



YALE CENTER FOR BRITISH ART, BY LOUIS I. KAHN, WITH A COMMENTARY BY VINCENT SCULLY, JR.
TRADITION AS MODEL AND METAPHOR: TWO HOUSES BY CHARLES W. MOORE
REFLECTIONS ON PEI'S JOHN HANCOCK TOWER
BUILDING TYPES STUDY: INDUSTRIAL BUILDINGS
SEMI-ANNUAL INDEX ON PAGES 217-220
FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

JUNE 1977

6

A MCGRAW-HILL PUBLICATION FIVE DOLLARS PER COPY



Standard Wall Model



Compact Wall Model



Floor Model



Simulated Recess Model

**We've got the water cooler
you want and it'll be there
when you need it.**



Wheel Chair Model



Fully Recessed Model



Semi-Recessed Model

The best designs. The finest quality.

Halsey Taylor Water Coolers move fast because there are models to meet almost every construction, remodeling or replacement need . . . because Halsey Taylor Water Coolers look better than good! They're high style, with a wide selection of models and colors to complement a broad range of designs and decor.

Also, compact Halsey Taylor Water Coolers are economical and simple to install on-site, fast, without fuss. They perform beautifully — for years on end. And why not! They're built of top-quality materials in heavy-duty strength — by very careful craftsmen. This pays off in substantially fewer profit-eating callbacks.

That's why everyone — architects, contractors, building owners or operators *and you* — comes out ahead with Halsey Taylor Water Coolers.

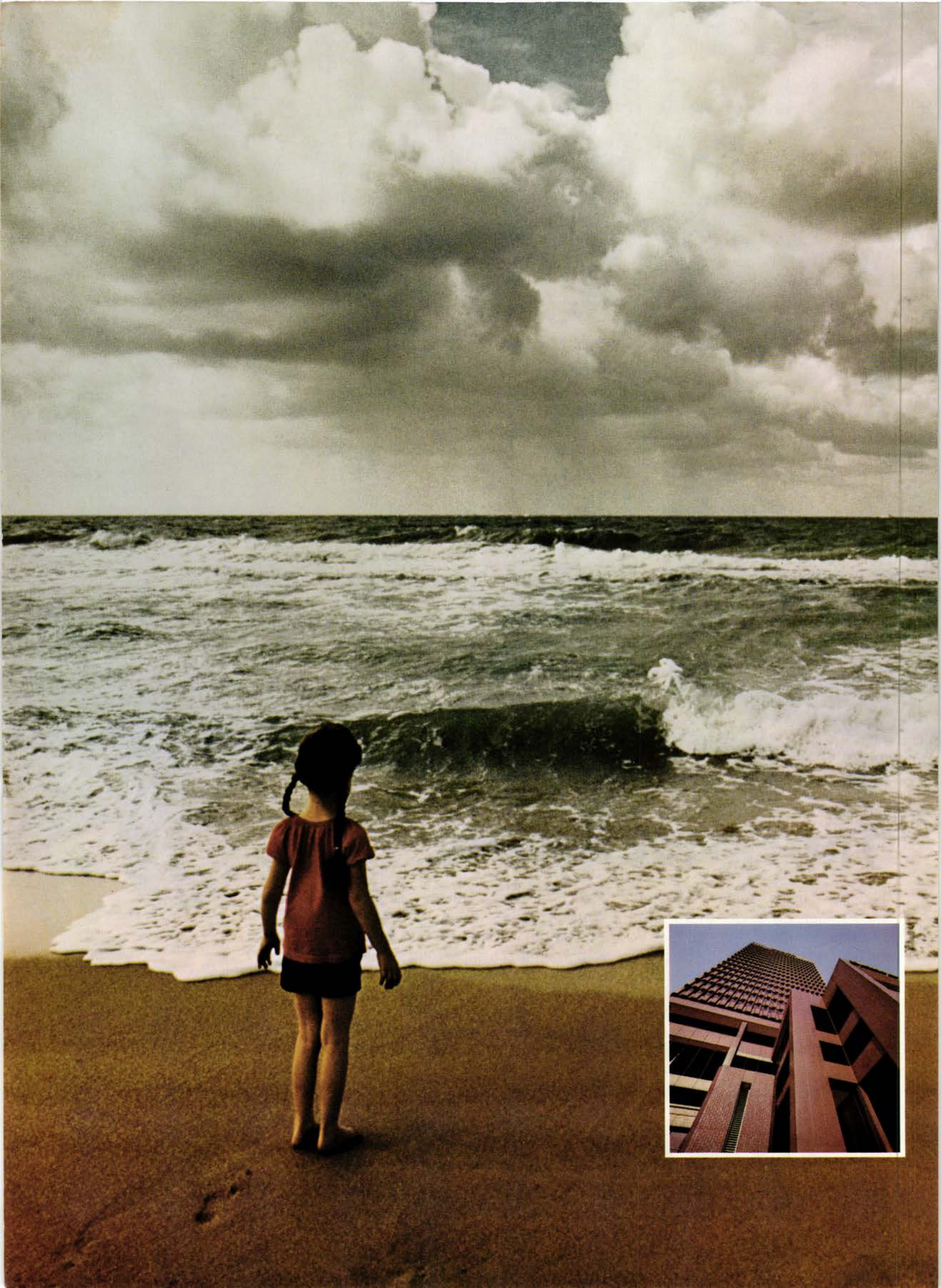
So write today for free illustrated literature and details: Halsey Taylor Division, Freeport, IL 61032.

Halsey Taylor

KING-SEELEY  THERMOS CO.
ROUTE 75, FREEPORT, ILLINOIS 61032

For more data, circle 2 on inquiry card

ARCHITECTURAL RECORD June 1977 1



Will your statement endure until she can understand the challenges you faced?

Architecture demands more than the discipline of creative design. It also requires sound business decisions. And the conflict between budgets and creativity must be resolved by every architect, builder and owner.

During the past ten years, Fluropon® has made a major contribution to architectural design and building economics. Fluropon* is the leading Kynar 500® fluorocarbon coating formulated full-strength to assure maximum longevity of the metal panel finish.

There are many practical reasons to specify Fluropon: low-cost maintenance, long-life color stability for matching building additions, superior adhesion to the substrate and long-term resistance to corrosion and to many common atmospheric pollutants.

And beyond the practical benefits, a beautiful work can make an enduring statement for the architect himself: here is a place where men and women can live and work in harmony with their environment.

DeSoto, Inc.



Chemical Coatings Division
1700 South Mt. Prospect Road
Des Plaines, Illinois 60018
(312) 391-9000

Write for complete information on Fluropon Architectural Coating, including technical product specifications, colors and uses.

*Fluropon meets Pennwalt license requiring 70% Kynar 500, Pennwalt's registered trademark for its polyvinylidene fluoride resin.

Fluropon®: The full-strength fluorocarbon finish for architects who want to make an enduring statement.

For more data, circle 3 on inquiry card

Letters to the editor

It is, indeed, very thoughtful of ARCHITECTURAL RECORD to have a global coverage of events relating to human settlements, with particular regard to developing nations. The problems relating to housing in such countries are quite staggering, and admittedly tremendous efforts need to be dedicated to providing means to overcome them. Dean Kilbridge (RECORD, April 1977, page 37, and May 1977, page 37) has in a very perceptive manner captured the main theme of the problem—a tendency on the part of the cities of the developing world to start off as “transplanted European cities” and to attempt to continue in that manner.

A similar parallel seems to have been generated from the transfer of medicine to the developing world—disease and mortality rates dropped sharply only to be substituted by population explosions. This is not to say that human suffering from disease should have been disregarded; to the contrary, some foresight and understanding of social and cultural patterns, in particular those relating to resistance against birth control, would have gone a long way towards instituting a plan involving both a proliferation of medicine and mass education.

In relation to the point made by Dean Kilbridge on the precedence food, health services and education must take over housing, I wish to state that this may not be entirely so. The problem relating to human settlements is woven into a far more intricate socioeconomic infrastructure than the article seems to reveal. The European social patterns have been transplanted in addition to the mere physical transplant of the European city to the developing world. And, not much unlike Western society, significant emphasis seemingly is placed on the location of the house (the neighborhood), the size and quality of the house; in fact, people react in a compulsive manner and will part with jewelry and whatever little they have to be able to have a house in a decent neighborhood with sufficient lighting, sanitary provisions and other “necessities.” The driving force is more often than not the “keeping up with the Joneses” syndrome. The answer, once again, seems to be a somewhat more integrated approach involving basic education, in addition to directing the urban growth process in a planned manner. Once again the problem seems to find its answer in the Western institutions of research and education—perhaps a mistake being repeated.

It is my personal opinion that a

very close contact needs to be established with the appropriate authorities in the developing world. The mere understanding of physical symptoms and their subsequent diagnosis is not sufficient. The way people live in those parts of the world, their cultural and social background, their economic microstructure, and above all their mentality should be grasped. This undoubtedly would require dedication before the problems can be understood at their roots and solutions are found to solve them.

M. Iqbal Qamar
Structural Dynamics Research Corp.
Cincinnati, Ohio

Your article on the revised AIA documents [March 1977] makes very timely comments on the standardized form contracts, especially those sections which have rarely so far been brought to light. I, as a foreigner, hope you continue to exert successful endeavors in this field of construction and professional practices.

Fumio Matsushita
Osaka, Japan

What a pleasure to see RECORD credit my father for the two photos of River Oaks Shopping Center reprinted 37 years later. Well done!

Steven Peters, AIA,
PGA Associates, Houston, Texas

Our client, Paul Thoryk, was very pleased with your coverage [April 1977] of his design for the Broad house.

Unfortunately, the name of the structural engineering firm which was given to you was incorrect. The credit should be R. E. Foley & Associates.

Robin Maydeck, Vice President
The Gail Stooza Company
La Jolla, California

Your Housing the Aging article in May covered the field remarkably well, I think, and key problems were examined in a concise and informative way.

Peter Samton, FAIA
Gruzen & Partners, New York City

Your positive coverage of the Dailey-Butler Renovation of the Chicago Navy Pier was both responsible and stimulating. After reading the eight-page coverage of the project, I yearned for further details. Instead I found eight pages of the “Best” calamity. How could you desecrate the old structure by including the latter in a professional magazine, much less the same issue? Is this an insinuation that “Architecture” is in the past?

Gregory S. Brezinski, Architect,
Yorktown, Virginia

Calendar

JUNE

12-17 The 27th Annual Conference of the International Design Conference in Aspen, “Shop Talk.” Contact: Mary Apple, IDCA, P.O. Box 664, Aspen, Colo. 81611.

13-14 Conference, “Design and Construction Opportunities in Arab Countries,” sponsored by *Business Week* and *Engineering News-Record*; Waldorf Astoria Hotel. Contact: McGraw-Hill Conference & Seminar Group, 1221 Avenue of the Americas, New York, N.Y. 10020.

14-17 Construction Specifications Canada Annual National Convention, Bayshore Hotel, Vancouver, B.C. Contact: John Garenkooper, Construction House, Construction Specifications Canada, 2675 Oak St., Vancouver, B.C.

16-17 “Planning Long Term Health Care Facilities,” seminar sponsored by the University of Wisconsin-Extension; University of Wisconsin-Madison Campus. Contact: Raymond C. Matulionis, AIA, Program Coordinator, University of Wisconsin-Extension, Department of Engineering, 432 N. Lake St., Madison, Wisc. 53706.

19-23 The Building Owners and Managers Association International 70th Annual Convention, “Ideas for Profit,” Dallas Fairmont Hotel. Contact: BOMA International, 1221 Massachusetts Ave., N.W., Washington, D.C. 20005.

20-July 28 The Third Annual Summer Institute in Environmental Design and Community Development, sponsored by the College of Environmental Design and Continuing Education in Environmental Design, University Extension, University of California, Berkeley. Contact: Continuing Education in Environmental Design, UC Extension, 2223 Fulton St., Berkeley, Calif. 94720.

21-22 Seminar, “Engineering and Architectural Considerations of High Winds and Tornadoes and Their Effects on Buildings,” sponsored by the University of Missouri-Columbia; Hilton Plaza Inn, Kansas City, Mo. Contact: Engineering Conferences, 1020 Engineering Bldg., University of Missouri-Columbia, Columbia, Mo. 65201.

20-22 The Construction Specifications Institute’s 21st Annual Convention and Exhibit, Denver. Contact: Tom Cameron, CSI, 1150 Seventeenth St., N.W., Washington, D.C. 20036.

20-24 70th Annual Conference & Exhibition sponsored by the Air Pollution Control Association, Sheraton Center Hotel, Toronto, Ont. Contact: Daniel R. Stearn, Public Relations Manager, APCA, 4400 Fifth Ave., Pittsburgh, Pa. 15213.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER)

June 1977, Vol. 161, No. 7. Title * reg. in U.S. Patent Office, copyright © 1977 by McGraw-Hill, Inc. All rights reserved. Copyright not claimed on front cover and editorial four-color separations. Indexed in Reader’s Guide to Periodical Literature, Art Index, Applied Science and Technology Index, Engineering Index, and The Architectural Index. Published monthly except May, August, and October when semi-monthly, by McGraw-Hill, Inc.

Quotations on reprints of articles available. Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

EXECUTIVE, EDITORIAL, CIRCULATION AND ADVERTISING OFFICES: 1221 Avenue of the Americas, New York, N.Y. 10020. Other Editorial Offices: 425 Battery Street, San Francisco, Cal. 94111.

PUBLICATION OFFICE: 1221 Avenue of the Americas, New York, New York 10020. Second-class postage paid at New York, New York 10001 and at additional mailing offices.

OFFICERS OF MCGRAW-HILL PUBLICATIONS COMPANY: Gordon L. Jones, president; Paul F. McPherson, executive vice president; Gene W. Simpson, group vice president; senior vice presidents: David G. Jensen, manufacturing; Ralph R. Schulz, editorial; vice-presidents: James E. Boddorf, planning and development; James E. Hackett, controller; Robert L. Leyburn, circulation; Edward E. Schirmer, sales.

CORPORATION OFFICERS: Harold W. McGraw, president, chief executive officer and chairman of the board; Robert N. Landes, senior vice president and secretary, Ralph J. Webb, treasurer.

SUBSCRIPTIONS: Subscriptions solicited only from architects and engineers. Position, firm connection, and type of firm must be indicated on subscription orders. Please allow 4-12 weeks for shipment.

CHANGE OF ADDRESS or subscription service letters should be forwarded to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520. Provide old and new addresses, zip code or postal zone number. If possible, attach issue address label. Annual subscription prices: U.S., U.S. possessions: \$15.00 for architects, engineers and other individuals in the fields served; others \$24.00. Canada: \$17 for architects, engineers and other individuals in the fields served; others \$26.00. Other countries: \$30.00 to architects, engineers; others \$40.00. Single copies \$5.00. GUARANTEE: Publisher agrees to refund that part of subscription price applying to unfulfilled part of subscription if service is unsatisfactory.

ASSOCIATED SERVICES/McGraw-Hill Information Systems Co.: Sweet’s Catalog Files (General Building, Engineering, Industrial Construction and Renovation, Light Residential Construction, Interiors), Dodge Building Cost Services, Dodge Reports and Bulletins, Dodge/SCAN Microfilm Systems, Dodge Management Control Service, Dodge Construction Statistics, Dodge regional construction newspapers (Chicago, Denver, Los Angeles, San Francisco).

THIS ISSUE is published in national and separate editions. Additional pages of separate editions numbered or allowed for as follows: Western Section 32-1 through 32-2. POSTMASTER: PLEASE SEND FORM 3579 to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520.





How our Soundsoak™ Wall Panels subtract a lot of noise while adding a lot of beauty.

We start with sound-absorbing mineral-fiber board that soaks up noise like an acoustical ceiling. Then we cover it with a soft modacrylic fabric that's reinforced with a woven fiberglass scrim.

But we don't stop there. We manufacture our Soundsoak Wall Panels in 30-inch widths and in both nine- and ten-foot heights—so one man can quickly and easily install them on interior walls



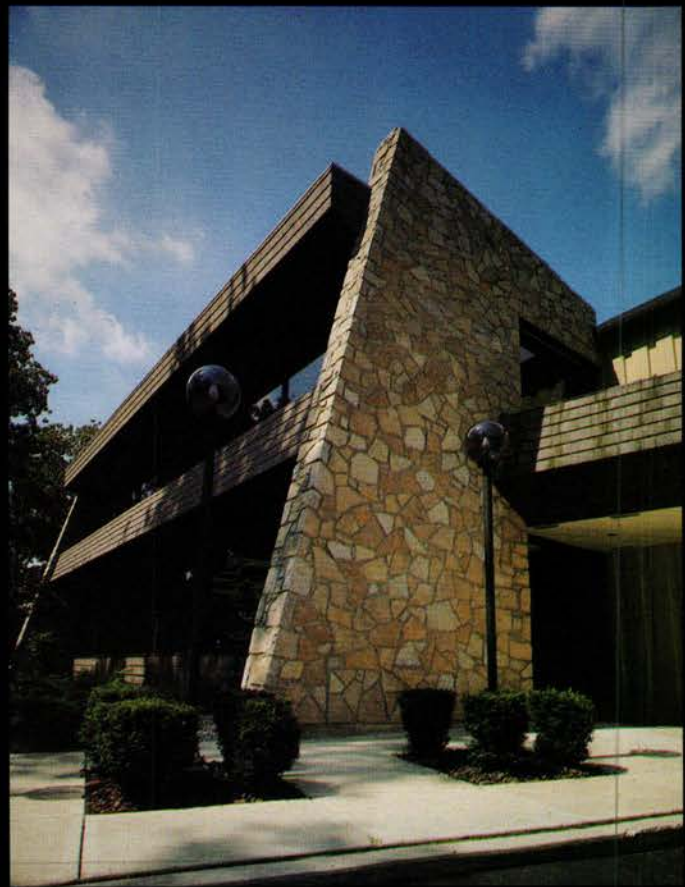
in band rooms, offices, steno pools—you name it. And we make them available in ten handsome

contemporary colors to help you bring quiet to virtually any decor.

Turn those sound-reflecting walls into sound absorbers. With Soundsoak Wall Panels. And add a lot of beauty while you subtract a lot of noise. To learn more, write Armstrong, 4203 Rock St., Lancaster, Pa. 17604.

For more data, circle 1 on inquiry card

FROM THE  INDOOR WORLD® OF
Armstrong



How building systems free architects to use talent where it counts most

These buildings dramatically demonstrate how architects can express their creativity with building systems. They are also typical of buildings that may utilize ALUMINIZED STEEL Type 2 roofing.

There's no doubt that building systems once were an anathema to architects. But that's long past. Now architects are finding that building systems offer previously unexploited design advantages.

Probably the most obvious is that they save design, engineering, and detailing time—and dollars—that can be used more creatively in expressing the architect's design objectives. For another, their modularity permits design flexibility and innovation without interfering with structural integrity. And equally important, architects have a broad choice of excellent building systems from a variety of dependable manufacturers.

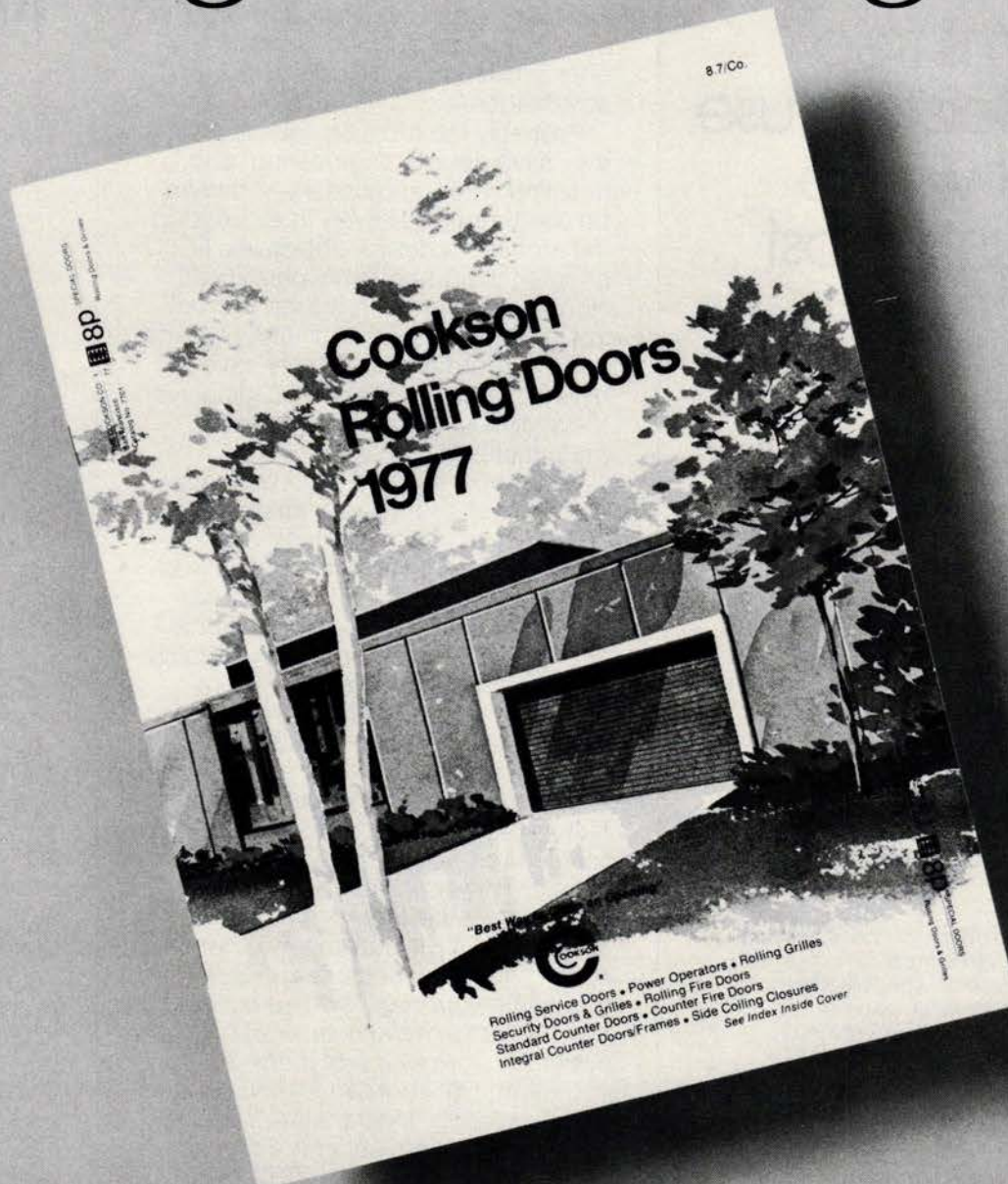
When operating on fixed budgets—and who isn't—these advantages free architects to use their talent where it counts. In creating aesthetically pleasing offices, entrances, lobbies, and otherwise attending to the functional aspects of design. The result is usually more attractive appearance, more functional space, and more assurance of structural integrity—all attained within budget.

One thing more, most major manufacturers of building systems offer roofs made of ALUMINIZED STEEL Type 2. This economical aluminum-coated steel has already proved in service that it will outlast any other roofing in its low price range. Before you begin your next low-rise building, consult with a manufacturer of building systems... or several of them. And you might ask about ALUMINIZED STEEL roofing. Most major producers of building systems offer it. For more information on ALUMINIZED STEEL Type 2, contact Armco Steel Corporation, Dept. E-177, Box 600, Middletown, Ohio 45043.



For more data, circle 4 on inquiry card

Rolling doors and grilles?



We wrote the book!

For your free copy of the most complete rolling door catalog in history,
write: The Cookson Company
700 Pennsylvania Avenue, San Francisco, CA 94107
(415) 826-4422
or circle our reader service number.



Cookson Rolling Doors
Best way to close an opening.

For more data, circle 5 on inquiry card

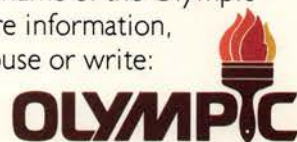
A beautiful way to
save money.
Olympic machine staining.

Architect: Mithun & Associates, Bellevue, WA



Beautiful . . . because the Olympic Stainer System actually forces the stain into the wood, where it dries to a uniform finish that looks as naturally beautiful as the wood itself.

Economical . . . because virtually all job site problems are eliminated: No weather delays, no painting scaffolds to erect, no bare wood exposed by shrinkage. Choose any Olympic Stain semi-transparent or solid color. For the name of the Olympic Machine Stainer nearest you, or for more information, call your local Olympic Central Warehouse or write:
Olympic, Dept. MS, 1148 N.W. Leary
Way, Seattle, WA 98107 (206) 789-1000.



For more data, circle 6 on inquiry card



Cover: Yale Center for British Art
New Haven, Connecticut
Architects: Louis I. Kahn/Pellechia and Meyers
Photographer: Paul David Birnbaum

EDITOR

WALTER F. WAGNER, JR., AIA

MANAGING EDITOR

HERBERT L. SMITH, JR., AIA

SENIOR EDITORS

ROBERT E. FISCHER

MILDRED F. SCHMERTZ, FAIA

ASSOCIATE EDITORS

GERALD ALLEN

GRACE M. ANDERSON

BARCLAY F. GORDON

CHARLES E. HAMLIN

CHARLES K. HOYT, AIA

WILLIAM MARLIN

ASSISTANT EDITOR

JANET NAIRN

PRODUCTION EDITOR

ANNETTE K. NETBURN

DESIGN

ALEX H. STILLANO, Director

ALBERTO BUCCHIANERI, Associate

ANNA-MARIA EGGER, Assistant

MURIEL CUTTRELL, Illustration

J. DYCK FLEDDERUS, Illustration

JAN WHITE, Consultant

EDITORIAL CONSULTANTS

EDWARD LARRABEE BARNES, FAIA

JONATHAN BARNETT, AIA, Urban design

GEORGE A. CHRISTIE, JR., Economics

ERNEST MICKEL, Hon. AIA, Washington

PAUL RUDOLPH, FAIA

Foreign architecture:

L'Architecture d'Aujourd'hui, Paris

McGRAW-HILL WORLD NEWS

RALPH R. SCHULZ, Director

9 domestic and 10

international news bureaus:

Bonn, Brussels, Buenos Aires,

London, Milan, Moscow, Paris,

Singapore, Tokyo, Toronto.

SALES MANAGER

LOUIS F. KUTSCHER

CIRCULATION DIRECTOR

HUGH S. DONLAN

ASSISTANT BUSINESS MANAGER

JOSEPH R. WUNK

ASSISTANT TO THE PUBLISHER

ELIZABETH HAYMAN

PUBLISHER

BLAKE HUGHES

THE RECORD REPORTS

13 Editorial

Solar energy: Some hopes
and some concerns

4 Letters/Calendar

33 News in brief

Short items of
major national interest.

34 News reports

Carter Administration's energy
program offers an assortment
of standards and financial
incentives for building. Richard
Meier takes \$25,000 Reynolds
award for Bronx Developmental
Center. The East German
government restores Walter Gropius's
Bauhaus building in Dessau.

37 Human settlements: world news

41 Buildings in the news

The AIA cites 17 buildings
in its 1977 Honor Awards Program.



45 Required reading

215 Office notes

ARCHITECTURAL BUSINESS

65 Construction management Regulatory codes: one firm's check list for industrial projects

Joseph E. Compton, vice president
and director, Industrial Division of
Smith, Hinchman & Grylls, offers a
systematic approach to identifying
potential code infractions.

69 Legal perspectives A basic guide to pitfalls in foreign contracts

Chicago attorney
Philip F. Purcell outlines
some common problems encountered
in contracts with overseas clients.

71 Business development Writing for marketing impact: letters, brochures, proposals

Communications consultant Stephen A.
Kliment reminds design professionals
that in marketing communications,
"It's not creative, unless it sells."

FEATURES

95 Yale Center for British Art

In his final building, completed after his death, Kahn, according to Yale History of Art professor Vincent Scully, "arrived at a kind of order which was itself not far from the old classicizing mode: static, trabeated, and laconic. . . . All movement, all voices, all color, are outside and around the British Center, like the reflections in its window panes. Avoiding speech, it is the wordless image of Kahn's deep constructor's soul."

105 A theatrical approach to shopping center remodeling

The remodeling of the Stanford Shopping Center in Palo Alto, California, has just been completed. The design thrust concentrates on creating a lively vibrant shopping complex from a 900-foot-long existing mall by predominantly non-structural architectural devices. Architects are Bull Field Volkmann Stockwell.

109 Two houses by Charles Moore: contrasted

Designed for clients with dissimilar needs, each house evokes its owners' beliefs, fantasies and feelings in forms shaped by Moore's mastery of style.

117 Some reflections on the John Hancock Tower

A lot of life, fortune, and sacred honor is tied up in this 60-story glass-sheathed skyscraper by I. M. Pei & Partners.



George Cserna

BUILDING TYPES STUDY 503

127 Industrial buildings

To the client planning an industrial building, nothing is quite as meaningful as initial cost and speed of construction. But a growing number of owners are going one step farther, requiring building solutions that—at no extra cost—also respond to broader, long-range goals of environmental soundness and improved working conditions.

128 Hewlett-Packard Company Santa Rosa, California

John Carl Warnecke & Associates, architects.

130 Sears Distribution Center Elk Grove, Illinois

Skidmore, Owings & Merrill, architects.

132 Windsor Winery Healdsburg, California

Roland/Miller/Associates, architects.

134 Saginaw Road Development Plan Midland, Michigan BP Oil Corporation

Marcus Hook, Pennsylvania
HOK Associates, Inc., architects.

136 The Logan Leader/News Democrat Russellville, Kentucky

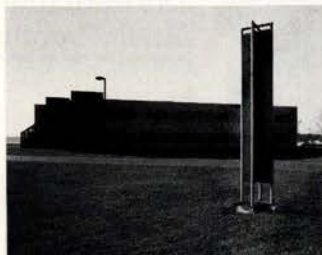
Ryan, Cooke and Zuern Associates, architects.

138 Public Service Facility Sterling Heights, Michigan

Straub, Van Dine, Dziurman, architects.

140 Joseph E. Seagram & Sons, Inc. Des Plaines, Illinois

Pasanella & Klein, architects.



Robert Thall

142 Central Power House Utica, New York

Rogers, Butler & Burgun, architects.

ARCHITECTURAL ENGINEERING

143 Parking deck saves money with tube columns and weathering steel

In downtown Detroit, a "bare" steel, six-level parking deck used tubular columns for structural efficiency and to avoid guards required for wide-flange columns. The weathering steel exterior eliminated need for painting hard-to-reach areas.

149 Product reports

151 Office literature

217 Semi-annual index

215 Classified advertising

220 Advertising index

225 Reader service inquiry card

NEXT MONTH IN RECORD

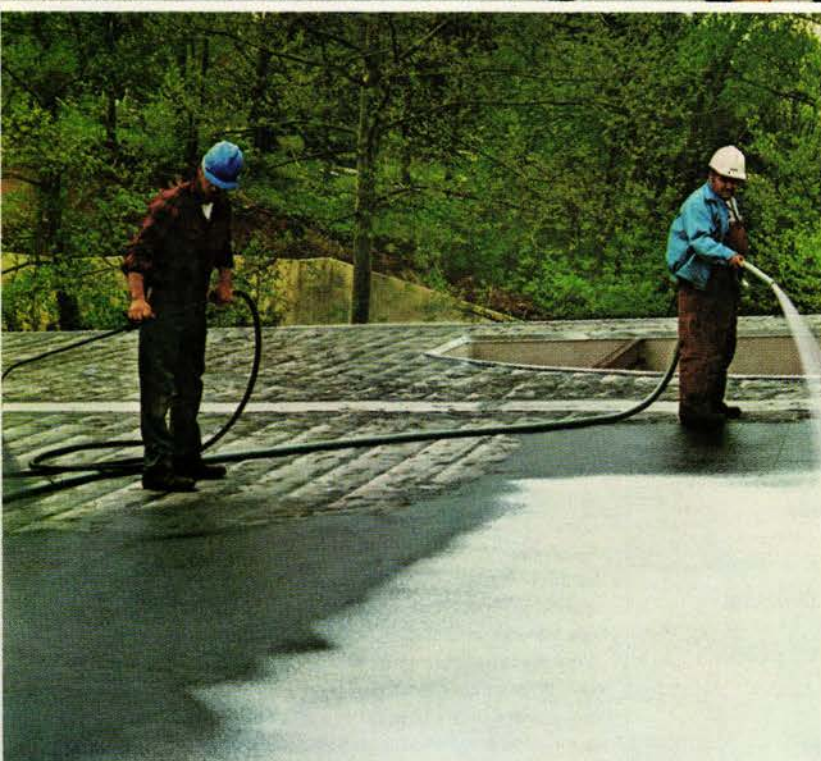
Building Types Study: Religious buildings

Religious buildings offer to the architect some of the most challenging design problems he or she ever encounters, with rewards as great as the perils. Next month's Building Types Study features a rich collection of churches and church-related buildings from across the United States and from foreign countries as well. It gives a good look at the current state of the art of design as applied to programs for religious buildings.



**"SINCE WE'VE STARTED
USING GAF'S COLD-APPLIED
MINERAL-SHIELD® ROOFING,
OUR SALES HAVE GONE
THROUGH THE ROOF."**

Howard & Dick Charbonneau
Charbonneau Contracting Corporation
Round Lake, N.Y.



"The day after we started using Mineral-Shield, we practically gave away our old hot roofing equipment," says Dick Charbonneau. And his brother, Howard, adds:

"I can't understand why anyone would use anything else. Mineral-Shield is much more profitable than hot roofing. While material costs are similar, Mineral-Shield roofing goes down faster. You need less manpower. Less setup time. And less equipment. There are no hot carriers or kettles to mess with. Mineral-Shield roofing is a cold spray process, so you don't lose time because of burns and accidents. And you don't have to worry about things like slope limitations or maintaining critical temperatures."

When asked about blisters and fishmouths, Howard replied, "I've practically forgotten what they look like. They're virtually eliminated with Mineral-Shield roofing."

"Our customers rave about Mineral-Shield's white granule surfacing," says Dick. "They not only like the way it looks, but they like the way its high reflectivity helps keep air conditioning costs down." And he concludes:

"After applying over 4½ million square feet of this roofing, I know what I'm talking about. The hard and cold fact is that GAF® Mineral-Shield® roofing is here to stay."



GAF Corporation
Building Products, Dept. AR67
140 West 51 Street
New York, New York 10020

- ☐ Please send me more information on Mineral-Shield® roofing.
☐ Please have a representative call.

Name

Firm

Address

City State Zip

**GAF® MINERAL-SHIELD®
ROOFING**

TA

Solar energy: some hopes and some concerns

I had the very good luck to attend a very good conference¹ on solar energy utilization last month. I came away—after listening to some very thoughtful and very experienced speakers—with a conviction I hadn't had before: that solar energy can make a major contribution to the energy problems in this country, and that it stands—with energy conservation—altogether on the side of the angels. That is to say it uses no non-renewable resources (indeed, is infinitely renewable for, say, the next couple of million years), requires no environmental intrusions, and generates no waste to be disposed of into the air or into salt mines where it ticks away for 25,000 years. And there's a feeling about solar energy that those who have worked with it for a long time seem to share, and which also seems important. It is well expressed in architect Donald Watson's fine new book, *Designing and Building a Solar House*². He writes: "A solar house, in its relation to the land and the surrounding community, can embody our most profound feelings about living with nature and with society. And through the intelligence of the design, it can bring into form the ideals with which we hope to live. . . ."

I do not pretend to have become an expert on solar energy in a day and a half, but I did come away with some thoughts on advancing the cause. Herewith:

1. What is involved here is not technological revolution. The talks by some very sophisticated architects and engineers—Don Watson of the Yale School of Architecture, Byron Winn of Colorado State University (both of whom talked primarily about solar energy at the residential scale), Fred Dubin (whose many energy conserving designs include the well-known Manchester, New Hampshire, prototype), and Harry Fischer of Oak Ridge National Laboratories—made clear that the technology has long been understood, and what is needed now is urgent professional effort to perfect not just the collectors (the glamorous part everyone looks at) but the heat storage hardware, the controls, and the over-all system design.

2. One of the most important concepts is that—before solar energy can work effectively—all of the passive tools of energy conser-

vation need to be designed in first. We're not here talking about a new tool which can even hope to overpower—as we have learned to do with hvac systems—our design mistakes.

Once all of those techniques have been used and applied by the architect, *then* a solar energy system, carefully designed, can make that major contribution. . . .

Some of the thoughts I took away from the conference are concerns:

3. A solar system—even one designed with the greatest possible skill—may not ever "pay off" in the time span that we seem to have come to expect. The five-year "return on investment" for solar hot-water heating which the enthusiasts proudly point to (it's longer for solar heating—even in just the right parts of the country) is not the kind of number which gets the undivided attention of your average speculative developer. Which means, I think, that along with continuing efforts to try to perfect solar systems and market the hardware, we need to try to promote *the need* for using solar energy—for all the reasons that we need to conserve energy.

4. The other concern I left the conference with is the danger of over-promoting solar energy. It seemed apparent, to this uninitiated, that the hardware and system design for solar energy usage are far from perfected. We need to press on, for all of the reasons stated, as quickly as possible; but I think we need to make that speed carefully. We cannot stand, in the name of progress, to build too many Edsels.

I think the responsible manufacturers in this field need to find a way to police the peddlers of dubious technology who are bound to be attracted to such a "glamor market" with a product that can be produced in a garage.

Finally, I think we need to worry a lot about the fact that there are precious few professionals in this country who are really experts in solar-system design. Besides Don Watson, Byron Winn, Fred Dubin, and Harry Fischer (who spoke at the meeting), one thinks of Frank Bridgers, George Löf, Dick Rittleman, Marx Ayres, Malcolm Wells. There are undoubtedly many more—but I doubt there are ten times as many. If there are 100 times that many, that is not enough to ensure quality system design (not to mention responsive building design) if solar really starts moving.

And so—I hope those involved in solar-energy design and manufacturing do not announce a revolution; but press with all responsible speed for an important evolution.—

Walter F. Wagner, Jr.

¹Sun Utilization Now, Knoxville, Tennessee, May 12th and 13th; sponsored by University of Tennessee's Center for Industrial Services and Environment Center, East Tennessee State Continuing Education, Energy Opportunities Consortium, Greater Knoxville Chamber of Commerce, and ASG Industries, Inc.

²Garden Way Publishing, Charlotte, Vermont 05445. 282 pages, \$8.95.

**The disabled
need not be
handicapped...
if buildings
are properly
designed.**



Barrier-Free Washfountain

Improved health care. Increased longevity. Heightened public concern. Tougher government regulations. These factors mean that barrier-free design is more important than ever before. And designing products and facilities for use by all people is often not just the most sensible answer—but also the lowest cost answer.

At Bradley, we've done our homework. We've listened to the advice of experts in barrier-free design. Based on their recommendations, we've created Bradley products that will accommodate everyone—not special designs just for the disabled. And, because washroom vandalism and water conservation also have to be considered, we've incorporated all we've learned about handling these challenges into the designs as well.

Our new barrier-free products catalog contains basic washroom design criteria plus specifications on our new products. For your copy, contact your Bradley representative, or write Bradley Corporation, 9101 Fountain Blvd., Menomonee Falls, WI 53051.



"Barrier-Free Washroom Design," a 30-minute filmed panel discussion, is now available. Contact your Bradley representative to arrange a viewing.

**Another
right idea
from**



Bradley

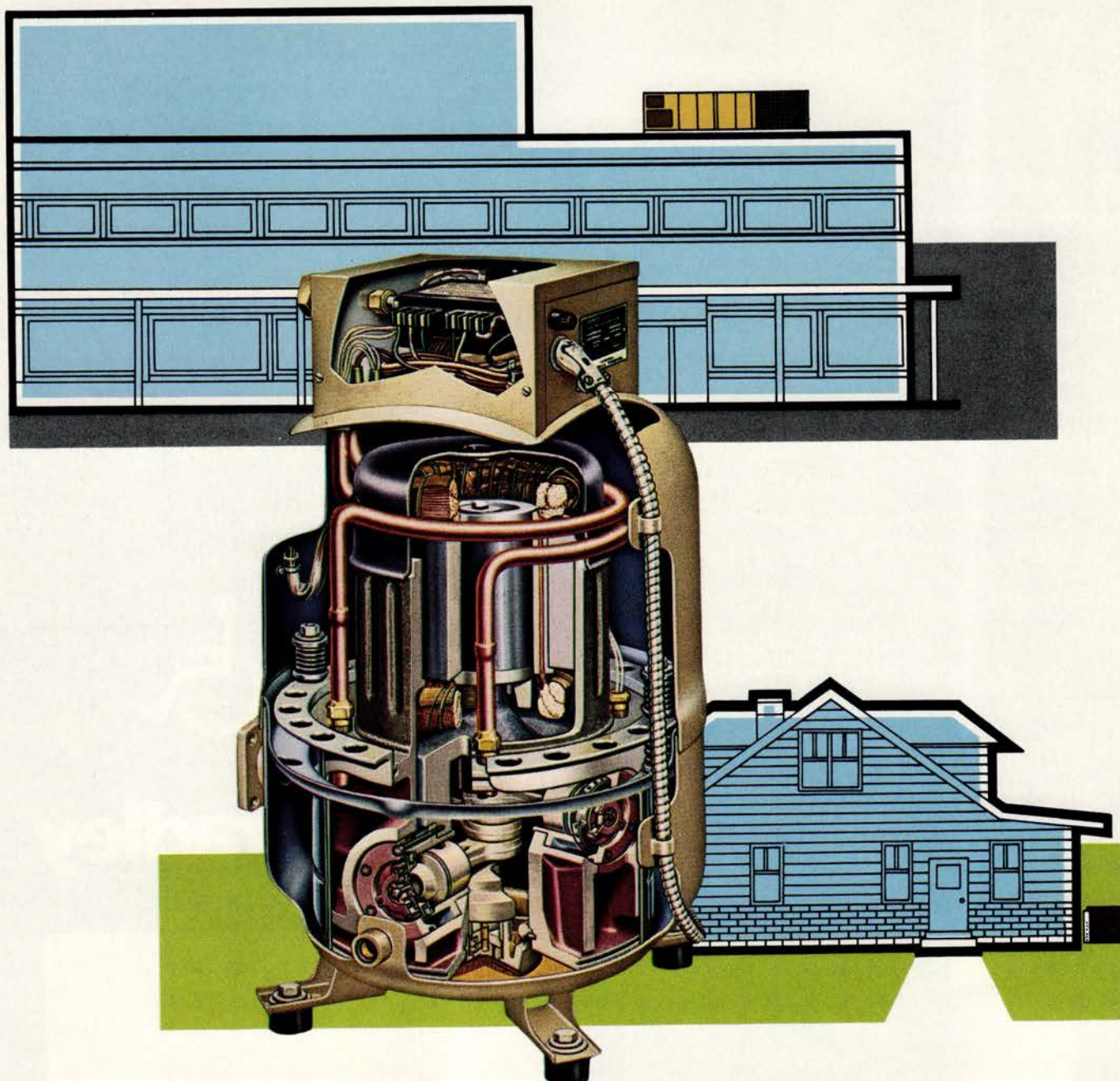
For more data, circle 8 on inquiry card



Bradpack® Wash Center



Modesty Module® Shower



Lennox presents the world's first 2-speed air conditioning compressor.



Take it from Dave Lennox...

Our exclusive, new compressors make Lennox the finest air conditioning units you can buy.

Lennox developed the 2-speed compressor to encourage energy efficiency and consequent cost savings.

It operates at low speed most of the time (using about 50% normal power). Only under peak loads does it automatically shift to high speed. The result: increased seasonal efficiency. Cooling costs can be cut as much as 35%.

In addition, Lennox offers you exclusive, computer-logic, "on-board" monitoring systems that measure and compare various operating characteristics and environmental conditions, and then automatically select the most effective and efficient

mode of operation. This assures you total, optimum comfort with energy efficiency that exceeds the ASHRAE 90-75 guidelines.

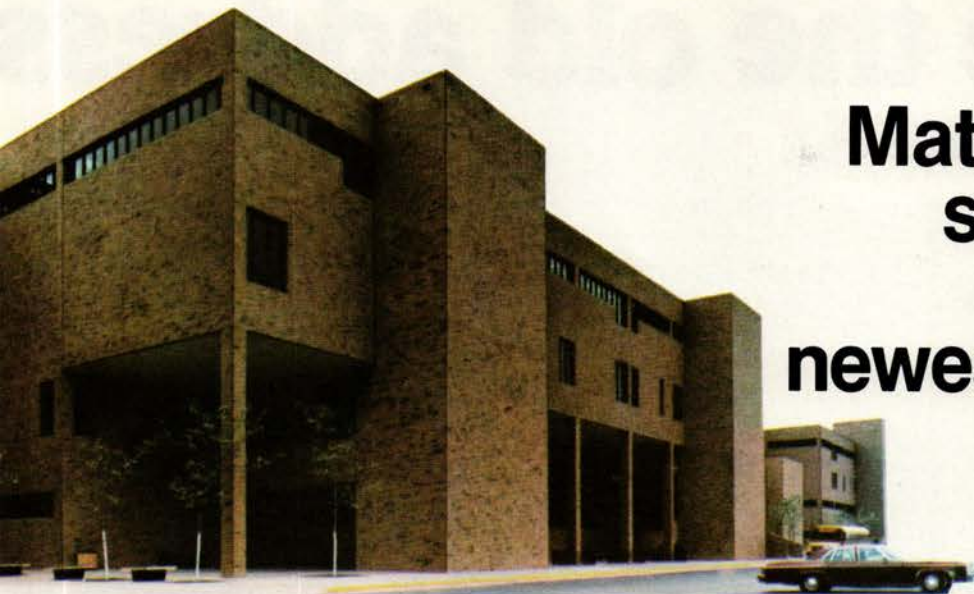
Get full information on this and other high efficiency, heating and air conditioning equipment, such as our new Heat Pump line, or Gas, Oil and Electric Furnace line. Write: Lennox Industries Inc., 762 S. 12th Avenue, Marshalltown, Iowa 50158.

LENNOX

AIR CONDITIONING • HEATING

"Attaboy, Dave!"

For more data, circle 9 on inquiry card



Matthews signage shows and tells at Pittsburgh's newest high school.

The planners of Pittsburgh's \$22,700,000 contemporary John A. Brashear High School knew that moving people from A to Z isn't as easy as ABC. So they called upon Matthews for total signage service.

And that's what they got. Signage that's integrated into the "school-within-a-school" building plan and coordinated to maximize traffic flow. The 406,000 square foot Brashear High School demonstrates a variety of Matthews signs. All of the exterior post and panel signs are fabricated from our vandal-resistant NOMAR® fiber reinforced polyester and the interior plaques use our RSP (reverse screen printing) acrylic plastic with a non-glare matte finish. Our cast metal letters and pressure sensitive letters are in attendance, too. In all,

there are over 500 Matthews signs at Brashear High School.

The school building is organized into two houses of 1250 students each, accommodating grades 9 through 12. Each house has facilities for science, math, special education, language arts, social studies, house administration, dining and food service. Student lockers and informal spaces for student use are adjacent to the dining area in each house.

Brashear High School is a very effective and efficient building. A building that had a complete signage program specified in the initial plans. Matthews can supply you with total signage service, just as we did Brashear High School. All smartly coordinated.

If you'd like to learn more about

how our signage can show and tell for you, please give us a call and ask about our total signage responsibility. It could be very educational.

Talk to us for total signage systems.

800-245-6574

Pennsylvania calls: 412-344-4200

General Contractor:
Jendoco Corporation
Pittsburgh, PA

Architect:
Curry, Martin, Highberger and Klaus
Pittsburgh, PA

JHM MATTHEWS
Architectural Division



1. Stencil-cut aluminum lawn sign—illuminated
2. Cast bronze letters (6" Helvetica, dark bronze finish)
3. Reversed-screen acrylic plaque, extruded aluminum frame
4. & 6. Standard Nomar® post & panel, back mount
5. Standard Nomar® post & panel



Maybe the old address



Owner: Houston Chronicle Publishing Co./Architect: E. W. Slater/Curtainwall & Glazing Contractor: Binswanger Glass Co., Houston/General Contractor: A. M. Oakes & Co./Photos courtesy of Houston Chronicle.

deserves a second look.

The location was ideal. But the Houston Chronicle Building looked as out of date as last year's newspaper.

The architect's solution? A "face-lift" with LOF Vari-Tran® coated glass. The home of the Chronicle was suddenly the talk of the neighborhood.

But Vari-Tran's beauty is more than just skin deep. Available in a wide variety of shading coefficients as well as colors, Vari-Tran can also reduce heat gain and cut air conditioning costs.

Maybe you know a building that could use some good news. A lot of people take note when creative architecture comes to the rescue of older neighborhoods.

For more information, write Ralph Hayward, Libbey-Owens-Ford Company, 811 Madison Avenue, Toledo, Ohio 43695.



LOF

For more data, circle 11 on inquiry card

ARCHITECTURAL RECORD June 1977 19

**The elegant way
to light a building
economically.**



How San Francisco's luxurious One Market Plaza saves \$35,570 a year with Sylvania SuperSaver fluorescent lamps...without short-changing its lobby.

It cost \$81,000,000.

It has a total of 1,500,000 square feet in two towers.

And its 6-story-high atrium-lobby, lit by Sylvania decor lamps on gleaming space frames, is one of the most distinctive sights, in

a city where far-out architecture is the rule.

But after the glamour, in the day-to-day job of lighting hallways, offices, service areas—the answer was Sylvania SuperSaver 35-watt fluorescent lamps... 77,000 of them, using about 10% less energy than standard 40-watt fluorescents, yet without skimping on light.

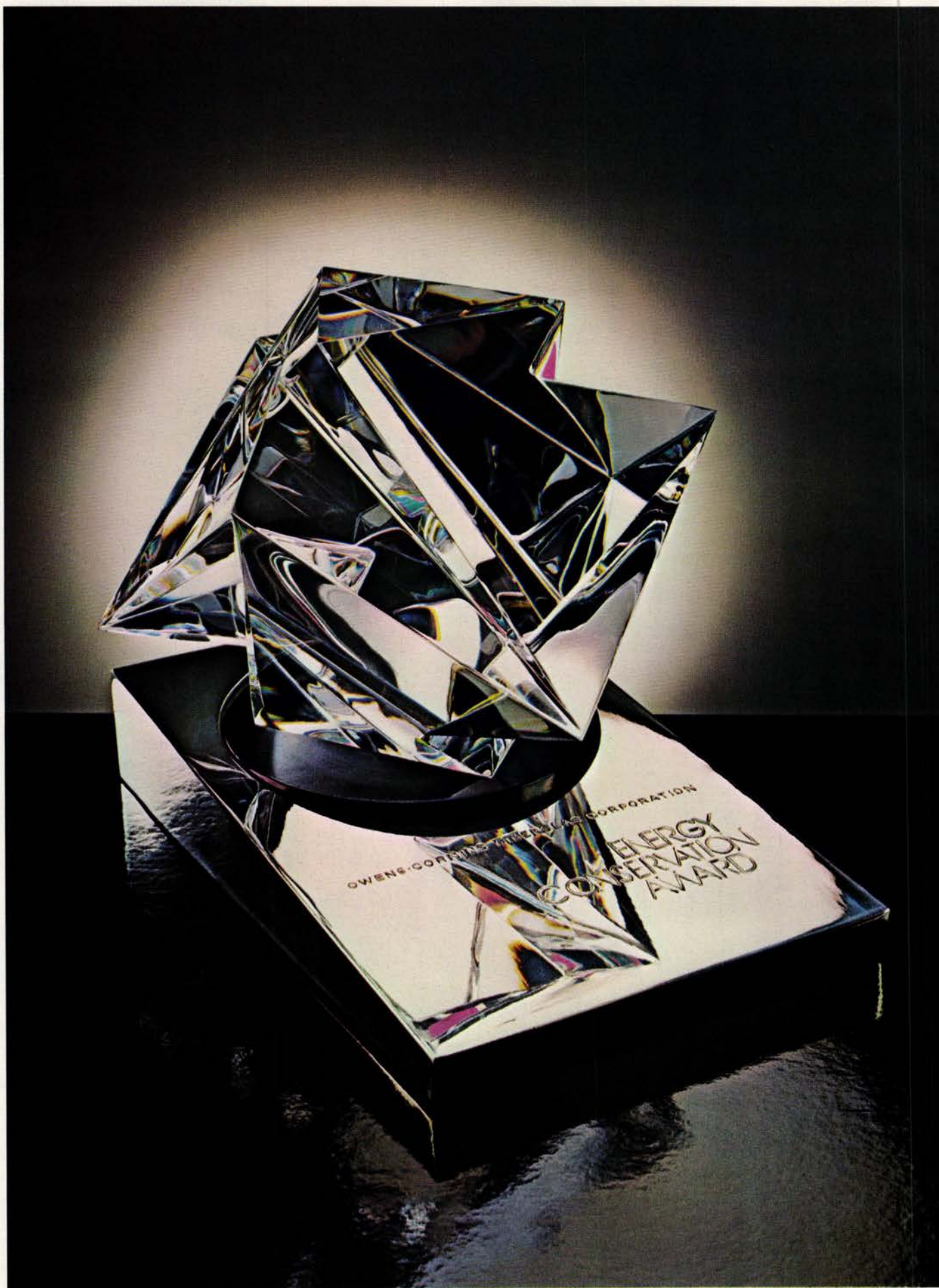
In all, these lamps will save more than 1.6 million kilowatt-hours of energy—\$35,570 worth—every year for Galbreath-Ruffin

Corp., developer and operating manager of the building complex, which is a joint venture of The Equitable Life Assurance Society of the United States and Southern Pacific Land Company.

Whether you're relighting a building or building a lighting system for anything under the sun—there's a way to do it better and more economically. Your Sylvania Independent Electrical Distributor is a quick way to get started.

GTE SYLVANIA

For more data, circle 12 on inquiry card



*T.M. Reg. O.-C.F. Corp. © O-C.F. Corp. 1977

Announcing the 1977 Owens-Corning Energy Conservation Awards Program

(because America urgently needs more designs that save energy)

When Owens-Corning announced its first Energy Conservation Awards Program in 1972, architects and engineers responded with dozens of energy-saving designs.

And each year the flow of ideas has continued to pour in.

But this past winter brought a cruel fact to light. Despite all the energy-saving designs that have already been created, and despite all the energy conservation measures that are already in effect, it's nowhere near enough.

Our country still needs more designs that save energy.

Do you have a design that saves energy?

Show our Awards Jury a building design that doesn't waste energy—and you could receive one of the Energy Conservation Awards Owens-Corning will present in 1977.

The Awards Jury will be looking for design excellence and significant energy conservation features and/or systems.

This will be the 6th annual competition in Owens-Corning's Awards Program.

By continuing the Energy Conservation Awards Program, we hope to stimulate even more ideas to conserve energy. It also

lets us recognize—and honor—those who do the best job of designing buildings and mechanical systems that help conserve our nation's energy.

Five entry categories

Up to now, there have been four entry categories in the Owens-Corning Energy Conservation Awards Program. This year winners will be selected from *five* design categories:

Institutional—schools and hospitals, for example.

Commercial—office buildings, shopping centers, retail stores, and similar structures.

Industrial—including manufacturing plants, research centers, and warehouses.

Governmental—post offices, administrative buildings, military structures, to name a few.

Special—new or existing buildings, projects, or complexes that are not included in preceding categories.

Who can enter

Any registered architect or professional engineer practicing in the United States is eligible.

As an individual. Or in a team.

But to qualify, your entry must be a commissioned building project—in the design proc-

ess, under construction, or a completed structure.

Although Fiberglas* products are an excellent way to conserve energy, their use is not an entry requirement.

The Awards

Winning architects and/or engineers will receive "Triangles," the handsome Steuben crystal sculpture shown at left. Owners or clients will receive other Steuben crystal awards.

The Awards Jury for 1977

Outstanding professionals in architecture and engineering will serve as the Awards Jury to select the winners.

Send for entry details now

Completed entries must be submitted by July 31, 1977. Winners will be selected and notified in early October.

For a brochure with details on how to enter your energy-saving designs, write: G. Q. Meeks, Owens-Corning Fiberglas Corp., Building Products Operating Division, Fiberglas Tower, Toledo, Ohio 43659.

This program has been approved by the American Institute of Architects and is patterned after its Honor Awards Program.

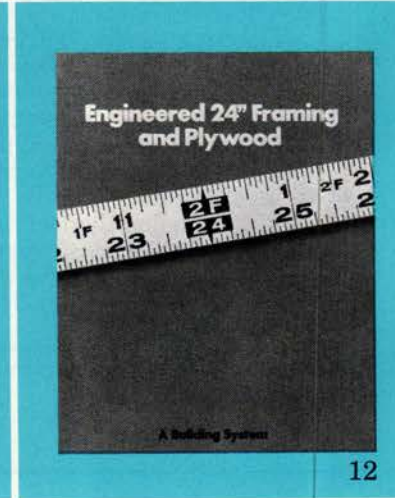
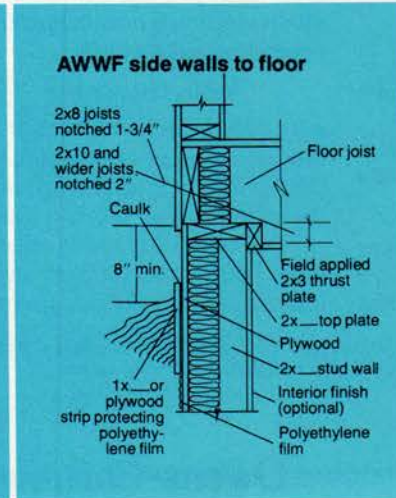
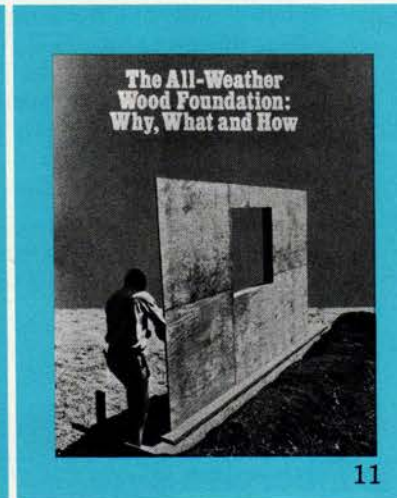
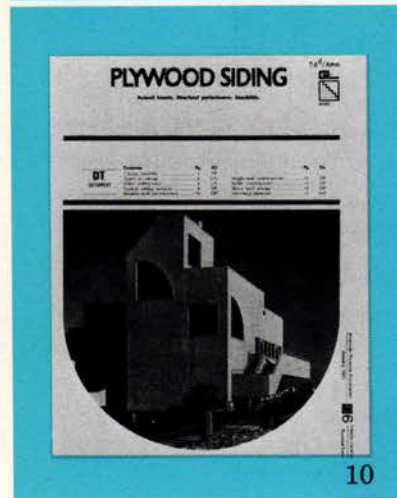
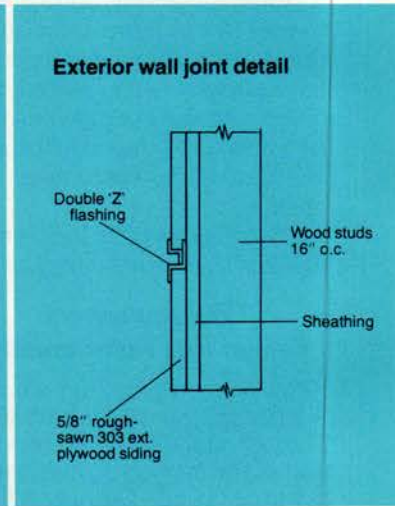
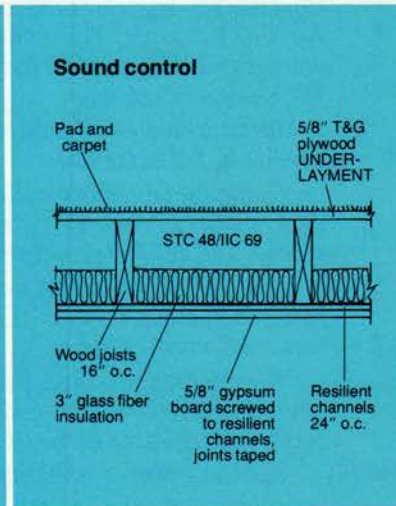
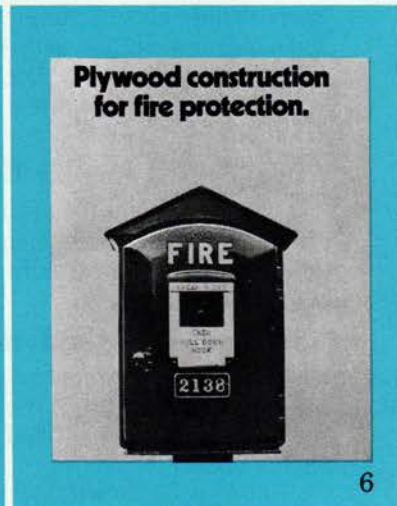
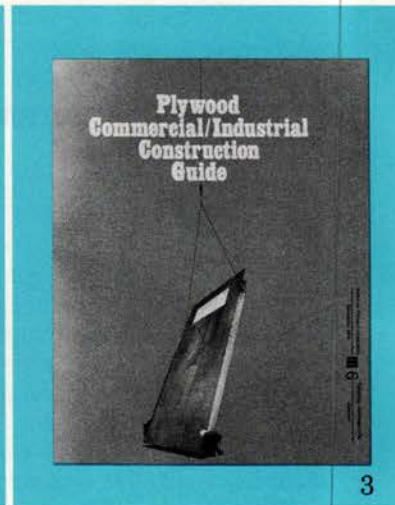
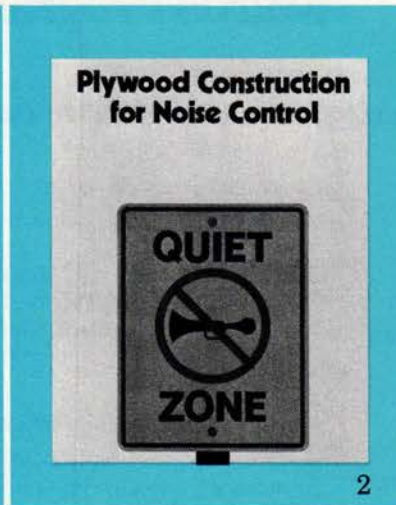
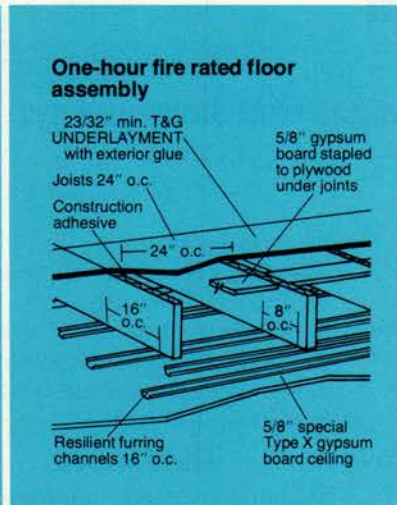
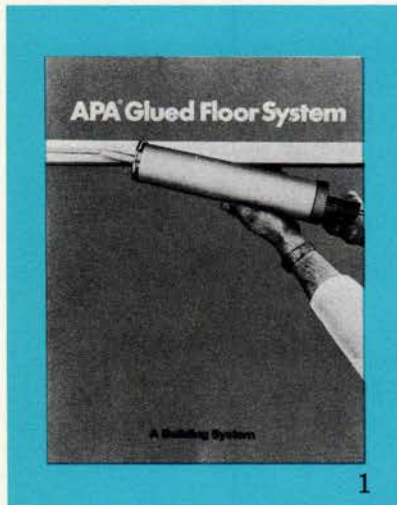
◀ *The Owens-Corning Energy Conservation Award. "Triangles," a Steuben crystal sculpture that captures and reflects light from multiple triangular planes.*

Owens-Corning is Fiberglas



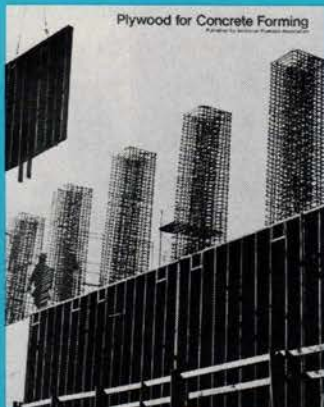
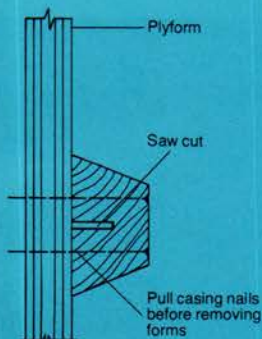
For more data, circle 13 on inquiry card

Plywood's a great design the details



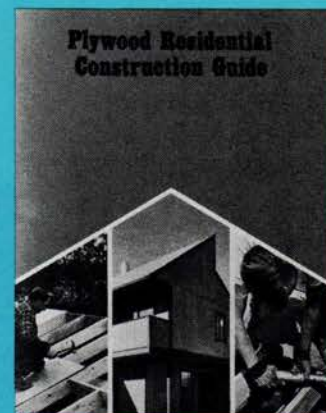
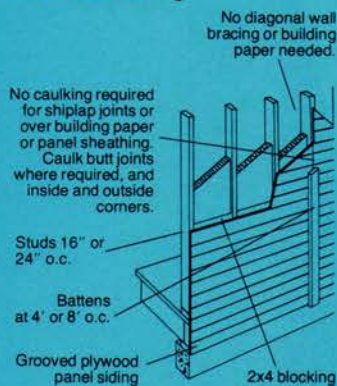
material, and we've got to prove it.

Attaching rustication strips to concrete form panels

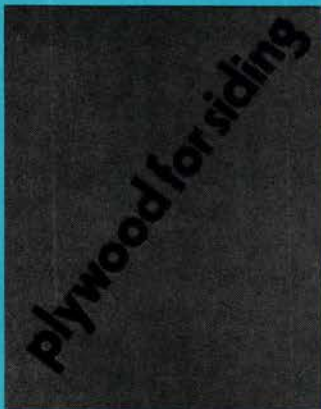


4

Horizontal siding



5

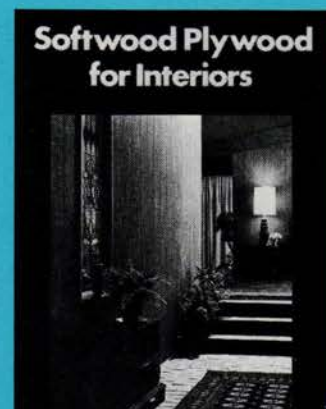
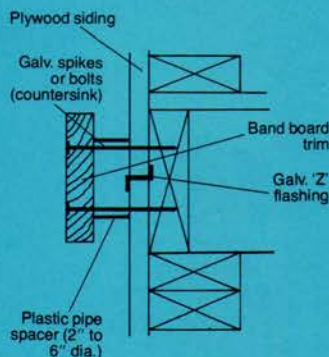


7



8

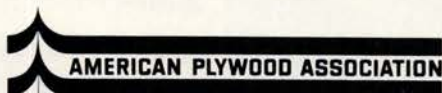
Band board in relief



9

Free plywood design ideas. Help yourself.

We'd like to tell you everything we can about designing with plywood and plywood systems. Circle the number for each book you want and send this coupon to: American Plywood Association, Department AR-067, 1119 A Street, Tacoma, WA 98401.



American Plywood Association Dept. AR-067
1119 A Street, Tacoma, WA 98401

☐ Please send me the following books. 1 2 3 4
5 6 7 8 9 10 11 12

☐ I'd like to talk about plywood design with an APA field man.

Name _____

Firm _____

Address _____

City _____ State _____ Zip _____

Phone () _____

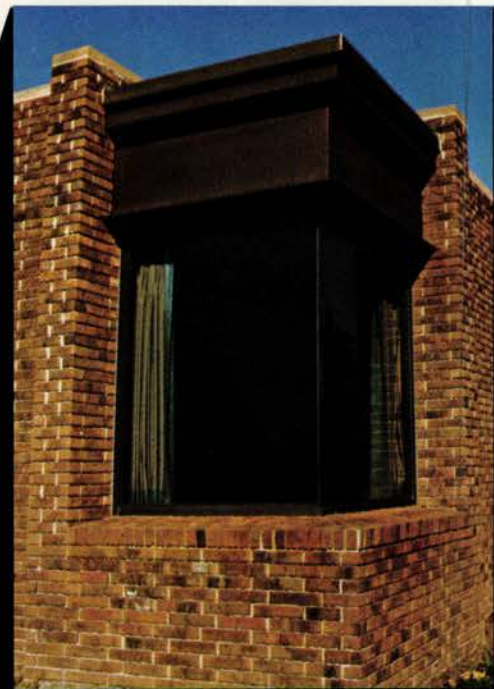
Du Pont now acrylic glazing materials design



Covered walkway provides safety for students at University of Delaware, Newark, Del. Architect: John Carl Warnecke & Associates.



Security glazing protects tellers at Aetna Federal Savings & Loan, Philadelphia, Penna. Architect: Obermaier & Falo.



Windows retain sparkling clarity at Governor Bacon Health Center, New Castle, Del. Architect: Howard Greenhouse.



Decorative panels highlight First National Bank Cafeteria, Denver, Colorado. Architect: Gensler & Associates.

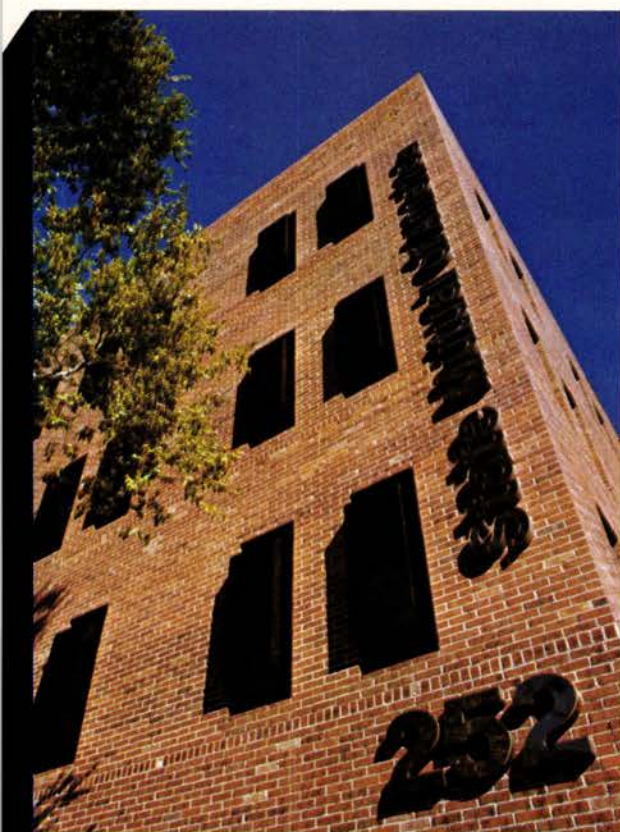


This skylight is representative of the type of skylights now being fabricated with "Lucite" cast acrylic sheet.



Inside view Governor Bacon Health Center.

has two LUCITE[®] to give architects more freedom.



Windows combine beauty and durability at State Mutual of America Building, Denver, Colorado. Architect: Roark Associates.



Spectator glazing protects without obstructing view of game at University of Colorado Stadium, Boulder, Colorado. Architect: Herb Ross.

Now, with two forms of "Lucite" to choose from, you can be more innovative and imaginative than ever. Each offers specific performance benefits so you can select the one that best meets your requirements.

LUCITE[®] cast acrylic sheet

New "Lucite" cast acrylic sheet offers optical clarity greater than glass and up to 10 times the impact resistance for greater safety. Even if breakage does occur, it results in just a few large, easy-to-handle pieces. And "Lucite" keeps its initial beauty and clarity because it's essentially unaffected by prolonged exposure to moisture and natural weather conditions.

"Lucite" is lightweight—only half the weight of glass—so it's easier to fabricate and install. And it's thermoformable, even into compound curves and shapes, for unique styling concepts.

The low thermal conductivity of "Lucite" cast sheet (K 1.2) cuts winter heat losses. And it's available in solar tints to reduce air conditioning energy demand during the summer.

LUCITE[®] AR abrasion resistant sheet

"Lucite" AR abrasion resistant sheet combines all the best properties of "Lucite" cast sheet with a tough, permanent, invisible coating that provides outstanding abrasion resistance. It can be washed again and again with standard cleaners—even with strong detergents—without appearing hazy. It's also resistant to many chemicals, acids, hydrocarbons and alcohols.

You can use "Lucite" AR for those extra-tough applications where long-term clarity is important, such as security glazing in banks, door lights, decorative panels, and spectator glazing in stadiums.

Let "Lucite" cast acrylic sheet and "Lucite" AR abrasion resistant sheet give you more design freedom. Select the one that best meets the requirements of your design, and specify it for your next project. For more information and a test kit that demonstrates the abrasion resistance of "Lucite" AR, just write Du Pont Company, Room 35664, Wilmington, DE 19898. Or, look for us in Sweet's Catalog (8.26 Dp and Du).

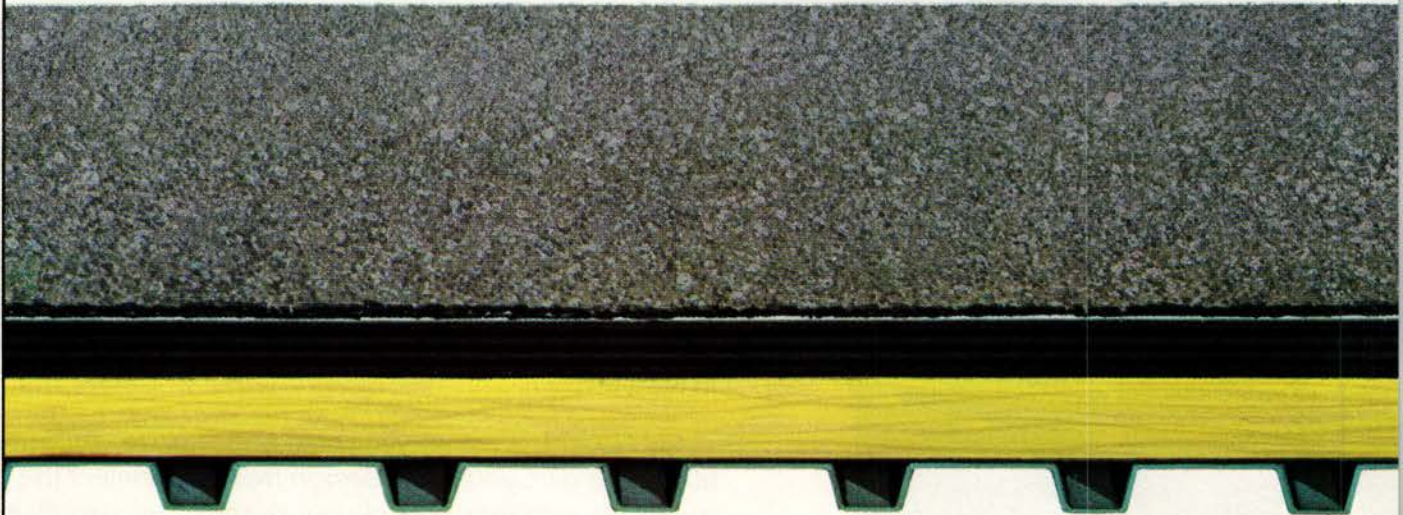
Complies with ANSI Z97.1 1966/72

"Lucite" acrylic sheet is a combustible thermoplastic and, like many other synthetic and natural materials, should not be used in applications where codes or common sense would deem it unsafe.



TESTS PROVE:

**Of the leading roofing systems,
Fiberglas Perma Ply-R withstands thermal shock
better than any other**



©O-C. F. 1977 *Reg. T.M. O-C. F.

The results are in.

Grueling, independent tests by Bowser-Morner Testing Laboratories—using National Bureau of Standards performance criteria for built-up roofing systems—have proven what we've been saying all along:

When it comes to thermal shock performance, our Fiberglas® Perma Ply-R built-up roofing system is superior to conventional systems.

As defined by the National Bureau of Standards, "The Thermal Shock Factor (TSF) is an indicator of the roof membrane's ability to withstand the normal temperature changes of its environment. Values of the coefficient of expansion, tensile strength, and load-strain modulus can be used to calculate the TSF."

The heart of our system is the unique, inorganic Perma Ply-R felt. It works two ways to give the system its strength.

First, when daily temperature changes cause a roof to expand and contract, Perma Ply-R is the best reinforcement it can have. That's because the Perma Ply-R felt is made of strong,

continuous strand glass fibers. So its physical strength characteristics are similar, both longitudinally and transversely.

Second, Perma Ply-R helps create a monolithic roofing system. The strongest kind of system there is. The reason: Perma Ply-R is a porous felt. So it meshes totally with the bitumen.

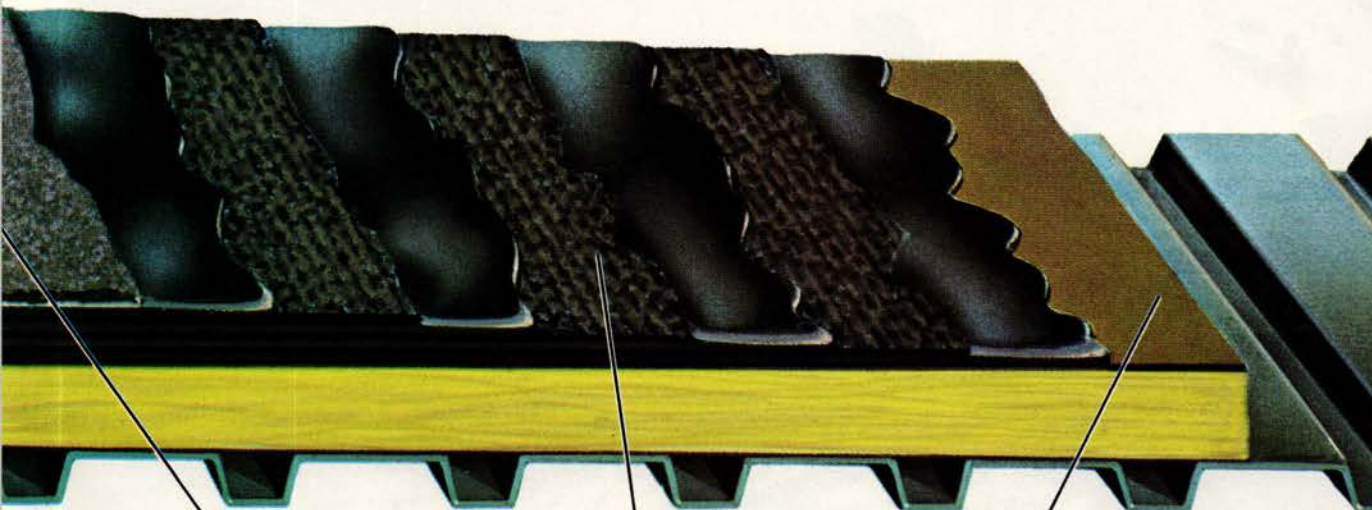
What does all this mean to anyone who's faced with specifying a built-up roofing system?

Simple.

Properly installed, our Perma Ply-R system minimizes the possibility of splitting, blistering, and internal deterioration of membranes. It has the potential to outlast any other BUR system money can buy.

If you want to see the "Thermal Shock Performance Comparisons," please contact your local Owens-Corning representative or write: M.H. Meeks, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

They've got the test results that prove every word.



Our Perma Cap surfacing sheet combines two materials: Fiberglas—so it's tough, won't warp or rot. And inert, non-combustible white ceramic granules that reflect sunlight and help minimize thermal shock.

Our Fiberglas Perma Ply-R is a porous felt. So it can mesh with the bitumen, creating a monolithic roofing system that minimizes interply blistering and adds to the roof's outstanding thermal shock performance.

Our Fiberglas roof insulation has its own Fiberglas reinforced asphalt cover. So the bitumen can be applied directly to it, making the insulation an integral part of the membrane.

Owens-Corning is Fiberglas

OWENS/CORNING
FIBERGLAS
TRADEMARK ®

For more data, circle 15 on inquiry card



**"That factory
in Gorham, Maine,
has 240 tons of
GE Weathertron®
Heat Pumps
on the roof."**



**"You've put on
a little weight
yourself."**

Rowan and Martin currently appear
in ads and commercials for GE.

Before Allied Engineering recommended GE Weathertron Heat Pumps to their client, the Reece Corporation, they made a thorough study of electric, gas and oil heating. They concluded that General Electric's Weathertron Heat Pumps best met the heating and cooling needs of Reece's 90,000-square-foot factory.

"We worked the figures out and the most practical and economical choice was the GE Weathertron. It offered the lowest initial and the lowest maintenance cost of all the systems we considered," says Mr. Rutledge Morton of Allied. "GE service was an important help to us, too, during installation and the 'follow-up' period."

Twenty-four 10-ton General Electric

Weathertron Heat Pumps were installed.

The temperature needs of the Reece plant in Maine have been met consistently throughout the year—even when different temperatures were required at the same time in different parts of the factory. The success of this installation is due both to the flexibility offered by the multiple Weathertron units and to the high operating efficiency of each unit.

For any additional information relevant to your own clients, phone your GE Central Air Conditioning Dealer. He's in the Yellow Pages under "Air Conditioning Equipment and Systems."

**The General Electric Weathertron®...
America's #1 Selling Heat Pump.**

GENERAL  ELECTRIC

For more data, circle 16 on inquiry card

AN ANSWER THAT MAKES THE DIFFERENCE FOR HUSHING THE BUSY SOUNDS OF BUSINESS...



Solitude Tile is $\frac{5}{8}$ " x 12" x 12," beveled, kerfed and rabbeted for installation with concealed mechanical system...or it may be applied with adhesive.



SOLITUDE CEILING TILE.

Put the ceiling on noise in main banking offices, building foyers and other high traffic areas...in a very practical way. Gold Bond Solitude provides the unmatched beauty of 12" x 12" tiles...plus easy maintenance, fire safety and acoustical efficiency. Without any compromises.

These noncombustible tiles have a Class 25 rating, and an NRC of .50. And the scrubbable P/C Plasticrylic finish is standard. So you know they resist stain-

ing...and are easy to clean when necessary, without affecting their sound absorbing ability.

Solitude Tiles are available in two handsome patterns, Fissured and Non-directional, to match Gold Bond Solitude

Ceiling Panels. Now you can put Solitude overhead in an entire building...tiles in ground-level public areas, panels in upper-floor offices.

For all the facts you need, call your local Gold Bond representative, refer to Technical Information Bulletin 9-4384, or write Gold Bond Building Products, Division of National Gypsum Company, Dept. AR6, Buffalo, New York 14202.



Gold Bond Building Products

DIVISION OF NATIONAL GYPSUM COMPANY • BUFFALO, NEW YORK 14202

For more data, circle 17 on inquiry card

NEWS REPORTS
HUMAN SETTLEMENTS
BUILDINGS IN THE NEWS
REQUIRED READING

President Carter's eagerly awaited energy program was offered to Congress last month. The legislative proposals would include standards for new buildings and money to retrofit old ones. Unlike the sections covering fuel production and consumption, the sections affecting construction are likely to move through Congress with little difficulty and with only minor changes. Details on page 34.

March contracts for new construction moved nine per cent ahead of last year's figures to total \$9,936,784,000, according to the F. W. Dodge Division of McGraw-Hill Information Systems Company. Nonresidential contracts, at \$3,002,531,000, were up 22 per cent, with a strong showing in the commercial and industrial sector. "Almost all of March's increase was concentrated in commercial and industrial building contracts (up more than 40 per cent), as institutional building value was little improved over last year's amount," said George A. Christie, Dodge chief economist. Residential contracts gained 42 per cent to reach a record dollar volume of \$5,149,193,000, while nonbuilding contracts, which recorded not a single new electric power project, fell 41 per cent.

Sert, Jackson and Associates of Cambridge, Massachusetts, have received the Architectural Firm Award for 1977 from the American Institute of Architects. Jose Luis Sert, then Dean of Harvard's Graduate School of Design, Huson Jackson and Paul Zalewski founded the firm in 1958; they were later joined by principals Paul H. Krueger and William Lindemulder. Conferring the honor on the firm, the AIA Jury on Institute Honors called its work "a humanist endeavor to enrich the quality of life through the physical environment."

Eliel Saarinen's Christ Lutheran Church in Minneapolis will receive the AIA's 25-Year Award, an honor conferred on architectural design of enduring significance and restricted to structures at least 25 years old. Saarinen's last completed work was designed in association with his son Eero and with Hills, Gilbertson and Hayes, and was completed in 1950. The AIA jury praised the building as "a living symbol of architectural integrity providing inspiration to countless architects attempting to understand the unique requirements of a changing church."

Richard Meier, FAIA, has received the \$25,000 R. S. Reynolds Memorial Award for his design of the Bronx Developmental Center in New York City. Details on page 35.

The AIA has distinguished 17 architectural designs in its 29th Annual Honor Awards Program, including six projects receiving Honor Awards for Extended Use and five receiving Bartlett Awards for their attention to the needs of the handicapped. Details on pages 41-43.

The U.S. League of Savings Associations has undertaken a major study on financing neighborhood rehabilitation in an effort to ward off unwanted government controls. Details on page 34.

The Administration proposes to reduce capital spending for hospitals by 50 per cent—much of that money intended for the new construction. Details on page 37.

A National Advisory Committee on Earthquake Hazard Reduction would be established by legislative proposals now under consideration by both houses of the Congress. Details on page 37.

Architect Robert S. Hutchins, FAIA, of New York City, has been elected president of the National Academy of Design. He succeeds Alfred Easton Poor, FAIA, who had served since 1966. At the same time, the Academy announced the election of Lawrence B. Anderson, FAIA, as an Academician.

The Second Annual Building and Construction Exposition and Conference will be held November 1-3 in Chicago at the Merchandise Mart under the aegis of the Producers' Council. The 1977 BCEC, designed to attract architects, engineers, contractors, building owners and operators, developers and producers, will include an Alternate Energy Conservation Division for solar, wind and geothermal energy systems and energy conservation products.

The American Academy in Rome has named recipients of its 1977-78 Rome Prizes in Architecture and Design: Judith DiMaio, Lexington, Kentucky, for Architecture, and Gordon Corcoran Baldwin, Taos, New Mexico, and Donald Lee Peting, Eugene, Oregon, both for Environmental Design. The fellowships each carry about \$10,000 in expenses and stipend for a year's study at the Academy.

The second edition of "Hospital/Healthcare Building Costs," published last month, offers construction professionals in this field such material as average cost figures for different types and qualities of structures, a 183-city index for making local cost adjustments, and case histories. Available for \$42 (prepaid, with appropriate sales tax) from Dodge Building Cost Services, Room 2051, McGraw-Hill Information Systems Company, 1221 Avenue of the Americas, New York, New York 10020.

President Carter offers his comprehensive energy program to Congress

Jimmy Carter may not be able to win approval of his entire energy program, but those portions dealing with the built environment seem assured of favorable Congressional action. As a result, new business opportunities should open up for construction designers and builders who will be employed to improve the energy efficiency of buildings and homes.

The debate over the President's plan centers on various proposals to reduce gasoline consumption in automobiles and to manipulate the price of oil and natural gas. By contrast, the sections dealing with more energy efficiency in buildings and homes are winding their way through the law-making process with relatively little notice.

Congress is sure to put its stamp on the buildings section. The changes are likely to be minor, while the thrust will remain the same as that offered by President Carter.

Interest groups were at work immediately upon Carter's announcement, quibbling with some details and seeking modifications in their self-interest. The President expected as much.

John M. McGinty, president of the American Institute of Architects, wired the President to pledge the organization's support, saying "this is one interest group that won't fight" the proposed measures.

A couple of weeks later, however, an AIA spokesman went to Capitol Hill to argue against two legislative proposals—one requiring life-cycle cost-benefit analysis, and another establishing solar equipment standards. Neither were specifically part of Carter's plan, but both could be lumped in with what is now being considered a comprehensive energy program.

Herbert Epstein, an Institute vice president, said the two popular proposals had laudable goals, but said they could actually frustrate energy savings objectives. He warned that life-cycle analysis is subjective and

might result in a finding that energy efficiency was unnecessary. Solar standards, Mr. Epstein said, could stifle technological innovation.

Be that as it may, most organizations representing construction designers and builders applauded Carter's plan and offered encouragement. Homebuilders, professional engineers, mortgage brokers, and contractors, reacted favorably.

A notable exception was Don Gilchrist, president of the National Association of Home Manufacturers. "Carter and his people are throwing insulation at the problem," he complained, "and the problem is the whole building envelope and everybody knows it except them."

Mr. Gilchrist proposes the use of existing model codes "that are there and ready to go." But, he adds, "We've heard nothing really specific from Carter on new buildings."

Actually, Carter did—at least obliquely—address the problem of new buildings. He ordered his Department of Housing and Urban Development to advance the writing of new energy efficiency building codes, expressed in performance terms, within one year. While this proposal was lost in the debate over other matters, it is significant that Carter does not need Congressional concurrence. By executive fiat, the President ordered the new code into use by September 1, 1980—that is, a year earlier than the deadline imposed by last year's energy legislation. Virtually all code-writing jurisdictions must go along, or builders there will be unable to use Federally insured or chartered lending institutions.

Joseph Sherman, who heads the office at HUD writing the codes, says the implementation date will be moved up one year by compressing the code preparation time about six months and by winning their enactment on the local level six months more quickly than planned.

Carter made a deliberate effort to boost solar technology into a major in-

dustry. He proposed fat tax credits—up to 40 per cent—for homeowners willing to buy and install solar appliances, at the same time promising businessmen faster write-offs and investment tax credits for their use. He also proposed a major purchase of solar equipment for Federal office buildings in a move calculated to interject economies of scale in solar equipment manufacture.

Only in those areas of Carter's plan which place new responsibilities on electrical and natural gas utilities are the new programs subject to tough lobbying. The proposal to force the utilities to provide energy efficiency analysis and improvements, and then to bill the homeowners for the cost of this effort, is particularly controversial. This, too, is expected to get approval though perhaps with modification.

Carter's energy campaign may result in benefits even before specific legislative proposals are enacted. For example, the National Association of Home Builders took the occasion of Carter's announcement to report that it has developed a set of energy conservation guidelines for its members. These guidelines are the product of a special committee on energy headed by builder Ivan Wohlworth of Long Island, New York. If followed, the NAHB says, they will result in a 16 per cent increase in energy efficiency over present practices. A greater improvement is hard to achieve, an association official says, "because we found builders are doing a pretty good job already."

Once in use, the NAHB guidelines would enable a builder in any section of the country to determine what sort of energy conservation materials and practices he should adopt in his market. "Rate cost, climate cost—everything—will be plugged into it," says an association spokesman. "And it will be easier to understand" than other similar guides for homebuilders.—William Hickman, *World News, Washington*.

S&Ls will write a program for city neighborhood lending

The Carter Administration is committed to an enlarged Federal program for neighborhood preservation—which means using incentives, loan guarantees, grant programs, tax credits or other financial leverage to modernize housing and to build the infrastructure to forestall neighborhood blight.

The lending industry, which has been under heavy fire for redlining and otherwise contributing to the decline of central city housing, is at work trying to come up with a plan of its own that would stave off unwanted Federal regulation. The U.S. League of Savings Associations hired Nathaniel H. Rogg, recently retired executive vice president of the National Association of Home Builders, "to draft a program aimed at expanding the housing rehabilitation industry, including the promotion of increased lending in city neighborhoods."

The idea, according to League president John A. Hardin, is to "propose ways of involving in rehabilitation work some of the residential construction resources—expertise, management, equipment and labor—now concentrated in new construction."

Mr. Rogg agrees that now many S&L loan officers know how to make inner-city loans. There is a different risk, he says, compared to their normal practice of lending only to the affluent who are financing homes in the best suburban neighborhoods. He says, "No big national program is going to solve the problem." But he adds that the leadership of the S&L industry "knows they'd better get into this."

The savings and loans have favored co-insurance of riskier loans, which would have the Federal government taking perhaps 80 per cent of the risk, but there is no unanimity on this.

Jonathan Brown, with Ralph Nader's Public Interest Research Group, thinks co-insurance will be the Administration's answer in the end. In addition, HUD Assistant Secretary Larry Simons says that, given the fiduciary responsibility of the S&L's, "There has to be a [government] guarantee down the road."

One of the most successful neighborhood revival programs is that of the Urban Reinvestment Task Force, run by William Whiteside under the sponsorship of the Federal Home Loan Bank Board.

The task force, operating through the "neighborhood housing service," has organized neighborhood groups in 50 cities, bringing in city officials and local banks to help homeowners catch a declining neighborhood before permanent blight becomes inevitable.

Mr. Whiteside is fighting attempts by Federal officials and legislators to make a "national program" out of something that has been successful in large part, he claims, because he has insisted on small projects and slow growth.—Donald Loomis, *World News, Washington*.

Carter's energy program in brief

- Building codes: HUD is ordered to promulgate mandatory performance building codes for energy conservation by September 1, 1980—a year earlier than had been scheduled. This means that all jurisdictions will have to adopt the codes, or builders there will risk borrowing sanctions.
- Conservation loans: the government will open a secondary market for residential energy conservation loans through the Federal Home Loan Mortgage Corporation and the Federal National Mortgage Association to ensure that capital is available at reasonable rates from private lending institutions.
- Insulation tax credits: homeowners will be entitled to a tax credit of 25 per cent of the first

\$800 and 15 per cent of the next \$1,400 spent on conservation measures, if the spending occurs between April 20, 1977, and December 31, 1984.

- Installation labor: recipients of funds from the Comprehensive Employment and Training Act (CETA) will provide labor for the weatherization program for low-income families.

- Master metering: the government would outlaw a single master electric meter for a structure, such as an apartment house, and insist instead on metering for each individual unit.

- District heating: utility commissions will encourage district heating schemes, such as small central steam plants, through regulatory

provisions involving siting certification and rate-making rules.

- Appliances: mandatory energy efficiency standards for appliances such as air conditioners, furnaces, water heaters and refrigerators will be set as soon as possible.

- Utility assistance: gas and electric utilities would offer customers a residential energy conservation audit and then, if necessary, would install energy efficient equipment and offer loans to be repaid on monthly utility bills.

- Low-income assistance: the existing low-income residential conservation or weatherization program will increase to \$130 million in fiscal year 1979 and to \$200 million in the two subsequent years.

The 1977 Reynolds prize goes to Richard Meier

Richard Meier, FAIA, of New York City, has received the 1977 R. S. Reynolds Memorial Award for his design of the Bronx Developmental Center, a complex planned for the training and housing of the mentally retarded. The award, which carries a \$25,000 honorarium, is conferred annually for distinguished architecture using aluminum. (This is the second award bestowed on Mr. Meier's building within a month; see AIA Honor Awards story on pages 41-43.)

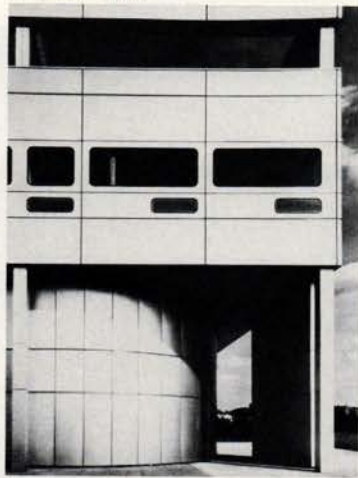
Commissioned seven years ago for New York State's Department of Mental Hygiene, the complex has lately been entangled in a great controversy over the proper treatment of people with developmental disabilities. Its opening and even the completion of its interiors have been delayed by a public debate whether institutionalization should be the preferred method of handling these patients.

Whatever the merits of that disagreement, however, no one disagrees that the building is a masterly work of architecture—critic Ada Louise Huxtable has called it “a landmark before its doors open.”

The center comprises two main buildings—one for resident patients, and one housing educational facilities for residents and outpatients. The buildings are joined by the gymnasium wing at one end and by two bridges—one of them enclosed—spanning and defining the large interior courtyards. The residential building, where curvilinear stair towers mark discrete wings, will house 384 patients in small units designed to maintain an intimacy of



Ezra Stoller © ESTO



family-like groupings—a group of eight will share a suite containing three bedrooms and a living room, and two of these groups will share dining and recreational facilities. The education wing contains classrooms as well as a cafeteria and offices, and the gymnasium wing provides a swimming pool and other therapeutic and athletic facilities.

To the passing motorist, however, it is the bright taut skin wrapping and dramatizing the building's form that rivets the eye. The panelization system—there are 15 different panel configurations—produces a fenestration pattern of ordered complexity. Various shaped penetrations in the

natural-colored aluminum panels accept round-cornered lights: long horizontal windows in classrooms and corridors, smaller windows—and corner windows—in the residential units, small floor-level windows, offering a view out to children playing on the floor, represent one of the measures taken to expand the sensory impressions offered to patients.

In addition to the honorarium, Mr. Meier will also receive, as part of the award, an aluminum sculpture specially commissioned from Ilya Bolotowsky. Members of the jury were Louis de Moll, FAIA, Robert B. Marquis, FAIA, and last year's award winner, Norman Foster, RIBA.

East Germany restores Gropius's Bauhaus workshop for its 50th anniversary

Wolf Lücking



Walter Gropius's Bauhaus workshop building at Dessau, East Germany, is the very embodiment of modern architecture and the International Style. To celebrate the 50th anniversary of its dedication, the national government and the town of Dessau restored the building, now a protected landmark, to its original condition.

Abused during Hitler's regime, the building suffered grievous damage during World War II, when, among other devastations, the famous glass curtain wall was completely destroyed in bombing. The structure was enclosed to provide much-needed shelter immediately after the war, but these emergency repairs altered the

building's appearance almost beyond recognition.


The team of restoration architects and artists, who had assistance and advice from former Bauhaus members now living in East Germany, worked with special care, even constructing a mock-up of the curtain wall. (A plan to use thermal glass here was rejected

when it proved that the heavy millions required would destroy the proportions of the original fenestration. Plate glass was installed instead, as in the original building.)

The floor plan of the building, which had been adapted to a variety of uses over the years, was restored, as were the colors and wall decorations conceived originally by Gropius and the Bauhaus workshop. In addition, 160 metal chairs designed for the building by Marcel Breuer, and reconstructed from photographs, were installed.

On December 4, 1976, 50 years after the building's first dedication, the East German government arranged a gala attended by former members of the Bauhaus and by scholars from both East and West Germany. Suggested uses for the restored building include a school and a museum of Bauhaus-produced objects such as ceramics and hangings. A number of plays have already been produced in the theater.

Further restorations of Gropius' buildings are also planned, among them the Faculty Houses for the Bauhaus masters, the Unemployment Office, and housing for Dessau-Toerten.



Red cedar shakes help a church convert a barn.

How do you convert a structure of different exterior elements into a form that offers both a warm appearance and consistent scale?

The architect of this Illinois church, originally a barn, specified a natural solution. Red cedar handsplit shakes.

"I chose handsplit shakes for a couple of reasons. First, to bring visual

unity. The only other surface product is the original brick, with which the shakes blend handsomely.

"Also, cedar shakes require practically no maintenance, which was an important consideration."

The warmth offered by the shakes is more than visual, since red cedar is a superior insulator as well. And, by the fact that the courses are overlapped and nailed together, the shakes have actually strengthened the original frame.

For your next project, consider the natural advantages . . . give red cedar shingles or handsplit shakes an opportunity to convert you.



These labels on red cedar shingle and handsplit shake bundles are your guarantee of Bureau-graded quality. Insist on them.

For information on "How to Specify," write

Red Cedar Shingle & Handsplit Shake Bureau

Suite 275, 515-116th Ave. N.E., Bellevue, WA 98004
In Canada: 1055 West Hastings St., Vancouver, B.C. V6E 2H1

For more data, circle 19 on inquiry card



AIA retrofits headquarters for energy conservation

Energy consumption in the headquarters building of the American Institute of Architects will be reduced by one half under a retrofit effort now being planned. Institute officials want the structure to be an energy efficiency model for the nation.

In announcing the program, the Institute said the four-year-old building is already more efficient than most similar structures, but because it was designed—by The Architects Collaborative—and built before the era of energy consciousness, it reflects the “national attitude” that energy would always be plentiful and inexpensive.

Specific steps to improve energy efficiency have not been determined, but options include a reduction in artificial lighting and cutting the solar heat load.

The prime consultant for the work is Sizemore and Associates of Atlanta, with the engineering assistance of Newcomb and Boyd.—*William Hickman, World News, Washington.*

Administration cuts funds for hospital construction

The Federal government plans a further reduction in the amount it is willing to pay in support of the construction of new hospitals.

This became clear last month when the Administration provided details for its hospital cost containment program. There is a proposal for a 50 per cent cut in capital spending—most it meant for new construction.

The slash is substantial, since Federal support for capital spending is now running at about \$5 billion annually. But the country can easily absorb the cut, the Administration reasons, because roughly 100,000 of the more than 900,000 hospital beds in place are not needed.

The Administration also proposes to limit increases in in-patient revenues by roughly 6,000 acute-care hospitals in the nation.

Congress is expected to okay the construction spending reduction.—*Michael Mealey/William Hickman, World News, Washington.*

Proposed law would create earthquake advisory group

Legislation intended to reduce damage from earthquakes through government-sponsored development of economical earthquake resistant structures and materials seems assured of Congressional approval this year.

Both houses of Congress are considering the proposal, which has generated little opposition. The bills call for three-year funding, beginning with \$690 million in fiscal year 1978 and continuing with \$80 million in fiscal 1979 and \$85 million in fiscal 1980.

The legislation calls for creating a new 15-member National Advisory Committee on Earthquake Hazard Reduction. The chairman is to be ap-

pointed by the President, with the other members drawn from research institutions, government, and industry.

As stated in the legislation, the basic purpose is to perfect earthquake technology and to develop design and construction methods for areas of high seismic risk.

Functions of the program would be divided between the U.S. Geological Survey and the National Science Foundation, with half a dozen other agencies contributing.—*Seth Payne/William Hickman, World News, Washington.*

Mass transit may receive transferred highway funds

The Highway Trust Fund, long considered sacred, may come in for changes under the Carter Administration.

The Federal Highway Administration (FHWA) is preparing to offer a plan for the transfer of Trust Fund money into a surface transportation fund. Doing so should mean more money for urban transit systems.

William M. Cox, Highway Administrator, says that changing the Fund's mission is an option in an upcoming reorganization of the Department of Transportation.

“A unified fund would more adequately reflect the interdependency of one mode on the other,” says Mr. Cox. He concedes that road construction would not get the same level of funding that it gets now, but it may be unnecessary. Once the interstate highway system is completed, the Highway Administration will be reduced to just two functions: researching highway programs and funding highway maintenance.—*Roger Smith/William Hickman, World News, Washington.*

Carter Cabinet ferments ideas for urban rehabilitation

The Carter Administration's plan for tackling urban rehabilitation will be explained to skeptical city officials in mid-June against a scramble by three Cabinet officers who want this job for their own departments.

Treasury Secretary W. Michael Blumenthal touched off the rivalry recently when he proposed an “urban bank” to help market city debt instruments and to make loans to developers. This idea may lose favor, however, because it threatens to create a new bureaucracy and may distort the municipal bond market.

Another suggestion, by Commerce Secretary Juanita M. Kreps, has her department's Economic Development Administration (EDA) combining grants and loans to help private developers play a larger role.

Still another scheme is proposed by Secretary Patricia Harris of the Department of Housing and Urban Development. It would combine an EDA-like agency and the already proposed \$400-million “action grant” to finance specific urban rehabilitation projects.—*Herbert Cheshire/William Hickman, World News, Washington.*

HUMAN SETTLEMENTS: WORLD NEWS

HABITAT plus one: what gives?

On the first anniversary of HABITAT: the UN Conference on Human Settlements held last year, and in answer to RECORD's curiosity about the real consequences of that event, the UN's Eric Carlson submits this report on human settlements activity over the last year. Mr. Carlson, who is with the United Nations Environment Programs (UNEP) in Nairobi, was a guiding light in the preparatory stages of HABITAT and has followed both the conference and its aftermaths with close attention. His report will appear in two parts: this month he discusses actions taken—or not taken—by UN bodies, and in July he will conclude with a view of recent governmental and non-governmental efforts influenced by HABITAT.

A year has passed since HABITAT: the UN Conference on Human Settlements, held in Vancouver after three years of preparatory efforts in all regions, and costing millions of dollars. HABITAT was to begin the building of a new international order for human settlements, where people's shelter would find its priority place in national planning endeavors. It produced 230 films and a mountain of documentation and national reports. It also produced a declaration of principles, 64 recommendations for national action, and an inconclusive resolution on an international program.

But was it all simply show-and-tell? What actions have really been taken since HABITAT adjourned? And what remains to be done?

On the official scene, the UN General Assembly took up the HABITAT Conference recommendations at its 31st session in New York, but still did not “bite the bullet” regarding the decisions required to establish an international program for human settlements. Instead, the General Assembly decided to defer until its session this fall action on the type of intergovernmental body for human settlements and on the “organizational link” and location of the proposed human settlements secretariat. In effect, the General Assembly passed the buck by requesting that the UN Economic and Social Council (ECOSOC) at its session in Geneva in July 1977 take up the whole matter of follow-up to the HABITAT Conference at the “expert or highest appropriate level” and submit to the General Assembly “concrete recommendations on definitive institutional arrangements for human settlements within the [UN] system.”

The General Assembly did, however, adopt six resolutions and two decisions in response to HABITAT. Some of the key operative paragraphs:

1. “Urges the Governments of all member states to consider, on a priority basis, the recommendations for national action contained in the report and to take those recommendations into account when reviewing their existing policies and strategies in the field of human settlements.”

2. “Calls upon the regional commissions and urges all other international organizations within and outside the [UN] system to take intensified and sustained action in support of national efforts, including exchanges of information and assistance . . . in the formulation, design, implementation and evaluation of projects to improve human settlements.”

3. “Requests the Secretary General to convene regional meetings . . . to establish guidelines for the coordination, within each region, of action to be taken in order to deal with human settlements and to report to the General Assembly on the results of their deliberations no later than at the 32nd session.”

4. Requests member states and the Secretary General “to bear in mind the measures that protect the decent living environment of the most vulnerable social groups, such as children, youth, the elderly and the handicapped.”

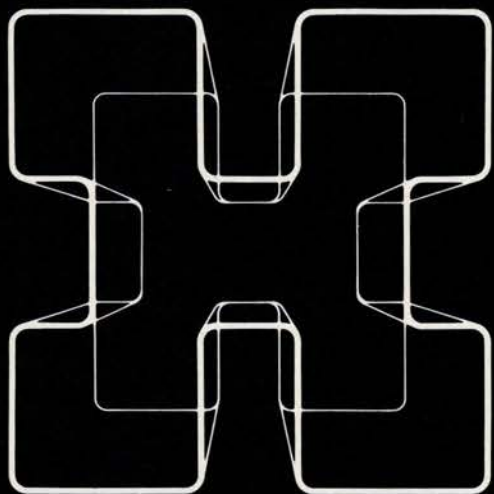
5. Invites the Secretary General to ensure that the international bodies responsible for implementing HABITAT recommendations “study the specific possibilities and effective conditions for collaboration between the [UN and] non-governmental organizations.”

6. “Authorizes the Secretary General to conclude an agreement with the appropriate Canadian authorities for the latter to provide the facilities and financial support to the [new] UN Audio-Visual Information Center to carry out the Center's responsibilities for the custody, reproduction and international distribution, [and] to ensure the widest possible use of the material by governments and other interested bodies, for the period up to March 1980, of the audio-visual materials prepared for the Conference, and calls for a review of the agreement in 1979.”

7. Requests all the United Nations bodies concerned, particularly the United Nations Development Program, the United Nations Environment Program, the Center for Housing, Building and Planning, and the United Nations Habitat and Human Settlements Foundation, to ensure that the recommendations of HABITAT are taken into account in their respective terms of reference, and to make their consultative services and resources available, as appropriate, for the implementation of national programs of action and in strengthening regional cooperation.

8. As for the two draft decisions transmitted by ECOSOC, one refers to the United Nations Habitat and Human Settlements Foundation, and “affirms the significant role of the Foundation in promoting the implementation of the objectives and recommendations of HABITAT; invites the Foundation to promote regional cooperation for human settlements; invites non-governmental organizations, financial and other institutions to collaborate with the Foundation . . . ;

continued on page 39



NOW is the time to review your client's values for selecting a flexible office interior.

If your client is like most users,
those values will include:

- ☐ Full-height and open plan
privacy options
- ☐ Cost and ease of change
- ☐ Space and energy utilization
- ☐ Employee productivity

The Hauserman Office System
addresses these values and others
with effective responses for flexible
office interiors.

Let us help to fill your
needs for space division, work
surfaces, desks, storage, power
and communications interfaces,
graphics and accessories . . .
and now, lighting.

Plan to see Hauserman
at NEOCON 9 — **Space 1012**,
Merchandise Mart.

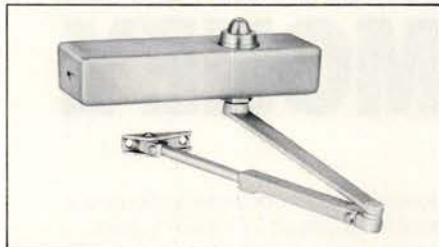
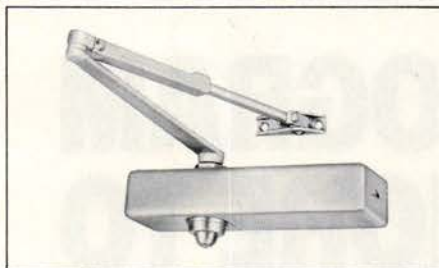
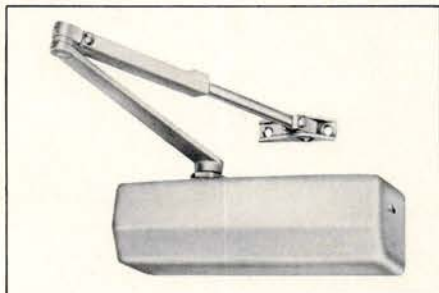


Hauserman Inc. • 5711 Grant Ave., • Cleveland, OH 44105 • (216) 883-1400
Hauserman Ltd. • 125 Bethridge Road • Rexdale, Ontario, Canada • (416) 743-3211
Showrooms: Space 1012 Merchandise Mart • Chicago, Il. 60654 (312) 822-0750
489 Fifth Avenue • New York, New York 10017 • (212) 687-7930

P.S.^{T.M.} It's not just a post script.
It can be the difference
between planned storage . . .
and chaos.

Two million cycles of testing to tough ANSI specs prove the reliability of the Russwin 2800 Series door closer.

A continuous, 2 million cycle test, conducted by Electrical Testing Laboratories, Inc., documents the dependable design and performance of the Russwin 2800 Series door closer.



Tested to ANSI specification A156.4-1972, the closer was door-mounted under a static load and activated every 4 to 6 seconds over an eight month period. In post-cycling, static tests, it functioned flawlessly in every area of operation: range of checking control; adjustable closing speed; closing force; closing efficiency and cylinder operations. Qualified in every respect as an ANSI Grade I door closer. Ever-enduring cast iron alloy body.

On institutional building projects, specify the Russwin 2800 Series door closer... the closer that made the grade. Write for more details on the complete Russwin line of dependable door closers.



HARDWARE DIVISION, EMHART INDUSTRIES, INC.
BERLIN, CONNECTICUT 06037



For more data, circle 21 on inquiry card

HUMAN SETTLEMENTS

continued from page 37

urges governments to support the Foundation on a voluntary basis [and to promote] the implementation of the objectives and recommendations of the Conference; and affirms that the Foundation should be appropriately strengthened so that it may achieve the full potential envisaged for it. . . ."

These conclusions hardly reflect the maneuverings that took place during General Assembly discussions, as one draft resolution after another was tabled in the effort to line up sufficient support on the institutional arrangements question. But the ball is now in the court of ECOSOC, a body of 58 member states, which will have special sessions this month in Geneva to come to grips with the questions of international institutional arrangements.

Meanwhile, at the regional level, there is considerable progress. For Latin America it has been decided that there will be a regional office for human settlements established in Mexico, under the wing of CEPAL, the UN Economic Commission for Latin America. For the African region, it has been agreed also that an intergovernmental committee on human settlements will be established, with a strengthened secretariat, to function under the Economic Commission for Africa. ESCAP, the UN Economic and Social Commission for Asia and the Pacific, held its regional meeting on HABITAT in May, in Bangkok. All of the regional activities will benefit from support of UNEP for research and demonstration projects on innovative "human settlements technology."

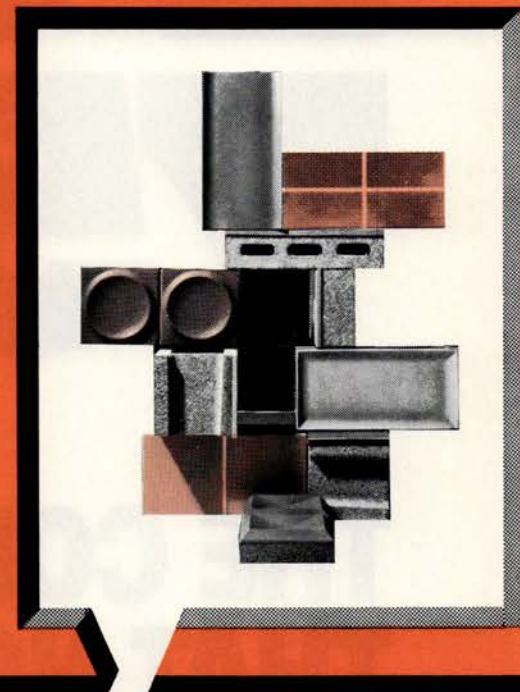
The new UN Audio-Visual Information Center for Human Settlements, established at the University of Vancouver, is also progressing. A group of international experts met last month in Vancouver to propose a series of suggestions for its policies and operations. Canada will give this Center significant support to ensure that the audio-visual presentations prepared for HABITAT will receive worldwide utilization and distribution.

Another important area is that of financing. The UN Habitat and Human Settlements Foundation convoked an International Workshop on Housing Finance in London in March for a selected group of experts from developing countries as well as representatives of key financing institutions, including the World Bank and regional banks. The Workshop developed a series of recommendations for expanding the flow of international capital in the field of human settlements, taking special account of the requirements of long-term investment in conditions of inflation. The Workshop recommended that an international housing investment service be established where client countries and potential investors could come to grips with investment package requirements for different situations, including guaranty terms.

To be concluded in July.

For more data, circle 22 on inquiry card

Build. Save Money. SAVE ENERGY all in one operation!



ENERGY. Naturally superior U-factors of lightweight block enhanced with granular fill.

INSURANCE. Maximum security at lowest cost with fire-rated walls.

GOV'T. REGS. Meet USDA & OSHA specifications for health, sanitation and safety.

MAINTENANCE. No refurbishing ever. Permanent factory finish cannot peel or blister. Easy to clean and keep clean.

CONSTRUCTION. Build & finish in one operation. Large block go up faster. One trade. Thru-wall load bearing units eliminate expense of back-up wall. Job-site delivery.

APPEARANCE. 48 colors. Plain, scored or sculptured faces.

© U.S. Pat. Off., Can., & other countries by
THE BURNS & RUSSELL CO., Box 6063, Baltimore, Md. 21231.
301/837-0720. 4.4/Bu in SWEET'S ©

Have you used NEW

Spectra-Glaze II®

GLAZED BLOCK WALLS

lately?

E CUBE 75

THE COMPUTER PROGRAM THAT NOW DOES MORE TO SAVE ENERGY AND MONEY.

The new, improved E CUBE 75 produces an accurate, three-part Life Cycle Energy Analysis at low cost. With many new features it computes the hour-by-hour energy requirements of your building or planned building for an entire year — taking into account all weather, design, operation, and occupancy factors.

Air Side Systems Simulations.

E CUBE 75 can now handle Variable Air Volume (VAV) systems directly. It also offers expanded treatment of Multizone, Dual-Duct, and Reheat air distribution systems. The energy consumption of various air side systems can be predicted — you can compare their performances and costs, and pick the one that's best. Other improvements make E CUBE 75 more complete and easier to use.

Energy Systems Simulations.

E CUBE 75 can simulate many different energy systems — from central stations to rooftops. It projects all costs, so you can choose the system or combination of sys-

tems that will work most efficiently and most economically for you.

E CUBE 75 is Inexpensive. For example, a life cycle energy analysis of a large building with 8 zones, 2 air side simulations, 4 system simulations and 4 economic comparisons costs less than \$160.

E CUBE 75 is Accurate. That's what it says in HUD Report "Study of Computer Utility Analysis." E CUBE is the most advanced program in this field with thousands of runs made by people in private practice, industry, American Gas Association member companies, and the U.S. government.

E CUBE 75 is Private. You give your information directly to the computer. Your project data and the results are never seen by any third party. Of course, we stand ready to provide assistance at your request.

E CUBE has been a big help to thousands. And the New Improved E CUBE 75 can help you even more to make the right decision. Right financially, and right for conserving America's energy.

For more information, or details of Seminars for new and advanced E CUBE 75 users, mail in the coupon or call Stephen A. Lewis (703) 524-2000.

Stephen A. Lewis, Manager
Energy Systems Analysis
American Gas Association
1515 Wilson Boulevard
Arlington, Va. 22209.



- ☐ Send more information on E CUBE.
☐ Send information on Seminars.


Name _____

Address _____

City _____

State _____ Zip _____

**ENERGY CONSERVATION
UTILIZING BETTER ENGINEERING**

AGA American Gas Association 

For more data, circle 23 on inquiry card

The AIA bestows Honor Awards on 17 buildings in its 29th annual program

The American Institute of Architects, in its 29th Annual Honor Awards Program, distinguished 17 architectural designs, including six projects receiving Honor Awards for Extended Use. Five of the Honor Award winners also received the Bartlett Award for their attention to the needs of the handicapped.

This year, the jurors formally added energy conservation as a criterion for their judgments, although at the same time they kept in mind

"the premises upon which the buildings were designed. . . ."

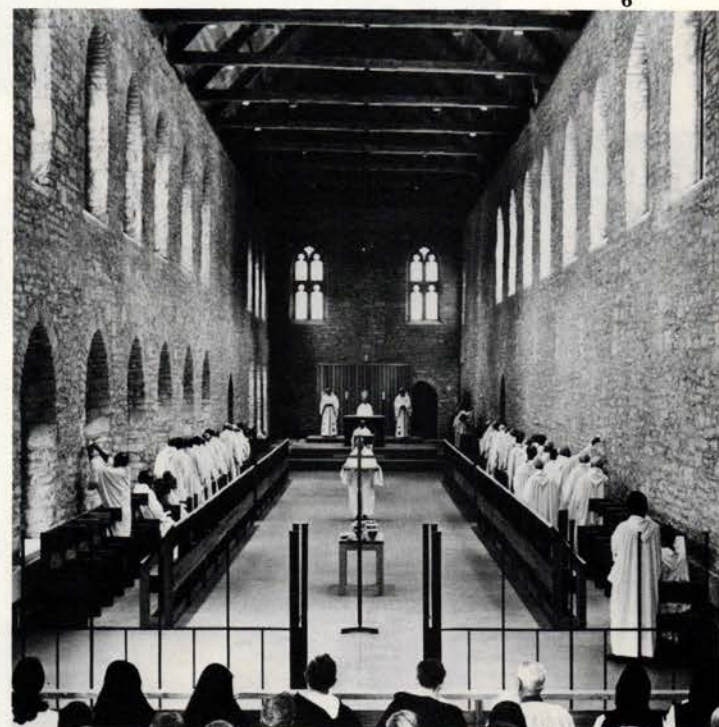
Architects and projects receiving Honor Awards for Extended Use shown here (new buildings are shown overleaf) include: (1) Mercantile Wharf Building, Boston; John Sharratt Associates, Inc. Bartlett Award. *Jury comment:* "A successful re-adaptation of an austere and elegantly designed mid-19th-century granite warehouse into housing and commercial use." (2) Canal Square, Washington,

D.C.; Arthur Cotton Moore/Associates. *Jury comment:* "By exploiting the resources of an old warehouse . . . the architect created a purely pedestrian, privately developed 'townsquare' for a commercial-office complex. (3) College Center, Vassar College, Poughkeepsie, New York; Shepley Bulfinch Richardson & Abbott. *Jury comment:* "A carefully designed building of uncompromising modern design wrapped around this fine (James Renwick) building

succeeds in . . . bringing new life to the restored structure."

(4) Navy Pier Restoration, Chicago; Jerome R. Butler, AIA, City Architect, Chicago. Bartlett Award. *Jury comment:* "This restoration-rebuilding, accomplished with considerable fidelity to the spirit of the original structure, has restored a valuable resource to the community." (See RECORD, March 1977, pages 107-114.) (5) Franklin Court, Philadelphia; Venturi and Rauch, Architects & Plan-

ners. *Jury comment:* "A most impressive and meticulously executed restoration. . . . The concept of 'ghosting' old buildings no longer standing is interesting." (6) New Melleray Abbey, Dubuque; Hammel, Green and Abrahamson, Inc.; Architect Willoughby Marshall, Inc.; Frank Kacmarcik. *Jury comment:* "Less is truly more in this stripped down renovation [yielding] an elegantly proportioned interior chapel" for a Cistercian monastery.



The new buildings earning AIA Honor Awards this year include: (7) Bronx Developmental Center, New York City; Richard Meier and Associates. Bartlett Award. *Jury comment:* "This is a very elegant construction of aluminum and glass at a pleasing and communal scale." (See also page 35.) (8) Vacation House, Mt. Desert,

Maine; Edward Larrabee Barnes, FAIA. *Jury comment:* "Simple, understated and restrained, these buildings as a group make a mini-community out of a 'house' on a very special piece of the Maine landscape." (See RECORD, mid-May 1976, pages 72-73.)

(9) Elderly Residential Project, Cidra, Puerto Rico; Jorge

Del Rio, AIA/Edwardo Lopez. *Jury comment:* "This charming little complex exemplifies the manner in which the problems of restricted budget, restricted scale and, very likely, restricted quality requirements can demonstrate that Federal housing projects need not be inhumane or unattractive." (10) John Hancock Tower, Boston; I. M. Pei &

Partners. *Jury comment:* "It is perhaps the most handsome reflective glass building; history may show it to be the last great example of the species." (See also pages 117-125.) (11) The Penn Mutual Tower, Philadelphia; Mitchell/Giurgola Architects. *Jury comment:* "This office tower addition to an older area in Philadelphia sensitively

retains the remnants of the original townhouse facades, integrating them with the new high-rise structure behind them."

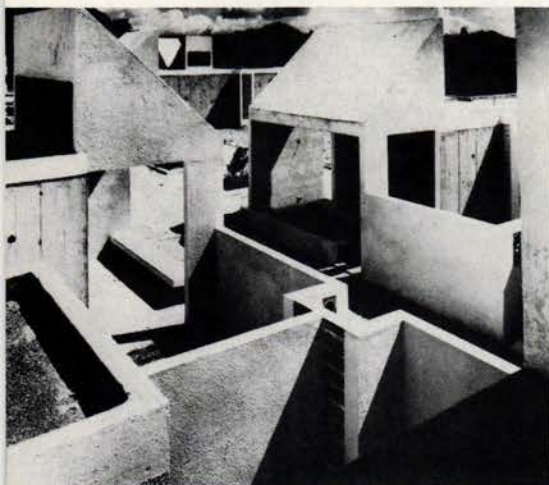
(12) 1199 Plaza apartments, New York City; Hodne/Stageberg PARTNERS. Bartlett Award. *Jury comment:* "This great brick construction is effectively a city within a city. Its mass steps down toward the



7



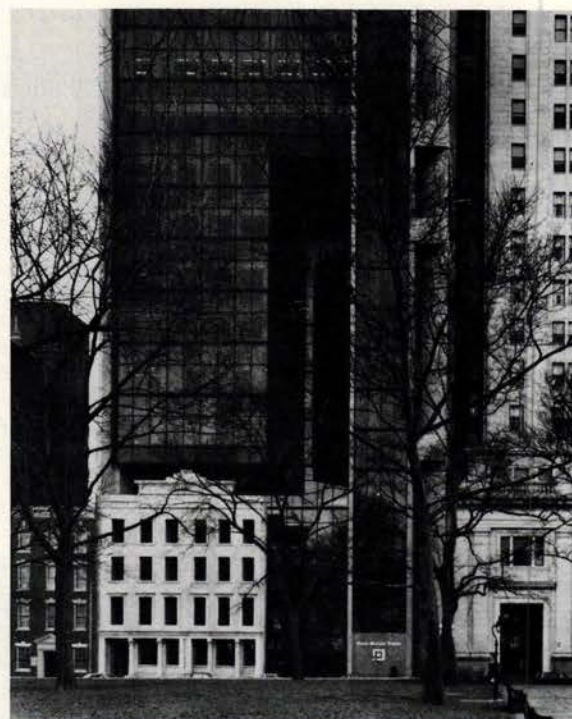
8



9



10



11



12

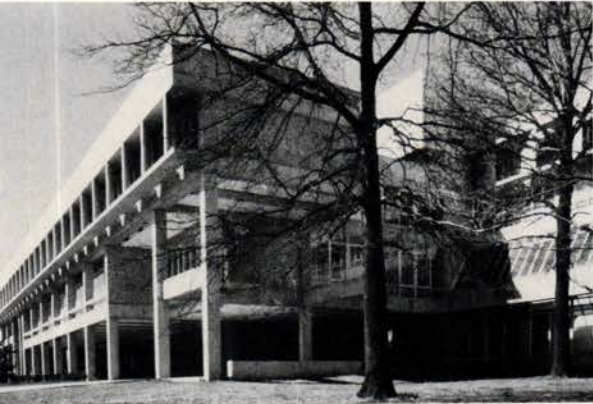
riverfront, giving the complex a sense of presence. . . ." (13) Humanities & Social Science Building, Southern Illinois University, Carbondale; Geddes Brecher Qualls Cunningham. Bartlett Award. *Jury comment:* "Its rhythm is varied, allowing penetrating cross-campus walkways and providing classrooms and offices on several stories."

(14) William J. Campbell Courthouse Annex, Chicago; Harry Weese & Associates. *Jury comment:* "... an architectural attempt to overcome the traditional barred jailhouse image. The narrow windows in random pattern indicate a special use, but one does not find an inhumane correctional facility image projected on the commu-

nity." (15) Spelman Halls, Princeton University, New Jersey; I. M. Pei & Partners. *Jury comment:* "The building maintains a geometric relationship to the existing highly ornamented dormitories and the resulting tension between the two systems sets up a special sense of place." (See RECORD, January 1976, pages 123-130.)

(16) Concord Pavilion, Concord, California; Frank O. Gehry & Associates. *Jury comment:* "The rolling California hills are emulated by the earth berms shaped to form a natural bowl enclosing a central stage . . . seems an effortless solution to gather thousands of people for theatrical and musical enjoyment." (See RECORD, June

1976, page 97.) (17) Pennzoil Place, Houston; Johnson/Burgee Architects. *Jury comment:* "This speculative high-rise [office building] is . . . a sophisticated urban composition that dominates in a pleasant way from a distance and enhances the human environment at close range." (See RECORD, November 1976, pages 101-110.)



13



14



16



15



17

Quick. What's the best way to heat an entranceway?

There are really two best ways.

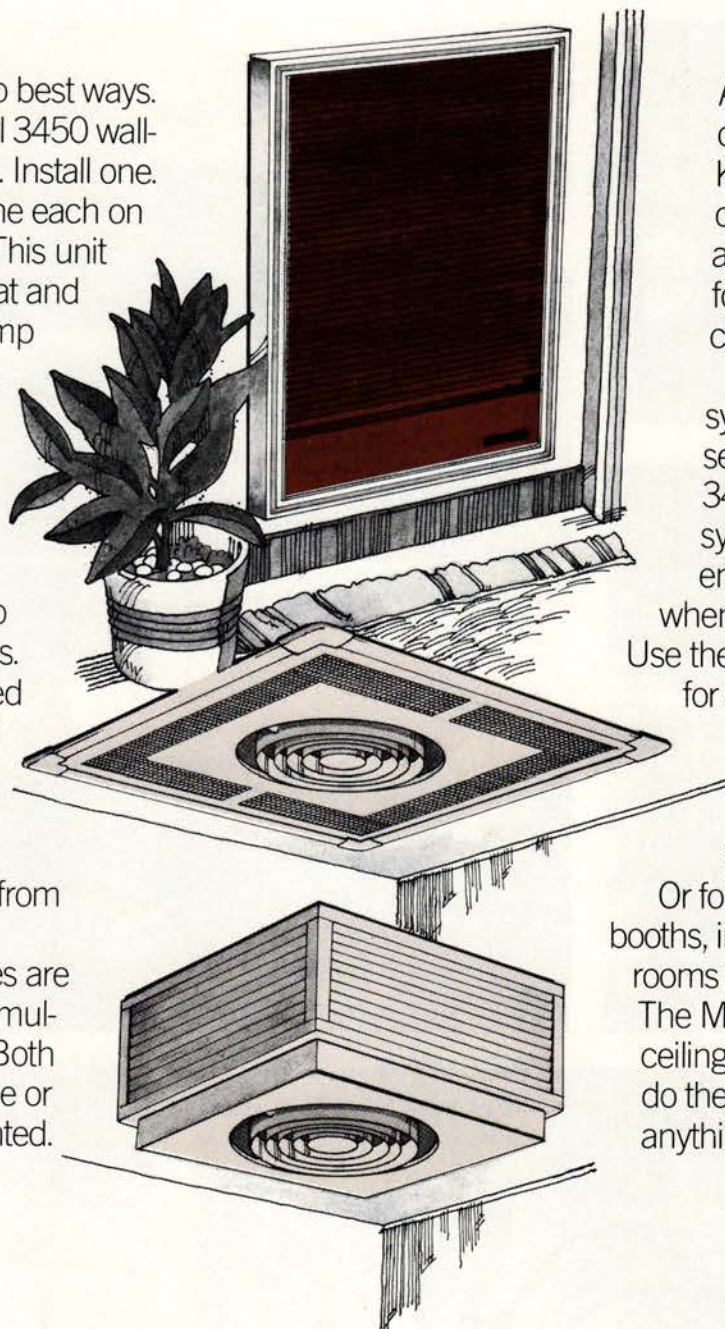
One is a Markel 3450 wall-mounted unit heater. Install one.

Or put in a pair — one each on opposite walls. This unit pours out the heat and holds up like a champ in high abuse areas.

Rugged and reliable, that's the 3450.

Wall space is limited? Don't go away. There's yet another best way to heat entranceways. It's the ceiling-mounted Markel 3470 or 3480 series. These heaters each sport a high-velocity fan to deliver plenty of heat from on high.

Both heater types are suitable for single or multiple installations. Both can be surface or recessed mounted.



And both come in capacities from 2 to 5 KW, bigger than any competing heater. Best of all, they sell and install for about half the cost of cabinet unit heaters.

Twelve control systems for the 3450 series and four for the 3470 let you design a system that conserves energy and operates only when required.

Use these quiet Markels for entranceways, vestibules, lobbies, corridors, hallways, thresholds, porticos and anterooms.

Or for ticket booths, toll booths, individual offices, restrooms and stairwells.

The Markel wall and ceiling heaters. They'll do the job better than anything else.

You're getting warm.

MARKEL

The electric heating company

Markel Electric Products, Inc.,
601 Amherst Street,
Buffalo, New York 14207,
716/875-7660, Telex: 91-233

For more data, circle 24 on inquiry card

Messages in a bottle

RICHARD MEIER, ARCHITECT, by Richard Meier, with an introduction by Kenneth Frampton and an afterword by John Hejduk; Oxford University Press, 238 pages, \$35.00 in cloth, \$15.00 in paper.

Reviewed by Jonathan Barnett

Richard Meier is an architect of elegant and fastidious buildings, and he has written an elegant and fastidious book about his own work. It is a book about Architecture with a capital "A," in which Meier describes his intentions using the vocabulary of art historians and aestheticians. Within the conventions of this kind of writing, it is a straightforward and dispassionate presentation, and the illustrations that support it are exquisite.

One result is that Meier has provided us with a perfect set of materials for indulging in that delightful architectural pastime, tracing a genealogy of the architect's work back to the designs of other architects. The rules of the game require that there be a reasonable physical resemblance, at least in photographs, with the winning play generally that which cites the most obscure example. Disclaimers by the architect that he has absolutely not heard of these formal "ancestors" and was never influenced by them in the least are always disallowed, on the same principle that permits a psychiatrist to say that a "resistance" prevents the patient from acknowledging the truth of psychiatric insights.

Just to get us started, there is an introduction to this book by Kenneth Frampton, a top-seeded formal geneologist with a formidable back-hand footnote style, and great reserves of erudition. It may come as a surprise to learn that Frampton assigns little significance to links with the "New York Five." This is not, of course, a group about to be defended by William Kunstler, but five architectural firms, including Richard Meier's, that have published their work together and apparently wish to be considered as a unit. Frampton constructs his formal genealogy for Meier with virtually no reference to the "Five," but cites work by Breuer, the Smithsons, James Stirling, Colin Rowe and Aalto, as well as the references to Le Corbusier that Meier's work leads one to expect. I find it hard to resist a friendly game of formal genealogy, although I am afraid that it is a mistake for so much of the writing about architecture to be devoted to such an esoteric subject. In the pages of *RECORD*, however, a little such indulgence can't do any harm; and it is much more fun than trying always to stick to

terms that can be understood by executives, community leaders, real estate investors or government officials.

My point of departure is the conclusion by Frampton, in his introduction, that Richard Meier's work returns us to the point in the development of modern architecture "when the task was clear and the promise still prevailed." This concept of returning to what is considered a more appropriate point in history, and then carrying on as if the intervening years had not occurred, is in itself an important architectural tradition. It implies an understanding of alternatives and a deliberate choice, and it is therefore often called stylism. When H.H. Richardson, who was educated at the *École des Beaux Arts*, elected to design a public library in Romanesque, he did not seek to imitate a particular Romanesque building, which is just as well, as the number of genuine Romanesque public libraries is severely limited. Instead, Richardson sought to carry on the development of the Romanesque as if the intervening periods of architectural history had not taken place, but with a full acceptance of modern technology. Richard Meier chose to pick up from that particular period in Le Corbusier's work that begins with the Dom-ino house project and ends when the master started introducing such elements as curving walls of undressed stone (that is from about 1914 to 1930.) Meier does not seek to imitate any one building by Le Corbusier, but to carry on the style as if intervening architectural developments had not occurred. Perhaps because of the influence of Marcel Breuer (Meier worked for Breuer from 1961 to 1963), the style that Meier developed resembles certain German buildings of the 1920s as much as it does the designs of Le Corbusier; there are especially clear parallels with work by the Luckhardt brothers (a lot of backspin on that one), by Max Taut, and by the Dutch architect J. Duiker, as well as parallels with more recent work by Breuer and Paul Rudolph. Of course, it is very nearly impossible for an architect following a style to exclude influences from the history that follows after the period of his choice, particularly if he accepts the intervening technological developments. When you get to the last section of Meier's book and its presentation of the recently completed Bronx Development Center, the aluminum skin seems to derive from projects of the Archigram group, with work by James Stirling as at least a collateral ancestor, and a kinship with recent buildings by architects like Richard Rogers and Norman Foster.

However, it is possible to become too enthralled with formal genealogy. After all, people always derive their ideas from some-

thing, whether they are eclectic and derive their concepts from many sources, or submit themselves, as Meier does, to the discipline of a particular style, or system of thought. In Meier's book it is possible to follow the process by which, like Richardson, he gradually assimilates the elements of his chosen style and turns them into his own vocabulary.

Perhaps the most disturbing aspect of this book is the number of unbuilt projects among the larger buildings. Not that they are architectural fantasies; they are all real commissions that, for one reason or another, have not yet been carried out.

What is required to become an established architect these days? Meier has followed with care and hard, serious work the path laid down by such architects as Philip Johnson and Paul Rudolph: first houses for wealthy clients as a forum for presenting one's architectural ideas, then articles, exhibits and lectures, leading to the patronage of institutions and corporations seeking to support the art of architecture. In Meier's case the path took him to the institutions and corporations, but the institutions were two New York State agencies whose building programs have been restricted by New York State's financial troubles, and the corporation was Olivetti, which has also greatly reduced its building program. Is this bad luck, or evidence that the architectural patron is an endangered species?

Actually, Meier did complete a group of low-to-moderate-income apartments for the New York State Urban Development Corporation, and under another New York State agency, two buildings for the mentally retarded: the Bronx Developmental Center and an earlier building near Rochester, New York. Having a state agency, even an enlightened one, as a repeat client is impressive. Meier must have been doing something right.

And where are the other patrons of architecture? Meier has sent out this book, like a message in a bottle; let us hope it finds its destination.

The minstrel was an architect

A PICTURE BOOK OF SONGS & BALLADS composed and illustrated by Robert Schmertz, arranged by Lee B. Thomssen, edited by Jo Davidson; The Robert Schmertz Book Fund, 5462 Kipling Road, Pittsburgh, Pennsylvania, 1976, 64 pages, illustrated, \$11.50, including postage.

Reviewed by Jeanne M. Davern

It is a good time to be reminded that there have been knowledgeable critics of architecture who loved it, even enjoyed it, and encouraged

continued on page 47

ARCHITECTLAND

It's a big, wide world of data discovery for architects of all ages!

If it were possible to bring to one place all the information you need about construction systems, sound control and fire resistance; a place where you could find the technical data, the practical research, and the advice and assistance of experts; such a place might very well be called "Architectland."

Of course, no one place is big enough to encompass the wealth of information and service that United States Gypsum offers to architects. So it comes to you *where you need it* wherever United States Gypsum systems or materials are to be used.

Let Architect Services be your guide

These architects and civil engineers, working out of our Chicago headquarters, have developed specialties which have made each, one of the nation's top experts. The services of this team are available for consultation, for speaking engagements before technical groups and to author professional articles on these subjects:

Partition Systems

Ceiling Systems

Curtain Walls

Floor Systems

Shaft Walls

Roof Decks

Service Ceilings, for

Interstitial Space Design

Fire Resistive Design

Sound Control (Both

Attenuation and Absorption)

Industrialized Housing and

Mobile Homes

Energy Conservation Design

Performance Specifications

A Building Code Consultant is also available to discuss problems associated with all:

Model Codes

Major City Codes

ANSI Specifications

ASTM Standards

Federal Specifications

and other prevailing standards

In addition to this central Architect Service group, Technical Representatives are available to work with you from local offices.



See the literature "greats"



Year after year, U.S.G. technical literature receives awards naming it the finest in the industry. To insure that this information is as current and comprehensive as possible, U.S.G. employs its own professional staff of technical writers and illustrators.

"Riding" the building systems



Both the Architect Service group and Field Technical Representatives have at their disposal the industry's most advanced research facilities. While constantly "taking the products for a ride" through rigorous testing, the forte of the facilities has been the creation of structural, sound and fire control systems that have been totally new concepts for building. U.S.G. laboratories developed breakthrough systems for the New York World Trade Center, and Chicago's Sears Tower, Hancock Center and Water Tower Place.

"Architectland" exists to serve the architectural profession. There is no charge for consultation on any structure where U.S.G. systems or materials are to be used. Architectural & Construction Services, 101 South Wacker Drive, Chicago, Illinois 60606.

UNITED STATES GYPSUM
BUILDING AMERICA

For more data, circle 25 on inquiry card

others to do the same. The many fans of the late Robert W. Schmertz FAIA—an architect and teacher of architecture whose avocation was writing and performing ballads about his native Pittsburgh, architecture, life, love and other subjects—will be happy to know that the legacy preserved in his recordings has now been augmented by a songbook.

Publication has been made possible by the efforts of Gretchen Schmertz Jacob, a daughter of Mr. Schmertz, Jo Davidson and other members of the group of Pittsburgh folk-singers who performed his songs with Mr. Schmertz over the years on and off the recordings. It was a labor of love for all concerned.

And what a songbook! The page layouts were designed, lettered and illustrated by Mr. Schmertz himself, an occupation of many years completed after he retired from practice and teaching and only a few weeks before he died in June 1975 at the age of 77. The drawings combine the innocence and verve, and the pure joy in color, of a child's drawings with the sophisticated irreverence and sure technique of a master cartoonist. The drawings were done in pencil, in crayon or in water-color, according to the impulse of the moment, and are a delight in themselves for all who love drawing. They are superbly reproduced, and credit is in order for the craftsmen responsible—Buzzards' Nob Associates, Dover, Pennsylvania, and Printing Plate Craftsmen, York, Pennsylvania.

And then there are the songs, 21 of them, transcribed and arranged "for the parlor pianist" by Lee B. Thomssen, who has thoughtfully pitched them into normal voice range. Though Mr. Schmertz wrote scores of songs, and played and sang hundreds more, he could neither read nor write musical notation; and few of his songs were in print until Mrs. Thomssen some years ago offered to transcribe and arrange them. Mrs. Thomssen also drew the musical manuscripts for printing.

For those who know the songs, it will be enough to say that those included in the book range from "Monongahela Sal," "The Forks of the Ohio" and "Mon Petit Lapin" to "Palazzo Massimi," "Hyacinth Harry" and "The Queen Anne Front (and the Mary Ann Behind)." For those who don't know the songs, perhaps it should be added that these are ballads which describe the adventures and misadventures of human experience, and sometimes of architecture, with delicious impertinence, wit and erudition, at once irreverent and compassionate. Above all, they are songs for *singing*, from a loving heart.

The best way to get acquainted with the songs of Bob Schmertz always was to be one of the crowd in somebody's living room when he played his banjo and sang his own songs. (It made for the best session at many an AIA convention.) Now the best introduction would have to be the records, but no songfest in any architect's living room ought to be without the Robert Schmertz songbook.

Jeanne M. Davern, a freelance architectural journalist and editorial consultant, is a former managing editor of ARCHITECTURAL RECORD.

Architects and Engineers E&O.

Like Art and Architecture, insurance underwriting is a continually evolving discipline. Keeping pace with ever-changing conditions — escalating claims, an inflationary economy, changing industry standards and more — requires constant adaptation and evolvement of new, better approaches to professional liability underwriting.

Shand, Morahan & Company is America's second largest underwriting manager of architects and engineers insurance. But, we're America's foremost underwriting manager of "claims-made" insurance — today's most advanced and effective form of professional liability coverage.

With limits to \$10 million — additional capacity may be arranged — Shand, Morahan can very likely improve your present protection while keeping rates competitive, thanks to the claims-made concept.

The state of the art.

Increasingly accepted as the preferred form of liability coverage by more and more professionals — lawyers, accountants, physicians, even insurance agents and brokers — claims-made insurance is definitely *the* state of the underwriter's art for Architects and Engineers E&O.

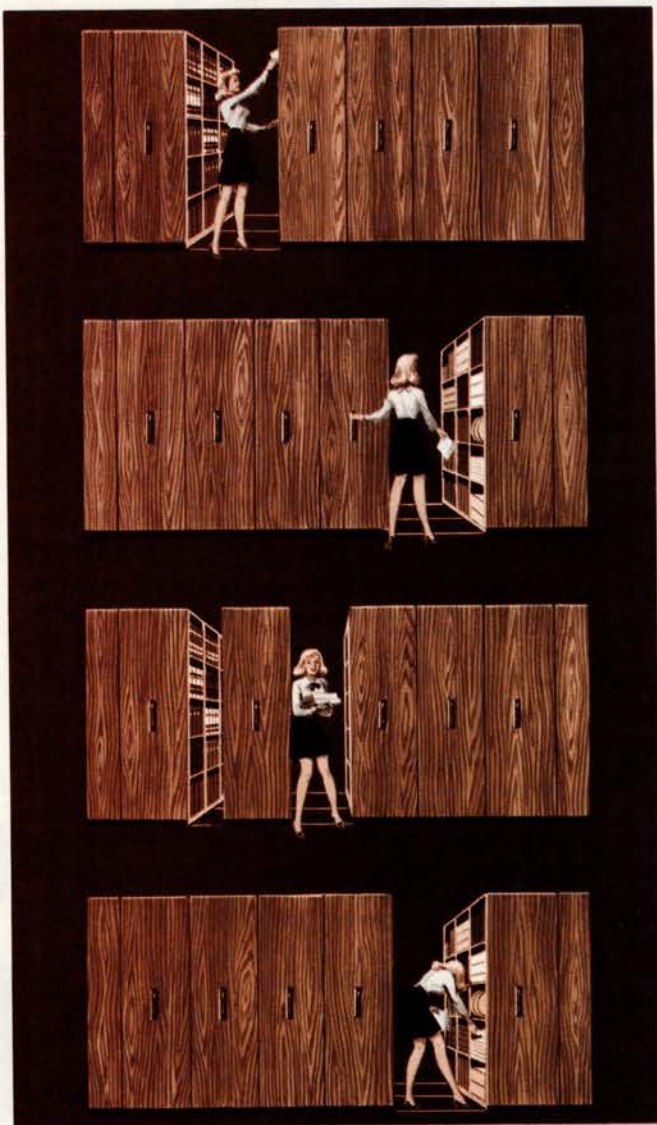
Shand, Morahan's growing number of top ENR 500 clients attests to the fact that there *is* a better answer to professional liability insurance.

We're proving it with every Architects and Engineers policy we write. For more information call your insurance agent or broker.



Shand, Morahan & Company, Inc.

For more data, circle 26 on inquiry card



FULLSPACE... the file with the movable aisle!

If you tried to provide your clients with this much storage or file space using ordinary files or shelves, you'd need 6 aisles and up to 4 times the floorspace. FULLSPACE does it with just one aisle that opens where it's needed. Furthermore, when the aisle is opened, all the space on both sides is exposed, greatly reducing access time.

But there's more to FULLSPACE than space-saving and efficiency. High quality finishes in handsome wood grains or colored laminates create handsome furniture that complements any decor.

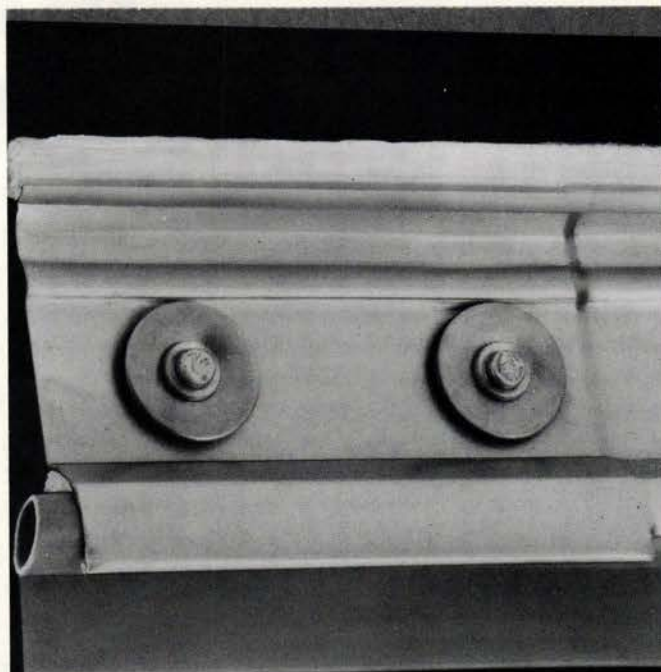
Want more information? Write today, or call us collect.



LUNDIA, MYERS INDUSTRIES INC.
600 Capitol Way
Jacksonville, IL 62650
217/243-8585

General Services Administration • FSC Group 71, Part V, Section C

For more data, circle 27 on inquiry card



Introducing

Vinylok

Helps Stop Roof Leaks Due to Flashing Failure

Unfortunately, *you* get blamed for all roof leaks even if you later discover that the flashing failed because there was inadequate space between the top of the cant strip and the parapet to hold the flashing.

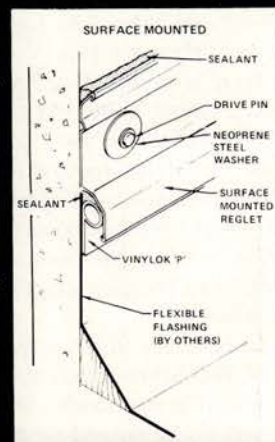
You can prevent these failures with Fry's exclusive new VINYLKOK Flashing Retainer. It permits flexible flashing to be installed in contact with the reglet. Easy. Just insert FRY "P" VINYLKOK to engage the bottom of the parapet. PRESTO!

A positive retainer.

Ideal for Fry Stucco (ST), Masonry (MA), and Surface Mounted (SM) Flashings. Don't take a bum rap for leaks . . .

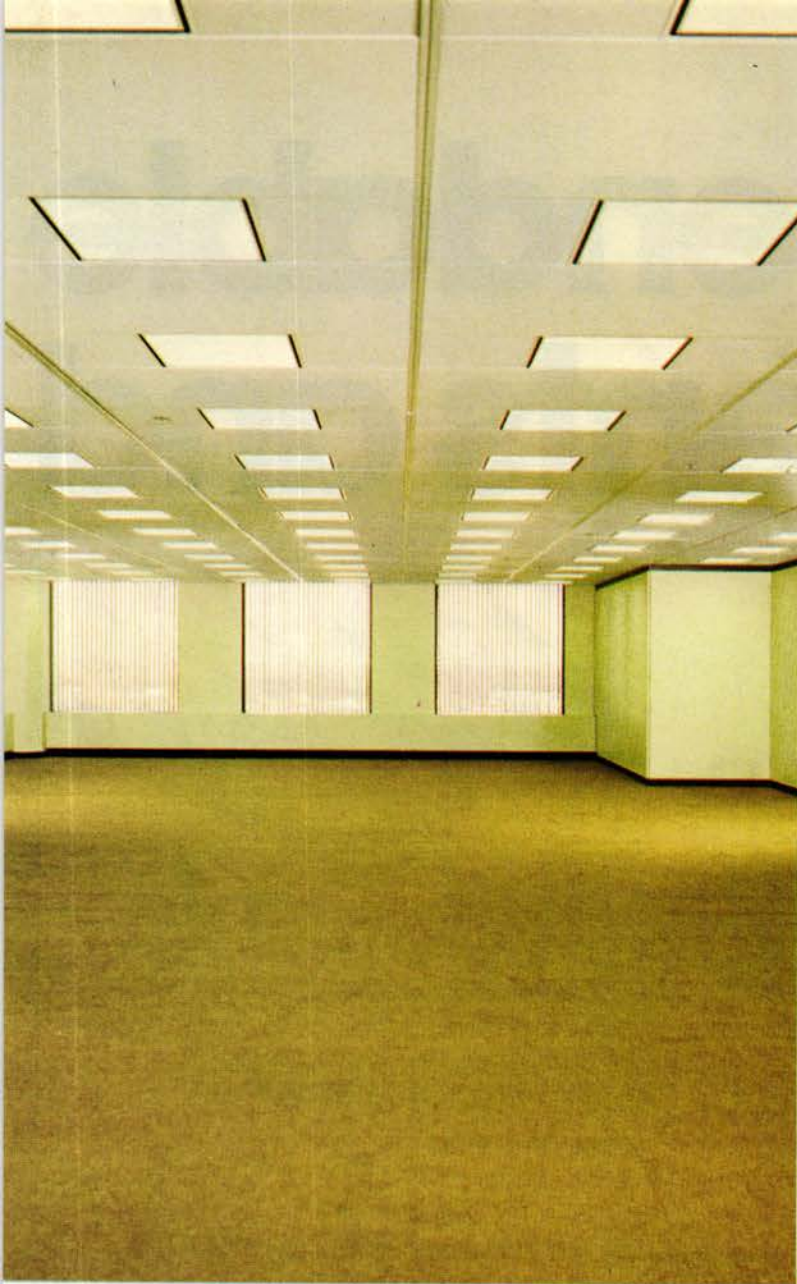
Write Fry for detail sheets, prices, brochure.

801 West Milford Street
Glendale, CA. 91203
Phone (213) 245-9471



FRY REGLET Corporation

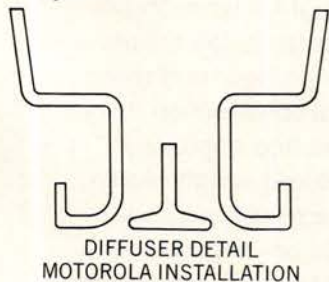
For more data, circle 28 on inquiry card



Two views of the new Motorola corporate headquarters building in Schaumburg, Illinois.

The Carrier Moduline VAV System lets this office change its layout quickly and at low cost.

When Motorola wanted an air conditioning system that would be flexible enough to let them change floor plans in their new building easily, architects Graham, Anderson, Probst & White of Chicago gave them a Carrier Moduline® VAV System.



Moduline® supply, dummy and return air units are all conveniently integrated into the ceiling. With the slender line diffuser shown in cross section (inset) the partitions can be set in a wide variety of patterns. They can even be placed directly below the center of

the diffuser, sending air to both sides of the partitions.

During the one-year moving-in period, Motorola has used the full flexibility of the modular ceiling and air system in their office layouts. Furthermore, as partitions are moved

in future years, Moduline® control zones can easily be changed accordingly, without duct changes and usually without moving any air terminals. With custom ceilings or standard, no other variable volume system gives individual comfort at such low cost... or does it more unobtrusively.

Almost three-quarters of a million Moduline® units have been installed in offices and other structures to date. Write for the Moduline Systems brochure or contact your nearest (in major cities) Carrier sales representative. Carrier Machinery and Systems Division, Carrier Parkway, Syracuse, New York 13201.

Number One
Air Conditioning
Maker



Division of Carrier Corporation

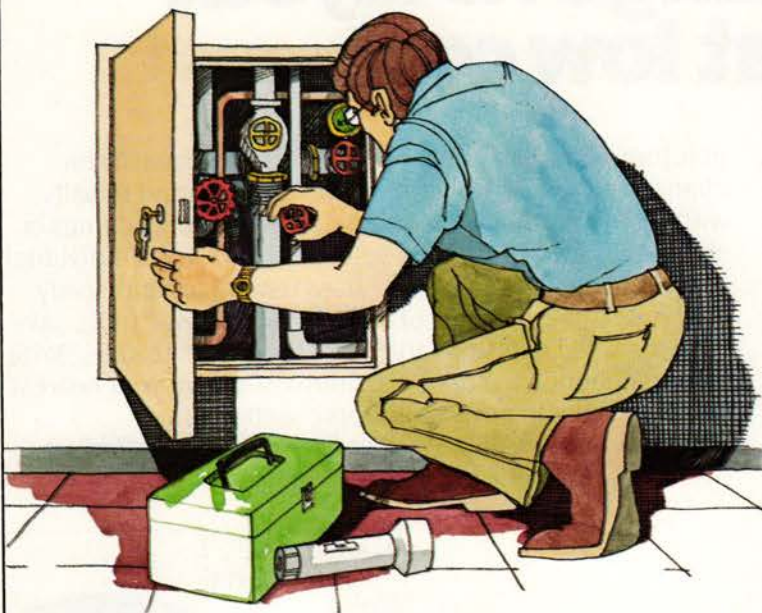
Carrier

The dependable doors, vents and

long-time favorites for wall and ceiling access openings

Milcor® Brand Steel Access Doors

These are the access doors most frequently mentioned in architectural specifications. Practical design, innovative product additions and careful workmanship account for their long-standing position of preference. The six basic styles include an Underwriters' Laboratories labeled door for fire rated construction and doors designed for the specific needs of drywall, plaster, acoustical plaster, acoustical tile or masonry surfaces. Each style is offered in a range of popular sizes—totaling 58 standard models altogether—most of them readily available at stocking locations throughout the U.S. and Canada. In addition, Inryco furnishes thousands of doors each year in non-standard sizes and custom modified designs to meet uncommon conditions. For complete product data on all styles, see our catalog in Sweet's, section 8.12/Inr, or secure a copy by sending in the coupon.



For more data, circle 30 on inquiry card



reliable closures for fire control, passage or access openings in horizontal surfaces

Inryco® Heat and Smoke Vents; Roof Hatches; Floor and Sidewalk Doors

Inryco offers a wide range of steel and aluminum closure devices for openings in roof, floor and sidewalk. All are designed and constructed for efficient installation and long term reliable operation. Included are Underwriters' Laboratories listed and Factory Mutual approved Heat and Smoke Vents in sizes to span joist spacings of up to 6'0" o.c. They open automatically in the event of fire to draw off heat, smoke and noxious gas...retard the spread of flames...help firemen locate the blaze and fight it from above. They're equipped with composite design covers—an Inryco innovation. Lighter, stronger and more rigid than covers of traditional construction, they also provide better "U" factors and improved condensation control. The reduced weight saves on shipping charges and lowers imposed roof loads. For comprehensive data on all products in this group, see Sweet's, section 7.8/Inr, or send in the coupon for a catalog.

For more data, circle 31 on inquiry card

Any of these products can be fabricated to order in non-standard

name in hatches...Inryco®

attractive new maintenance minimizer and
energy saver for high traffic openings

Inryco® Telescoping Door

U.S. Patent No. 3,430,676

This motor operated, vertically opening service door is a unique and practical departure from traditional design. Its curtain consists of U-shaped steel panels that glide smoothly and quietly within each other like the sections of a telescope. This construction eliminates the counterbalancing springs or weights and the multiple mechanical connections and pivot joints required in other service door designs. As a result, maintenance and upkeep costs are minimal, operation is extremely reliable, and damage repair is easy. The door will open and close without difficulty in high winds and doesn't rattle on windy days. It provides superior draft exclusion and has yielded a .51 "U" value in thermal transmittance tests... important considerations for energy conservation. Its compactness minimizes concern in planning for traveling cranes and other overhead equipment or for closely spaced multiple openings. For a complete description and product data, see Sweet's, section 8.9/In...or send for catalog.



For more data, circle 32 on inquiry card

sizes or custom modified designs for special needs.



Inryco

an Inland Steel company

Literature Coupon

MAIL TO:

Dept. F — 4033
Milcor Division
INRYCO, Inc.
P.O. Box 393
Milwaukee, WI 53201

Please send catalogs describing the items I've checked:

- ☐ Steel access doors
- ☐ Vents, hatches and floor doors
- ☐ Telescoping door

Name _____

Title _____

Company _____

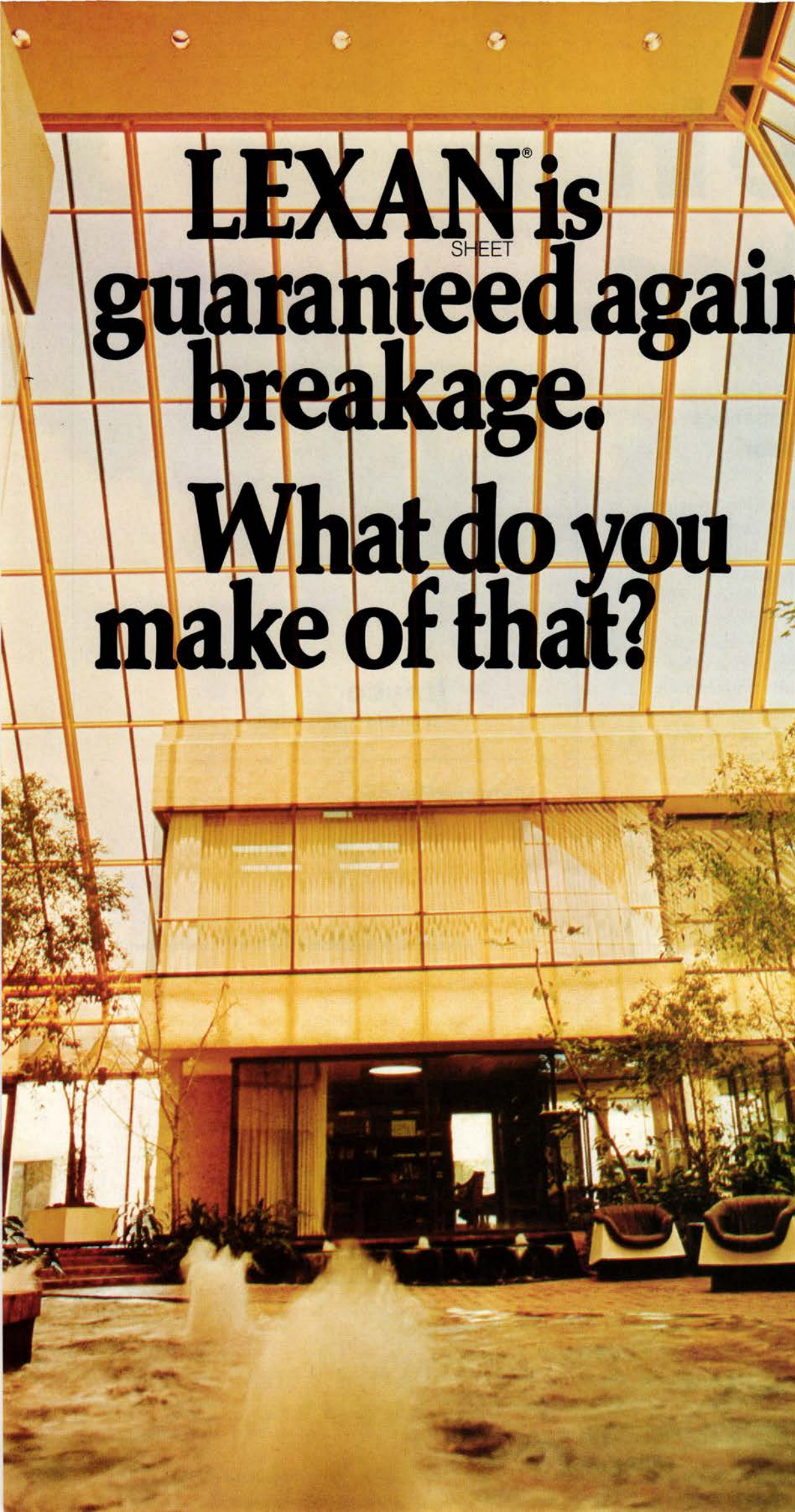
Address _____

City _____

State _____

Zip _____

7-39-1



LEXAN[®] is SHEET guaranteed against breakage. What do you make of that?

Whatever you make of it will withstand the worst punishment possible. LEXAN sheet is guaranteed against breakage,* even under the blows of a sledgehammer or the onslaught of a steamroller. That means lower replacement costs, more economy. LEXAN sheet is UL listed Burglar Resistant, complies with the Safety Glazing A.N.S.I. (Z97.1) standard and OSHA requirements. And new F-2000 flame-retardant grade meets the highest standards for reduced flammability.

There's LEXGARD[®] bullet-resistant laminate which meets UL ballistic level ratings up to a .44 Magnum (UL 752 standard).

For industrial glazing PROTECT-A-GLAZE[™] sheet offers an attractive, clear and tinted, translucent glazing for durability with economy.

And architects are finding more and more applications. LEXAN sheet is being used for lighting panels and lenses which are light weight and provide high light transmission.

Tough skylights.

LEXAN sheet's high impact resistance, clarity, and weather resistance make it ideal for durable, attractive skylights.

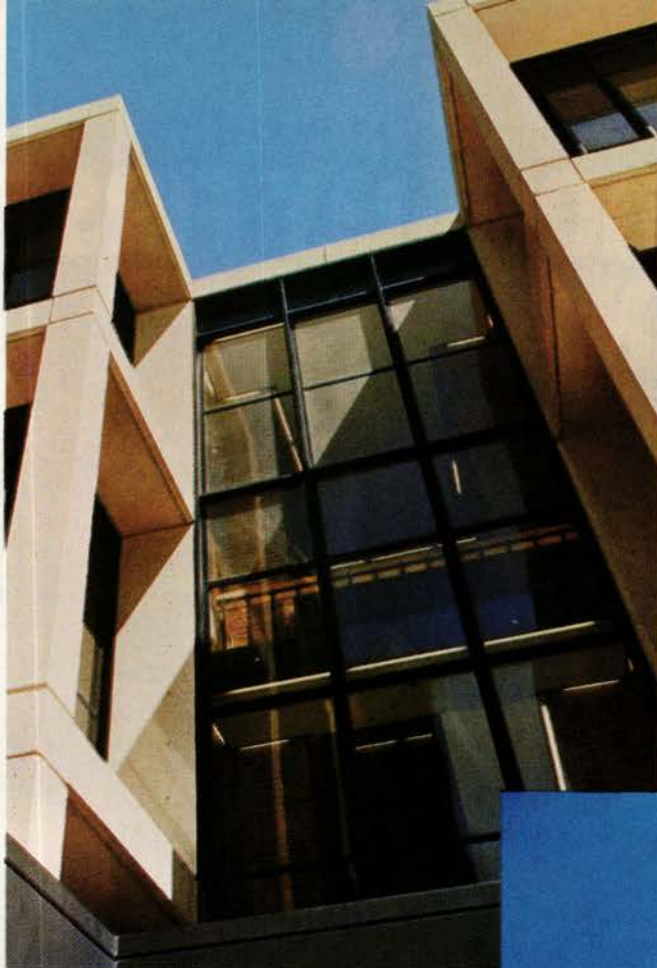
Photo: Nashville House
Nashville, TN
Architect: Robert Lamb Hart/HKS

NOTICE:

LEXAN[®] SHEET IS THE LEAST COMBUSTIBLE SAFETY GLAZING PLASTIC SHEET BUT WILL IGNITE WHEN EXPOSED TO AN IGNITION SOURCE (IN EXCESS OF 800°F/426°C).

FOR MAXIMUM SAFETY...

- Advise local fire officials of LEXAN glazing installations.
- Consider sprinkler systems for additional safety.
- Check local codes for construction applications.
- Observe fire precautions similar to wood.
- Consider emergency access sash construction.



Safe school windows.

In school systems throughout the USA, LEXAN sheet secures buildings against vandalism and theft, with LEXAN sheet providing up to 25% more insulation than comparable thicknesses in glass.

Photo: Walt Disney Magnet School
Chicago, IL
Architect: Perkins & Will



Long lasting enclosed walkways.

Domes and enclosed walkways of LEXAN sheet are weather resistant, color stable, and offer high light transmission.

Photo: Provincial Court & Remand Centre
Calgary, Alberta, CANADA
Architects: Long Mayell & Associates



Light weight solar collector panels.

LEXAN sheet .040 and .080 mils thick offers high light transmission, physical toughness, high heat stability, and environmental resistance.

Photo: Grover Cleveland Junior High School
Dorchester, MA



Strong passenger shelters.

Durable passenger shelters with LEXAN MR-4000 mar resistant panels protect passengers from the weather, and resist damage by vandals.

Photo: TRI-MET System
Portland, OR
Architect: Skidmore, Owings & Merrill

Whatever you design that needs to be transparent, tough, and attractive—and safe—there's a grade of LEXAN sheet to design it with.

See Sweet's Architectural Catalog Ref. 8.26/GE

® Registered Trademark of General Electric Company
TM Trademark of General Electric Company

*Guaranteed by General Electric against breakage. If at any time during a three-year period from date of purchase, LEXAN sheet when used for glazing is broken, General Electric, as its sole responsibility under this guarantee, will give the purchaser a new LEXAN sheet. No warranty or guarantee is offered for residential use of LEXAN sheet.

LEXAN[®] SHEET Get behind it.

General Electric Plastics: What the world is coming to.
Sheet Products Section, 1 Plastics Avenue, Pittsfield, MA 01201

GENERAL ELECTRIC

For more data, circle 33 on inquiry card

ARCHITECTURAL RECORD June 1977 53

HAGER...TRADITIONALLY FIRST WITH THE RIGHT ANSWER.

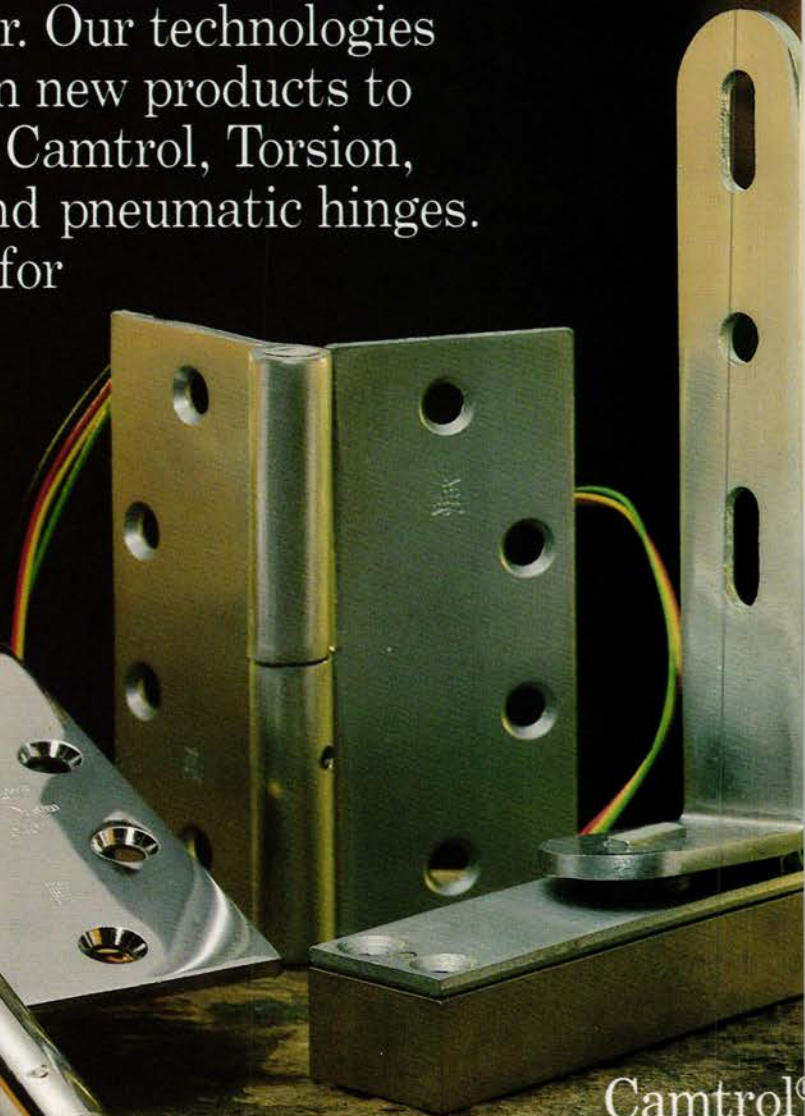
Sparks of innovative genius flew off Charles Hager's anvil as early as 1848. In those days, his hardware outfitted Conestoga wagons. Later, his hinges were used on the early wooden Budweiser® beer cases.

A lot of things have changed since those early days, but the tradition of being first with the right answer is stronger than ever at Hager. Our technologies and skills are hard at work on new products to follow in the footsteps of the Camtrol, Torsion, Raconteur and our electric and pneumatic hinges.

That's why our promise for today and tomorrow remains the same...whatever the need, Hager will be first



Torsion



Electric Hinges

Camtrol®

with the right answer. We think Charles Hager would approve.

Hager Hinge Company
139 Victor Street
St. Louis, Mo. 63104
"Everything hinges
on Hager."



For more data, circle 34 on inquiry card



Decorator Tip

Tri Con®

Raconteur®



NATIONAL BANK OF COMMERCE, Lincoln, Nebraska.

Jury Comments: "The clarity of the total building is well-achieved through the use of simple structural forms and proportions...reinforced concrete has been excellently exploited (in) large entrance."

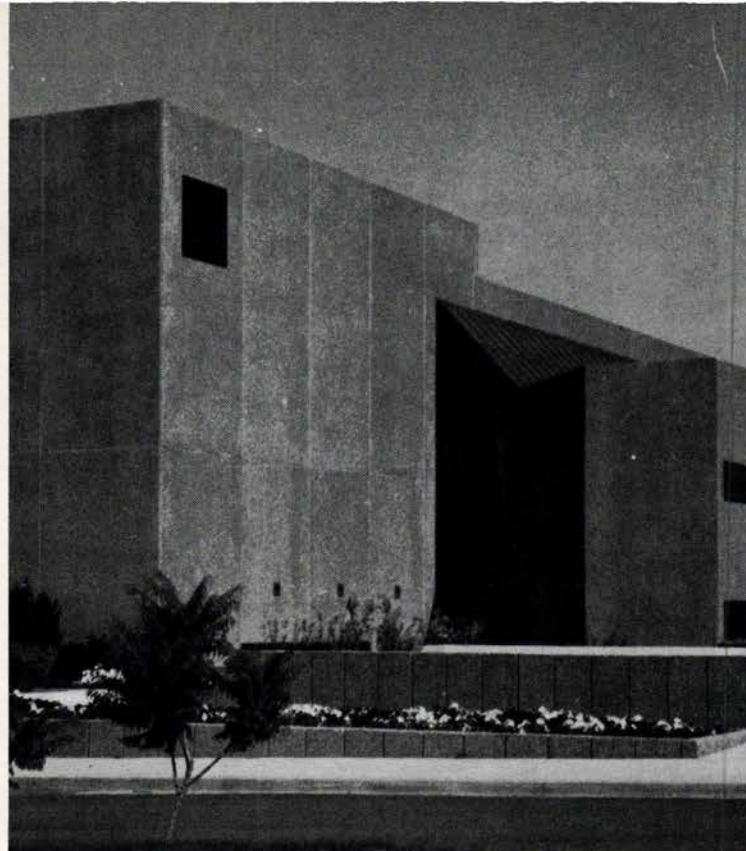
Owner: NBC Company, Lincoln, Nebraska.

Architect: I. M. Pei & Partners, New York, N.Y.

Associate Architect: Davis Fenton Stange & Darling, Lincoln, Nebraska.

Structural Engineer: Weiskopf & Pickworth, New York, N.Y.

General Contractor: H. C. Beck Company, Phoenix, Arizona.



HEADQUARTERS BUILDING, ARAPAHOE CHEMICALS, INC., Boulder, Colorado.

Jury Comments: "Although there is a mixture of spaces, the visual unity achieved looks as though they were made for each other...an energy-efficient building with judicious use of glass."

Owner: Arapahoe Chemicals, Inc., Boulder, Colorado.

Architect and Structural Engineer: A. M. Kinney, Inc., Architects and Engineers, Cincinnati and Denver.

General Contractor: Centric Corp., Lakewood, Colorado.



NEW NORTH COMMUNITY SCHOOL, Springfield, Massachusetts.

Jury Comments: "Pleasant, cheerful, and exciting in spite of almost impossible site...top lighting and skylighting create bright, attractive interior surfaces."

Owner: Springfield School Building Commission, Springfield, Mass.

Architect: Perkins & Will Architects, White Plains, New York.

Structural Engineer: Perkins & Will Architects, Engineering Division, Washington, D.C.

General Contractor: Daniel O'Connell & Sons, Holyoke, Mass.



Announcing the
1976 CRSI
Design Award Winners.



CENTRE SQUARE, Philadelphia, Pennsylvania.

Jury Comments: "The linking together of the two office towers (with) the galleria becomes an exciting experience... lower levels are uniquely alive."

Owner: Centre Square, Inc., Philadelphia, Pennsylvania.

Architect: The Kling Partnership, Philadelphia, Pennsylvania.

Structural Engineer: Farkas, Barron & Partners, New York, New York.

General Contractor: Tishman Construction Company of Pa., Inc., Philadelphia, Pennsylvania.



WOODRUFF MEDICAL CENTER ADMINISTRATION BUILDING, Atlanta, Georgia.

Jury Comments: "Bold, dynamic architectural solution... use of concrete, both structurally and as a finish material, is sympathetic to functional needs."

Owner: Emory University School of Medicine, Atlanta, Georgia.

Architect and Structural Engineer: Heery & Heery, Architects & Engineers, Atlanta, Georgia.

General Contractor: Batson-Cook Company, Atlanta, Georgia.



GATEWAY PLAZA, Newport Beach, California.

Jury Comments: "Pleasant, relaxed, and varied setting... excellent example of an economical and straightforward approach... wide spans offer great flexibility."

Owner: The Irvine Company, Newport Beach, California.

Architect: Robert M. Thomas A.I.A. & Associates, Newport Beach, California.

Structural Engineer: Robert Lawson, Newport Beach, California.

General Contractor: Swinerton & Walberg Company, Los Angeles, California.

A host of excellent designs for the Third Annual CRSI Design Awards Program. Once again, the entries were many and the choices hard. The jurors gave prime consideration to sensitive use of materials and structure, successful environmental relationships and functional planning. Six distinguished structures were chosen to be recipients of the 1976 CRSI Design Awards.

All winners share equally in the Awards. There are no categories of award recognition in the CRSI Program.

Please write for the 1976 CRSI Design Awards Portfolio. It describes structural systems and unique design features for each Award winner. Write CRSI, attention Victor A. Walther, Jr., Director of Marketing.

The jurors:

CHAIRMAN

Louis deMoll, FAIA

1976 President, American Institute of Architects
Washington, D.C.

Ralph Rapson, FAIA

Professor and Head,
School of Architecture &
Landscape Architecture
University of Minnesota
Minneapolis, Minnesota

William W. Caudill, FAIA

Caudill Rowlett Scott
Houston, Texas

Joseph Esherick, FAIA

Esherick Homsey Dodge and Davis
San Francisco, California

Dr. Fazlur Kahn, FASCE

Skidmore, Owings & Merrill
Chicago, Illinois

AIA REPRESENTATIVE:

J. R. Kirkland, Administrator

Institute of Component Affairs
The American Institute
of Architects
Washington, D.C.



CONCRETE REINFORCING STEEL INSTITUTE

180 North LaSalle Street, Room 2108 D
Chicago, Illinois 60601

For more data, circle 35 on inquiry card

For information on Professional Membership Program write to Director of Marketing.



Long, low, linear light.

Sterner's Illuminated Rail-Lite is the ideal solution to stairway and walkway lighting problems.

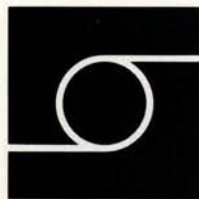
LONG. For interior and exterior malls, pedestrian overpasses, stairways, path systems . . . wherever you need a uniform light source that can go the distance, consider Sterner's Illuminated Rail-Lite. It is constructed of heavy gauge extruded aluminum in one-piece sections up to 16 feet long. It can be mitered to change direction and go around corners. Also available non-illuminated to provide continuity of design throughout the project.

LOW. A Sterner Illuminated Rail-Lite puts the light right where you want it — down low, close to the steps or walkway — not up on top of a pole where it can interfere with the mood you have created. Available as free-standing or wall mounted railings. They satisfy OSHA requirements for safety and construction.

LINEAR. The usual solution to stairway and walkway lighting has been the use of standard step and riser lighting fixtures. But the light distribution from these fixtures is unsatisfactory because they create mere pools of light. The best solution is the linear light path laid down the entire length of the stairway or walkway by Sterner's Illuminated Rail-Lite.



EUGENE A. MAXWELL
UNIVERSITY ARCHITECT
AUA
CLEVELAND STATE UNIVERSITY



STERNER

LIGHTING SYSTEMS
INCORPORATED
Winsted, Minnesota 55395
612-485-2141

For more data, circle 36 on inquiry card

7. Look for the extras.

Quality hardware, for instance. Designed for easy crank-open Casement or slide-open Gliding Window operation.

8. And the things you can't see.

Like Andersen's special wood treatment with a water-repellent preservative. One that helps resist warping, decay and insect attack.



Some windows you just can't judge by name alone. Unless the label bears the Andersen® Windowalls® brand. But if you still feel you need to know more about our name, you'll find Perma-Shield® Casement and Gliding Windows in Sweet's, File 8P. Or you can call your Andersen Dealer or Distributor. He's in the Yellow Pages under "Windows." Or write us direct.

The beautiful way to save fuel.

Andersen® Windowalls®
ANDERSEN CORPORATION BAYPORT, MINNESOTA 55003



Printing limitations prohibit exact color duplication.
Use actual sample for building specifications.

6111 Copyright © Andersen Corp., Bayport, Minn. 1976

For more data, circle 37 on inquiry card

How to judge a window by its sticker.

1. Know what's in the name.

Over 70 years of dedicated craftsmanship and close attention to detail.

2. And what's in the window.

Rigid vinyl over wood, one of nature's best insulators. Carefully selected, moisture controlled and precision milled.

3. Know why the glass is functional.

Double-pane insulating glass isn't just added. But rather, it's made practical by Andersen's snug-fitting design and use of wood.

4. And why the window lasts.

The Perma-Shield rigid vinyl sheath doesn't rust, pit or corrode. Doesn't chip, flake, peel or blister. Stands up beautifully to time and weather, while demanding little maintenance.

5. Know how it helps buildings look beautiful.

Andersen's neat, trim lines and classic profile. And an exterior rigid vinyl sheath in your choice of white or Terratone with Perma-Shield Casement Windows. White vinyl inside and out with Perma-Shield Gliding Windows.

6. Helps make them cozy to be in.

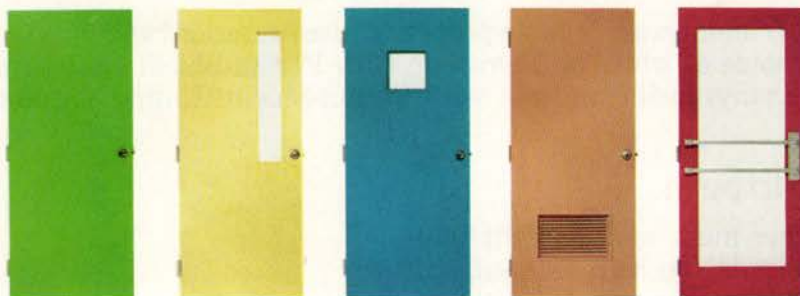
A snug-fitting design two times more weathertight than industry air-infiltration standards. To help seal out drafts and dust, and help save on building heating and cooling bills.



Colorful steel doors accent the new excitement in old St. Louis

Style and beauty plus ruggedness make Ceco steel doors attractive to architects in St. Louis and throughout the country. Ceco doors meet every functional need. Use them as a creative system to accent your design. Ceco doors and frames are prepared for simple erection in minutes. And both are prepared for quick and solid attachment of hardware. Ceco doors and frames are tough and stable — won't warp, swell, shrink or rot. You gain the advantages of durability and trouble-free performance. Our Colorstyle doors have factory-baked quality finishes, kept fresh in poly bags. See Sweet's files or consult your local Ceco office.

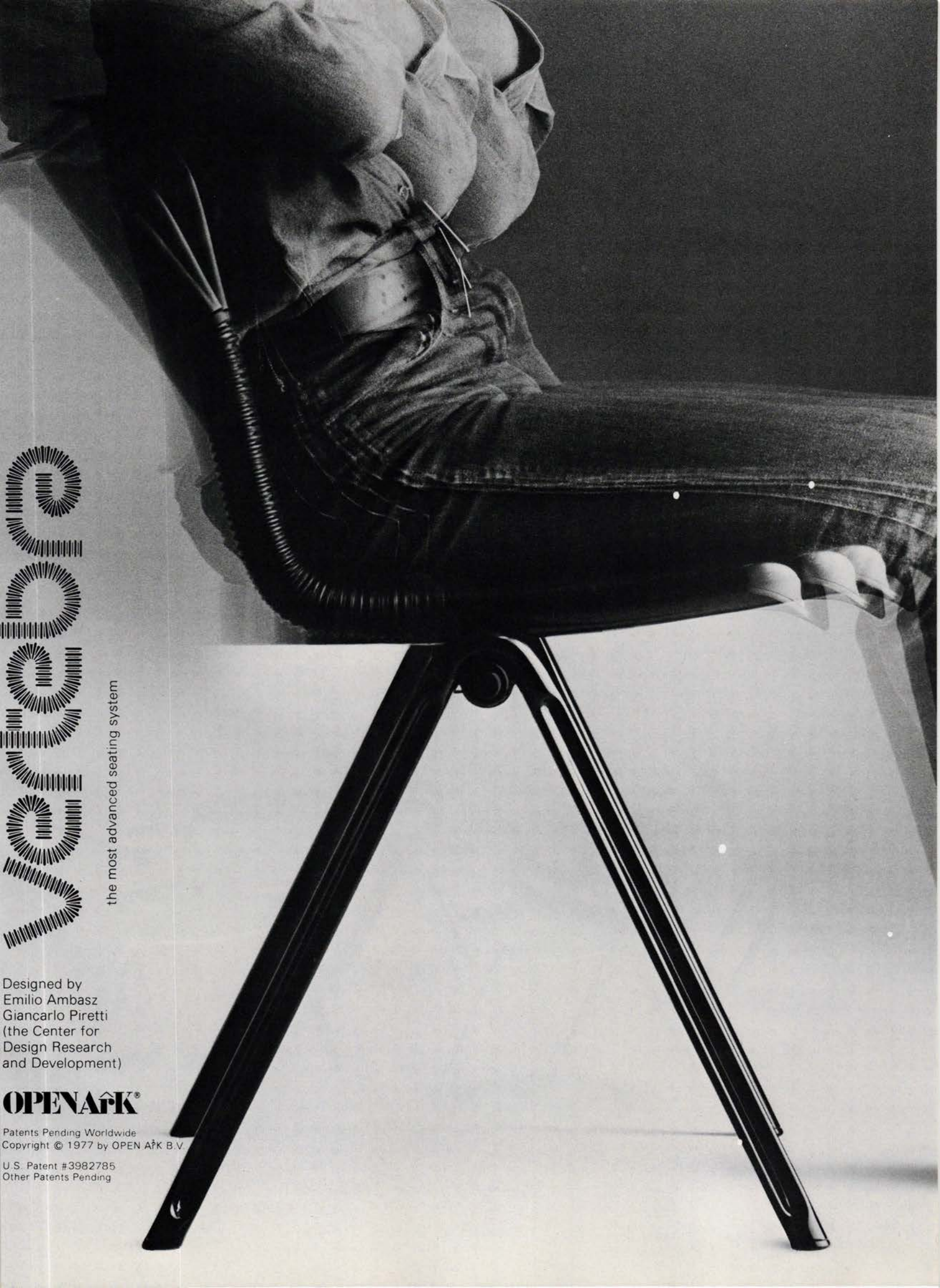
Steel doors satisfy architects' needs better



The Ceco Corporation
5601 West 26th Street • Chicago, IL 60650

"The door people"

For more data, circle 38 on inquiry card



openair

the most advanced seating system

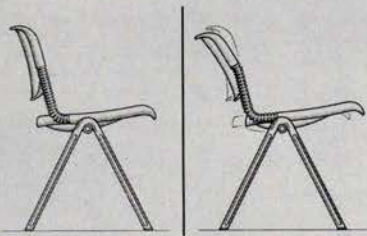
Designed by
Emilio Ambasz
Giancarlo Piretti
(the Center for
Design Research
and Development)

OPENAIR®

Patents Pending Worldwide
Copyright © 1977 by OPEN AIR B.V.

U.S. Patent #3982785
Other Patents Pending

Vertebra Institutional Seating



More than one-half of our active lives is spent in a work environment, and most of that time seated. Vertebra is the first seating system designed to deal scientifically and aesthetically with your special requirements while working. It is the only seating system which changes configurations *automatically* to support you in the postures your body adopts. Vertebra assumes the ideal posture without manipulation of levers or controls. For informal situations... **relax**... and the seat slides forward while the backrest tilts backward. Or... **sit up**... and the chair automatically adopts a comfortable upright position.

Ergonomically conceived, Vertebra is the result of extensive orthopedic and vascular research. Optimal weight distribution and sacro-lumbar support insure your comfort, efficiency, and sense of well being.

Brilliantly simple, the automatic mechanisms have been extensively tested, are foolproof, and require no maintenance.

All Vertebra Institutional Seating may be ganged. Most models can also be stacked for transportation on a dolly. The ABS plastic seats and backrests are available in elegant dark colors with upholstery options in fabric. Fire-retardant treatment and bookrack are optional.

Krueger is the exclusive licensee of OPEN A&K for production and distribution in the United States and Canada. Outstanding Vertebra designs also include pedestal base Operational, Managerial and Executive models.

krueger

P.O. Box 2097
Green Bay, Wisconsin 54306
414/437-3245

For more data, circle 39 on inquiry card

Showrooms:

Boston 617/893-2752
New York 212/697-9565
Philadelphia 215/666-9696
Indianapolis 317/545-5246
Chicago 312/467-6850
Dallas 214/823-4183
Houston 713/222-1408
Denver 303/534-6060
Los Angeles 213/659-2133



LEGAL PERSPECTIVES
 BUSINESS DEVELOPMENT
 BUILDING ACTIVITY
 BUILDING COSTS AND FINANCING
 OFFICE MANAGEMENT

Regulatory codes: one firm's check list for industrial projects

by Joseph E. Compton

We are now in an era where code requirements at the Federal, state and local levels make it mandatory for architects, engineers and planners to take positive steps to prevent possible violations before they occur, rather than to take expensive and time-consuming action after the fact. The time is past when the local triumvirate of planning, zoning and building department regulations were the only criteria that the building owner had to meet. Regional, state and Federal bodies led by OSHA and EPA, have superimposed a host of new regulations, not always predictable and/or reasonable, that must be met under penalty of delay and possibly, legal action and restraint. In an attempt to keep abreast of these changes in requirements at all levels, Smith, Hinchman & Grylls has set up a systematic approach to the review of building, structural, mechanical and electrical systems, as well as manufacturing processes when the building is an industrial facility. While the system is applicable to all SH&G buildings, it takes on an extra importance in the industrial area which, by its very nature, includes more serious elements of noise, heat, dust, pollutants and safety.

Our most common assignment is that of providing A/E services for a new industrial facility, beginning with an analysis of the site itself. By their very nature, industrial facilities tend to involve large plots of land, suburban or rural, in which many adjoining property owners—as well as the general public—have an interest. Where forest cover must be cleared, or where drainage or run-off affects a stream, the environmental impact takes on paramount importance. Only rarely is the architect consulted on the basic decision of land selection or purchase, and SH&G relies heavily on the expertise of the environmental planning firm of Johnson, Johnson & Roy, Ann Arbor, Michigan, to identify environmental problems that must be considered in our building decisions. In almost all of our recent major industrial commissions, JJR has been involved at the earliest date, and has worked closely with our civil engineers as well as our designers, to ensure that the building has the least possible adverse effect on the surrounding environment.

As a check-point for all of our disciplines, we have set up the position of "Code Specialist," whose primary responsibility is to keep informed of the latest information and rulings of the various regulatory agencies to prevent the designing-in of violations, and the time-consuming delays in the approval of plans by agencies with review responsibility and authority. (Even worse are citations for violations that are issued after the facility has been completed and production begun. If the first is expensive, the second is catastrophic.)

We insist that the Code Specialist be present at the initial review of the over-all scope of

work, along with the client, the project manager, and the architects and engineers. During these early discussions, the Specialist will identify all areas of decision-making that require code review, using a check list (see illustration) of all of the applicable Federal, state and local codes. Most frequently, this involves those regulations governing fire door exits, washroom facilities in relation to the number of employees, and identification of hazardous areas. This check list identifies 21 different subjects of various codes, as well as an all-encompassing "Other." The specialist will report to the designers (in all disciplines) any specific criteria with which they may not be familiar.

At all design stages, plans are reviewed for code violations

Upon completion of the design development stage (as well as all Owner reviews and changes to date), the Code Specialist will again review the drawings and the outline specifications in greater detail, in order to determine potential areas of code violation.

Like preventative medicine, this review is far more effective and less costly than remedial treatment. Recently, we worked on a plant that called for a Materials Laboratory including a room that the owner had designated as a "paint room." Had this room actually been used for the purpose that the name implies, it would have meant the use of volatile solvents, and would have required special ventilation, hazard-proof electrical gear, blow-out panels, non-static materials and other precautionary equipment. However, our staff made further inquiries of the owner and found that the materials involved were actually finished and painted strips, which were brought into the "paint room" for physical tests. Therefore, sim-

Subject	Applicable Code
Building	UBC, BOCA, NBC, SSBC, city and state
Mechanical	Local building jurisdiction/state
Plumbing	Local building jurisdiction/state
Employee safety	OSHA
Electrical	Local building jurisdiction/state
Energy conservation	ASHRAE 90-75
Air conditioning	Local building jurisdiction/state
Refrigeration	Local building jurisdiction/state
Physically handicapped	ANSI or state
Pressure vessel	Local building jurisdiction/state
Elevator	Local building jurisdiction/state
Fire	Local building jurisdiction/state
Hospital	Local building jurisdiction/state
X-ray	Local building jurisdiction/state
School	Local building jurisdiction/state
Highway & road	Local building jurisdiction/state
Sewer & garbage	Local building jurisdiction/state
Water pollution	Local building jurisdiction/state
Air pollution	Local building jurisdiction/state
Incinerator	Local building jurisdiction/state
Zoning	Local building jurisdiction/state
Other	

This SH & G code check list, based in the firm's experience, identifies key code areas affecting the design of most buildings. Generally, applicable codes are provided by local and/or state building jurisdictions except in the case of employee safety, energy conservation and handicapped provisions, where there are Federal guides. In identifying codes, this check list deals with life-safety issues only, and does not identify possible insurer requirements for the protection of structure and contents.

ply changing the name of the room avoided a costly delay in obtaining the permit, and the economic burden of needless precautions.

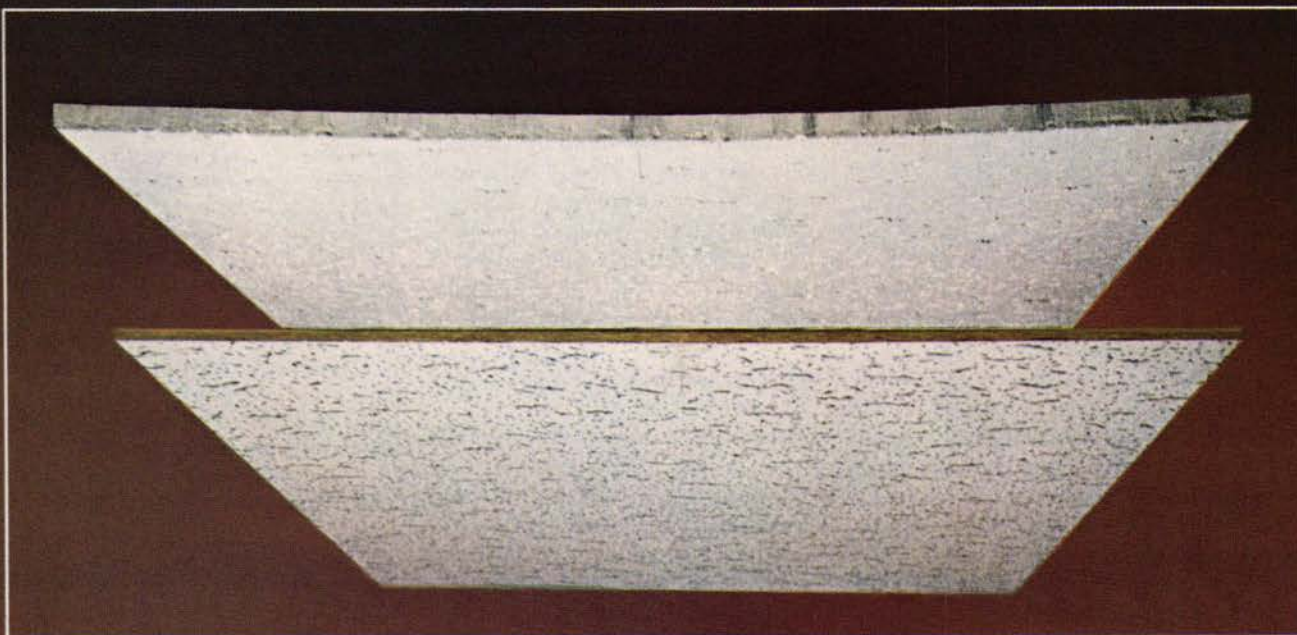
During the development of the final drawings and specifications, the Specialist is once again consulted for code interpretations, which are not always clear and unambiguous in their wording for a complex building (like a hospital). He would normally review the contract documents when they are approximately 80 per cent complete.

Changes in manufacturing techniques can save violations and money

There are a growing number of industrial assignments where our Manufacturing Engineering Division is retained by the client in ad-

Mr. Compton is vice president and director, Industrial Division, Smith, Hinchman & Grylls Associates, Inc., Detroit, Michigan.

THINNER IS BETTER



If we showed you a $\frac{1}{4}$ " ceiling panel that was guaranteed not to sag and offered the same fissured look and sound absorption as standard $\frac{5}{8}$ " panels, would you be willing to pay less for it?

Introducing Celotex Grande lay-in panels. The reason we make it thinner? We use a better binder—resin, which when cured, is insoluble in water, instead of the conventional starch-based binder. The result: Grande resists moisture, is easier and less expensive to install and easier to transport to the job site. And Grande panels come with a 5-year guarantee against sagging. A specimen of the guarantee will be provided at the place of purchase, or by writing to The Celotex Corporation, 1500 North Dale Mabry Highway, Tampa, Fla. 33607.

Your Celotex representative has all the details.
Or contact T.M. Pariso, Commercial Marketing Department, at the above address.

Celotex[®]
BUILDING PRODUCTS
The Celotex Corporation, Tampa, Florida
a **Jim Walter company**

For more data, circle 41 on inquiry card

continued from page 65

dition to our normal A/E services, to provide plant layouts, manufacturing process layouts, materials handling systems, etc. During the development of the manufacturing processes, a number of discipline specialists are responsible for reviewing the designs and plans in order to avoid code violations. This group is composed of specialists in materials handling, air handling and ventilation, metal cutting, piping and foundry engineering. Each discipline is charged with reviewing the manufacturing process at its conceptual stage to avoid design errors involving codes. They check for code infractions for noise, heat, stress, safety, air and water pollution, and all other pertinent areas.

The Director of Manufacturing Engineering and the Manager of Foundry Engineering, where appropriate, review all final plans and specifications completed by their staffs for possibly overlooked violations. Recently, a routine check at this level provided us with the opportunity to delete a spray oil mist used for cooling a machine cutting operation, and to substitute a flood of oil over the part being machined. This simple change reduced the amount of mist produced; the amount of ventilation required in that area of the building to remove oil and dirt from the air was greatly reduced, along with energy requirements.

Where OSHA or EPA are involved—and the building in which they are not involved is becoming a rare assignment, indeed—we require that the SH&G corporate discipline heads (civil, mechanical, electrical and structural engineering; architecture and design) also overview all the plans and process situations that might create environmental problems. If such are identified, the discipline head will consult with the designer and the project manager to see if the problem can be mitigated or eliminated by a change in process. Since this involves production itself, the owner is the key member in any decision.

An excellent example of this occurred last year, when our Manager of Foundry Engineering was asked by the owner to submit recommendations for reduction of air pollution, which had resulted in a citation from a regulatory agency. The owner's first reaction was to request additional ventilation and the addition of air scrubbers to combat the pollution, but SH&G's engineer concluded that it would be to the owner's benefit to first review the molding operation that was producing the pollution. This study showed that by changing from a "green sand molding" system to a "no-bake" system, the benefits in both cost and effectiveness would be substantial. Not only was the air pollution problem resolved, but the foundry's castings could be produced more economically. In addition, since the "no-bake" process requires considerably less machinery, the ambient noise level was decreased, and a safer environment was provided for the workers. A completely unforeseen benefit was a substantial savings in the amount of energy

used as a result of the reduction in the quantity of sand required in the alternate process.

In a final check for code violations, it is our practice to have all plans produced by our firm checked by our Construction Management Division to assure ourselves that the project has been designed in as safe and compliant a manner as possible for actual construction. In fact, no plans may be put out for bid until they have been signed off by Construction Management. While it is not the primary function of this check to review for code variations, the personnel who do the construction checks are familiar with code requirements and they, too, will flag any situation which looks questionable. This gives us a belt to supplement the suspenders of the earlier system.

When a new building is commissioned, this properly puts primary emphasis on anticipatory planning; many current clients are asking that we help them correct existing situations that are no longer acceptable to regulatory agencies, and for which citations may have already been received. In these cases, we are asked to provide solutions for problems, the most common of which involves air or noise pollution, heat, safety, or stress. Here, our architects and engineers must locate the source of the problem and suggest solutions within the owner's budget, always guided by the special expertise of the Code Specialist.

Several new requirements have further complicated the design and engineering of buildings: the "barrier-free" requirement that takes into account the physically handicapped, and the needs of women in what were formerly male-only employment situations.

An example occurred when an in-plant office was located near an access stairway to the roof. It seemed logical to put a concrete slab over the offices and to locate a stair landing at the slab level, which could then be used for minor storage of office supplies, and for access to certain electrical equipment. Unfortunately, the logic of this planning escaped the city inspector who looked at the slab in relation to its possible use by the handicapped. When the contractor took the plans to the agency for the building permit, the inspector insisted upon an elevator servicing the storage area for use by handicapped personnel. Although this may appear far-fetched, it was only through the owner's persistence, and a referral to a higher ranking state agency that the ruling of the local body was overturned and the elevator requirement eliminated. We finally had to add a handrail around the edge of the slab and install a ship's ladder for secondary egress from the area. Needless to say, our Code Specialist as well as our architects, review all situations where a requirement may be the result of a unique interpretation of a local agency.

Water management is most important in industrial plants

The amount, and volume of waste water emanating from buildings and their sites is closely monitored by environmental bodies. We use

computer programs for the prediction of storm water run-off from the large roofs and parking areas of a modern industrial plant. These programs anticipate the various loads that rain will put upon the municipal sewer or waterway that receives it, and acceptable ponding that the roof or the parking area can contain in order to reduce the run-off to a manageable volume. Again, an early determination of this problem can provide the best siting of both building and parking, and can provide the building designers with the data they need.

In another example, our industrial engineers, working with our waste treatment group, were able to decrease the amount of waste water from a plant through the re-use of rinse water for a chrome plating system. They set up a hierarchical system in which the waste water is passed from the cleanest rinse stage to the dirtier initial rinse stages. The dirtiest water is then treated in a concentrated form. Previously, wherever water and energy were cheap, the owner would pipe city water through each stage and divert the waste directly into sanitary sewers or into nearby streams. By use of the new system, large amounts of water were saved, and the waste treatment simplified considerably. And the entire change was brought about by a request that we look at the waste treatment facilities to determine a better way to treat the water.

There are many areas in which the willingness of the owner to review, and modify, his operations will reduce pollution, heat, noise and stress. For instance, where furnace emissions are given off during a pouring operation, ventilation hoods have not always proven successful due to the operating equipment required in these constricted areas. Often, by isolating these areas with partitions, the fumes can be trapped and adequately treated.

And there is one code check area—nuclear operations—where there is no practical solution that will reduce the danger of this harsh environment to man. However, in most cases, the answer is to remove the employee from the operation and substitute a robot. This particular situation is rare enough that both owner and A/E will bring to it the highest degree of awareness and caution.

Laws affecting buildings and the workplace are likely to become more all-encompassing and more restrictive—as can be seen by the constant additions of categories to the SH&G code check list. We have attempted to bring a systematic approach to the identification and solution of these new problems, so that their consideration will become second nature to our designers. And since responsibility of all becomes responsibility of none, we feel that the creation of the Code Specialist function and responsibility is the best route to full compliance with often very contradictory and arbitrary interpretations of governmental agencies. Anything short of full compliance can result in expensive and production delaying rulings against our owner, and after all, it is his interests that we serve.

BRING THE OUTSIDE INSIDE WITH MODUSPAN.[®]

Moduspan sets you free.

Free as the great outdoors—as in the theme building of Prudential Town Center, Southfield, Michigan.

Ahead is the Moduspan space-frame sloped wall that brings daylight to a huge indoor tropical garden.

Above is the Moduspan roof structure that covers the glass walkways.

For more data, circle 42 on inquiry card

Moduspan . . .

An infinity of forms from five standard parts (4' and 5' systems, 6 standard colors).

Simple bolt-together construction.

Fewer man-hours to design; no delays while waiting for custom fabrications.

Simple attachment of auxiliaries like light fixtures and sprinklers.

That's Moduspan for you.

For more information, call your local Unistrut Service Center, or see our catalog in Sweet's.



GTE SYLVANIA

Architect: Neuhaus & Taylor, Houston, Texas.

A basic guide to pitfalls in foreign contracts

by Philip F. Purcell

During the past four years, the overseas work of some U.S. architects has expanded rapidly, associated primarily with the tremendous construction programs being undertaken by the Middle Eastern countries. Work in foreign countries—and in particular the Middle East—poses legal and financial problems that are far different from those encountered in this country; these are problems that deserve serious consideration by the architect and his legal and accounting advisors at the very first contact with a prospective foreign client. For example . . .

Compensation. Usually, foreign contracts have lump-sum compensation arrangements that include both fee and out-of-pocket expenses. It is rare to find compensation based on percentage of construction cost or on technical labor timecards. The difficulties inherent in calculating and administering the cost of travel, foreign incentive payments to employees and overseas housing and subsistence in a lump-sum contract are readily apparent.

Payment. Unless an architect wishes to speculate in foreign currency, he should attempt to have payments made in United States dollars in the United States—where most of his costs will be incurred. However, in most Middle Eastern countries the fee is paid in local currency, which exposes the architect to fluctuations in the foreign currency market. For example, if it takes 3.5 monetary units of a particular country to equal \$1 at the time an architect's fee is negotiated, he will ask for a fee of 350,000 monetary units if he wants a fee of \$100,000. If subsequently the dollar strengthens and it takes 4 monetary units to buy a dollar, the architect will have a fee of \$87,500. Currency maintenance clauses which peg the exchange rate should be given consideration; however, in many countries (for example, Algeria) finance ministry regulations prohibit such clauses.

If an architect is to be paid in a foreign currency, he must determine whether there is free transfer of the currency out of the country. Should his fee be blocked, he will, of course, be unable to return it to the United States. At the present time, free transfer exists in most of the countries in the Middle East, but this is not true in parts of North Africa or Europe.

Taxation. Some countries, such as Kuwait, have no income tax; and others, such as the United Kingdom, have an income tax with high rates. The applicability of foreign tax to the architect's work, as well as the deductibil-

ity of expenses incurred by the architect outside of the taxing country, must be determined. If a country refuses to allow certain home office expenses, the architect's profit for tax purposes will be greatly overstated. Also, if a country assesses income tax on profit arising from services performed in the United States, the architect will be subjected to double taxation because there is no tax credit given by the U.S. for foreign tax paid on services which are performed in the United States.

Liability. Frequently foreign contracts will contain clauses imposing a standard of care upon the architect which is not insurable because the clauses require a standard of perfection (for example, "the architect will be held to the highest standard of care" or "the architect will guarantee that the plans and specifications will be free of defects"). Professional liability policies written in this country or in the London market are predicated upon a standard of negligence which presupposes that the architect will conduct himself as a reasonable, but not perfect, architect. There also may be requirements that the architect indemnify and hold harmless the owner from all manner of disaster, whether or not related to the performance of the architect's work. Most of these provisions are not insurable.

Additionally, liability may be imposed by statute. Those North African and Middle Eastern countries which have derived part of their legal system from France have incorporated the 10-year liability provisions of the French Civil Code. The 10-year, or decennial, liability laws provide that the architect and the contractor are liable for 10 years for the destruction in whole or in part of a building due to bad construction or defects of the soil. The owner is not required to prove negligence. Once damage has occurred, liability is imposed. Compliance with all laws, building codes or accepted architectural standards is not a defense. Furthermore, in some countries this liability cannot be shifted to others by contract.

Guarantees. Middle Eastern countries usually require performance guarantees of 10 per cent of the contract amount which is held

until the contract has been completed. Performance guarantees may be collected by the owner at his sole discretion. In some countries, such as Saudi Arabia, performance bonds may be accepted in lieu of performance guarantees for certain work. If an advance payment is made to the architect, as may occur in the Middle East, the entire amount of the fee advanced must also be guaranteed. The guarantee decreases as progress payments are made to the architect.

All guarantees must be backed by letters of credit which, if they are from Western banks, must be confirmed by local banks. Because letters of credit are carried on the liability side of the architect's balance sheet, banks treat them as loans, which tie up the architect's borrowing ability.

Resolution of disputes. Many Middle Eastern countries require that disputes be submitted to a three-man panel for resolution; one man each is selected by the architect and owner, but the third member will be named by the government if the architect and the owner cannot agree. The law of the country in which the project is being constructed usually applies. In some limited instances, arbitration by an impartial body, such as the International Chamber of Commerce in Paris or the London Court of Arbitration, may be utilized. Even here the format is different from that in the United States; a hearing is optional and cross-examination is not provided for. Once there has been an arbitration award, it may be difficult to enforce unless the countries of the architect and the owner are parties signatory to the Convention for the Recognition and Enforcement of Arbitration Awards.

Arab boycott. Some Middle Eastern countries require to varying degrees compliance with the Arab boycott of Israel. Any such requirement may create problems for the architect under the export regulations of the Department of Commerce, the Tax Reform Act of 1976, antitrust laws of the United States, and a variety of state-enacted boycott legislation. Additionally, there are several bills pending in Congress which will have an impact on this area.

While there are a myriad of other matters to be considered, the above problems are basic to any foreign contractual arrangement. Despite the seeming difficulty of resolving some of these problems, the stakes are high. Those architects who jump in must simply do so with their eyes wide open.

Mr. Purcell is an attorney with the Chicago and Washington, D.C. law firm of Isham, Lincoln & Beale. With a background in construction contracts and litigation, he is a frequent speaker at numerous design-profession and construction industry seminars.

**New ALL-STEEL 2400 Series
helps waiting become
a positive experience.**

Understated elegance. Deep seated comfort. A very nice place to be. Surprisingly affordable. Seven seating styles, 11 coordinated tables.

Find out more: Write for our colorful new brochure. All-Steel Inc., Box 871, Aurora, Illinois 60507.



All-Steel Showrooms in New York, Los Angeles, Chicago, Aurora. In Canada, All-Steel Canada, Ltd. One of the **GFI** Companies.

For more data, circle 43 on inquiry card.

Writing for marketing impact: letters, brochures, proposals

by Stephen A. Kliment, AIA

"It's not creative unless it sells" was the title of a two-page ad in the February 21, 1977 issue of *Business Week*. Buyer of the ad was a major Madison Avenue advertising agency, and the ad's copy skillfully debunks the approach to ad design that creates attention but does not create sales. So it is when you compose your letter of interest to a prospective client, write a proposal, or prepare materials for your firm's brochure. Jargon-filled language setting out in detail your firm's history and design philosophy must be subordinated to the one central purpose of all marketing writing, which is to influence the prospective client to retain your services. If you ignore this, you will not create sales and you may not even create attention. The way you use words must, therefore, be client-oriented rather than architect-oriented, "you-oriented" rather than "we-oriented."

Before a client hires your firm, he needs to know all about you.

1. *Have you experience in solving his kind of problem?* This can cover a number of factors. It could involve simply experience with designing a particular building type. But it could go beyond this, to include, say, problems of reconciling conflicting internal wants of a complex client such as a hospital or university; or planning a major energy retrofit while the facility keeps operating; or developing a service station systems package for a large oil corporation.
2. *Have you a solid record in bringing projects in within the budget?* Many offices keep close track of this data. Even though in many cases the matter is outside the architect's control, over the years the firm with a high caliber of cost estimating and good cost control has been able, if not always to meet the budget, at least to meet the final estimates. The prospective client wants to know this.
3. *Have you managed projects so they were completed on schedule?* As before, this matter is sometimes outside your control. If you have developed management techniques such as fast-track that speed up the sluggish traditional design and construction pace, tell the client. He wants, above all, reassurance that he can move in according to plan.
4. *Have your completed projects stood the tests of time and use?* This one is harder to document. Success is proven easier by a tour of the facility and a talk with the owner than by a written statement. In that case, make the offer in your letter. For a brochure fact sheet on the project, use any evidence of recognition you can get—a testimonial from the client if you

can, or excerpts from a favorable article, or both.

5. *Do you have a high caliber of professional and support staff?* Demonstrate this by means of narrative biographies. Rewrite to tailor to large prospective commissions, to bring out those qualifications that will have the greatest impact. Another key factor is compatibility of your staff with the client and his staff. That is hard to put in writing, but draw on past experiences where you can.
6. *Do you have solid recent working contacts with specialized consultants, contractors and other sources of expertise that may be required for the project, but which you lack in-house?* A simple statement, with names, will do.
7. *How are you prepared to manage matters when either the project or the client (or both) are in a remote location?* What ever plan you have (association with a local firm, your own Lear jet, opening a local office if the project is large enough), reassure the client on this important point.
8. *Are you capitalized to stay in business for the length of the project?*
9. *Are you affordable?*
10. *Are you available?*
11. *Are you interested?*

Some of the answers to these questions will vary from project to project. The brochure is no place for these. The letter of interest and the brochure must complement each other. The brochure deals with the general; the letter and proposal with the particular.

How to tell the client what he needs to know

Having identified the kinds of information the client needs to know, how do you convert it all into a convincing written style? As noted, the main purpose of these written marketing tools is to convince the client you thoroughly *understand his problem*, based on information known to you at the time.

When you are planning to follow-up a lead with a letter of interest, start out with great care. It is often the first formal contact between you and the client, and requires a delicate touch. Depending on the stage of his project, he will be interested in some, but not all of the 11 preceding points, and not necessarily in the order listed.

Take this example. Your market development staff has learned that a major out-of-town developer is planning a large shopping center on your city's outskirts. He, you have learned, will shortly be looking for an architect to plan and design the center. He is known as quality-conscious, but also a stickler for time and cost ceilings. Your experience is strong in all these areas, and you know and have worked with several reputable in-state and out-of-state general contractors, should he wish to go the design-build route. He has completed his market studies but has not yet chosen among three candidate sites. You have decided to write to him indicating your interest in being considered for the job.

The first step is to look into his motivations. He clearly will need an indication as to: a) your interest in being considered; b) your track record in the field; c) your ideas as to possible joint arrangements with the builder.

On the other hand, he will not expect, in this first overture, much talk as to potential fees.

Your approach therefore will be to structure the letter in such a way to project an aura of confidence; a sense of awareness of his main concerns (costs, schedule); ease of liaison and rapport; and, last but not least, an indication of strong interest in the job. The letter should be short—not over a page or two—and leave a unique flavor of you and your firm.

One way in which such a letter could be written is seen in Figure 1 (page 73). You may add support materials to a letter of interest, but they should be few at this stage (probably no more than a printed pamphlet about your firm and a few fact sheets of similar projects, if any). The point is not to anticipate and try to consider all the prospective client's questions, but rather to get him interested enough in you to invite you to submit a more detailed proposal—one geared to specific requirements.

This letter contains a mere 260 words—just enough to fill a single-spaced page—yet it gives the prospective client a clear picture as to your performance, priorities and interest.

continued on page 73

Mr. Kliment, an architect and communications consultant in New York City, will lead a four-day course on "Communications for the Design Profession," a joint program of the Harvard Graduate School of Design and the MIT School of Architecture and Planning, July 18-22, on the Harvard campus in Cambridge, Massachusetts.

All Grace stands behind this product



Zonolite[®] Roof Decks

You must have assurance the products you specify will perform. And when you specify Zonolite Roof Decks, you can be sure they will perform and keep performing.

Zonolite Roof Decks have been performance designed and engineered by Grace. They are tested and classified by Underwriters Laboratories, Inc. and approved by Factory Mutual.

Thorough research and development, engineering, and testing give us the confidence to offer a ten-year W. R. Grace & Co. Roof Deck Performance Warranty on the Zonolite Insulperm[®] Roof Deck over slotted metal substrates.

The Grace warranted Zonolite Roof Deck is designed to speed venting and drying. Meet today's demanding insulation criteria. And be competitive in cost.

Get the whole story from your local Zonolite Representative and from Construction Products Division, W. R. Grace & Co., 62 Whittemore Avenue, Cambridge, Massachusetts 02140. In Canada: 66 Hymus Road, Scarborough, Ontario M1L 2C8.

GRACE

Figure 1

Dear Mr. Pratt:

We understand you will shortly be interviewing architects to help you develop a new shopping center on the outskirts of Elm City. We are most interested in being retained for this challenging assignment.

We have had a general architectural and planning practice in Elm City since 1960. During this period, we have been responsible for design of a number of commercial projects. These have included a 400,000-sq-ft suburban commercial complex comprising two department stores, a branch bank, a large food retail outlet and several specialty stores along with appropriate parking and landscaping. We have also designed several rental office buildings; a medical office building; and a 500-car parking structure.

On most of these projects, in addition to traditional services, we prepared predesign feasibility studies and developed the program jointly with the client. In one case, we also carried out a post-construction, in-use study of one building which showed high productivity, a high level of staff and retail customer satisfaction, and operating costs that are in line with budgeted costs.

On the commercial complex, we worked as a team with Smithson Builders, Inc., a highly qualified general contractor with an excellent record of performance throughout the state. We and Smithson are prepared to collaborate again on your project.

All these projects were completed on schedule, in part thanks to our use of phased construction; all were built at or below the owner's budget and reflect true energy-conscious design. To expand our staff's programming, planning and design skills, we have long-standing working relationships with several local structural and mechanical/electrical engineering firms, the well-known graphics consulting firm of Elm City Associates, and with Four Dollars Inc., the economic consultants.

To tell you more about our firm, we attach a basic brochure and four project fact sheets.

We look forward to meeting with you to discuss our qualifications in more detail.

Sincerely,

Figure 2

"Construction management is a better way to build because: you can start construction quicker and avoid the costs of inflation, you can purchase part of your building directly from manufacturers, you can get construction expertise in the design process, and most importantly, you get a strong management team to control cost and schedule throughout the entire design and construction process."—CM Associates, Inc.

Note, above all, the need for directness. Avoid a long build up. Write in a "you" and a "we" oriented vein. What applies to letters of interest applies as much to writing proposals and to the various elements of your brochure system. A fine example of a "you" oriented lead-in is this first paragraph from the statement of services of a construction management firm's brochure (Figure 2).

The matter of style

An article is perhaps not the place to discuss writing style, which is better dealt with at seminars and workshops. Even so, keep in mind certain principles. Write as you would talk. Keep sentences short. Avoid architectural trade jargon. Be concrete, not abstract. Use active verbs and phrases, not passive. Create human interest by tying activities to people ("You will need to . . ." not "It will be necessary to . . ."). And above all, pare your text to a minimum. Your client's time is valuable.

The one time you may have to allow long-windedness to creep into your style is in case of certain detailed proposals, such as those addressed to Federal agencies. This kind of proposal (but not its summary sheet and letter of transmittal) may need to concern itself closely with fine meanings. For this, you may have to resort to multi-syllable words that will convey those meanings.

Let us suppose you have decided to submit a proposal to a Federal agency to develop a building system that could be used to build a network of expandable ambulatory care clinics. That means you will have to define user needs, convert needs into performance requirements and performance requirements into a performance specification on which interested manufacturers can bid. You must differentiate the various tasks and subtasks in the proposal so the agency's review panel knows exactly what you have in mind. This need has spawned a special brand of English known as "proposalese," especially in the use of verbs.

No matter how clumsy such language, there is the argument in its favor that the words have precise, definitive meanings to the review board, which usually comprises technical specialists. What is more, by using words such as "to document" or "to implement," you are in effect telling board members that you speak their language. *In other words, you are writing to influence a specific audience.*

Yet using long but very focused words does not excuse obscure style. To obtain clarity, be succinct. The message you need to convey—whether it is through a letter of interest, proposal or brochure—is seldom so technical as to pass up simple sentences and the other elements of good style. Aim always to influence, not peers and colleagues, but the client, the media or the public, as the case may be. And those groups will consider professional jargon and other dense forms of style not only puzzling but, what is worse, suspect.

Writing for marketing impact consists simply of analyzing your client and his motivations, and wording your qualifications in a way that will appeal to those intentions. Draw attention to *his* problem; do not parade your own brilliance. "It's not creative unless it sells."

**You waste
a lot of water
when you use flush tanks
instead of
Sloan Flush Valves.**

Figure it out for yourself.

Number of
tank toilets in
your building

Number of gallons
a Sloan Flush Valve
saves compared
to a flush tank

Total number of
gallons wasted
by flush tanks
on every flush

Plus the number
of gallons wasted
by unnoticed leaks

$$\boxed{} \times 0.64 = \boxed{} + \boxed{?}$$

No matter what figure you got, remember it's only for a single flush. Think of how many times all the toilets in your building are flushed every day. Every month. And since every Sloan Flush Valve uses 0.64 gallon less than a flush tank, think of how much water you could be saving, instead of wasting. What's more, a Sloan Flush

Valve saves you money by using this same minimum water volume with every flush. No more, no less. That's because it completes its cycle, then shuts off automatically. Again, there's less water wasted and a lower water bill. Remember, it takes energy to pump water. The less water you have to pump, the less energy you

have to pay for. So stop wasting water and start saving money. To tell you how, we'd like you to have the test report from an independent laboratory that proves Sloan Flush Valves use 0.64 of a gallon less than tanks. For your free copy, just write to us.



Sloan
Flush
Valves.
Anything else
is a waste
of money.



SLOAN VALVE COMPANY

10500 SEYMOUR • FRANKLIN PARK, ILL. 60131

For more data, circle 45 on inquiry card

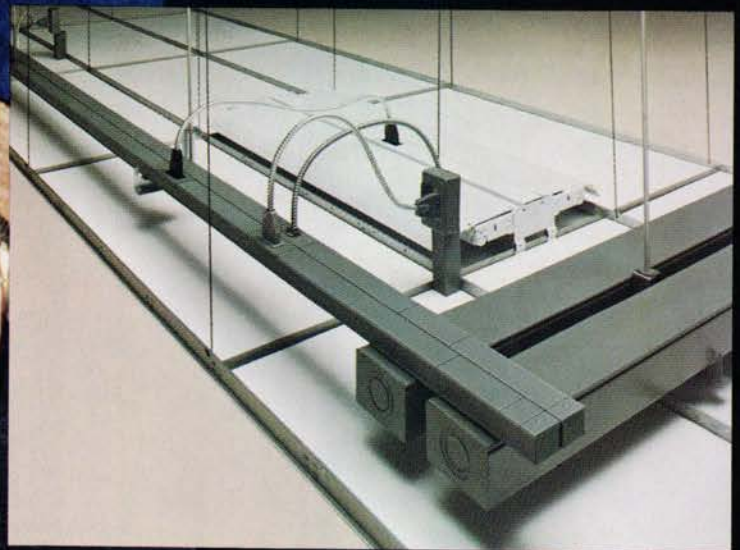
George Blanda puts in a plug for Walkertrak.

We asked George Blanda to help us show you how easy it is to install Walkertrak™ Overhead Raceway. Obviously, George is no wiring pro. But he knows how to put in a plug. And our raceway is just about that easy.

With our simple, two-piece system, you merely hang the raceway inside the ceiling, lay in the wires, splice in the plugs—and start plugging things in. The light fixtures. The T/P® service poles (with built-in compartments for telephone cables). It's easy. So is moving them around. So is adding more components for more power, more communication equipment later on. By George, it'll really save you money.

The name on it—Walkerduct® Products—means it's easy to get too. It's sold through electrical distributors with backup service from your Walkerman's warehouse.

* Walkertrak is a trademark of Walker Parkersburg Division of Textron Inc.
* Walkerduct and T/P are registered trademarks of Walker Parkersburg Division of Textron Inc.



WALKER PARKERSBURG **TEXTRON**

Walker Parkersburg Division of Textron Inc.

An Equal Opportunity Employer, M/F

For more data, circle 46 on inquiry card



When all of the various window requirements
for this project were taken into consideration...

a Pella package was the only logical choice

When this student housing facility for Hahnemann Medical College was built, Pella windows were specified for some very sound, practical reasons. For example, a complete clad system was needed because the architect wanted matching clad panels below the clad windows. This allowed him to confine the masonry panels to vertical shapes, thus achieving the desired visual effect.

The need to keep maintenance costs at an absolute minimum called for windows that could be washed easily from

inside. Further, they had to be equipped with locks to prevent them from being opened during the air conditioning season. Pella Contemporary Double-Hungs with optional keylocks met these requirements beautifully, while their all-wood interiors provided a warm, home-like environment for the student apartments. Pella's Double Glass Insulation System was chosen for its superior insulating value. Add it all up and you have a package of features and options that are exclusive with Pella.



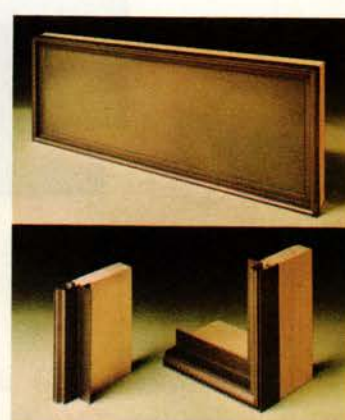
Pella's tough aluminum exterior cladding is first cleaned and etched, then coated with a baked-on acrylic polymer. It won't chip, crack or peel. Available in three standard colors, and 8 extra-cost optional colors.



Pella's Contemporary Double-Hung Window pivots for quick, easy washing of outside glass surfaces from inside the building. Can be equipped with optional keylocks to prevent unauthorized opening.



Pella's Double Glass Insulation System actually outperforms welded insulating glass, yet costs less. It has a full 13/16" air space between the panes. Precision wood construction and snug weatherstripping make it Energy-Tight.



Pella's Clad System includes clad frames which will accept single glass, insulating glass, or matching clad panels. They offer outstanding flexibility and freedom for your design concepts.

For more detailed information, use this coupon to send for your free copy of our 28-page, full color catalog on Pella Clad Windows & Sliding Glass Doors. Call Sweet's BUYLINE number or see us in Sweet's General Building File. Or look in the Yellow Pages under "windows", for the phone number of your Pella Distributor.

Hahnemann Medical College
Student Housing Facility,
Philadelphia, PA

Architect:
L. Charles Scipione
Contractor:
J. J. White, Inc.

Name _____

Firm _____

Address _____

City _____

State _____

Zip _____

Telephone _____

Mail to: Pella Windows & Doors, Dept. T31F7, 100 Main St., Pella, Iowa 50219
Also available throughout Canada. This coupon answered within 24 hours.



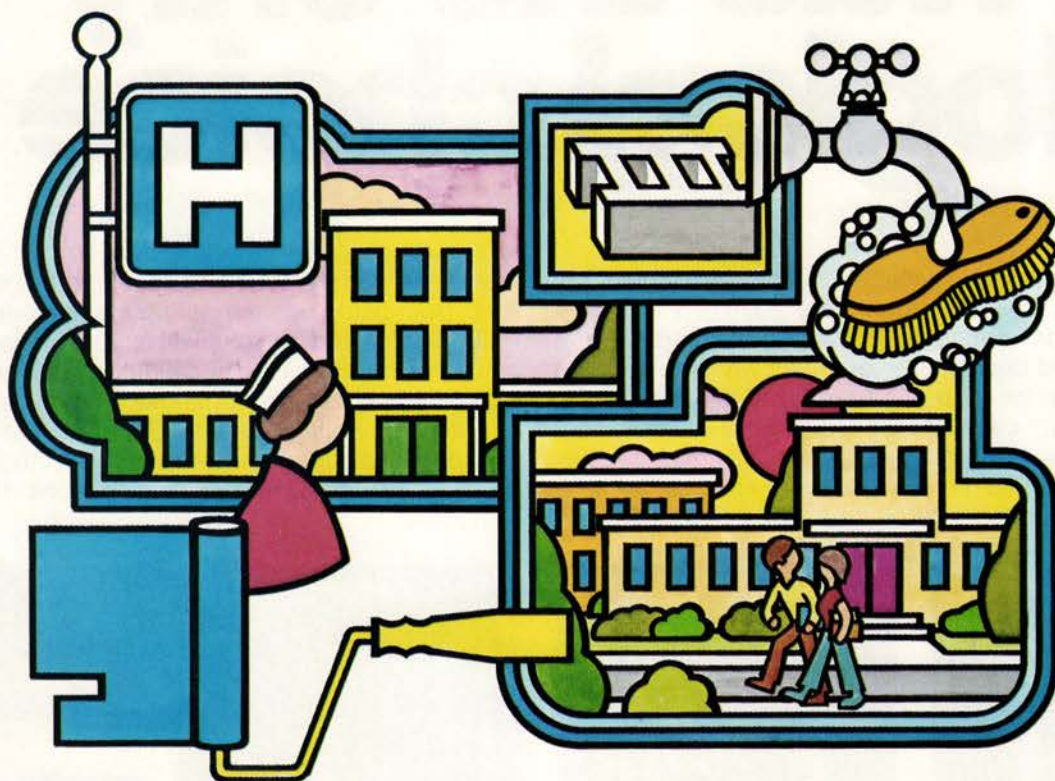
© 1977 Rolscreen Co.

For more data, circle 47 on inquiry card

new

sikagard 670

water-base epoxy/acrylic coating



Sikagard 670 is enviro-safe . . . because Sika chemistry has tamed the epoxies. We took the claws out of the tiger, but left the muscle in. Your new Sikagard 670, water-base epoxy/acrylic coating, combines the easy application of latex and the safer handling of a water-base system with the performance of epoxies. It gives you a dense, satin-gloss, scrubable finish on concrete, masonry, and steel . . . with resistance to scuff marks, graffiti, and moderate chemical attack. Easy clean-up in warm, soapy water. Water-base yes, but Sika-built for no-quit performance. Gentle enough for rollering on in institutions, tough enough for industrial plants. And atmosphere-safe for the air around us. Sikagard 670 exceeds ECA/ Public Health water-extractable requirements. For your new '670' brochure, write Sika, Box 6706 in Lyndhurst, N.J. 07071.



For more data, circle 48 on inquiry card



ColorKlad

The Y's Choice

YWCA, Minneapolis, Minnesota
 Freerks Sperl Flynn, Architects,
 St. Paul, Minnesota
 Hoyt Construction Company,
 Sheet Metal Contractor,
 Bloomington, Minnesota



Vincent
BRASS & ALUMINUM CO.

Building Products Division
 724 24th Ave. S.E.
 Minneapolis, Minn. 55414

Dial Direct Without Charge

MINN ONLY 800-552-1202
NATIONWIDE 800-328-7772

When the architect chose ColorKlad for the Minneapolis YWCA, he had good reasons—the same good reasons which make ColorKlad the most visible—and exciting—roofing and flashing metal on the market today.

Nine attractive colors and two textures blend well with any architectural style or building material. New textured ColorKlad "T" eliminates glare and hides seams, further expanding the architect's design flexibility. And ColorKlad's maintenance-free finish is backed by a written 20 year warranty, guaranteeing maximum performance—at lowest possible cost to your client.

Specify the aesthetics, integrity and cost performance of ColorKlad for **your** next project—you'll make a wise choice.

SEND FOR OUR NEW **COLORKLAD** BROCHURE AND COLORCHART TODAY!

Name

Title

Company

Address

City State Zip

For more data, circle 49 on inquiry card

Look At Docklevelers Two Ways



To Save Your Clients' Money

VIEW ONE. With today's high labor and material handling costs, more and more owners are realizing they can't afford inefficient plain concrete docks. Many are adding permanent docklevelers to their present docks . . . and insisting they be included in new docks. Why?

Because a permanent dockleveler will pay for itself in less than a year. Some figures show a permanent dockleveler can save \$4000.00 per truck position per year . . . and often give 12 to 15 years service. **VIEW TWO.** Take an inside look at a Kelley Permanent Dockleveler. Compare it with any other dockleveler. The patented Kelley safety

and operating features — cross traffic legs, single enclosed power pack, lip hinge supports, single adjustment point, plus optional emergency "Panic Stops" — are not available on any other dockleveler. These features are what make Kelley the world's most preferred dockleveler . . . because they help attendants and equipment operate more efficiently . . . with far greater safety. So why let your clients settle for substitute docklevelers? Recommend Kelley. Then contact your Kelley Representative. He's well qualified to help you choose the best size and capacity dockleveler for your client's needs.



Kelley Company, Inc.
6768 North Teutonia Avenue
Milwaukee, Wisconsin 53209
Phone: (414) 352-1000
Telex: 26-661

55-761A

For more data, circle 50 on inquiry card

The rains and stains fall vainly.

Introducing Fuller-Dek.[®] Great outdoors for floors. A full line of elastomeric systems including waterproofing coatings for vehicular or pedestrian traffic, roof decks, foundation and interlayer membranes. Also poured-in-place indoor and outdoor sports and recreational surfaces.

Fuller-Dek traffic-bearing systems provide positive waterproofing plus attractive appearance for pedestrian or vehicular traffic. Available in colors or use with natural or colored aggregates. Great for plaza, promenade, decks, balconies, terraces, roof-top parking, parking ramps, or loading docks.

Fuller-Dek. It's starting to reign. See Sweets Catalog 9.24/Fu. or ask us for details and samples. Call Sweets Byline 1-800-255-6880 for your local Fuller representative. Fuller-Dek is just one of the many HB Fuller architectural surfacing systems that decorate and protect.

HB FULLER COMPANY

ARCHITECTURAL PRODUCTS GROUP

315 South Hicks Road, Palatine, IL 60067

Toll Free 1-800-323-7407, In Illinois 312-358-9500

For more data, circle 51 on inquiry card



"U.S. Elevator worked with us on federal building jobs totaling almost \$200 million. We had no problems and based on their performance I'd guess they'll be with us on a lot more."



Joe Walker, Sr. Vice President
J. W. Bateson Company, Inc.
Dallas

"We specified U.S. Elevator for buildings in Long Beach, Oakland and a new, upcoming medical center because they bend over backwards to do it our way. We'd recommend them to anyone."



Francis Hoffman, Architect
Francis Hoffman & Associates
Los Angeles

"U.S. Elevator makes us sharply competitive with equipment that's so good it makes us proud to put our name on it. We've been happy with U.S. Elevator since 1969."



Gene Russon, President
Kimball Elevator Co. (independent agent)
Salt Lake City

"One thing we don't worry about at our new 542-room hotel is elevator problems. Our U.S. Elevator systems work beautifully and the company is always Johnny-on-the-spot when you need them."



David Sanders, General Manager
Sheraton Fisherman's Wharf
San Francisco

People who know buildings best are high on U.S. Elevator.

Whether they design them, build them, install the elevators in them, or manage them, people who are in the know about buildings are saying some uplifting things about us.

So we'd like to pass some of these comments on to you.

After all, when you work as hard as we do to please our customers, it makes you feel good to get a pat on the back. (And if the word gets around, it's good for business, too.)

What these four in-the-know people say about U.S. Elevator could mean big savings in time, money and good will for you, too, next time you have an elevator requirement.

So write to U.S. Elevator Corporation, 2500 Sweetwater Springs Boulevard, Spring Valley, CA 92077, for all the details and be prepared to get high on U.S. Elevator.

**U.S.
ELEVATOR**
A subsidiary of Cubic Corporation

For more data, circle 52 on inquiry card

INTRODUCING GUARDIAN REFLECTIVE GLASS CRV22 BELT EC LINE

**Now your building
can keep more of its cool.**

Guardian Industries' new TE-10 reflective glass reduces solar heat gain by as much as 85%. Yet, it allows visible light transmission of 10%. And thermal transmission in wintertime is reduced by 55%. So energy costs stay lower all year 'round.

With other Guardian reflective glasses you can reduce solar heat gain up to 92%, allow up to 30% visible light transmission, and reduce thermal losses by as much as 70%. So whatever your design needs may be, Guardian has the reflective glass to do the job.



Guardian S and T series reflective glass is now available for monolithic applications, as well as for double glaze units with Guardian "airspace" insulating glass. A variety of shades and colors are available to give you superior performance in both new and reglazing applications.

Specify new Guardian Industries' reflective glass. When you build buildings that keep more of their cool, you keep building your list of customers.

See Sweet's section 8.26/GU

THE FACTS ABOUT STAGGERED TRUSS— THE LOW-COST, HIGH-RISE, STEEL FRAMING SYSTEM.

Many high-rise residential buildings have been built with the Staggered Truss steel framing system. In fact, in recent years over fifty apartment and hotel type structures have taken advantage of the Staggered Truss.

This system for high-rise structures affords an efficient and economical use of structural steel, with far greater flexibility than is possible with other portal framing systems.

HOW THE STAGGERED TRUSS WORKS

The innovative Staggered Truss Steel Framing System consists of story-high trusses that span the full building width at alternate floors of each column line. The trusses are supported only on the two rows of exterior columns and are arranged in a staggered pattern on adjacent column lines.

ARCHITECTURAL FLEXIBILITY

Since columns are needed only at the exterior of the building, the full width of the building is column-free, providing the maximum useable floor space. And with trusses starting at the second floor level, large clear span areas are available at ground level. As a result, the ground level can be more efficiently utilized—for parking, promenades and playgrounds. Also, construction within air-rights over existing facilities is made more simple.

Complete architectural units can be placed between trusses, and by varying truss spacing the number of unit sizes within the spacing can be varied.

For example, in apartment house construction, one, two or three bedroom units can be arranged on a single floor by varying truss and column spacings. And the Staggered Truss system is not only applicable to the basic rectangular configuration: it can also be applied to curvilinear or circular building, or to combinations of offset rectangles.

Trusses can be constructed with any practical distance between chords, so any floor-to-floor height can be met—which might present difficulties with conventional framing methods.

WHY IS STAGGERED TRUSS ECONOMICAL?

To start with, foundations are only needed for the exterior column lines. This means savings in excavation, concrete costs, and the time spent for foundation construction.

High-strength steel can be used economically, because strength rather than deflection controls the truss design.

With minimum types of truss members, important savings can be made in shop fabrication—which in itself accommodates the maximum use of mass-production. And with fewer pieces to handle in the field, erection time and costs can be cut.

All this helps make Staggered Truss more economical than other systems. For example, in a typical twenty story apartment building, we might expect that the steel requirement for a staggered truss frame is only about 60% of

that required in a conventional framed structure. A possible saving of up to 40%!

Naturally, shorter erection time results in faster occupancy—and this means lower-cost construction loans and earlier rental income for owners.

THINK ABOUT IT

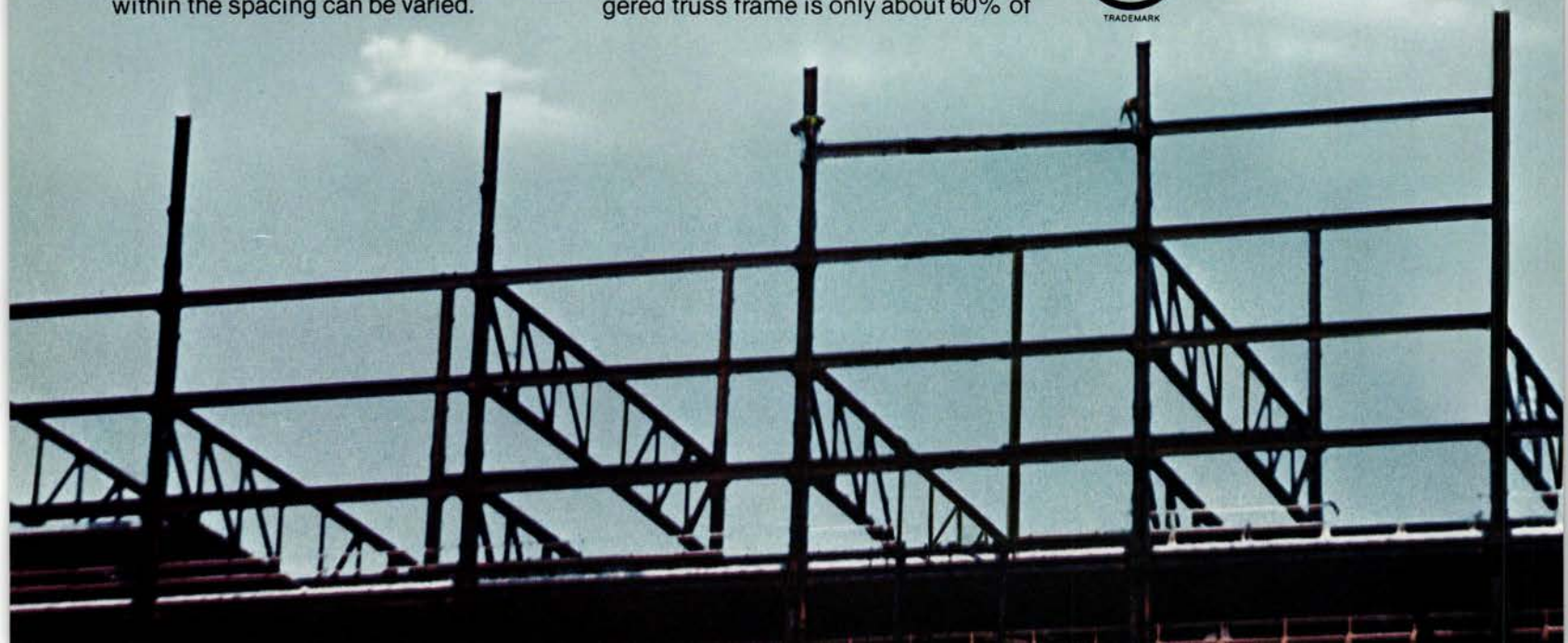
The benefits of the Staggered Truss system are many, but its biggest advantage is the ability to resist lateral loads. So the value of the system increases as the building becomes higher, and this is why it has been so successful for high-rise residential buildings such as apartments, condominiums and hotels.

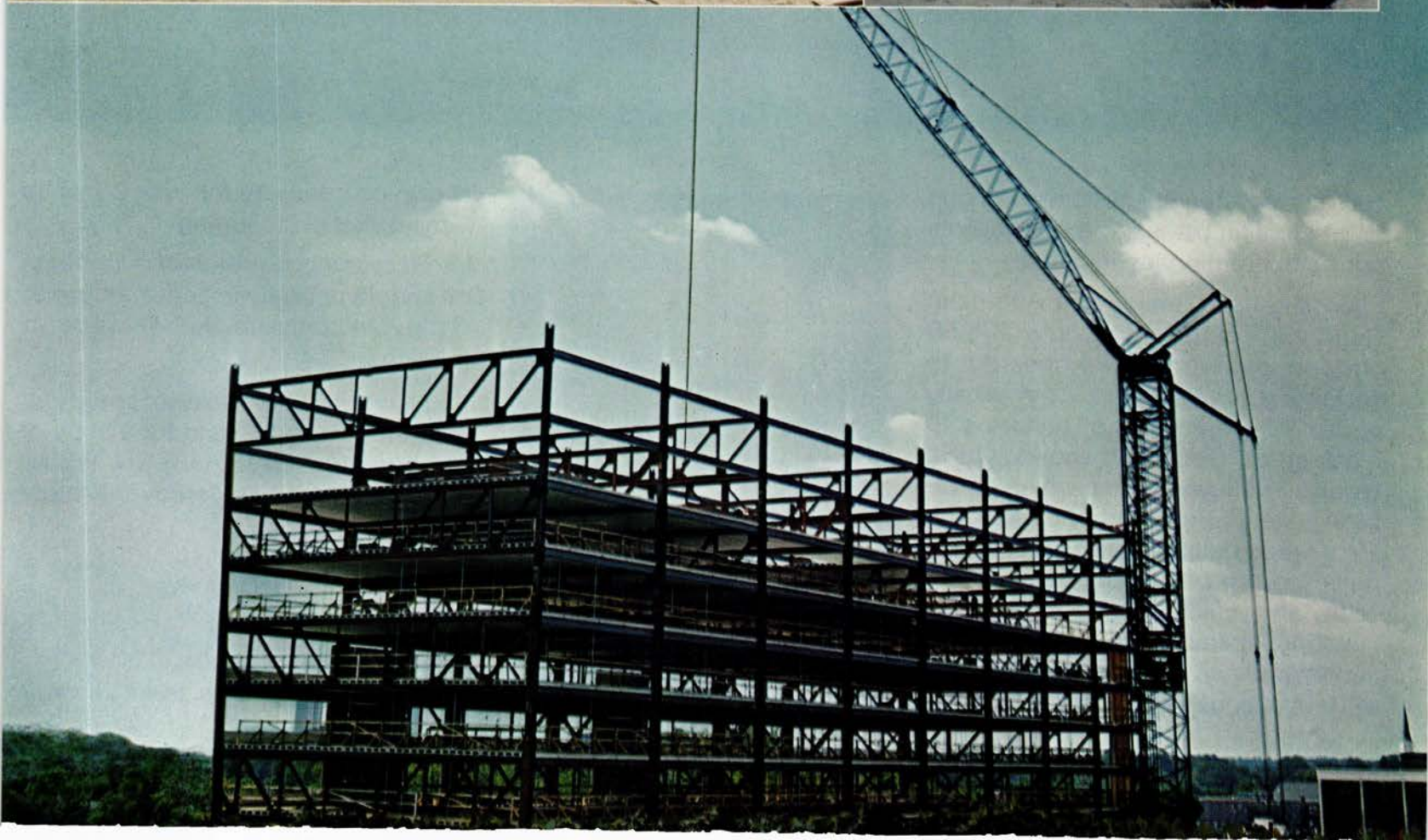
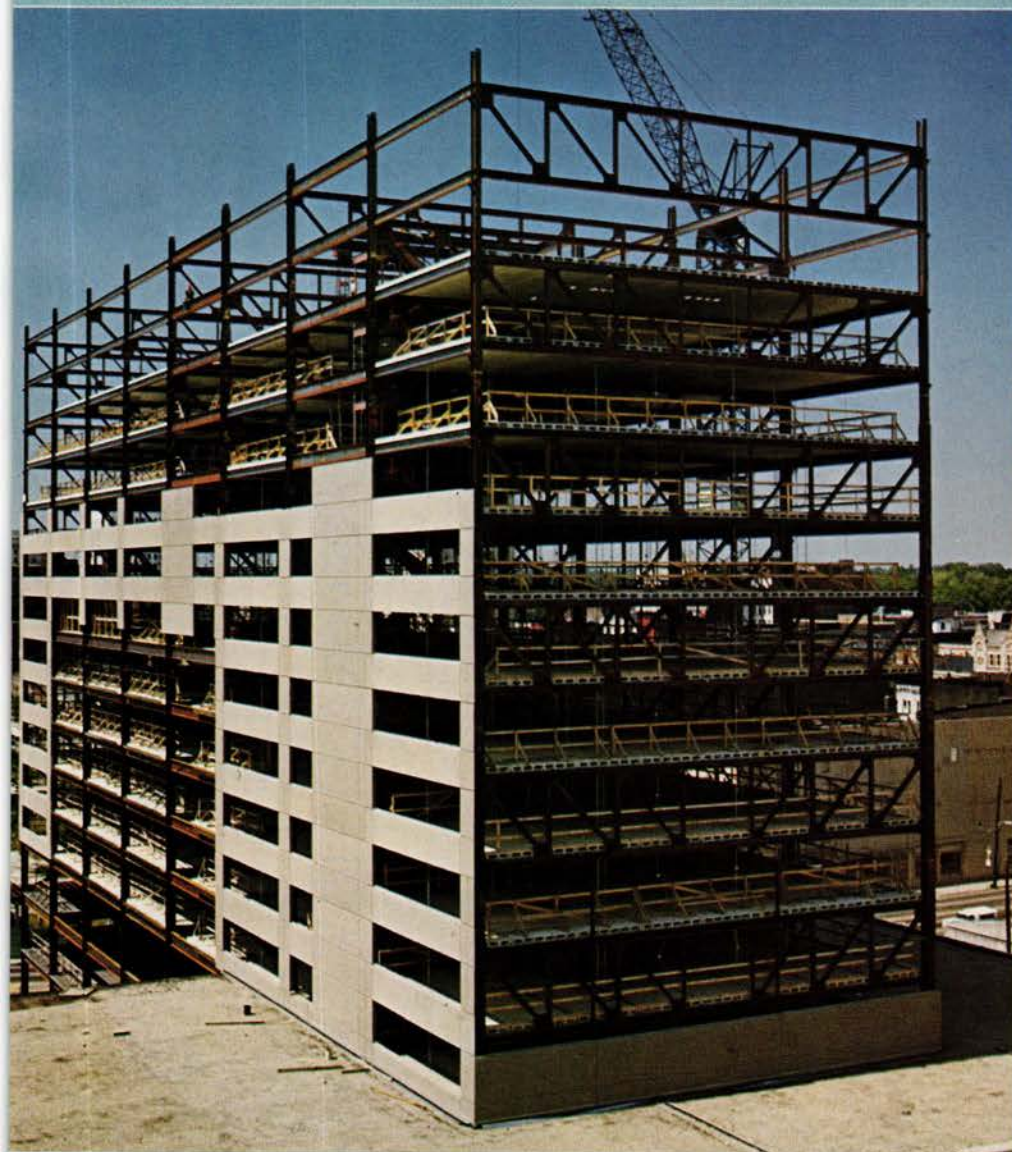
Staggered Truss is worth thinking about. In many recent projects, when evaluated against other systems, it has proved to be the fastest, the most practical and the most economical. You'll be surprised how easy it is to work with.

For more information on the design of Staggered Truss structures, contact a USS Construction Representative through your nearest U.S. Steel Sales Office. Or write for our booklets, "Staggered Truss for High Rise Building" (ADUSS 27-5227-02), and "Staggered Truss Framing System-Design Considerations and Commentaries" (ADUSS 27-7165-01), to U.S. Steel, Box 86, (C777), Pittsburgh, Pa. 15230.



United States Steel

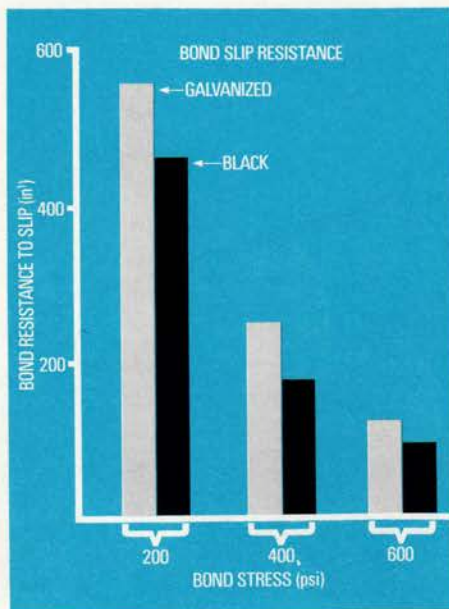




GALVANIZED REBAR GIVES CONCRETE A BETTER GRIP—AND THEN INSURES

Galvanizing strengthens concrete's grip on reinforcing steel and then prevents corrosion from prying it loose.

Extensive tests employing American Concrete Institute procedure 208-58 showed that the bond of concrete to galvanized steel was equal to or usually better than the bond of concrete to black steel. The graph shows typical results. The layer of zinc which galvanizing metallurgically bonds into the steel rebar insures against subsurface rust pressure which can force the concrete away from the steel, causing cracking, staining and spalling. Even in the aggressive marine environment of Bermuda, galvanized rebar has kept



its grip on concrete for over 25 years with no sign of loosening.

An increasing number of architects are specifying galvanized steel rebar to prevent concrete deterioration in buildings.

If you would like more information, write on your letterhead for a copy of our booklet "GALVANIZED REINFORCING BAR—Undercover Protection For Concrete."

ST. JOE
MINERALS CORPORATION

250 Park Avenue, New York, New York 10017



Hopkins Road Elementary School (one of three identical schools), Chesterfield County, Virginia
 Associated Architects and Planners: C. Page Highfill, AIA and William Ward Moseley, AIA
 Structural Engineer: Alvin W. Dunbar
 General Contractors: J. W. Enochs, Inc., Walthall Construction Corp., Frank B. McAllister, Inc.

Time-to-first-maintenance is a major criterion. Specify Galbestos.

Soaring maintenance costs make the choice of materials for use on any school difficult. Particularly since a profiled roof is a severe test of a finish. Galbestos® roofing was chosen for the 3 Chesterfield schools because it has proven a winner against both time and the elements. Extensive independent tests* of Color Change and Fade Resistance, Pollution Resistance, and Humidity Resistance



Intensive testing (EMMAQUA) conducted by Desert Sunshine Exposure Tests, Inc. in the Arizona desert has established the excellent resistance of Galbestos to color change and fade.

all prove its ability to outperform other finishes — in the important time-to-first-maintenance consideration that can mean thousands of dollars.

Write H. H. Robertson, 400 Holiday Drive, Pittsburgh, PA 15220 for product data and copies of the independent test reports.

*These standard ASTM, Kesternich and EMMAQUA tests were conducted by the Pittsburgh Testing Laboratory, Carnegie-Mellon University and Desert Sunshine Exposure Tests, Inc.

Robertson

Today's exorbitant energy costs demand a whole new approach to a building's exterior design!

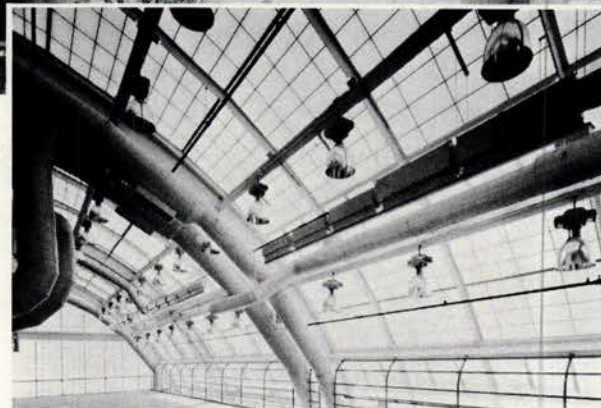
Jack E. Robinson School
New Haven, Conn.
Stull Assoc. — Architects

The KALWALL® SYSTEM is that NEW APPROACH!

The demand is for buildings that use sunlight as much as possible. *At the same time*, the buildings must be insulated as much as possible.

The Kalwall System is BOTH light transmitting and INSULATED. This means the entire structure can have walls of Kalwall to let natural sunlight in all around. Yet, because Kalwall is so highly insulated, there isn't the terrible heat loss of transparent window-wall type buildings.

See for yourself! Visit a Kalwall building. Talk with the owner, with the operating personnel. It'll be an exciting experience.



Some specifications of the Kalwall System:

• Light transmission range	3% to 83%
• U-Factors	.40, .24, .15, and .06
• Shading Coefficients	.85 to less than .06
• Weight per Square Foot	1½ pounds
• Thickness of System	2¾ inches
• Design Considerations	Unlimited
• Cost	Try Kalwall on for size!

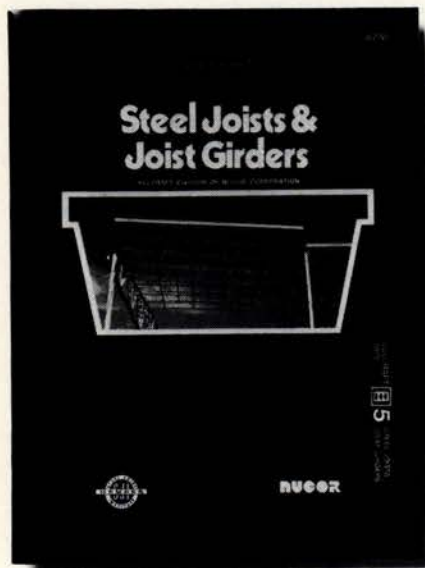
Kalwall CORPORATION
1111 Candia Road, Manchester, New Hampshire 03103 Phone 603-627-3861

Full color literature gives complete details and specifications. Call or write Bruce Keller. By return mail, you'll get all the literature plus the name of an installation nearby!

Kalwall Systems Save Energy!

For more data, circle 55 on inquiry card

READING THIS PAPERBACK CAN CHANGE YOUR MEANS OF SUPPORT.



Find out how Vulcraft's system of steel joists and joist girders offers better support. Send for a free, 16-page Specification Guide. If you can't wait for the mail, just call (704) 366-7000 for more information.

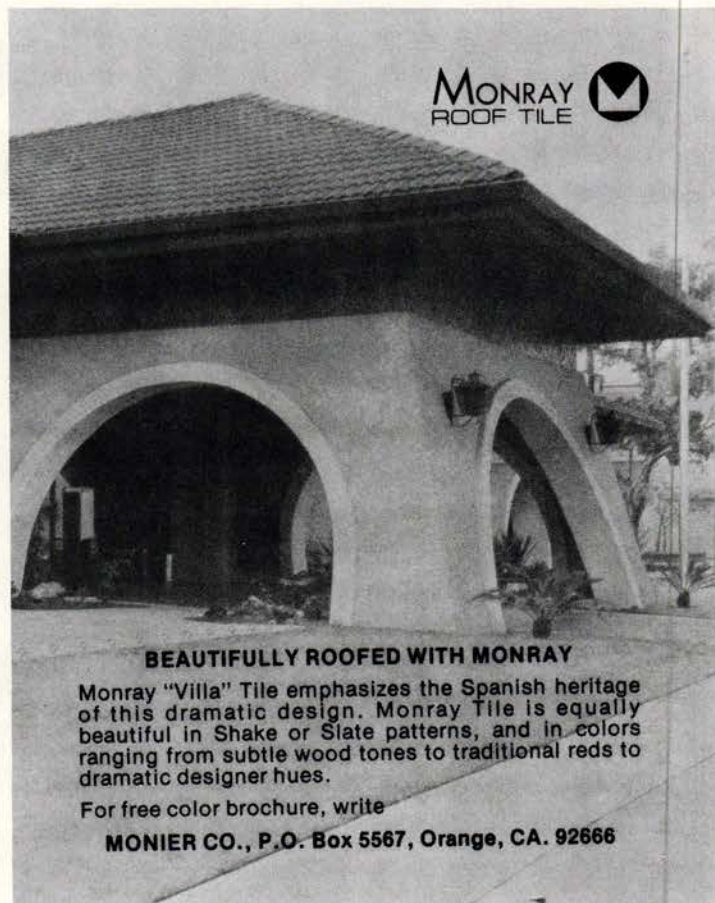
I could use support from Vulcraft. Please send me a free Specification Guide immediately.

Name _____
Address _____
City _____
State _____ Zip _____

VULCRAFT

P.O. Box 17656, Charlotte, N.C. 28211

For more data, circle 56 on inquiry card



BEAUTIFULLY ROOFED WITH MONRAY

Monray "Villa" Tile emphasizes the Spanish heritage of this dramatic design. Monray Tile is equally beautiful in Shake or Slate patterns, and in colors ranging from subtle wood tones to traditional reds to dramatic designer hues.

For free color brochure, write
MONIER CO., P.O. Box 5567, Orange, CA. 92666

For more data, circle 57 on inquiry card

Schedules to meet. People to greet. Luggage to carry. This is the place for Stanley automatic entrances.



Busy terminals have a special need for keeping traffic moving quickly, efficiently. Arrivals, departures, connections, meetings, bulky luggage. All point to the need for Stanley automatic doors. Their basic design permits a broad range of architectural flexibility. And their engineering assures the trouble-free performance you'd expect from the originators and the world's foremost makers of quality, automated doors. Stanley Door Operating Equipment, Division of The Stanley Works, Farmington, CT 06032.

STANLEY
helps you do things right.

For more data, circle 58 on inquiry card

Before Redi-Set went up in the hospital that was being built, it went up in the one that was being torn down.



For a full year, hospital administrators in a large metropolitan area hospital watched how Redi-Set[®] performed under normal hospital conditions, in a room in the old building, tiled just for that purpose.

One year later, Redi-Set ceramic tile was up in the new \$30 million hospital. On the walls in the operating room suite and kitchen. And on the walls in the corridor bath areas.

Redi-Set is a natural for areas like these because of its non-porous, water-repellent silicone rubber grout. The grout also combats mold and mildew. And because it resists most stains, it stays bright and clean with routine hospital-accepted cleaning procedures.

There are other advantages to Redi-Set, too. It comes in flexible, pregROUTED tile sheets that go up quickly over just about any existing, structurally sound surface (old or new). So installation costs are held to a minimum. And the grout won't crack or powder out even with slight building movement.

Discover for yourself what many hospital administrators already know about Redi-Set. Mail the coupon for a free descriptive brochure on Redi-Set. It's ceramic tile plus.

Plate No. 691

American Olean Tile Company
2438 Cannon Avenue, Lansdale, Pa. 19446

- ☐ Please send me the free full-color Redi-Set brochure.
☐ Please have an American Olean Salesman call.

Name _____ Title _____

Company _____

Address _____

City _____

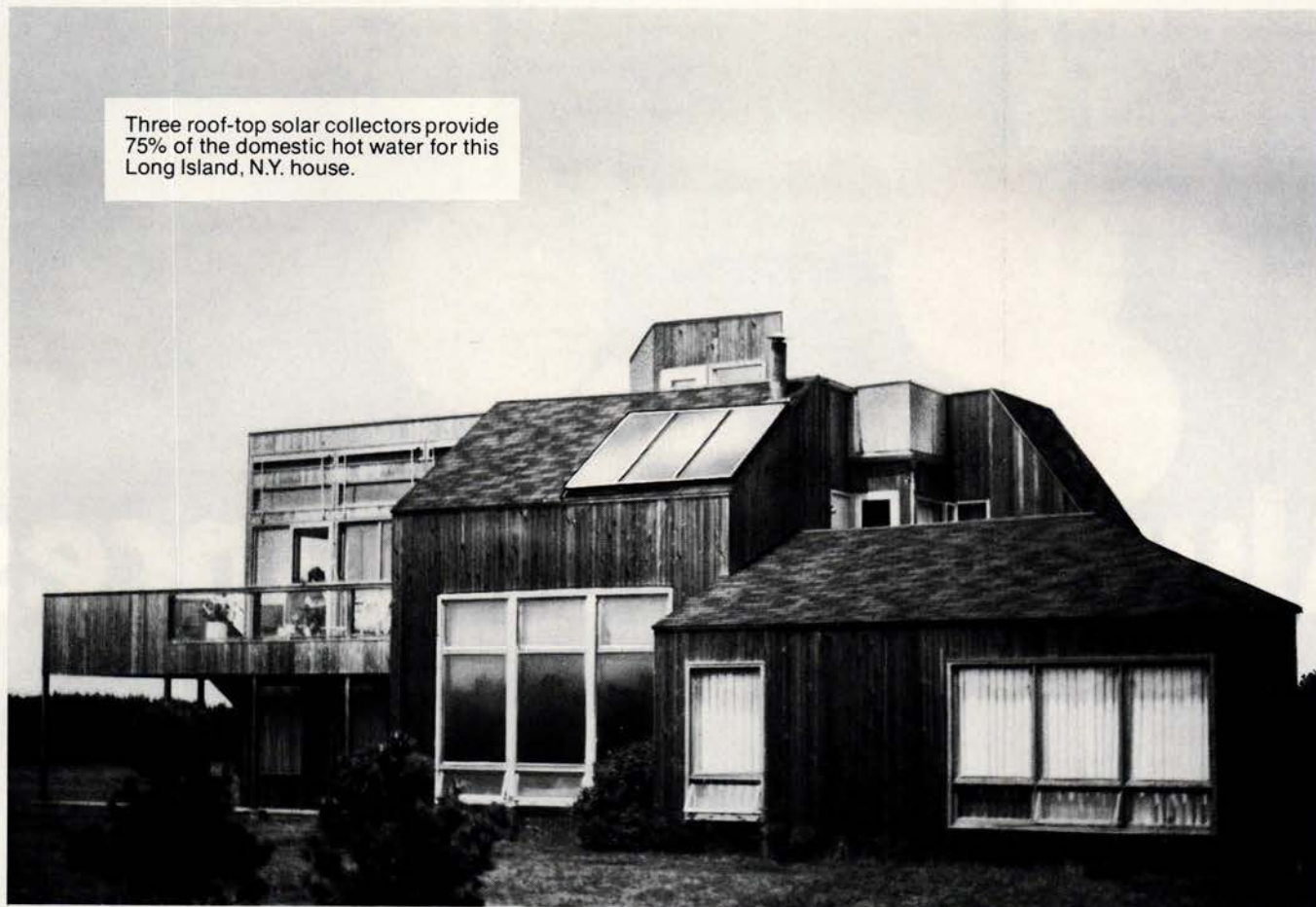
State _____ Zip _____

AMERICAN OLEAN
American Olean
A Division of National Gypsum Company

American Olean ceramic tile is available worldwide.
Telex 84-6407.

Copper solar collectors give you energy on the house.

Three roof-top solar collectors provide 75% of the domestic hot water for this Long Island, N.Y. house.



Solar energy is here today! It is dramatically cutting costs of heating water for homes, schools, recreation and commercial buildings in all types of climates. Solar collectors also provide energy for space heating and air conditioning.

When you design, specify or install solar collectors, insist on copper for the absorber plate and for the tubes which circulate the fluid. With a blackened surface

coating, it's the most efficient material for collecting the sun's heat. Copper needs practically no maintenance, is easy to work with, and resists corrosion.

Asarco is a major copper producer with a stake in the energy future of America. The Sunworks division of an Asarco subsidiary is a leading fabricator of solar energy systems. ASARCO Incorporated, 120 Broadway, New York, N.Y. 10005.

ASARCO

For more data, circle 60 on inquiry card

A photograph of a building entrance. The entrance is framed by a large, dark brick archway. Inside the arch, the ceiling is a light-colored, curved, ribbed structure. Four large, white, spherical pendant lights hang from the ceiling. Below the lights is a set of double doors with a dark wood frame and glass panels. The glass panels have a decorative pattern of vertical lines and circles. The doors are set into a brick wall. To the right of the doors, there is a large window with a view of a green landscape. The overall scene is well-lit, with warm tones from the brick and the lights.

Aluminum Entrances

Kawneer means variety. The broadest and most comprehensive selection of entrance systems from any architectural aluminum products manufacturer is available from Kawneer. From stock door "packages" to the exciting spectrum of monumental building entrances like the Entara entrance system, the variety is virtually limitless.

How to turn 12 into thousands,

The variety begins with 12 basic door systems. And then, each can be adapted to meet special design or functional needs. For example, the basic 190 series door can be specified in more than 200 separate and distinct combinations of push/pull hardware, operating hardware options and finishes. Each element is designed and engineered to meet the exact and unique requirements of any entrance situation. And, in a complete system of design coordinates, such as Entara, the exact number of entrance styling and functional combinations is practically unlimited. Kawneer makes more out of entrances so designers can make more of their buildings.



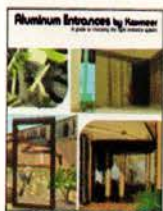
I-Line series 3000 door in Permanodic Black finish with tapered pull and Stria textured panel in Pewter finish.

I-Line 4000 Series entrance in clear anodized aluminum finish, with panels of Quarry texture in Pewter finish and a cast aluminum pull handle.



by Kawneer

And yet, behind this wide variety available in Kawneer entrances is only one standard of engineering and construction: The very best. Each Kawneer Entrance System is a total performance combination of door, frame, and hardware that will stand up to the demands of traffic volume and building usage. The excellence of engineering and rugged construction is backed by a continuing program of testing which assures the user that Kawneer Aluminum Entrance systems will provide efficient performance for years and years. No matter what the variety.



A helpful, 28-page guide to entrance systems is available from Kawneer. Write for your copy of *Aluminum Entrances by Kawneer*. Kawneer Product Information, 1105 North Front Street, Dept. C, Niles, Michigan 49120.

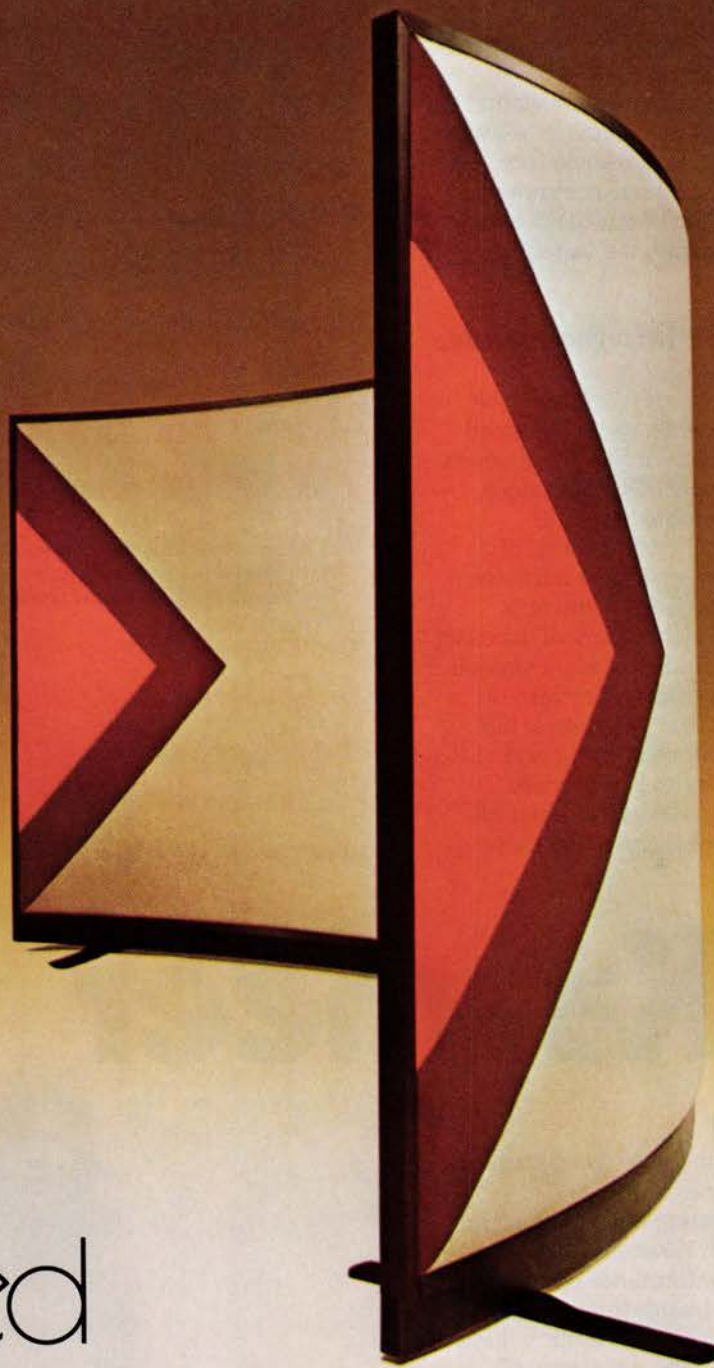
"190" door in Clear anodized aluminum finish with F-2 style hardware.



KAWNEER

ARCHITECTURAL PRODUCTS

1105 NORTH FRONT ST., NILES, MICHIGAN 49120



It's called PlanScape.®

And it's designed to bring a whole new level of excitement to office landscape. Ten bold patterns, 33 colors in any combination, three trims, 18 straight and curved sizes. Class A fire rating. NRC .90 (that's right — .90). STC 24. Write for more details. Vogel-Peterson, Rte. 83 at Madison St., Elmhurst, IL 60126.



Catch our new look and new location during NEOCON — space 930-31.

VOGEL PETERSON
Three horizontal stripes in yellow, orange, and red.

For more data, circle 62 on inquiry card

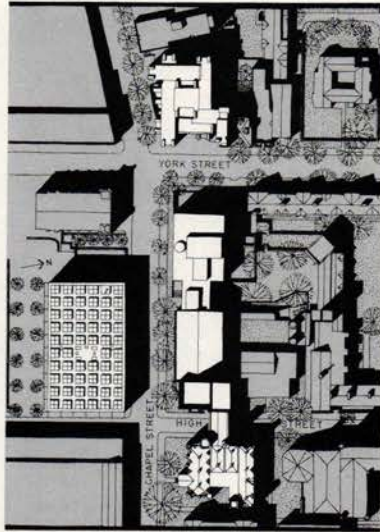
YALE CENTER FOR BRITISH ART

LOUIS I. KAHN, ARCHITECT

with a commentary by Vincent Scully, Jr.

Louis I. Kahn's Yale Center for British Art was an unexpected culmination of his career. Two decades earlier, Kahn had set out to free himself from the volumetric envelope of Mies van der Rohe's design. He had also done his best from that date onward to eliminate glass, or its visual expression, from his work. But in the British Art Center, effectively his last constructed building, he not only went straight back to the volume and the bay system of Mies but also brought glass forward to operate at its maximum capacity for visual magic in translucency and reflection. The British Center's special site and function surely had something to do with these surprising developments. Directly across the street from it stands the earliest of Kahn's mature buildings: the first in his great sequence of inventive designs. It is Yale's Art Gallery of 1953. There Kahn had employed the Miesian envelope and had also fought it, as something inherited and unwanted, with every resource at his command. In it he had thrown out Mies' gently scaled bay system in favor of an enormous semi-space frame in concrete, awesome in scale and permitting (how Kahn was later to regret this fact) the utmost flexibility in interior arrangement. He had also rigorously banished all glass from the major plane of his facade on Chapel Street, while at the west, on York Street, he had left glass, concrete piers, and steel mullions in an unresolved mix along a single plane. Only on Weir Court to the north were the central service core and the wide-spanned gallery spaces made visible on the exterior. Stirred, even infuriated, by all these compromises, Kahn had then gone on, like Wright before him, to break out of the classicizing box and the ubiquitous classic bay. He had thus done much, by the time of the Richards Laboratories of 1960, to bring the last phase of the International Style to a close by connecting architecture once again with its more material nineteenth-century traditions and by breaking an agonized path toward new, apparently more varied, certainly physically more convincing forms.

But now, in his last urbanistic dialogue—this time in large part with himself—he turned around and went back to Mies, as if he were saying, all right, let's do it right this time. He produced a perfect box, its long side pressed flat to the street and stretched along it. The bay system, very moderately scaled, reappeared and was released to act as the major visual determinant of all the facades. The box was thus made pure, like one of Mies' at IIT redone in



Location of the British Art Center



Lionel Freedman photos

Kahn's earlier Yale Art Gallery, 1952

Vincent Scully, Jr., is Professor of the History of Art at Yale University and author of many works of architectural criticism, including *Louis I. Kahn* (George Braziller, New York City, 1962).

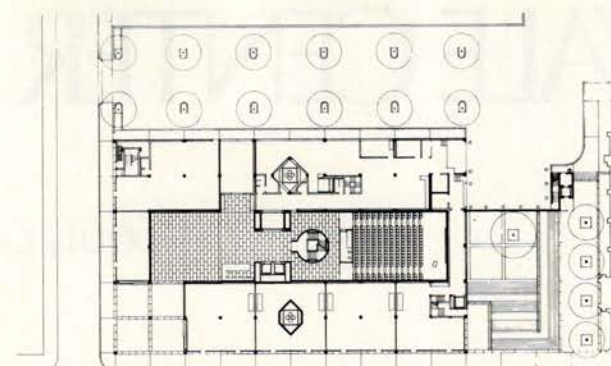
concrete. On the street the impatient masonry plane of the Art Gallery on the other side was eliminated. The concrete skeleton was exposed there as everywhere else, and it and its drip molds and its panels of gray stainless steel and (in this context) dark glass were joined with precise shadow lines to create a poetry of connection more than worthy of Mies. Gone were the hollow mountains, pierced by glassless voids, of Dacca and Ahmedabad; gone even, here on the outside, the lucidly cast concrete walls of Salk. The whole became taut and linear; the columns thinned as they rose, the steel between them very matte ("pewter," Kahn called it) looking surprisingly like his gray slate at Bryn Mawr. Most of all, the enormous panes of glass were set tightly up to the wall surface and were minimally framed without reveals, so that the light, dying on the dull steel, explodes as it slides across them, lighting up reflections of blue sky and streaming clouds which are reminiscent of the reflecting pools of classic French gardens. Big elements of tan masonry cornices from the Beaux-Arts Art Gallery across the street also swim into place; at this scale, and so magically fragmented, they recall Piranesi's Rome, which Kahn had always loved. The panes of glass vary in size and somewhat in placement, so that their reflections play that added counterpoint to the otherwise inflexible order of skeleton and plane. On the roof the metal casings of the skylights gleam like shiny mansards, and they somewhat offset the reflections on the surface glass below them with the muted flood of overhead light they admit to the top floor. But in general the building envelope is everywhere impenetrable and, except for three bays where the slab of the second floor is suppressed for a two-storied library within, it is wholly without opening or gesture, eloquently cold and remote as the studied aristocrat it is. Aristocrat indeed: because it is surely the best at what it is doing, perfect in its closed form and exquisite details, entirely self-sufficient and self-contained, scorning rhetoric, persuasion, or movement of any kind. At its west flank, along the street, a rather unconvincing set of broad stairs, large in scale and complex in landing planes, plunges one level downward to a sunken restaurant-terrace perhaps not appropriate to the building, which really can have no intermediary terracing between it and the rest of things. There are no integral connections possible between it and anything else. Like some of Kahn's early work, but now with a truly

text continued on page 102

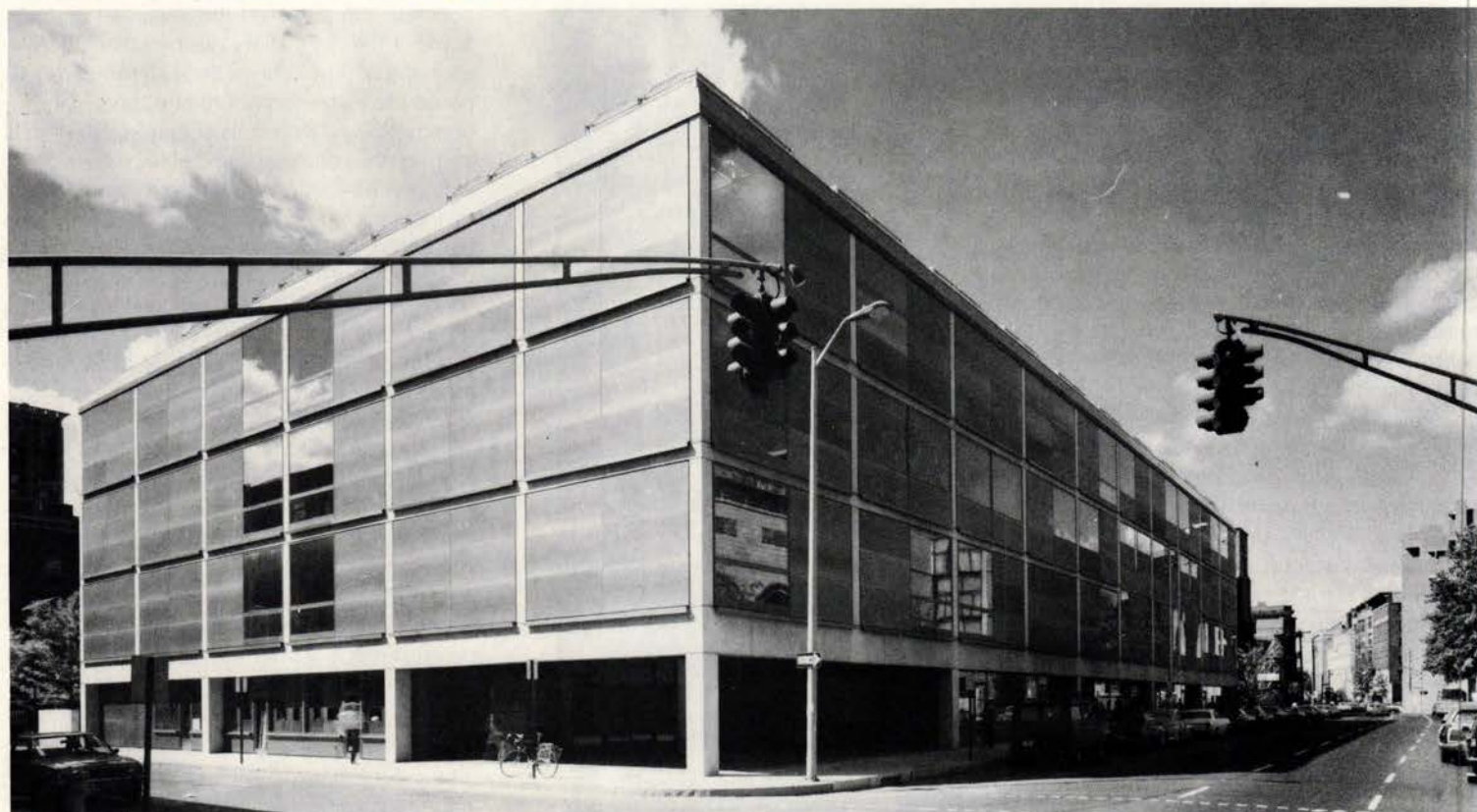


Kahn used exposed reinforced concrete for the structure of the building and, to define the non-structural parts of the wall, he used glass and pewter-finish stainless steel. The main part of the building is 200 feet by 120 feet, and it rises four stories above the street level. Kahn continues the visual line of the street by placing the building right up against the sidewalk and by relating its height to that of the buildings across the street. The rhythmic unit at street level is 40 feet—double the 20-foot spacing of the columns on the three floors above.

drawings © 1977 Pellecchia & Meyers, Architects



SITE AND GROUND FLOOR



Thomas Brown photos



John Ebstel

Thomas Brown



John Ebstel

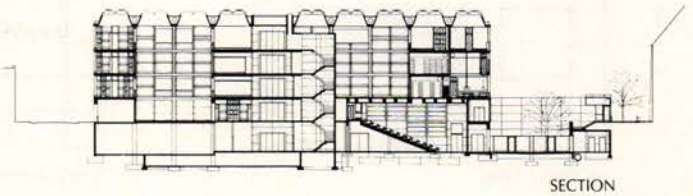


Thomas Brown

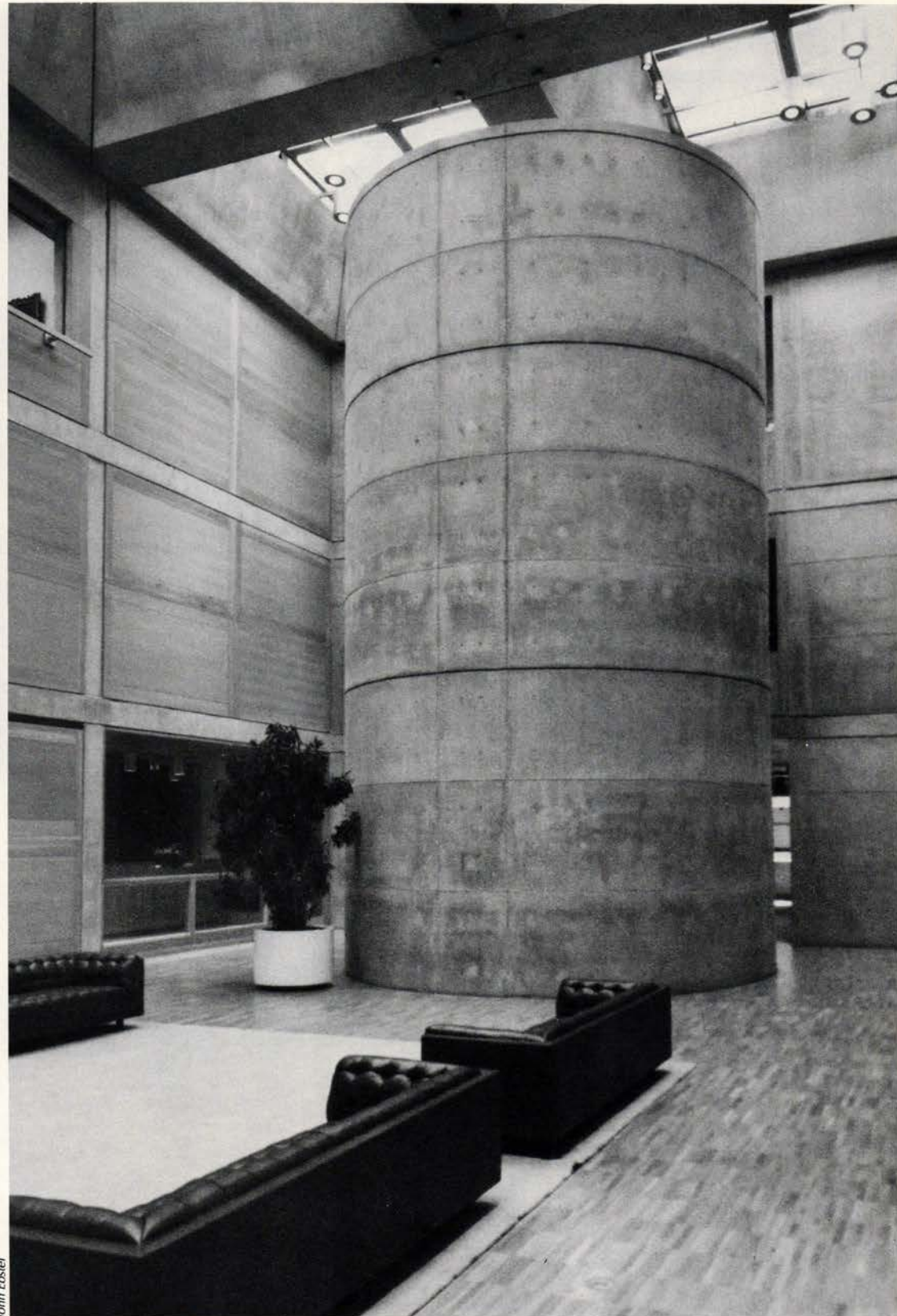


The color photograph at the bottom of the opposite page shows the entrance court in the Yale British Art Center. From this court the photograph immediately on the left is taken. This shows the main sales desk and, beyond that, the entrance to the concrete stair drum and, further still to the left and right the way into the auditorium, which is shown in the two photographs below left. Below right is a view of the stair drum, which rises through the large interior court that begins on the second floor of the British Art Center.

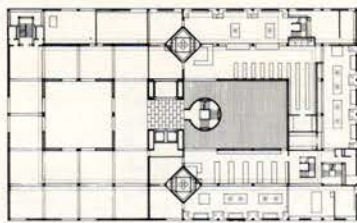
drawings © 1977 Pellecchia & Meyers, Architects



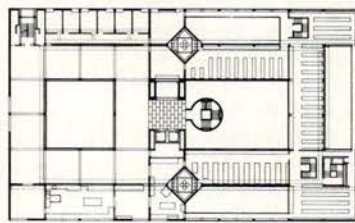
SECTION



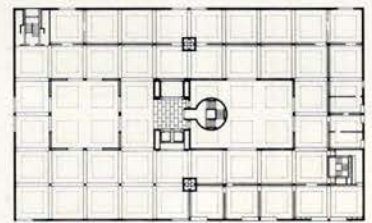
John Ebstel



SECOND FLOOR



THIRD FLOOR



FOURTH FLOOR

Thomas Brown



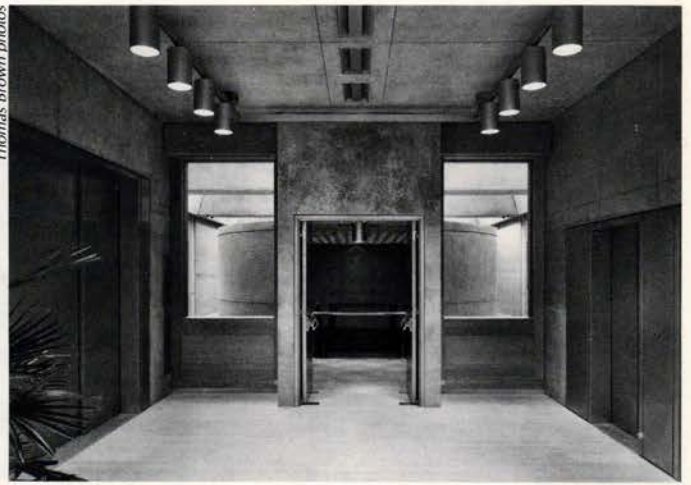
John Ebstel

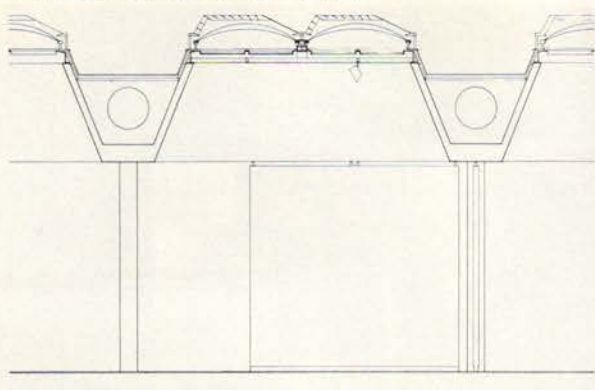


The photograph below on the opposite page shows the three-story interior court, roofed over by a skylight system supported by giant concrete V-beams. The photograph below shows one of the two library spaces which open off the interior court on the second floor and which are each two stories high. The pewter-finish stainless steel air shaft in the background is one of two which rise through the entire building, and it and the exposed satin-finish aluminum ducts are evidence of Kahn's concern for expressing a building's mechanical systems.



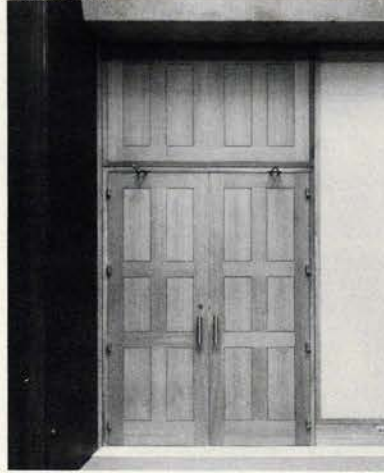
Thomas Brown photos





TYPICAL FOURTH FLOOR BAY

Thomas Brown



Kahn's wish was to make a series of room-like spaces for the paintings to hang in. On the fourth floor, shown here, each of the 20- by 20-foot bays is topped by concrete V-beams, which form coffers to support the skylights. These have baffles, filters, and diffusers, which modify the light without masking its changes. The interior, though muted in tone, is richly colored nonetheless. The materials are natural concrete, white oak paneling, linen wall covers, and natural wool carpets with Roman travertine borders.

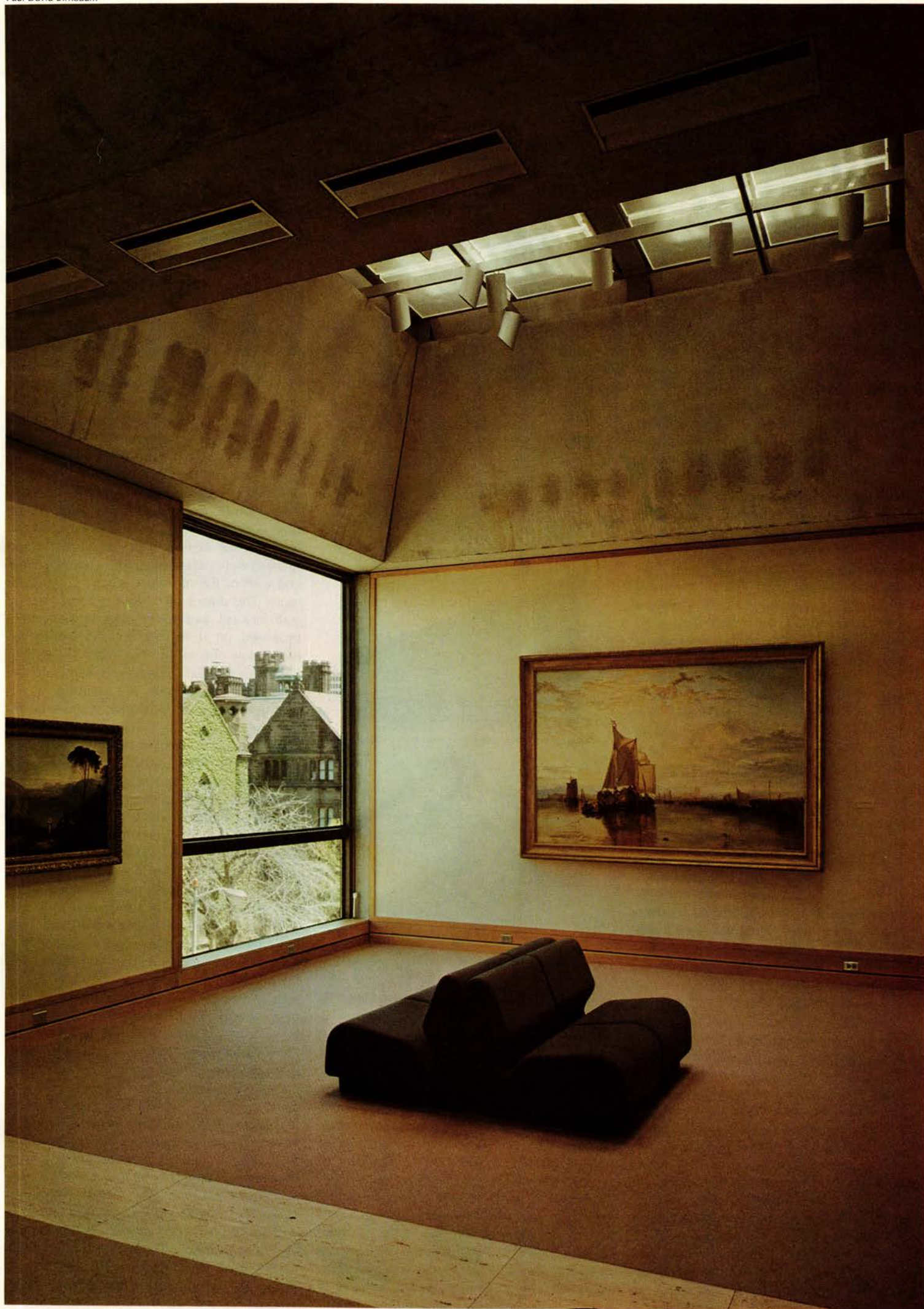
Paul David Birnbaum



John Ebstel photos



YALE CENTER FOR BRITISH ART, New Haven, Connecticut. Architect: Louis I. Kahn—completed after his death by Pellecchia and Meyers, Architects. Engineers: Pfisterer, Tor & Associates (structural); van Zelm, Heywood and Shadford (mechanical and electrical). Consultants: Harold R. Mull, Bell and Associates, Inc. (acoustical); Richard Kelly (lighting); Benjamin Baldwin (interiors); Robert Zion, consultant to Yale University, and Dan Kiley, consultant to Yale British Art Center (landscape); Pellecchia and Meyers (graphics); International Consultants, Inc. (cost); Joseph M. Chapman, Inc. (security). General contractor: George B. H. Macomber Company.



magisterial finality, it wraps itself in itself, a sarcophagus at architectural scale, a somber, precious container. At night the surface embodies various states of velvety blackness; the facade merges with the dark sky, and the white skeleton is drawn upon the night.

Down in the restaurant-terrace, none of these qualities are felt; the building looks papery and rather irrelevant on its high concrete base above that depression. From it, though, the facade of Kahn's Art Gallery across the street leaps into unexpected prominence, seen in dramatic perspective against the sky. The Gallery's always problematical connection with the ground is now well masked, so that it surges forward, filling the view and looking, for the first time in its existence, utterly right and triumphant. Can Kahn have plotted this?

There is, effectively, no integral way into the new building except, it seems to say, for the bold. They may burst in at the northeastern corner, passing under a massive lintel which is no thicker there than elsewhere on the facade but which has no eye-catching surface play of shops below it. The shops (one of them fortunately a good book store) were the result, perhaps the only permanent one, of the demands of the revolutionary students of the late sixties: a gesture to the town and, eventually, to Yale's perennial problem of tax base with New Haven. And they are probably the best visual base the building could have, utterly irrelevant to the rest and lighting up the pedestrian street a little. Kahn must have thought so or he would certainly have found some way around them. Instead he exploited them by building up their lintel to its impressive scale, spanning two bays across each of them. But in the last two bays on the northeast the shops disappear, and an enormous void opens under the lintel. Far back in that hollow the column of the normal bay system, previously visible only on the upper floors, now appears at pedestrian level, ominously stressing the absence of a similar column under the lintel of the facade and indeed rising itself past lintel height to disappear into the flat ceiling slab. So the lintel, however thick, seems to hang: the eye insists that it must deflect. (Kahn clearly intended some such effect; in his perspective of the entrance when it was to have been twice as deep he *drew* the beams deflecting. The present installation of lights radiating like steel beams from the central column seems to blunt this effect.)

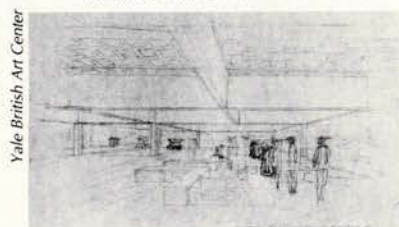
We pass beyond the tense, somewhat threatened space so formed to find beyond it an inside-outside court, framed with oaken panels set in the naked concrete frame. Again we push in at a corner, but now the opening rises up four floors with a scrawny lead figure of William III posturing nervously in it. The sequence of passage from a low, broad, dark volume of space to a high, bright court is in fact between areas of the same square footage and is a surrealist demonstration of ceiling manipulation, a weirdly frozen version of that Jungian "death-and-resurrection" archetype which Wright exploited so rhythmically: in right angles at the Larkin Building, in curves at Johnson Wax. Kahn, characteristically, joins the two spaces harshly at their corners; it is all



Yale Art Gallery, from the British Art Center court



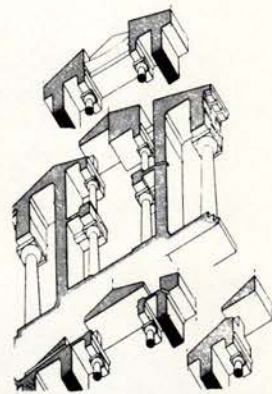
Entrance to the British Art Center



Kahn's drawing of an earlier version of the entrance



Bibliothèque Ste.-Genevieve, by Henri Labrouste



Axonometric of a Greek temple, by Auguste Choisy

shock, much surprise.

The blond oak of the court was intended as a gesture to the Englishness of the program, as suggestive of old paneling, ducal libraries, and so on. Indeed, Kahn liked to refer to this court as a Hall. But its effect is at first of positive disorientation. Are we in the building or outside again? Upon what do the windows up there in the paneling open? Who looks down upon us from them? Are we in positive danger down here with what looks like enormous concrete beams poised on thin columns high above our heads? All this must reflect some deep response in Kahn to the program itself, which has certain ambiguities and tensions in it, being for a building at once public and pri-

vate, a public museum but a monument (so labeled in the court) to a private collection and thus slightly menacing to outsiders.

Still, the court is clearly noble and austere. It is only later we realize that it has in fact brought us into the very heart of the building and that the major gallery spaces are lighted by the windows above us. Now, however, we are led forward under another lowering lintel into the compressed receptacle of the entrance hall. This is clad in gray planes of Salk concrete, familiar and even soft in a visual-tactile sense because it is so beautifully poured and so sympathetically shaped into panels by the gentle ridges between its wooden forms. Magnificent doors of stainless steel are fitted into it. Those of the cylindrical stair tower open directly on axis ahead. But we are led to move first around the tower, because another challenging void opens before us there. The steps of the auditorium plunge straight down below our feet at a steep angle, and they bring the concrete face of the wall behind the stage close to our eyes. Everything here testifies to the intelligent care with which Marshall Meyers and Anthony Pellecchia completed the detailing of the building after Kahn's death. Gray acoustic mats, grandly proportioned, are spaced on the lateral walls, and the tracks of lights on the ceiling, designed by Kahn and Richard Kelly, slant in as they approach the end wall of the otherwise strictly rectangular room. This device also helps to bring the end wall forward, and when slides or movies are projected on it their scale and imminence quite blow the mind. The walls are still of Kahn's elegant Salk concrete; no skeleton here but all planar container. The carpeting, as everywhere else in the building, is quiet beige; the seats, amply proportioned and spaced, are dark wood with deep maroon cushions. The effect of the room is harsh and grand, not gentle but stern and demanding. As such it cannot help but be contrasted with an underground auditorium which has recently been opened across the street under Weir Court. That not unsuccessful example of the genre is generally described as Cinema 1, 2, 3, 4, 5 because of its carpeted walls, vermilion seats, and shiny accessories. Still, teaching and learning, at their most demanding and best, must require some rigor and a certain bite. Kahn's auditorium suggests those qualities and invests them with a kind of primitive dignity, awe, and terror as well. It provides a tragic setting, worthy of the heroic dimensions of knowledge. When one listens or lectures in Kahn's space one begins to understand the permanent value in what might be called the "primitive classicism" his later work generally came to embody and which is especially tense and cogent in this building. Its meticulous austerity is French; its rigor recalls that of Francois Mansart and Nicolas Poussin. Its particular modern ancestor is Henri Labrouste's *Bibliothèque Ste.-Genevieve*, of 1843-50, with its *Neo-Grec* articulation of structural skeleton and space-containing planes. The mediating element was the kind of architectural publication upon which Kahn was brought up in his Beaux-Arts training, in particular the books of Auguste Choisy. But Kahn's work is always

more archaic, less humanistic than that of his predecessors. There is something dark and savage in it which may in part reflect its Italian dimension, recalling the rudeness of great palazzi, the fundamental rough physicality of almost all Italian form. It is also a modern dimension, befitting a culture where individual craftsmanship, like many other personal accomplishments, is largely lost. There is a level of detailing no architect can count on. Kahn learned how to control his own details through the building process: a major achievement shared by very few architects. And his clear, dry, precise distinction of part from part can be seen everywhere throughout the building. Viollet-le-Duc, Kahn's great structural progenitor of the Gothic Revival, would, I think, have loved that technologically simplified, rational assemblage; Ruskin, tormented by his vision of a humanity enslaved by capitalism, would have loathed those taut connections as evidence of a pact with a devilish industrial reality. Whatever the case, the bareness, sparseness, and sternness of the building, and of the auditorium in particular, is modern also in being decently stoic. Given Kahn's humorless Idealism in design, which separated him from the ironic Realism of his most important students, such stoicism seems the best and strongest stance one can hope for, at least nothing to be ashamed of and reasonable enough in terms of contemporary realities.

Pondering these questions (or others wholly unrelated to them) the visitor must then climb the considerable slope of the auditorium to make his way back to the stair tower, where (unless he shamelessly takes the elevator) he enters the cylinder and, starting up the stairs, finds himself seriously involved with Pellecchia and Meyers's stainless steel railings. These, though apparently not far from Kahn's original conception, might be called the Bauhaus' Revenge on Kahn, since they are of a planar complexity worthy of Vantongerloo or the early Breuer. There is surely enough material in them to build several important bridges somewhere. They are also very big in scale for the pinched, tightly designed stairs, rectangular in flight rather than diagonal like their mighty ancestors in the Art Gallery across the street. One level up they let us out at the first of the gallery floors, arranged around the entrance court and opened to it through the oak window panels we saw from below. But at this level the dominant feature of the building is another court, opening west of the tower. In this ethnic context, this one seems much more like a Grand Hall than the other. It leaps up, oak-paneled too, three floors to the roof. There, as above the entrance court, the enormous V-beams of the skylights seem perilously poised on slender columns and provide a Mannerist expansion and complication in the ceiling, like those common in English late Medieval and Renaissance practice. The columns are here, as on the exterior, kept flush with the slabs, so that we are in one sense more monumentally "outside" in the Hall than we were in the paneled entrance court where the columns were set back and the slabs forward, emphasizing space levels over structural support. In the Hall the mass of the stair tower rises like

the Nutcracker giant, chopped off just under the ceiling to avoid getting fouled up with the skylight system of the top floor, and lighted through its own glass-blocked grill just above head height on the uppermost landing. Here Kahn must be regarded as having exploited an impasse in design for visually melodramatic effect. And the Hall as a whole is indeed an outrageous melodrama. Great paintings by the utterly English (fey, wedded to blood sports, friend of elves) George Stubbs are hung high up in it. Wild-maned horses, snorting, start back in terror. Lions leap upon their backs; their roarings and stampings shake the Hall where, one supposes, tea will one day inevitably be served. So far the building still seems exactly right in some weirdly semiotic way. It passes along the information (to employ the fleshless figures of linguistic analysis) that Olde England, and New England too for that matter, may legitimately be interpreted as all aristocratic frost on the surface with plenty of kinky shenanigans going on within.

But the libraries which open north and south off the floor level of the Hall offer a charming release from its rather savage swag-

ger. There the bay system is seen at its best in defining a calm and articulated spread of space, and the sun pours in through the big windows to light the blond oak of the fittings and the warm bindings of the books on the shelves. It is an English library right enough, with all the sheltered, sunbeam-moted peace of the originals, evoked by very simple means. Yale has not seen anything like it since James Gamble Rogers, even though its space is also notable by the passage through it of enormous, silvery, cylindrical ducts, worthy of High Tech's shiniest fantasies.

The window openings to the galleries are less sympathetically proportioned in the Hall than in the entrance court. They occur only at the upper level and are more horizontal than the others, which, on the top floor, are big near-squares flanking the columns. Again, the more classical modes, shapes, and proportions seem the most satisfactory in this building, and Kahn clearly used the more voluminous window shapes to draw our eye up the height of the court's facade and to culminate it. We are, at any rate, finally drawn to the galleries, and especially to those we first saw from the court.

Once again we wrestle Laocöon-like with the stair rails in the confines of the cylinder. One level up we emerge at the second gallery floor, which is without windows on the court. It feels confined and dark, though appropriately scaled for the smaller works of British art it contains. The pictures, mainly watercolors at the moment, are hung with an intimacy appropriate to their moderate pretensions and in a profusion convenient for the scholar—although it is about this time that the average art historian will begin to regret that Mellon did not direct more of his attention across the Channel and beyond the Alps. On the top floor, however, many of these perhaps rather ungrateful qualifications pass away. Some of the big pictures exhibited there would hold their own anywhere, but they are especially at home in their gallery, grandly dominating its carefully restricted bays of space. The light floods gently in upon them from the windows around the court and, most of all, from the nests of skylights in the roof. These bear special witness to Marshall Meyers's and Anthony Pellecchia's understanding of Kahn's intentions, since they completed the design of the skylights after his death. We are now close up to them; their great slanted slabs nobly shape each bay, and they distribute, on dark days as on bright, an adequate, even, and glare-free illumination under which the paintings take on a special, airy glow. A couple of Van Dyck milords flank a marble bust at the entrance and emphasize the ample but controlled proportions of the space. To the left, Stubbs deploys in a room mostly his own. His crazy thoroughbreds under their obsessed jockeys pace across the landscape like what they were—no creatures ever seen before on earth, awaiting Degas; and the mild, round-faced Englishman, the gamekeeper, crouches and faces us out of the dark wood, holding up the head of the dying deer, the soft sheen slowly draining from its eyes.

The galleries around the court are, where necessary, divided at column line by new ver-



Linonia and Brothers Library at Yale, by J. G. Rogers



Fourth-floor gallery, British Art Center



"Turf," by George Stubbs



Vaults of Kings College Chapel, Cambridge

sions of the "pogo panels" that Kahn and George Howe had designed for the Art Gallery. Now the whole system, though flexible, is still tight enough with its bays to preclude too much redesigning later—something Kahn vowed he would do after later directorships destroyed his original spatial concept in the first gallery. Here tiny but momentous decisions in design come into play. Should the panels be placed so as to touch the columns? I think yes; Kahn, the gallery people, and Pellecchia and Meyers decided no. The flat battens he projected to mask the edges of his cloth-clad panels which are set for hanging purposes between the columns of the exterior walls may also be questionable. It doesn't matter much perhaps, although everything matters some in this honed-down, rationalized articulation of elements. But the over-all space of flanking bays and open court seems one of Kahn's ultimate triumphs. The effect is of absolute peace and silence. Now it is we who stand high up and look out the windows. The views are releasing and mysterious. We look deep down to the entrance and across the lighted volume of the court to where the far gallery walls are bathed in their special overhead light deep behind the windows. We think of the lighted rooms behind rooms of seventeenth-century Dutch interiors with their pictures on the walls.

The climax, and I think there is one, occurs at the northeast corner, high above the entrance void. There Turner's great yellow shining view of the Dort packet-boat, his homage to Cuyp, is hung. Its skylight bathes it, the slanting slabs canopy it, and one of the panes of facade glass flanks it too, just about at its own majestic scale. In the room before it some late golden Turners shimmer, and a vast wild Constable glooms and glitters on the wall of the bay-space beside it. But the light off the great Dort draws us and, reciprocally, directs our attention to the enormous window beside it. Outside, across Chapel Street, the tawny mass of Addison Swartwout's Art Gallery of 1928 was never so well seen, weirdly framed as in some giant cartographer's lens. Next to it, to the right across an arching bridge, stands Peter Wight's Street Hall of 1866-69, and to the left Kahn's own Art Gallery diminishes in impeccable perspective with, beyond it, the lifting piers of Paul Rudolph's Art and Architecture Building, of 1963, culminating the sequence and closing the diagonal of the street. It is a view of all of Kahn's predecessors in the building programs for the arts at Yale, himself in middle age among them. And sitting in front of the great Turner with its fat boat becalmed (where the directorship has indeed most thoughtfully placed a seat) one thinks once again about how Kahn chose to confront that range of buildings on the street. His original proposal, when the scheme was intended to be much larger than it eventually became, was for what amounted to two concrete-framed buildings side by side, facing Chapel Street and divided only by an expansion joint between their contiguous end columns. Entrance was to have been around those central barriers; from the very beginning, access to this museum seems to have been regarded as physically difficult, to



Fourth-floor gallery, British Art Center



Turner's "Dort packet-boat" in the British Art Center



Buildings facing the British Art Center on Chapel Street



An earlier scheme for the British Art Center by Kahn



The Philadelphia Academy of Fine Arts, by Frank Furness

be somehow impeded. (Furness had somewhat similar intentions in his Pennsylvania Academy.) Various service spaces were articulated as subsidiary massing elements, and great play was made with arched Vierendeel trusses spanning the long way along the street and lifting the building in two big spasms. This certainly constituted a gesture on Kahn's part, and a spectacular one, demonstrating a rather knock-your-eye-out approach to the problem

of the street and of the massed predecessors across it. The colors were to have been warm, as of white concrete and rosy brick, and the effect seemed generally ebullient, bright, and aggressive. Slowly, and in part (but only in part) as the projected budget dwindled, Kahn disciplined all those gestures and all that color out. In a way, one cannot help but regret their loss, even though nobody regarded them with much enthusiasm when they were first unveiled in presentation drawings. In the end Kahn came to their opposite, the strictly volumetric block, the rationalized bay with its skylights, the cold gray panels of stainless steel, the flat closed surface wrapped pridefully around. One feels a diminution, a dwindling, but the longer one looks at the building the more one feels its power as well. It has a solemn force that is compacted and distilled out of its integral process of construction, out of that careful assemblage of beautifully shaped materials and that clarity of joining we have had occasion to note all along. The effect is of an intelligence and a dignity which may well resist many challenges by taste and time. Again one recalls Mies, but there is even more thought and body here. Avoiding the signs, symbols, and above all the gestures of his greatest successors, ignoring the "linguistic" virtuosity of so much recent architecture and criticism, which may well have challenged, perhaps even annoyed him somewhat, Kahn *builds*. There is no way to avoid that impact. It convinces us of the building's permanence, makes it "classic," and does indeed reflect that "primitive classicism" to which I referred earlier. With it, like Poussin late in life, Kahn clearly hoped to defeat mortality and—always a human dream—to pass beyond shifting choices to an eternal system. Long before, in the nineteen-forties, he had prowled between the drafting tables in Weir Hall and, having as yet built almost nothing himself, had talked passionately about what he called "order." What he meant by this nobody knew, nor did he himself at the time. Since then he had turned up many kinds of order, some of them approaching the concept of The Orders themselves, like the "Brick Order" of Dacca and Ahmedabad, itself directly derived from Rome. Most of all, over the years, he had painstakingly learned how to put things together, as if his most intrinsic passion for order was really there.

In the British Art Center he finally arrived at a kind of building order which was itself not far from the old classicizing mode: static, trabeated, laconic—but far indeed from the indulgent mysticism into which his own verbal "philosophy" sometimes rambled. So to the edgy cubes of Gothic Revival Street Hall, the expansive gestures of the American Beaux-Arts Art Gallery, the tense compromises of his own Art Gallery, and the rather operatic thunders of Rudolph's A and A, Kahn presented, smothering the street, Silence: column, lintel, panel, concrete, steel, and glass. All movement, all voices, all color, are outside and around the British Center, like the reflections in its windowpanes. Avoiding speech, it is the wordless image of Kahn's deep constructor's soul, his incomparable memorial and his classic tomb.

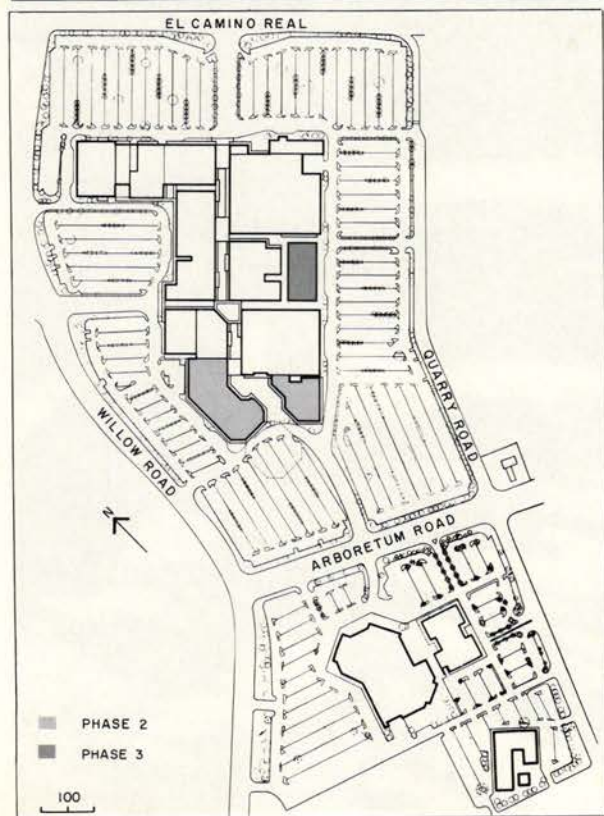
A THEATRICAL APPROACH TO SHOPPING CENTER REMODELING

Architects Bull Field Volkmann Stockwell used a theatrical approach to modernize the outmoded Stanford Shopping Center in Palo Alto, California. Much of the work is like a stage-set design, creating not just a new facade but a new and festive atmosphere. Underlying such devices as new loggias, arches, outdoor display areas and graphics—all interconnected by an unusual framework system of bent pipe—is a new and ordered spatial development, enhanced by lush landscaping. It offers the retailer marketing flexibility while providing a vibrant and lively environment for the shopper where there was none before.—J.N.



Gary Wincott

Jeremiah O. Bragstad photos except as noted

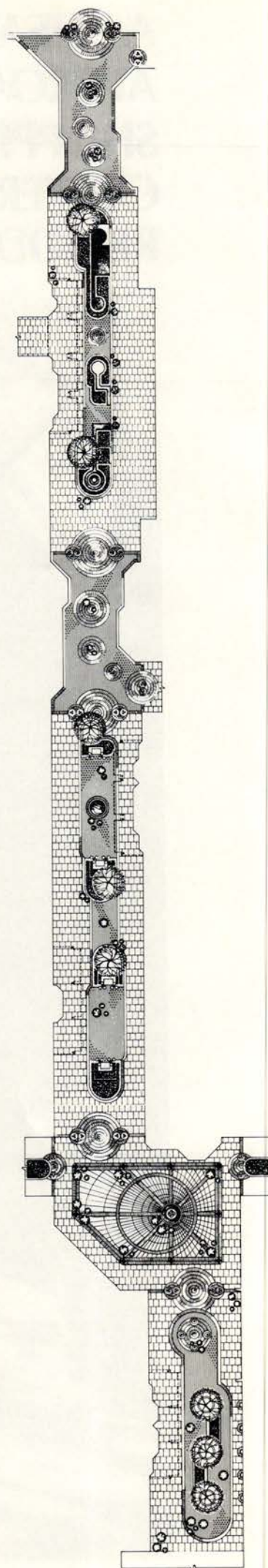


Stanford Shopping Center (owned by and located near Stanford University) was remodeled at an estimated total cost of \$10 million for three phases of remodeling and new construction. The design problem was clear: how to turn a 1950s-style shopping complex into an attractive, unified whole with renewed vitality; maintaining the existing structures and the linear mall, while creating new retail space. The architect's solution was to de-emphasize the multi-form structures, using them as a backdrop, and to center remodeling efforts on the 900-foot-long mall.

"The design concept was to create a sequence of spaces—a parade with a strong cadence and ceremony," explains John Field, architect-in-charge. It is this sequential experience highlighted by an incredible but integrated array of forms—in arches, loggias, fountains, awnings, landscaping and lighting—that have altered the entire atmosphere of the mall.

The main design device used to articulate the spaces and modulate the visual experiences is a dramatic change in scale from one area to another—producing a sequence of grand- and intimately-scaled forms and spaces. The visitor rambles in and out of covered pathways along varying widths of the mall, around rusticated modern columns, landscaping, fountains and sitting areas, through the large volume of pavilion display space, and continually through arches formed from a bent-pipe framework system. The arches separate the different sections, and echo the Romanesque arches prevalent in the architecture of Stanford University. There is a further deliberate attempt to focus the shopper's attention on display windows by limiting the over-all background color scheme to muted colors; and yet by the positioning of arches directing views into other areas, the shopper is subtly enticed to continue moving to experience what's ahead.

REMODELING OF STANFORD SHOPPING CENTER, Palo Alto, California. Architects: Bull Field Volkman Stockwell—John Louis Field, architect-in-charge; Sherwood Stockwell, master plan architect; David L. Paoli, project architect; Daniel Chung, Gary Fong and Paul J. Meade, project director. Engineers: L. F. Robinson & Associates (structural), Cooper Clark & Associates (foundation), Gayner Engineers (mechanical/electrical), Brian Kangas Foulk & Associates (civil). Consultants: John Smith (shopping center advisor), Frank Henry and Associates (project manager for Stanford University), Charles M. Salter (acoustical), William Lam Associates Inc. (lighting), Fire Protection Engineers (fire protection), Reis & Company and Intrinsic (graphic design), Clyde Winters (graphic fabrication coordinator), Peter Adamson (cost). Landscape architects: Fong & Larocca Associates. General contractor: Rudolph & Sletten.





John Field

The shopping center, as designed in the 1950s (left and right), was laid out with a linear mall surrounded primarily by four large anchor stores. The redesign makes much more of the mall with semi-circular loggias, covered with bronze-colored acrylic plastic replacing corrugated aluminum walkway covers. Each loggia is lined with lights every 10 feet adding a sparkling quality at night. With the buildings painted muted tan and white colors, the only splash of color is in the banners hung from the loggias. These banners also break the long, linear view under the walkways.



John Field



John Field

The redesign of the Stanford Shopping Center encompasses all aspects of the complex but concentrates on the linear mall. Bull Field Volkmann Stockwell designed the standard, commonly used signs (e.g., sale and Christmas signs) and a graphics design guide. The main entrance (above) is emphasized by three 24-foot-high arches and an entrance court 26 feet high. Canvas awnings were added around the exterior to echo the inner mall characteristics. They also act as simple identification for the complex that did not previously exist. The mall design allows for maximum flexibility on the part of each retail store for design of its own storefront, whether it is unchanged from the initial center design, a prototype, or a new design, all fit under the loggia. In some instances, where there are large blank walls as a result of the initial plan, small specialty shops can be designed to fill the space without disturbing the circulation patterns. One clothing store (below left) is designed by the architects. The pavilion is a new space created specifically for outdoor displays. It is here that the only structural alteration occurs (original space shown in photo bottom right, page 107). The "grandness" of the columns results from the welding together into a cluster the pipes identical to those used throughout the center.

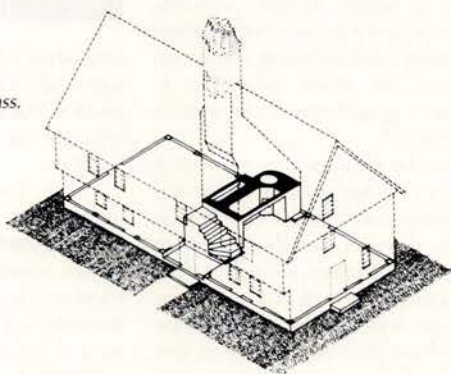


Gary Wincott

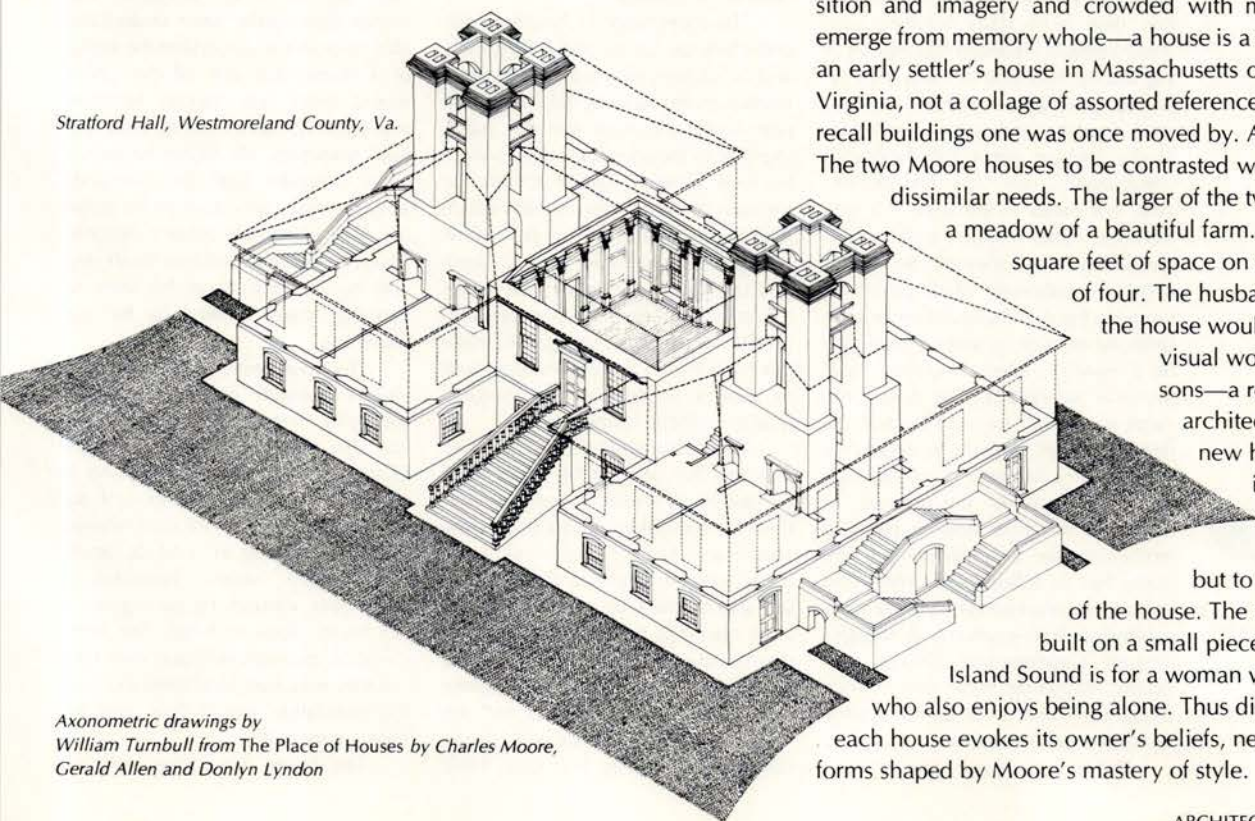


TWO HOUSES BY CHARLES MOORE

Capen house, Topsfield, Mass.



Stratford Hall, Westmoreland County, Va.



Axonometric drawings by William Turnbull from *The Place of Houses* by Charles Moore, Gerald Allen and Donlyn Lyndon

Robert Motherwell, the abstract expressionist painter, once wrote: "Every intelligent painter carries the whole culture of modern painting in his head. It is his real subject, of which everything he paints is both an homage and a critique, and everything he says a gloss." Charles Moore carries the whole culture of architecture in his head. His art lies in his power over the art of the past, his ability to bring forth out of memory timeless forms to convey unchanging human feelings. He does it differently from the other historicizing architects, best represented perhaps by Robert Stern, who in a single house will skillfully juxtapose attached bits and pieces from many cultures—a molding over a door inspired by Sir Edwin Lutyens, or a fireplace mysteriously derived from George Howe. Moore's houses, like Stern's, are complicated in composition and imagery and crowded with meanings, yet they seem to emerge from memory whole—a house is a church, a barn, a farmhouse, an early settler's house in Massachusetts or an antebellum mansion in Virginia, not a collage of assorted references. Moore creates images that recall buildings one was once moved by. And one is stirred again.

The two Moore houses to be contrasted were designed for clients with dissimilar needs. The larger of the two (above right) is located in a meadow of a beautiful farm. It has approximately 11,000 square feet of space on two levels and is for a family of four. The husband, who is blind, hoped that the house would do more than enhance the visual world of his wife and two small sons—a relatively easy task for a good architect. In addition, he wished his new house to speak to his remaining senses—principally those of smell and touch, not only to give him pleasure but to orient him within the spaces of the house. The little Swan house (above left) built on a small piece of land with a view of Long Island Sound is for a woman who entertains frequently but who also enjoys being alone. Thus different in scale and function, each house evokes its owner's beliefs, needs, fantasies and feelings in forms shaped by Moore's mastery of style. —Mildred F. Schmertz

The Swan house suggests a humble rural farm building of no particular time or place

The Swan house is the first small house Moore has designed in several years. It is an important addition to his body of work since he designs small houses particularly well—even better, some believe, than he does big houses. Moore believes that the typical house architect of today doesn't know how to do "big houses," but only "small houses" of small and large sizes. Such an architect will devise an open plan of the type originally conceived to allow for the best multi-use of a small house's limited space, as in the Swan house, and scale it up to whatever dimensions his client can afford. Moore's large houses, in contrast, are an aggregation of self-contained ample rooms like big houses always were in the past.

Simone Swan is an artist, and a friend and patron of artists, who is the mother of two grown children. Charles Moore became her architect after the death of her first choice, Louis Kahn, who had not yet begun to design her house when he died. Before his death he had encouraged her in her wish to buy and tear down an old farm building to obtain a stockpile of hand-hewn joists, flooring and beams and these, as arranged by Moore, are Kahn's



legacy to the house.

When she met Charles Moore at a dinner party, Simone didn't know that he was a "Post Modern Movement Radical Eclectic," but she liked him nonetheless and felt intuitively that he was the right architect for her. He began, like a psychoanalyst, to help her discover and express her own inner fantasies and dreams as well as her everyday needs. She had sought a subtle variety of experiences in her house to be. In her words she wanted: "Bathing while looking at the trees, sitting in the winter sun protected from winds, a 'secret' tower terrace. . . ." Moore's first design, a hipped-roof square with a projecting wing met all these specifications and more, but it didn't seem right to her. She flew with the model neatly tucked under her plane seat to Findhorn in Northern Scotland, a spiritual community devoted in part to ecological concerns. Her purpose was to show it to her son Eric, then in his early twenties, who while living at Findhorn was researching the applications of such energy-saving alternative technologies as solar heating and waste recycling. Mother and son agreed that the house, unfortunately, was "not Zen, not severe, not pared to the bone." It was too cozy, rather worldly, a bit "suburban classy" they thought. So Moore and his collaborator Mark Simon returned to the drafting board and model shop armed with a better knowledge of Simone's esthetic, spiritual and practical aspirations. The house became elongated, the roof pitched 60 degrees toward the sun to eventually carry solar collectors. A *clivus multrum* was discussed, but rejected, as a not yet practical way to produce fertilizer for the vegetable garden. The house lost its suburban slickness and became uncompromisingly rural in its expression, with economical, straightforward carpenter-like finishes and details, including wide trim, which brought the cost in at approximately 26 dollars per square foot.

The house image Moore con-

ceived for Simone is perceived by herself and others in a number of different ways, although all these perceptions have a common theme, the simplicity and friendliness of the little building. For Simone it is like an old country chapel, for others it suggests a humble rural farmhouse of no particular time or place. Simone has had visitors of widely differing cultures, each of whom has been reminded of the modest farm buildings of his own country. For Mark Simon it is "friendly, a gingerbread house without the frosting."

It is also the Capen house of 1683 (overleaf), in the way its rooms are arranged around a central chimney for warmth in winter, and the manner in which one circulates through it from one room to the next in the absence of a hall. And like the Capen house the cooking utensils are right in one of the main rooms, and the stair wraps around the chimney.

This room (page 112) with its stair and chimney corner and dining table and its kitchen, which is like no other kitchen, is the heart of the house. The plan brings the cook and her guests together in the friendliest way. Moore has very cleverly placed a mirror at the back of the kitchen counter, which reflects the fire and the guests to allow Simone to communicate with them and to allow diners with their backs to the fire to see it. Mirrors are also used to box in all the skylights to make the most of the light from them and to give a mysterious and magical quality to these openings.

The house has been designed so that only the heart of the house need be heated in winter. Large one-foot-thick foam cushions were designed by Moore and Mark Simon to serve as living room furniture in the summer, but also to stack up, sealing the two large openings between the cooking-dining area and the living area during the winter. By this means, the living room can be left unheated and the house remains well insulated, saving considerable energy and cost. Heat

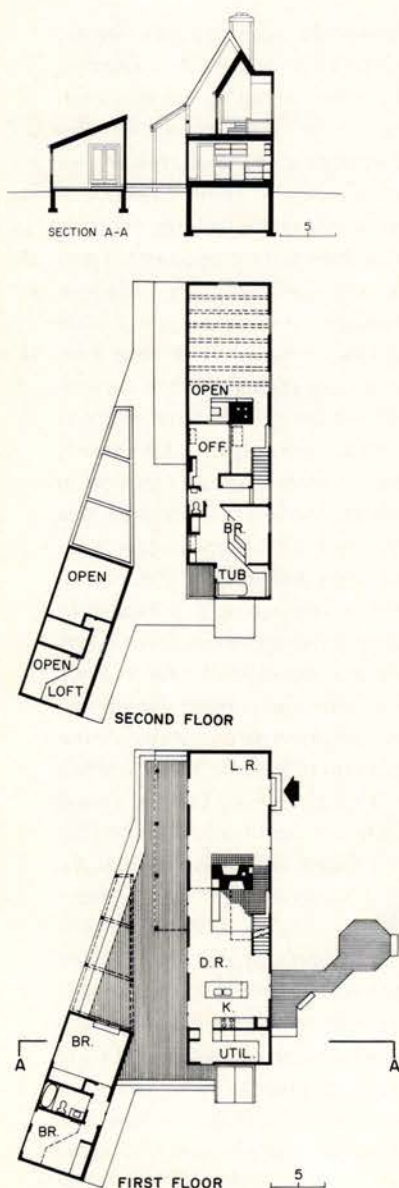


circulating fireplaces are used along with high return air registers for an oil-fired hot air heating system to recirculate the heat given off by the fireplaces.

The large house shown in juxtaposition to the little Swan house was designed for clients who wish to remain anonymous. The man, facing blindness, bought a lovely farm while he could still see. Subsequently, when he and his wife began to interview architects, his loss of vision was almost total. Several of the architects with whom they spoke were understandably reluctant to undertake the design of a house that one of the clients would never see. Moore, however, was drawn to the couple by their spiritual resources. He found himself in great sympathy with the husband's ability to draw strength from his family life, his wish to help create a beautiful house for his wife and two small boys and his desire to have his own remaining senses fulfilled by his surroundings.

The house went through many revisions generally in the direction of becoming less complicated. Moore and his fellow architect, Richard Oliver, made several models and in addition devised a way to cast the plans in braille. The vacuum-forming process was used to produce pearly white plastic sheets, beautiful in themselves, embodying the imprint of the house plans in relief. The blind client, by moving his fingers over their surfaces was able to understand how the circulation would flow and the rooms interrelate.

The house has many textures,



... while Charles Moore's model and metaphor for this large house was Stratford Hall

smells and breezes that tell the husband where he is. The air moving through the house is a signal to him—he knows from which direction it is coming by the scents it carries, whether from the lawn or a particular grove of trees; from the garden or one or the other of the two indoor conservatories known respectively as the Orangerie and the Jungle Garden, which form the main foyer and hall. This hall twists and turns and widens and narrows like an ancient street, and is paved in tile which by its resonance tells the client he is not in the living room or dining room which have their rugs centered on hardwood floors. The sound of trickling water in a fountain located in the Jungle Garden (page 115) is another orienting element as is the texture of the stone walls, which are the boundaries of the living room, the dining room and the study. Snaking through this main hall, becoming a bannister at the stair and ending in the second floor hall is a beautiful wooden guide rail shaped in section to match exactly the dimensions of a handrail the client discovered in an airport which felt right to him.

More subtly, the client can tell where he is by means of what he calls ambient sound which communicates to him the size and dimensions of the room he is in. For this reason, among others, he wished the rooms of his house to be discrete and contained, rather than flowing into one another—a desire that fitted neatly with Moore's ideas about what spaces should be like in large houses.

The Orangerie and the Jungle Garden are a quotation from the great square room centered between the two pavilions at Stratford Hall (overleaf). Although asymmetrical, Moore's derivation is similar to the 18th century space in that it forms the basis for arranging everything else. It is the symbolic as well as the actual circulation space.

Moore likes to please the knowing by enriching the significance of a quotation from tradition by deliberately altering it, thus intriguing them by the way he has made it resemble, yet not resemble, the original. Stratford Hall, his model and metaphor for this large house, has two pavilions connected by the aforementioned great square room each with a cluster of four chimneys. Moore's house is basically a three pavilion arrangement, each with a cluster of chimneys and cupolas used as ventilators. In contrast to Stratford Hall, however, Moore's ensemble is so complex and deflected in form that the pavilions emerge as the trace of an idea rather

than as discrete forms. Moore's final design expresses the fact that for his clients, the Stratford metaphor is too classic, too formal, too rigid. One suspects that Moore began with Stratford as a way to find his own voice, and that once again he has.

The couple entertain frequently and sometimes formally, but their everyday life is informal and the wife does her own housework. For this reason, the plan combines spaces in which life can be lived with ceremony as in the elegant living room, symmetrical in plan but not section, or the

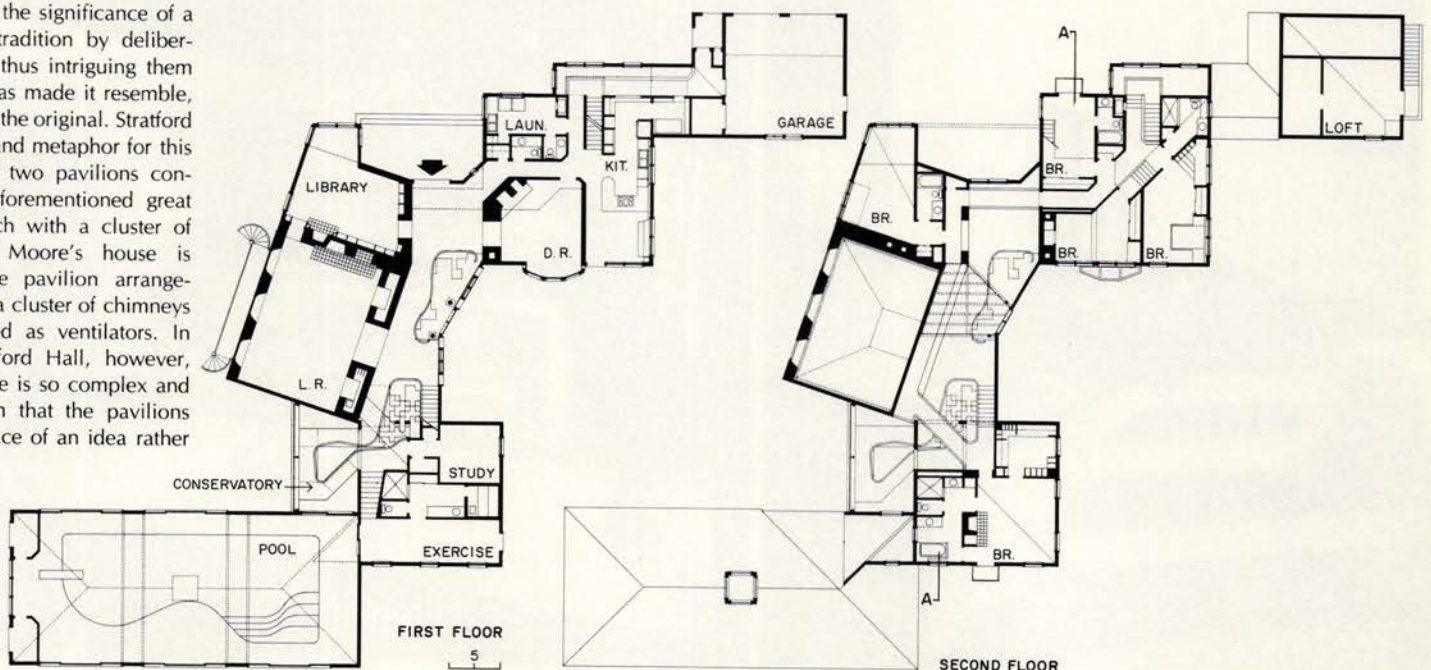
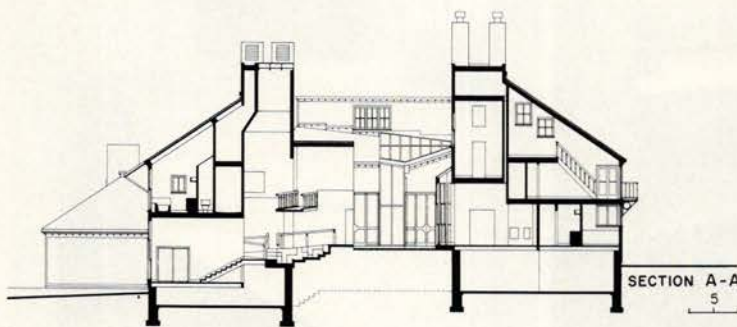
dining room with its tall bay windows (page 114), or with unbuttoned ease in the family kitchen, den and pool.

Like Simone Swan, these clients became energy-conscious during the design process, with the result that the house has been zoned in such a way that rooms not in use are not heated. The house is well insulated and cross ventilated with a fan in the highest cupola to draw the hot air up and out. The bedrooms, guest room, kitchen, and dining room can be air conditioned on the hottest days, but generally air conditioning is not used be-

cause of the owner's dependence upon his sense of smell.—M.F.S.

THE SWAN HOUSE, Long Island, N.Y. Owner: *Simone Swan*. Architects: *Charles W. Moore Associates* (now *Moore Grover Harper, P.C.*)—project manager: *Mark Simon*. General contractor: *Eastwind Homes, Inc.*

A HOUSE NEAR NEW YORK. Architects: *Charles W. Moore with Richard B. Oliver*. Consultants: *Spiegel & Zamecnik* (structural); *Everett Barber* (mechanical); *Richard C. Peters* (lighting); *Tina Beebe* (colors).



In the Swan house the rooms are arranged around a central chimney for warm



Simone's bed is a stepped platform with cedar-lined drawers below. She likes the idea of sleeping, bathing and dressing in the same room so her bedroom accommodates an old claw-footed bathtub next to a window with a view of Long Island Sound. The narrow, high interior of the house is divided by a double fireplace, which separates the living room (opposite page) from the kitchen and dining areas (right top and bottom). The wood from an old barn is used to great advantage as collar ties and trusses in the two-story living room, and on the lower dining and kitchen ceiling.





Moore's large houses are an aggregation of self-contained ample rooms like b



The house has a central conservatory—which is also the main circulation element—(below and opposite page) and which changes direction several times as it meanders through what is unmistakably a Moore house. All the elements are there: the cheerful collage of building materials—tile floors, stone walls, other walls of wood siding with trim—and the intriguing complications—steps, orange trees and other plants, skylights, a bridge and a fountain, two round wooden columns with curious brackets and the occasional interior panel with a window. In contrast, the rooms this hall interconnects are surprisingly formal and elegant.



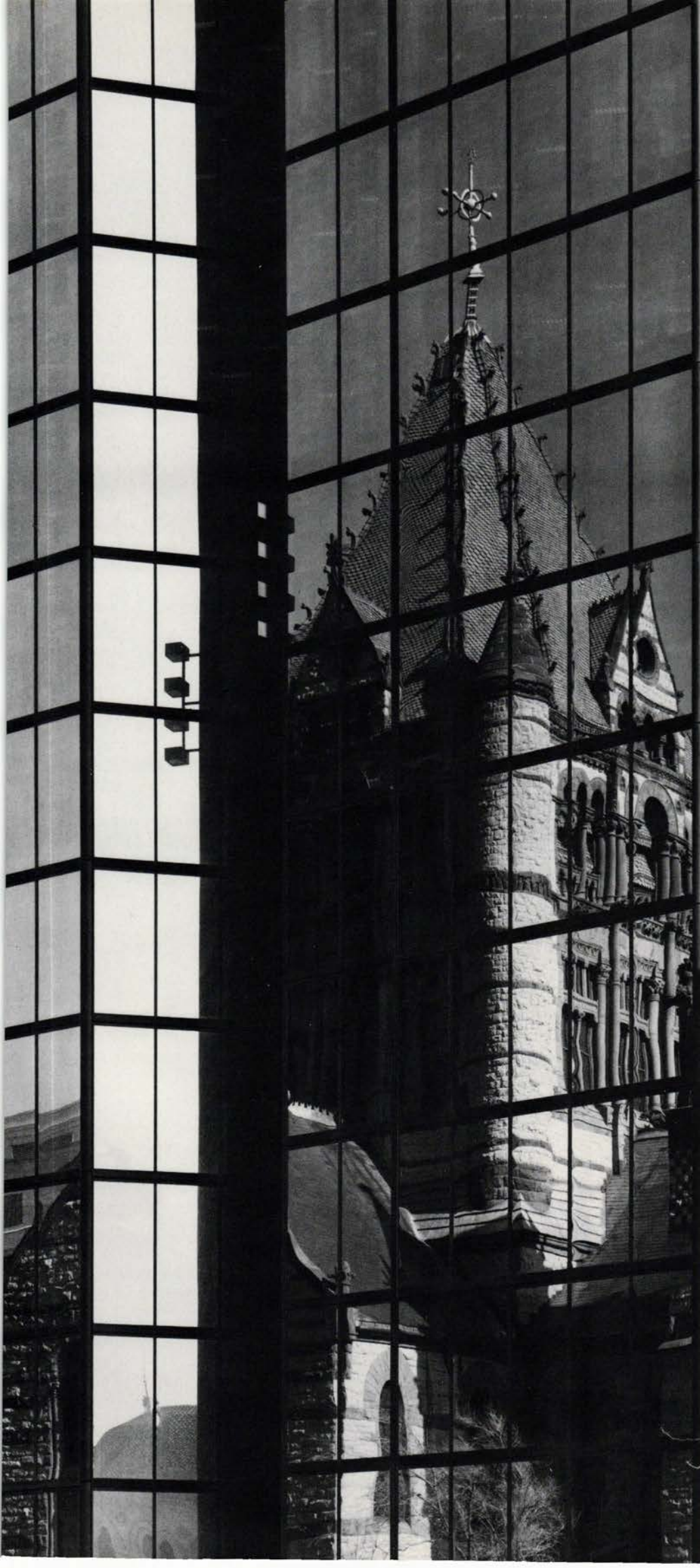


The bedrooms of the large house are shaped by their roofs



The guest bedroom (left) has a carpet of painted flowers. The bedroom of one of the sons is at the highest point of the house where the old-fashioned double-hung windows are stepped upward toward a cluster of chimneys and cupolas. The master bedroom (below right) is under a roof supported by a diagonal truss whose horizontal member becomes a dragon as its tensile stresses are continued by cable.

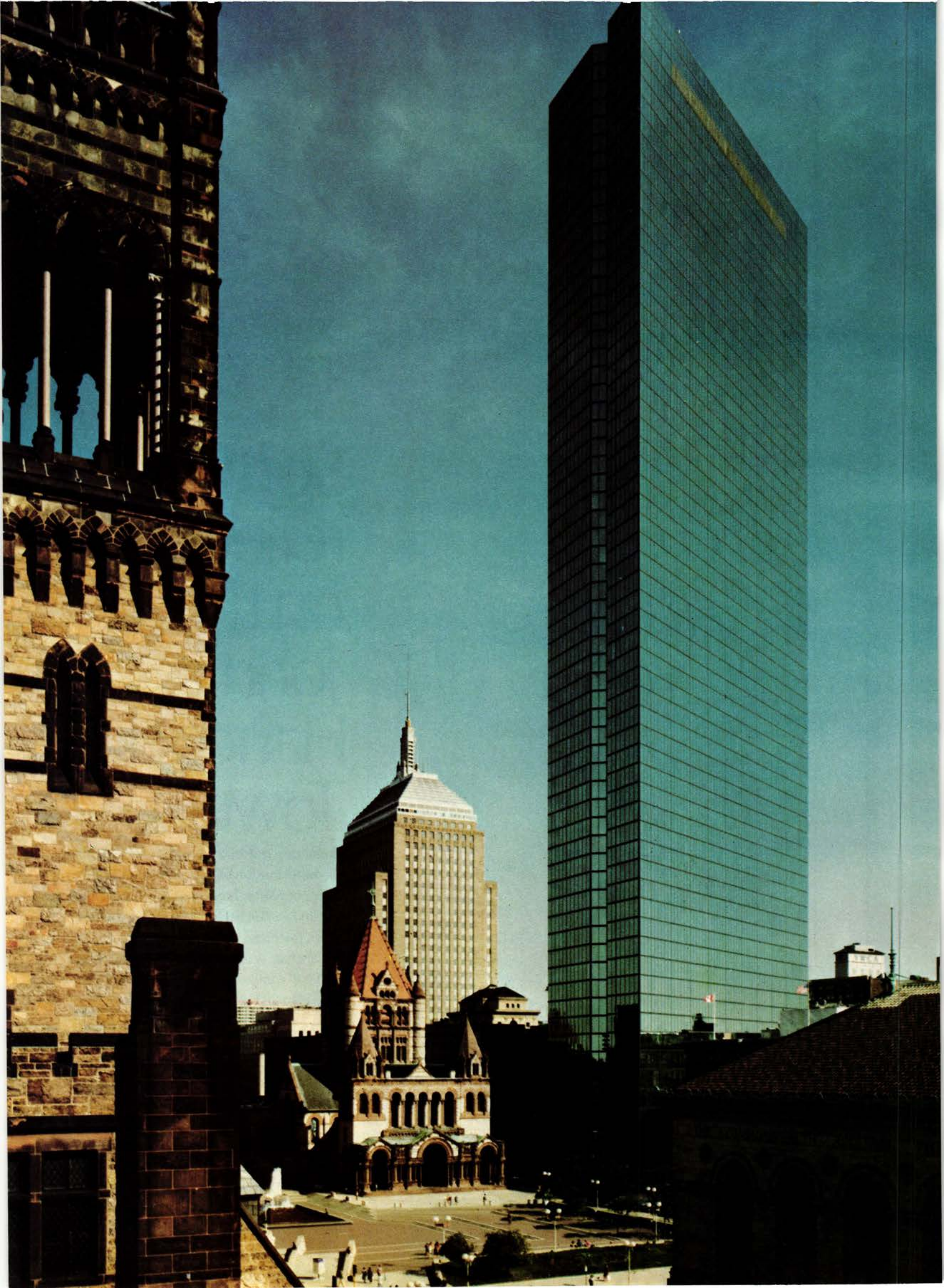


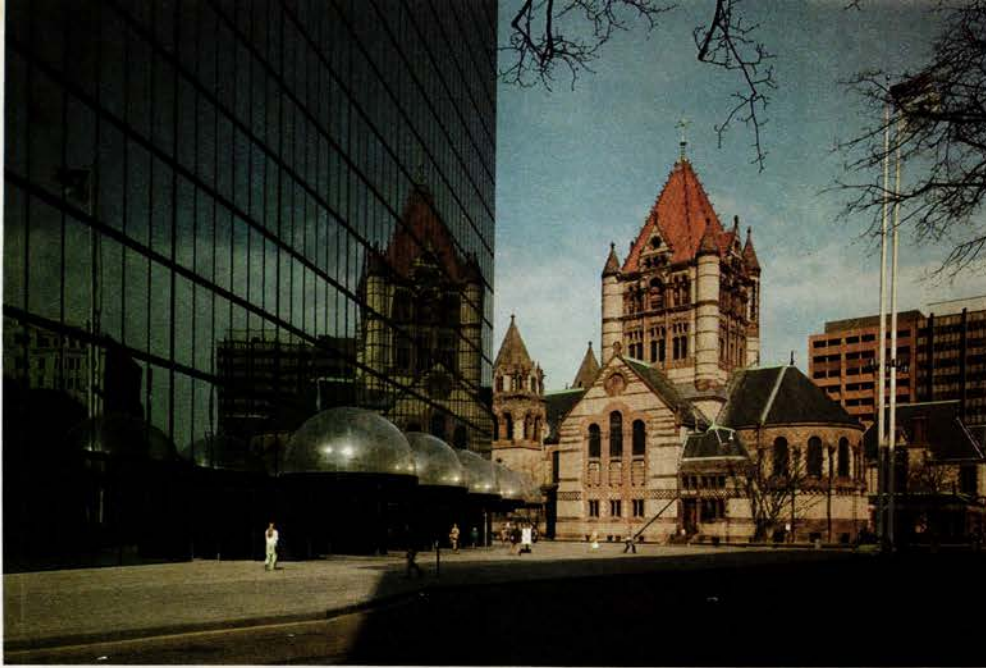


George Cserep photos except where noted

Some reflections on the John Hancock Tower

It may turn out that what we know about this notoriously vulnerable Boston building is not half as important as what we do not know. But it is hard to figure out which is which. If a design, and a brilliant one at that, was ever bedeviled, this was it. What combative spirits possessed the John Hancock Tower? What was it like for a conscientious architectural team, headed by Harry N. Cobb of I. M. Pei & Partners, to be cast in the role of exorcist? And how is it that the tower can stand there now, cozying up to historic Copley Square, as if nothing had happened—one of the best-looking, best-behaved buildings ever to set foot in a city? A lot of life, fortune, and sacred honor is tied up in the truth, whatever *that* turns out to be.





The John Hancock Tower, on the southeastern edge of historic Copley Square, though maligned as an incursion, has turned out to be a strong, energetic, civil presence—giving the Square, if anything, more closure, definition, and even delight. Looking from the west, along Boylston Street (opposite), existing edges and elements have been enlivened, not enervated by the

60-story building's adroit rhomboidal shape. From the eastern entrance plaza (above), beyond Copley Square on Clarendon Street, H. H. Richardson's Trinity Church is seen in the round for the first time. The block-long three-story lobby is cadenced by stainless-steel-clad columns, creating a temple for a suspended replica of the Declaration of Independence.



The John Hancock Tower is plenty of building, probably the best of its breed, and maybe even the last.

More than that though, the Hancock is a tersely composed primer about predicaments that are unique to our time, and the resolution of these has given the building an almost mythic presence in the annals of architecture, gradually making it, too, an important case, and perhaps even a cardinal precedent, in the annals of law.

Just how important remains to be seen. Because the John Hancock Mutual Life Insurance Company, in September, 1975, sued everybody concerned with the design and construction of its 60-story glass-sheathed \$158-million headquarters tower. And no one concerned, for understandable reasons, will talk about the facts behind the myth except to say—as the building client has publicly, even pridefully—that more is known about this building than anyone has ever known about any building.

This is, of course, the building—brought to completion in a tumult of publicity, controversy, and speculation, finally occupied last fall, three years late—whose glass suffered breakage. Again, the Hancock company says it knows the exact reason for it, but again, it won't tell what the reason is. But the expressions that everyone has been wearing from the time breakage began, in late 1972, and glass showered down with a vengeance in early 1973, now conceal a comprehension of the over-all trauma of this structure, which is making the whole truth the best-kept secret since Stonehenge.

Quite simply, the glass story, as harrowing as it is in itself, is not *the* story of the John Hancock Tower.

One thing that becomes clear in studying the history of this project is that the much-maligned height and bulk of the Pei design was never as intimidating to the character and scale of its site—on the southeastern edge of Copley Square—as were the lobbying forces and truculent, protectionist sentiments marshalled against the very *idea* of the building from the start. It was the idea of the building, then the specific design, that were loud-mouthed and reviled. Cobb's design, in contrast, was in the spirit of many an Old Boston character—perhaps eccentric in appearance, but disciplined to a fault in public demeanor.

The Hancock company, back in 1966, settled upon the Pei firm to translate its management, personnel, and technical projections into a design for the present site, right across from H. H. Richardson's robust Trinity Church. It seems that the company had been outgrowing its space every 20 years, on an almost systematic basis. The first building the company had put up, after moving into the Back Bay in the 1920s was the Clarendon Building, named after the street it's on. Then, expanding again in the 1940s, it put up the Berkeley Building, with the familiar pyramidal roof peak, back-to-back with the Clarendon—these two sites lying just east of the site of the new tower. It was logical, were the company to remain in Boston, to try to create a unified development, incorporating its existing resources. The program

Thirty tandem elevators are divided among five banks. Odd-numbered floors are served from the lobby-level; even-numbered ones, from the mezzanine, reached by escalator. The former are color-coded yellow; the latter, red. Bank one serves the first 16 floors; two, floors 15-26; three, floors 25-36; four, floors 35-48; and five, floors 47-60. People cross from one bank to another on the overlapping levels.



In its material finishes, sequencing of scale, and circulation of public space, the lobby and mezzanine levels of the Hancock, starting from the high entrance space and trailing back behind the elevator banks, are nothing short of brilliant. The same black matte-finish aluminum that appears outside is brought into these spaces, and big sheets of it pervade the core, setting off the colorful graphics, and the lobby columns and mezzanine railings that are clad in stainless steel. The two-level street-like part of this area, to the rear of the elevator banks (above and top right) is a lively, tactile counterpoint to the Karnak-quality heights of the main lobby.



initially given Pei by the client's building committee led to a circular, poured-in-place concrete design with below-grade parking for 800 cars. But this scheme, which would have been even taller than the present building, was too expensive, even for a corporate totem, and there were instincts afoot in the company to try to convey as much clout and class as possible, but in a cost-conscious fashion.

In the spring of 1967, to consult on real estate planning and building costs, the company retained Max Philippson, of New York, to conduct a thorough review of operations as they related to space needs and to translate the facts into a statement of requirements. Evaluating construction methods and materials, considering assorted modules for optimum economy and efficiency, Philippson was also to prepare and award the architectural contract and to review and approve the architect's consultants, this in addition to coordinating their over-all performance, preparing and awarding construction contracts, reviewing subcontractors and suppliers of the general contractor, and establishing cost and time schedules.

Together with Mr. Philippson, the building committee came back to the Pei firm with a whole new raft of requirements, and these included a pretty tight set of specifications, not to mention a pretty tight budget. The new building, its conception and execution policed by Philippson, was going to be, come hell or high water, an investment-grade structure, with the attendant squeezing of standards and expenses, and every penny was going to be accounted for. There would be *one* building, not, as first proposed, both a big circular one and, on the site of the Clarendon building, a second new building. Structural steel framing, not concrete, was to be the grammar of construction. And the tower, so the requirements went, would have about two million square feet, between 55 and 60 stories, enough to contain the maximum amount of space allowable under zoning, apparently assuming that getting a variance would be no problem (which it turned out to be), the floors of the base building would have about 45,000 square feet, and those of the tower about 30,000 square feet. The tower's shape was not to be circular, and the parking was to be separate from it.

The company, for a number of well-founded reasons, was in a great hurry. For one thing, it really was running out of room for its actual, not to mention projected, personnel complement. Boston officials of the time also recall that the Hancock company, wanting to time its formal announcement of the project by December of 1967, would also be giving outgoing Mayor John Collins a great send-off. In fact, having the imprimatur of Collins on the project was considered a definite plus by the company, which would soon learn, to its chagrin, that Collins' successor, Kevin White, who is still mayor, was not in such a rush, mainly because the vocal, impassioned architectural fraternity of Boston had officially made its opposition to a *carte blanche* zoning variance known. So had a number of others, including the urban design staff, the Advisory Design Committee, the development administrator of the Boston Redevelopment Authority, and

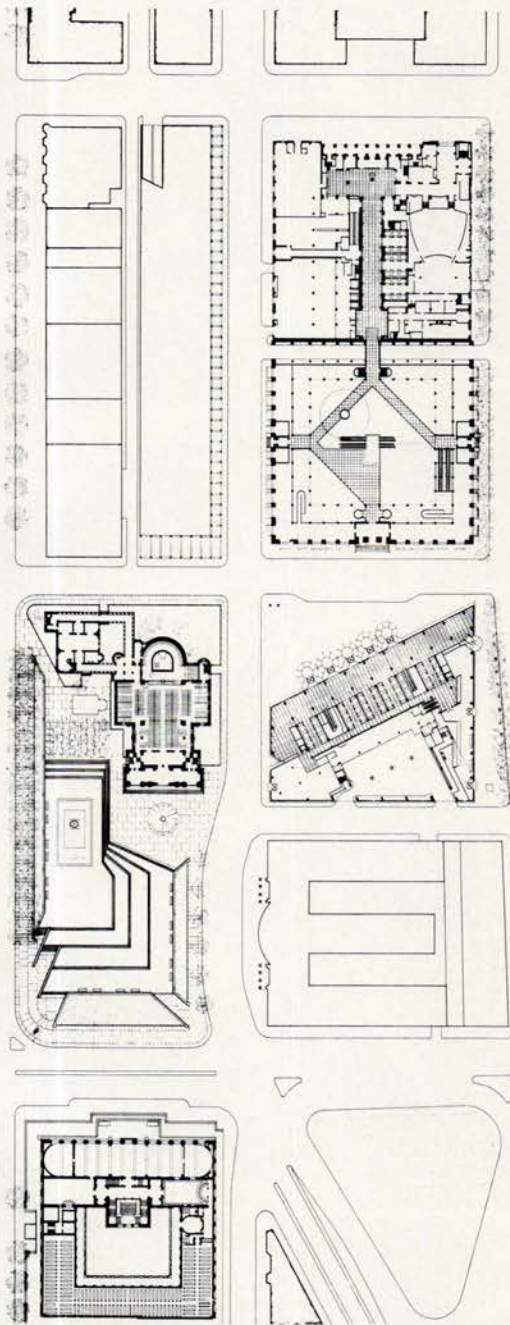
former BRA chief Edward Logue. Just about the time that the Hancock company was announcing its plans, the application for a zoning variance was turned down cold.

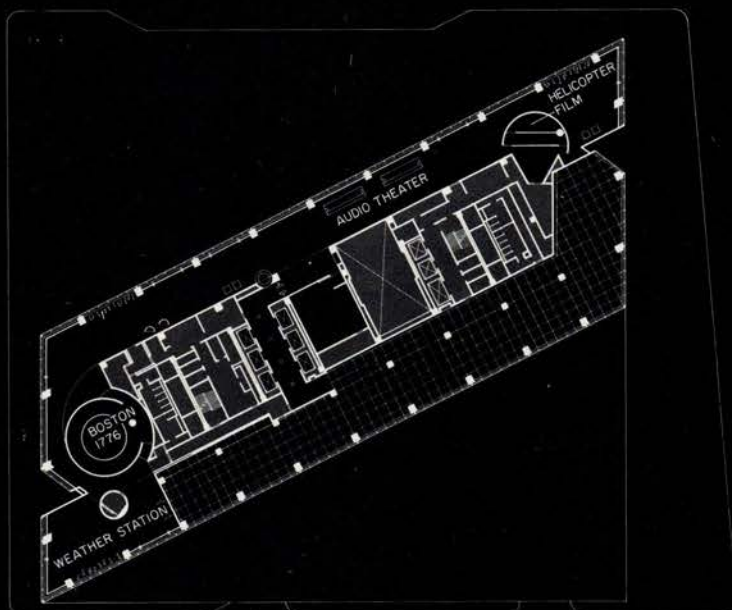
An appeal was immediately registered. The variance requested was for an F.A.R. of 25 instead of routinely permitted 8, for dispensing with required setbacks, and for allowing nine off-street loading bays, instead of 15.

The urban design staff of the BRA had voiced serious objections to several key assumptions of the plan; namely, that the proposed creation of an open plaza, in front of the east facade of the rhomboidal tower, sloshing across Clarendon where the existing building was to be torn down, would detract from the expected cohesion of a refurbished Copley Square for which a national competition was being held. The Hancock company had furthermore said that it would only be occupying three-fifths of the projected building for the first few years, leasing the rest, and so the agency understandably questioned whether such a tall building, requiring such a variance, was really necessary—bludgeoning, so many professionals believed, the qualities of the area. Wouldn't a two-stage program be more sensitive and suitable, thus minimizing the height of the first-stage tower? The Design Advisory Committee of the BRA adamantly agreed with the agency's staff on these points and, therefore, Kevin White was cautiously disposed toward trying to find a compromise. But the BRA board, within two weeks of the formal announcement of the project, overrode its own staff and advisors, endorsing the variance, followed in late December by endorsement of the Board of Appeals.

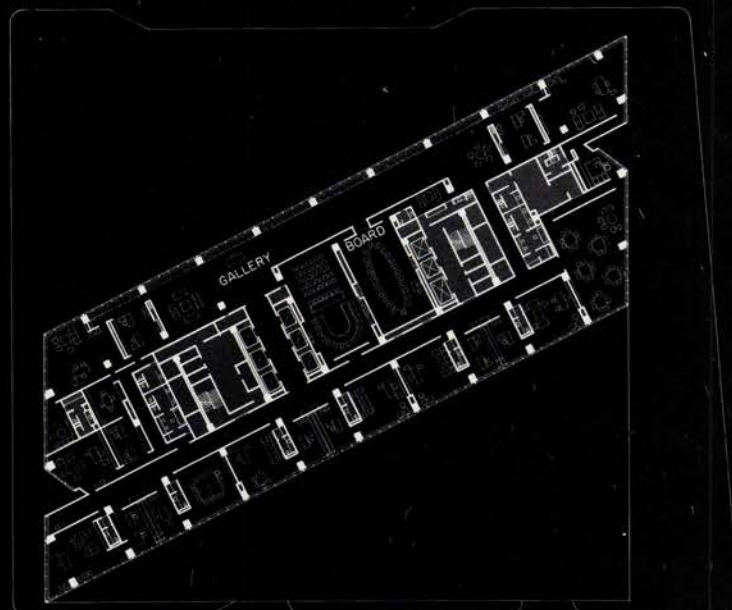
In a rush, the Boston Society of Architects appointed a prize committee, chaired by Huson Jackson of Sert Jackson & Associates, to review the proposal; and White came out publicly for the Board of Appeals to wait to hear what the architects had to say. The Society, to put it mildly, found the design wanting—and attempted to ameliorate the situation by saying that the architect was being forced to work under certain imposed physical conditions. Accordingly, the Appeals Board reserved judgment on the variance, even as prominent spokesmen, including the then-board chairman, Samuel Tomasello, were plainly agitated at what they construed to be an affront to economic progress and Back Bay revitalization. In an interestingly prophetic bit of legalese, he chanted that if Hancock were to look at its *entire* 233,430 square feet of holdings in the area, or 5.5 acres, instead of applying for a variance for just the 73,000-square-foot tower site, it might be feasible to consider spreading the zoning allowance over the *wider* tract, thus coming down pretty close, if not to, the routine allocation of 8 for the tower site itself. That spreading around of F.A.R. was exactly what later happened.

Certainly, it became the key strategy of the company and its architects in putting across the notion that in applying for a variance for the tower site, per se, it had to be understood that this particular project was part of a larger development package that the company intended to carry out. Harry Cobb, who had

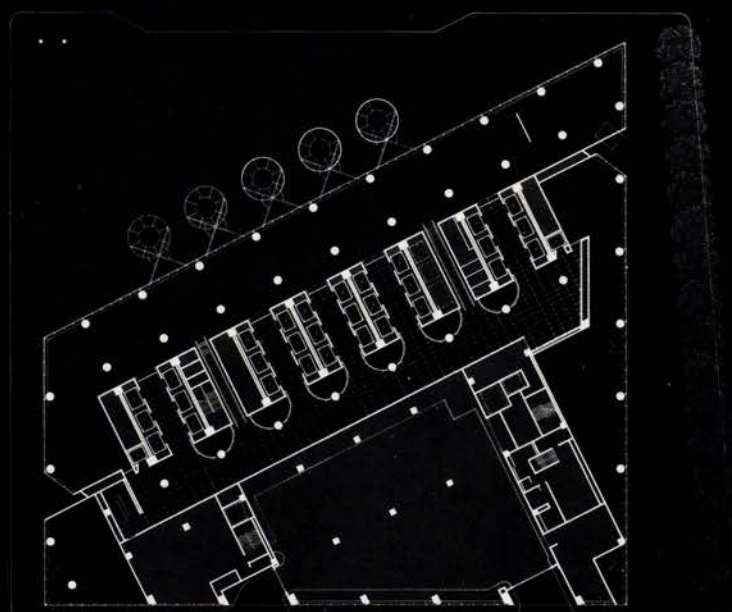




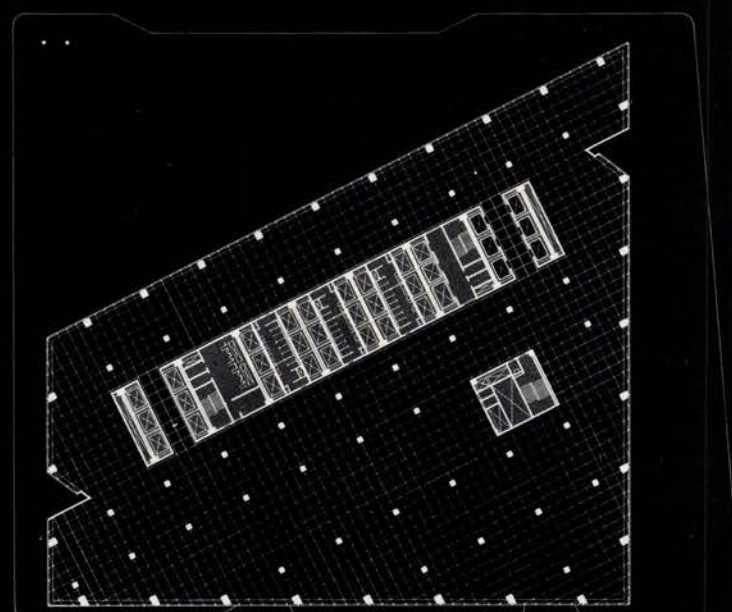
OBSERVATION GALLERY - 60 FLOOR



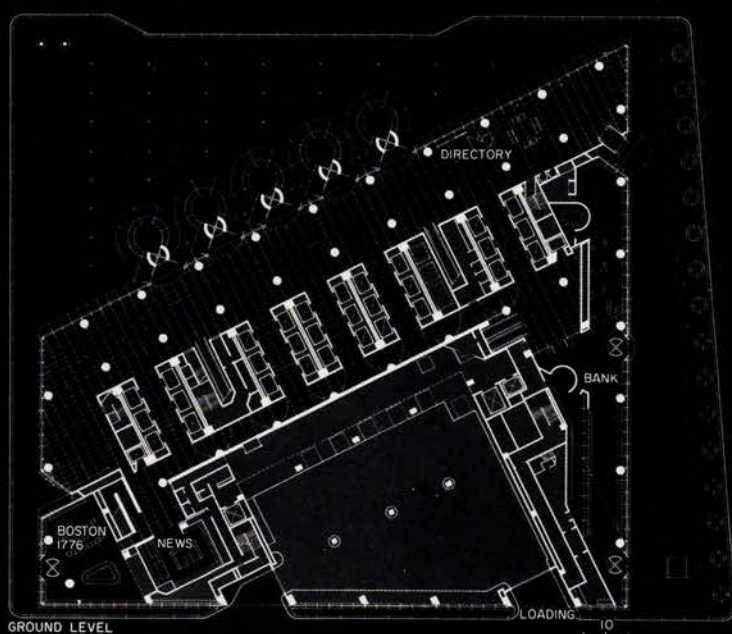
EXECUTIVE OFFICES - 59 FLOOR



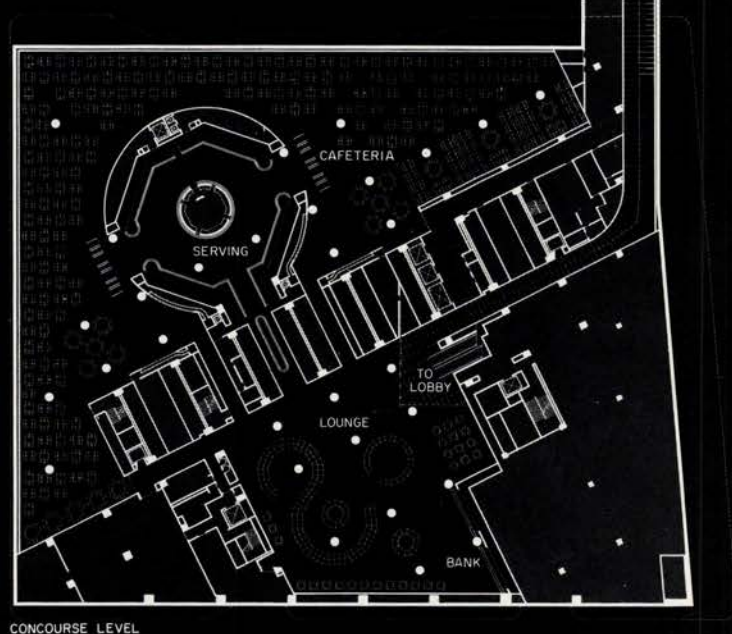
MEZZANINE LEVEL



LOWER LEVELS - 4-6 FLOORS



GROUND LEVEL



CONCOURSE LEVEL

otherwise cogent urban design and historic rationale for his design, was nevertheless moved to stress that, taken all together, the 5.5-acre assembly of parcels would result in an F.A.R. computation for the tower of 80,000 sq ft *less* than the routine zoning allowance.

In late January of 1968, with these fraternal brickbats flying, the national AIA's Committee on Aesthetics, chaired by Jean Paul Carlhian of Boston, decided to have a go at the issue, and, later that spring, it released what has to be one of the most intelligible evaluations ever directed toward design.

The agreement reached between the city—with White now in the saddle and his BRA Administrator, C. Hale Champion, and Hancock involved—included amending the zoning code to take in so-called "large tract zoning areas" out of which could be carved such special sub-development districts as the Hancock holdings. The company, with the Zoning Commission hearings set for early April, was in a jubilant enough mood to revise its schedule for proceeding with the project, based on expected Commission approval of the amendment.

And so, on May 23, 1968, almost a year and a half after the Hancock company's building committee had been formed, the BRA approved this first, and some still insist fateful, application of the Planned Development Area measure. It laid down controls that are still technically in effect if not necessarily uppermost on the minds of the company's present officials, who, with problems associated with construction of the tower itself, are loath to get involved, these days anyway, with talk about the development controls agreed on in return for approval. Perhaps the most crucial provision pertains to the site of the present Clarendon Building, across the street, and facing west toward the new tower, the ebullient apses of Trinity Church, and, beyond, to Copley Square itself. The BRA specified that this parcel be devoted to open space amenities, generally accessible to the public at large, and that a portion, right next to the larger Berkeley Building, be devoted for such cultural and public-service activities as theaters, galleries, or restaurants. Since the minimum building coverage called for a minimum dimension, extending west from the Berkeley Building, of 70 feet, a number of watchful Bostonians (perhaps not unmindful of Harry Cobb's own cultural and civic consciousness) made the rather astute observation that this provision might be even more handsomely met by recycling the Clarendon Building, rather than just tearing it down, and by weaving a filigree of esplanades and activities throughout the modified interior.

The Hancock company now considers either set of options for meeting the BRA provision on the "back burner." But continued rancor toward those who bring up this agreement does nothing more than reinforce the lingering public impression that, feigning civic consciousness, they went through all this just to get the tower—an hypocrisy too unworthy of the tower they got.

While such a statement is not meant to demean the value of their investment in Boston, it would be well, speaking objectively, were the Hancock to acknowledge that built-up

public, as well as other *private*, investment helped create the physical circumstances in which the company has grown. Providing a public amenity in return for a three-fold increase in F.A.R. is the least that should be done—not to mention the fact that it would be a laudable response to a legal agreement now nine years old.

The tower which Hancock got, breaking ground in late summer of 1968, may well be, for many observers, the all-time example of a very good building in the wrong place. There was a strong (some say sanctimonious) desire to somehow protect Copley Square from a highrise incursion, as many feared that such a tall building would overwhelm such venerable and celebrated neighbors as Trinity, or McKim, Mead & White's Boston Public Library, opening up a hissing fissure in the streetscape.

Fact is, that fissure had been opened up long ago, and it wasn't long after the turn of the century that Copley Square ceased being a fashionable parlor for the Back Bay, gradually loosing the fine buildings that had given it definition. With the end of World War II, it settled into what Cobb calls "enormously unsympathetic arms"—the ungainly march of high-rise construction from downtown and the blanketing of the area by low-rise blight. "Actually, Copley sort of stumbled into being," says Cobb, "and without much clarity or conviction, going back to the 19th century when the old railroad lines threaded into the area from the west. Huntington Avenue cut out to the southwest at a diagonal and Boylston Street, lining the north side of the square, continued straight west. When the Back Bay area, especially along Commonwealth, was thriving in the 1880s, the Copley enclave became a fashionable focus, and that is when we had the old M.I.T. building here, and the Museum of Fine Arts, and the triangular S. S. Pierce Company building, right where Huntington juts westward now. With these institutions gone, and a good many of the original buildings demolished, Copley has once again been swallowed up, by a new, bigger, disjointed scale. That is why many sympathetic observers felt that the Hancock ought to become a positive participant, a real pivot point, again making this a rallying place, not just a beleaguered victim of chaotic, carelessly scaled urban growth in all directions around it. The judgment of Carlhian's Committee on Aesthetics was appreciated *not* just because the committee was generous about the tower. The committee's generosity was conditioned on its hope, in fact its expectation, that the tower would have sufficient presence to generate a new quality of order and unity all *around* the square."

While one can be put to the pillory in some parts of Boston for saying so, it is precisely the Hancock's civility as an element of the urban fabric that makes it a strengthening structural strand rather than, as so many feared, a gratuitous esthetic whallop. The rhomboid shape, with its eastern edge facing Clarendon, placed at a diagonal, was readily accepted by the company's building committee, even though it meant spending around \$3 million more than the initial Philippon budget of \$72 million, which, figuring his square footage specifications for the floors, meant a bud-

get of \$33 per square foot. This shape would provide the best means to ease gently up to Copley Square without overwhelming it, and, so the committee was convinced, this feature would serve to refute any criticism of their intended tower as a truculent neighbor.

The new building nudges right up to the Square, jutting west. This narrow north facade fills out the site with a low seven-story base which is the same height as the neighboring Copley Plaza Hotel, purring contentedly alongside, and since purchased by the company. Furthermore, the diagonal face of the eastern edge creates an angular plaza that, in turn, brings the Clarendon Street side of Trinity into full view and play—just as Richardson, who first conceived and drew it from this direction, always hoped. So with Copley on the opposite side, and the entrance plaza of the tower on this side, Trinity, for the first time, is really experienced "in the round," and it's a good show.

And as much of a sideshow freak as the building's metal and glass curtain wall became before reglazing was finished in 1975, Cobb's abiding concern for the urban context is demonstrated in his handling of not only the glass detail itself but, more vitally, the over-all composition of surfaces. There are 10,344 panes in all, each measuring 4½ feet by 11½ feet, and these mirror the surroundings in soft shimmering images of grey and green and blue. Any sense of threatening volume is mitigated by this mediative membrane, which begins right at the street and plaza level, seeming to emerge right out of it by way of a deft detail. There is no iconic solidity, either, when experiencing the building from round about town, but a quality of clean, crisp surfaces, of razor-edged sharpness—and, when the play of light and clouds is right, the building verges on the ethereal, almost disappearing. The continuous bevels that are notched into the north and south facades of the rhomboid enhance this taut, tensile lightness.

If there is a really sad thing about what we called the Hancock's mythic aspect, it is that it will forever be talked about as the building whose foundations caused trouble, whose glass fell out, and which had to be structurally stiffened as a precaution against that someday storm which tomorrow, or 100 years from now, might end all storms. Two 300,000-pound lead weights called tuned-mass dampers (TMD's) were also installed in anticipation of uncomfortable vibration, but these are not yet in operation and no complaints have been registered. The reasons why this big building shrugged, so to speak (and it wasn't easy, even for its critics, to watch a grown building cry) can't be disclosed until the court claims are settled, one way or another. What we do know is that the original double-glazing—two sheets of glass separated by a half-inch of air—were replaced by tempered one-half-inch glass; and that breakage has since been statistically nil. Another good thing about this hopefully final solution is that the new windows maintain the dimension of the earlier fated facades. If, in reglazing, the existing frame size had not been maintained (and smaller frames were seriously discussed by the client) the building would now appear to be a much more frenzied, con-



Top management offices in the Hancock are predictably plush, with the most dramatic ones occurring at the corners or where the continuous vertical bevels, which are seen on the north and south facades from the outside, notch into the floor plan. Average office floors are covered with pieces of carpet, laid down like tile, that are a sort of tired-gray-mouse color and open-office landscaping, also coordinated by the client, creates a cacophonous if colorful composition of curvy wall partitions that denote work spaces. The architect's evenhanded, impeccable approach to providing a

package for all this can be seen in the detailing of the rail-like convectors, wrapping around the perimeter of every floor, their divisions aligned with the curtain-wall mullions. The dignity of the 59th-floor boardroom (left) discloses a Pentagon-style complement of corporate communication equipment. A democracy of good design is distributed between the executive dining spaces (below) and the supermarket-style 1,000-seat employee cafeteria, the walls of which are embellished with hand-lacquered fiberglass apples by artist Donn Moulton (opposite below).



spicuous neighbor.

Glass, to try to clarify the most notorious aspect of the building's history, has variant properties, unlike steel. There is no guarantee that every piece of glass in a building is going to behave like every other piece. Most building codes, including Boston's, recognize this. The Boston code says that glass breakage should not exceed eight lites out of a thousand, a ratio agreed on by the manufacturers as a whole.

Another thing about glass is that it can not take damage. Scratching or pitting, even if it may be almost undiscernible to the eye, can dangerously diminish its strength.

To clear up one of the major myths, then, it was mainly *damage* to many, many lites of glass, occasioned by the actual *breakage* of comparatively few lites, that accounted for the grotesque Gothic novel of a building that people began peering at, not without foreboding, in early 1973. There had been sporadic breakage as early as 1971, some of it explained, some of it not. But in January of 1973, a storm, with gusts up to 75 miles per hour, hit Boston, the building, and broke 16 lites, damaging 49 more fatally. And the fragments from all of these lites, raining down the west facade of Hancock, damaged hundreds more.

At once, extensive laboratory and on-site testing began. In June of 1973, Cobb notified the Boston building commissioner that the one-inch-thick insulating glass on the lower part of the building was defective, a charge adamantly denied by the manufacturer. By this time, almost 2,400 lites had been removed, replaced with plywood, 2,080 of them being the one-inch stuff. Then in late September, Cobb sent off another letter to the commissioner's office, which had meantime ordered tests on its own, stating that the glass in the upper stories was also defective, a charge even more adamantly denied by the manufacturer.

One can surmise, and not inaccurately, that the showdown meetings taking place inside the Hancock company must really have been something. It is not hard to conjure up a scenario in which all parties, their lawyers darting back and forth from room to room, are seen scratching their heads and fidgeting with their ties, perhaps as a substitute for slamming the other guy against the wall. Was the glass inherently defective as Cobb had written the commissioner, or wasn't it? Was the glass inherently undefective but simply not up to tolerating the thermal or mechanical stresses experienced by the building in normal use, or wasn't it? What were Hancock officials and its lawyers saying to the architect and the manufacturer and the contractor and the subcontractors by September 1973? Did Hancock itself ever conclude, and state, that the glass was defective, or didn't it? The thing we know that they said, for sure, is "Shut up." And though the company did not formally sue everyone until two years later, muzzles were evenly distributed. The company's own consultants, Hansen, Holley & Biggs, affiliated with M.I.T., who had begun rigging the troubled building like a cardiac case right after the January 1973 storm, are also muzzled, dammit.

The first Hansen report came in May, 1973. There is no way of telling what it said about the cause of the glass breakage, but we

do know that Hansen proceeded with a second study, and this was completed in the summer of 1974. Is it all that wild to surmise that this cardiac case, having been turned inside and out from January to May of 1973, had so much up its sleeve of an unforeseen nature as to have necessitated even more tests to explain findings that no one, in their wildest imagination, would have thought possible?

As of the spring of 1973, there was a glass problem. We know that. Did the investigation of the glass problem, and its possible relationship to "something else," result in findings that indicated that this "something else" might be even more of a problem, presently or potentially, than the glass, *per se*?

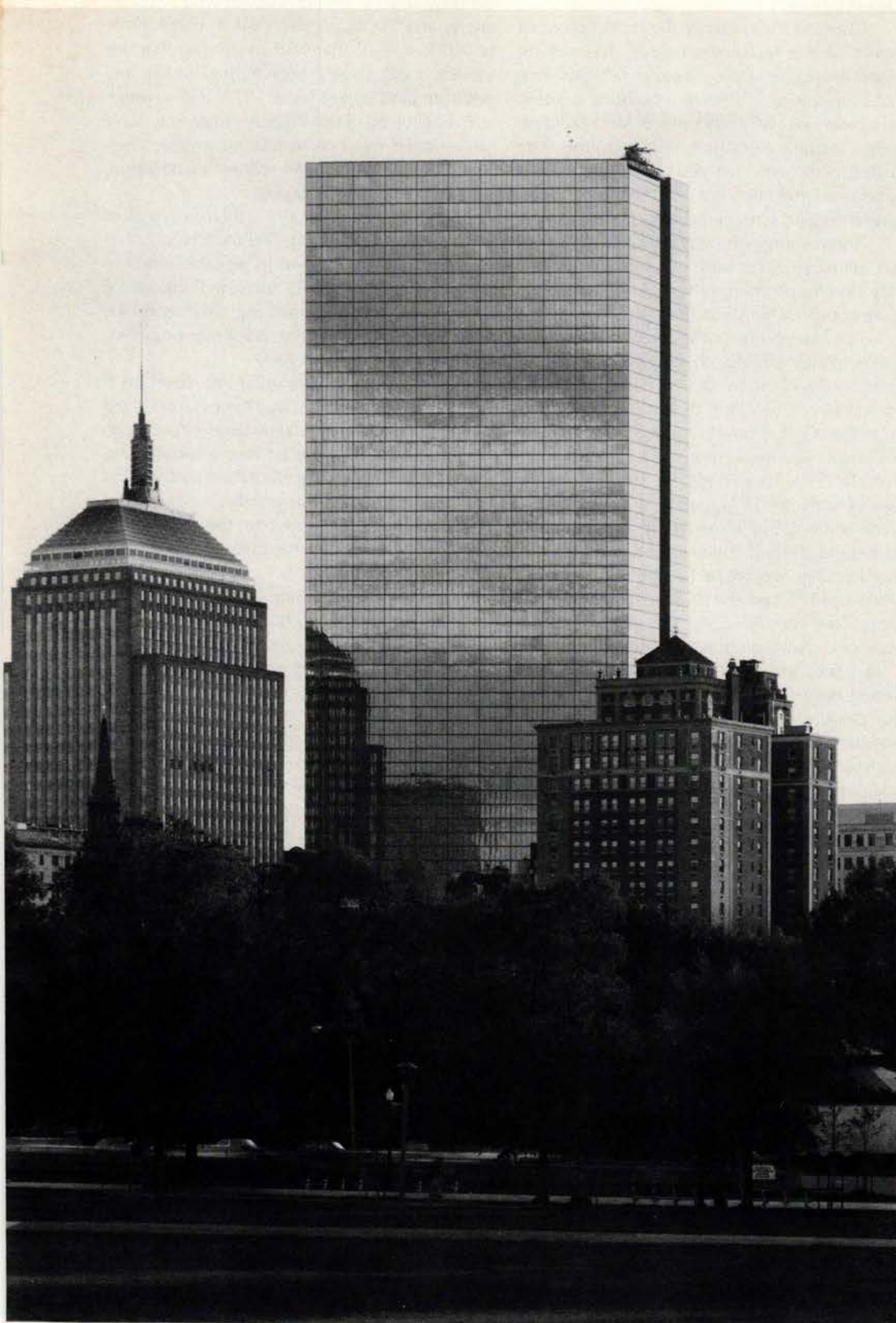
Hancock may have gone into court, as it did, to recover expenses and losses occasioned by replacing the glass and by delays in occupying the building—those are heavy enough. But careful consideration of all of these moves, and one guess is as good as another, suggests the heaviest worry, unrelated to the glass itself, was being confided by the building's anatomy, not its apparel.

It might even be suggested that who wins or loses the battle in court, dealing with the glass, is a frivolous issue. What, then, is the issue? The original glass was rated for pressures like 35 to 40 pounds per square foot (the new lites are rated for 220). But it is a reported fact that the many lites of glass broke at pressures well below that rating. Can it be said—as it has, *ad nauseum*—that this tall, slender structure, twisting in Boston's capricious and often vicious wind gusts, lost its glass just because of the wind, even recognizing that a shape such as this tends to move more than, say, the usual rectangular volume? Or did studies of the wind-loading conditions affecting the structure reveal behavioral properties of both the wind and the structure—properties which, put together and acting on each other in synergistic ways, created yet another condition?

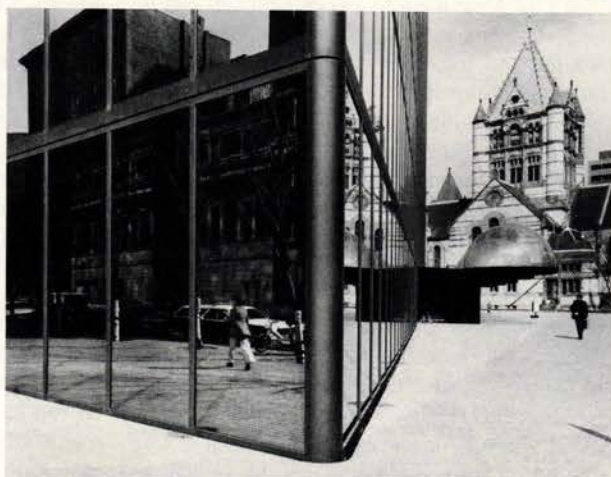
We know that in the spring of 1975, with the reglazing of the building 85 per cent complete, and with interior finishings proceeding well, the Hancock, on the recommendation of a consulting team brought aboard by the Pei firm, Dr. Bruno Thurlimann of the Swiss Federal Institute of Technology and Dr. A. G. Davenport, Director of the Boundary Layer Wind Tunnel, University of Western Ontario, decided to install stiffening members within the core of the new building.

This was done, the company reported, to ensure "satisfactory performance over the long term," taking into account those extreme, rare wind conditions which could possibly occur over the next 100 years—a reference to what experts call the 100-year storm. The frightening thing about a 100-year storm, of course, is that a particular building, like the Hancock, has absolutely no affect on when it can happen. A 100-year storm, with both area-wide winds and surface turbulence building up and imploding on each other with a power so terrific that it is statistically rare, can happen 100 years from now, or 100 days from now. And its effect on a structure, any structure, can be catastrophic. Question. Would it take three major studies, and from January of 1973 to March of 1975, to determine what caused the





Looking west from the Boston Common and, beyond, to the Back Bay, the Hancock—with the Ritz-Carlton Hotel to the right and the company's old headquarters to the left—provides a pivotal, unifying element for the skyline, while both culminating and disciplining the years' march of higher buildings toward this area from downtown. Far from being another truculent tower, reflecting upon nothing but itself, the Hancock inserts a splice of life, scale, and visual allure, enriching the bonding pattern of its external setting, rising straight out of its site, quietly and quickly, reflecting upon the most casual passer-by.



glass breakage, even if complicated structural and wind-loading factors had been primary? It is difficult to see how unless those factors, in and of themselves, constituted a separate set of circumstances requiring the extra stiffening. Another question. Was this stiffening, put in to ensure "satisfactory performance over the long term," to provide primarily for the comfort and sense of security of occupants, considering that the acceleration of a building—that is, not how fast it moves but how fast it picks up speed—can cause serious physical and psychological effects? That problem, the public was given to understand, was to be solved by installing those huge TMDs, calming the building, and such lateral sway, too, was to be calmed by deep three-foot beams wrapped around the exterior at every floor. Is it possible that the stiffening, again *at the core*, ensuring "satisfactory performance," is related not so much to how the building reacts in terms of structural movement—that is, its period of motion and the extent of its vibrations—as how it reacts in terms of actual structural strength—that is, the ability of its basic framing configuration to tolerate such movement with ample elasticity?

Hancock management must have been on the verge of collapse, even if their building wasn't, and one can only marvel at the company's having kept so cool, and on course—perhaps out of pride more than anything else—whatever the true nature of the "satisfactory performance" that they wanted their extra stiffening to ensure. It is not a secret, though, that the stiffening members were installed along the *longitudinal* dimension of the building, whereas the expectation would be that problems of motion and sway, were they the major concern, would have been handled by lateral reinforcement. The concern was longitudinal, and since the factor of sway is a problem in the narrow direction, that concern clearly must have been for something else—sheer structural stability and strength not excepted.

The Hancock story, as indicated at the outset, is not just a dramatic detective story about who did what, in what order—or about who knew what, and when. It is not even a debate about competence frustrated or competence lacking. It is a clear *state of the art* story—especially so in the sense that, because of this building, we have begun to realize that what the state of the art is may in *fact* be other than what the profession, its allied consultants in engineering, the manufacturers of materials, and the clients in their infinite wisdom thought it was. Clarity comes hard, and expensively. It may also, as in the John Hancock Tower, come beautifully.—William Marlin

THE JOHN HANCOCK TOWER, Boston, Massachusetts. Owner: John Hancock Mutual Life Insurance Company. Architect: I. M. Pei & Partners (Harry N. Cobb, partner-in-charge). Engineers: The Office of James Ruderman (structural); Cosentini Associates (mechanical, electrical); Mueser, Rutledge, Wentworth & Johnston (foundations); Barton-Aschman Associates (traffic and parking). Contractor: Gilbane Building Company.

Achieving economy and efficiency in environmentally sound buildings for industry

Roofs. The single most serious plant maintenance problem is the roof, according to 40 per cent of those interviewed in a recent RECORD survey conducted among 18 randomly selected industrial clients.*

Today, those who manage the building programs of industry, often themselves architects or engineers (67 per cent in the survey), feel they are best served by architects who understand that operating costs and first costs are of utmost importance. Architects who manage to achieve the element of art as well (at absolutely no additional charge, of course) will undoubtedly be well received by this type of client, and garner a fair share of a market expected to total \$4.5 billion this year, up 10 per cent over 1976. The following pages discuss some buildings we feel will make the point that production and warehouse buildings can meet the primary client goals of economy and efficiency, and still be environmentally sound and responsive to the needs of people.

To touch briefly upon other findings in the survey: The Southeast and Southwest regions of the country seem to be favored for industrial expansion, a fact corroborated by the updated *Dodge/Sweet's Construction Outlook* for 1977 (RECORD, March 1977, page 63). The second most preferred areas are the West and Midwest, although all regions of the country are expected to show marked increases in industrial building activity, beginning late this year and extending into 1978 and 1979. (Most industrial building programs are planned two to five years in advance).

Clients are looking for experience

Architectural firms are their primary source of building design services, according to 77 per cent of the survey respondents, with in-house design departments the next most usual source of design services.

Asked if they had ever acquired a building from an architect teamed with a contractor in a design-build situation, 61 per cent answered yes. Of the 38 per cent who replied no, half said they would consider this option. The reason: "Time and cost control." (In a companion survey conducted among architects who have designed industrial buildings, 76 per cent said they had teamed with a contractor to offer a design-build package to their clients.)

*The individuals chosen for this survey manage building programs within light and heavy manufacturing industries, retail chains (warehouses), and food processing industries. Their names were obtained from the directory, "Corporate Buyers of Design Services USA," 1st edition, 1976, published by B.I.D.S., Inc., Washington, D.C.

Of the large number of clients who employ architectural-engineering firms, the emphasis is on engineering. Structural engineering services are most frequently used (by 94 per cent of the respondents), followed by mechanical engineering (83 per cent), electrical engineering (77 per cent), architectural design (66 per cent), interior design (55 per cent), environmental impact studies (44 per cent), and life-cycle cost studies (33 per cent).

Full service capability ranks among the three most important design firm features preferred by these clients. When asked what characteristics of an architectural firm they place much emphasis on, they ranked prior experience with the building type as first in importance (83 per cent), personnel assigned to the project as second (66 per cent), and scope of services offered as third (44 per cent). Design reputation tied with fee for fourth position.

Getting repeat business with industrial clients is not easy. Only 16 per cent of these clients stated that they *always* use the same architectural firm for their projects. When they do, the main reasons are the ease of an established relationship, and the fact that industrial construction often involves expansion of the architect's original building. A significant 72 per cent of the respondents said they *sometimes* use the same design firm, but cited a strong preference to use local firms whenever possible.

New construction outpaces remodeling

There is no established trend to recycling older buildings for industrial use, although 66 per cent of those interviewed said that older buildings are *sometimes* a feasible alternative to new construction. New work accounts for twice as much work as remodeling in this survey. Only 18 per cent offered a solid endorsement of recycled buildings, citing shorter lead times, tax incentives and environmental factors that would make the idea attractive.

As can be expected, energy commands a great deal of attention with industrial clients, and when asked what energy source they are factoring into their long-range plans, 61 per cent said electricity, with oil placed second. Industrial clients also expect their architects to design for the uncertainty of energy sources. When they were interviewed, architects experienced in this building type reported that they are designing power plants for alternative fuels, sometimes specifying dual- and tri-fired boilers, and making more use of industrial by-products and heat recovery systems.

—Charles E. Hamlin

A budget-minded client relies on sound planning goals to achieve economical—and environmentally superb—production facilities

The Hewlett-Packard Company, which produces electronic equipment in locations around the world, has through the years been quietly demonstrating its commitment both to quality working conditions for its employees, and to the enhancement of communities that accept its plants.

The plant shown here is located in Santa Rosa in northern California, on a 190-acre site. It is located in an area zoned for light manufacturing, but because the site is part of a residential development, the architects—John Carl Warnecke & Associates—recommended that the owner forego a preferred hilltop location in favor of buildings that step down the slope. A substantial benefit of doing so was to move the adjacent parking—and more importantly, the parking lot lighting—to a position that could not affect the residential community.

The overriding planning considerations of environment, employee satisfaction, and readily adapted manufacturing space are neatly realized in this project, the first phase of which includes the two buildings shown, the power plant, and parking. Eventually, the total enclosed area in eight buildings will comprise one million square feet, with parking for 4000 automobiles.

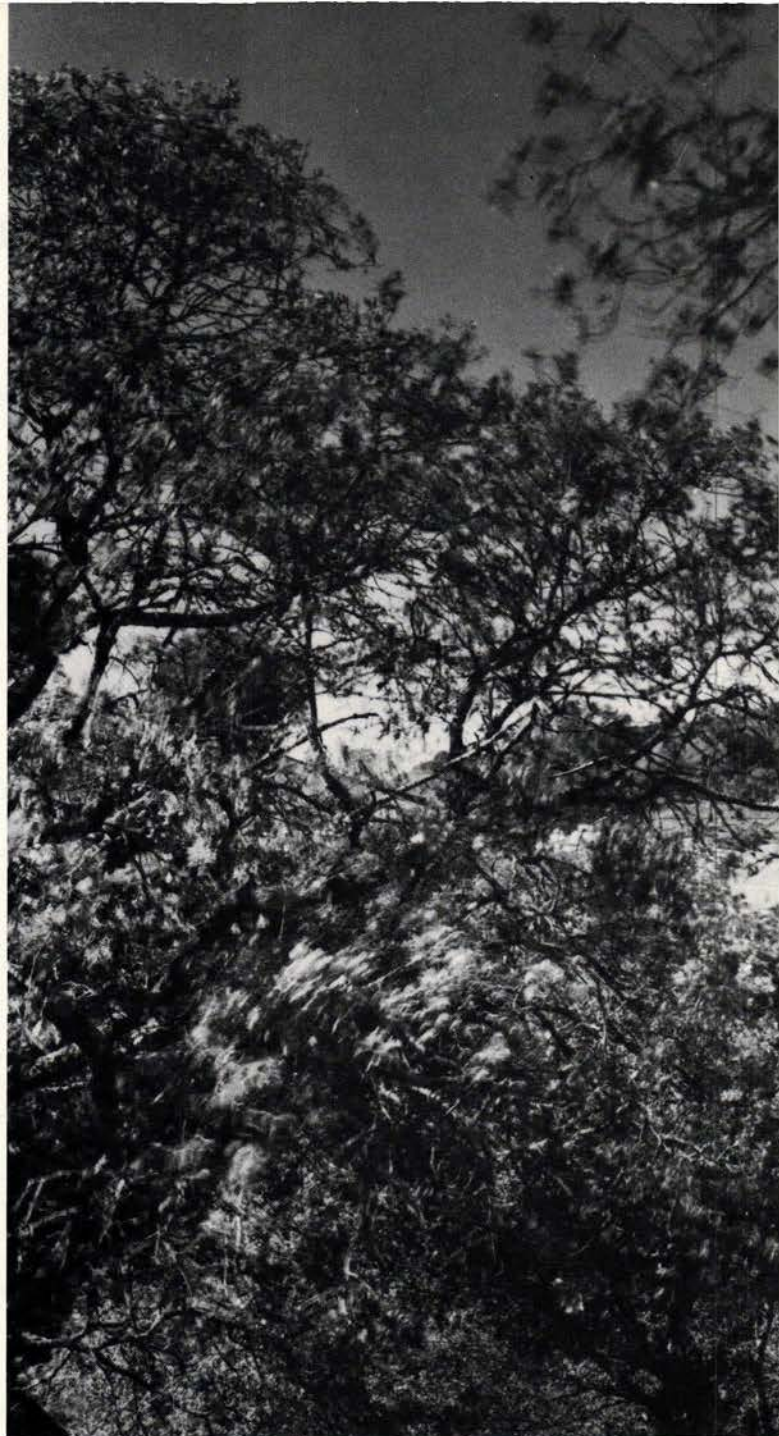
Completed at a cost of \$14.5 million (including the full power plant), these buildings were competitively budgeted, consistent with the client's strict cost limits. The client's employee-per-square-foot ratio of 1:200, and "activity sheets" filled out by employees, helped determine the horizontal and vertical modules of the building. Two standard modules were found: a small planning module 5 feet square, and a large structural module 40 feet square. The vertical module is based on human floor-to-ceiling requirements, and the necessary mechanical systems located in interstitial space created by the use of deep trusses in two directions. The truss ar-

rangement has the added benefit of minimizing vibration and deflection, important in a building where much of the manufacturing is done under microscope.

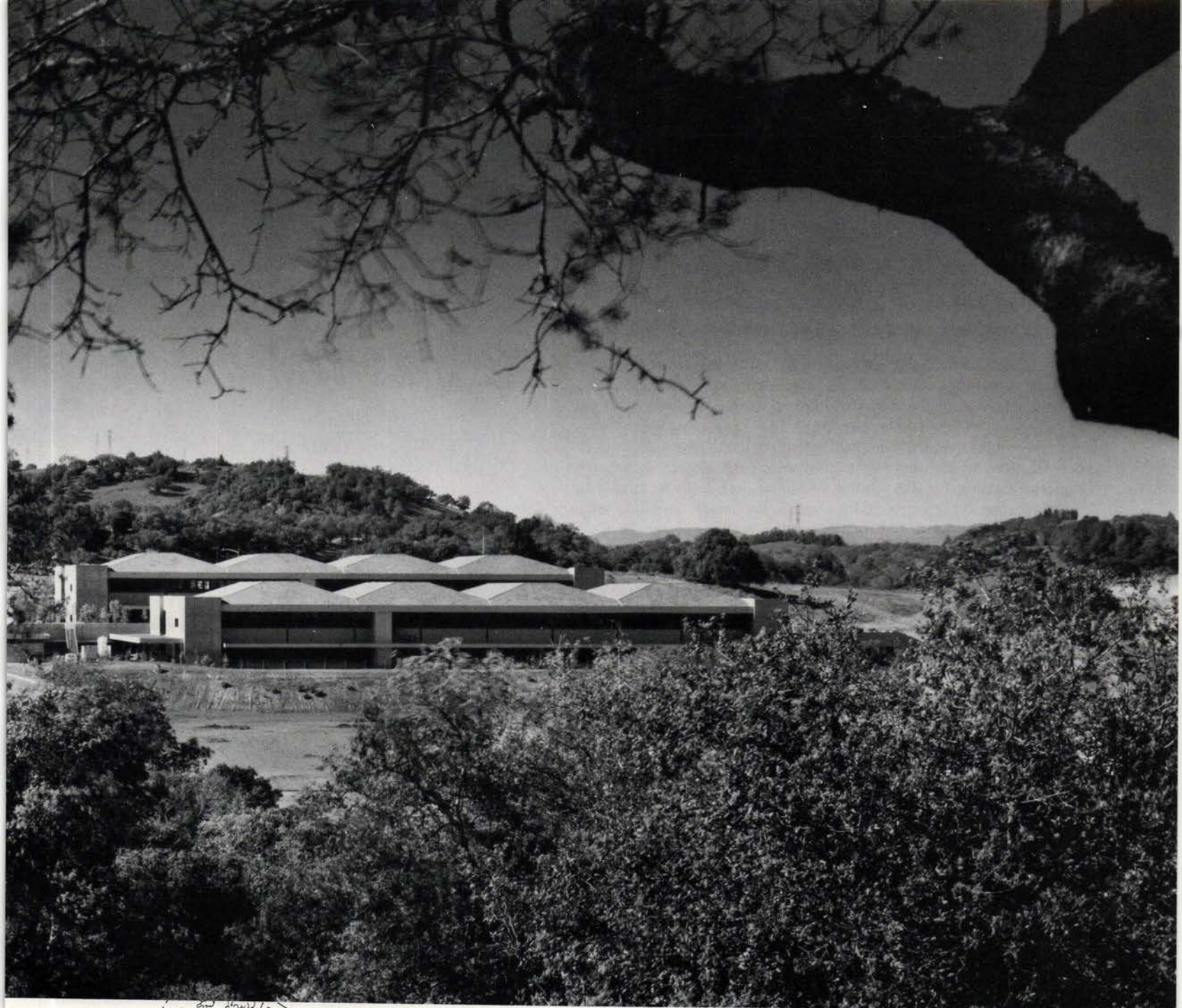
The walls of the building are poured concrete with exposed local aggregate; stuccoed duct shafts are placed vertically at intermittent points along the building perimeter to exhaust the clean rooms. Air flows from the clean rooms down to the basement; it is then cycled up to the rooftop pollution scrubbers in these outside shafts. Keeping this ductwork and the service cores at the edge of the building gave the client the wide-open and flexible work spaces that were required for work and a view of the outdoors for all the workers.

The roof configuration resulted from the desire to conceal mechanical equipment. The material is orange clay tile. The stuccoed canopies that surround the buildings, and the roof overhangs, were dimensioned and positioned after careful sun studies documented the position of the sun at hour intervals during three seasons of the year. The data helped the architects determine the different size sun control canopies needed at various locations of the building. At points of future expansion, sections of the canopy can be easily removed without major structural modifications.

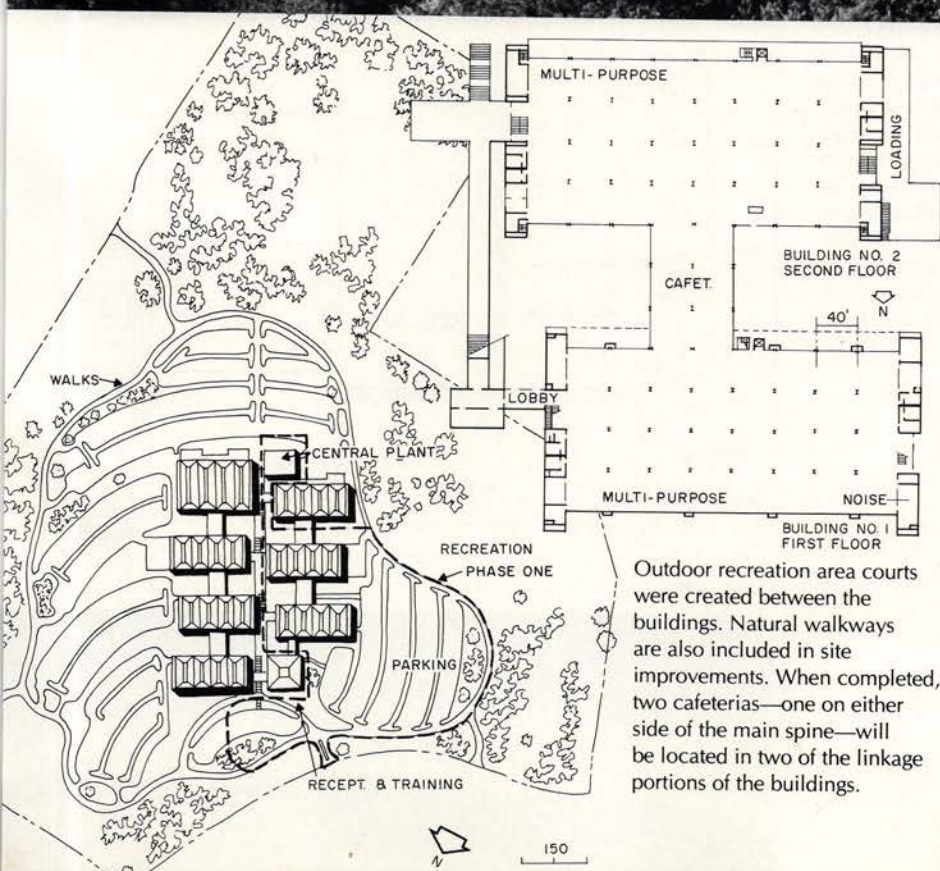
HEWLETT-PACKARD MICROELECTRONICS PLANT, Santa Rosa, California. Owner: Hewlett-Packard Company. Architects: John Carl Warnecke & Associates—project designer: Edward M. Tower; project manager: Thomas W. Mulvey; interior designer: Jean B. Coblenz. Engineers: Nishkian, Hammill & Associates, Inc. (structural): Donald Bentley and Associates (mechanical/electrical); George S. Nolte and Associates (civil); Harding, Lawson & Associates (soils). Landscape architects: Michael Painter & Associates. Consultants: Fitzroy/Dobbs (acoustics); Planned Warehousing Ltd. (materials handling). General contractor: Haas & Haynie Corporation.



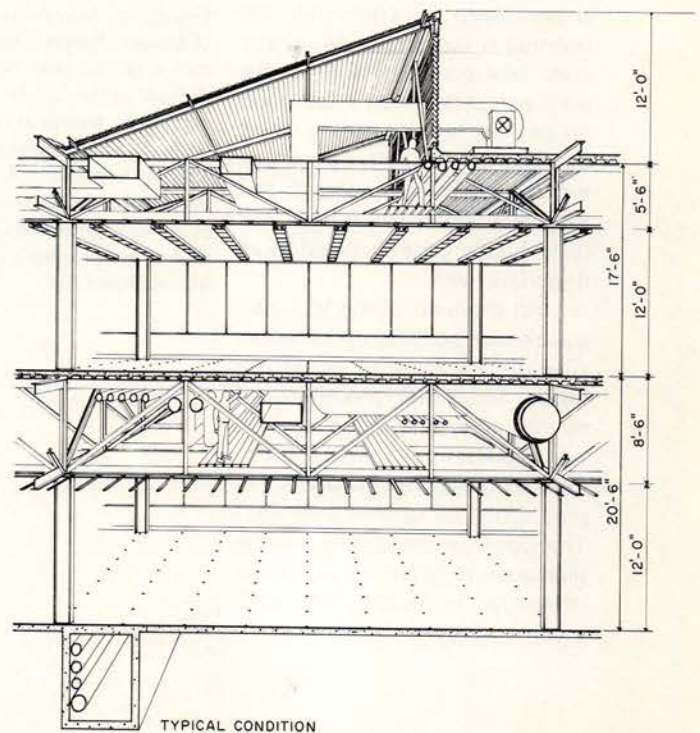
Robert Brandeis



Merg Ross



Outdoor recreation area courts were created between the buildings. Natural walkways are also included in site improvements. When completed, two cafeterias—one on either side of the main spine—will be located in two of the linkage portions of the buildings.



Competitively priced, this handsome warehouse belies the fact that compared to the contents, the building is virtually expendable

One of the hard facts that architects of warehouses must face is that the contents of the building are often—in the owner's mind—more important than the building itself. Such is the case of the Sears National Catalog Fashion Distribution Center, designed by Skidmore, Owings & Merrill, in suburban Chicago.

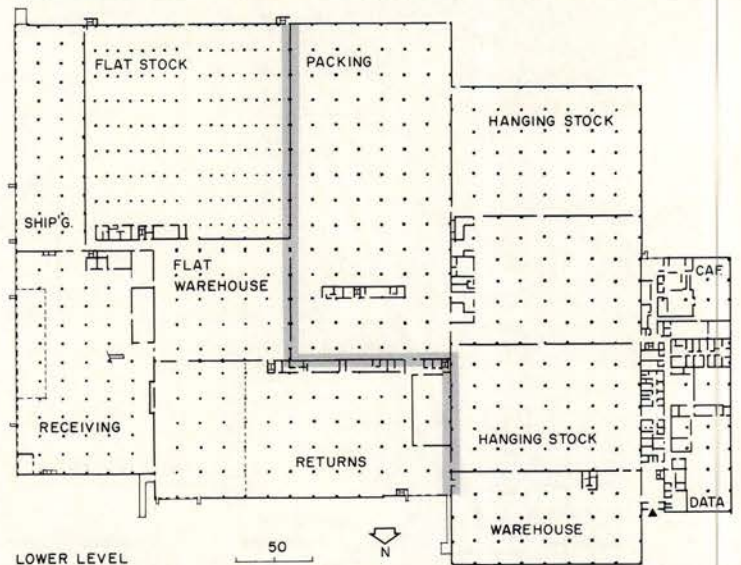
Compared to the value of the stored apparel this warehouse is inexpensive. Therefore one of the essential design goals here was to minimize the loss of contents, particularly by fire. The Sears insurance carrier insures against only the loss of one half the building's contents. Thus, the direct design response to this information—referred to as Maximum Foreseeable Loss (MFL)—is a building that is actually two, separated by a Z-shaped double fire wall (MFL wall) running north and south (plan). Each wall is made of 8-inch blocks. Along this line, the building is engineered so that in the event of uncontrollable fire in one half of the building, the structure of the burning half could collapse without pulling down the non-burning half. Where the MFL wall is penetrated by conveyors, the opening is surrounded by a concrete box on either side of the wall, each fitted with a fire door. Should one fire door fail to close, the other exists as a back-up. The entire building is sprinklered, and individual areas within each half of the building are protected by an 8-inch fire wall.

All elements of the 935,000-square-foot building and 89-acre site are arranged to serve the highly automated processing of merchandise, and anticipated future expansion. (Footings exist to the west of the present building, in preparation for doubling its size.) The various areas identified in the plan were programmed almost as individual buildings, for maxi-

mum efficiency and economy, with dimensions and structural bay systems consistent with the storage apparatus used. Some merchandise is stored flat, while other apparel is kept in high bay hanging storage (lower photo, far right). The entire operation relies on a computerized conveyor system designed by the consulting firm of Lester B. Knight. Goods are received in one half of the loading dock area and assigned storage by computer. When an order arrives from one of the Sears retail stores, the computer retrieves the items, and sends them by conveyor to packing. Packed goods again go by conveyor to chutes that lead to the proper loading docks (photos, right).

Phase I of this project was completed on a fast-track schedule in early 1976 at a cost of \$20,000,000, including the sitework: landscaping, parking and trucking areas, a fire protection reservoir and storm-water retention pond.

SEARS, ROEBUCK AND COMPANY NATIONAL CATALOG FASHION DISTRIBUTION CENTER, Elk Grove, Illinois. Owner: Sears, Roebuck and Company. Architects: Skidmore, Owings & Merrill—partner-in-charge of design: Robert Diamant; administrative partner and project manager: Richard Lenke; senior designer: Robert Siegle; technical coordinator: Joseph Vanecko; structural engineer: Lauren Carpenter. Engineers: Jaro, Baum & Boles (mechanical/electrical); Schirmer Engineering Corporation (fire protection). Construction managers: Morse/Diesel, Inc.



Hedrich-Blessing photos





Used for public relations,
this production building—
with minimal investment—has become
a prestigious community asset

Processing, storage and retail sales are combined in this main building of the Sonoma Vineyards north of San Francisco. Although industrial buildings are rarely open to the public, the California wine industry typically promotes itself by inviting the public to see the wine making process—and to enjoy the popular event of wine tasting. Not only is this building open for public touring, but by virtue of its outdoor amphitheater, it provides an unusually dramatic setting for performing arts. Thus, a building that was needed for purposes of private enterprise has become a prestigious community asset as well.

The symmetrical, cruciform plan (right) of interior wings and exterior quadrants provided the most direct solution, in this case, to the private-public needs of the client—functional spaces define, at no extra cost, the pleasing public spaces. For instance, one of the exterior quadrants forms the main entrance; another quadrant, the amphitheater. The third quadrant is the service entrance, the fourth, processing space (grape crushing is done outdoors, and the product is pumped to the fermentation tanks inside).

The total building area of 27,500 square feet is broken down into four 100-by-50-foot wings that intersect in a 50-foot square containing the second-level wine tasting room and the third-level offices.

Construction is tilt-up exposed aggregate concrete bearing walls, 40 feet high at the center. Laminated fir beams span side to side. The insulated metal roof has a baked enamel finish.

Although not air-conditioned, the fermentation and storage rooms (photos far right) are cooled satisfactorily by "leaked" cool air given off by the refrigerated fermentation tanks. Also, at evening, when the outside air is cooler, doors are opened in the lower sections of the heavily insulated building, and a natural chimney effect vents any accumulated warm air at the top of the building.

A skylight in the center section of the winery brings light into the redwood-finished tasting room and the offices that ring the shaft. A simple heating and cooling unit on the roof serves these areas, with supply and return ducts in the skylight shaft wall.

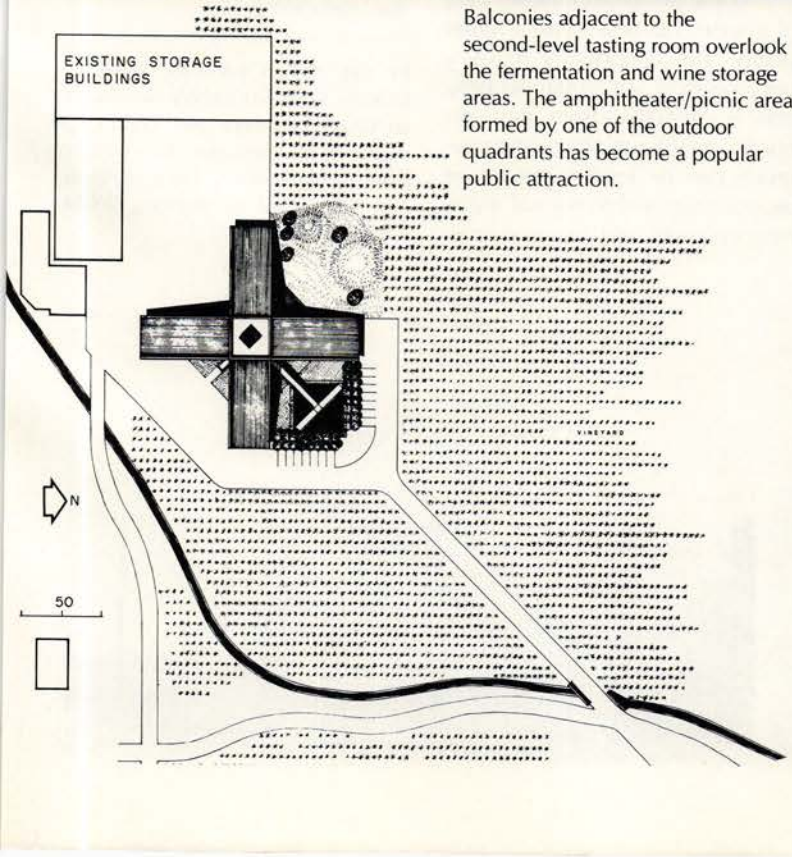
WINDSOR WINERY AT SONOMA VINEYARDS, Healdsburg, California. Owner: Sonoma Vineyards. Architects: Roland/Miller/Associates. Engineers: Richard Keith (structural); Williamson & Vollmer (mechanical/electrical). Contractor: Todd Construction.



Ken Howard



Jeremiah O. Bragstad



Balconies adjacent to the second-level tasting room overlook the fermentation and wine storage areas. The amphitheater/picnic area formed by one of the outdoor quadrants has become a popular public attraction.



Jeremiah O. Bragstad

Easily implemented visual improvement plans can help older plants achieve new environmental status within routine maintenance budgets

The potential for providing architectural services in industry exists in almost every on-going plant maintenance program in the country. No one knows this better than HOK Associates—planners, landscape architects and civil engineers affiliated with architects Hellmuth, Obata & Kassabaum. In their precedent-setting visual improvement program for Dow Chemical Company in Midland, Michigan (RECORD, February 1974, pages 128-129), HOK Associates showed how reshaping a manufacturer's routine maintenance program could—without significantly increasing the budget—immensely benefit those who work in, live near, or pass by the giant Dow complex. (The bottom photo at the far right illustrates part of the Dow graphics treatment.)

The point is made again in the HOK Associates' visual improvement program for BP Oil Corporation in Marcus Hook, Pennsylvania (below).

Visual improvement in existing industrial plants is an idea that HOK Associates has been nurturing with some success in the years since the Dow Chemical experience. Currently, the firm is designing "visual improvement" programs for such companies as Exxon Company U.S.A., Union Carbide, PPG Industries, Allied Chemical, Ingersoll-Rand, Phillips Petroleum, ERDA and FMC Cor-

poration. In all, HOKA clients have in the last five years spent \$10,000,000 to improve plant-community interface, worker conditions, and company image at a time when the nation's communities expect increased environmental concessions during industrial expansion.

One of HOKA's most recent visual improvement projects, (page at right), was inspired by the success of the Dow Chemical work. The adjacent Dow Corning plant took advantage of a city program to widen Saginaw Road—which forms a main, common boundary of both Dow plants—to establish a major upgrading of its own. The work included a landscaped buffer along 3,270 linear feet of arterial street frontage, redesign of the plant's internal vehicular circulation system, reconstruction of parking areas, installation of new light standards, an underground sprinkler system, and application of a coordinated color scheme throughout the plant.

Preliminary development work, including site analysis, activity survey, visual impact analysis, and programming was accomplished in late 1973, and the construction phase was completed in 1974 at a cost of \$1,020,000.

Until 1974, this area had severe functional and environmental problems. Parking areas were unpaved and provided poor

circulation. In fact, the parking was scarcely separated from the arterial street (see photo, top right).

The HOK Associates solution first reorganized the plant frontage. Earth berms up to five feet high along Saginaw Road were added to screen the parking lots from the passersby, and soften the building profiles. The parking lots themselves were redesigned for better internal circulation, and paved. Curbs and gutters were added, and turnaround areas were located at the main entrance and medical building. The total number of parking spaces remained substantially unchanged. High maintenance landscaping—flower beds and trees unsuited to an industrial setting—were replaced with a combination of deciduous and evergreen trees.

One of the five original traffic access points from Saginaw Road was shifted to coordinate with internal street improvements planned for the Dow Chemical plant across the street, and a sixth traffic way was added to facilitate access to the northernmost parking lot. A random mix of plant color was replaced by a new scheme of earthtone hues. Production structures were painted a uniform gray to provide a dramatic backdrop for the brick office buildings in the foreground.

Only a small portion of the total cost at Saginaw went to actual "beautification"—many improvements, such as replacing light fixtures and paving the parking lots, would have been carried out as part of maintenance.

These design techniques can, of course, be best used at older plants. The opportunity to carry out a series of self-contained projects is attractive from the corporate standpoint since improvements can be implemented over several years within normal maintenance/plans and expense bud-

gets. Most master plans of this nature developed by HOK Associates are in the five-year range. (Dow Chemical's program is a 10-year plan).

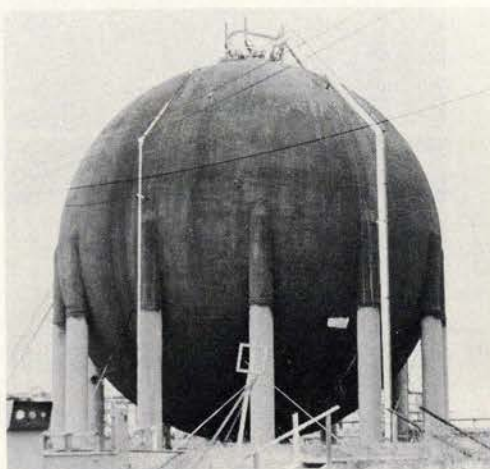
In their visual impact analyses, HOK Associates recognizes that most plants affect five viewer groups:

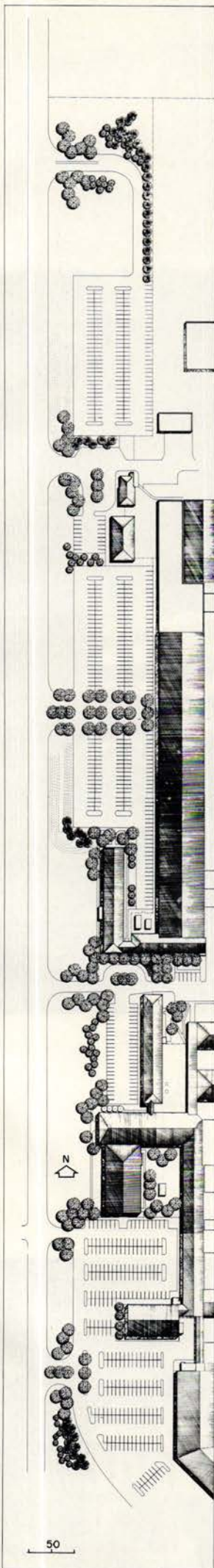
- The casually interested expressway traveler usually sees the installation at high speed and in the context of an industrial corridor.
- The neighboring community will see the plant more often, at moderate speeds along certain peripheries. This group has an environmental and economic (tax base) regard for the plant.
- The immediate neighborhood sees the plant from a stationary position and in great detail. At the very edge of the plant, this group has the same broad environmental and economic interests as the community, with the added economic interest of the plant's impact on property values.
- Visitors to the plant see it at low speeds and have a need for orientation information.
- The employees of the plant see it from a nearly stationary viewpoint, and have a constant need for information about the facility and safety. This group constitutes the plant's chief viewer group and can be its greatest proponent in the community.

SAGINAW ROAD DEVELOPMENT PLAN, Midland, Michigan. Owner: Dow Corning Corporation. Landscape architects, planners and civil engineers: HOK Associates, Inc.—project team: Jamie Cannon, Franklin Clements, and Gerry Berutti. Contractor: Bay Landscaping.

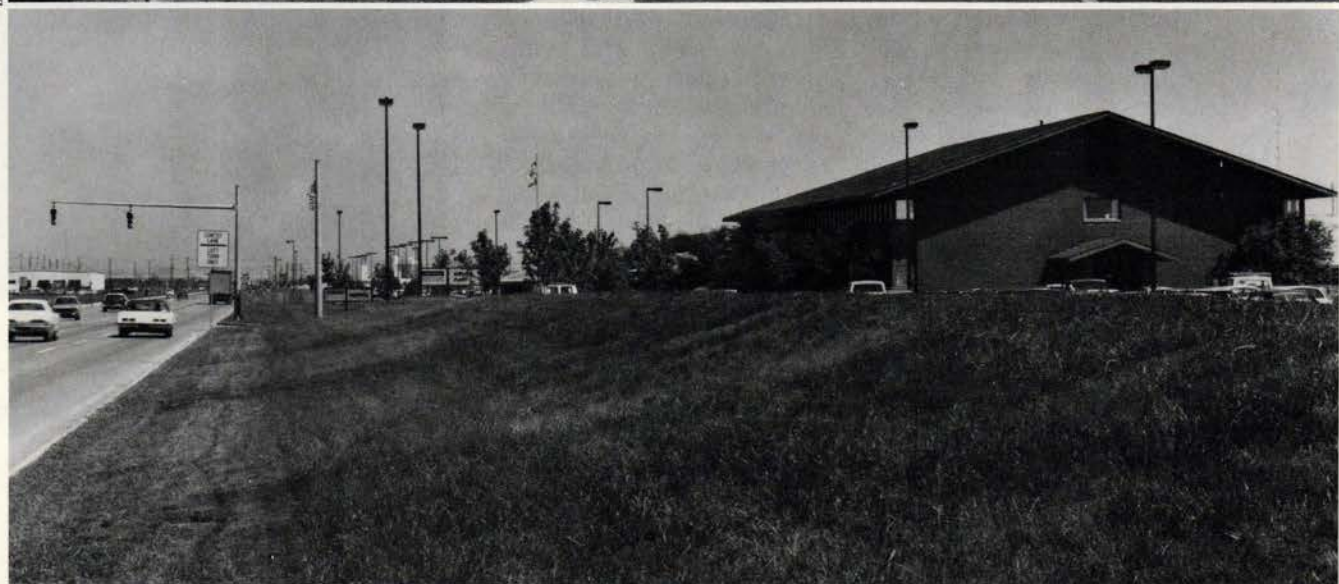
BP OIL CORPORATION, MARCUS HOOK, PENNSYLVANIA. Landscape architects, planners and civil engineers: HOK Associates, Inc.—project team: Jamie Cannon, Terry Harkness, Ron Stup, Paul Henderson, Debbie Fitzpatrick.

Normal maintenance of giant tanks (shown before and after) at the Marcus Hook, Pennsylvania location of BP Oil Corporation provided an opportunity to identify equipment easily for workers, and at the same time promote the company's position in industry to outsiders. (One might assume something about the size of a company with at least 500 tanks, for example.)





Barbara Martin



Barbara Martin

Barbara Martin



The Saginaw Road project area consists of 21.1 acres, a strip of road frontage with an average depth of 280 feet. The site contains office and production facilities, medical building, clock room, cafeteria, research building, and parking for 1500 employees.

A small, tightly budgeted renovation meets the client's current and expected production space needs, all in the best public service tradition

Happily for the community of Russellville, Kentucky, the publisher of several local newspapers decided to expand his offices and printing plant in one of the few remaining nineteenth century buildings on the town square. The architects, Ryan, Cooke & Zuern, were asked to study the feasibility of recycling several sites on the square to provide current and future production space. Of some importance was the client's wish that the production of his publications be a visible part of the square's activity. The project was to include 7000 square feet of finished, air-conditioned, expandable space—for under \$100,000.

The selected location was a combined feed and hardware store that had endured the usual "modernizations." Its advantages—besides a prominent location on the square—included adjacent off-street parking, and a structure that offered positive separation of production and publication functions.

The street facade was stripped of years of various remodelings, revealing the original cast-iron and brick structure. These elements were restored and infilled with woodwork that duplicates the spirit of original doors and trim found stored in the cellar.

The two-story hardware store now houses the publication editorial, circulation, advertising and management spaces, using an open-office design for immediate convertibility.

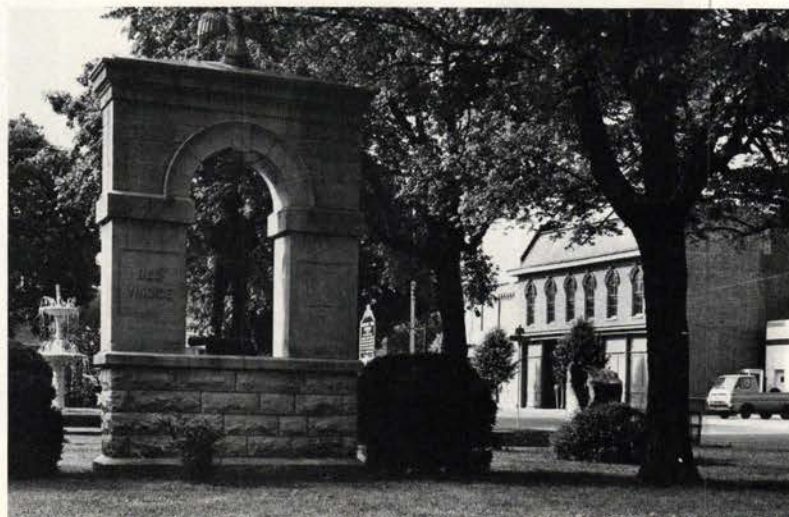
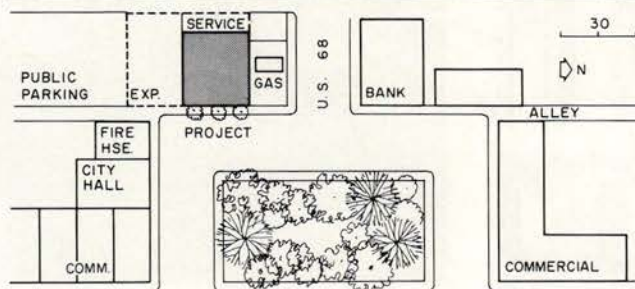
The one-story feed store was reworked to accommodate the pressroom and mailroom. Expansion of these two areas will occur in new space erected on the adjoining parking lot.

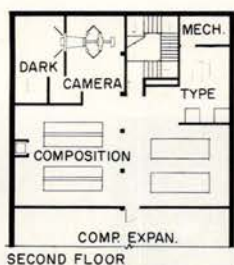
In the renovation, the existing masonry load-bearing structure could be used. The poplar floors of the feed store were removed and a new concrete slab poured on engineered fill for the presses. The floor boards and structural members were then reused for partition paneling and new stair construction. Plaster was removed from brick walls which were cleaned and left exposed. Existing wood floors and ceilings were simply cleaned, and new mechanical, electrical and sprinkler systems were installed throughout.

Outside, overhead utility lines and lighting were removed from the street facade, and the crumbling walk was replaced with new concrete and brick paving. Street trees were also added.

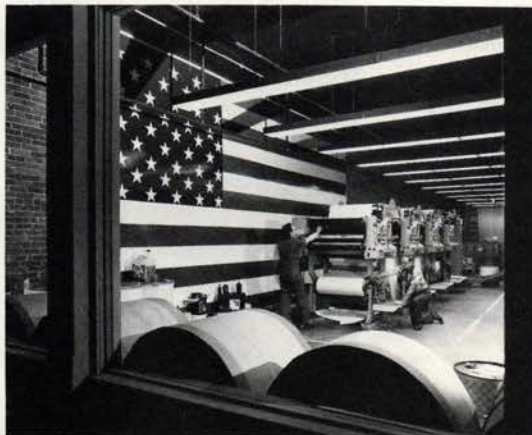
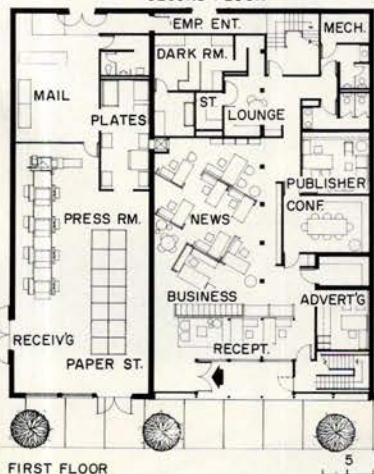
The total cost of the project—excluding building acquisition and presses, but including fees and furnishings—was \$95,500 (1973) for the 7400 square feet.

PRINTING PLANT AND OFFICE FOR THE LOGAN LEADER/THE NEWS DEMOCRAT, Russellville, Kentucky. Owner: Logan Ink Inc. Architects: Ryan, Cooke and Zuern Associates Inc. Contractor: Logan Ink Inc.





One half of the second floor remains unassigned as expansion for the composition room and a self-contained news room. When this expansion occurs, the street floor will be reassigned for those business and administrative tasks directly involving the public.



Balthazar Korab photos



The basic beauty of straightforward and economical construction is matched with operating efficiencies in this storage and repair building

The Sterling Heights (Michigan) Public Service Facility consolidates the community's street, equipment, water, and sewer maintenance divisions in one 70,000-square-foot structure located in a heavily industrialized area. It was conceived as a large warm and ventilated box into which are inserted numerous smaller boxes for work and storage functions—a universal space reservoir to be tapped as needed for discrete tasks.

The building is, as the architects say, the least expensive enclosure of the most possible space—using a simple long span repetitive steel bay structure with minimal modifications, and a skin with few manipulations in its surface (a minimum of doors or special conditions). It is not necessary to belabor the basic beauty of this straightforward and economical approach.

Completed in 1976 at a cost of \$23 per square foot, the building idea evolved from a concentric schematic of three kinds of space requirements: personnel (locker rooms, lunch/meeting room, time clock); garage (basically a large, enclosed parking lot); and work and storage (tools and parts, workrooms, offices). Placed at the center of the scheme, personnel spaces are equally distanced from all work areas, and vehicles. The garage—the middle space—permits full circulation. A driver going in any direction has an exit. Work and storage areas on the outside ring permit the overhead door access required by some areas.

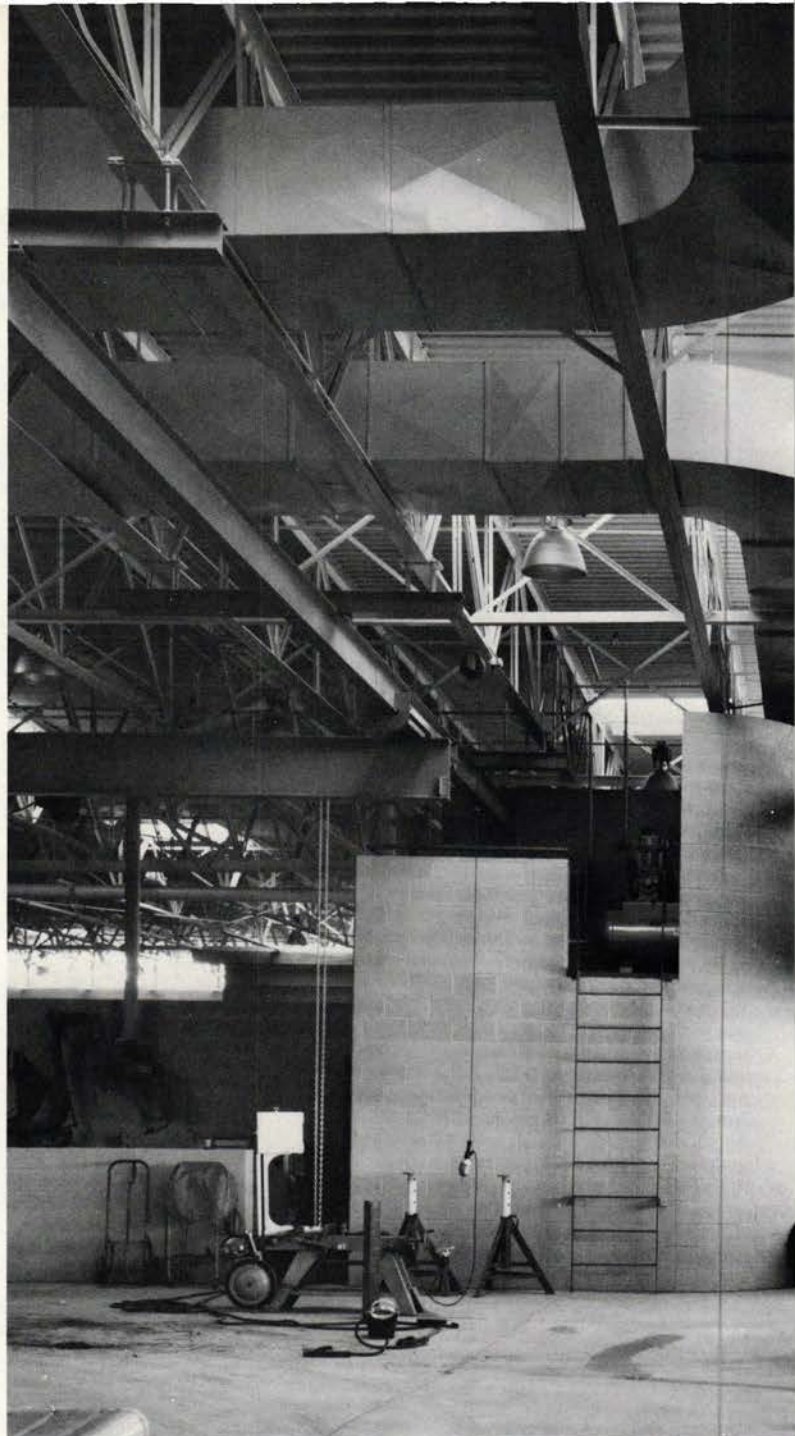
In order to minimize outdoor paving and overhead doors, most of the work areas are accessed from inside the building. They are defined and positioned in several ways, depending on current need. Some, requiring mechanical systems, are permanently set, while others are ad hoc. For instance, lengths of culvert or snow plows are "parked" in areas defined by painted lines on the floor, remind-

ing us that the building is in essence a big parking lot and spaces can be occupied by either vehicles or work activities, depending on need.

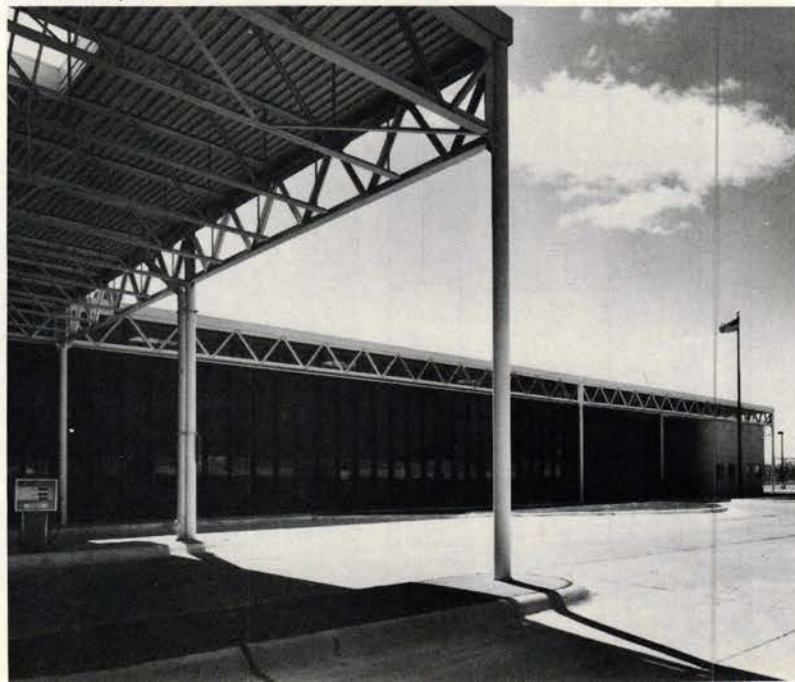
Notably, the building is constructed entirely of "off-the-shelf" materials. Its economies of construction are matched by operating efficiency as well. The client reports an anticipated two-year payback, for instance, on the 90 six-foot square skylights, which deliver sufficient natural light to the interior to eliminate the need for supplementary metal halide ceiling lighting on all but the darkest or shortest days of the year. (Note that the interior photos were taken in natural light.) The skylights, placed on 30-foot centers, are augmented with a 4-foot continuous clerestory window strip at the truss level.

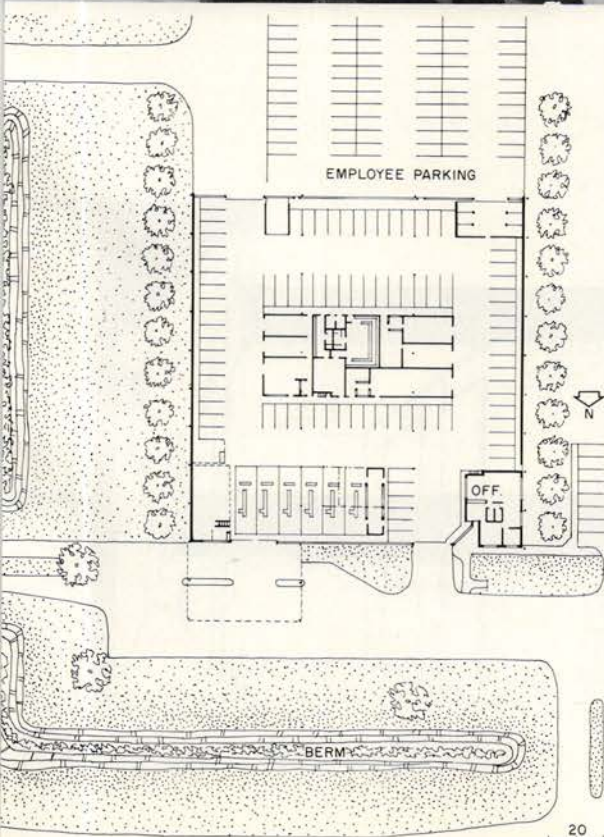
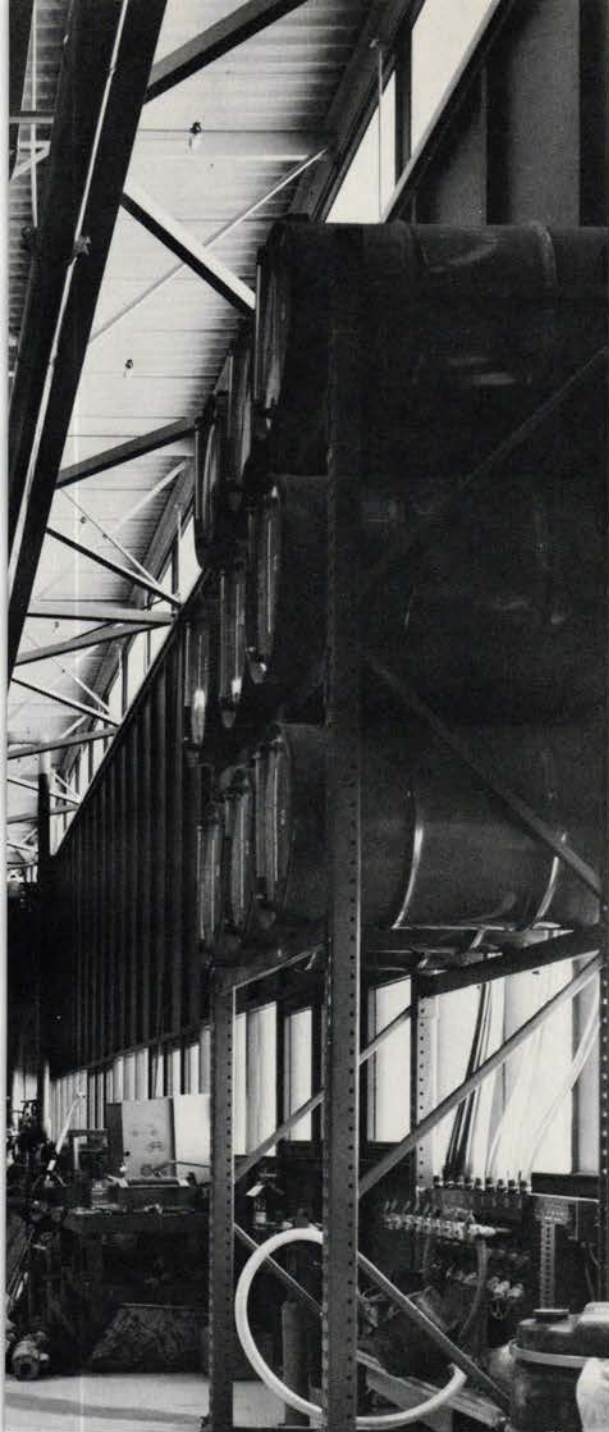
A conventional steel frame of columns, long-span joists, and flat trusses—all with their lower chords at the same elevation for unobstructed clearance—support the entire large flat metal deck. Enclosure is made with concrete masonry unit walls on the east and west elevations, and a black anodized aluminum curtain wall on the north and south. When expansion occurs—at the south end—the curtain wall structural members, black porcelain insulated panels, louvers and overhead doors will be demounted and re-deployed.

STERLING HEIGHTS PUBLIC SERVICE FACILITY, Sterling Heights, Michigan. Owner: City of Sterling Heights. Architects: Straub, Van Dine, Dziurman Architects—principal-in-charge: Harold Van Dine. Engineers: McWilliam and Keckonen, Inc. (structural); A.O. Carmichael Associates Inc. (mechanical); Hoyem-Basso Associates, Inc. (electrical). Cost consultant: Edward Colvert/Systems. General contractor: Mario Autunno Construction.

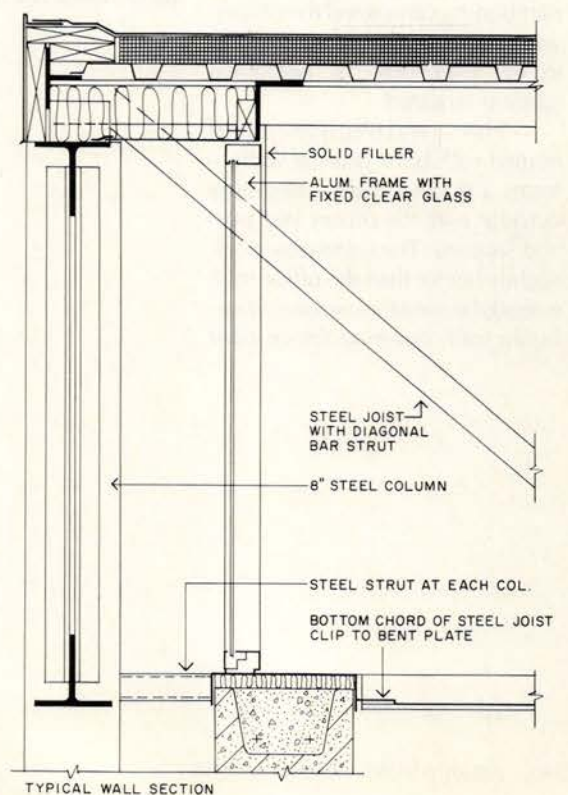


Balthazar Korab photos





Wherever a steel joist's diagonal bar strut must pass through the clerestory window (detail drawing, right)—every 6 feet on center—the steel fabricator provided a slot in the vertical mullion. This slot, which permits free movement of the bar, is sealed with a gasket. No additional fabrication costs were incurred.



A competitively priced office and warehouse meets a developer's budget and schedule, without compromising a tenant's design goal

Called in to serve two clients—one sensitive to costs, and the other committed to a high standard of design—architects Pasanella & Klein were faced with the task of reconciling in one building the distinctly different goals of a developer and his prime tenant.

The building, completed in 1975 at a cost of \$2 million, is the western headquarters of Joseph E. Seagram & Sons in Des Plaines, Illinois. It is a two-story, 75,000-square-foot warehouse with 25,000 square feet of office space containing administration, lounges, lunch room and restrooms.

Departing from the usual arrangement for such buildings—that is, offices to the front, warehouse to the rear—the architects surrounded the warehouse bulk with offices on three sides, giving the three corporate functions within a sense of individuality.

Because the building was needed quickly, the design of the offices was based on readily available, prefabricated aluminum enclosure panels, factory-insulated and finished inside and out. Lightweight steel framing and drywall partitioning completed the offices, which can be applied as modules to the warehouse as additional space is required.

The warehouse—steel framed with brick bearing walls—forms a double-loaded, two-story corridor with the offices (see plan and section). The warehouse roof, slightly higher than the office roof, extends beyond the masonry warehouse wall, covering the corridor

and forming a clerestory window. From the outside, the clerestory appears to belong to the warehouse, but really lights the 4- and 8-foot wide corridors, glazed portions of which permit this natural light to be shared by the interior secretarial areas. Although the corridor is used primarily for inter-office circulation, it provides needed office access to the warehouse, which is used for record storage and display building operations.

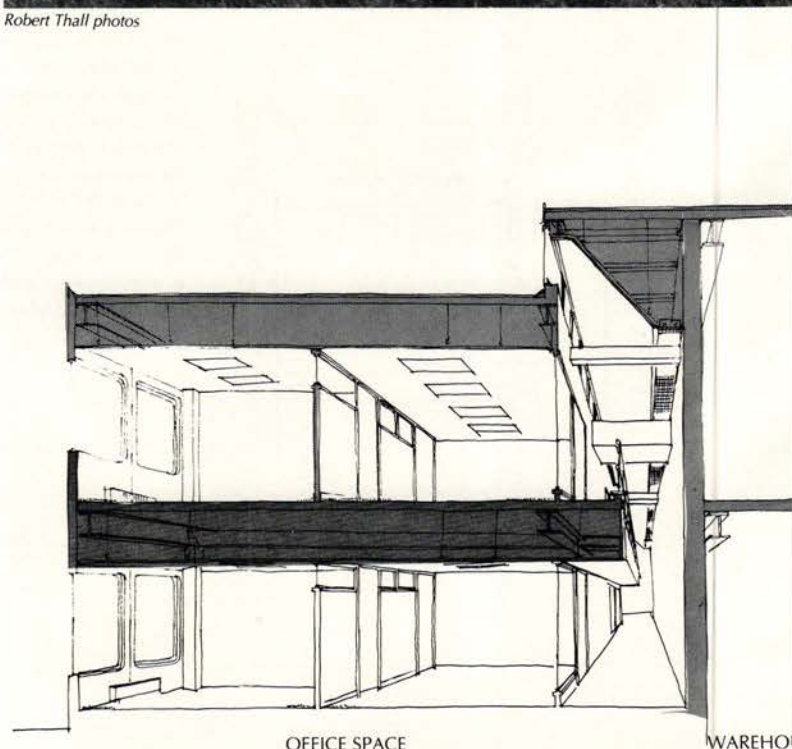
The saw-tooth, one-story rear portion of the warehouse is designed for special functions and can be expanded with the addition of the second floor.

The centrally air-conditioned building's hvac system, located in the warehouse, serves the offices via sheet rock enclosed supply and return ducts that penetrate the warehouse wall, cross the corridor and enter the office space (photo, right).

WESTERN HEADQUARTERS, JOSEPH E. SEAGRAM & SONS, INC., Des Plaines, Illinois. Architects: *Pasanella & Klein*. Structural engineer: *George Kennedy & Associates*. General contractor: *Pletka and Associates*.

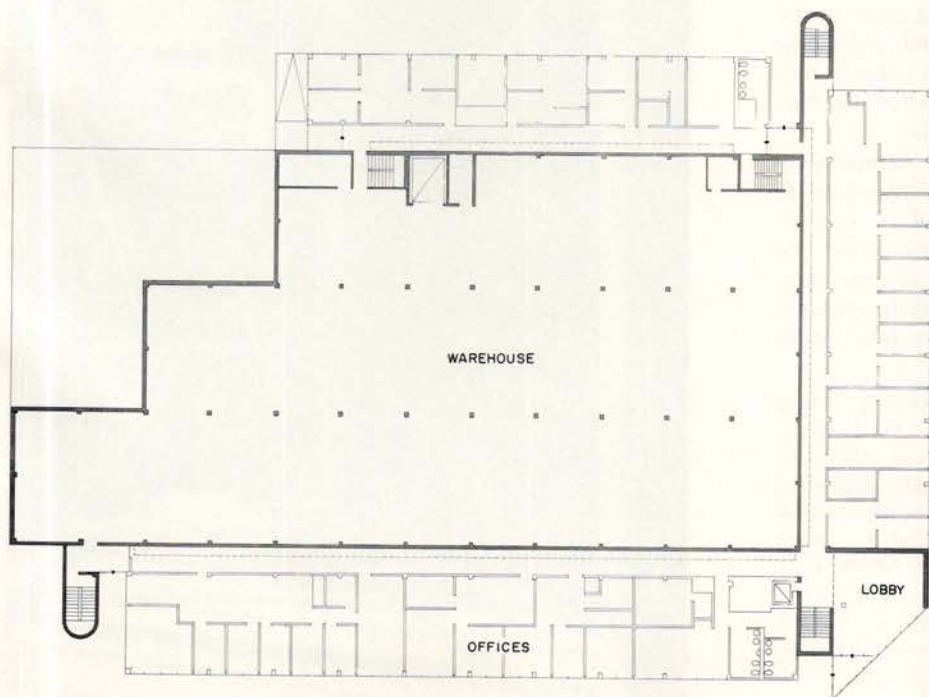
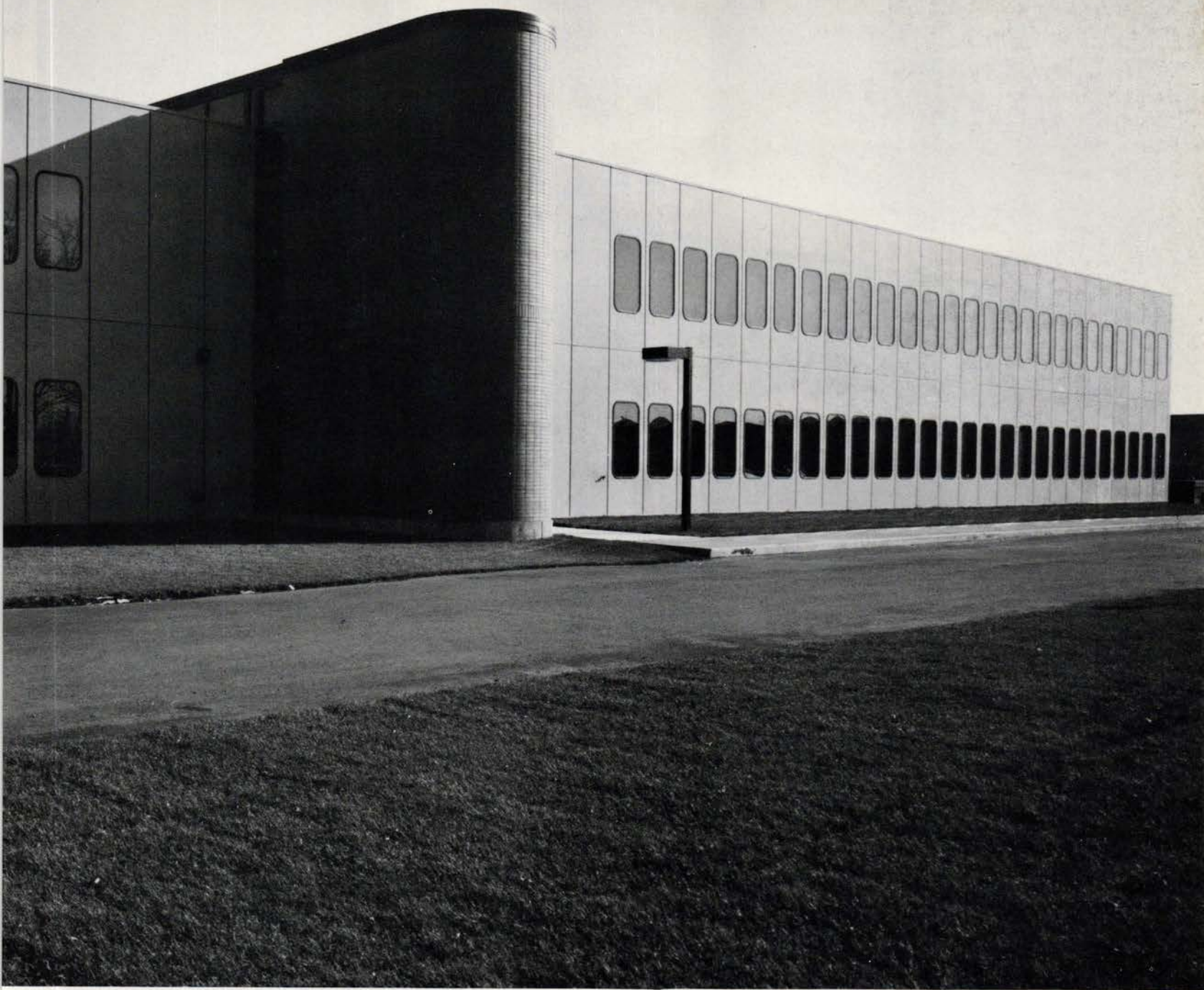


Robert Thall photos



OFFICE SPACE

WAREHOUSE





Otto Baitz photos

CENTRAL POWER HOUSE

A purely utilitarian need prompts a hospital and its architects to develop a showcase powerhouse for the community

Located between two main roads in the community, this 8000-square-foot power plant for a Utica, New York, hospital is intended to be enjoyed by people passing by.

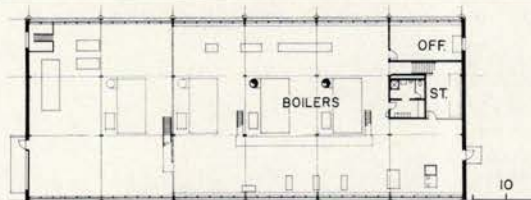
Large glass facades to the northwest and southeast provide good natural illumination and a pleasant view inside. A simple structure of H-section columns topped with large spandrel beams—all in weathering steel—supports the dry gasketed glazed walls. In all, this is a low maintenance, attractive solution to a purely utilitarian building need.

Completed one year ago, the building is part of a master plan for hospital expansion, and as such can accommodate two additional high-pressure steam boilers. A 13.2 KV electrical system and emergency generators are housed here as well.

Included in the \$3.9 million budget, the existing plant in the hospital was removed, and a new incinerator put in its place. A tunnel was constructed from the hospital to the new plant.

All work was accomplished without interruption of service to the essential areas of the hospital. After a four-week test period, the new plant was tied into the existing steam distribution network, and the old plant was taken apart.

CENTRAL POWER HOUSE, Utica, New York. Owner: St. Luke's—Memorial Hospital Center. Architects: Rogers, Butler & Bergun—partner-in-charge and project designer: Hussein Shahine; project architect: Joseph Levey. Engineers: Snyder, Burns & Associates (structural); Richard P. Marche, PE (mechanical). General contractor: Charles A. Gaetano Construction Corporation.



Parking deck saves money with tube columns and weathering steel

Use of welded steel tubes for the interior columns and other exposed-steel framing of this downtown Detroit parking garage were, to a large extent, responsible for the low over-all cost of the structure—\$4.9 million, or \$3,283 per car.

Designed by Albert Kahn Associates, Inc., architects and engineers, this parking deck was being worked on when the old Detroit Building Code was still in force, which greatly restricted the use of exposed steel framing. But, because adoption of the new BOCA code—which allowed such construction—was anticipated, an appeal was made to the building department to allow a "bare" steel parking structure. To allay the architect's own initial apprehension regarding an unprotected structure, as well as the building department's concern, the architect proposed the use of concrete-filled tubes for the structure's columns. The steel tubes were designed for the entire column design load as an added safety factor.

In addition to its efficient structural configuration, the square tubular shape offered an additional advantage: the tube column does not require the rather costly 3- to 4-ft-high guard needed for protecting the outstanding

edges of wide-flange sections from bumping by cars. The tube columns are either 14 by 14 in. or 16 by 16 in.

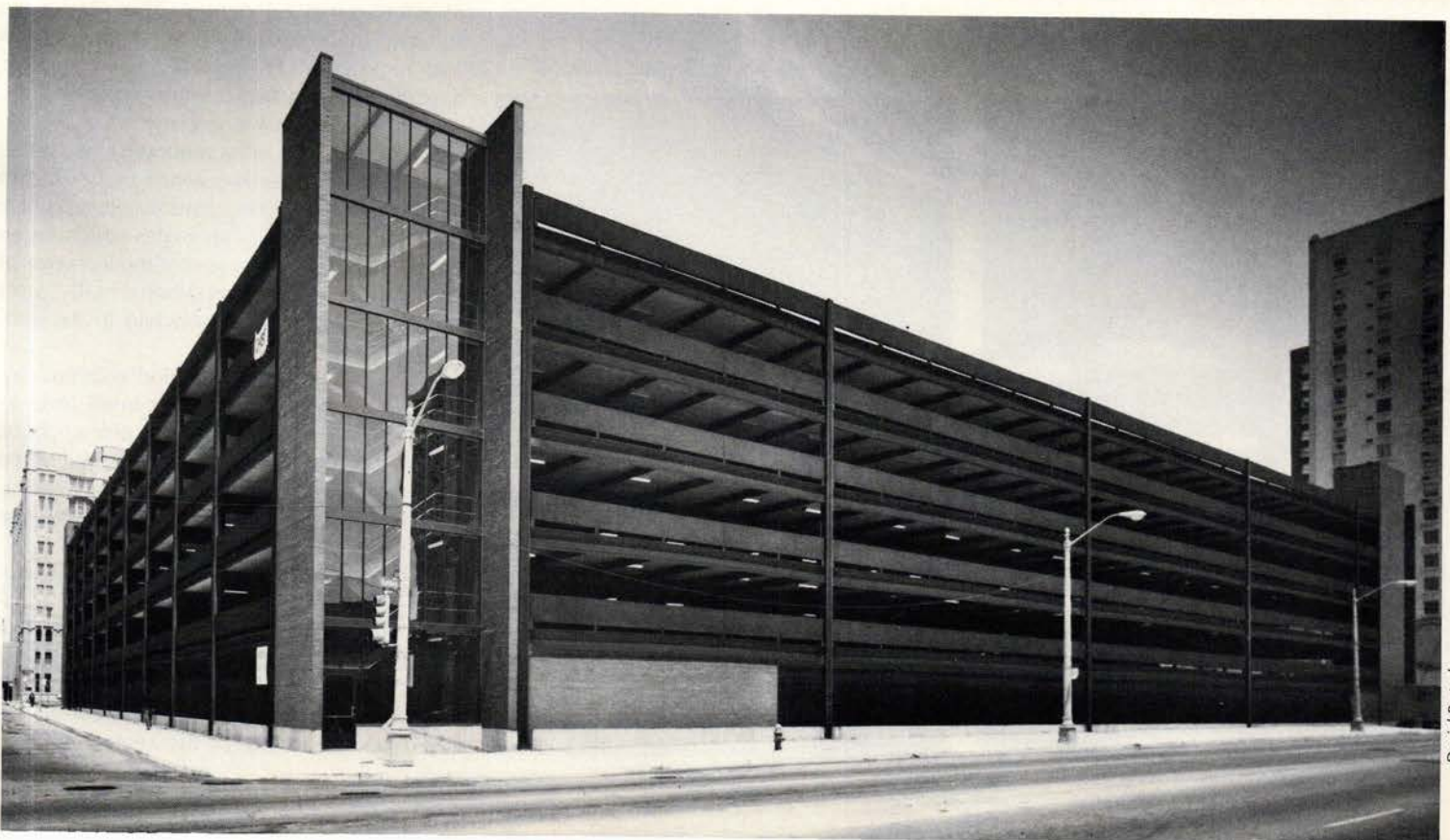
All steel, except for the interior columns, is weathering steel. The architects convinced Detroit's municipal parking department that the savings in painting costs would more than offset the added initial cost of weathering steel. The tubular columns were specified, however, as A572 Grade 50 steel rather than A588 weathering steel because weathering steel tends to become brittle in the manufacturing process of tubular columns. Since the tubular columns are all interior and only 9-ft 6-in. high, they can be painted without the need for scaffolding. The exterior weathering steel columns were made from pairs of wide-flange sections, welded toe-to-toe. Since this arrangement formed a box-shape section, these columns also could be concrete-filled.

Occupying an entire city block, the parking garage is 321 by 278 ft, and is designed for self-service, 90-degree parking for 1523 cars on five support levels and on ground level. There are two interior, independent, two-way ramp systems. This avoids the appearance of sloping floor decks on the exterior. To allow

maximum utilization of the available area, parking is provided not only on the flat decks, but also on ramps.

Interior columns are 64 ft on center in the longitudinal direction, and 27 ft in the short direction. W30 by 99 steel girders span the long direction, and W14 by 22 beams span between girders at their sixth points. A 6-in. deck of 4000-psi concrete is combined in composite action with the beams.

To avoid standing water, the designers cambered the 64-ft girders 6 in. at mid-point,



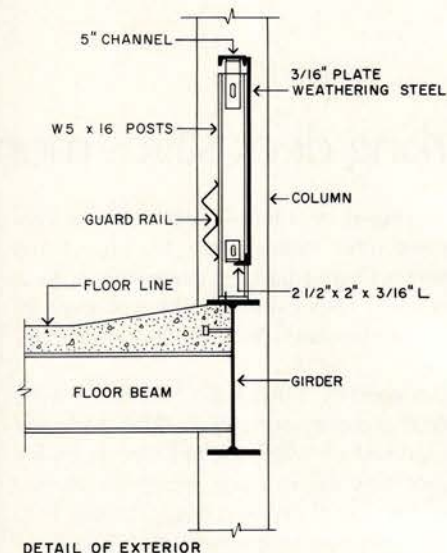
Daniel Bartush

Daniel Bartush



Above and right: exterior has checkered plates on 5-in. posts. Girders are cambered to facilitate drainage.

Below: thermal expansion of girders is provided for by sliding joint comprised of bracket and Teflon pad.



assuming a permanent crown of about 4 in. after creep and dead-load deflection of the girders had taken place.

Because of the large dimensions of the structure, it was divided into four freely-moving units via two expansion joints near the center. The east-west expansion joint was accomplished with the use of double columns. The north-south expansion joint was effected by the use of a bracket welded to one side of a single column to provide support for sliding connections of the girders.

Exterior elevations are formed at each floor by a 3-ft-high screen made of $\frac{3}{16}$ -in. weathering-steel checkered plates. They are located between the exposed exterior columns, and are backed up by W5 by 16 posts at about 10 ft on center. The plates are stiffened by a horizontal 5-in. channel at top and a horizontal $2\frac{1}{4}$ - by 2- by $\frac{3}{16}$ -in. angle at the bottom and by vertical stiffener angles of the same size at $2\frac{1}{2}$ to 3 ft on center.

Since the 5-in. posts supporting the checkered plates are directly fastened to the heavily cambered edge girders, vertically slotted holes were provided in the clip angles which fasten the plates to the posts, so that the top edge of the plates could be aligned horizontally. Steel bumper guards also are attached to the 5-in. posts.

The tubular concrete-filled columns are extended 4 ft above the sixth (roof) level to serve as guard posts and lighting pole anchors. Initially, a 2-ft void was left at the tops of the columns; dowels were inserted for the lighting-pole base plates, and the remaining concrete was placed.

Recognizing the staining effect of weathering steel during its early oxidation, the architects specified an 18-in. strip of wood chips in lieu of concrete between the face of the grade beam and the edge of the sidewalk. The wood chips can be replaced with concrete after a hard oxide has formed on the weathering steel.

Robert E. Fischer photos

For more information, circle item numbers on Reader Service Inquiry Card, pages 225-226.



"Matrix" stack chair on view at NEOCON

High-density stacking capability is major feature of this new chair, to be shown at NEOCON, in the Chicago Merchandise Mart, June 22-24. Available with a storage dolly, 45 "Matrix" chairs—when stacked—occupy a height of 67 1/4 in. Seats and backrests are textured polypropylene with moderate flex. The chair is offered in eight colors with solid steel rod frames finished in bright duplex nickel chrome or white nylon. Options include a tamper-resistant tablet arm. ■ Krueger, Green Bay, Wis.

Circle 301 on inquiry card

Harter will show "Muffin" chair

Designed by Kuypers Adamson Norton Ltd., the "Muffin" chair can be seen at NEOCON in Chicago, June 22-24. The chair, with a molded shell, is offered with a five-year warranty. Eight office task models come with various upholstery, pedestal and arm options. ■ Harter Corp., Sturgis, Mich.

Circle 300 on inquiry card



Ambient/task lighting tested in Federal installation

The "Emetric" system is equipped with metal halide ambient fixtures (250 watts) and fluorescent task lights, a combination that recently tested at 1.65 watts per square foot in a Federal demonstration project. Lighting in work stations was supplemented by light towers. ■ Eppinger Furniture Inc., Elmsford, N.Y.

Circle 302 on inquiry card



Hauserman announces HID ambient and task lighting

During the NEOCON contract furnishings market, Hauserman will show its new line of HID ambient lighting (*Amblite*) and fluorescent lighting (*Tasklite*) units as part of a total office work station system. Shown is the hexagon *Amblite* free-standing kiosk unit, which uses a 250-watt high efficiency,

metal halide lamp. Other fixtures, also hexagonal, mount on low or high screens or walls. The task units are available in 30- and 44-in. lengths, and can be hung on screens or mounted under wall-hung components. ■ Hauserman Inc., Cleveland, Ohio.

Circle 303 on inquiry card

"Series 454" chair is Steelcase NEOCON offering

Based on a double shell design, this chair features oval shaped polished chrome steel arms, and a five-prong tubular steel base said to require less space than a four-prong base. The chair's inner shell corresponds to contours of the human body, and the outer shell is polypropylene with a deep accent reveal on the back. Upholstery features deck seams. ■ Steelcase, Grand Rapids, Mich.

Circle 304 on inquiry card
more products on page 152





Energy-efficient Holophane lighting. Now appearing in leading stores everywhere.

There are many reasons why Holophane® Multilume™ HID luminaires are being specified for more and more store lighting applications. They're energy efficient. So monthly electrical bills are cut down considerably. And they make a store owner's merchandise sparkle attractively.

One 2' x 2' Multilume, with a 400-watt metal halide lamp, does the job of three 2' x 4' fluorescent fixtures. That decreases the number of fixtures that must be installed and maintained by 67%. And cuts ceiling clutter by 83%.

For all its practicality, Multilume also offers you a broad range of design options. You have your choice of

lenses, frame trims, colors, plus a dramatic 2" deep black multi-groove baffle. The luminaire can be recessed or surface mounted.

These are just a few of the features that make Multilume an excellent choice for stores as well as lobbies, showrooms, banks — in fact, wherever good looks and efficiency are important.

Learn more about energy-efficient lighting solutions from your local Holophane representative. He's an expert. Or, write to Johns-Manville Sales Corp., Holophane Division, Dept. AR-6, Ken-Caryl Ranch, Denver, Colo. 80217.

JM Johns-Manville

For more data, circle 63 on inquiry card

For information, circle item numbers on Reader Service Inquiry card, pages 225-226.

SOUND CONTROL / A 12-page booklet shows how this firm's "Commercial Wall Insulation" systems can reduce noise transmission in non-residential buildings. Material reviews noise transmission testing, compares the acoustic control benefits of different methods, and offers recommended construction practices to achieve sound control in commercial structures. Also available is a brochure explaining the various product types, installation methods, and energy-saving thermal performance features. ■ Owens-Corning Fiberglas Corp., Toledo, Ohio.

Circle 400 on inquiry card

MASONRY CLEANER / A color brochure describes the uses of *Sure Klean 600* detergent, a heavy-duty cleaning compound designed to remove excess mortar, stains and job dirt from new masonry surfaces, particularly light-colored stone, brick, block and tile. Application procedures are explained. ■ ProSoCo, Inc., South Plainfield, N.J.

Circle 401 on inquiry card

FIRE PROTECTION DESIGN / "Designing Fire Protection for Steel Trusses" is one of a series of fire technology publications prepared by the American Iron and Steel Institute. This illustrated 16-page brochure contains recent ASTM test data, as well as a mathematical formula intended to allow the designer to develop acceptable protection ratings. Special emphasis is given to two recent structural concepts: the staggered truss system, and the interstitial space design. Different methods of truss fire protection as they relate to various occupancy requirements are discussed. ■ Engineering Div., American Iron and Steel Institute, Washington, D.C.

Circle 402 on inquiry card

SAFETY RAILING / Photos of each component, detail drawings, and engineering data are included in a 12-page catalog on *RigidRail* barriers. These weld-free extruded aluminum handrails and safety railing systems meet or exceed all OSHA requirements, and are suitable for water and waste treatment facilities, power plants, industrial and commercial buildings. A line of ornamental balcony railings for motels, etc., is also presented, along with information on corrosion-resistant, snap-on color sleeves made of an acrylic/vinyl material. ■ Construction Specialties, Inc., Cranford, N.J.

Circle 403 on inquiry card

PIPE RAILING SYSTEMS / This 68-page catalog shows railings, tubing, bars and shapes in aluminum, bronze, steel and stainless, with all components color coded for easy metal identification. Design information and code data are given on the *Colorail* plastic and aluminum handrail series; *Carlstadt* railings of aluminum, bronze, stainless and acrylic/wood constructions; and the *Connectorail* non-welded aluminum and stainless pipe systems. ■ Julius Blum & Co., Inc., Carlstadt, N.J.

Circle 404 on inquiry card

TRUCK DOCK SHELTERS / Advantages of reduced energy costs, increased safety, product protection, better security and lower maintenance are claimed for these truck dock shelters, covering the gap between the building and the rear of loading or unloading trucks. A 22-page catalog illustrates design and construction features, fabric choices and options for a complete line of shelters. Information is also given on specialized equipment such as metal hoods, door gap seals, traffic doors and flexible strip doors. ■ Frommelt Industries, Inc., Dubuque, Iowa.

Circle 405 on inquiry card

GRAPHIC ART / Full-color catalog of contemporary art works includes original limited edition signed prints, art posters, Aubusson tapestries and sculpture multiples available to design professionals. Special services and visual materials for client presentation are described; a poster catalog lists works on the Federal Supply Schedule. ■ Pace Editions Inc., New York City.

Circle 406 on inquiry card

CARPETING GUIDE / A carpet specifier's guide to *Ultron* nylon fiber includes applicable flammability testing and performance certification; durability characteristics; appearance retention and static control for carpet; and carpet construction requirements and special needs for different use situations. ■ Monsanto Textiles Co., Atlanta, Ga.

Circle 407 on inquiry card

CEILING PANELS/TILE / In-use color photos are featured in a 16-page brochure on *Travertone* ceiling tile and lay-in panels. Constructed of fire-retardant mineral-wool fiberboard, each *Travertone* ceiling pattern is embossed with a distinctive textured surface. The ceiling provides acoustical, fire-resistive, and light-reflective benefits, according to the manufacturer. ■ Armstrong Cork Co., Lancaster, Pa.

Circle 408 on inquiry card

VINYL FLOORING / An illustrated catalog describes how *Conductile* static-conductive vinyl flooring is used in hospital operating rooms, laboratories and intensive care units, munitions plants, computer rooms, and other critical areas to reduce the threat of explosion, fire or equipment malfunction. *Conductile* is available in 36- by 36-in. sections that are heat-welded for a seamless floor, or in 12- by 12-in. *Micro-squared* tiles. ■ Vinyl Plastics, Inc., Sheboygan, Wis.

Circle 409 on inquiry card

BUILDING PANELS / Illustrated product brochure gives use and application information and physical property data for a full line of fiberglass-reinforced plastic building panels. All three panel types—*Glasbord* frp flat, *Glasbord* frp ribbed, and *Kemplay* frp surfaced plywood panels—are USDA-accepted for use in food processing and storage areas, shower rooms, etc. Shatterproof glazing panels and fire retardant product types are also explained. ■ Kemlite Corp., Joliet, Ill.

Circle 410 on inquiry card

MOBILE PLATFORMS / The space-saving advantages of movable, folding platforms, stages, runways, bandstands, and speaker stands are outlined in a product brochure. ■ Hamilton Industries, Two Rivers, Wis.

Circle 411 on inquiry card

WASHROOM ACCESSORIES / Sixteen-gauge stainless steel is used in the construction of the "Simplicity 16" series of heavy-duty, vandal-resistant towel and soap dispensers, and other washroom accessories. A catalog provides dimensional data on all units, which may be either surface- or recess-mounted. Dispensers have cylinder locks, keyed alike for faster servicing and maintenance. ■ Accessory Specialties, Inc., New York City.

Circle 412 on inquiry card

DOCK LEVELERS / Brochure gives details on a complete group of mechanical and hydraulic levelers, railcar ramps, lip holders, dock lights, bumpers and safety units. ■ RiteHite Corp., Cudahy, Wis.

Circle 413 on inquiry card

more literature on page 162

More energy-efficient Holophane lighting solutions.

Holophane makes the selection of attractive, high efficiency lighting easy. Our HID luminaires are designed for easy installation, easy maintenance and good looks.



Multilume with dropped pyramidal lens featuring prismatic sidewalls is ideal for stores. The sparkling lens says: "We're open."



Multilume, surface mounted, provides a clean, crisp alternate design option.



5000 Series is an open-bottom HID downlight. Prismatic glass reflectors provide wide range of light distributions. Extra low brightness option (ELB).



Bantam 5000 Series features smaller diameter openings for clean, elegant appearance. Ideal for boutiques.

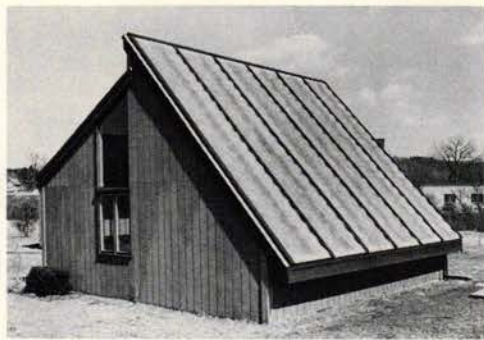


3000 Series is an excellent choice when appearance must be combined with economy. Available with natural, champagne or black anodized color reflectors.



Johns-Manville

For more data, circle 63 on inquiry card



SOLAR HEATING / The adaptable *Sunwave* solar energy collecting system includes 4- by 20-ft collector/roofing panels and a 2,000-gal water storage tank. Solar collectors consist of a polyester fiberglass glazing panel with frame; a copper tubing grid with an attached black-painted aluminum absorbing surface; 2-in. fiberglass insulation; a waterproofing membrane and a fir plywood back which can double as roof sheathing. The water tank is wood-framed, vinyl-lined and insulated. *Sunwave* is marketed as a complete kit, or as individual components; one version of the collector is suitable for domestic hot water needs only. ■ Acorn Structures, Inc., Concord, Mass.

Circle 305 on inquiry card

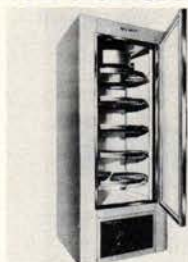
EMERGENCY EXIT / These single- or double-faced



exit sign units have integrated emergency battery power, UL-listed for 90 minute operation. Charger is solid state; load transfer is automatic; the low-maintenance nickel cadmium 6-volt battery has a visible test indicator and switch. As an option, a solid-state intermittent 68 dB audible alarm with flashing light is offered with the emergency power exit. Exit complies with OSHA, state and local codes. ■ ITT-Art Metal Lighting, Vermilion, Ohio.

Circle 306 on inquiry card

COLD STORAGE DISPLAY / The "Kold-Vue" refrigerated merchandising



case provides 20 cubic feet of storage on revolving shelves behind a full-vision glass door. The unit requires one sq yd of floor space, and needs only an electrical connection. The "Kold-Vue" case is suitable for the display and lighting of beverages, dairy products, flowers and pharmaceuticals; it may also be used as a blood bank. ■ Uniflow Mfg. Co., Erie, Pa.

Circle 307 on inquiry card

COMMERCIAL CARPETING / "Business Square" 53-oz cut and loop carpet



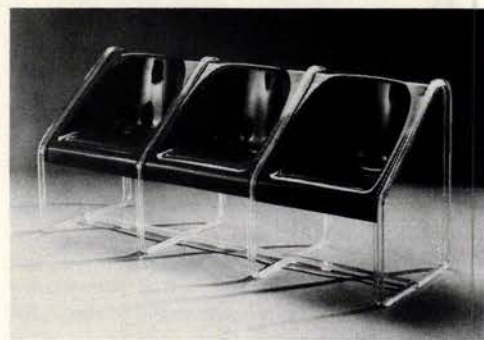
carries the Zefstat five-year anti-shock carpet warranty. The tufted geometric pattern is available in three fiber types for heavy commercial traffic: 100 percent Zefran acrylic Berber yarns, and two different Zefran blends of acrylic/modacrylic. "Business Square" features subtle shade variations of heather and natural tones. ■ Customweave Carpets, Inc., Fountain Valley, Calif.

Circle 308 on inquiry card

AUTOMATED STORAGE / Thousands of engineering drawings required for major construction projects are said to be easily and quickly accessible with the *Conserv-a-Trieve* system, pictured installed in the New York City offices of Ebasco Services

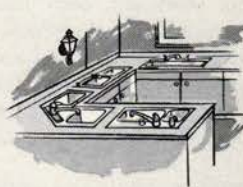
Inc. File bins are stored within a rectangular enclosure on facing banks of columns. An electronically controlled transporter rides on track between columns, and positions itself next to desired bin. Bin containing drawings (system also may be used with microfilm) is delivered to operator seated at front console. The *Conserv-a-Trieve* system offers controlled-access and locked-door security, as well as savings in time and space needed for record storage. ■ Supreme Equipment & Systems Corp., Brooklyn, N.Y.

**Circle 309 on inquiry card*



ACRYLIC SEATING / This line of modular seating, designed by Robert Alan Martin, is intended for use in public lounge areas and institutions. Clear acrylic structural frames provide a light, suspended character to the units. Seating is constructed in one- to four-seat modules, interspaced with tables, planter units, ash containers, etc. ■ Vivid, Los Angeles, Calif.

Circle 310 on inquiry card



IT'S YOUR BUSINESS,
YOUR CLIENT,
YOUR REPUTATION.



MAKE MORE OF IT WITH ELKAY



Elkay offers a complete line of stainless steel sinks. They're the finest stainless steel sinks money can buy, but then, that's what you'd expect from a company with a 50-year reputation for dependability and superiority. Ask to have our representative call on you, or send for our latest literature.

Elkay versus the ordinary. There's no comparison.

ELKAY
MANUFACTURING COMPANY
2700 South Seventeenth Avenue
Broadview, Illinois 60153, Department 40-20



CONTRACT FURNITURE / Rounded radius corners are featured on all pieces in the "Perimeter" line of contemporary desks, credenzas, lounge seating, sofas and chairs, designed by Stan Hutchinson. Furniture is available in oak, teak and walnut, as well as Macassar Ebony, Brazilian Rosewood, and Zebra Wood. ■ Sandiline Industries, Inc., Compton, Calif.

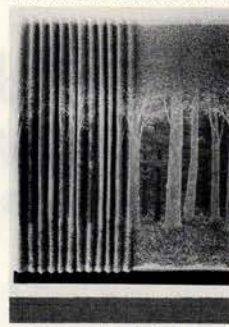
Circle 311 on inquiry card



NATURAL FIBER CHAIRS / Latania, cane, and wicker woven by Haitian craftsmen cover wood- and steel-framed furniture in the "Artisan Collection." The cane parquet chair shown is also available as a two- or three-seat sofa. ■ Harvey Propper, Inc., New York City.

Circle 312 on inquiry card

LINEN DECORATIVE FABRICS / Shown is "Forest,"



a panel print picturing trees framed by leafy branches and foliage. The linen/cotton fabric, by Elenhank Designers, Inc., comes 9-ft-high; panel repeats may be ordered in any length. "Forest" is one of several patterns, by different firms, using Belgian linen for contract upholstery, drapery and wallcovering fabric applications. All fabrics can be treated with stain repellent finishes, laminated, and fireproofed to meet architectural specifications. ■ Belgian Linen Assn., New York City.

Circle 313 on inquiry card

HVAC CONTROL / The "Programmed Energy Saving Optimizer" is a seven-



day optimal time clock designed for night temperature setback with variable warm-up time. Unit includes a wind-compensated outdoor air sensing element, and ten hours of spring override in case of a power failure. The entire control is housed in a steel cabinet with a hinged door and keyed latch. Fuel savings of up to 38 per cent are said to be possible with the "Optimizer." ■ Barber-Colman Co., Environmental Systems Div., Rockford, Ill.

Circle 314 on inquiry card

DRAFTING TABLE / Persons in wheelchairs can



work comfortably and efficiently at this completely adjustable drafting table, the manufacturer claims. All lifting, lowering and tilting controls are combined into one hand-operated lever, clearing the area beneath the table for wheelchair occupancy. ■ The Huey Co., Franklin Park, Ill.

Circle 315 on inquiry card

COMPUTER / Model "9896A" BASIC-language

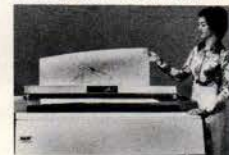


desktop computer is said to be a cost-effective system designed especially for small- to medium-sized commercial and scientific organizations.

Such functions as engineering calculations can be performed by the desktop computer with built-in cartridge drive; integral keyboard and display; and two large-capacity flexible disk drives. ■ Hewlett-Packard, Palo Alto, Calif.

Circle 316 on inquiry card

TABLETOP COPIER / The Dart 130 whiteprinter

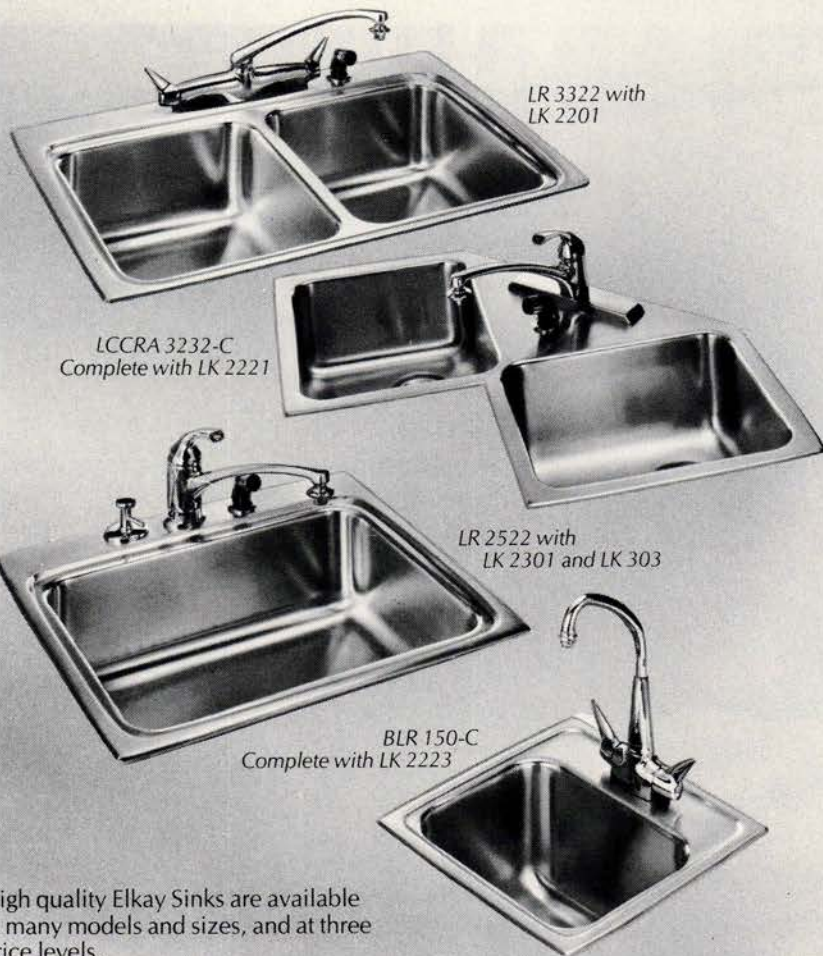


makes diazo copies up to 130 cm (51 in.) wide at printing speeds up to 20 ft/min. When used with the optional stand, shown, the Dart 130 forms a console unit with paper storage compartment. A heated stainless-steel developer offers instant on-off operation without warm-up; the printer section consists of a Pyrex glass cylinder and a fluorescent diazo lamp. ■ Diazit Co., Inc., Youngsville, N.C.

Circle 317 on inquiry card

more products on page 155

There's almost no function that
Elkay Sinks and Faucets can't accommodate.



High quality Elkay Sinks are available in many models and sizes, and at three price levels.

**Ask your Elkay Representative how
Elkay can work for you.**

ELKAY
MANUFACTURING COMPANY
2700 South Seventeenth Avenue
Broadview, Illinois 60153, Department 27-20

For more data, circle 64 on inquiry card

All-steel walls give real privacy for Stouffer's meetings

"The great thing about these walls in our ballroom is the way they stop noise," Keith Covelle, Director of Catering and Convention Services at Stouffer's Dayton Plaza Hotel, tells us. "I never get any complaints from adjoining meetings."

Stouffer's uses these walls to divide their ballroom into two, three or four sound-protected meeting rooms like the ones shown in this ad.

Each group has the privacy they deserve because Acousti-Seal® 900 Steel Panels keep sound where it belongs. Steel is strong to take hard use. Steel will not burn, providing added fire safety.

Easy operation of Acousti-Seal 900 makes quick changes simple to handle.

For more information on how these steel maximum privacy walls can help you get more meeting business, write Modernfold, P. O. Box 310, New Castle, Indiana 47362. Ask for "Acousti-Seal."



Passdoors can be built into the panel for room-to-room access. Panels stack neatly in storage pockets when not in use.



Meetings on either side of this room are effectively insulated from annoying sound transfer. Steel walls do the job.

Modernfold . . . A better way to make better use of space

Modernfold

An American-Standard Company

For more data, circle 65 on inquiry card



TOILET COMPARTMENTS / The "Tempo" line of toilet partitions is surfaced with a selection of several solid colors and woodgrain designs of *Formica* decorative laminate. This competitively-priced partition unit is offered in configurations for floor-mounted, ceiling-hung, or overhead-braced installation. All hardware is corrosion-resistant chrome plate, with vandal-resistant fasteners; "Tempo" compartments are warranted against defects for two years. ■ **AMPCO Products, Inc.,** Hialeah, Fla.

Circle 318 on inquiry card

WHITEPRINTER / Intended for medium-volume applications, the "170" is a 42-in.-wide dry diazo whiteprinter which can operate at speeds up to 40 ft per minute. The top-mounted stacking tray accommodates prints up to 24-in. by 42-in. A Q.C. ammonia developing system minimizes developer handling; the printer has an ammonia waste eliminator. Other features include a roll stock compartment housing a 50 yd. roll of paper; fast developer warm-up provided by a quartz heating rod; and an energy-saving 115v power line. ■ **Addressograph-Multigraph Corp.,** Bruning Div., Schaumburg, Ill.

Circle 319 on inquiry card

LADDER/STAIRWAY / The tallest "Ship's Ladder" stair—10-ft 7-in. high—requires only 3 ft 8-in. of floor space. The steel stairs, in heights from 3 ft, are suitable for roof top applications to reach multi-levels or over fire and retaining walls, as well as for platforms, over pipes, to exit windows, etc. Self-cleaning stair treads have oval holes, with raised nubs for safe footing. Handrails extend 42-in. higher than the top step to allow user to hold rails stepping off onto a roof or platform, etc. ■ **Equipto, Aurora, Ill.**

Circle 320 on inquiry card

ROOF EDGING / Roll-formed from galvanized steel, the "201" roof edge can be used with shingles or built-up roofs. The roof edge is one of a full line of building products, including light-gauge steel structural studs, track, bridging, and drywall and lathing accessories. ■ **Wall-Rite Systems, West Middlesex, Pa.**

Circle 321 on inquiry card

BUILDING MANAGEMENT / The "SMS-500N" is a multiplex building management system designed to provide maximum protection at minimum cost, controlling such functions as energy consumption, card access to secured areas, fire protection, security, mechanical systems operation and life safety. Sensing data received from up to 8000 input and output points are transmitted on two pairs of wires, eliminating balancing and hardwiring each individual sensor to the central console. In addition to automatic system commands, up to 320 manual commands may be activated via a console board. A strip printer records the date, time, numerical location and coded message for each system event. Closed circuit TV module and an intercom/door control are options with the "SMS-700." ■ **Sentinel Electronics Corp.,** St. Paul, Minn.

Circle 322 on inquiry card

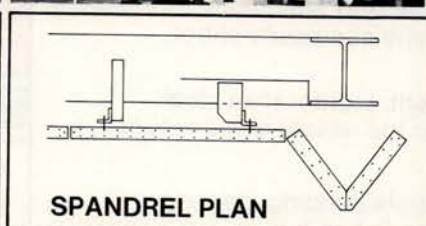
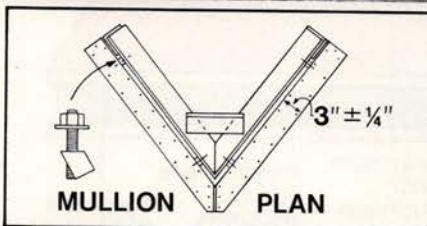
CONCRETE FORM / "Vented Slabform" is a galvanized, corrugated steel sheet designed for use as a permanent structural support with lightweight insulating concrete roof decks. A series of uniformly spaced slots in the valley of the corrugations permit release of water vapor pressure from the concrete fill roof during the curing and drying process, and later. Product is available in 20- to 28-gauge steel; in various corrugation and slot configurations; and with span capability ranging from 4- to 10-ft between supporting members. Photo shows welder attaching "Vented Slabform" to supporting structural steel roof members. ■ **Bethlehem Steel Corp.,** Bethlehem, Pa.

Circle 323 on inquiry card

more products on page 161

Granite.

The best in first impressions.



The first impression is the important one. Granite can make that impression more vivid than any other building material available. That's why Motorola, Incorporated selected Cold Spring's Texas Pearl for their corporate headquarters in Schaumburg, Illinois.

Granite affords the architect a resource from which he can create a building that reflects an image of quality... a corporate image. For lasting first impressions, specify Cold Spring Granite.

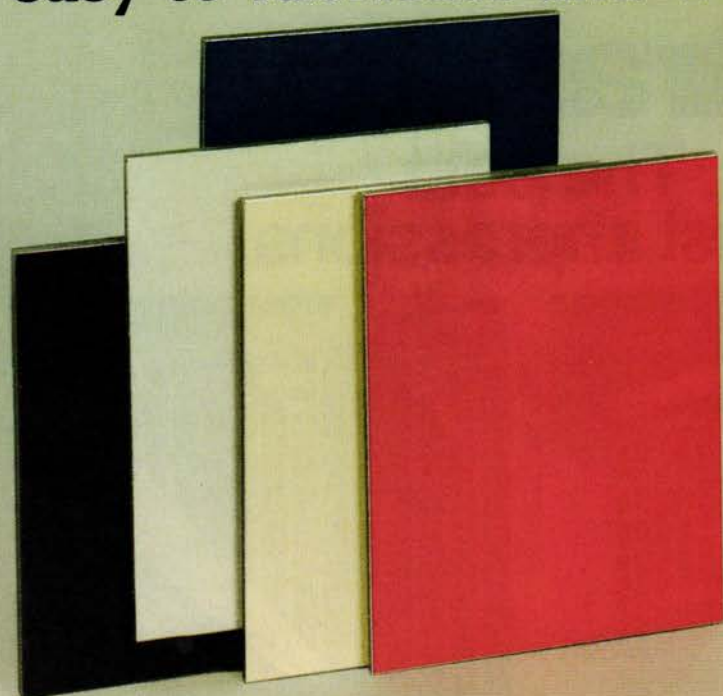
For more information, plus a free copy of our 16-page, full-color catalog showing all 18 Cold Spring colors available, call toll free **800-328-7038**. In Minnesota call (612) 685-3621, or write to the address below.



Cold Spring Granite Company, Dept. AR-6 202 South 3rd Avenue, Cold Spring, MN 56320

For more data, circle 66 on inquiry card

Introducing AlucobondTM sheet:
an aluminum-polyethylene composite
for exteriors, walls, ceilings,
displays, exhibits and signage.
It's so light-weight, rigid,
easy to fabricate and weather-resistant...



**(there's nothing
like it.)**

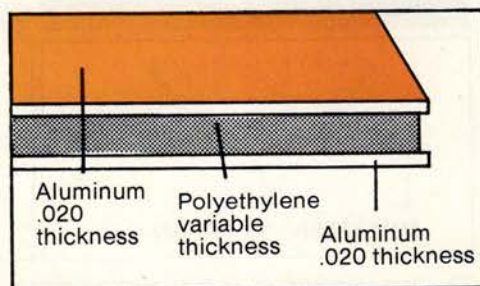
Unique. The only aluminum-polyethylene composite sheet.

Light-weight. Lighter than steel, nearly half the weight of aluminum.

Rigid. Resists bending, denting, buckling and shearing.

Weather-resistant. This tough aluminum alloy plus anodized coatings and paints will hold up for years to corrosive industrial or seaside climates and abrasive conditions.

Workable. Mill, drill, shape, plane, cut, saw, bevel, rivet, nail, tack or cold form it.



Decorative versatility. Choose from a variety of surface finishes: anodized clear, light bronze or dark bronze. Or use painted Alucobond sheet in one of many colors—all UV and chemical resistant. Smooth or embossed finish.

Heat Resistance. Tolerates a wide range of temperatures.

Sound Deadening. Damps vibration faster than homogenous metals.

There really is nothing like it.
 AlucobondTM sheet from
 Consolidated Aluminum.

For further information write
 Architectural Division
 Consolidated Aluminum Corporation
 P.O. Box 14448
 St. Louis, MO., 63178

**CONSOLIDATED
ALUMINUM**

For more data, circle 67 on inquiry card

We believe good design is the beginning...not the end.

Steelcase



Good design is the beginning...not the end.

Case in point: The new Steelcase 454 Comfort Chair... designed to make every working day more enjoyable.

With Steelcase, the world's largest maker of office seating, good design is the beginning-and what a beginning!

It starts with a design integrity that's right for today's contemporary architectural statements. One that combines softly sculptured shapes with luxurious upholsteries...that features a classic reveal which flows in smooth and gentle outline surrounding the chair and providing both complement and contrast to the more severe appointments of today's offices. Still, good design is just a beginning...

The end is comfort. And with the Steelcase 454, you realize a new kind

of comfort...for all kinds of people...for 90% (5th to 95th percentile) of all people who work in offices.

Using scientifically accepted human factors data, Steelcase designers and engineers computed the exact dimensions, configuration and support variables necessary for a single chair to achieve this goal.

The resulting prototypes were studied, analyzed, measured by computer and tested over a two-year period to make sure all contours were correct.

Even upholstery patterns were developed as part of the design with

seams located where they contribute both aesthetically and functionally to overall performance.

The result is a chair that shatters the belief that comfortable chairs need to be unattractive...that attractive chairs can't be comfortable.

The 454...more than just a pretty chair. But isn't that what you'd expect from the world's largest maker of office seating?

Steelcase



The 454 Comfort Chair is available in a full range of arm and armless models including a newly developed secretarial chair with an easily operated pneumatic adjustment. At right: 454-311 T Executive tilt-swivel.



Perfect Support Equals Perfect Comfort.

1. Dotted line represents approximate seated compression for normal seating.

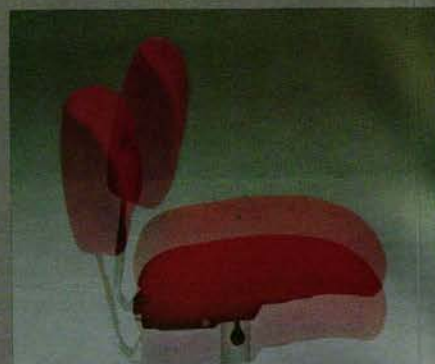
2. A lumbar support absorbs the weight of the upper part of the body (shoulders, neck, head) and helps to maintain the correct spinal curvature.

3. The seat is contoured to distribute body weight rather than having it fall squarely upon the sitting bones or lower thighs. Three inches of dual-density urethane foam insures a cushion of comfort.

6. A special small-of-the-back support helps avoid backache by providing proper support to a variety of seating positions.

5. The arms of the new 454 are designed to cushion and to accommodate the soft underside of the forearm. Free space in the elbow area prevents ulnar (funnybone) nerve pressure.

4. The waterfall, soft-cushioned front edge of the seat eliminates pressure beneath the thighs and pinching-off of circulation. Especially important when tilting back.



Newly developed 454 secretarial chair has power adjustments. Operator controlled pneumatic unit powers the seat up and down, the back rest back and forth. An especially helpful option for machine operators who change seating positions throughout the day.



Steelcase

Your Steelcase Dealer is in the Yellow Pages. Or, call toll-free 800-447-4700; in Illinois 800-322-4400. Steelcase Inc., Grand Rapids, MI 49501; Los Angeles, CA 90067; Ontario, Canada; Steelcase (Far East) Ltd., Tokyo.



MULTI-FURNITURE / Designed by Robert Whalen for the residential and apartment market, the "Omniwall" series provides wall storage components for bedroom, dining and living room. The unit shown above features a pull-down bed and table, finished in white and yellow. Wood veneers of rosewood and walnut are also available; different shelving arrangements accommodate books, stereo or television equipment, etc. ■ Omni Products, Vernon, Ala.

Circle 324 on inquiry card

SPORTS LIGHTING / Pictured is one of a series of



four luminaire models designed to provide outdoor lighting for a variety of professional, semi-professional and amateur sports. All floodlights have an aluminum housing, and

thermal-shock and impact-resistant lens. Units are fully gasketed for all-weather protection. Sports lighting models come in metal halide, quartz, mercury vapor and high-pressure sodium versions, each factory wired and UL-listed. ■ Hubbell Lighting Div., Christiansburg, Va.

Circle 325 on inquiry card

WATERPROOFING SEALER / Said to cure all problems of water leaks and seepage through cement and masonry, *Eco-Seal* protective coating



"breathes" to allow trapped moisture to escape, preventing vapor block and minimizing the possibility of freeze-thaw damage. The colorless liquid can be painted, rolled or sprayed on clean masonry, bridging small cracks and sealing the surface against water and chemicals. *Eco-Seal* may also be used as a primer and bonding agent. ■ Eco Industries, Inc., New York City.

Circle 326 on inquiry card

DECORATIVE LAMINATES / The "Natural Finish" woodgrain series of Neva-



mar high-pressure plastic laminates now includes "Golden Ash," "Butcher Block," and "Beechwood" patterns, as well as "Silvan Teak." The low-luster finish has no gloss

or shine; spray wax may be used to give a wood-like sheen to the surface. All four woodgrain laminate patterns are available in general purpose H-5 grade, in most standard sheet sizes for contract and commercial applications. ■ Exxon Chemical Co. U.S.A., Odenton, Md.

Circle 327 on inquiry card

AIR HANDLING SYSTEM / A variable volume air



flow assembly, said to save energy while increasing indoor comfort, is a single-duct system containing a pneumatic computer sensitive to micro-pressures. The *Enviro-Master* air handler is especially suited for installations in which the load and system pressure may vary extensively, and where precise control is desired. A "flow-logic analyzer" resets the damper actuator to continuously adjust air quantities for maximum efficiencies. Three different *Enviro-Master* designs provide for a range of pressure and limit control requirements. ■ Environmental Element Corp., Titus Products, Dallas, Tex.

Circle 328 on inquiry card

REPLACEMENT WINDOW / These *NuPrime* aluminum windows come complete with panning systems to cover the entire window area. All sashes remove for cleaning from inside the building; units are custom-made for ease of installation and minimal wall alteration. Panning attachments are available for this full line of residential and commercial replacement windows including double-hung, slider, picture and basement window models. ■ Season-all Industries, Inc., Indiana, Pa.



Circle 329 on inquiry card

Aiphone. The intercom that's as good as your design.



You're the one who's put all that talent and effort into the project.

So follow through, by specifying equipment of comparable quality. Specify Aiphone (say A-phone).

Aiphone means intercom, and only intercom. We're specialists, and we have been for 30 years. And we're versatile. We have 20 different intercom systems and over 120 items, so that you can have exactly what you want. And, thanks to our factory direct source of supply, our equipment is readily

available. In fact, we ship the very day the order comes in to us.

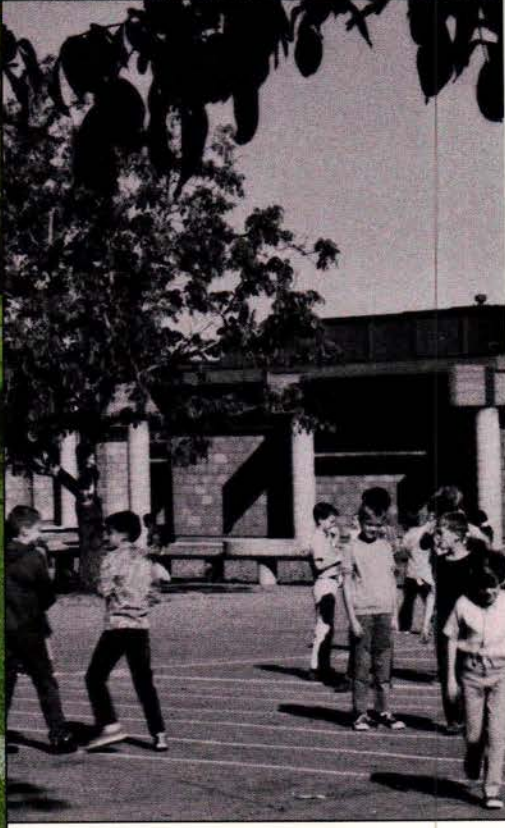
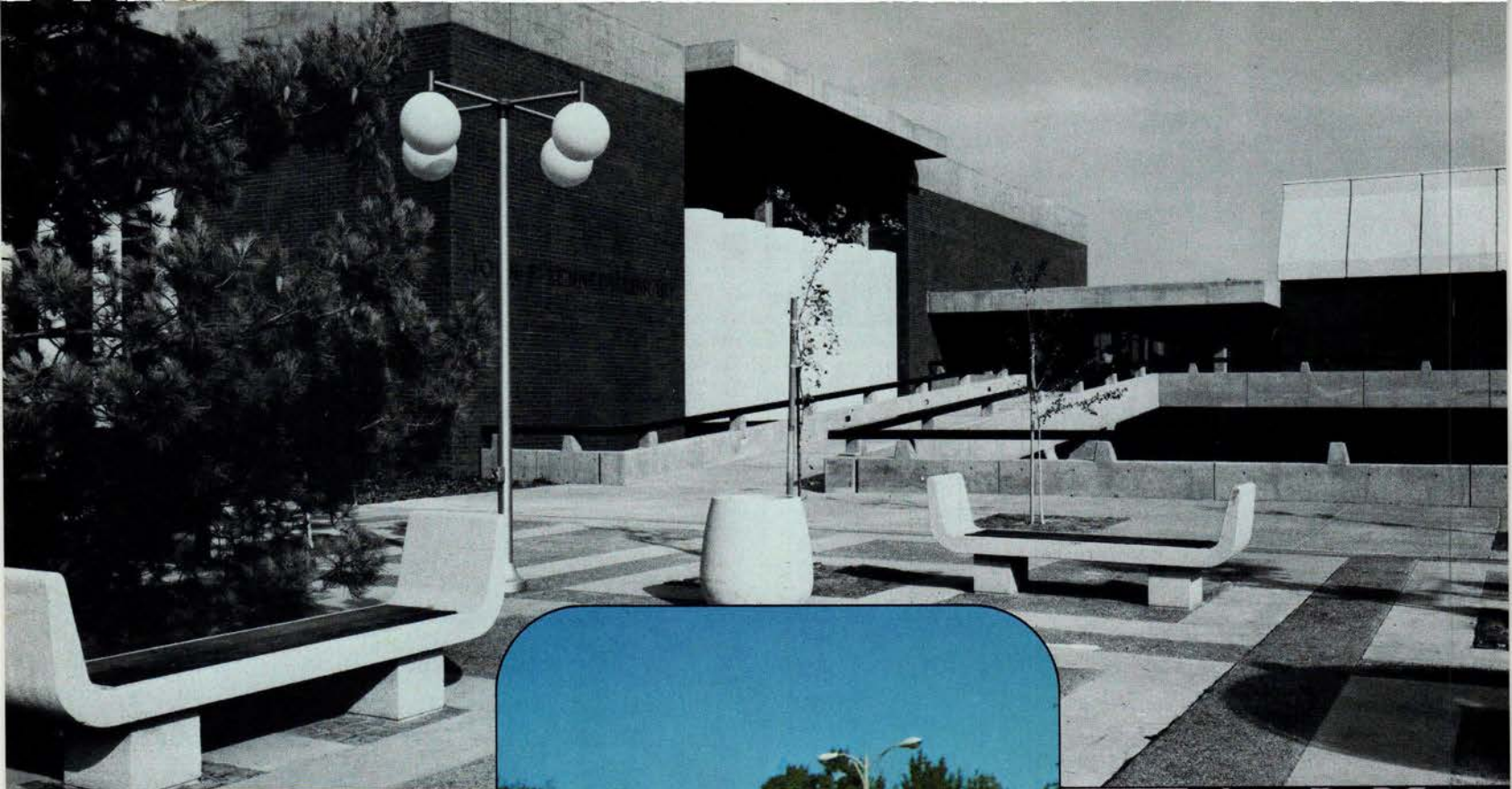
Reinforce your quality with our quality. Maintenance-free Aiphone intercom systems.

We're the talk of the town.

AIPHONE U.S.A. INC.

Call or write us for the name of the Aiphone specialist near you.

2116 North Pacific, Seattle, Washington 98103
Telex 32-0288 or phone (206) 634-3040
In Canada call NORESCO.



Model 3176—exposed aggregate finish.

a fully functional fountain ...for everybody

its truly functional cantilevered design for both handicapped and general public users. It features two lever handle valves for either left- or right-hand operation and is available in light sandblast or exposed aggregate finish, as shown.

Get all the facts; contact Haws Drinking Faucet Company, 1441 Fourth Street, Berkeley, CA 94710.

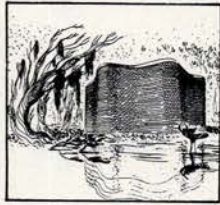
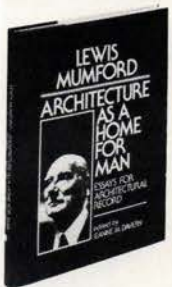
This Haws unique concrete pedestal drinking fountain will enhance your exterior planning with



DRINKING FOUNTAINS

The essential one-volume Mumford on Architecture

LEWIS MUMFORD ARCHITECTURE AS A HOME FOR MAN



9 x 12", 224 pp.
illustrated

Lewis Mumford's complete writings for *Architectural Record* are now collected together in one definitive volume. These 24 important essays span 50 years of the career of America's foremost architectural and social critic, and show the wide scope of concerns that have earned Mumford a unique place among the major thinkers of the 20th century.

Reproduced exactly as they first appeared in the pages of *Architectural Record*, these influential writings are arranged within one handsomely designed volume into five "mini-books":

- *American Architecture Today*
- *Mass Production and the Modern House*
- *The Life, the Teachings and the Architecture of Matthew Nowicki*
- *The Future of the City*
- *Essays, 1937-1968*

The full range of problems now facing America's cities and our built environment as a whole were foreseen by Lewis Mumford long before they became national issues. Mumford's prophetic warnings are now more timely than ever, and the solutions he suggests are just as timely. From mass-produced housing to mass transportation, from urban planning to new towns, from the death of the city to the rise of Megalopolis, the crucial problems of our times are discussed in depth in this one important book.

.....
Architectural Record Books
1221 Avenue of the Americas
New York, New York 10020

Please send me _____ copies of *Lewis Mumford: Architecture as a Home for Man* at \$15.00 each.

Name _____
Address _____
City _____
State _____ Zip _____
Payment must accompany order.

AR-6-77

KITCHEN EQUIPMENT / Product bulletin describes the "Model RT-7A" one-man pot and pan washer, with a continuous rotary conveyor which eliminates racks, door and timers. Full dimensional and capacity information for the stainless steel units is given.

▪ Metalwash Machinery Corp., Elizabeth, N.J.

Circle 414 on inquiry card

MEDICAL LABORATORY EQUIPMENT / Binder catalog covers a full line of refrigerators, freezers, morgue and autopsy equipment for hospital and laboratory installation. Four models of blood bank refrigerators with automatic temperature monitoring are featured; comprehensive drawings provide dimensions for each product. ▪ The Jewett Refrigerator Co., Inc., Buffalo, N.Y.

Circle 415 on inquiry card

STORAGE/RETRIEVAL SYSTEM / A "User's Report" details an actual installation of *Deep-Reach* truck and *Order Pick* retrieval vehicles in an auto parts supply house, where parts of different sizes, shapes and weights had to be handled by the storage system. ▪ The Raymond Corp., Greene, N.Y.

Circle 416 on inquiry card

CONCRETE RETARDERS / A full-color folder illustrates the variety of aggregate reveal possible with *Boldcast*, *Tuf-Cote* and *HI-V* retarders. Heavy, medium, and light aggregate exposure—from marble chips to boulders—are shown in job photos. ▪ Preco, Plainview, N.Y.

Circle 417 on inquiry card

CONCRETE FORMING / A 36-page catalog lists over 150 products, divided into eight sections: snap ties; coil ties; heavy concrete construction; hanging systems; re-bar supports; screening devices; inserts; and miscellaneous accessories. Product application and safety notes are included. ▪ Vimco Mfg., Inc., Devon, Pa.

Circle 418 on inquiry card

CONCRETE FORM COATING / Brochure compares on-the-job performance characteristics of basic types of form release agents, and explains *Magic Kote* coating's ability to prevent many form and stripping problems. ▪ Symons Corp., Des Plaines, Ill.

Circle 419 on inquiry card

IRRIGATION SYSTEM DESIGN / A recently published manual, "Irrigation System Design Handbook," is intended to provide an in-depth treatment of the principles of hydraulics, selection of sprinkler components and design techniques. Technical data provided includes pipe friction loss tables and fitting, valve and water meter pressure loss charts. Textbook is available for \$18.00 from Rain Bird Sprinkler Mfg. Corp., P.O. Box 37, Glendora, Calif. 91740.

DECORATIVE FOUNTAINS / A 16-page catalog presents over 40 color photos of *Custom Crafted Fountains* for parks, hotels, malls, corporate offices, etc. These are said to achieve unique *Water Sculpture* effects using multichannel nozzles to expand solid water streams into fountains of prismatic crystals many times larger than the original stream. These "Group C" fountains are said to produce an infinite array of motion, texture and color with economical use of electric power. A companion catalog illustrates the "Group B" series of smaller bowl fountains up to 8 ft in diameter. ▪ Rain Jet Corp., Burbank, Calif.

Circle 420 on inquiry card

WE FIT IN

STAINLESS STEEL UNDER COUNTER LAB REFRIGERATORS AND FREEZERS



UC-5-BC refrigerator has a blower coil cooling system with automatic off-cycle defrosting and condensate evaporator in condensing unit compartment. Two adjustable stainless steel shelves are provided.

UC-5-F-BC freezer is equipped with automatic timer electric defrost. Capacity—5.4 cu. ft. (155 ltr.)

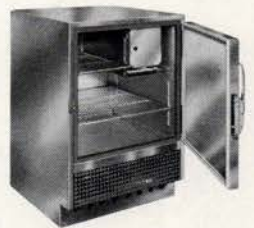


UC-5-CW* refrigerator with cold wall cooling system is equipped with push-button defrost, automatic reset and condensate evaporator. Capacity—5.4 cu. ft. (155 ltr.)

UC-5-F-CW* freezer is equipped with manual hot gas defrost. Capacity—4.6 cu. ft. (130 ltr.)

UC-5-CW-E refrigerator has the same interior features as the UC-5-CW but modified to make it *totally explosion-proof*. Capacity—4.9 cu. ft. (140 ltr.)

*With explosion proof interior only.

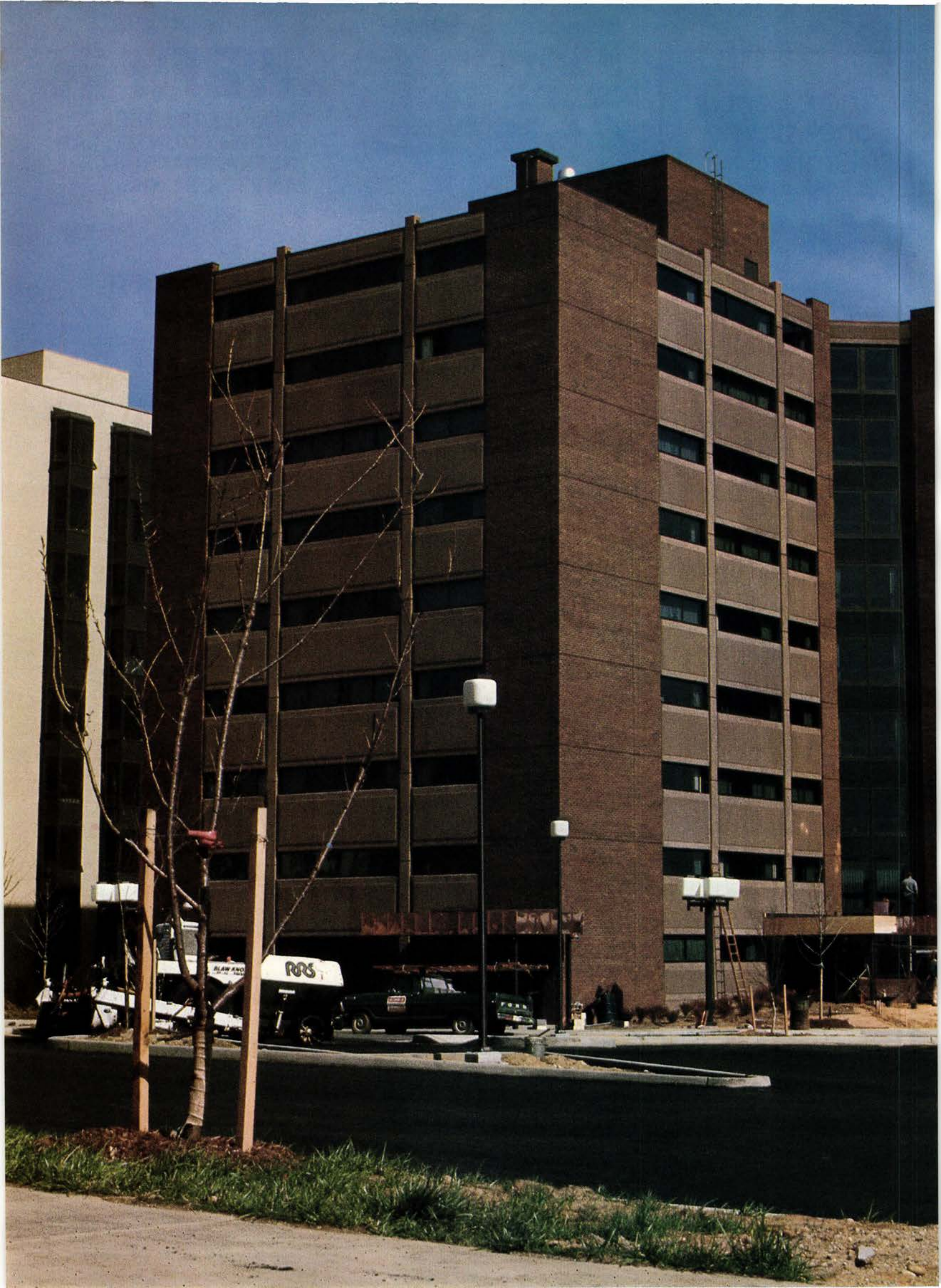


UC-5 features a two-tray ice cube cooling system with manual defrost and stainless steel defrost water tray. The cooler section has two adjustable stainless steel shelves. The entire UC-5 series features polyurethane insulated thin wall construction and air-tight neoprene thermo-break door seals. Capacity—5.4 cu. ft. (155 ltr.)

Jewett also manufactures a complete line of blood bank, biological, and pharmaceutical refrigerators and freezers as well as morgue refrigerators and autopsy equipment for world wide distribution through its sales and service organizations in over 100 countries.



For more data, circle 71 on inquiry card



More than an educated guess went into the fuel-saving design of the new Gallaudet College dormitory.

In planning this 9-story dormitory, a maximum energy-saving return on insulation investment was one goal.

Low-cost installation was another.

Hudgins, Thompson, Ball and Associates performed life cycle costing analyses and arrived at an optimum U factor of 0.08 for the insulation, with noncombustible criteria to be met as well.

CertainTeed Envelope Energy Saver (EES) insulation met every requirement. And lowered installation cost.

Once awarded the project, CertainTeed and John H. Hampshire, Inc. worked with the architects to evolve a time-saving, labor-saving installation method using Z-bars and 2" CertainTeed EES insulation.



2—EES insulation panels were placed between channels, where their inherent rigidity allowed them to nestle between channels without adhesives or clips.



4—Foil-backed gypsum board was used for the finished walls.



1—Z-bars were attached directly to the precast concrete outer walls with pneumatic hammers.



3—Entire sections were completed quickly.

Window and door frames were designed to project inward sufficiently to be in plane with the finished inner wall and its EES insulation sandwich. This step saved finishing costs, and helped produce a uniform wall surface.

About 30,000 sq. ft. of CertainTeed EES insulation was installed. John H. Hampshire, Inc. estimated that the horizontally attached Z-bars and easily installed EES insulation saved labor and materials compared with a conventional stud wall system.

Consider CertainTeed EES insulation. It has the U factors, thicknesses, handling ease and structural integrity needed to help today's (and yesterday's) buildings cope with tomorrow's energy problems.

For more information and design particulars on EES insulation, contact your CertainTeed district office, or write us. CertainTeed Corporation, Insulation Group, P.O. Box 860, Valley Forge, PA 19482. (215) 687-5000.

Dormitory for Gallaudet College, Washington, DC.
Architect: HTB, Inc. (formerly Hudgins, Thompson, Ball and Associates, Inc.), Washington, DC.
Drywall Contractor: John H. Hampshire, Inc., Bladensburg, MD.

CertainTeed

For more data, circle 72 on inquiry card

When it comes to lighting,
Parabolume has a lot more
than meets the eye...



MONTGOMERY WARD CORPORATE HEADQUARTERS Architect: Minoru Yamasaki & Associates; Interiors: Sydney Rodgers Associates; Electrical Consultant: Joseph R. Loring & Associates.

...like speech privacy!

In Open Plan interiors, lighting fixtures are an important part of the visual and acoustical environment. They must be low brightness, of course, in order to avoid intolerable glare and provide high visual comfort in the large open areas. But the fixtures must also inhibit the reflection of sound in order to assure speech privacy. Parabolume does both! Flat lenses reflect sound, much as a mirror reflects light. Voices or conversation may be directed away from

the area intended. However, the complex baffle curves and contours which give Parabolume low brightness light control also serve as an effective sound baffle. Most of the sound entering the fixture is re-reflected internally and absorbed. Parabolume gives you the precise means of confining both light and conversation where they belong. Parabolume lighting: low brightness, high visual comfort and speech privacy!

columbia
lighting
inc

GTE SYLVANIA

north 3808 sullivan rd □ la box 2787 □ spokane washington 99220 □ (509) 924-7000

For more data, circle 73 on inquiry card

WHY COAT STAINLESS STEEL?

As nearly all architects are now aware, TCS (Terne-Coated Stainless Steel) is chrome-nickel stainless coated on both sides with an 80% lead/20% tin alloy.

But the question may still remain as to why any coating of stainless is desirable.

In the first place, the application of such a coating creates an end product which is demonstrably superior to both stainless and copper in durability and corrosion resistance. Secondly, TCS weathers to an attractive and uniform warm gray. Stainless, on the other hand, retains its original bright finish indefinitely, while the weathering of copper has been highly unpredictable in recent years. TCS also solders perfectly without special preparation whereas copper must be pretinned, and stainless requires a time-consuming and relatively costly procedure to obtain a leak-proof joint. Furthermore, TCS, unlike copper, is neutral toward other metals, and wash-off from it will not stain adjacent surfaces.

Expressed in the simplest terms, where roofing and weathersealing are involved there is no standard architectural metal available in the world today, including stainless and copper, which can match TCS in its performance characteristics and built-in safeguards against failure.

TCS

TERNE-COATED STAINLESS STEEL

FOLLANSBEE

FOLLANSBEE STEEL CORPORATION • FOLLANSBEE, WEST VIRGINIA

For more data, circle 74 on inquiry card

Antron® II nylon. The known for its lasting

Architect: Vincent G. Kling & Partners, Philadelphia, Pennsylvania.
Flooring Contractor: B. Shehadi & Sons, Livingston, New Jersey



DuPont carpet fiber good looks. At A.T.&T.

The new A.T.&T. Administration Building,
Basking Ridge, New Jersey.



The carpet—all 150,000 square yards—is a special woven construction with pile of Antron® II nylon. "Antron" II was selected for its outstanding long-term appearance-retention qualities.

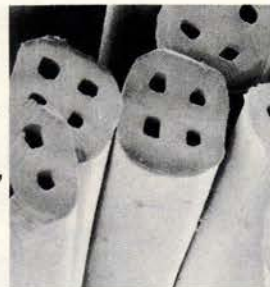


Why "Antron" II? "Antron" II nylon is designed to mask the presence of soil. And, because it is

a nylon, it's the most abrasion-resistant of all carpet fibers. In addition, "Antron" II has a pleasant, subdued luster, unlike bright or sparkle-luster fibers that can dull rapidly in contained high-traffic areas. Cleanability and texture retention are excellent.

These are the properties most specifiers expect from "Antron" II, the fiber known for its lasting good looks. And they are among the reasons why it is the leading contract carpet fiber brand.

How "Antron" II masks soil. Here in this 250X electron micrograph, you can see the remarkable four-hole fibers of "Antron" II. The four microscopic voids scatter light to mask soil and help blend soil concentrations into the overall carpet look. The smooth exterior shape minimizes soil entrapments, making cleaning more effective than irregularly shaped fibers.



"Antron" III nylon for durable, effective static control is available in most styles in "Antron" II.

Specifier's Information Kit. For more information—a carpet manufacturers' resource list, a specification guide for commercial office buildings, and a maintenance manual—write: Du Pont Contract Carpet Fibers, Centre Road Building, Room AR, Wilmington, DE 19898.

*Du Pont registered trademark. Du Pont makes fibers, not carpets.

Antron® II.

The leading contract carpet fiber brand.



For more data, circle 75 on inquiry card

Sunworks. The standard for today's solar energy.

Depend on a leader for solar energy equipment. Sunworks. One of the first companies in America exclusively devoted to solar equipment design.

Sunworks, specialists in solar energy equipment and systems, is a division of Enthone, Inc., a leading supplier in the plating and metal finishing industry. Enthone is a subsidiary of ASARCO Incorporated, one of the world's largest smelters and refiners of non-ferrous metals. Together, they combine their historical leadership in developing quality products for the solar energy industry.

Sunworks manufactures both liquid and air cooled flat plate solar collectors, and a series of easy to install Solar Pak domestic water heater kits. Designed for use in residential, industrial and commercial systems, these products feature a five year guarantee, greatest efficiency per unit area, supported independent testing, and a choice of styles and sizes. And Sunworks products are highest rated on a dollars per square foot per BTU basis.

Tomorrow's energy is here
today. From Sunworks.

DIVISION OF
ENTHONE
INCORPORATED
WEST HAVEN, CONNECTICUT

A subsidiary of
ASARCO



SPECIALISTS IN SOLAR ENERGY EQUIPMENT
P.O. Box 1004 • New Haven, CT 06508 • (203) 934-6301

For more data, circle 76 on inquiry card

New offices for a firm of architects/engineers.

Henningson, Durham & Richardson sited their striking headquarters building on a grassy hill in Omaha. Behind the concrete and reflective glass facade are housed more than 350 architectural and engineering specialists and support personnel. Interfloor traffic of employees and visitors is handled smoothly by fast, dependable Dover Traction Passenger Elevators. For complete information on all Dover Elevators, write Dover Corporation, Elevator Division, P. O. Box 2177, Dept. A, Memphis, Tennessee 38101.

HDR Place, Omaha, Nebraska

ARCHITECTS: Henningson,
Durham & Richardson

CONTRACTOR:

Lueder Construction Company

DOVER ELEVATORS SOLD AND INSTALLED BY:

O'Keefe Elevator Company, Inc.

DOVER

For more data, circle 77 on inquiry card



ELEVATORS BY DOVER

Steel frame saves \$2,000,000 for New Court Facility in District of Columbia

Problem: The efficiency of Washington, D.C.'s courts was severely hampered by having its various courtrooms housed in several buildings. The arrangement proved particularly cumbersome to its 1,100 employees.

Solution: Design a 700,000 sq ft building to house the required 45 courtrooms, judges' chambers, and various support areas. And, at the same time, provide completely separate circulation patterns for the judges, the public and general staff, and for prisoners.



Bethlehem furnished approximately 5,000 tons of ASTM A572 Grade 50 high-strength steel for the courthouse.

Owner: Department of General Services, Washington, D.C.
Architect: Hellmuth, Obata & Kassabaum, P.C., Architects, Washington, D.C.
Structural Engineer: Jack D. Gillum and Associates, New York, N.Y.
Fabricator: Montague-Betts Company, Inc., Lynchburg, Va.
Construction Manager: Gilbane Building Co., Inc., Providence, R.I./
Paul R. Jackson Construction Co., Inc., Washington, D.C., Joint Venture.



The courthouse features completely separate circulation patterns for judges, for the public and general staff, and for prisoners. The \$40-million structure consists essentially of two buildings connected by an elevator bank on one side and a circulation corridor on the other, creating an atrium in the center.

Steel found most economical

Several design schemes in both structural steel and reinforced concrete were evaluated by the construction manager during the preliminary design phase. It was concluded that \$2,000,000 in structural costs could be saved by using a high-strength structural steel frame. The savings result from (1) lower in-place materials costs, (2) time saved in erection, and (3) lower foundation costs due to the lighter steel structure.

Tight budget limitations required that the project be fast-tracked to telescope the design and construction periods. By reducing overall construction time, maximum area could be provided for the funds available.

The designers were also able to take advantage of steel's excellent flexibility during the design/construction process. By making adjustments through early insights into field conditions, the designers were able to increase design quality, while decreasing costs.

The framing scheme

The framing scheme consists of 3-in.-deep composite metal floor deck, utilizing electrified cells as required, supported by composite steel beams spaced at 10 ft 4 in. on center.

Lateral loads are transferred to the columns by 16 wind bracing towers (8 in each direction) located in the cores. Double angles, field bolted at their ends and centers, are used for the cross bracing. Typical bays are 31 by 31 ft and 31 by 62 ft.

depend
on
Bethlehem

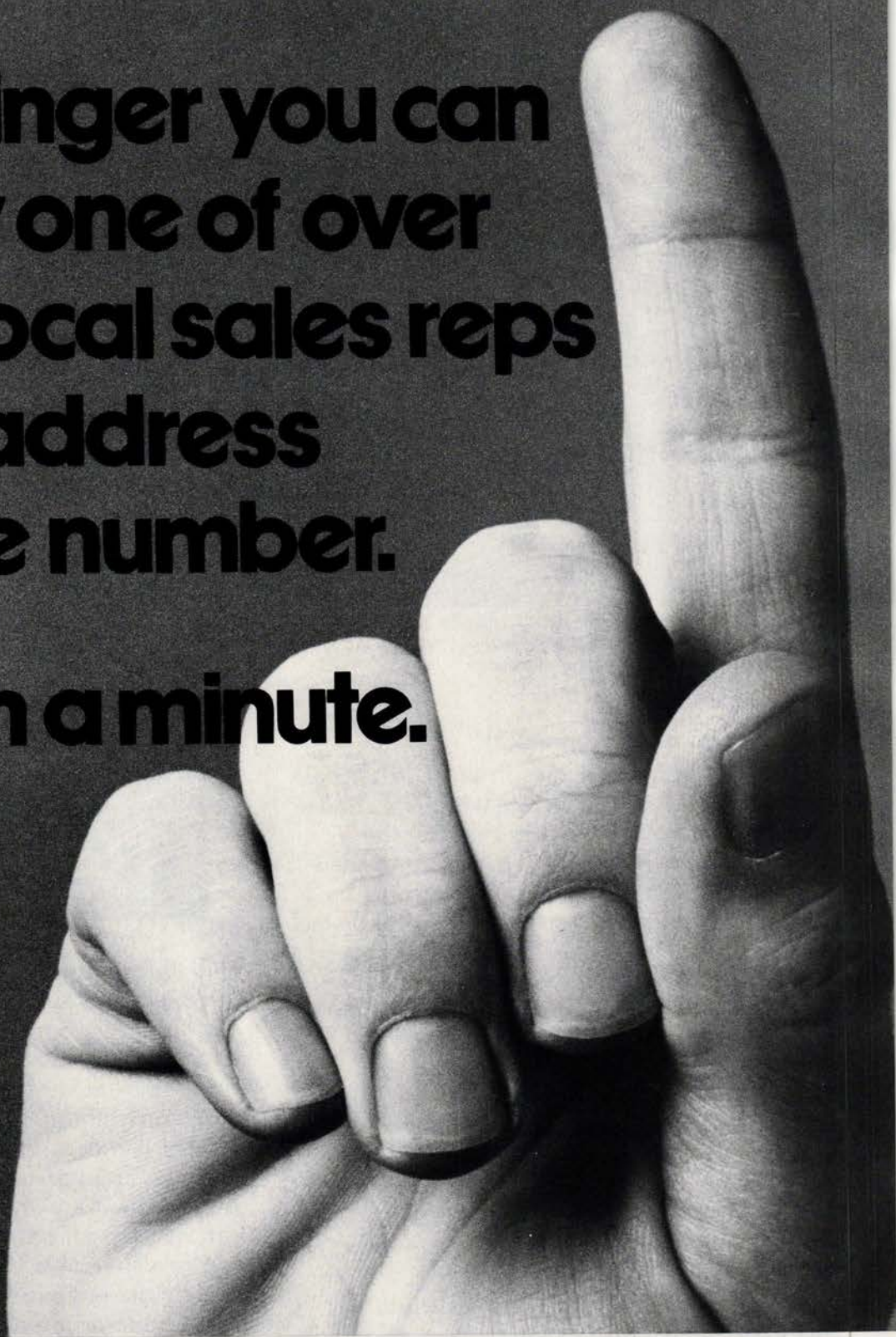


Bethlehem provides a broad range of technical and advisory assistance programs. For example, our preliminary frame analysis program is designed to help you develop the most efficient steel frame for your building. You and your client will receive the most benefit if it is conducted before finalization of architectural parameters. This way, our Buildings Group and your structural engineer can develop an optimum frame design.

We also have a large library of practical design and engineering aids, slide presentations, product catalogs, and building case history studies. If you would like additional information on any of these services call your Bethlehem Sales Engineer. He's available through the Bethlehem Sales Office located nearest you. Bethlehem Steel Corporation, Bethlehem, PA 18016.

SALES	Atlanta (404) 522-4918	Los Angeles (213) 726-0611
OFFICES	Baltimore (301) 685-5700	Milwaukee (414) 272-0835
	Boston (617) 267-2111	New York (212) 688-5522
	Buffalo (716) 856-2400	Philadelphia (215) 561-1100
	Chicago (312) 664-5422	Pittsburgh (412) 281-5900
	Cincinnati (513) 381-6440	St. Louis (314) 726-4500
	Cleveland (216) 696-1881	San Francisco (415) 981-2121
	Detroit (313) 336-5500	Seattle (206) 285-2200
	Houston (713) 659-8060	Ask for Sales Engineer

**With one finger you can
locate any one of over
50,000 local sales reps
by name, address
and phone number.
In less than a minute.**



Every volume of Sweet's carries
our toll-free BUYLINE® number —
800-255-6880.

Any time you need to find a rep
whose company's in Sweet's, give us
a ring.

Our operator and her computer

will have your answer in less than
a minute.

BUYLINE's obviously a real time
saver. We've been averaging over
600 calls a day.

Which means Sweet's is really
working hard for you.

Sweet's. You can't beat The System.

The Sweet's System: Details on over 10,000 products from over 1,400 manufacturers ■ Instant information retrieval through triple indexing by product, trade name and firm name ■ GuideLines® Organization, the AIA-endorsed method for developing product information for specifiers and buyers ■ Yearly updating to keep data current ■ BUYLINE 800®, the fastest way to locate reps.





Architects: Prindle, Patrick, and Partners
Construction Manager:
Turner Construction Company



The defense never rests on the roof of the Cuyahoga County Justice Center!

To defend the roof and plaza decks of the Cuyahoga County Justice Center in Cleveland against energy losses and the onslaught of the elements was of prime importance to the designers. Over 200,000 square feet of deck had to remain water tight, perform efficiently and have little or no maintenance for years. All-weather Crete Insul-Top and Plaza Systems were used. Two unique materials account for the success of these systems. One is All-weather Crete, a monolithic insulating fill applied hot and dry, and having an excellent K factor. The other is Alasco RAM, a rubberized asphaltic waterproof membrane that retains its elastic "life" indefinitely. On both roofs and plazas in the Justice Center, Alasco RAM was poured to form a seamless waterproof membrane

directly on the flat structural deck. Protection board was adhered to the hot Alasco RAM. All-weather Crete was then compacted over the membrane system, and sloped to drains. The result—a seamless insulating barrier with positive water runoff. Thus, for the life of the building, AWC defends the membrane against thermal shock, ultra-violet rays, the elements, puncture and water ponding. Send for AWC brochure.

SILBRICO
CORPORATION
6300 RIVER ROAD • HODGKINS, ILLINOIS 60525
CHICAGO PHONE (312) 735-3322

For more data, circle 78 on inquiry card

Horton Automatic
Sliding and Swinging Doors.

**They're
the best doors going.
And coming.**

Horton doors are, very simply, the best doors you can buy. For a variety of reasons. First of all, we offer a full line of pneumatic and electric openers for both the sliding and swinging doors. For both commercial and industrial use. We also offer all the controls and all the accessories. And all of our doors are beautifully designed to blend with the building to form a natural, eye-pleasing front.

When it comes to price, we offer a variety of prices to fit your exact needs and requirements.

Before you select an automatic sliding or swinging door, compare Horton to all the others. We think you'll agree they're the best doors going. And coming.

We are a nationwide sales, installation and service organization. For more information, contact your local Horton Automatic distributor or Overhead Door Corporation, P. O. Box 22285, Dallas, Texas 75222. (214) 233-6611.



Horton Automatics
a division of the
Overhead Door Corporation

For more data, circle 79 on inquiry card

**Because
Clean is Here
to Stay.**



Marlite Brand Fiberglass Reinforced Polyester Panels. FRP. A wall surfacing system designed specifically to meet requirements in food processing and cold storage areas. It can be steam cleaned or washed. Resists rot, stains, denting, rust, corrosion and splintering. It's USDA approved and easy to install. For details, write Marlite Division Commercial Sales, Dover, Ohio 44622. Or phone (216) 364-8854.

Marlite®
MASONITE CORPORATION
DIVISION OF MASONITE CORPORATION
DOVER, OHIO 44622

MEETING THE CHALLENGE OF CHANGE

For more data, circle 80 on inquiry card



NOW YOU SEE IT



NOW YOU DON'T



**Tamper-proof
hinges that hide**

Soss Invisible Hinges can't be seen or tampered with when a door is closed. Hinge bodies are mortised into the door and jamb to discourage any intruder. Specify Soss invisibility for beauty and security. Our new catalog includes application and installation ideas on all 20 models. Look for it in Sweet's, or write to Soss Mfg. Co., Div. of SOS Consolidated Inc., P. O. Box 8200, Detroit, Mich. 48213.

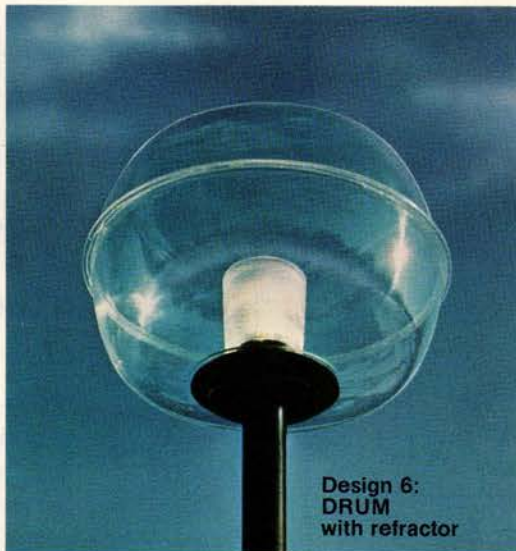


**the SOSS
Invisibles**

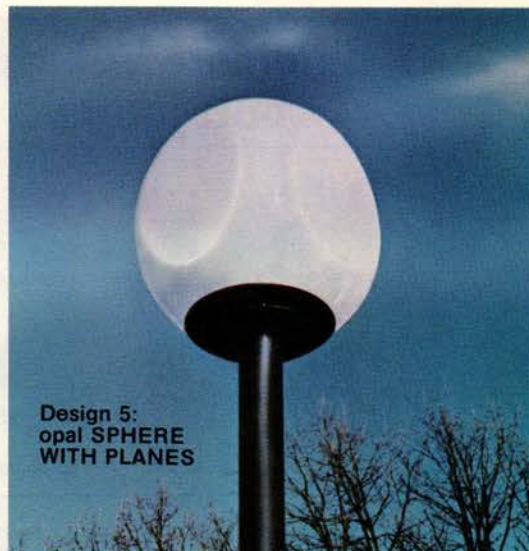
For more data, circle 81 on inquiry card



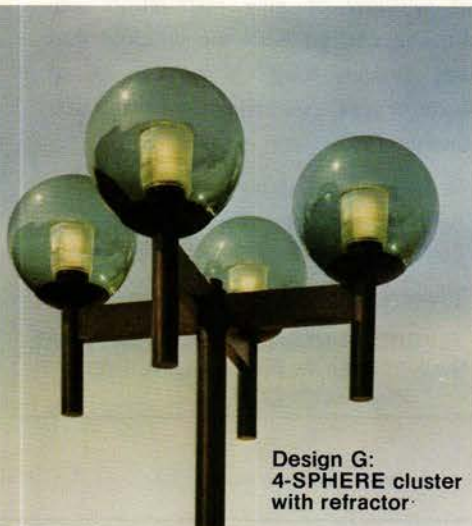
Design 9:
HARD CUBE
with G-40 lamp



Design 6:
DRUM
with refractor



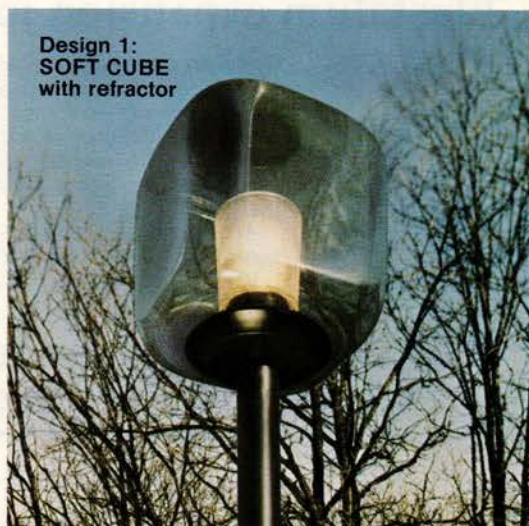
Design 5:
opal SPHERE
WITH PLANES



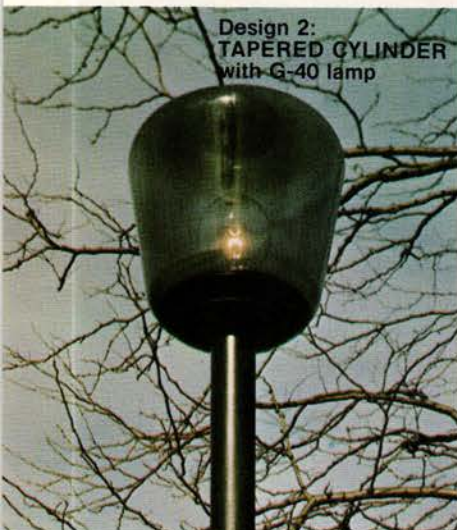
Design G:
4-SPHERE cluster
with refractor

APPLETON GLO-METRICS™

Contemporary Outdoor Luminaires



Design 1:
SOFT CUBE
with refractor



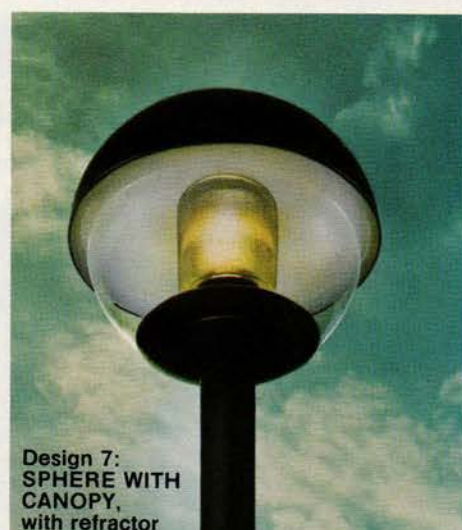
Design 2:
TAPERED CYLINDER
with G-40 lamp



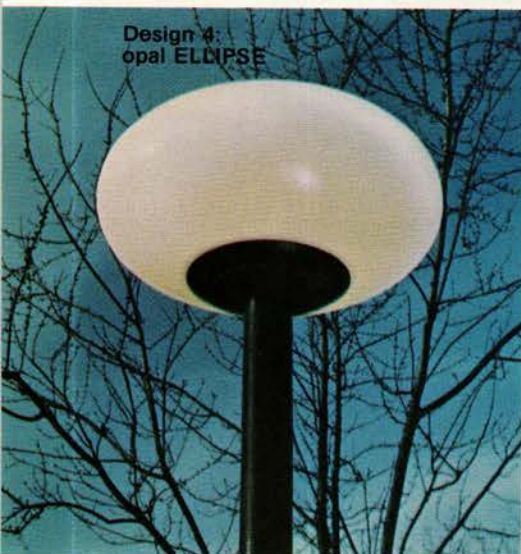
Design G:
wall-mounted
SPHERE
with G-40
lamp



Design 3:
CYLINDER
with G-40
lamp



Design 7:
SPHERE WITH
CANOPY,
with refractor



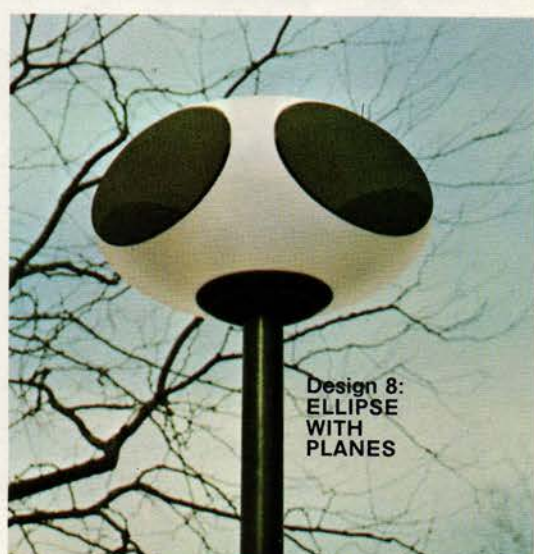
Design 4:
opal ELLIPSE

Appleton Glo-Metrics offer ten contemporary diffuser shapes, for wall, poletop or cluster mounting, with matching poles. Opal-white or transparent diffusers, with or without refractors. Choice of light sources and lamp wattages, with "in-pole" ballasts. Write for Glo-Metrics catalog. Appleton Electric Co., 1701 Wellington Ave., Chicago, Ill. 60657.



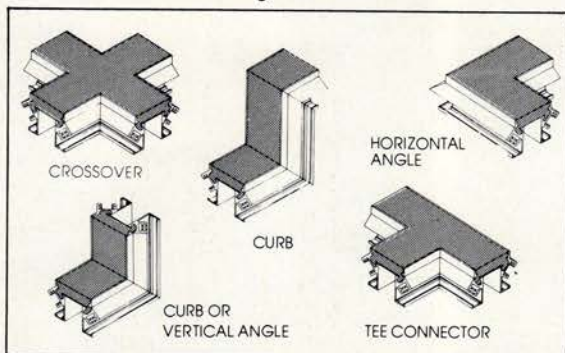
APPLETON®

6-211

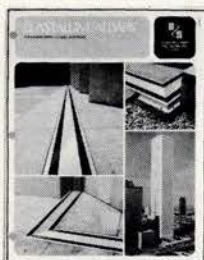


Design 8:
ELLIPSE
WITH
PLANES

Eliminate leakage at butt joints.



Make the transition to Elastalum expansion joint seals.



Elastalum, the first and only engineered expansion joint system, makes joint covers obsolete. Our 360° omni-directional elastomeric seal completely encloses the joint. Exclusive, factory-formed transition pieces eliminate old-style leak-prone butt joint covers. Handsome, economical and easy to install.

Accessories available include: Tees, Y's, crossovers, curbs, and vertical or horizontal angles.

Write or call today for free 16-page Elastalum Catalog.



CONSTRUCTION SPECIALTIES, INC.

P.O. Box 380, Route 405, Muncy, PA. 17756 (717) 546-5941
725 Twin Oaks Valley Rd., San Marcos, CA. 92069 (714) 744-0300

For more data, circle 83 on inquiry card

THERMO-TILT®

**Is Saving Energy Across The Country!
Do You Know Why?**

From Alaska to Florida, Three River's Thermo-Tilt and Thermo-Glide windows are installed and performing RIGHT NOW! They are designed for use in residential buildings, apartments, schools, offices hotels, etc. ... as a replacement window or new installation. So, don't take chances, go with the window that has already proven itself. If we can be of service, write or give us a call and we'll tell you why we save energy.

MANUFACTURER OF:

THERMO-TILT® MODEL TR-5000
MODEL TR-6000

Thermally improved windows

THREE RIVERS ALUMINUM COMPANY, INC.
1710 North Franklin St., Pittsburgh, PA. 15233
Phone (412) 237-6900

For more data, circle 84 on inquiry card

NOW YOU CAN SPECIFY PARAGON EQUIPMENT FOR A PARAGON POOL!



Paralyte Matched Deck Equipment

And get the very best in a total swimming pool system.

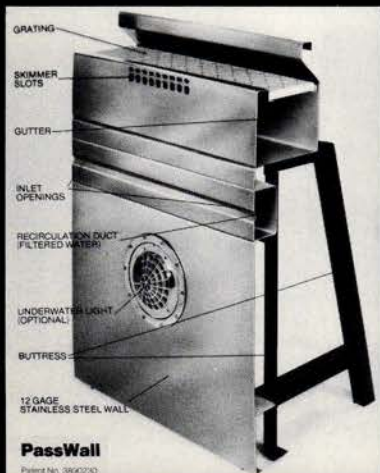
Team up our outstanding Paralyte line of Matched Deck Equipment with our all new PassWall Automatic Stainless Steel Pool System - featuring today's most advanced design and technology in the swimming pool industry.

Put our 20 years of swimming pool know-how to work for you. See us in Sweets Architectural File 13.22 or contact:

KDI Paragon Inc.
Manufacturers of Quality Swimming Pool Products

KDI Paragon Inc.
12 Paulding Street
Pleasantville, N.Y. 10570
914-769-6221
TWX 710 572 2202

West Coast Rep.
Corrick International
206 Locust St.
Santa Cruz, Ca. 95060
408-426-9010



PassWall Wall and Gutter Section

Make it beautiful with...



HOMAPAL metallic laminates!

Bright—Shiny—Brushed and a variety of deep or delicate embossed patterns . . . in copper, chrome and aluminum, 4' x 8' sheets.

Specify HOMAPAL...it's for real!

For color folder and samples, contact: The Diller Corporation
6126 Madison Court
Morton Grove, IL 60053
Area 312/966-4100

Member, A.S.I.D. Industry Foundation.

For more data, circle 86 on inquiry card

◆ For more data, circle 85 on inquiry card

It makes a difference where your standby power equipment is made.

Maybe it doesn't matter if somebody picks up a generator here, an engine there, an automatic transfer switch somewhere else. Then hooks them up and calls the result a standby power system.

We think it does matter.

We also think standby power is too important to leave to chance. So instead of asking our customers to gamble on unmatched components, we deliver *total* standby power systems (not just bits and pieces).

After more than fifty years in this business, we know what it takes to produce total power systems. Our modern plant facilities were built specifically for the design, manufacture and testing of electric generating plants, industrial engines, automatic transfer switches and associated equipment. We spend substantial time and effort testing the total system as well as testing components by themselves.



Then we back up each system (engine, generator, automatic transfer switch) with a commercial/industrial warranty for five years or 1500 hours. (Details available on request.)

Beyond that, we also maintain a worldwide parts and service network. Because we think it also makes a difference where you go if you should need help.

If you agree, contact an Onan Distributor for full details. Or write or call: Onan, 1400 NE 73rd Ave., Minneapolis, MN 55432, Telephone: (612) 574-5000, TWX: 910-576-2833, TELEX: 29-0476.



The systems approach to power . . . worldwide.
For more data, circle 87 on inquiry card



Onan Corporate Headquarters, Minneapolis

Come to America's most experienced team when your building requires a reliable built-up roofing system. Johns-Manville.



A J-M roof means single-source materials responsibility.

Because Johns-Manville makes everything that goes into a built-up roof, you're assured of J-M quality from the deck up. Of a full line of components including membranes, roof insulations and accessory items—all made to go with each other. Of techniques used to put them together that are proved. And you're assured of true value and lasting protection when the job is done. With clear-cut responsibility for the performance of the materials used in the finished assembly.

J-M's Research and Development Center. Solving roofing problems before they happen.

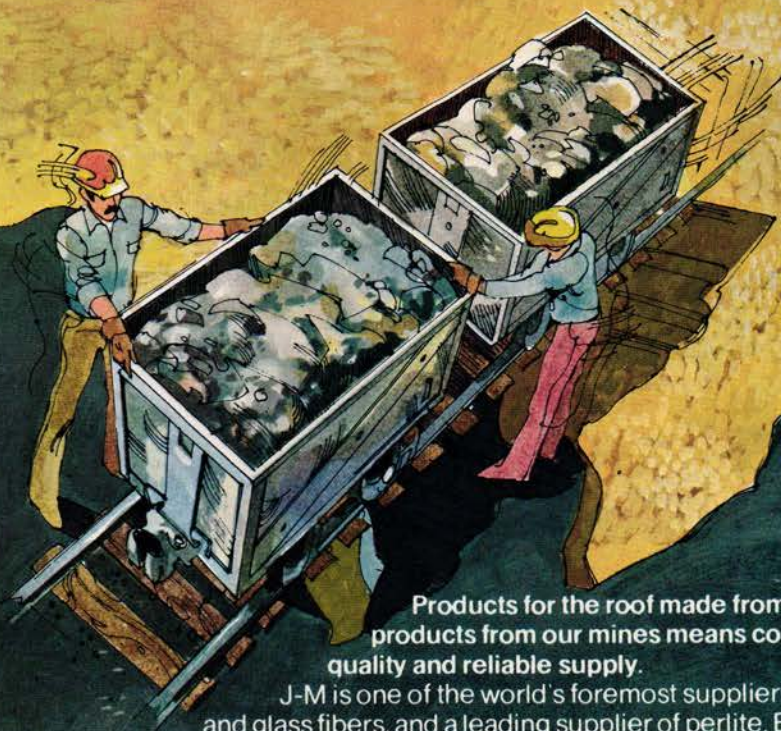
One of the most complete facilities of its kind in the world, the J-M Research and Development Center devotes a good share of its resources to identifying and solving roofing problems before they happen. Here is a unique combination of capabilities—in qualified, experienced staff and in facilities for applied research, for development, for pilot manufacturing, and for testing of both roofing components and completed roof assemblies.

On-site technical assistance based on over 200 years of full-time roofing experience.

J-M's 12 District Engineers, who dedicate 100% of their time to built-up roofing systems, offer on-call assistance, technical advice and problem solving expertise to specifiers and contractors alike.

Their combined experience, training and qualifications form a technical resource that's unmatched in the industry. And it's available to you, whenever the need arises.





Products for the roof made from products from our mines means consistent quality and reliable supply.

J-M is one of the world's foremost suppliers of asbestos and glass fibers, and a leading supplier of perlite. Because we make finished roofing products from our own raw materials, we can control every step of production from mine to roof. The result: product quality and consistency, reliability of product supply, and assured product performance.

J-M's Built-Up Roofing Systems Institute. A training facility for the industry in good roofing design and technology.

This unique program—the only one of its kind in the roofing industry—exists for just one purpose: to prevent roofing failures through good roof design. Since its inception in 1972, more than 1200 specifiers, designers and decision makers have graduated from BURSI, have come away more knowledgeable about built-up roofing systems, and better prepared to design and specify roofs that deliver the desired performance.



When you need help designing or specifying a roof, call on an experienced J-M roofing sales specialist.

Wherever you are, you'll find a J-M roofing representative nearby. He's one of 90 trained, experienced specialists who concentrate on built-up roofing systems, who are prepared to assist the specifier, distributor, owner, and contractor with any phase of guaranteed roofing systems, from design to final inspection, from roof surveys to making sure the



right materials are delivered on schedule.

One source supply for the whole roof.

For information about J-M built-up roofing components and systems, consult Sweet's or call Grant Edmonds, Johns-Manville, Ken-Caryl Ranch, Dept. AR-6, Denver, Colorado 80217, 303-979-1000.

For single-source built-up roofing systems.



Johns-Manville

For more data, circle 88 on inquiry card

New from Bally

A comprehensive guide for erecting walk-in coolers and freezers outdoors.



Handbook
for Outdoor
Walk-In Coolers
and Freezers



It contains everything you need to know about erecting walk-ins outdoors, including critical facts that many refrigeration people don't even know. It has 16 pages of drawings, and specifications covering concrete slabs, weatherproof roofs, electrical and refrigeration characteristics, and other needed information.



©1976

Bally Case & Cooler, Inc.
Bally, Pennsylvania 19503

FREE FOR YOUR
REFERENCE LIBRARY

Call 215-845-2311 or write Dept. AR-6

For more data, circle 89 on inquiry card

Plaster in a roll™ the no problem heavy duty wallcover that covers problem walls ...including concrete block!

Plaster in a Roll™ goes up like wallpaper over every conceivable surface including poured masonry, concrete block, plaster, expanded foam and wood.

This unique gypsum impregnated jute product bridges small voids, hides blemishes and bumps. Available in decorator colors and fabrics. Class A flame spread.

Exceptionally
durable
and affordable.

For complete
architectural
data and swatch
book, write
Flexi-Wall
Systems, Post
Office Box 477,
Liberty, S.C.
29657.
803-855-0500.



For more data, circle 90 on inquiry card

IN THE CAUSE OF ARCHITECTURE FRANK LLOYD WRIGHT

WRIGHT'S
HISTORIC
ESSAYS
FOR THE FIRST TIME
IN ONE VOLUME

Essays for *Architectural
Record* 1908-1952

With a symposium on architecture

EDITED BY

FREDERICK GUTHEIM

Now for the first time ever, the seventeen historic essays Frank Lloyd Wright wrote for *Architectural Record* are collected in one definitive volume. *In the Cause of Architecture*, Wright's major statement of his architectural philosophy, is an essential key to understanding this creative giant.

Reproduced in their entirety and in their original format as they appeared in the pages of the *Record*, these essays give penetrating insights into the mind of an architectural genius at the time he was creating his most significant works.

This handsome, 256-page volume is illustrated with hundreds of photos, drawings, plans and perspectives of F.L.L.W.'s greatest buildings as well as a fascinating photo-essay of never-before-published pictures of Wright taken shortly before his death.

Edited by noted Wright authority Frederick Gutheim, the book also includes a symposium of eight essays by Wright's associates that take a new look at the life and work of America's greatest architect.

In the Cause of Architecture will be of lasting interest to architects, students, and all those interested in Wright—a basic reference for school, home and office libraries. Beautifully designed, it will be a treasured gift for years to come.

Architectural Record Books AR-6-7
1221 Avenue of the Americas
New York, New York 10020

Please send me _____ copies of
*In the Cause of Architecture: Frank
Lloyd Wright* @ \$17.50 each.

Name _____

Address _____

City _____

State _____

Zip _____

Payment must accompany order

20 years ago, you were lucky to find professional liability protection at any price.

GOTHAM
WORLDWIDE
INSURANCE
COMPANY.



To most architects and engineers today, professional liability protection is a matter of course. 20 years ago it was a matter of luck.

We remember. That's why, back in 1955, we sat down with AIA, NSPE, and Continental Casualty Co., and came up with a breakthrough:

The first truly broad form liability coverage, for every qualified professional, in every state of the Union.

We've been right behind you ever since. With the first nationwide network of claims specialists. The first Joint Venture insurance. The

first Equity Interest coverage. The first Construction Management protection. The only Post-Retirement policy. The most comprehensive Loss-Prevention service in the industry. The only coast-to-coast team of expert defense attorneys, with offices in nearby cities and towns across the country. And the leading carrier in the field—licensed in each and every state and territory.

It's a 20-year record of leadership and performance. A record built on trust. Because we've always considered your interest first. And through good times and bad, while

other companies have come and gone, we've been here. Our professionals have always been protected.

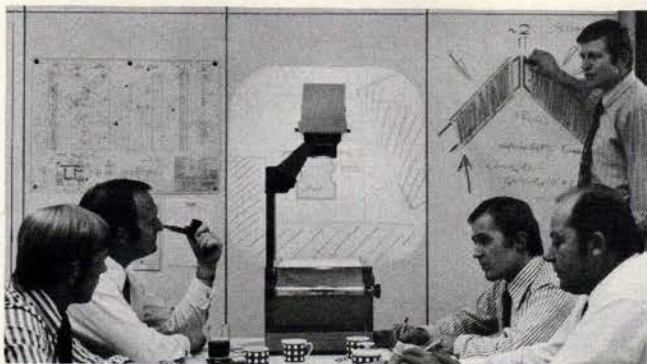
So when you consider what's at stake—your good name, your practice and possibly your whole career—there's really only one question to ask:

Why settle for anything less than the best?

Victor O.

Schinnerer

Washington, D.C. & Company, Inc.
Ask your broker for details.



WhyteBoard

also comes in colors.

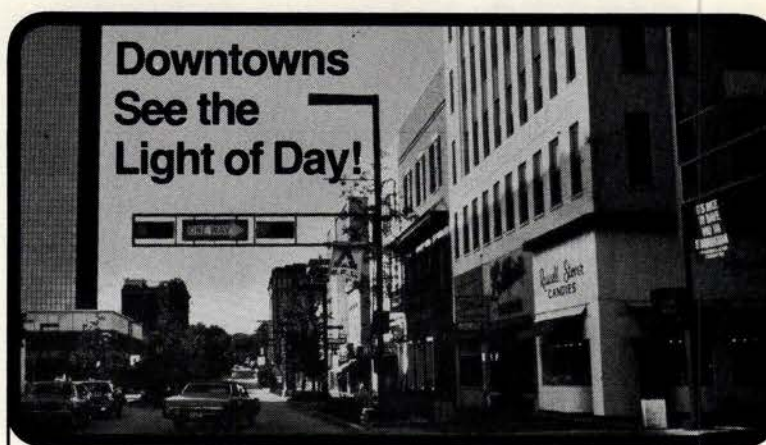
One to fit the decorating scheme of any office.

Guaranteed for 50 years, the porcelain-on-steel panels form a maintenance-free, dust-free writing system when used with our special dry-wipe markers. AllianceWall WhyteBoard panels erase clear and clean with dry cloth. Virtually indestructible, panels double as projection screen and magnetic bulletin board. For details write—

AllianceWall CORPORATION

Box 247, Alliance, Ohio 44601 *Formerly Rite-On Wipe-Off panels.

For more data, circle 92 on inquiry card



**Downtowns
See the
Light of Day!**

Moldcast

**Coordinated Lighting Systems have
revitalized these great American cities**

Akron, Ohio
Birmingham, Ala.
Boston, Mass.

Hopkins, Minn.
Storm Lake, Iowa
Huntsville, Ala.
McKeesport, Pa.

Plymouth, Wis.
San Francisco, Cal.
Wilmington, Del.

Our distinctive lines of architecturally appealing and energy efficient luminaires are now improving downtown life from coast to coast.

An extensive selection allows compatibility with any architectural concept — from traditional through contemporary.

Discover how Moldcast's innovative lighting systems will improve your community.



MOLDCAST LIGHTING

A Division of Wylain, Inc.

Interstate 80 at Maple Ave., Pine Brook, New Jersey 07058 201/575-7117

For more data, circle 93 on inquiry card



**YOU NOTICE
NEENAH
CASTINGS
AROUND
THE
WORLD**

Architects, designers
and planners know
Neenah castings are found
in Pakistan, Kuwait, Turkey,
South Africa, Argentina, Bahamas
. . . and from Paris to Pittsburgh.

They know Neenah makes the finest quality castings: from gray iron manhole covers . . . to ductile iron airport drainage grates . . . to decorative tree grates . . . and a complete line of building castings.

But did you know Neenah has thousands of design variations to choose from? Over 100 years of experience? Three modern plants?

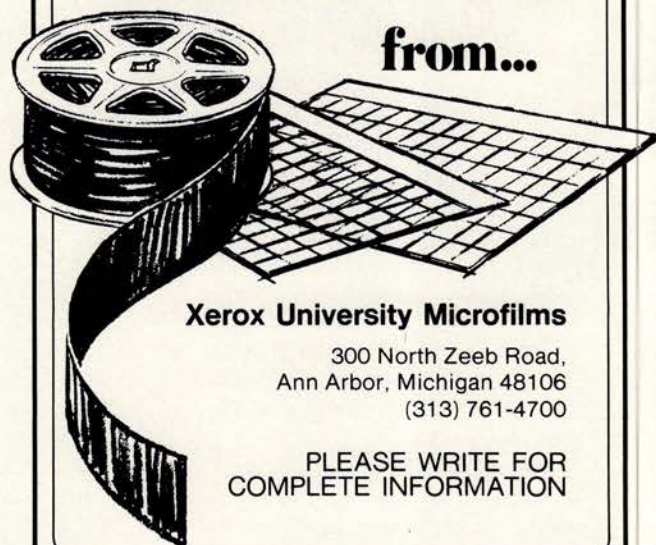
*Write or call for the most complete construction castings catalog,
Neenah's 296 page Catalog "R", 7th edition.*

NEENAH INC.
FOUNDRY COMPANY

NEENAH, WI 54956 Phone: 414-725-3041
Jobbers in most principal cities

**This
Publication
is Available in
MICROFORM**

from...



Xerox University Microfilms

300 North Zeeb Road,
Ann Arbor, Michigan 48106
(313) 761-4700

**PLEASE WRITE FOR
COMPLETE INFORMATION**

♦ *For more data, circle 94 on inquiry card*

SAVE MONEY ON YOUR NEXT BUILDING. HAVE IT BUILT BY HAND.



Handmade masonry buildings do cost less. But how?

The mechanics of creating walls with mortar and brick, or block, or stone have changed little over the centuries. But technology in the production of masonry products has improved radically. So has on-site automation of materials handling. And so has masonry craftsman efficiency.

The exactness and flexibility of masonry construction avoids the expensive on-site refitting necessary with some materials. The mason can adapt to on-site construction variables. So he can save time. And money.

With prefabricated masonry panels, a building goes up even faster. Yet, the integrity of materials and the advantages of handmade quality and beauty are not forfeited.

Some modern masonry systems, such as engineered loadbearing masonry, are proving to be among the most economical building systems ever developed. They boast low initial costs which allow any project budgeter to rest easy.

Of course, initial cost savings are only part of masonry's economy story. Operating costs are nearly *always* significantly

less for a masonry building. Once built, masonry construction savings build and build.

It all adds up to less—less initial cost, less operating cost.

Have your next building built by hand. By bricklayers. And save.

For more information about a masonry system that will lower your building costs, write to IMI.



**INTERNATIONAL MASONRY
INSTITUTE**

Suite 1001, 823 15th St., N.W.,
Washington, D.C. 20005,
(202) 783-3908

The Mason Contractors and Bricklayers
Union of the USA & Canada.

For more data, circle 95 on inquiry card



For your inspiration, information and pure pleasure. Books from Architectural Record.

INTERIOR SPACES DESIGNED BY ARCHITECTS

edited by Barclay F. Gordon
256 pages • 800 illus. • \$27.50

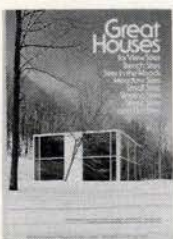
Here in one volume you'll discover how the most modern of modern architects have created interior spaces for a vast range of functions. You'll see school rooms, business offices, commercial areas, dining and performing arts facilities, places of worship, homes, and community centers. And you'll find an abundance of imaginative, innovative ideas for both new constructions and renovations.



GREAT HOUSES for View Sites, Beach Sites, Sites in the Woods, Meadow Sites, Small Sites, Sloping Sites, Steep Sites, and Flat Sites

edited by Walter F. Wagner, Jr.
230 pages • illus. • \$18.50

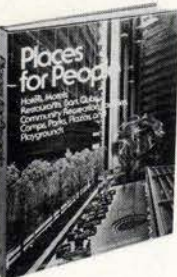
Discover some of the most exciting houses ever built in this collection of custom-designed homes inspired by their surroundings. Imaginative solutions to a wide range of design problems are detailed in the numerous exterior and interior photographs of each house. Plus, for every selection, there is an explanation of the design characteristics of the particular type of house and site, describing exactly how the design works and what its most important features are.



PLACES FOR PEOPLE Hotels, Motels, Restaurants, Bars, Clubs, Community Recreation Facilities, Camps, Parks, Plazas and Playgrounds

edited by Jeanne M. Davern, Hon. AIA
255 pages • illus. • \$19.50

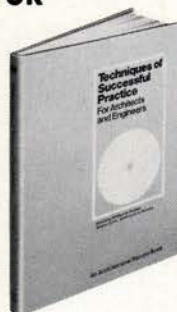
This lavishly illustrated book is packed with ideas for hotels, restaurants, and recreation facilities. Included are case studies of 28 outstanding recent hotels and motels (including some extraordinary "grand hotels"), 16 recent restaurants, bars, golf and tennis clubs, and 16 truly innovative facilities for recreation and leisure-time activities. Bursting with more than 570 photographs, drawings, and plans, this is an invaluable guide to the latest trends in facilities for public accommodations and leisure pursuits.



TECHNIQUES OF SUCCESSFUL PRACTICE FOR ARCHITECTS AND ENGINEERS, 2nd Ed.

edited by William B. Foxhall
176 pages • 71 illus. • \$16.50

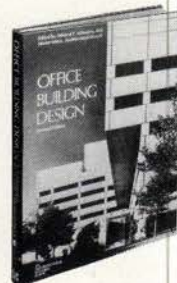
Here's a guide to the business side of architecture. Includes practical advice on everything from how to decide the right mode of practice to how to meet legal and accounting problems of interstate practice, how to spot and land jobs that will help you grow, how remodeling assignments can lead to good profits, how to set up an effective financial plan, how to attract clients, and how your practice can benefit from the use of computers. You'll learn all this and much more—all of it aimed at helping you expand your clientele and increase your profits.



OFFICE BUILDING DESIGN, 2nd Ed.

edited by Mildred F. Schmertz, AIA
208 pages • illus. • \$25.50

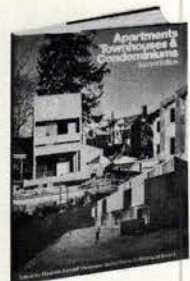
Since 1970 more than 500 billion square feet of new office space has been built in this country alone. Now you can explore the best designed office buildings of the decade in this one idea-packed volume. With hundreds of photographs, sectional diagrams, floor plans, and other illustrative aids, you'll find this volume an invaluable problem-solving reference. It provides today's most needed information on current trends in office building design and the most significant technological advances of the decade for both low- and high-rise structures. In every way this carefully researched book will meet your concerns—esthetic, technological, economic, and sociological—in both building design and engineering.



APARTMENTS, TOWNHOUSES AND CONDOMINIUMS, 2nd Ed.

edited by Elisabeth Kendall Thompson, FAIA
216 pages • illus. • \$21.95

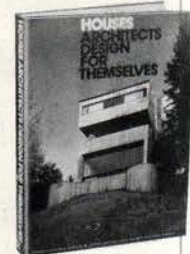
Hundreds of superb photos adorn this unique collection of the best apartments, townhouses, and condominiums—from single-family units to high-rise buildings. The 83 projects detailed here offer you numerous stimulating ideas for solving planning and design problems. The examples are taken from all over the country—showing what can be achieved within a realistic budget with the right combination of imagination, ingenuity, and concern for the humanness of design.



HOUSES ARCHITECTS DESIGN FOR THEMSELVES

edited by Walter W. Wagner, Jr. and Karen Schlegel
240 pages • illus. • \$17.95

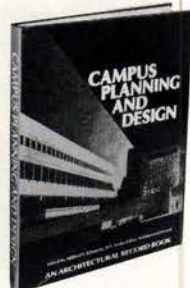
Creative design ideas from today's leading architects show that great sums of money aren't always necessary for great results. Depicted here in dramatic photographs showing exteriors, interiors, unusual space arrangements, and interesting details, these projects are personal statements by some of our most outstanding young architects. Organized according to their "starting points," the book examines sites, costs, family needs, responses to tradition, particular planning ideas, and unusual problems faced by the designer—all factors that helped determine the final design conception.



CAMPUS PLANNING AND DESIGN

edited by Mildred F. Schmertz, AIA
264 pages • 710 illus. • \$27.50

Informative, stimulating ideas for both the expansion of existing campus facilities and the development of new ones are included in this thought-provoking book. Here's the last word on how to design flexible prototypes for specialized buildings, expansible systems for the whole campus, well-scaled open space, new construction that fits in well with existing traditions, and much, much more. Drawings, specifications, descriptions, and a vast array of photographs show just how particular planners have dealt with the most widely encountered problems of campus design.



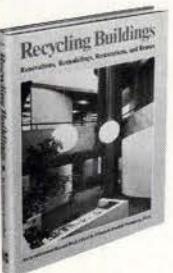
NEW FOR 1977

RECYCLING BUILDINGS

Renovations, Remodelings, Restorations, and Reuses

edited by Elisabeth Kendall Thompson, FAIA
213 pages • illus. • \$19.50

Innovative solutions to "new use" problems are presented in this beautifully illustrated book, covering every major building type and every section of the country. You'll learn why remodeling isn't just a matter of preserving historical sites, but also a viable alternative for living and working. You'll see outstanding examples of building reuse, complete with plans. And you'll find out how various technical problems were solved and what the project cost in time and money. Remodeling and renovation of existing buildings is one of the fastest growing trends in architecture today. With **Recycling Buildings**, you'll learn all the latest techniques in this exciting field.



10-DAY FREE EXAMINATION OFFER

Architectural Record, 1221 Ave. of the Americas, New York, N.Y. 10020 AR-6-77

Please send me the book(s) checked below on a 10-day free examination basis, after which time I will remit the full price, plus local tax, postage, and handling for the book(s) I keep, and return any other book(s) postpaid. I understand that if I remit in full with this order, plus local tax, McGraw-Hill pays all regular postage and handling, and that return privileges still apply.

This offer good only in U.S., and is subject to acceptance by McGraw-Hill.

- ☐ (002201-1) Places for People. \$19.50
- ☐ (002214-3) Houses Architects Design for Themselves. \$17.95
- ☐ (002216-X) Campus Planning and Design. \$27.50
- ☐ (002220-8) Interior Spaces Designed by Architects. \$27.50
- ☐ (002229-1) Techniques of Successful Practice for Architects and Engineers, 2/e. \$16.50
- ☐ (002314-X) Great Houses. \$18.50
- ☐ (002320-4) Office Building Design. \$25.50
- ☐ (002321-2) Apartments, Townhouses, and Condominiums, 2/e. \$21.95
- ☐ (002335-2) Recycling Buildings. \$19.50

Name _____

Address _____

City _____

State _____

Zip _____

Please initial _____



23K369-2002-3

Clear Lake School: Trus Joist exposes some new subject matter.

Youngsters attending this elementary school in Eugene, Oregon, learn more than the 3R's . . . they learn the ABC's of building. Exposed structural elements, bright color-coded plumbing, a glass-enclosed boiler room and super graphics all conspire to make learning fun . . . from a kid's-eye-view.

Architectural innovations like this are elementary for Trus Joist. The unusual entry, with its angled, sloped and exposed TJL's was an easy task for Trus Joist's advanced engineering. The 65' spans required for the gymnasium were provided by lightweight TJ/60's-exposed and pitched to a 36"/56"/36" depth.

With Trus Joist, service is all part of the package. Our technical representatives and engineers will give you all the assistance you need, from computer design to delivery coordination and inspection. So for economical solutions that go beyond the ABC's of building, call on us.

Architect: Ken Morin and Associates

Engineer: John H. Herrick, P.E.

Consulting Structural Engineers Inc.

Contractor: V. A. Harding Construction Co.

**Specify Trus Joist.
We've got our system
down to a science.**

For more data, circle 96 on inquiry card



TRUS JOIST CORPORATION

P.O. Box 60, Boise, Idaho 83707

Designing in daylight – with glazing of

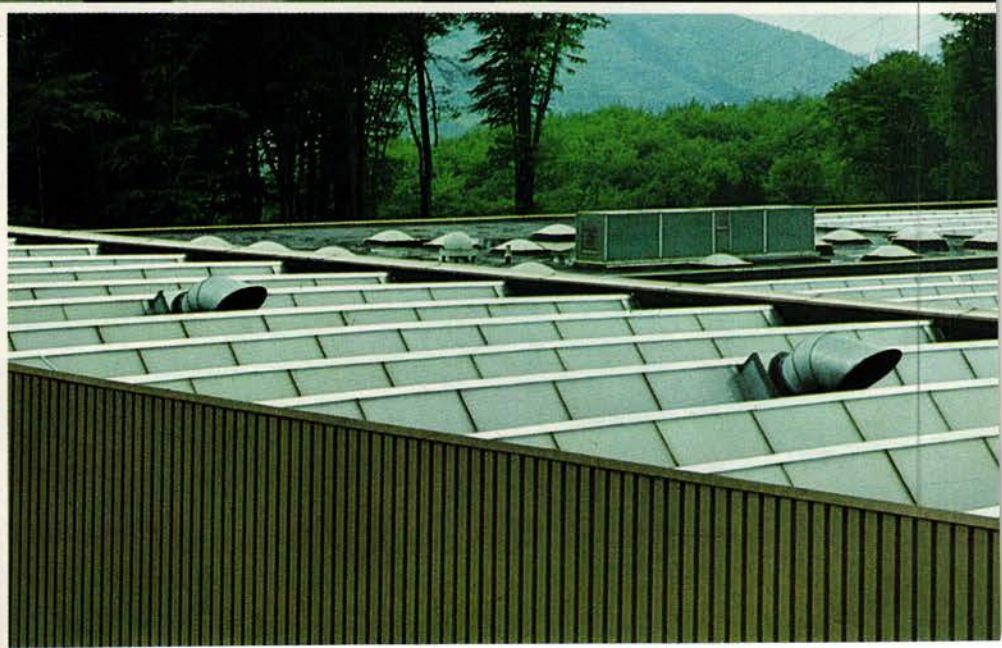
Economy and beauty in custom or standard designs. For large area industrial and commercial applications. Offices. Institutional buildings. Homes. Hobby houses. Swimming pool enclosures. Athletic complexes. New construction and renovations. ACRYLITE SDP double skinned acrylic sheet provides

- outstanding thermal insulation
- high rigidity and load strength
- impact resistance
- excellent weatherability
- light weight
- easy workability
- thermoformability

Combined in a versatile, high performance glazing architectural sheet, these properties mean new freedom for designers, built-in savings for builders and owners. ACRYLITE SDP double skinned acrylic sheet opens the way to new construction economies.

Light weight and high rigidity permit wide spacing of framing members. Extensive prefabrication is possible. Transporting prefabricated units becomes feasible.

Integral ribs form a series of air cells that provide excellent thermal insulation, durability and impact resistance.



ACRYLITE® SDP* double skinned acrylic sheet

Daylights and window walls of ACRYLITE SDP sheet let daylight in to reduce lighting costs, and retain heat with a U factor equal to insulated glass. At less cost.

Our time tested glazing system is a fast, efficient package, consisting of ACRYLITE SDP sheet in 47-1/4" widths and lengths to 24', and specially designed aluminum fittings.

And if that's not enough, the rib structure of ACRYLITE SDP sheet offers esthetic versatility. Unique visual effects, with flexibility to tailor light transmission to specific applications. In non-yellowing clear, solar bronze and translucent white, it

expands the range of architectural possibilities. In short, designing in daylight, at significant economies.

As with all construction materials, follow your local building codes carefully. For more information on ACRYLITE SDP double skinned acrylic sheet and our glazing system, contact CY/RO today. Call or write

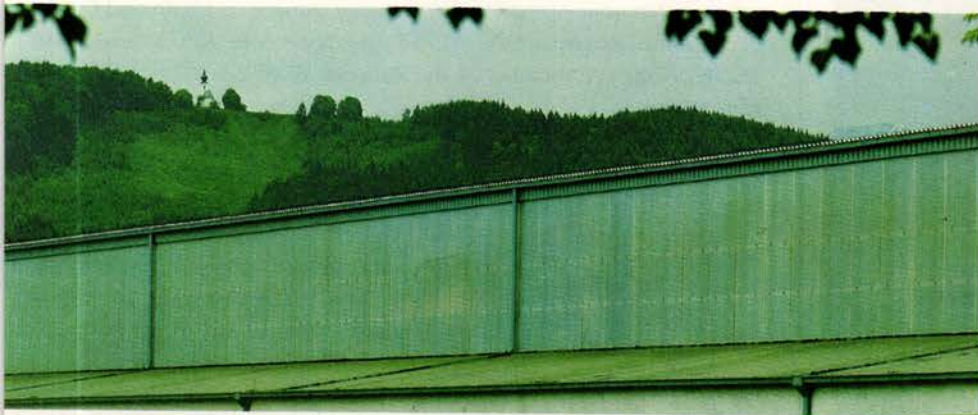
Lou Cipriani, CY/RO Industries,
Berdan Avenue, Wayne, N.J.
07470 (201) 839-4800. *Trademark



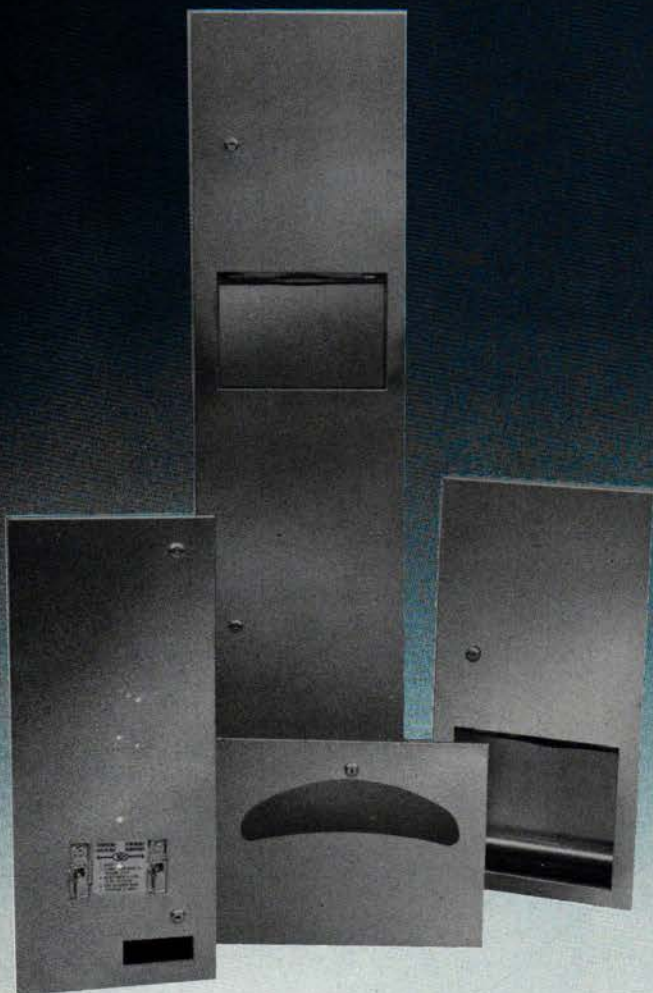
A Partnership of
Cyanamid Plastics, Inc. and Rohacryl, Inc.

CY/RO — making news in transparent plastics.

For more data, circle 97 on inquiry card



Washroom Units Designed For What They Stand For...



Cleanliness.

Unlike conventionally designed washroom units, which have seams, miters, and exposed hinges, Parker CONCEALALL units can be kept clean with a minimum of effort. Areas where dust and dirt normally accumulate are eliminated from the stainless steel dispensers shown. All feature one-piece full panel doors and concealed stainless steel piano hinges. For washroom equipment that's easy to keep as clean as it should be, choose Parker CONCEALALL units.



290 PRATT STREET MERIDEN, CONNECTICUT 06450 (203) 235-6365

For more data, circle 98 on inquiry card

AE/UPDATE

A classified advertising section devoted to helping architects and engineers keep up to date on building product manufacturers.

FREE HANDLING SYSTEM PLANNING KIT.

An invaluable aid to help you analyze, evaluate, plan, organize and estimate your handling system needs. The kit contains 23 separate items designed to give you an unusually comprehensive understanding of all facets of an automated handling system for hospitals and related institutions—and its potential value within your operation. Write today, American Chain and Cable Co., Chain Conveyor Div., 12755 East Nine Mile Rd., Warren, MI 48089. Acco is a member of the Babcock & Wilcox, Limited Group of Companies.



36-13-324

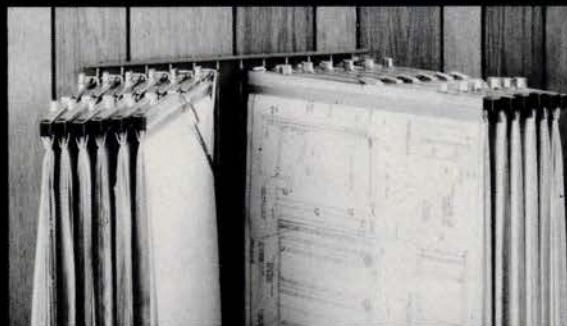
For more data, circle 99 on inquiry card

RECORD IMPRESSIONS CATALOG

SEND FOR A COMPLETE, DETAILED CATALOG of "Record Impressions." A convenient service offering reprints of Building Type Studies, Interiors and Special Reports. Offered are more than 50 items including back issues of Record Houses; Product Reports and the practical reference guide, "Air Conditioning: A New Interpretation." Address your request to: Record Impressions, Architectural Record, P.O. Box 501, Princeton Road, Hightstown, New Jersey 08520.

For more data, circle 99 on inquiry card

Space Program.



SAVE 80%. Your old horizontal filing can take as much as 5 times the space needed by our vertical system.

The secret to success is our binder. It holds plans securely, opens and closes easily, is clearly indexed—and lifts out and slips back so simply you save not only space, but time.

Binders fit a variety of housings—wall racks, cabinets, file/table combinations.

Start your space program. Send for our catalog.



PLAN HOLD
TIMES MIRROR

17621 Von Karman Avenue, Irvine, California 92714

For more data, circle 100 on inquiry card



Project: Coastal Industries Office Building, Bath, Ohio Architect: Perkins & Will, Washington, D.C. Curtain Wall Erector: Handcraft Metals Corp., Cleveland, Ohio

Alcoa Alply Insulated Panels offer you custom design flexibility.

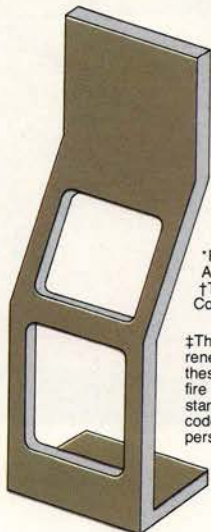
Why settle for less?

If aesthetic freedom and energy conservation are important to you and your client, then we suggest you contact us for your nearest Alcoa Alply* panel regional distributor, who offers you single-source responsibility — everything from engineering to the completed wall system, in place, with integral fenestration, interior and exterior finish and thermal insulation.

No other insulated modular wall offers all these choices for low- to middle-rise buildings:

Exterior and interior skins: aluminum, stainless steel, hardboard, plywood, cement-asbestos — you name it.

Finishes: four standard finishes and 18 colors, including Super Alupalure* baked-on, factory-applied fluoropolymer enamels . . . Alupalure baked-on synthetic resin enamels . . . Alumilite† electrolytic coatings in natural aluminum . . . Duranodic† hard-coat finishes in three integral bronze shades and three new integral gray shades.



*Registered Trademark of Aluminum Company of America
†Trade Name of Aluminum Company of America

‡The use of polyurethane, polystyrene and isocyanurate cores in these applications may present a fire hazard under certain circumstances. Consultation with building code officials and insurance company personnel is recommended.

Panel cores: polystyrene, polyurethane, isocyanurate‡ or other materials, depending upon project requirements.

Wide range of panel sizes: up to 5 feet wide, 18 feet long.

Variety of shapes: panels can be shop-formed to almost any three-dimensional shape desired.

Choice of joining systems: Alcoa's patented Snug Seam* caulking, splines, battens or frames.

Variety of cutouts possible: to accommodate windows, doors, sloping grade lines, walkways, difficult contours, parapets.

Whatever you're designing, let our regional Alcoa Alply panel distributors help. They know a great deal about wall systems, finishes, industrial roofing and siding and other low- and middle-rise construction problems. For further information, write: The Stolle Corporation, Aluminum Company of America, 1075-F Alcoa Building, Pittsburgh, PA 15219.

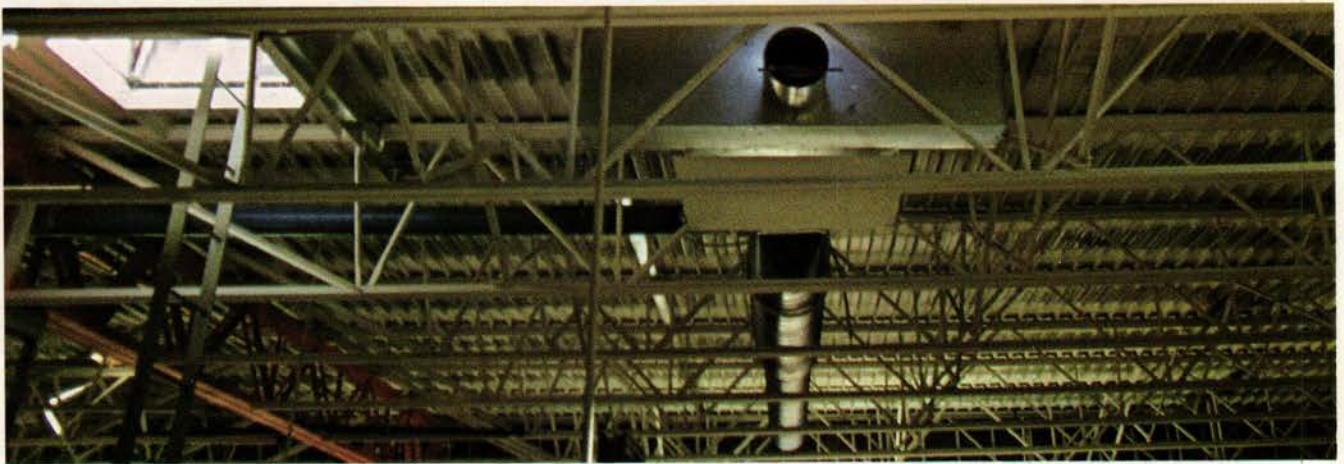
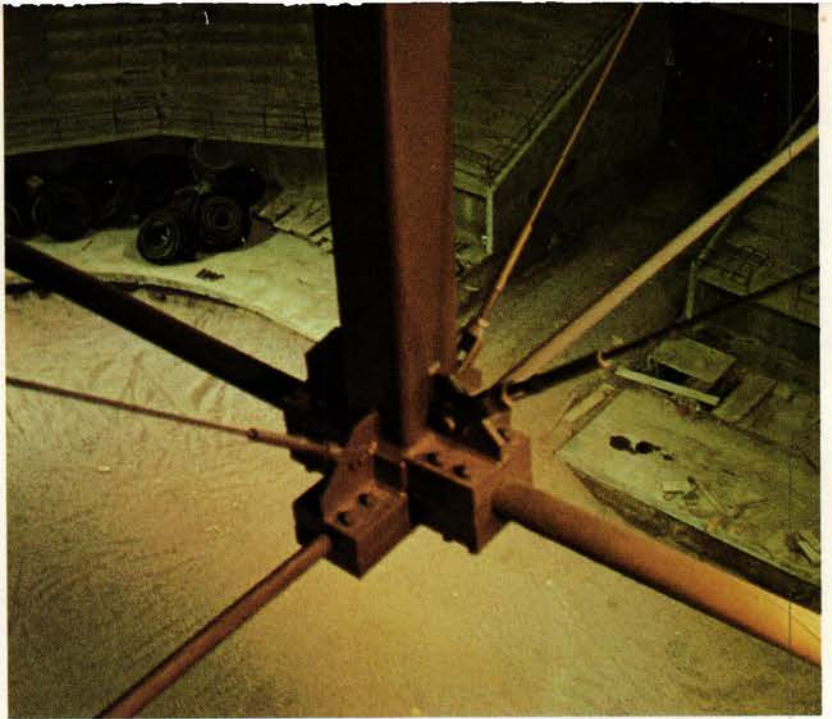
The Stolle Corporation A Subsidiary of Aluminum Company of America

For more data, circle 101 on inquiry card

Coming in mid-August

Architectural Record's presentation
of the year's most significant developments
in engineering for buildings

ENGINEERING FOR ARCHITECTURE



- Architectural Record's *Engineering for Architecture* issue is devoted in its entirety to a comprehensive annual survey and analysis of significant achievements and trends in engineering for buildings. It offers an exceptional advertising opportunity for manufacturers of building products because it provides . . .

- The largest paid architect and engineer subscriber audience ever made available to advertisers—some 45,000 architects and engineers.

- A unique all-building engineering issue that "wraps it up" for engineers in building and at the same time helps their clients (architects) gain maximum benefit from the technical expertise available to them.



- An editorial approach that attracts optimum engineer readership not only because of its informative features but also because of its advocacy of wider and wiser use of engineering capabilities.
- Outstanding coverage of the conceptual engineer in building—the engineer who works with the architect to make good design technically and financially feasible.
- High architect readership of an issue that provides, all in one place, a rundown of the most important developments in engineering for architecture—and architects.
- Bonus distribution to newly active Dodge-qualified engineers.

Make your plans now to be a part of this important issue.

Closing date for advertising: July 15





The Beaten Path

Contract carpets that pass our tough wear tests can handle most any traffic problem.

That's because we simulate actual high traffic conditions in our lab before we allow carpets made of Dow Badische fibers and yarns to carry our Performance Certification Label.

First, we put the unpadded sample carpet through many electronically-recorded "walk-ons." This Stair Tread Wear Test shows us if the carpet has a high degree of resistance to matting and soiling.

Then we put it through our Tetrapod Test, which simulates the kind of severe abrasion conditions a carpet would receive in year-in and year-out use.

These are just two of many critical performance and appearance retention tests a carpet must pass in order to be a Dow Badische Performance Certified product.

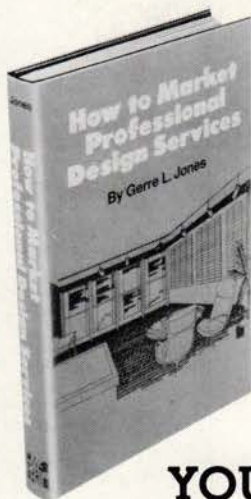
Next time you specify contract carpet, make sure it bears the Performance Certification label. Then you know it can take the daily grind in stride. For further help with your carpet specifying problems, contact our Contract Carpet Consultants Service and ask for our Contract Carpet Selection and Specifications Guide.

Dow Badische Company, Create Center
Williamsburg, Va. 23185
(804) 887-6573

**PERFORMANCE
CERTIFICATION**



Dow Badische produces acrylic and nylon fibers and yarns especially engineered for carpets of beauty and performance.



MARKET YOURSELF AND YOUR DESIGN IDEAS MORE SUCCESSFULLY WITH THIS POPULAR RESULTS-GETTING BOOK

**YOURS
FOR ONLY
\$1.00**

Regular \$18.50 value

when you buy these 4 big
"how-to" books for architects

Get this \$18.50 value for only \$1.00 when you purchase the LIBRARY OF ARCHITECTURAL PRESENTATION

HOW TO MARKET PROFESSIONAL DESIGN SERVICES

by Gerre L. Jones. 384 pages

You'll find the contents of this idea-packed book as exciting as the savings. This invaluable guide helps you find prospects for your design ideas, sell them through carefully planned presentations and proven follow-up techniques, and effectively use public relations to build up your firm's image and reputation. It's the perfect companion to this four-volume set of architectural reference books. And it's yours for **ONLY \$1.00** when you buy McGraw-Hill's LIBRARY OF ARCHITECTURAL PRESENTATION for \$59.75.

These practical skill-sharpeners belong at every architect's fingertips!

McGraw-Hill's LIBRARY OF ARCHITECTURAL PRESENTATION features the most effective presentation techniques used by the country's leading architectural professionals.



McGraw-Hill Book Company
P.O. Box 400
Hightstown, New Jersey 08520

Step by step these top architects show you exactly how they save time, cut costs, and create successful and dramatic presentations that win over clients every time!

Each lavishly illustrated volume in this complete, ready-reference library is filled with reliable ways to help you sell your designs.

You'll learn how to:

- draw "bird's eye" and "common eye level" perspectives
- design models for large planning projects
- draw window details keyed to various elevations
- use color to produce specific psychological effects in your presentations
- construct curves the easy way
- create special effects such as water, lighting, landscaping, and other realistic details
- choose the right techniques for each design
- photograph models indoors and out
- construct a model wall section to give the same effect as a working wall section
- organize your plans for maximum efficiency
- create the desired mood in your presentations

No architect—veteran or novice—should be without this invaluable quartet of practical, on-the-job aids featured in the McGraw-Hill LIBRARY OF ARCHITECTURAL PRESENTATION.

LIBRARY OF ARCHITECTURAL PRESENTATION

ARCHITECTURAL DRAWING AND PLANNING, 2nd Ed., by William T. Goodban and Jack J. Hayslett. 310 pages.

Over 180 illustrations

Here's a step-by-step guide you can use to originate and evolve your building designs and put them on paper quickly and accurately. All the most important techniques and specifications are here, with exact-scale drawings, from the initial rough sketches through special requirements such as traffic patterns, elevation allowances for local conditions, drafting of floor plans, and much more. It's everything you need to produce drawings of high professional quality.

PROFESSIONAL PERSPECTIVE DRAWING FOR ARCHITECTS AND ENGINEERS, by Friedrich W. Capelle. 164 pages. 152 illustrations

This volume fully illustrates a special perspective drawing technique that uses simple mathematical formulas and saves you countless hours at your drawing board. The book's methodical presentation of 10 different station points, all demonstrated with the same subject, gives a wide choice in selecting the appropriate perspective for your purposes. It also includes a formula for the projection of high-rising structures, methods of drawing perspectives with common eye and bird's eye levels, and time-saving methods for construction curves.

ARCHITECTURAL RENDERING, The Techniques of Contemporary Presentation, 2nd Ed., by Albert O. Halse. 326 pages. 318 illustrations

After you've developed your design and selected your perspective, you face the most crucial aspect of your presentation: rendering.

This authoritative volume covers every aspect of this difficult and vital skill. You'll find the answers to every question you may have on delineation, from what medium to use on a particular design, to the size of matting best suited for the finished product. An invaluable guide for executing realistic, distinctive, and mood-setting portrayals of any type of architectural design.

MODEL BUILDING FOR ARCHITECTS AND ENGINEERS, by John R. Taylor. 152 pages. 185 illustrations

This volume covers the ultimate weapon in the architect's successful presentation arsenal: the model. It shows in precise detail how to build impressive, accurate, realistic models of all kinds with minimum expenditure of time, effort, and money. The book also includes special guidance on structural, planning, and interior models . . . landscaping . . . using Urethane foam contours . . . building your own heliodon . . . and much more. Never before has so much practical, up-to-date information on this important subject been presented in such a clear, easy-to-follow working guide.

The combined
retail cost
of these books
is **\$85.35.**

You save
\$25.60!

15-DAY FREE EXAMINATION OFFER

Send me the 4-volume McGRAW-HILL LIBRARY OF ARCHITECTURAL PRESENTATION (095440-2) complete for \$59.75, and the special bonus book, HOW TO MARKET PROFESSIONAL DESIGN SERVICES, (032800-5) for just \$1.00, on a 15-day free examination basis. At the end of 15 days, I will either remit payment of \$60.75 in full, plus tax, and handling charges, or return the library and bonus book to McGraw-Hill postpaid without further obligation. I understand that if I remit in full with this card, plus tax, McGraw-Hill pays all regular postage and handling charges and full return privileges still apply. This offer good only in U.S. and subject to acceptance by McGraw-Hill. Please make all checks payable to McGraw-Hill.

NAME _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

Please initial _____

N145-2017 3

You haven't got a lot of time to think about water coolers? Ask us to help.

Call Louis Benua.

Louis Benua is the president of our company.

And yes, he has more important things to do than answer the phone all the time.

On the other hand, if our customers or prospective customers need more information before specifying their water coolers, nothing is more important to him.

So call Louis if you have any questions about Oasis water coolers. And if it takes a follow up call to handle your problem, he'll have someone

get in touch with you immediately. And that man can help you in a dozen different ways. He can explain, for instance, how Oasis is the water cooler that's built without shortcuts. Or tell you about our new Wheelchair Model with its "Soft Touch" control, perfect for serving the handicapped as well as everyone else. Or about all the different colors and styles and finishes Oasis can offer you. Or about —

But that's enough for now. Let's leave something for Louis. Call him at 614/861-1350.

Oasis 
The word for water coolers.

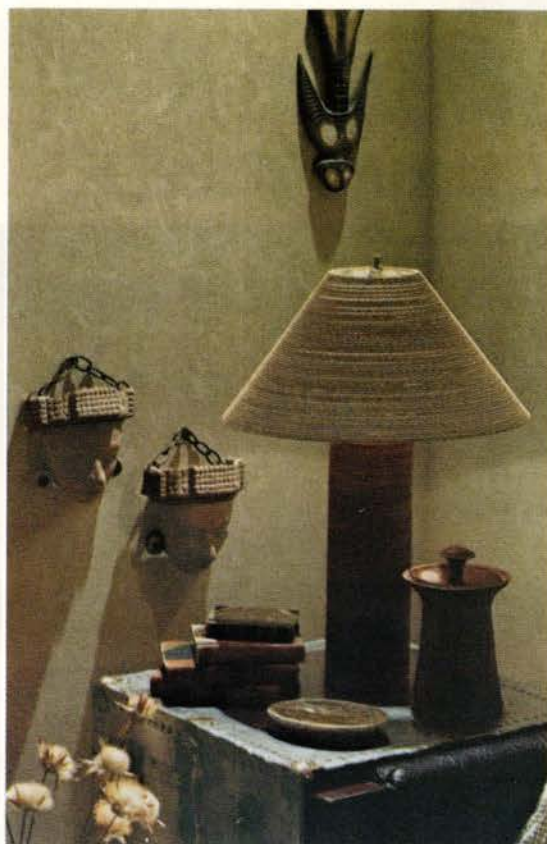


EBCO Manufacturing Company, 265 North Hamilton Road, Columbus, Ohio 43213

For more data, circle 103 on inquiry card

**Let our rainbow
color your thinking.**





Florentine Atrium

We've captured Nature's rainbow. Multiplied it 37 times to give you an array of 222 beautiful colors. Everything from vibrant reds and brilliant yellows to muted greens and soft earth tones.

They're all in BFGoodrich's new Korolite™ Rainbow Collection. A full line of lightweight commercial Koroseal® vinyl wallcoverings.

The best designs, patterns, and textures of our previous Korolite collections. Plus many new styles. The exciting Mandarin. The refreshing Florentine. And the delightful Lively Lines.

Hundreds of different solutions for offices, hotels, motels, or suite improvements and renovations.

Korolite wallcoverings are made of tough durable fabric backed vinyl to stay beautiful and attractive. They're heavier than most other Type 1 materials so they can handle a lot more punishment.

Vinyl means easy cleaning and maintenance too. Colors won't fade. So Korolite's original beauty lasts longer. And you won't be faced with costly painting.

While you're discovering our new Korolite Rainbow Collection, look into BFGoodrich's heavy-weight commercial wallcoverings. For commercial & residential uses, see our Elegance in Textures™ and Textures Unlimited™ wallcovering books.

Check Sweet's for your nearest BFGoodrich distributor. Or write, The BFGoodrich Company, General Products Division, 500 South Main Street, Akron, Ohio 44318.



Lariat Buckskin



Mandarin Yangtze



Harborweave Hollywood Red



Mandarin Buddha

BFGoodrich

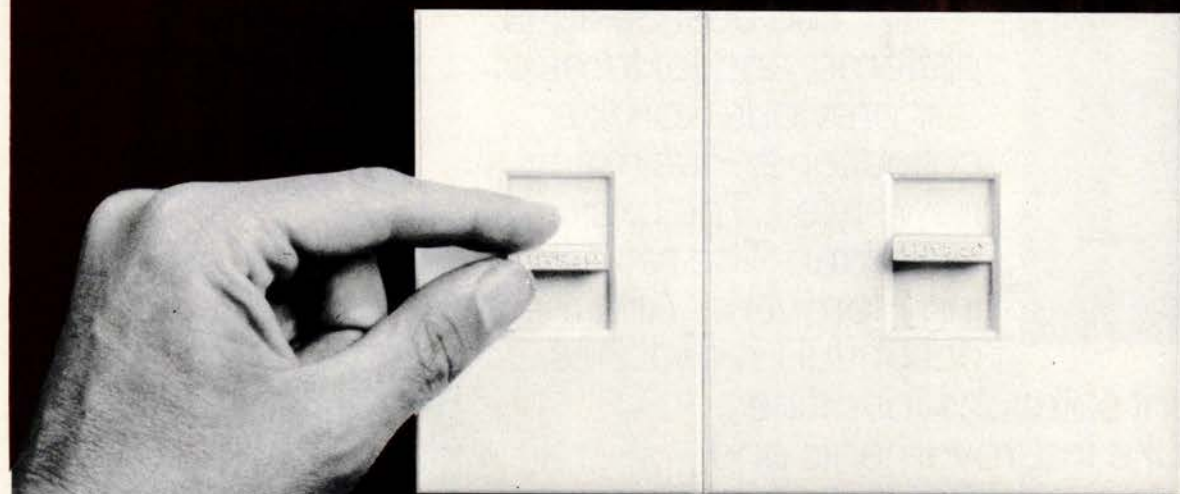
For more data, circle 104 on inquiry card

NOVATM

PAT. #3,735,020 & others pending.

THE **ARTICULATE** ARCHITECTURAL DIMMER

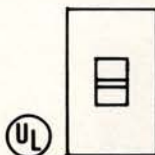
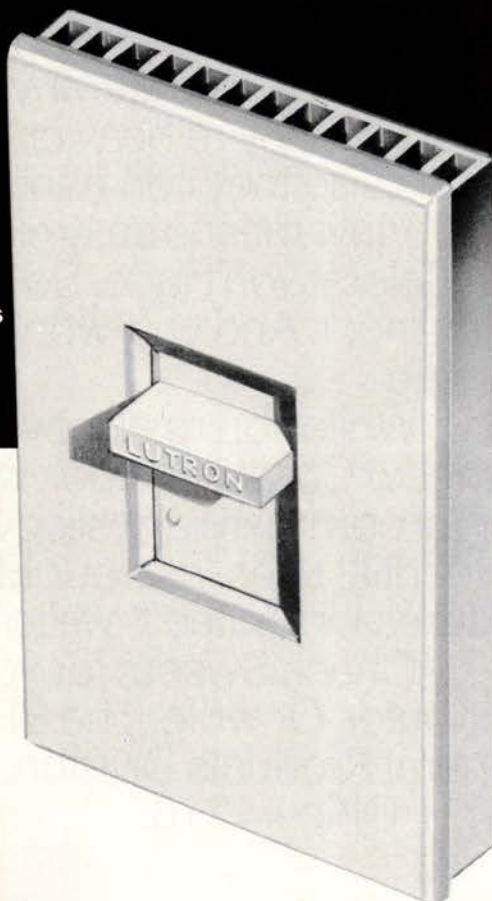
... time has long passed when lighting was only meant to illuminate ... Today's sophisticated architects can now design lighting for anticipated activity. The LUTRON NOVA DIMMER makes possible an environment which literally speaks ... quietly, boldly, joyfully, subdued ... precise lighting for every occasion ... to enhance any setting ... professionally ... as dramatic as theater* ... perfect for institutional, commercial or residential design.



Now, only LUTRON, has created this ultimate in styling and design ... an award-winning contemporary, calibrated linear slide control dimmer which provides perfect light control with a smooth, velvet touch.

LUTRON's uniquely designed NOVA dimmers are available for both FLUORESCENT and INCANDESCENT lighting ... NOVA's precise engineering allows for any combination to be ganged without breaking off hidden fin sections and meets tough UL standards in all models.

*features SQUARE LAW DIMMING previously available only in expensive theatrical equipment.



INCANDESCENT
600/1000 Watts
FLUORESCENT
10 Lamps



INCANDESCENT
1500/2000 Watts
FLUORESCENT
20/30 Lamps



COLORS

Besides standard white, faceplates available in black, brown, beige, gold and woodgrain. Colors matched upon request. Engraving, too!

TAMPERPROOF

All NOVA dimmers available in TAMPERPROOF models to prevent vandalism of faceplate and slide control.

SWITCHES

NOVA switches provide decorative coordination with NOVA dimmers. Single pole, 3-way, 4-way.

LUTRON[®]

COOPERSBURG PA 18036

IN CANADA RENFREW ELECTRIC CO LTD

For more data, circle 105 on inquiry card

flat files

For flat storage of drawings, blueprints, maps, charts, photos. Hinged paperweight on front, hood on back of drawer prevent edges of paper from curling. Each cabinet has five drawers. Steel cabinets stack to any desired height. Three sizes, in Gray or Desert Sand baked-on enamel.

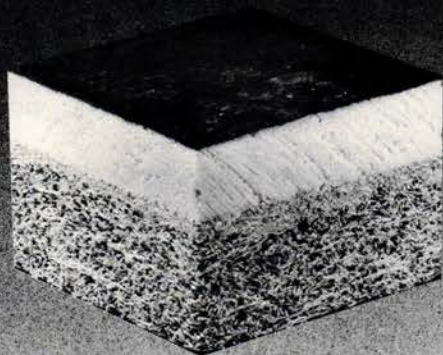
Write for free catalog.
LYON METAL PRODUCTS, INC.
671 Monroe Avenue
Aurora, Illinois 60507



LYON METAL PRODUCTS

For more data, circle 106 on inquiry card

PetriCal/Urethane SAVES MORE THAN ENERGY



PetriCal/Urethane is a new insulated roof deck or wall panel developed by the Cornell Corporation which dramatically lowers a building's energy requirements—to a U factor as low as 0.066, with a single panel & built up roofing.

PetriCal/Urethane has a foam core of the highest quality which eliminates the problems of on-site foam application saving costly man-hours.

PetriCal/Urethane is a composite board of PetriCal® structural cement fiber integrally bonded to urethane foam, with a top layer of asphalt-saturated 15-lb. roofing felt, which gives both beauty and durability.

Write or call for new PetriCal/Urethane brochure.

CORNELL CORPORATION
Cornell, WI 54732 (715) 239-6411

For more data, circle 107 on inquiry card

Operable Kwik-Walls strong, silent types



Sound retardant, movable walls with that permanent look.

Beauty and function combine in easy-to-handle Kwik-Wall operable walls. The widest selection of patterns and colors to blend with the decor of any room. Long wearing materials, including laminated plastic and vinyl, keep the walls good-looking, even through hard use. Options, like matching doors, add the finishing touches.

Kwik-Wall's solid construction dampens and absorbs sounds. Each divided room becomes a private room.

And rooms are divided quickly, easily by your own personnel.

Send today for free catalog.



Kwik-Wall® Company, Dept. 42
P.O. Box 3267, Springfield, Illinois 62708

Name _____

Title _____

Firm _____

Address _____

City/State _____ Zip _____

For more data, circle 108 on inquiry card

Gives you hundreds of innovative, profitable ideas for buildings and facilities for leisure pursuits

PLACES FOR PEOPLE

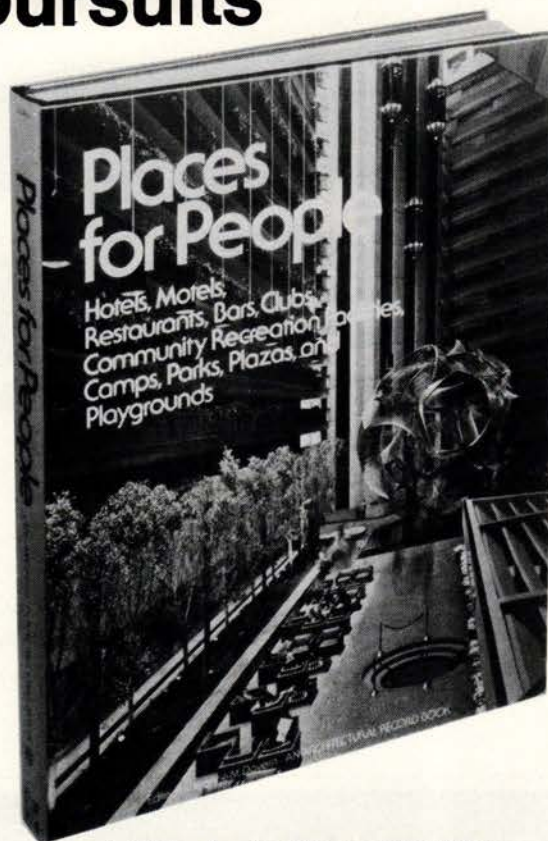
Hotels • Motels • Restaurants • Bars • Clubs • Community Recreation Facilities • Camps • Parks • Plazas • Playgrounds

Edited by

JEANNE M. DAVERN, Hon. AIA

244 pages • 345 photographs • 234 drawings and floor plans • 9 x 12 format • \$19.50

An Architectural Record Book



Articles by leading authorities

Articles by leading authorities guide you through the planning considerations for successful resort hotels and for efficient "back-of-the-house" service areas that result in smoothly running motels and hotels. A special report explores Hawaii's imaginative response to the need for long-range planning for the preservation and enjoyment of the state's natural wonders. Based on recent articles from *Architectural Record*, **PLACES FOR PEOPLE** is a sequel to the best-selling Architectural Record Book of all time, *Motels, Hotels, Restaurants and Bars*, now out of print.

At your bookstore, or use coupon below

10 DAYS' FREE EXAMINATION AR-6-77

Architectural Record

1221 Avenue of the Americas
New York, New York 10020



Please send me Davern's **PLACES for PEOPLE** (002201-1) for ten days on approval. In ten days I will either remit \$19.50 plus any local tax, postage, and handling costs, or return the book postpaid without further obligation.

Name _____

Address _____

City _____

State _____ Zip _____

SAVE MONEY! Remit in full with this coupon, plus any local tax, and McGraw-Hill pays regular postage and handling costs. Same return and refund privileges still apply. Offer good only in the U.S. and subject to acceptance by McGraw-Hill.

23K356-4005-3

BURSTING WITH PHOTOGRAPHS and plans of some of the best contemporary architecture, **PLACES FOR PEOPLE** reports on the latest trends in facilities for public accommodations and leisure-time activities. Lavishly illustrated case studies provide compact surveys of each building or facility, its purpose, and the architect's solutions to the problems he or she faced.

Hotels and motels to enjoy and remember

The first section shows how 28 outstanding recent hostleries were provided with a special identity by their often highly original architecture. From San Francisco's Hyatt Regency Hotel to Nashville's King of the Road Motor Inn to the Flaine ski resort near Chamonix, France, the book examines every aspect of these buildings—site positioning, lobbies, room layouts, interior decoration, furnishings—to show how accommodations were created that people enjoy and remember.

Restaurants and clubs that "pull in" business

In the next section on restaurants, bars, country clubs, and golf and tennis clubs, 16 case studies guide you through every aspect of the planning problems of these types of facilities. Ranging from Clyde's Bar, Washington, D.C. to the East Hampton, L.I. Tennis Club, you will see some extraordinary examples of successful design in an area where there is an amazing relationship between good design and good business.

New directions in recreational facilities

The final section provides a fascinating report on some truly innovative facilities for community recreation now being developed across the country. Ranging from the Camp Lane Sleeping Shelters near Mapletown, Ore. to New York City's Inwood Hill Park Nature Trails, these 16 facilities were also all carefully planned to minimize their impact on the environment.

We engineered the Bechtel Building's curtainwall to handle the elements.

Without making waves.

Most curtainwalls "oil-can" or distort.
Not this one.

This is the new Bechtel Building in San Francisco. Its curtainwall is anchored by a unique system that lets these 30 and 40 foot aluminum plates expand from the center out — without distorting.

The result is unheard of uniform flatness beyond that usually obtained with a fluoropolymer finish.

If you'd like a curtainwall of this quality, give us a call. We can provide everything from engineering and budget assistance to finish construction.

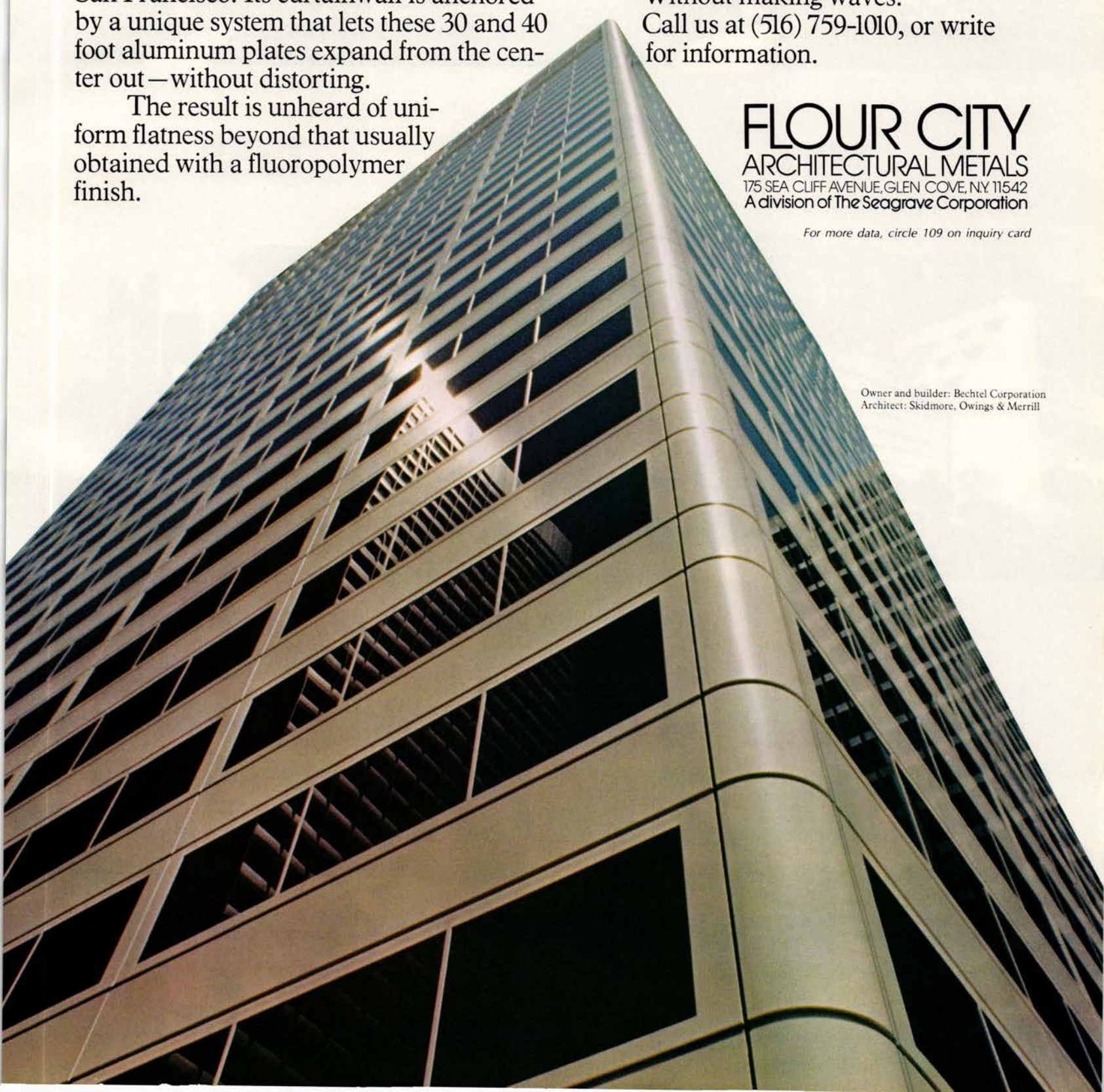
Without making waves.

Call us at (516) 759-1010, or write for information.

FLOUR CITY
ARCHITECTURAL METALS
175 SEA CLIFF AVENUE, GLEN COVE, N.Y. 11542
A division of The Seagrave Corporation

For more data, circle 109 on inquiry card

Owner and builder: Bechtel Corporation
Architect: Skidmore, Owings & Merrill



1977



1982



1987



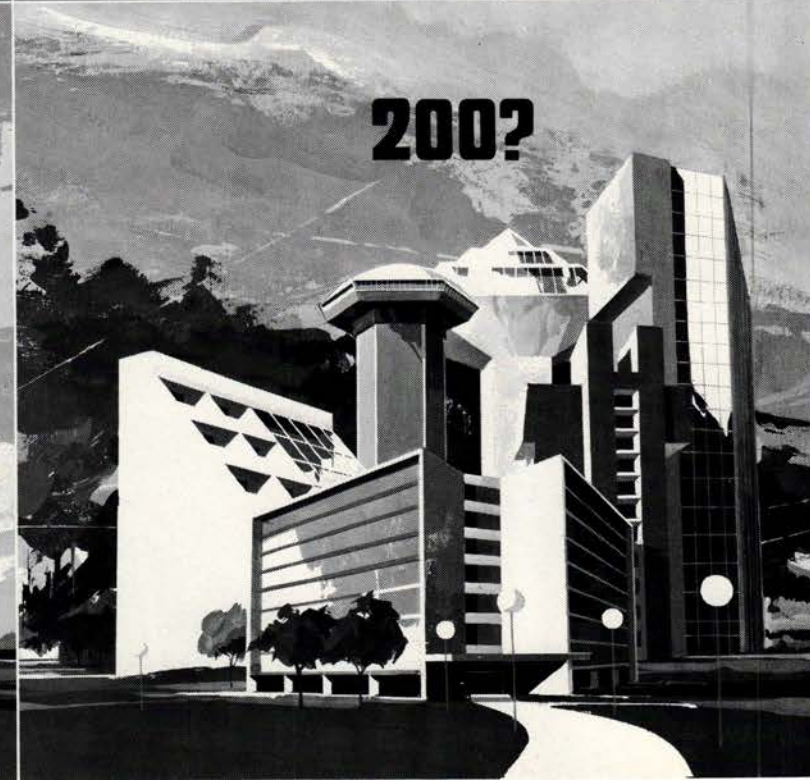
1992



1997



200?



STYROFOAM^{*} BRAND INSULATION SAVES ENERGY COSTS YEAR AFTER YEAR AFTER YEAR.

STYROFOAM brand insulation helps cut heating costs—and air conditioning costs. And it will do its job just about as efficiently and effectively in the 21st century as it does the day it's installed.

One key to the long-lasting effectiveness of STYROFOAM brand insulation is its moisture resistance.

No other plastic foam insulation resists moisture as well as STYROFOAM brand insulation.

And that's important because moisture is the enemy of insulation. When insulation becomes wet it conducts heat away, rather than retaining it.

STYROFOAM brand insulation is also sturdier than most other plastic foam boards, so it handles easier on the job without breaking. And it acts as its own vapor barrier, eliminating the need for

separate vapor barriers.

STYROFOAM brand insulation is accepted by most major national building codes. Inspectors know it and can approve it without delay.

You can install STYROFOAM brand insulation easily in virtually any type of commercial structure, as shown in the illustrations below.

And because it is virtually impervious to moisture it can be placed outside the foundation, around the perimeter of the building, to cut heat loss through the basement walls.

STYROFOAM brand insulation is backed by an exclusive written ten-year money-back warranty. Essentially, we will rebate 10¢ a board foot of your purchase price if it loses more than ten per cent of its rated insulating effective-

ness at any time within ten years.

For specific information regarding warranty details and conditions or for more information on how STYROFOAM brand insulation can help you, contact your local salesman or write: The Dow Chemical Company, STYROFOAM brand insulation, Midland, Michigan 48640.

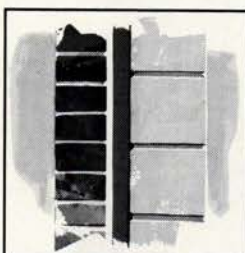
STYROFOAM^{*}
BRAND INSULATION



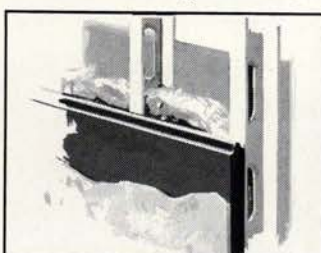
*Trademark of The Dow Chemical Company



Apply to the inside of masonry walls with STYROFOAM brand mastic No. 11.



Insert between interior and exterior walls in cavity type construction.



Apply to outside of studs just as you would apply conventional sheathing.

WARNING: STYROFOAM brand insulation is combustible and may constitute a fire hazard if improperly used or installed. It should not be left exposed or inadequately protected. Use only as directed by the specific instructions accompanying this product. STYROFOAM brand insulation contains a flame retardant additive to inhibit accidental ignition from small fire sources. During shipping, storage, installation and use this material should not be exposed to open flame or other ignition sources.

SPECIFIC INSTRUCTIONS: Gypsum board is regarded as an adequate fire barrier in most applications. For other alternatives and use instructions, see Dow literature available from your supplier or The Dow Chemical Company, Midland, Michigan 48640.

For more data, circle 110 on inquiry card



Pittsburgh's Golden Triangle now boasts a new 34-story jewel with 14 glimmering facets. (The two octagons share a side, if you're counting.)

It's the twin towers of the Equibank Building, at Oliver Plaza, sheathed entirely in PPG Solarban® 550 Twindow® reflective insulating glass.

The glass adds to a fascinating, unconventional design and makes it an incredible visual drama that teases the passer-by with eye-boggling reflections.

It's an inviting building. Warm and welcoming. And a welcome relief from the cold, impersonal bank buildings of the past.

Yet for all its reflective beauty, the glass gives the building a very practical side, too. The inside.



Owner: Oliver Tyrone Corporation, Pittsburgh
Architect: Skidmore, Owings & Merrill, Chicago

Because of the reflective and insulating qualities of PPG Solarban 550 Twindow glass, the building will stay warm in the winter and cool in the summer.

And will do it using about half the energy of a

similar building built 5 to 8 years ago.

Today, more than ever, buildings have to be energy efficient. But that does not mean they can't be spectacularly beautiful. The Equibank Building and PPG high-performance glass have proved it again.

Start to prove it to yourself. Write to us and we'll send you information on all the PPG high-performance glasses. There's one that's right for your job.

Write PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

PPG:
a Concern for the Future



PPG GLASS HELPED TWIN OCTAGONS FIT BEAUTIFULLY INTO A TRIANGLE.

For more data, circle 111 on inquiry card

AT EVERY LEVEL

For All Building
And Construction
Disciplines. . .

the
total
show
for the
building &
construction
industry

Sponsored by
Producers' Council
the national association
representing quality
building & construction
manufacturers.



PLAN NOW to attend the 1977 BCEC—the complete trade market established by and for the industry to meet the needs of the building team—architects, engineers, contractors, building owners and operators, builders and developers and building supply dealers.

PRESENTING:

1. Hundreds of exhibits and thousands of products, materials, systems and services for every segment of the industrial, institutional, commercial and residential building and construction industry.
2. *The Machinery, Tools and Material Handling Section*—operating exhibits of products, tools and machinery, transportation and materials handling equipment, trussplate fabricating equipment and site preparation.
3. *The Energy Section*—the largest display ever of new alternate energy systems such as solar, wind and geothermal, and energy conservation products and techniques.
4. *The Conference*—Producers' Council brings together leading construction and building innovators to share their knowledge and experience in a series of practical and informative conference sessions.

Pre-register now for BCEC by filling out and returning the registration form below.

building and construction exposition and conference



NOVEMBER 1-3, 1977
McCORMICK PLACE, CHICAGO

SEND FOR FREE REGISTRATION CREDENTIALS — SAVE TIME AND MONEY

Mail to: BUILDING & CONSTRUCTION EXPOSITION & CONFERENCE,
331 Madison Avenue, New York, N.Y. 10017 (212) 682-4802

(AT-SHOW FEE WILL BE
\$5.00 FOR EXHIBITS)

Register in advance and save time and money. Clip this form and mail today for free exposition badge and advance conference tickets.

EXPOSITION: Upon receipt of your completed pre-registration form, you will be sent your free badge which will admit you to the exhibits for the full 3-day period. At-show registration fee is \$5.00, which is waived if you pre-register with this form.

CONFERENCE: The theme will be *Technology for Efficient Building* covering such topics as Solar Energy Technology — Retrofit — Energy New Construction — Government Initiative in Energy — Energy Conservation.

To obtain your conference tickets and your detailed conference program, please complete and mail the appropriate portion of this form, together with check made payable to *Building & Construction Conference*. Full program is \$55. One day is \$35.

EXHIBIT SPACE INFORMATION: Send for floor-plans and complete data if you desire to exhibit this year.

Name																	
Title																	
Firm																	
Street																	
City											State			Zip			

PLEASE CHECK BUSINESS AND JOB FUNCTION TO COMPLETE THIS FORM

- | | | |
|--|---|---|
| A. <input type="checkbox"/> Architect | F. <input type="checkbox"/> Apt. Owner/Oper. | 1. <input type="checkbox"/> President/Owner/Principal; Partner |
| B. <input type="checkbox"/> Engineer | G. <input type="checkbox"/> Manufacturer | 2. <input type="checkbox"/> Vice President/General Manager/Superintendent |
| C. <input type="checkbox"/> Builder/Developer | H. <input type="checkbox"/> Dealer/Distributor | 3. <input type="checkbox"/> Project Manager/Job Captain/Specifier |
| D. <input type="checkbox"/> Building Owner/Oper. | I. <input type="checkbox"/> Please indicate _____ | 4. <input type="checkbox"/> Sales/Marketing/Advertising |
| E. <input type="checkbox"/> Contractor | (Govt., Int. Des., Mktg. Assn.) | 5. <input type="checkbox"/> Purchasing/Plant Engineer/Foreman |
| | | 6. <input type="checkbox"/> Other |
| | | 7. <input type="checkbox"/> Public Official |
- ☐ Full Conference (Tues., Weds., Thurs. & Show) \$55.00
☐ One Conference Day (Either Weds. or Thurs. & Show) \$35.00
☐ Show Only (No advance fee) 0
- ☐ Send Hotel Information
☐ Send Exhibit Space Data

DEADLINE FOR THIS PREREGISTRATION IS OCTOBER 15, 1977 — AFTER THAT DATE BRING FORM TO SHOW.
NO ONE UNDER 18 YEARS OF AGE ADMITTED.

If you're looking for quality you're on the right track with Raynor.



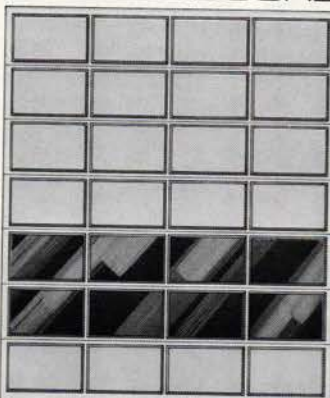
Before you buy your next overhead type garage door check all of the outstanding features that make Raynor shine. We manufacture the best sectional door money can buy because we do a lot of things ourselves, when others don't. Such as making our own custom engineered springs and heavy duty track, ball bearing track rollers and other heavy gauge galvanized steel hardware. We become totally responsible for every

detail from design to full service and all of the steps in between, and our over 300 authorized Raynor distributors install every door we build. It's this extra concern for quality that's made Raynor the brand you can depend on for residential, commercial and industrial doors made of wood, aluminum, fiberglass or steel.

Call us for more specifics. 815/288-1431. Or write Raynor Manufacturing Company, Dept. AR, Dixon, IL 61021, for the name of the Raynor factory-trained distributor/installer near you.



RAYNOR™
GARAGE DOORS



For more data, circle 112 on inquiry card

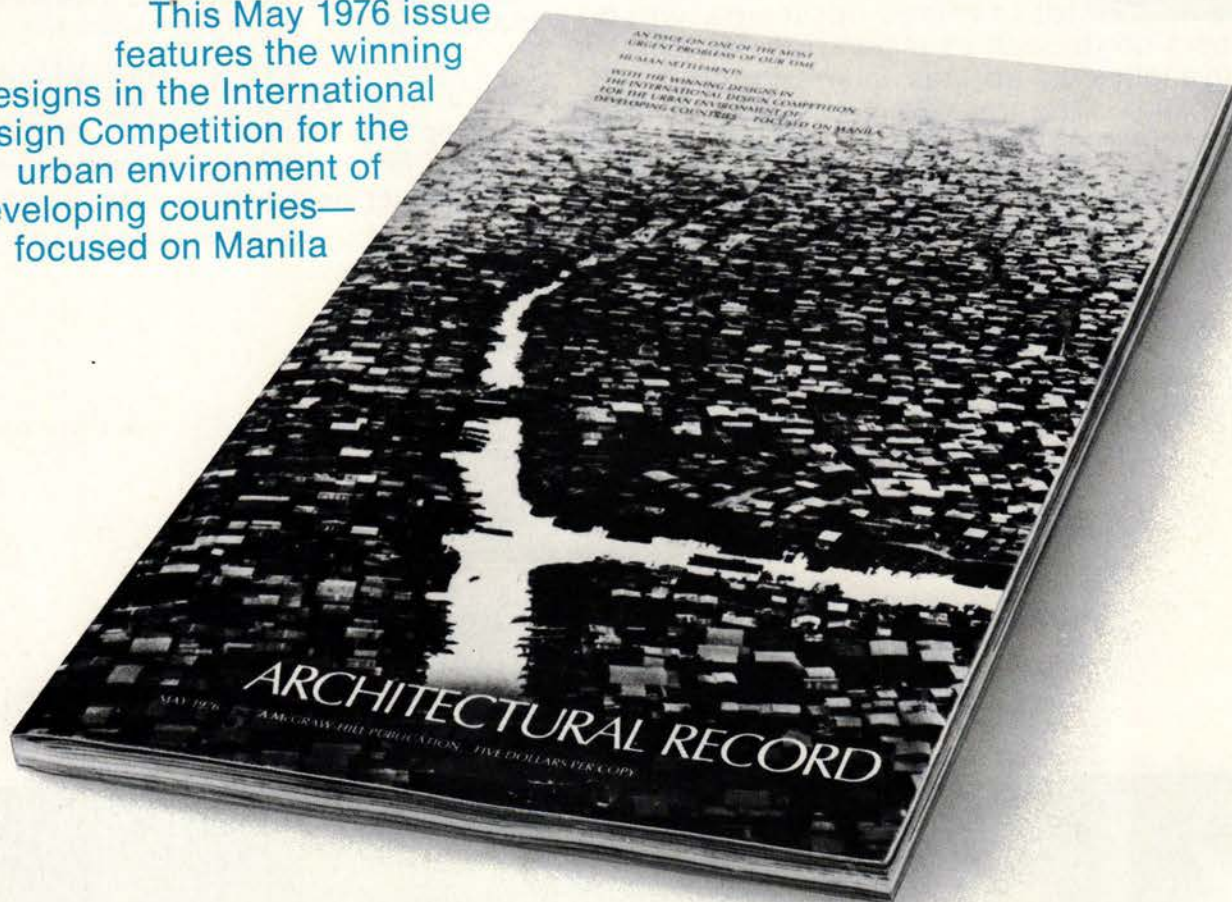


Copies Still Available for Purchase!

HUMAN SETTLEMENTS

Winner of the 1977 National Magazine Award for Specialized Journalism

This May 1976 issue
features the winning
designs in the International
Design Competition for the
urban environment of
developing countries—
focused on Manila



Here's what People Around the World are Saying About It!

"An essential document for all who still think the world can be made a better place."

—William Houseman, Editor,
Environmental Monthly

"Truly remarkable...this kind of magazine issue is a reflection of a proud profession stating goals of great import."

—John D. Bloodgood, AIA, Des Moines, Iowa

"Most striking about the solutions...is the fact that the architects stuck with local building products available, and included huge elements of self-help..."

—Richard W. O'Neil, Housing Advisory
Council, Ltd., Lakeville, Conn.

"Ian Athfield's design is innovative in its concept, creative in its solution, timely in its message, and sensitive in its response to human needs and human aspirations."

—Robert Spillman, AIA,
Bethlehem, Pennsylvania

Thousands of architects, engineers, planners, government officers around the world are studying the design solutions featured in this important issue. Thousands of designs were submitted—and you can see the top prize winners and the honorable mentions, plus an entire section devoted to innovative and useful design ideas from the non-premiated entries.

Beyond the firms that entered and succeeded in this important competition, the real winners are the people from the site in Manila who will occupy the new development that First Prize winner Ian Athfield will create from a grant from the Philippine government. The other winners are the architects, engineers, and planners who will read this outstanding May issue filled with bright, new ideas—not just for urban settlements, but for all forms of architecture.

You can still obtain copies of this May issue. Just send \$5.00 for surface mail, or \$10.00 for air mail, to Architectural Record, May Issue, 1221 Avenue of the Americas, New York, New York 10020

Architectural Record, May Issue
1221 Avenue of the Americas
New York, NY 10020

Please send me _____ copies of the May, 1976 issue on Human Settlements. Please send them via surface mail (@ \$5.00 each) _____; by airmail (\$10.00 each) _____.

Name _____

Address _____

City _____

State _____

Zip _____

ARCHITECTURAL RECORD REPRINTS

"RECORD IMPRESSIONS" is a convenient way of ordering reprints, reports, and back issues. All are printed on glossy stock and many are printed with color illustrations.

NO. OF
COPIES
WANTED

NO. OF
COPIES
WANTED

\$1, 2, 2.50, AND 5*

RECENT LISTINGS

53	Campus Architecture—22 Pgs. 4 Color	\$2.00
57	Discrimination in Housing Design—22 Pgs. 4 Color	2.00
58	Stores & Shops—16 Pgs. 4 Color	2.00
59	Schools that Nurture an Understanding for the Dimensions of Life—16 Pgs. 4 Color	2.00
60	Vocational Schools—16 Pgs. B & W	2.50
61	Design for Recreation—16 Pgs. 4 Color	2.00
62	Productive Elegance for Industry—16 Pgs. B & W	2.00
64	Airports	2.50
65	Industrial Buildings	2.50
66	Home Towns Come Back	2.50
67	Building for Sport	2.00
68	Bringing in the Business	2.00
69	Forty Years of American Architecture	2.50

INTERIORS

3	Record Interiors of 1971—20 Pgs. 4 Color	\$2.00
25	Record Interiors of 1972—20 Pgs. 4 Color	1.00
40	Record Interiors of 1973—16 Pgs. 4 Color	2.00
54	Record Interiors of 1975—18 Pgs. 4 Color	2.00

BUILDING TYPE STUDIES

4	Museums '72—16 Pgs. 4 Color	\$1.00
6	Design For Merchandising—16 Pgs. 4 Color	2.00
8	Airports '70—16 Pgs. B & W	2.00
11	Correctional Architecture—16 Pgs. 2 Color	1.00
13	Campus Design—24 Pgs. 2 Color	2.00
15	Health Care—16 Pgs. B & W	2.00
20	Low-Income Housing—16 Pgs. 2 Color	2.00
24	Contemporary Schools—14 Pgs. B & W	1.00
25	Campus Lifestyles—18 Pgs. 4 Color	1.00
27	Shopping Malls—16 Pgs. 4 Color	2.00
28	Suburban Office Buildings—16 Pgs. 4 Color	2.00
34	Industrial Buildings—16 Pgs. 4 Color	2.00
35	Hospital Planning—18 Pgs. 4 Color	2.00
36	Housing—16 Pgs. 4 Color	2.00

37	Resort Hotels—16 Pgs. 4 Color	2.00
41	Development Housing—12 Pgs. 2 Color	2.00
43	Museums For Today—16 Pgs. 4 Color	2.00
44	Corporate Offices—16 Pgs. 4 Color	2.00
45	Stores & Shops '73	2.00
47	Flexible Religious Buildings—16 Pgs. 4 Color	2.00
48	Convention Hotels—16 Pgs. 4 Color	2.00
49	High-Rise Office Buildings—16 Pgs. 4 Color	2.00
50	Airports '73—18 Pgs. B & W	2.00
51	Public Administration Buildings—18 Pgs. B & W ..	2.00
52	Religious Buildings—16 Pgs. B & W	2.00

SPECIAL REPORTS

5	Clinical Techniques—8 Pgs. 4 Color	\$1.00
19	Audio-Visual Facilities—16 Pgs. 4 Color	2.00
21	Six Interiors—12 Pgs. 4 Color	1.00
23	Energy Conservation—8 Pgs. B & W	1.00
31	Lighting Systems—8 Pgs. 2 Color	1.00
33	Curtain Walls—8 Pgs B & W	1.00
38	The Young Architects—56 Pgs. 4 Color	2.00

PRACTICAL REFERENCE

9	Air Conditioning: A New Interpretation Updated Reports From 1967, 1969, 1970—64 Pgs. 2 Color Softbound	\$4.95
---	--	--------

BACK ISSUES

10	Record Houses 1968	\$5.00
18	Record Houses 1971	5.00
39	Record Houses 1972	5.00
42	Product Reports 1973	5.00
46	Record Houses 1973	5.00
56	Product Reports 1974	5.00
63	Product Reports 1975	5.00

*(10% Discount on Orders Over \$20.00)

PRE-PAID ORDERS ONLY

ARCHITECTURAL RECORD



Mr. C. J. Geiger
c/o Record Impressions
P.O. Box 501
Hightstown, New Jersey 08520

Cost of Order	\$ _____
*10% Discount on Orders over \$20.00	\$ _____
International Shipments Add \$1.00 for postage & handling	\$ _____
Sales Tax	\$ _____
Total Enclosed	\$ _____

☐ Check ☐ Money order

Name _____	Please Print
Firm Name _____	
Address _____	
City _____	State _____ Zip _____

Allow two to three weeks for delivery.

☐ SEND DESCRIPTIVE CATALOG

Domestic orders allow 2 to 3 weeks for delivery.
International Shipments are mailed via Sea-Mail; allow 2 to 3 months for delivery.

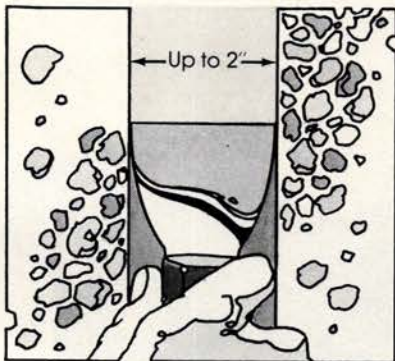


Tremco can help you solve special problems involved in designing with precast.

While precast concrete offers many design advantages, it also presents some special joint sealing problems caused by dynamic movement, weather and the threat of fire. To help solve them, Tremco offers broad technical services plus a range of job-proven products and systems. Here's a brief look at our solutions to three basic problems.

Handling stress and movement.

Tremco has developed a sealant to stand up to the unusual amount of movement in precast joints—



DYmeric®, a two-part high-performance sealant. In a single application DYmeric can seal joints up to 2" wide, normally without priming.

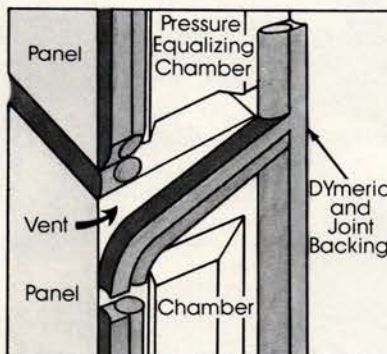
To be sure of good adhesion, the joint interface should be thoroughly clean before it's caulked.

Form release agents and dampproofing coatings can interfere with sealant performance, so your best bet is to draw on Tremco's experience while you're still in the design stage.

Taking weather in stride.

Openings can occur in even the most carefully constructed panels and joints, which will open the door to weather problems.

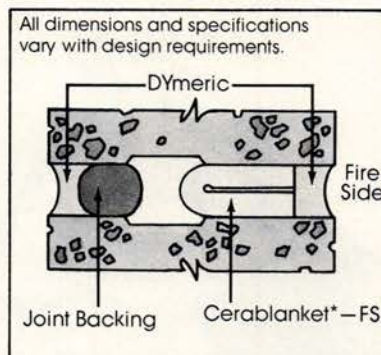
The Tremco solution: the modified two-stage rain-screen sealing system. Unlike one-stage systems, it



gives you two lines of defense against weather. It consists of a vented seal on exterior joints; an airtight seal on interior joints; with an air-pressure equalization chamber between the two. Equalized pressure in the wall cavity helps keep out wind-driven exterior moisture and prevents moist inside air from being pulled into the wall. Any moisture that finds its way in drains harmlessly away through the exterior vents.

Resisting fire.

Although precast panels themselves are fire-resistant, the openings between them can be a hazard if a fire



breaks out. The best protection: Tremco's exclusive fire-resistive joint sealing system that can achieve required fire endurance of two to four hours at the joint.

This system uses Tremco's DYmeric sealant and Cerablanket*-FS, a

pure ceramic fiber blanket made from alumina-silica fibers and manufactured exclusively for Tremco by Johns-Manville. Under test conditions, this system prevented passage of flame or hot gases and stopped transmission of heat beyond the temperature limits in ASTM E-119.

Solving other problems.

Remember, Tremco offers a host of job proven water-proofing, caulking, glazing and roof edge systems. We'll work with you through design and specification stages to make sure you'll get the best system for your needs. Just contact your Tremco man. Or Tremco, 10701 Shaker Blvd., Cleveland, Ohio 44104. Tremco (Canada) Ltd., Toronto, Ontario, M4H 1G7.

*Trademark of Johns-Manville

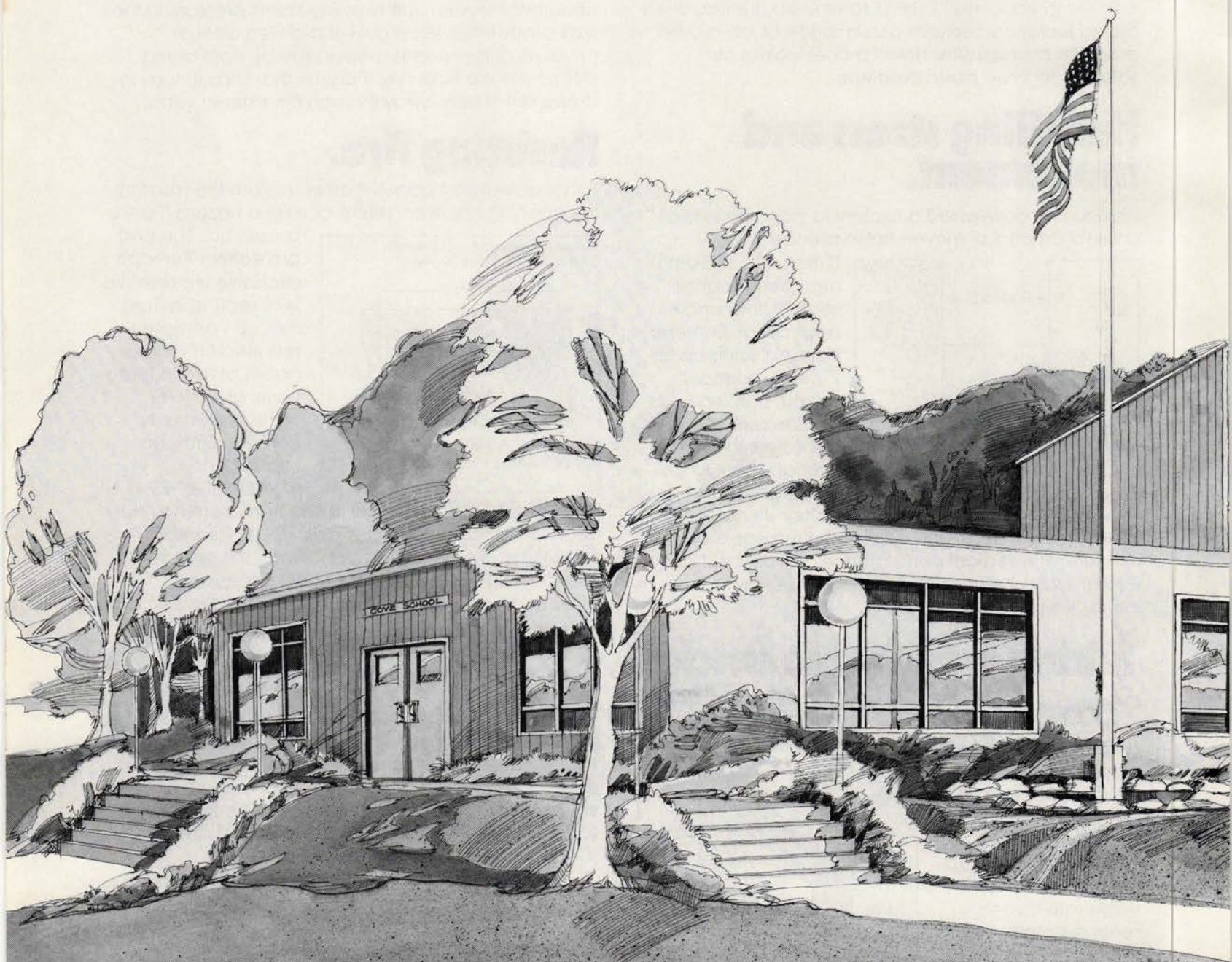
Drawings not to scale.

TREMCO®

For more data, circle 113 on inquiry card

On your next school, motel, hospital, store, offices, or apartments...

Super-C Steel Framing can cut both construction and maintenance costs.



Super-C Steel Framing members are a load-bearing framing system that can be used to provide the entire structural framework for most light commercial projects you may be planning...one to three stories with overhangs or balconies, surfaced with brick, stucco, or other exterior treatment.

In fact, Super-C Steel Framing members—developed by U.S. Steel and manufactured by independent licensee-fabricators—are being used in dozens of such projects round the country right now. And significant life cycle cost savings are built right in.

Installed cost can be lower, because Super-C Steel Joists and Studs are pre-cut to specified lengths for fast installation, pre-punched to speed plumbing and wiring. Your project can be ready for use more quickly.

But the cost advantages don't stop there. Floor/wall separation, door realignment, and other maintenance costs can also be lower, because Super-C members don't

crack or warp, are dimensionally stable and can give you a virtually trouble-free framing system.

Super-C is compatible with almost any type of building materials you want to use—all standard floorings, sheathing, and exteriors (including curtain walls). It has national code approvals and offers one-hour and two-hour fire ratings.

Free information on Super-C Steel Framing.

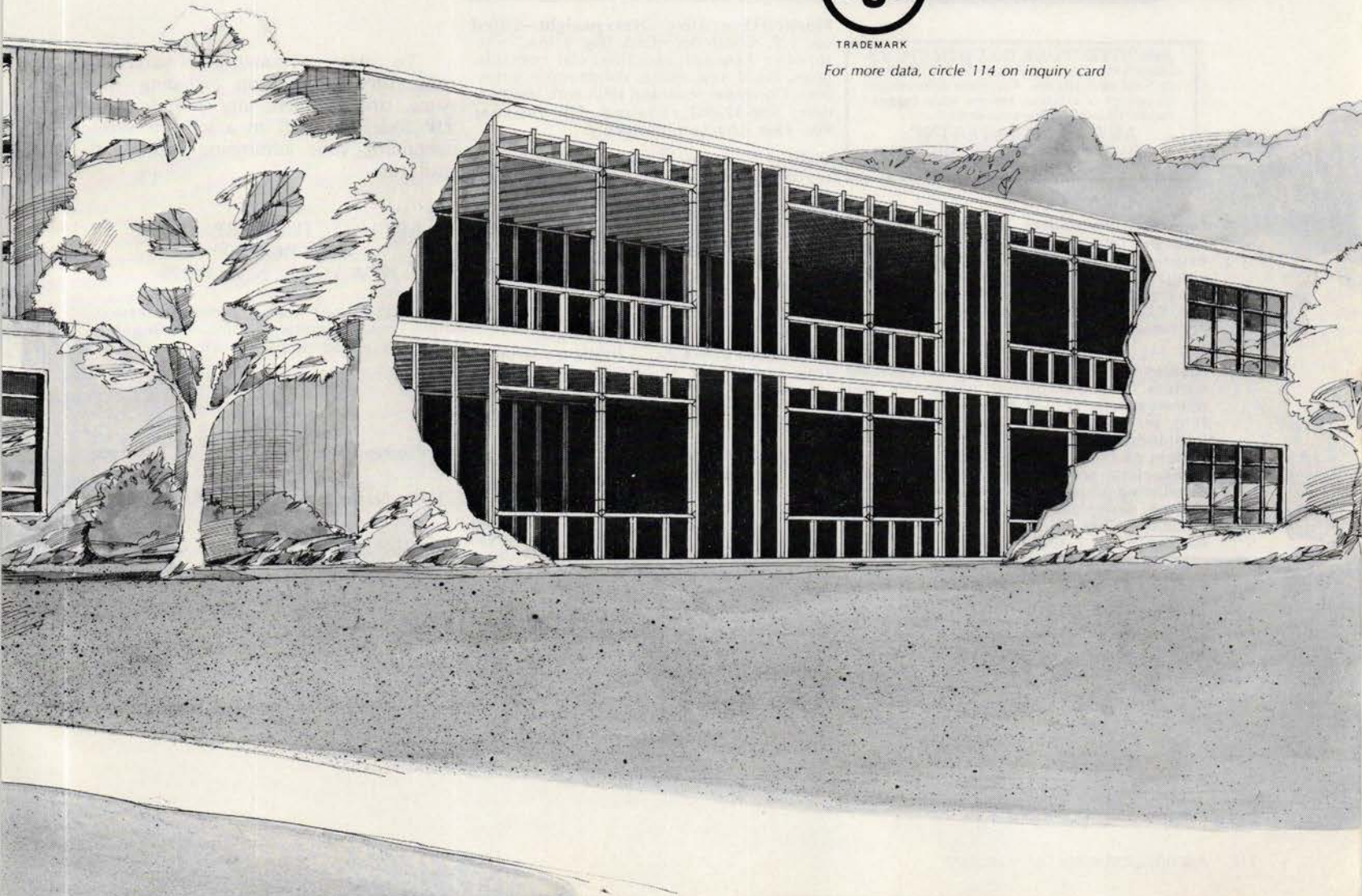
We'd like to send you more information about Super-C, including an analysis on life-cycle costs by a leading architectural firm—plus the names of independent licensee-fabricators serving your area. Check the reader service card. Or write: United States Steel, P.O. Box 86 (C737-2), Pittsburgh, PA. 15230.



TRADEMARK

United States Steel

For more data, circle 114 on inquiry card



CLASSIFIED SECTION

POSITIONS VACANT

Conservation Program Manager

Energy and Environment
Division
Lawrence Berkeley Laboratory
University of California

Applications are invited for a senior scientist/engineer to plan, coordinate and conduct a research, development and demonstration (RD&D) program in energy conservation in buildings.

Candidates should have technical abilities in conservation research and education, imaginative abilities in conceiving and analyzing new approaches, and comprehension of impacts and policy implications of the various energy conservation measures being studied. Significant interaction is expected with ERDA program management and with public, private and professional agencies.

Previous experience in research and/or academic environment desirable. Experience must be supplemented by significant technical contributions and administrative achievements in energy policy and planning. Ph.D. or equivalent experience in relevant scientific or engineering field is desired.

Salary range \$30's to \$40's K. Applications should be submitted to:

Florence Flint, Personnel Dept.
One Cyclotron Road
Berkeley, California 94720

**LAWRENCE BERKELEY
LABORATORY**

An Equal Opportunity Employer

ARCHITECTURE ILLUSTRATORS
Immediate openings, pros preferred, top firm in field and salaries. Complete information on receipt of samples, resume wage requirements. Prompt return, confidential.

ART ASSOCIATES INC.
4041 West Central, Toledo, OH 43606
(419) 537-1303

Sales Representatives Wanted—Manufacturer of complete line of both interior and exterior architectural graphics seeking contract representatives in selected areas. Send qualifications to Identification Systems, Inc., P.O. Box 707, Industrial Park, Shelbyville, Tennessee 37160.

Architect—Chief Designer: Position available with a multidisciplinary nationally and internationally known design oriented A-E firm, serving corporate, governmental, and institutional clients. Must have demonstrable skills in conceptualization of a broad range of architectural projects. Duties would require developing projects from initial client contact through design and contract documentation. Location: City of New York. Reply with resume to Box: P-4970, Architectural Record.

Project Architect: Southwest firm seeks Project Architect with 4-8 years of design, production and total project supervision experience in diverse housing and commercial buildings. Registration and degree required. Submit confidential resume: Bellamah Corporation—Personnel Box 3325, Albuquerque, NM 87110.

POSITIONS VACANT

VOLUNTEER VISTA

Architects/planners needed for VISTA projects in U.S. Housing projects, design of schools, hospitals, community centers, rehab., university teaching, regional planning, etc. Expenses paid: travel, medical, vacation and living. U.S. citizens, singles or couples only. Information: Cynthia Seck, ACTION, Box A-1, Washington, D.C. 20525. An Equal Opportunity Program

Director—School of Architecture (a dean's level position). School of Architecture's Director Search: The Director is the harmonizing force who provides the philosophical leadership for the four disciplines in the School—Architecture, Construction Management, Urban Design, and Planning. With four chairpersons, the Director is responsible for all curricula and programs within the School. The Director works with five other peer deans at the Institute under the direction of the Provost and President. Pratt's School of Architecture offers B. Arch., B.P.S. in Construction Management, M. Arch., and M.S. in Urban Design or Planning. Enrollment is 643 undergrad., 160 grad., faculty is 125 members. School is uniquely managed and governed by a system of participatory democracy that includes all students and faculty. Qualifications sought: Degree in architecture or related field, demonstration of professional/managerial experience; demonstration of competence in teaching/academic planning; and strong personal qualities as scholar, professional, manager, leader, budget-maker, and cooperative team member. Applications with resume and statement of qualifications must be submitted to: Chairperson, Search Committee, School of Architecture, Pratt, Brooklyn, N.Y. 11205. An equal opportunity/affirmative action employer.

POSITIONS WANTED

Financial Executive—Heavyweight—Listed co. V.P. Controller—CPA (Big 8 exp.)—Attorney—Acquisitions, financial controls, taxes, Exp'd. real estate, construction industries. Combines technical skills with imagination. \$28-32,000 required. For resume: PW- 4969, Architectural Record.

Visiting Professor: Mechanical/electrical registered professional engineer. National authority in energy conservation, retrofitting, solar energy, specifications. Seeks appointment teaching environmental systems to architects. Reply to: PW-4989, Architectural Record.

SPECIAL SERVICES

Vitruvius Designs Corp.—artistic renderings & scale models for a better image. Regular drafting services available. Box 1316 Dept. AR, Radio City Sta., New York, NY 10019. (212) 697-5499.

Bennett Sun Angle Charts—for architects who consider the sun when they design. Charts simulate sun's motion across sky and show sun's position for any time and date. Set of 15 Charts (one for each even numbered latitude from 24° to 52°) cover entire U.S. \$30 ppd. Robert Bennett, P.E., Dept. AR, 6 Snowden Road, Bala Cynwyd, PA 19004.

BUSINESS OPPORTUNITIES

College wishes to purchase entire library of Architect. Must be reasonable. BO-4991, Architectural Record.

BOOKS

Europe: Architectural Guide 1860-Today by Jerryll Habegger. 13 countries-500 Bldgs. with address, architect + date. 150 illus. \$4.50 Order from: Architectural Guidebook, 421 West Belden, Chicago, Illinois 60614.

BROCHURE

Architectural Exam Candidates; Get economical, practical guidance on mastering multiple-choice tests, dealing with judgment questions, what to—and what not to study, detailed study schedule and subject breakdown. For information, write: Bonus Pointers c/o Arts International, 165 Jefferson Street, San Francisco, CA 94133.

WATERCOLOR FOR SALE

Jesse Allen Watercolor, 1968—20" x 26" framed; estate settlement sale. FS-4992, Architectural Record, or (212) 873-4806.

OVERSEAS JOBS GUIDE

Job Hunting Guide + Directory of 600 Firms. Details on job sources, resumes, taxes. US \$6.00 + 50¢ P&H (US & Canada). To foreign addresses—add \$1.50 P&H. Friar Books, Dept. AR, 8956 E Ardenale, San Gabriel, CA 91775.

Classified Section Non-Display Order Form

To place a non-display advertisement, fill out this form, including your name, street address, city & state with ZIP code, attach it to a separate sheet containing your advertising copy, and mail it to:

ARCHITECTURAL RECORD/
P.O. BOX 900
NEW YORK, N.Y. 10020

Rates: \$5.25 per line, minimum insertion three lines, six words to a line, box number counts as one additional line. Display rates on request.

☐ Payment Enclosed \$ ☐ Bill me

☐ Use Name & Address ☐ Use Box No.

Advertisement to appear time(s)

Signature

PROFESSIONAL SERVICES

did you?

get your copy of the finest most comprehensive brochure on architectural illustrations & related services ever produced? If our national mailing missed you, write today for your copy. 1st. copy free, additional copies per office \$2.00 each, deductible from 1st. order-requests on letterhead only please. Full Color 11 x 17 format, casein/watercolor/pencil/ink/charcoal/duo tone/magic marker/oils/plus information on models/printing/advertising/photography/engineering illus./framing/displays & more. Write

art associates inc.

4041 w central ave toledo, ohio 43606

EXTERIOR MAINTENANCE CONSULTANTS

for High Rise Buildings
"Investigate the benefits of a new concept in consulting!"

VERTA CORPORATION

8120 Penn Avenue South, Suite 548
Minneapolis, Minnesota 55431
(612) 884-8822

Advance Job Listings

By having our new weekly ADVANCE JOB LISTINGS sent First-Class (or by Air Mail, if you prefer) to your home every Monday, you can be the first-to know about nation-wide openings you qualify for both in and out of your field.

ADVANCE JOB LISTINGS

P.O. BOX 900

NEW YORK N.Y. 10020

New associates, promotions

Jones/Mayer and Associates, Inc. has announced the appointment of **Carl D. Reinhardt** as director of housing and residential development.

Raymond Lo, AIA, is named director of architectural design of Robert and Company Associates.

F. Jack Harden, AIA, has joined Gee & Jensen Engineers-Architects-Planners Inc.

Lowell Brody, AIA, is the new director of project development for Marcel Breuer & Associates.

Fujikawa Conterato Lohan and Associates have announced **Peyton Abbott III, James P. Cagnina**, and **Melvin J. Wilson** as associates to the partnership.

New directors of Shepley Bulfinch Richardson and Abbott are **George R. Mathey, Lloyd P. Acton**, and **Leo O. McEachern**.

Hugh Stubbins and Associates Inc. has elected **Hugh A. Stubbins, Jr.** as president; **Merle T. Westlake** and **Edwin F. Jones** as vice presidents and directors; and has announced the appointment of **W. Easley Hamner, Richard J. Green**, and **Hugh Stubbins III** as new vice presidents and directors.

New addresses

Donald R. Goldman, AIA has established a new practice at 3920 Third Avenue, San Diego.

Perry Dean Partners Incorporated, and Stahl Associates Incorporated, have announced the formation of **Perry, Dean, Stahl & Rogers Incorporated**, with offices at 177 Milk Street, Boston.

Michael S. Adams, AIA, has opened an office of architecture and planning at 1204 Hollis Avenue, Cherry Hill, New Jersey.

The Lincoln, Nebraska firm of Clark & Enersen, Hamersky, Schlaebitz, Burroughs & Thomsen has changed its corporate name to **The Clark Enersen Partners**.

Charles Hugh Crain and Keith A. Petitjean announce the formation of **Charles Hugh Crain Associates, Architects**, located at 233 rue France, Lafayette, Louisiana.

F. Daniel Cathers, AIA, and **William W. Lukens** announce the opening of **Cathers/Lukens Architects**, The Farmhouse, Great Valley Corporate Center, Morehall Road, Malvern, Pennsylvania.

Robert D. Kirk, AIA, and **Kay D. Kennedy, AIA**, have established the firm of **Architectural Concrete Associates Inc.** with offices and laboratory at 15304 B. Dooley Road, P. O. Box 953, Addison, Texas.

Douglas T. O'Donnell, P.E. and **Myron B. Silberman, AIA, ASCE**, have formed the architectural and engineering firm of **O'Donnell & Silberman Associates, Inc.**, 604 East Fourth Street, Marshfield, Wisconsin.

James B. Phillips and **Kent D. Dounay** have formed **Design Group, Inc.** at 4131 North 48th Street, Phoenix, Arizona.

**A one-piece roof,
42' x 196'.**

No field seams.

No sweat.

**No special
equipment.**

**And
a 5-year warranty.**



That's a Carlisle Sure-Seal® roof for you. A special job, of course. Standard Sure-Seal comes in 100-foot rolls in several widths but however it comes it's tough, stable, waterproof, and so simple and fast to apply that no special equipment is necessary and very little training is needed. It's also versatile: there's a Sure-Seal System for practically every size and shape roof in America, old or new.

One reliable American source delivers all Sure-Seal materials and accessories: resourceful Carlisle, who came up with Sure-Seal in the first place and has backed it for nearly three decades. Which is how long some Sure-Seal applications have been in continuous use. Write today for details and the name of your approved Sure-Seal applicator!

**Sure-Seal Systems, for almost
every roof in America!**

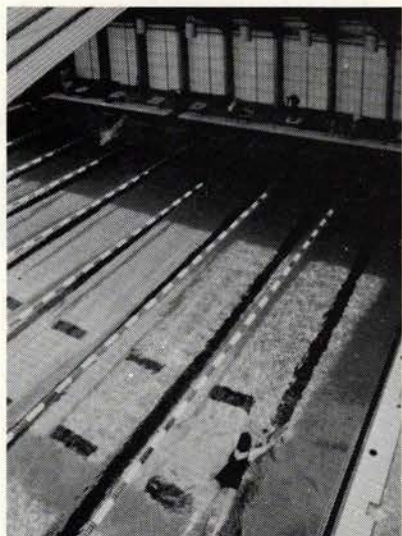
Carlisle Tire & Rubber

CARLISLE

Construction Materials Department
Carlisle Tire & Rubber Company
Division of Carlisle Corporation
P.O. Box 99
Carlisle, Pa. 17013
(717) 249-1000; Telex 84-2330 (Carlisle CLSL)

For more data, circle 115 on inquiry card

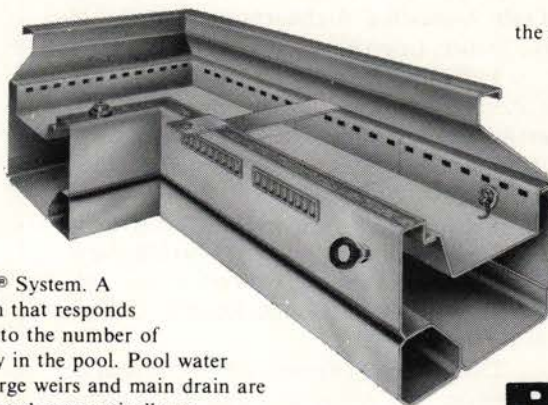
The Leader.



**Paddock pioneered the Pipeless Pool System.
Paddock perfected the Pipeless Pool System.
Over 1800 installations attest to its superiority.**

Since 1920, Paddock of California has led the industry in every major advancement in swimming pool design and construction. Their pipeless system of pool water recirculation has been field proven in over 1800 installations throughout the country.

Now, Paddock offers the SCRS® System. A pool perimeter recirculation system that responds automatically and instantaneously to the number of swimmers and their type of activity in the pool. Pool water level, gutter flow rate, action of surge weirs and main drain are monitored continuously and activated automatically to provide the most efficient water recirculation available. In addition,



the system provides surge containment for competition and can carry flow rates up to 3,000 gallons per minute. For new construction or renovation. Consider a Paddock SCRS System atop of a gleaming stainless steel Permawall sidewall panel. Untold economies and efficiencies are yours now and for the life of the swimming pool.

Write or call for full particulars, your inquiry will receive immediate consideration.

Paddock®
POOL EQUIPMENT COMPANY, INC.

P.O. Box 511
555 Paddock Parkway
Rock Hill, South Carolina, 29730
Telephone: (803) 324-1111

For new pools or remodeling existing pools.

For more data, circle 116 on inquiry card

ARCHITECTURAL RECORD. Published by McGraw-Hill, Inc., 1221 Avenue of the Americas, New York, New York 10020. © 1977. All rights reserved.

Readers using the index will find buildings entered in three ways: by architect's name, by building's or owner's name, and by building type (banks, hospitals, schools, etc.). Other categories cover subjects in the engineering section (concrete, lighting, prefabrication, etc.). ABBREVIATIONS: AB—Architectural Business; AE—Architectural Engineering; BA—Building Activity; BTS—Building Types Study; LP—Legal Perspectives; TNR—Technical News and Research.

A

Altman, Robert, Denis Arden, Charles Sieger, archts.; Apogee 1, Coconut Grove, Miami, Fla.—Mid-May 1977, BTS, pp. 112-113.

AIA. "Advertising and AIA ethics: For all the activity, no early resolution is in sight," by Arthur T. Kornblut, Esq.—May 1977, LP, p. 73. "Some random thoughts on ethics. . ." Editorial by Walter F. Wagner, Jr.—May 1977, p. 13.

Apogee 1, Coconut Grove, Miami, Fla.; Robert Altman, Denis Arden, Charles Sieger, archts.—Mid-May 1977, BTS, pp. 112-113.

Arango house, Acapulco, Mexico; John Lautner, archt.—Mid-May 1977, BTS, pp. 64-67.

Architect's Offices, Minneapolis, Minn.; Design Consortium/Zuber, Inc., archts.—Jan. 1977, BTS, pp. 114-115.

Architectural Business. "An automated project control system aims for improved profitability," by G. Neil Harper—Mar. 1977, p. 61. "COFPAES renews its 'costs and audits' argument"—Apr. 1977, p. 75. "Construction management, in a Miami test, saves \$1.5 million"—Jan. 1977, pp. 75-78. "Creating a healthy financial climate for construction requires a delicate balance by the Administration and Federal Reserve"—Apr. 1977, p. 73. "Getting published: an unraveled mystery," by Stephen A. Kliment—Feb. 1977, pp. 59-61. "Managing your marketing communications program," by Stephen A. Kliment—May 1977, pp. 77-79. "Maybe this year we can get back to talking about design quality?" Editorial by Walter F. Wagner, Jr.—Feb. 1977, p. 13. "New year, new Administration, new hope, new concerns," Editorial by Walter F. Wagner, Jr.—Jan. 1977, p. 13. "Planning your personal financial strategy," by Mark Pollard—Part 1, Mar. 1977, p. 59; Part 2, "The high-income architect"—Apr. 1977, p. 77. "Regulatory codes: one firm's check list for industrial projects," by Joseph E. Compton—June 1977, pp. 65-67. "Tax cuts and Federal spending needed to revive economic recovery in 1977"—Jan. 1977, BA, p. 83. "Writing for marketing impact: letters, brochures, proposals," by Stephen A. Kliment—June 1977, pp. 71-73.

Architectural Engineering. "All of hospital's heat is from off-peak power"—Jan. 1977, TNR, p. 153. "Building automation," by Donald E. Ross: Part 1, "What it does, what its benefits are, how the economics fare"—Apr. 1977, pp.

147-150; Part 2, "Energy optimization by computer"—May 1977, pp. 143-144. "Daylighting design aids emerge as interest grows in the technique"—Jan. 1977, TNR, p. 152. First Bagley Parking Garage, Detroit, Mich. Albert Kahn Assocs. Inc., archts.—June 1977, pp. 143-144. "Modified light-gage steel units frame hospital's interstitial floors"—Jan. 1977, TNR, p. 151. "A subtle layering of architecture and light for maritime company offices in San Francisco"—Feb. 1977, pp. 131-136. "Unusual hypar roof shelters zoo animals"—Jan. 1977, TNR, p. 154. "Visualizing the effect of earthquakes on the behavior of building structures," by Paul Weidlinger—May 1977, pp. 139-142. "What size solar heating system is economical for a house?," by Donald Watson & Fred N. Broberg—Mar. 1977, pp. 131-134.

Art Galleries. Yale Center for British Art, New Haven, Conn., Louis Kahn, archt. (with commentary by Vincent Scully, Jr.)—June 1977, pp. 95-104.

Astle, Neil & Assocs., archts.; Ball house, Omaha, Neb.—Mid-May 1977, BTS, pp. 90-93.

B

Backen, Arrigoni & Ross, Inc., archts.; Marin Tennis Club, San Raphael, Cal.—Feb. 1977, BTS, pp. 128-130.

Ball house, Omaha, Neb.; Neil Astle & Assocs., archts.—Mid-May 1977, BTS, pp. 90-93.

Barnes, Edward Larrabee, archt.; IBM World Trade Americas/Far East Corporation Headquarters, Mt. Pleasant, N.Y.—Jan. 1977, pp. 141-146.

Barnes, Edward Larrabee and Herbert S. Newman Assocs., archts.; Yale University Old Campus Renovation Phase One: Farnam, Lawrence, Welch, Vanderbilt Halls, New Haven, Conn.—Mar. 1977, pp. 93-100.

Beach house, Eastern Long Island, N.Y.; Hobart Betts Assocs., archts.—Mid-May 1977, BTS, pp. 86-89.

Best Products Company, Houston, Tex., Sacramento, Calif., Two Proposals for southern California; SITE, Inc., archts.—Mar. 1977, BTS, pp. 124-129.

Betts, Hobart Assocs., archts.; Beach house, Eastern Long Island, N.Y.—Mid-May 1977, BTS, pp. 86-89.

Birkerts, Gunnar & Assocs., archts.; Dance Instructional Facility, Purchase, N.Y.—Feb. 1977, pp. 85-90. "Defining a design methodology," by Gunnar Birkerts—Feb. 1977, pp. 91-94.

Bohlin & Powell, archts.; Coal Street Park and Ice-A-Rama, Wilkes-Barre, Pa.—Feb. 1977, BTS, pp. 124-127.

Boulevard Temple Methodist Home, Detroit, Mich.; Nathan Levine & Assocs., Inc., archts.—May 1977, BTS, p. 136.

Breger, William Assocs., archts.; C.A.B.S. Nursing Home, New York, N.Y.—May 1977, BTS, p. 134.

BP Oil Corporation, Marcus Hook, Pa.; HOK Assocs., Inc., archts.—June 1977, BTS, pp. 134-135.

Brown, Walter/Lawrence Jacobs, archts.; Lieto house, Westchester, N.Y.—Mid-May 1977, BTS, pp. 78-81.

Bruder house, New River, Ariz.; William Bruder, archt.—Mid-May 1977, BTS, pp. 104-105.

Bruder, William, archt.; Bruder house, New River, Ariz.—Mid-May 1977, BTS, pp. 104-105.

Building Activity. "Dodge/Sweet's construction outlook, 1977: first update. It's looking bigger by the minute"—Mar. 1977, pp. 63-65. "The five-year forecast: is there

growth after recovery?,"—May 1977, pp. 65-66. "New year, new Administration, new hope, new concerns," Editorial by Walter F. Wagner, Jr.—Jan. 1977, p. 13. "Regional activity in 1976 showed the shifts have stabilized"—Feb. 1977, p. 67. "Tax cuts and Federal spending needed to revive economic recovery in 1977"—Jan. 1977, p. 83.

Building Types Study 500. "Forty years of American architecture"—Apr. 1977, pp. 117-146. "The Building Types Study as a not-too-clouded crystal ball," by Charles K. Hoyt—Apr. 1977, pp. 138-146. "Magic, nostalgia and a hint of greatness in the workaday world of the Building Types Study," by Charles W. Moore & Richard B. Oliver—Apr. 1977, pp. 118-137.

Bull Field Volkmann Stockwell, archts.; Stanford Shopping Center, Palo Alto, Cal.—June 1977, pp. 105-108. Venetian Gardens, Stockton, Cal.—Mid-May 1977, BTS, pp. 120-121.

Burdines of Florida Department Store, Tampa, Fla.; Reynolds, Smith & Hills, Inc., archts.—Mar. 1977, BTS, pp. 118-123.

Butternut Hill Condominiums, Waitsfield, Vt.; Design Five, Inc., archts.—Mid-May 1977, BTS, pp. 110-111.

C

C.A.B.S. Nursing Home, New York, N.Y.; William Breger Assocs., archts.—May 1977, BTS, p. 134.

Campbell-Yost-Grube & Partners, archts.; Embarcadero Condominiums, Newport, Ore.—Mid-May 1977, BTS, pp. 114-115.

Canada. Chiu house, Vancouver, B.C.; James Cheng, archt.—Mid-May 1977, BTS, pp. 72-73. Metropolitan Toronto Zoo, Toronto, Ont.; The Thom Partnership, Clifford & Lawrie, Crank & Boake, archts.—Jan. 1977, TNR, p. 154. Museum of Anthropology, Vancouver, B.C.; Arthur Erickson Architects, archts.—May 1977, pp. 103-110. Wolf house, Toronto, Ont.; Barton Myers, archt.—Mid-May 1977, BTS, pp. 50-53.

Cardwell, Richard, archt.; Private residence, Puget Sound, Wash.—Mid-May 1977, BTS, pp. 98-99.

Catholic Medical Center, Manchester, N.H.; Huygens & Tappé Inc., archts.—Jan. 1977, TNR, p. 153.

Caudill Rowlett Scott, archts.; Dade County High School, Miami, Fla.—Jan. 1977, AB, pp. 75-78.

Center for the Study of Contemporary Art/Joan Miró Foundation, Barcelona, Spain; Sert, Jackson & Assocs., archts.—Mar. 1977, pp. 85-92.

Central Building, for the School of Art and Physical Education, Tsukuba University, Ibaragi Prefecture, Japan; Fumihiko Maki & Assocs., archts.—Apr. 1977, pp. 107-112.

Central Power House, Utica, N.Y.; Rogers, Butler & Bergun, archts.—June 1977, BTS, p. 142.

Chapell, Donald, archt.; Chapell house, Eastern Long Island, N.Y.—Mid-May 1977, BTS, pp. 76-77.

Chapell house, Eastern Long Island, N.Y.; Donald Chapell, archt.—Mid-May 1977, BTS, pp. 76-77.

Cheng, James, archt.; Chiu house, Vancouver, B.C., Canada—Mid-May 1977, BTS, pp. 72-73.

Chicago's Bureau of Architecture, Department of Public Works, archts.; Navy Pier Restoration, Chicago, Ill.—Mar. 1977, pp. 107-114.

Chiu house, Vancouver, B.C., Canada; James Cheng, archt.—Mid-May 1977, BTS, pp. 72-73.

Coal Street Park, Wilkes-Barre, Pa.; Bohlin & Powell, archts.—Feb. 1977, BTS, pp. 124-127.

Conklin & Rossant, archts.; Monument East Apartments, Baltimore, Md.—May 1977, BTS, pp. 128-129.

Construction Management. "Construction management, in a Miami test, saves \$1.5 million"—Jan. 1977, AB, pp. 75-78. "Creating a healthy financial climate for construction requires a delicate balance by the Administration and Federal Reserve"—Apr. 1977, AB, p. 73.

Copelin, Lee & Chen, archts.; Uptown Racquet Club, New York, N.Y.—Feb. 1977, BTS, pp. 117-119.

Crest Apartments, St. Helens, Ore.; Robert Foote, archt.—Mid-May 1977, BTS, pp. 116-117.

Crissman & Solomon, archts.; Offices of Crissman & Solomon, Watertown, Mass.—Jan. 1977, BTS, pp. 106-107.

Private residence, New York State—Mid-May 1977, BTS, pp. 94-97.

Crowley Maritime Corporation Headquarters, San Francisco, Calif.; Robinson & Mills Architecture and Planning, archts.—Feb. 1977, AE, pp. 131-136.

D

Dade County High School, Miami, Fla.; Caudill Rowlett Scott, archts.—Jan. 1977, AB, pp. 75-78.

Dance Instructional Facility, Purchase, N.Y.; Gunnar Birkerts & Assocs., archts.—Feb. 1977, pp. 85-90.

Desert house, Albuquerque, N.M.; Antoine Predock, archt.—Mid-May 1977, BTS, pp. 60-61.

Design Consortium/Zuber, Inc., archts.; Architect's Offices, Minneapolis, Minn.—Jan. 1977, BTS, pp. 114-115.

Design Five, Inc., archts.; Butternut Hill Condominiums, Waitsfield, Vt.—Mid-May 1977, BTS, pp. 110-111.

De Vido, Alfredo & John H. MacFadyen, archts.; Robin Hood Dell West, Philadelphia, Pa.—Jan. 1977, pp. 129-132.

E

Editorials. "An urban mayor offers some sensible strategies in searching for a new urban policy," by Walter F. Wagner, Jr.—Mar. 1977, p. 13. "Maybe this year we can get back to talking about design quality?," by Walter F. Wagner, Jr.—Feb. 1977, p. 13. "A new start for housing: what we need most are new approaches," by Walter F. Wagner, Jr.—Apr. 1977, p. 13. "New year, new Administration, new hope, new concerns," by Walter F. Wagner, Jr.—Jan. 1977, p. 13. "Solar energy: some hopes and some concerns," by Walter F. Wagner, Jr.—June 1977, p. 13. "Some random thoughts on ethics . . .," by Walter F. Wagner, Jr.—May 1977, p. 13.

ELS Design Group and Arthur Cotton Moore Assocs., archts.; 1055 Thomas Jefferson Street, Georgetown, Washington, D.C.—Feb. 1977, pp. 95-102.

Embarcadero Condominiums, Newport, Ore.; Campbell-Yost-Grube & Partners, archts.—Mid-May 1977, BTS, pp. 114-115.

Energy Conservation. "Daylighting design aids emerge as interest grows in the technique"—Jan. 1977, TNR, p. 152. "What size solar heating system is economical for a house?," by Donald Watson & Fred N. Broberg—Mar. 1977, AE, pp. 131-134.

Erdos house, Northern Ohio; J. Lawrence Scott, archt.—Mid-May 1977, BTS, pp. 62-63.

Erickson, Arthur, archts.; Museum of Anthropology, Vancouver, B.C., Canada—May 1977, pp. 103-110.

Erie County Medical Center, Buffalo, N.Y.; Foit, Maharan, Sloan & Schneider, archts.—Jan. 1977, TNR, p. 151.

F

5th Street Subway Station, Philadelphia, Pa.; Ueland & Junker, archts.—Jan. 1977, BTS, pp. 102-103.

First-Bagley Parking Garage, Detroit, Mich.; Albert Kahn Assocs. Inc., archts.—June 1977, AE, pp. 143-144.

Fisher-Friedman Assocs., archts.; Whalers' Cove, Foster City, Cal.—Mid-May 1977, BTS, pp. 124-126.

Fleig, Jack, archt.; Leisure World Electronics, Baraboo, Wisc.—Jan. 1977, BTS, pp. 116-117.

Florida Christian Home Apartments, Jacksonville, Fla.; Freedman/Clements/Rumpel, archts.—May 1977, BTS, pp. 132-133.

Foit, Maharan, Sloan & Schneider, archts.; Erie County Medical Center, Buffalo, N.Y.—Jan. 1977, TNR, p. 151.

Foote, Robert, archt.; Crest Apartments, St. Helens, Ore.—Mid-May 1977, BTS, pp. 116-117.

Foreign Architecture. See individual country.

Franzen Apartment, New York, N.Y.; Ulrich Franzen,

archt.—Jan. 1977, BTS, pp. 126-128.

Franzen, Ulrich, archt.; Franzen Apartment, New York, N.Y.—Jan. 1977, BTS, pp. 126-128.

Fread Sanctuary, Temple Beth El, West Palm Beach, Fla.; Alfred Browning Parker Architects, archts.—Feb. 1977, pp. 111-114.

Freedman/Clements/Rumpel, archts.; Florida Christian Home Apartments, Jacksonville, Fla.—May 1977, BTS, pp. 132-133.

G

Geddes Brecher Qualls Cunningham, archts.; Stockton State College, Pomona, N.J.—May 1977, pp. 95-102.

Gelardin Bruner Cott, archts.; Private residence, Weston, Mass.—Mid-May 1977, BTS, pp. 56-59.

Gibbs, Hugh & Donald Gibbs Architects and SLS-Environetics, archts.; Relta Steamship Company Offices, Long Beach, Cal.—Jan. 1977, BTS, pp. 122-125.

Givens Estates, Inc., Asheville, N.C.; William Morgan Architects, archts.—May 1977, BTS, p. 125.

Goecker Residence, The Sea Ranch, Cal.; Donald Jacobs, archt.—Jan. 1977, pp. 147-150.

Gordon/Spencer, archts.; Squash 1, Mamaroneck, N.Y.—Jan. 1977, BTS, pp. 108-109.

Gray house, Santa Barbara, Cal.; Warner & Gray, archts.—Mid-May 1977, BTS, pp. 100-103.

Gruen Assocs. of Los Angeles, archts.; United States Embassy Office Building, Tokyo, Japan—Apr. 1977, pp. 101-106.

Grundy Tower, Bristol, Pa.; Louis Sauer Assocs., archts.—May 1977, BTS, pp. 130-131.

Gruzen & Partners, archts.; Palisade Nursing Home, New York, N.Y.—May 1977, BTS, pp. 126-127.

H

Hagmann, John & Robert Stern, archts.; Private Apartment, Elkins Park, Pa.—Jan. 1977, BTS, pp. 110-113.

Hampden Country Club, Hampden, Mass.; Paolo Riani Assocs., archts.—Feb. 1977, BTS, pp. 122-123.

Hartman-Cox Architects, archts.; National Park Service Stable, Washington, D.C.—Feb. 1977, BTS, pp. 120-121.

Private residence, Potomac, Md.—May 1977, pp. 119-122.

Hennepin County Government Center, Minneapolis, Minn.; John Carl Warnecke & Assocs., archts.—Mar. 1977, pp. 101-106.

Hewlett-Packard Microelectronics Plant, Santa Rosa, Cal.; John Carl Warnecke & Assocs., archts.—June 1977, BTS, pp. 128-129.

HOK Assocs., Inc., archts.; BP Oil Corporation, Marcus Hook, Pa.—June 1977, BTS, pp. 134-135.

Saginaw Road Development Plan, Midland, Mich.—June 1977, BTS, pp. 134-135.

Hospitals. Catholic Medical Center, Manchester, N.H.; Huygens & Tappé Inc., archts.—Jan. 1977, TNR, p. 153.

Erie County Medical Center, Buffalo, N.Y.; Foit, Maharan, Sloan & Schneider, archts.—Jan. 1977, TNR, p. 151. See also Medical Facilities.

Houses. "Record Houses of 1977," Building Types Study 502—Mid-May, pp. 49-126. Arango house, Acapulco, Mexico; John Lautner, archt.—Mid-May 1977, BTS, pp. 64-67. Ball house, Omaha, Neb.; Neil Astle & Assocs., archts.—Mid-May 1977, BTS, pp. 90-93. Beach house, Eastern Long Island, N.Y.; Hobart Betts Assocs., archts.—Mid-May 1977, BTS, pp. 86-89. Bruder house, New River, Ariz.; William Bruder, archt.—Mid-May 1977, BTS, pp. 104-105. Chapell house, Eastern Long Island, N.Y.; Donald Chapell, archt.—Mid-May 1977, BTS, pp. 76-77. Chiu house, Vancouver, B.C., Canada; James Cheng, archt.—Mid-May 1977, BTS, pp. 72-73. Desert house, Albuquerque, N.M.; Antoine Predock, archt.—Mid-May 1977, BTS, pp. 60-61. Erdos house, Northern Ohio; J. Lawrence Scott, archt.—Mid-May 1977, BTS, pp. 62-63. Goecker Residence, The Sea Ranch, Cal.; Donald Jacobs, archt.—Jan. 1977, pp. 147-150. Gray house, Santa Barbara, Cal.; Warner & Gray, archts.—Mid-May 1977, BTS, pp. 100-103. Lieto house, Westchester, N.Y.; Walter Brown/Lawrence Jacobs, archts.—Mid-May 1977, BTS, pp. 78-81. Maxey house, Wayne County, Pa.; Lyman Perry, archt.—Mid-May 1977, BTS, pp. 74-75. Private residence, Arlington, Va.; Arthur Cotton Moore Assocs., archts.—Mid-May 1977, BTS, pp. 84-85. Private residence, Long Island, N.Y.; Norman Jaffe, archt.—Mid-May 1977, BTS, pp. 54-55. Private residence, New York State; Crissman & Solomon, archts.—Mid-May 1977, BTS, pp. 94-97. Private residence, Northern Florida; William Morgan Architects,

archts.—Mid-May 1977, BTS, pp. 106-108. Private residence, Potomac, Md.; Hartman-Cox Architects, archts.—May 1977, pp. 119-122. Private residence, Puget Sound, Wash.; Richard Cardwell, archt.—Mid-May 1977, BTS, pp. 98-99. Private residence, southern Cal.; Paul Thoryk & Assocs., archts.—Apr. 1977, pp. 113-116. Private residence, Westchester, N.Y.; Richard Meier & Assocs., archts.—Mid-May 1977, BTS, pp. 68-71. Private residence, Weston, Mass.; Gelardin Bruner Cott, archts.—Mid-May 1977, BTS, pp. 56-59. Residential remodeling and addition, Chevy Chase, Md.; Hugh Newell Jacobsen, archt.—Mid-May 1977, BTS, pp. 82-83. Two houses by Charles Moore, contrasted: Private residence near New York; Charles W. Moore Assocs., archts. (now Moore Grover Harper, P.C.); Swan house, Long Island, N.Y.; Charles W. Moore Assocs. with Richard B. Oliver, archts.—June 1977, pp. 109-116. "What size solar heating system is economical for a house?," by Donald Watson & Fred N. Broberg—Mar. 1977, AE, pp. 131-134. Wolf house, Toronto, Ont., Canada; Barton Myers, archt.—Mid-May 1977, BTS, pp. 50-53.

Housing & Apartments. "Housing the Aging," Building Types Study 501—May 1977, pp. 123-138. "Record Houses of 1977," Building Types Study 502—Mid-May 1977, pp. 49-126. "An urban mayor offers some sensible strategies in searching for a new urban policy," Editorial by Walter F. Wagner, Jr.—Mar. 1977, p. 13. Apogee 1, Coconut Grove, Miami, Fla.; Robert Altman, Denis Arden, Charles Sieger, archts.—Mid-May 1977, BTS, pp. 112-113. Butternut Hill Condominiums, Waitsfield, Vt.; Design Five, Inc., archts.—Mid-May 1977, BTS, pp. 110-111. Crest Apartments, St. Helens, Ore.; Robert Foote, archt.—Mid-May 1977, BTS, pp. 116-117. Embarcadero Condominiums, Newport, Ore.; Campbell-Yost-Grube & Partners, archts.—Mid-May 1977, BTS, pp. 114-115. Florida Christian Home Apartments, Jacksonville, Fla.; Freedman/Clements/Rumpel, archts.—May 1977, BTS, pp. 132-133. Franzen Apartment, New York, N.Y.; Ulrich Franzen, archt.—Jan. 1977, BTS, pp. 126-128. The Givens Estates, Inc., Asheville, N.C.; William Morgan Architects, archts.—May 1977, BTS, p. 125. Grundy Tower, Bristol, Pa.; Louis Sauer Assocs., archts.—May 1977, BTS, pp. 130-131. The Landings, near Buffalo, N.Y.; Morse & Harvey, archts.—Mid-May 1977, BTS, pp. 118-119. Monument East Apartments, Baltimore, Md.; Conklin & Rossant, archts.—May 1977, BTS, pp. 128-129. "A new start for housing: what we need most are new approaches," Editorial by Walter F. Wagner, Jr.—Apr. 1977, p. 13. Palisade Nursing Home, New York, N.Y.; Gruzen & Partners, archts.—May 1977, BTS, pp. 126-127. Private Apartment, Elkins Park, Pa.; Robert Stern & John Hagmann, archts.—Jan. 1977, BTS, pp. 110-113. Private Apartments, New York, N.Y.; R. M. Klimont & Frances Halsband, archts.—Feb. 1977, pp. 103-105. Sunrise Apartments, Sacramento, Cal.; Sandy/Babcock, archts.—Mid-May 1977, BTS, pp. 122-123. Venetian Gardens, Stockton, Cal.; Bull Field Volkman Stockwell, archts.—Mid-May 1977, BTS, pp. 120-121. Whalers' Cove, Foster City, Cal.; Fisher-Friedman Assocs., archts.—Mid-May 1977, BTS, pp. 124-126. "What are concerned architects doing about the aging's problems?,"—May 1977, BTS, p. 135. "What do the real clients, the aging, think about the current facilities?," by Margaret Bemiss—May 1977, BTS, pp. 137-138. Yale University Old Campus Renovation Phase One: Farnam, Lawrence, Welch, Vanderbilt Halls, New Haven, Conn.; Edward Larrabee Barnes and Herbert S. Newman Assocs., archts.—Mar. 1977, pp. 93-100.

Hoyt, Charles K., "The Building Types Study as a not-too-clouded crystal ball"—Apr. 1977, BTS, pp. 138-146.

Huygens & Tappé Inc., archts.; Catholic Medical Center, Manchester, N.H.—Jan. 1977, TNR, p. 153.

I

Ice-A-Rama, Wilkes-Barre, Pa.; Bohlin & Powell, archts.—Feb. 1977, BTS, pp. 124-127.

Industrial Buildings. "Industrial Buildings," Building Types Study 503—June 1977, pp. 127-142. BP Oil Corporation, Marcus Hook, Pa.; HOK Assocs., Inc., archts.—June 1977, BTS, pp. 134-135. Central Power House, Utica, N.Y.; Rogers, Butler & Bergun, archts.—June 1977, BTS, p. 142. Hewlett-Packard Microelectronics Plant, Santa Rosa, Cal.; John Carl Warnecke & Assocs., archts.—June 1977, BTS, pp. 128-129. Printing Plant and Office for the Logan Leader/The News Democrat, Russellville, Ky.; Ryan, Cooke & Zuern Assocs., Inc.—June 1977, BTS, pp. 136-137. Saginaw Road Development Plan, Midland,

Mich.; HOK Assocs., Inc., archts.—June 1977, BTS, pp. 134-135. Sears, Roebuck and Company National Catalog Fashion Distribution Center, Elk Grove, Ill.; Skidmore, Owings & Merrill, archts.—June 1977, BTS, pp. 130-131. Sterling Heights Public Service Facility, Sterling Heights, Mich.; Straub, Van Dine, Dziurman Architects, archts.—June 1977, BTS, pp. 138-139. Western Headquarters, Joseph E. Seagram & Sons, Inc., Des Plaines, Ill.; Pasanella & Klein, archts.—June 1977, BTS, pp. 140-141. Windsor Winery at Sonoma Vineyards, Healdsburg, Cal.; Roland/Miller/Assocs., archts.—June 1977, BTS, pp. 132-133.

Interiors. "Record Interiors of 1977," Building Types Study 497—Jan. 1977, pp. 101-128. Architect's Offices, Minneapolis, Minn.; Design Consortium/Zuber, Inc., archts.—Jan. 1977, BTS, pp. 114-115. Crowley Maritime Corporation Headquarters, San Francisco, Cal.; Robinson & Mills Architecture and Planning, archts.—Feb. 1977, AE, pp. 131-136. 5th Street Subway Station, Philadelphia, Pa.; Ueland & Junker, archts.—Jan. 1977, BTS, pp. 102-103. Franzen Apartment, New York, N.Y.; Ulrich Franzen, archt.—Jan. 1977, BTS, pp. 126-128. Leisure World Electronics, Baraboo, Wisc.; Jack Fleig, archt.—Jan. 1977, BTS, pp. 116-117. Offices of Crissman & Solomon, Watertown, Mass.; Crissman & Solomon, archts.—Jan. 1977, BTS, pp. 106-107. Plaza Club, Worcester County National Bank, Worcester Plaza, Worcester, Mass.; Roche Dinkeloo & Assocs., archts.—Jan. 1977, BTS, pp. 104-105. Private Apartment, Elkins Park, Pa.; Robert Stern & John Hagmann, archts.—Jan. 1977, BTS, pp. 110-113. The Providence Journal Publishing Company, Providence, R.I.; Warren Platner Assocs., archts.—Jan. 1977, BTS, pp. 118-121. Relta Steamship Company Offices, Long Beach, Cal.; Hugh Gibbs & Donald Gibbs Architects and SLS-Environetics, archts.—Jan. 1977, BTS, pp. 122-125. Squash 1, Mamaroneck, N.Y.; Gordon/Spencer, archts.—Jan. 1977, BTS, pp. 108-109. Yale University Old Campus Renovation Phase One: Farnam, Lawrence, Welch, Vanderbilt Halls, New Haven, Conn.; Edward Larrabee Barnes and Herbert S. Newman Assocs., archts.—Mar. 1977, pp. 93-100.

IBM World Trade Americas/Far East Corporation Headquarters, Mt. Pleasant, N.Y.; Edward Larrabee Barnes, archt.—Jan. 1977, pp. 141-146.

J

Jacobs, Donald, archt.; Goecker Residence, The Sea Ranch, Cal.—Jan. 1977, pp. 147-150.

Jacobsen, Hugh Newell, archt.; Residential remodeling and addition, Chevy Chase, Md.—Mid-May 1977, BTS, pp. 82-83.

Jaffe, Norman, archt.; Private residence, Long Island, N.Y.—Mid-May 1977, BTS, pp. 54-55.

Japan. The Central Building, for the School of Art and Physical Education, Tsukuba University, Ibaragi Prefecture; Fumihiko Maki & Assocs., archts.—Apr. 1977, pp. 107-112. United States Embassy Office Building, Tokyo; Gruen Assocs. of Los Angeles, archts.—Apr. 1977, pp. 101-106. John Hancock Tower, Boston, Mass.; I. M. Pei & Partners, archts.—June 1977, pp. 117-126.

K

Kahn, Albert Assocs. Inc., archts.; First-Bagley Parking Garage, Detroit, Mich.—June 1977, AE, pp. 143-144.

Kahn, Louis, archt.; Yale Center for British Art, New Haven, Conn. (with commentary by Vincent Scully, Jr.)—June 1977, pp. 95-104.

Kliment, R. M. & Frances Halsband, archts.; Four projects: private apartments, New York, N.Y.—Feb. 1977, pp. 103-105; Law offices, New York, N.Y.—Feb. 1977, pp. 106-107; Woodstock Sidewalk District, Woodstock, N.Y.—Feb. 1977, pp. 108-110.

L

Landings (The), near Buffalo, N.Y.; Morse & Harvey, archts.—Mid-May 1977, BTS, pp. 118-119.

Lautner, John, archt.; Arango house, Acapulco, Mexico—Mid-May 1977, BTS, pp. 64-67.

Law Offices, New York, N.Y.; R. M. Kliment & Frances Halsband, archts.—Feb. 1977, pp. 106-107.

Legal Perspectives. "Advertising and AIA ethics: For all the activity, no early resolution is in sight," by Arthur T. Kornblut, Esq.—May 1977, p. 73. "A basic guide to pitfalls in foreign contracts," by Philip F. Purcell—June

1977, p. 69. Document A201: "In spite of the controversy, A201 basically reaffirms traditional practices," by Arthur T. Kornblut, Esq.—Part 1, Mar. 1977, pp. 55-57; "Document A201 strives to clarify—not change—the roles of architect, contractor and owner," by Arthur T. Kornblut, Esq.—Part 2, Apr. 1977, pp. 67-69. "Putting the issue of professional liability into perspective," by Arthur T. Kornblut, Esq.—Feb. 1977, p. 57.

Leisure World Electronics, Baraboo, Wisc.; Jack Fleig, archt.—Jan. 1977, BTS, pp. 116-117.

Levine, Nathan & Assocs., Inc., archts.; Boulevard Temple Methodist Home, Detroit, Mich.—May 1977, BTS, p. 136.

Lieto house, Westchester, N.Y.; Walter Brown/Lawrence Jacobs, archts.—Mid-May 1977, BTS, pp. 78-81.

Lighting. Crowley Maritime Corporation Headquarters, San Francisco, Cal.; Robinson & Mills Architecture and Planning, archts.—Feb. 1977, AE, pp. 131-136.

M

MacFadyen, John H. & Alfredo De Vido, archts.; Robin Hood Dell West, Philadelphia, Pa.—Jan. 1977, pp. 129-132.

Maki, Fumihiko & Assocs., archts.; Central Building, for the School of Art and Physical Education, Tsukuba University, Ibaragi Prefecture, Japan—Apr. 1977, pp. 107-112.

Marin Tennis Club, San Raphael, Cal.; Backen, Arrigoni & Ross, Inc., archts.—Feb. 1977, BTS, pp. 128-130.

Maxey house, Wayne County, Pa.; Lyman Perry, archt.—Mid-May 1977, BTS, pp. 74-75.

Medical Facilities. "Housing the Aging," Building Types Study 501—May 1977, pp. 123-138. Boulevard Temple Methodist Home, Detroit, Mich.; Nathan Levine & Assocs., Inc., archts.—May 1977, BTS, p. 136. C.A.B.S. Nursing Home, New York, N.Y.; William Breger Assocs., archts.—May 1977, BTS, p. 134. Florida Christian Home Apartments, Jacksonville, Fla.; Freedman/Clements/Rumpel, archts.—May 1977, BTS, pp. 132-133. The Givens Estates, Inc., Asheville, N.C.; William Morgan Architects, archts.—May 1977, BTS, p. 125. Palisade Nursing Home, New York, N.Y.; Gruzen & Partners, archts.—May 1977, BTS, pp. 126-127. "What are concerned architects doing about the aging's problems?,"—May 1977, BTS, p. 135. "What do the real clients, the aging, think about the current facilities?," by Margaret Bemiss—May 1977, BTS, pp. 137-138. See also Hospitals.

Meier, Richard & Assocs., archts.; Private residence, Westchester, N.Y.—Mid-May 1977, BTS, pp. 68-71.

Metropolitan Toronto Zoo, Toronto, Canada; The Thom Partnership, Clifford & Lawrie, Crank & Boake, archts.—Jan. 1977, TNR, p. 154.

Mexico. Arango house, Acapulco; John Lautner, archt.—Mid-May 1977, BTS, pp. 64-67.

Miró, Joan Foundation/Center for the Study of Contemporary Art, Barcelona, Spain; Sert, Jackson & Assocs., archts.—Mar. 1977, pp. 85-92.

Monument East Apartments, Baltimore, Md.; Conklin & Rosant, archts.—May 1977, BTS, pp. 128-129.

Moore, Arthur Cotton Assocs., archts.; Private residence, Arlington, Va.—Mid-May 1977, BTS, pp. 84-85.

Moore, Arthur Cotton Assocs. and ELS Design Group, archts.; 1055 Thomas Jefferson Street, Georgetown, Washington, D.C.—Feb. 1977, pp. 95-102.

Moore, Charles W. Assocs., archts. (now Moore Grover Harper, P.C.); Two houses, contrasted: private residence near New York; Swan House, Long Island, N.Y. (with Richard B. Oliver)—June 1977, pp. 109-116.

Moore, Charles W. & Richard B. Oliver, "Magic, nostalgia and a hint of greatness in the workaday world of the Building Types Study"—Apr. 1977, BTS, pp. 118-137.

Morgan, William Architects, archts.; The Givens Estates, Inc., Asheville, N.C.—May 1977, BTS, p. 125. Private residence, Northern Florida—Mid-May 1977, BTS, pp. 106-108. Morse & Harvey, archts.; The Landings, near Buffalo, N.Y.—Mid-May 1977, BTS, pp. 118-119.

Museums. Center for the Study of Contemporary Art/Joan Miró Foundation, Barcelona, Spain; Sert, Jackson & Assocs., archts.—Mar. 1977, pp. 85-92. Museum of Anthropology, Vancouver, B.C., Canada; Arthur Erickson Architects, archts.—May 1977, pp. 103-110.

Myers, Barton, archt.; Wolf house, Toronto, Ont., Canada—Mid-May 1977, BTS, pp. 50-53.

N

National Park Service Stable, Washington, D.C.; Hartman-Cox Architects, archts.—Feb. 1977, BTS, pp. 120-121.

Navy Pier Restoration, Chicago, Ill.; Department of Public

Works, City of Chicago, Bureau of Architecture, archts.—Mar. 1977, pp. 107-114.

Newman, Herbert S. Assocs. and Edward Larrabee Barnes, archts.; Yale University Old Campus Renovation Phase One: Farnam, Lawrence, Welch, Vanderbilt Halls, New Haven, Conn.—Mar. 1977, pp. 93-100.

O

Office Buildings. IBM World Trade Americas/Far East Corporation Headquarters, Mt. Pleasant, N.Y.; Edward Larrabee Barnes, archt.—Jan. 1977, pp. 141-146. John Hancock Tower, Boston, Mass.; I. M. Pei & Partners, archts.—June 1977, pp. 117-126. 1055 Thomas Jefferson Street, Georgetown, Washington, D.C.; ELS Design Group and Arthur Cotton Moore Assocs., archts.—Feb. 1977, pp. 95-102. United States Embassy Office Building, Tokyo, Japan; Gruen Assocs. of Los Angeles, archts.—Apr. 1977, pp. 101-106. World Trade Center Observation Deck, South Tower, World Trade Center, New York, N.Y.; Warren Platner Assocs., archts.—May 1977, p. 118.

Offices. Architect's Offices, Minneapolis, Minn.; Design Consortium/Zuber, Inc., archts.—Jan. 1977, BTS, pp. 114-115. Crowley Maritime Corporation Headquarters, San Francisco, Cal.; Robinson & Mills Architecture and Planning, archts.—Feb. 1977, AE, pp. 131-136. Law Offices, New York, N.Y.; R. M. Kliment & Frances Halsband, archts.—Feb. 1977, pp. 106-107. Offices of Crissman & Solomon, Watertown, Mass.; Crissman & Solomon, archts.—Jan. 1977, BTS, pp. 106-107. The Providence Journal Publishing Company, Providence, R.I.; Warren Platner Assocs., archts.—Jan. 1977, BTS, pp. 118-121. Relta Steamship Company Offices, Long Beach, Cal.; Hugh Gibbs & Donald Gibbs Architects and SLS-Environetics, archts.—Jan. 1977, BTS, pp. 122-125.

Oliver, Richard B. & Charles W. Moore, "Magic, nostalgia and a hint of greatness in the workaday world of the Building Types Study"—Apr. 1977, BTS, pp. 118-137.

Oliver, Richard B. with Charles W. Moore Assocs. (now Moore Grover Harper, P.C.) archts.; Swan house, Long Island, N.Y.—June 1977, pp. 109-116.

P

Palisade Nursing Home, New York, N.Y.; Gruzen & Partners, archts.—May 1977, BTS, pp. 126-127.

Parker, Alfred Browning Architects, archts.; Fred Sanctuary, Temple Beth El, West Palm Beach, Fla.—Feb. 1977, pp. 111-114.

Parking. First-Bagley Parking Garage, Detroit, Mich.; Albert Kahn Assocs. Inc., archts.—June 1977, AE, pp. 143-144. Pasanella & Klein, archts.; Western Headquarters, Joseph E. Seagram & Sons, Inc.—June 1977, BTS, pp. 140-141.

Pei, I. M. & Partners, archts.; John Hancock Tower, Boston, Mass.—June 1977, pp. 117-126.

Performing Arts Buildings. Robin Hood Dell West, Philadelphia, Pa.; John H. MacFadyen & Alfredo De Vido, archts.—Jan. 1977, pp. 129-132.

Perry, Lyman, archt.; Maxey house, Wayne County, Pa.—Mid-May 1977, BTS, pp. 74-75.

Planning. "An urban mayor offers some sensible strategies in searching for a new urban policy," Editorial by Walter F. Wagner, Jr.—Mar. 1977, p. 13. Woodstock Sidewalk District, Woodstock, N.Y.; R. M. Kliment & Frances Halsband, archts.—Feb. 1977, pp. 108-110.

Platner, Warren Assocs., archts.; The Providence Journal Publishing Company, Providence, R.I.—Jan. 1977, BTS, pp. 118-121. Windows on the World and The Club at the World Trade Center, North Tower, World Trade Center, New York, N.Y.—May 1977, pp. 111-118. World Trade Center Observation Deck, South Tower, World Trade Center, New York, N.Y.—May 1977, p. 118.

Plaza Club, Worcester County National Bank, Worcester Plaza, Worcester, Mass.; Roche Dinkeloo & Assocs., archts.—Jan. 1977, BTS, pp. 104-105.

Portman, John, archt., "An architecture for people and not for things"—Jan. 1977, pp. 133-140.

Predock, Antoine, archt.; Desert house, Albuquerque, N.M.—Mid-May 1977, BTS, pp. 60-61.

Printing Plant and Office for the Logan Leader/The News Democrat, Russellville, Ky.; Ryan, Cooke & Zuern Assocs., Inc.—June 1977, BTS, pp. 136-137.

Providence Journal Publishing Company, Providence, R.I.; Warren Platner Assocs., archts.—Jan. 1977, BTS, pp. 118-121.

Public Buildings. Hennepin County Government Center, Minneapolis, Minn.; John Carl Warnecke & Assocs., archts.—Mar. 1977, pp. 101-106.

R

Recreational Facilities. "Building for Sport," Building Types Study 498—Feb. 1977, pp. 115-130. Coal Street Park, Wilkes-Barre, Pa.; Bohlin & Powell, archts.—Feb. 1977, BTS, pp. 124-127. Hampden Country Club, Hampden, Mass.; Paolo Riani Assocs., archts.—Feb. 1977, BTS, pp. 122-123. Ice-A-Rama, Wilkes-Barre, Pa.; Bohlin & Powell, archts.—Feb. 1977, BTS, pp. 124-127. Marin Tennis Club, San Raphael, Cal.; Backen, Arrigoni & Ross, Inc., archts.—Feb. 1977, BTS, pp. 128-130. Metropolitan Toronto Zoo, Toronto, Ont., Canada; the Thom Partnership, Clifford & Lawrie, Crank & Boake, archts.—Jan. 1977, TNR, p. 154. National Park Service Stable, Washington, D.C.; Hartman-Cox Architects, archts.—Feb. 1977, BTS, pp. 120-121. Navy Pier Restoration, Chicago, Ill.; Department of Public Works, City of Chicago, Bureau of Architecture, archts.—Mar. 1977, pp. 107-114. Squash 1, Mamaroneck, N.Y.; Gordon/Spencer, archts.—Jan. 1977, BTS, pp. 108-109. Uptown Racquet Club, New York, N.Y.; Copelin, Lee & Chen, archts.—Feb. 1977, BTS, pp. 117-119.

Religious Buildings. Fread Sanctuary, Temple Beth El, West Palm Beach, Fla.; Alfred Browning Parker Architects, archts.—Feb. 1977, pp. 111-114.

Relta Steamship Company Offices, Long Beach, Cal.; Hugh Gibbs & Donald Gibbs Architects and SLS-Environetics, archts.—Jan. 1977, BTS, pp. 122-125.

Renovations & Restorations. Architect's Offices, Minneapolis, Minn.; Design Consortium/Zuber, Inc., archts.—Jan. 1977, BTS, pp. 114-115. 5th Street Subway Station, Philadelphia, Pa.; Ueland & Junker, archts.—Jan. 1977, BTS, pp. 102-103. Franzen Apartment, New York, N.Y.; Ulrich Franzen, archt.—Jan. 1977, BTS, pp. 126-128. Law Offices, New York, N.Y.; R. M. Kliment & Frances Halsband, archts.—Feb. 1977, pp. 106-107. Leisure World Electronics, Baraboo, Wisc.; Jack Fleig, archt.—Jan. 1977, BTS, pp. 116-117. Navy Pier Restoration, Chicago, Ill.; Department of Public Works, City of Chicago, Bureau of Architecture, archts.—Mar. 1977, pp. 107-114. Offices of Crissman & Solomon, Watertown, Mass.; Crissman & Solomon, archts.—Jan. 1977, BTS, pp. 106-107. Private apartments, New York, N.Y.; R. M. Kliment & Frances Halsband, archts.—Feb. 1977, pp. 103-105. Private residence, New York State; Crissman & Solomon, archts.—Mid-May 1977, BTS, pp. 94-97. The Providence Journal Publishing Company, Providence, R.I.; Warren Platner Assocs., archts.—Jan. 1977, BTS, pp. 118-121. Relta Steamship Company Offices, Long Beach, Cal.; Hugh Gibbs & Donald Gibbs Architects and SLS-Environetics, archts.—Jan. 1977, BTS, pp. 122-125. Residential remodeling and addition, Chevy Chase, Md.; Hugh Newell Jacobsen, archt.—Mid-May 1977, BTS, pp. 82-83. Squash/1, Mamaroneck, N.Y.; Gordon/Spencer, archts.—Jan. 1977, BTS, pp. 108-109. Woodstock Sidewalk District, Woodstock, N.Y.; R. M. Kliment & Frances Halsband, archts.—Feb. 1977, pp. 108-110. Yale University Old Campus Renovation Phase One: Farnam, Lawrance, Welch, Vanderbilt Halls, New Haven, Conn.; Edward Larrabee Barnes and Herbert S. Newman Assocs., archts.—Mar. 1977, pp. 93-100.

Restaurants. Plaza Club, Worcester County National Bank, Worcester Plaza, Worcester, Mass.; Roche Dinkeloo & Assocs., archts.—Jan. 1977, BTS, pp. 104-105. 1055 Thomas Jefferson Street, Georgetown, Washington, D.C.; ELS Design Group and Arthur Cotton Moore Assocs., archts.—Feb. 1977, pp. 95-102. Windows on the World and The Club at the World Trade Center, North Tower, World Trade Center, New York, N.Y.; Warren Platner Assocs., archts.—May 1977, pp. 111-118.

Reynolds, Smith & Hills, Inc., archts.; Burdines of Florida Department Store, Tampa, Fla.—Mar. 1977, BTS, pp. 118-123.

Riani, Paolo Assocs., archts.; Hampden Country Club, Hampden, Mass.—Feb. 1977, BTS, pp. 122-123.

Robin Hood Dell West, Philadelphia, Pa.; John H. MacFadyen & Alfredo De Vido, archts.—Jan. 1977, pp. 129-132.

Robinson & Mills Architecture and Planning, archts.; Crowley Maritime Corporation Headquarters, San Francisco, Cal.—Feb. 1977, AE, pp. 131-136.

Roche Dinkeloo & Assocs., archts.; Plaza Club, Worcester County National Bank, Worcester Plaza, Worcester, Mass.—Jan. 1977, BTS, pp. 104-105.

Rogers, Butler & Bergun, archts.; Central Power House, Utica, N.Y.—June 1977, BTS, p. 142.

Roland/Miller/Assocs., archts.; Windsor Winery at Sonoma Vineyards, Healdsburg, Cal.—June 1977, BTS, pp. 132-133.

Roofing. "Unusual hypar roof shelters zoo animals"—Jan. 1977, TNR, p. 154.

Ryan, Cooke & Zuern Assocs., Inc., archts.; Printing Plant and Office for the Logan Leader/The News Democrat, Russellville, Ky.—June 1977, BTS, pp. 136-137.

S

Saginaw Road Development Plan, Midland, Mich.; HOK Assocs., Inc., archts.—June 1977, BTS, pp. 134-135.

Sandy/Babcock, archts.; Sunrise Apartments, Sacramento, Cal.—Mid-May 1977, BTS, pp. 122-123.

Sauer, Louis Assocs., archts.; Grundy Tower, Bristol, Pa.—May 1977, BTS, pp. 130-131.

Schools. Dade County High School, Miami, Fla.; Caudill Rowlett Scott, archts.—Jan. 1977, AB, pp. 75-78.

Scott, J. Lawrence, archt.; Erdos house, Northern Ohio—Mid-May 1977, BTS, pp. 62-63.

Sears, Roebuck and Company National Catalog Fashion Distribution Center, Elk Grove, Ill.; Skidmore, Owings & Merrill, archts.—June 1977, BTS, pp. 130-131.

Sert, Jackson & Assocs., archts.; Center for the Study of Contemporary Art/Joan Miró Foundation, Barcelona, Spain—Mar. 1977, pp. 85-92.

Shopping Centers. Stanford Shopping Center, Palo Alto, Cal.; Bull Field Volkman Stockwell, archts.—June 1977, pp. 105-108.

SITE, Inc., archts.; Best Products Company, Houston, Tex.; Sacramento, Calif.; Two proposals for southern California—Mar. 1977, BTS, pp. 124-129. "How Best Products profits from SITE, Inc.'s designs," by Edwin Slipek—Mar. 1977, BTS, pp. 129-130.

Skidmore, Owings & Merrill, archts.; Sears, Roebuck and Company National Catalog Fashion Distribution Center, Elk Grove, Ill.—June 1977, BTS, pp. 130-131.

SLS-Environetics and Hugh Gibbs & Donald Gibbs Architects, archts.; Relta Steamship Company Offices, Long Beach, Cal.—Jan. 1977, BTS, pp. 122-125.

Smith, Hinchman & Grylls Assocs., Inc., archts.; "Regulatory codes: one firm's check list for industrial projects," by Joseph E. Compton—June 1977, AB, pp. 65-67.

Solar Energy. "Solar energy: some hopes and some concerns," Editorial by Walter F. Wagner, Jr.—June 1977, p. 13. "What size solar heating system is economical for a house?," by Donald Watson & Fred N. Broberg—Mar. 1977, AE, pp. 131-134.

Spain. Center for the Study of Contemporary Art/Joan Miró Foundation, Barcelona; Sert, Jackson & Assocs., archts.—Mar. 1977, pp. 85-92.

Squash/1, Mamaroneck, N.Y.; Gordon/Spencer, archts.—Jan. 1977, BTS, pp. 108-109.

Stanford Shopping Center, Palo Alto, Cal.; Bull Field Volkman Stockwell, archts.—June 1977, pp. 105-108.

State University of New York College, Dance Instructional Facility, Purchase, N.Y.; Gunnar Birkerts & Assocs., archts.—Feb. 1977, pp. 85-90.

Steel. First-Bagley Parking Garage, Detroit, Mich.; Albert Kahn Assocs. Inc., archts.—June 1977, AE, pp. 143-144.

"Modified light-gage steel units frame hospital's interstitial floors"—Jan. 1977, TNR, p. 151.

Sterling Heights Public Service Facility, Sterling Heights, Mich.; Straub, Van Dine, Dziurman Architects, archts.—June 1977, BTS, pp. 138-139.

Stern, Robert & John Haggman, archts.; Private Apartment, Elkins Park, Pa.—Jan. 1977, BTS, pp. 110-113.

Stockton State College, Pomona, N.J.; Geddes Brecher Qualls Cunningham, archts.—May 1977, pp. 95-102.

Stores & Shops. "Bringing in the Business," Building Types Study 499—Mar. 1977, pp. 115-130. Best Products Company, Houston, Tex.; SITE, Inc., archts.—Mar. 1977, BTS, pp. 124-125. Best Products Company, Sacramento, Calif.; SITE, Inc., archts.—Mar. 1977, BTS, pp. 126-127. Best Products Company, Two proposals for southern California; SITE, Inc., archts.—Mar. 1977, BTS, pp. 128-129.

Burdines of Florida Department Store, Tampa, Fla.; Reynolds, Smith & Hills, Inc., archts.—Mar. 1977, BTS, pp. 118-123. "How Best Products profits from SITE, Inc.'s designs," by Edwin Slipek—Mar. 1977, BTS, pp. 129-130.

Leisure World Electronics, Baraboo, Wisc.; Jack Fleig, archt.—Jan. 1977, BTS, pp. 116-117. 1055 Thomas Jefferson Street, Georgetown, Washington, D.C.; ELS Design Group and Arthur Cotton Moore Assocs., archts.—Feb. 1977, pp. 95-102.

Straub, Van Dine, Dziurman Architects, archts.; Sterling Heights Public Service Facility, Sterling Heights, Mich.—June 1977, BTS, pp. 138-139.

Sunrise Apartments, Sacramento, Cal.; Sandy/Babcock, archts.—Mid-May 1977, BTS, pp. 122-123.

Swan house, Long Island, N.Y.; Charles W. Moore Assocs.

(now Moore Grover Harper; P.C.) with Richard B. Oliver, archts.—June 1977, pp. 109-116.

T

Temple Beth El, Fread Sanctuary, West Palm Beach, Fla.; Alfred Browning Parker Architects, archts.—Feb. 1977, pp. 111-114.

1055 Thomas Jefferson Street, Georgetown, Washington, D.C.; ELS Design Group and Arthur Cotton Moore Assocs., archts.—Feb. 1977, pp. 95-102.

Thom Partnership, Clifford & Lawrie, Crank & Boake, archts.; Metropolitan Toronto Zoo, Toronto, Canada—Jan. 1977, TNR, p. 154.

Thoryk, Paul & Assocs., archts.; Private residence, southern Cal.—Apr. 1977, pp. 113-116.

Transportation. 5th Street Subway Station, Philadelphia, Pa.; Ueland & Junker, archts.—Jan. 1977, BTS, pp. 102-103.

Tsukuba University, Central Building, for the School of Art and Physical Education, Ibaragi Prefecture, Japan; Fumihiko Maki & Assocs., archts.—Apr. 1977, pp. 107-112.

U

Ueland & Junker, archts.; 5th Street Subway Station, Philadelphia, Pa.—Jan. 1977, BTS, pp. 102-103.

United States Embassy Office Building, Tokyo, Japan; Gruen Assocs. of Los Angeles, archts.—Apr. 1977, pp. 101-106.

University & College Buildings. Central Building, for the School of Art and Physical Education, Tsukuba University, Ibaragi Prefecture, Japan; Fumihiko Maki & Assocs., archts.—Apr. 1977, pp. 107-112. State University of New York College, Dance Instructional Facility, Purchase, N.Y.; Gunnar Birkerts & Assocs., archts.—Feb. 1977, pp. 85-90. Stockton State College, Pomona, N.J.; Geddes Brecher Qualls Cunningham, archts.—May 1977, pp. 95-102. Yale Center for British Art, New Haven, Conn.; Louis Kahn, archt. (with commentary by Vincent Scully, Jr.)—June 1977, pp. 95-104. Yale University Old Campus Renovation Phase One: Farnam, Lawrance, Welch, Vanderbilt Halls, New Haven, Conn.; Edward Larrabee Barnes and Herbert S. Newman Assocs., archts.—Mar. 1977, pp. 93-100.

Uptown Racquet Club, New York, N.Y.; Copelin, Lee & Chen, archts.—Feb. 1977, BTS, pp. 117-119.

V

Venetian Gardens, Stockton, Cal.; Bull Field Volkman Stockwell, archts.—Mid-May 1977, BTS, pp. 120-121.

W

Warnecke, John Carl & Assocs., archts.; Hennepin County Government Center, Minneapolis, Minn.—Mar. 1977, pp. 101-106. Hewlett-Packard Microelectronics Plant, Santa Rosa, Cal.—June 1977, BTS, pp. 128-129.

Warner & Gray, archts.; Gray house, Santa Barbara, Cal.—Mid-May 1977, BTS, pp. 100-103.

Western Headquarters, Joseph E. Seagram & Sons, Inc., Des Plaines, Ill.; Pisanella & Klein, archts.—June 1977, BTS, pp. 140-141.

Whalers' Cove, Foster City, Cal.; Fisher-Friedman Assocs., archts.—Mid-May 1977, BTS, pp. 124-126.

Windows on the World and The Club at the World Trade Center, North Tower, World Trade Center, New York, N.Y.; Warren Platner Assocs., archts.—May 1977, pp. 111-118.

Windsor Winery at Sonoma Vineyards, Healdsburg, Cal.; Roland/Miller/Assocs., archts.—June 1977, BTS, pp. 132-133.

Wolf house, Toronto, Ont., Canada; Barton Myers, archt.—Mid-May 1977, BTS, pp. 50-53.

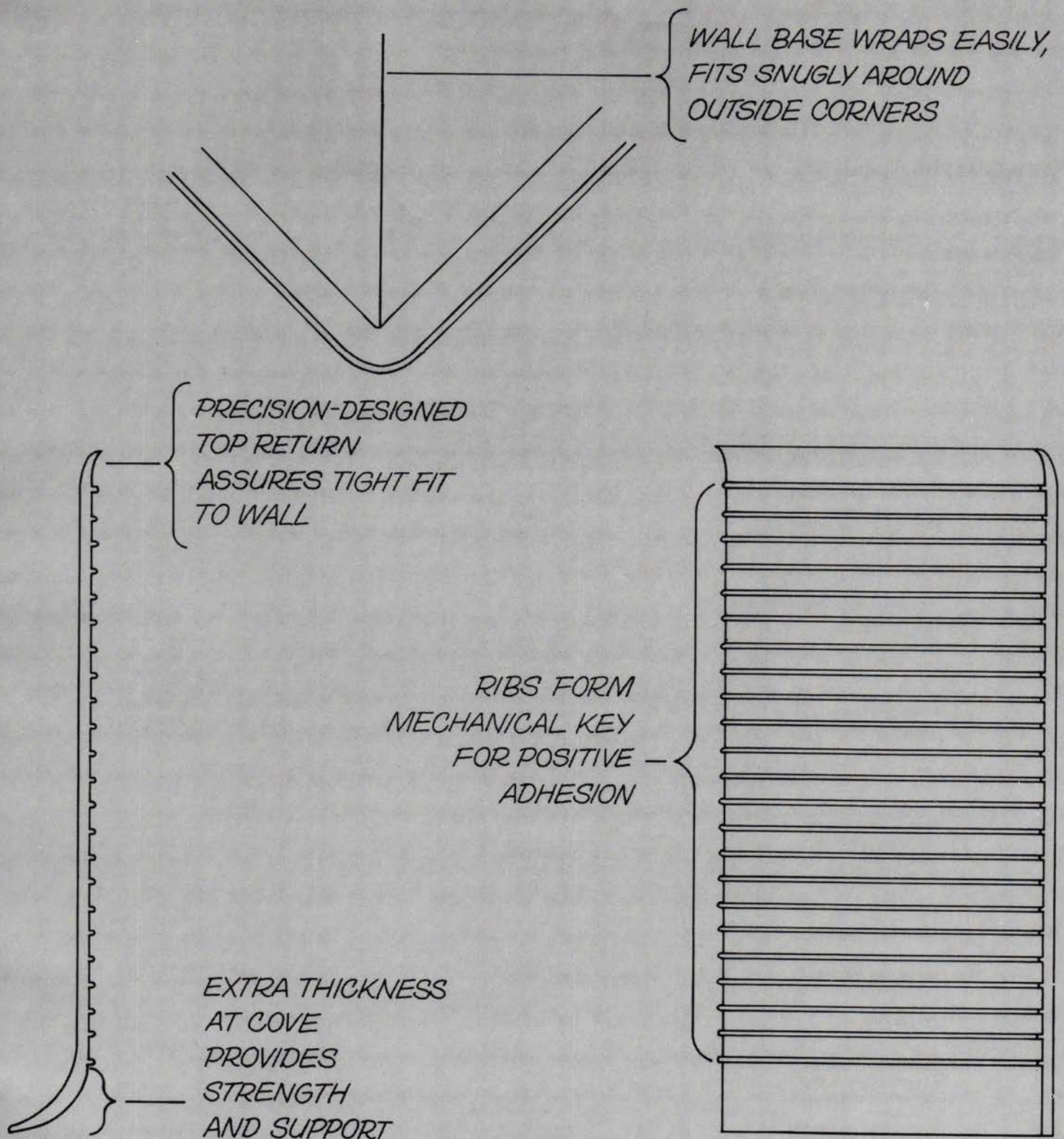
Woodstock Sidewalk District, Woodstock, N.Y.; R. M. Kliment & Frances Halsband, archts.—Feb. 1977, pp. 108-110.

World Trade Center Observation Deck, South Tower, World Trade Center, New York, N.Y.; Warren Platner Assocs., archts.—May 1977, p. 118.

Y

Yale Center for British Art, New Haven, Conn.; Louis Kahn, archt. (with commentary by Vincent Scully, Jr.)—June 1977, pp. 95-104.

Yale University Old Campus Renovation Phase One: Farnam, Lawrance, Welch, Vanderbilt Halls, New Haven, Conn.; Edward Larrabee Barnes and Herbert S. Newman Assocs., archts.—Mar. 1977, pp. 93-100.



The engineered wall base line is now engineered in rubber, too.

Now you have an even broader choice in wall base. From VPI, the single source for the industry's quality line of wall base systems.

Specify attractive, durable vinyl wall base. Straight or cove. In 10 colors, 3 heights, rolls, and 4' lengths. Or select new rubber wall base in 6 colors, 3 heights, 4' lengths, straight or cove. Both are flexible to conform to minor floor and wall irregularities and wrap around corners.

Why specify VPI base, either vinyl or rubber? Performance is one reason: the easy way it installs, its precise fit, and lasting

good looks. Skillful engineering is another: ribs that form a mechanical key for positive adhesion; the precision-designed top return that assures a tight fit to wall; the extra thickness at the cove for strength and support; the VPI #300 Wall Base Adhesive system for trouble-free performance when used according to label directions. And there's more.

For the complete VPI wall base story, write or phone VPI, 3123 S. 9th St., P.O. Box 451, Sheboygan, Wis. 53081. Phone 414-458-4664. Or see our catalog in Sweets.

VPI

ADVERTISING INDEX

Prefiled catalogs of the manufacturers listed below are available in the 1977 Sweet's Catalog File as follows:

- G General Building (green)
- E Engineering (brown)
- I Industrial Construction and Renovation (blue)
- L Light Residential Construction (yellow)
- D Interiors (white)

A

E-G	ASARCO Incorporated	91
E-G	Acco—Chain Conveyor Div.	190
	Aiphone USA Inc.	161
E-G-I-L	Aluminum Co. of America	191
G	AllianceWall Corporation	184
	All-Steel Inc., One of the C.I.T. Companies	70
G	Amelco Window Corp.	201
	American Gas Association	40
G	American Olean Tile Company	90
G-I-L	American Plywood Association	24-25
G-L	Andersen Corp.	60-61
G	Appleton Electric Co.	177
	Architectural Record Books	32-2
	64A, 64D, 163, 182, 186, 194, 200, 208	
G-L-D	ARCO/Polymers Inc.	224
	Armco Steel Corp.	6-7
G-I-L-D	Armstrong Cork Co.	5

B

G	Bally Case & Cooler, Inc.	182
	Bethlehem Steel Corp.	172-173
G-I	Bradley Corp.	14-15
G-I	Burns & Russell Co.	39

C

E-G	Carlisle Tire & Rubber Co.	215
	Carrier Air Conditioning Co.	49
G-I	Ceco Corp.	62
G-I	Celotex Corp.	66
E-G-I-L	CertainTeed Corp.	164-165
E-G	Chain Conveyor Div.—Acco	190
G-I	Cold Spring Granite Co.	155
	Columbia Lighting Inc.	166
	Concrete Reinforcing Steel Institute	56-57
	Consolidated Aluminum Corp.	156
G-E	Construction Specialties	178
G-I	Conwed Corp.	3rd Cover
G-I	Cookson Co., The	8
G-I	Cornell Corporation	199
	CY/RO Industries	188-189

D

	DeSoto, Inc.	2-3
D-G	The Diller Corp.	178
G	Dover Corp. Elevator Div.	171
G-D	Dow Badische Co.	193
G-I	Dow Chemical Co.	202-203
G-E-L-D	DuPont de Nemours & Co., Inc.	
	E.I., Antron	168-169
D-E-G-L	DuPont de Nemours & Co., Inc.	
	E.I., Lucite	26-27

E

G-E-I	Ebco Mfg. Co.	195
E-G	Elkay Mfg. Co.	152-153
	Emhart Corp.	39
G	Epic Metals Corp.	223

F

G	Flexiwall-Systems, Div. of Wall & Floor Treatments Inc.	182
G	Follansbee Steel Corp.	167
G	Fry Reglet Corp.	48
G-I	H.B. Fuller Co.	81

G

G-I-L	GAF Corp., Building Products Division	12
G-I-L	General Electric Co.—Air Conditioning	30-31
E-G-I	General Electric Co., Plastics Div.	52-53
G-I-L	Gold Bond Building Products, Div. of National Gypsum Co.	32
G-E-I-L-D	Goodrich General Products Co., B.F.	196-197
G-I-L	Grace & Co., W.R., Construction Products	72
	GTE—Sylvania, I/C Lighting	20-21
G	Guardian Industries	83

H

	Hager Hinge Company	54-55
E-G	Halsey Taylor Div., of King Seeley Thermos Inc.	2nd Cover, 1
G	Hauserman Inc.	38
G	Haws Drinking Faucet Company	162
	Helios Tension Products Inc.	4th Cover
G-I-L	Horton Div., Overhead Door Corp.	176

I

G-I-L	INRYCO, Inc.	50-51
E-G	International Masonry Institute	185

J

G	Jewett Refrigerator Co., Inc.	163
D-E-G-I-L	Johns-Manville Building Systems Division	180-181
D-G-I	Holophane Division	150-151

K

G-E	Kalwall Corp.	88
G	Kawneer Company, Inc.	92-93
G	KDI Paragon	178
G-I	Kelly Co., Inc.	80
G-I	Koppers Co., Inc.	145 to 148
	Krueger Metal Products Co.	63, 64
G	Kwik-Wall Co.	199

L

E-G-I-L	Lennox Industries Inc.	16
G-E-I-L-D	Libbey-Owens-Ford Co.	18-19
	Lundia, Myers Industries, Inc.	48
	Lutron Electronics Co., Inc.	198
G-I	Lyon Metal Products Inc.	199

M

	Markel Electric Products	44
I-L	Marlite, Division of Masonite Corp.	176
G	Jas. H. Matthews & Co.	17
G	Modernfold Div. of American Standard Inc.	154
	Moldcast Ltd.	184
G-I	Monier Tile Co.	88

N

G-I-L	National Gypsum Company, Gold Bond Building Products Division	32
E-G-I-L	Neenah Foundry Co.	184
G	Nucor Corp., Vulcraft Div.	88

O

G-L	Olympic Stain Company	9
E-G-I	Onan Division, Onan Corporation	179
D-E-G-I-L	Owens-Corning Fiberglas Corp.	22-23, 28-29

P

E-G	Paddock Structure Inc.	216
E-G	Parker Co., Charles	190
D-G-L	Pella Rolscreen Co.	76-77
	Philips, Eindhoven	64B-64C
E-G	Plan Hold Corp.	190
G	PPG Industries Inc., Commercial Glass	204-205

R

G-I-L	Raynor Mfg. Co.	207
G	Red Cedar Shingle & Handsplit Shake Bureau	36
E-G-I	Robertson Co., H.H.	87
	Russwin, Div. Emhart Corp.	39

S

	St. Joe Minerals Corporation	86
	San Valle Tile Kilns	32-1
	Victor O. Schinnerer Co.	183
	Shand Morahan & Co., Inc.	47
G-I	Sika Chemical Corp.	78
E-G-I	Silbrico Corp.	175
G-I-L	Simpson Timber Co.	223
E	Sloan Valve Company	74
G	Soss Mfg. Co.	176
E-G-I	Stanley Works	89
	Steelcase Inc.	157 to 160
	Sterner Lighting Systems Inc.	58-59
E-G-I	Sunworks	170
	Sweets Catalog Div. of McGraw-Hill	174

T

G	Three Rivers Aluminum Co. Inc.	178
G	Tremco Incorporated	210-211
G	Trus Joist Corp.	187

U

E-G-I	Unistrut—GTE Sylvania	68
	U.S. Elevator Corp.	82
E-G-I-L	United States Gypsum Co.	46
E-G-I	United States Steel Corp.	84-85, 212-213

V

G	Vincent Brass & Aluminum Co.	79
G	Vinyl Plastics Inc.	221
G	Vogel-Peterson Co.	94
G	Vulcraft Div. of Nucor Corp.	88

W

	Walker/Parkersburg Div. of Textron Inc.	75
--	---	----

ARCHITECTURAL RECORD

McGraw-Hill, Inc., 1221 Avenue of the Americas, New York
New York 10020

Advertising Sales Mgr.: Louis F. Kutscher (212) 997-2838

Eastern Sales Mgr.: Robert G. Kliesch (215) 568-6161

Western Sales Mgr.: James A. Anderson (312) 751-3770

Assistant Business Mgr.: Joseph R. Wunk (212) 997-2793

Sales Promotion Mgr.: Richard M. Gross (212) 997-2815

Research Mgr.: Camille Padula (212) 997-2814

Classified Advertising: (212) 997-2557

District Offices:

Atlanta 30309

J. L. Moran, 100 Colony Square, (404) 892-2868

Boston 02116

Robert L. Tagen, 607 Boylston St., (617) 262-1160

Chicago 60611

James A. Anderson, Robert T. Franden, Edward R. Novak,
645 N. Michigan Ave. (312) 751-3770

Cleveland 44113

Edward C. Weil, III, 55 Public Square, (216) 781-7000

Denver 80203

David M. Watson, 123 Speer Blvd., #400 (303) 837-1010

Detroit 48202

John W. Maisel, 1400 Fisher Bldg., (313) 873-7410

Los Angeles 90010

Donald O. Hanson, 3200 Wilshire Blvd.-South Tower (213) 487-1160

New York 10020

Blair McClenachan, 1221 Avenue of the Americas (212) 997-3584

Philadelphia 19102

Robert G. Kliesch, George T. Broskey, Three Parkway
(215) 568-6161

Pittsburgh 15222

Edward C. Weil, III, 2 Gateway Center, (412) 391-1314

St. Louis 63011

Manchester Rd., (314) 227-1600

San Francisco 94111

Richard R. Butera, 425 Battery Street (415) 362-4600

Overseas Offices:

Brussels

Galerie Porte de Namur, 22-26, Chaussée de Wavre
1050 Brussels, Belgium

Frankfurt/Main

Elsa-Brandstroem Str. 2, Frankfurt/Main, Germany

London

34 Dover Street, London W.1, England

Milan

Via Baracchini No. 1, Milan, Italy

Paris

17, rue Georges Bizet, 75 Paris 16e, France

Tokyo

2-5, 3-chome, Kasumigaseki, Chiyoda-ku, Tokyo, Japan

Choose EPICORE for hospitals

A lifetime-access hanger system, heavy loading capacity, and unbeatable fire ratings are three reasons to specify the EPICORE® Composite Floor System.

These features are equally important for electric power facilities, telephone equipment buildings, and parking structures, among others. Find out more from our EPICORE catalog.

For immediate answers, call Bob Ault, Vice President - Engineering, at 412-351-3913.



EPIC
METALS CORPORATION

Eleven Talbot Avenue
Rankin (Pittsburgh), Pa. 15104
(412) 351-3913

For more data, circle 118 on inquiry card

For the record...

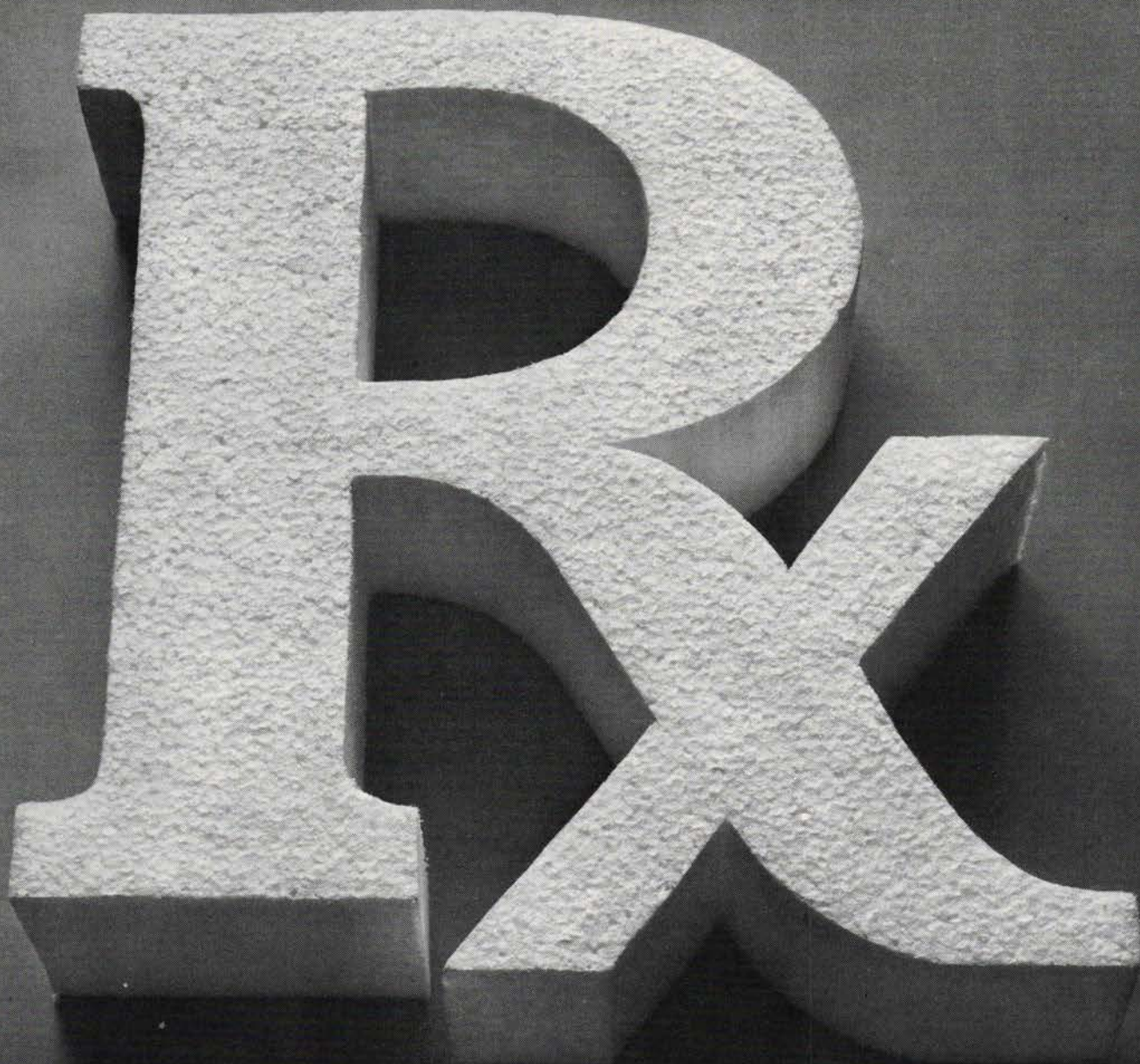
We'd just like you to know that Simpson Ruf-Sawn 316 plywood siding takes paint and solid color stain better than any other siding available today.

Ruf-Sawn 316 offers excellent weatherability, a beautiful woodgrain texture and the kind of performance only Simpson's leadership in the overlaid plywood field could give.

For further information write Simpson Timber Company, 900 Fourth Avenue, Seattle, Washington 98164.

**Ruf-Sawn 316
Simpson**

For more data, circle 119 on inquiry card



Cold Fighter!

Dylite® EPS for insulation gives fast, lasting relief from energy-pinch pains.

Don't just sit there and watch your thermostat—take the Dylite cure for the high cost and short supply of energy!

Molded insulation board at a density of 1 PCF made of Dylite expandable polystyrene is an efficient thermal barrier ($k = .24$ at $40^{\circ}\text{F}/5^{\circ}\text{C}$.) that is low in cost and easy to install. Its closed-cell structure is highly resistant to moisture and vapor transmission.

Combining light weight with an R value of 4.17 per inch, Dylite EPS can be readily shaped and trimmed on the job. And molded board made of Dylite is adaptable to many critical thermal uses. Besides standard flat board in various sizes and thicknesses, it is also available

in pre-tapered planks.

Dylite EPS is a highly economical prescription for energy saving, simplicity of installation and long, maintenance-free service life. Approved under appropriate Federal specifications and standard building codes.

For more information, contact ARCO Polymers, Inc., Dept. 1063, 1500 Market Street, Philadelphia, PA 19101.

CAUTION: The foamed polystyrene described in this advertisement is combustible and should not be exposed to open flame or other ignition sources.

For more data, circle 120 on inquiry card



ARCO/Polymers, inc. ♦
Subsidiary of
AtlanticRichfieldCompany