PROGRESSIVE ARCHITECTURE *April 1969*

A Reinhold Publication

The gleaming 12-story Waite Phillips Hall in Los Angeles houses all primary activities of the USC School of Education, the largest in the West and one of the oldest in the nation. **Architect:** Edward Durell Stone, Los Angeles. **General Contractor:** Collins & McPherson, Los Angeles. **Flooring Contractor:** Tri-Way Contractors, Los Angeles.

The choice of flooring for this new campus building was based on a simple and obvious goal. Practicality. Hence, carpet was limited to executive offices, library, and special-purpose rooms. In classrooms, general offices, corridors, and stairways—more than two-thirds of the total floor area—Armstrong Excelon Vinyl-Asbestos Tile was used. Specifically, over 56,000 sq. ft. of $\frac{3}{32}$″ gauge, 12″ x 12″ Standard Excelon. Its tight-mottled graining disguises the scuffs left by students' footwork. Practical, and then some. Because Standard Excelon is a handsome addition to the grace and beauty of this modern building.

The floor plan of a campus

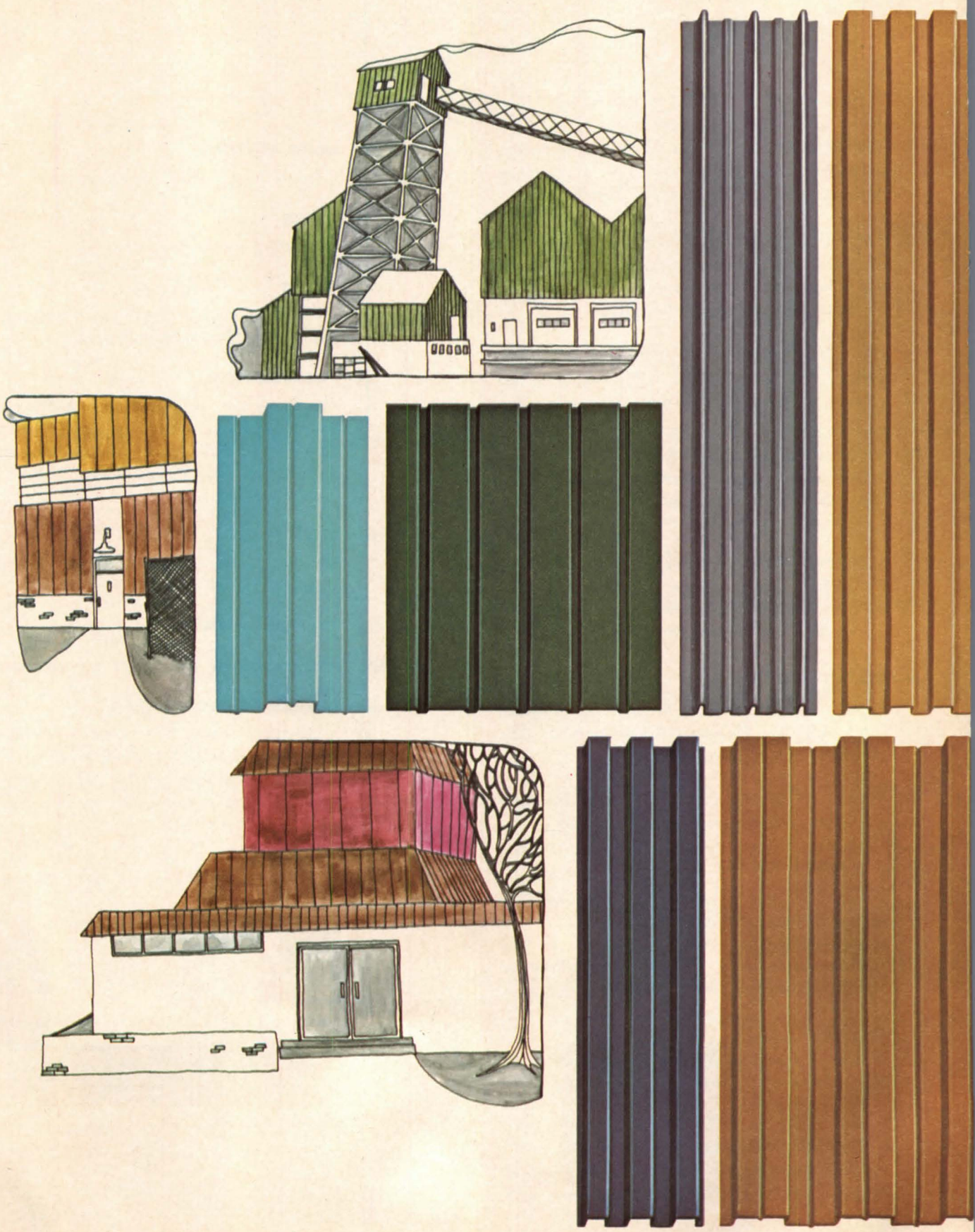
The use of a single Excelon pattern and color throughout the USC installation achieves a pleasing unity of design. And since the graining of the tile runs in one direction, the floor appears seamless. Something else about the graining. It goes all the way through the tile, so it won't fade away or show traffic lanes.

In any building you design, commercial or institutional, there's always the budget to think of. Standard Excelon Tile looks expensive, but it's budget-priced. It may or may not be the right floor for the style and function of your next project. If it isn't, Armstrong offers you a choice of 16 other different kinds of floors for contract interiors.

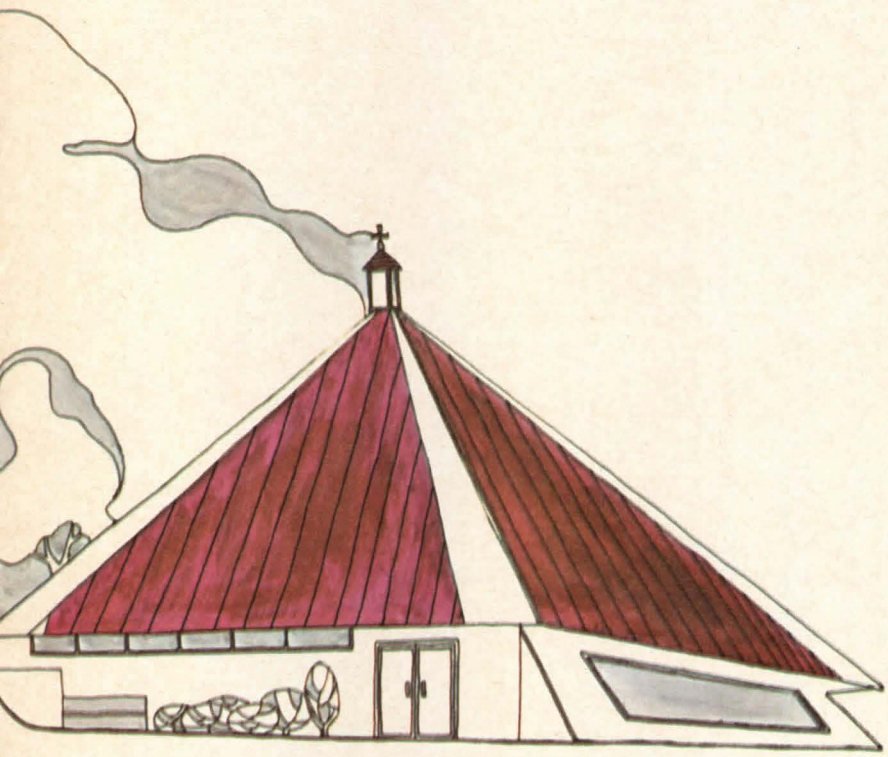
Let your Armstrong representative help you with your next flooring decision. He'll base his recommendations solely on your specific needs. This objectivity comes from the fact that he's backed by the world's largest line of resilient flooring. Call him. Or write Armstrong, 504 Watson Street, Lancaster, Pa. 17604.

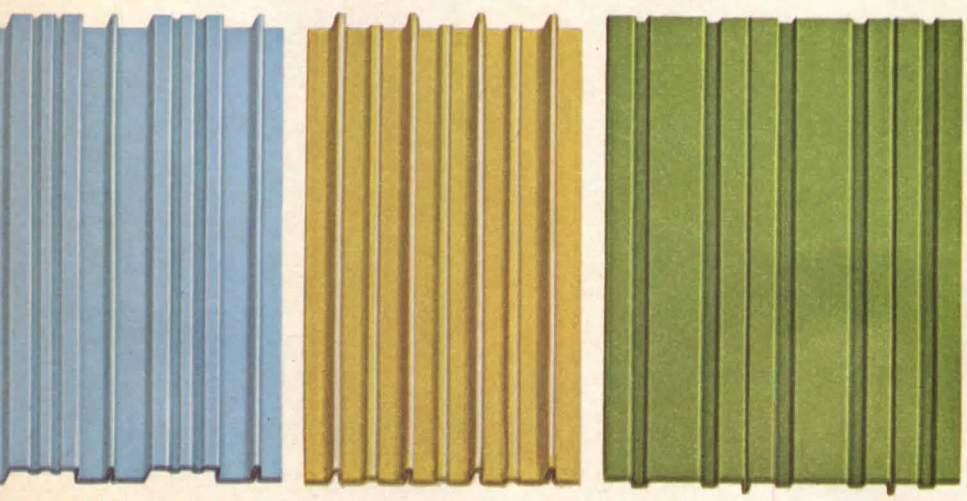
FLOORS BY
Armstrong

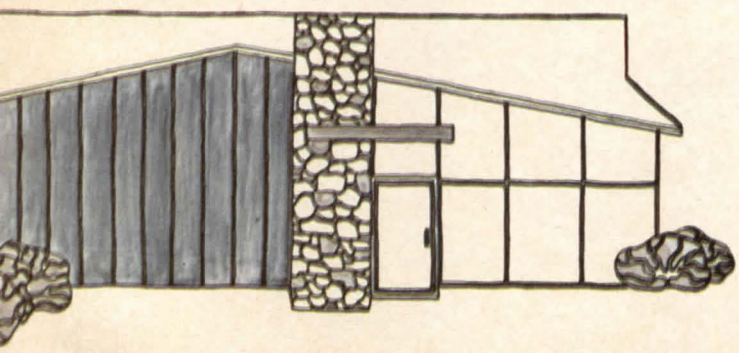
building. In planning a new University of Southern California Building, the architects called for a durable floor on a limited budget. Their choice: Armstrong Excelon® Tile.



COLOR...
the 5th dimension







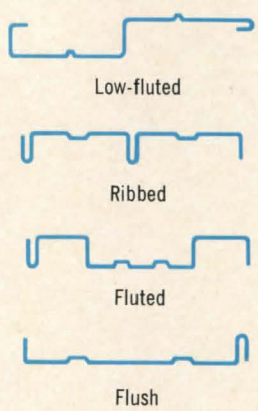
ADD IT TO EVERYTHING YOU DO WITH STRONG, DURABLE, INSULATED METAL WALL PANELS FROM MAHON

Factory-applied Mahon color now offers you a new, versatile element for design. Mahon insulated metal wall panels in pre-applied color help you beautify, identify and emphasize more effectively. And the finishes minimize or eliminate costly, periodic maintenance.

Available in Mahon-applied color finishes of: Mahon M-V Coat • Mahon Fluoropolymer Coat • Mahon PVF Laminates • and a full range of field-applied protective decorative coatings.

For information, write The R. C. Mahon Company, 34200 Mound Road, Sterling Heights, Michigan 48090.

WIDE RANGE OF PANEL SURFACE PATTERNS



MAHON
IS IDEAS
in building products

6216

VIEWS

A+ For Homework

Dear Editor: Congratulations on the FEBRUARY 1969 P/A. Reporting on recent developments in the health care industry is as difficult as designing suitable facilities to house recent and future developments. You have tackled a field filled with what seems to be contradiction and cross purposes, and reported on it in unusual depth and with perception.

Your editors are to be congratulated on doing their homework and, in most instances, keeping their facts straight.

RAYMOND W. GRIFFIN, R.A.
Director of Planning
Temple University Hospital
Health Sciences Center
Philadelphia, Pa.

Hyperbaric Chamber Cover

Dear Editor: I am not normally a reader of P/A. Because the Lutheran General Hyperbaric Chamber was featured on the cover of the February issue, a friend of mine sent me a copy. Naturally, the hospital is pleased to have itself featured in this way.

More important than that, however, is the very excellent section on the status and future of health care delivery services. It's too bad that the entire section couldn't be reprinted in a publication such as the American Hospital Association's *Trustee* magazine.

HAROLD KURTZ
Director of Public Relations
Luthéran General Hospital
Park Ridge, Ill.

No Need to Look the Other Way

Dear Editor: Your article on the concept of "interstitial space" in the February issue failed to cover another significant benefit from the use of this concept. As a consultant in the field of physical distribution of supplies and paperwork in commercial and institutional facilities, I am painfully aware of the super gyrations that the architect (and consultant) often go through when trying to conceal a large horizontal-vertical conveyor or pneumatic tube system in a structure of "conventional" design.

In a hospital, a huge chunk of the operating dollar is spent on the physical movement of clean and soiled supplies: waste, food, medications, and paperwork. Once a handling system is designed for a "conventional" building, it is usually locked for eternity. The huge expense of rerouting would be very difficult to justify. However, interstitial space could open up a whole new world of flexibility. This concept could apply to other types of buildings, such as large governmental offices, libraries, and so on.

Also, locating material handling systems in interstitial space would satisfy most of the building code requirements and avoid the need to "look the other way" when performing safety inspections.

GLEN B. MACKENZIE
MacKenzie & Associates
Material Handling and Data Flow Systems Consultants
Pleasant Hill, Calif.

Proper Etiquette

Dear Editor: In keeping with most architecture these days, Walker/Hodgett's menu design in the February issue ignores conventional social norms. The knife is turned the wrong way.

CARL N. ELLIOTT and JOHN C. HAGGARD
Donald B. Shelton, Architects
Lexington, Ky.

Message for the Governor

Dear Editor. Your article on "The Corporate Approach: New York's Answer" (FEBRUARY 1969 P/A) is simply great. I'm sending it to Albany, with the suggestion that it be taken in to the Governor. This is, by far, the best and biggest portrait that anyone has done of us.

LAWRENCE O'KANE
Information Officer
State of New York
Health and Mental Hygiene Facilities Improvement Corp.
New York, N.Y.

Correction to a Correction

Dear Editor: Professor Carl W. Condit, who gave the book *Structural Design in Architecture* by myself and Mr. Levy such a glowing review in the JANUARY 1969 P/A, suggests that you may want to publish a correction to his "correction" concerning the table of Young's modulus appearing on page 29 of our book, lest any reader of the review should be misled. The values of the moduli of elasticity appearing in the table are the actual values divided by 10^6. For example, the modulus of the woven fiberglass-reinforced plastic laminate is 2,400,000; the value in the table is $2.4 = 2{,}400{,}000 \times 10^{-6}$. Hence, the table heading is *correct* and the actual moduli values are obtained by multiplying the values in the table by 10^6.

MARIO G. SALVADORI
Professor of Structural Engineering
Columbia University
New York, N.Y.

Reader's Reaction to P/A First Design Award

Dear Editor: The award of the annual P/A Design Citation (JANUARY 1969 P/A) to Lester Walker and Craig Hodgetts for their rental building "DECIT-RUN 636" is both appropriate and informative.

Appropriate, because their approach moves in the direction of an architecture of processes, rather than as a product of architecture; making itself, not so much a statement, as a system of possibilities.

Informative, because it falls so short of its mark. It seems more systematic, than systemic; concentrating on its own innovation and the interrelation of its parts, that any method of response to either physical surroundings or methodological flux is disregarded. Although quite flexible, it lacks adaptability.

As a generic type, the structure distinguishes itself from the other submissions in that it is representative of a buildings process. Unlike the others, it seems to recognize no future, but an internal one, and has no history, except its own instant past of feedback. Nowhere in this "system" is there the face that recognizes other processes around it that would link it to different worlds. From where my eyeball sits, it sees no life without continuity and no future without a past.

The engineer on the jury, Richard Gensert, seems less impressed with the solution than his colleagues. "It certainly is not the last word in technology, and it's not the last word in integrating technology with itself or with architecture. . . . It says that what goes on inside a building, where it sits on the site, and how it relates to other buildings is meaningless. You could put it on a mountain, or you could put it in a valley, and you'd get the same thing." Pelli: "Like a car."

As necessary as they are for us, it is the car's reflective, impermeable face that makes it so alien, even though we love it.

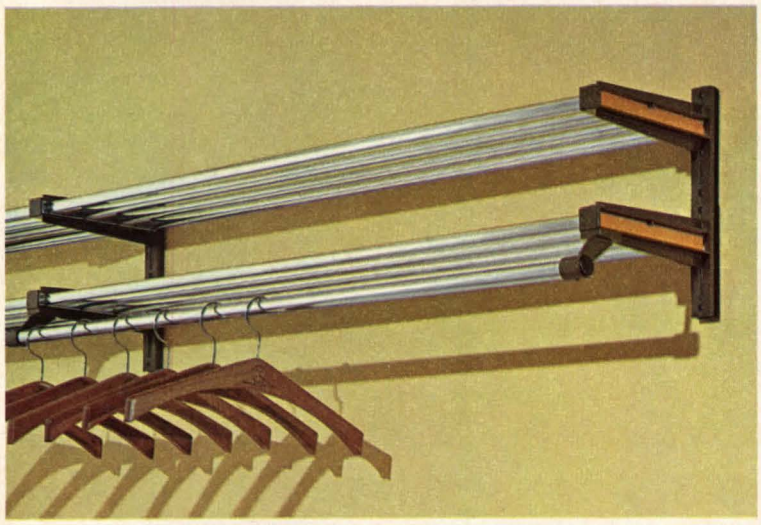
KEN RICCI
New York, N.Y.

Education Can Come in Many Packages

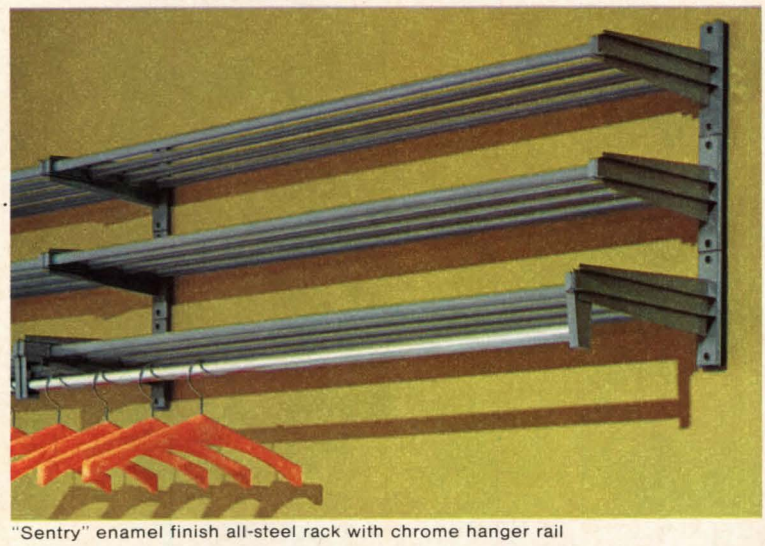
Dear Editor: P/A's article in the NEWS REPORT in the JANUARY 1969 P/A, "From the Classroom to Drafting Room," was stimulating and interesting. I can't help but recall my first exposure to architec-

Continued on page 16

designed . . . developed . . . built for architects only



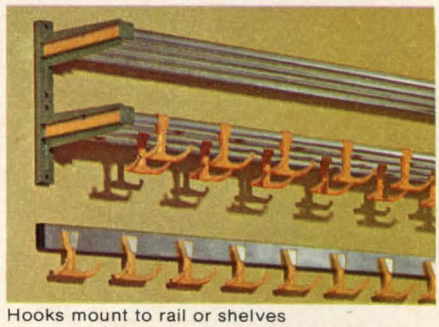
"Citation" aluminum rack with colorful vinyl inserts



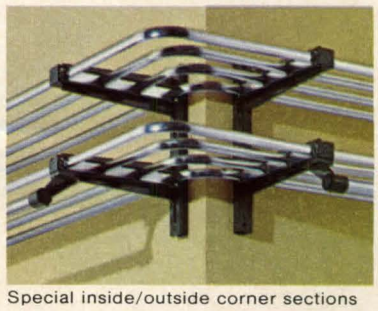
"Sentry" enamel finish all-steel rack with chrome hanger rail

New Krueger "Citation" and "Sentry" Hat & Coat Racks are exclusively yours for custom installation

To perceptive, progressive architectural designers, our new CITATION and SENTRY Wall Racks provide practical answers to the most exacting dimensional requirements. Expertly styled and constructed, and available *only* to architects, both series afford variations in number of shelves, shelf lengths and spacings, plus hanger rail or hook options. Striking chrome, vinyl and enamel accents are featured. Hung up by hat and coat storage problems because of space restrictions? Include Krueger in your plans. *Write for special brochure—on your letterhead, please.*



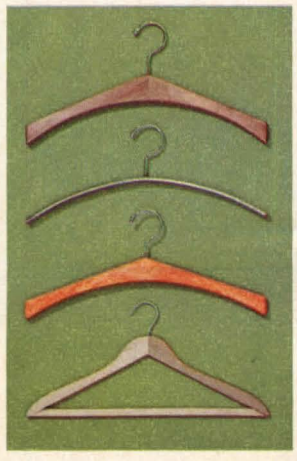
Hooks mount to rail or shelves



Special inside/outside corner sections

Nylon hooks in select decorator colors

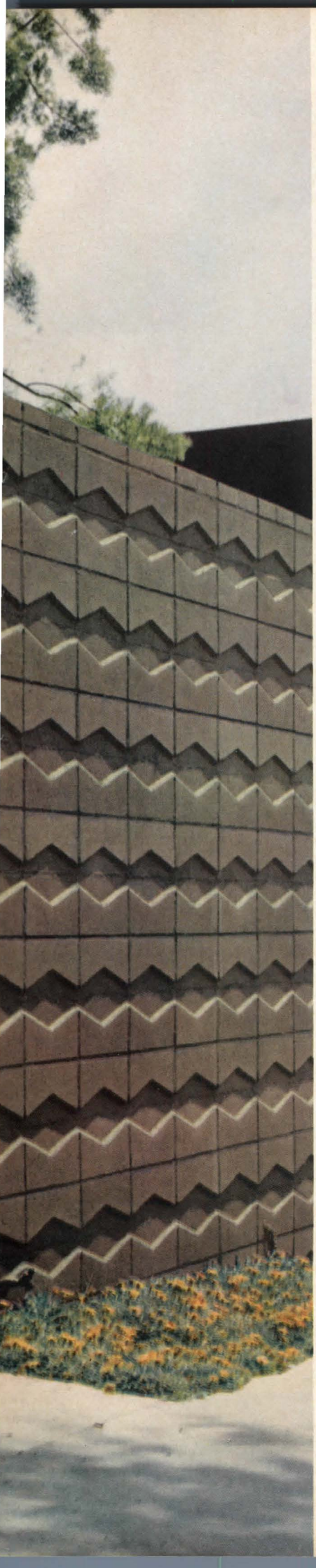
Walnut, steel, plastic or Beechwood hangers



KRUEGER
METAL PRODUCTS COMPANY • GREEN BAY, WIS • 54306

SHOWROOMS:
New York: 20 E. 46th Street
Indianapolis: 8450 East 47th Street
Chicago: 1184 Merchandise Mart
Dallas: 3720 LaFrance Street
Los Angeles: 8815 Beverly Boulevard


BUILDING OFFICIALS CONFERENCE
BOCA
OF AMERICA
INTERNATIONAL
CONFERENCE OF
BUILDING OFFICIALS
(ICBO)
SOUTHERN BUILDING CODE
CONGRESS



Testimonial to your good judgement and our reputation.

These Code Approvals.

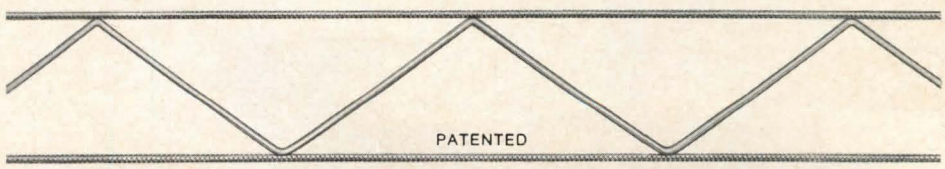
The three significant code approvals shown say a lot for both of us.

When you specify Dur-O-waL truss masonry wall reinforcement your clients get the assurance that a quality product protects the distinctive beauty and adds longer life to masonry walls.

When the Building Officials Conference of America (BOCA), International Conference of Building Officials (ICBO), Southern Building Code Congress (SBCC) and local codes give their materials approvals to Dur-O-waL, your good judgement and our reputation both benefit.

Dur-O-waL truss in your specifications means you have selected the original, the most available and the most widely used masonry wall reinforcement. And we think, the best.

We do a lot more than just make and sell the best. We can help you on how best to use our product. For a look at the evidence, write us for a copy of our Installation Details Bulletin No. 64-1. Dur-O-waL, P. O. Box 368, Cedar Rapids, Iowa 52406.



DUR-O-WAL®

THE ORIGINAL MASONRY WALL REINFORCEMENT WITH THE TRUSS DESIGN

DUR-O-WAL MANUFACTURING PLANTS • **ALABAMA,** P.O. Box 5446, Birmingham, Ala. 35207 • **ARIZONA,** 213 South Alma School Road, Mesa, Ariz. 85201 • **COLORADO,** 29th & Court St., Pueblo, Colo. 81001 • **ILLINOIS,** 625 Crane St., Aurora, Ill. 60505 • **IOWA,** P.O. Box 368, Cedar Rapids, Iowa 52406 • **MARYLAND,** 4500 E. Lombard St., Baltimore, Md. 21224 • **MINNESOTA,** 2653 37th Ave. S., Minneapolis, Minn. 55406 • **NEW YORK,** P.O. Box 628, Syracuse, N.Y. 13201 • **OHIO,** 1678 Norwood Ave., Toledo, Ohio 43607 • **WASHINGTON,** 3310 Wallingford Ave., Seattle, Wash. 98103 • Also manufactured in Canada.

On Readers' Service Card, Circle No. 341

PPG Performance Glass lets you cut your client's heating and cooling costs before he starts heating and cooling.

Check what it did for Westinghouse and Equitable Life.

By recommending PPG Performance Glass for the total-electric Westinghouse Building—owned and operated by The Equitable Life Assurance Society of the U.S.—the design team was able to realize significant and immediate savings in the cost of heating and air conditioning equipment.

The savings are quite distinct from the reduced operational costs which Performance Glass helps make possible throughout the life of the building.

Solarbronze® Twindow,® a PPG Performance Glass, was chosen for use after a series of computer studies on glazing costs, mechanical system costs, rentable area, and return on investment.

The design team found distinct advantages in *Solarbronze Twindow.* This insulating glass will help level off peak heat energy variables. Achieve a completely altered mechanical equipment load. Reduce required air quantity. Result: a more uniform level of operation and higher level of occupant comfort.

Put the financial advantages of PPG Performance Glass to work for your clients. Contact a PPG architectural rep for technical data or write: PPG Industries, One Gateway Center, Pittsburgh, Pa. 15222.

Architect: Harrison & Abramovitz & Abbe.

PPG
INDUSTRIES

PPG is Chemicals, Minerals, Fiber Glass, Paints and Glass. So far.

Cabin Crafts Prescribes LesCare™ Carpet

(For The New Look in Health Care)

Medicenter needed a carpet that would meet unusually hard usage demands. It had to be tough. Powerfully stain resistant. With built-in good looks that stay that way longer with easy, inexpensive maintenance. Cabin Crafts prescribed LesCare carpet, a proven top performer in numerous contract situations.

LesCare carpet's densely tufted construction of solution dyed Acrilan® acrylic makes it highly stain resistant. Joseph Brooks, Medicenter's Assistant Vice President, Contract Service Division, comments: "We specified LesCare carpet for its exceptional wearability, ease of maintenance, beauty and moderate price."

LesCare carpet, available in 18 glowing colors, is just one of Cabin Crafts famous family of stain resistant carpets of solution dyed Acrilan. All are perfect for use in medical institutions as well as other contract installations.

Find out more about the impressive low maintenance costs of carpet as compared to tile; the important bacteriostatic advantages of carpet; safety factors inherent in carpet; acoustical benefits. Write us today for details.

Mail to: Advertising Manager,
WestPoint Pepperell, Carpet and Rug Division
Post Office Box 1208, Dalton, Georgia 30720

Name

Address

City State Zip

☐ Please send information regarding Cabin Crafts multi-purpose carpeting.

☐ Please have a Cabin Crafts contract representative call.

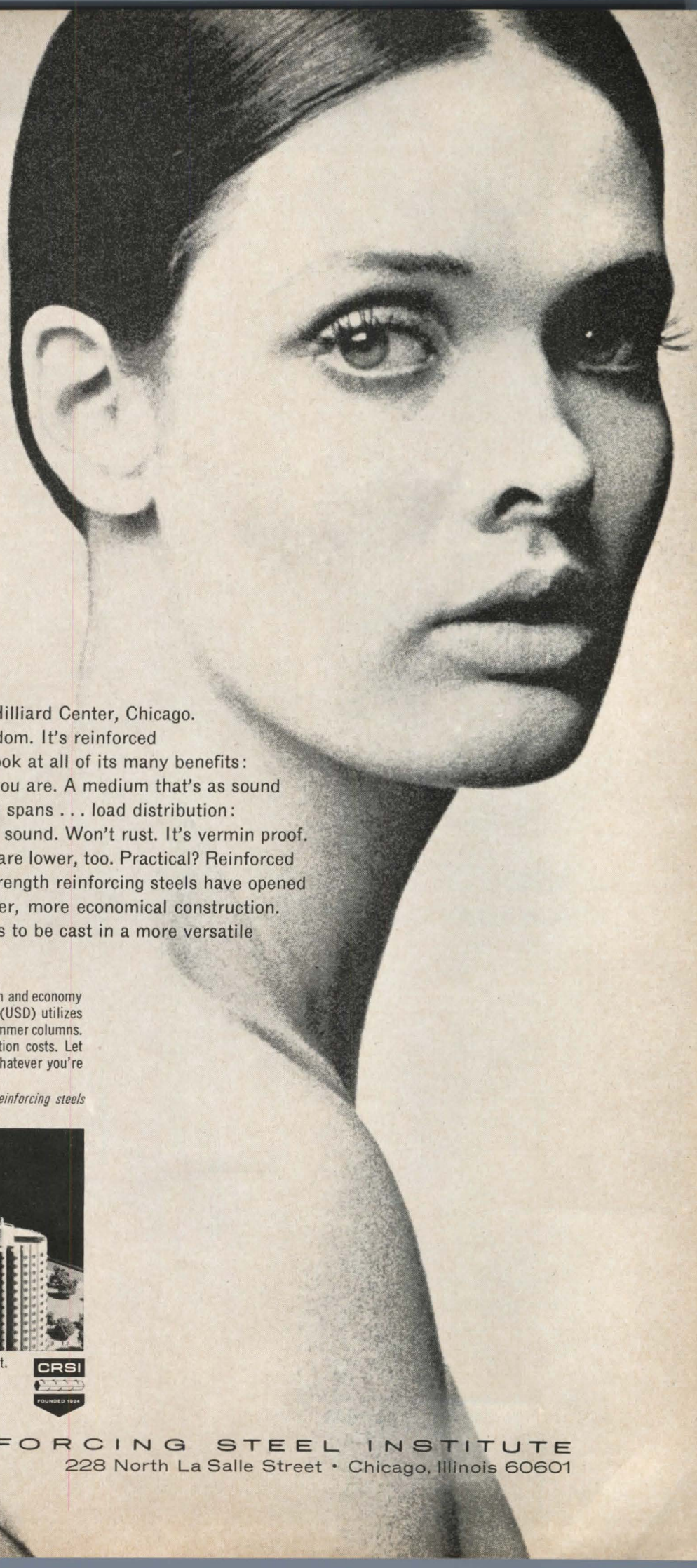
CABIN CRAFTS®

West Point Pepperell
Carpet and Rug Division
Dalton, Georgia 30720

Pictured: Patient's room and (insert) lounge in the new Medicenter in Phoenix, Arizona, featuring Cabin Crafts LesCare carpet. Medicenters of America, Inc. is a national complex of extended care facilities that provide convalescing patients with a comfortable, practical transition from hospital to home.


Monsanto
APPROVED FOR OUTDOOR USE

the beautiful world of reinforced concrete is practically perfect



It's a beautiful view in the new Raymond M. Hilliard Center, Chicago. Texture. Shape. And incomparable design freedom. It's reinforced concrete. No other medium offers more. Just look at all of its many benefits: It's available. Everywhere. Ready to go when you are. A medium that's as sound and durable as any you'll ever work with. Long spans . . . load distribution: no problems. And reinforced concrete dampens sound. Won't rust. It's vermin proof. Fire test rating: the best. Your insurance rates are lower, too. Practical? Reinforced concrete is practically perfect. And new high strength reinforcing steels have opened the door to unlimited design possibilities. Faster, more economical construction. If your mind is occupied by a building that asks to be cast in a more versatile medium, move to reinforced concrete.

GRADE 60 USD

Go 60 and Save. Grade 60 Steels*. Here's new strength and economy in a one grade package. Ultimate Strength Design (USD) utilizes fully its 50% greater yield strength. Helps achieve slimmer columns. More usable floor space. Lowers over-all construction costs. Let Grade 60 help you meet the challenge of the 70's whatever you're building. Write for new Grade 60 Steel Brochure.

*"Grade 60" the new term that describes ASTM specs for 60,000 psi reinforcing steels as upgraded in 1968.

Raymond M. Hilliard Center, Chicago. A public housing development.
Developer: The Chicago Housing Authority
Architect & Engineer: Bertrand Goldberg Associates
Contractor: Paschen Contractors, Inc.

CRSI
FOUNDED 1924

CONCRETE REINFORCING STEEL INSTITUTE
228 North La Salle Street • Chicago, Illinois 60601

1-69

Continued from page 6

ture. As an American with Mexican ancestry, and as an ex-Soot Suiter (so called by the other Society), I can't help but feel the tension and apprehensions that the young men must have gone through reading your article.

I vividly remember when I was an office boy and junior draftsman for the firm of Daniel-Mann-Johnson-Mendenhall in 1949, at the height of one of the local so called "rat pack" gang wars that occurred in the Los Angeles area. It was very difficult to find employment for young Mexicans anywhere, especially among the architectural or engineering firms. It was unheard of that a boy of Mexican descent would even have the nerve to ask for a job in an office. I was not aware that my clothing and hair style placed me on the unwanted list.

After knocking on many doors, DMJM hired me on probation — that I do a good job and that I continue my education. I had neither the grades nor the intellect to go to college at that time, but I did enroll at the local night school. Since those early years, I have found success in my chosen profession. I am now a registered building designer and a vocational drafting instructor and plan to become a registered architect. My teaching goals are to make my students aware that education can come in many packages.

No longer can we be satisfied by training people to fit machines. There is a strong need to reestablish the concept of apprenticeship among architects and engineers. The industry must assume the responsibility making young people realize that work experience is as important as a college education at the beginning of a career. I can't see anything better than to give these pre-adult years a head start working as an office boy or junior draftsman. The inspiration and guidance from experienced draftsmen and management will help the majority of ghetto dwellers. My experience as an office boy was the turning point of my life. I gained first-hand experience of how the other side lives and works.

AUTHUR HIDALGO
Vocational Instructor
John A. Rowland High School
Rowland Heights, Calif.

Correction Needed for Source Material

Dear Editor: In the January issue, the following paragraph appears in an article entitled "The Federal Client":

"In New Jersey, the eighth largest state in the nation and one of the fastest growing, only one major GSA building has been constructed in the past 10 years. The commission for that one, a $13-million Federal office building in Newark, went to the New Jersey AIA chapter president, who was also a member of the Newark Planning Commission."

We would like to advise you that the commission for the Federal Office Building in Newark went to the office of William E. Lehman and W. O. Biernacki-Poray and not to the president of the New Jersey Society of Architects. Further, William E. Lehman has never been an officer of either the New Jersey chapter AIA or the New Jersey Society of Architects. Mr. Biernacki-Poray is not now, and never has been, a member of the New Jersey Society of Architects.

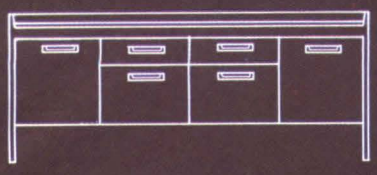
MRS. HELEN T. SCHNEIDER
Executive Director
New Jersey Society of Architects
East Orange, New Jersey

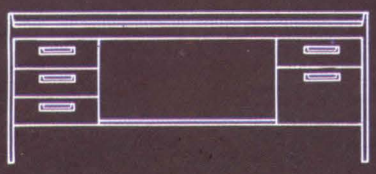
[According to the latest edition of the American Architects Directory (1962): *"Lehman, William E., Jr. . . . Pub Serv.: Newark Plan. Comm., 51. AIA Act: N.J. Chapt; Pres."*—ED.]

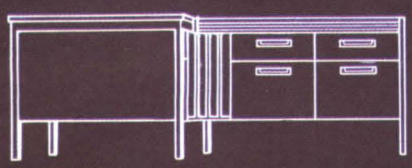
Clarification

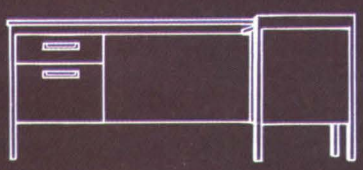
Dear Editor: In the OCTOBER 1968 P/A, you discuss a lamp that I made and that Design Research sells. Your article does not make clear, I think, that my lamp is derived from one that Bill Grover had previously designed and built. So far as I know, the idea is his.

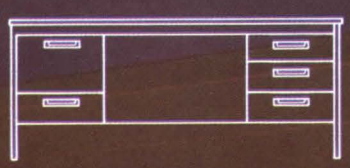
JOHN KYNK
Berkeley, Calif.

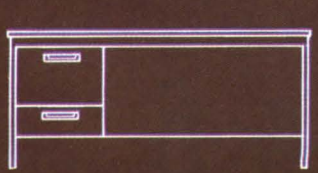












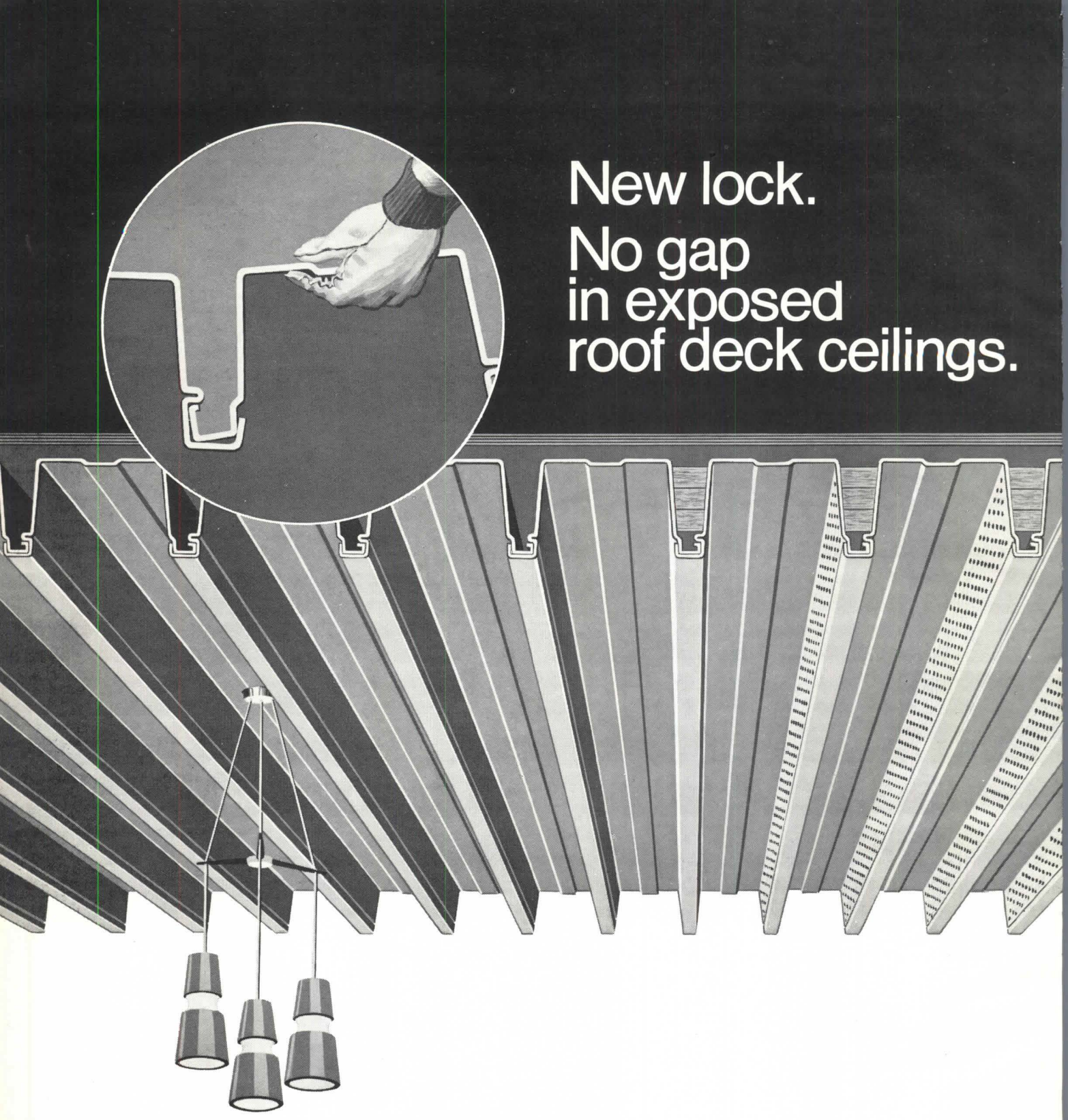
jofco presents medium priced office furniture. In black walnut veneer. Basic executive desk about $600.

Westport

by jofco

JASPER, INDIANA

SHOWROOMS:
Los Angeles, Jack Robinson, Inc., 1608 East 15th Street
Fort Worth, L.H. McDaniel & Son, 420 So. Ballinger
New York, Jofco, 16 E. 53rd
Chicago, Jofco, 1109 Merchandise Mart



New lock. No gap in exposed roof deck ceilings.

Inland-Ryerson Type H Roof Deck and Acoustideck® have a new side joint that locks the panels together along their entire length. Exposed, it presents a uniform ceiling with no irregular gaps or individual panel deflection. The new joint is so secure, it eliminates the need for mid-span welds or clips to hold panels together. On-the-job panel damage is reduced and deck assembly is simplified and speeded.

Inland-Ryerson Type H Deck can be used in open spans up to 40′ and in any width on a 12″ module. It is available in 4½″ 6″ and 7½″ depths. The single wide rib can easily accommodate recessed lighting. The depressed stiffening rib on top permits screw attachment without penetrating the vapor seal or insulation.

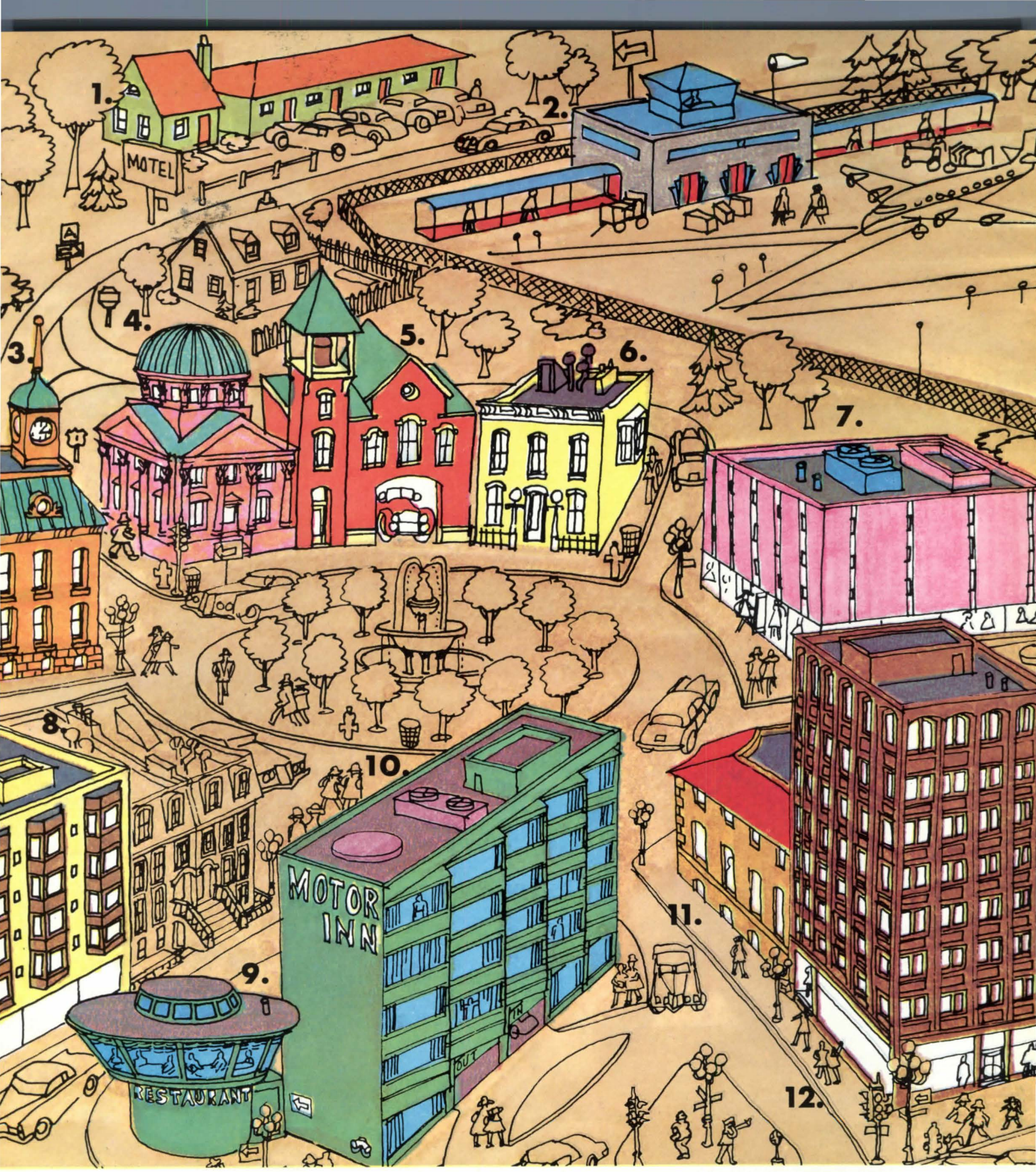
Since they have the same lock and are available in the same spans, module and panel depths, Type H Roof Deck and Acoustideck can be used in any kind of blend on the same job. Acoustideck is a combination of roof deck and acoustical ceiling.

Our catalog 248 contains more information on new Type H Roof Deck and Acoustideck. Contact your Inland-Ryerson sales engineer or write to Inland-Ryerson Construction Products Co., Dept. D, 4069 W. Burnham Street, Milwaukee, Wisconsin 53215.

INLAND RYERSON

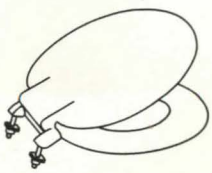
A member of the INLAND steel family

On Readers' Service Card, Circle No. 353



You're better off with Beneke on

Tour a town. Count the buildings that count on Beneke. Beneke: not just the biggest in bathroom seats but best. Up there in every way down to the smallest bolt. High Rise. Hotel. Hospital. City. Suburb. Plane. Train. You can do it with Beneke best.



Beneke celebrating 75 celebrated years

1. Holloway Inn **2.** Grand Central Airport **3.** County Court House **4.** Morgan Warranty Trust **5.** Pumper No. 1 **6.** 5th Precinct **7.** Day's Department Store **8.** Sutton House **9.** The Carousel Restaurant **10.** The Carousel Inn **11.** The Cosmopolitan Museum **12.** The General Automotive Building

CHICAGO NEW YORK WASHINGTON, D.C. SAN FRANCISCO TORONTO PARIS

It's the biggest, unbroken, consecutive, uninterrupted acrylic louver in the world. Measures 2½x5 feet, in step with the popular 5-ft design module.

Because it's acrylic, it won't yellow in 20 years. Because it's a louver, it transmits light efficiently, diffuses it beautifully. And because it's so big, it reduces structural pieces and supporting trim, leaves a cleaner ceiling with more illuminating surface!

Your current project has a 4-ft. module? Glad you mentioned it. We also have a nifty new 55° shielding, low-brightness louver in acrylic. Write for details and samples. 7700 Austin Ave., Skokie, Ill. 60076

On Readers' Service Card, Circle No. 325

Gads! An acrylic louver big enough to cover an entire ceiling!

Call (312) 966-0300.
If a man or woman answers, place an order.
Specify Type 16 Louvers.

American Louver Company

22-story Exchange National Bank Building, Tampa. Redesign in ASTM A572 steel (grades 50 and 55) saved $45,000. Floor framing in office tower section is designed compositely with the slab. Architect: Harry A. MacEwen, A.I.A.

A report on office buildings from Bethlehem Steel

New high-strength steels and new design techniques have spawned an important new generation of high-rise office buildings. Here are some of these structures—and the reasons why the owner-architect-engineer teams decided on *steel* framing.

BETHLEHEM STEEL

24-story Alcoa Building, San Francisco. Steel diagonal bracing, together with vertical hangers and only twelve exterior columns, form a sophisticated system for resisting seismic forces. Floors, column-free except for the service core, are suspended within the clad steel frame. Architect: Skidmore, Owings and Merrill.

What owners and tenants want– interior flexibility– steel framing provides

28-story Houston Natural Gas Building. ASTM A572 steel used in columns and beams for economy. Architect: Lloyd Morgan and Jones, A.I.A.

26-story Main Place (left), Buffalo, tops a 3-story shopping mall. Both were framed in steel to provide large, column-free areas and to simplify changing of floor layouts. Tower architect: Harrison and Abramovitz.

21-story Manufacturers & Traders Trust Company's bank and office building (above right) has a completely column-free interior. All loadings are carried by the core and the building's exterior steel columns, which are located only along the long dimension. Steel trusses, composite with the concrete floor, span the entire 71-ft width. Architect: Minoru Yamasaki & Associates.

32-story Federal Office Building, Cleveland (at right). Columns in lower 9 stories are high-strength A441 steel to maintain same column dimension the full height of the building. Cellular floor system provides interior flexibility. Architects: Outcalt, Guenther, Rode & Bonebrake; Schafer, Flynn & van Dijk; Dalton-Dalton Associates.

8-story One Center Plaza, Boston, which is being built in three phases (three 300-ft sections). Steel framing was chosen for the ease with which it can be expanded laterally, and for the interior flexibility it provides. Architect: Welton Becket, FAIA.

10-story City Bank of Honolulu, an AIA honor award winner, features a fully electrified floor system and 30 x 30 ft bays. Architect: Takashi Anbe, A.I.A., Walter Tagawa, A.I.A.

29-story Life of Georgia Tower, Atlanta. Steel permitted slender columns for architectural effect and was ideally suited to the cellular steel flooring system which gives tenants complete office-area flexibility. Architect: Bodin & Lamberson.

21-story IBM Building, Philadelphia (15 glass-enclosed office floors). Offset service core (not shown) serves as the backbone and steel framing serves as the rib cage to provide unusual openness and flexibility of space. Corrugated steel underfloors contain built-in channels for telephone and electrical wires. Architect: Vincent G. Kling, FAIA.

Don't overlook the latest developments in steel

There are new types and grades of steel; new design and construction techniques that give the architect free scope for his creativity . . . creativity that can most likely be achieved with greatest economy, and surely with greatest security, with steel.

Do not hesitate to call on Bethlehem's Sales Engineers, or on steel fabricators, for technical information, useful literature, and personal assistance.

39-story One Oliver Plaza, Pittsburgh. Steel framing chosen for speed and economy of construction; big, column-free areas; cellular steel floor decking. Steel framing also made it easy to make changes to answer tenant needs. Architect: William Lescaze and Associates.

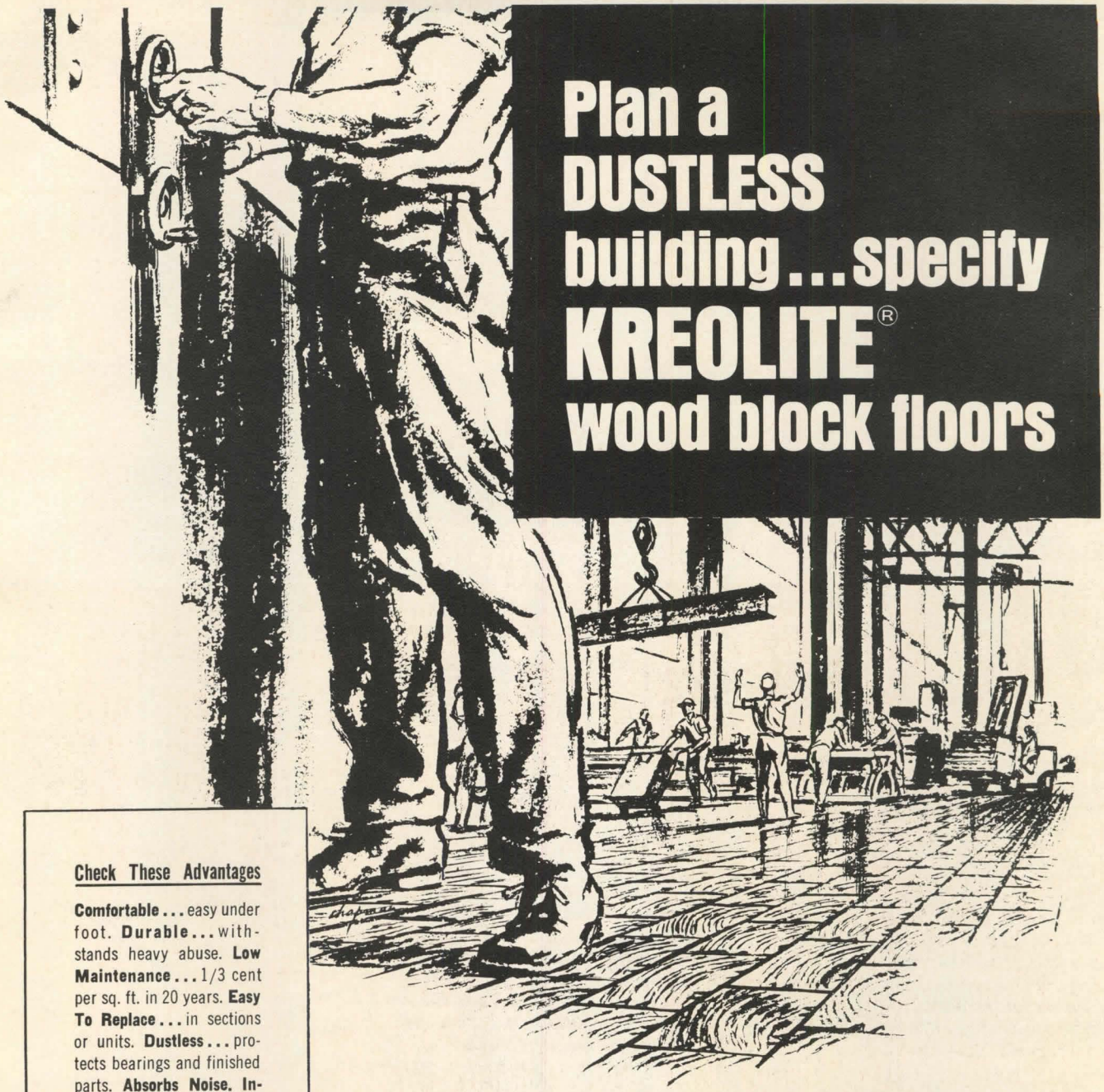
25-story First National Bank Building, San Diego. Steel framing helped to meet extremely fast schedule of just 21 months from architect's conception to start of occupancy. Architect: Tucker, Sadler & Bennett.

BETHLEHEM STEEL

BETHLEHEM STEEL CORPORATION, BETHLEHEM, PA

Folder 2556

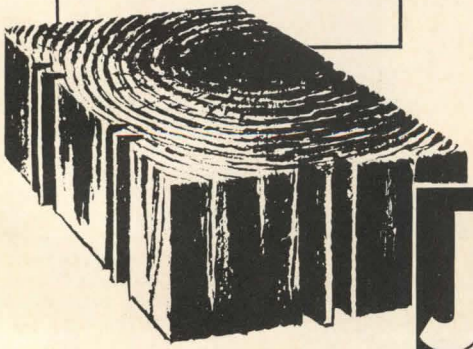
693, Printed in U.S.A.



Plan a DUSTLESS building...specify KREOLITE® wood block floors

Check These Advantages

Comfortable... easy under foot. **Durable...** withstands heavy abuse. **Low Maintenance...** 1/3 cent per sq. ft. in 20 years. **Easy To Replace...** in sections or units. **Dustless...** protects bearings and finished parts. **Absorbs Noise. Insulates** against heat and cold. Easy to **Provide For Conduits Or Cables.**



KREOLITE wood block floors are dustless. They protect machinery and work-in-progress—help keep overhead lighting efficient and air clean. That's been proved. Write for a copy of highlights of this proof or let us entertain and convince you with our 20-minute, full-color sound slide film—"Magic Carpet."

Inquiries Limited to Continental U.S.A.

JENNISON-WRIGHT

JW®

THE JENNISON-WRIGHT CORPORATION

DEPT. P49 • P. O. BOX 691 • TOLEDO, OHIO 43601

☐ Please send a copy of Research Report Highlights

☐ Please call for an appointment to show the "Magic Carpet"

Name_____

Title_____

Firm_____

Address_____

On Readers' Service Card, Circle No. 354

Computer helps us

Keyweld concrete reinforcement fits the space and the specifications—in one layer or two—in sheets or rolls. There's a minimum of waste and cutting time—and practically no engineering supervision needed.

engineer Keyweld® Sheets for your concrete reinforcement

You simply tell us the design problem.

Our engineers, with the aid of a computer, figure the most efficient reinforcement plans for your concrete slabs, floors and walls... size and spacing of the steel... dimensions of Keyweld Reinforcement Sheets...embedment depth and placement pattern... even designs for use of positive and negative reinforcement when two layers of mats are more efficient.

All of which saves you hours (perhaps days) of research, design, detailing and spec writing.

In most cases, it also saves you thousands of pounds of steel, compared to reinforcing with standard rebars.

But that's only the beginning.

On the job, Keyweld Reinforcement Sheets are mechanically handled and placed. This cuts construction time, inspection time and labor costs.

It's all part of the revolution in reinforcement; Keystone's Inner Strength products and engineering for roofs, walls and floors.

For computer-aided design and engineering help on concrete reinforcement, call your Keystone representative. Or write Keyweld, Keystone Steel & Wire Company, Division of Keystone Consolidated Industries, Inc. Peoria, Illinois 61607.

inner strength
ROOFS · WALLS · FLOORS

from **Keystone** Steel & Wire Company
Peoria, Illinois 61607

On Readers' Service Card, Circle No. 362

NEW FROM THE ORIGINATORS OF ERECTA-SHELF®
OPEN-STEEL-ROD SHELVING AND TRUCKS

SUPER ERECTA-SHELF®

THIS IS WHAT WE'RE CALLING IT BECAUSE THIS IS EXACTLY WHAT IT IS!

THESE SPECIAL ADVANTAGES PUT THE "SUPER" IN "SUPER ERECTA-SHELF":

1 Tremendously increased strength with a corrugated brace around the entire shelf.

2 Shelves can be spaced in increments of 1", and are easily re-spaced without disassembling the unit.

3 Quicker, easier assembly with patented joining device which locks shelves in place for absolute rigidity.

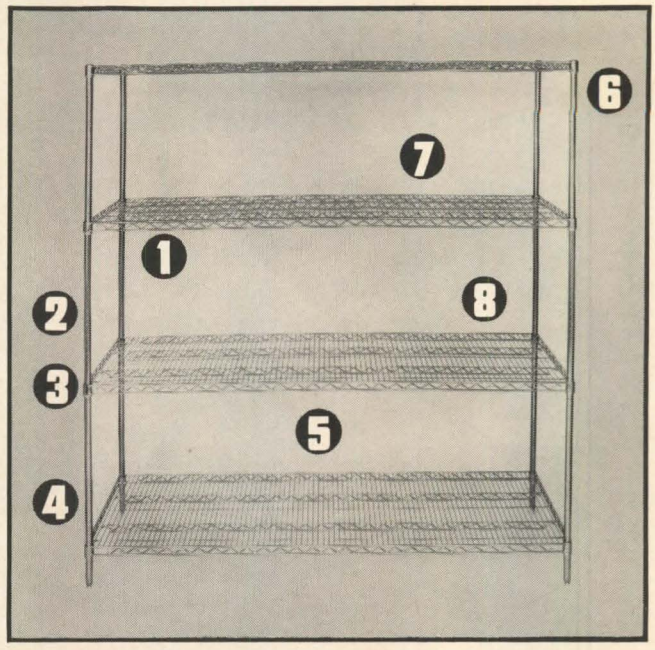
4 Negligible assembly cost. No nuts or bolts needed. Common posts can be used where two units butt.

5 New 24" wide shelves up to 72" long. Larger sizes lower the cost per square foot of shelf space.

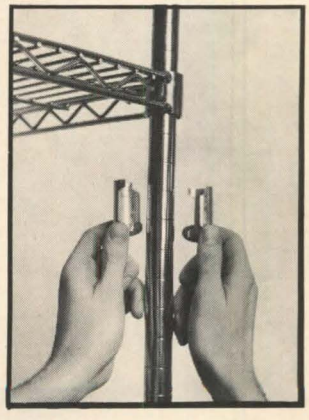
6 Gleaming round chrome corner posts add to the new units' handsome rugged appearance.

7 Shelves load from all four sides; and the shelf ribs running the short way make it easier to slide items from front to back.

8 New ¼" wrap-around safety rim prevents contents from being accidentally pushed off.



New Super Erecta-Shelf (Illustration—above) is completely new in its neat simplified design, increased strength and its never-before-offered" features. Patented assembly principle (Illustration—right) features hollow-round tapered openings in the shelf corners which slide down over split, tapered sleeves that snap on to uprights ...provides positive lock, eliminates sway.



Super Erecta-Shelf is offered both as free standing shelving or in truck units, with or without dollies. Shelves and uprights are chrome plated and coated with clear baked-on epoxy.

APPROVED

For descriptive bulletin and information, write Dept. Z0449R.

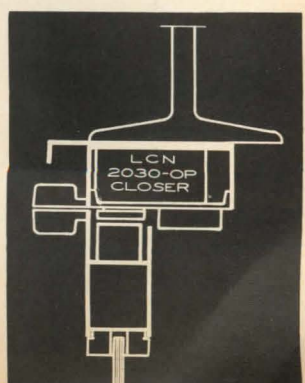
METROPOLITAN WIRE GOODS CORPORATION
Wilkes-Barre, Pennsylvania 18705
Manufacturers of Erecta-Shelf®, Sani-Stack®, Metro-Tainers®, Miscellaneous Wire Products

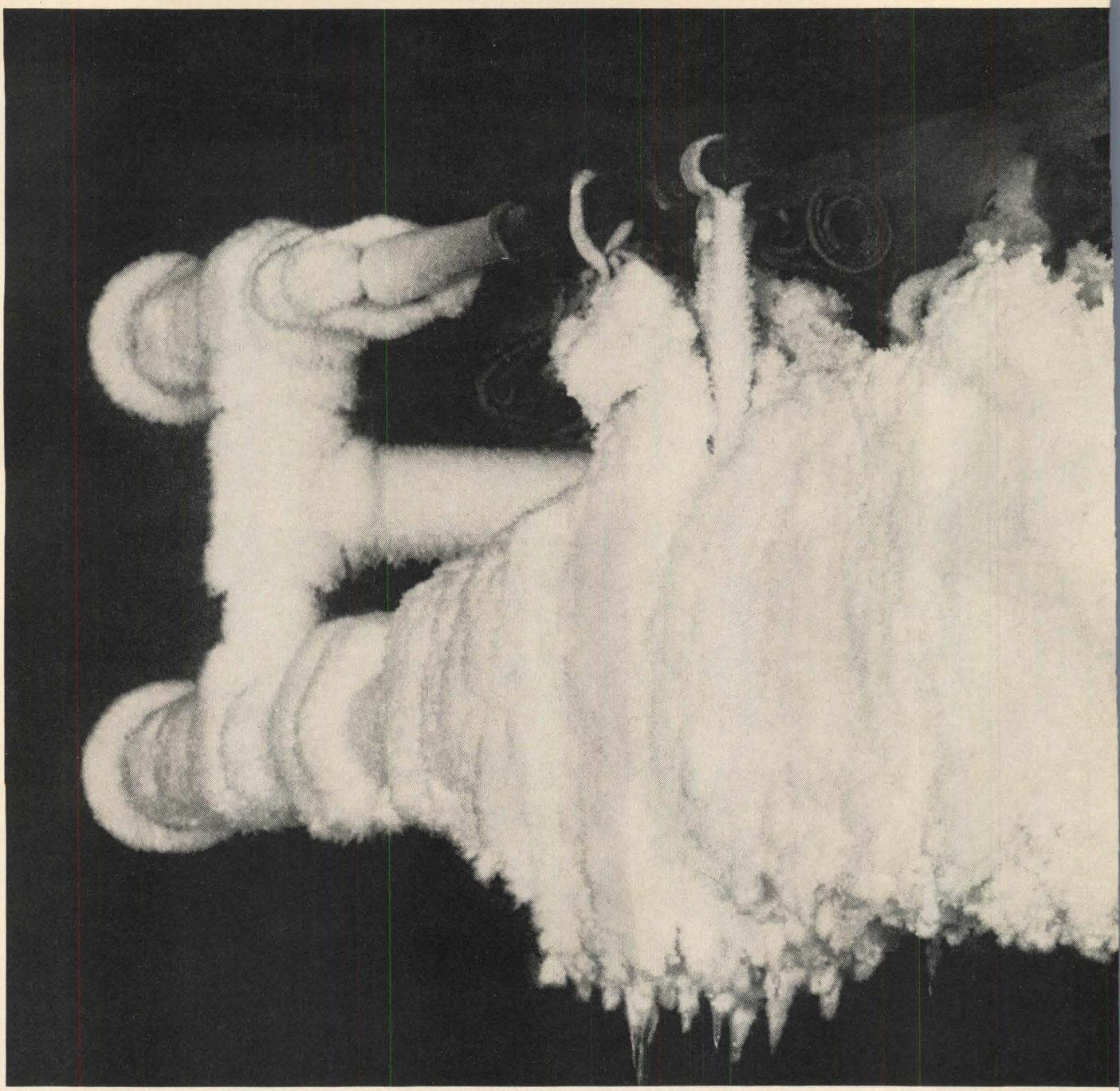
Zellerbach Hall, Univ. of California, Berkeley. Architects: Vernon DeMars, FAIA, and Donald Hardison, FAIA. A joint venture of the firms: DeMars & Wells and Hardison & Komatsu.

LCN Overhead Concealed Door Closers

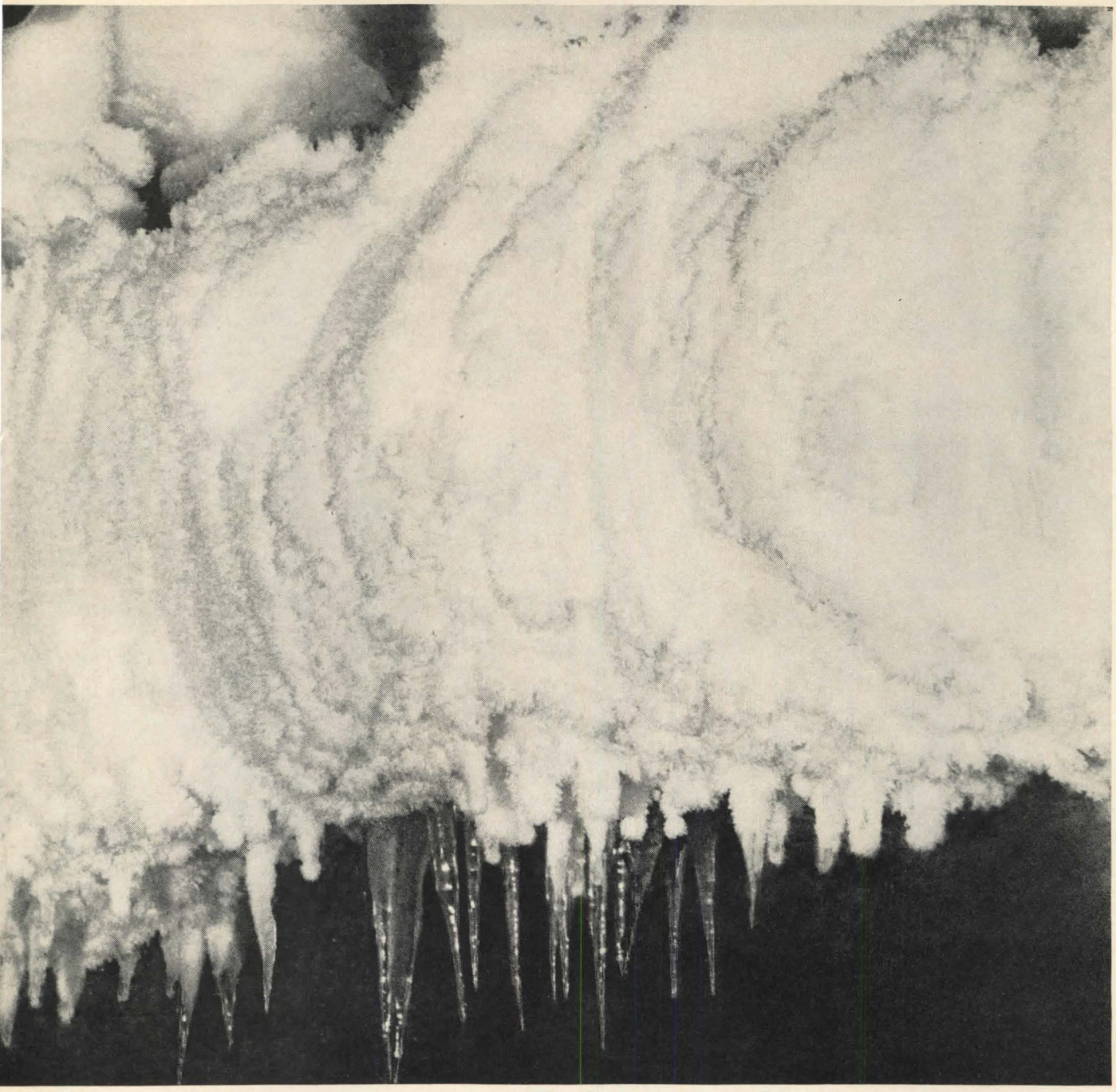
are well known for a variety of qualities: They look great. They control doors efficiently. They are easily and permanently adjusted for two closing speeds and cushioning of the opening swing. Their basic excellence assures maximum control with minimum service which means—lowest long-run cost. Write LCN Closers, Princeton, Illinois 61356.

On Readers' Service Card, Circle No. 365





A "common cold" alternative:



On-site power refrigeration.

This new concept takes advantage of the economics of low cost natural gas.

Powered by Caterpillar Natural Gas Engines, instead of ordinary commercial electricity, an on-site refrigeration system can cut your costs 30 to 50%.

Savings, of course, depend on your local electric utility and fuel rates. But savings are the rule and not the exception.

A good example is Missouri Beef Packers Co., Rock Port, Missouri. They're building the country's largest beef packing plant in Friona, Texas. A system powered by six Caterpillar natural gas engines will provide 2600 tons maximum capacity of low-temperature refrigeration for the world's most modern packing facility.

"We expect to save around $62,000 per year with the Cat system. Our payout period should be less than two years," says Gene Frye, President.

Big savings mean short payout periods. And higher on-site power installation costs are quickly absorbed.

When it comes to on-site powered low-temperature refrigeration, with all its dependability, your Caterpillar dealer can give you the facts. See him.

CATERPILLAR

THE PROBLEM SOLVER...

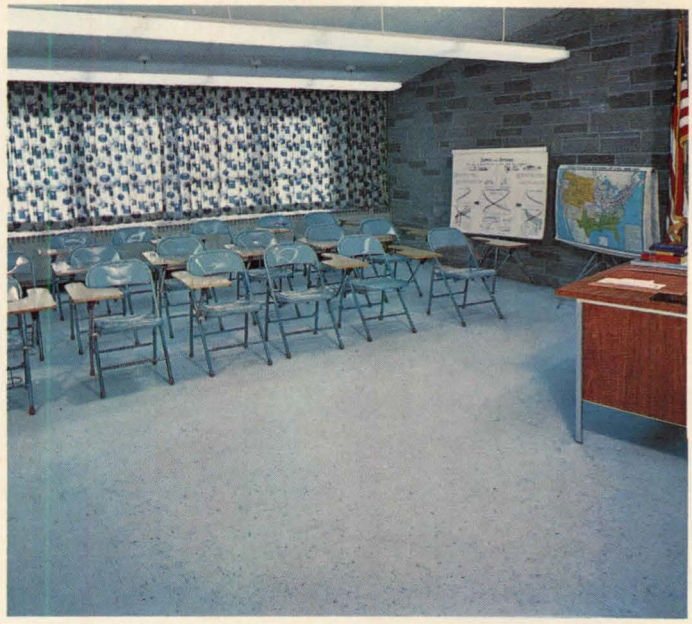
...IN THE SCHOOLROOM
WHERE UNIQUE NEW CARPET SQUARES
GET AN "A+" IN REDUCING MAINTENANCE COSTS

SADDLE RIVER COUNTRY DAY SCHOOL BEFORE THE PROBLEM SOLVER ENROLLED

Linoleum was on the floor. Hard. Cold. Slippery. Required sweeping, mopping, and buffing. Expensive to maintain.

But the idea to carpet the school with conventional carpeting was quickly rejected. It just wouldn't last!

Then came The Problem Solver with new Heugatile loose-laid carpet squares. Soft. Warm. Quiet. Totally interchangeable, too! Rotate the squares to equalize wear, and the entire carpet stays young-looking for years and years. Heugatile banishes ugly traffic paths for good!



A TEST INSTALLATION SOON PROVED HEUGATILE THE ANSWER!

This is the busy hallway in The Saddle River Country Day School, Saddle River, N.J., where the Heugatile test installation was made. It proved so successful that additional Heugatile was subsequently ordered.

Headmaster Ogilvie writes:

"I have never written a fan letter before, but at this time I am impelled to do so . . . (to tell you) . . . how enthusiastic we are. Previous hard-surface flooring required a minimum of 12 hours janitor's time per week . . . maintenance time has been cut to 2 hours per week . . . a saving of $29.75 per week. In addition, the carpeting always looks neat and clean. Students take pride in the appearance of their building, and work to keep it clean . . ."

Tell the Problem Solver your floor-covering problem!

Write a brief letter—100 words or less—describing a flooring problem that could not be solved by conventional carpeting. If your problem is selected to be featured in future advertising, your Heugatile carpeting will be installed free of charge. Tell us your carpeting problem today! Address: The Problem Solver, Van Heugten U.S.A. Inc., 185 Sumner Avenue, Kenilworth, New Jersey 07033.

See Heugatile specifications in Sweet's 1969 Architectural and Interior Design Files.

HEUGATILE® / *The problem solver*

OFFICES

Van Heugten U.S.A. Inc., 185 Sumner Ave., Kenilworth, N.J. 07033 • (201) 245-3480
Van Heugten U.S.A. Inc., 2555 Nicholson St., San Leandro, Calif. 94578 • (415) 483-4720
Van Heugten Canada Ltd., 107 Orfus Rd., Toronto 19, Ontario, Canada • (416) 789-7546

SHOWROOMS

New York—979 Third Ave., Decoration & Design Bldg. • (212) 355-4705
Los Angeles—516 West 4th St., Santa Ana, Calif. • (714) 547-6413
San Francisco—Western Mdse. Mart, 1355 Market St. • (415) 483-4720

On Readers' Service Card, Circle No. 405


If you can't equal it,

better specify it.

An architect's best friend is a window wall system equal to this one.

Any good window wall system saves time and money, yours and your client's.

This one does more.

This one has the full-length pressure equalization slot, **and** a full-length patented flapper valve. No siphoning, no draft, no whistle. HS-A2-HP. Any kind of weather, high-rise to any height.

This one is beautiful. Uniform sightlines, no fins, concealed weatherstripping, symmetrical both inside and outside, anodized as you want it. An architectural pleasure.

This one is stronger. Period.

This one costs less, if you can find a par quality.

This one is built to your design, installs fast and easy under all conditions, has every feature you and your client need or want. Allows individual air conditioning without extra reinforcing.

Is this really a "no-equal" product?

Judge for yourself. The check list is on this page. And don't forget the cost.

We only know that Ador A-70 is invariably chosen whenever it is in competition for any high-performance architectural window or window wall design. We haven't seen anything to equal it yet.

Next time, specify Ador A-70 and find yourself a new standard in time and money savers.

Ador A-70

windows/window-wall systems

And for equally outstanding sliding glass doors, specify Ador A-80, the architectural door which complements the Ador A-70 system

- √ Proven, for many years, in all types of installations.
- √ HS-A2-HP, hurricane rated, AAMA, with a 16′ wide unit, 8′ center panel!
- √ Can be installed in front of, between, or behind columns.
- √ Both width and height compensation for faulty openings.
- √ Both thermal and mechanical contraction or expansion allowed for.
- √ Any combination of fixed or sliding panels, custom to your designs.
- √ Architecturally clean, uniform sightlines, no fins.
- √ Symmetrical both inside and out, for easy stacking or joining.
- √ Adjustable mullion for continuous runs before columns of varying widths.
- √ Full tubular sections for horizontal mullions, extra strength and rigidity.
- √ Quadruple wedge interlocks, extra strength, no rattling.
- √ Full length pressure equalization slot, no siphoning.
- √ Full length patented flapper valve, no draft, no whistle.
- √ Double weatherstripping throughout.
- √ Weatherstrip concealed in panels, clean appearance, easy replacement.
- √ Slides right or left.
- √ Bypass for high-rise cleaning.
- √ Fixed panels glazed from interior or exterior, for high-rise convenience.
- √ Full screen or half screen for either single or double slide windows.
- √ Anti-lift-out blocks, no unauthorized removal.
- √ Standard lock can be placed at any height (above childrens' reach).
- √ Optional tumbler type locks.
- √ Stainless steel reinforced locking plungers.
- √ Adjustable, heavy-duty, nylon-tired rollers.
- √ Sealed, permanently lubricated rollers.
- √ Clear or color anodized, to your specification.
- √ Air conditioning units in lower panel without extra reinforcing, to 12′ wide.

All this . . . and a lower price, from one of the nation's largest producers of quality fenestration.

Shown in Sweets, 1969, as Rusco A-70 . . . 19a/Ru
Write to Ador/Hilite for a free packet of full and ¼ size details, windload charts, other information.

MAIL THIS COUPON!

ADOR ARCHITECTURAL

California · Colorado · Ohio · Georgia · Toronto

Architectural Products from Ador/Hilite, Division of Rusco Industries, Inc.

2401 W. Commonwealth Avenue, Fullerton, California 92633

ADOR/HILITE *2401 W. Commonwealth Avenue, Fullerton, California 92633*

Please send your packet of full and quarter size details, catalog and other information on the Ador A-70.

name _____

position _____

company _____

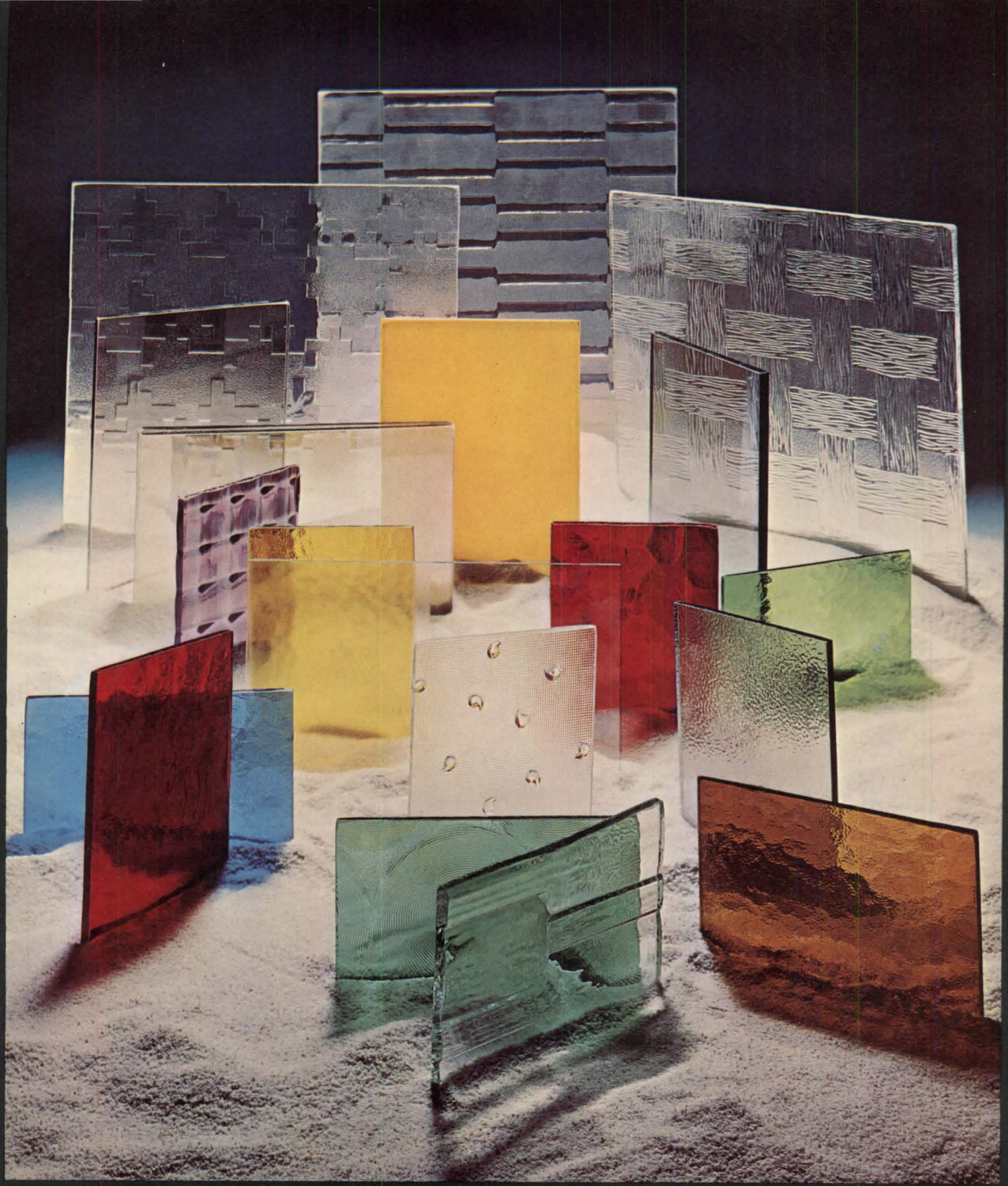
address _____

Divisions and Subsidiaries of RUSCO INDUSTRIES, INC.

ADOR/HILITE *Fullerton, California* Aluminum Doors and Windows
LOOK/HILITE *Millen, Georgia* Aluminum Doors and Windows
MAJESTIC/HILITE *Denver, Colorado* Aluminum Doors and Windows
RUSCO/STEEL *Pandora, Ohio* Steel Doors and Windows
RUSCO/CANADA *Toronto, Canada* Steel Doors and Windows
HARVARD MFG. *Bedford Heights, Ohio; Benicia, California* Metal Bed Frames
RUSCO/FINANCIAL *Los Angeles, California* Financing
SPERLING MANUFACTURING *Glendale, California* Precision Machining
RUSHELL SYSTEMS *Los Angeles, California* Personal Identification Systems

y Inn, Anaheim WILLIAM BOND, AIA

On Readers' Service Card, Circle No. 411



Cultivated glass by Glaverbel

Glaverbel's high manufacturing standards result in glass with fewer defects, greater regularity. But even more—it is glass that can give unlimited scope to the imagination. A kaleidoscope of designs and styles. A spectrum of colors. An infinity of applications. Glass specifically created to meet *—and surpass—* the requirements of today's users. *Cultivated* glass.

Glaverbel

For further information, contact:

GLAVERBEL (USA) INC., EMPIRE STATE BUILDING
350 FIFTH AVENUE, NEW YORK, N.Y. 10001

DRAWN SHEET GLASS / TINTED GLASS / FIGURED ROLLED GLASS
STOPRAY SOLAR GLASS / FLOATED PLATE GLASS / ENAMELLED GLASS
DIFFUSE GLASS / DIFFUSE NON-REFLECTION GLASS

See Sweet's Architectural File 4a/GL

P/A NEWS REPORT

Progressive Architecture's Monthly Digest of Buildings, Projects, People and Products *April 1969*

AN L-SHAPE FOR OREGON SUPREME COURT

SALEM, ORE. A major factor in the selection of Donald B. Driscoll's entry as winner of the competition for the new Oregon State Supreme Court Building was the contextural response of his design.

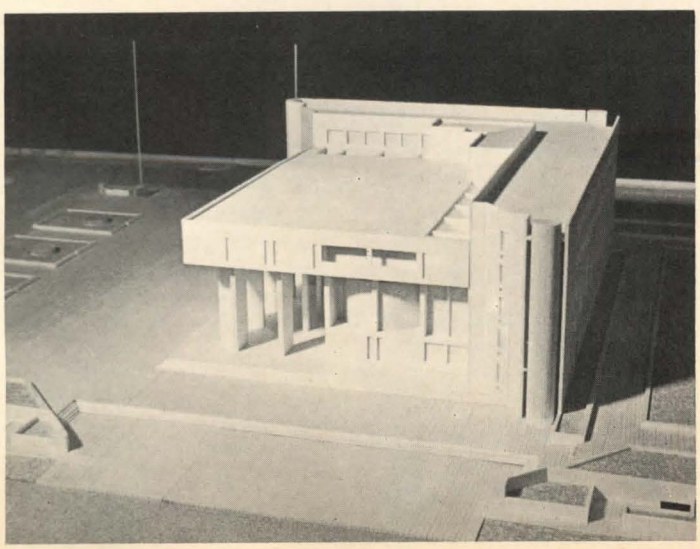
As conceived by Driscoll, the last of the formal structures in the Capitol Mall complex would be an L-shaped building presenting two similar faces to the interior of the mall and two different faces to the street. The proposed building is to occupy a two-block site at the north end of the mall, with the mall extending past the front of the Supreme Court Building, forming the entry plaza.

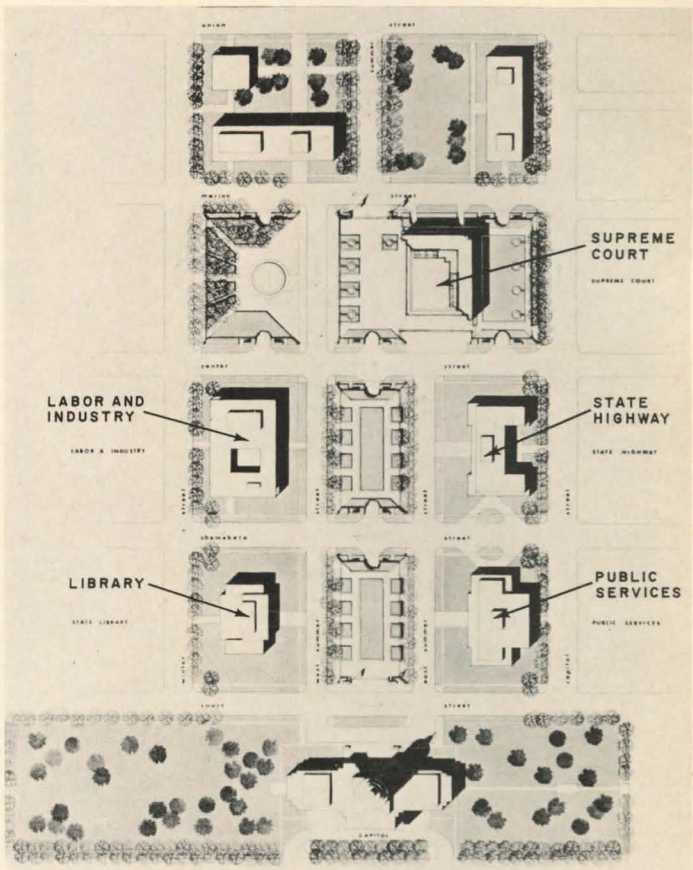
The Oregon State Capitol was completed in 1938, with the four other buildings along the mall added over the past 30 years. No date for construction of the Supreme Court Building has yet been set, pending passage of a $7,700,000 appropriations bill under consideration by the state legislature.

"What really swung the decision to the Driscoll design," stated the jury, "were two factors: One was the perfection with which it fit into the Capitol Mall. The other was the building's inherent vitality. Its basic shape was regarded as a unique solution to the difficult problem of relating to the Capitol and other buildings to the south, to the east-west cross axis and to the future buildings northward to the Governor's Mansion. The L-shaped plan was the only one of this kind submitted and was worked out with unusual skill and integrity."

Driscoll's design organizes the building into two functionally separate units connected by a central circulation system. A five-story, L-shaped unit contains general office space with minor public circulation. The central unit containing two circular courtrooms (on the second floor) and associated offices and chambers, lobbies, cafeteria and primary public circulation is capped by the 150,000-volume Supreme Court Library. The two units are separated by interior light wells extending the full height of the building.

The structure of the central area is a two-directional square bay system of cast-in-place reinforced concrete columns, beams, and two-way waffle slabs. One dimension of the bay is extended, forming a one-directional clear span system in the L-shaped unit. Precast, prestressed concrete girders and T-beams support the landscaping and paving over the underground parking area, which extends under most of the two-block site. Exterior of the building will be in white Vermont marble, to match the other structures of the formal mall.





The Supreme Court Building calls for a total net area of 82,330 sq ft. The project budget totals $5,422,340, with $3,287,340 allotted to the building, $1,855,000 to the parking areas; $280,000 to landscaping and paving.

Driscoll, a member of the Eugene, Ore., firm of Architectural Associates, was one of 35 architects competing. Jurors for the two-stage competition were: Fred Bassetti, Seattle; Gerhard M. Kallmann, Boston; George W. Qualls, Philadelphia; Herbert M. Schwab, former circuit judge, Portland, Ore.; George W. Gleason, dean of the School of Engineering, Oregon State University. Professional advisor was Charles E. Hawkes, Salem.

AIA NAMES SIX HONORARY MEMBERS

WASHINGTON, D.C. Six persons cited for "distinguished service to the architectural profession or to allied arts and sciences" will be inducted as honorary members of the AIA at the national convention June 22–26 in Chicago.

The six are: William A. Hewitt, chairman and chief executive officer of Deere & Company, Moline, Ill., one of the incorporators of the National Corporation for Housing Partnerships; Thomas P. F. Hoving, former New York City commissioner of parks and now director of the Metropolitan Museum of Art; Jonathan King, vice-president and treasurer of Educational Facilities Laboratories, Inc., New York City; Miss Anita J. Moller, director of the interior design and furnishings program for the U.S. State Department; Judge Bernard Tomson of the Nassau County (N.Y.) District Court and co-author of P/A's column IT'S THE LAW, and Allan S. Boyd, former Secretary of Transportation.

Bright idea

Space-saving showers that never squeeze people!

Bradley Column Showers serve more people in less space than ordinary showers. They squeeze maximum use from every inch of available floor space. But Bradley Columns never squeeze people. Shower patterns leave *plenty* of room between bathers. Bradley Columns offer other important savings. They serve up to 6 people with one set of plumbing connections, cutting installation costs as much as 80%! Bright idea: put the squeeze on building costs. Put Bradley Column Showers into your shower room plans. See your Bradley representative. And write for literature. Bradley Washfountain Co., 9109 Fountain Blvd., Menomonee Falls, Wis. 53051.

On Readers' Service Card, Circle No. 332

from Bradley!

BRADLEY

THE IN BUILDING

SAN FRANCISCO, CALIF. Insensitive, inappropriate, incongruous, inescapable, and in the wrong place will be the building for Transamerica Corporation if it is permitted to rise on the site of San Francisco's historic Old Montgomery Block.

Vaguely resembling a pygmy version of Frank Lloyd Wright's Chicago Mile High Center proposal, the needle-spired project by William L. Pereira & Associates of Los Angeles (does the hatred be-between the two cities have no bounds?) nevertheless will be the tallest building in the Bay Area, topping the new, committee-designed Bank of America Building by about five floors (or whatever you would call the top of Transamerica's thing).

In a season when mud slides and oil seepage are gradually fouling up California's topography and ecology, it little behooves architects (and their clients, of course) to add to the pollution by advancing proposals that continue to blight such "natural" urbanistic resources as San Francisco's unique and irreplacable cityscape. Filling in the valleys of the Bay City's notable profile with inadequate buildings such as Wells Fargo, Bank of America, and, now, Transamerica, is landmark violation no less reprehensible than setting fire to Falling Water or destroying Grand Canyon.—JTB

COMPETITIONS

Any type of structure, including bridges, may be entered in the **1969 Prestressed Concrete Institute Awards Program.** All registered architects and engineers practicing professionally — as well as Government agencies — in the U.S., its possessions, and Canada are eligible. Entries close May 15. For details, write to: Prestressed Concrete Institute, 205 W. Wacker Dr., Chicago, Ill. 60606. . . . May 15 is the deadline for the **Prize Bridges Competition** sponsored by the American Institute of Steel Construction. "Any steel bridge located within the U.S. and which was completed and opened to traffic during 1968 is eligible." Information may be obtained from: AISC, 101 Park Ave., New York, N.Y. 10017.

SEEKING CLARITY IN BRONZE GLASS

VANCOUVER, B.C. Construction is scheduled to start this summer on the $45 million first phase of the Pacific Centre development in downtown Vancouver, planned by Gruen Associates and McCarter, Nairne & Partners. The project is the first one designed by Cesar Pelli to be announced by Gruen since Pelli joined the firm late last summer.

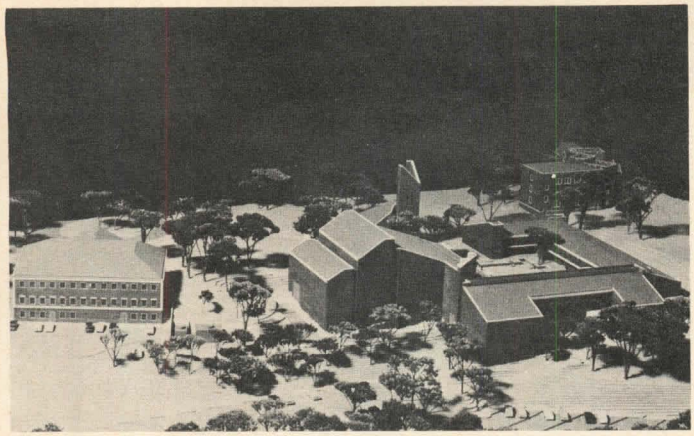
The five-story T. Eaton Company department store will occupy the major part of the block, which will be dominated by the 30-story Toronto Dominion Tower. The department store also will have an additional retail floor at the basement level. Leading north from the basement entrance will be an air-conditioned underground shopping mall that will accommodate about 30,000 sq ft of stores and shops. The shopping mall and two lower floors, which provide truck service and parking space, are designed to expand horizontally with the second phase of the development. No target date has been set for beginning the second phase, which will include two office towers, hotel and convention facilities, retail stores, and three additional floors to be added to Eaton's store. Estimated cost of the second phase is $50 million.

Pelli said that he strove for clarity of form and surfaces, conceiving the two buildings as two sculptural forms set in a major public square paved in dark rusticated terrazzo.

The Toronto Dominion Tower will be a 400′-high vertical prism of bronze glass and fireproofed structural steel. Mullions will be of minimum thickness and depth, their color that of the glass, Pelli said, to give the effect of a single form and material. Entrances will be recessed spaces "carved" into the form, and the angled corners will be vertical facets accentuating the upward movement.

The solid walls on the Eaton store will be of high density, smooth-textured precast concrete, light brown in color to harmonize with the tower. Again, there will be no projections — except a vertical illuminated sign — and the entrances and windows will be under incised arcades. The main entrance is to be a large bronze glass cylinder open to the square, and is described by Bill Dahl, Gruen vice-president directing the project, as a "major element of light, color, and activity in Vancouver's urban landscape." Each floor will contain about 75,000 sq ft of merchandising space. E. L. Hankinson is Associate Architect on the store.

THE THINGS OF THE SPIRIT



ROANOKE, VA. A small but expanding institution of 1000 students, pressed both for space and money, Roanoke College worked out a construction program that combines the fine arts and religion in a single structure.

The compromise design, developed with the help of Vincent G. Kling & Associates, will fill many of the school's immediate needs in one stroke without hampering further growth of individual departments. Altogether, the program calls for 65,000 sq ft of space for a 175-seat interdenominational chapel, a theater to accommodate 425, departments of fine arts, music, and drama, and facilities for administration and research.

The single structure that houses all these functions is a low-slung, two-story brick building wrapped around a courtyard, rising to greater heights for chapel and theater. Sloping slate roofs help articulate the different uses of each wing, giving the complex the appearance of a closely clustered village. The courtyard serves as center hall for the entire complex and will seat most of the college for religious and dramatic events. Entrance to each wing is gained by passing under the projecting second floor, through a broken wall of support facilities and into a two-story, linear skylighted gallery. The gallery connects all spaces and activities in each department.

Future expansion will occur in pinwheel fashion around the presently planned structure.

Awarding the project a citation for excellence in design, the Philadelphia Chapter, AIA, noted the architects' lively treatment of forms and commended their use of materials already a tradition at Roanoke.

FUND TO AID FAMILIES OF FIRE VICTIMS

NEW YORK, N.Y. A memorial fund has been set up to aid the families of 11 persons — six of them architects — who died as a result of a fire in the architectural offices of David Rosen and Associates at Fifth Avenue and 48th Street.

The fund, endorsed by the AIA, has been organized by Mr. and Mrs. Robert Bruce Cousins, friends of several of the victims. Cousins said plans also are underway to hold an exhibition at one of the city museums depicting projects the victims were associated with. The dead, and five others injured in the blaze, were all associated with or consultants to the Rosen firm.

Although the final report had not yet been released at the time of writing, New York City Chief Fire Marshall Vincent Canty had said earlier that slow departure and delay in reporting the fire were believed to be the main reasons for the high toll. One employee told the fire department that the fire "initially involved large sheets of tracing paper hanging on a wall."

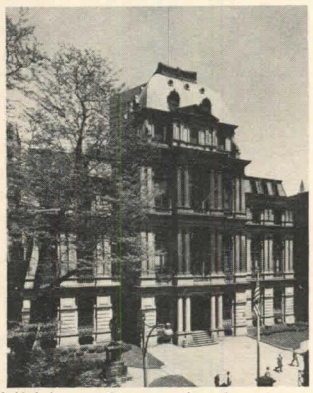
Firemen also were quoted as saying that the large quantities of paper found in the office and two one-gallon cans of rubber cement found empty after the fire was extinguished must have contributed to the severity of the blaze.

The victims included architects Salvatore Caltabiano, AIA, Gordon Bloedel, Patrick Caferso, Kenneth Greene, Frank N. Meilan, and Maurice D. Rockman, as well as consulting engineer David Carroll.

"The Young Architects Memorial Fund" is being handled by the law firm of Ingber & Klapper, Suite 611, 295 Madison Ave., New York, New York 10017.

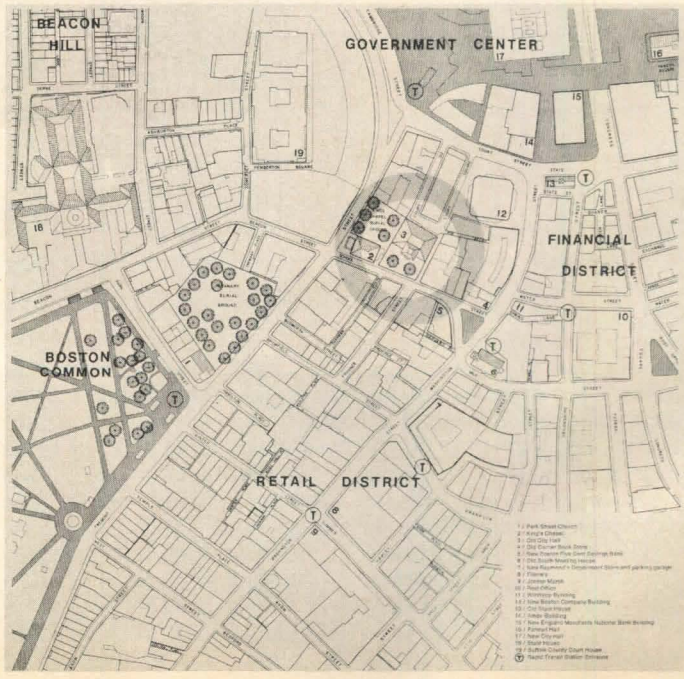
WANNA BUY THE CITY HALL?

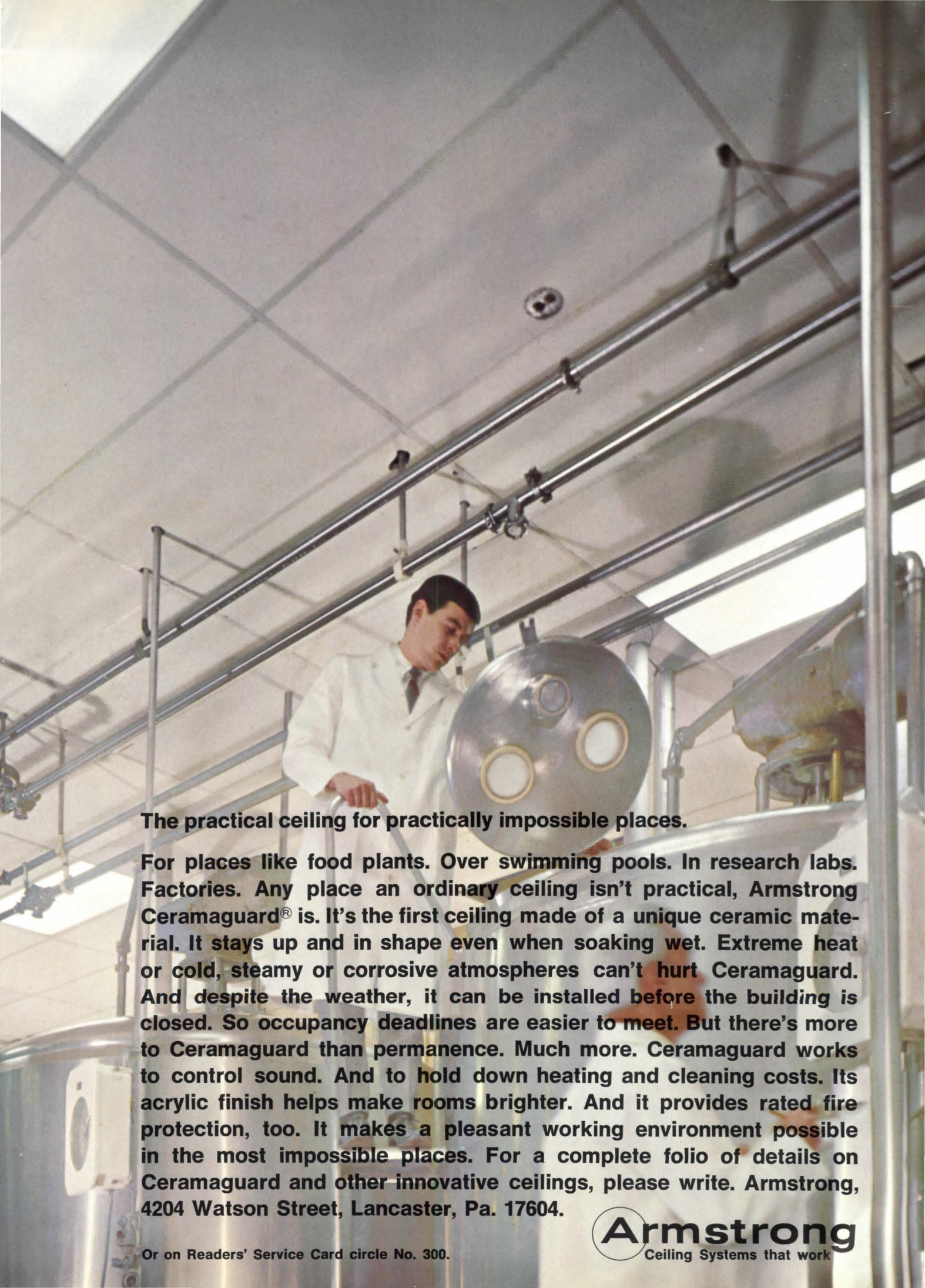
BOSTON, MASS. Now that Boston has a new City Hall (see p. 42, JANUARY 1969 P/A), it is trying to sell the old one. Designed in the early 1860's by Boston architects Gridley J.F. Bryant and Arthur Gilman, the building was one of the first large-scale (65,000 sq ft) buildings to emulate the architectural style of Second Empire France. The vastness of its interior spaces are as impressive in this age of sparseness as the dignified ornateness of its façade. A monumental staircase winds upward through the center of the building from a central lobby.



If you buy the building, you will have to preserve the original design of the façade and maintain the landscaped forecourt. Inside, you have more latitude. According to a brochure put out by the city, "the ground floor is ideal for shops, bookstores, restaurants, and other retail enterprises." On the upper floors are spaces that could be converted into offices. A two-story council chamber with a gallery and seating for about 500 persons could become a room for conferences, public performances, or special exhibitions. Spaces in the dome could become distinctive offices for an architectural or engineering firm.

If Boston would relax its restrictions, it might find that Lake Havasu City, Ariz., would buy the old City Hall and move it out into the desert next to the old London Bridge, which it also owns. Or perhaps Cairo, Ill., which has a replica of the leaning tower of Pisa, would want to add an authentic piece to its collection. Anyone interested in buying or leasing the old City Hall or in being a tenant should write for information to the Director of Non-Residential Development, Boston Redevelopment Authority, 1108 City Hall Annex, Boston, Mass. 02108.





The practical ceiling for practically impossible places.

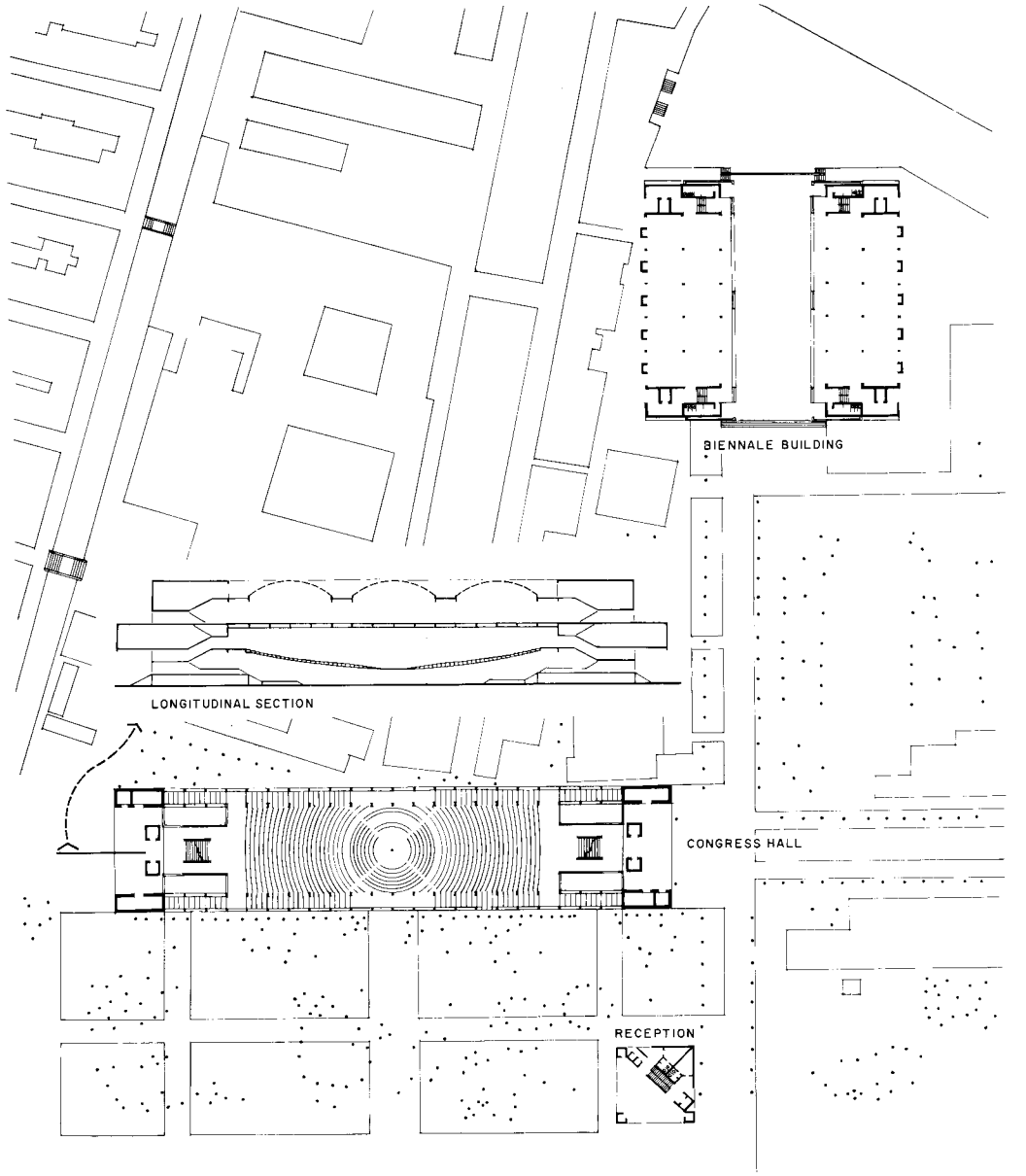
For places like food plants. Over swimming pools. In research labs. Factories. Any place an ordinary ceiling isn't practical, Armstrong Ceramaguard® is. It's the first ceiling made of a unique ceramic material. It stays up and in shape even when soaking wet. Extreme heat or cold, steamy or corrosive atmospheres can't hurt Ceramaguard. And despite the weather, it can be installed before the building is closed. So occupancy deadlines are easier to meet. But there's more to Ceramaguard than permanence. Much more. Ceramaguard works to control sound. And to hold down heating and cleaning costs. Its acrylic finish helps make rooms brighter. And it provides rated fire protection, too. It makes a pleasant working environment possible in the most impossible places. For a complete folio of details on Ceramaguard and other innovative ceilings, please write. Armstrong, 4204 Watson Street, Lancaster, Pa. 17604.

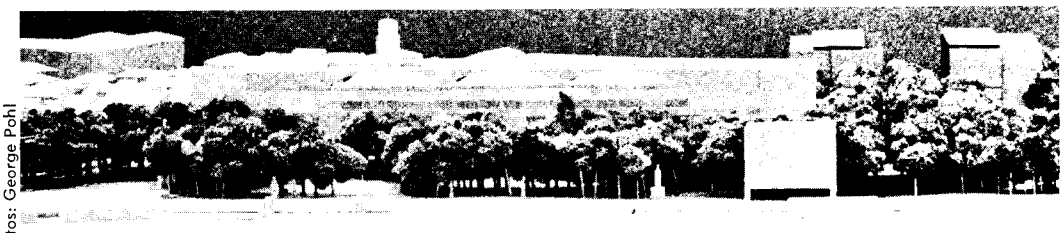
Or on Readers' Service Card circle No. 300.

Armstrong
Ceiling Systems that work

PALACE OF CONGRESS FOR VENICE

VENICE, ITALY. Last January 30, in the cold Sala del Maggior Consiglio in the Ducal Palace of Venice, plans for a striking new Palace of Congress were revealed to a large international audience by American architect Louis I. Kahn and Vito Chiarelli, president of the Tourist Board. This new Congress Center, one of the most important additions to the Venetian cityscape since the construction of the Church of Santa Maria della Salute (1631–82 A.D.), will consist of a Congress Hall, the Biennale Building, and a reception structure. The site selected for this palace is in the public garden area in the Castello quarter, which, Kahn predicts, will be "a place of celebration." None of the more than 800 trees of the *jardini* will be sacrificed to meet the needs of this plan.





Photos: George Pohl

Congress Hall

The great Congress Hall, which will measure 460′ long, 100′ wide, and 78′ high (approximately the height of the Ducal Palace), will be a super space for the meeting of minds, where all thoughts can be given a free range of expression. The ground level is an open piazza covered by the underside of the auditorium. Seating 2500 people at the first level, the hall has been visualized by Kahn as a theater in the round — where people look at people — and a place for discussions without agenda. At each side of the hall is a 15′-wide "street," to be provided with niches where conferees can get away from the congress for separate discussion. The three domes that crown the reception hall on the second floor will be formed of stainless metal and solid glass. Flanking the reception hall on both sides will be a series of individual rooms, which will be a part of the supporting structure. Located at third level will be a terrace divided into three sections by the presence of the domes.

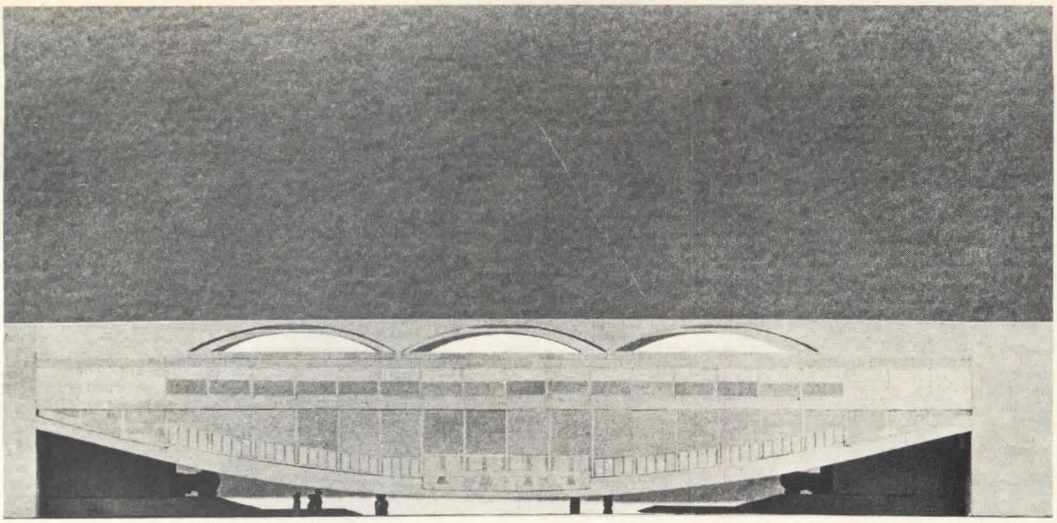
The underside of the auditorium, which suggests a reverse bridge form, will be hung between the two ends of the Congress Hall. Supporting foundations will be carried to bed rock, if necessary. Kahn believes that each end foundation will not be required to sustain a greater load than that of the campanile in the piazza of San Marco. Reinforced concrete — long a Kahn trademark — with marble details will be the basic construction materials.

Biennale Building

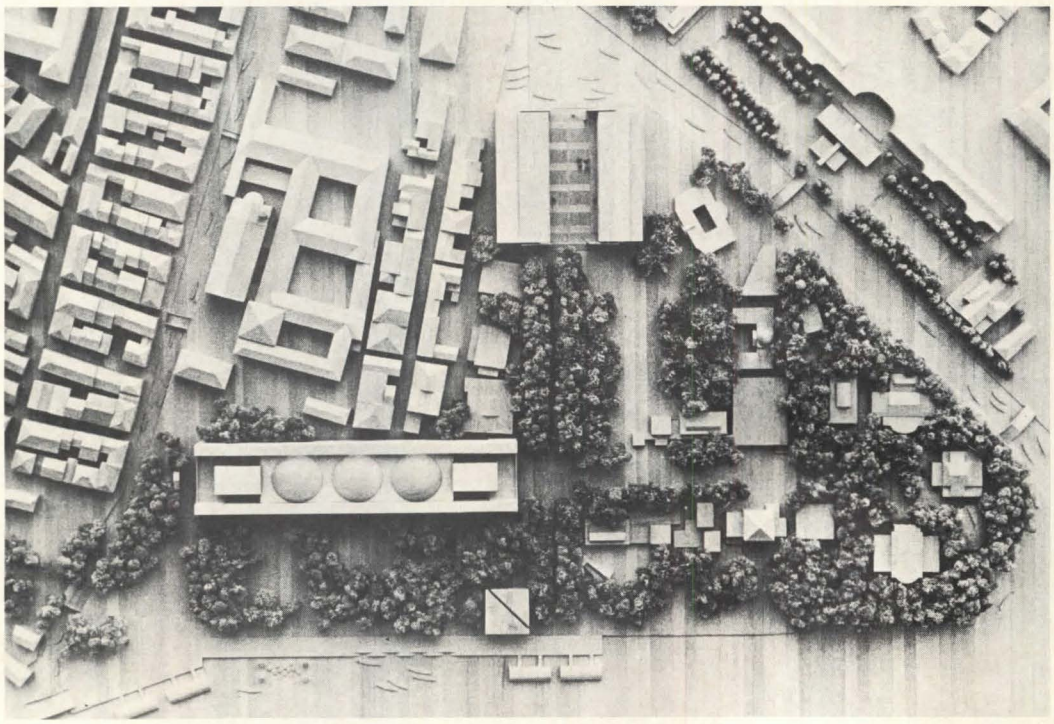
This complex is essentially a court with two flanking structures, each 200′ long, 60′ wide, and 60′ high. Both ends can be open: one offering a broad water entrance to the Biennale, and the other allowing the gardens to penetrate the piazza. The 80′-wide court (or agora) can be enclosed at each end by moving doors, 50′ high and 40′ wide, and by a movable roof framed in glass and metal. There will be a portico at the bases of the twin buildings. These structures will replace the present Italian Pavilion in the Biennale. At ground level there will be workshop-studios and shops; the first floor will house galleries for exhibitions; and on the second floor there will be studios (with fireplaces) for artists. Here, Kahn hopes that the participants will experience a sense of learning without the feeling of being supervised. Although these buildings may be used continually as a free, self-supervised academy, they will still be used by the Biennale for exhibition purposes when it is staged every two years.

Reception Building

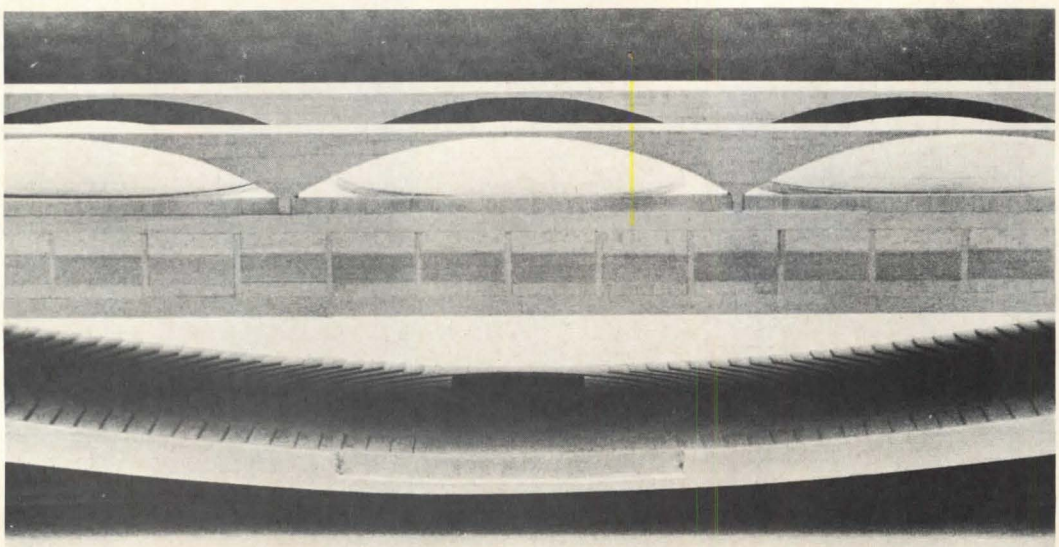
This 50′ long, 50′ wide, and 50′ high cubical structure, containing information and reception offices, restaurant,



Elevation of Congress Hall (above) shows piazza beneath 460'-long auditorium floor suspended from end walls.



Congress Hall (below) contains a terrace, divided into three sections by glass roof domes, which bridges 2500-seat auditorium.



and other services, will serve as an entrance to the building beyond.

Feasibility and Cost

The Tourist Board estimates that the cost of this project will be in the neighborhood of 2 billion lire ($3,212,000), and to that amount should be added the cost of operating the advanced communications equipment that will be required. Kahn himself has asked no fee: his services will be a gift to the city of Venice.

There are dissidents who question the wisdom of the Palace of Congress, in face of the controversial opinion that Venice is gradually sinking into the Adriatic, that a countless number of the city's structures are crumbling, the victims of age and erosion, and that such a princely sum might have been better spent on education, to relieve poverty, or to provide better housing. To these, Chiarelli responds, "The proposal is to be seen as a tangible act of confidence in Venice as a city which, even today, more and better than any other, can play a highly important role." Venice cannot be content to remain a museum city and must keep pace with the progress of civilization in contemporary terms. "It is a tangible contribution not so much to safeguarding of Venice, as to revitalize a heritage, a task which belongs not only to the citizens of Venice, but the whole country, and to all humanity."

In his design, Kahn feels that he has attempted to capture the spirit of the problem first, rather than being limited by a sense of cost. The Board believes that the bureaucratic problems involved are no greater here than elsewhere. It fully believes that it will be able to obtain the required funds, and without government aid. It is speculated that a consortium of agencies — province, city, and possibly private enterprise — will control the undertaking. It is further believed that Le Corbusier's proposed City Hospital of Venice (DECEMBER 1965 P/A) and the Palace of Congress, situated at opposite ends of the city, will bring the city new life, with the historic center left intact in the middle.

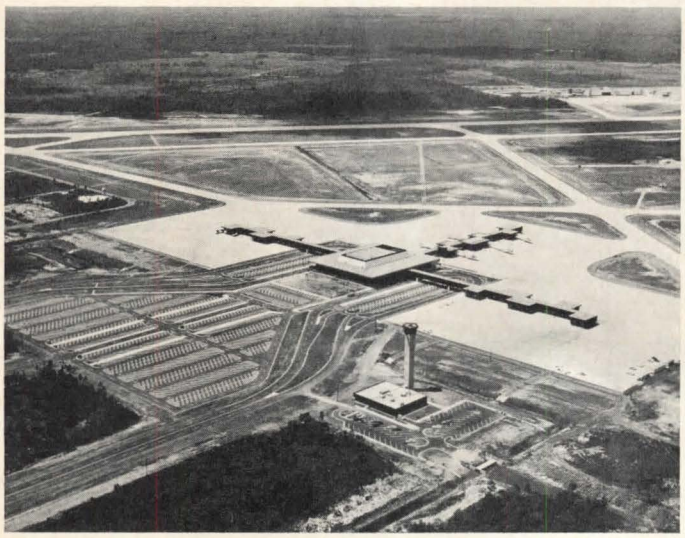
JIM BURNS LEAVES P/A

James T. Burns, Jr., AIA, has resigned as Senior Editor of P/A to pursue a number of commitments in the fields of design, planning, and environmental involvement.

Burns, who has been with PROGRESSIVE ARCHITECTURE since 1954, will devote his time to writing, criticism, and teaching on environmental subjects. Immediate plans include books on the creative process, small parks (under a HUD grant), and American houses of the 20th Century; a seminar series at a New York architectural school; and consulting services for professional environmentalists including the new superplanning organization called Overview, headed by former Secretary of the Interior Stewart Udall and landscape architect / planner Lawrence Halprin.

Photo: George Novotny

JACKSONVILLE JOINS THE JET SET



JACKSONVILLE, FLA. Jacksonville's $26-million airport, which was opened last fall, was designed not only to put the city on major New York and Dallas-Fort Worth air routes now, but also to keep it there when the jumbo jets and supersonic craft begin to jar the earth beneath.

Its designers, Reynolds, Smith & Hills, have provided two 8000′ runways of sufficient strength to support the new aircraft, and with enough room to expand to 10,000′ when necessary. A 4600-acre tract offers space for additional expansion. But the designers' main concern was with the problem of assuring room for expansion of terminal facilities without increasing inconvenience to passengers.

At present, passengers are required to walk no more than 600′ from the center of the lobby to the end of any concourse. When the present 18 passenger gates are doubled, walking distances will increase no more than 400′.

The terminal building itself is a low, two-story structure, divided horizontally to create separate areas for arriving and departing passengers. The first floor, recessed below grade, has ticket and baggage claim facilities; the second floor, at grade level, contains the lobby, restaurant, shops, and other public facilities. With the top floor at grade level, delivery trucks and passenger cars are able to approach lobby level without the use of ramps.

The terminal is of precast stone panels at the base and white concrete with exposed coquina aggregate at roof level. (Coquina is a shell indigenous to the Florida shore.)

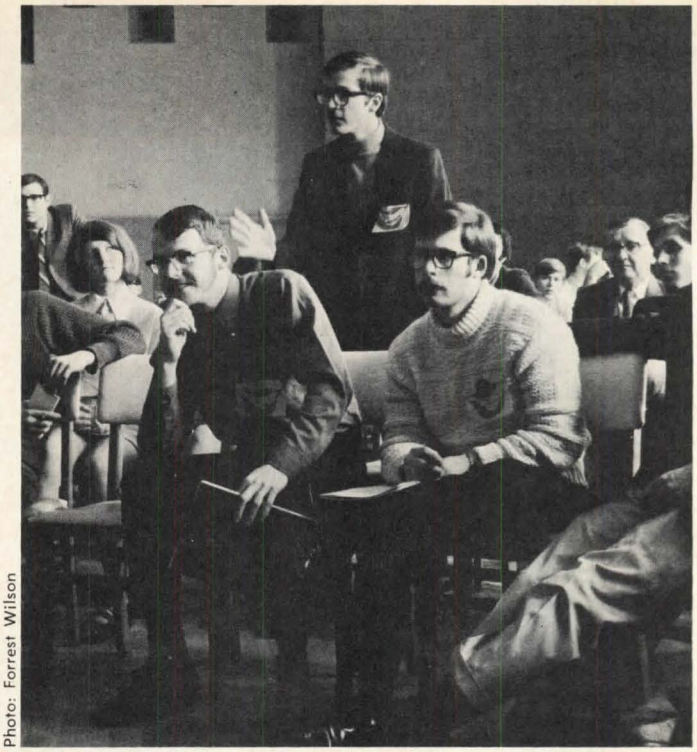


Photo: Forrest Wilson

TRANSACTION AT MIAMI OF OXFORD

OXFORD, OHIO "Transaction" was the title and interaction was truly the order of the day at the AIA-ASC Great Lakes Regional Conference February 28–March 2 at Miami University. More than 300 architectural and other students from colleges throughout the area attended the meeting to hear professionals from the field discuss the changing role of the architect. And the students, too, had their chances to sound off in a conference mix of formal programs, informal discussion sessions, and panels on such topics as design, computers, and sociology.

P/A Editor Forrest Wilson was keynote speaker on the subject "A Piece of the Action: The Changing Role of the Architect." Wilson also participated in several panel sessions with the other speakers, who included F.R.R. Drury, professor of architecture at Yale; Walter Kroner, who has dealt extensively with computer programming in relation to design at Geometrics Inc., Cambridge, Mass.; W. H. Withey, supervisor of construction marketing at Armco Steel Corporation and chairman of the residential task force of the American Iron and Steel Institute; V. John Traenor, in charge of planning and coordination of construction for Westinghouse; Sim Van der Ryn, associate professor architecture at the University of California at Berkeley; Lawrence J. Prince, chairman of the department of systems analysis, and Dr. Robert Atchley, professor of sociology, Miami University, and Victor Christ-Janer, adjunct professor at Columbia University. Students on the "Transaction" planning committee were Terry Busby, Sam Fitton, Phil Miller, Mike Miller, Dave Oldham, Tom Pinkin, and Bob Wheeler.

HODGETTS AND WALKER PROPOSE "STRIP CITY"

NEW YORK, N.Y. Under a plan outlined by Craig Hodgetts and Lester Walker in a recent issue of *New York* magazine, Manhattan would become a sort of super shopping center, with cows grazing at the Battery. In an article entitled "Redesigning New York — An Immodest Proposal," the two winners of this year's First Design Award (see JANUARY 1969 P/A) envision New York city as a mix of prefab housing, entertainment, and shop-

LP-gas supplies the comforts of home away from home

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

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

This seal identifies an authorized member ▶

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

AUTHORIZED MEMBER
NATIONAL LP-GAS COUNCIL
LP-GAS
FOR HEAT & POWER ANYWHERE

ping facilities bisecting a non-stop strip city stretching from Boston to Washington.

The Bos-Wash Landliner, a 60′-wide, turbine-powered vehicle, would zoom along at 200 mph some 16′ above tracks built along the shoulders of existing highways. They would slow down to 60 mph to pick up suburban commuter buses and store them inside. Passengers would disembark inside the traveling pleasure palace to enjoy amenities such as restaurants, barber shop, or theater until they reached their destinations.

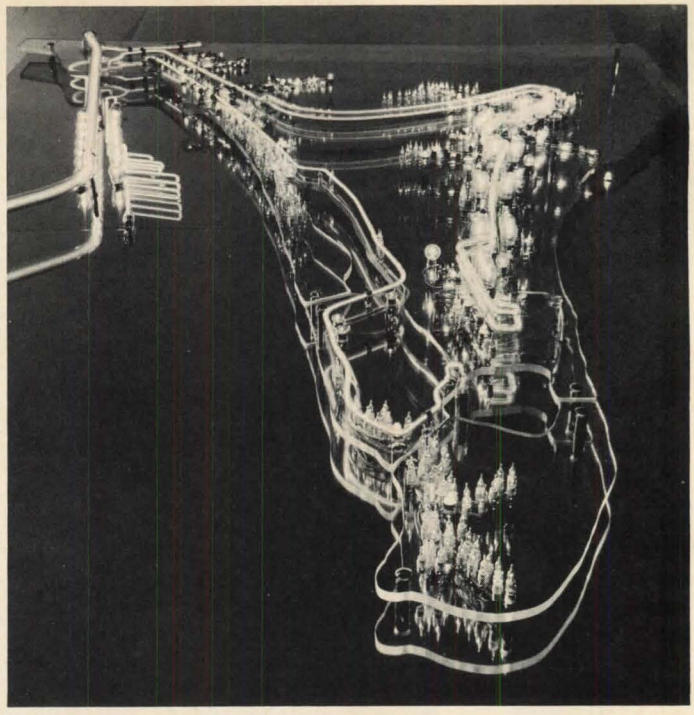
Heavy industry and business would be relocated along the line, to be replaced by housing and parks along New York's waterfront. Broadway, Times Square, and Fifth Avenue would stay as they are, and the city would lease air rights over Times Square to advertising combines, which would construct a high glass dome over the area for display of still more advertising.

Housing rehabilitation would be done in sections of a few blocks at a time. Low-cost, high-rise housing (complete with underground parking garages) would be built along the north-south avenues. Some crosstown streets would be closed and the space between avenues cleared for townhouses, courtyards, and recreational facilities.

Prefab housing would be used — specifically, a factory-produced 6′-long superwall designed by Hodgetts (patent pending). The unit, which contains kitchen, bath and storage facilities, a stairway, entryway and heating, plumbing and electrical systems, would be shipped from a factory, with floors, walls, and ceilings added at the site to suit the needs of the tenant.

CALENDAR

The theme "Man and His Future Environments — The Impact of Science and Technology" will be developed on April 10–12 at the **Southeast Region Association of Collegiate Schools of Architecture** sponsored by the department of architecture, North Carolina State University. . . . **The Architectural Aluminum Manufacturers Association** spring meeting for general membership will convene April 20–23 at the Sheraton-Universal Hotel, Los Angeles. . . . The University of Illinois will be host for **The Fifth North American Conference on Campus Planning and College Building Design,** April 20–24. Building types emphasized will be centers for performing arts and facilities for education in the visual arts, music, and architecture. For information, write to: "Architecture and the College," Department of Architecture A3, University of Illinois, Urbana, Ill. 61801. . . . "Regional Design — Yes or No?" will be examined at the **Gulf States Region, AIA, 18th Annual Conference** planned for April 25–26 at the Jefferson Davis Hotel, Montgomery, Ala. . . . The "New Towns" concept will be examined at the **BRAB Building Research Institute Spring Conference,** to be held April 29–May 1 at the Sheraton Chicago Hotel, Chicago. For details and registration forms, write to: BRAB-BRI, 2101 Constitution Ave., N.W., Washington D.C. 20418, or call Area Code 202, 961-1458. . . . The **30th National Conference on Religious Architecture** will assemble April 29–May 1 at the Chase-Park Plaza Hotel, St. Louis. Registered architects are invited to submit photographic mounts of religious structures for which Honor Award Certificates will be presented. Information may be obtained from: Theodor Hoener, Chairman, Architectural Exhibits Committee, 4427 Watson Road, St. Louis, Mo. 63109. . . . Carnegie-Mellon University is holding a **Conference on High Speed Ground Transportation** May 13–15. A detailed brochure may be obtained by writing to: Dr. James Romauldi, Director, Transportation Research Institute, Carnegie-Mellon University, Schenley Park, Pittsburgh, Pa. 15213. . . . **The Concrete Reinforcing Steel Institute's 45th Annual Convention** will be held May 29–31 at The Homestead, Hot Springs, Va. For information, contact: F. S. Clough, Managing Director, Concrete Reinforcing Steel Institute, 228 North LaSalle St., Chicago, Ill.



FUNCTION WITHOUT FORM

NEW YORK, N.Y. Theodore Waddell, an American architect living in Italy, has combined the language of light with more traditional methods of demonstration in order to deal with the complex planning problems associated with a proposed two-mile suspension bridge connecting Sicily with the Italian mainland. The photo shows part of the principal model from his city planning study, which was exhibited during March at the Museum of Modern Art in New York City under the title, "Two Models of an Undesignable City." Executed in collaboration with Michael C. Cunningham, the models, constructed of clear acrylic plastic, neon tubes, and machinery parts, represent the functions and organization of environment — not real building forms. The tubes and bulbs are arranged in nine circuits, with the size, shape, and brightness of the bulbs indicating differences in use and density. The larger model, denoting the entire urban area where the bridge would connect in the toe of Italy's boot, is at the scale of 1 ft to 1 mile. The second model, at the scale of 2 ft to four-tenths of a mile, is a detail of the automated port.

OBITUARIES

Welton Becket, who headed one of the nation's largest producers of commercial architecture, died January 16 of heart failure. He was 66.

Born in Seattle, educated at the University of Washington (Seattle) and the School of Fine Arts at Fontainbleau, France, Becket entered his profession as chief designer for a Los Angeles architectural firm, but left in 1933 to form a partnership with Walter Wurdeman. Their firm became known chiefly for its design of homes for Hollywood film stars. During World War II, however, it produced 14,000 units of civilian and military housing. After Wurdeman's death in 1948, the firm became known as Welton Becket & Associates, with Welton Becket as president. Becket left that post only about two weeks before his death to become chairman of the board, leaving the presidency to his nephew, MacDonald Becket.

Among the more recent Becket projects were the $33.5-million Los Angeles Music Center, of which the Ahmanson Center, the Mark Forum, and the Dorothy Chandler Pavilion are parts, and the master plan for Century City, a complex of office and residential buildings on the site of the old 20th-Century-Fox lot in West Los Angeles. In the East, his projects include Xerox Square, Rochester, N.Y., and a redevelopment plan for Worcester, Mass.

patterns

An unblemished view through broad doors of tinted glass and aluminum. The door control?* Rixson concealed floor closers, reliable performance, as well as architectural integrity.

Rixson's No. 28 Series, center hung for superior control of exterior and interior doors. Exclusive full control panel adjustment. Details? Contact your local Rixson representative, or:

RIXSON CLOSERS
A DIVISION OF RIXSON INC.
FRANKLIN PARK, ILLINOIS
In Canada: Rixson of Canada, Ltd.

*Two of more than 400 Rixson floor closers at the State University College at Cortland, New York. Architects: Sargent, Webster, Crenshaw & Folley

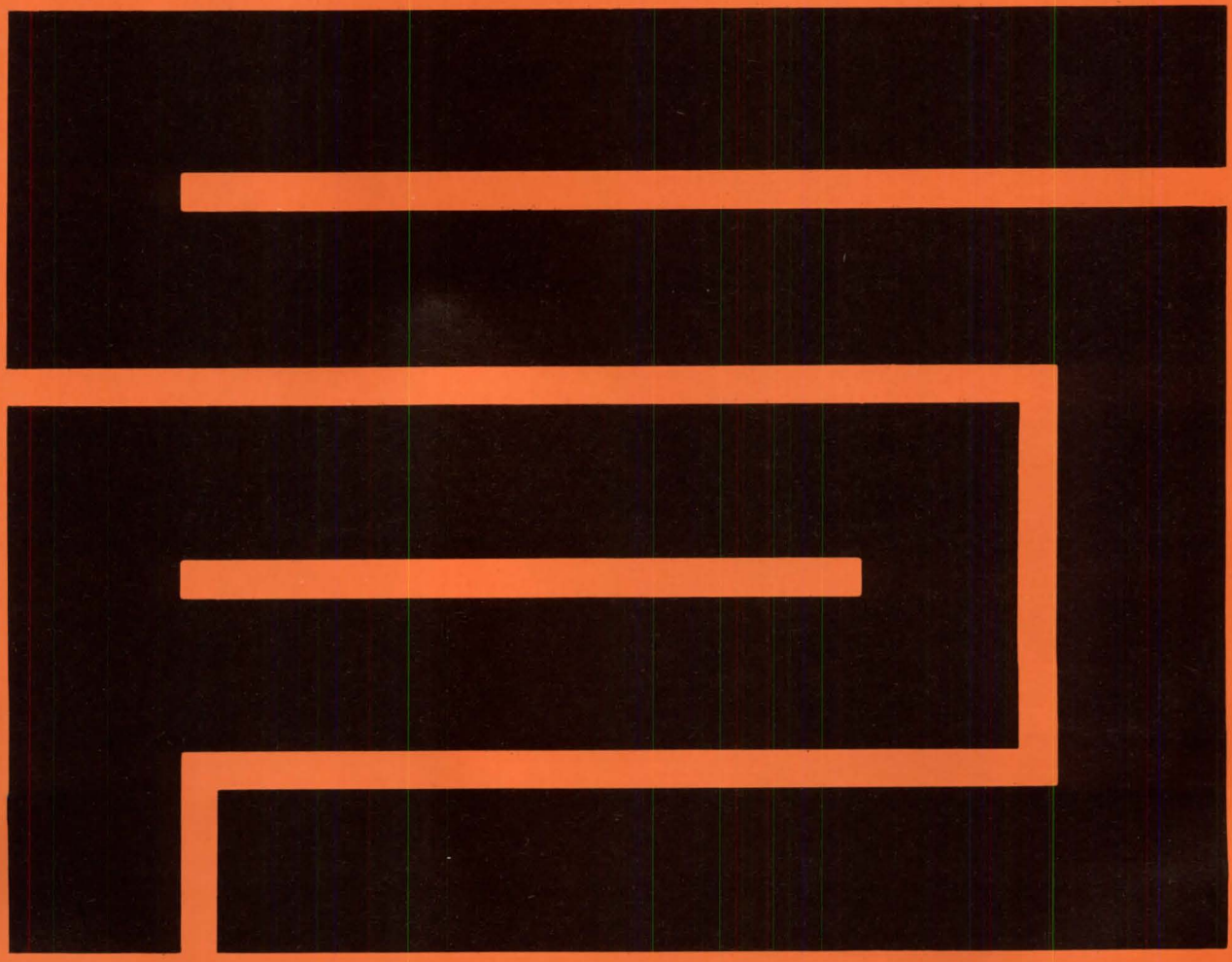
CENTURY 21

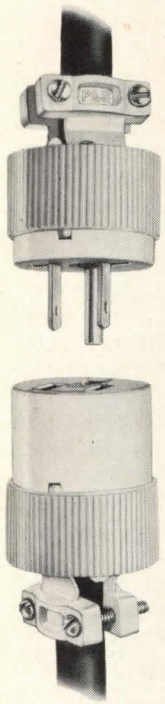
if it's new as tomorrow TODAY...it's from P&S

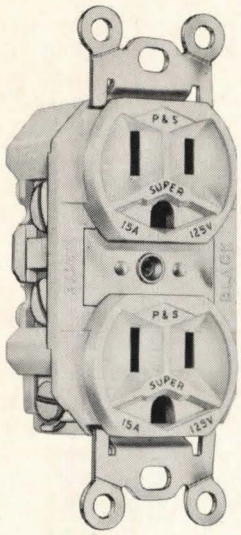
Bright new ideas keep taking shape at Pass & Seymour to keep you well supplied with the most modern electrical devices in the industry.

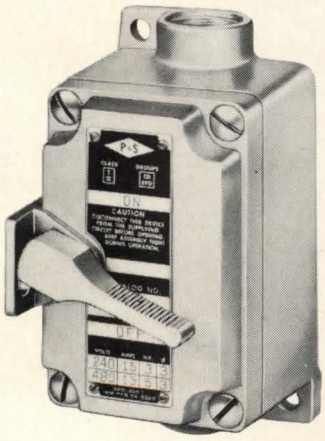
The P & S trademark below is new. You'll be seeing more and more of it this year. And each time you do, think "progress." *We have to . . .* just to keep ahead of your needs.

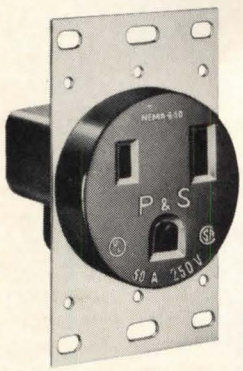
Wherever only the best will do . . . use P & S

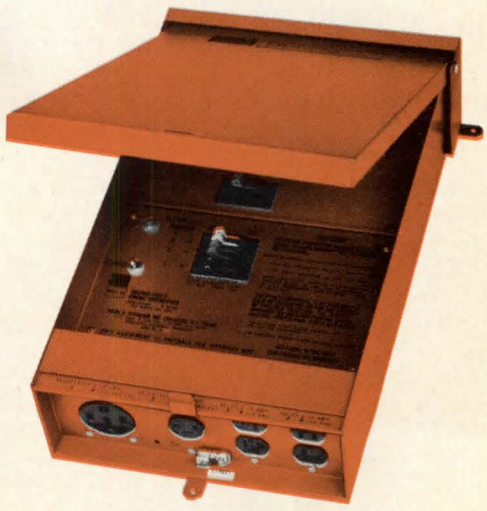












PASS & SEYMOUR, INC. | **SYRACUSE, N.Y. 13209** BOSTON | CHICAGO | LOS ANGELES | SAN FRANCISCO | In Canada: RENFREW ELECTRIC CO., LTD.

On Readers' Service Card, Circle No. 385

Kenneth Kingsley Stowell, former educator, architect, and editor, died January 24 in San Francisco. Stowell, 74, began his career as associate professor of architecture at Georgia Institute of Technology and later served as editor of *The Architectural Forum, The American Architect and Architecture,* and *House Beautiful.* From 1942 to 1949, he was editor-in-chief of *The Architectural Record,* and he remained on its editorial board until his death. Prior to Mr. Stowell's retirement in 1958 he was vice-president for eastern operations of Giffels & Rossetti, Inc., engineers and architects, Detroit.

AWARDS

The New York Chapter, AIA, has awarded a $2000 Traveling Fellowship to Fred F. Montoya, staff member of the Richard Stein architectural firm, New York. . . . The Detroit Chapter, AIA, presented the Gold Medal for outstanding achievements and contributions in the profession to Louis G. Redstone, FAIA.

WASHINGTON / FINANCIAL NEWS

BY E. E. HALMOS, JR.

The long, slow, and sometimes painful business of appointing top officials to sub-Cabinet posts — a task still a long way from being finished after two months of the Nixon Administration — seemed to be setting a very cautious pace in Washington.

As of the beginning of March, for example, a little less than half of the more than 1800 top spots had been filled. Still awaiting new appointees were such jobs of importance to architects and the construction industry as a successor to the retired Commissioner of the Federal Housing Administration, Phillip N. Brownstein, and to the Commissioners of the Federal Water Pollution Control Agency and the Bureau of Reclamation.

The pace had been so cautious, in fact, that President Nixon, before leaving for Europe, urged his department heads to speed things up.

Some key appointments had, of course, come through: Lawyer Robert L. Kunzig, former head of the Pennsylvania General State Authority, succeeds Lawson B. Knott, Jr., as Administrator of GSA; Francis C. Turner will head the Federal Highway Administration; Maj. Gen. Frederick J. Clarke will succeed Lt. Gen. William F. Cassidy (at the end of July) as Chief of Engineers; Russell E. Train — a former tax court judge and leading conservationist — becomes Under Secretary of Interior; John H. Shaffer will head the Federal Aviation Agency; Michigan State University President John A. Hannah will head the Agency for International Development; former Lockheed vice-president James D. Hodgson becomes Under Secretary of Labor; Detroit lawyer Richard C. Van Dusen will assume the second highest post at the Department of Housing and Urban Development.

There was suspicion among insiders that, in addition to its announced search for the best available men, the Administration was having to combat the feeling among some prospective appointees that a four-year tenure may be the best to be expected; hence the reluctance to leave other private posts.

A Slow Congress, Too — Seemingly taking its cue from Administration caution, Congress was moving very slowly with new programs of its own. Despite the usual flood of legislation dumped into the hoppers — more than 8000 bills as of the end of February — it was confining itself to attempts to unscramble some of the legislative and administrative problems created under legislation put on the books during the past several years.

For example, chairmen of both House and Senate public works committees gave notice they would move for uniform application of equal-employment opportunity laws; there were a number of bills (S.674 and others) concerning added assistance to commuter transport systems (one would drain off some funds now flowing into the Highway Trust Fund for this purpose; another would eliminate the remaining 15 grade-crossings between Washington and New York to speed "Metroliner" travel); there was a move (S.1090) to grant an extension of powers and more funds to the "Regional Economic Development Commissions" that were authorized by the 1965 Public Works Act (five such commissions have now been established); there was a move (given no chance of success) to empower labor-management negotiators on wage matters to hold their principals firmly on agreements reached (HR 5553); there were further moves to advance a bill that worried the construction industry: S1, the "Uniform Relocation Assistance and Land Acquisition Policies Act," which would provide for payments up to $5000 above appraised value for property owners whose buildings and lands are condemned for public purposes.

Bills to Note — Of special interest to architects, amid this welter of proposed legislation, were the following bills:

- HR 6287, which would simply abolish the often controversial National Capital Planning Commission, transferring its functions to the District of Columbia government.
- HR 3564, which would clarify the status of "professional corporations," thus permitting architects, engineers, lawyers, and other professionals to organize as corporations under state laws, with some assurance that Federal tax laws would not be changed by the Internal Revenue Service to penalize them on tax treatment.
- HR 7723, which would reduce the Social Security tax on the self-employed to the same rate paid by employees; at present, the self-employed pay 1% more than employees for such coverage, and rates are due to be increased.

Other News — There was news on other fronts in Washington, too:

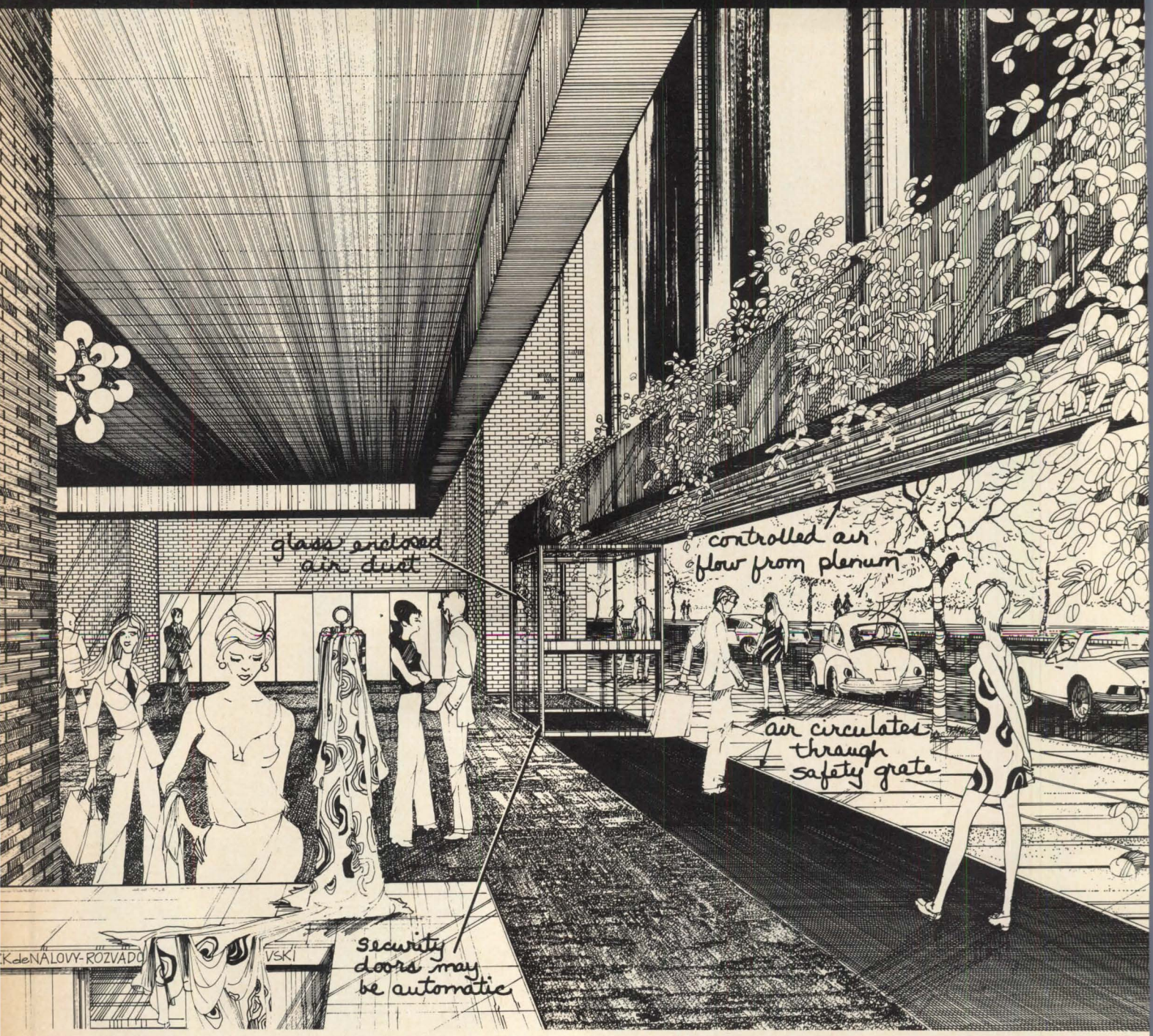
- The Building Research Institute, after trying for six years to make its way as an independent organization, went back to the fold of the National Research Council (from whence it came), to become a part of the Building Research Advisory Board.
- The AIA and the consulting Engineers Council attracted about 500 members for a three-day "Public Affairs Conference" in Washington to discuss such disparate topics as union control of plans and specifications, "new towns," equal-employment opportunity regulations, and the "Federal Government as a Client."
- The AIA also issued a strong call to the Nixon Administration for "far-reaching" reforms in urban highway planning, lest "urban suicide" result from highway construction.
- HUD announced a number of changes aimed at speeding up its "Turnkey" public housing program, among them a chance for an "experienced developer" to carry out most of the preliminary work on his own, then present a complete package to the housing authorities.

FINANCIAL

The U.S. Office of Education said it was finding "increased voter reluctance" to approve new school construction. Said OE: In 1968, there were 1750 elections, involving $3,700,000,000 in school bond issues (elementary and secondary); and voters okayed 1183 proposals, for a total of $2,300,000,000. On the basis of dollar value, however, the rate of approval was 62.5%, which is down from 69.2% in 1967 and well under the 1957–67 average rate of 72.7%.

- Housing construction seemed to be off to an excellent start in 1969: In January, the seasonally adjusted annual rate was reported at 1,816,000, up 22% from December.
- There was apparently a little more mortgage money available in January, according to FHA, which reported the third consecutive month of slight downtrend in the secondary market price for FHA-insured 6¾% new-home mortgages.
- During 1968, state and local governments spent a total of $24,200,000,000 for new construction, which is up 11% over the previous year.

You're about to enter the entranceless world of Stanley.



The Stanley Air Curtain. It's a great step backwards. To the bazaar and open-air market. Nothing comes between the great outdoors and the great indoors. Just a gentle curtain of air. Provides optimum two-way traffic flow and the most efficient use of space. An exclusive "Weather Sight" sensing system on the Stanley Air Curtain automatically adjusts it for varying weather conditions. Reduces costs for conditioned-air, inhibits weather, dirt and insects.

Air Curtains have already become popular with banks, department stores, utilities, retailers, hospitals, hotels and motels. Even industrial plants, white rooms and computer centers are discovering how well the Air Curtain controls environment with maximum access.

Because you're involved in new buildings or renovating, for openers, ask Stanley — the recognized leader in automatic door operating equipment. Refer to Sweet's or the Yellow Pages for the Stanley DOE distributor nearest you. Write for the new Air Curtain folder M-83, complete with designs, application information and photographs.

The automatic industrial door, garage door and store door people.

STANLEY®

DOOR OPERATING EQUIPMENT
Division of THE STANLEY WORKS
Farmington, Connecticut 06032


All-Steel®
3000 Line design. The sleek, quietly efficient office furniture that offers the finest concept in contemporary design. Compare, and you'll see why All-Steel is worthy of your consideration. For office planning catalog write All-Steel Equipment Inc., Aurora, Illinois 60507. Showrooms in New York, Chicago, Los Angeles, Aurora
one of the CIT companies

Conwed

SPACE FLEXIBILITY WITH Conwed®

LANDSCAPE PARTITIONS

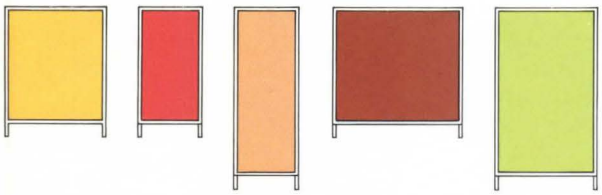
CONWED® LANDSCAPE PARTITIONS*

DESIGNABLE . . PORTABLE . . .
FLEXIBLE . . . ACOUSTICAL . . .
TACKABLE . . . DURABLE . . . BEAUTIFUL

You're on your own when planning space arrangements with new, unique Conwed Landscape Partitions. They are slim, graceful, completely portable and interchangeable for maximum flexibility. Arrange work spaces for maximum efficiency with both visible and acoustical privacy. Use partitions in schools, offices, churches, libraries, restaurants and many other places.

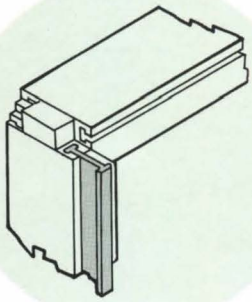
*Pat. Pending

MANY FLEXIBLE SIZES

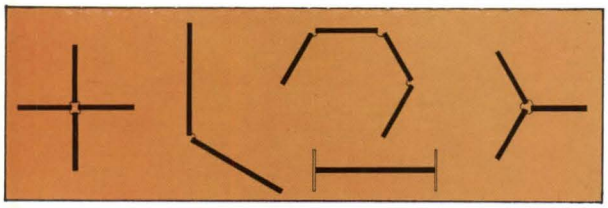


Landscape Partitions come in five basic sizes. They can be placed either in horizontal or vertical positions and different sizes can be inter-combined.

Panels are joined with a unique black vinyl hinge that also provides an attractive accent line between panels. Standard partitions are surfaced in natural burlap fabric. Custom fabrics can also be provided for design accent.



TOTAL ARRANGEMENT FLEXIBILITY

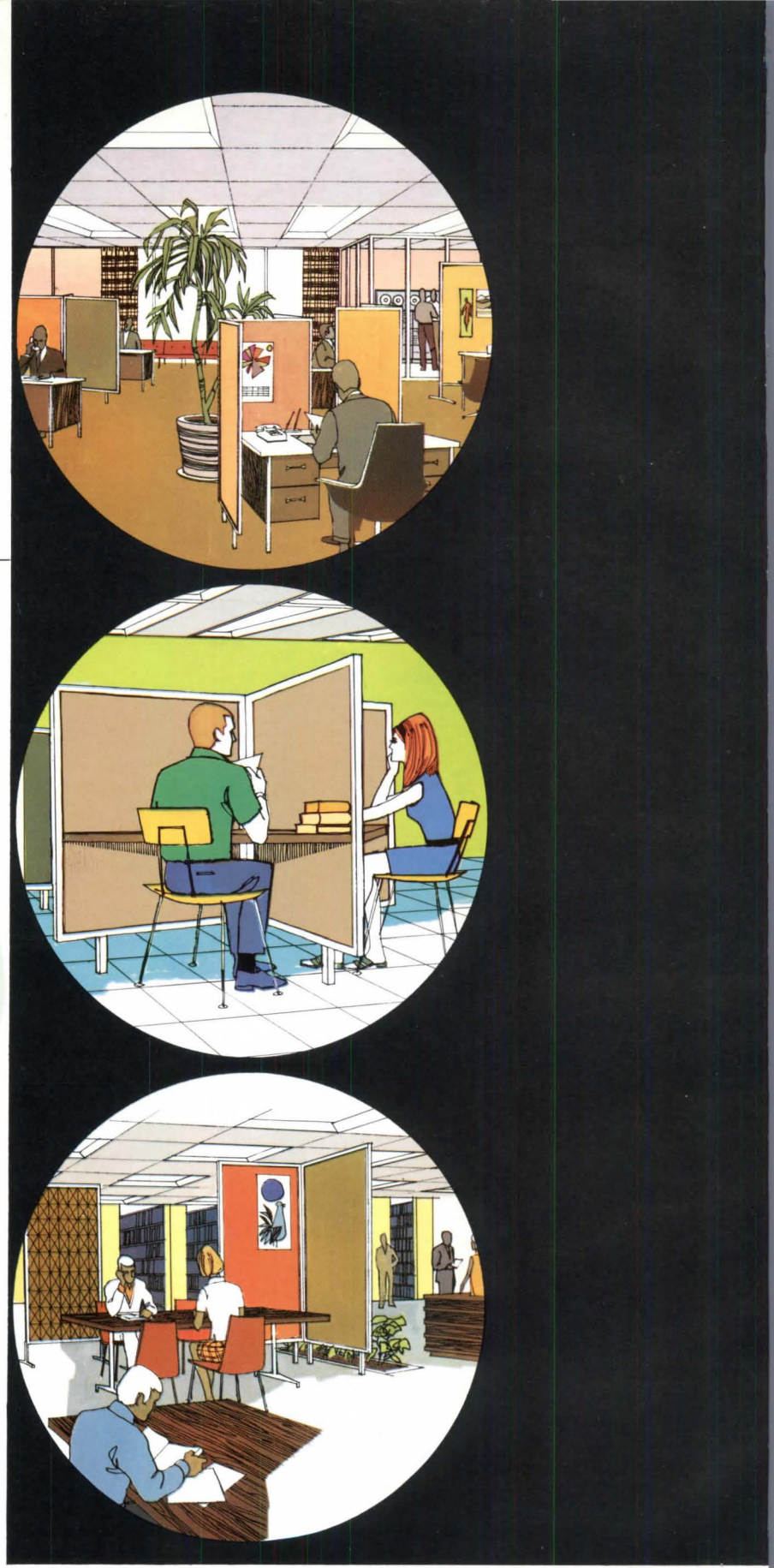


Above are just a few of the arrangement possibilities with these adaptable partitions. They can be easily moved at any time by untrained help to accommodate changing requirements.

Conwed also offers a complete line of floor-to-ceiling and bank rail partitions.

Write Conwed Corporation, Dept. C-2, 332 Minnesota Street, St. Paul, Minnesota for the complete story on this new, flexible space design partition.

Conwed
CORPORATION



These partitions are called Landscape because they were pioneered by Conwed to implement the concept of office landscaping recently imported from Europe whereby conventional walls are replaced with free flowing, portable partitions to provide ease of communication and arrangement of work areas while furnishing acoustical and visual privacy.

FRONT PAGE PHOTO
PROJECT: Southern Illinois University, Edwardsville, Ill.
ARCHITECT: Campus architect office, Southern Illinois University.

There is a difference in vinyl asbestos tile.

How do you make a choice among resilient floor manufacturers? We'd like you to regard us as the quality line, so we put together some facts for you to consider.

For one, the tiles we make are as close to perfection as anyone has yet come. They're well made and well cut. They're inspected and tested time and time again to insure that when they're delivered to your building project they're in first-class condition.

And most important of all, we stand behind every box of floor tile we make. After all, we've been in the business for many years, and we mean it literally when we say that our reputation is riding with every truck we send to you.

For another, we have a national organization of experienced architectural representatives and authorized contractors who will get you samples fast, answer questions and contribute their own knowledge to the solution of all your floor problems.

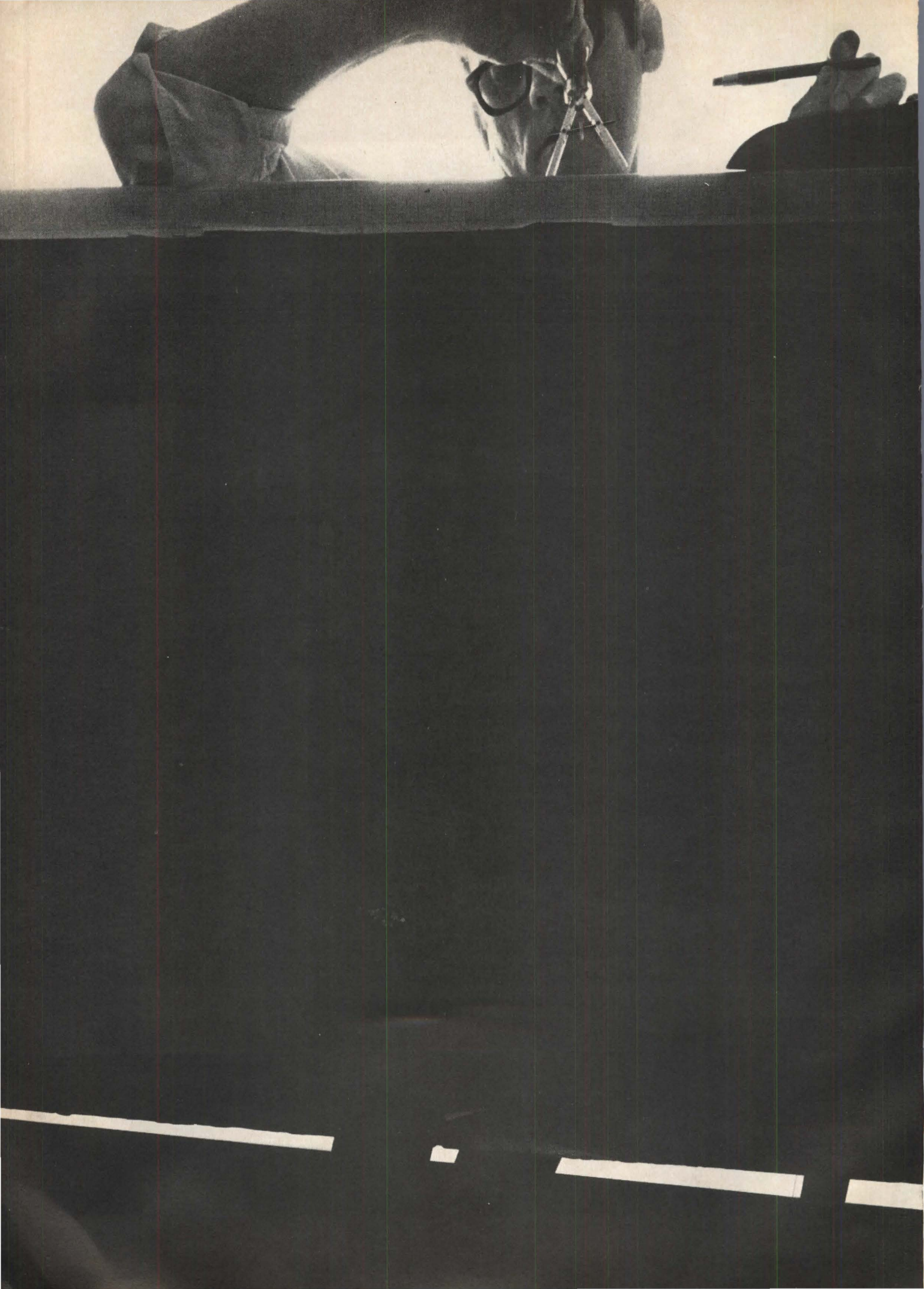
For more information, contact your GAF representative or write to GAF *Corporation*, Floor Products Division, Dept. PA-49, 140 West 51st Street, New York, New York 10020.

gaf

On Readers' Service Card, Circle No. 344

GAF Floor Products

V. A. tile illustrated is Thru-Chip #3583 and #3590.



At $7.35 an hour he should spend his time creating new drawings not redrawing old ones.

With the Xerox 1860 printer around, a draftsman has time to do a lot more important things than drawing drawings that have been drawn before.

Instead of redrawing from scratch, you make a same-size print of the original on the 1860.

Then draw just the portion that's changed, paste it on the 1860 print, and run that through the 1860 again. There's the new drawing.

Drawing restoration without redrawing? Run the original through the 1860.

Fuzzy and faded lines come out crisp and black.

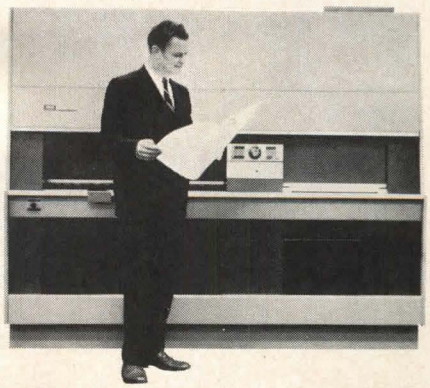
Yellowed backgrounds come out white and clean.

(Sometimes you might want to make an intermediate, touch that up, then make a final copy from that.)

The Xerox 1860 makes prints at 100%, 95%, 75%, 62%, 50%, or 45% of original size. For reduction, it accepts originals up to 36" wide by any length and ⅛" thick.

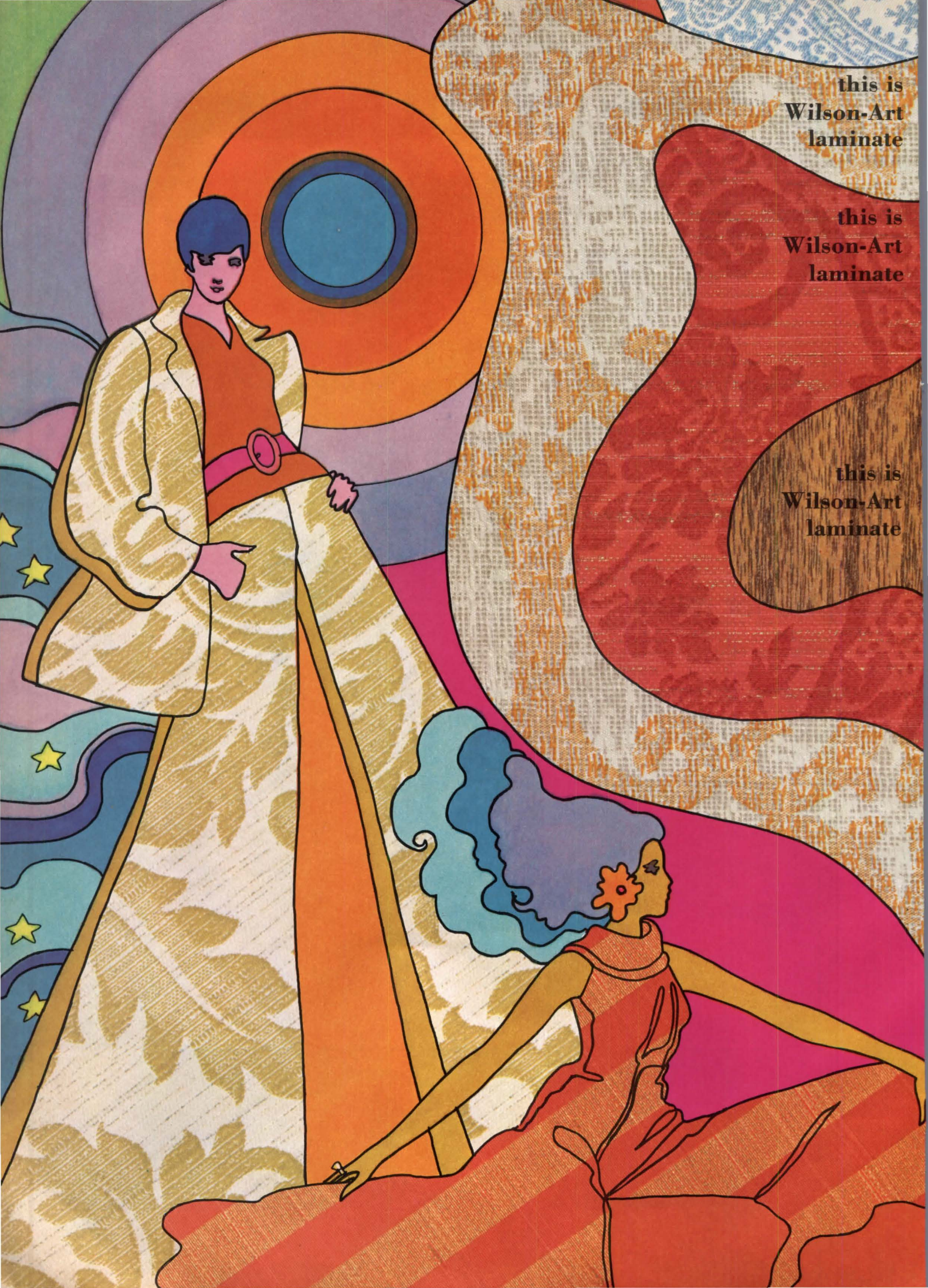
All this on ordinary bond paper if you want paper prints. Or translucent intermediates or offset master stock.

If you're interested in turning your re-draftsmen back into draftsmen, write for more on the 1860 to Xerox, Dept. AE7, Xerox Square, Rochester, New York 14603.



XEROX

XEROX CORPORATION, ROCHESTER, NEW YORK 14603. OVERSEAS: SUBSIDIARIES THROUGHOUT LATIN AMERICA; AND IN ASSOCIATION WITH RANK ORGANISATION LTD., RANK XEROX LTD., LONDON; AND THROUGH RANK XEROX LTD., FUJI-XEROX CO., LTD., TOKYO. XEROX IS A REGISTERED TRADEMARK OF XEROX CORPORATION. 1860 IS A TRADEMARK OF XEROX CORPORATION.


this is
Wilson-Art
laminate
this is
Wilson-Art
laminate
this is
Wilson-Art
laminate

Perfectly matched Vinyl wall coverings, Paneling, and Laminates.
A limitless range of color combinations.
Fresh thinking.

Now from one source. At one time. From one company: Rexall Architectural Products

Get in touch with us. There's a lot we can add to your design palate. Over 1600 matched, blended vinyl wall coverings and laminates—plus a service Representative all your own. Service is fast, competent. A helping hand or hands off. Whichever you like.

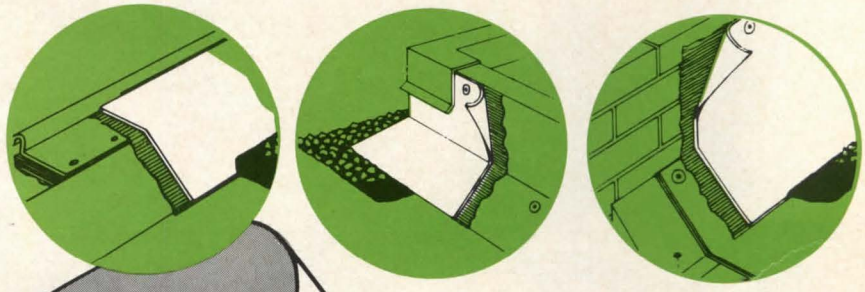
On Readers' Service Card, Circle No. 414

Rexall Architectural Products • Rexall Drug and Chemical Company
4201 N. Long Beach Blvd./Long Beach, California 90807
Tell me more. My current area of activity includes:
_Hotels_Office buildings_Multi-unit dwellings.

Name_____
Firm_____
Address_____

The Barrett® Chem-Ply* flashing system **Prevents leaks** from beginning in the places where leaks often begin.

Chem-Ply* Flashing makes all ordinary flashings OBSOLETE.



This exclusive *one-ply* Barrett Flashing System was invented to reduce roof problems. The flashing itself is a factory-formed 27-mil laminate of weather-resistant chlorinated polyethylene and strong glass fiber. Specially formulated flashing and lap adhesives complete the system.

Why is it so superior to ordinary systems? It's stronger, more supple, more flexible. Withstands building movements better. It's dimensionally stable — almost no expansion or contraction in temperatures from −50°F to +150°F. Never becomes brittle and is practically puncture-proof. The flashing adhesive bonds the sheet securely to asphalt and pitch felts and to substrates — masonry walls, wood, metal. The special lap adhesive solvent-welds all joints into a continuous sheet. It is resistant to fungus, acids, and to most corrosive agents in the atmosphere. All these features add up to far better performance. Specifications for the Chem-Ply Flashing System are included in the new 1969 Barrett Roofing Systems Manual. We'd like to send copies for your files.

Innovations, such as Chem-Ply Flashing, are part of the Barrett 115-year-old tradition of leadership in built-up roofing products, systems, and technical service — backed by a network of Barrett approved roofers. A letter or phone call to any of the Celotex offices (located in principal cities) will put this "know-how" to work for you.

*Trademark

CELOTEX
REG U.S. PAT. OFF.
BUILDING PRODUCTS

THE CELOTEX *CORPORATION*
Tampa, Florida 33607
Subsidiary of Jim Walter Corporation

On Readers' Service Card, Circle No. 335

YELLOW IS FOR THE BIRDS.

NOT LIGHTING PANELS...

Laniirostris
(Thick-billed euphonia)

After 12 years these lighting panels of Plexiglas® are still like-new white

Age and exposure to fluorescent light cause no noticeable discoloration in lighting panels of Plexiglas acrylic plastic. Yellowing does not dim their brightness, even after years and years of service. This time-proved superiority of Plexiglas has been demonstrated in thousands of installations such as the one pictured.

Plexiglas assures efficient, glare-free light transmittance in both

injection molded or extruded light-control lenses and lighting diffuser panels. Plexiglas is light in weight and highly breakage resistant, adding safety and ease of maintenance to a lighting system. And it's code-approved nationwide.

To assure the highest quality lighting, always specify Plexiglas. Write for our technical brochure, "Plexiglas in Lighting" and the names of lighting equipment manufacturers who use Plexiglas.

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

Plexiglas is made only by

ROHM AND HAAS
PHILADELPHIA, PENNSYLVANIA 19105

"Our urban crisis involves more than bad housing, poor schools, and inadequate transportation. At its root is a deep sense of loss of community — people uprooted by change, overwhelmed by the complexity of urban life, and alienated from the mainstream of American society. To restore this essential sense of community, we must revitalize the entire urban environment, not just any one part of it."

FORMER VICE-PRESIDENT
HUBERT H. HUMPHREY

Transaction — or a piece of the action? Last month, I participated as one of nine panelists at a student-initiated conference entitled, "Transaction: The Changing Role of the Architect." The conference agenda listed a series of panels beginning with sociology, continuing to computers and technology, and concluding with design. Panel discussion had theoretically been scheduled to proceed in orderly 45-minute intervals from subject to subject. In practice, the agenda served merely to program the keynote speech and the first coffee break thereafter. What followed for the rest of the day was an exhilarating verbal free-for-all. Sociology, computers, technology, and design, it soon developed, were merely springboards for voicing hotly contested opinions regarding the changing conception of architecture.

Two revolutionary ideas — that of the socioeconomic revolution and the revolution occurring in the architectural profession — were hopelessly confused during the discussions. One concern markedly in evidence was the continuing, unreasoning, persistent fear that the computer will phase the architect out of environmental design in the same way automation threatens to phase low-income Blacks and Puerto Ricans out of economic existence. Fear of mammoth corporations was no less restrained. When a panelist from a major corporation proposed an urban solution, he triggered an immediate derisive response from an audience that chose to ignore the legitimate definition of "Transaction" as a business transaction. The fact that prisons, slums, and factories can be classified as building categories seemed sufficient grounds upon which to accuse the architectural Establishment of fostering social injustice, discrimination, and air pollution. A slightly ironic note was injected into the proceedings when it became apparent that the most vociferous of the world-shaking radical students were obviously disturbed by a change in the order of the auditorium seating arrangements.

In the excitement of revolutionizing traditional architectural values, the conference overlooked the fact that a great architectural revolutionary had worked out the relationship between architecture and revolution more than 40 years ago. Corbusier wrote in 1927, "Architecture or revolution. Revolution can be avoided." Which seems to define architecture as an antirevolutionary activity.

The questioning of values that took place at the conference was analogous to what Edward T. Hall has characterized as the attitude of revolutionary minority groups trapped in our malignant inner cities. In the process of being destroyed, said Hall, they threaten to bring down the structure that houses us all. The significant difference between the two economic groups — the students and the ghetto — is that "bread" is a hip expression for a "piece of the action," whereas the primary concern of inner city minorities is simply bread.

The conference made quite clear that we have not solved the problem of how architectural action is to evolve from political action, or even if it can. Values have been revised, as the revolution continues, as to what constitutes architecture, but a political manifesto cannot be equated with a working drawing, and an occupied building is not the same as an architecturally designed space. Political concern might be more important than architectural concern at the moment, but they are not yet the same thing.

To the credit of the entire conference, but mostly to the students, throughout the entire discussion of sociology, computers, technology, design, architectural and social revolution, human transaction proved of more concern than "a piece of the action," which, after all, is the only justifiable basis for any revolution. ■

Forrest Wilson

LINE AND VOLUME

Two recent projects from the boards of Edward Larrabee Barnes are in his best tradition of careful geometry and subtle restraint. Both are part of educational institutions and use some of the same means to reach quite different ends. A seminary in Indiana and a group of dormitories at Bennington College in Vermont are both highly lucid intellectual statements — logical, carefully detailed, and entirely lacking in artifice.

They are designed under a finely balanced discipline that derives much of its interior life from the quality of light and whose exterior ornament is often shadow. The buildings look out freely on their natural surroundings, but remain somewhat aloof: quiet, self-contained, and contemplative.

Ecclesiastical Geometry: Christian Theological Seminary

The Christian Theological Seminary stands on a bluff overlooking the White River on the outskirts of Indianapolis. It is a graduate Protestant educational institution of the Christian Churches (Disciples of Christ) whose faculty and student body is interspersed with members of other denominations and on whose board of trustees the Protestant, Jewish, and Catholic faiths are represented. As an institution, the seminary believes that the ecumenical approach is today's mandate to religion, and that its architecture should express that mandate in a simple, universal language.

A belief in the continuity of life and religion is expressed by the uninterrupted flow of the building that begins with the auditorium and common rooms and terminates in the chapel. "The chapel is not a free-standing structure," says Barnes, "something you 'go to,' isolated from life." The chapel is part of the east wing that is not yet built, but when it is completed, seminarians will be able to walk from the social rooms past the classrooms and to the chapel without leaving the protection of the building — nearly a quarter of a mile of cloistered, marble-paved corridor.

The long, linear building wraps itself around two courtyards. The smaller of the two revolves around a fountain and represents an ecumenical openness, readily accessible to the public from the parking area. It is bounded on one side by the auditorium and on the other two by administrative offices. The second is a large grass court, rimmed by a long corridor of glazed sections deeply recessed into precast concrete panels. It is contemplative and looks away from the world toward the steep embankment of the river.

Barnes poetically describes the meandering design of the building as a living organism "with a tail, a stomach, a head and a soul." The library and chapel (presumably the head and the soul) will branch off the east wing, completing the series of major architectural events that occur at intervals along the quiet office-classroom links.

The boldest element is the chapel, standing on the river bluff and dominating the rest of the seminary. The interior is to be white, pure, and devoid of iconography — lit by a large scoop light on the roof and high slits of clear glass on the side walls, bare except for a large standing cross, an organ, and the minimum essentials of religious service. Barnes feels that there is a redemptive quality in listening to music in austere visual silence, and the room is designed to enhance the reverberative qualities of the organ.

The interiors clearly express the spirit of the building. "The effect on students has been one of buoyancy," a seminary spokesman commented. "There is a sense of continuity and community." President Beauford A. Norris emphasizes the "roominess and light" and what these symbolize for the modern church. "Our job today is to shed light on living," he says. And the straight-forward logic of the building clearly expresses a Protestant ethic that increasingly denies the powers of mystification.

The plainness of interior spaces and the walls of white plaster bring paintings, sculpture, and people into sharp relief. Although shunning Gothic iconography, client and architect agreed that the halls and walls should not be bare, and an ambitious art program was part of interior planning. Among other works, a Pomodoro sphere dominates the entrance lobby, a Vasarely canvas hangs beneath a skylight in the corridor opposite a large entrance into the common room, and an Ortman-designed felt tapestry brightens each of the 12 seminar rooms.

The church member who made the collection possible is J. Irwin Miller, the man whose support of good design in Columbus, Indiana, has been largely responsible for making that small town one of the architectural wonders of the country. "The church today is in desperate need of the services of all the arts . . . a fact which Protestants especially have been prone to overlook," Miller wrote in a dedication statement.

ISD Incorporated collaborated with Mary Barnes on interiors, and the majority of furnishings have been specially designed. Overscale dimensions were used keep furnishings in proportion to the large spaces where standard sizes would be lost. Only natural materials were used: wood, wool, linen, and leather. And the colors are generally flat and neutral with accents of deep reds, browns, or black. Chair frames, tables, and millwork are white oak.

Furnishings, like the architecture, are simple, well planned, and cleanly detailed. Their subdued palette lends warmth to the white interiors and complements the setting without competing with it.

Trees bordering great grass court (above) are seen through glazing of entry wing (below) and become part of entrance "picture" framed by projecting panels.

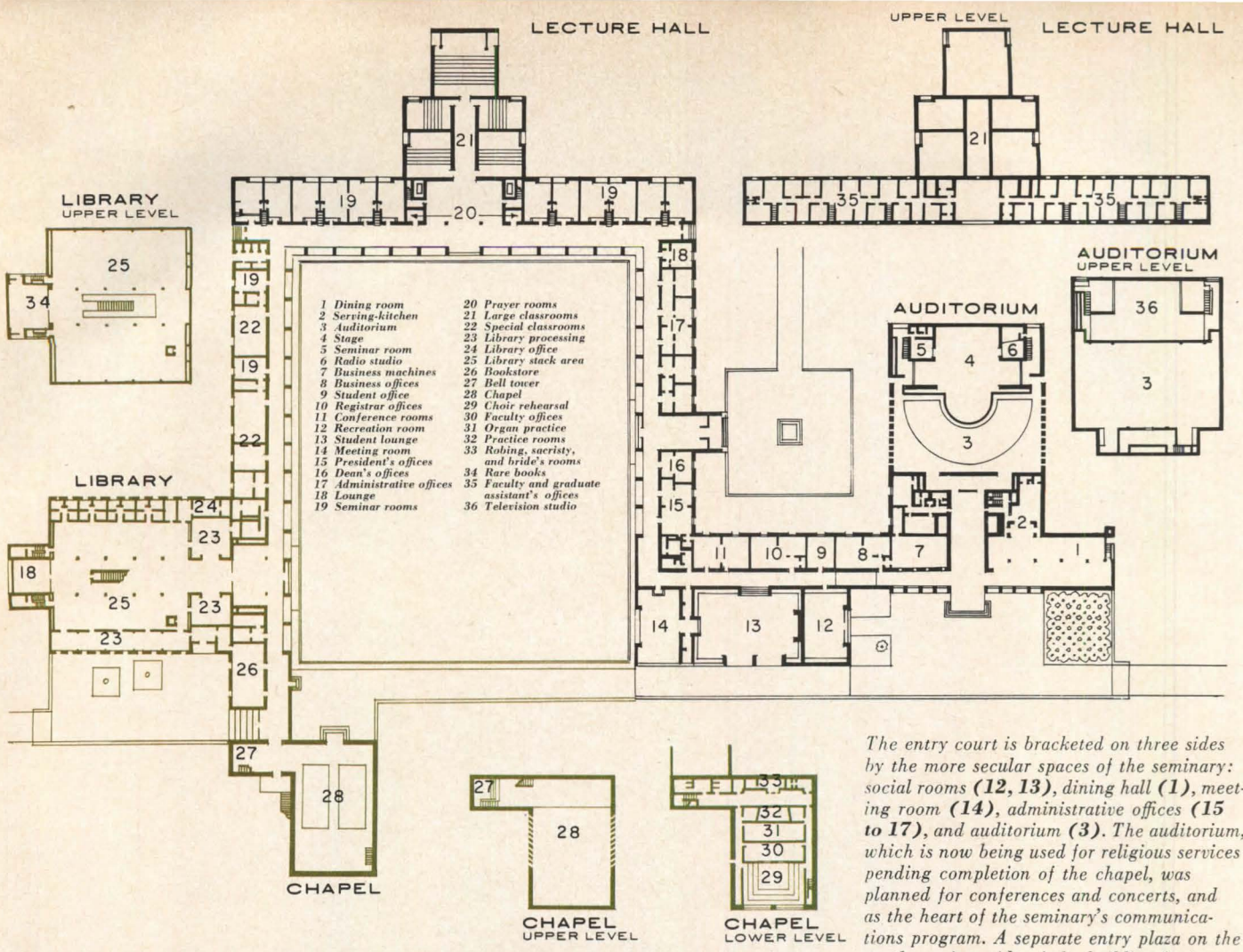
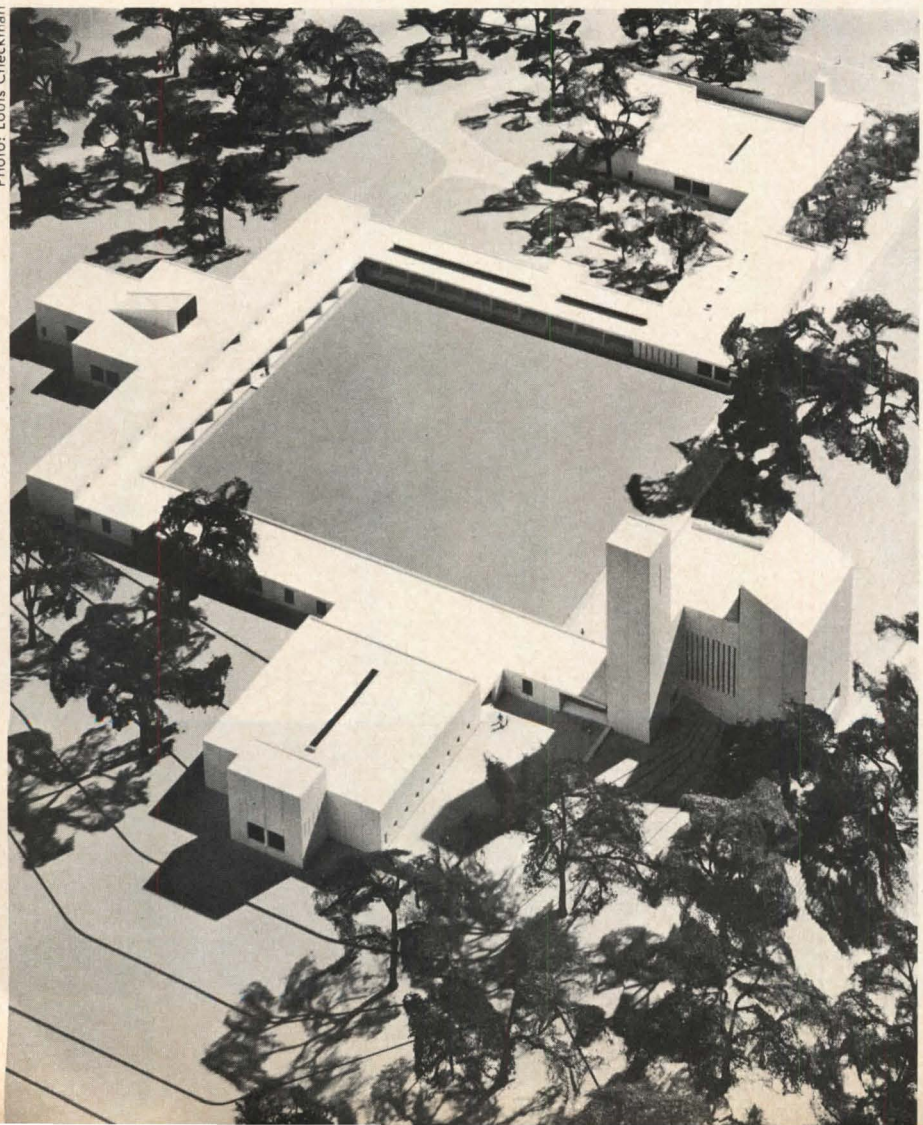


Photo: Louis Checkman



The entry court is bracketed on three sides by the more secular spaces of the seminary: social rooms ***(12, 13)****, dining hall* ***(1)****, meeting room* ***(14)****, administrative offices* ***(15 to 17)****, and auditorium* ***(3)****. The auditorium, which is now being used for religious services pending completion of the chapel, was planned for conferences and concerts, and as the heart of the seminary's communications program. A separate entry plaza on the south or river side of the building invites frequent community use. Facilities include radio and television studios* ***(6 and 36)*** *for educating young ministers in the use of the tools of modern electronics media that expand communications beyond the physical confines of the church. The seminary produces programs that are broadcast on several commercial TV and radio stations in the area, and has also formed a repertory theater group for religious drama.*

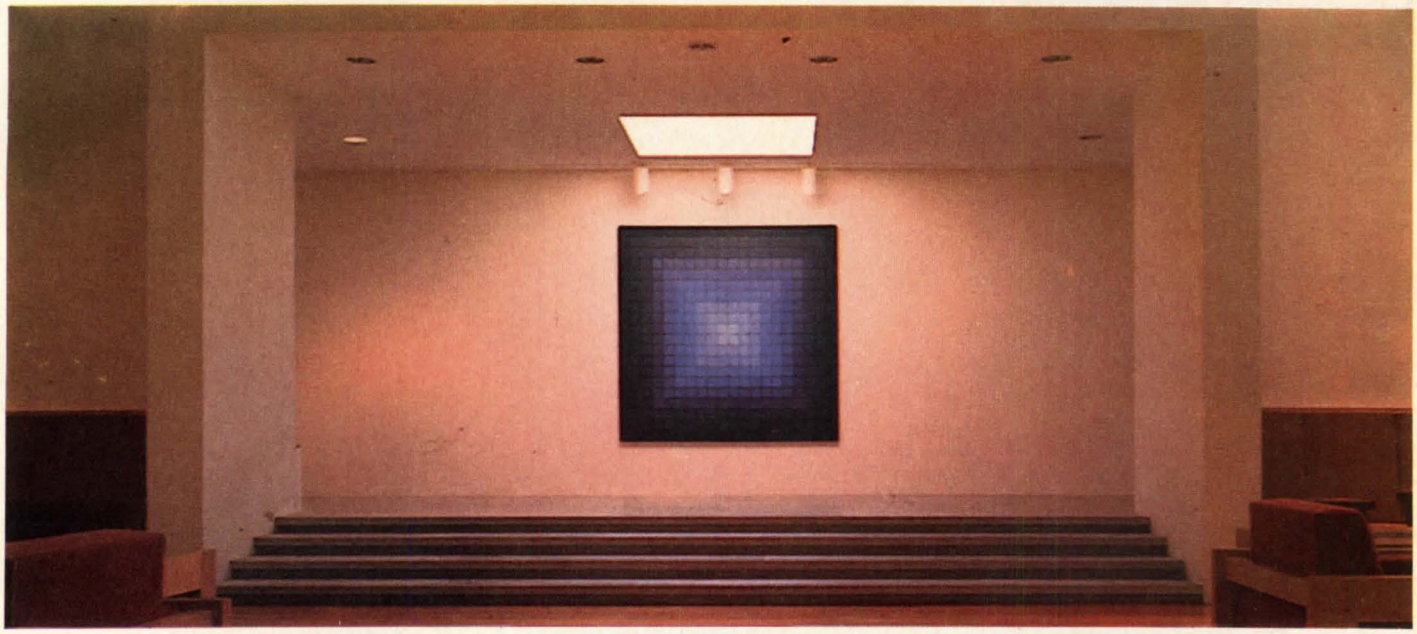
Along the administrative wing, office windows open onto the entry court, while the marble-paved corridor faces a large, inward-oriented grass court at the edge of the river bank. Floor-to-ceiling glazing is deeply set into precast concrete panels along the corridor, and natural light is brought into secretarial offices via a long scoop skylight that is continuous above inner offices.

North and east wings complete the semi-enclosure of the great grass court and contain academic and religious functions of the seminary. Twelve seminar rooms ***(19)*** *in the completed north wing accommodate up to 16 students each and flank, six on each side, a group of five lecture halls that open off a pleasant, airy two-story space, lit again by a shed-roof skylight. Programming spelled out specific relationships between teaching spaces and between professors and students, calling for direct connections between each seminar room and the second-story faculty offices* ***(35)****, for example. Two small "prayer rooms"* ***(20)*** *offer quit retreats for study or contemplation at midpoint in the academic wing.*

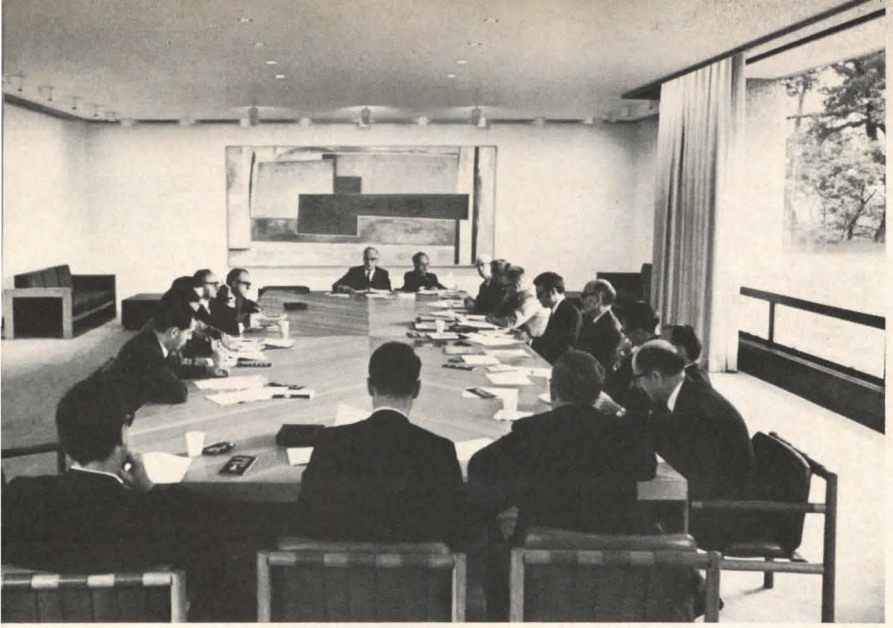
Because of the building's long, winding "S" shape, it is pierced at frequent intervals by entryways, and the sense of entry into the building is enhanced by stepping up to doorways and recessing them into the approach wall.

When the east wing is built, vertical elements of the chapel and bell tower will climax the wandering, horizontal building. Model of chapel interior (right) shows pattern of light from slit windows. Entrance from corridor into student lounge (below) is framed by jutting walls, an interior reprise of main entrance. Victor Vassarely painting hangs on corridor wall lit by skylight — a cool geometric painting in a cool geometric building. Thrust stage of auditorium (bottom) is separated at proscenium by enormous sliding oak wall behind choir. When open, the two chevron-patterned panels reveal a handsome loose-woven curtain by Jack Lenor Larsen. Its deep red tone is the only color in a wood-paneled room with oatmeal upholstery and carpeting. Complex ceiling forms baffle sound and conceal stage lights.

Photo: Louis Checkman



CHRISTIAN THEOLOGICAL SEMINARY, *Indianapolis, Ind.* ***Architect:*** *Edward L. Barnes. Associate: Hildegarde Bergeim.* ***Site:*** *Part of a 36-acre campus overlooking the White River.* ***Program:*** *To design teaching, administrative, religious, and social spaces for faculty and 400 seminarians.* ***Structural System:*** *Concrete block bearing walls with steel bar joists; steel columns and beams with bar joists over major spaces.* ***Mechanical System:*** *Gas-fired heating and air conditioning.* ***Major Materials:*** *Precast panels with local cream-colored river pebble exposed aggregate; also used in courtyard paving. Interiors are rough-textured white plaster; corridor paved in gray Carthage marble; other spaces carpeted.* ***Consultants:*** *Dan Kiley, landscaping; ISD, Incorporated, and Mary Barnes, interiors; Cosentini Associates, mechanical; Severud-Perrone-Sturm-Conlin-Bandel, structural.* ***Photography,*** *except as noted: Jon Narr.*



Cross formed by chimney and clerestory fascia (facing page) is the only hint of religious symbolism in the ecumenical architecture. It is seen over low roof of recreation room facing the inviting rear court. Inside (below), fireplace wall dominates student lounge, where sofas of brick red and black brown add muted warmth to the white interior. Seats built into the four corners afford more secluded retreats from social areas at the center of the room. Cross on wall over fireplace is by George Ortman, who also designed colorful felt banners hanging in seminary rooms (above right). Focal points of meeting room (above left) are 27-place oak table (chevron-patterned, like the auditorium wall panels) and large relief painting by Ben Nicholson.

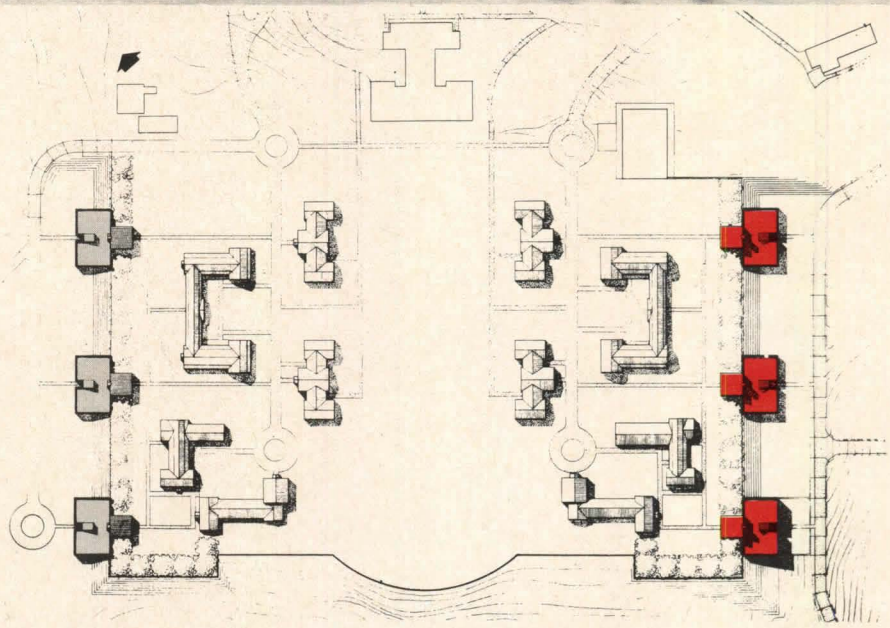
Collegiate Geometry: Three Dormitories at Bennington College

When Ed Barnes was commissioned to design additional dormitory space for Bennington College, the de facto setting was a residential campus of 1930's colonial, neatly arranged along a Beaux-Arts axis. Barnes carefully maintained the established symmetry of the plan, and supported it with a frame of six small residential houses of identical design: three on the east and three on the west. Landscape planning extends walkways along original lines and calls for a truing up and formalizing of the hilltop platform on which the residential complex is sited.

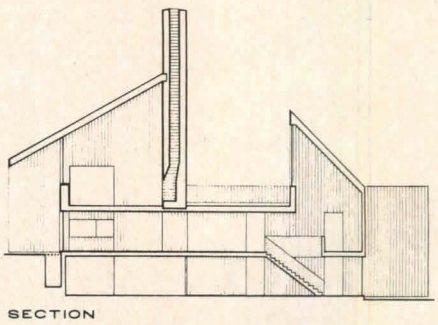
The west three buildings have been completed, but the east three were postponed pending a decision to accept men on the campus — traditionally a women's domain. The houses are modest in size and cost ($21.75 per sq ft, 30 students), but share the same respect for straight lines and simple geometric volumes that distinguish the Christian Theological Seminary. They create a series of secondary spaces consistent with the old spaces, and the white wood exteriors echo the white clapboard of their colonial neighbors. The sloping roofs and unassuming forms are also quite congenial with the farm architecture of the surrounding countryside.

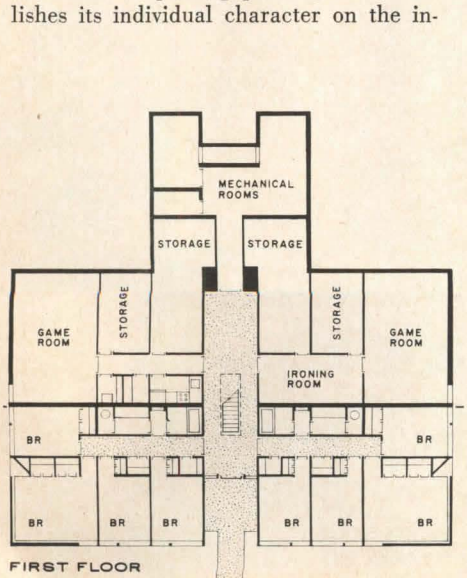
The high point, literally, of each house is the living room, perched atop the second-level entry. It is the social center of each dormitory and the only enclosed space on the top floor. But, in season, it becomes merely an adjunct to the adjoining roof deck, where the time-honored coed custom of sunbathing is religiously observed. The practice is one that, for the architect at least, constitutes a building function of major importance.

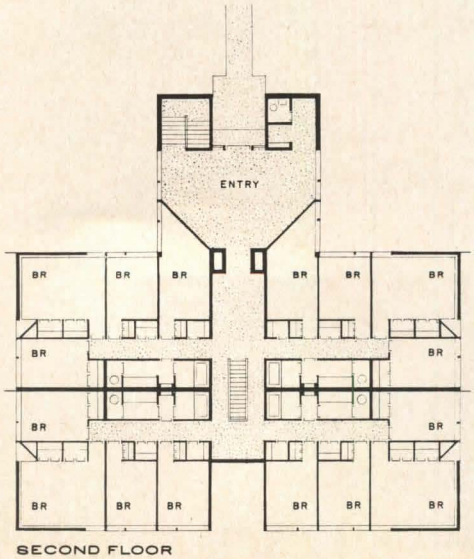
Barnes has chosen the repose of order over the excitement of showmanship in fitting the new to the old. Each building is a unit in a repeating pattern, but establishes its individual character on the in-

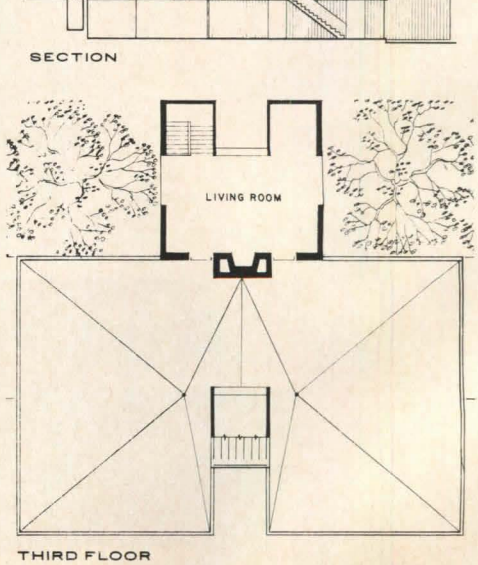


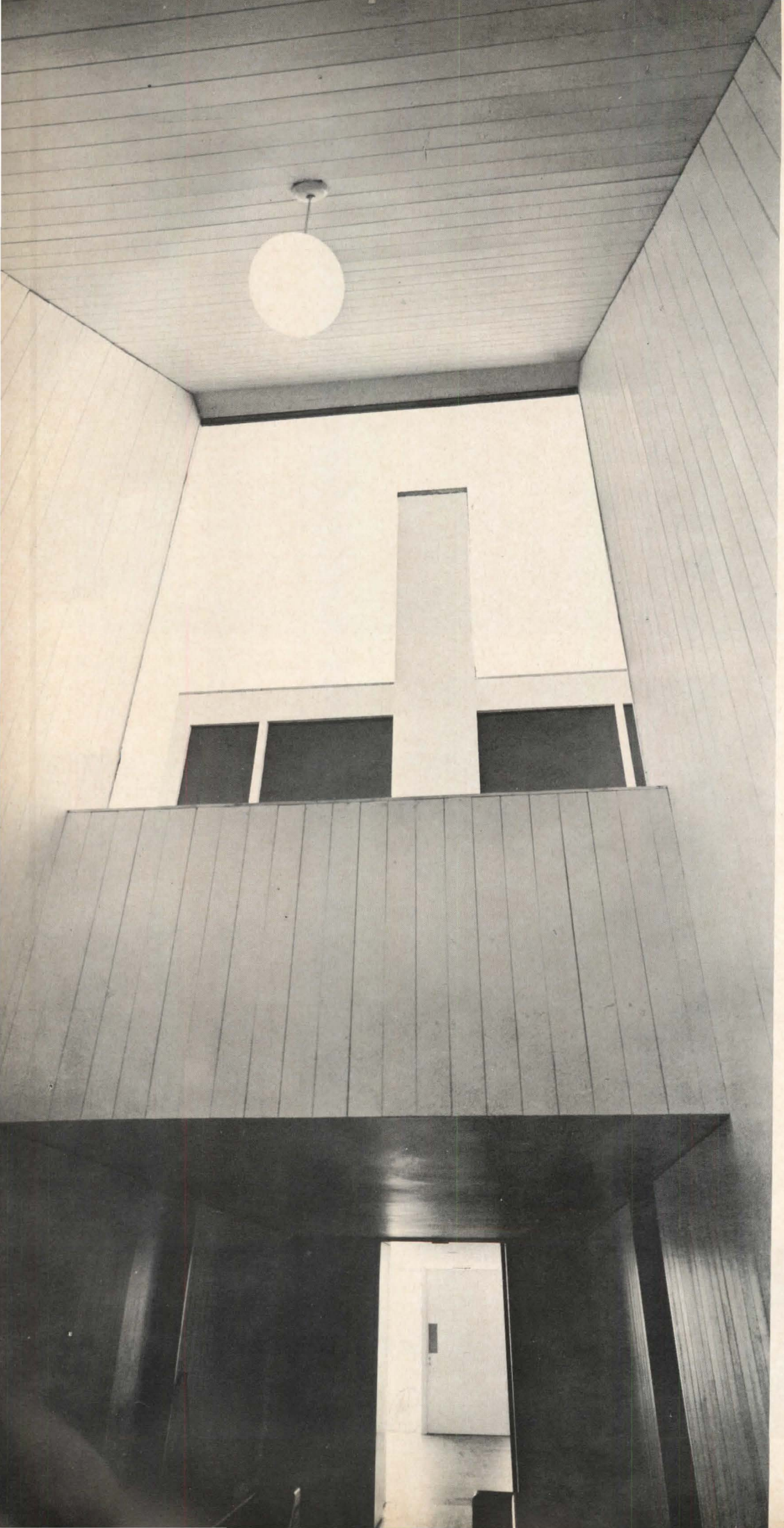
White walls and dark roofs of completed residence houses (site plan, color) echo basic elements of older colonial buildings, and pattern of siting reinforces existing axial plan. Dominant chimney, rising above terne metal roof (facing page), and finely detailed articulation of entries, illustrate continuity of Barnes' style.











THREE RESIDENCE HOUSES FOR BENNINGTON COLLEGE, *Bennington, Vt.* ***Architect:*** *Edward L. Barnes.* ***Site:*** *Existing residential complex on the Bennington campus.* ***Program:*** *To design additional dormitory space for a total of 180 students.* ***Structural System:*** *Balloon frame.* ***Mechanical System:*** *Hot water convectors.* ***Major Materials:*** *Vertical wood siding painted white; terne metal roofs. White painted siding or sheetrock on interiors; wood floors.* ***Cost:*** *$646,000 for the three houses.* ***Consultants:*** *Peter Rolland, landscaping; Judith Chafee, interiors; Cosentini Associates, mechanical; Severud-Perrone-Sturm-Conlin-Bandel, structural.* ***Photography,*** *except as noted: Clemens Kalischer.*

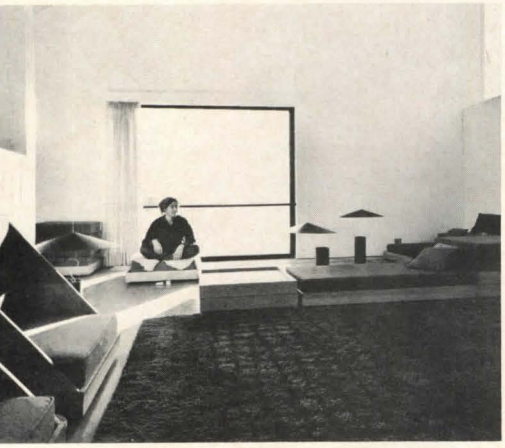
Looking up toward main entry from stair hall (left), chimney is seen through large clerestory. Roof deck, deserted in winter (facing page, top), is well populated in clement weather. "Sun bathing is a lovely custom at Bennington," the architect observes.

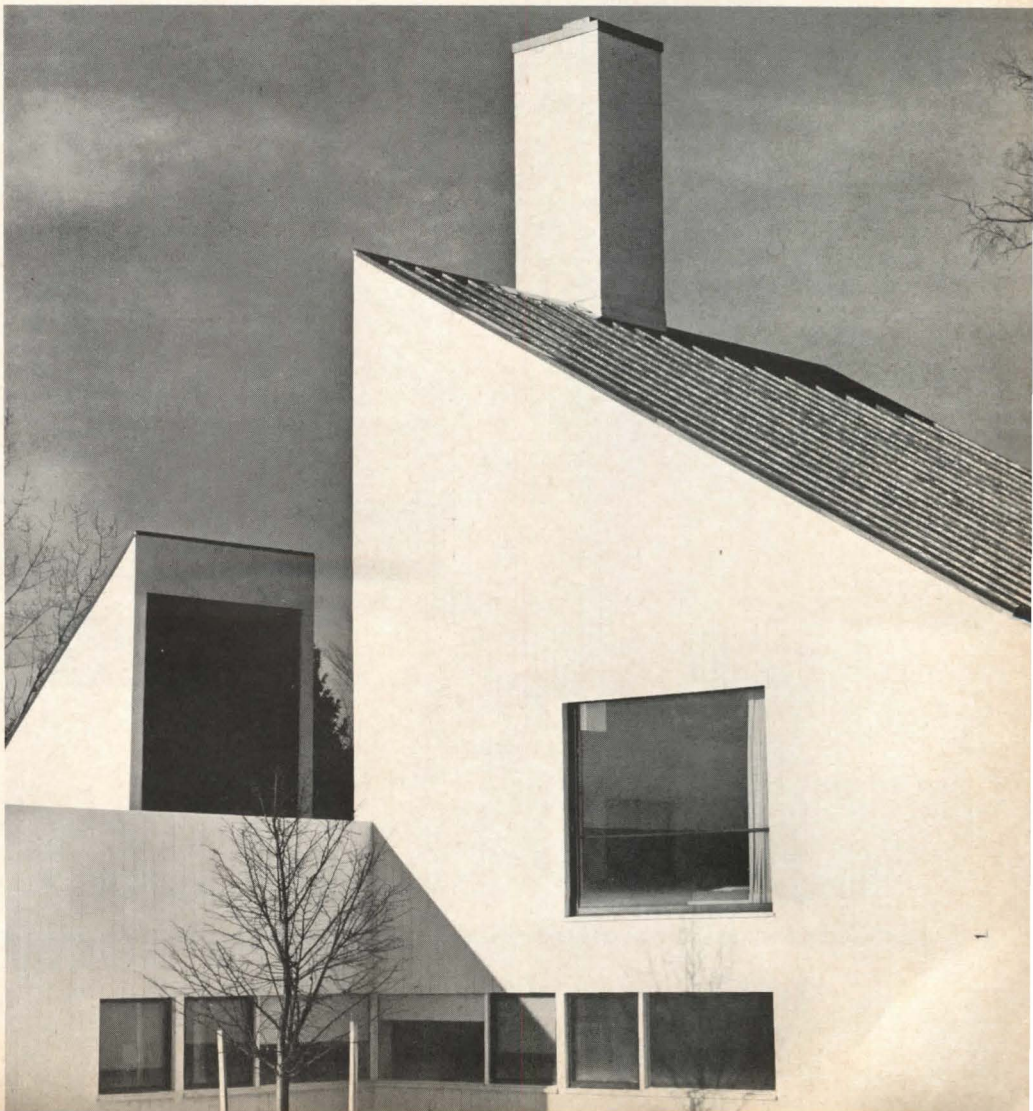
For the so-called "harem room" (facing page, left, top), Judith Chafee designed two kinds of nesting platforms: 30 in. square for tables and seats and 30" x 60" for sofas, with triangular back supports that can be set into bases. Large cushions fit platforms or can be stacked on the floor. Shallow-cone light shades appear to float but are suspended from ceiling track, and reflect light coming from movable "cans" below. Sleep/study rooms (facing page, left, bottom) are also furnished with modular units by designer Chafee, who took her cue from the methods and materials most often used by students left to their own devices. A system of planes (desk-top slabs) and blocks (storage units and bookcases), supplemented by loose shelves and cork bricks, use a joining system that is the soul of simplicity: a couple of nickels inserted in the slots running along the undersides of the slabs and top sides of base units.

teriors: specifically, in the lounges, each of which was designed in a different style.

Simplicity is as popular with today's college students as it is appropriate for seminarians. And, like the seminary, Bennington's white interiors form a receptive container that offers many possibilities. One lounge is neutral, as close to white as was considered practically possible, with bentwood, woven leather and woven willow furniture, stoneware crocks and ashtrays. Another has been described as "old-fashioned modern" — Breuer and Herman Miller chrome frames reflecting fabrics of gray and black. The third is furnished with a custom-designed set of construction toys: put-together nesting platforms, detachable triangular chair-back supports, and cushions of various sizes in brilliant oranges, reds, and pinks. Because of the cushions, the colors, and the low seating, the architect had dubbed it "the harem room." And it has proved the most popular of the three.

Although a seminary and a girls' dormitory would seem, traditionally, to require distinct architectural habitats, a similarity of form and feeling illustrated in the two Barnes projects is the expression of an ecumenicism that has gone beyond the confines of religion. The architecture not only represents the continuity of one man's style, but is evidence of the contemporary belief in the continuity and kinship of all aspects of living.





RUDOLPH'S DARE-DEVIL OFFICE DESTROYED

No one can say that the usually quiet-mannered Paul Rudolph does not dare. He dares to be primarily concerned with spaces and sequences of spaces; he dares to construct vertigo effects that would put off many a prospective client; he even dared to build something that might have been considered illegal some four years ago.

"Do you realize that 95 per cent of architecture through the ages could not have been built under the existing laws," he says. "We could almost say that architecture has been outlawed."

Although architect Rudolph's first New York office has been dismantled — not because it was "outlawed" but because he moved to 54 W. 57th Street — P/A thought it a great space and a significant enough work in Rudolph's career to record it in photographs (these pages).

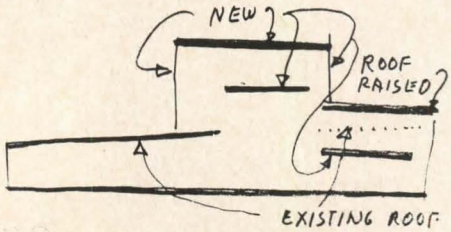
The arrival at the office involved a reverse form of preparation: In Rudolph's own words, "From the street, you went through a 1930's black glass, chipped anodized aluminum new front on a decent six-story loft building," which was on the downtown side of 58th Street across from the Plaza Hotel. "The lobby was wood papered; then, up a Gropius-battleship-gray shipping elevator with asphalt tile — marbleized, of course."

When one got off the elevator, the space suddenly exploded: all white, light and open; floating, interconnected, striped by flying bridges **(5, 10)**; interrelated by multiple-use objects **(2, 3, 11)** and multiple-use spaces that superimposed meaning on meaning; canopied by precarious-looking cantilevers **(1, 12, 13, 15)**; confusing, disconcerting, and immediately impressive. It seemed at first glance like a lighter version of his A&A building at Yale. It was unquestionably a major space, and a major work in its extension of Rudolph's art sense of spatial manipulation.

When he rented this single top floor-through, Rudolph discovered that, by raising the roof over the front part of the building about 4 ft (see remodeling diagram and section below), he could get in a mezzanine floor, which could be used as a drafting space. Then he opened up the roof in the middle of the plan and built a glazed two-story pavilion, which enclosed a desk-conference area for himself on the south (at the level of the roof) and a conference area above that with his own drafting table cantilevered out over the desk area below **(1)**.

He found that he could afford to do such an elaborate remodeling even on a short-term basis because the rent was very low. The platforms were supported on steel brackets (1½ in. x 1 in.) bolted to the brick party walls or to joists. "It was only slightly shaky," as Rudolph observes.

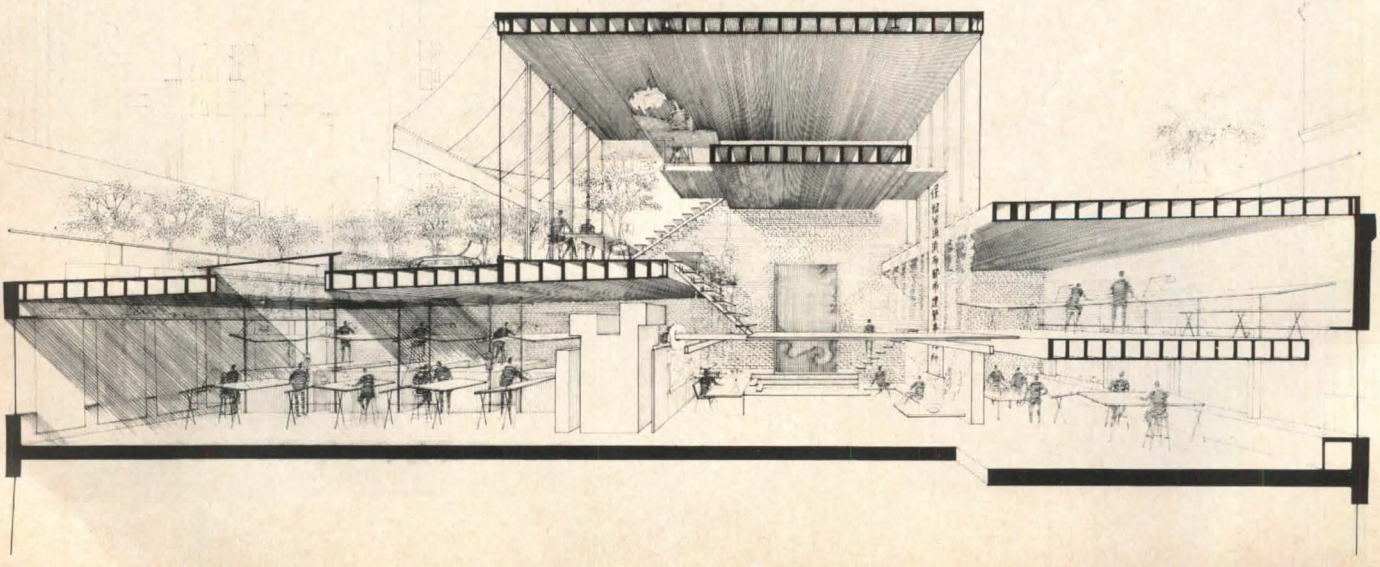
To connect these work areas on the north front with the south rear of the plan, two narrow platforms were built at different levels on the east and west sides of the space: the lower one on the west — partially concealed in **(2)** by the large site model of Rudolph's new town of Stafford Harbor — was actually the top of a book and storage cabinet **(3, 4, 5)**; the upper one, on the east side of the space, connected the front drafting area **(9)** to a stair **(10)** that went up to Rudolph's desk area. Because of the changes of level, the platforms produced a kind of spiral circulation pattern. For one who really had the run of the place, it was a dizzying feat going up and down stairs around the central well of a space.



The effect was dizzying to first-time visitors also. Floating out along the east wall over the central well was such a narrow strip of a bridge that it was the most vertigo-producing area in the space. In the photographs, which were taken just before the office was demolished, the rail of that bridge shows as a wide, but rather low, magazine rack **(9, 10)**; originally, that rail had been a slim, lightweight-looking white rope hung at about the same height. As you passed along the bridge from the mezzanine drafting space to the desk/conference area, the statue of a cardinal, which was placed against the wall **(6)**, thrust you out into the space — almost off the bridge. The visitor instantly felt Rudolph's sense of daring. However, the architect ultimately substituted the magazine rack for the rope when, as he says, "the look on a certain mayor's face said that was one civic center I wasn't going to do."

One might have thought that everything was arranged to put the client at a disadvantage in front of the master. And Rudolph admits that the office may have lost him as many clients as it gained him. "It was usually disconcerting on first visit because" he adds, "suddenly, after being in the elevator, the space was not defined. And when people know the definite limitations of a space they are more happy. This space was free flowing vertically, like a Mies plan turned on edge," he says (see section).

If it seemed like a light-toned version of the drafting room at his A&A Building,



2

Photos, except as noted: Louis Reens

3

4

Photo: Yuni Noga

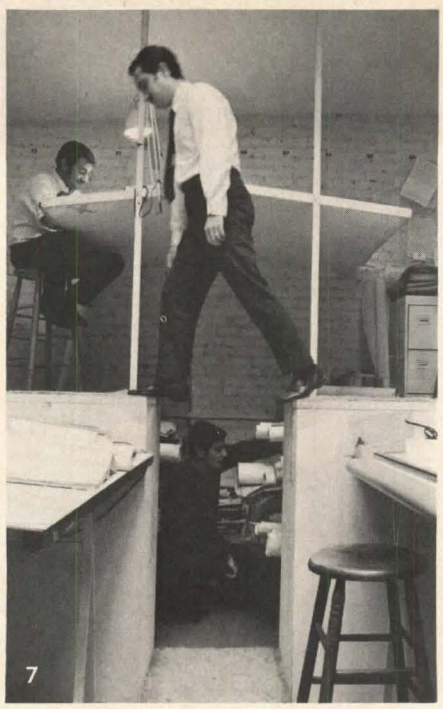
5

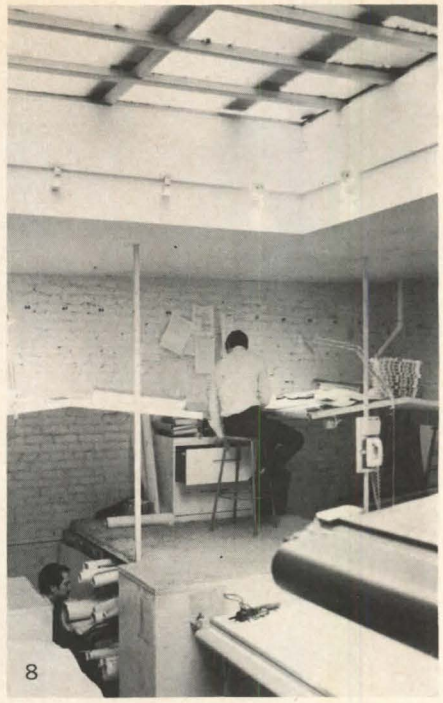
Photo: Yuni Noga

Rudolph points out that, basically, this was, instead, a sequence of open, unbroken spaces in which one platform led to another, clockwise, in a kind of spiral, whereas at A&A, although one could see a similar, multilevel space, the sequence from one level to another was through smaller enclosed spaces. He merely says that the office was "fairly typical of the spaces I have been dealing with for the past four to five years."

"In the original space," he continues, "the law assumed that all you could possilby want was a 10-ft loft space. But I didn't want a 10-ft high loft space. Can one ever forget the sections of Mies — parallel horizontal lines of equal distance? What a negation of the human spirit."

Light in the office was special. "The sun was arranged," Rudolph explains; "I mean, the windows were arranged so that


7


8

The drafting room (south on plan) was fitted with two levels of monks' carrels with storage beneath the drafting tables ***(7, 8)***.

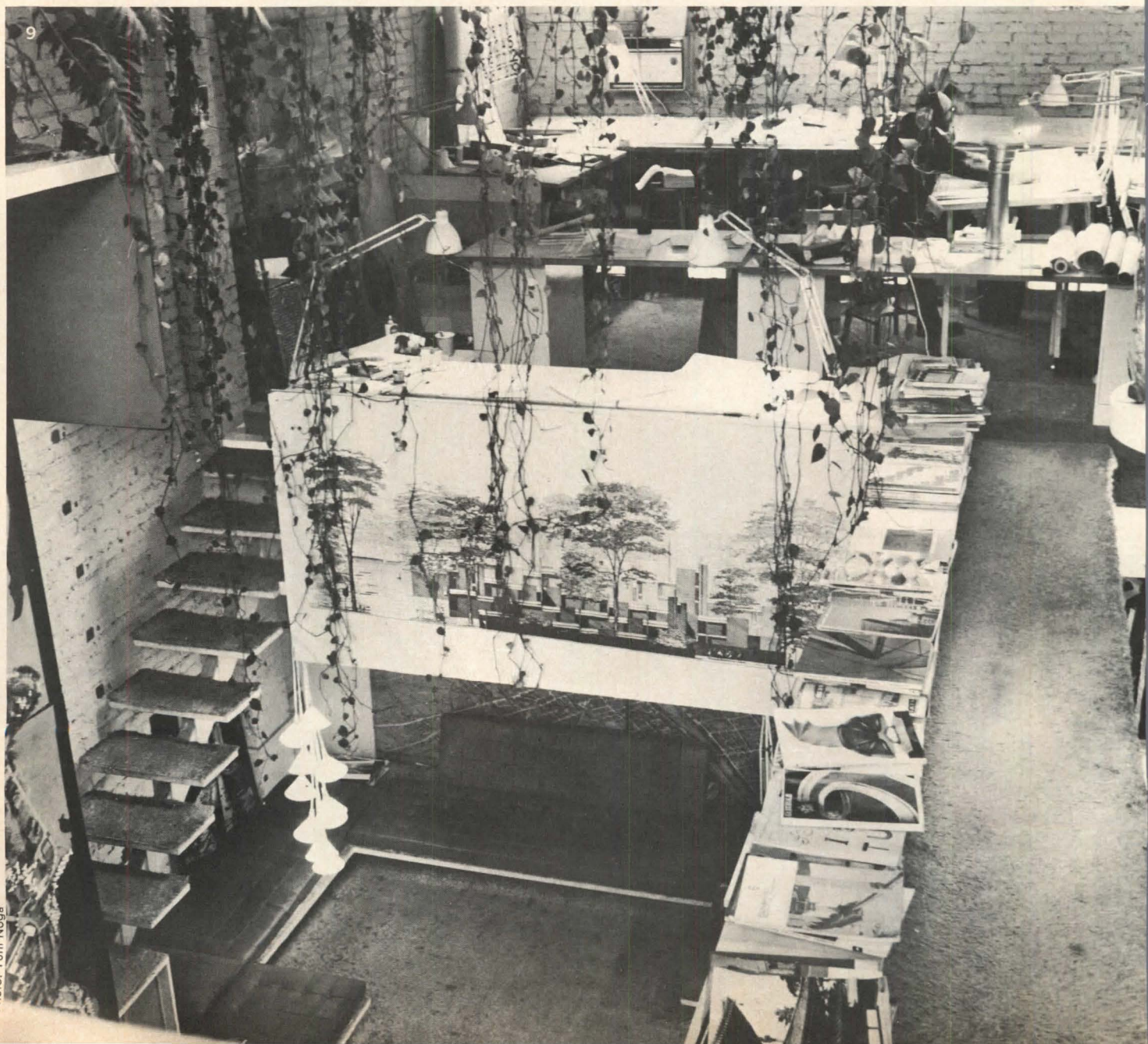
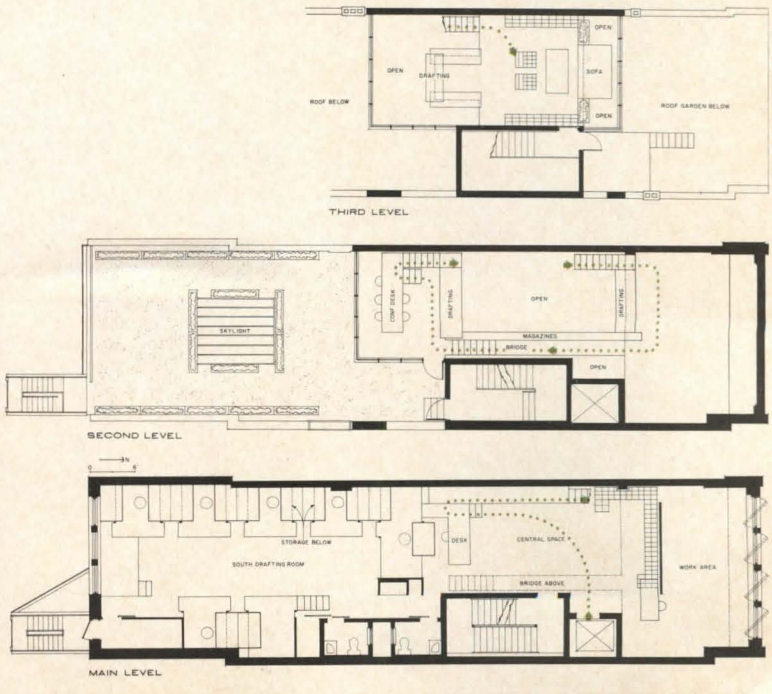

9

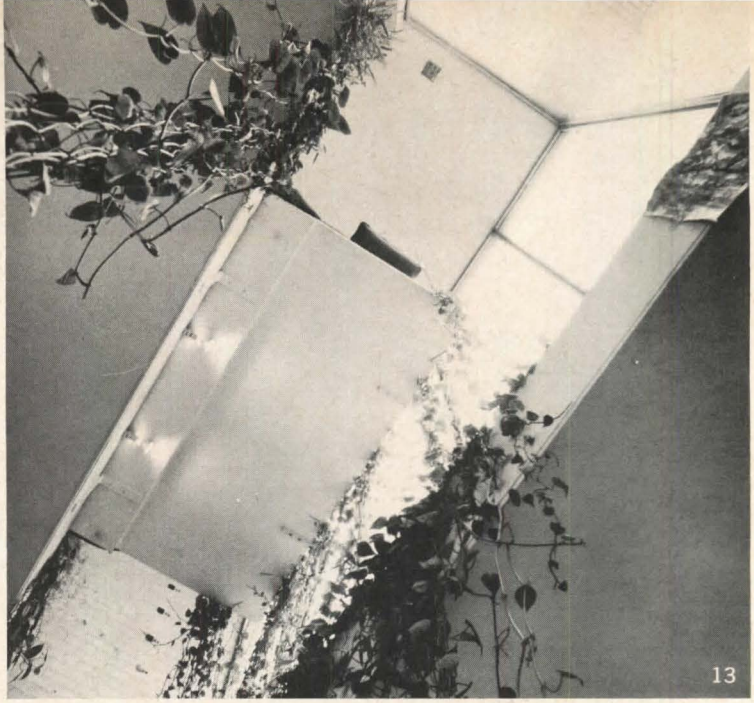
Photo: Yuni Noga

10

Photo: Yuni Noga



12



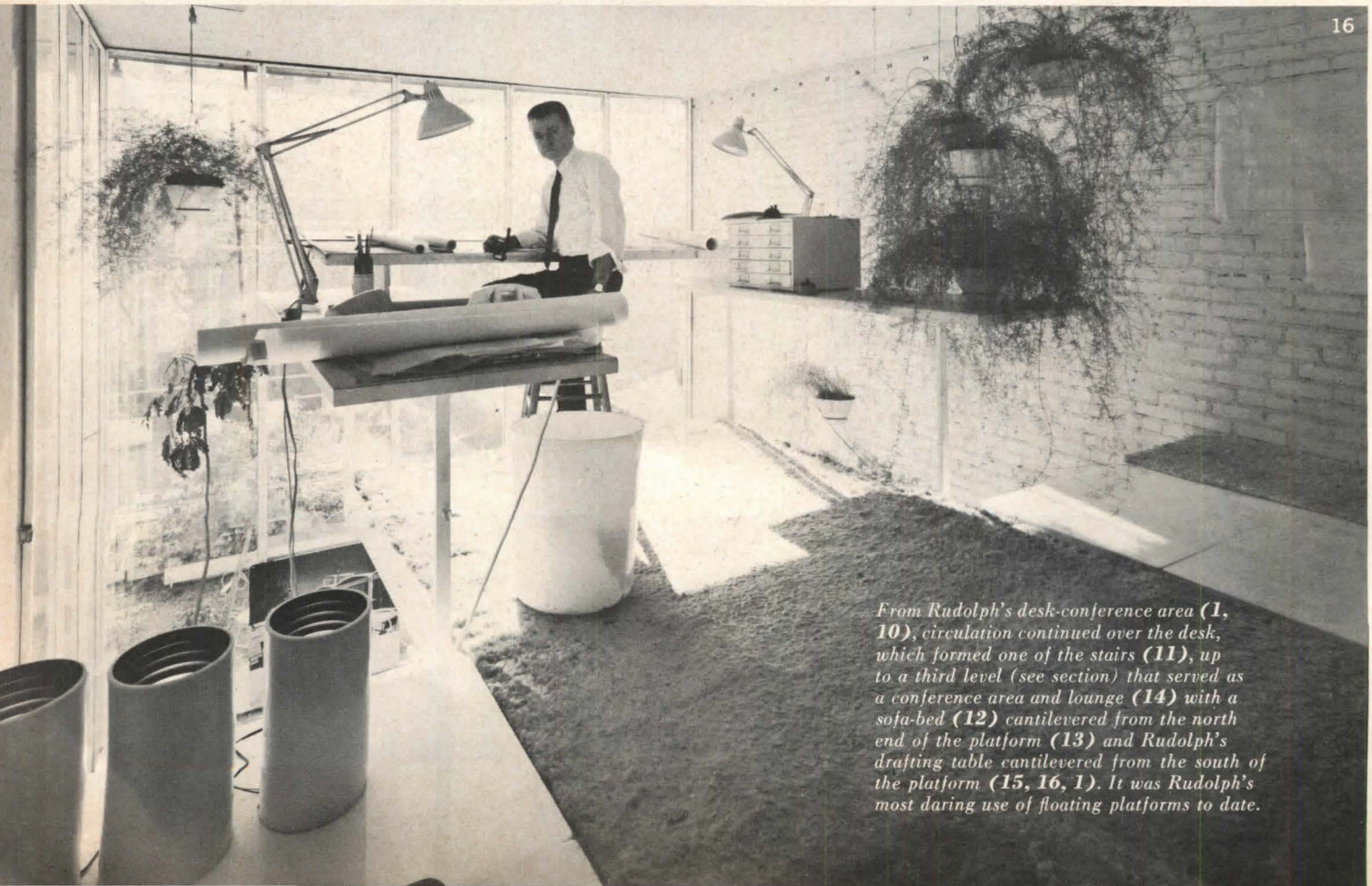
13

a beam of light penetrated deep into the lowest level of the tall, central space. Yet there was no glare."

"I also liked the idea of partitions that gave visual privacy but permitted you to relate to the adjacent activities by sounds," he concludes. "There was a lot going on in that space. I have no pretensions about it not being a work space. The utilitarian and the notion of 'a sequence of spaces' are alien — at war with each other — many people say. But that space was used in highly intensive ways, and for me it worked. Besides, that is what I think 20th-Century architecture is all about." Isn't that the way to dare?

14

15



16

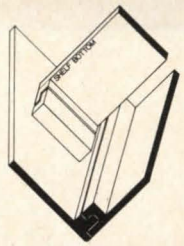
From Rudolph's desk-conference area ***(1, 10)****, circulation continued over the desk, which formed one of the stairs* ***(11)****, up to a third level (see section) that served as a conference area and lounge* ***(14)*** *with a sofa-bed* ***(12)*** *cantilevered from the north end of the platform* ***(13)*** *and Rudolph's drafting table cantilevered from the south of the platform* ***(15, 16, 1)****. It was Rudolph's most daring use of floating platforms to date.*

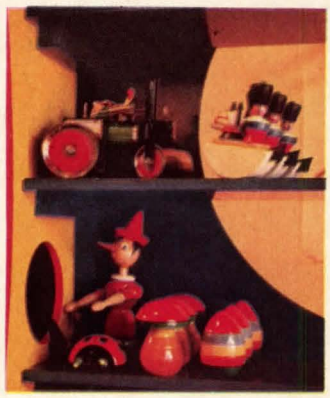
kinetic boutiques and campopop shops

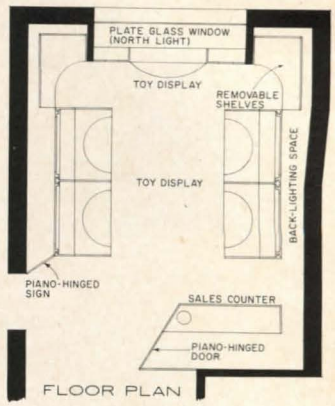
Retailing is holding out a welcoming hand to the effects of Supermannerism, following the lead of drafting rooms, homes, and architects' offices. In increasing numbers, shops are appearing with ambiguous environments and with a permissive attitude toward customer involvement that make them Retail Happenings. Some are kinetic boutiques that offer electrically changing devices to bring the customer closer to the merchandise. Often, this closeness is presented in the guise of television or of space travel, which, paradoxically, have distance as their premise. Other stores shout for attention with Supergraphics and and other boldly painted devices, some of which make them Campopop Shops. A third direction in store design evidences an interest in systems and construction kits. All these directions attempt to catch the prospective customer's attention with imagery and involvement, to make them participate in the Retail Happening.—CRS

3·4·PLATYPUS

In the rear of Philadelphia's Vendo Nubes Art Gallery, Lester Walker designed a toy shop called "3-4 Platypus" as a kit of brightly painted, dismountable shelves. The interchangeable and multifunctional parts, all of ¾-in. birch plywood, make up a series of vertical members with glued-and-nailed-on rails that support removable shelves without nails or bolts. The unit is free-standing and self-supporting. Walker explains that, by cutting away the material not needed for support, he evolved a hierarchy of circular cutouts ranging from those large enough to provide a symbol from the front of the gallery, to intermediate cutouts that facilitate lighting and display, to small openings that create frames for delicate toys. He conceived the design as being strong enough to attract customers from the front of the gallery 50 ft away "yet sensitive enough to accommodate and not compete with the most delicate toy." This kit of slip-together, interlocking Tinkertoy parts point to the expansive potential for knock-down, self-supporting display systems.







FLOOR PLAN

Photos: Louis Reens

"On 1st" is on First Avenue at 63rd Street in Manhattan, so photographer-moviemaker Bert Stern, who owns it, turned on to the shopfront and made it the biggest Pop graphics in town — except maybe for billboards. With Sven Lukin, he planned the giant "O" as the shop window; it has nine closed-circuit TV screens in it that show changing views of the merchandise and of the customer activity inside. The "N" is the entrance. "1st" is painted on a concrete-colored wall alongside.

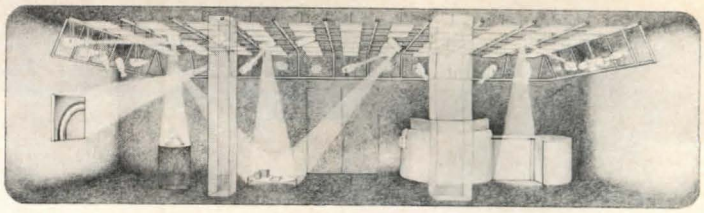
The American Thought Combine, Inc., — a new group of designers that includes an architect, an art director, a physicist, a psychologist, and light-and-sound technicians — who designed the interior, made the shopfront graphics into an illuminated sign that flashes 580 red, green, blue, and yellow incandescent bulbs to turn on the letters in a constantly changing, pre-set series of these primaries and their combinations — purple, orange, and (when all are on together) white.

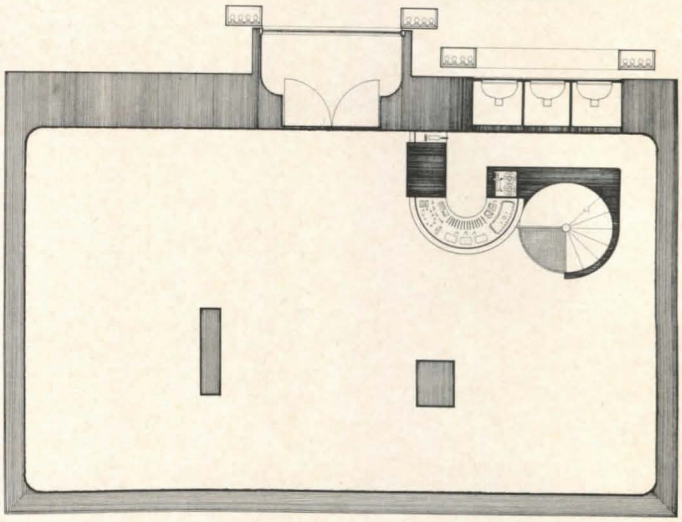
Within the "N," gray glass doors and a dark concrete-colored vestibule create a light lock that makes the entrance almost invisible from the outside.

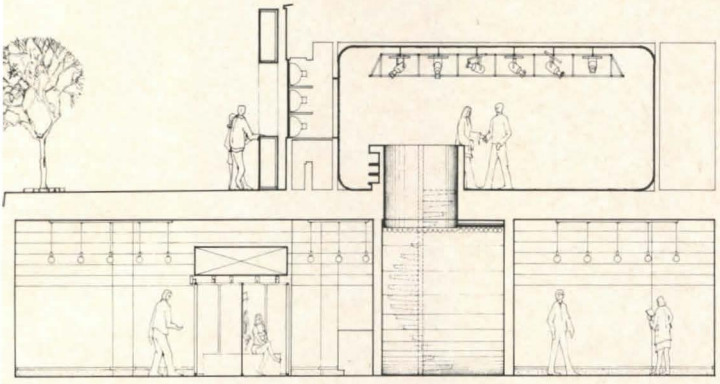
If this shopfront is Supergraphics, rather than simply being large graphics at superscale, it becomes so by virtue of the sequence of spaces from street through the capsular light-lock vestibule to the main sales room within. There, in a dark gallery of spotlighted objects — all designed by contemporary artists: paper plates by Gerald Laing, lamps by Billy Apple; wallpaper by Roy Lichtenstein, furniture by several designers — scale and space are ambivalent, contradictory, and especially when the sound system is in orbit, completely disorienting. Detached from visual contact with the street, the space is a single rectangle covered entirely in dark blue carpet — walls, floor, and ceiling, all corners are curved. (For Valentine's Day, it was aflame with red light.) Beams of lights pierce the gloom to single out objects in their weightlessness.

Just as in all-white, all-red, and all-silver rooms, the totally enclosed, monochromatic dark blue makes the space appear a sunless, infinite outer space — or nonspace. On the other hand, the texture of the carpet surfacing undeniably produces an acoustical effect associated with intimate enclosure — like a telephone booth. So the space is both visually infinite and acoustically confining — a contradictory and ambivalent experience. It is made further ambiguous by gray-mirrored columns that reflect the blue carpet's soft-texture in their shiny, brittle surfaces.

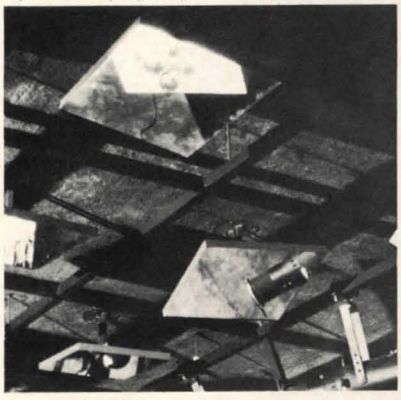
What really sends it out into orbit is the space-console-con-







Aflame with lights for Valentine's Day.



Photos: Louis Reens

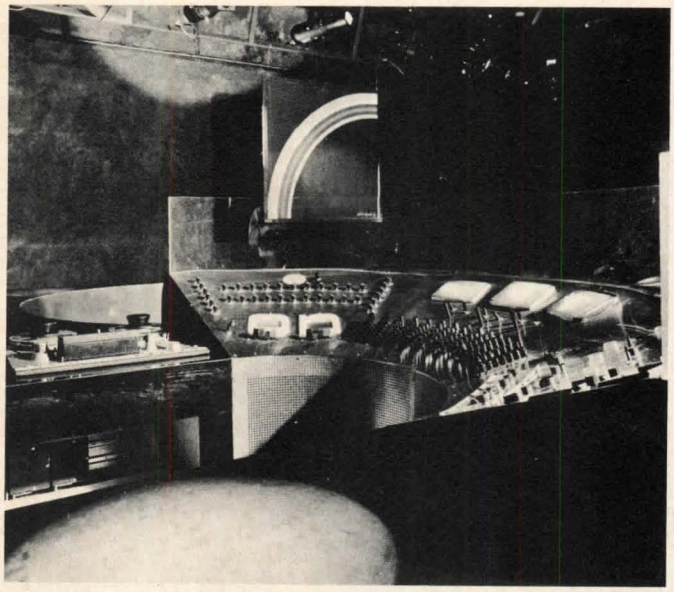
trolled sound system, which has speakers placed "in sound columns" — that is, in vertical pairs of speakers at the curves of floor and ceiling — 10 columns placed around the room. When the system is switching the music from column to column, rotating all around the room in acoustical circles, and when an echo effect extends this acoustical merry-go-round to some indefinable dimension while a tremulo wavers it, like a supersonic fire-engine siren or a flying saucer bleep-bleep, the semi-infinite space capsule starts to spin around and around as the music spirals and echoes and wavers and the whole flying saucer absolutely lifts off. Unsettling? It's the most flying apart orbit you've ever experienced. It's unfreaking-believable!

Next to the dark blue "candy-apple" finish on the light-and-sound control console ("candy apple" is a deep-lacquer-over-silver finish used on motorcycles and hotrods) is a circular stair to the downstairs shop. The balustrade of the stairwell is also dark blue candy apple so that, as you begin to descend, you feel you are going underwater. But under the downstairs ceiling, which is a single fixture of exposed, frosted, incandescent bulbs, the color spectrum changes to laser-like brightness; the spectrum starts at the top with pale yellow and descends through orange to red, ending in a brilliant red carpet. One Parsons design student noted that the temperature actually changes as you go downstairs.

On this lower level is another sales area for clothes and accessories: scarves by Jack Youngerman, Richard Anuskiewicz, and Robert Indiana; clothes by Ken Scott and others. Exposed concrete block and basement piping in this red-carpeted room are painted in horizontal stripes that rise vertically through the color spectrum from bright red to deep red to deep purple to light purple to violet on the ceiling. One feels that the blue room is immediately above. From the violet ceiling hang sparkling lights on violet wires (below).

Retailing aspects of "On 1st" are somewhat contradictory, if enlightening: There is really not enough merchandise in evidence yet, though obviously the stable of artist-designers will be built up in time; furthermore, the staff seems as out of it as the environment. Moreover, the shopping by television that is the image of the show window is a black-and-white image that is less than half of the riotous color effect offered by the objects on sale inside. So the TV conceals rather than reveals.

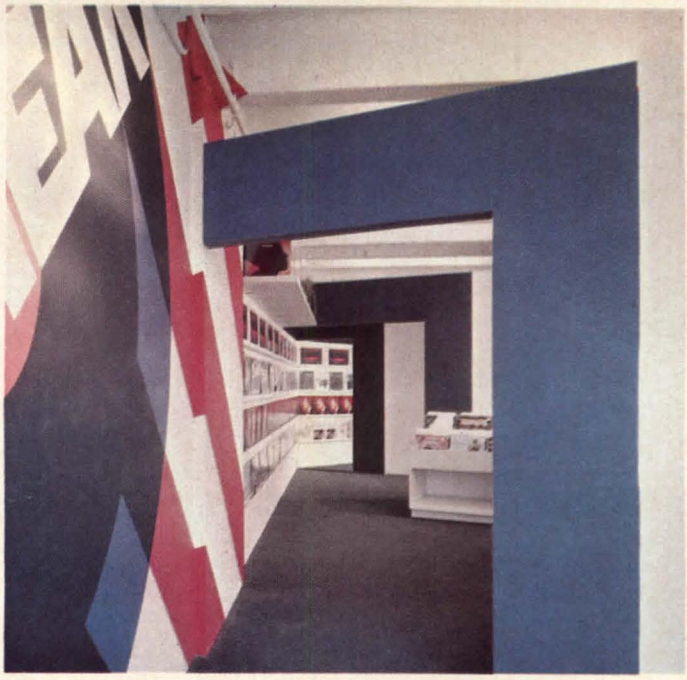
Well, we have a way to go, it appears. But if this shop isn't the blast off, you'd better strap yourself in for the real thing.



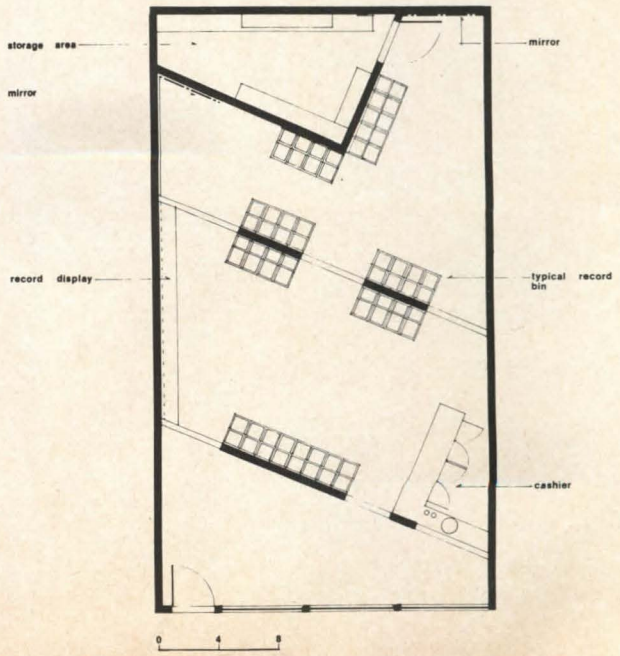
The sound-and-light console.

While sitting in San Francisco's Ghirardelli Square to discuss the design of a new record shop, former P/A Senior Editor James T. Burns, Jr., spun out "Hear-Hear" for a name. Barbara Stauffacher spun it around even further in her logo design as HEAR-ƎAH.

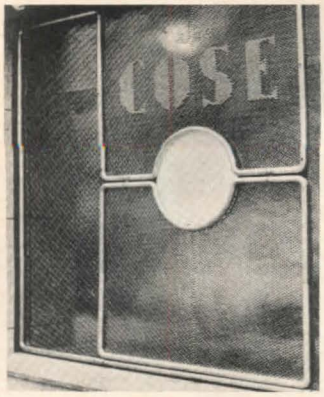
(after all, it is '69). She then added more of her meaningful stripes to Daniel Solomon's diagonally partitioned space: Facing the prospective customer on Ghirardelli Square are mega-symbols of recordings in blue, black, and red, which are diagonally superimposed with supergrooves of purple and black. Adjacent red-and-white bands and groove-like arcs suggest the spread of concentric sound waves. The red-white-and-purple scheme persists on all partitions facing the street (top and center), but when the customer gets to the back of the shop and starts toward the door again (bottom), Bobbie Stauffacher slows him down on his way out with the danger symbol—black-and-yellow diagonal stripes. These are not-so-hidden, persuasive superstripes. Perhaps the longer the customer lingers or is detained, the more likely he will be to buy—or at least to Hear Hear here.



Photos: Jeremiah O. Bragstad



ALTRE COSE



"Altre Cose" in Milan is a couple of other things altogether. It brings an image of space travel to retailing, adding kinetics to that imagery, and it brings the participation of the customer to the selling procedure, making him an active performer in the retail happening.

Designed by Ugo La Pietra, Aldo Jacober, and Paola Rizzatto, the sales area of the shop consists of two small rooms on the ground floor (two adjacent rooms in isometric) with some fitting rooms upstairs (not shown).

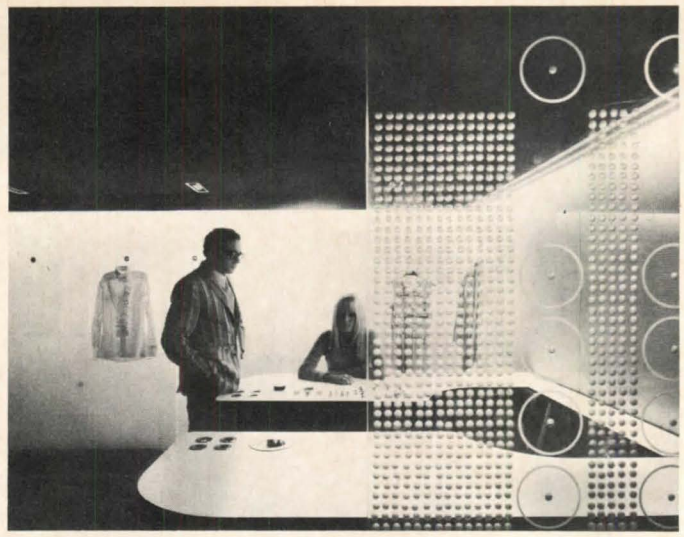
One can enter in either of two ways: first, from the street ("e" in diagram) into the larger main room, where 30 transparent plastic cylinders on the ceiling can be lowered by the customer at the push of a button on the control board (below and facing page, bottom). Each cylinder contains merchandise—hangers for dresses or shelves for smaller items—accessible through long ovate openings in the cylinder. It is "the teleselection of this or that dress, "as Tommasso Trini has written in *Domus*, which makes the customer a performer.

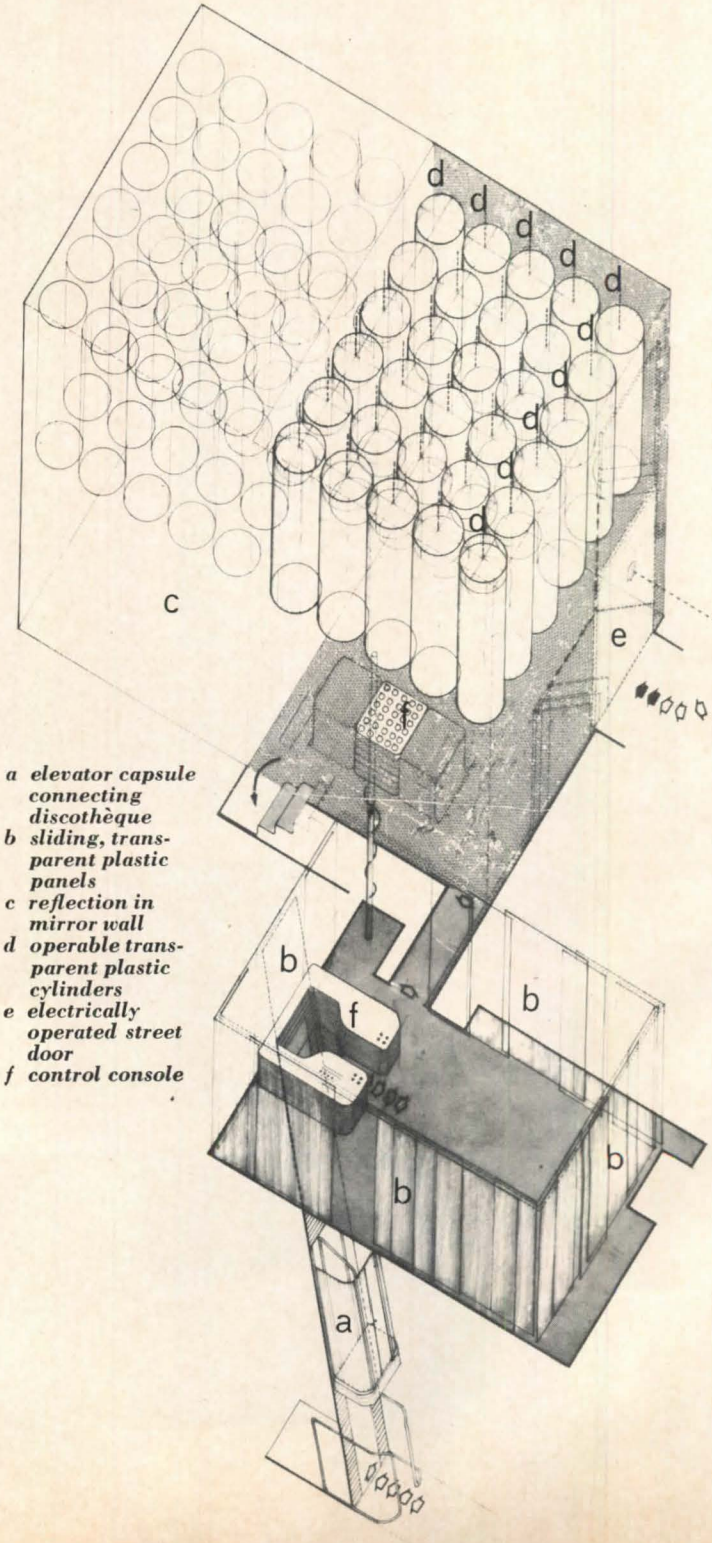
Second, one can enter the smaller, second room by means of a raked elevator capsule (right and facing page, top), which ascends from the discothèque "Bang-Bang" beneath the shop. The control-board entryway and the clear capsule of this elevator make this access a space trip for each visitor.

In the larger cylinder room, circle-perforated aluminum panels—like those used on the street entry (above, left)—line three walls; a mirrored fourth wall doubles the room's size visually. The ambiguity of this environment—reflective, silver, mirrored, transparent, and reiterative in its circle motif—seems a visual interpretation of the element of motion throughout the space.

Lining the smaller room that connects with the discothèque below are panels of textured transparent plastic (facing page, top), patterned in La Pietra's two-scale reiteration (inverted) of the circle-perforated aluminum panels in the other room. They are luminously lighted from behind, making the space an appropriate floating landing pad for the orbiting elevator capsule.

What has "grabbed" Italian critics about the shop is the interchange between fashion and environment that is achieved by the emphasis placed on the active presence and participation of the customer. But what may be an even more important contribution of this design is the environmental expression of several degrees of motion in space—from visual motion by means of the reiterated patterns and textures to the actual motions, at various speeds, of the elevator capsule, of ascending and descending cylinders, and of the syncopated activity as customers suspend action, trance-like, to wait for the movement of these mechanically operated objects. This dreamlike superimposition of speeds and kinetics brings another thing altogether to shop design.





a elevator capsule connecting discothèque
b sliding, transparent plastic panels
c reflection in mirror wall
d operable transparent plastic cylinders
e electrically operated street door
f control console

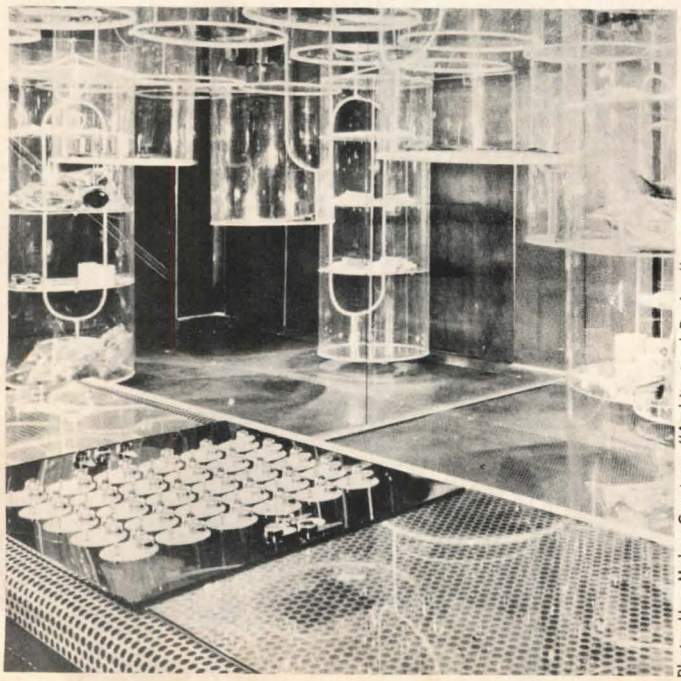
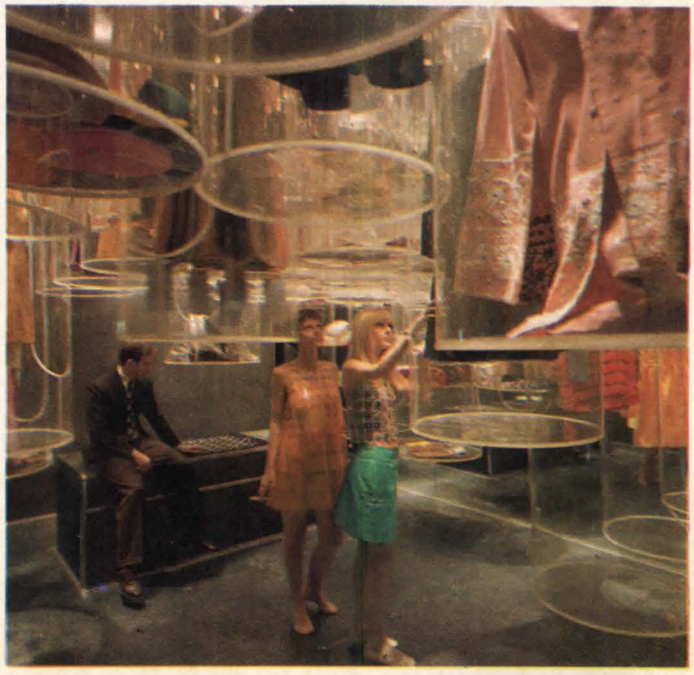


Photo: Ugo Mulas; Courtesy, "Architectural Review"

Milan's "Altre Cose" dress shop has two sales rooms: The larger displays merchandise in ceiling-suspended transparent cylinders that are electrically lowered or raised when customers push buttons on the control board (facing page, bottom; right, and following pages). The smaller sales room (above and facing page, top right) is entered from below by way of a raked elevator with a transparent capsule, which is controlled at a console-gateway. The street entry (facing page, top left) also is electrically operated and opens in unequal parts, one sliding laterally and the other sliding upwards.



lucidity

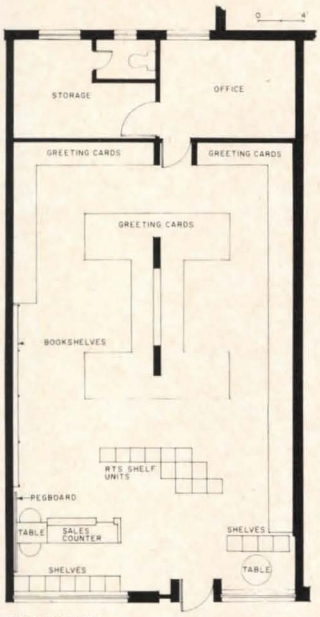
"Lucidity." What a great name for a shop that sells all-plastic items: furniture, frames, tableware, lamps, accessories, jewelry, and custom-made pieces. Like the name, the shop's logo, which was designed by Alan Mitelman, is a graphic presentation of its translucent imagery. Inside, bold black-and-white stripes provide a superscale environment designed by Alan Buchsbaum. Against glossy black and matte-white striped walls and a warm teak floor, owners Lloyd Jordan and Steve Lax display their multicolored and transparent plastic merchandise on glass shelves among ferns and other greenery. Mirrors reduplicate the superscale stripes, which are stopping customers bold in their tracks at Second Avenue at 51st Street in Manhattan.

Photos: Alan Buchsbaum

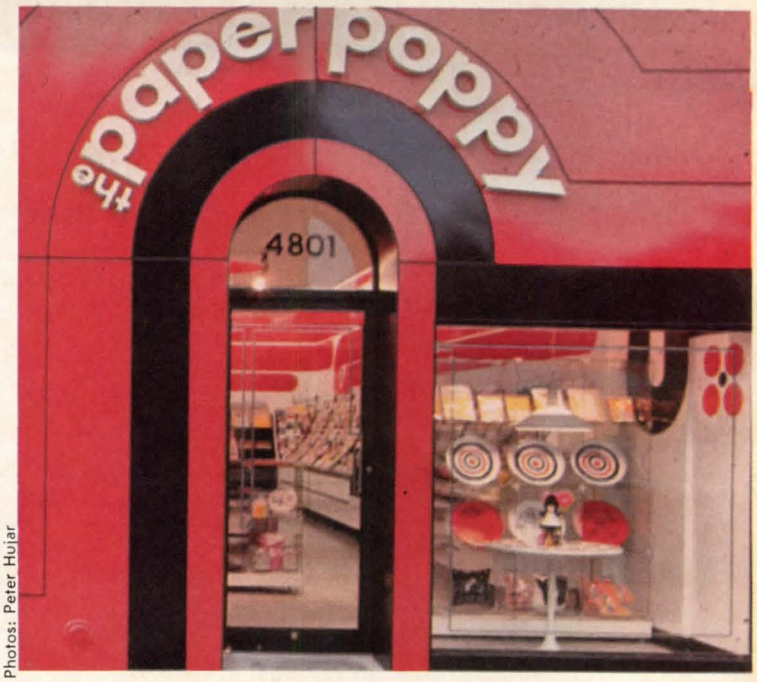
the paper poppy

4801 broadway
new york city 10034
212 942 3620

The Paper Poppy is a card and gift shop at Broadway and Dyckman Street in an Upper Manhattan area that the Dutch used to call "Blumendael," meaning valley of flowers. Alan Buchsbaum's poppy red design drags that ancient Rip van Winkle image into today with its glossy, brilliant red-painted poppies, bold red stripes, and eye-catching, city-brightening shopfront. Poppy symbols blossom onto the street through the store window; they flower on partitions and on the tile floor; they are reiterated in a chandelier over the cashier's checkout counter; and, finally, they are abstracted in the counter cutouts, in the superscale stripes, and the entry door itself. The stripes are not purely decorative but serve to lead customers around the store, avoiding dead corners, and ending at the cashier counter and its splashy chandelier. Red porcelain-enamel steel panels are used on the shopfront; red gloss enamel paint on the interior was varnished to bring out the intensity of the red and to protect its petal thinness. The cashier counter is a bold scale sculpture with two curves in it: one for a seat where cards and stationery are selected; the other for the cash register. Red and purple lacquer with black plastic laminate are the finishes. Above is a chandelier shaped like the poppy symbol on the floor below; a red center is surrounded by petals of purple bulbs. Irene Grabowich was Alan Buchsbaum's design associate.



FLOOR PLAN



Photos: Peter Hujar

Paraphernalia

Ulrich Franzen's fifth shop for Paraphernalia in New York is as near to being a Non-Object as any design we have seen. Projections and people are the whole electric show.

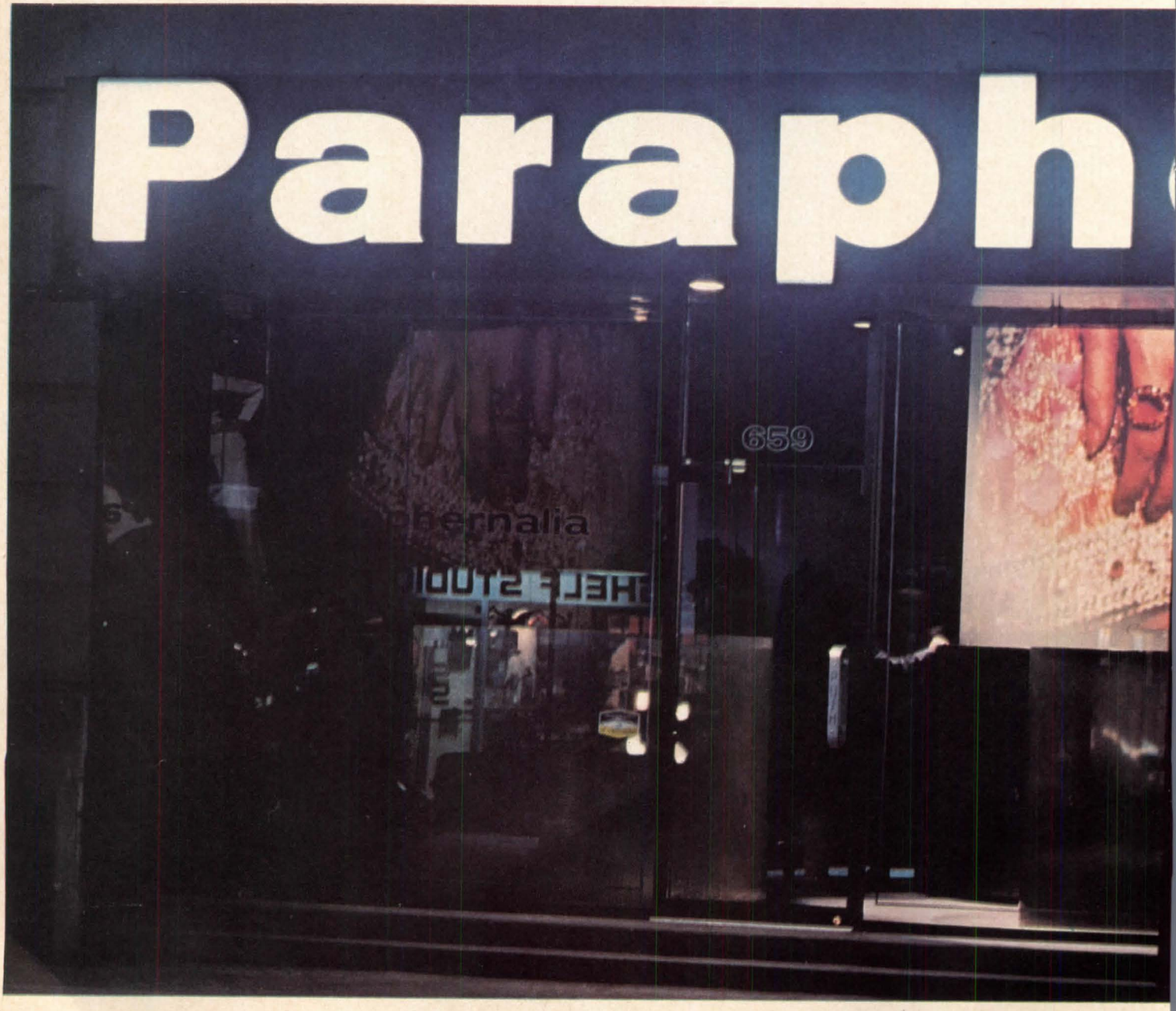
The front is composed of two elements: a single rectangular opening that extends the full width of the shop, and a white-letters-on-black-ground illuminated sign that flashes single red letters in an unphotographable chase sequence: red "P," white "ARAPHERNALIA"; white "P," red "A," white "RAPHERNALIA"; and so on, chasing down the length of the shop in the direction of the one-way traffic on the street. It's today: honky-tonk gone chic. (Or it was in the beginning; since then, the shop next door has cheaply imitated the same chase sequence in its sign, and Franzen has copped out by making Paraphernalia's sign all red all the time.)

Inside, all attention is focused on the rear wall: a projection screen on which splashily colored projections are flashed from three carousel units mounted overhead behind the exterior sign. Flip-click: a pants suit, a bejewelled mini skirt, a girl with the Paraphernalia "target" logo on her chest. Flip-click: a striped mini skirt, a tasseled belt, a bosom of beads. It is almost flashy enough for Tom Wolfe to agree that architects may catch up with the signmakers.

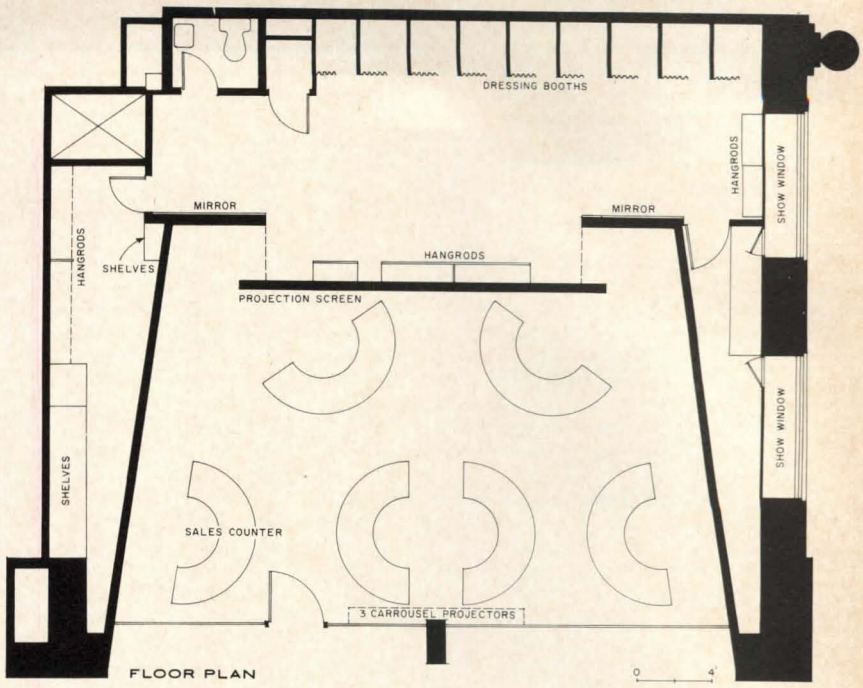
Everything else in the shop is designed to vanish, to be as unobtrusive as possible. The side walls are sheathed in panels of shiny black acrylic plastic; the front window has minimal black framing and is set back from the building line so that the side walls seem to continue through the nearly invisible glass (p. 121, top). A structural column is sheathed in black aluminum. The ceiling is black; the carpeting is dark tan, continuing the color of sidewalk into the interior. Six 4′-6″-high stainless-steel arcs, which echo the target logo in plan, carry the "silver screen" effect of the rear wall down to the floor, so that the space is all silvery white in the middle and black everywhere else.

From the outside, apparently, there are no display cases, no counters, no lights, no merchandise — nothing except the projections on the rear wall of a black hole punched into the building (p. 121, bottom). The views of projected merchandise and the girls trying things on (plus the music, music — "Freedom, FREEDOM!" It's a Dresscothèque!) are the new idea in retailing.

Franzen explains that the shop is designed "so that the projected images, rather than the merchandise in the store, become the enticement, provide the impulse to look and to come in. Everything



Photos: Louis Reens



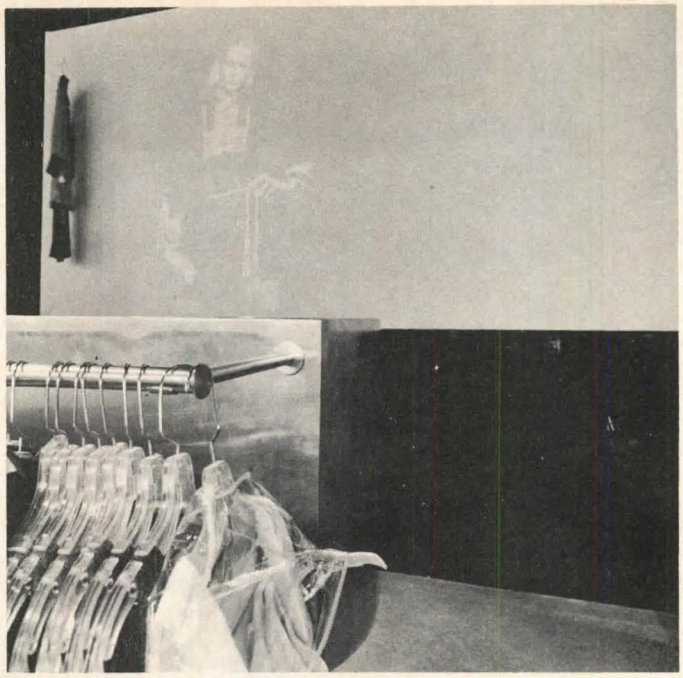
was done to create an environment and an ambience in which the people and the projections are the performance, in which the customers project themselves into a different context, into the ambience of a discothèque. And, from the outside, they feel left out until they come in and join the show."

Merchandise, in fact, hangs on low racks within the stainless-steel arcs, which screen these surprises until customers come in to explore. Obviously, this daringly contradicts the traditional approach to retailing, in which as much merchandise as possible is displayed to the prospective customer.

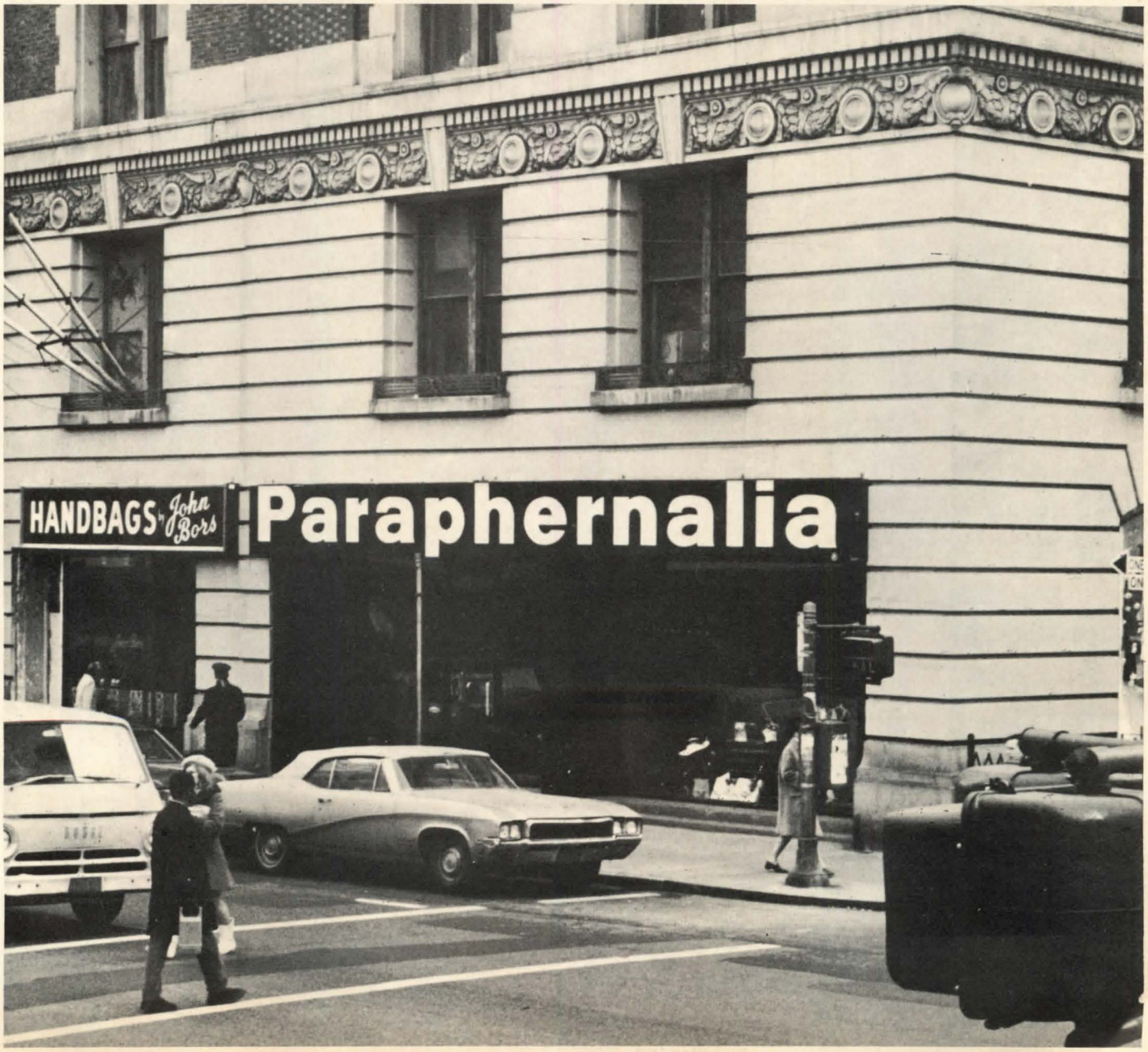
"The Paraphernalia people have been understanding and perceptive about this," Franzen explains, "recognizing that it isn't the garment that you sell but rather an image of what one could look like."

Joseph Lesser, the man who holds the franchise to this shop, which is at Lexington Avenue and 55th Street in New York, tends toward the traditional retailing approach. As a result, he has rearranged the arcs and has hung dresses on the outside of them and on the black walls so that more merchandise is visible from the street; he has added display cases and signs (including the name of the shop painted on the glass twice). He points out that the new arrangement of the arcs, which opens up the alcove effect, has cut down on the ever-present problem of shoplifting.

He may be right for his location and for his time. However, he has not maintained the minimal design of the shop as a Non-Object, nor has he given Franzen's idea of merchandising a fair trial. Too bad, because selling by means of projected images in a shop may be the first step toward retailing by television, which is a prediction for the future.



The projection show, which communicates the image of Paraphernalia as well as illustrating its line, was devised by Menell Associates, who also were involved in fabricating the equipment and in producing the slides. Jerome Menell explains that three carousel units mounted over the entry have 1200-w lamps, special condensers, and optical systems as well as a fan-cooling system. Controls for stopping and starting the show are near the cash register. The screen is a special, high-reflectancy, matte white paint. The budget was about $5000.



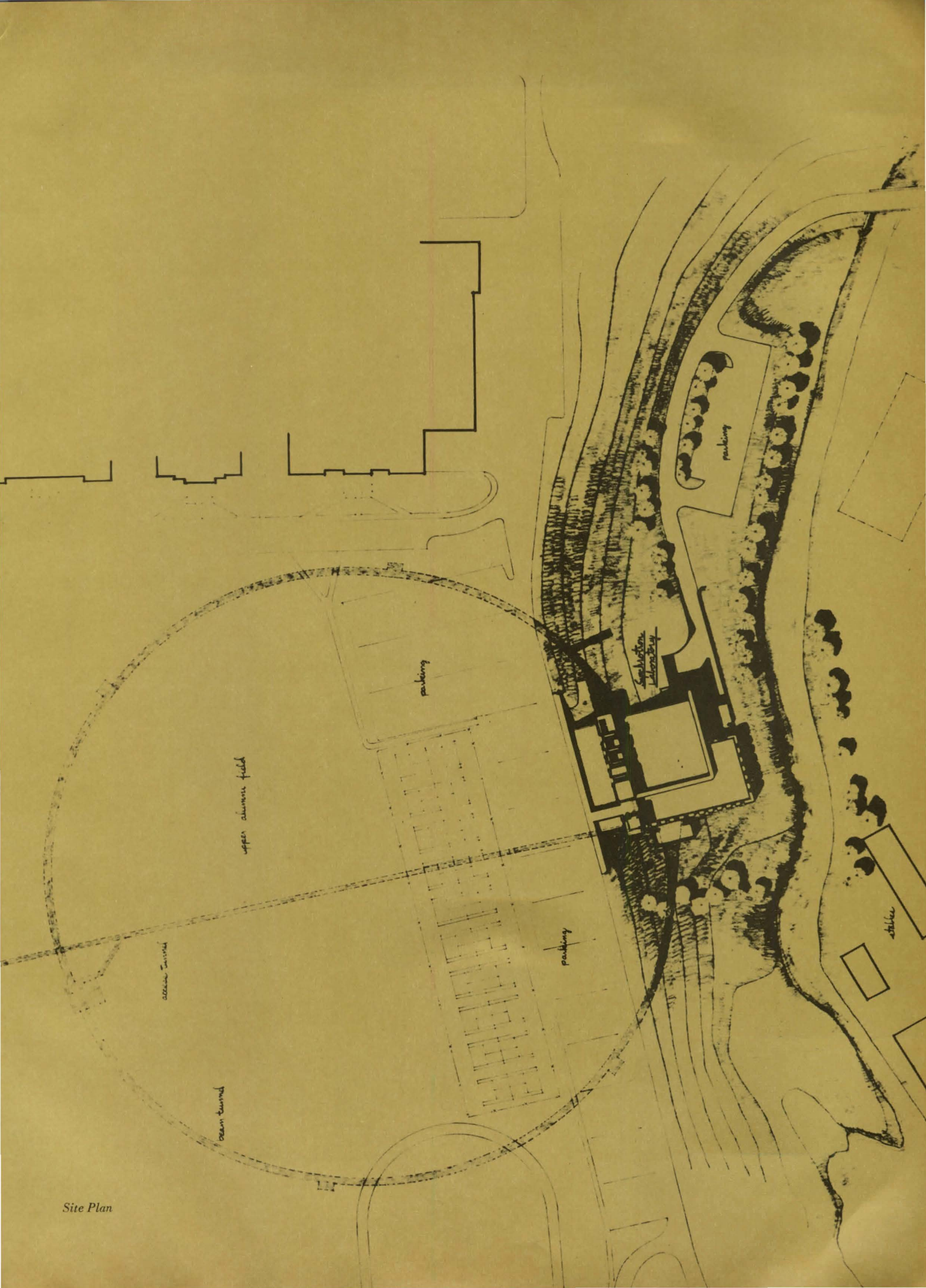
FORTRESS FOR PHYSICS

Laboratory houses world's largest electron synchrotron.

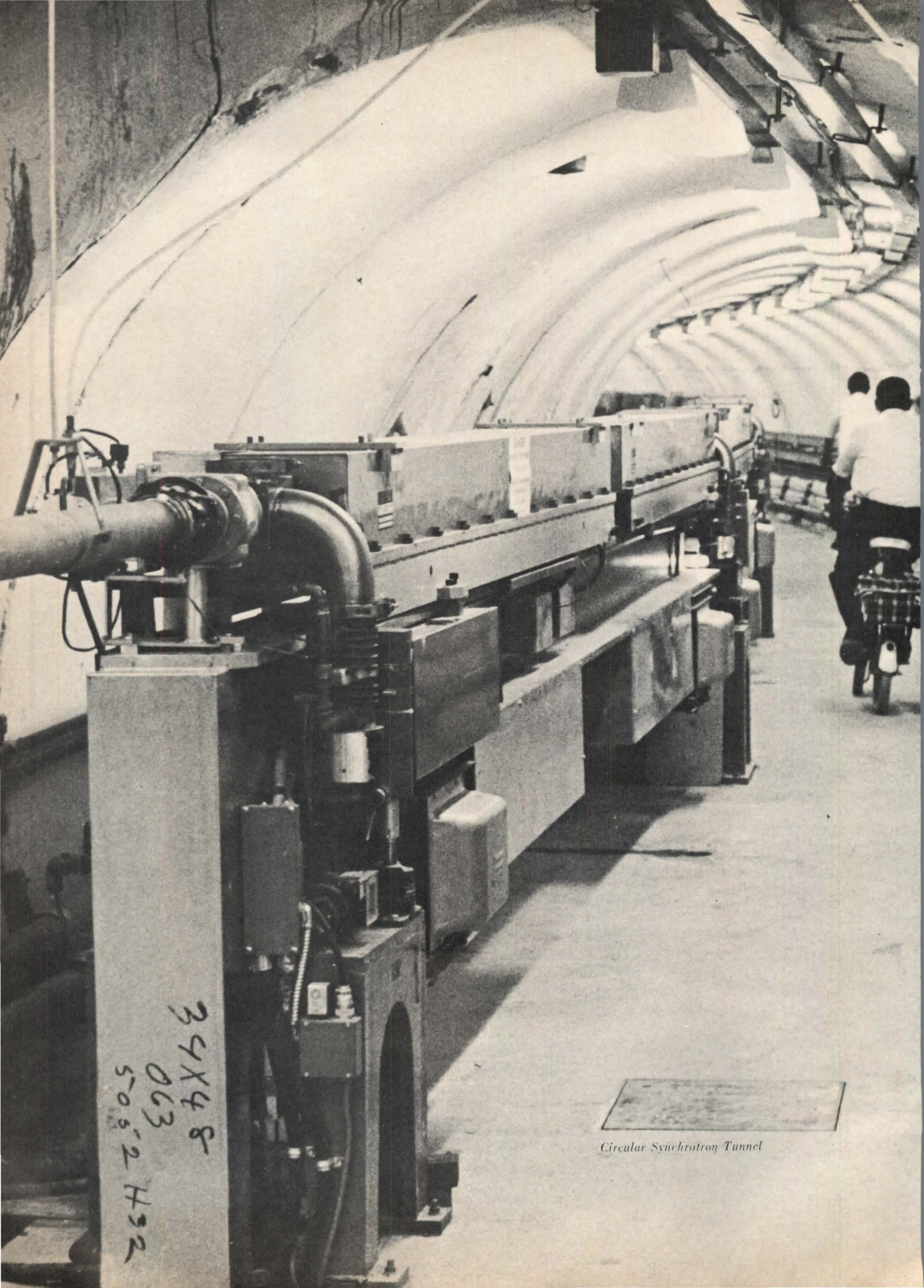
When the Wilson Synchrotron Laboratory was still a project, several alternate off-campus sites were being considered for it. After a preliminary feasibility study investigating adequate radiation protection and construction that would make the laboratory compatible with the rest of the campus indicated that a campus location was not only safe but desirable, the board of trustees gave the go-ahead signal. Thus, Cornell is the possessor of the world's largest electron synchrotron, with related research facilities housed in a turreted building by Mackinlay/Winnacker of Orinda, California.

The site location was a good decision, since not only is the lab convenient to professors and students, but it gives the Cornell campus a uniquely academic looking building, a kind of strong, dark fortress for the magicians of a very new mystery. It even stands on the slope over little Cascadilla Creek like a castle on the Rhine. What is visible to the eye from the exterior, however, is very far from the entire story. The architects have compared it to an iceberg, the part that shows being only a fraction of the actual complex. Extending out from the structure, buried under parking lots and playing fields, is the circular synchrotron tunnel, one-half mile long and wide, and high enough to accommodate equipment as well as the scientists and technicians who ride small bicycles through it, checking and maintaining the gear. Great emphasis was laid on returning the terrain to its original state, and this has been accomplished satisfactorily, so that student equestrians ride in the practice ring across the creek from the lab little suspecting that inside electrons are being accelerated to an energy of 10 billion electron volts. Somber brown brick with specially cast radial shapes for the curved corners, and bronze sash and solar bronze glass add to the fortress-castle image.

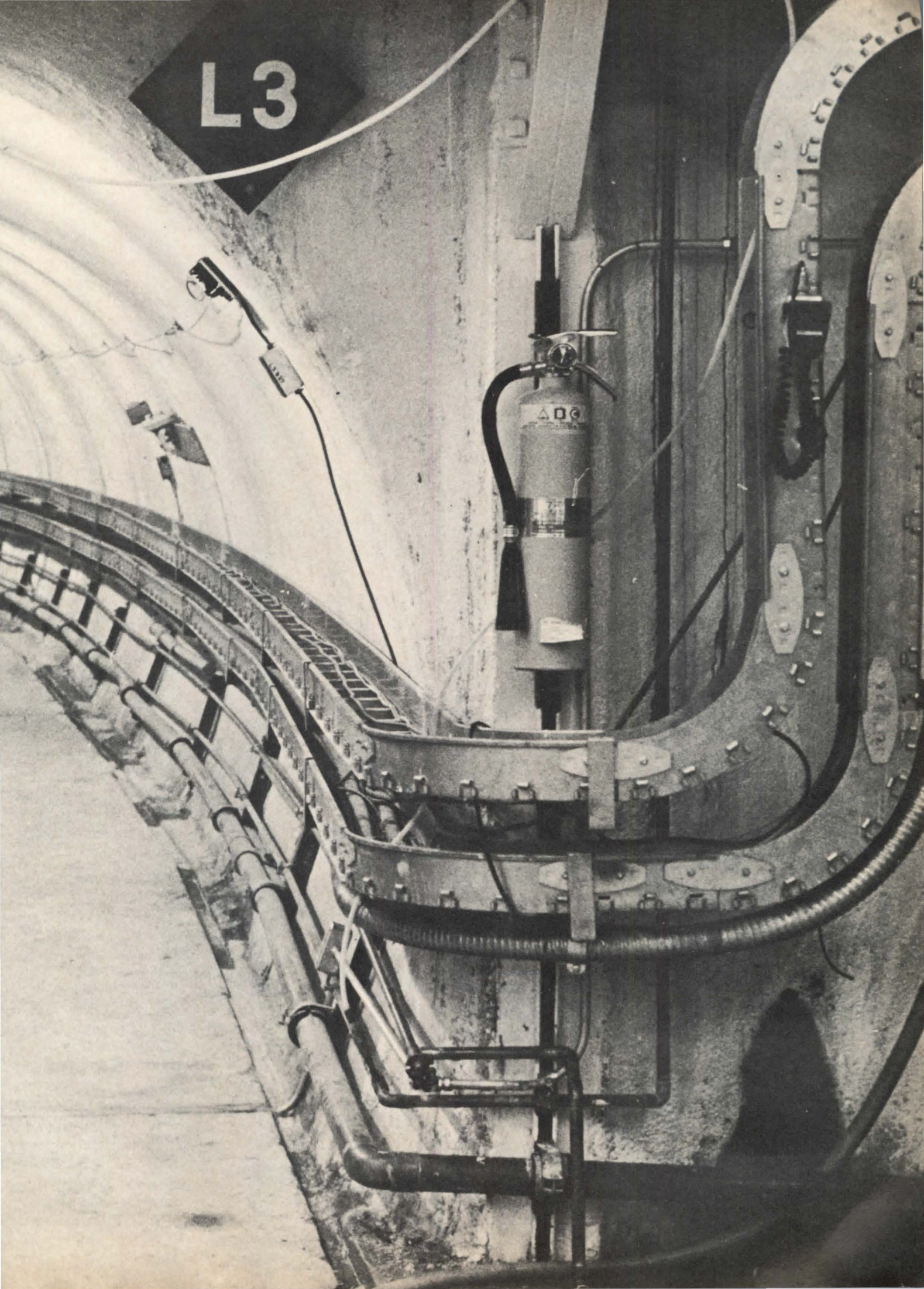
The radial towers of the building house the electrical power equipment and the cooling systems for the building and the accelerator. Air intake is between the

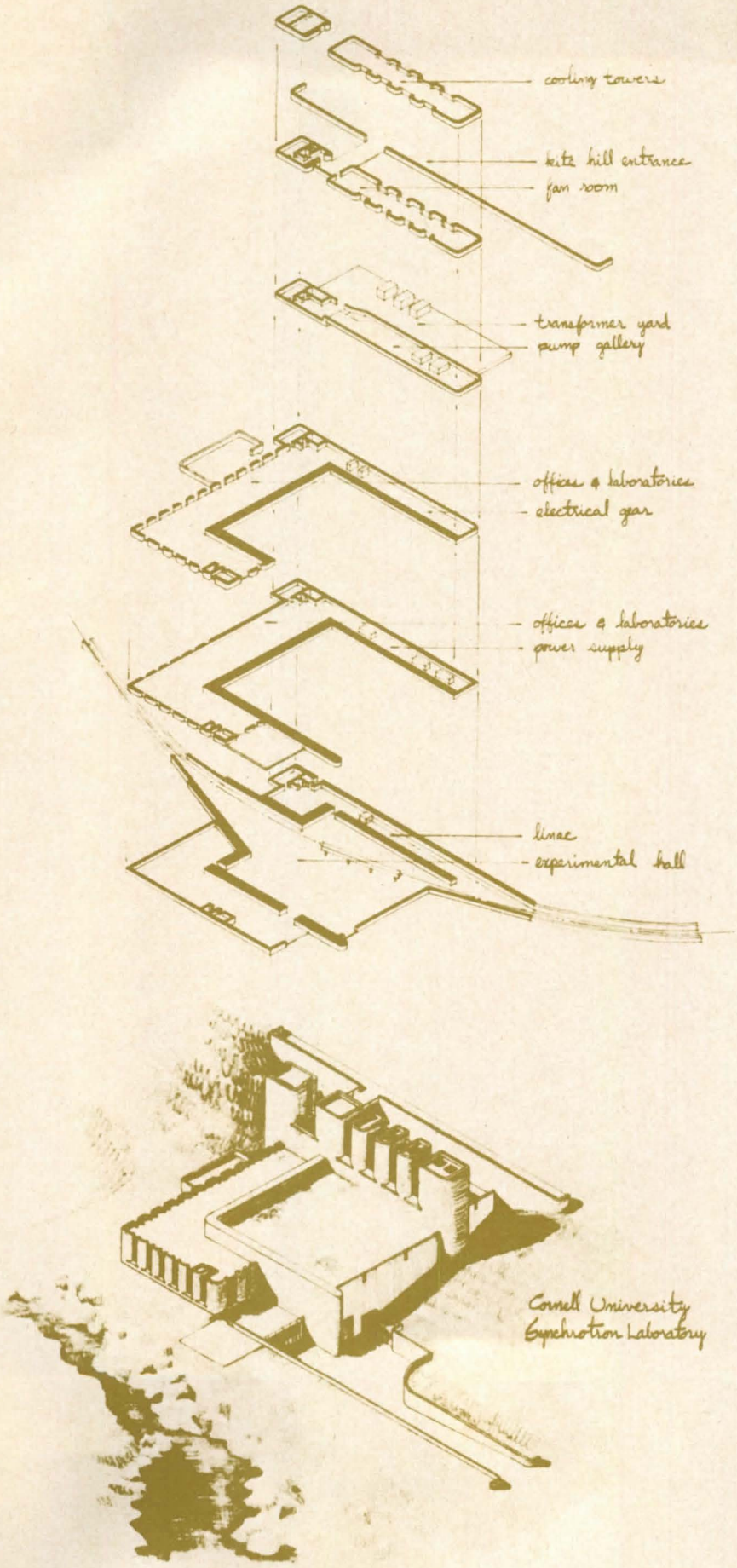


Site Plan

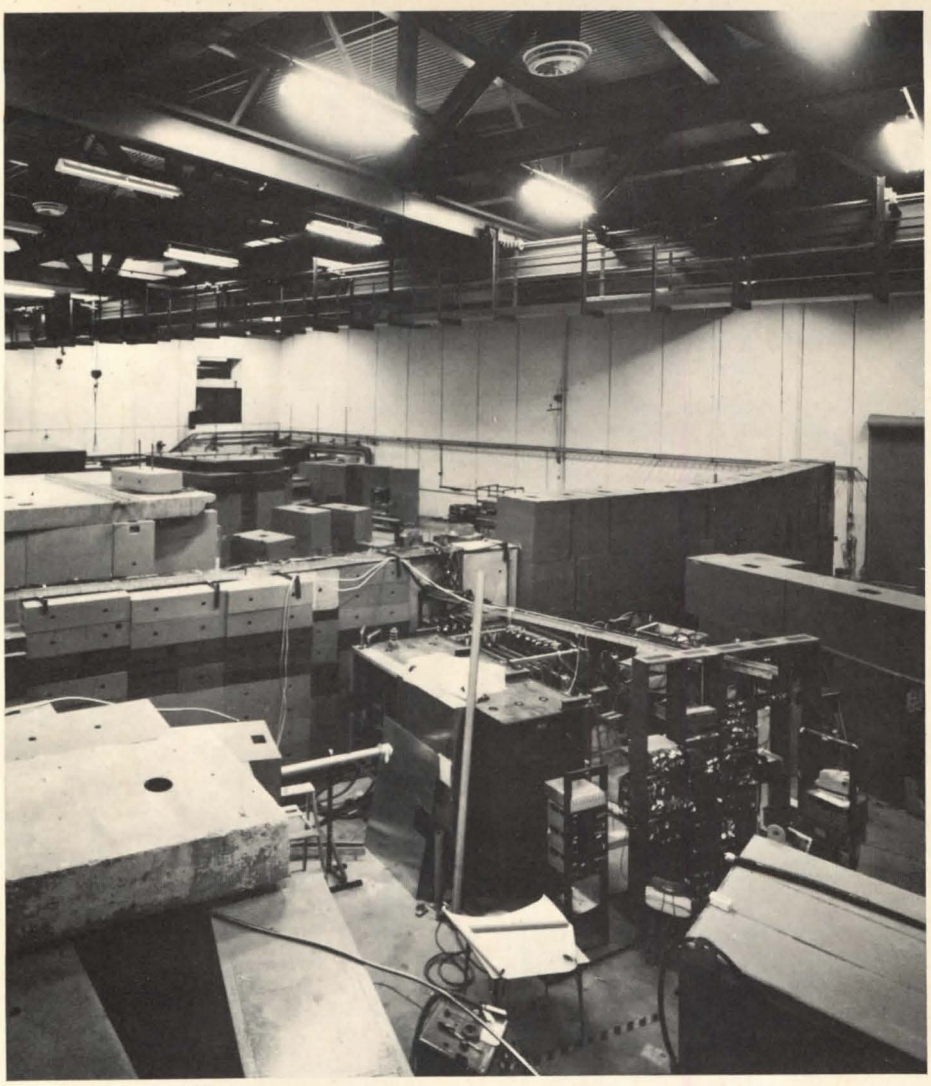


Circular Synchrotron Tunnel


L3



WILSON SYNCHROTRON LABORATORY, *Laboratory of Nuclear Studies, Cornell University, Ithaca, N.Y.* ***Architects:*** *Mackinlay/Winnacker & Associates.* ***Site:*** *On-campus near university playing fields. Cascadilla Creek realigned to run around building. Presence of rare and experimental trees nearby required that site be disturbed as little as possible during construction.* ***Program:*** *House 10 GeV synchrotron and related activities and research facilities. Basic building program developed by university in conjunction with architect to provide services and environment necessary to conduct high energy physics research.* ***Structural System:*** *Reinforced concrete bearing walls and floors; trusses for long spans. Linear accelerator stack is designed as a vertical Vierendeel truss to resist large lateral earth pressures. Roof of synchrotron tunnel route is steel decking with 2 ft of concrete and 6 ft of stone overhead. Here, 8-ft-thick concrete shielding walls bear on rock concrete. Spread footings under building walls; cassions under tunnel walls.* ***Mechanical System:*** *Air conditioned from central plant system. Steam from campus central boiler plant used to generate hot water for low-temperature hot-water heating system. Two 250-ton centrifugal chillers provide cooling for air-conditioning system. Chillers are also used to dissipate heat, using heat exchanges in the synchrotron low-conductivity water cooling system.* ***Major Materials:*** *Brick used to veneer the concrete; bronze sash and solar bronze glazing. Inside, gypsum board and exposed concrete, concrete and vinyl asbestos tile floors.* ***Cost:*** *Approximately $5 million including building and tunnel, all utility services and connections, and synchrotron support equipment.* ***Consultants:*** *Pregnoff & Matheu, structural. William M. Brobeck & Associates, mechanical and electrical. Don Jacobs, Jacobs Associates, civil (plus tunnel). Irwin & Leighton, general contractor.* ***Photography:*** *David Hirsch.*

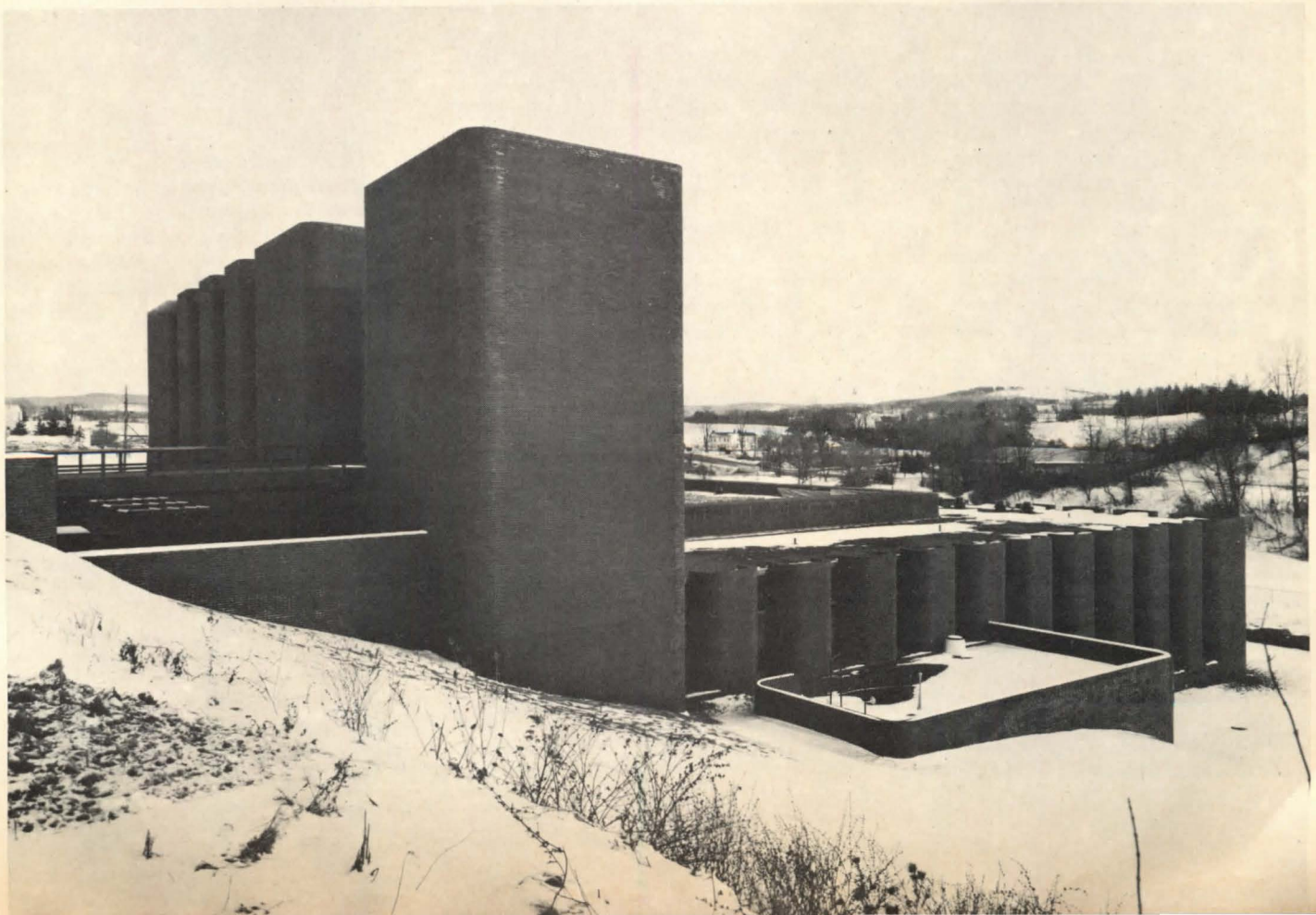


Main Experimental Hall

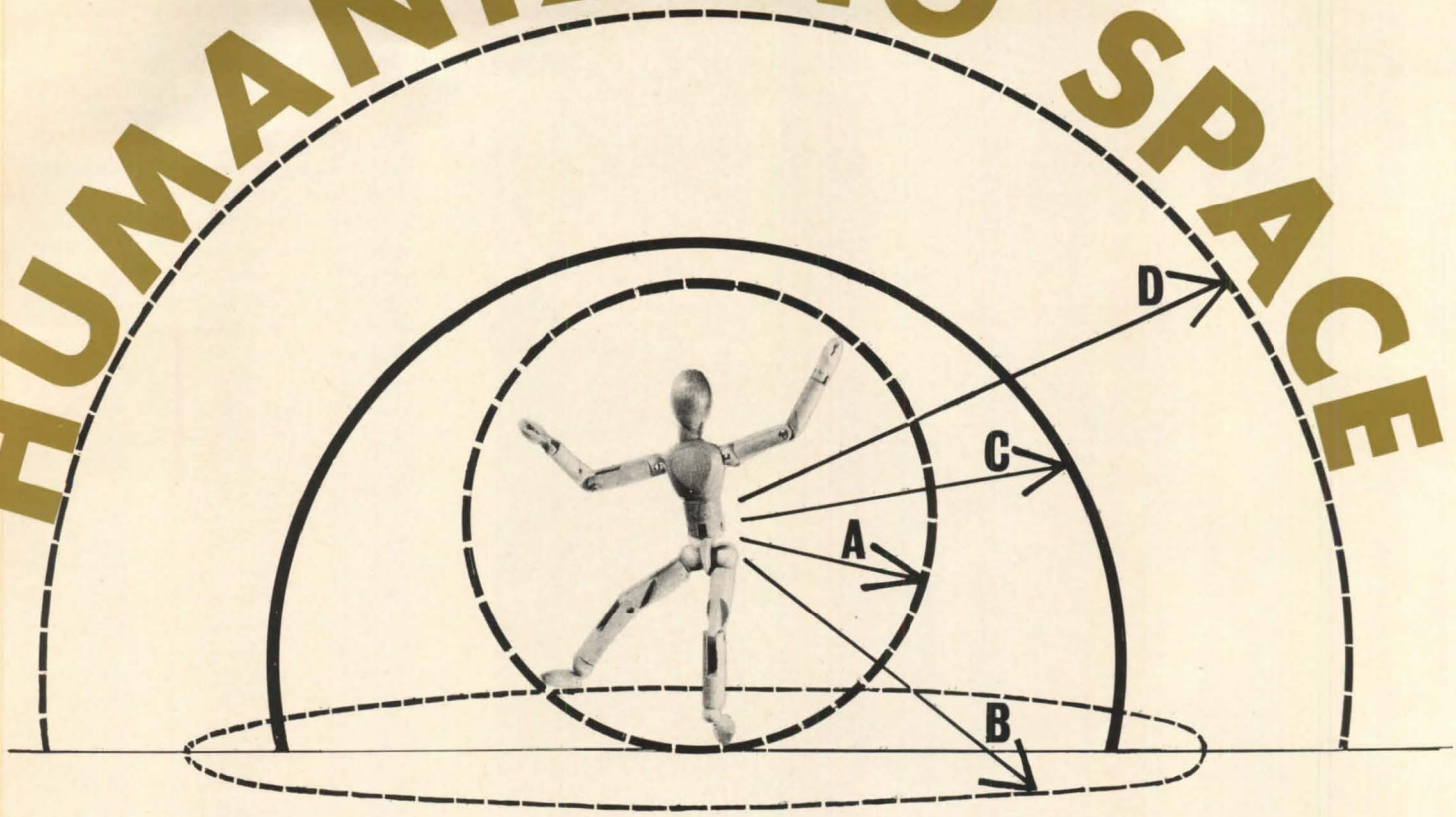
towers, and exhaust is from the tops of the towers. The expulsion of the heated air into a cold winter atmosphere can produce spectacular plumes of steam — a great effect. The architects feel that the radial form of towers and corners reflects the nature of the accelerator itself, and the massive hulk of the building echoes the thick concrete radiation shielding walls on the inside.

The tunnel contains a ring of electromagnets that force the electrons to move in a circular path. For technical reasons, the electrons must be brought into the synchrotron at moderately high energy, and so the lab has a linac, or linear accelerator, for this task.

Electrons are introduced into the synchrotron at an energy of 150 million electron volts. After about 3300 revolutions around the half-mile track, taking only eight-thousandths of a second, the electric fields will have brought the particles to the requisite 10 GeV energy. The entire process occurs 60 times each second. After this no doubt harrowing experience, the study particles are brought to the huge, colorful main experimental hall there, hopefully, to reveal more secrets of the nature of matter. The great blocks of iron and concrete in the hall are for purposes of shielding particle-detection equipment from radiation. The vast synchrotron can be controlled with electronic apparatus by a single operator in a central control room. He can adjust or "tune" the many components of the accelerator to guarantee the supply of electron particles in the number and with the energy needed for experiments.



HUMANIZING SPACE



1 *Spherical space: man projects his personal sphere, A, into B, dance, C, shelter, D, the celestial sphere.*

By Michael Leonard, A.R.I.B.A., London, England. The author is a practicing architect who has taught in England and Germany, and who has been active in design and production in the fields of theater and the dance.

"Architecture," according to Laszlo Moholy-Nagy in *The New Vision*, "will be brought to its fullest realization when the deepest knowledge of human life as a total event in the biological whole is available. One of its important components is the ordering of man in space, making space comprehensible by its articulation. The root of architecture lies in the mastery of the problem of space."

Architecture has generally been evaluated as though man and space were two entirely separate entities. Concrete or stone may enclose volume, but it is man who creates and experiences the *sensation* of space. The formal characteristics of the structure are the generating forces. They are the source of a great range of sensory stimuli, and the first stage in perception is the receipt of these messages. The activity of the nervous system and the mind which follows is complex but also constructive and selective. The information essential for spatial orientation is assimilated and correlated, and a great deal that is irrelevant is filtered out. Normally, this process is largely automatic and as natural as breathing or walking. Although man becomes aware of a given space through the whole range of his senses, the final product in the perceptual process is a single sensation — a 'feeling' about that particular space, and this he projects onto it, so that any space will appear to have its own specific character. Whereas the first stage in the process operates more at the unconscious level, the final phase evokes a reaction that is emotionally charged. An ill-proportioned and badly lit space can have so unpleasant an atmosphere as to be repulsive, and a really inspired space will be found uplifting.

Your Own Space

The womb provides man with his first enclosure; exactly how much this experience affects his later thinking is still conjectural. The first actions in man and animals make use of body controls before vision is fully operative. The point at which the child reaches out to touch objects is when he is coordinating his bodily sense of space with the visual structure of his environment. Psychologists have tended to classify the perception of space as a visual process, and textbooks show a bias toward factors such as convergence, overlapping, and texture gradients. However, space may also be revealed by the sense of touch, sound, or smell, and inevitably some aspects of these serve to reinforce the visual sense. The deadness of sound in a heavily upholstered and carpeted apartment, or the resonant echo of footsteps in a cathedral, give added definition to spaces. The smell of the damp walls of a cellar heighten the sense of enclosure.

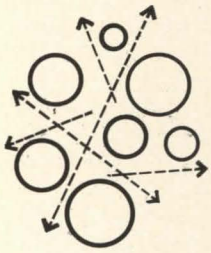
The feet utilize the sense of touch, or rather of pressure, to gauge changes in floor surface from carpet to wood, stone to cobbles, and, more important, they sense the changes in inclination of the floor plan.

Keeping an Even Keel

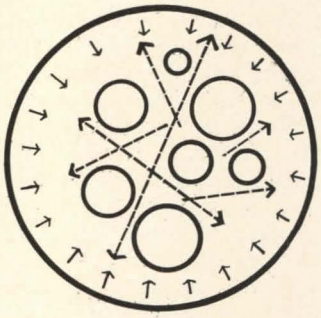
The kinesthetic sense is the one by which the actual position of the limbs is ascertained. The vestibular sense, which is centered in a mechanism in the ear, measures changes in the rate of motion and inclinations of the body on its vertical axis. Jointly, these two senses maintain the body in balance. The horizontal and the vertical have become the dominant visual elements in architecture, because the horizontal plane allows the body to be navigated across it with a minimum of effort, and the vertical gives man a constant reference against which he unconsciously parallels his stance. Inclined planes and diagonal lines consequently will always have a dynamic quality, because they provide a challenge to human equilibrium.

The body in motion, looked at as a piece of kinetic sculpture, presents an extremely complex pattern of relationships in space. The controls needed to coordinate this movement operate largely at an unconscious level and provide the foundation to man's spatial sense.

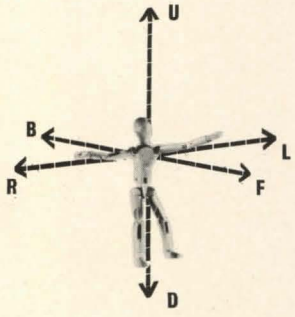
2 *Positive space. Space contained, visual field limited, inner focus, static.*



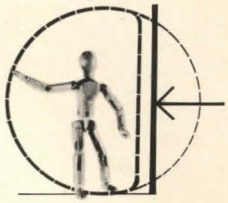
3 *Negative space. "Space left over," visual field unlimited, lacks center focus, dynamic.*



4 *Combination of positive and negative space.*



5 *Rectangular space is generated from the three axes: up-down, left-right, backward-forward.*



6 *The sensation of space. As surfaces come closer to body, they give an implied and then a real restriction to movement, and induce "tension."*

The curves created by the swing of extended arms and legs define a space that is basically spherical. This sphere encompassing man is a physical reality that he has translated into a psychological one, for he has come to identify this zone as his own personal property. His attitude to this space is revealed in metaphors of daily speech, such as "keeping one's distance." There are prescribed conventions for the distance to be maintained between individuals due to nationality, class, or circumstance. Generally, if the space is intruded upon, the reaction is to draw away. Between friends, this space may be reduced; between lovers, abolished. The egocentric individual may feel his personal aura of such dimensions that he expands this sphere accordingly.

Communication by expressive sounds and signs undoubtedly preceded language and is still an essential in human relationships, for such gestures reinforce the pattern of speech. Man is generally unaware of the way in which he expresses himself in movement or of the way in which he reacts to the movement of others.

Significance of Spatial Form

It is astonishing that psychologists have only recently acknowledged "Nonverbal Means of Communication" as a valid field of study, when man's movement and gesture provides so obvious a window into the subconscious. In the search for principles that will explain the expressive power of shapes in painting, sculpture, or architecture, attention must be directed back to man and to the pattern of gesture that is the richest and most instinctive source of expression.

The circular or spherical space is the one found most consistently in the burrows of animals and the nests of birds, and it is also the first form by means of which man expressed himself, both in architecture and in dance. It is a projection of his personal "sphere," and is found both in the shapes of individual huts and igloos, and also in the circular grouping of villages. Using only this single element, the circle, primitive communities across the world exhibit a wide differentiation. This is space used at its most fundamental level, and as such can be used to illustrate first principles.

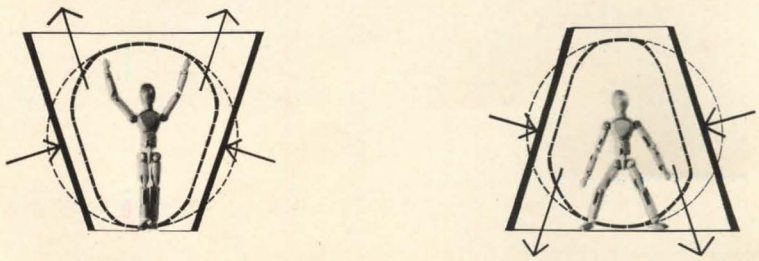
The placing of a single dwelling in an empty plane immediately "charges" the scene spatially. The space within the building is clearly contained and "positive"; the space around the building has no clear character of its own other than having been displaced by the hut and is "negative." (An equivalent relationship in two dimensions has been classified by Gestalt psychologists as "figure" and "ground.") When a number of huts are set together, the space between them registers more strongly as remainder or "negative" space.

Positive space is more static in character and has an inner focus; negative space is dynamic, for it gives no feeling of center, the visual field is not limited, and there is a sense of expansion outward. Modern architects have provided many sophisticated adaptations of cluster groupings.

Space in a Circle

The circle as a two-dimensional symbol derives great power because it is incapable of further simplification, and circular and spherical spaces derive a similar strength visually, for they, too, appear incapable of further reduction. The eye moves freely in such spaces, finding no corners or edges. There are no axes and the focus tends always inward toward the center. As man's personal movement is so closely related to the sphere, any experience of space built upon this form will affect him in an indefinable way, as some kind of projection of himself. The celestial sphere is a concept of the heavens found at many times and in many places, and is the ultimate projection of man's personal space.

In *World History of the Dance*, Curt Sachs writes: "When men were no longer content to seek out caves or overhanging rocks or to set up simple windbreaks to protect themselves from rough weather, when they set about building huts, it was a circular room they made for themselves. The dwellings of primitive peoples look like beehives; no perpendicular wall, no square grew from his hands. The space conception of the basic cultures, and of a large part of the early levels, requires the circle. This noteworthy fact stands convincingly beside the other fact, that in dancing also the circle is the earliest space form. In dance, indeed, it is infinitely earlier; before man expresses his space requirement objectively with foreign materials, with wood stalks and stones, he must satisfy the impulsive movements of his limbs and trunk. How strong this inner need is, how inseparable is the formation of movement and construction, is illustrated by a further fact:



7 *Sensation of space. Planes inclined in section (l.) can give a sense of uplift or depression. Planes inclined in plan (r.) can impel the body forward or imply a restraint to movement.*

In those cultures which depart from circular building and set up rectangular huts — and quite exclusively in such cultures — the choral dance also takes on the form of the straight line. The formation and development of dance coincides essentially with the formation and development of the circular hut; the front dance is connected with the formation and development of the rectangular hut."

To the Angle

The rectangular space is a space conception of man that is also strongly related to the form of the body, but at the same time is a development that reflects the power of man for conceptual thinking.

The axes *up:down*, *backward:forward*, and *left:right* provide an invaluable system of coordinates. Consciousness of these dimensions would have provided a more effective means of communication and of coordinating group activity in hunting and fighting, and would probably have necessitated the development of language to the point where it could express these terms. The concept of the right angle, the square, and the cube was a cornerstone in science, which ultimately gave man further control over his physical environment. It also provided the points of the compass, an essential aid to navigation.

Our complex sense of gravity makes us prefer a horizontal plane on which to step. Standing and walking on a ramp or incline requires many more trickily balanced movements than walking on a level floor. Our entire architecture, stratified as it is on level planes, is evidently prejudiced in this circumstance.

The strength of gravity, for example, naturally and strongly contributes to our awareness of above and below, the "upward" and "downward" in space. When we react to the space in front of us, it is to something quite different than to the space behind us. The human species, like its more recent mammalian ancestors, has eyes, its visual receptors lodged in the front of its head, not in the sides or the back of the skull. Nose and ears are less clearly oriented in their function; nevertheless, when stimulated, they make us turn and face the issue. Arms and hands, legs and feet are so jointed that the range of their effectiveness is greatest if we bring our body into a frontal relation to events in space.

As a matter of course, the meaning "ahead" and "behind," a space conception endowed with "forward" and "backward" permeates our thinking and feeling. All things in front can be controlled or tackled; things behind are out of such control, but are better not left unsettled, lest they remain a source of peril. "There is nothing metaphorical about this, perhaps in a million years it penetrated into primitive reasoning and it has given emotive color to all the aiming and struggling of the species, and the individual," writes Richard Neutra in *Survival Through Design*.

In the course of time, the three axes have developed symbolic associations. Man unconsciously makes use of different spatial zones in his movements and gestures, which make the handwriting of each individual a personal statement.

The axis *up:down* is one on which the body moves in emotions varying from elation to despair. In moments of joy and happiness, the mood of buoyancy leads to an elevation of the body on its vertical axis and man "walks on air" or is "on top of the world." Depression is accompanied by a relaxation of the muscles, and the body slumps into a typical posture, expressed by metaphors like "feeling low" or "down in the dumps"; even the term depression itself refers to a pressing down or lowering. The ultimate is his axis for man's lofty aspirations or base desires: heaven and hell.

The axis *backward:forward* can have associations of past/future, introvert/extrovert, passive/active.

Left:right has had an extensive literature, perhaps because of the tendency to left- or right-handedness. In gesture, the right hand is usually more active and demonstrative, but the left hand is often more revealing of unconscious motivation. Insincerity in gesture is often identified through an exaggerated or distorted pattern, and similarly in attempts to disguise handwriting it is the element of shape that is altered before all others.

Most architects today have an allergy to symmetry, and yet, in the design of religious buildings, some element of symmetry may well be an essential, for the movements used in ceremonials around the world show a preponderance of movements in which left side exactly balances right.

The reader can better understand this if a gesture of the hands be made so that each is the mirror image of the other, the limbs will move out from or toward the body, or toward and away from each other. The effect is to create spatial tensions that are complementary, and in a way self-canceling.

"The habit of projecting the image of our own functions upon the outside world, of reading the outside world in our own terms, is certainly ancient, common and profound," observes Geoffrey Scott in *The Architecture of Humanism*. "It is, in fact, the *natural* way of perceiving and interpreting what we see. It is the way of primitive peoples, who in the elaborate business of dance give bodily rendering to their beliefs and desires, long before thought has accurately expressed them.

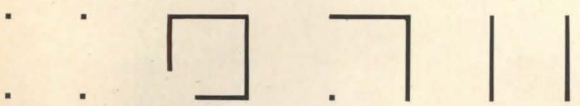
"The scientific perception of the world is forced upon us; the humanist perception of it is ours by right," Scott continues. "The scientific method is intellectually and practically useful but naive; the anthropomorphic way which humanizes the world and interprets it by analogy with our own bodies and our own wills is still the aesthetic way; it is the basis of poetry and it is the foundation of architecture."

The three axes of reference form a "three-dimensional crucifix" which man carries to the desert or the ice cap, for whatever the terrain; these axes are projected out to become the horizontal planes and the walls of his dwellings.

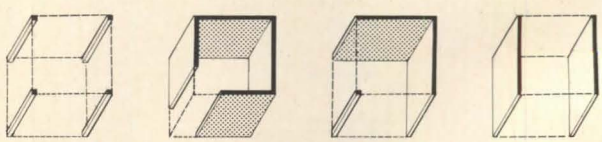
The rectangular box is a mirror of man's physical and mental make-up. It was the nature of man to conceive space in this form, and perception works conversely to rectangular form in a specifically human way. A rectangular volume is sensed as a space before it is examined as an envelope. It is gauged on the axes of height, breadth, and width before the nature and dimensions of the enclosing planes are observed. A space may appear as high, wide, or long: alternatively, as low, narrow, or short, and in each case a single pair of planes is distinguished from the others by being wider apart or closer together. This is the natural and obvious way of seeing, and gives the key to our understanding of space.

The Open and Shut Case

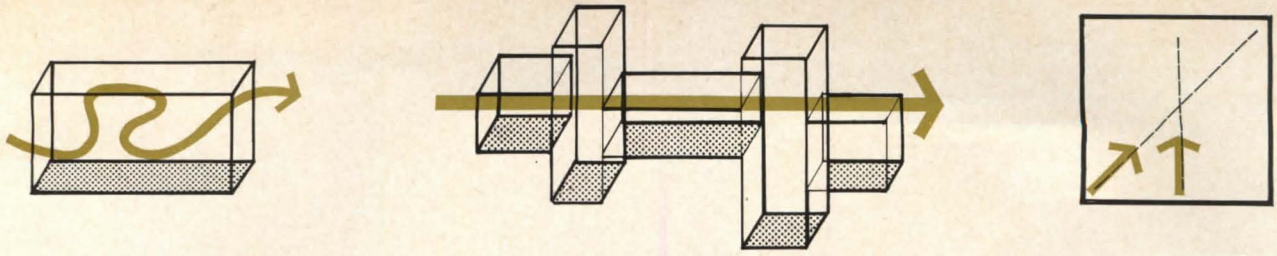
One of the chief qualities of space is the degree of openness or enclosure. Proximity of surfaces is one of the factors governing man's reaction to space. Living and moving within a building involves a complex pattern of body movement and yet it is rare even for a person given to the most flamboyant gestures actually to strike a wall, for unconsciously the location of surfaces is noted and movement adapted accordingly. However, movement under a low ceiling may induce a reaction of hunched shoulders and lowered head even though there may be ample clearance. The inclined surfaces of an attic room give a definite feeling of diagonal pressure. Much remains to be found out about the nature of muscular tonus, but



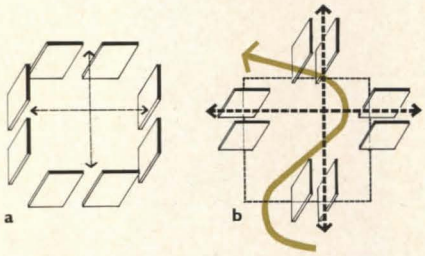
8 *Completion. Though each diagram consists only of points and lines, these are mentally structured and seen as indicating the square.*



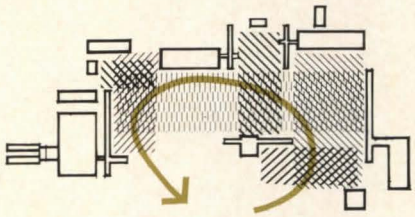
9 *Completion. As with the two-dimensional patterns, walls and columns are seen as being the periphery to rectangular volumes.*



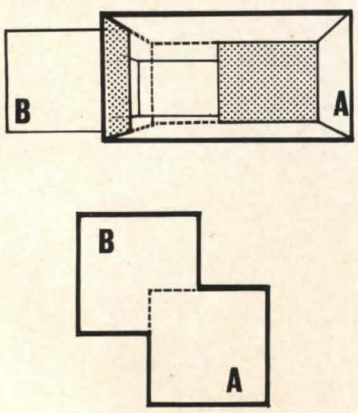
10 *Space is experienced through movement. The sensation movement/space is a complex one in which either component may dominate. A complex movement in a single space (l.). A simple movement in a complex space (c.). Movement on square or diagonal axes (r.) provides different spatial experience and conditioned orientation to form.*



11 *Spatial Axes. In contrast to A, the planes in B have strongly implied axes. Movement will be sensed as cutting across them.*



12 *Completion. At GM Tech Center, the buildings share a common outer space. The spaces "complete" themselves with the viewer's aid, then merges into the totality.*



13 *Overlapped spaces. From A, space completes as rectangle and is dominant over B. From B, the action is reversed.*

it varies from relaxation in sleep to extreme tension in excitment. It is closely related to emotional states, and tension can change from the alertness of a happy and active person to the limpness of depression. As a hypothesis, it could well be that there is a correlation between the form of a spatial enclosure and the reaction to it by some form of muscular tension. Clearly, there is a distinction between the actual perceiving of a space and reacting to it. Whatever the precise nature of this reaction, the term "tension" will be used to describe it.

The awareness of the wall surface in close proximity induces a sense of tension; at the junction of two planes, this is obviously doubled.

The reaction of Frank Lloyd Wright to the rectangular space: "When I looked at the hideous efflorescent boxing in of humanity I took out the corner and put glass in instead; the corner window. I gave here a real blow to 'boxing up' or 'boxing in.' Later in the Johnson [Wax] Administration building I came up with the elimination of the horizontal corner between walls and ceiling. Making away with the box in plan and section became fundamental to my work."

The simplification of experience and the shaping of it into terms that can be grasped and understood as wholes — a desire for unity — is more than a psychological fact; it is a fundamental need. So great is the innate tendency of man to find order and meaning in the world that he attempts to simplify what is complex, to make regular what is irregular, and to rationalize the irrational.

In this search for order and simplicity, the mind works in two ways — either by reducing or by building up. In the formulation of a theory, isolated facts that cannot be fitted in are conveniently ignored; alternatively, a theory may be built up from limited information and then the gaps filled in. Visual perception works in a similar way. In looking at a form, the complex pattern of stimuli are filtered down and certain general lines of structure are registered before the detail. Alternatively, where there is a minimum of information, the mental activity is constructive and tends toward "completion."

The four patterns shown **(8)** do not register as isolated lines and dots, but all have the quality of "squareness." Translated into three dimensions **(9)**, the walls and columns imply a rectangular volume. The phenomena of completion bridges the gaps in the fabric. Stepping into any of these spaces there is the feeling of moving through an invisible membrane. This is the most important single fact in the creative use of space, for the architect can deploy form to provide triggers to perception. Space is most alive when the enclosing elements are *implied* rather than completely stated physically, for where the architect uses an economy of means, it is in fact the observer who completes and builds the spaces around himself.

If two spaces are overlapped diagonally, the corner tension is dispersed and a strong diagonal axis is implied. Standing at "A" in the illustration **(13)**, there is completion of the immediate space, the other appearing subsidiary to this. At "B," the situation is reversed.

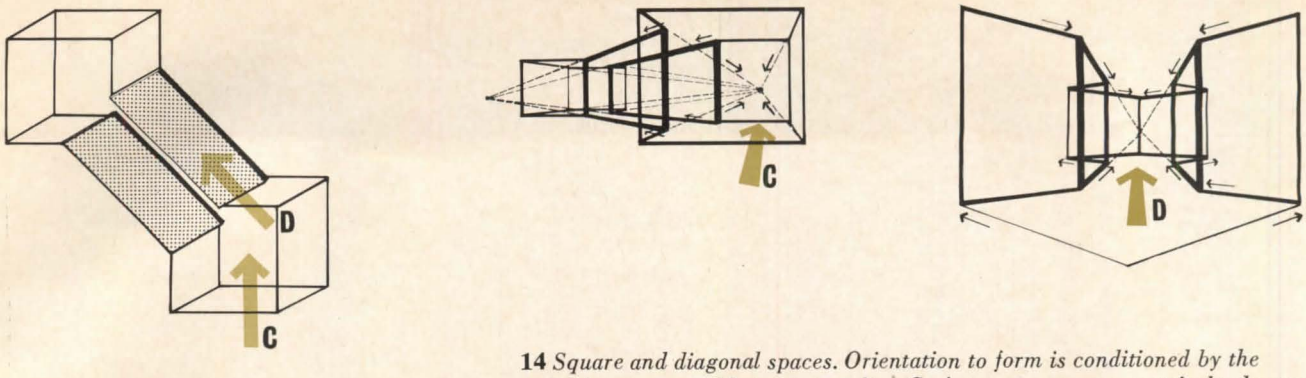
Complex spaces can be built up on this principle and will have many nuances from different viewpoints. In the GM Tech Center Plan **(12)** by Saarinen, the observer, circulating between the buildings, feels each zone as an individual space, which at that moment will be dominant over the others.

"Less is more" has new meaning if the plans of Mies van der Rohe are looked at as demonstrations of the completion theory. His technique has always been one in which spaces are implied with a minimum of means.

Spatial axes are implied in the majority of architectural compositions. In the example shown **(11)**, space "A" has main and diagonal axes, but not strongly stated. In space "B," the grouping of the planes is such that the cross axes become extremely dominant. Movement in such a space is not only oriented to the structure at the periphery but will also be sensed as moving to, or away from, or through, the line of these axes. Where a building has a strong spatial axis, one may feel compelled to move forward with it; the effect can be dynamic and even overpowering. Axes running across the main axis can counter the sense of movement and hold it in check.

The Darwin D. Martin house by Frank Lloyd Wright is one of the finext examples of his use of space in this way. There are a series of linked spaces that are run through at many points by axes and counter axes. Every space is penetrated by these invisible lines of force; each volume is threaded across with a grid of axes that create dynamic tensions not only to the space but toward each other.

The composition of space can have the formal quality of sculpture; it can also be composed in an entirely different way, one that is not static but related to human life and movement. The experience of space is continuous, and changes as man moves. Sequences of space can add up to a continuity of experience as in film, music, or dance; the sequences can have pattern and structure.



14 *Square and diagonal spaces. Orientation to form is conditioned by the axis of movement. Movement on line C: form appears assymetrical; the two square spaces are linked by a diagonal passageway. Movement on line D: form appears symmetrical; two diagonal spaces are linked by a straight passageway.*

Continuity of Movement/Space

The inner life of a building is not the experience of MOVEMENT *plus* SPACE but is a continuity MOVEMENT/SPACE in which the effect of each is inextricably interwoven with the other.

As an example of the correlation of space and movement, travel along the main axis will be completely different in character to movement on the diagonal. Spaces themselves may be set at an angle to each other, so that movement on the major axis of one space continues on the diagonal of the next. The spaces will always have an ambiguity, for moving squarely in one volume the other is seen as diagonal to it; and then, as movement and perspective changes, the roles are reversed.

The house by Wright at St. Joseph **(15)** uses both of these principles, for the main bedroom and living room are set diagonally to the main body of the house, and the circulation is carefully controlled to change from major to diagonal axes.

Circulation is generally given no more consideration than being the means of getting from one point to another, and preference is given to the shortest route. But movement may be left/right; up/down; spiral clockwise or anticlockwise; it may be serpentine or angular. Changes in level may also be coupled with changes in direction. Circulation is generally controlled by T-square and triangle, but once the expressive as well as the functional pattern of movement is considered, architecture will take on something of the nature of dance.

Architects have been obsessed with the physical form of building, often at the expense of the life lived within. The reality of a building has been seen only in its physical substance, and yet the experience of a building in time, as movement through its spaces, is equally real. There is a form in the architectural structure, and equally a form in the pattern of experience.

A building becomes known only by movement around and through it. Familiarity with a building means an individual can find his way about it, which means that the layout pattern has to be memorized in some form of mental model. Once the formal arrangement of any building is assimilated, any immediate experience will be conditioned by this knowledge.

As an analogy, familiarity with a piece of music means that any part of it will be experienced in relation to the whole. The restrained passage will have more meaning, because, during it, the listener anticipates the explosion of sound that follows.

Rambling groups of buildings lack identity, because they lack a formal arrangement that can be taken in and held mentally. Orientation within them is impossible. The plan needs to have something in common with a good trademark if it is to be quickly and clearly registered.

Through the knowledge of his own body, man acquires an empirical knowledge of the mechanics of gravity. He does not need to calculate the center of gravity of a mass when he lifts it, for he automatically adjusts his bodily stance to the most effective position. This knowledge conditions his reaction to form in architecture, for they too appear to have tensions of balance and imbalance.

Tension and Movement

Any space will have a center point, and a complex space may have a series of subsidiary centers around a main center point. If a visual focus is added, tensions may be set up between the real and the artificial center of interest.

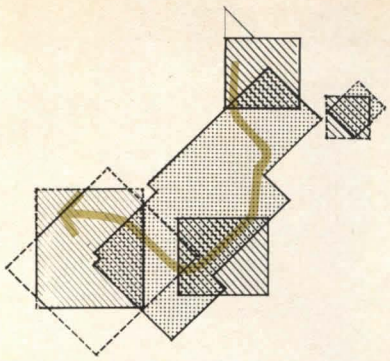
As man moves within a building, he orients all his movements in relation to the form, so that, even in a simple space, movement may be felt as being toward or away from the center. Circulation through a building will be registered as moving toward or away from certain nodal points. If a building is to have a positive identity, it needs a formal arrangement closely keyed to the circulation pattern. Where a building has a clearly defined center point, all other spaces will be experienced as being near to or far from it. A large building may have a series of such focal points that exist in a dynamic equilibrium with one another. Movement between these centers could be compared to moving through fields of force, for transition from a major space to a minor one, or the reverse, is sensed as a decrease or increase in dynamics. The endless ribbon building has no identity, no sense of place, and movement within it lacks orientation and spatial contrast; it will impart something of its negative quality to those working and living within it.

Experience of architecture is extremely complex, for the sensations induced by moving through any series of spaces are not self-contained; they are affected by the knowledge of the over-all form. Movement is oriented to, or away from, or peripheral to, major spaces and focal points. Immediate experience is affected by prior sensations and conditioned by the anticipation of the form ahead.

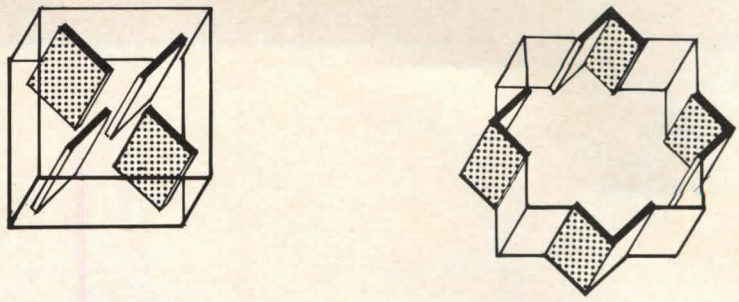
If man is to understand the power of architecture to influence him, he must realize that the reality of a building is a complex equation in which are figured the elements of form and experience. Both, in the end, are subjective.

How can sequences of space be composed? Consider simple linear movements linking one space with another. The change can be one of shape, as from square to circle, or from flowing to angular forms. Change in scale may be slow or sudden, and the transition may be from low to high; narrow to broad; short to long; or, simply, small to large. Major spaces may be juxtaposed or separated by transitional spaces. Space is revealed by light and any space can be dramatically changed by the way in which it is lit. Units of space can be assembled rhythmically and correlated with lightness and darkness or openess and enclosure. "Man still breathes in and out. When is architecture going to do the same?" asks Aldo van Eyck.

The contrasting elements of openness and enclosure can be related to the movement pattern in an infinite number of ways. Moving through spaces, they may expand and contract, open up in one direction and then another. The closest parallel is that of dance, and the architect could learn much about the composition



15 *Diagram of Wright's St. Joseph house.*



16 *Square and diagonal spaces may be fused together in many ways. Orientation within such space will always be ambiguous.*

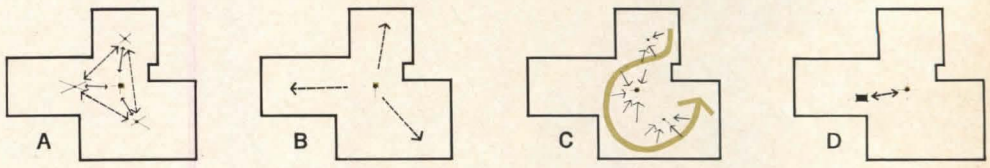
of space from the dancer and from his own bodily experiments in dance.

The psychological dimensions of space are the least obvious and therefore the most difficult to divine. They are also in many ways the most important. The architectural shaping of space can be such that it gives a strong sense of shelter. Wright achieved this by the use of broad overhanging eaves, and horizontal lines that identify the building with the earth. In contrast, the buildings and projects of Lou Kahn often present a bastion-like exterior, relieved internally by a broad center space, and thus the same end is achieved by completely different means. The shaping of a space can determine to some extent the kind of activity that will arise within it, and can foster or discourage family and group relationships.

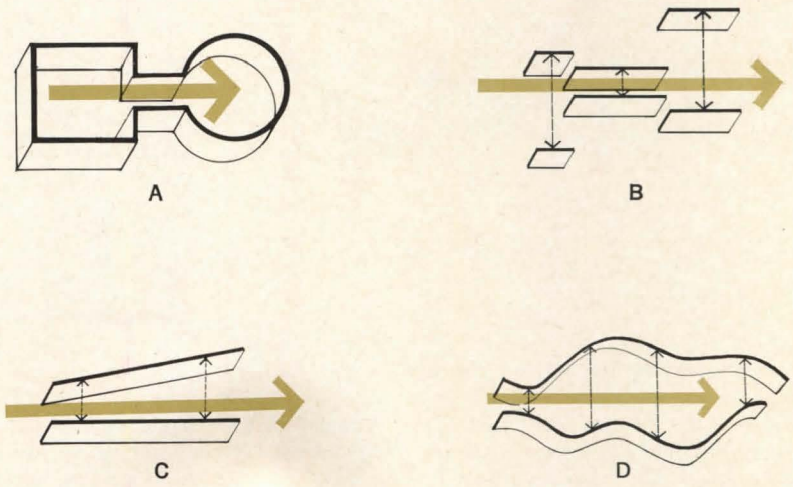
As Lewis Mumford has written:

"More light; yes but some darkness.
More openness: yet some enclosures.
More volume: but some mass.
More flexibility: yet some rigidity.

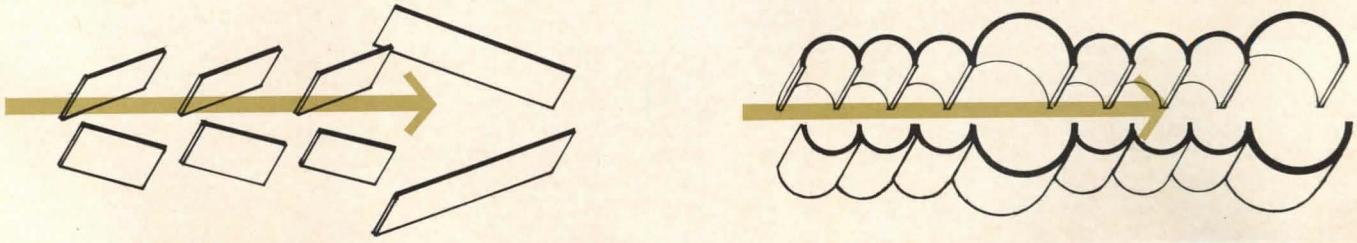
"As the modern movement matures, an organic architecture will do justice to the introvert no less than to the extrovert, to the subjective no less than to the objective, to the dark, primitive, unconscious forces as well as to the cold illuminations of science and reason. In short, it will take into account the functions and purposes of the whole man, and not try to whittle him down to the size and shape that will fit some less-than-man-size formula."



17 *Formal qualities of space: (A) individual centers relate to the main center of a space; (B) space is felt to extend out from the main center; (C) movement within the space is always oriented as toward, away from, or peripheral to these centers; (D) visual focus set off center, exists in dynamic tension to true center.*



18 *Spatial sequence: (A) contrast in shape; (B) sudden change; (C) slow change; (D) plasticity of space.*



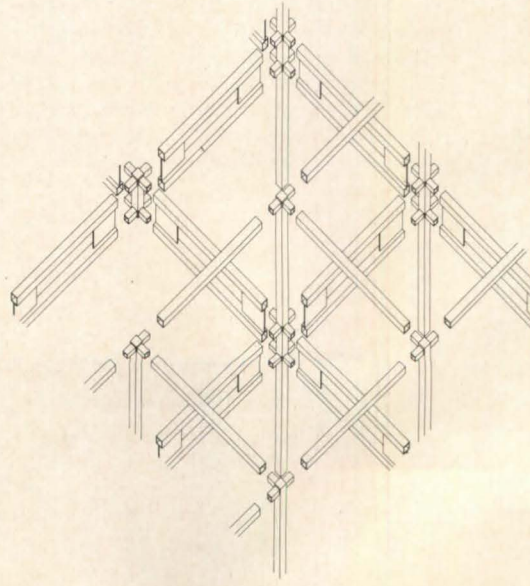
19 *Rythmic sequences of space.*

erectoburger

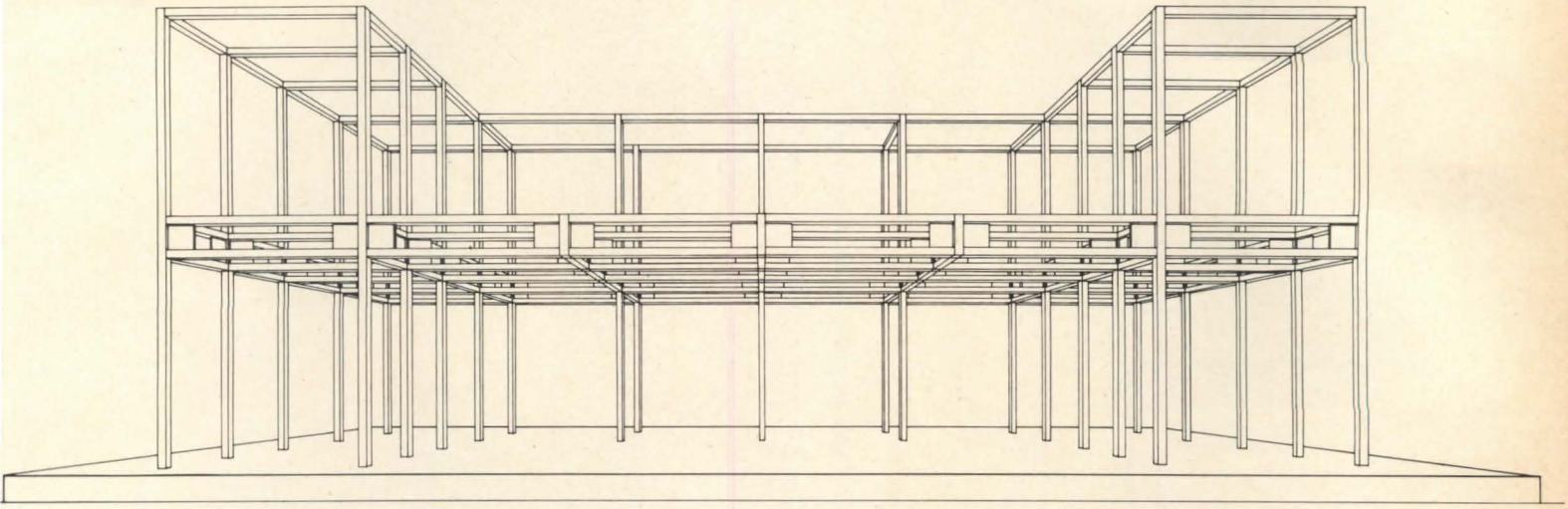
As Bob Venturi, Tom Wolfe, and others have been commenting, roadside stands, auto dealers' signs, filling stations, and similar "anonymous" architecture represent design of the American scene that is basically more representative of our fast-speed culture than the refined provincial museums and symphony halls going up all around. To those offended by the ubiquitous McDonald's hamburger arch or the inescapable Holiday Inns sign, the prefabricated system designed by Booth & Nagle of Chicago for another nationwide drive-in hamburger chain might offer aesthetic respite while on the road.

Structure is a steel frame on 8-ft-modules, two modules high, fabricated from 3-in. steel tubing bolted together on the site, with steel deck roofing exposed on the inside spanning 8 ft. Insulated panels or glass zipper into this frame for enclosure. Upper panels are red and white acrylic plaster clipped into the frame. They are arranged "so that in several positions definite Gestalt patterns occur." In the daylight, movement of sun and the spectator cause changes in the images of the panels and the structure; at night, the panels are back-lighted. Expansion is simply accomplished by pouring more floor slab, unbolting sections, and adding components. The entire building can be dismantled and transferred to another site if economics so dictate. Interior materials are quarry tile floor, wood laminated seating, and formica service counters in the center of the public space.

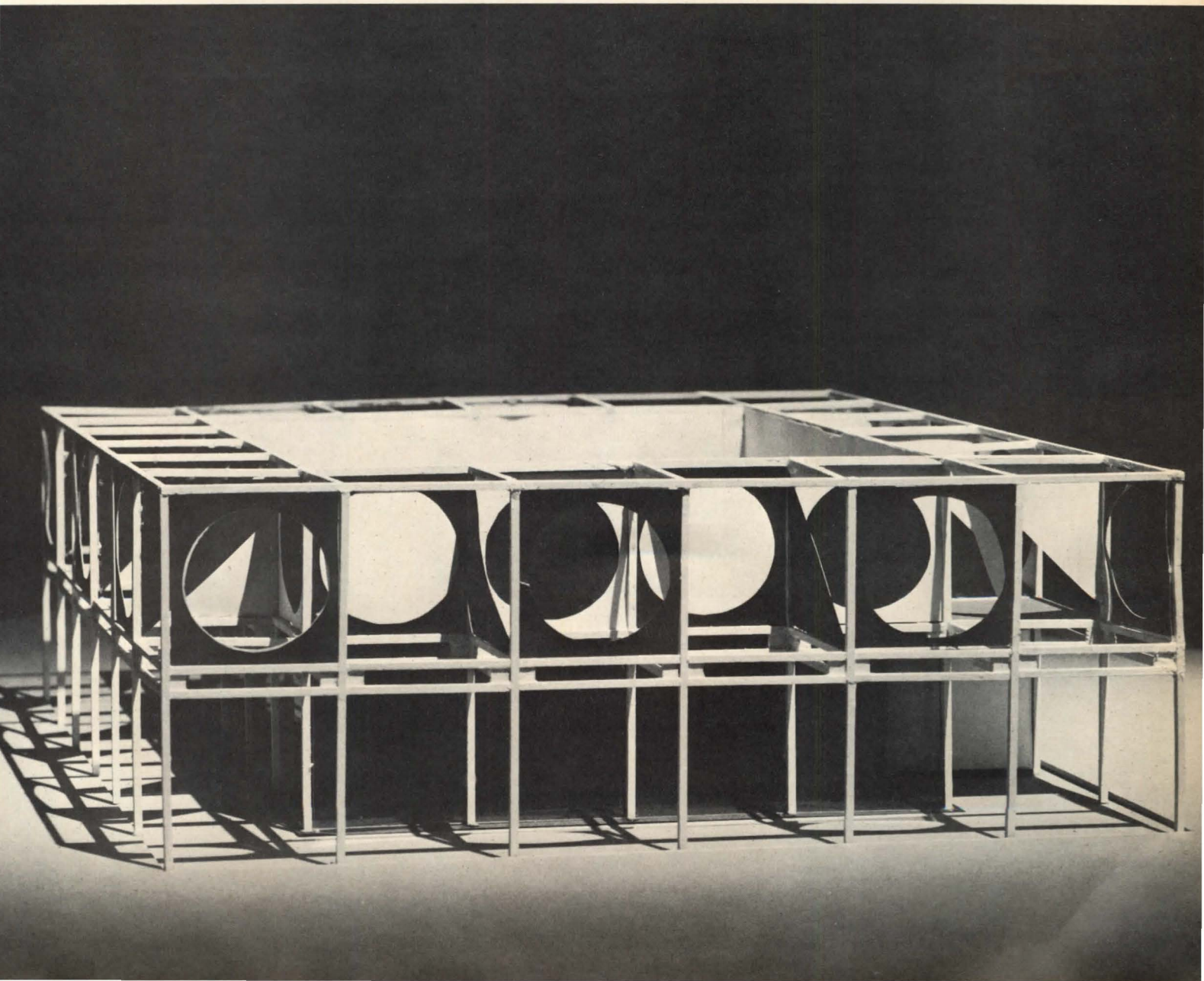
Architect Lawrence Booth feels that "buildings of this sort of function are not taken seriously by the profession and yet they are responsible for much of our environment, at least our automobile environment." He comments that "our solution represents a nonromantic approach to the fun-building function of these very successful 'hamburger joints.' In fact, the economic success of these franchise operations guarantees that they will be around a long time and that there will be many more of them all over the place."

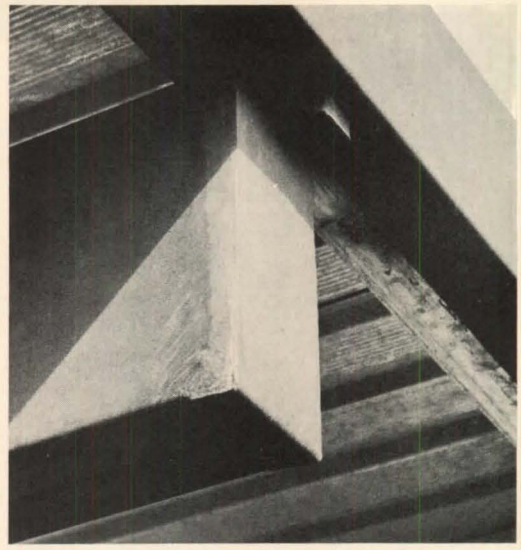


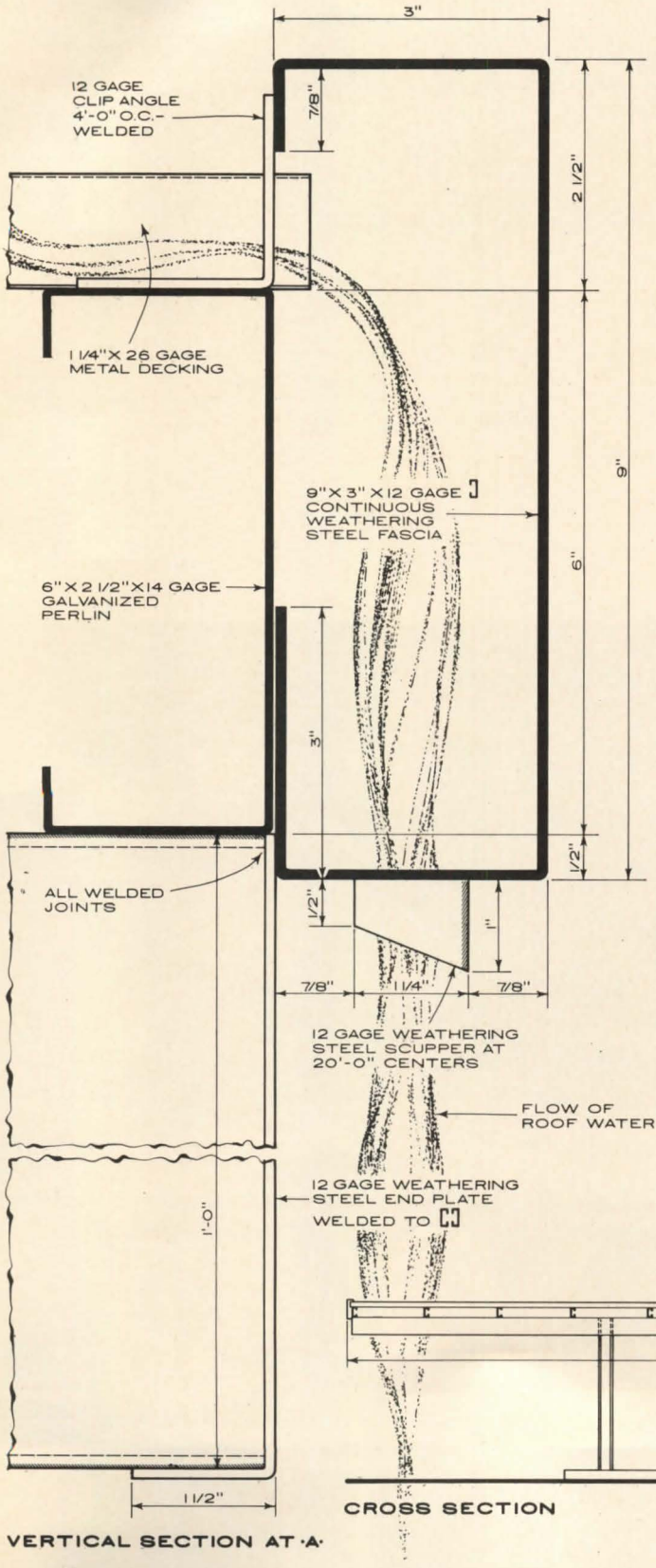
Isometric of Structure

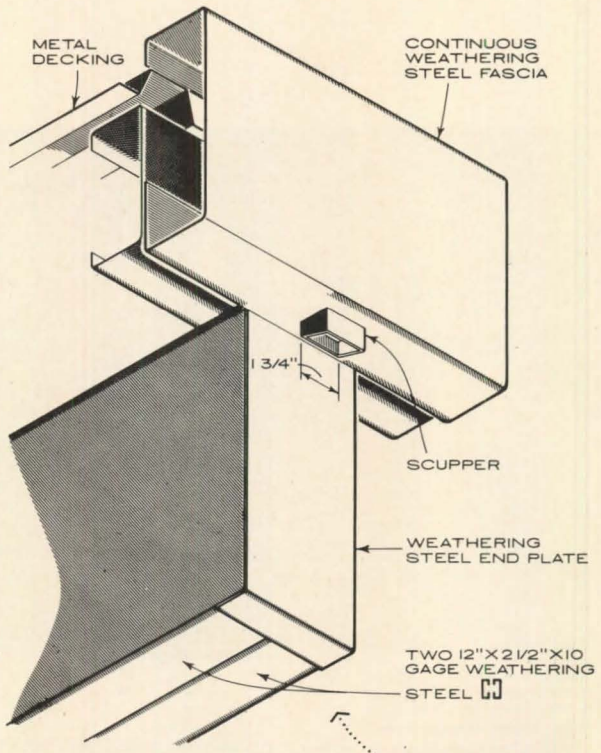


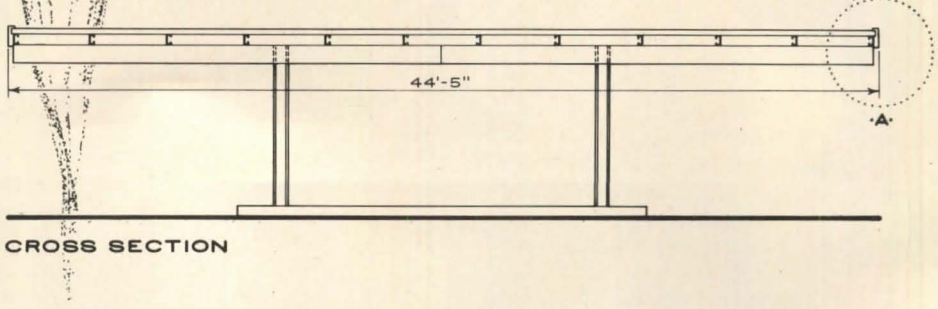
Basic Frame









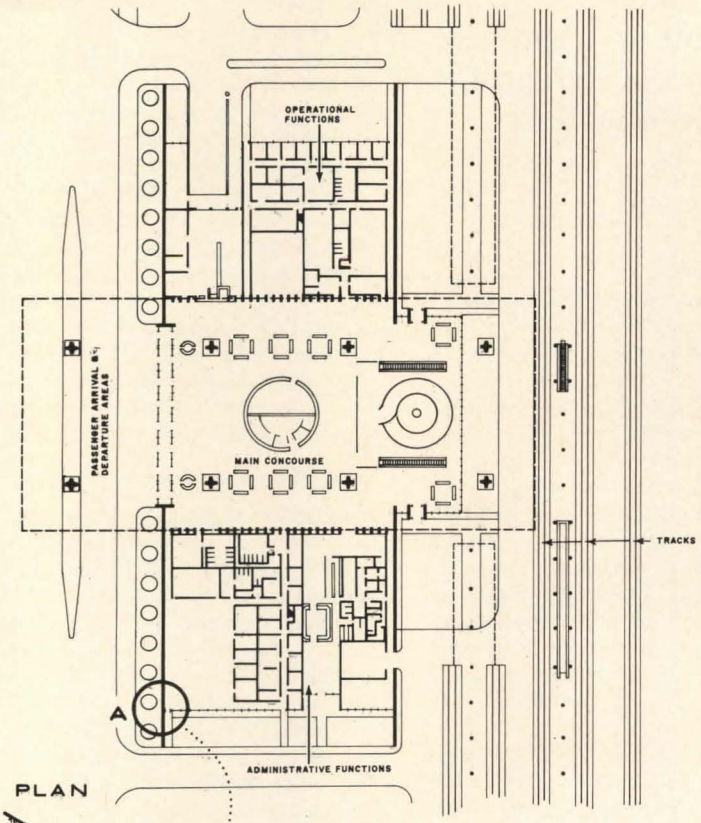


SUPERIOR OIL COMPANY GEOPHYSICAL LABORATORY AND OFFICE BUILDING: Houston, Texas

TODD, TACKETT, LACY: Architects

SELECTED DETAIL

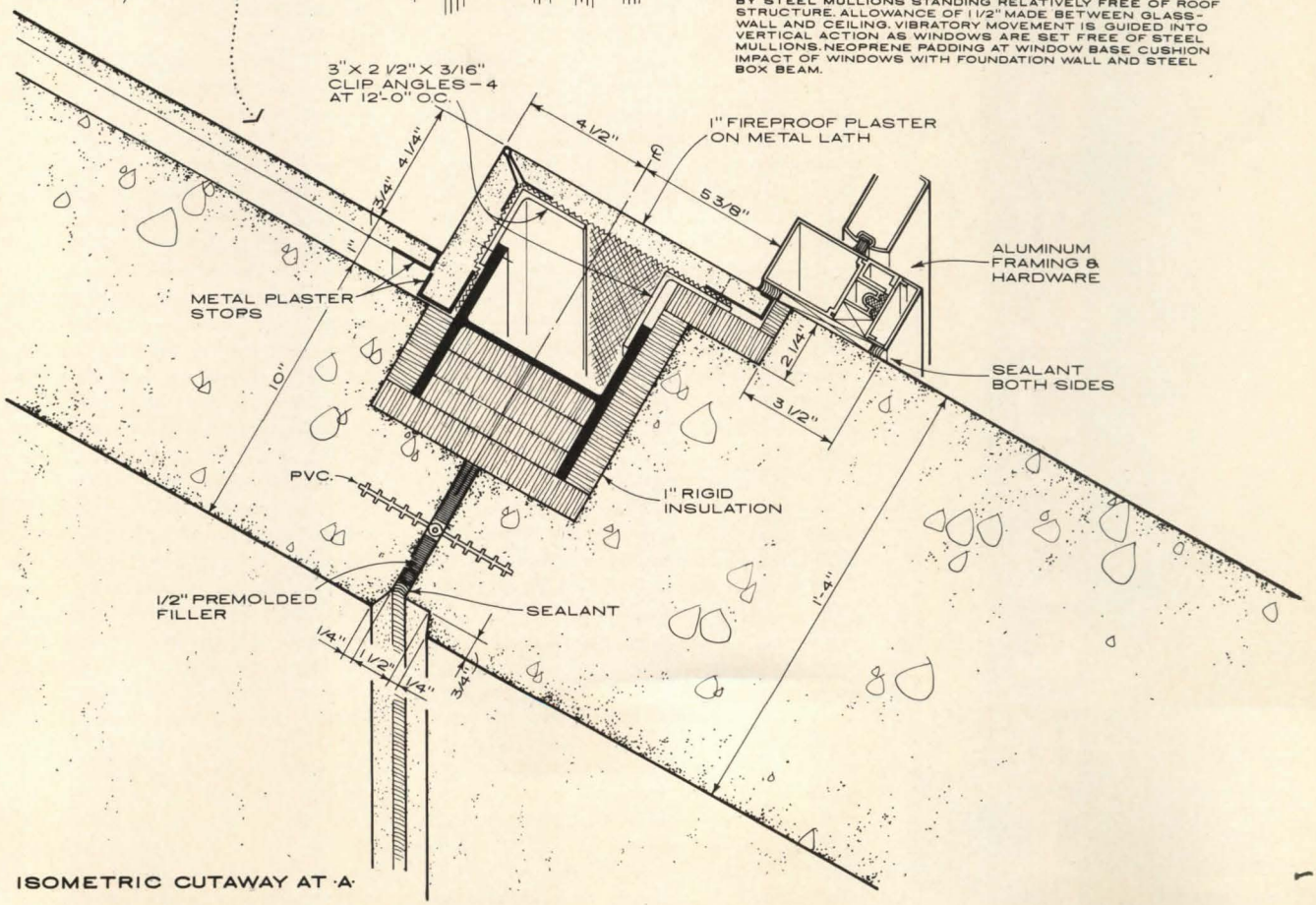
FASCIA — DOWNSPOUT



PLAN

NOTES:

THREE INDEPENDENT STRUCTURAL COMPONENTS FUNCTION AS ONE UNIT TO COUNTERACT TRAIN VIBRATIONS. TWO-WAY STEEL TRUSS ROOF CANTILEVERED 30' ON FOUR SIDES WITH PIN CONNECTIONS TO 8 CONCRETE COLUMNS COUNTERACTING ROOF MOVEMENT. GLASS ENCLOSING STRUCTURE OF STATION SUPPORTED BY STEEL MULLIONS STANDING RELATIVELY FREE OF ROOF STRUCTURE. ALLOWANCE OF 1 1/2" MADE BETWEEN GLASS-WALL AND CEILING. VIBRATORY MOVEMENT IS GUIDED INTO VERTICAL ACTION AS WINDOWS ARE SET FREE OF STEEL MULLIONS. NEOPRENE PADDING AT WINDOW BASE CUSHION IMPACT OF WINDOWS WITH FOUNDATION WALL AND STEEL BOX BEAM.



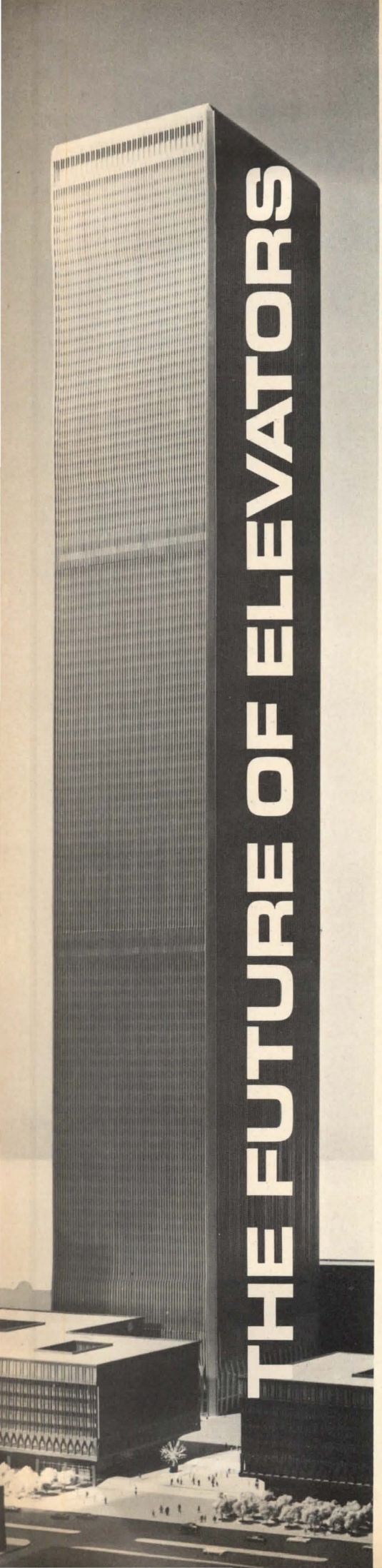
ISOMETRIC CUTAWAY AT A

OTTAWA STATION: Ottawa, Canada

JOHN B. PARKIN ASSOCIATES: Architects

SELECTED DETAIL

VIBRATION JOINT



Taller buildings require improved elevator design, both to speed service and to reduce the floor space elevators occupy.

By Charles W. Lerch, president of Charles W. Lerch & Associates, elevator consulting engineers, Denver, Colorado.

Fifty-story office buildings are no longer remarkable in major cities, and a few 100-story structures are already under construction. How far this trend of increasing office building heights will continue depends partly on the growth in the size of business corporations. Corporate mergers involving staffs of 20,000 to 40,000 people require huge spaces if office functions are to remain integrated. And if they are to be housed in single buildings, there is only one direction to go — up.

In 1956, Frank Lloyd Wright estimated that 10 structures similar to his mile-high building concept would accommodate the entire business core of New York City. If the number is doubled, 20 very tall buildings would provide office space for 2 million people, and the open spaces around the buildings could be planned for the enjoyment of everyone.

These open public spaces depend on the construction of buildings that will extend much higher than at present, but before they can be built, engineers will have to develop better approaches to vertical transporation. As buildings increase in height, they require more floor space to provide satisfactory elevator service. This results in floor plans honeycombed with elevator shafts that cut into valuable rental space.

About 11 per cent of the gross area of a 60-story office building is taken by elevator hoistways and elevator corridors. This accommodates 32 elevators and 32 hoistways. Comparing the tracks or guide rails of 32 hoistways with the 2 to 4 tracks in a horizontal system such as a subway, it is obvious that many more tracks are needed in a vertical system than in a horizontal system for the same volume of traffic. This is partly due to the much better service expected of an elevator. To have to wait 1 minute for an elevator is intolerable; to have to wait 5 minutes for a train or bus is accepted. Yet the spread between 32 hoistways to 4 tracks is great, and this spread underlies the great economic burden imposed on large buildings by vertical transportation.

The cost of a vertical system involves not only the elevators themselves, which cost more than $100,000 per hoistway, but it involves also the loss of rental area taken by the hoistways and lobbies. The loss of rentable area income of one hoistway and corridor for a 60-story building is about $44,000 a year at $6 a sq ft, and $80,000 for one shuttle car. At 5 per cent interest, the above rent-loss estimates would justify an investment of from $875,000 to $1,600,000.

In the 110-story World Trade Center under construction in New York City, **(1)** there are 23 shuttle cars in each tower. Since there are more than 100 hoistways in each tower, it is readily apparent that engineers must reduce the number of hoistways, and make each elevator more efficient in a tall structure. This article will explore some of the ways elevators can be made more efficient.

Two Elevators Per Hoistway

If a vertical transportation system could be made more like a horizontal one, we could approximately halve the number of hoistways. In 1931, the *Electrical World* described a system of dual elevators **(2)** in which two independent elevators operated in the same hoistway of a 20-story Pittsburgh building. One local car served the lower 10 floors, and the other, which was an express, served the top 10 floors. They were interlocked electrically so that they could only run in one direction at the same time.

Each elevator was assigned a certain number of floors, so that the average round-trip time could be approximately the same. Thus, the lower elevator would return to the lower terminal just ahead of the upper (or express) elevator. If the probable number of stops in the upper zone of the building were low and the express caught up with the local elevator, a block signal system would stop it until the hoistway below was clear. These elevators were operated by attendants, since self-operated elevators of this kind had not been perfected until 1951. With the less sophisticated hand controls available in 1931, there was interference due to the wide variations in the number of stops each elevator needed to make. The express elevator could make two stops on its way down, whereas the local made four. For this reason, it was never a success.

However, with current computer controls, hall calls could be assigned to either car while they are in motion. Furthermore, with self-operated elevators, a far more efficient and sophisticated control could be used today. With analog computers and the integration of both hall and car calls, a program of control could be made the instant an elevator left the lower or upper terminal. These controls could be continually modified while the car is in motion, and could be used to integrate its operation with all the other cars in the hoistway.

Another innovation was made in 1932 with a double-deck system of elevators for a 60-story New York building **(3)**.

The tower elevators had two cars in tandem, one on top of the other, one floor apart. Entering passengers wishing to get off at even-numbered floors entered the top car at the first floor, and those wishing to get out at odd-numbered floors entered the lower car at the basement level. The street entrance was midway between the first and basement floors, and escalators served the first five floors.

The advantage of this system was that it gave one elevator the carrying capacity of two, and in theory reduced the number of hoistways by nearly one-half. There also were disadvantages: first, if a car stopped for a passenger at an even floor and no passengers in the odd floor car wanted to get off, they simply stood waiting in the car. Second, an interfloor passenger entering on an even floor and wishing to travel to an odd numbered floor would have to walk up or down one floor to reach his destination. These inconveniences are inherent in the double-deck idea.

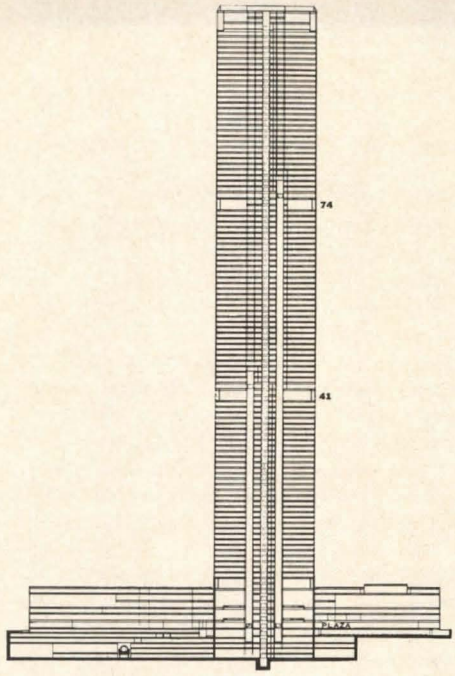
Today, the double-deck concept is being tried again at the Time and Life Building in Chicago. This is a 30-story, 760,000-sq-ft structure with 12 elevators that are to be expanded to double-deck cars for the heavy incoming and outgoing traffic periods **(4)**. Only a single car on each unit will be used during lighter traffic hours. Another double-deck installation is to be installed in the new Hancock Building in Boston. The logical application of cars in tandem would be shuttle cars serving sky lobbies, where there would be only top and bottom terminal stops.

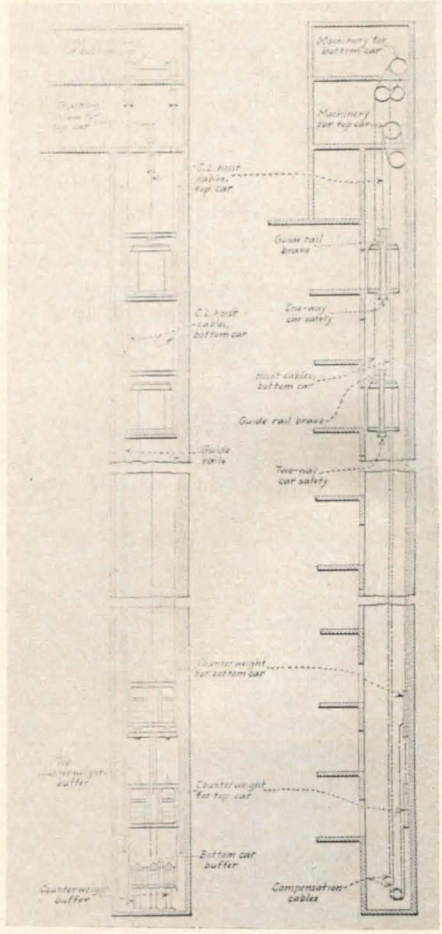
Stacking and Shuttling

The number of hoistways in a tall building can be reduced by dividing the building into two or three sections to give the effect of separate buildings stacked one upon another. Each section is served by its own elevator system, and the lower terminal of each building section becomes a lobby in the sky. Passengers travel in express elevators from street level to the sky lobbies, where they transfer to local elevators. The World Trade Center **(1)** will have two sky lobbies, one at the forty-fourth floor and the other at the seventy-eighth.

It is, in effect, three buildings — two of them placed on top of the lower building. The hoistways are stacked so that the space taken by one hoistway will accommodate three elevators instead of one. Additional space is required for shuttle elevators to move the passengers from the street terminal to the sky lobby of each building section, but this area is substantially smaller than if regular direct service from the first floor were provided to all levels of the building.

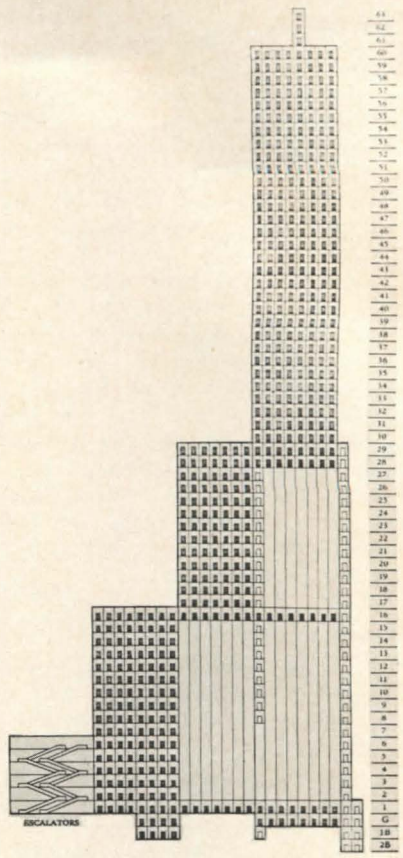
The 100-story Hancock Center **(5)** in Chicago has only one sky lobby located at the forty-fourth and forty-fifth floors. This building has commercial space below the sixth floor, parking from the sixth



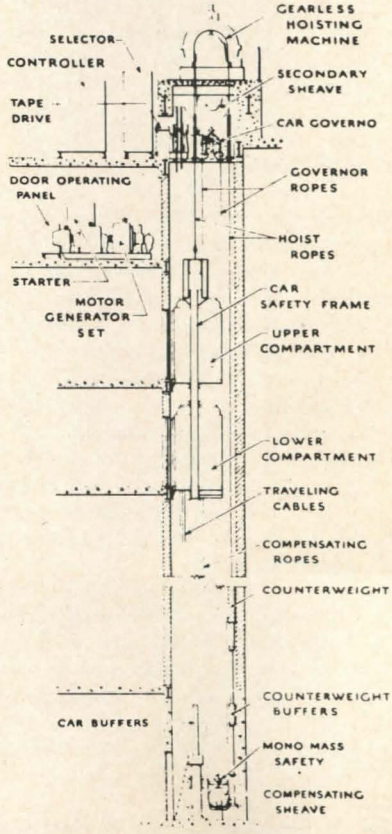


(1) World Trade Center (above and far left). Eleven express elevators stop at forty-first floor, and 12 at seventy-fourth floor where passengers transfer to locals.

(2) Dual elevators designed in 1931 by H.D. James and F.J. Sprague serve 20 floors, and carry 3000 lb at 600 fpm.



(3) The first double-deck elevator system was installed in a 60-story New York City building in 1932. Top car of each pair stopped at even-numbered floors; the bottom car stopped at odd-numbered floors.



(4) Twelve elevators in Chicago Time and Life Building are being converted to double deck cars to expand peak hour capacity.

to the twelfth floors, offices from the thirteenth to the forty-first, and apartments from the forty-sixth to the ninety-third. Three shuttle elevators serving the apartments run from the first to the forty-fourth floors. The television, restaurant, observatory, and mechanical equipment take up the top seven floors and are served by three 4000-lb, 1800-fpm elevators.

Two disadvantages of the stacking system are the waiting time for the shuttle elevator and the transfer time at the sky lobby. A further undesirable feature (in the case of the World Trade Center) is the crowding of 50 to 55 people on one platform of a shuttle elevator, and the loading and unloading of such a large number of people at the terminal landings. The advantage lies in the large savings of usable floor space: only 12 per cent is used for hoistways.

Methods of Drive

A casual study of the San Francisco cable cars and modern ski lifts suggest the possibility of using a similar method for a vertical lift. Perhaps if this were done, we could have five or more elevators in one hoistway serving a building a mile high.

A vertical ski tow drive running at constant speed — say, 3000 fpm — winds the driving rope around two sheaves on the car in a manner similar to a double-wrap traction machine **(6)**. The speed of one sheave could be controlled by a dynamometer to regulate the elevator speed. If the sheave speed is kept at the same speed as the rope, the elevator car will stand still. As the dynamometer is energized (in the right direction) slowing down the sheave, the car will increase in speed and reach the rope speed when the dynamometer exerts enough torque to stop the sheave.

Through the dynamometer, the rates of acceleration and deceleration could be controlled very similarly to variable voltage control now used on all high-speed elevators. Another approach to the control of these sheaves might be a clutch mechanism such as the hydromatic used in automobiles. The use of new materials with greater strength-to-weight ratios might make a counterweight necessary.

Preliminary studies by Professor George Bardwell of the University of Denver indicate that two such elevators in one hoistway would be 80 per cent as efficient as two in separate elevator hoistways — independent of the load in the car for buildings of 10, 50, and 100 floors. This could be equivalent to a 36-per-cent reduction in the number of elevators required. Thus, a 110-story building, such as one tower of the World Trade Center, would require 48 passenger elevators instead of 72.

The studies also strongly suggest that the efficiency would improve with the number of elevators per hoistway for tall structures. Since this technique presents a very complex problem of systems engineering, a simulated system having 1, 2, 3, 4, etc., cars per hoistway may well suggest some optimum scheduling. Because the initial studies showed promise, Professor Bardwell will make further studies.

Machine Performance

The floor-to-floor performance of all elevators is a very real measure of value. It makes a significant difference in the number of elevators required: i.e., in a 20-story, single-purpose building a floor-to-floor time of 7 seconds (from the door open on one floor to the door open on the next floor) would require 5 elevators, whereas 9 seconds would require 6. This, of course, assumes an efficient power-door operator well synchronized with the landing operation. Although a few manufacturers can supply 7-second operation, it is difficult to hold these adjustments. In the future, through better design of machines, motor generator sets and controls, we will have consistent 7-second and eventually 6-second floor-to-floor operation.

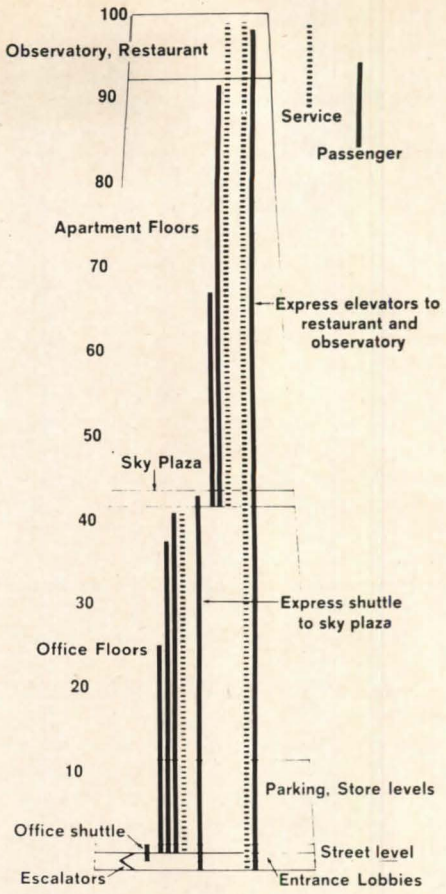
With the development of controls and machines, motor generator sets will probably be replaced with some form of rectification and regenerative braking. Smaller and more powerful engines are sure to be developed with the application of super conductors, super-conducting magnets, atomic energy, and new energy conversion devices. The present gearless hoisting engines, to be used for 23 shuttle elevators in each of the World Trade Center towers, develop 400 hp and weigh 60,000 lb each. This load has to be supported at the top of each hoistway. Other hoisting engines for elevators of 1400 to 1600 fpm weight 28,000 lb each and develop about 150 hp.

Operational Systems Efficiency

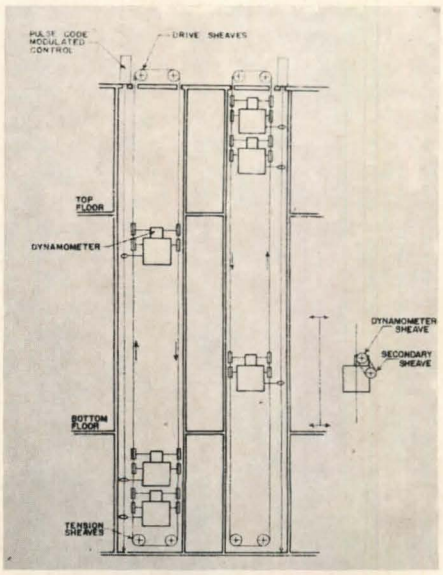
In addition to the elevator hoisting motor efficiency and the primary control of the speed, the group supervisory control system is of great importance in the over-all efficiency of an elevator installation. Many important improvements in supervisory control have been made in the last 5 years, and still more may be expected in the next 5 years with much greater simplicity and consequent greater dependability in operation. Let us examine the methods of measuring performance.

For many years, the over-all performance of an elevator installation was based upon its handling capacity and average interval of departure from the lower terminal floor. The time to destination was also considered. In theory, the average waiting time to answer a hall call could be one-half of an interval if all the elevators were spaced equally apart, but, because of the variation in the stops, equal spacing is impossible. However, with a good supervisory system, the average waiting time should not exceed one-half of the interval by more than 50 to 75 per cent.

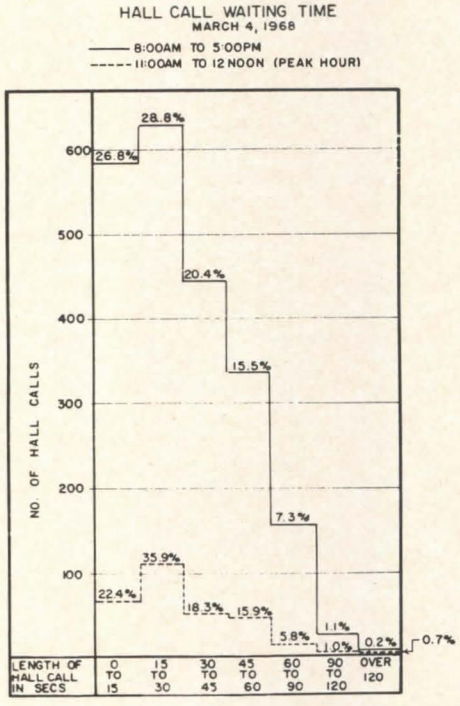
Since modern supervisory control does



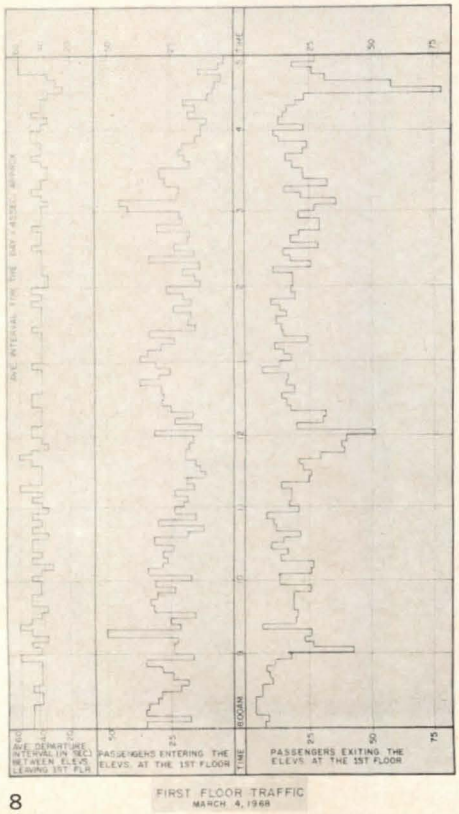
(5) Sky lobby in Hancock Center separates offices from apartments. Express cars travel to sky lobby or public spaces at top of tower.



(6) Multiple elevators in one hoistway could be controlled with a dynamometer regulating the rope speed on double sheaves. If one sheave rotates at same speed as the rope, the car will stand still.



7



8 FIRST FLOOR TRAFFIC
MARCH 4, 1968

not used timed terminal dispatch, there is no readily measurable method to determine the interval. With instant dispatch, digital demand divider, variable interval programming, and multiple zoning, the old method of measuring cannot be used. The best measure of a system's performance is the actual passenger waiting time. Elevator service must be controlled so that the majority of calls are answered within about 30 seconds and no more than 2 to 3 per cent remain unanswered after 60 seconds.

A programmed computer using a building's population and elevator parameters will readily give a readout of the optimum elevator system based upon the morning peak traffic period. It is more difficult to prepare a program to evaluate performance based upon waiting time for hall calls after the building has been filled. Designing an optimum elevator system requires a complete analysis of the relationship between expected traffic and elevator system performance. Rapid, accurate calculations and comparison of alternate models are practical with a computer. The ideal performance in waiting time is shown in the charts **(7, 8)**.

The combination of individual car performance moving from floor to floor, and the performance of the elevator group developed by the supervisory control system actually determine the effectiveness of a group of elevators to handle traffic. The number, speed, and size of elevators in a building, although very important, are only part of this performance picture. The total performance must be related to the efficiency of the individual elevator and the elevator group supervisory control system. In the future, both floor-to-floor and waiting time performance figures, in addition to rated speed and capacity, will have to be guaranteed by bidders.

Controller Design

Future manufacturing costs will be lowered by the wider use of static switch control, the principle of modular construction for easier assembly, different controllers, printed circuits, and more rapid replacement for repairs and adjustments. Modular construction can mean a more compact assembly taking less space in the machine room. We can expect wired, wireless, or pulse code modulation control in very tall buildings to reduce to a very small number the control wires necessary to tie the elevator car to the controller in the machine room. Rapid repair and maintenance will insure minimum elevator down time with resultant improved efficiency of the system.

Passenger Elevators

In addition to the methods that may increase the efficiency of elevators in future buildings, other factors are worthy of consideration and improvement. To begin with, the elevator ride itself will be improved, and so will the ventilation and lighting facilities, door operation, and the smoothness of stopping and starting. Low cost, poorly designed elevator cars have a detrimental effect on the public's impression of a building. The design, materials, and the entire environment of the elevator car, lobby, and corridors deserve far more importance than they are frequently assigned at present. Quietness and smoothness of operation are very important measures of value, as is high fidelity music when it is used.

In the interest of comfort and luxury, elevator car platforms will be larger. A car capacity of 2500 lb has almost been standard for many years, but now it is giving way to 3500 lb and 4000 lb. With larger platforms, wider doors should be used — say, 48 in. instead of the present 42 in.

Service Elevators

One of the serious mistakes in the design of tall buildings today is the omission of a service elevator, or providing one that is too small and too slow. Generally, there is enough building remodeling, repairs, and maintenance traffic to warrant a service elevator for buildings over 300,000 net sq ft. Larger buildings should have more than one service elevator. For a large service elevator, the car platform should be 6′-5″ x 10′, which requires a capacity of 6000 lb with a 12-ft clear height. Doors should be at least 4′-6″ wide, and 8′ to 8′-6″ high. Horizontal center-opening doors should be used wherever possible because of the danger and delay of vertical bi-parting doors. Center-opening door for service elevators adapt much better to automatic operation.

The larger-size service elevator car is becoming necessary to meet code requirements that prohibit car-top platforms due to their inherent danger.

It is also false economy to use 500 fpm on buildings of 30 floors or more. Speeds greater than 1000 fpm are justified for buildings of 50 floors or more.

The height of buildings depends, among other things, on the maximum obtainable speed of automatic elevators. It was only 43 years ago that a speed of 800 fpm with the first automatic control was perfected and the first 25-story office building was built. Ten years later came the 102-story Empire State Building, whose elevators have a rated speed of 1200 fpm. Then, during the Depression and World War II, the upward climb of building structures temporarily stopped.

We now have elevators of 1800 fpm, and controls that could provide obtainable speeds much in excess of that.

With the rapid march of scientific research and the application of numerous new devices, materials, and knowledge, it is perhaps not too much to expect speeds of 4000 to 5000 fpm used in pressurized buildings within 50 years' time. Then the vision of Frank Lloyd Wright's Mile High Skyscraper could become a reality.

GEORGE BRIGHAM
A Quiet Force In Domestic Architecture

By Leonard K. Eaton, who is an old colleague of George Brigham and is Professor of Architecture at the University of Michigan's College of Architecture and Design. He is the author of Landscape Artist in America: The Life and Work of Jens Jensen *and a forthcoming book on the clients of Frank Lloyd Wright and Howard Van Doren Shaw.*

With a few notable exceptions, academic communities in the United States have not been especially adventurous in the field of domestic architecture. Indeed, more than one observer has remarked that something in the ivy-covered environment seems to inhibit architectural innovation among academicians. While the last two decades have seen an amazing change in the institutional attitudes of colleges and universities, the professors themselves have remained surprisingly conservative. We may, in fact, safely say that few of the important modern residences in the United States have been built for professors. This article is a tribute to a man who worked long, hard, and with a surprising degree of success to change this state of affairs in one academic university.

George Bickford Brigham was born in 1889 at Westboro, Mass., a small town near Worcester. His earliest education was in the local public schools and at Worcester Academy, but for his future as an architect, his boyhood hobbies were more important than any formal academic training. Brigham was apparently one of those youths who are happiest when at the workbench or in the shop. When he was a teen-ager, he built sailboats, a cabin in the woods, and furniture for his sister's room at Wellesley; this last, he now remarks, was "rather William Morris in flavor." He can, in fact, be understood as an architect very much in the arts and crafts tradition associated with Morris. In later years, his houses showed much of the close attention to fine detailing in wood and brick that characterizes the work of the Greene Brothers, whom he knew in California. Like them, he was himself well-trained in the handling of wood, stone, and other materials.

Brigham's Early Career

Brigham's background in the building crafts led naturally to an interest in architecture, to a job in a local architect's office, and ultimately to M.I.T., which he attended from 1910 to 1913. It is interesting that his program at Tech was apparently a series of courses designed for young men who already possessed some office experience and were therefore highly motivated. Like the night law schools which used to flourish at various universities, the program belonged to a category of professional education that hardly exists any longer in this country. We may be the poorer for its disappearance.

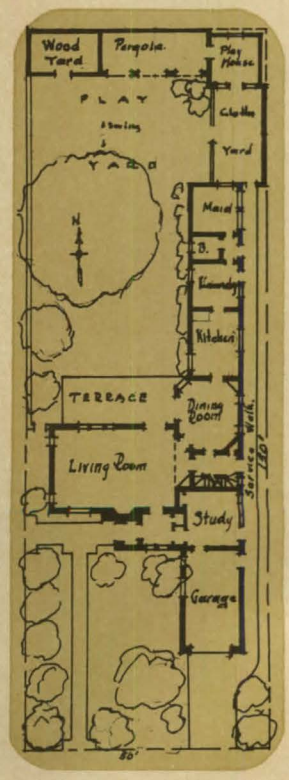
During World War I, Brigham was a draftsman and designer in various Boston offices, and taught briefly at Tufts College and M.I.T. In 1920, however, he moved to California. There were several reasons for this decision. He was attracted by the climate, by the offer of a teaching job at Berkeley (which ultimately fell through), and because he was doubtful of ever getting anything built with his own name attached to it in the staid architectural atmosphere of New England.

From 1920 to 1923, Brigham worked for various California architects, notably Ernest Kump, Sr., and in the latter year settled in Pasadena, where he accepted a teaching position at Cal Tech and established an architectural practice with the engineer Randolph Bainbridge.

The First Designs

For the next seven years, they built a series of residences that were well planned and solidly constructed but quite traditional in design. Brigham's own house **(1),** built in 1926 and the nearby

1



Hoffman Keese house **(2)** of the following year are good examples. Both take excellent advantage of their sites and show fine relationships between interior and exterior spaces; but are in no way advanced for their time and place. Quite clearly, there was a good deal of the tradition-minded New Englander about George Brigham in the 1920's. Nonetheless, in these years he came to know well the work of the Greene Brothers, and of Rudolph Schindler and Richard Neutra, who were bringing an advanced variety of European modernism to California. Brigham recalls that he particularly admired Schindler's vacation house for Dr. K. M. Lovell at Newport Beach (1926), with its powerful series of reinforced concrete frames. This kind of solution seemed to offer obvious benefits in dealing with the informal living patterns that had developed in California. He was also, of course, attracted by Neutra's superb mastery of the mechanics of construction. By 1930, when he accepted a teaching position at the University of Michigan, Brigham was ready to make a break.

Because of the Depression, there were no opportunities to build in Ann Arbor for the next five years. The period was not, however, a loss as far as Brigham was concerned. He now views it as a time when he had a chance to reflect and rethink his views on architecture. It was during the Depression that he concluded that he had to make a new start.

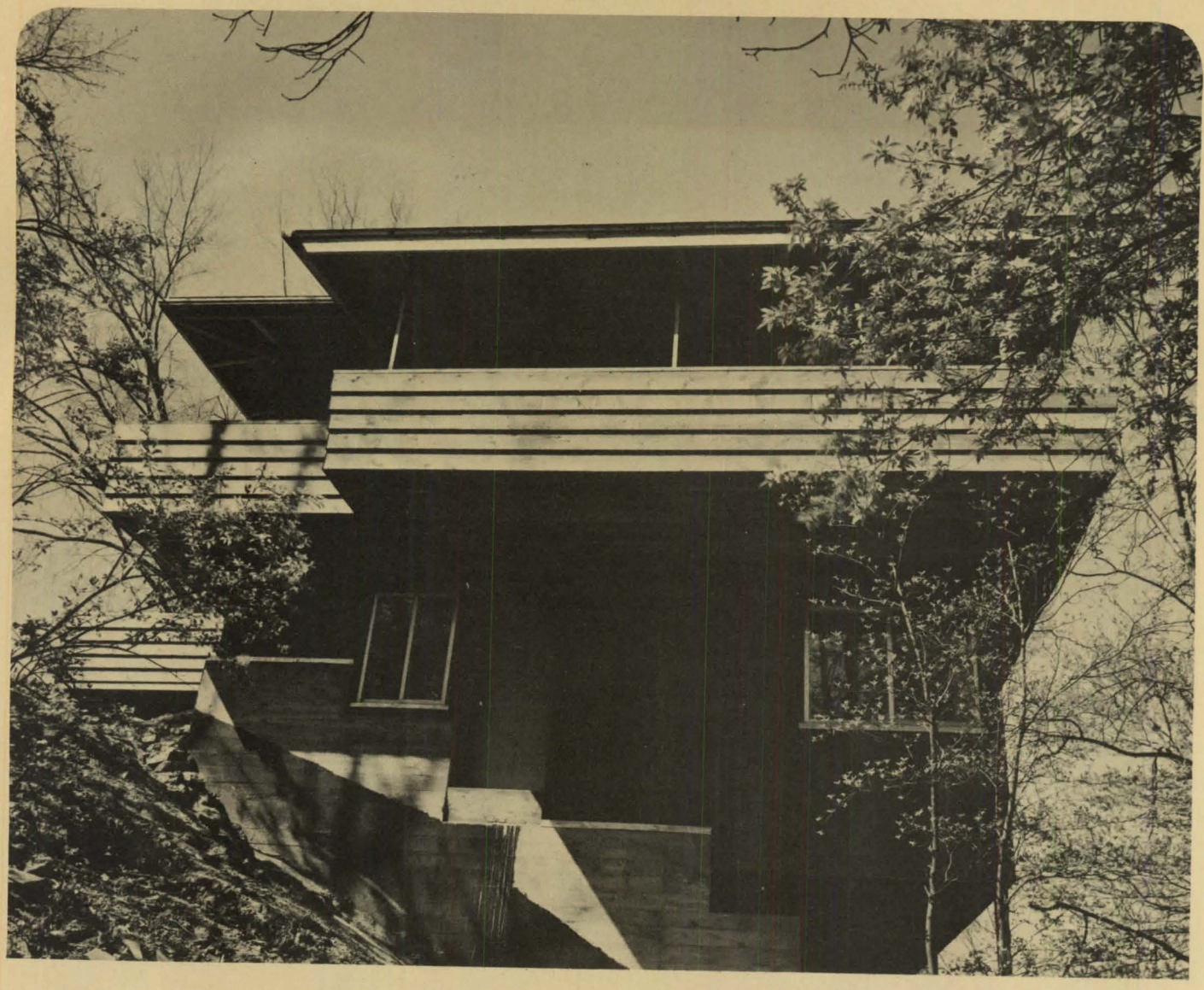
Breakthrough for Ann Arbor

His opportunity came in 1935, when a chemical engineer, Professor Walter L. Badger, approached him with a commission for a house. Badger had visited the Chicago Fair of 1933, as had Brigham, and both men were enormously impressed by the technical innovations there. Badger wanted an up-to-date house, and Brigham was determined to give it to him. The result was a dwelling that created a local sensation. It incorporated a great deal of glass block, Stran-steel, and Rostone, a synthetic limestone, which appeared to be a promising new material. So forbidding was the project that local contractors were exorbitant in their bids, and Brigham built it himself for about one-half the highest bid. The house **(3)** was a genuine breakthrough for contemporary architecture in Ann Arbor. It attracted much attention, and, in the next few years, Brigham was able to design several other houses in a similar vein.

Of these, the most noteworthy is perhaps a 1938, two-family dwelling for Mrs. Anna Burt, which was a pioneering experiment in the use of concrete block. For this house, the architect had to engage in protracted negotiations with the city building inspector, as, indeed, he did on several other occasions, to convince that official that the new construction methods were as sound as those already in use.

Significance of the Designs

The significance of these houses in the late 1930's was both social and architectural. They represented the first attempt in Ann Arbor, then a quiet college town with a conservative architectural tradition, to create a truly contemporary domestic idiom. In terms of design, they



5

were not as advanced as the creations of Neutra and Schindler, from which they were derived, but Ann Arbor, after all, was not Los Angeles. To mention only one important difference, the climate was much more severe, and the emphasis on year-round, open-air living could not be the same. In terms of materials and construction, they were certainly advanced. The proof of this is to be found in the difficulty of getting contractors who were willing to build them. One of George Brigham's achievements is that he educated a number of contractors in a new building technology. A later generation of architects benefitted by these efforts.

In terms of planning and site orientation, the houses exhibited the same fundamental soundness that has characterized Brigham's work throughout his entire career. Substantial experience in building had given Brigham great awareness of the economic problems confronting the building industry, and, with the advent of World War II, he turned to a series of experiments with prefabrication in the hope that it offered a solution to the vexing question of cost. Under his direction, a program of sponsored research in prefabrication was established at the University of Michigan, and several Brigham-designed houses were built at Louisville, Ky., and Los Angeles, Calif. It is significant that his program was perhaps the first effort at architectural research in any American university, and was the predecessor of a great number of larger projects to come. In the area of research, as in several others, Brigham was a pioneer.

By 1949, Brigham had returned to the practice of architecture, and from this time until his retirement from the University in 1959, he did about six or eight houses a year. The importance of these structures was, it must be emphasized, much greater than their number would indicate. Although never "daring" in the conventional sense, they exhibited much greater areas of glass than the city was accustomed to. Combined with this use of glass was a distinctive type of detailing, especially in redwood and cedar, and an extremely sound sense of planning. Each house was a careful solution of the problems of the site and the requirements of the owner. Thus, the Wayne Hazen House, 1949 **(4),** took full advantage of its steep site overlooking the University Arboretum, and the Gilbert Ross House, 1953 **(5),** was built around the musical life of its owner, who was first violinist of the string quartet in residence at the university. Its large living room is an ideal space for chamber-music concerts. Because most of the clients were professors, the budgets of these houses were not lavish. They were demonstrations of the feasibility of good domestic design for a class which, as we observed earlier, is not particularly noted for adventurous architectural attitudes. Thanks largely to George Brigham, modern design became respectable in Ann Arbor. This is no small achievement.

Experimenting with Prefabs

On a trip to California two years ago, Brigham visited the migrant labor camps and came away determined to use his experience in prefabrication to alleviate the conditions he had seen. Since that time, he has been working full time on two prototype structures intended to be winterized, code conforming, and capable of being built in one week. With the backing of a local industrialist, Donald H. Bacon, he has developed a 16′ x 24′ shelter with a modular aluminum framing system and 7/8″ sandwich panels **(6).**

Designed originally for year-round use in California, the shelter can also be used in colder climates for summer vacation homes. A prototype model was built at a lake near Ann Arbor, and the local Boy Scout troop has erected several more at nearby camp site.

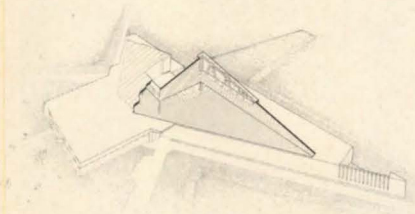
6

At present, Brigham is working on a 20′ x 32′ structure with the panels increased to 1½-in. thickness, two bedrooms, and a prefabricated bath. It is intended to sell for $6000, and would, he feels, be "a real contribution to solving the housing question," which he characterizes as the most pressing social problem facing the country today.

Brigham is refreshingly frank in his approach to prefabrication. He admits that what he has produced is "no architectural masterpiece," but adds that it is not supposed to be. He does not, for example, like the roof lines, but says that it offers all sorts of possibilities for roofing materials and wiring installations.

With shrewd New England common sense, he remarks that "there are too many people going at the problem of prefabrication with far-out schemes." The basic thrust of his proposal is toward a modular form that can be adapted to almost any kind of plan. It is very definitely *not* instant space. In short, in George Brigham we have a man who is still creative and perceptive in his retirement years. We can only wish him well.

NO SPACE FOR A CULTURAL SQUARE



You don't have to be hip to reject a cultural square. The off-beat triangulations of Gunnar Birkert's library are contemporary in style even though derived via an established design approach rather than the inspiration of cultural "zaps."

A resounding architectural statement was essential to mark a spot of culture in a rapidly expanding, nondescript suburb just outside Detroit. The site faces a busy street and is surrounded by low-rise commercial and residential structures of no particular class or kind.

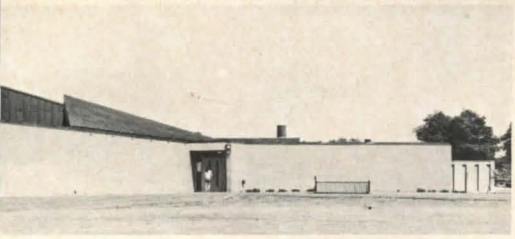
The building had to affirm its being in no uncertain terms. It does so by massing major elements toward the thoroughfare, thus firmly imprinting the library's presence upon the awareness of passing motorists. However, the elevation is more than a subliminal notation for passing motorists. The façade is composed of two elements: a clerestory that admits controlled northern light, and, beneath it, a windowless wall of book stacks that provides a noise barrier against the busy street. Storage and workrooms have been placed behind the spectacularly massed façade.

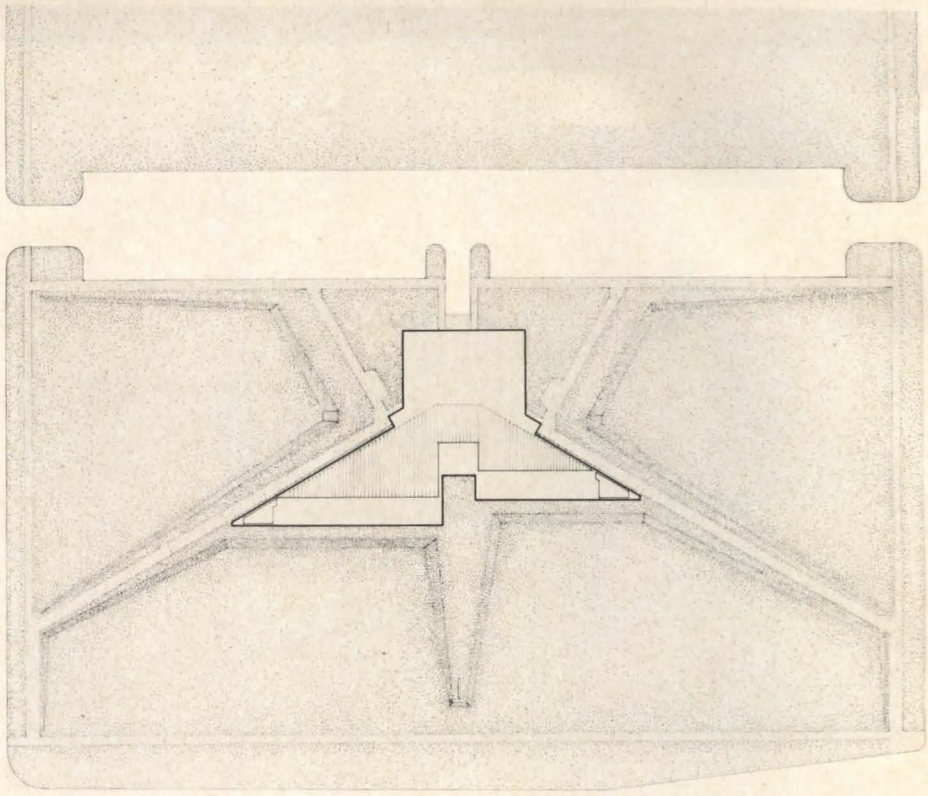
The asymmetrical massing was not for kicks; it was dictated by the different space requirements of the adult and children's book sections.

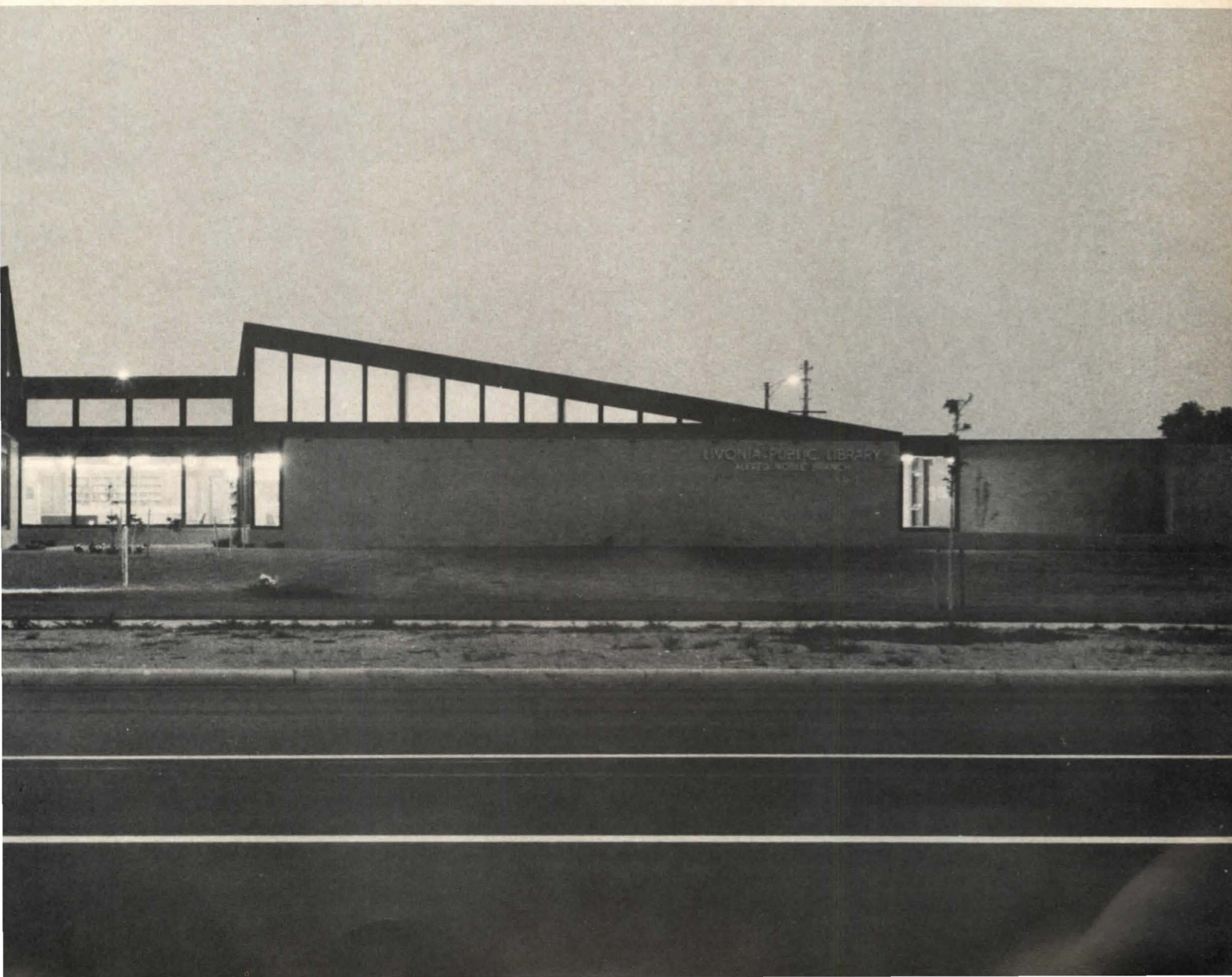
At the ends of the building, the triangular configuration has been continued beyond the building in an open perforated wall that completes the triangular geometry and achieves the desired longer dimension of the façade. The extreme ends of the clerestory roof mark the beginning of enclosed interior space; they then rise to an apex and return upon themselves, forming a reveal at the division between adult and children's library sections.

The pedestrian's approach reinforces the building's geometry. People walk diagonally from the main street and approach the center of the building from either direction and continue inside to a control point. The library can be managed by one person located at the charge desk, which oversees the adult and children's fan-shaped reading rooms.

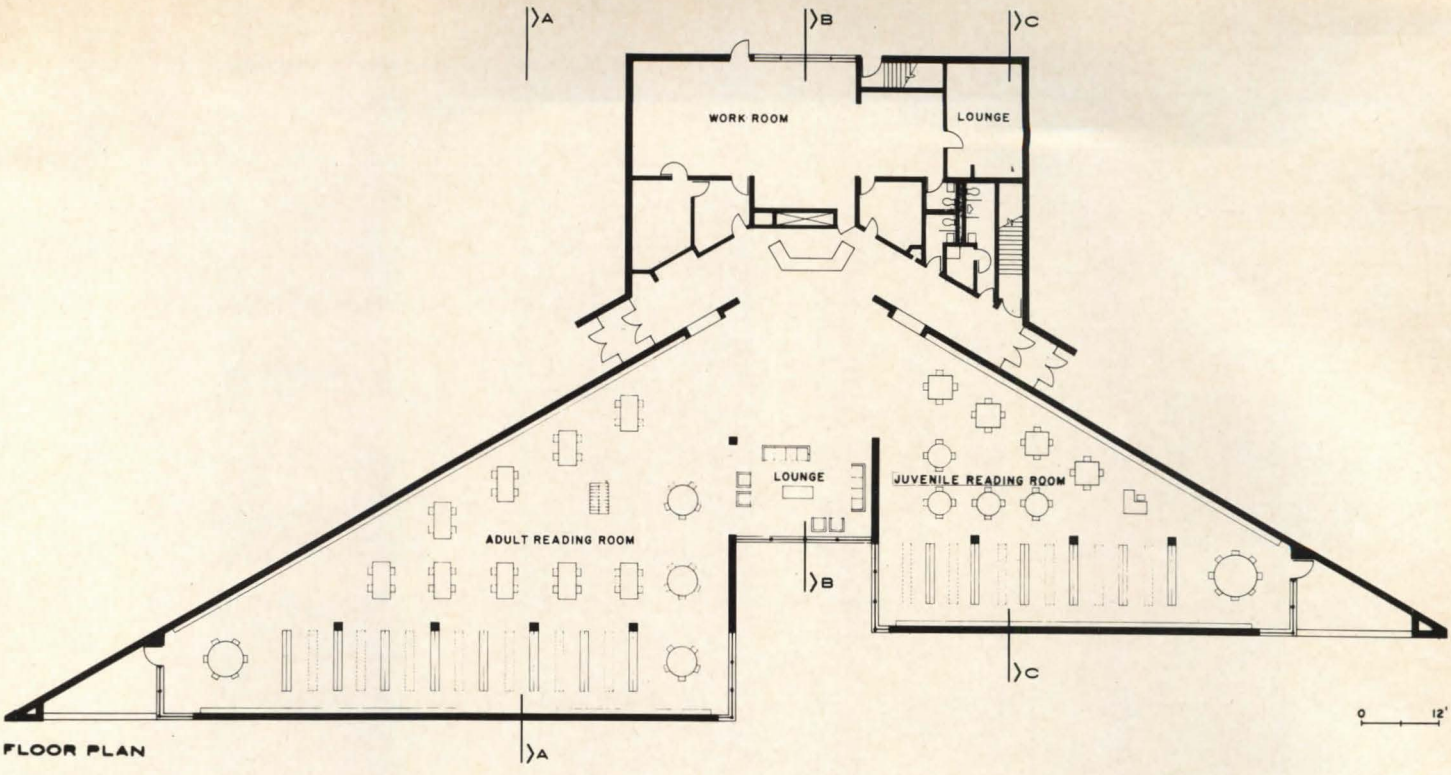
Birkert's site concept can better be appreciated from the drawings than from the building and site. His intention was to reinforce the design of the building with earth forms and planting. Unfortunately, the budget did not allow for a landscape architect, and proposals for







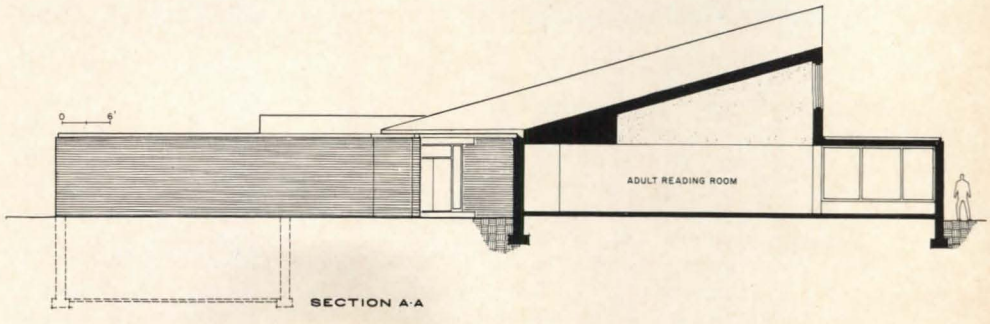

EXIT



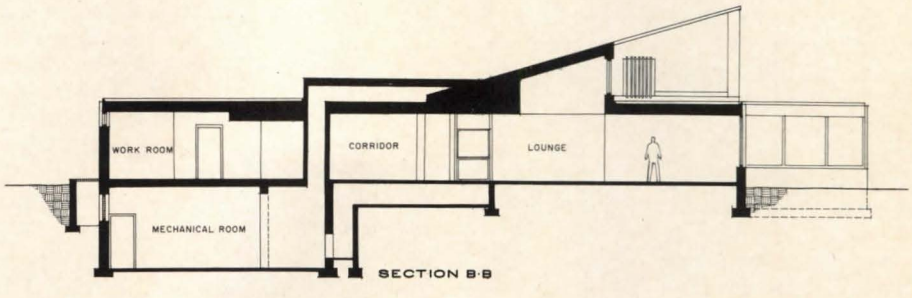
FLOOR PLAN

planting could thus not be realized. Consequently, it will be a number of years before the small planting now in place will appreciably influence the design concept.

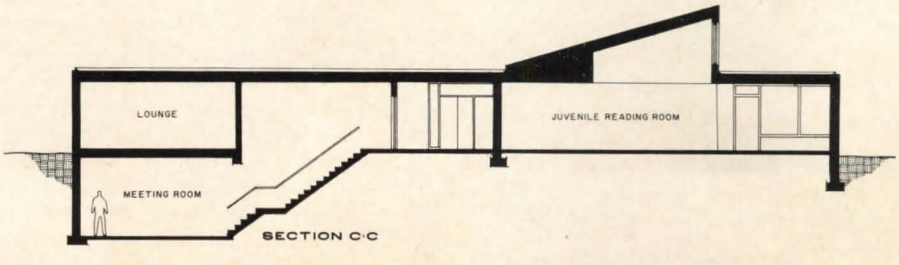
The program had been established and site selected by the owner before the Architect was commissioned. Given these two drawbacks, Birkert decided at the outset that a square, one-story building, as suggested by the original program requirements, would be lost on the site. His triangular solution admirably suits the program and provides the desired cultural "zonk."



SECTION A·A



SECTION B·B

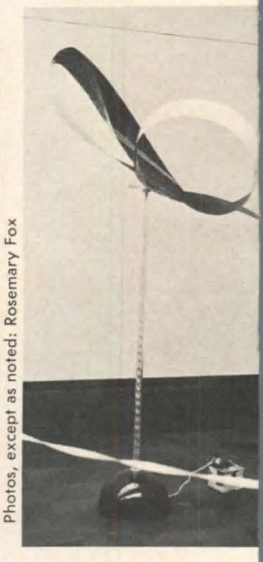


SECTION C·C

ALFRED NOBLE BRANCH LIBRARY, *Livonia, Michigan.* ***Architects:*** *Gunnar Birkerts & Associates.* ***Site:*** *Suburban, nondescript commercial mixed with low-rise, middle-income residential.* ***Program:*** *Branch library (see text for program amplification).* ***Structural System:*** *Combination of block bearing walls, wood trusses, masonry piers, steel columns.* ***Mechanical System:*** *Air conditioned, with additional heating at the glass areas; lighting combines fluorescent and incandescent.* ***Major Materials:*** *Brick exterior, copper on sloped roof; interior, brick and exposed concrete block, acoustical plaster on low horizontal ceiling, drywall, wood trim and wood board paneling in entrance and charge desk area; carpeted throughout.* ***Consultants:*** *Robert M. Darvis & Associates, structural; Siegel-Swiech Associates, mechnical.* ***Cost:*** *Budgeted, $250,000; bid, $248,650; actual, $281,-909.* ***Photography:*** *Orlando Cabanban.*

MACHINE-ART PAST AND TECHNOLOGY-ART PRESENT

Above, "Rotozaza"; below, E.A.T. entries.

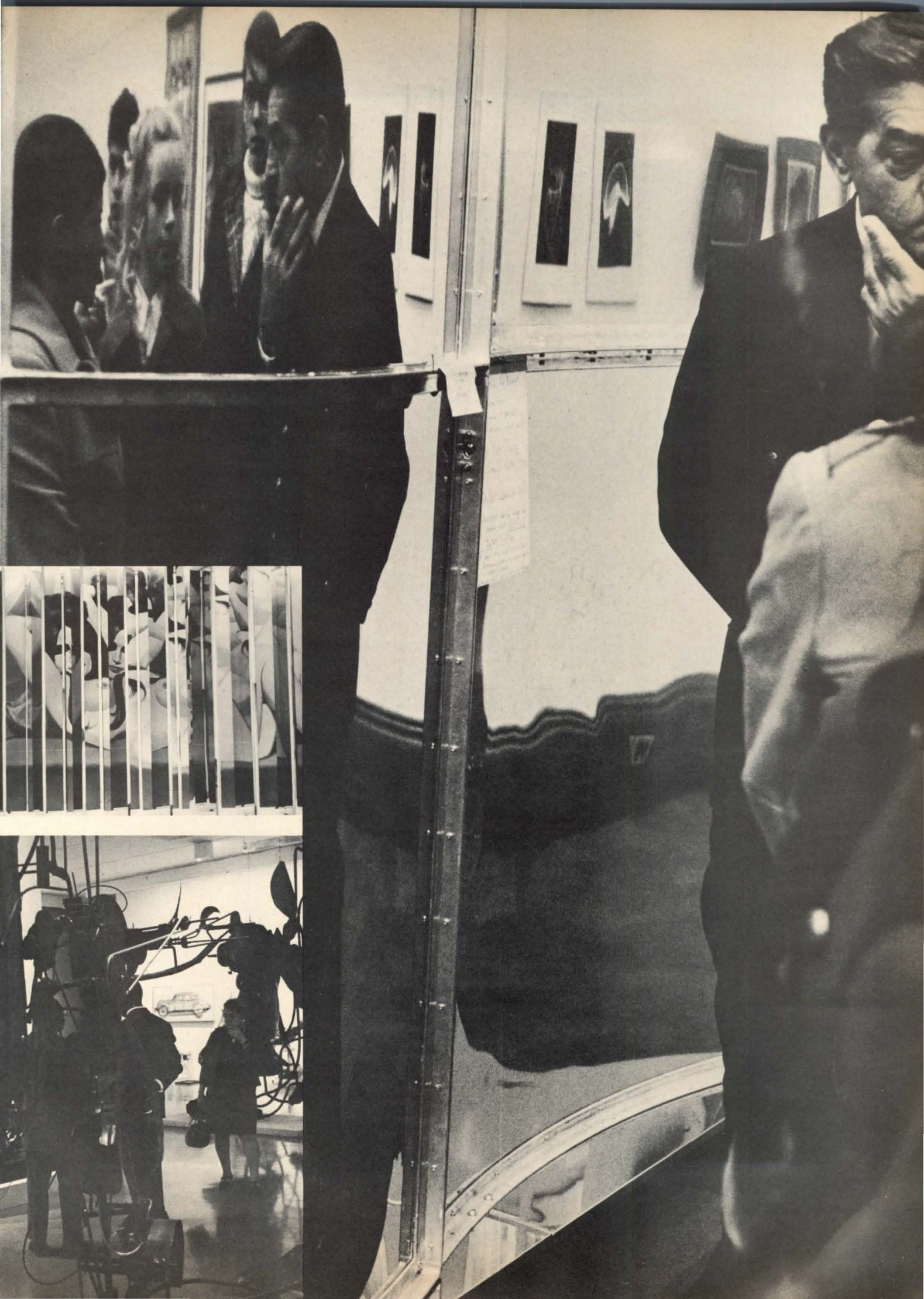


Photos, except as noted: Rosemary Fox

The holiday season in New York was enlivened by two notable exhibitions dealing with the integration, or frequent lack thereof, of art and technology. At the Museum of Modern Art, K.G. Pontus Hultén, Director of the Moderna Museet of Stockholm, mounted an impressive scholarly show examining how artists since 1900 (although Leonardo, Dürer, and a few other precursors were thrown in) have regarded or dealt with the machine — as a blessing, bane, inspiration, or threat. The MOMA exhibition, weightily titled "The Machine as Seen at the End of the Mechanical Age," presented a host of old friends from the movements of the Teens, 20's, 30's, and later: Constructivism (including a replica of Tatlin's model for the Monument for the Third International), Futurism, Purism, Surrealism, the Bauhaus (Moholy-Nagy's "Light-Space Modulator" with its filmed version holds its own with contemporary pieces), and others, including Bucky Fuller's rediscovered Dymaxion Car No. 2, a 1931 Bugatti Royale, and stills and films by Lumière, Léger, Moholy-Nagy, and Chaplin ("Modern Times," of course).

In his text for the MOMA show, Hultén properly observed that "We are surrounded by the outward manifestations of the culmination of the mechanical age. Yet, at the same time, the mechanical machine — which can most easily be defined as an imitation of our muscles — is losing its dominating position among the tools of mankind; while electronic and chemical devices, which imitate the processes of the brain and the nervous system, are becoming increasingly important." Most of the newer pieces in his exhibition, unfortunately, did not indicate that today's artists have made a creative rapprochement with this new technology. The most successful things were the "fun" machines — Tinguely's "Rotozaza," which tossed rubber balls back and forth with gallery-goers, and Stankiewicz's "The Apple," which, when fed with a coin, did a marvelous noisy performance of snapping jaws and whirring motors until the metal apple was saved from destruction. These were still playing with the old muscle-machine. The only real indications of what is to come were prize winners of the competition for collaborative artist-engineer works run by Experiments in Art and Technology, and a few other pieces by people like Nam June Paik. Consequently, the MOMA show, despite its aura of presenting the avant garde in art vis-à-vis technology, was really mainly a historical overview, with just as much, if not more, emphasis on the classical fine arts of painting and sculpture as on more far-out techniques.

Meanwhile, a half-hour's subway ride away at the Brooklyn Museum, the fifth floor of the venerable pile had been turned into a snapping, crackling, popping Coney Island of a place, with more than 130 of the entries in the E.A.T. competition doing their thing simultaneously — or usually simultaneously — there was as much breakdown trouble inside the museum most days as there was Hong Kong flu outside. The E.A.T. show, "Some More Beginnings," indicated far more powerfully than the MOMA show the possibilities for environmental creations inherent in the marriage of art and technology. The jury report for the competition, written by the scientist jurors (there were no artists on the jury) sums up rather succinctly the state of the art-and-technology art today: "In each of the winning entries, a spectrum of technology was used with great impact on the art forms. Evident is the realization that neither the artist nor the engineer alone could have achieved the results. Interaction must have preceded innovation. Going beyond a demonstration of art and technology, the engineers and artists together have created more than a well-executed realization of fantasy. The unexpected and extraordinary, which one experiences on viewing these pieces, result from inventiveness and imagination, stimulated not by the brute force of technical complexity but by probing into the workings of natural laws." Although the jurors were speaking of the three top winners — "Heart Beats Dust" (engineers: Harris Hyman and Ralph Martel; artist: Jean Dupuy), "Fakir in ¾ Time" (engineer: Niels O. Young; artist: Lucy Jackson Young), and "Cybernetic Sculpture" (Wen-Ying Tsai: artist and engineer) — the theme of using technology creatively for environmental effects and affectiveness came through very strongly in Brooklyn. As the title of the show indicated, we are still at the stage of beginnings in this field. But if energy and inventiveness and continued "probing into the workings of natural laws" are sustained and elaborated on, we can expect larger and larger scaled environmental works in the future, and architecture will be forced to take note.—JTB



IT'S THE LAW

CHANGES IN A FIRM'S NAME

BY BERNARD TOMSON AND NORMAN COPLAN

P/A's legal team examines the impact on an architectural firm's name of a partner's death or withdrawal.

There are many areas of both legal and ethical uncertainty in the professional practice of architecture and engineering. One of these relates to the question of what changes must be made in an architectural or engineering firm name upon the death or withdrawal of a partner. Since the applicable statutes and regulations of the various states differ, many architectural and engineering firms that practice in more *than one state* have difficulty complying with conflicting rules. A large firm with many partners, which may have expended many years and much effort in building the prestige of a particular firm name, is particularly subject to hardship if its name must continually be changed as partners die or retire.

A few professionals apparently feel that the continuance in the firm name of a deceased or retired partner may be misleading and thus frown upon the practice. On the other hand, there appears to be no objection to the practice of not including the names of all the partners in the firm name. The professional associations, as reflected in the AIA's Standards of Professional Practice and the Code of Ethics of the National Society of Professional Engineers, do not prohibit the retention of the name of a deceased or retired partner in the firm name, a practice quite common in other professions. The Board of Ethical Review of N.S.P.E. has ruled that an engineering partnership consisting of three members, all of whose names appear in the firm name, could continue such name where the surviving partners acquired all of the interest of the deceased partner under the Articles of Partnership. The Board pointed out that the firm name "had acquired the significance and value which would be lost, at least in part, if it were necessary to change the name." It concluded that such a change was unnecessary to comply with the canons of ethics.

In 1967, the AIA, the N.S.P.E., and the Consulting Engineer Council formed an Architect-Engineer Liaison Commission Task Force to study the problems relating to architectural and engineering firm names. This commission did an outstanding job of research and evaluation and made its report and recommendations in October of 1968. The commission found that the statutes or regulations of approximately one-fifth of the states prohibited the continuation of a deceased or retired partner's name in the firm name, that a few states had no restriction upon such use, and that the majority of states permitted the continuation of the name either under certain conditions or for a limited period of time.

Illustrative of the latter group is Florida or Georgia, where the retired or deceased architect may be continued in the firm name if his status is indicated on the firm's stationery. In New Jersey, Ohio, and Alabama, the continuancy of the name of a deceased or retired partner may be continued for not more than two years after his membership in the firm has been severed. The New York statute appears to be a peculiar one, in that it defines the situation under which former employees of a deceased architect or engineer may continue the firm name but appears to leave open the question of the circumstances under which surviving partners may continue the firm name unchanged.

It was the conclusion of the commission that, "in the light of the legitimate needs of the architectural and engineering professions and because of the experiences and requirements of most of the registration boards, that rigid prohibition of the use of the names of retired or deceased persons in firm names is too restrictive." The commission recommended to the respective associations authorizing the study that all states adopt a uniform policy permitting the continuation of a deceased partner's name in the firm name subject to certain conditions. The policy statement of the commission and its recommendation was as follows:

"Names used by firms of architects and of engineers shall meet the following requirements in a manner satisfactory to the appropriate Registration Board:

"(1) Names of retired or deceased partners or officers may hereafter be retained in the firm name after their retirement or death, only if:

"a. There is a written agreement providing for the continued use of the names of the partners or officers in the firm name, and

"b. They had been active partners or officers continuously for not less than five (5) years at the time of retirement or death, and

"c. The retired partner or officer does not practice his profession under his own name, and

"d. The names of the retired or deceased partners or officers are appropriately included on the stationery with suitable indication of status.

"(2) When the firm name does not include the names of all active partners or officers:

"a. Their names and addresses and other pertinent data required by the Board shall be on file with all applicable Registration Boards, and

"b. Their names shall be listed on the stationery of the firm as partners or officers."

If the recommendations of the commission are to be carried out, it will, of course, be necessary for substantial changes to be made in the laws of most states. The architectural profession has not in the past been singularly successful in influencing state legislatures to adopt laws that are in the interest of the profession. To accomplish the objective recommended by the commission will require a uniform strategy and a great effort on the part of the associations that created the commission.

The Pearson chairs are so sensitively designed that they appear to be a study in pure form, but actually solve the dual problem of office seating: function and comfort. To preserve the lines of these designs Knoll has developed a new compact control unit which eliminates the mechanical clutter underneath. Another contribution by Knoll to the total office. Designed by Max Pearson of the Knoll Design Development Group. **Knoll Associates,** Furniture and Textiles, 320 Park Avenue, New York, New York 10022. Knoll International operates in 29 countries.

SPECIFICATIONS CLINIC

PRODUCTS ON MICROFILM

BY HAROLD J. ROSEN

The author's office collaborated on a microfilm system for retrieving information on 1500 manufacturers' products. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York City.

At the 1967 fall conference of the Building Research Institute on the subject of information retrieval, several speakers pointed out that architects and engineers spend about 20 per cent of their time searching for information. The time spent in seeking information is a by-product of the inadequate library services available to the architectural profession. Recently, however, a catalog service and an architectural firm jointly developed a microfilm library of products and materials that can be quickly retrieved and projected on a screen.

Architects and engineers must have access to three major areas of information in order to design and specify. These areas include building science, product literature, and standards and codes. A conventional library housing this kind of information has never been assembled satisfactorily.

Product literature containing manufacturers' information has never been developed in depth. The currently available Sweet's Architectural Catalog File consists of 12 volumes containing information from about 1200 manufacturers. However, because of its cost to the companies included in it, it is limited both as to the number of manufacturers and as to the amount of product literature they can incorporate in the annual file. In addition, this system has drawbacks because it can only be updated on a yearly basis.

Standards and codes that include Federal Specifications, ASTM Standards, USASI Standards, Commercial Standards, NFPA Standards and local building codes are quite voluminous, and very few offices have complete files on this subject.

In the spring of 1968, Sweet's Construction Catalog Services and the New York office of Skidmore, Owings & Merrill started a program to develop a product information library. The goals established were predicated on the following needs:

- That the in-house library be fully comprehensive in terms of manufacturers and pages.
- That it be kept up to date, with revisions being made frequently, every two or three months.
- That it be organized and packaged for easy use, maintenance, and survival.
- That it be classified and indexed for speedy search, retrieval, and comparison of data.
- That it contains complete, clear, and well-organized catalogs and data pages.

In December 1968, the architects' library developed by the research group was installed in S.O.M.'s New York office. The library consists of both hard copy contained in 172 binder volumes and a microfilm library. The paper library, which occupies 60 linear ft of shelf space, contains 150,000 pages of printed product information from 1500 manufacturers of building products and materials.

The microfilm component, which is a duplicate of the hard copy library, is the CARD Viewer/Printer, manufactured by HF Image Systems Inc. This system is on microfiche film of an automatic type that allows a push-button search of the microfiche images. This system eliminates any direct handling of film and reduces the problem associated with loose microfiche cards.

The hard copy library is classified and indexed according to a new classification system. There is a Buildings System Division, a Materials Division, and an Equipment and Furnishings Division.

The Building Systems Division is organized on a functional end-use system and is divided into the following categories:

AT Structure: Systems, products, and their accessories that combine to provide primary support of the building or construction.

BE Building Enclosure: Systems, elements, products, materials and their accessories that separate and protect the inside climate and space from the outside climate or space.

IE Interior Enclosures: All systems, elements, products and their accessories that shape, separate, and modulate interior spaces.

CP Circulation and Passage: All elements, products and their accessories that accommodate or control the passage and circulation of people and goods.

FP Finishes and Protective Materials: Coverings and veneers applied over any of the above to functionally protect and/or aesthetically enhance.

E Electrical: Systems, products, and accessories that combine to provide power for lighting, machinery, equipment, and communication.

L Lighting: Products and accessories that combine to provide artificial illumination.

C Conveyance: Systems, products, and their accessories that mechanically move people or goods.

MS Mechanical and Sanitary: Systems, equipment, and accessories that combine to provide thermal control, waste removal, and other services required for human comfort.

The Materials Division comprising multi end-use and function consists of the following:

MA Materials: Manufactured or natural items that can be part of more than one functional element, or have several end uses or applications: i.e., it is not designated for one specific functional element.

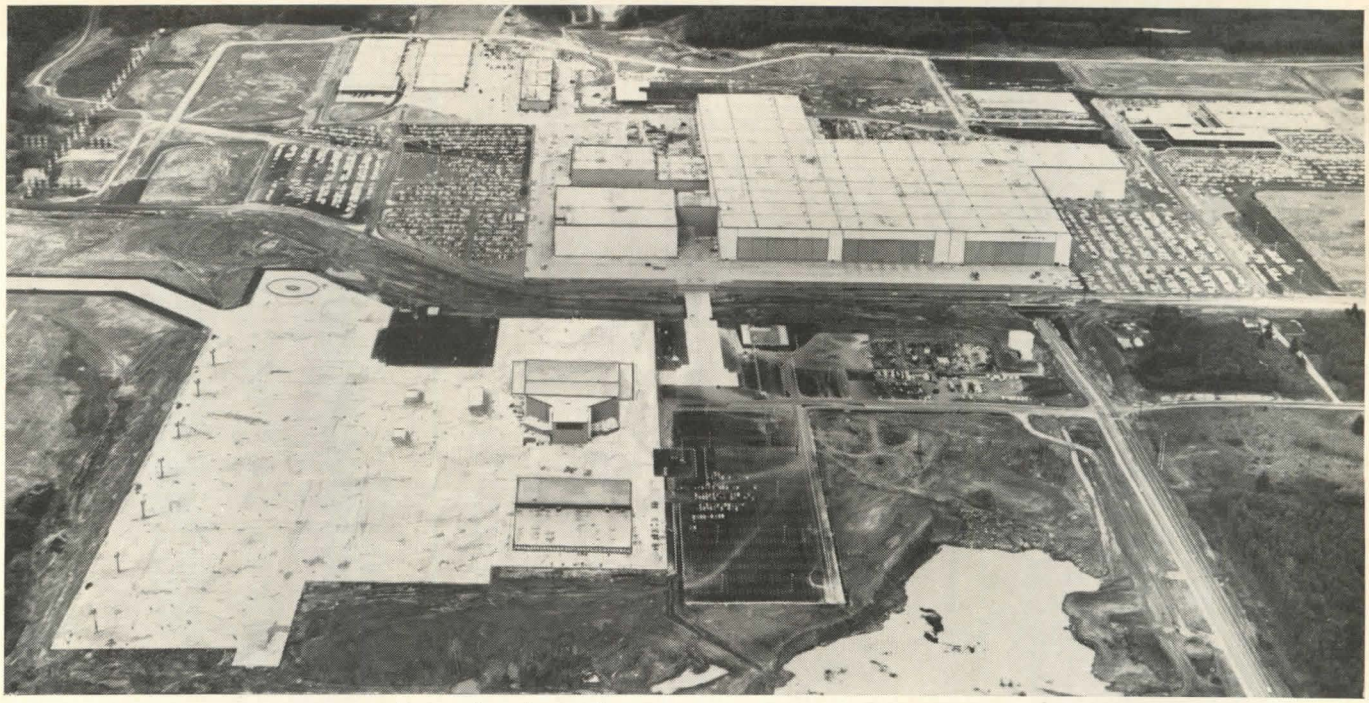
The Equipment and Furnishing Division by facility type includes:

EF Equipment: Items typically not in the fabric of the construction, but fixtures and other fixed packaged products that are brought into specific spaces or facilities as required accessories for performing the specific functions of those spaces, such as medical, laboratory, and food service equipment.

EF Furnishings: Items typically not in the fabric of construction or fixed equipment, but typically loose items that are brought into specific spaces to aid, accommodate, and enhance man during his use of these spaces.

The above categories apply to the microfiche library. However, the hard copy library needs a classification system so that it can be organized in the loose-leaf binders that can be maintained and updated periodically. The microfiche library needs only an indexing system of products, brand names and product category, since it can be stored and retrieved in a random fashion.

A research and development program is now underway dealing with building science information and with standards and codes.



THE AUSTIN COMPANY, *architect, engineer & general contractor* • UNIVERSITY MECHANICAL CONTRACTORS; URBAN, INC.; HASKELL CORP., *mechanical contractors* • CRANE SUPPLY COMPANY, *plumbing wholesaler* • CRANE COMPANY, *fixture manufacturer*

First 747 jet, the world's largest commercial jetliner, on the apron before Everett plant.

Boeing 747 Manufacturing Facility

World's largest building— for world's largest commercial jet

■ 205 million cubic feet—the world's largest building by volume—sits next to Paine Field in Everett, Washington, where over 12,500 workers turn out the world's largest jet airliner—The Boeing Company's 747 superjet.

Under one roof is housed space for manufacture, subassembly and final assembly of a jetliner 231 feet 4 inches long, with a wing span of 195 feet 8 inches and a tail 63 feet 6 inches high—taller than an average five-story building. Boeing's main assembly area here is 115 feet high and consists of three bays with 1,365,000 square feet of covered floor area. Adjoining are areas devoted to cleaning, sealing and painting sections of the aircraft before final assembly; areas for full scale mockups, static testing, warehousing, and plant services. Two office buildings and a cafeteria complete the huge complex.

Preparation of the 780-acre site began in Spring 1966. By the time peak production is reached in early 1971, over 17,000 are expected to be employed. Just as this huge complex houses the most modern manufacturing equipment in the aerospace industry, so its personnel facilities are designed for the utmost comfort of workers and visitors. For example, Sloan Flush Valves for the washrooms were selected—assuring quietness, efficiency, reliability and long life with a minimum of maintenance.

Owner, architect, engineer, employee and guest, all intuitively respond to the quality and performance found in Sloan Flush Valves. Your building, too, can share this same Sloan quality. Just specify and insist upon Sloan Flush Valves—most people do.

SLOAN VALVE COMPANY • 4300 WEST LAKE STREET • CHICAGO, ILLINOIS 60624

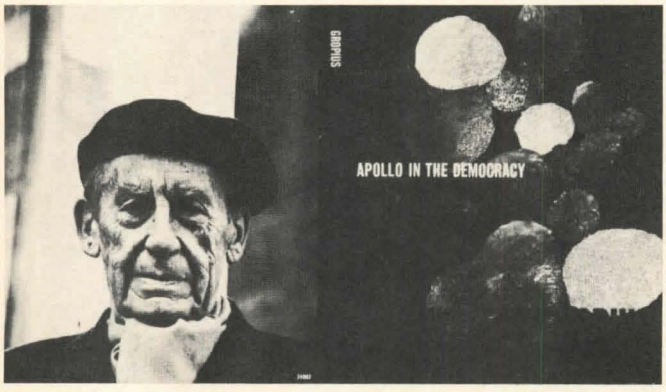
On Readers' Service Card, Circle No. 396

BOOK REVIEWS

BAUHAUS BASIC IS BEST

BY PETER COLLINS

APOLLO IN THE DEMOCRACY: THE CULTURAL OBLIGATION OF THE ARCHITECT. *By Walter Gropius. McGraw-Hill Book Company, 330 W. 42nd St., New York, N.Y., 1968. 182 pp., illust., $12.50. The reviewer is Professor of Architecture at McGill University, Montreal, and Editor of the* Journal of the Society of Architectural Historians. *He is currently on sabbatical studying law at the Yale School of Law.*



The vague title of this volume appropriately reflects the fact that it is a miscellany of short essays — mainly speeches delivered on festive occasions, such as birthdays, or the receipt of honorary degrees; and because of the similarity of the circumstances prompting their composition, they all manifest that basic conceptual unity that may be said to characterize the essence of Walter Gropius's legendary prestige. For whereas other total architectural reformers have spent their time revising their own theories, exemplifying them in radically new building forms, or searching for ways of curing the changing defects of our rapidly evolving environment, Gropius' polemical strength and stature have paradoxically lain in the fact that he has advocated the same panacea for all architectural ailments for nearly half a century. Even the historians of the Gothic Revival would find it hard to parallel such single-minded persistence, since Pugin died young, Ruskin soon abandoned architecture for sociology, and Viollet-le-Duc's polemic grew stale within 20 years.

Apollo in the Democracy to some extent exemplifies the Madison Avenue technique that Gropius derides in his fifth essay: namely, how to create a widespread conviction that the product one has been marketing for 50 years is even more essential for man's present well-being than ever. Each speech diagnoses a newly developed ailment that can only be cured by regular doses of Dessau. Each speech, whatever its initial theme, usually attains its climax with the ritual doxology: "I am proud to report that the basic method of art education, developed by the Bauhaus, has proved the possibility of establishing . . ." or some such formula. Opinions will differ as to whether or not Bauhaus Basic should be extended beyond kindergarten level (where, as Gropius points out, it is already widespread and popular) to be introduced forcibly into every school and college curriculum. But few readers will share Gropius' optimistic assurance that the traditional universal instinct for environmental harmony will inevitably be reestablished once the electorate has been properly imbued with the mysteries of nonrepresentational art.

Moreover, even those with unshakeable faith in the Bauhaus Elixir must occasionally be bewildered by the contradictory diagnoses of the newer syndromes that it is guaranteed to cure. For example, the second essay puts the blame for our environmental ills on urban conformity, whereas the sixth essay puts the blame on urban chaos. The first essay laments modern society's refusal to cooperate with creative artists, whereas the sixth essay laments the refusal of creative artists to cooperate with one another (especially the inability of selected architectural firms to cooperate with The Architects Collaborative). The seventh essay regrets the passing of the eras when authoritarian governments were available to impose architectural unity, whereas the fifth essay asserts that, on the contrary, authoritarian societies in the 20th Century have demonstrably contributed less cultural coherence than democratic societies. The first essay regrets that we have nowhere built the new city of the 20th Century as an organic whole, whereas the seventh essay optimistically explains that Chandigarh and Brasilia can only provide "a skeleton which future times will fill in with live tissue and with the cultural humus that will give it its specific character."

The text is, of course, suffused with the prophetic optimism to be expected in the set speeches of a professional pioneer; but between the chinks in the outworn and threadbare slogans, one perceives only too clearly a new nostalgic awareness of the past, and of the Orient, far removed from the complacent contemporaneity of Gropius's earliest writings. His new enthusiasm for the persisting aboriginal traditions of Japan; his wilful insistence (despite well-publicized historical evidence to the contrary) that the rue de Rivoli exemplifies "anonymous prototypes of a public spirit of decency and propriety"; his use of illustrations of the Parthenon, Vigevano, Venice and Bath in juxtaposition with his own designs — all seem to indicate that the dreams of Dessau were irretrievably shattered by the traumatic experience of the Pan-American controversy.

However, any shortcomings in his prophetic or analytical utterances become insignificant when we reflect on the occasions of their delivery. It is to his personal prestige as an inspiring teacher that this book is a memorial, and the poetic qualities of its contents can only justly be appreciated by reading these speeches with constant awareness of the festivities that call them forth.

Students Teach Teachers

BY H. H. WAECHTER

PROJECT ROMULUS: AN ADAPTABLE HIGH-DENSITY URBAN PROTOTYPE. *M.I.T. Report No. 12, edited by Anthony Kettaneh. The M.I.T. Press, 50 Ames Street, Cambridge, Mass. 1968. $7.50. The reviewer is Professor of Architecture at California State Polytechnic College, San Luis Obispo, California, and a practicing architect in Oregon.*

This book has a two-fold interest: It describes procedures, and the thinking behind it, of applying systems engineering to the design of cities and sub-cities; and it is

Continued on page 162

Stuff the block, save the building.

Pouring Zonolite® Masonry Fill Insulation into masonry walls can increase fire ratings from two up to four—count them—four hours.

Reduces sound transmission to a murmur.

Doubles the insulating value of the wall to prevent chills and sweats of the occupants while inducing a state of euphoria over low heating and air conditioning bills.

What more do you want for as little as a dime per square foot?

Remember. Stuff the block, save the building.

Also remember to mail coupon right now for complete info.

GRACE **INQUIRY DEPT.**
Zonolite Div., W. R. Grace & Co., Dept. PA-04
62 Whittemore Ave., Cambridge, Mass. 02140

Gentlemen: Please send me complete information on your comforting, quieting, saving, fire-resisting Zonolite Masonry Fill Insulation, with complete technical data and specifications.

NAME_____

TITLE_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

On Readers' Service Card, Circle No. 410

Continued from page 156

a product of an interdepartmental student project in systems engineering at M.I.T.'s School of Engineering (Spring Term, 1967).

With regard to the second point, attention is called to the university as a resource. Governmental agencies and industry have increasingly drawn on the university as a source of ideas and planning for solutions to problems. Although, in this respect, we usually think of the work of professors, this study is one of the few cases where the work of students was published, although professors were in the action as a resource. This reviewer knows from experience that many valuable studies undertaken by students remain unpublished. Let us have more of such good studies. One might only wish for easier accessibility of such offset-printed typescript material at less cost.

In order to exemplify a high-density urban prototype, the team decided to use for its exercise Thompson and Spectacle Islands in Boston Harbor as realistic sites. The two islands were combined to form a new Thompson Island.

Although the systems approach could be applied to any kind of location, it was found that the island was particularly well suited to providing for those qualities that were deemed favorable for new town sites. It is largely undeveloped, has close proximity to an urban core, and could, by design and policy, become accessible for the type of use that was contemplated. The island would cover approximately a square mile, with an ultimate population of 100,000.

Although the students went through the motions of population studies, land use plans, discussion of city administration, and other planning aspects, the two strongest chapters are undoubtedly the ones on Structures and Transportation.

The key thought on structures is to strive for adaptability of the system and for flexibility within each space unit. To answer changing modes of living, this concept will provide for a large degree of mobility. Unusual for a student project, the structure is worked out in fine detail.

The structural system consists of three types of independent elements: (1) factory-built activity modules for homes and offices, which can be plugged into each other and into the service core of the megastructure; (2) megastructures that will house these or any later developed modules; and (3) floating foundations for the water-based areas of the chosen location to make possible the moving of entire buildings.

Although the general concept is not new, it is detailed neatly to a great extent. In contrast to heavy concrete modules that are the structure itself, the proposed modules might well qualify for acceptance by applying Buckminster Fuller's weight per unit efficiency quotient. The modules would be transported by road, rail, barges, or helicopter, and installed either on platforms or beams. For foundations, good soil or bedrock will be used where available, and floating foundations where suitable and when poor soil is competitive in cost because of increasing land shortage.

For a high-density city, which will be self-contained to a large degree, the megastructure will prevail and become the host organism for the module. Although motor transportation is located at lower levels, within a neighborhood "all buildings may be connected by enclosed pedestrian walks at a level several stories above ground." At certain levels, there may be parks and recreational facilities instead of living units. The space between the two original islands provides for a marina.

The chapter on transportation is also very thorough, with detailed traffic flow and cost studies. The decision-making process leads to a bias against mass rapid transit such as subways. Intead, a high-speed elevated expressway system was

worked out that would largely — and, in the end, entirely — depend on automated control. It is assumed that "no changes would occur in the operating characteristics of automobiles during a design period of up to 25 years," and that rapid transit is neglecting factors such as privacy, comfort, convenience, and door-to-door travel without transfer. Obviously, changes in behavioral patterns were not considered, and matters of convenience are not only criteria relating to individuals, but also to society as a whole. Also overlooked is the factor that right now most individuals cannot afford many imporant things for a full life because of sacrifices made for the automobile. There is the further question whether all people would enjoy the excitement of racing safely on automated roadways. Cutting down the need for transportation would be more important. A smaller but important chapter is the one on Utilities. Good concepts on sanitary engineering were developed, thinking of improved air and unpolluted discharge into the sea. Re-use of water has been considered for fire fighting, but not for the restoration of the equilibrium of a viable ecological system.

On the more critical side, something ought to be said about the claim of interdepartmental study. Although the book shows much evidence of engineering thinking, all other important disciplines are sparingly represented, or not at all. There are no students representing architecture, landscape architecture, geography, anthropology, human ecology, biochemistry, psychology, and other disciplines important for work on environmental design.

Engineers, even at M.I.T., seem to be unaware that architects are primarily trained in an integrated approach to design, leading to a comprehensive understanding of the problem. The application of this skill would have made their systems approach more complete. Instead, we find all these self-conscious side glances at "aesthetics," "style," "monotony," and so on, as a matter of beautifying the engineer's work. One can cringe when reading, "Since only the performance and some basic dimensions of the module are specified, the customer should be able to choose from a wide variety of styles, color, and finishes. And since the megastructure orders the modules into large, significant shapes and masses, competent and imaginative architecture can be brought to shape the city to an acceptable aesthetic standard." It is not insignificant that the engineers received their "acceptable aesthetic standard" from a graphic artist.

Finally, there is the weighty problem of socio-economic feasibility, which is too complex a matter to go into in a review. The major concept is that of a private consortium that is willing to provide the risk capital. Although there is interest in our current problems of economic and social deprivation, there is also unflinching confidence in the businessman's imagination and a large middle class, all providing for a strong labor market. Consequently, an enthusiastic picture is conjured up where the happy middle-class individual's every whim will be accommodated by courtesy of the benevolent and profiteering consortium. Everything that is missing today in the burgher's mundane life will be provided for in the new city. He will not only be freed from traffic jams, but can change his mind and dress "whenever the mood strikes." It will be the first "City of Homeowners" where up-and-coming families from all over the country come "eager to plug into America's most exciting community." Technocracy will bring this dream at no cost in terms of socioeconomic changes. What is bad in our cities will not really have to be changed; it just has to be done right and better. It's the engineer's dream of having their cake and eating it, too.

Continued on page 170

THE GREAT

KEYSTONE CONTROVERSY

SHOULD THE KEYSTONE AUTOMOBILE CLUB'S NEW PHILADELPHIA HEADQUARTERS BUILDING HANG DRAPERIES, VERTICAL BLINDS OR LEVOLOR RIVIERAS?

THAT WAS WHAT 5 EXPERTS HAD TO DECIDE.

INSTEAD OF ARGUING, THEY HUNG TWO OF EACH, ON DIFFERENT WINDOWS, FOR A PERIOD OF SEVERAL WEEKS.

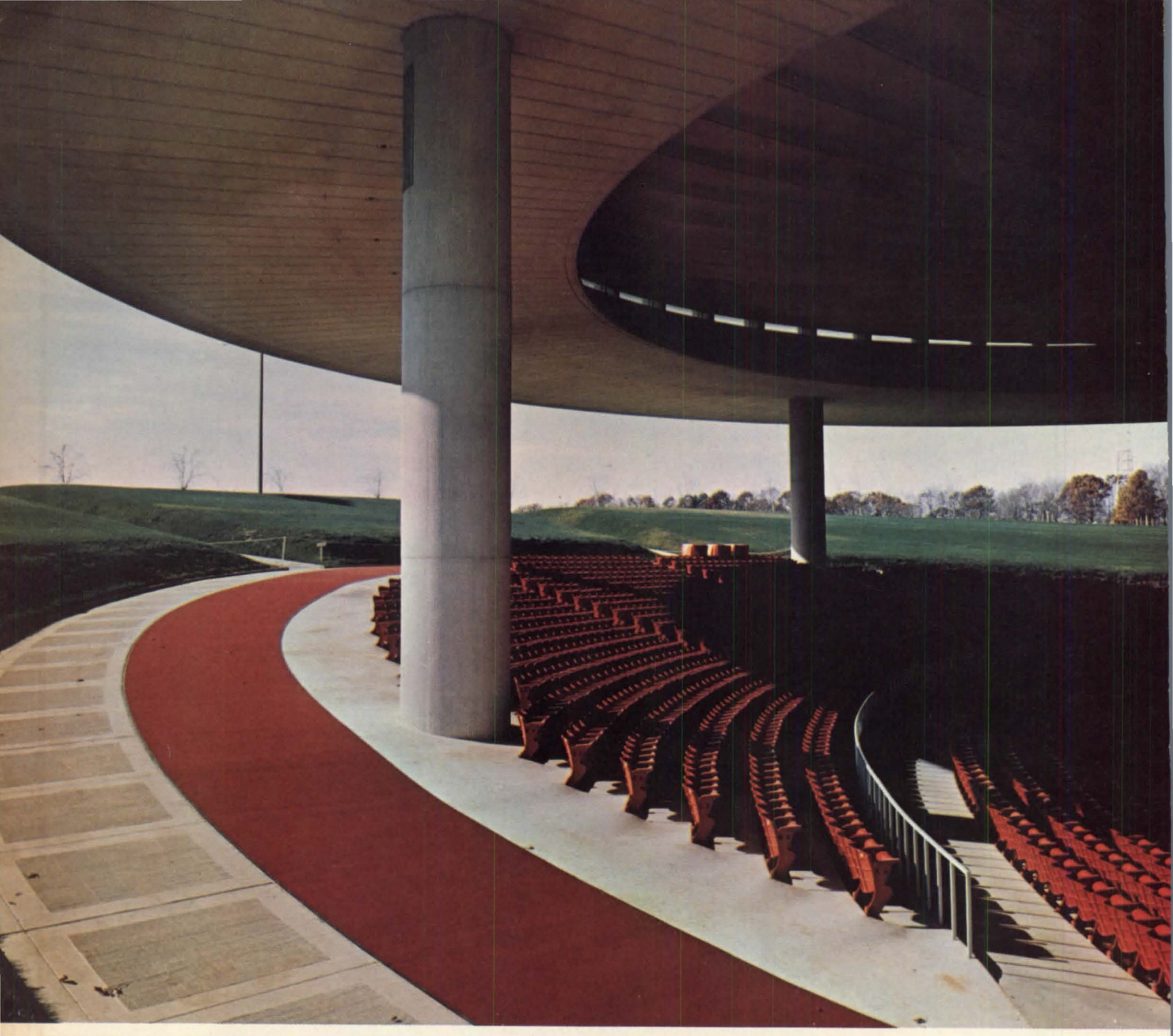
FROM THE START LEVOLOR RIVIERAS HAD THE EDGE. NOT ONLY DO RIVIERAS CONTROL LIGHT, HEAT AND PRIVACY PERFECTLY, BUT THEIR SLIM (1 INCH WIDE) SLATS AND "INVISIBLE" TAPES MADE THEM UNOBTRUSIVE.

CONTROVERSY? NO MORE! THE EXPERTS CHOSE LEVOLOR RIVIERAS UNANIMOUSLY.

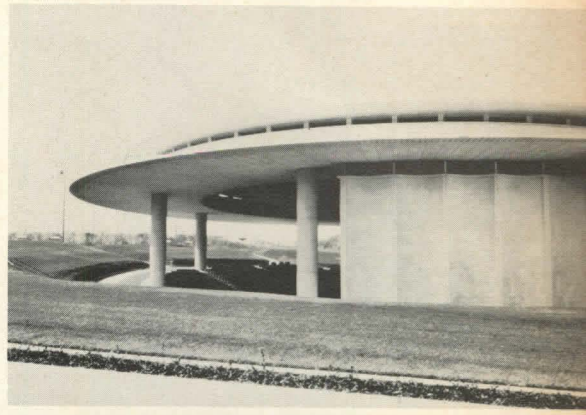
LEVOLOR RIVIERA
THE SLIM-SLAT BLIND THAT DOES JUSTICE TO YOUR DESIGN.

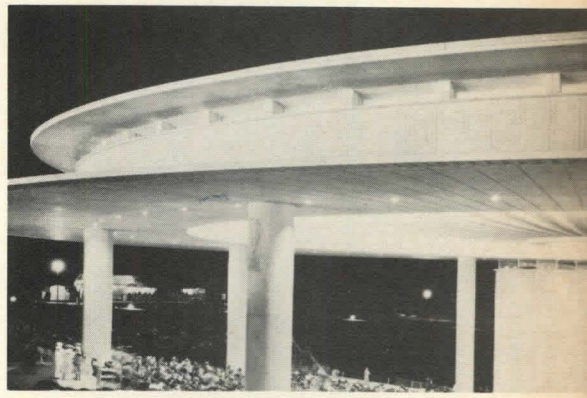
ARCHITECT: ALEX EWING & ASSOC.
LEVOLOR RIVIERA INSTALLATION BY: REINHART, INC.
FOR COMPETE DETAILS ON THESE AND OTHER SPECIALIZED BLINDS WRITE TO:
LEVOLOR-LORENTZEN, INC.
722 MONROE STREET,
HOBOKEN, NEW JERSEY 07030

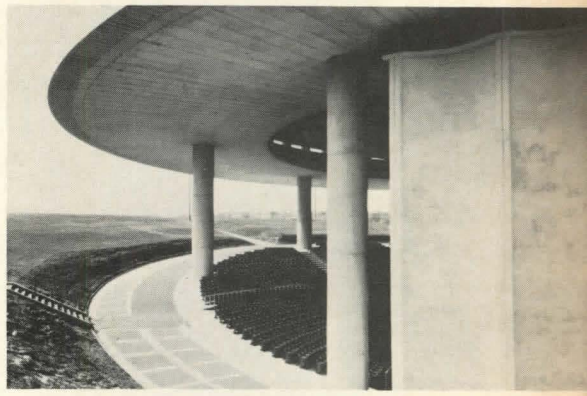
On Readers' Service Card,
Circle No. 366



Architectural Triumph. Cast-in-place and precast in white. MEDUSA WHITE.







The aesthetic Garden State Arts Center is an architectural as well as construction triumph.

Eight main columns with a flavor of Rome, the post-tensioned circular box girder, the compression and central tension rings were all cast-in-place of Medusa White.

And 254 roof slabs in 56 pie-shaped sections were all precast of Medusa White.

When color and strength are the design factors, specify white Medusa White with confidence. For complete data, write Medusa Portland Cement Company, P. O. Box 5668, Cleveland, Ohio 44101.

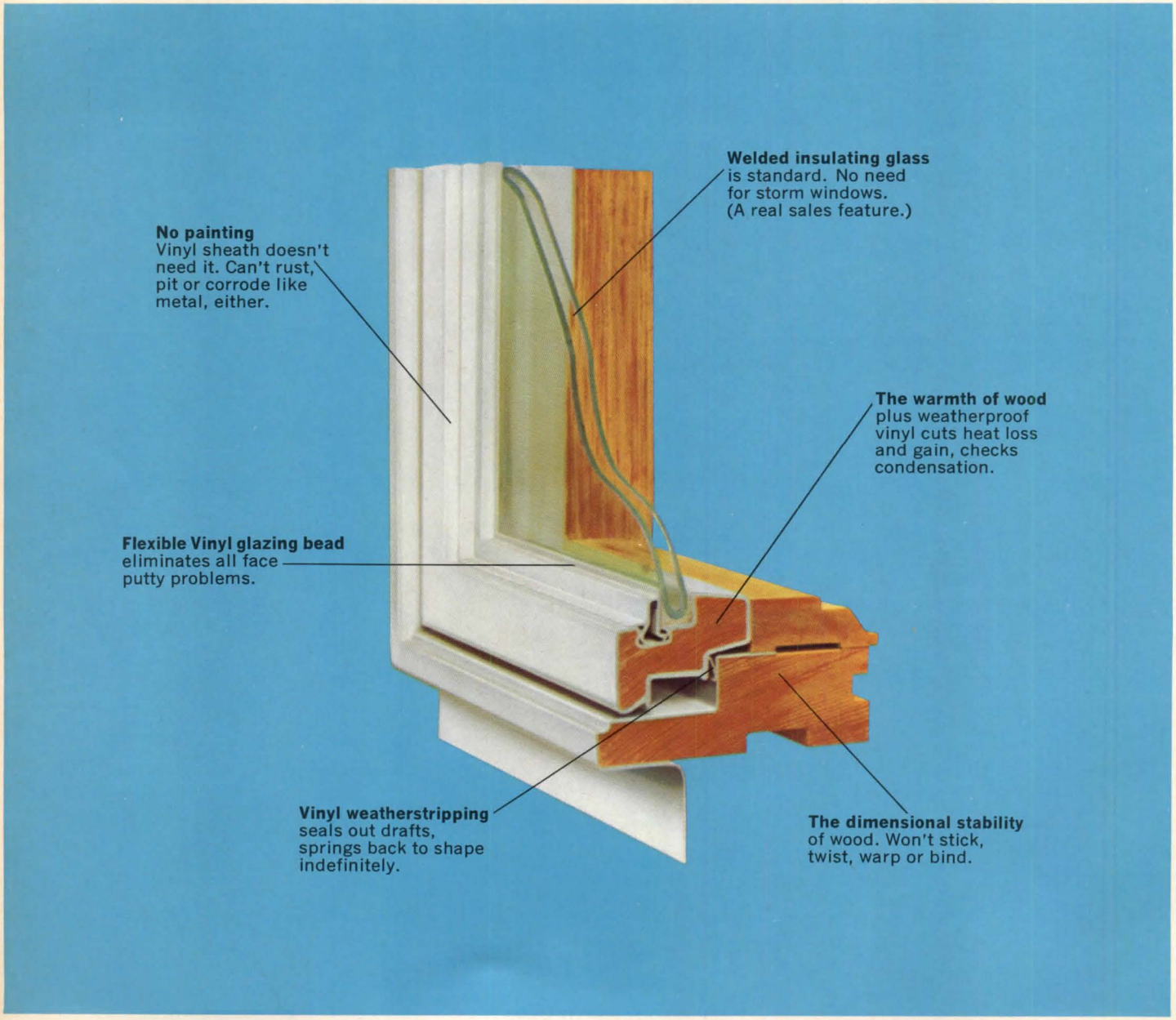
GARDEN STATE ARTS CENTER, Holmdel, N. J.
Architect: Edward Durrell Stone, New York, N. Y.
Structural Engineer: T. Y. Lin & Associates, New York, N. Y.
Gen. Contractor: Sovereign Construction Co., Ltd., Fort Lee, N. J.
Ready Mix: Duncan Thecker Associates, Wanamassa, N. J.
Precast Producer: Strescon, Baltimore, Md.

MEDUSA PORTLAND CEMENT COMPANY

White and Gray Portland Cements • White, Gray and Custom Color Masonry Cements • "CR-85 Series"® ChemComp® Cement

On Readers' Service Card, Circle No. 377

New Andersen Perma-Shield®
value of wood plus a rigid vinyl



New Andersen

Windows offer the insulating shield that needs no painting.

(No wonder you're seeing more of them lately.)

Inside a Perma-Shield sash there's a core of warm, stable wood. Outside, there's a thick sheath of rigid, weatherproof vinyl. And the glazing is welded insulating glass.

Is it the perfect window? You'll have to decide about that for yourself. We're proud of it, and we're pleased that Perma-Shield windows are being specified for some of the *best* new commercial buildings and residences.

Wide range of styles and sizes.

Choose casements, awning style, fixed types, single or multiples right from stock. There are 26 basic Perma-Shield sizes and 3 sizes of gliding doors—6, 8 and 12 feet.

For more information check Sweets file. Or mail the coupon below for literature or a Perma-Shield Demonstration in your office.

Washington Club Inn, Virginia Beach, Virginia, features 40, 8-foot Andersen Perma-Shield Gliding Doors. Guests get a sweeping view of the ocean through snuggly weathertight gliding doors. No problems . . . even under the most severe salt-air conditions.
Architect: Evan J. McCorkle, Virginia Beach, Va.

Emma Norton Methodist Girls' Residence, St. Paul. Difficult elevation could make window maintenance a nightmare, but there's little or no maintenance with Perma-Shield. They've been performance proved on thousands of residential and commercial jobs like this one—exposed to every climate over the last 9 years.
Architect: Progressive Design Associates, St. Paul, Minn.

Low maintenance home, Long Lake, Minn. The Perma-Shield Windows in this home won't need painting, or storm windows, and they won't pit or corrode like metal. They combine the insulating value of wood and the maintenance savings of a rigid vinyl shield.
Architect: George F. Panuska, Virgin Islands.

Andersen Corporation
Bayport, Minnesota 55003

☐ Please send complete Perma-Shield Literature

☐ I'd like a Perma-Shield Demonstration in my office. Please have an Andersen Distributor call me for an appointment.

Name_____

Firm_____

Address_____

City_____ State_____ Zip_____

Andersen Windowalls™ AW

Window Beauty is Andersen

PA-49

Perma-Shield Windows

On Readers' Service Card, Circle No. 329

Continued from page 163

Although there is nothing wrong with engineers displaying their literary sufficiency, I would think it unnecessary to intersperse a good technological treatise with various quotations from Shakespeare, Whitman, and Schopenhauer to Edgar Lee Masters. Nevertheless, as much as I may disagree with some of the premises and analyses, Project Romulus is a thought-provoking study and should be read by everyone who wants to confront the imperative questions of our urban environment.

The Nucleus of a Community

BY BRYAN SCRIVEN

THE SCHOOLHOUSE IN THE CITY. *Edited by Elvin Toffler. Frederick A. Praeger, 111 Fourth Avenue, New York, N.Y., 1968. 242 pp., illus., $5.95. The reviewer, an instructor at the Pratt Institute School of Architecture, New York, was a U.N. technical consultant for school building.*

This book gets to the root of the problem of the school and the city. It is divided into three parts: The City, The System, and The Schoolhouse. Each section contains a series of articles by different contributors; most of the articles were taken from the transcript of a conference sponsored by the school planning laboratory of Stanford University in association with the Educational Facilities Laboratories and the U.S. Office of Education. The editor is Alvin Toffler, author of *The Culture Consumers*.

In Part I, The City, U.S. Commissioner of Education Harold Howe describes the fiscal and administrative structure of the city, its land use and demography. It is a precise account of why the cities are what they are. The problems of the schools cannot be separated from those of the city. It is impossible to have good schools in bad cities. This article is a necessary basis for any undesrtanding or discussion of city schools. An article by Ben Graves catalogues the extent of the school building effort that is required to eliminate outdated schools. Other contributors show the imbalance between the city and the suburb. Surprisingly, suburban schools still receive more state aid than city schools; on a per student basis, it is $165.48 as against $124.91, a difference of $40.57.

In Part II, The System, Preston Wilcox describes what a community centered school could be — one in which students, parents, and the community are part of a single educational process. Mario Fantini and Richard Magat of the Ford Foundation argue the case for school decentralization and community control. Kenneth Clark sees a need for competition to the public school other than parochial and fee paying schools. These schools would be financed by corporations, labor unions, or universities.

In Part III, The Schoolhouse, there are articles on some of the school concepts that may help to solve some of the problems outlined in Parts I and II: the combined occupancy concept in New York, the Pittsburgh Great High schools, the Baltimore Education Park, the Brooklyn Linear City. It ends with an extremely good article by Frederick McDonald, "Beyond the Schoolhouse," which challenges some fashionable ideas and proposes ways of using all the educational resources available in the city, not as special events, but as a part of the curriculum. Children would not necessarily be educated in their neighborhood or in a schoolhouse, but anywhere where there was a "learning resource," which could be an art institute, a theater, or a strip of the Californian coast.

The inevitable unsettling conclusion is that most schoolhouses, other than those cited and illustrated in this book and a handful more, are out-of-date at the design stage. This cannot be afforded finan-

Continued on page 180

How to plan a Head:

1. Start with Georgia-Pacific's new dispenser/receptacle.

2. Cover it with rich woodgrain vinyl for warmth and luxury.

3. Add a touch of imagination, and you've designed a great-looking washroom!

more....
from Georgia-Pacific

Georgia-Pacific has a recessed dispenser for every design need:

Recessed towel dispenser.

Recessed towel dispenser/receptacle.

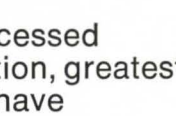
Recessed towel receptacle.

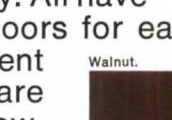
Recessed seat cover dispenser.

All are completely recessed for best space utilization, greatest design flexibility. All have piano-hinged doors for easy maintenance. Each is designed to prevent pilferage. Cormatic towel dispenser mechanisms are completely automatic with adjustable feed timing for low, medium and high traffic areas.

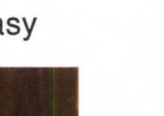
Think of G-P's Cormatic recessed dispensers whenever you want to plan a washroom instead of a head. Choice of four easy-care vinyl finishes.

Walnut.





Teak.



Driftwood.

Sable.

Add this new G-P dispenser specification catalogue to your files.

Georgia-Pacific Industrial Tissue Division
800 Summer Street, Stamford, Connecticut, 06902

☐ Please send me your 4-color catalogue.

☐ Please have a representative contact me with further information.

Name _____

Firm _____

Title _____

Address _____

City _____ State _____ Zip _____

GP GEORGIA-PACIFIC / THE GROWTH COMPANY
Industrial Tissue Division

Three divisions of Habitat Inc: Habitat furniture and accessories/Habitat indoor lighting/Habitat outdoor lighting
Three binders (illustrating more than 15,000 Habitat products) are available on request—$3 each—to the trade only

HABITAT INCORPORATED, 341 EAST 62 STREET, NEW YORK, N.Y. 10021 / TEL. (212) 758-0922

Soft new beauty in Nature-tone

Republic Tower, Baton Rouge, La. Architects: *Lewis P. Manson and Associates, A.I.A., Baton Rouge; Porcelain* enameled panels: *Rittiner Industrial Enameling Inc., Bay St. Louis, Miss.*

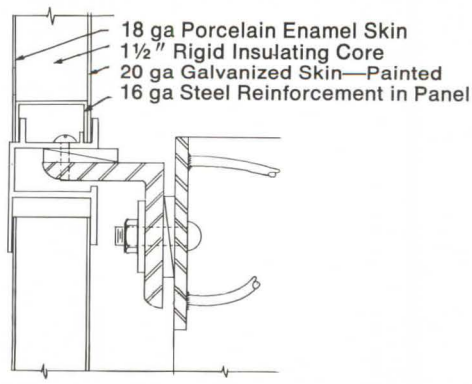
These bank buildings show the beautiful new look in porcelain-enameled steel . . . the soft, subdued aura of Nature-tone colors.

For the Republic Tower, the architects chose muted gold curtain wall panels to express the verticality of a high-rise structure. The Wells Fargo Bank building features embossed spandrel panels in a soft olive-gray.

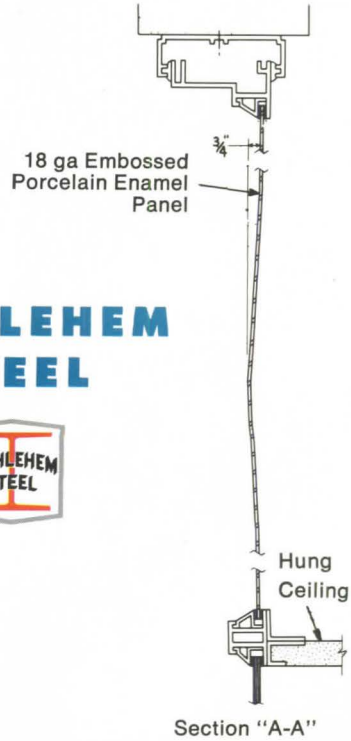
Twenty-four Nature-tone hues have been created by color experts, in collaboration with leading architects. This helps you to develop a projection of Nature in porcelain enamel. They are fully in tune with the low-chroma values of contemporary design.

The colors are permanent, the finish is durable. Porcelain finishes resist dirt, weather, and atmospheres. Panels can be designed in a wide variety of textures and embossed patterns.

Bethlehem supplies Bethnamel steel sheets to fabricators who form and coat Nature-tone architectural panels. We are enthusiastic about the aesthetic possibilities of Nature-tones, and will gladly send you the Porcelain Enamel Institute's brochure. Address your request to Room 1047, Bethlehem Steel Corporation, Bethlehem, PA 18016.

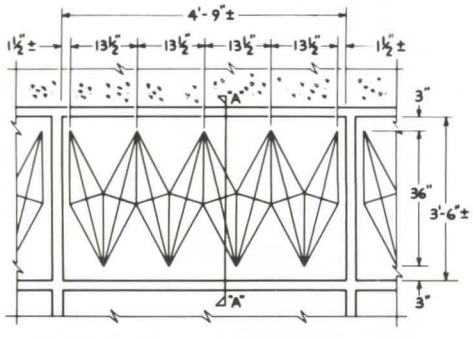


BETHLEHEM STEEL



Section "A-A"

porcelain-enameled steel



Porcelain on Steel

Wells Fargo Bank, Sacramento, Calif. Architects: *Harry J. Devine, Inc., Sacramento, Calif.* Porcelain enameled panels: *Ferro Enameling Co., Oakland, Calif.*

LUCITE® FROM DU PONT. AGELESS CLARITY FOR THE ENDLESS NEEDS OF BUSINESS.

Watching the play of light in crystal-clear shapes of LUCITE acrylic plastic gives you no more than a hint of what this beautiful plastic can do for the everyday needs of business. In lighting diffusers. In signs, skylights, glazing and building faces. To see why the experts specify LUCITE for so many light-handling installations, you'd have to do terrible things to it. Drop it—and see how it doesn't shatter. Expose it for years to sun and storms—and see how stubbornly it resists yellowing and weathering.

These tough, time-defying qualities of LUCITE make it an immensely practical material—for all its beauty. Over the years, thousands of installations in offices, factories, stores and retail businesses have demonstrated the savings LUCITE makes possible through lower costs of upkeep and replacement. It's good business to specify it. For more details, send for Du Pont's booklets on LUCITE for (1) signs, (2) lighting, (3) glazing and (4) building faces. Address: Du Pont Company, Room 7649A, Wilmington, Delaware 19898.

LUCITE® ACRYLIC PLASTICS FOR SIGNS, LIGHTING AND ARCHITECTURE

DU PONT

Better things for better living
...through chemistry

On Readers' Service Card, Circle No. 427

When it comes to setting thermostats, the girls in Martin Dorm each do their own thing.

Midwestern College, Dennison, Iowa, is a brand-new coeducational school that began in October of '65.

Now, when you start off new like Midwestern did, you can have the latest of everything.

Take Martin Dorm, for instance. Wall-to-wall carpeting, panelled walls in each room.

And to really spoil the gals, each room has its own GE Zoneline heating/cooling unit. So the coeds can set any temperature that pleases them. How's that for individuality?

But don't get the idea this is a rich kids' school. Not so. Midwestern is run on a taxpayers' budget. It's a gem of architectural efficiency.

That posh Zoneline comfort, for example, actually cost Midwestern a good bit less to install compared to traditional heating and air-conditioning systems.

True, any good zonal heating/cooling system could have done the job for Midwestern. So why was GE Zoneline the choice?

For one thing, GE service is nearby—a comforting thought to the building maintenance staff. Although with Zoneline you can keep a spare unit on hand for instant replacement. What could be easier?

The architects naturally considered GE exclusives in choosing Zoneline.

The GE rotary compressor, for instance, is much quieter than the reciprocating type generally used. Quiet enough to save a midnight complaint because of noisy air conditioning. For quietness, too, GE has a special low-speed blower.

Also nice to know, the unique GE Spine-fin coils use continuous tubing to eliminate many of the brazed joints found in most air conditioners. Every brazed joint is a potential refrigerant leak. Who needs headaches like this?

Zoneline controls are prominently located on top of the chassis, and so simple, a coed's little sister can operate them.

For added reliability, GE keeps the electrical connections of each unit on the room side of the weather barrier. Why give weather a chance at them?

There are many more GE features the architects liked. The attractive grille, the washable air filter, the unique interior baffle, the positive seal air vent and so on.

Maybe the same features are what you're looking for in your next dormitory or office building. Find out. Check out a Zoneline application near you. Your GE Central Air Conditioning Distributor will tell you where.

Zoneline Cooling and Heating Systems.

GENERAL ELECTRIC

On Readers' Service Card, Circle No. 430

Continued from page 170

cially, socially, or artistically. It is the architect's professional role to prevent this, of course, at its origin. This is not his fault but it is possible to question and challenge the program. This is dangerous and most are anxious to get the building into "the works"; there is a team of draftsmen who must earn two-and-a-half times their salary. They are no longer professionals, but in the business of plan production, content to design obsolete buildings.

Even when the program is enlightened, the new schoolhouses look disturbingly like the old. The Conte School, New Haven, illustrated in this book, is a community-centered school designed by Skidmore, Owings & Merrill. Its library doubles as a branch public library, its auditorium as a community little theater, it houses an old peoples' center and neighborhood offices of city agencies, yet it looks exactly like any of SOM's other schools — a sterile exercise in this firm's house style. The community school has not found its identity yet; it is in its "horseless carriage" stage of development.

It is recognized in contracts and in the fee structure that each school is and should be the objective of the architect's individual creative design effort. However, most architects start with an idea of what a school should look like instead of letting themselves be inspired by the particular problem and the activities and life style of the people who will use the building. This is academicism, the opposite of the creative process. When a painter or sculptor does this instead of being inspired by the subject and the material, the dullness and lack of creative effort are at once apparent. This was largely the case in the arts in Europe at the end of the 19th Century and in Russia under Stalin. Government and authority can no longer dictate to communities, which are only beginning timidly to dictate to government. The New York school system is obviously in an uncomfortable period of transition and confusion, but everyone knows that the outcome will not be a strengthening of central authority. Vitality must come from a new source. The Bundy report on decentralization in New York City (described in Part II) is titled, "Reconnection for Learning." For some reason, this title never caught the imagination of the press. The report recognized that the formal education of children cannot be separated from the family, the community, or the environment; that the home was as much an educator as the school; that there was a split be-

Continued on page 186

Prefab

Put a Bally Walk-In Cooler/Freezer in the kitchen. Be ready for the leisure crowd seeking new adventures in dining. Bally Walk-Ins operating at temperatures from 35° cooling to −40° freezing provide the facilities to plan and prepare excitable and profitable menus in advance. Learn about many other important features from our 32-page booklet and urethane wall sample.

There's an evolution in the kitchen

Bally

Bally Case & Cooler, Inc.
Dept. PA-4 Bally, Pa. 19503

How to stay Open after Closing

COOKSON Rolling Grilles and Side Coiling Grilles are the Answer.

This Cookson Side Coiling Grille protects 44-ft. of visual display on a 2-sided opening for this store.

Four 30-ft. Cookson Rolling Grilles, with 3 moveable mullions, provide security for this 120-ft. opening.

And an increasingly important answer to architects and designers involved with the trend toward open, controlled climate shopping malls where the need for weather-tight closures has been eliminated yet the need for security remains.

Combining round-the-clock merchandise display, tight security and great visual appeal, Cookson Rolling and Side Coiling Grilles can close openings without diminishing air circulation or blocking light sources.

For more complete information on Cookson Rolling Grilles, Side Coiling Grilles, "Servire" Fire Doors, Counter Fire Doors, Cookson Steel Rolling Doors and Counter Doors, write for Bulletin 6901, or see us in Sweet's.

"Best Way to Close an Opening"

THE COOKSON COMPANY
On Readers' Service Card, Circle No. 338

700 Pennsylvania Ave.
San Francisco, California 94107

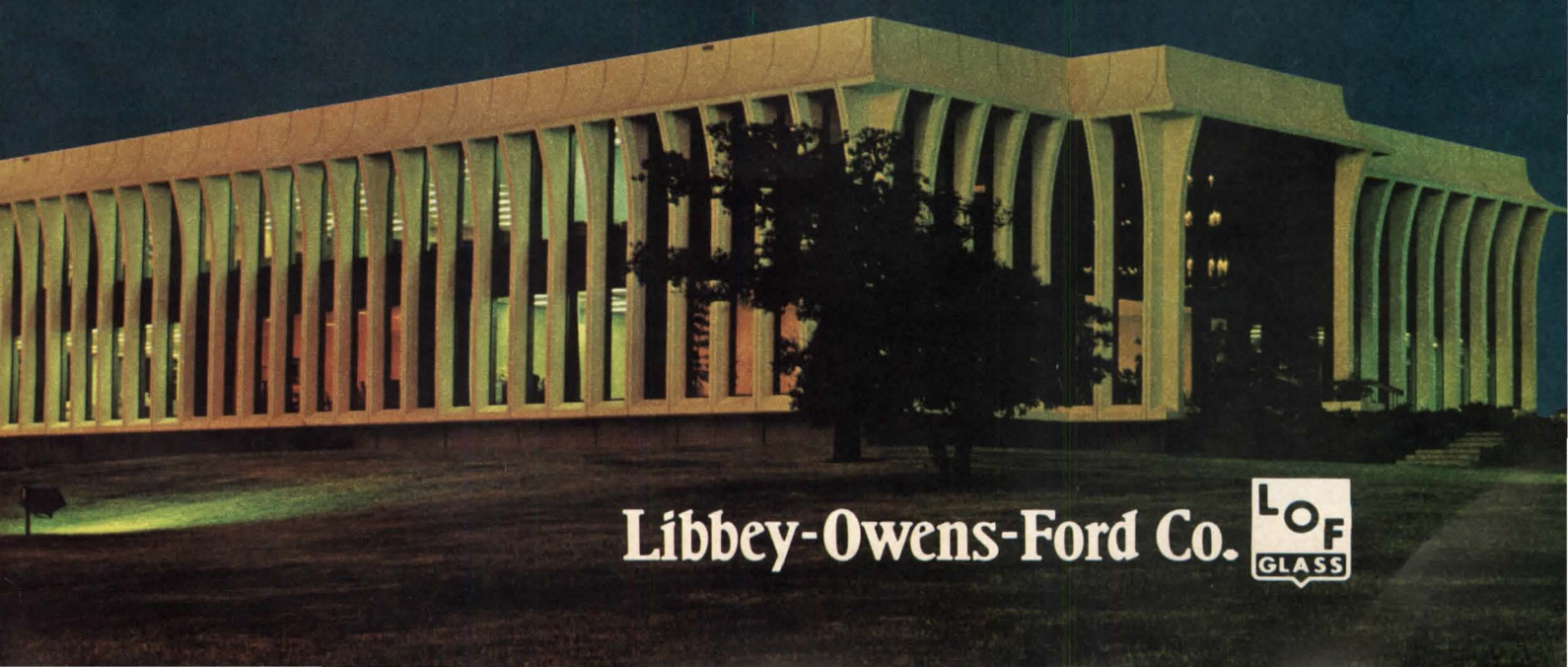
On Readers' Service Card, Circle No. 367 ▶

Grayson Gill, Inc. designs a "Joya de Cerro" for National Farm Life Insurance

"Joya de Cerro" means "jewel on a hill." And the building is! With its floor-to-ceiling expanses of rich Parallel-O-Bronze® plate glass, and its spandrels of blending Vitrolux® heat-tempered glass. The building looks like a gleaming modern Parthenon. But it's more than that. On the inside, partitions are kept to a minimum. This open design allows free flow of natural light and enhances the feeling of roominess. The "all glass" treatment provides a 360-degree view of the surroundings. Pleasant, comfortable views. Because Parallel-O-Bronze reduces sky brightness and sun heat transmission through the glass. And this adds to the effectiveness of the building's air-conditioning system.

Thus, the architect, Grayson Gill, Inc. of Dallas, has truly created a "joya de cerro."

L-O-F makes a particular kind of glass for every purpose in building design. Consult Sweet's Architectural File. Or call your L-O-F Glass Distributor or Dealer (listed under "Glass" in the Yellow Pages). Libbey-Owens-Ford Company, Toledo, Ohio 43624.



Libbey-Owens-Ford Co. LOF GLASS

SARGENT®

New Haven, Connecticut • Ontario, Canada

A complete line of advanced architectural hardware, including the Sargent Maximum Security System

Continued from page 180

tween the school and the home; that teachers were often in opposition to parents, the values of home and school in conflict; that parents and the community have a tremendous potential energy for improving the schools that has never been tapped. The basic purpose of decentralization is to reconnect the school with the home and the community.

The building of a schoolhouse should be part of the "Reconnection for Learning" process. Teachers, parents, and students should design and build their own schoolhouse. It is difficult to think of a more potent weapon to end the alienation between school and home and to make the school "their" institution. The involvement could be intense. Architects should set up shop in an existing school or in the neighborhood and open their office to the public. They would have to shed some of their professional pride and become collaborators in a process; it would require infinite patience, but the results could be infinitely rewarding socially and artistically.

Bastions and Crenelations

BY SANDRA BLUTMAN

AN INTRODUCTION TO ENGLISH MEDIEVAL ARCHITECTURE. *By Hugh Braun. Frederick A. Praeger, 111 Fourth Street, New York, N.Y., 1968. 392 pp., illus., $17.50. The reviewer is an architectural historian in London, England.*

The first edition of this book appeared in 1951, and, in the intervening 18 years, a good deal of serious research has been done on medieval architecture that has not been incorporated. It is not really history of medieval architecture so much as a series of essays on various topics relating to the architecture of the Middle Ages in Britain. The tone is somewhat amateurish — antiquarian rather than scholarly or architectural — and the style is too discursive to inspire much confidence. Generalizations abound and rarely are the problems of the subject indicated, let alone discussed. Braun, for example, regards Anglo-Saxon medieval architecture as an offshoot of the Byzantine tradition and states this opinion as fact. One questions his authority, particularly since there are no notes, references, or bibliography to support such assertions.

The book begins with an historical essay on pre-medieval architecture that is so general as to be useless to any but the youngest and most unsophisticated reader. He then talks about England in the Middle Ages, giving us a sort of potted history. Almost too aware of the need for background, so much of the book is taken up with this sort of loose essay that one tends to believe he might have been better advised simply to plunge into the main subject, explaining background as he went along where it was necessary. The substance is such that anyone with the slightest experience of the subject would find it unsatisfactory.

The section on medieval builders provides a useful account of the techniques of stone-cutting, timber construction, and so on. Probably the most interesting chapters are those dealing with specific types of buildings: The Parish Church, Greater Churches, The Hall, Private Houses, Monastic Houses, Towers, and Great Houses. In each of these, Braun discusses the development of a particular type of building with attention to its functions, origins, construction, and ornamental features. The section on parish churches, for example, with illustrations of such types as the "pseudo-cruciform" as at Worth in Sussex or the "turriform" church as at Breamore in Hampshire, would make interesting reading for those concerned with English local history and with the visual features of smaller villages. The essay on castles gives the reader the basic knowledge necessary to appreciate a visit to, say, the Edwardian Castles of North Wales more fully. The final two chapters discuss details and ornament, not the least important aspects of medieval building.

The book is well illustrated. Its basic faults are that it is too loosely written and yet not really selective or authoritative enough to provide the introduction to the subject that it promises.

BOOK NOTES

Acoustics. By Michael Rettinger. The Chemical Publishing Co., Inc., 200 Park Avenue South, New York, N.Y., 1968. 385 pp., $17.50.
Provides basic information on acoustic design with emphasis on practical examples.

Architectural Models. By Rolf Janke. Frederick A. Praeger, 111 Fourth Avenue, New York, N.Y., 1968. 140 pp., illust., $8.95.
A comprehensive treatment in text and photographs of using the three-dimensional medium as an instrument of design and presentation. Unfortunately, the book does not delve into the mechanics of model-making; however, it does provide a good description of the tools.

Building Contracts For Design and Construction. By H. D. Hauf. John Wiley & Sons, Inc., 605 Third Avenue, New York, N.Y.,

Continued on page 204

Is resistance still a virtue?

J & J says yes, with Vectra fiber.

New J&J "Commercialon 2900" tufted contract carpet made with Vectra® fiber resists stains, fading and wear, but can't resist being beautiful.

Consider a classic carpet problem. An area with more daily traffic than you like to think about. Where food and drink is served... and frequently spilled. And which is exposed to much too much direct sunlight. This is the place for new J&J Commercialon 2900.
Commercialon 2900 is made with spun yarns of 100% Vectra olefin fiber. So stain-resistant, you can depend on fewer commercial cleanings. So abrasion-resistant, it can stand up to the toughest traffic. And it's enduringly fade-resistant. All this, coupled with rich natural-looking tufted beauty. J&J's new Commercialon 2900 is also an indoor-outdoor carpet in the truest sense. But when you see how lush and natural it looks indoors... you may not have the heart to put it outside.

SPECIFICATIONS

Pile of 100% solution dyed Vectra olefin fiber.
5/64 Gauge (345 Pitch)
Pile Wt.—29 oz. per yd.
Pile Ht.—.134
Stitches per inch—10
Tufts per sq. yd.—166,000
Yarn Count—2.85 cc (2 ply)
Primary Backing—Du Pont Spun Bonded Typar®

Secondary Backings
High Density Rubber
Durogan
Jute

J&J Industries/P.O. Box 966/Dalton, Georgia 30720
Please send me samples and information on J&J "Commercialon 2900" Carpet.

NAME_____

COMPANY_____

ADDRESS_____

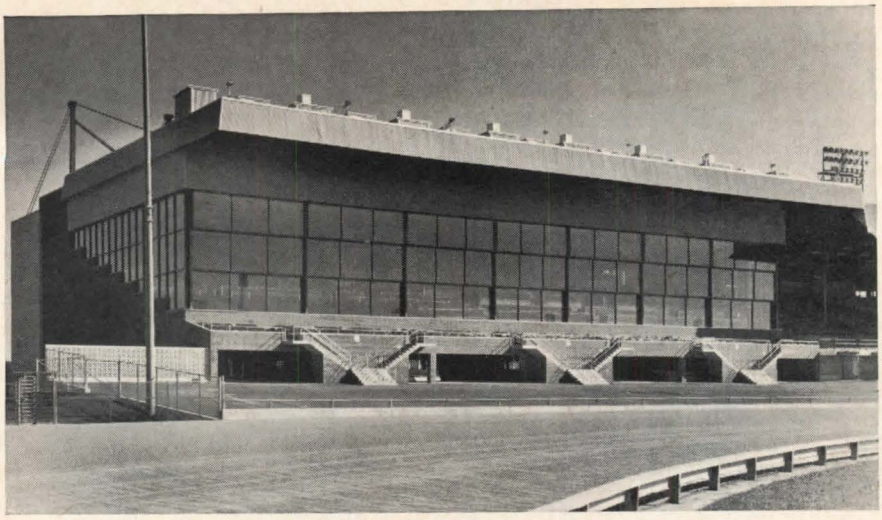
CITY_____

STATE_____ ZIP_____

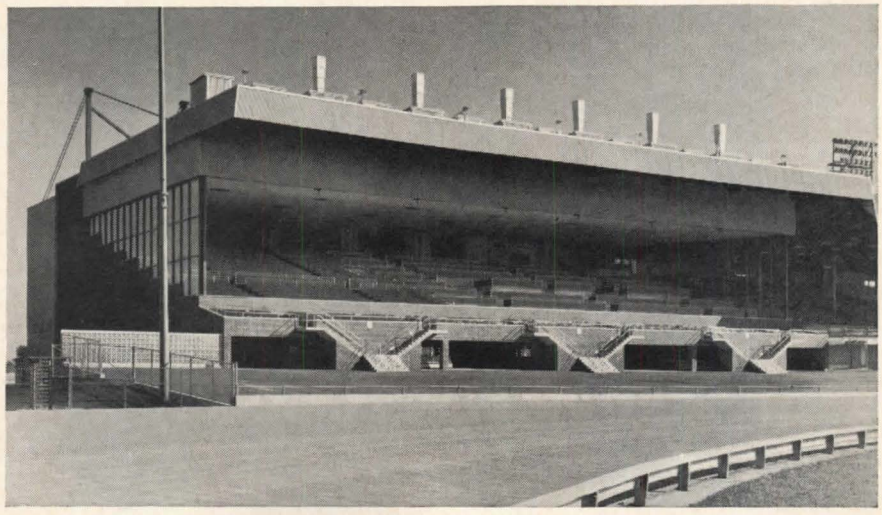
ENJAY

Vectra® olefin fiber is manufactured by Enjay Fibers and Laminates Company, Odenton, Maryland, a division of Enjay Chemical Company. Odenton: (301) WO 9-9000. New York: 350 Fifth Avenue, (212) LO 3-0720. Charlotte: One Charlottetown Center, (704) 333-0761. Enjay makes fiber, not carpets.

Vectra . . . the fiber that believes resistance is still a virtue.



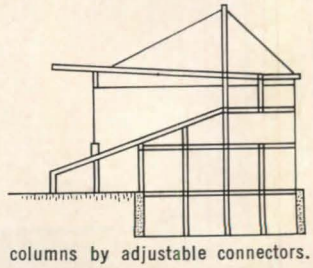
Cable roof permits load-free power window system for Brandywine clubhouse



This new, $4-million clubhouse at Brandywine Raceway, near Wilmington, Delaware, posed an unusual problem. The owners wanted to heat and air-condition the enclosure to accommodate some 2,500 spectators. However, they also wanted to move the windows out of the way so that spectators could have a completely unobstructed view of the track whenever weather conditions were suitable.

Architect Lionel Levy devised an ingenious moveable window system which can be raised entirely out of view by telescoping it into housings above the roof. Engineer Robert Rosenwasser chose a *cable-supported* roof scheme as the most feasible and economical way to do the job. It permits what normally would have been roof-supporting front columns to serve as mullions and tracks for the window area measuring 196 ft long and 28 ft high.

Bethlehem supplied more than 2,600 ft of cable (with end fittings) and 804 tons of structural steel. We also furnished the engineer with cable and connector data, a service we have provided for many of the nation's cable-roof structures. *Bethlehem Steel Corporation, Bethlehem, Pa. 18016.*



A classic cantilever, the cable system takes over the load-bearing job from the window supports, while providing column-free viewing within the large overhang area required. Eight wide-flange girders were spaced at 28 ft intervals. Each is braced by a pair of 145-ft-long, 2⅜-in.-diam steel cables which pass over a 24-ft-high steel mast. Tied down with fixed bearing sockets on the track side, cables are anchored to a back row of columns by adjustable connectors.

Architect: Lionel K. Levy • *Structural engineer:* Robert Rosenwasser • *General contractor:* Ernest Di Sabatino & Sons • *Steel fabrication:* The Belmont Iron Works • *Steel erector:* McCormick Construction Co., Inc.

BETHLEHEM STEEL

SEND YOUR METAL PANELS TO WORK KORAD® A WILL PROTECT THEM

Once there were a lot of places where metal building panels just couldn't be used with confidence —the smoggy atmosphere of many industrial plants, for example.

No more. Now there's Korad A acrylic film, the better finish for panels because it provides a solid, three-mil 100% acrylic plastic barrier that protects the surface of the metal and keeps the panels colorful for years.

Korad A film bonded to panels outperforms liquid finishes three ways:

1. Korad A offers the superior weatherability, chemical resistance and color stability inherent in acrylic plastics. Its overall durability is unmatched by any surfacing of comparable cost.

2. Korad A is three times thicker than conventional liquid coatings, providing excellent mar resistance.

3. Korad A gives a uniform, solid protective barrier. There are no pin holes or thin spots. Forming does not cause surface microfractures.

Learn more about Korad A, the tough film coating that permits metal buildings to be used in areas and for applications previously considered impractical. Write to us for color samples and the names of panel suppliers.

ROHM AND HAAS
PHILADELPHIA, PENNSYLVANIA 19105

KORAD is a registered trademark of Rohm and Haas Company

On Readers' Service Card, Circle No. 393

Gigantic new factory roof in·seal·ated for the ages with sprayed-on urethane foam

The way to sock the sealant/insulation to a few acres of rooftop is as simple as dialing a urethane foam applicator or systems supplier.*

"You can design the most exciting structure in the world", says architect Daniel F. Tully, "but a leaky roof or excessive heating bills can turn it into a nightmare for the owner." Mr. Tully recently designed this 105,000-sq-ft. building with a hyperbolic paraboloid roof for Atkins & Merrill, Inc., builder of space vehicle technical models and electronic aircraft training simulators.

Resembling a tufted mattress from above, the roof consists of 38 concrete shells, each self-supporting and joined by light reinforcing. The design permits a vast expanse of floor space with minimum support columns. But finding a low-cost combination for effectively insulating and sealing the complex surface posed a problem.

To insure against heat loss, an airtight, moisture-tight, seamless shield of sprayed-on urethane foam insulation was specified. With an R value of 9.09/in. of thickness, urethane has twice the thermal resistance of the next-best insulant known. At 2 pcf density, urethane's compressive strength is 36 psi, flex strength is 45 psi and shear 25 psi.

But among its list of second-to-none advantages is the easy applicability of urethane foam. It can be sprayed on, as in this case, poured in place (as between walls) or used as pre-fabbed slab stock. Trying to insulate a complicated job like this one by any other method or with any other material would have made a shambles of the time schedule and had the cost estimator climbing the wall.

The 1" blanket of urethane was sprayed by A. Belanger & Sons, Cambridge, Mass., using chemical foam systems formulated by Diamond Shamrock Chemical Company, North Arlington, N. J., and Isocyanate Products, Inc., Wilmington, Del.

**Mobay does not supply finished chemical systems or apply urethane materials, but we do business with most of the major firms who do. Write for our list. If you have a special structural or insulating problem, our case history files may have an answer for you. Write and give us the details.*

Good resistance of rigid urethane to thermal stress was critical factor in sealing expansion joints between parabolic shell sections on roof.

The 1" layer of urethane was applied to 98,000 sq ft by 3-man crew. Foam was later sealant-coated for added durability.

MOBAY CHEMICAL COMPANY

CODE PA-49 • PITTSBURGH, PA. 15205

MOBAY

FENESTRA

STANDARD STEEL DOORS AND FRAMES

Preferred by V.I.P.'s of APARTMENT Construction

TENANTS in today's modern apartments enjoy the look of quality . . . the feeling of security.
OWNERS profit by maintenance-free door openings . . . the "moving parts" of the building.
ARCHITECTS look to Fenestra for freedom of design and maximum utilization of space.
CONTRACTORS appreciate the local availability and ease of installation.

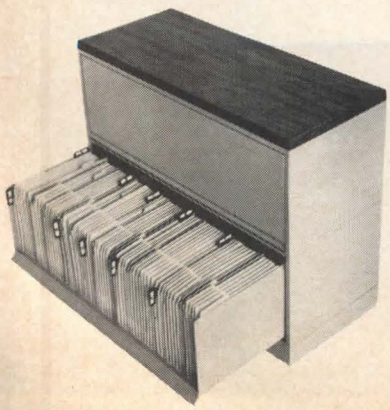
The PENN PLAZA apartments shown here satisfied these varied needs by using Fenestra standard steel doors, frames, Fen-Dry drywall frames and Fen-Fold steel bi-fold closet doors. Of course, Fenestra doors and frames are ideal for *any* building. It costs no more . . . probably less to have the finest. Take advantage of this convenient local service by calling your Fenestra distributor. He's listed in the Yellow Pages. Or write Fenestra for literature.

FENESTRA
DIVISION OF THE MARMON GROUP, INC. (MICHIGAN)
ERIE, PENNSYLVANIA 16505

PENN PLAZA APARTMENTS, PITTSBURGH, PA. • ARCHITECT – TASSO G. KATSELAS • CONTRACTOR – NAVARRO CORP.

If we didn't say it was a file, you'd never know it.

It's a file.



Our Modi-File is more than a lateral file. It's also a piece of furniture.

Use it where you wouldn't dream of putting other files. In the front office as a wood-topped cabinet. Or stacked as dividers up to five units high. Modi-File doesn't have drawer pulls to give it away. No one will spot it as a file. Until it's opened.

Behind its beautiful face, Modi-File has more space than any lateral file its width. A unique hinge suspension eliminates wasted space, so it's nice and slim. Only 15 inches.

Another thing about the hinge suspension, it's not visible. So the sides of the drawers are as clean cut as the cabinet.

Specify it in two, three, four or five drawer units, letter or legal size. And in a choice of finishes your clients will enjoy living with.

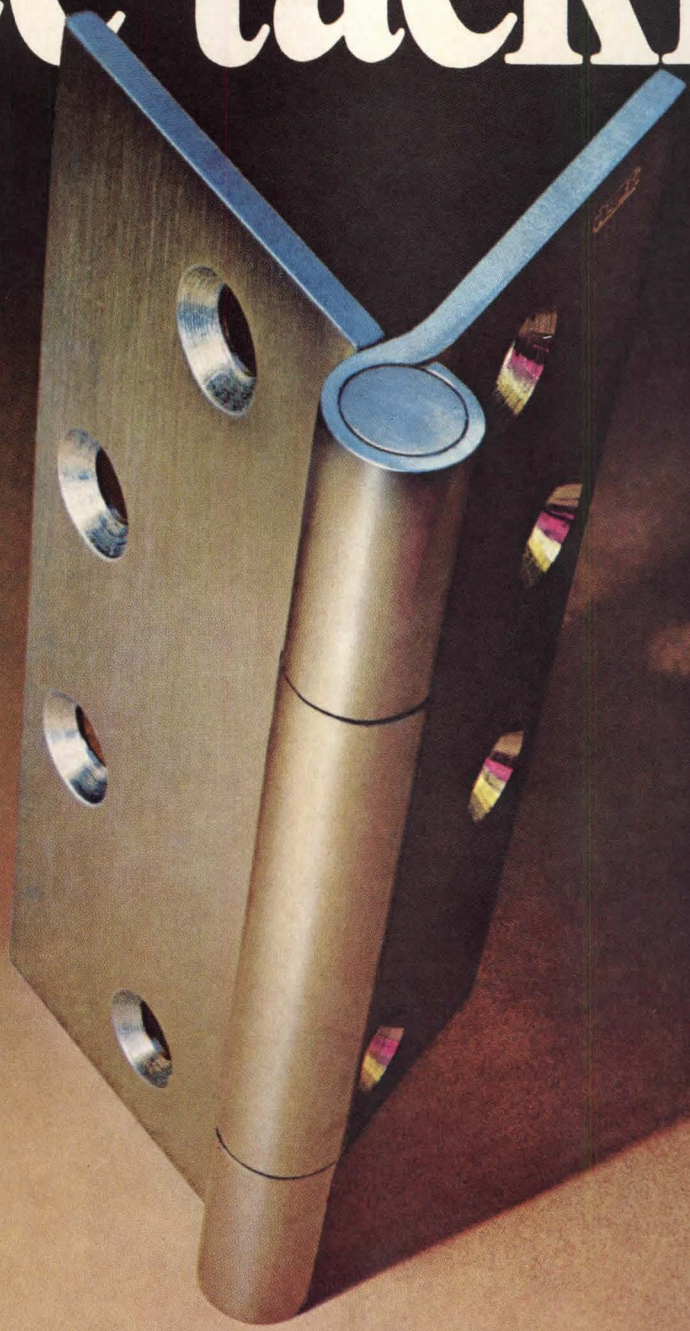
Art Metal furniture looks beautiful and works beautifully—a solid investment for management.

We'll be happy to send you a brochure on the Modi-File, and tell you where it can be seen. Write today and you will hear from us posthaste.

ART METAL
JAMESTOWN NY

On Readers' Service Card, Circle No. 431

Spec tackler



the hinge that has no equal

When the spec calls for three-knuckle construction with flush tips and stainless steel pins recessed in the barrel, concealed bearings not using oils or grease and requiring no maintenance . . . it calls for the Stanley LifeSpan hinge* . . . the hinge that has no equal. LifeSpan is the only hinge that can meet such rigid specifications. *And it's so extraordinary that it's guaranteed for the life of the building.*

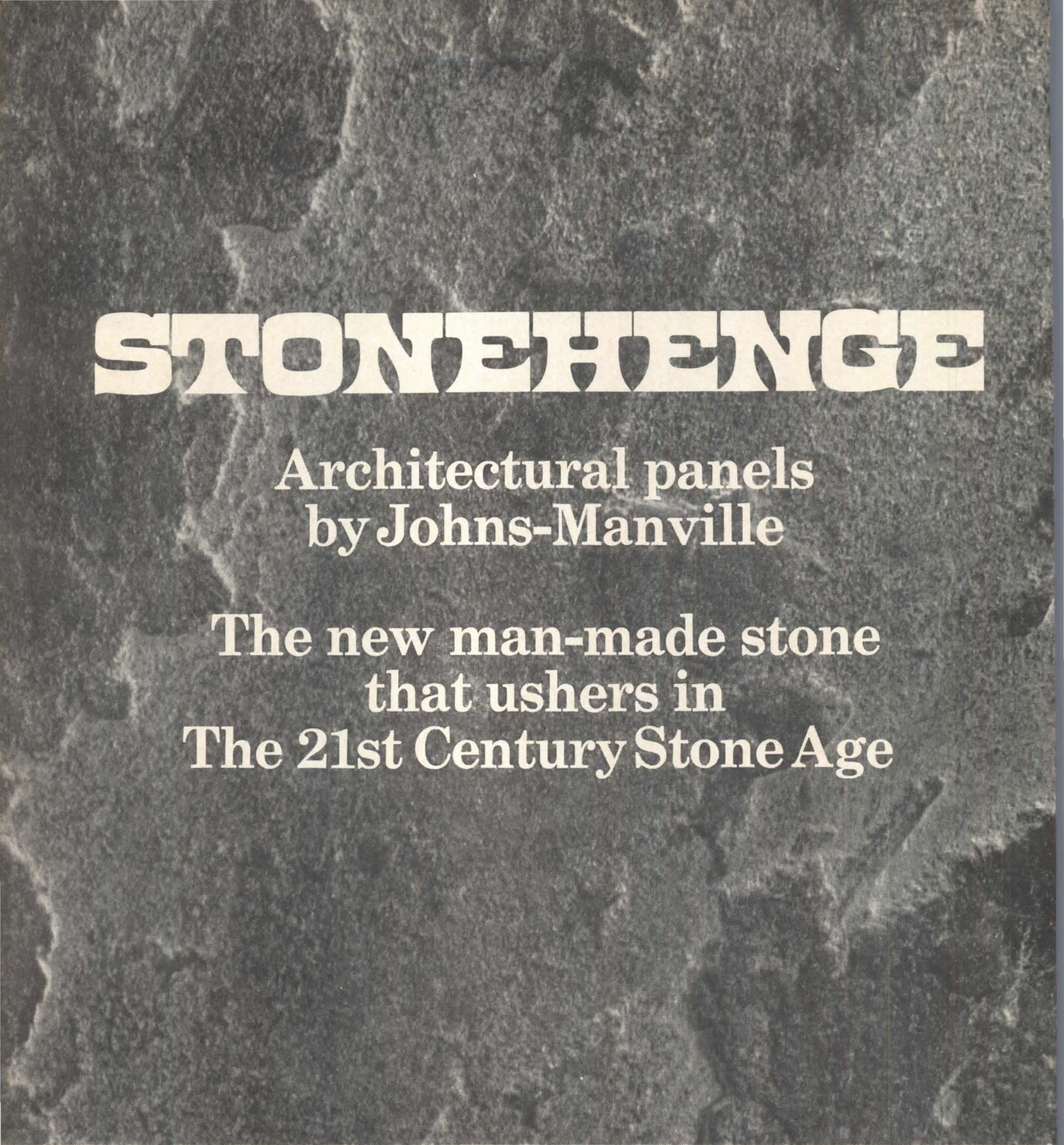
Featuring the slimmest three-knuckle barrel in the industry, the LifeSpan hinge utilizes a new architectural-grade LifeStan™ bearing. This bearing consists of a precision-flat and super-finished stainless steel bearing part that works against Stanite, a self-lubricating bearing material. The result . . . LifeSpan offers a totally new concept in hinge design and bearing construction — yet one that has been successfully proven in laboratory and field use.

For additional information on this new hinge design; request LifeSpan brochure H-463. Write Stanley Hardware, Division of The Stanley Works, New Britain, Connecticut 06050.

STANLEY®
helps you do things right

*Patent pending

On Readers' Service Card, Circle No. 419



***Stonehenge*™ . . . lighter, tougher, more versatile, less expensive than natural stone.**

Now—an architectural panel with all of stone's virtues but none of its vices. J-M Stonehenge's deep-relief surface has the rugged beauty of nature's own. Use Stonehenge for facings, spandrels, lobbies, accent panels—anywhere—indoors or out—where you would use natural stone. And many places where natural stone's weight makes it impractical.

Erecting Stonehenge takes only a fraction of the time needed for natural stone. Stonehenge has superior screw holding ability. Its simple mounting systems mean less labor.

And, lacking natural stone's inherent flaws, Stonehenge provides uniform strength without extra thickness. Stonehenge can be used in panels up to 4′ x 8′ in thicknesses as little as ½″.

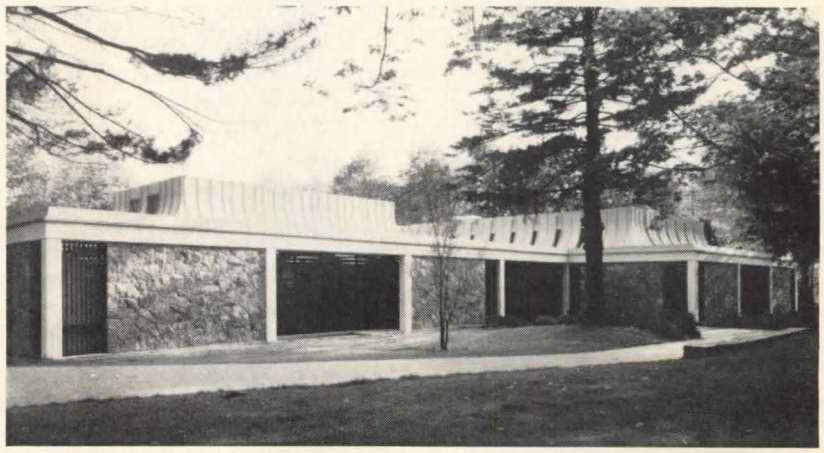
For the whole story, write Johns-Manville, Box 290-BI, New York, New York 10016. Cable: Johnmanvil.

Johns-Manville

On Readers' Service Card, Circle No. 356

Roofs Architects and Imagination

The renewed interest in visually significant roofing and fascia so evident in recent years has been paralleled by a notable increase in the specification of Follansbee Terne. We believe that both of these trends happily reflect a greater emphasis on purely imaginative elements in contemporary architecture, a welcome departure from the "antiseptic line." And both are essentially interdependent, for Terne has the important advantage of providing maximum creative latitude at relatively modest cost.



Mt. Pleasant Public Library, Pleasantville, N. Y. Arch: Gibbons and Heidtmann, White Plains, N. Y.

FOLLANSBEE

Follansbee Steel Corporation • Follansbee, West Virginia

Gas Energy makes years of perfect climate a great buy for shopping centers.

These three shopping centers found that the economical way to control climate for years is with Gas Total Energy. That includes air conditioning as well as every other need. And each of the three centers is in an area with its own kind of climate problems. Regency Square is located in Jacksonville, Florida. Chapel Hill is in Akron, Ohio. And Turfland Mall serves a large area of Lexington, Kentucky.

What makes Gas Total Energy so economical? The efficient recovery of normally wasted heat for climate control. In fact, installations of this kind can be twice as efficient as today's best steam electric generating stations.

For example, at Turfland Mall, all of the electricity the shopping center needs is produced by six Gas engine-generators. In the process, heat is also produced. But this heat doesn't go to waste. Because in a Gas Total Energy system the heat is recovered and used for space and water heating. And absorption cooling.

Only Gas Total Energy gives you all this. And dependability you can count on. Because all of the power is produced on the site of the installation.

No wonder more and more architects and engineers are specifying Gas Energy to create the right climate in shopping centers, office and apartment buildings, schools, motels and industrial plants throughout the country.

How great a buy can this total approach to energy be for you? Find out from your Gas Company Sales Engineer. He can show you how economical Gas can give you all the energy you possibly need.

AMERICAN GAS ASSOCIATION, INC.

For all your energy needs, Gas is the natural choice.

On Readers' Service Card, Circle No. 324

Continued from page 186

1968. 342 pp., $10.95.

Craig Ellwood. By Esther McCoy. Walker & Company, 720 Fifth Avenue, New York, N.Y., 1968. 155 pp., $15.

A pictorial account of the work of a disciple of Mies. The book's primary value is visual.

Creative Playgrounds and Recreation Centers. By Alfred Leadermann and Alfred Trachsel. Frederick A. Praeger, 111 Fourth Avenue, New York, N.Y., 1968. 176 pp., illust., $15.

A revised 1959 bilingual edition in English and German. An international survey of "structures that stimulate the creative imagination of a child."

Mathematics in Architecture. By Mario Salvadori. Prentice-Hall, Inc., Publishers, Englewood Cliffs, N.J., 1968. 173 pp., $7.50.

NOTICES

New Addresses

LEWIS & SHIMER ARCHITECTS, INC., 5546 Shorewood Drive, Indianapolis, Ind. 46220.

ROBERT CALHOUN SMITH, 1211 Connecticut Avenue, N.W., Washington, D.C. 20036.

MYRON A. VIGOD, Architects, 1616 W. Palisade Avenue, Englewood, N.J. 07631.

New Firms

ROBERT W. DAVIS, Architect, 11401 North Shore Drive, Reston, Va. 22070.

A. REESE HARVEY, Architect, International Building, 3825 Henderson Boulevard, Tampa, Fla. 33609.

HELEN JOHNSON MURPHY, 4282 Parkside Crescent, Victoria, B.C., Canada.

JAMES AUSTIN NEAL, Architect, 1930 Augusta Road, Greenville, S.C.

NODE 4 ASSOCIATES, INC., Architects, Engineers, Planners, and Contractors, 408 Eastern Parkway, Brooklyn, N.Y. 11225.

New Partners, Associates

REX WHITAKER ALLEN & ASSOCIATES, Architects, San Francisco, Calif., have appointed JAN C. SWEKENS, Senior Associate, and ROGER A. YOUNGS, RICHARD A. DREVER JR., and J. PHILIP GAUNT, as Project Architects.

THE ARCHITECTS COLLABORATIVE, INC., Architects, have named seven new associates: ROYSTON DALEY, THOMAS LARSON, RALPH MONTGOMERY, MICHAEL PRODANOU, WALTER ROSENFELD, EDMUND SUMMERSBY, and ROBERT TURNER.

CORNELL, BRIDGERS & TROLLER, Landscape Architects and Land Planners, Los Angeles, Calif., announce that JERE M. HAZLETT has become a partner in the firm.

FRED S. DUBIN ASSOCIATES, Consulting Engineers, New York, N.Y., have named as associates DAVID KANTER and GEORGE POLIMEROS.

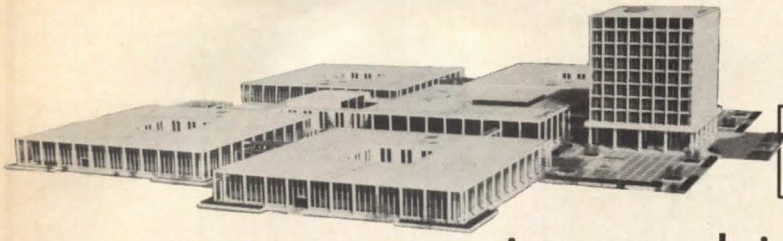
THE ENGINEERS COLLABORATIVE, LTD.,

Continued on page 216

America's leading carpet manufacturers believe in Avondale yarns.

Avondale Mills / General Offices / Sylacauga, Alabama

WOOL - ACRYLICS - NYLON - POLYESTER



Pozzolith concrete is good insurance for Allstate

The face of Allstate Plaza is precast concrete panels of Indiana limestone aggregate. Sandblasting creates an interesting texture compatible with the rural surrounds. All precast and cast-in-place concrete contained POZZOLITH admixture.

Allstate Plaza, Northbrook, Illinois. Architect: Schmidt, Garden and Erikson. General Contractor: W. E. O'Neil Construction Company. POZZOLITH Ready-Mixed Concrete: Vulcan Materials Co., Mid-west Div. POZZOLITH Precast Concrete: Crest Concrete.

Allstate Plaza near Northbrook, Illinois, is the spacious new headquarters for Allstate Insurance Company. It's a commercial complex with an eye on the future.

Foresight in planning for tomorrow is reflected in the selection of the building material: concrete — made better by POZZOLITH admixture.

The concrete with POZZOLITH was more workable — easier to place, consolidate and finish — which enhanced the appearance of the hardened concrete. It permitted dense, durable, unblemished surfaces and sharp arrises. Furthermore, POZZOLITH minimized shrinkage cracking, reduced permeability and improved bond of concrete to steel reinforcement.

The exceptional uniformity in strength of the POZZOLITH treated concrete during the entire construction period was verified by the low coefficient of variation which ran 10%.

When you plan for tomorrow, plan on POZZOLITH. Your local Master Builders field man can show you how it will contribute to the concrete quality on your job. Call him, or write Master Builders, Cleveland, Ohio 44118.

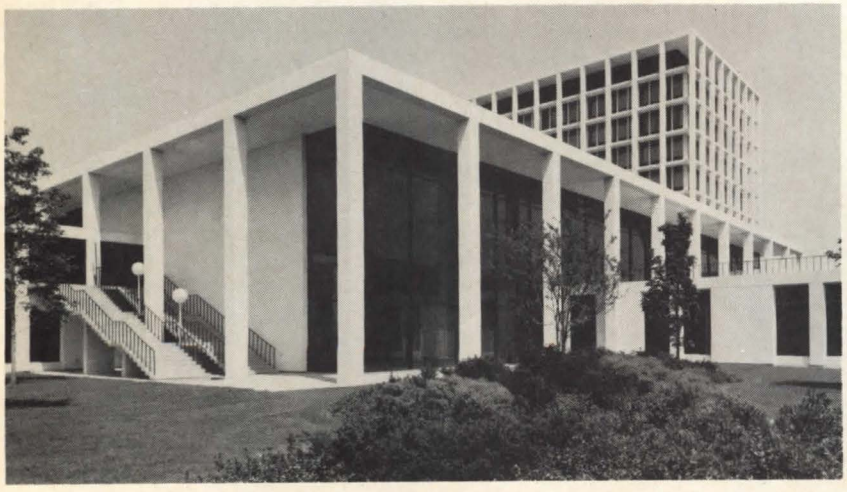
POZZOLITH*

manufactured by

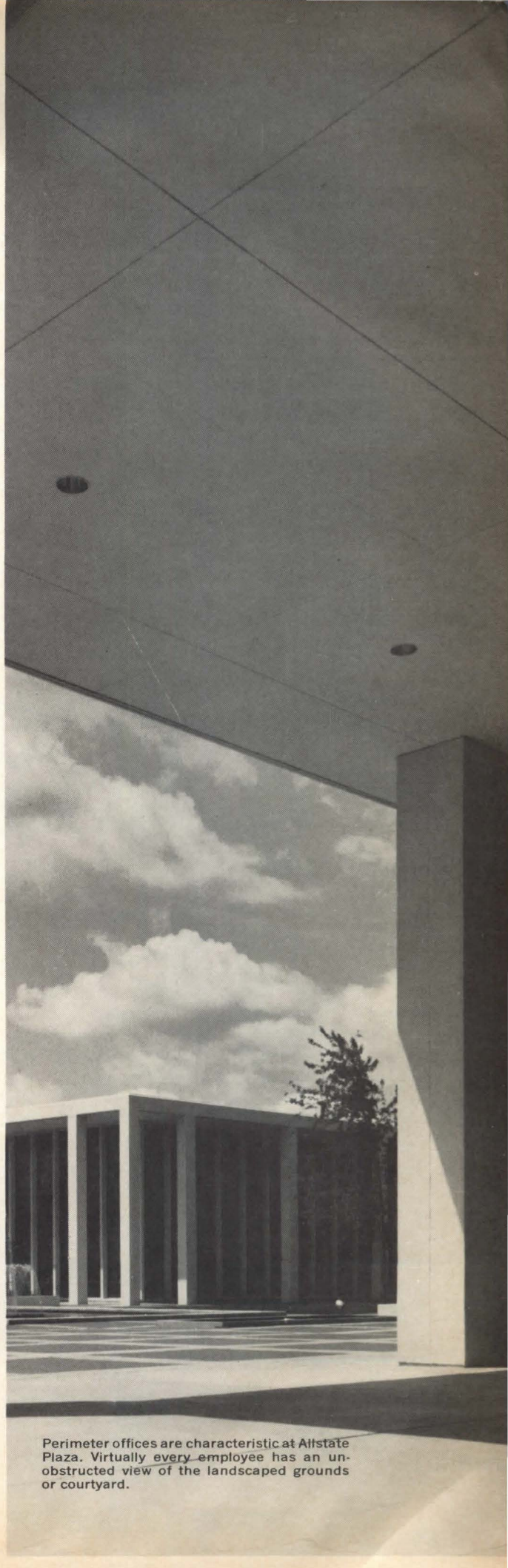
MASTER BUILDERS

**POZZOLITH* is a registered trademark for Master Builders' water-reducing, set-controlling admixture for concrete.*

On Readers' Service Card, Circle No. 371



Two-story precast load-bearing panels of POZZOLITH concrete in the departmental buildings (foreground) each measure 10' 6" wide and 27' 0" high. Each weighs 10 tons. Single-story panels in the administration building (background) are 5' 3" x 13' 6" and are non-load-bearing.



Perimeter offices are characteristic at Allstate Plaza. Virtually every employee has an unobstructed view of the landscaped grounds or courtyard.

*Thank you so much, Merton, Paisley & Brokaus, A.I.A.**

How did you know that a lot of us girls use tampons instead of sanitary napkins? Those of us who do, sure appreciate those nice built-in vending machines that hold *both.*
You can be sure if we ever hear of anyone who needs a good architect, we'll recommend you.

Sincerely,
Mary Sharp

Almost *half* the women who work use tampons rather than sanitary napkins. So next building you build, specify Bobrick's built-in *dual vend* machines for dispensing both Kotex® Napkins and Kotex Tampons. You may not win an award for it, but you'll sure win the *hearts of a lot* of gals. Send for our free catalogue of vending machines available. Or see Sweet's File No. $\frac{23a}{Ki}$ or Bobrick's File $\frac{25e}{Bo}$.

Kimberly-Clark Corporation
Commercial Department, Neenah, Wisconsin

*The names may be fictitious, but the gratitude isn't.

On Readers' Service Card, Circle No. 363

Designing a laundry?

We've got a system for you!

Troy® can, of course, supply just the washers, extractors, washer-extractor-conditioners, ironers, folders and crossfolders you need to equip a modern laundry.

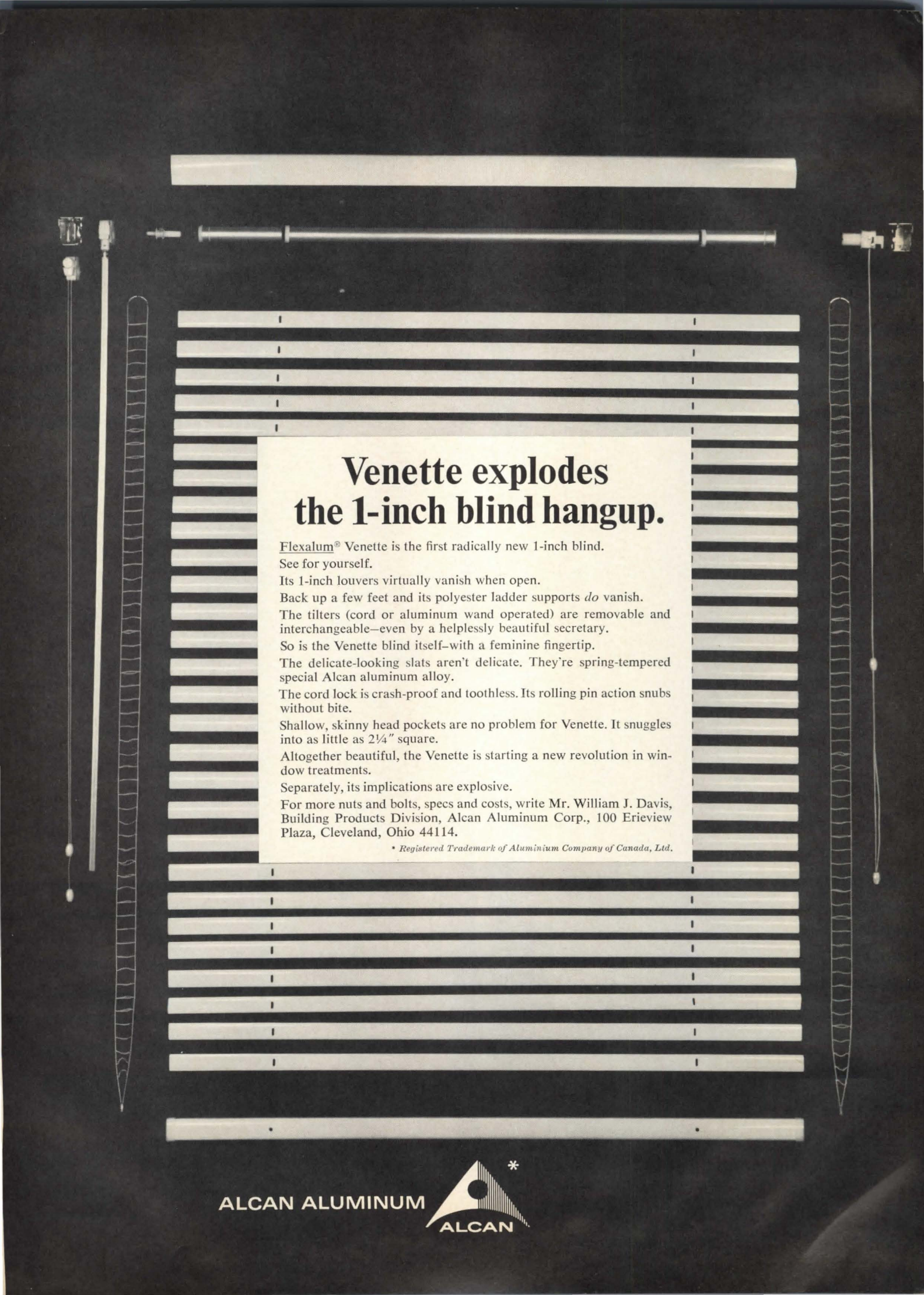
But we'll give you more than just dependable laundry equipment. We'll give you *system engineering* as well. This means you can call on our experts to work with you right from the first planning stage. We'll estimate present and future laundry needs, work with you through the blueprint stage, deliver and install a soundly engineered package and then make your people expert in running the system. For details on both our equipment and engineering capability for modernization, write to Ametek, Inc., Troy Laundry Machinery, East Moline, Illinois 61244.

Our good, clean engineering does it

AMETEK / Laundry & Drycleaning Equipment

AMETEK

On Readers' Service Card, Circle No. 328



Venette explodes the 1-inch blind hangup.

Flexalum® Venette is the first radically new 1-inch blind.

See for yourself.

Its 1-inch louvers virtually vanish when open.

Back up a few feet and its polyester ladder supports *do* vanish.

The tilters (cord or aluminum wand operated) are removable and interchangeable—even by a helplessly beautiful secretary.

So is the Venette blind itself–with a feminine fingertip.

The delicate-looking slats aren't delicate. They're spring-tempered special Alcan aluminum alloy.

The cord lock is crash-proof and toothless. Its rolling pin action snubs without bite.

Shallow, skinny head pockets are no problem for Venette. It snuggles into as little as 2¼″ square.

Altogether beautiful, the Venette is starting a new revolution in window treatments.

Separately, its implications are explosive.

For more nuts and bolts, specs and costs, write Mr. William J. Davis, Building Products Division, Alcan Aluminum Corp., 100 Erieview Plaza, Cleveland, Ohio 44114.

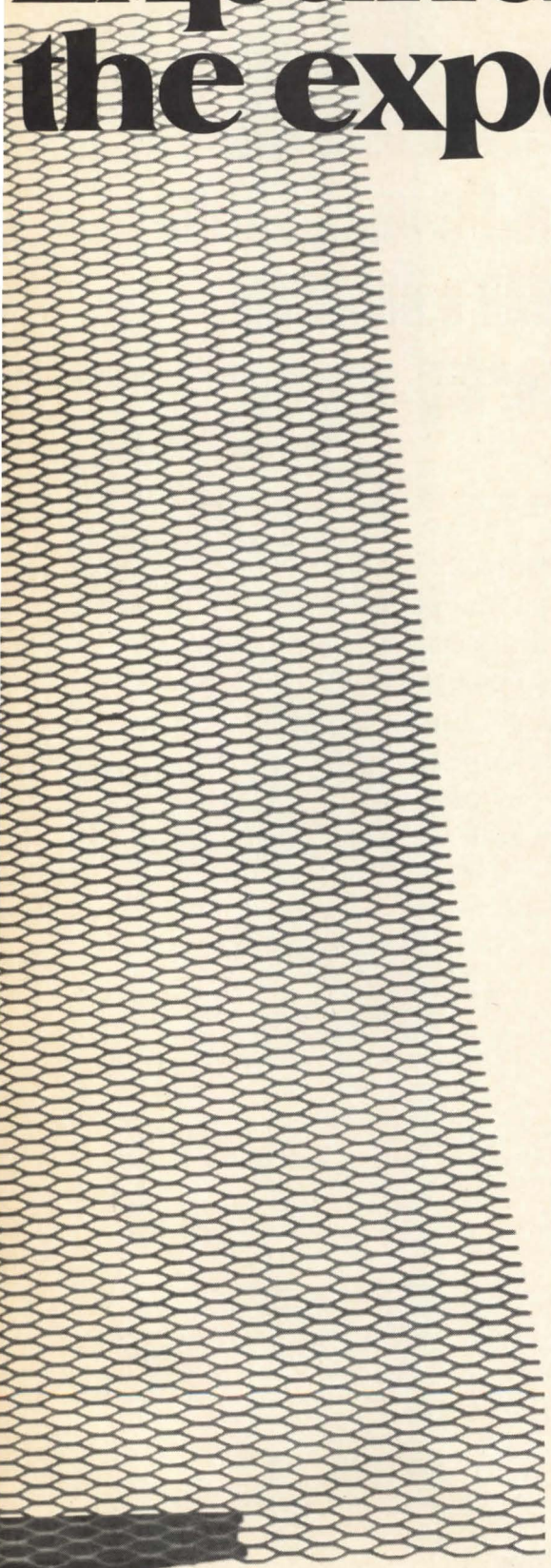
* *Registered Trademark of Aluminium Company of Canada, Ltd.*

ALCAN ALUMINUM *

ALCAN

Keene capability:

Expanded beyond the expected.



Most architects know us for the decorative meshes we produce. Obtainable in a host of colors, metals, patterns and finishes the mesh is designed into facades, solar screens, air diffusers, indoor and outdoor space dividers.

But few of these same architects would expect the capability of our Metal Construction Products Division to extend to this, the largest sheet of expanded metal ever fabricated. Measuring 12 feet by 16½ feet the sheet can be used for industrial flooring and heavy-duty shelving. Equally unexpected is our ability to produce expanded mesh so small it is understandably called micro-mesh and finds its way into space applications.

Our capability, expanded beyond the expected, is evident, too, in our structural Speed-Steel®. Lightweight and easy to handle, this nailable steel framing is available in an array of shapes that give architects unexpected design freedom. Speed-Steel's many applications include sports arenas, shopping malls, nursing homes, and theatres, typified by the Confluence Theatre, San Antonio, Texas.

In keeping with this practice, our Lighting Division goes beyond the function of the average producer by collaborating with designers. Where one of the hundreds of fixtures we produce is not quite suitable we produce what is desired. The National Center for Atmospheric Research by I.M.Pei Associates is a good example.

What more can you expect from us? Consider this. Our Interior Systems Division assumes responsibilities beyond that of individual product function. You provide us with performance requirements. We then assume total, single source responsibility for the interior providing a complete turn-key operation. You eliminate time spent specifying, searching, obtaining component bids. And because everything fits together with everything else, interiors can be varied to accommodate changes later.

Providing what is most needed where it is least expected is a Keene characteristic. For more information on our architectural mesh and other Keene Building Products, write Keene Corporation, Metal Construction Products Division, Parkersburg, West Virginia 26101.

Confluence Theatre, San Antonio, Texas.

National Center For Atmospheric Research, Boulder, Colorado.

KEENE
CORPORATION

We've just begun to grow.

On Readers' Service Card, Circle No. 418

There are at least three ways to look at terminal seating.

. . . With the logical eye of a businessman whose budget won't permit mistakes.

. . . With the hopeful eye of a customer seeking a moment of comfort in his fast-paced life.

. . . With the trained eye of a designer insistent on a statement of value in a raucous, commercial world.

Look.
Look.
Look.

Harter Sequential.

(There's a lot more to it than meets the eye.)

HARTER CORPORATION
417 Prairie Avenue
Sturgis, Michigan 49091

I'd like to take a closer look at Harter Sequential seating for ☐ airline ☐ other high-traffic seating.

Name _____ Title _____

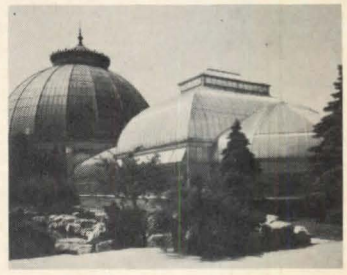
Company _____

Address _____

City _____ State _____ Zip _____

On Readers' Service Card, Circle No. 349

Notable glass structures* blend the architect's imagination with LORD & BURNHAM engineering



* Botanical, zoological gardens
Conservatories
Pool enclosures
Solaria, atria
Glazed arcades, canopies
Domed display areas
Glazed pavilions
Skylights
Glazed school and industrial laboratories

Breathes there an architect to the profession born, who never to himself has sworn: "A glasshouse assignment is always an exciting project for me. I find it a fascinating challenge to creativity and ingenuity!". But he also thinks: "Glass structures often represent unique situations and involve unusual requirements. Possibly a manufacturer could be of help. . . ."

So, we'd like to offer the thought that hundreds of architects throughout America have worked with Lord & Burnham in perfecting their custom designs and resolving the peculiar problems inherent in glass. As the glasshouse manufacturing center of the country, Lord & Burnham has always made its assistance available to architects *without cost or obligation* at any time.

How can we help? With the most comprehensive facilities in the glass structure industry, our engineering department can provide an excellent base for your own planning for your client . . . furnish standard designs, details, and stock drawings . . . answers to special questions and problems . . . furnish quotations, prices, and tested specifications. Time, money, and effort can be saved for yourself and your client through helpful technical counsel in the preliminary stages. Consult our catalog in Sweet's Architectural File for more details, or write us about your project – no obligation. Need help immediately? Call us collect: (914) 591-8800.

SECOND CENTURY OF GLASSHOUSE LEADERSHIP

Lord & Burnham *IRVINGTON-ON-HUDSON, N. Y.*

On Readers' Service Card, Circle No. 369

**FISHER ADMINISTRATIVE CENTER—
UNIVERSITY OF DETROIT**

Architect:
GUNNAR BIRKERTS AND ASSOCIATES
Birmingham, Mich.

Sheet Metal Contractor:
FIREBAUGH & REYNOLDS ROOFING CO.
Detroit, Mich.

Revere Distributor:
ALUMINUM SUPPLY CO., INC.
Detroit, Mich.

Even a roof can be a thing of beauty when you design with REVERE COPPER

The advantages of designing with Revere copper are legion. In this particular instance the architect wanted a material with all the inherent characteristics of copper plus a tone of gray that would complement the stone used for the face and mullions of the building. Result: Revere Leadtex 15 (lead-coated copper).

There are 25,000 lbs. used in 16-oz. weight on this roof, employing standing seam and flat seam construction.

In addition to unprecedented freedom of design, Revere copper gives you: (1) A performance of endurance proved through the centuries . . . (2) A workability that permits the use of virtually any desired shape and form, with easy-to-solder seams . . . (3) Lowest ultimate cost. When properly designed and installed, copper is rated as the lowest cost per year of actual service of all roofing and flashing materials.

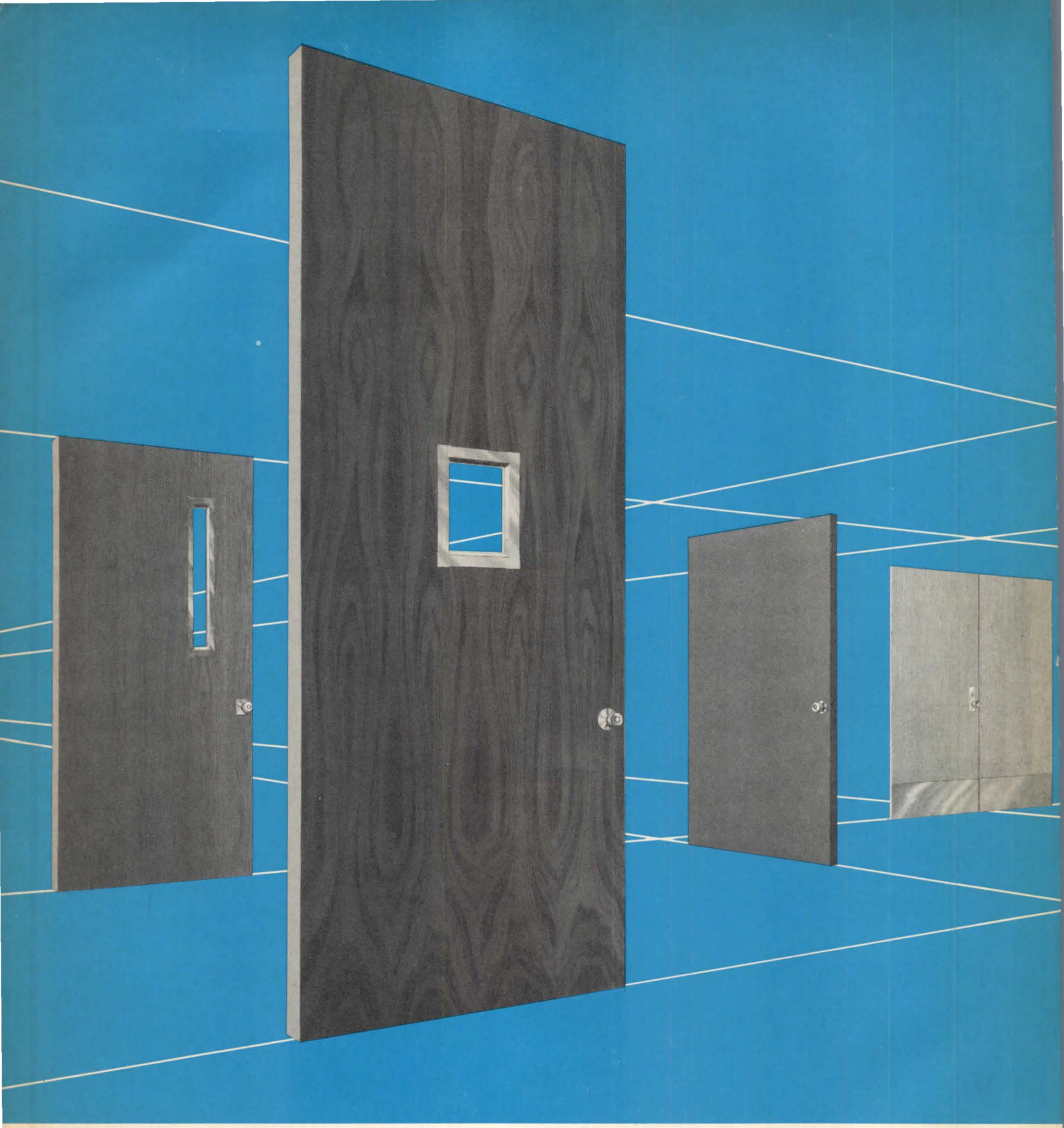
Make it outstanding! Make it endure! Make it big! Design with Revere copper in mind.

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

REVERE COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
Executive offices: 230 Park Avenue, New York, N. Y. 10017
FIRST AND FINEST IN COPPER AND BRASS-FULLY INTEGRATED IN ALUMINUM

18 01 REVERE

On Readers' Service Card, Circle No. 392



When it comes to wood fire doors, there's

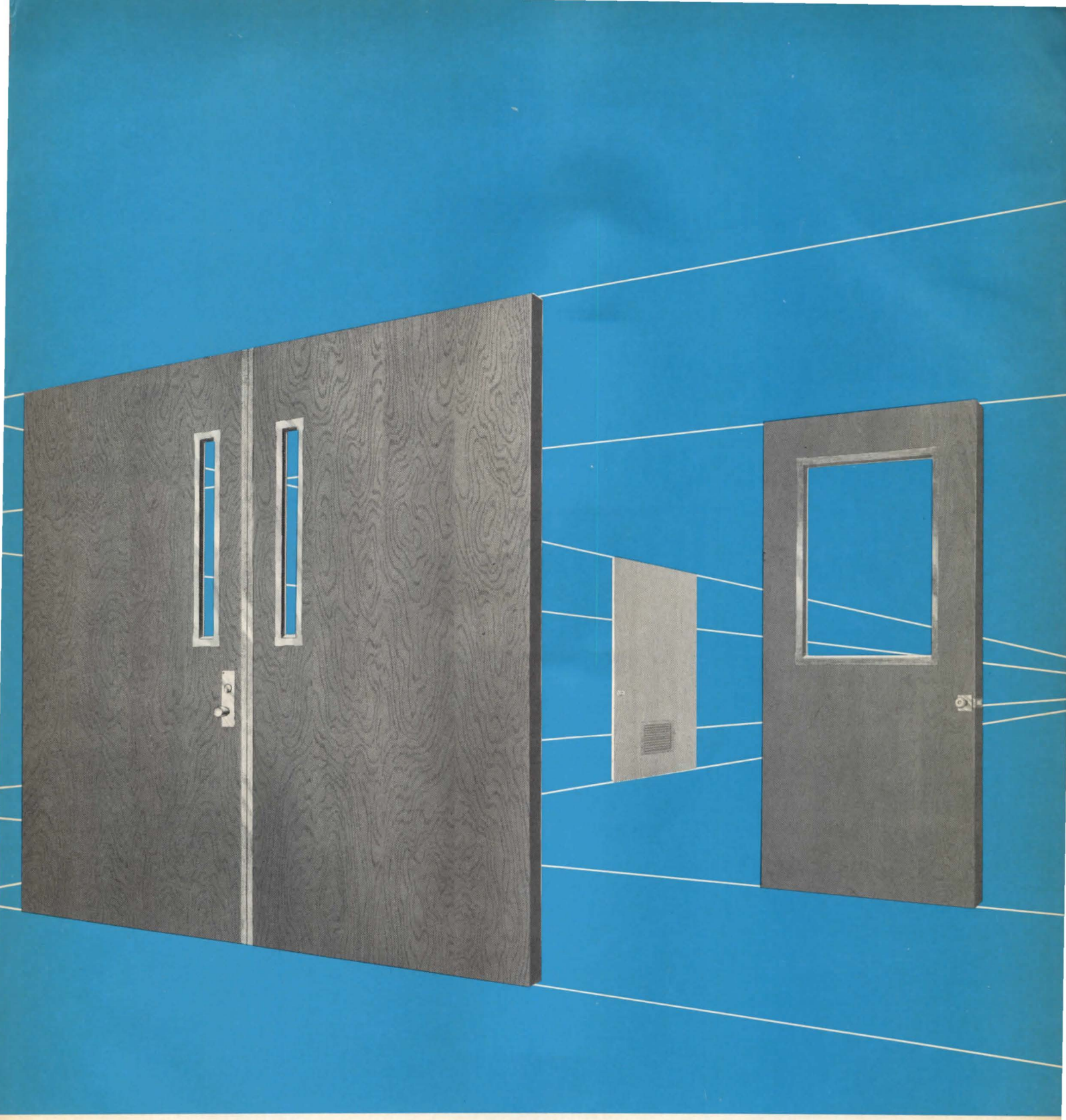
We make wood fire doors you just can't find anywhere else in the world.

Doors with vision panels as large as 33″ in one direction, and with a 1-1/2 hour rating.

Or 10-foot-tall doors with 1 or 1-1/2 hour ratings. Or 8′ wood doors with a 3/4-hour rating.

And the biggest pair of doors in the business — big enough to fit an 8′ x 8′ opening, and rated at 1-1/2 hours.

If there are other tight requirements, see us. We have the most versatile line of permanently identified flush doors



really only one place to go. Weyerhaeuser.®

in the industry: including X-ray shielding doors. Sound retardant doors.

Even bulletproof doors.

They're all available through a network of Architectural Specialty Dealers who can tell you about custom finishing, custom machining, and a full line of matching Weyerhaeuser hardwood products including fire-retardant-treated wood paneling.

Use the coupon to get in touch. We'll be glad to send technical data for your use.

On Readers' Service Card, Circle No. 406

To: Weyerhaeuser Company
Box B-5728, Tacoma, Wash. 98401

Send me details on: ☐ Weyerhaeuser doors.
☐ Weyerhaeuser wood paneling.

Name_____

Firm_____

Address_____

City_____ State_____ Zip_____

Weyerhaeuser

Continued from page 204

Consulting Structural, Mechanical and Electrical Engineers, with offices in Chicago and St. Louis, announce the following promotions: CHARLES A. MADSON and ROGER P. WILSON, Associate Partners, DONALD D. MAXWELL, Associate, ALBERT TREMARI and GEORGE J. ANDREWS, Participating Associates.

FROST ASSOCIATES, Architects, New York, N.Y., have appointed RACHELLE BENNETT and ALAN B. GOLDSAMT associates.

R. M. GENSERT ASSOCIATES, Structural Engineers, Cleveland, Ohio, and Pittsburgh, Pa., announce that EMIL C. HACH has become a partner in the firm.

GEORGE, MILES & BUHR, Architects, Engineers, Salisbury, Maryland, have named GEORGE K. MILES an associate.

RALPH HAHN & ASSOCIATES, Consulting and Design Engineers, Springfield, Ill., announce that ERNEST E. FENTON has been promoted to associate engineer.

RICHARD MEIER, Architect, New York, N.Y., has named as associates GERALD GURLAND and CARL MEINHARDT.

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS, Consulting Engineers, New York, N.Y., announce that ALFRED T. MCDONOUGH has become an associate.

I. M. PEI & PARTNERS, Architects, New York, N.Y., have announced that LEONARD JACOBSON, JAMES INGO FREED, and WERNER WANDELMAIER, have become associate partners in the firm, and THEODORE J. MUSHO, JAMES P. MORRIS and ROBERT LYM, JR., have become senior associates.

SHEPLEY BULFINCH RICHARDSON and ABBOTT, Architects, Boston, Mass., announce that OTIS B. ROBINSON has become a partner, and W. S. MALLORY LASH and ROBERT A. TACCONI have become associates in the firm.

NEILL SMITH & ASSOCIATES, Architects, San Francisco, Calif., announce that CLIFFORD HANSSEN has become an associate.

SYSKA & HENNESSY, INC., Consulting Engineers, Washington, D.C., have named ROBERT RUSSELL JONES a partner.

WEISKOPF & PICKWORTH, Consulting Structural Engineers, New York, N.Y., appointed THOMAS LIMPERIS, BENEDICT L. MINERVA, and JOHN P. RUTIGLIANO associates and FRED L. ELSASSER and THOR H. ANDERSEN participants.

Elections & Appointments

BURKE, KOBER, NICOLAIS & ARCHULETA, Architects and Engineers, Los Angeles-San Francisco, Calif., have named GRISWOLD RAETZE director of the San Francisco office.

DONALD KENNETH BUSCH, Architect, New York, N.Y., announce the appointment of ROBERT BRUCKNER as project manager in charge of architecture.

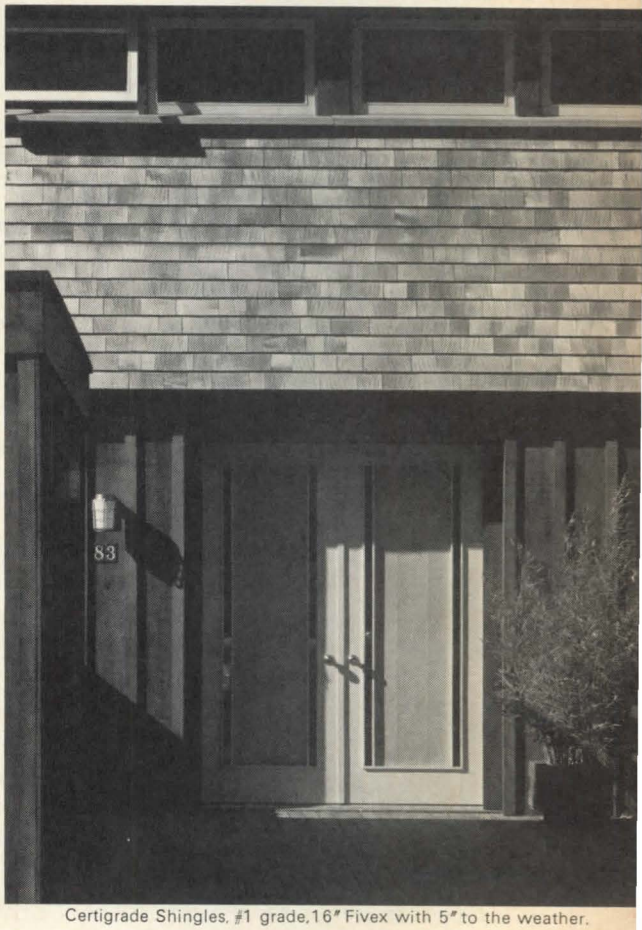
ELLERBE ARCHITECTS, St. Paul. Minn., an-

Continued on page 220

An architect's own traditional/modern San Francisco Bay home

Architect: Charles Warren Callister.

His material: natural wood and red cedar shingles.



Certigrade Shingles, #1 grade, 16" Fivex with 5" to the weather.

West Coast or East, red cedar shingles and handsplit shakes are ideal for salt water locations.

It is no accident that red cedar, in shingle or shake form, is so popular along our seacoasts. Salt water, wind, heat and cold can do their worst. Red cedar's distinctive weathering characteristics and natural protective oils allow it to grow old gracefully—beautifully.

From a practical viewpoint, red cedar gives structures extra insulation and wind resistance, plus a remarkable degree of built-in insurance against the annoyance of time-consuming upkeep problems.

No other material, natural or synthetic, possesses red cedar's ability to convey such a strong feeling of historical continuity, either. To effectively link the rich traditions of yesterday with the quiet sophistication of today.

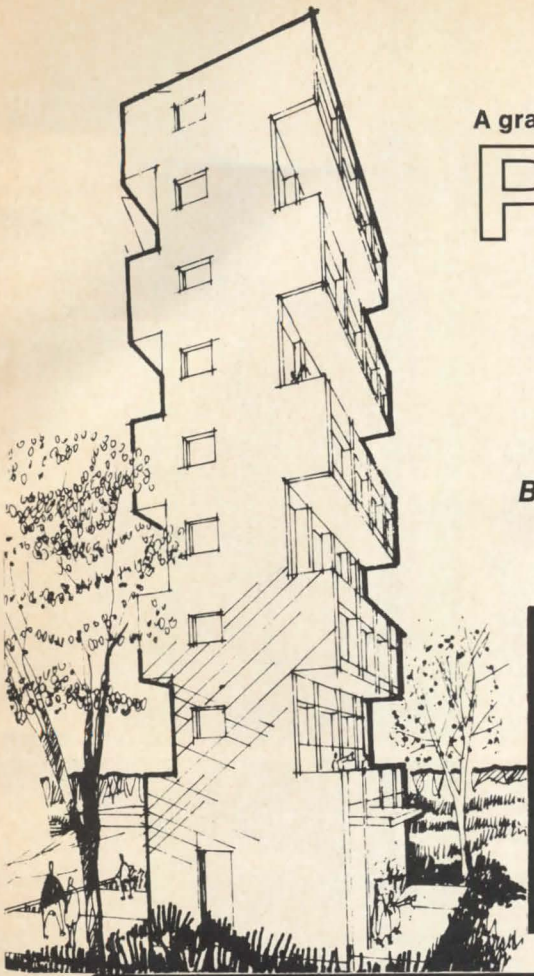
If beauty and practicality are important, next time specify the real thing: Certigrade red cedar shingles. For more information, see our Sweet's catalog listing. Or write: 5510 White Bldg., Seattle, Wash. 98101.

THE CROWNING TOUCH OF QUALITY · RED CEDAR SHINGLES & HANDSPLIT SHAKES ·

On Readers' Service Card, Circle No. 391

Red Cedar Shingle & Handsplit Shake Bureau

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



A graphic reference of current urban design standards

Planning Design Criteria

By Joseph DeChiara and Lee Koppelman

In cooperation with the School of Architecture—Pratt Institute

395 pages
9 x 12
$25.00

A professional's comment about PLANNING DESIGN CRITERIA:

"This volume may be characterized as being unique literature because it presents maximum useful information with concise graphic explanation. In short, this book will be warmly welcomed by all interested professionals and students who seek to make our environment a more functional and more attractive place to live."

from the foreword by Olindo Grossi
Dean, School of Architecture Pratt Institute

A graphic reference of current urban design standards

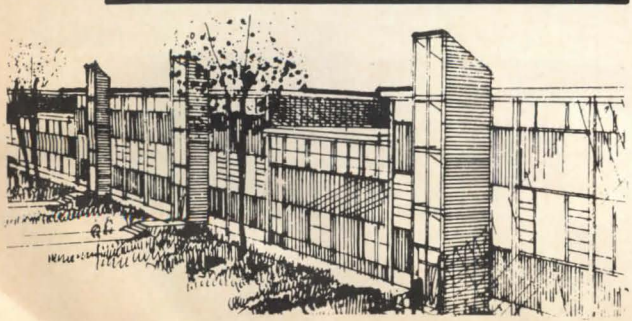
The complexity of contemporary society makes great demands on urban design and planning. In the past several decades practical experience in the field has produced a substantial body of information which is important to our methodology of resolving urban problems. However, until now there has been no summary of this basic reference material needed by the planner and urban designer.

Useful to many professionals

Comprehensive in scope, PLANNING DESIGN CRITERIA is invaluable to professionals in public planning agencies, park departments, housing agencies, and traffic departments. It is also an excellent guide for architects, site engineers, builders, and land developers. The result of extensive research, this volume represents a carefully balanced selection from the vast wealth of available data related to current practices. At the same time it compiles in handy reference format the most appropriate standards that have emerged in the field to date.

Presents essential data and standards

The book gathers into one source a wide variety of practical data and established standards essential to everyone interested in the physical aspects of current urbanization. Divided into nineteen sections, it covers a particular area of interest in each, ranging from neighborhood unit and new town concepts through industrial development and economic base to special government programs.



Van Nostrand Reinhold Company 120 Alexander Street
Princeton, New Jersey 08540

Please send me a copy of

Planning Design Criteria

for a 10-Day Free Examination

At the end of that time, if I am satisfied, I will send you my remittance of $25.00 plus postage and packing. Otherwise, I will return the book and owe nothing.

Name_____
(Please sign)

Name_____
(Please print)

Address_____

City_____ **State**_____ **ZIP**_____

SAVE MONEY: Check here if you prefer to enclose payment now, and we will pay the postage and packing charges. Same return privilege, full money-back Guarantee.