One step and it all comes together.

The setting is a bank—where space prevails. The floor is Palestra™ Vinyl Corlon®. And as it stretches from wall to wall, it fills what could have been a design void and brings functional components together elegantly.

Here, Palestra Vinyl Corlon provides a base for relaxation, a base for concentration. It helps coordinate space and function. It adds dimension to the concept of "total architecture."

Palestra is just one of many Armstrong floors that can make an idea work.

For assistance or the flooring information you may need, please write us. Armstrong, 307 Rock St., Lancaster, Pa. 17604.

Armstrong

For more data, circle 1 on inquiry card
Dover Delivers
9 OILDRAULIC ELEVATORS
FOR MODERN RESEARCH CENTER

The buildings shown here are the first phase of a major research complex, one of the largest facilities of its kind conceived and built as a single project. Taste, scale and respect for function are embodied in the design.

And for dependable vertical transportation, nine Dover® Oildraulic® Elevators were installed to serve several of the major buildings.

The advantages of Oildraulic elevators for low-rise buildings are many: no need for a penthouse or load-bearing hoistway; no counterweight; flexibility in power unit location; quite often, lower initial cost than traction elevators.

In the hydraulic field, there’s no manufacturer with more experience than Dover. Our power unit and controller incorporate patented features to assure smooth, quiet, dependable performance. Electrical controls utilize solid state components for maximum reliability and ease of maintenance.

Pre-engineered models, with speeds and capacities appropriate to many types of buildings, have design and operational features normally associated with more expensive custom-built elevators. They can be delivered complete to job site within three weeks of order.

Because Dover delivers comparable high quality of performance in both Oildraulic elevators for low-rise buildings and traction elevators for high speeds and high rises, we can offer the best combination for any building. Let us help you on plans and specifications. Write for literature. Dover Corporation, Elevator Division, Dept. A-11, P. O. Box 2177, Memphis, Tenn. 38102. In Canada: Dover/Turnbull.


Nine Dover Oildraulic Elevators installed in various buildings of the complex by Dover Elevator Company, Chicago.
Photographs: Hedrich-Blessing

For more data, circle 2 on inquiry card
THE RECORD REPORTS

9 Editorial
You can't make a power plant look like a tree OR Waste not, want not

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

36 News reports
New York businessmen buy six massive metal sculptures to be donated to the city; Philadelphia Expo changes to riverfront site; a new proposal to save Louis Sullivan's Chicago Stock Exchange Building fails; and London Bridge gets a new home.

43 Buildings in the news
Some winners of the Fourth Biennial HUD Awards for Design Excellence (a community center by Yale students below); Japan Society's new home by Yoshimura and Cruzén; a new steel plate curtain wall; luxury apartment building in Singapore; an arts, a science and a research center.

ARCHITECTURAL BUSINESS

67 The annual F. W. Dodge Construction Outlook: 1972
Following a surge gain of about 17 per cent in 1971 (much of it in housing) George Christie looks for continued strength in stores, factories and hospitals in 1972. There may be national and regional soft spots in primary schools and housing.

80 Cost indexes and indicators
Bank equipment costs
FEATURES

113 In praise of a monument to Lyndon B. Johnson

The LBJ Library and the East Campus Library and Research Building on the University of Texas campus in Austin were designed by Gordon Bunshaft of Skidmore, Owings & Merrill and R. Max Brooks of Brooks, Barr, Graebner & White. The LBJ Library is monument and museum, as well as housing 31 million documents and memorabilia of the former President’s public career.

121 Four vacation houses

An uncommonly sensitive response to site conditions, both particular and general, distinguish these houses in four quite different regions of the country.

129 Chicago’s mass transit extensions

Chicago’s new rapid transit extensions work within the limits of an existing mass transit system—but stress cheerfulness, conveniences and design quality throughout.

133 A place to learn—and to remember

In Greenwich High School, Greenwich, Connecticut, John Lyon Reid and Alexander Tarics have created a campus of rare charm using the arts of site planning and architecture to complement an individualized educational program.

BUILDING TYPES STUDY 428

93 Resort Hotels and Condominiums

These four projects celebrate their environments—from sea to snow—and thus create enjoyable ambiances for the associated sports and leisure activities.

96 The Sheraton-Islander Inn, Goat Island, Newport, R.I.

by Warner Burns Toan Lunde has pitched roofs inspired by local shingle-style houses and a five-level, ship-like cocktail lounge.

100 The Martinique Hilton

by Warner Burns Toan Lunde retains the natural rocky shore by providing platforms in lieu of beaches.

104 Granada Del Mar

in St. Croix, designed by Robert L. Rotner, architect and Dennis F. McGrath, project architect, has open stairways and broad trellises relating in scale to the local village architecture.

106 The ski resort in Avoriaz, France

designed by Atelier d’Architecture will ultimately accommodate 15,000 in its hotels, condominiums, chalets and hostels which architecturally echo the nearby rock formations.

ARCHITECTURAL ENGINEERING

139 Innovative engineering leads to new stadium designs

A number of new stadium have been built, planned or projected for a number of reasons involving economics, growing metropolitan regions, sports expansion. Novel engineering, suggests author Hannskarl Bandel of Severud Associates, could improve both the function and economy of future stadiums.

82 Office Literature

147 Product Reports

196 Personal Business

212 Record Impressions

214 Advertising Index

216 Classified Advertising

216 Record Impressions

217 Reader Service Inquiry Card

R. Callahan, editorial; David G. Jensen, manufacturing; Jerome D. Luntz, planning & development; Joseph C. Page, marketing; Robert M. Wilhelmy, finance. CORPORATION OFFICERS: Shelton Fisher, president; Joseph H. Allen, president—publications and business services group; John J. Cooke, senior vice president and secretary; Ralph S. Webb, treasurer. SUBSCRIPTIONS: Subscriptions solicited only from architects and engineers. Position, firm connection, and type of firm must be indicated on subscription orders. CHANGE OF ADDRESS or subscription service letters should be forwarded to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520.

Provide old and new addresses, zip code or postal zone number. If possible, attach issue address label. Annual subscription prices: U.S., U.S. possessions and Canada: $7.50 for architects, engineers and other individuals in the fields served, all others $20.00. Other countries: $18.00 to architects, engineers; others $24.00. Single copies $3.00.

UNCONDITIONAL GUARANTEE: Publisher agrees to refund that part of subscription price applying to unfulfilled part of subscription if service is unsatisfactory.


THIS ISSUE is published in national and separate editions. Additional pages of separate edition numbered or allowed for as follows: Western Section 32-1 through 32-4. POSTMASTER: Please send form 3579 to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520.
High-strength structural steel played a predominant role in providing a column-free interior and an attractive exterior for this two-story corporate office building in Lexington, Massachusetts.

Neal Mitchell Associates, Inc., architects and engineers for the project, developed a framing scheme utilizing 58-ft-long trusses to insure maximum freedom for future space division.

Columns are spaced on 5-ft centers thus providing independent support for the second floor and roof levels. This contributed substantially to simplifying and speeding up erection of the frame. Top and bottom chords of the 2-ft, 6-in.-deep trusses are fabricated of ASTM A572 Grade 50 (Bethlehem V50) high-strength steel.

The floor system is designed for a live load of 100 psf and consists of a $4\frac{1}{2}$-in. concrete floor slab placed atop permanent steel forming. The sandwich area within the 2-ft, 6-in.-deep trusses is layer-zoned for the electrical, heating, air-conditioning, sprinkler, and plumbing systems. Integration of these systems into the clear-span frame provides for complete partition flexibility.

Mayari R Weathering Steel sunscreens

The harmonious blend of Mayari R Weathering Steel and hard-burned, iron-spot brick adds warmth and beauty to the building's exterior.
The sunscreens, which protect the exterior office windows from outside elements, are fabricated of high-strength Mayari R Weathering Steel. They are supported by Mayari R rolled sections which are completely independent of the building's structural steel frame. As it weathers, Mayari R forms a richly-textured, deep-brown coating, which gradually minimizes oxidation of the steel and eliminates the need for painting.

Steel framing offers many advantages: economy, fewer interior columns, speed of erection, greater design flexibility, simplified installation of mechanical services, low-cost expansibility, and of course, permanence. Want to discuss your next building? Get in touch with our Sales Engineer at the Bethlehem sales office nearest you. Bethlehem Steel Corporation, Bethlehem, PA 18016.


Main office entrance. Loose bricks, placed in sand around base of Weathering Steel columns to catch oxidized run-off, will be replaced and mortared after the steel matures.
Dromoland Castle doesn’t need a moat.

Moats don’t have much to do with security these days. Dromoland Castle relies on Schlage for that.
Inside Dromoland’s three-foot-thick walls are seventy guest rooms. On every door is a Schlage lock in the Claremont design. Claremont blends right in with the 271-year-old paneling and wood and stone carvings. But the works inside are as modern as a lock can be.
Dromoland is built for keeps. We expect our locks to be at home there for quite a while.
Architects and builders who care about quality have been specifying Schlage locks since the early twenties.
For applications that range anywhere from a low-income housing project in Omaha to an Irish castle.
No matter which Schlage lock you specify, you’ll get the highest standard of quality in the industry. Because that’s the way we make every lock we make.

Schlage Locks

For more data, circle 3 on inquiry card
You can’t make a power plant look like a tree OR waste not, want not

Last month, ARCHITECTURAL RECORD sponsored a Round Table seminar on the conservation of energy. We’ll have a piece in the January issue summing up the issues raised and solutions suggested by the truly impressive group of participants. But I find I’d like—ahead of the main event—to sum up some of the reasons for holding this conference, and thus to try and increase interest in what seems a startling problem lying ahead for the building industry—the increasing shortages of energy to power the building boom.

The idea of the Round Table got started when, some months ago, I read at just about the same time, three separate news releases:

- A proposal from President Nixon to Congress began: “For the most of our history, a plentiful supply of energy is something the American people have taken very much for granted. . . . But the assumption that sufficient energy will always be readily available has been brought sharply into question within the last year. The brown-outs that have affected some areas of our country, the possible shortages of fuel that were threatened last fall, the sharp increase in certain fuel prices and our growing awareness of the environmental consequences of energy production have all demonstrated that we cannot take our energy supply for granted any longer.” After detailing many of the problems in supply technology (like sulphur oxide control, breeder reactors, coal gasification, and even—impressively—magnetohydrodynamic power cycles) the President reached a point even I could understand: he directed HUD Secretary Romney to revise the standards for insulation of Federally-insured houses, requiring “sufficient insulation to reduce maximum permissible heat loss by about one-third for a 1,200 square foot home—and by even more for larger homes;” estimating that “the fuel savings which will result each year . . . will, in an average climate, equal the cost of the additional insulation required.”

- Well, a third of the fuel used by houses is quite a bit of fuel. And so you begin to wonder whether, if we not only insulated all of our booming non-residential construction better, but (for a few examples) used better quality (notably heat-resistant or reflective) glass; 2) considered the siting of buildings more carefully from the point of view of heat loading by the sun; 3) worried a little more about sun-shading and glass area; 4) used more sophisticated control that could anticipate changes more quickly; 5) used more efficient air-handling systems; 6) reconsdered the heat-loading effect of the light that, in general, we keep pouring more and more of into buildings, and 7) maybe even reconsidered the use of operable windows so that, in the morning, instead of grinding away on the central air conditioning we could simply let in the cool morning air, we might save another big bundle of heating fuel and electric power.

- The second news release that I read was a speech made back in May by C. E. Peck, Owens-Corning Fiberglas construction group vice-president, to the Ohio Mortgage Bankers, in which he said simply and effectively: “Inefficient buildings are wasting millions of barrels of heating oil, millions of cubic feet of gas, and millions of kilowatts of electricity each year. And all of that waste fuel is spewed out into the air as pollution. . . . The problem of inefficient buildings is caused by over-emphasis on low first cost. But, higher first costs for efficient design will be repaid by lower operating costs year after year.” Which opened up the whole idea of just how much it would cost in these days of out-of-control construction costs and these days in which practically everything favors lower first cost, alas, to do something effective about energy waste.

- And the third release I read was one from the New York Chapter of the AIA, specifically from its Natural Environment Committee. In a release that got a lot of attention in the local newspapers, this activist (thank goodness) committee raised a number of critical questions, including some suggested above:

1. “There is a direct relation between energy resources and air pollution. . . . Of immediate concern is the question of fossil-fuel plants in cities. . . . To expand these plants and thereby contribute further to the contamination of the air could be perilous to health. . . . In our quest for badly needed new sources of energy, some are tempted to accept building of atomic plants in and around urban areas. But there is no such thing as an atomic plant with absolute safety. [And] in addition, there is always the problem of nuclear wastes plus the thermal and radioactive pollution of waterways.”

2. “The opposite approach to the power and pollution dilemma is the need for conservation of energy, rather than necessarily expanding production.”

3. “Related to conservation of energy is the need to design projects to use less energy and resist pollution as well.” Here, the AIA committee suggested taking “greater advantage of natural light and ventilation,” recognizing that consideration of these factors “could create very different typical structures than those being built”; and perhaps more dramatically called for “the full use of buildings during all hours,” arguing that “The amount of urban struc-
ture could be reduced by applying the principle of multiple and sequential use in design criteria. . . . Empty buildings can be a disaster for neighborhoods, but fully utilized structures could liberate other areas to become green.

I found ideas like these—whether or not they were all practical or applicable—intensely exciting; and as noted at the start of this piece, a Round Table was conceived to explore these in some depths. Again, I don’t want to tip all the concepts developed at that meeting at this early date—for it is much too early for anyone (me, at least) to have absorbed and sorted out the ideas and arguments and counter-arguments presented. But I do want to say that we invited—to discuss this problem of energy conservation—some of the country’s leading architects, engineers, builders, government officials, lenders, and building owners—including a man who serves probably the biggest client in the history of the world, Arthur P. Sampson, Commissioner of the Public Buildings Service.

The first question raised—and it was explored in various ways throughout the day-and-a-half-long meeting—was a basic one: “Is there really a power shortage?” Two speakers uniquely qualified to answer addressed themselves to that problem, and their points of view offer food for thought for architects, engineers, owners, manufacturers and utilities alike. Oddly enough, it is not a simple question to answer. For as the statement of purpose of the Round Table reads: “Only in some parts of the country, plagued with brown-outs or real shortages of low-sulphur-content fuel, can the situation be called a crisis. But in most areas, the construction boom that lies ahead, plus:

1) the fact that our demands for electricity have doubled since 1960 and will double again by 1980;
2) the constantly increasing costs of power generation (a factor which, by itself, could change the economics of low first cost vs. lower operating costs);
3) environmental opposition to new generating plants, mining and drilling operations... suggest that energy conservation is very much in order.”

The need for conservation was underscored by a source which, until lately, I would have thought an unlikely source—a utility executive. Bertrand Schwartz, systems planning vice president of Consolidated Edison, New York City’s utility, argued this way: “Historically, the conventional wisdom in looking at electric utility companies and investing in them, or trying to develop them, or trying to attack them, was that their promotional programs were important to their economic viability. For example, they sold air conditioning equipment for the air conditioning manufacturers in the 1950’s and 1960’s, and some of them still do today. They promoted load growth. . . . But today that conventional wisdom would no longer apply. It is economic idiocy right now to promote increases in your peak loads.” He points out why: “Our investment today works down to a cost, per kilowatt of generation, to about $150. A new fossil fuel plant would cost: us twice that today—$320 a kilowatt. The fact that a new modern efficient power plant would cost twice the average investment we have today should show you that—with the regulatory lag, [before rates can be increased]—it makes no economic sense whatever for Con Edison or any utility company to promote its peak loads. And so, when you see utility companies joining the conservation bandwagon, perhaps you can have some faith in what they say—because it is now in their interest.”

Mr. Schwartz points out that the utilities will, of course, have to build: “We cannot sit in an air-conditioned office and tell those who do not have air conditioning that they can’t have it. . . . We are obligated by law to provide an adequate supply of electricity . . . and we are going to have to build again what we have today within the next decade.” And he is realistic about opposition to new plants: “Each and every type of plant that you want to build has objections to it. And these plants are objectionable. We can concern ourselves with esthetics, we can concern ourselves with emissions, but we cannot make a power plant look like a tree.” And what he—and I hope executives of other utilities across the country—is working for is “a proper balance.”

And the need for conservation of energy was reinforced by the dinner speaker at the Round Table, Hollis M. Dole, who is Assistant Secretary for Mineral Resources of the Interior Department: “Today’s climate of threatened energy scarcity and deepening dependence upon foreign sources... confers a special note of relevance—indeed, even urgency—to the discussions [of this Round Table].” If it is true that we are in for a long period of austere conditions relating to energy supply, then it makes eminent good sense to do what we can about conserving the supply that we have... For years and years we have wasted unconscionable amounts of our non-renewable resources just because the prices we paid did not reflect their true cost, and we therefore thought them to be cheap and readily available. Now the discipline of scarcity is forcing us to husband and respect what we have wasted and abused. The reform is long overdue.”

Well, as I noted at the beginning of this long essay, architects and engineers—and the builders and owners and lenders and manufacturers they work with—are in a strong position to do something about some of this waste. The buildings we build use about a quarter of all the energy consumed in this country—either as heating fuel or electricity. So a little saving, or a combination of little savings—through more efficient design—can go a long way. I hope that in the January issue we can show how it can be done.

—Walter F. Wagner Jr.
You're looking at Sound Control

Shatterproof Sound Control Glass doesn’t look different, it just sounds different. Quiet, peaceful, relaxed.

Take a good look. Sound Control is serious business. Without it... health is endangered, productivity falls off, vacancies occur, and businesses are forced to re-locate.

With it a building has everything going. Especially when Sound Control is combined with other Shatterproof functions such as Heat and Cold Protection, Solar Rejection, Glare Reduction, Security and Safety. And reduced operating costs.

In clear and tones of bronze and gray as well as subdued reflective tones of bronze, gold, gray, and chrome... in the largest quality sizes in the industry.

For a deeper look at Sound Control write for our Sound Control Brochure. Shatterproof Glass Corporation, Dept. 101B, 4815 Cabot Ave., Detroit, Michigan 48210. Phone: 313/582-6200.

For more data, circle 4 on inquiry card
NOW YOU CAN RENT OUR AMMONIA-FREE CONVENIENCE ENGINEERING COPIER -- THE NEW PD-80 -- FOR AS LITTLE AS $25. PER MONTH.

IN FACT, THE PD-80 IS THE ONLY ODORLESS CONVENIENCE COPIER ON THE MARKET.

THE BENEFITS:

• THERE'S NO CAPITAL EXPENDITURE, A BIG CONSIDERATION IN VIEW OF TODAY'S ECONOMY.

• YOU'LL ALWAYS BE USING THE MOST MODERN EQUIPMENT AVAILABLE. YOU'RE PROTECTED AGAINST OBsolescence.

• YOU GET NORMAL SERVICE, PARTS, AND MAINTENANCE ABSOLUTELY FREE.

• RENTAL COST RUNS LESS THAN A DOLLAR A DAY.

• YOU HAVE A THIRTY-DAY WRITTEN CANCELLATION CONTRACT.

FOR

BRUNING: A SINGLE GRAPHIC SOURCE
• There's no obligation to buy, yet we do offer an easy acquisition plan.
• The PD-80 handles architectural prints, engineering satellite prints, and even check prints up to 42" wide.

For full information on our rental policy, or a demonstration of our PD-80, or any of our engineering copiers, call your Bruning representative, or write to Bruning Division, Addressograph Multigraph Corp., 1502 Times Dr., Des Plaines, Ill. 60018

Rent
Natural gas, right off the boat.

America needs the energy to grow.

We're importing Liquid Natural Gas. It's helping us meet the peak winter demand in the cold Northeast. And within five years, LNG will be in use all across the country.

Natural gas becomes a liquid when its temperature is lowered to 260 degrees below zero. This makes it a compact and readily transportable energy source. In fact, LNG actually powers the engines of the ships that carry it. Once here, LNG can be quickly transformed back to gas. And as a gas, give us 600 times its volume as a liquid. Or it can be left as is. And stored conveniently until needed.

This LNG is the same energy that powered the Blue Flame car to a new world land speed record. The same pure power that has already proven itself as a virtually pollution-free fuel for motor vehicles.

Liquid Natural Gas. It allows us to bring the vast gas supplies of the world right to our shores. And supplies another answer to the country's increasing energy needs.

AMERICAN GAS ASSOCIATION.
When he's old enough to design his own buildings, coatings made with KYNAR 500® will still be young.

When he has his name on the door of that architectural firm, finishes based on KYNAR 500® will still retain their original appearance. In spite of more than 20 years attack by sun, weather and pollutants. *

KYNAR 500 is the best base for color coatings on architectural metals. It resists chemicals, chalking, fading, corrosion and mortar stain. And won't crack, or craze. So matching is easy.

Use KYNAR 500 on your next building.
Write Pennwalt Corporation, Pennwalt Building, Three Parkway, Philadelphia, 19102.

*Based on accelerated life tests.
*Kynar 500 is Pennwalt's registered trademark for its vinylidene fluoride resin.

Make your base specification KYNAR 500

For more data, circle 7 on inquiry card
Panel ends are trimmed on-site with conventional equipment. Gold Bond Metaledge Corewall comes in panels 2 inches thick, 2 feet wide and up to 16 feet long.

Metaledge Corewall is installed from one side only by tilting in place and attaching to galvanized steel top and bottom angle runners. These lightweight gypsum panels eliminate the need for scaffolding.

Panels are locked together with drywall screws through one offset edge of each panel into the steel channel of the preceding panel. You now have a high-strength, high-performance wall in a fraction of the time it took with masonry construction.
Here's a better way to enclose elevator shafts and stairwells.

Specify a Gold Bond® Metaledge Corewall™ System. It does what traditional masonry does, and then some. You can design a building with an additional square foot of floor space for every 2½ lineal feet of shaft enclosure. With no sacrifice of fire resistance or air pressure requirements. And it's fast. Elevators are in sooner — work schedules can be moved up. A lot of trade people say it's the greatest advance in high rise construction since the elevator. For details, write National Gypsum Company, Dept. AR-111G, Buffalo, N.Y. 14225 or refer to Sweet's Architectural File, 9.6/Na.

OTHER CONSTRUCTIVE IDEAS FROM NATIONAL GYPSUM, THE ANSWER PEOPLE.

Durasan® Vinyl-Surfaced Gypsum Wallboard Panels are one answer to low-cost maintenance. They're rugged, abrasion resistant and washable. Durasan is available in a wide range of textures, colors and woodgrains.

Contempo-Wall® lets you divide space at will. Complete tenant flexibility! All components are demountable and reusable. Partitions come in four heights: ceiling, cornice, bank rail and low rail — all with Durasan vinyl-surfaced gypsum wallboard.

Tectum® Full-Span Corridor Panels provide the maximum resistance to hard usage and they go up fast too. Easily worked on the job to accommodate recesses and light fixtures. So versatile and practical you'll want to specify them for corridors in schools, offices and public buildings.

Tonic® Cumulus Acoustical Ceiling Panels help solve the problem of noise. They have an NRC of .65-.75 and a 35-39 STC range. They're noncombustible, and have a richly textured finish for any interior design.

For more data, circle 8 on inquiry card.
This is long-lasting Color!
DURANAR® 200 fluoropolymer coatings by PPG

Here's the tough, new generation of factory-applied finishes from PPG! DURANAR 200 fluoropolymer coatings combine all the primary advantages of today's fluorocarbon coatings—long-life beauty and film integrity—at a surprisingly low cost.

These patented coatings, an exclusive development of PPG research, add lasting value and protection to metal buildings with price/performance characteristics outstanding in the field of factory-applied finishes. Available in a range of striking, meticulously matched architectural colors, DURANAR 200 coatings employ an entirely new pigmentation technique so colors keep their original lustre for many years. Resistance to dirt accumulation, ultraviolet, chemical and abrasive attacks is exceptional. Protect your investment. It's worth it!

Look into "long-lasting color". Get the full details on how DURANAR 200 fluoropolymer coatings can extend the life and beauty of your next metal building. See Sweet's Architectural File, Industrial Construction File or write Product Manager, Coil Coatings, Dept. 16W, PPG INDUSTRIES, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

For more data, circle 9 on inquiry card
Stonco introduces a new concept in architectural illumination: geometric area lighting.

**Why a geometric approach?**
Until now, most outdoor and area lighting fixtures bore little or no relation to the geometry of the building they were lighting. Awkward, bulky shapes clashed with the architecture, and were difficult to adapt to modern building planes and angles.

**Stonco's innovation**
Stonco has changed all that. We've designed the first complete series of architectural area lighting fixtures that are geometric, flexible, modular... and harmonize perfectly with today's building styles.

**Back to fundamentals**
We did it by going back to the basic shapes of modern architecture—the cube, the sphere, the cylinder. Then we designed fixtures with clean, uncluttered lines to match these geometric forms. Now, by selecting from a wide choice of new Stonco lighting fixtures you can design area lighting as an integral part of your building plan.

**A brilliant example: Cool Cube**
Consider the quartz area flood. Most conventional types are distracting in shape, unfinished in appearance. But Stonco designed Cool Cube—up to 1500W of tungsten halogen lighting—as a compact cube that has all the inherent quality a fine building exterior demands. It's made with extruded aluminum satin-polished and anodized to a deep bronze.
finish. And a new socket design, integral with the housing, provides a more efficient heat sink.

**Plus a square luminaire**
Another example: the usual outdoor bracket is rounded, bulky and a problem to adapt to walkways and tunnels. Not Stonco's new Wall Cube. We fashioned it as a crisp, square unit that mounts in almost any position on any surface to direct all the light you need, wherever you need it.

**And, for variety…**
To relieve the rectangular look, Stonco also offers you architectural-quality fixtures in other basic shapes: cylindrical area floods, new Arealume pole-top designs, Cylinoid Downlights prisms and opals. All are styles to blend into your plan, alone or in combination with other Stonco geometric fixtures.

**How can you learn more?**
Our new brochure, "The Shape of Architectural Lighting," illustrates all the styles, features and options that the latest Stonco geometric area fixtures offer you. For your copy, simply circle the reader service card. Or write for details to Keene Corporation, Stonco Lighting, 2345 Vaux Hall Rd., Union, N.J. 07083.

**KEENE CORPORATION**
**STONCO LIGHTING**
We've just begun to grow.

For more data, circle 10 on inquiry card.
CEL-WAY®/COFAR®

The blended floor system for in-floor electrification

It's a combination that adds up to a complete system. Cel-Way supplies power, telephone and signal service in the floor slab to any desired location. It includes dual or triple electrical cells, with factory-installed inserts for easy access to cells, and a variety of large capacity feeder systems. Cel-Way features compact 4" x 4" floor fittings for triple, dual or single service. For the structural deck, Granco's widely used Cofar combined form and reinforcement makes the system complete!

And now spacing between cells and factory-set inserts can be optimized. Granco's computer can help you in planning by analyzing desk layouts, desk sizes, services required, floor area, etc. This provides cell and insert spacing modules to assure efficient coverage . . . for present and future needs.


Makes service changes faster... and at greatly reduced cost

38% of business telephones are changed or relocated each year. A significant percentage of power and signal service outlets, too, must be changed, relocated or added annually to meet business demands. Cel-Way's factory-set inserts make changes or additions fast, clean and far less expensive by eliminating costly, messy concrete core drilling.

CHIP OUT CONCRETE
REMOVE FILLER CAP
PULL WIRES
INSTALL SERVICE FITTING

IMAGINATION IN STEEL

GRANCO

For more data, circle 11 on inquiry card
Wellco Carpet of Herculon just netted some Deer Isle Sardines

...and tossed 'em back.

One thing that Wellco's rugged "Incredible" carpet of HERCULON® olefin fiber didn't need was a fresh catch. Even one as good as Deer Isle Sardines. But, that's what it got... soaked with oil. It all cleaned up, though, quick and easy.

The stain resistance of HERCULON coupled with uncommon resistance to abrasion and fading, gives you the ideal carpet for any commercial installation. Deer Isle Sardines didn't stick with Wellco's "Incredible" carpet. But your clients will. Because this Wellco level loop tufted carpet is made with spun yarn of HERCULON.

For information contact Fibers Merchandising Dept. 118, Hercules Incorporated, Wilmington, Delaware 19899.

Specify carpet of Herculon by Wellco®

For more data, circle 12 on inquiry card
THE EDITORS OF ARCHITECTURAL RECORD INVITE SUBMISSIONS FOR

RECORD INTERIORS
to be featured in the January 1972 issue

... a program to recognize outstanding interiors designed by architects.

In 1970, in response to the upsurge of activity and interest in design of interiors by architects, Architectural Record established a new editorial program—RECORD INTERIORS.

It is clear that the interest of the profession in interiors is growing and strengthening. And thus the interiors program—with citations to document and stimulate this significant area of expanded practice—will be continued. Recently completed architect-designed interiors of all building types will be considered—remodelings and renovations as well as new structures—anywhere in the United States. Selections will be made by the editors on the basis of the excellence of the design solution for the particular client's individual program. Submissions from architects of new, unpublished work will be welcomed through November 1, 1971. No formal presentations are required, though materials submitted should include plan, photographs or snapshots, and brief description and program.

RECORD INTERIORS of 1972 will be published in the January 1972 issue of Architectural Record.

Write or telephone:
Barclay Gordon, Editor in Charge
Interior Design Awards Program
Architectural Record
New information on plywood building systems and design.

For free books, use Reader Service Card.


Circle 25 on Reader Service Card.

Textured Plywood Portfolio. We've added to the APA textured plywood idea collection. Full-color photos show varieties, patterns, species. Paneling and siding suggestions for office buildings, apartments and restaurants. Application and finishing suggestions, brand names, list of manufacturers.

Circle 26 on Reader Service Card.

Plywood Coatings Package. All about plywood coatings: durability—weather tight coatings; uses—exteriors, interiors, roofs, decks; appearances—textured, colorfast surfaces; application—chemically coated and overlaid plywoods; and testing.

Circle 27 on Reader Service Card.

Plywood Components in Church Architecture. A guide to plywood in contemporary church architecture: photographs, design details, cost savings on folded plates, stressed skin panels, box beams, space planes.

Circle 29 on Reader Service Card.

Architectural Case Histories. Two, new, 4-page case histories are examples of plywood's potential for innovation design. 1. Udan Center for the Arts, Huntington, New York. 2. Killeen Country Club, Tallahassee, Florida.

Circle 30 on Reader Service Card.

For free books, use reader service card. For more information about plywood and other plywood publications, write American Plywood Association, Dept. AR-111, 1119 A Street, Tacoma, Washington 98401. Or get in touch with one of our field service representatives. Offices: Atlanta, Chicago, Dallas, San Francisco, Tacoma, Washington, D.C.

AMERICAN PLYWOOD ASSOCIATION
Plywood quality-tested by the Division For Product Appraisal

26 ARCHITECTURAL RECORD November 1971
594 Corbin... where privacy is assured

When you register with Corbin, privacy is carefully guarded. With Corbin’s new hotel mortise lockset, the inside turnpiece not only projects the deadbolt, but also automatically displays a “Do Not Disturb” indicator outside. And an anti-panic feature permits quick emergency exit. Just turning the inside knob retracts the latch and deadbolt simultaneously. Contact a Corbin distributor for information and service or write P & F Corbin, Division of Emhart Corporation, Berlin, Connecticut 06037. In Canada, Corbin Lock Division.

For more data, circle 13 on inquiry card


Snowmass Village is Colorado-European. So how come the windows come from Bayport, Minnesota?

Snowmass, Colorado.
The most European ski village in America. A charming cluster of buildings—terraced up the mountainside, centered around a cobblestone mall.

It took inventive architects—working with native Colorado stone and natural wood—to create this unique Rocky Mountain hamlet.

It also took Andersen Windows.

Andersen offered the architects the freedom of design they wanted—with stock wood windows in six styles and hundreds of sizes.

Wood Casements—to harmonize with rustic wood exteriors. Wood Gliding Doors—to lead to poolside sun decks. Wood Picture Windows—to frame majestic mountain scenery.

Just to name a few. Then, too, the Snowmass architects wanted windows that would seal out biting winter winds. (Skiers, like everybody else, like their winter weather... outside.) Here again, Andersen offered the extra weathertightness needed—up to 4 times tighter than ordinary windows.

So that's how come America's most European ski village ended up with windows from Bayport, Minnesota.

But that's only the beginning. For the rest of the reasons, check your Sweet's Architectural or Light Construction File. Or talk to your nearest Andersen distributor.

Andersen Windowwalls™

Window Beauty is Andersen
Andersen Corporation • Bayport, Minnesota 55003

For more data, circle 14 on inquiry card
To plan this successful office building the first thing they did was to hire an acoustical engineer.

The first thing he did was to specify a quiet plumbing system with Cast Iron Soil Pipe joined with neoprene gaskets.

Officials of the Charles C. Smith Companies, builder-owner of this modern office building in Washington, D.C., felt acoustical design and engineering were important. They employed an acoustical engineer to help guard against noise pollution that would reduce the building's efficiency and comfort for occupants. He wisely specified permanent Cast Iron Soil Pipe—"the quiet pipe"—joined with gaskets of Du Pont neoprene. A comprehensive two year research study proved Cast Iron Soil Pipe joined with Du Pont neoprene gaskets the quietest DWV system available. Best of all—it's economical too!

Free! Complete details of this study are compiled in this 30-page engineering report. Request it on your letterhead.

For more data, circle 15 on inquiry card
Most ceiling systems don't provide total accessibility. Armstrong "ATS" does.

Armstrong Accessible Tile System (ATS) provides a ceiling in which every tile doubles as an access panel. Access to overhead services—at any point in the ceiling—is quick and easy. And ATS offers the flexibility of rearranging tiles and lighting fixtures to meet changing spatial needs. All that is needed are a ladder and a special hook knife.

In addition to its accessibility and flexibility, ATS offers rated fire protection, a large selection of surface designs, and effective noise reduction and sound-attenuation control.

ATS is being used to provide easy plenum access in modern buildings across the country. Other Armstrong Ceiling Systems are being used successfully to meet different requirements, solve different problems.

Write for our free booklet, "Armstrong Accessible Tile System". It tells the whole story. Armstrong, 4211 Rock Street, Lancaster, PA 17604.
All too often, no more thought is given to painting the inside of a plant than to painting the inside of a cardboard box...

In a remodeling project, cost considerations may dictate the retention of existing lighting facilities. The Color Dynamics system provides the right colors to properly utilize the available light—which could result in improved production, both in quality and quantity. This is one of the advantages of the Color Dynamics system.

Yet, Color Dynamics does much more. It enables you, the architect, to select and specify a color system that could also result in fewer accidents, less absenteeism, greater efficiency and reduced eye fatigue. It's a valuable aid in servicing your clients. When you specify Pittsburgh Paints for renovation, or new construction, you also provide economical, long-lasting paint protection. Write for free 16-page booklet on Color Dynamics. PPG Industries, One Gateway Center, 3W, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future
the day
Verve
took a shine
to our line
Montgomery moves you to the top of Tishman Westwood

Ten Montgomery high speed passenger elevators move people at Los Angeles' Tishman Westwood Building. Five of the Montgomery elevators are 800 f.p.m. high rise units servicing floors 14 through 24. Five others are 500 f.p.m. to the 14th floor. All are directed by Montgomery ESP Measured Demand Group Supervisory Control. Montgomery PM Preventive Maintenance will keep the new Tishman elevators operating at peak performance.

Montgomery manufactures a complete range of elevators and escalators. Montgomery installation and maintenance specialists are located in more than 140 offices throughout North America. Call a nearby Montgomery Elevator Company office for complete information on Montgomery products and service, or write: Montgomery Elevator Company, 30 Twentieth St., Moline, Illinois 61265.

montgomery
ELEVATORS/ESCALATORS
POWER WALKS & RAMPS
Montgomery Elevator Company, Moline, Illinois 61265
Montgomery Elevator Co. Limited, Toronto, Ontario
Offices in Principal cities of North America

For more data, circle 23 on inquiry card
News in brief

Five architects and an architecture student representative have been named to the 1972 AIA Honor Awards jury. Jury members, chosen by the board of directors, are: Henry N. Cobb, New York City, chairman; Antonin Arneck, Atlanta, Ga., student representative; Gerald L. Allison, FAIA, Honolulu; John G. Dinkeloo, Hamden, Conn.; Harry M. Weese, FAIA, Chicago; and Harry C. Wolf, Charlottesville, Va., the 1971 jury chairman, will serve as adviser.

Building products manufacturers posted a solid gain in profits during the second quarter of 1971, it was announced recently by the F. W. Dodge Division of McGraw-Hill Information Systems Company. It was the first time since 1969 that Dodge's sample of building materials producers showed a year-to-year improvement in earnings. The remainder of 1971 is expected to show further profit improvement for this group of manufacturers.

The Second Architects-Engineers Conference on Federal Agency Construction Programs (St. Louis, Missouri, November 29-30) has announced the following subjects for its agenda: Grant-in-aid Programs; Minority Contracting and Affirmative Action Programs; New Contracting Procedures; Parks Development; Pollution Control, Post Office Construction; a major discussion of the Defense Department's Construction Program.

William L. Slayton, executive vice president of the American Institute of Architects, has been made an Honorary Member of the Institute. The designation was made September 23 by the AIA board of directors at its fall meeting in Minneapolis.

Nominations now are being received for the sixteenth annual R. S. Reynolds Memorial Award for distinguished architecture with significant use of aluminum. The winning architect (or firm) will receive $25,000—the largest cash award in architecture.

The National Institute for Architectural Education is sponsoring several new competitions. In addition to the traditional Lloyd Warren Fellowship, Paris Prize and the Hirons Scholarship, newly announced competitions include: 1) William Van Alen Memorial Prize ($6,000 for the design of prefabricated multi-family housing); The Cecily B. Rother Award ($1,000 for the design of an urban subway station); and a Special Competition ($2,700 for the design of a plaza in an urban business district). Several other N.I.A.E. competitions, dropped in recent years, have been reinstated. For detailed information, interested students should contact: National Institute for Architectural Education, 10 West 40th Street, New York City, N.Y. 10018.

A Round Table on Energy Conservation—and Lower Operating Costs—Through Higher Quality Building was sponsored by ARCHITECTURAL RECORD in New York last month. Some of the country's leading architects, engineers, builders, lenders and government officials attended. For a preliminary report, see Editorial, page 9 of this issue. A complete report will appear in the January 1972 RECORD.

Louis Menk, FAIA has been honored with the Michigan Society of Architects' Gold Medal for 1971. Menk received the award "in recognition of his demonstrated leadership in the profession...and his contribution to the advancement of local, state and national architectural organizations and to his community."

William G. McMinn, AIA, has been appointed Head of the Department of Architectural at Louisiana State University. McMinn replaces O. J. Baker who returns to full-time teaching duties.

Four $3,000 graduate study fellowships will be awarded in 1972 by the American Institute of Steel Construction. The grants will be awarded to graduate, civil or architectural engineering students pursuing advanced degrees in a graduate program related to fabricated structural steel. To be eligible for the fellowship awards, applicants must be currently enrolled as seniors in an undergraduate civil or architectural engineering program or be graduated with a degree in civil or architectural engineering, and planning a course of study at an accredited college or university. Applications for the fellowships are available at the college's civil or architectural engineering departments and from the AISC Committee on Education, 101 Park Avenue, New York, N.Y. 10017. February 10, 1972 is the deadline for receiving applications addressed to the Committee on Education in New York. The names of the four winners will be announced on March 1, 1972.
Ornaments from New York's lost buildings
An exhibition of fragments of late 19th century architectural decoration rescued from the rubble of the city's demolished landmarks went on view at Hofstra University, Hempstead, New York, during the month of October. Gargoyle, keystones, doorways lintels, pilasters, friezes, tympanum, iron medallions, iron beam ties and window ornaments were selected by Robert Littman, director of the Emily Lowe Gallery, to reveal the charm, originality and craftsmanship of the anonymous artisans who decorated New York's mansions, tenements, churches and public buildings at the turn of the century. The architectural fragments were mounted in a setting intended to dramatize the constant destruction of the city's historic buildings, with pieces exhibited on sawhorses, planks, scaffolding, pedestals and ladders, framed by discarded doors painted in garish pastels and adorned with scraps of old wallpaper.

NASA initiates earth resources studies
The National Aeronautics and Space Administration has announced that, during the next several years, scientists from many nations will have an opportunity to analyze earth resources data gathered from two orbiting spacecraft. The spacecraft are the Earth Resources Technology Satellite (ERTS) to be launched in the spring of 1972 and the Earth Resources Experiment Package (EREP) planned for a year later.

Both ERTS and EREP spacecraft will obtain high-resolution, multispectral images of the earth's surface and distribute these images to scientific users in a wide variety of disciplines. Typical subjects of upcoming studies in the United States:
- Storm and tidal erosion of the barrier islands off the Gulf Coast of Texas
- Inventory of timber resources in all U.S. forests
- The effect of domestic livestock grazing on public lands in the western United States
- The formation and charting of icebergs in the Antarctic
- Replanting of land devastated by strip mining in Ohio

Overseas, the first studies will include:
- Detection of locust breeding sites in Saudi Arabia
- Urban and regional planning in Venezuela
- New surveys to assess the risk of spring flooding in Norway

Processed data on terrain features will be stored in retrievable form at the Department of the Interior's Data Center in Sioux Falls, South Dakota. Oceanographic and meteorological data will be stored at the National Environmental Satellite Service at Suitland, Maryland.

How useful this new data gathering tool will be is as yet unknown, but the potential seems enormous. Architects, engineers, city and regional planners—all those directly concerned with man's environment, should be among the first to benefit.

Gene Coleman

Patchwork Plaza
"Patchwork Plaza" is what they call it because it was constructed of 700, two-foot equilateral triangles individually designed and cast in concrete by teenage members of the N.Y.C. Community Arts Workshop. The 40-foot, circular plaza, soon to be completed, will occupy a site at the south end of Washington Square Park.

From the beginning, the project has been a kind of social mosaic—people of all ages, interests and ethnic backgrounds have contributed their design skills, their strong backs and their enthusiasm. The Community Arts Workshop, under the direction of Susan Shapiro, has created not only a handsome plaza but provided an effective and constructive vehicle for community action. "Patchwork Plaza" was funded by the New York State Council on the Arts and built with the cooperation of the City's Department of Parks and Cultural Affairs and Greenwich Village Planning Board Number Two.

New York Times

High noon for Chicago's Old Stock Exchange
What is almost certainly the final chapter in a year-long struggle to save Louis Sullivan's Chicago Stock Exchange is now being played out. Even as wreckers are beginning their work on the upper floors, the Landmark Preservation Council of Chicago announced it was attempting to raise $200,000 as a down payment to save the 77-year-old structure. All previous efforts to save the building have ended in failure and spokesmen for the Landmarks Preservation Council conceded that current last-minute efforts at preservation had only the slimmest chances of success. Some small consolation came when Mayor Richard Daley's office announced that the historic building's main entrance arch, column capitals and parts of its cornice might be saved and turned over to several Chicago museums.
Expo site changed again

Philadelphia, anticipating their roles as hosts for Expo 76, learned recently that the 1,000-acre Byberry site in northeast Philadelphia has been abandoned by the Expo Corporation. Planners are now studying a site that embraces both banks of the Delaware River and Petty's Island in midstream.

If the new site is adopted, Pennsylvania will be "host" in name only as most of the site's land area is in southern New Jersey. The shift is considered a coup for New Jersey Governor Cahill who recently lured the New York football Giants to a new home in the fens of north Jersey.

The 11.5-hour abandonment of the Byberry site has put enormous pressure on the Expo Corporation who must appear with firm plans before the Bureau of International Expositions in Paris late in November. To assist in a crash feasibility study, Arthur D. Little, Inc. of Cambridge, Massachusetts has been retained as consultants when the planning concerns how the dilapidated, crowded sections of downtown Philadelphia and Camden can possibly accommodate Expo's 50 million visitors in the summer of 1976 alone.

Outdoor sculptures for New York City

The Association for a Better New York, Inc. (ABNY), composed of a hundred prominent businessmen, will give the City a Christmas present in the form of six large-scale sculptures to be placed at temporary outdoor sites around the city. The sculptures, which range in height up to about 12 feet and are executed in painted steel, were purchased from Sculpture Editions, Limited.

"We are presenting the City with these sculptures to give our public thoroughfares the grace and charm of European promenades" explained Charles B. Berenson representing ABNY.

Accepting in behalf of the City, August Hechschler, Parks and Cultural Affairs Commissioner, indicated the sculptures would be shifted annually to new sites within the five boroughs.

The artists are: Antoni Milkowski, Robert Engman, Lyman Kipp, Roger Bolomey, William Crovello and Boky Schwarz.

Insurers shifting thrust of urban aid program

"We have shifted our emphasis from housing loans to loans for inner-city commercial, industrial and medical facilities," said Roger Wilkins, chairman of the insurance industry's Joint Committee on Urban Problems. This new thrust may have important consequences as the industry's commitment is large (50 billion) and numerous housing projects, seeking this funding, are now in planning. Wilkins said his committee was seeking a better balance between housing investment and loans that create job opportunities in inner-city areas.

Other spokesmen for the insurance industry have voiced the opinion that "Fanny May" and its sister organization "Ginny May" are now capable of handling much of the future investment in urban areas as this shift develops, large projects like Ujima Village in Los Angeles and UPACA in New York City appear to be among the last to rely heavily on funding from the life insurance companies.

New ACI Code to be broadcast over closed-circuit TV.

It won't be Muhammad Ali or Joe Frazier, but the technique will be the same when the 1977 ACI Code is presented January 18 over closed-circuit television in 20 American cities. The American Concrete Institute and the Portland Cement Association, co-sponsors, have arranged a six-hour broadcast that will cover all provisions of the new code that has been three years in preparation. Cities scheduled to receive the telecast are Baltimore, Boston, New York, Rochester, Washington, D.C., Philadelphia and Pittsburgh in the East; Chicago, Cleveland, Detroit, Kansas City, Minneapolis and St. Louis in the Midwest; New Orleans in the South; Dallas and Houston in the Southwest; Los Angeles and San Francisco in the Far West.

Interested professionals who wish to see the telecast should register with the Portland Cement Association, Old Orchard Road, in Skokie, Illinois not later than December 15, 1971.

Pardon Us

In its August 1971 editorial, RECORD incorrectly stated that the AIA Convention adopted Resolution 5—a resolution committing the AIA "to the promotion and support of programs which encourage the voluntary control of population growth and the ultimate stabilization of the world's population." The resolution was not passed. RECORD regrets its error and thanks those many readers who wrote to call this mistake to our attention.
GREFCO, Inc. announces a major technological breakthrough!

Permalite®
RIGID ROOF INSULATION

Time-proven Permalite Sealskin plus science-proven urethane give you a thinner, lighter, more efficient board!

Now for the first time ONE board offers—

MAXIMUM INSULATION

Permalite Pk provides greater insulation with less thickness. It is made for installations requiring “U” values of .05 or higher where limited insurance requirements are stated for steel deck application and where roof edge curb or fascia require lesser thickness of insulation, yet high efficiency.

MAXIMUM STABILITY

The union of Permalite Sealskin with urethane provides the dimensional stability that has given Permalite Sealskin rigid roof insulation nationwide building code acceptance as well as FM and UL approvals.*

*Permalite Sealskin rigid roof insulation is approved for Factory Mutual Research Corp. Engineering Division Steel Deck Class 1 Construction (fire and wind uplift); Underwriters' Laboratories, Inc., Metal Deck Assemblies Construction Nos. 1 and 2 and many others. Also pending for Permalite Pk board.

MAXIMUM ECONOMIES

One truckload of Permalite Pk rigid roof insulation does the work of two or three loads of other insulations. Lighter, thinner and non-irritating, it reduces handling and installation costs one-third or more. True edges, square corners and formed flat surfaces require no taping.
Sophisticated high-strength water-repellent laminate. Dramatically reduces weight.

Foamed urethane has highest insulation value of any insulation material.

Permalite Sealskin surface provides a superior bond to urethane.

Perlite layer is formed of flame-expanded, hermetically-sealed beads of mineral perLite, waterproofing agents and binder.

SHOWN ACTUAL SIZE. Built on a constant base of ¾-inch perlite board, Permalite Pk insulation is available in thicknesses of 1 ¼ to 3 inches.

Permalite® Pk
RIGID ROOF INSULATION

Manufactured under GREFCO, Inc. Patent No. 3,510,391, Permalite Pk insulation is ideal for all roof deck, wall element and other installations where maximum thermal efficiency is required. For example, the 1 ¼-inch thickness of Pk board provides as much insulation as 3 inches or more of other materials. By specifying Permalite Pk insulation, you can reduce fascia depth and cost—or provide double or triple insulation in the same depth to meet stepped-up air conditioning requirements. Permalite Pk insulation will also reduce air conditioning equipment and operating costs.

Permalite Pk rigid roof insulation merits your serious examination. Send coupon today for free sample, technical data and dramatic labor-saving comparisons. Or call your Permalite representative.

GREFCO, Inc. / Building Products Division
Dept. AR-4, 2111 Enco Drive
Oak Brook, Illinois 60521

Please send me technical data, dramatic labor-saving comparisons and free sample of your new Permalite Pk rigid roof insulation.

Name

Company

Address

City State Zip
The ‘Module 600’™ concept: building blocks of light.

Here is a modular luminaire that gives you what you are constantly seeking.
Complete design freedom.
Use the Module 600 any way, and every way, you want. On building walls, like a Wallpack®, ...on poles...and for street furniture. Singly, or in any type of grouping, as a strong unifying element.
Module 600 is architecturally pure. It has no visible hardware to mar its clean lines.
And its performance is technically superior.

Module 600 has a precision optical system that provides maximum illumination with no hot spots or objectionable glare. Plus flexibility of output, using a choice of lamps: 175, 250 or 400 watt mercury, or 400 watt metal halide.
Module 600. Functional, flexible, beautiful. By night and by day.
For complete information, see your Holophane sales engineer.

Holophane

For more data, circle 31 on inquiry card
Robbins
SPORT-TRED®
is popular
cost to coast

Solid vinyl SPORT-TRED is winning nationwide acclaim as the best synthetic surface. Installed and in use from Maine to California and from Florida to Washington state, it has reaped praise from architects, coaches and school officials for its appearance, playability and durability. SPORT-TRED is the indoor/outdoor surface that can be customized for color. It is considered superior to laminated vinyls and filled urethanes, since it won't fade, change color, shrink, absorb stains or show undue wear patterns under normal use. Court markings are applied with specially compounded paints that stay on without scuffing or smearing.

SEND COUPON FOR FULL INFORMATION AND FREE SAMPLE.
Robbins SPORT-TRED, Box 16902-AR, Memphis, Tenn. 38116
Please send me a free sample and full information on Robbins SPORT-TRED synthetic athletic surfaces.
Name__________________________
Position__________________________
Company__________________________
Address__________________________
City__________________________
State__________________________
Zip__________________________

Robbins
Division of Cook Industries, Inc. World Leaders in Athletic Floors

For more data, circle 32 on inquiry card
Fourth biennial HUD awards for design excellence

All entries for this competition were HUD-assisted projects completed since January 1965. The jury consisted of: Gunnar Birkerts, Myles Boylan, Donald Hardison, Jeh Vincent Johnson, Edward D. Stone, Jr., Paul Weidlinger and Ralph Warburton. Their over-all critique of the submissions was that the level of design had risen but that most projects would benefit from more explicit consideration of areas beyond the property line and from more detailed site planning. They felt few high-rise projects dealt effectively with the site. Three Special Mentions were given and awards went to six Urban Design Concepts and 21 Project Designs.

Charles R. Schulz

Christopher Columbus School in New Haven by Davis, Cochran, Miller, Baereman, Noyes is commended for an efficient plan and bold handling of concrete. Each classroom has skylights and varied windows.

Art Hyde

Medgar Evers Memorial Pool in Seattle by John M. Morse is well related in scale to its neighborhood. Its roof forms a recreational deck and the skylights minimize glare spots on the water surface.

Charles R. Schulz

Yerba Buena Center Central Blocks in San Francisco designed by Kenzo Tange and Utic received an Honor Award. It is a 25-acre commercial, convention, sports and cultural nucleus of an 87-acre redevelopment area. Major features are canted garages entered by four ramp towers and a three-block-long moving sidewalk and pedestrian way.

Two Charles Center, Baltimore, consists of two apartment towers with low retail-office buildings around a plaza and underground parking. The jury especially commended the plaza's relationships to the adjacent urban fabric. Plaza architects-planners: RTKL, Inc.; towers architects: Conklin & Rossant; landscape architect: George Patton.

Lower Grassy-Trice Branch Community Center, Kentucky, became a design problem for Yale's first year class. The design voted best by jury and class was built. Economical spatially and in terms of upkeep, it has a shop, kitchen, clinic, classroom, commons room. Designers: Robert Nicholaus, David Shepler, Mark Ellis, Robert Hammel.
**Futura** is a 25-story luxury apartment building, designed by Seebo Lee Heah & Partners, under construction in Singapore. Three apartments per floor (top right) extending out from a Y-shaped service core will have maximum views and privacy—including private landscaped elevator lobbies. The structure is supported by the circular service elements—elevators, baths, refuse chutes—of slip-formed reinforced concrete. The curtain wall is bronze anodized aluminum and tinted glass butting the concrete directly. Grounds will have pool.

**Columbus, Indiana community school** by Caudill Rowlett Scott was designed with advice from the children—fourth- to sixth-graders from a poverty area—who requested spiral slides, ramps, tunnels, color TV, robot teachers, climbing ropes, firemen's poles, automatic supermarket-style doors, waterbeds, sprinklers, places to play outside even when it's raining, and a place to bring pets to school. They did not get spiral slides so they can zip even into the library, two tunnels, and a building with an open, welcoming plan so they can feel it is theirs to come to day or night and to show off. The school will also be used as a community center for adult education and Head Start programs.

**The Academy for Contemporary Problems**, co-sponsored by Battelle Memorial Institute and Ohio State University, Columbus, is being designed by Naramore, Bain, Brady and Johanson of Seattle, winners of a Class A competition. The two buildings, one (top in plan) for research offices, administration and conferences, the other (elevation) for lodging visitors, share a court and have stairs rather than halls.

**Martin Tower**, Bethlehem Steel Corporation's new office tower in Bethlehem, has a unique curtain wall of panels fabricated from 3/16-in.-thick steel plate. Pointed tabs projecting upward from the top of a panel are received by openings in the bottom of the panel above. The panels are locked in place and then they are welded at the sides to the building's columns and to angles along the beams.
The Detroit Science Center by William Kessler and Associates will provide experiences and exhibits of science. The sensorium—a spherical theater—will be a planetarium and enable visitors to simulate space-craft maneuvers. The main floor, conceived as an extension of the urban fabric, will be open for free circulation through exhibits and access to animal care facilities, shops, meeting spaces and a restaurant. Administration will be on the mezzanine. The top exhibit floor will minimize museum fatigue by varying temperature, color, texture, volume and outside views. Mechanical services will exhibit their scientific principles and an eco-mechanical system will be developed to demonstrate solutions to environmental problems. The backstage, exhibit-producing areas will be visible to the public.

Power Center for the Performing Arts by Kevin Roche John Dinkeloo and Associates provides the University of Michigan with a $3.5-million, 1,420-seat theater in a structure of reflective glass and steel reinforced concrete. The stage is convertible from proscenium to thrust by moving a lift for the orchestra platform which can stop at four levels. Jo Mielziner was the lighting and stage co-designer.

Fourth Street Pedestrian Mall, a vital part of Louisville's center city redevelopment, is by Ryan Associates Architects of Louisville, and Johnson, Johnson, Roy, landscape architects of Ann Arbor. Its three blocks, paved with brick and textured concrete and closed to traffic, will have trees, fountains, small garden-sitting areas, playgrounds, a display court for art and flower shows and a sculpture court.

Japan House, a new cultural center and headquarters for the Japan Society in New York was designed by Junzo Yoshimura of Tokyo and Gruzen and Partners of New York. The public areas—lobby, library, meeting rooms and exhibit space—open either onto the central pool planted with bamboo on the main floor, the second-story roof garden which simulates a mountain, or a gravel covered, skylighted sculpture court which adapts the tokonoma convention of having a ceiling which is invisible from the rest of the room. The basement stage is appropriate for Noh drama. Slats of aromatic Japanese cypress in the reception area coffer will give an aura of Japan.
Two for the price of One and a Half

That's right. Kawneer's new Sealair window gives you a monumental option... a 2\" window system that you can specify within commercial installation budget requirements.

How can we do it? By making more efficient use of the metal in a typical section. Kawneer technology puts greater thickness where it's really needed, less thickness where it isn't. The result: a window that is certified to meet or exceed AMAA requirements at all performance levels (including H.P. ratings).

What does the new 2\" Sealair system mean to you? Fewer decisions and less confusion as to dimensions—1\1/8\" or 2\". Now you can specify a 2\" window and always be right... in performance and in budget.

Choose from projected, casement, top hinged, drop head or unit window wall variations. All with quality white bronze hardware, pressure equalization, and inside bead glazing. Monumental options—multiple vent and frame joinery, solid or tubular vents, weather stripping.

Finishes: 201R1, 204R1, 215R1 or Permanodic® hard colors in #28 Medium Bronze, #29 Black or #40 Dark Bronze.

The 2\" Sealair window... a monumental step forward in window systems from Kawneer technology. Get full information now! See your nearest Kawneer representative... or write Kawneer Product Information, 1105 N. Front Street, Niles, Michigan 49120.
The Fail-Safe Roof Insulation

Fail-safe in thermal linear expansion. Fail-safe in wind uplift resistance. And fail-safe insulation efficiency. Apache’s fail-safe performance record is based on over 50 million sq. ft. already installed. It’s a unique insulation. Apache roof panels have a core of urethane foam with asphalt-saturated felt membranes integrally bonded to both sides. They have a .13 “k” factor. And their insulating efficiency lasts the life of the roof because Apache’s urethane foam won’t wick water, won’t absorb moisture. Thermal linear changes are negligible. And Apache panels stay on the roof. Tests show they won’t delaminate even under 145 mph hurricane force winds. See for yourself. Send for the Apache “Sample 6-Pack” of six different urethane foam insulation panels (please send 50¢ for postage and handling). Or look us up in Sweet’s 7:15 Ap, 7:14 Ap.

Approved by Factory Mutual for use above non-combustible roof decks.

Apache Foam Products 2025 East Linden Avenue, Linden, N.J. 07036
A Division of Millmaster Onyx Corporation

For more data, circle 34 on inquiry card
The Executive Inn, Louisville, Ky., picked carpet of Antron® for more than its luxurious appearance.

They chose carpet with pile of Antron* nylon because its outstanding ability to hide spots and soil keeps it looking luxurious. Through rain and mud, heavy baggage carts and spilled food and drinks, this carpet of "Antron" stays looking like new.

Guests notice only the rich, handsome surroundings. "Antron" hides soil between cleanings, and dirt and the occasional spots which do show can be easily removed. With proper care, carpet of "Antron" can cut maintenance costs up to 50% over hard-surface floors.

Because it's nylon, "Antron" is also tough, durable and crush resistant. It resists abrasion and furniture marks, controls noise, and creates a warm, relaxed atmosphere.

First installed in the Tudor Room Restaurant four years ago, carpet of "Antron" was so successful the Executive Inn put it down in the main lobby, corridors, stairways, and elevators.

If both appearance and performance are vital to your next carpeting job, call on carpet of "Antron".

For more information, contact your mill or write to Contract Carpet Specialist, DuPont, Room 303, Centre Road Bldg., Wilmington, Del. 19898.

* DuPont registered trademark. DuPont makes fibers, not carpets.

WHEN CARPET DOES IT, CARPET OF SOIL-HIDING ANTRON® DOES IT BEST.

For more data, circle 35 on inquiry card
Mal Levy (World Trade Center, Chief of Planning and Construction, The Port of New York Authority) discusses the new role of the building owner:

"The conventional notion of a building owner is that of a man who outlines the building requirement, sets a budget, chooses an architect and then retires discreetly to the background until the building is completed. It doesn't work that way. At least, it didn't on the World Trade Center project.

"From the very beginning, the Planning and Construction Division of The Port of New York Authority operated as an unconventional owner. Our first departure from the usual pattern was our choice of an architect. We were determined to find a man who shared our vision of the World Trade Center—someone who wanted to create great architecture, above and beyond the basic functional requirements of the building.

"After preliminary contacts with some of the outstanding architects in the profession, we decided to retain Minoru Yamasaki and Emery Roth and Sons, associate architects.

"Next, we brought together and worked closely with a building team early in the process. The general contractor, for example, was consulting with us during the design stage. Subcontractors, such as the curtain wall people, were making contributions six years ago.

"In addition, we insisted on performance specifications, instead of the usual descriptive ones. We felt that since the World Trade Center was a precedent-breaking structure, it called for its own performance criteria.

"This was advantageous for two reasons: first, because performance specs set common goals for the entire building team... and second, because they stimulated concepts tailored to the special needs of the World Trade Center, instead of warmed-over ideas from previous building experience.

"If our involvement with the Trade Center has taught us anything, it is this: The building owner's professional manager must function as an active member of the entire building team."

The World Trade Center is a project of The Port of New York Authority. Engineering and development were carried out under the Authority's World Trade Center Planning and Construction Division. The curtain wall fabricator was Cupples Products Division, H. H. Robertson Company.
Fits Glazing Functions Eight Ways

Names to remember for specific performance . . . whatever the light, heat, glare, sound or safety control you want to build into structural walls:

POLARPANE* Insulating glass units with 20-year warranted moisture-free construction.

STOPRAY* Reflective solar insulating units with pure gold mirror-like coating. Choice of insulating and visible light values.

ARM-R-BRITE* Insulated spandrel panels fully tempered and tailored to your color specifications. Also available heat strengthened as Ceramalite®

ARM-R-CLAD® Tempered safety glass. Clear, tinted and textured. All standard thicknesses from 1/8".

SOUND CONTROL POLARPANE* Hermetically sealed units designed 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. In seven popular patterns.

MISSISSIPPI® PATTERNED GLASS In wide variety of general purpose and decorative patterns.

See our Catalog in Sweet's 8.26/Ce when you want to refresh your memory and consider patterns, colors or specifications.

For additional catalogs or information contact your local C-E Glass representative or write C-E Glass, 825 Hylton Road, Pennsauken, N.J. 08110.

For more data, circle 36 on inquiry card.
Design Tex lets you explore inner space. With Verel.

Because Design Tex offers very unusual drapery fabrics. That do all the practical things. Control light. Resist fire. Keep their color and shape. Clean easily. Because they’re made with Verel modacrylic. And Design Tex offers you a staff of “personal assistants.” The kind of people who can help you—to do the unique, the unheard-of-before. And they’re in Atlanta, Houston, Chicago, New York and on the West Coast. So they’re never too far away when you need them. Your kind of people? Contact us at

DESIGN TEX
275 7th Ave.,
New York, N.Y.,
212 924-5880.

DESIGN TEX WEST
147 N. Robertson Blvd.,
Los Angeles, California
213 274-6661.

For more data, circle 37 on inquiry card

EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, 1133 AVENUE OF THE AMERICAS, NEW YORK, N.Y. 10036. Verel is the trademark for Eastman modacrylic fiber.
Handed down from father to son, to son, to...

Generation after generation, Republic Steel lockers take the years in stride. Beautifully. Operating dependably. Retaining their good looks almost indefinitely.

Made from heavy-gage steel, Republic lockers have kick-proof handles and slam-proof hinges. Non-staining rubber silencers riveted to the frame hooks assure quiet openings and closings.

They come in double or single lockers, with standard or full louvers. Choose from two-person, box-type, and many other styles. In 19 smart decorator colors.

Want to start a tradition? Specify Republic Steel lockers. Write for brochure L-102 for more information. Republic Steel Corporation, Manufacturing Division, 1315 Albert Street, Youngstown, Ohio 44505.

Republic steel
Manufacturing Division

For more data, circle 38 on inquiry card
Red cedar shakes form a pyramid of texture.

Sitting astride a dune-like hill, this Long Island country club is both landmark and landscape. A pyramid of beauty, it dominates the horizon. Amidst pyramids of sand, it mingles effortlessly in a coastal environment. The building has character. Rich texture. Strength. All due in large part to the striking roof of red cedar handsplit shakes.

Red cedar is inviting; every shake is like a welcome mat. And cedar is tough. Even in harsh marine weather it lasts for decades without maintenance. It resists mildew and decay, withstands hurricane winds, and is naturally insulative. Put the versatility and enduring beauty of red cedar to work for you. Specify Certigrade shingles or Certi-Split handsplit shakes. For details and money-saving application tips, write: 5510 White Building, Seattle, Washington 98101. (In Canada: Suite 1500, 1055 West Hastings Street, Vancouver 1, B.C.)

Red Cedar Shingle & Handsplit Shake Bureau

One of a series presented by members of the American Wood Council.

For more data, circle 39 on inquiry card
There's only one fence that gives you quality and features like these.

Only Anchor® Fence gives you Anchor quality—plus all these famous Anchor features.

Take Anchor Permafused® vinyl-coated chain link fence, shown above. Many coated chain link fabrics are made with extruded vinyl. It's like slipping wire into a soda straw. Not Anchor.

The tough plastic coating on Anchor Permafused is permanently fused to heavy steel wire in a special Anchor process. There's no room for moisture to form and corrosion to start between the wire and the coating. It's virtually unaffected by extremes of weather or corrosive atmospheres.

The vinyl-coated square corner posts, gate posts, and end posts are an Anchor exclusive. They're stronger than round posts of the same size, present a better appearance, and eliminate the need for ladder-forming bands used with round posts.

Another Anchor exclusive is the vinyl-coated gate. It opens a full 180° with a latch that works easily and efficiently yet can be locked quickly and positively. The rugged square-member construction provides rigidity and freedom from sagging, as well as a more handsome appearance.

Anchor vinyl-coated H-beam line posts are self-draining. Unlike pipe posts, condensed moisture drains away to stop interior corrosion before it starts.

And only Anchor gives you such a wide selection of fences. Permafused is available with or without barbed wire, with or without top rail. (The model illustrated above provides an extra measure of security because there is no top rail to be used as a climbing handhold.) Other Anchor Fences include galvanized steel chain link, aluminum chain link, Anchorweave, all-aluminum Privacy Fence, and many others.

Now then. If those aren't reasons enough to buy Anchor Fence, they should at least be enough for you to call your local Anchor man. He can tell you more.

(If you don't do anything else, send the coupon for a FREE color booklet full of exciting fence ideas.)

For more data, circle 40 on inquiry card
For the past 17 years, LP polysulfide polymer and the Lever House have been through a lot together.

720.29 inches of rain.
508.30 inches of snow.
7 air pollution warnings.
And a trillion jarring vibrations.

But through it all, the two have stuck together. The result: everything's warmer in the winter, cooler in the summer, and drier all year long at 425 Park Avenue, New York.

That's because LP polysulfide polymer has sealed this skyscraper tighter than a drum.

In spite of the chemical pollutants in the city air. The savage storms. The baking sun. And the eternal rumbles of the BMT Subway.

Because of its consistent performance over long periods of time, a sealant based on LP polysulfide polymer is a sealant you can depend on.

To prove the point, The Grenadier Corporation recently removed a sample of the sealant at the Lever House. And the results were excellent.

It still had excellent elasticity. For instance, it could be twisted 180 degrees around a ½” spike without snapping.

If you want this kind of long life protection, always insist on sealants bearing Thiokol's Seal of Security. It's your assurance of product performance.

Thiokol Chemical Corporation, P.O. Box 1296, Trenton, N.J. 08607.

For more data, circle 41 on inquiry card.
Plexiglas® Keeps the Sun in its place!

To have the sun's light and warmth on your terms, you need control. The best control is easy with transparent gray and bronze Plexiglas acrylic plastic—the "Solar Control Series".

There are five densities of both transparent gray and bronze Plexiglas to provide a scale of visible light and solar heat transmittance values. This range of transmittance values permits you to select the density of Plexiglas which most effectively satisfies the interrelated requirements for adequate illumination and control of glare and solar heat gain.

Besides effectively controlling the sun, Plexiglas offers light weight; high breakage resistance; economical formability; and freedom from thermal shock cracking. Plexiglas is a slow burning plastic that is widely approved under local building codes.

You can use the Plexiglas acrylic sheet "Solar Control Series" for window glazing, flat or formed sunscreens, and formed skylights and dome enclosures.

For more data, circle 42 on inquiry card.
If granite is so hard to install, why didn’t someone tell First Federal Savings and Loan, Detroit?

Sure. They’d heard the myth about granite posing costly installation problems. But they also knew you can’t plan buildings on myths, so they went over the facts about Cold Spring granite with their architect. And they liked what they found: the natural beauty of Cold Spring’s polished granite resists weather, stains and all types of traffic as no other building material can; it won’t fade or deteriorate; it requires virtually no maintenance; it comes in a wide spectrum of colors; and . . . it’s economical to install, thanks to Cold Spring’s development of new fabrication techniques that include improvements like steel-backed granite panels.

In fact, they liked the idea well enough to use granite inside as well. In heavy traffic, high wear areas like check writing tables, teller’s counters, and the wall facing that encloses the elevators.

How expensive is granite? Talk to our Customer Service Department about that. Tell them what you want to do and they’ll tell you how it can be done. Step by step. And likely as not you’ll find that granite fits your plans well on a cost-in-place basis. Refer to Sweet’s Catalog No. 41 Co. Or call us.

Granite can color your thinking.

First Federal Savings & Loan, Main Office, Detroit, Michigan
Architect: Smith, Hinchman and Grylls
Contractor: Fuller Construction Co.
Granite: Dark Pearl

COLD SPRING GRANITE COMPANY / COLD SPRING, MINN.
For more data, circle 43 on inquiry card
Introducing flame resistant carpet of NOMEX®

Two reasons for carpet of NOMEX high-temperature-resistant nylon: fire and smoke. NOMEX® fiber is permanently flame-resistant. Properly constructed carpet of NOMEX is rated Class A under the NFPA’s Life Safety Code and exceeds all known and currently proposed flammability requirements. Carpet construction combining NOMEX fiber with fire-resistant backings provides maximum protection against flame spread and smoke.

NOMEX has the lowest smoke generation of any carpet fiber on the market. And that protection is permanent. Both the flame and smoke resistance of NOMEX are inherent in the fiber. They’ll last the life of the carpet.

And that’ll be a long life, because NOMEX is nylon-tough and long-wearing. It’s highly resistant to stains and soiling — yet easy to clean. For more information, write: Du Pont Company, Room CRB 3156, Wilmington, Delaware 19898.

*Du Pont registered trademark.

For more data, circle 44 on inquiry card
City-escape: Glaverbel Bronze
Keeps the outside out. Makes the inside in.
Glaverbel makes the city a great place to live.

The difference in glass is Glaverbel —
whether you look through it, or at it!

Glaverbel

Glaverbel (USA) Inc., 75 Plandome Road, Manhasset, New York 11030
Glaverbel Canada Ltd., 1550 Maisonneuve Blvd. W., Montreal 107, P.Q.

For more data, circle 45 on inquiry card
"We've never had to replace one single faucet during the entire 8-year history of Marina City"

Robert P. Butler
Building Superintendent

And he's talking about more than 5000 faucets. Delta faucets.

The success of Chicago's famous Marina City is no accident. It's the result of specifying Delta single-handle faucets exclusively in the building complex.

Mr. Butler, who's been at Marina City from its beginning, figures that in 8 years less than $200 was spent to maintain over 5000 faucets. But low maintenance cost is just one of the advantages you get when you specify Delta single-handle faucets.

Delta's also simply beautiful. Simply beautiful to look at, beautifully convenient to operate. And that prompted many Marina City tenants building new homes to ask where and how they can get Delta faucets.

Let us tell you more about Delta faucets. Write Delta Faucet Company, a Division of Masco Corporation, Greensburg, Indiana 47240. That's forward thinking.

Delta Faucet.
Simply beautiful.

For more data, circle 46 on inquiry card
Some free advice on your roof that may be cheaper in the long run because J-M's built-up roofing experts have knowledge no money can buy.

Free Advice?
That's right.
Suppose you have an existing built-up roof that is leaking, or it's not leaking but it's getting to look like it might, or it's along in years and you'd like to give it a physical. Maybe you're designing or building a new structure and you'd like recommendations for the built-up membrane as well as the proper structure and substrate for the roof.

Just call your J-M district sales office or write us. We'll send a J-M roofing specialist to look at your plans or inspect your existing roof thoroughly. A man who is trained in all aspects of built-up roofing and knows his business (otherwise we wouldn't let him loose). If our roofing specialist is stumped (it happens) he'll consult one of our 11 district engineers, who have amongst them over 250 years of intensive experience in built-up roofs.

They'll give you a detailed recommendation to stop your leak, to prolong the life of your old roof, or to design your new one.
And their advice is free.

In the long run it is often better than a lot of advice that you pay good, hard money for. Because it's backed by more than a briefcase and maybe a couple of file cabinets. Backed by the research facilities and the in-depth experience gathered in well over 100 years in the built-up roofing business by one of the world's largest producers of built-up roofing materials.

Furthermore, you can be sure that we'll recommend what we honestly feel is right for your situation. We make and sell just about everything in the way of built-up roofing. So we have no axe to grind.

If you decide to follow our advice we'll put you in touch with qualified contractors who will use quality J-M roofing materials to apply your new roof or bring your old roof up to snuff.

Maybe you'll want to do business with someone else. Maybe you have a nephew who sells roofing. Naturally, we'll be disappointed. But we won't cry. We get a lot of business this way. And if some jobs go somewhere else, in the end what helps the roof owner eventually helps J-M.

In any case, we at J-M stand behind our materials and our qualified contractors. Backed them with roof bonds. And if something does go wrong, you can be pretty sure we'll still be around to correct it. After all, we have been in business for over 100 years.

For your free advice, call your J-M district sales office, or write: Johns-Manville, Box 290 B-1, New York, New York 10016.

Johns-Manville

For more data, circle 47 on inquiry card

That's why Lithonia uses all solid state components, sealed, rechargeable maintenance-free Ni-CAD batteries... and we back it up with a full five (5) year unconditional guarantee plus an owner warranty reminder program.

But wait a minute!
You want clean and uncluttered space. OK. That's why we made an emergency lighting system as an integral part of most any 40-watt rapid start Lithonia fixture. That means you have a wide range of choices. Maybe you want heat removal, air supply, or regressed aluminum door troffers... or maybe you want wraparounds, industrials, or open tubes. And we have companion battery-powered exits, too. All providing over 90 minutes of usable emergency light. Call us collect—404-483-8731. We'll show you our 10-minute film and give you a copy of the Lithonia Emergency Lighting Applications Manual.

For next year: another gain in total building!
Following a 1971 gain of 17 per cent in value of newly contracted construction, another year of moderate gains; strongest are stores, hospitals and factories.

F. W. Dodge construction outlook: 1972

Prepared by the Economics Department, McGraw-Hill Information Systems Company (formerly F. W. Dodge Company)
George A. Christie, Vice President and Chief Economist

Even before the New Economic Program was dramatically revealed on August 15, it was quite generally recognized that 1972 was shaping up as a big year—at least by Gross National Product measures. It was to be the year when most of the promises and expectations that never quite materialized in 1971 would finally pay off. The Administration’s new program not only improves the chances that next year really will show this gain; it should also make this more meaningful.

This “standard” GNP forecast for 1972 is now $1,150 billion—up a cool $100 billion for the year—and it’s about as solidly based as such estimates can be. Funny thing is that most 1972 GNP estimates that were being made back in the early part of August (weeks before the NEP was revealed) also came within a couple of billion one way or the other of $1,150 billion. It doesn’t mean that the new program won’t have any important effect. It will. But its impact will be more on the quality than on the quantity of next year’s economic activity.

Early estimates of 1972 were big in numbers, but small in the achievement of economic goals. Most of the expected gain was more inflation, leaving an uncomfortably high rate of unemployment and unused industrial capacity at year’s end. The President’s August 15 surprise package sent economists eagerly back to their worksheets with a new set of variables to cope with, and the expectation of happier results.

How much more real GNP will the NEP create in 1972? The answer hinges on the interplay between the stimulative and the repressive parts of the program.

An estimate by the Council of Economic Advisors attributes a “positive impact of $15 billion” and half a million new jobs to the combination of consumer tax reductions and business investment incentives.

But this is a two-way program. Its purpose is not only to encourage more spending, but to suppress inflation at the same time. If Phase II of the wage/price freeze can hold next year’s average price rise to something like 3½ per cent (in contrast to the recent 5 per cent a year rate of inflation), this change would have the effect of deflating the pre-NEP estimate of 1972 GNP by about $15 billion (i.e., 1½ per cent of a trillion dollars). The interesting result: an addition of up to $15 billion of new demand and the elimination of an equivalent amount of next year’s inflation. That puts you right back at the same $1,150 billion total as before, but with the very important difference that, to the extent the program works, it means 1972’s GNP would be improved in its “quality” by as much as $15 billion of real goods and services . . . and jobs that go with it. That’s the difference between a good year and a very good year.

One important side effect of the midyear revision of economic policy was to resolve the worsening monetary dilemma. By early last summer the Federal Reserve Board’s position had become intolerable. No longer could it play the Administration’s losing monetarist game (support recovery with massive doses of credit) without compounding inflationary pressures. Yet, the decision to slow the pace of monetary growth couldn’t help but aggravate already rising interest rates and possibly cause the fragile recovery to abort.

The wage/price freeze (and its Phase II sequel) takes the Fed off the hook by assuming most of the burden of anti-inflationary restraint. Monetary policy-makers can now give top priority to holding down interest rates and insuring an adequate supply of funds to meet expanding business and personal credit needs in 1972.

Other ways that the New Economic Program will affect construction markets in 1972:
• Federal appropriations for public works are in for another round of tight budgeting as the sacrifice of several billions of tax revenue widens the already huge deficit.
• Some business investment funds may be diverted from construction for a time as the new investment tax credit makes machinery and equipment a better buy than buildings.
• Construction costs—like all other costs—will be rising more slowly in 1972.

National construction outlook

Business facilities: By the time the 1970 recession hit “official bottom” last November, it left the business construction market heading in all directions at once. Contracting for new industrial plants was badly depressed (no surprise); commercial building was running more or less flat (some offsetting trends at work here); and electric utility construction was expanding vigorously (with no apparent regard for the uncertain state of the economy).

By mid-1971, however, a more meaningful pattern was beginning to take shape:
• The year-long decline of industrial construction contracts had leveled off, and there was just the hint of a tenuous recovery. Even with this improvement, though, the flow of new projects was less than the value of old work being finished, so that industrial construction in progress was still declining through mid-1971.
• Commercial building was less in doubt. Not only did the rate of contracting advance firmly through the first half of the year, but the value of this new work was well in excess of completions, and the work in progress showed a solid gain.
• Electric utilities came through with a burst of huge projects in the opening months of 1971, and by midyear contract value was running ahead of 1970’s record total by nearly a billion dollars.

All in all, contracting for business construction improved significantly (though not uniformly) between the low point of the recession and the middle of 1971. Here’s how we see these trends in industrial, commercial, and utility construction developing through 1972.

Industrial building: The hard facts of the manufacturing plant construction market
are these. At mid-1971, industrial production was no higher than it was almost a
year and a half earlier. Yet during that non-
growth period, manufacturers continued to
add new capacity faster than they retired
old facilities. Result: excess capacity is
more of a burden at present than it was
even during the recession year of 1970.

Not all the facts are that grim, however.
While production has been listless, some things have changed for the better,
suggesting that industrial building will not
stay depressed for too much longer. One
is profits. Another is confidence.

Nothing will dampen businessmen’s
enthusiasm for investment in new facilities
faster than a declining profit curve. Manu-
facturers’ profits declined all through 1970,
culminating in an especially weak fourth
quarter. In 1971’s first half, however, the
combination of higher prices and cost-saving
measures taken during the recession be-
gan to pay off in sharply higher earnings on
much the same volume of output.

This much happened before the NEP.
The new program, with its tax advantages
and shelter from foreign competition, pro-
vides the basis for expecting further im-
provement in profitability. Still needed, of
course, is the overdue release of pent-up
consumer demand to raise output and take
up excess capacity. This, too, seems finally
on its way.

In any event, there is bound to be a
lag before the anticipated rise in produc-
tion will bring an end to a surge of indus-
trial building. By mid-1972, however, we
expect to see a strong pickup in the rate of
contracting for new industrial buildings
which will be needed for 1973 operations.
In 1972 the potential gain in contract value
of industrial construction is as much as 25
per cent over 1971’s depressed level.

Offices: The slowdown from the big office
building boom that spanned the two years
between mid-1968 and mid-1970 has been
gentler than expected. That’s partly be-
cause its aftereffects are stretching out.
Because so much of that surge at the
end of the Sixties was concentrated in just
a few dozen outsized skyscrapers, there are
two consequences that bear on 1972’s out-
look. One is that a disproportionate share
of the boom was concentrated in only a
few of the nation’s largest metropolitan
areas. The other is that very little of that
construction has yet been completed. Most
of those buildings will be ready for occu-
pancy in 1972, and the anticipation of all
this oncoming space has already affected
office rental rates, even though vacancies
are still generally low.

With the prospect of adequate financ-
ing in 1972, this pattern of a rising volume
of smaller office buildings filling the void
left by the decline of the skyscraper should
continue, yielding a total contract value
slightly above 1971’s $4.7 billion, but well
below the record $5.4 billion contracted in
the peak year of 1969.

Stores: Unlike offices and industrial build-

ings, both of which declined in 1970, store
building has been little affected by the re-
cession. Contracting for stores and ware-
houses held steady at a $3.8 billion level
through 1969 and 1970, and then began to
move ahead around the middle of 1971. A
closer look at this remaining pace shows that
it came from an ongoing shopping centers,
bearing
out last year’s expectation that a strong
rise in homebuilding would soon generate
a wave of store construction.

The existence of this lag between housing and stores, together with the pros-
pect of another big residential year ahead,
suggest that most of the potential for
growth of store contracting has yet to be
realized. And this prospect for a big gain
in 1972 is further reinforced by the ex-
pectation of a year of well-above-average
consumer buying. A gain in the range of
15-20 per cent in contract value would be
in line with these trends.

Infrastructure buildings: While the business
construction market is showing little in the
way of actual improvement in 1971, but
much in the way of potential for 1972, the
institutional building market is quite the
reverse. Here there has been steady re-
covery from the low point in contracting
that coincided with the credit crisis of
spring 1970. As money markets eased last
summer and bond rates retreated from
their historic highs, the sale of new issues to
finance the construction of schools, hos-
pitals and other institutional buildings
surged ahead. With funding resumed, the
rate of contracting soon recovered to its
pre-1970 plateau, but the potential for con-
tinued growth beyond this level—even in a
favorable finance climate—remains in con-
siderable doubt.

Educational buildings: Most of the diffi-
culty with institutional building can be
found in its single largest category—the $6
billion a year educational sector. Having
recovered from last year’s credit crunch
(which cut 1970’s total by 6 per cent de-
spite a good second half), the school
building market now has nowhere to go.

Positive forces are hard to come by
these days. At the lower grades, demo-

graphic trends have already turned the
corner, and they’ll be working their way
through the higher levels in years ahead.
Elementary enrollments have been declin-
ing for two years, and the under-5 age
group—the student population of the near
future—is some 3 million children smaller
than it was 10 years ago. (Some additional
capacity will be needed to meet growing
relocation demand that springs from the
housing boom, however.)

At the other extreme, higher education
is where you find the only real justification
for construction to meet the needs of
rising enrollments. One indication of how
the educational building market is chang-
ing is that in 1971, for the first time, we
are providing as much new classroom
space in colleges as in elementary schools.
Now, with the added demands created by

returning servicemen and the trend toward
open admissions, college construction
should be growing even faster, except that
not many of these institutions can afford
to expand, even with Federal aid.

These several cross-currents will force
next year’s total of educational building
contract value nearly 6 per cent below
1971’s unusually high total back to a level
more in line with current needs. The com-
position of the 1972 total will continue to
shift: Less building at the lower grades;
steady in the middle; expansion at the top
—but with severe budget restraint holding
the growth of colleges below potential.

Hospital and health facilities: Contracting
for construction of health treatment facili-
ties showed the same stop-and-go sequence
during 1970 and 1971 as educational
building. All that means is that hospitals—
some—need financing. And now, with that
interruption out of the way, the essen-
tial difference between these two in-
stitutional building markets stands out
clearly. The difference is need, and the
need for health facilities is in no way
diminishing, nor even static.

Experience of the past decade shows that
the public is only too willing to ac-
cept all the medical service that govern-
ment and private health programs will sup-
port—even if it means driving the price of
these services out of sight. Hospital con-
struction, like every other aspect of the
health industry, has mushroomed, and so
has the cost of building hospitals. A new
hospital costs about $50 per square foot,
up from $35 a foot as recently as 1967.
(The current average for all kinds of non-
residential buildings is about $22-$23 per
square foot.)

A new Federal study of the nation’s
health care costs (prepared by HEW to
help Congress evaluate various proposals
for national health insurance) predicts that
health costs will rise by another 50 per
cent by the middle of this decade. Even
allowing for the usually generous assump-
tions built into such studies, there’s no
evidence of any slowdown of the strong
upward trend of the Sixties in the making.
In 1972, contracting for hospital and health
facilities looks headed for a gain of at
least 10 per cent.

Housing: It was obvious right from the
start that 1971 was going to be an excep-
tional year for housing. Just the same,
the year wasn’t very far along before it became
clear that all but the most optimistic of
forecasts were turning out too low. They
were raised, and raised again, finally clus-
tering around the magic 2-million mark.
This total of mostly site-built, and a few
modular, one-family homes and apart-
ments, plus an additional 400,000 or more
mobile homes, finally brought housing
production in touch with HUD’s much-
heralded goals.

Shelter is becoming a growth industry,
and the old counter-cyclical stereotype no
longer applies. Two important changes

68 ARCHITECTURAL RECORD November 1971
that have been brought about in the housing sector itself are making the difference.

One is the increasing role of the Federal government in generating a sustained volume of low- and middle-income housing demand through its several subsidy programs. Until 1969, Federally assisted housing never made up more than 10 percent of total starts. In 1970, subsidized units accounted for nearly 30 percent of all dwellings built, and they are slated to stay in the 25-30 percent range at least through the mid-Seventies, providing a solid base of half-a-million or more units per year.

The other important change is in the mortgage market, where most of housing's cyclical problems used to have their roots. Left to their own devices, the thrift institutions, which supply most of the nation's mortgage money, could usually be counted on to run dry whenever the general demand for credit (usually paced by strong business demand in periods of expansion) heated up. Now, however, the operations of CNMA, along with FNMA and FHLBB, are helping to offset the severe swings in the flow of funds available for housing that originate in other sectors of the economy. One consequence of these stabilizing forces is finally to put the emphasis of forecasting housing activity back where it belongs: more on the demand for housing; less on availability of mortgage money.

This is not to suggest that the role of the mortgage market can now be ignored. It is still important, but no longer as important in determining how much housing demand will be served. What has been eliminated is much of the risk of periodic "crunches." On the other hand, virtually all of the large gain in housing that took place during the first half of 1971 was in privately financed, un-subsidized housing. The number of Federally assisted units started in this period was barely equal to those started in 1970's first half, and considerably fewer than during last year's final six months. The big push in 1971 came almost exclusively from the enormous build-up of savings in the thrift institutions, as consumers held on to an abnormally high proportion (over 80 percent) of their incomes during the recession and the tenuous early recovery. On the strength of this heavy accumulation of deposits, commitments for future mortgage loans were twice as high at mid-1971 as they were at the start of the year, assuring steady support for a continued high rate of homebuilding at least into early 1972.

But what happens when the consumer begins to spend more and save less (perhaps even draws upon some of his past savings) as he is expected to do next year? When conditions begin to put a crimp in the flow of mortgage funds is when HUD's new powers really begin to pay off. Not only is HUD prepared to suppress the tendency for mortgage rates to rise by providing massive secondary support to the mortgage market, but it also plans to increase the number of subsidized housing starts in 1972 to nearly 600,000—aiming at a total production goal (including mobile homes) of 2.7 million units!

This is heady stuff. It's time to start asking whether the housing market can absorb an average rate of 2½ million shelter units per year for any length of time right now. That's roughly double the rate of family formation, and even after allowing for replacement of removals from the housing stock at as high a rate as 700,000 units, what's still left over—more than half-a-million units per year—will exhaust before long the backlog of demand carried over from the low-volume Sixties. The exact point of short-run equilibrium is never possible to find, but it can't be far from the current rate of output.

We estimate the practical ceiling for 1972 homebuilding to be the combined total of 1.95 million site-built and modular units and about 400,000 mobile homes (see table), although there could easily be some crossover at the fringes of these markets.

<table>
<thead>
<tr>
<th>National estimates/1972</th>
</tr>
</thead>
<tbody>
<tr>
<td>construction contract value (millions of dollars)</td>
</tr>
<tr>
<td>commercial</td>
</tr>
<tr>
<td>manufacturing</td>
</tr>
<tr>
<td>educational</td>
</tr>
<tr>
<td>hospital and health</td>
</tr>
<tr>
<td>nonresidential buildings</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nonresidential buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>one- and two-family homes</td>
</tr>
<tr>
<td>apartments</td>
</tr>
<tr>
<td>nonhousekeeping</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

| Total buildings | 60,000 | 61,075 | +2% |

<table>
<thead>
<tr>
<th>Nonbuilding construction</th>
</tr>
</thead>
</table>
| streets, highways, & bridges | 7,900 | 8,700 | +10%
| utilities | 5,300 | 5,400 | +2 |
| sewer & water supply | 3,250 | 3,750 | +15 |
| other nonbuilding construction | 3,350 | 3,725 | +11 |
| TOTAL | 19,800 | 21,575 | +9% |

| Construction index (1967-1961) | 145 | 150 |

<table>
<thead>
<tr>
<th>Physical volume of floor area (millions of square feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>nonresidential buildings</td>
</tr>
<tr>
<td>commercial</td>
</tr>
<tr>
<td>manufacturing</td>
</tr>
<tr>
<td>educational</td>
</tr>
<tr>
<td>hospital and health</td>
</tr>
<tr>
<td>nonresidential buildings</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Residential buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>one- and two-family homes</td>
</tr>
<tr>
<td>apartments</td>
</tr>
<tr>
<td>nonhousekeeping</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

SHELTER DEMAND (in thousands of dwelling units)

<table>
<thead>
<tr>
<th>Type of Housing</th>
<th>1970</th>
<th>1971e</th>
<th>1972f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site-Built Housing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-family</td>
<td>800</td>
<td>1,025</td>
<td>925</td>
</tr>
<tr>
<td>Multi-family</td>
<td>615</td>
<td>1,000</td>
<td>925</td>
</tr>
<tr>
<td>Modular Housing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-family</td>
<td>200</td>
<td>250</td>
<td>75</td>
</tr>
<tr>
<td>Multi-family</td>
<td>100</td>
<td>150</td>
<td>25</td>
</tr>
<tr>
<td>Mobile Homes</td>
<td>100</td>
<td>150</td>
<td>400</td>
</tr>
<tr>
<td>Total Shelter</td>
<td>1,640</td>
<td>2,500</td>
<td>2,330</td>
</tr>
</tbody>
</table>

That's a bit less than most forecasts of housing demand for the next year. But whether 1972's housing total comes out 100,000 units more than 1971's 2.5 million or 100,000 less isn't what is most important. What counts most is that 1972 will be another very strong housing year. The homebuilding market isn't going to come apart at the seams next year just because economic conditions will improve.

Public facilities: Public works construction is a blend of the extremes of stability and instability. A large element of predictability (especially over longer periods of time) is built into this category by the Federal Highway Trust Fund, which, along with matching state and local money, virtually guarantees the continued growth of roadbuilding. But at the same time there is no scarcity of circumstances that create a high degree of instability in contracting for public projects. Among them: the uncertainty of new appropriations for national programs, particularly in periods of large Federal deficit; the occasional freezing of already appropriated funds; erratic allocations from the trust funds; the vagaries of the bond market; the erratic flow of very large jobs (e.g., a dam, water supply project, or transit system) which are common to this group; and growing public concern about the environmental side-effects of major projects.

The two new Federal trust funds (for mass transportation and for airports) are progressing unevenly. The transit fund has reached the point where it is providing close to a billion dollars in annual grants for construction and equipment. However, the airport fund is still only offering planning and development money, and its impact on construction is a year away.

ARCHITECTURAL RECORD November 1971 69
Federal government: With general tax revenues already depressed by under-employment, the Federal budget deficit is about to slip into the $30 billion neighborhood as a result of the additional business and personal tax concessions which are to be the stimuli of the New Economic Program. Under these conditions, Federal spending will be at least as tightly controlled as last year, maybe more so. And among some of the most controllable of Federal expenditures are the funds for new construction by the Corps of Engineers and the Bureau of Reclamation. (In times of budget stress, it is the start of new work that takes the biggest cuts, while every effort is made to continue funding jobs that are already in progress.) No gain in direct Federal construction over 1971's already sharply curtailed level of contracting is anticipated. And with one outstanding exception—outlays for water resource development—Federal construction grants and loans to state and local governments are also bound to be tightly budgeted in 1972.

State and local governments: With or without Federal help, state and local governments are showing determination to move ahead with their development programs. After nearly being frozen out of the bond market in 1969's credit squeeze, these governments borrowed heavily for construction during 1970 and 1971 as conditions eased. This year's municipal bond sales are running some 30 per cent ahead of 1970's record total, and double the 1969 amount. With little prospect of any increase in Federal help next year, states and municipalities will be borrowing heavily in the bond market again in 1972.

Regional construction outlook
Northeast: If nonresidential building is to show a gain in this region next year, something will have to compensate for the lack of potential in office building here. With so much new rentable space now becoming available and looking for tenants—the consequence of the bulge of contracting two years ago in New York, Boston, and Washington—enthusiasm has quite naturally faded for a time. In 1971, the value of contracts for office buildings is running one-third below the previous year's amount, and 1972 isn't likely to be any stronger.

Compensating growth will be found next year in two other types of business-related construction: stores and factories. The need for retailing facilities—stores, shopping centers, and warehouses—roughly parallels the trend of housing, and housing in the Northeast has been sluggish for most of the past decade. That is, until 1971's residential boom changed things. With the area's housing markets facing a lot of catch-up over the next few years, prospects for store buildings are especially good.

Midwest: More than any other region, the Midwest's outlook for nonresidential building in 1972 is dependent on the success of the new Economic Program. Durable goods manufacturing—both industrial products and consumer durables—is where the recession of 1970 had its concentrated impact, and the Midwest is where most of the nation's heavy manufacturing is.

In almost every way, this region can look for improved demand for the output of its major industries in 1972. Steel is past its strike-inventory adjustment and demand is picking up; the region's auto industry is anticipating a banner year; household appliance demand will be very strong, as 1971's home-building boom is followed by an equally strong 1972; machinery and industrial equipment will gain with the help of the new investment tax credit. "NEP" is pronounced with a strong Midwestern accent, and, in this atmosphere of change for the better, the region's employment and commerce are bound to respond.

For all types of construction taken together, the largest gains of any region in 1972 will be found in the Midwest.

South: Of the four major regions, it was the South that did most of the growing during the decade of the Sixties. And since rapid economic growth demands more than the usual volume of construction, this region has been a consistently strong market for contractors and building materials suppliers.

Industrial construction is a case in point. Contracting for manufacturing facilities has shown big gains in the South in nearly every year of the decade, and particularly since the petro-chemical industry decided to call the Mid-South its home.

The region's demand for housing has kept pace with its strong industrial growth. From the beginning to the end of the Sixties, the South's share of the national total of apartment contracting rose from only 12 per cent to the current 30 per cent. (The Florida condominium boom has had something to do with this.)

West: Judging from 1971's construction statistics, Westerners seem to be ignoring the defense/aerospace cutback and the fact that net migration to California has dwindled almost to zero. Building is still going on as usual—for the time being, anyway.

Through most of 1971, the West has shown a surprisingly strong 10 per cent lead of 1970's construction contract value, and a pattern of growth much like the national one; all of the gain concentrated in housing, with nonresidential contracting holding about even.

Diversification of this region's once-triangular base of orange juice, celluloid, and airframes has obviously come a long way. But without migration, and with its key aerospace industry still in trouble, there's little justification for continuation of the high rate of home-building or for the expectation of a solid recovery of nonresidential building in the near future.

While 1972 contracting for industrial buildings in the West is likely to improve over 1971's depressed value, the gain will be well below the national average. Commercial building also holds potential for a modest gain.

Summary
How do you top a year like 1971 which virtually exploded with a 17 per cent gain in the value of newly contracted construction? Not by very much.

For a variety of reasons, some of the biggest categories of construction now offer little potential for further growth for the time being. Without housing's $10 billion gain in 1971, the past year would have been a pretty dull one, but we'll do well to hold close to the current high level of residential contracting through 1972. Construction of electric generating facilities, another of 1971's big gainers, offers good long-term prospects, but contracting has probably reached a temporary peak right now. Educational building's unusual gain in 1971 was mostly to make up for 1970's credit squeeze, and there's no basis for continued growth there. Nor is there much room for expansion in the office building market, which is still digesting the output of its 1968-1970 boom period. Together, these four nongrowth categories add up to a total of nearly $50 billion—60 per cent of the 1971 total of $80 billion in construction contract value.

In the other 40 per cent of the construction market, however, there are several opportunities for strong expansion in 1972. Some of the standouts: industrial building, now very depressed, could increase by as much as 25 per cent as economic recovery accelerates next year; stores and other commercial building will respond to the stimuli of the housing boom and rising consumer spending with a gain of more than 15 per cent; transportation (highways and mass transit) and environmental work (sewer and water facilities) will go ahead between 10 and 15 per cent. The gains in these areas will provide most of the thrust that will raise 1972's total construction contract value another 4 per cent to a record $82.6 billion.

A gain of 4 per cent doesn't sound like much next to 1971's huge 17 per cent increase, except for two things. One is that it is 4 per cent on top of 17 per cent. It means that the very strong expansion in 1971 wasn't just a temporary surge, but was something that is here to stay—something that becomes part of the base on which future growth will be built.

The other has to do with the worth of next year's construction dollars. It's a hard fact of life that cost increases have been responsible for well over three-quarters of the "growth" in this industry since the middle sixties. Now, as we move into Phase II of wage and price control, there's good reason to expect that inflation will be taking less of a toll in 1972 than at any time in the past five years.
Tempered Glass Doors for Important Spaces

Blumcraft can fill your important spaces with three unique 1/2" tempered glass doors and sidelights. A large selection of interchangeable push/pull hardware is available. Blumcraft manufactures its own rolling locks and panic devices, utilizing stainless steel ball bearings to reduce operational friction. Maximum security is attained with the locking mechanism mounted on the interior side of the door. Controlled metal to glass bonding in Blumcraft's factory insures lasting performance. Completely assembled doors are inspected and shipped ready for installation... Doors are available to all local glass jobbers to provide for competitive bidding (No Exclusive Distributors) ... Refer to Sweets' Architectural File 8.1/BL or write for complete Door Catalogue B-71.

Blumcraft
OF PITTSBURGH
458 MELWOOD AVENUE, PITTSBURGH, PENNSYLVANIA 15213

For more data, circle 49 on inquiry card
Delta Airlines recently completed the first two-story passenger facility at Louisville's Standiford Field. The new upper boarding lounge allows Delta passengers to enter and leave the plane directly, at plane level.

Delta chose Goodyear's SPEEDRAMP® system to take passengers from its street level lobby to the new upper boarding lounge.

SPEEDRAMP systems have it all over conventional escalators when long walking distances are combined with a level change. They keep traffic moving smoothly, continuously. There are no bottlenecks because there are no disappearing steps to cause hesitation.

Passengers like SPEEDRAMP because they can put down their bags and just enjoy the ride. And handle baggage carts, wheelchairs and strollers without having to worry about moving steps.

Whether you're moving passengers up to the plane or down to the baggage claim, SPEEDRAMP is the best
Speedramp system passengers a lift

way to go. For more information on SPEEDRAMP® incline belt passenger conveyor, or SPEEDWALK® horizontal belt passenger conveyor systems, write The Goodyear Tire & Rubber Company, Transport Systems, Akron, Ohio 44316.

GOOD YEAR
TRANSPORT SYSTEMS

For more data, circle 50 on inquiry card
Our Versatile Bump...
It can turn a roof into a floor.

It’s not magic; it’s just an example of the practical versatility of our SUPERBOND BC Deck—the composite deck with more bumps (embossments) than any other.

The Adam, Meldrum & Anderson department store, outside Buffalo, N.Y., was designed and constructed by Brown and Matthews for United National Corporation with a finished concrete floor (shown in photo) under the roofing.

That way, if AM&A wants to add more floors, all they have to do is take off the roofing and extend the steel framework (the square “plate” in the photo is the top of a column which will be covered by the roofing).

Our SUPERBOND BC Deck was chosen because it offers the greatest shear-bond resistance for maximum lateral strength and stability, and can easily handle the dead-weight load of the roof.

In addition, by using our deck in a composite system, B&M was able to use shallower beams. This reduced the over-all height of the building and the cost of exterior walls and all interior materials—and of course, steel costs, too.

SUPERBOND BC Deck comes in wipe-coat and 1¼ oz. galvanized, and prime coat painted. For more information, write for our free brochure WC-380R1.

The versatile bumps. Much too practical to be magic.

Wheeling Corrugating Company
A DIVISION OF WHEELING—PITTSBURGH STEEL CORPORATION

96% of what we make builds highways, buildings and reputations.

For more data, circle 51 on inquiry card
Almost any bitumen, elastomer or membrane is waterproof.

Trouble is, it takes more than a waterproofing product to build a leakproof deck or plaza. Since most attempts to waterproof the traffic surface are doomed to failure, we think it’s more important to get rid of water from each level of deck construction.

Here’s a step-by-step method that does just that.

First, use a liquid waterproofing product that can be applied to the best-engineered concrete on the job site — the structural slab. Since the liquid adheres to the slab it will eliminate any lateral migration of water . . . just in case it penetrates the seal.

Next, protect the waterproof layer with a ⅛” thick asphalt-impregnated board. That will prevent any punctures that could otherwise be caused by job-site activity.

Now add a 1½” to 3” layer of washed pea gravel to act as a percolation layer that will collect transient water and carry it to the drain.

Then, put the insulation on top of the percolation layer. This will protect both the structural slab and the waterproofing system against stress caused by thermal variation.

Finally, put the traffic surface
into position on the insulation. To get rid of water from the layers of construction we've just described, you'll need a unique all-level drain. Like the one we've developed with the Josam Manufacturing Company. Where ordinary drains only handle surface run-off, our (patented) drain takes water and moisture vapor from each level in the system.

To meet all these requirements, you'll need a pretty special liquid waterproofing layer. Such as Trem-proof Liquid Polymer. It's self-adhering and cold-applied. It has enough body to form a substantial cant strip and carry up vertical surfaces to provide a flashing. It eliminates the use of adhesives and joining tapes plus the time-consuming job of making a positive seal around projections. So you wind up with a flexible, seamless blanket.

One more thing. While your deck is still in the design stage, ask our man for a copy of our "Architectural Guidelines". We've been solving waterproofing problems for over 40 years and we'll give you technical help from the drawing board to project completion. We also give you a choice of some 15 basic caulking and glazing sealants including such familiar names as MONO (our job-proven acrylic terpolymer), DYM-meric (the Tremco-developed polymer) and Lasto-Meric (our polysulfide).

Remember. Talk to Tremco. And make sure your waterproof deck gets rid of the water—safely down the drain.

The Tremco Manufacturing Co.
Cleveland, O. 44104. Toronto 17, Ont.

TREMCO
The water stoppers

For more data, circle 52 on inquiry card
TCS: A PERFECT UNION...
THE MARRIAGE OF TERNE
AND STAINLESS STEEL.

By coating 304 nickel-chrome stainless steel with Terne alloy (80% lead, 20% tin), an end product is created in which the superior qualities of both time-tested components are materially enhanced.

Among the many resulting advantages are unsurpassed durability, maximum resistance to corrosion, and natural weathering to a uniform dark gray.

We have called this product TCS.

In our considered judgment, based on prolonged and rigorous technical evaluation, it is the finest and most versatile architectural metal ever developed for a broad range of applications including roofing, fascia, flashing, copings, gravel stops and gutters.

May we send you further information?

FOLLANSBEE
FOLLANSBEE STEEL CORPORATION  FOLLANSBEE, WEST VIRGINIA

For more data, circle 53 on inquiry card

Rendering by Brian Burr
BANK EQUIPMENT COSTS

Here is another hard-to-find list of prices.

Re colocatable vaults: Available in modular sections; average vault 9 by 11 feet: $11,000.

Bullet resistant doors: Complete with frame, door closer, bullet resistant glass panel and cylinder lock: $700.

Night depositories: Available in both recessed and flush models designed to be installed with either square or round door: $3,000 to $4,200.

Receiving sales: From $900 for 20-inch to $2,200 for 36-inch; package receiver: $900.

Camera surveillance systems: Average system for small-to-medium-sized bank with two cameras, 16 or 35mm: $2,500.

Drive-in windows: Bay, flush and full-skirt models with manual or electric drawers: $2,900 to $3,700.

Walk-up windows: Single or double teller models: $2,600 to $5,000.

Remote transactions systems: Available in three basic types; one that operates with a captive carrier and closed-circuit TV; another with a free carrier and closed-circuit TV; a third with free carrier only: $15,000 to $25,000 per station.

Bullet resistant vision windows: $450 to $550.

Vault doors: Rectangular, 3.5 to 19 in. thick; $10,000 to $17,000. Circular, 7 to 16 in. thick; $7,400 to $28,000.

Building cost indexes

All the indexes on this page are based on wage rates for nine skilled trades, together with common labor, and prices of five basic building materials are included in the index for each listed city.

INDEXES AND INDICATORS

Perceval Pereira
Dodge Building Cost Services
McGraw-Hill Information Systems Company

NOVEMBER 1971

<table>
<thead>
<tr>
<th>Metropolitan area</th>
<th>Cost differential</th>
<th>Current Indexes</th>
<th>% change year ago res. &amp; non-res.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>non-res.</td>
<td>residential</td>
<td>masonry</td>
</tr>
<tr>
<td>U.S. Average</td>
<td>8.4</td>
<td>367.3</td>
<td>344.8</td>
</tr>
<tr>
<td>Atlanta</td>
<td>7.8</td>
<td>464.7</td>
<td>438.1</td>
</tr>
<tr>
<td>Baltimore</td>
<td>8.0</td>
<td>388.1</td>
<td>364.8</td>
</tr>
<tr>
<td>Birmingham</td>
<td>7.4</td>
<td>335.2</td>
<td>312.2</td>
</tr>
<tr>
<td>Boston</td>
<td>8.9</td>
<td>366.4</td>
<td>346.2</td>
</tr>
<tr>
<td>Buffalo</td>
<td>9.3</td>
<td>415.6</td>
<td>390.2</td>
</tr>
<tr>
<td>Chicago</td>
<td>8.5</td>
<td>424.5</td>
<td>403.6</td>
</tr>
<tr>
<td>Columbus</td>
<td>8.7</td>
<td>391.0</td>
<td>367.9</td>
</tr>
<tr>
<td>Cleveland</td>
<td>9.6</td>
<td>421.0</td>
<td>391.1</td>
</tr>
<tr>
<td>Columbus, Ohio</td>
<td>8.5</td>
<td>394.8</td>
<td>370.7</td>
</tr>
<tr>
<td>Dallas</td>
<td>7.7</td>
<td>361.0</td>
<td>349.5</td>
</tr>
<tr>
<td>Denver</td>
<td>8.3</td>
<td>397.1</td>
<td>373.6</td>
</tr>
<tr>
<td>Detroit</td>
<td>9.6</td>
<td>414.0</td>
<td>394.4</td>
</tr>
<tr>
<td>Houston</td>
<td>7.7</td>
<td>352.8</td>
<td>331.3</td>
</tr>
<tr>
<td>Indianapolis</td>
<td>8.0</td>
<td>342.5</td>
<td>321.5</td>
</tr>
<tr>
<td>Kansas City</td>
<td>8.3</td>
<td>349.0</td>
<td>329.7</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>8.3</td>
<td>409.4</td>
<td>374.2</td>
</tr>
<tr>
<td>Louisville</td>
<td>7.6</td>
<td>362.2</td>
<td>340.1</td>
</tr>
<tr>
<td>Memphis</td>
<td>7.6</td>
<td>341.9</td>
<td>321.1</td>
</tr>
<tr>
<td>Miami</td>
<td>8.1</td>
<td>389.2</td>
<td>370.8</td>
</tr>
<tr>
<td>Milwaukee</td>
<td>8.6</td>
<td>422.7</td>
<td>396.9</td>
</tr>
<tr>
<td>Minneapolis</td>
<td>9.0</td>
<td>400.0</td>
<td>377.2</td>
</tr>
<tr>
<td>Newark</td>
<td>9.0</td>
<td>366.1</td>
<td>343.7</td>
</tr>
<tr>
<td>New Orleans</td>
<td>7.3</td>
<td>346.1</td>
<td>326.6</td>
</tr>
<tr>
<td>New York</td>
<td>10.0</td>
<td>404.5</td>
<td>376.8</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>8.5</td>
<td>378.9</td>
<td>360.9</td>
</tr>
<tr>
<td>Phoenix</td>
<td>7.8</td>
<td>297.2</td>
<td>274.5</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>9.0</td>
<td>363.9</td>
<td>344.2</td>
</tr>
<tr>
<td>St. Louis</td>
<td>8.7</td>
<td>380.3</td>
<td>358.9</td>
</tr>
<tr>
<td>San Antonio</td>
<td>7.8</td>
<td>143.8</td>
<td>135.0</td>
</tr>
<tr>
<td>San Diego</td>
<td>8.0</td>
<td>145.0</td>
<td>136.2</td>
</tr>
<tr>
<td>San Francisco</td>
<td>9.2</td>
<td>523.6</td>
<td>478.5</td>
</tr>
<tr>
<td>Sacramento</td>
<td>8.6</td>
<td>367.7</td>
<td>329.0</td>
</tr>
<tr>
<td>Washington, D.C.</td>
<td>7.9</td>
<td>346.6</td>
<td>325.5</td>
</tr>
</tbody>
</table>

Cost differentials compare current local costs, not indexes.

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>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Before C-100 came along windows could be a pain. Like having to climb ladders or not being airtight. Our C-100 did away with such nonsense. The sash lifts out for easy inside cleaning, then snaps back weathertight. What keeps it tight is something you get only from Caradco: stainless steel weatherstripping with proven trouble-free performance. So you can forget call-backs, enjoy reduced on-site labor costs. Factory treated and primed, too. It looks great. And it's a complete package—grilles, storm panels and screens. Now the clincher: C-100 carries a competitive price. No wonder so many builders are switching to Caradco.
OFFICE LITERATURE

For more information circle selected item numbers on Reader Service Inquiry Card, pages 217-218.

WALL PANEL SYSTEM / Completely pre-finished aluminum panels ready for on-site assembly are described in a 6-page brochure. According to the company, it takes one man-hour to assemble about 50 square feet of wall under normal conditions. □ Phelps Dodge Cable and Wire Co., Yonkers, N.Y.
Circle 400 on inquiry card

HOSPITAL LIGHTING / A 16-page application guide includes tables of 17 different types of lamps frequently used in hospitals, describing their physical, electrical and performance features. □ General Electric Co., Cleveland.
Circle 401 on inquiry card

FIRE-RETARDANT PRODUCTS / A wide range of items including compounds for use in intumescent coatings, plastics and foams, and chemicals for flexible and rigid urethane foams is discussed in a brochure featuring the manufacturer's line. □ Monsanto Co., St. Louis.
Circle 402 on inquiry card

CONTROLLED TEMPERATURE EQUIPMENT / Laboratory and production ovens and furnaces, chemical and medical research refrigerators are among the items discussed in an 8-page brochure featuring a complete line. □ Hydor Thermo Corp., Pennsauken, N.J.
Circle 403 on inquiry card

WALL COVERINGS / Seventeen geometric designs on vinyl and foil are illustrated in a 4-page brochure. □ James Seeman Studios, Inc., Garden City Park, N.Y.
Circle 404 on inquiry card

OUTDOOR LIGHTING / A 1500-watt lamp reportedly providing high levels of precisely controlled light of excellent color quality needed for color telecasting is described in a 4-page brochure. □ General Electric Co., Cleveland.
Circle 405 on inquiry card

ILLUMINATED CEILINGS / A basic louver system composed of interlocking cells within cells which can accommodate decorative lighting accessories is presented in a 4-page brochure. □ Neo-Ray Lighting Systems, Inc., New York City.
Circle 406 on inquiry card

COATINGS / An 8-page booklet discusses qualified coatings for plywood which supply color, texture and design freedom. □ American Plywood Assn., Tacoma, Wash.
Circle 407 on inquiry card

SEWAGE TREATMENT PLANT / A package-type plant fabricated of steel plate and delivered to the job site ready for installation is described in literature. The plant, consisting of a horizontal cylinder aeration compartment and a settling tank with a hopper-type bottom, will treat from 3,000 to 12,000 gallons per day. □ Davco Mfg. Co., Thomasville, Ga.
Circle 408 on inquiry card

*Additional product information in Sweet's Architectural File

SURE KLEAN®
Weather Seal
WATERPROOFS
for 5 full years

GIVES TREATED BUILDINGS A CLEAN, DRY APPEARANCE EVEN IN THE RAIN!

It's a fact. New Sure Klean Weather Seal not only out-weathers silicone and common acrylic coatings, but we guarantee, in writing, that it will waterproof masonry wall surfaces for 5 FULL YEARS!

Most important, Weather Seal is so efficient it gives any building that clean, dry, non-streaking appearance rain or shine. Get in on a good thing. Write for free information and complete lab test data. The coupon below will bring it to you by return mail.

Process Solvent Company
1040 Chelsea Trafficway
Kansas City, Kansas 66104

Please send me the Weather Seal story.

NAME ____________________________________________
FIRM NAME ________________________________________
ADDRESS _________________________________________
CITY ________________________________ STATE __________ ZIP ________

For more data, circle 55 on inquiry card

This Decorative Wall

and this 11 Story Library

Used Standard And Custom Form Liners

Cast a prefinished wall with Symons Form Liners. Standard liners available are . . . . striated, bold striated, 1/2"—¾"—1½" trapezoidal rib, rough sawn cedar, rustic brick, aged board, and 1½" bush hammered deep rib. For that special effect, we will work with you to produce a custom liner. Form liners offer a pleasing departure from the monotony of flat surfaces.

Our form liner brochures will be sent to you immediately upon request.

Labor Saving Equipment & Services
For Concrete Construction

SYMONS CORPORATION
122 EAST TouHY AVENUE
DES PLAINES, ILLINOIS 60018

For more data, circle 55 on inquiry card

For more data, circle 57 on inquiry card

ARCHITECTURAL RECORD November 1971 82
In hotels and motels everywhere Bally Prefab Coolers and Freezers are accepted as the standard for walk-in refrigerated storage

Bally Prefabs can be assembled in any size for indoor or outdoor use from standard panels insulated with four inches of urethane foamed-in-place. Easy to add sections to enlarge... easy to relocate. Factory refrigeration systems for every temperature from 35° cooling to minus 40° freezing. Stainless steel, patterned aluminum or galvanized finishes. Subject to fast depreciation. (Ask your accountant.) Write for 28-page booklet and urethane wall sample. Bally Case and Cooler, Inc., Bally, Pennsylvania 19503.

There's an evolution in the kitchen
Specify a change in color scheme—
you've got two (or a hundred) uniquely distinctive rooms
from the same basic design!

That's versatility. Flexibility. Design freedom with a flair for function.
the one laminated plastic to specify when you are concerned with the total interior.

Wilson-Art laminated plastics.
Beautiful.
Economical. Easy to care for.

For the finest service in the industry, contact the contract specialists—Wilson-Art Architectural Design Representatives—
the helpful ones!

When the chips are down, you can depend on Wilson-Art.
Now latex foam carpet backing can be made fire-retardant

As a leading manufacturer of latex, Goodyear is pleased to join with the Carpet Compouders Council in making this announcement...

Commercially available high-density latex foam can now pass recognized industry and Government tests for fire retardancy so that it can be combined with the other carpet components designed to meet similar standards.

High-density latex foam which meets the specifications of the Carpet and Rug Institute and the Rubber Manufacturers Association is an ideal carpet backing. It has a soft, cushiony feel. Yet it’s durable enough to stand heavy traffic. And it cuts installation time and costs because you don’t need a separate backing. An important edge when you’re selling carpeting for restaurants, theatres, churches, hospitals, stores and schools.

For more information about new fire-retardant latex foam made with Pliolite, call R. O. Gilruth, Product Manager at (216) 794-4867. Or write Goodyear Chemical Data Center, Dept. K-84, P.O. Box 9115, Akron, Ohio 44305.

GOODYEAR CHEMICALS

For more data, circle 59 on inquiry card
The strength
The style
The range

Door closers.
Look at them as we do.
From the inside,
where strength and power
combine to easily close
the heaviest doors.

Now look at their eye appeal.
Clean, smooth lines.
Handsome finishes.
Style.

Take a look, too, at the choice:
The powerglide®,
the 1200 Series.
A door closer for every door,
in every value range,
with every feature.

Sargent door closers...
well worth another look.

SARGENT®

A complete line of advanced architectural hardware, including the Sargent Maximum Security System
New Haven, Connecticut □ Ontario, Canada

for more data, circle 60 on inquiry card
Aerofin’s balanced environment protects and preserves the historical treasures of the Lyndon Baines Johnson Library

A great documentary collection invites study at the strikingly contemporary Lyndon Baines Johnson Library, University of Texas, Austin Campus.

From the dramatic proportions of the Great Hall to the five floors of archives, Aerofin Heat Transfer Coils contribute to vital custom climate. The critical presidential document stack area has year-around humidity control by use of dependable Aerofin spray humidifier cooling and reheat coils.

Packaging highly specialized coil requirements has earned Aerofin leadership rating. Call us in on any new or renovation job with demanding controlled environment specs — offices in Atlanta, Boston, Chicago, Cleveland, Dallas, New York, Philadelphia, San Francisco, Toronto, Montreal.

Special Long Type CH hot water coils ranging from 12 to 15 ft. and Type MP hot water booster coils also used in structure.

AEROFIN CORPORATION • LYNCHBURG, VIRGINIA 24505
Aerofin is sold only by manufacturers of fan system apparatus. List on request.

Graber knows your hang-ups—and runs the gamut of finest, quality-made architectural window coverings for every commercial, institutional, residential need, decorative, functional and economical. Your single-source for Verticals as well as cloth, vinyl and woven wood shades.

Verstrak® traverse rodding, High-styled drapery rods.

Copies of our new, illustrated planning/buying guides are yours for the asking. Just mention your interest. Write:

GRABER COMPANY,
Graber Plaza,
Middleton, Wis. 53562.
Distribution Centers In Every Major U.S. City

Architectural verticals, shades, and drapery track that cover the windowfront!

Greater window design flexibility from Graber

change scale with the economy of 8 x 16 block!

... with these SPECTRA-GLAZE® SCORED BLOCK (or create your own)


For more data, circle 61 on inquiry card

For more data, circle 62 on inquiry card
This pioneering lighting/ceiling installation in Tacoma is an 11-month wonder.

Barely 11 months from the day Keene’s Sechrist Lighting division received preliminary drawings from Skidmore, Owings & Merrill, this remarkable concept in fluorescent downlighting was a reality.

Sechrist had manufactured and delivered the last of 1,889 custom lighting fixtures. Each is a 22-inch cube with an acrylic lens deeply recessed in the housing, and every other one is equipped with a tulamp ballast. All were installed in perfect alignment, their white "U" lamps diffusing a warm glow within a geometric pattern of dark reveals.

How did Sechrist meet a tight deadline with a large order of fixtures no one had ever seen before? By smoothly meshing engineering and production know-how. Sechrist lighting experts worked long and hard with the architectural engineers and electrical contractors to design and fabricate the special fixtures.

In the words of the architect’s project manager, “The project required fast action, and Keene was responsive to our needs.”

If you create unusual lighting designs, let us show you a brief slide presentation documenting this project. You’ll see why you can count on Sechrist’s special projects team to execute your ideas successfully—on time and on budget. Call us at (303) 534-0141, or write Keene Corporation, Sechrist Lighting, 4990 Acoma St., Denver, Colo. 80216.

KEENE CORPORATION

SECHRIST LIGHTING

We’ve just begun to grow.

For more data, circle 63 on inquiry card

PHOTOGRAPHER: TOM UPPPER

To Paint or not To Paint.

The beauty in shapes and textures is undeniable. But a life without the full expression of color is not life. Color infinitum. Paint is the one medium that offers the individual in his environment the choice of nature's completed spectrum. With all its subtleties. With all its explosiveness. It is the only medium that encourages the total exploration of color.

Paint is freedom. Let paint be part of your creative decision. And when it is, let it be the finest.

Pratt and Lambert. The paint.

For more data, circle 64 on inquiry card
Who keeps your building high and dry when it's six floors underground?

Philip Carey.

With today's buildings going deeper and deeper underground, it's more important than ever to provide effective waterproofing and damp proofing protection. And more difficult.

That's why Philip Carey has engineered waterproofing and damp-proofing systems that assure you maximum protection against moisture penetration. And, only Philip Carey offers a combination of products — primers, adhesives, asbestos felts, glass and fabric membranes, and protection courses — that make the systems work.

Because conditions vary with job sites and structures, the problems are not always the same. So it's important to discuss your requirements with us — during the planning stage.

One of our Architectural Relations Managers is ready to assist you in determining the best system for your building, wherever you plan to put it. See our catalog in Sweet's Architectural File—7.9/Co. Or return the coupon and it's yours. Philip Carey Company, Division of Panaco Corporation, Cincinnati, Ohio 45215.

For more data, circle 65 on inquiry card
Galbestos walls: the natural choice
Galbestos is color.
Galbestos is texture.
Galbestos is compatibility.
Galbestos is versatility.
Galbestos is permanence.
Galbestos is unique.

In all the world, there is no wall and roof material comparable to Robertson Galbestos. Like natural materials, the textured surface of this protected metal breaks up the sun's rays to prevent glare and enrich its color. Your power plant looks better in the beginning, and it stays that way because of the Galbestos protective system.

In a short time, sun, pollutants, dirt, rain and wind-blown abrasives can ruin ordinary building finishes. Not Galbestos. Famous for decades for its resistance to wear and weather, it has now been improved even further by a new polymeric finish. This multi-layered protection system—fifteen times thicker than a paint finish—has scored such high marks in grueling independent tests that we now offer a unique performance specification challenge.*

Galbestos is available in a variety of profiles and natural colors, beautifully compatible with other building materials. It can lend new permanence and distinction to your installations.

Galbestos is representative of Robertson's overall contribution to building construction excellence. For more than 60 years, Robertson has been active in designing, producing and installing metal walls, roofs and floors and engineered ventilation systems for power installations...all over the world.

*For independent test reports and specification information, see your Robertson representative, or write H. H. Robertson Co., Room 1111, Two Gateway Center, Pittsburgh, Pa. 15222

ROBERTSON

Top: Northside Generating Station, Jacksonville, Florida
The colors are reproduced here for illustration only

For more data, circle 66 on inquiry card
Steelcase.

When you want an honest impression.

Many times, things aren’t what they seem to be. The background mural above, for instance, is a photograph of reflections in the facade of the United Nations Building.

If it’s important to you that your clients’ offices and reception areas reflect a true corporate image, Steelcase can help. With furniture that makes an honest, immediate impression. Furniture that’s distinctive, but not ostentatious. Just honest, like our new cube-styled 5200 Series desks... like our new Gardner Leaver chairs and tables that project their own particular richness in fine leather and stainless steel.

To see more, visit one of our showrooms located in major cities. Or, write for our Gardner Leaver and 5200 Series literature. Either one could be your first step toward helping your clients reflect their companies in the best possible way. Steelcase Inc., Grand Rapids, Michigan; Steelcase Canada Ltd., Toronto.

Steelcase
Furniture that works for people who work

For more data, circle 67 on inquiry card
RESORT HOTELS
AND CONDOMINIUMS
DESIGNED
FOR ROMANTICS
IN SEARCH OF JUST THE
RIGHT AMBIANCE

The four projects included in this study have a single common thread. Each has been designed to celebrate its environment and the sports of that environment in a direct, expressive way, and each succeeds in doing so. All have been created by architects who may or may not like to watch yacht races or sail in Narragansett Bay, or swim and snorkel in the Caribbean, or ski in the French Alps. What is important is that they possess the sensitivity and imagination to perform the fascinating task of creating the right ambiance for those who do.—Mildred F. Schmertz
ACROSS THE WATER
THIS SHARPLY ANGLED
SILOUETTE LOOKS
BETTER THAN A BOX

This year-round inn on Goat Island in Narragansett Bay is visible from Newport R.I., the great harbor, and the route over the Bay by way of a recently constructed bridge. The clients began by wanting a typical squared-off functional box in the tradition of chain hotels everywhere. The architects persuaded them that the visual prominence of the site was one of its greatest assets and that the hotel should have a form and shape to make the passing traveler wonder what it is. The result is a work of sculpture to be viewed from all angles. Its steeply pitched roofs are inspired by local shingle-style houses.

Shown above is the 10-story inn's glass-enclosed swimming pool and at left the typical arrangement of rooms around the central elevator and stairway core. The most interesting feature of the hotel is its five-level cocktail lounge at the top of the building surrounding the elevator penthouse. Because this lounge is high, multi-level, and shallow, it offers a lighthouse-like viewing perimeter for those who like to look out over Narragansett Bay. The owners say that the lounge does an excellent business, especially during sailing race weeks. Four of the five levels and how they interconnect are shown at the right.
The isometric (right) indicates that the cocktail lounge resembles the interior of a ship and people move through it by climbing steps as they would on a ship's bridge. The wood finishes, railings and light fixtures mildly suggest a nautical ambiance as can be seen in the photo above.
A GOOD SITE PLAN MAKES A ROCKY COAST JUST RIGHT FOR SWIMMERS

Most hotel developers about to construct a large international facility on a cliff site such as this Hilton for Martinique, would first blast the rocks to create a sandy beach. After thus violating the site, they would build what they considered a spectacular and luxurious edifice—possibly staggered down what remained of the rocks—in the hope that the tourists would share their tastes. Happily this hotel, which is quite modest in its architectural expression, maintains the continuity of the land form.

As the air view and site plan indicate, the ocean side of the hotel is a beautifully planned series of spaces which include a pool jutting out over the rocks, terraces, a gazebo and steps leading down to the water. At the water level are a series of bridges and oval platforms which the architects call pods, which connect with a marina. The pods are for swimming, snorkeling and sun bathing. The two wings of the building surround a group of royal palms, the center of the courtyard of the original estate. A small golf course has been planned within the estate's botanical garden. Wherever possible plant materials, rocks and water remain as the developers found them.
The royal palms and driveway from the original estate are shown at the right. Adjacent to the entrance as the ground floor plan indicates are a series of shops enclosed within half circles. The dining terrace below overlooks the swimming pool and the ocean. As can be seen in the plan of a typical hotel room floor, all rooms are reached by a single-loaded corridor and have seaside terraces.
A FUTURE HOTEL-MOTEL CONDOMINIUM CAN START SMALL WITH A GOOD DESIGN

In many resort areas developers with only a small amount of capital begin by constructing condominiums first and selling them to raise more capital to construct the basic hotel-motel-facilities. The plot plan (right) shows a projected development in St. Croix which will include 36 condominium units now under construction in the first-phase building. Next to be constructed will be a multi-story hotel with the usual tourist facilities as well as pool and terrace. The addition of another 24 condominium units will complete the development.


The building, a simple poured concrete and concrete-block structure, has been given variety and interest and brought into scale with the local village architecture by means of open stairways and broad trellises on the entrance side. The well-thought-out layout of the condominiums, shown in the plan below, permits the owner to conveniently and comfortably occupy all of his unit, or just the living and master bedroom, or only the second bedroom, if he chooses to rent out the remaining space.
A NEW SKI VILLAGE IN THE FRENCH ALPS DESIGNED TO LOOK AS IF IT GREW THERE

This marvelous place is one of the few works of modern town planning which appears to be truly a part of its physical environment. Granted of course that the environment itself is spectacular and that the resort is a happy community of skiers, the successful ambience of this village is chiefly the result of an unsurpassed architectural performance. Everywhere the profiles of the buildings echo the nearby rock formations or the fir trees. The silhouettes of the large groupings follow or are juxtaposed against the forms of the mountains. The forms are witty and capricious, but they function quite well and have an overall unity through consistency in structure and materials.

The structure shown in the plans (left) and in the drawings (opposite and below) and on the cover is the Hotel des Dromonts. Its neogothic character is typical of all the hotels and condominiums in the village. Avoriaz will ultimately accommodate 15,000 people in hotels, condominiums, individual chalets, and hostels. Automobiles are parked at the base of the mountain and skiers reach Avoriaz by plane or cable car.
The restaurants and bars are playful and amusing and endlessly varied in shape and form, as can be seen in the photos at left. Hotel and condominium suites (right and below) as well as chalet interiors (top) are equally fanciful and adroit.
Like most of the buildings at Avoriaz, the hotel has a composite construction—a poured-in-place concrete structural system tied into the rock of the mountain, with wood framing of walls and partitions, and a red cedar-shingle skin.
IN PRAISE OF A MONUMENT TO LYNDON B. JOHNSON

The monument, like marriage, has gone out of style—almost. People still get married, although women's lib and the new morality say they don't have to, and an occasional architectural monument rises upon the land, designed by architects who may actually disapprove of monuments—in principle—but not when they are given the rare and challenging chance to do one.

The Lyndon Baines Johnson Library and East Campus Library and Research Building, the work of Gordon Bunshaft of Skidmore, Owings & Merrill and R. Max Brooks, Barr, Graeber & White, and designed primarily to house 31 million papers and documents of Johnson's public career from 1935-1969, is a symbolic conception, intended to solemnize in stone the period now passed into history in which the nation was led by LBJ. The building also, of course, honors the former president himself, just as the Washington, Lincoln and Jefferson memorials commemorate their namesakes. Since the library houses a major archive, it partakes of the long architectural tradition of housing books and papers with the respect such works of man deserve—nobly—in monumental space. So the LBJ library is truly a monument and as such is considered by many to be an anachronism or worse.

For some critics even the words "monument" or "monumental" are pejorative, summoning images of millions of dollars diverted from pressing human needs and squandered instead on stone and marble to celebrate the dubious, not to say iniquitous deeds of an establishment villain. This line of reasoning, while it helps Lyndon Johnson's political enemies score points, should not be allowed to pass for architectural criticism. For one thing, amounts of money diverted from human needs to construct monuments are a pittance in comparison to the flow of public and private funds to other areas of doubtful social utility. Further, how can we be sure that there is no longer a human need for monuments? Man has built them since pre-history and people have been going to look at them even since. For some people a world without monuments would be a world with no place to go. Finally, do we really have to approve of the hero and his time in history to be interested in, or learn from, or like, his monument? If our refusal to acknowledge as art all creations which do not fit our political, social and moral beliefs is pushed to the extreme, the fallacy becomes obvious: if we think most Renaissance popes were evil, does this mean we disallow the importance of the work of Michelangelo?

LBJ's presidency will continue to be evaluated for many generations and his popularity as an historical figure and his rank among U.S. presidents will periodically rise and fall. It is unfortunate that his monument should open to the public in a year when so many journalists and critics are down on monuments and down on him, for the library is an important work of architecture and deserves to be enjoyed and assessed on its own terms.—Mildred F. Schmertz
Upon visiting the LBJ library one first becomes aware of how superbly it is sited and landscaped. Paths about the site, outlooks, places to pause and rest, plazas—all have been designed to display the structure at its best angles and set off the clumps of splendid live oaks which abound on the sloping lawns.

The library is best seen as one moves through the site, toward it, through it and away from it, rather than viewed straight on as a fixed object.

The shape of the dominant element which houses the archives, museum and, in the cornice, an office floor, suggests Japanese influence and is austere and monumental in form. In finish, however, thanks to its sensuous yet subtle profiles and fine detailing and craftsmanship, the building is ingratiating if not quite luxurious.

The site is situated to the east of the rather overbuilt campus of the University of Texas and is on axis with certain principal buildings of the university. The long low element, Sid W. Richardson Hall, designed and built at the same time as the LBJ Library, contains the LBJ School of Public Affairs, the Eugene C. Barker Texas History Center Library, the Texas State Historical Association, the Institute of Latin American Studies and the Latin American Collection Library. The entire site comprises 30 acres including the large parking lot, screened by the low wing.
A museum-library for presidential memorabilia and papers which is conceived in monumental terms has no real precedents in architectural form and thus presents a special challenge to its architects.

While it is true that libraries commemorate the presidencies of Herbert Hoover, Franklin D. Roosevelt, Harry S. Truman and Dwight D. Eisenhower, these do not attempt to celebrate history in the language of architecture. A source close to the former President said that if it had been up to LBJ, the library would probably not have been a monument at all, but rather a low lying structure similar to the buildings on his ranch 70 miles to the west. The library became a monumental work of architecture, according to this source, because Mrs. Johnson thought it should be and devoted much time and energy to developing the program and finding the right architects for the job.

As the photograph (right) indicates, the archive itself is the heart of the building. The papers, stored in red buckram boxes with gold Presidential seals, and displayed row upon row behind huge glass doors, are the climax of a beautifully controlled spatial sequence.
Two great parallel walls, 200 feet long, 65 feet high and 90 feet apart, define the main mass of the library. The two walls curve upward and downward from a base thickness of eight feet. The tapering of these walls delineates the vertical cantilevered thrust of the closely spaced columns within the walls. At three quarters of the height of the walls, the surface splays out to receive and distribute the weight of the girders which support the cantilevered top story and span the space between the walls.

The weight of the girders is transferred to these walls by large steel pins. These are truncated pyramids three-feet-high and serve to separate the walls and the girders. The space between the girders and the walls is filled with glass to help define the juncture of the walls and the roof structure and to permit the visual flow of space between the exterior and interior.

The girders are massive hollow concrete structural members five-feet-wide and seven-feet-high which span 90 feet and cantilever 16 feet beyond the walls of the building. The girders are connected to each other by thin stiffeners as shown in the detail photo (top right) to form a strong pattern visible from below.

The two tapering main walls also contain mechanical ducts which rise from the mechanical system within the podium. They are covered with Roman travertine.
The former
President's suite (above) occupies the eighth floor which also includes administrative space, a roof terrace, a 7/8th-inch scale replica of the Oval Office in the White House and a helicopter landing pad. Construction cost was $30.86 per square foot.

LYNDON BAINES JOHNSON
LIBRARY AND EAST CAMPUS
LIBRARY AND RESEARCH
BUILDING, Austin, Texas.
Owner: The Board of Regents
of the University of Texas.
Associated architects: Skidmore,
Owings & Merrill and Brooks,
Barr, Graeber & White—partners-in-charge; Gordon Bunshaft (SOM), design; R. Max Brooks (BBG&W), project development; for SOM: Frederick C. Gans, project management; Sherwood A. Smith, design; Leon Moed, working drawings; Davis B. Allen, interiors; Carroll Donohue, landscape; for BBG&W: Charles Tilly, working drawings; David Yarborough, field coordination; structural engineers: Paul Weidlinger-W.
FOUR VACATION HOUSES

The open and attractive sites usually chosen for vacation houses are often a major influence on architectural form. These four houses, each in a region with distinct climate and character, express those determinants as well. Thus this house in the White Mountains (also shown overpage), used for skiing weekends and vacations, makes good use of a sloping, wooded site and expresses an appropriate sense of shelter from winter winds.
The logical combination of masonry and frame construction gives a crisp clarity to the house (below) and the sheltering roof appears to float above the band of south-facing windows. The massive chimney not only stabilizes the structure but provides a suitably-scaled fireplace. From the built-in couch, skiers can watch the sun set on distant peaks.

A house in the White Mountains:
crisply detailed shelter enhances a perfect site

The wooded slope facing south toward the Presidential range of the White Mountains is perfect for a winter vacation house. Architects Huygens and Tappé have not failed to make good use of it. A masonry shell of striated concrete block—especially visible across page—protects the two-story frame structure inside it from heavy north winds at the same time that it forms an extremely sheltered entry. On the sunny south side, glass walls and a balcony reach out to the splendid view. Although the massing is entirely symmetrical, including two narrow stairways from entry to balcony, interior planning is entirely free. Three bedrooms, some with four bunks each, along with a recreation area, have been fitted into the lower floor. The narrow hemlock clapboards used on the balcony (far left) also are used on the interior walls and ceilings. The interiors and most of the furniture were designed by the architects.

Location: White Mountains, New Hampshire. Architects: Huygens and Tappé; engineers: Souza and True (structural), William R. Ginn (mechanical), Lotters and Mason Assoc. (electrical); contractor: Philip Robertson.
Marvelously different site conditions in three directions and dramatically varying atmospheric conditions, (above) justify an unusual amount of formal contrast, one elevation to another, in this modest three-bedroom house. Light from a huge west-facing clerestory and from doors and windows on both sides of the main floor fills the living room (opposite page) all day long.

A house on Puget Sound:
Fresh expression of regional frame construction

Where foggy Northwest woods and the waters of Puget Sound meet, architect A. O. Bumgardner has created a romantic year-round vacation house. Responding to his client's memories of childhood summers in an earlier cottage on the same site, he has echoed the forms and techniques of indigenous residential frame construction. But also responding to the site's orientation to the east, he has opened up large areas of the roof with clerestories that pull in afternoon light in summer and during the mild but gray winters. Since no other houses are nearby, large glass areas on the main floor also open the interior to the outdoors. A huge cedar on the northeast side of the house and a fresh-water pond (far left) behind the beach are two major elements of the site to which the form of the house reacts. Thus each elevation acknowledges its particular environment. Cedar shingles on walls and roof tie the composition together.

Location: Bainbridge Island, Washington. Owners: Mr. and Mrs. Cappy Clarke; architects: The Bumgardner Partnership; engineer: Richard M. Stern (mechanical); contractor: Settle Construction Co.
Simple wood-framed and plywood-clad volumes provide a lively interplay of form and shadow throughout the day. A trellis (below) at the entrance and the guesthouse provide varying degrees of spatial enclosure outdoors. Indoors (opposite page) a well-placed window bathes the living room wall with afternoon sun. The hexagonal brick pavers are used both indoors and on the terrace.

A house in the Hamptons:
design enriched by careful solar orientation

Looking north across a large field surrounded by trees, this sculptural vacation house has a site similar to many in eastern Long Island. Because of the immense popularity of the area as a New York City recreation spot, land costs along water's edge are extremely high. Thus, many modest houses are sited on agricultural land or in the woods. Paul Damaz has used a two-story, north-facing living room to tie the floors together into one free-flowing space. With the exception of bedrooms and baths, all the interior spaces are open to each other. Care has been taken to place windows where they catch the morning and late afternoon sunlight. The tub in the master bath, in its own little turret, far left above the trellis, has a window specially placed for watching the sunset while bathing. A small separate structure to the northeast serves as a studio and guest house. The house is filled with works by artists whom Annie Damaz represents, including paintings, sculpture and prints.

Location: Springs, East Hampton, N.Y. Owner and architect: Mr. and Mrs. Paul Damaz of Damaz and Weigel; contractor: William Lynch.
A house at Sea Ranch: informality expressed in plan, form and details

It used to be that "vacation house" meant a modest cottage in a lovely spot. While none of the houses in this collection are large or pretentious, Donald Sandy's house for Mr. and Mrs. John Crossman comes closest to that simple old-fashioned idea. The plan, the form and the details all express an informality that seems appropriate for rural living. However, informality does not mean shoddy or incomplete finish. For $23,000 architect Sandy has provided interiors, above right, with walls of the same diagonal resawn redwood boards as on the exterior, oak floors and a large fireplace of field stone found on the site. The massive chimney provides important shear resistance to the Pacific Ocean winds, which were carefully charted when Sea Ranch was conceived and which have contributed a groundhugging silhouette to this house and others built there. A future bedroom addition will supplement the sleeping loft which has a unique floor structure of laminated 2x4s.

Location: Sea Ranch, Sonoma County, California. Owners: Mr. and Mrs. John Crossman; architect: Donald Sandy, Jr.; contractor: Bill Pauley.
CHICAGO'S
NEW
RAPID
TRANSIT
EXTENSIONS

Utilizing an existing public right-of-way (the median strip between twelve lanes of motor expressway), Skidmore, Owings & Merrill has completed two long-planned, high-speed transportation corridors that link the Loop with the city's suburbs. In making this substantial commitment to Chicago's urban future, city officials and designers have worked within the limits of an existing mass transit system but have opted for quality.

Ezra Stoller © Esto photos
The two new extensions to Chicago's rapid transit system begin from existing downtown terminals. One line, occupying the median strip of the Dan Ryan Expressway, extends service southward to the new 95th Street Station near Calumet Park. The second extension, to the north and west, carries passengers as far as Jefferson Park, hard by O'Hare International Airport. Since 1966, when design began, 17 handsome new stations have been put in use.

Working with engineers, DeLeuw, Cather & Company, and under the Chicago Transit Authority, SOM began by defining important design objectives. These included: 1) a pleasant transit environment; 2) convenience and easy flow at rush hours; 3) security at all hours; 4) surfaces that could absorb hard usage without undue upkeep.

These criteria led to a basic station design with three elements: a boarding platform, a fare collection area, and a waiting area for connecting buses. All vertical connections are made with escalators.

The design of terminal stations (Jefferson Park and 95th Street Stations) offered a special challenge. At 95th Street (photo and plan at right), the entire facility including bus stations had to be constructed within the slender right-of-way. SOM's innovative solution employs two bus terminals (one for departures, one for arrivals) spaced out on opposite sides of the expressway and linked by pedestrian and bus bridges. To avoid purchasing additional property, both terminals were created on land fill within the right-of-way. Fare collection is located at bridge level and passenger platforms a level below.

All stations make maximum use of glass walls both for day-lighting and for security. Underground platforms are spanned with concrete arches that eliminate the need for intermediate support, leaving the platform free of columns. Above-grade loading platforms are covered with light steel canopies, crisply detailed and painted off-white. These handsomely-designed canopies follow both the horizontal curve and the vertical profile of the tracks. By allowing the cantilevered canopy to extend beyond the midpoint of the cars, passengers are protected from water run-off while boarding. To increase the cheerfulness of these spaces, many canopies are covered in clear plastic domes (photo page 129).

These new stations, thoughtfully designed and carefully integrated with city bus routes, are a substantial addition to Chicago's public transit system. Planners in other cities are watching with interest.

A consistent system of graphics and directional information was developed by the architects in cooperation with Morton Coldsholl Design Associates. All letters are white Helvetica set against a variety of color-coded backgrounds. The relative importance of the information being conveyed has been allowed to determine letter sizes. Turnstiles, transfer issuing machines, fare collection booths and escalator equipment are finished in stainless steel for appearance, durability and easy, trouble-free operation and maintenance. Agent’s booths are air-conditioned, equipped with a toilet and fitted with large window panels for effective platform surveillance.
Rarely do public high schools have the qualities which abound in the new Greenwich High School in Greenwich, Connecticut. The beautiful site, with its fine old trees, rock outcroppings and natural pond, offered opportunities for development of unexpected and delightful places and spaces between and around the buildings. On such a site a single large building would have been unforgivable. The architects, responsive to the beauty of the place and to the particular requirements of the program, wisely made the buildings small in scale and organized them in two clusters, one for academic functions, the other for specialized arts and physical education. This architectural solution saved trees and rock outcroppings, preserved the pond as a natural biological resource, and used all these attributes to provide the kind of places, indoors and out, whose connotation of building with landscape, and vice versa, remains indelible in memory years after graduation. The simple vocabulary of the buildings' design is handled with equal sensitivity, and clearly expresses the school's emphasis on personalized education for each student. Where the "house" concept, on which the academic program is based, divides the 2,750 students into four groups, the student center, a multi-activity focal point which acts as circulation and as "breathing space" for lively interaction, brings them all together as "student-citizens" of the school.

Greenwich High School is designed for and well-suited to today's educational, technological and functional needs, but because of its acoustical treatment and built-in flexibility, it is adaptable to changes for future needs. What marks it as esthetically exceptional, however, is the quality of its site and building design. The natural pond, for instance, is a rare natural resource for a high school and has been treated as such an asset. All buildings are oriented away from it with only the science department opening toward it. The pond is a place apart, both a refuge for animal and plant life and a special means for studying biology. Other natural features were equally influential in siting and in creating the character and quality of the campus. Even the parking areas adjacent to facilities used also by the community (auditorium, stadium, gym) are pleasant assets. Inside and out, the glasswalled gallery (opposite) is a visually pleasing experience.
The focal point of all student activity is the student center, a vast open area with a 2,000-seat capacity. It is the principal means of student circulation in the academic area, but it is also dining area, assembly area, a place for school social events, meetings, rallies, concerts and public functions as well. It is acoustically designed for lively activity and there is no lack of this among the 2,750 students who come together in the center from their various "house" assignments (permanent for the three years of high school). Here they are "student-citizens" of the entire school, in contrast to their small "house" groups. The school's four academic buildings, acoustically designed as quiet areas, enclose the center except at corners where window walls open it to visual and spatial relationships with other parts of the campus: the court between gallery and administration building (left and above); the corridor leading to library steps (above); stairs down to offices.
In scale, color and materials, the buildings fit naturally into their surroundings. Exterior materials—brick, concrete and wood, and a special alloy metal used to cap the brick walls—have a happy consonance with local tradition and also require little upkeep. The metal ages to a rich deep gray that picks up purple tones from the reddish brown brick. Simple details such as the concrete post and lintel at a minor doorway (left), the service road along the creek and the bridge (above) leading to wooded sport areas, and the arched openings in the industrial arts building (below), unselfconsciously create vistas of unexpected charm.
Innovative engineering leads to new stadium designs

by Hannskarl Bandel, partner, Severud Associates, consulting engineers

A number of new stadiums have been built, planned, or projected recently for some compelling reasons: old ones don't work well for multi-sports use; parking is lacking; television adds new requirements; sports leagues have expanded; more inducements are needed to attract spectators. While these stadiums are modern in many ways, the author suggests that novel engineering could improve both the function and the economy of future stadiums.

From the spectator's standpoint, the most important requirements for a sports stadium are that he be able to see as much of, and be as close to, the activities on the field as is possible.

Because the modern sports stadium must serve the needs of both baseball and football, designers have had to find means for moving the lower seating areas to change the arrangement from a baseball to a football configuration. Generally, the structure for the lower seats has been set on wheels—sometimes the wheels ride on railroad tracks; in other cases seating has been divided into maneuverable sections and set on truck wheels. Such arrangements can be both expensive (initial cost) and time-consuming. The first-mentioned seat-moving arrangement has been employed with the conventional circular stadium. The second technique has been used with the stadium which uses a geometry called the “super circle” (a shape somewhere between a square and a circle). With such a shape, shorter sight lines are achieved for football than with a circular stadium.

It is possible, however, to develop an expandable, elliptical stadium configuration (see following page) which optimizes the sight-line distance for both football and baseball. With this approach, only one movable section of seats is utilized which makes a single linear movement inward or outward.

Our investigations have led us to believe that the best moving system for such structures would be the air plenum and air flotation principle that is used for Hovercraft vehicles (photos opposite).

The use of this type of air-flotation system for a stadium is very natural because...
a large plenum is automatically created by the lower seating, the lower concourse, and the back-wall enclosure. It would be possible to move the structure without any tracks or friction over any kind of surface—pavement, dirt, or natural or synthetic turf. Because of the extremely low pressure utilized (in the range of 50 psf) the system would have a very low power requirement; and, because of the large air reservoir, it would be insensitive to irregularities or cracks in the underlying surface.

In order to keep the pressure as low as possible to enhance the economics, careful attention must be paid to the detailed design of such a movable stadium. Weight should be minimized as much as is practicable. For example, toilets and permanent concessions should be moved to adjacent, non-movable structures. High-strength steels should be employed for the framing and lightweight principles used in bridge design—such as orthotropic decks and folded plates—should be considered.

New ways to economically roof over and enclose the sports stadium

There is no question that in the future many sports stadiums will be fully enclosed and air conditioned. Because of the gigantic dimensions of stadium roofs, the structural engineer needs to look for techniques that will economize the roof system. One such approach is as follows:

The cone forming the upper seating and the side roof would be most economical if it were designed as a composite structure, using high-strength precast concrete members for all compression elements (ribs) and shear plates and high-strength steel hoops for all tension members. It would be possible to construct the cone of the seating and the returning canopy roof without scaffolding—precast elements are put up in self-supporting tiers.

In order to reduce weight and to cut
down on the total enclosed air volume that is created by a full dome, we propose that the closure could be economically made by an air-inflated stainless steel pillow. The weight of such a suspended pressure-stabilized structure (the stainless steel skins would be taut) would be approximately 1/10th that of a conventional steel dome. If air pressure were lost, the structure would still remain sound. Purpose of the pressurization is to make the skins stable with respect to wind (e.g., in the case of a cable structure, the cables have to be tied down, weighted, or dampened).

Another approach to enclosed stadium design utilizes a three-directional cable net as the roof that is kept in tension by means of the dead weight of a spiraled parking structure.

Three different ways of providing a movable roof
In spite of the fact that they add in the neighborhood of 10 per cent to total cost of a stadium, movable roofs have intrigued entrepreneurs and designers alike. We have worked with various principles, always emphasizing simplicity of movement in order to guarantee faultless functioning of the mechanism. The illustrations on the next page show a sliding pie-shaped roof, pieces of which slide up and down on the dome surface. These arrow-like pieces would be constructed of aluminum folded plates in order to reduce the load. Another approach employs twisting elements that close like a camera shutter. We feel, however, that the most economical system would be a metal stressed-skin roof which is strengthened by post-tensioned cables, and which slides on a compressed-air track. This roof has a distinct advantage over an arch-shaped movable roof because the arch requires a much larger span in order to achieve the required height at the top of the stands; and, further movement must be made under arch reaction.
Occasionally, movable roofs have been considered for stadiums to open them when the weather is good. The schemes shown here include: 1) a system that works like a camera shutter (above, left); 2) a system with arrow-shaped roof panels that slide over the perimeter roof to close the center (above, right); and 3) a post-tensioned steel stress-skin flat roof (below) that does not enclose the stadium, but provides shelter over the playing field. It is proposed that the flat roof slide on a compressed air track to minimize friction.
No Architect Who Is Involved In Apartment Design Can Afford To Be Without These Two Books

Two important books.
They're yours for the asking. "TRUS JOIST In Apartments" features the wood and steel open web TRUS JOIST, while the second book gives details about the extremely economical I Series. Both are far superior to ordinary frame construction and both provide far faster construction and significant labor savings. In each book you'll read actual case studies which document the savings made in apartment projects of all sizes, savings which in some projects have totalled $200 or more per unit.

You will also find cost comparison sheets which you can use to figure your own savings on any upcoming project.

You'll want all the details on how to get quality construction and real savings. Write today for your free copies.

For more data, circle 68 on inquiry card

9777 CHINDELE BOULEVARD BOISE, IDAHO 83702

Plants in: ARIZONA CALIFORNIA IDAHO IOWA OHIO OREGON CANADA (Alberta)
7 reasons why Architects and Builders call Royalty® one-ply PVC rolled roofing: "The Perfect Roofing System"

1. EXTREMELY FLEXIBLE
   Easy to handle. No special equipment needed. Readily conforms to shapes and irregularities. Stretches and contracts with weather.

2. FAST, CLEAN APPLICATION
   Roofing, adhesive and cold weld are only materials you need. No hot kettles, no smoke, no fumes, no pollution, no expensive clean-up.

3. SUPERIOR WEATHERABILITY
   Unaffected by ozone, oxygen, sunlight, weak acids, weak alkalis, oxidizing chemicals and temperature.

4. FLAME RESISTANT
   Royalty Roofing is self-extinguishing.

5. SOUND DEADENING
   Highly insulative against sound, heat and cold.

6. SELF FLASHING
   Royalty Roofing serves as its own Flashing material and its own gasket.

7. NEW EXTENDED WARRANTY
   Commercial Grade: 20 years on fixed structures, 10 years on mobile structures. Chateau Grade, 10 years on all structures.  

For complete information, write today to:

Royalty Building & Industrial Products
A Division of Royalty Industries, Inc.  
(Formerly Royalty Designs of Florida, Inc.)  
601 West 27th Street • Hialeah, Florida 33010

Massey chairs have a self-rising hinge mechanism which rotates on a stationary spanner rod, which extends entirely through the cushion pan, and is permanently attached to the standards on each side of the seat.

And you can say all that in just one word: Quality. For the complete story on Massey quality, see your Massey dealer, or write:

For more data, circle 70 on inquiry card

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT MULTI-LEVEL PARKING STRUCTURES (but didn’t have anyone to ask)

Now you do!


Since 1968, PPSI has built more than 20 major garages coast to coast, providing an up-to-the-minute display case of today’s solutions to parking problems.

Working with or for architects who are in early project planning phases, PPSI can supply ideas on a wide variety of approaches to site utilization, interim land use, floor plans, ramp systems and facade treatments ... and has the staff capabilities to consult on site analysis, feasibility studies, estimating and scheduling.

PPSI fact folders describe parking problems and solutions for hospitals, universities, municipalities, shopping centers, land developers and others. They’re yours for the asking.

PORTABLE PARKING STRUCTURES INTERNATIONAL  
250 East First St.  
Los Angeles, Calif. 90012 • (213) 636-4801

For more data, circle 71 on inquiry card
New! The American Olean ceramic tile system.

Redi-Set pregrooved ceramic tile sheets are uniformly grooved, perfectly aligned—for beautiful jobs every time. Only joints between sheets are grooved on the job, with the same grout we use in the system.

Flexible grout. Will bend and stretch with building movement.

Waterproof system for waterproof installations. Redi-Set goes up over almost any interior wall—concrete masonry, gypsum wallboard, even existing ceramic tile.

Easy-cleaning grout. Resists stains. Won't mildew. Stays white. Cleans with a damp cloth.

Crystalline, Bright and Matte glazes. There are up to 16 Standard Grade tiles to a Redi-Set® sheet. With 4¼" x 4¼", 6" x 4¼", or 8½" x 4¼" tiles.


Redi-Set pregrooved tile. It's the natural thing to use.™

For more data, circle 72 on inquiry card.
Pushbutton conveyor system speeds hospital supplies to any of 17 stations

Planning for materials handling in multi-story buildings can become an easy matter—when you specify a STANDARD CONVEYOR Recordift System.

A Recordift System unifies a building. General supplies, mail, records, files and other materials go up, down, and throughout the building at the push of a button. The cost and congestion of inter-floor messengers is saved—speed and efficiency are gained.

Ideal for hospitals

Widely used in office buildings, banks, libraries, etc., Recordift Systems have long proved ideal for handling hospital supplies.

The plan above, for example, shows the "clean" portion of an extensive double Recordift System being designed for a new 700-bed hospital.

Has two-lane traffic

Two separate horizontal-vertical conveyor systems will run side-by-side throughout the building complex. One will handle clean linen, the other, soiled. The systems will also handle mail, books, records, forms, publications, medical supplies, instruments and lab specimens.

There are 17 pushbutton stations on the clean system, 14 on the soiled. The entire double system has about 4,300 feet of conveyor—3,000 feet horizontal. The vertical footage includes 8 Recordifts and 12 reciprocating lifts.

Provisions are included for adding 7 more stations to the clean system and 8 more to the soiled.

Dispatching is simple

Any station can send to any other station in each separate system. For reasons of cleanliness, the two systems do not connect at any point.

Dispatching is simple, fast and selective. The operator merely loads the 20¾" x 17½" x 10" container (2 will hold a complete change of linen for 3 beds), pushes the button for the proper station, and the system delivers it.

Write for data file

If you are concerned with multi-story buildings which call for streamlined distribution of everyday supplies, be sure to investigate STANDARD CONVEYOR Recordift Systems.

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

LISTED IN SWEET'S—SECT. 24 D / ST • SALES AND SERVICE IN OVER 40 CITIES—SEE YOUR YELLOW PAGES

Standard Conveyor COMPANY
312 E. Second Street, North St. Paul, Minn. 55109

For more data, circle 74 on inquiry card

ARCHITECTURAL RECORD November 1971
Unitary carpet backing and hot melt adhesive system improve carpet performance and appearance

A non-woven carpet backing material which eliminates the need for secondary backing, and a hot melt system of bonding the fiber to the primary backing, are two recent developments in carpet construction which reportedly result in improved carpet quality.

The primary backing, made of spunbonded polypropylene, is said to provide tufted carpets with the dimensional stability and strength required without secondary backing. Cut edges are non-raveling, and carpet sections can be joined with minimum seam visibility.

Glue-down installation techniques using alcohol- or emulsion-based glues work particularly well with unitary backing, the manufacturer reports. Carpets are cut, rolled out, overlapped, rolled back, and adhesive applied (photos 1, 2, and 3). Adhesive is applied to edges, and two edges are butted, leaving an invisible seam (photos 4, 5, and 6). The balance of the carpet is installed (photo 7).

The new bonding system, based on the company's hot melt polymers, is said to provide stronger tuft anchorage and backing bonds, virtually eliminating delamination. The system is not limited to single-backed carpet applications; it can be used with all types of carpet constructions. • E.I. DuPont de Nemours & Co., Wilmington, Del.

Circle 300 on inquiry card
more products on page 148
NEW! BRONZE-TONE STAINLESS STEEL

Here is an exciting new line of water coolers and drinking fountains combining the rich, glowing beauty of bronze with the durability and easy-cleaning qualities of stainless steel.

PATINA is not a surface coating. It is a bronze-colored metal developed by a special patented process after many years of research and field testing. All exposed surfaces, including matching bronze-tone trim, are wear and abrasion resistant. And PATINA wipes clean without scouring.

For special projects where a touch of elegance or the quiet dignity of burnished bronze is required, specify PATINA by Halsey Taylor. Available in fully-recessed, semi-recessed, and wall-mounted models — write for complete information.

THE HALSEY W. TAYLOR COMPANY, 1560 Thomas Road, Warren, Ohio 44481

For more data, circle 75 on inquiry card
PPG PRESENTS A FAMILY OF REFLECTIVE GLASS THAT GIVES YOU THE DESIGN, COST & PERFORMANCE OPTIONS YOU NEED.

Now PPG can give you a complete family of environmental glass products. With a wide range of performance options. In a variety of muted warm and neutral gray tones.

Any one of them can help you create a better, more beautiful building. Because every one of them improves visual comfort by reducing the sun's glare, reduces heat buildup from solar radiant energy, reflects the building's environment and provides a dramatic esthetic statement.

Their muted shades are designed to complement your building design—not overpower it.

One of them will fit into your scheme of beauty, practicality, comfort and cost.

On the following pages, you can take a closer look at each of these environmental glasses, glazed in some of this year's important buildings.

By all means, look into a PPG Environmental Glass for your next building. Early in the design stages.

Contact your PPG Architectural Representative or write us,
PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.
The Southern Yacht Club:
visual comfort and a
Dramatic facade at moderate cost.

The architects for this mild-climate club chose PPG's Solarcool Bronze Glass for these reasons: Its high reflectivity would bring unique beauty and warm tones to their building's facade. Occupant comfort would be increased because the Glass' coating significantly reduces solar brightness.

And even though it is moderately priced, its performance can reduce mechanical equipment requirements.

OWNER: The Southern Yacht Club, Inc.,
Lake Pontchartrain, La.
ARCHITECT: Curtin & Davis, New Orleans, La.
PPG GLASS: Solarcool Bronze Glass
PPG LHR GLASS
THE LIGHT- AND HEAT-REFLECTIVE GLASS FOR BEAUTIFUL REFLECTIONS AND A BEAUTIFUL RETURN ON INVESTMENT.

The Westinghouse Nuclear Center: a changing facade and a comfortable working environment.

The design architect, working with Westinghouse Nuclear Energy Systems and Westinghouse Corporate Design Center, selected PPG's LHR Solargray Glass because its use results in a facade that changes as often and dramatically as the sky tones and clouds; and a comfortable environment for a large population of highly skilled men and women. "It is also the most practical, maintenance-free, economical cost-per-square-foot material available to do the job."

PPG GLASS: LHR Solargray Glass


The architects of this office building wanted a lively, dramatic-looking structure. They selected PPG's mirrorlike LHR Solarbronze Glass to reflect the surrounding mountains, sky and harbor. The result is a beautiful, ever-changing facade that brings visual excitement to downtown Vancouver, even during periods of rain and fog. In addition, the bright tones of the Glass complement the concept of structural "lightness" in the building's cable-suspension design.

OWNER: Westcoast Transmission Company Limited, Vancouver, B.C.
ARCHITECT: Rhone & Iredale, Vancouver, B.C.
PPG GLASS: LHR Solarbronze Glass
The Regency Hyatt House—O'Hare: visual excitement outside, quiet comfort inside.

The architect of this contemporary hotel near Chicago's O'Hare Field wanted to give guests a comfortable, but exciting and "open" environment. But he first had to solve the problems that go with a cold climate and high winds, and the roar of jets, coming and going. PPG's Solarban 575 Twindow Insulating Glass Units helped solve the problems. Their double-glazed construction helps keep out the cold, the heat and the sound of airplanes. In addition, these performance characteristics will bring high visibility and visual excitement to the building, with less operating outlay for heating and cooling.

OWNER: Hyatt Corporation, Burlingame, Calif.
ARCHITECT: John Portman & Associates, Atlanta, Ga.
PPG GLASS: Solarban 575-20 (2) Twindow Insulating Glass Units
Burlington Industries Headquarters Building:

a beautiful, comfortable corporate symbol.

This new building nestles in a parklike setting—"a glass cube suspended in a steel cradle." The architect used massive structural steel shapes to create a powerful corporate symbol for Burlington. He selected PPG's Solarban 575 (2) Twindow Insulating Glass to complement and reflect the steel. And in doing so, he was also able to ensure optimum performance values for the owners. From indoors, the glass reduces brightness of sun, sky and clouds to approximately one-fifth. This improves brightness control and increases visual comfort. In addition, the Solarban Twindow Units provide substantial cost reductions in equipment, operating and maintenance of the heating and cooling system.
CNA Park Place:
the environment is reflected to achieve a marketable rental property.

The architect of this combination office and rental property was faced not only with an esthetic challenge but also with a marketing problem put to him by CNA Financial Corporation. The owners felt that to give the Los Angeles building the best competitive advantage, it should reflect its eleven acre park setting, not dominate it. The architect selected PPG’s Solarban 480 Twindow Insulating Glass because its neutral gray reflectivity would provide the “unifying” effect he felt he needed to solve the problem. At the same time, engineering studies showed that the performance characteristics of the glass would offset its higher cost by contributing to savings in heating and air conditioning.

OWNER: CNA Casualty of California, Los Angeles, Calif.
ARCHITECT: Langdon & Wilson, Los Angeles, Calif.
PPG GLASS: Solarban 480-20 (2) Twindow Insulating Glass Units
Sears' Pacific Coast Headquarters Building:

the human element is added to a geometric shape.

The architects determined that a "perfect cube plan" would be appropriate for this combination office/retail complex. With the help of a PPG Computer Analysis, it was indicated that the glare-reducing properties of PPG's Solarban 480 Twindow Insulating Glass would provide a comfortable working atmosphere as well as reduce original mechanical equipment and operating costs. In addition, the Solarban 480 was chosen because its reflectivity is a complement to the design.

OWNER: Sears, Roebuck and Co., Chicago, Ill.
ARCHITECT: Albert C. Martin and Associates, Los Angeles, Calif.
PPG GLASS: Solarban 480-20 (2-3) Twindow Insulating Glass Units
PPG SOLARBAN® 550
Twindow® Insulating Glass.

OUR NEWEST GLASS. FOR NEUTRAL-TONED REFLECTIVITY.

American College of Life Underwriters:
an unrestricted view, and comfort for learning.

The architect chose PPG’s Solarban 550 Twindow Insulating Glass to achieve high reflectivity of a beautiful site; to afford occupants an open view; and to provide a comfortable, glare-free working atmosphere.

OWNER: American College of Life Underwriters, Adult Learning Center, Bryn Mawr, Pa.
PPG GLASS: Solarban 550-20 (2) Twindow Insulating Glass Units

Brandywine River Museum:
a building site is related to art.

This museum uses PPG’s Solarban 550 Twindow Insulating Glass in a mirrorklike three-story window wall to "saturate the eye with the ethos of sky and river." The Solarban 550 Twindow Units—neutral gray toned in appearance, neutral by transmission—also provide important environmental-control benefits, including an exceptional ability to reduce heat transfer by conduction.

ARCHITECT: James R. Grieves, Village of Cross Keys, Md.
PPG GLASS: Solarban 550-20 (2) Twindow Insulating Glass Units

PPG: a Concern for the Future
The design of All-Steel's new 100 series chairs is a beautiful contrast to the contemporary styling of today's office furniture. We put all the curves in the right places—for a new kind of comfort. Ten models. All-Steel Equipment Inc., Aurora, Ill. 60507
Your new hospital... a monument to the needs of society. Think of the people who use it.

Consider the stainless steel sink: It should be custom-built to their needs... any shape... with the bowl located where they need it. No paper thin bends or corners. It must be ground smooth; hand polished; handsome; and perform superbly for a lifetime.

Think people. Specify AVM Jamestown for your new hospital. It is what they expect.
Now you can have better air

with a better look by AAF

AAF has a new roof mounted multizone with significant advantages like reheat capability, solid state controls, high efficiency gas furnace and more filter options than any other multizone offered today. That's the inside story. The outside story is our new AAF exclusive facade system to blend the unit into your design environment.

You no longer have to rely on expensive penthouses or roof-penetrating fences to hide the spartan mechanical appearance of rooftop air conditioning, heating and ventilating systems. With our new architectural facade system, multizone camouflage is simple and economical. Roof integrity is never threatened because facade supports are extensions of the rugged AAF multizone frame. There is no roof penetration with its accompanying problems.

If our standard corrugated aluminum facade, which is available in ten colors, doesn't meet your needs, you can do it yourself. Use our unique facade frame with a facia material of your own choice and design.

Choose from a mansard type slope design, or a straight-line look. And, servicing the units is no problem either. There's plenty of room for routine service without removing the facia.


Better Air is our Business.
Andreas Christen designs for Knoll

His Landscape System makes an impressive contribution to the art of open office planning. It is one of two landscape systems previewed by Knoll at the June meetings of the A.I.A. and NEOCON.

Knoll International operates in 31 countries.

For more data, circle 80 on inquiry card
UPJOHN'S URETHANE INSULATION GIVES YOU UNLIMITED SCOPE IN DESIGN

SPRAY Upjohn's Urethane foam can be sprayed directly on the job. Inaccessible areas become easy to insulate... regardless of configuration.

POUR OR FROTH Upjohn's Urethane foam can be poured or frothed into any shaped cavity. Foaming and fabrication become one, efficient, economical operation.

SLAB Ready-formed panels of Urethane are easy to apply. They are available in many sizes and can be shaped with ordinary hand tools.

All available in KODE 25™ UL listed materials.

Upjohn Urethane has the lowest K-factor and frees you from the limitations of other insulating materials.

CPR DIVISION THE UPJOHN COMPANY
555 Alaska Avenue, Torrance, California 90603

See Sales Catalog

CPR DIVISION THE UPJOHN COMPANY
555 Alaska Ave., Torrance, Calif. 90603 • Tel. (213) 330-3550

For more data, circle 81 on inquiry card
Now... word processing with 2 magnetic cards

REDACTRON

The only word processing system using 2 magnetic cards, with twice the storage of others (10,000 characters per card).

For details on how REDACTRON
1. Can pay for itself in a year (even in a 2-man office)
2. Is more effective and less expensive than the IBM version
3. Offers a choice of card and cassette models...

CALL, OR CLIP THIS AD TO YOUR LETTERHEAD AND MAIL TO:

REDACTRON CORPORATION
100 Parkway Drive South
Hauppauge, Long Island N.Y. 11787
phone: 516/543-8700

For more data, circle 82 on inquiry card
Copper Sovent single-stack plumbing system. The new way to cut multi-story drainage costs.

Even though the Copper Sovent single-stack plumbing system is a major construction breakthrough, it's really very simple.

The soil and vent stacks are combined into one Sovent self-ventilating stack.

What you don’t need any more is a separate vent pipe.

So you can put fixtures, like island sinks, where you want them. Not where the old two-pipe drainage system forced you to put them.

Plus you get more square feet of income-producing space because the Copper Sovent system takes up less space in the walls.

And because the Copper Sovent system weighs less, you get more room in your structural load estimates.

There’s more room in your budget too because the Copper Sovent system is easier and cheaper to install.

Since it was first installed in the Habitat Apartments at Montreal’s Expo ’67, the Copper Sovent system has been used in 18 high-rise buildings across the United States.

But that’s just the beginning. Forty additional major installations are being planned right now, for a grand total of more than 8,000 apartments.

Couldn’t you use more room or flexibility in your new building design?

For a detailed design handbook on the Copper Sovent single-stack plumbing system, write us: Copper Development Association Inc., 405 Lexington Ave., New York, N.Y. 10017.

COUNT ON COPPER

For more data, circle 83 on inquiry card
Washfountains in the corridor are spoilsports. They take all the fun out of washing up. Like squirting other kids. Plugging the plumbing. The other things kids do when they're not watched. With vandal-proof Bradley Washfountains in the corridor, students get in and out of toilet rooms quickly, wash where they can be supervised. Semi-circular Bradglas® Washfountains made of reinforced polyester are ideal for the job. The 54" size projects only 35 3/4" from the wall... serves four students at once from one set of plumbing connections. Smart new-styling...11 bright colors. Durable, non-porous, fire-safe. Won't chip, crack or peel...swell, shrink or warp. Comparable to steel on a strength-to-weight basis. See your architect or consulting engineer. And write for latest literature. Bradley Washfountain Co., 9109 Fountain Blvd., Menomonee Falls, Wis. 53051.
How FLOWERS OF ZINC guard steel against rust for 20 years and more

The myriad of shining zinc "petals," which galvanizing deposits on steel, form both a shield and an "electric fence" against rust. The layer of zinc protects first as a mechanical barrier which completely covers the steel to seal out corrosion's attack. Zinc's secondary defense is called upon when the protective coating is scratched, gouged or worn through to the steel itself. Then, an electrochemical current of galvanic action fences these gaps and the zinc slowly sacrifices itself as it continues to protect the steel. This action takes place because, in the galvanic series, zinc is less noble than steel and will corrode sacrificially... fighting a stubborn delaying action against corrosion's attack. No other material provides the combination of strength, corrosion-resistance and economy found in galvanized steel. That's why it's so widely used in reinforcing rods, floor decking, siding and other architectural applications.

IBM's beautiful Data Processing headquarters utilizes galvanized re-rod to prevent sub-surface rust and consequent staining.

ST. JOE MINERALS CORPORATION

250 Park Avenue, New York, New York 10017, Tel. (212) 986-7474
You can make a theatre lobby as exciting as Broadway with "Bright Lights" on the walls.

You can make a classroom as tough as new math with "La Plata" on the walls.

You can make a ski lodge as invigorating as schussing with "Holiday" on the walls.
Our wallcoverings can make your interiors exciting, tough, invigorating...and more.

Whatever you want an interior to be or do or go through, just look to Columbus Coated Fabrics. In our three basic lines—Guard®, Satineque®, Wall-Tex®—we offer over 1200 fabric-backed vinyl wallcoverings, the industry's largest collection. Something for any style, any setting, any need, really, and if you can't find exactly what you want, our Custom Design Center will make it. But that's not all. Our staff of professionals will give you any advice you need, even go on site to make sure everything's right before, during, and after installation. Then, consider these other advantages: our wallcoverings are easy to hang, pre-trimmed for perfect matching, a cover-up for imperfections in walls when renovating, washable, long lasting, and easy to remove when it's time to change. Of course, they meet building codes and are UL listed. Write. We'll send you complete specifications. Then you can see for yourself... how much more we can do for you.
Raywall duct heaters are custom designed for a better way to heat in all types of industrial, commercial and public buildings. Ranging in size from 1/6 KW to 1,000 KW and featuring zero clearance to combustible surfaces, Raywall duct heaters can solve a wide variety of space problems.

Ease of installation is also a Raywall feature. Blast coils fit spaces designed for other types of heating coils with no redesign or alteration of existing equipment.

Raywall duct heaters are engineered with safety in mind: each unit contains a grounding lug and is tested for 2,000 volts dielectric before shipping. Consider a better way for prime or auxiliary heating needs—Raywall duct heating.

OFFICE FURNITURE / Desk (right) is formed of white fiberglass accented by rosewood. Credenza is available in black vinyl or white fiberglass for top center section. • Vecta Contract Co., Div. of The Vecta Group, Inc., Dallas.

Circle 309 on inquiry card

PLANTERS / Molded fiberglass designs for use in public buildings, malls, parks and recreation areas are available. • Brighton By-Products Co., Inc., New Brighton, Pa.

Circle 310 on inquiry card

FLOOR SURFACING / Latex/cement material is said to withstand loads as great as 18,000 psi. Typical applications include indoor and outdoor loading docks and ramps, and storage areas. • Permaflex Products Co., Philadelphia.

Circle 311 on inquiry card

CHAIR/TABLE / Chrome supports seat and back of chair and base of cocktail table. • The Slater Co., Chicago.

Circle 312 on inquiry card

Here's a fireproofing system with only one thing to recommend it: positive protection. It's a fact.

Metal lath and plaster fireproofing offers ratings ranging from two to four hours. And it's been shown to last far longer than the official ratings.

It positively will not shrink or spall. It can't be brushed off. Or casually chipped off. It's exceptionally strong, lasts practically forever (about 100 years is the record so far), and is largely unaffected by varying atmospheric conditions.

The reason is simple. Unlike most others, metal lath systems are not dependent on either chemical or adhesive bonds. The lath holds plaster in place by firm mechanical keys—over 1000 in each square foot. This system will keep even calcined plaster in place as a barrier against the spread of flame. As a matter of fact, two-inch solid metal lath and plaster partitions have been subjected to temperatures reaching 2000°F for over five hours and showed no signs of collapse.

Moreover, temperature transmissions through the various metal lath assemblies are lower than for other systems. Which, as any insurance agent can tell you, is a plus feature that reaps its own reward in lower rates.

Write us for complete details on positive protection for columns, beams, floors, roofs, partitions and curtainwalls. Or ask to see "The Selective 70's," a color sound-slide presentation that tells our story in 16 minutes.
All systems are go
Carpet Systems from CCC with Acrylic 73... engineered to integrate with all architectural systems.

- Movable Partitions
- Modu-Base carpeted baseboard
- Trench Headerducts

Carpeting is no longer a simple matter of beautiful floors. The challenge today is to integrate carpet with the total architectural environment.

CCC has this very complex problem down to a precise system—the unique Acrylic 73 Carpet System. We analyze every element involved—right from the blueprints. Recommendations are based on design, function and maintenance factors.

The result of this planning: a carpet system that lets you move partitions, gives you easy access to sub-floor systems and includes built-in static control to end the annoyance of shock.

Acrylic 73 is a total performance carpet. CCC's exclusive blend of 70% long-staple Creslan® acrylic and 30% long-staple commercial nylon combines unequalled stamina with design versatility and appearance retention.

CCC is the world's largest manufacturer of commercial and institutional carpet systems. We would like to tell you more about what we can do for you. Why not send in the coupon today.

Creslan is a product of American Cyanamid Company, Wayne, N.J.

Commercial Carpet Corporation
Dept. A-11
10 West 33rd Street
New York, New York 10001

Attention: Mr. Walter Brooks
Please send me a copy of the booklet, "Office Carpet Systems, with Acrylic 73": □ Please have a CCC consultant contact me. □

Name:
Company:
Address:
City:___________State___________Zip___________

For more data, circle 88 on inquiry card
A pleasing study in line and form is the new $2,700,000 Science Complex at St. Vincent College in Latrobe, Pennsylvania, which has been cited as a "creative approach to college building design." The unique qualities of ChemComp® Cement help to make the structure as sound as it is beautiful, lending structural superiority to Tasso Katselas' innovative designs.

- REDUCES size and incidence of drying shrinkage CRACKS
- AFFORDS DIMENSIONAL STABILITY
- SUBSTANTIALLY FEWER CONTROL JOINTS REQUIRED
- NO SPECIAL PLACING PROCEDURES NEEDED
- LESS SEALING AND CAULKING
- MUCH LESS LONG TERM MAINTENANCE for the owner

Specify, profit by using

ChemComp® Cement

the shrinkage-compensating cement

AVAILABLE NATIONWIDE FROM THESE MANUFACTURERS

KAISER
Cement & Gypsum Corp.
Kaiser Center, 300 Lakeside Drive
Oakland, California 94604

MEDUSA
Portland Cement Co.
P. O. Box 5668
Cleveland, Ohio 44101

PENN-DIXIE
Cement Corp.
1345 Avenue of the Americas
New York, New York 10019

SOUTHWESTERN
Portland Cement Company
1034 Wilshire Boulevard
Los Angeles, California 90017

TXI
Texas Industries, Inc.
P. O. Box 400
Arlington, Texas 76010

For further information contact: Chemically Prestressed Concrete Corp. 14656 Oxnard Street, Van Nuys, California 91401 or the sales office nearest you

For more data, circle 89 on inquiry card

For more data, circle 90 on inquiry card
AVAILABLE ONLY WITH MILLER PATIENT ROOM LIGHTS . . . .

. . . DISCONNECT MOUNT

Bed light plugs into wall mounting console with simple, lift-on action. It is easily lifted off for simultaneous electrical and mechanical disconnect. When light requires relamping, cleaning, or repair, there's no need to disrupt routine in patient room or deprive patient of his light. Because of this unique portability feature, maintenance people can remove fixture from room and replace it with a spare unit in mere seconds. Lower maintenance costs are assured because work is accomplished on a more efficient basis, away from patient areas.

Compared with conventional, wall mounted bed lights initial installation is greatly simplified. One man can quickly make wiring connections and secure compact, lightweight console to wall. He doesn't have to take fixture apart or handle loose parts. Additionally, bed lights can be stored, and plugged into their consoles after painting, decorating and furnishing are complete and rooms are ready for occupancy. Installation advantages and economies are applicable for both renovation and new construction.

miller bed lights with this feature are simpler, easier, more convenient, and less costly to maintain and install

Send for brochure, MILLER HEALTH CARE LIGHTING

THE miller COMPANY • MERIDEN, CONNECTICUT • UTICA, OHIO • MARTIN, TENNESSEE
Today’s ARCHITECTURAL SENTINEL
in modern enclosed shopping malls from coast to coast

KINNEAR
ROLLING GRILLES

The most modern attractive way to provide the extra security needed today for display windows and store fronts. Regardless of which of the choice of designs selected, Kinnear's standard 9” maximum spacing of vertical links insure a better looking, stronger grille ... and the 1 1/8” maximum bar spacing will repel objects even as small as a golf ball. This construction insures an extra rugged dependable barricade without sacrificing public vision of merchandise displays— or light, or circulation of air. That's why Kinnear Rolling Grilles are proving so popular with national organizations everywhere. Spring counterbalanced and coiling upward, Kinnear Grilles are easy to open or close and completely out-of-the-way when open. They’re built in any size and suited to either electric or manual operation. Another adaption of time-proven Rolling Doors, pioneered and backed by Kinnear—an international organization recognized over 70 years for leadership and service. Write for catalog.

KINNEAR CORPORATION
and Subsidiaries
1860 Fields Ave., Columbus, Ohio 43216
Factories:
Columbus, Ohio 43216 • San Francisco, Calif. 94124
Centralia, Wash. 98531 • Toronto, Ont., Canada

—for maximum protection for outside display windows specify Kinnear Rolling Doors—the solid steel barricade.

Offices & Representatives in All Principal Cities — listed in Yellow Pages under “Doors.” Also see Sweet’s!

For more data, circle 94 on inquiry card
New Alpha 3000 is a security system. A fire alarm system. A patrol tour system. An equipment monitoring system. A communications system. A card reader system. A CCTV system. Even a building automation system. It's all of these...or any part.

Alpha 3000 makes specifying a protection system a whole lot easier. Let's you forget about multiple wiring layouts, system gaps and overlaps.

Honeywell will work with you. Help analyze your client's unique needs...protection,

building automation. Or both. Then, develop a cost-effective solution.

We integrate whatever protection and environmental devices are needed into a single master system. A system that can grow with your client...change as he changes. Using a common transmission cable. With leased-line reach. And a single reporting format and command keyboard.

You have just one company to work with...one-source responsibility from system analysis to final check-out and service.

Honeywell, G2118, Minneapolis, Minn. 55408

Honeywell
The Automation Company

It's all together now!
Gorilla under glass.

In safety glass, variety is the name of the game at ASG. Variety in tempered, wired or laminated. Patterned, clear or tinted, for indoors or out.

No matter how wild your safety problem, ASG comes through. Like we did for Como Park Zoo in St. Paul, where Don and Donna, the gorillas, stay safe and happy in a cage of laminated tempered plate sides and polished Nuweld® top. It's an everyday business with us across the country.

This wide world of safety comes to you from a single source, shipped in one lot from one factory. You get exactly what you want, when you want it, in one economical shipment. You save time. You save bothersome handling. You save money!

ASG tempered, laminated and polished wired glasses qualify as safety glass under USAS Z97.1–1966. And Armor-Gard® burglar-resistant and Armorlite® bullet-resistant glasses are UL approved. Nuweld wired glasses are approved by the National Board of Fire Underwriters as fire retardant glasses. All meet FHA standards.

Whatever your needs in safety glass, ASG can handle them a better way. We don't ape anyone.

For special "Safety Glass and Safety Codes" brochure, write: ASG Industries, Inc., P.O. Box 929, Kingsport, Tennessee 37662.

For more data, circle 56 on inquiry card.
And now the kinetic carpet.

A thick, nubby, half inch of homespun. Then, as you move, another level of interest appears.

A deeper level. A different texture. An undercurrent of accent color.

It's an honest-to-goodness design innovation, with a fine one-ply loop below a springy 2 and 3 ply surface.

A horizontal atmosphere all by itself... it bears the wool mark label... mark of the world's best...

pure wool pile. Available in all beige, grey, brown and off-white, or with blue, black, brown or yellow undertones. We'll also dye the undertone to match your own accent color. We call it Connemara. Send for specs and swatch.

Carpet by Roxbury
Framingham, Massachusetts 01701
For more data, circle 97 on inquiry card
The New KSH-19 Lighting Panel is NOT Revolutionary

(but it’s just about everything else a panel can be!)

Most important—it proves again that anyone who still thinks injection molding is the only way to produce top quality lighting panels... is way behind! Yes, KSH has proved it again!

KSH-19 is extruded. And it will equal or excel the performance of any injection molded panel of similar design. WE GUARANTEE IT. YOU CAN SPECIFY IT WITH CONFIDENCE. Now, check the features:

MALE CONICAL PRISMS

A basic design. Every prism clean and sharp for top performance.

CHOICE OF THICKNESS

5/32"

3/16"

MANY SIZES

1 x 2

1 x 4

2 x 4

2 x 2

3 x 3

NEW COLORS

Gold Whisper

Zebra Gold

Smoke Tone

Silvertint

Bronze Tone

Clear

NO SHOW

Excellent lamp hiding power. No harsh streaks.

LOW BRIGHTNESS

KSH, INC.
10091 MANCHESTER
ST. LOUIS, MO. 63122

For more data, circle 98 on inquiry card
Fresh outlook on architectural extrusions:
Complement your windows and extrusions with added value, beauty and sales appeal by specifying DURACRON® Color Coatings.


Clean, carefree DURACRON Color Coatings from PPG are ideal for applications on all aluminum windows and extrusions. Far more appealing than raw aluminum which is subject to unsightly pitting and dulling, these color-fast, baked-on acrylic finishes come in white and a range of bright, beautiful colors that keep their original lustre year after year. It's a fresh sales-booster. And DURACRON Color Coatings are formulated to meet a variety of requirements for permanence, low-maintenance and economy.

Gain this new outlook on aluminum windows and extrusions. Send for further information on DURACRON Color Coatings. See Sweet's Architectural File, Industrial Construction File, or write Product Manager, Extrusion Coatings, Dept. 16W, PPG INDUSTRIES, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

For more data, circle 99 on inquiry card.
Outside heat raises inside cooling costs.
Zonolite can help reduce the problem at its foundation.

Look into Grace-Zonolite® Masonry Fill Insulation. It's incredible stuff. To put it another way, it's a lightweight, free-flowing, water-repellent, vermin-proof, rot-proof, fire-proof, sound-deadening, inorganic, granular vermiculite!

Year after year, it can deliver savings in cooling and heating dollars that far exceed the initial cost of the fill.

Other virtues? Yep. Zonolite® Masonry Fill Insulation reduces sound transmission 20% to 31%. It increases a 2-hour fire rating to 4. It pours in at the rate of 28 square feet per minute. It's acceptable in FHA-financed housing.

Want all the details, test data, specifications, and such? Say the word!

Just say Grace.

For more data, circle 100 on Inquiry card
Fountain, fountain in the wall...

Is this the fairest of them all? If it isn’t it must be pretty close to it. Smooth-polished magnesite stone surfaces are highly complementary for your decor planning... choice of five beautiful colors, too. This space-saving, full-recessed drinking fountain has matching louvered grille with remote electric water chiller. Get all the facts; write today! HAWS DRINKING FAUCET CO., 1441 Fourth Street, Berkeley, Calif. 94710.

Model 2300-RC6 or 12 illustrated in Antique White finish.

For more data, circle 101 on inquiry card.
New Krueger gang/stack polypropylene chairs

A new entry in our ever-expanding line of Krueger institutional seating. Gracefully styled, the shell is designed for posture-perfect seating comfort...and features a texture-grained front and back surface that resists dust and scuff marks and affords easy wipe-off cleaning. Shells mount to sturdy 14-gauge steel stacking frames which feature a slot-type keyhole ganging device and self-leveling nylon leg glides. Frames available in chrome-plated or in black satin enamel finish. Shell colors in Fire red, Pearl white, Ebony black, Ensign blue, Colonial yellow and Empire green.

Keyhole ganging device permits fast, easy assembly of chairs in rows. Chairs stack 10 to 12 high on Krueger’s own special dolly. Write for complete information and our all new full-color catalog.

Unatap:
Turns water into money.

Come in low with a hand washing system that offers important operating savings in the bargain.
A system incorporating the Unatap spray mixing faucet.
This clever flow-governing faucet maintains an economical yet hygienic spray of water, while allowing personal control over temperature. Actually saves on hot water to the tune of two-thirds (in an independently-supervised test).
Which means a slimmed-down hot water system.
Which means a lower installation cost. And lower running cost too.
Specify Unatap. You’ll come in low.

Richard Fife, Inc.
1140 Broadway, New York, N.Y. 10001
Phone: (212) 683-0745

For more data, circle 102 on inquiry card

For more data, circle 103 on inquiry card
Different floors in your buildings lead different lives. Some get walked on, spilled on, wheeled on and even dropped on.

Others just have to look beautiful. And still others have to do both, so it seems natural to use special flooring made for special needs.

That's where your GAF Representative comes in. He can help you tailor just the right flooring for your buildings.

For example, you might use a Royal Stoneglow tile for an especially heavy traffic area. It features very long wear and no-wax maintenance.

Then, for a medium traffic area, you might choose highly decorative sheet vinyl which now has interim Federal Specification Number L-F-001641 (GSA FSS). It wears well too, but features warmth and comfort underfoot. And like the tile, it's fire-safe.

Your GAF Representative features such a broad line, that no matter what your needs are, he's sure to have the right style and color for you.

For more information contact: GAF Architectural Dept. AR-11 140 W. 51 Street N.Y., N.Y. 10020.

GAF introduces floors for the way your buildings really work.
QUALITY CONTROL STAMINA TEST '71 STYLE

ACME... America's Most Specified Compact Kitchens
Write for CATALOG

ACME-NATIONAL REFRIGERATION CO., INC.
19-26 Hazen Street, Astoria, N.Y. 11105
For more data, circle 105 on inquiry card

Use an EPCO catalog to specify excellent quality and design

- MAGNETIC CATCHES
- KNOBS AND PULLS
- TRACKS AND GUIDES
- MIRROR FRAMES
- GLASS PARTITION POSTS

Free 42-page EPCO catalog of the complete line of magnetic catches, knobs and pulls, sliding door hardware and mirror frames will be sent on request.

See the EPCO catalog in Sweet's Arch. File and Light Const. File.

RITE·HITE LOADING DOCK EQUIPMENT

Solve all your loading dock design problems with one quality source. Rite-Hite pioneered efficient mechanical dock leveling equipment over 25 years ago and now offers dozens of models to meet your exact requirements. Also choose from Rite-Hite Door Seals, Rite-Hite Loading Lites, Rite-Hite Dock Bumpers and Wheel Chocks for total dock safety. Sold and serviced coast-to-coast.

FREE Send today for your Modern Dock Design Kit

RITE·HITE CORPORATION
6005 S. Pennsylvania Ave., Cudahy, Wisconsin 53110
IN CANADA: Matthew Moody Ltd.
251 St. Louis Street, Terre Bonne, P.Q., Canada

For more data, circle 106 on inquiry card
The only thing Hetron and Hetrofoam spark is your imagination.

The built-in fire retardancy of Hetron polyester resins and Hetrofoam urethane foams is a safety influence for greater design freedom to meet required flame-spread ratings. A wide range of UL classifications is assured with the use of Hetron polyester resin and Hetrofoam systems. From slow burning, to self-extinguishing, to non-burning.

Structurally safe and strong, fire-retardant Hetron and Hetrofoam-based modular building units and sectional components belong in the nicest places. From recreation homes to multi-story buildings. Simulated brick and stone-like panels. Shatterproof windows. See-through roofs. Fire-resistant bath and shower units. Featherweight and fire-retardant, Hetron and Hetrofoam help to make strong sandwich panels for walls, floors, and ceilings.

For construction designs requiring imagination and fire-retardant safety, specify Hetron polyester resins and Hetrofoam urethane foams.

Mail the coupon or phone Tony Fusco at 716/695-1600. He has the information you need to keep your imaginative designs from going up in flames or anything else.

Durez Division, Hooker Chemical Corp., 8001 Walck Rd., North Tonawanda, New York 14120.

- Please send literature on how my application of ____________________________
  with Hetron or Hetrofoam will stand up under fire.
- Please call me at ____________________________

name

title

company

address

city state zip

For more data, circle 100 on inquiry card
PRODUCT REPORTS
continued from page 170

FORMING ARCHITECTURAL
Concrete

INTERFORM STANDARD
FORM LINER SYSTEMS OPEN
NEW HORIZONS

Dramatic and traditional textures, architectural shapes and contours are
among some of the exciting concrete finishes produced with stock form liners
and accessories by INTERFORM.
Included are . . .
- CORRUGATIONS • BOARDMARKS
- TOOLED EFFECTS
- ROUGH TEXTURES • RUSTICATIONS
- ARCHITECTURAL SHAPES
Plastic and fiberglass — INTERFORM
Form Liner Systems are of the highest
quality for execution of design criteria and
presentation of architectural concrete.
Write for the new 16-page brochure:
INTERFORM FORM LINER SYSTEMS •102

INTERFORM TOTAL FORMING SYSTEMS . . .
Standard/Special Domes • Joint Pans • Beam
Forms • Flying Slab Forms and Shoring Systems
- Long Forms • Column Forms • Architectural
Formwork • Special Form Hardware • Form Liners
- Rustication/Architectural Details
- Fiberglass Fascia

( Photo) NASA SPACE TECHNOLOGY CENTER,
Architects/Engineers: HOLLIS & MILLER in
association with Kansas State Architect William R.
Haie. Contractor: Constant Construction Company.

INTERFORM
Division of La Mesa Industries Inc.
1038 Princeton Drive/Telephone: (213) 390-3306
Mailing Address: Box 630 AR11,
Venice, Ca. 90291
©1971

For more data, circle 110 on inquiry card

SNOW
at 20°

Loading Dock &
Truck Bays Bone Dry!

- No Schedule Delays
- No Extra Maintenance

with SNOW*MATS®
from SMITH-GATES

The proven performance of Smith-Gates Snow*Mats
sets a standard for functional electric snow melting
systems. Smith-Gates Snow*Mats are U.L. listed
for both concrete and asphalt. Snow*Mats are de-
signed for easy installation and engineered for
flexible toughness so that they last the life of the
application. Snow*Mats have heat capabilities for
snow removal built on watt densities that are effi-
cient and economical for your locale.

More information? Write for
complete engineering layout and
installation data . . . form L-400.

SMITH-GATES
CORPORATION
FARMINGTON
CONN. 06082

Where heat is harnessed to help you.

STUDY CARRELS / Modular units cluster into a
variety of geometric shapes. Common panels
between adjacent positions eliminate panel
doubling. • Howe Folding Furniture, Inc., New
York City.

Circle 313 on inquiry card

STEEL FLOOR JOISTS / End clips nailed to
standard band board hold joists in position.
Stairway and fireplace openings are formed by
heading the joists. Hanger brackets support
headers and tail joists. Decking is added and
secured by self-tapping screws. • Armco Steel
Corp., Middletown, Ohio.

Circle 314 on inquiry card

WATER COOLER / An interior storage tank
holds up to nine quarts water reserve, depend-
ing upon the size of the unit. Other features
include a pre-cooler system and a five-year
warranty. • Ebco Mfg. Co., Columbus, Ohio.

Circle 315 on inquiry card

For more data, circle 105 on inquiry card
For information on bare USS COR-TEN Steel, the original weathering steel, contact a USS Construction Marketing Representative through the nearest USS sales office, check your Sweet's Architectural File, or write to United States Steel, Box 86, Pittsburgh, Pa. 15230. USS and COR-TEN are registered trademarks.
Specify Kelley permanent dockboards
Kelley Permanent Adjustable Dockboards easily accommodate trucks with bed heights from 36" to 60" above ground. Effectively link trucks and docks to provide smooth, efficient, safe loading and unloading under all conditions.
Kelley Dockboards give you access to the full width of trucks; have sufficient length for proper incline; won’t slip or slide; handle even the heaviest load; are always in place, ready to use.
Write or phone today for complete information. Ask for your copy of Modern Dock Design. It’s the most authoritative source available on dock design. KELLEY COMPANY, INC., 6768 North Teutonia Avenue, Milwaukee, Wisconsin 53209, Phone: 414-352-1000.

For more data, circle 111 on inquiry card

Our new, 32-page SPRINKLER SYSTEM GUIDE lays it all out. Building codes... insurance considerations... fire protection costs... and much more we can’t tell here. Dozens of explicit illustrations. It’s free. Send for it... before you get burned!

For more data, circle 112 on inquiry card

For more data, circle 113 on inquiry card

For more data, circle 114 on inquiry card
Neuhaus + Taylor designs a beehive of activity.
This projected suburban megastructure includes high and low rise office space, a motel and a regional shopping center. A widely diverse mix to make the structure a center of activity throughout most of the day and evening hours.

In its two 21-story towers, Neuhaus+Taylor of Houston, Texas, provides a total of 170,000 square feet of office space. Faceted bay windows make every office a corner office. Vision panels for these bay windows are 1" Thermopane® insulating glass with golden Vari-Tran reflective coating on the airspace surface of outer light. Spandrels are ¾" tempered golden Vari-Tran.

Vari-Tran turns away most of the sun's heat and glare and would greatly reduce the initial cost of air-conditioning equipment. Plus the cost of operating it. A representative case history: Edison Plaza Building, Toledo, Ohio, using Thermopane with Vari-Tran coating compared with single regular glass. Savings in cost of air conditioning and glass: $123,700. Annual reduction in owning and operating costs: $39,900.
Alternating with the vision panels are solid panels of lightweight precast concrete faced with travertine. These alternating panels of glass and travertine from the base to the top of the towers give a striking sense of verticality to the design. The champagne color of the travertine combines with the Vari-Tran to lend a softly modulated golden tone to the towers.

391,000 square feet of additional office space are located in a low block adjacent to the towers. Within the block is a “private sky” that runs for more than a quarter of a mile. It’s a two-story, sky-lighted, air-conditioned greenway. The skylight would be ⅛” laminated glass using tempered golden Vari-Tran. It has the reflective qualities to cope with all-day exposure to the sun.

Parallel to the low-rise office block is the linear motel and retailing complex. Another covered walkway with a private sky separates the motel from the shopping center. Pedestrian bridges tie the office buildings, motel and stores together into a unique whole.

A sloping wall of ⅛” laminated glass using tempered golden Vari-Tran runs the full length of the shopping center along its major road frontage. It encloses a 32-foot-high garden space that serves shops on two floors. Two levels of parking are below.

Creatively and functionally, golden and silvery Vari-Tran coatings have unlimited potential. Both come in three heat and light transmittances, 6%, 14% and 20%. For more details, write Architectural Construction Department, Libbey-Owens-Ford Company, Toledo, Ohio 43624.
Suburban Megastructure

Talk with an L-O-F Architectural Construction Specialist about your next project. Whether it's residential, commercial, industrial or institutional. Or call your L-O-F Glass Distributor listed under “Glass” in the Yellow Pages.
Libbey-Owens-Ford Company, 811 Madison Avenue, Toledo, Ohio 43624.

PLATE/FLOAT GLASS
Parallel-O-Plate®, 3/16", 1/4"
Parallel-O-Grey®, 13/64", 1/4"
Parallel-O-Bronze®, 1/4"
Heat-Absorbing Float, 3/16", 1/4"

HEAVY-DUTY PLATE GLASS
Parallel-O-Plate®, 5/16" to 7/8"
Parallel-O-Grey®, 3/8", 1/2"
Parallel-O-Bronze®, 3/8", 1/2"

LAMINATED SAFETY PLATE/FLOAT GLASS
with Vari-Tran® Coating

INSULATING GLASS—Thermopane®
Regular, tinted or with Vari-Tran Coating

VIGILPANE® — Safety Plate/Float Glass
ROUGH PLATE, Regular or Tinted (Rough 2 Surfaces) (Polished 1 Surface, Rough 1 Surface)
SPANDREL GLASS—Vitrolux®
Vitreous colors fused to back of heat-strengthened glass
FULLY-TEMPERED GLASS—Tuf-flex®
Windows, Doors and Sidelights
WINDOW GLASS
PATTERNED & WIRED GLASS
MIRROPANE®
One-way vision glass

L-O-F HI-PERFORMANCE GLASS
Nowadays, history isn't written, it's spoken... and verbal clarity is essential wherever people meet to discuss the issues of the day. From coast to coast, from town halls to the halls of Congress, you'll find Shure microphones in the really critical, prestigious sound reinforcement installations. Case in point: when the Illinois Constitutional Convention ("Con-Con"—see photo above) met to create the first new state constitution since 1870, a total of 65 Shure Unidyne III microphones were at hand to assure a clear, intelligible voice for each delegate. The Unidyne III was right for Con-Con, and there's a Shure problem-solving microphone right for every installation. Talk to your sound specialist, or write:

Shure Brothers Inc.
222 Hartrey Ave., Evanston, Ill. 60204

For more data, circle 115 on inquiry card
Hey Nor-Lake:

"Doesn't anybody make refrigeration equipment with all-copper tubing and an Automatic Defrost-Vaporizer and heater wire strips and triple-seal gasketing, and 5 standard finishes and self-supporting insulation and adjustable legs?"

We do.

With 275 models, and orders shipped in 48 hours, we can get you whatever you want whenever you want it.

ARCHITECTURE OBSERVED
LAUGH LINES BY AMERICA'S FOREMOST CARTOON CRITIC
by Alan Dunn

FOREWORD BY LEWIS MUMFORD

A joyous collection of 139 cartoons by a man who is universally recognized as America's funniest, most amusing and most incisive commentator on the foibles of American Architecture and its practitioners. A contributor to Architectural Record for almost 35 years, Alan Dunn knows better than anyone else how to plant the stiletto that tickles!

144 Pages 8½ x 9 $6.95

NOR-LAKE INC.
Second and Elm, Hudson, Wisconsin 54016
Phone: 715-386-2323 Dept. 3167
The only thing we won't change is the quality.

For more data, circle 116 on inquiry card
Never in carpet history, has so little been guaranteed to do so much.
We guarantee that a carpet made with as little as 2% Zefstat® anti-static yarn will reduce static below the level of human sensitivity for the useful life of the carpet or five years.
Or else we replace the entire carpet, free of all charges, including the cost of installation.
No other anti-static carpet yarn is backed by a guarantee of any kind, let alone a five year guarantee. Which means either we know something no other fiber producer knows or else we’re crazy.
We’re not crazy.

We originated and developed the concept of turning metal into soft textile yarns more than 20 years ago.
We knew how to blend acrylic-modacrylic or nylon with Zefstat anti-static metallic yarn during yarn production so that you wouldn’t see it or feel it.
In fact, the best way to see if Zefstat is there is to look at the back of the carpet and see our guarantee.
Dow Badische Company, 350 Fifth Avenue, N.Y., N.Y. 10001.
Zefstat is a registered trademark of Dow Badische Company.

If 2% of the carpet doesn’t work we’ll replace 100%

Dow Badische Company guarantees to the original purchaser that a carpet made with Zefstat will not generate static in excess of 2,500 volts down to a relative humidity of 20% at 70°F. (The threshold of average human sensitivity is considered to be 3,000 volts.) This anti-shock feature is guaranteed for the useful life of the carpet or five years, whichever is sooner.
If the anti-shock performance fails to meet the above standard and if human comfort is adversely affected by static generation, the purchaser must notify the manufacturer and make the carpet available for testing by Dow Badische Company. If failure is verified by our tests, the carpet will be replaced, free of all charges, including the cost of installation.

For more data, circle 118 on inquiry card.
LOAD-BEARING ELEGANCE WITH MEDUSA WHITE

Today in Philadelphia precast architectural load-bearing walls are now twenty stories high...tomorrow they may be thirty stories or higher.

By combining structural and architectural design requirements, a need is fulfilled with one product. Medusa White Portland Cement with its uniformity provides color control, whether for pure white or tinted concrete. Medusa White also provides compressive and flexible strengths equal to gray cement.

Specify Medusa White with confidence. Get complete data. Write Medusa, P.O. Box 5668, Cleveland, Ohio 44101.

MUTUAL BENEFIT LIFE INSURANCE CO., PHILADELPHIA, PA.
Architects: Nowicki and Polillo of Philadelphia
Eggers & Higgins, New York City, New York
Engineers: David Bloom Associates, Philadelphia
Robert Rosenwasser, New York City, New York
General Contractor: E. Frankel Enterprises, Philadelphia.

Precastload bearing units are 19'-11 3/8" wide x 11' high. Average weight 12 tons. Spandrels are covered with black glass to accent vertical mullions.

For more data, circle 119 on inquiry card
1,945 ideal apartment environments in Montgomery Village...all McQuay®

Seasonmaker® fan coil unit in each of the Village's 1,945 apartments.

"We designed Mills Choice, our first apartment community, specifically for McQuay equipment," said George Aubin, vice president of multi-family housing for Kettler Brothers. "We were so satisfied with its performance and reliability that we continued with McQuay in The Hamlet and Walker's Choice, the two apartment communities that followed."

The AVD Seasonmaker fan coil units provide ideal indoor environment. Tenants can select their own comfort level, regardless of what's happening in other apartments. Silent in operation, the Seasonmaker units have a five speed switch for complete control of air movement, whether heating or cooling. And they're easy to install, easy to maintain.

Whether you need a single unit or an entire system, look to the leader, McQuay. For complete information, contact the man for all seasons, your McQuay representative. Or write McQuay Division, McQuay-Perfex Inc., Box 1551, 13600 Industrial Park Blvd., Minneapolis, Minn. 55440.

Look to the systems leader . . .

For more data, circle 120 on inquiry card
Exciting ideas from 60 different dream hideaways

A sparkling collection of architect-designed vacation houses for all climates and terrains—from a mountain-top chalet in British Columbia to a beach house in Florida. Selected by Architectural Record editors, these houses range in price from less than $5,000 for a very small two-room cottage to more than $100,000 for large structures. Each house is fully described with floor plans, site plans, photographs and construction details. For easy reference the book is divided into five sections: beach, mountain, lakeside, resort and country, weekend and summer homes. 256 pages 9 x 12 $9.95

ARCHITECTURAL RECORD
330 West 42nd Street
New York, New York 10036

Please send me ______ copies of Architectural Record Book of Vacation Houses @ $9.95 each.

Name
Address
City
State  Zip

For more data, circle 121 on inquiry card

Lease a carpet system... and save.

Write: Showplace.
Commercial Carpet Corporation
10 West 33rd Street
New York, New York 10001

For more data, circle 117 on inquiry card

Delaware Fund

Investing in diversified securities principally for possible Growth with Income

For Prospectus: Contact

Delaware Management Company, Inc.
7 Penn Center, Philadelphia, Pa. 19103  Phone 215/LO 4-2556
Gentlemen: Please mail me a Delaware Fund Prospectus without obligation.

name
address
city/state/zip

For more data, circle 117 on inquiry card
20TH DORMITORY IN 20 YEARS

ALL WITH OPEN WEB STEEL JOISTS

"For the past 20 years, we have designed an average of a dormitory a year, using steel joists for our floor construction," says a representative of Thompson and Payne, Architects and Engineers, of Roanoke, Virginia.

"Our most recent design, shown here, is Muse Hall, the new dormitory and dining hall at Radford College, Radford, Virginia.

"We have found the steel joist floor system among the most economical to use in average dormitory construction. It affords speed of erection, reduces dead load to be carried, affords space between floors to run electrical conduit and heating lines.

"On this job, the general contractor installed the structural frame two floors at a time, and came right behind with his steel joists, steel deck and concrete slab. His workers were never more than two floors above a floor slab at any one time."

Speed of erection, lower initial cost, versatility—these are some of the many benefits you, too, can enjoy with open web steel joists. Whether it's a dormitory or any other type of high-rise building, you’ll be time and money ahead when you specify and use open web steel joists.

For the complete story on these unique structural members, send coupon now for our Specifications and Load Tables for Open Web Steel Joists and Longspan Steel Joists.

STEEL JOIST INSTITUTE
7th Floor, 2001 Jefferson Davis Hwy.
Arlington, Va. 22202

STEEL JOIST INSTITUTE
7th Floor, 2001 Jefferson Davis Hwy.
Arlington, Va. 22202

Please send me a copy of your Specifications and Load Tables.

NAME_____________________
TITLE_____________________
FIRM_____________________
ADDRESS__________________
CITY______________________ STATE ZIP CODE________

For more data, circle 123 on inquiry card
When You Specify Terrazzo, Specify Hillyard Onex-Seal II®

More than half a million square feet of this lustrous terrazzo was sealed and finished with Onex-Seal II in accordance with specifications in the Hillyard Uniform Numbered File—Division 9.

Onex-Seal II is a buffing seal—finish of the type recommended by the National Terrazzo Mosaic Association for Portland and Oxychloride Terrazzo in all colors (even white).

It insures that Portland and thin set terrazzo floors are properly sealed for protection and finished for beauty. Sealing guards against penetration of dirt and stains while enhancing the natural beauty of all colors, even white. It prevents efflorescence, produces a hard non-flaking, slip resistant mirror finish.

To insure that any floor will continue to live up to the standards you specify, call on a trained Hillyard Architectural Consultant to recommend correct finish and maintenance programs.

See our specifications manual in Sweet's and write for Uniform Numbered Files for every type of floor.

HILLYARD FLOOR TREATMENTS

For more data, circle 124 on inquiry card

To Gates 6 7 8 9 10
mind if we reduce one of your dimensions?

shorter passenger destination time
than ever before is delivered
by HAUGHTON'S new 1092-IC
elevator control system.

Change your building! You bet! The time dimension—passenger Destination Time—will be the shortest you’ve ever known.

It happens this way: Micro-miniature integrated circuits pack 1092-IC with more electronic logic than any conventional system can provide. Every factor affecting passenger service is sensed and responded to—instantly. More than double the “alertness” of any other system.

Then, whenever a call button is pressed, an elevator will respond and deliver the passenger to destination faster, more directly than ever before.

1092-IC never lets well-enough alone. It pays millisecond attention to all changes in load, location, commitments, interference; constantly allots and reallocs calls to cars that are in the best condition to serve them.

No more “bus stop” waits. No more “milk-run” trips. No question about it—here is the world’s fastest and most efficient elevator service. And you may take more of our words for it:

Write us for your copy of the HAUGHTON 1092-IC brochure.

RELIANCE
ELECTRIC COMPANY
P.O. BOX 780, TOLEDO, OHIO 43601

For more data, circle 125 on inquiry card
COLLEGES NEED YOUR INVESTMENT IN THEIR NEW PRODUCTS.

You're familiar with the costs of launching new products. What you have to pay for development, packaging, mass production and distribution.

Consider what colleges have to pay for launching their new products. Each must be carefully helped along. Housed. Nourished. Encouraged. Individually taught and counseled. It's expensive.

Yet tuition today covers only about one-third of the costs of a college education.

The other two-thirds must come from people and businesses, as charitable contributions, or as gifts to match employee donations.

Businesses need colleges. Colleges need business.

Send today for information on how corporations can aid education effectively. Write to: Council for Financial Aid to Education, 6 East 45th Street, New York, N.Y. 10017. Give to the college of your choice. Now.

Advertising contributed for the public good.
Four typical insulation systems that demonstrate All-weather Crete's multi-functional capabilities.

**2 HOUR FIRE RATED ROOF DECK**
All-weather Crete seamless insulation (K factor .40) is applied over pre-tensioned concrete units. U/L Design No. RC19. It can be sloped to drains, eliminates camber and uneven joints. This provides a smooth even surface for immediate conventional built-up roofing.

**CLASS 1 METAL DECK CONSTRUCTION**
This tested roof deck insulation system meets Factory Mutual requirements for fire hazard and wind resistance. With special Silbrico adhesive, it is an approved U/L deck (No. 360 R13.15). The Silbrico Fascia System shown above also meets Factory Mutual roof perimeter flashing requirements of Data Sheet 1-49 to resist wind uplift of 60/Lin. Ft. of wall. The perfect combination for maximum protection.

**PLAZA DECK**
There are eight widely used All-weather Crete plaza systems. Not only does AWC provide the most effective available insulation, but it protects the water proofing membrane keeping it ductile and active for the life of the system.

**ROOF DECK OF THE FUTURE**
Over a decade of designing, testing and practical application have produced this new Silbrico system. All-weather Crete is placed over the water proofing membrane protecting it from severe thermal change and climatic elements which are the major causes of roof failure. All-weather Crete insulation has the properties of being unaffected by these severe conditions. Consult Silbrico Corporation regarding this new concept.

For complete information, specifications and detail diagrams regarding these and many other successful AWC systems, write Silbrico Corporation, 6300 River Road, Hodgkins, Illinois 60525. References: Sweets catalog and Spec Data.

For more data, circle 126 on inquiry card
## ADVERTISING INDEX

Pre-filed catalogs of the manufacturers listed below are available in the 1971 Sweet's Catalog File as follows:

- **A** Architectural File (green)
- **I** Industrial Construction File (blue)
- **L** Light Construction File (yellow)
- **D** Interior Design File (black)

### A
- A-D Acme National Refrigeration Co. Inc. 188
- A-I Aerolin Corp. 86
- A-C All-Steel Equipment Inc. 157
- A-I-1 American Co. of America 50-51
- A-I-2 American Air Filter Co. 159
- A-I-3 American Florists Marketing Council 87
- A-I-4 American Gas Association 14
- A-I-5 American Olean Tile Company 145
- A-I-6 American Plywood Association 26
- A-I-7 Anchor Post Products, Inc. 57
- A-I-8 Andersen Corp. 28-29
- A-I-9 Apache Foam Products 48
- A-I-10 Apeco 8-9
- A-I-11 Architectural Record 25, 202
- A-I-12 Armstrong Cork Co. 2nd Cover-1, 31
- A-I-13 A-JL DAS Industries Inc. 180
- A-I-14 AVM Corporation Jamestown Products Division 158

### B
- B A Bally Case & Cooler, Inc. 83
- A-D Barven of California 192
- A-B Bethlehem Steel Corp. 6-7
- A-C Bluemac of Pittsburgh 71
- A-I Bradley Washroom Co. Inc. 156
- A-D Burke Rubber 32-1
- A-I Burns & Russell Co. 88

### C
- C Casco Division of Scovill Mfg. Co. 81
- C-C Carey Company, Philip 91
- C-H Carrier Air Conditioning Co. 14
- C-I Cast Iron Soil Pipe Institute 30
- C-I-1 Celestrian Pacific 11
- C-I-2 ChemComp Cement 172
- C-I-3 Cold Spring Granite Co. 60-61
- C-I-4 Columbus Coated Fabrics 168-169
- C-I-5 Combuthon Engineering Co-E 52-53
- C-I-6 Commercial Carpet Corporation 171, 206
- C-I-7 Copper Development Association, Inc. 164-165
- C-I-8 Corbin, Pat Div. Embark Corp. 27
- C-I-9 CPR Division The Upjohn Company 162

### D
- D Delaware Management Co., Inc. 206
- A-I-1 Delaware Faucet Company 64
- D Dow Badische Co. 203
- A-I-3 DuPont De Nemours & Co., Inc. 49
- A-I-4 DuPont Industrial Fibers 62
- A-I-5 Duenez Division—Hooker Chemical Corporation 189

### E
- E A Eastern Products Corp. 3rd Cover
- E Eastern Chemical Products Inc. 54
- E Eaton Paper Company 15
- A-I-1 Engineered Products Co. 188

### F
- F File, Inc., Richard 186
- F Follanebee Steel Corp. 78-79
- F Florists Transworld Delivery 11

### G
- G A-I-1-D GAF Corp., Floor Products Division 187
- A-I-1-D General Electric Co. 211
- G Glueber 63
- G Goodyear Tire & Rubber Co. 72-73, 86
- G Gralher Co. 88
- A-I Granco Steel Products Co. 22-23

### H
- A Haughton Elevator Co. 209
- A Hawkins Drinking Faucet Company 180, 202
- A Hercules Corp. 24
- A-I Hillyard Chemical Co. 208
- H Holophane Co., Inc. 40-41
- H Honeywell 179

### I
- I Interform 190

### J
- J Jamestown Products Division 158
- J Johns-Manville 65

### K
- A Kaimmer Co. 46-47
- K Keene Corp., Secret-Lighting Div. 89
- K Keene Specialties Div. 20-21
- A-I-1 Kelley Co., Inc. 192
- A-I-1 Kinneer Corp. 178
- D Knoll International 160-161
- A-I-1 Loppersh Coop 197-200
- A-I-1 Krueger Metals Products Co. 186
- K-S-H Inc. 182

### L
- L Libbey-Owens-Ford Co. 193-196
- L Lithonia Lighting 66
- L Lyon Metal Products 10

### M
- M Massey Seating Co. 144
- M Metal Lath Association 170
- M McQuay, Inc. 285
- M Medusa Portland Cement Co. 204
- M Miller Company 173
- M Montgomery Elevator Co. 34

### N
- N A-I-1 National Gypsum Co. 16-17
- N A Nor-Lake, Inc. 202

### P
- P Peirce Roloscreen Co. 175-176
- A-I Pennwalt Chemicals Corp. 15
- A-I-1 Pomona 145

### R
- R Ralph Wilson Plastics 84-85
- R Red Cedar Shingle & Handsplit Shake Bureau 56
- R Republic Steel Corp. 55
- R Rite Lite Corporation 188
- A-I Robbins Flooring Div. 42
- A-I-1 Robertson Co., H. H. 92-93
- A-I-1 Rohm and Haas Company 59
- A-I-1 Roxbury Carpet 101
- A-I-1 Royalty Designs of Florida 144
- A-I-1 Ruberoid 187

### S
- S St. Joe Minerals Corporation 167
- S Sergeant & Company 77
- S Schlage Lock Co. 8
- S Shatterproof Glass Co. 11
- S Shure Brothers Inc. 201
- A-I-1 Sillbrico Corp. 213
- S Simpson Timber Corp. 32-3
- S Sloan Valve Company 4th Cover
- S Smith-Gates Corp. 190
- S Snelling and Snelling 187
- S Southern California Gas Company 32-4, 32-5
- S Somco Products Co. 173
- S Sony Superscope, Inc. 187
- A-I-1 A Standard Conveyor Co. 146
- S State Farm Insurance 18
- S Steelcase Inc. 94
- S Steelcase Institute 207
- A-I-1 Symons Mfg. Co. 82
- S Sweet's Catalog Service 215

### T
- T A-I Taylor Co., The Halsey W. 148
- T A-Tennessee Plastics Inc. 170
- T A-Thosil Chemical Corp. 58
- T A Tremco Mfg. Co. 75-77
- T Trus Joist Corp. 143
- T Tyler Pipe Industries 174

### U
- U A-I United States Gypsum Co. 177
- A-I-1 United States Steel Corp. 191

### V
- V A-Viking Corporation 192

### W
- W W. A. Sheaffer Pen Co. A. Textor Company 11
- W Wells Fargo Bank 32-2
- A-I-1 Wheeling Corrugating Co. 74-75

### Z
- Z A-I-1 Zonolite Division 184
Your 1971 Sweet's File

... features three major innovations to speed and simplify your product search:

1. Organization within the Uniform System

2. Inclusion of a new Product Index carried in each volume of the File

3. Newly designed File graphics facilitating quick search of more product areas

Result: More usefulness, and more ease-of-use ... of every catalog made available to you year-round by the manufacturers represented in your new Sweet's File!

Sweet's Architecutral Catalog File

McGraw-Hill Information Systems Company
330 W. 42nd Street, New York, N.Y. 10036
PROFESSIONAL SERVICES

AMIS CONSTRUCTION & CONSULTING SERVICES, INC.
CONSTRUCTION MANAGEMENT & COST CONSULTANTS


50 East 42nd Street, New York, New York 10017
(212) 661-4469

MOORE SURVEY & MAPPING CORP.
Engineers-Surveyors
Geodesy - Photogrammetry - Property Surveys
Aerial Photography - Construction Layout
29 Griffen Circle, Sherborn, Mass. 01770
617-844-4181

POSITIONS VACANT


Architect/Designer in established medium size architectural firm with varied large practice. Current projects include educational, medical facilities and office buildings. Excellent opportunity for advancement for talented and energetic person. Salary and benefits commensurate with experience. Send confidential resume of education, experience, responsibilities and projects worked on to P-5133, Architectural Record.

REPLYING TO BOX NUMBER ADS

ADDRESS BOX NO. REPLY TO: Box No.
Classified Ad. Dept. of Architectural Record
NEW YORK, N.Y., 10036 P.O. Box 12

POSPITIONS VACANT

Research - Building Materials. A company sponsored fellowship offers an excellent opportunity to do independent research in the area of developing new concepts in walls, floors and roofs for industrial, commercial and institutional buildings. Qualified candidates will have college degrees in civil, structural or architectural engineering and several years of experience in the design of steel frame construction. A number of organizations such as steel fabricators, structural engineers or consulting firms and research or academic institutions. To apply, send letter or resume that includes educational background, positions held, current salary and personal data to W. Dean Zimmer, Personnel Director, H.H. Robertson Company, Two Gateway Center, Pittsburgh, Pa., 15222. An equal opportunity employer.

POSITION WANTED


Classified Section Non-Display Order Form

To place a non-display advertisement, fill out this form, including your name, street address, city & state with ZIP code, attach it to a separate sheet containing your advertising copy, and mail it to:

ARCHITECTURAL RECORD / P.O. BOX 12
NEW YORK, N.Y./10036

Rates: $3.60 per line, minimum insertion ten lines, six words to a line, box number counts as one additional line. Display rates on request.

☐ Payment Enclosed ☐ Bill me
☐ Use Name & Address ☐ Use Box No.

Advertisement to appear . . . . time(s)

Signature

RECORD IMPRESSIONS
A new service offering reprints, reports and back issues.

AIR CONDITIONING
A NEW INTERPRETATION

•

Updated Special Reports from 1967, 1969 and 1970
by
editor Robert E. Fischer and consultant F. J. Walsh with six new pages of cross referencing and guides to uses of materials

•

COMMENTS AND REACTIONS

"... an article that everyone in the industry—architects, engineers, contractors, manufacturers and even construction consultants should read to better understand the problems each of us faces."

"... an excellent treatment of a very difficult subject, and, to be honest, one that I thought would be virtually impossible to cover."

"... clearly written... technically correct... the illustrations are excellent..."

64 pages, 2-color, softbound $4.95 per copy bulk prices on request