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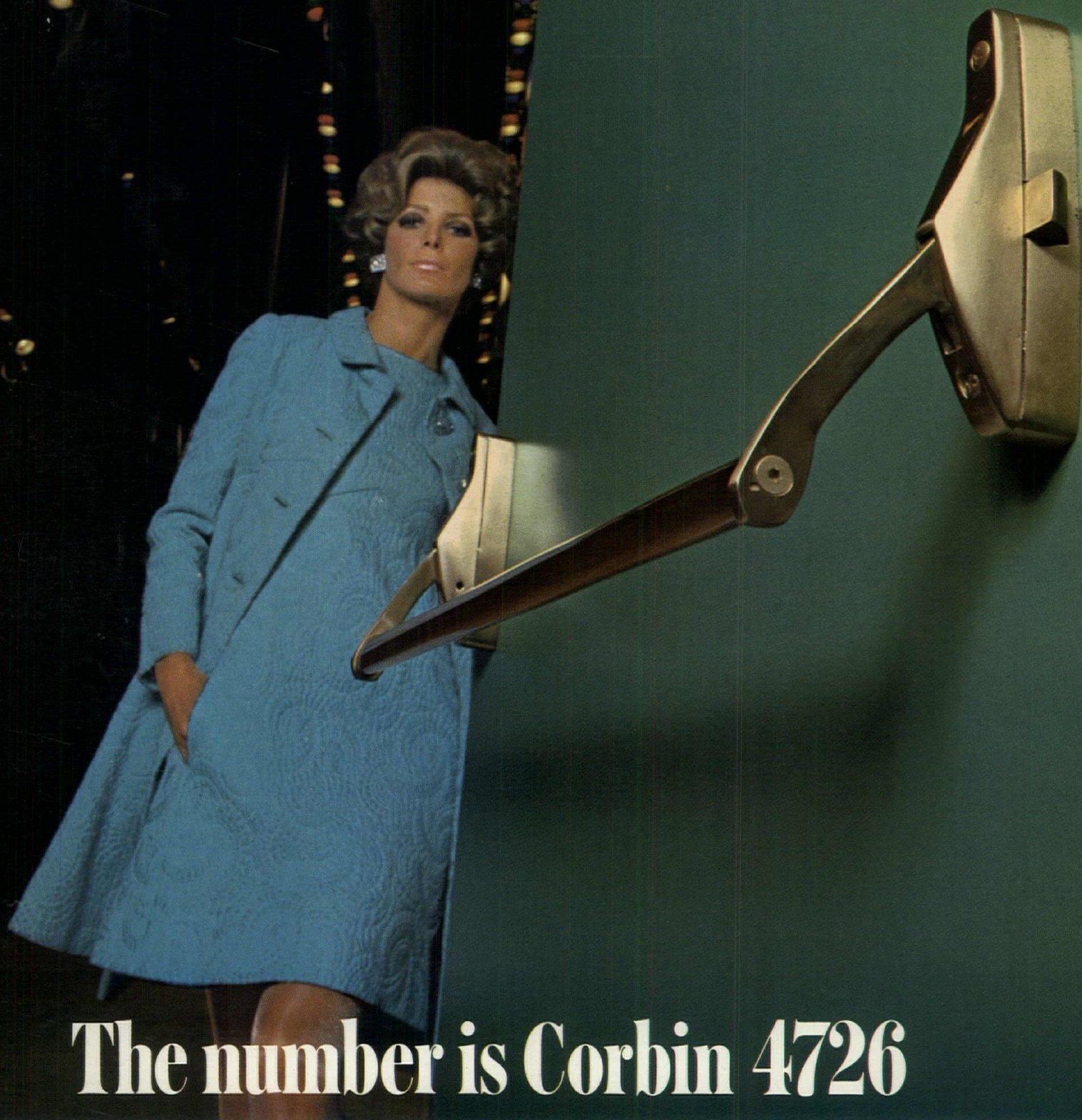
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BUILDING TYPES STUDY: NEEDS, COSTS AND TRENDS IN HOSPITAL DESIGN

FULL CONTENTS ON PAGES 4 AND 5

ARCHITECTURAL RECORD

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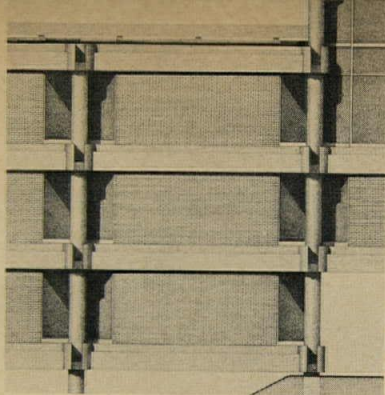
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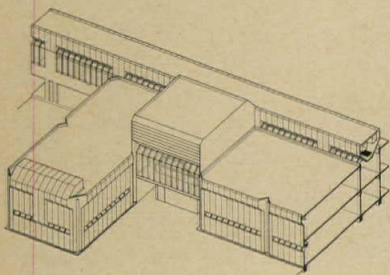
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Cover: Library, Tougaloo College
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FEATURES

- 129 **THREE COLLEGES BY GUNNAR BIRKERTS AND ASSOCIATES**
Tougaloo College, Glen Oaks Community College and the Vocational Technical Institute of Southern Illinois University—designed for maximum flexibility to accommodate unpredictable change.
- 145 **SCOTT, FORESMAN AND COMPANY HEADQUARTERS**
A campus-like cluster of linked buildings and landscaped courtyards by The Perkins & Will Partnership provides a remarkable working environment for the suburban headquarters of a large publishing firm.
- 149 **TWO CONCRETE BLOCK HOUSES**
The first of these two houses was designed by architect Edward J. Seibert. Within the confines of its narrow site a great deal of privacy was secured for the owners. The second house makes the most of its lakeside site in Connecticut. It was designed by architects Oppenheimer, Brady & Associates.
- 155 **SMALL BUILDINGS**
A collection of three small building types represented by an elegant bank by Davis, Brody & Associates, a crisply designed auto dealership by Collins, Uhl & Hoisington, and a rugged West Coast marina by Gerald M. McCue & Associates.
- 163 **EDUCATING "ENVIRONMENTAL DESIGNERS"**
A review by Jonathan Barnett of the A.I.A.-commissioned report on architectural education.



BUILDING TYPES STUDY 389



- 167 **HOSPITALS**
- 167 **NEEDS, TRENDS AND COSTS OF HOSPITALS AND HEALTH FACILITIES**
Wilbur R. Taylor, chief of the Architectural and Engineering Branch, Division of Hospital and Medical Facilities, Public Health Service taps HEW resources for cost and trend information of authority.
- 170 **ROUND NURSING UNIT TOWERS AID EXPANSION**
St. Joseph Hospital, Denver
Architect: Robert G. Irwin
- 171 **FLEXIBLE PLAN HAS BOTH ROUND AND RECTANGULAR UNITS**
Rochester Methodist Hospital, Minnesota
Architects: Ellerbe Architects
- 172 **THE RADIAL SQUARE, A VARIATION ON THE ROUND**
Lincoln General Hospital, Nebraska
Architects: Davis and Wilson, Inc.

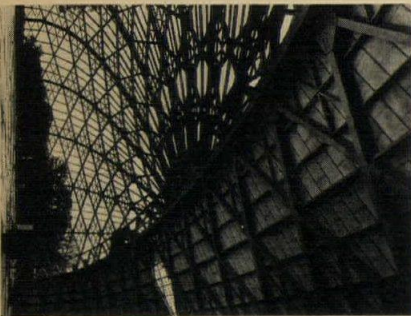
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CONTENTS: OCTOBER 1968

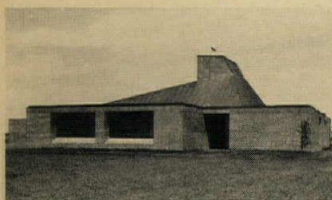
- 173 THE DOUBLE CORRIDOR WITH RADIAL ENDS
Angleton-Danbury Hospital, Brazoria County, Texas
Architects: Neuhaus & Taylor
- 174 TURNING THE CIRCLE INSIDE OUT
Fairview-Southdale Hospital, Edina, Minnesota
Architects: Ellerbe Architects
- 175 NEW ROOM SHAPE FOR EXTENDED CARE
Community Memorial Hospital, Edgerton, Wisconsin
Architects: Potter Lawson Findlay & Pawlowsky, Inc.
- 176 REPLACEMENT MASTER PLAN EXPLOITS A SLOPING SITE
Emerson Hospital, Concord, Massachusetts
Architects: Markus & Nocka, Inc.
- 178 A 30-YEAR PLAN ADAPTS TO CHANGING TIMES
William W. Backus Hospital, Norwich, Connecticut
Architects: E. Todd Wheeler and The Perkins & Will Partnership
- 180 RELOCATION FOR PLANNED GROWTH AND A FRESH START
Dominican Santa Cruz Hospital, California
Architects: Rex Whitaker Allen and Associates

ARCHITECTURAL ENGINEERING



- 183 STEEL SPACE STRUCTURE WORKS WITH FINESSE
The new Princeton University gymnasium, 336 feet wide, 394 feet long and 75 feet high, has the main floor sports area enclosed by a half-dome and a conical barrel, framed of steel members that use only half as much steel as a conventional arched structure.
- 193 BUILDING COMPONENTS
New research study will check on reasons for cracking of gypsum partitions in concrete-framed apartment buildings.
- 195 PRODUCT REPORTS
- 244 OFFICE LITERATURE
- 287 READER SERVICE INQUIRY CARD

THE RECORD REPORTS



- 9 BEHIND THE RECORD
"The Housing Act: We know what it says, but what does it mean?"
- 10 PERSPECTIVES
- 35 THE RECORD REPORTS
- 36 BUILDINGS IN THE NEWS
- 46 LETTERS
- 81 ARCHITECTURAL BUSINESS
Building activity83
Practice87
Cost indexes and indicators.....89
- 284 ADVERTISING INDEX

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COMING IN THE RECORD

BUILDING TYPES STUDY: SCHOOLS

Seven well planned, well designed and soundly constructed schools will be featured in November as solid evidence that these qualities can be achieved in a building type that seldom has big budgets. The examples cover a broad range of typical program requirements: countryside and big city locations, grade levels from K-2 to senior high, and plans to accommodate standard curriculums and the newer teaching techniques.



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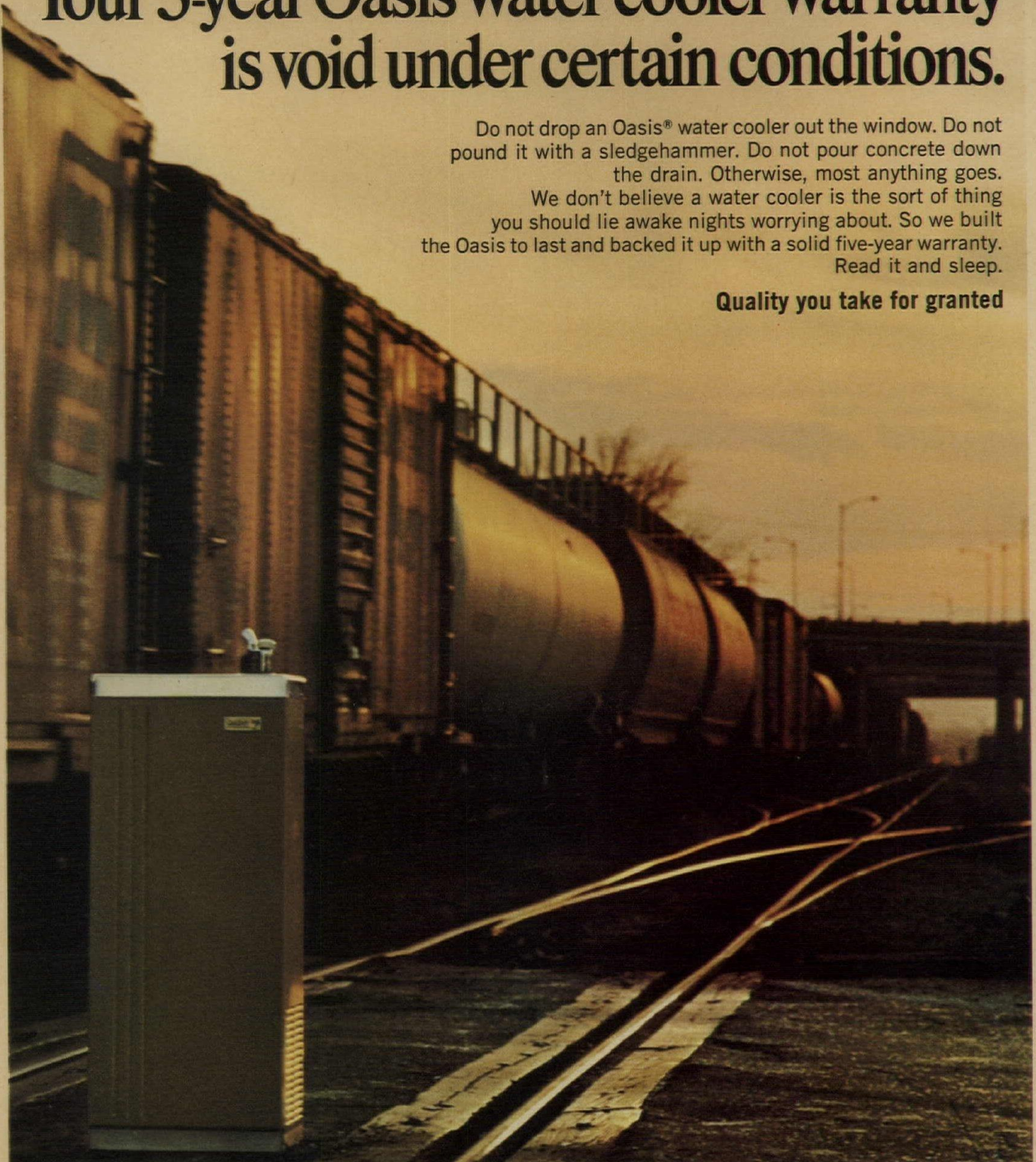
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This research center's roof is "painting" itself



The Battelle Research Center, Seattle, Washington. Architects: Naramore, Bain, Brady & Johanson, Seattle, Washington.

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The Housing Act: We know what it says, but what does it mean?

I'm not sure anyone, including HUD, the Congress, and the President, understands all the details and the implications of the new 300-page Housing and Urban Redevelopment Act of 1968. Its main provisions were summarized on page 81 of last month's RECORD, but the big question remains: What will be the impact—on quality of environment and on architects—of this \$5.3-billion package?

It seems to me that what *could* happen (and what architects ought to be ready for *if* it happens) is a boom in housing with the same kind of impact on urban places as the post-World War II boom had on the suburbs.

The government mechanisms that fed that boom were the National Housing Act of 1934 (which was set up to move capital during the Depression, but didn't work until after the war) and the Servicemen's Readjustment Act of 1944 (the VA) which introduced the idea of no down-payments and 20-year mortgages. Bill Levitt was the first entrepreneur smart enough to figure out how to make those two bills work, and he showed the way to others who in a few years created an industry which built a ring of houses around every major city in the country.

Has the same kind of boom—this time inside the cities—been triggered by the new Act?

The President's goal under the new program is no less than the construction of 26.2-million new housing units in the next 10 years, which is almost double the number of units built in the past 10.

Says HUD Secretary Weaver, in what seems an understatement: "This is a very large commitment by the nation to the people of America's urban places, and it is particularly designed to help those

Americans who most need help."

The main emphasis is, of course, on volume—and volume fast:

The act provides very easy terms for buying and renting for families with very low incomes, it makes a number of long-stalled FHA programs workable by upping their unrealistic mortgage limits, it gives a real boost to new investment by big corporations in new cities and urban spaces alike, and—by spinning off Fannie Mae towards private ownership and permitting it to sell mortgage-backed securities—could attract massive amounts of money into the mortgage market.

At any rate, it does look as if a number of fuses have been set that could generate the kind of building volume that Weaver sums up as "no less than the building and rebuilding in the next 10 years of enough good, decent housing to replace substantially all of the substandard housing in America."

All of this is, of course, just a goal—and an election-year goal at that. How much of this giant program gets funded and implemented depends very much on a lot of things—who is elected President (and who he appoints as HUD secretary); the mood of the Congress after election; whether the electorate acts towards increasing black militancy in the cities with increasing fear, increasing sympathy, or increasing distaste; and of course on the state of the world's cold, cool, warm and hot wars.

But let's assume the program is well funded and gets underway on anything like the projected scale. What is the hope for an emphasis on quality, for more involvement of architects, for the kind of environment that everyone would like to live in and with?

There are some good signs: The new Act, as has been pointed out, specifically permits some clients (notably nonprofit organizations) to obtain direct loans for up to 80 per cent of specified "necessary expenses prior to construction"—specifically including site engineering and planning and architectural fees.

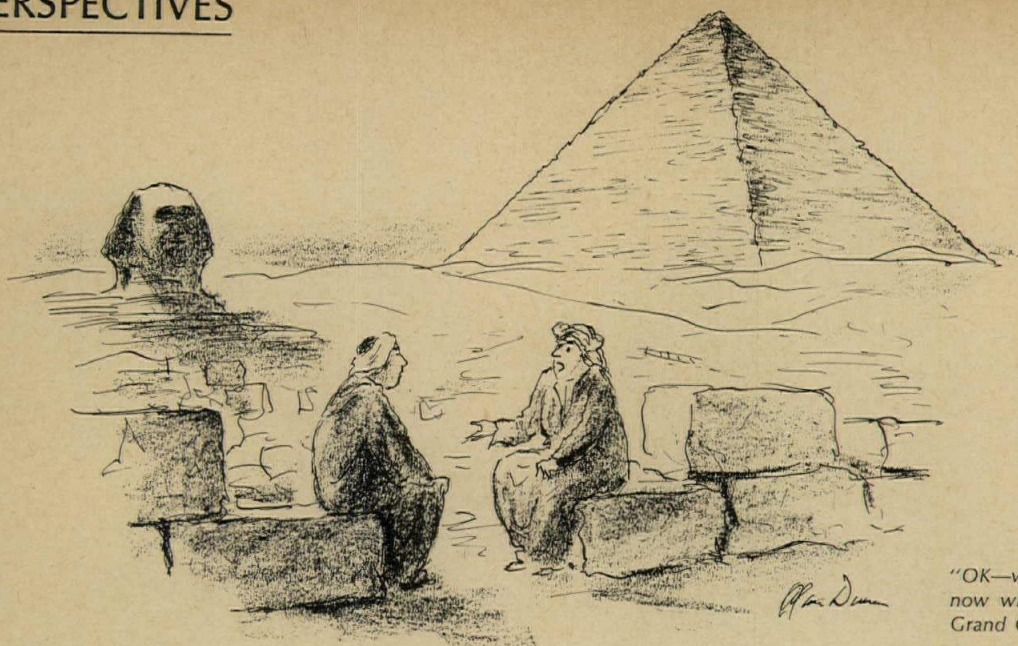
Further, because of the higher-density and greater complexity of the new housing—as compared with the suburban housing of the last big boom—more architect involvement is assured than in an earlier day when any builder figured he could save money by "designing" his own houses.

Finally, we enter this boom (if boom it is to be) with the architectural profession in a much stronger, much more involved, much more organized, and much more experienced position than it was when the suburban boom began. Most Federal and city government officials now clearly understand the role of the architect within programs they sponsor; and most architects now understand that they must—if they are to be effective and create the kind of urban housing that is so desperately needed—involve themselves in the frustrating and time-consuming political and social processes involved.

There are some bad signs too: HUD persists in pinning what seems like too much hope on "new and advanced technologies," on Turnkey, and on new kinds of "national housing partnerships."

So what the architectural profession needs to do now is to be very watchful. The last time Federal legislation built a housing boom, the design professions muffed their opportunity. Nobody is going to make the same mistakes in the late 1960s as were made in the late 1940s. But the profession must not make any new mistakes—it must watch for (indeed, fight for) a chance this time to make the maximum contribution to the environment. The quality of living for 26.2 (give or take a few) million families is at stake.

—Walter F. Wagner, Jr.



"OK—we sent them the Temple of Dendur—now what's to prevent them from sending us Grand Central Station?"

"... take care not to exaggerate the potential contribution..."

The Ford Foundation, whose efforts I almost always admire greatly, has just added to my feeling of admiration by publishing a little pamphlet entitled "Technology and Cities—A Foundation Viewpoint," written by William C. Pendleton, who is a program director in the Foundation's National Affairs Division. He begins by pointing out that "The Ford Foundation for several years has had something called 'urban technology' on its agenda, but has made only a handful of grants to promote it. This inaction reflects," Mr. Pendleton confesses, "more than anything else some bafflement about what 'urban technology' actually is, and a consequent uncertainty about what a foundation might do about it."

I hope it is not unfair and out of context to skip to page 10 of Mr. Pendleton's analysis and quote several ideas which he suggests are presented "more as hypotheses than as conclusions—ones to which the reactions and comments of others are solicited."

His first hypothesis: "... we must take care not to exaggerate the potential contribution of technology to solving the problems of the cities. The really critical and immediately pressing problems—poverty, unemployment, crime, bad housing, poor health, and inadequate education—will persist until the nation finds the will to provide very basic economic, social, and political solutions."

His second hypothesis: "... is that the potential role of the systems approach to urban problems, at least as the approach has developed in the aerospace industry, is currently being oversold to a rather substantial degree." And he quotes Joseph Engel, new president of the Operations Research Society of

America, as saying that: "As we move closer and closer to human beings, human life, and to its goals, we find that we are dealing progressively with more and more difficult problems. . . . We're very good at hardware and tactical problems and starting well-defined research and development programs. We're lousy at strategic and philosophical problems."

Further, Mr. Pendleton argues in his booklet: "It is not at all obvious that the heritage of Department of Defense and National Aeronautics and Space Administration contracts prepares the aerospace companies to operate in the context of municipal problems."

Mr. Pendleton, if you are interested in my reaction and comments to your hypotheses, I'm with you. Might I also make so bold as to suggest (not so much to you as to some HUD officials) there's a large band of informed and involved people who are pretty good at solving strategic and philosophical problems related to the cities. What they are is architects.

Riot area insurance: sure-thing department

It's surely a good thing for the more-troubled of our city neighborhoods, but I feel no big urge to jump up and down and heap praise on the insurance industry for its latest "contribution." It turns out, according to a recent rather breathless HUD release, that "insurance companies representing an estimated 80 per cent of total property coverage in the nation are 'eager and willing' to participate in the riot loss reinsurance coverage authorized in the Housing and Urban Development Act of 1968," and that "this means that insurance protection will become more available to homeowners and businessmen who were formerly denied coverage because they were located in areas ex-

posed to riots or civil disorder."

Under the Act, HUD reinsurance is effective for most of an insurance company's losses. The formula is all pretty complicated, but it seems as though the insurance companies are now enabled to pass along a pretty fancy part of their risk to HUD and thus, as usual, the taxpayers.

Such a provision is clearly desirable to enable investors and homeowners in troubled areas to operate without fear of being wiped out financially as well as physically; but let's give credit for the risk-taking to the right parties.

Horizontal elevators: reducing the interface problem

As a commuter to New York City faced twice a day with a variety of "transportation interfaces," I keep being intrigued by the idea of horizontal elevators. The term is creeping into conversation more and more, and the latest discussion comes in a release from George W. Jernstedt of Westinghouse. He argues that "We have done a fine job of packaging vertical elevators and applying them in our buildings; but once we hit the ground we run into all kinds of interface problems." He argues that a horizontal system with the same advantages as elevators is the missing link in public transportation. "Horizontal elevators would provide transportation for people wanting to go as far as four miles or as little as 400 feet. They would be faster than walking and their cost could be absorbed in the buildings they connect . . ." It would take some planning, but it has some real appeals. It's not that I mind so much paying 20 cents to ride the bus. What I mind is apologizing for not having the exact change and still getting snarled at. —W.W.



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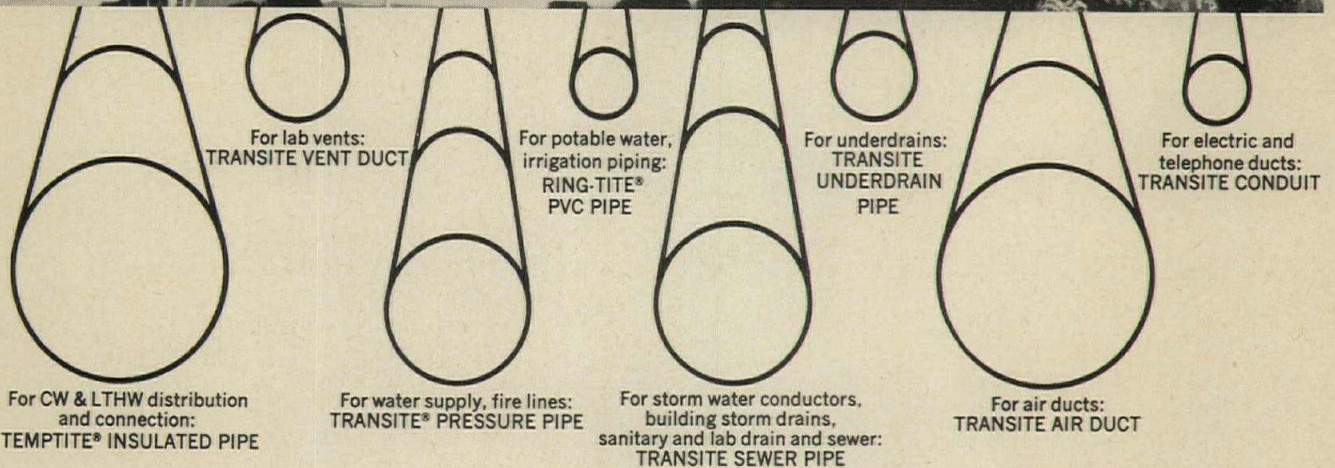
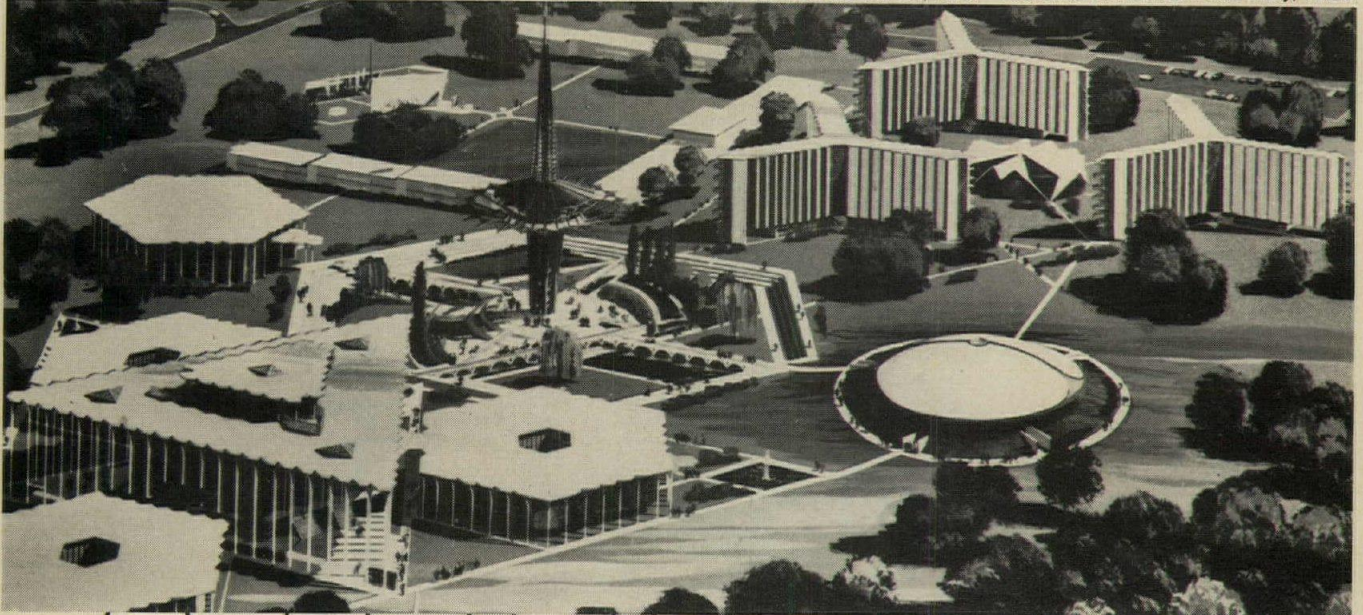


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You can design many savings into your next college or school with a J-M pipe "package" like this:

Oral Roberts University

Architect: Frank W. Wallace, Tulsa • Consulting Engineer: Netherton-Dollmeyer-Solnok, Tulsa • General Contractor: Manhattan Construction Co., Muskogee, Okla. Mechanical Contractor: Natkin & Company of Oklahoma, Tulsa • Electrical Contractor: Southwest Electric Co., Tulsa • Economic Studies: John Abernathy, Tulsa.



There's a cost-saving in materials—The more you buy, the less you pay per foot. What's more, you're assured of Johns-Manville quality throughout. TRANSITE* asbestos-cement pipe, RING-TITE PVC plastic pipe, and TEMPTITE insulated pipe are all J-M engineered to meet specific applications indicated.

You get cost-savings in installation—An all-Johns-Manville pipe "package" eliminates need for wrapping, coating, cathodic protection. Ring-Tite joints throughout speed line assembly. No delays due to weather or trench conditions or welding. Less manhours and days to complete all work.

You get cost-savings in operation/maintenance—There's no routine maintenance necessary with

an all-Johns-Manville "package." Both J-M TRANSITE and plastic pipes have demonstrated resistance to attack from fluids inside, soils outside. Eliminates rust, tuberculation, corrosion.

Send for free technical literature on the J-M pipe "package" for schools and colleges, and see for yourself how it meets many application requirements. Better still, if you're working on a new school or college project, ask us to send a J-M representative . . . for information and a quote. Simply write Johns-Manville, Box 362, AR-10, New York, N.Y. 10016. Available in Canada. Cable: Johnmanvil.



Johns-Manville

*TRANSITE is a registered Johns-Manville trademark for its line of asbestos-cement products.

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New! COLORTEMP® for kitchens. Controls water with COLOR, yet costs no more than ordinary single-handle faucets.

Beautifully by **SPEAKMAN**

Ease to red for hottest water. Ease to blue for coldest. In-between for exact temperature desired. Surprisingly, color control in a kitchen sink faucet costs no more.

Speakman *Colortemp*. This exciting new way to control water, with *color*, has previously been available only for the lavatory, shower and bath. Now *Colortemp* comes into the kitchen . . . imaginative new convenience and modern beauty for the busiest room in the home.

What *Colortemp* means to the homemaker can hardly be overstated. Like a magic wand, the graceful extending handle allows one-hand control of water temperature and flow

instantly. It can even be operated by the wrist when both hands are wet with soapy water.

Interchangeable cartridge needs no grease. Won't rust or stick.


All *Colortemp* faucets operate with the same patented cartridge. In three years it has proved itself in thousands of actual installations. Prior to that the cartridge went through half a million gruelling "on-off" torture tests, equivalent to 20 on-off turns daily for 68½ years. This unique cartridge glides smoothly and silently, protected at friction points by famous Du Pont Teflon.

We will gladly send complete descriptive literature on request.



colortemp®

costs less really than you think / by **SPEAKMAN**

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Announcing

*a grand old name
in carpeting*

KENTILE

Just recently, Kentile® acquired Hightstown Carpet, one of America's oldest and finest carpetmakers. By putting two Grand Old Names together, we've created one Grand New Name: Kentile Floors/Hightstown Carpet.

What can we offer you besides our good name? Some of the finest contract and residential carpet that money can buy—made of 100% pure wool. In three different kinds of construction: woven, tufted, and knitted. On every wool carpet we make, you'll find the Woolmark label—the mark of the world's best . . . pure wool pile.

To assure you maximum return from available budget, we can "Traffic Engineer" your contract installation. Suppose you have \$12 a square yard budgeted for wool carpet. Where traffic is light, we may recommend a \$10 grade.

Where traffic is moderate, a \$12 grade. And where it's heaviest, a \$14 grade.

Versatility? Right now, you're reading on a pencil-point plush, velvet weave, called Royalty—a superb wool carpet for an executive office. But should you need a dirt-defying, wears-like-iron variety, we'll give you a level-loop as beautiful as it's tough. Or anything in-between.

For information, samples, any sort of help, please write to: Contract Department, Kentile Floors/Hightstown Carpet, Brooklyn, N.Y. 11215. We'd welcome a chance to show you how nice it can be to have a Grand Old Name like Kentile in the carpet business.

KENTILE FLOORS

HIGHTSTOWN CARPET

In Pure Wool Pile.

The Woolmark is your assurance of quality tested carpets made of pure wool pile.



PURE WOOL PILE

Mobay



ABOVE:
Urethane mix is injected through spaced access holes in the finished cinder block wall. Pressure of expanding foam forces it into every chink to form seamless thermal barrier. Exudate signifies filled cavity.

LEFT:
Poured between pre-built cavity walls, rigid urethane foam means ease of installation after masonry work is done plus long-term cost-saving benefits that can be measured in low rental and heating bills.

New material know-how and sharp pencil give high-rise builder new lows in rental costs

Two 13-story apartment buildings, now rising from the rubble in the Springfield, Mass., urban renewal program, will provide roomy, modern living quarters for elderly families at monthly rentals of \$43 to \$60. Design and materials specs for the government-supported project, approved by HUD, emphasized functional efficiency and long-term maintenance economy.

"A critical factor in meeting the stringent budgetary specifications is an electric heating system made economically feasible through use of a seamless core of urethane foam insulation in the cavity walls," says Vito Caolo, project architect. "Without rigid urethane foam, we could not have utilized all-electric heating as we could not have met the strict structural and operational requirements in any other way," Mr. Caolo said.

The electric heat/urethane foam combination was selected because it offered lowest initial cost of installation, plus the prospect of lowest operating costs when compared to three other fuel combinations (involving oil, gas and electricity) included in the study by consulting engineers, Greenleaf Associates, of Cambridge, Mass.

Total construction costs ran to \$15.75/sq ft, considered quite reasonable for a reinforced concrete structure with a number of special design features to accommodate elderly occupants.

The urethane insulation is being installed by A. Belanger & Sons, Cambridge, Mass. It is poured in liquid form into the 2¼-inch cavity between 4-inch brick and cinder block walls. Access spaces were left at 4-ft intervals for injecting the urethane mix. The foam expands immediately into a hardening


cellular mass that fills every nook and crevice to form a seamless, air-tight, total thermal and moisture barrier. The foam has a k factor of 0.12 (ASTM C-177-63) and a nominal density of 2 pcf, equal to 3-4 inches of fiber glass.

The Twin Towers project is being built by Perini Corp., Framingham, Mass. The foam system and technical service are provided by the Resinous Products Div., Diamond-Shamrock Chemical Co., N. Arlington, N. J.

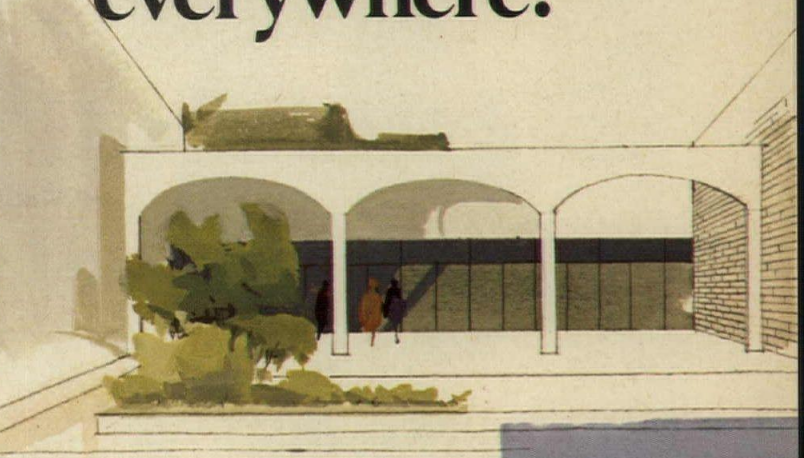
Write on your letterhead for more background data and evidence of how urethane foam insulation can widen the profit margin on your insulation and building contracts.

MOBAY CHEMICAL COMPANY
Code AR-108, Pittsburgh, Pa. 15205

For more data, circle 14 on inquiry card



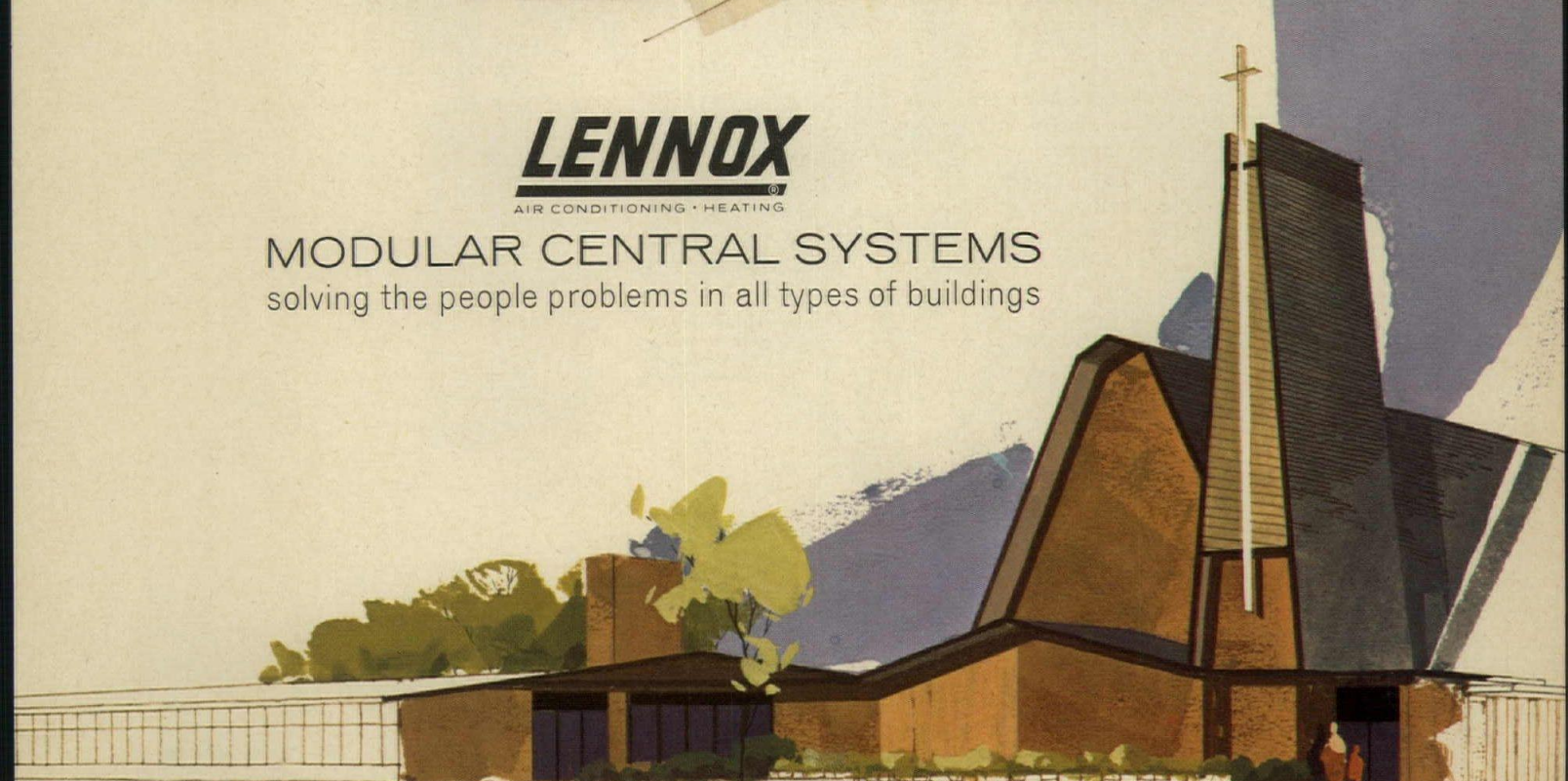
The "micro-climates"
are here...there...
everywhere!



LENNOX

AIR CONDITIONING • HEATING

MODULAR CENTRAL SYSTEMS
solving the people problems in all types of buildings



For more data, circle 15 on inquiry card

The unique flexibility of Lennox systems weds economy, freedom of design and people comfort. For example, we create comfort to match the different problems of different people. All types of people. In all manner of activity. In the same building. At the same time. Whatever the weather. (And for any type of building – school, office, motel, apartment, plant, clinic, shopping center.)

The toughest problems soften up when you specify Lennox modular central systems. Here is the sophistication of control and the flexibility to provide an almost infinite variety of “micro-climates”—individual comfort zones. And there’s a system—or systems combination—to match any demand.

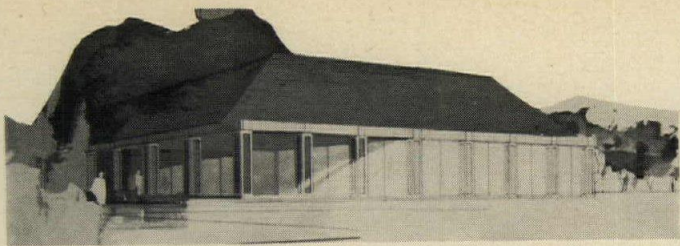
The single-zone Lennox combination system, for example, heats with gas, electricity or oil; cools electrically; rooftop or grade mounted. Or take the Lennox Direct Multizone Systems (DMS), for single or multistory installation, serving up to a dozen comfort zones per unit; or DMS with dual ducts and mixing dampers. Or unitary systems with a broad range of coil-blower units.

*For details, see Sweet’s—or write Lennox Industries Inc.,
333 S. 12th Avenue, Marshalltown, Iowa 50158.*

For more data, circle 15 on inquiry card

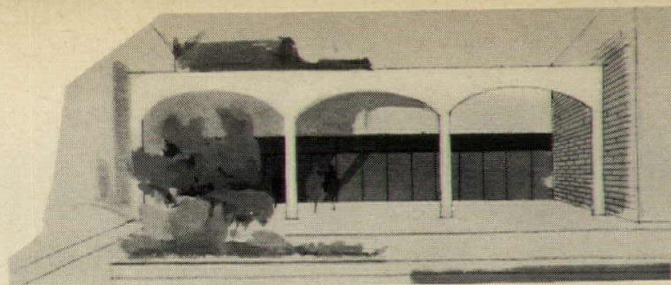
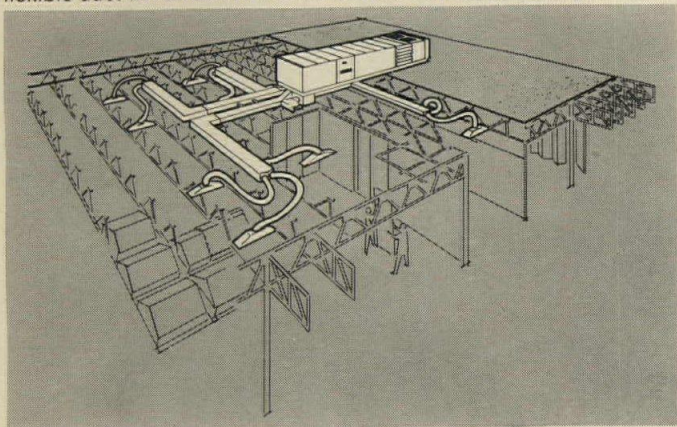


**Lennox systems’
flexibility combines people
comfort, economy & designability.**



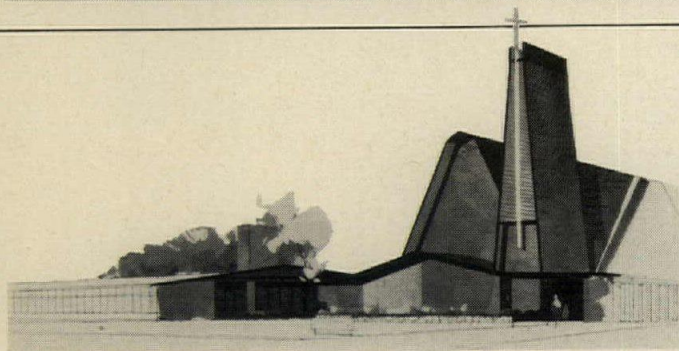
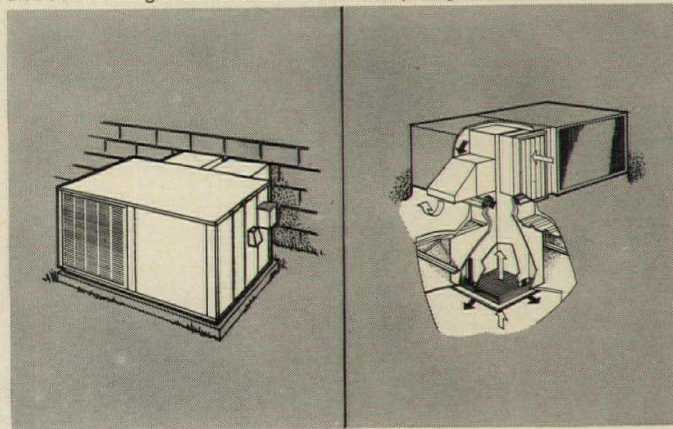
Spacious, beautiful country club provides members' indoor comfort with "micro-climates" from concealed rooftop installations of Lennox unitary central systems. Four individually-controlled comfort zones come from one DMS1 unit of 22 tons cooling capacity and 500,000 Btuh gas heating. A Lennox GCS3 furnishes heating, cooling and ventilating for the large single-zone area (capacity: 8 tons cooling, 250,000 Btuh gas heating). Kitchen and locker rooms are heated and ventilated by another unitary system.

Direct Multizone units on roof serve many comfort zones through flexible duct which can be moved as zone boundaries change.



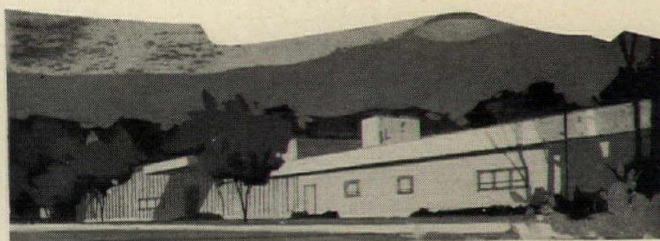
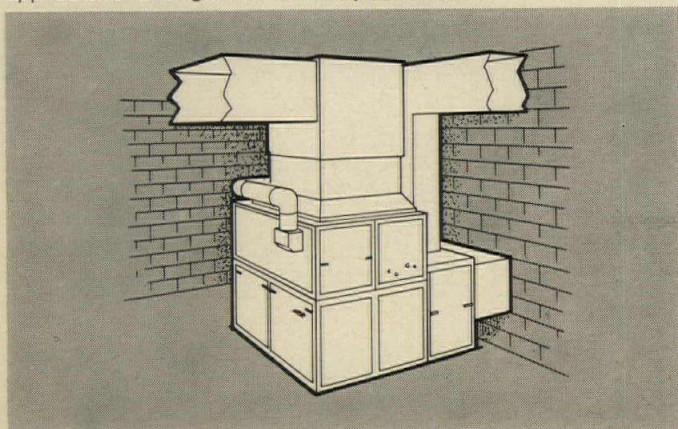
Patrons and employees of the 80 stores and theatre in this colorful, exciting shopping center will find the comfort right! Some 800 tons of cooling will come from a variety of Lennox equipment atop the center's 18-plus acres of buildings. Among the Lennox equipment supplying this large volume are: GCS single-zone combination gas heating/electric cooling units for large, undivided spaces; DMS units for the many individually-controlled comfort zones; condensing units coupled with coil/fan units; and other modular central systems.

Lennox GCS3 all-weather combination gas heating/electric cooling unit serves single-zone areas from rooftop or grade level.



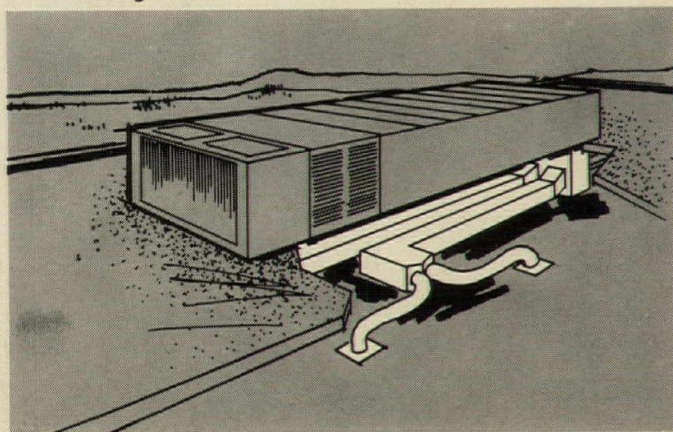
Comfort flexibility keynotes the gas heating/ventilating system of this striking new church building. To supply both upper and lower floors economically and efficiently, two new DMS2 units are installed in the equipment room. One unit serves multiple zones of the lower floor (Sunday School classrooms, etc.), the other serves the upper floor entrance hall, sanctuary and choir room. Provision is made for easy add-on cooling in future.

A new Direct Multizone System now adds flexibility in multiple zone applications for single and multistory buildings.

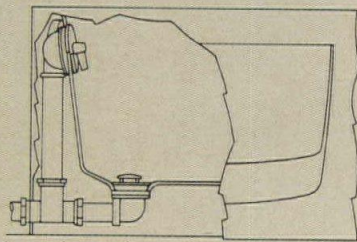
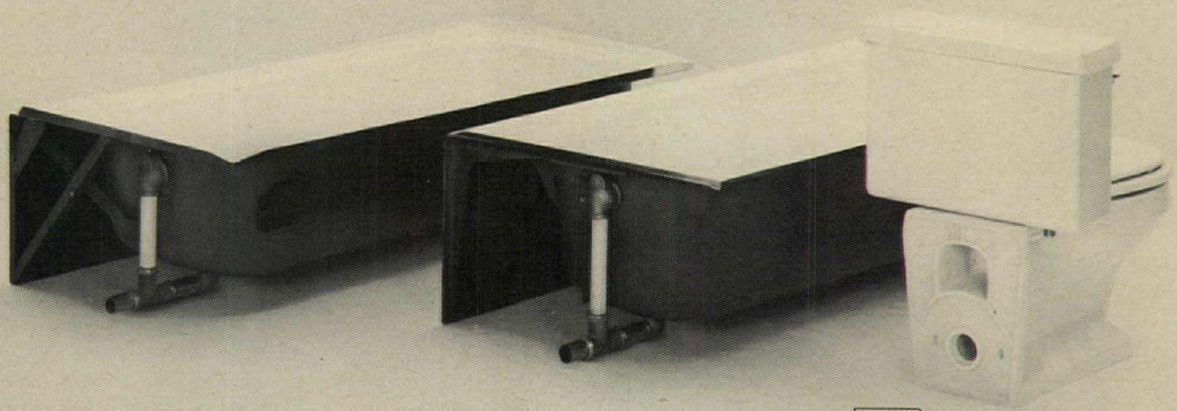


These new quarters of a leading—and growing—surgical instrument manufacturer have "room-to-grow" air conditioning and heating, in a "room-to-grow" building. Six Lennox DMS units provide the comfort for a 30,000-plus sq. ft. production area divided into six zones. Two other units take care of the 15,000 sq. ft. office area, in 12 separate comfort zones. Rooftop mounting conserves inside space; and, with flexible ducts, helps make possible easy expansion for growth.

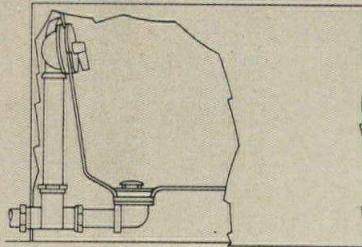
Clean, low-silhouette DMS1 units sit unobtrusively on rooftop, help maintain design freedom.



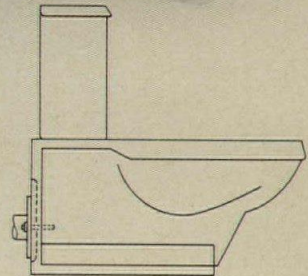
Rough-in through the wall.



The Sarasota tub, formed steel with acid-resisting enamel, features a raised outlet that permits waste line to be installed through the wall.



The new Nile tub, cast iron with acid-resisting enamel, has a raised outlet that permits installation of a horizontal waste drain from bath to wall.



The Orlando floor-mounted, back-outlet closet fits flush with floor and wall.

Eljer shows the way.

With the addition of the new Nile tub, Eljer now offers you the most complete line of fixtures that rough-in through the wall. Only Eljer has these bathtubs of both cast iron and formed steel.

And there's more. More freedom of design for you and more savings for your client when you specify these Eljer fixtures for slab or reinforced concrete construction. Since all of the plumbing goes into the wall, there's no wasted area between floors.

For more about these compatible-with-slab-construction fixtures, call your Eljer representative. Or write Eljer, Dept. AR8, P.O. Box 836, Pittsburgh, Pa. 15230.

MASTER
CRAFTED

ELJER

SINCE 1904 FINE PLUMBING FIXTURES

Eljer Plumbingware Division / Wallace-Murray Corporation

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Elastomers in Industry/Engineered Construction.

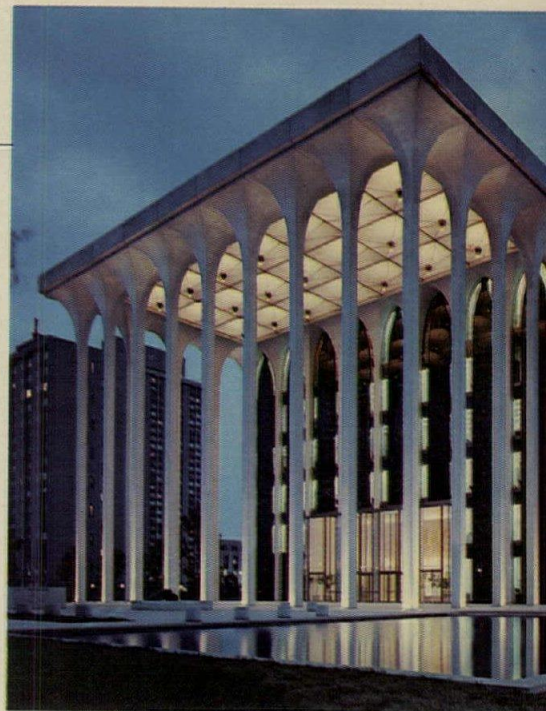


Butyl rubber sheeting forms seep-proof barrier between rooftop gardens and apartments below.

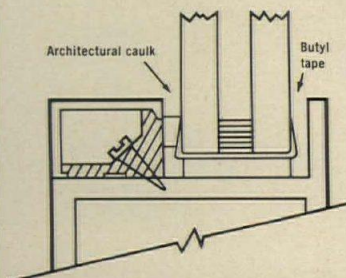
Think of a sandwich—an upper and sub-surface layer of concrete with a membrane of Butyl rubber as the “ham” in between.

That’s the way the roofs of the luxurious Watergate East apartments in Washington, D.C. were constructed. Tough, long-lasting sheeting made of Enjay Butyl rubber makes a practical, impermeable barrier against moisture. It can withstand wide extremes of winter and summer temperatures as well as resist attack by fertilizer and other corrosive soil-borne elements.

Sponsor: Watergate Improvement Associates
Architects: Luigi Moretti (HFAIA), Milton Fiscger (AIA)
General Contractor: Magazine Brothers Construction Corp.
Sheeting Subcontractor: Washington Plyrite Company
Sheeting Fabricator: Goodyear Tire and Rubber Co.,
New Bedford, Mass.



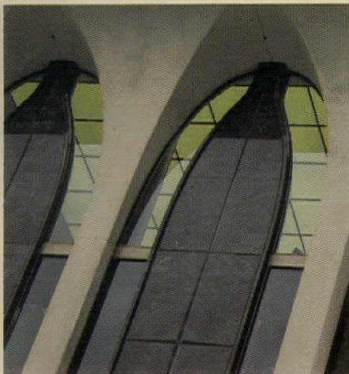
**From 30° below to 100° above...
Butyl tape keeps insulated
windows leak-free.**



Flexible, non-hardening Butyl tape makes an effective seal against the extremes of weather on these tall dual-pane windows of the Northwestern National Life Insurance Building in Minneapolis.

The preformed tape of Enjay Butyl and polyisobutylene has 100% non-oxidizing solids... provides a strong bond between glass and external stop... gives practically permanent sealing. And it resists shrinking, hardening, cracking and ultraviolet rays.

On sashes with interior stops, glazing with Butyl tape can be done from the inside, with no scaffolding or external clean-up. Butyl tapes are also widely used for sealing mullions and exterior panels. They are available in many shapes and colors, and with internal reinforcing to prevent distortion.



Architect: Minoru Yamasaki Associates, Birmingham, Michigan.
General Contractor: George Fuller, Chicago, Illinois.
Glazing Contractor: Larry's Glass & Mirror Company, St. Paul, Minnesota.
Tape Manufacturer: Tremco Manufacturing Company, Cleveland, Ohio.



**Structural gaskets of VISTALON®
ethylene-propylene rubber
have excellent weather resistance
and low temperature flexibility.**

More and more modern buildings are utilizing structural gasketing of VISTALON to maintain long-term resiliency under all weather conditions. These pre-formed seals allow glass or panels to float freely without strain. They permit speedy and easy installation of glazing and panels, as well as a simple means of removal or replacement of broken glass.



Architects: Cartmell and Rossman, Phoenix, Ariz.
 Glazing Contractor: Standard Glass Co., Phoenix, Ariz.
 Caulk: DAP Inc., Dayton, Ohio

Unusual window design uses Butyl rubber caulk for sealing.

The new co-ed residence, Manzanita Hall, at Arizona State University has hexagonal and triangular windows that contribute both to aesthetics and to the building's strength. All the windows were shop glazed, complete with hardware. They feature aluminum frames with operable lower sections. Butyl rubber caulk as a sealant between the glass and frame was chosen for its permanent flexibility and excellent weatherability. Butyl-based caulks last up to 5 times longer than conventional caulk over a wide range of temperatures. Butyl caulks can be applied with conventional tools without elaborate joint preparation. They can be colored to match mullions of panels.

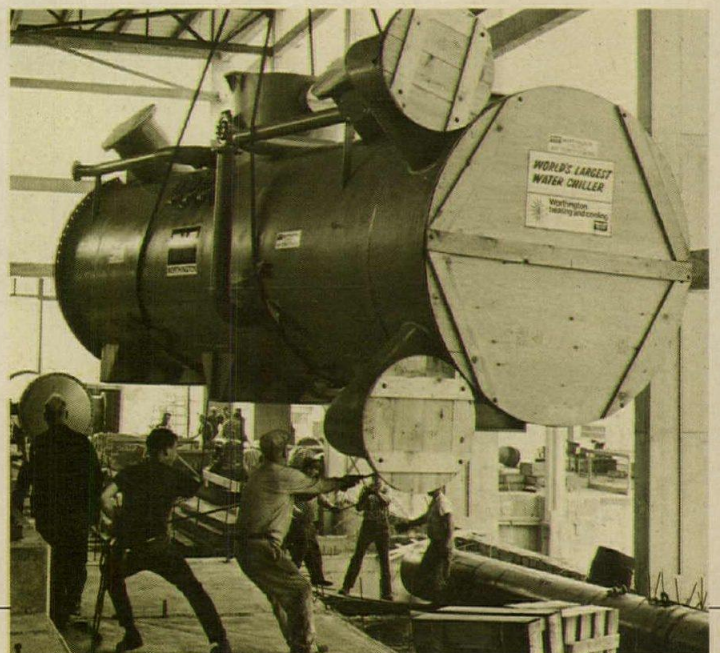
Butyl pads damp noise and vibration

Enjoy Butyl is the ideal material for use under such environmental control systems as air conditioners, generators, etc.

Butyl mounting pads are unequalled for vibration and noise damping characteristics.

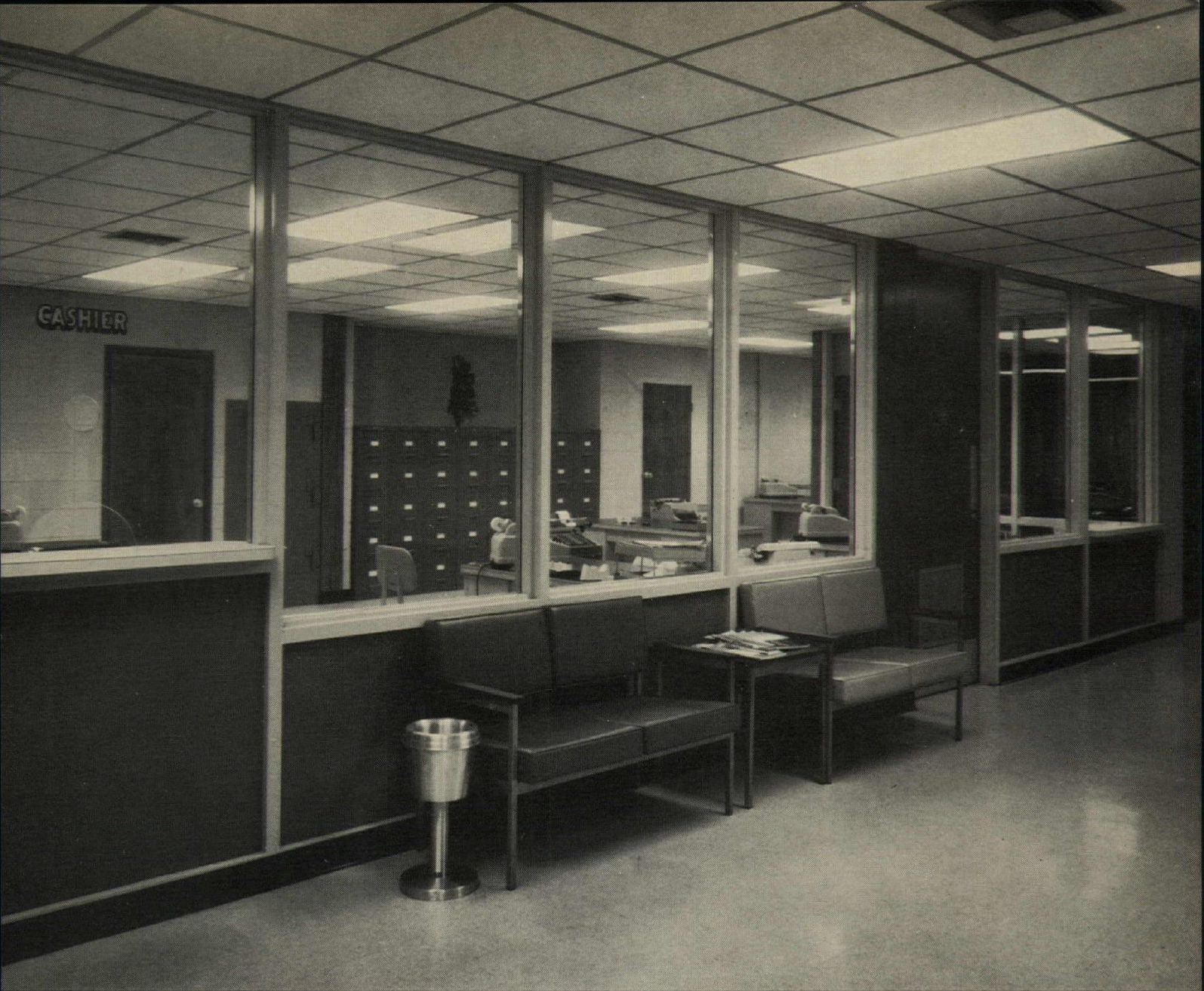


Enjoy Chemical Company
 Synthetic Rubber Division
 60 West 49th Street
 New York, N.Y. 10020



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REPUBLIC FRAME-A-LITE lets you custom-design beautiful entrances with economical standard components

Amazing things happen when entrances are custom-designed around Republic's Frame-A-Lite stick systems. The results are as *beautiful* as they are economical.

Frame-A-Lite sticks offer unlimited design flexibility for entrances, halls, or entire walls. The system is very inexpensive. Trim, steel sticks won't warp, sag, rot, or shrink. The need for costly planing and mortising is eliminated. And our snap-on glazing bead *looks* very expensive.

Republic full flush standard doors offer the same creative versatility at standard cost. These doors are modified at our factories and regional warehouses for distinctive light and louvre treatments. You get beautiful doors that are exceptionally well finished, durable, and quiet. At a fraction of the cost of custom work.

Republic Frame-A-Lite sticks and full flush doors can be used together or separately. Republic universal door frames are another beautiful way to save. They're available in dozens of sizes, are phosphatized and enameled for lasting beauty.

Our salesmen have a kit that demonstrates the design versatility and quality of Frame-A-Lite sticks, full flush doors, and universal door frames. To arrange a meeting, call your nearest Manufacturing Division sales office, listed in the Yellow Pages. Or, use the coupon.

REPUBLIC STEEL MANUFACTURING DIVISION

YOUNGSTOWN, OHIO 44505



Please have a salesman call with a demonstration kit.

Please send literature and specifications on:

- Frame-A-Lite stick system
- Republic full flush doors
- Universal door frames

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Company _____

Address _____

City _____ State _____ Zip _____

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For more data, circle 19 on inquiry card



Only Haws makes a bronze drinking fountain, and other distinctive models to match the excitement of your ideas.

Ask for your catalog today. Haws Drinking Faucet Company, 1441 Fourth Street, Berkeley, California 94710.



DRINKING FOUNTAINS



Listen to the quiet.

One of the reasons the Collins & Aikman carpet of Zefkrome® acrylic works so well in an office.

The modern business environment thrives on quiet, sound-absorbing floor covering. This is the Collins & Aikman carpet developed of Zefkrome acrylic to provide a think-ful quiet where people work better and feel better in surroundings that mute the noise of modern office machinery. Not only can't you hear a pin drop. The Collins & Aikman carpet is so durable, you can't tell how much traffic has passed over it from one day to the next. And because Zefkrome is a round, cross-section acrylic that resists soil-entrapment, maintenance problems can be brushed off in one clean sweep.

What does a carpet like this do for relaxation? It creates an infinite variety of pleasing color schemes suggested by the vibrant multi-chrome colorings, a Zefkrome innovation.

Distributed by the Painter Division of Collins & Aikman.

Collins & Aikman Corp. ART
210 Madison Avenue
New York, New York 10016

I would like further information and specifications.
Please have a contract specialist get in touch with me.

Name _____

Address _____

City _____

State _____ Zip Code _____



*Zefkrome® Acrylic is a trademark of Dow Badische Company

Carpet shown 70% Zefkrome acrylic, 30% modacrylic.

For more data, circle 23 on inquiry card

...and not a student has entered its halls.

Oh, it's well designed. Every possible construction concept, every possible environmental detail, every possible comfort variable was investigated before the plans were completed.

But they took communications for granted. And, especially in a school, if communications aren't the most modern available, the building's obsolete before it's even begun.

Coming are carrels with direct phone access to a resource center. Closed-circuit TV areas. Direct access by teletypewriters to a computer. Theatres that will use multi media to instruct.

Many of these education communications concepts will influence the actual shape of tomorrow's schools.

All will require forethought as to capacity and flexibility.

And that's where a Bell System

Architect and Builder Service Representative comes in. He can make your next school—and every building—as modern as modern communications can make it. And insure that communications needs of the future will fit in without expensive alterations.

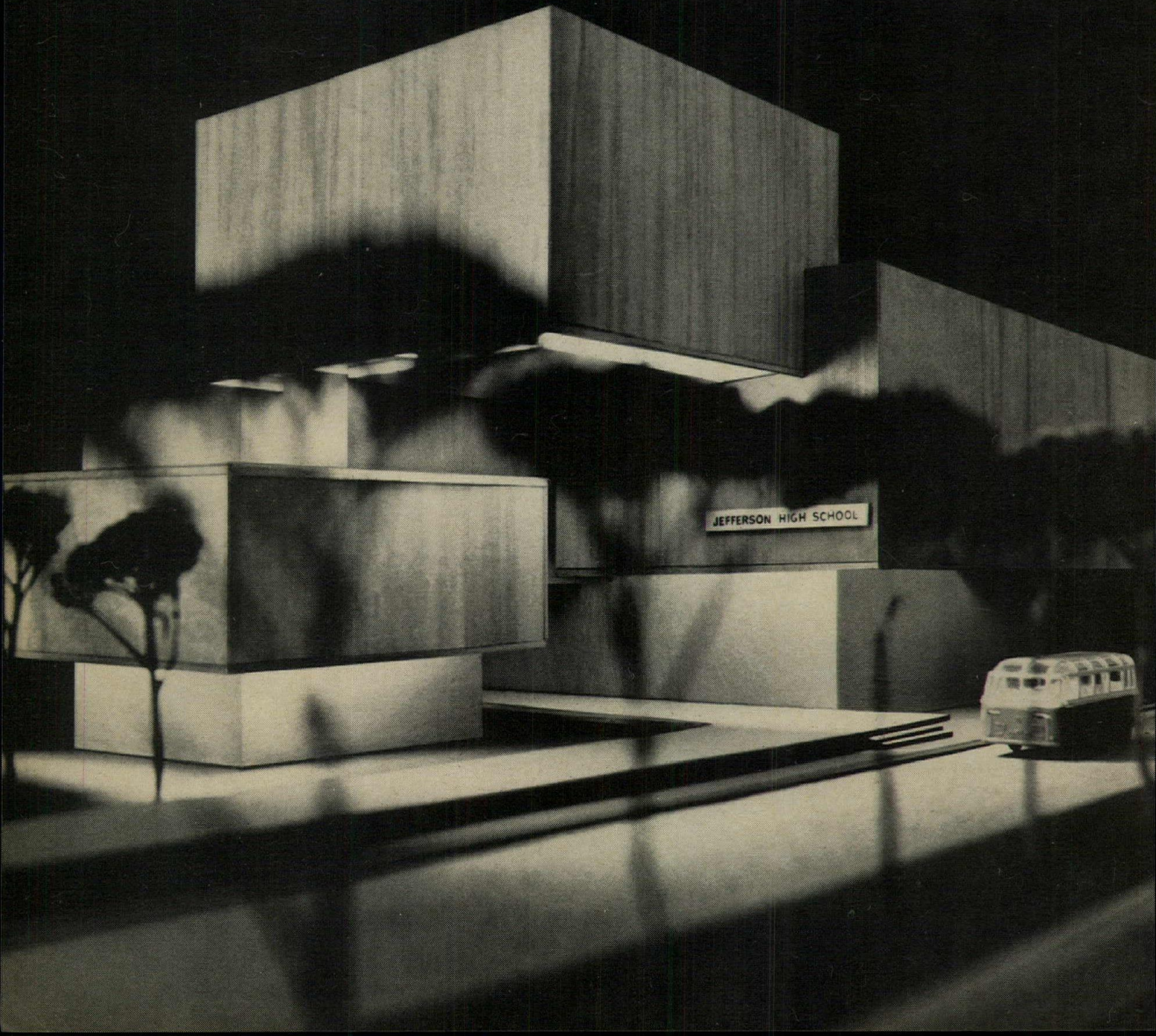
Just call 212-393-4537 collect. We will send you a complete list of our Architect and Builder Service Representatives.

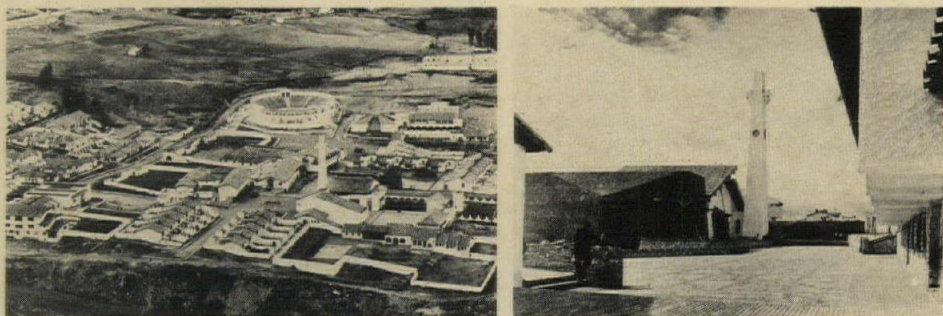


AT&T
and Associated Companies

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OBSOLETE





Colombian new town avoids "so-called modern architecture"

The new town of Guatavita, Colombia, which opened late last year, provides facilities for a population of 1200 people on a 53-acre site. The architects and planners for the project, the firm of Llorente & Ponce de Leon, came up with three unsuccessful plans, before, says Ponce de Leon, "we decided the only course was to sit down with the 140 families who had decided to move to the new town, and work out individual plans for each of them, and then to develop an over-all design for the town that would encompass their individual plans." A total of 28 basic house plans was developed, providing from one- to six-bedroom facilities.

The new town was necessitated when the old town of Guatavita was flooded to form a new artificial lake behind the Sesquile Dam on the Tomine River. After construction began on the dam to produce cheap hydroelectric power and to solve flooding problems in the Bogota River Valley, the Bogota Power Company retained the architects and planners to plan the new town with the residents.

First planning on the new town, located on a bluff above the old town, began in 1963. The principal design objectives, said architect Ponce de Leon, were to give the town a harmony and unity and to avoid "so-called modern architecture. Many of the residents had seen the modern buildings of Bogota, with their glass and steel and brick, and told us that this was exactly what they didn't want. They liked their old architecture, with its thick walls and tile roofs and extensive use of wood, and this is the material we used to build Guatavita. We developed a plan for the town using the

same construction systems and building materials, but adding modern lines to their use."

The plan of Guatavita separates vehicular from pedestrian circulation. The town has more than 160 buildings, with 129,000 square feet under roof, and cost approximately \$1.7 million. New public facilities include a municipal hall, church and rectory, open and covered public markets, bull ring and cattle yards, three schools, hospital, outdoor theater, slaughterhouse and cemetery.

As Ponce de Leon was working on the project, he was elected to Guatavita's County Council, where he is now serving his second term as president. The Council has taken steps to maintain the design harmony of the town, having enacted regulations forbidding the use of roofing materials other than tile and controlling the colors that houses may be painted.

The new town was financed by the Bogota Power Company with the assistance of the World Bank and the Inter-American Development Bank. An exhibition of photographs, models and charts of Guatavita opened August 21 and will continue through mid-October at the Colombian Center of the Republic of Colombia in New York City.

Mitchell/Giurgola resign from A.I.A. headquarters job

Four years after winning the national competition for design of a new headquarters for the American Institute of Architects in Washington, D.C., the firm of Mitchell/Giurgola Associates of Philadelphia has resigned from the job. The resignation was announced on Septem-

ber 23 at a meeting of the national Board of Directors of the A.I.A. in San Antonio. In accepting the resignation "regretfully", the Board commended the architects for designing a building "to the satisfaction of their client, the A.I.A."

Commenting on the announcement, A.I.A. President George E. Kassabaum stated: "The architects feel that resignation is the only course open to them in view of the impasse that has developed in obtaining approval of the Fine Arts Commission. We understand this feeling about making further compromises. However, we feel that the principle of design review boards is the best known means in maintaining order in the face of all of the pressures leading to chaos. . . ."

Gruen Foundation formed to aid "human environment"

A new foundation has been formed by Victor Gruen, architect and urban planner, to support research and other efforts aimed at improving the human environment. In announcing the formation of the Victor Gruen Foundation for Environmental Planning, Mr. Gruen said "The task of shaping our environment is not the concern of one specific profession but of architects, planners, engineers, scientists, sociologists, economists, educators, psychologists, jurists and public administrators. It has been recognized that in our age of specialization, the danger of diminishing communication among various disciplines exists. The resultant lack of understanding among 'specialists' threatens to block efforts to improve the environment. One of our major purposes is to encourage young men and women to become 'generalists' trained to think and act in the interest of general overriding goals and aspirations."

The Gruen Foundation will organize and collect research materials into a library for use by scholars and students; sponsor and arrange conferences and seminars of multi-disciplined scholars; sponsor specific research projects; and publish and disseminate research, studies and reports done by or under the aegis of the foundation.

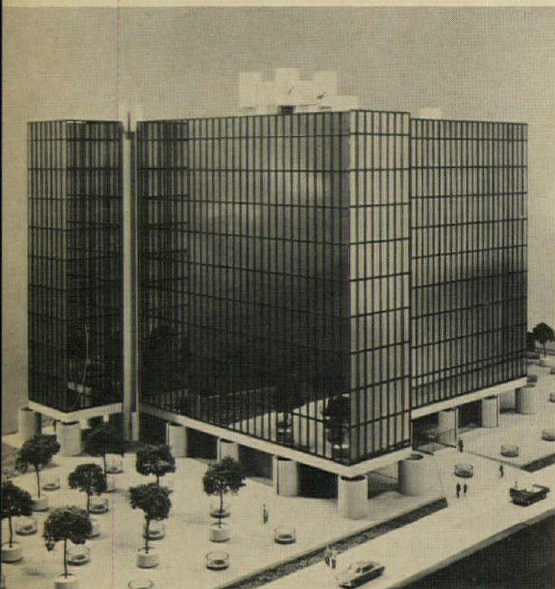
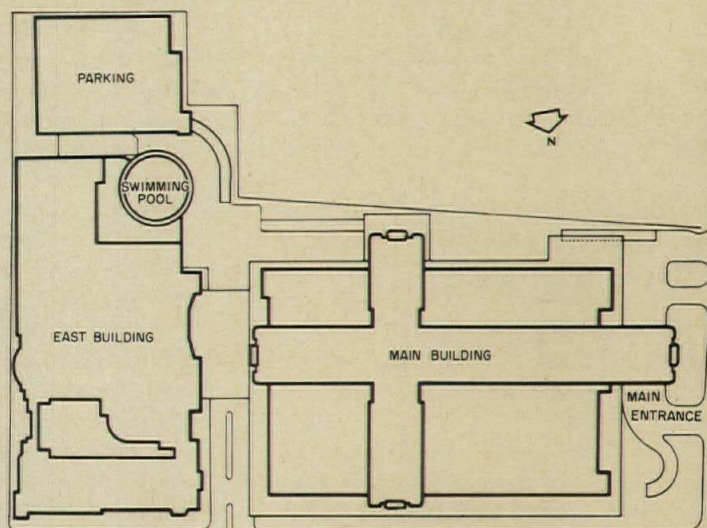
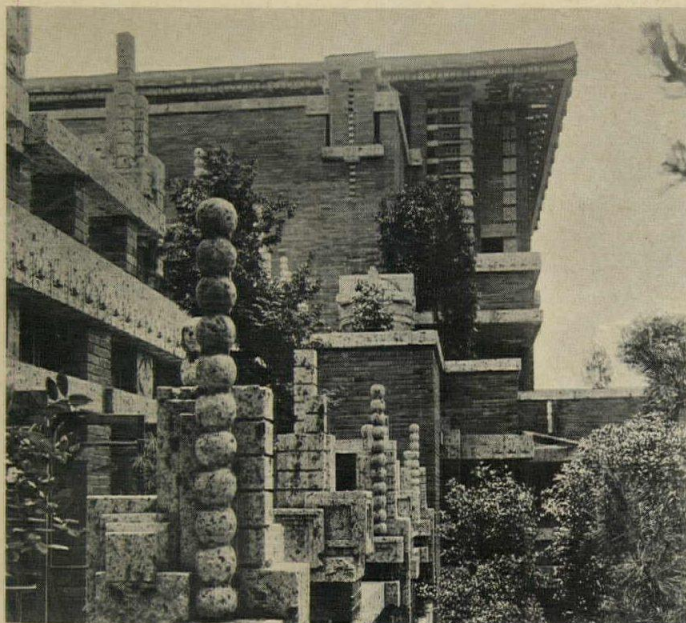
continued on page 46

The new Imperial Hotel in Tokyo with its 1,000 guest rooms, added to the 600 in the existing east building, will be the largest hotel facility in the Orient. It is this hotel that replaces the Frank Lloyd Wright landmark, described in Louis H. Sullivan's article in ARCHITECTURAL RECORD (February, 1924) as the "most significant architectural monument that the world can show."

Shown here is the Pergola of the old Imperial, a reminder of the hotel that in 1923 withstood, better than any other building its size, perhaps the most severe earthquake ever recorded. It is a reminder, too, of the external

richness of a "hotel complete in all details for the comfort and entertainment of the traveling public, or residentials . . . a clearing-house not only for the social obligations incurred by Japanese official life in its contacts with representatives of other lands, but also for the great social functions now inevitable in the high life of the Capital" (Sullivan, RECORD, April, 1923).

The new \$55-million Imperial has been designed by Teitaro Takahashi with an additional public in mind—the growing Tokyo conventions. The hall will have interpreter booths, TV facilities and a hydraulic stage.



The Blue Cross and Blue Shield Building, Chattanooga, Tennessee, will have a skylighted center court through which four glass-enclosed elevators will rise to cross bridge lobbies on each of the office floors. The 10-story bronze-tinted glass office building, designed by Edwards & Portman, will be supported on a colonnade of concrete cylindrical forms above a landscaped plaza. Four major cylindrical forms at intersecting corners will contain the air distribution system.

An addition to the Regency Hyatt House in Atlanta (July, 1967, page 42), also designed by Edwards & Portman, will be a circular bronze glass tower, which is cantilevered from a central elevator core above the existing ballroom. The new 25-story tower will be 30 feet from the present structure to protect the views of each structure, and will contain 200 rooms and a two-story restaurant.





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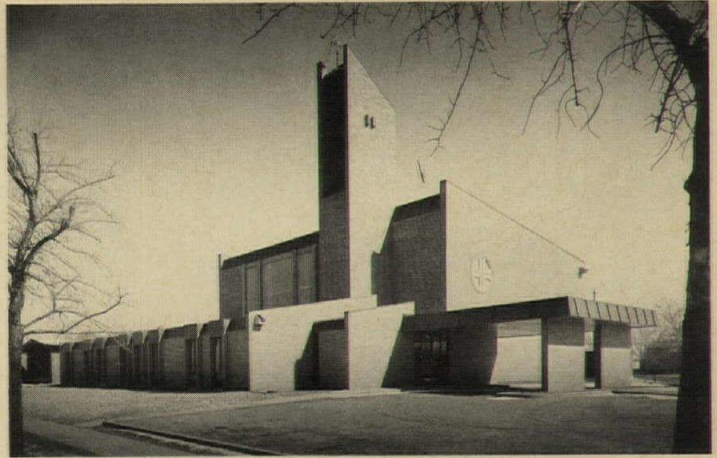
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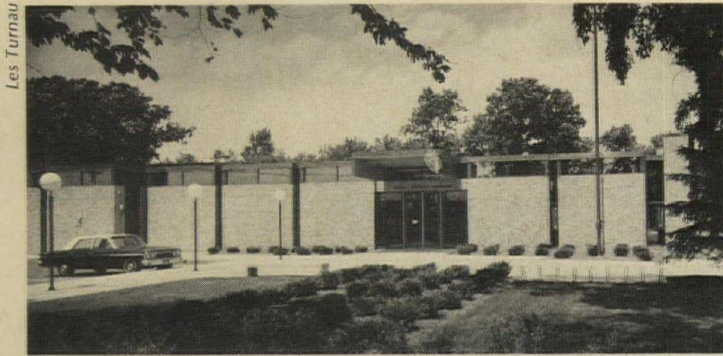
Holy Rosary Church, Detroit Lakes, Minnesota. Architect: Freerks Sperl Flynn, Inc.; general contractor: Young Construction Company.

"A distinguished and provocative entry deserving the highest honor. The strength of the structural members contrasted with the delicacy of the precast members gives the structure great elegance without debilitating the use of materials. The interiors are every bit as strong, sensitive and successful as the exterior. Use of materials, concrete, brick and wood very successfully handled, particularly in interior."



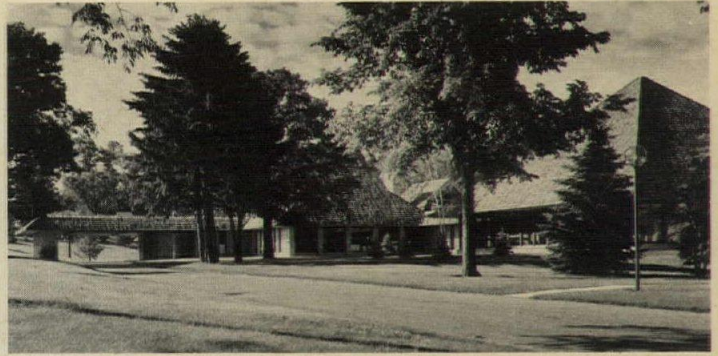
The Lutheran Church of the Good Shepherd, Moorhead, Minnesota. Architect: Sovik, Mathre and Madson; general contractor: John T. Jones Construction Company.

"The building has much of the visual quality of high Romanesque. It is very good spatially. Fine interior space, sensitively used materials. Skillful detailing and use of materials really outstanding."



Anoka Public Library, Anoka, Minnesota. Architect: Griswold and Rauma; general contractor: Olson and Anderson, Inc.

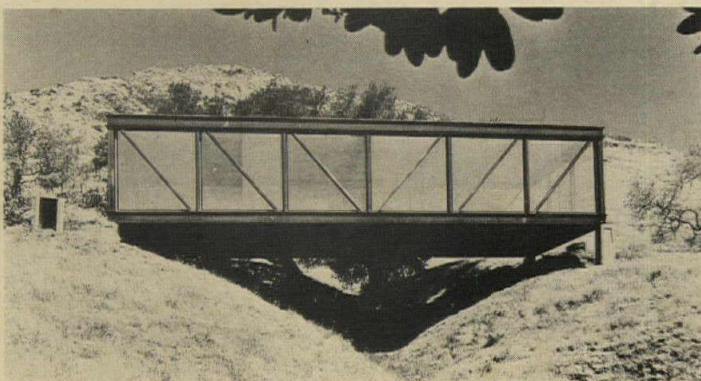
"This building employs subtle variations of form and plan which are well-controlled and give an appropriate interest to both exterior elevation and interior space. Good handling of materials, restrained and sensitive details."



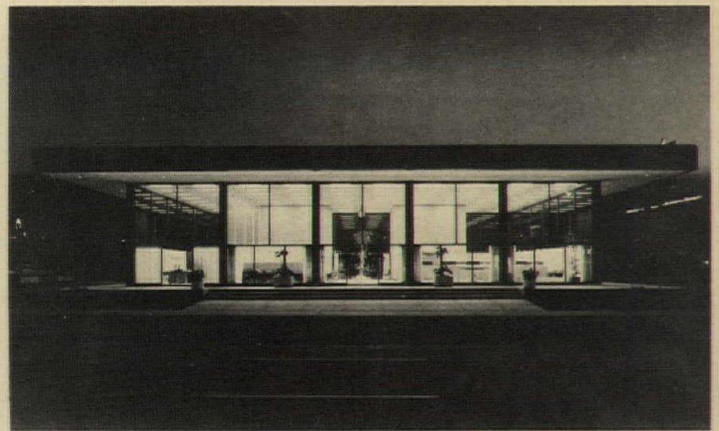
Jesuit Retreat House, North St. Paul, Minnesota. Architect: The Cerny Associates, Inc.; general contractor: Edward Fridholm Construction Company.

"Human scale, warm and serene quality. Obviously pleasant place to be. Design really reflects mission of project."

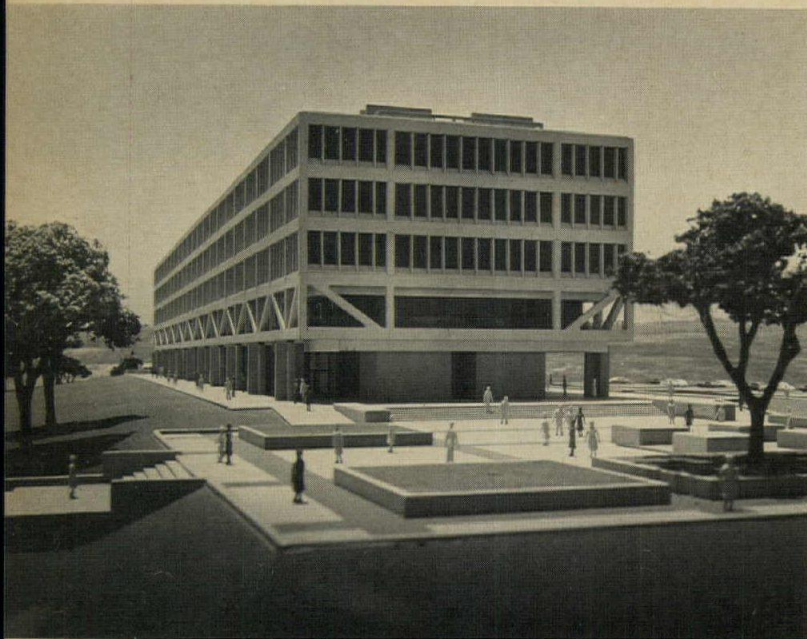
A.I.S.C. awards program



A steel bridge studio at San Luis Obispo, California, designed by Thomas Palmer and Larry Stricker, students at California State Polytechnic College with architect Paul Neel, adviser, is one of 15 winners in the ninth annual competition for steel framed buildings sponsored by the American Institute of Steel Construction. The awards jury praised the project for its "effective use of a difficult site," and the solution as being "imaginatively simple."

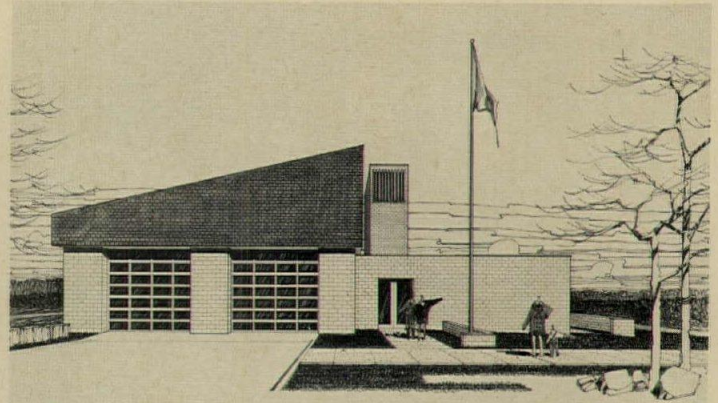


The Los Angeles Federal Savings and Loan, Los Angeles, designed by architects Honnold and Rex with Greve and O'Rourke, structural engineers, and Kemp Brothers, general contractor, was praised by the A.I.S.C. jury for its "attractive and skillful use of exposed structural steel framing." The jury consisted of architects Sam T. Hurst, H. Samuel Krusé and Wayne R. Winsor; engineer Fred N. Severud; and urban planner Harry C. Adley.



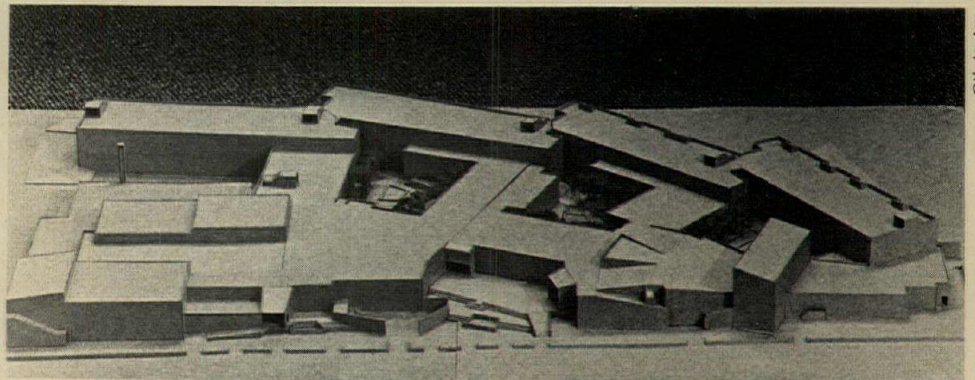
Marvin Rand

Medical Sciences Unit I, University of California, Irvine, which will house the College of Medicine presently located in Los Angeles, will form the nucleus of a 150-acre health sciences complex. The seven-story building, with five stories above ground, has been designed by E. Todd Wheeler and The Perkins & Will Partnership. The exterior of the \$14-million structure will be exposed concrete with tinted glass.

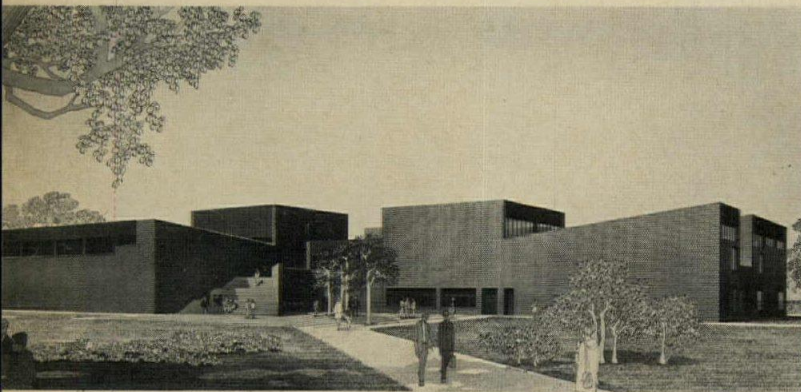


The Fifth District Volunteer Fire Department Firehouse, Columbia, Maryland, will have a trapezoid-shaped roof covered with asphalt shingle and supported by wood trusses. Architects Gehry, Walsh & O'Malley have designed the firehouse so that room for additional fire equipment as well as living quarters for a full-time fire company can be added to the basic design. The building, constructed of concrete masonry units, will have two equipment bays with doors at both sides, a central control office, a lounge for meetings and social functions and a 45-foot hose-drying tower.

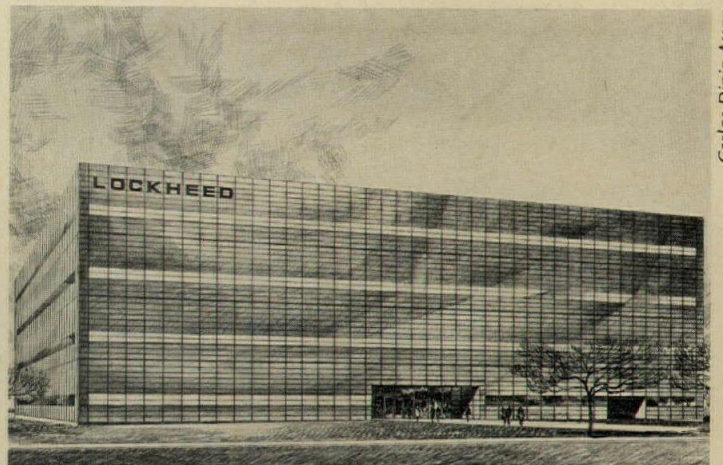
Beach Channel High School, New York City, will be more than three city blocks long and will include an outdoor amphitheater, an oceanography department with a marine display area, and docking facilities for excursion boats. The school, which is to overlook Jamaica Bay and will require some 2.5 million cubic yards of land fill, will consist of an irregular cluster of buildings surrounding three courtyards. A 1000-foot by 500-foot athletic field will have facilities for seven sports. Handren, Sharp and Associates are the architects. Completion is expected by 1971 at a cost of about \$18 million.



Gil Amitaga

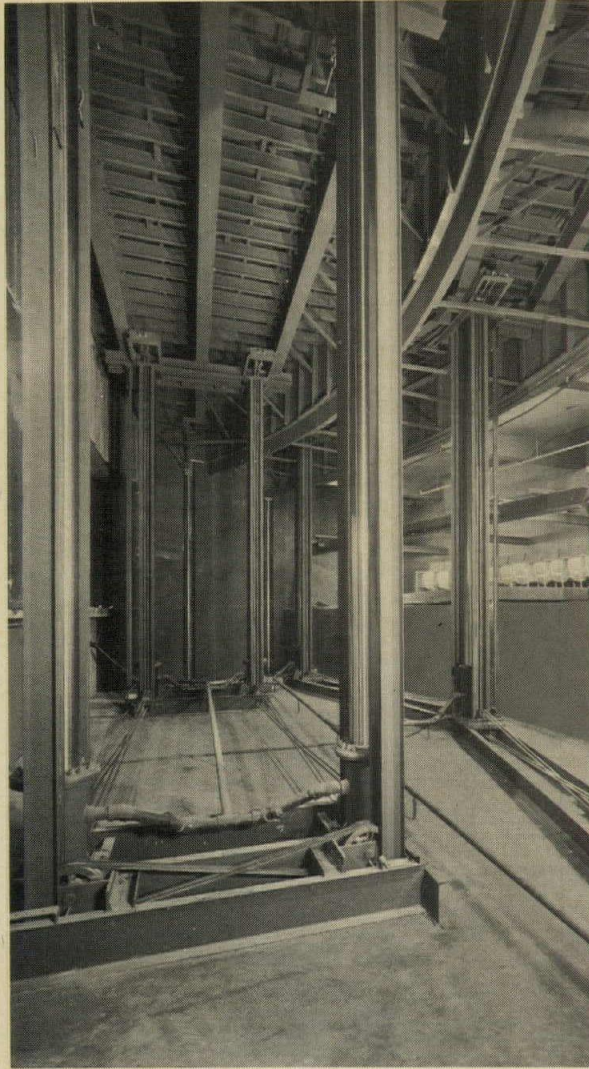


Central Islip Rehabilitation Center, Long Island, New York, has as its focal point a broad open stairway to the upper level that will encourage patients to meet informally. Armand Bartos and Associates designed the building with an exterior of scored concrete block. Interior courts provide natural light and landscaping. Cost: \$2.4 million.



Carlos Diniz Assoc.

An engineering and administration building in Burbank, California is sheathed in a skin of bright aluminum with strip windows of reflective glass. Architects are Daniel, Mann, Johnson, & Mendenhall—Cesar Pelli, designer. The Lockheed-California Company building will ultimately house 1800 employees, as part of a \$60-million expansion program.



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Your editorial comments about the Grand Central project seem so much more relevant to the realities of the architectural process than the caterwauling about aesthetics from everyone else. Of course the growth of New York is not a matter of visual beauty alone, even though the Planning Commission itself often seems to wish it were so. And even if it were, I applaud your recognition that buildings are not seen in the city as free-standing towers. It makes little difference whether the Pan Am building is on top of or behind Grand Central—it looks the same. And perhaps the latest model Breuer will be an improvement over the earlier great wall.

As a matter of record, it's not true that the Concourse will be unaffected if its five south bays are filled. Although the loss of the original skylights in these areas and the once-possible view through two walls of glass to 42nd Street has greatly altered the original design, I doubt that a solid wall can be claimed as an equal replacement for a sun-filled room. (But this is all aesthetics, too, and the most essential fact about the Concourse is that it will continue to serve, however maimed, as a great mixing chamber for the city.)

I delight in your assertion that criticism of the new building is silly if we all accept the system which produces it. But who will change the rules if all that architects discuss is beauty?

Hugh Hardy
Hardy Holzman Pfeiffer Associates
New York City

I read, with great interest and regret, your editorial regarding the foreseen 175 Park Avenue Building which may rise over the roof of the unfortunate Grand Central Station. I believe it unfair to accuse the present City Planning Commission of trying to do belatedly what former City Planning Commissions were urged, in vain, to do. In 1955 The Herald Tribune published a statement of mine in which I asked the City then to take some steps in the direction they are trying to take now. Perhaps the profession is not to be blamed for past delays but rather it has finally found in the present City Planning Commission some response to its past prompting.

I do not believe that a serious analysis would find a particular advantage to a railway station that handles 40,000 people per hour in an additional taxi-feeding line on 42nd Street capable of taking in four taxicabs bumper to bumper against the curb.

Giorgio Cavaglieri, F.A.I.A.
New York City

Several times I read your apt remarks in the August RECORD regarding criticism of the Grand Central project wondering why I could not agree. Certainly the logic of your analysis is clear and irrefutable. The circumstances enmeshing economy with time and place propel a juggernaut of expedient practicality, and he who says nay to shrewd and legal development is crushed. There is no disputing the corollary that pressures of the time demand a keep-up or drop-out response from the architect. Though to some, there is concern that in keeping up we strain the professional physique. Our architecture (projecture is more descriptive of current vast construction) in rhythm to contemporary tempo seems instant, total and computerized—an extension of mass-cult which thrives only as a mechanized society. The human dimension, even as scale figure, is replaced by the packaged air conditioner.

But, in our free-enterprise, profit-oriented society, Morris Saady cannot be expected to worry about general conditions in the Grand Central area: nor is it good business for Penn Central Railroad to shun \$3 million a year for 50 years; and indeed, an architect practices his profession only if he has a client whose interests become his own. Then, who is left to safeguard the general good of people, but people whose best efforts seem but to compound enterprising profiteering—to what end, stifledom? No, the emotion is not surprise but terror!

If there is a message in this jeremiad, it poses a query. Is a viable logic attainable whereby man (as professional critic, architect, planner, landmark preserver, commuter and other folk expert) can find identity in his abode—or pleasure—or, perchance, glory?

Human values, tangibly, if tenuously, defined in respected institutional and international bodies, have matured through historical periods of episodic negation, trauma, and perversion. From a Toynbee perspective can be recognized a humanism which developed to challenge the ruthless era of survival by fitness and thus to foster civilization. The French termed this attitude *noblesse oblige*. Call it, today, the obligation of power.

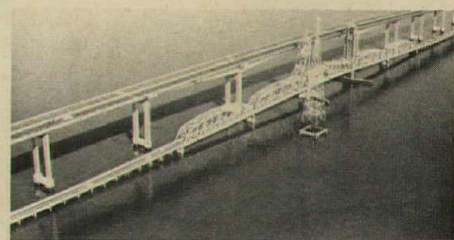
Is it a Pollyana gesture to seek such response of our movers and shakers, circa 1968? To a concert of Morris Saady, Penn Central Railroads, architects of integrity like Mr. Breuer, magazines of repute such as ARCHITECTURAL RECORD, people mired in the complexity of this time look for expression. For, as people, we are always with you.

A. McVoy McIntyre, A.I.A.
Boston



Colorful information booth is constructed of 20 doors

A bright, candy-striped yellow, red and orange information booth for the Department of Parks of New York City was first used last summer at the Fifth Avenue and 60th entrance to Central Park. The booth was designed as a service to the city by architect Myron Goldfinger. The booth is constructed of 20 plywood doors bolted together. The booth is a temporary collapsible structure with assemblage time taking one-half hour. The overall size of the structure is 11 feet by 11 feet by nine feet high, and its storage size is two feet by three by seven feet. A pilot project, the booth may be the forerunner of similar installations in other parks.



Civil engineers cite San Mateo-Hayward Bridge

The San Mateo-Hayward Bridge, an orthotropic bridge that spans the southern reach of San Francisco Bay (shown above is the high-level portion with the old steel truss lift-span bridge in the foreground) has been cited by the American Society of Civil Engineers as the "Outstanding Civil Engineering Achievement for 1968." The project was selected by a jury of seven technical magazine editors. The bridge was designed and its construction supervised by civil engineers of the Division of Bay Toll Crossings, a unit of California's Department of Public Works. Designed to carry 50,000 vehicles a day, the \$70-million bridge is 6.7 miles long and includes a 4.0-mile low-level concrete trestle and 1.8 miles of high-level bridge rising to 135 feet over the channel.

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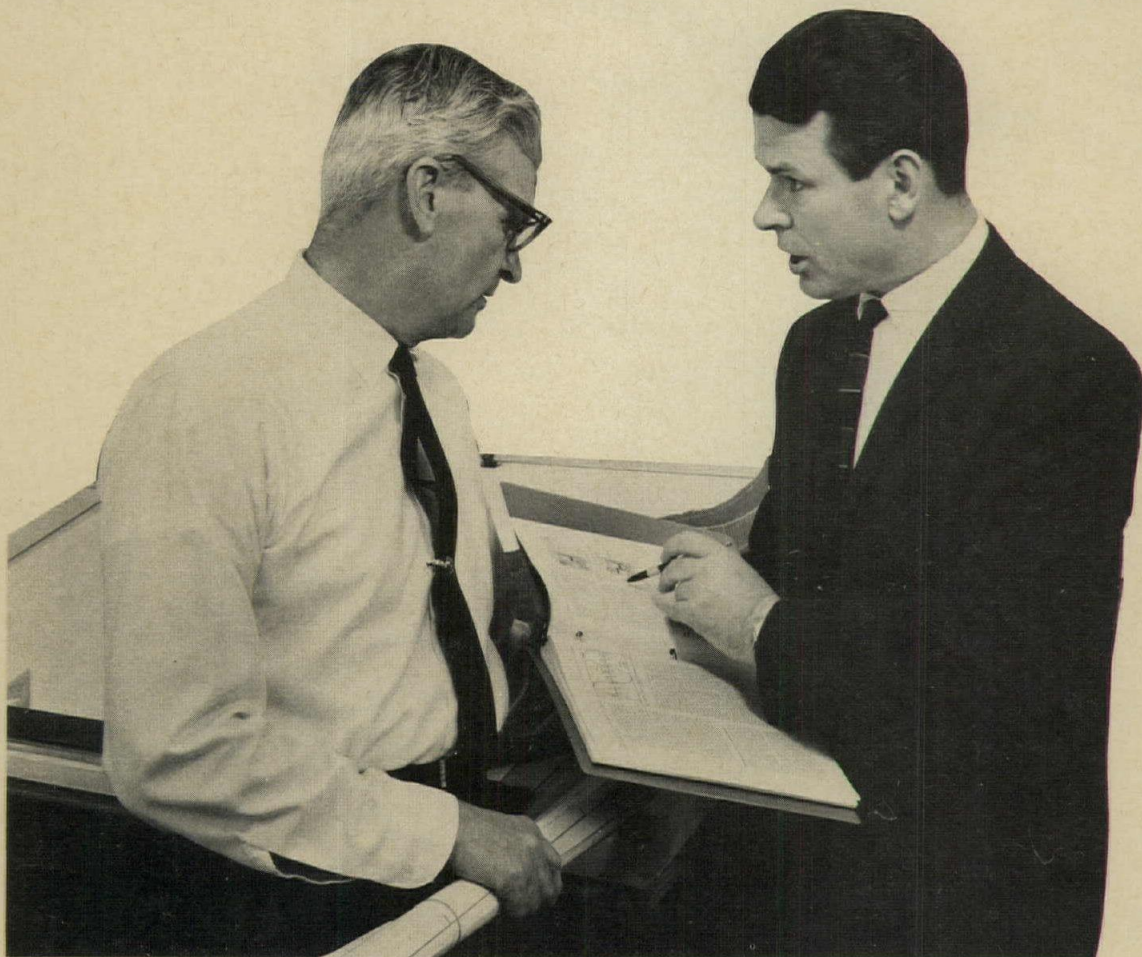
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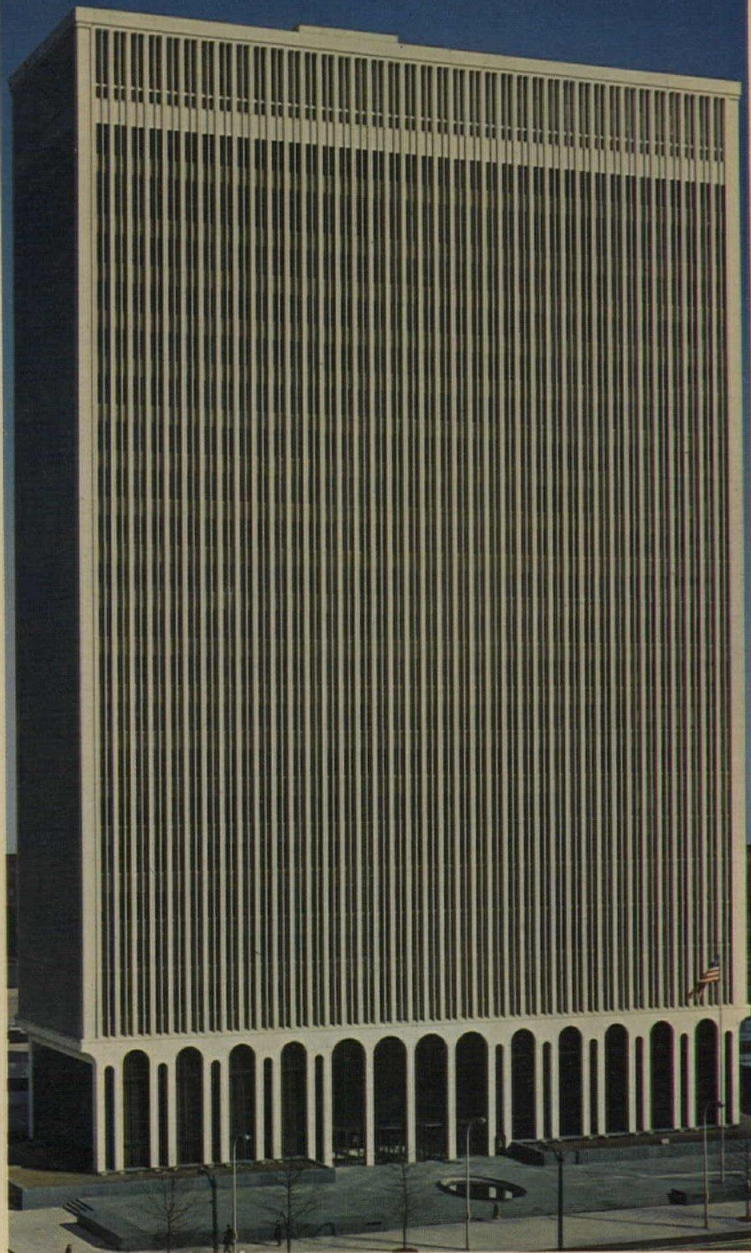
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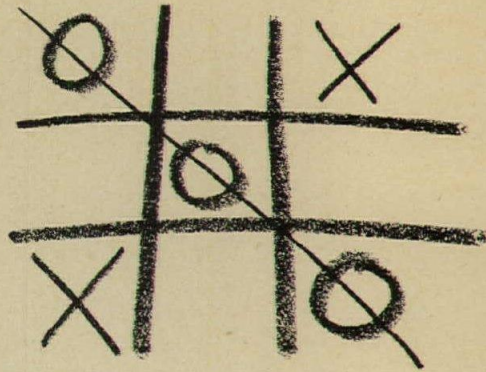
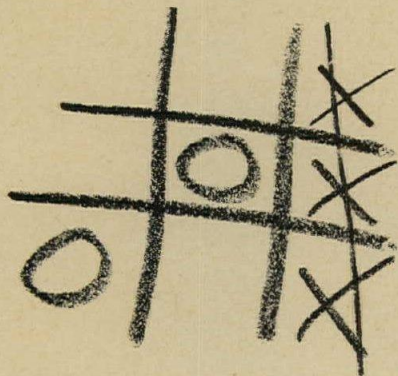
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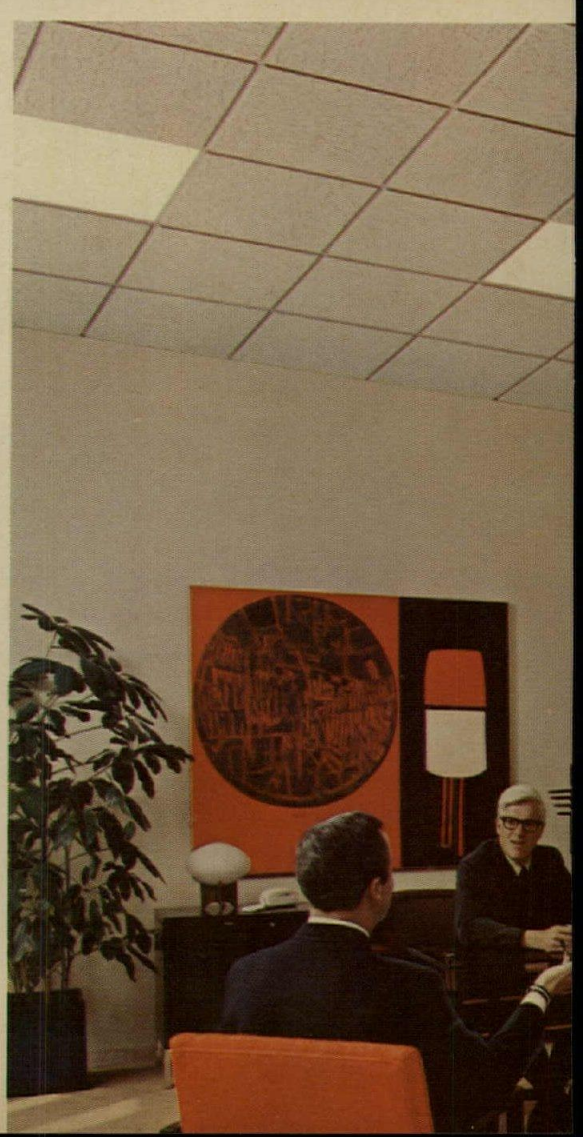
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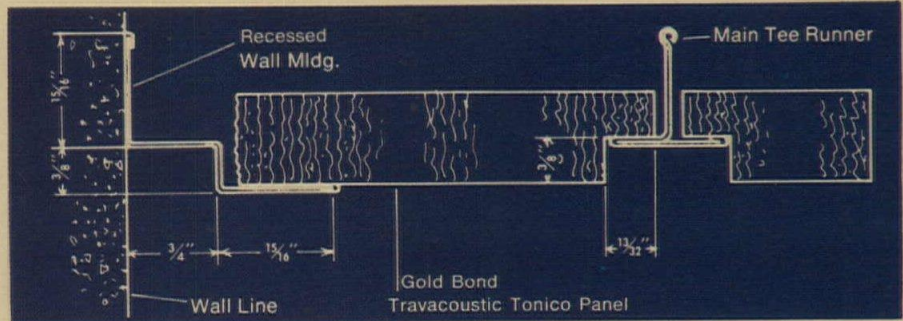
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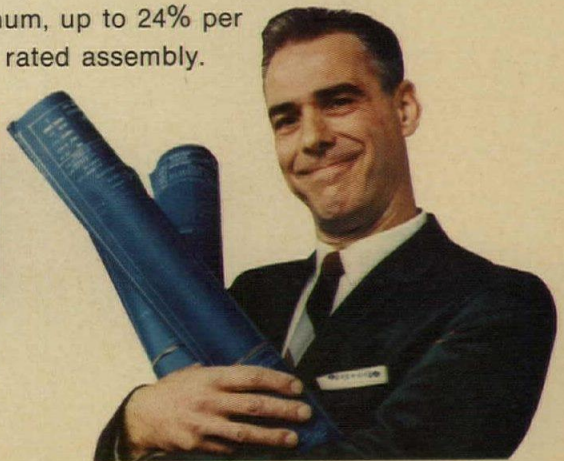
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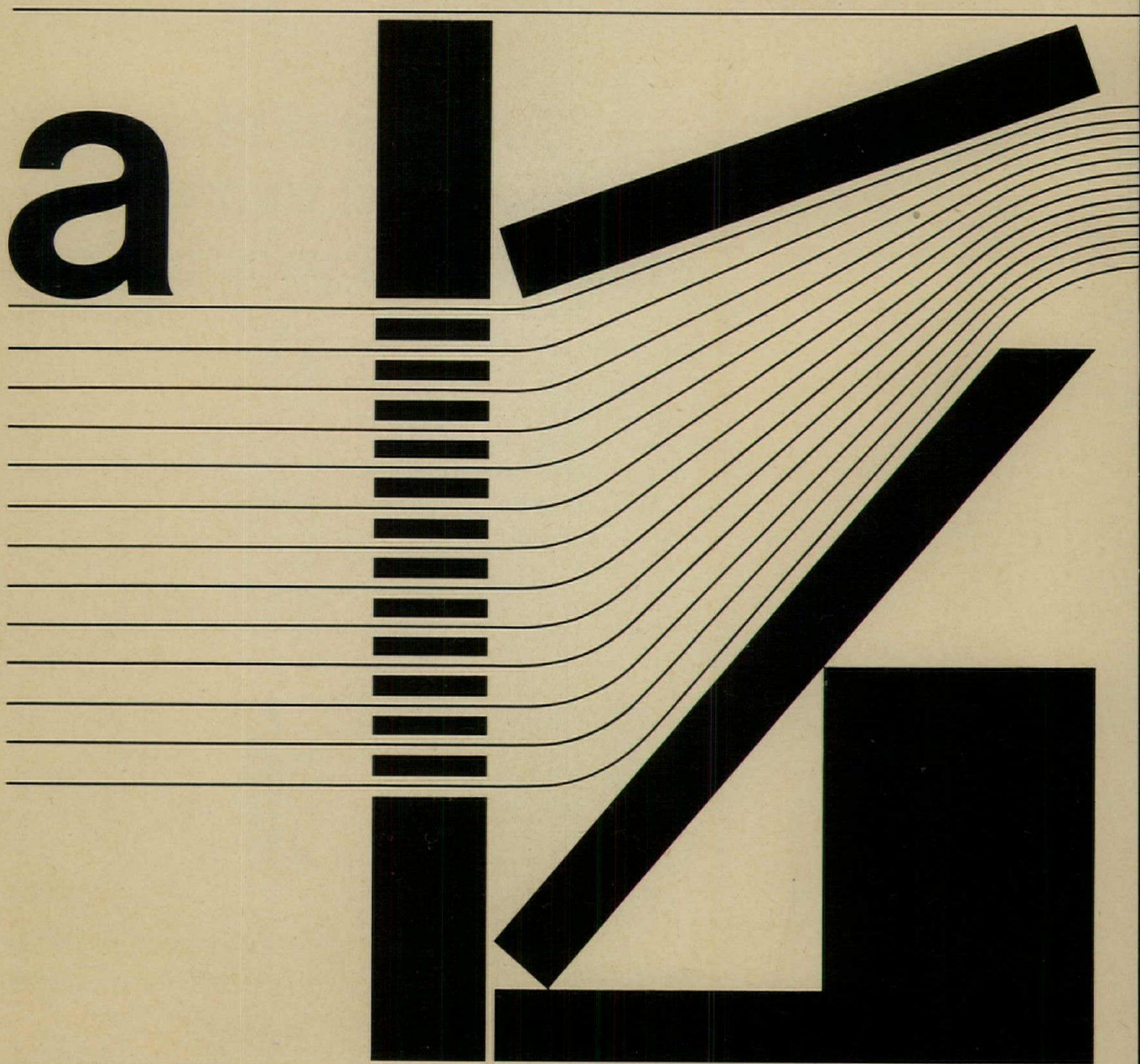
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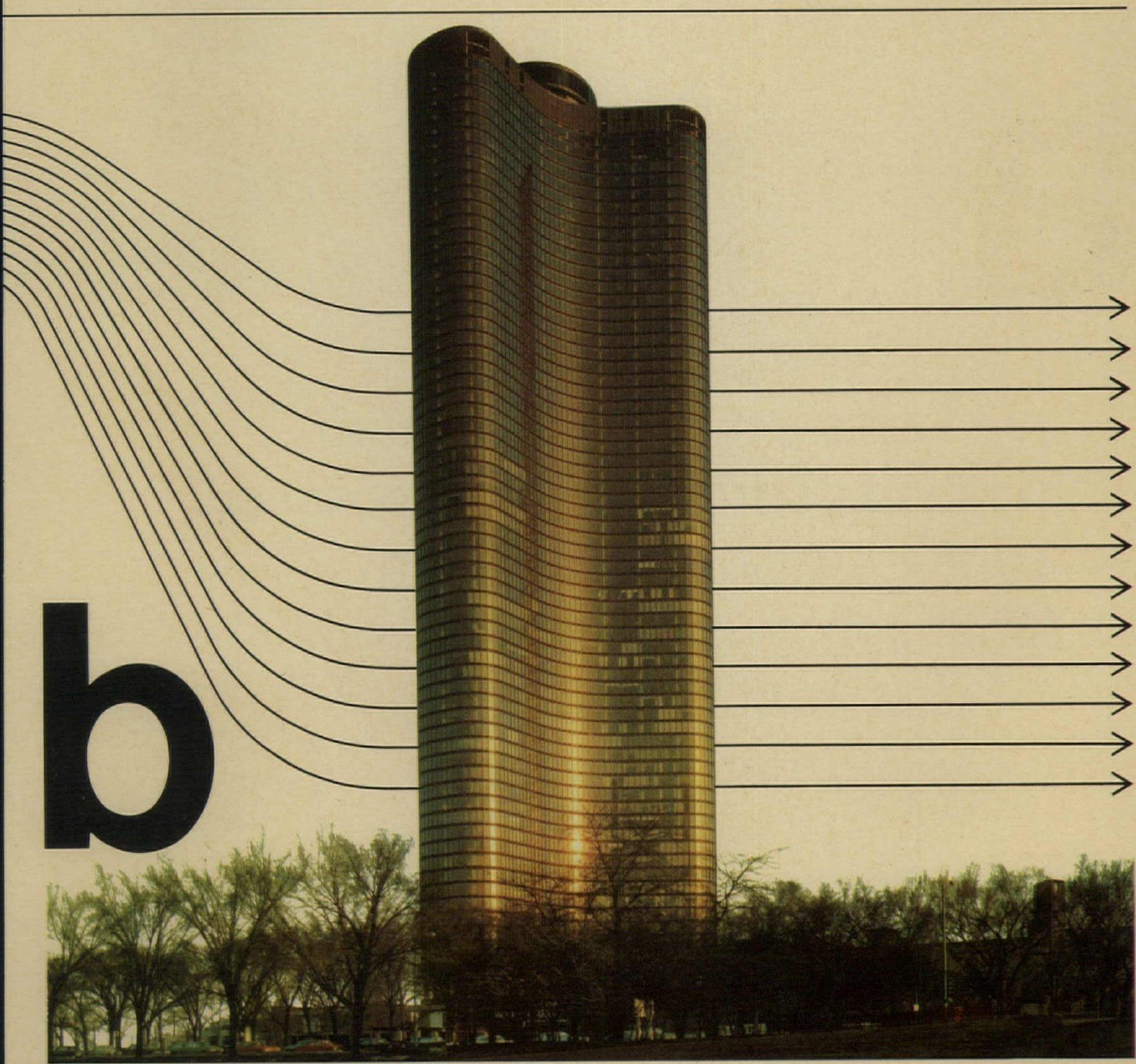
integral part of the metal. This means corrosion and abrasion resistance is multiplied. Duranodic needs less maintenance, yet its original color and beauty last and last.

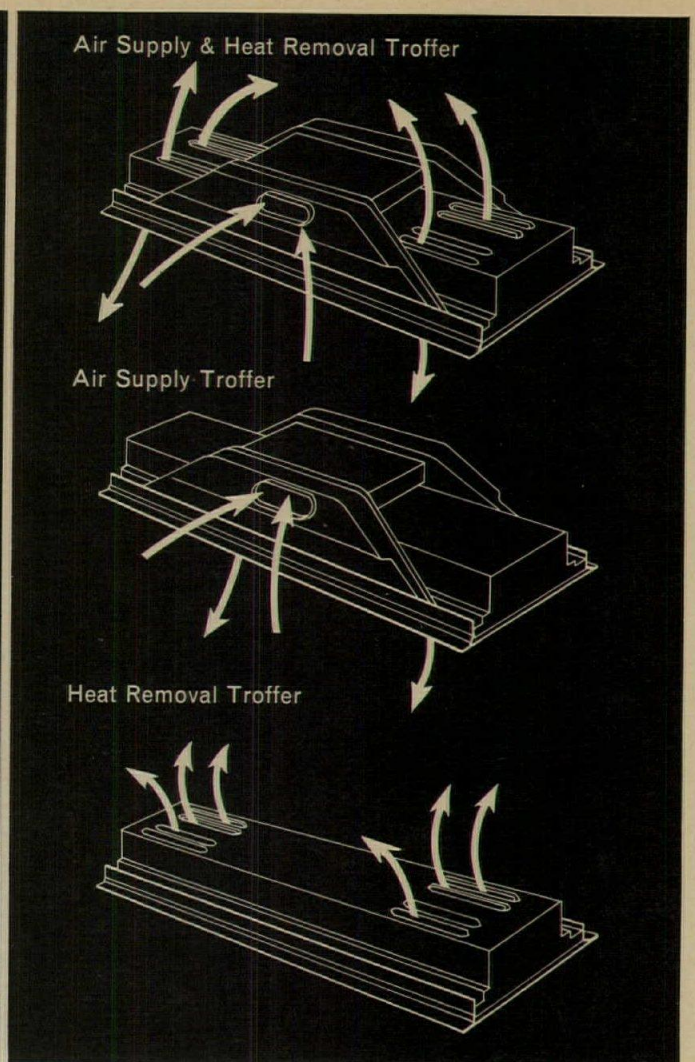
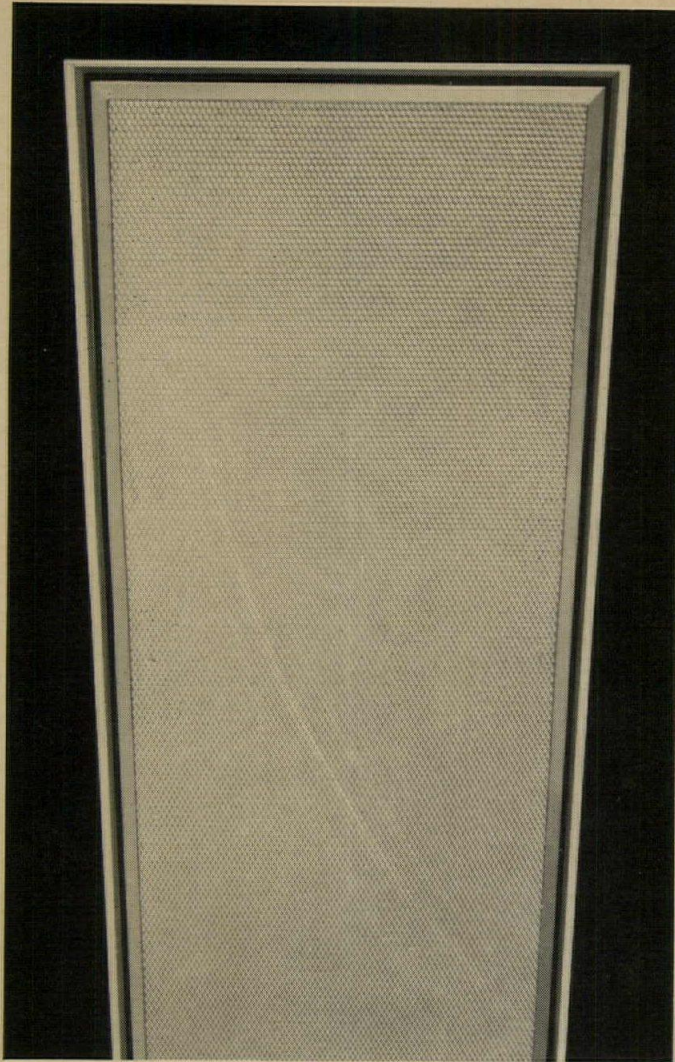
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Floating doors, flush or regressed.
Air supply & heat removal.
Air supply only. Heat removal only.
Great performance.
Great appearance.

All troffers are equipped with "Class P" protected ballasts. For data on this troffer series (including non-air) in a variety of diffusers, sizes and ceiling types, write to Lighting Products Inc., P.O. Box 370, Highland Park, Illinois 60035.

LPI-7-218

LPI FLUORESCENT
LIGHTING

For more data, circle 33 on inquiry card



...everybody pays attention to the SUNROC circle.

You'll probably pay special attention to the design features that make a SUNROC fit precisely and harmonize perfectly with your carefully planned decor. And particular attention to the SUNROC engineering firsts such as package cooling, vandal-proof drain, and left-hand bubbler. You can specify SUNROC as flush floor mounted, wall hung, semi-recessed, fully-recessed, or the brand new ultra-space-saving "Compact" wall hung (illustrated). All at realistic pricing to meet most any budget and keep your fussiest client satisfied with the easy maintenance and the cool dependability he gets with a SUNROC.

See Sweet's Architectural File or Mechanical Products Catalog for specific data or write for the complete A.I.A. catalog and get in the SUNROC circle. **SUNROC**
Sunroc Corporation, Box 310, Glen Riddle, Pennsylvania 19037.

For more data, circle 34 on inquiry card

**"It's just a
3-story building
so we don't need
the world's most
sophisticated
elevator."**

Get the new Otis HP-1500, specially designed (and priced) for low-rise buildings. Pre-engineered to simplify elevator planning and installation. It's completely automatic and has a memory. That's what you really need.

Otis
ELEVATOR COMPANY

You don't have to specify **JAMISON**

but if you value VALUE, you will.

A Jamison cold storage door gives you the obvious values of the finest materials, excellent construction and proper functional design. It's what you'd expect from the oldest and most experienced maker of cold storage doors.

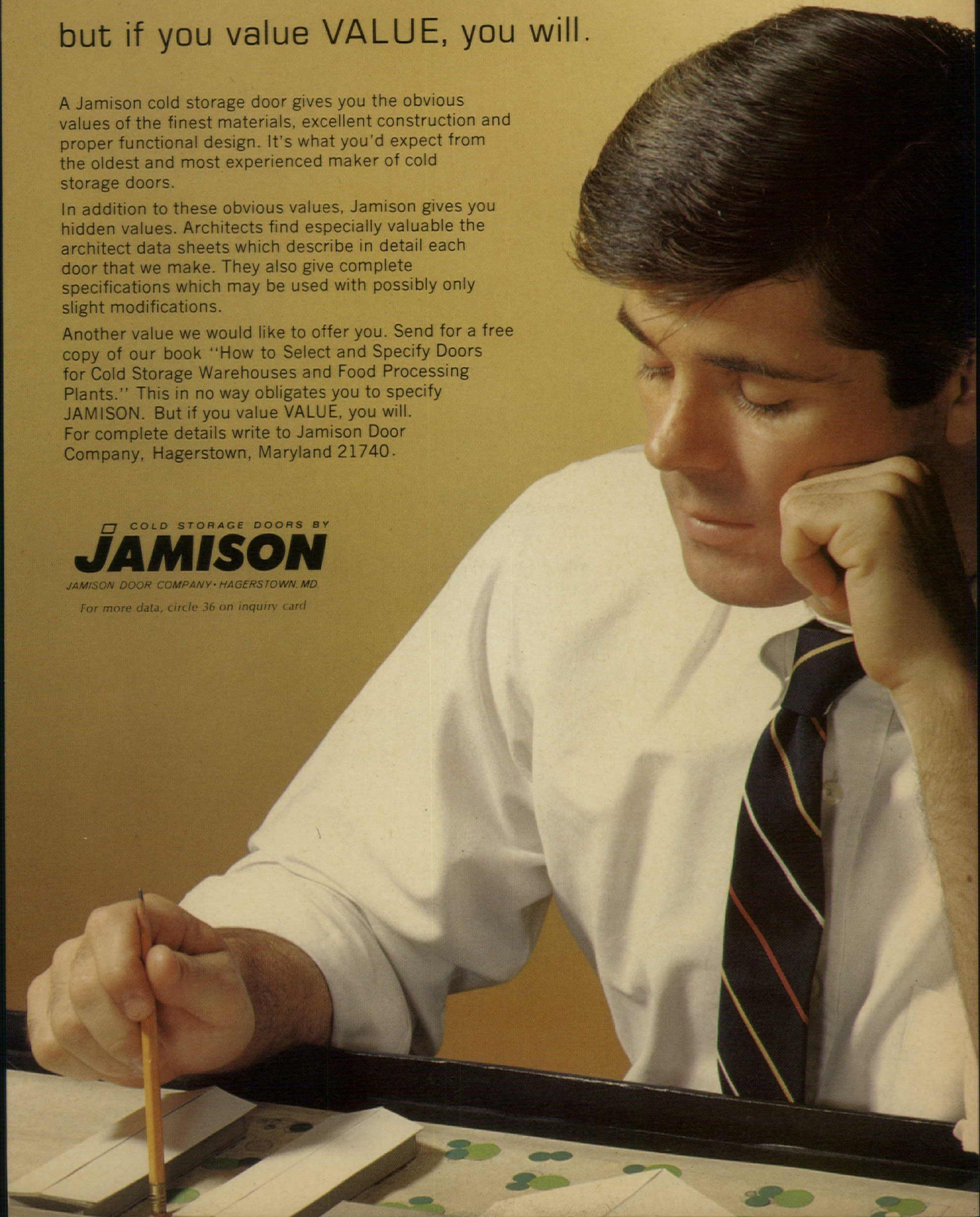
In addition to these obvious values, Jamison gives you hidden values. Architects find especially valuable the architect data sheets which describe in detail each door that we make. They also give complete specifications which may be used with possibly only slight modifications.

Another value we would like to offer you. Send for a free copy of our book "How to Select and Specify Doors for Cold Storage Warehouses and Food Processing Plants." This in no way obligates you to specify JAMISON. But if you value VALUE, you will. For complete details write to Jamison Door Company, Hagerstown, Maryland 21740.

COLD STORAGE DOORS BY
JAMISON

JAMISON DOOR COMPANY • HAGERSTOWN, MD.

For more data, circle 36 on inquiry card



A new solution
to solar heat and glare problems

PLEXIGLAS[®]
SOLAR CONTROL
SERIES





DOME ENCLOSURES
 SUN SCREENS
 WINDOW GLAZING



TRANSPARENT GREY SERIES



unfiltered sunshine



Grey 2515



Grey 2514



Grey 2094



Grey 2537



Grey 2538

TRANSPARENT BRONZE SERIES



unfiltered sunshine



Bronze 2540



Bronze 2539



Bronze 2404



Bronze 2412



Bronze 2370

The transparent grey and bronze colors of PLEXIGLAS acrylic sheet shown above have been developed by Rohm and Haas Company to help you control the sun's heat and glare. Each of the colors in the PLEXIGLAS Solar Control Series is produced in five densities from light to deep, providing a range of solar control values. Solar energy transmittance values range from 20% to 75% and visible light transmittance values from 10 to 76%. Using them for glazing dome enclosures, sun screens and windows, helps you achieve comfortable interior environments readily

and economically.

In addition to its high breakage resistance, weatherability and light weight, PLEXIGLAS has three significant advantages for solar control glazing:

1. PLEXIGLAS is not subject to thermal shock—it will not crack when exposed simultaneously to hot sunlight on one portion and shade on another.

2. Solar energy and light transmittance values are approximately constant for all sheet thicknesses in each color density. Sheets of high color density need not be of greater, more costly thickness.

3. PLEXIGLAS is accepted under most building codes as an approved, slow-burning, light transmitting material for use in glazing and domed skylights.

Write for complete information including data on how to calculate solar heat gain for the PLEXIGLAS Solar Control Series. It's contained in our new 20-page brochure.



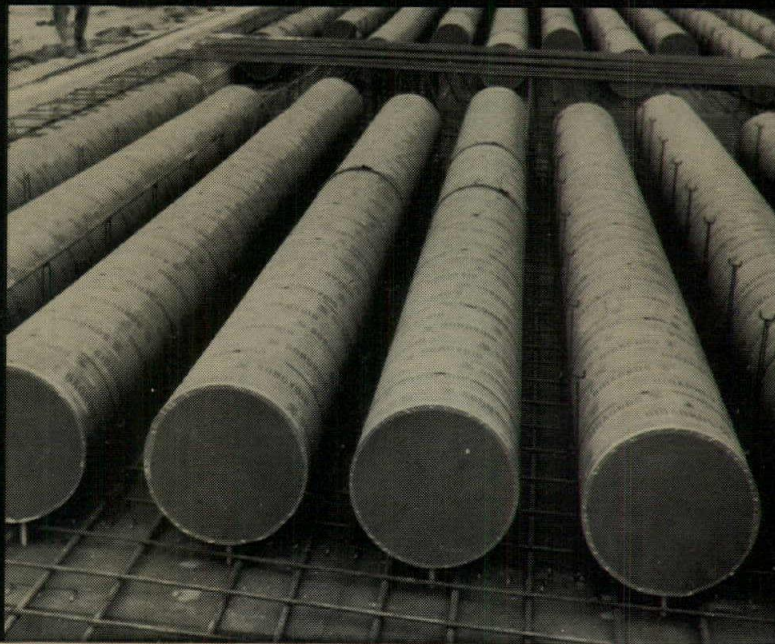
PHILADELPHIA, PENNSYLVANIA 19105

®Trademark Reg. U.S. Pat. Off., Canada and principal Western Hemisphere countries. Sold as OROGLAS® in other countries.

For more data, circle 37 on inquiry card

Sonovoid[®] Fibre Tubes:

An economical way to get rid of dead weight.



In many cases, unnecessary concrete increases the amount of reinforcing steel. And that increases cost.

That's why many architects, engineers and contractors favor voiding the concrete.

Voiding also permits faster installation. Greater areas can be formed and poured at one time because less concrete is required per square foot.

So next time you're working with pre-cast or cast-in-place concrete, plan to void it.

And one of the best ways to do that is to use SONOVOID fibre tubes.

They are lightweight. So they are easy to handle and install. Yet, they are strong enough to meet any job requirement.

SONOVOID tubes are available in a wide variety of sizes for maximum design flexibility. For example, the longer lengths permit longer spans.

For more information on SONOVOID fibre tubes and a copy of our slab design tables, write Sonoco Products Company, Hartsville, South Carolina.

And start getting rid of some dead weight.



SONOCO PRODUCTS COMPANY, HARTSVILLE, S. C. • Akron, Ind. • Atlanta, Ga. • City of Industry, Calif. • Holyoke, Mass. • Hayward, Calif. • Longview, Texas • Louisiana, Mo. • Lowell, Mass. • Montclair, N. J. • Munroe Falls, Ohio • Mystic, Conn. • Newport, Tenn. • Richmond, Va. • Tacoma, Wash. MEXICO: Mexico City • Also in Canada

SO 250

For more data, circle 38 on inquiry card

FLORSHEIM

FLORSHEIM SHOES

FLORSHEIM SHOES

*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 3/8" 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.



Saving Ways in Doorways Since 1895

KINNEAR CORPORATION and Subsidiaries

1880-88 Fields Ave., Columbus, Ohio 43216

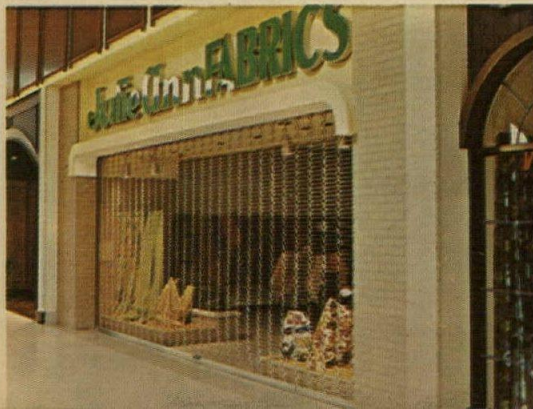
Factories:

Columbus, Ohio 43216 • San Francisco, Calif. 94124
Centralia, Wash. 98531 • 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!



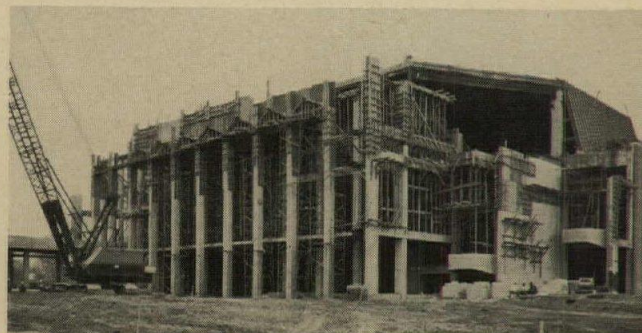


Concrete puts drama into Atlanta's new Robert F. Maddox Hall

The magnificent facade of this 4600-seat theater gives promise of the excitement of the performing arts to be experienced inside. Staggered, irregularly-shaped side and rear walls provide additional architectural interest both within and without. Part of the \$9,000,000 Civic Center, this building faces onto an expansive landscaped concrete plaza which it shares with the Exhibition Hall. The concrete in the entire complex was made with Lehigh Cements. Lehigh Portland Cement Company, Allentown, Pa.

The thin, graceful cast-in-place concrete columns that flare into unusual angular arches on the facade are 56' high. Inside, the seating area is practically surrounded by lobbies and wide corridors with many of them leading to small cantilevered outdoor balconies.

Cast-in-place concrete walls of the structure range as high as 84'. The auditorium stage area is 50' deep and 85' high—large enough for the bulkiest of scenery. 30,000 cu. yd. of concrete were required for The Civic Center which also includes the large Exhibition Hall.



Owner: City of Atlanta

Architect: Robert & Company Associates, Atlanta, Ga.

Engineers: Chastain & Tindel, Inc., Atlanta, Ga.

Contractor: Warrior Constructors, Inc., Houston, Tex.

Ready Mix Concrete: Southern Concrete Co., Atlanta, Ga.

**LEHIGH
CEMENTS**

254

PITTCO DOORS

open San Antonio Convention Center

Hemisphere '68 opens its doors. And the new Convention Hall, Theater and Arena do it with PITTCO®—the versatile aluminum doors now offered in complete entrance and framing systems.

PITTCO Doors offer more design freedom. Specify three standard stile widths in a range of standard sizes.

Or have them built to your custom specifications. Available in a variety of anodized colors, you can even mix and match two-tone combinations.

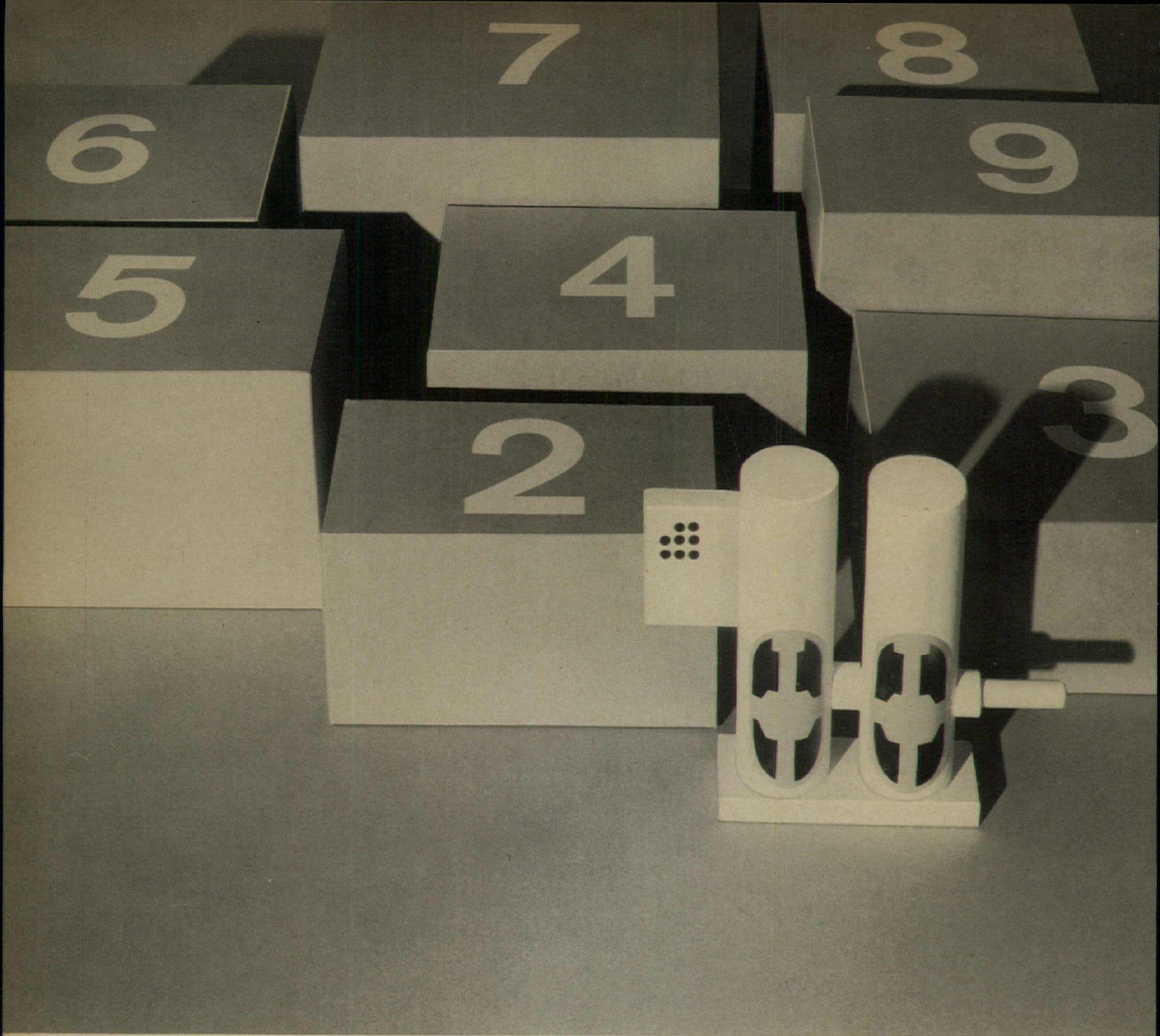
PITTCO Doors have slim, elegant lines. All hardware has hidden fastenings. And its tie-rod construction makes the door exceptionally strong.

Here you see custom PITTCO Doors in bronze-colored anodized aluminum, framed with PITTCO's 6550 series flush glaze system. For additional information consult Sweet's Architectural File or PITTCO Architectural Metals, PPG INDUSTRIES, 1500 Murden St., Kokomo, Indiana 46901.



PPG
INDUSTRIES

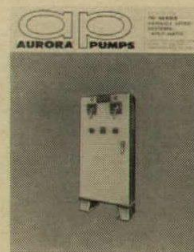
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**Of the 12 other
constant pressure pumping systems,
not one has all the advantages of
Aurora's Apco-Matic.**

Seven don't have Apco-Matic's low initial cost (**none** costs less) • Eleven don't have Apco-Matic's low installation cost (**none** costs less) • Eleven don't have Apco-Matic's low operating cost (**none** costs less) • Five don't have Apco-Matic's instant response to system change • Eight don't have Apco-Matic's low maintenance characteristics • Ten don't have Apco-Matic's SCR control and squirrel-cage AC motors • Twelve don't have Apco-Matic's control bypass for emergency operation • Eight don't have Apco-Matic's compact dimensions (**none** is smaller) • Twelve

don't have Apco-Matic's versatility that provides a built-in automatic standby, yet uses only two pumps! Need we say more?
Aurora Pump, A Unit of General Signal Corporation, Aurora, Illinois 60507



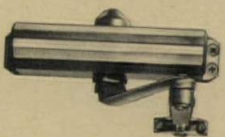
See Bulletin 710 for full details.

NORTON CLOSERS

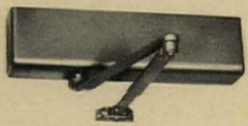
CONTROL DOORS • NOT DESIGN



Even where heavy traffic indicates the use of a door holder, there's no need to compromise the appearance of your entranceway. The unique Norton® combination of door closer and door holder, the Unitrol® control, provides the answer. All the functions of a closer and a holder in a single styled package. Mounted on the door-jamb to eliminate the cluttered look and improve the door silhouette.

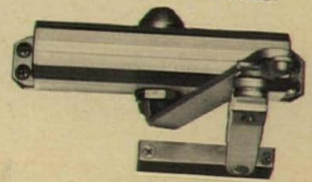


SERIES J1600
Top-jamb mounted closers featuring narrow styling to blend with the slim styling of modern aluminum door frames.



SERIES J7030
Top-jamb narrow-projection closers with covers in anodized or painted finishes to match hardware or door finish.

SERIES J6120
Top-jamb mounted Unitrol controls. A combined door closer and door holder with shock absorber to protect door, frame, and closer.



CONTACT YOUR NORTON REPRESENTATIVE FOR COMPLETE DETAILS.



NORTON DOOR CLOSER DIVISION
372 Meyer Road, Bensenville, Illinois, 60106

For more data, circle 43 on inquiry card

Anacondability pulls the plug on plumbing bottlenecks, saves space, speeds construction on every type of building.

Adds value

to single family dwellings. Copper plumbing in a home says "quality" as no other material does . . . adds significantly to its worth and marketability. And the Anaconda name on the copper tube and pipe enhances the builder's reputation for using only the best.

Added advantage: Anaconda provides a broad range of tube and fittings to meet every blueprint requirement.

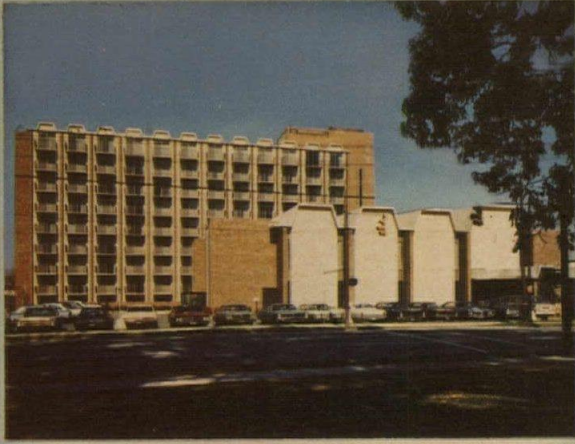


Coordinates delivery

in housing developments. Anacondability makes planning easier by providing you with one dependable source for all ACR tube, copper water tube, DWV, wrought copper and cast brass fittings, plus low pressure cast brass valves with both solder and threaded joints.

It works to coordinate deliveries when you want them, where you want them. Got a tight schedule to meet? Talk it over with your Anaconda representative. You'll find him eager to help.





Courtesy Statler Hilton Inn, Greensboro, N. C.

Saves space

in hotels, hospitals, institutional buildings. Anacondability offers copper runouts that can save space and costs by installing easily in 12-inch chases. This represents a savings of 6-inches in chase width ordinarily required by galvanized pipe and fittings . . . that's 48 cubic feet in an average size room! You can credit Anaconda's slim fittings and superior corrosion resistance in coppermetals for making this savings possible as well as practicable.

Speeds installations

in high-rise buildings. Anaconda's broad range of copper tube sizes permits on-the-job preassembly of complete water supply trees without delay or wasted man-hours. In a typical back-to-back installation, for example, trees with 146 pre-assembled joints installed with just 4 solder joints! Added advantages: Copper's easy bending clears obstructions without costly modifications or space-consuming partitions.

Considering copper's many inherent properties and characteristics, *installed* cost of copper plumbing including DWV can often compete in price with ordinary ferrous types. For further information concerning Anaconda pipe, tube and fittings, for the building construction industry, write for Publication B-1. Anaconda American Brass Company, 414 Meadow Street, Waterbury, Connecticut 06720.

ANACONDA[®]
AMERICAN BRASS COMPANY

2.8.46

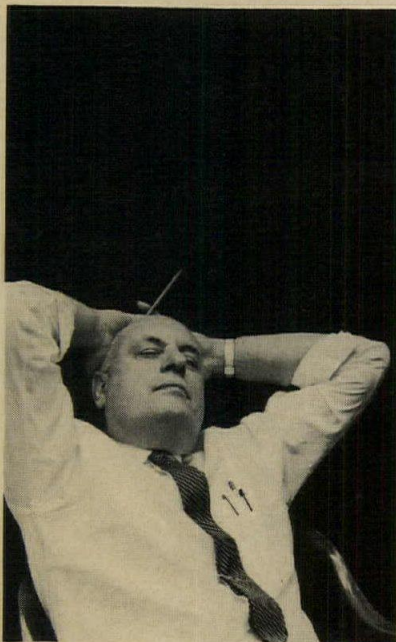
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The facts of light

*No. 4 in a series
on plastic
lighting panels.*

Do you specify lighting panels with your eyes closed?



About eight out of ten architects and engineers never specify brand names for plastic lighting panels. As a result, many of their clients wind up with inferior panels which are "slipped in" on a price basis.

If you use general pre-written specs for lighting panels or simply specify by type . . . you lose control of the job.

The only way to make sure you'll get Specification Quality panels is to write strong specs. Include brand names . . . or spell out photometric standards panels must meet.

Today, there are only two lines of Specification Quality plastic lighting panels. One is K-Lite . . . made by KSH, world's largest manufacturer of lighting panels.

Check with your fixture manufacturer. You'll find that K-Lite quality is a bargain.

KLITE[®]

K-S-H, INC. / 10091 MANCHESTER / ST. LOUIS, MO. 63122

For more data, circle 45 on inquiry card



Bally Walk-Ins help handle the change in American eating habits

More and more affluent society eats away from home. Teenagers have more money to spend. Schools have better and more diverse menus. Industrial cafeterias attract and satisfy more diners. Hospitals, nursing homes and institutions are upgrading their feeding programs.

Inspired operators of mass feeding places everywhere are rising to the challenge of this new American way of life with imaginative profit making ideas and menus. A good example is the wide spread use of foods pre-prepared during low peak hours to make more effective use of kitchen personnel and help offset higher food costs.

The most important advancement within the kitchen is the increased use of refrigeration. Today Walk-In Freezers are a must . . . and along with companion Walk-In

Coolers provide high "profit-earning" space for perishable food storage. Bally prefab design permits assembly of Walk-Ins in any size and shape to fit existing space and traffic patterns . . . with walk-in doors and glass service doors located where they improve workability.

Patented Bally "Speed-Lok" construction makes it easy to add sections to increase size . . . equally easy to disassemble for relocation. Four inch urethane insulation "foamed-in-place" (equal to 8½" of fiberglass) shrugs off high temperatures and Bally Walk-Ins operate efficiently located adjacent to kitchen ranges . . . or outdoors exposed to hot summer sun. 76 models and sizes of self-contained refrigeration systems are made to fit every individual need. Send to Bally Case and Cooler, Inc., Bally, Pa. 19503, for 32-page catalog and urethane wall sample.

There's an evolution in the kitchen



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Address all correspondence to Dept. AR-10

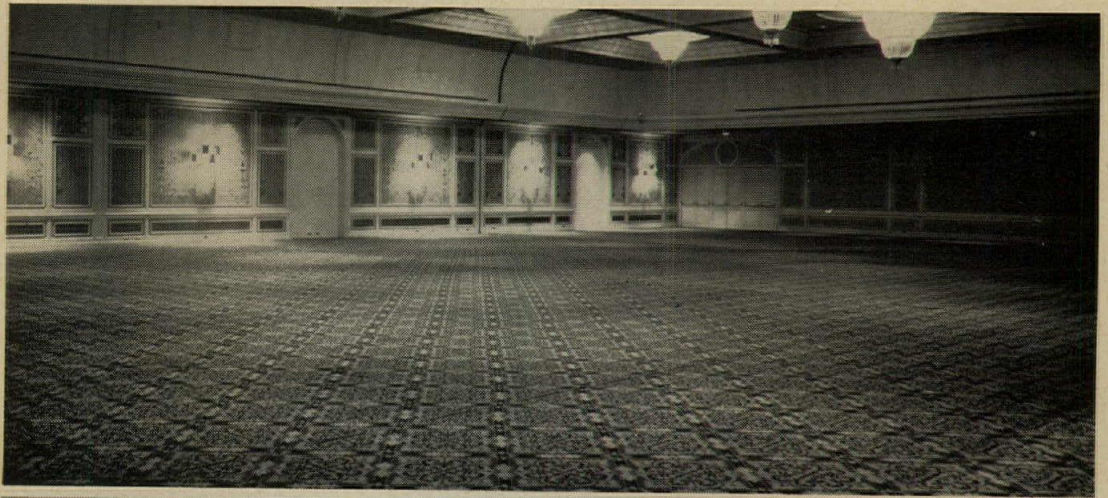
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The place:

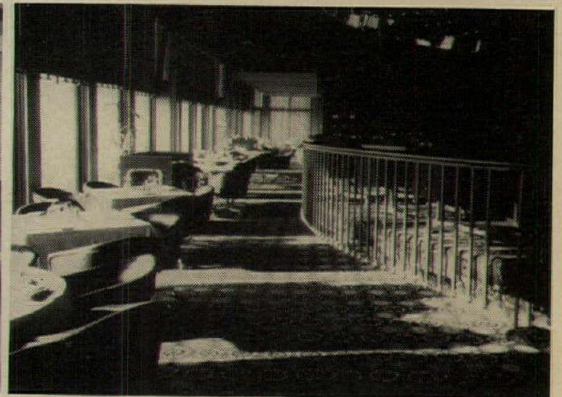


The 24-story
St. Paul Hilton
St. Paul, Minnesota

The people: The Hilton Organization



The carpet:



Bigelow: For beauty and durability, specially-designed Wiltons were installed in the main ballroom and "Top of the Hilton." Carpeting in the 2nd Floor lobby is also Bigelow.

Why do people like The Hilton Organization specify Bigelow? Because they know that for every hotel, motel, hospital or commercial building Bigelow has or can custom-create the perfect carpet. We've done it since 1825. Our carpet counselors will give you all the help you need in solving

any kind of carpet problem—at no charge. Simply call your nearest Bigelow sales office. Or for a colorful, free brochure on commercial carpets, write Dept. A, 140 Madison Avenue, New York, N.Y. Find out for yourself why **people who know buy Bigelow**

Bigelow sales offices are located in Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Detroit, Los Angeles, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Seattle.

For more data, circle 47 on inquiry card



FMC Corporation, Packaging Machinery Division, Philadelphia Plant, Horsham, Pa.; Architects & Engineers: Alexander Ewing & Associates, Philadelphia, Pa.; General Contractor: Irwin & Leighton Inc., Philadelphia, Pa.

These **SMITH WALLS** show architectural ingenuity

The contrasting colors . . . the different panel profiles . . . are tastefully combined with each other. And with other building components of masonry and glass. The result shows architectural ingenuity. It also shows the design freedom you can exercise with Smith Walls.

So let your imagination be your guide. We'll custom-engineer Smith Metal Walls to your design . . . and

your exacting specifications.

But custom-engineering is only the beginning of our Single Responsibility concept. Smith Walls are fabricated, delivered and erected by our own people . . . on a firm schedule . . . under rigid experience-established procedures that assure customer satisfaction. We control every sequence of the operation. This guarantees a smooth, efficient installation. Cuts

erection time and holds down costs.

Smith Walls can fit into your plans.

Specify Smith Walls in place for your next project . . . whether it's a single building or complete complex . . . new construction or remodeling.

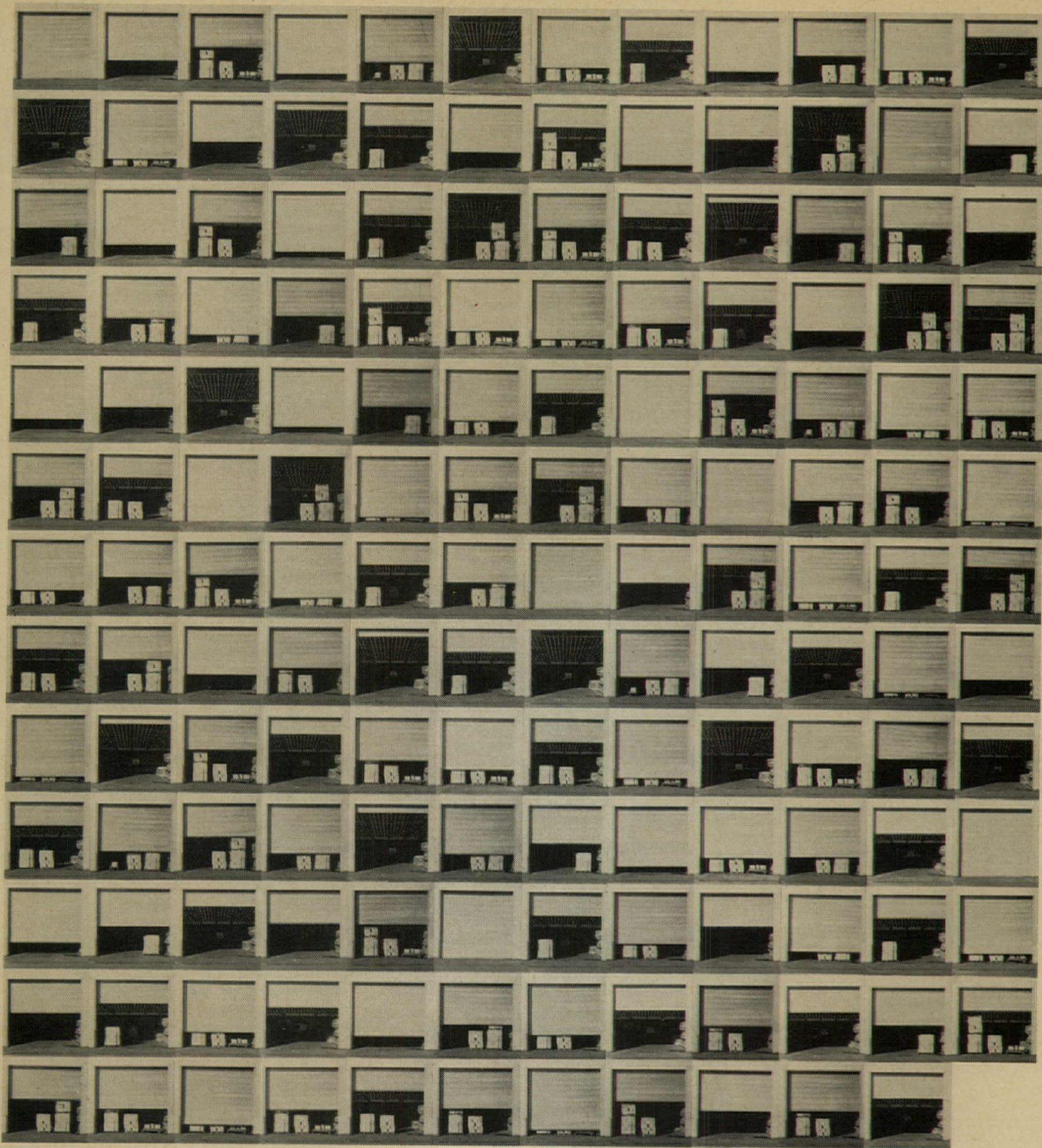
For complete information, including specifications, check Sweets' File or write to:



ELWIN G. SMITH & COMPANY, INC. Pittsburgh, Pa. 15202 / Atlanta • Boston
Chicago • Cleveland • Cincinnati • Dallas • Detroit • Philadelphia • Toledo • New York

For more data, circle 48 on inquiry card





155 NEW WAYS IN AND OUT OF SAN FRANCISCO

And every one secured by a Cookson steel rolling door

When the Port of San Francisco opens its new Army Street Terminal for business every morning, Cookson opens the doors. And closes them again at night.

155 Cookson power-operated steel rolling doors provide easy access to, and complete security for, the \$25 million installation's 820,000 square feet of enclosed cargo handling and storage facilities.

On the basis of quality, operating ease, reliability and cost, the Port of San Francisco's choice of Cookson power-operated rolling steel doors was an open and shut case.




"Best Way to Close an Opening"

THE COOKSON COMPANY

700 Pennsylvania Ave., San Francisco, Cal. 94107

For more data, circle 49 on inquiry card



**Something to ease
your mind while you
wait for the birth
of your new building:**

**We've been through
it 4000 times.**

The birth of a new building is always a nervous event. We know. Honeywell has shared the experience with over 4000 building owners and architects . . . we have installed one man building control in over 4000 buildings of all types and sizes.

This experience has taught us just how much automation you'll need for the lowest first cost and greatest operating efficiency.

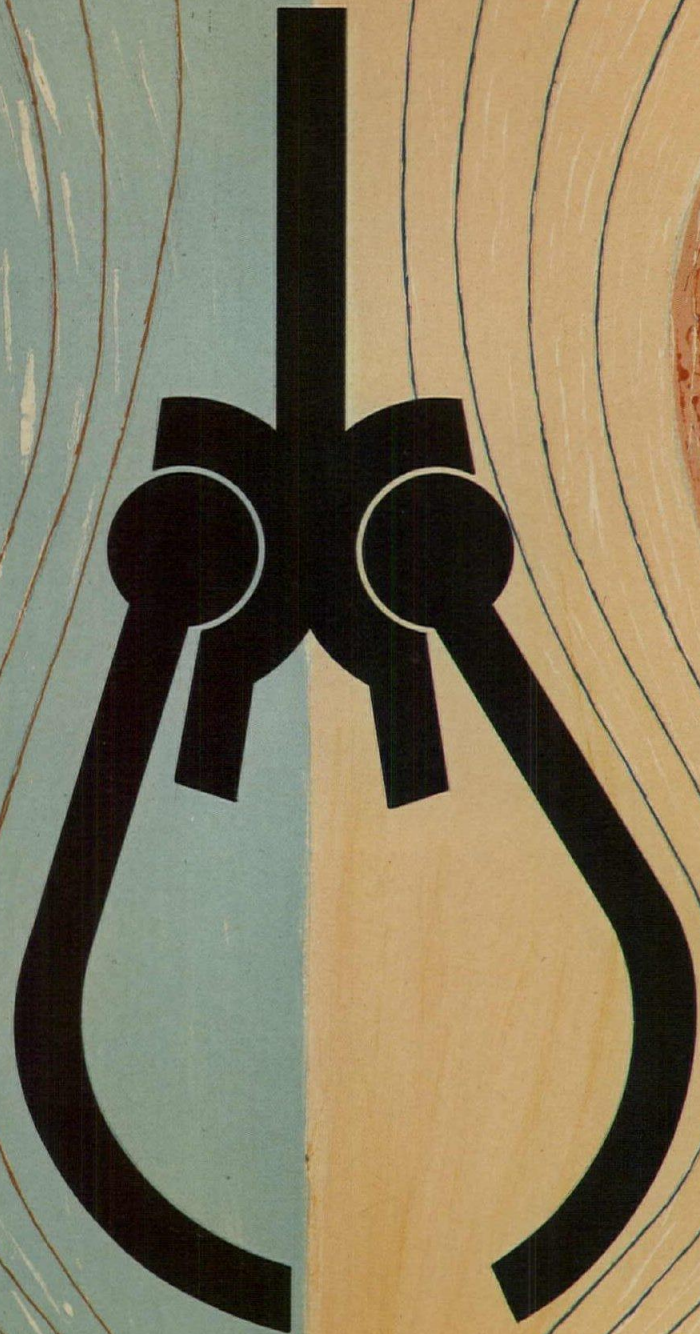
If you'd like to know more about how Honeywell's experience can save your clients money on the complete building automation system, send for our free Planning Guide on Automation. Write Honeywell, Commercial Division, Dept. G6118, Minneapolis, Minnesota 55408.

Honeywell
AUTOMATION

Owner and developer: John Hancock Mutual Life Insurance Company.
Architect/engineer: Skidmore, Owings & Merrill, Chicago.



How does this "hidden persuader" make the Titus T-LINE Air Diffusing Ceiling 100% more functional, yet give it greatest architectural beauty of any ceiling?



Calgehl

A

It nestles (out of sight) above the air slot of T-LINE, gives greatest air distribution control of any ceiling system. Look what T-LINE'S "hidden persuader" can do: Adjust the air pattern a full 180°. Full horizontal discharge, left or right. Full vertical discharge. Or any pattern in between. And provide complete air flow rate control — even blank-off!

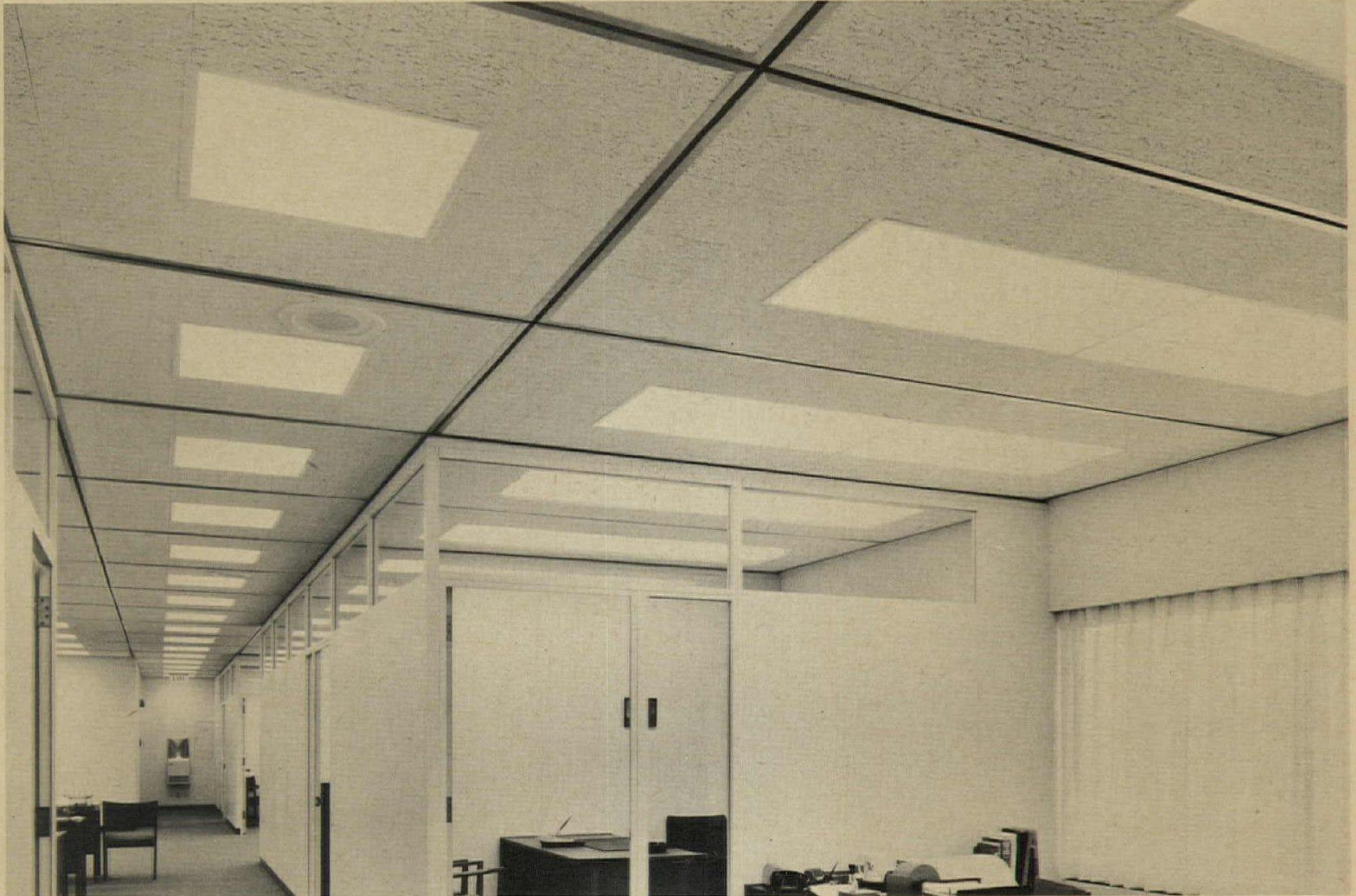
WHAT DOES THIS MEAN? When you use T-LINE, you can be sure it will provide the efficiency and flexibility of air distribution to fully satisfy any present or future room requirements.

FOR EXAMPLE: If movable partitions (which quickly, easily affix to T-LINE channels for support) need to be rearranged to meet

changed space requirements, T-LINE can provide the necessary air distribution to fully meet the new requirements *without disturbing the ceiling in any way!*

No other ceiling system allows such freedom of architectural ceiling design. T-LINE can be furnished in any size module — can be used with any kind or size ceiling panels, or any type lighting.

REMEMBER: *You don't gamble or compromise on the air distribution when you use Titus! T-LINE Ceiling Systems are performance proven. First, by testing in the Titus Air-Diffusion-Council-Certified Research Laboratories — and then in many, many installations throughout the United States and Canada.*



T-LINE air diffusing / ceiling suspension system



SPECIALISTS IN AIR DISTRIBUTION FOR OVER 22 YEARS

by **TITUS**®

TITUS MANUFACTURING CORPORATION, Waterloo, Iowa 50704

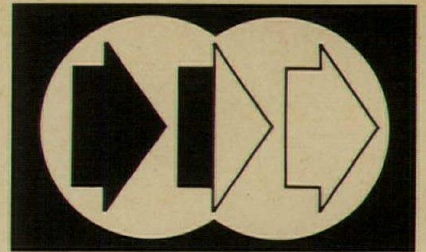
- Rush new Catalog on Titus T-LINE air diffusing/ceiling suspension systems.
- Send names of Titus T-LINE Installations, also photos.

NAME

TITLE

COMPANY

ADDRESS



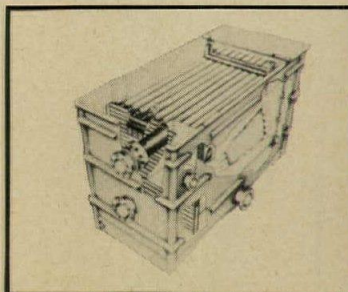
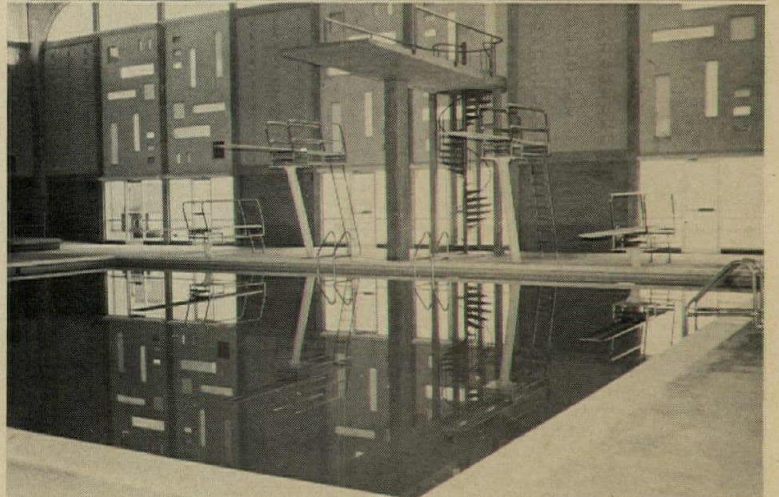
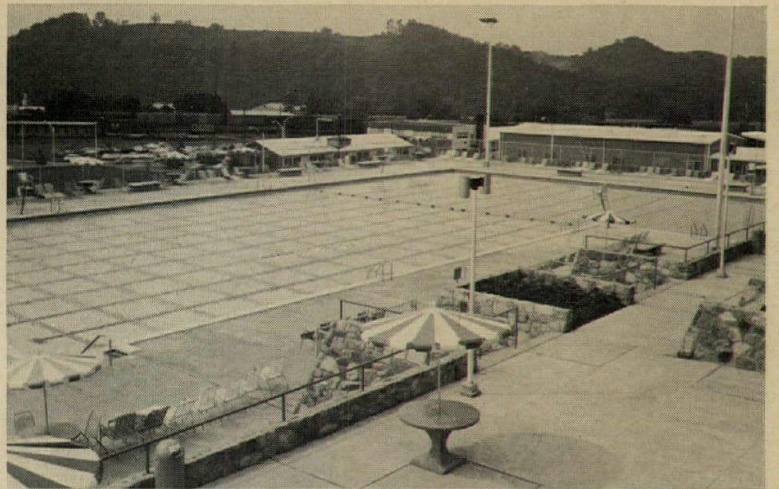
Filter power

University of Tennessee Student Aquatic Center Chooses Bowser-Briggs Swimming Pool Filters

"Fun for Everyone" (the official motto) is the best description of the outstanding new \$1.7 million Student Aquatic Center at the University of Tennessee. Consisting of two 50 meter Olympic pools (indoor and outdoor), a separate 15 foot deep indoor diving well, sundeck area, weight room, sauna baths, dance area, game rooms and lounges, the new center has been described as the most advanced in the nation.

It was fun, too, for Bowser-Briggs to install the 2 huge model 618A vacuum filters, each providing 1008 sq. ft. of filter area—with maximum flow rate of 2000 gal/min in an 8 hour turnover. Each filtering system also is equipped with a Bowser-Briggs dry feeder to feed DE slurry into the system. During periods of heaviest load, filtering cycles have been experienced up to 28 days.

Why not consider Bowser-Briggs superior filtration systems for your next pool. Write today for complete information on our latest filtration systems.



Bowser inc.

BOWSER-BRIGGS FILTRATION DIVISION
COOKEVILLE, TENNESSEE 38501
IN CANADA: S. F. BOWSER CO., LTD.
IN MEXICO: BOWMEX, S.A., NAUCALPAN, EDO DE MEXICO
IN U.K.: BOWSER-A.P.V. FILTRATION LTD.
GREENHITHE, KENT, ENGLAND

For more data, circle 52 on inquiry card



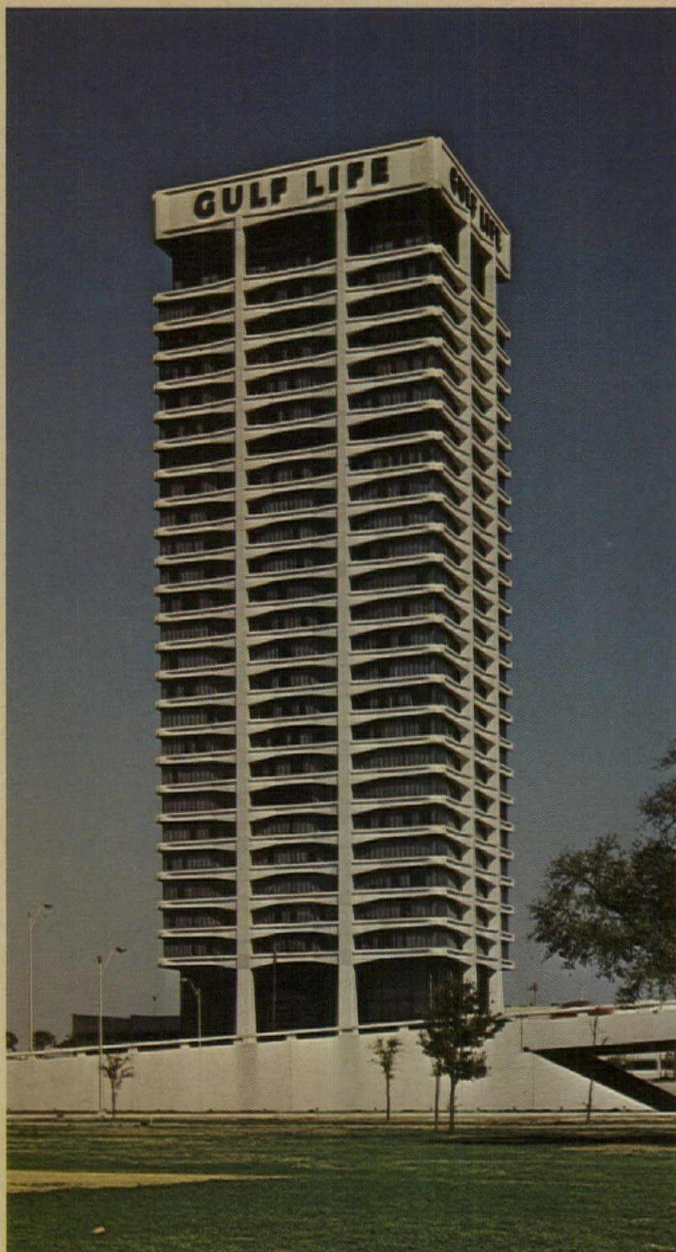
The Heroic Carpet

It'll give your floor a lift. Carpets of well-muscled, hefty HERCULON® olefin fiber are made to stand-up under heavy use. Even in a gym. Dirt, grime and stains stay near the surface where quick and easy maintenance carts them away. So, put down carpet of HERCULON where strength and vitality are needed. To find out why HERCULON is made to "take it," contact:
Fibers Merchandising,
Hercules Incorporated,
Wilmington, Delaware 19899.

**Since when?
Since Herculon.**

*Hercules registered trademark.





Gulf Life Tower, Jacksonville, Fla.
 Welton Becket, Architect / Kemp, Bunch & Jackson, Associate Architects



Why were Houghton Elevators with exclusive 1090 Computerized Control installed at the new Gulf Life Tower ?

To insure the shortest trip time in elevating

The remarkable Houghton 1090 Elevator Control System doesn't "freeze" cars in inflexible zones.

That means cars are free to move precisely in accordance with traffic demands.

For example: Should traffic increase in one section of the building (say between floors 8 and 12) the 1090 System automatically directs the required number of cars to the busy area.

Thus cars don't cruise aimlessly up and down, or park in one section of the building when they are needed elsewhere.

Because the Houghton 1090 System makes possible the most efficient utilization of every car in the system, the time between boarding an elevator and leaving it at the destination floor is always pleasantly short.

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HAUGHTON ELEVATORS

Houghton Elevator Company/Division of Reliance Electric Company/Toledo, Ohio 43609/Elevators/Escalators

For more data, circle 54 on inquiry card

33 more communities get HUD Model Cities grants

Secretary Robert C. Weaver of the U.S. Department of Housing and Urban Development early last month announced the award of Model Cities planning grants to 33 communities in 26 states, bringing the number of awards so far to 108 cities. These cities have been chosen from 163 municipalities that applied last April to share in the \$12 million appropriated by Congress for a second round of Model Cities planning grants.

Model Cities planning grants pay 80 per cent of the cost of planning a comprehensive five-year program to improve social, physical, and economic conditions in large blighted neighborhoods. After a year's planning period and approval of plans, cities will be eligible for Model Cities supplemental grants, as well as other Federal grants-in-aid to carry out their programs.

Seventy-five communities which received planning grants in the first round are now planning programs for their model neighborhoods. First plans from this group are expected this fall.

Taylor reviews ten months of Model Cities program

H. Ralph Taylor, HUD's Assistant Secretary for Model Cities and Governmental Relations, reviewed progress and problems of the first ten months of the Model Cities program before a Midwest regional conference in Dayton. Following is a summary of his remarks.

"The fundamental principle that citizens have a right to participate in and influence the development of plans that will affect their lives is no longer debatable. To achieve a working partnership between people and city government and a sharing of power, we must overcome two interrelated problems: the suspicion and hostility of citizens toward city officials and skepticism of public of-

ficials toward citizen aid in planning.

"Model Cities planning is an unprecedented process in which citizens and government, working together, look at the total urban problem as an inter-related whole. We hope to move away from a system of spending dollars on a series of scattered projects to a system that will let people of the neighborhood and government measure the value of dollars spent on urban problems in actual performance and reaching objectives. For the first time we will have an actual measure of total effort and cost of revitalizing a specific urban neighborhood.

"With the full cooperation of the Administration, we are working with the other departments and agencies concerned with urban problems. We are seeking four major changes that can be accomplished now without additional legislation: 1) A new pattern of technical assistance that will help city government and the citizen to better understand the possibilities of the various Federal programs and fund availability. 2) For this effort to succeed, there must be a substantial strengthening of the regional offices of the various Federal departments.

This will require earmarking and allocating funds for regional commitment. 3) There has to be speedy and flexible processing, and recognition of priorities so that program components that relate to each other can be funded in an appropriate time sequence. 4) The fourth change is fundamental to the other three. Federal and state funds now flow into a city through a variety of channels, some of which have no relationship whatsoever to city government. As a result, there are very few mayors in this country who know the full extent and nature of the flow of Federal funds into their cities. The only effective solution to this problem in the model neighborhood area is to condition the approval of Federal grants upon the participation in the planning process for the model neighborhood of the local recipient of the Federal funds that are to be used in a project in or substantially affecting the model neighborhood. This means more than a check-point procedure; it requires joint planning so that all Federal and, hopefully, state funds that go into a neighborhood relate to the strategy and the plan for that neighborhood."

Document outlines A/E-government relationship

A four-year effort by the military services of the government and the professional societies (A.I.A., C.E.S., N.S.P.E.) has culminated in the revision of a document

originally published by A.I.A. in 1967.

The pamphlet is entitled "The Architect-Engineer and the Military Services: A Working Relationship." It presents a current understanding of the basic responsibilities of each party to the A/E-government relationship. Further talks between the societies and the services will be conducted to expand upon the common ground. The publication will serve as a precedent in negotiations for similar understandings with other Federal construction agencies.

ARCHITECTURAL BUSINESS THIS MONTH

Building activity	83
Practice	87
Cost indexes and indicators.....	89

VA relaxes 6 per cent fee limitation on A/E contracts

The Veterans Administration no longer will require that all architect-engineer services be included in determining compensation covered by the 6 per cent fee limitation set forth in Federal statutes for A/E services.

VA revised a previous regulation which held that all compensation, including reimbursement of the A/E for travel to and from the job site, would be considered in determining whether or not a contract exceeded the Federal maximum of 6 per cent of estimated construction cost. The action came when the General Accounting Office

told VA it would "have no objection if the . . . regulation is cancelled for the time being."

The VA ruling does not change the application of the 6 per cent maximum to preparation of design and plans.

GAO stands by while Congress studies

VA was the only Federal agency which had complied with last year's GAO opinion that A/E fees be limited to 6 per cent of construction costs, and that such fees include all services from feasibility through supervision, including travel, re-

production and various related items.

GAO approval of VA's request to abandon its strict enforcement of the 6 per cent limitation was attributed to the fact that other agencies have not complied with GAO's interpretation and that Congress is presently studying the whole matter of A/E fees and the 6 per cent laws. In addition, GAO had told other agencies, such as Defense and General Services Administration, that while they are not permitted any exclusions of costs from the 6 per cent law, GAO "would take no action in cases involving this question at this time. . . ."

New York architectural firm trains disadvantaged youth

A career opportunity program for disadvantaged youth from New York has been undertaken by Eggers and Higgins. The architectural firm has set up a classroom in its offices for an initial class of ten young men and one young lady, who, over a period of 16 weeks, will be taught the fundamentals of architectural drafting and the language of structures.

After completion of training, the beginner is qualified for a draftsman's position at Eggers and Higgins, or elsewhere in the profession. The program is offered in cooperation with Vocational Foundation, Inc., an agency which is supported by private endowments and some Federal funds. The foundation screened the

applicants through counseling and testing and contributes to a part of the salary costs of students.

Trainees receive a 16-week course of instruction plus a salary. The salary (\$80 a week of which \$25 is reimbursed to the firm by the foundation) is above the level of wages for unskilled labor and makes education a financial possibility for the trainee.

Joseph Rivellese, instructor of architectural and engineering drawing at State University of New York Urban Center in Brooklyn, has begun by teaching trainees the language of structures and other practical subjects with an emphasis on graphics. The graduate of the program

receives a certificate and is then qualified for a job.

David L. Eggers says of the program: "Since the program only began a short time ago, I can attest to our own hopes rather than report on specific results. I believe our new venture makes business sense, and I know it is consistent with our obligation to foster architectural education and betterment. I cannot claim that we were impelled solely by altruism in creating the program, nor can I present it as a dramatic solution to social needs. I would hope, however, that we have unlocked one door that must be opened, and that our idea will take hold in the profession."

Education for design to be joint conference theme

Sponsors of a conference on education for environmental design November 11-13 at the University of Notre Dame will be the Interprofessional Commission on Environmental Design, whose members represent the American Institute of Architects, American Institute of Planners, American Society of Civil Engineers, American Society of Landscape Architects, Consulting Engineers Council and the National Society of Professional En-

gineers. Purpose of the conference is to discuss common bonds of education for environmental design among the I.C.E.D. professions. It will deal with the present status of education for environmental design, explore its shortcomings, review trends and set guidelines. This year's I.C.E.D. chairman is C.E.C. past president Eugene Waggoner. Attendance at the conference will be by invitation to about 30 delegates from each society.

Government rules against package deals

The Secretary of Defense has announced construction contracts will no longer be awarded to the same firm which designed the project or to any of its subsidiaries or affiliates.

A July 17 revision to the Armed Forces Procurement Regulations instructs Federal contracting officers to inform architect-engineers of this restriction prior to commencement of negotiations for A/E services.

While no explanation is given as to the reason for the new regulation, other amendments issued on July 17 encompass procedures to avoid "buying in" on projects. "Buying in" refers to the practice of knowingly offering a price or cost estimate less than anticipated costs with the expectation of receiving more profitable "follow on" contracts, or with the intent of increasing contract price or costs through change orders.

Briefs

Liability defense material is being developed by the Risk Analysis and Research Corporation, a new San Francisco-based firm which studies liability claims involving design professionals to develop loss prevention remedies. They are now preparing a manual for C.E.C.

August Hoenack received an award in recognition of "distinguished contribution to hospitals and to the health of the American people" from the American Association for Hospital Planning at the September meeting of A.H.A. Mr. Hoenack, recently retired chief of the architectural and engineering branch of the Public Health Service Division of Hospital and Medical Facilities, is now the Washington-based associate of Jensen, Halstead and Rummel.

Revision of a bidding procedures guide is now being reviewed by a joint committee of A.I.A. and A.G.C. The guide should be available to chapters and members before the end of the year.

CURRENT TRENDS IN CONSTRUCTION

Robert M. Young
Senior Economist
McGraw-Hill Information Systems Company

Changing age distribution sparks apartment boom

1968 is The Year of The Monkey according to the Chinese lunar calendar. Builders and designers of apartment houses might well be prepared for the worst if they were superstitious, for so far this century each time The Year of The Monkey has rolled around (every twelve years), apartment building has taken a nosedive. Declines have ranged from 10 per cent in 1956 to over 80 per cent in 1932.

Apparently most architects, contractors and investors don't consult their lunar calendars before making plans, for 1968 is shaping up as a banner year for new apartment construction. The number of units put in place will approach the record of 535,000 set in 1963, while both valuation and apartment buildings' share of total residential construction will be at all-time highs.

The reasons why multi-family building has been able to shake off the "monkey jinx" are not hard to find. In the first place, the rate of new building during the past two or three years has been well below potential. Apartments suffered the same fate as other types of residential construction following the "credit crunch" of 1966 when mortgage

funds became extremely scarce. In addition, the temporary suspension of the investment tax credit put a further damper on investment in large multi-family buildings. The result has been a substantial reduction in rental vacancy rates to the lowest level in the 1960's. Judging from recent sharp rental increases in many cities, the vacancy rate is below the most efficient level to handle normal turnover.

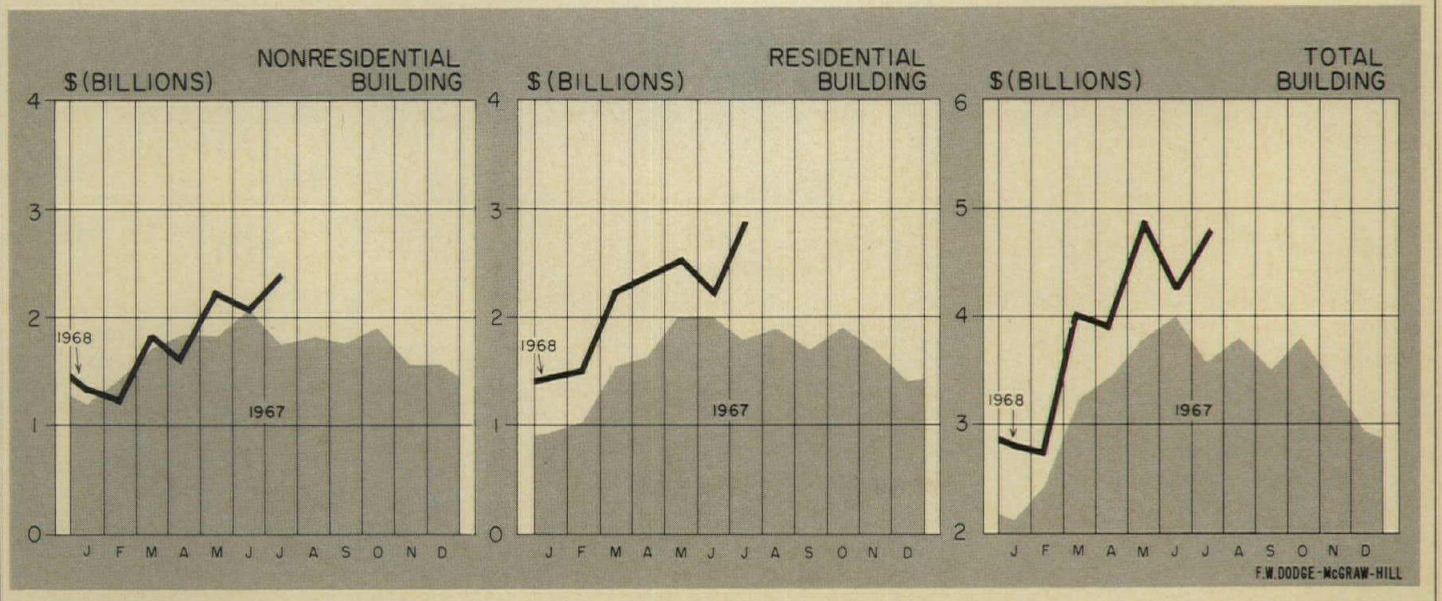
The major force behind the upsurge in apartment building, however, has come from some dramatic shifts in the demand patterns for housing in general. The biggest markets for multi-family dwelling units are young people who are moving away from home or graduating from college and setting up housekeeping; newly-marrieds and families with very young children; and older people whose children have grown up and left them with more space than they want to take care of. In broader terms, the 20-29 age group and those over 55 are more likely to rent an apartment than buy a house: It is precisely in these age groups that most of our population growth is taking place. Since 1960, while the total U.S.

population has grown slightly over 10 per cent, the number over 55 has increased 15 per cent while the 20-29 age group has jumped almost 30 per cent. In 1967 alone, the combined growth of these apartment-oriented age brackets exceeded the gain for the country as a whole.

The impact of these population trends is showing up in regional building patterns. The far West and the Southwest, which led the tract-home boom of the 1950's, have now become the leaders in apartment construction—both in numbers and in share of total residential building. Such traditional single-family housing areas as Los Angeles, Seattle, Dallas and Atlanta are now building more apartments than one-unit structures.

How long will this apartment boom last? Population factors alone certainly indicate a healthy market for at least another decade. Over half the country's growth between 1968 and 1975 will be in the age groups favoring apartment living. Any shift from suburbs back to the city or widespread use of modular units, as many are predicting, would add strength to apartment building.

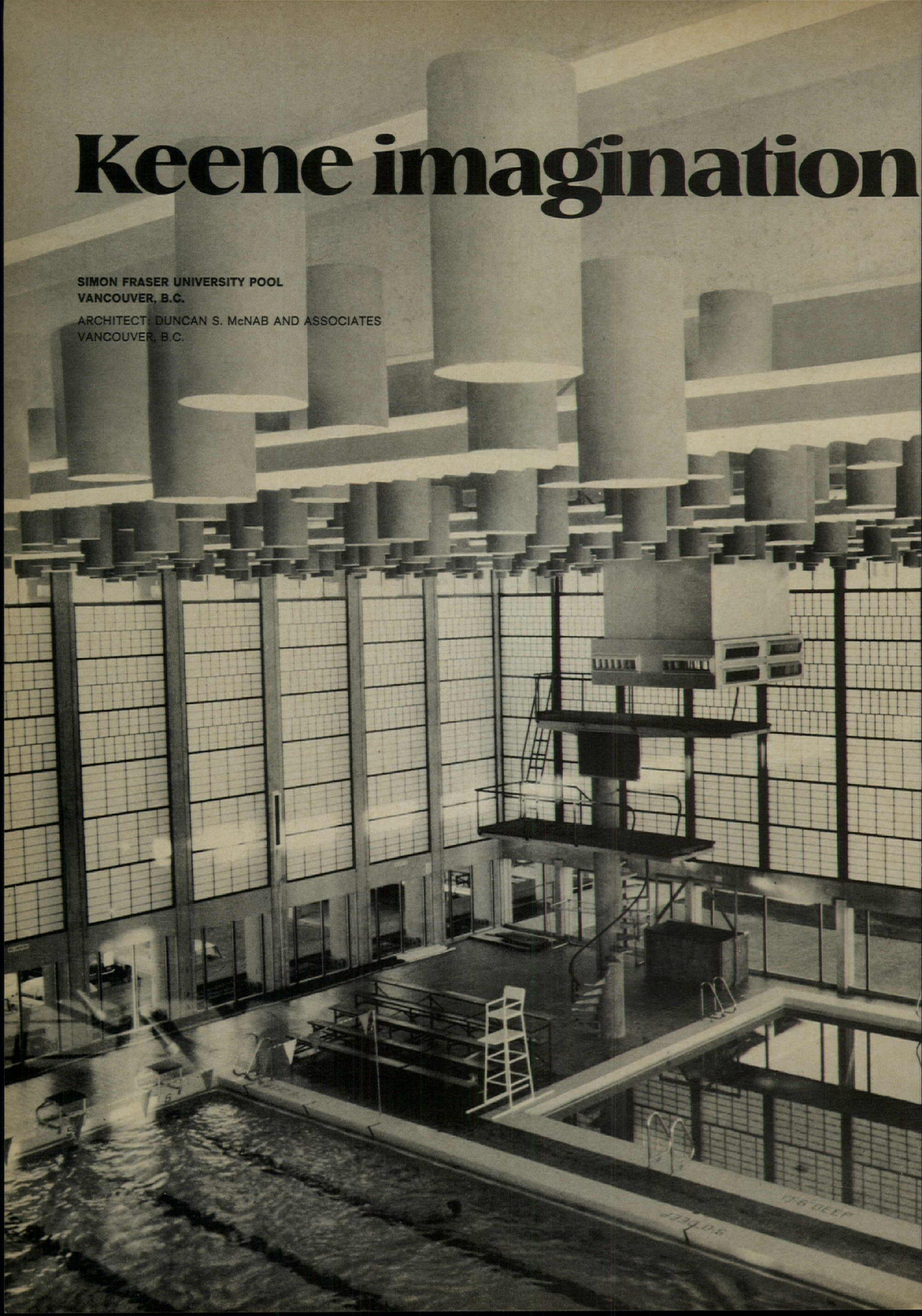
Building activity: monthly contract tabulations



Keene imagination

SIMON FRASER UNIVERSITY POOL
VANCOUVER, B.C.

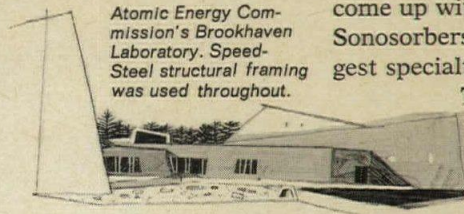
ARCHITECT: DUNCAN S. McNAB AND ASSOCIATES
VANCOUVER, B.C.



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Whatever acoustical problem comes up, chances are Keene has

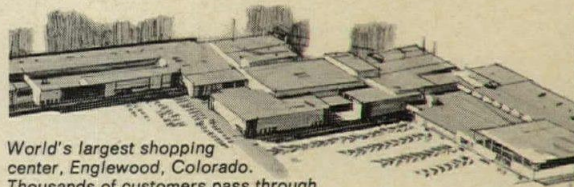


Atomic Energy Commission's Brookhaven Laboratory. Speed-Steel structural framing was used throughout.

come up with the product to solve it. Sonosorbers are just part of the biggest specialty line in the business.

The most versatile structural framing line in the business is Keene Speed-Steel,™ chosen for the Atomic Energy

Commission's Brookhaven Laboratory shown here. The only flat surface in the building is the floor, since all of the walls are sloping. In



World's largest shopping center, Englewood, Colorado. Thousands of customers pass through Keene's metal doors here.

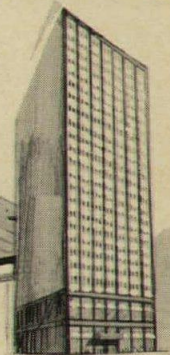
combination with precast concrete, Speed-Steel helped an imaginative concept take shape.

If you open doors, chances are you've handled some of Keene's door products. Keene metal doors, both fire-rated and non-rated, are in thousands of America's schools and colleges, offices and factories.

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North American Rockwell Building, Pittsburgh. Keene movable wall systems were chosen for interior design flexibility.

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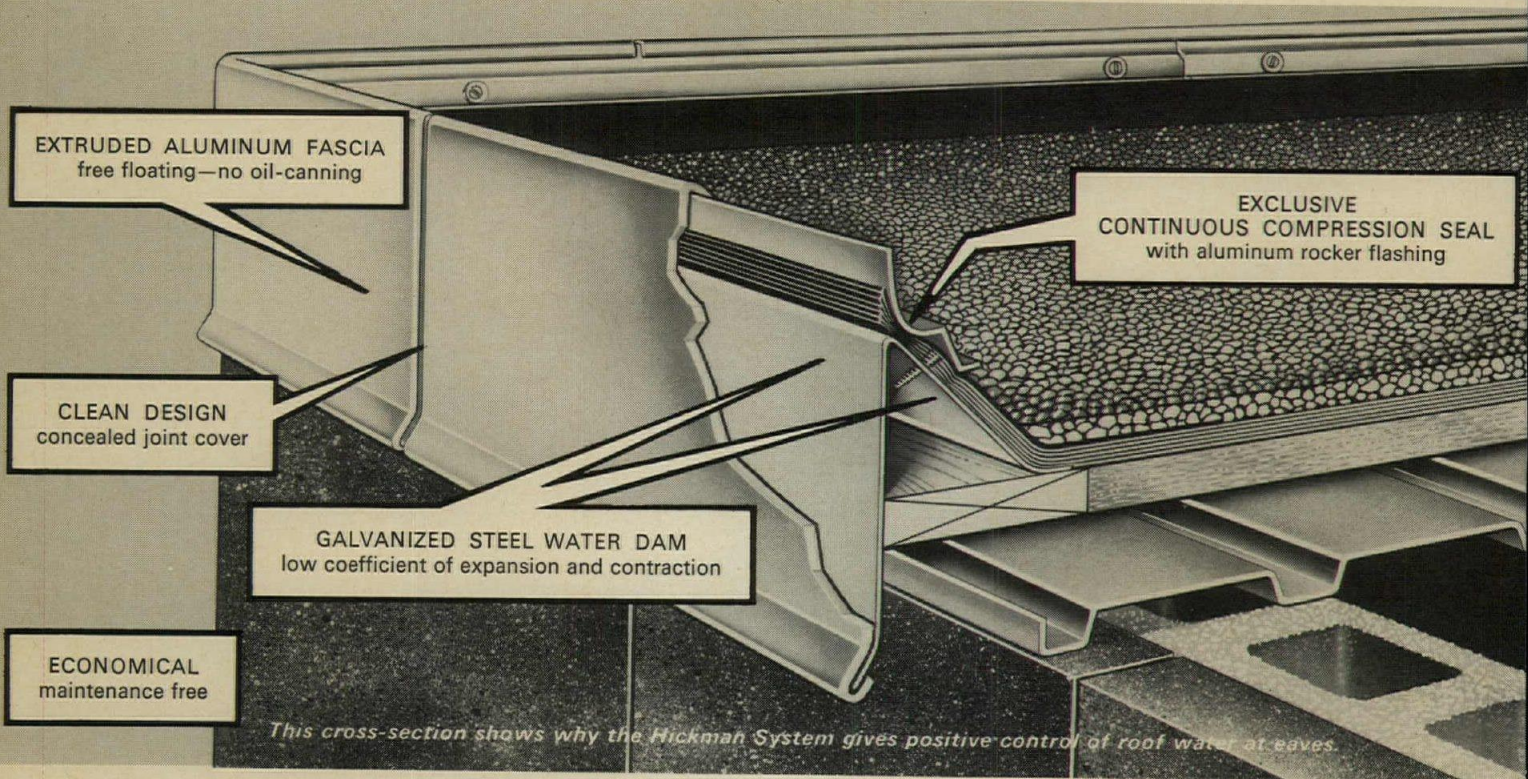
We've just begun to grow.

For more data, circle 55 on inquiry card

**Can a Single Piece,
Extruded Aluminum Gravel Stop
Prevent Cracked Felts, Roof Leaks,
Tar Drivpage and Water Stains?**

NO—

BUT THE HICKMAN FASCIA & WATER DAM SYSTEM CAN AND DOES.



Most architects are all too aware of common roof problems—especially cracked felts, leaks, tar drippage and water stains. These are both costly and unsightly, and of course, they affect overall job quality and reputation.

The Hickman *Safeguard* fascia & water dam and expansion joint systems do eliminate these problems.

And, surprisingly perhaps, the installed cost of Hickman System is about the same or less than extruded gravel stop systems. Call your local Hickman Distributor for comparative cost data.

The key to the Hickman fascia and water dam system is the unique, continuous compression seal, along with the time-proven thermal compatibility of roofing felts with the galvanized steel (not copper or aluminum) water dam.

There is no evidence of failure of any Hickman System after thousands of installations in over ten years throughout the country.

Flexibility of design is provided by free-floating, extruded aluminum fascia systems in various graceful profiles and sizes and special finishes.

For the "how" of the Systems, plus a partial list of important installations and the roster of area sales representatives refer to Sweet's 21G Hi and check our number on the card for additional technical data.

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For more data, circle 56 on inquiry card

FEE STRUCTURES

Chicago Chapter A.I.A. plots fees against complexity

The latest attempt to bring the architect's fee into line with the complexity of design comes from the Chicago Chapter of the American Institute of Architects. After three years of study, a committee of that chapter has indexed major building types and correlated them with a set of five charts of sliding scales shown below and on the following page.

The committee recommends that the charts be used in accordance with the provisions outlined in A.I.A. Document B-131, the Percentage of Construction Cost. This form of agreement is best suited to normal construction projects of definite scope, which require basic professional services through the five phases of development defined in the document. These phases are: schematic design, design development, construction documents, bidding and construction.

There is some latitude for additional costs

The architect's fee (under the standard conditions of B-131 as modified by the Chicago study) is calculated as a percentage of the total project construction cost using the applicable graph for the building type involved. To this figure should be added the cost of reimbursable expenses such as transportation, long-distance communication, reproduction of contract documents, model photographs, renderings and detailed cost estimates. Extraordinary engineering or special consulting expenses may also be added onto the architect's total fee if such extra services are specifically defined in the architect's contract.

For extended services, a different fee structure applies

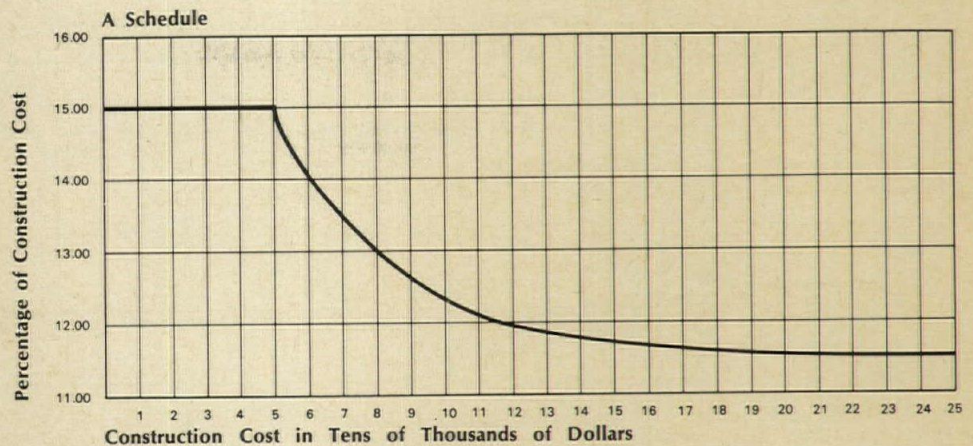
Fee standards for additional services are not specifically covered in the percentage charts of the Chicago study. Services in this category which should be negotiated separately include: master planning, feasibility and other special studies, extensive revisions to approved drawings and documents, consultation services, interior design and arbitration proceedings.

Alternate fee contracts tailored to special cases

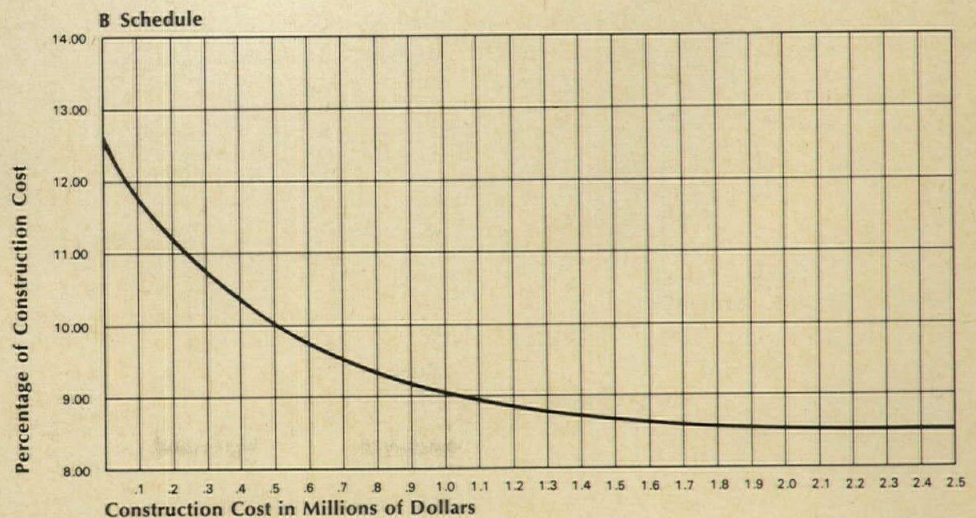
The two other methods of computation outlined in A.I.A. standard forms are recommended by the Chicago committee for use when percentage calculations would be cumbersome or when the work deviates sharply from the construction norm. Remodeling, reconstruction and interior design projects, for example, often adapt best to a compensation agreement based on A.I.A. Document B-231, the Multiple of Direct Personnel Expense. Compensation is based on the

direct expense of personnel engaged in the work plus reimbursable expenses. Total expenses are to be multiplied by a minimum factor of 2.5 according to the A.I.A. document. The Chicago Chapter recommends that the factor be 3.0, and further stipulates that principals' direct expenses be part of the total.

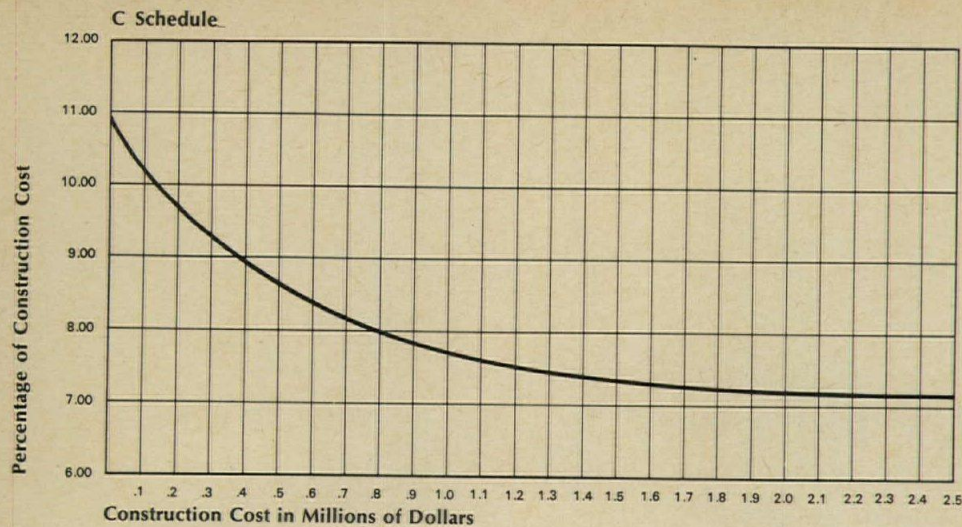
When the extent of the architect's services can be determined accurately in advance, the Chicago Chapter suggests that compensation be established as a fixed professional fee plus direct expenses as outlined in Document B-331.



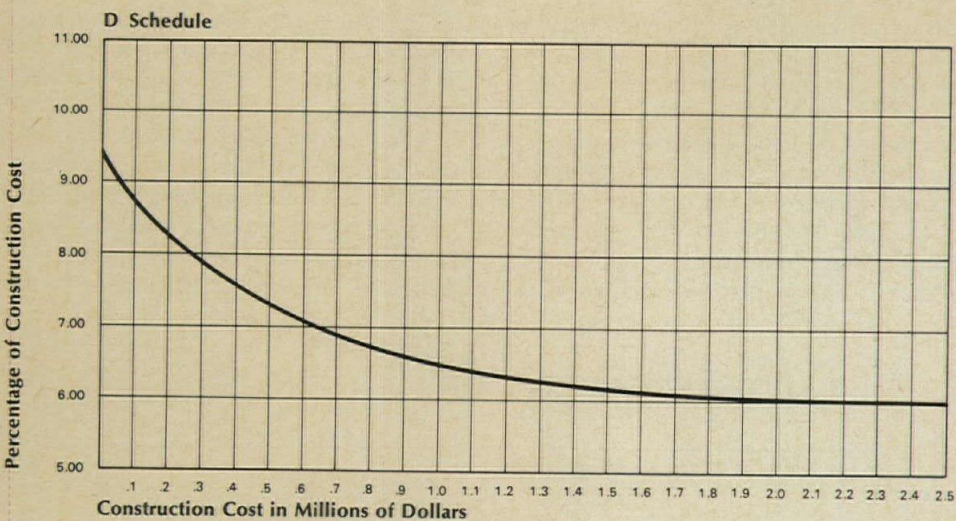
A. Single-family residence



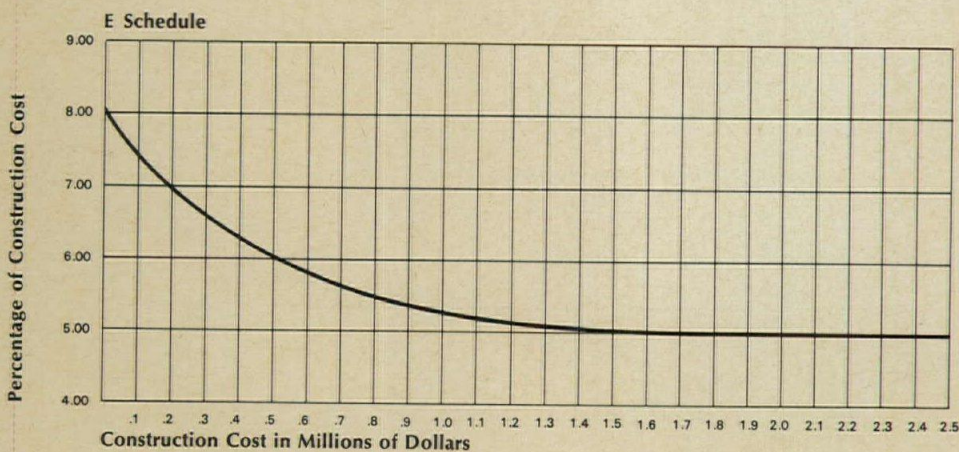
B. Banks, churches, concert halls, hospitals, laboratories, etc.



C. Airport buildings, auditoriums, court houses, office buildings, etc.



D. Apartment houses, hotels, industrial buildings, laundries, etc.



E. Garages, packing plants, parking structures, warehouses, etc.

Index of Applicable Schedule Graphs

Building Type
 Administration building
 Airport hangar
 Airport terminal
 Airport tower
 Apartment (high rise)
 Apartment hotel
 Aquarium
 Armory
 Auditorium

Schedule
 C Bakery
 C Band shell
 C Bank
 C Bowling alley
 C Brewery
 D Bus terminal
 D Cafeteria
 B Chapel
 C Church
 C Clinic

D Storage—cold
 C Storage building
 B Swimming pool
 C Synagogue
 C Telemetry building
 C Temple
 B Theatre
 B Treatment center
 B University (see college)
 B Warehouse

Club—city or country	B
College or university (except libraries & laboratories)	C
Communication center	B
Computer center	B
Concert hall	B
Convent	C
Convention hall	C
Court house	C
Dental office building	C
Department store	C
Diagnostic center	B
Dining hall	B
Dormitory	C
Factory	E
Fire station	C
Food processing center	B
Galleries	B
Garage	E
Gasoline station	D
Graphic arts building	C
Gymnasium	C
Home for the aged	C
Hospital	B
Hotel	D
Housing	D
Industrial building (without special facilities)	E
Industrial building (with special facilities)	D
Jail	C
Juvenile home	C
Laboratories; research	B
Laundry	D
Library	B
Marina	C
Medical office building	B
Memorial	B
Mental health center	B
Monastery	C
Monument	B
Mortuary building	C
Motel	D
Museum	B
Nursing home	B
Observatory	B
Office building (with tenant requirement)	C
Office building (no tenant requirement)	D
Parking structure	E
Packing plant	E
Playground	C
Police station	C
Post office	C
Printing building	C
Prison	C
Recreational facilities	C
Research & data center	B
Residence—development type	D
Residence—single family	A
Restaurant	B
Sales agencies (auto-boat, etc.)	D
Savings & Loan building	B
School—elementary	C
School—junior high	C
School—senior high	C
School—secondary	C
Service center	E
Shopping center (no tenant requirements)	D
Specialty shop	C
State capitol	B
Storage—cold	C
Storage building	E
Swimming pool	C
Synagogue	B
Telemetry building	B
Temple	B
Theatre	B
Treatment center	B
University (see college)	C
Warehouse	E

INDEXES AND INDICATORS

William H. Edgerton
 Manager Dodge Building Cost Services
 McGraw-Hill Information Systems Company

OCTOBER 1968 BUILDING COST INDEXES

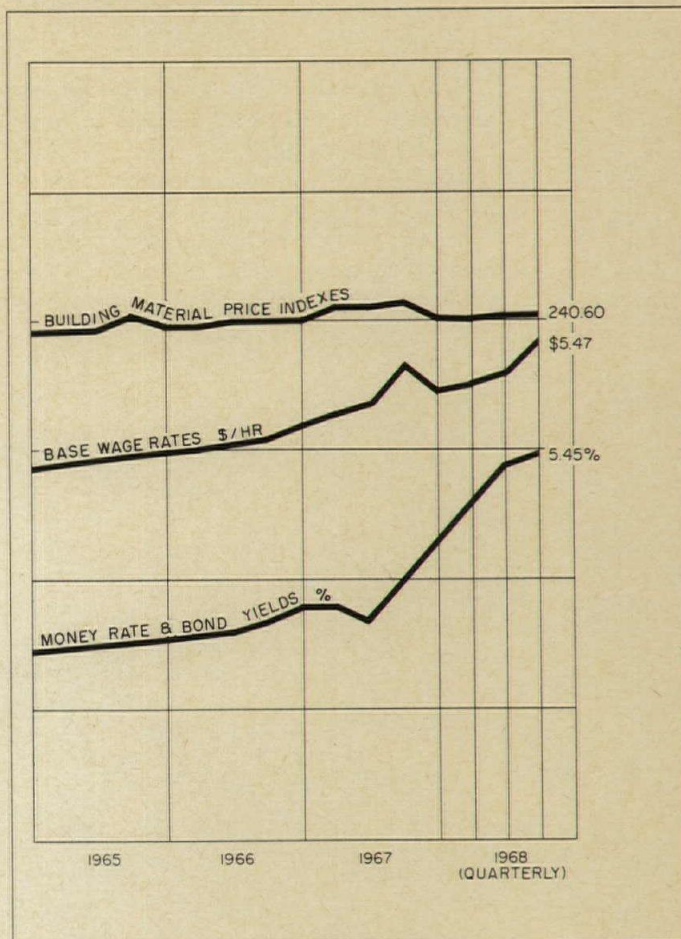
1941 averages for each city = 100.0

Metropolitan area	Cost differential	Current Dow Index		% change year ago
		residential	non-res. & non-res.	
U.S. Average	8.6	294.2	313.3	+4.11
Atlanta	7.3	335.7	356.1	+5.08
Baltimore	7.9	293.9	312.6	+4.14
Birmingham	7.3	266.9	287.0	+3.36
Boston	8.5	264.0	279.4	+4.04
Chicago	9.0	326.1	343.0	+3.17
Cincinnati	9.0	287.1	305.2	+4.77
Cleveland	9.8	315.0	334.8	+9.06
Dallas	7.7	274.2	283.2	+4.04
Denver	8.2	296.0	314.6	+2.24
Detroit	9.2	303.4	318.5	+4.86
Kansas City	8.3	264.8	280.3	+4.93
Los Angeles	8.4	297.8	325.8	+3.04
Miami	8.5	293.1	307.6	+6.45
Minneapolis	8.8	293.4	311.9	+2.97
New Orleans	7.8	261.5	277.1	+2.51
New York	10.0	304.4	327.5	+2.34
Philadelphia	8.6	289.4	303.8	+2.49
Pittsburgh	9.2	278.5	296.0	+6.71
St. Louis	9.1	289.9	307.1	+3.63
San Francisco	8.6	374.9	410.2	+3.43
Seattle	8.5	267.4	298.8	+2.97

Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second; if the cost differential of one city (10.0) divided by that of a second (8.0) equals 125%, then costs in the first city are 25% higher than costs in the second. Also, costs in the second city are 80% of those in the first (8.0 ÷ 10.0 = 80%) or they are 20% lower in the second city.

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

ECONOMIC INDICATORS



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

1941 average for each city = 100.00

Metropolitan area	1967 (Quarterly)							1968 (Quarterly)						
	1960	1961	1962	1963	1964	1965	1966	1st	2nd	3rd	4th			
U.S. Average	213.5	264.6	266.8	273.4	279.3	284.9	286.6	292.7	293.7	295.5	297.5	301.5	302.6	308.5
Atlanta	223.5	294.7	298.2	305.7	313.7	321.5	329.8	332.4	333.4	334.6	335.7	345.6	346.7	351.5
Baltimore	213.3	269.9	271.8	275.5	280.6	285.7	290.9	290.4	291.5	294.9	295.8	302.9	304.1	307.1
Birmingham	208.1	249.9	250.0	256.3	260.9	265.6	270.7	272.9	274.0	273.8	274.7	278.5	279.5	283.0
Boston	199.0	237.5	239.8	244.1	252.1	257.8	262.0	262.9	263.9	264.8	265.7	269.3	270.3	275.6
Chicago	231.2	289.9	292.0	301.0	306.6	311.7	320.4	320.4	321.3	327.3	328.4	329.4	330.0	337.9
Cincinnati	207.7	257.6	258.8	263.9	269.5	274.0	278.3	278.7	279.6	287.3	288.2	291.4	292.5	301.0
Cleveland	220.7	265.7	268.5	275.8	283.0	292.3	300.7	300.0	301.3	302.6	303.7	316.5	318.3	329.9
Dallas	221.9	244.7	246.9	253.0	256.4	260.8	266.9	267.6	268.5	269.5	270.4	272.3	273.4	280.4
Denver	211.8	270.9	274.9	282.5	287.3	294.0	297.5	297.6	298.5	304.0	305.1	304.9	306.0	310.9
Detroit	197.8	264.7	265.9	272.2	277.7	284.7	296.9	298.0	299.1	300.1	301.2	309.2	310.4	314.7
Kansas City	213.3	237.1	240.1	247.8	250.5	256.4	261.0	260.8	261.9	263.4	264.3	267.5	268.5	276.4
Los Angeles	210.3	274.3	276.3	282.5	288.2	297.1	302.7	303.6	304.7	309.0	310.1	312.0	313.1	318.5
Miami	199.4	259.1	260.3	269.3	274.4	277.5	284.0	283.4	284.2	285.2	286.1	293.1	294.3	303.7
Minneapolis	213.5	267.9	269.0	275.3	282.4	285.0	289.4	292.0	293.1	299.2	300.2	300.0	301.0	308.2
New Orleans	207.1	244.7	245.1	248.3	249.9	256.3	259.8	262.3	263.4	266.7	267.6	270.6	271.6	273.3
New York	207.4	270.8	276.0	282.3	289.4	297.1	304.0	309.4	310.6	312.5	313.6	315.9	317.0	319.8
Philadelphia	228.3	265.4	265.2	271.2	275.2	280.8	286.6	287.1	288.1	292.8	293.7	293.3	294.2	300.2
Pittsburgh	204.0	250.9	251.8	258.2	263.8	267.0	271.7	272.2	273.1	274.1	275.0	293.0	284.2	292.5
St. Louis	213.1	256.9	255.4	263.4	272.1	280.9	288.3	290.3	291.3	292.3	293.2	293.7	294.7	302.9
San Francisco	266.4	337.4	343.3	352.4	365.4	368.6	386.0	388.1	389.2	389.6	390.8	396.4	398.0	401.0
Seattle	191.8	247.0	252.5	260.6	266.6	268.9	275.0	276.5	277.5	282.6	283.5	286.2	287.2	291.0

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) divided by the index for a second period (150.0) equals 133%, the costs in

the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 ÷ 200.0 = 75%) or they are 25% lower in the second period.

Face your

Is your problem an old eyesore that needs a new look? A renovation? A tight budget?

O.K. Face it with Wheeling expanded steel mesh.

We can give you a choice among four configurations. In the sizes and modules you specify. They'll all

give you a clean, elegant light look. (And they'll probably save money.)

What's more, Wheeling expanded metal can be painted, lacquered, bronzed or galvanized. And it will look great.

One thing that doesn't meet the eye: Wheeling expanded steel mesh

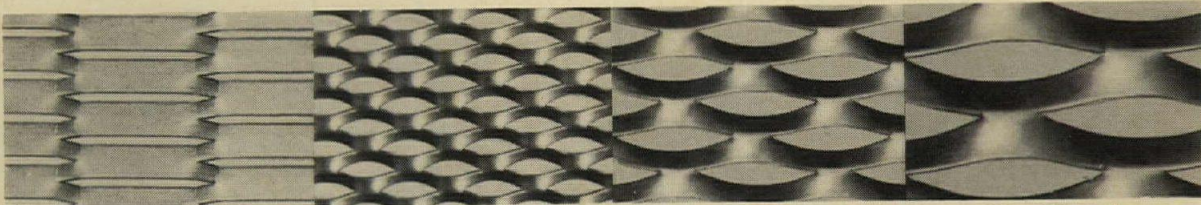
is stronger per foot and lighter per pound than the sheet of steel it's made from. Interesting?

Mind you, we aren't in favor of obscuring beautiful old buildings. Just the ones that aren't beautiful.

Write us about it. (Maybe beauty is only skin deep.)



problems.

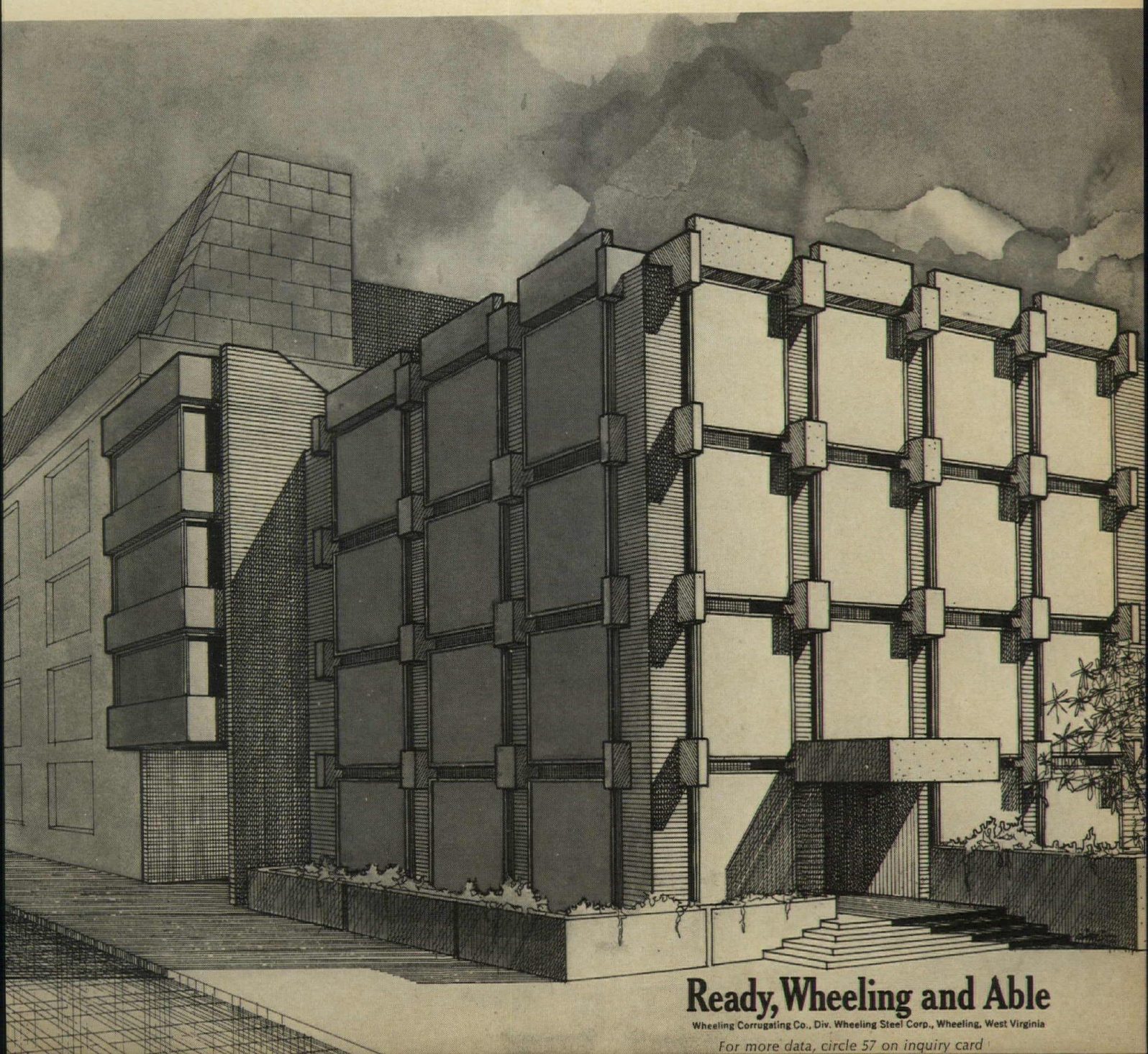


Louver mesh

1/2" facade

1 1/2" facade

No. 4 facade



Ready, Wheeling and Able

Wheeling Corrugating Co., Div. Wheeling Steel Corp., Wheeling, West Virginia

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SCM CORPORATION



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Freedom with design is only one



ST. PIUS X CHURCH — New Orleans, La.

Architect:

THOMPSON B. BURK AND ASSOCIATES

General Contractor:

OTIS W. SHARP & SONS, INC.

Sheet Metal Contractor:

HOLZER SHEET METAL WORKS, INC.

Revere Distributor:

ORLEANS STEEL PRODUCTS CO.

All of New Orleans, La.

In commenting on the selection of lead-coated copper for this church roof, Mr. Thompson B. Burk said, "The earliest concept of the St. Pius X Church roof was of lead-coated copper because many of the material qualities were of prime importance to our design.

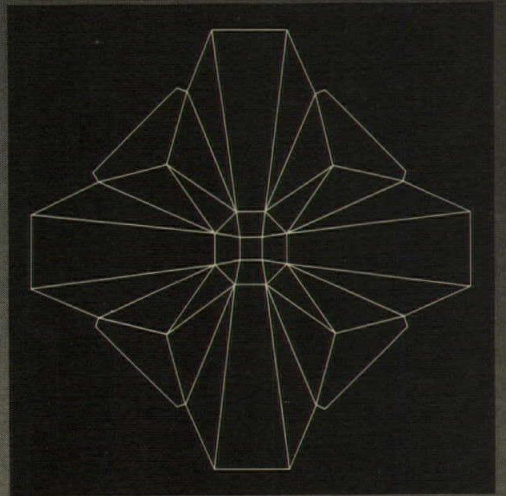
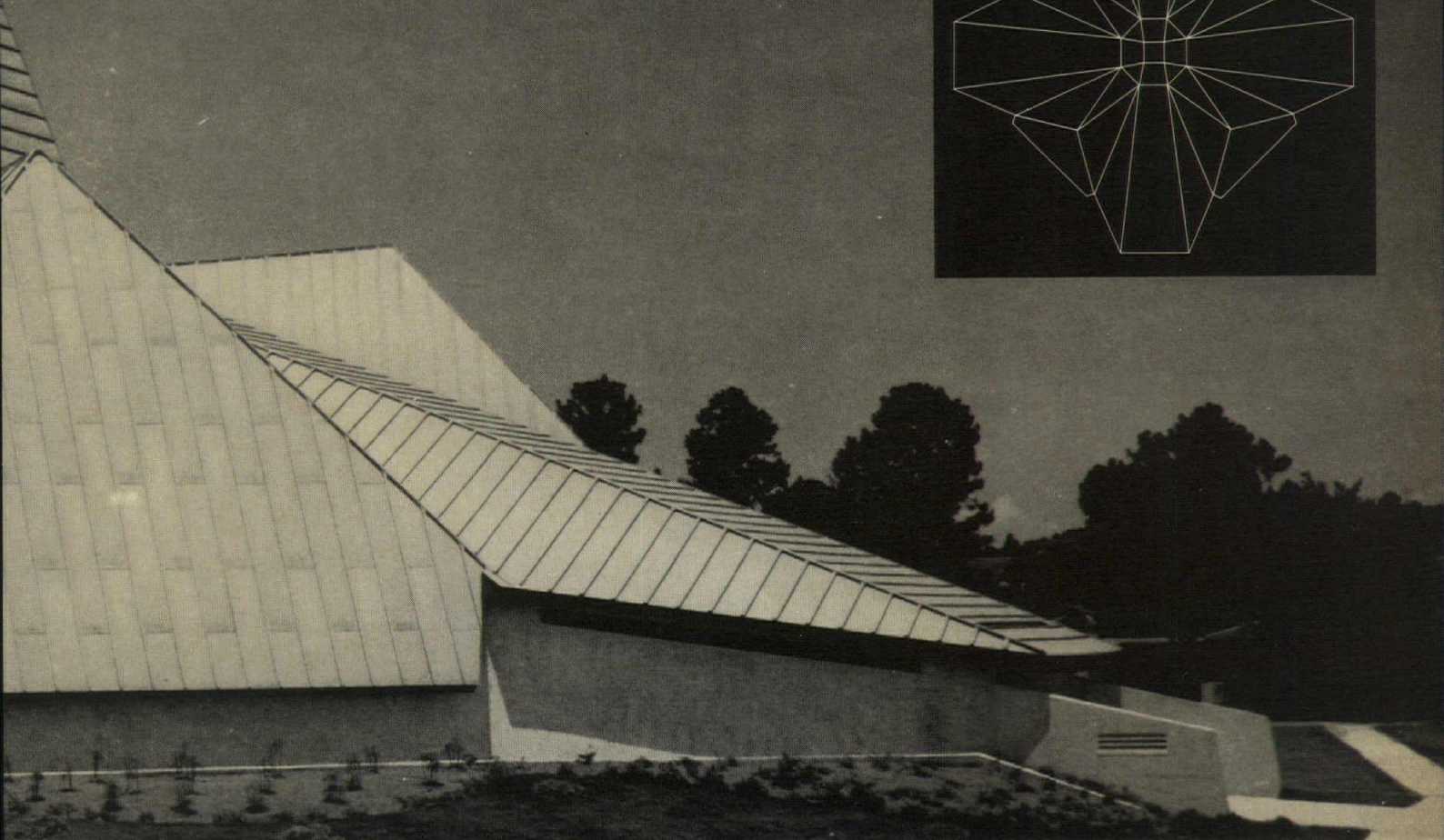
"We were interested in a quality, long life, maintenance-free material that would also be a neutral element in any color coordination.

"These qualities were immediately apparent in lead-coated copper and the finished product indicates that the original idea was well considered."

There were 34,000 lbs. of 16-oz. lead-coated Revere copper (Leadtex 15) used in the form of horizontal and vertical batten and standing seam, flat seam and Bermuda style.

The very variety alone of the seams used on this roof attests to the freedom you have when you design with copper in mind.

Send today for free copy of the 88-page brochure, "The Application of Copper and Common Sense" and companion piece, "The 4 Revere Improved Systems of Easy-to-Install Flashings," for complete weather-proofing of masonry buildings.



feature that attracts architects to

REVERE

COPPER

OTHERS ARE:

1. Its enduring quality. The original copper roof on historical Christ Church, Philadelphia, Pa., was recently replaced with Revere copper after more than 150 years. The Revere copper installed on the cupola of the New North Church Boston (now St. Stevens) was replaced in 1965 with Revere copper after 161 years.

2. Its natural patina of age, or the popular bronze tones accomplished by oiling.

3. Its low cost. When properly designed and installed, copper is rated as the lowest cost per year of actual service of all roofing and flashing materials.

4. Its workability into any desired shape and form with easy-to-solder joints.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

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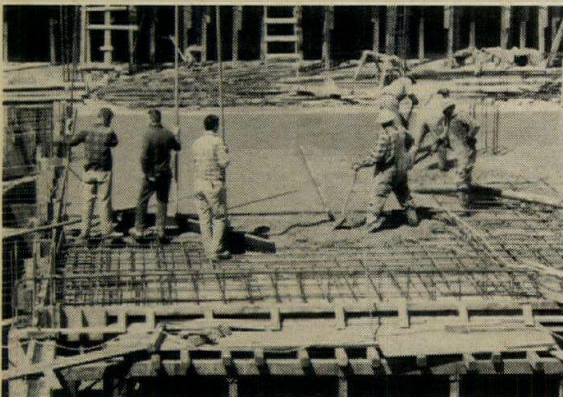
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HALLMARK CARDS, INC. Kansas City Headquarters:



PARLON® CONCRETE-CURING COMPOUND MAKES NEW WING WALKABLE IN 24 HOURS



After concrete was laid and troweled at Hallmark Cards' addition to Kansas City headquarters, the Parlon chlorinated rubber compound quickly cured, hardened, sealed, and dustproofed the 800,000 square foot area—which included a parking ramp. In addition, the single, tough coating protects against freeze-thaw cycles, traffic, salts, petroleum products, most acids, alkalis, and water. Applied by a low-pressure spraying unit, the Parlon compound also permitted tile to be laid over much of the area without special surface preparation.

When adding 1,000,000 square feet recently to its headquarters in Kansas City, Mo., Hallmark Cards had many reasons for wanting to move into its latest addition quickly. By specifying a Parlon-based concrete-curing compound that cures, seals, and dustproofs in a single application—yet keeps needed moisture in the concrete—access across the concrete pour to the new wing was possible in 24 hours. Some 800,000 square feet of wet cement were sprayed with Parlon during the winter months, when—as the contractor said—"you just didn't work."

But concrete was poured, even pumped to upper floors, and the quick-drying Parlon compound worked despite the weather. Cleanup time, the contractor claimed, was cut to one-third that required with burlap, straw, plastic film, and other systems. And drying time with Parlon chlorinated rubber was less than 30 minutes. Chlorinated rubber concrete-curing compounds conform to the requirements of Federal specification TT-C-00800.

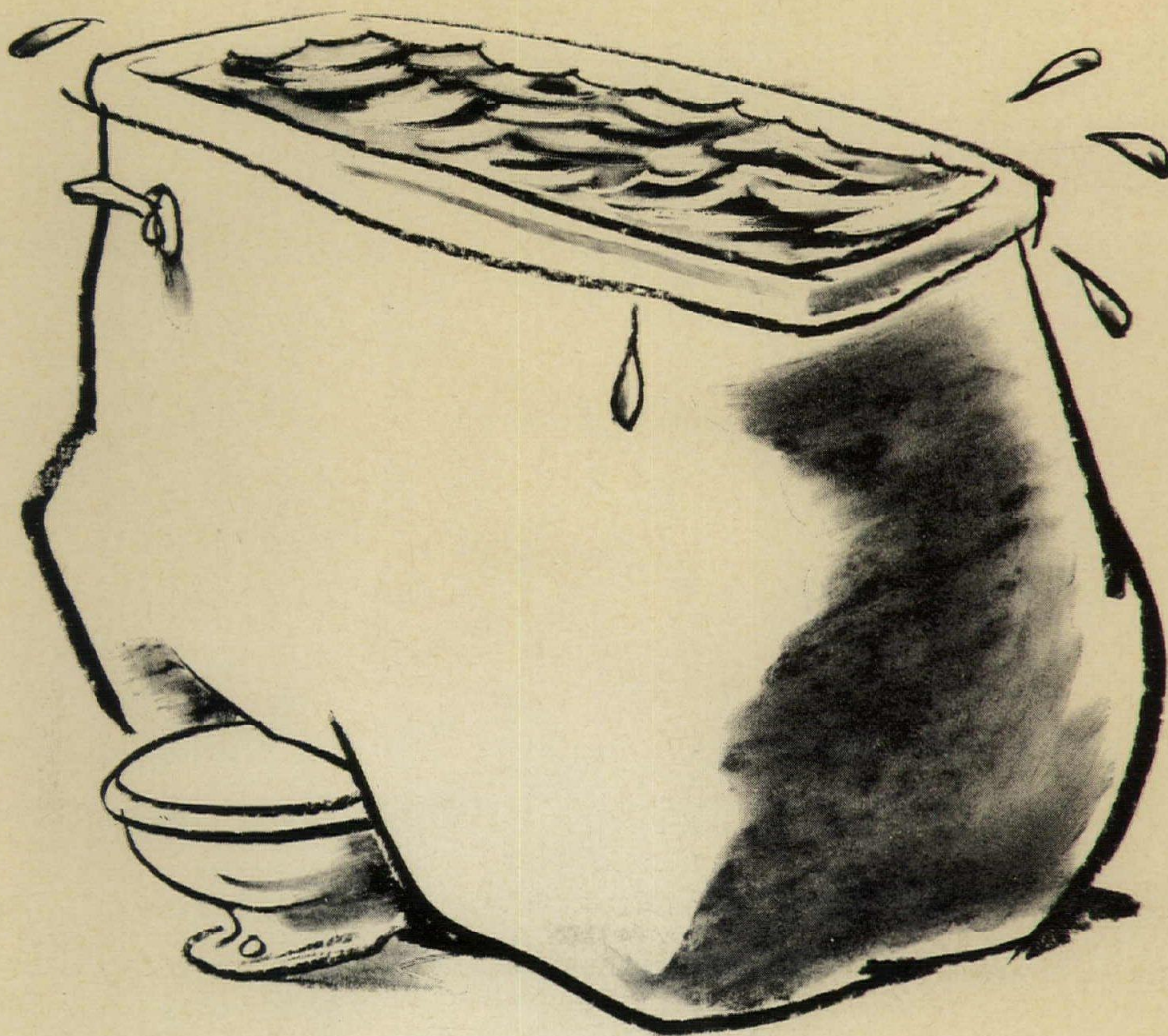
For further information about Parlon curing compounds for all types of internal and exterior concrete surfaces, and names of suppliers, write: Polymers Department, Hercules Incorporated, Wilmington, Delaware 19899.



QR68-5

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New water saver toilet uses 1/3 less water!

The average family of 4 uses approximately 881 gallons of water each week...just to flush the toilet.*

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It's the answer to a serious problem in drought areas, water shortage areas or wherever water is expensive. And the Water Saver toilet can be installed anywhere. In hotels, motels, schools, hospitals, service stations, garden apartments, new homes, remodeling jobs—wherever

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ease access,**

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For your next building, consider using metal walls. Why? Because they go up faster (10 times faster than brick or stone), provide easy access for installation of new equipment or repair of old, save time and money!

What about color? No problem when using finishes containing Kynar 500*! They come in a wide selection of colors. They're durable. Accelerated tests by Pennsalt,

plus years of exposure data, project 30 years of maintenance-free life!

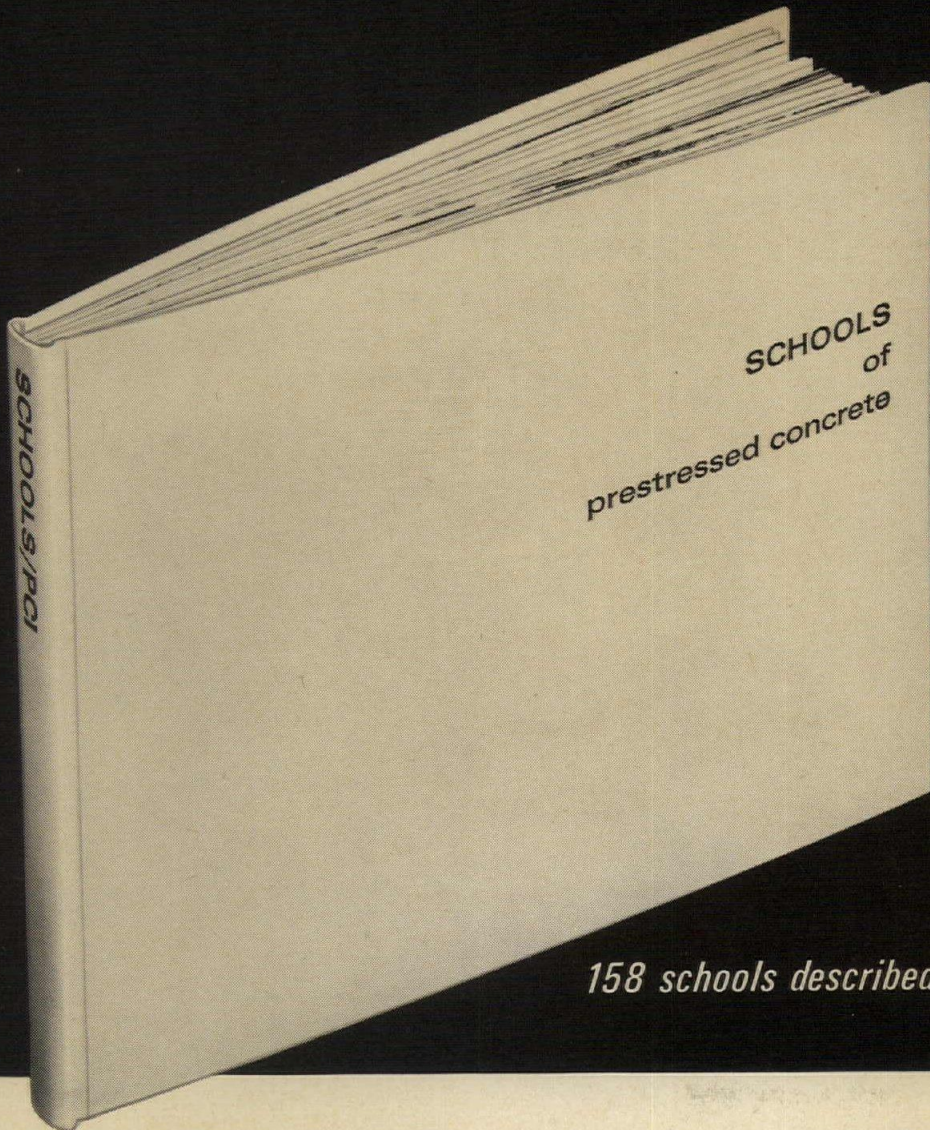
For your next building, consider metal walls protected with a colorful finish containing Kynar 500. For more information, contact Plastics Department, Pennsalt Chemicals Corporation, 3 Penn Center, Philadelphia, Pa. 19102, (215) LO 4-4700.

*Kynar 500 is a registered trademark of Pennsalt Chemicals Corporation

Make your base specification Kynar 500!



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it's new and
it's needed
for school
planning
and design

158 schools described — 341 photos and drawings

Make the most of this Free Trial Offer from the Prestressed Concrete Institute. Here, in this newest PCI publication, is a wealth of worthwhile information, unattainable anywhere else. *Schools of Prestressed Concrete* is addressed to the architect, engineer, school administrator, contractor, and schoolboard member. In fact, to all who are concerned with the planning, design, construction, and financing of educational institutions.

More than 150 schools of widely varying concept and size throughout the U. S. and Canada are presented. Included are elementary schools, high schools, and universities. Functional areas covered are classrooms, libraries, information centers, auditoriums, cafeterias, gymnasiums, natatoriums, and stadiums. All demonstrate creative uses of prestressed concrete.

The detailed section on construction techniques has ready application to all types of structures using prestressed concrete. Virtually every kind of precast concrete component is represented.

The development of prestressed concrete in Europe and the U. S. is traced. A prestressed concrete bibliography is included. So are recent public and private expenditures for educational construction.

Schools of Prestressed Concrete contains 245 photographs, 96 line or wash renderings, 156 pages, and is 8 1/2" x 11" in size. Price: \$10 per copy, U. S. Funds. Mail the coupon, now.

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- The community's role
- Architect's and engineer's roles
- Building procedure
- Minimum site sizes
- Classic school plans
- Planning considerations
- Areas of responsibility
- Prestressed concrete's advantages

DESIGNING THE SCHOOL

- The problem
- School Construction Systems Development
- Fire resistance
- Case study of costs
- The learning center
- Gymnasiums
- Dormitories
- Natatoriums

CONSTRUCTING THE SCHOOL

- The building team
- Span table, standard members
- Post-tensioned slabs
- Standard members as wall panels
- Panel connections
- Jointing materials
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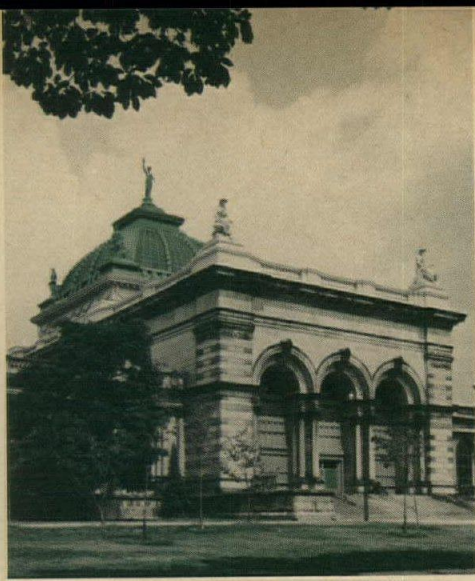
... the glistening stainless steel sink with decorator faucet deck of silver mist Super-Ceram! Here is sink elegance in smart contemporary styling that flatters any interior . . . never clashes with the color scheme. Won't chip, crack, or stain. Requires only occasional cleansing. Wide selection of models. Model illustrated has burn-proof, mar-proof drainboards. Write for free literature.

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Memorial Hall in Philadelphia, erected for the 1876 Centennial Exposition. The statue of "Columbia" at the dome top, the dome's supporting members and the statuary groups at the corners of the building were all coated with PLY-LASTIC.

The monument
that posed
a problem...

and how

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How to cope with almost a century of deterioration! That was the problem faced by architects Hatfield, Martin & White when they were awarded the responsibility for restoring the statues and dome atop Philadelphia's Memorial Hall.

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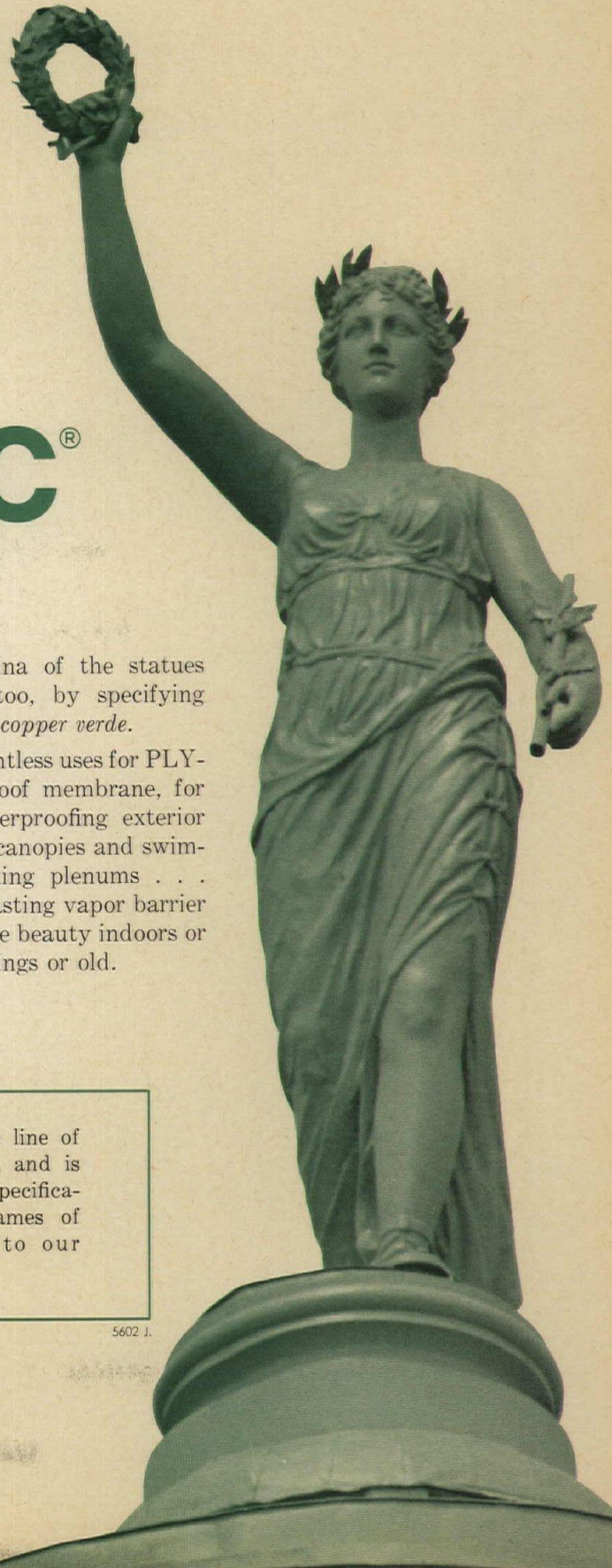
PLY-LASTIC is one of a complete line of architectural coatings from M.A.B, and is available in decorative colors. For specifications, technical assistance, and names of franchised applicators, write to our Architectural Division.

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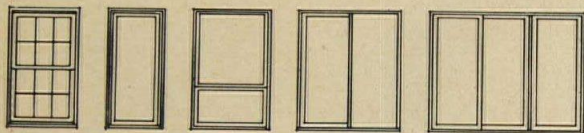
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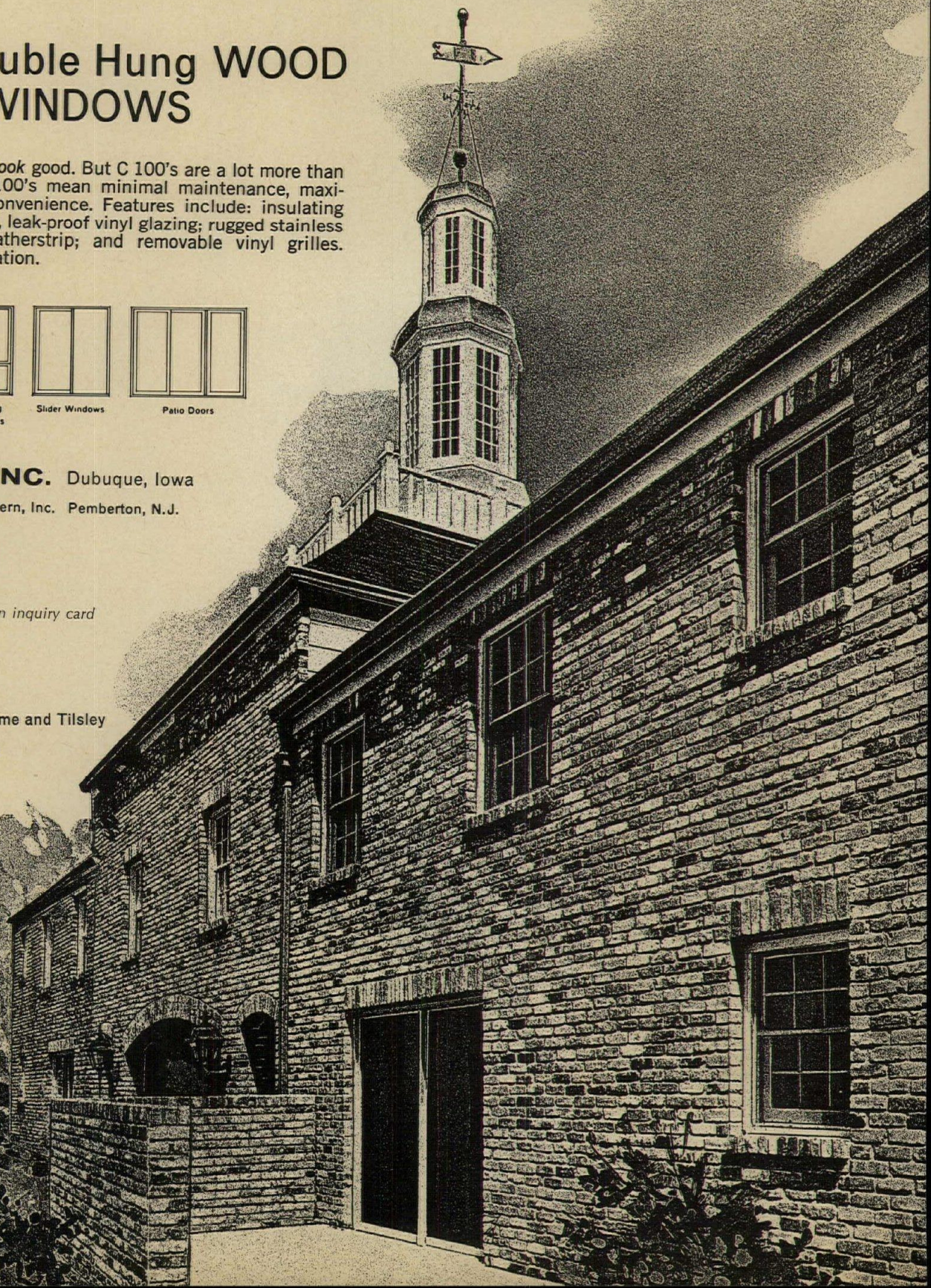
MEMBER



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Architect: Pansiera, Dohme and Tilsley

Builder: Town Properties





New, Superstrong Moistop-2 Makes Sure Moisture Migration Never Damages The Floor

It's what goes **under** the floor that counts! Moisture migration through the slab plays havoc with floors as well as the most beautiful floor covering. Not to mention complaints, call backs and repairs. That's why **before** you start thinking about floor covering, think first about a **tough** enough vapor barrier. Specify and then insist on **Moistop®-2**.

Moistop-2 . . . the 5-ply vapor barrier that keeps out moisture because job-site abuse won't rip and tear it like plastic film. Moistop-2's strength comes from two plies of polyethylene film, plus glass-fiber reinforcement, asphalt and high-strength kraft. It has a permanent MVT rating of 0.10 perms. **Be sure** . . . send for Moistop-2 sample and Specification Guide. Write: Sisalkraft, 73 Starkey Avenue, Attleboro, Massachusetts. In Canada: Domtar Construction Materials Ltd.

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THE COOL ROOF

**Ruberoid® T/NA 200 roofing membrane
with DuPont's Tedlar* reduces air conditioning costs
by reducing heat load requirements.**

Ruberoid T/NA 200 is more than a roofing membrane. It's a reflector.

It reflects the sun's rays so the heat stays out of your building and the air conditioning costs stay down.

GAF engineering reports indicate that according to the size of your building, the costs may well go down anywhere from \$3,000 to \$120,000 or more on your initial investment and ranging from \$75 to \$1,250 or more on your yearly operating costs.

No other roofing surface can provide comparable benefits.

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Write today for your copy of the
AIR CONDITIONING REPORT.

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Building Products

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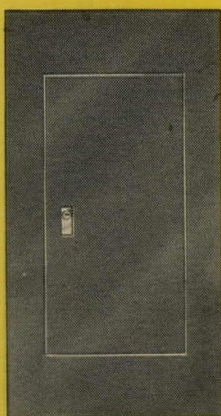
NQO--the world's best panelboard-- NOW available with **Visi-Trip**

Nowhere else can you get all the quality features that are standard equipment on NQO lighting panelboards.

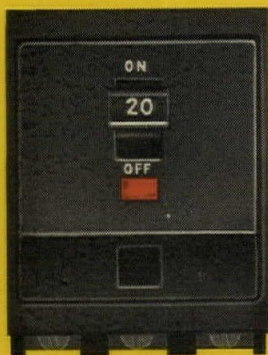
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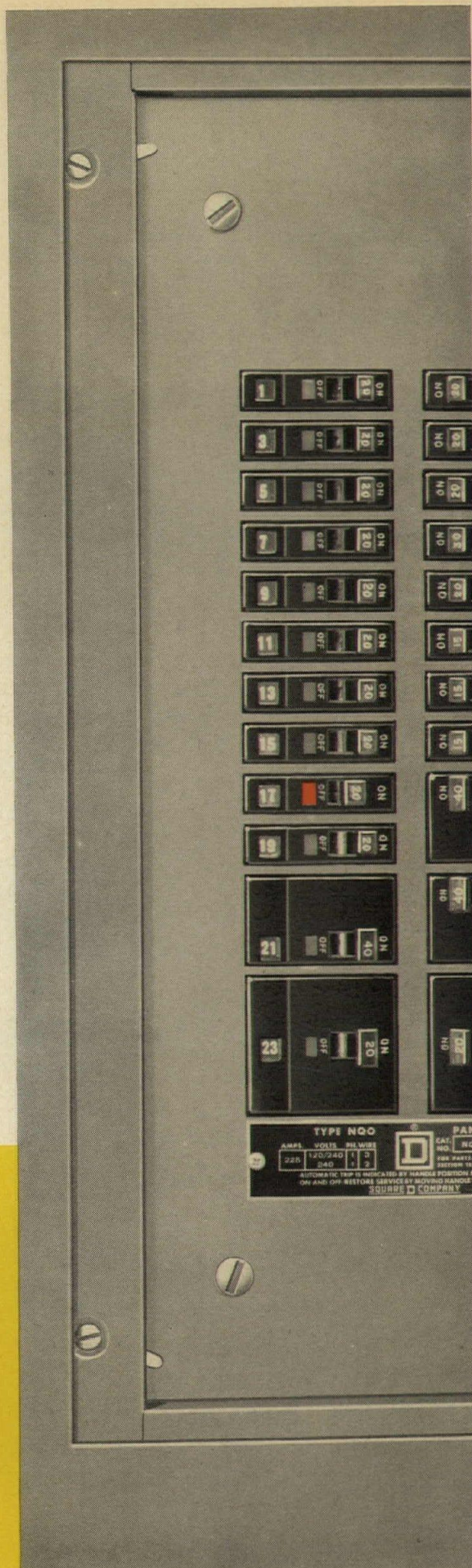
Square D has everything you need in lighting panelboards. Get complete details from your Square D distributor. Or write Square D Company, Dept. SA, Lexington, Kentucky 40505.



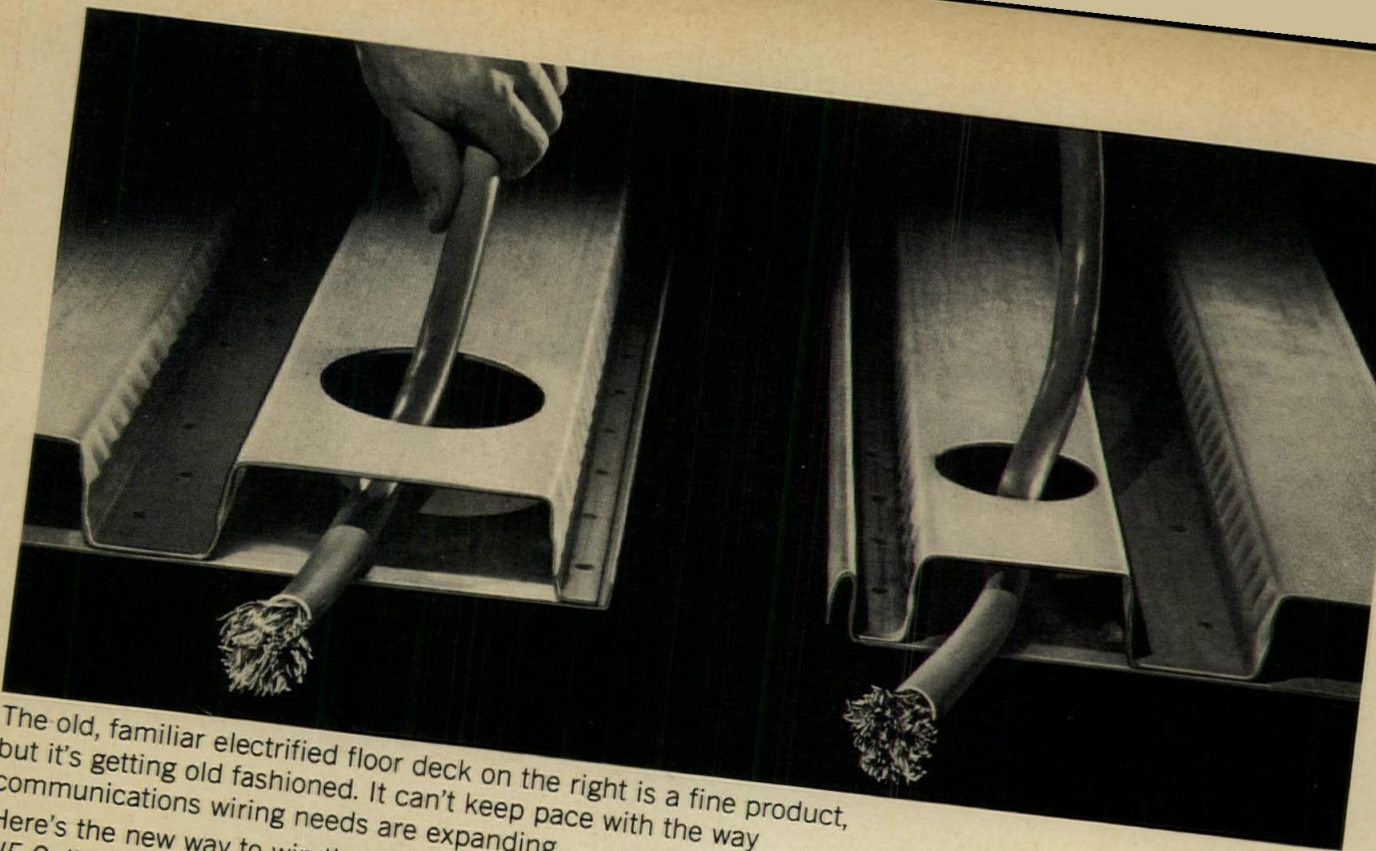
Exclusive Mono-flat trim has concealed hinges and flush lock



Exclusive 3-pole QO breaker in tripped position



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The old, familiar electrified floor deck on the right is a fine product, but it's getting old fashioned. It can't keep pace with the way communications wiring needs are expanding.

Here's the new way to win the electrification space race: *Inland 1 5/8" NF Cellufloor*. It actually offers over 66% more space per cell, yet it can be blended with any standard Inland 1 1/2" deck. And wide-cell floor deck is easier to work with; its greater width permits wider (4") hand-holes that more easily accept large diameter telephone cables.

Our 1 5/8" NF Cellufloor also has Hi-Bond® lugs for greater bond with the concrete, and it is designed for use in composite construction.

Ask your Inland sales engineer to demonstrate the increased capacity of 1 5/8" NF Cellufloor. Write for our complete floor systems catalog 270. Inland-Ryerson Construction Products Co., Dept. J, 4033 West Burnham Street, Milwaukee, Wisconsin 53201.

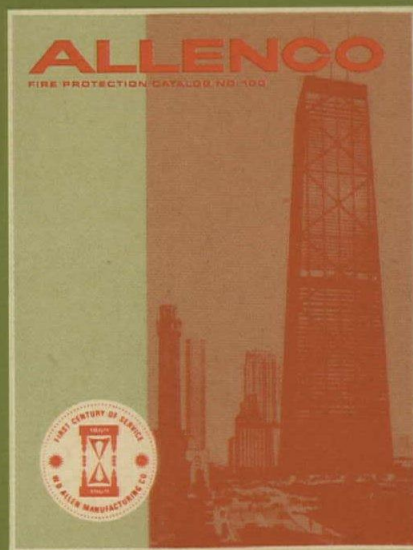
1 5/8" NF Cellufloor has 66% larger cavities.

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fabricating, reinforcing steel and
post tensioning divisions of
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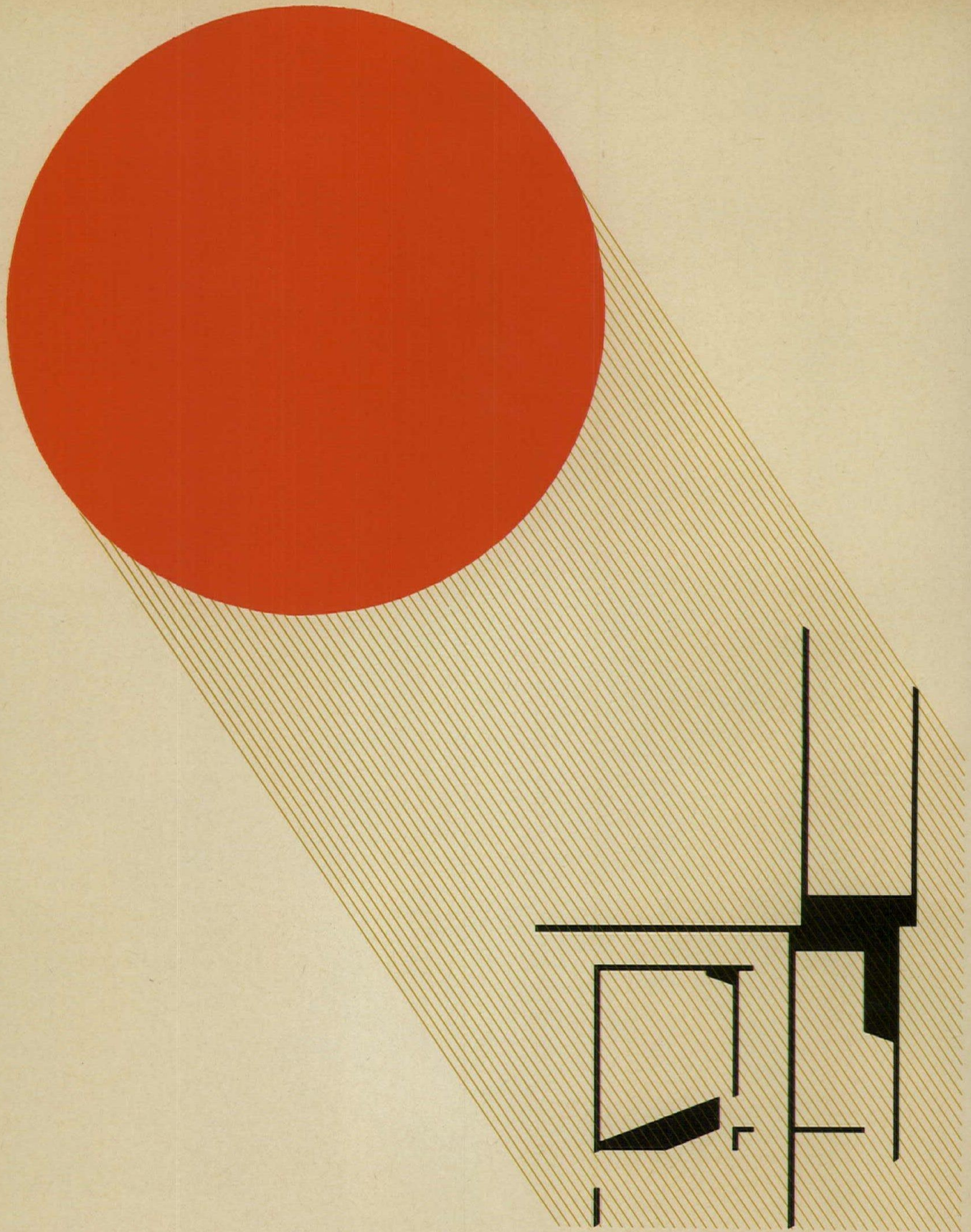
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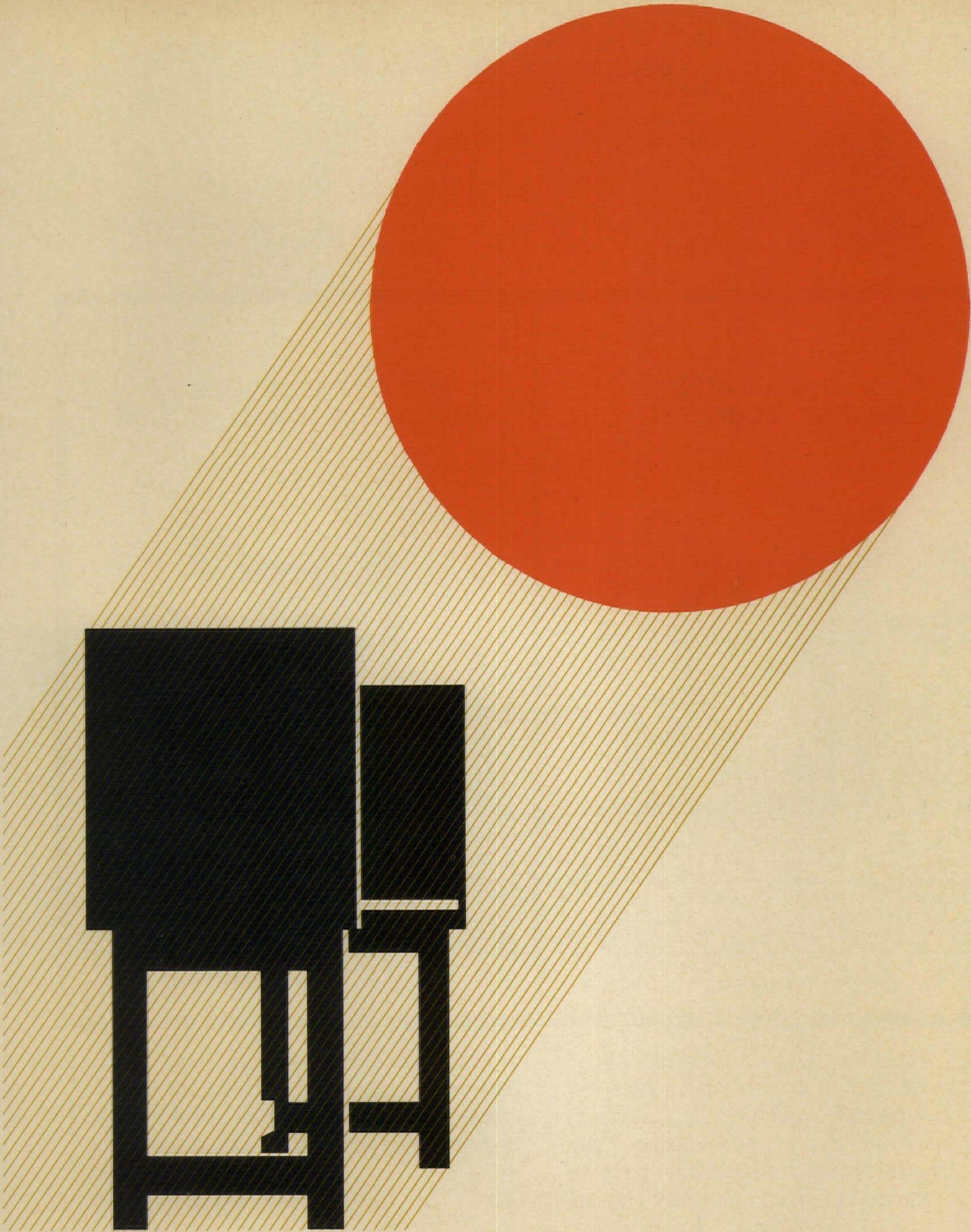
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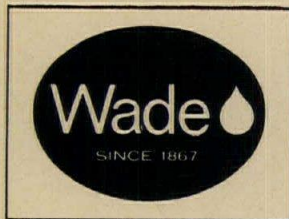
material is used to reduce surface contrast between desktop and printed material. And all writing surfaces have been lowered to 28 inches. Any number of color-coordinated materials can be used to provide the architect, interior designer or librarian with an infinite variety of individualized schemes. For instance, chair upholstery, insert panels for the carrels, wood tones, and optional accent colors can be matched to the draperies or carpeting. For more information on the Tektonic 100 group: carrels, tables, card catalogs, and technical equipment, contact Library Bureau.

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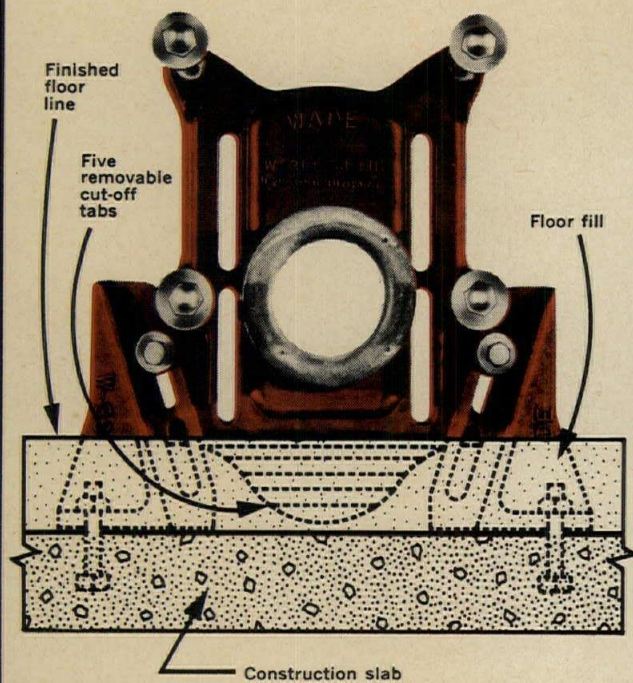
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WADE SYPHON JET CARRIERS...

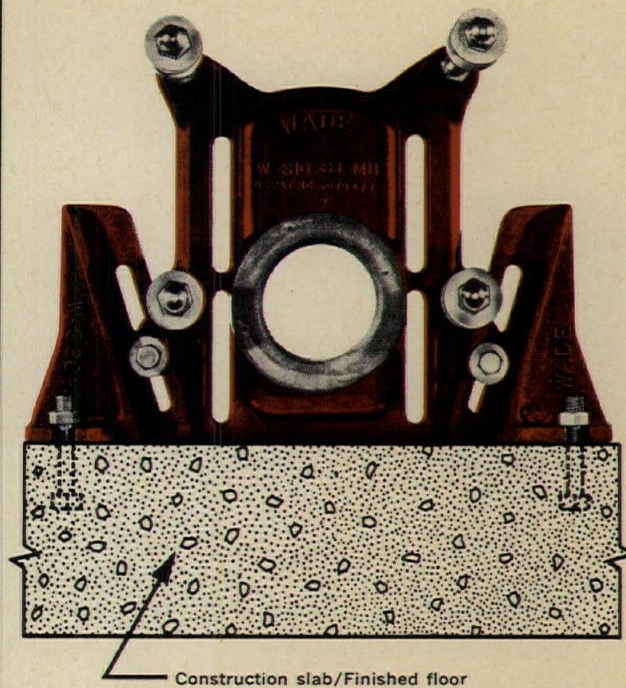


adjust to fit ALL water closet rough-in heights and ANY floor-fill thickness

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How? Removable cut-off tabs on all Wade siphon jet face plates allow for variations in rough-in dimensions of bowls. This eliminates recessing or cutting the slab to provide proper pitch for batteries of closets. The new and im-

proved Wade Carrier Fittings incorporate many time-saving features... for more details, ask for Wade Carrier Fittings Catalog number 712.

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Bright idea



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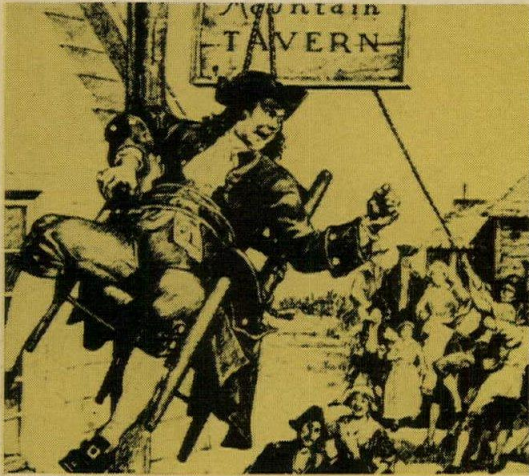
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TenMain Center Office Building and Parking Facility, Kansas City, Mo.
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Charles Luckman Associates, architects/Marshall & Brown,
associate architects/Howard, Needles, Tammen & Bergendoff,
engineers/Winn-Senter Construction Company, general
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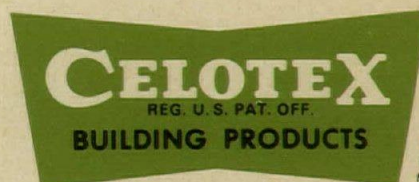
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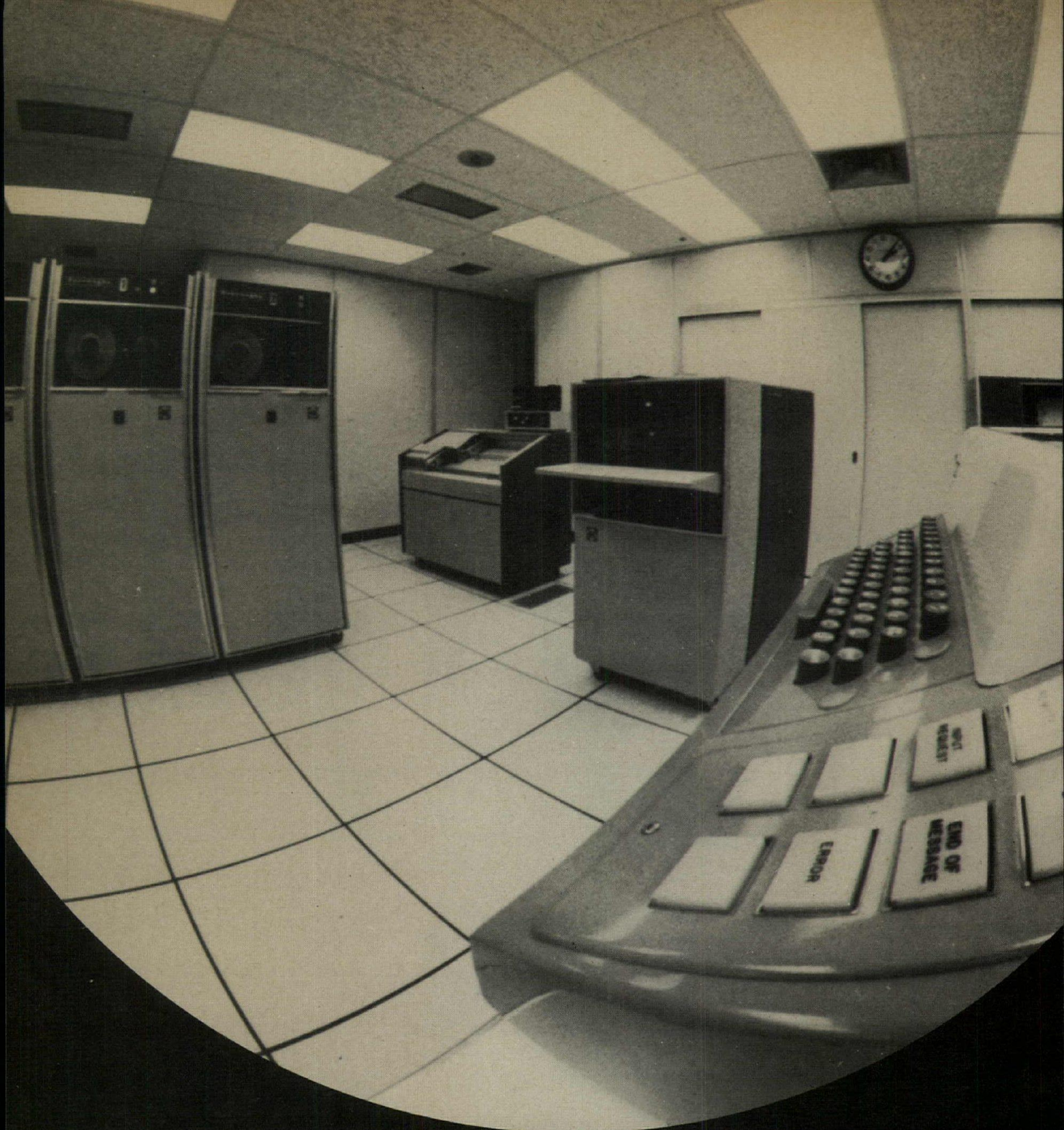
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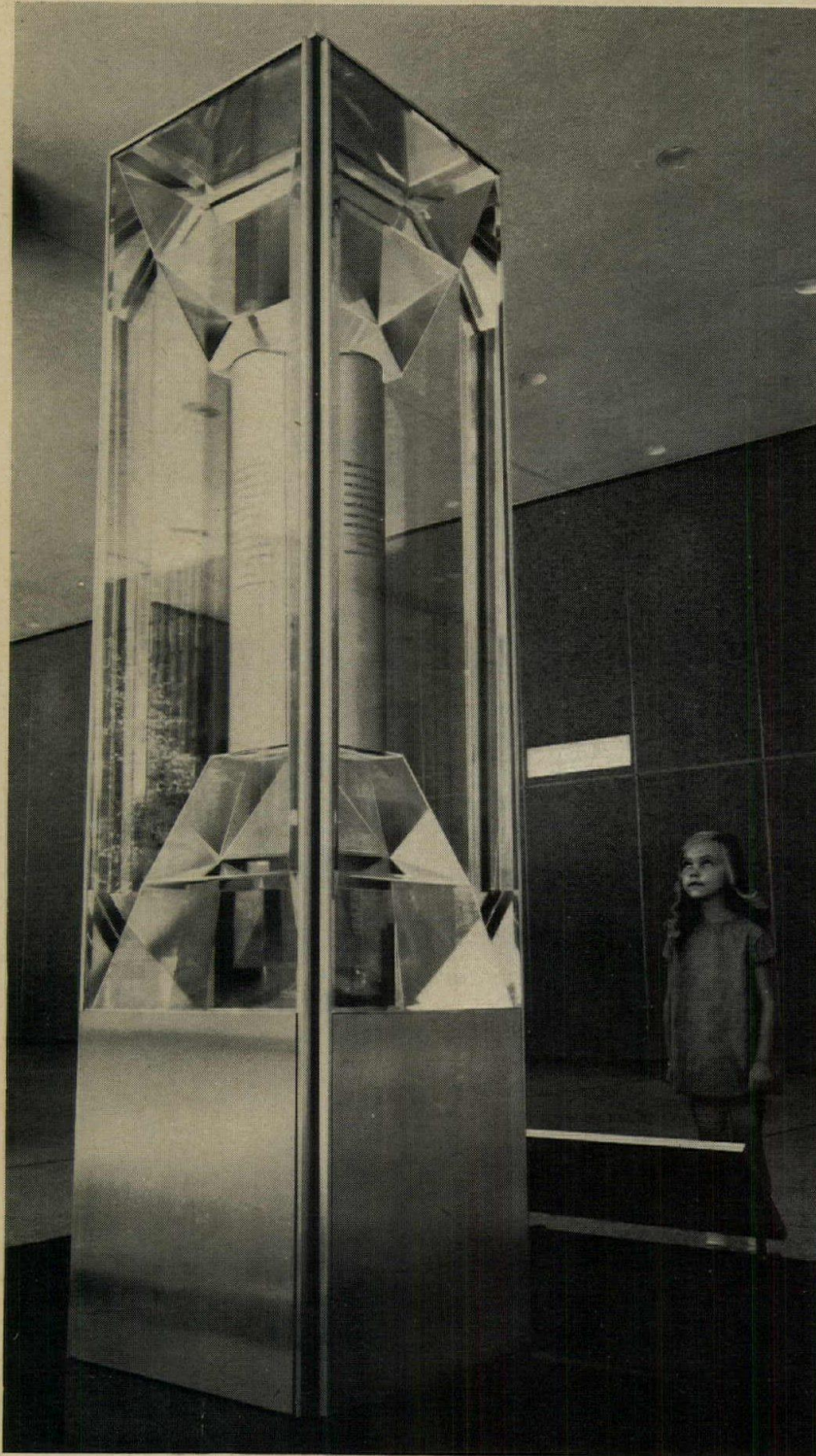
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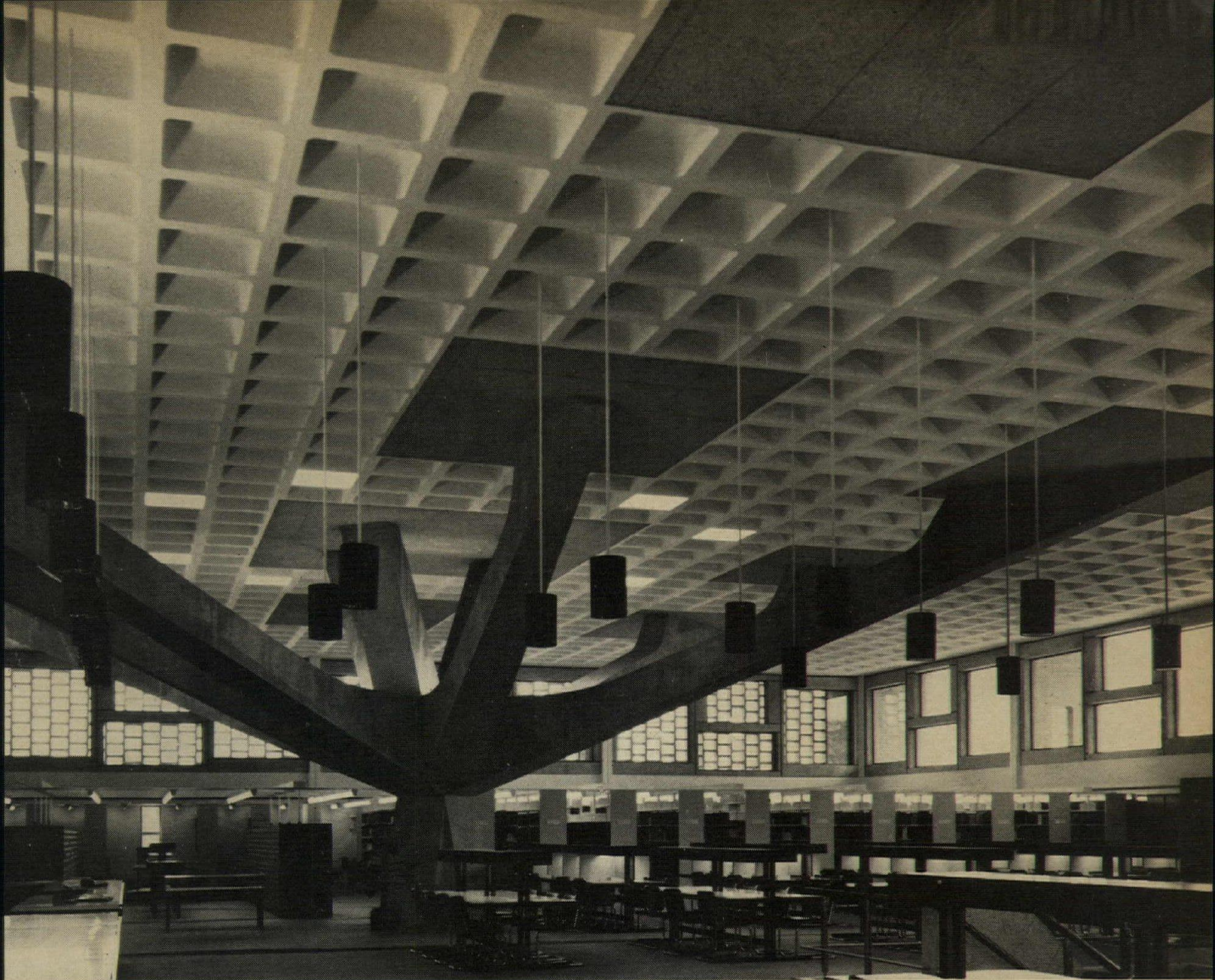
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Marcel Breuer & Associates, architects
Johnston-Sahlman Company, structural engineers
Gunnar I. Johnson & Son, Inc., contractors
Ceco Steeldome Service for waffle-pattern
monolithic concrete joist construction

Find aesthetic repetition in Ceco's Standard Steeldome Floor-Forming experience

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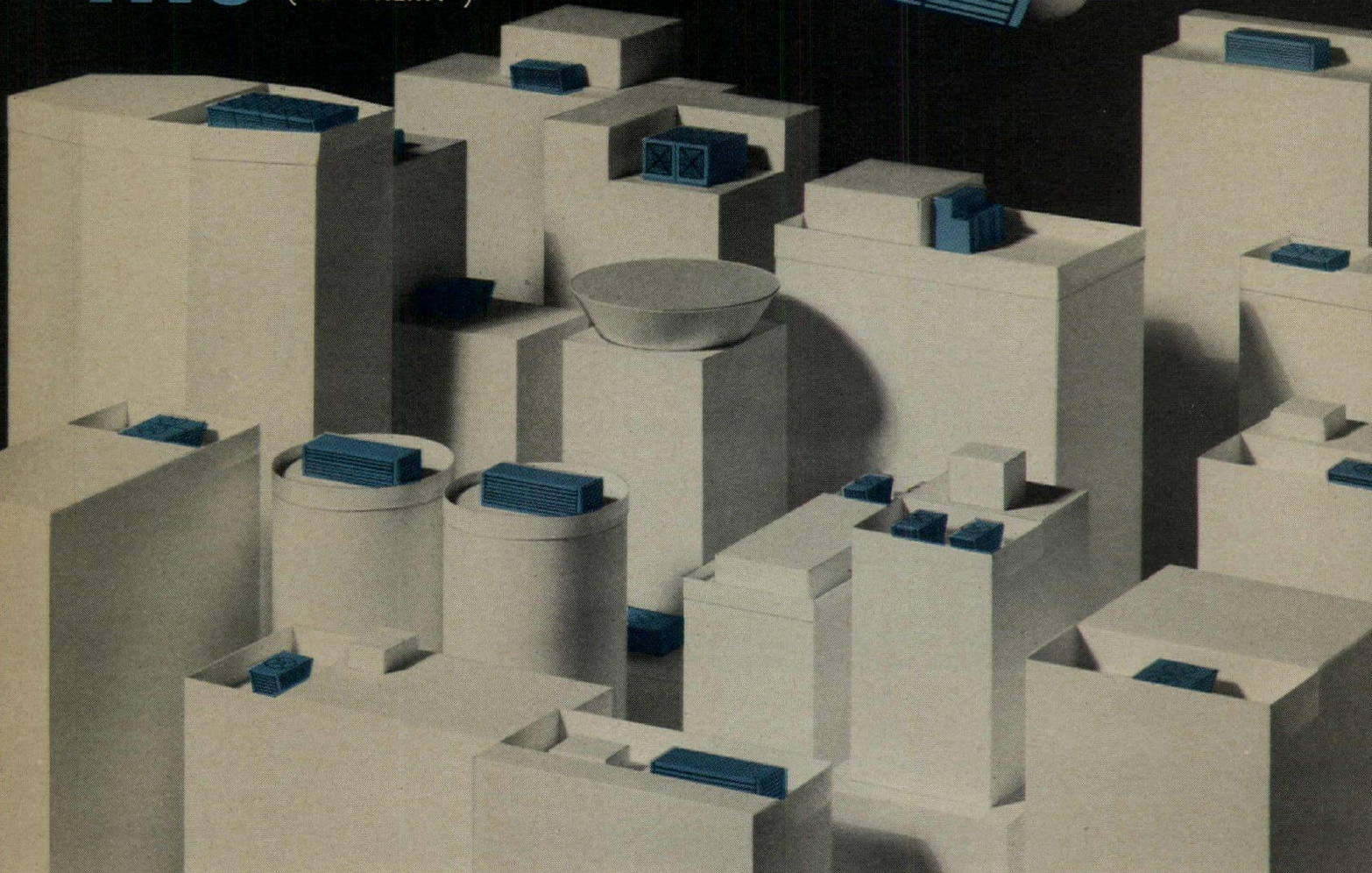
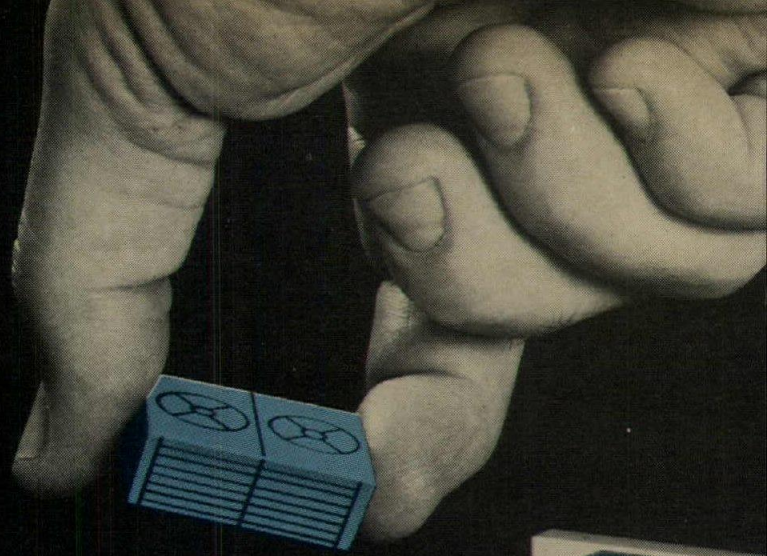


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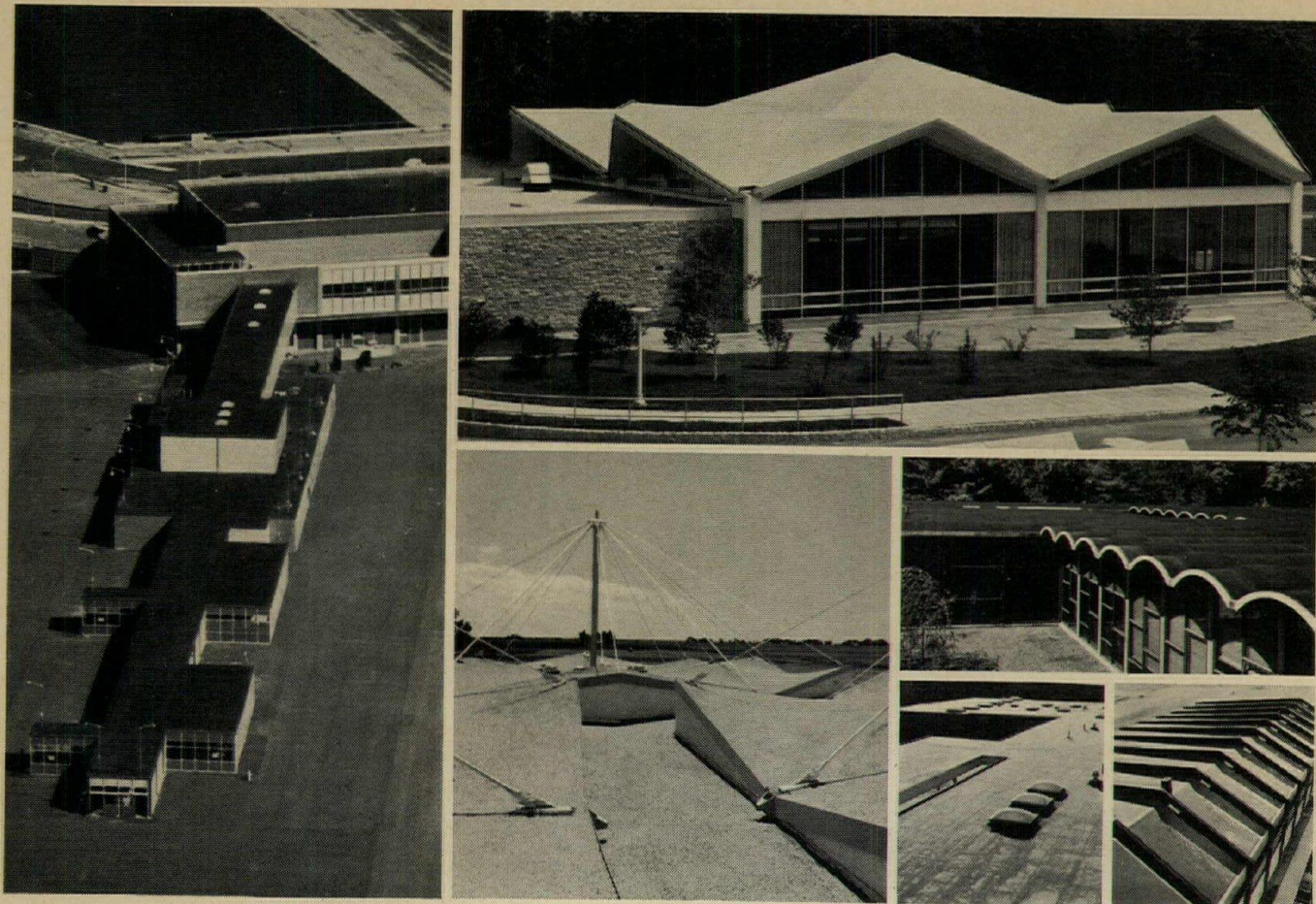
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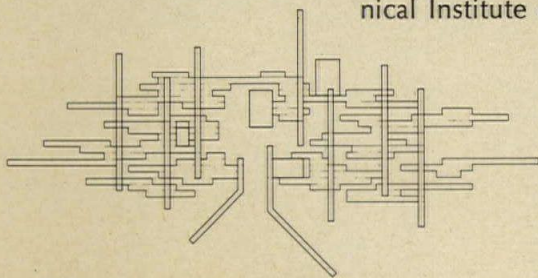
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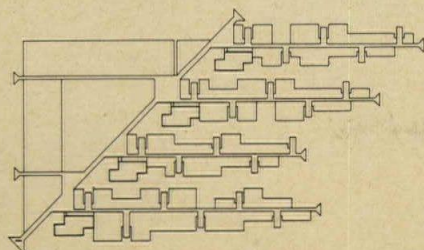
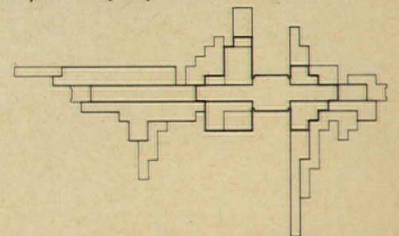


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DESIGNED FOR MOBILITY, BOTH SOCIAL AND PHYSICAL: THREE COLLEGES BY GUNNAR BIRKERTS

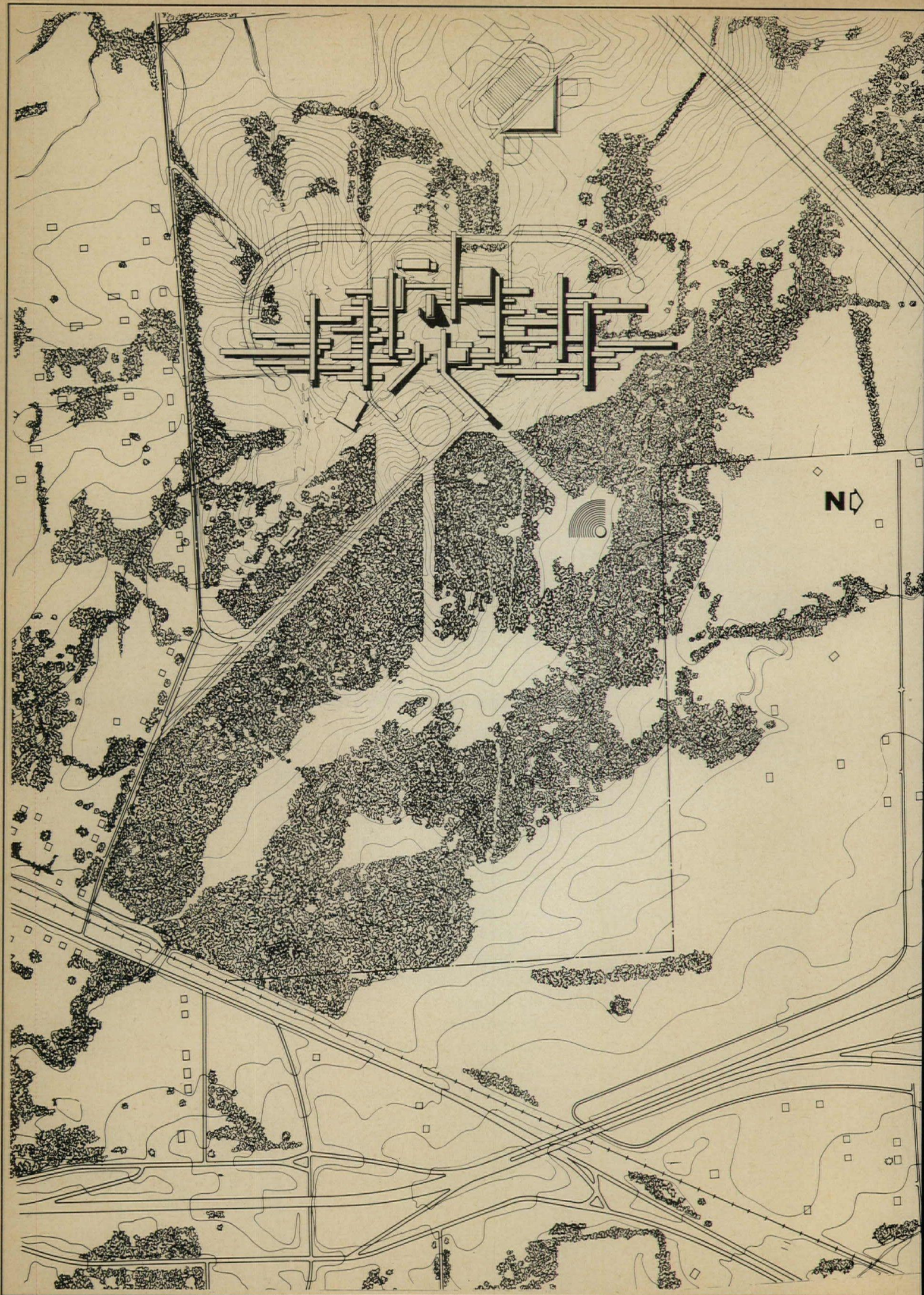


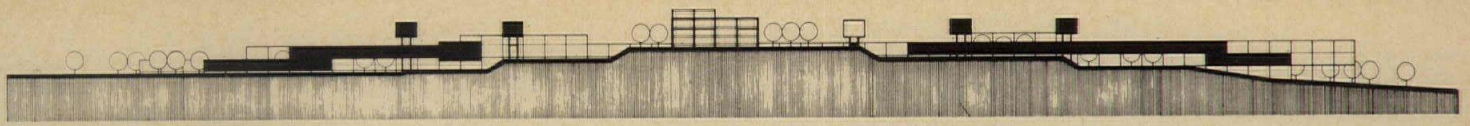
Tougaloo College, Glen Oaks Community College and the Vocational Technical Institute of Southern Illinois University all possess in common several important characteristics which typify architect Birkerts' approach to large-scale design. Each college can expand almost indefinitely—to accommodate unpredictable needs—within its essential architectural framework. All three are technologically advanced in their structure, and one, Glen Oaks, can be taken down and re-erected elsewhere. The colleges are all in rural settings, yet each is dense, tightly knit and urban in quality. Each is essentially a small city—with the attributes of a medieval town—where the functions of eating, sleeping, study and play tend to be zoned vertically rather than horizontally and are thus interwoven rather than separate, providing wide opportunity for varied human relationships. Distances to be covered are shorter, and campus spaces are small-scaled and intimate. From a distance, how-



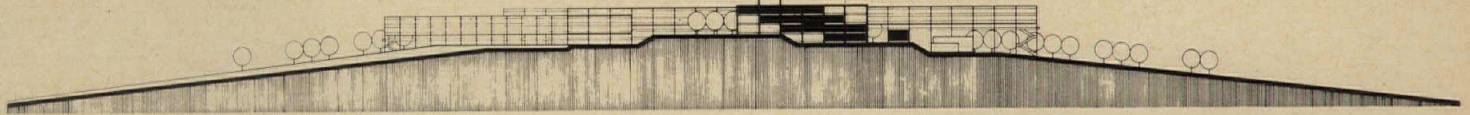
ever, each campus presents a bold and memorable image. Birkerts points out that for a majority of the students in all three colleges, the campus is a way station from a simple rural life to the urban environment into which their careers will take them. In his hands these way stations are becoming models of city life as it should be.

—Mildred F. Schmertz





SECTION: NORTH-SOUTH AXIS



SECTION: EAST-WEST AXIS

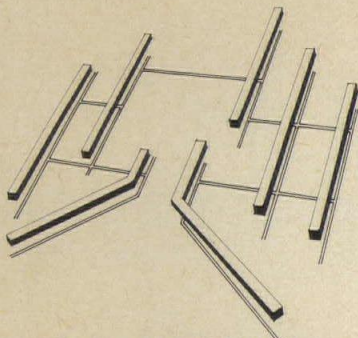
TOUGALOO

This century-old Negro college near Jackson, Mississippi plans to expand from its present small enrollment of a few hundred students to a student body of 1250 students which will soon grow to 2500 and then expand indefinitely. Because the present campus (shown at top right) is badly deteriorated, a major program of new construction is planned. The Cummins Foundation engaged Birkerts to develop building prototypes within a master plan which would permit a flexible growth process.

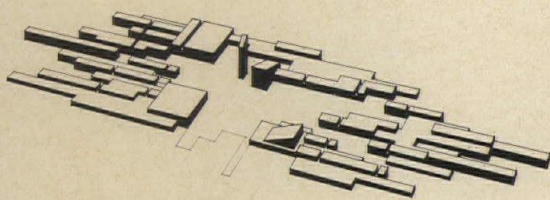
Birkerts chose to develop a high-density, tightly-knit urban framework that can expand in any direction. As the site plan (opposite page) and the diagrams (left) indicate, the campus is zoned in three layers that follow the slope of the hill. Roads and parking comprise the lowest layer, following the contours at the base of the hill and passing under the academic and dormitory structures which are supported on bell-bottomed piles because of soil conditions. The middle layer contains the academic matrix, plazas and other pedestrian paths. The top layer of dormitories ride across the roof-tops of the academic matrix. Just below each dormitory floor and parallel to it is a suspended and open pedestrian passageway (see drawings overleaf) connecting, by means of roof-top paths, to the academic and social areas below. Since these major campus elements are stacked vertically in a close web, walking distances are quite short and a high degree of interaction among the students and faculty can take place. The dormitories in their roof-top position are still remote enough, however, to permit necessary individual privacy. For the campus pedestrian, the open spaces will be small and hospitable. As seen from the highways, however, Tougaloo's interpenetrating planes as arranged on the slopes of the hill will combine to form a boldly scaled image.

TOUGALOO COLLEGE, Tougaloo, Mississippi.
 Architects: Gunnar Birkerts and Associates—
 John D. Hilberry, associate-in-charge; structural
 engineers: Robert M. Darvas and Associates;
 mechanical and electrical engineers: Hoyem,
 Basso, Adams and Martin, Inc.

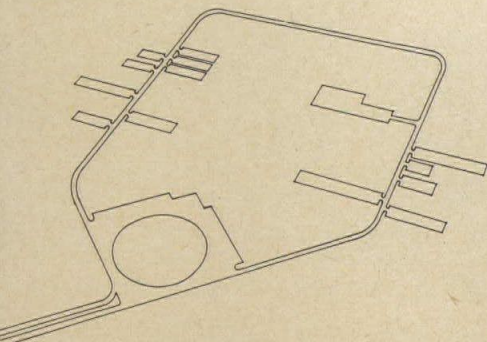
THE THREE LAYERS OF THE SYSTEM



TOP LAYER: DORMITORY BUILDINGS AND UPPER LEVEL CIRCULATION

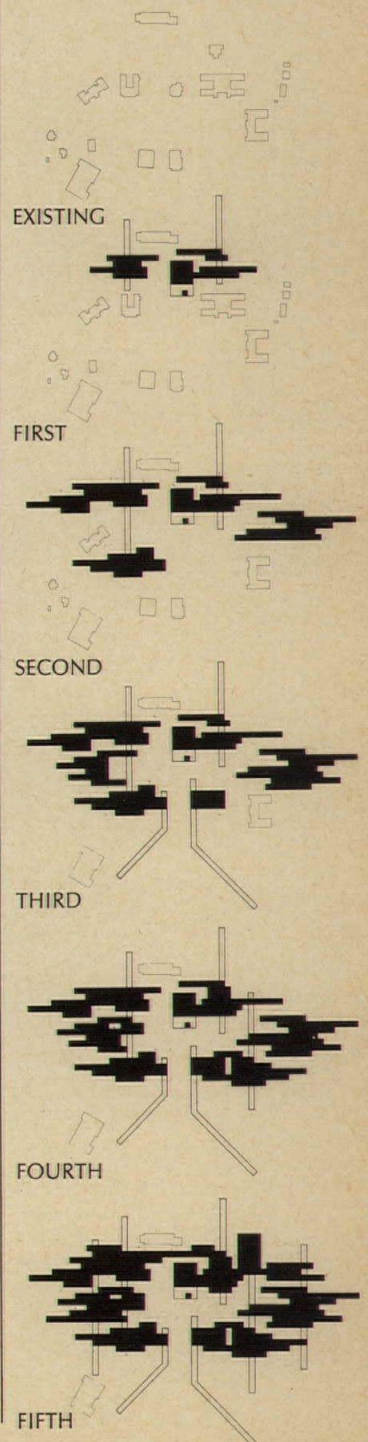


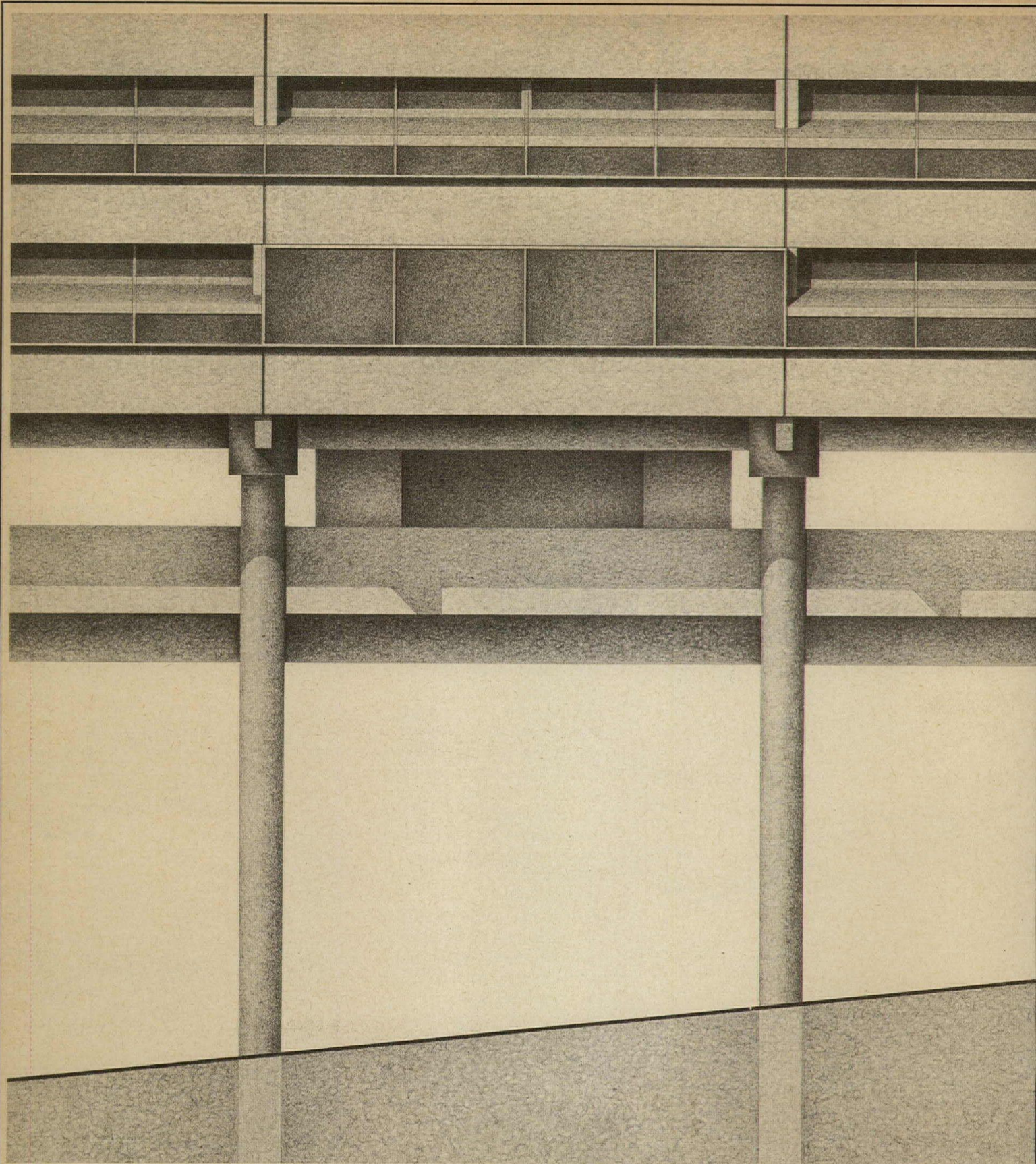
MIDDLE LAYER: ACADEMIC FACILITIES AND PEDESTRIAN CIRCULATION



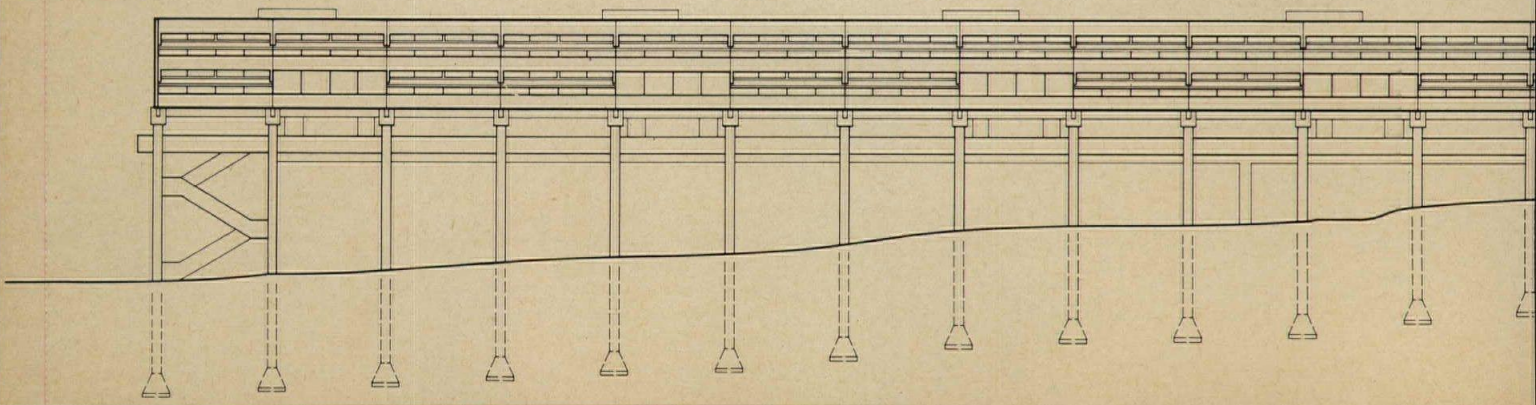
GROUND LAYER: ROADS AND PARKING

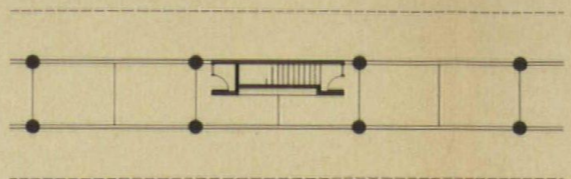
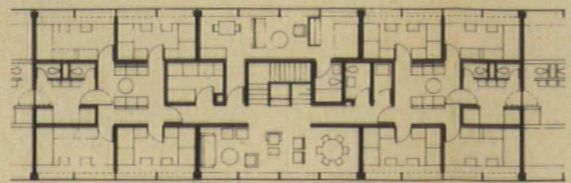
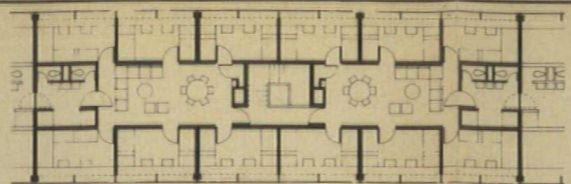
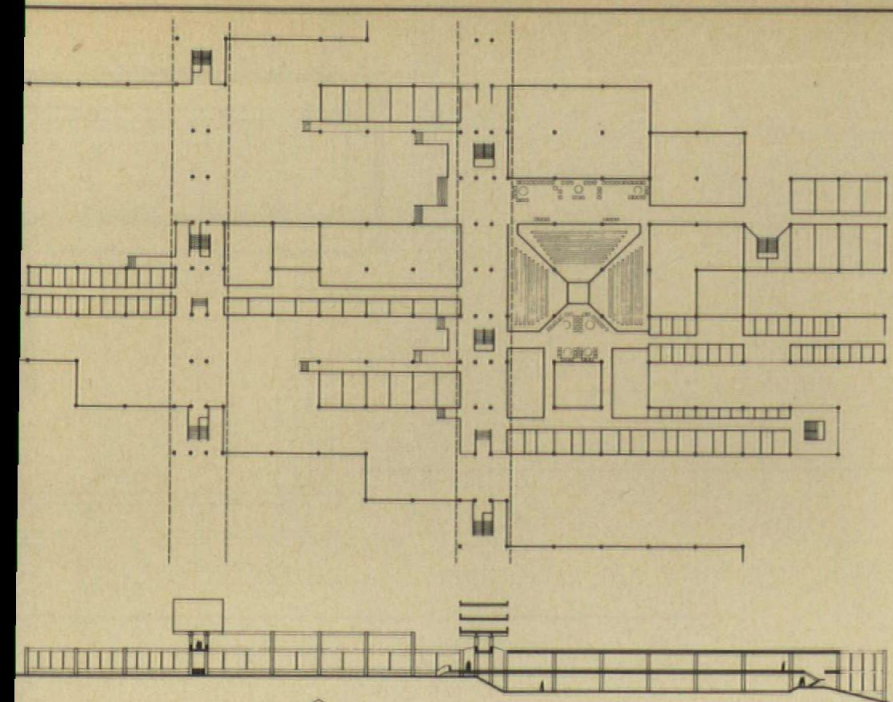
THE STAGES OF CONSTRUCTION



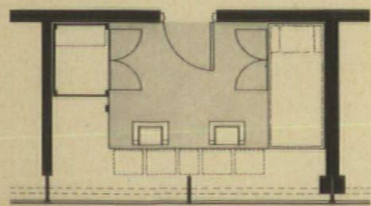
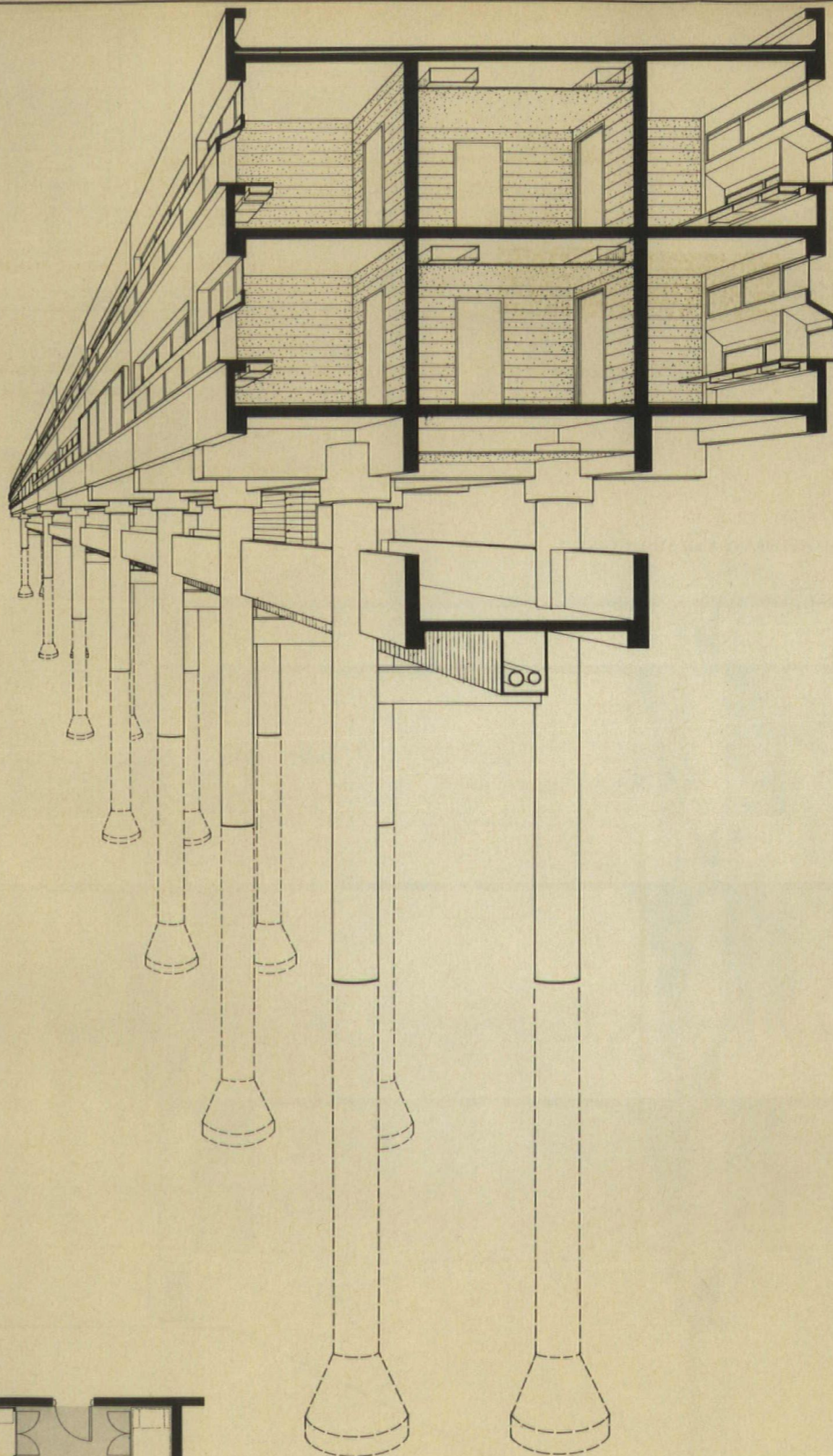
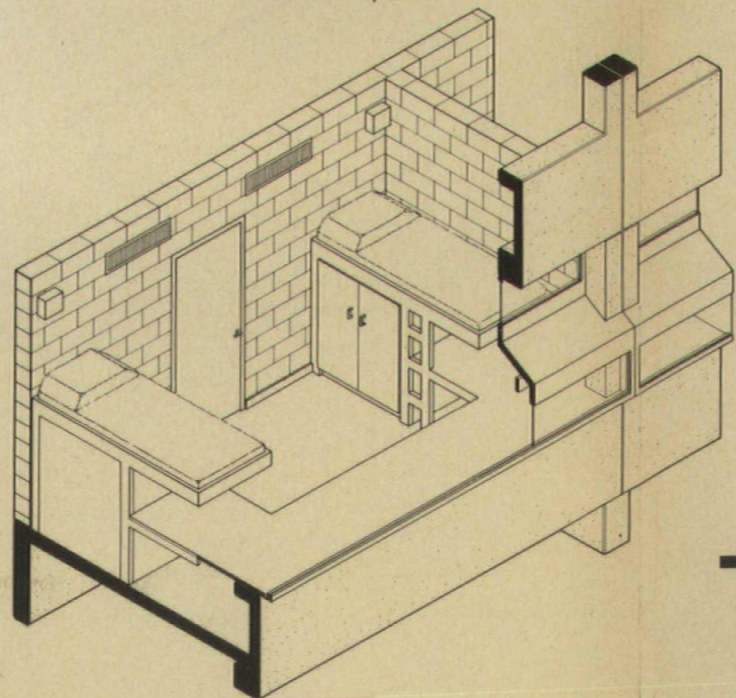
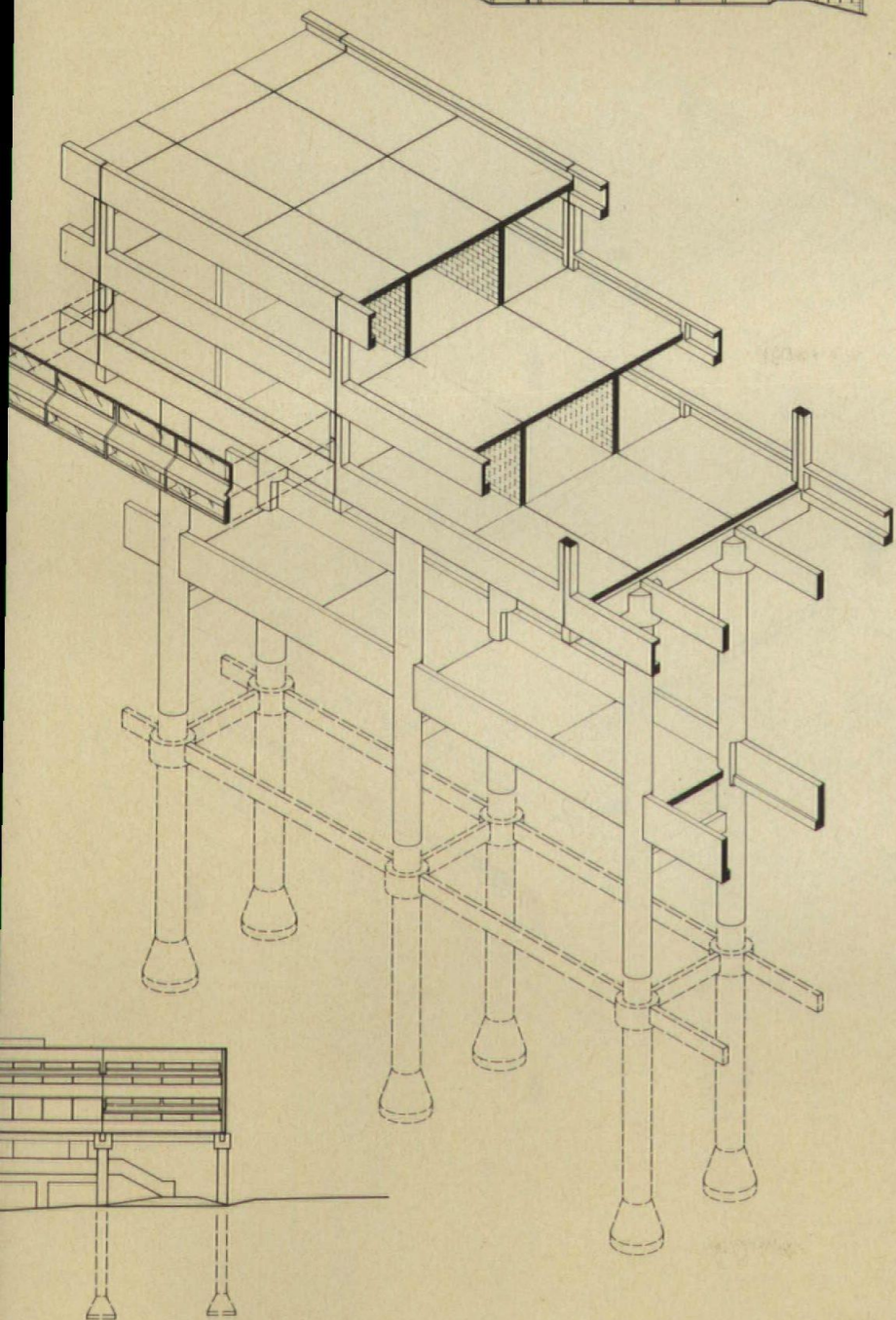


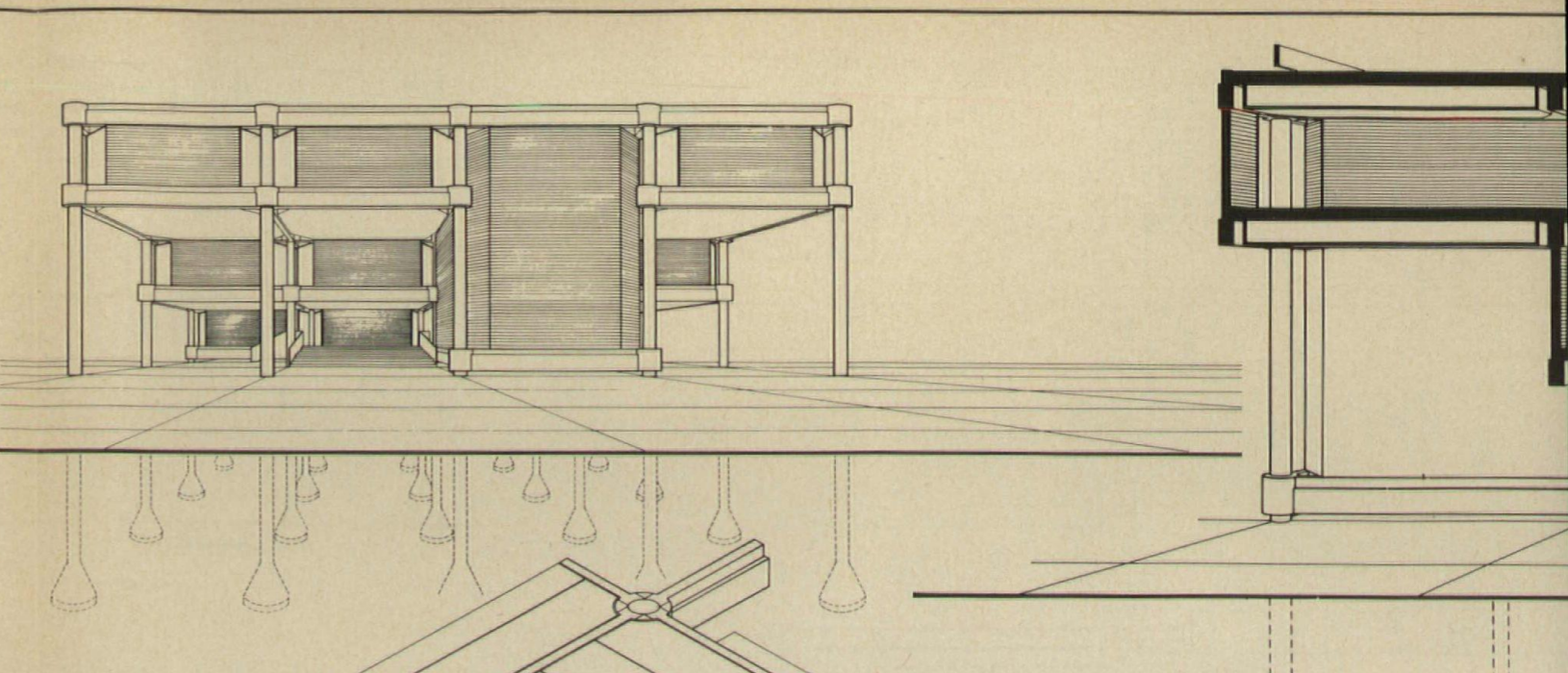
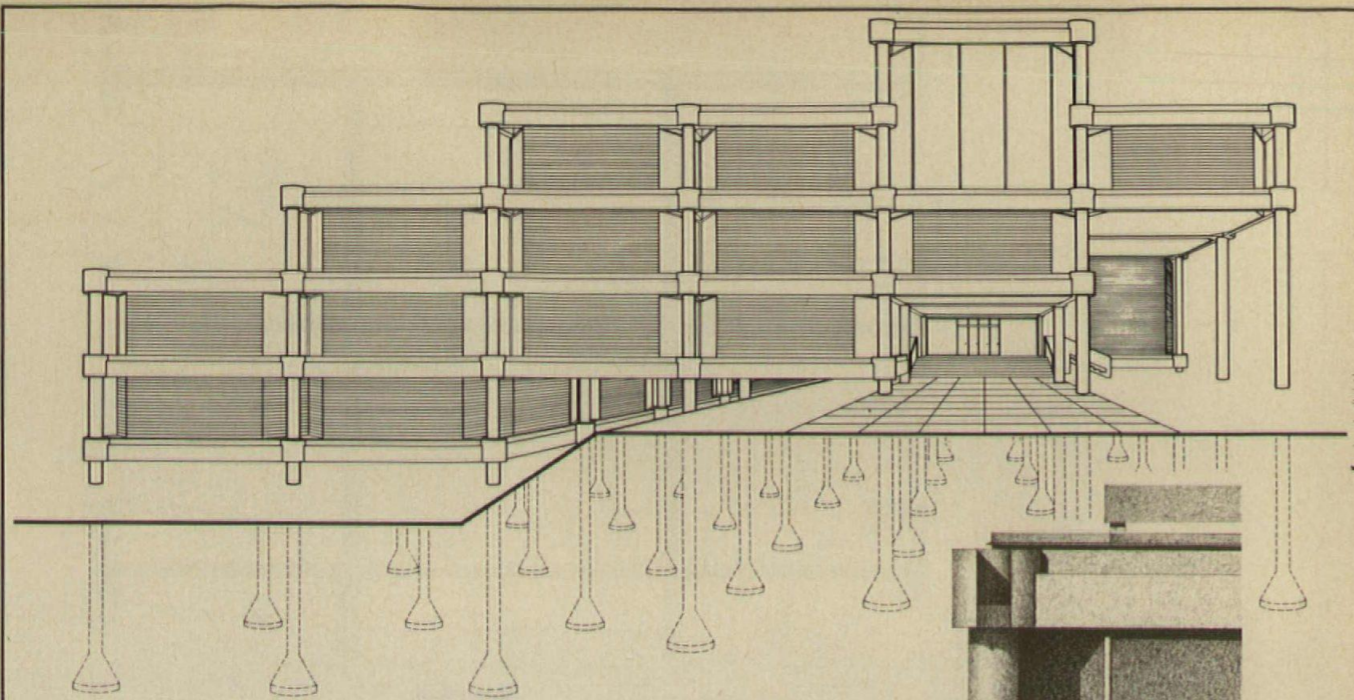
TOUGALOO DORMITORIES AND ACADEMIC MATRIX



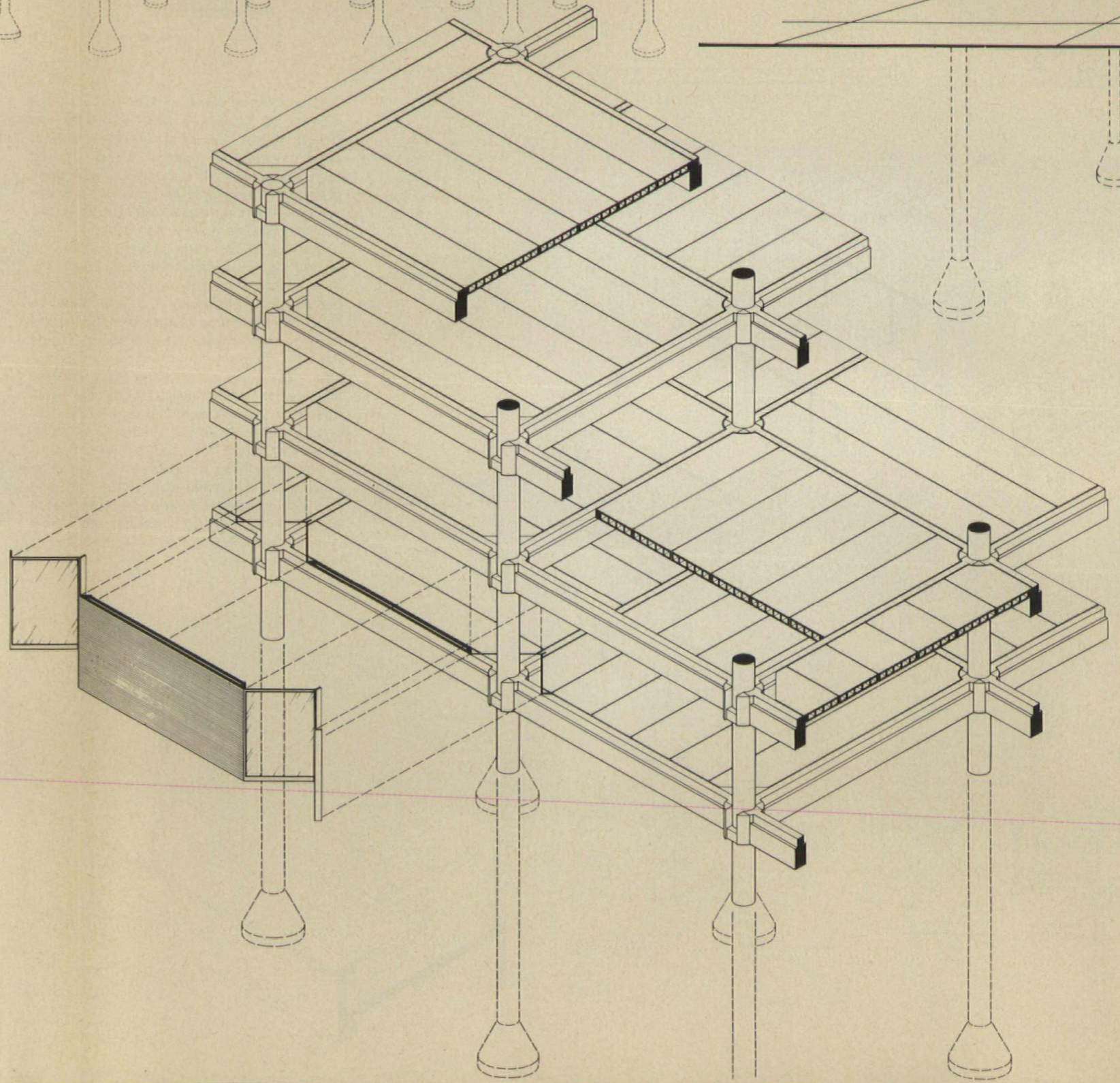
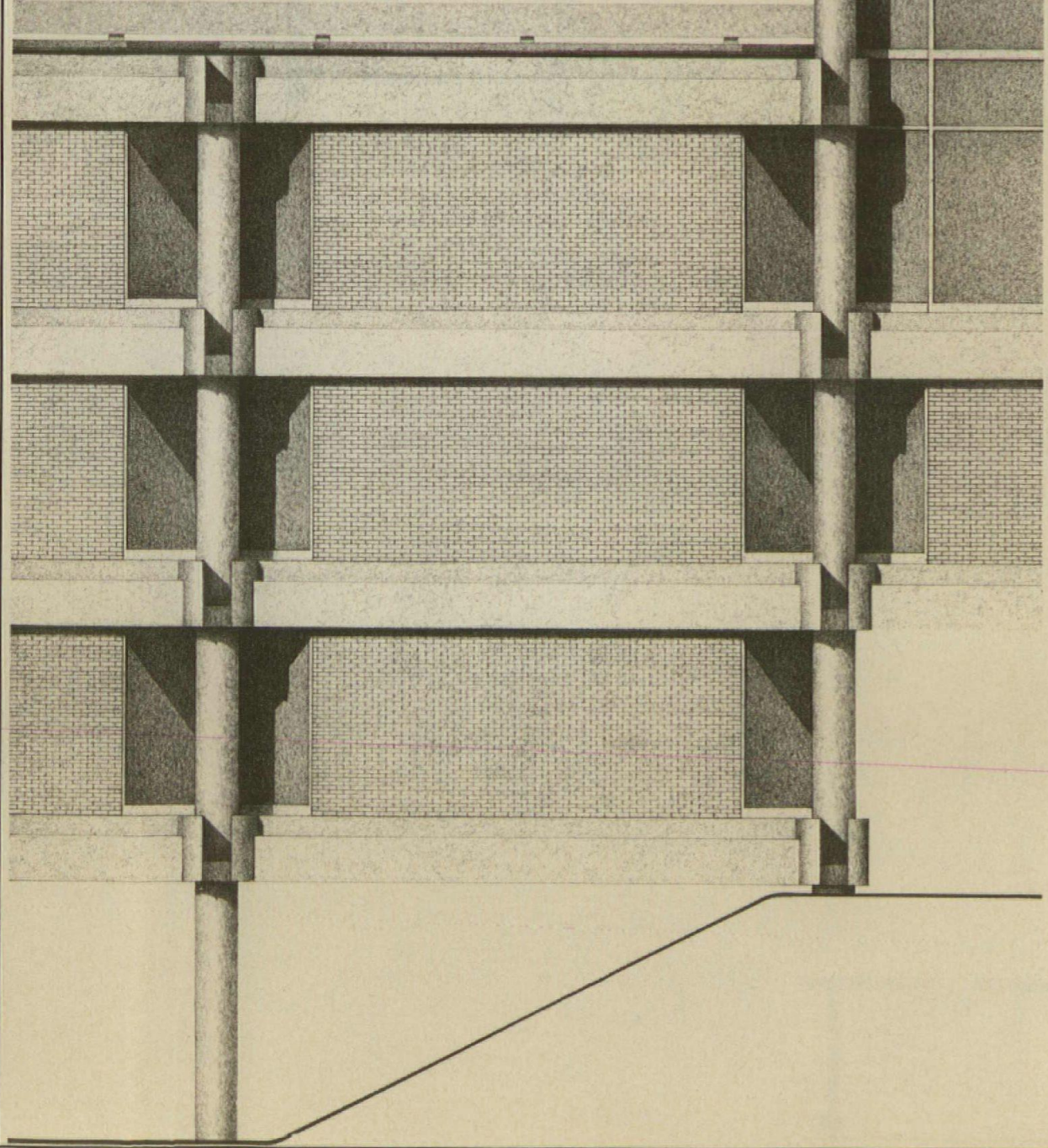


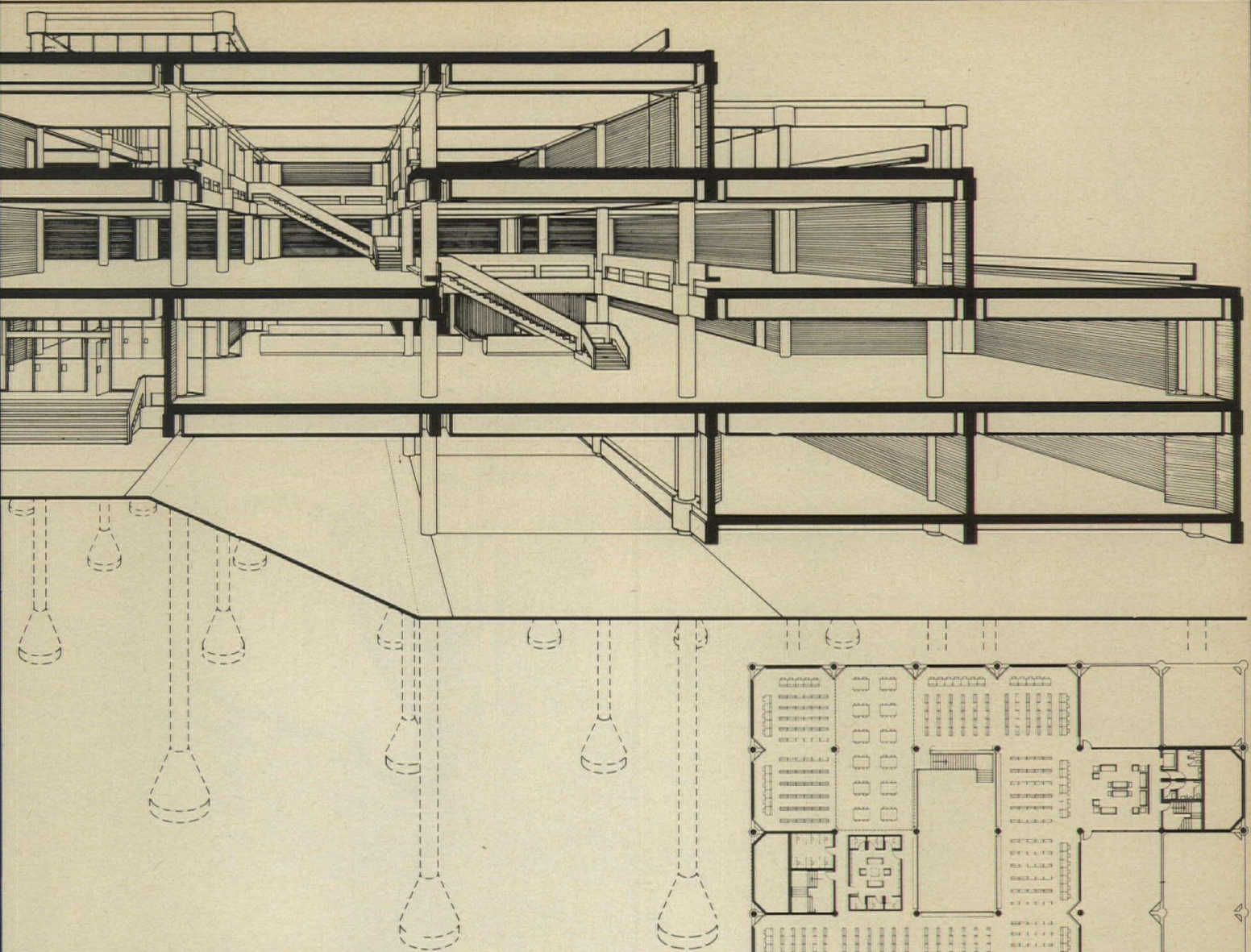
The basic dormitory module consists of three 30-foot by 12 foot 2 inch structural bays (shown above). The rooms cantilever in both directions to a total width of 31 feet 6 inches. Each bay consists of a segment of the open pedestrian passageway and two floors which combine bedroom, toilet and lounge spaces. On the first dormitory floor these lounge spaces are on the exterior wall, and on the second they are located within the core. The broad panes of glass that provide views from the perimeter lounges combine with the more complex fenestration of the dormitory rooms to form an unusually rich and varied facade (far left). The dormitory rooms (below) incorporate ingenious space-saving ideas. Because the clay sub-soil at Tougaloo is unstable, every building will be constructed on poured concrete caissons, with all structural members raised free of the ground. Columns and seats will be of poured concrete and the rest will be precast. The academic matrix shown in plan and section (above left) can accommodate within its 30-foot-square module the great variety of teaching spaces and other campus facilities required.



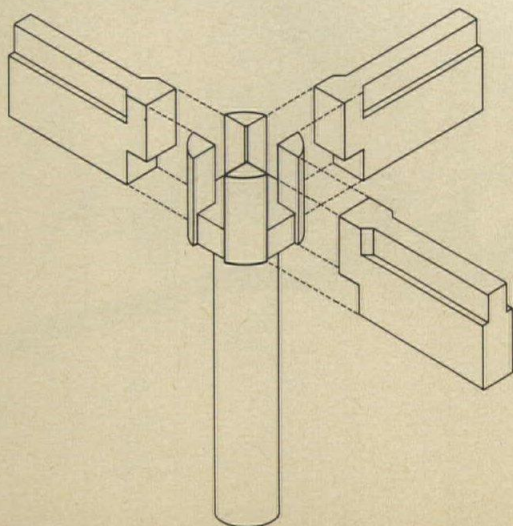


TOUGALOO LIBRARY AND STUDY CENTER

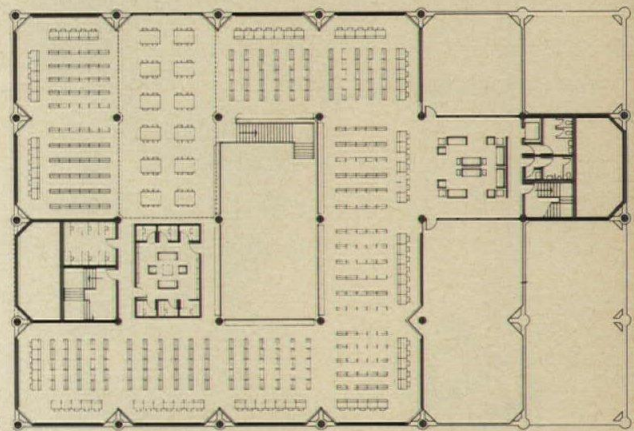




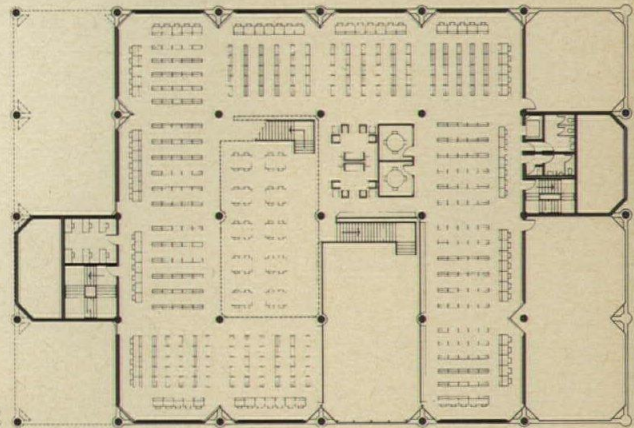
The library, on its 30-foot bays, is a prototype for the academic matrix. Since all columns, column seats and precast beams are visible, the structural system can be read at any point from the exterior or interior. V-shaped windows expose the structural column. Suspended ceilings respect the bay module which will be outlined by recessed lighting troffers. The plans and section show an unusual juxtaposition of two-story bays. From the main floor one ascends a stair through one two-story space and arrives at another on the second floor. From here one progresses to the third floor by means of a staircase which rises through still another two-story bay to arrive at a final great vertical space.



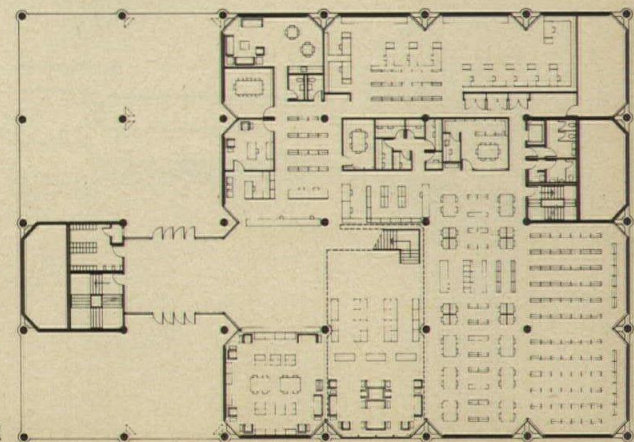
THIRD FLOOR

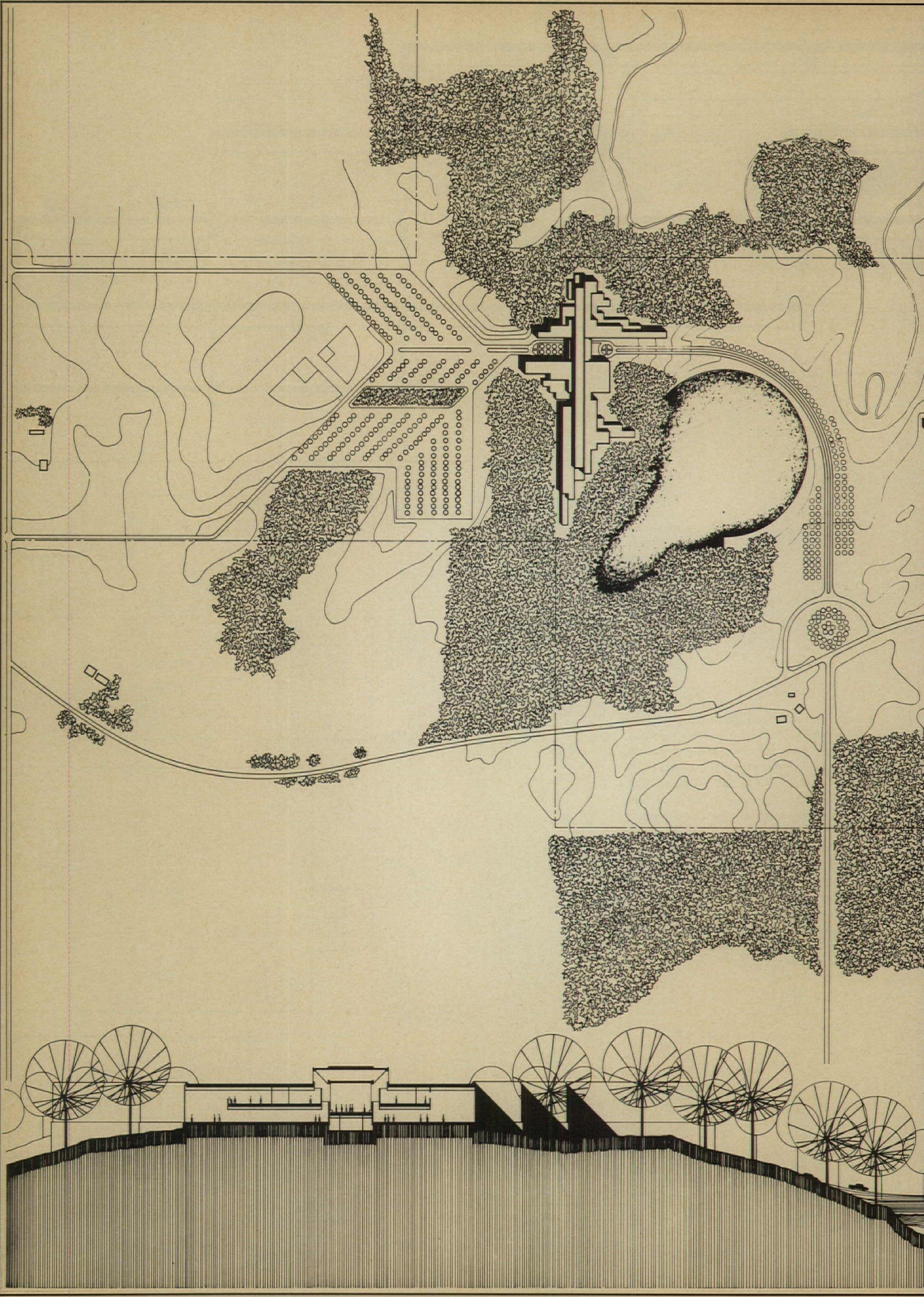


SECOND FLOOR



MAIN FLOOR





GLEN OAKS

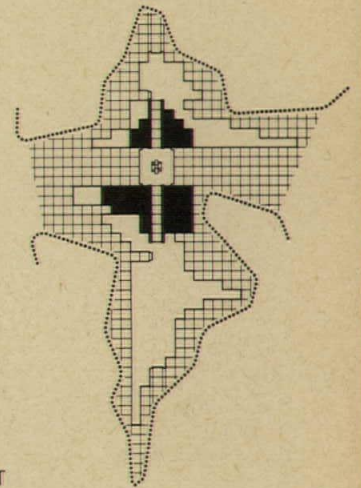
The first stage of this two-year community college in St. Joseph County, Michigan, is nearing completion. The master plan provides classroom, laboratory and related facilities for an anticipated enrollment of 2500, but allows for virtually unlimited growth and the possibility of future student housing. The first stage accommodates 600 to 800 students. The site plan and section (left) indicates 300 acres of cleared and wooded land including level farm land, a swampy low area and a hill covered with a beautiful stand of oaks. The high flat land is used for parking, while the entrance road cuts through the edge of the swampy area forming a dam which will create a lake from the natural drainage. The college is prominently located in a clearing at the top of the hill.

Designed for year-round use as a cultural center as well as a college facility, the new structure will accommodate almost any type of growth—predictable or unforeseen. At any growth stage, including the first, the design should appear "complete." Birkerts has devised a space and structural module which accepts nearly any space requirement, and a system of construction which, through use of large, movable precast exterior wall sections, allows growth in any direction. Only one element of the design solution is fixed—the main axis of the complex, a large visually-powerful area to which all other changeable areas of the building relate.

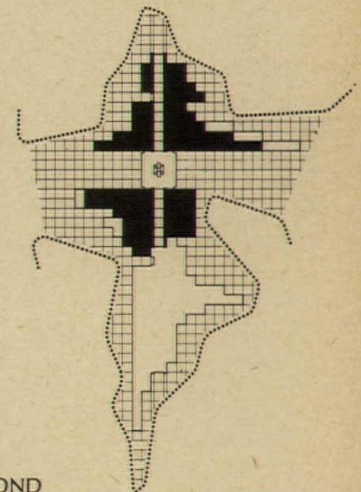
Gross area of the first stage of construction is approximately 120,000 square feet. Cost of this stage, including many features that will not be repeated as growth takes place (initial site development, well, sewage system, primary power) is approximately \$3.5 million.

GLEN OAKS COMMUNITY COLLEGE, St. Joseph County, Michigan. Architects: *Gunnar Birkerts and Associates*; structural engineers: *Holforty, Widrig, O'Neill Associates, Inc.*; mechanical and electrical engineers: *Hoyem, Basso, Adams & Martin, Inc.*; general contractor: *Miller-Davis Company*.

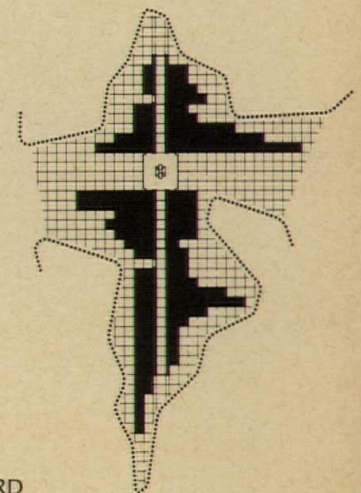
THE STAGES OF CONSTRUCTION



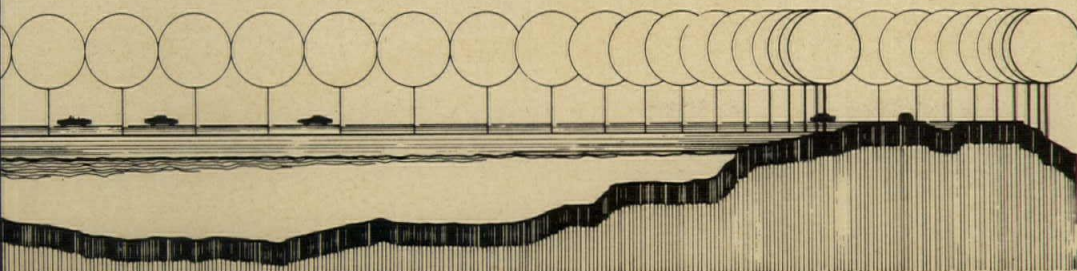
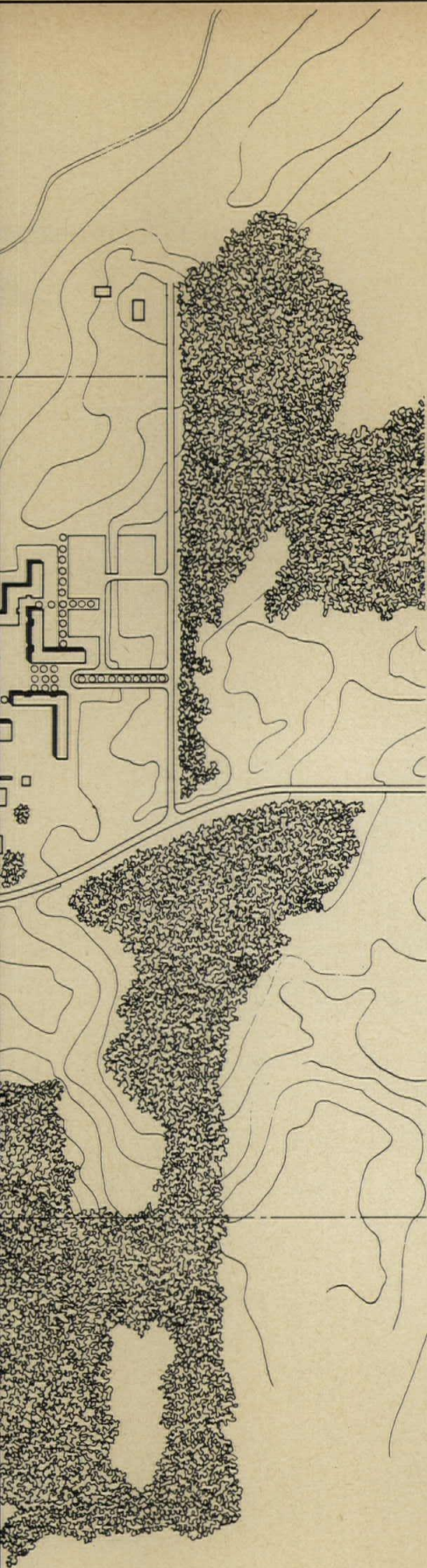
FIRST

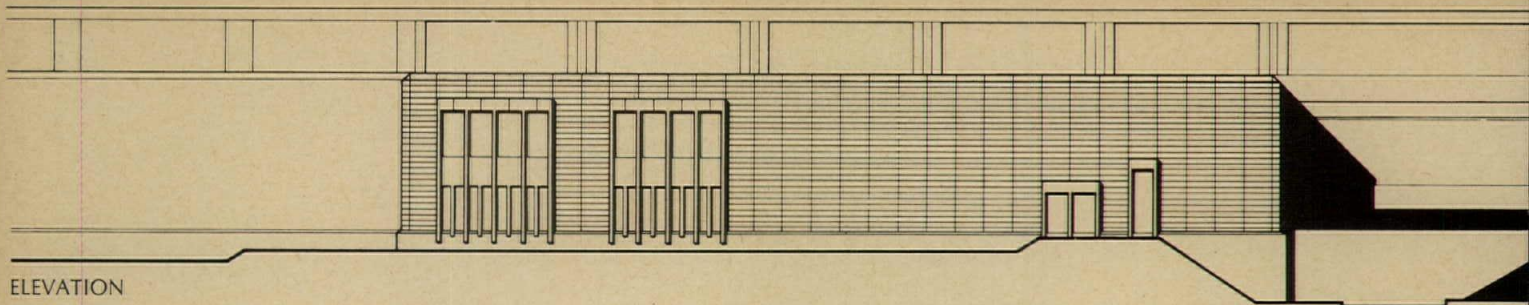


SECOND

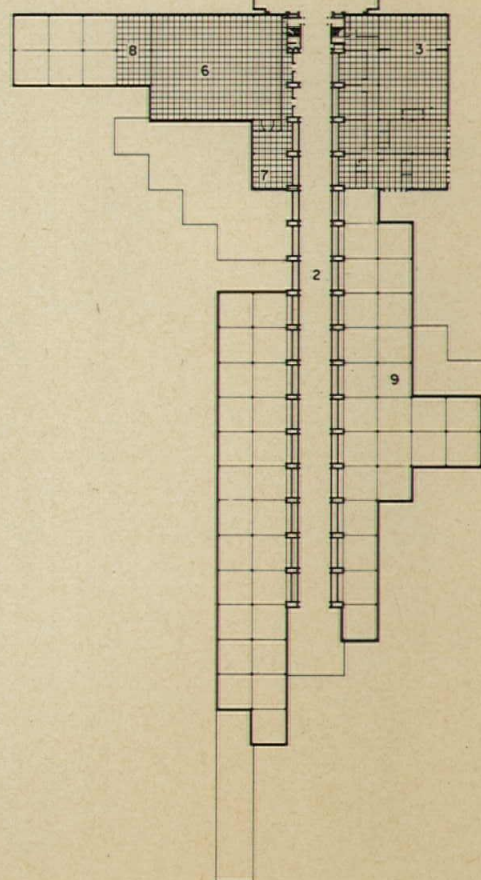
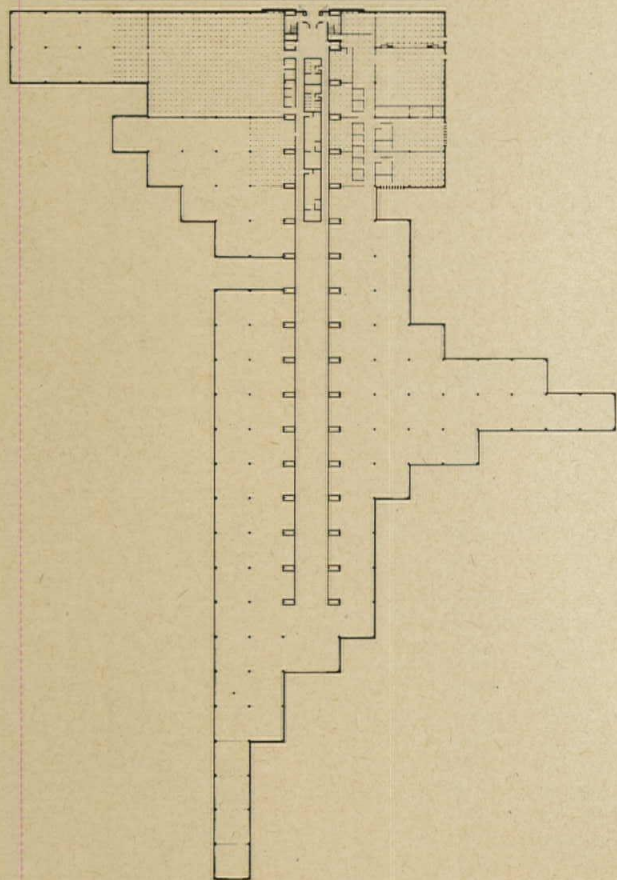
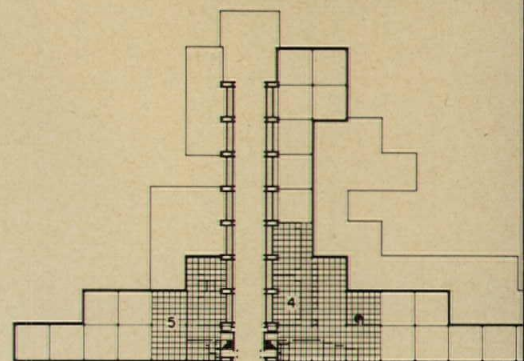
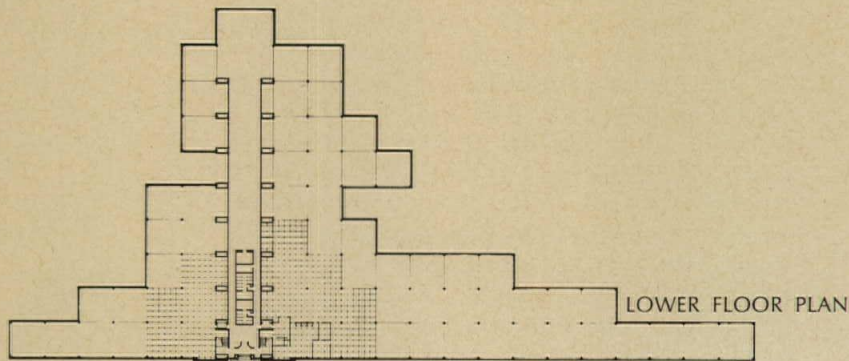


THIRD



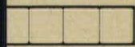


ELEVATION

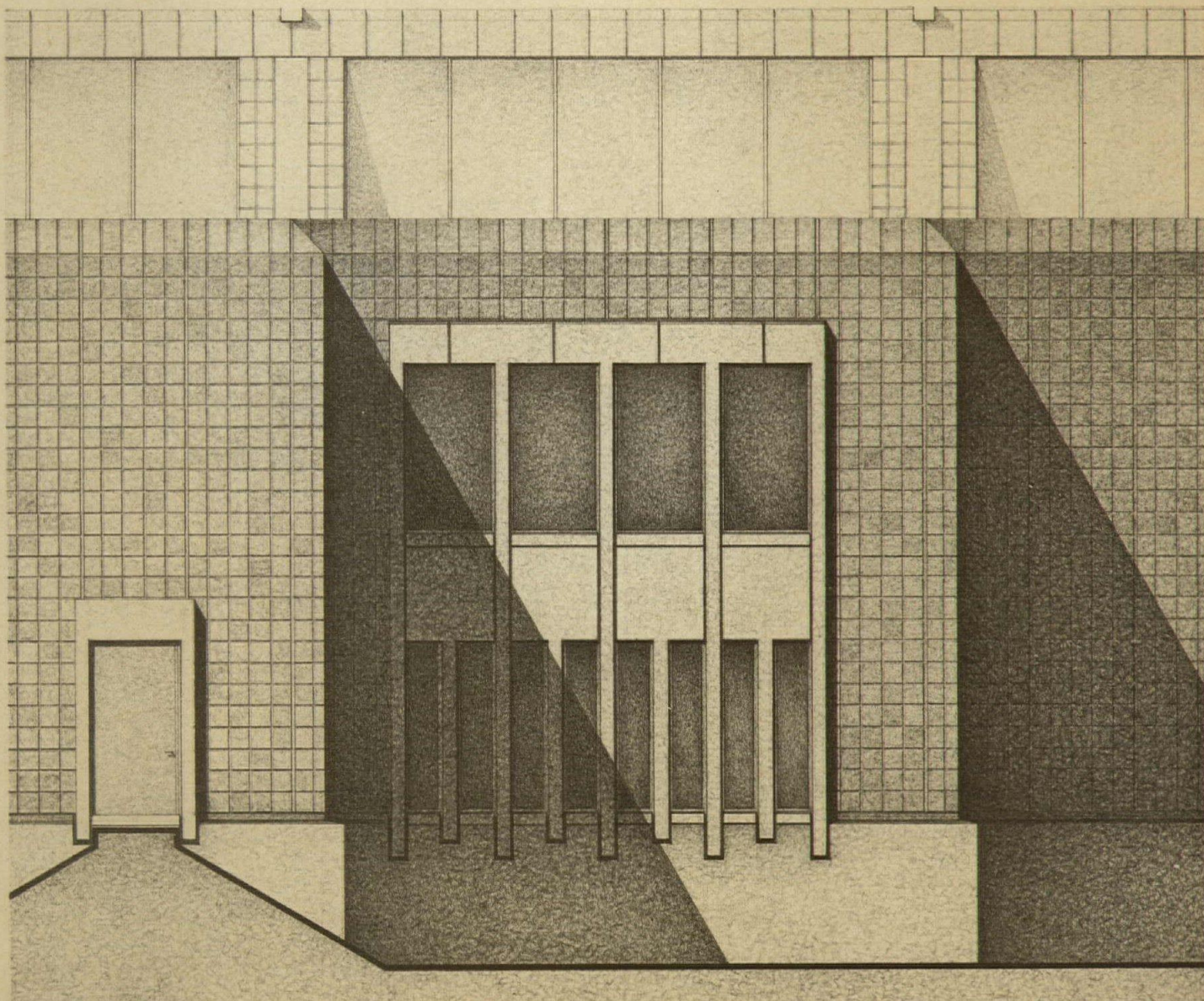
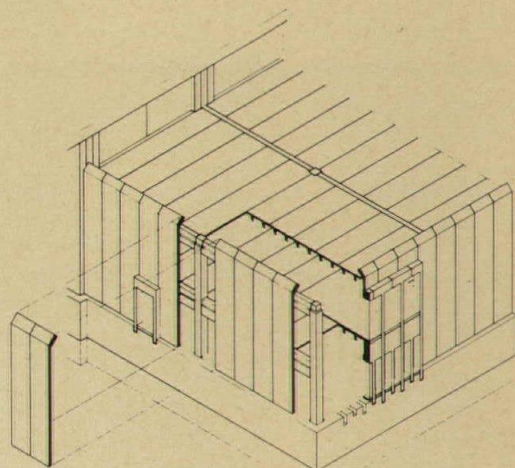


Glen Oaks, like Tougaloo, is on a 30-foot-square module. The first stage is shown cross-hatched in the plans above. It includes the square bridge (1), the main concourse (2), the lecture hall (3), the library (4), the cafeteria (5), the gymnasium (6), music and automotive lab (7), and the mechanical room (8). The first classrooms will be added at (9). Toilets and mechanical areas are located within the main concourse. Future staging is hypothetical. Added elements will grow along the spine, then expand outward.

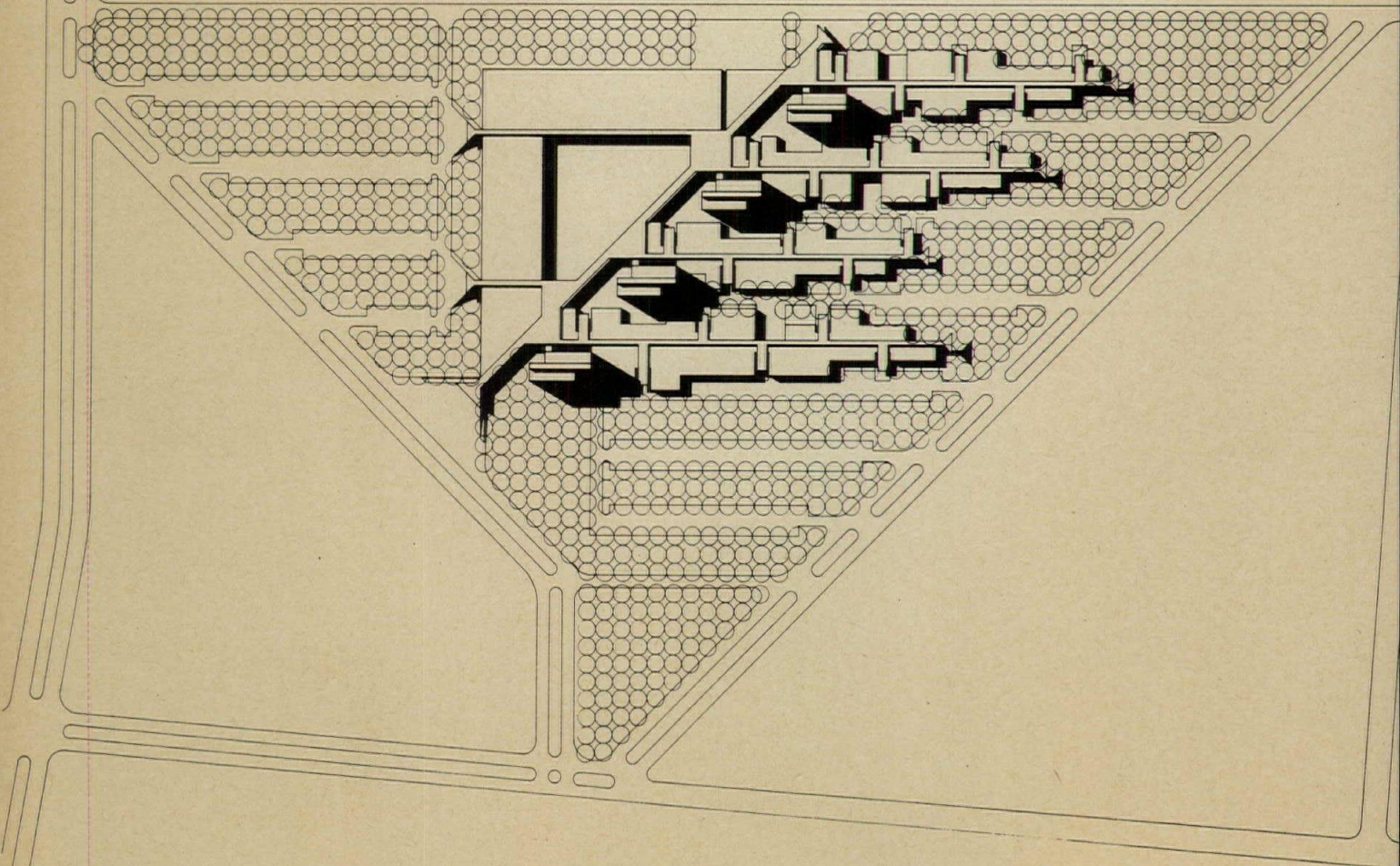
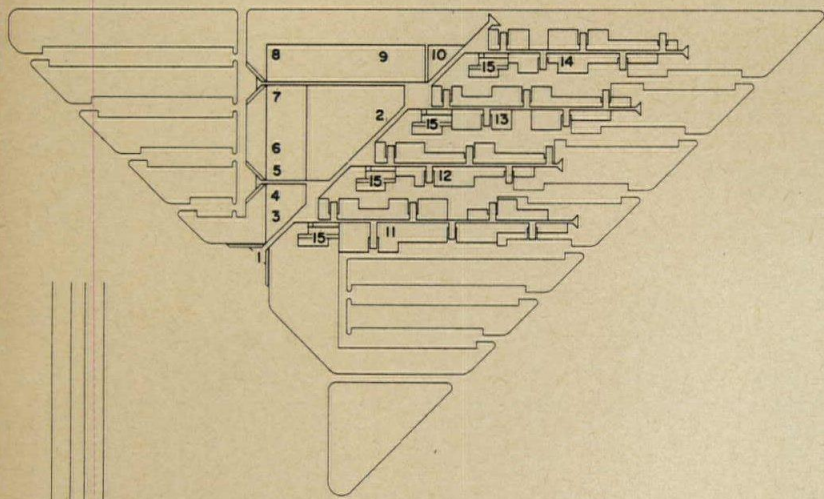
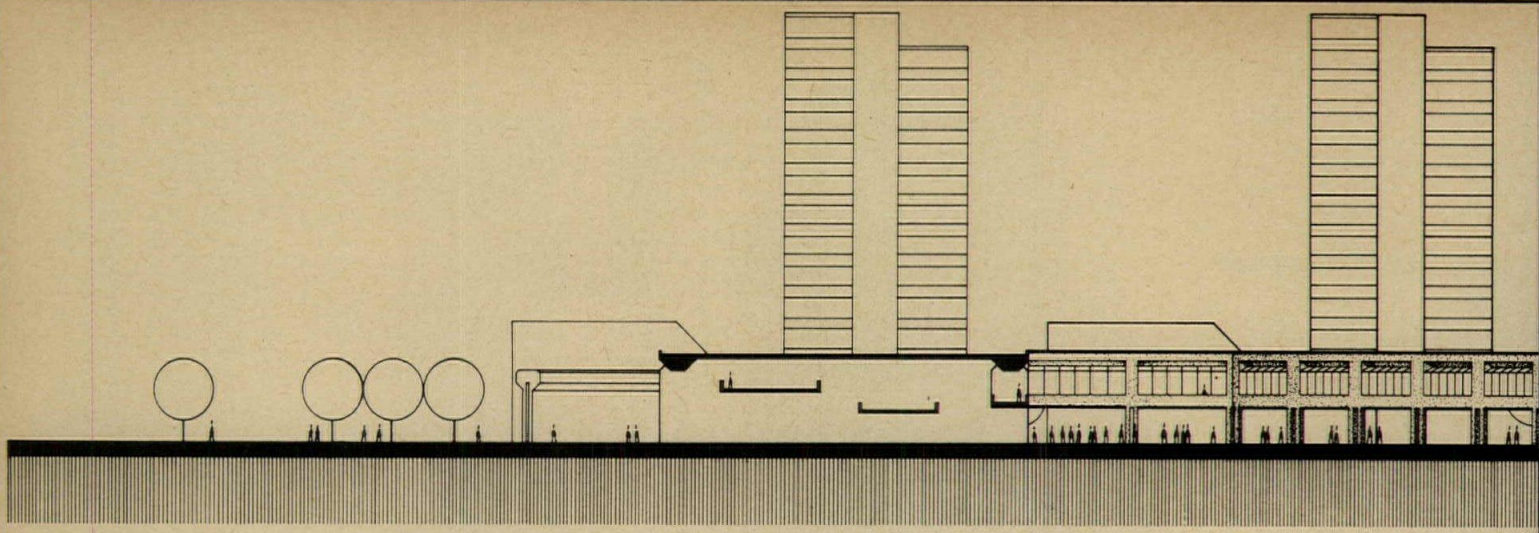
UPPER FLOOR PLAN

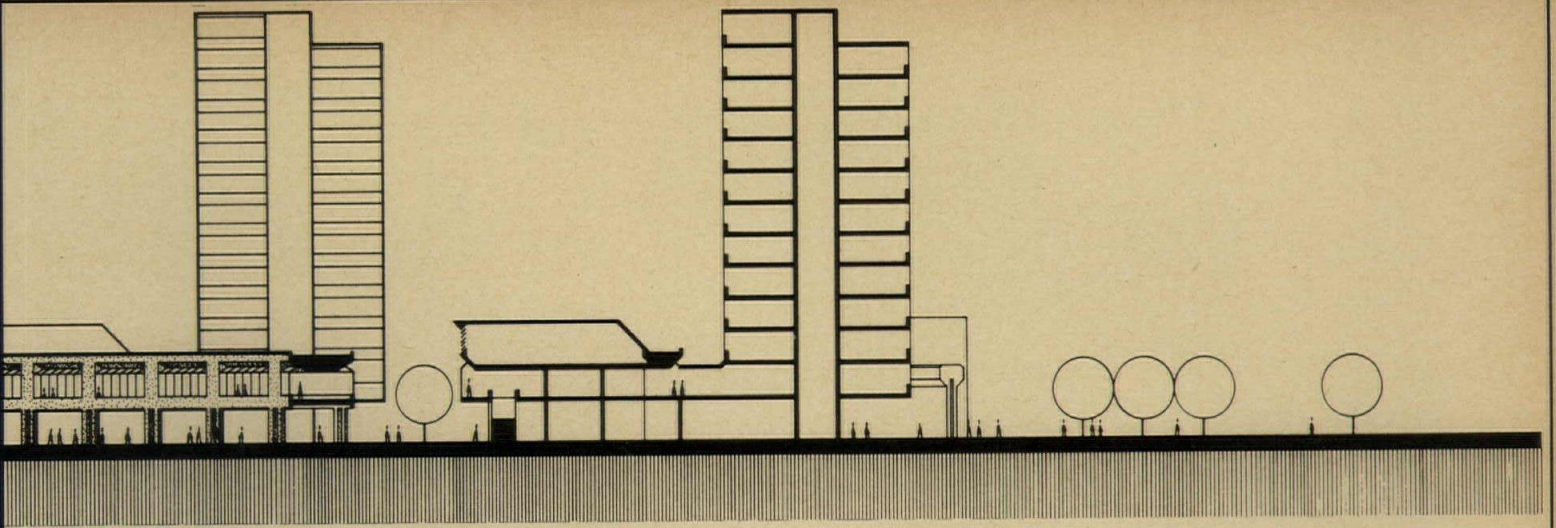


The structural frame is poured-in-place concrete. Where exposed it will have a board-formed finish. Floor and ceilings are precast double tees. The precast, relocatable wall panels are 5 feet wide and moveable in 5-foot segments as shown in the isometric (right). They are surfaced in salt-glazed silo tile with a 5-inch-wide vertical joint every 2 feet 6 inches. The window units can also be relocated. Salt-glazed tile and gypsum partitions are used on the interior. Ceilings are exposed concrete and acoustic tile.



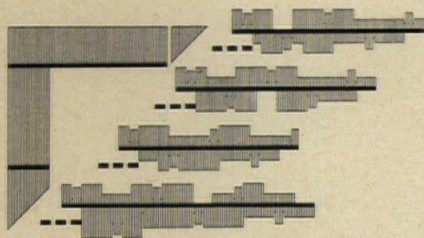
Rendering by Chris Hansen



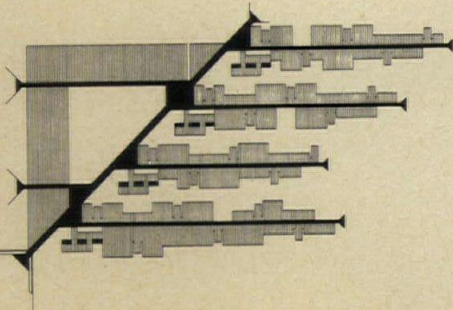


VOCATIONAL TECHNICAL INSTITUTE

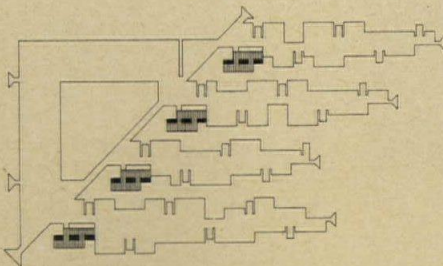
THE SYSTEM



GROUND FLOOR



SECOND LEVEL: ENCLOSED
CIRCULATION SYSTEM



ROOF PLAN AND DORMITORY LEVELS

This two-year college, part of Southern Illinois University, is located eight miles east of the main campus at Carbondale, Illinois, in World War II army ordnance buildings which will be phased out. The basic design concept is capable of unlimited growth in response to demands which are at present unpredictable. The scheme is organized about a diagonal spine (2) one story above ground level which encloses the main pedestrian concourse and principal entrance (1). This spine is oriented toward the main vehicular approach.

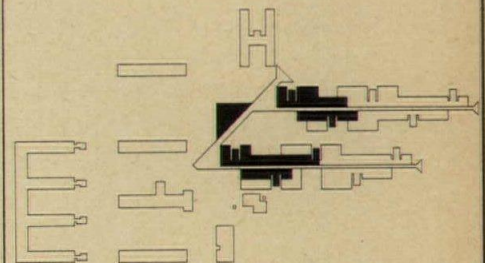
The program consists of three types of spaces—the teaching facilities, the common facilities and the student housing. The instructional facilities consist of four basic disciplines, each of which are located in one of four fingers which project to the south from the main triangle of the campus. These facilities consist of engineering and data processing (11), health (12), electronics (13), and graphics (14).

The common facilities include administration (3), technical resources center (4), auditorium (5), library (6), instructional aids (7), recreational facilities (8), food service and student center (9), and a central power plant (10).

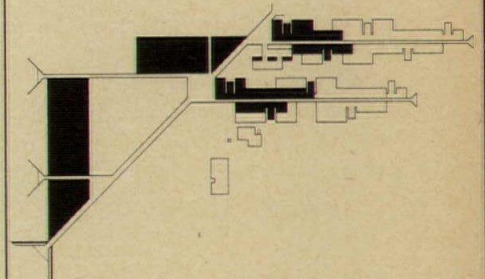
Because Birkerts wishes to create a closely knit urban campus, students will be housed in high-rise dormitories (15) which will be located at the intersections of the specialized academic wings and the campus concourse.

VOCATIONAL TECHNICAL INSTITUTE, Southern Illinois University, Carbondale, Ill. Architects: Gunnar Birkerts and Associates—John D. Hilberry: associate-in-charge; structural engineers: Robert M. Darvas & Associates; mechanical and electrical engineers: Hoyem, Basso, Adams & Martin Inc.

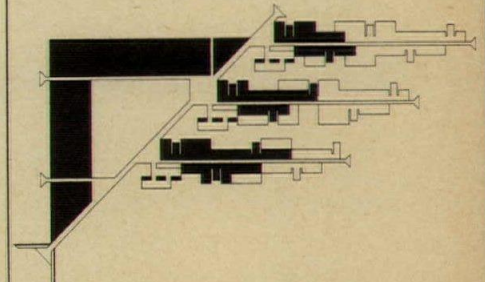
PHASING DIAGRAMS



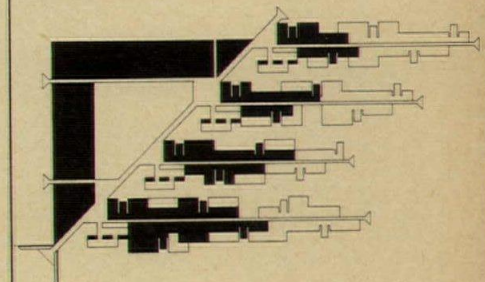
PHASE ONE: INITIAL CONSTRUCTION



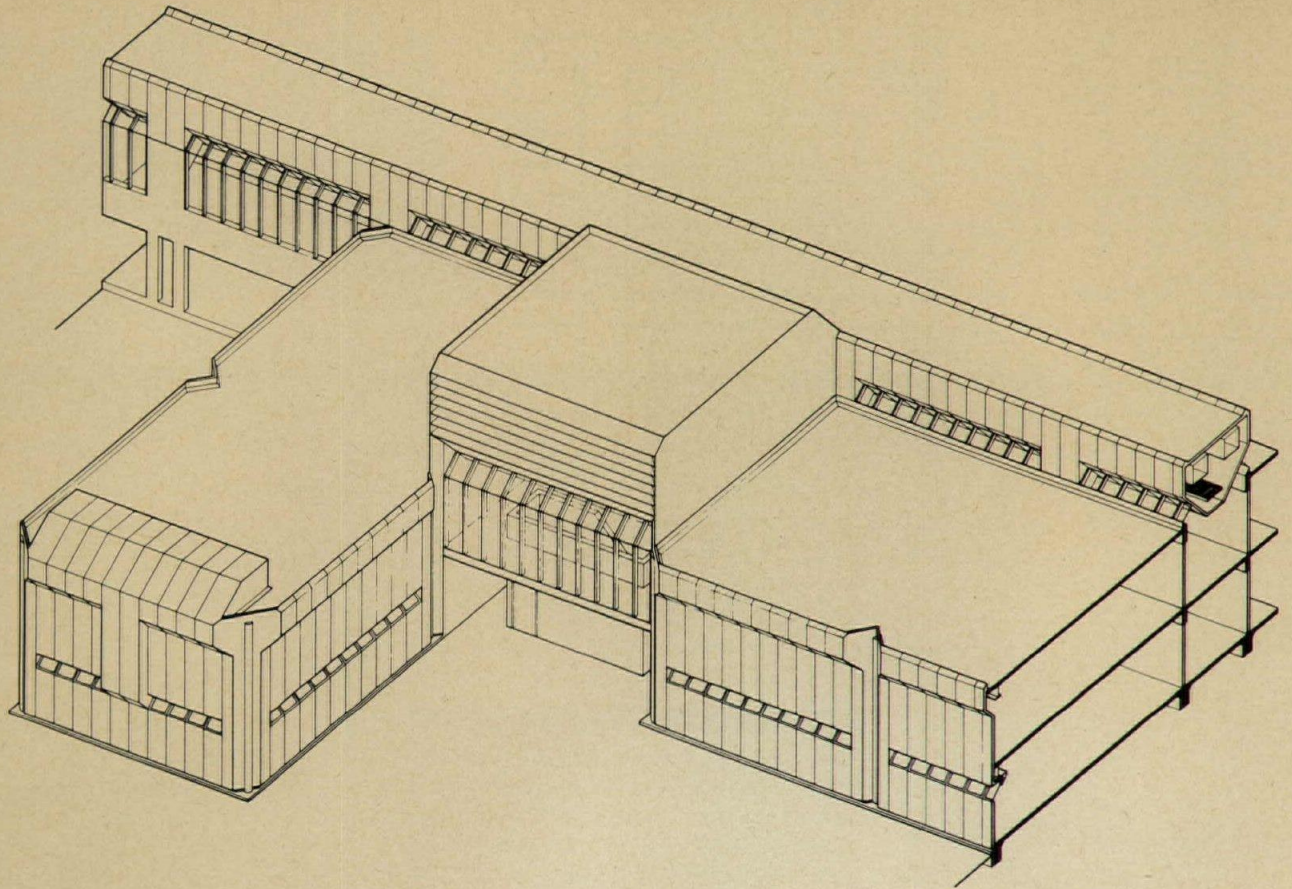
PHASE TWO: TRIANGLE COMPLETED



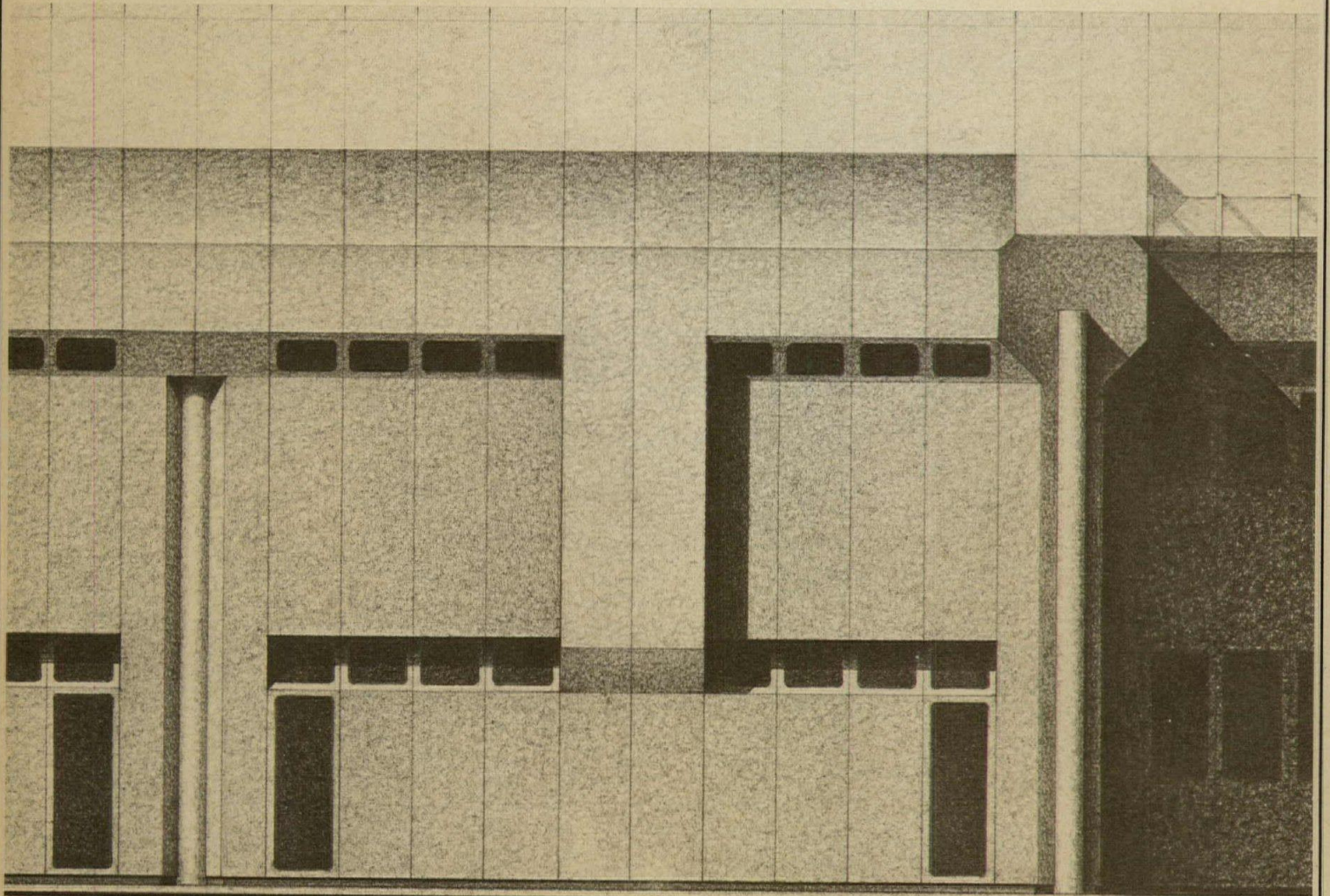
PHASE THREE: CAMPUS COMPLETED
EXCEPT SHOPS

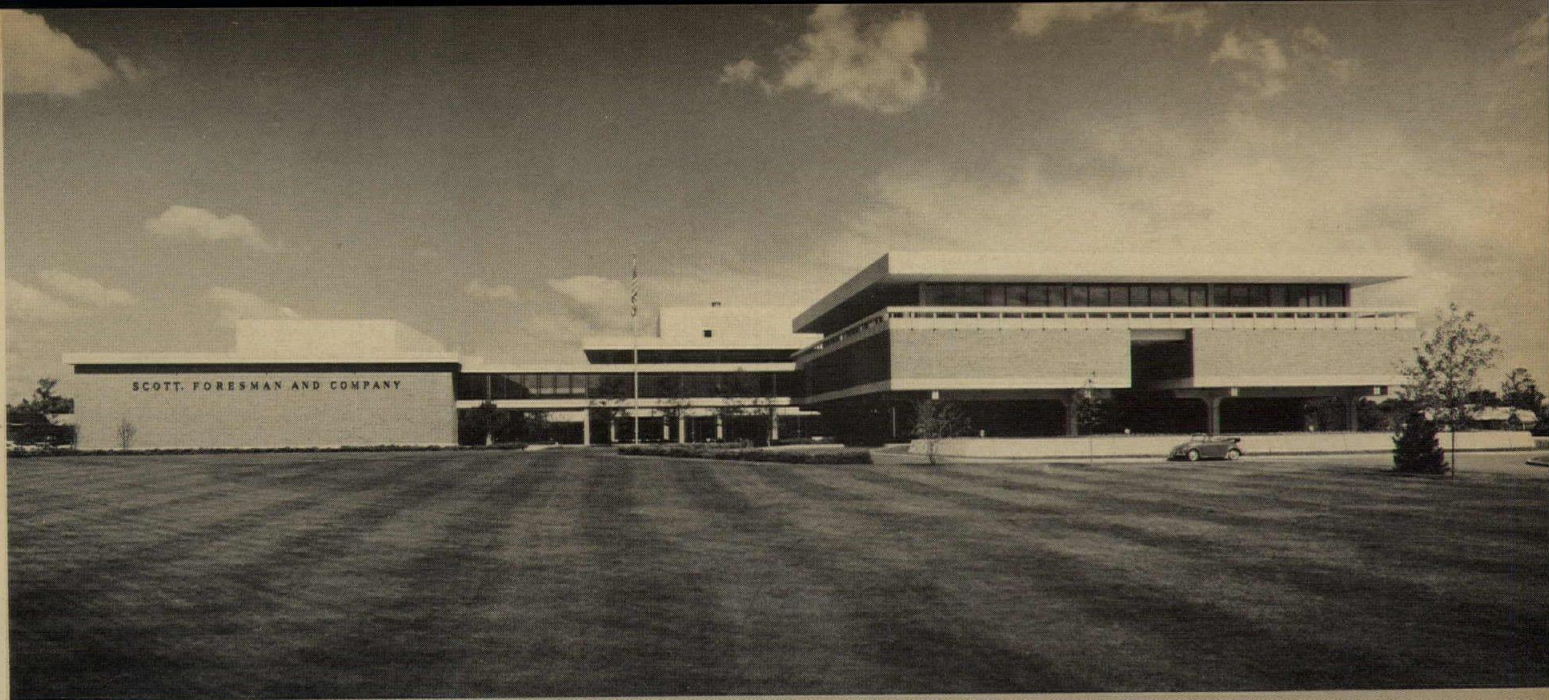


PHASE FOUR: CAMPUS COMPLETE
FOR 2500 STUDENTS



ISOMETRIC AND DETAIL OF CLASS ROOM WING





A SERIES OF COURTYARDS
CREATE AN INNER WORLD OF
LANDSCAPES FOR WORK

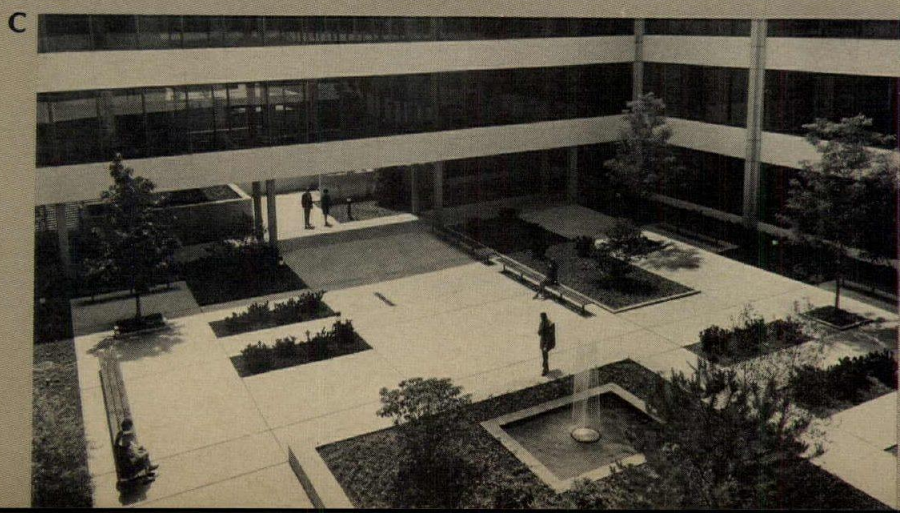
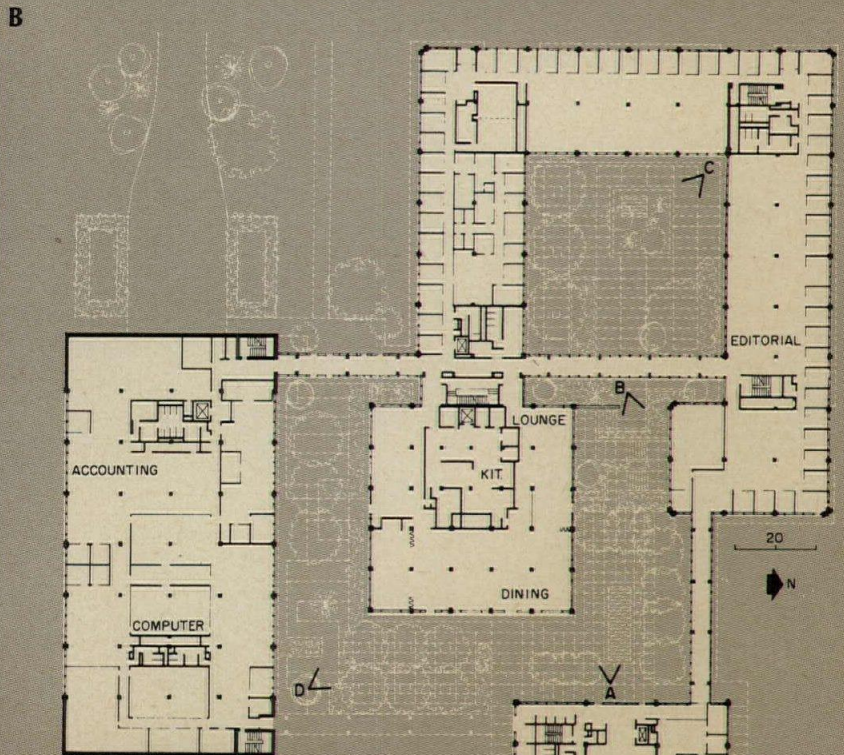
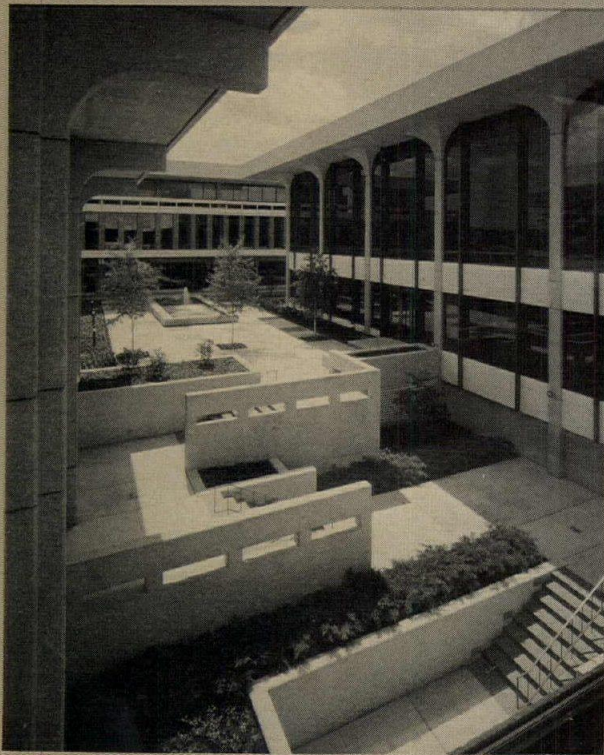
Bill Engdahl—Hedrich-Blessing photos



The potential of a 44-acre site in a residential suburb was used to develop a remarkable working environment in this new corporate headquarters for Scott, Foresman and Company, a large publisher of educational materials. The architects and their interior design subsidiary—ISD Incorporated—were commissioned to program and plan the buildings with the interiors as direct extensions of the architecture. Further, great stress was made in the program for the use of materials, scale and landscaping that would be compatible with both rather special working needs and the neighborhood. Thus, although the company is a sizeable one—with most functions inter-related—an analysis proved the feasibility of dividing functions into four linked buildings in a campus-like cluster around courtyards.

SCOTT, FORESMAN AND COMPANY, Glenview, Illinois. Architect: *The Perkins & Will Partnership*; landscaping: *Grundstrom Company, Inc.*; consultants: *Architectural Concrete Consultants, Inc.*; contractor: *A. L. Jackson Company.*

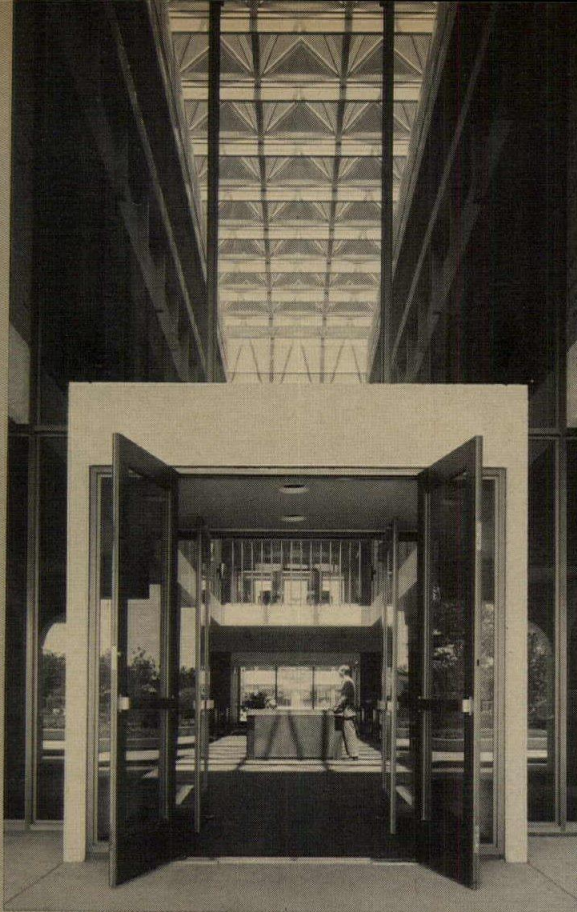
SCOTT,
FOESMAN
AND COMPANY



In an almost idealized "bubble chart" fashion, publishing facilities in this complex are grouped into four buildings (executive functions, distribution and customer service, editorial, and central services and dining), all linked by glassed-in corridors or bridges at the appropriate levels. The areas between have been landscaped into very attractive and usable courts: view A (above left) is from the executive building, across a pool-centered mall to the editorial building; B is the same area, from the opposite direction, and shows the outdoor stairs leading to the lower-level editorial court shown in view C. A tree-studded court, D, separates the executive unit from the central building with dining facilities on ground level and library and meeting rooms on the upper level. Basic materials are brick and concrete.



D



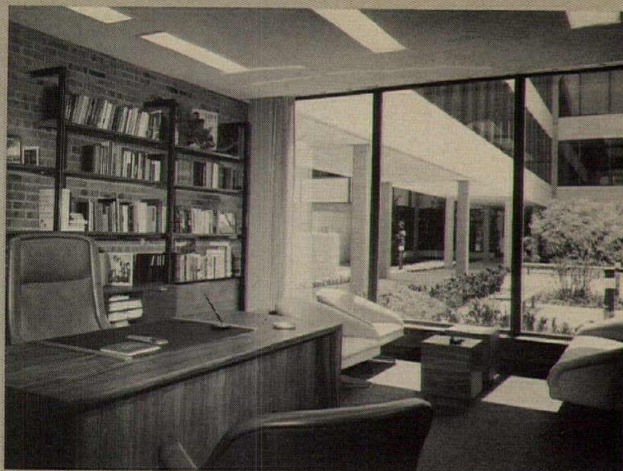
E

All interiors (public areas and work spaces) have considerable spatial interest and views to the landscaped gardens. The main reception hall, E, in the executive building soars full height to a faceted skylight topping the administration floor, J. The library, F, and art departments, H, are in the central services building for easy access from all departments. Offices for the editors, as in photo G, open on more private gardens and a lower-level court. Only the perimeter walls, walls of the executive offices, and the mechanical cores are permanent—all other interior walls are moveable steel partitions set in channels laid on top of carpeting. White, gray and brown are dominant colors.



F

G



H

J

SCOTT,
FOESMAN
AND COMPANY

TWO CONCRETE BLOCK HOUSES

PRIVACY FOR HOUSE ON NARROW LOT

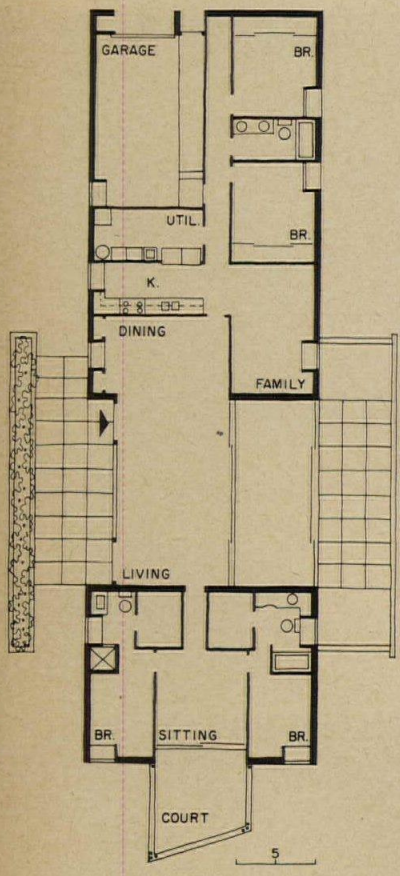
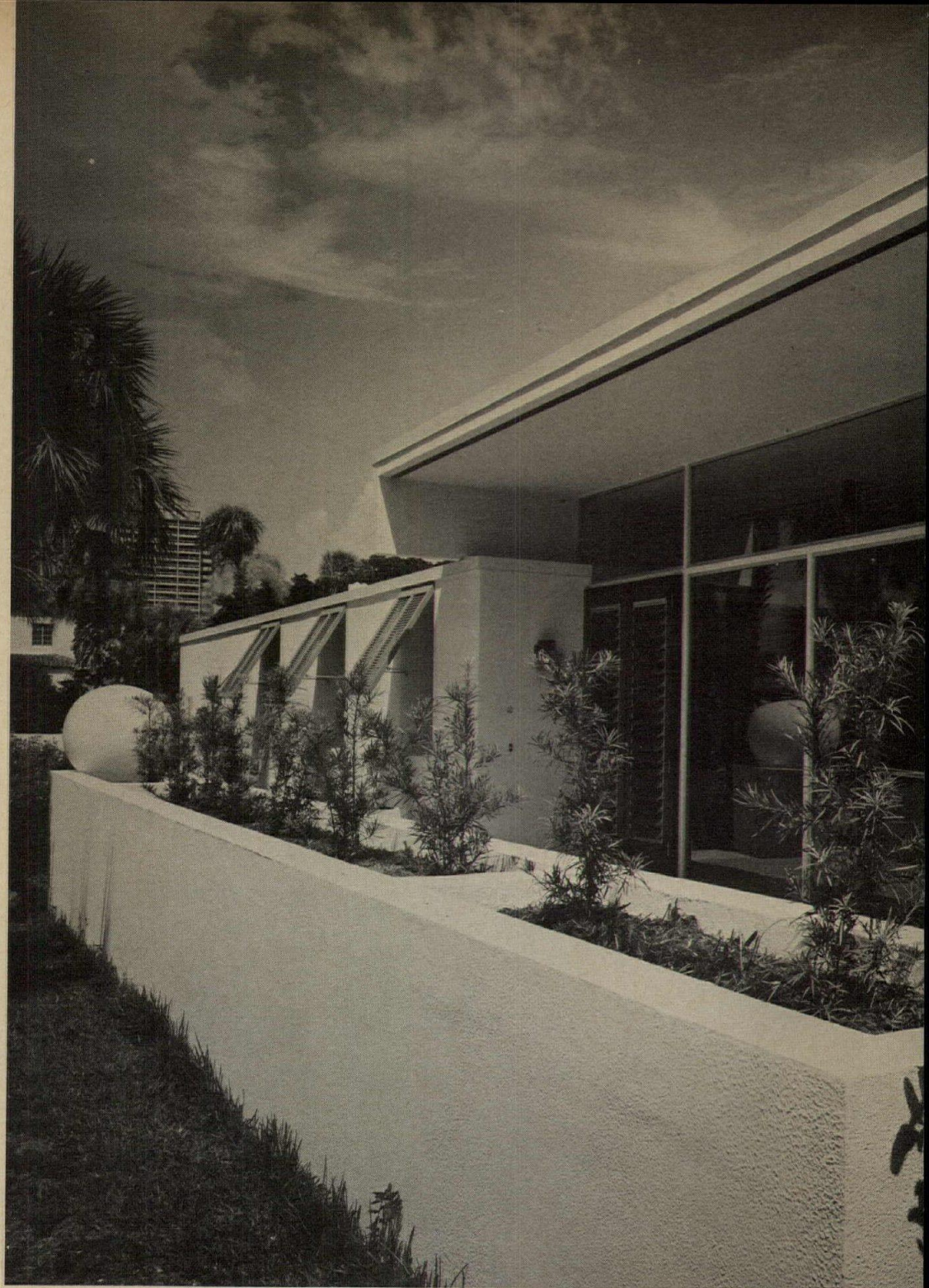
"The basic construction of this house is as simple as it could be made; bearing block walls, flat roof, and stock casement windows all make it pretty standard." Architect Seibert further states that his reason for keeping construction simple was to give the client architecture for a "builder price".

With only a narrow, 50-foot-wide lot to work with, Mr. Seibert used the heavily-planted neighboring lots for the view from the living room and porch, but the remainder of the spacious four-bedroom house turns inward, one wing to the walled court off the sitting room. All windows, except the large ones in the living room, are shielded from the sun by louvered shutters, giving the house a regional flavor and a sense of self-containment. Exclusive of the lot, the house cost \$37,000 air-conditioned.

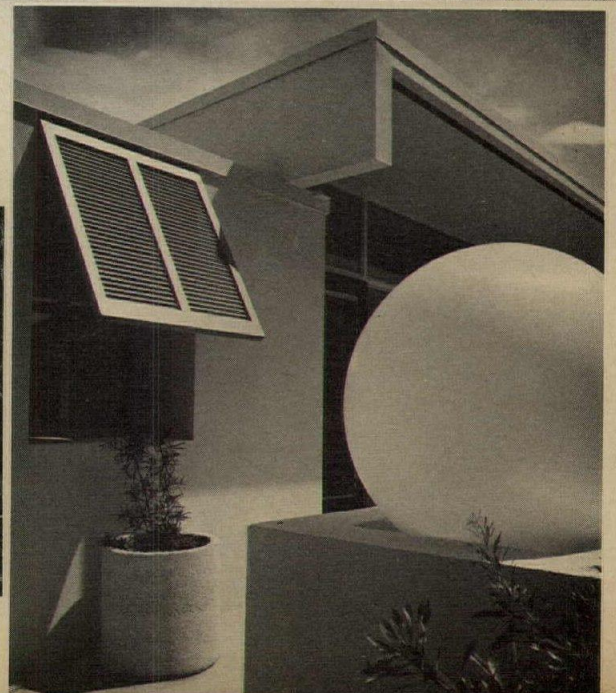
COONEY RESIDENCE, Sarasota, Florida. Architect: *Edward J. Seibert*; interior designer: *Terry L. Rowe & Associates*; contractor: *Thyne Construction Company*.

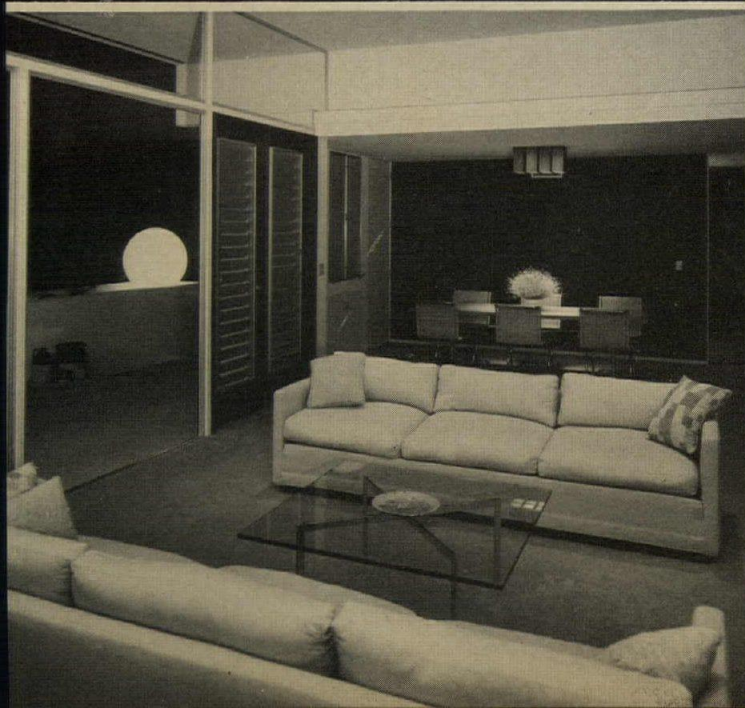
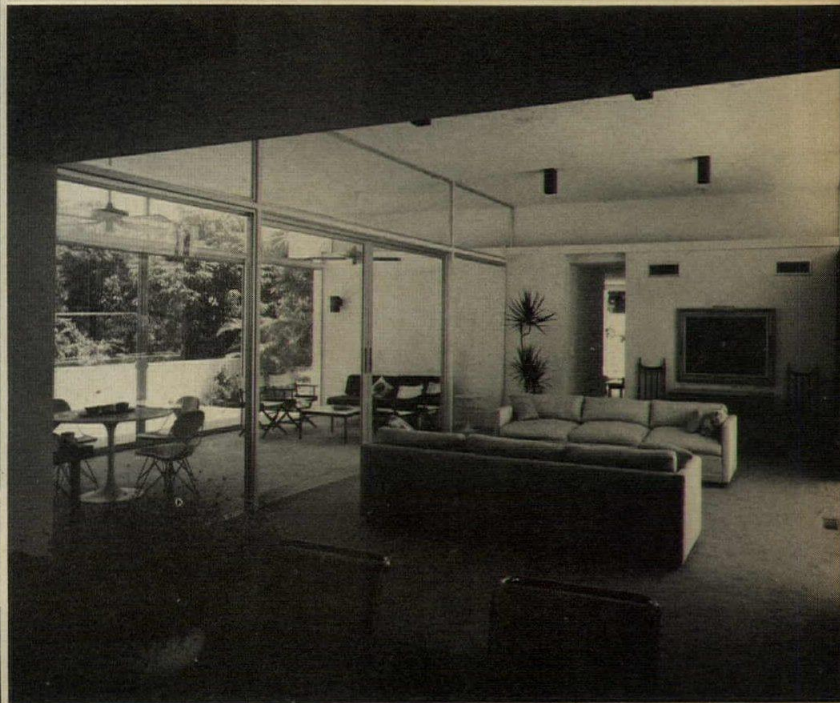
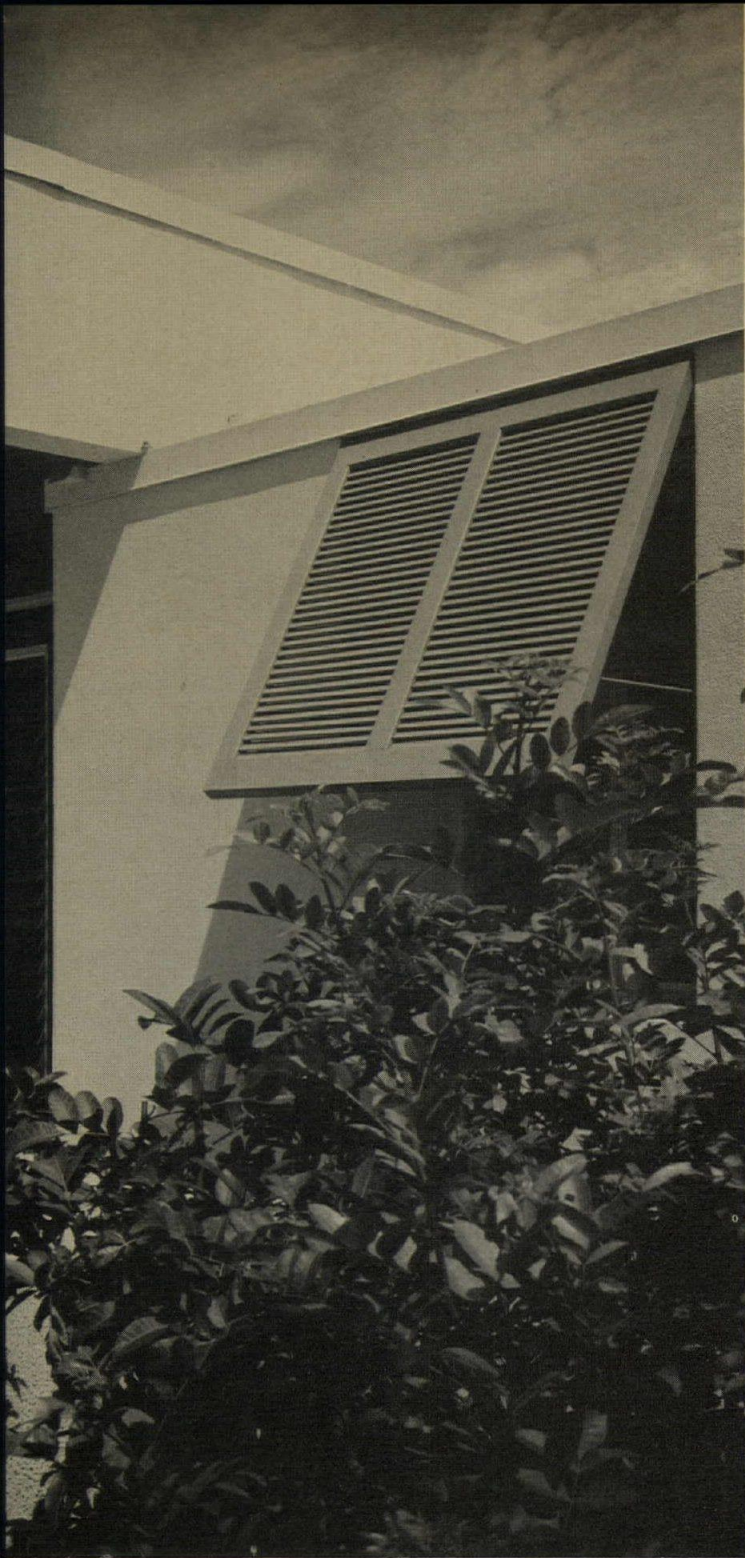
Wade Swicord photos





The plan, at left, shows how the living room and porch serve as a meeting ground for the two living wings. The photo below was taken from the street side of the house.

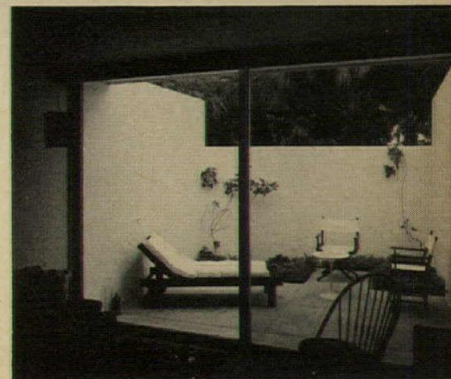


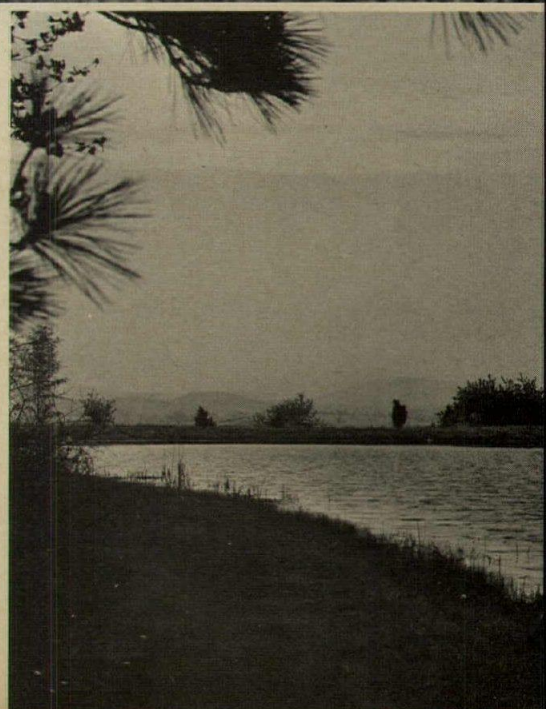
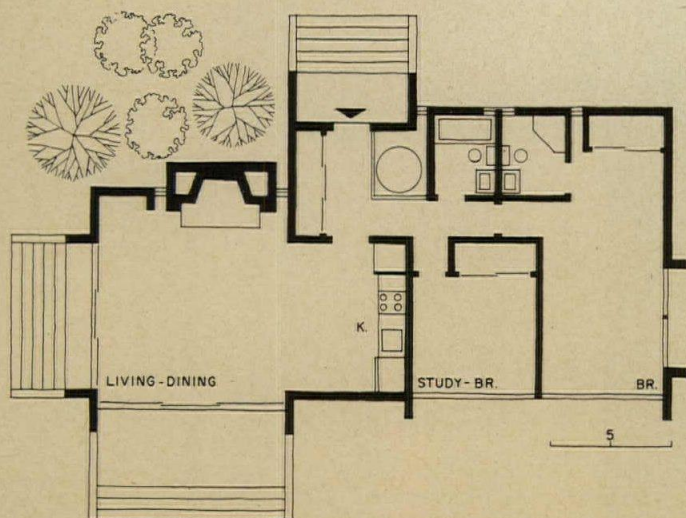


On the exterior, the stucco applied over concrete block adds to the regional quality of the house. The sphere seen in the photos at left is a lamp. Many more plantings are planned to shield the house from its neighbors.

Ceilings and interior walls are dry-wall, while the roof is wood-framed, built-up.

The comfortably furnished interior is fully air-conditioned. The walled court shows in the photo, right.





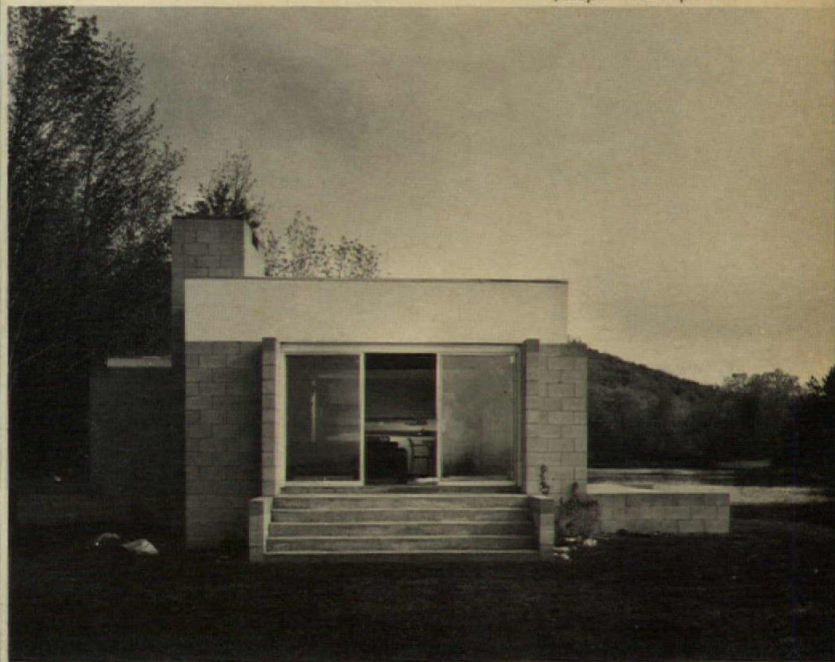
LAKESIDE HOUSE OPENS TO THE VIEW

With its almost solid rear wall and open front, this house focuses the inhabitant's view onto the lake it sits beside. The near-solid side, punctured by the front door (see photo, lower right), faces the road, so windows were kept to a minimum.

With some of the same devices as the Seibert house—concrete-block bearing walls; flat, wood-framed built-up roof—the architects have kept costs down, in this case to \$24,000. Much was saved by leaving the block exposed on both sides and coating it with a moisture sealant. Many fine details (framing the windows with block projections, the porches, and the slit windows surrounding the fireplace to create a free-standing effect) coalesce to form a very livable sculpture in exposed block.

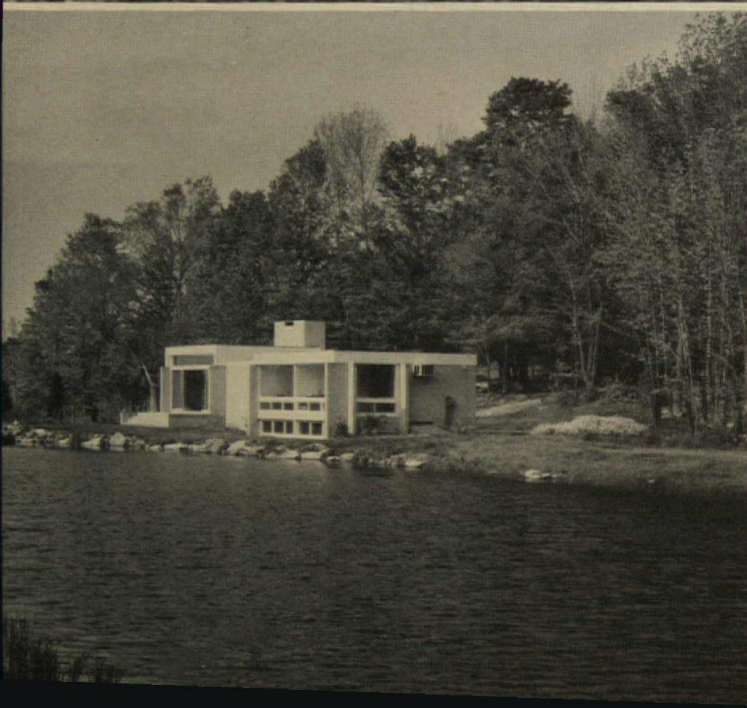
PORTER RESIDENCE, Sharon, Connecticut. Architects: *Oppenheimer, Brady & Associates*; structural engineers: *Goldreich, Page & Thropp*; mechanical engineers: *D. W. Brown*, contractor: *Oscar Schreiber & Sons*.

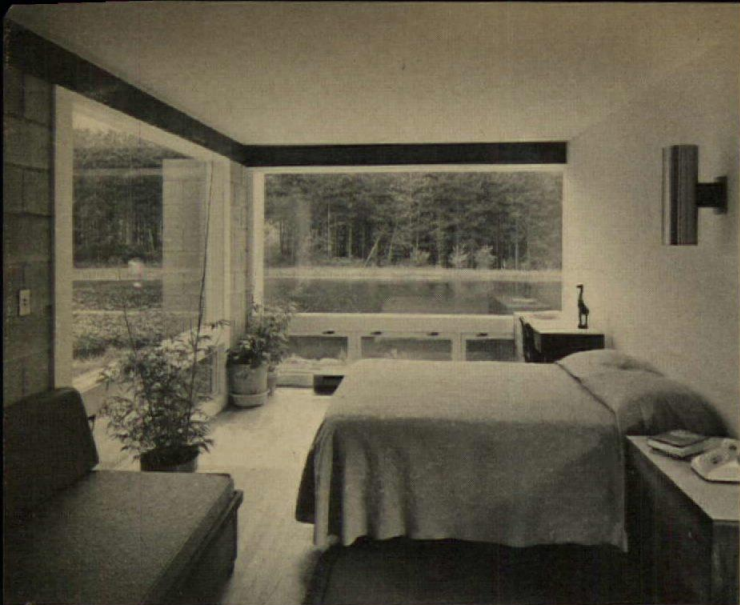
Joseph Molitor photos



Capitalizing on the rectilinear confines of the material, the house presents many hard-edge faces to catch sun and shadow. Because it is situated in a remote area surrounded by trees and is only used on weekends, the house was constructed mostly of fireproof materials.

When the sliding glass doors are opened, the floor-level porches become extensions of the interior and relate it to the beautiful site.





Each of the two bedrooms has large expanses of window, a feature which is in tune with the openness of the rest of the house. The kitchen will eventually be closed off from the living and dining rooms by folding wooden doors. Floors are oak; ceilings and some interior walls are gypsum board. Two exposed and stained wood beams in the living room are a good contrast to the concrete block.





© Ezra Stoller (ESTO) photos

ELEGANT SMALL BUILDING FOR A TOWN BANK

Set among small shops, this inviting bank attracts one's eye while fitting quietly into the busy shopping street on which it stands. Fine use of forms, colors, and materials results in its unobtrusive elegance.

Colors are predominantly white, black and grey, offset in the interior by bright paintings and the warmth of finished wood. The white exterior is stucco over plywood.

Since the building faces two streets, the two entrances become a passageway and a clear opening through the building. A slope in the ground level allows an extra one-half level to be exposed in the rear. All details such as the raised white graphics and the interiors were controlled by the architect.

COUNTY FEDERAL SAVINGS BANK, Westport, Connecticut. Architects: *Davis, Brody & Associates*; structural engineer: *Beck, Simon & Mantel*; mechanical engineer: *Alfred Greenberg & Associates*; general contractor: *M. Sohacki*.



Looking from the bank president's office out to the bank, in the photo upper right, one can see the handsome partition detailing and the free-standing cabinet, which, like the bank furniture in the photo above, was designed by the architect.

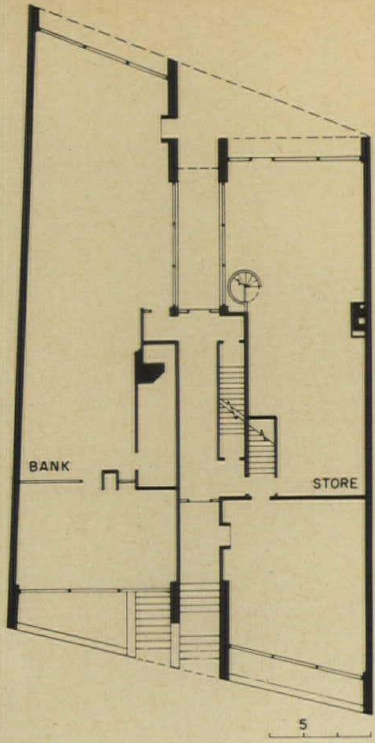
The slate tiles used on the sidewalk were also used in the bank and on the rear steps (photo opposite). Sharply detailed, with file cabinets built into the wall, the office in the photo at right is on the second floor in the rear.

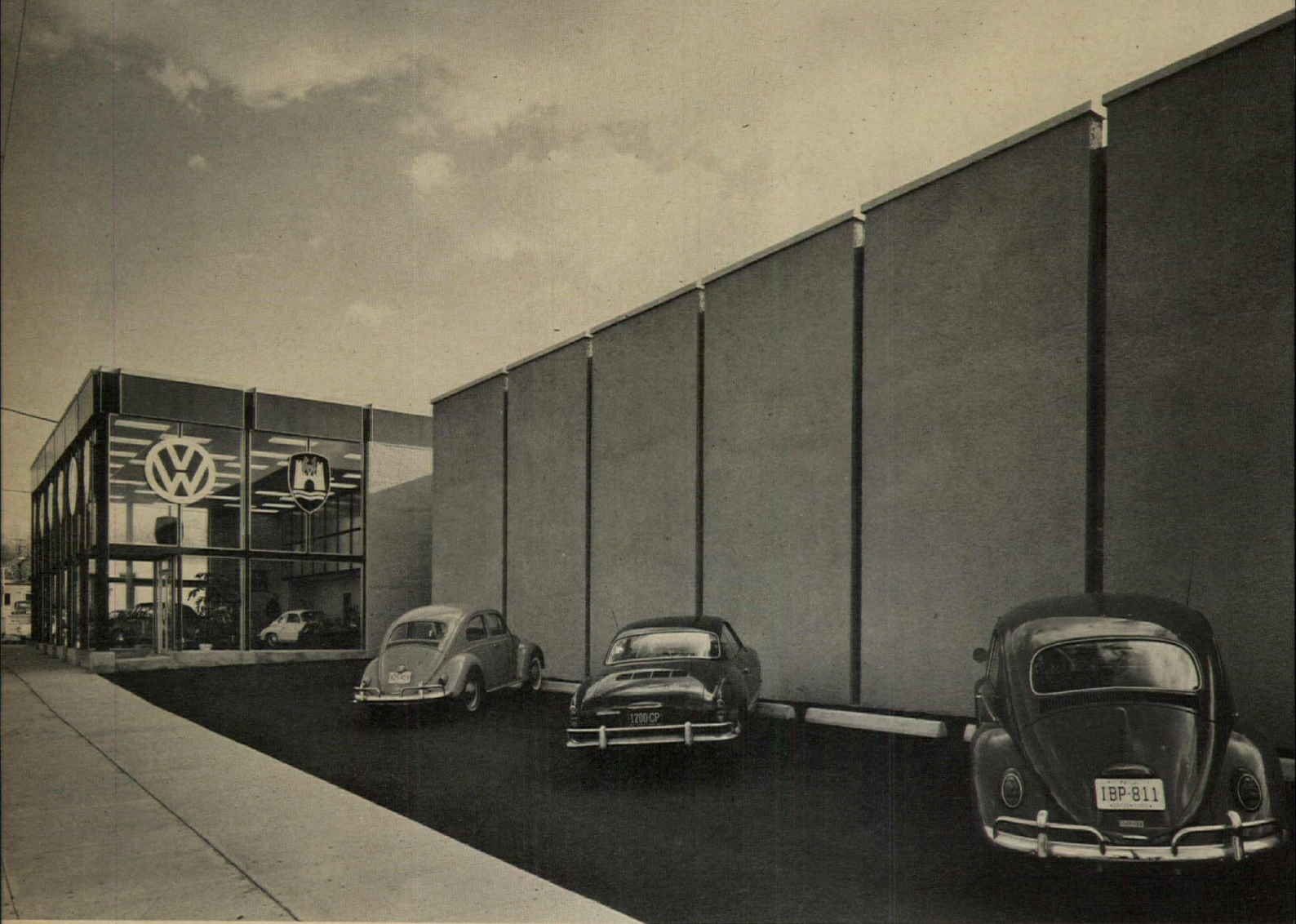
Natural light is everywhere a dominant feature of the design, travelling over and through the partitions and window walls.

The abundance of light, the white walls, the splashes of brilliant color, and the richness of the furnishings all coalesce to form a very pleasant working atmosphere.

The floors are carpeted in all office spaces, and slate-grey tile is used in all public spaces.







Joseph Molitor photos

CRISP SMALL BUILDING FOR AN AUTO DEALERSHIP

The plan consists of three major elements (showroom and offices, service department, and parts department) which are related to each other for centralized control of all activities from the service office.

Offices and a customers' lounge are adjacent to a two-story showroom which is surrounded by steel-framed glass walls. These are the only public spaces. Above the offices are an employees' locker room, lunch rooms, and storage space. Behind the offices and contiguous with the service area is the parts department.

The service area was designed as a clear space, without columns, and is spanned by open-web steel beams on concrete-block bearing walls. A layer of stucco was sprayed over the block on the exterior. Since there are no windows in this wing, natural light was introduced through a series of clear plastic skylights. Building cost was \$180,000.

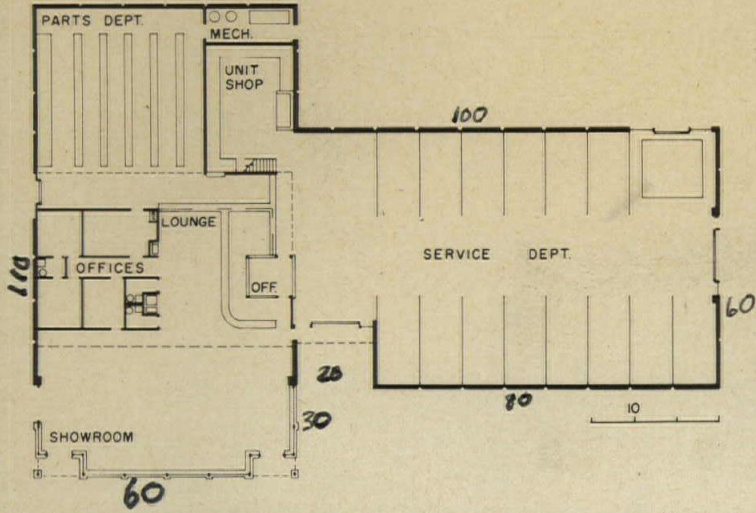
VOLKSWAGEN SALES AND SERVICE BUILDING, Maplewood, New Jersey.
Architects and structural engineers: *Collins, Uhl & Hoisington*; mechanical engineers: *Paul Kopf*; contractor: *Rosedale Contracting Co., Inc.*



The interior walls of the showroom and offices, photo at right, are finished with drywall, while the remaining walls were left exposed-concrete block and painted.

By using a "T"-shaped building on the limited downtown lot, the architects were able to design off-street parking for customers and employees into the plan.

The detail photo, below, shows how the architect integrated the company logo into the design to avoid the standard street sign.





Jerry Bragstadt photos

RUGGED SMALL BUILDINGS FOR A MARINA

The Harbormaster's building (above and far right) functions both as office space and observation tower. The other buildings in the complex—such as the small maintenance and restroom building at right—are similar in materials and design.

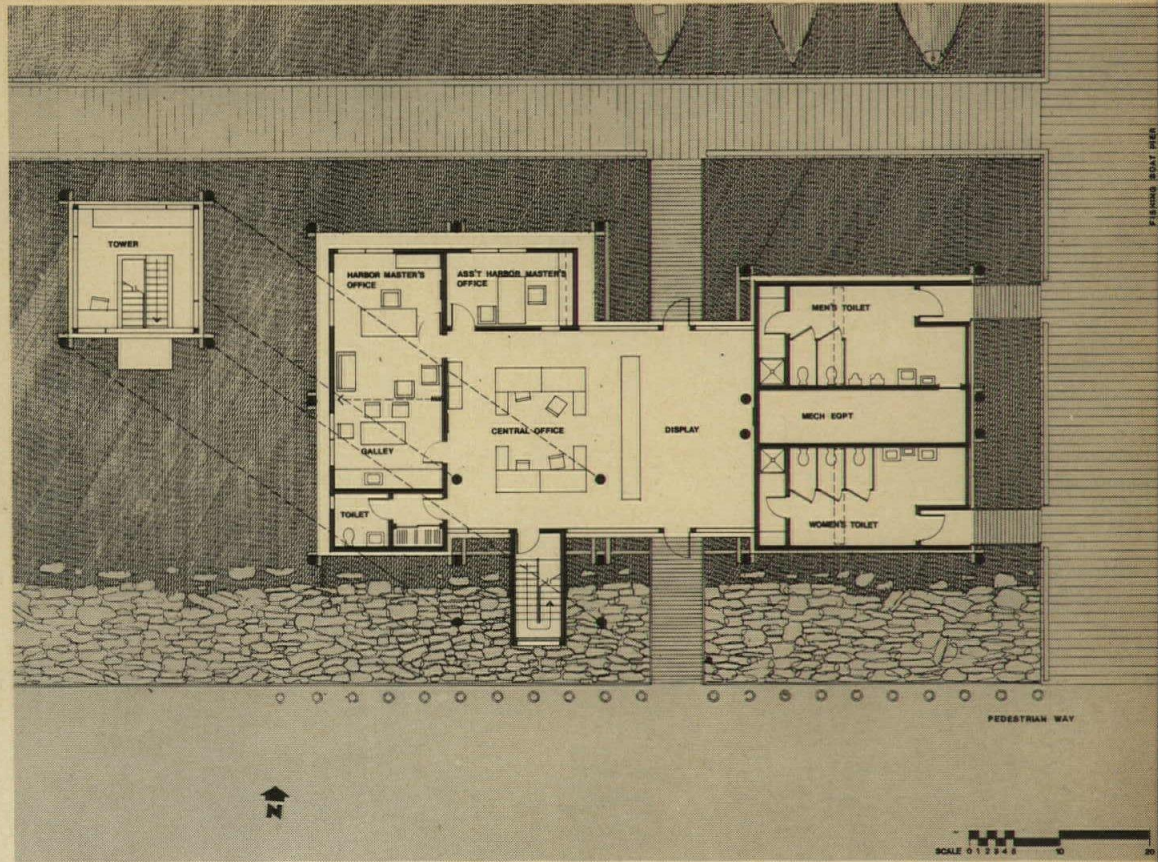
All buildings are intended to reflect the tradition of the waterfront, with the use of heavy timber, weathered wood pilings, and natural earth colors to achieve a salty, rugged appearance. Each structure consists of pole columns, timber beams, and timber floor and roof decks. The wood and glass walls are hung within this frame to allow for shrinkage movement as well as wind and settlement deformations.

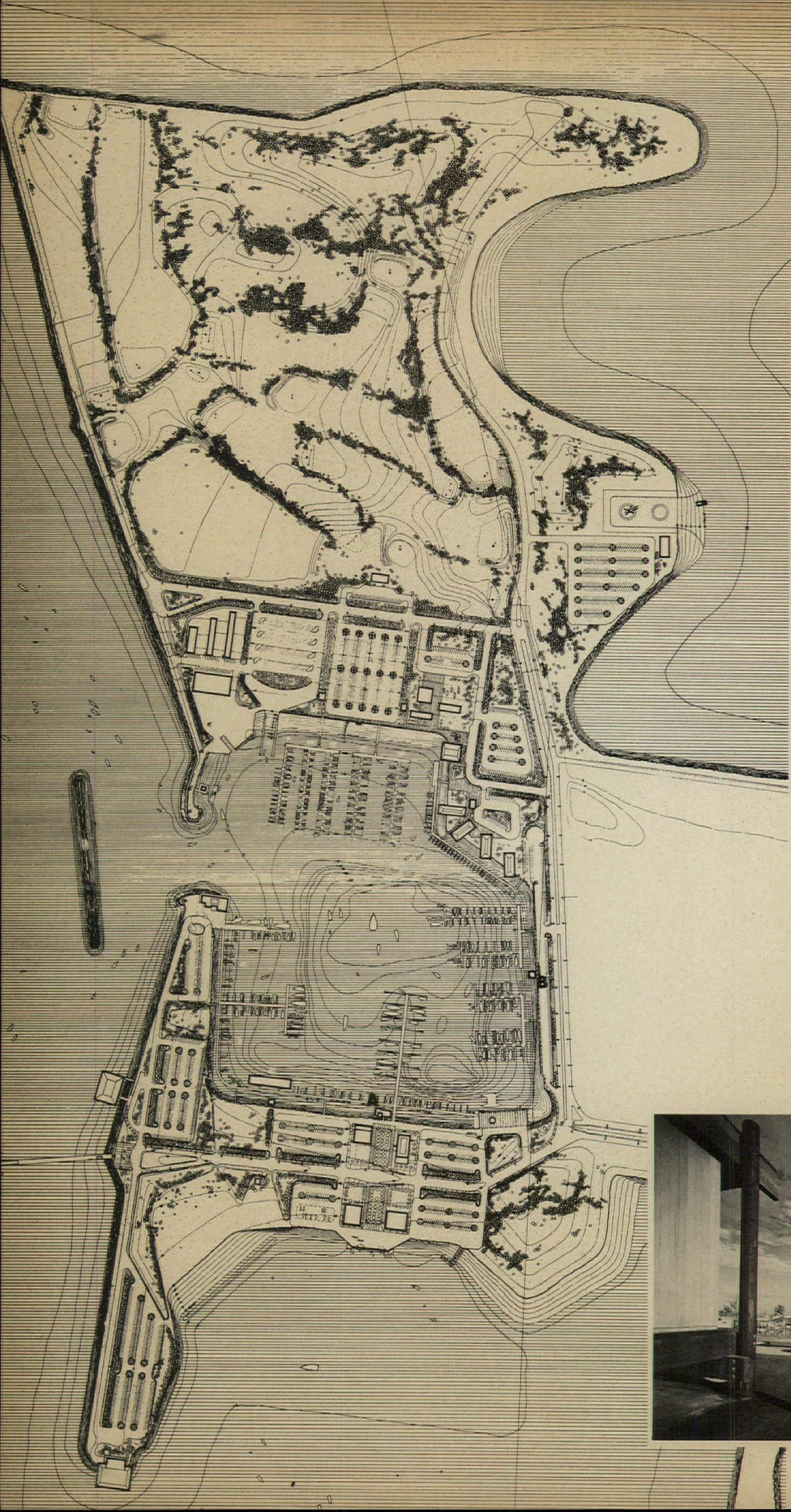
Exterior walls are grey-stained redwood siding; poles are charcoal brown, and the roofs are brick-red gravel. Interior walls are finished the same as the exterior; floors are oak, and the wood ceilings are stained blue-green.

BERKELEY MARINA, Berkeley, California. Architects: *Gerald M. McCue & Associates, Inc.*; landscape architect: *Sasaki, Walker Associates, Inc.*; structural engineer: *John A. Blume & Associates*; mechanical and electrical engineers: *Keller & Gannon*; contractor: *A. B. Lahti, Inc.*



The harbor pilings in the photo at left are reflected in the detailing of each building. As parts of a master plan which called for several individual areas of activity within the marina (see next page for the master plan), the buildings stand as focal points of these pockets of activity. By separating functions in this way, sight lines to the water were kept open rather than cut off by a solid row of waterfront buildings. All utilities were placed underground.





The plan shows the total marina development. A is the Harbormaster's building, and B are the restrooms. In order to free more land for beaches, walks, park area, dining and picnic facilities, related activities were clustered around malls. The photo is of a typical building detail.



Well-building hath three conditions... but "environmental design" has 216 tasks

A review of the A.I.A. report on architectural education
by Jonathan Barnett

Two years ago the American Institute of Architects asked Robert Geddes, Dean, and Bernard Spring, Senior Research Associate, of the Princeton School of Architecture, to look into the state of American architectural education, with its ever-changing courses, rapid turnover in deans and chairmen, and its increasingly militant students. The A.I.A. hoped that the Princeton educators could explain some persistent questions, such as why American architectural education combines an extraordinarily high attrition rate (frequently two-thirds of an entering class will fail to graduate on schedule) with a rather low level of professional acceptance (for example, with a few minor exceptions, no state grants architectural graduates exemption from a registration examination).

The A.I.A. also hoped that the study would bring the profession and the schools closer together, by supplanting the stereotype views that the schools are "impractical" and the profession "not interested in the art of architecture."

It is not surprising that the completed report should have turned out to be a controversial document, but the real subjects of controversy have been somewhat obscured by the reaction to the report itself. Very brief, and very abstract, the report resolutely refrains from using the words "architect" or "architecture," and often makes use of the arcane language of system analysis. By raising more

Jonathan Barnett, a frequent contributor to the RECORD, is a principal urban designer on the staff of the New York City Planning Commission.

questions than it attempts to answer, the report's initial effect has been to drive the profession and the schools even farther apart.

The A.I.A.'s official reaction to the report has been an uneasy series of "clarifying" press releases, mixed with statements that additional, supplementary studies are already in progress. The normally placid Association of Collegiate Schools of Architecture has become more stirred up than anyone can remember, and it passed a resolution at its Portland convention which amounted to a complete rejection of the A.I.A. report.

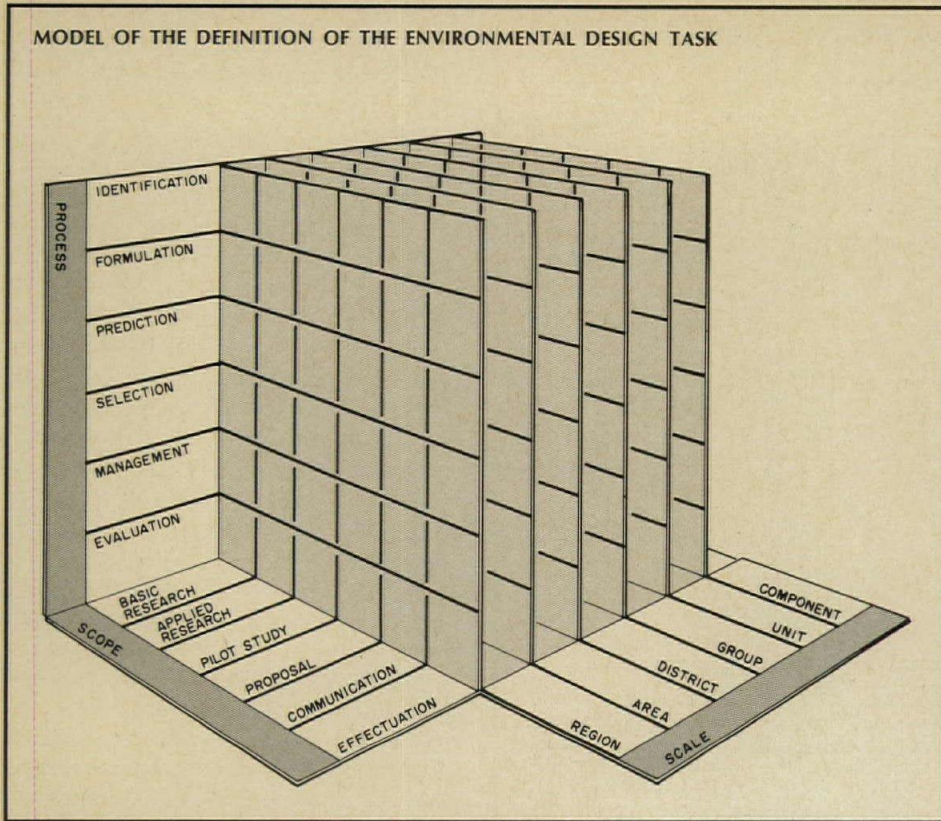
Some part of the controversy really seems to be the fault of the report's format, rather than its content. After two years, and \$100,000, one is inclined to expect a somewhat more substantial looking result than a bare 56 widely-margined pages; and the "systems" language has a tendency to offend architect and educator alike, with its implied assertion that the cause of all problems in architectural education is simply sloppy thinking. It is clearly worth putting any such initial prejudice aside, in order to consider the report on its own terms.

Even so, the Princeton report is still an unconventional document. Orthodox systems thinking requires three stages: system definition, system analysis, and system design. The A.I.A. report goes deeply into system definition, provides the reader with analysis of only the most general kind, and then sketches in the outline of a design, leaving all the details for future study.

The basic assumption of the report is that the design of buildings, structural engineering, landscape architecture, city planning, product styling, graphics, and other design disciplines are all part of a single profession (or system), which Messrs. Geddes and Spring elect to call "Environmental Design." As a theory this concept has a deceptively self-evident ring about it, particularly to those architects who feel that their training already qualifies them to design anything from a hawk to a handsaw. In practice, of course, such a concept runs afoul of registration laws, professional jealousies, and basic differences in talent and temperament.

In order to get a grip on the question of what actually constitutes "Environmental Design," the Princeton study sought a definition based on actual performance, rather than traditional notions about different disciplines. This approach led to a series of definitions based on six stages of the design process, six levels of implementation from basic research to final construction, and six different scales from component to region.

MODEL OF THE DEFINITION OF THE ENVIRONMENTAL DESIGN TASK



Is "Environmental Design" different from architecture—who will practice it and how will he be registered?

The result was a definition of 216 tasks (6x6x6) that comprise "Environmental Design." Thus we have a system of thought that has a place for the engineer designing a bridge or the financial planner designing a bond issue for a housing program. In other words, "Environmental Design" comprises a far wider range of tasks than traditional concepts of Architecture; and a meaningful discussion of architectural education should take this larger context into account. The authors go one step farther, however: they cease talking about architecture as a separate profession and choose to consider *only* "Environmental Design."

One wonders just how helpful this definition of the design professions as a system will really prove to be. There is a deeply ingrained belief in the American academic community that to define a problem correctly is to go a long way toward a solution. The emphasis on definition in the A.I.A. report clearly comes from a belief that a new conceptual framework will help achieve a new consensus. In the case of a large generic problem and a large generic definition, however, there is some doubt just how much practical effect a new concept can have, particularly if the immediate result is to hit the average professional right in the checkbook. If the A.I.A. takes the concept of "environmental design" seriously, there is no question that it is proposing something that is profoundly destructive of registration laws and other existing forms of professional protection.

Thus we come to the question: who would practice environmental design, and what professional service should he offer? For an answer, we must analyze the system that Messrs. Geddes and Spring have defined, and unfortunately, at this critical point the Princeton report gives us very little assistance.

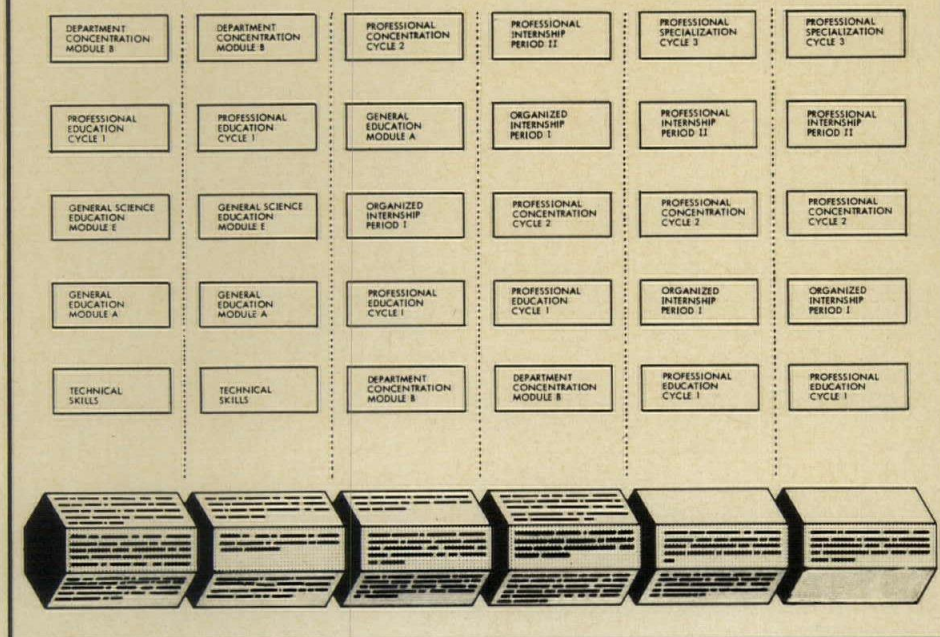
To analyze a system we need a lot of specific information, and specific information is just what this report doesn't provide. Presumably, a large amount of the \$100,000 went for data collection, but none of this data is reproduced. Readers who are both enterprising and patient can obtain copies of some of the study's research materials that have been deposited at the Octagon in an undigested, unpublished form. (Ten cents a page, payable in advance, minimum order two dollars.) This material includes a compendium of curricula and statements on educational policies and objectives of the nation's architectural schools, and eight pages of responses by practitioners to a questionnaire sent out by the study. The authors left out this material, apparently in the interests of readability, or possibly for lack of relevance. In either case, the reader who agrees with the report must take its conclusions on faith; the reader who does not agree may well feel that he is not getting very much for his money.

If the list of research materials is complete, the authors incorporated a great many related disciplines into "Environmental Design" without consulting educators and practitioners in these allied fields. This circumstance makes "Environmental Design" something of an *a priori* conclusion. Engineering education, just to take one example, has its own vexed issues, notably the conflict between "scientific" and "applied" studies. It would be rather sad if, when the architect finally gets around to inviting the engineer to be his partner in environmental design, he should be told that the design problems involved are trivial, and of no professional interest.

Let us return to our original question: who will practice "Environmental Design," what kind of service will he offer, and, of course, how shall he be trained? The report has not told us how many people enroll in architectural schools, how many finish, or what they study while they are there. We also have no idea of the numbers enrolled in allied fields of education, or what the areas of overlap between curricula might be. Nor do we learn anything from this report about current professional practice: how many firms are practicing a kind of environmental design now, what has been the training of these practitioners, what training do these profes-

MODULAR JOINTED FRAMEWORK FOR ENVIRONMENTAL EDUCATION

Educational segments described on the face of each module



sionals recommend? Admittedly, developing this kind of information is not easy; but isn't that precisely the reason why expensive, nation-wide surveys are required?

The report's conclusion (which the reader seems to be expected to accept on faith) is that environmental design education suffers from five major problems:

1. There is a lack of continuity between concepts taught in school and professional practice, compounded by the rigid time schedules of present-day education.
2. Today's design problems are full of complex interrelationships.
3. Traditional teaching methods based on emulation don't meet new problems.
4. Students wish to be more involved with real situations, particularly those including social problems.
5. Both the professional future of these students and the potential demand for their services are uncertain and changing.

This seems a perfectly reasonable list on which to base some conclusions about an architectural curriculum; it is perhaps a little parochial if you are going to talk about "Environmental Design." In any event, the report does not draw conclusions about a curriculum. It sets up a framework within which others can draw conclusions about a curriculum. This is more than a little frustrating, rather like opening a package and finding another wrapped package inside.

What kind of education fits a flexible framework—and who decides which subjects are essential?

The framework for environmental education is divided into six time modules (years?—semesters?). Each module has five possible programs, some of which are present in both early and late modules. This is certainly a much less rigid conceptual framework than the average curriculum, and it does admit of a great many permutations and combinations. Some of these permutations don't seem to make too much sense, like having your Professional Internship Period II before your Professional Education Cycle I, but it is impossible to evaluate this sequence without more information than the report offers. Certainly the five-faceted, six-jointed module is far from self-evidently correct. Why not more modules, of shorter duration, with more alternatives at earlier stages?

The relevance of the modular educational framework to the report's five problems of architectural education also remains somewhat obscure.

If a less rigid time schedule will help to bridge the gap between the school and the "outside world," it would be helpful to know what kind of studies really need to be sequential, and which do not.

What kind of general education or introduction to science will help bridge the gap between disciplines? Are we talking about special courses designed for "environmentalists" or rigorous introductions to separate subjects?

If traditional teaching methods no longer work, how should "Professional Education Cycle I" be taught?

Can the "real world" only be met through internship, or can it be incorporated in the curriculum?

Is a diverse and flexible education better in changing times than a thorough grounding in a few subjects?

Above all, who is to be taught what—and where should he learn it?

The report assumes that the multiplicity of modular curricula will be too much for any one school, and that individual institutions should specialize within a national framework. This is a rational notion, comparable to suggesting to automobile manufacturers that they should each specialize in—and perfect—a particular kind of car. The question is, can one reasonably expect that such a situation could actually be achieved?

The report also assumes that each student will follow an individually tailored curriculum that will fit him for a specialized professional role. This is actually the reverse of today's pattern, where the architect learns his speciality in practice and has a generalized professional education. What is the irreducible amount of general training that an

CALCULATION OF THE NUMBER OF CAREERS POSSIBLE WITHIN THE MODULAR JOINTED STRUCTURE OF ENVIRONMENT DESIGN EDUCATION

Total possible programs = 938

Does not include options in professional cycles 2 and 3

MODULE

	1		2		3		4		5		6	
	number	%	number	%	number	%	number	%	number	%	number	%
General Science Education: Module E	1	20	4	20								
Technical Skills:	1	20	4	20								
General Education: Module A	1	20	4	20	12	19						
Departmental Concentration: Module B	1	20	4	20	12	19	30	20				
Professional Education: Cycle 1	1	20	4	20	12	19	24	16	32	11	20	05
Professional Concentration: Cycle 2					8	12	32	21	72	26	96	23
Professional Specialization: Cycle 3									46	16	118	28
Organized Internship: Period 1					20	31	44	30	55	20	55	13
Professional Internship: Period 11							20	13	75	27	130	31
total programs for each module					64		150		280		419	

"environmentalist" must have to function well in his speciality, and what happens if he wishes to change his role? Does he have to be "recycled"?

The authors do not answer these questions. Instead, they suggest ways for others to think about them, including "brainstorming" and the "critical incident technique." Needless to say, setting up guidelines for other peoples' intellectual experiences is a risky business at best. The following passage is quoted out of context, but it seems to epitomize perfectly the authors' attitude towards their readers:

"In designing experimental programs along the lines suggested above, it is useful to use the concepts of the three realms of learning or cognition identified by Jerome Bruner and his co-workers. Bruner's research indicates that there are three identifiable ways in which man perceives and deals with his environment. He terms these three modes of cognition the enactive (physical action), the iconic (direct imagery) and the symbolic (abstractions in the form of words and numbers). A well-balanced educational experience should not neglect experiences in every one of these three realms."

At the end, we are left with a need for more specific information, and, at the same time, a hope that the A.I.A. and the schools will be willing to take steps without waiting to see their own way clear to the end.

Someone has to arrive at some reasonably compact and thoughtful evaluation of the present state of architectural education in this country. If

deans and catalogues are unreliable sources, and it is necessary to send a trained researcher to every college campus, so be it. If we are talking about "environmental design," we need similar information for the other design professions as well. It would also be interesting to survey recent graduates, to see what they are doing with their training, and how appropriate they find it to be.

An accurate, agreed-upon description of the present state of architectural education is a necessary precondition to any substantial change. The Association of Collegiate Schools of Architecture can be forgiven for acting in a peevish fashion when confronted by a report that assumed that total change was needed, without specifying what was wrong, or what form the changes should take.

At the same time, if the A.I.A. is serious about the concept of environmental design and wishes to become the professional organization for a new, more inclusive discipline, it is time to start thinking about admitting other design professionals, like engineers or graphic designers, to full membership. And, if the A.I.A. seriously wishes the schools to move in the direction of an "environmentalist" curriculum, it can start putting pressure on the registration boards to change the scope of their requirements.

In any case, whatever you think of the A.I.A. report on education, it is clear that a great deal more work needs to be done.

Hospitals

Architecture's contribution to the control of rising medical costs is in the planning of hospitals for efficient operation and economic construction. Wilbur Taylor reviews some of the trends in Public Health Service approaches in the article below. And the exhibits which follow scan the evolution of inventive layout, from variations of the round nursing unit to the continuing search for efficiency and amenity through privacy and flexibility, as in Rex Allen's duorum and other devices.

—William B. Foxhall

Needs, trends, and costs of hospitals and health facilities

By Wilbur R. Taylor

In the early days of the Hill-Burton program, the shortage of hospitals was so great that any hospital built anywhere fulfilled a vital purpose. Today, the increased complexity of health care, the growing population, and the population shift from rural to urban centers make the problems of providing adequate health care to all segments of the population seem almost insurmountable. Attempts to solve these problems have pointed up many needs which will have to be met, and some broad conclusions about possible new directions.

Regional planning is key to filling needs at lowest cost

The location of hospitals and health facilities and the services they will provide is of prime importance. Several mediocre hospitals in one area, each providing the same services, are both costly and inefficient. Facilities should be located where the need is greatest and where they can serve the greatest segment of population, and they should be able to provide comprehensive health services for the people. Local and areawide planning agencies working in close cooperation with state Hill-Burton agencies attempt to answer this need. Through grant programs, 70 areawide planning agencies have now been established,

and the Comprehensive Health Services program of the Public Health Service was established to coordinate all the aspects of health planning.

Interrelated with the need for adequate planning for the location of facilities is the need for modernization and/or replacement of obsolete and inadequate hospitals and health facilities. Obsolescence of hospitals is caused not only by physical deterioration because of the passage of time, but also by functional obsolescence because of the many improvements in medical care techniques. These improvements make the modernization or replacement of facilities that serve as research and teaching centers imperative. However, the decision to modernize or replace a facility must be coordinated with the overall planning for health facilities of all kinds for the area.

Opportunities for economy are in diversity of services

The great demand for all kinds of health care today emphasizes the need for more diversified facilities for patients who do not require acute hospital care. Although the need for additional long-term care facilities, including nursing homes, has been recognized for more than a decade, this serious shortage has received even more widespread attention since the enactment of Medicare. These facilities can provide economical skilled nursing care for people who are ill, but who do not require the specialized services of the acute general hospital, and

they are less expensive to construct, operate, and maintain.

The changing role of outpatient services in the health care concept has created many problems for outpatient departments of general hospitals. These departments are now an essential component of health services in the community. In the past, they have not been designed or located properly within the facility to take care of the many services they now try to provide. In the future, if outpatient departments continue to play the same role they do now, facilities will have to be larger, better designed, and better operated.

Functional design, shared services, and adequate funding can lower costs

The increasing cost of health care and of health facility construction makes mandatory the consideration of all methods of reducing costs. One method of reducing costs is to provide functional design, which will increase operating efficiency and reduce manpower, one of the biggest items in the hospital's operating budget. This has been one of the major aims of the architectural guide material developed and distributed by the Hill-Burton program since its inception. Another method might be the sharing of services, equipment, facilities, and manpower by several hospitals.

A major need in health facility construction is adequate funding for the required projects. In fiscal year 1968, the Hill-Burton program helped to fund 505 health facility projects at a total cost of

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\$728,855,217. The Hill-Burton share of the cost of these projects was \$208,898,803. If the program could provide \$1.6 billion to the States in 1969, they could proceed with 1,992 projects costing \$4 billion. However, the Hill-Burton budget request for fiscal year 1969 is for only \$267,200,000, which is only 16.7 per cent of the amount the states need from Hill-Burton. Construction materials and labor costs increase each year, and for each year that a health facility project is delayed, costs increase proportionately.

Certainly, there is a great need for innovations in design and construction of health facilities to prepare for future advances in technology and the new equipment that is constantly being developed. With rapidly changing medical concepts and procedures, the hospital constructed today may be partially obsolete in five years. Health facilities must be designed with built-in capability for expansion and change.

Prefab components and flexible utilities may offer long-term savings

The best and most advanced technology should be applied to the construction and operation of health facilities so vital to all segments of the population. The systems design approach to hospital construction encounters difficulties at present because of the great diversity of size and functions between hospital departments. However, cost savings may result from factory-assembled components such as toilet rooms, floor pantries, nurses' stations, clean and soiled work-rooms, and even patient rooms.

Most systems for designing a flexible structure for long-term functional use cost more initially than conventional construction. However, construction costs should be measured in terms of the long-term usefulness of the building to the community. If the permanent elements of a hospital do not permit the expansion and changes necessary to maintain an efficiently functioning plant over the years, the structure will have to be abandoned and a new hospital built.

The Veterans Administration's new San Diego Hospital is one example of an attempt to build future flexibility into the hospital structure. The design includes utility service floors between each normal floor, with sufficient clear height to make necessary changes in any of the systems or to install such requirements as new equipment, utilities, and duct-work. In the sections of the hospital that do not require extensive utility equipment, these spaces can be used for administrative or other functions not closely related to clinical services.

The concept of arrangements between hospitals to share certain services

and facilities may free some space in hospitals to allow for expansion.

Central services can lower costs

Because of the high cost of construction and the highly specialized and expensive equipment in use today, there is a trend toward sharing services and facilities such as laboratory services, radioisotope facilities, tissue banks, computer services, pharmacy services, dietary services, laundry services, equipment maintenance services, and even obstetrical facilities.

With present day equipment, a centrally-located automated laboratory could easily serve a number of hospitals, thus saving manpower and space.

Sharing of dietary services by several hospitals with meals prepared at a central location may prove advantageous. A number of hospitals are experimenting with the use of frozen and processed foods. If the use of these foods proves feasible, kitchen cooking equipment may be eliminated and a saving in manpower may be realized. The use of disposable dishes and other dietary equipment is growing. Although this saves reprocessing labor, the disposables require considerable storage space.

The low census and the shorter hospital stay of maternity patients have made it unnecessary and costly for all hospitals to have obstetrical facilities. These facilities are so expensive that unless a high census is maintained, the department operates at a loss. Through areawide planning, obstetrical facilities

could be placed in a centrally located hospital where other hospitals could share in the services and facilities, thus eliminating the need for obstetrical facilities in each hospital.

Skimping on space per bed invites early obsolescence

Shared services can result in some space savings. However, as hospitals increase services and personnel, the number of square feet per bed will continue to increase. A few years ago, the allowance of 600 square feet per bed was considered normal. Today, a hospital of over 100 beds will need to provide 850 square feet per bed. A university teaching hospital serving a medical school will vary in size and area per bed depending upon the teaching program and the community obligations. For example, the community may demand that the facility provide more beds and outpatient services than are required for teaching purposes. Some teaching hospitals have required more than 1200 square feet per bed. Experience in the Hill-Burton program has shown that to skimp on space per bed is to invite early obsolescence. Last year 88 per cent of all Hill-Burton projects were remodeling jobs and additions, and the cost per square foot for these projects exceeded the cost of new construction.

Single rooms and air conditioning are not always luxury items

The use of single-bed rooms in hospital design, a well-established trend, is here to stay. From an economic standpoint

Table 1—CONSTRUCTION COSTS AND RELATED DATA FOR SELECTED HILL-BURTON PROJECTS

Cost Items	Univ. Teach. Hosp. (1967)	New Gen. Hosp. (1968)	New Gen. Hosp. (1966)	Out-Pat. & Research Bldg. (1968)	Resch. & Educ. Bldg. (1968)
No. of Beds:.....	350	125	99	0	0
Gross floor area:					
Total sq ft.....	427,552	85,595	82,395	128,700	303,426
Sq ft per bed.....	1,221	684	832	0	0
Project cost:					
Total	\$27,885,397	\$4,832,360	\$4,952,870	\$8,144,542	\$9,973,006
Per sq ft.....	65.22	56.45	60.11	63.28	32.87
Per bed	79,673	38,658	50,029	0	0
Const. & fixed equip. cost:					
Total	\$22,104,228	\$4,181,536	\$4,246,351	\$7,104,076	\$8,222,000
Per sq ft.....	51.70	48.85	51.53	55.20	27.10
Per bed	63,154	33,452	42,892	0	0
General construction.....	12,753,700	2,520,800	2,981,885	3,990,200	3,470,669
Mechanical work.....	5,760,000	967,000	756,241	1,608,500	2,259,000
Electrical work.....	2,187,000	445,000	348,906	752,420	1,042,000
Elevators.....	603,528	74,000	89,500	300,000	150,331
Fixed equipment.....	800,000	94,600	40,000	120,000	1,300,000
Contingencies	0	80,136	29,819	332,956	0
Other project costs:					
Movable equipment.....	\$4,000,000	\$375,000	\$225,000	\$480,000	\$1,200,674
Site & soil investigation..	95,000	2,340	3,831	3,781	37,000
Architect's fee.....	884,169	248,484	228,878	381,451	493,332
Supervision at site.....	137,000	25,000	23,000	8,000	20,000
Consultants	80,000	0	0	0	0
Site development.....	385,000	0	210,810	0	0
Other	0	0	15,000	167,234	0

only, disregarding the patient comfort aspects, the single-bed room has many advantages over the multi-bed room: 1) it provides a larger income to the hospital; 2) it makes possible more efficient use of other hospital departments; and 3) it enables the hospital to maintain a higher census—approximately 15 per cent higher than with the use of multi-bed rooms. An 80 per cent census for a multi-bed room hospital is considered high. However, a single-bed room hospital can easily operate at a 95 per cent or even higher occupancy rate. In other words, 15 per cent fewer beds can serve the same patient needs with the use of single-bed rooms. Greater efficiency in bed use expedites admissions for elective surgery, which also increases efficiency in use of other departments.

Air conditioning in the hospital has received universal acceptance and is recognized as contributing to the physiological and psychological well-being of the patient as well as to the comfort of both patients and staff. In addition, a well-designed system will not only reduce objectionable odor, but more importantly will reduce the spread of infectious airborne contamination. The Hill-Burton standards of construction and equipment detail some specific design criteria developed to assist in accomplishing these objectives.

The design of the ventilation system of such sensitive areas of the hospital as the surgical and obstetrical suites is most important because of the danger of infection from contamination in the air of the operating room. For this reason, current Hill-Burton regulations require 100 per cent outdoor air which is reported to be relatively free of pathogenic organisms for the ventilation of such areas, with no recirculation or re-use of the air. In this connection, a three-year study sponsored by the Hill-Burton program under contract with the Mayo Foundation on the recirculation of air in operating rooms has just been completed. This study is believed to be one of the most complete ever undertaken on this subject. Although the final report of the study has not been received, it is anticipated that there will be evidence that with the use of properly maintained high-efficiency filters available today, the contamination of the air of the operating room will be no greater with recirculation than with the use of 100 per cent outdoor air with no recirculation. If this proves to be true, it will usually result in lower equipment cost (through reduced heating and cooling loads) despite the additional ductwork, increased fan power and higher-efficiency filters required. Meticulous installation and maintenance will, of

course, be required for a recirculation system.

No compromise with the safety of patients from fire and the combustion products of fire should be tolerated in the design of hospitals and health facilities. To achieve a facility which is as nearly as possible fire-safe, the flammability of all structural materials as well as finishes and furnishings must be controlled. The increasing use of carpeting in hospitals, which makes a valuable contribution to noise abatement, requires serious consideration from the standpoint of fire-safety and sanitation. The Hill-Burton program requirements specify acceptable flame-spread limits for carpets to preclude the use of the more hazardous types.

Inaccurate cost estimates impair values of the project

Underestimation of the cost of projects has been a constant problem in the hospital construction field. There are several reasons for this underestimation, including the escalating cost of construction, lack of understanding of the actual space needs, and the time interval between planning and beginning construction. Also architects often overlook the fact that so-called "project costs" (which include equipment, site work, fees and other items listed under "other project costs" in Table 1) may be as much as 20 per cent greater than construction costs. As a result, when bids are received, alternatives are adopted

Table 2—AREA ALLOCATIONS FOR TWO NEW GENERAL HOSPITALS, 1964

Project	Hospital A	Hospital B
Gross area.....	112,983	214,425
Mechanical area.....	21,509	23,110
Circulation area.....	24,762	45,356
Exterior building area.....	2,955	1,658
Unfinished unassigned area	0	0
Construction area.....	11,172	24,891
Net assignable area.....	52,585	119,410
Administrative.....	4,722	12,661
Obstetrics.....	1,951	3,679
General sterile supply.....	1,328	5,474
Dietary.....	4,404	13,739
Emergency.....	921	0
Pharmacy.....	324	846
General storage.....	2,321	6,265
Housekeeping.....	797	2,499
Intensive care.....	0	0
Nursery.....	1,745	1,820
Locker rooms.....	1,469	2,945
Nursing.....	24,614	46,004
Outpatient.....	718	1,877
Pathology.....	1,843	5,490
Maintenance spaces.....	160	630
Radiology.....	2,389	3,916
Surgical.....	2,879	8,060
Therapy.....	0	3,505
Number of beds.....	207	216
Construction cost per sq ft.	\$41.65	\$24.15
Project cost per sq ft.....	\$50.30	\$27.10
Sq ft per bed.....	546	993

which may reduce the scope of the project or impair the functions of the facility. In a group of 55 new community hospitals recently studied, the average underestimation was about 10 per cent—a significant amount. In a few larger hospitals, this percentage was drastically exceeded.

The experience of the Hill-Burton program has been that reducing the square feet per bed of a project below an average figure of 850 square feet per bed does not proportionately reduce construction cost. Table 2, giving area breakdowns for two general hospitals, shows that the unit costs per square foot are higher in a hospital with a low square foot area per bed although the total cost is approximately the same. One major reason for this is that the mechanical, electrical, and plumbing costs are approximately the same for both projects, although the costs of fixed and movable equipment differ.

Although the escalation of costs cannot be accurately predicted, the following planning steps are suggested to partially alleviate underestimation of a project:

1. The client should provide the architect with a well-developed medical program. This program should be written by a hospital consultant and should accurately describe the scope of all functions to be performed within the facility.

2. The architect should develop an architectural program to fit the medical program. Space allocation for each of the medical functions should be sufficient to allow a cushion for possible necessary increase as the project develops.

3. Carefully prepared cost estimates should be developed and reviewed at each phase of development—schematic, preliminary, and final. In addition, an allowance should be provided for increased construction cost during the interval before the construction contract can be executed.

This brief review highlights only some of the important factors which hospital architects must consider today. The nation's architects have made a significant contribution to good hospital planning in the past two decades. This contribution has in turn had a part in the provision of better health care to more people. The future challenge will be more difficult because of changing concepts, advances in medical science, new technical equipment, and improvements in medical care. However, architects will be able to continue to make their contribution to the best possible medical and health care for all the people by providing innovations and improvements in design.



Round-unit towers aid expansion on a tight site

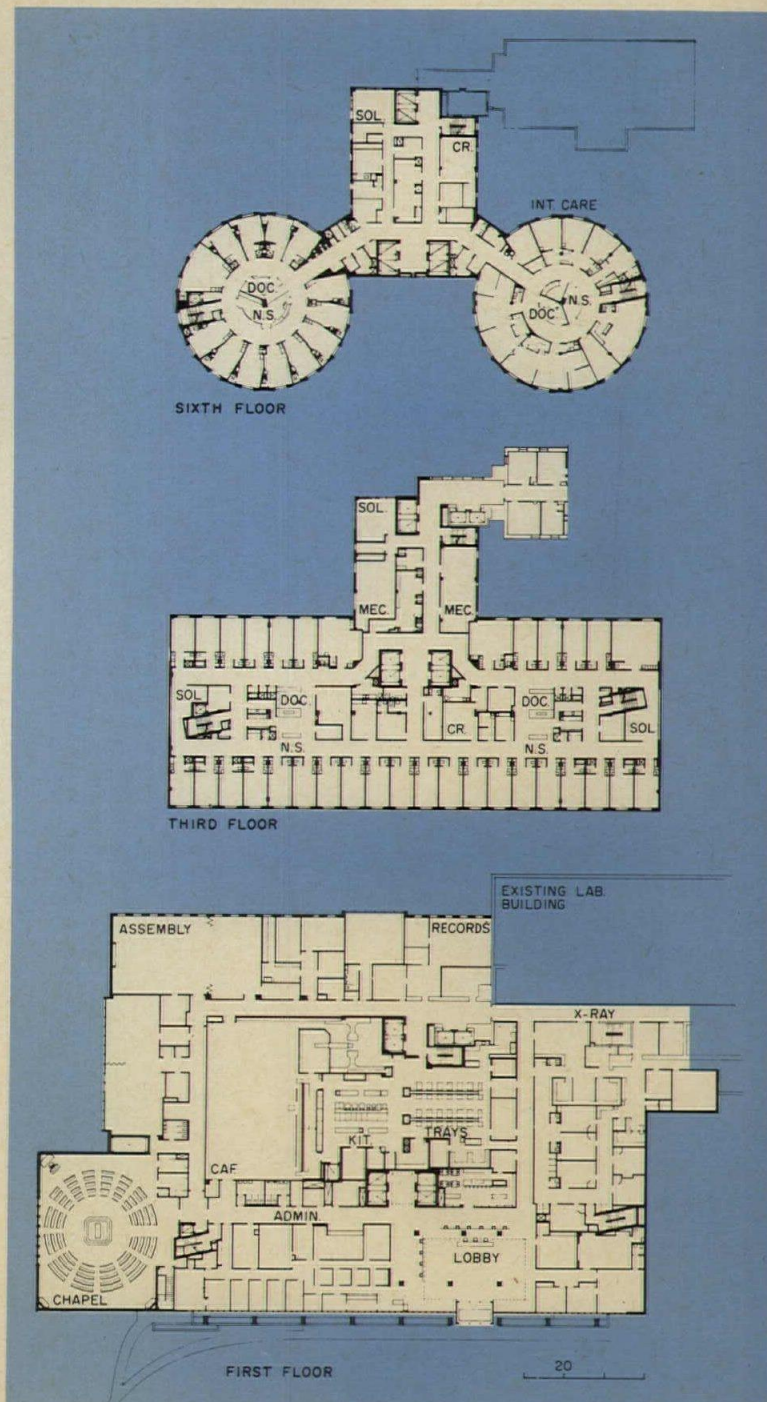
Efficiency of the round nursing unit has been debated for decades, but is now fairly well established as a useful form when the radius is held within limits that permit the central nursing station to be of adequate but not excessive size. When the administration of St. Joseph Hospital decided to add 150 more beds to the existing hospital in downtown Denver, the solution of raising two round nursing towers permitted expansion without suspending services for the already-existing 330 beds. In two years of operation, the form has proved itself more than adequate, especially for pediatric and intensive care services. Sister Mary Andrew, administrator, reports that the eight circular floors "definitely are functional. . . . Members of the medical staff praise them for the elimination of long corridors."

ST. JOSEPH HOSPITAL, Denver, Colorado. Architect: Robert G. Irwin; mechanical engineers: Marshall & Johnson; electrical engineers: Swanson-Rink & Associates; structural engineers: Phillips, Carter & Osborn; contractor: Mead & Mount Construction Company.



Roger and Donna Ewy photos

Visual contact from nursing station to all patient rooms is the primary theoretical advantage of the round nursing unit. Short walking distances are another. Accessibility of supporting supply spaces needs careful planning to cut distances and costs.





Variety of medical and surgical nursing layouts with generous spaces at control points provide a good basis for comparison at Rochester. A full-height mechanical floor over the surgical suites also permits testing and changing various air distribution systems. Two of the operating rooms have systems that can provide up to 100 air changes per hour while maintaining positive pressure to control airborne infection.

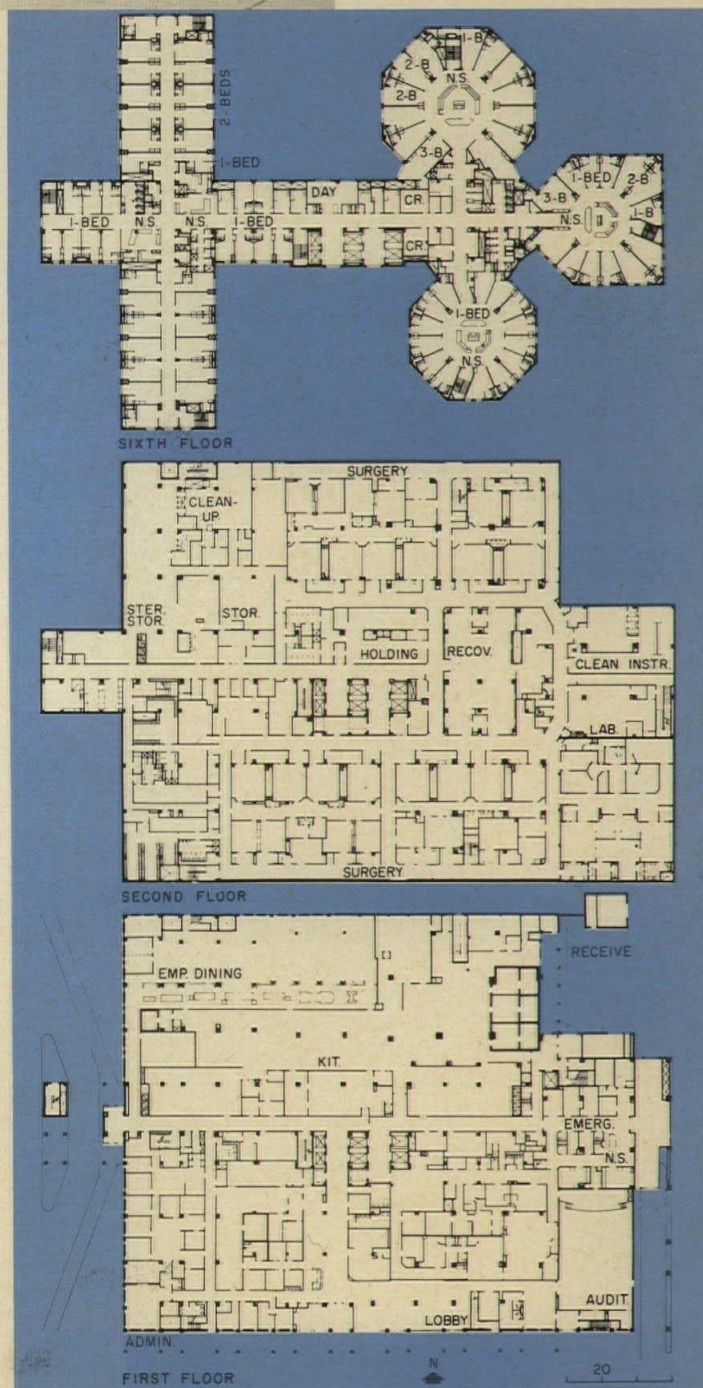


Flexible plan provides both round and square floors

Another variation of the round form was designed by Ellerbe Architects for the Rochester Methodist Hospital, an independent adjunct to the Mayo Clinic complex. This combination of circular and rectangular nursing units was frankly an experiment by the Mayo Clinic to determine the relative merits of these forms. A previous study had already established the benefits of the round form for intensive patient care. Reports of personnel using both forms at Rochester underscore the merits of each. The isolation of the clover leaf towers provides a low noise level, while the single- and double-corridor layouts of the rectangular units have advantages in storage and conference spaces.

Another experiment at Rochester was installation of six different air handling systems in operating suites using various outlets including perforated ceilings, and recirculating 25 to 100 per cent of return air. Results are pending.

ROCHESTER METHODIST HOSPITAL, Rochester, Minnesota. Architect and engineers: Ellerbe Architects.





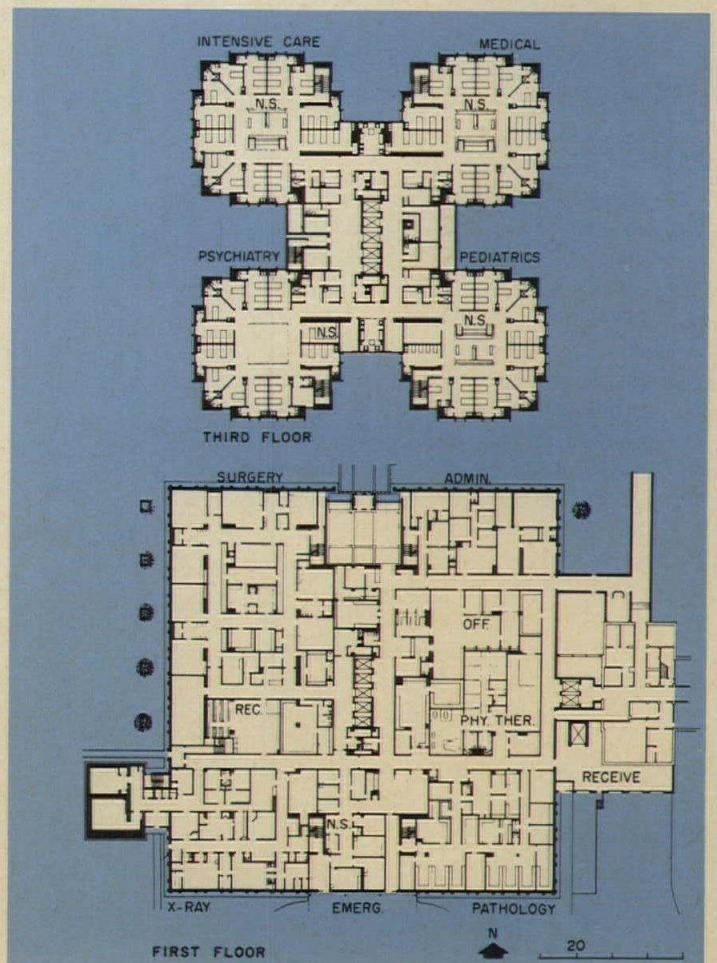
Four square towers attached at the corners of a central rectangle of traffic and utility spaces emerge from a base of central services. With separate entrances on the first floor for public, staff and emergency, traffic control is well handled through a central bank of elevators. This permits diagnostic separation in the tower units on each floor. The third floor, for example, has 22-bed units for psychiatry, pediatrics, intensive care and medical patients. Radial units are adaptable for these services without much change.

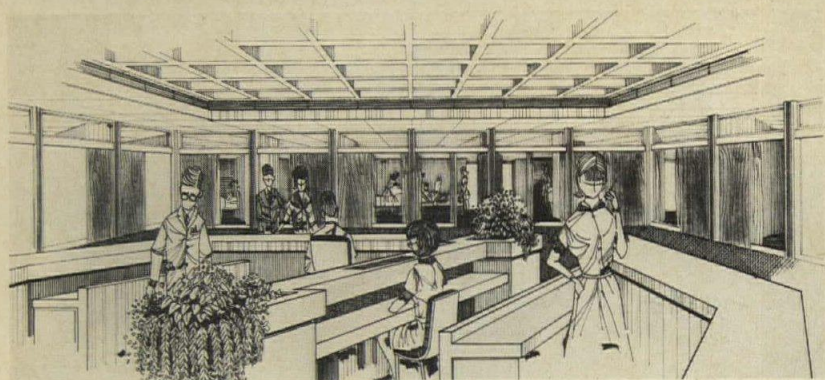
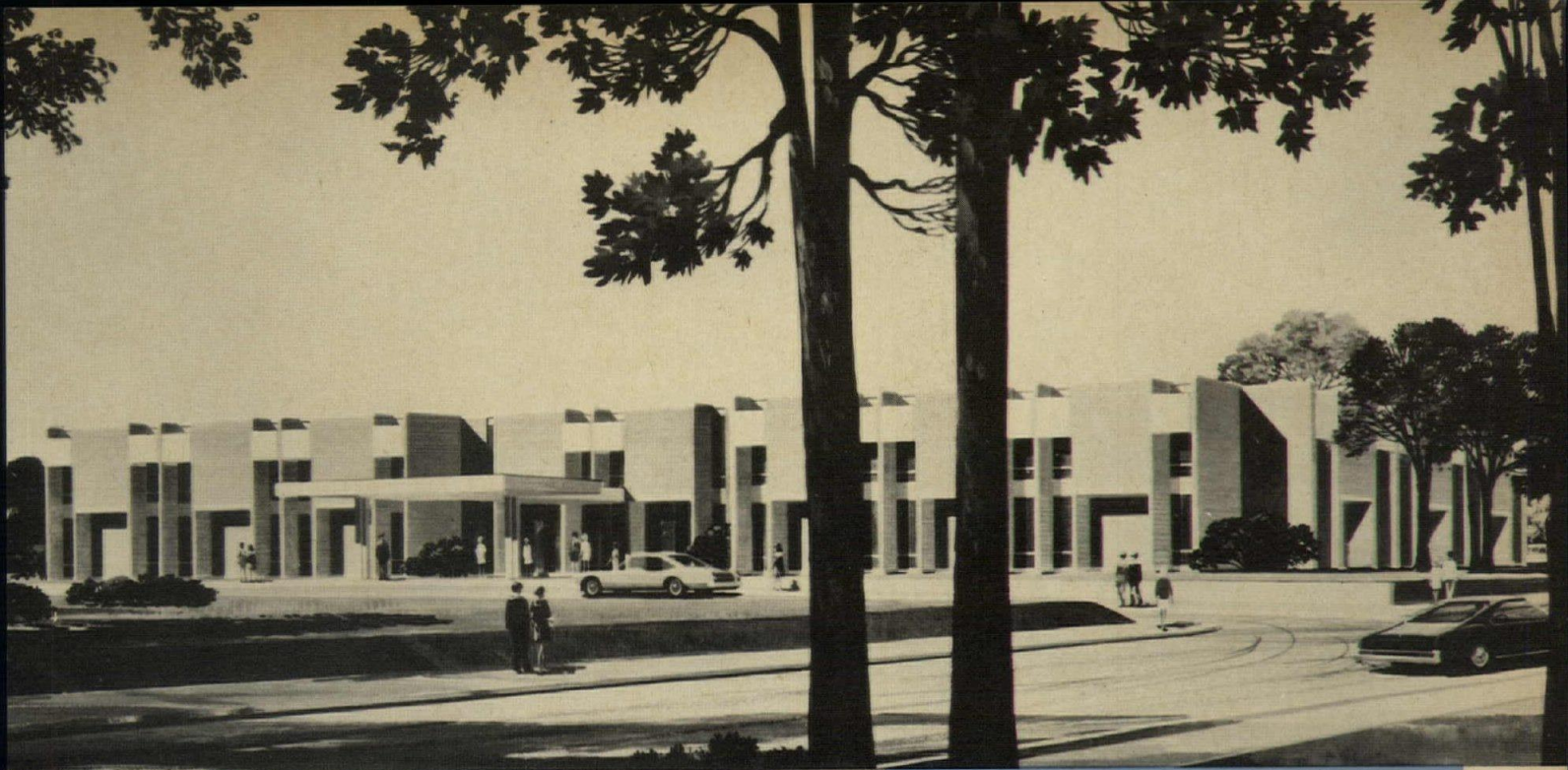


The radial square, a variation on the round

A thoughtful compromise offering the advantages of radial layout with some of those of the rectangular is the arrangement of four square towers around central utility and traffic spaces at Lincoln General Hospital. Architects Davis and Wilson have provided a base for central services and surgery with ready access to the nursing floors via central elevators. The lobby and utility spaces on each floor are contained in a double-corridor rectangle, with short corridors giving access to nursing units which emerge as towers at the corners of the rectangle. This layout provides good traffic separation so that, for example, psychiatric and surgical units can be on the same floor. While in the radial square the distance from the nurses station to the farthest bed is a compact 30 feet, the limitations of the radius are possibly compounded by the presence of corners. The nursing unit appears to be fixed at 22 beds.

LINCOLN GENERAL HOSPITAL, Lincoln, Nebraska. Architects: Davis and Wilson, Inc.; contractor: Olson Construction Company.

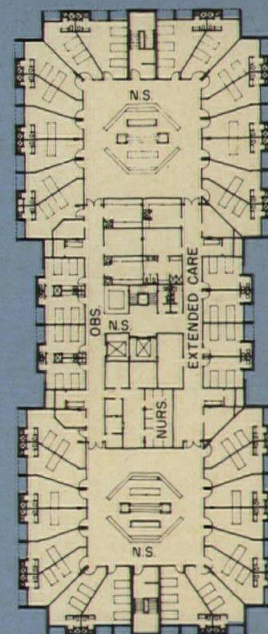




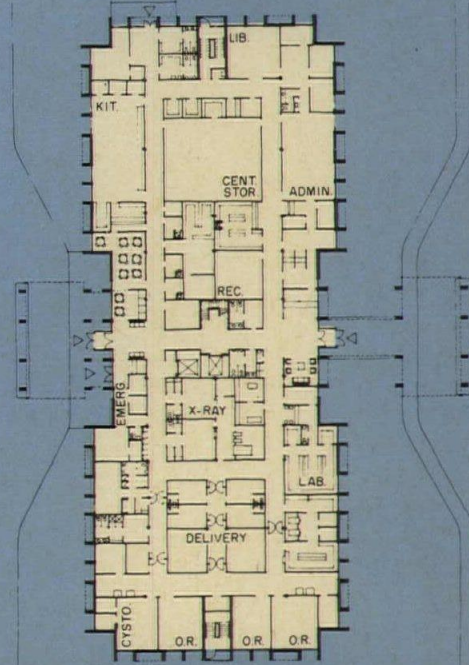
The double-corridor floor grows radial ends

Another squared adaptation of the circular nursing wing was developed by Neuhaus and Taylor for the Angleton-Danbury Hospital in Brazoria County, Texas. Patient room partitions are arranged radially around a central square nursing station providing visual control and short walking distances for nursing routines. Further, the layout is said to permit operation with a minimum of professional staff, an advantage in these times when nursing personnel are in short supply. The two radial units are linked by a double-corridor rectangular unit in which private and semi-private rooms for minimal care patients are located. The initial 64-bed capacity can be doubled by addition of a third floor which foundations are designed to carry. Each of the two radial nursing units controls 24 patient rooms, with glass corridor walls for full visibility.

ANGLETON-DANBURY DISTRICT HOSPITAL, Brazoria County, Texas. Architects: *Neuhaus & Taylor*; structural engineers: *Ellisor Engineers*; mechanical and electrical engineers: *Bovay Engineers, Inc.*; contractors: *Spaw-Glass, Inc.*



TYPICAL FLOOR



GROUND FLOOR



In the two-level base of Fairview Hospital, site conditions permit a glass-enclosed dining area overlooking a landscaped court at the lower level. A bridge from street level above the court gives access to the main lobby at the second level. An entrance for staff is on grade at the opposite side of the second level, where diagnostic and surgical services are located.

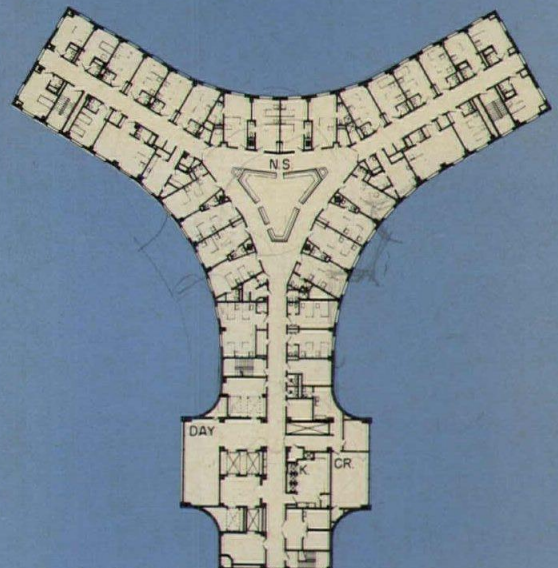


This plan turns the circle inside out

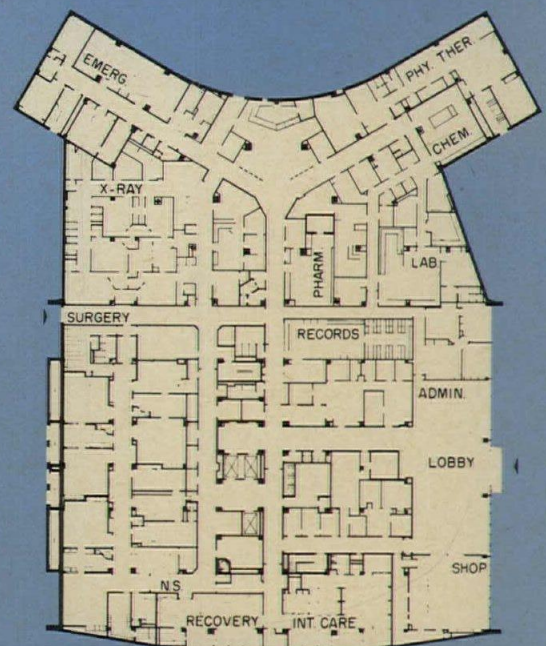
The inside-out circle was the solution Ellerbe Architects devised for promoting flexibility and expansibility at Fairview Southdale Hospital in Edina, Minnesota. This adaptation of the radial nursing unit was to provide optimum conditions for acute nursing care as well as increased privacy. While visibility from the nursing station to the private rooms at the ends of the short radial corridors is less than complete, the central triangular nurses' station does overlook several rooms in which acutely ill patients can be kept under constant supervision.

The hospital was designed for orderly expansion from 225 initial beds to an ultimate 700-bed capacity by addition of three future floors and another wing. About 15 per cent of the beds are in single rooms. Full year-round air conditioning is provided, with each room individually zoned. Each room also has piped oxygen and vacuum.

FAIRVIEW-SOUTHDALE HOSPITAL, Edina, Minnesota. Architects and engineers: Ellerbe Architects.

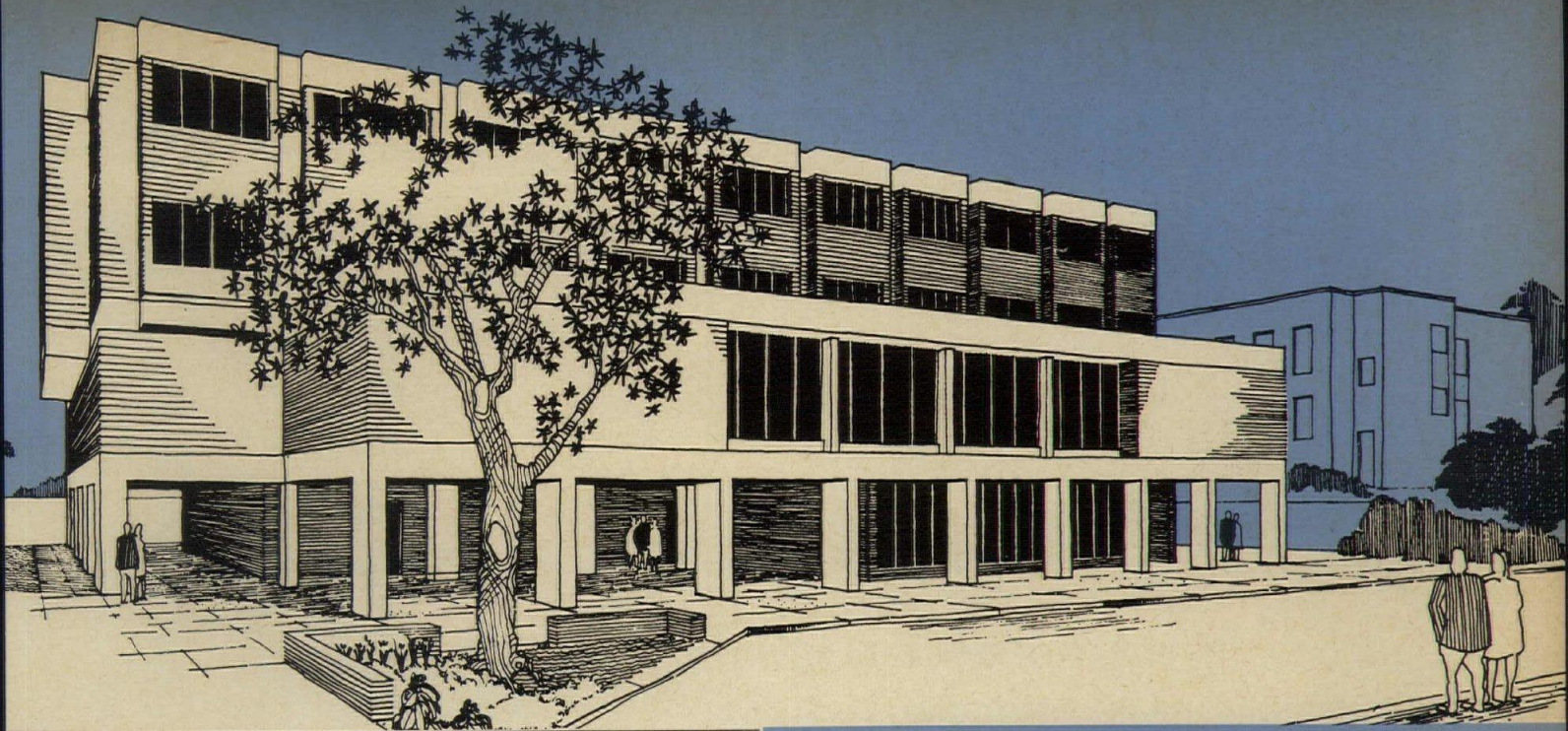


TYPICAL FLOOR

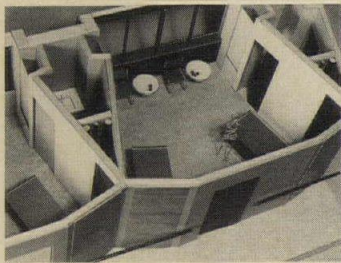


FIRST FLOOR





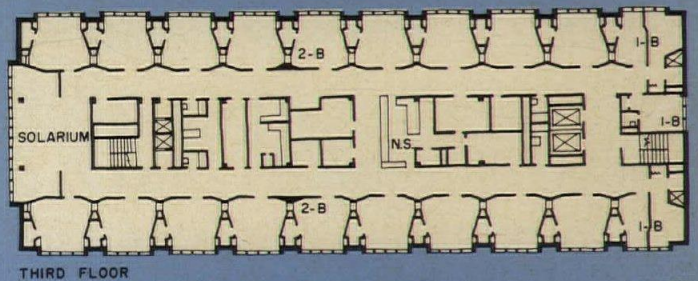
With models and a full-scale mock-up, the architects studied modes of providing extended care patients some of the aspects of the single room and the sitting room while retaining the cost and care advantages of the double room. This copyrighted configuration is the result. Triangular toilet and utility spaces between rooms isolate flushing noises to the outside and give ready access to mechanical spaces. Central bathing facilities on the floor are said to stimulate locomotion.



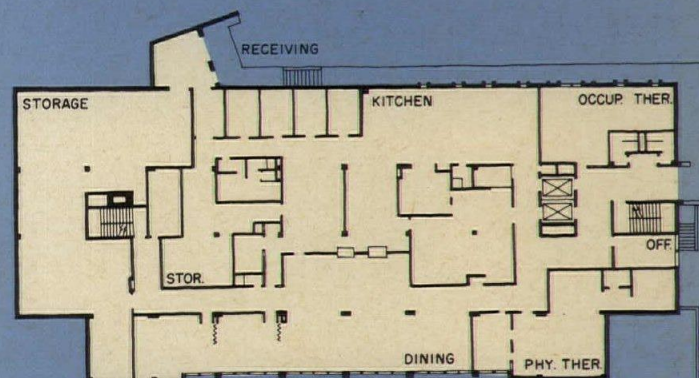
New room shape offers amenities for extended care

Inventive approaches to room layout seek to retain the insurance advantage of the double room while offering the privacy and visual amenities of the single room. This is an increasingly important consideration for long-term care and ambulatory patients. The extended care room designed by Potter Lawson Findlay & Pawlowsky for the Community Memorial Hospital in Edgerton, Wisconsin gives each patient a view out the window and the privacy afforded by a dividing curtain. By placing the patient's head next to the corridor wall, a 12-foot separation between beds is possible, and a seating area next to the window gives ambulatory patients and visitors a home-like space for communication. Carpeted corridors reduce noise, and indented configuration of corridor walls adds visual interest.

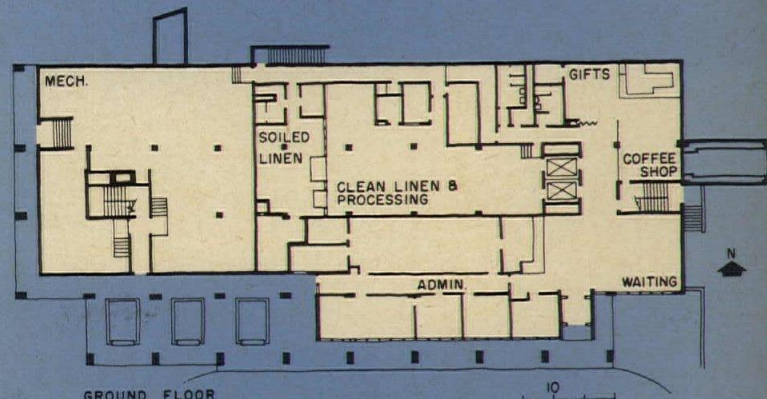
COMMUNITY MEMORIAL HOSPITAL, Edgerton, Wisconsin. Architects: *Potter Lawson Findlay & Pawlowsky, Inc.*, successors to Law, Law, Potter & Nystrom; structural engineers: *Arnold & O'Sheridan*; mechanical engineers: *Earl Behling & Associates*.



THIRD FLOOR



FIRST FLOOR



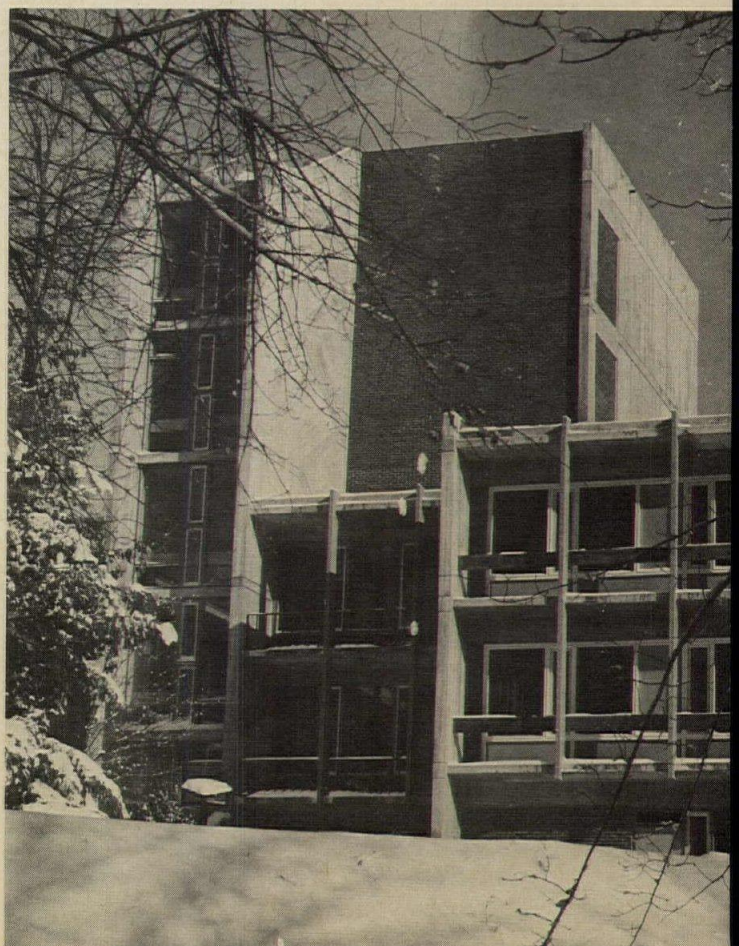
GROUND FLOOR



Replacement master plan exploits a sloping site

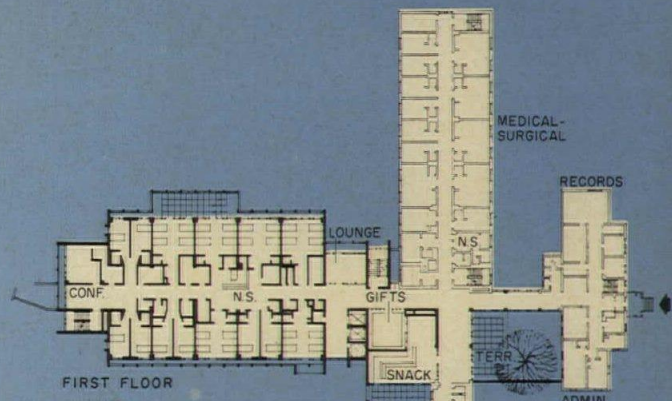
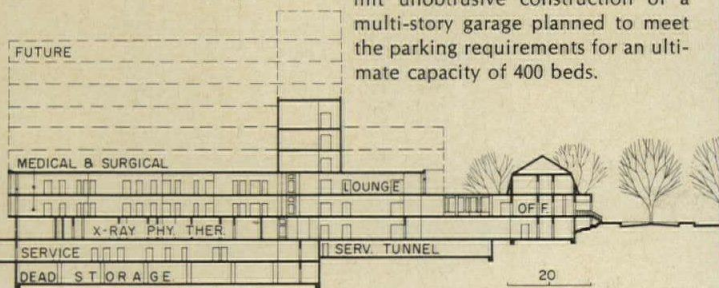
Detail and vocabulary befitting its steep, wooded, New England site distinguish Markus & Nocka's solution to Emerson Hospital's program of planned growth. Staged replacement of older portions of the hospital took advantage of the sloping site in providing grade-level access to three floors and exceptional views from rooms and waiting areas. The growth phase, now completed in accordance with the architect's master plan, enlarges existing service facilities and adds about 34 beds and an empty floor shell for an additional 34 beds. New X-ray, emergency, outpatient and physical therapy departments are also provided. A simple vertical and horizontal circulation system puts all departments in close proximity to existing pathology and laboratory departments. Extension of the elevator shaft and adjacent stairway two floors beyond height of present structure will simplify second growth phase.

EMERSON HOSPITAL, Concord, Massachusetts.
 Architects and engineers: Markus & Nocka, Inc.
 —Thomas M. Payette, architect-in-charge; contractor: Bond Brothers, Inc.



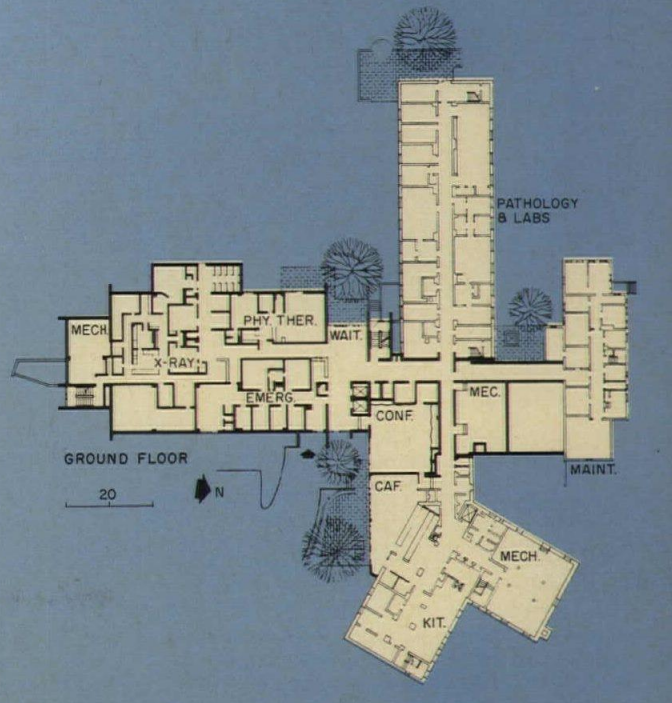


Location of day rooms and roof terraces was largely dictated by the site —18 wooded acres of sloping land adjacent to a bend in the Concord River. The steep slope also will permit unobtrusive construction of a multi-story garage planned to meet the parking requirements for an ultimate capacity of 400 beds.



Spaciousness in waiting areas, patient rooms and nursing centers is enhanced at Emerson by fenestration and planned traffic control making use of three access levels for separation of receiving, visiting and staff traffic.

Flat-slab reinforced concrete structure is designed with 22 foot square bays with concrete shearwalls. Columns and footings are designed to carry an additional six floors.

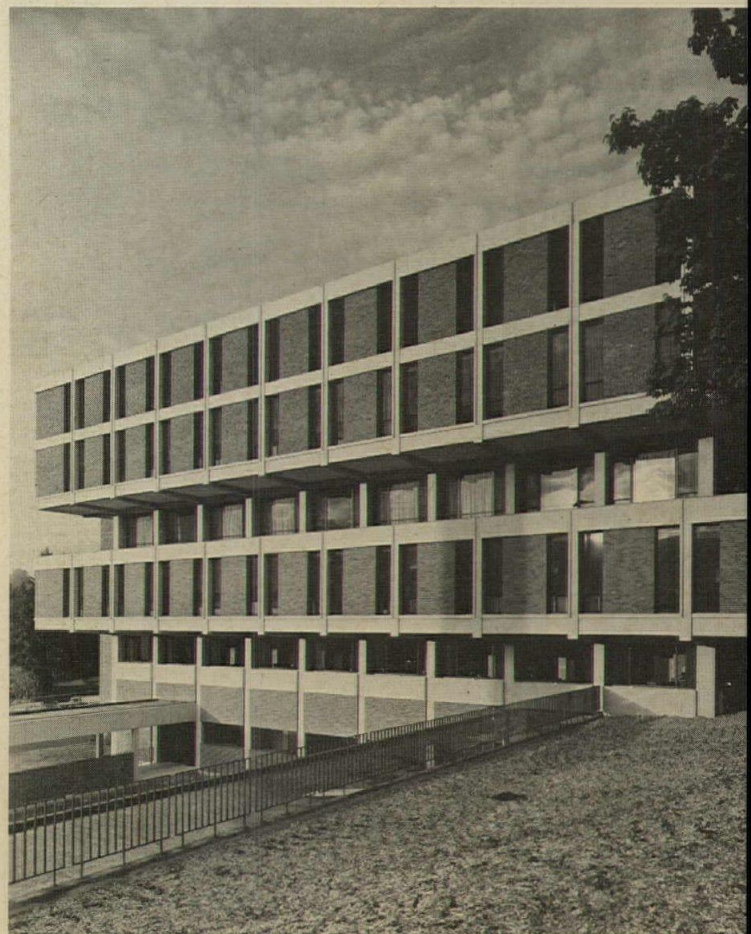




Hospital's 30-year plan adapts to changing times

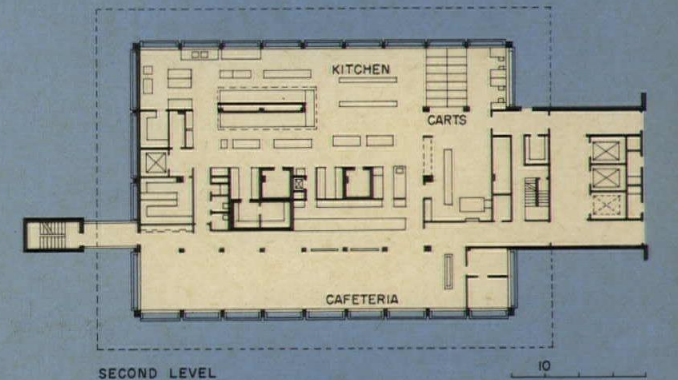
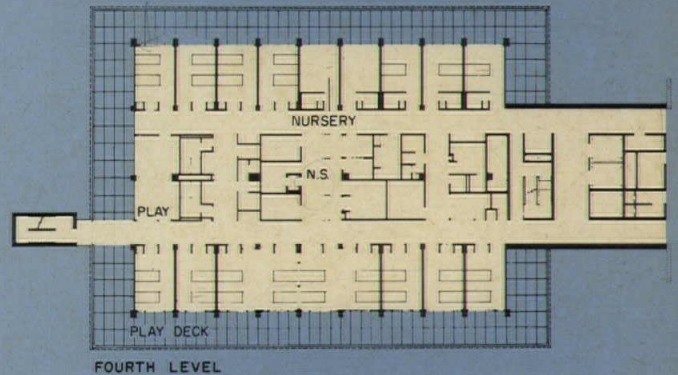
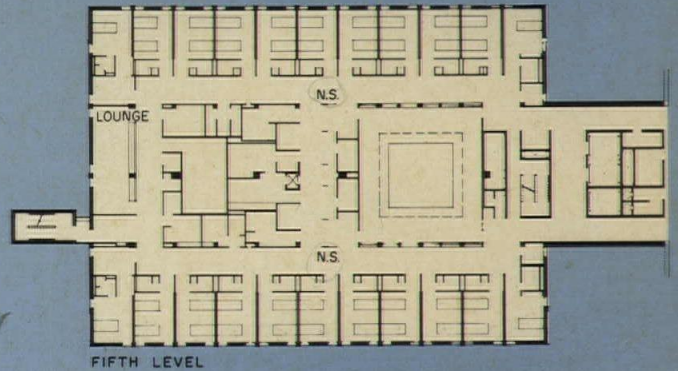
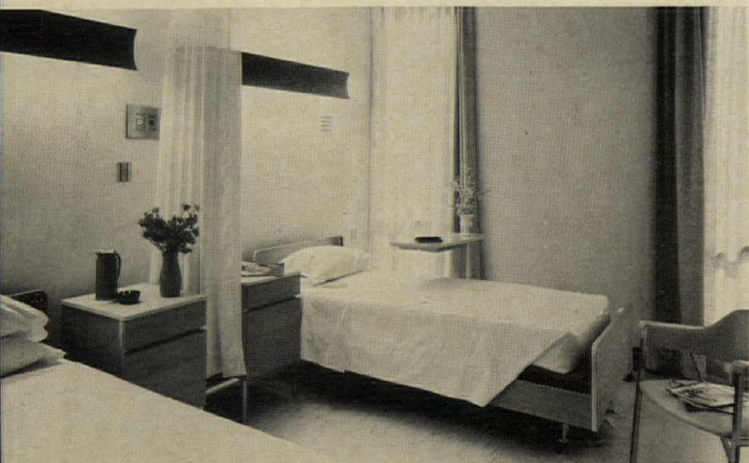
Master planning for replacement of an urban hospital on its own site and for doubling its capacity over a 30-year growth program demands a great deal of demographic projection that may soon be outdated in this accelerated age. The plan, then, must adapt itself to speeding up and to re-evaluation as circumstances warrant. That was the case at this Connecticut community hospital which decided to replace old buildings and double its capacity without interrupting service. It turned out that phase one, shown here, is really about three steps in the original plan. It is a new six-floor wing (instead of the three floors originally planned for phase one) attached by covered walkway to a new utility and receiving building. The top floor is a completed shell.

WILLIAM W. BACKUS HOSPITAL, Norwich, Connecticut. Architects: *E. Todd Wheeler and The Perkins & Will Partnership—Howard H. Juster, partner-in-charge, Robert H. Levine, project architect and designer*; structural engineers: *Garfinkel and Marenberg*; mechanical and electrical engineers: *Segner & Dalton*.





The warmth of water-struck red brick panels framed in sand-blasted concrete sets a contemporary but compatible vocabulary for this phased replacement of an old New England hospital. The lowest level of utility spaces connects on grade with an engineering and receiving building that replaces an old garage. The graded site then gives second-level access to dining, laboratory and supply spaces. The third level is a more-or-less conventional double-corridor nursing floor, but with exceptional visual contact between nursing station (above) and acute-care rooms. Fourth level is recessed, and contains pediatric services which will have a surrounding balcony and play area. Extended care and ambulatory patients are on the fifth level with access to a two-story skylighted court and sitting area (left). The top level is now a shell space constructed to take advantage of current cost against a rising spiral of inflation.





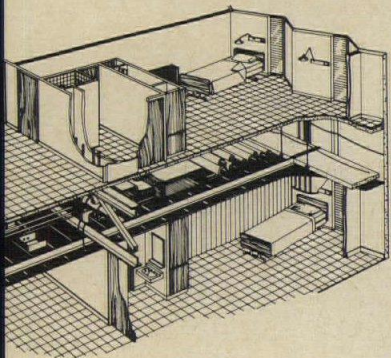
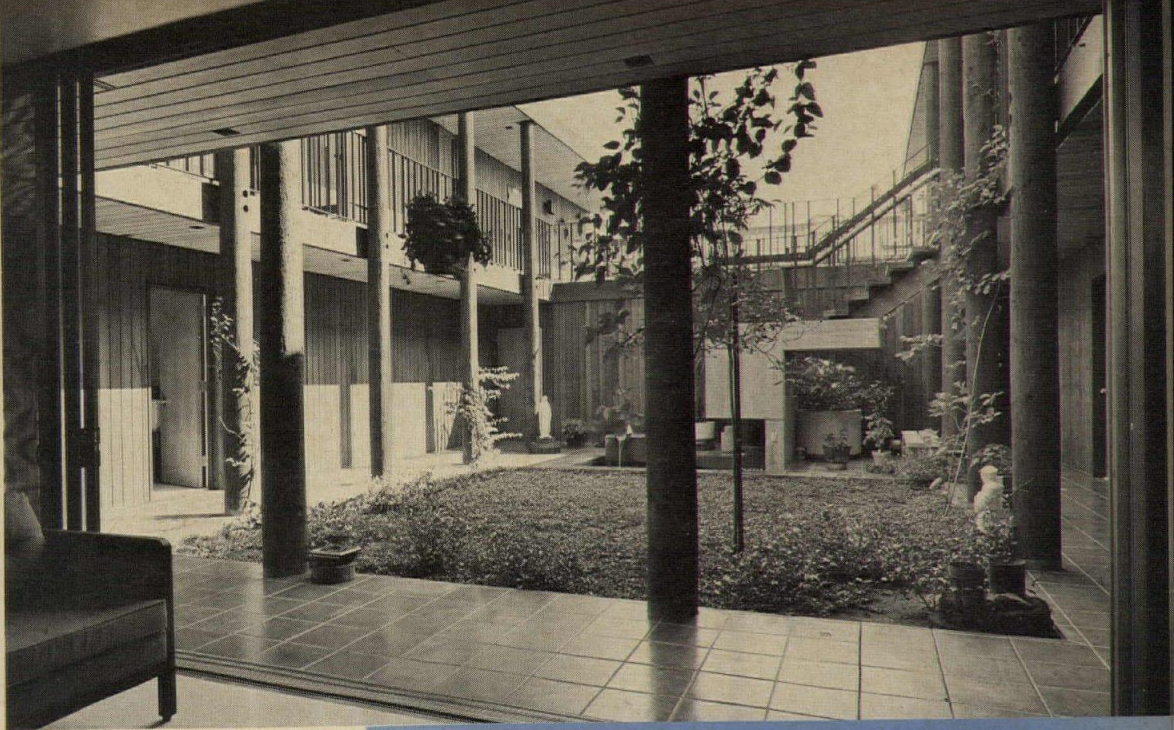
Relocation for planned growth gives Santa Cruz a fresh start

Master plan for this Dominican Hospital in Santa Cruz calls for relocation of two existing hospitals on a new site and ultimate expansion from 150 beds to 300 beds. The new site, 17 acres, permits low-rise construction with courts and landscaping in character with the sisters' insistence on family-like care. The sisters live in an adjacent building attached to the chapel. In this convent also, home-like atmosphere is enhanced by landscaped courts as in the photo at top, opposite.

The hospital itself is planned for two-story operation, with dining and kitchen facilities on the second floor freeing first-floor space for diagnostic and maternity facilities, and also permitting horizontal service of food to 100 patients on the second floor.

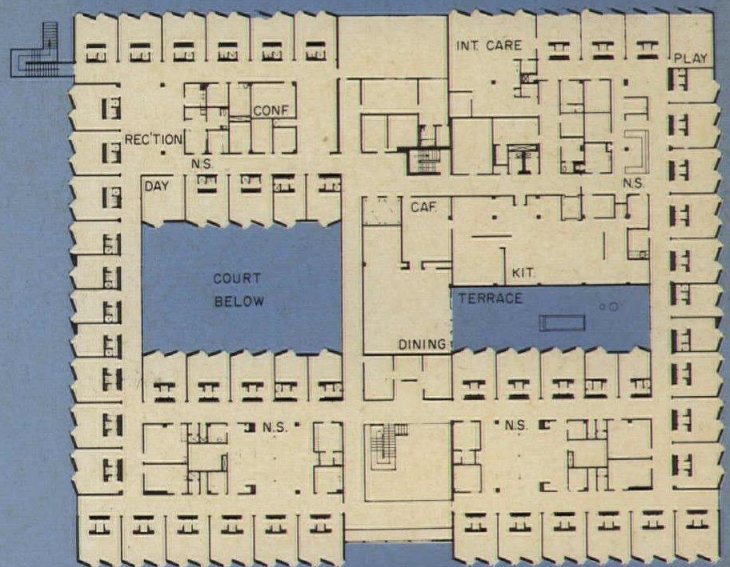
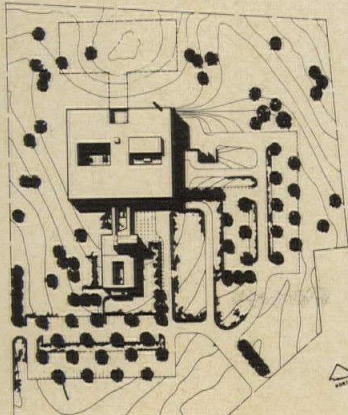
DOMINICAN SANTA CRUZ HOSPITAL, Santa Cruz, California. Architects: Rex Whitaker Allen and Associates—Raymond A. Zambrano, associate-in-charge; structural engineers: Pregnoff & Matheu; mechanical engineers: Kasin, Guttman & Associates; electrical: Stan Anderson.



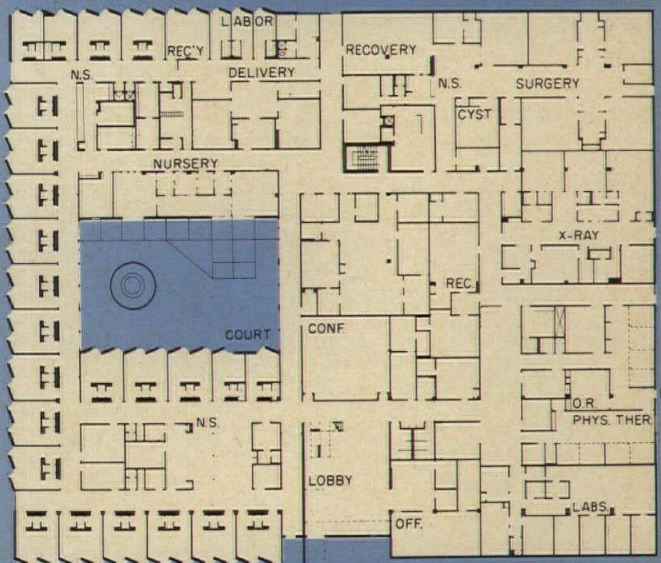


Square plan of the Santa Cruz hospital permits generous use of space in an interior courtyard and a two-story main lobby. The nursery is located along one glass wall of the first-floor court so that siblings, not permitted to enter the maternity floor, can view babies from the court. Square plan also improves flexibility of nursing units in that more or fewer rooms can be assigned to a given station as loading requires. Whole-hospital services include a psychiatric unit on the second floor.

Complete flexibility and ease of maintenance are enhanced by a seven-foot truss space between floors that carries all mechanical and electrical services.



SECOND FLOOR

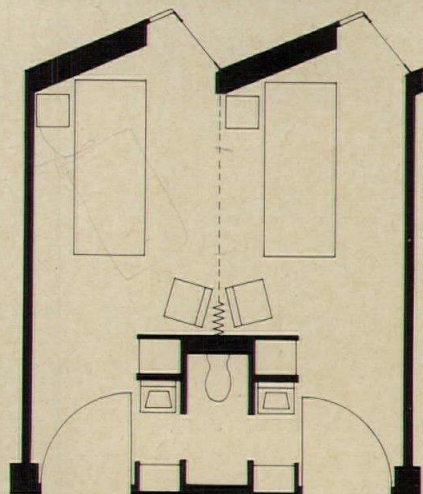
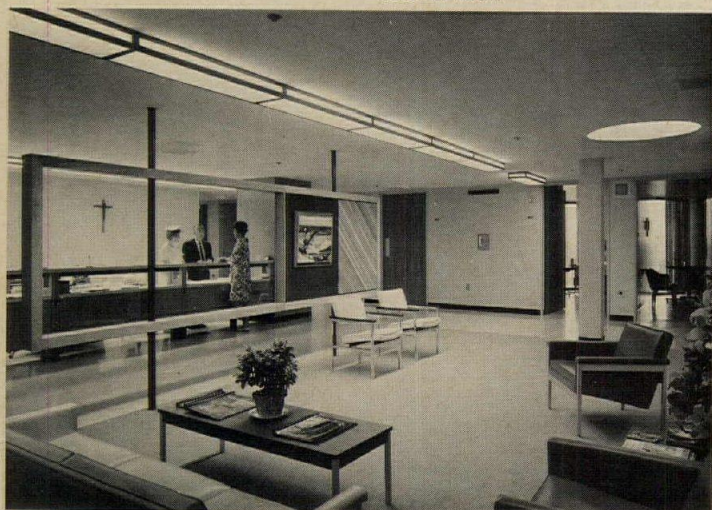
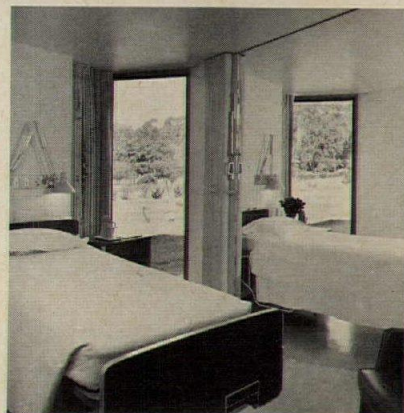


FIRST FLOOR



Rex Allen's noted "duo-room" introduced at the Woodland Memorial Hospital (RECORD, June 1968, page 143), is brought to another phase of configuration in the offset fenestration, permitting each patient to have a view out his own window and elective privacy by means of a folding partition (right).

The two-story lobby permits visitor access by stairway to the second floor, saving the expense of one elevator for that purpose and creating an impressive entrance space (above). Secondary business and waiting lobbies are located on each floor. The one shown below is on the second floor.



TYPICAL DUO-ROOM

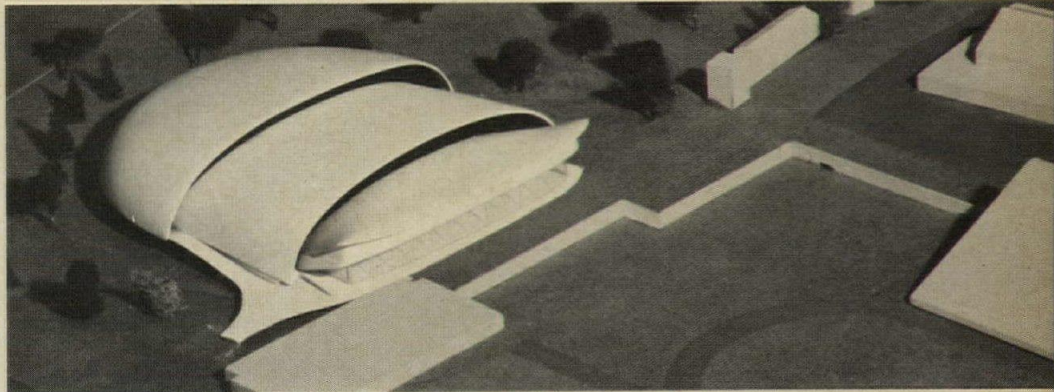
A steel space frame that works with finesse

To shelter Princeton University's extensive new indoor athletic facilities, designers rejected the easy, but brute-force, arch-and-beam approach, and shunned a prohibitively expensive, though elegant, stiffened steel skin. Instead they evolved a fitting intermediate solution of ribs and diagonals, elaborated with particular skill and imagination.

The low, giant steel cage now going up on the Princeton University campus, with its three-part structure spanning nearly 400 ft of clear space, solves the increasingly common problem of housing huge assembly crowds, and at the same time responds to the special space requirements of a large athletic complex.

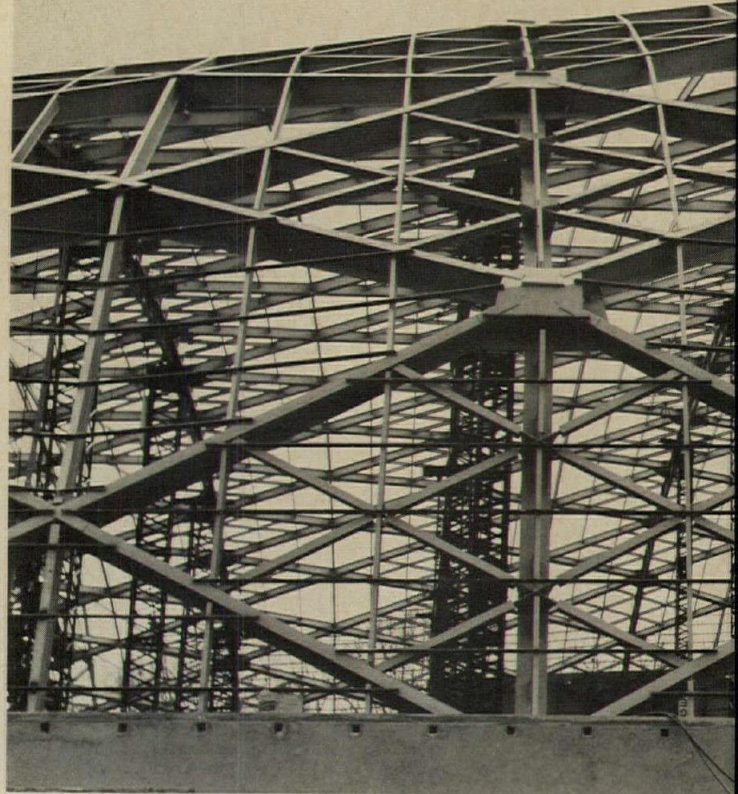
The plan of the gym's first floor was organized in three parts: first, an elliptical track area, then a rectangular space for practice and exhibition basketball courts, and, at the opposite end, a permanent grandstand balcony seating 3500. Though the level below could have some columnar support, this level had to be clear span. The grandstand balcony would have to get clear sight lines, and the entire floor area would on occasion have to provide clear-span space for school-wide assemblies of up to 10,000 persons. Architects Walker O. Cain & Associates decided on a half dome as the natural shape to roof the elliptical track area, while a truncated cone seemed best to suit the rectangular space.

To achieve both shapes and required column-free space, the architects and their engineers, Severud-Perrone-Sturm-Conlin-Bandel, have evolved a space frame, whose success depends on reasoned elaboration rather than on daring invention, and that can be achieved within today's construction discipline.

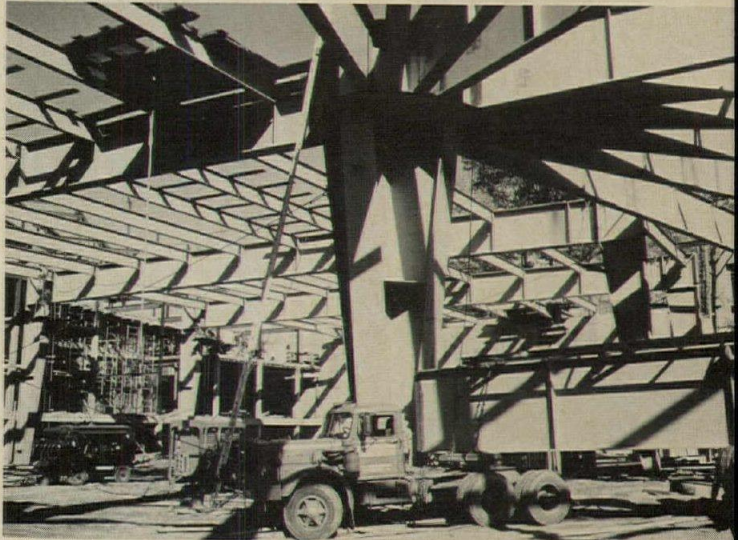


The unusual form of Princeton's new gym is shaped by a mammoth steel ribcage that spans 390 ft to house specialized functions and provide space for crowds of up to 10,000.



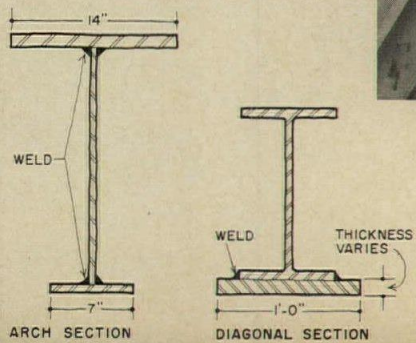
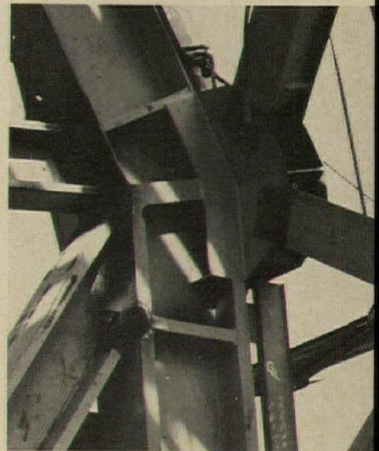


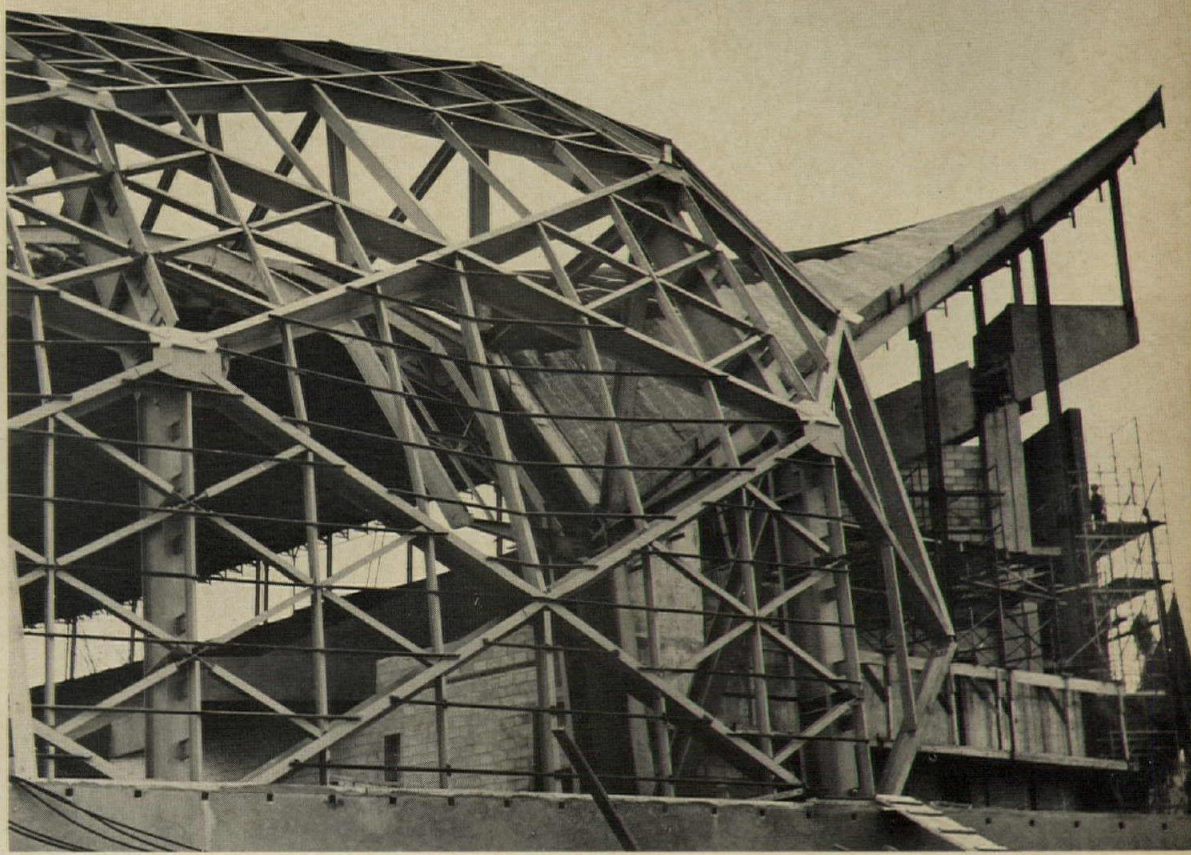
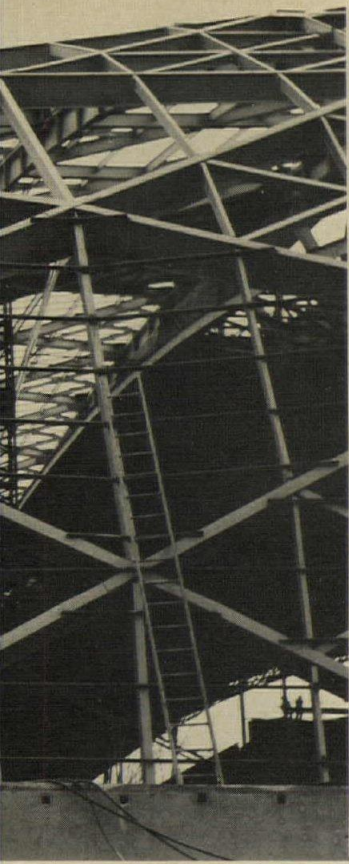
Intersection of the dome with an edge truss



Huge center column supports 6-ft deep girders for main floor slab.

Top flange of the arch can be considered to take the axial loads, and bottom flange to resist buckling. Rolled section of the diagonal resists bending moment from the roof load, and the plate welded to its bottom flange takes axial forces. Its thickness varies from $\frac{1}{8}$ in. to $\frac{3}{8}$ in. to match variations in forces.



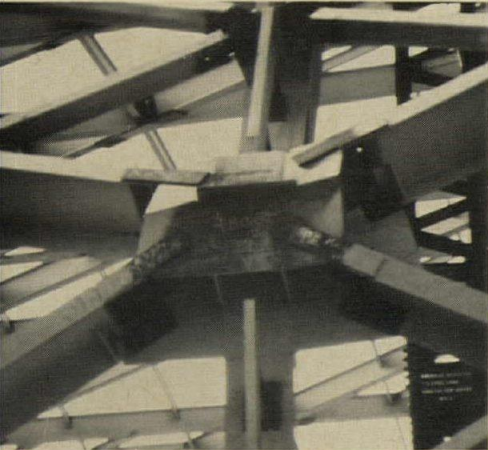
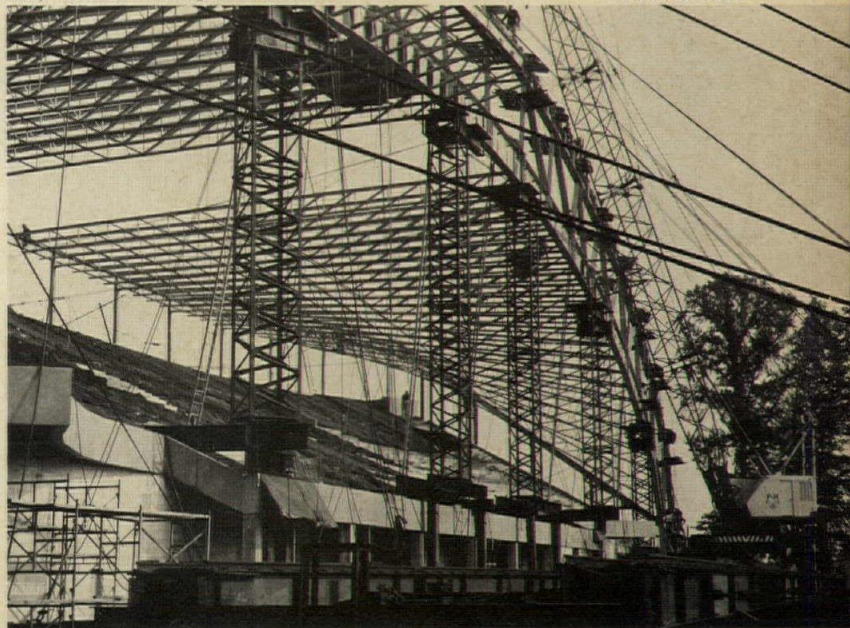


The steel framework of the great, low barrel in the photos above is composed of three intermediate arches 30-in. deep, interacting with built-up diagonal members, 16-in. deep. This section frames into the bottom chord of the trussed arch at left that also stiffens the half-dome structure. Radial arches of the dome taper from a 30-in. depth at the base to 18 in. at the top. The roof over the stands (photo right) is made up of bar joists which achieve a warped geometry as they frame into the barrel's other edge stiffener. This roofed upper floor is columnless, and the floor beneath, also housing athletic facilities, has only the single center column shown at left, plus five small flanking columns, to support the floor. The roof structure is covered by cement-wood fiber planks and a neoprene-Hypalon roofing system. Inside, the lattice grid will be left exposed. Rather than varying the width of the bottom flanges to correspond to bearing axial stresses, plates of varying thicknesses were welded to the rolled sections.

Martin B. Dassa

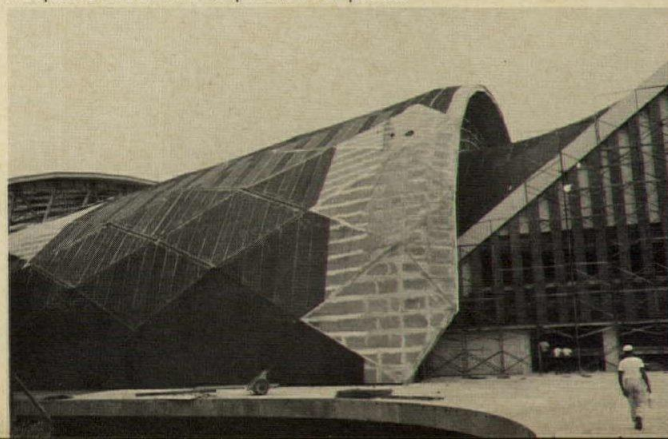
Bar-joist roof framing for the stands

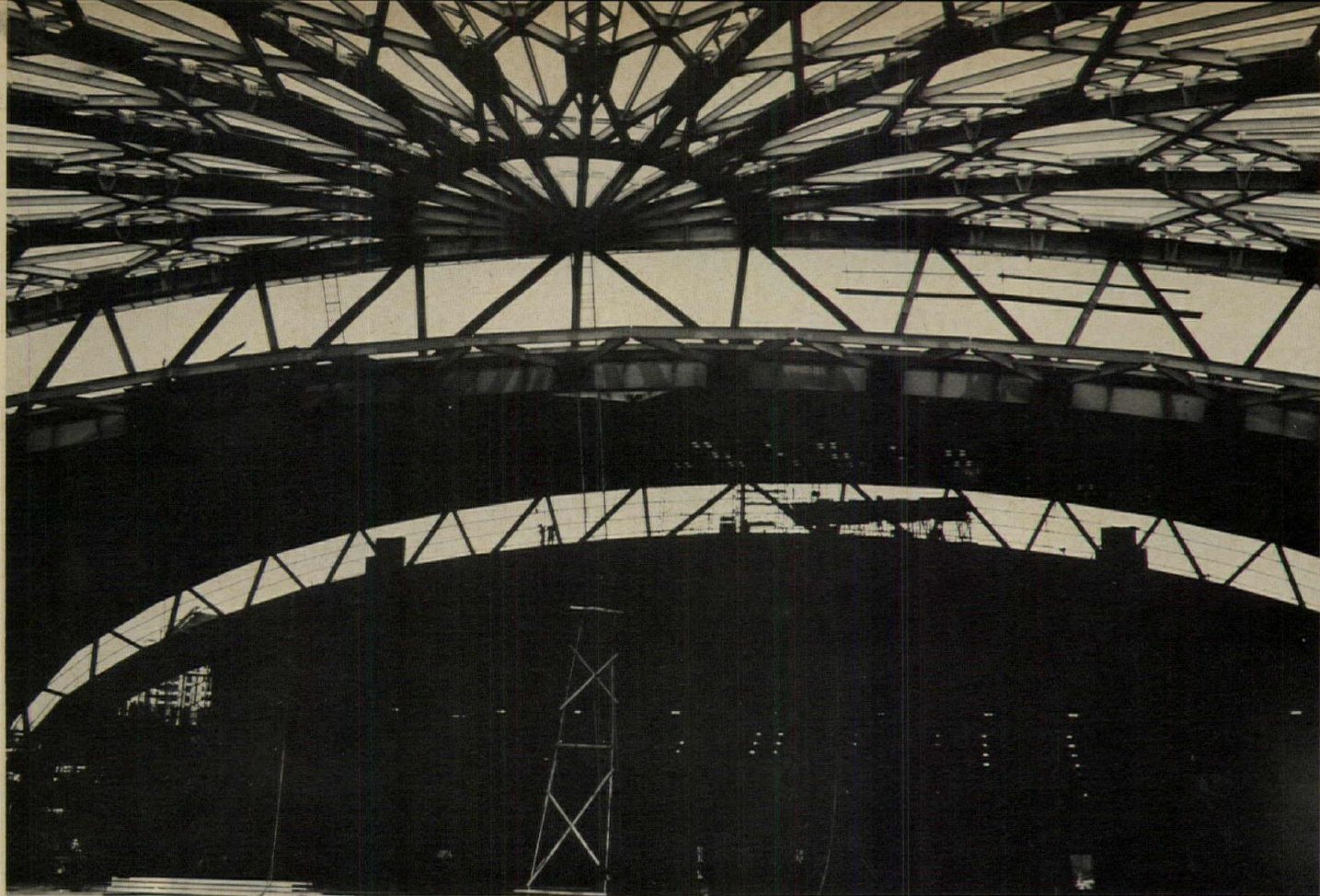
Martin B. Dassa



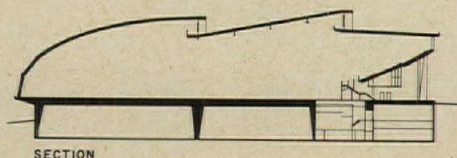
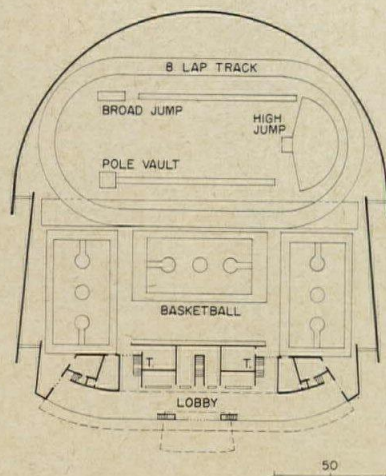
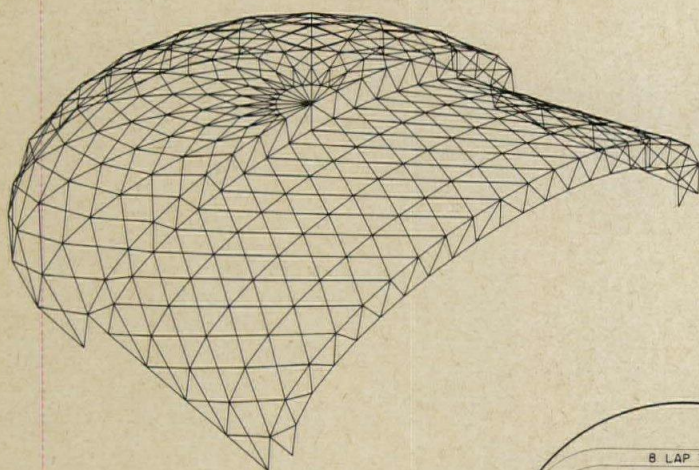
Connection details of diagonals to gusset plates (above) and bottom gusset plate to edge truss (left). Trusses and arches were of all-welded construction. Diagonals were welded to top gusset plate, bolted to bottom. All welds were checked by ultrasonic device.

Neoprene sheet weatherproofs roof planks





The complex structural computations were obtained by computer analysis. A computer-controlled pen produced the drawing below for the steel sub-contractor, American Bridge Company.



Structural form was suggested by the floor plan. The section's low profile was a program requirement that strongly influenced the solution.

Structures for the half dome and barrel (photo above and computer drawing to the left) are basically space trusses, independently working, but merged into huge steel arches that provide edge stiffening for each. These trussed arches, spanning the 340-ft width of the building and rising 75 ft, provided clerestories for natural lighting and exhaust outlets for mechanical equipment.

Despite the complex analysis that lies behind the structural solution, engineers describe their space grid by a simple analogy: ribs and diagonal members act like the reeds of a wicker basket, whose curvature and interlacing work to carry loads axially and to knit the surface together into a rigid system. Huge forces developed by arch action resolve into the edge members by a network of diagonals that disperse loads across the surface. The diamond patterns formed by interlocking diagonals are triangulated by Junior Beams—smaller steel members—to resist buckling of the surface plane. Thus the structural elements, by creating paths for forces throughout the building's surface, eliminate entirely the need for interior supports.

Behind the elegant and deceptively simple lines of the final solution is a complex interaction of structural phenomena. To best appreciate the solution, visually expressed as it is in both shape and structure of the new building, it is important to be conscious of this structural behavior, and this is explained on the pages that follow.

Structural behavior of the conical barrel

The basic structural elements comprise: 1) edge trusses in the form of arches; 2) intermediate arches; 3) diagonals between these members. If the cross-section had been a parabola, the vertical loads would have produced pure compression in the arches. Under dead load, each arch would have acted in its own plane. Shell action would be initiated by wind and snow loads. Shell action also would stiffen the intermediate arches against buckling.

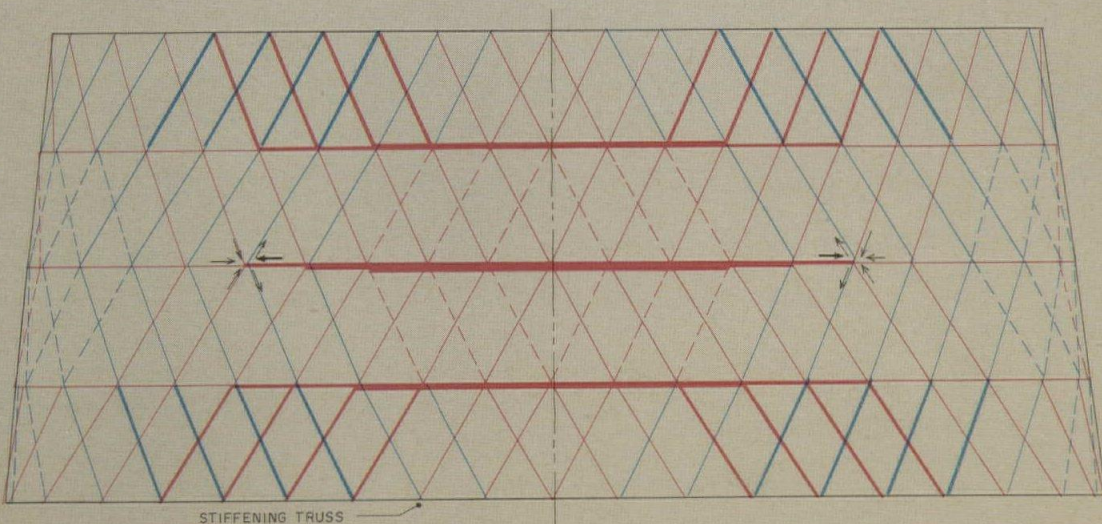
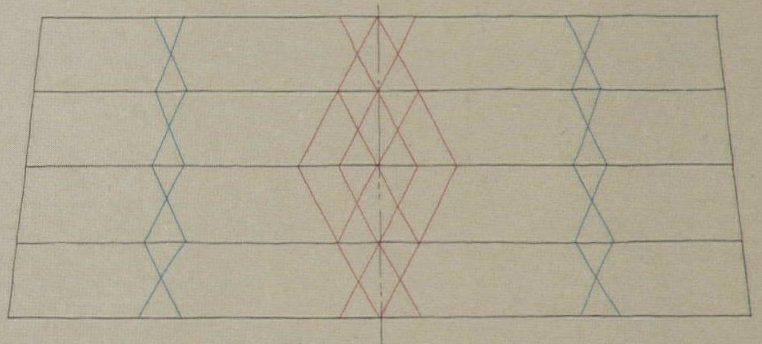
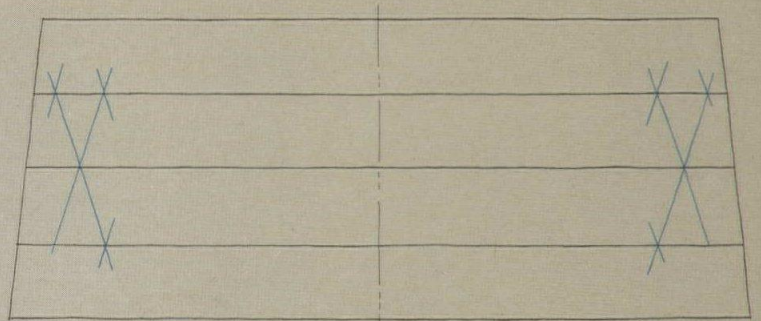
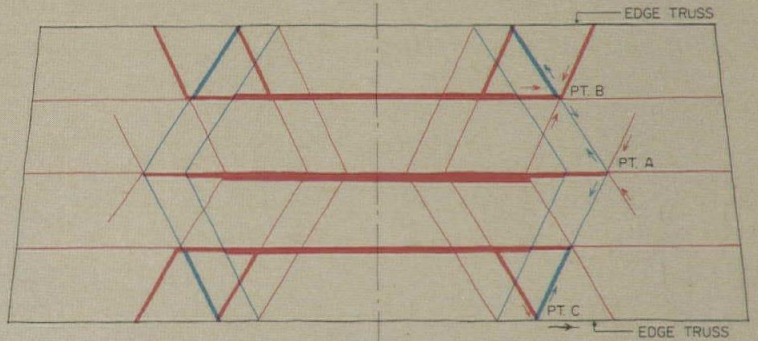
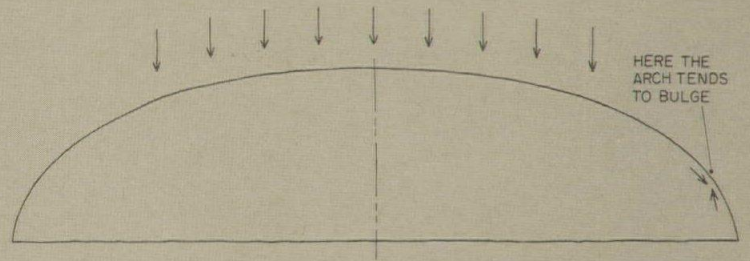
Since an ellipse is flatter at the top than a parabola, there are high compressive forces in this region where arch action is predominant. The intermediate arches tend to bulge out near the supports because the curvature is greater there, and the dead load is not sufficient to "bend" the compression down. For this reason, the intermediate arches cannot stand alone, but are "helped" by the edge trusses as explained below.

The high compression in the center of the intermediate arches is gradually reduced from the center line down by a system of tension and compression diagonals. This action is seen at point A. At point B, additional load is introduced into the diagonals because forces are being channeled from both an outside and the center arch. At point C the resultant of the tension and compression in the diagonals is introduced into the edge truss as a shear force in the plane of the truss.

Although most of the compression in the intermediate arches is channeled into the edge trusses when the roof starts to bend down, there still is enough compression to tend to push the arch out and up in an amount that exceeds the loads. Tension in the diagonals shown resist this tendency.

There is almost no force in the intermediate arches where they meet the ground. Reason is that the loads are transferred to the edge trusses, as shown above. The roof, then, acts as a beam between the arches, requiring compression at the top and tension at the bottom. Imagine the center of the barrel as the compression flange, the lower portion as the tension flange, and space in between as the web.

The sum of all these effects is reflected in the solution illustrated below, determined by a computer. Magnitude of forces is indicated by weight of line. Small forces are indicated by dashed lines.

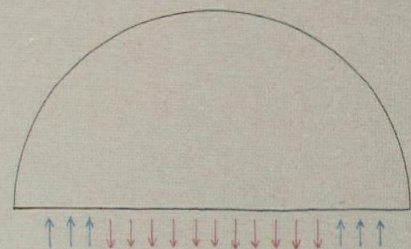
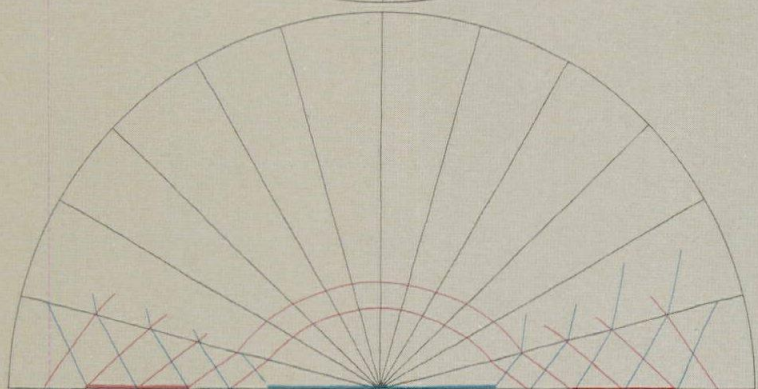
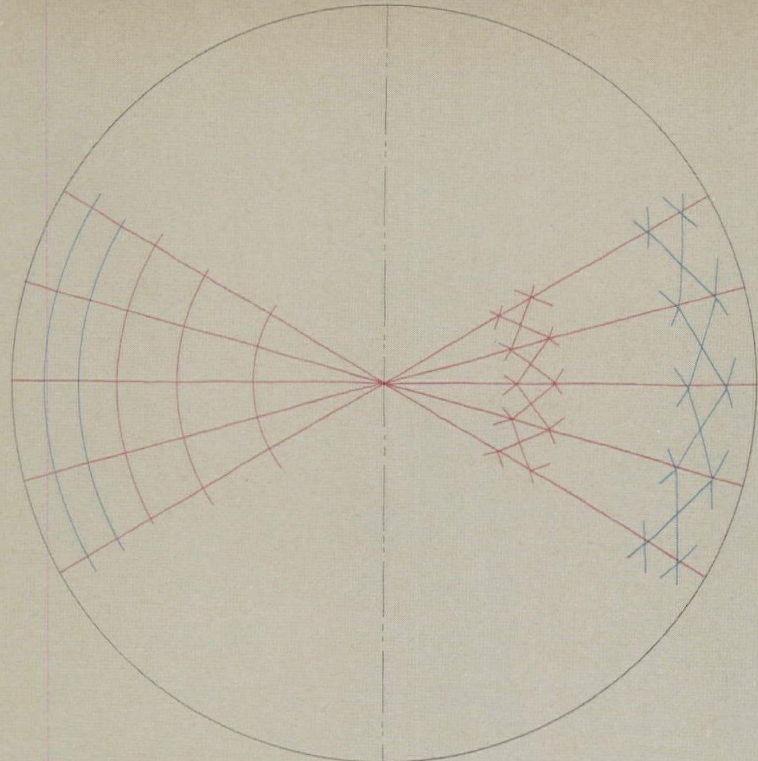


Structural behavior of the half-dome

The basic structural elements comprise: 1) an edge truss in the form of an arch; 2) intermediate arches; 3) diagonals between these members.

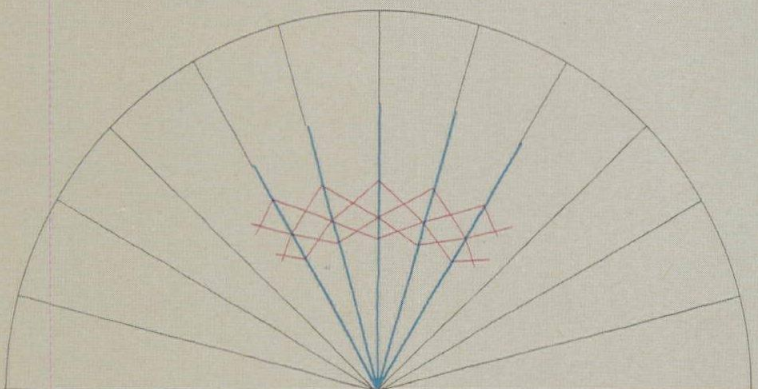
If the shell had been a complete dome, the stresses would be as shown in this drawing. On the left-hand side are shown stresses for a continuous shell. Since the dome does not have rings, the forces must be resolved into corresponding diagonals, shown on the right-hand side.

Since the shell is only a half-dome, the forces that exist along the edge truss do not have an opposite structure to act on, so they must be absorbed by the shell itself.

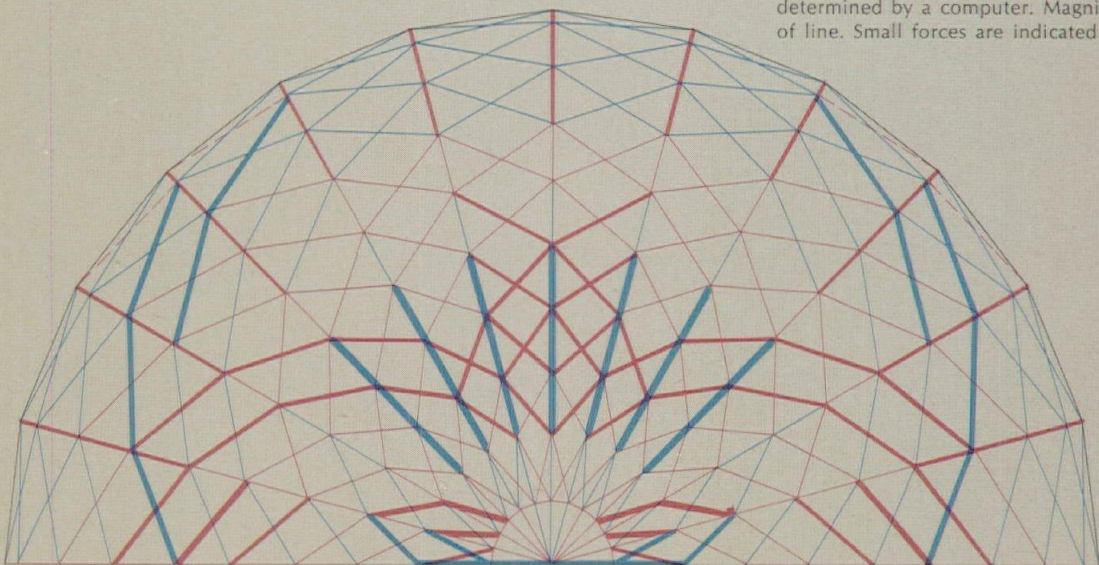


Part of the forces is resisted by "beam" action along the edge and in the plane of the shell, causing a reaction in the diagonals as shown.

The remaining forces are taken by ties back into the shell. Since these ties are curved, their tensile forces try to flatten out the shell, causing compression forces in the diagonals. The tension in the ties fades away when they penetrate back into the shell.



The sum of all these effects is reflected in the solution illustrated below determined by a computer. Magnitude of force is indicated by weight of line. Small forces are indicated by dashed lines.



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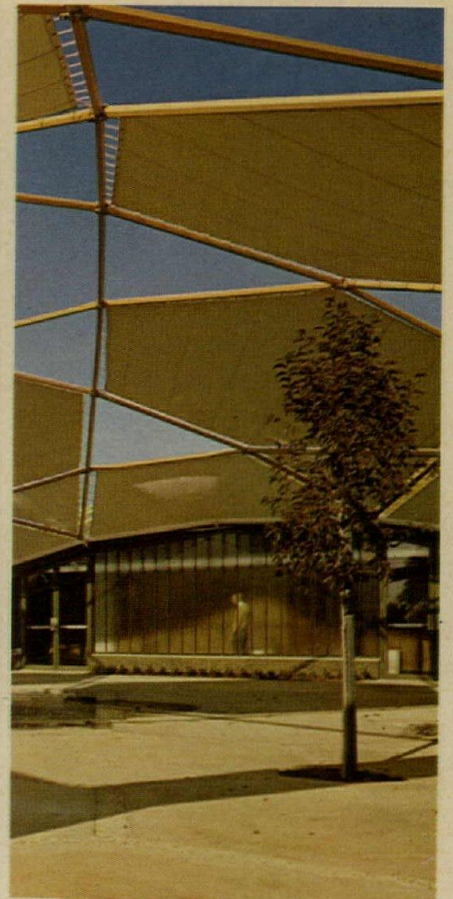
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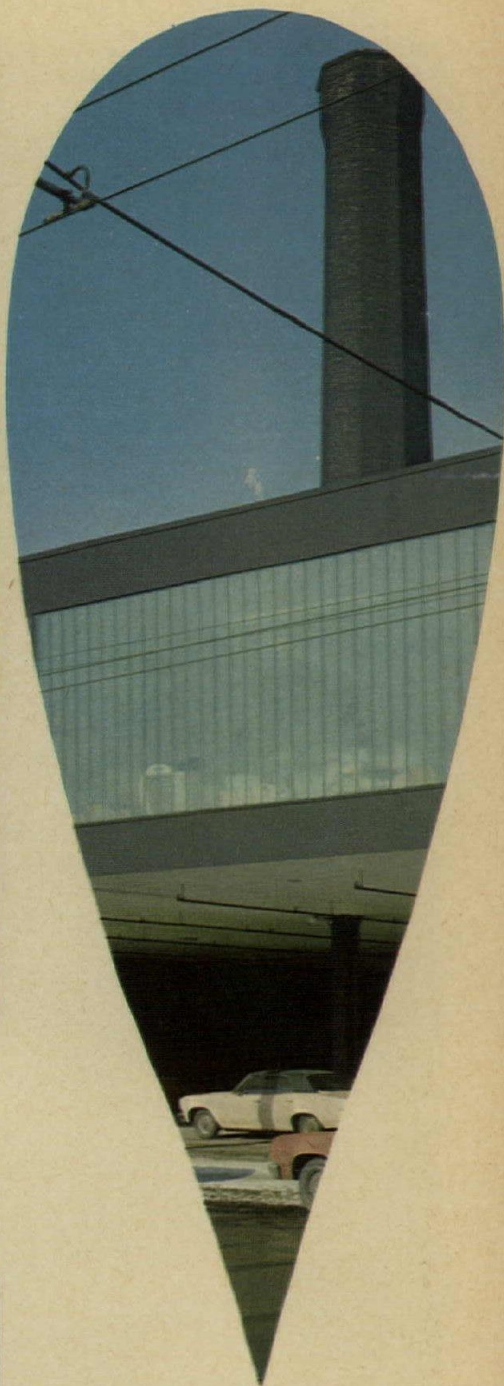
You need to think differently about glass to bring Profilite into your building plans. With it you have new design possibilities. It also offers new structural efficiencies. Picture the rising channels of Profilite giving their upsweep to building exteriors. Look down corridors where vast stretches of glass wall let in more light and stand strong without any framing to get in the way of the repeated vertical pattern.

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The adjoining flanges of the channel-shaped sections of Profilite eliminate the need for muntins . . . save this cost and provide attractive wall sections that are easily maintained. The vertical accent gives height emphasis to interiors and the glass helps distribute daylight for a more spacious feel in the environment. Each vertical line not only adds its heightening effect but also signifies built-in strength of Profilite.

CHANNELED SECTIONS so easily handled two men can install

Profilite sections are just under 12 inches in width ($11\frac{13}{16}$ ""). The stock lengths of 8, 10, and 12 feet are easily handled by two men without special equipment. Profilite weighs 4.34 lbs. per linear foot, so a ten-foot section could be lifted and set in place by one man if necessary and easily by a two-man team. Profilite is set in anodized aluminum sills supplied as part of the Profilite glazing system. Slip-in vinyl inserts seal the areas between metal and Profilite glass channels.



CHANNEL MOVEMENT helps compensate as building shifts or settles

Profilite sections, because of their channel linkage, can move in relation to each other without tension. And there are no rigid metal members in between. Profilite's "flange joints" are cushioned top to bottom by non-hardening sealants or vinyl insets. The seal is positive, yet the glass is free to contract, expand, or move vertically. Profilite is thus especially suited for glazing buildings that may tend to settle.

SO STRUCTURALLY STRONG it's practically self-framing

Profilite has proved it withstands substantial wind pressures and suction forces. The structural configuration of each section forms extra strength every foot of the way. It is so resistant to lateral pressures that you do away with vertical members necessary in conventional glazing. You enclose vast stretches of wall areas, "channeling in" Profilite that builds in extra strength section after section.

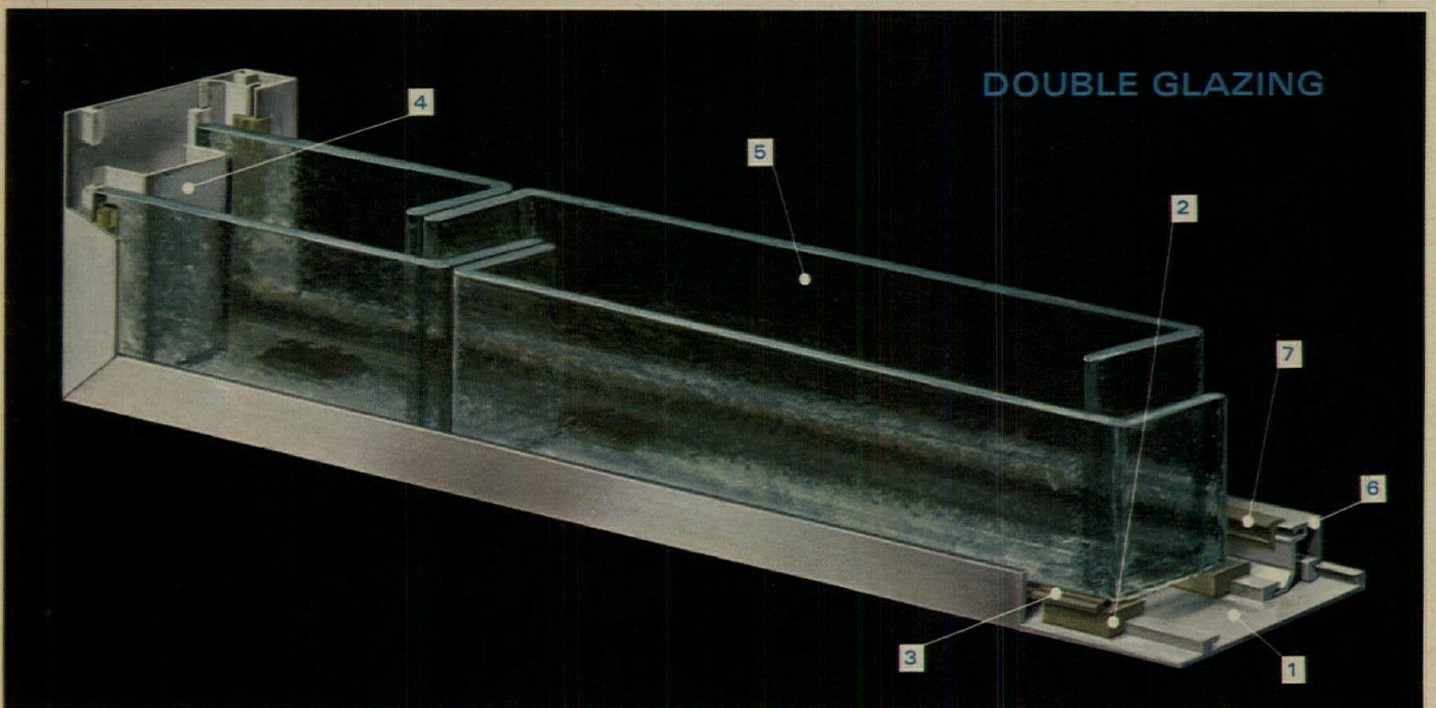
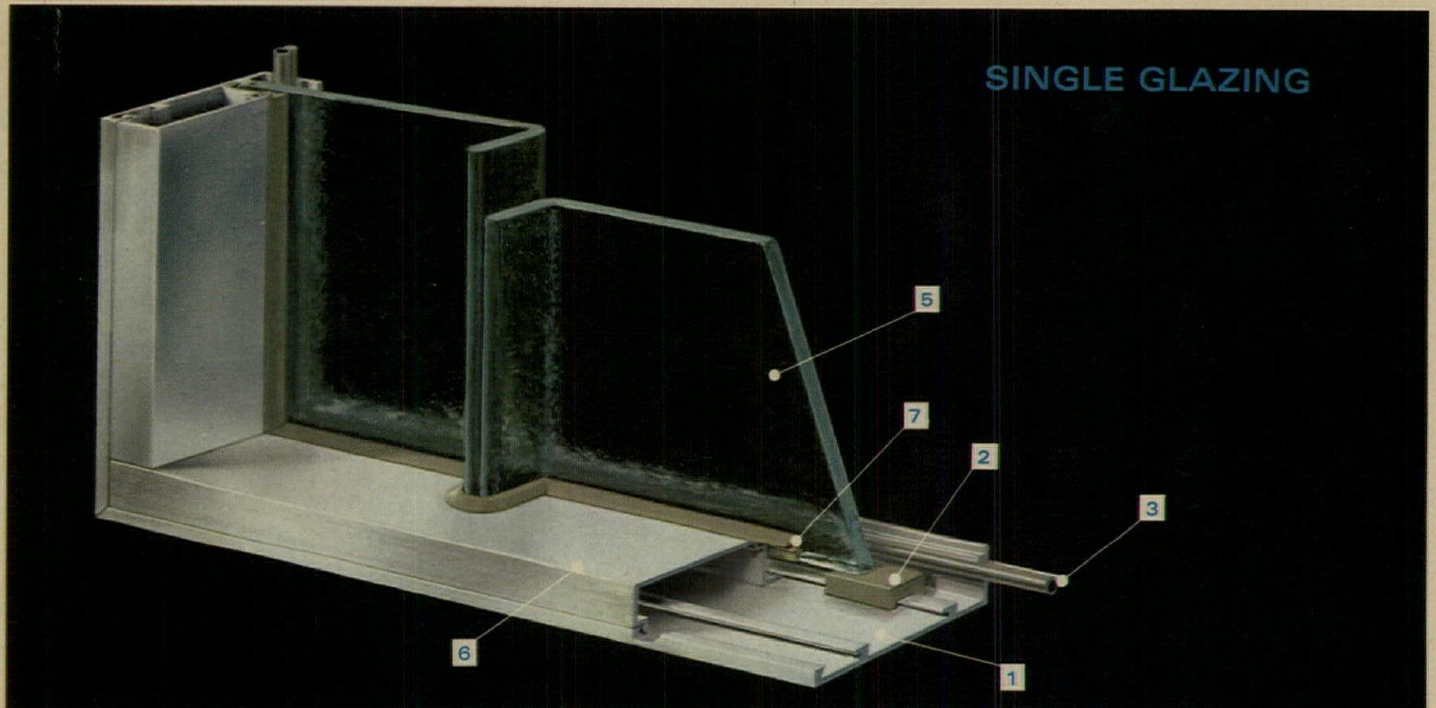
GIVES PLANTS CURTAIN WALL LOOK

Profilite's biggest volume use at present is for exterior walls where its vertical lines give a curtain wall effect. Installed cost compares favorably with that of conventionally glazed areas. Double-glazed Profilite forms a 1½" air cushion between inner and outer channels for heat and sound insulation—U-value 0.55; visible transmittance 72%.



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With Profilite you have a complete glazing system. Aluminium framing for periphery, jambs, heads and sill and vinyl setting blocks and slip-ins all supplied for double or single glazing.



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- 2 Vinyl setting block.
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- 4 Bent aluminum section.
- 5 Profilite.
- 6 Extruded aluminum sill snap-on.
- 7 Vinyl roll-in.

Write for Profilite Installation Guide for detail glazing instructions.



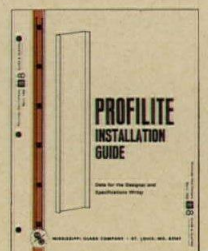
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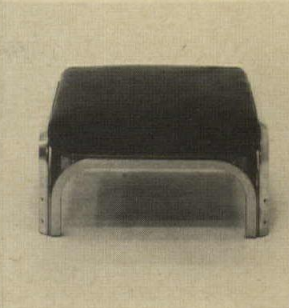
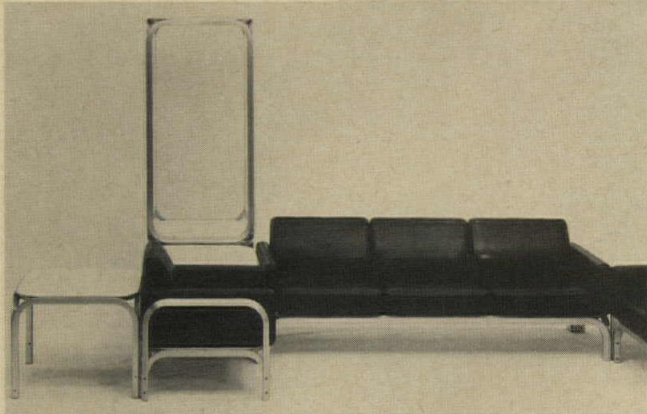
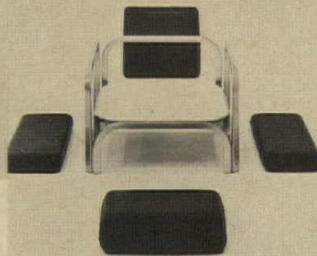
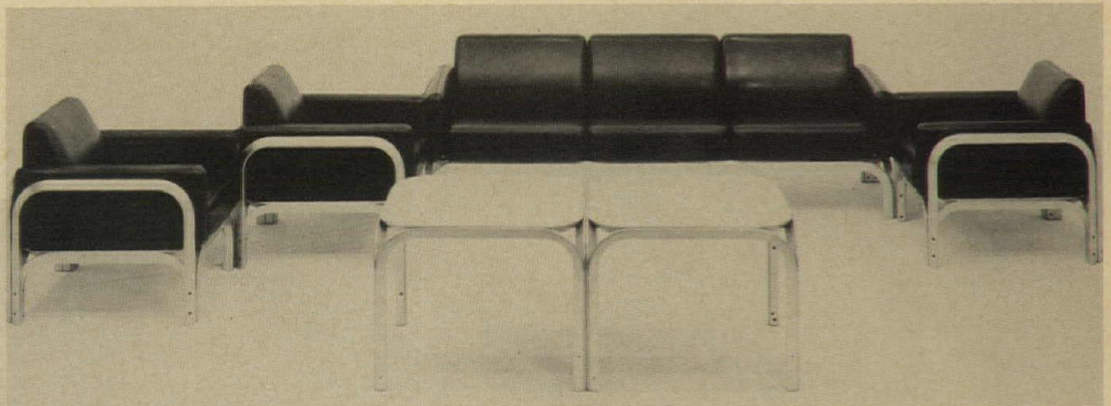
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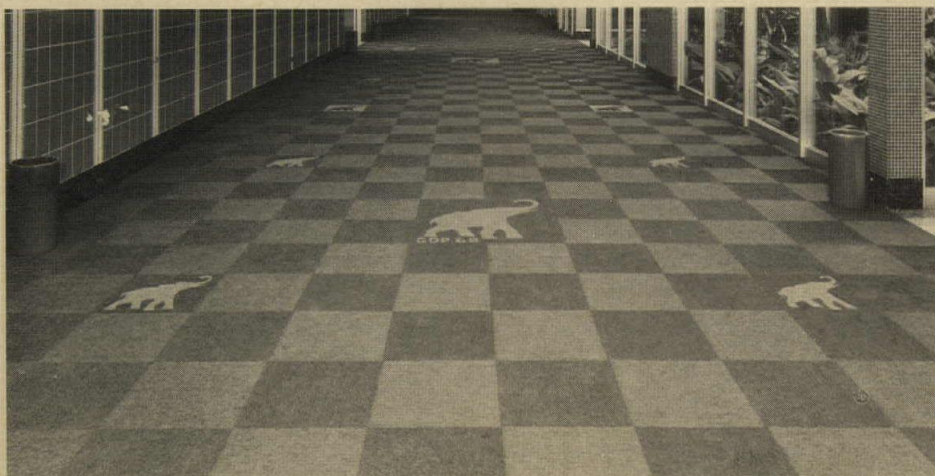
For more information circle selected item numbers on Reader Service Inquiry Card, pages 287-288



MODULAR FURNITURE SYSTEM / Jorn Utzon, architect of the new Opera House in Sydney, Australia has designed a modular-type furniture system for entrance halls, hotel lobbies, waiting rooms, lounges, offices, and even houses. Aluminum U-shaped structural frames in nine different sizes are important in creating a variety of chairs, sofas, tables and show-cases. Foam rubber cushions are upholstered in either oxbide or fabric, and table tops are *Mipolam*.

The system can be altered, modified, and added to, and assembly is not complicated. For example, only five elements are required for a low table. Two side frames and a cushion can be added to make an ottoman, or higher frames and four cushions create a lounge chair. The side of a chair can be a common frame with an end table. ■ Fritz Hansen, Inc., New York City.

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RUGGED CARPET TEST / Approximately 24,000 *Heugafelt* carpet squares were installed in the Miami Beach Convention Hall for the recent Republican National Convention. This was a rugged test for the loose-laid squares that withstand heavy traffic and resist burns and stains.

Heugafelt wall-to-wall carpet can be changed from room to room or can be re-arranged within a room to eliminate traffic paths. In the case of the convention, tiles were simply picked up and stored for other uses. ■ Van Heugten U.S.A. Inc., Kenilworth, N.J.

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more products on page 196

continued from page 195



PLAY CANALS / *Martian Canals* are colorful fiberglass troughs scaled to let young children play with sand (or water) without getting into it. This may be the answer to some old problems: toilet use by animals is eliminated; children do not sit in the sand, thus getting it into their clothes and carrying it into buildings; and the units require small amounts of sand that can be easily cleaned and replenished. Individual units include a quarter-round blue unit, a half-round yellow unit and a rectangular red unit. ■ Playground Corporation of America, Long Island City, N.Y.

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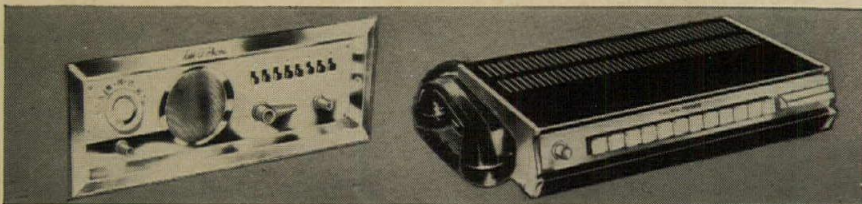
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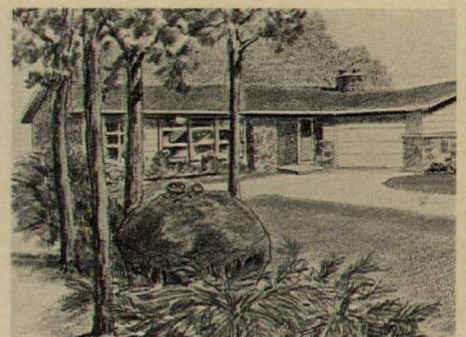
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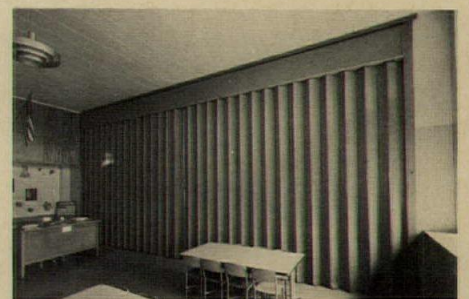
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TRANSFORMER DISGUISE / There are five different disguises for pad-mounted transformers for underground residential electrical service. Shown here is "rock," a precast concrete or fiberglass enclosure made in two sections; frog on top provides ventilation. Other disguises are "redwood," "mushroom," "primitive" and "breadbox." ■ Standard Transformer Co., Warren, Ohio.

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BEAM SYSTEM / This relocatable support beam system for operable walls and folding partitions is said to allow flexibility in either existing buildings or new construction. The *Spanmaster* support beam is anchored to a load-bearing floor; according to the manufacturer, the beam fits snug to the ceiling for positive sound control, and tie rods through existing ceiling are used to eliminate lateral movement. ■ New Castle Products, Inc., New Castle, Ind.

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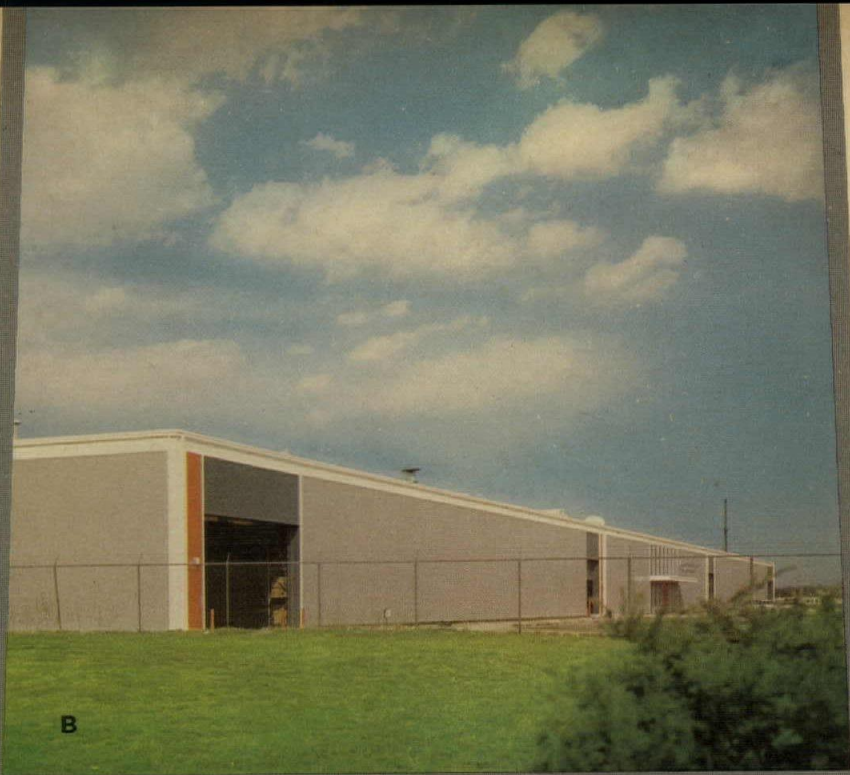
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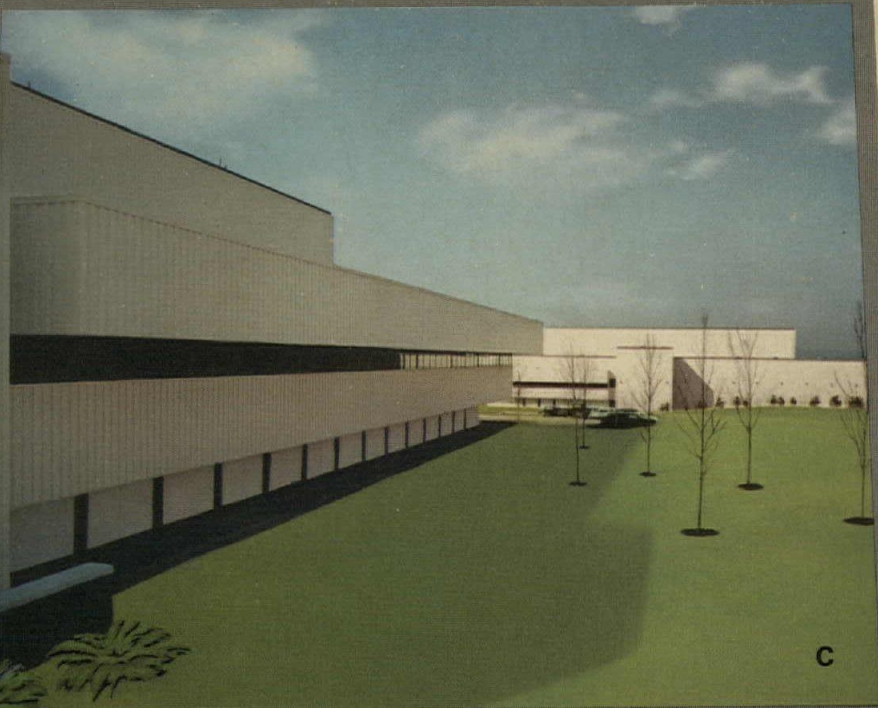
A
Building: Upper Perkiomen High School, Red Hill, Penn.
Owner: Upper Perkiomen Joint School Authority,
 Pennsburg, Penn.
Architect: Everett Associates
Contractor: F.K. Campion, Inc.
Panel Fabricator: Elwin G. Smith & Company

B
Building: Railroad Products Building, Melrose Park, Illinois
Owner: Sloan Valve Company, Chicago, Illinois
Architect: C. F. Murphy Associates
Contractor: Dahl-Stedman Company
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C
Building: Two Space Center Research Buildings, General
 Electric Company, Montgomery County, Penn.
Owner: General Electric Company
Architect: Vincent G. King and Associates
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Panel Fabricators: H. H. Robertson Company

D
Building: Manufacturing Plant, Philadelphia, Penn.
Owner: Nicholson File Company
Architect: Day & Zimmerman
Contractor: Gilbane Building Company
Panel Fabricator: Elwin G. Smith & Company

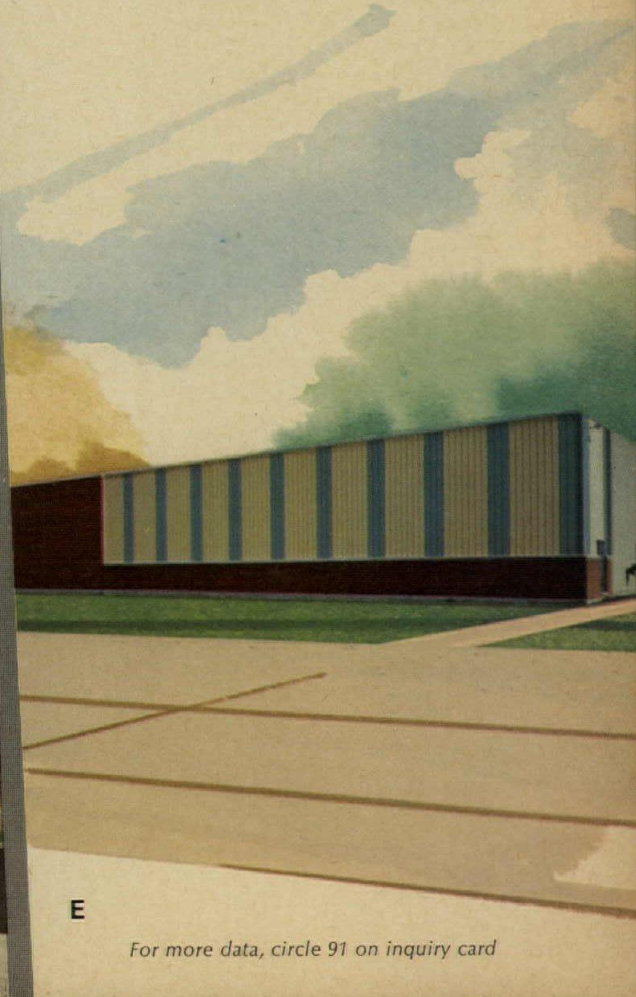
E
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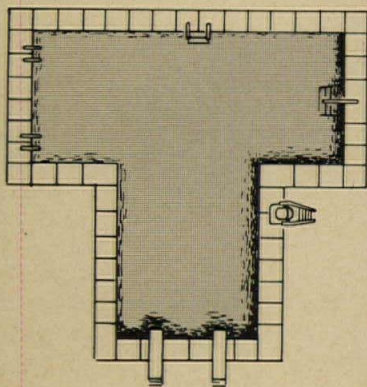
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continued from page 196



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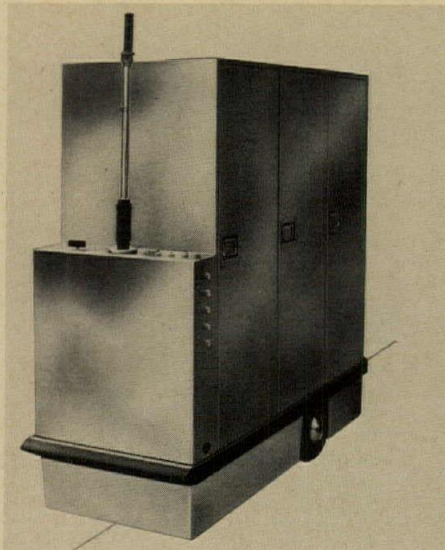
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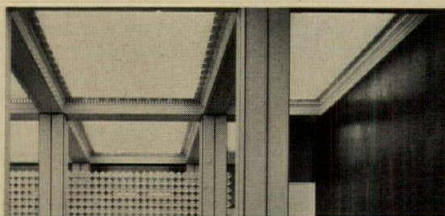
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HOSPITAL AUTOMATION / AMSCAR is a self-propelled distribution vehicle that uses electronic and magnetic components to distribute patient-care equipment, surgical supplies, linens, and food. The unit, which handles almost a half-ton of supplies, can go anywhere in a hospital, even up and down elevators. It returns soiled items to a central processing area, where more automated equipment collects, sorts, washes, packages, sterilizes and stores the equipment. AMSCAR then propels itself through an automatic wash to prepare for the next round. The entire cycle is accomplished as the unit follows a series of tiny guide-wires imbedded in the hospital floor.

■ Amsco Systems Company, Erie, Pa.
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FREE-FLOATING LUMINOUS CEILING / A luminous ceiling louver-diffuser system is self-supporting and interlocking to provide even light diffusion without light leaks over any area. It can be installed free floating without wall termination and is constructed of 2-ft by 2-ft injection molded panels with a patented overlapping feature. Panels are flat on the top side, while tangent 1-in. circular louver cells give low surface brightness below. The ceiling is guaranteed against discoloration for 20 years.

■ United Lighting & Ceiling Corporation, Oakland, Calif.

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more products on page 234



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Pompano Beach	Trans Florida Roof Truss, Inc.	(305) 943-4169
Sarasota	Stottlemeyer & Shoemaker Lumber Co.	(813) 955-0277
Tallahassee	Tallahassee Builders Supply Inc.	(904) 224-1235
georgia		
Albany	Smith Lumber Company	(912) 435-8303
Armuchee	S. I. Storey Lumber Company	(404) 234-1605
Atlanta	Kingsberry Homes Corporation	(404) 457-4301
Augusta	Augusta Sash & Door Company	(404) 738-1446
Columbus	Residential Developers Inc.	(404) 323-0698
Perry	Tollson Lumber & Supply Co. Inc.	(912) 987-2334
hawaii		
Honolulu	Fabricators Inc.	(808) 899-311
illinois		
Charleston	Moore Farm Building Company	(217) 345-6355
Chicago	Edward Hines Lumber Co.	(312) 254-8600
E. St. Louis	Young Roof Trusses, Inc.	(618) 398-4244
Moline	Twin State Component Company	(309) 797-1274
Pittsfield	Kamar Construction Corporation	(217) 285-2154
indiana		
Bloomington	Rogers Building Supplies Inc.	(812) 332-6341
Indianapolis	Truss Manufacturing Company	(317) 896-2571
New Albany	U.S. Steel Homes Division	(812) 944-7711
iowa		
Burlington	Harmony Construction	(319) 754-8524
Des Moines	H. M. Iltis Lumber Company	(515) 255-1155
Des Moines	Frank Paxton Lumber Company	(515) 283-2131
Oskaloosa	Bloom Supply Company	(515) 673-8338
Sigourney	Kingsberry Homes Corporation	(515) 622-2504
kansas		
Kansas City	R. L. Sweet Lumber Company	(913) 236-6000
Topeka	Whelan's Inc.	(913) 357-0321
kentucky		
Hopkinsville	Pal Lumber & Manufacturing Co., Inc.	(502) 886-3301
Lexington	Citizens Lumber & Supply Co., Inc.	(606) 255-6380
Louisville	Home Supply Company, Inc.	(502) 368-3351
Paducah	Hipp-Green Lumber Corporation	(502) 442-4361
louisiana		
Shreveport	Gang-Nail Truss Co. of Shreveport, Inc.	(318) 868-2734
massachusetts		
Boston	Gerrity Company, Inc.	(617) 482-2010
Braintree	L. Grossman Sons Inc.	(617) 848-0100
Braintree	New England Builders Supply Inc.	(617) 843-8008
Readville	Gerrity Company, Inc.	(617) 482-3364
michigan		
Detroit	General Wood Products Co.	(313) 834-5200
Kalamazoo	Roof Truss Manufacturing Co.	(616) 349-2457
Lansing	Heart Truss & Engineering Inc.	(517) 372-0850
minnesota		
Mountain Lake	Klassen Lumber Company	(507) 427-2666
missouri		
Kansas City	Frank Paxton Lumber Company	(816) 483-7000
Kirkwood	Wood Tech Corp.	(314) 966-2132
montana		
Whitehall	Structural Components, Inc.	(406) 287-3222
nebraska		
Hastings	W. G. Pauley Lumber Company Inc.	(402) 462-4505
Lincoln	Wood-Span Products Company	(402) 432-1207
nevada		
Sparks	Wood Fabricators Inc.	(702) 358-8755
new jersey		
Freehold	Mid-Eastern Mills Inc.	(201) 462-8200
new mexico		
Albuquerque	Frank Paxton Lumber Company	(505) 243-7891
new york		
Albany	Gerrity Company, Inc.	(518) 459-3310
Hanrietta	Matthews & Fields Lumber Co., Inc.	(716) 334-5500
Middleport	The Barden & Robeson Corporation	(716) 735-3521
Syracuse	Gerrity Company, Inc.	(315) 463-5285

**Gang-Nail Trusses
Span The Globe**



Licensed Fabricators

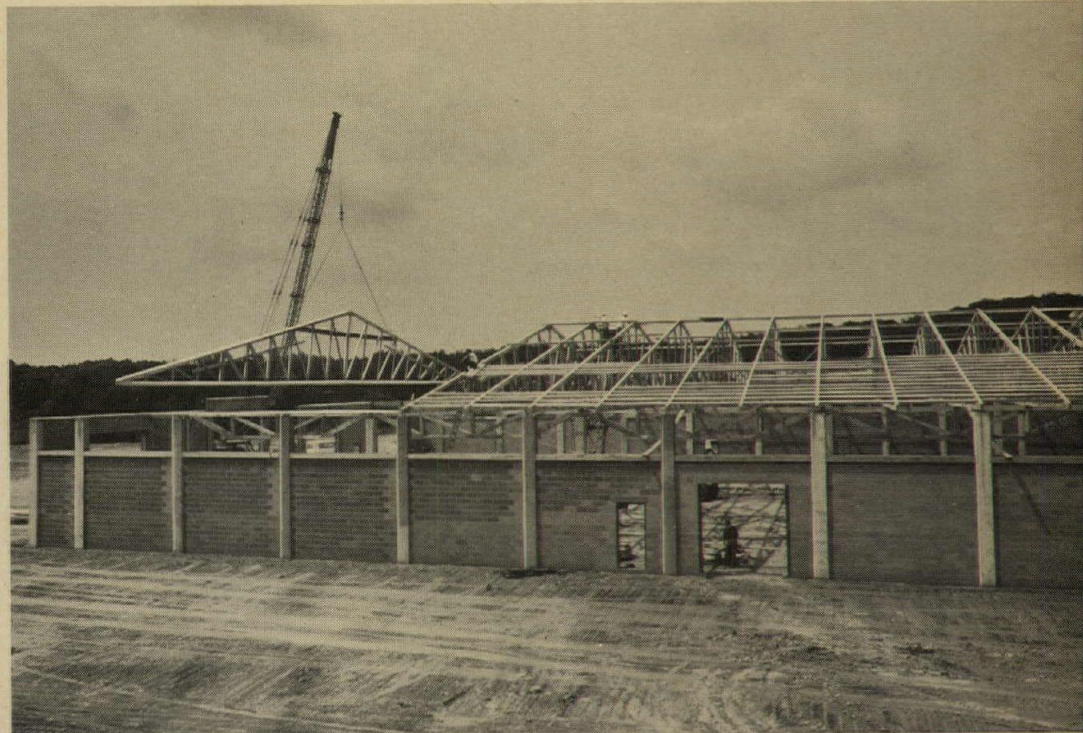
UNITED STATES

north carolina		
Kernersville	Tri-City Building Components Inc.	(919) 993-4541
north dakota		
Fargo	Crane-Johnson Company Inc.	(701) 235-8212
ohio		
Canton	Crystal Park Lumber Company	(216) 453-0187
Cincinnati	Hyde Park Lumber Company	(513) 321-0787
Columbus	Linden Lumber & Coal Company	(614) 471-9000
Dayton	Smokey Inc.	(513) 885-7625
Eaton	Leatherman Lumber Company	(513) 456-4115
Elyria	West Side Lumber & Concrete Corp.	(216) 322-4641
Hamilton	Pease Woodwork Company	(513) 895-8861
Mansfield	Wickes Corporation	(419) 522-7711
Newark	K. & G. Lumber & Builders Supply	(614) 344-2117
Norwood	Norwood Sash & Door Mfg. Co.	(513) 531-5700
Ravenna	Umbaugh Builders Supply Co., Inc.	(216) 296-3828
Springfield	Smokey Inc.	(513) 323-5801
St. Bernard	The Snook-Veith Lumber Company	(513) 242-1840
oregon		
Coos Bay	W. J. Conrad Lumber Company Inc.	(503) 267-3101
Medford	Big Pines Lumber Company	(503) 773-5333
Tigard	Air-King Manufacturing Corp.	(503) 639-1141
pennsylvania		
Chambersburg	Geyer Lumber & Millwork Co., Inc.	(717) 264-6141
Wilkes Barre	Atlas Homes Corp.	(717) 823-4804
York	York P-B Components Inc.	(717) 854-5651
south carolina		
Columbia	Columbia Truss & Components Co.	(803) 254-7625
tennessee		
Knoxville	Timbers Incorporated	(615) 546-9520
Murfreesboro	Superior Truss Company	(615) 893-6935
texas		
Austin	Building Components Mfg. Co., Inc.	(512) 576-8447
Corpus Christi	Building Components Mfg. Co., Inc.	(512) 937-2606
Dallas	Barns Lumber & Manufacturing Co.	(214) 358-5131
El Paso	Construction Components, Inc.	(915) 778-5201
utah		
Salt Lake City	Consolidated Building Supply Co.	(801) 355-4601
virginia		
Basye	Blue Ridge Pin & Truss Company	(703) 477-3930
Charlottesville	Imperial Components Inc.	(703) 973-5321
Emporia	Kingsberry Homes Corporation	(703) 634-2154
Petersburg	Builders Supply Co. of Petersburg Inc.	(703) 733-7822
Roanoke	Timber Truss Company, Inc.	(703) 345-7725
washington		
Issaquah	St. Regis Forest Products	(206) 392-5367
Tacoma	Briggs Manufacturing Company	(206) 472-4439
Tacoma	St. Regis Forest Products	(206) 383-1861
Vancouver	Mercer Manufacturing Co.	(206) 895-8353
Walla Walla	Van Petten Lumber Company Inc.	(509) 525-4000
wisconsin		
Eau Claire	Menard's Cashway Lumber Yard	(715) 874-5585
Merrill	Wisconsin Window Unit Co.	(715) 536-5581
Middleton	Dane County Truss Company	(608) 836-1941
Milwaukee	Wisconsin Bridge & Iron Company	(414) 466-2100
Racine	The Custom Component Co.	(414) 632-2773
Sheboygan Falls	Richco Structures	(414) 467-4646
Solon Springs	Precision Wood Truss Inc.	(715) 378-2270
wyoming		
Cheyenne	Builders Fabrication & Supply Co.	(307) 634-1964

CANADA

alberta		
	Mel's Lbr. & Bldg. Supplies Ltd.	
	Nelson Lumber Company Ltd.	
british columbia		
	Nat'l Engineered Structures Co.	
newfoundland		
	Walken Enterprises Ltd.	
nova scotia		
	A. R. Hemming Construction Ltd.	
ontario		
	Fonthill Lumber Ltd.	
	Glen Supply Company Ltd.	
	London Roof Truss Ltd.	
	Millford Construction Ltd.	
	Steenbakkens Lumber Ltd.	
	Kramer Const. & Lumber Ltd.	
	Biltrite Lumber & Supply Ltd.	
	G. & M. Forest Products Ltd.	
	Precision Prefab. Products Ltd.	
	Welsh Lumber Company Ltd.	
	Alcan Universal Homes	
quebec		
	Roof Truss Incorporated	
	Materio, Inc.	
	Steel & Timber Structures Ltd.	
	D. R. S. Products Limited	

Let a GANG-NAIL® truss fabricator make your design job easier



▲ 128 - foot special Gang-Nail gable trusses erected in one piece for Imperial Components Inc., Charlottesville, Va. truss plant. Trusses 8 ft. OC for 40 psf.—Stainback & Scribner, AIA.



Schneithorst's Bavarian Inn. Gang-Nail flat roof trusses for mansard span 47 ft. and are 13½ ft. high. Trusses fabricated by Wood Tech Corp., Kirkwood, Mo.—Robert Elkington, AIA.

Because of rising construction costs, more and more designers and builders find that structural problems can be solved by Gang-Nail Truss Systems. Each of the licensed fabricators listed has a design library of over 14,000 computer-designed wood trusses available, offering a wide range of flexibility. In addition, special design service for complex structures to meet all requirements is supplied by qualified structural engineers to all Gang-Nail Fabricators.

Gang-Nail® is the exclusive manufacturer of a 14 gauge quality steel connector permitting heavier loads and longer spans. All components are produced with precision on heavy-duty automated equipment under quality controls ensuring the highest degree of uniformity.

Call one of the Gang-Nail "Problem Solvers" listed at left . . . You'll like the economical solution, the estimate and the dependability of on-time delivery.

AUTOMATED BUILDING COMPONENTS, INC.

7525 NW 37th Avenue • Drawer J • Miami • Florida 33147
PLANTS IN: LOS ANGELES • CANADA • UNITED KINGDOM • AUSTRALIA • NEW ZEALAND • SOUTH AFRICA

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See us in Sweets.

For more data, circle 93 on inquiry card



Things that go bump in the night

Sylvania Lighting Center, Danvers, Massachusetts



don't hang around in the light.

You know the feeling. Somebody's following you. Your palms get wet. The back of your neck gets cold.

You're scared.

You tell yourself it's just your imagination. Monsters don't exist. And they haven't since you were five.

But then lurid newspaper stories flash through your mind. Maybe monsters don't exist, but robbers and muggers do. And all it takes is one bump.

If only it weren't so dark.

Sylvania knows a little light goes a long way. Especially when the bumps are in someone's imagination. So we make night-lights for grown-ups. Our outdoor lighting fixtures are

the most dependable ones you can buy.

And they can solve just about any lighting problem. We have the right fixtures for everything from racetracks to church steeples. Or from patios to parking lots. (Take the GBB shown above. It illuminates an average of 5 footcandles of light over an acre of land. And the ballast and lamp are easy to install and maintain.)

So if you agree that there's no point in asking for trouble, talk to the people at Sylvania. It's easier than giving your employees karate lessons.

OUTDOOR LIGHTING BY
SYLVANIA
A DIVISION OF
GENERAL TELEPHONE & ELECTRONICS

For more data, circle 94 on inquiry card

HOUSTON POST OFFICE, Houston, Texas
Architect: Wilson-Morris-Crain & Anderson, Houston, Texas
Engineer: Dale S. Cooper & Associates, Houston, Texas
Mechanical Contractor: Farwell Company Inc.

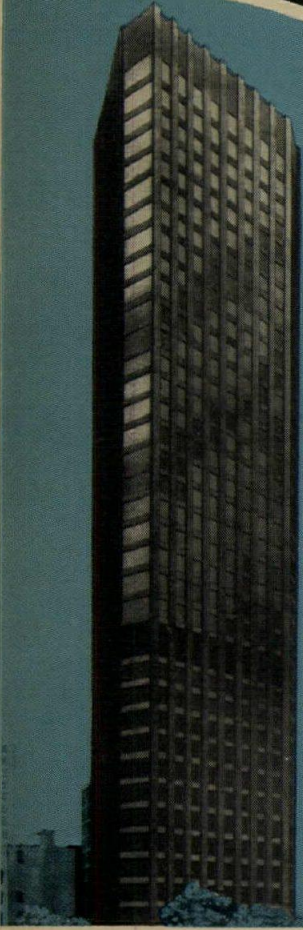
Wrought Iron Piping Services: Hot and cold water lines; fire protection system; vents; downspouts; steam condensate return lines.

MERCY HOSPITAL, Benton Harbor, Michigan

Architect: Mittelbush & Tourtelot, Chicago, Illinois
Engineer: Neiler, Rich & Bladen, Chicago, Illinois
Mechanical Contractor: Holwerda Heating & Plumbing Co., Wyoming, Michigan
Wrought Iron Piping Services: Steam condensate return lines; boiler feed lines; boiler blow down; fire lines; hot and cold water lines.



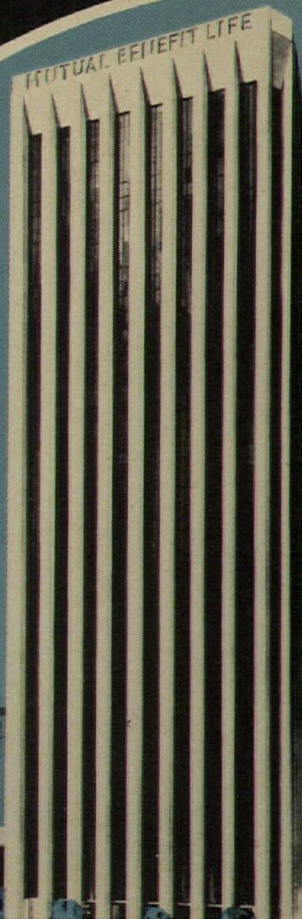
PLAN AHEAD
GIVE LONG LIFE
TO YOUR BUILDINGS...
SPECIFY TIME-PROVEN
WROUGHT IRON
PIPE



CROCKER BUILDING
San Francisco, California

Architect & Engineer: Welton Becket & Associates
Contractor: Dinwiddie Construction Company

Wrought Iron Piping Services: Storm drainage; sewage ejector and sump pump discharge; indirect drains; boiler blow-down tank piping; steam condensate return lines; boiler feed water; steam vents.



MUTUAL BENEFIT LIFE
INSURANCE COMPANY
San Francisco, California

Architect & Engineer: Welton Becket & Associates


Contractor: Haas & Haynie Inc.

Wrought Iron Piping Services: Boiler feed water; steam vents; steam condensate returns; indirect drains; boiler blow-down tank piping; storm drainage; sewage ejector and sump.

If a pipe line clogs or fails in a building, a repair crew is called in. Usually a carpenter tears a hole in the building to locate the leak; a plumber replaces the leaking pipe; a plasterer patches the hole and a painter dresses up the plaster. The costs are extremely high and going higher each year.

Through the years the one pipe that has stood the test of time has been Byers Wrought Iron pipe. And as you can see from the above photographs and services, some of the nation's best known architects and engineers are not taking any chances with just ordinary pipe when they write their specs. What about you? Are you specifying Wrought Iron pipe for your corrosive services? . . . Can we send you information on where and why Wrought Iron is being installed? Let us hear from you.

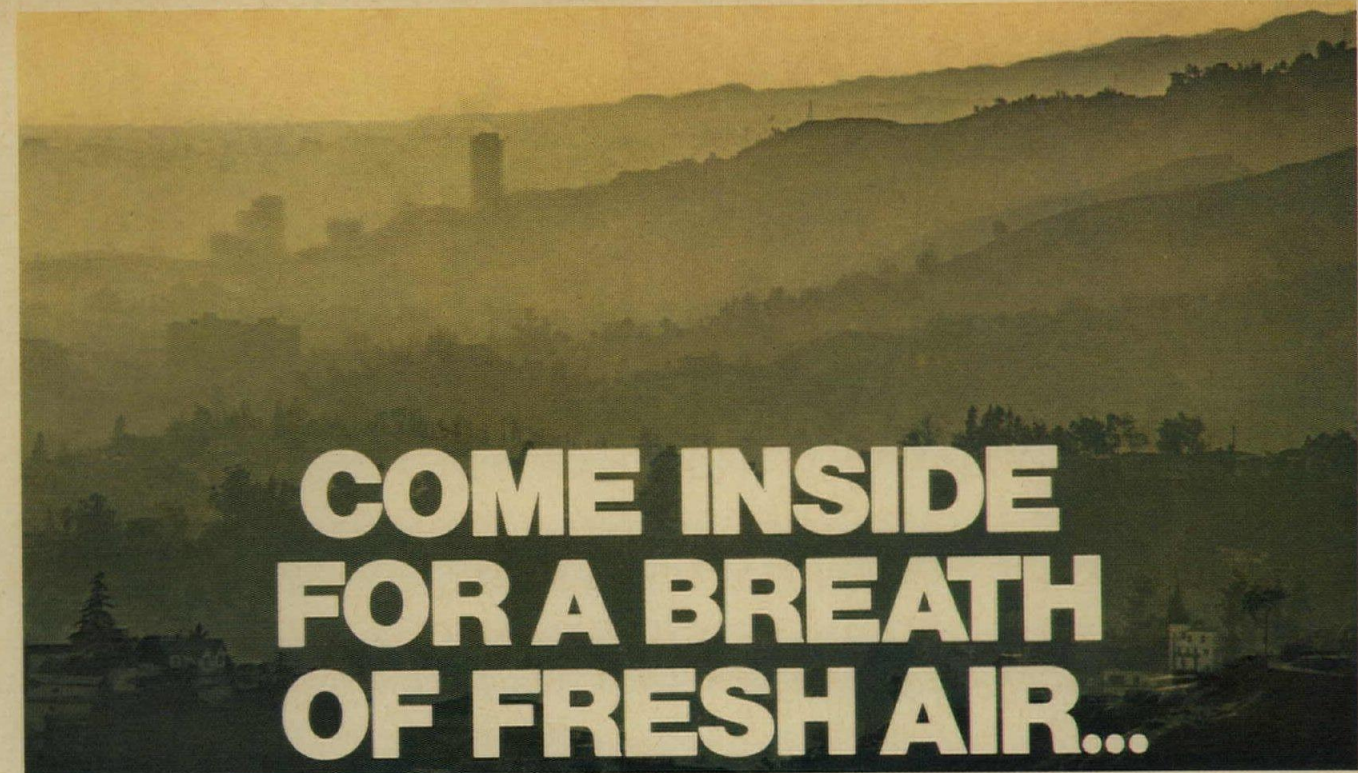
Thanks for reading this advertisement



A. M. BYERS COMPANY

P. O. BOX 369

AMBRIDGE, PA. 15003



COME INSIDE FOR A BREATH OF FRESH AIR...

... clear lights and soft sounds. Come inside to Dimensionaire*: an environmental ceiling system by Owens-Corning Fiberglas. It's a totally integrated air, light and sound system for people who want a better working environment.

For example, Mr. Mills, engineering project manager for the Permacel Corporation, wanted to improve their working environment. We gave him the chance with Dimensionaire. A system that could answer many environmental problems.

Mr. Mills had the major problems of getting uniform air distribution in rooms of non-uniform size and yet

have design flexibility allowing for possible office rearrangement. He considered the use of ducts and diffusers—they were too expensive and not flexible enough for his needs. He then turned to Dimensionaire. It has a multi-vented linear air bar which moves air in a unique pattern. Leaving no hot or cold corners. No stale corners. Just a totally fresh outlook. And with uniform wall-to-wall diffusion the Dimensionaire system allows for sufficient design flexibility.

Dimensionaire also gave him a coordinated lighting system with shallow recessed units. That gave comfortable illumination at working levels (200 foot candles on drafting tables). They also gave a clean uncluttered appearance that's easy on the eyes, too.

Dimensionaire then went easy on the ears. Breaking the noise barrier with

ceiling boards of Fiberglas† fissured design that absorb 85% of sound striking the surface.

Dimensionaire also went easy on Mr. Mills' budget. Eliminating separate material costs for ducts and diffusers, lighting units and acoustical ceilings. Just one system. From one company—Owens-Corning Fiberglas. Mr. Mills improved his working environment with Dimensionaire: An environmental system by Owens-Corning Fiberglas. Shouldn't you?

Write for detailed case histories and cost analysis on the Dimensionaire Ceiling System to: Owens-Corning Fiberglas Corp., 717 Fifth Avenue, New York, N. Y. 10022.

**OWENS/CORNING
FIBERGLAS**

TRADEMARK ©

DIMENSIONAIRE: AN ENVIRONMENTAL CEILING SYSTEM

*Trademark (Reg. U.S. Pat. off.) OCF Corp.
†Trademark of OCF Corp.

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◆ *For more data, circle 95 on inquiry card*



It takes our kind of experience to build our kind of doors.

And your kind of imagination to utilize them to their optimum potential.

More and more creative architects are discovering more and more ways to use The "OVERHEAD DOOR" to improve their designs—improve them functionally, economically, and esthetically.

You can do the same.

The "OVERHEAD DOOR" is available to you in just about every material, size, and style. You name the kind of door you need, and if we don't have it in stock, we'll build it for you. And build it *right*. (We've built over eight million doors since 1921, so we're pretty much in practice.)

If your design calls for an electrically operated door—or doors—we have architectural consultants and engineers at the ready to help you determine the right electric operator to do the best job.

You can always specify The "OVERHEAD DOOR" with total confidence. Our nationwide network of factory-trained distributors install and service every door they sell. They also issue a full one-year warranty on all parts and workmanship.

Your nearby Overhead Door distributor is listed in the white pages of your phone book. Give him a ring . . . and an opportunity to explain why the phrase "or equal" is fast disappearing from door specs all over America.

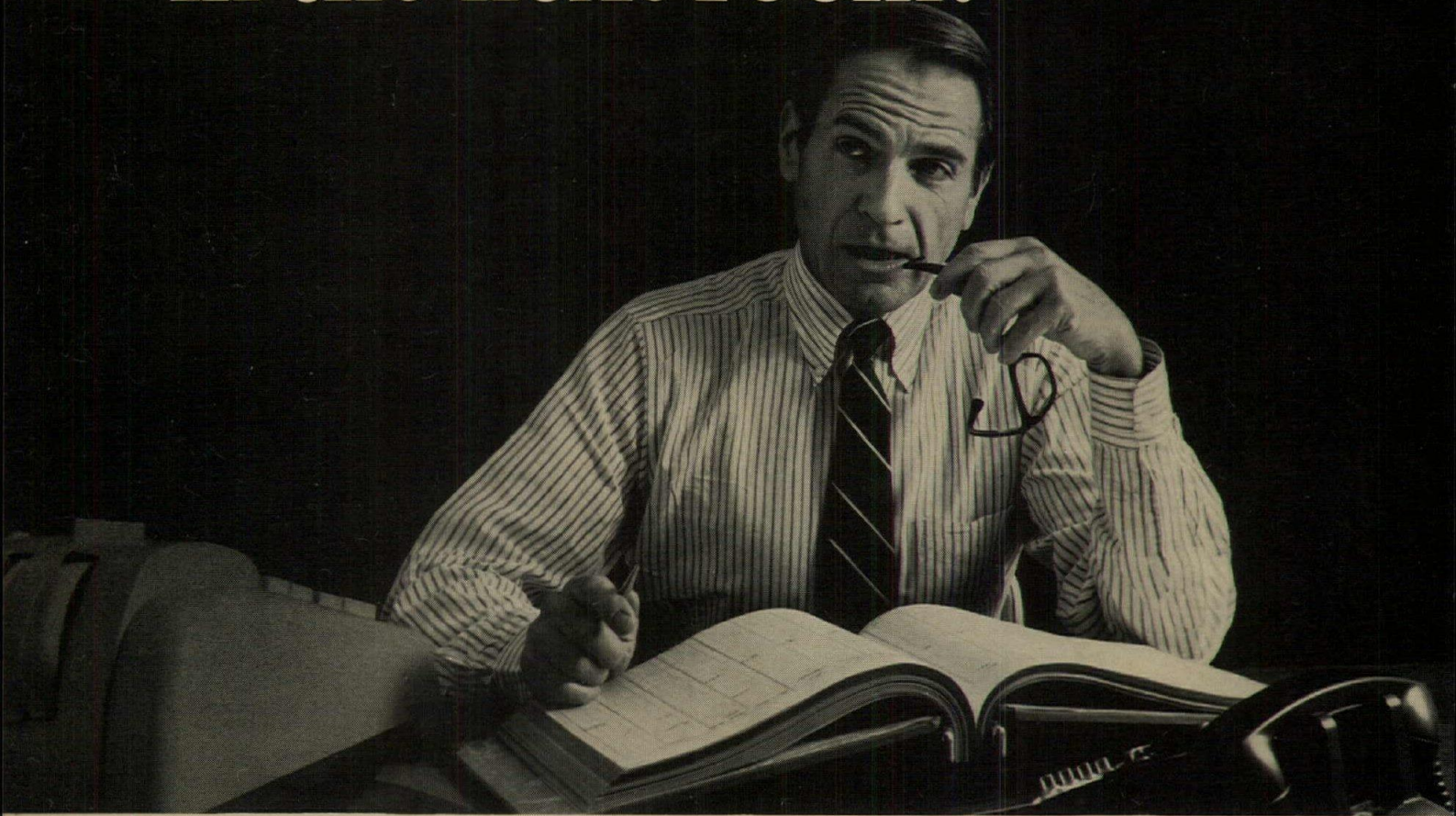


Fully transistorized, portable transmitter with color-coded selector, controls up to 8 doors individually by radio control.



OVERHEAD DOOR CORPORATION
General Offices: Dallas, Texas 75202
Manufacturers of The "OVERHEAD DOOR" and
electric operators for residential and commercial buildings
For more data, circle 97 on inquiry card

\$1183 was spent to soundproof this office and you can hear a cough in the next room!



They forgot an Acoustilead plenum barrier.

Soundproof wall materials, plus expensive acoustical ceiling tiles, were specified to make this a noise-free office. These materials do the job . . . up to a point. That point is the plenum, the space between a partition top and the floor slab above it.

Sound waves flood over the partition virtually unimpeded if there is no acoustical plenum barrier. Ordinary sound barriers in a plenum are usually so full of leaks around ducts and pipes that noise still passes freely.

Gain Maximum Noise Reduction at Minimum Cost. The solution to this annoying problem is Asarco Acoustilead—sheet lead that's only 1/64-inch thick. Drape a curtain of

Acoustilead from the floor slab above to the top of the partition and you stop penetration of all normal noise. There are no sound leaks because Acoustilead fits tightly around ducts and wires. It can be cut with scissors, easily bent by hand, and is installed in less time than other acoustical materials.

Acoustilead is the first material available for sound barriers in normal plenum areas, with an installed cost generally below \$1.00 per square foot.

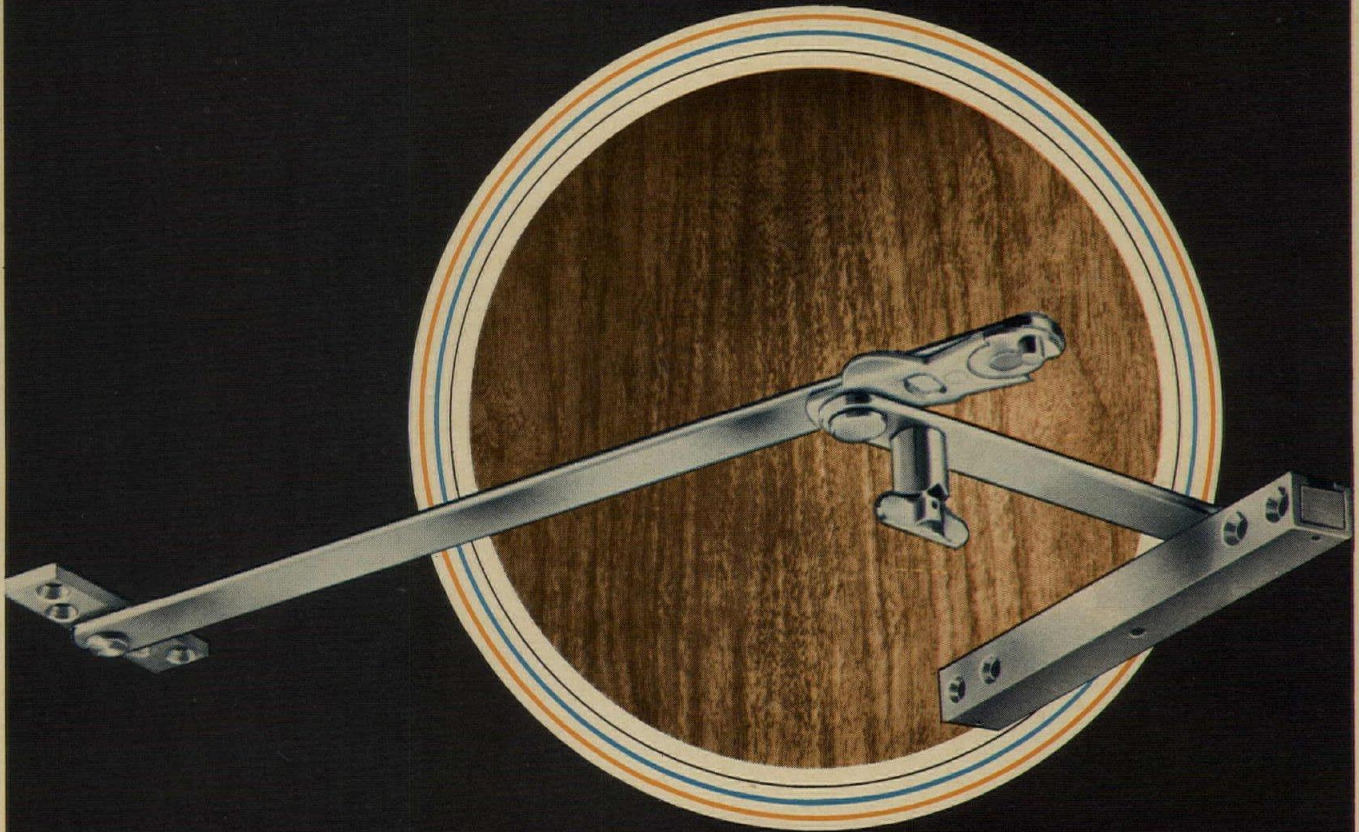
Help. Our brochure on Acoustilead shows why and how to install thin sheet lead. Send for it today. Sound Attenuation Department of Asarco.

Federated Metals Division
AMERICAN SMELTING AND REFINING COMPANY
120 BROADWAY, NEW YORK, N. Y. 10005






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SELECT THE FINEST



GJ 80M HD

non-handed surface door holder

-  stops the door
-  cushions the stop
-  holds the door



GLYNN • JOHNSON
CORPORATION

4422 N. Ravenswood/Chicago, Illinois 60640

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Mechanics Bank, Pinole, California Architect: Hammarberg & Herman, A.I.A.

Franciscan – the leading ceramic tile for leading architects.

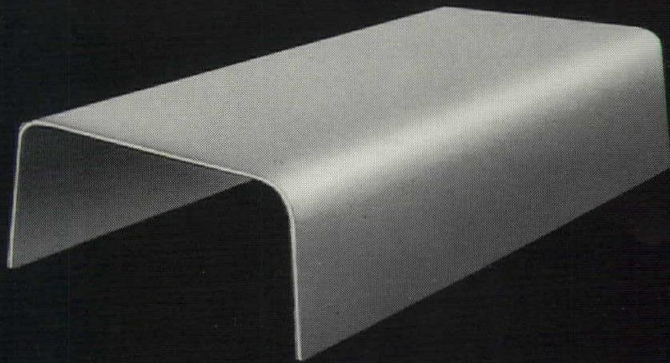
Leading architects have discovered that **Franciscan Terra Floor**—a frost-proof, glazed ceramic tile in a nominal 12" x 12" modular size—is everything a leading ceramic tile should be. Its rich earthy textures and colors with subtle irregularities offer unlimited opportunity for creative expression. **Franciscan Terra Floor** is easy to clean and will not yield its natural beauty to time and weather. Best of all—the installed cost of **Franciscan Terra Floor** is low enough to be competitive with less desirable materials.

Be a leader. Specify **Franciscan Terra Floor**—a functional art medium in burned earth for commercial and industrial floors. Select from eight patterns in six earthy colors.

Franciscan[®] TERRA FLOOR by **INTERPACE[®]**
 2901 Los Feliz Boulevard, Los Angeles, California 90039

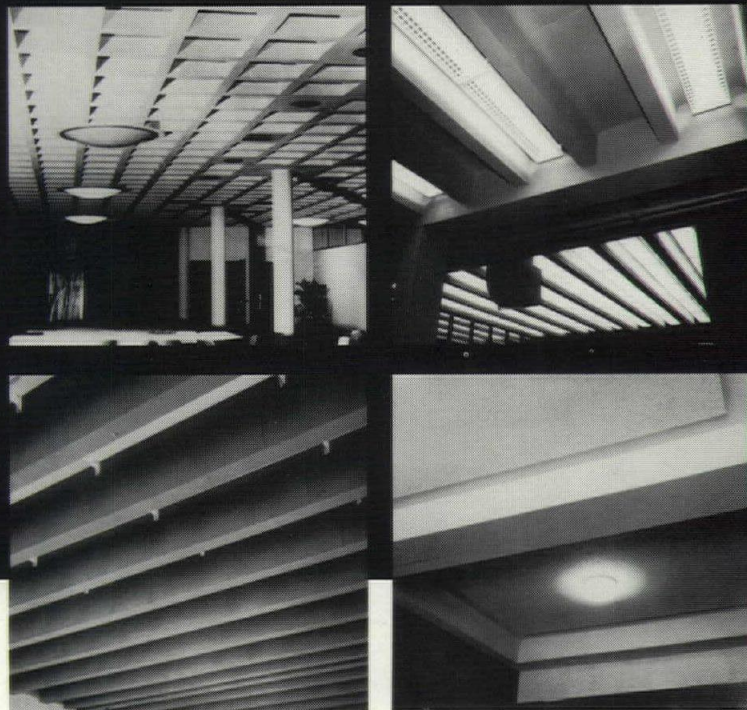


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Here is a lightweight Sonopan[®] Molded Fibre Pan.

Here are some of the things you can do with it.



SONOPAN molded fibre pans provide almost unlimited design freedom. What you see here are only examples of what you can do in concrete joist construction.

In the first place, the pans are available in a wide variety of standard and special sizes — in depths, widths and lengths. This variety means that you can design with new space dimensions and retain the aesthetic qualities desired.

Because of the texture of the material from which the pans are made, you get an acceptable concrete finish which can be left exposed or painted. Dome and tapered pans also available, and all pans are economically priced.

For more details, write for our illustrated brochure.



SONOCO PRODUCTS COMPANY, Akron, Indiana. Main plant and general offices, Hartsville, South Carolina.

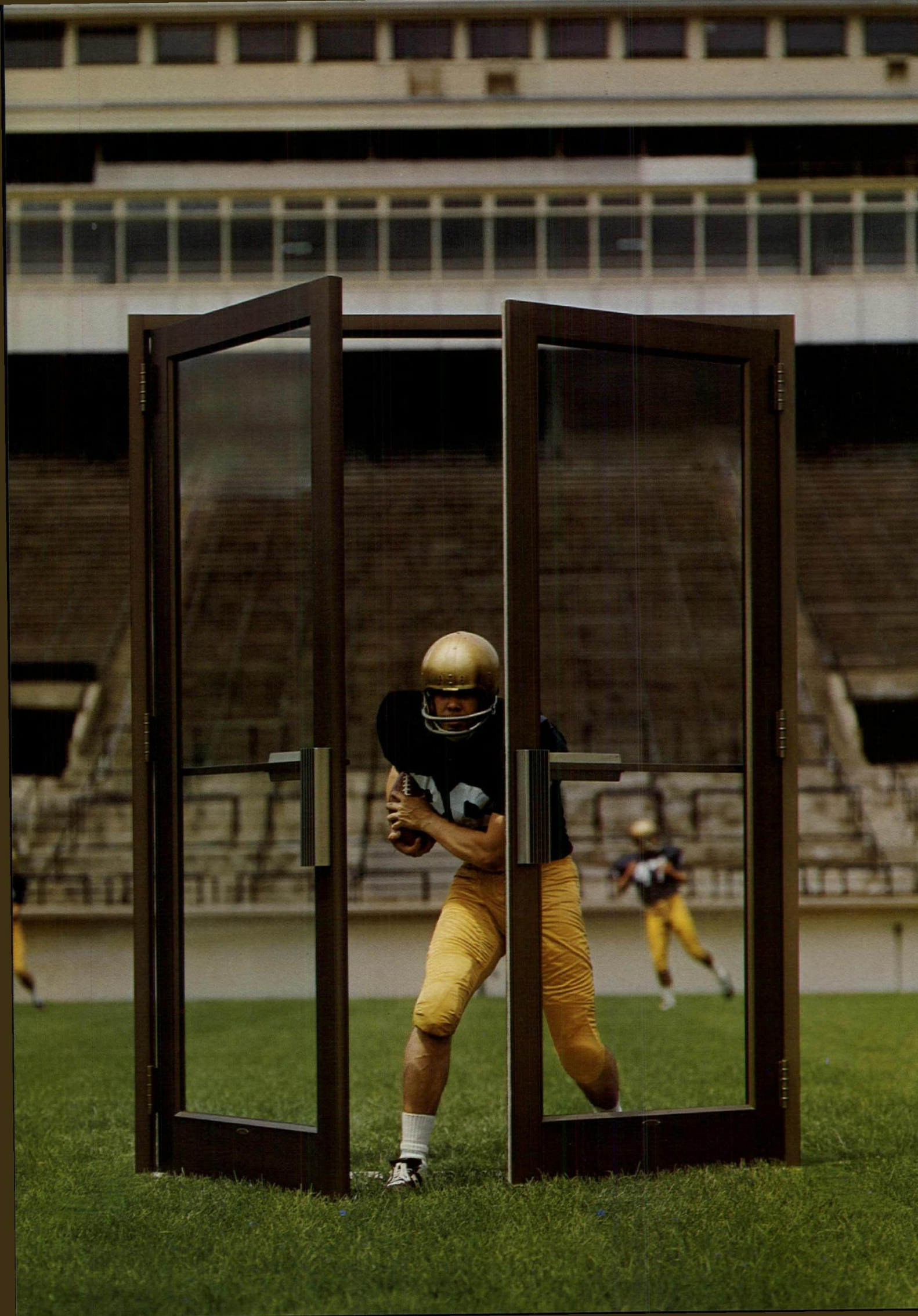
SO 284

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ARCHITECTURAL RECORD October 1968 213





at
Notre Dame

Kawneer Entrances Rugged-*but beautiful*

Why is a Kawneer entrance on the 50 yard line in Notre Dame Stadium? What better way to indicate rugged strength? Remember, the doors you specify must perform or you have an unhappy client.

Kawneer doors are engineered and constructed for superior performance, so essential where traffic is heavy . . . for example, the new Notre Dame Athletic and Convocation Center, where thousands of athletes, students, faculty and fans pass through 176 Kawneer aluminum doors.

The door features Dual Moment corner construction, with four sigma-deep penetration welds plus mechanical fastening at each corner.

Beauty? Your own eyes tell you best what we would like to say. The styling, hardware options and abrasion-resistant non-fading Permanodic® hard color finishes are all good reasons why more Kawneer entrances grace more buildings than those of any other manufacturer.

For details, write Kawneer Product Information, 1105 N. Front Street, Niles, Michigan 49120.

Notre Dame Athletic and Convocation Center, South Bend, Indiana. 176 Kawneer doors in Permanodic Bronze No. 28 hard color finish. Architects: Ellerbe Architects, St. Paul, Minn. Contractor: Schumacker, South Bend, Ind.




KAWNEER

ARCHITECTURAL PRODUCTS

AMAX
ALUMINUM

New Dynamics in Architectural Aluminum

Kawneer Company, Inc., a Subsidiary of American Metal Climax, Inc.
Niles, Michigan • Richmond, California • Atlanta, Georgia
Bloomsburg, Penn. • Kawneer Company Canada, Ltd., Toronto



Terrific for traffic! The rugged entrances are designed to deliver precision performance even when the treatment is bruising—as symbolized by model at left or in actual use as shown above.

No matter which of 10 Kawneer entrance styles you specify—be they swinging doors, sliding mall fronts, or sliding high rise apartment doors—you are assured of the highest quality construction and handsome styling.

© Kawneer Company, Inc., 1968

Specify floor beauty, protection that lasts long after final acceptance

Hillyard Hil-Brite® (prime No. 1 Carnauba Wax)



PRODUCT DESCRIPTION — *Basic Use:* To provide a protective, slip-resistant, wear-resistant surface coating that enhances the appearance of any floor for which waxing is recommended.

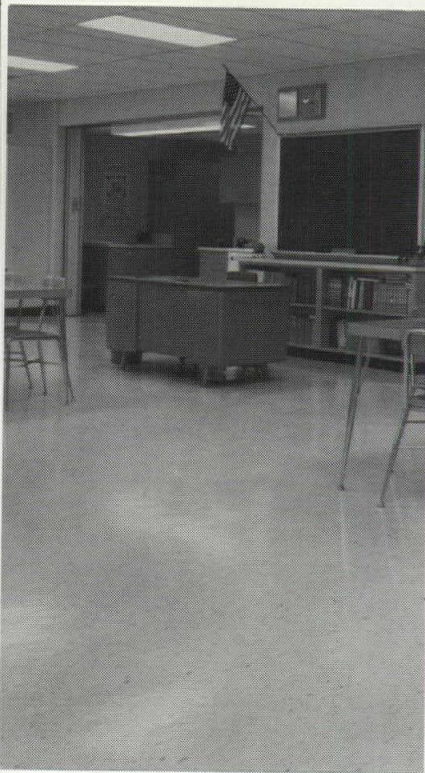
Limitations: Do not wax a conductive floor. Not recommended for treatment of terrazzo flooring.

Composition and Materials: A buffable water-emulsion floor wax, containing 100% Prime No. 1 Carnauba. The hardness of carnauba improves the lasting qualities of the wax emulsion. Protects against rubber marking. Eliminates frequent rewaxing necessary with ordinary waxes.

Sizes: Packaged in new, sealed 1-gallon, 5-gallon, 35-gallon and 55-gallon metal, lined containers.

Applicable Standards: Conforms to Asphalt and Vinyl Asbestos Tile Institute Specifications for water emulsion floor polishes for use on asphalt and vinyl asbestos tile floors. Approved by Rubber Manufacturers Association.

TECHNICAL DATA — *Nonvolatile Matter:* 12.5%-13.5%; *Ash Content of NVM:* 3% maximum; *Refractive Index:* 20°C: 1.3616-1.363.1; pH, 25°C: 9.0-10.0; *Sediment:* 0.05% maximum; *Odor:* non-objectionable at any time; *Alcohol Solubility:* clear;



Film Properties: film on black glass—clear; drying time at 25°C, 50% R.H.—20 minutes maximum; tackiness—none.

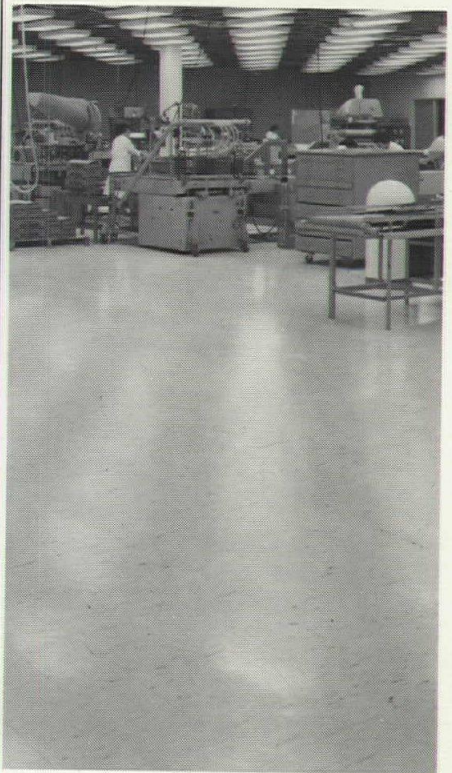
Test Results: U/L listed for "slip-resistance." Approved by Institutional Research Council. All test information is available on request.

APPLICATION: Onto a perfectly clean and dry floor apply two thin coats of Super Hil-Brite® carnauba wax with lambs-wool applicator or clean rayon mop. Allow first coat to dry thoroughly before applying second coat. Let wax cure over night. Then buff for added lustre.

AVAILABILITY AND COST — *Availability:* Marketed in all states and in over 20 foreign countries by direct manufacturer's representatives located in principal cities. Complete stock available in Hillyard Distribution Centers and Warehouses throughout the United States.

Cost: Approximate 0.3¢ (three tenths of a cent) per coat per square foot.

GUARANTEE: When applied in accordance with manufacturer's directions, it is guaranteed to meet all claims made for it. Any unsatisfactory performance should be reported to the St. Joseph Office and a review of the complaint will be promptly made by an authorized representative.



MAINTENANCE: Sweep daily with properly treated dust mop. When surfaces become soiled, mop with Hillyard Super Shine-All® neutral chemical cleaner, at proper cleaning dilution. After floor is dry, buff for added lustre.

REFERENCES: Sweet's Architectural Files.

A.I.A. File No. 11

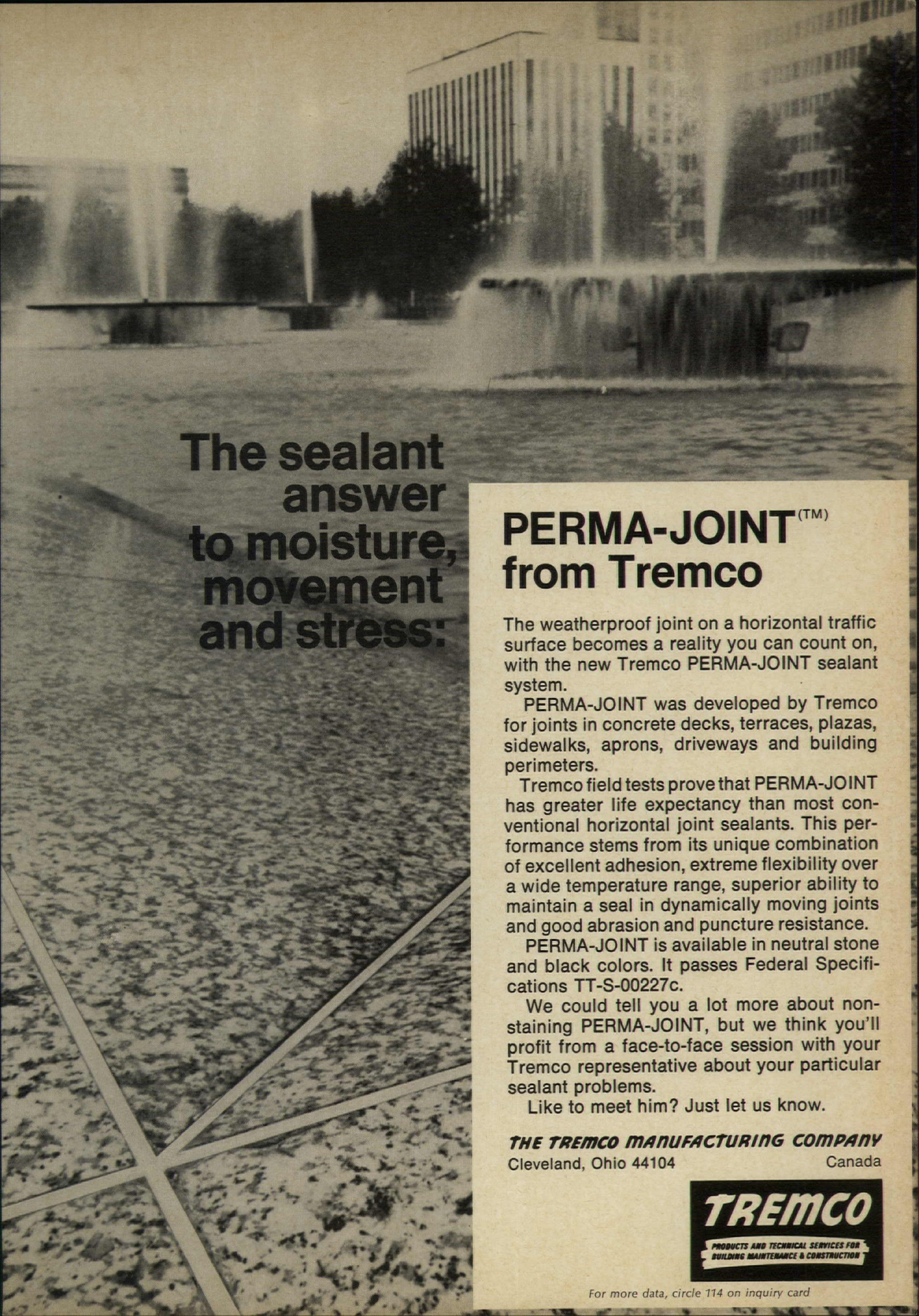
TECHNICAL SERVICES: Over 200 trained, professional, architectural consultants are located in and near principal cities. Write or call collect for our representative in your area. We will have him contact you immediately. He will recommend the proper, approved treatment for the floor you are specifying and supervise application procedures at job site.

HILLYARD
FLOOR TREATMENTS

ST. JOSEPH, MISSOURI, U.S.A.
TOTOWA, NEW JERSEY
SAN JOSE, CALIFORNIA
IN CANADA: Ontario: ALBERTA



The most widely recommended and approved treatments for every surface



**The sealant
answer
to moisture,
movement
and stress:**

PERMA-JOINT^(TM) from Tremco

The weatherproof joint on a horizontal traffic surface becomes a reality you can count on, with the new Tremco PERMA-JOINT sealant system.

PERMA-JOINT was developed by Tremco for joints in concrete decks, terraces, plazas, sidewalks, aprons, driveways and building perimeters.

Tremco field tests prove that PERMA-JOINT has greater life expectancy than most conventional horizontal joint sealants. This performance stems from its unique combination of excellent adhesion, extreme flexibility over a wide temperature range, superior ability to maintain a seal in dynamically moving joints and good abrasion and puncture resistance.

PERMA-JOINT is available in neutral stone and black colors. It passes Federal Specifications TT-S-00227c.

We could tell you a lot more about non-staining PERMA-JOINT, but we think you'll profit from a face-to-face session with your Tremco representative about your particular sealant problems.

Like to meet him? Just let us know.

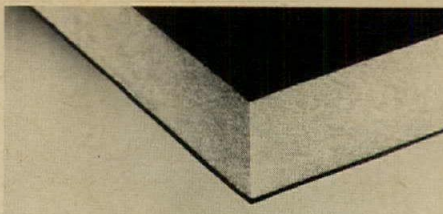
THE TREMCO MANUFACTURING COMPANY
Cleveland, Ohio 44104

Canada



For more data, circle 114 on inquiry card

continued from page 200



ROOF INSULATION / Urethane Roof Insulation, reported to be strong, lightweight and highly efficient, has a low k factor, and will satisfy design requirements with substantially less thickness than traditional insulations. In tests according to ASTM standards, the insulation proved a thermal conductivity of 0.13 initially and 0.16 when aged. ■ Armstrong Cork Company, Lancaster, Pa.
Circle 307 on inquiry card

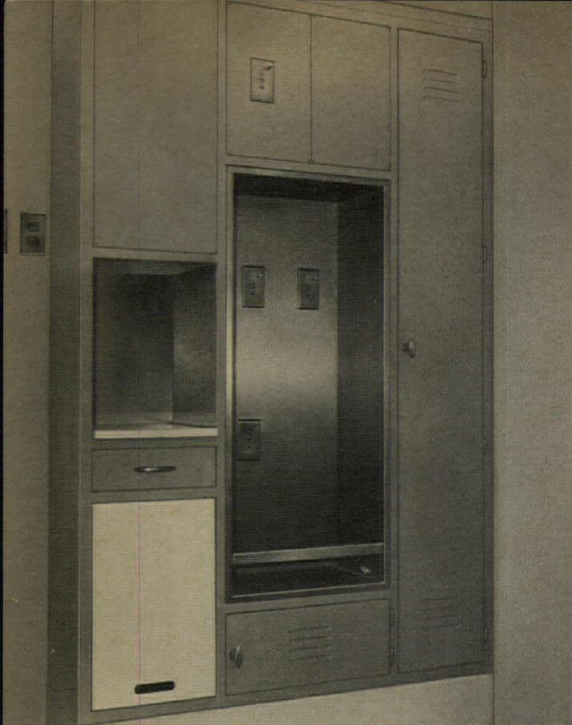


ACOUSTICAL TILE / This ceramic acoustical tile is said to have a "perfect finish." The flame-spread, fuel-contributed, smoke-developed classifications are 0. The finish: natural unpainted; dry-clean, non-fade; bacteria-resistant. The tile is offered in five textures. ■ U.S. Perlite Corporation, Chicago.
Circle 308 on inquiry card



HIGH-HUMIDITY PANELS / These ceiling panels have been developed particularly for use in high humidity areas such as industrial plants, swimming pools and restaurant kitchens. In addition, they can be used in exterior areas, where they could be exposed to freeze-thaw cycles. The panels, which have a two-hour fire rating, may be washed or painted without producing any appreciable loss in acoustical properties. ■ Conwed Corporation, St. Paul, Minn.
Circle 309 on inquiry card

more products on page 242



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No other area requires such attention to layout and architectural design.

Experience has shown that every intensive care unit must differ from every other depending on type and size of hospital, type patients served, and the extent of surgical and post-operative treatment.

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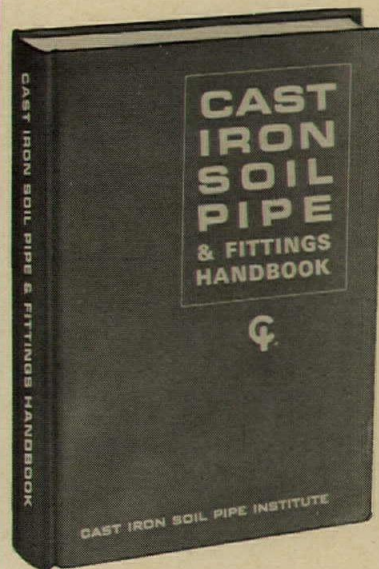
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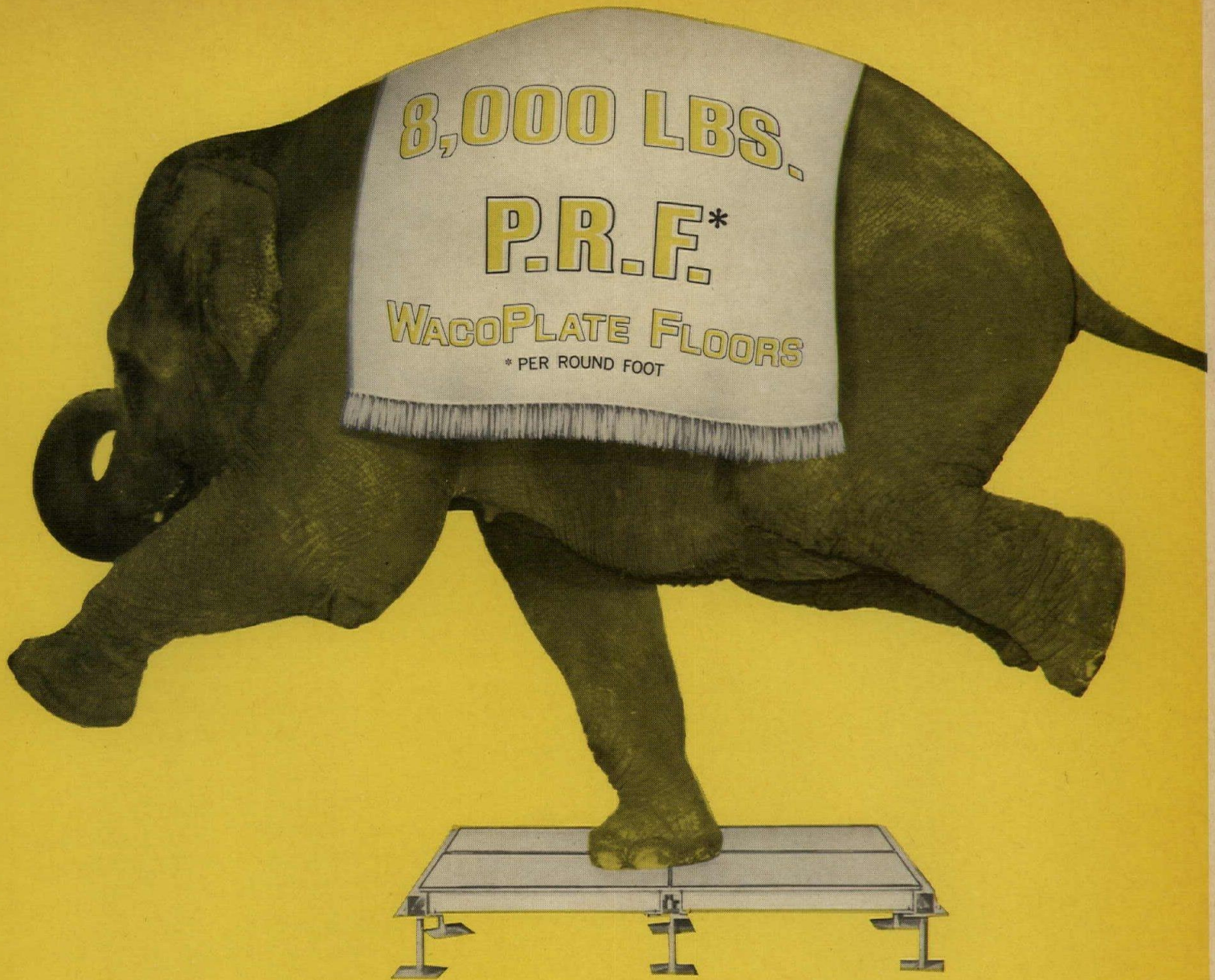
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WacoPlate Raised Floors provide two advantages you won't find in any other floor. Anywhere.

One is more strength than any other floor. You avoid problems like deflection and dimpling, or costly reinforcement to meet later — possibly unforeseen — requirements.

Why do other floors lack the strength of WacoPlate? Can't be because a weaker floor avoids problems. Or saves you money. WacoPlate prices are competitive.

The second exclusive advantage of WacoFloors is that they provide complete accessibility without sacrificing stability. The explanation is our Snap-Lok Rigid Grid System. The stringers in this grid system give the floor rigidity, strength and stability, yet they are easily removed and replaced. No loose fasteners are required.

WacoFloors are installed with panels of steel or wood core. For complete details, dial direct or write.

Stringers are easily removed from the exclusive Snap-Lok Rigid Grid System.



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There is no equal to a WacoFloor

For more data, circle 117 on inquiry card

Durability— Shall be permanent with no protective coating necessary. Shall not deface, tarnish or fade in virtually all atmospheres.

Appearance— Shall not stain or discolor adjacent surfaces; shall blend with other materials.

Strength— Shall protect against fire by maintaining strength at elevated temperatures. Must offer superior resistance to metal fatigue, wind damage, denting and abuse.

Workability— Shall be readily formed, joined and installed in roof and flashing systems at any desired gage. Joints shall be easily soldered watertight.

Maintenance— Shall require no maintenance; normal rainfall to keep surface clean.

Cost— To be compatible with other permanent roof and flashing metal systems.

Availability— Shall be in stock for prompt local delivery to meet construction schedules.

Wouldn't it be great to write specs like this for a roofing material?

You can, you know...

what you'll get is a Republic stainless roofing system

And you'll get further benefits, too. The high strength-to-weight ratio of stainless allows lighter, more economical gages to replace heavier, more expensive (and less available) gages of copper in most roofing and flashing specifications.

Now Republic offers this surprisingly economical material in two tempers: a roofing grade type 304, and a new strong, yet easy-to-work, stainless flashing grade, Republic DUROFLASH®, a soft stainless.

Soft stainless means just that. A workable stainless that can be soldered, welded, brazed, nailed, riveted... even cut with scissors and formed by hand, on the job.

And it has the same durability and corrosion resistance you expect from stainless. Plus a yield strength of 35,000 psi (maximum).

Leading architects have already accepted Republic soft stainless. On the 41-story Federal Office Building at Foley Square in New York City, more than 55 tons of stainless steel were used for spandrel and through-the-wall flashing. Republic stainless was also used exclusively in the complete new roof installed on the Birmingham, Alabama, Civic Auditorium.

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The newest information on stainless steel in roofing systems is now in a new booklet which is yours for the asking. It contains complete specifications and details plus tables comparing the properties of roofing and flashing metals.

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This table illustrates the recommended applications of regular Republic 304 grade stainless, and new Republic DUROFLASH, the soft stainless.

**Stainless Steel Types, Gages, Finishes, and Tempers
FOR ROOF AND FLASHING SYSTEMS**

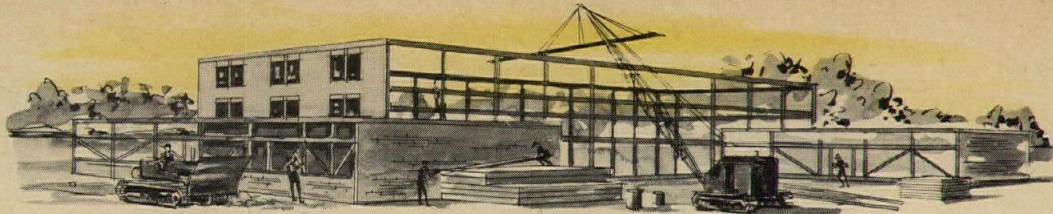
Use	Product Description and Finish
Exposed Flashing	Where a semibright reflective treatment is desired . . .
Roof Trim Roofing	Specify temper rolled AISI type 304 No. 2 (strip) or No. 2B (sheet) conventional annealed finish. — OR —
Roof Drainage Accessories	Where a softer, less reflective treatment is desired . . .
Expansion Joint Covers	Specify temper rolled AISI type 304 No. 2 rough rolled (Republic No. 2 RSK) conventional annealed finish.
Roof Drainage	Specify cold rolled (65 to 80,000 psi yield strength) AISI type 304 No. 2 (strip) or No. 2B (sheet) conventional annealed finish . . . appearance—semibright.
Concealed Flashing Roof Penetration Flashing	Specify soft temper (dead-soft or fully annealed) AISI type 304 No. 1 (strip) or No. 2D (sheet) conventional annealed finish . . .
Miscellaneous Items	(Republic DUROFLASH) appearance—matte.



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CLEVELAND, OHIO 44101



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Another HOSPITAL sealed with Dow Corning 780 building sealant

COMING UP

30 years of freedom from leaks!



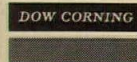
This silicone rubber elastomer is so uniquely weather-resistant, industry sources project 30 years or more of leak-free service when the sealant is properly applied in a well designed joint.

That's *ten years longer* than they project for any other class of sealant!

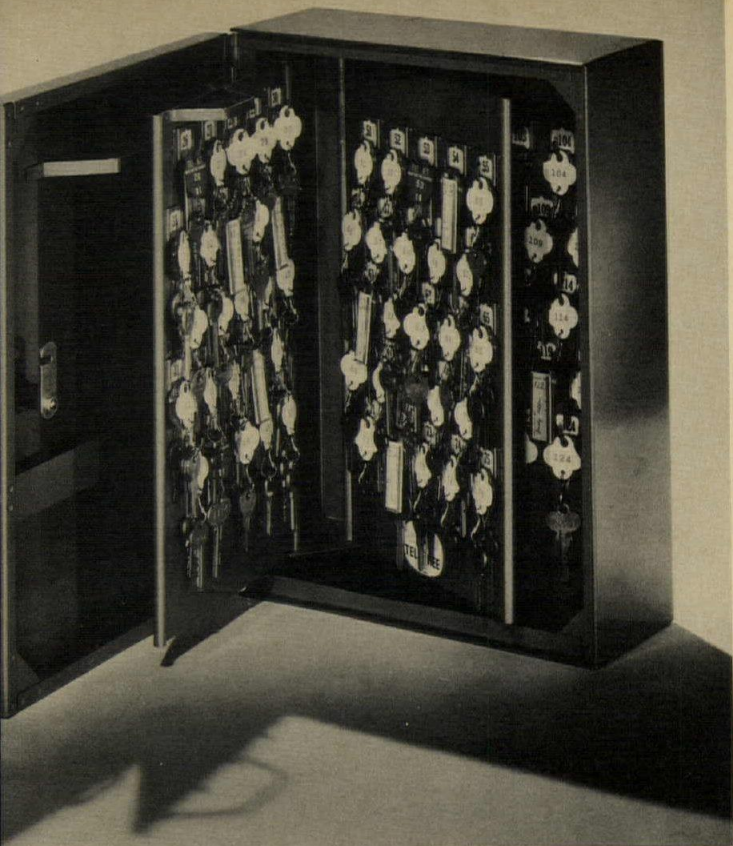
Put Dow Corning® 780 building sealant at the head of your list of *long-life* components. It belongs. Why design for anything less?

See Sweets for Dow Corning 780 building sealant and Terraseal 100® polyurethane sealant for horizontal traffic joints. They're both extra long life. Or drop us a line for FREE DEMONSTRATION SAMPLE and full particulars. Address Dow Corning Corporation, Dept. A-8411, Midland, Michigan 48640. Offer good only in U.S.A.

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T-704

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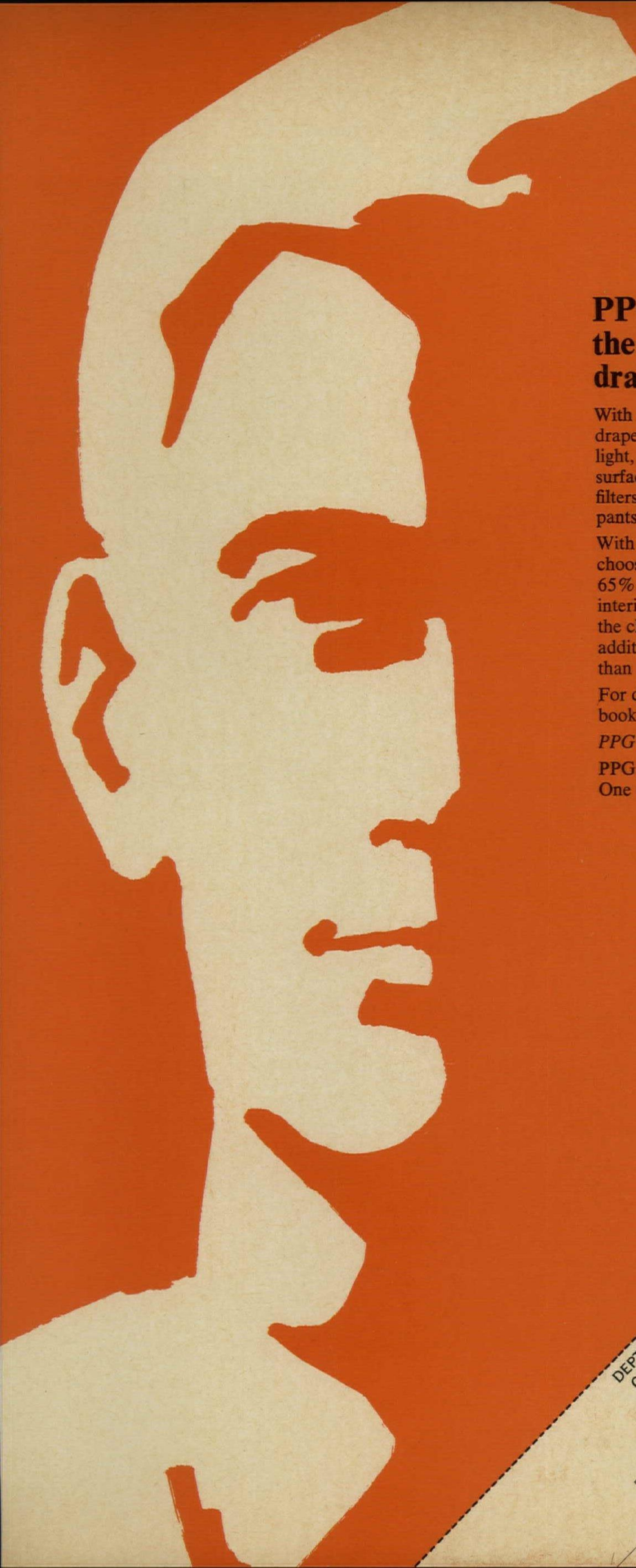
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 Please send me your new booklet.
 Please send me names of authorized Feneshield fabric representatives.

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continued from page 234



The "hidden" features of TATE Infinite Access Flooring

After the floor panels are in place, in a computer room, office area, or other access flooring installation; some of the best features of a Tate Infinite Access Floor are hidden from view.

But, when you look underneath, you'll discover these hidden features which make a Tate Access Floor the finest you can specify.

First, you'll see the underside of the Tate all steel panel. It's constructed of two steel sheets; the top perfectly flat to receive the floor covering of your choice . . . the bottom sheet die-formed into *fourteen* intersecting "Z" beams for maximum strength . . . the two parts welded together at 176 points.

Next, one of three understructure systems that are available; each designed to meet a different need based on *your* requirements.

Your requirement could be for the Tate Snap-on Stringer that provides a rigid grid, but with each stringer individually removable by hand without special tools. You may require maximum accessibility, and the Tate Stringerless system is what you'll find. But if the most rigid floor understructure is your requirement, the Tate Bolted Stringer system, with only one bolt needed to secure four stringers, is there.

Supporting the system is the Tate "Levelock" pedestal. It consists of a tubular steel column, then the Tate "cam-lok" feature that prevents vibration or routine cable maintenance from changing the height and leveling setting. A steel adjusting nut — a $\frac{7}{8}$ " steel stud — both the strongest on the market. And the "Levelock" feature itself, exclusive with Tate floors — adjusts the pedestal for perfect vertical alignment by compensating for the normal sub-floor irregularities . . . it guarantees absolutely level floors, axial loading of understructure, and no "rocking" panels.

Thus, it's the "hidden" features, combined with the all important visible feature of attractiveness and perfect, level surface, that makes a Tate Access Floor the best you can specify.

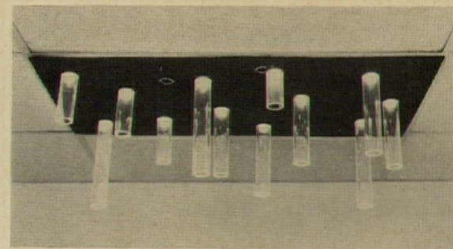
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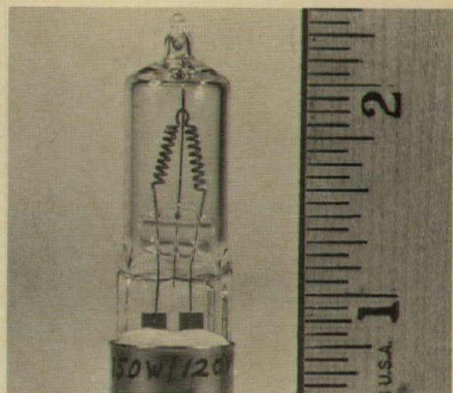
Write today for free catalog and the name of your nearest Tate distributor.

For more data, circle 121 on inquiry card



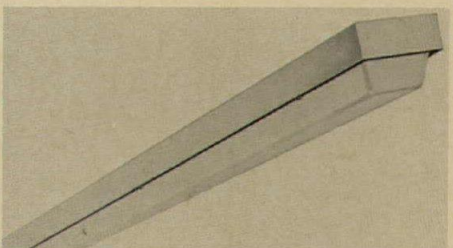
ACRYLIC LIGHT / This acrylic sculptured ceiling light consists of 12 clear acrylic tubes of varying lengths, the longest about 12 in., set at different positions in a solid black acrylic sheet. The unit is made to set into an acoustical 2-ft by 4-ft grid system. ■ Trimble House Corporation, Atlanta.

Circle 310 on inquiry card



LOW-WATT LAMP / This 150-watt, 120-volt tungsten-halogen lamp has been made possible, the manufacturer says, through "a filament coil design which allows the unit to be operated on normal household current." The new light source is said to maintain 100 per cent of its initial brightness throughout its useful rated life. ■ Sylvania Electric Products Inc., New York City.

Circle 311 on inquiry card



CLOSED CELL FIXTURES / This closed-cell gasketed fixture eliminates unsightly studs used to hold the diffuser in place. With cam latches (4 ft by 4 ft and 6 ft by 8 ft), no tools are needed to remove diffuser for maintenance. Uses include food processing locations or where strong drafts or steam may cause problems. ■ Wheeler Reflector Co., Inc., Hanson, Mass.

Circle 312 on inquiry card

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Here's a low-cost way to replace incinerators and still handle large volumes of trash from high-rise buildings.

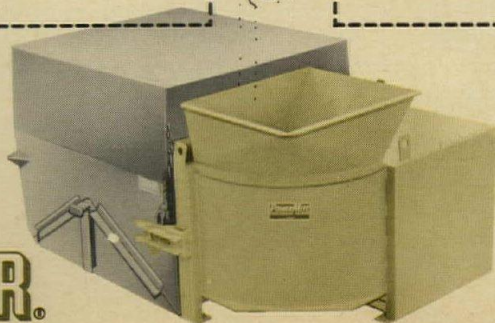
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When a space is tight, PowerMite saves the day. The packer takes up a little over 44 square feet of space and can be fitted with a variety of hoppers and chute connections. Small, detachable containers can fit out through narrow hallways and roll under low ceilings.

Your Dempster Consultant will help you design a refuse disposal system at no obligation. Write today for his name and for more information on the PowerMite!



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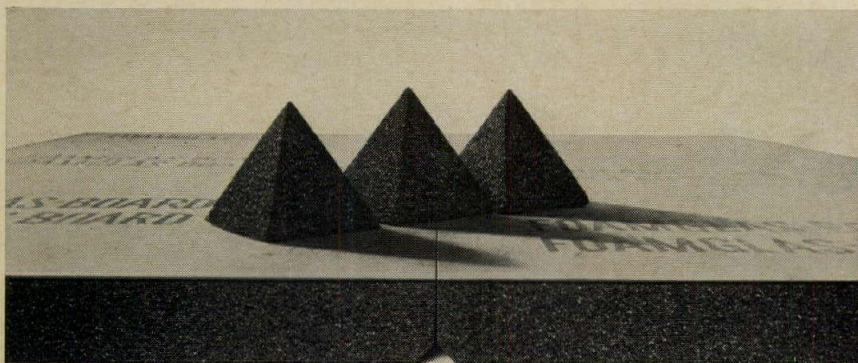
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The beveled edges form continuous passages to relieve vapor pressure which can cause wrinkling and buckling of the roofing.

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The Insulation People



For more data, circle 123 on inquiry card

OFFICE LITERATURE

For more information circle selected item numbers on Reader Service Inquiry Card, pages 287-288

HEATING-AIR CONDITIONING / A comprehensive data manual provides information on central heating and air conditioning equipment. Specifications, application information, installation instructions and wiring diagrams are incorporated in a looseleaf binder. Cost is \$7.50 ■ Fedders Corporation, Edison, N.J.*

Circle 400 on inquiry card

PLYWOOD BUILDING / "Plywood in Apartments" is a 28-page brochure that places emphasis on in-place building costs. This revised version includes changes in plywood grade nomenclature and revision of the identification index for engineered grades. ■ American Plywood Association, Tacoma, Wash.*

Circle 401 on inquiry card

ADHESIVES, COATINGS, SEALANTS / Official United States Government Specifications and Federal stock numbers are listed in a 20-page catalog that gives descriptions and intended application of products corresponding to specifications. ■ 3M Company, St. Paul, Minn.

Circle 402 on inquiry card

SUSPENDED CEILING SYSTEMS / "The Architect's Notebook" is a reference manual on suspended ceiling systems for commercial, industrial and institutional buildings. The 45-page ring binder book contains acoustical materials specifications, information on building codes, Underwriters' Laboratories data, lighting fixture specifics and relative cost factors.

■ Chicago Metallic Corp., Chicago.*

Circle 403 on inquiry card

ROOFING PROCEDURES / An updated edition of the manual on stainless steel roofing practices discusses proper precautions to follow in design, fabrication, and installation. Detailed drawings are included. ■ American Iron and Steel Institute, New York City.

Circle 404 on inquiry card

LAB FURNITURE / A 34-page catalog on the KEM-PONENT line of furniture and equipment presents base units and sink assemblies, open leg tables, storage cases, customized work tops and 15 fume hood models. ■ Kewaunee Scientific Equipment Corp, Adrian, Michigan.*

Circle 405 on inquiry card

* Additional product information in Sweet's Architectural File

OFFICE FURNITURE / Several color booklets present chairs, desks, cabinets and tables. Furniture is thoroughly contemporary in design and is available in a wide variety of materials and colors. ■ Marble/Imperial Furniture Company, Bedford, Ohio.

Circle 406 on inquiry card

DORMITORY FURNITURE / Furniture surfaced with Videne polyester film is shown in a four-page color brochure. Units have anodized aluminum framework, and wear points and exposed edges are protected by T-molding ■ Uniline Corporation, Grand Rapids, Mich.*

Circle 407 on inquiry card

POST-TENSIONING / A 12-page field procedures manual describes the Prescon System of post-tensioning for prestressed concrete. The comprehensive manual includes sections on form work, tendon placing, concrete placing and the stressing procedure. ■ The Prescon Corporation, Corpus Christi, Texas.

Circle 408 on inquiry card

PLASTIC ASSEMBLY / A 20-page technical bulletin on Cycolac brand ABS plastic assembly techniques covers mechanical fasteners, bonding and thermal welding. ■ Marbon Chemical Division, Borg-Warner Corporation, Washington, W.Va.

Circle 409 on inquiry card

STEEL DOORS / A 40-page illustrated catalog "is designed to help architects choose steel doors that combine the greatest initial economy with minimum maintenance and replacement costs." Included is a four-page chart that correlates specific designs with different types of buildings and applications. ■ The Ceco Corporation, Chicago.*

Circle 410 on inquiry card

TEMPERATURE CONTROL / A planning primer for temperature-control systems in industrial, commercial and institutional buildings covers each of the principal types of air-conditioning distribution and control systems. The 28-page illustrated handbook discusses how two control systems—pneumatic and electronic, for example—working in tandem can combine the fast response of electronic sensing with the "muscle" of pneumatic power. ■ Honeywell's Commercial Division, Minneapolis.

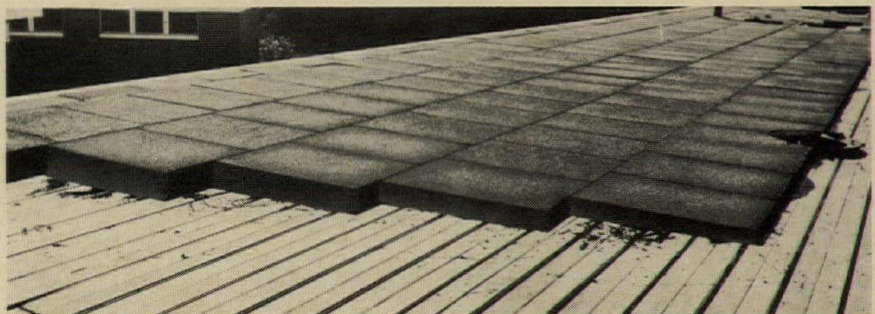
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* Additional product information in Sweet's Architectural File

more literature on page 248

Unique insulation system automatically slopes a flat roof deck for drainage.

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Start with a flat roof deck. Place the precut tapered FOAMGLAS insulation blocks in sequence. You've got a perfectly sloped roof.

Unlike fills, tapered FOAMGLAS is cellular glass, absolutely waterproof. The roofer himself can install it and roof over it immediately.

When tapered FOAMGLAS roof insulation is installed, you can be sure it will

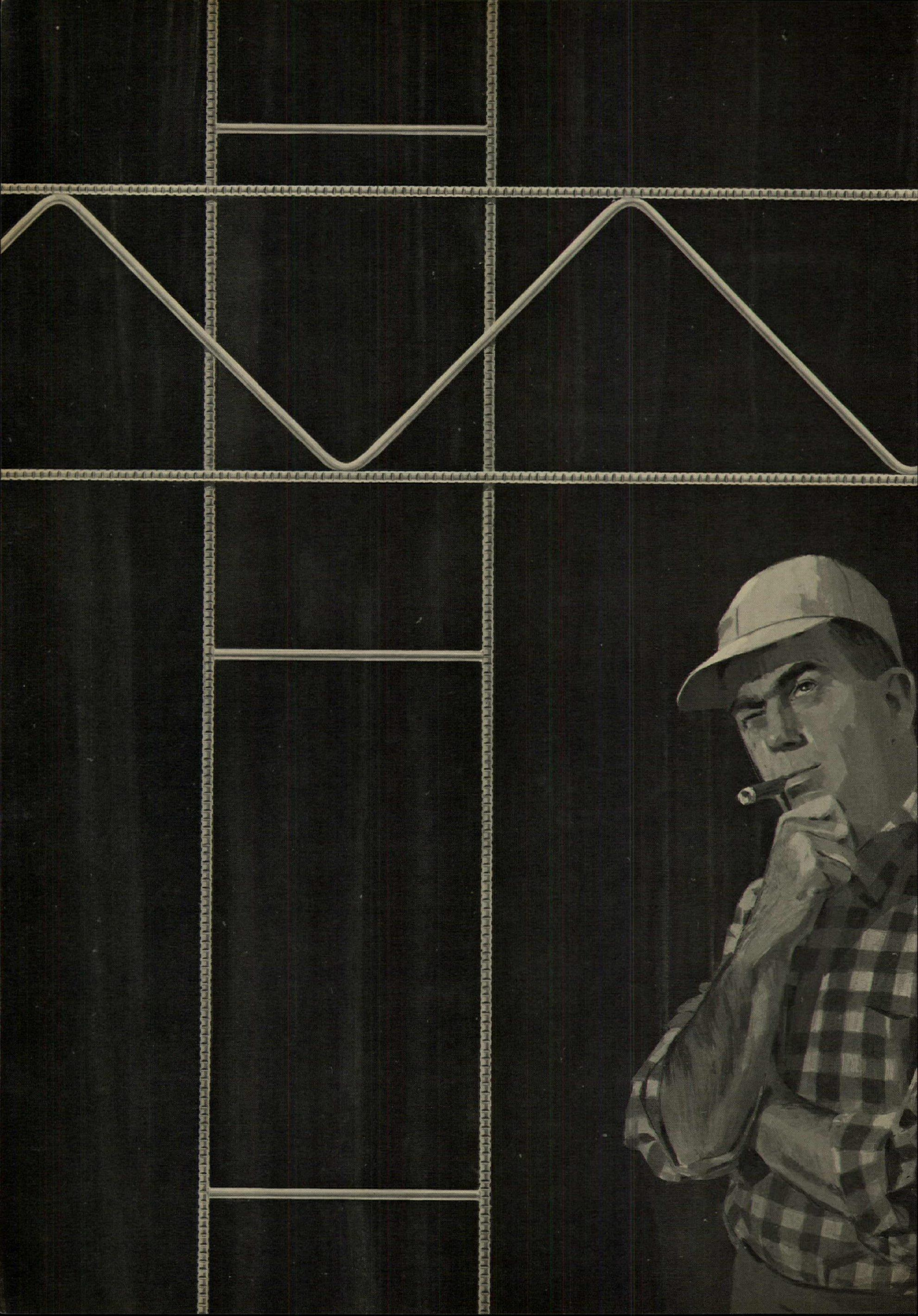
stay waterproof, and will retain its original insulating efficiency, compressive strength and incombustibility. That's guaranteed in writing for 20 years.

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The Insulation People



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Truss or Ladur Type masonry wall reinforcement—

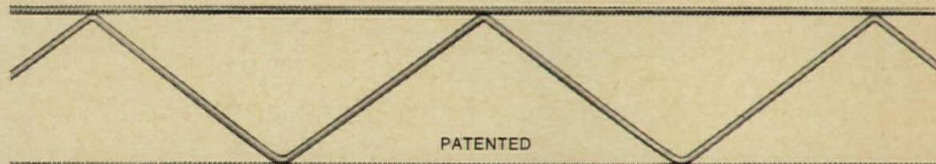
We make both so which will it be?

We recommend Dur-O-wal[®] Truss... Here are ten good reasons why

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

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3. Dur-O-wal Truss carries material approvals from three important building codes: BOCA, ICBO, SBCC and many state and local codes.
4. Dur-O-wal Truss is available in a wide selection of shapes, sizes and finishes. You can reinforce almost any masonry wall—single wythe, cavity or composite.
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6. When you need Dur-O-wal Truss you can get it. Over eight thousand dealers stock and sell our product.
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8. Dur-O-wal has trained factory representatives who can help you with reinforcing problems.
9. A constant supply of technical literature based on current research is available to you.
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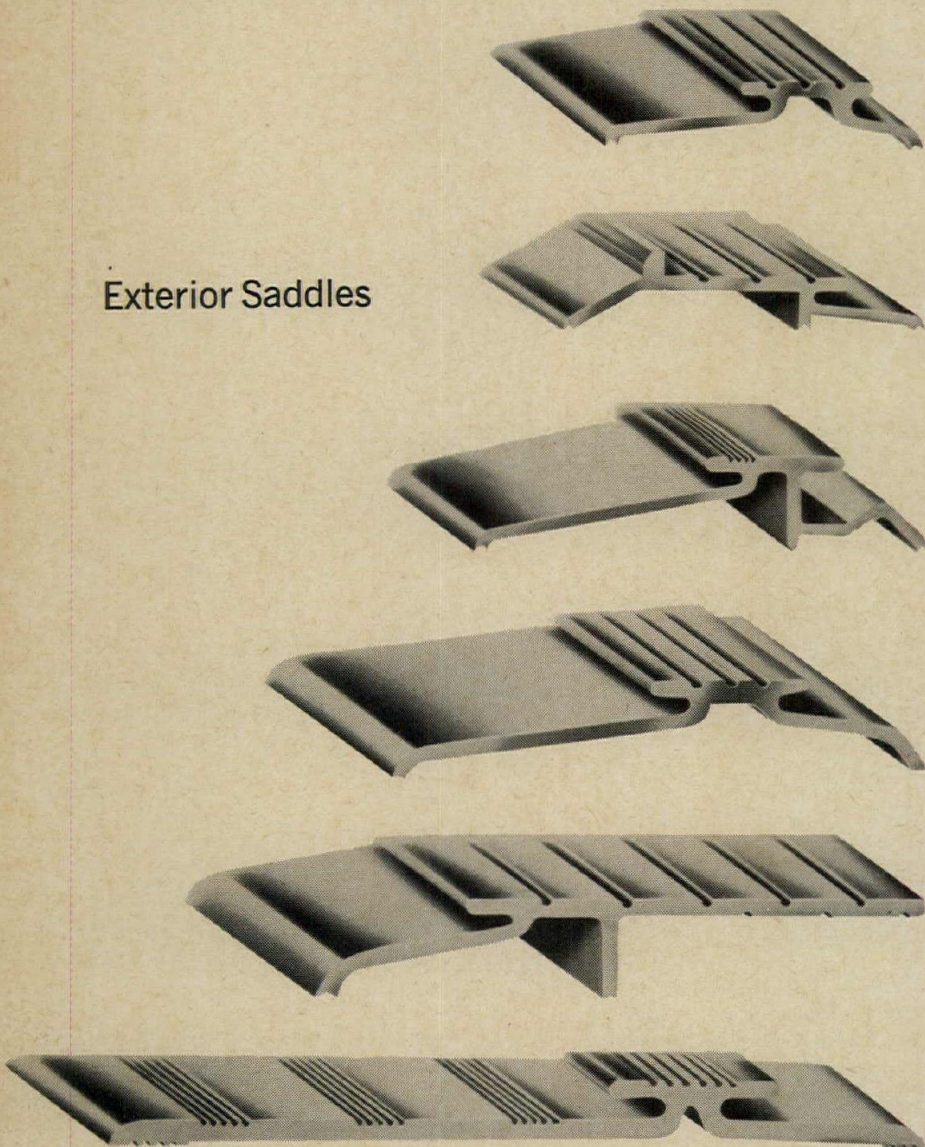


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OFFICE LITERATURE

continued from page 245

WALL BEARING APARTMENTS / "High Rise Wall Bearing Apartments" is a 16-page booklet that tells "how builders saved construction time and materials by using precast concrete units in the construction of the Miami Towers." Illustrations show how cells in firesafe decks are used for heating and air-conditioning ducts. ■ The Flexicore Co., Inc., Dayton, Ohio.*

Circle 412 on inquiry card

CONTROLLED ENVIRONMENTS / A portfolio of technical reference information covers a broad series of environmental-control rooms and suites designed especially for audiological examination, psycho/bio-acoustic research and associated studies by medical and life scientists. ■ Industrial Acoustics Company, Inc., Bronx, N.Y.*

Circle 413 on inquiry card

RED CEDAR SHAKES AND SHINGLES / Shingles and shakes for non-residential buildings have been pressure-treated to meet Underwriters' Laboratories, Inc. Class "C" fire protection requirements. An eight-page booklet pictures examples of their use. ■ Koppers Company, Inc., Pittsburgh.*

Circle 414 on inquiry card

WALL REINFORCEMENT / A four-page report describes basic uses and limitations of truss-design horizontal joint reinforcing in masonry walls. Packaging, finishes, grades, shapes and sizes, as well as standards are discussed and illustrated. ■ Dur-O-wal National, Inc., Cedar Rapids, Iowa.*

Circle 415 on inquiry card

INDOOR-OUTDOOR CARPET / A color brochure and a card of 12 color samples presents *Wearathon*, a carpet that needs no adhesive for installation. Reported characteristics: carpet lies flat without buckling, and won't stretch or shrink; fibers don't absorb spills. ■ Armstrong Cork Company, Lancaster, Pa.*

Circle 416 on inquiry card

HIGH INTENSITY LAMPS / "High Intensity Discharge Lamps" is a 28-page booklet covering the physical, electrical, and performance characteristics of lamps in three principal categories: standard mercury, *Multi-Vapor* and *Lucalox* lamps. ■ General Electric Company, Cleveland, Ohio.*

Circle 417 on inquiry card

* Additional product information in Sweet's Architectural File

more literature on page 272

Only Summitville offers
a complete line for
your
feats of
clay

The Summitville extruded quarry tile line is the most complete anywhere. From one source you will find a size, a shape, a color, a texture, a style for every function, every structure.

This broad line provides a selection so versatile that you are provided with virtually unlimited design possibilities . . . floors and walls with a flair, so many styles, colors and patterns that you can create your own feats of clay.

Check the complete Summitville line in Sweet's or contact your Summitville rep, distributor or tile contractor.

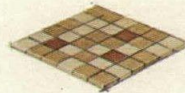
Contourettes

. . . miniature Contoured Quarry Tile. Available in 4 shapes, 5 natural earth colors. Shipped 1 sq. ft. sheet mounted.



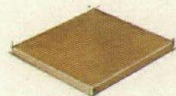
Quarryettes

. . . miniature Quarry Tile available in 1 sq. ft., sheet mounted 1" x 1", 1" x 2" and 2" x 2" sizes . . . 5 natural earth colors and standard blends.



Quarry Tile

. . . available in 6 natural earth colors famous for consistency of quality and color.



Contoured Quarry Tile

. . . available in ten classic shapes, 6 natural colors and 5 exclusive, super-tough antique floor glazes.



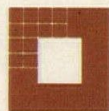
Lombardic Handcrafted Tile

. . . authentic "hand-made" appearance yet extruded for highest resistance to wear and weather. Available in a variety of sizes, shapes and hard-glazed colors.



Summitcrest Commercial Carpets

. . . the complete line of quality carpeting . . . all leading fibers. For complete information, contact your Summitville Rep . . . He's listed in Sweet's Architectural File.



Summitville® TILES, INC.

SUMMITVILLE, OHIO • TELEPHONE AREA CODE 216/223-1211
Member/Tile Council of America, Inc. • Member/Producers Council

KEEP THIS DOOR CLOSED



We think big in overhead-type doors. (we think small, too)

Raynor custom builds doors big enough for giant diesel engines or small handcars. Matchless production facilities provide you with size ranges to expand your design limits. Available in wood, Raylon (fiberglass), aluminum or steel. Only Raynor custom manufactures every component in quality conscious Raynor plants

to assure smooth, trouble-free operation and longer life. Even springs are custom wound and load tested before they're matched to each door. Next time you specify overhead-type doors, depend on Raynor to deliver the size you need — the style you want — and the quality to protect your reputation.



RAYNOR

The Brand You Can Depend On

Raynor Manufacturing Company, Dixon, Illinois, Dept. H
Please send me free literature on Raynor garage doors.

NAME _____

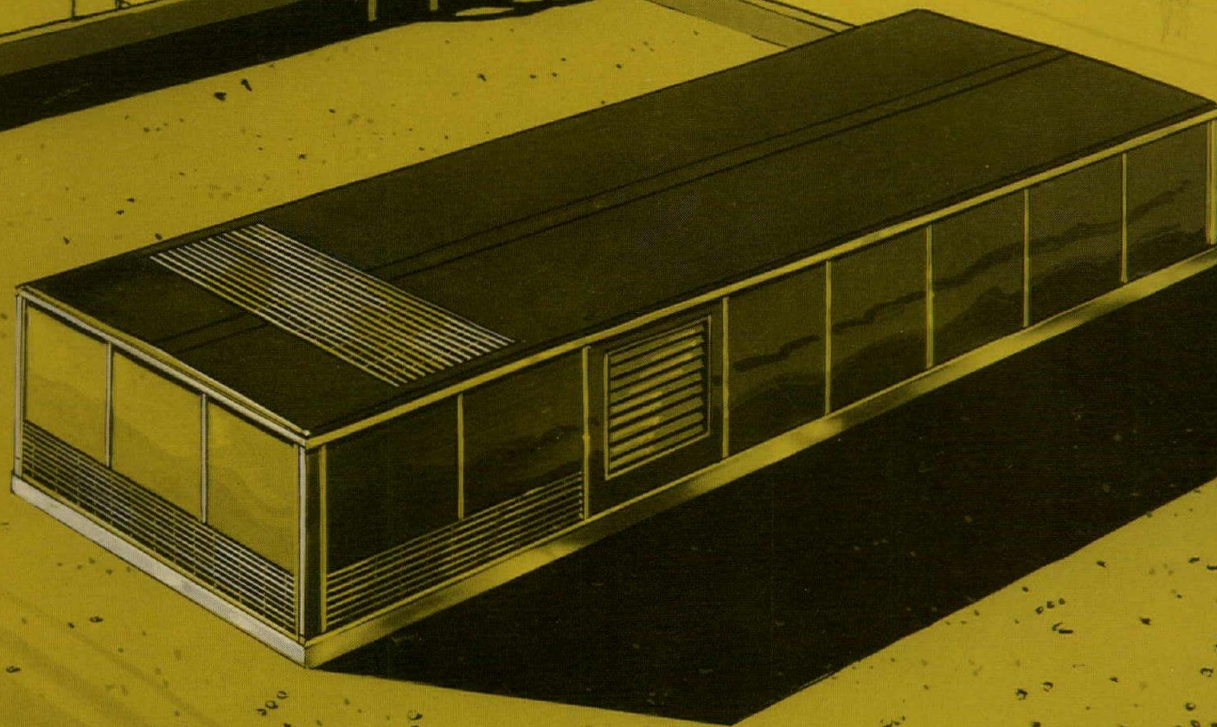
ADDRESS _____

CITY _____ STATE _____ ZIP _____

◆ For more data, circle 137 on inquiry card

For more data, circle 138 on inquiry card

now... a multizone-
rooftop unit for the
architect who
wants the
VERY BEST



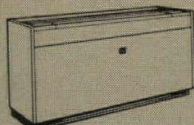
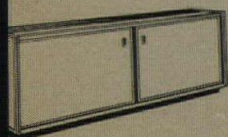
naturally
it's

SCHEMENAUER

We took longer to produce our new "Benchmark" series Multizone-Rooftop Unit because we wanted to offer superior Schemenauer quality. And now you have it . . . handsome on the outside, unique on the inside. Constructed of weather-tight aluminum and fiberglass, the attractive, low silhouette air processing unit offers complete temperature/sound insulation. It features our unique "now or later cooling," enabling you, if you wish, to add a cooling and dehumidification package **within** the existing cabinet at a later date. Cooling system provides redistribution of heat to cooler zones—providing "free-heat" during the cooling cycle. All air is dehumidified to assure positive humidity control in all areas. Oversize dampers move just 45° to open and close, admitting air with greater accuracy. If you want to cool, heat and ventilate simultaneously, write for our new catalog No. 1500—it'll be like a breath of fresh air. Schemenauer Manufacturing Company, Holland, Ohio 43528

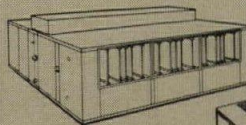
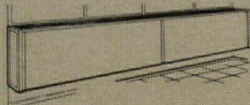
For assurance of quality in heating, air conditioning and ventilating equipment, insist on this Schemenauer benchmark.

Unit Ventilators



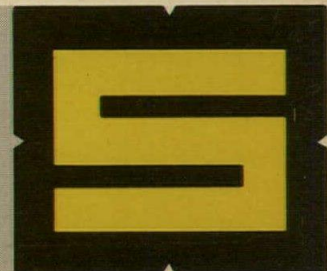
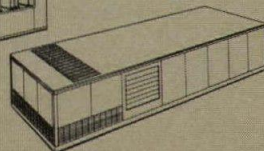
Cabinet Heaters
and Air Conditioners

Fin Tube Radiation
and Enclosures



Air Handling
Equipment

Multizone-Rooftop
Units



For more data, circle 139 on inquiry card



**the bigger
they are...**

the better you'll like Ty-Seal joint gaskets!

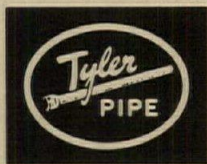
First, large diameter cast iron soil pipe and fittings can be joined faster than ever before. Second, gaskets make better seals than lead and oakum and still safely permit up to 5° deflection. And third, they work rain or shine (even under water) cutting job delays to a minimum.

For that next "big" rough-in project, specify Tyler plain-end pipe and fittings with the gasket that makes faster joints — better joints and comes in *all* sizes up to 15" . . . TY-SEAL!

TYLER PIPE INDUSTRIES

SOIL PIPE DIVISION
TYLER PLANT, TYLER, TEXAS
PENN PLANT, MACUNGIE, PA.

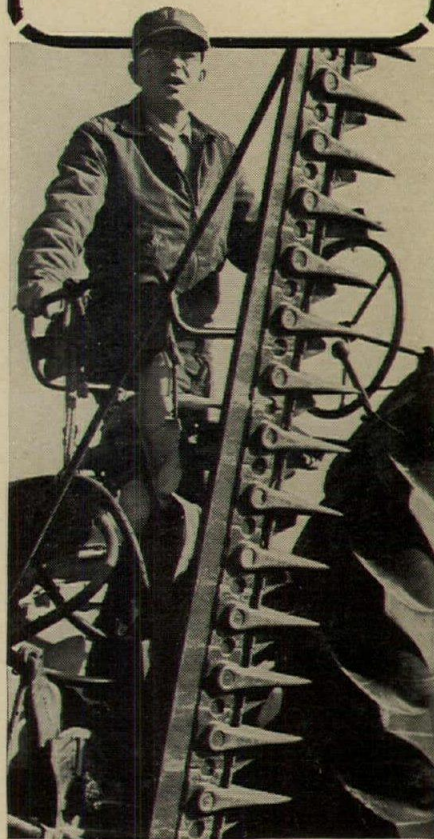
Member cast iron soil pipe institute



TPI makes Tyler cast iron soil pipe and fittings • Wade plumbing-drainage products
• Tyler water main fittings and municipal castings

For more data, circle 141 on inquiry card

**BACK
ON THE
JOB**



Most victims survive first heart attacks. Like this farmer, 3 out of 4 survivors go back to their jobs.

More than 133.5 million Heart Fund dollars invested in research since 1949 have helped make possible great advances in diagnosis, treatment and rehabilitation.

Nevertheless heart attack kills 580,000 in the U.S. annually. Fight this Number 1 killer with the best weapon you have — a generous gift to the Heart Fund.

GIVE ...
so more will live
HEART FUND



Contributed by the Publisher

Building abroad?

Save export dollars.

Use the computerized VAR M3 Modular Coordinated Building System.
Leading American and European companies
already have chosen this economic,
flexible and rapid method of construction.

ESSO



■ Rome Head Office. 170,000 cubic meters. Steel structure. Feal aluminum window frames and sun breakers Duranodic 300⁽¹⁾ bronze treated. Tedlar⁽²⁾ finished panels for white upper cornices.

⁽¹⁾ Alcoa trade name
⁽²⁾ Dupont trademark

ALITALIA



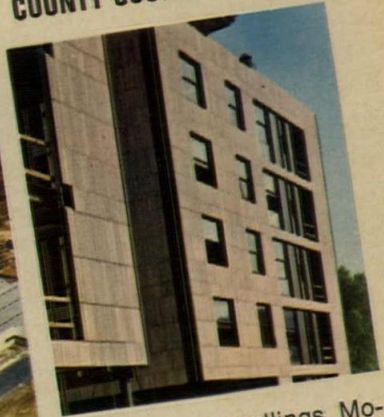
■ International Headquarters. Curtain walls: 8,500 square meters. Feal aluminum window frames and paneling Duranodic 300 anodized in three different bronze shades.

MASSEY-FERGUSON ICM



■ Industrial complex at Aprilia. Entirely built by the Feal VAR M3 system. Factory: 35,000 square meters. Offices: 14,000 cubic meters. Social Services: 8,000 cubic meters.

COUNTY COUNCIL HOUSES



■ Apartment dwellings. Modular coordinated components produced, assembled and erected according to the Feal VAR M3 system.



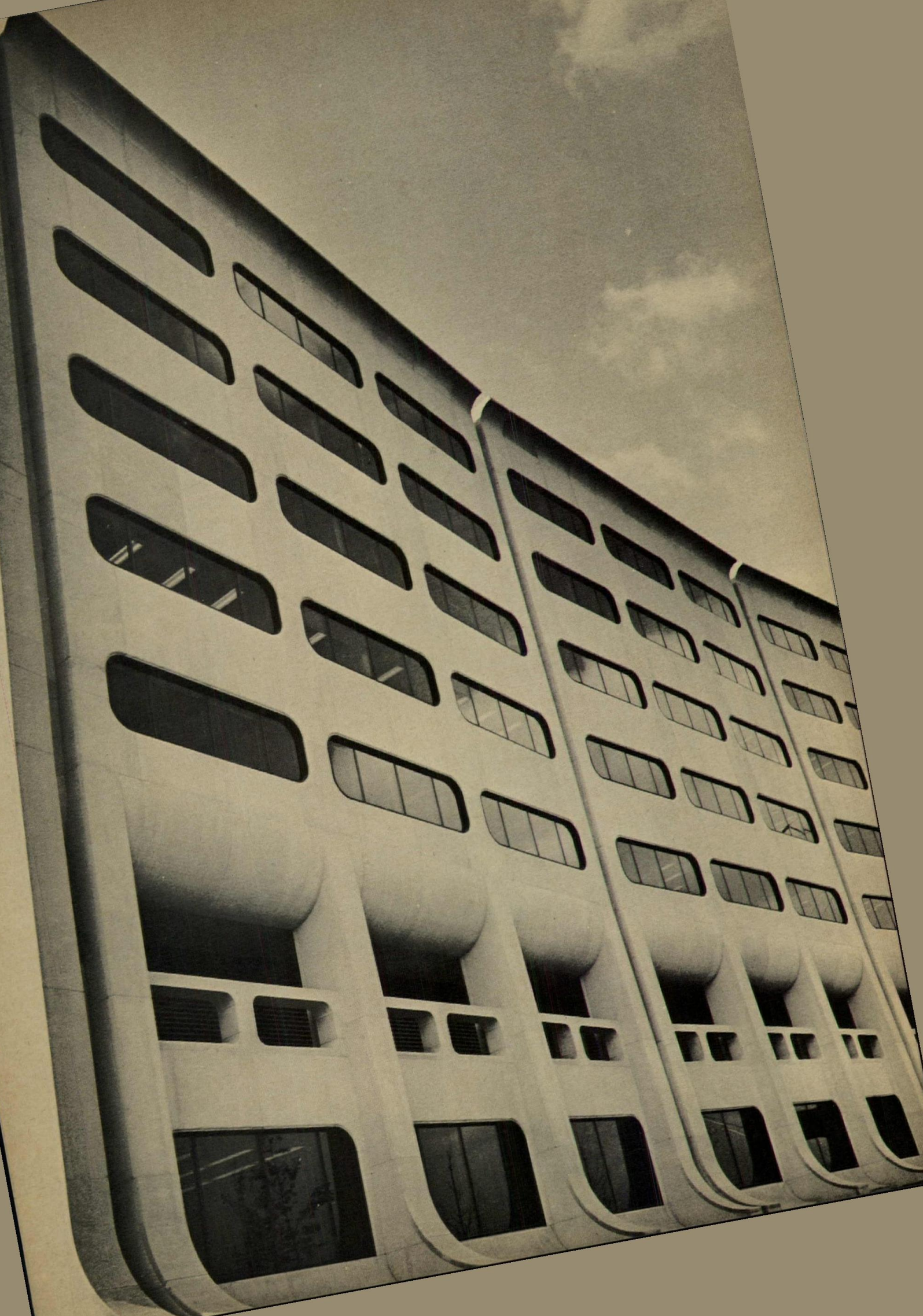
THE SOVIET PAVILION AT EXPO 67 MONTREAL

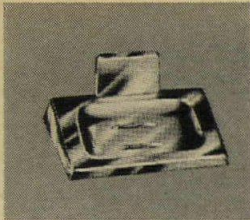
The Feal system, developed by Italian engineer Giovanni Varlonga, is based on a module of 30 centimeters and its multiples coordinated through the IBM 360/20 computer. No restrictions on building materials. No limits to the architect's freedom of design. A highly versatile system adaptable to all kinds of industrial, commercial, institutional and private shelter construction. Complete information available from Feal's Development Division.

FEAL modular coordinated building system **VAR M3**
 90, VIA B. VERRO - 20141 MILAN (ITALY)

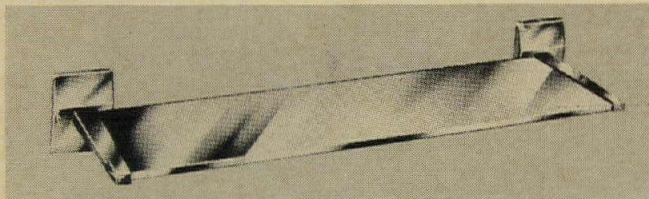
For more data, circle 140 on inquiry card

For more data, circle 142 on inquiry card



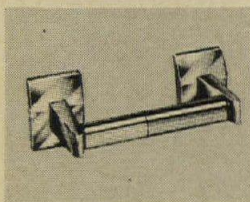
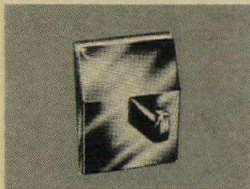


Stainless Steel Accessories by Parker



ANOTHER 1st BY PARKER

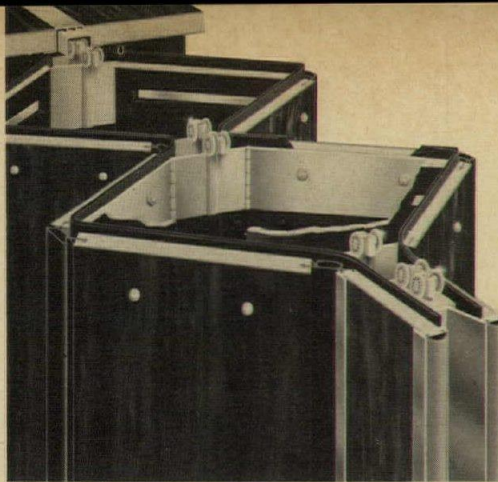
Two complete lines are available with either rectangular or round flanges. Manufactured completely of type 302 bright lustre or satin finish stainless steel (including concealed fastening device).



Write for brochure on complete information and specifications!

The CHARLES PARKER CO.
52 HANOVER ST. MERIDEN, CONN.

For more data, circle 144 on inquiry card



SONICWAL • STC 38

Acoustically rated *wood* folding partitions

Panelfold combines twin walls of acoustically damped high density panels with a system of deep nesting end posts and field adjustable perimeter seals to offer you an outstanding folding partition for sound control. We invite you to specify SonicWal® in genuine wood or Formica® clad.

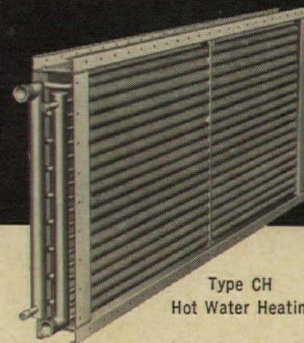


PANEFOLD WOOD FOLDING DOORS AND PARTITIONS, 1090 E. 17 St., Hialeah, Florida
SEE SCALE/4 SCALE/8 SCALE/12 SONICWAL STC 38 IN SWEET'S 17j Pa AND 13d Pa

For more data, circle 134 on inquiry card

Just another Heat Transfer Coil?

NONSENSE!



Type CH
Hot Water Heating Coil

Smooth-fin design gets the credit. Its tapered shape puts every inch of transfer surface to work. There's room for more fins—more heat exchange per sq. ft. of compact space—higher air velocities with less turbulence are possible and practical.

Water coil drainage is positive—heating coil drainage and venting is greatly improved. Aerofin coils are lighter even though framed in rugged pressed-steel casings.

But there's more. Aerofin completely engineers coils to fit today's most

sophisticated heating and air conditioning fan-system applications. Complex mechanical and thermal calculations are made. Collateral factors are objectively evaluated: pressure drops—turbulence and velocity variables—stainless steel or copper tubes with correct diameter

and fin-spacing efficiencies—fluid fouling factors—and header designs for easy banking in stacks or connecting to duct work.

Specify dependable, true-rated Aerofin Coils and get *maximum* performance. Comfort control of America's showcase structures offers testimony to that promise.

AEROFIN CORPORATION

Lynchburg, Virginia 24505

Aerofin is sold only by manufacturers of fan system apparatus. List on request.

AEROFIN OFFICES: Atlanta • Boston • Chicago • Cleveland • Dallas • New York • Philadelphia • San Francisco

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 See all that's new & better in
 HEATING • REFRIGERATION • AIR-CONDITIONING • VENTILATION

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 200 Park Ave., New York, N.Y. 10017

OFFICE LITERATURE

continued from page 248

RESISTANT MORTARS / A quick reference chart shows the resistance of nine types of mortars to more than 200 chemicals. Silica and silicate, resin and sulfur mortars, with maximum service temperatures ranging from 200 to 2000°F, are listed in the four-page bulletin. ■ Pennsalt Chemicals Corporation, Philadelphia.*

Circle 418 on inquiry card

GIRDERS / Literature explains the use of welded steel lattice girders in floor, roof and wall systems. The literature describes a system which it says "has proven to be more economical than conventionally poured-in-place slabs or competitive precast floor systems." ■ United Filigree Corporation, Edison, N.J.*

Circle 419 on inquiry card

REFRIGERANT CONDENSER / A product information/purchasing guidebook covers six types of water-cooled refrigerant condensers available in 134 models with a capacity range of from 2 to 275 tons. Data charts and statistical tables supplement text throughout the 20-page booklet. ■ Acme Industries, Inc., Jackson, Mich.

Circle 420 on inquiry card

OFFICE PLANNING / A 20-page book illustrates the 3200 Series desks and includes schematic drawings with dimensions. Typing units, convertibles, credenzas and work tables are also shown. ■ Steelcase Inc., Grand Rapids, Mich.*

Circle 421 on inquiry card

REFRIGERATOR SYSTEMS / Information and specifications on matched refrigerator system is available in a 20-page catalog. The system is a combination of the AHP Seasoncon condensing unit optionally matched with a refrigeration evaporator unit. ■ McQuay Inc., Minneapolis, Minn.

Circle 422 on inquiry card

SPORTS LIGHTING / "Sports Lighting Made Easy," a 20-page brochure, provides recommended footcandle levels and shows typical lighting layouts for outdoor athletic area lighting systems. ■ Sylvania Electric Products Inc., Danvers, Mass.

Circle 423 on inquiry card

LATERAL FILING / An eight-page brochure covers design and economy possibilities with lateral filing systems. ■ Tab Products Company, San Francisco.

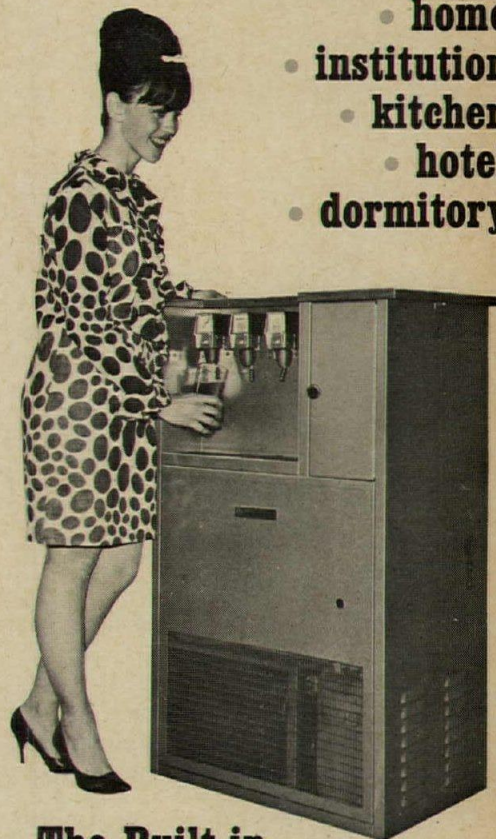
Circle 424 on inquiry card

* Additional product information in Sweet's Architectural File

more literature on page 274

Add a new low-cost luxury to your next design for office

- home
- institution
- kitchen
- hotel
- dormitory



The Built-in Soda Dispenser

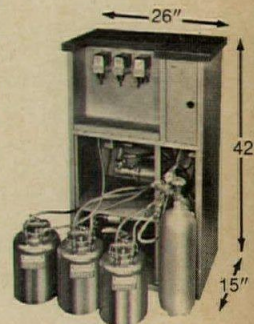
KENCO KLUB-MATE

The only compact self-contained commercially constructed soda dispensing system.

Convenient . . . does away with bottles and cans. Serves steady flow of chilled carbonated drinks, up to 3 flavors plus soda.

Economical . . . costs mere 1¢ a glass. Fits anywhere—just 26" wide, 15" deep, 42" high. Easy installation—plug in and connect to water line. A practical, prestige convenience your clients will appreciate.

Write for details:



KENCO PRODUCTS CORP. Englewood, N.J. 07631

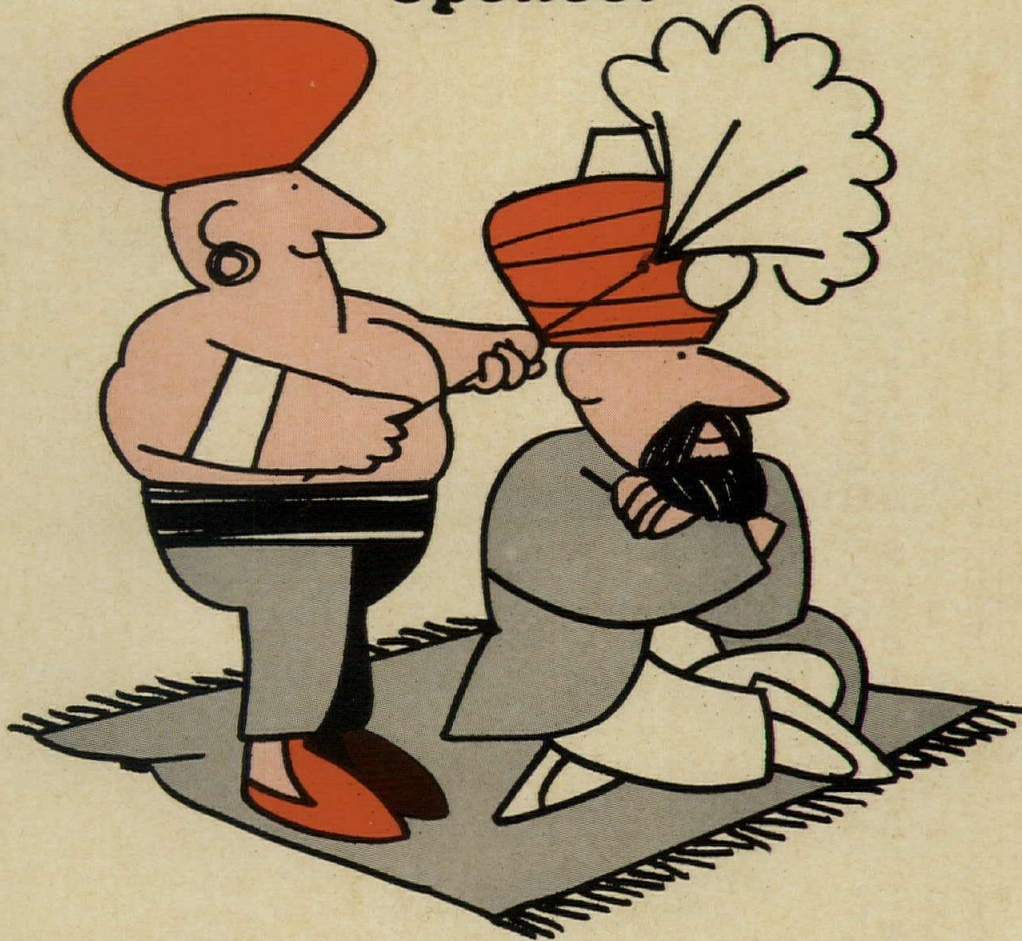
SEE US AT: Nat'l. Hotel & Motel Exp., Coliseum, N.Y., Nov. 11, Booth 1007-1008

Internat'l. Soft Drink Exp., Cobo Hall, Detroit, Nov. 18, Booth 800

For more data, circle 145 on inquiry card

For more data, circle 146 on inquiry card

No one moves air like Spencer



Nobody moves air like Spencer . . . moves it up, down, around corners . . . pushes it, pulls it, gets air to do thousands of jobs better, faster, cleaner, more efficiently.

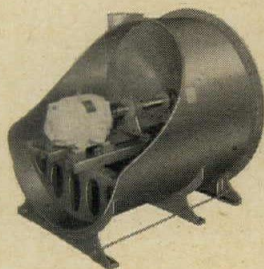
Spencer's internationally famous "sugar-scoop" turbo-compressor is at the heart of many systems requiring the movement of air in various industrial situations on every continent. Spencer's Turbo-Compressor is a "must" requirement with designers and engineers needing a turbo component in their systems or assemblies.

Spencer Turbo-Compressors are available in wide ranges, capacities and ratings . . . Spencer will design and build a turbo-compressor to your

very requirement . . . even determine for you what that requirement should be, if you like.

Spencer turbos are located in every industry serving as blowers, air curtains, gas boosters, as testing components, as fluidizers, on foundry cupolas, in car washes, in the furnace and combustion fields, for cooling, heating, removing liquid, ventilating, spraying and conveying. If you have an air movement problem write today for your *free* copy of CATALOG No. 126 or call your Spencer representative; he's in the Yellow Pages.

Spencer is also a leader in the design and production of vacuum cleaning systems and pneumatic conveying systems.



TURBO-COMPRESSOR DIVISION

THE SPENCER TURBINE COMPANY

HARTFORD, CONNECTICUT 06106

For more data, circle 147 on inquiry card

- ✓ new materials
- ✓ new products
- ✓ new processes
- ✓ new machinery

PLASTICS SHOW

**International
Amphitheatre
Chicago, Nov. 11-15**

Technical Conference on Plastics Developments and Applications

The Plastics Show is the fitting climax to the centennial year of the plastics industry. At the Conference, run in conjunction with the exposition, interesting seminars will cover exciting new plastics applications in industry now, and for the future—automotive, communications, agriculture, construction, home furnishings, appliances, packaging and others, as well as machinery developments and management problems relating to plastics.

Fill out the coupon below for the Conference program and for a rapid registration form to get you in the show quickly and easily.

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250 Park Ave., New York, N.Y. 10017

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

For more data, circle 148 on inquiry card

continued from page 272

COOLING TOWERS / Literature explains how the V-shaped pan of two models "results in substantial space and weight savings." ■ Baltimore Aircoil Company, Inc., Baltimore, Md.

Circle 425 on inquiry card

EXPOSED AGGREGATES / An architectural handbook is "designed to simplify the selection, purchase and use of exposed aggregates in new construction and remodeling jobs." The book covers three areas: procedures for evaluation of aggregates, color plates of various aggregates, and National Quartz Producers Council aggregate size and color tables. ■ Terrazzo & Marble Supply Companies, Roanoke, Va.

Circle 426 on inquiry card

MURALS / "A New Approach to Ceramic Murals" is an eight-page color booklet that illustrates the "strong visual impact" of murals in institutional, commercial, ecclesiastical and other buildings. The booklet explains an organization of ceramic artists and technicians "oriented to assist architects and designers to translate confidently their creativeness into ceramics." ■ Interpace, Los Angeles, Calif.

Circle 427 on inquiry card

SOLAR CONTROL / A 20-page brochure describes how a series of gray and bronze colors of Plexiglas acrylic plastic provides new solutions to problems of solar heat gain and glare control. The brochure includes color illustrations of various glazing applications. There is also technical data on vertical single and double glazing, single and double dome skylights and transparent enclosures and sunscreens. ■ Rohm and Haas Co., Philadelphia.

Circle 428 on inquiry card

PATTERNED GLASS / A four-page brochure, "Glass in a New Dimension for Religious Architecture," explains that patterns and colors of the glass are built in by ceramically leading a solid sheet with ceramic colors fire-fused for permanence. The brochure describes a new modular concept in which patterns are developed in 15-in. by 15-in. or 30-in. by 30-in. panels designed to join multi-directionally. Solid panels are said to permit standard sheet glass cutting, wall system glazing, easy maintenance and insulating. ■ Coltra, Inc., Milwaukee, Wisc.

Circle 429 on inquiry card

* Additional product information in Sweet's Architectural File

**Success
is
something
you
can't leave
a
son**



In today's complex and specialized world, success depends more and more on whether he gets a college education.

But he may not be able to get one unless the nation's colleges can answer some serious questions: How to cope with rapidly increasing student enrollments? How to keep the quality of education constantly improving with more modern laboratories, better libraries, new classrooms? How to attract able new faculty members?

Your support will help colleges answer these questions . . . help them make your son ready for his world.

Give to the college of your choice.



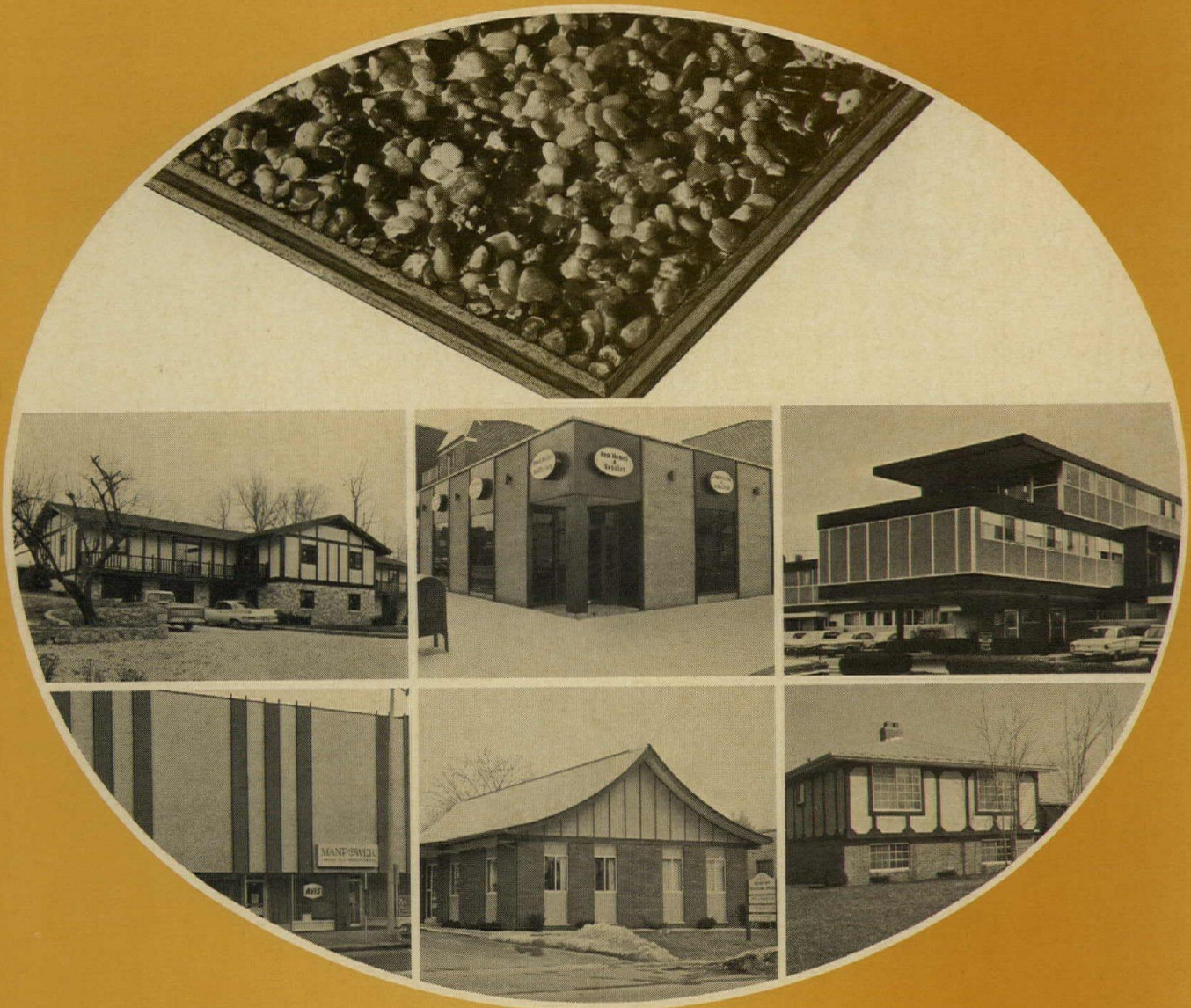
EDUCATION



advertising contributed
for the public good

Stone on plywood

Factory-finished for quick installation



■ Stone on plywood. Sanspray. These factory-finished stone panels could be the answer to an architect's prayer. Sanspray stone panels combine the benefits of plywood construction with the beauty, the durability, the lasting value of natural stone.

■ Sanspray. With it, you can apply a masonry-type finish at about the cost of frame construction. Worth thinking about, isn't it? ■ Just saw and nail into place. Put up panels of lasting beauty in minutes. (Just like plywood, because it is plywood.)

■ No painting. No maintenance. Ever. The epoxy and stone surface is completely weatherproof, and can be installed in any weather.

■ Stone on plywood. Sanspray. With more uses (industrial, commercial, residential) than even we can think of. Like siding, roofing, soffits, spandrels, interior walls, porch and house skirting, decorative fencing. Even decking. (Could be you will discover the next use for Sanspray.)

■ Sanspray stone-on-plywood panels are available in six attractive natural aggregate colors.

■ Like to know more about Sanspray? Return the coupon.

Sanspray INDUSTRIES, INC.

515 Madison Avenue / New York, N.Y. 10022

AR

- Have Representative call with samples.
 Send me the facts on Sanspray stone-on-plywood panels.

I am considering Sanspray for the following:

- Residential Commercial
 Industrial Other _____

Name _____

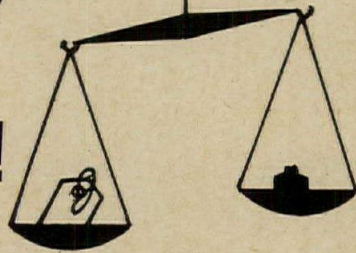
Firm _____

Address _____

City _____ State _____ Zip _____

DFPA QUALIFIED FOR EXTERIOR USE.
 FHA ACCEPTED WITHOUT SHEATHING.

Sure the price tag is heavier ...but only to save you money!



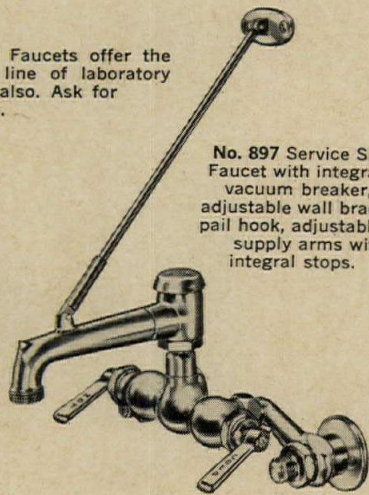
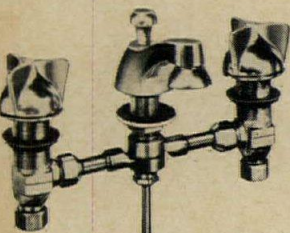
We do put extra metal, extra plating, extra care into Chicago Faucet bodies. For one reason alone: We expect them to last for years and years.

You see, Chicago Faucet design gathers all operating parts into one replaceable unit. This is unusual first because it closes with the pressure—works easier, stays leak-free longer. Then when service is needed you just drop in a spare unit, finish repairs at the bench. Best of all, if ever necessary you can completely renew the operating heart without disturbing the body or connections.

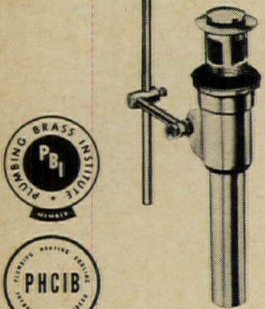
Does this Chicago Faucet idea really work? Can it promise to save you money? Ask anyone who bought Chicago Faucets 20, 30 or even 50 years ago.



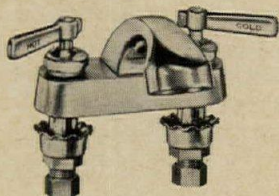
Chicago Faucets offer the biggest line of laboratory fittings also. Ask for catalogs.



No. 897 Service Sink Faucet with integral vacuum breaker, adjustable wall brace, pail hook, adjustable supply arms with integral stops.



No. 1746-E15 Widespread Lavatory Fitting with pop-up waste, in Classic pattern. Available with spray, plain or aerator spouts.



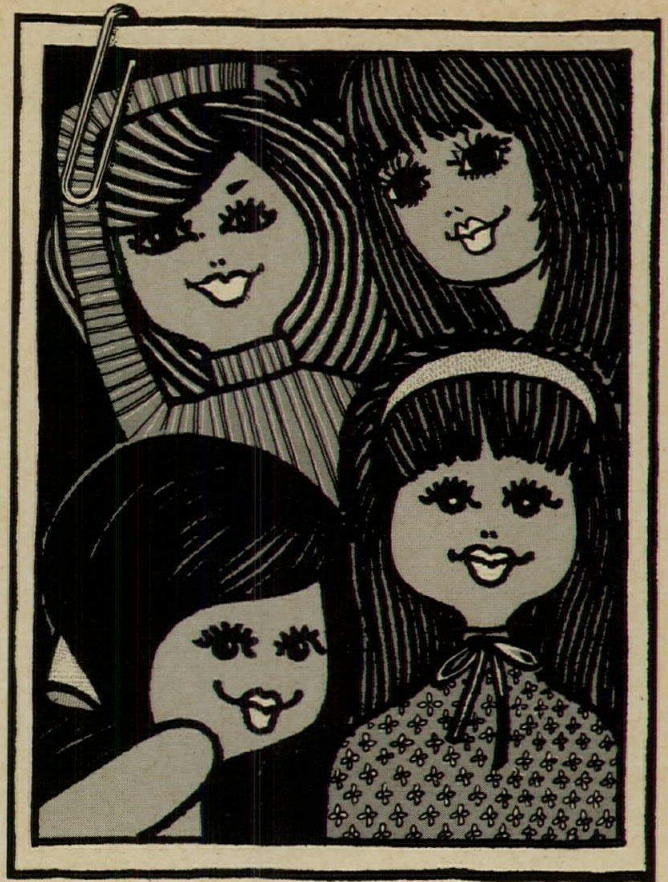
No. 967 Spray Head Lavatory Faucet, for today's public washrooms. Reduces splash and water waste, permits washing in clean running water.



CHICAGO FAUCETS®

LAST AS LONG AS THE BUILDING

THE CHICAGO FAUCET CO., 2100 S. Nuclear Drive, Des Plaines, Ill. 60018
(A Suburb of Chicago)



Dear Findley,
Cadwell and Belton, A.I.A.*

You certainly do know women. You even know that a lot of us use tampons rather than sanitary napkins. So those nice built-in machines that have both are appreciated by one and all. Thanks for thinking of us.

Sincerely,

Us lucky girls on the
13th floor.

Mary, Joan, Ginny, Jackie

Almost half the women today use tampons. That's why we suggest you specify built-in, dual vend machines. Bobrick Dispensers, Inc. makes some beauties that dispense both Kotex® napkins and Kotex tampons. Send for free catalogue or see Sweet's File No. $\frac{23a}{K1}$ or Bobrick's File $\frac{25e}{B0}$. True, you may not end up with a letter from the girls, but you'll know you did right by them.



Kimberly-Clark Corporation
Commercial Department, Neenah, Wisconsin

*The names are fictitious, but the gratitude isn't.

For more data, circle 152 on inquiry card

◆ For more data, circle 151 on inquiry card

At room perimeter...

PUT TOTAL HEAT WHERE YOU NEED IT WITH 3M BRAND ELECTRIC RADIANT HEATING PANELS



3M Brand Electric Heating Panels provide radiant heat, without noise or drafts, exactly where you want and need it.

Easiest of all heating systems to install, 3M Electric Heating Panels simply drop into standard 2' x 4' ceiling modules and are wired in. No pipes. No ducts. No furnace. Each area can have its own separate thermostat, if desired, to permit effective zone control to meet individual temperature demands. Ideal for new construction; easily adapted to even the most difficult remodeling jobs.

The ceiling panels in the above grocery store entrance, for example, provide sufficient warmth in critical areas such as this. The office installation, a conventional T-Bar job, puts heat where it's most efficient without costly, space-wasting ductwork other systems require.

Want more facts about the efficiency and economy of 3M Electric Heating Panels? Write: Dept. EEK-108 3M Co., 3M Center, Bldg. 216, St. Paul, Minn. 55101.

3M IS A REGISTERED TRADEMARK OF 3M CO.

Electro-Products Division **3M** COMPANY

For more data, circle 153 on inquiry card

Start with sprinklers, for wider choice of finishings.

Increase your range of interior finishing materials.

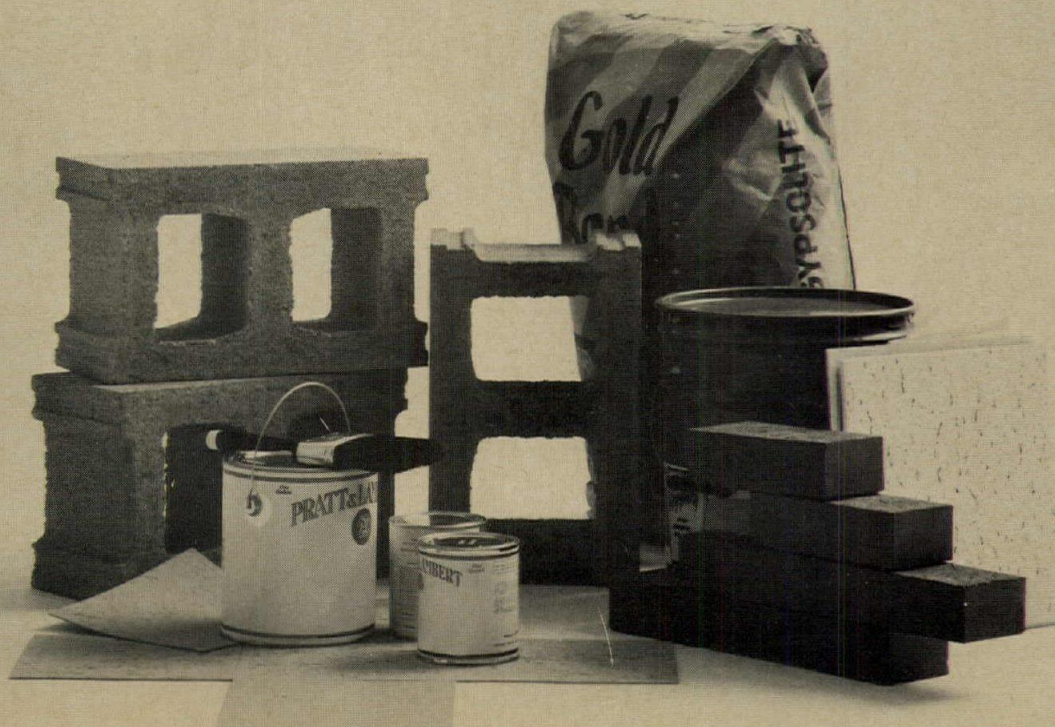
When sprinklers are installed, you can use interior finishing materials of higher flame spread classifications.

Who says so? The codes say so.

You can design with woods (birch, mahogany, even Douglas fir), fabrics, paints, carpeting, cork and plastics. With sprinklers, you can be more flexible in choosing interior finishings and fabrics which meet the aesthetic or economic needs of the owner.

And more. By designing-in an "Automatic" Sprinkler system, you can get:

1. Increased building area.
2. Increased building height.
3. Increased exit distance.
4. Savings with light roof framing.
5. Savings with metal roof decking.
6. Savings with fewer fire walls.
7. Increased fire wall openings.
8. Decreased exit widths.



Take a few minutes to scan your local building codes for the many specific advantages you can gain when you design-in an "Automatic" Sprinkler system. To help, we have compiled some of the permissive clauses from the

Here are quotations from the four major building codes regarding "interior finishing materials":

The Uniform Building Code: (SEC. 4203)
"Class I finish materials shall be used except where the finish materials are protected on both sides by automatic fire-extinguishing systems . . ."

The National Building Code: (SEC. 810.3)
"Interior finishing materials in buildings

four major building codes, and put them into a booklet called, "The Code Book."

For a copy, simply mail your request to Mr. R. L. Pardee, Manager of Marketing Services, "Automatic" Sprinkler Division,

. . . shall not have flame spread rating greater than 75 in exit stairways, exit hallways . . . all portions of buildings more than 75 feet in height . . . or in all portions of buildings used for institutional occupancies, unless the building is sprinklered."
The Southern Standard Building Code: (SEC. 704.3) "In every building except one and two family dwellings, and sprinklered buildings, flame spread ratings for walls and ceilings using ASTM

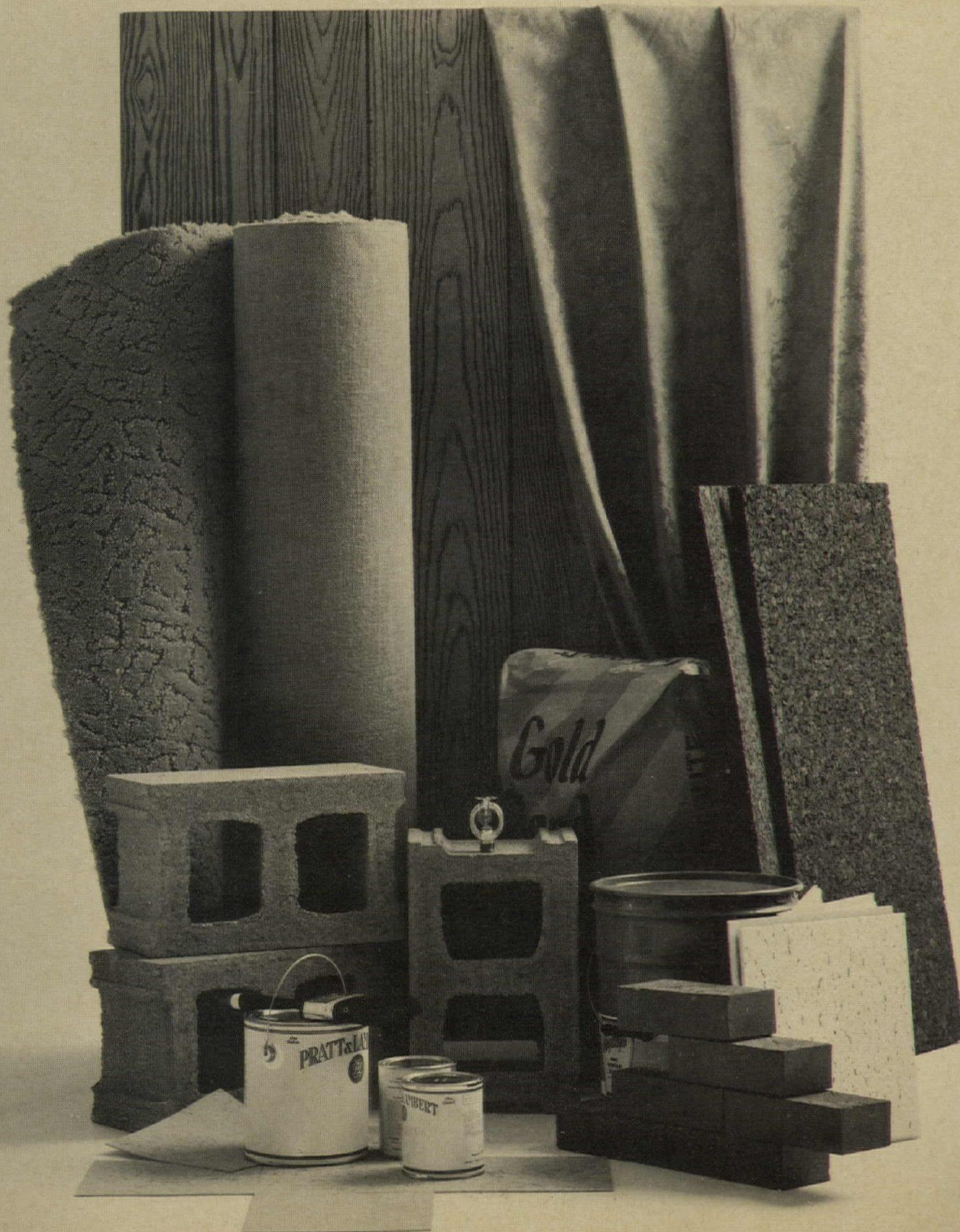
Dept. 1068, Box 180,
Cleveland, Ohio 44141.



For more data, circle 154 on inquiry card

Standard E 84, shall not exceed the following . . ." (Check this section for non-sprinklered requirements.)

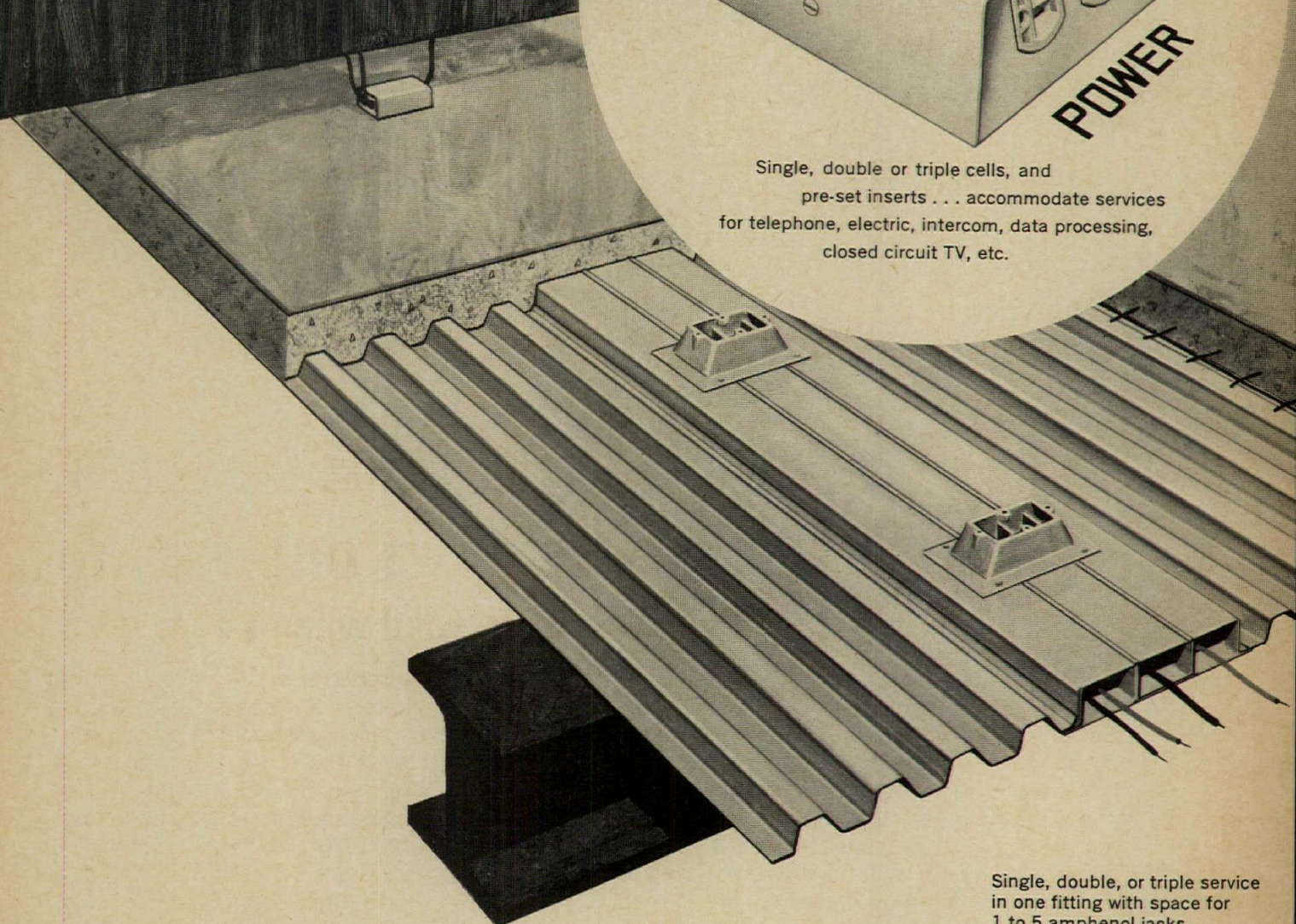
The Basic Building Code: (SEC. 925.6)
"In buildings of all types of construction and in all use groups, combustible wall and ceiling finishes may be used without hesitation in any room or area except required exitways, provided the building is equipped with an approved automatic sprinkler system . . ."





SIGNAL **TELEPHONE**
POWER

Single, double or triple cells, and pre-set inserts . . . accommodate services for telephone, electric, intercom, data processing, closed circuit TV, etc.



Single, double, or triple service in one fitting with space for 1 to 5 amphenol jacks.



CEL-WAY® 1, 2, or 3 services in one fitting where and when you want it

Cel-Way: the underfloor electrification system that prevents building obsolescence! Its roomy steel cells and factory-installed inserts can be spaced to fit any building module for widest flexibility of desk or equipment placement . . . for now and for the future. Cel-Way's architecturally-styled fitting supplies all services to any desired location. This fitting pleases owners, decorators . . . fits unobtrusively under a desk pedestal. Cel-Way's pre-set inserts make it

easy to relocate services; eliminate messy core drilling in concrete — a process that can cost up to \$100 for each change. All things considered, Cel-Way is the most economical and practical in-floor electrification system, for either concrete or steel frame construction.

Check Sweet's 1J/Gr, or write for Cel-Way product manual. Granco Steel Products Company, 6506 North Broadway, St. Louis, Mo. 63147. A subsidiary of Granite City Steel Co.

IMAGINATION IN STEEL



For more data, circle 155 on inquiry card

if you were sure that one publication best served the interest of architects and engineers, would it make sense to place all your advertising there?

It would...if you can't answer "Yes" to this question... "Am I doing the job I ought to be doing in the one publication that's strong enough to do the job alone?"

THE PROBLEM YOU FACE

Typically the prime objective of advertising in the building market is to get architects and engineers to specify certain products into the buildings they design. One of the hurdles advertisers must overcome is that architects and engineers are among the busiest and most sought after groups of people in this country. Small in number they control through their specification practices, the selection of virtually every product that goes into our nation's buildings. As a result they are deluged with

magazines of all shapes, sizes and quality. Direct mail, catalogs, folders, brochures and salesmen flood into their offices. They can't and don't pay attention to them all. Under these circumstances how can you hope to get their attention? It's simple. Do what they do and cut out waste and duplication. Go where they find value. Take the available dollars and do your advertising in Architectural Record. Our editors already have their full attention and they cut your work in half. Make the rapport we've spent 76 years building with the profession work for you.

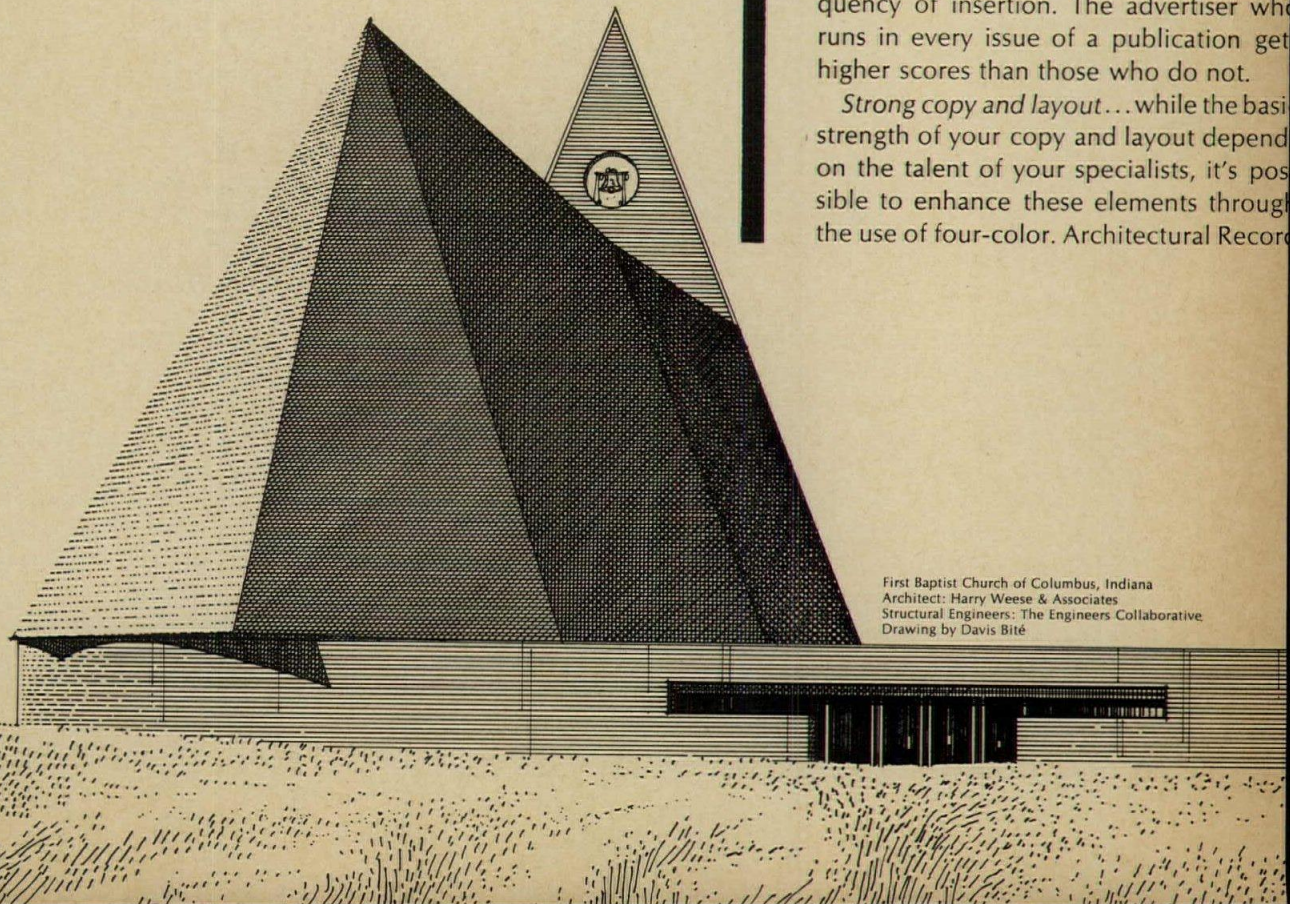
WHAT ARE THE BENEFITS?

The major benefit of using just one magazine in a field rather than two or more is that it frees money to do some of the other things that are necessary to attract the attention of busy, involved people. Achieving a measure of impact in your advertising is a relatively simple thing to do. Let's take a look at some of the elements of impact advertising and see how putting the same dollars to work in a single publication will help you achieve that goal.

Dominant space units... it's a fact that on the average, larger space units get better readership than smaller ones. The advantages of 12 pages or 12 spreads in one strong magazine over six halves or six pages in each of several magazines is readily apparent. In short you can look bigger, seem more important and increase readership scores at the same time.

Maximum frequency... every available piece of research indicates that advertising readership scores also increase with frequency of insertion. The advertiser who runs in every issue of a publication gets higher scores than those who do not.

Strong copy and layout... while the basic strength of your copy and layout depends on the talent of your specialists, it's possible to enhance these elements through the use of four-color. Architectural Record



First Baptist Church of Columbus, Indiana
Architect: Harry Weese & Associates
Structural Engineers: The Engineers Collaborative
Drawing by Davis Bite

is now offering substantial color premium discounts, similar to the traditional frequency discounts.

Thus by buying only the Record you get a double barreled discount, your ads look better and you get the higher readership scores that come with color.

Consistency...the concept of consistency in impact advertising involves planning over a period of years not just months. Although the benefits seem obvious it is one of the hardest elements to sell to top management. In our experience the best way to achieve its acceptance is through the careful application of the other three elements—dominant space units, maximum frequency and strong copy and layout. Apply these three principles effectively and the advantages of consistency follow naturally and rewardingly.

WHY RECORD?

Architectural Record best serves the interest of architects and engineers. This is a fact documented in two ways. Both are significant to advertisers.

First... Architectural Record publishes more in the relevant areas of buildings, houses, architects, photographs, drawings

and four-color than other architectural publications. And by a wide margin. In 1967...70 per cent more buildings than the second publication...192 per cent more houses...88 per cent more architects...85 per cent more pages of four-color than the second publication.

The second way to document the Record's editorial leadership is to go to the architects and engineers themselves as hundreds of building product manufacturers and their agencies have done in independent studies to determine the reading preferences of these key specifiers of building products. In seventeen studies conducted since January 1966, the Record has been the consistent first choice, winning all seventeen studies and usually by a 50 per cent margin over the second place publication.

The significance to advertisers is that there is a single publication in the architectural field which alone is strong enough to carry their advertising message. Clearly one publication is enough if it's the Record.

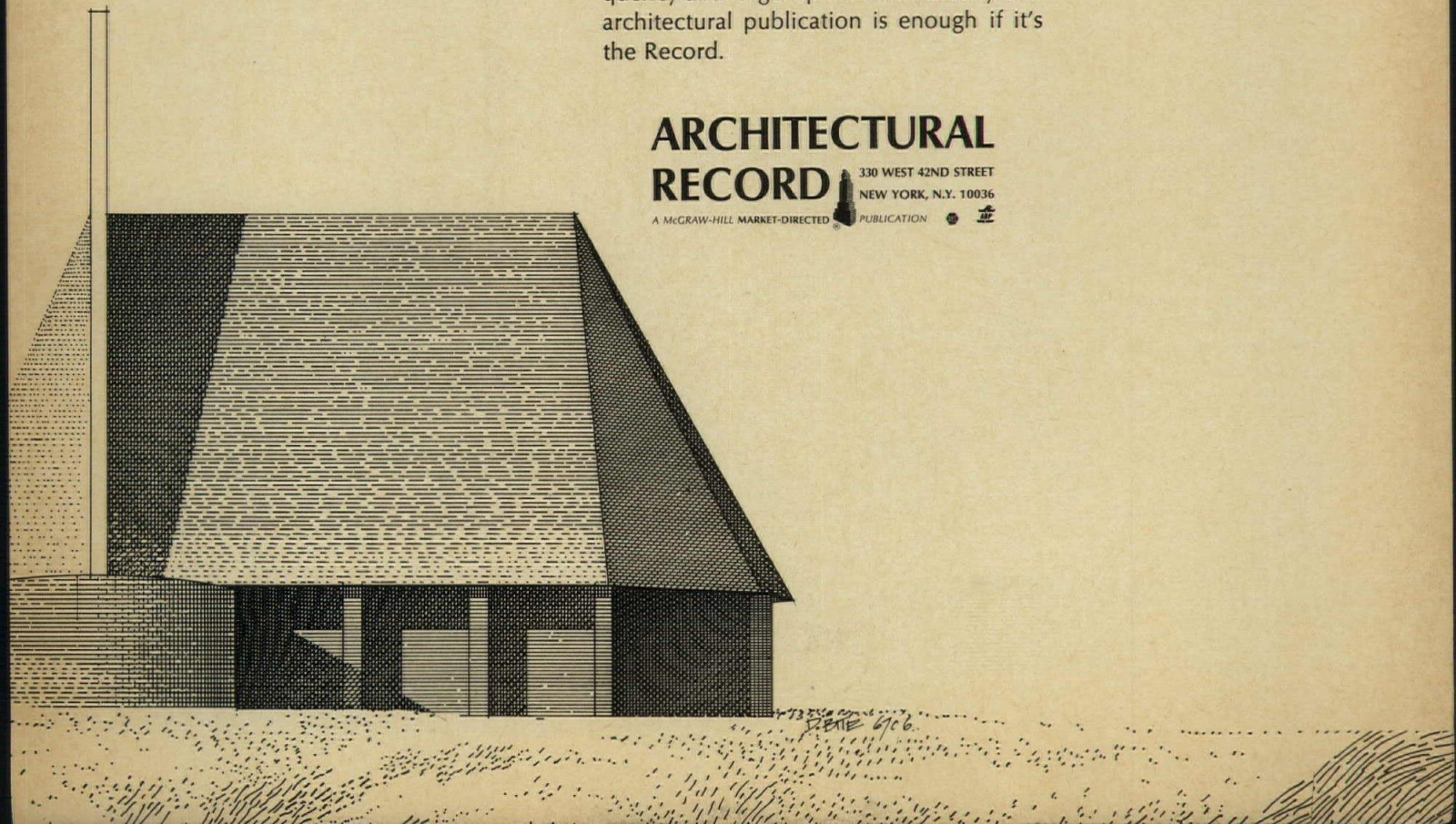
START NOW

Study your current advertising program. Make sure your impact on architects and engineers is not being watered down by buying more publications than you really need. Think about the extra selling power these same dollars could buy you in Architectural Record in terms of greater reader involvement, more four-color, better frequency and larger space units. Clearly one architectural publication is enough if it's the Record.

ARCHITECTURAL RECORD

330 WEST 42ND STREET
NEW YORK, N.Y. 10036

A MCGRAW-HILL MARKET-DIRECTED PUBLICATION



ADVERTISING INDEX

Pre-filed catalogs of the manufacturers listed below are available in the 1968 Sweet's Catalog File as follows.

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

A

Aerofin Corp.	271
Allen Mfg. Co., W. D.	107
A AllianceWall Corporation	228
A Allied Chemical Corp., Fibers Div.	211-212
A-I Aluminum Co. of America	54-55
American Cyanamid Co., Fibers Division	223
A-I-L American Saint Gobain Corp.	270F-270G
A American Smelting & Refining Co.	208
A American Standard, Plumbing & Heating Div.	97
A-I American Telephone & Telegraph Co.	34
Ames Company, W. R.	32-4
Anaconda American Brass Co.	68-69
A-L Andersen Corp.	220-221
Architectural Record	282-283
A-I Armco Steel Corp.	224
A-I-L Armstrong Cork Co.	249
Aurora Pump, A Unit of General Signal Corp.	66
A-L Automated Building Components, Inc.	200-201
"Automatic" Sprinkler Corp.	278-279
AVM Corp., Jamestown Products Div.	234
A Azrock Floor Products	3rd Cover

B

A Bally Case & Cooler, Inc.	71
A-I Bell Telephone System	34
Bestile Mfg. Co.	32-4
A-I Bethlehem Steel Corp.	254-255
A Bigelow-Sanford Carpet Co.	72
A-I Borden Metal Products Co.	37
Bowser-Briggs Filtration Div., Bowser, Inc.	78
A-I Bradley Washfountain Co.	111
Bruder & Sons, Inc., M. A.	101
Byers Co., A. M.	204

C

Cabot, Inc., Samuel	119
Canvas Awning Institute, Inc.	51
A-L Caradco, Inc.	102
A Carpenter & Co., L. E.	267
Cast Iron Soil Pipe Institute	234
A Ceco Corp.	117, 125
A-I Celotex Corp.	120-121
A-I Certain-teed Products Corp.	2-3
Chicago Faucet Co.	276
Chicago Hardware Foundry Co.	286
Circle F Industries	260-261
A-I Cookson Co.	74
Corbin, P&F, Div. Emhart Corp.	2nd Cover

D

Day & Night Mfg. Co.	219
Dempster Brothers, Inc.	243
A-I DeSoto Chemical Coatings, Inc.	198-199
A Dover Corp., Elevator Div.	45
Dow Badische Co.	33
A-I Dow Corning Corp.	238
DuPont de Nemours & Co., E. I.	124
A-I Duriron Co., Inc.	1
A-I-L Dur-O-Wal	246-247

E

A-I Eaton Yale & Towne Inc., Norton Door Closer Div.	67
A-I Ebco Manufacturing Company	7
Eberhard Faber	127
Electric Heating Association, Inc.	209-210
Eljer Plumbingware Div., Wallace-Murray Corp.	26
A-L Elkay Mfg. Company	100
A-I Enjay Chemical Co.	27 to 30

F

FEAL	270C
A Follansbee Steel Corp.	47

G

A-I-L GAF Corp., Building Products Division	104
A-I-L GAF Corp., Floor Products Division	197
A-I-L General Electric Co.	38-39
A Glaverbel	50
A Glidden Company	92-93
A Glynn-Johnson Corp.	208A
A-I Granco Steel Products Co.	280-281

H

Hardwick & Magee Co.	257-258
A Houghton Elevator Company	80
A Haws Drinking Faucet Company	32
Hercules Incorporated	79
Hercules Incorporated	96
A Hickman Co., W. P.	86
A-I Hillyard Chemical Co.	216
A Holcomb & Hoke Mfg. Co.	239
L Honeywell	75

I

A-I-L Inland-Ryerson Construction Products Co.	106
International Exposition Co.	272
International Pipe & Ceramics Corp.	208B

J

A Jamison Door Co.	59
A-I-L Johns-Manville	18, 128
Jute Carpet Backing Council, Inc.	250

K

A Kawneer Co.	214-215
Keene Corp.	84-85
Kenco Products Corp.	272
A-I-L Kentile, Inc.	20-21
A-I-L Keystone Steel & Wire Co.	11 to 13
A-I Kimberly-Clark Corp.	276
A-I Kinnear Corp.	63
Krueger Metal Products Co.	225
K-S-H, Inc.	70

L

A Landmark Lighting Div., American Electric Mfg. Corp.	253
Latco Products	32-4
A-I Lead Industries Assn., Inc.	112
Lehigh Portland Cement Co.	64
A-L Lennox Industries, Inc.	23 to 25
A Levolor Lorentzen, Inc.	270D-270E
A-I-L Libbey-Owens-Ford Glass Co.	15
Lighting Products, Inc.	56
A-I Liskey Aluminum, Inc.	122

M

Management Science America, Inc.	119
Marley Company	126
A Marshall Tiles, Inc.	227
Medusa Portland Cement Co.	16
A-I Mills Company	17
3M Company	277
A-I-L Mississippi Glass Co.	189 to 192
Mobay Chemical Company	22
A Monarch Tile Mfg., Inc.	227
A Montgomery Elevator Co.	256

N

National Electrical Contractors Association	48
A-I-L National Gypsum Co.	52-53
A-I Norton Door Closer Div., Eaton Yale & Towne Inc.	67

O

A Otis Elevator Co.	58
A-I Overhead Door Corp.	206-207
A-I-L Owens-Corning Fiberglass Corp.	205

P

A Panelfold Doors, Inc.	271
A Paragon Swimming Pool Co., Inc.	200
A Parker Co., Charles	271
Payne Company	32-1
A-L Pella Rolscreen Co.	251-252
A-I Pennsalt Chemicals Corp.	98
Permafex Products Co., Inc.	253
A-I-L Pittsburgh Corning Corp.	244, 245
L Powers Regulator Co.	226
A-I-L PPG INDUSTRIES, INC.	65, 240-241, 263 to 266
Pratt & Lambert, Inc.	49
A-I Prestite Div., Interchemical Corp.	14
A-I Prestressed Concrete Institute	99

R

A-I Raynor Mfg. Co.	270
A-I Republic Steel Corp.	31, 236-237
A-I-L Revere Copper & Brass, Inc.	94-95
A Rohm and Haas Company	60-61
A-I-L Ruberoid-GAF Corp.	104, 197

S

Sandvik Steel, Inc.	123
Sanspray Industries, Inc.	275
A Sargent & Company	113 to 116
Schemenauer Mfg. Co.	270A
Sechrist Manufacturing Co.	270H
Selick, Walter E., and Company	119
Sern Products, Inc.	222
A-I-L Sisalkraft Div., St. Regis Paper Co.	103
A-I Sloan Valve Company	4th Cover
A-I Smith & Co., Inc., Elwin G.	73
Society of the Plastics Industry, Inc.	274
Soil Pipe Div., Tyler Pipe Industries	270B
Sonoco Products Co.	62, 213
A Speakman Company	19
Spencer Turbine Company	273
A SPERRY RAND CORPORATION	
REMINGTON RAND OFFICE SYSTEMS DIVISION	108-109
Square D Company	105
Steel Joist Institute	118
A Summitville Tiles, Inc.	268-269
A Sunroc Corporation	57
Sweet's Catalog Service	285
Sylvania Electric Products, Inc.	202-203

T

Talk-A-Phone Co.	196
A-I Tate Architectural Products, Inc.	242
A TELKEE	239
3M Company	277
A Titus Mfg. Corp.	76-77
A Tremco Mfg. Co.	233

U

A-I United States Steel Corp.	8
Uvalde Rock Asphalt Co.	3rd Cover

V

Velvetex Industrial Corp.	217-218
--------------------------------	---------

W

Wade Div., Tyler Pipe Industries	110
A-I Washington Aluminum Co., Inc.	235
A-I-L Western Wood Products Assn.	259
A-I-L Weyerhaeuser Company	229 to 232
A-I Wheeling Corrugating Co.	90-91

Z

A-I Zero Weather Stripping Co., Inc.	248
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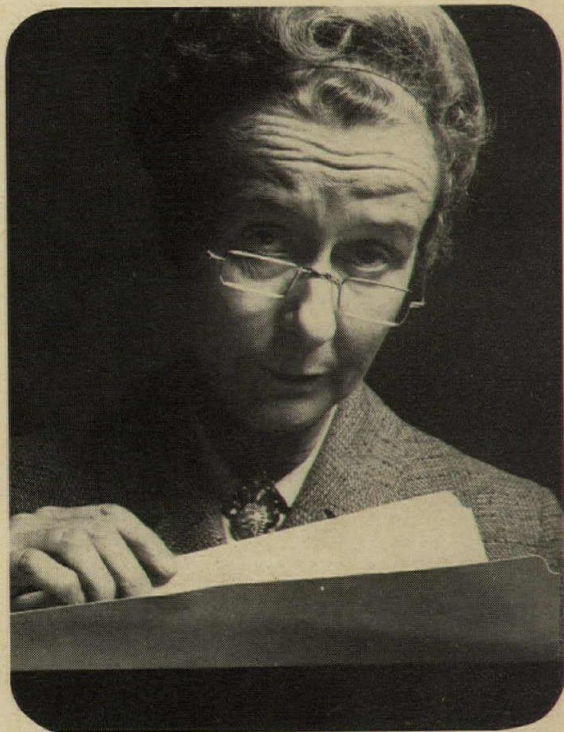
ARCHITECTURAL RECORD

McGraw-Hill, Inc., 330 West 42nd Street,
New York, New York 10036

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Production Mgr.: Joseph R. Wunk (212) 971-2793
Promotion Mgr.: Sam H. Patterson, Jr. (212) 971-2858
Research Mgr.: Elizabeth Hayman (212) 971-2814

District Offices:

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Chicago 60611	Robert T. Franden, Tom Brown, Edward R. Novak 645 N. Michigan Ave., (312) 664-5800
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St. Louis 63105	Richard Grater, 7751 Carondelet Ave., (314) 725-7285
San Francisco 94111	Wayne C. Carter, 255 California St., (415) 362-4600



When she can't find the information you want, when you want it, it might as well be lost.

Find it in Sweet's.

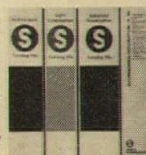
All the product data you need is right in your Sweet's Files. Sweet's is your product information retrieval system. It contains information and specifications on products manufactured by more than 1,400 leading companies. The information is up to date and easy to find. And, in greater quantity than you probably know about.*

It's bound to be found in Sweet's. It can't get lost.

Sweet's Architectural Catalog File, Sweet's Industrial Construction Catalog File or Sweet's Light Construction Catalog File.

Sweet's Construction Catalog Services, McGraw-Hill Information Systems Company, 330 W. 42nd St., New York, N.Y. 10036

*Example: Section 25 of your Architectural File contains 640 pages on bathroom and washroom equipment.



Sweet's works.

CHF twist TABLES



TWIST UP FROM 19 TO 29 INCHES.

A quarter twist of the top allows the top to be raised or adjusted to any level from cocktail to dining height. Unique column construction* locks top at height selected.

Round and square tops—available with patented CHF Rockedge®

Another outstanding design innovation—from CHF

*Patented

CHF

CHICAGO HARDWARE FOUNDRY COMPANY, NORTH CHICAGO, ILL. 60064 • 312/689-3770

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