THE NEW HEADQUARTERS BUILDING OF THE AMERICAN INSTITUTE OF ARCHITECTS

THE UNIVERSITY OF LETHBRIDGE—CANADA'S NEWEST CAMPUS

A CAMBRIDGE, MASSACHUSETTS SCHOOL SITE SELECTION STUDY

BUILDINGS TYPES STUDY: ARCHITECTURE FOR INDUSTRY

FULL CONTENTS ON PAGES 4 AND 5
We've got ceilings down to a system.

Your system. That's because Celotex ceiling products can work with your every design requirement...in office, commercial buildings, or institutions. When your requirements call...
C's to .90...U.L. time-rated de-

t in assemblies of 1, 2, and 3 hours

or Vari-Tec* luminaire units with

oustic control and optional air-

dling features. They're all part of

ceiling systems. Now shouldn't

system be part of your system?

Celotex understands the man who builds.

For more data, circle 2 on inquiry card

The Celotex Corporation  Tampa, Florida 33622

A subsidiary of Jim Walter Corporation.
The headquarters building of Ohio Medical Products reflects the precision essential in the manufacture of life-support systems. And Dover® Oildraulic® Elevators provide the dependable elevator service necessary for such a building to work at peak efficiency.

The Playboy Club-Hotel at Great Gorge, McAfee, N. J. also operates more smoothly because of Dover Elevators. Both Oildraulic and traction systems speed traffic throughout the building, serving guest rooms, housekeeping and kitchen services, and garage.

Because Dover manufactures all types of elevators, we can recommend the exact style or combination of systems needed to make your buildings work as you designed them. Call on us in the early planning stages. For literature, write Dover Corporation, Elevator Division, Dept. A-5, P. O. Box 2177, Memphis, Tenn. 38101. In Canada, Dover/Turnbull, Toronto, Ont.
That work as great as they look.

OHIO MEDICAL PRODUCTS, A Division of Airco, Inc., Madison, Wis.
Project Engineers: Mead & Hunt, Inc., Madison
Architect: Strang Partners, Inc., Madison
General Contractor: Nelson, Inc., of Wisconsin, Racine
Dover Elevators installed by Northwestern Elevator Co., Inc., franchised distributor, Milwaukee and Madison
PLAYBOY CLUB-HOTEL, Great Gorge, McAfee, N. J.
Architect: A. Epstein and Sons, Inc., Chicago
General Contractor: The McKinley Co., Chicago
Dover Elevators installed by Burlington Elevators, Inc., Hoboken, N. J.

DOVER dependable elevators

For more data, circle 3 on inquiry card
THE RECORD REPORTS

9 Editorial
The First Federal Design Assembly: "Beginnings are difficult but exciting."

33 News in brief
Short items of major national interest as well as award-winners and announcements.

36 News reports

45 Buildings in the news

87 Required Reading

ARCHITECTURAL BUSINESS

57 SMP compiles the most informative wall
The walls of a conference room at the offices of Stone, Martaccini, and Patterson are being used as a highly sophisticated and effective communications center for both office personnel and clients. The center displays current literature and graphics pertaining to the firm's special field (hospital design) organized for ready accessibility to either lunchtime groups or formal presentations.

62 Our national housing goals: where do they stand now?
Jim Carlson looks at the ten-year goals of HUD and compares with actual accomplishments.

64 Indexes and indicators
Building manufacturers expect substantial profit rise
ARCHITECTURAL RECORD

MAY 1973

FEATURES

Dramatic design for a non-traditional new university

Arthur Erickson of Erickson-Massey Architects, Vancouver, British Columbia, is the architect for a remarkable and exceptionally handsome new university based on non-traditional educational concepts. Project One of The University of Lethbridge, in Alberta, Canada integrates academic and residential facilities in one nine-story, 912-foot long building.

New life for two old buildings

Architect James Lamantia has restored to pleasant use an old Hudson River house of balloon frame construction, updating it but retaining its simple character. An old stable in Boston, renovated and remodeled to give it modern convenience, has been turned into a dwelling of charm and interest. Childs Beattirn Tseckare Associates, Inc. are the architects. (Page 128.)

The new headquarters building of the American Institute of Architects

After an 11-year struggle to get it designed and built in a manner which would meet the highest standards of the profession, the AIA will dedicate its headquarters in June.

School site selection study

The Cambridge, Massachusetts Planning Department and an architect consultant have teamed up to show how multiple use development can provide schools which replace the recreational land they sit on and which bring income to the city instead of taking more land off the tax rolls.

BUILDING TYPES STUDY 447

145 Architecture for industry

How modern is American industry

Capital investment plans of U.S. corporations are surveyed, some $4 billion worth of new plant construction is forecast.

Proving ground for professional services

The disciplines of industrial practice foster new modes in style and management

147 Daia Corporation Headquarters

Gardena, California

by Kajima Associates

148 Chicago Dowell Building

Chicago, Illinois

by Clarence Krusinski and Associates

149 Eaton Corporation Center

Monroe, North Carolina

by Heery & Heery

150 Rockwell Standard Plant

Homestead, Florida

by Ferendino, Grafton, Candela, & Spillis

151 Electric Power Pool Center

Ann Arbor, Michigan

by Smith, Hinchman & Grylls

152 IBM System Development Facility

Manassas, Virginia

by RTKL, Inc.

154 GE Appliance Park-East

Columbia, Maryland

by Sol King, and Albert Kahn Associates

156 Kimberly-Clark Research Center

Menasha, Wisconsin

by Hellmuth, Obata & Kassabaum, Inc.

158 Kaiser Center for Technology

Pleasanton, California

by John Carl Warnecke and Associates

ARCHITECTURAL ENGINEERING

161 Guidelines to achieving quality architectural concrete

Good architectural concrete is not synonymous with good structural concrete. This architect has to pay a lot more attention to the construction process to ensure the architectural concrete will turn out the way he envisions it. To help him recognize the factors that are critical, consultant James M. Shilstone has developed a chart and explanation to go with it that indicates the relative significance of concrete construction details.

168 Product Reports

190 Record Impressions

222 Office Literature

229 Personal Business

251 A/E Update

262 Classified Advertising

264 Advertising Index

267 Reader Service Inquiry Card
Zip-Rib® aluminum roofing gives a school a brighter future. With beautiful simplicity.

Zip-Rib roofing is top rain protection without visible fasteners. Sealed without plastic seams. Tight without ugly endlaps.

And at Byer High School, Modesto, California, above, it is attractive throughout the roof, mansards and fascia.

It’s simply beautiful.

The Zip-Rib roofing just “zips” together into one continuous membrane of aluminum. Its standing ribs require no caulking or splines. They’re locked together—in ridge-to-eaves lengths up to eighty feet—on the job. The resulting unit has built-in expansion allowance, with anchors locked inside.

Its finish, fused fluorocarbon enamel, is the best ever put on aluminum. From a choice including six architectural colors, plus natural.

At Byer High School this beauty will be without the rainy-day risks of a metal roof perforated by through-fasteners. And it will have the long-term maintenance savings of extra-strong 3004 alclad aluminum. The Zip-Rib roof and siding also has advantages of light weight, superior corrosion-resistance, very easy installation, and no endlaps. New Zip-Rib Insulated panels are available backed with Safecore® urethane.

For details, see Sweets Architectural or Industrial Construction Catalog. Or contact Kaiser Mirawal, P.O. Box 38, Dept. A285, Port Carbon, PA 17965.

KAISER MIRAWAL
DRAW ON DREAMS TOWARD REALITY

With urethane, the pathfinders in architecture select materials worthy of man's dignity.

CPR's rigid urethane insulation is available in systems and board stock for construction and building products applications. Both feature Underwriters' Laboratories® classifications and Factory Mutual approvals.

*CPR/Upjohn: The Leader in Urethane Materials, Technology and Experience

555 ALASKA AVE., TORRANCE, CALIFORNIA 90503 • TELEPHONE (213) 320-3550

For more data, circle 5 on inquiry card
The First Federal Design Assembly: beginnings are difficult, but exciting

You could, in the hallways during the meeting, during the post-mortems afterward, get either of the two reactions—or any shade of opinion between. Myself (being a perennial optimist and positive thinker) I think it was a good and important effort. I would have done some things differently, and applied some different emphasis—and—most especially (if you'll forgive the expression)—have asked harder, and these comments will be detailed below. I sat for most of the meeting with Mildred Schmertz, a senior editor of the RECORD, who is much more critical, and her comments will also be detailed below. But in any event, as Bill Lacy, director of the Architecture + Environmental Arts Program of the National Endowment, and one of the Assembly's organizers put it, "Never has there been so much public discussion." And I think it's good and important.

First, let's go back to the purpose of the Assembly. The First Federal Design Assembly," to quote its official publicity, "marks the initial stages and local point of the Federal government's long-range design improvement program. The Assembly's program will feature presentations by eleven of the nation's top designers before an audience of over 400 Federal administrators [about 250 actually came]. The Design Assembly...will attempt to solicit the support and the advice of Federal administrators to achieve these initiatives: 1) a review and expansion of the "Guiding Principles for Federal Architecture," 2) a program to improve the effectiveness of Federal graphics and publications; 3) a study of Civil Service procedures for recruiting, hiring and training design professionals to Federal service... .

The objective of the Federal Design program for which the Assembly was the first public step] is to develop standards for the government in the design of its buildings' working spaces, and landscapes; as well as in its publications and graphics." And with the Federal agencies spending at the rate (last year) of $5.4 billion for construction and an estimated $400 million for printing services, that is, of course, admirable goal.

Questions: Did the persuaders persuade? Were the decision-makers listening? Perhaps 1000 crowded in to hear the keynoter, Rawleigh Warner, Jr. (chairman of the board and chief executive officer of Mobil Oil) argue that good design does not have to cost more than poor work (a reasonable premise with which to begin). He urged all Federal administrators—the ultimate decision-makers for that $5.4 billion of Federal work—to become involved personally in this new effort to upgrade Federal design quality; to understand that persistent, tough-minded monitoring by the boss is absolutely essential to success in the endeavor. Best quote: "Design that improves government performance surely is useful. Design that improves communication between government and citizen is important. Design that presents America to the rest of the world as a nation that is strong, innovative, and free is valuable." What he might have added: "Design that responds to human need and raises the human spirit is desperately needed."

Eleven speakers made the major presentations on the main day of the conference, which was directed by co-chairmen Ivan Chermayeff and Richard Saul Wurman. Advocates for better graphic design were Louis Dorfman of CBS and Saul Bass; for interior and industrial design: Niels Diffrient of Henry Dreyfuss Associates and Robert Probst of Herman Miller; for architecture: Gerald McCue, Robert Marquis, and Bill Lacy; and for landscape environment: Philip Lewis, John Hirten, and M. Paul Friedberg. The presentations of these men—all, of course, designers of the first rank—added up to considerable visual support for the principles of the Assembly’s theme: "The Design Necessity." In total, I think, they did support the principles that the Assembly was intended to impress upon the agency heads:

"1. That there are sound, proven criteria for judging design effectiveness.
2. That design is an urgent requirement, not a cosmetic addition.
3. That design can save money.
4. That design can save time.
5. That design aids communication.
6. That design simplifies use, simplifies manufacture, simplifies maintenance.
7. That the design necessity is recognizable present in projects ranging in scale and complexity from a postage stamp to a highway.
8. That the absence of design is a hazardous kind of design. Not to design is to suffer the costly consequences of design by default.
9. That, on any given project, designers and Government officials have the same basic goal: performance. And...
10. That effective design of public services is itself an effective public service."

The case examples shown and described (you or I might have chosen some others) I think made those points. They are further supported in a "Casebook of Federally Initiated Projects prepared for the Assembly by Ivan Chermayeff, Richard Wurman, Ralph Caplan, Peter Bradford and Jane Clark (MIT Press, Cambridge, Massachusetts. 80 pages. $6.) which seeks by example (and for example, St. Francis Square housing by Marquis & Stoller; the restoration of the Renwick Gallery by John Carl Warnecke and Hugh Newell Jacobsen; and Saarinen's Dulles International) to provide a definition of design for Federal administrators.

Criticism? There are useful ones on all levels of concern Mildred Schmertz' main criticism was of the emphasis: "By timing [that is, first on the pro-
gram] and positioning, the arts of visual communication were given first importance . . . 
Now good graphics are nice. We all know that. And good graphics are important visual tools. We all know that.

"But in the world of design there is a hierarchy of value, and questions of architecture and the environment are larger and more important questions than the look of a government booklet or letter or memo pad. Getting good graphics is easy—all it takes is a strong corporate or government official who wants it, and someone like Saul Bass or Ivan Chernyayeff to produce it.

"Other needs are more pressing. Getting well-planned housing and schools and hospitals and neighborhoods and towns and cities and regions is hard. The need is urgent. The client is complex. The intellectual demands are profound.

"Getting good design at this level should have been the major concern of the Federal government at the level at which this conference was sponsored—and I think that these areas were short-changed at the conference just as they have been short-changed by the government for years.

"This could have been a splendid platform for the architects and planners—but it wasn't."

Ms. Schmertz has, of course, an impelling argument—and while I understand the wishes of the Assembly sponsors—the National Endowment for the Arts and the Federal Council on the Arts and Humanities—to present a broad view of design capabilities to the government people, there is indeed a hierarchy of values, and questions of architecture and the environment are indeed larger and more important questions. But I see an advantage in the relative simplicity of questions relating to graphics: I see the strong possibility that in the course of developing, with a skilled designer, a new program of "visual communications" for his agency, Federal officials who have not often been urged to consider design excellence will gain an understanding that may broaden into those more compelling questions of architecture and environmental concern. Encouragingly, seven Federal agencies are already participating in programs to improve the appearance and effectiveness of their graphics and publications. It's a beginning.

"My chief criticism was the lack of a closer, a wrap-up, a strong enough plea for action. If you will forgive my earlier reference to this Assembly as an attempt by skilled designers, architects, and landscape architects to "sell good design," I will now suggest that, in the end, nobody really asked for the order. Nobody really said: "If we made an impression on you, if you want to talk about improving the design quality of the construction your agency is responsible for, here's who to talk to, here's where to turn."

"Maybe that is premature for this first step in raising the standards of design by and for the government, but I've tried.

This is, of course, only the first step. Also in motion, as I've mentioned here before, is an attempt to review and enlarge the "Guiding Principles for Federal Architecture." That task force will be meeting this month with many of the same Federal agency heads that attended the Assembly, and there the opportunity for more detailed questioning and conversation will be better. In that less formal context, serious questions can be raised about architectural review and evaluation, architect selection, improved procedures for purchasing services, historic preservation, and adaptive use of older buildings, and so on. The agency people will be asked what they thought, what constraints they feel, what priorities press in on them. And that is critical—for "the Federal government" doesn't commission design, individual civil servants commission design—and there is little precedent in their work for striking out into new territory. But at any rate . . .

I'm encouraged. If the First Federal Design Assembly wasn't perfect, at least it happened. A dialogue was begun. There was interest by at least some of the men who spend $5.4 billion of our money. There is clearly a lot of new interest stirring in Washington.

As the Casebook pointed out: "Beginnings are at once difficult and exciting." We have, I think, a beginning.

—Walter F. Wagner Jr.

NEOCON 5: coming June 20-22, and well worth a trip to Chicago

The program for NEOCON 5, to be held at the Merchandise Mart in Chicago on June 20, 21 and 22, sounds like a rare opportunity for architects to broaden their contacts with interior designers and the contract furnishings manufacturers.

The keynote will be set on Wednesday the 20th, by a three-part presentation by Stewart Udall, Paul Dickson, author of "Think Tanks," and architect William Marshall, on "Man and His Environment." Wednesday afternoon, there will be concurrent sessions on the energy crisis, "The Renaissance of the Grand Hotel," and case studies on modernization—the increasingly important effort to effectively reuse old buildings.

On Thursday there will be concurrent sessions on "The Design-Build Controversy," the effect of design on patient response in hospitals on "Planning the Merchandising Environment"—some new looks at retailing, a look at vocational-technical space planning, and the planning of student services—or why dorms are empty and students are not eating on campus.

Perhaps the hottest subject is "People Space Psychology," presentations on space planning based on new research (which is, by the way, unfavorable to open planning).

The Friday program will include case studies of office landscaping, the "reclaiming" of old buildings—particularly unneeded railroad stations, planning facilities for the handicapped, and an in-depth study of O'Hare's capabilities; and presentations on "How to Sell Design and Architectural Services to State, County, and Municipal Governments" being given appropriately—by the National Institute of Governmental Purchasers. The Friday finale is a confrontational confrontation between proponents and opponents of open planning which should be fun.

RECORD will present its annual RECORD INTERIORS awards at an evening session.

In all, the program clearly seems to deserve growing attention by architects. Look for your pre-registration form from NEOCON and send it off. If you don't get one, I'd write Ed Gillie at the Merchandise Mart, Chicago 60654.
Now. JC/80 life safety systems.

Computerized, integrated with other building automation.

Now Johnson lets you tie in Life Safety Systems—security, fire and smoke detection—with all other building automation functions. And all under advanced JC/80 mini-computer control. In small, single buildings or widespread complexes. Simple monitoring and control, or central processing hookups via low-cost voice grade phone lines.

JC/80 mini-computer control helps you achieve maximum output for minimum input... the basic efficiency equation. The JC/80 system is more than just digital transmission. It's a real "think machine" that's years ahead of fixed-program digital systems that are simply "computer-checked" but have no computer control ability.

JC/80 computer control gets the most out of any building's electrical and mechanical systems... and delivers the most in Life Safety Systems. Find out more. Write today for Publication 2036-R.
the Bradley bathing beauties
Column showers that serve up to 6 people with one set of plumbing connections. Multi-Stall units for privacy at low cost. Modesty-Module® showers with dressing rooms. Econo-Wall, Panelon® and single person wall and corner showers. Bradley offers you the widest choice of models for maximum flexibility. Bradley showers cut installation costs and time. Save space and money after installation because they serve more people in less space than ordinary showers. Vandal-proof and built for years of rough use.

Bradley showers... they're beauties when it comes to serving crowds of people the fast and easy way.

See your Bradley washroom systems specialist. And write for latest literature. Bradley Corporation, 9109 Fountain Boulevard, Menomonee Falls, Wisconsin 53051.

more bright ideas from Bradley

Leader in Washroom Fixtures and Accessories.

For more data, circle 7 on inquiry card
Before you settle for ordinary solutions to out-of-the-ordinary building problems, call in Keene—the architectural specialists.

Keene doesn’t compete with all the companies that make bulk quantities of staple building products. Instead, we offer you a variety of specialty building products for your unusual architectural applications. Consider lighting. Although Keene is a major multi-line manufacturer of commercial fixtures, we’re also flexible enough to meet your special lighting needs. We can provide many “showcase” lighting fixtures for prestige areas, including wall- and ceiling-mounted units that illuminate evenly, softly, enhancing room decor. We can even work closely with you to design and fabricate custom lighting for special areas such as lobbies and auditoriums.

Keene movable partitions offer you an unlimited choice of material and color combinations—from natural cork to handsome walnut and teak vinyls. We make many specialized acoustical products, such as mineral fiber Sonosorbers to reduce noise levels in auditoriums and swimming pools. And if you’re involved in low-rise architecture, perhaps a garden apartment or nursing home, Keene’s Rapidwall lightweight framing system goes up faster and costs less than conventional wood or cinder block construction.

You already know Keene as the Interiors People, providing individual interior products as well as complete systems. Now think of us as the people to call on for a wide range of special architectural solutions. For details, please circle the appropriate Reader Service numbers below.


We’ve just begun to grow.
Christ custom lighting specialists worked closely with architect-engineers, Skidmore, Owings & Merrill, to fabricate a unique lighted ceiling system for the Bank of Washington Plaza, Tacoma, Washington.

Keene partitions are available in many distinctive materials, colors and textures to match the decor and function of any interior area.

A specialized Keene interior system; new Spec 100 ceiling systems incorporate lighting, acoustics and air distribution in a self-contained unit.
This is Alcoa Snug Rib roofing. It's flat, tight and handsome.

Alcoa® Snug Rib roofing gives you all the advantages and savings of low-pitch construction plus excellent leak resistance. Since slopes as low as 1/4 in. in 12 in. are possible, there's less dead space to heat or cool. The patented Snug Seam® joint holds panel edges securely in place to create a weathertight seal, and there are no through fasteners to penetrate the weathering membrane. Since Snug Rib roofing is a "floating" system, it moves under thermal cycling, so locked-up thermal stresses are eliminated. Installation is fast and easy, and savings continue over the life of the building because aluminum requires so little maintenance. On most buildings end laps can be eliminated because lengths are limited only by shipping conditions.

Handsome Alcoa Snug Rib roofing is ideal for swim clubs, industrial and port buildings, warehouses, grandstands and aircraft hangars. For more information on economical Snug Rib roofing, write Alum. Comp. of America, 1130-E Alcoa Building, Pittsburgh, Pa. 15219.

Change for the better with Alcoa Aluminum

For more data, circle 8 on inquiry card
John Boggs just solved the communications problems of this 1,250,000-square-foot enclosed shopping mall.

John Boggs works as a Building Industry Consultant with Indiana Bell Telephone Company.

The Edward J. DeBartolo Corporation, one of the nation's leading shopping center developers, is owner of two large shopping malls in Indianapolis. The corporation recently decided to invest in a third one there, of more than 100 stores, complete with every modern facility any merchant could want.

High on their priority list is up-to-date communications service, both now and for the future.

That's why they involved John Boggs in their plans while the surveyors were still at work on the site.

His state-of-the-art knowledge of communications enabled the builders to preplan for their needs.

Since John knew they set a high value on aesthetics, he suggested invisible cable access to the site, and proposed neat, efficient ways to run wires to individual sales-counter phones.

John talked about dozens of problems that could be avoided by planning ahead. And he explained in detail the advantages of one centralized communications terminal room, with satellite terminal locations each feeding eight to twelve stores—a concept the developer has incorporated into the plan.

The Bell System has a Building Industry Consultant in your territory who can give you this same sort of help. Whatever you are building, whatever your communications needs...

We hear you.
Don't overdraft. Use these Kodak shortcuts:

The snappy restoration shortcut.

Why waste time retracing your old, battered drawings? Restore them by making sharp, clean photographic reproductions on Kodagraph film. Weak lines come back strong and clear. Stains virtually disappear. And instead of gray lines on yellow, you’ll have snappy, contrasty, black-on-white prints.

The drop-of-water shortcut.

Why retrace the whole design for a few revisions? Just order a second original on Kodagraph wash-off film. Then use a drop of water and erase unwanted details.

Kodagraph film print of the paste-up.

Now you have a superb second original for subsequent printmaking.

Draw your design revisions on the film and you're done.

The multiplication shortcut.

Why draw the same detail over and over? Kodagraph film will do the job for you. That way you draw the detail just once. Make as many photoreproductions as you need. Cut them out, paste them down, and make a

Kodak products for drawing reproduction.

For more data, circle 9 on inquiry card
In the carpet world, Anso® Nylon's five year guarantee is on top of the pile.

Two Shell Plaza is Houston's new pride. So in the public areas and hallways, this building has "TXR-10" carpeting from Commercial Carpet Corporation.

It comes with Guarantee— the guarantee with teeth. Allied Chemical's assurance that the carpet is guaranteed not to wear more than 10% in five years, or Allied Chemical will replace it, installation included. Promise.

Allied makes this promise because we make ANSO nylon—the second-generation soil-hiding nylon. And, we test every carpet made of ANSO nylon 10 different ways to be sure it can take it.

So look for the label with the fierce little animal who symbolizes our Guarantee. And get the carpet with the five year wear guarantee.

For your free copy of our Contract Carpet Manual, write to: Allied Chemical Corporation, Fibers Division, Contract Department AR, One Times Square, N.Y. N.Y.10036. Phone: (212) 736-7000.

Guarantee. The guarantee with teeth.

Two Shell Plaza, Houston, Texas/35,000 yds. "TXR-10"/Commercial Carpet Corp.
There'll never be another hue...like this

**SPANISH**
A classic conformation of authentic design, in a total Mediterranean mood. This enduringly popular tile takes on a new character in the two-tone blue glaze. As versatile as it is timeless.

**Classic**
Interlocking, smooth-surfaced, gracefully proportioned tile for low or steep-pitched roofs. Superb in application for modern and traditional homes, commercial buildings, or institutions.

**French**
Interlocking roofing tile, from an original pattern produced by the Ludowici family in the 17th century. The deeply ridged design creates bold shadow-areas that also serve as decorative water run-off channels.

**SCANDIA**
A bold European shape, with its wide valley and sharp rise. Usually shows to best advantage on a steep-pitched roof. Old-world charm in a modern roofing tile concept.
A sparkling color, an unusual mood in roofing tile and floor tile... the intense, yet lambent blue of the Mediterranean Sea. This beautiful blue glaze obviously comes from Ludowici.

Because of its alluring appearance, this distinctive two-tone blue has won growing acceptance over the past few years. The color is applied by hand to each tile, resulting in a different look for every roof. And the shape of each roofing tile pattern also subtly alters the appearance of the blue tones, lending each installation an additional dimension of unique beauty.

Pictured here is just a representative sampling of the many Ludowici tile designs that can be provided in Mediterranean Blue. Because special care must be taken to produce this delicate color, most patterns will require ten to twelve weeks from receipt of order to shipping date. Your inquiry about any smooth-surface tile design in this enticing blue glaze is invited, and will get prompt attention.

Ludowici Mediterranean Blue tile is fire-proof, decay-proof, virtually timeless in its resistance to weather and wear. No cleaning, painting or maintenance is required—it is absolutely fungus-free. And, Ludowici tile almost always outlasts the buildings it beautifies.

12"x12"x3/4" Floor tiles are also available in Mediterranean Blue to create a striking effect...

For information about the many roofing tile patterns and colors available, contact your Ludowici Distributor, or mail the convenient coupon today.

LUDOWICI-CEladON COMPANY
111 E. WACKER DRIVE, CHICAGO, ILL. 60601 • (312) 329-0650
I would be interested in seeing and hearing more about:
☐ Mediterranean Blue Tile   ☐ other Ludowici Tile

NAME________________________________________
FIRM________________________________________
ADDRESS_____________________________________
CITY_________ COUNTY_________ STATE________ ZIP____

For more data—circle 11 on inquiry card.
GE's new High Efficiency PTAC Zoneline Unit.

It can save your clients up to 21% on cooling bills over the standard Zoneline.

Through the use of over-sized Spine Fin™ heat transfer surfaces and an efficient GE rotary compressor, we have “fine-tuned” all the components of the total refrigeration system for maximum efficiency.

This, of course, helps to save energy and reduce operating costs throughout the full cooling season as well as reducing energy requirements during the peak cooling periods.

So when you're specifying your next building with packaged terminal air conditioners, take advantage of the new General Electric High Efficiency Zoneline Unit. It's rugged and dependable too.

Just call your local GE Contract Air Conditioning Representative for more information.

For more data, circle 12 on inquiry card.
Goodyear's Speedramp System can help you get self-service shopping off the ground floor.

The future of self-service shopping is looking up. And down. To other levels of your store or shopping center. Speedramp® passenger conveyor systems from Goodyear are changing a lot of concepts about self-service.

The Speedramp unit offers a continuous surface that easily accepts shopping carts as well as shoppers. Carts with grooved wheels (our special Cart-Lock feature) are secured to the ramp in transit, then released automatically.

And there you have it. Self-service shopping off the ground floor and up and down to other levels in your store or center.

Find out more today about economical, versatile Speedramp systems and the exclusive Cart-Lock feature. Just write to Goodyear, Transport Systems, Box 52, Akron, Ohio 44309.

Goodyear
TRANSPORT SYSTEMS
Overly makes
the acoustical doors
that others don’t

When a temperamental diva is rehearsing on stage and the corps de ballet is loosening up backstage, nobody wants noisy distractions. Overly makes acoustical doors that keep unwanted noise down to a minimum. Overly acoustical doors are made with sound-transmission loss ratings up to 62 decibels. That’s why they’re used in so many leading concert halls, schools of the performing arts, music schools and broadcast studios. Some, like our 1¾ in. doors, look like conventional hollow metal doors and are designed for use with conventional hardware. Other larger doors come with frames and hardware furnished by Overly.

Overly makes acoustical doors for industry, too. We can make them to protect chambers where sensitive electronic equipment is tested, and they can muffle a stripped-down jet engine’s scream. If you need reliable sound protection, you need an Overly acoustical door. For more information, write Overly Manufacturing Company, 574 West Otterman Street, Greensburg, Pa. 15601.

overly
MANUFACTURING CO.

DOES WHAT OTHERS DON’T

For more data, circle 14 on inquiry card
Rock Face Ceilings...handsome, but tough.

Rock Face panels are one of the interesting recent ceiling developments from Conwed. These panels are handsome enough for an executive suite, yet tough enough to go into a school and take the impact of a thrown basketball or improperly handled projection screen. Against the hazards that typically confront ceilings—rough handling in installation, frequent and sometimes careless maintenance, heavy traffic—Rock Face panels are practically indestructible.

It may be that Rock Face panels and tile are relevant to something you're working on now. Or maybe you need something quite different. It doesn't matter. The Conwed line is large and versatile and we're a company that doesn't stand still. If you haven't looked through our line lately take a look at the Conwed pages in Sweet's.

For more data, circle 15 on inquiry card
J-M announces
a roof that’s total-value
guaranteed from
the deck up
...truly a
Blue Chip investment!

Here’s a roof you can specify with confidence.

We call it the J-M Blue Chip Built-Up Roofing System. Blue Chip because it’s the finest long-term investment in a roof ever offered. It’s brand new and it’s unique. Unique because with the Blue Chip system, a building owner can enjoy the security of a built-up roof that’s guaranteed from the deck up. Not just the membrane. The entire system—from vapor barrier all the way through the surfacing.

And get this. J-M will bond the roof for the entire cost of repairs to the system for the first 10 years—and to more than reasonable limits the next 10 years.

First, Blue Chip is a premium, balanced roof system, using top-quality J-M materials, performance matched and applied by qualified specialists.

Second, the J-M District Engineer and a J-M roofing specialist work with you to ensure proper specification and to make sure that there is compatibility between structure and substrate.

Then, during application by an approved roofing contractor, the J-M roofing specialist inspects the application to make sure specifications are being followed. Two years after completion—and later if necessary—other inspections are made for proper roof performance.

We recommend the new system as the best built-up roofing investment available. What better reason for calling it “Blue Chip?”

Details are yours, free, from your J-M district sales office. Or send for Blue Chip brochure. Write: Johns-Manville, Post Office Box 5108, Denver, Colorado 80217.

Johns-Manville

For more data, circle 16 on inquiry card
Bally Walk-Ins belong where special food fare means better health care for young and old

Walk-In Coolers and Freezers belong everywhere mass eating takes place. They can be assembled in any size for indoor or outdoor use from standard panels insulated with 6 inches of foamed-in-place urethane, UL 25 low flame rated and Factory Mutual research approved. Choice stainless steel, aluminum or galvanized. Easy to enlarge, easy to relocate. Refrigeration systems from 35°F, cooling minus 40°F freezing. Subject to fast depreciation investment tax credit. (Ask your accountant.) for 28-page book and urethane wall sample. Case & Cooler, Inc., Bally, Pennsylvania 19503.

© 1973 ALL RIGHTS RESERVED
The Brick that has everything

- Rustic antique beauty
- Wide choice of permanent colors
- Strength that exceeds all requirements, by actual test
- Variety of sizes: oversize standard, modular standard, large utility and 8" thru-the-wall
- Competitively priced with ordinary clay brick
- Available NOW in many areas

Rus-queue Brik* is truly antique and rustic... and it's available for immediate delivery in many areas of the country.

Rus-queue Brik* is a dense aggregate concrete... practically impossible to distinguish from a clay brick... and has all the strength and lasting qualities you expect from a concrete product.

And it's colorful! The coded formulas for color batching are perpetually consistent and permanent.

Like more information and our architectural file folder? Write or call:

TOLL FREE (800) 331-3288

Rus-queue Brik Speedy Info Line

Shown here are only a few of the wide range of permanent colors available from your nearest Rus-queue Brik* plant. Final color selection should be made from actual samples.

Rus-queue Brik

INTERNATIONAL

Post Office Box 7603, 2202 East 49th Street, Tulsa, Oklahoma 74105, (918) 742-7321

Rus-queue Brik is a dense aggregate concrete—no clay used.

For more data, circle 18 on inquiry card
Norton® Series 1600 Door Closers...

Almost a Legend of Reliability

We have no way of knowing the many different types of doors where the Norton Series 1600 closer has been installed. We do know the number, though, and it runs into the hundreds of thousands.

Even with all those closers in service, the problem installations have been so few that we can say the reliability of the Norton 1600 is almost legendary.

But that's only part of the Series 1600 story. It's probably the most versatile closer available. It's non-handed; and it installs top-jamb, parallel arm or regular arm just as it comes from its box. There's a choice of regular mounting, back mounting or invisible mounting. It's attractive in a slim, functional way. And, it's unobtrusive.

If you're familiar with the Norton Series 1600, include it in your next job where you need a reliable, attractive, versatile closer. If you're not familiar with it, ask your Norton Representative or contact Eaton Corporation, Lock and Hardware Division, Norton Marketing Department, Box 25288, Charlotte, North Carolina 28212.

Norton Door Closers...
25 years of Aluminum Reliability

For more data, circle 19 on inquiry card
WHATEVER YOU'RE DESIGNING...

...the engineering for a sewage disposal plant — compatible with your total utility package — may already be on our shelf.

It's a physical-chemical plant. Why? Because P-chem waste treatment is compact, complete, quiet, odorless. Yet the tertiary-treatment levels are capable of meeting the toughest environmental requirements, thanks to modern, proven, cost-competitive technology.

And, without the size, sights, sounds and smells of biological plants.

Consider the camouflage possibilities for developments, apartment buildings and institutions.

Airports. Executive parks.

It's a great way to master land area economics, the costs of long sewerage intercepts and of sewage moratoriums.

Marry your setting — exotic or functional — with our guarantee of clean, quiet, odorless, dependable performance you can’t get from biological plants.

A W T S Y S T E M S, I N C.

A jointly owned subsidiary of Hercules Incorporated and Procedyne Corporation
910 Market Street, Wilmington, Delaware 19899
Phone (302) 652-4855

For more data, circle 21 on inquiry card

ARCHITECTURAL RECORD May 1973
News in brief

The Administration has sent to Congress the Better Communities Act which would authorize funding of special payments to states, urban counties and cities up to $2.3 billion. This is the long-expected Administration program for switching housing assistance from Federal categorical aid programs to broad special revenue sharing. In making the announcement HUD Secretary James T. Lynn said local bodies will begin deciding for themselves how to spend the money a year from June 30, when the program—if enacted by Congress—takes effect.

Owens-Corning Fiberglas Corporation announces the Second Annual Energy Conservation Awards Program, open to architects, engineers and owners of buildings specifically designed to conserve energy. A letter indicating intent to enter must be received by Owens-Corning not later than June 30, 1973. Details on page 36.

A $2 billion new town for the Jersey City, New Jersey waterfront has been proposed, to provide housing for 60,000 persons and jobs for 12,000. The master plan by architects Marquis and Stoller is shown on page 45.

A Congressional study group has recommended a $1 billion annual increase in research to meet the energy crisis, including an attempt to replace petroleum with synthetic coal gas. For the long term the study group recommended stepped-up research to bring solar, geothermal and cheap nuclear energy into practical use by the 1980's. The $1 billion increase would bring annual energy research spending to between $2.5 and $3 billion.

If you have a summer job for an engineering student, McGraw-Hill would like to know. The publishers of the RECORD are compiling a listing of summer jobs for engineering students to be sent to placement directors at major engineering colleges. If you are interested in hiring a student, see the coupon ad in this issue, page 262.

The work of Moshe Safdie, architect of Montreal's Habitat, will be presented in his first major exhibition, San Francisco Museum of Art, through June 17, coinciding with the AIA convention. Organized by the Baltimore Museum of Art and financed with a grant from the National Endowment for the Arts, the exhibit was designed by the architectural firm of O'Malley & Associates, Inc. Details on page 36.

The Senate Interior Committee has completed hearings and is marking up Chairman Henry Jackson's (D-Wash.) bill for grants to states to develop comprehensive plans for public and private land use. Critics claim the bill encourages widespread zoning of all land. A controversial addition to the bill is an administration-backed provision calling for the withholding of Federal funds from any state that fails to adopt and implement Federal guidelines on the use of all land.

"Crime prevention through environmental design" is the title of a $2 million information distribution program to be sponsored by the Justice Department, which sees a correlation between the physical environment and street crime and burglary. Bidding for preparation of the program will be open to both profit and non-profit groups. Details on page 36.

Air structures in education will be discussed at Antioch College, Columbia, Md., May 22-24, sponsored by the National Academy of Sciences in cooperation with Educational Facilities Laboratories. Case study presentations will be made on recently complete structures. Further information can be obtained from Ben H. Evans, Building Research Institute, 2101 Constitution Ave., N.W., Washington, D.C. 20418.

The Association of Student Chapters, AIA, needs your help in establishing a National Student Job Bank. Anyone who has information concerning existing local or regional job banks for architectural students is asked to contact the ASC/AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006, attention: Ellen Meyerson. All information will be used to compile a national job prospects by area of the country.

An AIA conference on "The Architect and Ecology" is scheduled June 7 and 8, at the Mayflower Hotel, Washington, D.C. The conference will focus on ways architects can act constructively to ease tensions created by the conflicting demands and ideas of environmentalists and developers. Contact Carter McFarland, AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006

Noise control of mechanical and electrical equipment in buildings will be discussed June 18-20 in a seminar at Pennsylvania State University. Contact: Howard F. Kingsbury, Pennsylvania State University, 101 Engineering "A" Building, University Park, Pennsylvania 16802.

THE CHOICE:
REINFORCED CONCRETE.

1820 Rittenhouse Square Condominiums, Philadelphia.
Consulting Engineers: David R. Wittes, Philadelphia.
Concrete Contractor: R. E. Carrick Co., Philadelphia.
FRAME SAVINGS: $125,000.

The minimum cost condominium.
Philadelphia's first high-rise condominium overlooks historic Rittenhouse Square. This 20-story, nearly $3 million dollar structure was inventively designed in reinforced concrete using Grade 60 rebars. Surprisingly, the developer of the building is the owner of a steel fabricating company. So the structural engineer (naturally enough) costed out the structure on the basis of steel framing. Realizing that the most economical design might lie in an alternate solution, he also carefully cost-analyzed other framing methods. The results were convincing—and so were the possible savings: over 14% in favor of the concrete frame.

Flat-plate reinforced concrete frame won the economy run.
Among the structural systems analyzed were two basic frame designs.
1. Steel frame—plastic design with braced frames and composite beams or joist floors.
2. Concrete—flat plate with high-strength Grade 60 rebar reinforcement, using concrete walls for lateral stability.

The structural engineer's recommendation was for the most economical frame design of the two—flat-plate reinforced concrete, at a cost of approximately $850,000. And when the developer's own engineers made an independent design analysis of the structural steel frame, the frame costs came out $125,000 higher than the reinforced concrete design.

Budget floors mean room with a view.
The key to this $125,000 saving was the flat-plate design that permitted least floor-to-floor height, as well as offsets in the front exterior wall to give the most favorable views of Rittenhouse Square. The short spans with the Grade 60 reinforced flat-plate design made 6½-inch floor slabs possible. Contrast this with steel framing, which would have required 20-inch floors plus bracing and moment connections.

Fireproofing was part of the bargain.
The building's central core automatically resulted in a fireproofed service area as required by the Philadelphia Building Code. Added to this, was the inherent high fire resistance of the balance of the reinforced concrete structure. Eliminating the cost of fireproofing was an important part of the $125,000 savings of concrete over steel.

But the savings don't stop there. Reinforced concrete also has superior insulation values, helps save on heating and cooling costs. And its sound transmission values are low, helping keep high-rise residences quiet and peaceful.

Grade 60 rebar gives strength to save with.
The strength to win out over other design choices is the Grade 60 rebar story. Its 50% greater yield strength makes for truly economical building, as well as slimmer columns, more floor space, lower construction costs. And Grade 60 is available locally to help keep construction schedules on target. In this area approximately 70% of all reinforcing bars used are now Grade 60.

Reinforced concrete: first choice for saving big.
When you consider all the alternatives, one building system has everything going for it: proved economy, design freedom, early starts, fast construction, and less maintenance. Cast-in-place reinforced concrete plus Grade 60 rebar. Those who choose it, save with it.

For further technical data, write for Report P-C.

CONCRETE REINFORCING STEEL INSTITUTE
228 North LaSalle Street, Room 1204 - Chicago, Illinois 60601
For more data, circle 25 on inquiry card.
FURNITURE BY CHARLES EAMES AT THE MUSEUM OF MODERN ART

"Charles Eames, Furniture From The Design Collection," an exhibition that traces his technological and design innovations from 1940 to the present will be on view at The Museum of Modern Art, New York City, through July 1.

Drawn entirely from the Museum's collection, the exhibition includes more than 50 objects -39 chairs as well as examples of multiple seating, tables, and storage units.

Seating and other living room furniture by the team of Eero Saarinen and Charles Eames made of plywood shells, not bent in one direction, as had already been done by Alvar Aalto, but molded in two directions.

The molded plywood side chair (shown with which Eames achieved worldwide renown entered production in 1946 and has since been continually manufactured by Herman Miller Inc., along with his later designs. Charles and Ray Eames' own experiments in molding plywood continued from 1941 to 1948.

Eames and his associates seldom work from drawings; preliminary sketches, according to Eames have consisted mostly of rough notes meant to indicate a general configuration. Designs are worked out at full scale, the compound curves of seat and back elements being developed over closely spaced templates. This method allows frequent tests for comfort, and construction drawings for the metal molds that will later be required for mass production are made from the templates.

SOLAR ENERGY FOR BUILDINGS TO GET MAJOR RESEARCH

Solar energy for heating and cooling of buildings will get a big research boost in fiscal 1974 (beginning July 1) if plans of the National Science Foundation are carried through to their conclusion.

Details of this and other NSF proposals were laid before a House subcommittee on science, research and development in March by Dr. Alfred E. Eggers, Jr., the Foundation's assistant director for research applications.

The solar energy program and many others structured into the NSF plans come under the broad umbrella of RANN (Research Applied to National Needs).

BOSTON'S NEW SIGN CODE TO UPGRADE ENVIRONMENT

The Boston Redevelopment Authority succeeded in amending the city's zoning code so that for the first time Boston has regulations covering on-premise signs for business throughout the city.

Work on the amendment began well over a year ago when the city's Law Department, member s of the Urban Design staff of the BRA, and representatives of the sign industry held initial meetings to draw up the new regulations.

General direction for formulating the new code came from "City Signs and Lights," a study done for the BRA by the Cambridge architectural firm, Ashley/Mayer/Smith. As work proceeded it became clear that Boston, because of its singular character, would need a code that eliminated visual pollution, but was flexible enough so that the city did not lose the flavor and life sometimes provided by well-designed signs. At the same time, the BRA did not want to impose a code that had an adverse effect on the sign business in particular, and the business climate in general.

Under the new regulations, the size of signs is based on a sliding scale determined by the width of the street the building faces and the building frontage.

QUALITY OF LIFE DISCUSSED BY ARCHITECTS AND PLANNERS

Imaginative concepts for improving the quality of life in our major cities were presented recently by four distinguished architects and planners in the "Man is The Measure" seminar conducted by The American Iron and Steel Institute.

Louis J. Kahn, who has been awarded the highest honors in his profession by The American Institute of Architects and The Royal Institute of British Architects, was one of the featured speakers. The other participants were Lawrence Halprin, George Nelson and Niels Diffrient, Richard E. Paret, assistant vice president of The American Iron and Steel Institute, also addressed the audience.

The salient principle Kahn has applied to his buildings throughout the world he said is "the room is the beginning of architecture." Broadening his thesis, Kahn described the streets of cities as "community rooms." He advocated the diverting of automobile traffic from residential streets to preserve their character and give them a feeling of intimacy.

Lawrence Halprin, an environmental designer known for his malls and plazas created by his San Francisco firm, pointed out that cities have given major impetus to all important culture. "It seems to me that all of the cities I have been in that still are full of vitality are populated 24 hours a day," he said.

To stimulate the participation of all people in the use and future planning of cities, Halprin revealed that his firm has introduced "take part" workshops, described as "modern versions of the New England town meeting and the old Indian pow-pow."

George Nelson revealed he is working on putting business buildings under synthetic hills to "serve visually as a new element in the cityscape-so soft rather than hard, green instead of gray, relaxed rather than tense."

Niels Diffrient, an industrial designer with Henry Dreyfus Associates in New York, presented a challenging proposal for measuring man's emotional responses to technological changes. Observing that only a fraction of the testing of new products, machines and buildings is performed with the people who will be affected by them, he suggested the formation of "interdisciplinary teams" that embrace the physical and social sciences to create better designs.

FEDERAL FIRE COMMISSION STUDYING USE OF SPRINKLERS

The National Commission on Fire Prevention and Control is carefully considering its position on sprinkler systems versus other fire retardant means as it approaches July 1, the deadline for submission of its report to Congress.

In recent testimony to a Senate subcommittee on housing for the elderly, Dr. Richard E. Bland, Commission chairman, made the flat statement that "the requirement of complete automatic sprinkler systems is the available technical solution toward control of fire in housing for the elderly.

He says he makes no distinction between the types of care or housing units which are involved.

WORLD TRADE CENTER

DEDICATED IN NEW YORK CITY

With Governor Rockefeller of New York, Governor Cahill of New Jersey, Secretary of Labor Peter J. Brennan, and diplomats from 45 countries and hundreds of Federal, state and municipal officials in attendance, the World Trade Center was officially dedicated in New York City on April 4.

The $800 million twin 110-story towered complex in lower Manhattan was designed by Minoru Yamasaki Associates and Emery Roth and Sons with Tishman Realty and Construction Company as general contractor.

At present 304 firms employing 7,000 people are doing business in...
SHOSE SAFDIE EXHIBIT INCIDES WITH CONVENTION

P. Safdie: For Everyone a Garden, an exhibition of the work by the architect and urban planner who first received recognition for his design of Habitat at Montreal's Expo '67 is being mounted at the San Francisco Museum of Art through June 17. This, the major exhibition highlighting Safdie's achievement, was organized by the Baltimore Museum of Art and made possible by a grant from the National Endowment for the Arts. It is initially being presented in San Francisco to coincide with the annual meeting of the American Institute of Architects.

Safdie's large-scale housing and design projects and the socio-philosophical theories which inspired them are brought into the forefront of modern architectural design and urban living during the last five years. The exhibition reflects the belief that Safdie and other architects like him are major forces in the battle to reverse some of the most serious trends of the urban environment.

A unique format has been devised for this presentation by the Baltimore architectural firm of O'Malley & Associates, Inc., in cooperation with the Safdie and the staff of the Baltimore Museum of Art. Current architectural projects for Jerusalem and Jersing in Baltimore, Md. (right) are featured.

Safdie's design for the San Francisco State College Student Union (left) was selected by 15,000 students who were prepared to pay for their own building. The Board of Trustees which runs all state colleges in California rejected the design though it had the approval of the College President, faculty senate and advisory committee. Never built, it would have been a classical example of a highly complex institutional facility.

Housing programs prior to their suspension would be honored along with 

OWENS-CORNING ANNOUNCES ENERGY CONSERVATION AWARDS PROGRAM

Owens-Corning Fiberglas Corporation has announced its Second Annual Awards Program (in U.S. only) to recognize architects, engineers and others who are developing buildings specifically designed or equipped to conserve energy.

Charles E. Peck, Owens-Corning construction group vice president stated, "It may be possible to save more than a billion dollars worth of fuel and power each year if all our industrial, commercial and institutional facilities are conceived and built with energy conservation in mind. We hope to stimulate new designs and new concepts directed at that goal."

The competition is open to all registered architects and licensed engineers practicing in the United States. Any industrial, commercial, governmental or institutional building completed, under construction or commissioned and being designed on the date of entry is eligible. Speculative designs are not eligible, nor is work performed for Owens-Corning or by members of the awards jury or their firms.

A letter indicating intent to enter the 1973 competition must be received by Owens-Corning not later than June 30, 1973.

Entries themselves must be submitted by August 31, 1973. Awards will be presented in the fall of 1973. For additional information on the awards program and entry requirements interested parties should write Energy Conservation Award Program, Architectural Products Division, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.

EXTENSION OF CAPITOL WEST FRONT

PROPOSED AGAIN

Despite votes last year in both the Senate and House of Representatives against the proposed extension of the West Front of the U.S. Capitol Building, efforts are being renewed this year to gain Congressional approval.

The West Front extension is proposed to create more facilities for tourists and needed office space and meeting rooms for members of Congress. The present plan, submitted by the late architect of the Capitol, J. George Stewart, in 1967, will result in a facility with 3,528 gross square feet, with only 162,486 square feet of usable space. The American Institute of Architects has urged that other alternatives to the proposed extension be carefully considered as, for example, an underground expansion. If an underground alternative were chosen, it would have the advantage of lowering the construction cost and could be designed asymmetrically to meet the greater demands for space expressed by the House of Representatives. The AIA has stated that a prerequisite to any new construction on Capitol Hill should be the creation of a comprehensive plan for the entire area.

HIGH-RISE SHOPPING CENTERS SPAWN NEW ELEVATOR DESIGNS

A new system for speeding vertical movement of shoppers, called the Revolator (shown left), is planned for the multi-level Colonial Mall shopping center now under construction in Morrisville, New York.

Conceived by the office of Lathrop Douglas, architects, the Revolator is being built by Hitachi, Ltd., a company which claims to have also produced the world's fastest elevator which can travel 1800 fpm.

The Revolator is a revolving elevator with cars moving up and down in unison on a continuous belt, something like a Ferris wheel. Each car holds 150 people and is glass-enclosed to give riders (40,000 per hour) a broad view of stores as they pass each level. Cars move in unison every 60 seconds.

Mr. Douglas feels that today's sprawling one-level shopping malls will be replaced with high-rise "omni-centers" with multiple-level shopping, offices, restaurants, entertainment, apartments and impressive public areas. From a business and social standpoint, these centers will be a key factor in urban renewal.

One such center is the Omni International (shown right), under construction in Atlanta, 14 stories high and featuring, again, an unusual vertical conveyance — the world's longest escalator, rising eight stories.
Industrial waste collection doesn't have to be such a big waste!

Of time. Of money. Of space. Air-Flyte® has come face-to-face with the problems of unsightly, unsafe waste in plants and factories. You've been spending time and money merely moving waste from place to place in your industrial facility. You've wasted precious man-hours with employees double and triple handling waste. Emptying it from one container to another. Transporting it manually or by truck. Uneconomically. Inefficiently. Wastefully.

Now there's ECI Air-Flyte to put an end to waste. A pneumatic waste removal system that can be engineered specifically to your disposal needs. It removes trash right at the source, and carries it directly to a central disposal point. And does it quickly, quietly, economically, and efficiently with negative pressure that pulls solid waste through pneumatic tubes at mile-a-minute speeds—to the incinerator, compactor, grinder, baler or haulaway container.

It's versatile. Tube lines can be suspended from ceilings, buried in floor trenches or installed on rooftops. And waste can be moved up, down or sideways for full layout freedom.

It's engineered. Air-Flyte waste disposal engineers investigate every aspect of your operation before making even preliminary suggestions—to assure a system that operates simply and safely.

It offers variety. There's a wide choice of collectors available, depending on the particular needs of your building and the nature of your waste material. And a single Air-Flyte system can have as many depositories as you require.

Look into the heart of the Air-Flyte system. A centrifugal type suction generator with radial blade impeller and noise suppression damper. Look into an ECI Air-Flyte pneumatic waste disposal system engineered for your plant. And discover the modern method of trash disposal. Air-Flyte. A simple, clean operation offering considerable savings in labor, time and space.

For more information, write now for our free brochure: "Industrial Waste Collection: The Pneumatic System." Or contact us and ask to see an ECI representative.

"AIR-FLYTE" is a registered trademark

ECI Air-Flyte Corp.
Subsidiary of Eastern Cyclone Industries, Inc.
15 Daniel Road • Fairfield, N. J. 07006
Regional Sales Office:
BOSTON • CHICAGO • LOS ANGELES
ATLANTA • DALLAS

For more data, circle 26 on inquiry card
REPORT CLAIMS BETTER BUILDING PRACTICES REDUCE DEATHS, DAMAGE

High property losses from disasters averaging about $1 billion annually, the National Bureau of Standards and the National Science Foundation have just published a 465-page volume at closing the gap between building research and practice.

There is growing concern with a need to construct safer buildings, these agencies say, and they have responded with a series of documents dealing with studies of structural failures or actual disaster conditions.

The latest report, titled "Building Practices and Disaster Mitigation," covers a workshop held at Boulder, Colorado last fall and presents recommendations for reducing death and truancy through better building practices.

The question of how readily the findings and proposals will result in building codes changes throughout the nation arises immediately. NBS spokesmen said confidently they expected the recommendations would be implemented through code bodies and building officials with the help of professional societies and noted that the National Conference on Building Codes and Standards was operating to make the improved technology available to states and cities, model code agencies, and other concerned.


CHICAGO PLAN: PRESERVATION HISTORIC ARCHITECTURE

Secretary of the Interior Rogers C. B. Morton has passed a proposal titled "The Chicago School Architecture," a National Park Service control on how landmark buildings could be saved from economic pressures of urban growth.

Central to the plan is the development of a transfer concept originated by Professor J. Coston of the University of Illinois and a study for the National Trust for Historic Preservation under a HUD grant.

According to the Chicago plan, a "development rights bank" would buy unused development rights of designated historic buildings and sell them to developers for use elsewhere in the district. The developers would then use these rights to build beyond the height, space, or other zoning limitations that would normally apply.

Sale of the rights would provide cash to historic building owners for purchase of development values and would help support preservation and restoration. Removal of development potential from the landmarks could also relieve development pressures and lower taxes. Preservation restrictions could then be placed on the buildings as historic landmarks.

The Interior study, authored by architect Charles Miller of the Department's National Capital Service, suggests a concerted effort coming from Federal, municipal, and private resources with the Costonis development rights concept and the prospect of a National Park Service facility to give public information on the history and significance of Chicago's architectural landmarks.

EMPLOYEES VOTE AGAINST OAAE UNION

Employees of the San Francisco office of the architectural and engineering firm of Welton Becket and Associates voted 11 to 8 against certification of the Organization of Architectural & Engineering Employees (OAAE) to represent them in negotiating with management of the firm.

The election followed a hearing by the National Labor Relations Board on the definition of professional employees, with the union being successful in having draftsmen included in that category.

"We are naturally heartened by the outcome of the election, which indicates that a majority of our San Francisco employees do not believe it necessary for an outside organization to speak for them," MacDonald Becket, president of the firm, stated.

"However, we are conscious that a proportion of our employees apparently do feel that management has not been fully responsive to their desires, and we certainly intend to improve our relationship with them," the architect said.

Something really NEW for NOISE CONTROL

85,000 SOUNDBLOX Units Quiet This General Motors Corporation, Detroit Diesel Engine Division, Test Facility. Architects: Argonaut Realty Division, G.M.C.

Attractive, economical for indoor/outdoor construction.

SOUNDBLOX units derive their excellent sound absorption from a slotted construction which allows the closed-top cavities to act as damped (Heimholtz) resonators - the same principle used in automobile mufflers. They have many advantages: exceptional low-frequency sound absorption, rugged durability indoors and out, superior sound transmission loss and moderate cost.

For technical information see Sweet's Architectural or Industrial Construction File (9.1/Pt.) or phone us collect at the number below.

SOUNDBLOX

Sound-Absorbing Structural Masonry Units

The Proudtloot Company, Inc.

ACOUSTICAL PRODUCTS

P.O. BOX 5, GREENWICH, CONNECTICUT 06830

A/C 203 869-9031

In Canada: Monico Company, Ltd., Montreal, Quebec

J. Cooke Concrete Blocks, Ltd., Burlington, Ontario

For more data, circle 27 on inquiry card
all you need
to get
all you need
to know

It's the new definitive report on open office planning from InterRoyal. We call it Space Geography. Here's a whole new world of office design that will show you how to:

• Reduce the cost of setting up an office by eliminating costly building methods.
• Get the flexibility and mobility to adapt at any time to personnel and equipment changes—at less cost.
• Provide the comfortable, pleasant surroundings that will attract and hold better employees—with less absenteeism.

• Make the daily work of every employee more satisfying by using a functional system suitable to every work requirement.

And it shows how to get all this without changing present management methods or basic organization.

Explore a whole new world of open office planning. All you need is an 8¢ stamp.

InterRoyal Corporation
One Park Avenue, New York, N.Y. 10016

Gentlemen:
Please send me a free copy of The New Definitive Report on Open Office Planning.

NAME

COMPANY

ADDRESS

CITY

STATE

ZIP

For more data, circle 34 on inquiry card
Welded square tube gives you 1/3 more yield strength than pipe or wide flange columns... and it costs and weighs less, too. Ask us for facts and figures.

PIPE

36,000 psi

$3.52 per foot / 29 lb/ft

WIDE FLANGE BEAM

36,000 psi

$3.03 per foot / 35 lb/ft

WELDED SQUARE TUBE

46,000 psi minimum

$2.57 per foot / 22 lb/ft

ASH FOR OUR NEW BROCHURE

WELDED TUBE COMPANY OF AMERICA

SHUNK & VANDALIA STREETS.

PHILADELPHIA, PENNA. 19148 • (715) 336-2000. TWX: 710-670-0488

1855 EAST 122nd STREET

CHICAGO, ILLINOIS 60633 • (312) 646-4500. TWX: 910-221-1347

For more data, circle 31 on inquiry card
Times have changed. As an architect, you are often specifying carpets for institutional buildings where only a few short years ago carpeting was unheard of and unthought of.

Sometimes the owner wants carpet because of the low noise factors and sometimes simply for appearance—and there you are caught between the pile and the coffee spots. Not only must you specify a good durable carpet but you feel responsible to suggest a proper maintenance procedure to keep that carpet clean and attractive.

Carpetsheen works fast, is easy to use and doesn’t require the usual expensive carpet care equipment, either.

Best of all, it does an outstanding cleaning job on both natural and synthetic fibers... including shag. Even the toughest spills, like coffee, cola, tar and blood come out with Carpetsheen.

We would be happy to send you our "How to Care for Carpets Booklet" which you can incorporate with the Owner’s Maintenance Manual.

The all-in-one carpet care product.

Carpetsheen by Hilliard

Professional floor care products worldwide.

Corporate offices: St. Joseph, Missouri 64502.

For more data, circle 32 on inquiry card
light up an acre
or a few feet

Landmark Satellites give you design unity in three sizes

Uniquely designed for beauty, ease of installation and maintenance, Landmark Satellites offer highly efficient and uniform light distribution in a 360° pattern. They are handsomely ellipsoidal in shape, with a spun aluminum canopy matched and gasketed to a pearly mastic white acrylic diffuser that hides internal components. Canopies are available in 12 decorator colors.

Series SA models, 72" in diameter, will light an acre from the recommended 40-foot mounting height when equipped with four 1000-watt mercury vapor, metal halide or high pressure sodium lamps. Other wattages (total, four lamps): 2800 W. mercury vapor or metallic halide, and 1600 W. high pressure sodium. All service is through power pad doors which also permit installation and wiring to pole prior to erection.

The 48" diameter Series SB and 34" Series SC models take a single lamp in these wattages: SB—1000 W. mercury vapor and metal halide; 400 W. metal halide and high pressure sodium; SC—400 and 250 W. mercury vapor.

All units are available in a wide range of voltages and ballast types, are factory pre-wired for easy installation, have slip-fitter mounting, and can be furnished with NEMA twist-lock photo-electric control receptacle. Write for complete specifications, photometric data and prices.

For more data, circle 33 on inquiry card
HOUSE OF TEAK
The most comprehensive inventory in America
From around the world, bold inventories of kiln dried hardwood lumber and veneer ranging from domestic Ash to exotic Zebrawood.

CHESTER B. STEM, INCORPORATED
GRANT LINE ROAD, NEW ALBANY, INDIANA
For more data, circle 28 on inquiry card

Wouldn't it be great if your new buildings could stay as clean and fresh as you design them, and save your clients money, too. This free catalog tells how.

The Spencer Turbine Company
Drawer E, Station A, Hartford, Conn. 06106

Vacuum Cost Comparisons

Even though carpeting looks luxurious, it is the most economical commercial floor covering. Right? Right. But a central vacuum system is really an expensive luxury. Right? Wrong!

Minimum .5 Footcandles, 50’ Centers, 250W Mercury Vapor, 14’ High.

All that and character too?

QUAKER
NEWPORT
INTERNATIONAL
INDEPENDENCE SQUARE

Welsbach provides you with an outstanding selection of character lighting fixtures. True architectural lighting to add an element of interest while still meeting your basic area lighting requirements. We have been manufacturing quality lighting since 1877. Welsbach gaslights lined the streets of New York, Philadelphia, Baltimore, San Francisco, and many smaller towns. Custom designs and fabrication to your design with incandescent, mercury vapor and gas light sources are all part of our service.

Send for our new illustrated catalog.

For more data, circle 29 on inquiry card

For more data, circle 30 on inquiry card
The master plan for a $2 billion new town on the Hudson River was unveiled recently by Jersey City, N.J. and the United Housing Foundation, a non-profit federation of trade unions and housing cooperatives responsible for New York City's Co-op City. The site for the proposed 2500-acre new town is Jersey City's decaying waterfront (top left), facing the Statue of Liberty and downtown Manhattan. Liberty Harbor, as it is tentatively called, would provide housing for 60,000 people and an industrial complex creating 12,000 jobs. The major portion of 540-acre residential area (lower right and bottom) would be devoted to low-rise moderate- and middle-income apartments (top right), oriented to the harbor and to the Manhattan skyline. A pedestrian greenway system would offer traffic-free access from residences to recreation facilities, schools, shops, etc. A monorail or people-mover would be a key element in the transportation system. The largest portion of the project, 1500 acres, would be devoted to job-producing industrial and shipping development. Approximately 12 million square feet of new industrial floor space will be built. Initiated six months ago, the master plan was prepared by: Marquis and Stoller, architects; Zion & Breen Associates, site planners; Raymond, Parish & Pine, urban planners; and Farkas, Barron & Partners, engineers. The bulk of the funding for the $750,000 study was provided by the National Kinney Corporation, which has a first option to purchase and develop the site in accordance with the plan.
The Brazilian Embassy Chancery, on Embassy Row (Massachusetts Avenue) in Washington, D.C., has just been completed as Phase One of a program for developing the acre-and-a-half site presently including an eclectic palazzo-type ambassador's residence. The new chancery, designed by Olavo Redig de Campos of Brazil, in association with Hans-Ulrich Scharneg at Washington, is a daringly-cantilevered glass box, 'floating' above a transparent lobby. The three-stories of office space are suspended from roof trusses supported by a row of interior columns. Phase Two of the program includes a plaza, and an auditorium.

The 1973 Plywood Design Awards, presented in national competition by the American Plywood Association, have been recently awarded to four architects. First Award in the Residential/Multi-family division went to H. Ronald Walker, John D. Bloodgood Architects, Des Moines, Iowa, for The Park at Southern Hills, a planned community (shown left). Richard L. Dorman, of Los Angeles was presented with a First Award for his Commercial/Institutional entry, the Placerta Canyon Nature Study Center (shown above). The First Award in the Residential/Single-family category went to Huygens and Tappe, Inc., Boston for a two-story home located on Rhode Island's Narragansett Bay. With The Little Red Barn Indian artifacts shop, James McCormack of Locatelli-Deckbar-McCormack, Inc., Atlanta, earned a First Award in the Special Awards category. Seven Citations of Merit were given overall. In its second year, the Plywood Design Awards program honors those projects reflecting outstanding uses of softwood plywood.

Park Central is believed to be the first example of combined living, shopping and recreation facilities in Cleveland. Designed by Dalton, Dalton, Little and Newport, the complex includes 1000 living units and a 300,000-sq-ft shopping mall. Shopping will be at street level, with office space one level above and below this. The apartments will begin on the third level. A parking garage will link the two apartment towers, roofed for terrace and recreation space amounting to nearly two acres.

Mitchel Park, Nassau County, New York, is a 67-acre recreation facility to be contiguous with commercial developments in the 550-acre former airfield, Mitchel Field. Plazas, tennis courts, swimming pools, ice skating rinks, gardens, etc., are included, designed around a man-made lake with extensions to smaller lakes. The planning is by Liu Urban Design Associates.
Dodge Memorial Fountain, a $2 million bequest of Anna Thomson Dodge, and the Detroit Civic Center Plaza surrounding it, have been submitted to the Detroit Common Council for their designer, sculptor Isamu Noguchi. The fountain itself (center) is a 35-ft, high, ring floating above a circular pool. Since a wide cross-section of Detroit citizens and organizations will use the 6-acre plaza, Noguchi incorporated a number of public activities such as a circular amphitheater for music, dance, theater, or ice skating; a tourist center; shopping; a riverfront restaurant and promenade; underground restrooms; and service areas. The east-west thoroughfare that has to be retained will tunnel under the plaza (lower left). Smith, Hinchman & Gryll Associates will be the local architect of the project.

1972-73 Design in Steel Awards have been recently announced, with designs being cited for awards in imaginative use of steel by designers, architects, engineers and artists. In all, the program attracted 1000 entries in five categories. Besides the 24 awards, 84 entries received citations of excellence. Among those honored are J. Robert Hillier, Princeton, N.J. whose home (above) won the Housing Design Award. It is framed in steel, and clad with bronze-tinted reflective glass. A subway concourse entrance (lower right) in Philadelphia, by James Wright of Mitchell/Giurgola, features painted structural steel, precast-in-place concrete, and won for the architect the low-rise construction citation of excellence in this series. Harvard's Gund Hall (RECORD, November 1972), by the architectural firm of John Andrews/Anderson/Baldwin and the engineering firm of LeMessurier Associates, received the high-rise construction citation of excellence in this multi-level cascading studio. The space spanned by nine 13-ton structural steel roof trusses.

A $200 million development in Atlanta is shown in preliminary design stage, completed by Vosbeck, Vosbeck, Kendrick, Redinger, architects and engineers. The complex, to occupy a 6-acre site, will include a 1100-room hotel, 686,000 sq ft of office space and 1036 condominium apartments. The high-rise structures will rise from a base containing 150,000 sq ft of commercial and convention facilities around a central two-level plaza. Pedestrian circulation within the development will be on the upper plaza level, while the enclosed lower level will contain landscaped and fountain areas. Construction on the first phase—the hotel and office building—will begin early next year.
The building industry used 10
for insulation last year--

No other insulating material has enjoyed an acceptance increase like that. And for good reason. No other insulating material is as effective as sprayed, poured, or boardstock urethane foam in reducing high fuel consumption, excessive air conditioning costs, moisture problems. And its use continues to climb rapidly. The time to get better acquainted with urethane foam is now.

While Pennwalt neither
A billion pounds of urethane foam
00% increase in five years.

makes nor sells
urethane foam insulation,
we do make the Isotron® foam
blowing agents and amine
catalysts that are used in producing this modern and highly
efficient insulation.

For further information on urethane foam and a list of foam
producers and/or foam system suppliers, contact Gene Laughlin,
Isotron Department, Pennwalt Corporation, Three Parkway,
produces

PERСПЕCTIVE DRAWINGS

with only a little of your help.

• eliminates conventional awkward devices.
• near and distant vanishing points determinable.
• produces accurate, complete perspective drawings in less time.
• technically new and unique perspective drawing machine.
• operable by anyone with only limited knowledge of perspective drawing.
• please direct all inquiries to UCHIDA YOKO CO., LTD., 11 West 42nd Street, New York, N.Y. 10036.

For more data, circle 36 on inquiry card

This compact, fast, high-quality engineering convenience copier—the PD-80—will really pay off in the valuable time it saves your busy draftsmen. It makes chek outs and prints right where you make your drawings.

And it can pay off even more with our attractive rental plan that eliminates capital investments and long-term commitments.

Your local Bruning man is ready to furnish the details. Or write Bruning, 1834 Walden Office Squ., Schaumburg, Ill. 60172.

Rent this engineering copier for $25 a month.

For more data, circle 37 on inquiry card

Write for full color brochures on all of our 80 lines of exquisitely designed lavatory, tub, and shower sets plus accessories. Dealer list included.

For more data, circle 38 on inquiry card

ARCHITECTURAL RECORD May 1973
Suburban Pittsburgh's Monroeville Mall serves 300,000 shoppers a week with 1.3 million sq. ft. of sales area.

Besides 126 specialty shops and four major stores, the complex features an Olympic size skating rink, community auditorium, church chapel and a branch of the Carnegie library.

A single duct variable volume system supplies cooled air with lighting and people functioning as a heat source. A warm-up override control supplies warm air when needed.

PROFESSIONALS AT WORK


Aerofin Coils contribute to the Custom Climate for one of the Top Ten Malls

Aerofin Heat Transfer Coils have been a part of many advanced technology heat recovery systems for shopping malls, publishing plants, high-rise office buildings. Depending on the system design, Aerofin "Deep" Coils produce a large temperature rise for cooling, and a corresponding drop for heating. That equates into smaller pipes, pumps, valves, less insulation — and significant savings. Ask for engineering help in Atlanta, Boston, Chicago, Cleveland, Dallas, Los Angeles, New York, Philadelphia, San Francisco, Toronto, Montreal.

Aerofin Corporation
LYNCHBURG, VIRGINIA 24505

108 Type C Coiling Coils used in enclosed Mall

Aerofin is sold only by nationally advertised fan manufacturers. Ask for list.
There's more to security than togetherness. Taken in context with the times, security can often be defined as a defense against crime.

If your new building, for example, must include security in its design, for protection against losses of inventory from within; or thefts from drug store-rooms; or acts of corporate espionage, it well might pay you to consider the Sargent Maximum Security System.

It costs only slightly more than conventional master key systems. Yet the additional security it provides could save you thousands of dollars required for more costly preventive measures. Consider the mechanics of this system.

The Sargent Maximum Security System uses a highly pick resistant cylinder...a cylinder compatible with all standard Sargent mortise and other architectural locksets. And a unique key with precisely milled depressions providing seven levels of masterkeying.

Should electronic, remote control of doors be required, the Maximum Security System can be augmented by the Sargent exclusive Restrict-A-Key™ electromechanical access control system.

The Sargent Maximum Security System has proved so effective, it is currently in more than 4,000 installations in the nation's most security-minded buildings.

For additional information, write Sargent and Company, New Haven, Conn. 06509
A new set of lighting standards will soon become part of OSHA requirements. These standards will call for safety illumination in areas where lighting may now be minimal or even non-existent.

Hubbell can help you provide the safest possible lighting conditions with equipment that meets or exceeds the National Electrical Code and other standards. The industry accepted specification line of Pyle-National Vaporite fixtures are now part of the Hubbell Lighting Division line of quality equipment suitable for application in NEC Class I, Division 2 Hazardous Locations.

Available for use with longlife mercury vapor or economical incandescent light sources, the Vaporites can be pendent, ceiling, wall or post top mounted, permitting flexibility in lighting system design. Hubbell industrial Highbay fixtures can help meet these new safety standards as well as provide quality illumination for efficient operation.

When OSHA comes to light will you be ready? Hubbell is ready to help. Write or phone your Hubbell representative today for information on industrial lighting equipment.

Lighting innovations to believe in.

Vaporite—Ceiling or Pendent Mount

Highbay Industrial—Single or Twin

Vaporite—Wall or Davit Arm Mount

For more data, circle 40 on inquiry card
KOHLER NOW.
This is Kohler's Centennial year. But it means more than just being around since 1873. Measurably more. It means that Kohler has met the constant challenge of innovation...of continuing customer confidence...of building the Kohler heritage of rugged dependability into a full line of standby generator sets. 500 watts to 500 KW. Year after year. Generator set after generator set. Into application after application.

KOHLER THEN.
Almost fifty years ago Kohler generator sets were chosen to power a series of beacons which permitted the first night air mail delivery in America. Even then Kohler's reputation for reliability was well established. A reputation never lost. Just improved on.

KOHLER CO., of KOHLER, WISCONSIN 53044

when you depend on a generator set... depend on Kohler.

For more data, circle 41 on inquiry card
Designed
by Haws
FOR WHEELCHAIR USERS

Haws water fountains and coolers comply with Public Law 90-480 which states that facilities suitable for use by the physically handicapped must be available in buildings constructed, leased or financed by the federal government. Most of these Haws models feature two handles for left or right hand operation and receptor which extends from the wall to provide a drink for everyone. Chilled water available for all models.

Model HWC-6
Easily installed, mounts at a drinking height comfortable for wheelchair users. Compact unit with special easy-to-operate lever-action bubbler valve for convenient use by all people. Valve positioned to the front of the stainless steel receptor operates from either top or side.

Model HWC-6GF – Same as above, except glassfitter faucet in place of bubbler.

Model 1118
All stainless steel. Available with remote electric water chiller.

Model 1108
Dual stainless steel fountain. Lower fountain features extended receptor with handles on both sides for either hand operation. Other fountain is installed at standard height.

 Models HRWC-5, HRWC-10
Same as Model 1108 but with an electric water chiller. Fountain, backplate and grille are stainless steel. HRWC-5 rated for 68 persons an hour, HRWC-10 for 124 persons.

Model 1116

Haws Drinking Faucet Company
1441 Fourth Street, Berkeley, California 94710

For more data, circle 42 on inquiry card
MP compiles the most informative wall

Now and then, a simple idea applied for a special purpose takes on dimensions that give it a broad applicability. George Agron tells about a pin-up resources wall at his firm.

A wall of a conference room next to the library in the San Francisco offices of Stone, Ferracini and Patterson has been converted to active use as a resource center of information pertinent to the firm's major concern—hospital design. This is more than the ultimate extension of bulletin board function. It is an organized display of current information summarizing the state of the art. Organization of the information reflects a logical sequence reminiscent of computer programming with which is combined a system of classification derived from library techniques.

The display consists of reprints, papers and graphics, affixed to the wall with demountable frames so that perusal and photocopy reproduction can be accomplished readily. Location of the display in the conference room serves its double purpose of stimulating discussion among those members who frequently use the room for informal gatherings (and even lunches); it also serves the more formal purpose of an organized guide to client presentations.

In addition to its informal and presentation uses, the display serves as a center for new employee orientation; as the format for a series of structured in-house continuing education workshops; as a basis for in-depth evaluation of innovative hospital designs; as a professional resource for relevant University of California courses; and as a resource for staff members contemplating publication of papers or books on the subject of hospital design. An important side-effect has been the ability of the display to help identify major open questions in hospital design as a basis for possible research.

Organization of the material is under three major categories:

1. **Input**, representing hospital design aids, design strategies, work methods and construction processes;

2. **Output**, representing the various categories of hospital buildings resulting from the input;

3. **Output evaluation**, representing the various modes used to evaluate the performance of the various hospital design categories.

Effective implementation of the display is provided by a 26-page manual entitled "Hospital Overview" which not only summarizes content and organization of the display but also selects key items for extract, providing an overall sense of the material. The manual concludes with proposals for development of information as a permanent in-house resource and extension of the library, with the librarian assigned to updating the display on a regular basis.

Details of the organization and content of the display are, of course, related to the special disciplines of hospital design. The system, however, has applications in other fields of practice, and its detailed description here may serve broad general purposes.

Information throughout the display—that is, under all three major categories, input, output and evaluation—is carried under three consistent sub-categories: Type A includes concepts specific to hospitals as a building type; Type B is information appropriate for a broad range of building types; and Type C is information about relevant trends in outside categories, such as health legislation or perhaps...
therapeutic techniques.

The manual summary identifies: a) major trends in hospital planning concepts, b) specific entries under Type A and Type B categories, c) various architects' responses to problems of hospital design and d) hospital buildings resultant from the foregoing. There is also a description of the relevance of trends in health legislation displayed as Type C information.

The following direct quotation is an example of the summaries offered in the manual:

Current hospital designs illustrate developments in conceptual planning strategies. These various planning approaches can be traced to the work of:

1) Herman Field, Holistic Planning
2) John Weeks, Indeterminate Planning, Three-Dimensional Lattice, "Street" Concept
3) Clibbon and Sachs, Like-Space Versus Balliwick Planning
4) Stone, Marraccini and Patterson and Building Systems Development, Integrated Systems Approach
5) The body of work in modular planning, systems analysis and computer programming: Unit Theory for Hospital Design, VA System, Bethesda Medical Center, etc.
6) The body of work in prefabricated building systems and performance specifications: The Coupled Pan Space Frame Construction System, Calgary System, Harness Hospital System, etc.

7) The body of work of the Ministry of Health, Britain: "Perimeter" Hospitals, "Best-Buy" Hospitals, etc.

These planning concepts claim to perceive the hospital as a "total dynamic system". They attempt to integrate developments in systems analysis, patient care and medical treatment modes, construction technology, materials handling concepts, administrative policies and funding constraints into the design process.

This trend is a response to a previous planning approach which largely reflected only the departmental sub-systems and relationships within the hospital complex. "Bailiwick Planning"—Clibbon. The main criticism of this time-honored approach has been in its inability to allow for growth and change without great cost implications. The advantage of the traditional planning approach, however, is that it allowed for sophisticated evolution of departmental planning to occur. See "The Evolution of the Nursing Unit"—Medical Planning Associates; also "Evaluations of the Nursing Unit"—Garfield; and Dellom and Smalley, "Automation and Patient Care", the Frieseen Concept.) While this traditional model of the hospital was being continually refined (e.g., Ellerbe hospitals), certain areas of design concern were being relatively neglected.

Resultantly, the focus of planning attention is now moving towards an integrated systems approach (Stone, Marraccini and Patterson) where ability for the hospital complex to expand, and for spaces to be flexible is a major determinant. "Hard" areas are being designed with different criteria to "soft" areas (Caudill, Rowlett, Scott); the hospital is being looked upon as a whole system rather than an administratively set of departmental functions.

It is being conceived of as a multi-dimensional lattice (Weeks) which provides for flexible energy and circulation systems and technologically sophisticated materials handling systems, utilizing modular planning, pre-fabricated components and performance specifications techniques and fast-track design construction techniques.

It can be foreseen that the next area of concern will be in the sphere of environmental psychology, specifically in relation to design and detailing spaces which "do not get in the way" and in fact aid the healing process. Mental health facility designers are currently grappling with this recent science. (Pishman, Land, Itelson, McLaughlin et al.) End quo
H.E.L.P Power Station.
The little box that fits anywhere delivers big emergency AC power.

Battery-supplied. Up to 1200W, 120 or 277V. With solid-state reliability.


But H.E.L.P Power Station can take the worry out of outages. This compact battery supply unit is just right for any building.

And because it works instantly, it's ideal where even momentary interruptions could be critical. Like hospital operating rooms, vital communication networks, and sensitive industrial controls.

Takes wall space, not room space.

Power Station is so compact you can fit it into a convenient wall. The "large" 1200W recessed model takes up only 29" x 42" x 9 1/2" of wall area. Surface-mounted units are even smaller.

Designed to fit your needs.

You can select the wattage you want...from 200 up to 1200W capacities, 120 or 277 volts. All units are designed to meet local Codes. And because no special wiring circuits are required, you can place a unit precisely where it's needed. Anywhere.

Solid-state for reliability and long life.

Sophisticated solid-state design provides emergency power within ±5% over the entire load range. Because of special protective circuitry, Power Station can even work into a direct short without damage.

Anyone can perform a routine check in seconds. And battery water needs inspection only once a year. Batteries are guaranteed for 10 years, and should actually give far more years of service.

Power Station is designed to give you emergency AC where you want it and when you need it.

It's another of our Holophane Emergency Lighting Products (H.E.L.P.).

Call your local Holophane sales engineer for details on Power Station or any of our indoor, outdoor and emergency luminaires. Or write Dept. AR-5, Holophane Co., Inc., Woodbro Div., 13500 Saticoy St., Van Nuys, Calif. 91402.

Holophane
A Johns-Manville Company

For more data, circle 43 on inquiry card
Do you have a building design that helps conserve our nation's fuel?

Show our Awards Jury a building design that helps conserve energy—and you could win one of the Energy Conservation Awards Owens-Corning will present this year.

The Awards Jury will be looking for three things: Creativity. Originality. And most important—designs that save energy.

Too many buildings waste fuel and contribute to environmental pollution.

By offering Energy Conservation Awards, Owens-Corning hopes to stimulate new ways to conserve energy. It also lets us honor the architects and engineers who do the best job of designing buildings and mechanical systems that conserve fuel.

Who can enter.

Any registered architect or professional engineer practicing in the U.S. is eligible. As an individual. Or in a team. But to qualify, your entry must be a commissioned building project—in the design...
process, under construction, or a completed structure. Although Fiberglas* products are an excellent way to conserve energy, their use is not a requirement.

Four entry categories.

A winner will be selected in each of these categories:
- **Institutional**—schools and hospitals, for example.
- **Commercial**—office buildings, shopping centers, retail stores, and similar structures.
- **Industrial**—including manufacturing plants, research centers, warehouses.
- **Governmental**—post offices, administrative buildings, and military structures to name a few.

The Awards.

Winning architects and/or engineers will receive the Steuben Crystal sculpture “Triangles.” Owners or clients associated with winning entries will receive other Steuben Crystal awards.

Send for entry details now.

Completed entries must be submitted by August 31, 1973. Winners will be selected in September and notified in early October.

For a brochure giving complete details, contact your local Owens-Corning representative. Or write H. N. Meeks, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.
Our national housing goals: where do they stand now?

One assumption of the now-famous 26 million housing unit goal established by the 1968 Housing and Urban Development Act was that, given the availability of credit, most of the job of providing new homes in areas where the need was greatest could be done by the private market system. "Most of the job" is a key modifier here, because six million units of that 26 million unit goal were expected to be subsidized—what an acknowledgment that the free market had to be supplemented by public aid. Public assistance would be needed in those areas where poor profit prospects acted to limit the workings of the private market.

Now that public subsidies are frozen for what amounts to, at this writing, an indefinite period, it seems like a good time to ask some questions about this goal, and just how good the prospects now are for attaining it in the manner in which it was originally envisioned by the policy makers at HUD.

In terms of total units (that's counting mobile homes too) the tremendous volume of starts over the past few years has really put us above the trend needed to achieve the 26 million goal by 1978. Counting from 1969, the first full year after the Act, and adding in what appears to be a reasonable number for this year (2.7 million plus, counting mobiles), we'll put over 12 million units into various stages of construction in the first five years of the ten year goal period. That's less than half the 26 million, but, considering that we're starting from the low end of the trend line and working uphill, it's a fine accomplishment. There's obviously reason for pride, and maybe a little complacency. Too much can be a dangerous thing, though.

It's a pretty sure bet that the Administration wouldn't have so abruptly suspended the public subsidy program if it didn't have this edge on the trend line to point to. The ease by which we raised our shelter unit production by a full one million units in just four short years (1969's 1.9 million unit year vs. 1972's 2.9 million unit year) has certainly served to muffle a lot of skeptics on the housing issue. All of the old arguments about the industry's inability to attain levels of output in this range have been rudely laid to rest.

Attaining is one thing, though, and sustaining quite another. Also, there's some question as to just how much of this new housing can really be counted toward helping to achieve the 26 million unit goal on a one-for-one basis. Let's look at some of the issues that are involved here.

First, there exists a basic question as to whether or not the 26 million unit goal is really high enough to solve the housing problem as the 1968 Act envisioned it. For one thing, a high proportion of the units being produced to meet the goal are mobile homes—a higher proportion than was originally anticipated. The replacement rate for mobiles is significantly higher than that for conventional units. Also, the extent to which conventional units are becoming dilapidated over the current decade appears to be higher than originally anticipated. Acknowledging these two factors, the Administration, in its fourth annual report to Congress on the status of the housing goals (a report mandated by the 1968 Act), (1) added a figure to account for mobile homes scrapped during the decade and (2) raised the figure for units becoming dilapidated over the decade. To keep the total goal at 26 million, however, it made questionable subtractions from other areas of estimated needs, and seemingly brushed aside the entire issue with the statement: "Until detailed data from the 1970 Census become available there is little point in taking sides in the debate over the validity of the original goal."

Well, the simple point here is that there are things that have taken place in the two and a half years since the 1970 Census was made that will make even those figures subject to modification. All the data are never in, for one thing. And, for another, policy decisions can't wait for it anyway.

Is the private housing industry really putting up new housing in an "efficient" manner with respect to total needs? In this vein, it is interesting to note that fully half the gain in multi-family dwelling unit starts last year was concentrated in one state—Florida. Now, admittedly, the state rates high in terms of multi-family needs when we look at the quality measures that are available—things like the ratio of persons per room, and the proportion of units without plumbing facilities. But, this is not particularly true in the Miami-Fort Lauderdale market where the bulk of the increase was concentrated. Nor would the middle-income condominium unit, which most of these units appear to have been, essentially serve the needs of Florida's poor anyway. These are units designed for the retirement/relocation market almost exclusively. They only serve the needs of that portion of the nation that is poorly housed through the circuitous, inefficient "trickle down" route, if at all.

Relocation and migration themselves are other factors that must be considered in the housing equation. The recent surge to remote areas and the relocation of industrial/commercial businesses in the South was fully anticipated in the late sixties when original goals were formulated. The effects of this new demographic dimension, while fully explored, may be to hasten the removal of the inventory of sound existing housing in the Northeast and Midwest, or accelerate the rate at which it decays.

Finally, the phenomenal housing success of the past two years has led many to believe that the housing cycle is dead. Well, as far as severe credit squeezes or credit crunches are concerned, maybe it is. At least, the frame for allocating credit to the housing industry has been greatly strengthened, and just might be able to weather any future period of tightness. One factor that hasn't been related against, though, is overbuilding. The accelerated nature of the housing industry means it is extremely difficult for any individual builder to adequately assess his market situation. This is particularly true with the multi-family market where the time between start of a project and its completion can be a year or two. In respect, 25 per cent, or nearly 500,000 of the 1.9 million multi-family units started in the last two years are still in the construction pipeline. Why this is true remains a mystery, rather than providing a warning of impending market softness, more often than not, may serve as an indicator of the extent of the days resulting from poor market data.

The prospect of declining levels of multi-family output may sound paradoxical in light of what I've been saying about the 26 million unit goal being, perhaps, too low. But, really means is that, given the imperfections of the private market, there is always a tendency to commit too much housing to the "hot" market—that is, to overbuild. It is not a positive action on the Federal level to permit the need for housing that still exists in the markets where the rate of return is not quite as high as the so-called "hot" markets. It is a Federal initiative to help the private builders take the possibilities that exist in these markets, with the freeze, and the down-grading of programs generally, this positive action and initiative simply isn't there anymore.

Will the spirit of the 1968 Housing Act really be achieved by 1978? At this point there's room for doubt.
Red cedar shakes help a tennis club grow in beauty.

This elegant tennis club near Portland, Oregon, is designed for the future as well as the present. Architects anticipated construction of an additional three-court building to meet the needs of an expanding membership.

Red cedar shakes helped in more ways than one. The richly textured handsplit shakes bring beauty and unity to the club's original buildings. And they'll ensure continuity in its future structures.

Red cedar's look of natural warmth complements the rustic setting. Its traditional charm helps promote a neighborly feeling toward the club in the surrounding community.

And red cedar shakes are practical. Their beauty lasts for decades with little or no maintenance.

For details and our specification guide on Certi-Split shakes and Certigrade shingles, write us at 5510 White Bldg., Seattle, WA 98101. In Canada, 1055 W. Hastings St., Vancouver 1, B.C.


Red Cedar Shingle & Handsplit Shake Bureau
Out of a series sponsored by members of the American Wood Council.
**BUILDING MATERIALS MANUFACTURERS ANTICIPATE 14 PER CENT PROFIT RISE**

Pre-tax profits of companies predominantly in building construction are expected to increase by 14 per cent in 1973, according to the results of the annual Survey of Corporate Profit Trends conducted by the McGraw-Hill Department of Economics. The survey was conducted in the last two weeks of January and the first three weeks of February, and thus represents some initial reaction to Phase III of the Federal Government's Economic Stabilization Program.

The 14 per cent profit increase anticipated by firms predominantly in building construction is somewhat better than the 12 per cent average gain expected by all manufacturing firms and by all business.

The largest increase in profits among this group is the 17 per cent gain expected by mechanical and electrical equipment manufacturers. Other big increases are anticipated by producers of doors, windows and partitions (16 per cent) and general companies (14 per cent). More modest profit gains are expected by manufacturers of flooring and wall covering (10 per cent) and furniture (4 per cent).

U.S. corporations in all fields, now expect their 1973 profits before taxes to rise 12 per cent over last year. This would put pre-tax profits at a new record level of $65.4 billion compared with $86.2 billion last year. Nearly 90 per cent of all companies cooperating in this survey expect profits will be higher this year than last. Only 7 per cent expect pre-tax profits to be lower. Over 60 per cent of the corporations answering expect better their profit margins this year while only 16 per cent expect them to decline.

**HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>306.7</td>
<td>313.7</td>
<td>321.5</td>
<td>329.8</td>
<td>335.7</td>
<td>351.1</td>
<td>364.0</td>
<td>422.4</td>
<td>459.2</td>
<td>472.5</td>
<td>473.7</td>
</tr>
<tr>
<td>Baltimore</td>
<td>275.5</td>
<td>280.6</td>
<td>285.7</td>
<td>280.9</td>
<td>295.8</td>
<td>308.7</td>
<td>322.8</td>
<td>348.8</td>
<td>381.7</td>
<td>380.1</td>
<td>389.3</td>
</tr>
<tr>
<td>Birmingham</td>
<td>256.3</td>
<td>260.9</td>
<td>269.5</td>
<td>270.7</td>
<td>274.7</td>
<td>284.3</td>
<td>303.4</td>
<td>309.3</td>
<td>331.6</td>
<td>340.4</td>
<td>341.6</td>
</tr>
<tr>
<td>Boston</td>
<td>244.1</td>
<td>252.1</td>
<td>257.8</td>
<td>262.0</td>
<td>265.7</td>
<td>277.1</td>
<td>295.0</td>
<td>328.6</td>
<td>362.0</td>
<td>377.3</td>
<td>385.2</td>
</tr>
<tr>
<td>Chicago</td>
<td>301.0</td>
<td>306.6</td>
<td>311.7</td>
<td>320.4</td>
<td>328.4</td>
<td>339.5</td>
<td>336.1</td>
<td>381.6</td>
<td>418.8</td>
<td>422.8</td>
<td>424.0</td>
</tr>
<tr>
<td>Cincinnati</td>
<td>263.9</td>
<td>269.5</td>
<td>274.0</td>
<td>278.3</td>
<td>286.2</td>
<td>302.6</td>
<td>325.8</td>
<td>348.5</td>
<td>386.1</td>
<td>399.9</td>
<td>401.1</td>
</tr>
<tr>
<td>Cleveland</td>
<td>275.8</td>
<td>283.0</td>
<td>292.3</td>
<td>300.7</td>
<td>303.7</td>
<td>331.5</td>
<td>358.3</td>
<td>380.1</td>
<td>415.6</td>
<td>415.2</td>
<td>416.4</td>
</tr>
<tr>
<td>Dallas</td>
<td>253.0</td>
<td>256.4</td>
<td>260.8</td>
<td>268.9</td>
<td>270.4</td>
<td>281.7</td>
<td>308.7</td>
<td>325.0</td>
<td>358.2</td>
<td>369.4</td>
<td>365.0</td>
</tr>
<tr>
<td>Denver</td>
<td>228.5</td>
<td>283.7</td>
<td>294.0</td>
<td>300.7</td>
<td>301.5</td>
<td>321.5</td>
<td>339.0</td>
<td>368.1</td>
<td>392.9</td>
<td>398.3</td>
<td>403.9</td>
</tr>
<tr>
<td>Detroit</td>
<td>272.2</td>
<td>277.7</td>
<td>284.7</td>
<td>296.0</td>
<td>309.1</td>
<td>316.4</td>
<td>352.9</td>
<td>377.4</td>
<td>409.7</td>
<td>419.6</td>
<td>431.5</td>
</tr>
<tr>
<td>Kansas City</td>
<td>247.8</td>
<td>250.5</td>
<td>256.4</td>
<td>261.0</td>
<td>264.3</td>
<td>276.0</td>
<td>295.5</td>
<td>315.3</td>
<td>344.7</td>
<td>348.7</td>
<td>349.9</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>225.7</td>
<td>228.2</td>
<td>237.1</td>
<td>250.7</td>
<td>254.7</td>
<td>268.6</td>
<td>301.7</td>
<td>344.0</td>
<td>369.1</td>
<td>407.8</td>
<td>409.0</td>
</tr>
<tr>
<td>Miami</td>
<td>260.3</td>
<td>274.4</td>
<td>277.5</td>
<td>284.0</td>
<td>286.1</td>
<td>305.3</td>
<td>323.2</td>
<td>353.2</td>
<td>384.7</td>
<td>391.5</td>
<td>402.7</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>275.3</td>
<td>282.4</td>
<td>285.0</td>
<td>289.4</td>
<td>300.2</td>
<td>309.4</td>
<td>313.2</td>
<td>361.1</td>
<td>417.1</td>
<td>407.1</td>
<td>407.7</td>
</tr>
<tr>
<td>New Orleans</td>
<td>284.3</td>
<td>240.9</td>
<td>256.3</td>
<td>259.8</td>
<td>267.6</td>
<td>274.2</td>
<td>315.0</td>
<td>348.9</td>
<td>381.4</td>
<td>359.0</td>
<td>352.1</td>
</tr>
<tr>
<td>New York</td>
<td>282.3</td>
<td>289.4</td>
<td>297.7</td>
<td>304.8</td>
<td>313.1</td>
<td>321.4</td>
<td>344.4</td>
<td>365.0</td>
<td>395.6</td>
<td>406.5</td>
<td>407.4</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>271.2</td>
<td>275.2</td>
<td>280.8</td>
<td>286.6</td>
<td>293.7</td>
<td>301.7</td>
<td>321.0</td>
<td>346.5</td>
<td>374.9</td>
<td>394.2</td>
<td>395.4</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>258.2</td>
<td>263.8</td>
<td>267.0</td>
<td>271.2</td>
<td>275.0</td>
<td>293.8</td>
<td>313.0</td>
<td>327.2</td>
<td>361.2</td>
<td>364.5</td>
<td>365.7</td>
</tr>
<tr>
<td>St. Louis</td>
<td>263.4</td>
<td>272.1</td>
<td>280.9</td>
<td>288.3</td>
<td>293.2</td>
<td>304.4</td>
<td>324.7</td>
<td>344.3</td>
<td>375.5</td>
<td>385.5</td>
<td>386.7</td>
</tr>
<tr>
<td>San Francisco</td>
<td>352.4</td>
<td>365.4</td>
<td>366.8</td>
<td>386.0</td>
<td>390.8</td>
<td>402.9</td>
<td>441.1</td>
<td>465.1</td>
<td>512.3</td>
<td>533.5</td>
<td>536.5</td>
</tr>
<tr>
<td>Seattle</td>
<td>260.6</td>
<td>266.6</td>
<td>268.9</td>
<td>275.0</td>
<td>283.5</td>
<td>292.2</td>
<td>317.8</td>
<td>341.8</td>
<td>358.4</td>
<td>363.0</td>
<td>364.9</td>
</tr>
</tbody>
</table>

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) differs by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of the first period (150.0 + 200.0 = 75%) or they are 25% lower in the second period.
Designed

FACTORY FLOORS by Jennison-Wright

Wood floors are often "taken for granted,"
known for their many unique qualities (see
right), but not completely understood. To
understand them requires living with them as
have for over 60 years. We know, and would like
to share with you, that properly pre-designed Kreolite®
ain Wood Block Floors can serve many of
traffic and production problems and make life
for you and all of your associates. Let us
your floors so that none of their advantages
overlooked. This is part of our service.

Jennison-Wright Corp., P. O. Box 691, Toledo, Ohio 43694 . . . you'll find us in
Sweet's Catalog and in the Yellow Pages

ADVANTAGES OF KREOLITE® FLOORS:
1. Easy relocation and concealment of service lines to machinery.
2. Speed and economy of replacement in aisles and other heavy
   wear areas.
3. Special finishes for absolutely dust-free surfaces.
4. Versatility in providing for in-floor conveyor systems, tow-
   lines, etc.
5. Measurable contributions to noise abatement.
6. Easy installation of oil dispersal and/or recovery systems.
7. Traditional properties of comfort through insulation.
8. Non-sparking surface in volatile areas.
9. Reduction of damage to dropped tools and products.

For more data, circle 46 on inquiry card
NECA study reveals opinions of design professionals.

The National Electrical Contractors Association (NECA) recently completed a study to find out how electrical contractors can help maintain high performance on projects requiring complex electrical system installations. On a question involving project planning, most participants agreed: the professional electrical contractor should have a role as a preconstruction consultant.

Reasons? The electrical contractor is an important member of the building team. And his specialized knowledge, applied early in the project, can be very valuable in assuring overall coordination of the electrical job. Skilled at project scheduling and expediting electrical work, his knowledge of product applications, code requirements, and his installation expertise can help avoid costly potential problems and delays later in the project.

That's why many construction industry professionals involve electrical subcontractors in preconstruction planning: to make sure the job gets done—efficiently, economically, accurately, profitably. For more information on how you can benefit from the study, mail this coupon today.

National Electrical Contractors Association, Inc.
Dept.B-05, 7315 Wisconsin Ave.
Washington, D.C. 20014

If electricity makes it possible, electrical contractors make it practical.

Please send a free copy of the NECA Preconstruction Conference Handbook, explaining how I can save time, headaches and money through preconstruction planning.

Name__________________________Title__________________________

Firm__________________________

Address__________________________

City__________________________State__________________________Zip__________________________
Efficient building idea: Use this much more Fiberglas roof insulation and save up to $27,000 every 60,000 sq.ft.

Those are the potential savings you could realize on the initial cost of heating and cooling equipment. Your client could also save an additional $2500 a year on fuel. Simply by using 2¾" instead of ¾" of Fiberglas* roof insulation.

These particular savings were figured for a suburban office plaza in the northern climates (zone 1). Factors taken into account were: the normal temperature range of the region, size and type of roof deck, the “U” improvement due to thicker insulation. And the added cost of the thicker insulation.

How much can you and your client save by using 2¾” insulation? Send for our free booklet “Raising the Roof.” It’ll show you how to figure your own savings for your section of the country for common types of roof decks.

Write Mr. R. J. Meeks, Architectural Products Division, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Energy Conservation Award
Owens-Corning is offering awards to stimulate new designs and ideas for conserving energy. Special Steuben sculptures will go to the three architects or engineers who—according to a panel of independent judges—do the best job of designing buildings that don’t waste fuel. See our announcement in this magazine for details.

Owens-Corning is Fiberglas

For more data, circle 47 on inquiry card.
SHADOWFORM®

By KAWNEER

The Shell Canada Limited Oakville Research Center, winner of the Massey Medal for outstanding achievement in architecture, features the Kawneer Aluminum Hardcolor Finished Facing—SHADOWFORM.

Architects & Engineers: Shore & Moffat and Partners

For more data, circle 10 on inquiry card®
The Recordlift is an automated, selective vertical conveyor. It rapidly moves mail, records, books and supplies in office buildings, libraries, hospitals.

Pre-addressed trays, moving at speeds up to twelve per minute, may be received by or sent from every floor.

Seven tons of material—or more, depending upon the Recordlift model and tray size—may be dispatched from a single station in just one hour.

Each Recordlift station is quietly independent, with its own drive motors and solid-state control pack. There is no mechanical linkage with the main drive chain.

Pads dampen vibration. Tray cars move in and out on small wheels, synchronized by silent proximity switches in the shaftway.

At the bottom, a large maple take-up guides the chain smoothly around the bend.

We tell the whole Recordlift story in our new eight-page brochure. Write Standard Conveyor Co., 815 No. Second St., North St. Paul, MN 55109. Or call (612) 777-8171.

Ties the floors together.

For more data, circle 49 on inquiry card
you are invited to enter the 73 prestressed concrete institute awards program

Jury of Awards

S. Scott Ferebee, Jr., FAIA—Jury Chairman
Ferebee, Walters & Associates
President, American Institute of Architects

MacDonald G. Becket, AIA
President, Welton Becket & Associates

John E. Rinne, F. ASCE
Earl and Wright
President, American Society of Civil Engineers

C.F.T. Routhwaite, FRAIC
Marani, Routhwaite & Dick
President, Royal Architectural Institute of Canada

James F. Shviler, Jr., P.E.
Reynolds, Smith and Hills,
Architects-Engineers-Planners, Incorporated
President, National Society of Professional Engineers

W. Jack Wilkes—Jury Chairman for Bridges
Chief, Bridge Division,
Federal Highway Administration
U.S. Department of Transportation

Purpose of the PCI Annual Awards Program is to recognize excellence in design using precast and/or prestressed concrete. Any kind or type of structure in the United States or Canada using precast and/or prestressed concrete may be entered. Past Award winners have ranged from large multi-story structures to small single-story buildings, from giant long-span bridges to simple pedestrian overpasses. Awards have also been made on the basis of engineering ingenuity alone. Structures completed within the last three years, or those that are substantially completed now, are eligible for this year’s program.

Attention in judging will be given to the use of precast and/or prestressed concrete to achieve aesthetic expression, function and economy. Importance is placed on the use of the structural system as an expression of design intent and to enhance the function of the project.

Interesting methods of systems integration will also be recognized, as well as ingenuity in the use of materials, methods and equipment to reach an outstanding solution.

Because of broad diversity in the nature of problems offered to architects and engineers, no first place Award will be made, but all Awards will express equivalent recognition of a high level of excellence.

Eligibility: The Awards Program is open to all registered architects and engineers practicing professionally, and government agencies, in the United States, its possessions, and Canada, except Directors of PCI and all Company Members and their employees.

Plan, now, to submit an entry. Deadline is July 20.

Prestressed Concrete Institute
20 North Wacker Drive, Chicago, Illinois 60606
Gentlemen: I plan to enter the 1973 PCI Awards Program. Send me an illustrated review of past PCI Award winning structures and simple instructions on how to prepare my entry.

Name _____________________________
Firm _____________________________
Address ___________________________
City ______ State ______ Zip ______

For more data, circle 54 on inquiry card
Sixteen stimulating pages for architects. Today's latest ideas, techniques and materials. Contains dozens of interesting new uses for porcelain-on-steel interior and exterior panels in hospitals, schools, food plants, office buildings and industrial plants. Beautifully illustrated in full color with complete specifications.

For your free copy, write:

AllianceWall Corporation
Box 247
Alliance, Ohio 44601

Overseas Factories:
Alliance Europe, N. V.
Box 19
3600 Genk, Belgium
Pentagon A/S
Odense
Denmark

For more data, circle 55 on inquiry card

A LATCO EXCLUSIVE
shades of old Venice

VENEZICO
VENETIAN-CUT MOSAIC TILE

Lavish shades, subtly depicting the glory of Renaissance Venice, have inspired Latco's "Venezico" collection. Vitreous, hand-crafted tiles in 20 decorator colors, including gold, silver and brass. Designed for interior and exterior application, it weathers all seasons and time itself. Mesh mounted on 12" x 12" sheets with complete trimmers, for easy installation at low cost. For further information, write to:

Latco Products
3371 Glendale Boulevard • Los Angeles, Calif. 90039
Telephone: (213) 664-1171

For more data, circle 56 on inquiry card

The Night Time Environment People
MOLDCAST
161 Delancy Street, Newark, N. J. 07105

Moldcast...plus the effective illumination you need!...glare-free lighting application. Truly the best from both worlds, from Moldcast...only Moldcast.

The Percine Contemporary captures the charm of a soft, glare-free gas light atmosphere and adds the high level illumination today's most efficient lighting sources cannot achieve.

Look for the complete listing of all Armstrong Ceilings in Section 9.1/Ar of Sweet's Architectural Catalog. Or write Armstrong, Lancaster, Pa. 17604, for your free copy.

Armstrong

For more data, circle 57 on inquiry card

For more data, circle 1 on inquiry card

The best from both worlds!

For more data, circle 58 on inquiry card
Sleek, modern design—here's where we really shine.

Once you've seen our new stainless steel sinks, all the others seem dull as dishwater.

But that sculptured contemporary look does more than win feminine hearts. It helps control splashes, too. The bead around the bowl drains water back into the sink to keep the counter dry.

And check the off-center drain. If you've ever been dragooned into doing dishes, you know how a stack of plates in the bowl can stop water from going down the drain. Our off-center design allows the water to keep on draining.

These new self-rimming sinks have the kind of beautiful practicality American-Standard is famous for. But then we've had a lot of practice. Over 100 years of making water behave. Our sinks show it.

Every kitchen needs one work of art.

AMERICAN STANDARD PLUMBING / HEATING

For more data, circle 59 on inquiry card
Eye up with Fire Agate.

New Fire Agate. Its rich coloring warms up the cold look of marble. It's one of 14 exciting colors and pattern and woodgrain designs in the '73 FORMICA® decorative laminate collection...keyed to the widely promoted HOUSE & GARDEN Color Trends. They let you offer more variety, more beauty than ever before. We'll even help you with the selection and coordination of fabricator sources for cabinets, countertops and vanitories. These are just some of the ways you get more when you specify, give more when you deliver. Contact your Formica representative, or write Dept. AR-5.

For more data, circle 60 on inquiry card

© 1973 Formica Corporation, Cincinnati, Ohio 45202 • subsidiary of CYANAMID
AP Butyl-Flex®: butyl-rubber caulk with 5 times the endurance of conventional caulks

Whenever a sealant must assure long-term service in caulking joints, there is no choice but DAP Butyl-Flex. Compounded from a 100% butyl solution, Butyl-Flex delivers watertight, weathertight seals over a 20-year span. It features excellent adhesion and the ability to withstand shear stress in joints between similar and dissimilar construction materials. That's why DAP Butyl-Flex is specified nine out of ten times you want to seal out wind, water and weather. Catalog on the full line of DAP architectural sealants, please write: DAP Inc., P.O. Box 116, Dayton, Ohio 45401/Subsidiary of American Veneer & Lumber Inc.

IN CONCEPT. This chapel in the woods employs large expanses of glass to extend the feeling of interior space. Stone and wood are the basic materials used in the informal, yet disciplined chapel shape. Siting permeated by forested surroundings to form an inspiring background for worship and study.

For more data, circle 62 on inquiry card.
It's Georgia-Pacific's gypsum sound control system. It gives you a one-hour fire rating (Test UL No. U312). An STC of 45. It reduces wall thickness by ⅝". *And it costs $36 per thousand sq. ft. of wall area less than a ½" wood fiber sound control system.

Just apply ⅛" incombustible gypsum sound deadening board over a wood framing system (2" x 4" studs, 16" O.C.). Then apply ½" G-P Firestop® gypsumboard or Firestop® Eternawall™ vinyl surfaced gypsumboard to the sound deadening board. And that's it! Call your G-P representative today.

This sound control system costs $36 less* than a wood fiber system.

Georgia-Pacific
The Growth Company
Gypsum Division, Portland, Oregon 97204

For more data, circle 63 on inquiry card
A jewel of a library in porcelain-enamed steel

The Tuckahoe Branch is one of five in the Henrico County, Virginia, Public Library system serving the suburban county neighbor of Richmond, Virginia.

The architects created a refreshing expression in clean, crisp planes of matte-finish white porcelain-enamed panels. Any tinge of sterility was forestalled by the skillful introduction of highly reflective glass over large areas of the structure.

Architects are making increasing use of porcelain-enamed steel for aesthetic as well as for practical reasons. The development of Nature-tone finishes adds a new dimension to the use of porcelain-on-steel panels, and designers can choose from a palette of twenty-four low-chroma hues. Porcelain-enamed panels, regardless of color or finish, are sturdy, light, corrosion-resistant, colorfast, and clean.

Bethlehem supplies enaming sheets to fabricators who form and coat architectural panels. Write us for information on Nature-tone finishes. Bethlehem Steel Corporation, Bethlehem, PA 18016.

Architects:
Hardwicke Associates, Inc.,
Richmond, Va.

Mechanical Engineers:
Hankins and Anderson,
Richmond, Va.

Porcelain Panels:
The Bettinger Corporation,
Millford, Mass.
SWITCHES

Why the Eagle TOUCH-A-MATIC® Switch is the safest, most dependable choice for your electrical specifications.

Has both screw and E-Z WIRE® PRESSURE TERMINALS.

Cat. No. 1240

How it works:

Fig. 1, switch in "off" position (contacts open). As switch lever is rotated, actuating ball compresses the coil spring, but ball must pass pivot point of lever before it can close the contact. As it passes the pivot point it has maximum momentum and closes the contact points positively and rapidly. All independent of hand action (Fig. 2). As the switch lever is rotated in the opposite direction, Fig. 3, the ball is depressed and slowly releases some spring tension on the contact arm, permitting the contact points to open enough to break the arc slowly. Then as the ball passes the pivot point it completes the cycle (Fig. 4).

The Eagle Heavy Duty Touch-A-Matic Switch operates on a completely different principle than the generally used cam-action switch. This principle is specifically designed for AC use. Touch-A-Matic is a ball bearing and spring patented principle that assures a fast make and a slow break, (which is independent of hand action); so that arcing is prevented. This means a safer switch action — and less erosion of the contacts, so that the switch lasts longer. In fact, the rigid overload and endurance testing program which Eagle Touch-A-Matic switches must pass is equivalent to turning the switch on and off twice a day at full load for 40 years.

Eagle Touch-A-Matic Switches have both screw and E-Z WIRE® pressure terminals, which permit faster installation at lower cost. Touch-A-Matics are Specification Grade, UL listed and meet Federal Specifications and OSHA standards. Available in Single Pole, 3-way, Double Pole, 4-way; 15 and 20 Amp, 120-277V AC only (1/2 HP, 120V AC), in brown and ivory; and white in some styles.

For more information on Touch-A-Matics and the complete line of Eagle wiring devices, send today for a copy of our catalog.

From your specs to shipment

in 48 hours

Ordering a Nor-Lake refrigerator is easy, because a lot of the features that you want come as standard equipment. So you just pick the options you want. Acrylic or stainless steel finish. Full or half-length doors. Glass or solid doors. Adjustable legs. Remote compressor unit. Bun pan rack. Self-closing doors. Defrost-Vaporizer. Explosion-proof interior. In fact, Nor-Lake offers you so much to choose from, that a lot of people spend more time selecting their Nor-Lake than they do waiting for it to arrive.

Please send me more information about Nor-Lake refrigerators.

Name ____________________________
Address ____________________________
City ___________________ State __ Zip ______
I need refrigeration equipment for ____________________________

Eagle Electric Mfg. Co., Inc., Long Island City, N.Y. 11101
In Canada: Eagle Electric of Canada Ltd., Ontario

For more data, circle 64 on inquiry card

For more data, circle 65 on inquiry card

ARCHITECTURAL RECORD May 1973
The American forest still belongs to the American people.

And to a lot of people.

To begin with, four million individual Americans own 39% of the entire forest—a forest that's still nearly three-fourths as large as it was when Columbus landed.

Then, too, everybody shares ownership in that 19% of the forest owned by federal and state governments which supplies so much of the raw material for building our houses and cities and making our paper products.

And when you add the 17 million acres of forestland that's been set aside for parks and wilderness areas, and the government land not suitable for growing commercial trees, the American people—individually or collectively—own 91% of America's 63 million acres of forest.

So if the forest industries seem individually-owned forestland.
Whatever the sport, Robbins has the surface.

Got a question about athletic surfaces? Get the answer from the world's leader: Robbins.

- The world's finest hardwood flooring ... Lock-Tite is the only floor endorsed by the U.S. Handball Association.
- Laminated decks and hard maple walls for squash
- Sport-Tred for tennis, track, and basketball in any color
- Proturf, polyurethane elastomer for field houses and tracks

Find out about synthetic and wood athletic surfaces today from Robbins. Our staff of specialists is always ready to assist you in planning new or replacement facilities.

If it's athletic surfaces, Robbins has it! Just send us the coupon. We'll show you what we mean — with Robbins, there's a choice.

For more data, circle 67 on inquiry card
STOP VANDALIZING YOUR OWN BUILDINGS

The beauty of exposed concrete on the buildings you proudly design and build can be marred quickly by ugly rust stains.

Don’t destroy that appearance. Specify Sure-Grip® stainless steel accessories for your concrete construction. Stainless steel accessories are ideal because they prevent stains. They’re compatible with concrete in any atmosphere and temperature. And, they bond well with concrete. You might call them “the protectors.”

Stainless Steel Rebar Supports
Full line. Grinding won’t destroy protection. Priced the same as plastic protected supports.

Stainless Steel Snap-in Form Ties
With or without plastic or wood cones. Cone holes can be left open to add interest.

Stainless Steel Sure-Ties
Economical light gang forming. Adjusts to different form, wale, and set-back dimensions. Stainless inside tie rod remains in concrete.

Don’t vandalize another building. Send in the reader service card now for details on “the protectors.” Or see our literature in Sweet’s Architectural File.

THE DAYTON SURE-GRIP®
& SHORE COMPANY

721 Richard Street
Flowery Branch, Georgia 30542
Telephone (706) 868-0711

Branch offices and factories in:
Birmingham, Ala., Hialeah Gardens, Fla., Folcroft, Pa., Torrance, Calif.

For more data, circle 68 on inquiry card

TEAM APPROACH DISCUSSED,
APPLAUDED AT
PRODUCERS’ CONGRESS MEETING

Some of the conclusions reached at the Third National Conference for the Building Team, sponsored by April 11-13 at the Drake Hotel, Chicago, by the Producers’ Council, Inc., are: The team concept is a valid, evolving approach to the construction of buildings and the architect is a vital co-member of the team as it operates today. The owner, as ultimate bill payer, has to be the team coach; he ends up with the building, good or bad. Some teams combinations have produced catastrophic overruns, due to member selection rather than concept, but on the whole the team approach has been working successfully.

Approximately 50 speakers covered a program of wide-ranging topics from negotiated contracts to ideas for cost reduction without sacrifice of quality.

In a cost control session, Calvin B. Dalton, president of Dalton-Dalton-Little-Newport, large multi-disciplined Cleveland firm, described existing facing as the biggest architectural variable in any project. The time to control costs is when the design starts, he said, adding that the reason the architect is “on board” for the building team approach is to see that you [owners] “get what you pay for and that you don’t pay for what you don’t get.” Computers are used extensively in DDNL work, and value engineering is a part of every one of its projects.

Application of the team concept on a massive scale was outlined by spokesman for the federal government’s Public Buildings Service: Frank J. Matthaei, associate commissioner for project management, and Clifford A. Thomas, project manager for the big Social Security payment centers PBS is building for HEW. A case histories panel heard their detailed agency experience with performance specifications, systems construction and construction management on this three-building project. Earlier, Larry F. Roush, acting PBS Commissioner, had told a management techniques workshop that these government innovations had aimed to improving unacceptable cost, time and quality in construction.

“Our efforts in bringing these innovations into being followed only when it became abundantly clear that the majority of manufacturers, architects, contractors and other major action groups in the industry would not agree to the leadership themselves,” Roush said.

A labor-management forum highlighted employment issues as they impact on the building team operation. Members naturally divided on the question of the permanence of the current trend toward more open shop work but agreed increased productivity was the strongly-sought element needed to improve current conditions.

There were sessions on legal liability, quantity surveying and project analysis, project financing and the Occupational Safety and Health Administration’s impact on construction. Others dealt with fire safety in tall buildings and the automation contractor, pictured as the newest member of the team.

About 250 were registered.

—Ernest P. Merckle
"WE KNEW WE' D CUT OWNING AND OPERATING COSTS WITH LOF GLASS..."

JAMES A. KNOWLES
Consulting Engineers

"BUT WINNING THAT ENERGY CONSERVATION AWARD WAS A VERY SATISFYING SURPRISE!"

The Avco Financial Tower at Newport Beach soars into the California skies in everchanging beauty. Many things about the building are gratifyingly predictable, however.

The engineering consultants—James A. Knowles & Associates—predicted that the use of Thermopane® insulating units made with Vari-Tran® coated glass from LOF would save Avco almost $20,000 annually in owning and operating costs when compared to conventional bronze plate glass. Additionally, LOF reflective glass enabled the owner to install smaller fan-coil machinery on the upper 15 floors, thereby gaining more than 6,000 square feet of rental area for the owner.

Now, the Avco Financial Tower has won the 1972 Utilization of Energy Award in Southern California, a tribute to sound design and selection of materials that is made more meaningful by the energy crisis that afflicts many parts of the country.

An LOF architectural representative can't guarantee that yours will be an award winning building, but he can show you how building owners can conserve on operating costs. For the entire story, send for our brochure, "Reach for a Rainbow." Libbey-Owens-Ford Company, Dept. R-573, Toledo, Ohio 43695.

For more data, circle 69 on inquiry card
Milliken carpet stars at Dallas Music Hall with free-lay MILSTAR Corporate Square

Included in the $5,000,000 renovation of this Dallas landmark is 13,000 square yards of Milliken's MILSTAR in a combination of 18" free-lay carpet tiles and broadloom.

"The carpet requirements were rich look, easy maintenance and durability to withstand the crowds," says Bob Kieschnick, owner of Superior Carpet Co., who supplied the carpet. "We got them all with MILSTAR, plus the efficiency of free-lay tiles." The imaginative renovation of the Music Hall was the combined effort of Jarvis, Putty & Jarvis, architects, Avery Mays Corporation, contractor, and Superior Carpet Co., Dallas, Texas.

MILSTAR, revolutionary concept in commercial carpeting developed by Milliken Research, offers unique features:

**Longer Wear.** Pile is fuse-bonded into vinyl plastisol, providing resilience and wear equal to or better than the finest tufted or woven constructions. Tuft lock is superior to any other cut pile construction.

**Less Maintenance.** Impermeable soil-barrier back traps dirt on surface, contains spills in pile, makes cleaning easier.

The carpet is fade-resistant, anti-static. Pile of MILSTAR Corporate Square is 70% solution-dyed Acrilan® acrylic fiber/30% super lightfast nylon.

**Free-Lay Efficiency.** Snug-fitting MILSTAR Corporate Square tiles need no adhesive, allow quick access to power outlets. Damaged or soiled tiles are easily replaced and cleaned; tiles can be rotated to reduce wear. For complete information on MILSTAR and all Milliken contract carpet systems, call or write: Deering Milliken, Inc., Contract Carpet Manager, LaGrange, Georgia 30240. (404) 883-5511.

MILLIKEN
Floor Covering Business
LaGrange, Georgia

For more data, circle 70 on Inquiry card
REQUIRED READING

PLANTS / PEOPLE / AND ENVIRONMENTAL QUALITY: A Study of Plants and Their Environmental Functions, by Gary O. Robinette. The title promises that this will be a valuable addition to any architect's library. Unfortunately the book doesn't live up to the promise. It is designed to be both hortatory and informative, and in the former mode it is particularly unsuccessful and occasionally mindless, as for instance when it comes out against espalier plants as unnatural and therefore almost immoral, or in the Preface, which simply doesn't make sense. The sales pitch, dismal though perhaps reasonable, seems to be that since most people are not tuned in to the natural beauty of plants and trees, they might be won over by being told how "useful" these amenities are.

The descriptions of architectural uses of plants and trees are probably familiar to most experienced architects, and many of the hard facts are admirably covered in the new edition of Architectural Graphic Standards. But there are sections on acoustical, pollution, wind, and temperature control which are informative and perhaps unfamiliar. There is also a bibliography to lead the curious farther down particular paths.

The fairly modest price might offset some of the book's faults and makes it worth having in a professional office for small jobs where a landscape architect cannot be called in. It could also prove occasionally useful as a supplementary reference book and, because of the bibliography, as a guide to further research.

Full marks, then, to the author and to the American Society of Landscape Architects Foundation and the National Park Service, who sponsored the book, for their splendid intentions. Bad marks for their execution. Bad marks, also, to the Service Center of the National Park Service for a second-rate job of graphic design, which provides yet another piece of justification for the first Federal Design Assembly held in Washington last month.


MR. JEFFERSON, ARCHITECT, by Desmond Guinness and Julius Trousdale Sadler, Jr. The authors of this book do not blaze many new trails in the study and interpretation of Thomas Jefferson's architecture, though, for the punctilious, they do correct several misconceptions in the standard work, Fiske Kimball's Thomas Jefferson, Architect, first published in 1916 (but still available in several reprint editions).

In any case, it is good to have the usual facts, quotations, and drawings in a modern format, accompanied by photographs that are on the whole clear and handsome, with the embarrassing exception of those of Monticello.

Still remaining to be answered convincingly is the question of whether Jefferson's architecture is very original or influential in itself, continued on page 91.
Monolithic concrete is still hard to beat.

Ceco products and services include: Concrete forming, reinforcing bars, steel joists, steel overhead doors, metal building components, metal lath, concrete pipe and prestressed concrete sections.
You get simplicity, reliability and economy with monolithic reinforced concrete systems.

You can design with true versatility—rib slab, waffle slab flat slab construction.

And with Ceco's forming services, you get a dependable floor system fast.

You can have large modules and handsome finishes for exposed ceilings specifying Ceco's fiberglass forms.

Ceco crews of formwork specialists erect and remove forms of steel, fiberglass or wood, on schedule, under a firm, lump-sum contract.

For more facts, see Sweet's, consult your local Ceco office, or write:
We “Wrote the Book” on Dock Design.

Everything you move in or out of your plant, warehouse, or terminal moves across the loading dock. Today's competition, rising labor costs, and safety considerations place critical demands on your dock operation.

To help you achieve a safe, efficient dock, Kelley Company offers the services of one of 350 trained dock specialists. He will work with you, your personnel, architect and contractor. And he will assume complete responsibility for the dock layout, equipment recommendation, its installation and operation.

Our 350 Dock Specialists put it into practice

It’s the kind of total responsibility you expect from the people who “wrote-the-book” on Dock Design, and who manufacture and install more permanent dockboards than anyone else in the world.

So if you’re building, remodeling, or simply concerned about your present dock operation, ask for this free, no obligation consultation service. Just contact the “responsible” dockboard people.

For more data, circle 74 on inquiry card
Quiz: Will the skinny tank (A) hold more cool water than the fat Oasis storage tank (B)? Obviously not. The large tank in an Oasis water cooler means it will serve more cool water to more people. With less wear and tear on the compressor. In fact, the compressor lasts so long, we back it up—and the entire cooler—with a full five-year warranty. Get Oasis. The coolers built to last. See them in Sweet’s, in the Mechanical Products Catalog or write us.

OASIS
The word for water coolers.

Ebco Manufacturing Co.
Dept. AR-2
265 N. Hamilton Rd.
Columbus, Ohio 43213

I want to know more. Please send me your full-line catalog. Plus a copy of your five-year warranty.

NAME_________________________TITLE_________________________
FIRM__________________________
ADDRESS_______________________
CITY_____________________STATE______ZIP____________________

For more data, circle 75 on inquiry card
Andersen Perma-Shield® Windows help do justice to an old courthouse.

When selecting new windows for the Hardin County, Ohio, Courthouse, the County Engineer was concerned about quality, cost, low maintenance and appearance. And that’s why he specified Andersen Perma-Shield Windows. He was impressed by the quality of Andersen construction, the low maintenance features of Perma-Shield Windows, and by Perma-Shield’s year-after-year durability. He also liked the way the windows did justice to the building’s original design.

All the exterior portions of the windows are enclosed in a sheath of tough, durable, attractive vinyl that does not rust, pit or corrode and does not need painting... keeping cleaning and maintenance costs at a minimum.

But this isn’t the only way in which Perma-Shield saves taxpayers’ money. The superior insulating properties of Andersen’s stabilized wood construction, double-pane insulating glass, and close-fitting tolerances reduce heating and cooling losses and condensation.

The filler surrounding the new windows is U.S. Plywood PF-L® minimum-maintenance Tedlar® surfaced panels. Inside, the new woodwork was constructed of white pine and stained to match the existing woodwork... retaining and complementing the character and design of the courthouse.

As construction costs rise, remodeling considerations are becoming considerably more important. Andersen Windows can help do justice to any building renovation, while holding costs down.

For details on Andersen Windows, see Sweet’s File (Sections 8.16/An. and 8.6/An.), your Andersen dealer or distributor (he’s in the Yellow Pages) or write us.

Andersen Windowwalls
ANDERSEN CORPORATION
RCPORT, MINNESOTA 55303

For more data, circle 76 on inquiry card
"Our carpet of Antron® hair
Parkway Hospital, North Miami Beach, Florida.
Floors in hospitals take a special kind of beating. Not just from feet. But from wheels on food carts, transport beds, portable x-ray units, wheelchairs. And from inevitable spills, and tracked-in dirt. The punishment goes on day and night, without letup.

Yet, through it all, clean appearance is a must.

With maximum durability and ease of maintenance as requirements, it’s no mystery why American Medical International specified carpet with pile of Antron* nylon for its Parkway Hospital.

“Appearance is particularly important in hospitals. Our carpet of ‘Antron’ has held up beautifully. No traffic lanes or visible wear. And we find we can keep it cleaner than hard floors. Within the next two years we plan to have carpet of ‘Antron’ in all 54 of our hospitals.”

For hospitals or anywhere there’s need for commercial carpet that must take a beating and still stay fresh-looking, specify carpet of “Antron”. It has no equal in long-term appearance retention.

For further information and a list of mill resources, write Du Pont, Contract Specialists, Room 110/AR, Centre Road Building, Wilmington, DE 19898.

For more data, circle 77 on inquiry card

How “Antron” keeps carpet looking fresh. Its filament structure is unique, as shown in this magnified (650×) cross section. The four precisely-placed axial holes scatter light like facets of a diamond to minimize the dulling effect of soil, while helping to retain color clarity and luster.

*Du Pont registered trademark. Du Pont makes fibers, not carpets.
Architects and Engineers are special... so are their insurance needs.

That's why we thought you'd like to know about recent developments at Shand, Morahan & Company. Developments that include our new association with the Northbrook Insurance Company. And developments that mean greatly expanded coverage for the professional liability risks of:

- Modular Home Designers/Builders
- Pollution Engineers
- Turnkey Managers
- Naval Architects
- Designers/Construction Engineers
- Highway Engineering Departments
- Joint Venture Participants
- Soils Engineers
- Precast Concrete Engineers
- Nuclear Engineers.

Through the Northbrook Insurance Company, we are now able to offer a single policy limit up to $10,000,000. Your needs aren't quite so extreme? Fine, we've got just the program for you, too. For almost every professional, in fact, whose insurance demands are a little—or a lot—unusual.

For further information about our unique services for architects and engineers, just ask your insurance agent to contact Shand, Morahan & Co., Inc. Department AE.

Shand, Morahan & Co.—the best insurance friend of architects and engineers. Now more than ever before.

Ideal Wing-Nut Connectors screw on easy; grip tight!

Ideal Wing-Nut come in four color-coded sizes to let you select the most economical connector to fit any branch circuit wiring job. Send for FREE SAMPLES and the Ideal Connector Guide. It describes the industry's biggest line of solderless wire connectors.

IDEAL INDUSTRIES, INC., 1328-E Becker Place, Sycamore, Ill. 60178. In Canada: IDE ELECTRIC (Canada) LTD., Ontario.

For more data, circle 79 on inquiry card

At last—a fast acting double-slide industrial door that's also a UL-listed, Class A fire door.

Our new Fire Chief™ is the first double horizontal slide Class A, 3-hour endurance rated, UL and FM labeled door that's fast enough for the busiest doorway.

The Fire Chief's complete pre-assembled, pre-wired package installs easily and inexpensively. Provides equal or greater protection than much heavier conventional doors through years of dependable, maintenance-free service.

Before you invest in a fire door and an industrial door, see the one that does both jobs. Available in double or single slide. Write for free literature or find us in the Yellow Pages.

69 Myrtle Street, Cranford, N.J. 07016
(201) 272-5100 Telex 13-6268

For more data, circle 80 on inquiry card

For more data, circle 78 on inquiry card
Another special place for Marlite Planks: wherever you want to focus attention.

There's a decorating idea that turns the office watering hole to a special place. Thanks to Marlite Planks, the paneling you mix or match every 16 inches. Panel the wall with Marlite Wormy Chestnut Design Planks. Such an authentic reproduction you can actually feel the worm holes. Then put our Carved Leaf Planks behind the cooler. A refreshing contrast.

But Marlite is more than just another pretty face. Your client gets walls that look new, year in and year out, without a lot of expensive maintenance. That's because Marlite has a durable wash-and-wear finish. It resists stains and scuffs, wipes clean with a damp cloth.

Marlite has dozens more beautiful paneling ideas for special places in offices, stores, motels, restaurants, bars or wherever. For color literature and professional samples, write Marlite Division of Masonite Corporation, Dept. 505, Dover, Ohio 44622.

Marlite®
We make walls for special places.
When it comes to flat glass, the only name you have to remember is ASG. Because from product to packaging to delivery, ASG does it all. It's your one-source glass company. And that includes everything from float glass to plate glass, tinted and clear, to patterned and insulating glass, lighting glass, reflective glass and safety glass. In short, any kind of flat glass you'll ever need.

And, ASG delivers the goods. Where you want it and when you want it. In some of the most advanced package designs in the industry. Packaging systems that reduce handling to a bare minimum. And make breakage a rare occurrence, indeed.

So, when it comes to glass, come to The Glass Company... ASG.
Bonded Bronze walls and doors.
Bonded Bronze planters and tables.
Carved wood panels and doors.
Carved wood grilles.
Handcrafted doorpulls.
Metal tiles.
Sculptured ceramic walls.
Box 5215  Santa Barbara
Calif. 93108  (805) 969-4767
Emerson Electric's handsome new Environmental Systems Building in St. Louis, Missouri, harmonizes to perfection with its park-like surroundings.

Trees, fields and open sky are permanent neighbors to this unique structure—a working laboratory and demonstration center planned for the study and development of Environmental Control Systems.

The exterior is a dramatic blend of exposed USS COR-TEN steel and warm, reflective glass. Besides the economical and aesthetic value of COR-TEN, it is a positive expression of the building's function. It shows clearly how a bare structural system can be blended with environment.

COR-TEN is used for spandrels, penthouse panels and for the outrigger members and bare exterior columns—se
away from the building facade to achieve the required fire rating.

USS COR-TEN was an admirable choice for strictly practical reasons, too. It doesn’t have to be painted. So it saves maintenance costs. If it gets scratched, it heals itself! That rich, russet color doesn’t fade. It matures—and takes on a deeper color. COR-TEN Steel actually improves with age.

USS COR-TEN. A remarkable steel. Like all things truly beautiful, it harmonizes with other expressions of beauty.

Owner: Emerson Electric Co., St. Louis, Mo.
Architect: Hellmuth, Obata & Kassabaum, Inc.
Architects, St. Louis, Mo.
Structural Engineer: LeMessurier Associates, Inc., St. Louis, Mo.
Don't just turn on lights, turn on your customers.

There's something exciting about a store illuminated with General Electric high intensity discharge (H.I.D.) lighting. There's a cheery feeling about the whole place. Merchandise takes on a sparkle that conventional lighting can't provide. The ceiling is more spacious, clean, and non-distracting. And the total effect just naturally lets shoppers see products more favorably. Explore this new and economical method of merchandising.

Hot spots, glare and garish streams of light are held to a minimum. You get uniform illumination that helps merchandise call attention to itself. You get optimum lumen efficiency. And you get to choose from a family of luminaires for all types of commercial lighting applications: regressed or recessed, open or enclosed, and for low or high mounting heights. The names are Panelglow®, Duraglow Regressed, Econoglow® Recessed, and Lowmount® Regressed. We call them The Show Offs, because that's what they do to your merchandise.

See your GE Representative or write for the complete story. GE Lighting Systems, Hendersonville, N.C. 28739.
telelift® is number 1

and mosler makes it.

...and has been making it for years.
Number one, not just because we were first with a new concept in materials handling, but because we proved to over one hundred and sixty owners of Telelift that their confidence in us is not misplaced.

Telelift didn't happen over night. It happened because Mosler is proud of its reputation for high quality equipment. We couldn't persuade ourselves to introduce an unproven system to people who rely on us for the best.
Only after years of development, engineering, experience and testing are we able to offer the reliable, flexible, proven system Telelift is today.
We didn't make Telelift Number 1, the confidence of our customers did. Talk with us. We'll show you why Telelift is going to stay number one.

Mosler
An American-Standard Company

MOSLER/AIRMATIC SYSTEMS DIVISION,
415 PATERNER HAMBURG TURNPIKE, WAYNE, NEW JERSEY 07470   TELEPHONE: (201) 278-6300

For more data, circle 86 on inquiry card
We're proud of that! Because it goes without saying that the architect in charge would look closely at whatever he specified for The Octagon, headquarters building for the American Institute of Architects.

An LP polysulfide base sealant was used to seal aluminum window frames, pre-cast masonry joints, and outside step risers. To assure lasting protection against sun, wind and rain. To maintain unbroken adhesion and flexibility despite temperature extremes and structural movement.

LP polysulfide polymers are just a few of the wide range of products made by our Chemical Division. For aircraft, automobiles, buses, trucks and trains. For joint and window sealants, and insulating glass. For gaskets, seals, printing rollers, hose and industrial tires.

Would you like more information? Write Thiokol Chemical Corporation, Chemical Division, Trenton, N.J. 08607.

Thiokol

Specialty Polymers • Off-The-Road Vehicles • Synthetic Fibers • Sprayers • Propulsion • Human Development
Friction Materials • Ski Lifts • Pyrotechnics • Closures • Rubber and Rubber Chemicals • Medical Electronics Equipment

For more data, circle 87 on inquiry card
LOOK AT THE BEAUTIFUL WAY FENESTRA HANDLES FLOOR-TO-CEILING DOOR OPENINGS UP TO 9’ HIGH

By Introducing Beautiful....

9'

SEAMLESS, 3-HOUR FIRE LABELED, SINGLE POINT LATCH, 10-YEAR WARRANTED, FULL COLOR RANGE STEEL DOORS

FENESTRA PRESIDENTIAL Series ALL-STEEL PREMIUM DOORS

Check These Cost Saving Advantages

- You no longer need expensive fake transom panels to match the door
- You no longer need expensive gimmicks to achieve full access
- You no longer need to pay premium prices for "oversize" labeled doors

Here's the perfectly modern door for that modern floor-to-ceiling look. Fenestra's new Presidential all-steel Premium Doors up to 9’ high. We've taken the "fake" out of the new look by producing a beautiful door that answers your every need. Seamless, 3-hour U.L. label, 10-year warranty. Single point latch. And you can select any color you like. In fact you can specify these doors up to 9’ high by 8’ wide (in pairs) with a 3-hour U.L. label. So why settle for less than the best... safest... and least costly? Fenestra Presidential All-Steel Premium Doors and Frames. Write TODAY for literature... "Presidential 9."

FENESTRA
DIVISION OF THE MARMON GROUP, INC. (MICHIGAN)
ERIE, PENNSYLVANIA 16505
JUTE'S stick-to-itiveness makes carpet glue-down work like nothing else

Compare all attached no-pad carpet backings offered for glue-down. Check their ability to absorb adhesive, for tight and lasting floor seal. Unlike synthetics, adhesive won't slide off jute and loosen the carpet. It goes deep into the open mesh and fibrous pores, providing secure bond to any subfloor or old hard surface flooring.

You know glue-down's many "bonuses." Lower initial cost, protection for seams, easy mobility for casters and wheels, and many more. To capitalize on them fully, remember jute's additional benefits, listed below.

- Jute is over twice as thick as other no-pad backings. Cracks in old flooring aren't felt underfoot or outlined in the pile. Seam edge sealing area is doubled.
- Unmatched dimensional stability, vital for floor cut-outs.
- Carpet comes up cleanly, intact for re-installation.
- When carpet is rolled out, some floor adhesive penetrates the jute mesh to the primary backing, for greater tuft bind and protection against delamination.
- Helps carpets otherwise qualified meet fire safety codes.
- Same carpet can be used for standard installation underlayment in executive areas. Only jute among glue-down backings can be hooked safely over tackless gripper pins.

JUTE CARPET BACKING COUNCIL, INC. (For more data, circle 89 on inquiry card)
Ever since we came up with Cavity Shaft Wall in-place costs are going down all over town.

USG® Cavity Shaft Wall has revolutionized elevator shaft installation since we developed the system in 1971.

This unique gypsum panel system erects quickly, easily and economically from the corridor side. And here's why. Cavity Shaft Wall is 78% lighter than masonry. Reduces dead load to save on structural steel. Electrical conduit installs faster, due to built-in vertical chaseways. And because there's less material to handle, it takes less manpower, less time to build. Elevator cars run weeks sooner, too. Cavity Shaft Wall simplifies handling of special heights at lobby and mechanical floors. Unique design of steel components allows for ceilings up to 27 feet high, shaft pressures up to 15 psf.

The buildings shown here are just a few currently in the works using this innovative system. Weigh its many advantages over conventional shaft construction. See our catalog in Sweet's, Sec. 9.5 (S), or write for a copy of our new Gypsum Shaft Wall Handbook; 101 S. Wacker Dr., Chicago, III. 60606, Dept. AR-53


United States Gypsum
Building America
The performance glass that lessens air conditioning requirements. Even in Houston.

The developer of Houston's Ranger Insurance Building went to his architects with two requirements. First, design a marketable building with a distinctly beautiful identity. And then minimize the air conditioning system without sacrificing comfort.

Now, one would think, that in the Houston climate, you need all the air conditioning you can get.

But the architects selected PPG's Solarban 480 Bronze Twindow insulating glass. The reflective glass that would not only satisfy the tough mechanical requirement, but would also be esthetically pleasing.

In this case, the architects chose a muted bronze coverplate, which was heat strengthened to resist thermal stress, to complement the bronze aluminum curtainwall.

On the inside, the pleasing transmitted light of the Solarban 480 Bronze units offers substantial visual comfort and largely eliminates the need for blinds or draperies, despite the bright Texas sun.

And all the while, less air conditioning equipment is working less.

Look into the advantages of Solarban 480 Bronze Twindow insulating glass—or the others in our family of Environmental Glass—for your next building. Write PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future
A roof contract has to be strong to protect you for ten years.

Whether it's a Philip Carey or Barrett Inspection & Service Contract, what you're getting, in writing, is the assurance that Celotex will back up specific built-up roofing systems and services. With pre-installation planning, periodic inspections during and after installation, and the finest roofing materials. That's a pretty strong promise. But we know we can keep it. That's why we give it to you in writing.

Celotex TM

Building products

Celotex understands the man who builds.

The Celotex Corporation, Tampa, Florida 33622  A subsidiary of Jim Walter Corporation

For an actual copy of the Celotex Inspection & Service Contract and all the details of the program, see your Celotex BUR Approved Roofer, or Celotex field representative, write us direct, or consult Sweet's Architectural Files.

For more data, circle 92 on inquiry card
Make a beautiful entrance with Republic styiable standard doors.

Get a custom look... but for a fraction of the cost of custom-made doors.
Get it by specifying Republic styiable standard doors for your next apartment, institutional, or commercial building.

You'll get the exact light and louver treatment you wish. That's because your nearby Republic distributor can modify our basic door design right in his own warehouse. To you, that means no long delays or extra costs for "specials."

And you can choose from 36 door sizes and 8 standard styles, all prime-coated or prepainted in one of 19 popular colors.

Plus, when the doors are delivered, they're ready to hang or erect. No planing, notching, or mortising is needed on any

Republic door-frame-and Frame-A-Lite stick system. That's because they're made to exacting tolerances.

They're made strong and quiet, too, thanks to a honeycomb inner structure. Fact is, we think our doors are so great that we use them in THE ENVIRONMENTAL HOME, Republic's new residential building system that uses prefabricated steel panels and components that lend themselves to mass production and easy on-site assembly.

Like more information? Contact your Republic distributor. He's listed in the Yellow Pages under "Doors-Metal."

Or, send for a free copy of our Architectural Products Manual. Write Republic Steel Corporation, Manufacturing Division, Youngstown OH 44505.

For more data, circle 93 on inquiry card
THE FULL-SIZE MODULAR WALK-IN

Vollrath has it. Makes your specification work easier, simplifies layout. Gives your customer greater net storage capacity (compared to nominally sized walk-ins). All constructed in accordance with N.S.F. and U.L. standards. Wide choice of options, finishes, self contained or remote refrigeration systems. Ask your Vollrath equipment specialist for details, or send for your comprehensive design/specification manual.

For more data, circle 94 on inquiry card
The Mexican deception.

Decorate in the warm, natural tones of Mexico or the Mediterranean and add extra feeling with Adobe. A unique sculptured stucco design that says "natural" in very practical Koroseal® vinyl.

Adobe is shown here in Cinnamon, but it's also available in 24 other colors, such as Red Clay, Hemp, Aztec Gold, Bisque and Slate.

Koroseal is versatile. Complement other room settings, from Louis XV to eclectic, with the natural look of weathered wood, split rock, burlap, bamboo, stone, straw, leather, marble, 40 patterns and over 500 colors to give you the option to go straight or wild. While still keeping with nature's textures.

Specify Tedlar® for those commercial or hard-duty requirements where stain resistance is a must. With Tedlar, even lipstick and ballpoint ink just wipe away.

And all Koroseal wall coverings are fire rated.

Think about Koroseal for your next decorating job.

Whether you're planning to go Mexican, Spanish, Italian or whatever, Koroseal looks real in any setting.

See our insert in Sweet's Architectural and Interior Design catalogs for the name of your nearest Koroseal distributor. He has a Koroseal Color Coordinator waiting for you.

B.F. Goodrich General Products Co., Akron, Ohio 44318.
discover Cramer...

and you discover a choice

CRAMER INDUSTRIES INC.
625 Adams Street, Kansas City, Kansas 66105 Ph. (913) 621-6700
Showrooms in Chicago, Dallas, Kansas City, Los Angeles

Motives illustrated. Discover Cramer’s full lines of wood, metal, fiberglass office furniture. Write for information.

For more data, circle 96 on inquiry card
This distinguished building by Canada's eminent architect, Arthur Erickson of Erickson-Massey Architects, is the first to be constructed for the new University of Lethbridge at Lethbridge, Alberta. It is the architectural statement of an often expressed but seldom implemented educational idea—that learning and living are integral parts of the process of learning. Within this building are all the essentials of a university: residence and learning take place under the same roof; students and faculty meet with unexpected ease, and ideas can be exchanged freely. Learning is extended beyond the classroom. It is a bold experiment.
This first building for the University of Lethbridge has a superb location overlooking the valley of the Oldman River and the city of Lethbridge. It fits into the undulations of its site, using the contours to its advantage and for its own purposes, so that its height varies while its roof line remains constant, a flat plane that hardly rises above the line of the horizon. The best over-all view of the building is from the east, from Lethbridge, and it is the only view of it that can be had on the nine-mile drive from city to campus. The road climbs from the river valley to the high prairie and then turns down toward the coulees (a western word for gully) for a sudden and dramatic change in scale which the siting of the building reflects. Gradually the roof comes into view as you reach the campus, but not until you stand on the brink of the coulee is the whole immensity of the complex visible and comprehensible for the first time. It is a breathtaking moment, for this is a very large building—912 feet long, nine stories high—and it stands, for the moment at least, in the midst of an almost barren landscape. In such a setting, the building had to be bold and, because of its program, it could not be other than large. Even when development takes place around it—the university itself will grow, and the city expects to grow to the west of the campus—its "generosity of size," to borrow an Erickson phrase, will be right for its site.

Within this one building are contained all the parts that make up a university: student residences, classrooms, laboratories, offices for administration, faculty and student activities, library, bookstore, dining room, snack bar—everything except Fine Arts and Physical Education which have their own building (Project 1A, Robins Mitchell Watson, architects). So complete an integration of residential and learning
"A distillation of all the elements into earth and sky," is Arthur Erickson's description of the prairie landscape at the edge of which the new University is situated. "Objects caught between earth and sky appear trivial unless they emerge intrinsically from one or the other or unless they reflect in generosity of size the prairie scale."
spaces in one structure is rare if not unique, but here it represents an architectural response to the academic goals set up in 1967 by the University Planning Committee which include "flexibility and openness to innovation; encouragement to the highest degree of interaction between students and faculty, fostering the spirit of free inquiry, and the critical interpretation of ideas." The essential character of the University was that it was to be a place where, as its first president, Sam Smith, said, "everything can happen at once" and where there would be "a chance to make the whole person," and much of this intent has been realized. But not all of it, and not exactly in the way it was first envisioned. The ideal toward which everyone—Planning Committee and architects—worked was splendid but, in the end and in very human terms, unrealistic. It was an ideal embodied in accounts of El Azhar, the 9th century center of Islamic teaching, a sort of "educational marketplace" where students, merchants, scholars and beggars gathered to hear and take part in discussions of law, medicine, philosophy, and through which they moved freely. Lethbridge was to be as open, as interchangeable and flexible as El Azhar, with neither walls nor partitions to impede interchange and interaction. The faculty's offices and the student residences were to be intermingled and interchangeable; everything that could be done physically to promote and facilitate interaction was to be done. But the sublimation of individual privacy—a professorial right manifest in the classroom and private office—to the ideal of openness was too much to expect, and the building as built provides a whole floor (the eighth) for faculty offices, and for the most part classes take place in classrooms with walls. Nevertheless, in what it does do, Lethbridge is a milestone.
The final master plan (far left) follows closely the early studies (model photos), with overlapped academic buildings on the coulees, and other buildings on the slope up to the prairies. Initially, Project One was to be a brick-faced building with curved walls and small windows (center photos) for the lower floors. Eventually landscaping of coulees will be lush—its micro-climate is different—with a cascade flowing under the building.
How do the Lethbridge students like living, sleeping, and eating, playing, studying and learning in the same building? Do they find the interaction, so much sought today, a real ingredient of university life as a result of having it all happen in the same place? Do they like the building?

The answer to all these questions is a strong Yes. For one thing, they are not entirely confined to one building. There is now a Physical Education-Fine Arts building which attracts most students at one time or another, for athletics, art shows or classes, or drama. Also, a temporary building, moved from the community college site where the University began its existence, has been made into a pub. To reach these other buildings and the parking areas, a fibreglass tunnel from the Academic building winds up the hill to the Phys Ed building. Thus, students have reason and opportunity to leave the building. But there is academic, social and climatic convenience in “having it all happen” in one place: faculty members are easy to see and to meet; there is always someone to talk to and be with on the Concourse; and in Lethbridge’s fairly rigorous climate—windy, snowy winters moderated by occasional warm Chinook winds, and quite hot summers—not to have to leave a weatherproof building is a real pleasure.

There are problems, of course, in the present isolation of the campus from the city, but these are not architectural, and the university will not always be so isolated. For the present, students without cars use the city bus service for transportation, and gradually are finding varieties of entertainment and stimulus on campus. As for the building, the students like it and are proud of it, whether or not they understand or are sensitive to the subtleties of its design and the grandeur of its concept.
The exterior of the building clearly and with great subtlety expresses the variety of functions that take place inside, using broad terms, not details, to do so. The long bands of concrete and glass on the upper levels vary in depth as the over-all function of each floor varies: sixth floor, Main Concourse, with large windows; seventh floor, laboratories with only a narrow band of glass set high on the wall and slanting outward so that it counts as slightly more than a line; eighth floor, faculty offices. On the lower floors, the vertical line of the structural supports breaks the continuity of the glass bands to effect a smaller scale. Architect Erickson's "concise geometry" achieves drama and a satisfying esthetic solution.
The main Concourse on the sixth floor is a main street for the whole university. It is the architectural statement of the "free exchange of ideas," the implementation of the goal of learning in places other than classrooms. There are always people on the Concourse, even in quiet periods. At class changes, and in the evening, it is even more like a street, full of students and faculty. Casual talk and informal meetings also happen on the Concourse, using the "platonic couches" (left and right: upholstered forms left from precasting of concrete for the building) which occur midway along the 912-foot long "street." Lighting throughout the building is indirect from recesses in the double-Tee beams. Nowhere is this more welcome than in the unbroken length of the concourse where fixtures would have been an interruption to the clear view from end to end. The floor is alternately concrete and carpet in gold with lines of yellow, tan and brown. Couches are yellow, chairs are upholstered in five colors coded to direct circulation, needed on so long a mall.

From every window on the east side of the building, and especially from the terrace, there is a view of the old Lethbridge Railway Bridge, a unique structure whose gossamer tracery makes a delicate web across the river valley. It stretches its flat length across the Oldman River like a horizon line and fits its supports into the banks and bed of the river. Visiting the site for the University for the first time, Arthur Erickson was struck by the way in which the bridge used the terrain it had to cross and was deeply influenced in his design for the first building.
Opposite the main entrance is a two-story lounge (above) which opens to the large terrace with its sculptured steel beams and spectacular views of the river valley (page 118). At one end of the lounge is the cafeteria (p. right); at the other, the lounge opens into the Concourse. The labor plan (below) is based on the work developed for Scarborough College by Dr. W. E. Beckel, then dean of Scarborough College and now president of the Community College. These labs are more open than other instructional space: the computer lab, which is the seventh floor circulation area, runs along one side, a sometimes-tractioning but space-saving solution.
Happily, renovation of worthy old buildings is on the increase. The two examples of this trend shown on the following pages are not only worthy buildings—architectural artifacts, not monuments but relics of the everyday life of everyday people—but have been given a new life in a commendably imaginative way, with just the right touch of sophistication and a great deal of sympathetic and knowledgeable skill. One is a seldom sought out balloon frame structure; the other a converted stable in an historic district where restrictions are imposed to preserve the scale of the neighborhood.
Balloon framing, an anonymous American invention of the early 19th century, has long been used for utilitarian buildings. Many older frame houses in small, older communities, are suitable for continuing usefulness. This house in the Hudson River community of Nyack is such a typical example. Built in the 1880s, it has now been remodeled to provide a residence and studio for a painter. All interior partitions were removed, and a new beam (two 2 by 12s bolted together) was put in on each level. Small columns were added at or near the two existing chimneys. Other changes included a new basement slab, new wiring, plumbing, and heating system. The exterior was largely unchanged. The basement level became studio, eating and cooking area. The front entrance, at the middle level, is adjacent to the unusual low-walled living room (opposite page, lower left) which overlooks the sitting area of the basement (below).


The old house was very converted at a cost of $5,000 into a comfortable, contemporary and contemporary interior. A spacious living area and a generous opening of the room to the rest of the house. Notable features, as is the variety of each specific space.
TOWN HOUSE ON BEACON HILL, BOSTON

This 19th century stable on Boston's Beacon Hill, remodeled as a house, preserves a scale and character which is important in that historic district. But it also provides a place to live in town within walking distance of the owner's place of business, a relief from commuting, as he had been doing. In remodeling the old stable, some restrictions were imposed which determined the end result in unusually pleasant ways. The facade could not be changed because the building is in a designated historic district, and the side and rear walls precluded any new windows. The handsome courtyard was a natural and delightful solution to light and air for otherwise inside rooms. The rooms which surround the court are glass-walled, floor to ceiling, and the height of the principal rooms on the first floor was increased for added spaciousness and light.

TOWNHOUSE ON BEACON HILL,

Hutchins Photography, Inc.
A courtyard is a tradition in Boston, and the house is located in this part of the city. The use of the court proved compatible with the owners' wishes. Its enclosed space acts as an additional room and is enlivened by a fountain and many plants. The court is the source of daylight for the principal rooms on both floors. In other parts of the house, colored clerestory windows, skylights and light shafts bring in natural light.
The old building is long and narrow—22 by 70 feet—but the space seems greater than it really is due to the courtyard and the full-height glass walls around it. Electric radiant heat in the ceiling and floor was used throughout. The renovation cost was $95,000.
The new AIA headquarters, eleven years in the making, is now complete


In the problems inherent in expanding their Washington headquarters, the American Institute of Architects made three fundamental decisions—each of which reflect the foregoing beliefs and aspirations of the typical architect, and a final decision reflected the necessary pragmatism of the profession. First, they decided to preserve the historic and beautiful Octagon and its garden; second, they held a competition for the design of a new headquarters building to share the site and be in harmony with the landmark; third, with some chagrin they deferred to a series of rejections by Washington, D.C.'s Fine Arts Commission (which the AIA helped create) of the winning design and modifications thereof; fourth, they faced the necessity of accepting the resignation of the competition winning firm and selected another architectural firm by a method other than holding a formal competition.

The results would appear to be the very best that architects designing for themselves can do. By living up to their own highest standards and practicing what they preach, the architectural profession has not only enhanced the Washington landscape, but it has created the physical framework for projecting a continuously effective image for itself.

—Mildred F. Schmertz
The 175 year-old Octagon occupies the corner of a triangular site at the juncture of New York Avenue and 18th Street in Washington, D.C. The garden at its rear has been rebuilt and is slightly larger than it was before the new headquarters building was wrapped around it. As the section and ground floor plan (right) and the bird's-eye photo (below) indicate, a broad curving plaza forms a pedestrian path, open to the public, which connects the intersecting streets. The architects—Norman Fletcher and Howard Ellus of The Architects Collaborative—conceived the plaza as an extension of the garden, paved it in red brick to match the old brick in the reconstructed garden paths, and extended this brick into the ground floor exhibition space of the new structure. Conceived as a "background building," the new headquarters permits the Octagon House to dominate (left).
To walk about the AIA's new headquarters is to sense that the building is correct, right, and designed as it should be. From the lobby mezzanine (left and above) one looks down into the ground floor exhibition space and across the plaza to the Octagon and its garden. Together the latter have become the focus of the composition, playing the same role in space that a fountain, or gazebo or pavilion does in the context of other scales. Because of skillful massing, the new building, in spite of its size, does not appear to crowd the landmark. At present the transition between the plaza and garden is gentle. As the new trees grow larger the integration of the two spaces will continue to improve. The generous exhibition gallery (below), in conjunction with the broad plaza affords the AIA the opportunity to mount combined indoor and outdoor displays to further the public interest in architecture and the environment. The prominent location of their headquarters, within a short walk from the White House, should bring many visitors to the AIA's exhibits, provided they are frequent, well done and well publicized.
The offices of the president of the AIA (top left) and the executive vice president (bottom left) overlook the plaza and the Octagon and its garden. Scott Ferebee has the corner, but William Slayton has more space including a fireplace which he uses. The spatial arrangement of the latter’s office is particularly efficient and attractive because of the skillful way in which the room is divided into deskwork, conference and reading areas. The conference center (above) projects out over the plaza. It has been designed to accommodate a full range of audio-visual aids. The circular desks can be disassembled and rearranged or stored as shown in the detail (left). Open planning is used throughout the general offices and the system of partitioning consists of commercially available storage units surfaced in white laminated plastic (right).
The radial axes of Major Pierre L'Enfant's plan for Washington, D.C. shaped the non-rectangular corner which the Octagon House, designed in 1798 by William Thornton, turns so elegantly. One hundred and seventy five years later, architects Norman Fletcher and Howard Elkus of TAC have completed the composition.

The events which led to their commission to design the new AIA National Headquarters Building, and the considerations which influenced their final design were complex and difficult, but the results are distinguished.

The history of the project
In 1960, the AIA Committee on the Profession cited "the pressures of a growing membership and the increasing numbers of jobs to be done for the profession" as reasons for building a new national headquarters. The existing headquarters then included the Octagon House and an administration building beyond the garden which had been constructed in 1941 and incorporated the old stables on the site. A "New Headquarters Building Committee" was formed whose members were: Hugh A. Stubbins, Jr., FAIA, William L. Pereira, FAIA, and Arthur G. Odell, Jr., FAIA. Its chairman was Leon Chatelain, Jr., FAIA.

This committee decided that further vertical expansion of the administration wing was unfeasible from both a structural and architectural standpoint and that horizontal expansion would encroach upon the garden and call for extensive and costly additional land acquisition. After examining the possibility of moving the AIA headquarters out of Washington, the committee concluded that to be effective, politically and symbolically, the AIA headquarters should remain in the capital.

The committee, aided by the architectural firm of Satterlee and Smith, and with the help of a real estate consultant, examined the Octagon House site in terms of the prestige inherent in its proximity to the White House, the presence of a cherished landmark, and the economics of preserving and maintaining the latter. Research confirmed that the landmark would be hard to sell, but on the other hand, the land itself had an equity value of almost $1 million for building on the site. Other sites in Washington were studied from many standpoints. The advantages, however, continued to lay with the present site, even though preserving the Octagon House would make the design of the new headquarters more complicated and difficult. Not the least of the difficulties which could be foreseen was the fact that additions adjacent to the Octagon House, as a registered National Historic Landmark in an area of the District of Columbia over which the Fine Arts Commission has review authority, would be subject to approval by this body.

In 1963 the "New Headquarters Building Committee" was disbanded and a new group with a slightly different title was formed. The new members of the "New Headquarters Committee" were: Robert F. Hastings, FAIA, Henry L. Wright, FAIA, and chairman Charles M. Nes, Jr., FAIA. Stubbins and Chatelain continued to serve. Because the AIA membership had voted that the architect for the new building should be selected by competition, late in 1963 a jury was selected. Stubbins agreed to serve along with Edward L. Barnes, AIA, J. Roy Carroll, FAIA, O'Neil Ford, FAIA and John Carl Warner, FAIA.

The competition program charged the prospective competitors with "... the creation of a design for a new National Headquarters Building that will satisfy both physical and spiritual functions—a building of special architectural significance, establishing a symbol of the creative genius of our time yet complementing, protecting and preserving a cherished symbol of another time, the historic Octagon House."

Winners of the two-stage competition were Mitchell/Giurgola Associates. Their winning design (fig. 1), announced in November 1964, featured a semi-circular, concave glass wall as the background for the Octagon House. Within the next two years, however, the AIA voted to renovate the Octagon House. The adjacent Lemon Building was to be redesigned to provide space for an additional 130,000 square feet of floor space in contrast to the 80,000 called for in the competition. Mitchell/Giurgola Associates prepared a new design (fig. 2) embodying the change in size. The difference in size was not in the competition winning design. The once concave glass facade was gone and in its place were two vertically-walled floors at the base of five additional floors projected forward over the garden in a series of reverse steps. At the rear of the building these five floors were enclosed by a slanted skylight.

A number of architects reviewed the design fearing that cost would exceed the $30 per square foot that had been budgeted for the building. They received support from an unexpected quarter, on different grounds, when the Fine Arts Commission declared the design "not of keeping with the feeling of the Octagon" and rejected it. With Walton, Gordon Bunshaft and...
other Commission members stated that the proposed design overwhelmed its elegant neighbor and reiterated their belief that the new building should be a quiet backdrop for the Octagon House.

Robert L. Durham, FAIA, then president of the AIA, stated for the record that the Institute’s ‘belief in the need for the Fine Arts Commission and comparable design review boards throughout the country’ led it to defer to the Commission’s rejection and try again. Mitchell/Giurgola Associates produced still another design (fig. 3). In this design the height of the building was reduced, the set back from the Octagon House was increased and the floors were stacked vertically in the conventional way. A controversial design feature was the “notch” at the intersection of the two wings.

Once more the design was formally submitted to the Fine Arts Commission and this time, still under the influence of Bunshaft, the Commission balked at the notch and again rejected the building. Mitchell/Giurgola Associates refused to further compromise their design by restudying the notch and in September 1968, they resigned. By then George Kassabaum, FAIA, was president of the Institute, and he reiterated the principle that design review boards were “the best known means of maintaining order in the face of all of the pressures leading to chaos.”

The AIA then proceeded to reorder the chaos into which its headquarters program had now fallen by appointing then-board member Max O. Urbahn, FAIA, to chair a committee to figure out what to do next. In December 1968 Urbahn recommended that a committee of architects be organized to select an architect. The board appointed Rex W. Allen, FAIA, Edward Charles Bassett, AIA, Romaldo Giurgola, AIA, G. Harold Haag, FAIA, Morris Ketchum, Jr., FAIA, Willis N. Mills, FAIA, I. M. Pei, FAIA and Philip Wilk Jr., FAIA. Urbahn agreed to be chairman. This committee proceeded to interview architects and finally selected Norman C. Fletcher of The Architects Collaborative to design the building. The latter chose TAC senior associate Howard F. Elkus to work with him on the project. Under Urbahn’s leadership a series of informal meetings were held between TAC and the Fine Arts Commission during the design process. The formal approval went without a hitch, the funds were voted and the mortgage arranged.

The curved facade eliminates the appearance of separate wings or a central corner and stresses the continuity and flow of the building around the garden from one street to the other.

The terrace cutback on the seventh floor of the headquarters building reduces the apparent height from the garden facade to six stories.

The diagonal masses, elements and lines of force visually link the headquarters building to the Octagon.

By partially receding the street facade of the headquarters building, the block long mass of adjoining facades is interrupted and the building in its special setting is thus distinguished from its neighbors. The stair towers have been designed to relate to the geometry of the Octagon while at the same time turning the corner.

The recess at the third story lightens the apparent mass of the office rooms thus ameliorating and rendering more sympathetic the scale relationships between the headquarters building and the Octagon.

The old garden walls of the Octagon were rebuilt to link the Octagon with the new headquarters building and enclose the garden. The return of the wall at the New York Avenue entrance, and the old smokehouse at the 18th street entrance form zones of transition from these streets to the garden.

TAC’s approach to the design of the building

Architects Fletcher and Elkus first made a feasibility study and plan for the redevelopment of the entire block (fig. 4). At the time a new Federal Deposit Insurance Company Building had been constructed at the end of the block opposite the Octagon House, but the area in between was occupied by a parking lot, an old hospital, townhouses and an office building. This TAC preliminary plan provided a central plaza between the proposed AIA building and the FDIC. The plaza would have had open arcades and several entrances from the adjoining streets. It was hoped that this provision of open space would have led to a rezoning of building heights and densities to make the plaza economically feasible to prospective developers. The new headquarters building was to have opened directly on to the plaza, although the main entrance was as now, on the garden side facing the Octagon.

As it turned out, the AIA was unable to achieve joint block planning. The developer of the hospital site replaced that building with one that extended to the AIA property line and deep into the center of the block, and the owners of the property on 18th street also maximized the use of their site. TAC, accordingly, eliminated the plans for an entrance and plaza at the rear of the building toward the center of the block.
The design as built

The form of the new headquarters building (figs. 5, 6, 7, 8, 9) derives mainly from the requirement that as much space as possible be given to the Octagon House and its garden, while minimizing the scale of the new building. To this end the building utilizes considerably less square footage than the amount permitted by the local zoning. The principal access to the headquarters is through the plaza which is open to the sun and quite pleasant to walk through.

By extending continuous glass walls up to the third floor TAC has given the building the appearance of having been hollowed out, and thus it seems to draw back from the Octagon House. Elements which are smaller in scale than the Octagon House have been emphasized for contrast and balance. The conference room projects forward and its concrete walls contrast effectively with the glass facade (fig. 10). This element helps define the main entrance and shelters arriving visitors. The executive wing has been separately articulated as a scale transition.

The building is 90 feet high which is the maximum permitted in Washington, D.C. It was essential that the building be designed to this height in order to screen the neighboring buildings constructed on the AIA property line, especially as it became clear that these would be built to the maximum height. The top floor of the headquarters building is set back so that all vantage points close to the building there appear to be six, rather than seven floors—another effective scale reducing device.

TAC’s efforts to create as simple a backdrop for the Octagon House as possible prompted them to unite the north and east wings in a strong continuous curve that frames the garden. The interior organization of the building derives from this curve and the distinctive geometry of the site (fig. 11). The sweep of the building and the vectors of the site are combined in angled spaces, closer to the angles of a hexagon than those of a rectangle. These echo the angles of the Octagon House which is actually six-sided. Norman Fletcher likes to cite Frank Lloyd Wright’s Hanna House in California as proof that such spaces flow more easily than 90 degree spaces. A triangulated ceiling system designed within this geometry which was integrated, structural, mechanical, electrical and communications sandwich (August 1970, page 46) was abandoned because of cost and replaced by a conventional acoustical grid ceiling which is suspended from a single coffered slab.

The two ends of the building have been designed as simple walls which incorporate the necessary stair towers. Their unbroken surfaces terminate the long sweep of the windows within the curve of the headquarters building (fig. 12). These towers also terminate the vistas down New York Avenue (fig. 13) and 18th Street, forming a two-sided frame for the Octagon House.

The original brick walls of the Octagon House and garden have been extended and refurbished. The old smokehouse, moved for a time during the construction, has been replaced in its original location. The original wooden gates of the property have also been restored. The brick sidewalks around the site have been relaid and repaired and the brick garden walls have been extended onto the larger terrace. This brick paving extends from the terrace into the ground floor exhibition area, thus integrating the old spaces and materials with the new.

TAC believes the other materials in the new building to be in sympathy with the Octagon House. The grey precast concrete relates well to the dark brick of the historic structure. Most importantly, the clear glass of the first two floors enables people outside to see the activity and the displays within.

The spatial organization within the building is as follows: two large underground floors house the garage, such services as printing and accounting, and mechanical equipment; the first three floors above ground are for AIA use, including the public exhibition space; and the top four floors are for tenants.

A new environment for the AIA

Of most concern to TAC was the concept of the new AIA headquarters as a place where architects from all parts of the country will feel at home and like to return to. So far, members who have visited the new building are reacting positively. Norman Fletcher has noted with some pride that “the people of Washington cross the plaza on their walks. Already they enjoy the Octagon House and the garden. Soon they will see lively exhibits related to the arts, architecture and urban planning dis-

played in the exhibition hall and the adjoining plaza. We hope to have been successful in our attempt to design a building which provides for the daily needs of the profession and gives something back to the city.”

Finding school sites where there is no land to spare

Cambridge, Massachusetts, like many cities, is faced with a need for new schools without any obvious sites on which to build them. A careful survey and analysis of every possible parcel in those areas of the city most in need of increased school capacity led the Cambridge Planning Department team to the conclusion that the potential sites must be assigned multiple uses if precious recreation space and houses that must be taken are to be replaced. Addition of income-producing commercial space as well as housing can also offset the high initial cost of land, they argued. With the assistance of their consultant, architect Theodore Monacelli, they prepared schematic designs for four of the eleven feasible sites they located. On the site of an MBTA trolley-bus garage (above and page 144) which is to be vacated in the near future, they have placed a school as well as commercial, office, parking, housing and community recreation facilities. All work together to form a hub for the entire neighborhood.
When most people think of Cambridge, Massachusetts, they think of Harvard University and Massachusetts Institute of Technology and imagine that the whole town is a campus-like place—spacious and verdant. But most of Cambridge is, in fact, a crowded industrial city with factories and warehouses on any piece of land not occupied by wood frame "thrreedecker" apartments and houses. In short, except for the two universities, it is just like most other cities along the Eastern Seaboard. There is never enough low- and moderate-income housing. Recreation and other park space is constantly in jeopardy as other public uses, such as housing, firehouses and schools are built there. Especially schools. As the old buildings are phased out, larger sites must be found for their replacements since present-day requirements for outdoor play space around schools are much higher than when the original sites, now tightly ringed by houses, were acquired by the School Committee.

Since World War II, seven elementary schools have been built in Cambridge. Their sites total 22.8 acres of which 14.7 acres had been recreation space, mostly located in residential neighborhoods. If 14.7 acres seems nothing to worry about to people in the sprawling suburbs, to the City of Cambridge it is 15 per cent of the total recreation space (except for two large public parks which serve other communities as well). The last school built, in fact, took almost five acres of recreation space. Yet Cambridge must continue to update its school system, somehow finding land where there seems to be none on which to build schools.

The Cambridge School Committee faced that dilemma in 1970 by asking the Cambridge Planning Department to make a study of where future elementary school buildings might be built, taking no recreation space and no housing in the process. The first four volumes examine in terms of educational services the requirements for the city of Cambridge as a whole and its several districts. Volume Five of the Study concerns itself specifically with site selection and with the potential for multiple uses of development of that land. In order that the readers of Volume Five (citizens of Cambridge, many of whom had substantial emotional and economic biases) have an objective an attitude as possible, the authors of the report devoted a dozen pages to a look at Cambridge's historical approach to selection of sites for schools. It is there that the problems of site acquisition are discussed: the high cost of land, the time it takes to assemble large parcels and the hardships for those whose homes are taken.

The two traditional sources of school sites—old school property and recreation space—are the ones most thoroughly condemned. "The practice of viewing recreation and open space as convenient and inexpensive vacant land available for a variety of other public uses is a long American tradition for which the country is now paying the price. In Cambridge the consequences have been non-catastrophic; the provision of adequate recreation and open space is rapidly becoming one of the city's most pressing problems."

Site Selection Analysis
Twenty-nine pieces of land in the areas of the city most in need of new schools were analyzed by the Cambridge Planning Department. The three criteria considered were:

- First, location: the land had to be in areas needing increased school capacity. Second, size: two acres of play space in addition to the area required for a 900-student school, parking and buffer zones, or 3.5 acres were taken as the minimum feasible site.
- Third, availability: underdeveloped or marginally-used land was assumed to be both the least available and the least costly. Many of the sites proved too small but the planners determined not to ignore anything on the ground. Many also had difficult access problems—children had to cross railroad tracks, too many busy streets. Eleven of the sites passed the test of the basic criteria and were grouped by sectors of the city. Three of these were in North Cambridge, a dense neighborhood bisected by busy streets and railroads, many small parcels difficult to assemble into large enough sites. Two sites were in South Cambridge, in the Model Cities neighborhood, where land was developed similarly to but at a higher price in Cambridge, but more expensive. West Cambridge
The eleven sites were further analyzed, with considerable attention given to financial factors: assessed valuation, tax revenue and related market value. The planners made however that given the speculative nature of the Cambridge real estate market, the market is given no more than informed guesses. Subsoil conditions, environmental regulations and accessibility were also detailed in each site. It was the intent of planners that the public decide which of the sites in any given sector was the “best” one. Technical analysis, they said, “such as that presented here cannot prejudice the myriad of complex and subtle social and political issues which are an integral part of any public site selection process.”

**Multiple Use Development**

In the Planning Department team had isolated and objectively examined a number of sites in each of the neighborhoods, it chose four further studies of multiple-use development—two in mid-Cambridge (above, across page) and two in upper Cambridge (above). Multiple or “mixed” uses, as Jane Jacobs called them in the *Death and Life of Great American Cities* (1961), are very common in the dense old European cities but we are just now coming to appreciate the natural advantages of mingling residential, commercial and institutional uses in building complexes and neighborhoods. Cambridge, as dense as any American city, seems the perfect place to develop such combinations, especially if it means that schools can be built which replace any housing or recreational space they displace with new construction.

Each of the four sites are shown above with the recreation space and community facilities in conceptual form indicated in the color overlay. The possible form of the school building which responds to those needs. Both of the mid-Cambridge sites, Prospect Street—2.06 acres—and DPW (Department of Public Works)—6.30 acres—illustrate how difficult it was to find sufficiently large sites there without tearing down houses. The Prospect Street proposal makes use of a second-floor walkway network to separate the children from the heavy truck traffic and to connect the several small plots available for a school with the nearby park (which becomes the primary recreation space for the school) and elderly housing. The entire scheme forms a link to the adjacent square, the commercial heart of non-academic Cambridge. The DPW scheme proposes to replace the inadequate street repair machinery garage and yards with a grade-level parking facility topped by a play-field adjacent to the new school. The planners point out that construction of the new school can include facilities like the play-field, the garage and a day-care center that would probably not get built by themselves. Thus, the school is the generator of several neighborhood facilities. The Russell Field site, in North Cambridge, has four recreational uses presently. Rather than take one of them as the location for the school, the planners have proposed a design which fits between them. On the second floor, single family walk-up housing would be built with separate access—certainly a unique combination. Adjacent to Russell Field itself the building becomes locker rooms and grandstand.

MBTA: an urban hub includes the school and income producing uses.

SCHOOL SITE SELECTION STUDY. Client: Cambridge, Massachusetts School Committee. Planners: Cambridge Planning and Development Department—Robert A. Bowers, planning director; Malcolm FitzPatrick, associate planner; Peter Helwig, associate planner (in charge of preparing the report); J. Michael Kirkland and Christopher Benninger, urban designers (in charge of the multiple use development section). Architectural consultant: Theodore A. Monacelli of Gundi/Monacelli Associates.
The MBTA site in North Cambridge has been developed by the planners and Monacelli to illustrate how several diverse functions can be grouped. Over the active Boston and Maine tracks (a future rapid transit line) which divide the site, a multi-story apartment block (above) serves as a connector between the classrooms of the school on the south side with the recreation facilities, also open for community use, on the north. Adjacent to the school, along an enclosed mall (above), are stores and office space as well as community service facilities. Single-family housing, to more than replace the 14 dwellings the new building would destroy, is located to the east of the school above its own parking. This project emphasizes the planners' feeling that not only are there economic benefits derived from integrating schools more closely into the community fabric than is normally done, but there is immense educational value for the children.
How modern is American industry?

The business' requirement for modernization of technologically outdated facilities is a supporting force behind the great strength of the current capital investment boom. To determine how well U.S. business is progressing in its fight against obsolescence, the McGraw-Hill Publications Company's Department of Economics, in its Fall 1972 survey of business plans for capital spending, asked companies what portion of their plant and equipment they considered technologically outdated. If it would cost to replace it the percentage of their capital spending earmarked for automation.

are some highlights of results:

Business now considers 10 per cent of its facilities technologically obsolete, coded with 10 per cent at the end of 1970.

replace its outdated facilities with the best new plants and equipment, the total cost for business comes to $149.1 billion at the end of 1972.

business expects to devote 21 per cent of its 1972 capital investment to automated machinery. By 1974, automated machinery is expected to amount to 20 per cent of a bigger capital spending pie.

In terms of new industrial building, not itemized as a component because expenditure in the above survey, some light is shed by the United F.W. Dodge Construction Outlook for 1973, which foresees $4.5 billion worth of industrial building construction in 1973—up 33 per cent 1972.

Architecture for industry—

Designing for professional services

Architecture for industry has been the spawning place and proving ground for many of the professional disciplines that have found their way into general practice. The urgencies of time and economy, since the adoption of the assembly line and mass marketing, have required that things for industry be delivered in the shortest possible time and at the lowest possible cost within stringent quality criteria. Phased construction, systems building and construction management, tested responses to these urgencies in industrial practice, are examples of techniques now gaining definition and application in other building types.

It has long been the fashion to decries the architectural quality of the things designed for industry under these austere conditions. Indeed, industrial clientele of the recent past placed both esthetic and environmental qualities low in the order of priorities. The raising of priorities to current levels of emphasis for both environmental and esthetic constraints has been impelled by a succession of strong influences.

First, with the rising power of organized labor and the increasing publicity of employee compensation laws (with consequent upward pressure on insurance costs and carriers' stipulations) the internal industrial environment improved in those aspects affecting health and safety. Also, demands for increasing precision brought about more precise control of industrial atmospheres and lighting. Investment in both manufacturing and research buildings increased proportionally in terms of both employees and products.

A second, more recent major influence has been the increasing sophistication of large industrial clients in the positive effects, on both productivity and public image, of those aspects of structure and building appearance which are more conventionally considered to be architectural. Those clients who had been through the experience of attempting in-house architecture and engineering had found that not only was the load factor on in-house staff uneconomical, but an essential input from outside professional services was lacking. That input, and above conventional, critical, analytical and design services, includes the spin-off of new ideas and techniques normally acquired by professionals in private practice serving diverse clients.

The disciplines of the industrial milieu, nevertheless, continue to have their effect. And it has been in this milieu that the emerging practices of phased construction, systems building and construction management have had their most searching trials.

Detroit architectural firms gain essential experience

Architectural services for automobile manufacturers in Detroit are by no means the exclusive proving grounds for these techniques, but they form a localized demonstration of their effects upon large and demanding clients. Alfred M. Entenman, Jr., now president of Giffels Associates, can demonstrate the genesis within his firm of every aspect of that segment of practice now acquiring the generic designation construction management. He is articulate in pointing out that most of these services have had a long history of application by his firm without being isolated or categorized or separately charged. They are the logical and necessary consequence of professional services to industry.

Robert F. Hastings, executive chairman of Smith, Hinchman & Grylls, also recognized the emergence of these services as pertinent to an increasing diversity of clientele. He saw that those services, in commissions other than industrial, were even more crucial to successful buildings, but were gaining in complexity and demand for professional management to a degree that was not readily absorbed in conventional fee structures.

Philip J. Meath, Jr., now president of Smith, Hinchman & Grylls, observes five trends that may be considered shifts in the climate of architectural practice for industry. First, is the increasing concern of large industrial clients about the impact on the community of decisions affecting their plants. These decisions are not simply matters of placement, ecology, or esthetics, but penetrate more deeply into the social responsibilities of ownership. Decisions to remove a large manufacturing operation to another city, for example, are no longer simply decisions to sell or abandon one plant and construct another one elsewhere. Many corporations are beginning to participate with the original community in planning for disposal or conversion of the old plant as well as joining the new community in broad studies of economic and environmental impact of the new plant.
Another trend Mr. Meathe sees is the increasing role of color and graphics for industrial interiors. This is a use more extensive than the simple color coding of piping or the efficient use of signage. It does have to do with safety, but further than that, it takes notice of the working environment as one in which people live for substantial portions of their working day.

A trend that seems to combine the influences of the first two is the increasing frequency with which landscaping is as primary a concern as plant design. For example, there was considerable and costly concern for the community surrounding a new test track by mounding the earth in such a way as to break the noise emanating from the track. The shielding was not only from noise but also from the unsightly commotion that can occur in such locations.

The fourth observation by Mr. Meathe is that plants today in the U.S. tend to be capital-intensified rather than labor-intensified. That is to say, the investment in machines for automation is heavier in a given process than would be the case where manpower is abundant and lower in cost. The effect on the architecture of the plant for capital-intensification is not a general one, but must be worked out for each individual case. For example, the machines to move an engine block may call for more or less space than a manual operation. The architect's problem is to find out what the effects may be and design for precise machine room rather than elbow room.

Finally, Mr. Meathe observes an increasing requirement for architects to know the implications of provisions of the Occupational Safety and Health Act. The design of plant interiors and atmospheres for ready compliance has been held to be a direct responsibility of the architect.

Sol King comments on the lay-invasion
Sol King, FAIA, is president and director of architecture of Albert Kahn Associates, Inc., a Detroit firm of architects and engineers with a long history of service in the demanding fields of industrial and health facilities as well as more general fields of commercial and laboratory commissions. In addition to extensive activity in the national AIA and the Michigan Society of Architects, Mr. King has also been honored by the Newcomen Society and the Wisdom Hall of Fame. He has written and spoken about the problems of the profession on many levels, and for the special concerns of this study, he has set down some of his current ideas about change, challenge and the profession in general. The following is substantially based on his comments, with some deletions and editorial interjections forced by the limits of space and the specialized subject of this industrial study.

Architects today, says Mr. King, are being challenged on many fronts, but those challenges which seem to pose the greatest threat to the profession—and indeed to society itself—are twofold, especially prevalent in the industrial and development fields of practice. First, is the growing encroachment of self-appointed lay experts into the realms of decision about form and material quality. These are areas, Mr. King points out, where decisions can have validity only through the training and professional responsibility that are exclusively the architect's. A second and to some degree related challenge to the profession is an encroaching acquiescence on the part of architects themselves to compromise in their primary role in the design and construction process. These compromises range all the way from the facade-embellishment and stamping of designs that are in fact produced by non-architects, to the more subtle compromises of position on commissions where project size and/or client policy regarding project management have produced a climate of operation in which the architect's acceptance of a secondary role on the so-called "design and construction team" seems to him, the architect, either professionally harmless or unavoidable.

Although both of these threats to professionalism are serious, Mr. King suggests that the architect's team role in matters of management is perhaps less critical to his professional identity than is the possibility of domination by lay opinion or fiat in those areas affecting the architectural product itself.

In an economy that projects a possible doubling of the construction in place by the year 2000, Mr. King reminds us, professionalism in design of that construction is even more crucial than it has been in the past—although the paramount importance of architectural performance in the past is written into almost every code of law.

The lay-invasion, says architect King, is particularly notable in the fields of industrial parks, dwellings (either single or multiple), shopping centers and office parks, which some developers and other entrepreneurs regard as short-term investment. They enforce tasteless considerations of simple economy on the designers without regard to the long-term consequences either for occupants or for the environment as a whole.

Mr. King is quick to point out that all developers are not tared with this same brush. He cites the Rouse Company, developers of Columbia, Maryland, whose respect for professional input became apparent to Kahn organization during design of General Electric's Appliance Park East adjacent to Columbia (pages 154-155).

The professional role needs client identity
Perhaps the key point here, the fact that the "lay-invasion" developed by who "hire" architects are not in an essential client relationship to the project. That is, they merely wish to implement a process whereby they can make some money rather than fulfill the true client role circumstance of a needed structure for a permanent owner. Those developers who take the user and society itself into account are more clearly in a legitimate client role.

Another front of lay-invasion occurs, according to Mr. King, certain abdications of responsibility in engineering, which he attributes to "overly ambitious representatives of equipment manufacturers and material suppliers." "Well, we are confident of general agreement (that of Mr. King) in the observation that many architects have given some useful services in the design of certain systems through consultation with the systems manufacturers. The hazard lies, of course, in the easy assurance of the system decision to the adroit purveyor. Decisions regarding the appropriateness of one system or another are properly professional ones, and the enlistment of the technical expertise that abounds in the manufacturing universe is a vital supplement to those professional decisions. An engineer who works for a manufacturer may indeed be more competent in his profession as an engineer in private practice, but his competence is directed toward applications of his employer's product rather than to the absolutes of the building project involved. The focus is on channeling the resources of proprietary expertise into the client's choice of the building materials that are gaining attention at high professional levels as the performance specification and its principles of broader usage in the design and construction process. The seven-year performance specification project sponsored by GSA for three Security centers is a case in point, although it is early yet to determine if it is a trend.

The role of the architect as coordinator of the many disciplines involved in today's construction process is key to the preservation and environment in which all men must live and work. This is not because the architect is either omniscient or inordinately arrogant. It is the fact that only architects preserve the breadth of discipline and cooperation inherent in their role of agency toward clients. This is a role that may not be subverted by conflict of interest without peril to the process. It is the only profession in which the central thrust of truth and endeavor is toward the unencumbered goals of all concerned.

Therefore, the consequences of compromise with the lay-invader are far-reaching and almost inevitably dire. One cannot hope that an architect is a super-being, but one must insist that his profession percent deeper into the fabric of environment than the cosmetics of facade.

Architecture for industry has indeed been a proving ground for many of these premises. The relationships of demanding clients to essential simple enclosures have fostered many experiments in "off-the-shelf" architecture. Most of these have served only to demonstrate the performance of the compromise, and the industrial client now is universally converted to professional input, with all its disciplinary services.—William B. Foxhall

146 ARCHITECTURAL RECORD May 1973
Daiwa Corporation of California

Headquarters


ALL PLANTS TEST SKILLS OF AUSTERE ARCHITECTURE

Of the five buildings on this and following pages demonstrates a point in the application of architectural skills in the development of simple buildings that must work well at the same time be good neighbors.

The import firm is precision and color at low cost

Daiwa Corporation of California imports components of fishing, golf and other sports equipment from Japan. They required an assembly plant and office space in the suburban of Gardena, California. The new building on corporate headquarters and distribution point from which golf clubs and other equipment are exported back to Japan or sold through U.S. merchandising channels.

The building is on a 72,000-square-foot lot about 15 miles south of downtown Los Angeles. It is a single-story building containing 37,000 square feet of office, showroom, factory and warehouse areas and is staffed by about 75 employees.

Architect Hayahiko Takase of Kajima Associates designed the building as a symbol of the corporate image using the simplest of materials: tilt-up precast concrete walls, cast-in-place slab floor, anodized aluminum at doors and windows. Designed with the deceptively simple Japanese sense of line and scale, the building is painted with three horizontal stripes in white, light blue, and dark blue, representing the architect, snow, sky and water, all related to Daiwa’s sporting goods products. Windowless office space is shielded from heavy street traffic but opens onto a walled patio containing a Japanese garden which also gives access to an employee lounge. The Japanese garden motif is also echoed in plantings along the street side of the building.

The total cost of the plant and office was eight dollars per square foot exclusive of land cost.
Urban Chicago site calls for efficient dexterity

The adroit use of economic materials and architectural scale and detailing are not exclusive to the Japanese. The small plant for Chicago Dowel Corporation, shown in the panel above, gave the young architects, Clarence Krusinski and Associates, a double problem. First, the site is a restricted urban location in Chicago. Second, the building has to provide shipping and receiving accommodations at three locations to take advantage of existing rail and truck facilities. The materials again were simple and were handled with as much architectural sensitivity and attention to detail as could be expected under difficult conditions of site and program.

The building provides about 30,000 square feet of flexible space, 3000 square feet of which is office space. The balance houses a light woodworking manufacturing operation. The structural frame is light exposed steel designed to a 24- by 86-ft structural bay to accommodate the required flexibility and to fit within the irregular site. Exterior bays were enclosed by infill panels with a masonry base topped by steel windows and insulated metal panels.

The building came in at ten dollars per square foot in spite of the requirement for the sophisticated heating system designed to the sawdust of the plant's woodworking operations, with standby capability of burning fuel.

In his response to the "young architect questionnaire" which formed part of the background for the special issue of last December, Clarence Krusinski, head of an office of 12 people, voiced his faith in the future of firms and echoed some of the statements in the introduction of this study, to the dangers of architectural compromise and second rate professionalism.
Eaton Corporation
Lock and Hardware
Administrative and
Distribution Center

Monroe, North Carolina.

The Eaton facility has both the “image” qualities of the headquarters objective (including the strong concrete fore-structure bearing the company logo in the top photo above) and the extensive warehouse and distribution centers characteristic of such centers. Outdoor garden centers and eating places contribute to an ambience compatible with its purpose and its North Carolina setting. Heery and Heery was retained on July 22, 1971. The schematic and design development phases were completed ahead of schedule through management solutions of potential restraints related to site selection and sub-surface conditions. A general contract was awarded January 13, 1972. Occupancy of warehouse and computer areas occurred July 11, and occupancy of the entire facility on August 1, 1972.

The building is steel-framed with metal and concrete siding. It is 77,361 feet of warehouse space and 46,633 square feet of office space (perhaps forcing the upper limit of our “small plant” category, but taking account of the simplicity warehouse space requires). Total cost, exclusive of land, was $1,637,641 ($13.35 per square foot). This was almost 12 percent less than the approved preliminary estimate when the budget was fixed.
Assembly plant is sales showroom

An assembly plant for the Aero Commander Division of Rockwell Standard Corporation gave the architects a few unusual problems. It had to provide about 30,000 square feet of high-bay hangar space for the assembly of private corporation jet planes, and was, therefore, situated in the unadorned terrain near Homestead General Aviation Airport in Florida. The budget was not lavish, so the materials and structure were about standard for such facilities with two notable exceptions. The first was the architectural treatment of a two-layer front office and shop area—which was treated in the regional vocabulary of stucco. Second, was the requirement for huge roll-back hangar doors that were designed to withstand 200-mph hurricane winds. Housing for the roll-back doors was provided in pre-cast concrete panel structures, shown in photo above.

The client required both exterior and interior design to present an adequate, if not luxurious image to that level of corporate executive customers who come to the plant to see and test the Aero-Commander planes.

The combination of showroom and assembly plant is, to say the least, unusual, and the effect on both the architectural solution and the housekeeping of the operation is a positive one. While the massive doors are not unattractive in a problem of aesthetics, the combination of vertically textured dark metal panels, scaled to the huge white concrete closures, has an impressive monumental quality that would appeal to the front office of this as being monumental, but its human scale and regional vocabulary are well calculated to the purpose of the design.

Total cost of the building was $671,172 for approximately 30,000 square feet. That includes apron paving and doors.

Rockwell Standard
Aero Commander
Assembly Plant

Electric Power Pool Control Center


cated computer equipment and standby generator equipment both Diesel and battery powered, to assure uninterrupted current to the computerized surveillance system. The massive sculptural quality of the concrete structure, including a substantial fallout shelter, serves the dual purpose of protecting equipment (which actually exceeds the cost of the building itself) and providing an image of sturdy reliability and respect for its rural landscape. Utilities find that image increasingly desirable in these ecology-conscious times.

Controlled internal environment is also vital to the protection of the equipment inside the building. The availability of virtually unlimited electric energy encouraged the design of a more than usually sophisticated heating and ventilating system. This is by no means either a wasteful or luxurious expenditure. The ability to recycle energy from all heat producing units in the building provides not only exceptional operating economy but a year-round advantage in using ordinarily wasted energy.

In keeping with the utilities' desire to improve public image, a visitors' gallery surrounds a central control area where the public can view the instruments of the operating control center and supplementary exhibits.
IBM System Development Division Facility


IN THE MIDDLE RANGE: LARGER AND BIGGER STAKES

Probably no other field demands such a high level of flexibility in all areas as does the rapidly developing field of computer technology. One new development in electronics can create changes in the whole industry literally overnight, and of course, changes, either internal or external, in the buildings that serve that industry. And, of course, the buildings themselves, serving one of the largest and most actively growing segments of industry, frequently start out in the mid-range of project size (a quarter-million square feet) and prepare for further growth.

Therefore, the manufacturing complex RTKL planned and designed for IBM's System Development Division is architecturally, mechanically, and electrically capable of accommodating a variety of possible changes in manufacturing requirements.

The interior spaces of the buildings have open-floor systems designed on a four-foot module so that internal arrangements can be changed to accommodate future manufacturing, laboratory and administrative needs. A flexible and extensive mechanical system has been provided so that specialized types of environments, including clean room facilities, can be created within the interior spaces. A deep ceiling plenum contains loops of mechanical, electrical, and plumbing services for change development and manufacturing needs.

The only permanent spaces within the buildings are main corridors and "core areas"—the locations of stairs, employee lounges, rest rooms and cafeterias. These core areas are strong sculptural elements toward visually to serve as orientation points in the complex.

Color is used in a big, bold way, not only for large graphics but also for textured material related to the functions performed in the various buildings.
For those interior spaces that could undergo many changes, a set of standards was prepared for use by the plant management staff. Wherever interior alterations are made in the future, it will serve as a guide as to how colors, textiles, furniture, and equipment should be selected to be consistent with the design philosophy of the facility.

The entire manufacturing facility is now functional. The engineering facility and ancillary administration block shown on the plans will be future expansion additions. A central utility plant and a sophisticated industrial water treatment plant have been built.

The industrial waste treatment plant has been designed for complete de-nitrification of dilute and concentrated waste which is discharged after processing into the existing stream system on site. The quality of the effluent meets the watershed environmental requirements; the size of the treatment plant makes it quite unique in this country.

The 485-acre site in Prince William County, Virginia is within a half hour of Washington, D.C. via Interstate-66. Anticipating area growth, the planners felt it would be desirable to retain the best of the site's natural features to make it an attractive addition to the area, as well as to provide the facility with privacy.

It is seldom that a large manufacturing operation can adopt the special concerns for landscaping and effluent control that are ordinarily attributed to research and development facilities. Those matters of social concern, referred to by Philip Meathe in the introduction, are everywhere apparent in this facility, and the vocabulary of assembly buildings reflects the same architectural concern as that of the three-level administration building. Even the cooling towers and high-bay buildings are provided with a setting and detail that respect both social and esthetic objectives.
GIANT MANUFACTURING FACILITIES POSE GIANT PROBLEMS

Respect for landscape and the community takes on a whole new dimension when a manufacturing and assembly facility is: a) planned to employ some 10,000 people and b) located near a developing new town which has its own growth problems.

Appliance Park-East is one of the largest projects ever undertaken by Sol King and Albert Kahn Associates, Inc., a firm that is no stranger to large industrial projects and had designed General Electric's now famous Appliance Park in Louisville some 20 years ago. The new G.E. complex is situated midway between Washington D.C. and Baltimore near the new town of Columbia, Maryland. While a ten-year period is expected to be required for full implementation of the master plan, shown in the model view above, two of the manufacturing facilities have already been completed and another will begin soon. The warehouse (at top of the model photo) is also in operation as are various support facilities, including personnel, communications and utility buildings and an industrial waste treatment plant. The two completed factories produce ranges and air-conditioners, which are sent through enclosed conveyors to the warehouse for transhipment by rail or truck.

Despite the intensified industrial mission of the complex and the giant scale of high manufacturing and storage spaces, both architects and the client have insisted on careful detailing and massing, together with continuous involvement of landscaping so that buildings, although of exceptionally high (some 70-ft, floor-to-ceiling) construction, can be seen in the interior photo above, preserve the aspect of low profile, accommodate a gently rolling site of about 1100 acres.

Impact of this huge project on both economy of surrounding communities and ecology of the site has been carefully
General Electric's Appliance Park-East


Architectural and engineering solutions have been taken into account. Provision for treatment and control of both solid and liquid waste is designed at highest standards. Many tools and water basins serve not only the purpose of landscaping but also serve the purpose of air-conditioning drainage, and waste treatment systems.

Four-lane divided highways are planned on three sides of the site. They are laid out to minimize earth movement and to preserve existing trees.

A railroad system, which will ultimately have 20 miles of track, will penetrate the warehouse structure for undercover loading. On-site operation will be handled by the owner's own switch engines and personnel.

The warehouse now contains approximately one million square feet and is located at the end of the double conveyor system on a site that will allow expansion to as much as two million square feet. The building for range manufacture already provides almost a million square feet of production space, and the building for air-conditioning manufacture another half million. A third manufacturing building for automatic dryers is under construction.

Over 17,000 tons of rolled section have been used in the steel framing system so far. Foundations are a combination of concrete caissons and reinforced spread footings. Roof framing is of long-span trusses metal deck. Floors of manufacturing areas are of extra heavy design (3000 lbs. per square foot) to support huge presses. Mezzanines for various lighter weight operations occur at three levels throughout the 70-foot-high structure.

Key to the economy of the complex is the repetitious use of standard materials in available modules applied in an over-all optimum such as bay sizes and structural systems.
RESEARCH AND DEVELOPMENT FACILITIES: SHOWCASE OF INDUSTRY

Commissions for industrial research and development facilities provide architects with some freedom from the austere budgets and utilitarian materials of the manufacturing arm of industry. They are by no means universally monumental or extravagant—and they do very often encompass high-bay machinery or laboratory enclosures that have much of the aspect of industry—but clients in general, regard the R&D facility as more germane to the corporate image than are strictly manufacturing plants. Further, relationship to the community is likely to be less strained and the ambience of research is more adaptable to the countryside.

Kimberly-Clark Research and Engineering Center


The research and engineering center for Kimberly-Clark Corporation shown in the panels above was designed by HOK as a three-story building to provide 352,000 square feet of space for paper industry research and product development. The center is located on a 102-acre site in the town of Manasha, Wisconsin, near the corporate headquarters in Neenah. Facilities included in the building are laboratories, pilot plant, office space, food services, library and reception areas.

Central to the array of working spaces is a skylighted court which serves both as a visitors' reception area and a casual conference area. Upholstered benches are arranged in regular conversation enclaves with tables and plantings to encourage the interchange of researchers and visitors. Twin entrance funnels into the mezzanine-level atrium in which this court is situated.

Pilot plant spaces, peripheral to the laboratories, have all the high-bay, machine-oriented aspect of conventional industrial space. The pinwheel arrangement of work spaces around the central court makes it possible to expand the building outward in several directions. Added flexibility is provided through design of laboratory and pilot pl
The structural system also is designed to facilitate expansion. Columns, beams and floor slabs are pre-cast concrete. The exterior walls are a system of modular sand-blasted concrete panels and insulated aluminum panels designed to be removable and interchangeable in event of future changes.

A centralized reception area in the atrium between the first and second levels of the building serves as a security check-point through which all traffic must pass to enter the building. Organization of the facility as a tight ring around this central garden focus is to some degree a response to the extreme winter climate in northern Wisconsin as well as to the security measures likely to be typical of many research and development facilities.

In determining the placement of the building, three outstanding features were considered, including the watershed which cut the site diagonally through the middle, the existing bank of trees on the north and west and the gently rolling contours of the land.

To preserve the front part of the site for possible future development and to retain the rural quality of the area, the building was situated on the northern half of the land. Drainage control was achieved by creating two new lakes, which provide not only an important drainage control function, but an esthetic value as well. The 600-car parking area, which is sheltered by a thick row of trees, is broken up by additional landscaping between each double row of cars. The illusion created is that of a small grouping rather than a mass of automobiles. The strips of land also provide space to pile snow for quick clearance during the severe Wisconsin winters.

This solution, then, takes into account the typically broad scope of industrial problems: landscapes, security, growth and urgency.
Kaiser Center for Technology


Landscape as architecture at Kaiser Research Center

The wedding of building architecture and landscape architecture is seldom more felicitous than it is at the Kaiser Research Center, situated on an 83-acre tract in the rolling hills of the Amador Valley in Pleasanton, California. Alternately called the Kaiser Center for Technology, this complex of six buildings, designed around the expanding demands of interdisciplinary communication, takes notice also of the special character of the research situation. That is, the demands for quiet energy and optional privacy or interplay on the part of research personnel impose a dual architectural problem. First, is the essential grouping and massing of buildings for study, experimentation, and pilot plant operation in such a way as to be separate but mutually supportive. Second, is the imperative of countryside quietude.

The problem, then, for John Carl Warnecke and Associates was not so much the geometry of juxtaposition of the enclaves of discipline for optimum interplay as it was the enplacement of the research universe in compatible union with the world.

The vocabulary of the buildings themselves sustains the Warnecke reputation for quality and detail. Six major structures enclose a total of more than 300,000 square feet, which a basic 60-foot square module permits uniform division in five-foot increments. The structural system combines reinforced concrete and structural steel. Exterior surfaces are various finishes of aluminum siding or plate aluminum sun control devices. As with the industrial buildings of all sizes shown on other pages of this report, it is skill in detail and spirit rather than the monumental uses of exotic materials that reinforces the architectural presence here.

The administration building with its cat...
Each has the internal capability of pilot plant operation and introduces truly industrial spaces within the complex. A product development test facility, located quite separately north of the main complex, is equipped to fabricate prototypes of new products and develop specialized tooling for their manufacture.

The role of landscape architecture in this virtually universal mix of industrial and research spaces has been more than the simple embellishment or preservation of existing natural features. Landscape architecture, of course, always participates in the unity of any plan and makes its own contribution to the fulfillment of program. In this case, however, that contribution carries with it fulfillment of the building architect’s own objectives, defined by the client’s needs, of an ongoing, expandable campus of facilities respecting its community and purpose.

Architecture touches the lives of everyone around
Success of the total design has received testimony in a letter from the mother of a family who were accustomed to enjoying the countryside on which this technical center was emplaced. The letter is in part as follows:
"To the Planners of the Kaiser building:

"When we first heard you were to put a huge "factory" near Pleasanton, we were sick at heart. We watched sadly as your buildings progressed.

"When the grounds were landscaped my young son said, "Look, mother, it's not ugly! It's pretty!" When the fountain was completed, he reminded me each time we passed how wrong I had been until it became a thing with us to say "Bucky's Water" each time we went to town—from the oldest to the 18-month-old. A week before Christmas we lost our Bucky, he was ten years old.

"Life goes on and we still go to town. The youngest, now close to three, chants "Bucky's Water" and so it will always be. Bucky is in Pleasanton Memorial Garden on the hill overlooking your buildings and lovely grounds. For I was wrong. The countryside is truly more beautiful than it was." Marjorie L. Santos.

D. J. McPherson, vice president and director of technology at the center, replied, with grateful compassion, saying in part: "Since moving into our new research center our employees and residents of surrounding communities have enjoyed our lake and fountain. In the rush of getting settled, however, we never have given the lake a name. With your permission, Mrs. Santos, we would be honored to name it "Bucky's Water."
Achieving high-quality architectural concrete by understanding details of the construction process

James M. Shilstone, president Architectural Concrete Consultants

...
### ARCHITECTURAL CONCRETE QUALITY

Relative significance of construction details on the results

<table>
<thead>
<tr>
<th>CONCRETE MIX</th>
<th>AS CAST FINISH</th>
<th>DISTRESSED FINISH</th>
<th>COMBINATION</th>
<th>CHEMICALLY REACTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Smooth</td>
<td>Texture</td>
<td>Smooth</td>
<td>Medium</td>
</tr>
</tbody>
</table>

#### CONCRETE MIX

<table>
<thead>
<tr>
<th></th>
<th>Cement Color</th>
<th>Fine Aggr.-Gradation</th>
<th>Coarse Aggr.-Gradation</th>
<th>Design Technique</th>
<th>Admixtural</th>
<th>Consistency (slump)</th>
<th>Mixer Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

#### FORMS

<table>
<thead>
<tr>
<th></th>
<th>Selection of Materials</th>
<th>Reuse Limitation</th>
<th>Butt Joints-Location</th>
<th>Backup Tape</th>
<th>Backup Reticulate</th>
<th>Tightness</th>
<th>Rigidity</th>
<th>Design Strength</th>
<th>Stripping Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

#### RELEASE AGENT

<table>
<thead>
<tr>
<th></th>
<th>Product Selection</th>
<th>Application Technique</th>
<th>Surface Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

#### FORM TIES

<table>
<thead>
<tr>
<th></th>
<th>System Selection</th>
<th>Installation Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

#### CONCRETE PLACEMENT

<table>
<thead>
<tr>
<th></th>
<th>Technique</th>
<th>Equipment</th>
<th>Lift Height</th>
<th>Time of Lift</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

#### CONSOLIDATION

<table>
<thead>
<tr>
<th></th>
<th>Equipment Selection</th>
<th>Operator Training</th>
<th>Technique</th>
<th>Degree of Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

#### REINFORCING STEEL

<table>
<thead>
<tr>
<th></th>
<th>Detail Planning</th>
<th>Clear Space</th>
<th>Accurate Install</th>
<th>Support Methods</th>
<th>Splice Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

#### FINISHING

<table>
<thead>
<tr>
<th></th>
<th>Timing</th>
<th>Equipment</th>
<th>Expendable Select</th>
<th>Tool Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*Absorptive

This table shows the degree of influence various steps in the construction process have on architectural concrete finishes. With a rating of 4, the degree of influence is low and construction methods not required for structural concrete are sufficient. With a rating of 1, the degree of influence is high, and careful control of the construction process or detail is critical to achieving a good architectural concrete finish. Ratings of 2 and 3 are relative intermediate levels of influence.

This table is intended as a general guide only. Each type of architectural concrete finish must be carefully planned, specified, detailed and executed to achieve results worthy of the design.
The concrete mix has to be tailored to: 1) finish; 2) construction procedure

With regard to the color of ingredients of the concrete mix, it can be seen in the table that as aggregate exposure becomes more pronounced, there are major changes in relative importance of each of the three major ingredients—cement, coarse and fine aggregate. Also, as the amount of aggregate exposure increases under the abrasive blast classification, there must be greater attention to the aggregate gradations. The radical change in fine aggregate gradation, over the span of the four abrasive blast finishes relates to the necessity for a probable eventual change to a gradation which is outside of the fineness modulus lower limit set up by ASTM C33. This would occur in gap-graded mixes. The impact-hammered finishes have neither major nor minor effects caused by the concrete mix. The texture generally is more expressive than the concrete, except for color.

Architectural mix design techniques frequently need to be in variance with some procedures established by the American Concrete Institute. Standard 211, used as a basis for a mix design, lends itself to structural concrete ranging from thin shells to footings. Nowhere are architectural results considered.

Admixtures are important for both workability and assistance in minimizing the possible occurrence of lift lines due to earlier concrete set in warm weather.

Consistency control is obviously important to architectural concrete. Some mix trucks cannot discharge low slump concrete even in its "new" condition. It is important, therefore, that proper mixers are used rather than changing a good design to meet the needs of a limited capability mixer.

Construction joints and tie-rod holes must be sealed to prevent leakage

The quality of the forms must be better when the concrete is to remain in the as-condition than when it is to have a heavily distressed texture. As the quality of the formwork increases, the architect is wise in designing in such a manner as to facilitate re-use. In the table, under category "Reuse Limitation," the probable use of wood forms of one quality or another except for as-cast surfaces. The finer the finish, the greater the control needed for the forming material to achieve that result. Any imperfection in the form used for a brushblasted surface will appear in the concrete surface. The other hand, scars (properly reconditioned) in a form for concrete to be heavily blasted or jack-hammered will not be visible following the finishing process.

Under the heading of "Butt Joints," three primary classifications are considered. "Butt Joint Location" relates to the relative desirability of butt joints occurring in the form work at points other than behind rebar. Every butt joint is a potential leakage point, if for nothing more than water. Leakage will cause discoloration of the concrete and this discoloration cannot be removed by distressing. It is not possible to use tape because the tape deformation would be visible on the finished surface, then butt joints must be located with great care. An alternative to the use of tape, and one that is a great deal more practical, is the

Many details related to form construction and the location of reinforcement can have a significant effect on the quality of appearance of architectural concrete. Details 1 and 2 show what clearances are needed when a single or a double "curtain" of steel reinforcement is used. Detail 3 shows recommended details for providing a horizontal construction joint. Note techniques to prevent leakage.
hiding of butt joints by a grooved rustication. Tightlyness of forms is a key to high quality of results. Concrete cast in forms that leak can be expected to contain a considerable amount of honeycomb at the leakage point. A greater incidence of "bug holes" in the finished concrete surface not the top of the section cast. In some cases, these are minimized (not completely lost) by the finishing technique and therefore there is more tolerance to control of tightness. While belling forms are practically always objectional to some degree in architectural concrete, the need for design strength of the form increases in importance for other reasons. If concrete-mix retarders are used to minimize the potential occurrence of lift lines, there can be difficulty if forms are not strong enough to take a full hydrostatic head. Many structural concrete forms are designed for 6 to 7 ft of hydrostatic head and, if the concrete is fluid to a greater height, the forms will fail under the load. Stripping control is more important for as-cast surfaces than for surfaces that are to be dressed. Even if distressing is to be used, projections from the concrete can be broken off very easily if the concrete is too green or the stripping is handled roughly.

Release agents, when improperly applied, cause as much variation in the color of the as-cast architectural concrete finishes as any other element. As the texture becomes more pronounced, the ultimate influence of this product is minimized. It is always desirable to make certain that there is not a build-up of release agent on the form surface, and that any concrete laitance from a previous casting is removed from the form before the release agent is applied for form reuse.

Form ties have a significant impact upon the visual effect of architectural concrete. Even though they are placed in the forms on a pattern, a particular pattern may not be consistent with some types of form design. Tie-hole patching effectiveness is questionable. And the smaller the tie, the less the holding capacity of that tie. While cone-type ties have been accepted and expressed by many architects, there are other systems that should be considered. Each will have a definite influence upon the architectural results. Probably more important than the tie system itself is the assurance that the tie is properly placed in the forms to prevent leakage. Fewer ties means less leakage potential. Leakage around form ties can cause "bull's-eyes."

The finish can be spoiled if consolidation by vibrator is not properly handled
Architectural concrete must be "placed," not "poured." In only the one case of the jack-hammered finish is a "4" classification given for "placement," and this classification envisions the use of a pump. Frequently, pumps require certain characteristics of the concrete mix. On most occasions, these characteristics are different from the characteristics desired for architectural concrete. We do not recommend the use of pumping devices that make demands on the mix to provide for roughly 50 per cent coarse aggregate and 50 per cent fine aggregate. When a pump can handle a mix design for architectural purposes with a low water-cement ratio, there should be no objections to the pump. If pumps are used, however, there should be alternative placing techniques available in the event of placement-equipment failure. In no case should the concrete be moved horizontally by vibrators. The concrete must be placed as close as possible to its final position.

Consolidation of architectural concrete is one of the most important, though frequently passed-over elements of the construction. All too frequently, the vibrator operator is one of the most unskilled men on the construction project. Yet, if his work is not done properly, all of the fine architectural planning will have little effect. A vibrator is not only a device for consolidating concrete, but also for internally mixing two lifts of concrete. When this is not done, lift lines will be visible.

Reinforcing steel details are generally thought of as a problem for the concrete constructor. But with architectural concrete, we feel that the architect needs to make sure that the sizes of bars and the reinforcing steel placement details will allow the work to be accomplished. If this is not done, there can be such a mass of metal as to make effective workmanship in the field impossible. If the reinforcement is too close to the surface, and rusting and eventual spalling will occur.

Timing of the finishing process is governed by the type of finish wanted
The timing, type and condition of the finishing equipment or techniques can have major influence on the finish results. When heavy work is to be performed, the equipment must be rugged to meet the resistance encountered. Care must be given in some cases to the timing because the finishing ease is related to the strength of the concrete surface. If a great deal of mortar is to be removed, the work should be done as soon as practical after the casting. With impact hammer work, the only limitation is that the concrete should be strong enough to hold the aggregate from being knocked from its sockets, thereby creating a series of "bugholes." Different types and different gradations of abrasives have a major influence on results.

Naturally, tool condition is important to any work requiring tools. A bushhammer operator will use two to three tools a day (approximately one tool per 30 to 40 sq ft of surface hardened). Use of dull tools makes hammering very expensive because there is little work accomplished and the finish has little character. "Finishing" of as-cast surfaces means treating the surface with masonry cleaner. Construction dirt and the natural efflorescence of portland cement concrete may have to be removed. This is a good area for a bid-deducitive alternate if the cleaning is not necessary.

The table will help in assisting the designer to determine the optimum finish for the construction conditions of a particular project. Before making a decision about finish, the architect should study the locale where the work is to be placed. Included should be evaluation of forming know-how, contractor techniques, ready-mix and precast-concrete facilities, and the over-all quality of work completed in the past. Should it be found that there are great limitations to the facilities of the ready-mix concrete producer to deliver special mixes, the design should not require a heavy abrasive blast finish, as this would place heavy demands upon a special concrete mix. A finish object more related to the textured non-absorbent form would take best advantage of the concrete-producer capabilities in this instance.

If there is a shortage of carpenters, and the quality of workmanship is poor, there is a finish that is forgiving of form deficiencies, makes the most sense. A jack-hammered texture, though a very expensive operation, provides a more forgiving surface for forming variations than any other architectural finish. Hence, money should be saved in concrete mix controls, placement techniques and forming so that funds will be available for finishing.

In sum, architectural concrete is a refined material, and details should recognize this.

Timing of the finishing process is governed by the type of finish wanted
The timing, type and condition of the finishing equipment or techniques can have major influence on the finish results. When heavy work is to be performed, the equipment must be rugged to meet the resistance encountered. Care must be given in some cases to the timing because the finishing ease is related to the strength of the concrete surface. If a great deal of mortar is to be removed, the work should be done as soon as practical after the casting. With impact hammer work, the only limitation is that the concrete should be strong enough to hold the aggregate from being knocked from its sockets, thereby creating a series of "bugholes." Different types and different gradations of abrasives have a major influence on results.

Naturally, tool condition is important to any work requiring tools. A bushhammer operator will use two to three tools a day (approximately one tool per 30 to 40 sq ft of surface hardened). Use of dull tools makes hammering very expensive because there is little work accomplished and the finish has little character. "Finishing" of as-cast surfaces means treating the surface with masonry cleaner. Construction dirt and the natural efflorescence of portland cement concrete may have to be removed. This is a good area for a bid-deducitive alternate if the cleaning is not necessary.

The table will help in assisting the designer to determine the optimum finish for the construction conditions of a particular project. Before making a decision about finish, the architect should study the locale where the work is to be placed. Included should be evaluation of forming know-how, contractor techniques, ready-mix and precast-concrete facilities, and the over-all quality of work completed in the past. Should it be found that there are great limitations to the facilities of the ready-mix concrete producer to deliver special mixes, the design should not require a heavy abrasive blast finish, as this would place heavy demands upon a special concrete mix. A finish object more related to the textured non-absorbent form would take best advantage of the concrete-producer capabilities in this instance.

If there is a shortage of carpenters, and the quality of workmanship is poor, there is a finish that is forgiving of form deficiencies, makes the most sense. A jack-hammered texture, though a very expensive operation, provides a more forgiving surface for forming variations than any other architectural finish. Hence, money should be saved in concrete mix controls, placement techniques and forming so that funds will be available for finishing.

In sum, architectural concrete is a refined material, and details should recognize this.

The following seven key points sum up the major important aspects affecting components and procedures in the table:
1. Section sizes and reinforcing steel details should be designed to facilitate constructability. There must be placing and work space before the project may not effectively executed. Details 1 and 2 shown on the previous page are recommended for walls.
2. Construction joints should be articulated because their concealment is practically impossible. Detail 3 is recommended.
3. Try to use locally available aggregates to achieve some flexibility in results by selection of the cement. The ready-mix producer can, in most conditions, supply concrete with greater ease and at less cost with special cement that matches with special aggregates, unless the promulgated aggregates are locally available through traditional delivery.

4. Smooth, as-cast walls without variation is most difficult, if not impossible, to achieve. Abrasive blasting is commonly used but it is becoming expensive, as well as a major defect control problem. Walls to be left in the as-cast condition are best cast in forms that are not absorbent, and have sufficient texture to ensure a planned variation over the surface that would be more readily noted than the variations normally expected in the concrete construction process.

5. Reinforcing steel details should be checked to make sure that casting space is available. This can mean the difference between a reasonable project and an impossible one.

6. The specifications should clearly state what is wanted. If form butt joints should occur or behind rustcations, the specifications must be so. Forms tight under the hydrostatic head of concrete, plus the movement of the vibrator, is critical. For this reason, the specifications must call for the gasketing of corner joints. The specification should be prepared as a separate section of the concrete division, rather than be incorporated within the structural concrete details.

7. It must be remembered that architectural concrete is a very refined concrete, and must receive as much additional attention as wood millwork compared to rough carpentry. Though the structural requirements will always be governing requirement, finishing planning and details are more critical when architectural results are wanted.
December 28, 1972

Mr. Leonard Korinek
Trus-Joist, Houston Division

Dear Leonard:

Thanks to Trus-Joist, my "monster" roof system turned out fine. With the rising cost of lumber and cost of steel, we have realized a savings of 30 to 40% on material alone.

Erection was a snap! One $5.00 per hour carpenter and two $3.00 per hour helpers erected and braced our cantilevered roof in 14 hours. Compare that to steel erection, and smile.

The versatility and light weight of your product throws a little sunshine on a very dark labor situation. We are looking forward to continued savings in our relationship with Trus-Joist.

Sincerely,

Michael J. Ruppel, III
Vice President
Alpine Construction Co., Inc.

Hillcroft Bank, Houston, Texas 50' x 50' clerestory roof designed as a steel space frame supported by eight pipe columns. TRUS JOIST did the job with only four columns and four H Series joists as carrying members with L Series joists at 24" O.C. over the larger joists.
Rooftop comfort conditioning systems

For cooling and gas heating or all electric cooling and heating. Up to 40 tons. Singer gives you completely packaged, pre-wired, pre-piped units that are easy to install, quiet, efficient and economical to operate and simple to maintain.

Incremental comfort conditioning

Through-the-wall simplicity for cooling and heating multi-room buildings. Total decentralization with Singer all-electric models or hydronic models using either steam or hot water piping. Singer incremental systems offer unlimited "zoning" capability, unusual design freedom, easy installation and low operating costs. The exclusive Extendaire permits the use of one incremental unit for two rooms.

Buildings of comfort
Packaged or split systems

A complete line of packaged units for indoor installation, both air and water cooled. The air cooled models are offered in both vertical and horizontal configurations for floor or ceiling mounting. Perfect for use in new or renovated structures where outdoor equipment space is unavailable.

Where flexibility is important, Singer Split Systems are the answer. Condensing units with fan for outdoor installation available from 8 to 40 tons. Condensing units with blower for indoor installation from 8 to 15 tons. Remote installation of condensing unit from the air handler is simple and efficient. Air handlers in a variety of sizes and designs complement the Singer Split System line.

Electro-Hydronic Energy Conservation Systems

Conservation of heat energy makes the Singer Electro-Hydronic system exceptionally efficient and economical. The heart of the system is a series of unitary, water-to-air reverse cycle air conditioners. Flexibility is enhanced because only two uninsulated water pipes are used in a closed loop circuit; ductwork is minimal; and units are easily concealed.

The superior efficiency of the Singer system design results in minimum installation, operating and service costs.

Singer all sizes take from Singer.

side, outside, on the rooftop, in-the-wall. Singer makes them all. High-rise or low-rise buildings. For office, industrial, residential, or commercial application. Whatever your needs, Singer has the answer and products to meet them fast and economically.

You can depend on Singer for turn efficiency and minimum service requirements after installation, too. Because we run-test every system before you get them. And we make them simple to service. Guardmaster which protects against compressor short cycling, Slide-O-Change, which makes compressor replacement unbelievably easy, and the unique Check-Away skirt system which saves literally hours of installation time at the job site, are some exclusive service features. If help is needed you can call on one of the best service teams in the industry.

For more data, circle 98 on inquiry card
PATTERNED CONCRETE / In a variety of colors, patterns and textures, Bomanite is concrete especially treated to create durable surfaces that resemble brick, tile or cobblestone. The company claims little or no maintenance is required for this attractive paving, recommended for median strips, crosswalks, sidewalks, malls and streets. Low cost is also claimed. • Bomanite Corp., Palo Alto, Calif.

Circle 300 on inquiry card

ALUMINUM SCULPTURE / Windhover is the name of this sculpture measuring 18 ft across by 12 ft high. The finish is brilliant red polyurethane enamel. Design, engineering and fabrication cost $17,000. The sculpture is located in front of the Middlesex Bank, Burlington, Massachusetts, designed by Welton Becket & Associates. The sculptor specializes in "environmentally-scaled" works. • Robert Amory, Boston, Mass.

Circle 302 on inquiry card

DOWNLIGHT POST LUMINAIRE / This cylindrical unit, finished in brushed aluminum or all duranodic finishes, is available in both 250-watt and 400-watt mercury vapor and sodium lamp types. Cylinder is clear acrylic. Offered with a tapered aluminum post. • Street Lighting Equipment Corp., Hacketstown, N.J.

Circle 301 on inquiry card

LANDSCAPE FURNISHINGS / Shown to the left is a bench of natural-finished redwood, with stainless steel supports in chrome finish. On the right is the Contourline bench features natural-finished redwood slats on tubular steel color for permanent embedment. • Landscape Forms, Inc., Kalamazoo, Mich.

Circle 303 on inquiry card

For more data, circle 99 on inquiry card
Why steel joists were the right answer to this building need

OVERALL ECONOMY: WHY STEEL JOISTS WERE USED TO SPAN 4.4-ACRE AUDITORIUM-FIELD HOUSE

Multipurpose indeed is the new Warren E. Hearnes Multipurpose Building at the University of Missouri, Columbia, Mo. This twin complex with a common roof includes a 13,600-seat auditorium for basketball, and a 2,500-seat adjacent field house for indoor track, football, baseball and tennis practice in inclement weather. Also included are conference rooms, lecture halls and accommodations for dinners, conventions and exhibits.

Every seat in the auditorium and field house provides an unobstructed view of the action, without annoying posts and pillars. The roof is supported by a purlin system of 558 open web steel joists, each 32 feet long.

“Overall economy was a prime factor in the design of the roof system,” says project architect John Meyer of Sverdrup and Parcel, St. Louis. “We specified open web steel joists because they contributed substantially to this economy. And since they are prefabricated structural members, they helped to reduce erection time.” General contractor was Parsons-Lindgren, St. Joseph, Mo., and structural steel fabricator was Havens Steel Co., Kansas City, Mo.

Open web steel joists are eminently practical for modern construction of all types. For complete information, send coupon today for a free copy of the new edition of Specifications and Load Tables for Open Web Steel Joists and Longspan Steel Joists.

For more data, circle 103 on inquiry card
ZONOLITE® Masonry Fill Insulation, poured into cores or cavities of masonry walls, usually reduces heat loss by 50%—and more in some cases.

To the owner, this means his insulation cost is paid back to him in two or three years. Then savings continue year after year. A fact that should be of importance to every specifier or builder.

Heating and cooling savings are impressive in every area. Example:

<table>
<thead>
<tr>
<th></th>
<th>Chicago</th>
<th>Atlanta</th>
<th>Mpls.</th>
<th>Phila.</th>
<th>Denver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined Heating/</td>
<td>$6400</td>
<td>$3500</td>
<td>$8150</td>
<td>$6450</td>
<td>$5400</td>
</tr>
<tr>
<td>Cooling Savings*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installed Cost of</td>
<td>1700</td>
<td>1700</td>
<td>1700</td>
<td>1700</td>
<td>1700</td>
</tr>
<tr>
<td>Insulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Annual</td>
<td>38%</td>
<td>21%</td>
<td>48%</td>
<td>38%</td>
<td>32%</td>
</tr>
<tr>
<td>Return on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*10-year savings from insulating walls; 8" lightweight block: 2-story office building, net exterior wall area 10,000 sq. ft.

The new FHA standards for multi-family housing require masonry walls to have a heat loss factor ("U" value) no higher than .17. ZONOLITE Masonry Fill is the most economical way to bring block walls into conformance—as low as 17 cents per square foot installed, for 8" block.

In addition to cost savings, consider these important features:

**Improves comfort**—Inside wall temperatures are increased up to 13°F. in winter. Body-to-wall radiant heat loss is reduced. Greater comfort results. Summer conditions are improved, too.

**Increases fire resistance**—Adding ZONOLITE Masonry Fill to a 2-hour fire-rated lightweight block gives more than four hours extra protection—earns 4-hour UL rating.

**Cuts sound transmission**—Users report that Masonry Fill in exterior or party walls improves the sound resistance.

Mammoth looks ahead with a tight fist.

Mammoth Solid State Temperature Controls get a jump on the energy crises by saving up to 40% of energy costs now.

Within ten years the cost of all present energy sources will triple, according to many experts. In some areas of the country dangerous shortages, to the point of closing schools, are evident even today.

True, there’s no general cure-all for the situation. But now Mammoth SST controls can help you and clients get ahead of the situation.

Mammoth SST controls automatically adjust output of equipment to the exact temperature requirements of the space on both heating and cooling cycles, eliminating energy waste inherent in overcooling and overheating.

Mammoth SST controls make maximum use of outside air for free cooling and return air for free heating.

The more the cost of energy goes up, the more SST controls save.

Now go ahead and see how Mammoth cuts energy costs for yourself. Then, if you think you or your clients want to cut 20% to 40% off the top of normal energy and operating costs, mail the coupon today to: Mammoth. The people with ideas to help you do a better job.

LEAR SIEGELER, INC.
MAMMOTH DIVISION
1010-0 COUNTY ROAD S
MINNEAPOLIS, MINNESOTA

Give me more to think about.
☐ Send more information on Mammoth SST and HVAC systems.
☐ Have my field representative contact me.

Name
Firm
Position
Street
City
State
Zip

DEPT. AR-53

For more data, circle 105 on inquiry card
How Mammoth SST controls use outside air for free energy cooling.

The conventional system closes fresh air dampers to a minimum position during summer operation and mechanically cools a warmer blend of return air and minimum fresh air, wasting valuable energy.

Unlike the conventional system, the example shows Mammoth SST controls can save 11.5° of cooling energy in a single-zone unit by taking maximum advantage of outside air.

60° REQUIRED SUPPLY AIR TEMPERATURE

CONVENTIONAL

26.5° COLD DECK
10% MINIMUM FRESH AIR
40°F AMBIENT
10% DUMPED

MAMMOTH SST
SENSIBLE HEAT HIGH LIMIT 59°F ADJUSTABLE
MIXED AIR LOW LIMIT 59°F ADJUSTABLE
59°F AMBIENT
100% F.A.
100% DUMPED

RESULT: SAVINGS OF 11.5° COOLING (765°F 65°)

How Mammoth SST controls conserve energy in multi-zone systems.

Conventional multi-zone systems use a cold deck control to maintain cold deck and a 1 to 1, indoor/outdoor proportional reset to control the hot deck.

Now take the Mammoth SST controls. In this example, the warmest and coldest zones directly control the cold and hot deck temperatures reducing the operating differential from 55° to 25°, a phenomenal 30° reduction.

This allows the Mammoth SST system to operate the heat exchanger modulated at only 70%, resulting in a 30% energy savings.

CONVENTIONAL

58° COLD DECK
45% F.A.
30° AMBIENT

MAMMOTH SST
SENSIBLE HEAT HIGH LIMIT
MIXED AIR LOW LIMIT
AS REQUIRED BY THE WARMEST ZONE
80° COLD DECK
33% F.A.
50° AMBIENT
10% DUMPED

RESULT: D.T. BETWEEN DECKS REDUCED FROM 55° (110°F 95°) TO 25° (80° 55°)

How Mammoth SST controls make economical use of zoned reheat.

Conventional systems cool to 55° then reheat.

Mammoth SST controls make considerable economical use of reheat by heating supply air from the temperature required by the warmest zone, saving 5° of reheat in the example shown. Note the energy added to airstream for zoned reheat is identical to the SST multi-zone system.

CONVENTIONAL

60° REQUIRED SUPPLY AIR TEMPERATURE (DESIGN)

CONVENTIONAL

MIXED TO 60°
59°F AMBIENT (DESIGN)
50°F COLD DECK
85% F.A.
20% DUMPED

MAMMOTH SST
MIXED TO 60° (AS REQUIRED BY WARMEST ZONE)
59°F AMBIENT (DESIGN)
10% MIN. F.A.
74°F COLD DECK
30% DUMPED

RESULT: SAVINGS OF 12° OF HEATING (67°F 55°)

MAMMOTH SST

MIXED AIR LOW LIMIT
SENSIBLE HEAT HIGH LIMIT
MIXED TO 60° (AS REQUIRED BY WARMEST ZONE)
59°F AMBIENT
85% F.A.
30% DUMPED

ZONE REHEAT COILS
ZONE DISCHARGE TEMPERATURES

RESULT: SAVINGS OF 5° REHEAT (REHEAT FROM 60°F HOT 55°)
Three blind concepts
See how they work.

AHManson Center, Los Angeles
Architect: Edward Durell Stone

111 East Wacker Drive, Chicago
Architect: Mies van der Rohe

One Beacon Street, Boston
Architect: Skidmore Owings & Merrill
Boston, Chicago, Los Angeles. All across the country architects are discovering the hardest-working window covering (and the most beautiful): blinds. Levolor Riviera blinds.

Rivieras are the narrow-slatted, tapeless blinds that come in 76 great colors. Including the popular metallics, among other colors, that take a big load off an air-conditioning system, even when tinted glass is used.

Levolor Riviera blinds control light better than any other window covering (only a blind is continuously variable from complete privacy to an open view).

And Rivieras have a feature called, "Top-Lok," that preserves the integrity of your facade by fixing blinds at a specific level.

When you add all these features to the fact that Levolor operating hardware is guaranteed for life, you see that these three blind concepts work very well, indeed.

Levolor Riviera Blinds

Unsuccessfully imitated the world over.*

© 1973 Levolor Lorentzen, Inc., 720 Monroe Street, Hoboken, New Jersey 07030

For more data, circle 106 on inquiry card
NON-WOVEN VINYL FLOOR MAT / For commercial use, this lightweight, durable surfacing material features porous construction that allows it to trap dirt and let it filter through, keeping the surface clean. The material is anti-slip, for both indoor and outdoor use. It is flame-retardant and easily cleaned by shaking, vacuuming or washing. Suggested for entryways, halls, elevators, behind counters and in other high-traffic areas. 3M Co., St. Paul, Minn.  circle 304 on inquiry card

ELECTRONIC SECURITY SYSTEM / Known as the ECO system, this product offers total building monitoring and control by sensitizing openings. The system combines a master control panel (shown) with a series of electric switch and contact hinges and individual electric locks, all designed for standard ANSI door and frame preparation. The electric contact switch hinge is the opening alert for this system. The contacts are wired directly to the central control panel and to the lock, while the electric switch is wired to the panel alarm system. A monitored door that is not properly closed or otherwise improperly acted upon, will set off visual and audio alarms. Hager Hinge Co., St. Louis, Mo. Circle 305 on inquiry card

TWIN ROLL TOILET TISSUE DISPENSER / Twin roll models are offered in satin-finished stainless steel: recessed, partition-mounted, and surface mounted. The released roll automatically moves down into position when the first roll is exhausted. Doors have a full-length stainless steel piano hinge and tumbler lock. American Dispenser Inc., Carlstadt, N.J. Circle 306 on inquiry card

MATERIALS HANDLING / Loads of 1000 lbs. or greater can be transported up a slope at speeds up to 400 fpm with the Carmanix multi-functional materials handling system. Stepless, variable speed control provides response time and control accuracy interfaced with existing equipment. Recommended for handling chemical-sensitive materials because of product's gentle acceleration characteristics. SI Handling Systems Inc., Easton, Pa. Circle 307 on inquiry card

INTEGRAL EMERGENCY POWER PACK / A source of power will automatically keep the company's line of EXIT lighting fixtures illuminated in power failure periods. The integrated power unit is a completely self-contained section which fits across the top of a fixture housing without interfering with the unstacking feature. The normal life of the unit's replaceable batteries is six years. The unit meets present code requirements for emergency lighting. A minimum of 1½ hr. output. Sechrist Lighting Div., Keene Corp., Denver, Colo. Circle 308 on inquiry card

ATTENDANCE RECORDER / This fully-automatic, magnetic card recorder can operate independently or be linked into an existing magnetic clock impulse system. Horizontal or vertical mounting can be specified. Cards and card racks are also part of the system. Stromberg Products, New Haven, Conn. Circle 309 on inquiry card

LIGHT DIMMER / This features a lighted knob that glows in the dark. Unit is fully rated at 600 watts, incandescent service, and is available with either a rotary on-off or push-on/push-off switch. UL listed. Lutron Electronics Co., Inc., Cooperstown, Pa. Circle 310 on inquiry card

The beauty of Vogel-Peterson PlanScape® screens belies their practical nature. Under the richly-colored, stain-resistant nylon velvet lies a thick foam cushion that literally swallows sound. The brilliant chrome accents mask a light but very strong tubular steel frame that defies bending and twisting. Thoughtful design extends even to the base... made flush to the floor to keep clear of passing feet. PlanScape screens are available in a wide variety of sizes, either straight or curved in five dramatic colors. Write for catalog 515.

VOGEL-PETERSON CO.
"The Coat Rack People"
ELMHURST, ILLINOIS 60126
NEW YORK SHOW ROOM • 205 LEXINGTON AVENUE

For more data, circle 107 on inquiry card

188 ARCHITECTURAL RECORD May 1973
Spaulding's Creative Designer Group

An imaginative ensemble of light that distinctively combines function and form.
Created to complement and enhance the spirit of your design.

■ Choose from Group Sculptura — changing dimensions;
from Group Contempra — tomorrow's past;
from Group Moderna — the present look of the future;
from Group Lanterna — ageless shapes;
from Group Miniatura — new dimensions and
from Avenue Decor — the environmental era.

■ Designer Group . . . exclusively Spaulding.

*See us in Sweet's Section 16.8/SP

3731 Dirr St., Cincinnati, Ohio 45223

For more data, circle 708 on inquiry card
RECENT LISTINGS

- **THE YOUNG ARCHITECTS** 56 pgs. 4-color 1.00 per copy
- **RECORD HOUSES 1972** 3.25 per copy
- **RECORD INTERIORS of 1973** 16 pgs. 4-color 1.00 per copy
- **ROLE OF THE ARCHITECT IN DEVELOPMENT HOUSING** 16 pgs. 2-color 1.00 per copy
- **PRODUCT REPORTS 1973** 3.00 per copy
- **MUSEUMS (JULY 1972)** 16 pgs. 4-color 1.00 per copy

INTERIORS

- **RECORD INTERIORS of 1971** 20 pgs. 4-color .50 per copy
- **SIX INTERIORS—AUGUST 1971** 12 pgs. 4-color .50 per copy

SPECIAL REPORTS

- **CREATING CONSOLIDATED CLINICAL TECHNIQUES SPACES FOR AN EXPANDING ROLE IN HEALTH CARE** 8 pgs. 4-color .50 per copy
- **SEALING JOINTS: 1968 SPECIAL REPORT** 8 pgs. 2-color .50 per copy
- **PLANNING DISCIPLINES FOR AUDIO-VISUAL FACILITIES** 16 pgs. 4-color 1.00 per copy
- **ROUND TABLE ON ENERGY CONSERVATION THROUGH HIGHER QUALITY BUILDING** 8 pgs. B&W .50 per copy
- **NEW METHODS FOR EVALUATING LIGHTING SYSTEMS** 6 pgs. 2-color .50 per copy
- **NEW LIFE FOR OLD BUILDINGS** 58 pgs. 4-color 1.00 copy
- **SOLVING TODAY'S CURTAIN WALL PROBLEMS** 8 pgs. B&W .50 per copy

BACK ISSUES

- **RECORD HOUSES 1968**—2.00 per copy
- **RECORD HOUSES 1970**—2.00 per copy
- **RECORD HOUSES 1971**—2.00 per copy

PRACTICAL REFERENCE

- **AIR CONDITIONING: A NEW INTERPRETATION**
  Updated reports from 1967, 1969, 1970
  64 pgs. 2-color softbound 4.95 per copy

BUILDING TYPE STUDIES

- **MUSEUMS (JUNE 1969)** 16 pgs. 4-color .50 per copy
- **DESIGN FOR MERCHANDISING** 16 pgs. 1.00 per copy
- **AIRPORTS** 16 pgs. B&W 1.00 per copy
- **CORRECTIONAL ARCHITECTURE** 16 pgs. 2-color .50 per copy
- **CAMPUS DESIGN FOR STUCF—AN ANALYSIS OF EXCELLENCE** 24 pgs. 2-color 1.00 per copy
- **BUILDING IN A BROAD SPECTRUM OF HEALTH CARE**
  16 pgs. B&W 1.00 per copy
- **URBAN HOUSING** 30 pgs. 2-color 1.00 per copy
- **LOW-INCOME HOUSING** 16 pgs. 4-color 1.00 per copy
- **5 CONTEMPORARY SCHOOLS** 14 pgs. B&W .50 per copy
- **DESIGN FOR A VARIETY OF CAMPUS LIFESTYLES**
  18 pgs. 4-color .50 per copy
- **SHOPPING MALLS IN SUBURBIA** 16 pgs. 4-color 1.00 per copy
- **SUBURBAN OFFICE BUILDINGS** 16 pgs. 4-color 1.00 per copy
- **INDUSTRIAL BUILDINGS** 16 pgs. 4-color 1.00 per copy
- **HOSPITAL PLANNING RESEARCH** 18 pgs. 4-color 1.00 per copy
- **HOUSING: ONE GOVERNMENT AGENCY REACHES FOR GOOD ARCHITECTURE** 16 pgs. 4-color 1.00 per copy
- **RESORT HOTELS** 16 pgs. 4-color 1.00 per copy

PREPAID ORDERS ONLY

Record Impressions
ARCHITECTURAL RECORD
1221 Avenue of the Americas
New York, New York 10020
Att. Joseph R. Wunk

<table>
<thead>
<tr>
<th>No. of copies</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
</table>

Enclosed is my check [ ] Money order [ ] for $________.

NAME__________________________
FIRM__________________________
ADDRESS_______________________
CITY/STATE____________________ ZIP________

[ ] RECORD IMPRESSIONS
Valid through 7/31/73

5-73
When Agnes came for an unwanted visit, paint based on Pliolite kept her out.

When tropical storm Agnes struck Florida, one condominium survived without a trace of interior water damage—thanks to a texture coating based on Goodyear Pliolite® resin specifically designed to protect, waterproof and beautify masonry surfaces.

The reason: texture paint based on Pliolite resin forms a tough, impervious shield that prevents the passage of water either into or out of the concrete.

In addition, texture coatings based on Pliolite resin can be applied to all types of masonry surfaces—pre-cast, poured or concrete block—wet or dry, interior or exterior, above or below grade, in almost any kind of weather. In fact, when applied to green concrete, it acts as a curing medium.

If your job is to waterproof and protect masonry surfaces against weather, texture coatings based on Pliolite resin can help you do it better. For more information, and a list of manufacturers of texture coatings based on Pliolite resin, just write to Bill Smith at Goodyear Chemicals, Dept. 7104, Box 9115, Akron, Ohio 44305.
MFG CONCRETE FORMS
make better waffles!

The waffle slab is increasing in popularity...its refinements offer a challenge to an architect's imagination. Waffle construction has come into its own.

On your next job use MFG fiber glass re-usable forms to build your waffle slab.

Send for information on standard rental forms.

MFG CONCRETE FORMS CO. • 3714 Ann Ave., Ashtabula, Ohio 44004
216/998-1241

"The better waffle makers"
Whatever you want your glass to do, C-E Glass has the light, heat, glare, sound or safety control qualities, plus the colors and patterns to blend beauty with function and to open new horizons for structural design possibilities.

POLARPANE® insulating glass units with 20-year warranted moisture-free construction.

POLARPANE® reflective solar insulating units with pure gold or chrome mirror-like coating.

ARM-R-BRITE® insulated spandrel panels, fully tempered and tailored to your color specifications.

ARM-R-CLAD® tempered safety glass. Clear, tinted and textured. Standard thicknesses from 1/8”.

SOUND CONTROL POLARPANE® hermetically sealed units for maximum sound transmission loss.

SUN CONTROL POLARPANE® hermetically sealed units with rotating venetian blind between glasses.

MISCO® wired glass listed fire retardant by Underwriters' Laboratories, Inc. Seven popular patterns.

MISSISSIPPI® PATTERNED GLASS in wide variety of general purpose and decorative patterns.

See our catalog in Sweet's 8-26. Ceil or contact your local C-E Glass office.

C-E Glass, 825 Hyton Road, Pennsauken, New Jersey. 08110. (609) 562-0400
Efficient building idea: A new built-up roofing system with a completely inorganic reinforcement.

New Perma Ply®-R felts are reinforced with inorganic Fiberglas®.
- This means they won't rot or char.
- Won't wick volatile oils from the asphalt and cause brittleness.
- And won't absorb moisture. (The asphalt is embedded into the porous felts to form a monolithic system. This helps prevent wrinkles, buckles, curling, blisters and fishmouths.)
- Perma Ply-R felts can be installed and left exposed without the final surface treatment for up to 6 months (while other trades are completing construction).

Since 1963, Perma Ply-R test roofs and roof sections have been applied in all climate zones in the United States.
- Results: not one known failure due to Fiberglas Perma Ply-R.
- These Fiberglas felts are now available in all states east of the Rockies.

For more information, write to Mr. R. K. Meeks, Architectural Products Division, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Energy Conservation Award
Owens-Corning is offering awards to stimulate new designs and ideas for conserving energy.
- Special Steuben sculptures will go to the three architects or engineers who—according to a panel of independent judges—do the best job of designing buildings that don't waste fuel.
- See our announcement in this magazine for details.

Owens-Corning is Fiberglas

For more data, circle 114 on inquiry card
ROOF AND WALL PANEL / A roof and wall covering system for use with the company's building system offers economy, strength, durability and appearance. A trapezoidal rib sheet, the product is coated steel and has a net covering width of 36 in. Panels can be supplied in lengths up to 42 ft. Main ribs are 1 1/2 in. deep and 12 in. on center. On both roof and siding applications, overlapping panels are stitch-fastened at prescribed intervals at the center of the flat plane of the rib. • Armaco Steel Corp., Middletown, Ohio.

SPRINKLER SYSTEM CONTROL PANEL / An electrical control panel permits grouping of heat detectors for zoning; any number of zones (12 or less) can be furnished. Firecycle systems are designed for continued on-off cycling while controlling a fire, and shut off water when the fire is extinguished. When a detector is heated to its trip point, a relay for that detector zone is de-energized and opens contacts which operate the system and alarms. • The Viking Corp., Hastings, Mich.

COST ESTIMATING COMPUTER / A computer system that estimates construction costs for new types of commercial, institutional and private building projects is offered for office use by architects and developers. Designed to bring precision to the cost estimating process during pre-design and design stages. The system operates from a console computer that presents the required information on a typewriter-like terminals that can be leased or purchased from the company. • Amis Construction Consulting Services, Inc., New York City.

ELASTOMERIC WALL COATING / A dense intercoat coating, this product provides for minor substrate movements and is impermeable to stains, moisture, chemicals, alkali and bacteria. Seamless and dimensionally stable, the product is recommended for applications where a sanitary finish is needed. Available in a variety of colors, in gloss and semi-gloss finishes. May be applied to concrete, masonry, cement or hardwall plaster, gypsum drywall, metal and plywood. • Desco International, Buffalo, N.Y.

DIRECT FIRED GAS HEATER / Designed for efficient 100 per cent utilization, the Series 4700 Module Air unit is economical to buy, install and space heater for small-sized job. Compact modules can be mounted above floor or ceiling to save space. Low operating cost and initial costs are claimed. • Cambridge Engineering, Inc., St. Louis, Mo.

SOUND-ABSORBING STRUCTURAL MASONRY / Recommended for indoor-outdoor industrial construction, Soundblock units are made near the job site by selected block producers using special molds that fit standard automatic block machines. They deliver their sound absorption from a cavity-slot construction. The cavities are closed at the top and slots allow the closed cavities to act as damped resonators. Units are load-bearing and can be installed with conventional labor and techniques. • Proudfoot Co., Inc., Greenwich, Conn.

RAYNOR Doors
For The Most Unlikely Garagemates

For just about everything that rolls, there's a Raynor garage door. From the smallest vehicles to the largest. And because of outstanding production capabilities, if the door you need isn't a stock size, Raynor can make it for you. In fiberglass, wood, steel or aluminum. If your designs have to include buildings for wheelerbarrows or road graders, handcars or locomotives, baggage carts or airplanes...even the family car...your best answer is a Raynor garage door. Free catalog on request.

RAYNOR MANUFACTURING COMPANY
Dept. AR-5, DIXON, ILLINOIS 61021

For more data, circle 115 on inquiry card
Monotube® High-Mast Light Poles

...have the versatility to meet exacting specifications.

For example, Monotube High-Mast Light Poles can be designed for applications requiring heights of 200 feet or more. If desired, we will factory assemble and ship in one piece. Different steels and finishes are other Monotube pluses—weathering, carbon, galvanized, epoxy, finished or prime painted are yours for the asking.

This versatility and the know-how of the industry's most experienced pole manufacturer are the benefits you get from specifying and using Monotube High-Mast Light Poles.

We've got what it takes!

Union Metal Manufacturing Company

Write or call: The Union Metal Manufacturing Company, Canton, Ohio 44711 • Phone (216) 454-6111

For more data, circle 116 on inquiry card
Put PLEXIGLAS® DR between your lighting and UFO’s.

Lighting that’s under daily attack by unidentified flying objects — indoors or out—does its job best when protected by lighting shields made of Plexiglas DR acrylic. That’s because Plexiglas DR produces extremely tough, weatherable lenses which retain color and clarity better than any other high-impact thermoplastic on the market.

Vandal-resistant Plexiglas DR lenses are molded or extruded from Plexiglas DR high-impact all-acrylic molding pellets, the toughest acrylic lens material made. They are optically superior to polycarbonate lenses, for better light control, less glare.

Protect your fluorescent lighting. Select Plexiglas DR lenses — for toughness that virtually ends breakage worries, and for color and clarity you can count on for years.

Write for technical data and physical properties, and for names of extruders and molders using Plexiglas DR.

For more data, circle 117 on inquiry card
DON'T PLAY WITH FIRE.

CCC's New Naturalweave spongebonded carpet has a Class "A" Flamespread rating.

If you're looking at carpet for an office building and it doesn't have a Class "A" flamespread rating—25 or less in the Steiner Tunnel Test—you may be playing with fire. The danger of fire always exists, that's why fire safety standards are becoming more and more stringent. At CCC, we know all about fire safety. We've become experts, because we've installed millions of yards of carpet in offices, hospitals, schools and stores.

Since fire safety is a major concern to us, we've just introduced a fire-retardant, spongebonded carpet with a Class "A" flamespread rating. We call it NATURALWEAVE FLAMEGARD and it meets all governmental flamespread standards.

NATURALWEAVE FLAMEGARD is an addition to our heavy duty Densylon Carpet series. It has a five-year wear guarantee and is made of tightly-twisted, densely-packed ANSO nylon bonded to B. F. GOODRICH fire-retardant sponge rubber cushioning. This built-in cushion extends the carpet's wear-life by one-third compared to carpet without padding. It's guaranteed not to lose resiliency, enhances the carpet's appearance retention, reduces leg fatigue and increases floor safety. Among its other benefits, NATURALWEAVE contains a static control system, is easy to clean and keep clean, and helps cut maintenance costs.

But you get more than just superior carpet from CCC. We're the largest manufacturer of commercial and institutional carpet systems in the country. With CCC, you get SINGLE SOURCE RESPONSIBILITY for every aspect of your carpet projects anywhere in the country, starting with product selection and guaranteed installation through a comprehensive maintenance program that gives you maximum carpet wear-life at minimum life cycle cost. We even know how to effectively integrate carpet with subfloor access systems and can show you how it's done with trench headerducts and handhole covers.

For more information, just fill out the coupon below. CCC's NATURALWEAVE FLAMEGARD ...THE SPONGEBOND-ED CARPET WITH A CLASS "A" RATING.

Not just carpet, but complete carpet systems.

For more data, circle 118 on inquiry card
the cost of a pool can be a drop in the bucket

Original construction costs are one thing... costs of repairs are another. Over a pool's life span (30-40-50 years), those repairs can add up to big money.

Consider the total cost. Then plan to minimize expense and maximize pool life. Specify Chester... the most experienced builder of all-aluminum pools. Chester all-aluminum pools are MIG arc-welded into a single integral unit. A unique built-in recirculation system simplifies construction.

And all Chester pools carry a complete 5 year warranty not to crack, leak, or rust.

In ground, elevated, indoor or out... Olympic, A.A.U., or designed to your specifications, consult the builders with 20 years of all-aluminum commercial pool experience.

For complete information and technical literature, write Dept. AR5

CHESTER Products, Inc. 1300 LAFAYETTE AVENUE MIDDLETOWN, OHIO 45542

For more data, circle 109 on inquiry card
The subdued approach to Reflective Glass

With the increasing use of reflective glass for outstanding solar control and lower operating costs, more and more buildings are sticking out in harsh, metallic glare.

Now, Shatterproof Glass Corporation has developed a refined, subdued Reflective Glass that still offers the benefits of the harsh reflective glasses.

... Manufactured in three configurations—Insulating, Laminated and Monolithic—for complete versatility.

Depending on the type specified, it can also provide thermal control, sound control, security and safety benefits. Available in subdued tones of bronze, gold, gray and chrome ... in the largest quality sizes in the industry.

To learn more, write for our Reflective Brochure, Shatterproof Glass Corporation, Dept. 101A, 4815 Cabot Avenue, Detroit, Michigan 48210. Phone: 313/582-6200.

For more data, circle 119 on inquiry card

Shatterproof
GLASS CORPORATION Architectural Division
Ask a roofer about slope. He'll tell you about Tapered Foamglas insulation.

The next time you seek a roofing contractor's experience, ask him about Tapered Foamglas Insulation as a base for the built-up roofing membrane.

He'll tell you Tapered Foamglas Insulation isn't the cheapest product on the roofing market. But the cheaper products don't have 20 year guarantees, either — a guarantee that Tapered Foamglas Insulation will remain waterproof and incombustible and will retain its full insulating efficiency, dimensional stability and compressive strength. And the lightweight precut, pre-sloped blocks insure a perfect slope.

Tapered Foamglas Insulation also provides one contractor responsibility from built-up roofing to the membrane.

After you've talked with the roofing contractor, we'd like to tell you more. Contact our nearest representative or write Pittsburgh Corning Corporation, Dept. AR-53, Three Gateway Center, Pgh., Pa. 15222.
For attractive protection... New York City has a sophisticated new police and fire "Emergency Reporting System" which will greatly improve response to over 300,000 calls for help each year. To contain the system, the city sought maintenance-free alarm boxes to replace the existing painted carbon steel ones.

The answer... the handsome new box shown here, using ENDURO Type 304L stainless steel. This vandal and corrosion-proof box was especially designed for this application by Republic Steel research.

Meeting the challenge isn't new to us at Republic Steel. We're the original Technical Knockout specialists. When you specify ENDURO stainless steels... sheet, strip, bar, billet, special sections, tubing, pipe, wire, plate... from our mill or from your local Steel Service Center, you can count on our involvement.

A fact-packed, completely detailed collection of information on the full range of "300 Series" stainless steels is now available. Write Republic Steel Corporation, Cleveland OH 44101. Ask for Adv. 2274.
DETEx security equipment gives you peace of mind.

Right now, one DETEx Exit Control Lock may be all the security you need. As new security problems arise, you can combine DETEx equipment, unit by unit, into a complete security network.

Or if you've already started to build a sophisticated system, we can interface with existing equipment to back up weak spots.

DETECX Exit Control Locks and Exit Alarms protect unlocked exit doors, bringing pilferage to a howling halt. DENTCO coded-card entry systems keep restricted doors locked to unauthorized individuals. DETEx Remote Indicating Panels keep an eye on every security point from a central location.

DETECX depends on DETEx low-voltage, high-security equipment. For a moderate investment, you'll have maximum peace of mind.

Call or write for free literature today.

DETEx Corporation
4147 N. RAVENSWOOD AVENUE
CHICAGO, ILLINOIS 60613
(312) 348-3977

For more data, circle 122 on inquiry card

WATER COOLER-FIRE EQUIPMENT CABINET: A fully-recessed unit is one of a wide variety of stainless steel models offered, featuring a fire extinguisher, fire hose, plus a spacious utility compartment for storage. Removable stainless steel louvered grill conceals and vents refrigeration unit and plumbing. • Elkay Mfg. Co., Broadview, Ill.  

For more data, circle 128 on inquiry card

For more products on page

204 ARCHITECTURAL RECORD May 1973

For more data, circle 123 on inquiry card
Wouldn’t you rather control sound with wood folding partitions? You can now...with Twin Panel Sonicwal®. Panelfold has the better way.
There's a new way to incorporate sculpture and textural relief in building design. It can be done with Facad!

This sculptured facing of easy-to-install, thin, molded, reinforced cement panels can be used as a total wall element; as spandrel panels, fascias, balcony panels or soffits. Sturdy, but lightweight (2 pounds/square foot), Facad is easy to handle. It comes in sizes up to 4' x 10'. No special skills or extra structures are required. Installation is within the competence of carpenters or glazers.

Facad is also very durable. And because it is all mineral, it is completely incombustible.

Facad comes in a series of standard panel surfaces, one of which is shown above. It can also be custom-molded to afford architectural designers a broad choice of texture, color and pattern.

For complete information, call the Architects Service Representative at your nearest U.S. Plywood office or write:

For more data, circle 128 on inquiry card
PRODUCT REPORTS continued from page 204

PARKING GUARD / A simple mechanical device is designed to prevent auto theft and assure reserved parking space. Consists of a galvanized steel stanchion inserted into concrete between two parking places. The tenant unlocks a moveable arm across his parking space with a padlock. Each Parking Guard protects two spaces. • Clark & Wilkins Co., New City.

Circle 329 on inquiry card

INDOOR HID LUMINAIRE / The Fairfield commercial luminaire is designed for outdoor covered applications using high-intensity discharge lamps. Diffuse acrylic lens provides brightness control with uptilt to minimize ceiling contrast. Integrally ballasted, the 2-by-14-ft unit is 8¾ in. in depth. A range of colors is offered. General Electric Co., Hendersonville, N.C.

Circle 330 on inquiry card

INDUSTRIAL LUMINAIRE / An indoor luminaire for HID lamps offers a reflector and optional high-strength Teflon film lens for extremely high photometric efficiency. An optional plug-in connector permits the entire integral ballast and luminaire to be quickly connected to or disconnected from the power line by non-skilled labor, if desired. • Slim-Lite Corp., Houston, Tex.

Circle 331 on inquiry card

COMMUNICATION SURFACE / A line of self-adhering and writing tapes, called the Apple II line, features vinyl tapes bonded to 22- or 30-mil-thick steel or ½-in. composite fiber board; in 30- or 250mil-thick form, 54 in. wide; in bright standard sizes of section panels, from 18 by 24 in. to 4 by 10 ft. The product has a lenticular, pebbly surface that is easily painted. With steel back, it also includes a magnetic surface. • Lytel, Inc., Indianapolis, Ind.

Circle 332 on inquiry card

DRESCENT EMERGENCY LIGHTING / This multi-function system, driven by electronic circuitry, features maintenance freedom (sealed batteries have a minimum life expectancy of 10 years), high light output with low power drain, and safe low voltage wiring. It is adaptable of operating in a continuous normally-on circuit, making it useful for supplemental lighting. • Udec Corp., Waltham, Mass.

Circle 333 on inquiry card

in 1993...
will your client like his roof or raise yours?... not if you specify...

ColorKlad

"The metal with integrity"

Specify COLORKLAD for fascia, standing and batten seam roofs, mansard roofs and other sheet metal finishes. We warrant COLORKLAD for twenty years against chalk, fade and color change. Upon request, we'll give you or your client this warranty in writing!

COLORKLAD is a sensational new roll-coated 24 ga. ARMCO galvanized sheet, armor plated with PPG's Duranar 200 fluorocarbon with KYNAR, bonded forever to the metal, and protected with a plastic strippable film. Easily shop formed.

Costwise, COLORKLAD is slightly less than shop or field painted galvanized (which usually fades or peels in five years or less). COLORKLAD is less than one half the cost of copper.

Happily, with COLORKLAD — which comes in six standard colors — the builder need not buy mill quantities. He can order exactly what he needs for the project... readily available for immediate shipment.

20 Year Warranty on this roof!

ColorKlad — NOW DISTRIBUTED IN ALL FIFTY STATES AND CANADA

Mail coupon to: Vincent Brass & Aluminum Co. Building Products Division 724-24th Avenue S.E., Minneapolis, Minn. 55414 A/C 612-378-1131

<table>
<thead>
<tr>
<th>Please check:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] I am interested in receiving complete COLORKLAD information and specifications, plus a sample.</td>
</tr>
<tr>
<td>[ ] Have your local architectural representative contact me.</td>
</tr>
</tbody>
</table>

Name
Company
Address (Street)

City State Zip

SEE US—BOOTH 340-341—NAT'L. CSI CONVENTION—JUNE 25-27

For more data, circle 129 on inquiry card
General Contractors:
The Taubman Company, Inc.,
Southfield, Michigan.
Fabricator:
Congress Steel Products Co.,
Melvindale, Michigan.
Erector: Argo Steel Construction Co.,
Detroit, Michigan.
goes to great lengths
this parking deck.

(More space for less cost)

More and more open-deck parking structures are being conceived and constructed in steel. The Executive Plaza Parking Deck in Detroit is a case in point. Steel frame won out over competition—pre-cast concrete and poured-in-place concrete. Mainly because the long-span concept, which is most economical in steel, results in a minimum of interior columns. This allows much more open space, making self-parking easier and attendant-parking more efficient.

The three-tier building has 128,750 sq. ft. of supported parking area. While meeting the City of Detroit's requirements of a 75 psf live load, the building's structural weight is low. For the most part, the structural steel is USS EX-TEN 50 (ASTM A572 Grade 50) high-strength low-alloy steel. Certain lighter members are A 36. Naturally, the lighter the structure, the lighter the foundations. More savings!

The entire structure was finished in five and a half months at a total cost of $910,000.

Not only did steel frame construction lower the total cost by lessening the time it took to build, but it also permitted the owner to begin realizing a rental income much sooner.

With all these factors considered, steel frame turned out to be the most economical system.

Here is another example of how an income-producing facility like an open-deck parking structure can be erected fast in steel and meet with great satisfaction—from a functional, economic and aesthetic point of view.

Minimal fire danger! Results of a recent extensive survey indicate that losses resulting from fires in this kind of structure are minimal. Realizing this, the City of Detroit permitted a deviation from their existing Building Code. With no fire protection necessary, costs were cut considerably. It is interesting to know that elimination of fire protection can mean a saving of as much as $1 per square foot in steel parking decks.

Let us help you program your next garage in steel. For a more complete story, see our complete report on Steel Frame Parking Structures (ADUSS 27-5227-02). For copies of these reports or to find out the many ways in which we can help you program your next garage, call our nearest sales office and ask for a USS Construction Marketing Representative. Or write to U.S. Steel, Box 86, Pittsburgh, Pa. 15230.

**Structural Report (ADUSS 27-5779-01).** Also, you might be interested in our Technical Report on Steel Frame Parking Structures (ADUSS 27-5227-02).

**Construction Details**

- **Description:** A rectangular, three-level structure with interior, two-way straight ramps-open on all four sides. A parking capacity of 745 cars. All floor decks designed with a drainage slope. The slope is downward from the outer edge of the deck toward the building center—a total drop of 18 inches.
- **Building Description:**
  - **Dimensions:** 211'-2½" x 252' -6"
  - **Height:** 2 tiers (above the on-grade parking level)
  - **Floor to Floor Heights:** 10' -6"
  - **Capacity:** 745 cars.
  - **Gross Areas:**
    - **Ground level (including unenclosed space):** 98,300 sq. ft.
    - **Second level:** 78,400 sq. ft.
    - **Roof level:** 78,400 sq. ft.
    - **Total:** 255,100 sq. ft.
- **Occupancy Type:** Open-deck parking garage.
- **Applicable Code:** City of Detroit Building Code
- **Design Loads:** 75 psf live loads
  - 82 psf dead loads
  - 20 psf wind load

**Structural Steel:**

- **Total weight:** 530 tons.
- **6.75 pounds of steel per square foot of supported structure.**
- **All A572 Grade 50 except details.**
- **All beams and girders are composite designed non-shored construction.**
- **All bolts ASTM A325 High Strength.**
- **Bracing:** Semi-rigid moment connections in selected bays.
- **Floor Slab:** 6" thick two-way post tensioned 4,000 psi stone concrete with supplemental reinforcing over 62 ft. girders.
- **Exterior Walls:** Extruded anodized aluminum.
  - Painted concrete block.
- **Foundations:** Spread footings.
- **Elevators:** 1 Hydraulic type 1,500 lb. passenger elevator.

USS and EX-TEN are registered trademarks.
Against a background of rising energy costs and the prospect of energy shortages, The TRANE Company announces an absorption water chiller that consumes up to 40% less energy than previous absorption machines.

**Operating economy**

Typical fuel costs for a single-stage absorption machine over a 3 to 5 year period equal the cost of the machine itself. TRANE's new Two-Stage Absorption Water Chiller uses up to 40% less energy per ton of refrigeration. This is made possible by the two-stage concentrator design, in which the heat of refrigerant generated in the first stage concentrator generates additional refrigerant in the second stage.

The two-stage design provides another economy. It reduces the amount of heat per ton of refrigeration rejected to the cooling tower by 15-20% compared to a single-stage design. This allows selection of a smaller tower for a given capacity chiller.

**Energy conservation**

The prospect of energy shortages in the near future has made it important that the air conditioning industry respond to the need for systems and equipment that conserve energy. The TRANE Two-Stage Absorption Water Chiller, with its substantial increase in efficiency over single-stage designs, is responsive to this need.

**Reliability and ease of maintenance**

The new Two-Stage Absorption Water Chiller is built to the standards established by TRANE's si
Two-stage concentrator design for new Trane Two-Stage Absorption Water Chiller reduces energy input (compared to single-stage absorption water chillers) by a minimum of 30%, and often as much as 40%. And rejects 20% less heat to the cooling tower.

These machines. For example, use of a unitized pump design and the feature allowing complete pump service without draining solution from the machine have been retained. Also, the two-stage design continues the use of corrosion resistant cupro-nickel tubes in the absorber section.

Six unit sizes
Trane Two-Stage Absorption Water Chillers operate on 125 or 150 psig steam, and are available in six sizes from 590 through 1,060 tons.

Start up and service
The startup of each machine is supervised by a service engineer from one of the over 80 Trane Service Agencies throughout the nation.

The Trane Company can supply all major products for your building air conditioning needs— including fire-tube and water-tube packaged boilers. Sales engineers in over 120 sales offices in major U.S. cities can provide selection and application assistance on all these products. For further information, contact your nearby Trane sales office or write The Trane Company, Commercial Air Conditioning Division, La Crosse, Wisconsin 54601.
more than just identification.
IDENTIFICATION SYSTEMS

...
Atlanta's C & S Bank protects money. All-weather Crete insulates the bank and the money.

When it comes to roof deck protection, Atlanta's C & S Bank has it! All-weather Crete insulation. The insulating dry fill that's compacted in place. No seams. Just one monolithic blanket that's sloped to the drains providing thermal protection as well as positive water drainage. All-weather Crete, applied by licensed applicators, is one of those unique building materials that provides the architect with an outstanding, trouble-free roof deck insulation, the contractor with a fast job (no curing with All-weather Crete), and the owner with a maintenance-free roof deck that protects and saves fuel costs year after year after year. Get the facts — see why most of this nation's outstanding architectural achievements utilize All-weather Crete for roof deck and plaza insulation. Contact Silbrico Corporation, 6300 River Road, Hodgkins, Illinois 60525, (312) 735-3322, or see Sweets for the address of your local applicator.

For more data, circle 133 on inquiry card

SILBRICO CORPORATION

C & S Bank, Atlanta • Aecck Associates, Inc., Architects • Alexandre Georges, Photographer
BRUNSLON® is flying high with architects and specifiers. Come fly with us.

Ask architects and specifiers. When the job calls for carpeting, the specs call for BRUNSLON® static-control yarn in the carpet construction.

BRUNSLON rates high for lots of down-to-earth reasons. It's America's #1 static-control system, and the best choice you can make for your clients. Over 50 million square yards of carpeting with BRUNSLON have been specified and installed. And only BRUNSLON comes in such a wide choice of carpet lines—over 300 lines of contract and residential carpeting, in all colors, patterns, fibers. So, let your fancies take flight.

For more reasons why BRUNSLON is the specifier's top choice, send for Ben Franklin's Hero Kit. It's packed with information for architects and specifiers about carpeting, static, and static-control.

Be a Hero. Send for Ben's Kit. And when you specify, insist on BRUNSLON. It's the only way to fly.

For more data, circle 134 on inquiry card
Saving Money the no-red rust way.
With Reynolds Aluminum ReynoRail.

Corrosion-resistant railing at a competitive price?
Most cities demand it for their sewage treatment plants.
And that's exactly what light, strong Reynolds Aluminum ReynoRail provides. It's a new concept in railing that eliminates welds while using only a few standard parts.
Installation is quick, simple—and economical. And so is maintenance. There is no red rust: the special anodizing coating will fight off corrosion for years.

Reynolds Aluminum is ready for the big jobs—whether it's rail systems for sewage treatment plants or siding for your next building or warehouse. Write or phone today for Reynolds "Products in Action" portfolio.
Reynolds Metals Company, Architectural and Building Products Division, 325 W. Touhy Avenue, Park Ridge, Illinois 60068 (312) 825-8811

Catalogs in Sweets 1973 Architectural, Industrial Construction and Plant Engineering Files.

For more data, circle 135 on inquiry card

OFFICE LITERATURE
For more information circle selected item numbers on Reader Service card, pages 267-268.

GLUE-DOWN CARPET SPEC GUIDE / An architectural guide specifications for glue-down installation of jute-backed carpets, issued by the Jute Carpet Backing Council, lists the reasons why jute's porosity and affinity to standard adhesives are essential to successful and economically feasible no-pad glue-down installations. * Jute Carpet Backing Council, New York City.
Circle 400 on inquiry card

TENNIS COURT SURFACING / The playing qualities of Elastaturf synthetic tennis court surfacing material are described in a six-page brochure, illustrated in photos and text: wearability, resiliency, and controlled surface texture are discussed. * Borit Chemical, Div. of Borden, Inc., Columbus, Ohio.
Circle 401 on inquiry card

TRAFFIC DOORS / The use of the long-lasting, shock-absorbing doors in various food operations, including bakeries, beverage plants, candy company, and cheese and dairy facilities is detailed in the five-page brochure. This illustrated brochure contains information on design and construction features, applications. Also supplied is data on three styles: 28 styles available. * Rubbair Door, Cambridge, Mass.
Circle 402 on inquiry card

SHOCK ABSORBER DOOR / A four-page bulletin describes a double acting door designed to withstand many years of daily punishment by fork trucks. The bulletin provides detailed data on the door's use, construction sizes, limitations, installation, guarantees and maintenance. * Clark Door Co., Inc., Cranford, N.J.
Circle 403 on inquiry card

REDWOOD DIVIDERS / Redwood dividers for townhouse units provide a natural, private, garden effect for indoor-outdoor living. Knot and sapwood grades of redwood are highly weatherable and easy to maintain. More information is in a 12-page booklet. * California Redwood Assoc., San Francisco, Calif.
Circle 404 on inquiry card

RESILIENT FLOORING / The company has developed a comprehensive flooring program geared to meet resilient replacement needs of the building modernization market. The "Contract Flooring Service Program," compiled in an indexed 3-ring vinyl bin, may be updated throughout the year with the latest Vinylflex and Vinylglo flooring line catalogues, installation, maintenance and specification sheets supplement the guide. * GAF Corp., New York City.
Circle 405 on inquiry card

TEMPLATES / A 1973 catalog of templates and lettering guides is now being distributed free upon request. It fully illustrates more than 200 professional templates, including many new 1973 additions. Templates are grouped for easy reference: gents, lettering, ellipses, electrical, mechanical, architectural, processing, programming, metric and others. * Rapidesign, Inc., Burbank, Calif.
Circle 406 on inquiry card

*Additional product information in Sweets' Architectural File more literature on page 222
People-proof panelboards.

Protect lighting panels with tamper-proof Mono-Flat® trims—standard on all Square D lighting panelboards. When the Mono-Flat front is properly installed and locked, it's practically impossible to get at the inside without the key. The lock is flush with the surface of the door so there is very little room for someone to insert a screwdriver under the lock and pry the door open. And the trim screws are inaccessible behind the locked front. Mono-Flat fronts come with one of either of two key changes so standard and emergency lighting can be keyed differently.

On a more aesthetic note, the Mono-Flat front has a smooth appearance that can easily be papered, painted, or otherwise covered to blend in with the surrounding decor.

Mono-Flat enclosures are easy to install. They hold themselves in place while the trim screws are locked. And the front of the panel can be adjusted in or out if the box is set improperly in the wall. Mono-Flat trims are now standard on all Square D lighting panelboards as well as on several smaller power panelboards. Anytime you have a panelboard application, select a people-proof Square D panel with a Mono-Flat front to make it look its best.

For specific engineering data on Mono-Flat panelboard fronts, contact your Square D distributor. Or write, Square D Company, Dept. SA, Lexington, Kentucky 40508.

For more data, circle 136 on inquiry card
ANNOUNCING

A TEST GUIDE FOR PROFESSIONAL EXAM CANDIDATES

THE 1973 ARCHITECTURAL REGISTRATION HANDBOOK

INDISPENSABLE INFORMATION for candidates taking the new Professional Exam

REQUIRED READING for all practitioners

The first "test guide" ever sponsored by the National Council of Architectural Registration Boards will shortly be available to assist candidates taking the December 1973 Professional Examination for architectural registration. The NCARB is the organization that prepares the examination which is administered by registration boards who grant individual state registration to those candidates who pass.

Although the primary purpose of this "test guide" is to provide specific guidance for those taking the examination, it also sheds light on the whole institution of registration and licensing as a professional prerequisite. Architects already in practice, both in the U.S. and abroad, could benefit professionally from having their own copy.

The Architectural Registration Handbook features:

- INSTRUCTIONS AND QUALIFICATIONS for applying for the new Professional Examination—as well as the equivalency examination.
- THE MODEL EXAM—includes questions similar to those on the actual Professional Examination which tests candidates' knowledge and judgement in the areas of environmental analysis, architectural programming, design and technology, and construction.
- A GLOSSARY OF TERMS AND IDEAS with which candidates must be familiar to deal effectively with each problem area.
- A BIBLIOGRAPHY OF RECOMMENDED READING AND REFERENCES encompassing the periodicals and books which define the general body of knowledge upon which the Professional Examination is based.
- ANSWERS TO SUCH QUESTIONS AS: How will the Professional Examination compare with the Model Exam? ... How will the new examination be structured? ... graded? ... scored? ... Is guessing a good idea? ... Is there a predetermined pass/fail point? ... What scores will be reported and to whom? ... Will credit be given for passing individual parts?

In addition, the Handbook describes the philosophy of the new Professional Examination, views the changing role of the architect in today's society, and how the NCARB intends to help the professional after he is registered.

Never before have candidates for professional registration had an opportunity to purchase a test guide specifically prepared by NCARB. This 144-page, hardcover handbook is of the utmost importance to anyone taking the Professional Examination and will be of intense interest to all educators and practitioners.

The first edition of the Handbook is limited. To receive your copy promptly upon publication write to ARCHITECTURAL REGISTRATION HANDBOOK, Architectural Records Books, 1221 Avenue of the Americas, New York, New York 10020 or use the coupon below. (FULL PAYMENT OF $18.50 PLUS 50¢ POSTAGE MUST ACCOMPANY YOUR ORDER)

ARCHITECTURAL RECORD BOOKS & 1221 Avenue of the Americas & New York, New York 10020

Please send . . . . . copies of the Architectural Registration Handbook.

NAME

ADDRESS

CITY STATE ZIP

Full payment of $18.50 per copy (plus 50¢ postage) must accompany your order.

224 ARCHITECTURAL RECORD May 1973
The Ecologically Sound Building...Whose Responsibility?

Nobody likes to think about...talk about or do anything about refuse disposal systems. But if we don’t, the result could be an ecologically unsound building, which, at best, is a bad neighbor, spewing smoke, soot ashes from an incinerator...or pouring loose refuse into an alley to blow, scatter or attract rodents and pests. There are better ways and less expensive ways if we start at the planning stage. Whose responsibility? We’d like to share it by providing information and counsel on designing an ecologically sound refuse system. We have a library of “how-to” manuals and a Dempster Consultant near you ready to lend a helping hand.

MAIL TODAY FOR FREE BROCHURES!

Yes...tell me how I can plan an ecologically sound building.
☐ Please send complete Architectural Kit on how to design a high-rise refuse system.
☐ Please have Dempster Consultant call at no obligation.

Name
Title
Company
Address
City State Zip

Mail To: Dempster Brothers, Inc. / P. O. Box 3127 / Knoxville, Tennessee 37917 / Dept. AR-5

Dempster BROTHERS, INC.
SUBSIDIARY OF CARRIER CORPORATION

SOUTHERN OFFICE / P. O. BOX 3127; KNOXVILLE, TENNESSEE 37917 / WESTERN DIVISION / P. O. BOX 5703; COMPTON, CALIFORNIA 90221
There are no longer any boundaries to your creative abilities. You need not be hampered by the many limitations of standard cabinet sizes and shapes. The casework needs of banks, courthouses and public buildings often demand something unusual. So give it to them.

Watson's experienced craftsmen respect your new ideas. They appreciate your different approach. And more important, Watson can produce these ideas to your specifications.

Enjoy your new freedom.

Dream...Create...
Invent. And let Watson share your pride in the finished installation.

Furniture Systems Division
Watson Manufacturing Company, Inc.
Jamestown, N.Y. 14701 (716) 486-0711

Argos sound columns can solve 90% of your sound system installation problems.
We can support that statement with our new architect's data file.
Send for it today.

For more data, circle 140 on inquiry card

Specify Granite

The Life of Georgia Building, Atlanta, is a striking example of the limitless design possibilities and enduring dignity of Mount Airy white granite. Granite withstands the rigors of time and weather, and additions made years later match the original granite perfectly. Write for details.

North Carolina Granite Corporation
Mount Airy, N.C. 27030 (919) 786-5141
For more data, circle 141 on inquiry card

For more data, circle 139 on inquiry card
If you haven’t got a Hager, you haven’t got a hinge.

Don’t get caught with your hinges down just because you didn’t specify Hager! If you’re looking for someone to give you a “deal” on a second-rate hinge, don’t come to us. Hager manufactures only the finest, most reliable hinges and door hardware products. Over the years Hager has had many “firsts”. For the full story, simply turn the page.
If you insist on quality, insist on Hager hinges.

For many years, Hager has built a reputation as an innovator and manufacturer of fine quality products. Hager engineers have developed an impressive number of industry firsts, such as the handsome and efficient Tri-Con hinge, the first three-knuckle, concealed ball bearing hinge. The Tri-Con stands as a shining example of Hager's leadership.

Striving to meet the design and engineering needs of architects and builders, Hager has always led the way with innovative products known for their strength, stability and style. Hager designed and manufactures the only two pivot hinges that don't require beveling of flush mounted doors — the rack and pinion action Raconteur and the cam action Camtrol.

When building owners required central security systems, Hager created the first Electronic Control of Openings (ECO) to provide architects and builders with a simple, inexpensive traffic control and security system. ECO was a direct result of another Hager first, the Electronic Switch & Contact hinge, which enables one central security station to monitor, lock and unlock every door connected to the ECO System.

For the whole story, write Hager Hinge Company, 139 Victor Street, St. Louis, Mo. 63104. In Canada, Hager Hinge of Canada, Ltd.
FREE FENCE SPEC KIT saves time, trouble. Invaluable for planning chain link fencing. Kit includes drawings on styles, wire gauges, gates, fittings, framework. Also includes lab reports, work sheets and specifications. Page® aluminized fabric lasts 3-5 times longer than the best of galvanized. Send for your kit today. Page Fence Division of Acco. P.O. Box 430, Bridgeport, Conn. 06602.

THE SPACES IN BETWEEN: An Architect's Journey is the autobiography of Nataniel A. Owings, one of the founders of Skidmore, Owings and Merrill, who have designed many innovative skyscrapers and such total communities as Oak Ridge. It's just out, and it is, says Publishers Weekly, "an insider's account of that firm's growth and its activities." "It's as much fun, almost, to read Nat Owings as it is to travel with him...His ideas about our cities of the future are inspired"—John Otis Brew. Illustrated with photos. At your bookstore. $8.95. Houghton Mifflin Co.

For more data, circle 144 on inquiry card

FIRE/LIFE SAFETY for HEALTH CARE FACILITIES," a 16-page report from Rixson-Firemark, Inc., will be released this month (May). The publication reviews the increasing demand for improved patient protection and new building code changes...details the application of contemporary early-warning and smoke control technology in hospitals and nursing homes...reports the findings of the recent "Project Corridor" tests by the California State Fire Marshal's office...and, in a special technical section, presents guidelines for the specification of fire/life safety and door control equipment. The publication is available from Rixson-Firemark, Inc., 9100 W. Belmont, Franklin Park, Ill.

For more data, circle 145 on inquiry card

PORTABLE SOLID WASTE AND REFUSE COMPACTORS and systems from The Tony Team, Inc. includes four sizes and great versatility. Pollution Packer® compactors bale, bag and box all types of wastes and refuse, wet or dry. Machine capacities range from .8 C. Y. to 4 1/2 C. Y. of loose wastes at 10 to 1 compaction ratio...operate on low amperage, 110-V60 cycle service. For hospitals, hotels, schools, colleges, restaurants, office and apartment bldgs. Simple adaptation to chute-type disposal systems. Spec sheets and literature available from The Tony Team, Inc., 7399 Bush Lake Road, Mpls., Minn. 55435.

For more data, circle 146 on inquiry card

At last! A wall system that can match your imagination!

Solid hardwood prefinished wall planks

Random width, random length genuine solid hardwood wall planks, lovingly prefinished, in a choice of 13 woods with the full natural beauty and richness that no imitation can match. Send today for Designer's Sample Kit containing 13 full-size sample species, textures and finishes.

Townsend Paneling
POTLATCH FORESTS, INC.
P.O. Box 916, Stuttgart, Arkansas 72160

For more data, circle 147 on inquiry card

For more data, circle 148 on inquiry card

Carpet Cushion Council
How to keep a beautiful plaza from drowning.

You’d like to select pavers for aesthetics and still get a really waterproof deck, plaza or terrace. But — up to now — there have been serious problems in the way.

For example, there’s been the difficulty, if not impossibility, of waterproofing joints between pavers. There also have been problems of expansion and contraction, freeze/thaw heaving, spalling, and the difficulty of sloping pavers adequately to avoid ponding of water on the surface.
One solution could be laying your pavers in a setting bed spread over the waterproofed surfaces. The trouble here is the necessity for surface drains, which don’t exactly contribute to an aesthetically pleasing job. A second problem is the settling or wash-out of this setting bed, which causes the pavers to shift.

You can eliminate both the aesthetic and technical drawbacks by raising your traffic surface over a suitably waterproofed structural slab so water can run down through the joints between the pavers, and be carried off by drains in the structural slab. With this method, waterproofing your structural slab is simple — especially when you use our Tremproof® Liquid Polymer, which cold-applied and adheres to both vertical and horizontal surfaces to form a flexible, seamless blanket.

But how do you raise the pavers above your waterproofed surface? Till now, the most commonly used method was casting concrete pedestals. But this job was cumbersome, time-consuming and required individual shimming of the paver corners. Now we have developed an uncomplicated, economical device called the KingPin™. It’s an adjustable pedestal that goes a long way toward simplifying the job of installing pavers.

**How KingPins save time.**

Once the waterproofing has been applied to the structural slab and covered with a protection board, simply place KingPins on your protection board. Then you set the KingPin to the approximate height you need, making finger-adjustments as you set the pavers to allow for deck or paver irregularities. Pavers line up instantly using the KingPin controlled spacers. KingPins work equally well on rigid or flex insulation.

**KingPins are tough.**

When you use KingPins, your only load limit is the strength of your pavers. KingPins can take up to 10,000 pounds with zero deformation; And because they are high grade plastic polymer, they won’t rot, crack, melt or absorb water in normal use.

**Why jobs look better.**

When you use KingPins, design freedom is almost unlimited. You don’t need surface drains. You don’t need joint sealants. Joint size is controlled, for beauty. Each paver will be drained so there’ll be no ponding. When maintenance is needed below the surface, just lift the pavers off the KingPins and out of the way. When the repair is done, your plaza looks as good as new, without patching.

One more thing. If you have any caulking, glazing or waterproofing problems, your Tremco man can help. For more than 45 years, our business has been providing top-quality leakproof systems and products such as our job-proven sealants, MONO®, DYmeric® and Lasto-Mer®; and our roof-edging system, Tremline™.

The Tremco Manufacturing Company, Cleveland, Ohio 44104. Toronto 17, Ontario.

For more data, circle 150 on inquiry card
OUTDOOR LIGHTING CATALOG / A Mini-Mansard 6½ by 16 in. for secondary entrances, apartments, etc., has been added to the mansard line of cast aluminum lanterns crafted by the company. Designed to coordinate with the mansard, elongated mansard and shed roofs, these lanterns range from the mini-scale to an 11 by 42 in. vertical envelope. A 56-page 1973 company catalogue is offered without charge. • Sternberg Mfg., Co., Chicago, Ill.

Circle 407 on inquiry card

REFLECTIVE GLASS DESIGN / Architectural reflective glass as a design medium is described in a 16-page booklet, containing a word-and-picture essay, as well as performance data for the wide range of reflective products. The new architectural glasses have an ultra-thin transparent metallic coating that mirrors a building's surrounding and reflects the sun's brightness and heat for comfortable interiors and more efficient energy consumption. • PPG Industries, Pittsburgh, Pa.*

Circle 408 on inquiry card

MODULAR BUILDING SYSTEM / The company has just issued its 1973 condensed architectural catalog describing its latest pre-engineered, pre-fabricated MOPANCO insulated modular panel building system for efficient and economical erection of refrigerated plants, cold storage warehouses, freezers, coolers, environmental control and other low temperature structures; also for curtain walls. • Modular Panel Co., New Bedford, Mass.*

Circle 409 on the inquiry card

RACK STORAGE SYSTEMS / Personalized solutions to rack storage systems, narrow aisle storage, and specially-designed material handling equipment are offered in a new brochure, illustrated with installations. • Hartman Engineering/Manufacturing, Victor, N.Y.

Circle 410 on inquiry card

STORAGE SYSTEM CONTROLS / A new booklet describing three levels of control sophistication now available for high-rise automated storage systems employs pictures, diagrams and color to explain the basics of these controls—designated local automatic, remote automatic, and computer control. • Clark Equipment Co., Battle Creek, Mich.

Circle 411 on inquiry card

DOCKBOARD BULLETIN / A 30,000-lb. mechanical dockboard is presented in a four-page brochure explaining why increased weight of unitized loads, use of heavier, short wheel-based fork lift trucks and multi-shift loading operations have made the 30,000-lb. capacity dockboard a necessity for many dock operations. • Kelley Co., Inc., Milwaukee, Wis.*

Circle 412 on inquiry card

DIAZO AND MICROFILM / A reproduction equipment brochure describes a line of diazo printers and microfilm reader/printer. Diazo equipment shown ranges from high production, fully-automated print, fold and collate systems to low-volume, high-efficiency print-only machines. All diazo products utilize a pollution-free developing method which eliminates odors, fumes and the need for venting. • Oce-Elliott, Chicago, Ill.

Circle 413 on inquiry card

*Additional product information in Sweet's Architectural File

For more data, circle 151 on inquiry card

For more data, circle 152 on inquiry card

easy heat®

SNOW MELTING SYSTEM HELPS MINNEAPOLIS MERCHANTS Beat the snow—Build store traffic

You put tropical sunshine on your clients’ walks, drives and ramps—during the most severe blizzards—when you specify easy heat Snow Melting Systems. You warm your clients’ hearts, too, with increased store traffic...fewer accidents...no shoveling...reduced track-in damage...cleaner snow driers and sales areas...

And the costs are far less than you might imagine. The Nicollet Mall in Minneapolis—eight city blocks on both sides—is a beautiful example.

easy heat-wirecraft

Division MSP Industries Corporation
Dept. 570. Lakeville, Ind. 46536

easy-heat®

For more data, circle 153 on inquiry card
Hard-wearing floors can be soft. Quiet. Safe. Easier to maintain. With carpet that has pile yarn tufted into a backing of Typar® spunbonded polypropylene directly glued down.

This is carpet with no secondary backing—just one, unitary backing of "Typar" that acts like a common between carpet pile and floor. When properly glued down, there's little danger of delamination from stresses and wet cleanings. No secondary backing for heels and wheels to loosen.

"Typar" won't fray or ravel at the edge. Seams stay tight and virtually invisible. No matter how you twist it, "Typar" keeps its shape. Patterns can be repeated in the longest corridors.

Unlike natural fibers, "Typar" resists rotting, swelling or shrinking when wet. It can be used below grade. And unitary carpet is usually more economical than carpet with secondary backing.

Specify the warmth and beauty of carpet in places you always thought had to be hard. For more hard facts write: Du Pont, Carpet Fibers, Centre Road Bldg., Rm. AR 2, Wilmington, Del. 19898, Attn: Unitary Specialist.

*Du Pont registered trademark.
Du Pont makes carpet backing, not carpet.

For more data, circle 153 on inquiry card

TYPAR® for unitary carpets you glue down.
How do you turn this handsome cabinet into a complete multimedia rear projection audio-visual presentation center?

**Simply turn it on.**

Fact: If full range A/V capability in a single plug-in unit is what you're looking for... you're looking at it.

The JMC AV-COM™ costs less than custom facilities; pays for itself in improved efficiency and productivity.


For full facts, call 212 682-3452 or write.

JMC
JEROME MENELL CO., INC.
30 East 42nd Street, New York, N. Y. 10017

For more data, circle 154 on inquiry card

---

**AIA ANNOUNCES:**

**ARCHITECTURE CRITICS CITATION TO ALAN DUNN FOR “ARCHITECTURE OBSERVED”**

In a special news release, The American Institute of Architects announced that “Alan Dunn, whose cartoons in books and magazines have gently but incisively satirized the architectural profession, has been named to receive the 1973 Architecture Critics’ Citation of the AIA for his cartoon collection ‘Architecture Observed’”.

If you haven’t ordered your own copy yet... use the coupon below before the supply is gone.

---

**Phoenix Civic Plaza**

**Decked Out in Kemiko Concrete Colors**

(over 500,000 square feet)

Longlasting Kemiko Col-r-tone was selected for the spacious pedestrian concourse of the beautiful new six-block Civic Plaza Convention Center in Phoenix. Kemiko Col-r-tone accentuates the textured diamonds to achieve a pleasing harlequin effect.

Kemiko’s Permanent Concrete Stain cannot crack, chip or peel because it is an integral part of the concrete surface. Col-r-tone will defy sun, wear and moisture for years in any climate. The non-skid, glare-free finishes are easily applied by brush or roller, and may be inter-mixed to provide over 50 contemporary colors. Over 90% of all Southern Calif. tennis courts wear Kemiko Tennis Court Green.

Write for free beautifully illustrated brochure and color chips.

KEMIKO, Inc., Dept. ARS
2443 N. Naomi St., Burbank, Calif. 91504

Architect: Charles Luckman Associates
General Contractor: Del E. Webb Corporation
Kemiko Applicators: P & H Supply Company

For more data, circle 155 on inquiry card

---

Alan Dunn’s
ARCHITECTURE OBSERVED

Recently Architectural Record published—in hardcover book form—a collection of 139 of Alan Dunn’s best cartoons which appeared in the RECORD over the years. The warm reception of this book by architects and others has prompted us to produce a second printing.

In the meantime, Alan Dunn has graciously consented to autograph a limited number of available copies which are being offered at this time on a first-come, first-served basis. The price of these personally autographed copies is $10 each.

In addition to the autographed copies, unsigned copies are also available at $6.95 each. These also make excellent gifts for your business associates and friends.

To order your copies, use the coupon below.

---

**Autographed Copies**

**Architectural Record Books, 1221 Avenue of the Americas, New York, N.Y. 10020**

Please send:

- autographed copies of Architecture Observed @ $10.00 each $_____
- unsigned copies of Architecture Observed @ $6.95 each $_____

Total $_____

Name

Address

Zip

Please enclose payment or your purchase order.
THE ARCHITECT, METALS AND IMAGINATION

Many critics regard Paul Rudolph as one of the logical heirs to the late Frank Lloyd Wright’s professional mantle, and his major projects have clearly influenced the whole range and dynamics of contemporary architecture. As Sibyl Moholy-Nagy once wrote, he has “great courage, comprehensiveness of talent, profound faith in the integrity of the architect’s mission.”

In conceptual felicity and strength of execution, Congregation Beth El is a notable example of Mr. Rudolph’s recent work, and we are indeed gratified that in selecting a metal to sheathe and roof this distinguished building, he chose Follansbee Terne.

FOLLANSBEE
FOLLANSBEE STEEL CORPORATION • FOLLANSBEE WEST VIRGINIA

For more data, circle 156 on inquiry card
CALL FOR ENTRIES

2ND Mobile Home Design Competition sponsored by Reynolds Metals Company.
First Prize—$7,500.

An awards program that gives designers the opportunity to test their inventiveness and originality in the exciting field of mobile homes. And there are some healthy rewards. There's a $7,500 first prize and many other cash prizes.

All winners will be displayed at the 1973 All-Industry Suppliers Show in September. The competition is open to architects and architectural firms, industrial designers and design firms and students in accredited architecture or design schools.

Entries should concentrate on designs of low-income, single-family units that can be mass produced and transported to the site. All entries must be postmarked on or before August 1, 1973. . . . so mail the coupon today for complete details and contest registration forms.

REYNOLDS ALUMINUM TRANSHELTER PRODUCTS

Mobile Home Design Competition
Reynolds Metals Company
P.O. Box 27003 Dept. AR
Richmond, Virginia 23221

Please send me all the information on the 2nd Reynolds Mobile Home Design Competition.

Name ___________________________
Firm or School ___________________
Address _________________________
City __________________ State _______ Zip ___________

For more data, circle 157 on inquiry card

WATER COOLERS / Featured in this color catalog are photographs and complete descriptions of many popular water coolers, drinking fountains, and emergency safety showers and eyewashes. Models shown include: the new high back wall hung fountain that looks like a semi-recessed fountain; a semi-recessed fountain that is available with a grey vinyl or stainless steel apron; a compact wall hung water cooler with wrap around tan vinyl panels. * Sunroc Corp., Glen Riddle, Pa.*

Circle 414 on inquiry card

CEMENT, CONCRETE / Nearly 300 publications covering all phases of the cement and concrete industry—including codes, standards, committee reports, reprints and definitive works by recognized experts—are available. A free catalog is offered. * American Concrete Institute, Detroit, Mich.*

Circle 415 on inquiry card

STEEL LOAD FACTOR / A technical paper entitled "Load Factor Design of Steel Buildings" provides structural engineers with an excellent general background on an important new design concept. Written by T. V. Galambos, chairman of the Department of Civil and Environmental Engineering, Washington University, the six-page paper describes the trend toward probabilistic design of structures, in which uncertainties (loading, design assumptions, etc.) are treated in a statistical instead of an intuitive manner. * American Iron and Steel Institute, New York City.

Circle 416 on inquiry card

PERSONAL RAPID TRANSIT / A system of electric-powered vehicles traveling in a guideway network under minicomputer control. The system will provide non-stop passenger service between off-line stations in center cities, airports, universities and other activity centers. It has been 12 years in development, including 3 years of full-scale testing. Specifications provided in a 32-page illustrated booklet. * Alen Self-Transit Systems Corp., Milford, Mass.*

Circle 417 on inquiry card

GRAPHIC DISPLAY SYSTEM / A 12-page illustrated color brochure describing a graphic display system is available. The system may be used either as a stand-alone graphics system or as a remote terminal interacting with various types of host computers. It is ideally suited for those involved in graphics research, design, engineering, architecture, business information systems and other fields where a fast, low-cost graphics display is needed. * Digital Equipment Corp., Maynard, Mass.*

Circle 418 on inquiry card

PREVENT PAVEMENT FAILURE / A report which shows the influence of Petromat fabric (a polypropylene material) laminations incorporated in hot mix asphalt construction is available. Tests discussed in the report demonstrate how fabric increases the load-bearing property for any given pavement thickness. Also a comparison can be made of thickness equivalencies. * Phillips Petroleum Co., Bartlesville, Okla.*

Circle 419 on inquiry card

* Addicional product information in Sweet's Architectural File
more literature on page 261

FREE!

Illustrated color brochure on big, new trend in gel coats for reinforced plastics

Discover how improved gel coats based on Eastman's NPG glycol are now boosting sales of RP products in markets ranging from sailboats to sanitary ware and architectural panels.

And you'll get a list of gel coat suppliers using NPG glycol.

For your copy of "Gallery Of Success Stories Vol. 1—Gel coats with superior environmental performance from NPG glycol", circle the number below on the Reader's Service Card.
Eastman Chemical Products, Inc., Kingsport, Tennessee 37664

Kodak

For more data, circle 158 on inquiry card
The new generation of Norton® Automatic Door Operators offers something Special for Hospitals

They're Quiet.
We've incorporated a new hydraulic pump that drastically reduces the discernible noise level. It completely eliminates offensive operating noise, making it ideal for installation in the most noise-sensitive areas. Finally . . . automatic door operators with an unobtrusive noise level.

And Improved Control
At the same time we selected a pump with increased torque to make door opening smoother, more effective. This, of course, is important on large or heavy doors like operating suites or lead x-ray rooms.

Still Improved Traffic
Norton automatic operators still offer the dependable method of improving traffic throughout your buildings. Patients can move around by themselves; employees can move patients and supplies without help. For more information ask your Norton Dealer, your Norton Representative or contact Eaton Corporation, Lock and Hardware Division, Norton Marketing Department, Box 25288, Charlotte, N.C. 28212.

Available Norton Automatic Operator Systems
Series 2000
Transom Mounted Operators for new or existing construction.
Series 4000
Completely Concealed Operators to fit into aluminum door transoms (4" x 5" minimum).
Series 5000 & 9000
Sliding Door Operators (5000), Sliding Door Operators as a complete package with door and frame (9000).

All control methods and schemes.

For more data, circle 159 on inquiry card
ANATOMY OF A PARK
By ALBERT J. RUTLEDGE, ASLA. This lively book presents a practical and analytical discussion of the essentials of good park design. It presents a system for evaluating the worth of a park design plan and a broad-scaled view of design criteria based upon behavioral science findings, relating to people's needs, both aesthetic and functional. 180 pages, 150 illustrations, $15.95

BETTER BUILDINGS FOR THE AGED
By JOSEPH D. WEISS, AIA. Here is the most timely and valuable book ever published on housing for the aged. It contains 77 successful, idea-packed designs for nursing homes and residences for the elderly by pace-setting architects in the United States, Canada, and Europe. Written by one of the nation's leading authorities on the subject, the book provides a practical guide on why, when, and what to build. A treasure-trove of photographs, renderings, site plans, and floor plans are included. 288 pages, 625 illustrations, $22.50

HOSPITAL MODERNIZATION AND EXPANSION
By E. TODD WHEELER. Written by the architect whose innovations in hospital planning and construction have won him international recognition, this book describes methods, both analytical and creative, by which the problems of expanding and modernizing hospital facilities can be successfully attacked. This master guide covers every step from the initial survey of needs to actual construction and equipment requirements. 288 pages, illustrated, $22.50

TOTAL DESIGN: Architecture of Welton Becket & Associates
By WILLIAM DUDLEY HUNT, JR., FAIA. This book describes the philosophy and inner workings of a well-known architectural firm that, over the years, has developed a system of defining its client's needs and then imaginatively and creatively fulfilling those needs by following the "Total Design" concept. The author discusses and visually demonstrates how all aspects of architecture (i.e., programming, design, engineering, production, interior design, etc.) are effectively coordinated and handled. 244 pages, 546 illustrations (62 in color), $22.50

10 Days' Free Examination

Architectural Record
1221 Avenue of the Americas, New York, N.Y. 10020

Send me the following book(s) for 10 days' examination. I will either remit—plus local tax, postage, and handling costs—or return book(s) within 10 days. (Remit in full with coupon, plus local tax, and McGraw-Hill pays postage and handling costs.)

☐ 17837-2 — Symbol Sourcebook $28.50
☐ 62938-2 — Model Building for Architects and Engineers 15.75
☐ 01429-2 — Manual of Built-Up Roof Systems 15.50
☐ 08924-8 — Architectural Delineation 18.50
☐ 16760-5 — Joint Ventures for Architects and Engineers 16.50
☐ 17342-7 — Environmental Acoustics 18.50
☐ 542347-X — Anatomy of a Park 15.95
☐ 69071-5 — Better Buildings for the Aged 22.50
☐ 69520-2 — Hospital Modernization and Expansion 22.50
☐ 31258-2 — Total Design 22.50

Name
Address
City
State Zip 5-73N

Order good only in the U.S. and subject to acceptance by McGraw-Hill.
FOR YOU WHO HAVE FAITHFULLY SPECIFIED I-BEAM ROOF STRUCTURES, THE TIME HAS COME TO BE FICKLE.

And switch your allegiance to a more economical roof framing system called joist girders. Joist what? Joist girders. Simple supported joists with modified Warren truss configuration can save you a lot of time, money, weight, space and grief. Anything over 10,000 square feet. For example, joist girders make load calculations quite simple. They make column and foundations quite scarce. And they save an incredible amount of excavation time. For themsevles. And for the bars that go on top of them. They're also extremely accommodating. They'll accommodate ducts, wires, pipes, and almost anything else you couldn't possibly ram through an I-beam. Now, we'd love to tell you more. But you don't have the time and we don't have the space. So, instead, let us do this. Let us send you our Joist Girder Specification Guide. It explains what joist girders are, shows you how to specify them, and really simplifies this whole thing.

You can get one from your nearest Vulcraft sales office or plant. Or by writing P.O. Box 17656, Charlotte, N.C. 28211. Or from the young lady who answers this number: (704)366-7000. Call her now. Because I-beams are expensive, cantankerous and hard to support. And nobody should have to stay married to something like that. Vulcraft. Division of Nucor Corporation: Florence, S.C.: Fort Payne, Ala.: Grapeland, Tex.: Norfolk, Neb.: Saint Joe, Ind. Members of the Steel Joist Institute. VULCRAFT.
ENGINEERS
DESIGNERS • DRAFTSMEN

DON'T WAIT! INVESTIGATE NOW!

Stearns-Roger Invites You To . . .

... ENJOY LIFE—EXPAND YOUR CAREER

Join Us In Colorful Colorado

If you have experience and/or educational qualifications to perform engineering, design, drafting, specification, evaluation—selection of process equipment, or process investigation in development of industrial plants and accessory facilities in the fields of: Power (nuclear and fossil fuel); Petroleum and Petrochemical; Mining and Metallurgy; Architecture; Environmental Science; and all other Heavy Industry . . . we have openings at all levels.

Don't sell your experience short! Let us judge!

Professional resumes accepted, but not required. We are interested in your experience, background, and other qualifications. Please include all pertinent information in your letter of inquiry to:

Personnel Department
STEARNS-ROGER, INC.
P. O. Box 5888
Denver, Colorado 80218

STEARNS-ROGER
INCORPORATED
AN EQUAL OPPORTUNITY EMPLOYER

ARCHITECT/DRAFTSMAN
Permanent position for an architect and a draftsman who enjoy design of commercial and industrial structures. Work with registered architects on a variety of design problems in an expanding system. Experience required. Salary commensurate with education and experience. Send resume to: Alabama Power Company, Employment Department, 600 North 18th St., Birmingham, Ala. 35201.

ARCHITECTS
PEACE CORPS/VISTA
ACTION. Volunteer overseas and U.S. . . . Law, locomo housing projects, design of schools, hospitals, community centers, etc. Most openings: singles, some couples. Information: Bruce Massie, ACTION, OCP Box 9, Washington, D.C. 20525

Montana State University, an equal opportunity employer, has a position in the area of design, beginning September 1973 at the level of Assistant Professor. Applicants should be interested in Architecture as a fine art. Experience should be in areas of innovative as well as traditional methods of communication, product design as well as plastics and fiberglas uses. Applicants should possess Masters degree, some teaching and professional experience and preferably, professional registration. Contact Him Reinveld, Director, School of Architecture, Montana State University, Bozeman, Montana 59715.

CHIEF ARCHITECT

U.C. S.F. Medical Center requires licensed architect with strong managerial skills with previous university experience highly desirable. Will supervise planning office & staff in execution of 140 ongoing projects and be responsible for design of smaller projects. Send resume, in confidence, to Susie Buerger, Personnel Director, University of California, San Francisco Campus, Third & Parnassus Ave., San Francisco, Calif. 94122

An Affirmative Action Employer

SALES MANAGER $25,000 +
Midwest Location
National building specialty company seeks Executive Management. Must be experienced with dealers & architects. Previous experience hiring, training & supervising Sales Force. Send detailed resume to our Consultant Jerome H. Nagel Assoc., Drawer E, Flatbush Station, Brooklyn, N.Y. 11226

Materials Researchers—Construction Engineering—Duties: To collaborate in the planning and organization of an R&D group for Construction Engineering. To elaborate and/or analyze R&D projects and do the necessary research work on the technical and economic aspects of the industrialization of construction, on the rational use of conventional materials and on the adaptation of new synthetic materials to construction. Requirements: A degree, preferably second or third cycle, in engineering and/or architecture, with specialization in structures and materials rather than in esthetics. Thorough knowledge of construction codes and standards. Keen interest in recent developments such as prefabricated houses, modular construction, synthetic materials used or usable in construction and spatial structures. At least four (4) years' experience in the field of construction engineering, preferably in research projects having to do with the implementation of the latest processes, materials or techniques in conventional or industrialized construction. Place of Work: Quebec City. Salary: According to ability and experience. Social Benefits: Retirement fund, life insurance, health insurance, salary insurance. Interested candidates should send a detailed curriculum vitae within the three following weeks, with the number 3-11 on the envelope, to the following address: Personnel Manager, Centre de Recherche Industrielle du Quebec, Complex Scientifique du Quebec, 555 Boulevard Henri IV, Postal Code G1V 4C7, Ste. Foy, Quebec 10

Architectural Designers: Immediate opening; quality, medium size office has immediate opportunity for degree, design-oriented professional, capable of sketching and producing working drawings. Send educational background resume to Shenk Seibert Smith & Gall Architects, Old Mill Road, Wyoming, Pa. 19610. Phone 215 376-1571.
SITUATIONS VACANT

DESIGN AND CITY PLANNING INSTRUCTOR

the architectural program at Triton Community College has a position open for a full-time instructor. Responsibilities include: articulation with universities offering architectural degrees; developing course of study in basic design and city planning; reference will be given to individuals who are licensed. A minimum of 5 years' experience in an architecture degree is expected.

TRITON COMMUNITY COLLEGE

500 li 5th Avenue, River Grove, IL 60171

An equal opportunity employer.

Architects (R.A.) Architectural Lead Draftsman

If you have been involved in architectural planning of educational, institutional, industrial facilities for more than 5 years, feel that you have not received the recognition you deserve, then you want to investigate this ad today. Comprehensive verbalization, life and disability insurance, leave of absence, profit sharing plan company match, Credit Union privileges, a year's resume or contact: Personnel Director, 611 West Market Street, Penna. 17740. Phone: 717-843-3854. Equal Opportunity Employer.

HIRE A STUDENT THIS SUMMER. DO EVERYBODY A FAVOR.

First, and most important, you'll be giving a deserving student worthwhile career-oriented employment.

Second, because of the habitually scarce supply of summer jobs, you'll be able to select the cream from the crop of work applications you'll receive.

This means you can evaluate your choice while gaining an inside track towards hiring him when, as a coveted graduate, the job market will be in his favor.

Third, it's in the industry's best interest to encourage and hold its lifeblood by providing practical experience in their future profession.

Because we believe in the mutual benefits of the above marriage, we've taken the role of matchmaker.

Just fill out and return the coupon below and we'll include your organization's name, address, and student preference in a free listing to be sent to Placement Directors and Department Heads at leading colleges and universities across the nation.

Free summer help listing

MAIL TO: ARCHITECTURAL RECORD/P.O. BOX 900/NEW YORK, NY 10020

NAME/TITLE of individual to be contacted:

ADDRESS: Mailing address of your personnel office:

ORGANIZATION: Firm, Company, Government Agency or Institution:

TYPES OF STUDENTS SOUGHT: 

ARCHITECT 

CE 

EE 

ME

Other Preferences

OFFICE LITERATURE

continued from page 258

AIR HANDLING UNITS

A catalog describing ARI certified "AH" air handling units and accessories describes 14 sizes of horizontal and vertical air handlers, plus accessories for chilled and hot water applications. Capacity of the units range from 175 cfm through 310,000 cfm to 3 in. TSP to 5 in. TSP medium pressures. Horizontal cabinet models can be supplied in four basic sizes and motor arrangements and vertical cabinet models in six arrangements. * Dunham-Bush, Inc., West Hartford, Conn.

Circle 420 on inquiry card

ALUMINIZED STEEL

A 24-page catalog describes aluminized steel and its outdoor record of performance for almost two decades. Fabricating data, including welding procedures, are covered in detail. * Armco Steel Corp., Middletown, Ohio.

Circle 421 on inquiry card

ELECTRIC HEATING EQUIPMENT

A selection guide for electric baseboard heaters, wall convectors, sill convectors, unit suspension heaters, cabinet unit heaters, radiant ceiling heaters, infra-red ceiling heaters, convectors, and snow melting mat covers such products as heavy duty baseboard models from 375 to 2500 watts, in 2-, 3-, 4-, 5-, 6-, 8-, and 10-ft lengths. * Federal Pacific Electric Co., Newark, N.J.

Circle 422 on inquiry card

HEATING-COOLING PRODUCTS

Contractors, architects, owners and builders will find this 48-page bulletin helpful in selecting and applying electric comfort heating and cooling products in commercial, industrial, institutional, and residential buildings. * Emerson Electric Co., St. Louis, Mo.*

Circle 423 on inquiry card

LIGHTING POLES

A six-page brochure on architectural and area lighting poles describes octagonal and round poles of spun prestressed hollow concrete in lengths from 13 ft to 49 ft. Available in plain or colored concrete or polished terrazzo finishes. * Centreon, Inc., Everett, Wash.

Circle 424 on inquiry card

CONCRETE ROOFTOP DESIGN

Publication of a comprehensive 16-page booklet detailing lightweight perlite insulating concrete for rooftop applications contains a density selection guide and physical properties of perlite concrete as well as the use of the material over steel form units, structural or precast concrete roof slabs and form boards. The booklet contains numerous architectural detail drawings as well as fire ratings for curtain walls, structural steel columns and roof constructions. * Perlite Institute Inc., New York City.*

Circle 425 on inquiry card

FREIGHT ELEVATOR DOORS

An eight-page brochure describing a complete line of doors for freight elevators, conveyors and dumbwaiters contains diagrams and drawings showing features, architectural details and requirements, and information about accessory products such as power operators, magnetic operators, and safety interlocking devices. * Security Door Co., St. Louis, Mo.*

Circle 426 on inquiry card

*Additional product information in Sweeet's Architectural File
T-100

theatre seat designed by Dave Woods.
Manufactured in Quakertown exclusively.
Installed at the Guggenheim Auditorium,
The Institute of Man and Science,
Rensselaer, New York.
Prentice & Chan, Ohlhausen, Architects.

JG Furniture Company Inc. 
Quakertown, Pa. 18951 
Telephone 215 538-7343
Today’s modern laundry needs to be uniquely adaptable to change. It should be able to handle Cottons or the new synthetic fabrics. Or both. It should be adaptable to increase in the size of work loads. And, considering rising labor costs, it should be automated.

In planning laundries to meet these conditions you can count on qualified help from American. Having long ago recognized the need for new, more versatile and more productive types of laundry equipment, American now leads the field in producing the kind of machinery that satisfies these requirements. And this equipment is now proving itself in many new laundry operations today. The system pictured here is a typical example.

Let us help you with complete floor plans, equipment recommendations, flow diagrams, capacity and personnel data — anything you need to provide the most efficient facility for this purpose.

Put American’s forward thinking to work for you. Just write American at the address below.

Plan your laundries with a leader.

AMERICAN LAUNDRY MACHINE
a McGraw-Edison Company Division
5050 Section Avenue, Cincinnati, Ohio 45212
For more data, circle 162 on inquiry card
ew...from Eljer—62 pages of modern hospital/institutional plumbingware

You won't notice much change from the hospital fixtures of yesterday unless you look at this Eljer catalog. The Eljer line is different, modern. Smooth, flowing contours provide generally unbroken surfaces, remarkably free of difficult-to-clean nooks and crannies. From every standpoint — appearance, functional design and highest quality, the Eljer line of hospital and commercial fixtures is in keeping with any modern building, from a corner gas station to a large medical center.

Don't specify another commercial job until you have the full Eljer story. Eljer's new 62-page Hospital/Institutional catalog contains all you need to know about hundreds of modern, freshly-styled and easily-installed specialized fixtures.

Sitz baths and scrub-up sinks...specimen toilets and instrument trays...and much more, including wrist-, knee-, and pedal-control valves. Like the rest of the complete Eljer commercial line, they are available through independent plumbing supply wholesalers.

So, before you specify your next commercial job, ask your Eljer wholesaler for information on the complete Eljer line, or write today for the new Hospital/Institutional catalog: Eljer, Dept. AR, 3 Gateway Center, Pittsburgh, Pa. 15222.

ELJER®
Eljer Plumbingware Division
New Kansas City air terminal
built from scratch for jet age

A marvel of the jet age is K.C.I.—Kansas City's International airport—a $250 million dollar installation consisting of three circular terminals, air cargo facilities, two commissaries, a post office and a new control tower.

The new terminal provides Kansas City with a truly competitive airport in terms of size, accommodations for passengers and cargo, and most important, the capacity to handle Category II landings (100 foot ceiling and one quarter mile horizontal visibility).

A visitor is overwhelmed by the features of K.C.I.—three-lane roadways lead to the attractive sand-colored buildings which resemble stone rather than concrete; wood paneling, rough textures, and huge panels of glass complement the inside. Unique are its restrooms with showers and angled entranceways requiringler doors.

The careful planning that brought this outstanding terminal complex into being resulted in the selection of only the finest components throughout. So, just as in America's finest commercial buildings—wherever good looks, good taste and good performance are imperative—selection of Sloan Flush Valves was a matter of course.

Dramatically restyled, with totally new contours, the new regal appearance of Sloan Flush Valves reflects the traditional quality that has sustained their leadership for over sixty-five years.

For flush valves to match the highest quality of your building components, specify Sloan Flush Valves—most people do.