**Simplicity of panels**

Based on a relatively few standardized components designed to be assembled simply and easily in the field, the curtain wall panels for the World Trade Center (right) are also planned for inside setting of all metal and glass to avoid delays. All components subject to exterior damage during and after construction are designed so they can be replaced individually without disturbing similar adjacent members. The wall design also permits erection of any column cover on a floor without regard to the sequence of erection of any other column cover. They will be a clad "sandwich" type sheet, specially alloyed and processed to produce a warm color tone with a 1-mil anodized coating, and thick enough to maintain flatness through fabrication and erection. After such thorough programing and testing, which seem to cover the entire "problem" of the curtain wall, the effects of real wind, sun and rain are awaited with huge interest.

The details of the curtain wall developed for the World Trade Center carry out the principles illustrated in the diagrammatic sketches on the preceding pages. A panel of the assembled wall exterior is shown below.
When your client confronts you with a tough walk-in cooler or walk-in freezer problem, come to Bally...

Chances are we already have the answer...

comes from thousands of Bally efab Walk-In Coolers and Freezers ready in use. Installed in schools, hospitals, hotels and motels, food stores, bakeries, dairies, research laboratories... wherever the finest in refrigeration is required. Each time, the answers to problems come more easily because we keep perfecting our techniques and our product.

Ask us. No matter how difficult the problem. Ask us for details about handling every type of food... and special materials including drugs, blood plasma, epoxys, film, chemicals. Ask us about relative insulation efficiencies... how to plan special sizes or layouts... shelving... special doors or display windows. The answers come from our experience.

Answers from Bally are answers from the leader in the industry. The company that developed the use of 4" self-extinguishing urethane foam insulation equal to 8½" of fiberglass; the inventor of self-closing magnetically sealed doors; the company who designed the patented Speed-Lok that makes installation easy... makes it easy to add sections for size increase... equally easy to disassemble and relocate.

Our Engineering Department will be happy to work with you. For more information, send for free Architect's Fact File which includes a 32-page catalog and a sample of urethane.

See our catalog in Sweet's Architectural File, No. 23a/BaL.

Bally Case and Cooler, Inc.
Bally, Pennsylvania 19503

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COTTON—THE FIBER YOU CAN TRUST

The draftsmen who design Cramer draftsmen's chairs must sit on these same chairs most all day. So they design them to be comfortable. Can you think of a better reason?

Here are just a few of the things they've included for comfort.

* A seat that tilts forward to relieve under leg pressure . . . it's individually adjustable (only Cramer chairs have this). 
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* A soft thick seat cushion that's cool. 
* And for your esthetic sense, you have a wide choice of fabric colors . . . and you can change colors, because covers are easily replaceable.

If you can't find a supplier close-by that carries Cramer draftsmen's chairs—write us. We'll reply immediately!
Cramer Industries, Inc., 625 Adams St., Kansas City, Kansas 66105.

CRAMER INDUSTRIES INC. * KANSAS CITY, KANSAS
A Subsidiary of U.S.M Oil Co
IDENT STACKING CHAIR / This ver-
e chair features a laminate lift-flap
ting tablet fixed to the back. The chair
have a plywood or upholstered seat
may have arms. The frame is a rec-
gular welded steel tube with a baked
finish. Other chairs have been
signed for specialized functions. For
ample, there are chairs with a special
for cantilevered wall mounting for
ium seating, and chairs with a remov-
e tablet arm. • Harvey Probber,
York City.

Circle 300 on inquiry card

SCULPTURE LIGHT / This fixture, with
a baken-on bronze finish, was designed
for such commercial installations as ho-
tels and motels, but it can be adapted to
lower ceiling by adjusting the tube
lengths. The different lengths of the
fifteen sets of tubes and the varying
itions of the lights between are said to
give a definite psychedelic effect. The in-
side of the tubes are black so that there
will be no diversion of interest from the
outside. • Trimble House Corporation,
Atlanta.

Circle 302 on inquiry card

SCULPTURE UNDER GLASS / Sculpture
with glass tops may be used as tables.
The table shown has a base of gold and
silver leafed steel that measures 15 in.
high by 22 in. square. The ½-in. glass
top is 42 in. in diameter. The sculptor
works with architects in creating custom
design tables. • William Bowie, The
Sculpture Studio, Inc., New York City.

Circle 303 on inquiry card

PARK BENCH / This vandal-proof, cor-
rosion-proof bench is available in eight
modular variations. It combines a mod-
ern design with non-maintenance char-
acteristics and carries a 10-year factory
guarantee. • Colorguard Corporation,
New York City.

Circle 304 on inquiry card

SPECIAL TABLES / Shown is the lounge
area at Boston University. The table bases
may be cast iron, aluminum or bronze
with a variety of finishes. The tops are
hardwood plywood with a choice of
plastic laminate coverings, and the edges
are guaranteed for the life of table. •
Chicago Hardware Foundry Company,
North Chicago.

Circle 305 on inquiry card

more products on page 225
ROOFING SYSTEMS / Engineering Properties of Roofing Systems—409 presents information on the forces to which a roofing system is subjected and the resulting response. Included are: the results of a study on the deformation response of a fluid-applied nonbituminous roof coating; roofing systems using bituminous materials for waterproofing and the properties of these materials; the effects of wind, moisture changes, and thermal changes on roofing systems; and information on the laboratory response of roofing systems to the application of load. The book is illustrated with photographs, charts and graphs. Each paper is abstracted and contains a key-word index and several of the papers include discussions. $14. • American Society for Testing and Materials, 1916 Race Street, Philadelphia.

BUILDING PRODUCTS / Standard-type and special-design products developed for commercial, industrial, educational, institutional, warehousing and governmental service building construction are featured in a revised 68-page, instant-reference "encyclopedia." Detailed data is presented on such products as insulated metal curtain walls, rolling steel doors, steel floors, deck, and ceiling systems. Letterhead requests. • The R. C. Mahon Company, 6565 E. Eight Mile Road, Detroit.*

OPERABLE WALLS / A comprehensive architectural products manual contains nine sections with detailed data on 42 partitioning lines. The architect will automatically receive new leaf literature from time to time. Letterhead requests. • New Castle Products, Inc., Dept. APM-67, P.O. Box 310, New Castle, Ind.

STAINLESS STEEL ROOFING / A booklet that describes the latest developments in designs and specifications for stainless steel roofing systems and components incorporates a complete range of applications. Details demonstrate how stainless steel can be incorporated into complete metal systems. • Republic Steel Corporation, Cleveland.

CENTRALIZED CONTROL SYSTEMS / A 28-page color booklet discusses basic types of systems along with case-history examples of actual installations. Coverage ranges from functions handled by a building centralization system, such as mechanical control, equipment surveillance, security and fire detection, and programming, to economic benefits and costs involved. • Honeywell's Commercial Division, Minneapolis.* Circle 401 on inquiry card

CARPETS / A 24-page color booklet pictures more than a hundred designs and explains that there are a hundred standard colors, or if necessary special colors may be ordered. Included in the booklet are sections on handmade area accent rugs, custom order designs for handmade fabrics, custom carving designs and textural combinations and accent tufting. • Berven of California, Fresno, Calif.

CONCRETE PROTECTION / The cause and prevention of surface spalling of roadways, bridges and other exposed concrete structures are examined in an 8-page brochure. Text findings, as summarized in the brochure, indicate that conservative use of air entrainment coupled with application of Linspeed Anti-Spalling Compound offer a good solution to the problem of exposed concrete surface preservation and maintenance. • National Flaxseed Processors Association, Chicago.

LIGHTING SYSTEMS / An 8-page booklet presents basic data for system design. Charts include detailed information on spacing ratio, lamp data and watts per square foot for various foot candle levels. • Lightolier, Jersey City, N.J.

CHURCH FURNITURE / A 4-page brochure seeks cooperation between architects and church furniture makers and covers points toward achieving this goal. • Church Furniture Manufacturers Association, Chicago.

STEEL / "Steel Architectural Product The New Generation," is a 22-page booklet that shows many colors, textures, sizes and shapes found in steel building components. Product divisions include roof decking, floor decking, window and window walls and panels. • American Iron and Steel Institute, New York City. Circle 406 on inquiry card

SHINGLES INDOORS / An illustrated brochure shows novel interior applications of shingles and shakes. • Republic Cedar Shingle & Handsplit Shake Bureau, Seattle.*

CHLORINATED RUBBER COATINGS / A bulletin describes Korchem coating which can be applied in five- to six-mil dry film thickness in one spray or brush application. These coatings are recommended for steel and concrete surface which are exposed to severe conditions such as chemical fumes and spillage immersion in water. • Subbox Coatings Division, Wyandotte Chemicals Corporation, Hackensack, N.J. Circle 408 on inquiry card

PERFORATED MATERIALS / A 176-page wire-bound handbook offers technical data, application photos, pattern descriptions and actual-size illustrations, as well as informational tables on perforated designs and materials. Metallic materials include steel, aluminum, stainless steel, brass, copper, monel, zinc and bronze. Such non-metallic materials—plastic, wood, composition, paper, cloth may also be perforated. • The Harrington & King Perforating Co., Inc., Chicago.*

ACRYLIC SHEET / A 12-page color catalog shows applications for building construction as well as descriptive data. American Cyanamid Company, Wakefield, Mass. Circle 410 on inquiry card
Libraries too! … Pedestal tables by CHF

Simplicity of design does make a difference … and with CHF tables, the beauty of a single pedestal cast base gives a quiet, uncluttered look. Chairs fit easily under table and room congestion is reduced. Lecture rooms, auditorium seating, dining or lounge areas … libraries too, look to CHF. Call or write.
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For more data, circle 86 on inquiry card

EPCO

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Each EPCO knob is carefully designed for beauty, durability and easy installation. Each is machined from aluminum or brass bar stock. Brass is in all standard hardware finishes. Aluminum is anodized clear, brass bronze or black.

Free 44-page catalog on all EPCO Knobs, Pulls, Magnetic Catches and sliding door hardware available on request.
See Sweet's Catalog under Arch, file 35h-En and Light Const, file 7b-En.

THE ENGINEERED PRODUCTS CO.
P.O. BOX 108 FLINT, MICHIGAN

For more data, circle 106 on inquiry card

EPCO

PULLS FOR DRAWERS AND SLIDING DOORS
Each EPCO pull is designed for handsome appearance, ease of installation and to be maintenance free. They are of extruded aluminum, finished anodized clear, brass, bronze or black. Most are standard 3 7/8" size. Special 6-11 lengths for cutting on the job are available.

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THE ENGINEERED PRODUCTS CO.
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His heating and cooling costs are going up and up. Low-cost, water-susceptible roof insulation may work at first. But, gradually there's a loss of insulation efficiency. Vapor barriers are not completely effective. They deteriorate. The movement of the building splits them. The moisture-laden air penetrates the insulation. Moisture forms through condensation, reducing insulation efficiency.

What to do? Specify STYROFOAM® RM brand plastic foam roof insulation. It's the finest, most effective roof insulation you can buy. Remains effective even if the roofing leaks. Because it's not affected by water or water vapor, STYROFOAM brand plastic foam retains a permanently low "k" factor, which means lifetime insulation effectiveness. Eliminates a major cause of roof blisters and subsequent leaking. Never rots, molds or deteriorates. Requires no vapor barrier. It's flame retardant and easy to install. A bundle 100 board feet weighs only 25 pounds. It is tough. The skin will take the abuse of normal roof traffic without harm.

For more information, write: The Dow Chemical Company, Construction Materials Sales, Dept. 71330, Midland, Michigan 48640.

No one will ever know you installed bargain roof insulation

(Until the owner blows his top).

For more data, circle 107 on inquiry card
METRIC WALLCOVERINGS / The bass Collection is composed of ten patterns available in wallpaper and vinyl matching fabrics. Shown are Ripples, Chevronstitch designed by Kent International and produced by Blue River Prints, Inc. The former is in basic red or black on white ground, presenting a target-like view. The latter, with Chevronstitch design, has subtle textural effects and a band of complementary color. * Connoisseur Wall-\h-rings, Inc., New York City.

Circle 306 on inquiry card

ISTONE WALL COVERING / Actually, this wall covering, which is patterned after limestone, is made of an oil sheet of pigmented virgin vinyl electronically laminated to a cotton backing. The backing is bleached and flame-proofed, flame-retardant and extinguishing. The total weight is 11 per sq yd; total thickness is 17 mils. Laminating Services, Inc., Louisville.

Circle 307 on inquiry card

IARDWOOD PANELS / Four designs in alder, birch and poplar are ½ in. thick, 2 ft wide by 2 ft, 3 ft and 4 ft high panels. The petite designs are slightly different from front, so a varied effect can be achieved if used as screens. They can be used for furniture, lamps, and all treatments. The panels are supplied finish sanded both sides and can be finished framed or unframed. * Pen-\h-erth Architectural Products, Los An-\h-gles.

Circle 308 on inquiry card

Now, cushioned carpet baseboard—won't scuff, streak, scratch!

We've invented carpet "baseboard" and it's great. And looks great! Acts as a cushion against jars, bumps... cuts costs—no more expensive hand scrubbing labor.

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Circle 309 on inquiry card

Commercial Carpet Corporation
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New York, New York 10020

Attention: Mr. Walter Brooks
□ Please send portfolio on Modu/Floors and Modu/Base

Name
Title
Organization
Address
City State Zip

Phone

*CCC trademark

For more products on page 233
Twelve Montgomery elevators move people and equipment at speeds up to 700 FPM in this striking new twenty-three floor tower. Montgomery E.S.P.* MEASURED DEMAND® controls traffic flow on the local and express banks of elevators.

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Flatlow-Moore-Bryan & Fairburn

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Del Webb Corp.

Go high as you want . . . Montgomery high-rise elevators match performance to your design, with elevator traffic served precisely by E.S.P. MEASURED DEMAND® group supervisory control. Montgomery high-rise design and performance are “test tower” proved in our sophisticated research facility. And, you can count on dependable Montgomery maintenance service from one of 120 locations.

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For more data, circle 109 on inquiry card
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A new concept in modular space division:

New permanent-looking movable walls let you decorate in over 1526 exciting patterns

Beautiful Kwik-Wall movable walls make it fast and easy to divide large areas into smaller profitable rooms. A choice of more than 1526 high-fashion laminates, vinyls, prefinished hardwood, print grains and unfinished ready-to-paint surfaces gives this movable wall a permanent look that will complement your decor. Both the fully portable units and the ceiling track-mounted Kwik-Wall movable walls have sound retardant qualities. Both lock solidly into position with a simple one-hand lever operation. Matching walk-thru doors are available for either style. For more information, send coupon today.

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☐ New construction  ☐ Remodeling

Room(s) dimensions:

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☐ Send literature  ☐ Have representative call

For more data, circle 110 on inquiry card
Gas absorption cooling has a simple answer to noise, vibration and trouble.

It's the very simplicity of its operating design. There are no major moving parts. Instead, low pressure steam from a Gas-fired boiler energizes the liquid chiller. Quietly and without friction.

You'd think anything that operates with so little strain would have a long and efficient service life. And you'd be right. Gas absorption cooling operates efficiently even under partial loads.

It's economical, too, because the refrigeration unit gets its energy from the same Gas boiler that delivers heat and hot water. (Or from rejected engine heat.) And Gas costs very little.

Carrier lends year-round comfort to a Mies van der Rohe design.

It's Highfield House in Baltimore. The central equipment room contains a Gas-fired boiler and a Carrier absorption refrigeration unit. Hot or cold water is circulated through Carrier Weathermaker® fan coil, room air conditioning units. Each can be individually controlled by tenants to the precise comfort desired. Shouldn't you consider Gas-powered cooling and heating for your next building? Ask your local Gas Company for details. Or write:

Carrier Air Conditioning Company, Syracuse, N. Y. 13210. AMERICAN GAS ASSOCIATION, INC.

For cooling and heating... Gas makes the big difference
Hi-Bond® Celluflor® blend system matches electrification to any planning module

Things have changed. Inland Hi-Bond Celluflor and floor deck are now available in such a wide range of profiles that you can match electrification and building modules simply by blending the cellular and non-cellular steel panels. You are not limited to 2', 4' or 6' grids—or to completely floor-wide installations that are too extensive and expensive for the requirements. Instead, you design electrification specifically to meet the client's present and anticipated needs.

For instance, if you are planning around a 4'-6" building module, you can choose from six combinations of Inland Celluflor and floor deck to deliver electrification on this module. There are other economical Hi-Bond Celluflor blend systems to satisfy the requirements of architectural modules from 3'-0" to 6'-0"—in 6" increments. Each is an exceptionally strong, fire-rated floor system. And— you can provide the strength and economy of composite slab/beam construction.

That's real flexibility, isn't it? Let us tell you more about it in the brochure, "Unlimited Flexibility in Floor System Electrification." Write today to Inland Steel Products Company, Dept. F, 4069 W. Burnham St., Milwaukee, Wis. 53201.
INSULATE ROOFS...

& PLAZA DECKS...

with the dry fill insulation that slopes to drains

Multi-function All-weather Crete on roofs or plaza decks provides much more than excellent insulation. It is compacted with a light-weight roller to offer a sub-strate having excellent load bearing qualities for plaza deck surfaces or roofing membranes.

• Contains no water—sets instantly—even in freezing weather
• Has no seams or joints to allow heat loss
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• Smooth surface for roofing membrane or plaza deck surface

The trained licensed applicator contours All-weather Crete to the architect’s specifications—covering irregularities, sloping to drains and eliminating camber from pre-stressed beams. Compare these features ... then specify All-weather Crete.

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Write today for complete All-weather Crete Information:

Write for addresses of domestic and foreign applicators.

For more data, circle 113 on inquiry card.
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for modern door control

Main points of the LCN 5030 door closer:
1. Principal mechanism is hidden in the head frame; fits inside a 1 3/4" x 4 1/2" aluminum tube
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6. Available in regular, hold-open and fusible link release arm styles

Full description on request or see Sweet's 1967, Sec. 16e/Lc

LCN CLOSERS, PRINCETON, ILLINOIS
A Division of Schlage Lock Company
Canada: LCN Closers of Canada, Ltd.
P.O. Box 190, Port Credit, Ontario

PHOTO: Entrance, Kenwood Mall, Cincinnati, Ohio; Baxter, Hodell, Donnelley & Preston, Architects

continued from page 225

CERAMIC BASE / Berlin Satin-glazed Top Set Ceramic Base for application with all kinds of wall and floor coverings is impervious to dirt and acid, and is shock and scratch resistant. The skirtings are suggested for schools, hospitals, hotels, offices and other buildings where sanitation and cleanliness are a problem. They are available in sizes of 8 in. by 2 1/2 in. and 8 in. by 3 1/2 in. and there are several colors. • Latco Products, Los Angeles. Circle 309 on inquiry card

ONE-STEP SHOWER UNIT / The walls of this unit are a rigid sandwich construction that is said to provide sound control and durability. The Formica sheets—available in eight patterns—are permanently bonded to water-impervious foam cores and melamine back-up sheets. The cascade shower floor is made of Molded-Stone, a material that won't crack, chip or discolor. This comes in eight colors to coordinate with the Formica. The floor is warm, slipproof and leakproof. The three-panel enclosure is of shatterproof acrylic and the smooth interior has no joints, seams or cracks. • Fiat Products, American Cyanamid Co., Plainview, N.Y. Circle 310 on inquiry card

HEAVY-DUTY TILE / Specifically recommended for heavy-duty flooring, this tile resists grease, moisture, acids and harsh detergents. It is particularly suitable for food preparation and serving areas. The natural clay tile is available in a broad range of eleven colors. • The Mosaic Tile Company, Cleveland, Ohio. Circle 311 on inquiry card

more products on page 236

For more data, circle 114 on inquiry card

ARCHITECTURAL RECORD September 1967 233
Partitions were made to be moved

And you can bet that your client will take advantage of that fact during the life of his building. That's why the wiring system you recommend is so important.

Take in-partition wiring for example. Each time a move is necessary, electricians and telephone men have a double task. One trip to remove or deactivate power and telephone cables; another trip to rewire after the new partitions are installed. Precious time and money go down the drain and you never get away from unsightly termination boxes hung on the partitions.

The real answer to effective wiring in a modern building is a PYRAMIDAL FEED* underfloor raceway system. It can carry heavy loads of power and communication cable to any location in the floor. And the Pyramidal Feed system allows you to plan the most beautiful floors, tiled or carpeted. Square D junction boxes and service fittings were designed with this in mind.

The Pyramidal Feed system saves money, both in the original installation and in countless changes in the building, while still offering unparalleled versatility. Find out more about it. Write Square D Company, Dept. SA, Lexington, Kentucky 40505.

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MORE HOSPITALS LOOK TO THE LEADER...McQUAY

ST. MARY’S HOSPITAL DID!

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Mechanical Contractor: Utility Sales Engineering, Rochester

Here’s why:

When the decision was made to air condition the entire hospital, McQuay had the best solution to St. Mary’s sensitive performance requirements. Custom engineered for the job, McQuay Hideaway Type Seasonmakers were selected for maximum accessibility, simplified installation with easy field adaptation to nearly any type ceiling, whisper-quiet operation and the comfort assured by individual room temperature control.

Hinged ceiling panel with integral return air grill allows complete access. Internal hinged plates of base unit provide access for cleaning of both coil faces. Return air grill and filter assembly with hinged core permits easy filter cleaning without removing or dropping ceiling panel. Ceiling and Hideaway Seasonmakers are available in 4 models, each in 9 sizes from 200 thru 1,200 cfm. For complete information call your McQuay Representative or write direct.

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AIR CONDITIONING • REFRIGERATION • HEATING • VENTILATING

MANUFACTURING PLANTS AT FARIBAULT, MINNESOTA • GRENADE, MISSISSIPPI • VISALIA, CALIFORNIA

For more data, circle 116 on inquiry card
**Finnish Stacking Chair** / Fill these Roman folding chairs will fit 11 sq ft of space. The natural lacquered birch plywood frame has a black pigmented seat. The size: 19½ in. high, 16½ in. deep, 29¾ in. high with a 18 in. seat height. Weight is eight Ib. Hank Loewenstein, Inc., Dallas.

**Circle 312 on inquiry card**

**Country French Lanterns** / The lanterns are available in a one-light lantern for indoor use and a larger two-unit for outdoors. Finishes are antiqued brass, antique copper and antique patina, all of which are hand rubbed.卵 oval opening frames a curved, seeded antique glass panel and the inside is a vibrant burgundy red. The lanterns are part of a thirty-fixture grouping, all in the “Country French” style which includes chandeliers, drops, brackets, kitchen, bathroom and commercial pieces. Lite-Trend Division, Halo Lighting, Rosemont, Ill.

**Circle 313 on inquiry card**

**Kitchen Surface** / Heat cannot damage this flat, smooth sheet of white Pyroceram brand material, so hot pans can be put directly on it. It is non-porous, non-absorbent and scratch resistant; can be used as a cutting board, and dough will not stick to it. The surface can be installed as an island work area, surrounded by stainless steel mounting rim, or be mounted flush with the counter surface without a rim. - Corning Glass Works, Corning, N.Y.

**Circle 314 on inquiry card**

For more data, circle 117 on inquiry card

**Additional Products on Page 330**
esign can offer major benefits

EASIER EXPANSION
ROOM-BY-ROOM TEMPERATURE CONTROL
EXTRA RENTABLE SPACE

is it much easier to expand an electric building? Because you forget about boilers and boiler city problems. And there's no concern about boiler as, fuel storage or stacks. In-, expansion is accomplished wiring and a compact control net.

taxample? Central High School, spia Fields, Ill., expanded from 600 sq. ft. to 159,685 sq. ft. at estimated saving of $38,610.

In many buildings, individual room temperature control is a must. Nursing homes require it for critical health reasons. Motels want it for economy. And it is also fast becoming standard in other buildings in which occupancy and activities vary daily from room to room; e.g. schools, churches and hospitals.

Only All-Electric design permits room temperatures to be controlled directly, either by occupants inside their rooms or by management from a remote central location... or both.

A penthouse serves best as a source of revenue—not as a storeroom for boilers, cooling equipment and fuel. That's one reason why the builders of the $3 million People's Savings Bank Building in Bridgeport, Conn., chose All-Electric design.

By specifying through-the-wall electric heating/cooling units, they freed 4,800 sq. ft. of penthouse space for extra owner income. The added return on capital? $15,000 per year.

Shouldn't you incorporate these All-Electric benefits into your next project? For more facts, call your electric utility company.

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For more data, circle 133 on inquiry card
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INDOOR-OUTDOOR CARPET / See hundred sq yds of Four Seasons carpet have been installed outside the main terminal building at the Tulsa International Airport. Made of Marvess olefin felt produced by Alamo Industries, Inc., carpet is said to withstand exposure to precipitation and sunlight without dewing, rotting or fading. The carpet may be vacuumed or hosed down. General Felt Industries, Chicago.

Circle 318 on inquiry card

CONTRACT CARPET / Shown is a typical dormitory room in Shay-Loughl Residence Hall for women at St. Bonaventure (N.Y.) University. Individual personalized decor and color planning are keyed to Fortress carpet installed wall to wall in every room, and in all corridors, lounges, foyers and public areas throughout the building. Seven different colors were used. The carpet is a heavy-duty grade nylon for heavy traffic use and is expected to last fifteen to twenty years. Contract Carpet Engineering, Lenn Mills, Pa.

Circle 319 on inquiry card

WHITE ROOF COATING / This spray-type coating, applied over gravel-surface built-up roofs, is a cement base coating with polyvinyl additives and asbestos fibers. White Cap is reported long-lasting and excellent in reflecting the sun. Buildings with no air conditioning are said to be up to 20 deg cooler in summer. Pabco Roofing, San Francisco.

Circle 320 on inquiry card

For more data, circle 134 on inquiry card

more products on page 268
Six years ago, McKinney introduced the first really, different hinge the industry had seen in years, the McKinney Moderne.

First of all, the McKinney Moderne is architecturally beautiful. Straight, simple lines. Clean in appearance.

Secondly, McKinney Moderne is designed for quiet, heavy duty service with one dependable stainless steel oil-impregnated bearing. And third, McKinney Moderne integrated stainless steel pin means easier, labor saving installation. No pins to insert or lose. No difficulty lining up the door.

BUT DOES IT WORK? This question has been fully answered. There is no more dependable hinge, no better looking hinge, no better operating hinge on the market than McKinney Moderne.

Thousands are in use right now. On the doors of the Astrodome in Houston, the GE Space Center in Valley Forge, the Amsterdam, N. Y. Memorial Hospital, the Toronto City Hall, the United States National Bank Building in San Diego and hundreds of other new buildings.

In actual tests, McKinney Moderne extra heavy hinges showed less vertical wear than three competitive makes of 4-bearing hinges.

Since it has been introduced, NOBODY HAS EVER HAD TO REPLACE A McKinney Moderne Hinge. And quite probably, nobody ever will.
A SELF-SERVICE RESTAURANT DOESN’T HAVE TO LOOK LIKE A CAFETERIA.
free service: send us your floor plans and we'll hustle 'em back to you fully detailed.

So now you know why the Cincinnati Center, designed by Harry Hake and Harry Hake, Jr. with Hixon-Tarter, Consulting Structural Engineers, and built by the Turner Construction Company, has floors made with Wheeling Tensiform.

Why it has a roof made with Wheeling Super Rib Roof Deck is another story.

That one you probably know already.

For more data, circle 137 on inquiry card
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operable wall
provides more sound control
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are available upon request from your
local Modernfold Man... or write for
the new Soundmaster 480 performance
specifications brochure #1445.

HEAVY DUTY AIR DUCT / HD Rectangular Duct is made entirely from high-
density glass fiber faced with heavy-duty aluminum vapor barrier. The firmly bonded glass fiber structure is lightweight yet has strength to span considerable distances while retaining its shape. The duct provides thermal insulation, sound absorption, and a vapor barrier. • Golden-Bacon Manufacturing Company, Kansas City, Mo.

Circle 321 on inquiry card

STRETCH SHELVING / Wall and island modules for supermarkets are available in sections 36 and 48 in. long, and heights up to 76 in. Interlocking components can be changed quickly to hand new merchandising arrangements. Shelves accommodate almost any combination of packaged products, large and small, heavy and light, and the shelves are engineered to take uneven loading. Many accessories attach to the basic units. All shelving is painted electrostatically and the finish is baked on. • Clarion Equipment Company, Niles, Mich.

Circle 322 on inquiry card

CHAIRS AND BLEACHERS / All-aluminum, maintenance-free units feature one-piece aluminum die castings for the side standards, and formed aluminum extrusions for the chair slats. Seats have a series of serrations in the extruded planks for safety. Aluminum slats are either anodized or baked enamel finish, and side standards are baked enamel to match school colors or area requirements. • Liskey Aluminum, Inc., Los Angeles.

Circle 323 on inquiry card

For more data, circle 138 on inquiry card
A FIRE FIGHTER, TOO

SPAN+DECK® precast and prestressed, hollow-core concrete floor and roof plank will keep the fire bottled up between floors for two to four hours—dependent upon concrete topping thickness—long enough time for firemen to have the blaze under control if not out. This fire fighting quality results in low fire insurance rates for both the building and the contents—a decided advantage to your client. Besides these money-saving factors, the underside is an exposable fine-textured soffit with built-in acoustics rated at 0.55 NRC. For additional information, write your nearest SPAN+DECK® supplier or Box 99, Franklin, Tenn. 37064.

For more data, circle 139 on inquiry card
How can you increase building "cubage" without increasing costs?

(Secret revealed on opposite page!)
"All air-conditioning systems steal usable space."

preposterous!

The Barber-Colman Heat-of-Light System® actually increases usable space in existing buildings and permits the design of new buildings with a smaller envelope and more income-producing space than was previously possible. Result: Your total building cost per occupant per year can actually be reduced. Clip coupon for more facts.

BEFORE Barber-Colman Company developed the Heat-of-Light System it was absolutely true that you had to sacrifice ceiling, floor and interfloor space to reap the advantages of efficient Environmental Systems.

In those days, light-generated heat was considered part of the air conditioning space load in the summer... and... it was not used as a source of heat in the winter. What a waste!

In the BHoL (Before Heat-of-Light) days, duct work was massive in cross section. Only the most progressive engineers and architects could envision 1967-model, small-diameter High Velocity Ducts that could squeeze into 5" with room to spare.

And, had you told them how much room could be added to a building through elimination of space-stealing reheat coils, hot air ducts, piping, bollards, and clutter-type diffusers, even they would have been skeptical.

Heat-of-Light System makes good economic sense

The modern Barber-Colman Heat-of-Light System is more efficient and costs less to install and operate than the traditional systems that do not take advantage of modern energy-conservation principles. Additionally, any increase in costs for automatic controls required to provide smaller-than-room-size comfort zones is more than offset by the reduction in ducting and other hardware by the HoL System.

Integrated air/light diffusers lend aesthetic simplicity

When you combine a lighting fixture and a Barber-Colman air diffuser, the sum of one plus one is considerably less than two. Multifunction diffusers provide maximum light levels and diffuse air... transfer Heat-of-Light to heat exterior zones, where it is needed... and furnish local reheat when required. They provide Dynamic Sensing thermostat locations where the temperature of moving room air is measured. Response is up to 15 times faster than with wall-mounted thermostats.

Best of all, all Barber-Colman Heat-of-Light Systems, with or without troffer-delivered air, provide superior environmental control unobtrusively... quietly! Blended invisibly into the architect’s design, the Heat-of-Light System never intrudes... never detracts.

Automatic design freedom!

With the Heat-of-Light System, every overhead lighting fixture can provide an individually controlled air mixing and air distribution zone. Or other, equally inconspicuous diffusers can provide draftless air delivery and still conserve light-generated heat.

What does this mean to you as a designer? First of all you can move walls, and alter the space any way you want, and still provide each person or work-group with individual zone control without system changes. And you aren’t tied down to predesigned look-alike, "packaged" ceilings.

Barber-Colman controls furnished with a Heat-of-Light System permit these space alterations without regard to costly control system revisions. There is no need to run new pneumatic lines or electric wires. Once installed, it meets all future needs.

Control is the most flexible there is. You can place the set point dial on the wall, in a locked custodial closet, mount it on a central panel, or on a desk top. You name the place. We’ll provide a set point selector to meet your need.

Get the facts. To learn how much "cubage" you can add to your next building by using cost-saving, space-saving Heat-of-Light, use the coupon below, or contact your local Barber-Colman Field Office.

BARBER-COLMAN COMPANY
ROCKFORD, ILLINOIS 61101
... where originality works for you
In Canada: BARBER-COLMAN OF CANADA, LTD.
Weston, Ontario

□ Please have your local representative call me to arrange a Computerized Feasibility Study.
□ Please send me your new booklet on the Barber-Colman Heat-of-Light System.

Name________________________
Title________________________
Company_____________________
Street_______________________
City_________________________ State_________ Zip Code________

For more data, circle 140 on inquiry card
Who made all the fuss about a truss?

We did, sir, it's one of ten good reasons to use Dur-O-wal® masonry wall reinforcement.

You're looking at the most efficient masonry wall reinforcement ever devised, Dur-O-wal Truss Design.

1. You can't beat the truss for performance, adding both flexural strength and stability to masonry walls.
2. Dur-O-wal truss is the original masonry wall reinforcement and is used in more masonry walls than any other brand.
3. Dur-O-wal truss carries materials approvals from three important building codes: BOCA, ICBO, SBCC and many state and local codes.
4. Dur-O-wal truss is available in a wide selection of shapes, sizes and finishes. You can reinforce almost any masonry wall—single wythe, cavity or composite.
5. Dur-O-wal research is the most extensive in the business. We back up every claim for our product with independent research.
6. When you need Dur-O-wal truss you can get it. Over eight thousand dealers stock and sell our product.
7. Dur-O-wal truss is nationally distributed.
8. Dur-O-wal has trained factory representatives who can help you with reinforcing problems.
9. A constant supply of technical literature based on current research is available to users of the product.
10. Dur-O-wal offers additional products exclusively for masonry construction, all backed by the same reputation for quality.

Any other questions on masonry wall reinforcing will be cheerfully answered by Dur-O-wal, P.O. Box 368, Cedar Rapids, Iowa 52406.

For more data, circle 141 on inquiry card
A single climate conditioning system for each campus buil
...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 145 on inquiry card
Twenty years ago, reinforced concrete building construction literally hugged the ground. Not any more. It's on the rise, reaching for the clouds. And the trend to taller, more beautiful buildings in reinforced concrete has just begun. Look at what has happened in just the past ten years.

One of the major reasons for this spectacular breakthrough is the new Grade 60 reinforcing steel. It has 50% greater yield strength. Helps designers achieve slimmer columns. Greater usable floor space. Reduced overall construction costs. Gives construction a material as versatile as the men's minds that design, engineer, and build with it. Beauty, utility, economy are all a part of the package.

If you have a building that's going up, ask your consulting engineer about the many benefits high-strength reinforcing steels offer in modern concrete building design. Do it soon.
1967
Lake Point Tower
Chicago
645 ft.

1969
Shell Oil Bldg.
Houston
714 ft.
"DROP THAT GUN!"

POLY-TITE seals best . . .

even without surface caulking. You've got the drop on joint leakage when you seal with Poly-Tite. This dry-surfaced, compressible polyethylene impregnated polyurethane foam seals in one speedy operation. No special joint preparation, mixing, or priming is necessary.

Poly-Tite will not stain or migrate and can be installed in hot or cold weather, in a wet or dry joint. It is compatible with all known building materials, including all gun-type sealants, if required. Poly-Tite fills and seals by itself when compressed only 50%; so you can eliminate that caulking gun.

Write for a free sample, complete independent test data, and recent applications.

SANDELL Manufacturing Company Inc.
Dept. AR-9, 84 Sherman Street,
Cambridge, Mass. 02140

For more data, circle 143 on inquiry card
OUR NEW "Z" FRAMELESS

is the closest thing to a modular lens

The "Z" lens configuration of Wakefield's new "Z" Frameless troffers and surface luminaires actually gives greater lens surface, greater efficiency and the least metal showing of any flanged unit. 1x4, 1x8, 2x2 and 2x4 sizes with Acrylic or Styrene lenses that hinge from either side. Fixed metal pins project from the housing and slip into new, stronger, injection-molded end caps attached to the lens by ultrasonic fusing. Ends of all lenses are light-sealed to fixtures. Luminous joints between fixtures in rows, with no metal showing at joints. Here is the fixture that best meets your need for the modular lens look. Call your Wakefield man or write for new brochure.

ITT Environmental Products Division, International Telephone and Telegraph Corporation, P. O. Box 195, Vermilion, Ohio 44089.

WAKEFIELD LIGHTING

in Canada, Wakefield Lighting Ltd., London, Ontario

For more data, circle 144 on inquiry card
How Modine clears the stuffy, drowsy, overheated air

Remember those afternoon classes when just staying awake was an accomplishment?

Now Modine Valedictorian unit ventilators make schoolrooms more tolerable. They heat, cool, filter and dehumidify—blending fresh outdoor air with room air instead of recirculating the same stale atmosphere.

With a unique air-control damper system, Valedictorians automatically react to changes in weather or room occupancy. Four dampers control the mix of fresh air with room air as well as the air flow through the heating/cooling coil. Modine's anti-wipe damper reduces heat pick-up from the coil to 5%. Without it, a room can turn stuffy, sticky and over-heated in minutes.

Say, for example, it's the heating season and Modine Valedictorians are holding room temperature at a steady 70°. When 28 students enter the room, each brings his own 500 Btu's (normal body heat). Valedictorians sense the change and immediately adjust by reducing heat output.

Because some schools want heating only, with the option to add cooling later, we've designed Valedictorian with the future in mind, too. Installed with a combination heating/cooling coil, you simply add a water chiller to the system—at any time in the future—without spending a dime to convert the unit ventilator.

Efficient, quiet performance. Smart appearance. Plenty of versatility with a wide selection of shelf and cabinet accessories. We spell out all the details in our Valedictorian catalog. Write: Modine, 1510 DeKoven Ave., Racine, Wis. 53401.
We’re not saying commercial carpeting is obsolete, but...

Only Walk-Ease vinyl flooring with fiber glass offers you so many important advantages

Walk-Ease by Flintkote is a cushioned sheet vinyl flooring made with a unique reinforcing layer of fiber glass. This distinctive, modern flooring combines the luxury of carpeting with the unsurpassed practical advantages of gleaming sheet vinyl.

Walk-Ease flooring is unquestionably the easiest and most economical type of flooring to maintain. It is dust free, needs no waxing, is hygienic and non-allergenic. It is also one of the longest-lasting floors you can select. Seams are quickly and tightly sealed at installation to provide a continuous expanse of easy-to-clean beauty.

But Walk-Ease flooring is more than just practical. An extra thick vinyl foam cushion makes it superbly comfortable underfoot. Moreover, it is acoustically designed to deaden impact sounds, virtually eliminates the clatter of heels within rooms and between floors. Walk-Ease flooring is also warm, stays at near room temperatures, even when installed over concrete.

Walk-Ease flooring is recommended for almost every type of project—schools, hospitals, offices, commercial areas and private residences. It is especially desirable for clean rooms and pharmaceutical and electronic plants.

Never before has a flooring offered you so many advantages. Remember the name—Walk-Ease. Your clients won’t forget it.

From the FLINTKOTE Floor Fashion Collection—including Peel and Stick tile and other vinyl asbestos styles.

For specification data and literature write: The Flintkote Company, 201 E. 42nd St., New York, N.Y. 10017 • P.O. Box 2218, T.A., Los Angeles, Calif. 90054

For more data, circle 763 on inquiry card
LP-gas supplies the comforts of home away from home

Call it a summer place, a hideaway or a second home. If it's beyond the reach of the pipeline, you can bet it's equipped with LP-gas. Versatile LP-gas is available to people wherever they live—providing heat, cooking food, heating water, powering generators. It's even found at pool side where it takes the nip out of a dip. Wherever heat and power are required, LP-gas does the job. And gas makes the big difference. Safe. Clean. Dependable. Modern.

Of America's great sources of energy, only LP-gas serves you in so many ways.

NATIONAL LP-GAS MARKET DEVELOPMENT COUNCIL, Chicago, Illinois 60603

For more data, circle 164 on inquiry card
PRESTRESSED CONCRETE offers beautiful solutions to a wide range of design problems for every building type. Best man to talk to in the earliest planning stage is your local PCI member. Odds are he has good answers to questions you face right now. If you don't know his name already, write us at 205 W. Wacker Dr., Chicago, Illinois 60606.

For more data, circle 765 on inquiry card
FREE PUMP REFERENCE FILE TELLS HOW YOU CAN GET instant water

IN THE HOMES YOU DESIGN AND BUILD BEYOND THE WATER MAINS

Red Jacket's new pump reference file "Practical Engineering Information" should be at the side of anyone interested in designing and building homes beyond the water mains. Complete and comprehensive, it covers everything from average water requirements for home and farm, procedures for determining distance to water level, practical suction lifts ... to water friction tables and how to estimate operating costs.

As a handy reference it will help you be sure you're specifying and installing the right size and type of pump and tank for present and future requirements for any home water system. It's yours for the asking — just clip the coupon!

For more data, circle 166 on inquiry card

Red Jacket's new pump reference file "Practical Engineering Information" should be at the side of anyone interested in designing and building homes beyond the water mains. Complete and comprehensive, it covers everything from average water requirements for home and farm, procedures for determining distance to water level, practical suction lifts ... to water friction tables and how to estimate operating costs.

As a handy reference it will help you be sure you’re specifying and installing the right size and type of pump and tank for present and future requirements for any home water system. It’s yours for the asking — just clip the coupon!

For more data, circle 166 on inquiry card

RED JACKET
P.O. Box 3888, Davenport, Iowa

☐ Send me your file "Practical Engineering Information" for our A.I.A. File No. 29-D-5.
☐ Please have your Red Jacket man call.

Name
Firm Name
Address
City
State

RED JACKET
FLUID SYSTEM PRODUCIS BOX 3888 • DAVENPORT, IOWA

For more data, circle 166 on inquiry card

Continued from page 278

DRAWING FILES / A 12-page booklet presents vertical files which require no punched holes or glued strips on drawings. The pockets remain in the cabinet and do not have to be removed. • Kuhlmann-Impex, Inc., Houston.

Circle 418 on inquiry card

FLOORING / A 14-page booklet presents some of the latest designs in vinyl and rubber flooring. • Robbins Products, Inc., Tuscaloosa, Ala.

Circle 419 on inquiry card

BATHROOMS / "What's New In Bathrooms" is a 28-page booklet that includes information ranging from floor plans to final decorative details. There are also wall and floor coverings and storage suggestions • Philip Carey Manufacturing Company, Cincinnati.

Circle 420 on inquiry card

LIGHTING SHADES / A 4-page brochure shows 12 shapes of Tenite acetate shades for accent lighting indoors or out. Shapes include skandle, bongo, cosmos, tear drops and temple bells. • Glowlux Lighting Products, Erie, Pa.

Circle 421 on inquiry card

LIGHTING FIXTURES / A 36-page exposition of commercial, industrial and institutional fixtures ranges through fluorescent, mercury vapor, incandescent and the new Lucalox. Letterhead requests. • The Edwin F. Guth Co., Box 70799, St. Louis.

STEEL SHELVING / A 24-page reference catalog contains photos showing many designs and sizes. • Lyon Metal Products, Inc., Aurora, III.

Circle 422 on inquiry card


DUCT SILENCER / A 12-page bulletin contains over 30 illustrations and tables on the rectangular Quiet-Duct and tubular Conic-Flow silencers. • Industrial Acoustics Co., Inc., Bronx, N.Y.

Circle 423 on inquiry card

*R Additional product information in Sweet's Architectural File

For more data, circle 167 on inquiry card

RAULAND®
FIRST WITH ALL-SILICON®
amplifier circuitry for optimum performance

Before you specify SOUND
for schools, churches, nursing homes, institutions, and industry
— over 40 years of leadership in the field of Sound and Internal Communications.

ask for our SPECIFICATIONS MANUAL
Detailed specifications of RAULAND Sound Equipment are available to you. Ask them on your letterhead. We specialize in working with architects and consulting engineers. Write today.

RAULAND-BORG CORPORATION
3535-R Addison St., Chicago, Ill. 60618

For more data, circle 167 on inquiry card

310 ARCHITECTURAL RECORD September 1967
If you think patterns look wild on women, wait'll you see them on Ozite's newest carpet.

New Ozite Futuristic . . . the kind of exciting idea you'd expect from the creators of outdoor-indoor carpet.

Futuristic carpet for indoor use . . . a totally new commercial and residential floor covering that gives you just about every plus in the book. Dramatic new patterns . . . ranging from the bold and brilliant to the soft and subtle. And everything in-between. Fresh, clear colors. Rugged commercial carpet quality, with a high density foam rubber back built-in for extra plushness. Easy to install. A snap to maintain. Futuristic . . . an inspired combination of Ozite's Needlebond manufacturing process and the ultimate in color and design techniques. All at a fraction of what you'd expect to pay.

Mail in the coupon and discover why your carpet installations should follow a different pattern. Ozite's Futuristic.

Futuristic CARPET BY Ozite®

©Ozite is the exclusive trademark of the Ozite Corp., 7-120 Merchandise Mart, Chicago, Illinois.

Dress by Rudi Gerreich available at Splendiferous. Shoes by Capezio.

For more data, circle 168 on inquiry card

ARCHITECTURAL RECORD September 1967 311
Marley gives architects more to work with

More models, more designs, more flexibility. Because Marley offers architects the most complete and advanced line of cooling towers in the industry.

Need a tower that can butt up against a wall? Marley's got one. Need a low silhouette model to tuck into a corner? Marley's got it. Need an indoor tower that can dolly through a 30" doorway? Marley stocks it.

Whether it must be factory-assembled or field-erected, 3 or 30,000 ton capacity — under-flow, counter-flow, cross-flow, single or double-flow — there's a Marley tower to exactly fit your needs.

And since Marley men are stationed around the world, there's one near you who's capable of lending engineering assistance from the world's most experienced and knowledgeable cooling tower manufacturer.

Call him. Or write Marley Company, 222 W. Gregory, Kansas City, Missouri 64114.

For more data, circle 169 on inquiry card
Prescription for economy:
Concrete tees that combine mechanical and structural functions

At the Medical Merchandise Mart, a one-stop shopping center for doctors, prestressed single-tee units span the 96-ft. wide showroom and cantilever beyond. Only prestressed concrete could combine the long spans and striking appearance within the budget limitations of this project.

Contributing to its economy was the ability of the tees to perform beyond their primary structural function. Their very shape reduced the cost of air distribution and made practical the use of inexpensive light fixtures.

Again, the undersides of the tees require no weather protection outside and only a coat of light-reflecting paint inside if desired.

The structural system is a combination of prestressed concrete tees and precast framing.

The Medical Merchandise Mart is typical of structures being built today for new reasons and new functions: an excellent example of how total thinking and cooperation between owner and architect can create a structural answer that is both aesthetically pleasing and commercially functional.

For the full story on design and construction details of the Medical Merchandise Mart, write for free literature. (U.S. and Canada only)
Frank Lloyd Wright believed that form should follow function.

We took him to heart when we designed Wheeler's High Bay Mercury fixture. Which explains why it performs as well as it looks.

But let the specifics speak for themselves: cover, body and reflector support are all lightweight, die-cast aluminum, finished in baked gray enamel. Reflector is aluminum, Alzak-finished for highest reflectivity. The housing has a constant-wattage ballast, potted with Dri-Lok C2 (so the fill material can never leak out of the housing.) Other ballasts also available.

And you can have your choice of 400 (single or twin) or 1000 watt (single) fixtures.

Install Wheeler's High Bay Mercury in any industrial setting, and certain things become obvious: half the beauty you can see ... the other half is performance. Complementing the space-age styling is a remarkable ease of cleaning and maintenance.

Nothing's wasted on this fixture. The construction is simple and straightforward. It's shorter and lighter than conventional fixtures. It looks good in any company.

Contact your wholesaler for more information on Wheeler's High Bay Mercury fixture. Or write: E. Quintiliani, General Sales Manager, Wheeler Reflector Co., Inc., Hanson, Mass.

For more data, circle 171 on inquiry card
For the better homes in any neighborhood it's wood windows.

Why wood windows?

First, let's take condensation. When warm interior humidity hits a cold metal frame in winter, condensation takes place. Water drops form, drip over sills and down walls or wallpaper. Homeowners can't do anything about this problem. It's just the nature of metal—what heating engineers call excessive Thermal Conductivity. With quality wood windows, troublesome condensation cannot happen—the chart at right tells you why.

Then, take total home comfort. Cold metal surfaces conduct heat or cold from rooms faster than wood surfaces. Again, too much Thermal Conductivity. Wood simply is a better insulator against heat and cold. That's why wood windows help keep homes more comfortable in winter, cooler in summer.

From every standpoint, it's wood windows! Wood windows blend with any architectural style—they're available in every type, style and size imaginable. And they give homes a warmth and beauty unmatched by any other type of window.

Free Window Condensation Calculator. Based on ASHRAE data, our exclusive Condensation Calculator helps you determine condensation problems so you can select the correct windows for the homes you design and build. It's free. Send requests on your business letterhead.
Specified exclusively to complement this most distinctive, luxurious setting

CAESARS PALACE • LAS VEGAS, NEVADA

Super-Foam by Allen

7/16" pure foam rubber CARPET CUSHION

Extra soft... extra thick SUPER-FOAM is designed for those who insist on the finest. Special high-density latex foam provides increased air circulation beneath the carpet... super buoyant cushioning underfoot.

Maximum carpet protection is assured and guaranteed.

• Interiors by the Maxwell Company, Inc., Miami, Florida.

For information and samples on the Allen cushion best suited to your particular requirements, write:

Allen INDUSTRIES, INC.,
Contract Division, 1927 Leland, Detroit, Michigan 48207
Or see our Catalog in Sweets Architectural File.

For more data, circle 172 on inquiry card
EXTRUDED ALUMINUM LINEAR REGISTERS & GRILLES

WATERLOO Air Diffusion EQUIPMENT

DESIGN ORIENTED...... THE COMPLETE QUALITY LINE

For more data, circle 173 on inquiry card

MEMBER OF THE AIR DIFFUSION COUNCIL

WATERLOO REGISTER CO. - DIVISION OF DYNAMICS CORPORATION OF AMERICA
Cedar Falls, Iowa
FOR YEARS-AHEAD IDEAS IN ADVANCED WATER FILTERS . . .

come to Bowser-Briggs where it's 1972

What does filtration really offer you — an investment in future product efficiency, right? Then the more you think "future", the more you deserve Bowser-Briggs water filtration equipment, years ahead in design and performance for years-ahead efficiency.

You see, to the men at Bowser-Briggs it's 1972 — and this attitude in thinking five years ahead gives you developments like the Model 610-E with patented Star-Cor® elements or the fiberglass vacuum diatomite swimming pool filters with new rectangular starleaf construction. Leaves are individually removable for greatest ease of maintenance, and offer uniform precoating-filtering and the most unrestricted water flow. These are just two examples of Bowser-Briggs' 1972-thinking. You'll also see it in many other areas . . . anywhere there's a need for dehydration, oily waste treatment, filtration, absorption or coalescence. We've been specializing in looking ahead since 1885 (1890 to us), so if you'd like a view of 1972 — in filtration — call your man from Bowser-Briggs. Or send us your requirements, without obligation.

Your future is our business . . . today.

BOWSER-BRIGGS MODEL 618A-FG,
FIBERGLASS VACUUM DIATOMITE SWIMMING POOL FILTER
Preferred by leading municipalities. For swimming pools of 134,000 to 806,400 gallon capacity. Approved by National Sanitation Foundation. Complete data available. Write Dept AR-2

For more data, circle 174 on inquiry card
Pyro-Kure® Vapor Barriers Protect Insulation And Are Permanently Non-Combustible

Pyro-Kure facing and jacketing are the safest possible vapor barrier materials to use with insulation for walls, ceilings and floors, on low temperature pipe and service lines, and on air conditioning ducts.

They differ in three important ways from any other vapor barrier:

1. A patented flame-extinguishing adhesive between the plies of paper, foil or vinyl makes Pyro-Kure permanently non-combustible. This means its U/L Flame Spread Rating of "25 or less" will never be reduced by age, moisture or humidity, as can happen with chemically treated barriers. 2. Pyro-Kure meets the standards for non-combustibility of the National Building Code and has been approved by the Board of Standards and Appeals of New York City. 3. Pyro-Kure has a minimum MVT rate for maximum protection against condensation damage to insulation.

All leading insulation manufacturers offer Pyro-Kure-faced insulation under their own brand names. Also available in roll form for local facing. Write for samples and data on various grades. Contact Sisalkraft, 73 Starkey Avenue, Attleboro, Massachusetts.

For more data, circle 175 on inquiry card
ON THE CALENDAR

SEPTEMBER

14-16 New Jersey A.I.A. Regional Conference—Berkeley Carteret Hotel, Asbury Park, N. J.
19-22 46th Annual Meeting Producers’ Council—Hotel America, Houston.
25-28 New York A.I.A. Regional Conference—Nevele Hotel, Ellenville, N. Y.

OCTOBER

1-6 50th Anniversary Conference, American Institute of Planners—Shoreham Hotel, Washington, D.C.
2-4 Northwest A.I.A. Regional Conference—Ridpath Motor Hotel, Spokane.
4-8 Florida A.I.A. Regional Conference—Diplomat Hotel, Hollywood-by-the-Sea, Fla.
5-8 California A.I.A. Regional Conference—Vacation Village, Mission Bay Park, San Diego.
6-8 New England A.I.A. Regional Conference—Sheraton-Eastland Motor Hotel, Portland, Maine.
9-12 Architectural Aluminum Manufacturers Association Annual Meeting—Statler-Hilton Hotel, Dallas.
11-14 East Central States A.I.A. Regional Conference—Hammond, Indiana.
12-14 Ohio A.I.A. Regional Conference—Nationwide Inn, Columbus. (Seminars Oct. 10-11.)
18-20 Texas A.I.A. Regional Conference—Rice Hotel, Houston.
19-21 Pennsylvania A.I.A. Regional Conference—Hotel Hershey, Hershey, Pa.

New prestressed concrete deck carries greater loads

Flexicore precast decks have been around for a long time and our new Hi-Stress development looks pretty much like the original. But the similarity stops there. Hi-Stress slabs are fully prestressed, with the tensile strength provided by prestressed high strength steel strand (250,000 psi min.). This permits longer spans or greater loads with improved performance.

I would like to bring you up-to-date on this development by sending you a copy of a new booklet that describes these decks.

Included are load curves, typical spans of various sizes for floors and roofs, use on steel frame, concrete frame and wall bearing construction. Also, information on openings, floor finish, ceiling finish, and use of hollow cells for heating and air-conditioning ducts, electrical wiring and piping.

Our 8-inch, 10-inch and 12-inch untopped Hi-Stress decks have earned 2-hour fire resistance ratings from national testing laboratories. Crating is 3-hour with 1%-inch topping.

Send for booklet, “Hi-Stress Deck.”
Write The Flexicore Co., Inc., P. O. Box 825, Dayton, Ohio 45401.

Robert E. Smith
Vice President and Manager

ADDENDUM

The architectural firm of Kelly & Gruzen, New York and Newark, announces the admission of six new partners and the change of its name to Gruzen & Partners, Architecture-Planning-Engineering. The new partners are Rolland D. Thompson, Richard P. Rosenthal and Peter Samton, who have been associated in the firm of Kelly & Gruzen; and Norval C. White, Julian H. Whittlesey and William D. Wilson, all formerly partners in their own firms. The RECORD regrets the incorrect notice on page 56 of the July issue.

Connor's "Laytite" Edge Grain Maple Flooring

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The exterior steelwork on Bliss and Laughlin Industries' executive office building in Oak Brook, Illinois, will never need painting. It is bare, unpainted USS Cor-Ten High-Strength Low-Alloy Steel—the steel that "paints" itself. As it weathers, Cor-Ten Steel forms a dense, tight, attractive oxide coating that seals out corrosion. If the coating is scratched, it heals itself.

Project Architect, Mr. Richard Borvansky of Ralph Stoetzel Inc., selected bare USS Cor-Ten Steel for the columns, fascia, and gravel stop. The fascia is separated by a ¾-inch gap from the soffit to prevent staining. As the bare steel weathers in this semi-industrial atmosphere, it is taking on a rich color and texture that only nature can provide.

Bare USS Cor-Ten Steel is a natural for maintenance-free good looks, and for structural use. Cor-Ten members can be lighter, more graceful, because it is about 40% stronger than structural carbon steel. It is available in a full range of structural shapes, plates, bars, and sheets. For full details on the suggested use of Cor-Ten Steel in architectural applications, call our nearest sales office and ask for a USS Construction Marketing Representative. Or write U. S. Steel, Room 4714, 525 William Penn Place, Pittsburgh, Pa. 15230.

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How many sandwiches can you count in this Expo 67 pavilion?

There are 264 triangular aluminum faced panels in the Austrian Pavilion. And every one is fabricated with Union Camp Honeycomb structural sandwich core.

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Austrian pavilion's large modular structural units are made up of four separate panels. Each panel is filled with Union Camp kraft Honeycomb cores. These give facings continuous support—eliminate need for rivets or spot welds that have to be finished off before painting.

Union Camp Corporation, 233 Broadway, New York, New York 10007

For more data, circle 183 on inquiry card
Expressionism in architecture

MODERN ARCHITECTURE AND EXPRESSIONISM. By Dennis Sharp. George Braziller, One Park Avenue, N.Y. 10016. 204 pp., illus., $15.00.

Modern architecture today, in the words of Mies van der Rohe, is a kind of Yin-Yang affair, a duality of conflicting tendencies: "One has a structural basis," he has said, "and you might call it the more objective. The other has a plastic basis, which you could call the emotional."

Mies, of course, is the personification and conscience of the former approach, and most architectural critics (Giedion, Pevsner), in the name of technological modernity and social responsibility, gravitate around his pole. Architecture, as they see it, looks, Januslike, toward reason and light, and blinks behind in the cryptic darkness of unreason.

Dennis Sharp, lecturer at the University of Manchester and editor-elect of the prestigious, mod British architectural journal, Arena, has decided that anti-rationalism's most astounding modern manifestation, the German Expressionism of the World War I era, has been wantonly snubbed from source lists of modern architecture by critics busily toasting the functionalist cause. His Modern Architecture and Expressionism is intended as a vindication and corrective.

Expressionism in architecture, as defined by Mr. Sharp, is the external manifestation of the dream world, the dark element, the "Dionysian" psyche. He does not allow the word to collapse into its most common usage—that of a term undistinguishable from "self-expression" or "art." Expressionism in Sharp's book becomes the name of a rigorously defined historical period, a phenomenon which erupted both as a premonition and product of World War I.

"It was in Germany's atmosphere of postwar disintegration and despair that a search for a deeper and more personal expression in the arts took place," explains Sharp. A temperamentally anxious, national psyche found revolutionary expression and cataclysmic release in all the arts—the painting of Beckmann, Kokoschka, Munch, and the theater of Brecht, inheriting the ill-ease and hypersensitivity of Art Nouveau while drawing inspiration from such Nordic writers as Nietzsche and Strindberg.

Architecture, as the art of the general mood, though the Expressionist attitude in architecture never coalesced into a school and is only so labeled retrospectively. (Indeed, the "Expressionist" architects, who conceived in dynamic, fluid forms, would presumably have shunned such self-definition, rejecting classification and other rigid patterns of rational thought.) It was, too, above all a revolutionary attitude, born of a special, paradoxical fusion of intense supra-rational (even mystical) subjectivity on the one hand, and of a radical, visionary social concern on the other. Rejecting tradition wholesale, these architects (who numbered Bruno Taut, Hans Poelzig, Mendelsohn, Rudolph Steiner, the little-known Hermann Finsterlin, and even youthful Mies himself) were all excited by the opportunities to create yet-to-be-imagined forms. Their work ranged from "free exploration of the possibilities of plastic expression" to occultist research into the symbolic and spiritual significance of form. This anti-rational approach to design seemed to spark an intuitively deduced, visionary, "Utopian" architecture. Ideals were deeply sought in the aftermath of war, and German architecture was to be expressive not only of the time, but also of the hopes, political and social, of a nation reshaping and recreating its society.

The strength of a personal, Utopian architecture was also its fatal weakness: it was visionary, but also fantastic. Trouble with Finsterlin's plasticine "foam plays" and the Luckhardt brothers' pagodawork projects was that they ignored the market place. The Utopian dreams were irrelevant to the day's building tenor. A lack of building opportunity—of "real clients" with real money—merely prolonged the dreaming. So Expressionism succumbed to its competitor, a fitter animal, the rationalist functionalism of the day, "Neue Sachlichkeit" (the New Objectivity) whose collectivist and materialist genes enabled it to thrive on Germany's improving financial and material conditions. And Mies, by now "purified" by de Stijl, his early plastic bent aligned, was already articulating that "skin and bones" vocabulary and pristile logic of engineered geometry. German Expressionist architecture can be said to have been over by 1924.

Dennis Sharp's book is an effort to provide the newly personal and high plastic tendencies emerging in architecture since the mid-fifties and the Rokhamp crisis (or pseudo-crisis) with respectable gallery, by polishing up and mounting a tarnished and abused esthetic like an ancestral coat of arms. The work may be considered as part of the familiar cyclical rhythm in art taste of the falling out and phasing in of every present undercurrents, witnessed most recently in Neo-Art Nouveau and its accompanying spate of exhibitions and reappraisals. This particular partisan gains validity, though, since the Miesian stance (that of Pevsner in the functionalism vs. antirationalism polarity is now adays suspect. In an age where the ele continued on page 33
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urban design. The author has assembled photographs and drawings of Sert's work from 1927 through 1965 in a straightforward monograph. A friendship with Sert provided background for the author's commentary, which includes excerpts from Sert's lectures.

An introduction by S. Giedion discusses Sert's role as a member of the second generation of modern architects, the group which became increasin concerned with the problems of city planning, and the influences on Sert's work which have produced an architecture rooted in Mediterranean culture and inseparable from art. Sert's artistic vitality, Giedion notes, "has enabled him to put together simple repetitive elements—workers' houses in the plan of Chimbote or apartments in the Harva married-student quarters—such a way that he achieves a richly varied work without ever falling into formalistic ornamentation." Giedion goes on to say, "People find the rough unpainted concrete surfaces of Sert's architecture hard to take. However, as such care has always been taken to integrate the architecture with its immediate environment, it can be expected that the general public will gradually come to appreciate high quality."

The text is concise, and the photos and drawings are well reproduced.

BOOKS RECEIVED


FRANK LOYD WRIGHT, VISION AND LEGACY. By the Committee for Architectural Heritage, University Illinois. The Prairie School Press, 117 First Street, Peoria, Ill. 32 pp. illus. Paperbound, $2.50.


continued from page 338

tronic brain can rationalize the most implausible design; where the impersonal client (in so far as the collectivity is recognized to be the client) is no longer believed to require impersonal architecture; and where industrial production does not necessarily mean rectilinear components, Pevsner's abuse of plastic architecture seems a bit dowdy and prim. Mr. Sharp can be forgiven, in that light, for being a modern architectural historian—that is, a polemicist. Any resemblance between the plasticine "form plays" or the "wild paper fantasies" reproduced in this important volume, and some of today's heady forms, is purely intentional. —Anne L. Buerger

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