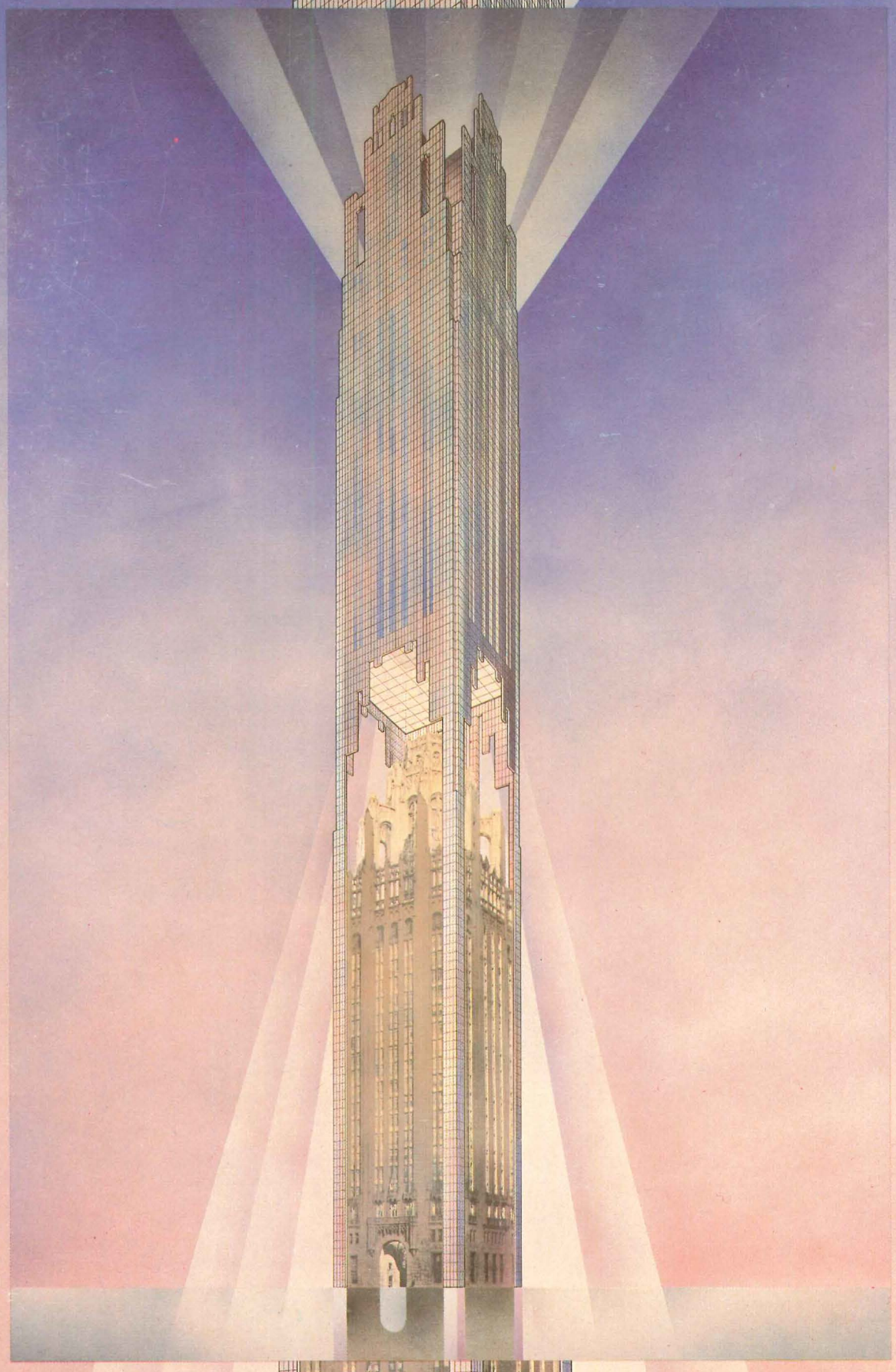
Progressive Architecture

ne 1980



Some conventional ceiling systems give you high-quality light. Some furniture-mounted systems give you low-energy lig Only Tascon™ task lighting gives you both.

Here's a dramatic improvement in lighting systems that can cut lighting costs by over 65% in either open plan or conventional offices. (See chart below.)

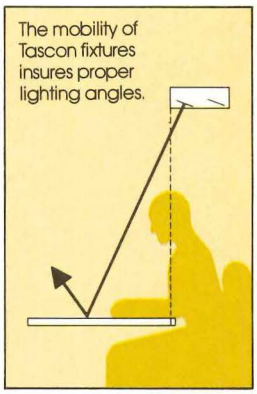
The principle behind Tascon lighting is simple. The lighting fixtures, because they're moveable, can be positioned to provide light only in the areas where it's needed. So a properly positioned Tascon fixture provides ESI values of 40 to 60 and up to 90 maintained footcandles on the work surface.

With one fixture for every 100 square feet, Tascon provides this high-quality lighting for less than one watt per square foot. And the 120-volt fixture with optional on/off capability can cut lighting costs another 15%.

Unlike some low-energy systems, Tascon provides comfortable light.

Because the Tascon pendant fixture illuminates from both sides, as well as above and behind, it distributes high-quality light evenly without the glare, shadows, and reflections some furniture-mounted task lights create.

And Tascon directs 20% of its light upwards to create visual interest and ambient illumination.



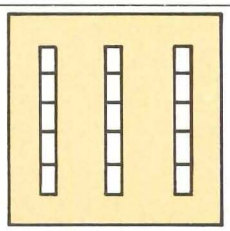
Armstrong Tascon fixtures fit most types of ceiling grids.

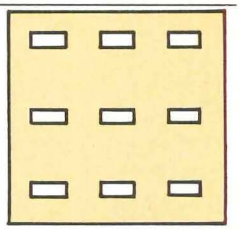
The tracks that support Tascon fit most ceiling grid systems. And you can relocate them to reposition the fixtures easily. So Tascon gives you the quality of ceiling-mounted lights and the energy savings of furniture-mounted lights along with flexibility that neither can offer.

For more illuminating information about Tascon lighting fixtures, write Armstrong, P.O. Box 3001, Dept. 04NPA, Lancaster, PA 17604.

Performance Comparison – Conventional vs. Tascon

Room size	30'x30'x9'
Reflectances	
Ceiling	80%
Walls	50%
Floor	20%
Task	#2 Pencil
Lumens/Lamp	3150





	2'x4', 4-Lamp Recessed Troffer (prismatic lens)	2-Lamp Moveable Tascon Fixture (prismatic lens)
No. of fixtures	15	9
No. of lamps	60	18
ESI (equivalent sphere illumination)	40 (80% area coverage)	40–60 (on work surface)
Classical footcandles (maintained)	95 (CU method)	90 (on work surface)
Watts/work station 100 sq. ft.	307	92
Watts/sq. ft.	3.07	.92

FROM THE INDOOR WORLD® OF Armstrong

Circle **No. 310** on Reader Service Card

ARMSTRONG INTRODUCES REFLECTIONS CEILINGS. THEY MAKE ANY DESIGN LOOK TWICE AS GOOD.

With Reflections Ceilings, what's overhead looks as interesting as what's underneath. Because these ceilings actually reflect the room underneath: in Silver, Bronze, Gloss Black, Brushed Silver, or Antique Glass™.

New Reflections Ceilings not only improve the way your design looks but also the way it works. With their sound-absorbing properties, Reflections Ceilings provide an extra measure of peace and quiet.

The standard 2'x2' and 2'x4' lay-in panels are easily installed in exposed-grid systems and offer easy access to the plenum. Mirrored grids are available to accent Reflection's designer looks.

For concealed grid installations, the Antique Glass image comes in a 12"x12" tile. Considering all these features, you might say that Reflections makes every design look twice as good, and then some.

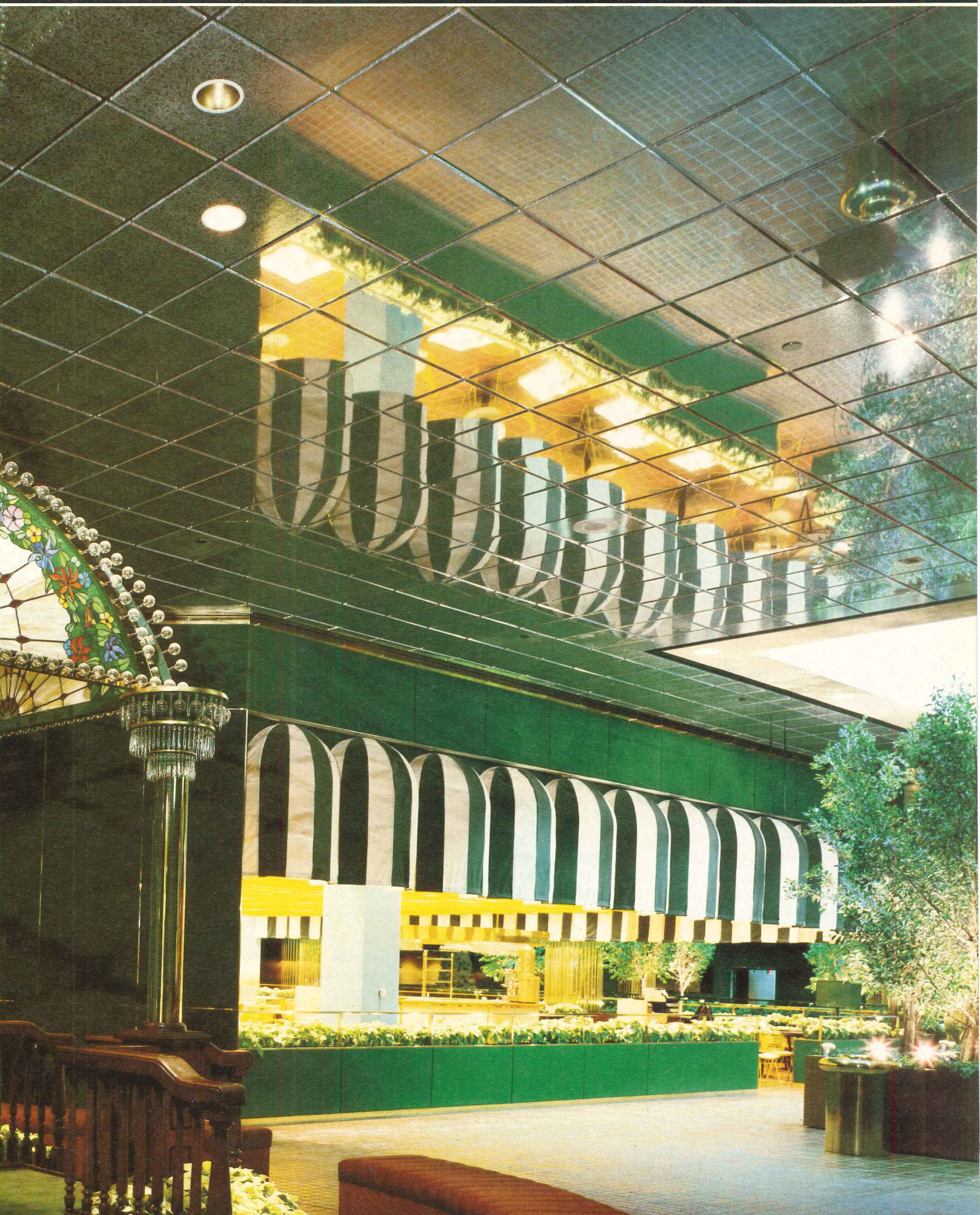
For more information, write Armstrong, Dept. 06NPA, P.O. Box 3001, Lancaster, PA 17604.

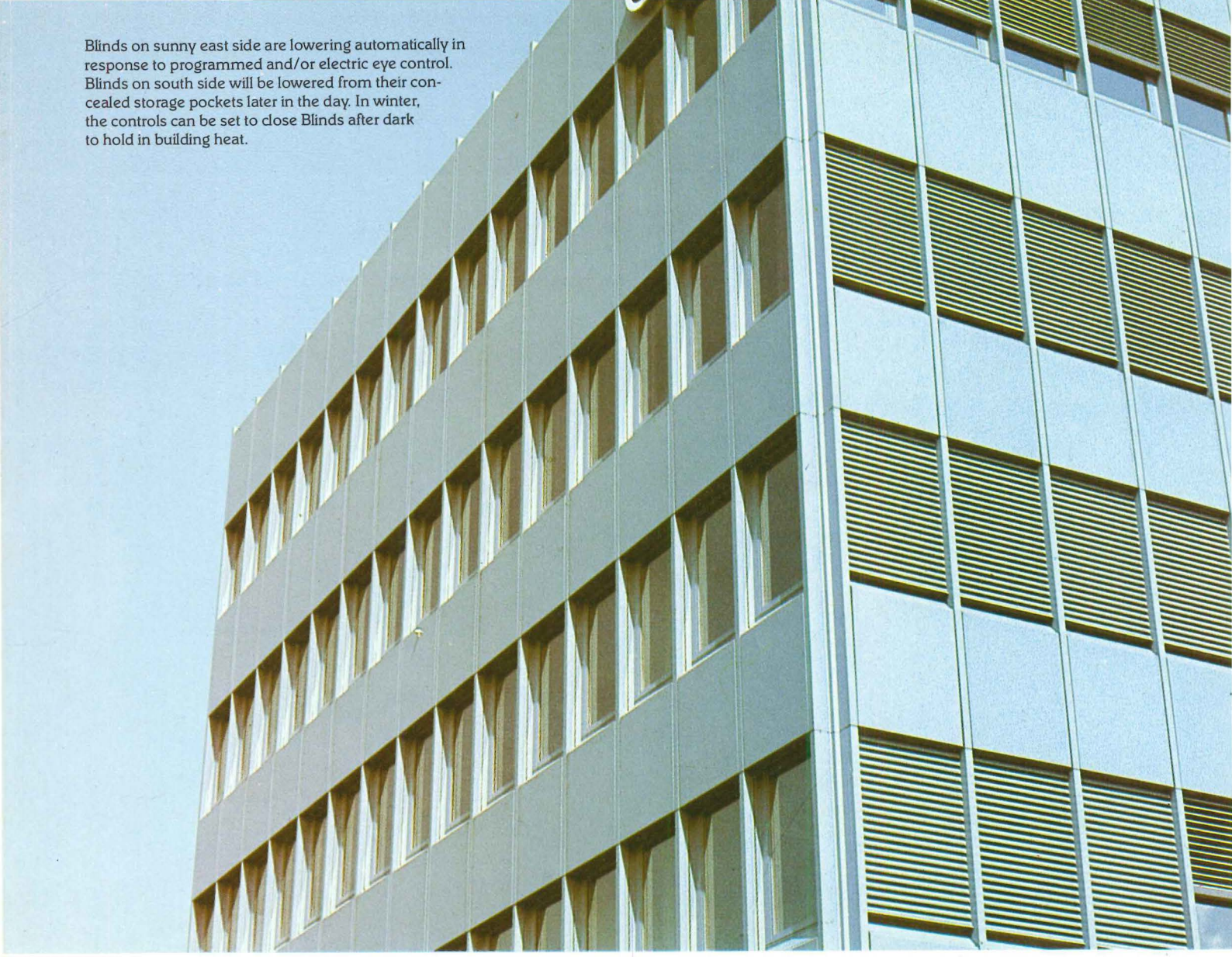
FROM THE INDOOR WORLD® OF

Armstrong

Circle **No. 311** on Reader Service Card

Place Casino Hotel, Atlantic City, N.J.; Architects – Skidmore, Owings and Merrill, N.Y.C.; Interior Design Consultants – Yates and Silverman, N.Y.C.; Ceiling Contractor – William J. Scully Acoustics Corp., N.Y.C.





Blinds on sunny east side are lowering automatically in response to programmed and/or electric eye control. Blinds on south side will be lowered from their concealed storage pockets later in the day. In winter, the controls can be set to close Blinds after dark to hold in building heat.

Exterior Solar Control Blinds by Nichols-Homeshield

Save more than they cost

Control Energy Costs

The energy efficient key to solar control is to keep the sun from striking the glass on your building. Reflective or tinted glazing, interior drapes and blinds, all allow interior heat build-up which must be counterbalanced by the mechanical AC system.

Minimize Capital Expense—Lower Operating Costs

Nichols-Homeshield Exterior Solar Control Blinds have a shading coefficient of 0.17. They keep the sun from striking the glass and minimize capital expenses by allowing smaller AC systems and less interior lighting. And they provide long range utility savings by reducing energy consumption.

In addition, expensive multiple glazing may be eliminated along with drapes, interior blinds, and the permanent shading systems which never allow your building to take off its "dark glasses". When retracted, Nichols-Homeshield Blinds allow an unobstructed view and added light levels on overcast days.

Immediate to Eight Year Payback

Depending on geographic location and the local cost of energy, projected payback may be immediate, or may take any amount of time up to eight years.

New Construction or Retrofit

With Nichols-Homeshield Exterior Solar Control Blinds, you can choose either to accept or to reject the sun. And you can choose them for your next new building, or as a retrofit installation on an existing energy-hungry building.

See us in Sweet's 10.24/Ni or call or wr

Architectural Products

Nichols-Homeshield, Inc.
1000 Harvester Road
West Chicago, IL 60185
(312) 231-5600

An ANS Company

Circle **No. 381** on Reader Service Card

June 1980

Progressive Architecture

Progressive Architecture (USPS 485-890) is published monthly by Reinhold Publishing, A Division of Penton/IPC: Philip H. Hubbard, Jr., President; Harry I. Martin, Vice-President. Penton/IPC: Thomas L. Dempsey, Chairman; Sal F. Marino, President; N.N. Goodman, Jr., Benjamin L. Hummel, Joseph Lipka, Paul Rolnick, Executive Vice-Presidents.

Executive and editorial offices, 600 Summer St., Stamford, CT 06904 (203-348-7531).

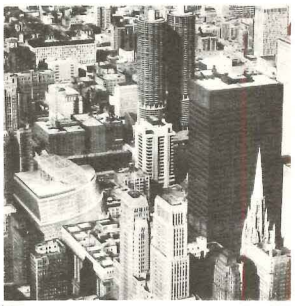
Subscription information:
Send all subscription orders, payments, and changes of address to Progressive Architecture, P.O. Box 5759, Cleveland, OH 44101 (216-696-0300). When filing change of address, give former as well as new address and zip codes, and include recent address label if possible. Allow two months for change. Publisher reserves right to refuse unqualified subscriptions. Professionals include architectural and architectural-engineering firm personnel and architects, designers, engineers, and draftsmen employed in allied fields.

Subscription rates, payable in advance, are:

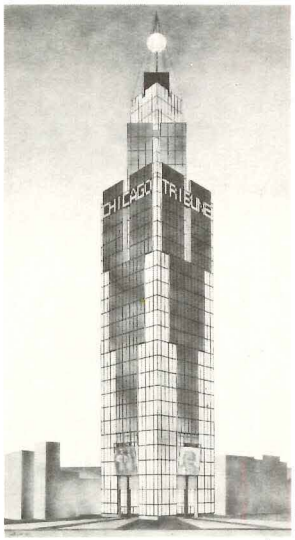
	U.S.	Canada	Foreign
Professional/ year	$15	$18	$30
Nonprofessional/ year	$30	$35	$50
Single copy	$ 6	$ 6.50	$ 7

Indexed in Art Index, Architectural Index, Engineering Index, Controlled circulation postage rates paid at Hartford, CT 06101. Volume LXI: No. 6. Printed in U.S.A. Copyright © 1980, Penton/IPC.

ABP ABC MPA


71

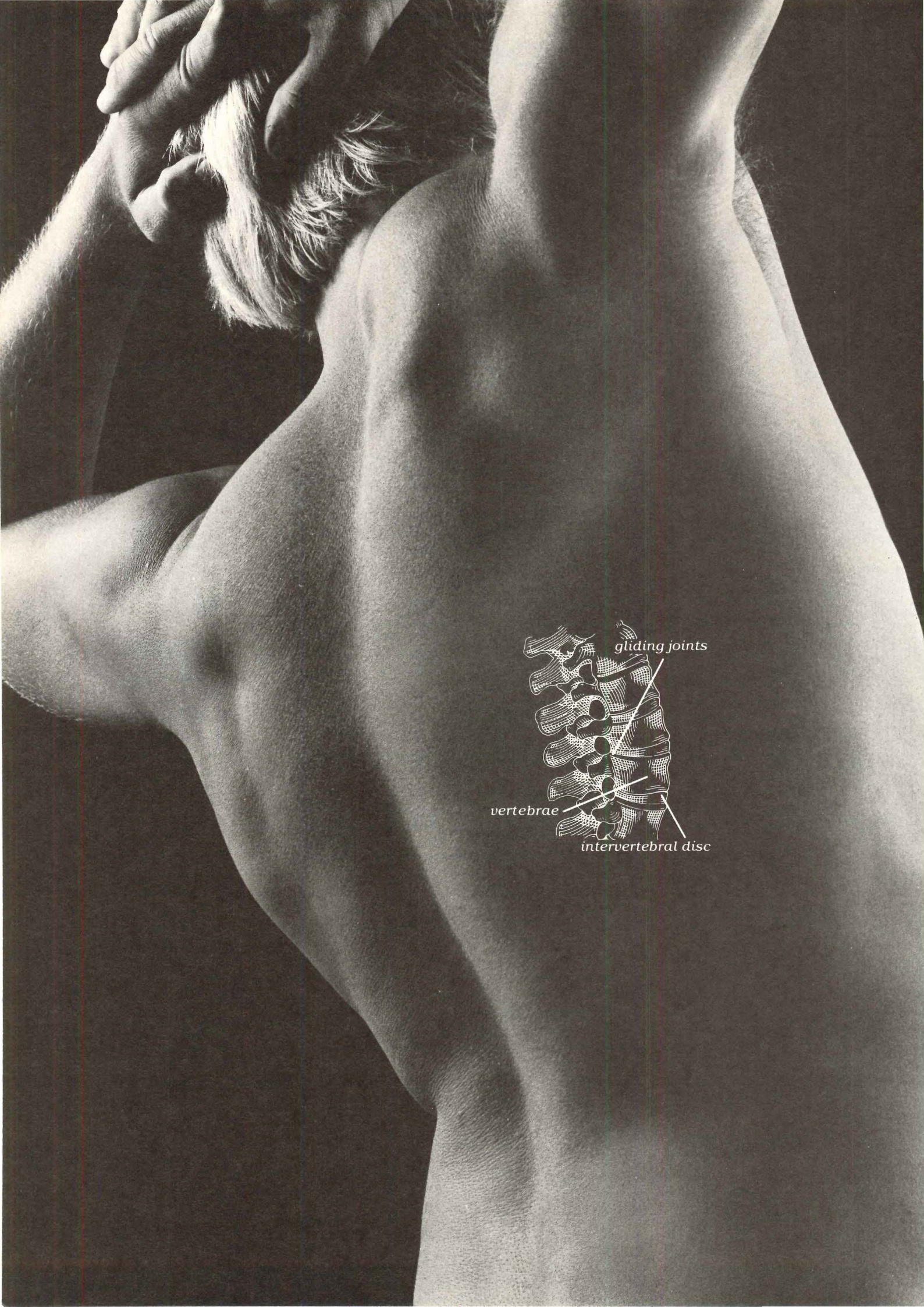

80



94


110

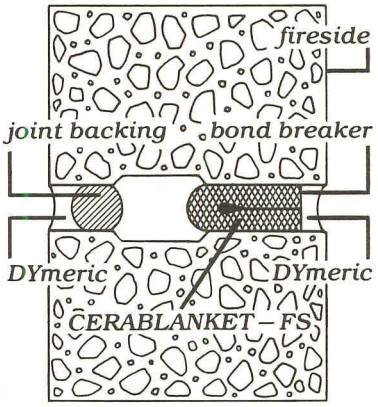
Cover: *based on Helmut Jahn's entry to the second Chicago Tribune Competition (p. 94). Photo: Jessie Hickman.*


gliding joints
vertebrae
intervertebral disc

The easiest way to understand how Tremco sealants work is to stretch.

What we've learned from nature. *As your vertebrae flex and extend, each is cushioned by an intervertebral disc. At the same time your spine's gliding joints accommodate the movement. Tremco's Dymeric® is a multi-component polyurethane sealant designed for dynamically moving building joints. It works a lot like your body's system does in absorbing structural movement.*

Specialized systems that give you more freedom of design. *There are three main groups of human joints, each providing a different degree of flexibility for a specific type of body movement. Tremco manufactures high performance sealants that also accommodate different degrees of movement within building joints: Dymeric® for dynamically moving building joints, and Mono,® the original acrylic sealant with over 19 years of proven performance.*



In addition, Tremco manufactures a complete range of specialized sealants developed to solve specific sealing problems. That gives you more freedom of design with the assurance that Tremco can give you the most efficient sealing system.

Architectural systems for the life of your building. *In addition, Tremco manufactures glazing, waterproofing and roofing systems that protect your building. We'll show you proven methods to solve old problems at the design stage, because the time to discuss sealants is while the job is on the boards. And we'll follow through with on-site application instruction for the contractor.*

For complete details on any Tremco weatherproofing system, call toll free 800-321-7906 (in Ohio call (216) 464-7994 collect). Or write Tremco, Cleveland, Ohio 44104; Tremco (Canada) Ltd., Toronto, Ontario M4H 1G7.

TREMCO®

A building is a living thing.

Circle **No. 368** on Reader Service Card

A time to choose

Preparations for the 28th annual P/A Awards competition are meant to assure fair consideration for any significant accomplishment in architectural design, planning, or research. The validity of the jury's selections depends, however, on submissions representing the broadest range of current U.S. and Canadian work. For a list of jurors, rules, and entry forms, see pages 15–16.

This month, P/A proudly accepted a medal from the American Institute of Architects for its sponsorship of the annual P/A Awards program. The competition was cited on the accompanying certificate as "a catalyst for the best in American design. A lively contest and a platform for testing the ideas of designers young and old."

Before going to Cincinnati to accept this honor, we prepared the invitation for the 28th annual P/A Awards competition, entries for which must be on their way by Sept. 1. As we do every year, we had to assemble a jury and make some adjustments in the rules, based on our latest experience.

We never take the administration of this awards program lightly, since it belongs in a sense to the whole profession, not just this magazine. This year, however, we approached it with exceptional care and humility.

You are probably aware—as we surely are—that the results of this past year's program stirred up more than the usual controversy (P/A Editorial, March 1980, p. 7). Many seem to have viewed the outcome as mutual promotion among a small circle of designers. Though neither P/A nor the jury intended anything like that, the indignant reactions were chastening reminders that the awards program *could* become clubby and isolated from some of the profession's main concerns. A narrowing range of jury selection could lead to a more limited range of entries, and so on, in a tightening spiral.

In an effort to guard against such a sequence of events, we discussed the matter of jury selection this time with more diverse representatives of the profession than we have usually consulted. Some suggested that we reinforce the authority of the program by inviting a jury composed entirely of elders—long-recognized leaders who were veterans of earlier P/A juries. Others suggested, instead, that we assert our solidarity with avant-garde design positions by, for instance, inviting a jury of this year's winners. Like most of the people we spoke with, we could accept only a more moderate and—we hope—judicious course. We want neither to reserve next year's prizes for those who follow the dominant philosophy of this year's, nor to close out any creative efforts by reconstituting a jury from the past. We simply want to make it clear that the judging process is not in the hands of any faction with predictable preferences.

For the architectural design team of our jury we have invited back one veteran, Romaldo Giurgola, who served on the P/A jury back in 1968. Our juries have often included one previous juror, and it could be argued that they always should. Another design juror, Richard Stein, is widely known for his expertise in the area of energy-conscious design. They will be complemented by two other architects—Robert Frasca and George Hartman—who have been frequently honored for their work and whom we know to be sensitive to today's varied design issues.

For the crucial tasks of selecting entries in planning and research, we have invited two professionals universally recognized in their fields—Edmund Bacon in planning and Ralph Knowles in design research—each complemented by a respected younger colleague—Galen Cranz in research and Jacque Brownson, whose career in planning at state level follows earlier recognition as project architect for Chicago's Civic Center, among other landmarks.

What is most important is that all of these people are known to be judicious and articulate in situations comparable to the P/A jury. (Design expertise is not enough.) We can be confident, moreover, that members of all three teams will be able to contribute substantially to the consideration of work in categories other than their own.

In reviewing the rules this year, we added safeguards to ensure that all entries represent real commissions. In a competition among practicing professionals, we cannot tolerate doubts as to the legitimacy of the commissions.

Thus, we at P/A have already made some governing choices—on ground rules and on jurors. And the prospective jurors—who deserve our deepest thanks—have chosen to participate.

In the end, these jurors will choose perhaps a couple of dozen winners out of hundreds of submissions. The odds are formidable, but the stature of the prizes depends ultimately on the quality and diversity of submissions.

It may be worthwhile reminding potential entrants that all submissions will be seen by the P/A editors, as well as the jurors. Though only the jury can give awards, the editors regularly follow up on other work that seems promising for editorial coverage. This year we are looking for energy-conscious building designs, in particular, which might be subject for our series of DOE-sponsored Energy Analyses.

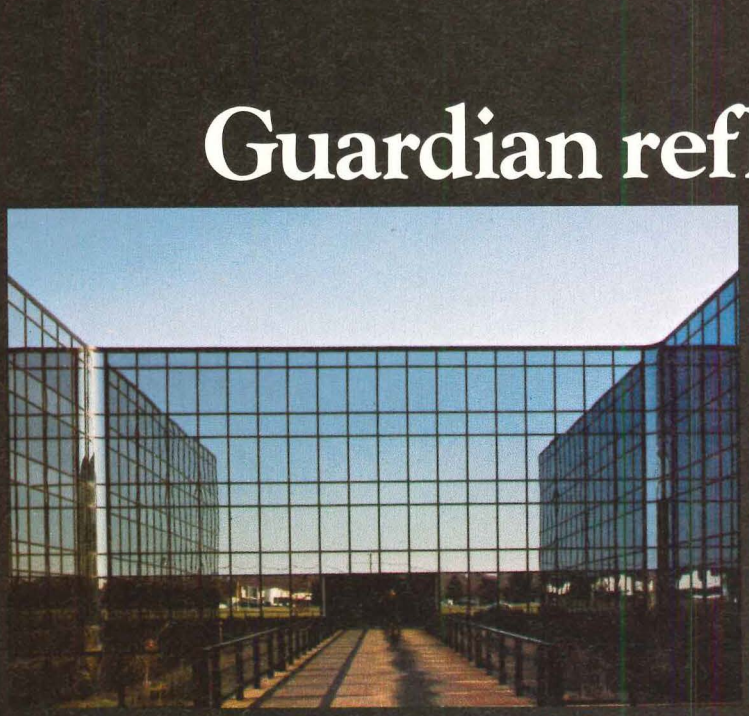
We invite you to review the rules published on pages 15–16 and to consider which of your current work may deserve recognition in the 28th annual P/A Awards program. It's easy to enter. And that choice is yours.

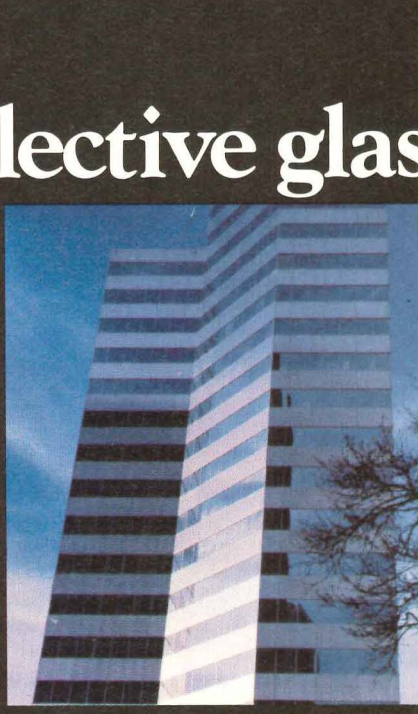
John Morris Dixon


Ten new doorpull designs, beautifully detailed in teak, rosewood, and acrylic-impregnated oak, with mounting elements in oil-rubbed bronze and polished chrome. Forms & Surfaces Box 5215 Santa Barbara, CA 93108 (805) 969-4767.
FORMS+SURFACES
Circle No. 335 on Reader Service Card

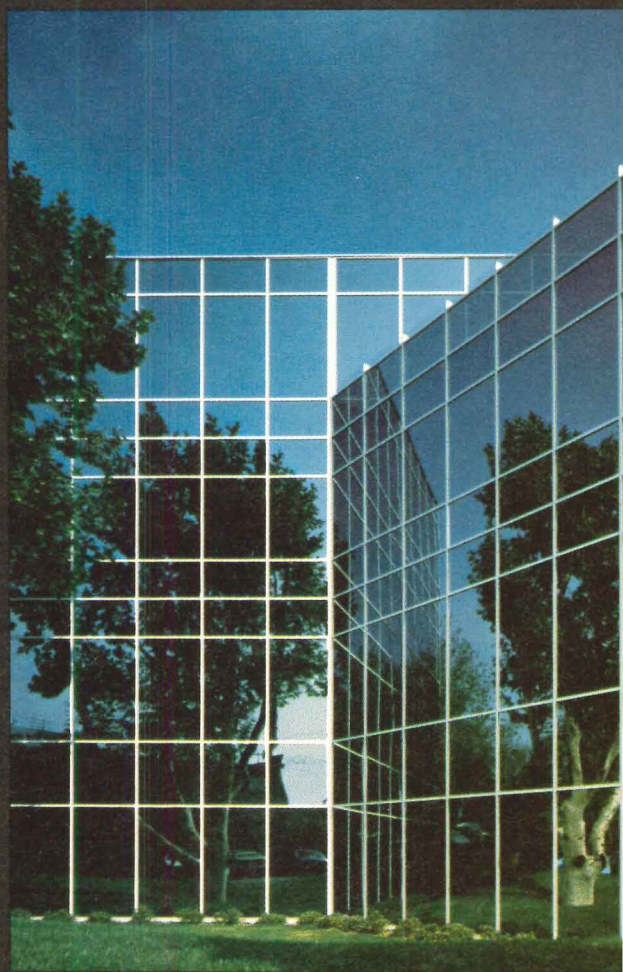
Guardian reflective glas

1,2

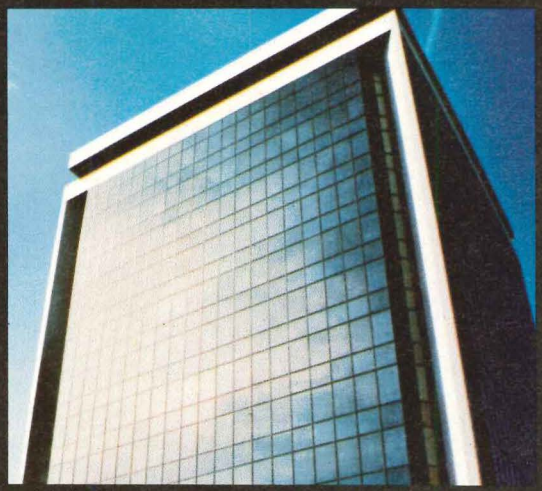




3,4



5



1. Melville Office Plaza
Melville, Long Island, New York
Arch: J. Grammas & N. Green
Glaz. Contr: Levitt Bros.
SS-8 Silver Reflective

2. 3D/International Tower
Houston, Texas
Arch: 3D/International Inc.
Glaz. Contr: Cupples Products
SS-14 Silver Reflective Insulating

3. Bingham Farms Office Bldg.
Bingham Farms, Michigan
Arch: Seymour J. Levine
Glaz. Contr: Benz Glass
TE-10 Earthtone Reflective

4. Four Seasons Office Building
Sherman Oaks, California
Arch: Landau Partnership
Glaz. Contr: Sitelines
SS-8 Silver Reflective

5. Fluor Arabia Of
Al Khobar, Saud
Arch: Welton Be
Glaz. Contr: Cu
TE-10 Earthtone

See it in Detroit, Los Angeles, New York, Houston, Calgary, Saudi Arabia and in your next building, too.

Avenue Office Bldg
Alberta, Canada
ale Chandler Kennedy
ntr: Zimmcor Co.
er Reflective

6

As you can see, architects both across and outside the United States are specifying Guardian for high-performing reflective glass.

There are good reasons why Guardian is such a fast-growing source. Guardian offers a wide choice of colors and shades. Strong insulating values. And Guardian is a complete manufacturing source—from sand through finished product.

Best of all, Guardian supports you through completion of the project. You get direct one-source communication on product, pricing and total customer satisfaction. All backed by Guardian Industries, one of the world's fastest-growing corporations.

Learn more about what a growing Guardian means to you. See our catalog—"Glass...in harmony with nature" in Sweet's. Or, for more information, write or call Karl Straky at Guardian's National Commercial Glass Sales Office, Carleton, Michigan 48117. Phone toll-free 1-800-521-9040.

Circle **No. 339** on Reader Service Card

GUARDIAN
INDUSTRIES
CORP.

Views

Gehry's goals

In her lead article on Frank O. Gehry (P/A, March 1980) Barbara Goldstein refers to the debate on the primacy of artistic goals versus social goals in architecture. The key word here, of course, is primacy, which infers that both are goals, but that one or the other (depending on the philosophy of the particular architect) is of prime consideration. Unfortunately, many of those architects who look on their work as "architecture as art" disdain for the most part any social objectives. With them it is not a question of "primacy" but rather, "to the exclusion of" any other consideration.

Unfortunately, those proponents of the new movements in architecture that go by many names seem to have forgotten that architecture is not a pure art form to be manipulated as the architect sees fit, but that is is a social craft with a responsibility to the society and to the environment. (Visual pollution is as devastating to the quality of the environment as air and water pollution.) An artist's sole responsibility is to him/herself to reflect the society in his work, whereas an architect's responsibilities are many. He not only must be true to himself, but he must be responsible to the needs of his client and to the two levels of "users," that is, those who will use the building, and those who will experience the building by virtue of its becoming a permanent fixture in the visual environment.

I have known Frank Gehry for 30 years, I have worked with him, and consider him a friend. I have great respect for his talents. I say this because I want it clear that I am not specifically singling him out for criticism, but your profile on Gehry makes it necessary for me to answer Barbara Goldstein and the others who set so-called artistic goals against social goals in architecture.

Frank Gehry says he is an artist, and by my definition he is an artist. Whether what he does is good art or bad art is another question not the subject of this letter. It is art, and that is good enough for me.

But is it architecture, and if it is, is it good architecture? Gehry says he wants to "turn people on to architecture" but I am afraid that his work is having the opposite effect. Architectural design is a process of solving a particular set of problems, and it is from the solution of these problems that the aesthetic is derived. "The Fundamental Principles of Architecture" as set forth by Vitruvius almost 2000 years ago are still valid regardless of the changes in technology and style; and symmetry and proportion and balance are still the elements of good design.

Years ago one of my mentors reminded me that architecture is a series of compromises. An artist must not compromise if he is to maintain his/her artistic integrity, but an architect, by the very nature of the social implications in his/her work must be prepared to compromise in order to closely approximate the ultimate demands of the many forces influencing the solution, such as the client, the public, the government agencies, the environment, the lenders, and on and on. In the final analysis, a work of architecture must be judged by how it solved the problems as well as the aesthetic solution.

Fortunately there are many architects (most of us, in fact) who adhere to the basic principle of good design and problem solving, and who do create some exciting architecture. What is unfortunate is that these architects are not as articulate nor do they get the same media coverage as those whose work is noticed more for its shock value than for its architectural value.

The most serious negative effect of the work of these architectural neologomaniacs, who rely on verbiage in place of true creativity, is the confusion they create among the architectural students who now find themselves without the firm base of time-honored principles and are faced with an architecture based on the whimsy of the individual.

Gehry's work in particular reminds me of a similar controversy that occurred in the late 1930s over women's fashions, when the designers were relying on rhetoric to convince the public of the validity of the new design. To illustrate the attitude of the public, a New Yorker cartoon showed a mother trying to get her son to eat spinach by telling him that it was kale, to which the child retorted, "I say it's spinach and the hell with it." Frank, I say it is chain-link fencing, and the hell with it.

Sidney H. Brisker Architect AIA
Los Angeles, Ca

P/A's position

There are, I guess, a few enduring verities in the architect's world. While the *Record* goes on giving us the mainstream (as it does so well), P/A seems likely to continue finding its mission among the fresh and the trendy—those sometimes inventive, sometimes exasperating projects that have dotted its pages for a decade. It seems equally safe to say that among its readers there will be those to continue, at some volume, complaining about it.

None of this ought to surprise anybody, but somehow it does—as recent issues, letters and conversations attest. I doubt you think your more ardent critics Philistines on the face of it. It's more likely you suppose they've mislaid their sense of humor. (It may well be they have, and not without reason. After all trying to do high-quality work, stay solvent and get the kids through school in these trying times can be a pretty sobering experience.) But come clean, P/A. Don't you sometimes try to stand in their shoes—and when you do, don't you wonder just a bit what side you're on, or whether you sometimes look a little (what shall I say) peripheral? Why not invite Messrs. Gatje, Gwathmey et al to be next year's awards jury—or poll your readers?

At the same time, it should be said that one doesn't have to embrace it all—from the rusting, roofed-mounted Porsches of the past to the pastel follies of the present—to value your view of things. So, keep at it, P/A. Be a little less partisan, perhaps, but keep at it. Somebody should. If you don't, who will?

Robert S. Brady, AIA
Woodstock, Vt

Photo correction

The photographs for Atelier International's Babar collection and Cole Business Furniture's 500 Series chairs (May 1980, p. 131) were inadvertently transposed.

Multiple awards list amended

Another two-time winner in the 1970s P/A Design Awards is Robert Foote Shannon, with an award in 1970 and a citation in 1973.

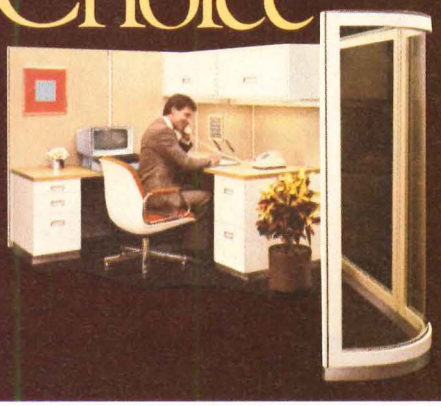
Freedom Of Choice

Choosing All-Steel furniture is only the first of many choices.

All-Steel makes complete lines of components for today's office. But you make the choices about how and when to introduce them into your office plan.

You see, our 8000 Series components are compatible not only with each other, but also with your client's existing contemporary office furniture. So you're not limited to an all-or-nothing choice.

You can retain as much of your client's traditional office plan as you wish. Simply introduce All-Steel 8000 Series components a few at a time.



Choose from a variety of furniture styles...a variety of panel sizes and components...a variety of shapes, colors, textures, wiring and communications capabilities. Choose only what you need to serve your requirements.

Discover all the choices that can be yours when you choose All-Steel. Call Wayne Wilkins at 312/859-2600, or write for our new 8000 Series Systems Furniture brochure. All-Steel Inc., Aurora, IL 60507.

ALL·STEEL
ONE OF THE CIT COMPANIES

Circle **No. 305** on Reader Service Card

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

Barrier-free design is often the lowest cost answer—as well as the most sensible one. At Bradley, we've listened to the experts and created Bradley products that will accommodate everyone—including the disabled. We've also incorporated washroom product designs that address vandalism and water conservation.

Send for your free copy of our new barrier-free products catalog that contains basic washroom design criteria plus specifications on our new products. A 30-minute film, "Barrier-Free Washroom Design" is also available for viewing. Contact your Bradley representative or write: Bradley Corporation, 9101 Fountain Blvd., Menomonee Falls, Wisconsin 53051.

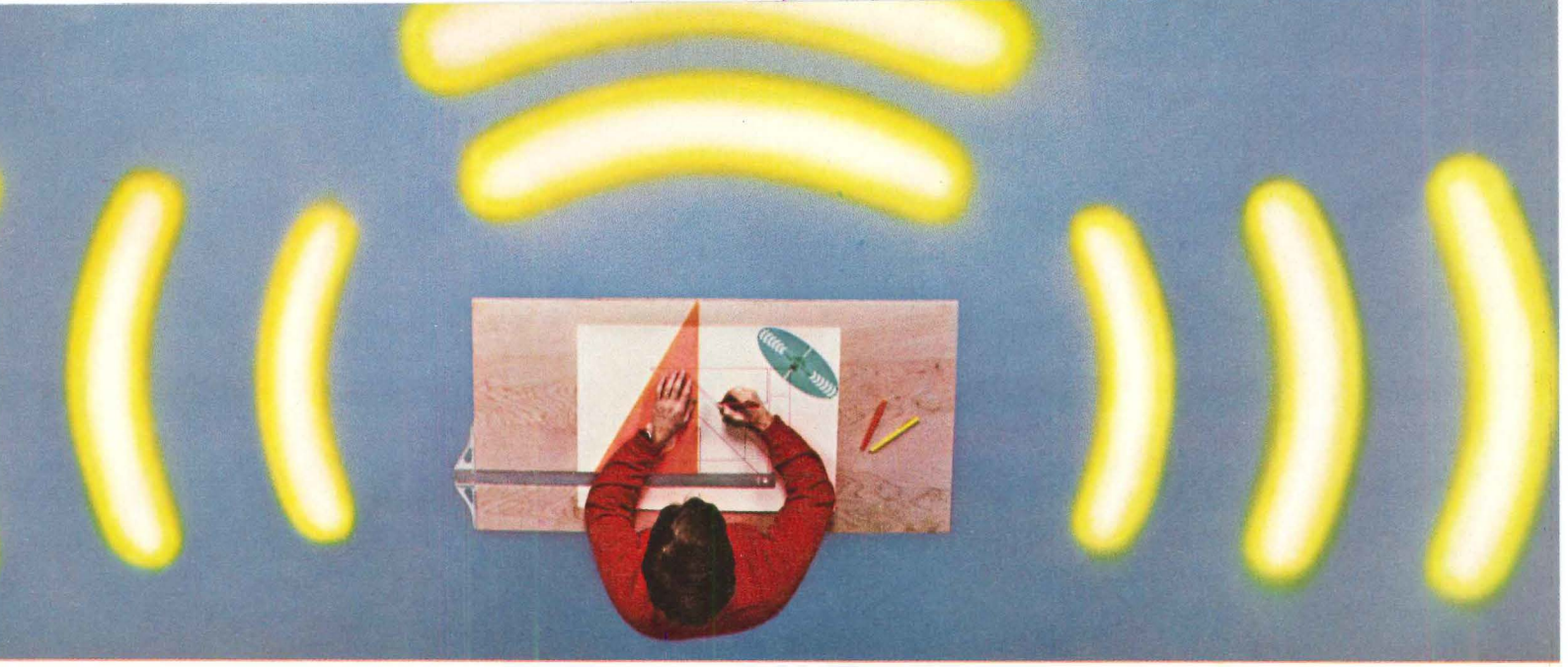
Bradpack® Wash Center

Barrier-Free Washfountain

Modesty Module® Shower

Another right idea from BRADLEY Bradley

Circle **No. 314** on Reader Service Card



To expand, stay put.

We can make your meetings outside the office more productive and save you time going and coming.

We offer architects an alternative to travel very much in keeping with today's emphasis on energy conservation and office efficiency. We offer teleconferencing in a surprising variety of forms.

The simplest and most familiar is the conference call. Any operator can arrange it so you can talk with the client, contractor and engineer all at once.

By adding a speakerphone or a portable conference phone, an entire planning committee could join the discussion. Also, with teleprinters and facsimile machines, written specs and drawings can be readily exchanged.

By having our electronic blackboard in your office, you can illustrate design concepts and changes. Standard TV monitors will allow groups anywhere to see every mark you make and join the discussion.

Teleconferencing is a professional way to manage information. You save time and energy. You hold the line on office expenses. You "call" meetings that busy colleagues are more likely to "attend." And, by expanding your area of activity, your office prospers.

Just as you use your knowledge to come up with innovative solutions to problems, we use ours to help you manage a limited resource—your time. A call to your Bell Account Executive begins the dialogue.

The knowledge business

An architectural crisis.

Versacor: Robertson's response.

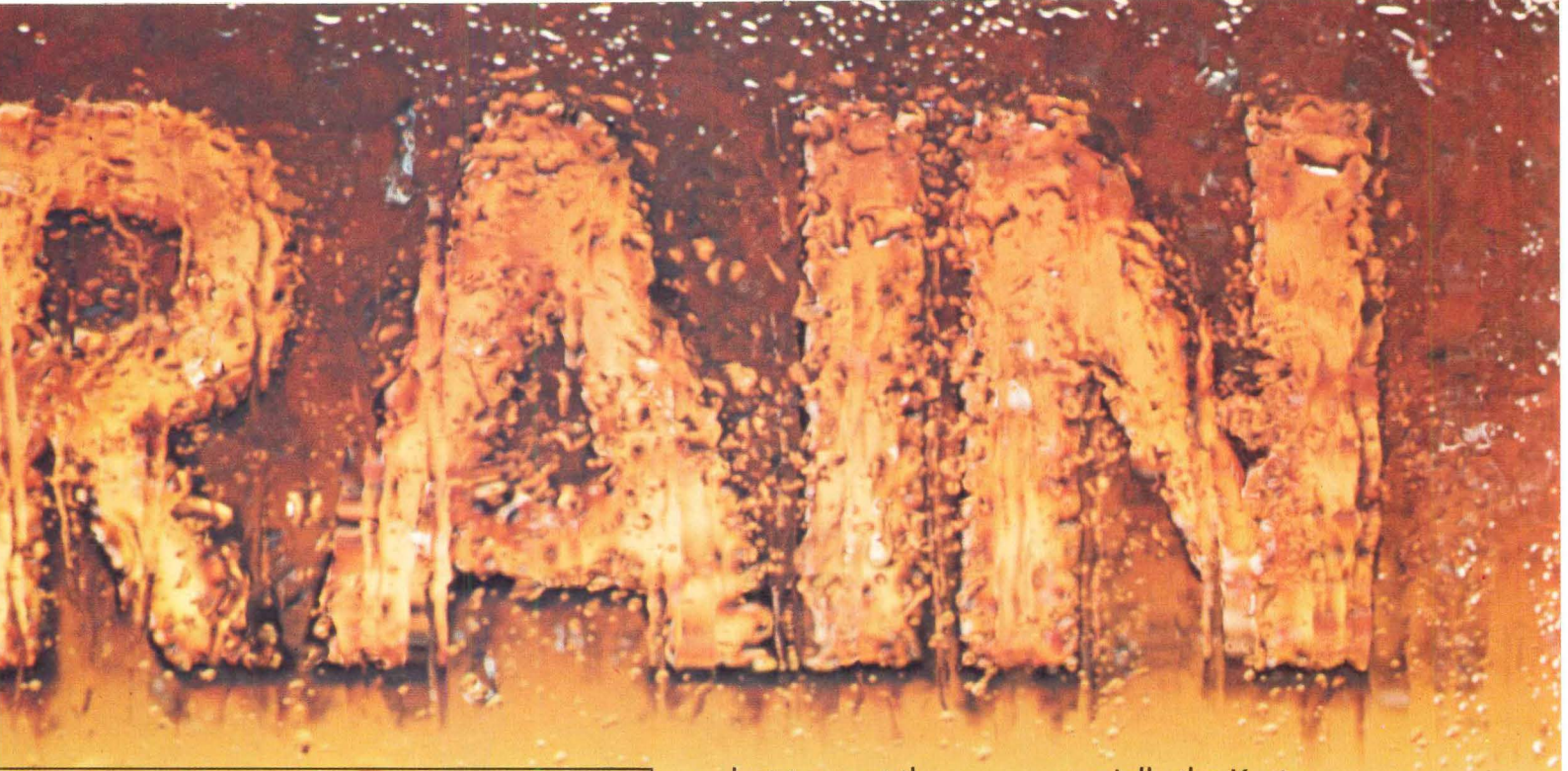
International in scope.

Acid precipitation ha become an architect crisis of internationa proportions. And it's crisis that directly affects your building wherever they may

Last year alone, th international confer- ences addressed the problem. A recent *Scientific American* cle reported: "On an annual basis, rain a snow over large reg of the world are nov from five to 30 time more acid than unpo luted rain. The rain individual storms ca from several hundre to several thousand times more acid tha expected."

What causes acid rain? Airborne sulfu and nitrogen polluta (from automobiles, smelters, and powe plants, among othe often traveling hund of miles before com

Acid rain had already begun corroding buildings in Scandinavia in the 1950s.



The global effects of acid rain.

Adirondack Mts., New York—Nearly 200 lakes devoid of fish life, more lakes in danger.
Alabama—Average rainfall shifts from a normal pH 5.6 in 1956 to ten times normal acidity in 1972.
Alaska, Greenland, Arctic Circle—Springtime haze, at times as intense as Los Angeles smog, apparently caused by pollution in Japan.
Allegheny National Forest, Pennsylvania—acid storm more acidic than vinegar, pH 2.3.
Eastern U.S.—Average rains as acidic as tomato juice, individual storms as acidic as vinegar.
Minnesota—Boundary Waters Canoe Area lakes reaching critical acidity levels.
New Hampshire—Storm at Hubbard Brook measures pH 2.8, more than 500 times normal, acidic enough to seriously damage vegetation.
Nova Scotia—15 to 20% of lakes reported dead or with decreased fish population.
Ontario—140 lakes reported dead, 48,000 more throughout Canada are threatened over the next 20 years.
People's Republic of China—Dead lakes reported, especially near Manchuria.
San Francisco, California—Dry acid fallout, even more potent than acid rain, able to eat holes in leaves and to corrode plastics.
Scandinavia—Earliest afflicted area, first studies in the 1950s. 5,000 lakes now devoid of fish life, annual liming of lakes to counter the acid problem.

with water vapor to
m an acid solution,
n fall unpredictably—
haps on your latest
lding site.
**e end of the non-
rosive building
vironment.**
e fact is, almost every
ation—rural or
an, commercial as
ll as industrial—is
w subject to ever-
reasing corrosive
ack from acid rain.
Already stone, masonry, automotive finishes, and single-layer metal wall finishes are proving inadequate—in fact, even the timeless beauty of the Taj Mahal in India is beginning to deteriorate. It's for this kind of world that Robertson created Versacor.®

Versacor—beauty that's proven itself in acid rain.

Robertson saw the necessity for a special product to meet the specific problems of metal walls and roofs in Scandinavia, where acid rain had already begun corroding buildings in the 1950s. Versacor was initially tested there and has outperformed every other paint system in over 10 years of exposure.

Now the Versacor multi-layer protective coating system, with its unique epoxy base coat, is available in the U.S. Versacor has been proven superior to competitive finishes in a battery of independent laboratory tests—especially the Kesternich test, an accurate predictor of resistance to actual acid rain conditions.

Available in flat wall and profiled shapes, Versacor can meet your most demanding aesthetic criteria for all kinds of buildings. And that's essential—because all kinds of buildings now face the long-term challenge of acid rain.

For more information about Versacor, write to H. H. Robertson Company, Department P-6, 400 Holiday Drive, Pittsburgh, PA 15220.

Robertson

Circle **No. 362** on Reader Service Card

TRICKS OF THE TRADE, EXPLAINED.

To be a blinding success, just use your imagination. And the Blind Imagination of Bali one-inch blinds.

When you specify Bali, you'll be giving your building a more uniform appearance. With none of the visual distractions so common with drapes.

That's only our outside story.

Our inside story is this: Bali Blinds do a better job controlling light than other types of window coverings. That saves energy. Even when they're wide open, Bali Blinds still work at 25% efficiency.

Bali saves time, too. Because when it's time to move walls as office arrangements change, inside and recessed or pocket-mount blinds don't have to be moved.

But there's one thing Bali won't leave to your imagination. That's our specifications.

Bali Blinds have been specified in a simple CSI format to permit ready reference for procurement packages.

And we'll make these specs available to you, for you to write your requirements around them.

So, if you want to be a blinding success in business, build around Bali. And use the coupon below for a copy of our brochure, *The Tricks of the Trade.*

BALI BLINDS

Show me *The Tricks of the Trade,* free.

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Telephone _____

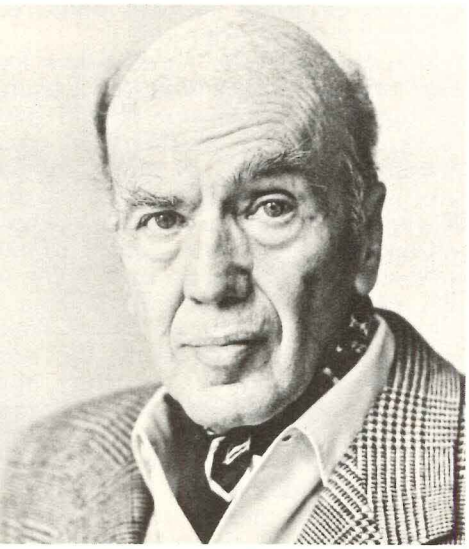
BALI BLINDS

BALI IS BLIND IMAGINATION.

Circle **No. 349** on Reader Service Card

P/A News report

980 Pritzker Prize awarded to Luis Barragán



tables at Las Arboledas, designed by Luis arragán.

The international 1980 Pritzker Architecture Prize has been won by Luis Barragán, Mexico's famed landscape architect. Jay A. Pritzker, president of the Hyatt Foundation which administers and funds the $100,000 prize, announced the jury's choice at a press conference at the Museum of Modern Art in New York on May 1. Barragán gained international renown in the late 1940s for his design of El Pedregal (The Rocky Place), a residential complex set within gardens carved from volcanic terrain. The designs of the 78-year-old, self-taught architect evoke Mexico's past as well as its future in what he terms the "architecture of emotion."

The Pritzker Prize grew from a suggestion of the late King Gustavus VI Adolphus of Sweden that certain areas of human endeavor deserving of recognition had been ignored by Alfred Nobel in his bequest. The Hyatt Foundation identified architecture as such an area, and it is its intention to make the Pritzker Prize an annual award.

Members of the international jury are: J. Carter Brown, director, National Gallery of Art, Washington, DC; Lord Clark of Saltwood (Kenneth Clark), author and historian; Arata Isozaki, architect and critic; J. Irwin Miller, chairman, executive committee, Cummins Engine Co., and architectural patron; Cesar Pelli, architect and dean of the School of Architecture, Yale University; and Philip Johnson, architect and author, and winner of the 1979 Pritzker Prize.

Presentation of the award will be made at a dinner on June 3 at Dumbarton Oaks, Washington, DC.

Energy conservation project, Independence Historical Park

The first stage of a project designed to conserve energy in the buildings and open areas that make up Independence National Historical Park in Philadelphia has been completed by the Philadelphia firm of Ueland & Junker. Original estimates indicate a 26 percent energy saving, with the necessary energy-saving improvements paid back in fuel savings in less than five years. This 26 percent figure is 6 percent higher than the study's original goal.

The 35 building complexes and 10 major outdoor areas that make up the park have historic qualities and also contain historic artifacts. Special considerations, therefore, were taken into account in the energy audit. According to the project director, C. Anthony Junker, "One does not work on buildings of such importance as Independence Hall and the Second Bank (of the United States) without a sense of awe and respect. The architecture of these buildings is a national resource. . . . The artifacts they contain—paintings, books, furniture—all require that rigid temperature and humidity control be maintained." Because of such restrictions, each building had to be researched separately to determine its original historic fabric, current physical plant, and present energy-consumption characteristics.

The first group of structures analyzed included the Second Bank, the Merchants Exchange, and the Bishop White House, as well as such modern buildings as the Visitor Center and the Franklin Court Museum. Improvements on six building complexes were recommended and categorized by either "immediate implementation" or "requiring further study." Many of the recommended changes involved alterations in the buildings' environmental systems, especially heating, cooling, humidification, ventilation, and lighting. Insulation, specially designed multiple glazing, and other architectural and landscaping improvements compatible with the buildings' appearances and unharmful to the long-term building life were also suggested. In the case of new buildings, more radical options, such as insulating wall panels, shading devices, and solar heating systems, were advised.

In addition to Ueland and Junker, other members of the design group include D'Ambly, Inc., engineers; Lawrence G. Spielvogel, Inc., consulting engineer and energy specialist; Clio Group, Inc., architectural historians; and Synterra, Ltd., landscape architects.

Reopening of Kemper Arena

After eight months of reconstruction, the Kemper Arena opened on February 20 with a crowd of nearly 17,000 basketball fans who watched the Kansas City Kings defeat the Seattle Supersonics, 107–105. The victory marked the first event held in the Kansas City arena since the roof collapsed on June 4, 1979 (P/A, July 1979, p. 26) during a devastating storm. At that time, speculation abounded as to the cause of the destruction, and suggestions included tornados, flat roofs, and drainage problems. City officials approached Helmut Jahn of C.F. Murphy Associates, designer of the project, who recommended a neutral consultant. California engineering con-

News report continued from page 27

The reconstructed Kemper Arena.

sultant James L. Stratta was then engaged to supervise the reconstruction (P/A, Nov. 1979, p. 24).

The major design change was the replacement of the bolt system, used originally to hold the roof to the three massive trestles, with a steel bar unit. The bars were tested for 600,000 lb of stress considered to be "400,000 lb more than would be generated if the roof were covered by several feet of snow," according to Stratta. In addition, the roof was peaked 30 in. to allow better water runoff, and the drainage system was redesigned.

A unique addition is the installation of a $200,000 electronic system which supplies advance warnings of any weaknesses that may develop in the structure during ordinary wear and tear over time. Forty sensors, mounted on the roof structural members, collect data in a method similar to that of a seismograph.

Total cost of repairs and improvements to the arena was nearly $6 million, and city officials estimated that revenue losses over the eight-month period of reconstruction totaled $1.1 million.

The award-winning facility is the Kansas City home of cultural as well as sporting events. Twelve major concerts have already been booked, and local promoters are confident that the city will once again be able to attract top name acts now that the Kemper Arena is back in service.

First annual Monterey Conference

About 400 architects attended the California 101 Design Conference held from March 27 to 30 in Monterey and sponsored by the California Council of the AIA. (The number 101 referred, not to the well-known freeway route, but to the number of participants presenting their work or ideas.) Although this was billed as the first California design conference, there was a similar, smaller scale event last year in Newport Beach that was popular enough to power this one.

In general, it was the kind of mildly chauvinistic affair that California inspires. There are, after all, more architects here than anywhere else, resulting in a lot of energy and curiosity about what is going on. There is also a well-founded suspicion that some design efforts in California are not taken as seriously in the Eastern centers and by the Eastern-based media as they might be.

The conference opened Thursday evening with a brief but exhilarating slide show that reviewed, in rapid-fire order, all the work that would be presented in the two full days of sessions that followed. Next came a panel moderated by Richard Saul Wurman, now at CalPoly/Pomona and composed of Bob Marquis of Marquis Associates in San Francisco, Mildred Schmertz, *Architectural Record,* and Reyner Banham, now at U.C. Santa Cruz. In expressing their views about the state of the art, panel members mostly touched on familiar themes. There was a lot of grousing about how architecture had turned into words and pictures, and poor old Modernism was once again trounced by all except Reyner Banham, who praised Modernism in California for being "pioneering without tears, polemic, or social verbiage," as though the movement had been laundered somewhere along the Great Divide. The evening closed with an opulent multimedia tribute to Herbert Bayer.

Friday featured morning and afternoon sessions in which so-called teams were given 7 to 15 minutes—alas, the time limit was not always observed—to present their work. The selection of presenters was done at the level of the component organizations of the CCAIA. The word "team" was misleading because the members were not harnessed to any common point of view nor were they evenly matched. People just starting out were sometimes followed or preceded by those who had been in practice for years. But, in this reporter's opinion, these inequities or discontinuities of practice made it all real. Any attempt to grade or rank people would merely have presented other problems. As it was, this supermarket shopping event was flawed only by the impossibility of seeing and hearing everything, and by the minimal provision for audience feedback. Since the six concurrent sessions were held in rather small rooms and only repeated once, no matter how agile one was, one couldn't attend them all. Even a published, adhered-to schedule would have helped somewhat. Perhaps in the future it might be possible to stage the whole event in a large arena. The performers might have stalls and be obligated to present their work at stated times. Or in true carnival tradition, presentations might be continuous for all to see as they pleased.

The work itself showed about equal strength in the now-traditional currents of Modernism and the new waves of contemporary, if not Post-Modernist, ideas. There is a healthy and reassuring diversity of practice. Actually, more explanation of the process of practice would have assisted our understanding of the products in many cases, although some of the presenters were quite candid about why they work the way they do.

Saturday's In-Depth—whatever that means—presentations were so disrupted by media problems that it is hard to assess their contribution. Programmatically, the four presentations were intended to show the range of practice in the state in a detailed way with Jon Jerde, Craig Hodgetts, Anthony Lumsden, and Donn Logan presenting for their respective firms. Although these were indeed four different kinds of practice, there was disagreement over how representative or informative or useful the sessions were. The fact that the speakers spent a lot of time fighting the slide projector dissolve units certainly vitiated the program.

The feedback the CCAIA has had about the conference indicated a strong feeling that the speakers should have addressed an issue or theme. A commendable idea, but, as one commentator pointed out, architects are not easily steered. The notion that busy people will take time to search their souls and come up with an organized point of view directed to a particular theme is a bit absurd, or at least out of character, especially considering the self-supporting conference structure that required even presenters to pay admission, lodging, and travel costs. More likely they will reach for the current carousel of slides and go from there.

All this is minor carping. Most everyone agreed that the conference was a success, and a good time was had by all. In all fairness, the Monterey Design Conferences of the future might serve no better purpose than to do for design what the Monterey Jazz Festival does for jazz: take it seriously but make it enjoyable. [Sally Woodbridge]

Report from London

"We have been slowly destroying our cities," said Richard Rogers this year during a lecture he gave at the Royal Institute of British Architects.

In saying this, he was lamenting not so much the destruction of buildings, the replacement of the old by the new, but the gradual loss of the *idea* of the city. He was not the first to have said this, but coming from one of the leading architectural innovators in this country, it was significant.

It is not only the quality of architecture that draws tourists in the thousands to the pockets of historical London, the 18th-Century city of Bath, or to the medieval city of York, but their human scale and richness, their secret places.

It is therefore encouraging to find a fragment of city newly created in London's central West End near Leicester Square. Called Hobhouse Court, it is
[*News report continued on page 32*]

"*REZ*® Wood Stains gave us the best color selection and cost effectiveness"

Douglas C. Goodman,
Reinhardt Associates, Inc.

MacArthur Terrace, Chicopee, Massachusetts—A HUD 236 Project for Chicopee Housing Associates; Architect—Reinhardt Associates, Inc.; General Contractor—Dimeo Construction; Painting Contractor—John D. Ahern Company.

ecause various grades of lumber ere used in the MacArthur Terrace roject, the exterior finish had to neet two very important criteria. irst, a variety of colors were needed o make the overall apartment com- lex aesthetically pleasing. At the ame time, the finish had to be eco- omical in terms of both initial appli- ation and long-term maintenance.

Rez Wood Stains gave us the best election of colors," says Douglas C. ioodman of Reinhardt Associates. le adds, "And since we have speci- ed *Rez* Wood Stains for many years, e were certain that they would give us the quality and durability needed for cost effectiveness on this project".

If your next project or development calls for stain—consider the many advantages of *Rez* Wood Stains. 145 "now" colors to choose from, solid color or semi-transparent effects, for both exteriors or interiors. A big plus —quality and durability that have been proven for more than 30 years.

See Sweets File 9.9/Ppg or write for 8-page brochure by mailing the coupon.

PPG: a Concern for the Future

PPG INDUSTRIES, Inc., One Gateway Center—3W, Pittsburgh, PA 15222

☐ Please send 8-page brochure regarding *Rez* Wood Stains.

☐ Please have representative call.

Name _____

Title _____

Company _____

City _____ State _____ Zip _____

PA 6

PITTSBURGH PAINTS
Manufacturers of *Rez*® Wood Stains and Varnishes in U.S.A.

PPG INDUSTRIES


HISTORY
940 - 990

How to get a round ceiling through a square client.

Talk sense to him. Donn Paraline linear metal ceiling system is a sensible, affordable way to turn a workaday building into a showcase. The dramatic, flowing design possibilities of Paraline are limited only by your imagination.

Yet for all its visual impact, even your most skeptical client will see Paraline for the very practical solution it is. And — it's the only linear metal ceiling that's fire-rated!

Paraline adds flexibility to lighting and air return design while allowing easy access to the service area above. It's easy to install. Easy to maintain.

Paraline is available in steel or aluminum with a wide variety of wipe-clean standard color finishes, chrome-like polished aluminum or nearly any custom finish. It's also available in a fire-rated version for nearly any application you can conceive. It's even available with an NRC sound control characteristic up to .90.

Ask your Donn representative for full details. Call us toll-free. Or write us. Donn makes access floors. Donn makes wall systems. And Donn makes ceiling systems. **But most of all, Donn makes sense.**

DONN CORPORATION

Paraline Ceilings
1000 Crocker Road
Westlake, Ohio 44145
(216) 871-1000

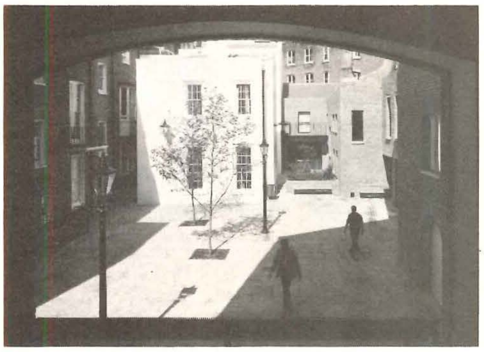
Paraline now available fire-rated!

Circle **No. 328** on Reader Service Card

News report continued from page 28

Photos: Henk Snoek

Suffolk Street entrance and courtyard of Hobhouse Court, London.



scheme by Casson Conder & Partners which successfully fuses restoration with new building. It is remarkable because it is a good illustration of an emergent, more modest approach to the problem of designing for the centers of cities. That is to say, it reveals a regard for context, combining respect for what exists with invention.

The scheme is a small oasis of tranquility in an area which was once for foreigners the quintessence of London and which has now largely lost the charm it had. Piccadilly Circus has become a traffic junction. Leicester Square, at its best never very appealing, is more than ever a seedy wasteland of porn, pinball arcades, and squalid bazaars which exerts an irresistible attraction for marauding bands of Saturday-night football fans. In a futile attempt to make the square more attractive to people other than the resident winos, it has been pedestrianized, and the diverted traffic now roars south down the Haymarket to Trafalgar Square.

Hobhouse Court is a secret place and has to be sought out. Its western edge is formed by Suffolk Street with its grand stuccoed houses—last remnants south of Oxford Circus of John Nash's Via Triumphalis which ran from Carlton House to Regents Park. On the eastern side is Whitcomb Street whose buildings are, in contrast, more domestic in character and fairly typical of London's 19th-Century commercial premises.

What was once a solid block running between these two streets has been hollowed out to make an interior courtyard reached from Suffolk Street by passing beneath a handsome Nash portico. Paved with York stone and granite sets, and planted with trees, the courtyard has a secluded collegiate quality and is the unifying element that pulls the separate ingredients of the scheme together.

The site is owned by one of London's major landowners, the Commissioners for the Crown Estate. By 1971 many of the houses were in a poor condition. They were leased out then, as they are now, as small shops, offices, and art galleries. The center of the site was filled with a hotchpotch of back extensions, and a long and inconvenient flight of stone stairs led from Suffolk Street to the art galleries of the Royal Society of British Artists at the southern end of Whitcomb Street. Lease renewals were due to begin in 1974, and the commissioners asked Casson Conder to carry out a planning study before preparing a design. The final scheme is therefore the result of careful and lengthy investigation. It includes the renovation of Nos. 6–14 Suffolk Street and four buildings on Whitcomb Street, and the insertion of three new ones.

The Suffolk Street houses were subject to listed building control. They were built between 1820 and 1830 and follow the characteristic form of early 19th-Century London houses having four stories and a basement. While Nash was responsible for the layout and general supervision, other architects also were involved in the design, so that there is a fine mixture of classical detailing.

No. 6 is by Edward Cresy and has a "big arched central window flanked by Ionic columns and a smaller window above flanked by pilasters—a curiously disjointed composition of Italian High Renaissance," notes historian Nikolaus Pevsner *(The Buildings of England: London Volume 1)*. Next door is the formal entrance to the courtyard marked by Nash's giant portico with four columns and a Roman Doric pediment. Nash also designed Nos. 8–11 while the remaining three were done by Lewis Wyatt.

Only the three Wyatt houses, one with a splendid Regency drawing room (now a conference room), were considered important enough to retain completely. The remainder were linked together in pairs so that by breaking through party walls, horizontal sets of four rooms rather than two were provided at each level. This gave better office space with the minimum disturbance of the fabric.

Restoration can prove a delicate business requiring particular architectura skills. In this case, timber battens anc joists had to be taken out and replacec with masonry. Original plasterwork wa restored or duplicated, fireplaces were designed around the old grates, anc ironmongery and light fittings faithfully reproduced.

On the Whitcomb Street side, the ar chitects were forced to reconsider their decision to take down the building which, at the time of their preliminary report, they had felt were in too bad a state to repair. To their momentary irri tation, a campaign launched by Lon don's Evening Standard succeeded ir getting the underground wine vault "listed," which made building above them virtually impossible. The outcome was that all the buildings except two a the northern end of the street have beer renovated to provide space for shops or the lower floors, with offices and gal leries above. The current trend toward open loft space, which is flexible and car be let by the square foot and divided by demountable partitions, prevails here Ingeniously, a steel cradle replacing internal structural walls was used a scaffolding during construction anc then left as the loadbearing framework for new concrete floors.

These modest buildings do concea delights not uncommon in this part o the world. As well as the warren of wine vaults under the site with their fine brickwork, there is a succession of sky-li galleries on the top floors. These, simply painted white with a series of gracefu cast-iron skylights, are intended t house art collections.

They are reached by a new lift anc stair tower built at the southern end o the courtyard and forming a bridge be tween the two sides of the scheme. Clac in lead, it stands a little uneasily as a punctuation mark, emphasizing rather than softening the joints. Climbing up the stairs behind the galleries affords a view of Reginald Blomfield's evocativ Parisian roofscape next door.

The building replacing that demol ished on Whitcomb Street is in brick with slate mansard roof and dormer windows. Although somewhat over shadowed by its historic neighbors, it i unobtrusive and maintains the scale, a does the other new building constructec in a similar manner on the site of an olc stable block. This consists of two-story offices and a caretaker's flat.

The grouping of the buildings her creates spaces that are intimate, with long views across the courtyard. Th removal of the back extensions and sub sequent knitting together of th brickwork with salvaged secondhanc bricks has given the court façades a tex ture that is rich and pleasing. Th stitches, so to speak, are there to be ap preciated. [Penny Maguire]

[*News report continued on page 36*]

Some things will be around a long time...

...and remain maintenance-free!

ictoria Station Restaurant, Fairfax, VA., *Architect*: Donald K. Olsen, Sausalito, CA., *Installation*: Krupnick Bros., Glen Burnie, MD.

MICROZINC® 70

factory-formed roofing systems

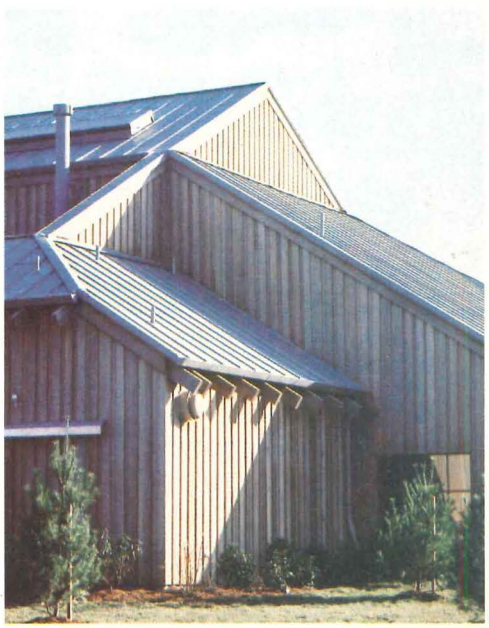
he natural, weathered look of Microinc 70 is a pleasant alternative to raditional browns and bronzes. Widely pecified for its distinctive gray patina, Microzinc 70 is beautifully aged *efore* it reaches the job site. There is o other metal quite like it.

: is self-healing—minor scratches and brasions weather back to the natural ray patina. The installation is waterght—no leaks, run-off stains, or rotted naterials. And all components are actory-formed, greatly reducing onite installation costs and eliminating vasted material and shop labor. Offered in batten or standing seam LOK™ systems.

Microzinc 70 is also available in factory-formed fascia systems, mansards, trim and roofing accessories. For catalog and further information write or call Ed Pejsa at 615/639-8111.

Ball Metal & Chemical Division

Greeneville, Tennessee 37743 615/639-8111



all is a registered trademark of the Ball Corporation

Bullock's, San Jose, California—the world's first department store under a permanent Owens-Corning Fiberglas fabric structure. Environmental Planning and Research, Inc., architects and planners. Geiger-Berger Associates, structural engineers.

Create your own energy-efficient environment with an Owens-Corning Fiberglas® fabric structure.

This is the beautiful new Bullock's in San Jose, California. The world's first department store with a permanent fabric roof—made of rugged Owens-Corning *Fiberglas* yarn coated with Teflon.*

The fabric roof gave the architects the freedom to create a unique environment—open, airy. A lot like a park.

Since the roof is translucent, it lets in soft daylight, thus cutting the need for daytime lighting and the use of energy. And Bullock's is projecting energy savings of $18,000 a year. (They're now planning a second store with a larger *Fiberglas* fabric roof.)

More savings.

An Owens-Corning *Fiberglas* fabric roof structure can cost less to build than a conventional roof. And generally, the longer the span, the greater the savings. Plus the fabric roof goes up in a fraction of the time, which can result in even more savings.

The Pontiac Silverdome, home of the Detroit Lions, could not have been built with a conventional roof without going over budget. Today, the Silverdome has a 10-acre *Fiberglas* fabric roof that cost a third the price of a steel-vault one.

Seven years of success stories.

Owens-Corning has been involved in every *Fiberglas* fabric structure project in the world. We've found there's practically no limit to what you can do with *Fiberglas* fabric structures.

You can use them to create exciting new environments for schools, malls, zoos, libraries, restaurants, hospitals, office buildings, and even airport terminals. (We're now working on the Haj Terminal in Saudi Arabia—larger than 80 football fields.)

One-stop shopping.

No one is better equipped to help you with your project than Owens-Corning Fiberglas Corporation. Call on us for assistance during preliminary design as well as for budget estimating. Count on us for materials, fabrication and construction. In short, depend on us for everything from A to Z. Don't hesitate to contact us at the earliest stages of your project.

For a free brochure, just send us this coupon.

Free brochure

Write to A.H.N. Meeks, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659

Name _____ Title _____

Company _____

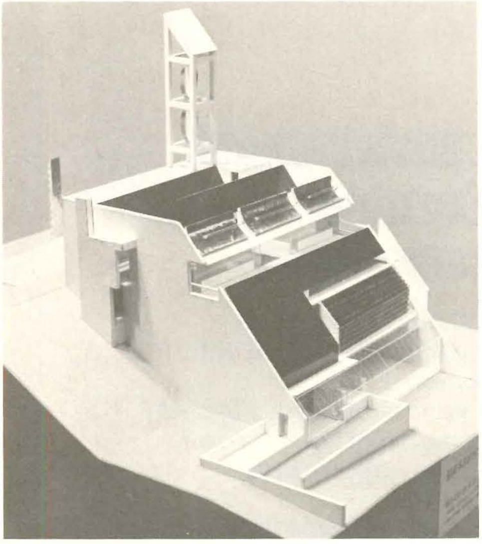
Address _____

City _____

State _____ Zip _____

OWENS/CORNING FIBERGLAS

News report continued from page 32



Hempstead Community Action Program Solar Energy Center, Long Island, NY.

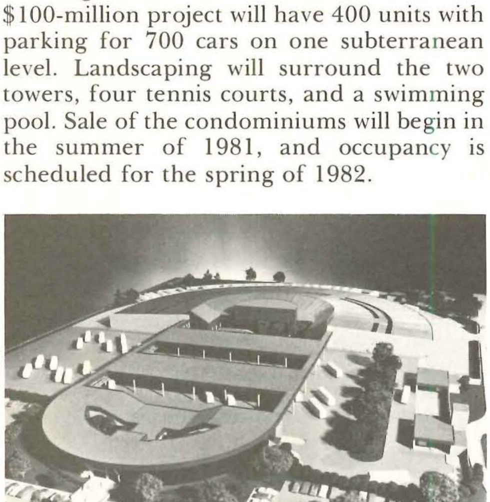
Two programs are fused in this one building, designed by architects Bentel & Bentel, of Long Island with Dubin-Bloome Associates, of New York as engineers. The energy-conserving structure, estimated to cost between $3.5 and $4 million, acts simultaneously as an energy-conserving educational and training center for the Economic Opportunity Commission, and as a testing laboratory and demonstration project for New York Institute of Technology's Center for Energy Policy and Research. Programs run at Hempstead by the EOC will encourage minority groups to seek jobs in solar-related fields. In addition, students from the local predominantly low-income-population high school will have access to displays of current energy technology. NYIT, in conjunction with Grumman Energy Systems, a division of Grumman Aircraft Corp., manufacturers of solar collectors, and Long Island Lighting Co., the local utility, plan to use the building as a laboratory to evaluate the efficiency and validity of various solar collector systems presently on the market. "The data collected," says Frederick Bentel, "should help lending institutions determine the validity of loans for solar installations." The 25,000-sq-ft building incorporates several solar systems into its design. On the southerly façade are mounted flat-plate and cylinder collectors; the roof has additional plate collectors and focusing collectors.

Passive technologies are used also. The concrete-block building with internal concrete walls and slabs provides a thermal mass sufficient to minimize temperature swing. Four inches of insulation underlie a white stucco skin, a thin, but well-insulated exterior treatment for the internal mass. Light and ventilation come from openings on the southern face; northern exposure is minimal. A greenhouse on the southern façade adds to the passive aspects. More symbolic than efficient, a double Darrieus windmill tower provides a visual focus for the design that is appropriate to the center's purpose.

[*News report continued on page 44*]

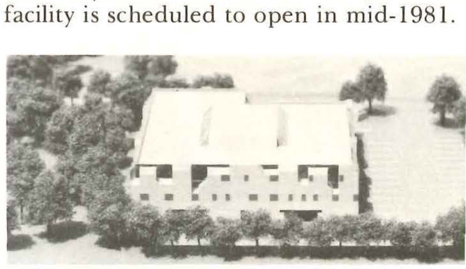
In progress

Four Leaf Towers, Houston, Tx. *Architects: Albert C. Martin Associates, Los Angeles and Houston, managing and coordinating; Cesar Pelli & Associates, New Haven, design.* These two 40-story condominiums will constitute Houston's largest high-rise residential condominium development and the city's tallest buildings outside the downtown area. The $100-million project will have 400 units with parking for 700 cars on one subterranean level. Landscaping will surround the two towers, four tennis courts, and a swimming pool. Sale of the condominiums will begin in the summer of 1981, and occupancy is scheduled for the spring of 1982.



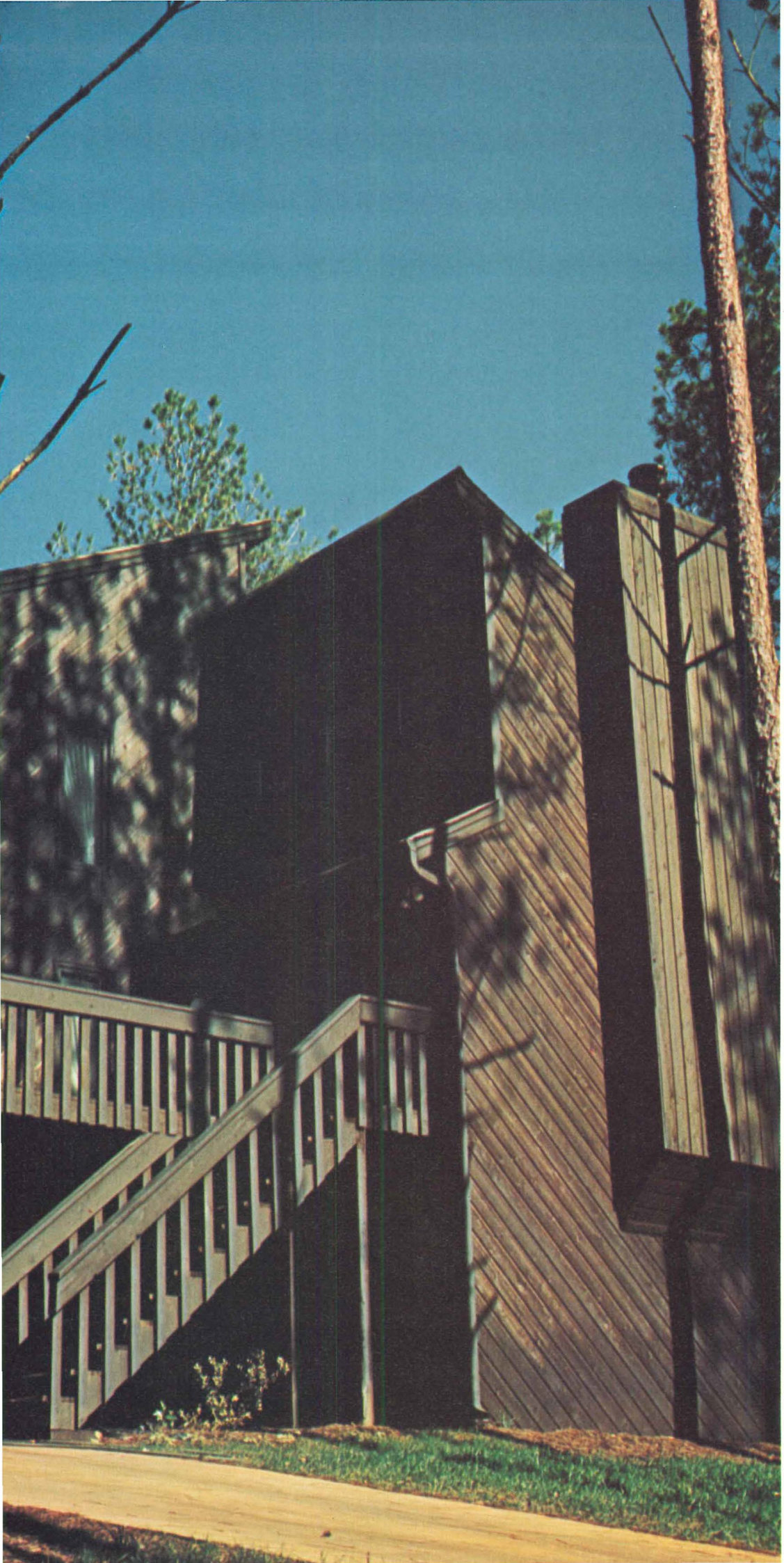
Bus Maintenance Facility, Houston, Tx. *Architects: Bernard Johnson, Houston.* This $27-million bus maintenance complex features two semicircular buildings connected to a bus parking canopy by elevated pedestrian catwalks. Three concentric activity areas—bus stalls on the perimeter, repair shops at the core, and parts storage in between—make up the facility, which will serve as a major element in the city's move toward a modern, efficient transit system. The 250,000-sq-ft complex is entirely air-conditioned, and window walls, bright colors, and high ceilings add to the structure's spaciousness. The project is being designed and built under a "fast track" schedule, with construction starting on the sitework and utilities while building plans are being concluded. Completion is expected by late 1981.

One Post Office Square, Boston, Ma. *Archi-tects: Jung/Brannen Associates, Boston, Piet Belluschi, consultant.* This office tower-hot complex in the center of the financial distri will include the construction of a 39-stor 750,000-sq-ft office tower and the conve sion of the landmark 1922 Federal Reser Bank building into a 300-room hotel. Th exterior of the tower on the first three leve will be predominantly glass, with a mai lobby three stories high on Pearl and Mi Streets. On the hotel side, the lobby extend for six stories and becomes the top of t hotel atrium, which is the exterior link b tween the two structures. As a nine-sto hotel, the former bank building, an examp of early Italian Renaissance architecture, w retain such details as intricately carved cei ings, a marble staircase and fireplaces, an N.C. Wyeth wall murals. The $65-millio facility is scheduled to open in mid-1981.



Office Building, Westport, Ct. *Architec Zane Yost & Associates, Bridgeport, Ct.* Th 30,000-sq-ft office building incorporat passive solar methods for heating and coo ing. Offices open onto an atrium, and ope able exterior and interior windows perm natural ventilation. Wall construction is m sonry for thermal lag. Task/ambient lightir will be used. A mirrored-glass spandrel the roof reduces the apparent height of t building on the east façade, which abuts residential district. Completion of the $ million building is scheduled for the end the year.

[*In progress continued on page 40*]



You're looking at the second best reason to use our stain.

A lot of professionals use Glidden Spred® Oil Stain because it's beautiful.

And that's all right, because we happen to agree with them.

But to find the real beauty in Glidden Spred Oil Stain, look past its appearance. To the way it seals and protects wood.

As Spred Oil Stain is applied, it penetrates the wood. To repel rain. Snow. Humidity. A tough, resistant coating that lasts.

Ease of application? That's dependable, too. Painters will find that the Glidden formula keeps pigment in suspension longer. So our stain goes on smoother, with less stirring.

You should also find Spred Oil Stain's 83 colors useful. Every one as beautiful as the color you see here. Plus our easiest to use stain deck yet —solid colors on one side, semi-transparent on the other.

Spred Oil Stain from Glidden. Our reputation for quality and performance proves you'll get more than a beautiful building.

Glidden

SCM GLIDDEN COATINGS & RESINS
ARCHITECTURAL & MAINTENANCE
SCM CORPORATION, CLEVELAND, OHIO 44115

Circle No. 380

Vertebra®

The most advanced seating system

Sit up

Tilt forward

Relax

Tilt backward

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

OPEN AfK®

The first chair to react *automatically* to your seating requirements... for healthful support, for more comfort, for greater productivity

Vertebra... undisputed leader in the new generation of ergonomically designed seating. It reacts *automatically* to your changing seating needs, providing complete freedom of movement.

Simply **relax**... and the seat slides forward while the backrest tilts backward; or **sit up**... and the chair automatically adopts a more comfortable upright position; ***lean forward***... and the seat and backrest tilt downward 6°; activate a release and **tilt backward** 12°... it permits you to stretch and relax.

Vertebra is the first seating system to deal scientifically and aesthetically with the special requirements of the seated worker. Its simple, ingenious mechanisms require virtually no attention. They are covered by protective bellows which serve as armrests on some models.

Since no two anatomies are alike, these mechanisms react independently to provide optimal weight distribution and continuous lumbar support for the comfort and efficiency of the widest variety of workers.

Test these unique operating principles at your dealer. They are available on stacking Institutional chairs, pedestal base Operational, Managerial and Executive models for the office, plus Tandem versions for lounge and waiting areas.

Krueger is exclusive licensee of OPEN AfK B.V. for production and distribution of its products in the United States and Canada. For Vertebra literature and the name of your nearest dealer, contact:

krueger

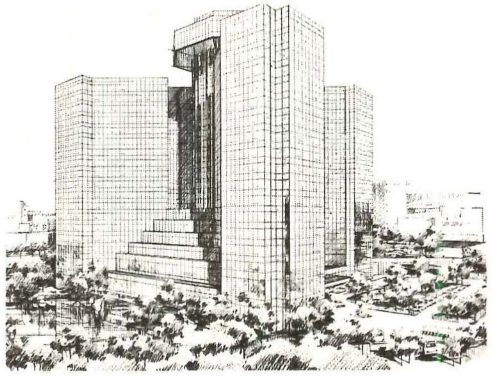
P.O. Box 8100
Green Bay, Wisconsin 54308
414/468-8100

Boston 617/893-2752
New York 212/371-9595
Philadelphia 215/666-9696
Atlanta 404/231-0913
Jackson, MS 601/362-8062
Indianapolis 317/788-4737
Chicago 312/467-6850
St. Louis 314/241-8431
Dallas 214/823-4183
Houston 713/222-1408
Denver 303/534-6060
Los Angeles 213/659-2133

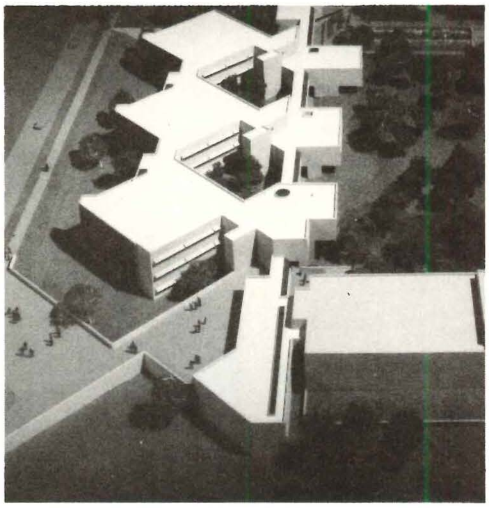
Vertebra Executive and Managerial Seating
Banque Bruxelles Lambert (Milano Branch)
Architects: Emilio Ambasz and Giancarlo Piretti

Circle **No. 345** on Reader Service Card

In progress continued from page 36



Great Wall of Beijing Hotel, Beijing (Peking), China. *Architects: Becket International, Santa Monica, Ca.* Construction of the first modern hotel in China designed by an American firm is scheduled to begin in October and to be completed in two years. A joint venture between the China International Travel Service and E-S Pacific Development Construction Co., the $78-million, 1000-room hotel is situated on a four-acre site on Beijing's main thoroughfare, Dong Haun Road, which leads to the airport. Three guest-room wings, 21 stories high, radiate from a central service core. Landscaping, fountains, and reflecting pools decorate the five-story, pyramid-shaped atrium, which also contains a tea garden. All spaces, including guest rooms, are climate-controlled, and the 63 guest rooms on each floor are equipped with color television, radio, and message-light telephones. Seven restaurants and lounges, a rooftop dining room, swimming pool and health club, specialty shops and boutiques, a nightclub and cinema are among the services provided. A 288-car parking structure on three levels has been designed for guests, in addition to surface parking. Accommodation for bicycles has also been included near the employees' entrance.



Merck, Sharp & Dohme Headquarters, West Point, Pa. *Architects: Marcel Breuer Associates, New York, Herbert Beckhard, partner in charge of design.* A 117,000-sq-ft division headquarters in the form of a three-unit structure is presently under construction adjoining Merck, Sharp & Dohme's pharmaceutical manufacturing, research, and administrative facilities. The design is a [*In progress continued on page 48*]

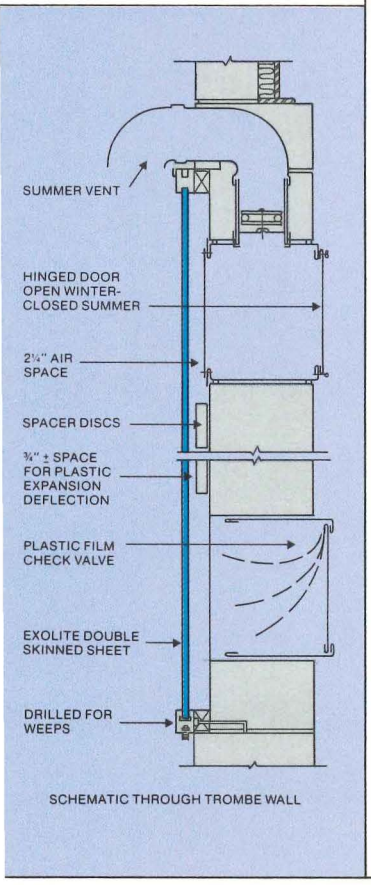
HOW A FRIGID NEW ENGLAND ENVIRONMENT DEMONSTRATED THE EFFECTIVENESS OF PASSIVE SOLAR ENERGY AND EXOLITE™ SHEET.

EXOLITE double skinned sheet, the power of the sun, and a lot of design expertise allowed two facilities in New England to save energy and clobber winter.

Massive Trombe wall saves energy in Vermont warehouse.

A massive Trombe wall did the job for Famolare, Inc. at their warehouse addition in Brattleboro, Vermont.

The Trombe wall is 184 feet long and oriented 10° west of due south. Windowless except for 16 roof monitors, the wall is expected to contribute 38% of the building's heat, with the balance being provided by ceiling-hung oil-fired unit heaters.



SCHEMATIC THROUGH TROMBE WALL

Two basic components of the solar system are a 12-inch concrete block wall and EXOLITE double skinned acrylic sheet as the glazing material. The EXOLITE sheet is several inches from the concrete wall, providing a chamber into which cooler air enters through openings in the bottom of the wall. Air is returned to the room through openings at the top after being heated, as it flows over the surface of the warm wall.

During summer, the top opening to the room is closed, with hot air vented to the outside, providing natural ventilation.

A natural energy system becomes a learning experience for dormitory students.

Passive solar energy, simple in design and operation yet effective in saving fossil fuel, was adapted for dormitory and faculty housing at the White Mountain School in Littleton, New Hampshire.
The long two-story building uses EXOLITE double skinned acrylic sheet in a series of interconnected solarium units on the south side to maximize collection of the sun's rays.

As the surfaces in the solarium are heated by the sun, the air is warmed, activating a thermostatically controlled fan. The fan transports the warm air to a rockbed heat storage area for use at night.

The solarium is separated from the living units by an internal window wall. During the day the winter sun penetrates the room as well as the solarium, providing direct, passive solar heat to the rooms.

Not only has maintenance been minimal for the heating system, but the opportunity to create an energy awareness in its students has proved to be a giant plus for the school.

EXOLITE sheet: for all the energy under the sun.

EXOLITE double skinned sheet is an exciting, new-generation plastic sheet ideal for skylights, covered walkways, greenhouses and just about any application where daylight is required.

It has outstanding thermal insulation values and is an excellent passive solar energy material, opening exciting new design and construction possibilities for you.

If you want to know more, please contact us at West Main Street, Bound Brook, NJ 08805. (201) 356-2000.

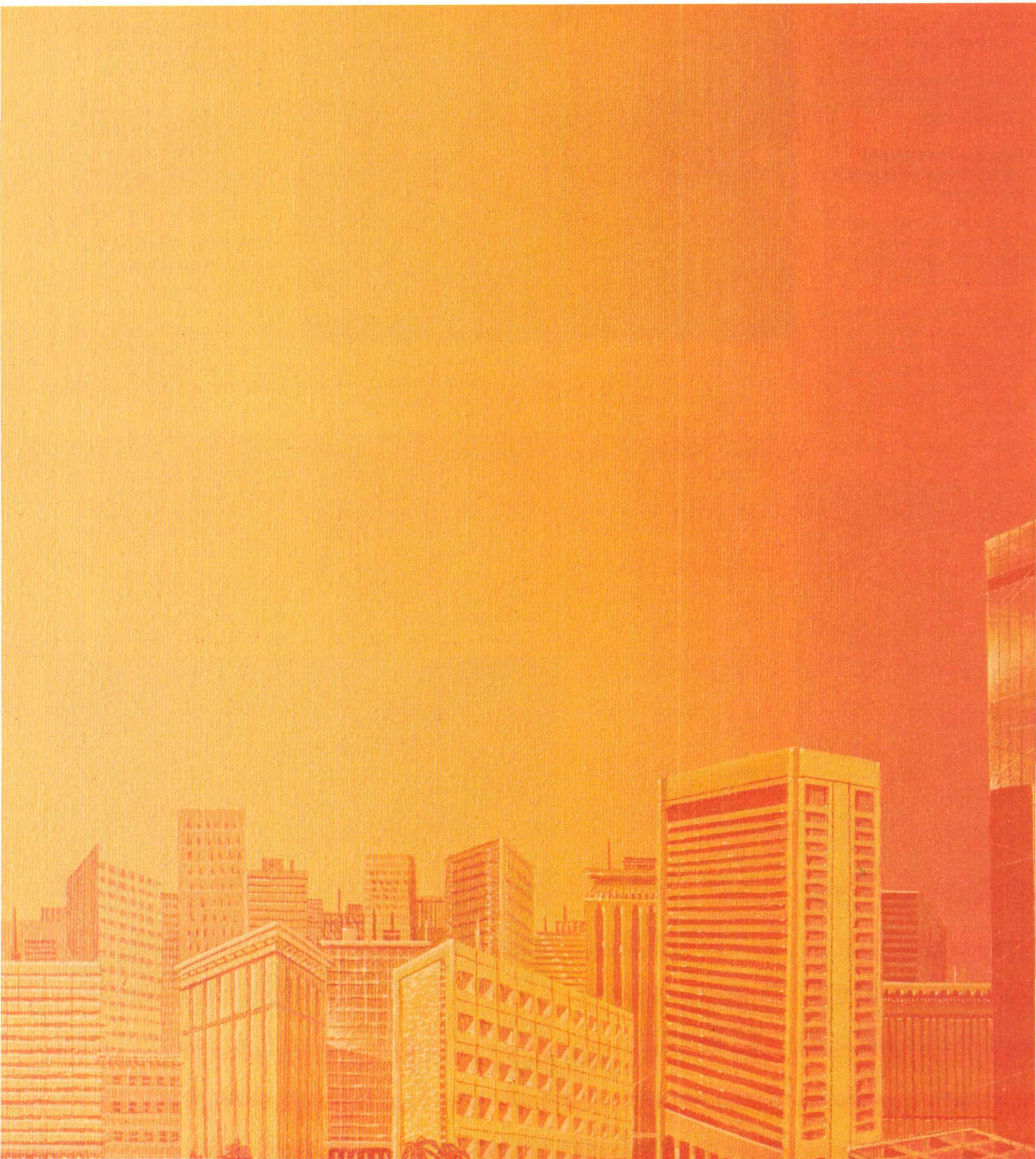
chitects: Banwell, White & Arnold, Inc.
ılar Engineering: Prof. Alvin O. Converse
echanical Engineering: R. D. Kimball Co.

CYRO INDUSTRIES
A Partnership of Cyanamid Plastics, Inc. and Rohacryl, Inc.

We've earned the name: The Elevator Innovators.

Dover has done it with new ideas,
new applications of old ideas.

We were first to conceive the time
cost-saving pre-engineered elevators,
and now have the broadest line in th
industry (49 traction and Oildraulic®
models) to serve low and mid-rise bu
ings. For high-rise buildings, our gear
traction elevators and sophisticated gr
supervisory control systems offer hig
speeds and the proper response to tra



ands, in order to meet the needs of most severe building requirements. over was first in the industry to put puter technology to work, using it to ect a building's traffic volume and nsity, and to determine the elevator d, capacity, and other characteristics ded to provide the desired level ervice.

Ve have more solid state controlled ators in operation throughout North America than any other company in the industry. But we also can, and do, utilize conventional hardware when we know it will deliver the proper level of performance to satisfy the individual building requirements.

We're proud to be known as the Elevator Innovators, but we won't ever use our customers' buildings as a test tower or let the urge to innovate override our customers' needs for safety, reliability, and performance. For literature write Dover Corporation, Elevator Division, Marketing Services—A665, P.O. Box 2177, Memphis, TN 38101.

DOVER®

The elevator innovators.

News report continued from page 36

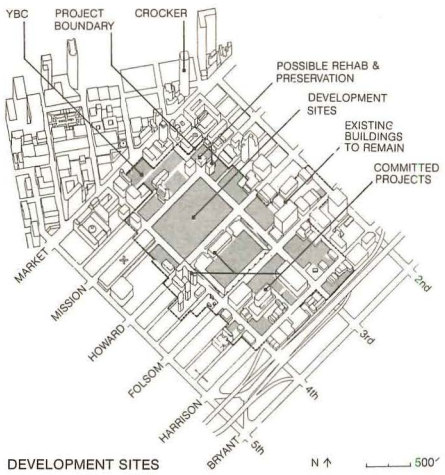
Report from San Francisco

MANHATTANIZATION/Manhattanization
Last fall, San Francisco voters again failed to pass an anti-highrise initiative and thereby stop the Manhattanization process, so christened in 1971 when the first set of height-limiting initiatives was on the ballot. After nearly ten years of unchecked development had confirmed environmentalists' worst fears about Manhattanization, the new initiative received a favorable prognosis. It was assisted by endorsement from the development-minded mayor and by the failure of architect Arthur Gensler's opposition group, San Francisco Forward, to garner strong financial support or reveal a strong consensus.

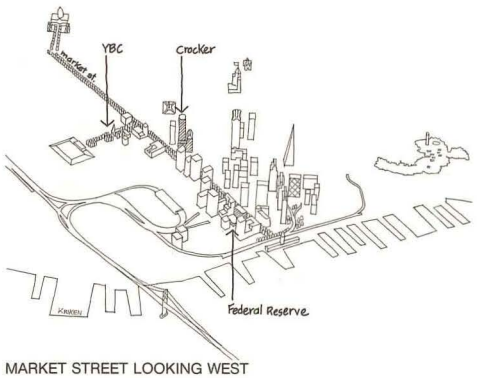
The proposed height limit would have reduced the present maximum of 700 ft to 260 ft—about 20 stories—and given bonuses for the preservation of registered landmark buildings and the creation of new housing. Although the pro-highrise sector drew a picture of the post-initiative city studded with "short, squat buildings," this was about as far as the discussion of architectural quality got. The initiative itself spoke to environmental issues stating that increasing air, water, and noise pollution, traffic and parking problems, and demand on public services, already weakened by increasing costs and declining city tax revenues, create a "dark, windy and uninviting downtown. . . ."

The question of what developers would do after (as they saw it) downtown was locked up, was answered by Patrick Mahoney who said, "damn little," implying a mass exodus to L.A. and Seattle. The question of what architects would do might be said to have been answered—even for all time—by Philip Johnson after testifying in August before the Planning Commission in favor of his new 48-story contribution to downtown. "We are very high-class whores," he said with a grin, "and we believe in doing what the society of our times tells us to do." In truth, the extent to which San Francisco has become a seller's market makes it more likely that development would have changed form rather than stopped. And as for the involvement of the architectural community, with the exception of the local SOM office, most city architects have been unable to take advantage of the highrise trade. Short, squat buildings might have provided more opportunity for medium-sized firms.

On a different level
Now there is another image of Manhattan that San Francisco has been proud to share. It has to do with urbanity, not scale, and is embedded in a dense context that provides the off-beat and the unexpected. The contribution of architectural quality to this context is not easy to evaluate. The standard products of developer bonuses—plazas and observation decks—are usually sterile and stereotypical features. Still, the popularity of one blandly familiar place over another that reveals imagination and skill may have more to do with what the people are wearing and doing there than with the setting. Putting this puzzle aside, there are a few projects in Downtown San Francisco that promise to continue the good Manhattanization process.



DEVELOPMENT SITES



MARKET STREET LOOKING WEST


WOOLF HOUSE ELEVATION 20'

Crocker Bank by SOM (right). Federal Reserve Bank by SOM (opposite).

First, construction has started on the new SOM-designed Crocker Bank headquarters complex that will occupy most of the block touching Market at the intersection of Post and Montgomery. The southwest corner of the site is now cleared for the 38-story office tower, a steel tube structure clad in a nondirectional pattern of alternating polished and flamed carnelian granite. Metallic window-washing buttons, 2½ in. in diameter and projecting 2 in. from the grid serve as a graphic device to enliven the surface and give a subtle indication of the sun path. Overall, the tower has a well-mannered, buttoned-down corporate expression. Upon its completion in spring of 1982, Crocker will vacate the existing tower at Post and Montgomery for the new premises. Then the old tower will be taken down to its base, leaving the opulent, 1920–21 banking hall topped by a half-acre roof garden. Opening up this corner will permit views of the dense cityscape and show off to maximum advantage the châteauesque office building of 1927 at 11 Sutter, designed by the New York firm of Schultze & Weaver. Lick Place, a private, mid-block alley owned by the bank will be enclosed by a three-story, block-long shopping galleria with a continuous, barrel-vaulted, glazed roof. Though relatively small, this jewel-like corridor will be an urbane link between the Union Square retail area and the financial district. The whole project will enrich the historic context of the area in a most responsible way.

About five blocks down Market toward the Bay, the new Federal Reserve Bank, also designed by SOM, will fill the gap in a row of significant Beaux-Arts style buildings: the 1916 Southern Pacific Building by Bliss & Faville to the east, and to the west, the 1921 Matson Building, also by Bliss & Faville, and the 1925 PG & E Building by Bakewell & Brown. The SOM team, headed by E.C. Bassett—who also directed the design of the Crocker complex—made every effort to respect the older structures by continuing their cornice height and stepping the 195-ft bank building back in tiers of two stories each so that their ornate and colonnaded Neoclassic top would not be hidden. The color scheme established by gray-rose granite, polished on the façade and flamed on the side elevations, and bronze-tinted rib

oon windows harmonizes well with he bank's older neighbors. The self-ffacing character of the bank contrasts vith that of the monumental, freestand-ng arcade of jointed, chamfered, and aceted concrete surfaced in the archi-ect's favorite mix, called Civic Center Vhite. In spirit, the design recalls the vork of the French Romantic Classicists uch as Ledoux. What the effect will be f an authoritarian presence on this usinesslike end of Market is anybody's uess at this point. The bank lobby will ouse an exhibit on fiscal history de-igned by Ray Eames that will invite nore public participation in this gener-lly aloof institution.

'o be continued

Moving back up Market, we pick up the hread of the MANHATTANIZATION story ıpon reaching the venerable urban re-ıewal wasteland of Yerba Buena Cen-er. Here between Third and Fourth treets is the still-boarded-up gate hrough which, if the post-World War II conomic powers and plotters had had heir way, would have flowed the de-elopment needed to enlarge the ad-ninistrative and service functions of the volving nerve center of the Pacific Basin. The lodestone of this gerry-nandered 86-acre redevelopment area outh of Market was a three-block, 25-cre parcel called the Central Blocks. In he late 1960s, a design team headed by Kenzo Tange, with local architects Gerald McCue and John Bolles and andscape architect Lawrence Halprin, prepared for these blocks a much-heralded plan for a master developer scheme of interlocking convention facil-ities with office and hotel structures. Al-though the plan had the kind of archi-tectural imageability that the agency, under the entrepreneurial hand of the late Justin Herman, put great store by, it sank slowly in the quagmire of endless lawsuits that attended, principally, the struggle of the area's displaced citizens to get good housing. Chester Hartman's invaluable account of this struggle in *Yerba Buena, Land Grab and Community Resistance in San Francisco* lays bare the redevelopment process in a way that can only be hinted at here by quoting Her-man's unvarnished opinion voiced in 1970: "This land is too valuable to per-mit poor people to park on it." And so absolutely nothing parked on the three precious central blocks for over a dec-ade, and the area north of Market got double Manhattanization.

Last year the design by HOK and T.Y. Lin for the underground conven-tion center, named after murdered Mayor George Moscone, finally got underway. The structuralist interior is the result of the renowned engineer's first opportunity to do something on the scale of Nervi's most famous projects. Ironically, social justice triumphed first, with the completion of about a half-dozen replacement housing projects. The latest and best of these, at Howard and Fourth Streets, is Woolf House, de-signed by Robert Herman & Associates for the Tenants and Owners Develop-ment Corp., the nonprofit housing sponsor created to build housing for the area's displaced elderly residents. Woolf House has 112 apartments of which 104 units are one-bedroom and eight are studios. Apartments are rotated 45 de-grees to the street for proper orienta-tion and to make the best use of bay windows and balconies in relation to interiors and a lateral view of the street. Although the creditable design is firmly in the tradition of the city's bay-windowed buildings, it answers the ex-pressed wish of the tenants for a mod-ern, dignified, and secure building devoid of sentimental trappings.

As for the ill-fated Central Blocks, the Redevelopment Agency has just put out a request for proposals for a mix of hotel, retail-entertainment, office, and residential development on the block touching Market and a package of retail-entertainment, amusement, and cultural development on the other two blocks, one of which is the roof of the convention center. The SOM Urban De-sign team headed by John Kriken, with Tom Aidala and former Planning Direc-tor Alan Jacobs as consultants, has worked with the agency to devise ap-propriate alternatives to the failed 1973 plan. Four strategies were drawn, two of which are dominated by an urban theme park favored by city officials. The other plans incorporate more varied uses in-cluding, in Plan C, up to 400 units of market-rate housing. The team favored division of the project area into a flexi-ble, efficient pattern of development parcels organized around an open, landscaped spine of discrete small squares connected by a pedestrian pathway. Two landmark buildings, St. Patrick's Church and Willis Polk's Jessie Street Substation (P/A, Jan. 1978, p. 89), are the historical anchors; their slightly offset spatial relationship has been used to orchestrate a set of intimate vistas along the pedestrian pathway.

The overall strategy of using fixed and variable components in the Central Blocks makes it possible at least to miti-gate if not avoid the dreaded possibility of lagging, gap-toothed development that plagues many a redevelopment project. The discordant note in the agency's present offering is the appar-ent commitment to a theme park when the city's clearest need is for housing. Since the recently completed Pier 39 theme park near Fisherman's Wharf is not doing so well in that well-known tourist area, it is hard to understand the thinking behind a theme park proposed for the city's well-known skid row. One hope is that the present package simply represents political inertia born of pre-vious agreements. If it is unsuccessful, the next offering could carry out the SOM team's recommendation that the mix of use emerge through the interac-tion of public priorities and the market place. Then the city might get more of that enviable kind of Manhattanization it so richly deserves. [Sally Woodbridge]

[*News report continued on page 59*]

IN A WALL TO WALL COMPARISON BETWEEN BOLTA WALLCOVERINGS AND PAINT, THE PAINT WILL GET CHIPPED, CRACKED, SMEARED, BLISTERED AND BEATEN.

Even after we've whipped the competition so convincingly, some specifiers still go with paint because paint appears to be cheaper, and it is. If you don't believe it look at the photos.

However, the wall covered with Bolta vinyl covering will outlast the painted wall in durability and beauty by nine years to three.

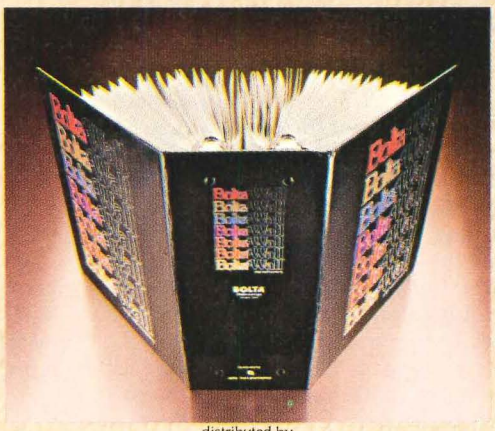
And even then the Bolta Wallcovering can be stripped off and replaced without causing business the long downtime of repainting.

But durability is the secondary beauty of Bolta Wallcovering and we have over 800 choices of colors, textures and patterns for effects you can't get with paint. (Ever try to paint a herringbone pattern?)

So the next time you're doing interiors of a hotel, hospital, church, school or any commercial building reach for the Bolta Book.

These beautiful wallcoverings will create a fresh atmosphere where fresh paint would only create a smelly one.

BoltaWall™ vinyl wall covering



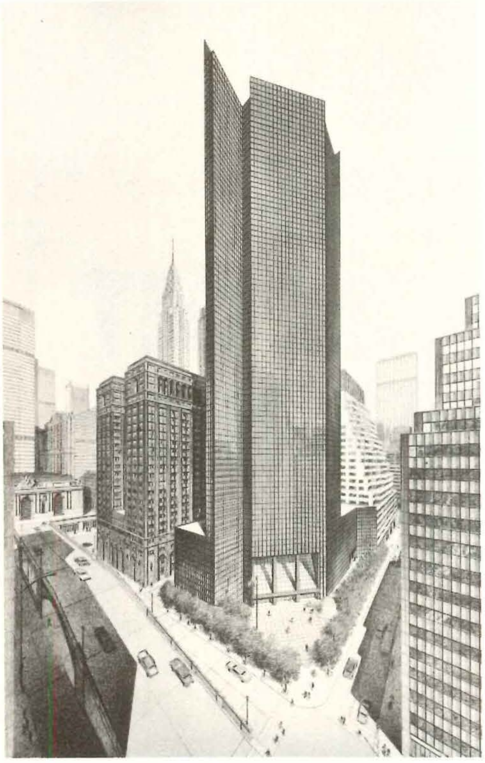
distributed by
REED WALLCOVERINGS

If you don't have a Bolta Book for inspiration, call your rep from Reed or write Bolta Wallcoverings, Reading, Mass. 01867

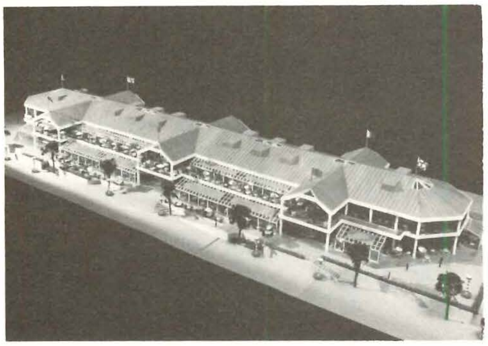
Circle **No. 336** on Reader Service Card

In progress continued from page 40

series of three three-story square elements set at 45-degree angles and connected at diagonally opposite corners. The orientation provides a north-south alignment, with a tinted glass curtain-wall façade on the north side avoiding solar heat gain, and a canopied effect on the south and west sides shading the horizontal windows. All building surfaces will have maximum insulation and double-glazed windows to reduce heat loss. The complex will contain computer HVAC controls and is expected to use 20 percent less energy than a similarly sized older building. One of the major purposes of the structure is to serve as an all-weather corridor for employee traffic between the existing building and the cafeteria. The elevated connecting link forms a passageway independent of working areas and, with its projecting elements, contains special-use facilities including a 200-seat auditorium. Completion is scheduled for mid-1981.

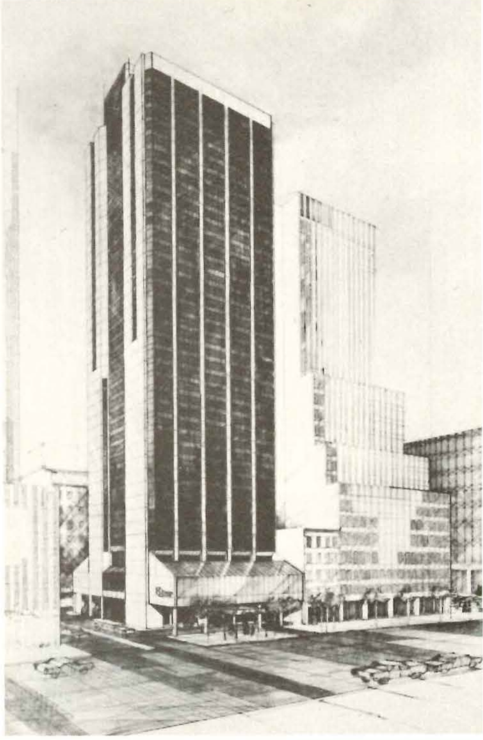


Office Tower, New York, NY. *Architects: Eli Attia & Associates, New York.* About to rise on the 55,000-sq-ft site of the recently razed Architects' Building at 101 Park Ave., this 50-story office will radically alter an area of Midtown Manhattan that has remained relatively sedate. Located on the second block south of the landmark Grand Central Terminal, the building will break sharply with the medium-rise, street-line façades that characterize this stretch of the avenue. The architect, who was previously associated with Johnson/Burgee, has taken modest steps to reconcile the angular geometry of this structure with the prevailing rectangular pattern, but the prismatic forms of the tower, to be clad in gray heat-absorbing glass, command attention from virtually any vantage point. Though built as an investment property for H.J. Kalikow & Co., the structure is "designed to the high quality standards more common to institutional or headquarters buildings," according to the owners. The main entrance, from a triangular plaza at Park Avenue and 40th St., will lead to a 90-ft-high lobby; a shopping arcade will lead from there to another major lobby on 41st St. Among the energy-conserving devices employed will be an innovative 350,000-gallon chilled-water reservoir beneath the elevator shafts, which will be cooled at off-peak hours, thus significantly reducing peak-period power demand for the 1.1-million-sq-ft structure.

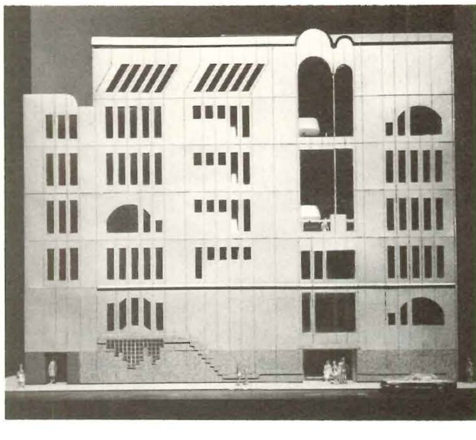


Baltimore's Inner Harbor, with two pavilions designed by Benjamin Thompson & Associates.

Harborplace, Baltimore, Md. *Architects: Benjamin Thompson & Associates, Cambridge, Ma.* Consisting of two glass-enclosed pavilions overlooking Baltimore's Inner Harbor, this project is part of a larger one to revitalize this area of the city. The Pratt St. Pavilion and the Light St. Pavilion occupy a site that has a combined land area of 3.12 acres. Total leasable space is 142,000 sq ft, and approximately 120 local and owner-operated businesses, including restaurants, food markets, and specialty shops, are expected to locate in the two pavilions. The $18-million project was developed by The Rouse Co., which is responsible for the successful Faneuil Hall Marketplace in Boston. Construction began in January 1979, and the official opening is scheduled for July 1980.



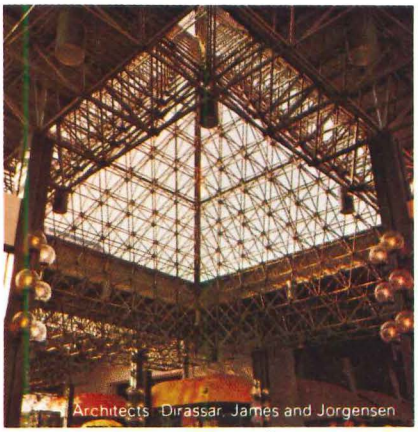
The Harley Hotel, New York, NY. *Architects: Emery Roth & Sons, New York.* This 38-story addition to the New York skyline is conveniently located in the United Nations area on East 42nd St. The glass tower containing 79[illegible] rooms will have a brick and bronze exterior with bronze glass separated by spandrels of bronze aluminum. Plans include a lobby-level restaurant, a cocktail lounge, and a landscaped, open-air plaza on 41st St. Interior design is by Tom Lee, Ltd., who is also creating the interiors of Helmsley's Palace at 455 Madison Ave. A two-level underground garage will provide parking for 219 cars. The hotel is expected to open in October and will become the flagship hotel for a group of Harley hotels and motels around the country owned and managed by Helmsley.



Morris and Ida Newman Educational Center, New York, NY. *Architects: Conklin & Rossant Architects, New York.* The 460–48[illegible] students in the upper grades (7–12) of the Ramaz School—a long-established Jewish day school—will be housed in a seven-story structure on the Upper East Side of Manhattan. Designed to mediate between townhouses on one side and an apartment block on the other, the façade of the building will emphasize openings of residential scale. Punctured out of a façade of pewter-colored aluminum panels (above granite base), some

[In progress continued on page 52]

We make mountains out of malls.



Here at the Guildford Town Centre shopping
ıll in Vancouver, B.C., a man-made landscape
es to the sky, while natural light floods down-
ırd into an equally spectacular interior.
It's a remarkable design; almost timeless.

And yet, thanks to Moduspan® space frame and the technical assistance of Unistrut's space frame experts, the architect didn't have to move mountains to achieve it.

For more information on how Moduspan can help you reach new pinnacles with your own projects, call the Unistrut Service Center nearest you. Or see our catalogue in Sweets.

UNISTRUT | GTE

Introducing ConCentrx™

Synchronized Articulation.

Only ConCentrx offers this new body support concept. A unique pivotal design allows the chair to follow natural body movements in leaning forward or back. Feet stay firmly on the floor throughout the full tilt range. Result – less fatigue, blood flow is not interrupted. Since the seat pan drops as the user leans back, knees aren't pinched under the worksurface and line-of-sight is not changed.

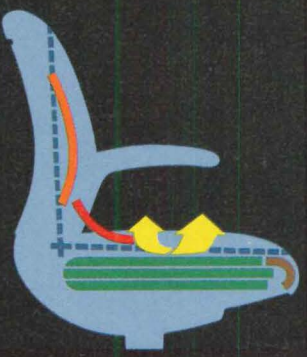
Touch-Adjust Control Panel.

(A) Back attitude control. This button locks the chair in an upright position, or puts ConCentrx in the full-tilt mode. (B) Pneumatic height control. Available as an optional adjustment to automatically adjust seat height. (C) Seat attitude control. No other chair offers this feature. The seat front is adjustable from five degrees to eight degrees, or any position in between.

(D) Personal comfort control. This small knob permits tension adjustment to exactly suit individual body weight and height.

Human Factors benefits – six features to help people work better.

These benefits begin with the size of the chair itself. ConCentrx has been precisely scaled so that its narrower back gives people elbow room on the job. And a smaller size = less space.



■ Tri-density foam. Three densities, precisely distributed. Relieves pressure on sitting bones and insures correct body support at every contact point.

■ Properly contoured back support. Distributes upper body weight better.

■ Precise seat-to-back angle with posture correct lumbar curve. Result: better support.

■ Waterfall front. Relieves thigh pressure.

■ "Comfort Pocket" Computer-designed side-to-side radius encourages proper seating while allowing for free movement.

■ Side-to-side contour. Distributes body weight, prevents discomfort which occurs when hips come in contact with cushioning.

Sixteen styles.

ConCentrx is available in a choice of manager's or operator's model in sixteen styles, six shell colors, six monochromatic color combinations. You can choose from three arm options in the manager's model, cantilever arm or armless in operator's model, and more than 250 fabrics, including the new Steelcase Counterpoint Collection.

Fits 5th to 95th percentile.

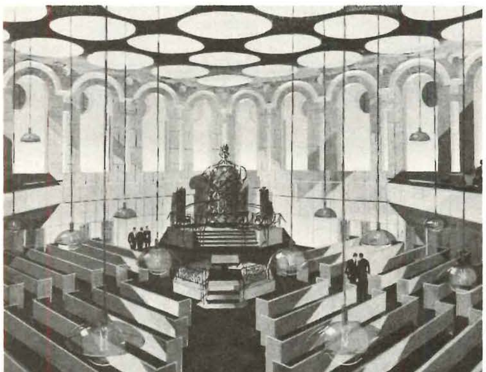
People come in all sizes. And ConCentrx is designed to fit nearly all of them.

ConCentrx fits different jobs as well as different people. The importance of this is underscored by the new Lou Harris Poll findings – "86% of office workers use a chair that's like that of other workers *even those who do different work.*"


Control Center
seating for today's
computerized
office.
e "workstation" of the
s is obsolete...along with
rthand, carbon copies,
d the fountain pen.
ts place are Control
nters...the new work
as of the 80's...systems
niture-oriented with con-
es to accommodate
T terminals, interactive
nters, digital plotters,
d related equipment so
l in today's compu-
zed offices.
d the seating for the
ntrol Center operator is
n more vital...requiring
re than average support
l comfort; greater free-
n of movement and
re and easier comfort/
ction adjustments.
a close look at this
v seating concept, visit
r Steelcase Regional
ce, or see your Steelcase
resentative.
teelcase
worldwide product,
vice and sales informa-
, write P.O. Box 1967,
and Rapids, MI 49501.
l toll-free 800-447-4700.
llinois, 800-322-4400.
cle No. 365 on Reader Service Card

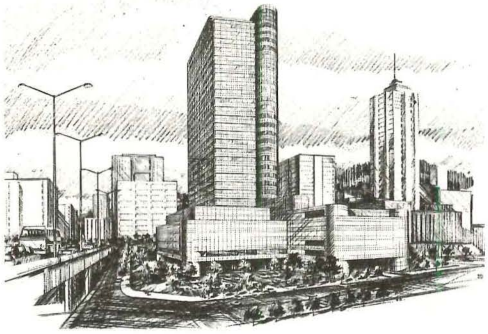
In progress continued from page 48

of these openings will symbolize three-dimensional elements (domes, a bay window, skylighted studios) in two dimensions. The large-volume spaces—gym and auditorium—will be slightly below street level; above them will be five stories of classrooms and specialized education spaces. Elevators programmed to stop only at certain floors during peak-traffic periods will lead to two-story lobby-lounges on the upper floors which will be plainly visible on the façade and offer generous views of the neighborhood.

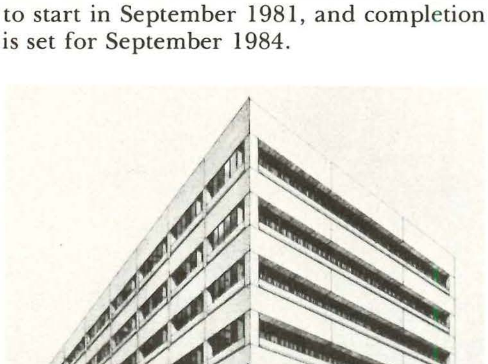


Shaare Tova Synagogue, Kew Gardens, NY. *Architects: Richard Foster Associates, Greenwich, Ct.* Located on a busy avenue in the Borough of Queens, New York City, this 28,000-sq-ft synagogue and social center will serve an orthodox Jewish congregation, most members of which trace their roots to Iran. A colonnaded forecourt provides an important gathering place sheltered from the busy street and related to Middle Eastern traditions. In the sanctuary, an inner enclosure of columns, arches, and domes will recall the heritage of the congregation and contribute to the carefully conceived use of light—natural and artificial, direct and indirect. The nonstructural, symbolic nature of these elements is played upon by leaving voids where one would expect solids—recalling the real columns of the forecourt, for instance, in cut-out silhouette. Construction is scheduled to get underway this spring.

Gerald R. Ford Presidential Museum, Grand Rapids, Mi. *Architects: Marvin DeWinter Associates, Grand Rapids.* Scheduled for completion early this winter, the museum is located on a long, narrow site bordering the Grand River. The two-story building is a right isosceles triangle, the hypotenuse of which faces the river. The two-story-high glass wall is 300 ft long and is recessed under an overhang to protect exhibits from damaging rays of the sun. From the exterior, the mirrored wall reflects the river and the buildings across it; from the inside, visitors are afforded a view of the river. The two other sides of the building are constructed of thick concrete to block out the noises of the freeway behind the museum. A large pool, featuring electronically controlled water sculptures, will be constructed between the river and the building. The museum will be dedicated officially on July 4, 1981.



Mass Communications Center, Seoul, Korea. *Architects: Becket International, Santa Monica, Ca.* This $50-million center, which will include newspaper, television, and radio operations, will be constructed for Joongang Daily News and Tong-Yang Broadcasting Corp., a subsidiary of the Samsung Group. It will also provide magazine- and book-publishing facilities, a computer center, a 700-seat theater, an auditorium, and exhibition space. The 65,000-sq-m building, with a 21-story office tower surrounded by a low-rise block base, will be located in a redevelopment area adjoining a business district, and is being designed for maximum integration into the area. Construction is scheduled to start in September 1981, and completion is set for September 1984.



Pershing Square Redevelopment Project, Kansas City, Mo. *Architects: Harry Weese & Associates, Chicago.* A $500-million project designed to rejuvenate the blighted midtown area adjoining Washington Park and including Union Station is presently underway. Expected to take nearly 25 years to complete, the 56.7-acre area will include new office buildings, retail businesses, high-rise apartments, condominiums, and hotels. The Pershing Square Redevelopment Corp., joint venture combining Trizec Corp. c Calgary, Canada, and the Kansas City Ter minal Railway Co., is the sponsor of th project. Construction has already begun o One Pershing Square, a 165,000-sq-ft offic building providing additional needed offic space in the downtown area. Central to th entire project is the multistory Internal Rev enue Service regional center to be located o a 12-acre site. The four-building complex providing 1,366,700 sq ft, will bring mor than 6400 IRS employees to the area.

Exhibits

Through June 22. "Early Chicago Ar chitecture, Historic American Buildin Survey, Washington, DC.
Through June 29. "Drawings/Struc tures" featuring work of Alice Aycock Siah Armajani, Will Insley, Mary Mis Robert Morris, Robert Smithson, Ala Saret. Institute of Contemporary Ar Boston.
Through Oct. 15. "Architectural Geniu of Richardson and Olmsted in 19th Century No. Easton, Mass." Museum c our National Heritage, Lexington, Ma
Through Sept. 14. "Louise Nevelson Atmospheres and Environments, Whitney Museum of American Art, Ne York.
June 10–Aug. 27. "Resorts of th Catskills," Cooper-Hewitt Museum New York.
June 28–July 27. "Buildings Reborn New Uses, Old Places," Oglebay Insti tute, Wheeling, WV.
June 29–Sept. 2. "Alvar Aalto Archi tectural Exhibit," Mt. Angel Abbey, Benedictine Monastery 17 miles north east of Salem, Or.

Meetings and expositions

June 11–13. NEOCON XII, Merchandis Mart, Chicago.
June 13–15. International Abilities Un limited Exposition, Los Angeles. Con tact: Richard C. Wooten, Internationa Abilities Unlimited Exposition, 294 Harding St., Suite 107, Carlsbad, C 92008.
June 15–20. International Design Con ference in Aspen. Contact: IDCA, c/ The Bank of Aspen, P.O. Box "O," As pen, Co 81611.
June 16–18. Construction Specification Institute Convention, Anaheim, Ca.
June 19–20. National conference an exhibition on A/E firm productivity Hyatt Regency O'Hare, Chicago, I Contact: Carol Gosselin, *The Pape Plane,* Box 11316, Newington, Ct 0611
June 19–21. Solar Retrofit Conference Princeton University, Princeton, N Contact: MASEA, 2233 Gray's Ferr Ave., Philadelphia, Pa 19146.
June 20–21. NATIONAL conference o conservation of campus resource
[*Calendar continued on page 54*]

1980 OWENS-CORNING ENERGY CONSERVATION AWARDS: CALL FOR ENTRIES.

AN ENERGY-EFFICIENT DESIGN isn't created by a committee on a one-dimensional blackboard.

Rather each design is born in the mind of an architect or engineer. A three-dimensional world where an idea can be developed. Shaped to an environment. Built in theory even before pencil has been put to paper.

Owens-Corning would like to honor those specific architects and engineers responsible for conceiving and creating the most energy-efficient designs of 1980.

Registered architects or professional engineers practicing in the United States may enter as individuals or in teams. The building entry must be a commissioned project: new or remodeled, in the design process, under construction or completed.

A panel of proven professionals in architecture and engineering will act as jury. Entries must be submitted by August 29th, 1980. Winners will be notified in early October.

The Call for Entries has full details. For your copy, write today to Mary Reinbolt, Department 127, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659. Or call her at this number: (419) 248-7419.

OWENS/CORNING FIBERGLAS

Calendar continued from page 52

Berkeley, Ca. Contact: Center for Planning and Development Research, University of California, Wurster Hall, Room 373, Berkeley, Ca 94720.
July 17–20. Annual meeting and conference of the League of Historic American Theatres, Goodspeed Opera House of East Haddam, Ct. Contact: League of Historic American Theatres, Box A, East Haddam, Ct 06423.
Aug. 7–9. International Disabled Expo, O'Hare Expo Center, Rosemont, Il. Contact: Dennis Quirk, International Disabled Expo, 330 S. Wells St., Chicago 60606.
Aug. 17–21. Viable Energy and Living Alternatives for the New Decade, College of Santa Fe. Contact: Armand G. Winfield, P.O. Box 1296, Santa Fe, NM 87501.
Sept. 2–4. International Design Conference, Nova Scotia Technical College, Halifax, N.S. Contact: Prof. Ching-Yu Chang, Faculty of Architecture, Nova Scotia Technical College, P.O. Box 1000, Halifax, N.S. B3J 2X4.
Sept. 24–27. Second International Conference on Urban Design, Harvard University, sponsored by the Institute for Urban Design, Cambridge, Ma. Contact: Ann Ferebee, Institute for Urban Design, SUNY at Purchase, Purchase, NY 10577.
Oct. 15–17. Producers' Council Convention, Marco Beach Hotel, Marco Island, Fl. Contact: D. Seline, Producers' Council, 1717 Mass. Ave., Rm. 3601, Washington, DC 20036.
Nov. 18–20. International Energy Management & Facilities Improvement Show, Merchandise Mart, Chicago. Contact: Expo Management, Inc., Suite 1048, The Apparel Center, Chicago 60654.

Workshops

July 23–30. Women's School of Planning & Architecture, Hood College, Frederick, Md. Contact: WSPA, 2105 Erdman Ave., Baltimore, Md 21218.
July 28–Aug. 7. Principles of Construction Specifications Writing, University of Wisconsin at Madison. Contact: Philip M. Bennett, Department of Engineering, University of Wisconsin-Extension, 432 No. Lake St., Madison, Wi 53706.

Competition deadlines

Sept. 1. For participation fees. Competition for Students of Architecture sponsored by Union International des Architectes. Write: Organizing Committee of the XIVth UIA Congress, S.A.R.P., Foksal 2, B.P. 6, Warsaw, Poland.
Sept. 1. Mailing date for P/A Awards entries.
Oct. 15. Helios Tension Products has announced a new architectural competition for design of a tension membran covering for an outdoor theater. Th competition is open to all registered U.S architects. Write Helios Tension Prod ucts, Inc., 1602 Tacoma Way, Redwoo City, Ca 94063.

Personalities

David S. Hatcher, 1978–79 professor o the year in the School of Engineerin and Applied Science at Washingto University, St. Louis, will head the A chitectural Engineering Department California Polytechnic State Universit San Luis Obispo, Ca.

Lord Richard Llewelyn-Davies, Bri ish architect and planner, becomes th first architect to be invited to take u residence as the Principal's visitor for th 1980 fall semester at the Institute of Ad vanced Studies in Princeton, NJ.

Calvin G. Rand, president of th Niagara Institute in Canada, has bee appointed president of the America Academy in Rome.

Peter Shepheard, University o Pennsylvania professor of architectur and environmental design, was recent knighted by Queen Elizabeth II in re ognition of his "services to architecture

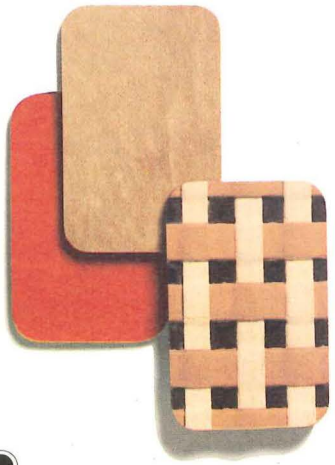
Hugh Stubbins, architect of Can bridge, Ma, has received the Thoma Jefferson Memorial Foundation Med in Architecture at the University of Vi ginia, Charlottesville.

[*News report continued on page 59*]

NATURAL FINISH

Nevamar Natural Finish gives a selected group of our woodgrain laminate patterns a more natural look and feel. The patterns, such as our new Vessel Oak shown here, are the most realistic yet developed by Nevamar. And the Natural Finish enhances the look with a low-luster surface. Where you need a durable, practical woodgrain surface, Nevamar Natural Finish makes the application more attractive. Available nationwide. For samples, call on our toll-free hotline, 800/638-4380. Or write Nevamar Corporation, Odenton, Maryland 21113.

When you want something that even has a "feel" that's more natural.



NEVAMAR®
innovative laminates...and ideas

Circle **No. 352** on Reader Service Card

WHEN THE CHAIRMAN OF THE BOARD HAS NOTHING TO DO BUT STARE AT THE CEILING, GIVE HIM SOMETHING BEAUTIFUL TO STARE AT.

Celotex has just come up with a new line of prestige acoustical ceiling panels for executive suites.

We call it Celotex Colortone. And we designed it to go over the heads of most of the heads of business.

Celotex Colortone is very special for several reasons.

To start, it comes in five rich and luxurious colors. The names alone will probably make you want to get hold of a sample. Cattail, Jute, Reed, Pampas and Sage.

The colors of these high-quality panels go right through. From top to bottom. So if they chip or get cut, you'll never notice it.

And they have a "reveal edge" design.

Giving the installation a handsome custom-designed three-dimensional look.

For more information about Celotex Colortone acoustical ceilings, contact your Celotex representative.

Celotex Colortone. They'll definitely make the suite smell of success.

Celotex®

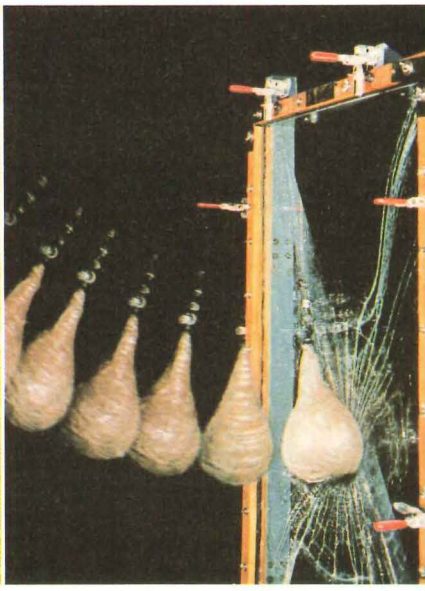
a Jim Walter company

Circle **No. 318** on Reader Service Card

Laminated Architectural Glass.
One thin Saflex® interlayer goes a long wa

Improves security.

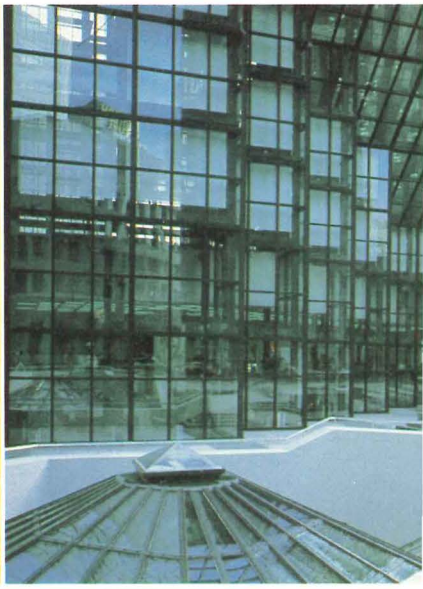
Conserves energy.



Increases safet

Muffles noise.

Looks beautiful.



Works everywhe

Saflex® plastic interlayer bonded between two or more plies of glass makes the laminate highly resistant to attack. Reduces the risk of injury. And does a whole lot more, too.

Laminated architectural glass is energy efficient. Tinted, reflective or insulated units help prevent heat loss in winter, screen out solar glare and ease cooling loads in summer.

Thanks to Saflex, laminated architectural glass reduces outside noise more effectively than other glazings. Far better than even air-spaced glass.

And since Saflex is available in a spectrum of architectural colors, laminated glass performs beautifully in any design. In windows. In doors. In sloped glazings and in skylights, too.

No matter what the glazing challenge, laminated architectural glass with Saflex is a beautiful solution. To find out more, write: Monsanto Plastics and Resins Company, Department 804, 800 North Lindbergh Boulevard, St. Louis, Missouri 63166.

SAFLEX®
PLASTIC INTERLAYER BY Monsanto

Monsanto

Saflex is a registered trademark of Monsanto Company.

ews report continued from page 45

n perspective

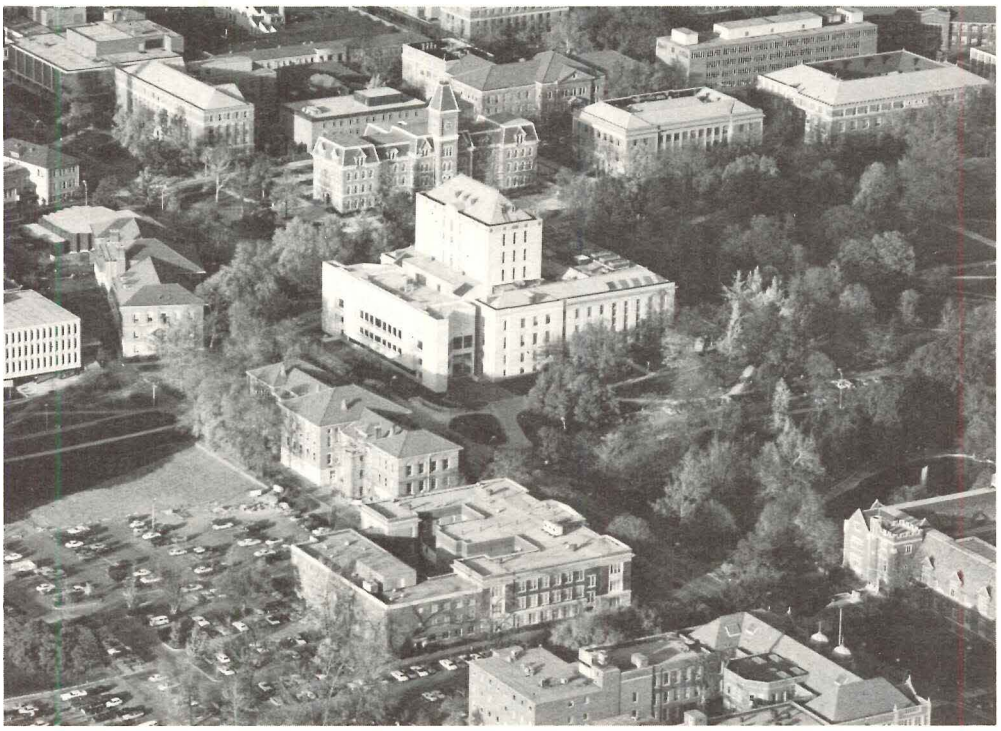
ampus complement

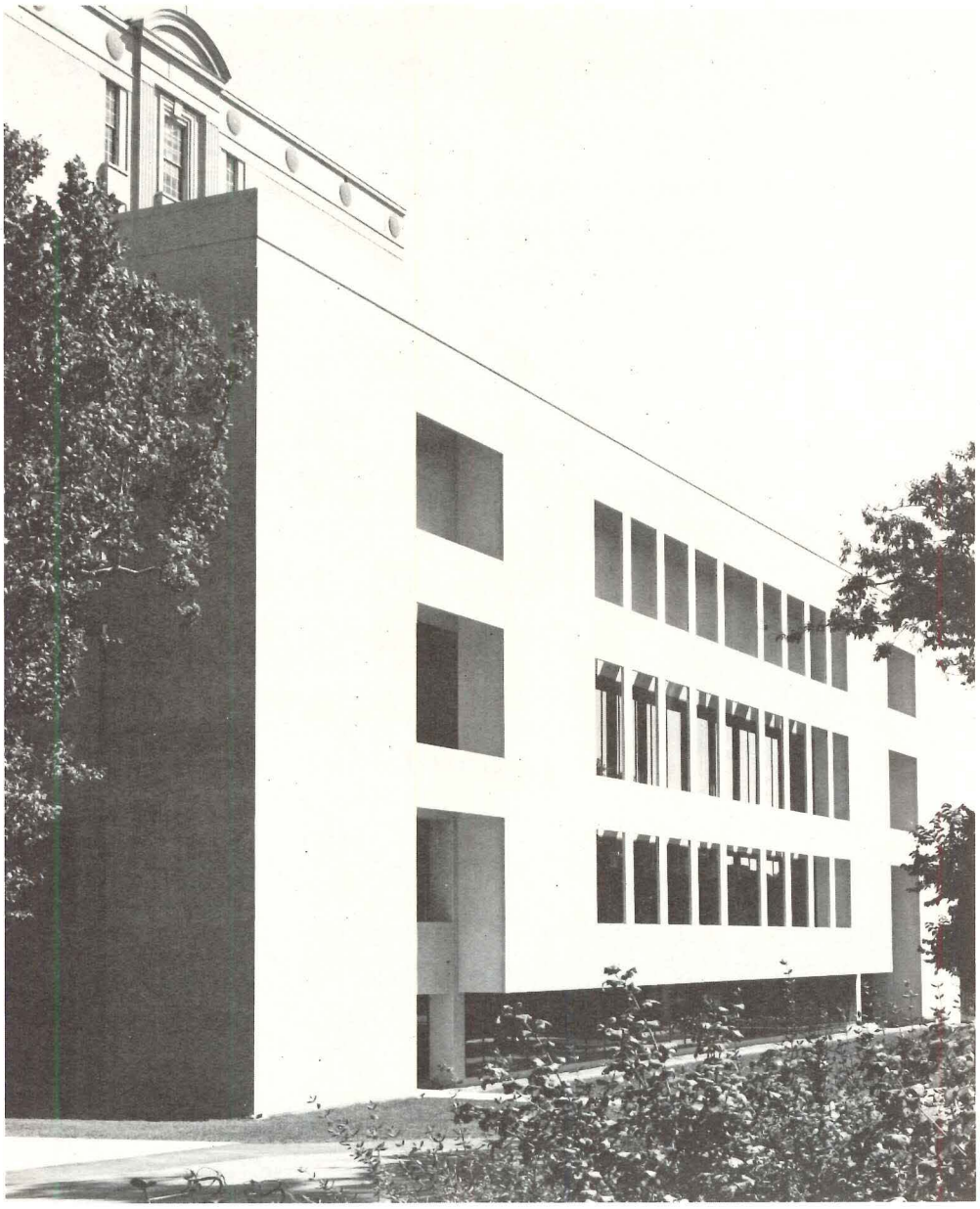
t the heart of the Ohio State University ampus in Columbus, notable for its vast ollection of background architecture, a ecent addition to the Main Library offers a lesson in sensitive response to context. This lesson was recognized by the ry for the 22nd annual P/A Awards rogram, which conferred a citation for on architects Lorenz Williams Lively ikens & Partners—now called simply orenz & Williams, Inc.—of Dayton P/A, Jan. 1975, p. 65).

The 40,000-sq-ft addition was the ost visible part of a commission that cluded remodeling of 216,000 sq ft in ne massive existing structure. The objective was not only to add capacity to ne library (increasing it to 1,430,000 olumes) but to convert the facility as a hole to open-stack operation.

Commanding one end of the central reen of this vast campus, the existing ructure clearly deserved respect, if not uite awe. In its 64 years of existence, ne original three-story library, with a chly modeled Beaux-Arts façade toard the green, had been enveloped in dditions—including a seven-story ookstack block—in the stripped-down lassical style associated with Paul Cret. he resulting structure was distinuished by its compactness, symmetry, nd unifying color, and by the fine deils of its limestone walls and verdirised copper roofs.

Built in a limited area to the rear of ne tall stack block, the addition comlements it functionally in various ways, ith mixed study and open stack spaces n ground, first, and second floors, and ouble-decked expansion of the stacks nemselves at the top. On the exterior, ne addition presents a bold, symmetrial façade delineating the extent of the xpanded structure with an expression f finality. Behind this decisive façade, nchored at its ends by windowless stair owers, the building volume is "eaten way" to leave existing windows and xits exposed and to make room, on one

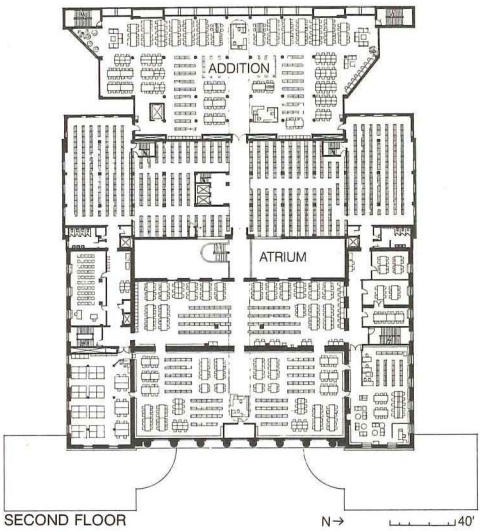




Aerial view from southwest (top) shows addition at west end of library in relation to campus setting. West-facing limestone screen wall (above) shields recessed loading dock (left).

Photos: Bill Swartz

News report continued from page 59



side, for a receiving dock. The visual effect is to clarify the building's organization and its sequential growth. The diagonal walls introduced, while characteristic of the mid-1970s, also help relate this flat-roofed addition to the prominent hipped roofs of earlier construction adjoining it.

The symmetrical, classically proportioned rear wall is a limestone-clad screen, set out from the actual walls, which are glazed in open-stack areas, blank at the upper-floor stacks. The 6-ft gap between screen and building also accommodates main mechanical risers, which show on the façade as solid vertical bands. The screenwall concept is similar to those used by Mitchell/Giurgola, as in the laboratories at Columbia University (P/A, March 1978, p. 54). Like the Mitchell/Giurgola screens,

Stair in new atrium (above) provides clear ac cess to upper floors. Interiors of addition (be low) are straightforward.

these also serve to some extent as su baffles, but not in a precise way; here th low west sun can penetrate far inside

On the interior of the expanded brary the symmetrical, additive organ zation of the existing building has al been respected and reinforced. Axi corridors run through the three ma floors, from the original entry to th glazed rear wall of the addition. Co tinuity was made possible by placing clear skylight over a courtyard that pr viously separated the tall stack blo from older portions. The resulting a rium has sunlit reading areas at the fir floor and freestanding stairs rising bridges at upper floor levels. Portions exterior detail remaining in the atriu along with views up along the exteri of the stack tower, maintain a sense the building's architectural identit Interiors of the addition itself are ne and businesslike, but permit gene ous lounge and circulation areas to developed in older parts of the buildin

Completed in 1977, precisely as e visaged in the citation-winning scher of 1974, the addition and remodelin are impressive mainly for their restrai and thoughtful adjustment to the exi ing fabric. This is not only, as the ju observed, "a good formal solution to very complex problem," but as they al said, "an improvement on the massing the original." [JMD]

True divided lites are easy to get— and on time

Most of our competitors no longer offer true divided lites. We make them by the hundreds, and the demand for them is growing all over the country. In many situations, the divided lite is the perfect window. In colonial-style homes, it's the closest thing to an authentic colonial window. You can specify divided lites in Marvin's E-Z Tilt double hung, Casemaster, bows, bays, and picture windows. They're available on our normal 10-day shipping schedule. Write or call for complete information on the world's most beautiful glazing. Marvin Windows, Warroad, MN 56763. Phone: 218-386-1430.

You've never been so insulated in all your life!

ein Group: Palacio Del Mar, San Clemente, CA

Circle **No. 350** on Reader Service Card

Marvin Windows

Are you really into "SYSTEM"

System drafting means selecting the components used in your drafting technique for compatiblity and precision performance. It is counting on single-source responsiblity for these components. And it is knowing assistance is available for areas of your technique that may need improvement.

With "System" drafting, changes within your present technique are easy. Even easier are transitions from one system to another when you decide "there is a better way".

If the components and quality of your company's drafting products are your responsiblity, you should know more about the quality and performance value of the Koh-I-Noor products featured in the following drafting systems.

Black India Drawing Inks formulated to meet specific requirements for drawing on paper or film. The largest single-source selection includes Koh-I-Noor and Pelikan inks for film: Koh-I-Noor Rapid-O-Ink 3072, Koh-I-Noor Rapidraw 3084, and Pelikan "T" 9085 are special formulations to satisfy requirements for drying time, flow, opacity, and adhesion.

Special Ink-On-Film Erasers for removal of even the oldest ink lines when drawings need updating. A complete line of Koh-I-Noor and Pelikan erasers — liquid and dry — are available individually and in kit form.

Rapidraw Drafting Film with fine-toothed surface for maximum line definition. Virtually indestructible, optimum dimensional stability, unsurpassed storage life.

The KOH-I-NOOR "RAPIDRAW" System

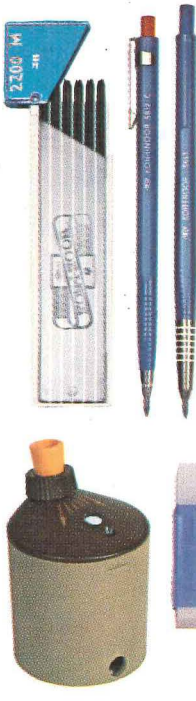
Direct ink-on-film drafting for precision-perfect engineering drawings and microfilm blowbacks.

Koh-I-Noor Technical Pens and precision drawing points for exact line widths. Rapidograph 3065 and Rapidograph SL 3076 Series feature eighteen precision point sizes. Rapidometric 3095 Series features nine metric point sizes in a geometric progression based on the $\sqrt{2}$ (1.414): matching line widths on microfilm blowbacks is easy. All point sizes for all Technical Pen Series are available in stainless steel, jewel, or tungsten carbide.

The KOH-I-NOOR "KOH-I-LAR" System

Drafting on film with polymer leads. System components include:

- Koh-I-Lar Lead 2200-M; Koh-I-Lar wood-cased Drawing Pencils 1500-M. Each in six degrees, 6H through 3B.
- Koh-I-Noor Lead Holders 5612, 5613 and others.
- Koh-I-Noor Lead Pointers and Sharpeners 992-WC, 25960, 25961, 981, and 983.
- Koh-I-Noor Erasers, including Film Eraser 286 and Eraser Strip 289 with Holder 48.
- Rapidraw Drafting Film, the same virtually indestructible film used for the "Rapidraw" System.



RAFTING?

The KOH-I-NOOR Graphite System

Still the finest quality graphite ilable anywhere, and it has been ce 1790. Matched components for this ular system include:

Koh-I-Noor Leads 2200 and 2200-I, Koh-I-Noor wood-cased Drawing Pencils 1500 and 1500-T, each in seventeen precision degrees.

Koh-I-Noor Lead Holders 5611, 5616, 619-N (0.5mm), 5623 (0.5mm), 5624 0.3mm) and others.

Koh-I-Noor and Pelikan Erasers, including Gum Cleaner 204 and Pelikan Special Green 9606-SP2.

Koh-I-Noor Lead Pointers and Sharpeners including 992-WC, 25960, 5961, 981, and 983.

Koh-I-Noor Drawing Papers — transrentized vellum and natural tracing nd, both 100% rag.

The KOH-I-NOOR "RAPIDRAW" Liquid-Ink Plotting System

The right pen points and the right inks add up to the optimum plotting efficiency for which your plotter was designed.

Koh-I-Noor Plotting Points, Pens, and Adaptors. Ten line widths available. Custom sizes on request. In stainless steel, jewel, and tungsten carbide.

Koh-I-Noor and Pelikan Inks for use on film and paper — among them, Koh-I-Noor "Universal" 3080, Koh-I-Noor 3000-F, 3000-PF and 3084 for film. And Koh-I-Noor 3089 and Pelikan 9065 for paper.

Koh-I-Noor Drafting Film and Drawing Papers in standard and special size sheets, pads, and rolls. Also gridded pads with blue dropout. On request, prepunched holes for drum plotters.

KOH-I-NOOR®

in-depth information
ut Koh-I-Noor matched
ponents for "System"
ting, fill in and return
coupon: Koh-I-Noor
idograph, Inc., 100
th Street, Bloomsbury,
08804. In Canada: 1815
erside Drive, Missis-
ga, Ont. L5T 1B4

SHOW ME MORE, KOH-I-NOOR!

No. 346 on Reader Service Card

Please have the following FREE brochures sent right away:

- ☐ Koh-I-Noor USA-made Technical Pens, K-1071
- ☐ Koh-I-Noor & Pelikan Drawing Inks and Selection Chart, K-1072
- ☐ Faster and Easier Ink-on-Film Erasures, K-1043
- ☐ The "Rapidraw" System for direct ink-on-film drafting, K-913
- ☐ Koh-I-Noor Leads, Lead Holders, Pencils, Pointers, and Sharpeners, K-1073
- ☐ Koh-I-Noor Drawing Instruments and Sets, K-1075
- ☐ Koh-I-Noor "Rapidraw" Liquid-Ink Plotting System, K-1066
- ☐ Koh-I-Noor Templates, Scales, Triangles and Other Drawing Aids, K-1074
- ☐ Please send me the names of Koh-I-Noor dealers in my area
- ☐ Please have a representative call me

NAME (PLEASE PRINT OR TYPE) TITLE ( )

COMPANY PHONE

ADDRESS

CITY STATE ZIP

PA-6-80

Architectural accessories by Landscape Forms are notable for meticulous design and imaginative use of woods and fiberglass in tables and seats, benches, planters, planter-benches and receptacles. The complete catalog includes more than 5,000 products in a great variety of styles, sizes, materials, and finishes. For more information write to: Landscape Forms, Inc. Route 3, Kalamazoo, Michigan 49001 or call 616/381-0396.

LANDSCAPE FORMS

Circle **No. 383** on Reader Service Card

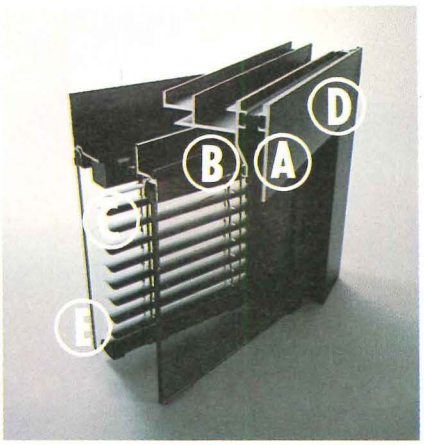
In a World of Ordinary Windows,

Double Hung. It's been around long enough to have earned the title "Old Undependable." If you want to heat or cool the great outdoors, double hung should be your first choice. What the Packard was to the car, double hung is to windows. A good idea whose time has passed.

Insulated Glass. Sometimes the obvious answers aren't so obvious. Ask owners who've experienced seal fracture failures. They've found that insulated glass delivers improved shading coefficients when it clouds up. An unorthodox way to save energy. But tough on folks who want to look outside.

Fixed. The most popular commercial window system in the world today. The fixed window is simplicity in itself. Non-operable, no emergency ventilation and no chance for easy repair. If your father-in-law is a window washer, be sure to specify fixed windows.

A. The DISCO T-2001 reduces the initial heating and air conditioning requirements. Provides the ultimate in heat and cold transfer reduction. Reduces noise pollution by as much as 50% and dramatically lowers cleaning and maintenance costs.



B. The first side hinged, in-swinging aluminum casement window featuring a poured-in-place polyurethane thermal barrier. A full 3/8" separation is provided between the interior and exterior surface of the frame members. U value .47.

C. Wedge-glazing system provides a high compression seal between glass and aluminum, preventing air and water infiltration.

D. Heli-arc welded corners provide greater in-place frame stability.

E. Fully enclosed narrow slat venetian blinds help provide shading coefficients as low as .10 when set at 45 degrees. Virtually maintenance free.

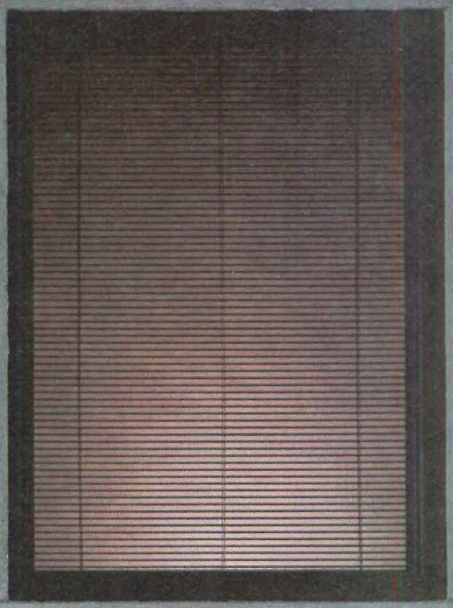
S 8.15/Di

Meet Disco...The Overachiever.

Slider. Try to wash this one from the inside. Better yet, try to keep it on track. Famous for easy air and water infiltration. They work best when accompanied by a repairman.

Pivoting. You don't have to be a fortune teller to predict the future of pivoting windows. Because they pivot across the weather stripping, they invite damage to the thermal seal. As they get older, pivoting windows let people inside know what's going on outside.

The Overachiever. The DISCO system. Operable, double or triple glazed. Inexpensive to clean and maintain. Side hinged, casement inswing is our favorite. The DISCO T-2001 has a U value of .47 and a shading coefficient as low as .10. No other window does more to save energy and reduce life cycle cost.



No Other Window Does a Better Job Of Reducing Energy Waste and Life Cycle Cost.

Even good windows have a way of becoming mediocre when faced with the challenge of reducing energy and life cycle costs. What was right for the 1970's may not meet the needs and government regulations of the 1980's and beyond.

Enter the overachiever. DISCO. A customized window system which assures maximum thermal efficiency and minimum air and water infiltration in an operable design. Perfect for combating energy waste and maintenance expense.

Our double and triple glazed systems are as malleable as you are imaginative. Each can be customized to meet your exacting specifications.

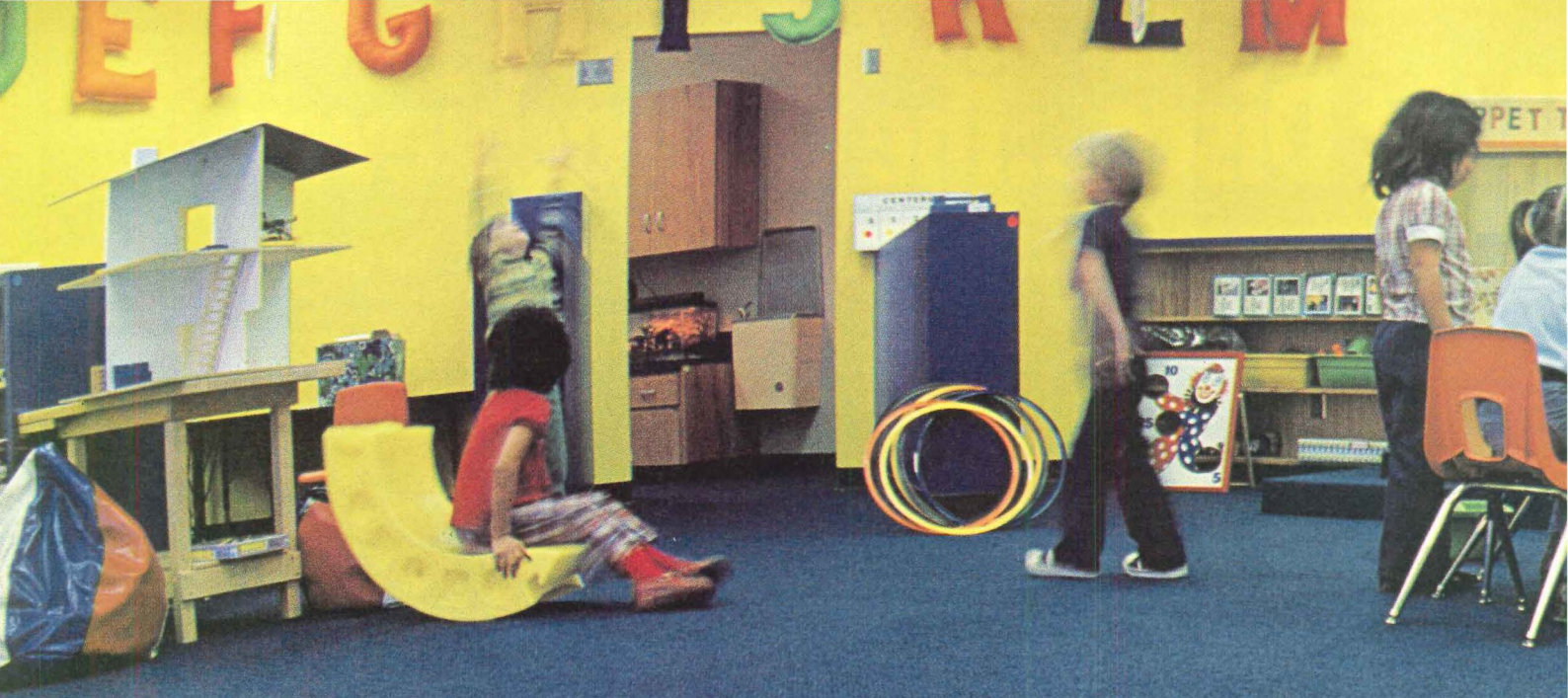
DISCO's ready for an age when good is no longer good enough...with windows that reflect the solid ideas of forward looking design.

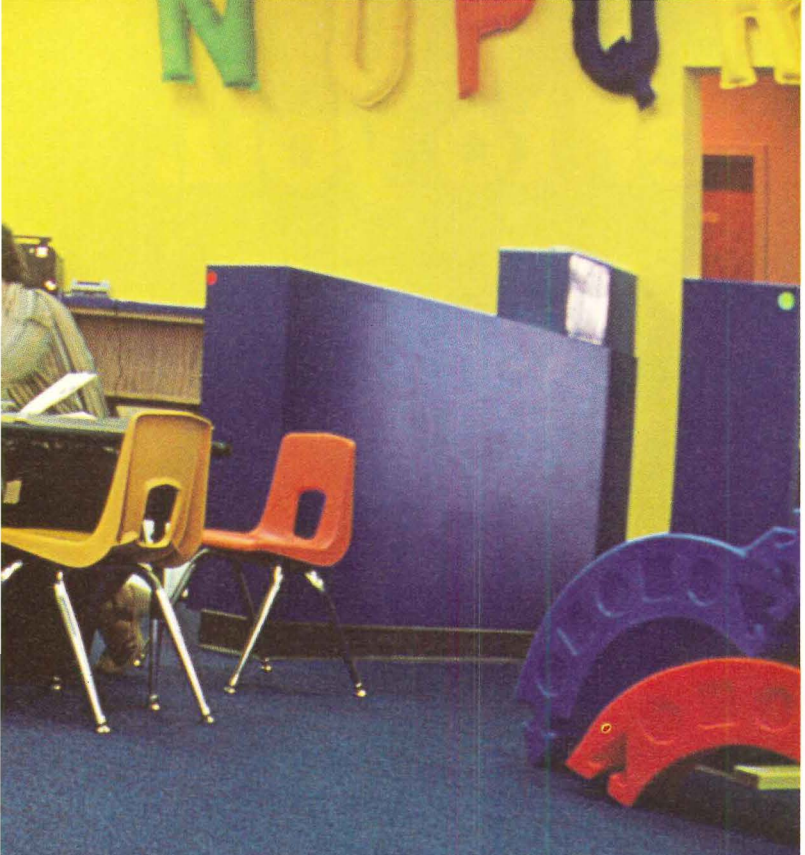
Test us. If we don't have answers to your challenges, chances are they don't exist.

DISCO®

ALUMINUM PRODUCTS COMPANY, INC.

Write or call today for a free copy of "WINDOWS," a question of cost vs. worth. Should you want to meet with a DISCO architectural representative or require aid with drawings or specifications, contact Steve Berryman, DISCO Aluminum Products Company, P.O. Box 1019, Selma, Alabama 36701, (205) 875-9283.

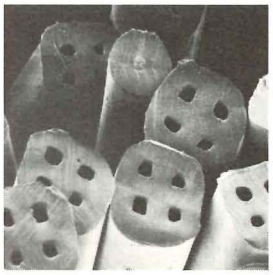




Carpeting of Antron® III resists dirt better, stays new-looking longer.

The secret: Unique hollow-filament fibers.

Antron* III nylon is the only carpet fiber with a rounded hollow-filament structure. So it resists dirt better than other nylon fibers. The smooth exterior shape of Antron® III minimizes dirt entrapment, and the hollow-filament structure scatters light to make dirt less apparent. So the carpet stays new-looking longer than ordinary nylon carpeting.



Magnification 250X of Antron® III nylon showing hollow filaments and round, anti-static filament.

Antron® III is durable. Pile of Antron® III resists crushing and abrasion even in heavy-traffic areas. Keeps its fresh, new look.

Antron® III controls static shock. Gives you protection that won't wear out or shampoo out—because it's built right into the fiber.

That's why the John F. Townley Elementary School used carpeting of Antron® III nylon to cover over 58,000 square feet in its new building in Irving, Texas.

And why your next contract carpet should be Antron® III nylon.

Write for Specifiers' Information Kit:
Du Pont Company
Room 37274-A
Wilmington, DE 19898

Installation: John F. Townley Elementary School, Irving, Texas.
Architect: Jerry Q. Jeffery Architects and Planners, Irving, Texas.
Flooring Contractor: Superior Carpet Corporation, Dallas, Texas.

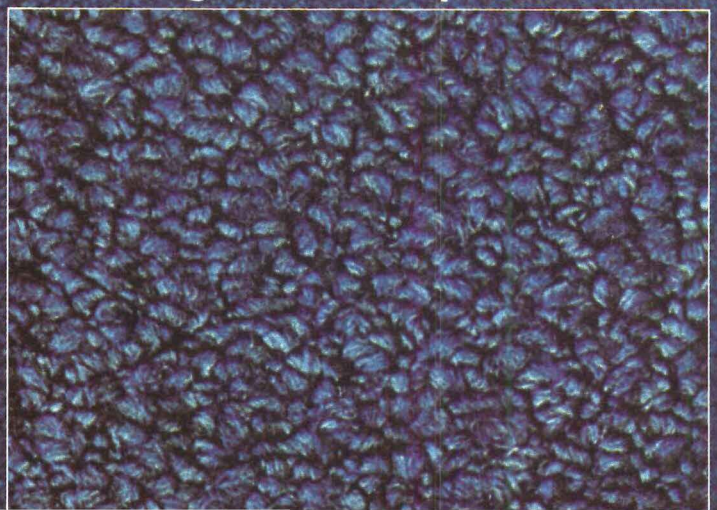
*Du Pont registered trademark for nylon fiber. Du Pont makes fibers, not carpets.

DU PONT
REG. U.S. PAT. & TM. OFF.

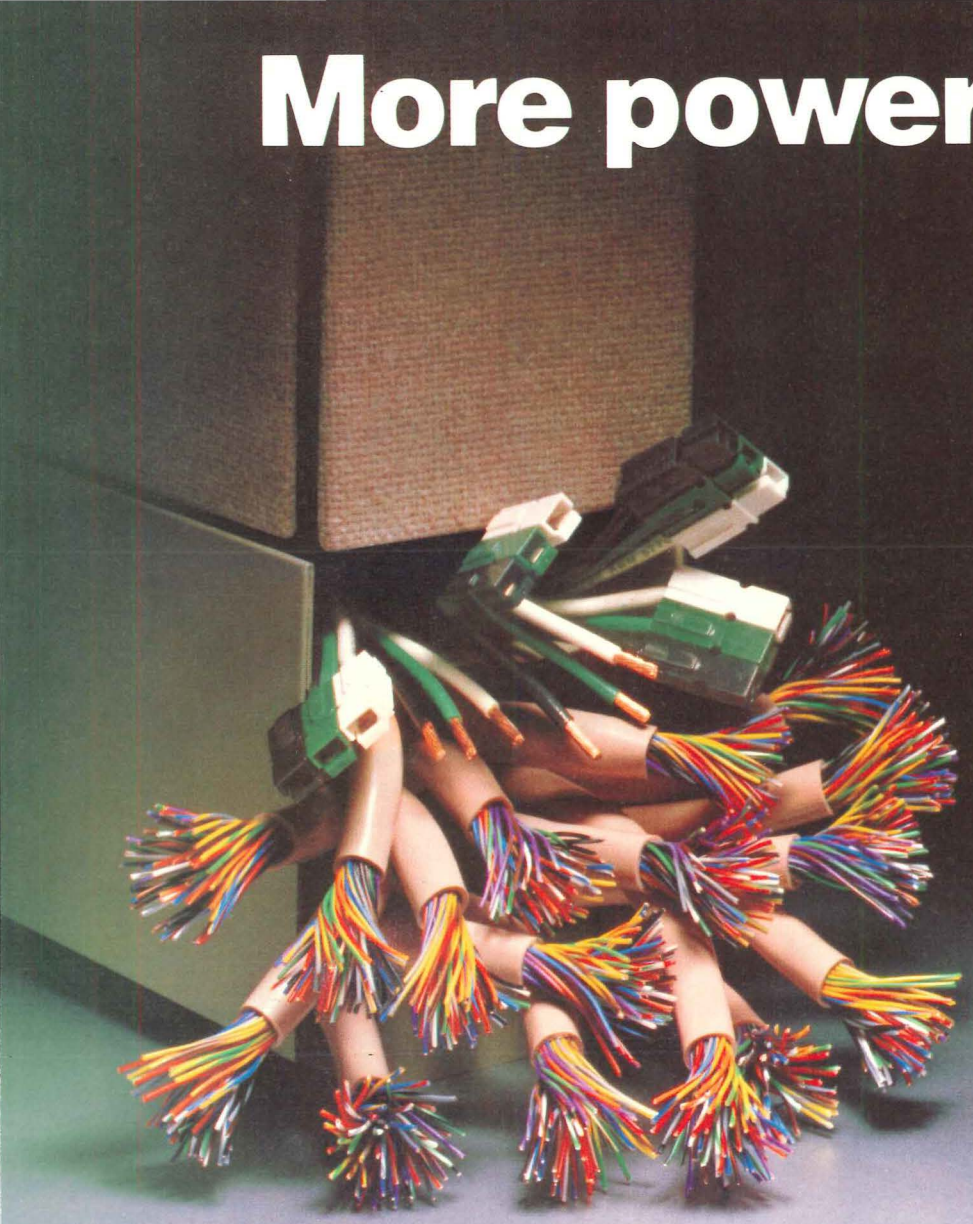
Antron® III

hollow filament nylon

The leading contract carpet fiber brand.



More power to you.



Tempo 3 delivers. It's the open office system designed to manage the electronics explosion. Easily. Effectively.

Real Capacity. Our unique design offers four raceways in each panel base—room for up to *sixteen* 25-pair cables and *six* 20-amp circuits.

True Flexibility. Our modular wiring makes rearranging easy. Order pre-wired outlets on one or both sides, in the base or at desk height. And outlets can be added anytime.

So don't get caught with your power down. Let us show you *all* the advantages of Tempo 3. Call your Shaw-Walker representative. Or write Shaw-Walker, 934 Division Street, Muskegon, Michigan 49443.

SHAW | WALKER

Chicago

Once dubbed First City of Architecture, Chicago has spent the past ten years struggling with its famous past and arguing about its future. In the process, a new group of designers has emerged.

For the decade before Mies died in 1969, there was a peaceful bipolar arrangement in Chicago. On one side was Mies himself, who not only controlled the only architectural school, but was beginning to build large, visible downtown towers. His earliest students had taken over top design positions at several big Chicago firms, notably Skidmore, Owings & Merrill and C.F. Murphy Associates.

In successful but wildcat opposition were architects who tended vaguely to call themselves humanists. Most prominent among them were Harry Weese with his Scandinavian-inspired eclecticism; Walter Netsch (at SOM, but heading a firm within a firm) with his field theory; Bertrand Goldberg mixing thin-shell technology with behavioral modification; and Edward Dart blending rustic and medieval romanticism.

Today, nothing is so clear-cut. Mies's influence has declined unexpectedly quickly. Some of the best IIT designers—Jacques Brownson, Eugene Summers—have left town; SOM's Myron Goldsmith has retired. Some practice on their own with little or no work; others occupy less visible positions in the big-firm establishment. The mainstays of corporate design fall less and less within the Miesian umbrella. C.F. Murphy is now dominated by Helmut Jahn, who, at his most conservative, designs with flashy Moderne, High-Tech detailing and has been recently going far afield into historic revival. Skidmore, Owings & Merrill's Chicago office has under construction downtown one high-rise with bay windows and a Portman greenhouse and, in design, a N. Michigan Ave. department store with a Richardsonian arch and perversely missing keystone.

There are many more small firms than Chicago has seen in decades, and the work being produced can legitimately be described as running the gamut of contemporary design. Buttressing the small firms is the addition of another architectural school, the Chicago Circle branch of the University of Illinois.

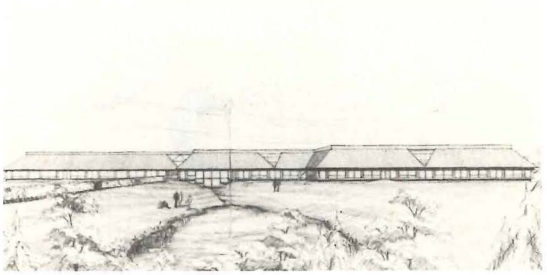
Fueling the inevitable overturn of generations has been a series of events that have made Chicago one of the liveliest architectural communities in the country.

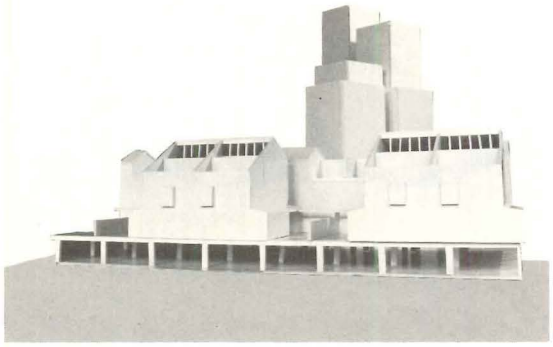
It began rather by accident in a roundabout manner. A German architect named Oswald Grube, who had spent a year at SOM, wanted to show his colleagues what he had seen. He assembled an exhibit illustrating historian Carl Condit's argument that Mies's work was an outgrowth of the early Chicago School and Frank Lloyd Wright, then went on to show mostly current work of Mies-influenced designers. Eventually the show came to Chicago's Museum of Contemporary Art in May, 1976.

Meanwhile, Stanley Tigerman and Stuart Cohen, Chicago architects whose East Coast connections placed them in the front lines of the battle over Modernism, decided that a response to the Grube lineup was in order. Objecting to the implication that Chicago had an architectural manifest destiny to which only Mies and his followers had complimentary tickets, the two created a rival exhibit. With Laurence Booth and Benjamin Weese, they wrote another history of Chicago's architecture, one that included the opposition in the 1960s, Art Deco and historical modes, and little-known stars of Chicago's pre-Mies International Style. The rival exhibit opened that same May in the lobby of a Harry Weese office tower.

By fall, the insurgence was in full swing. The four hooked up with three others to form the Chicago 7, a name consciously appropriated from Abbie Hoffman and friends. They have held theoretical exhibits in local art galleries, added four new members, and sponsored a competition. Bankrolling much of the intellectual revolution has been the Graham Foundation, a charitable organization linked previously in Chicago minds with the IIT team but in fact with a long record of international support for a wide spectrum of opinion. The architecture schools were also centers. The latest effort of the expanded Chicago 7 has been to expand even further into the Chicago Architectural Club, a 45-member group that meets at the Graham Foundation to present work and hear outside lecturers.

The most recent activity on the Chicago





Harry Weese and Stanley Tigerman have been the major local influences on noncorporat Chicago architecture. Tigerman's firm has for years been th example of a viable, small firm, and both have been training ground for those with small firm today. Weese has stood against the Miesian tide for the values o vernacular materials, vaguely social impulses, and nondidacti cally eclectic forms. Recent proj ects include embassy housing in Tokyo (top right; construction begins summer 1980), a 12-acr townhouse and tower complex i stucco with wood shutters, bal conies and, at ground level, Japanese gardens. The Union Underwear Building in Bowl ing Green, Ky (top left, just completed), a metal mansard an ribbon window headquarters in domestic scale with skylighting and wood structure on the inte rior. Tigerman lies somewhere between a formalist and a sen sualist with verbal irony in a supporting role. His Villa Proe (bottom photos) is designed for a northern Chicago suburb.

scene, however, has been the launching of a counteroffensive. Last year, Chicago 7 members won all but one of the local AIA's honor awards. Six were given to Tigerman alone by a jury of Los Angelenes. When Gertrude Kerbis became this year's local AIA president, she created a design committee to run the 1980 awards program and appointed SOM's Bruce Graham as its chairman.

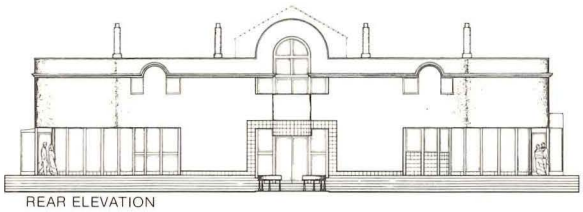
In the March AIA newsletter, the announcement was made as follows:

"If Post-Modern designers have an illusion that architectural design has become a game without rules, easy to play, a game for all ages, impending harsh economic realities will change that to a serious game played 'for keeps.' Chicago's preeminent School of Architecture began in response to the pragmatic needs of its community, its people, and its resources. Our landmark treasures are basically utilitarian, Spartan, and imbued with a puritanical aesthetic. If we are forced to overcome the constraints of dwindling resources, shouldn't we return to our roots in search of a viable, rational, and ultimately economical architectural ethic? The Chicago chapter AIA committee on design . . . will hold its first open committee. . . ."

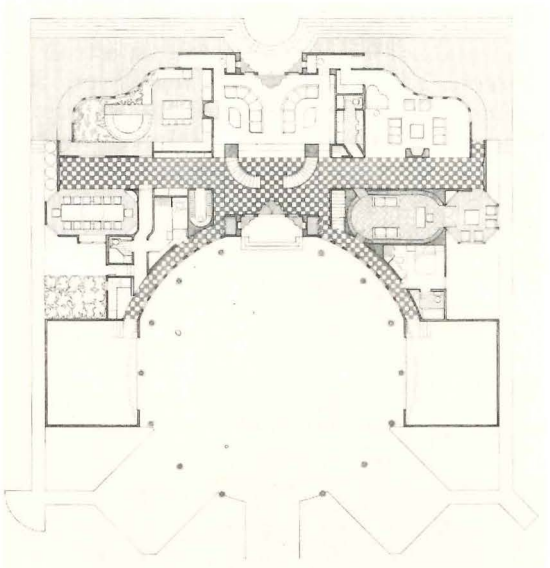
This year, only buildings in the Chicago area will be eligible for the awards program. Two of the four jurors will be Chicagoans (though they will share one vote).

It looks like a resumption of the hostilities of 1976, only this time it is the insurgents who hold the Museum of Contemporary Art (the Tribune Tower competition, see p. 94) and the conservatives who are doing the maneuvering. It is a clear indication that the center has shifted. The polarities are also blurred compared to the 1960s standoff. Jerry Horn of Holabird & Root is a member of both AIA committee and Chicago 7, and the AIA tried to get Jahn as well. And, as mentioned above, the work of even Bruce Graham's firm is showing influences from the very sources (historicism, mannerism) that he, as ideological vigilante, opposes.

Having long been a symbol, a straw man to outside polemicists, the city today—with its avant-garde, backlash and confused boundaries—is not really very different from the rest of the country. Chicago as a bronzed relic of bygone decades and a more innocent past no longer exists. [Nory Miller]

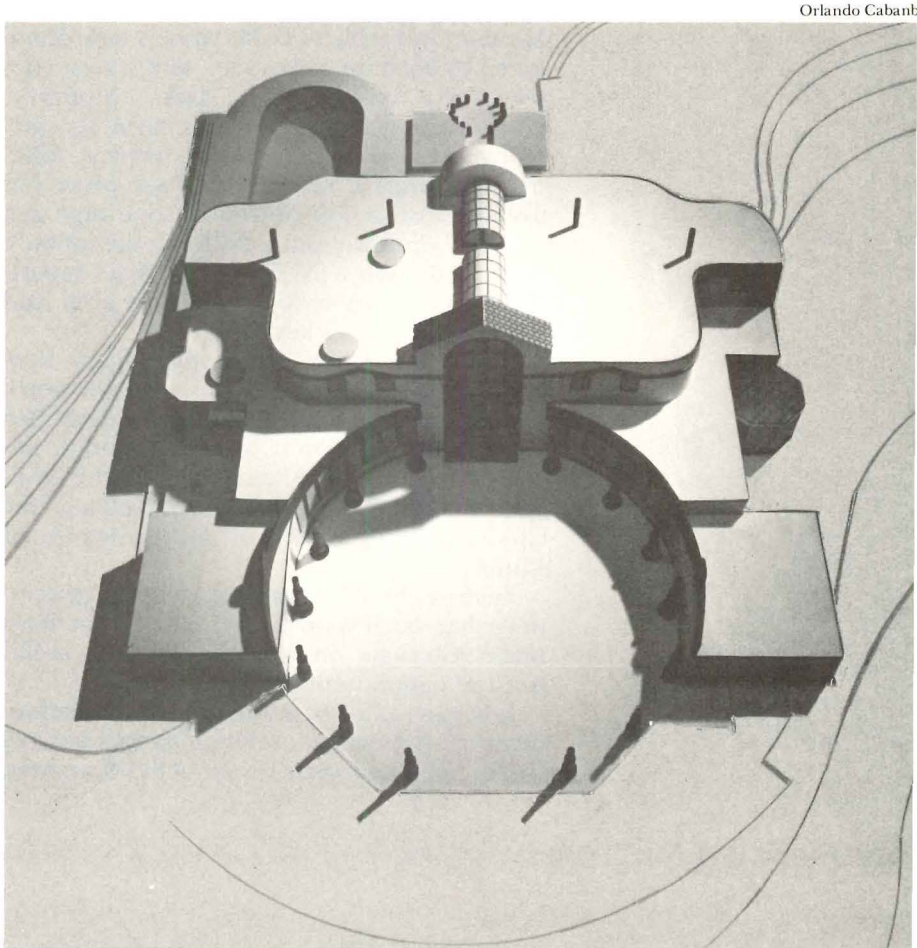


REAR ELEVATION



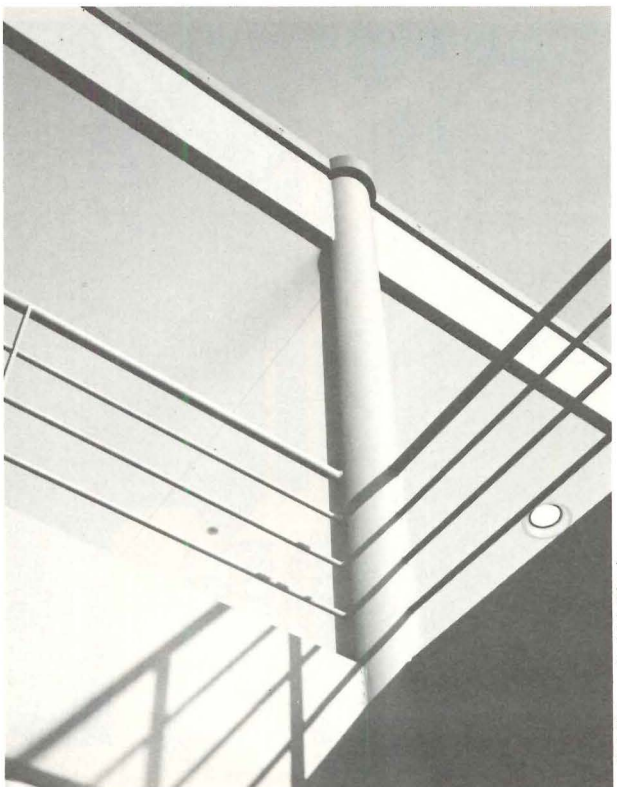
FIRST FLOOR PLAN

Orlando Cabanb

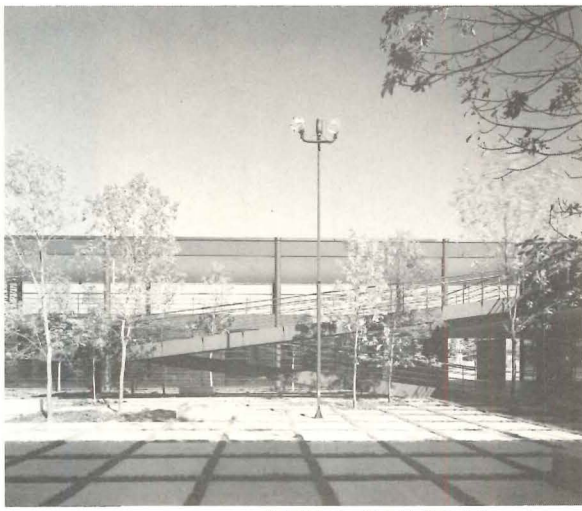


Bob Shimer, Hedrich-Blessing

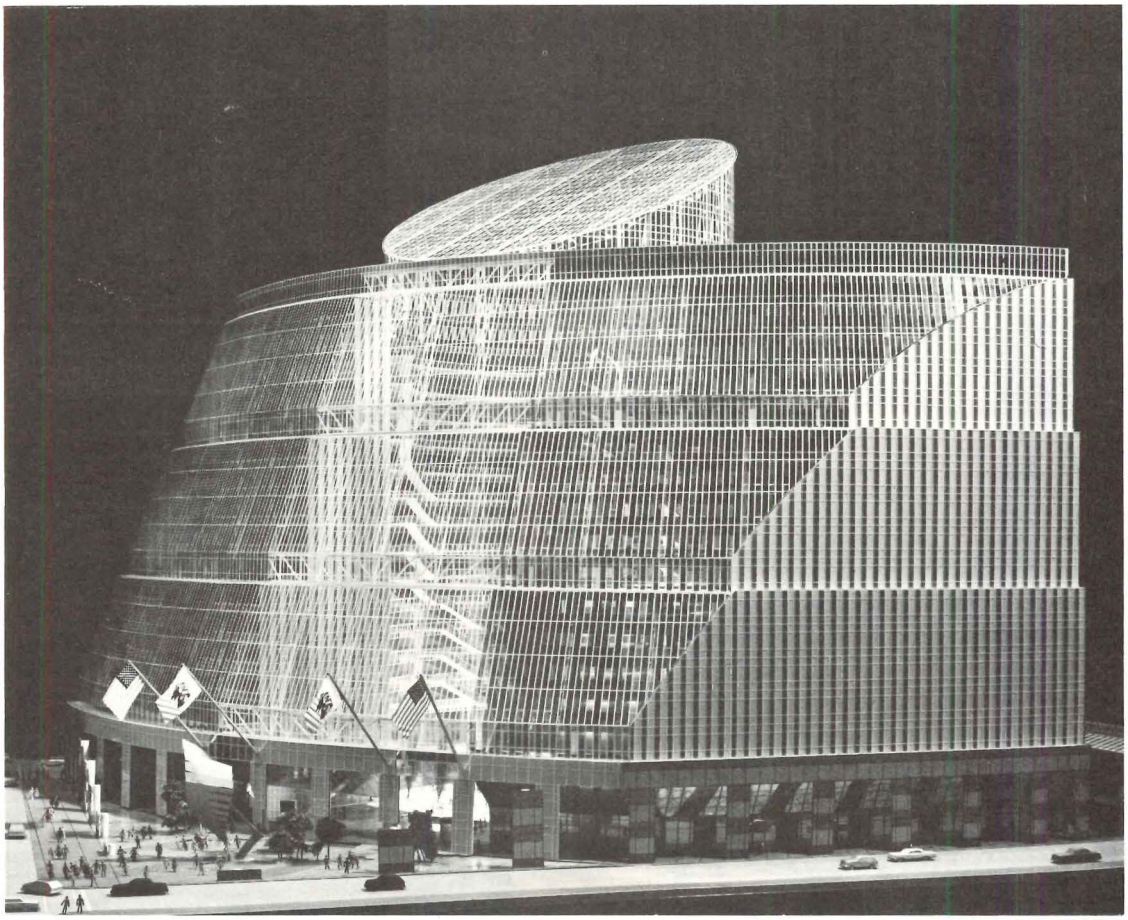
Mies's ranks are astonishingly diminished in his adopted city. The finest of the school of Mies still practicing in Chicago is Arthur Takeuchi. He is also acting chairman of architecture at Mies's school, the Illinois Institute of Technology, with its continuing influence over Chicago south. Foremost in his extremely limited oeuvre is the Wendell Smith Elementary School (this page), built in 1974, during Jacques Brownson's headship of Chicago's Public Building Commission. Glazed paneling, a carefully off-center courtyard with hairpin ramp and Corbusian swing gate, and industrial garage doors on the interior screening off the multipurpose room are among its salient characteristics.



Bob Shimer, Hedrich-Blessing

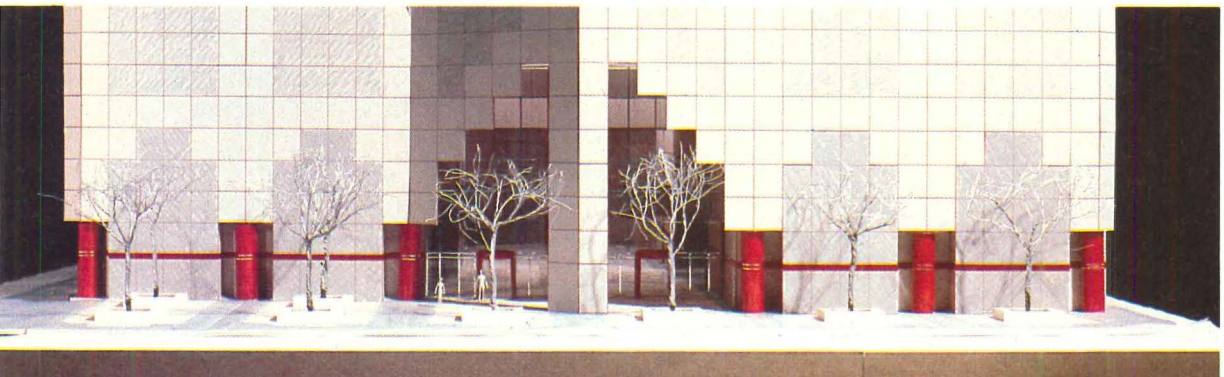


Bob Shimer, Hedrich-Blessing



J. Steinkamp

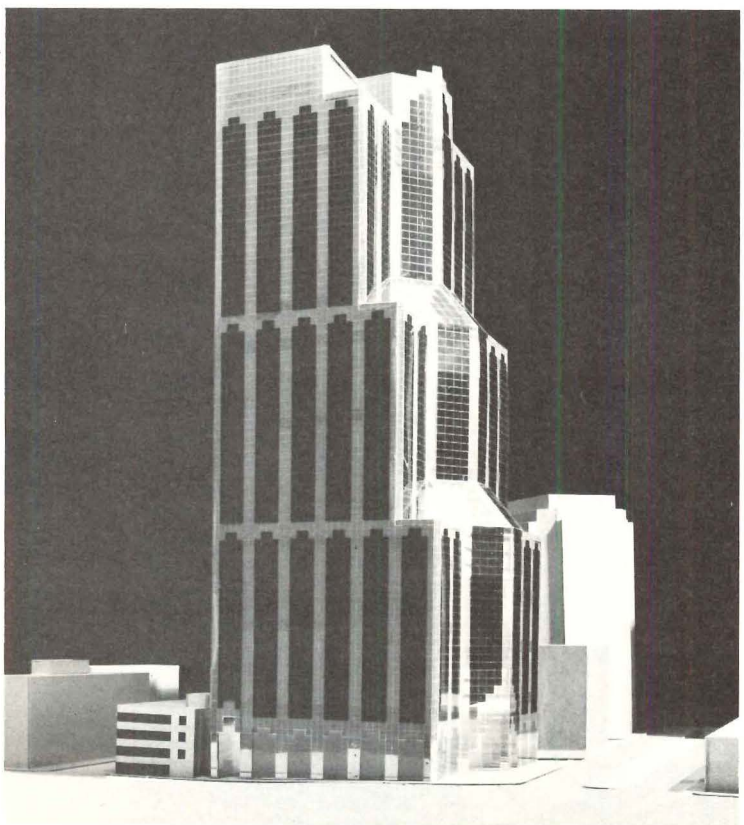
Helmut Jahn, a 40-year-old im-
port from Munich, became the
design partner only seven years
ago at C.F. Murphy Associates,
an established Chicago firm used
to big downtown and public
commissions. Grid plans, em-
phatic structure, and sleek skin
characterized his work at first.
But more recent projects have
moved in a variety of directions,
often away from "the box." The
range has been wide enough to
embrace Venturi in one project,
Isozaki in another, Kevin Roche
Art Deco, and Stanley Tigerman
The scale at which these explo-
rations occur has grown from



J. Steinkamp

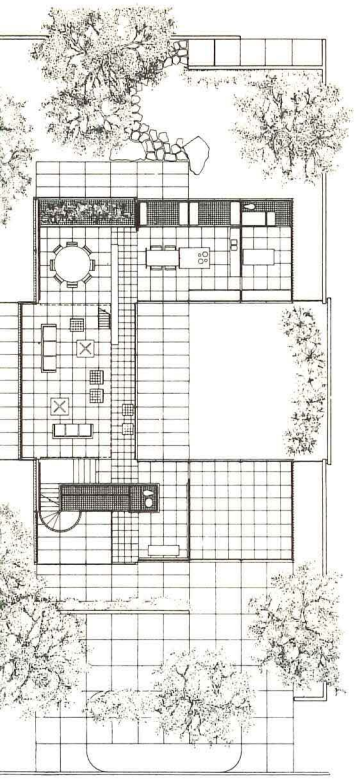
small libraries to downtown
office buildings. At present, in
Chicago's Loop alone, one Jahn
high-rise is just completed and
four more have been commis-
sioned and designed.

The $100-million State of Il-
linois Center (a joint venture
with Lester B. Knight & As-
sociates) will provide 1 million s
ft of state offices and 150,000 s
ft of retail on the lowest floors
(top, left and right). The 17-sto
block holds the corner at the bac
and presents a stepped-back, ar-
caded curve to a small plaza. In
side, a central skylit rotunda rise
within the block to a peaked top
intended as a symbolic reference
to the Capitol. Construction is to
begin in September.



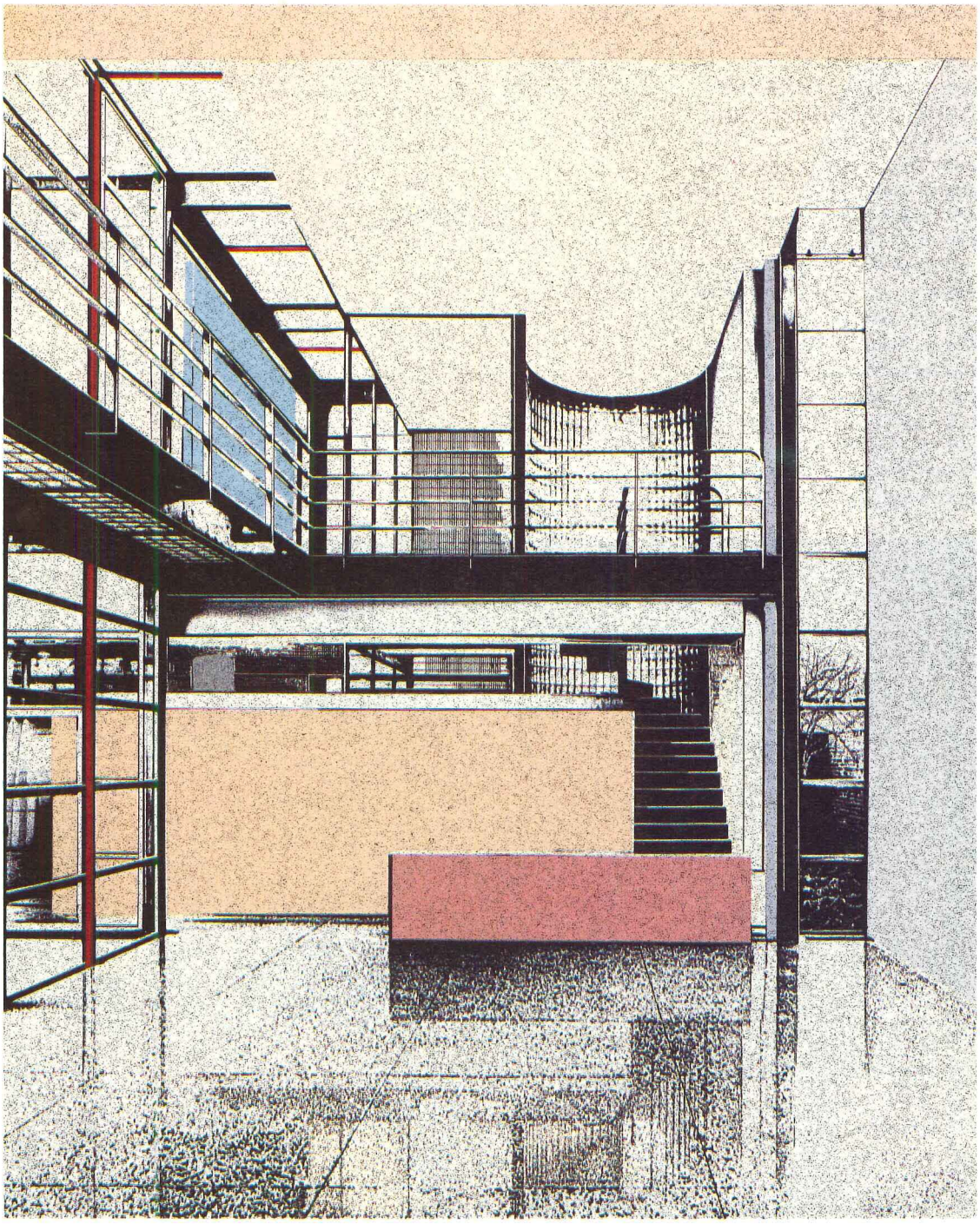
J. Steinkamp

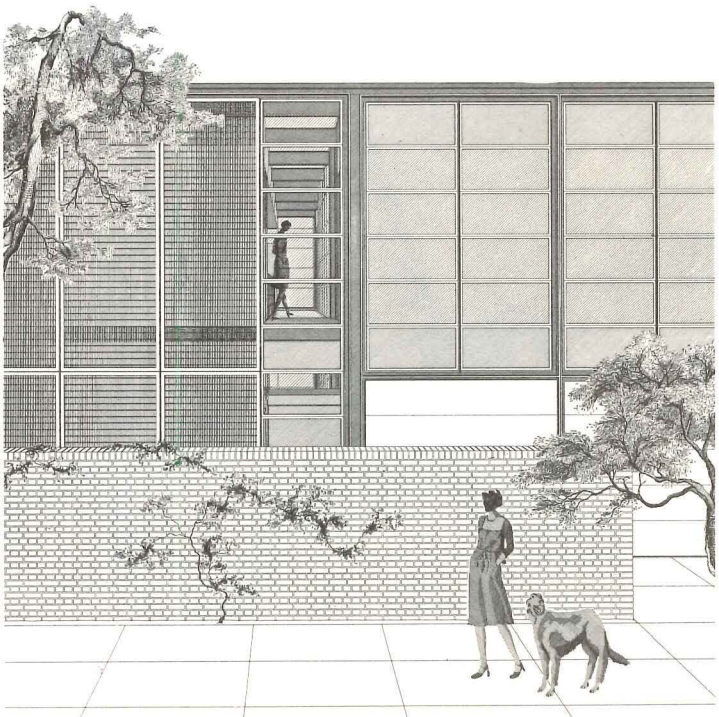
One South Wacker (center
and bottom) is 40 stories of spec
office space with setbacks on the
front. At each setback is a three-
story skylit "atrium," leaving
U-shaped floor areas. At groun
retail faces onto the street and
into a multilevel galleria. Gray
and silver reflective glass are de
ployed decoratively on the façad
which is subdivided into base,
three-tiered shaft, and frontal
capital. Construction is to begin
in July. James Goettsch assisted
in the design of both projects.

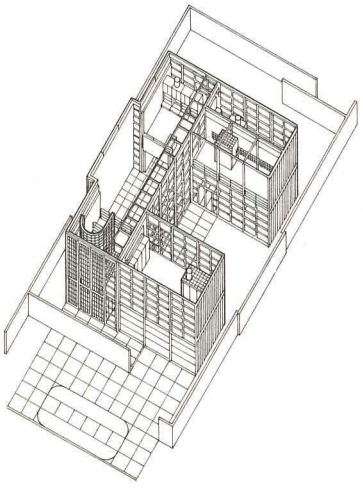


RST FLOOR PLAN

Ronald Krueck and Keith Olsen are among the few recent IIT graduates to have opened a firm of their own. Having graduated in 1970, the year after Mies died but a while after he had virtually left the school, they have both worked at C.F. Murphy and Hammond, Beeby & Babka, forming Krueck & Olsen in 1977. This house on Chicago's near north side is among their first projects. Three pavilions, containing a total of 5000 sq ft, are arranged in a U-shape to provide a private garden court as well as front and back yards. Gridded infill walls, reveals, floating planes, and the use of color suggest not only Rietveld and Mies but a more direct connection to de Stijl painting. Industrial materials are deployed with a particular eye to texture. Side walls are clad with ribbed metal. The front entry is a screen of steel grating through which is seen another, semicylindrical screen of glass block.



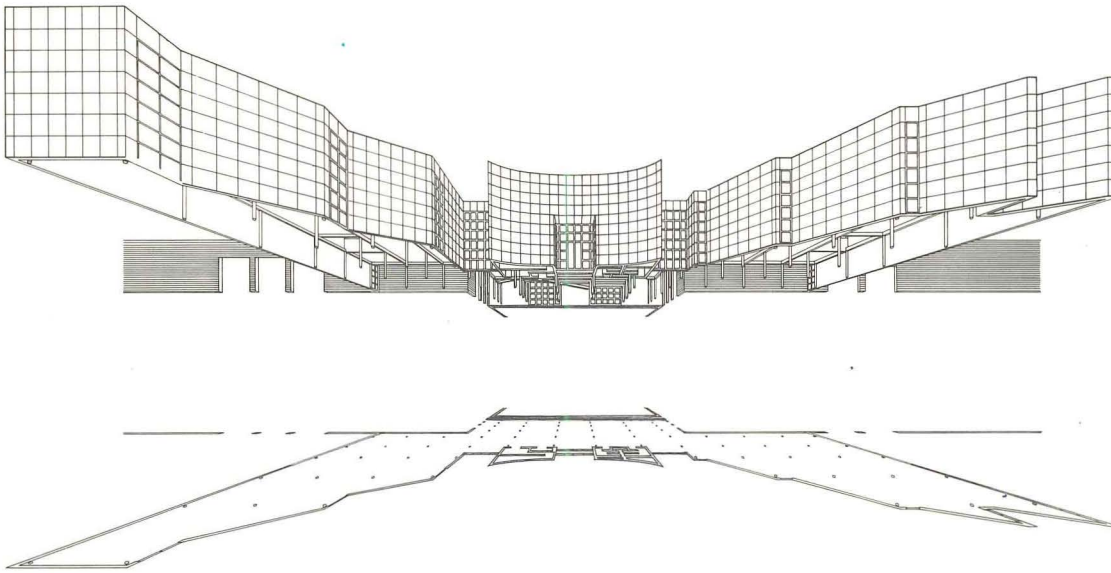




AXONOMETRIC

Introduction: Chicago

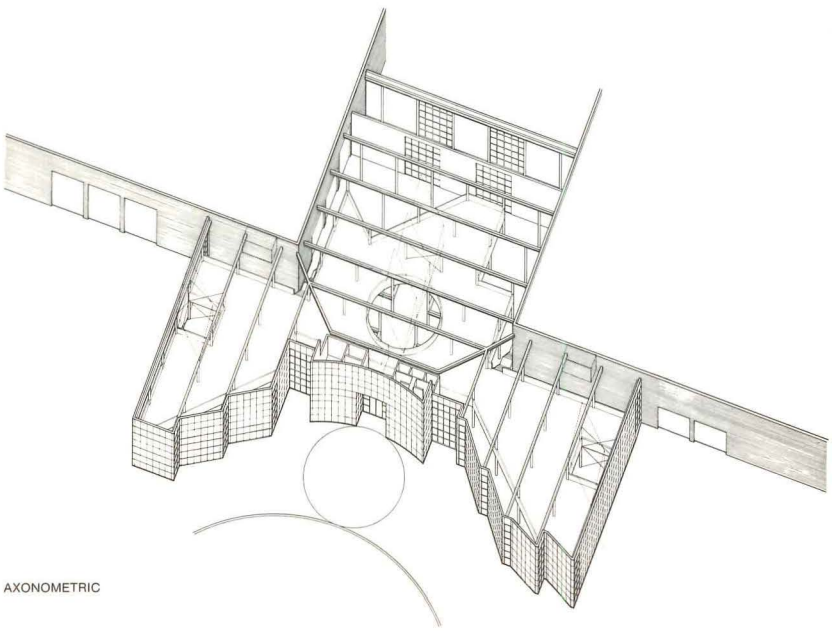
After many years as Booth & Nagle, designing townhouses and housing complexes in both tight urban settings and suburban subdivisions, the firm has recently split. James Nagle continues the firm's practice with ex-Harry Weese capo, John F. Hartray, Jr., who joined the firm several years ago to make it Booth, Nagle & Hartray, and was instrumental in expanding the firm. Laurence Booth is now associated with another ex-Weese officer, Paul Hansen, as Booth/Hansen & Associates. Both Booth and Nagle are MIT



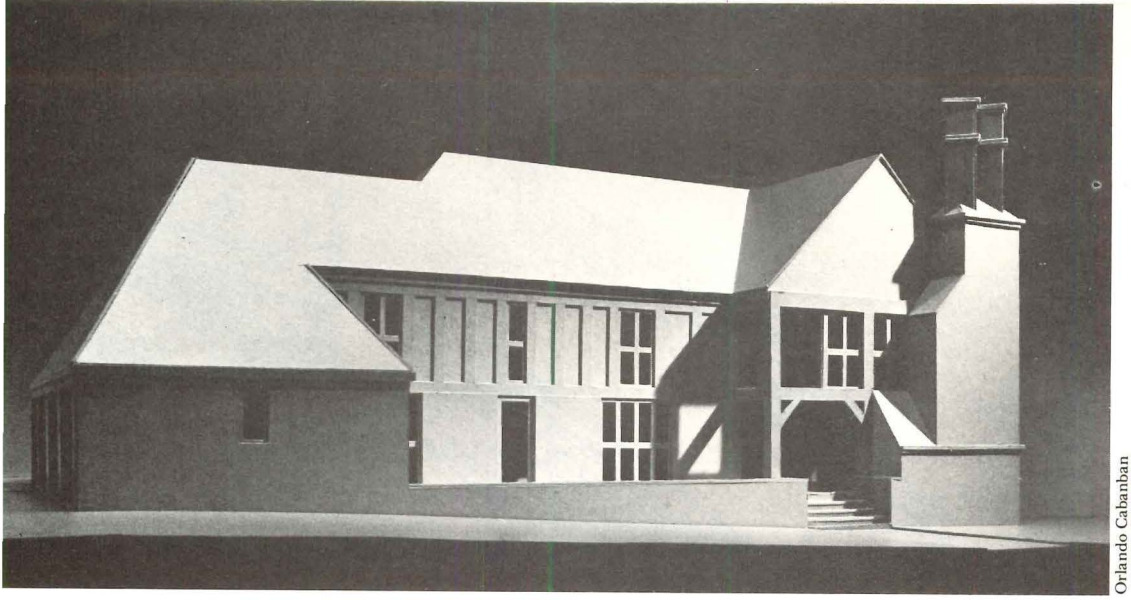
EXPLODED PERSPECTIVE

Orlando Cabanba

graduates whose early apprenticeship was with Tigerman. Booth's Herman Miller Health Science Division office building, under construction in Grandville, Mi, began as a connection between two brick box factory buildings. While still that, it has developed into a formal entrance with extensive office space. Deeply inset red doors, glazed porcelain skin, and jagged enveloping wings make the gateway visible from the road. Windows are skewed to northern directions to reduce heat intake, and the thin porcelain shell is backed with solid insulation. The circular garden in front is echoed by a skylit rotunda within.

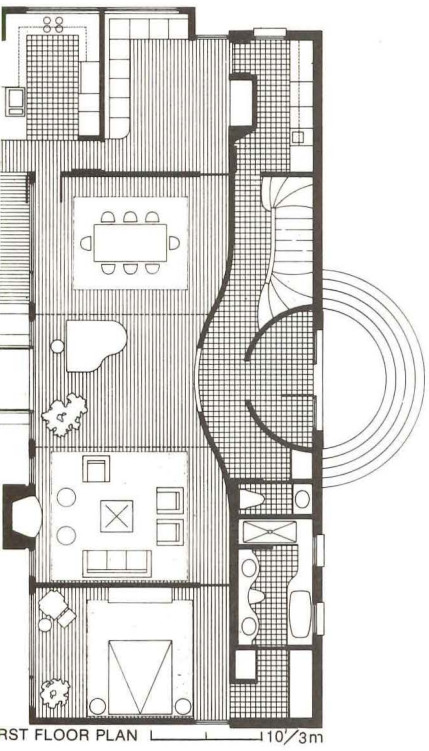


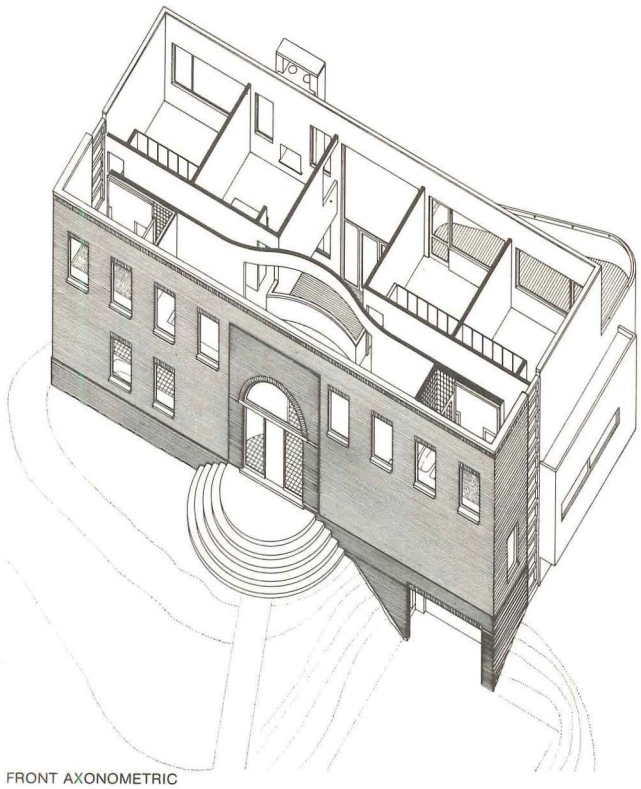
AXONOMETRIC



Orlando Cabanban

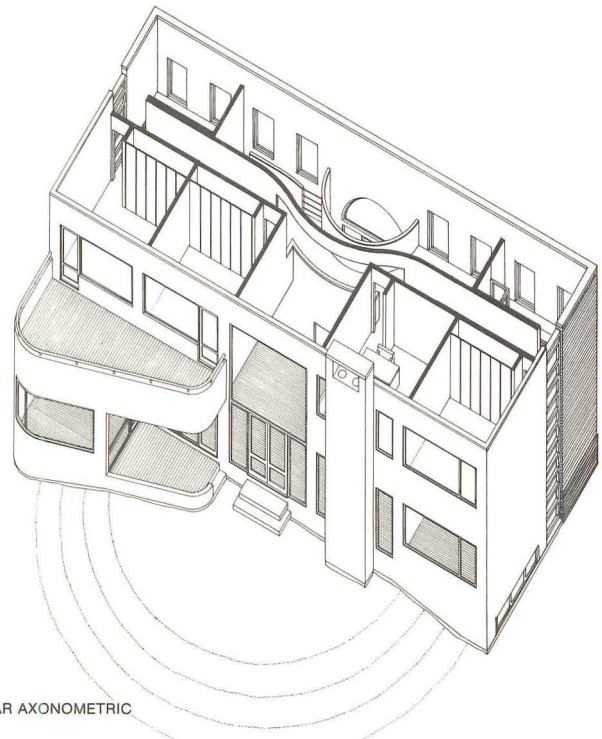
Stuart Cohen, Chicago-born but Cornell-educated, under Colin Rowe, has become, in the half-dozen years since he returned from New York, a vocal intellectual influence. He builds generally in association with the young Sisco/Lubotsky Associates, a Booth & Nagle spin-off (P/A Award-winning project, Jan. 1980, p. 122). "Tudor House" is a speculative venture that Cohen designed outside the office for presale in a Chicago suburb.



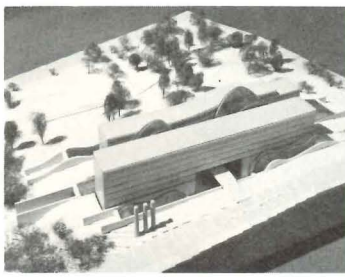


FRONT AXONOMETRIC

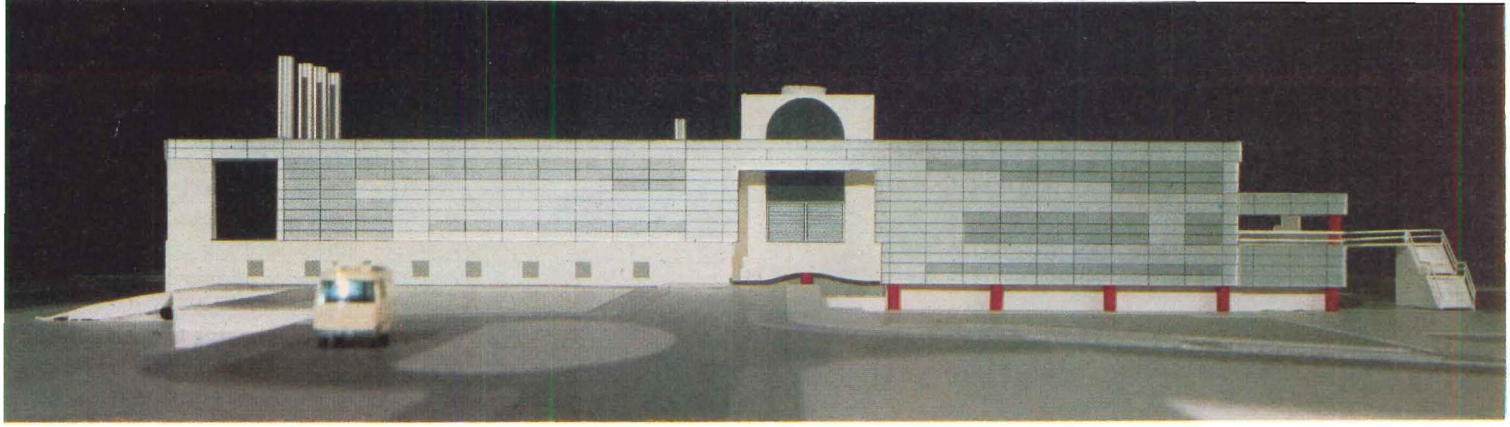
Nagle's work, which like Booth's, has wandered comfortably in and out of historic allusion for years, influenced at first as much by Chicago eclectic Harry Weese as by East Coast advocates, has become—along with his ex-partner's—far more self-conscious. A house, by Nagle, Hartray & Associates, nearing completion on Chicago's south side, is a structured dichotomy between a "colonial" brick front and stucco "Corbusian" behind. The interior is divided by a curved wall in yellow.



REAR AXONOMETRIC

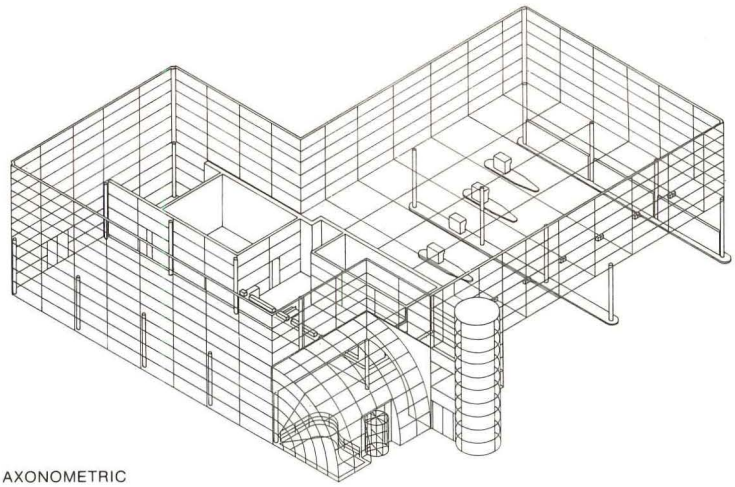


Holabird & Root celebrates its centennial this year. It is a firm whose peaks have included Holabird & Roche's Chicago School landmarks and John Root's Art Deco towers. Among designers in the firm, who have virtual autonomy, the most prom inent is Gerald Horn, a self-educated product of California from the days of Arts and Architecture *and Craig Ellwood, with whom he worked. Horn has become more and more concerne with sculptural form. The most elaborated is his entry to the Intelsat Headquarters competition which owes a good deal to Jahn's Pahlavi Library entry, which is in turn in debt to Tigerman and Graves. Panel system curtain-walls, exposed stacks, campus ar rangements of building blocks, and bridge entries have become Horn trademarks. Michael Pan cost and Jean Bellas were projec designers.*

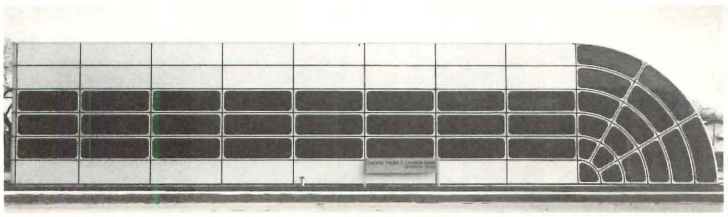


Sadin/Karant

A prominent turn-of-the-century firm, Schmidt, Garden & Erikson had settled in as Chicago's hospital specialists until two years ago when it hired Peter Pran to revitalize its design department. Pran came from Norway in the early 1960s to study and then work with Mies, spent eight years with SOM, took a strong Chicago structuralist position in the 1976 battle of exhibits, but is more recently seen to be identifying himself as a Post-Modernist. The work, as in this facilities center for the Methodist Hospital of Indianapolis, under construction, generally attempts Classical allusions with High-Tech sensibilities. Here, distinctions are made between the machine half—identified by exposed boiler stacks—and the office and cafeteria half. The two are divided by the arched limestone-and-glass entry.



AXONOMETRIC



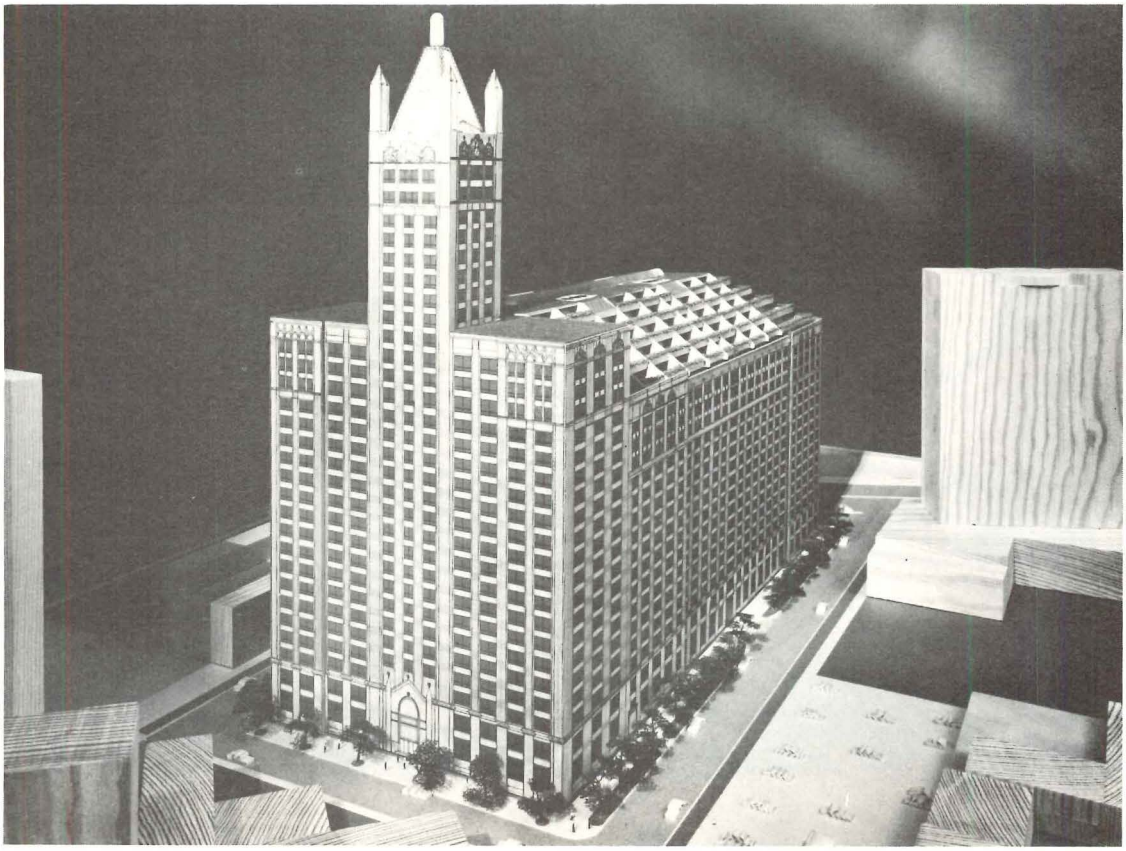
Sadin/Karant

Newman/Lustig & Associates is a collaboration of Richard Newman, a 40-year-old Chicago practitioner, and 29-year-old Michael Lustig who joined him four years ago. The work is varied. What this bank, recently completed in Skokie, Il, has learned from Meier and the Japanese, other projects have learned from Gwathmey, Venturi or Tigerman. Lustig is an example of a phenomenon not really seen since the Fire, and that is an architect from the East Coast (in this case Syracuse) whose attraction to Chicago is economic. Axonometric indicates future second story.

Sadin/Karant

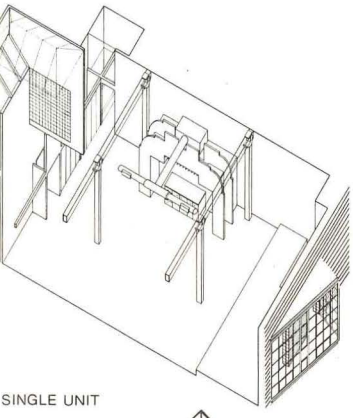
Sadin/Karant

These townhouses in Chicago's Lincoln Park neighborhood by Bauhs & Dring are built on the site of an 1889 Lutheran church, whose congregation had moved away. The bell tower was retained, and four townhouses were built, closely following the Gothic massing of the old church by means of false fronts. Though a controversial project along preservation lines, the development was approved by a long-standing community organization and Chicago's landmark commission, and granted certain variances by the zoning board. Both William Bauhs and William Dring were designers with Harry Weese Associates before starting their own firm five years ago.

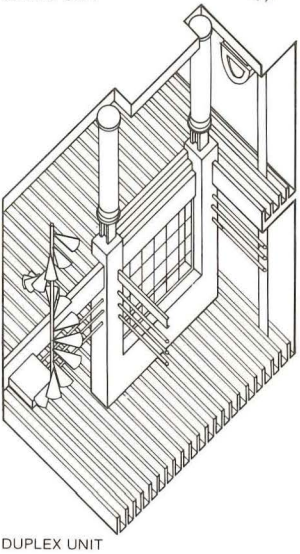


An old warhorse, the American Furniture Mart is scheduled for probably the largest conversion project to date. Its two million square feet will be recycled into 500 condominiums, 500,000 sq ft of office space, and 100,000 sq ft of retail. Above its 16 stories, a new terraced structure will add 85 garden penthouses. Joint venture architects are Fitch/Larocca Associates and Fujikawa Conterato Lohan & Associates (FCL). FCL is the continuation of the Office of Mies van der Rohe. Mies's grandson Dirk Lohan is the partner in charge of design for the project.

Sadin/Karant



SINGLE UNIT

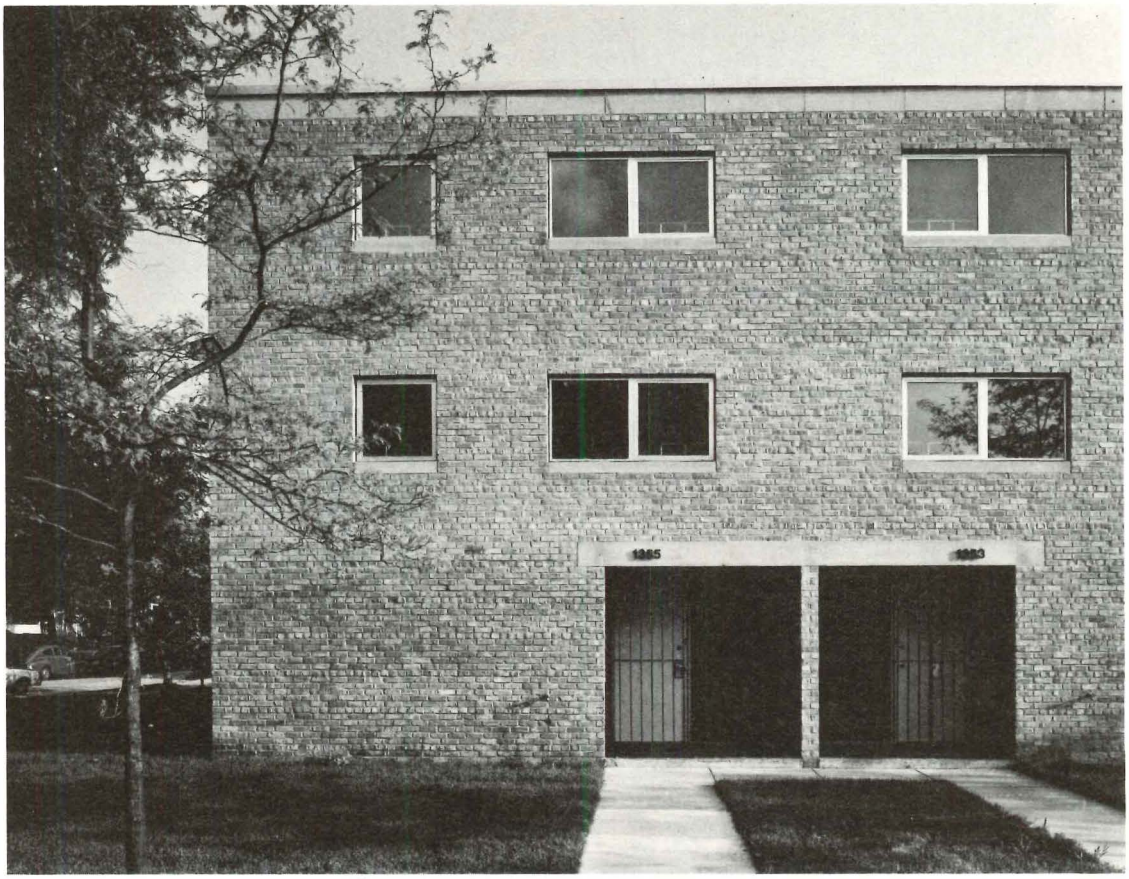


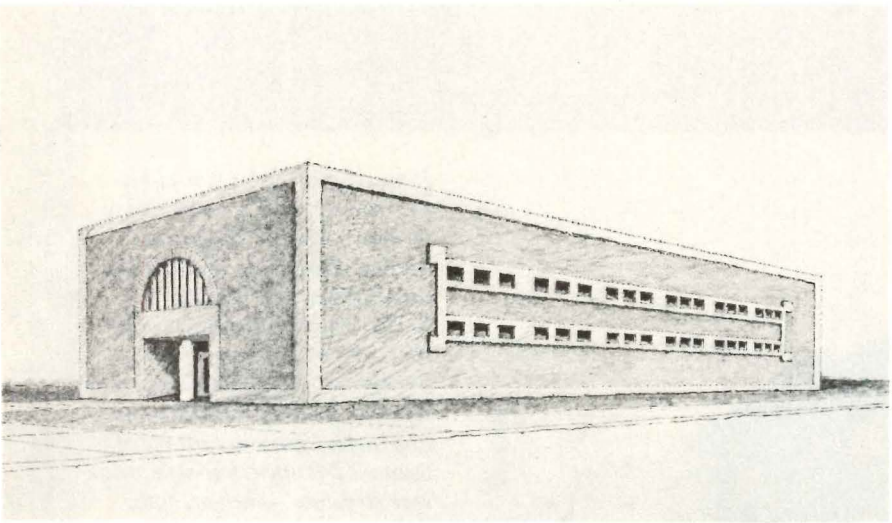
DUPLEX UNIT

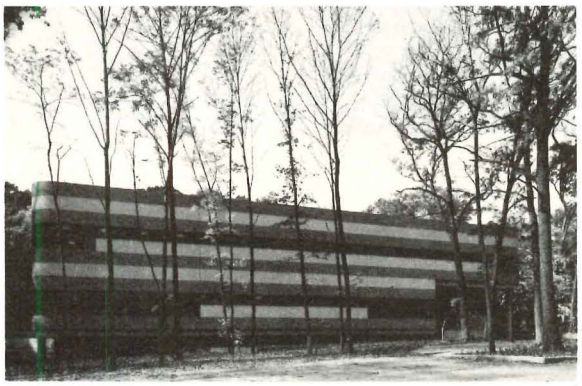
Ron Gordon

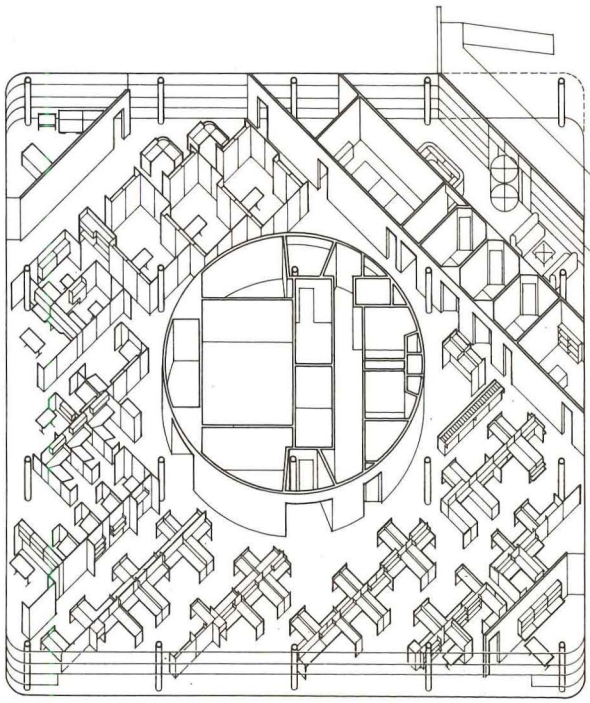
Kenneth Schroeder moved his practice a couple of years ago to Printer's Row, a fringe area south of downtown slowly being transformed into Chicago's SoHo. The Mergenthaler is his first conversion there, from linotype to 21 dwelling units with retail at ground. Both one-level and duplex units are provided. Space is left open, loft-style, with core elements—kitchen, bath, dressing area—designed as large pieces of furniture, painted in Gravesian pastels. On the exterior, angled bay windows were added on the south, and the shell of an old sandwich grill is being recycled into a landscaped "urban ruin."

David Hovey is a 35-year-old IIT graduate who has worked for both Arthur Takeuchi and Helmut Jahn but left standard architectural practice to open his own firm. Called Optima, Inc., it is a vehicle to develop, design, construct, and market housing. In two years, four projects have been started ranging from six to sixteen units each. The six townhouses in Hyde Park (right) were completed in 1979 at a cost of $450,000. Construction is of brick bearing walls. Large, south-facing windows have retractable fabric sunshades for summer (opposite, top).







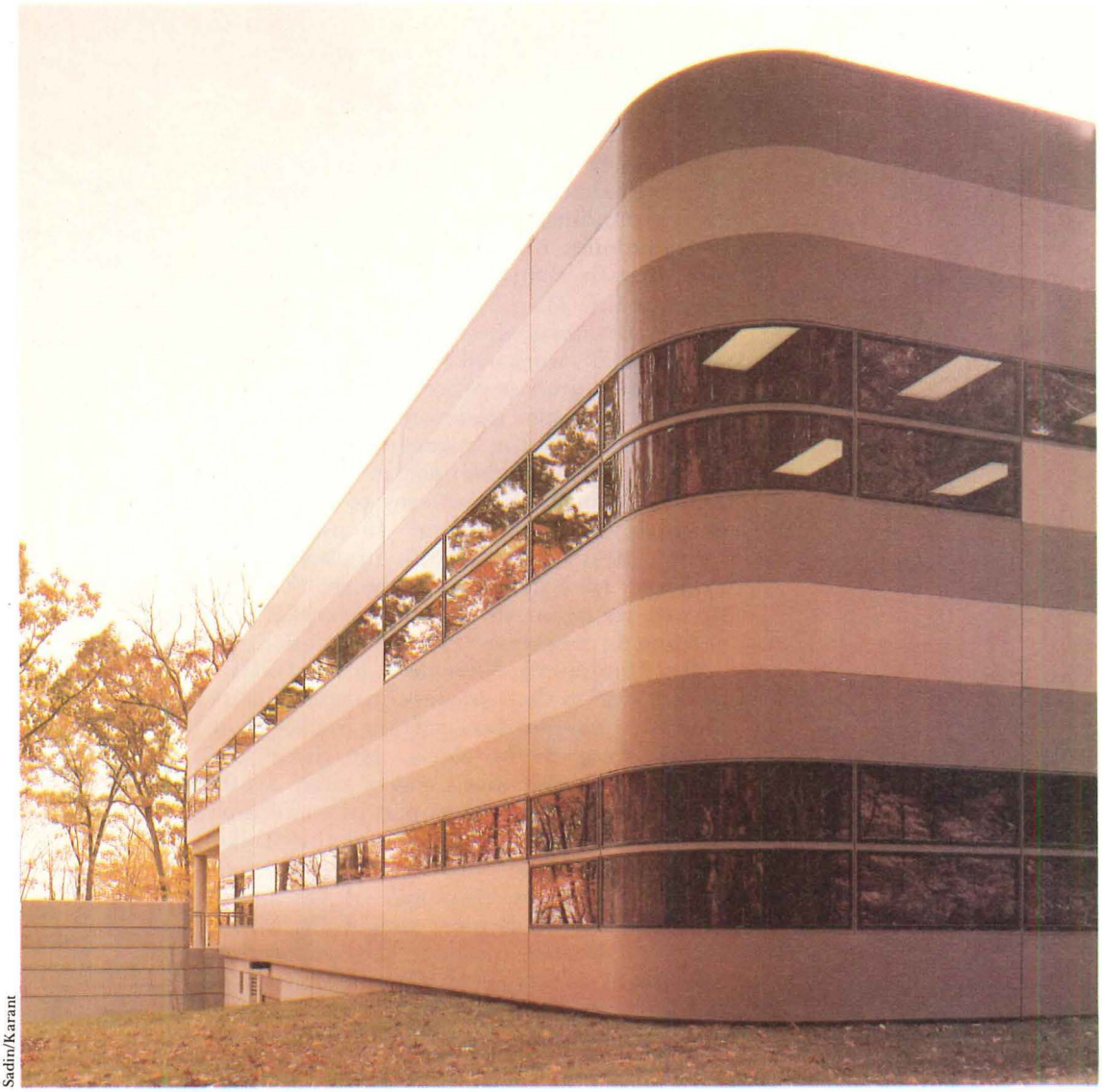


FIRST FLOOR PLAN N↑ 20' / 6m

A community bank by Benjamin Weese for one of Chicago's worst ghettos consciously takes Louis Sullivan's Midwestern banks as the point of departure. Massing and symmetry are intended to make the small building look imposing and secure. The firm, Weese Seegers Hickey Weese, began three years ago, when Benjamin left his brother Harry's firm and created this smaller venture with his architect wife Cynthia and two fellow Harry Weese associates.

Hedrich-Blessing

Two designers, Charles Davis of Davis Associates as architect and Michael Gelick of Michael Gelick Associates as associate architect, teamed up for this sales office for L.M. Berry & Co. in Brookfield, Wi. The building is 122 ft square, 2½ floors, with rounded corners reminiscent of Moderne styling. Also reminiscent are the ribbon windows—limited to eye level for energy conservation except at the entry, canteen, and corners—and metal panel skin, banded for enhanced horizontality and scale. Support elements are enclosed in a cylindrical core, from which the office system is arranged outward diagonally. Building cost was $36 psf (1979).



Sadin/Karant

Hammond, Beeby & Babka

This firm well represents the changes Chicago is going through now in its design approach, attitudes, values, and background.

Chicago is in transition. The oldguard Miesian line based on the nuts-and-bolts pragmatism is being softly and subtly eroded. Recently established firms are pushing the boundaries of Modernism far beyond the excursions of preceding revisionists such as Harry Weese and Bertrand Goldberg. They are doing so with more of a theoretical stance. The ones that do so, however, still maintain a firm grounding in the Chicago tradition.

Hammond, Beeby & Babka is hardly the size of such mainstream Modern biggies as SOM or C.F. Murphy. This small office of 12 or so architects does smallish public and commercial work—like libraries, low-rise banks, medium-rise office buildings.

In the Chicago tradition, all the partners served time with the larger firms. They know a potentially leaky pitch pocket when they see one. The firm also adheres to technically-oriented problem-solving. In their Tech Center nearing completion in Denver, for example, they have taken precast "T"s and turned them on their sides to create sun-shading devices on the two 11-story buildings.

But Hammond, Beeby & Babka manifest a darker side to their professional personality. One of their number, partner-in-charge-of-design Tom Beeby, *draws.* He draws and paints lush, evocative images such as the tondo, above, executed as part of an allegorical series on cities for exhibit at the Walker Arts Center. Moreover, he writes articles on subjects like "The Grammar of Ornament/ Ornament as Grammar" in *Via III,* Penn's Graduate School of Fine Arts publication. Still, Beeby does teach at IIT, where everyone else was schooled under Mies or was schooled under those who were schooled under Mies.

Beeby, Chicago-suburb-raised, lived a few formative years near Philadelphia, and one year in England, before going to Cornell University's architecture school.

While at Cornell, Beeby came under the influence of Colin Rowe, whose teaching on Le Corbusier (besides Mies) imbued the school with a special intellectual rigor, and John Hejduk, a visiting critic during Beeby's fifth year. Additional pollination occurred through architectural history courses of Vincent Scully and George Hersey at Yale, where Beeby got an M.Arch. in 1965.

Then Beeby returned to Chicago and the design section of C.F. Murphy, headed by Gene Summers. He remained there until 1971, when he was offered a job by James Hammond, whose partner Peter Roesch had left the firm to go into teaching and a separate practice. The firm, then ten years old, was known to Beeby for its high-level Miesian design. Beeby's first building was the First National Bank of Ripon, Wi (P/A, July 1978, p. 54). Within six months of joining the firm, Beeby was made partner.

Beeby had gone back to Chicago determined to prove that one could be interested in drawing and in building. With the C.F. Murphy experience behind him, he knew he need not hesitate to indulge himself with his art. Beeby's art is not only grounded in technique, it has a strong affinity to poetry and a kinship with the German Romantics. There seems to be a desire for his architecture to "spiritually integrate" man with nature and myth with life.

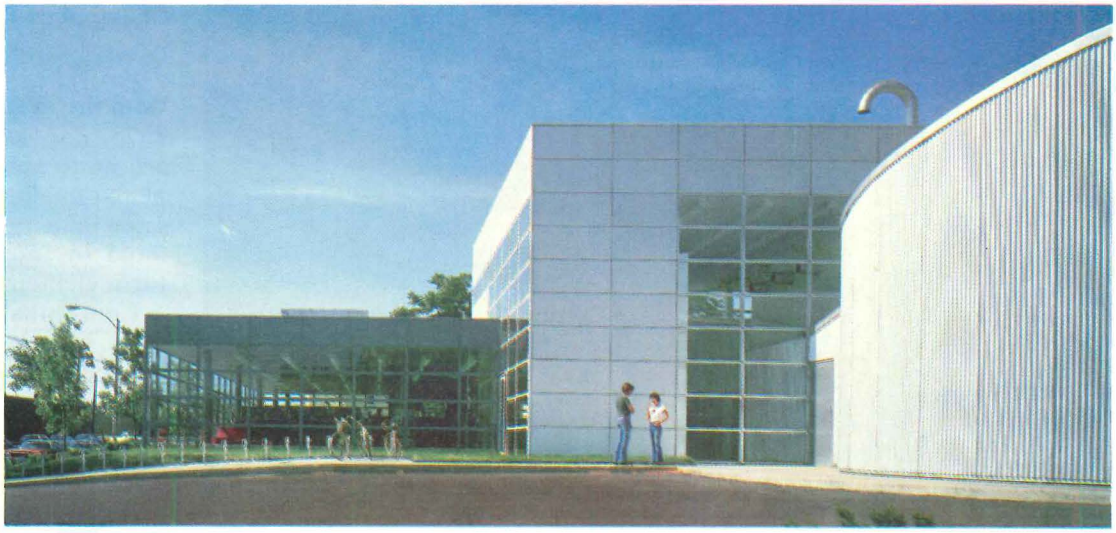
Beeby's drawing and his persistent interest in architectural history and theory have guided his design development in the firm. After his recent trip to Sweden, the work of Gunnar Asplund (P/A, Feb. 1980, p. 88) is starting to take effect on Beeby's design approach. Asplund's way of fusing regional particularities with the Classical norm Beeby finds a particularly appropriate model.

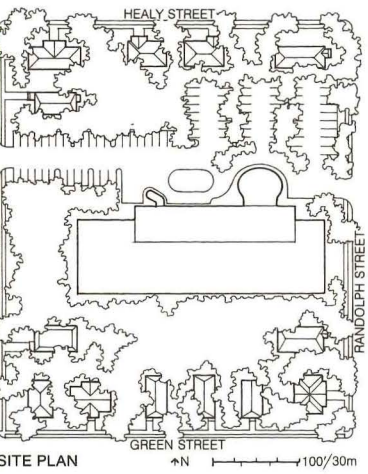
One might think it would be a bit sticky for an architect with James Hammond's background to endorse a design for a new library that recalls Henri Labrouste's Bibliothèque Ste.-Geneviève of 1850. For the Hild Branch Library in Chicago, the architects are designing arches, pilasters, and other Classical details to be executed in metal cladding and concrete. Hammond looks on [*Continued on page 93*]

Champaign library

Hammond, Beeby & Babka's design for a library only slightly hints at the changes subsequently to take place.

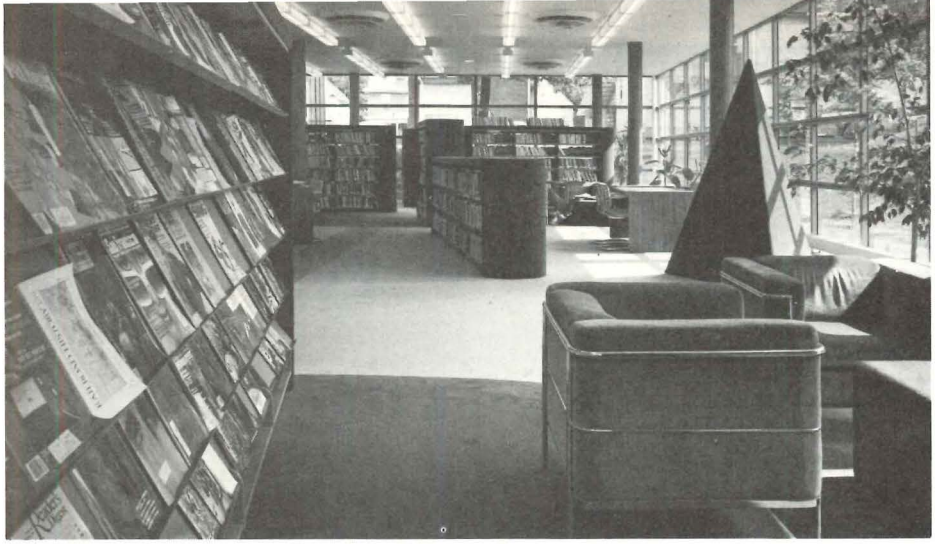
The change in materials from gray metal to white porcelain enamel panels to corrugated metal siding calls out the different functions taking place within the library. Similarly, the change from glazing to solid panels, from one-story massing to two-story, from rectilinear form to free-form differentiates further the various activities within the building.

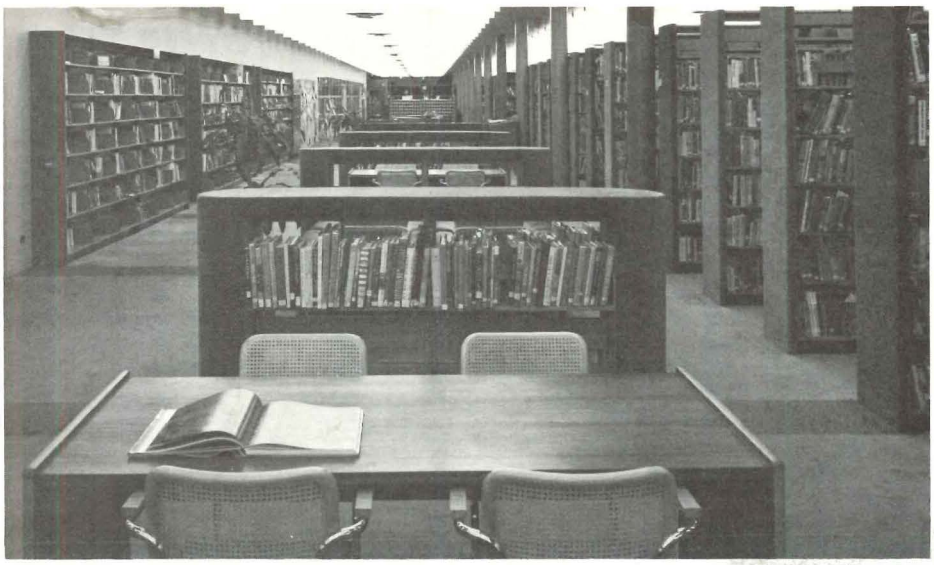


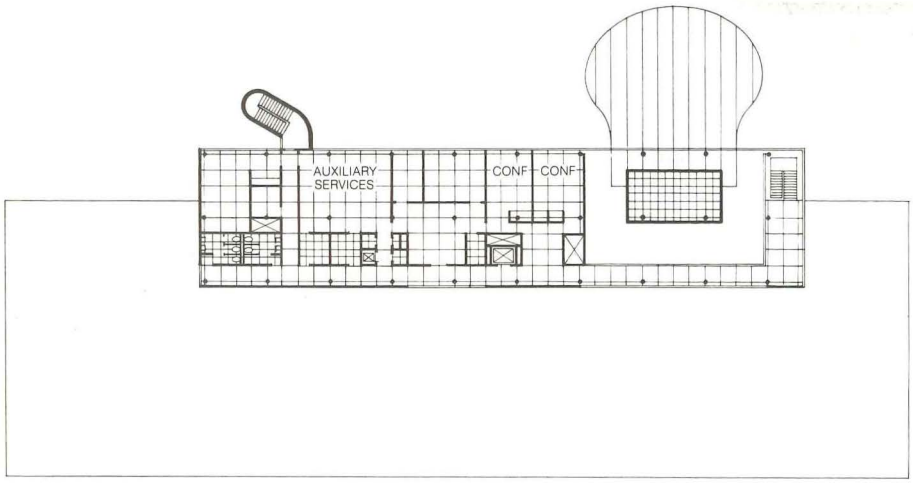


SITE PLAN

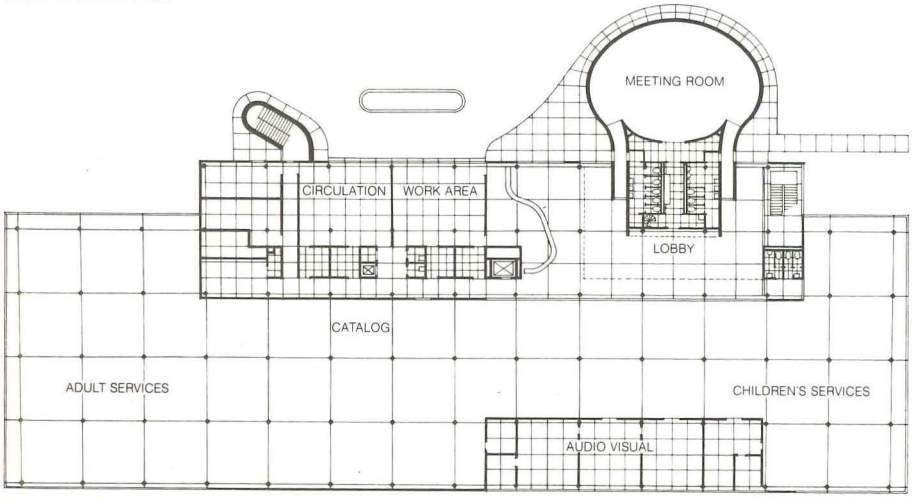
The reading room, shielded from the main road by an earth berm, is handled with a Miesian purity for which the architects have become known.







SECOND FLOOR PLAN



FIRST FLOOR PLAN

Champaign Public Library

With the design of this building completed in 1978, one sees Hammond, Beeby & Babka are quite accomplished with the crisp, taut, planar qualities of the Miesian esthetic. At the same time they attempt to modify the Miesian mold by introducing some Corbusian free-form elements clad in corrugated metal.

Conceptually, the instincts behind the variation in use of material and in the formal elements are quite sound: the shapes and textures indicate a change in function for the spaces within, along with massing, color of exterior wall panels, and use of glazing. However, on a strictly formal level, the amalgam of highly refined parts of different heights, colors, and textures lacks a certain cohesiveness. The vaguely visceral forms of stair and meeting room seem extruded from the grid, rather than contained by or wrapped around it as Corb might have done. Nor do these shapes appear to establish a tension with a dominant wall plane, as in a John Hejduk scheme, for example. At the same time, the porcelain paneling and corrugated metal siding do conjure up too easily institutional or industrial associations. Thus, when the building first started going up, the community complained the library looked like a factory.

The director of the library, Judith Drescher, argues for the new image. Since the library's role is changing into that of an active, dynamic social and information center, the architecture should eradicate any preconception that a library must be staid, awesome, and hushed. Few who enter the building can keep their preconceptions, she contends. They are also encouraged by the open plan and ample natural light to explore the various areas. While some users complain about the acoustics, Drescher considers the noise natural when people are comfortable.

Interestingly, the jurors for the P/A Design Award who gave the project a citation (Jan. 1976, p. 73) anticipated some of the issues of image as well as contextual questions. Although the surrounding area is commercial and residential, and only the lower, bermed west end is nearest the street, the entire ensemble definitely announces its *presence*. Despite the (young) planting, Drescher observes the building "is definitely not hidden and doesn't blend."

With many architects every new design solution involves implicit criticism of one's previous work. This is why the projected design for the Hild branch library in Chicago should be interesting to watch and compare with Champaign. Returning to the *type-form* of libraries of Henri Labrouste's Bibliothèque Ste. Genevieve of 1850, the projected design's detailing definitely harks back to the era when libraries looked like libraries. [SS]

he meeting room and lobby on e north side adjoin the stair (be-w). The grid allows an open-ess of plan and introduction of atural light to the interiors (op-osite).

ata

roject: *Champaign Public Li-ary and Information Center, hampaign, Il.*

rchitects: *Hammond, Beeby Babka. Design team: Kirsten eeby, Thomas Beeby, Harry urroughs, John Ekholm, James lammond, Carl Hoglund, Ron-d Kureck, Cora O'Fallon, eith Olsen.*

ite: *approximately 87,770 sq ft mid-block area near Down-wn Champaign. Surrounding ea is residential and commer-al.*

rogram: *provide adult reading ea (13,780 sq ft), children's ading area (4500 sq ft), plus udio-visual facilities, meeting oms, administration offices for library that has 135,000 book les, 15,000 records, 8000 cas-ttes and serves a town of 5,000. Total building area is 3,200 sq ft.*

tructure: *concrete slab on ade; steel structure with 21-ft-lally column bays, steel walls of termingled solid and glazed anels. Modular panels are two-..-thick factory finished insu-ted porcelain enamel.*

lajor materials: *porcelain-ameled panels, aluminum fin-hed corrugated siding, gypsum oard, glass, metal.*

lechanical system: *roof-ounted, self-contained heating nd air-conditioning package nits.*

onsultants: *Interior Design ervice of Champaign, interior sign; Gullaksen & Getty, ructural; Environmental Sys-ms Design, mechanical.*

eneral contractor: *Petry & ons.*

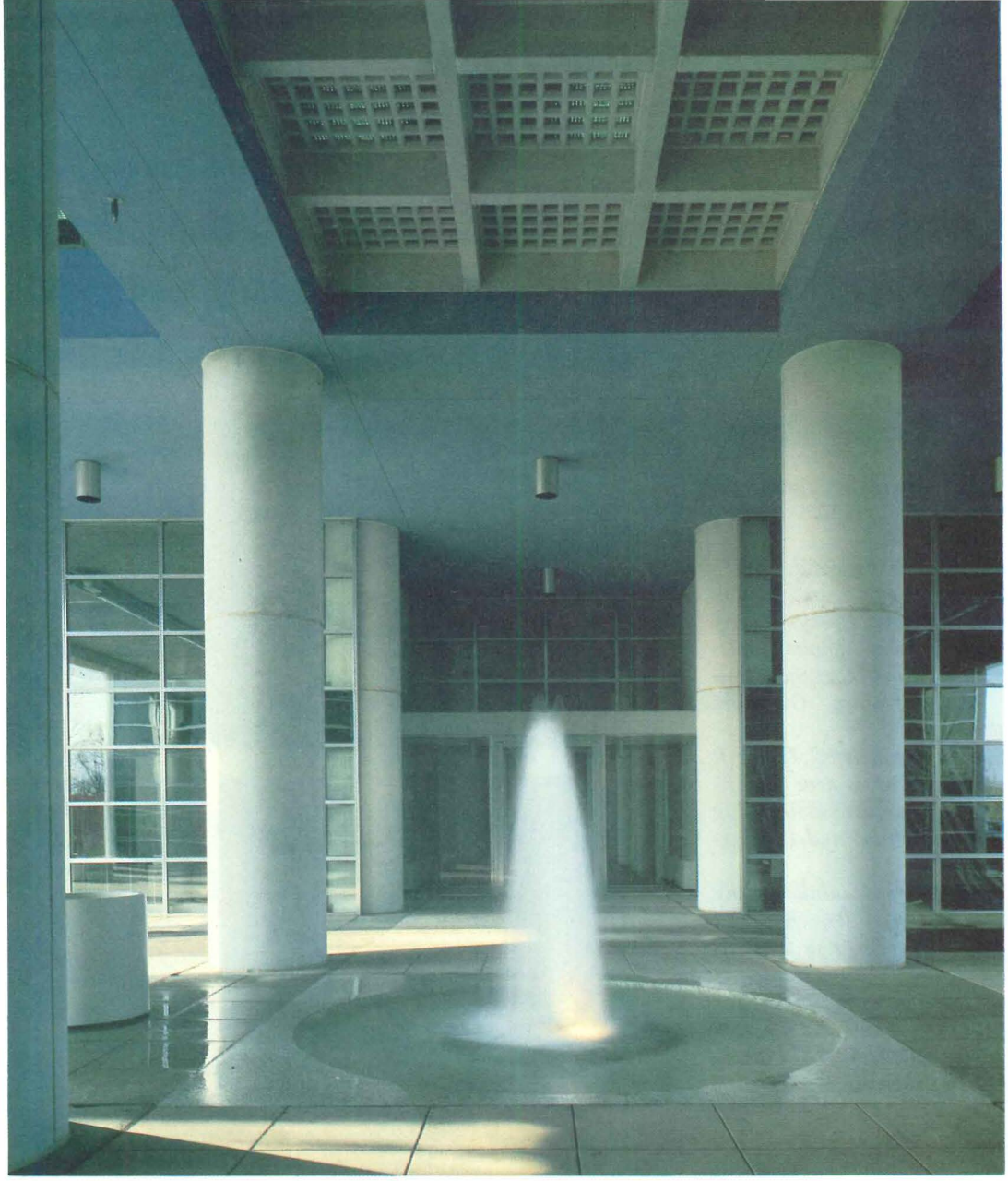
lient: *Board of Library Direc-rs, Champaign Public Library.*

ost: *$1,900,000; $42/sq ft.*

hoto: *Hedrich-Blessing.*

Tri-State

A speculative office building north of Chicago spans several distinct modes of architectural design.



The 173,000-sq-ft spec building makes no bones about its $53 per sq ft cost. The ways the precast panels are roughly mortared in the interior is one brutally telltale sign. However Beeby is currently working on a trompe-l'oeil fresco (not shown) that will soften things up.

The most smashing interior spaces are the three floors above the porte-cochere, each with glass block floors. The top two floors are used for a skylit lunchroom; the floor below in the undercroft of the porte-cochere, receives additional light through two bull's-eye windows (section, opposite).

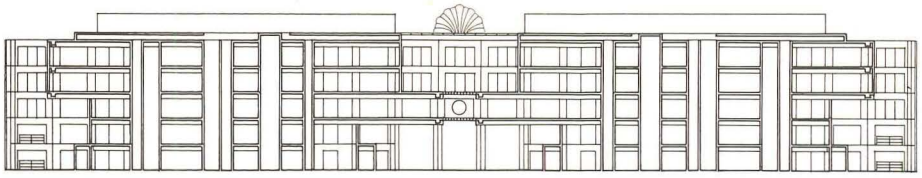
es, after all, was not *only* Modern. Mies's n nascent Classicism shown at IIT's Crown ll (as pointed out by Colin Rowe), or his e of structure as ornament, as seen in the eam mullions of the Lake Shore Drive artments, harks back to Neoclassical Ger- n heritage. At Tri-State, Hammond, eby & Babka explore *both* Classical and odernist sides of Mies: the Classical propor- ns and a hierarchical arrangement of ele- ents, with semi-detached columns to termi- te the long expanses of wall, all distinctly fer to pre-Modern architecture. Even the ecast concrete front and rear façades turn t to be load-bearing mass, much like the ildings of yesterday.

And then on the other hand, you turn a rner, and there's the surprise of a highly flective glass and aluminum curtain wall of e Modernist idiom. A little unsettling, yes, t the message comes across: in any good odern building, the choice of materials cor- sponds quite legibly to the structural solu- n. And in a good Modern building, the ucture relies on efficient, economical tech- ques: the load-bearing precast concrete nels mean that the interior is column-free, th hollow-core floor slabs spanning from e outside walls to the elevator bank. The 5′ 5′ windows, which bow to energy codes, are egral, held in place with rubber gaskets.

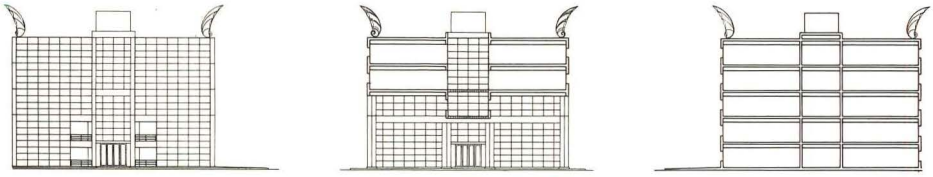
This hybrid building, culling motifs from l and new design approaches, also explores e matter of monumental expression. The ge, round columns and three-story-high rte-cochere establish a scale that is played ainst small-sized detail and articulated ele- ents of the panels. Thus this differentiation ows a reading of the building on two dif- rent perceptual levels—at a distance and up se.

The weakest part of the reading, however, n the middle distance—where you cannot e the articulation of the individual panels arly nor perceive the armature of the en- nble. Here the precast panels blend to- ther into a standardized modern wrapping, uilted, rather than a taut, skin.

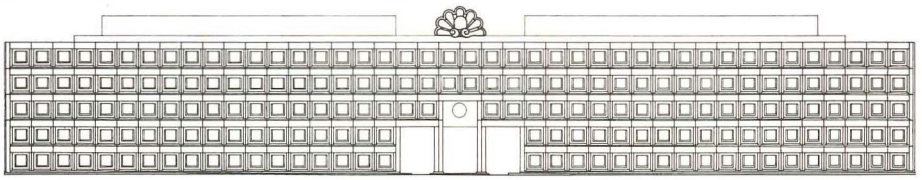
Because of the horizontal attenuation and e sophisticated handling of the hybrid rts, the building still has the coherence and rity to carry off the amalgam of ap- oaches. About the ten-story-high addition ng built at the rear of Tri-State, however, e is not so sure. The vertical configuration d the siting off to one side obviously intro- ce variables into the experiment. This in- stigation has been a very intriguing and ive one, but its application in different uations may only dramatize some of the aknesses. [SS]



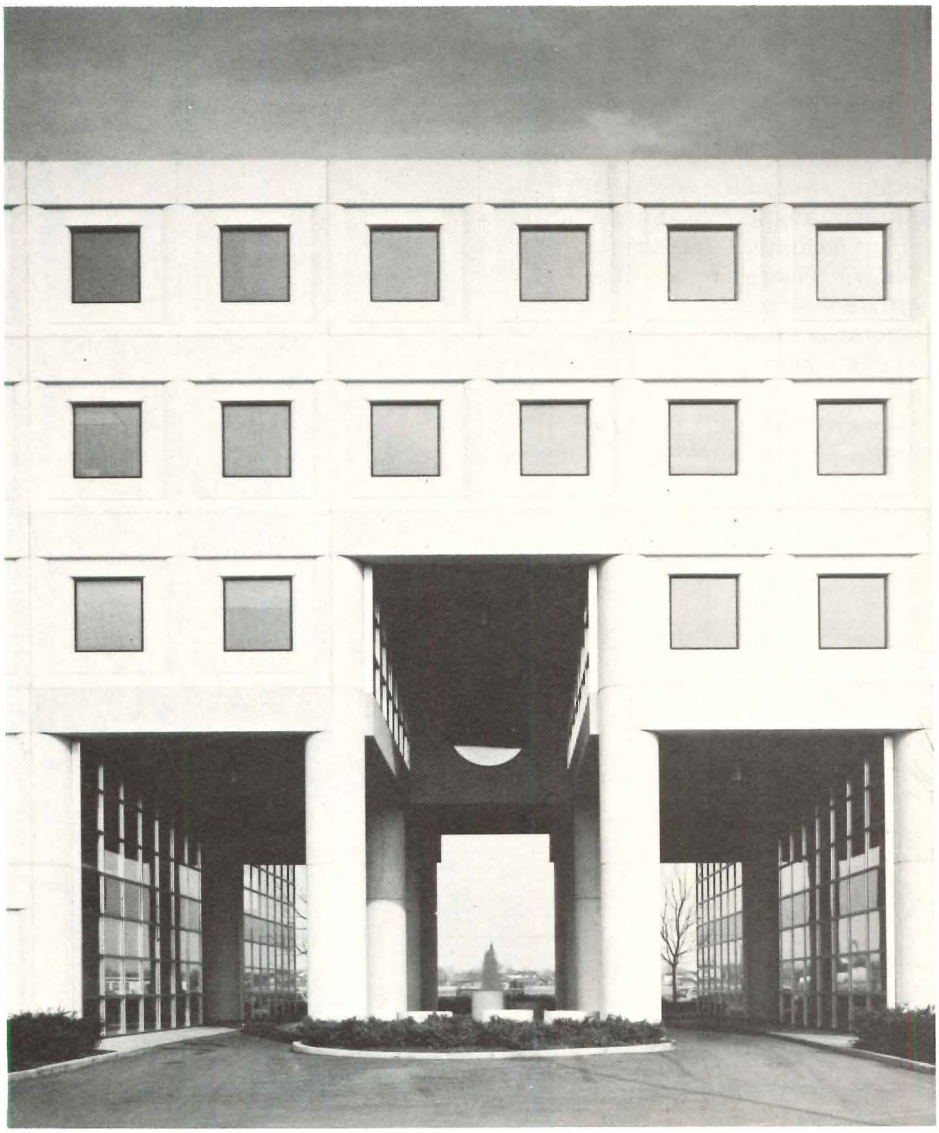
SECTION



END ELEVATION SECTION AT ENTRANCE DRIVE SECTION AT OFFICE LEVELS



ELEVATION 20′ / 6m



Data

Project: *Tri-State Center Office Building, Northbrook, Il.*

Architects: *Hammond, Beeby & Babka; Bernard Babka, Thomas Beeby, Philip Castillo, John Ekholm, James Hammond, Kenneth Hazlett, Cora O'Fallon, Keith Olsen, Stephen O'Malley, Ralph Rangle, John Syvertsen, design team.*

Client: *Equity Associates, Chicago, Il.*

Site: *8.2 acres adjacent to Tri-State Tollway, northwest of Chicago and near O'Hare Airport.*

Program: *speculative office space, 171,130 sq ft gross floor area, with 588 parking spaces.*

Structure: *precast concrete load-bearing panels with integral windows, hollow-core precast concrete floor slabs, reinforced concrete foundations.*

Major materials: *precast concrete panels, column shells and floor planks, reflective glass and aluminum curtain wall, poured concrete, gypsum board, terrazzo marble flooring.*

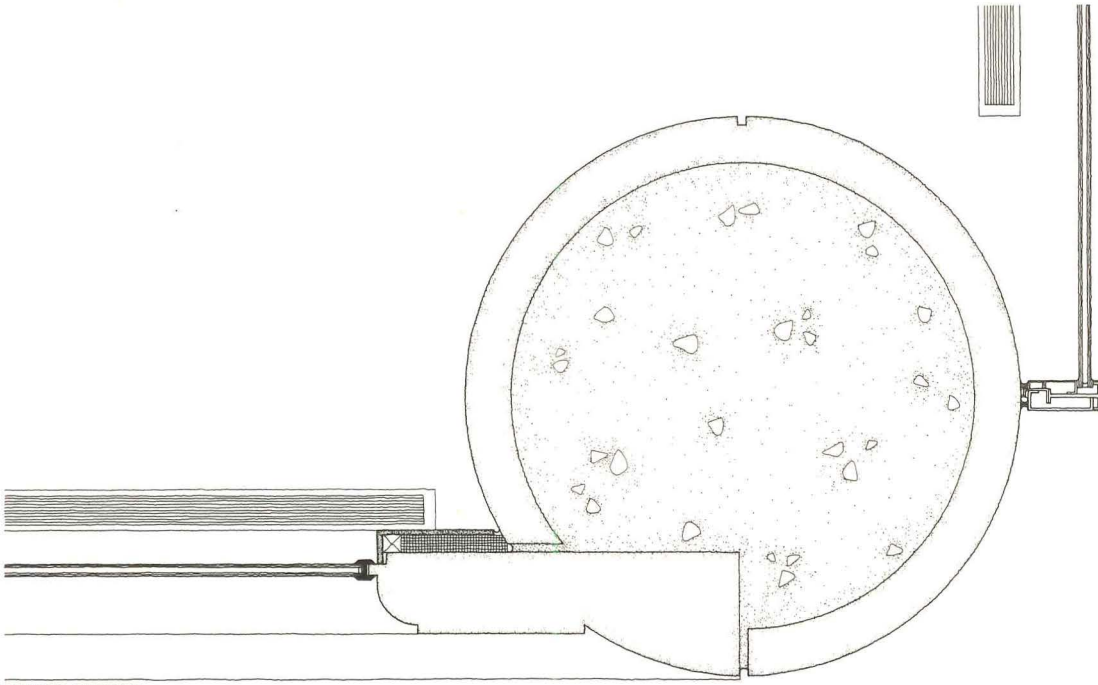
Mechanical system: *electrical roof-mounted heating and a/c units; distribution in ceiling.*

Consultants: *Jaros, Baum & Bolles, mechanical, electrical engineers; Cohen, Barretto, Marchertas, structural engineers; Brinkman Associates (with architects), landscape consultants; Consoer, Townsend & Associates, civil engineers.*

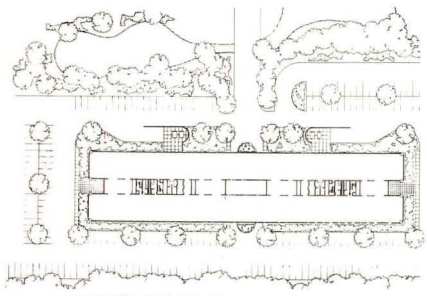
General contractor and construction manager: *Schal Associates.*

Costs: *$7 million; $42.63/sq ft.*

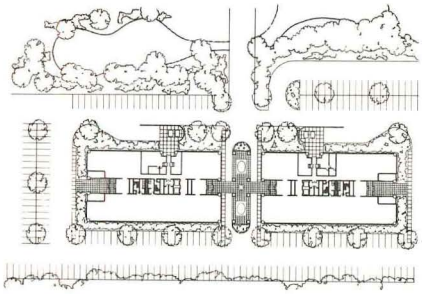
Photos: *Howard Kaplan.*



CORNER SECTION



FIFTH FLOOR PLAN



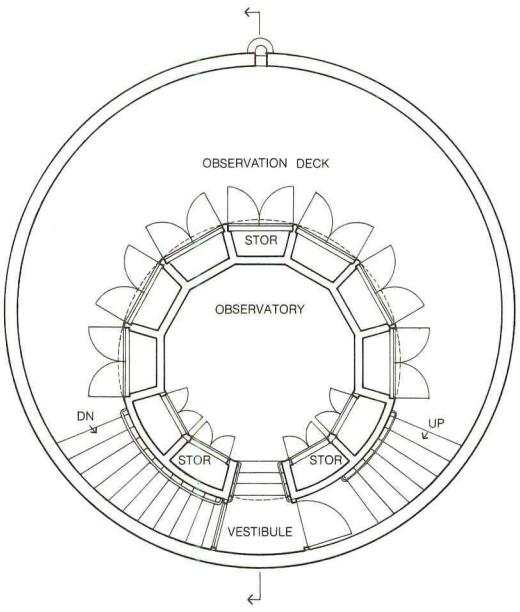
FIRST FLOOR PLAN N→ 20'/6m

Doane Observatory

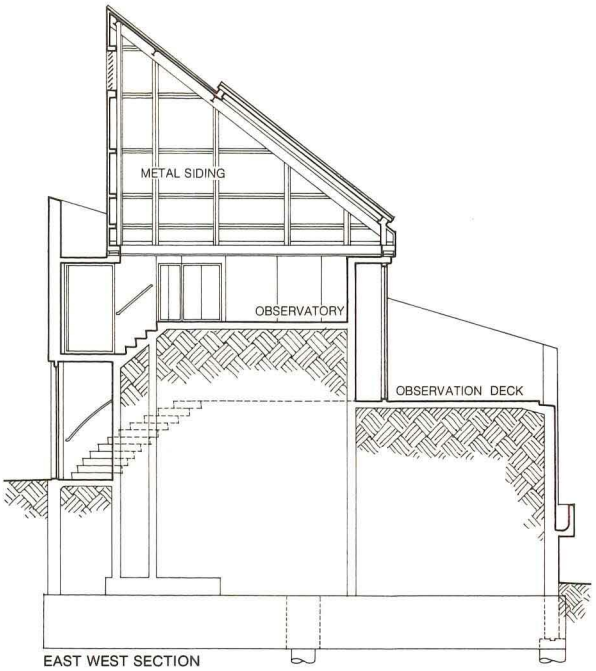
ammond, Beeby & Babka's de-gn for a small annex to the dler Planetarium looks to Clas-al Romanticism's astringent ometrical forms, specifically uncated cylinders, for the de-gn solution.

The observatory was needed to rve groups of 30 who would be ing the telescope and closed-rcuit television for educational ut not research) uses. Located the rear of the Adler Plane-rium on the eastern tip of the rk peninsula, it naturally eeded unobstructed views of the y. By setting a truncated cylin-ical observation room off nter to the base, the architects lowed the telescope to have a w sweep toward the east, away om the city lights. Circular en stairs, enclosed by the walls the 40-ft-diameter bush-mmered concrete structure, ad up to the terne-metal-roofed servatory.

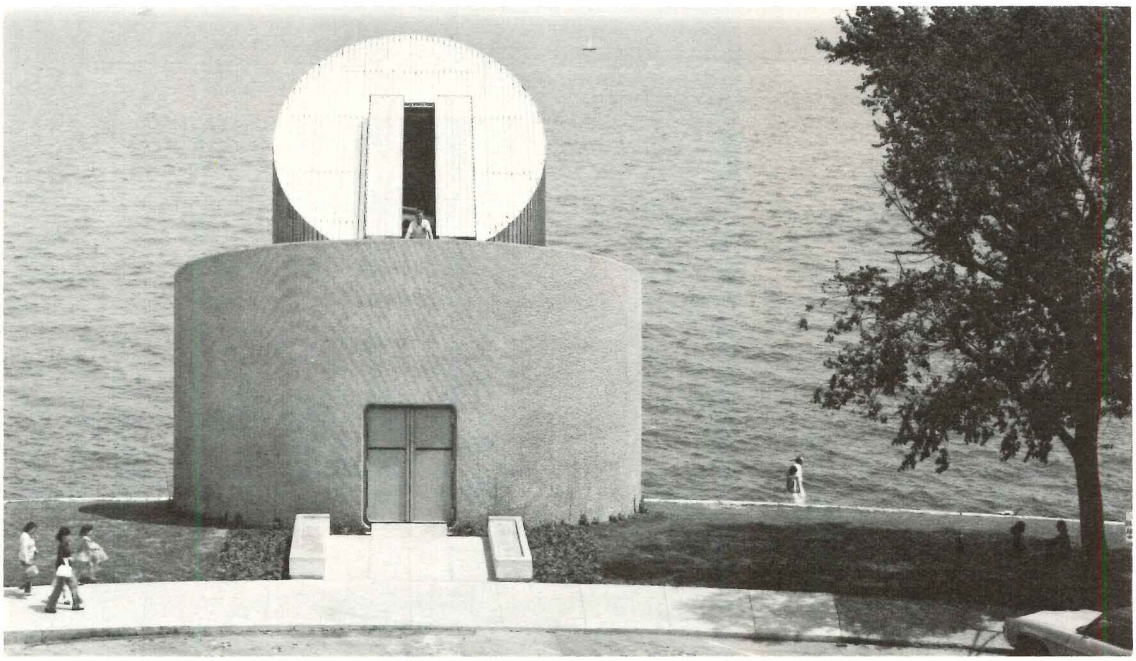
One unfortunate aspect was used by budget limitations. hile the proportions of the sim-e geometric shapes are nicely ndled, the bush-hammered ncrete and metal doors and rage closets inside hardly atch the richness of the pink anite walls of the Adler anetarium nearby. Planting is anned to cover the concrete lls of the new structure. With ture's "patina" perhaps the ucture will age as well as the -year-old Adler has.



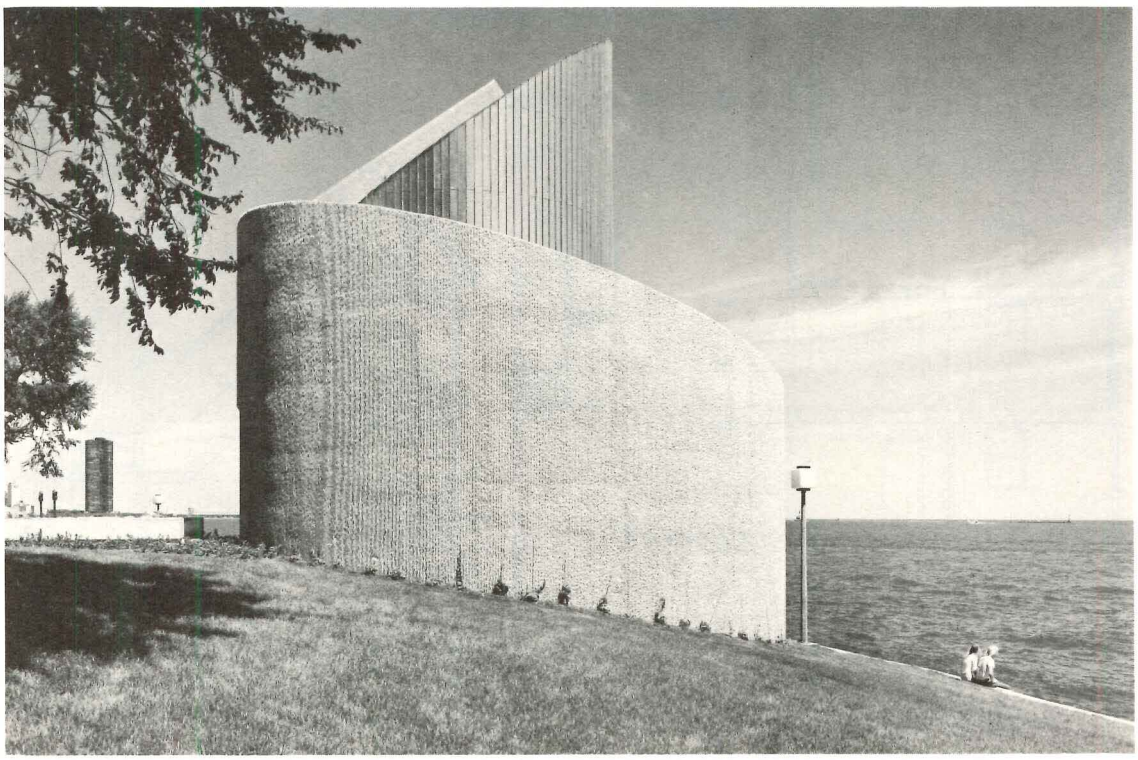
PLAN ←N 10'/3m



EAST WEST SECTION



Photos: Hedrich-Blessing

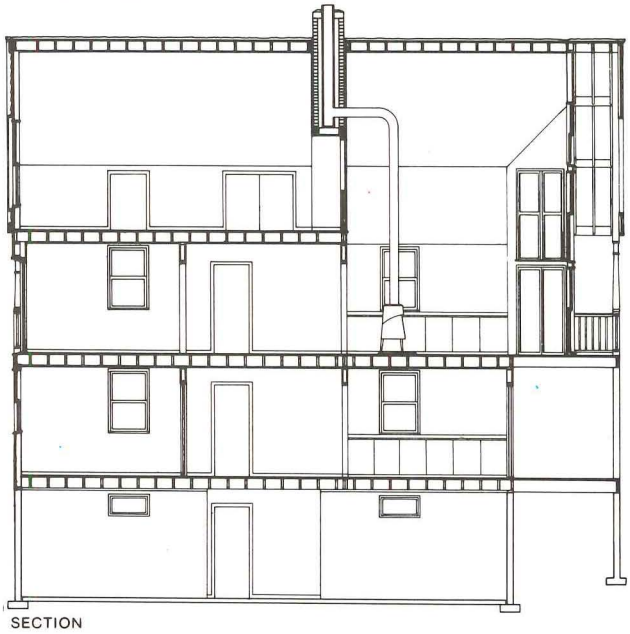


Beasley house

WEST ELEVATION

NORTH ELEVATION

EAST ELEVATION



SECTION

SECTION

10'

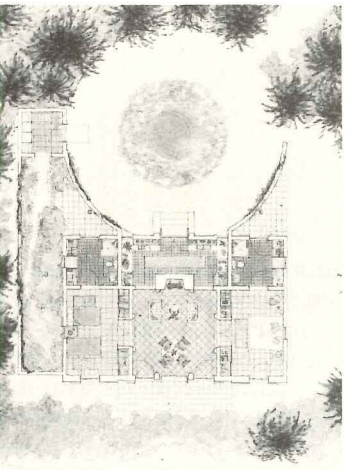
When this farmhouse in the fabled rolling hills of rural Wisconsin was given a Chicago AI award last year, it caused consi erable comment. It wasn't much like the firm's previous work. N was it a remodeled farmhouse. was new, and clearly a bedevile step into Regional Romanticisn At close range you discover the white clapboard is metal siding, and the brick foundation is poured concrete with a brick pa tern. Those fine old balustrades columns, leaded glass, and French doors have been culled from houses in Chicago's Hyde Park section and artfully incor porated into the design.

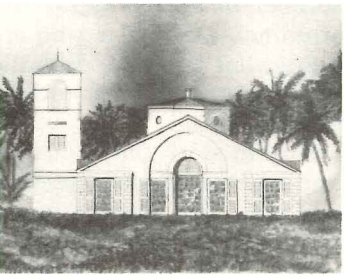
Two living units are inserte into the house, with a duplex fo the owners on the top floors an an apartment below for the farmer of the property. The double-height ceiling of the liv ing and dining room, plus the double-height bowed window opening out onto the porch, evo the interiors of 19th-Century r tic Gothic predecessors.

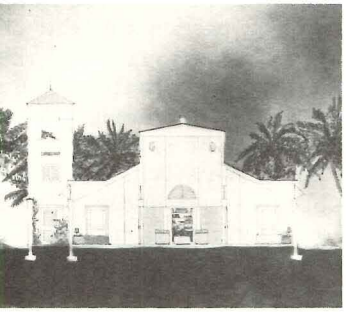
The change of scale outside and in, with such elements as t oversized pediment, the large c cle cut out of the lattice, and th overscaled side entrance amplif the apparent size of the house. Some of the elements border on overstatement: the oculus open ing, for example, too large for latticework pediment. Seen on this isolated rolling landscape, however, dotted with strong geometric shapes of silos and farmhouses, these elements rea successfully. Up close, the smal scale clapboard and roof tracer effectively counterbalance the broad strokes of the other ele ments.

The 3580-sq-ft house, built $52,000, occupies a farm of se eral hundred acres not far fro schoolhouse Beeby is renovatin for his family.

Eleuthera house







Firm profile continued from page 84

this scheme, still in the early design stages, with the same kind of enthusiasm he shows for other Beeby explorations, such as the Victorian type farmhouse (p. 92) in Wisconsin.

Clearly Hammond goes against the preconceptions one would have about an architect who was trained at IIT (under Mies, yet!) and who spent 16 years at SOM before opening his own office in 1961. His sense of engagement and connoisseurship subtly modulates his flexible approach. This and a patrician-casual affability explain why other architects refer enviously to Hammond's ability to deal with clients and run the firm.

In one sense it should not be too difficult to see why a lapsed Miesian would endorse, for example, the ascetic Classical turn of Tri-State (p. 88). Mies, after all, retained traces of his exposure to his Neoclassical predecessors, Schinkel and Klenze, all through his career. But Hammond had his own pre-IIT and pre-Mies influences. Having grown up around Chicago suburbs, he became an expert on the houses of David Adler and Howard van Doren Shaw. Hammond began studying at the University of Michigan, but left to work on Crow Island School in Winnetka, which Eliel and Eero Saarinen were designing with Perkins, Wheeler & Will in 1939. By the time Hammond returned to school, the newly created IIT had emerged visibly on the architectural landscape. Hammond graduated from IIT in 1942. The war years were spent designing hospitals for the armed forces. In 1946, he joined the firm of Skidmore, Owings & Merrill, headed by Nathaniel Owings, rather than go to work for his uncle Eric Hammond's more traditionally directed firm, Burnham & Hammond. If architectural proclivities cannot be inherited, they still do emerge, given proper nourishment.

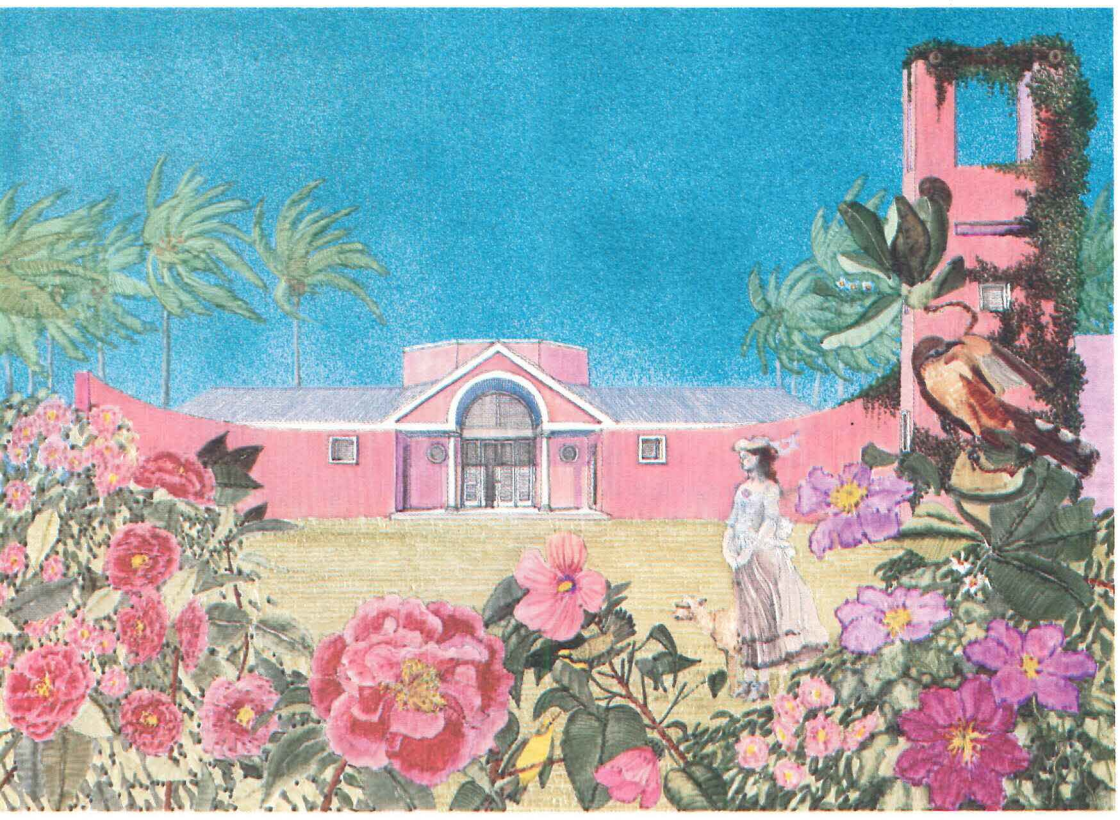
Bernard Babka, also from the Chicago suburbs, also went to IIT. After graduation in 1957, Babka worked for Pace Associates, Bertrand Goldberg & Associates, and finally C.F. Murphy, where he met Tom Beeby. In 1975, Babka decided he would take over the responsibility of production and construction at Hammond & Beeby.

Size does make a difference, according to Babka, who enjoys the switch to a small firm. Here, each project receives individual attention. The three partners do share in much of the decision-making about design, although initially Hammond and Beeby spend more time together, and later Babka and Beeby.

Thus one thinks more of the practice Stanford White, Charles McKim, and William Mead conducted than the corporate paradigm developed by SOM several decades later.

Even the offices for Hammond, Beeby & Babka suit the image. They occupy the penthouse boardroom of a 16-story insurance building on North Michigan designed in 1908 by Daniel Burnham. A large, barrel-vaulted white room is edged by French doors opening onto a terrace, with a large Georgian-Palladian arched window terminating the short end of the room.

In their type of work, the firm of Hammond, Beeby & Babka veers around more in the manner of 19th-Century offices trying to find the style for the job, rather than adhering to one kind of building idiom. Sometimes these explorations lead to unresolved schemes. The exploration also has produced good, fresh design. It reflects an investigation that points to a consolidation of directions. The solid base of Chicago-derived Miesian technique and detailing is always there. In combination with a reworking of historicist and vernacular vocabularies, it could yield an enriched but still substantial form of architecture. [Suzanne Stephens]



The Beasley House in Wisconsin had been a kick-off into "regional romanticism." However, with the house for the Bahamas, Beeby was a little nervous about an appropriate response for a context he knew less well than Wisconsin. But based on climatic considerations and client preferences, the design indeed shows an affinity to older houses seen on the island.

The site, in Harbour Island, the Bahamas, is subject to high winds and some hot and humid weather. Basically a bungalow in plan, the compact house is symmetrically ordered in a manner that promotes natural convection, besides accommodating the needs of a couple with visiting children and grandchildren. In formal terms, the architects are giving the clients a "monumental" house on a smallish budget through the use of the classical imagery.

Late entries

Stuart Cohen

A second Chicago Tribune Tower Competition is held 58 years after the first one, and in some ways makes the same point as that one.

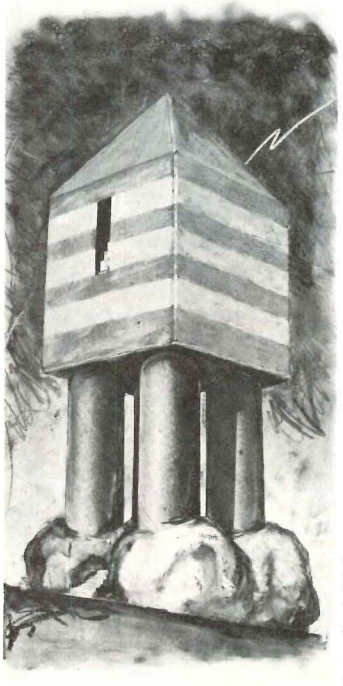
Stuart Cohen is a practicing architect in Chicago and assistant professor at University of Illinois, Chicago Circle Campus.

The text for this article is a reprint of his introduction to *Late Entries to the 1922 Tribune Tower Competition* by Stanley Tigerman, which is the catalog for an exhibition of the same name that opened May 30 in Chicago. The show is scheduled also to be seen at The Museum of Contemporary Art, La Jolla, The Walker Art Center, Minneapolis, The Yale University Art Gallery, New Haven, the Institute for Contemporary Art, Boston, and the Detroit Art Institute. The catalog, which also contains essays by Vincent Scully, Charles Jencks, George Baird, Juan Bonta, and Norris Kelly Smith, is published by and is available through Rizzoli International Publications, Inc.

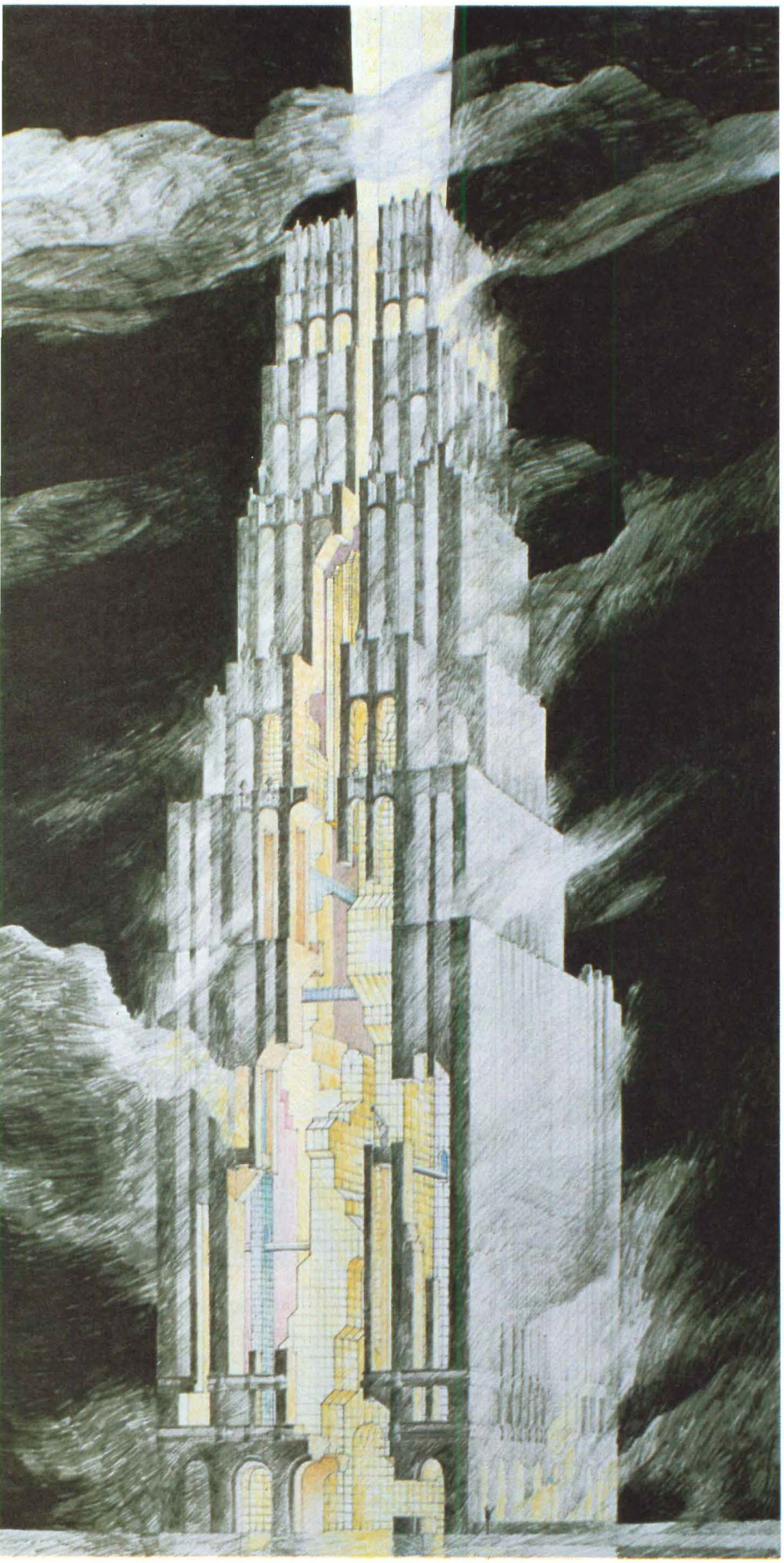
For three years now Chicago's architectural culture has been enlivened or trivialized, depending on your point of view, by yearly exhibitions of the work of the "Chicago Seven." The original seven, since expanded in number, are architects who, like their political namesakes, have been cast in the role of radicals by Chicago's (architectural) establishment. This exhibit is an outgrowth of their activities. Specifically, it comes from a suggestion made by Ben Weese for an exhibition that was to have been held at the Young Hoffman gallery in Chicago, but which was moved to the Museum of Contemporary Art. At Rhona Hoffman's urging, the scope of the exhibit was expanded to include architects outside the city; thus it seemed logical that the enlarged exhibit approximate in its diversity the original Tribune Tower Competition. A list of participants to be invited was compiled using recent American and European publications as reference. Because we hoped each architect's work would represent a point of view or theoretical position, some well-known practitioners were not invited. Also, talented younger architects were no doubt omitted through oversight or ignorance of their work.

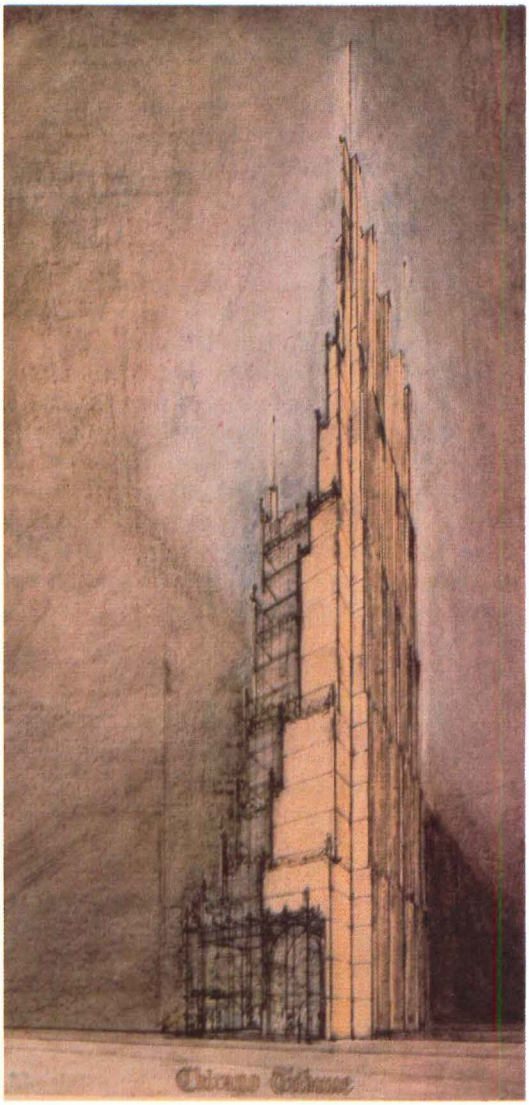
Ben Weese's idea, "Hey guys, let's redo the Tribune Tower Competition and give Helmut (Jahn) a chance," seemed ideally suited for an architectural exhibit in Chicago. Chicago's place in architectural history has long been linked to the development of the skyscraper. Further, architects and historians are beginning to acknowledge that there had been other significant entries to the original competition besides those of Walter Gropius and Adolph Loos, and that these identified a range of formal solutions to the skyscraper that was prophetic of almost 50 years of practice. (Missing only the progeny of Mies's glass tower of 1919, Lopatin's Sears tower lookalike of 1923 designed for Moscow, and buildings like the First National Bank of Chicago, which seem to have been influenced by Oldenburg's "Late Entry to the 1922 Tribune Tower Competition," a clothes pin.) Because the competition was held at the beginning of a period of architectural transition, it catalogued a range of architectural thought at an important time. Because it was an open competition, many of the projects submitted were by young architects who had never designed big buildings before. Many of these young architects were relatively unknown. Most of them remained so. Some did not. The total number of entries (258) and the number of prominent architects who entered was astounding, but then the Tribune was offering $100,000 in prize money and the commission to do its building.

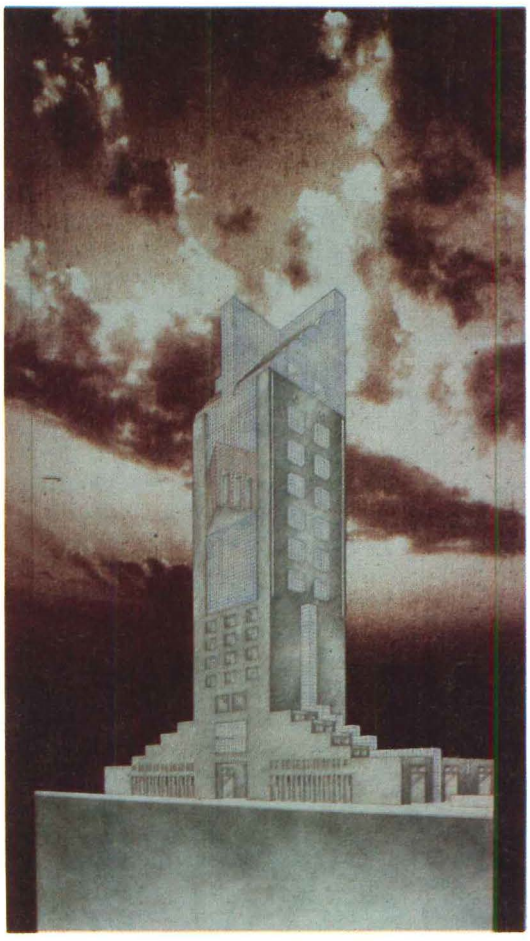
Our exhibit is more modest: only a fifth as many drawings and an even greater percentage of young architects. The work is not as substantial architecturally as we had hoped but then there is no competition, no prize and no real building to be built. It would seem that many of the participants did not take the project seriously enough and that others, including some who declined, may have taken it too seriously. Certainly, no one has taken on rethinking the skyscraper as a building type in our society. Whether this is due to a paucity of ideas among this particular sampling of architects or to a prejudice against the tower as a viable building type is impossible to determine. (Rob Krier, who did not make a drawing, wrote, "I must tell you that I have no great sympathies in high-rise building and I would neither design nor build a skyscraper.")



Photos: Jessie Hickman, except as noted.







Exhibition entries: Tod Williams & Billie Tsien, facing page; Moore Ruble Yudell, above; Larry Booth, above right; George Ranalli, right.

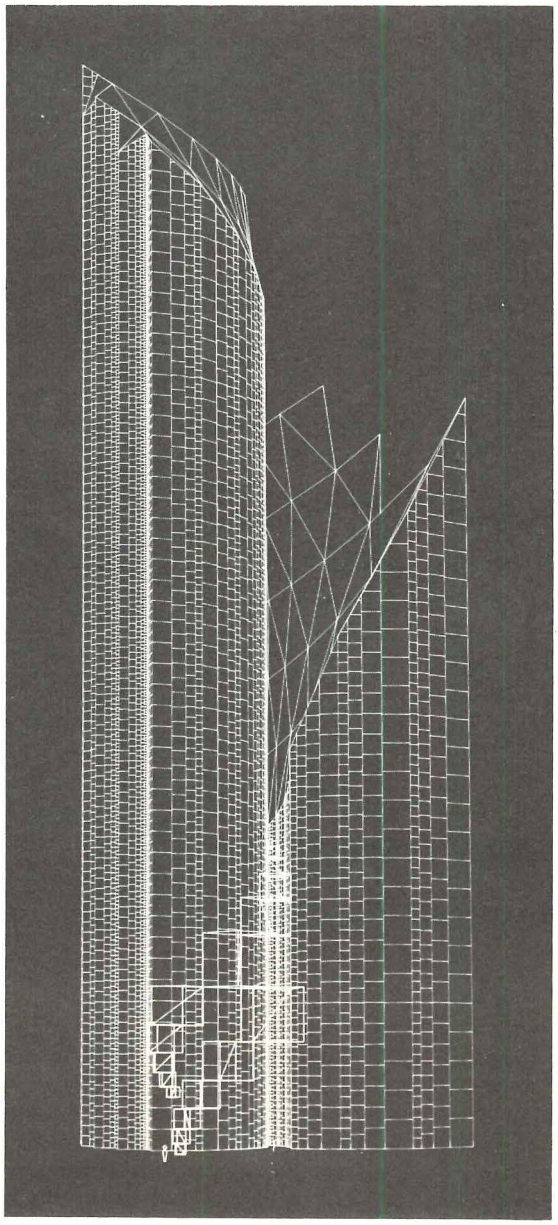
Still, much that architects now believe architecture can be, or communicate, is represented. From Walter Netsch's sinuous glass tower to Anthony Junker's decorated glass tower, from Bob Stern's classical column to Anders Nerein's classicized use of 1890s Chicago vernacular and contemporary European rationalism, architecture as commentary abounds. To the extent to which architecture has been reinstated as the subject matter of architecture, most of these Tribune Tower designs may be read as commentaries on the current state of architecture, or on the original competition, or the existing Tribune building. Fred Koetter's drawing of Gropius' project (unrecognized as an example of eclecticism when it was done) is shown in a state of decline, a self-explanatory note on Modern Architecture.

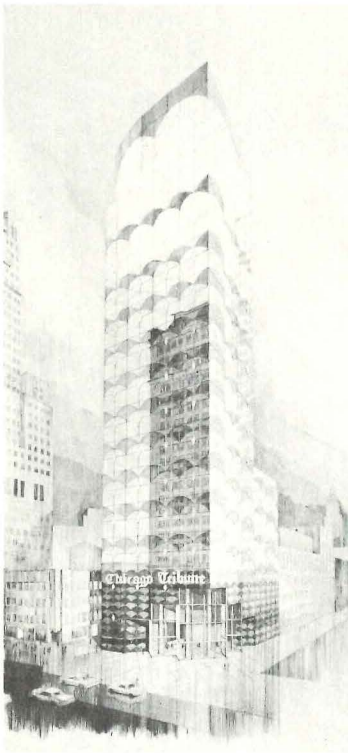
Jim Nagle characterizes Chicago's historical place in architecture by a Sullivanesque façade masking rows of grain silos—Sullivan as ornamenter making architecture of Le Corbusier's "Cathedrals of the Prairie." Hans Tupker's view from abroad (Amsterdam) concretizes American stereotypes. His skyscraper, entitled "Tommygun Tower," visually transforms the John Hancock building to allude to Chicago's violent past and to America's recent past as libertymonger and warmonger. Tom Beeby's flag-shrouded tower is reminiscent not just of Christo's wrapped buildings but of Claes Oldenburg's proposal of 1968 for a skyscraper on North Michigan Avenue in the form of Lorado Taft's sculpture "Death." Beeby's tower, topped by a flaming (funeral) urn, like Tupker's project, makes a pronouncement about the skyscraper as an architectural symbol of our society. On the other hand, Helmut Jahn has produced an incredibly positive, visually stunning phoenix symbol, in which his "air rights" addition to the existing building rises above the original in a crystalline homage to the Tribune's Gothic forms (on front cover).

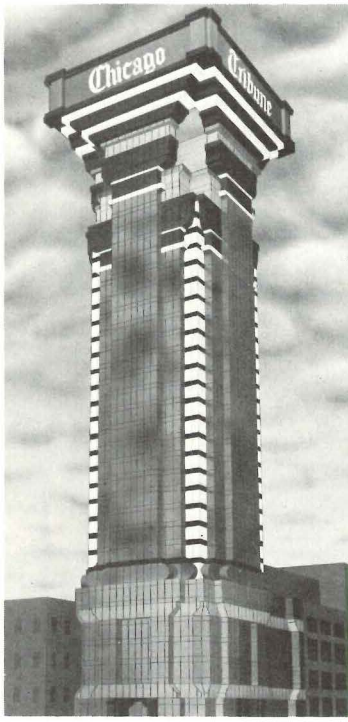
Surely one message of these drawings is that architecture is no longer mute—if indeed it ever was. The changes in architecture that the drawings suggest show more than just an interest in history, symbolism, and ornament. One must understand what Modern Architecture was thought to be in order to understand what the contemporary architecture represented in these drawings seems to have rejected. For it is what contemporary architecture has decided it is not and cannot be that characterizes the real changes in our architectural sensibilities.

The essential components of Modernism in architecture were the expression of technology as a force for change and as a symbol of the future, and the rejection of history. Abstraction as a style represented a break with the visual arts of the past. No longer narrative or primarily representational, art made form, color, composition, and space its primary content. Abstraction offered architecture the formal vocabulary to represent the future as a visual rejection of the existing world, and to represent symbolically a rupture in historical continuity between the old and the new. Where architecture had previously dealt with the symbolic elements of building, the International Style of Modern Architecture opted not only for abstract geometry but for the symbolic use of machine imagery to signify the adaptation of "scientific method" to architecture. This faith in technology, progress, and the future made the past irrelevant. History could offer no insights, so architects believed, because the forces shaping the future were totally new. "History is bunk," said Henry Ford.

Cut loose from the history of architecture and proclaimed as "machines for living," Modern buildings were conceived as self-contained entities independent of the rest of the world. By physically and visually articulating their independence of other buildings, Modern Architecture could stand as a literal fragment of the new world it was designed to bring about. But the future that Modern Architecture envisioned has not come about, and it has become all but impossible for archi-







Walter Netsch, left; C. Anthony Junker, top; Robert A.M. Stern, above. Facing page: top, left to right: Anders Nereim, Jim Nagle, Thomas Beeby; below, left to right: Fred Koetter, Hans Tupker, Fumihiko Maki.

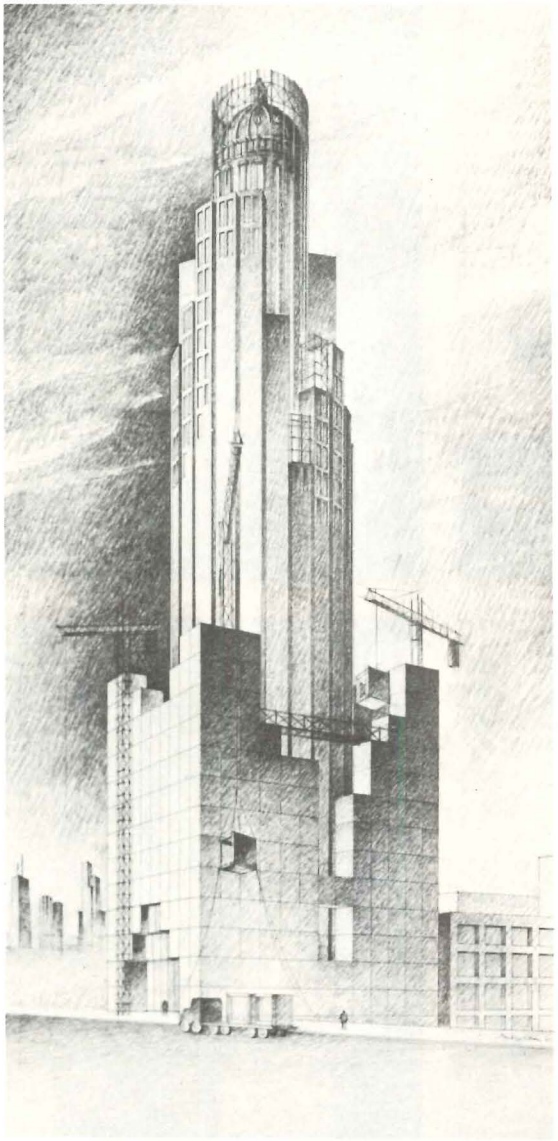
TOMMYGUN
TOWER

tects to believe in an architecture of idealized or highly generalized forms intending to create a "better world," or symbolically technological forms promising the perfection of architecture and society, or the rejection of history (for even abstraction is now part of our visual history).

The new Tribune drawings suggest an architecture that has come full circle in 60 years. No longer savior, architecture's salvation has become the objective of people like Robert Venturi and Charles Moore who have consistently argued for architecture as communication and, more recently, of people like Colin Rowe and the Krier Brothers who have argued for a return to the space-making of traditional urbanism. Surely it is a major criticism that it is only the former—architecture as communication—that this exhibit addresses. Not one entrant went beyond an obvious concern for the tower as object and symbol to consider it a component of urbanism. And while this was a predictable outcome of the rules of the game and the specifics of the information supplied (only site dimensions), it is also a disappointment. For one assumes that the individual building reinstated as an integral extension of the urban fabric is an important rediscovery, a point of distinction between the ideals of Modern Architecture and contemporary sensibilities.

The Tribune Tower site as it now exists is important to the urbanism of North Michigan Avenue. The Tribune Tower along with the Wrigley building starts to define an urban space, as do the Stone Container building and the 333 North Michigan Avenue building to the south of the Michigan Avenue bridge. The angled shift of Michigan Avenue sets up a visual axis that runs from the old Water Tower to the 333 building, an office slab whose south façade was designed to appear as a tower terminating this view. The Stone Container building, with its curved front, and the angled face of the Wrigley building across the river from it, are fine examples of large, 20th-Century buildings as urbanism. Like McKim, Mead & White's Municipal building in New York (designed by William Kendall), they illustrate the potential of the skyscraper to function as a definer of urban space. While the Tribune Tower could not, because of its site, literally be a gatepost to North Michigan Avenue, as Andrew Rebori had proposed years earlier, the question still remains of how the new Tribune Towers might better have spatially solved this difficult urban juncture.

Finally, the original requirements of the 1922 Competition also indicate the degree to which architecture has changed. Ten years ago architects believed their buildings to be designed by the application of problem-solving methodology to a client's detailed description of needs. Clearly the Tribune's program would not have contained sufficient information for the design of a building. It gave site dimensions, height and area limitations, and a description of intent rather than need. "It cannot be reiterated too emphatically that the primary objective of the Chicago Tribune in instituting this Competition is to secure the design for a structure distinctive and imposing—the most beautiful office building in the world." This charge, to make an architecture of images, is one that previous generations of architects were educated to reject. While it cannot in reality be either the beginning or the end of architecture, these drawings suggest that the "making of images" is again considered of major importance. □



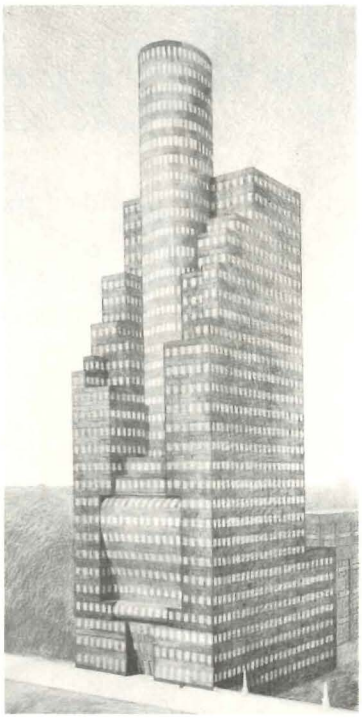
Field Museum of Natural History

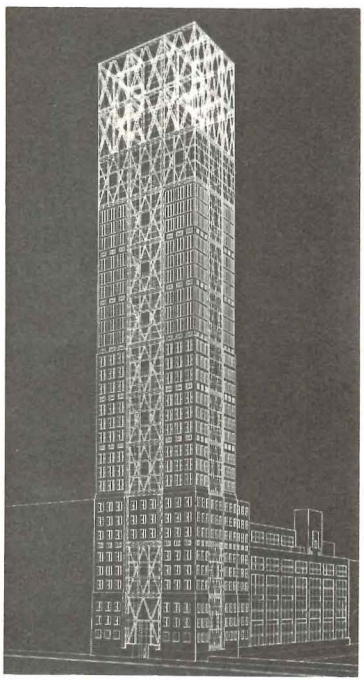
Hedrich Blessing

Thomas R. Vreeland, below left; Schwartz & Silver, bottom; Jorge Silvetti, below.

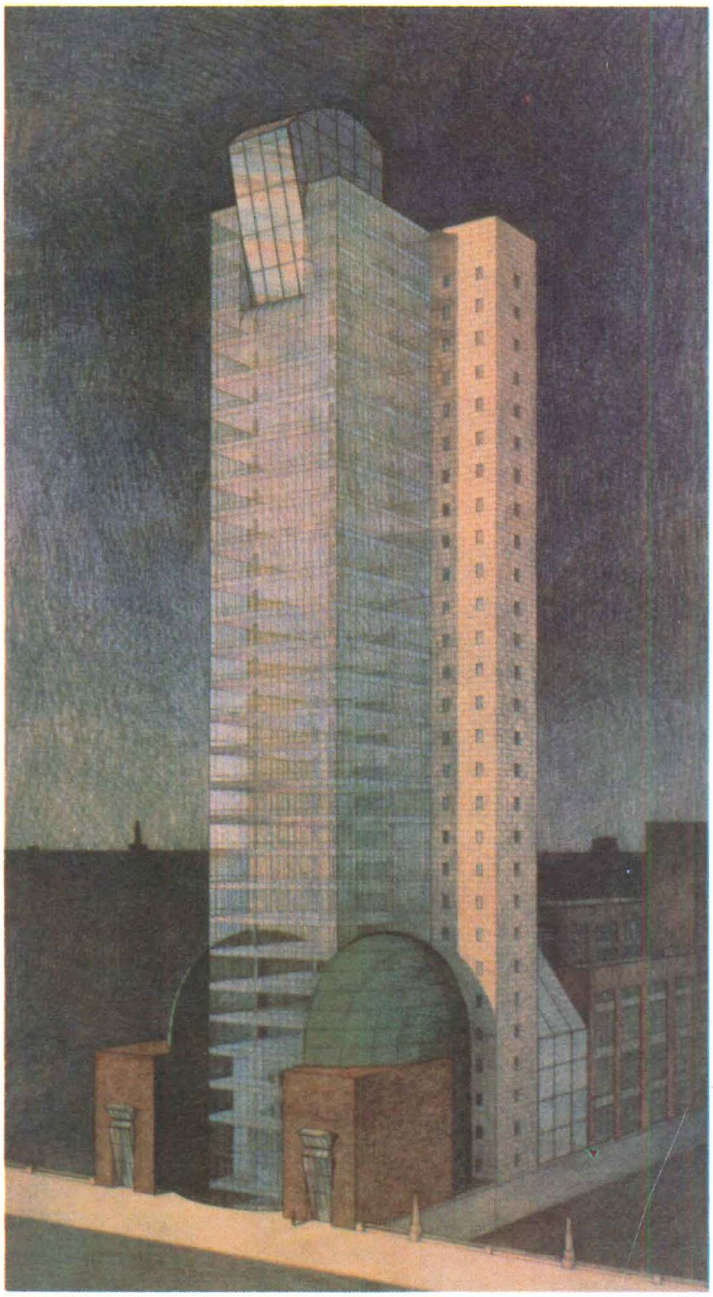
Site views: Andrew Rebori, Gateway Buildings proposal, Chicago River and Michigan Blvd. Extension North, 1914, bottom of middle column, left; Michigan Avenue Bridge looking north, bottom of middle column, right (Wrigley Bldg., center, Tribune Tower, top right, Stone Container Bldg., bottom left, 333 Bldg., bottom right).

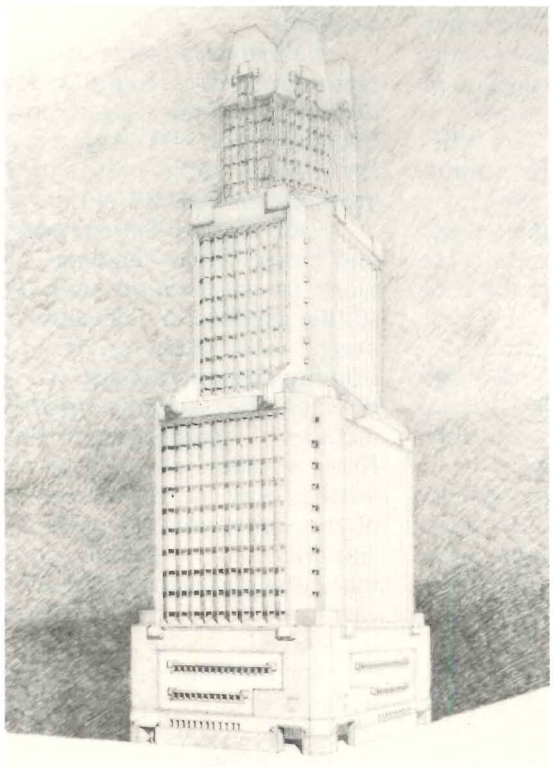
Facing page: top, left to right: Judith Wolin, Rodolfo Machado; bottom, left to right: Ben Weese, Lauretta Vinciarelli, Andres Duany & Elizabeth Plater-Zyberk.

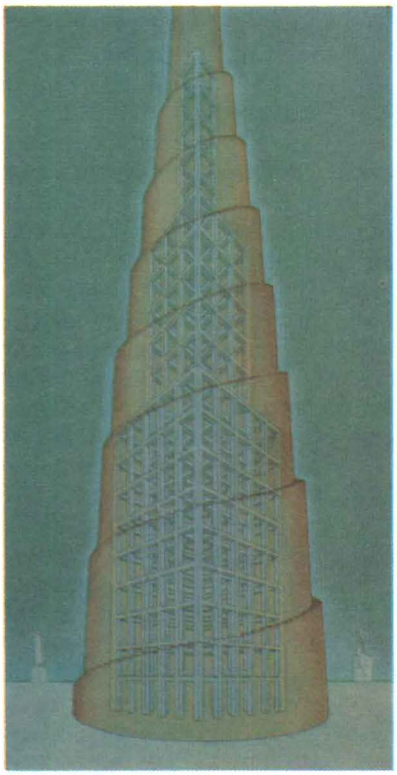


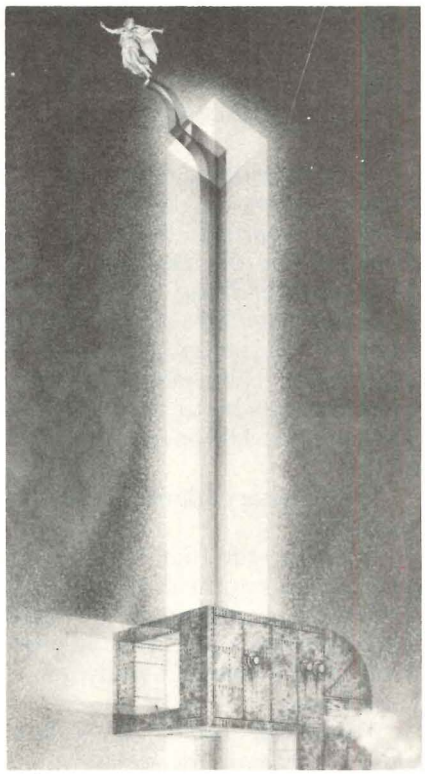



CHICAGO TRIBUNE









Height restriction calls for unusual design approach

...steel helps provide most economical solution

How do you build a 136,558-sq-ft building on a 7.5-acre lot that's restricted by a three-story height limitation? The builders of this project, Bannockburn Executive Plaza, Bannockburn, Ill., solved the problem with a steel-framed, "Y"-shaped structure featuring 30-ft-sq bays.

"We considered most of the alphabet before settling on a basic 'Y' configuration," reports Harry Dolan, vice president for the developer, Terracom Development Group. "Ideally, a building with this much area requires about nine stories to insure optimum floor layout and depths. The challenge was to compress this height to only three stories, yet leave the site open with good sight lines."

Preliminary framing analysis (PFA) requested

Early in the final design stage, the project's structural engineer asked Bethlehem to prepare a PFA based on a 30 ft x 30 ft bay size. Earlier, the designers conducted a similiar study on a concrete frame.

After the results of both studies were compared, the steel frame came away the winner. The structural engineer reports, "Structural steel proved to be the best solution because of its economy, light weight, ease in spanning the 30-ft bays, and speed of erection." The frame was erected in about 10½ weeks at a cost of $5.35 per sq ft. The unit weight of the steel frame was 7.5 lb per sq ft.

Construction economies were attributed to the ease by which the utilities and mechanical systems could be installed within the steel frame. Also, structural steel simplified the framing for the cantilevered balconies and the roof skylight in the center atrium.

Composite construction

ASTM A36 beams and girders are designed as simple beams. Lateral wind forces are resisted by beam-column moment connections utilizing Type 2 Construction per A.I.S.C. design specification. Single-piece, ASTM A572 Grade 50 high-strength columns were used throughout. The elimination of column splices contributed to fabrication and erection economies.

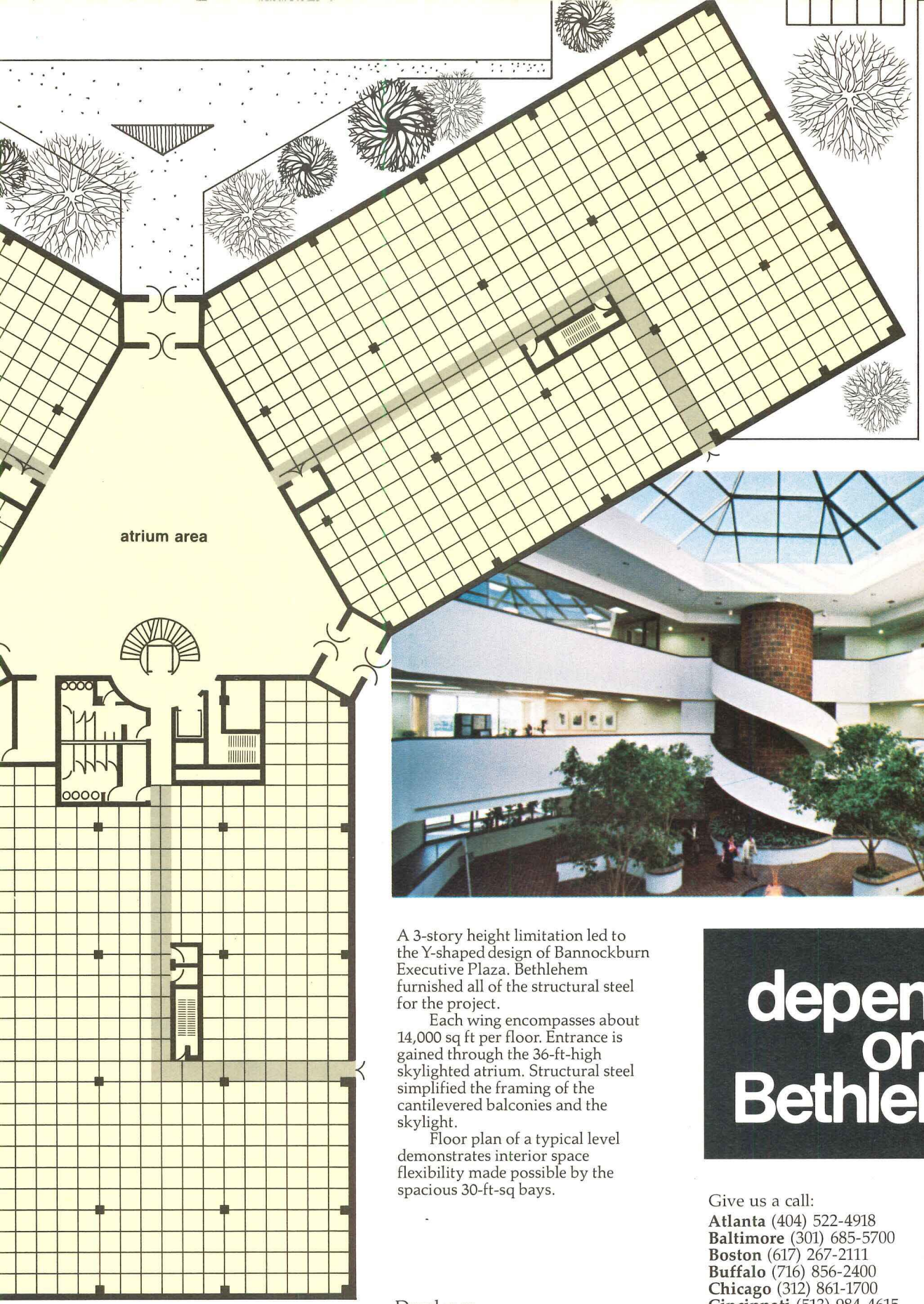
The floor system consists of 3-in. composite steel floor deck topped with 3¼-in. lightweight concrete. The floor system acts compositely with floor beams spaced 10 ft on centers. The beams, in turn, are supported by composite floor girders.

Sales Engineering Services available

Bethlehem's frame analysis service team can be very helpful in determining the most economical steel frame for your building. Our PFA program is part of the broad range of technical and advisory services we offer.

Our District Office Sales Engineer and Home Office Buildings Group can work in cooperation with your consulting engineer to develop a detailed budget cost study on the total steel framing system package. The program utilizes the systems approach and includes all components of the building floor system, as well as wind and seismic/drift control. At the conclusion of the study, you are presented with a comprehensive material quantity summary and cost estimate in a convenient, easy-to-read form. No fee or obligation is involved.

For more information, get in touch with a Bethlehem Sales Engineer through the nearest Bethlehem sales office. Bethlehem Steel Corporation, Bethlehem, PA 18016.



A 3-story height limitation led to the Y-shaped design of Bannockburn Executive Plaza. Bethlehem furnished all of the structural steel for the project.

Each wing encompasses about 14,000 sq ft per floor. Entrance is gained through the 36-ft-high skylighted atrium. Structural steel simplified the framing of the cantilevered balconies and the skylight.

Floor plan of a typical level demonstrates interior space flexibility made possible by the spacious 30-ft-sq bays.

Developer:
Terracom Development Group, DesPlaines, Ill.

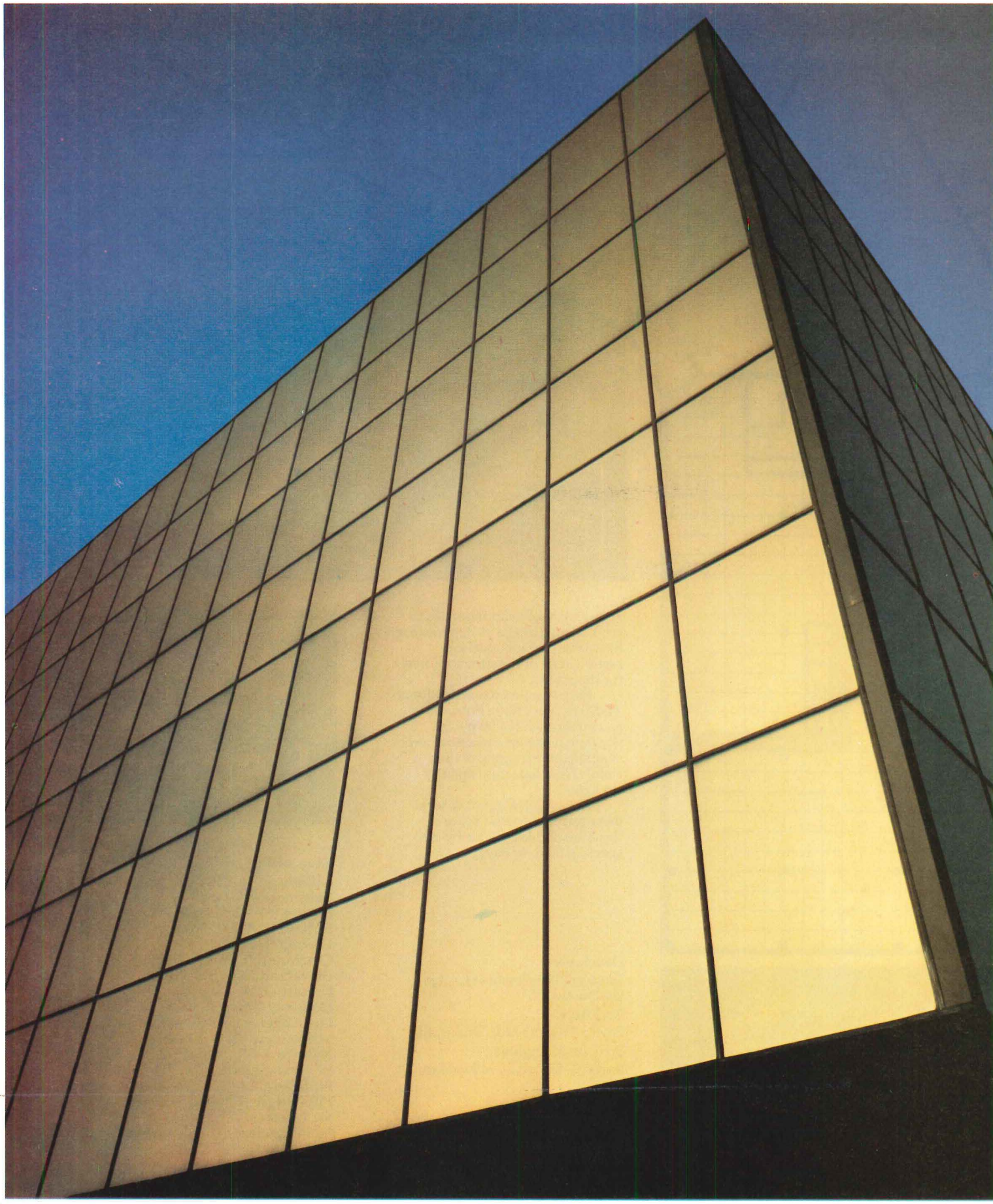
Architect:
Enviro-Technics Ltd., Skokie, Ill.

Structural Engineer:
Joseph L. Heil, P.E., Milwaukee, Wisc.

Fabricator:
Rodgers Iron Works, Chicago, Ill.

General Contractor:
Pepper Construction Co., Barrington, Ill.

PPG SETS THE GOLD STANDARD IN GLASS.



The Midland Life
urance Building, Sioux
s, South Dakota. The
terpiece of a far-
ching urban renewal
gram. And a triumph
nodern center city
hitecture.

One reason for the
lding's success is
000 square feet of
rgy-conserving PPG
arban® Gold *Twindow*®
ective glass. A breath-
ing building skin that,
rally, has earned its
y into this design.

THE STANDARD FOR BEAUTY.

Perhaps the most
king characteristic of
arban Gold is its true
or. It isn't brassy or
enish like many other
d reflective glasses.
tead, its rich golden
e is distinctive and
elegant. An
excellent way to
bring out the
best in any inno-
vative design.

Yet *Solarban*
Gold never
looks out of
place. Its re-
flective qualities
allow it to blend easily
and naturally into practi-
cally any surroundings.

THE STANDARD FOR ENERGY EFFICIENCY.

But beauty is only half
the story. *Solarban* Gold
is also the most energy
effective of all PPG's high
performance glasses. Each
panel boasts a U-value of
.30. And spandrel units are
available with even more
impressive U-values of .08.

That kind of insulating
efficiency is coupled with
other energy-saving fea-
tures to meet the design
goal of a building that needs
no heat until the outside
temperature dips below 10
degrees Fahrenheit.

Solarban Gold is effec-
tive during the summer,
too. By reflecting the sun's
heat, it reduces solar heat
gain as well as the need for
air-conditioning.

There's much more
to learn about PPG's
spectacular gold standard
in glass. For more details,
see Sweet's 8.26 Pp, or
write PPG Industries, Inc.,
One Gateway Center,
Pittsburgh, PA 15222.

PPG: a Concern
for the Future

PPG
INDUSTRIES

Architect:
Henningson, Durham & Richardson, Inc.,
Omaha, Nebraska.
Owner:
Midland National Life Insurance Company,
Sioux Falls, South Dakota.

Circle No. 356 on Reader Service Card

Fast installation of replacement windows is a big plus, because saving time saves money.

Only a Pella package has all these components that make it easy to put windows in their place.

We call it the Pella Clad System for window replacement. This exclusive system makes window replacement up to 8 times faster than conventional tearout methods. No other window manufacturer offers such an extensive system. More than 50 different accessories—subframes, subsills, mullion covers, head drip fins, clips, frame expanders and Pella's special frame expander receptors in a myriad of different sizes and configurations—make placement and trimming of Pella Clad units quick, easy and economical in all types of wall construction. The Pella system includes clad frames which will accept a variety of glazing options, louvers or matching clad panels for extensive design flexibility. That means Pella replacement windows fit right and look great. And the Pella system makes Pella windows especially efficient in commercial remodeling and renovation because window replacement in multi-story structures can take place entirely from inside the building. Rooms can be back in use in no time at all. That's important...especially on projects like hospitals. Your local distributor can help you put together a Pella package precisely suited to your design and building needs. All in all, Pella has more to offer than any other wood window available.

For more detailed information, use this coupon to send for your free copy of our 32-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.

Name _____

Firm _____

Address _____

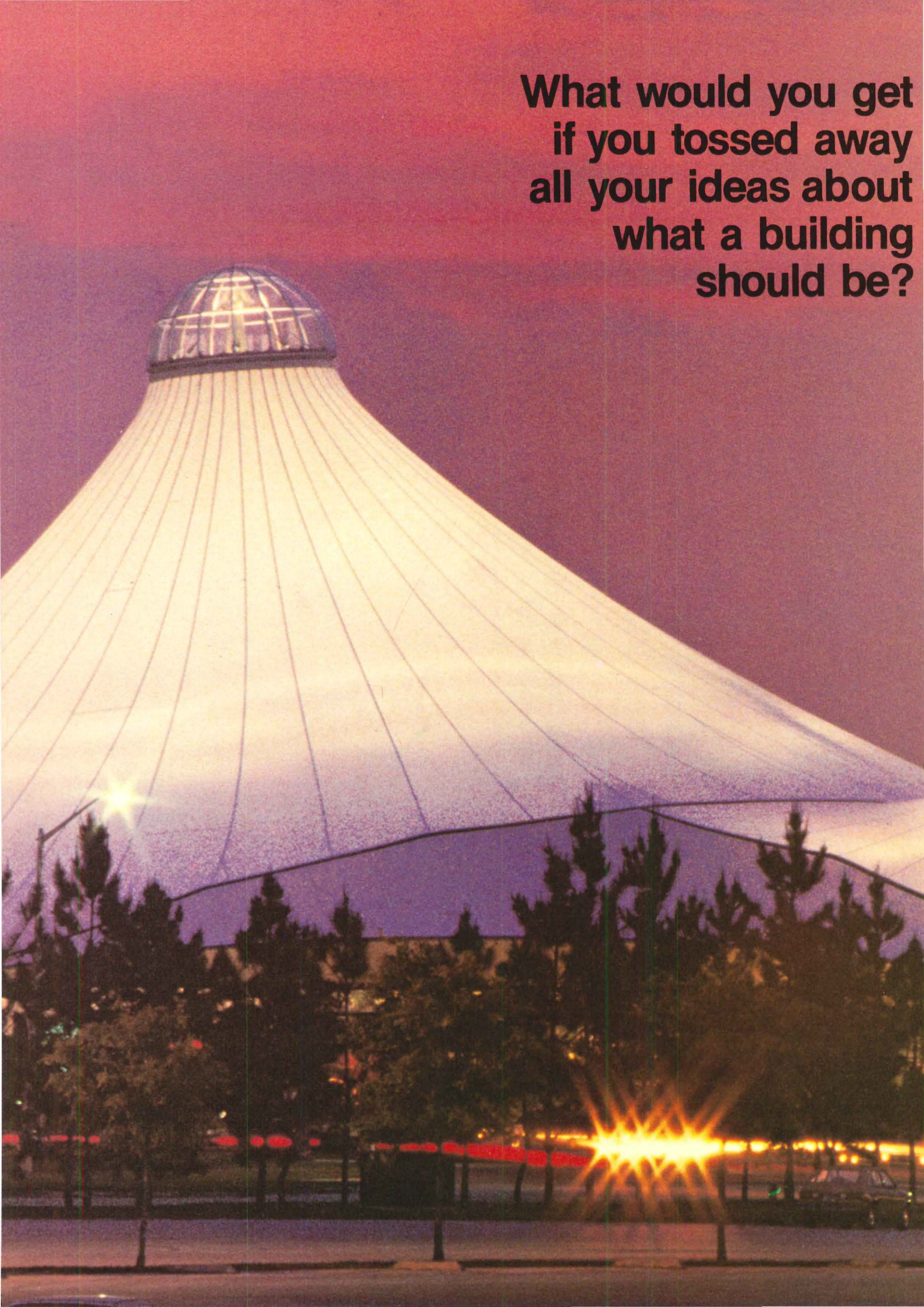
City _____

State _____ Zip _____

Telephone _____

Mail to: Pella Windows & Doors, Dept.T35FO, 100 Main St., Pella, Iowa 50219. *Also available throughout Canada.* This coupon answered within 24 hours.

Only Pella offers it all.


What would you get
if you tossed away
all your ideas about
what a building
should be?

Permanent fabric architecture from Birdair Structures.

A proven, durable system that offers an exciting alternative to traditional construction methods — and a freedom of design and conceptual versatility never before possible. Not just a wide span roof, but a complete environmental envelope that provides translucency, solar reflectivity, and esthetics. Simply put, a revolution in architectural form.

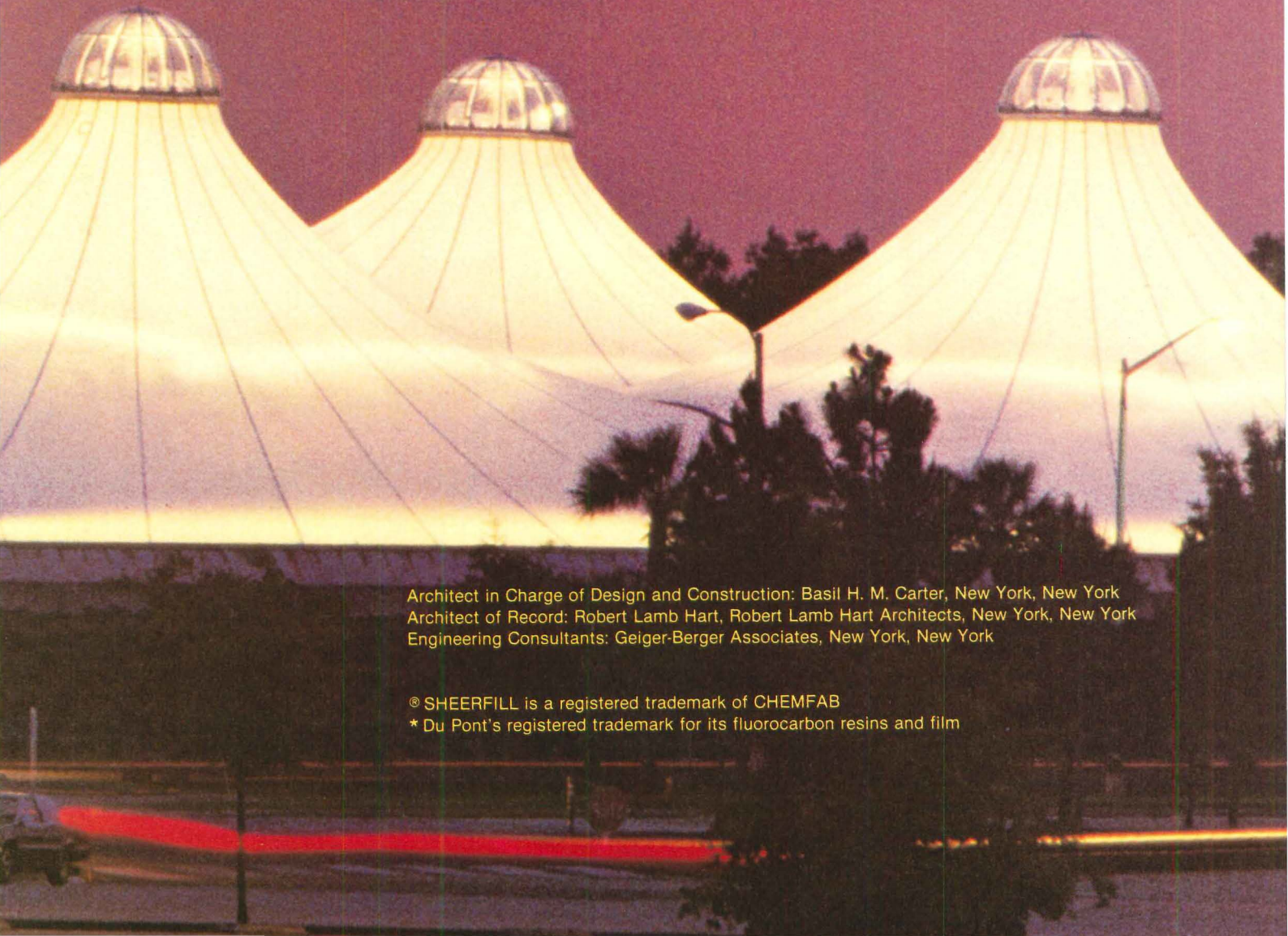
Florida Festival, a 60,000 square foot shopping and entertainment center at Sea World in Orlando, was fabricated and erected by Birdair Structures. The 90,000 square foot roof is made of SHEERFILL®, CHEMFAB's architectural fabric of fiberglass coated with TEFLON*. With 18% solar transmission, it permits the growth of 40 foot palm trees and other tropical flora. Natural daylight bathes the interior to highlight merchants' products. The high reflectivity of SHEERFILL creates a cooler interior under the hot Florida sun, providing substantial energy savings through greatly reduced air-conditioning requirements.

The design and erection of permanent fabric structures require the specialized skills of a company with the demonstrated ability to help translate vision into reality. Birdair Structures is the pioneer and leader in this field. We invented the technology. Extensive involvement in virtually every permanent fabric structure built to date makes us uniquely qualified to offer state-of-the-art structural analysis and detailing assistance to the architect. We are the ***only*** single source that can offer integrated expertise in every phase of fabric structure technology: design, engineering, weaving, coating, fabrication, and erection.

Bring ***your*** new ideas to us, **Birdair Structures,** a division of CHEMFAB, 2015 Walden Avenue, Buffalo, New York 14225 U.S.A. (716) 684-9500 Telex: 91-353 Cable: Birdair Buffalo.

BIRDAIR STRUCTURES
A DIVISION OF CHEMFAB

Circle **No. 323** on Reader Service Card



Architect in Charge of Design and Construction: Basil H. M. Carter, New York, New York
Architect of Record: Robert Lamb Hart, Robert Lamb Hart Architects, New York, New York
Engineering Consultants: Geiger-Berger Associates, New York, New York

® SHEERFILL is a registered trademark of CHEMFAB
* Du Pont's registered trademark for its fluorocarbon resins and film

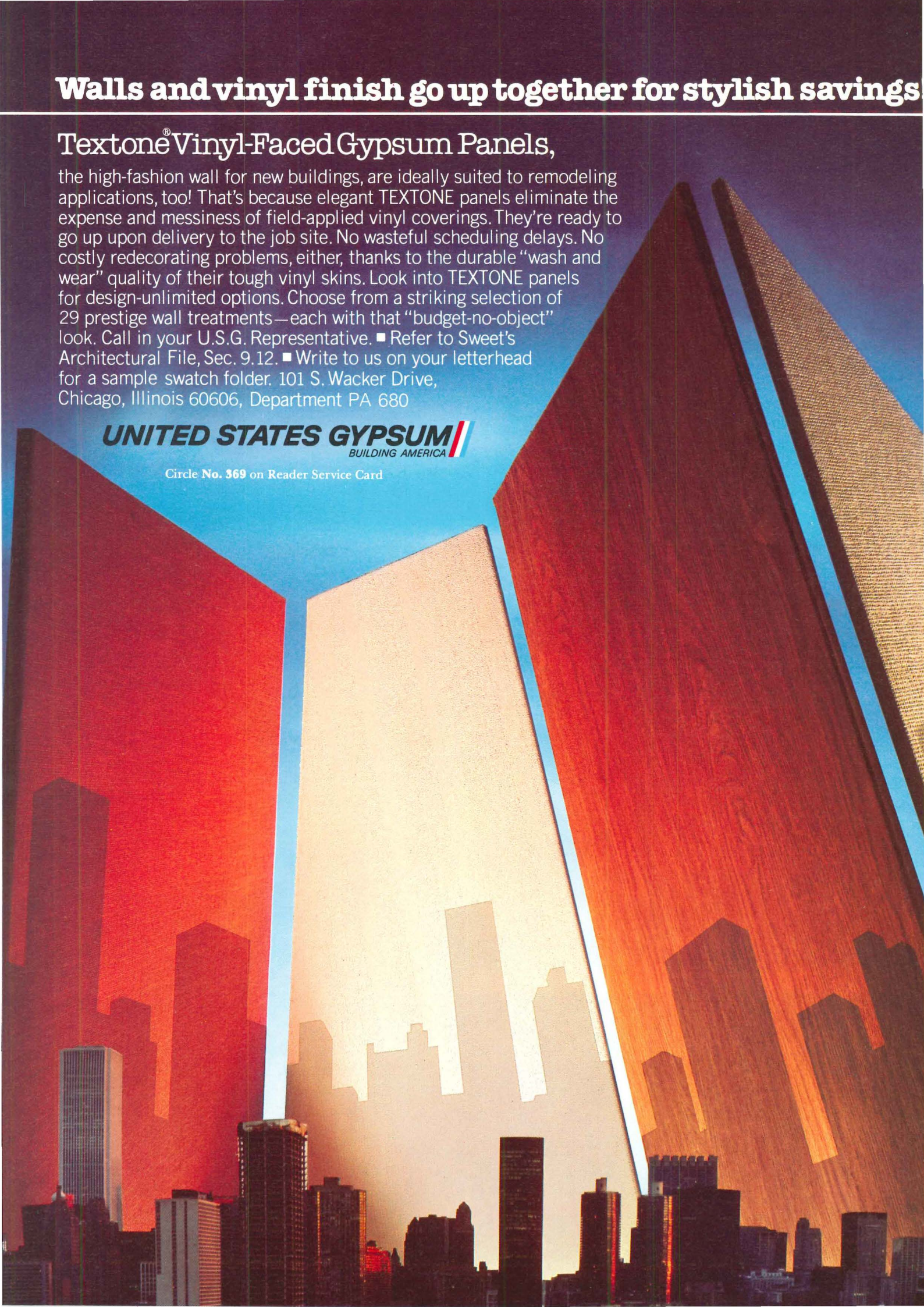
Walls and vinyl finish go up together for stylish savings

Textone® Vinyl-Faced Gypsum Panels,

the high-fashion wall for new buildings, are ideally suited to remodeling applications, too! That's because elegant TEXTONE panels eliminate the expense and messiness of field-applied vinyl coverings. They're ready to go up upon delivery to the job site. No wasteful scheduling delays. No costly redecorating problems, either, thanks to the durable "wash and wear" quality of their tough vinyl skins. Look into TEXTONE panels for design-unlimited options. Choose from a striking selection of 29 prestige wall treatments—each with that "budget-no-object" look. Call in your U.S.G. Representative. ■ Refer to Sweet's Architectural File, Sec. 9.12. ■ Write to us on your letterhead for a sample swatch folder. 101 S. Wacker Drive, Chicago, Illinois 60606, Department PA 680

UNITED STATES GYPSUM
BUILDING AMERICA

Circle **No. 369** on Reader Service Card



echnics:
pecifications clinic

The well-begun project manual

alter Rosenfeld

he specification writer can oid costly duplication of ffort if he asks the right uestion at the right time. he timing and sequence of riting require experience nd insight into both the de-gn procedure and the uilding process.

You have a shelf full of master sections, a library full of manufacturers' literature, a box full of recent specifications by others, the *CSI Manual of Practice* is on your desk, and it's time to prepare the project manual for a new building. When do you start and what do you do first? Is there a logical sequence to this work that actually helps? Yes, there is.

Begin by determining the type of contract you are writing (or are there multiple contracts?). Will the work be done for a fixed lump sum or for construction cost plus a fee? Is there a construction manager? Do the rules of a government agency establish the general conditions? Remember that whoever is paying for the building will have a say about the way the contract is set up and the documents to be used. Last, will the project be bid (under some of these same rules, perhaps) and require bid forms for soliciting prices? To start specifying without these questions answered is to risk redoing technical sections as well as bidding and contract forms, because the entire project manual is affected by them. With the answers known, bidding requirements, contract forms, and general conditions can be prepared with confidence, no matter what the stage of the drawings.

Next, examine the available drawings to determine what trades are involved in this construction. List the materials indicated and make shrewd guesses about others that may be required. Organize the trades according to the CSI Masterformat and make a rough table of contents. Now you begin to have a notion of the work before you: how many sections need to be written and what information will have to be assembled.

The third step, an important one, is to organize the specifications work of consultants and others contributing to the project manual. Though several professionals are writing this book in collaboration, the ideal is to have it all appear to have come from the same writer (consistency of style) and from the same typewriter (consistency of format). For this purpose, a brief memo to consultants and page format samples are useful. But more is needed if everyone is to be oriented to the same rules.

Not only do the format, numbering system, paragraphing, page identification, and type face have to be established for everyone, but certain technical arrangements have to be worked out as well. How will access panels be handled? Who will provide temporary services? How will testing be paid for? The work must be divided clearly among the trades without duplications or omissions. Does everyone know the rules for bidding alternates, and will they specify the same guarantee period? Will everyone handle shop drawings the same way? Though the work is done in parts, it must eventually fit together as one document.

Now you are ready to begin the architectural sections, but where should you actually start? Since the specifications are a record of decisions about materials and construction methods for each job, it's best to start where the fewest decisions need to be made or where all the necessary decisions have already been made. Therefore, it's often not very productive to start technical sections before working drawings are about 50 percent complete unless you have unusually good information about what materials will be used. By that time, a number of sections can usually be started from the information already on paper.

For example, you might start with Section 10160, Toilet Compartments, because comparatively few decisions are required. Do you want metal or plastic-laminate units? Are they floor-mounted or ceiling-hung? Are there urinal screens or special features? With very little more than the answers to these few questions, the entire section can be written; the remainder is relatively standard. For each project there is a group of sections requiring a minimum of decisions, and they are generally the first to be written.

As the drawings progress, you can proceed to other areas. If the door and finish schedules are done early, additional sections can follow. Wall sections and details should be drawn before window and roofing specifications are written. Glass types must be decided before "Glazing" can be done. Toward the end you can tackle sections which need many details, or sections which require extensive consulting with sales representatives or specialists before writing begins.

While working to complete the sections on your list, don't lose sight of the basic goal: to set down precisely what is wanted, so that bidders know what to price; so that the owner knows what he is getting; and so that the architect can properly control the result: in short, so that the building that is wanted is the one that is actually built. □

Walter Rosenfeld, CSI, is Managing Director for Professional and Technical Services at The Architects Collaborative in Cambridge, Ma.

The era of swoops and billows

For the last decade the momentum of the fabric structure has been building. Now the era of swoops and billows is here. With it comes a computer technology, an awesome capacity for long spans, energy options, and flights of pure form.

Every span of history seems accompanied by its own unique method of attempting the spectacular marriage of the human spirit and the taut rigor of structure. Artists like Gabo, Lippold, and Snelson have succeeded, as have engineers Eiffel, Maillart, Nervi, and Candela. The results can be admired by both the artist and the engineer.

In the recent past, it was the concrete shell and the discipline of compression which held for architecture the greatest opportunity to marry an exciting structure and form in a large-scale, three-dimensional enclosure. The apparent demise of the concrete shell for this purpose has been accompanied and partially caused by the emergence of the fabric structure and its rigor of tension.

Since the August 1970 "Expo" issue, no less than ten feature articles have appeared in P/A discussing various isolated fabric projects and techniques spread out through the decade. In this summer of 1980, there are an equal number of structures to discuss in a single issue. In the pages that follow, several buildings and projects are presented for mild weather zones like Florida and California, as well as low-temperature seasonal climates such as Minneapolis, Syracuse, and Boston. The extreme opposite climates of Alaska and Saudi Arabia also contain built fabric structures. They have been designed, therefore, for all temperatures as well as high winds, earthquakes, and heavy snow, the benchmarks of a mature building technology.

In short, business is booming. The overall fabric structures market consists of rigid-frame tensile structures, air-inflated and air-supported buildings. Industrial, military, and long-span structures are large-scale consumers. According to the Air Structures Institute (ASI), the 1979 sales of fabric for all structural uses grew over 40 percent from 1978 to 1979. A segment of that growth was the standard-design air structure, and tension structures increased in sales by 25 percent. The whopping growth, however, was in the long-span portion of the market—700 percent! A healthy portion of that growth was due to a single building in Saudi Arabia, the Haj Terminal.

For the engineered fabric structure there are two fabric types in predominant use: polyester coated with polyvinyl chloride and fiberglass coated with Teflon fluorocarbon resins. Each has its own domain. The coated polyester represented over 85 percent of the market in 1979, but the fiberglass coated with Teflon market is expected to double in 1980.

The fabrics: In vinyl-coated polyester, the fibers provide the strength and the vinyl coating the durability. The material is thin, flexible, and resilient enough to allow for slight errors in patterning. It can stretch as much as 12 percent. It is superior to fiberglass for a demountable structure which needs to be folded and transported or stored. With time and exposure, however, the plasticizers in the vinyl rise to the surface, creating a "sticky" base which holds dust, dirt, and possibly mildew. Such fabrics, therefore, must be either cleaned—a yearly expense—painted with urethane, or laminated to a more durable membrane material. Vinyl-coated polyesters produce a thick, black smoke when attacked by fire and are usually restricted in use to "nonpermanent" structures. Also, with time the stretched membrane continues to yield, causing the material properties to vary and making precise engineering calculations difficult.

The price of the untreated material is about one-fifth that of fiberglass, and therefore a realistic possibility is replacing it in seven to ten years, using the same designs and patterns, for about 40 percent of the original building cost.

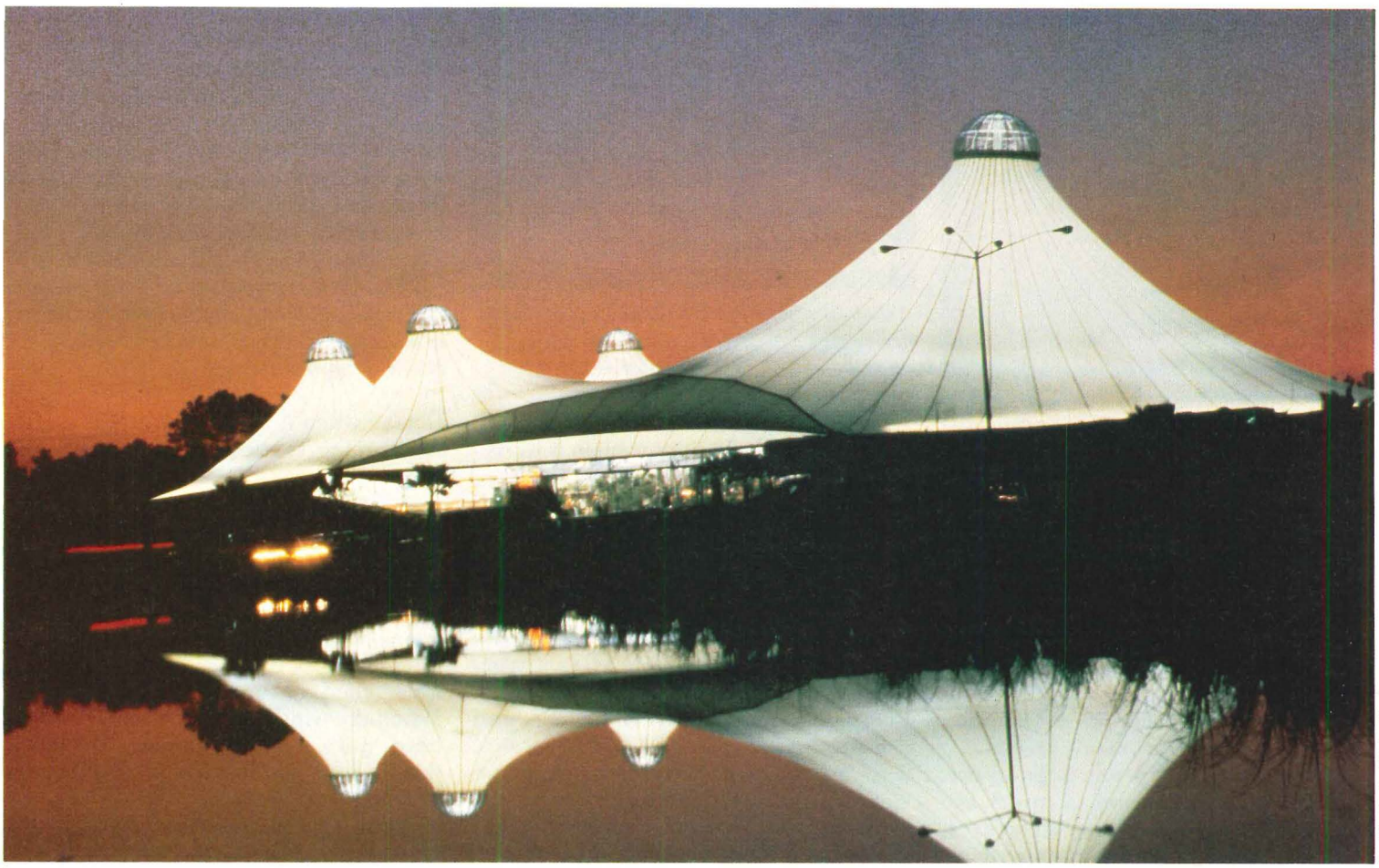
Vinyl has also been used to co fiberglass. Some of the early inflate structures by fabric pioneer Walter Bi used this material. John Cook, found of Chemfab, originally patented th coating of fiberglass with Teflon for us in heat-resistant industrial belting. H worked with Du Pont to generate an a chitectural fabric. In such a fabric, th strength comes from the glass and th durability from the Teflon. This comb nation is chemically inert, hydrophobi and noncombustible. It is self-cleanin and needs no regular maintenance. Th material is stiffer, stronger, and mor predictable structurally than viny coated polyester. (The warp elongatio is only 1.6 percent on the fabric bein used at the Haj Terminal.) A coate fiberglass roof is expected to last at lea 20 years. The long life, strength, an fire characteristics make the materi more appropriate for permanent fabr structures.

While the vinyl-coated polyeste compete very well with coated fibergla in the domain of short-term structure the elevation of fabric to the point c contention with concrete and steel mu be credited to fiberglass coated wit Teflon.

Why not fabric? The largest sing drawback to the fabric structure is th preconceived notion that it is somethin to fold up and use to go camping: a ten As long as fabric is perceived as bein temporary, it will have difficulty i many traditional building applicatio "built to last."

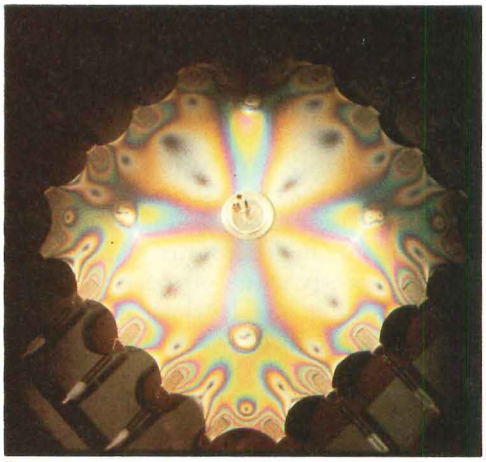
A second large problem, which ca be, of course, a boon to the prope building, is that fabric structures tend t be spectacular. There are clearly som buildings and clients that do not desi to call attention to themselves.

Insurance companies are not d lighted with the specter of a buildin which attracts by its shape, can be en tered with a knife, and suffers from th psychological preconception of bein temporary. So far, the large percentag of buildings that have used fibergla coated with Teflon, for example, hav



1

Florida Festival/Britt Runion



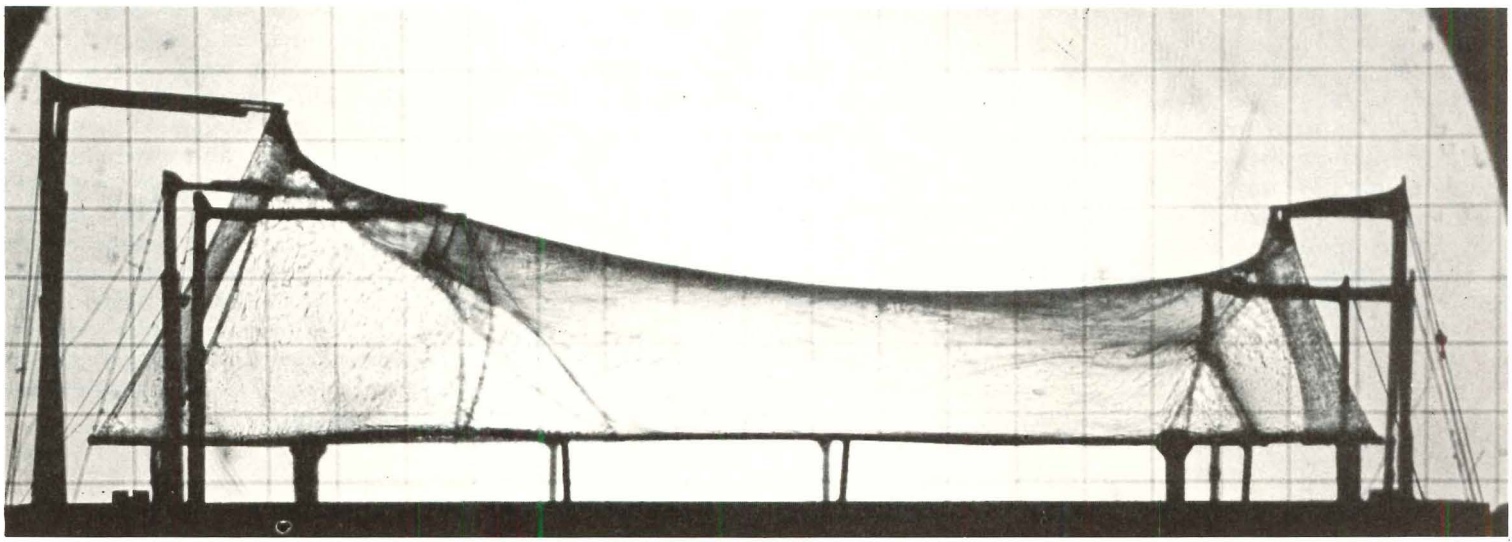
2

Future Tents

3

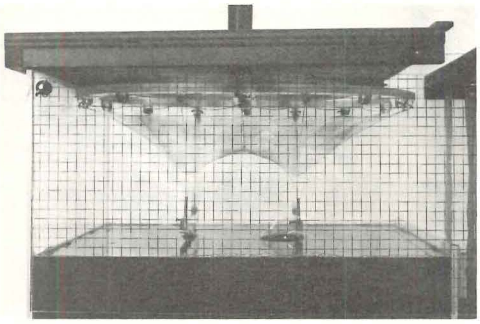
Helios Tension Products, Inc.

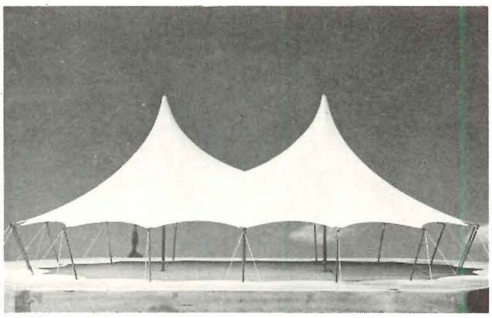
1) New Florida Festival structure. 2) Photo-elastic material tensioned in polarized light. 3) Theme park, Nemunosato, Japan. 4) A soap-film model by Frei Otto.



4

Future Tents





Future Tents

A soap-film machine (left) enables designers to derive minimal surfaces which, inverted (model above), are good structures.

The color photographs on the opposite page provide a feeling for the range and beauty possible with vinyl-coated polyester. The Floricultural Pavilion for Cal-Expo in Sacramento, by Wurster, Bernardi & Emmons, represents the potential of fabric to create fabric interiors which appropriately match the exterior fabric structure. For a colorful temporary exhibition pavilion, the material is ideal. The colorful Japanese restaurant which "blooms" at the right demonstrates the material's capacity to be folded and stored with ease. Color photographs are furnished by Helios Tension Products.

been for government or institutional clients whose clout with insurance companies comes from a very large chunk of business.

Most traditional building codes, moreover, were not written with fabric buildings in mind. Although in recent years great progress has been made, an architect may still have to put up with redundance of fire protection or an appeal for a code variance. Material manufacturers are very helpful in obtaining code acceptance if problems arise.

Another serious obstacle is ignorance. Very few materials manufacturers are now involved with fabric structures; very few companies have experience cutting the patterns; local contractors are ignorant about fabric construction; few engineers have access to the computer technology necessary for the design; and few architects have ever visited, let alone designed, such structures.

From the viewpoint of an architect, a drawback might be having to work with an engineer from the outset of the building design. As one architect put it: "I don't really know about fabric, and I am not about to turn my building over to an engineer." If the architect does want a fabric structure, he must be willing to accept the curve as the rule for the fabric geometry. Engineer Horst Berger of Geiger-Berger has dealt with many potential fabric architects. For architects, says Berger, "the first obstacle is to learn that everything is curved." The second obstacle, suggests architect Roy Hall of Birdair, is that "a drawing is inadequate" to describe the structure. Models are a must.

The shape and three-dimensional geometry of these structures is so complex that the structural and thermal characteristics of them are only now being monitored and modeled with confidence by computer analysts. Yet they are so simple that a novice with a pair of scissors, an old pair of pantyhose, and a hammer and nails can generate very sophisticated buildable forms. For architect Hall, the problem is to "resolve the complexity of making it simple." This duality of personality is part of the form, part of the structure, and part of the fabric.

Fabric structures are for the purist. There is no room in a membrane to hide mechanical or electrical lines. All of the connection details are visible. Construction inaccuracies appear as wrinkles. Every patch in the skin can be seen, and every seam is exposed. As Berger states, it is "a perfectionist job at a very large scale."

Why fabric: Fabric structures share many intrinsic advantages. The principal values are the light weight (about 1/30 the weight of a conventional roof), and the fact that the structure is completely prefabricated and brought to the site, a giant advantage in remote areas. A high technology structure can be designed and fabricated in a high technology environment and then shipped. The weight alone of fabric represents a saving in support structure. It also allows great freedom in rehabilitation work. The prefabrication allows the onsite construction to proceed quickly, or the design can be fast-tracked. The building can be contained early, speeding up interior finishing. In the case of portable structures, they can be rapidly taken down.

Perhaps the unique quality of a fabric structure is the safety to human beings if structural failure occurs. Disregarding the damage to the structure itself and its material contents, a flexible fabric has the great capacity to accept holes and tears without total collapse or any fragmentation. As a bonus, the structure can be repaired, usually in days, with minimal shut-down time. Tensile structures are designed to a safety factor of eight; air structures to a factor of six.

Structures in tension

The quality which makes tensile structures safe is also what makes them strong—they are flexible. The form and the structure are intimately related to that fact. Horst Berger says it very well: "The aesthetics come from letting go." "Letting go" means paying attention to the form the structure naturally wants to take when it is stressed. It also means not forcing fabric into straight lines or flat surfaces.

A fabric structure can be stable without being rigid. This is so because of the necessity to maintain tension everywhere in the fabric and to make maximum use of the fabric strength by trying to generate forms that stress the fabric equally throughout. The result is a stretched, or "prestressed," condition. When the wind moves the fabric and relieves part of the structure, the fabric does not automatically buckle or undergo compression.

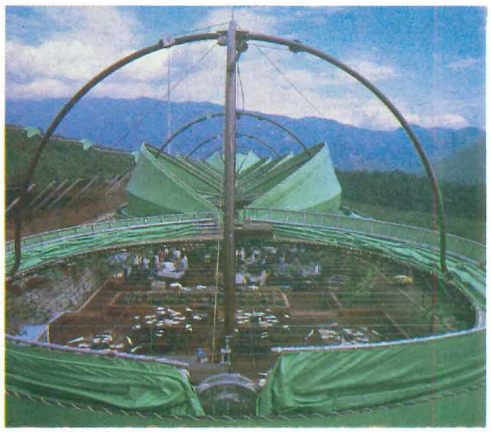
In a tensile structure created by stretching fabric from a mast or frame, the membrane assumes a double curvature, generally a saddle shape. Ideally, every square inch of the material is saddle-shaped.

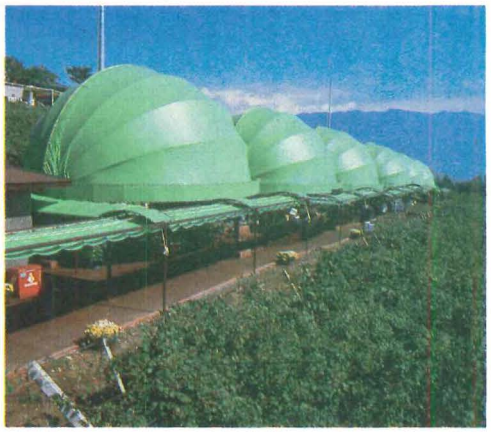
Wind plays a much more considerable role in the tensile structure than does gravity. A tensile structure that is open around the edges has especially complex behavior under wind loading. The shape of the structure introduces complicated aerodynamic properties.

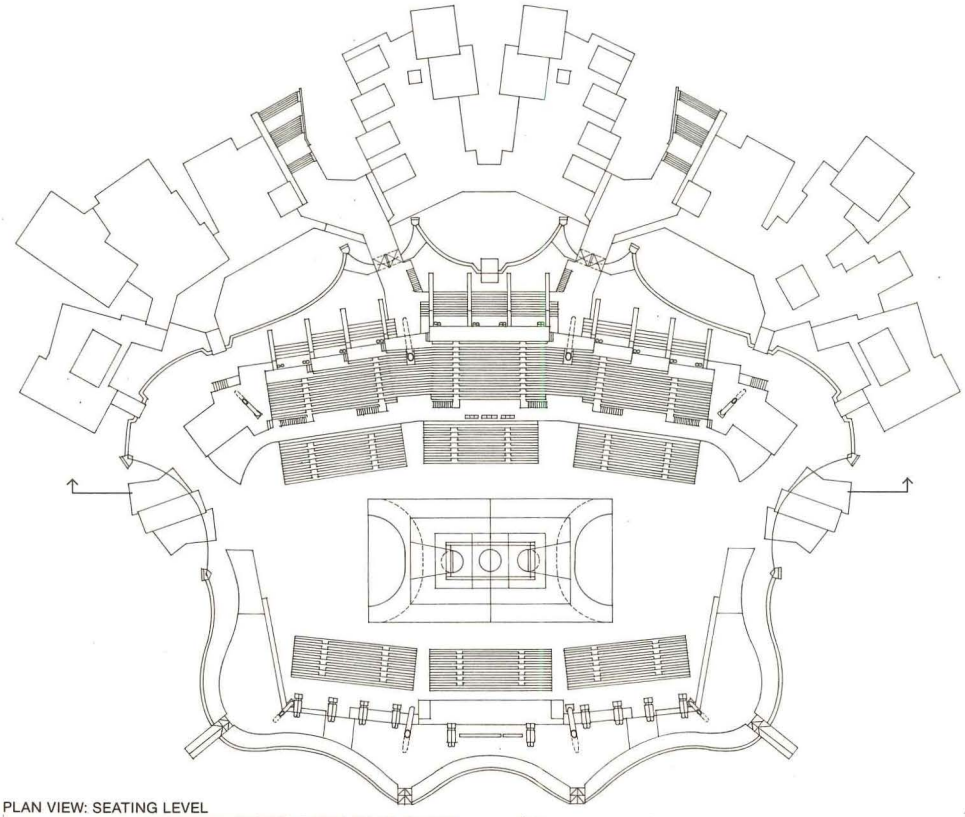
To optimize the total structure, the compression ring or earth anchors are also considered. Reducing the height of a tensile structure to reduce wind loading increases stresses in the supports and increases the cost of the concrete or reinforcing steel.

An air-supported structure such as the U.S. Pavilion at Osaka or the Pontiac Stadium must assume a low profile (.2 or less rise-to-span ratio) to avoid being blown over. By keeping out of the direct path of the wind, such a fabric roof must deal primarily with uplift, a condition the cables and fabric can sustain well.

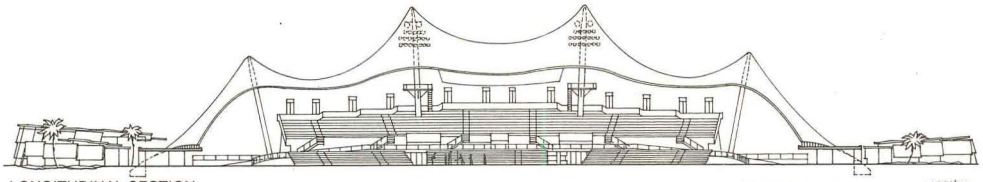
Typically, the design of an air-supported structure also eliminates flat planes through use of double curvature, but both curves are "positive" or the same direction. The mechanical system forces air up from within the building, ballooning the fabric outward. The stresses in the fabric are directly related to the load on the skin (5–12 psf) and its radius of curvature. The smaller the [*Continued on page 118*]



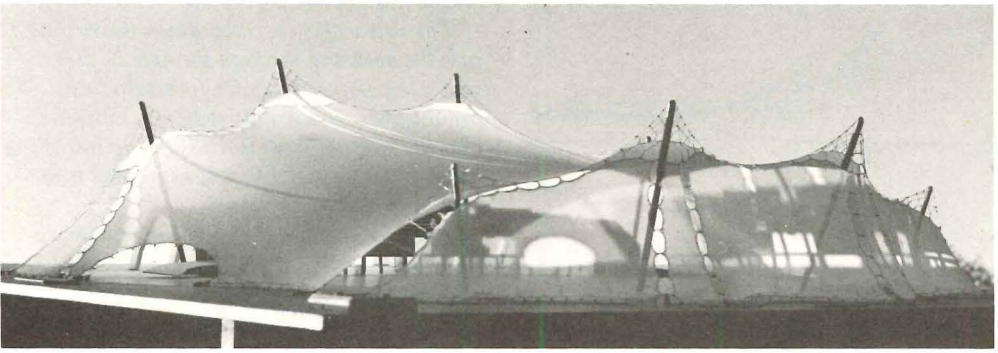




PLAN VIEW: SEATING LEVEL
KING ABDULAZIZ UNIVERSITY: SPORTS COMPLEX AT JEDDAH ↑N



LONGITUDINAL SECTION 100'/30m



Future Tents

King Abdulaziz University: *A new sports complex at Jeddah, Saudi Arabia, is designed by Frei Otto in a joint venture with Ove Arup and Buro Happold, both English firms. The planning for the project began five years ago when Otto was approached in Germany by the Saudis. The early studies involved use of a two-way cable net structure which Otto has made famous. From the early work and soap-film analysis, the new design emerged.*

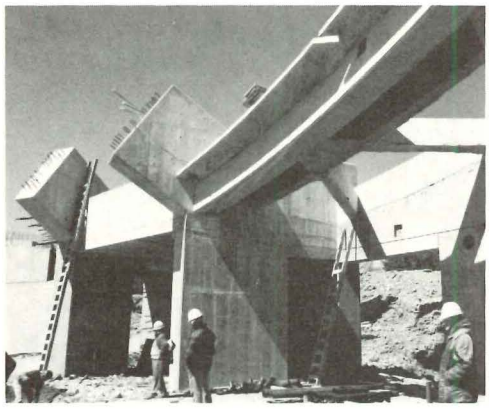
The roof is constructed of two separate layers, a vinyl-coated polyester for the exterior skin and cotton fabric suspended below. The fabric-covered portion of the building is over 600 ft long and 300 ft wide and houses a main arena and a variety of courts, gymnasiums, swimming facilities, and the athletes' dressing spaces. The photo at left shows the model derived from the soap-film studies shown on the previous pages.

Franklin Park Zoo: *The zoo pavilion (at right) now under construction in Roxbury, Ma, is a fabric pioneer in disguise. When it was first designed, fiberglass coated with Teflon had been used in only two structures. Architects Huygens & Tappé and engineers Weidlinger & Associates were denied building funds by the state for six years. The one advantage of the wait is that the designers can now profit from the experience others have had in constructing over 30 buildings.*

Franklin Park was originally designed by Frederick Olmsted. Replacing the existing zoo on the same site, therefore, had delicate historic connotations. One prime requirement was to place three or four acres of zoo in the park without disrupting the original design. By adopting a low profile and gently curving forms, the fabric roof offered the "least buildinglike" solution. The use of fabric also brought the animals indoors in the winter and extended the zoo season.

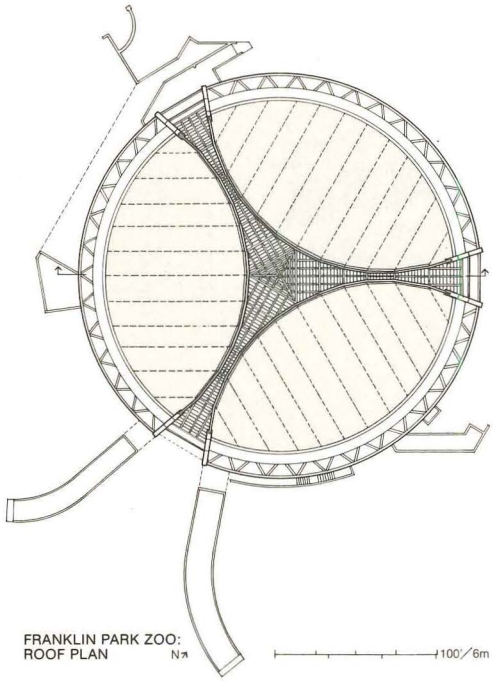
From the interior, the fabric and arches allow for the circular animal space and offer a clear span which provides enough natural light to grow plants. Early in the design, a spectrum analysis of the fabric revealed that the light which entered through the fabric could not support certain plants deemed necessary to simulate the natural habitat of the animals. Between the arches, therefore, plastic (Kalwall) sandwich panels were introduced to capture more of the light spectrum. Through careful study of the light patterns in the pavilion, the plants could be placed in the correct light.

The new pavilion will provide approximately one acre of enclosed space (38,000 sq ft of fabric-covered area) and serve as the animals' winter home. Moats will separate the animals and people. The animals will also have underground cages and access to the exterior in summer. The pavilion is due for completion in spring of 1981 and is the first in a projected series of four similar structures.

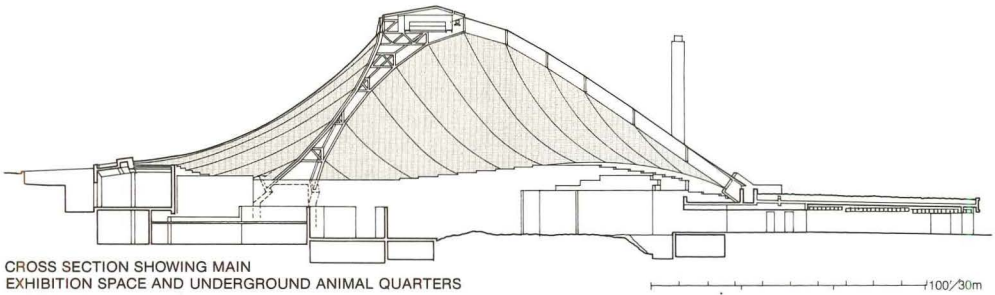


Huygens and Tappé, Inc.

Presentation model for the new zoo.



FRANKLIN PARK ZOO:
ROOF PLAN N



CROSS SECTION SHOWING MAIN
EXHIBITION SPACE AND UNDERGROUND ANIMAL QUARTERS

Florida Festival: *The Bullocks management found the fabric skylight so successful it has commissioned a second store with an all-fabric roof. While it pioneered with its skylight, it will follow the precedent of Florida Festival for the full roof.*

Many of the fabric benefits so attractive to Bullocks made fiberglass coated with Teflon ideal for the Florida application. Like Bullocks, the basic building plan had been established and another roof planned when the architect Robert Lamb Hart, design consultants Anspach Grossman Portugal, and marketing consultant Ed Ettinger called in Horst Berger of Geiger-Berger. Berger had engineered the Bullocks store design. Since it is part of Orlando's Sea World, the owners wanted to preserve an outdoor "skylike" feeling and use many palms and tropical plants. They sought a column-free open space (over 60,000 sq ft) which would allow the greatest flexibility for juggling over 40 sales booths. Perhaps most important, they got a roof so large (90,000 sq ft) and distinctive that it could be seen from the air and other parts of the park to attract some of the tourist business from the rest of the Orlando area and the Sea World amusements elsewhere in the park.

The two interlocking squares presented an obvious solution in plan, a mast at the center point of each square with fabric stretched in radial patterns to the building edge. Berger and the designers boldly chose a richer solution. One large 106-ft mast was located at the center of one square, and three smaller 62-ft masts centered in quadrants of the other square. The center of the roof was then reversed down into the space and opened to view and weather. The structure got an early test during construction by 70 mph hurricane winds.

Operators attribute much of the financial success of the shops to the roof. Over half the people questioned leaving the building explain the "atmosphere" as the main attraction. During the day, radiating umbrellalike spaces are filled with shadow-free diffused light. The natural environment is so dominant, the wind is noticeably absent.

At sunset, the white exterior of the roof reflects the light in a spectacular array of pastels. On the interior, the night lighting reflects from the interior surface and creates a striking opposite to the uniform diffuse light of the day. The shadows and contrast highlight the sculptural drama of the roof.

The rainwater cascades down the roof and into the building through the hole in the roof's low point. The rain fountain has proved to be such an attraction to shoppers that the management is considering installing hoses on the roof to provide simulated rain throughout the year.

Shown at right are the various design solutions which highlight the building. 3) The edge condition must join curves with straight lines. 4) The building must be unique from the air. 5) The central mast is telescoping and simplifies erection from below. 6) The low point in the central portion of the roof combines as a roof drain and natural fountain.

1

Owens-Corning Fiberglas

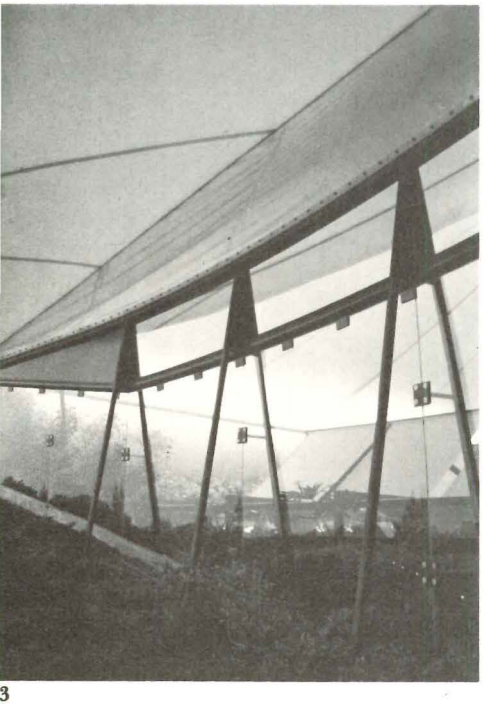
Bullocks: *The giant, 18,000-sq-ft fabric skylight (1 & 2) in the San Jose, Ca, Bullocks department store was conceived late in the building design and replaced a more conventional solution. When the store opened in the fall of 1978, it pioneered the use of the fabric roof in a retail store. Architects EPR (Environmental Planning and Research) of San Francisco along with Geiger-Berger took advantage of the several material properties.*

The translucence of the fabric created an "outdoorlike" space in which plants could grow. The material's reflectance helped to reject solar heat gain from without and simplified nightlighting from within. The Teflon surface, of course, reduced maintenance.

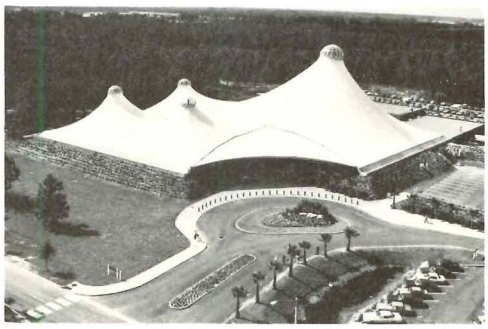
Fire code officials in the San Jose area called for a double layer of fabric. The interior layer is nonstructural and drapes into the space. The additional layer also absorbs about 75 percent of the sound which reaches it, creates a thermal insulating air space with the outside fabric, and reduces the translucence of the roof. The variation in translucence provides a richer ceiling surface visually and helps to define the space.

Owens-Corning Fiberglas

2



3



Richard Rush

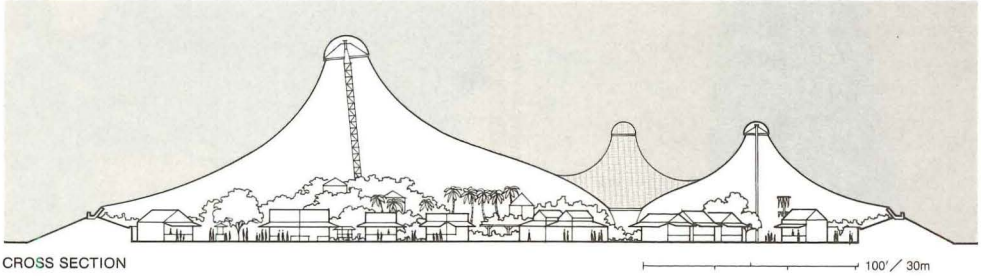
4

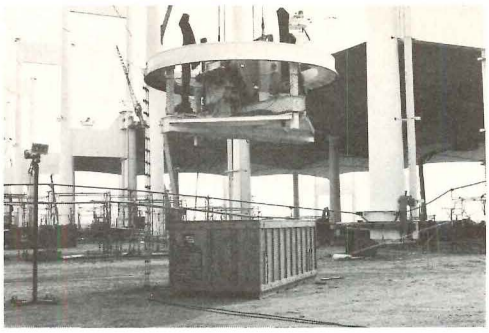
Florida Festival/Les Stone

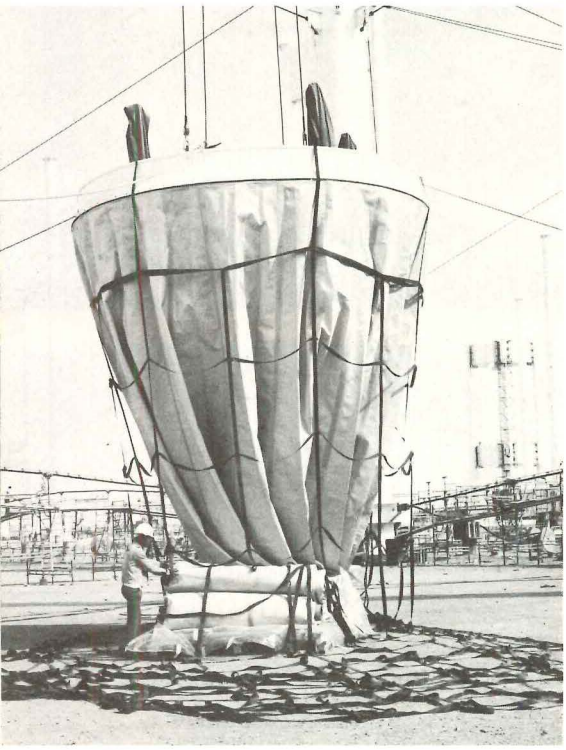
6

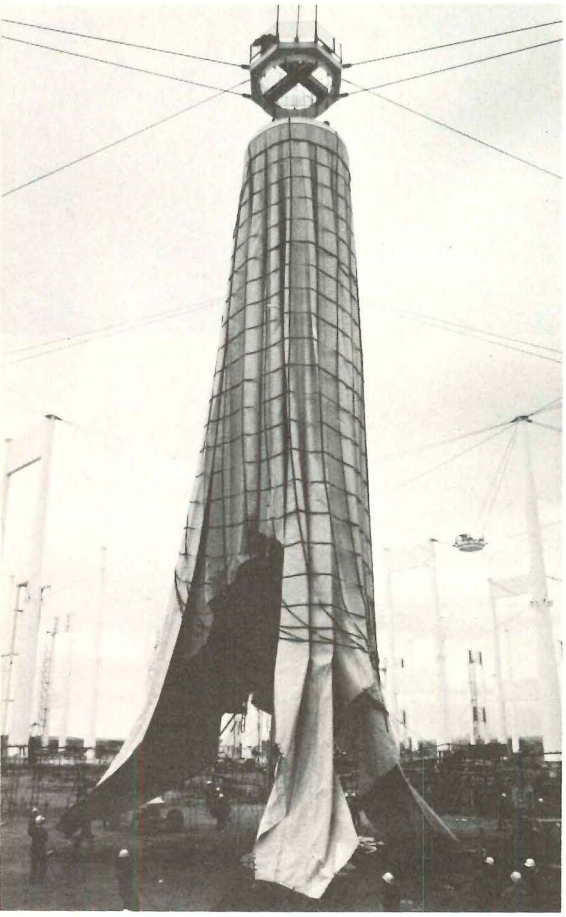
Florida Festival/Britt Runion

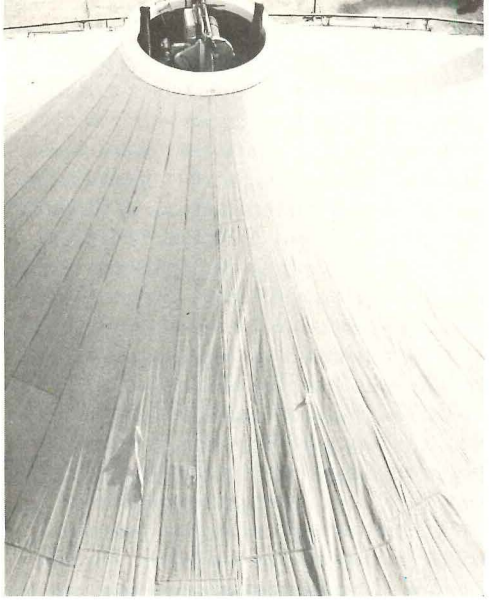
5

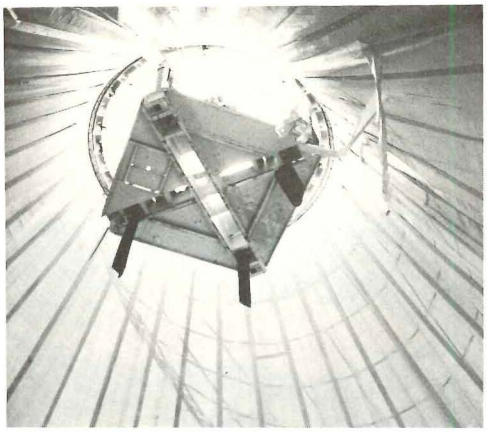


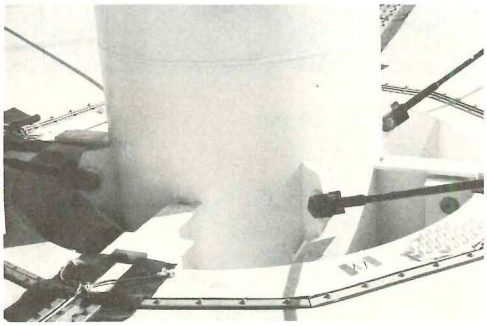


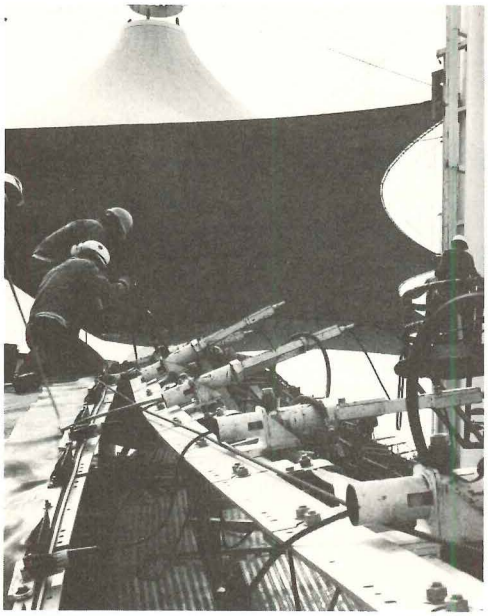


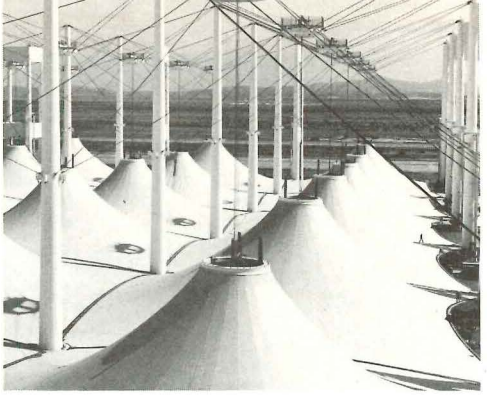


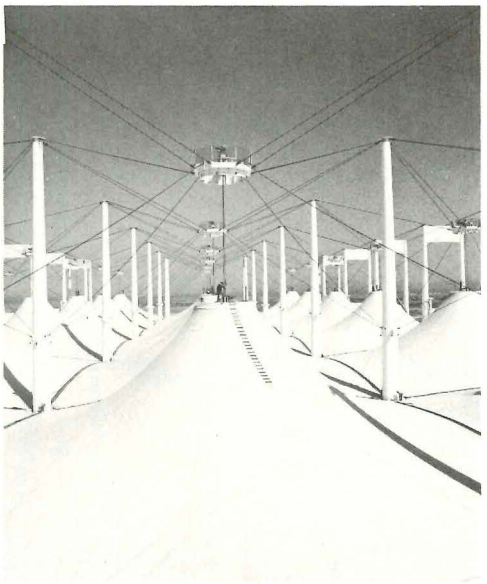


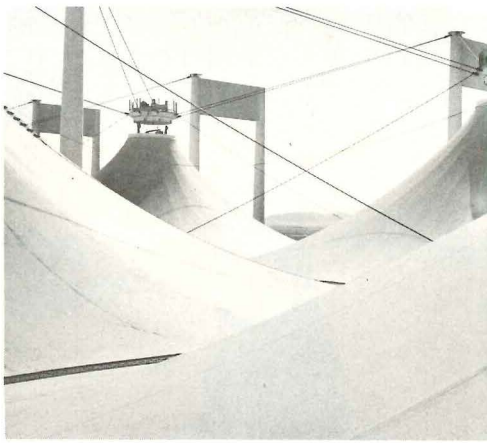


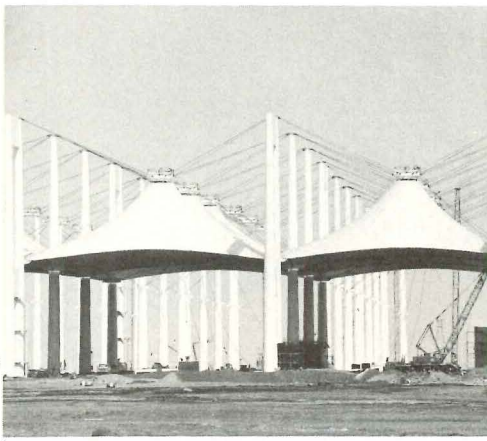












Horst Berger

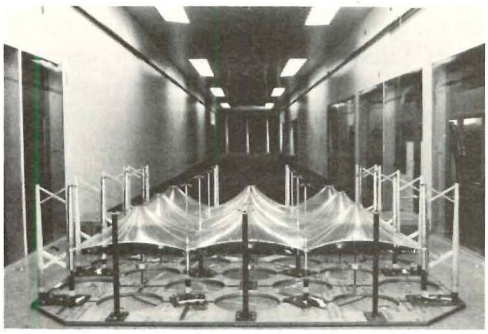
The Haj Terminal is shown here under construction. The fabric is unboxed, collared, and draped free (left); tensioned and prepared for hoisting (center); and jacked up (above), all 21 modules simultaneously.

The Haj Terminal: *Down the road from King Abdulaziz University is the new Jeddah International Airport. Each year Moslems make a pilgrimage to Jedda for the religious period called the Haj. During the 70-day arrival and departure period, hundreds of thousands of pilgrims pass through the airport. To handle the onslaught, the Saudi Government is building the largest airport in the world. In addition to a more conventional terminal building, a huge structure is being built as a shelter from the desert heat. Five and one-half million square feet of fiberglass coated with Teflon will be used in constructing this shelter. The entire structure is being prefabricated and erected at the site.*

The architect and engineer is Skidmore, Owings & Merrill, Chicago and New York. Early in the design, SOM considered concrete shells. The sun's heat, however, would turn them into radiators. Instead, a modular fabric system was devised consisting of 210 identical roof units 150 feet square. The roof is being raised in ten sections of 21 units each. The raising of the first roof section occurred last March and accounts for the accompanying photographs. The building is scheduled to be completed by 1982 and is already being heralded as the "crystal palace" of this century.

Of course the Saudis will profit most from the structure, and most of us will never visit it. Its benefits, however, are already being felt by members of the fabric structure industry in the United States. The mammoth quantity of material being woven and coated for the job is alone likely to improve the state of the art and provide insights into the ramifications of large-scale manufacturing of identical fabric structures, a possible future direction for the material.

The engineering procedure has consisted of computer analysis, wind-tunnel testing, the construction of two sample units of the structure completely monitored and tested to failure, and the on-site supervision of the ten large roof sections. For the first time the computer analysis commonly used by engineering consultant Horst Berger of Geiger-Berger has been compared to empirical data not only from the wind tunnel but also the mock-up structure. In addition, a vast amount of expertise will be accumulated by the people who will be involved in the design and construction of the project throughout its duration.



Horst Berger

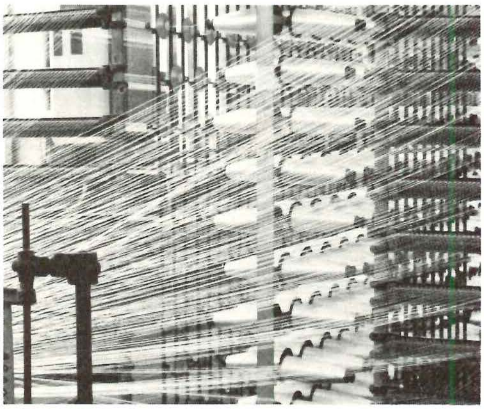
The Haj Terminal wind-tunnel model.

The prototype structure at Granville, Oh.

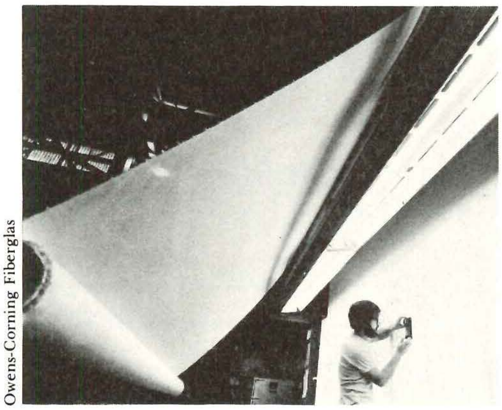
A rendering of the completed structure.

Photos: Owens-Corning Fiberglas

Both the structural and thermal properties of the fabric structure are intimately dependent on the fiberglass filament, the yarn, the weave, and the coating process. The yarns are aligned (left) to form the warp. The fabric is being inspected (right) prior to being coated with Teflon.



Chemfab



Owens-Corning Fiberglas

radius and the smaller the load, the smaller the resulting membrane stress (see P/A, Aug. 1972, "Pneumatic Structures," p. 76, by David Geiger).

Fabric, structure, and energy
The structural principles of such structures have not changed in the last decade. What has been a vast reservoir of empirical knowledge, hands-on savvy, and good structural intuition, however, is now being gradually codified and computerized with great accuracy. Says Berger, "In the old days we were restricted to classical shapes; now we can do anything."

While Berger has been busy with tensile structures, David Geiger has been meticulously perfecting his skewed geometry air-supported roof principle which began at Osaka. With a care that must rival the shaping of the Doric Order, Geiger has taken detail after detail to perfection. While the Osaka Pavilion was built in vinyl-coated fiberglass, every air-supported structure which has followed has been in fiberglass coated with Teflon (P/A, April 1978, pp. 112, 113).

Although the structural potentials generated the original concept, the energy qualities of such buildings are proving to be very attractive. The energy characteristics, structural nature, design, and construction of the buildings are established mainly by the fabric itself.

The winding and the weave: No two coated glass fabrics on any two air structures are exactly the same. The fabric is part of the design. The fiber, Owens-Corning's BETA glass fiber, is used in every building. The Teflon by Du Pont is also the same. Chemfab has done the majority of the weaving so far. In the weaving and the coating, the specific material characteristics of the fabric are determined.

BETA filament has an elongation or stretch capacity of about one percent. By twisting two or three filaments together, what had been a straight line is reshaped like a spring and stretches about twice as much as the straight filament.

In the weaving process there are two orthogonal sets of these twisted yarns. The warp runs down the loom, and the filler yarns run across, alternating over and under the warp yarns. The undulating filler yarn is therefore shaped like a spring and elongates more than the warp. The weaving generally adds about 2½ percent elongation to the yarns.

The space between the warp and the fill yarns represents a tiny rectangular window. The diagonal of that window is its weakest direction. The first task of the Teflon coating, therefore, is to fill that window and control the stretch on the bias. Tension is applied to the fabric as the wide belt of material passes through a vat of milky Teflon. Increasing the tension will elongate the window and decrease its width. The window is itself filled with a translucent layer of Teflon, and each succeeding layer decreases the translucency of the final material. Opacifiers can be added to the Teflon which will make it more opaque or more reflective. The final layer of coating chemically permits fabric widths to be joined by heat sealing.

The structural characteristics of the fabric are largely determined by the number of filaments used in twisting the yarns and the yarn count per inch. Tension structures commonly use a heavier fabric having three-ply twisting. For air-supported structures, a two-ply twisting is used for the yarns, with a slightly more dense weave.

The patterns used for cutting relate directly to the structural design and eventually back to the fabric design. The object of cutting the patterns for the fabric surface is to maximize repetition, minimize the number of pieces, minimize waste, and simplify erection. These considerations give preference to large, near-rectangular pieces over triangular ones. The difference in directional properties necessitates a very clear distinction between the warp and fill in the pattern cut. The fabric piece cut is designed to elongate more in one direction than the other. Cutting dimensions are ultimately checked with field measurements to prevent fitting errors.

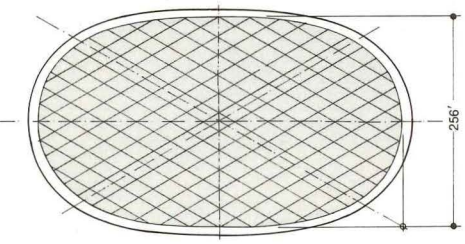
Once the cutting geometry has been coordinated with the structural analysis, the elongation in the warp and the fill can be determined. The initial decision is made as to how much translucence or reflectivity might be desired. The translucence can be decreased in the coating and the reflectance increased.

Adding to the advantages
An average coated fiberglass fabric reflects 70 to 75 percent of the solar energy that strikes it; about 6 percent passes through; 20 percent is absorbed by the fabric. Half of the absorbed heat is reradiated outward and half is reradiated inward. Fabrics have been made with translucence as low as 6 percent and as high as 20 percent. Nonstructural liners of the same material can have a translucence somewhat higher. John Effenberger of Chemfab calls the result "a window with very high reflectivity."

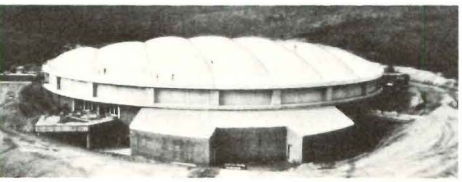
Through using a multiple layer of fabric, several advantages can be gained. When a sealed air space is created, the layers can act as thermal insulation. In colder climates, hot air can be passed through the air space for snow-melting purposes. The liner can also improve the acoustics. The limp, absorbent material itself changes the ceiling geometry from concave to convex and avoids focusing the sound. As a light control, the more layers added, the more opaque the roof.

Doubling the roof fabric must be carefully thought out. The fabric is not cheap. In an air-supported roof, 60 percent of the roof cost can be the fabric itself. In addition to the advantages already mentioned for fabric structures in general, however, the translucence and reflectance have life-cycle cost benefits. The translucence can reduce the cost of lamp lighting and the resulting air-conditioning loads and maintenance. Even night lighting can be reduced by taking advantage of the interior reflecting surface.

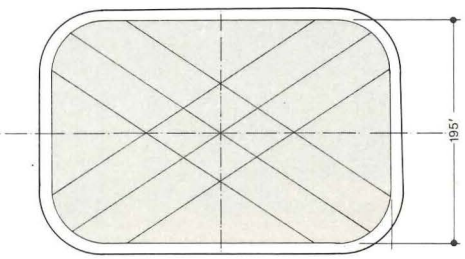
[*Continued on page 122*]



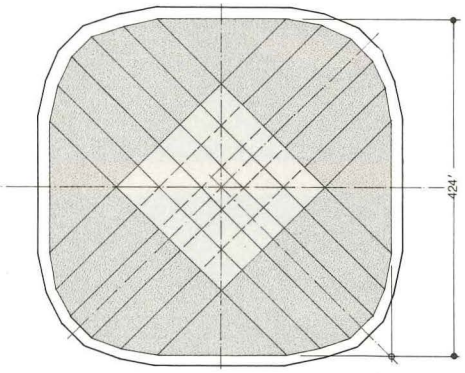
'0 UNITED STATES PAVILION, OSAKA, JAPAN



4 STEVE LACEY FIELD HOUSE, MILLIGAN, TENNESSEE

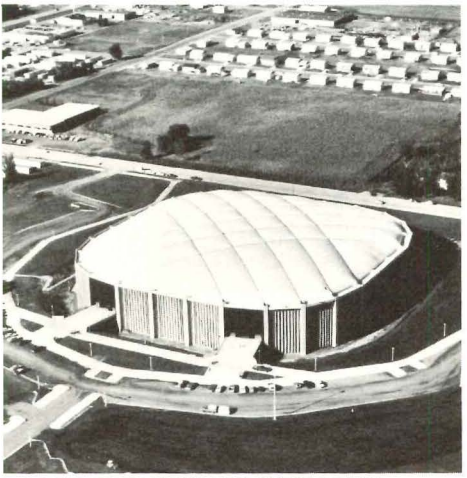


'4 SANTA CLARA FIELD HOUSE, SANTA CLARA, CA.

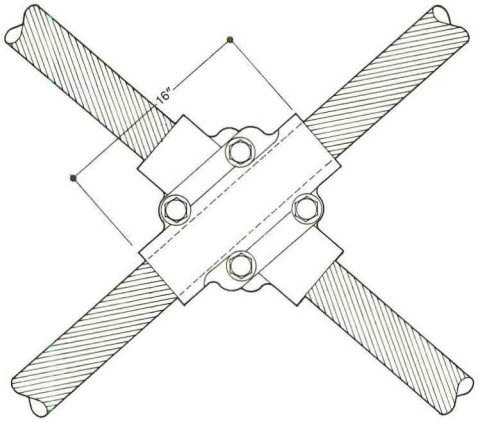


'5 UNI DOME STADIUM, CEDAR FALLS, IOWA

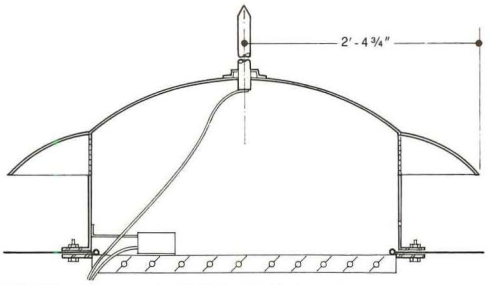
5 PONTIAC SILVERDOME, PONTIAC, MICHIGAN



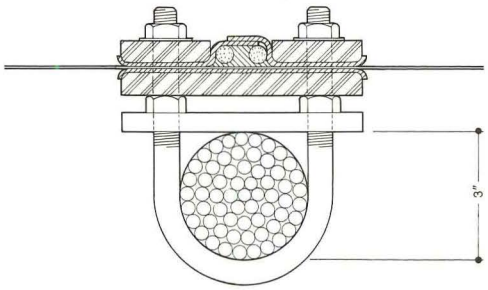
8 DAKOTA DOME, VERMILLION, SOUTH DAKOTA



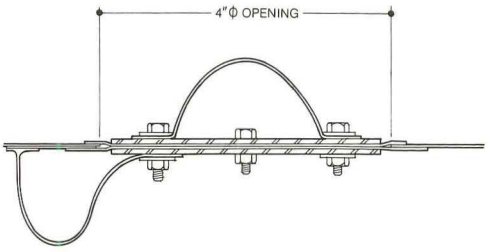
CABLE CROSSING CLAMP BEGAN AT OSAKA



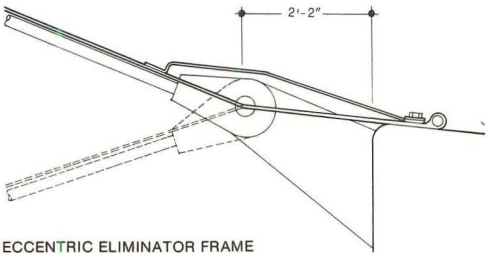
VENT/LIGHTNING ARRESTOR SPILLS EXCESS AIR PRESSURE



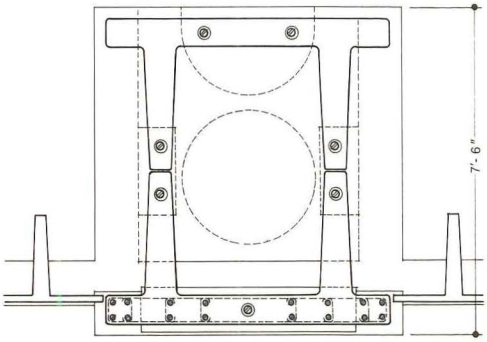
FABRIC CLAMP PERMITS AERIAL ERECTION



INTRODUCTION OF EMERGENCY DRAIN PLUG



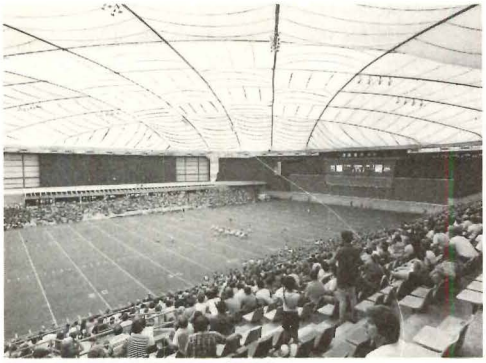
ECCENTRIC ELIMINATOR FRAME



Geiger-Berger's learning curve: *From Osaka to Syracuse in one decade has been a long and fruitful trip. Fortunately for the industry, a single engineer has been closely involved in perfecting the necessary structural analysis as well as the appropriate detailing, building on past mistakes. Some of the details are subtle, some obvious. The drain plug, for example, pulls when the roof deflates, keeping the center panels from filling with water, an early problem at Pontiac. The aerial erection clamp system has ramifications on the design, fabrication, and erection procedure. The extensive use of prefabricated double tees is intimately related to the erection speed of the fabric roof itself. More subtle details are the "eccentric eliminator frame," which was evolved to permit the fabric to deflate without tearing at the cable joints. Alternating the direction of the panels (and their seams) eliminates a directional preference in the fabric with aesthetics as a valuable byproduct. The earliest structures employed earth-berming and resulted in "sunken" solutions. Beginning with Pontiac, the structures "rise" to expose their sides.*

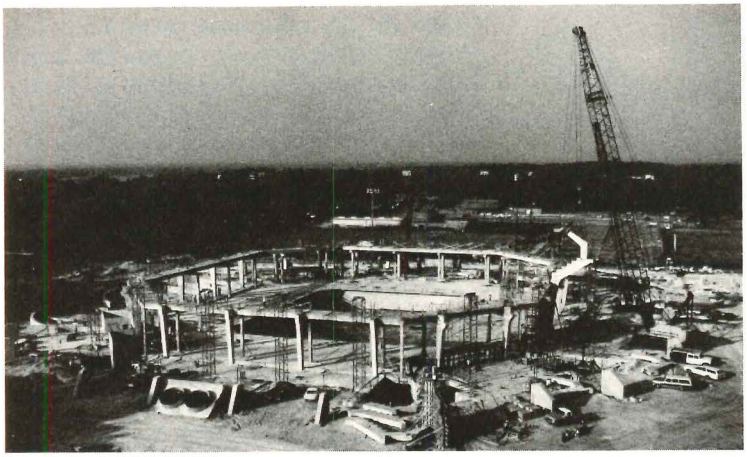
FIRST USE OF ACOUSTICAL LINER

ACOUSTICAL BANNERS INTRODUCED



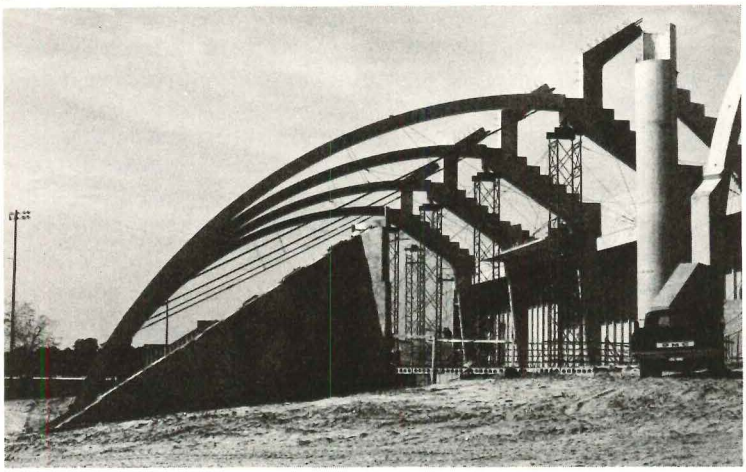
FIRST ALTERNATING PANEL SEAMS

Photos: Owens-Corning Fiberglas



1

3



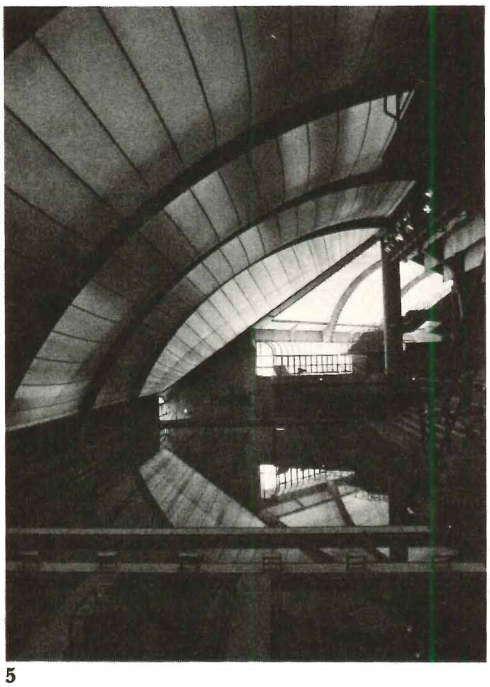
2

Photos: Warren Emo

4

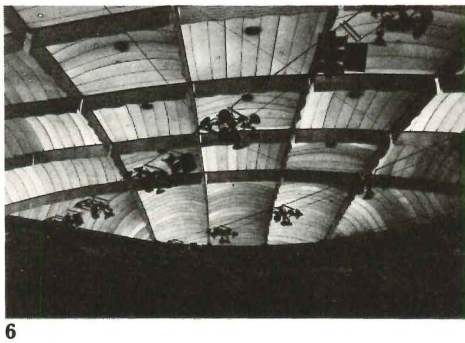
When the University of Florida at Gainesville programmed their new center for student activities, they asked for something dramatic. As Gary Koepke of the Division of Planning & Analysis put it: "We didn't want a box." They didn't get a box; they did get the most successful architectural application of the fabric structure yet to be designed. Some of the success lies in the prior design experience of Caudill Rowlett Scott and their Santa Clara Field House (P/A, May 1976, p. 94). Part lies in the expertise of the architect and local firm of Moore May Graham Brame & Poole Emo/Architects. The engineers for the job are Geiger-Berger. The structure makes use of both the tensile structure for the surrounding "skirt" facilities and an air-supported main arena. The Gainesville location challenged Geiger-Berger to its first air-supported attempt in a hurricane zone.

The photos shown here provide some insight into the kind of engineering, architectural, and construction expertise which is involved in such buildings. 1) A cast-in-place reinforced concrete ring outlines the arena space at an early stage of construction. The precast concrete arches 2) are added to serve as support for the tensile fabric. 3 & 4) The structure is shown deflated and hours later inflated. Even under construction, 5) the swimming facility and 6 & 7) main arena display their fabric quality. The Gainesville building provides one of the few examples where the richness of the architecture matches the richness of the structure.

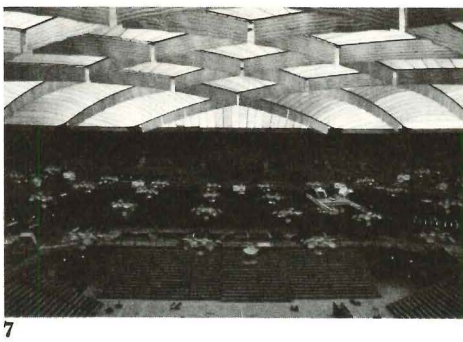


5

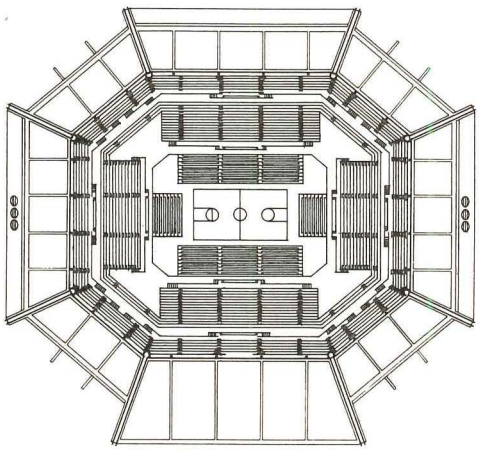
Photos: Richard Rush



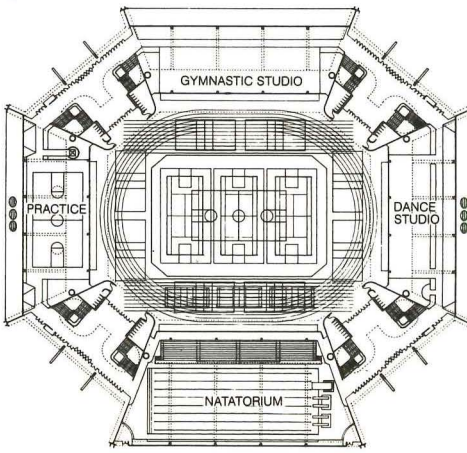
6



7



STEPHEN C. O'CONNELL CENTER: SEATING PLAN



GROUND FLOOR PLAN N ↑ 100'/30m

Energy analysis

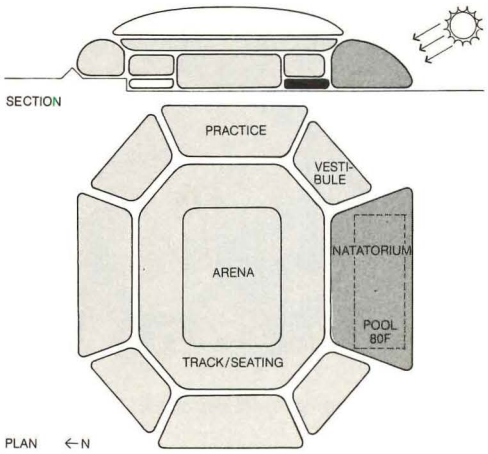
his analysis was prepared in the enter for Planning and Development esearch, College of Environmental esign, Univ. of California, Berkeley; ladimir Bazjanac, Ph.D., Project Di-ector. The work is funded by the U.S. epartment of Energy.

rchitectural energy analysis of the tephen C. O'Connell Center for the niversity of Florida in Gainesville con-ntrates on the analysis of effects of ariation in translucency of the fabric kin and of different climatic conditions n the energy performance of the build-ng. This report is a summary of the nalysis of those building heating and ooling loads which are determined by rchitectural design. The performance f mechanical systems and energy de-anded by them are not included in the esults. The reported electrical loads eflect only the demand generated by ghting fixtures (P/A, April 1980, pp. 8–101).

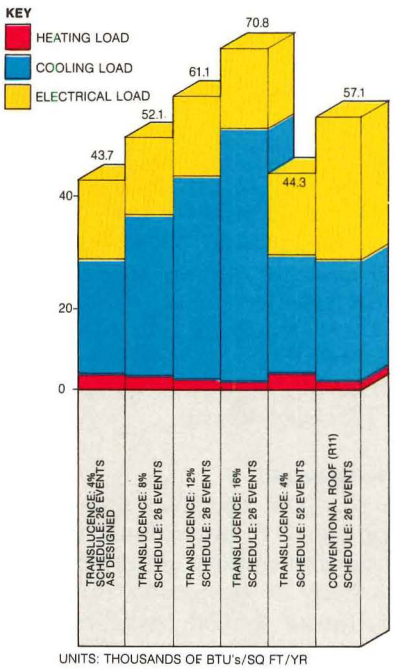
The translucency of the skin, com-osed of two layers of fabric, is varied rom 4 percent (as built in Gainesville) o 16 percent. The energy performance f a hypothetical "conventional" struc-ure is simulated for comparison. The ame design as in Gainesville is analyzed ut with a concrete shell roof with R-11 nsulation and no use of natural light-ng. The five other cities in which the uilding designed for Gainesville is laced are representative of different imates encountered in the United tates.

The analysis was prepared using he DOE-2.1 computer program with SHRAE weighting factors approx-nating the effect of building mass. RY weather tape for Jacksonville, Fl, as used to simulate the weather condi-ons in Gainesville. TRY weather tapes so were used for other cities.

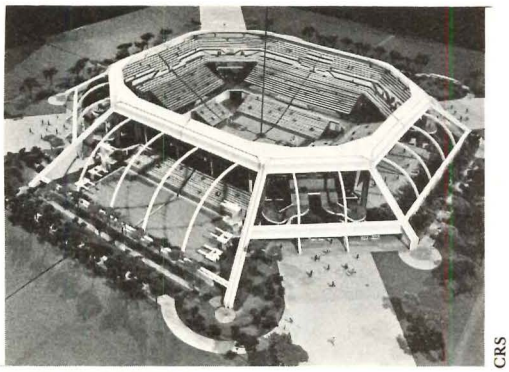
Three types of events will take place the building: 1) intramural sports, 2) CAA basketball and swimming, and 3) oncerts, ceremonies, and speeches. In-amural use is planned throughout the ear; other events are concentrated in he period between the middle of ovember and the middle of June. The uilding will operate from 7:30 a.m. to idnight. When no major events are cheduled, intramural sports will use the rena; therefore the doubling of major vents (from 26 to 52) causes only a inor increase in the yearly energy con-mption.



THERMAL ZONING: STEPHEN C. O'CONNELL CENTER

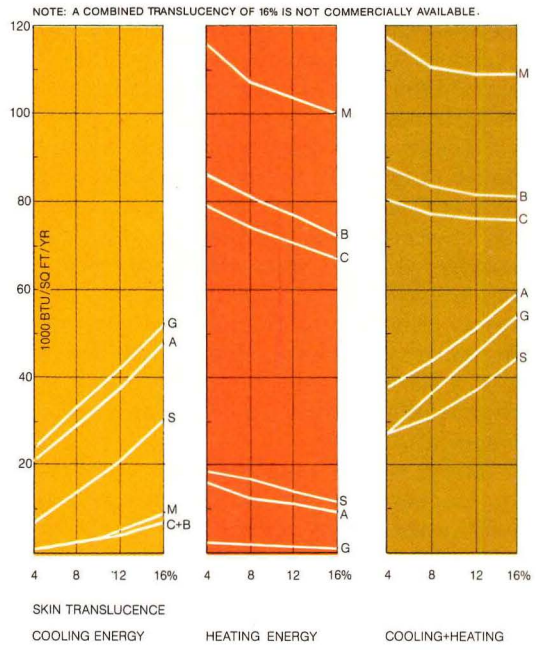


COMPARATIVE ANALYSIS OF ROOF DESIGN OPTIONS



AERIAL VIEW OF MODEL

CRS



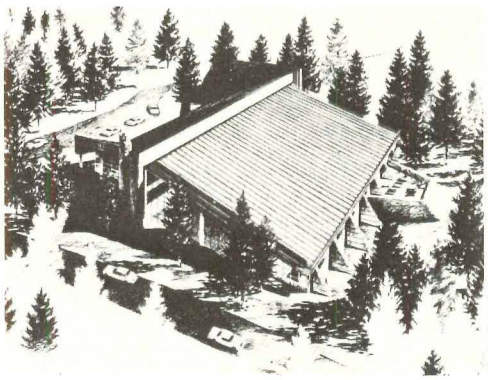
COOLING AND HEATING LOAD COMPARISON AS A FUNCTION OF DOUBLE SKIN TRANSLUCENCE AND CLIMATE

The building contains a large arena with seats for 12,000 spectators. Stratification in such a large space cannot be modeled accurately with DOE-2.1. As an approximation, the arena is divided in the analysis vertically into three freely interacting thermal zones. The curved shape of the fabric skin is approximated by a system of tilted flat surfaces with the same surface area and the same thermal resistance properties as the skin. The self-shading of the bulging surfaces and the changing angles of incidence are ignored.

The water in the swimming pool is maintained at 80 F, which is five degrees above the designed air temperature in the natatorium. Therefore the pool continuously releases heat and humidity, adding to the cooling load in the building. Ground temperature in Gainesville during summer months is higher than the temperature of the air inside the building; cooling load could be slightly reduced by insulating the ground slab and underground walls.

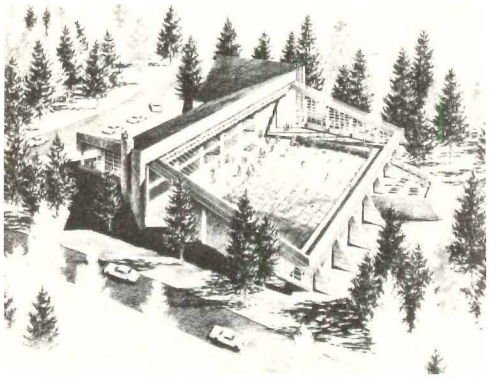
Daylighting is the most important factor for the energy performance of this building. The translucent skin eliminates the need for artificial lighting during daylight in all but the subterranean spaces. The demand for energy rises in a "conventional" building because of its necessary reliance on artificial lighting, despite the better thermal properties of its roof and exterior walls.

The low thermal resistance of the fabric skin as designed results in substantial heat loss in cold climates. A fraction of this loss can be offset by increasing the skin translucency to boost solar gain. The greatest reduction of the heating load would be achieved by increasing the thermal resistance of the skin without diminishing its daylighting performance.



Carissimi Rohrer Assoc.

Inclined Village project inflated.



Inclined Village project deflated.

The other question is thermal transmission. Professor Willard Oberdick of the architectural research center at the University of Michigan is currently in the process of monitoring four existing Teflon-coated fiberglass buildings to evaluate the thermodynamic performance of the structures. Included are Bullocks Department Store, the dome at the University of Iowa, the Pontiac Silverdome, and Santa Clara College Activities Center. The study is sponsored by Owens-Corning Fiberglas and will last one year. Dr. Steven Selkowitz of the Lawrence Berkeley Laboratory is currently monitoring the thermodynamic behavior of Bullocks Department Store and is planning work on the Florida Festival building. His study is sponsored by Chemfab.

There is nothing static about the fabric market. Product manufacturers are well aware that the fabric roof has great potential for energy savings on a life-cycle cost basis. They are experimenting with multiple layers of fabric, night shading devices, and foil coatings. There already have been applications in Alaska where insulation was inserted in the space between two layers of a fabric roof. The race is on to make a translucent insulation which can be inserted between the layers without sacrificing natural light.

In a project for Inclined Village, Nv, David Geiger of Geiger-Berger is coupling talents with architects Carissimi-Rohrer Associates to produce a "thermally active roof." During the winter months, an air-filled translucent cellular fabric roof will be drawn over cables to protect the swimming space. In the summer, it will be drawn back like a curtain. The flexible material is expected to be vinyl-coated polyester.

Another important direction is the possibility of small-scale pre-engineered structures constructed of coated fiberglass. It is conceivable that products as small as modular skylights or building panels may appear as mini tensile structures. Industry experts estimate that premanufactured products may represent 40 percent of the future market. Horst Berger is convinced that there also will be a bright future market in the housing industry for the fabric structure. In the meantime, fabric people entice us with the thought that there are another dozen or so large fabric structures waiting in the wings to begin within the next 18 months.

Conclusion

The human spirit which cast off gravity and photographed Mars seems quite at home under a lightweight fabric stretched between cables or floating on air. Both the industrial technology and the computer design technology involved provide an equally fruitful setting for the engineering mind. In addition, in these troubled times there is something terribly appealing to an architect about beginning a design by "letting go." [Richard Rush]

Acknowledgments

We wish to thank the following architects, engineers, organizations, educational institutions, and manufacturers for their help in preparing this article: Abri, Susan P. Gill; Air-Tech Industries, Inc.; Anspach Grossman Portugal, Inc.; Seth Borten; Bullocks Dept. Store; Buro Happold; Canvas Products Association International; Carissimi-Rohrer-Associates; Caudill Rowlett Scott; Chemfab; Philip Drew; E.I. Du Pont de Nemours & Co.; Florida Festival; Future Tents, Ltd.; Geiger Berger Associates; Hakan/Corley-Finch-Heery-Geiger Berger; Helios Tension Products, Inc.; Heuber Hares Glavin; Huygens and Tappé, Inc.; King Abdulaziz University; Moore May Graham Brame Poole Emo; Frei Otto; Owens-Corning Fiberglas; Seaman Building Systems; Sea World; Skidmore, Owings & Merrill; Univ. of Florida at Gainesville; Univ. of Michigan; Univ. of South Florida at Tampa; Weidlinger Associates.

For fabric structure product and literature information see p. 153.

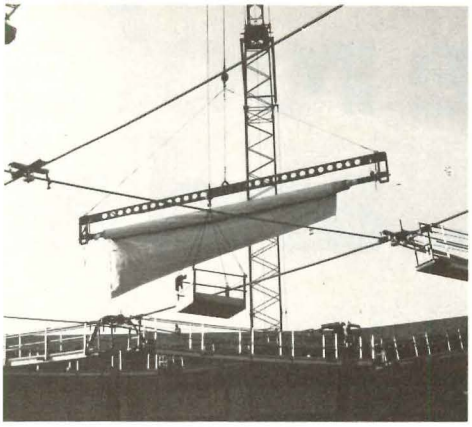
Sun Dome: *Look familiar? The Sun Dome Mass Seating Facility for the University of South Florida at Tampa, Fl, is the sister structure for the Gainesville building already discussed. Designed by the same team of architects and engineers, the structure is unique in that the "skirts" have been initially deleted, leaving a set of spidery legs that drain the roof.*

Once the concrete superstructure was completed, the fabric roof took only five weeks to erect. Most of this speed was due to teamwork and project manager Larry Harp of Owens-Corning's Fabric Structure Contracting Services. Harp and his team of fabric construction workers travel from building to building and have proven to be a great asset in improving the fledgling construction technology. Explains Harp: 1) "An exterior crane lifts the first rectangular panel—rolled around a metal bar—to the inside of the stadium. 2, 3 & 4) Workers then clamp the innermost side of the panel to the appropriate cable. When the fabric is completely unrolled, workers attach the final clamps at the compression ring." Panels are installed in a precise order from the perimeter to the interior. 5) The result is a soft, billowing roof, complete with lightning arresters and safety devices. The roof was inflated one Saturday night in a thunderstorm.

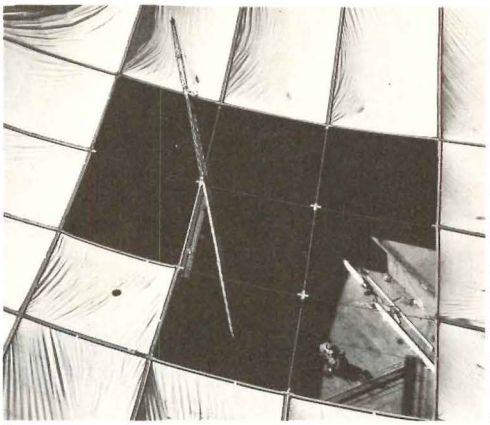
Carrier Dome: *The Carrier Dome for Syracuse University in Syracuse, NY, will follow the Tampa building as the next fabric sports facility to be completed. The $25-million facility will seat 50,000 and serve the entire metropolitan region as an all-weather stadium facility. The name Carrier Dome acknowledges the large financial support which has been provided by Carrier Corporation, a local civic-minded manufacturer. The new structure rests in the "footprint" of the original Syracuse University stadium.*

The architectural design effort is a joint venture of Atlanta architects Finch-Heery and Syracuse architects Hueber Hares Glavin. The engineer is Geiger-Berger of New York. The engineers took the opportunity in the Carrier Dome to use a flexible precast concrete compression ring, a concept which had to be abandoned for the Florida buildings. The concept allows the roof to flex independently of the seating.

The extreme snowfall in the Syracuse region required special attention in the design of the fabric roof and its liner. The doubled membrane is used as hot-air ductwork and will permit the facility to control snow buildup. The compression ring around the edge will also contain resistance heating elements to eliminate ice. The design concept is pictured at the right along with a current photo of the building under construction. The building is expected to be complete for the fall football season. The owners plan to retrieve $11 million in the first year of use.

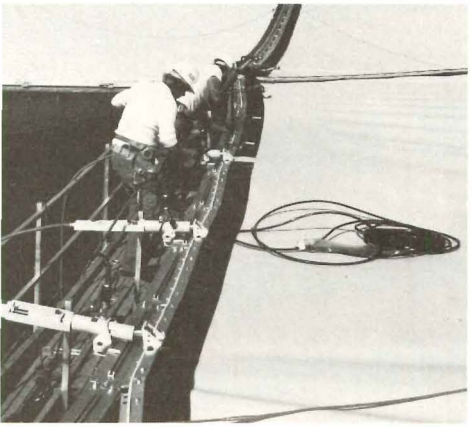


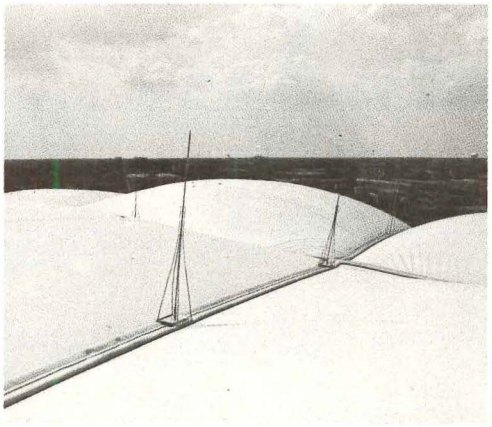
2



3

Photos: Owens-Corning Fiberglas

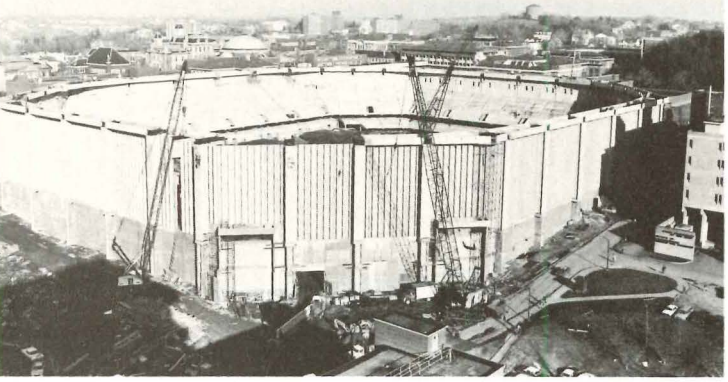




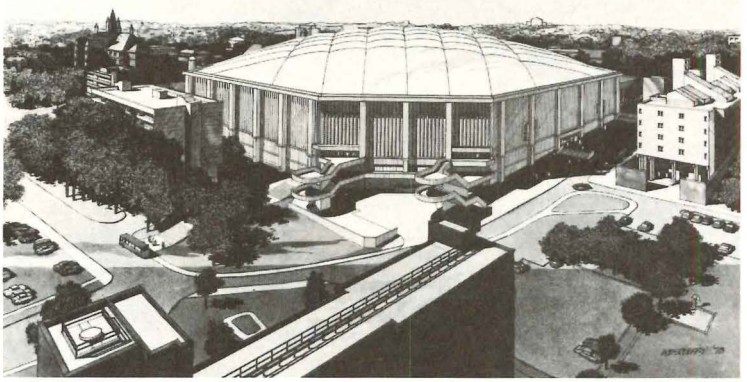
5

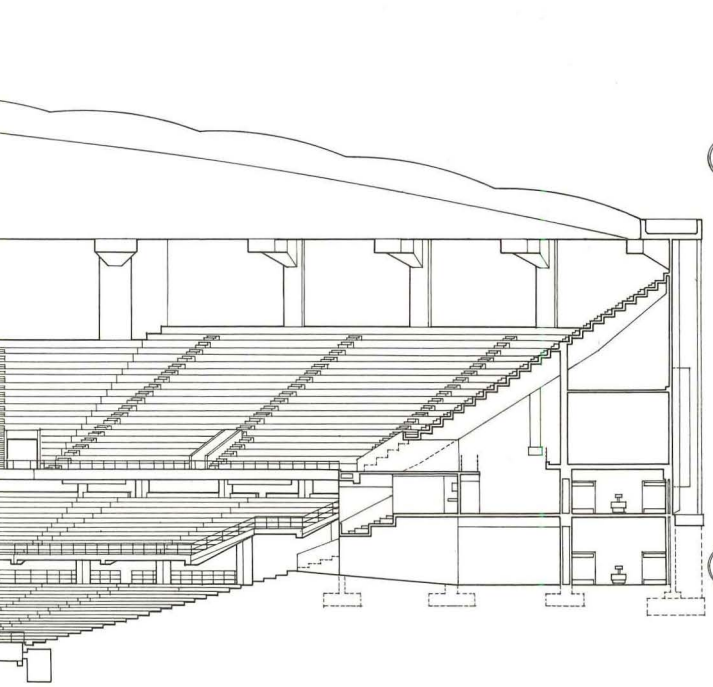
6

Richard Rush



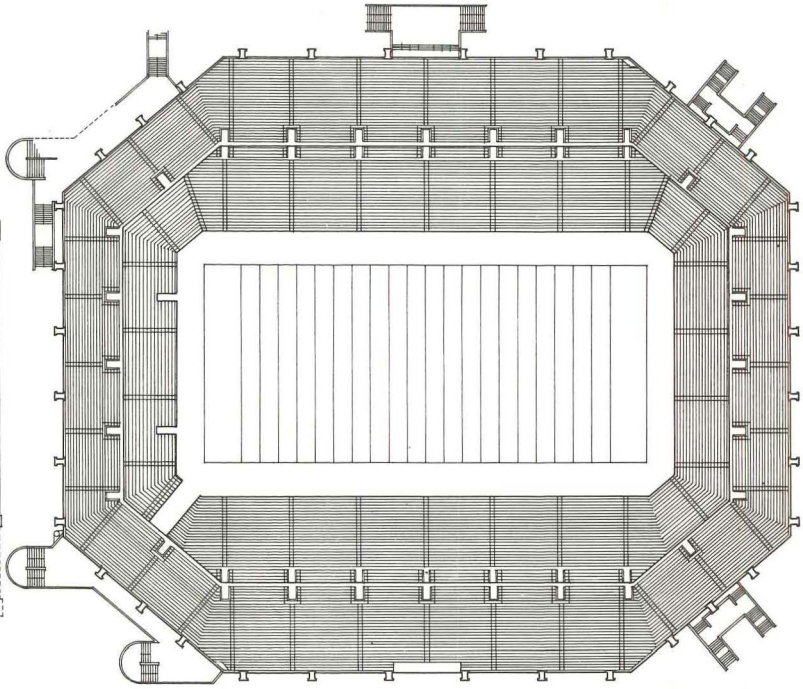
HHG





CARRIER DOME: CROSS SECTION

20'/6m



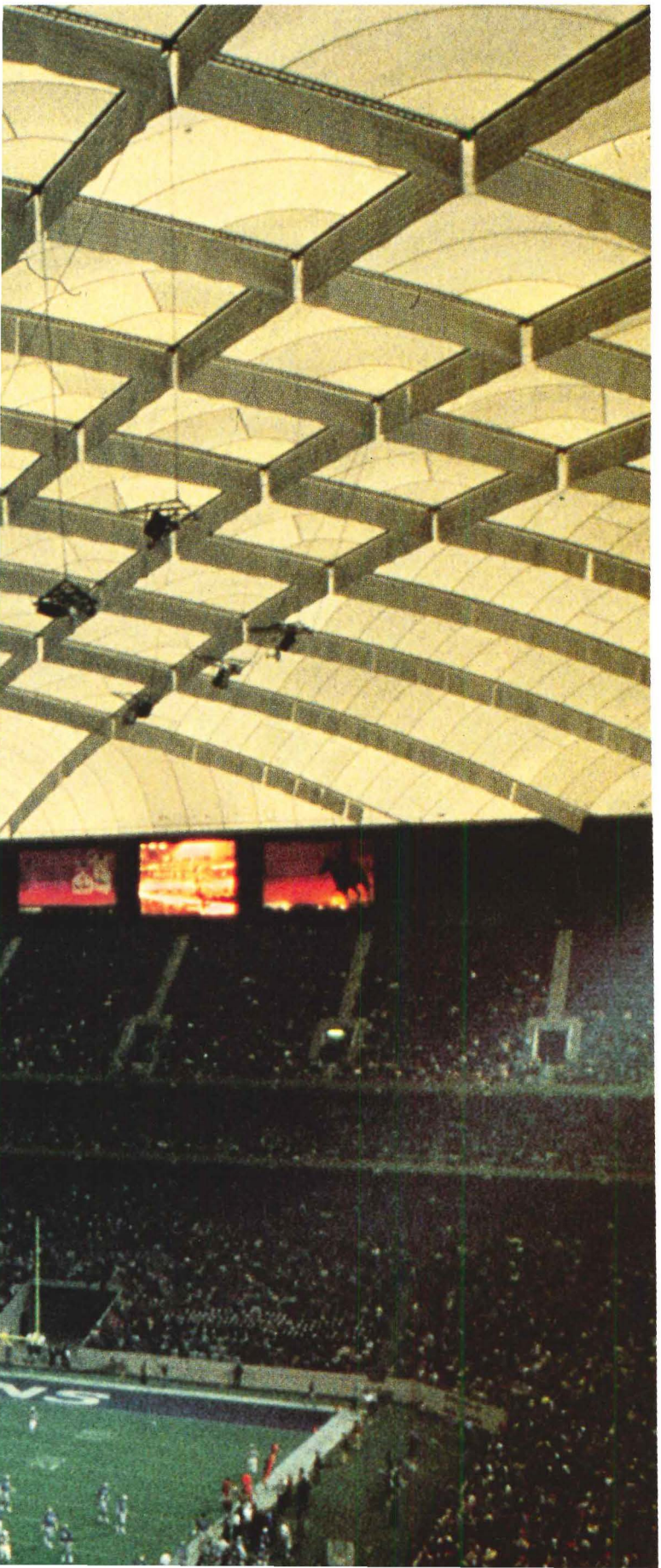
PLAN

N

100'/30m

A 10-acre roof o
TEFLON...and ai

abric coated with upports the load.



An air-supported dome of lightweight Fiberglas® coated with DuPont TEFLON® fluorocarbon resin completely roofs Pontiac Silverdome, home of the Detroit Lions, Detroit Pistons and Detroit Express. The 10-acre area is the largest permanent structure roofed with architectural fabric to date—and the stadium cost far less to build than comparable stadiums using other dome approaches.

Although the roof weighs 200 tons, the spectators inside never notice the slight increase in air pressure that supports it.

Tension structures with steel cables carrying the load, such as this LaVerne College drama lab and campus center, offer an attractive alternative to air-supported structures.

In addition to low construction costs, fabric structures coated with TEFLON offer easy and economical maintenance. The coated fabric resists sunlight, dirt and aging, and rain helps keep it clean because of the non-stick surface of TEFLON.

Fabrics coated with TEFLON have high reflectivity, which helps minimize energy expenditures for cooling in summer. They also provide relatively high solar transmission for natural illumination and can be insulated to minimize heat loss in winter.

Architectural fabric structures are strong. When properly specified, they easily withstand the stresses of wind and snow. And Fiberglas® coated with TEFLON does not support combustion—exhibiting exceptionally low values for flame spread and smoke generation.

Send for free booklet

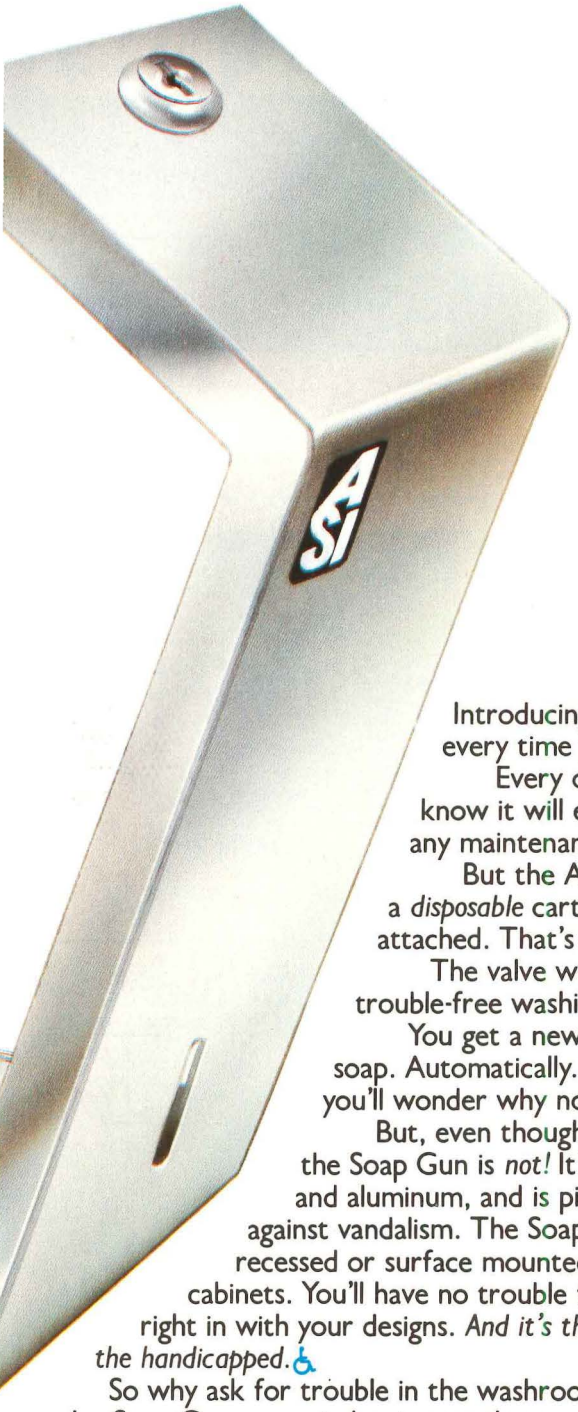
Find out more about the advantages of architectural fabrics coated with TEFLON for permanent buildings. For a free 16-page full-color brochure, write: DuPont Company, Room 37050A, Wilmington, DE 19898.

DUPONT
REG. U.S. PAT. & TM. OFF.

THE SOAP GUN

It's loaded with a disposable cartridge and valv -instead of trouble.

THE ASI DISPOSA-VALVE SOAP GUN



Introducing the soap gun—the only soap dispenser that works every time you pull the trigger. No drips. No clogs. No problems.

Every other soap dispenser has a permanent valve. And you know it will eventually "gunk up" or wear out and malfunction. Ask any maintenance man.

But the ASI Soap Gun is different. It's loaded with a cartridge—a *disposable* cartridge that has a soap tank with its own special valve attached. That's what makes it as reliable as a gunslinger's .45.

The valve works perfectly because it's brand new. And, after 1,500 trouble-free washings, the valve is thrown away along with the empty tank.

You get a new valve every time you reload the soap. Automatically. It's as simple as that. So simple you'll wonder why no one ever thought of it before.

But, even though the cartridge is disposable, the Soap Gun is *not!* It's made of stainless steel and aluminum, and is pin-tumbler locked against vandalism. The Soap Gun is available as a recessed or surface mounted unit in a wide variety of cabinets. You'll have no trouble finding one that will fit right in with your designs. *And it's the ideal soap dispenser for the handicapped.*

So why ask for trouble in the washroom when the ASI Disposa-valve Soap Gun can out-shoot any other soap dispenser in town? And the soap costs less to use than any other soap in the world?

Sounds too good to be true? Believe it. Better yet—ask us to *prove* it with a demonstration! Call us at 914/476-9000, or send in the coupon below. There's no obligation.

ACCESSORY SPECIALTIES, INC. PA-6
441 Saw Mill River Road, Yonkers, N.Y. 10701

Yes! I would like to see if your Soap Gun can really win the "soap dispenser shoot-out!" Please arrange a demonstration for me.

Name_____ Title_____

Company_____

Address_____

City_____ State_____ Zip_____

Telephone_____

Circle **No. 312** on Reader Service Card

WE HAVE WALL TO WALL IDEA

Reed is the largest wallcoverings distributor in the United States. Our broad product line includes everything from the most exotic hand prints to good old tried-and-true. Papers, light and heavyweight vinyls, metallics, mylars, strippables, pre-pasteds, fabrics, whatever.

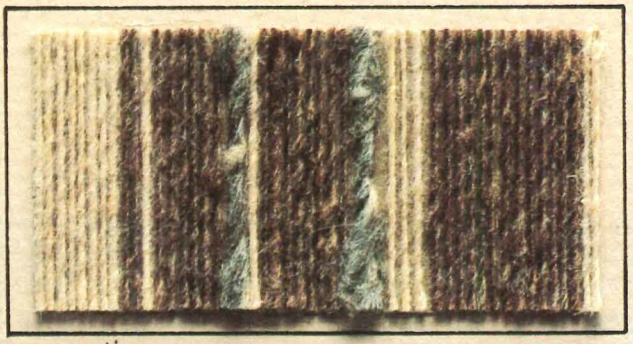
You won't believe so many choices could come from one source. (When you maintain a multi-million-roll inventory, it's easy.)

Moreover, our prices are competitive, and our delivery is simply beyond compare. (With 11 strategically located distribution centers across the co it's a snap.)

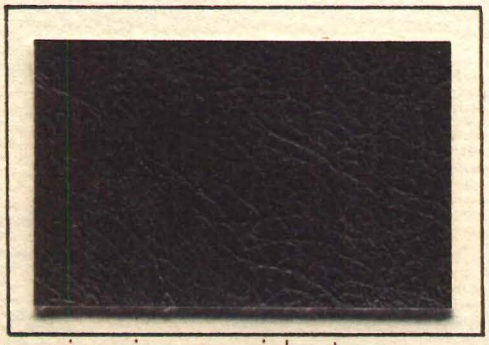
We're ready when you need us service, for advice, for selection, help of any kind.

So next time you're working o wallcoverings plan — or specifying

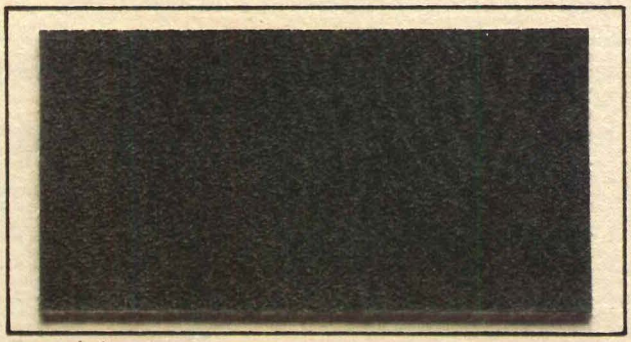
WALLCOVERING



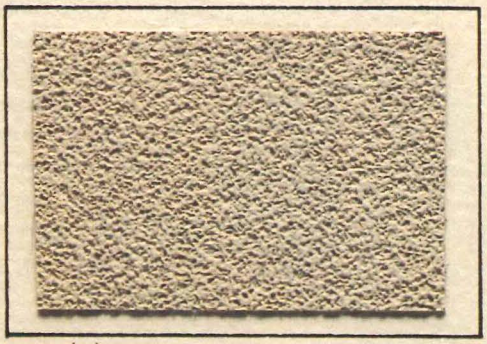
reception area



senior vice president

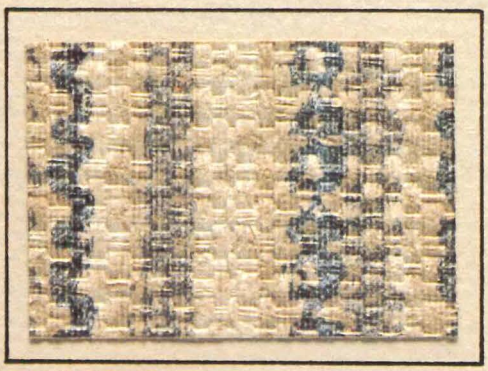


president



corridor

office manager



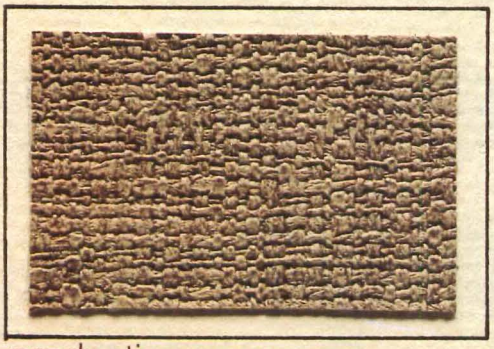
restroom

ings supplier – remember Reed.
ave great wall to wall ideas for just
any wall you could suggest.
ll our nearest regional office and
alk contract together. In Atlanta,
gia, it's 404/876-6367. In Dallas,
214/747-9011. Chicago, Illinois
312/569-2290. Los Angeles, California 213/266-0330. And Philadelphia, Pennsylvania 215/638-4950.

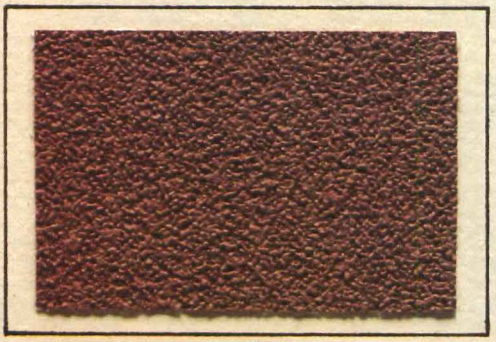
Circle **No. 360** on Reader Service Card

Sunworthy, W.H.S. Lloyd, Bolta, Dwoskin, UltraTex, Reed.

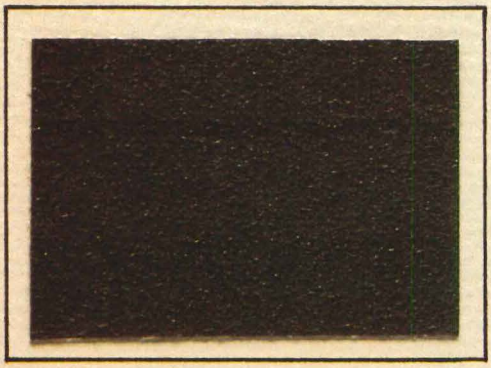
REED
WALLCOVERINGS



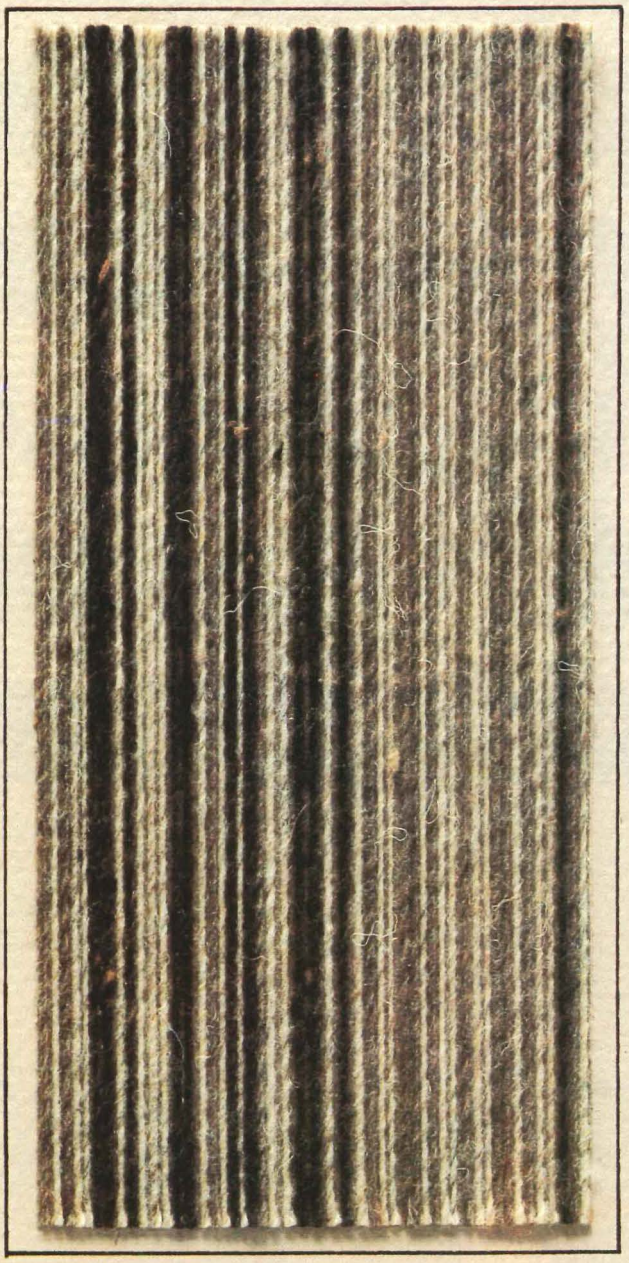
production manager



account executive



bookkeeping



board room

Introducing...a barrier-free entrance that serves the specia needs of handicapped people, complies with varying state and local codes...and yet meets the demands of normal traffic flow.

The Kawneer Barrier Free Manual Entrance System has been designed and engineered to serve the needs of all people, including those who are physically impaired. Now, meeting state and local codes, as well as satisfying human needs is as easy as Kawneer Series 800 Barrier Free Manual Entrances. And, they incorporate the most recent design ideas for handicapped use:

1. 34" standard clear door opening for extra width convenience.

2. No threshold to create stumbling hazard or obstruct wheeled traffic.

3. Concealed or surface-mounted manual closers meet reduced force requirements of most accessibility codes.

4. Extra-length door pulls (15 3/4") for easy grasping and convenience for all heights.

5. Exterior and interior surfaces of sidelite base rail are flush with face of lock jamb to prevent wheelchairs and crutches from getting caught.

6. Door bottom rails and sidelite base rails available in 10", 12", or 16" standard heights.

7. Surface applied wear shields to protect door and frame impact areas.

8. Rounded corners and tapered door stops on frame help prevent scraped knuckles and snagged appliances.

Kawneer Series 800 Barrier-Free Manual Entrances

A unique manual door closer eliminates the need for power openers, automatic operators or other expensive entry devices. Handicapped persons can significantly reduce the force they must exert to open the door by just pressing the button located near the doorway.

For additional information contact your Kawneer representative, or write to: The Kawneer Company, 1105 N. Front St., Niles, MI 49120

Kawneer
The designer's element

Circle **No. 344** on Reader Service Card

THE DETAILS BEHIND THE DETAILS. A SERIES FROM ACME BRICK.

These details were made possible by the close coordination of architect, engineer, mason contractor and brick manufacturer, achieving a bold new solution, utilizing Engineered Brick Design.

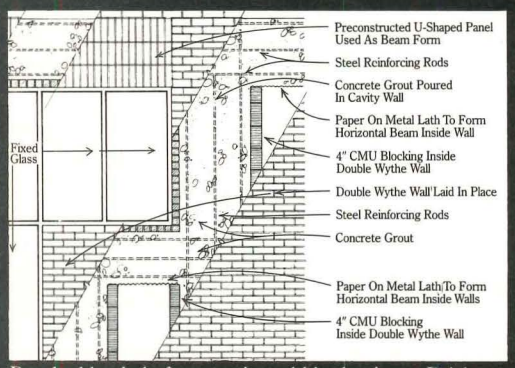
The real beauty of this structural solution is in how it provides maximum function and design with minimum cost. Walls are not only structural, but also energy conserving, fire resistive, sound insulating, and finished both on the interior and exterior.

The system has integrity. Truthfully employing the properties of the materials. Engineered Brick Design simplified construction procedures on this project, and was more cost efficient than any other system.

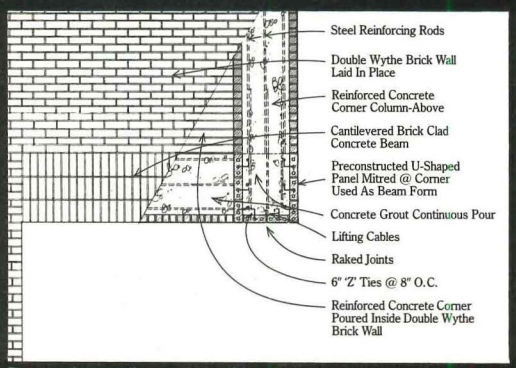
Whether you consider cost, flexibility, or beauty, no other system can match the total performance of Acme Brick and Engineered Brick Design. It's the best all-arou system choice for your next commission.

For more Engineered Brick Design information, ca collect, 817/332-4101, ext. 365. Or write Acme Brick Technic Services, P.O. Box 425, Fort Worth, Texas 76107.

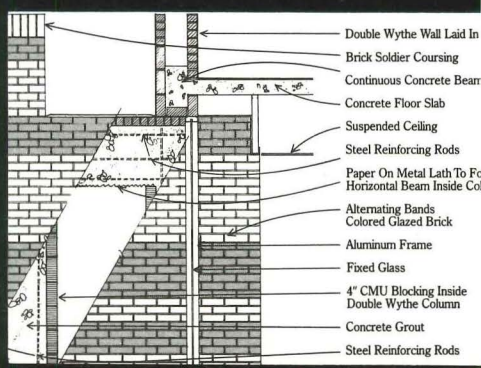
ACME BRICK. THE BEST ALL-AROUND BUILDING MATERIA



Punched keyhole fenestration within the Acme Brick bearing wall mirror the repetitive shapes of the cantilevered corner elements.



Dramatic cantilevered building corners seem to defy gravity. Made possible by preconstructed Acme Brick panels acting as forms for the internal structure.



Wing walls of Acme Brick intersect the main form and carry the implied wall mass above. In addition they provide solar shading.

Brookhaven College, Dallas, Texas
Owner: The Dallas County Community College District
Architect: Pratt, Box, Henderson & Partners, Dallas, Texas
Structural Engineer: Datum Structures Engineering, Inc., Dallas, Texas
Masonry Contractor: Dee Brown Masonry, Dallas, Texas
Construction Manager: Avery Mays, Dallas, Texas

Payments based upon special conditions

lorman Coplan

lare should be exercised in ording of contracts be- veen owner and architect here fee is contingent upon particular fund or event.

If a contract for architectural services provides that fees are payable upon the occurrence of a particular event or out of a particular fund, the architect may have difficulty in securing compensation, or even forfeit the same, if the event does not occur or the fund does not become available. When a controversy arises under such a contractual arrangement, the architect will generally contend that the event which must occur, or the fund which must come into being, relates only to the time of payment and not to his right to receive payment, and that under any circumstances, he is entitled to be paid within a reasonable time. The owner, on the other hand, will generally contend that if the event does not occur or the fund is not established, the architect's right to compensation is extinguished. The intent of the parties, as reflected in the language utilized in the architectural contract, will in most instances determine which contention is correct.

Architectural contracts are sometimes written to provide that fees will be payable when the owner obtains a mortgage, or such fees will be payable out of the mortgage or building loan fund. Illustrative of the legal problems which may arise under such an agreement is a determination of the Arizona Court of Appeals in *Campisano* v. *Phillips,* 547 P.2d 26. In that case, the Court considered a claim of an architect for fees for services rendered in connection with the design of an apartment complex. The architect had not been paid under his original contract with the owner, but when he threatened to institute a lawsuit, he was informed that such an action would impair the owner's chances of obtaining a construction loan. The architect subsequently entered into a new contract with the owner which provided that the architect would be paid for services already rendered out of the first and last draws by the owner of the construction loan. The new contract provided that the foregoing mode of payment was to be "the only method of payment for the work completed to the date of the agreement." The owner, however, never received any construction or interim loan draws.

The architect eventually instituted suit, arguing that the contract merely fixed the time when performance was to become due and that the owner's duty to make payment was not contingent upon the receipt of construction loan draws. The architect, in support of his position, had relied upon several legal authorities which held that where the payment of a debt arising out of a prior contract or arrangement is, by subsequent agreement executed by the debtor, postponed or made payable upon the happening of some specific contingency, the debt becomes payable within a reasonable time after the execution of such subsequent agreement, even though the contingent event has not occurred. The Court, however, concluded that these precedents were not applicable, stating:

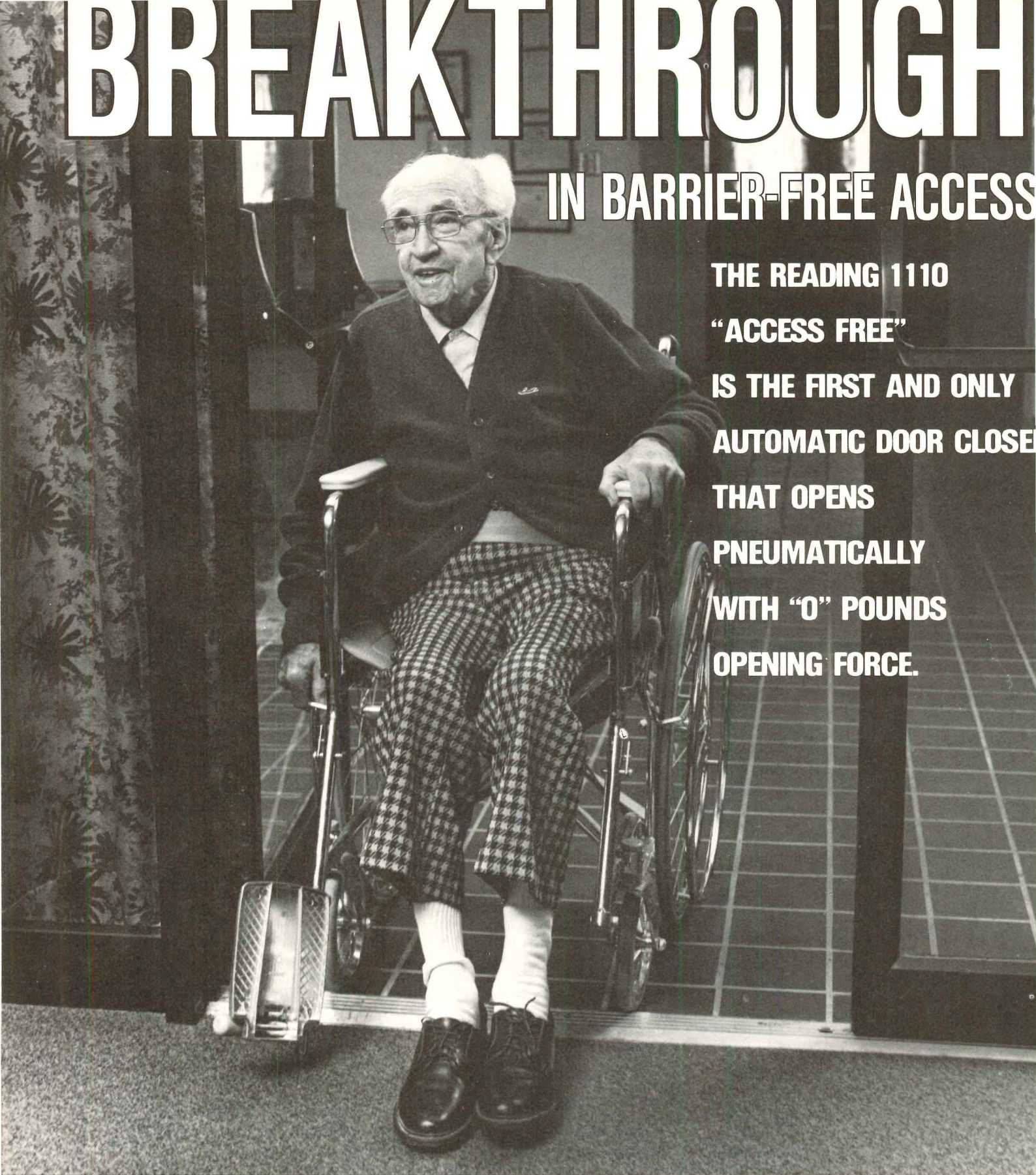
"Valid though this statement may be as a general rule of construction, the plain language of the contract must control. We agree that where the language of the contract is reasonably subject to different interpretations, the fact that the underlying debt arose from a prior contract supports the view that the parties intended it to be payable within a reasonable time even if the contingency did not occur. However, where the language of the new contract clearly shows an intent that the debt be paid out of a specific fund and not otherwise, the promisee must prove the existence of the fund to recover; and this is true whether or not the debt antedated the new contract. . . . Here . . . the contract expressly provided that appellant was to be paid 'out of' construction loan draws. We therefore hold that the contract limits appellant to payment out of a particular fund, and that judgment was properly rendered against him when it was shown that the fund did not exist."

In reaching this conclusion, the Arizona Court was required to distinguish other decisions which reached a contrary result under somewhat different facts. For example, the Court referred to an Oregon case *(Mignot* v. *Parkhill)* which considered a contract which provided that a contractor was not obligated to pay a subcontractor "until such time as the contractor has himself received the money" from the owner. The Oregon Court construed such language as an agreement not to look to a specific fund for payment, but relating only to the time of payment. Thus, the contractor was eventually obligated to pay the subcontractor even though he had not received the funds from the owner. The Arizona Court, although conceding that the Oregon decision was correct, distinguished it on the ground that a contract which did not require payment "until such time" as money is received reflects a different intent than a contract which expressly states that money is to be paid out of a particular fund.

Further, the Arizona Court distinguished an earlier decision in its own jurisdiction *(Kirchoff* v. *Cummard)* which construed a contract using the words "out of" as not limiting payment to a particular fund. This conclusion was premised upon the fact that the contract in question did not expressly provide that the payment was to be made "exclusively" or "only" out of the particular fund in question, whereas in the later case, there was a reference to the "only" mode of payment. Such a distinction may seem to be technical and strained, but such differences in result do emphasize the significance and importance of proper draftsmanship in the formulation of the contract between owner and architect. □

BREAKTHROUGH

IN BARRIER-FREE ACCESS



THE READING 1110 "ACCESS FREE" IS THE FIRST AND ONLY AUTOMATIC DOOR CLOSE THAT OPENS PNEUMATICALLY WITH "0" POUNDS OPENING FORCE.

The Reading 1110 is a remarkable breakthrough for barrier-free access involving the elderly, disabled and handicapped. It brings independence to those who could not negotiate doors...even those power-assist doors with opening force of less than 5 pounds.

The Reading 1110 features the same rugged, dependable closer as those door closers that successfully endured the 2,000,000-cycle test under ANSI A156.4-72. It meets the opening force requirements established by ANSI A117.1 and the closing requirements of all other standards.

Get all the facts today about the Reading 1110 "Access Free"...the first and only automatic door closer that opens pneumatically with "0" pounds opening force. Phone (215) 267-3381 or write.

READING DOOR CLOSER CORP.
"...the innovators".
Reamstown, Pennsylvania 17567

U.S. and foreign patents pending

Circle **No. 359,** on Reader Service Card

The lady in 731–
ne's never heard
f Bobrick.
But we've been
inking about her
nce 1906.

She never gives a thought to her hotel throom. She simply uses it and takes it granted.

Which is the way we planned it. At brick, we spend all our time designing and king equipment for guest baths and blic washrooms in hotels. And we've en around since 1906.

We make a full line. Over 700 items—erything from soap dishes to lavatory untertops. So when you're designing a tel, Bobrick is the only name you need to member when you're specifying wash-om equipment.

We design for function. Beautiful action. We recess and combine as many its as possible, to eliminate wasted wall ace and reduce installation costs.

We build for long wear. For easy intenance. And as few problems as pos-le from vandalism and graffiti. That's y we use heavy gauge type 304 stainless el. It won't corrode and it keeps its new k forever.

The lady in 731 never thinks about ngs like these. She doesn't need to. cause we do.

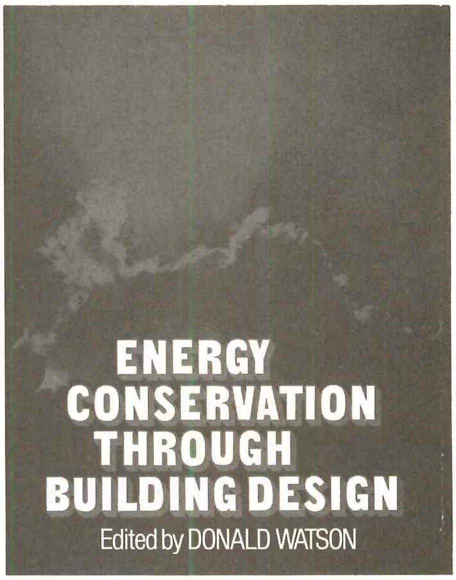
BOBRICK

ONLY NAME YOU NEED TO KNOW IN WASHROOM EQUIPMENT

Let us send you our Planning Guides and Catalogs. rick Architectural Service, Lincoln Building, 60 42nd Street, New York, NY 10017. Bobrick prod-

Energy compilation

Books



Energy Conservation through Building Design, *edited b Donald Watson, AIA. New York, McGraw Hill, 1979, 308 pp. illus., $19.50.*

Reviewed by John S. Reynolds, Professor of Architecture, Universit of Oregon; principal, Equinox Design, Inc., Eugene, Or.

This book is a collage of work by architects, engineers teachers, and researchers; it has something for everyone in terested in conservation and building. It is not likely tha everyone will find all contributions important, but that is o little consequence and should be expected in works of thi type.

Commercial building design is emphasized; this is th book's great strength and its weakness. The strength become evident, chapter by chapter. The weakness rests in the way i which the subject of high internal gains in commercial build ings is somewhat downplayed. Although several contributor include analyses of these gains, only Fred Dubin really goe after electric lighting as the culprit that it is. Too many au thors seem to have accepted high internal gains, then pointe out the folly of high insulation levels in an always-overheate building, or to have minimized the role of solar heating i commercial buildings that "don't need it."

Dubin makes the point that needs reinforcing throughou the book: we should seek to replace electric lighting with day lighting, and when more windows result in an increase i space heating needs, seek an *appropriate* heat source. Electri lighting is a thermodynamically inappropriate source of spac heating, in contrast to waste heat and solar energy. By accept ing high internal gains, we come close to missing some of th fundamental changes encouraged by conservation; we wip the forehead of our feverish child, rather than break th fever.

The articles include the retrospective and the prophetic; i the wide technical range, we go from being tantalized by Stei and Serber's idea of an energy-estimating handbook to bein led, step by step, through Balcolm and friends' Solar Fractio Method. Such a gathering of information needs more struc ture in order to get quickly to what will inspire, inform, ange or surprise *you*. Some readers will know which authors t

[*Books continued on page 140*]

CROWD PLEASER.

Moving people in style. Saving energy. That's the Westinghouse Moduline 100® escalator.

Pleasing big crowds is the specialty of the Park Place Casino Hotel in Atlantic City. And of the Westinghouse Moduline 100 escalator.

Customers were impressed with the dynamic looks of this "Stairway to the Stars" and its spectacular 90-foot glass balustrade.

Hotel managers liked its ability to move a lot of people quickly. Efficiently.

And the quick, trouble-free installation meant the Bally Corporation, owner of this showplace, could open for business sooner. And win in the big race for new business in the "new Las Vegas."

But like building owners and operators all across America, Bally will also be pleased with the substantial energy savings these escalators provide.

Independent tests showed the Moduline 100 saved 30% over conventional escalators going up and a whopping 59% going down with only five passengers. And with more people the savings were even greater.

How does Westinghouse do it?

With a unique one-design concept. Modular units, each with a separate motor and drive, can be interconnected. So you can span a vertical rise to almost limitless height. Separate, parallel, criss-cross or even stacked arrangements are possible. And the compact design reduces the need for massive machine rooms. Building space opens up. That's real design freedom!

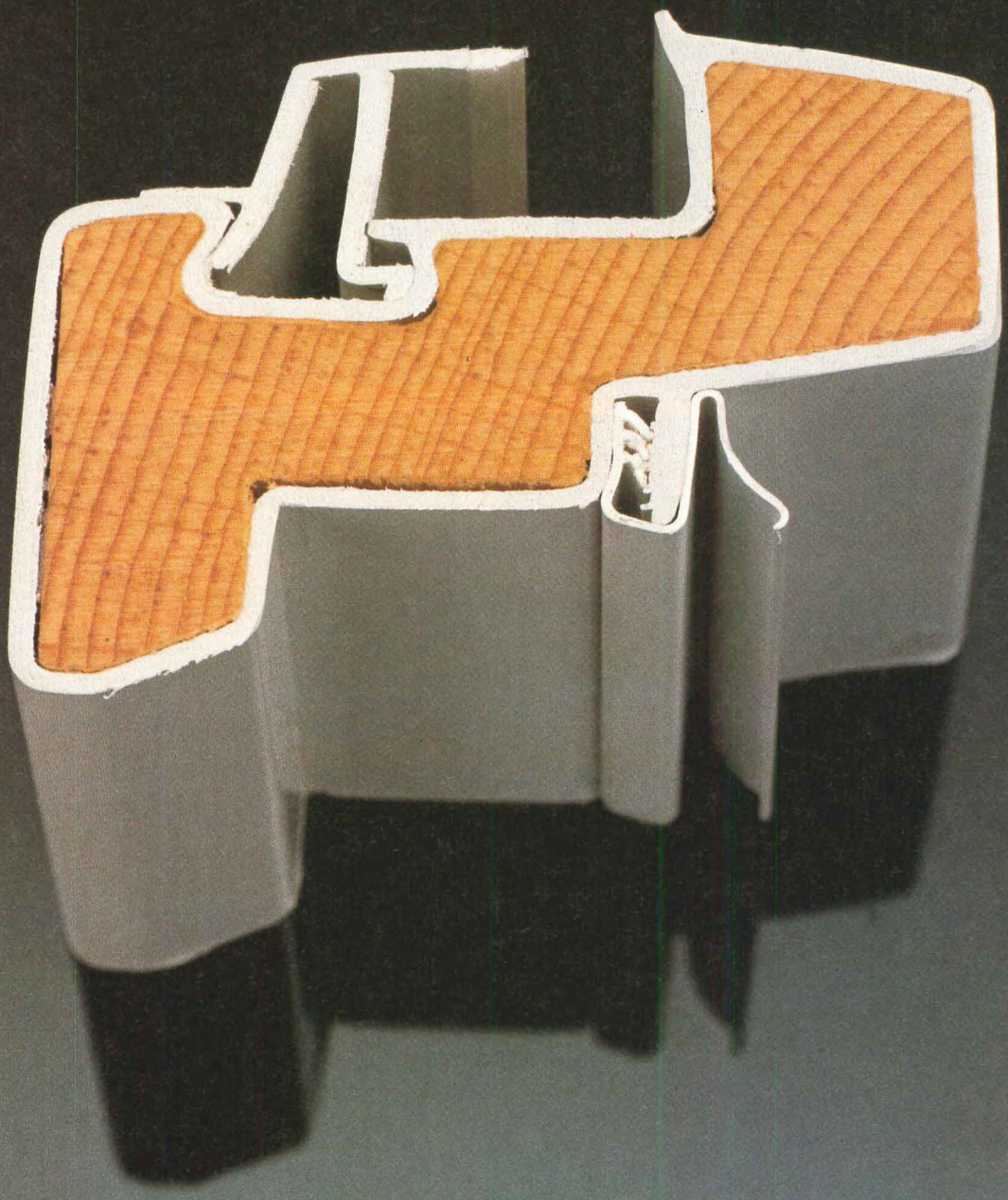
To find out more about these people-pleasing people-movers write: Westinghouse Elevator Company, Dept. 802, 21 Bleeker Street, Millburn NJ 07041.

Circle No. 382

Westinghouse Elevator Company

The technical leader in people-moving systems.

In the 60's the Perma-Shield® window was a revolutionary idea.



It still is.

n the 60's Andersen took a wood sash and ompletely enclosed it in vinyl.

The result was the Perma-Shield® asement window.

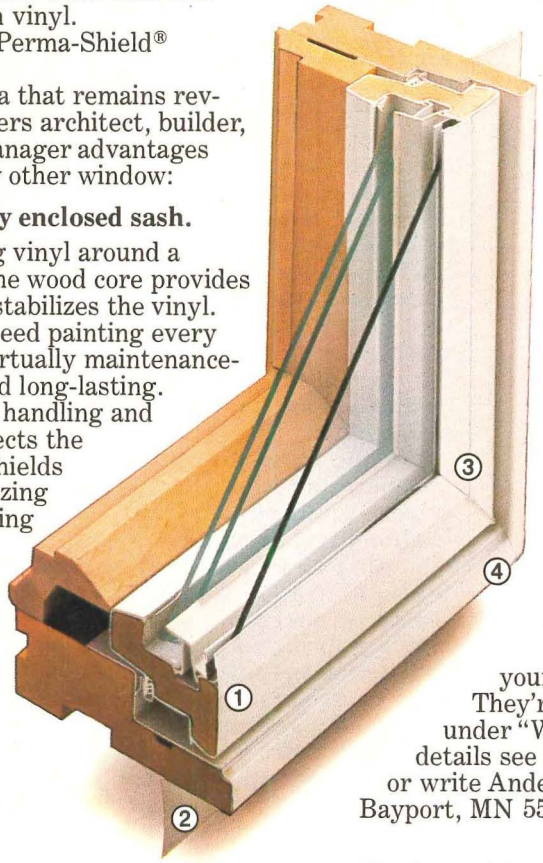
A revolutionary idea that remains revlutionary because it offers architect, builder, wner, developer and manager advantages hey still can't get in any other window:

① The only completely enclosed sash.

t's created by extruding vinyl around a re-milled wood sash. The wood core provides uperior insulation and stabilizes the vinyl. The vinyl sheath won't need painting every ew years. In fact, it's virtually maintenance-ree. It's thick, tough and long-lasting. Stands up beautifully to handling and nstallation. And it protects the wood core completely. Shields he wood against the blazing un, bitter cold and driving ain of the outdoors, he heat, humidity nd condensation f the indoors.

The vinyl is available in white or earthy Terratone color.

Optional triple glazing system also available for maximum reduction f heat loss.



② One of a kind flashing.

Andersen extends the frame's vinyl covering to form a continuous flashing/anchoring fin that has no seams, gaps or corner joints. Makes for easier, more weathertight installation.

③ Sash corner joints like no other.

Andersen *cornerwelds* sash stiles and rails together under extremely high temperature. This unique leakproof seal protects the wood core and greatly strengthens the sash's dimensional stability.

④ The best frame joints... none.

Perma-Shield casement window frames are produced by bonding preformed rigid vinyl to the wood members. Preforming does away with corner joints. Eliminates four potential leakage points.

In the 60's Andersen distributors and dealers began offering a revolutionary new window.

Their offer continues today.

Call them about using the Perma-Shield casement window in your next design.

They're in the Yellow Pages under "Windows." For more details see Sweet's File 8.16/An or write Andersen Corporation, Bayport, MN 55003.

The beautiful way to save fuel®

Andersen® Windowalls®

Circle **No. 309** on Reader Service Card

Books continued from page 136

read, while others will seek out titles. A good third way to begin is to read editor Watson's first and last chapters.

Watson's first chapter sets the tone nicely, reviewing how "fossil fuels became the energy substitute for climate-responsive building design." Detailing the advantages to owners, occupants, and society of energy conservation in buildings, he asks "If energy-conserving building design is ethical, wise, and economical, why then is it not inevitable?" The last chapter provides some answers, along with a concise summary of most of the articles in between. Watson's analysis of architectural design and institutional barriers shows why conservation is not yet inevitable, and he calls for a conservation initiative. Thus challenged, you can then take the chapters in whatever order appeals to your aesthetic, ethical, or technical desires.

For the scholar who seeks precedents and relishes ideas new and old, there is Bruegmann and Prowler's richly illustrated historical perspective; the section on ventilating methods is particularly appropriate to the rest of the book. There are Knowles's observations on solar rights, beginning with "Shouldn't we be concerned with what is moral before we are concerned with what is legal?" Steadman asks us to "think-line" instead of "think-blob," advocating a linear pattern of city growth that allows decentralized energy sources and features urban belts around areas of green, in contrast to the greenbelt approach. Eccli follows with appropriate technology's response to quick-cheap-and-die-young building philosophies.

For the designer who enjoys approaching the sea of the technical (but who prefers to stay on the beach), there is the largest group of chapters. Stein's first article presents a frightening picture of the increase in energy consumed in operating New York's office buildings, from 1950 (128,900 Btu/sq ft) to 1969 (266,400 Btu/sq ft). Then follows a detailed review of energy conservation options in two Albany office buildings, which is expanded in his later article with Serber to include energy saved in construction techniques. It is regrettable that so many of Stein's numbers are not also presented graphically, and that the graphs that are presented are cluttered with extra lines and words jammed in. Would that the graphics were up to the content!

Stein and Serber approach the developing subject of energy embodied in building materials and processes, but there is no readily useful table of these values. It is not easy to make a design decision based on energy embodied when, for example, wood shingles are shown as 7315 Btu/sq ft while an aluminum alternative is listed simply as aluminum sheet 95,943 Btu per pound. The authors point out that they are developing a handbook to aid in such energy decisions, which will certainly be welcome.

Milne and Givoni present the beginnings of design approaches to naturally tempered buildings, using the psychrometric chart as a base rather than Olgyay's easier, but technically limited, Bio-climatic chart. (A technical note on the use of the psychrometric chart is thoughtfully included, which would make a nice introduction to the subject for architecture students.) Their approaches to evaporative cooling methods are especially pertinent to the commercial building subject, and, in a later article, Dubin fills in some more technical details and opportunities.

Arumi dazzles with examples of detailed answers available from computer analysis; some tradeoffs between daylighting, heat flow, and electric lighting in window sizing were promising, as was site analysis of the adjacent reflections and shadows from a high-rise reflective-glass building. He presents surprisingly simple rules of thumb (p. 149) that tell a designer how critical is the inclusion of thermal mass for both heating and cooling. Arumi also cautions: "Without intelligent questions, even computer-generated answers are not going to be helpful," which I found the case where much effort was spent to track a momentary lapse in a fixed April-August sunshading device: why *fix* a device to shade in both cool April and hot August?

Getting further into technical details, designers and engineers should enjoy reading Spielvogel's and Dubin's arti-

[*Books continued on page 144*]

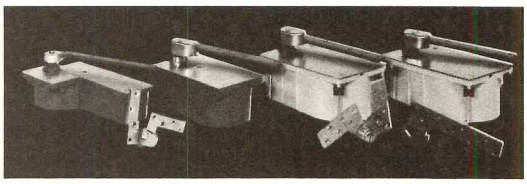
Carson, Pirie, Scott & Co., Chicago
Louis Sullivan, 1899.

the Young Century

Giants were at work in Chicago; Sullivan, Root, Adler, Perkins, Burnham, the young Wright. And their buildings serve well the society of now.

Among them worked a young Finnish architect, Oscar Rixson, devoted to their concepts of the superbly functional, the purity of architectural line. For them he developed a door control to be concealed in the floor; stronger, more durable than any closer known before, or after.

Rixson closers were specified for almost every major building designed by the leaders of the time. Many still control doors reliably, decade after decade. Yet, just as others further developed the ideas of "The Chicago School," so has the Rixson floor closer been improved, in literally scores of ways. At no time since 1900 has anyone ever made a better, more economical closer than a Rixson.



For information on the new generation of Rixson floor closers, contact:

RIXSON-FIREMARK

9100 West Belmont Avenue
Franklin Park, Illinois 60131
and Rexdale, Ontario—
312/671-5670

Circle **No. 361**

A DIVISION OF
CONRAC
CORPORATION

NOW THEY'RE AL

THE FAMOUS MAGIC CHEF NAME, SO RESPECTED ON RANGES AND MICROWAVE OVENS, IS NOW ON THIS FULL-LINE OF GREAT LOOKIN KITCHEN AND LAUNDRY APPLIANC

Builders have been trusting the name Magic Chef on cooking appliances for a long time. And the great Magic Chef name that stands for quality engineering and dependability is now on the only full-line of gas and electric kitchen and laundry appliances offered to builders.

The new 1980 Magic Chef appliance line is beautiful. Each model is designed to catch the eye. And there's a model of each appliance for every home you build, to suit any customer.

Inside is an energy-saving story unique to our line. Our new 30″ pilotless gas ranges, for example, use less gas in test comparison with last year's conventional pilot-type ranges. Magic Chef electric ranges have a significantly impressive energy-saving story, too–as do our new refrigerators.

All the new 1980 Magic Chef kitchen and laundry appliances have a great look. Worth adding to the look of the new residential units you build. Especially when you see how much they'll help sales and rentals.

For details, call your Magic Chef builder distributor or Magic Chef Builder Marketing Services Dept., (615) 472-3371. Or write Magic Chef, Inc., 740 King Edward Avenue, Cleveland, TN 37311, Attn: W. G. Hewitt.

Circle **No. 348** on Reader Service Card

AMED MAGIC CHEF.

MAGIC CHEF®
Takes the work out of homework.™

cles, which might have been placed side by side. Spielvoge lists the reasons, in order, for energy consumption in com mercial buildings. He emphasizes that most of the building' energy consumption occurs during *average* weather, anc points to the "occupant factor" as critical to conservation. A building shouldn't be consuming energy while empty, he rea sons; "Even an inefficient system that is turned off when no needed will use far less energy than an efficient system tha can't be turned off."

Dubin reinforces the above, adding extensive lists of where to start looking for conserving steps, and what further con servation innovations are needed. He opens with a summary of what a building owner's goals are, contrasted with the goals of society. It could well have been this book's preface.

Finally, the detailed how-to-do-it chapters, beginning with Yellott's tour of glass performance data. (He always adds side views, and they usually are entertaining.) This article ever presents U-values for ordinary window drapery, along with the variations in U-values for many conditions of climate and orientation.

Balcolm, Hedstrom, and McFarland explain the basis for their passive design performance estimating procedure, with appropriate cautions about such things as 100 percent solar heating being accompanied by enormous temperature swings. For a designer interested in tradeoffs with therma storage walls, this article fills the need. Their technical note presents the step-by-step monthly solar fraction process, the most detailed application procedure in the book.

Marshall and Ruegg are almost as detailed in their exposi tion of life-cycle costing, cautioning that it can be manipulated by the user (Spielvogel goes further in casting doubt). It is another excellent introductory summary of a subject, espe cially useful to students, which gives both the theory and the application process. I wish that they had provided more backup information for their potentially very useful tables for example, a map should be included so a designer knows which "zone" of the U.S. is applicable to a project (their table simply calls out I through VII).

In summary, the book challenges, inspires, and sometimes amuses those interested in conservation in buildings. In gen eral, the designer must go to the source articles or publica tions from which these are exerpted in order to apply what is here suggested. As a catalog of ideas, cautions, and source of further reference, it is an excellent collection.

Therapeutic environments

Designing for Therapeutic Environments: A Review of Re search *edited by David Canter and Sandra Canter. John Wiley & Sons, New York, 1979, 352 pp., $35.*

During the last two decades there has been a growing outcry in both Europe and North America against the environment in which society houses those undergoing treatment or re quiring care and attention. Clearly, institutions should no make their inmates worse, but the present consensus of opin ion is that, if they do not actually make people worse, our current "caring" buildings certainly do not help to make them better.

In response to this awakened desire to produce physica environments that contribute positively to the therapeuti process, this new book draws together specially commissioned papers written by those who have been actively involved in studying or creating therapeutic environments, both in Brit ain and in America. Special research areas include the crea tion of a "normal" environment for the mentally retarded, a comparison of play facilities for handicapped children, the development of a therapeutic environment for forensic cases plus studies of special environments for autistic children and the elderly, as well as an examination of psychiatric facilities and acute general hospitals.

These previously unpublished accounts by internationally recognized experts have been collected by editors who are respectively, an environmental psychologist and a clinica psychologist. ☐

Holophane architectural outdoor lighting.

For your freedom of choice.

A vote for the new Caribe™ Design Series is a vote for the freedom of choice.

Create the luminaire that will best complement your design theme by coordinating outer geometric shapes and colors, inner refractors and lamps. Then choose from handsome mounting arrangements with square or round poles.

All in all, you can create well over a thousand variations to make each of your projects a unique and very personal statement.

Caribe is quite extraordinary. But esthetic choice isn't the only benefit it offers.

Prismatic refractors provide precise light control. Clean appearance is achieved by a concealed wedge-lock mechanism (patent pending), that eliminates exterior hardware. And rugged construction discourages vandalism.

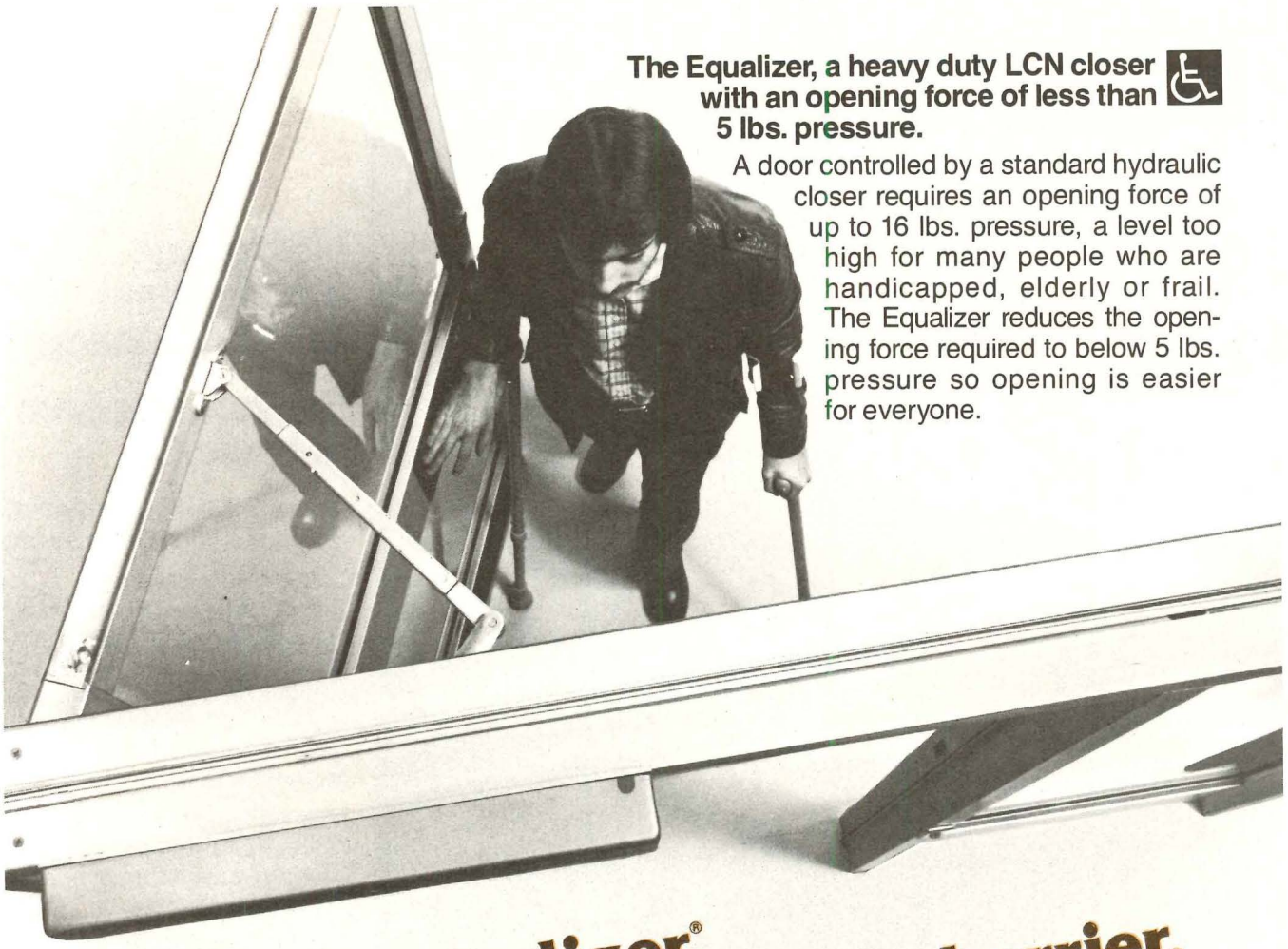
Find out just how choosy you can be with Caribe. Ask your local Holophane® sales representative to go over all the details with you.

Or contact Jim Dresden, Johns-Manville Sales Corporation, Holophane Division, P.O. Box 5108-PA 6, Denver, CO 80217. Phone 303/979-1000.

JM

Johns-Manville

Circle **No. 343** on Reader Service Card



The Equalizer, a heavy duty LCN closer with an opening force of less than 5 lbs. pressure.

A door controlled by a standard hydraulic closer requires an opening force of up to 16 lbs. pressure, a level too high for many people who are handicapped, elderly or frail. The Equalizer reduces the opening force required to below 5 lbs. pressure so opening is easier for everyone.

With an Equalizer,® a door is no longer a barrier.

A touch of a button reduces the opening force by as much as 75%.

The Equalizer is a power assist door closer for interior or exterior use. Reduced opening force and an adjustable closing delay facilitates movement through the door. Full door control provided in closing cycle. Equalizer can be installed on new or existing entrances to meet architectural barrier codes.

Send for Free Equalizer Catalog. Includes information on entrance accessibility and special closers for doors used by people who are handicapped.

LCN CLOSERS

Part of worldwide Ingersoll-Rand

LCN CLOSERS, Princeton, IL 61356• LCN CANADA, Mississauga, Ontario L5G4L5

Circle **No. 347** on Reader Service Card

Tools of the trade.

It can be what you want it to be, do what you want it to do.

Masonry is a thousand colors, textures, shapes and sizes. It creates patterns of light and shadow that move with the sun; it creates a visual mood for the structure. It provides a texture of contrast, or unity—whatever you intend.

Yet with all of the aesthetic freedom masonry gives architects and designers, it remains fundamentally a very practical and economical tool of the trade.

Masonry buildings go up faster so they can be occupied sooner. They have lower maintenance costs, never need painting, virtually no repairing. Masonry walls, because of their mass or density, reduce heating and cooling costs, thus saving energy. And masonry fulfills many functions—structure, enclosure, fire walls, sound barriers, finish walls.

Because masonry lasts, all of these aesthetic and practical advantages are multiplied over the years.

Masonry: Brick, block, tile, stone—craftsmanship.

Tools of the trade. Consider them for your next building.

INTERNATIONAL MASONRY INSTITUTE

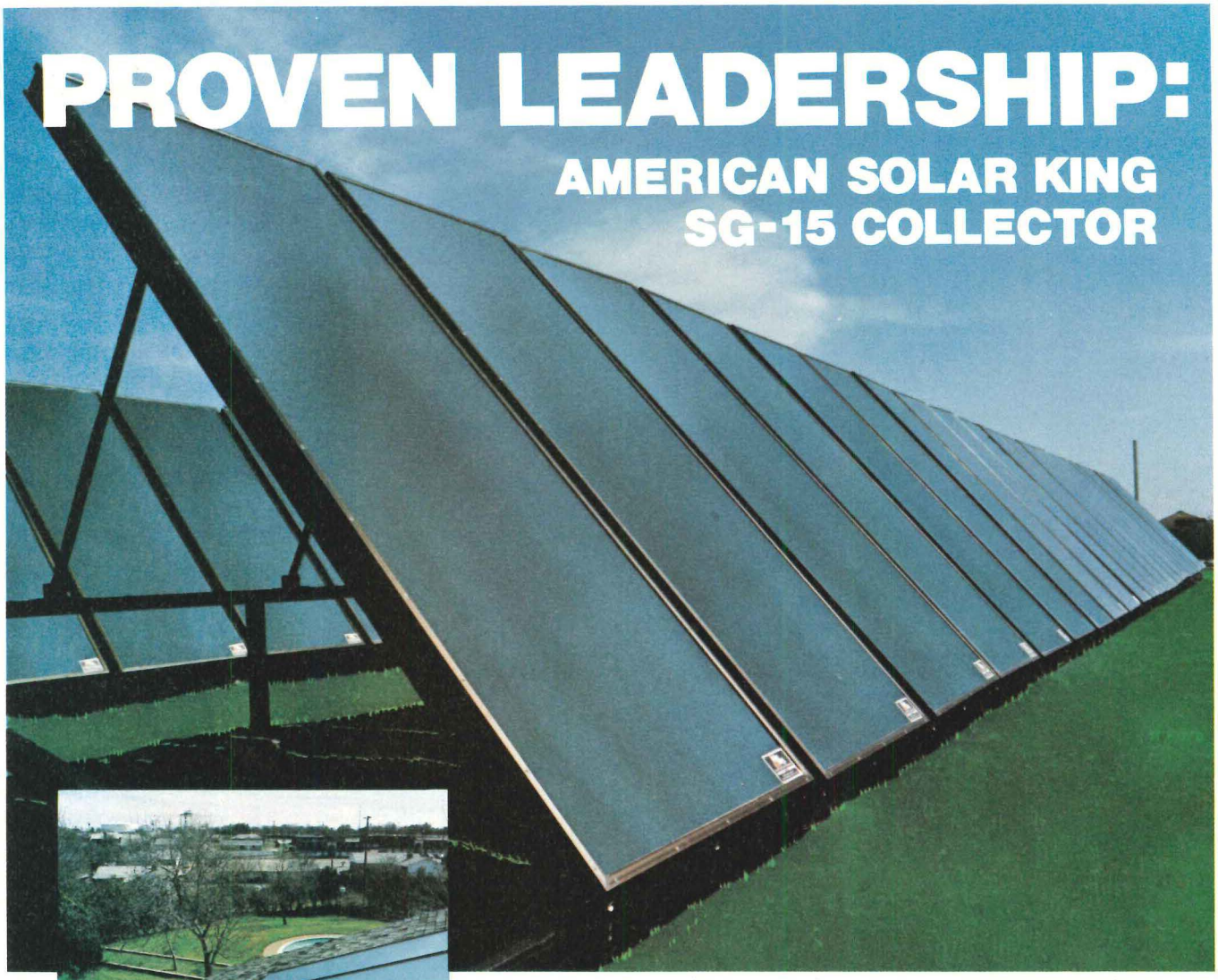
(The Bricklayers' International Union and the Mason Contractors in the U.S. and Canada)

823 Fifteenth St., N.W.
Washington, D.C. 20005
202/783-3908

Circle **No. 342** on Reader Service Card

PROVEN LEADERSHIP:

AMERICAN SOLAR KING SG-15 COLLECTOR



The real test of solar collector performance lies in public acceptance—acceptance based on quality, efficiency and minimum cost per BTU.

The SG-15 brings together high performance and low cost in a very competitive combination. Independent tests conducted by DSET Laboratories (Desert Sunshine)* confirm its outstanding performance. In fact, we believe the SG-15 is one of the most efficient flat plate collectors available anywhere.

American Solar King's technological leadership and experience continue to provide the highest state of the art in flat plate collector design and performance.

*For certified test results, call or write...

Decade 80™

Solar King™

AMERICAN SOLAR KING CORPORATION
6801 NEW McGREGOR HIGHWAY
WACO, TEXAS 76710
(817) 776-3860

DISTRIBUTOR AND LICENSE INQUIRIES WELCOME

SOLAR ENERGY INDUSTRIES ASSOCIATION

CERTIFIED THERMAL S.E.I.A. PERFORMANCE RATING

PRODUCT CERTIFICATION STANDARD 1-79

CLEAR DAY RATING
Thousands of BTU per Day per Panel

Season / Inlet Temperature	40°	75°	110°	145°	180°	215°
WINTER Average Ambient Temperature = 25°F	30.4	27.3	23.2	18.7	13.8	8.1
SUMMER Average Ambient Temperature = 75°F	X	37.3	32.3	26.3	19.9	12.9

Manufacturer AMERICAN SOLAR KING CORP.
Model No. SG-15 Serial No. _____
Fluid WATER Gross Area of Collector 22.25 Sq. Ft.
Flow 0.63 Gallons Per Minute (Liquid)
_____ Standard Cubic Feet Per Minute (Air)

Circle **No. 307** on Reader Service Card

THE TK® FINE LINE DRAFTING SYSTEM.

Switch to the drafting system that makes it easy to get precise, accurate drawings and pays for itself in savings on everything from labor to refill lead. It's the FaberCastell TK Fine Line Drafting System.

Choose from constant line widths of 0.3mm, 0.5mm, 0.7mm or 0.9mm. The TK Fine Line System features tempered polymer leads in the most popular grades for paper and vellum, plus special Filmar leads for drafting film.

Then pick the pencils that bring out the best in the leads—TK Fine Line Pencils with semi-sliding sleeves that prevent lead breakage.

The leads and pencils work together as a system, delivering precise, uniformly black lines that erase without ghosting. The result is a clean, dust-free drawing that reproduces beautifully in diazo machines, copiers, microfilm and other photographic methods.

Compared to 2mm drawing leads, you'll save up to 75% with TK Fine Line Leads. Save again on man-hours and lead wastage because TK eliminates lead pointing. And save even more on reduced inventories of lead holders, leads and pointers.

See your FaberCastell dealer for the full story, or send today for more information.

Precision that saves you money.

Show us how we can save money with TK.
Send your brochure on the TK Fine Line Drafting System.

Name_____ Title_____ Phone_____

Company_____ State_____

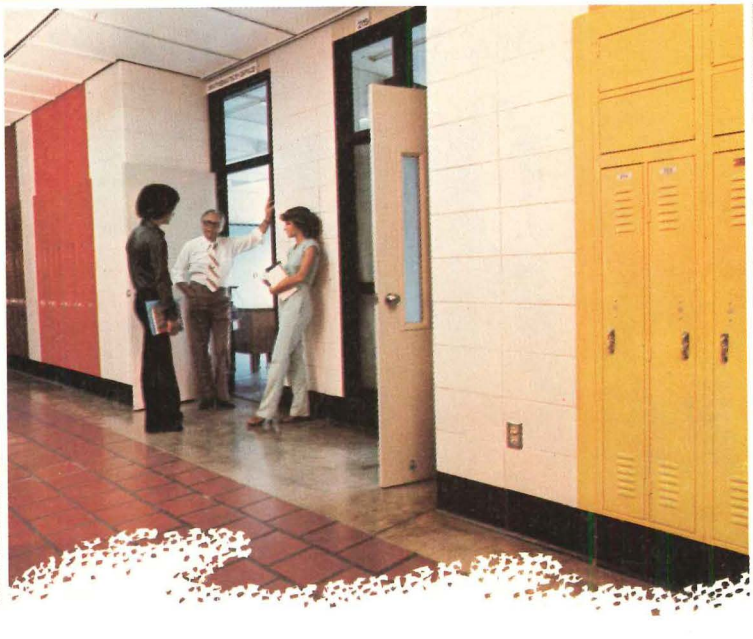
Address_____ Zip_____

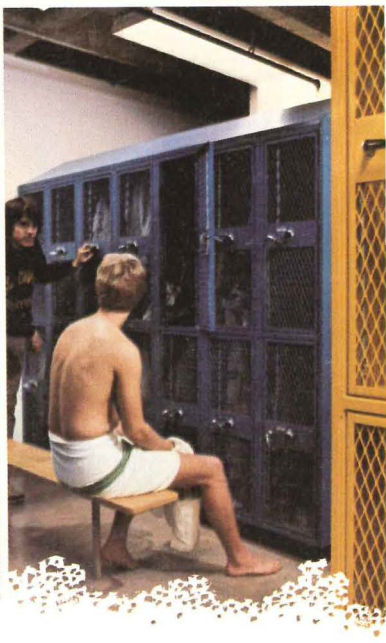
City_____ Number of Drafting Department Employees_____

Clip and send to:
FaberCastell, Dept. TK, Box 7099,
Newark, NJ 07107.
Phone: (201) 484-4141

PA 6

FaberCastell





Republic designed its locker line the way you would have

Clean lines. Classic colors. Economically functional. Aesthetically pleasing. And a wide selection for you to choose from.

So the Republic locker installation you specify will look custom-designed for the architectural environment you put it in.

In schools, offices, plants, clubs, recreational facilities, Republic Steel lockers offer a range of types, sizes, accessories and colors to satisfy virtually every clothing storage need. Standard lockers, with over 80 years of Republic Steel locker experience behind them. Expanded metal lockers, combining maximum ventilation and strength. And Republic's MONDRIAN*–the most advanced locker available today. Clean, crisp, innovative design. Recessed handle. Flush front. Bold colors.

Economically, Republic lockers are long-term money-savers. Easy to install. Long-lasting. Tough enough to require only minimum maintenance.

So, design with Republic lockers in mind. And specify them with confidence–in their performance, aesthetics, economy and client satisfaction.

For full information on Republic's complete locker line, write Republic Steel Corporation, Industrial Products Division, 1038 Belden Avenue N.E., Canton, Ohio 44705. Or call your nearest Republic Distributor. You'll find him in the Yellow Pages.

*MONDRIAN is a trademark of Republic Steel Corporation.

SHELVING • LOCKERS
SHOP EQUIPMENT

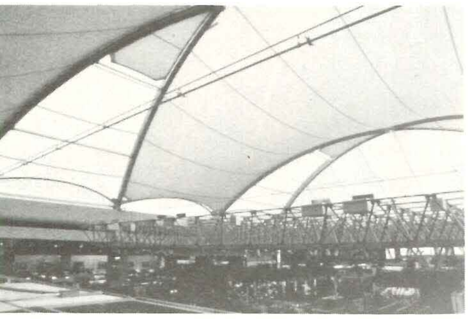
Republicsteel

Circle **No. 358** on Reader Service Card

Products and literature

he following items are related to the echnics article about fabric strucures. They are grouped here for the onvenience of the reader.

abric structures



heerfill® architectural fabric of berglass coated with Teflon® is used in anslucent roofing systems. The white, 5 percent reflective exterior surface educes heat gain from the sun while llowing in enough light to cut daytime ghting needs. The result is a reduction f heat buildup and consequent lowerng of air-conditioning load. According o the manufacturer, the material is lassed as noncombustible by all model ode agencies. Chemical Fabrics Corp., irdair Structures Division.
ircle 200 on reader service card

ortomod® and Tension Span™ strucures of fabric are lightweight and reocatable, and are available in various onfigurations, lengths, widths, and degns. The advantages they offer, their omponents, installation, and typical pplications are outlined in a 16-page rochure. Seaman Building Systems.
ircle 201 on reader service card

ermanent fabric structures and coniderations involved in their design are iscussed in a 16-page brochure. Varius shapes are illustrated, along with hotos of typical installations. roperties of the Sheerfill® fabric are hown in table form and described in nore detail. Chemical Fabrics Corp., irdair Structures Div.
ircle 202 on reader service card

Tensioned membrane structures brochure describes and illustrates a variety of applications of these products and many of the forms possible. Areas of application are expositions, fairgrounds, shelters for commercial shopping centers or malls, sports arenas, stadiums, amusement parks, and amphitheaters. The eight-page, full-color booklet also includes photos and descriptions of air-supported fabric structures. Helios Tension Products, Inc.
Circle 203 on reader service card

'Architectural Fabric Structures' brochure shows and discusses several buildings that use tensioned, Teflon®-coated fabric. Computer designs indicate the stress patterns of different contours. A list of firms associated with the structures illustrated is included. Du Pont Co., Plastic Products & Resins Dept.
Circle 204 on reader service card

Fiberglas® fabric structures are the subject of an eight-page brochure that covers features, performance, advantages, and installation. A table provides product data about the fabric, such as tensile, tear, static load, flame resistance, and optical properties. Firms involved with the structures shown are listed. Owens-Corning Fiberglas, Fabric Structures Unit.
Circle 205 on reader service card

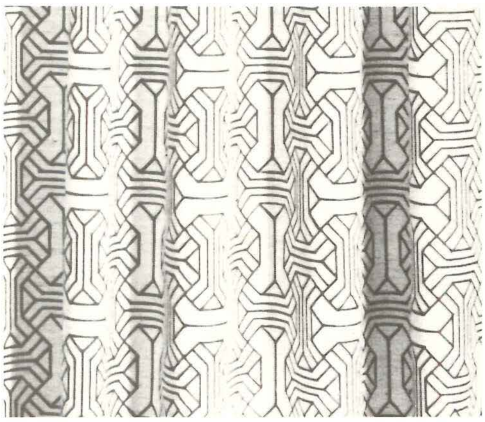
'International Conference on Practical Applications of Air-Supported Structures' comprises the papers presented at the conference held in October 1974 and transcriptions of panel discussions following their presentation. Several papers trace the history of fabric structures throughout Europe, Japan, and the U.S. Others discuss fire testing and the development of incombustible fabrics; two are concerned with building codes. The proceedings, over 200 pages, are $18 and can be ordered from: Canvas Products Association International, Air Structures Div., 350 Endicott Building, St. Paul, MN 55101.

Other products

Towel warmers for bathroom or kitchen add heat to the room in addition to keeping towels and clothing warm and dry. There are three hot-water styles in wall- or floor-mounted versions for open or closed systems. Oil-filled electric models, for homes without hot-water systems, simply plug in, requiring no plumbing or pipe work. Myson, Inc.
Circle 100 on reader service card

Pirelli rubber flooring, available for years in black, now comes in a choice of colors and thicknesses, with raised studs, ribs, and HH patterns. The flooring, for use indoors or outdoors, offers high resistance to wear, good acoustical properties, and easy maintenance. Jason Industrial, Inc., Rubber Flooring Div.
Circle 101 on reader service card

SL low-pressure mercury/fluorescent lamps, intended to replace 220/240-volt incandescent lamps, provide a 70 percent saving in energy, according to the manufacturer, and last five to ten times longer. Designed to fit standard sockets, 11-, 13-, 18-, and 25-watt lamps to replace 40-, 60-, 75-, and 100-watt ones are now available. A series of lamps in the 120-volt range, predominant in the U.S., will be available early in 1981. North American Philips Lighting Corp.
Circle 102 on reader service card



The Alhambra collection of fabrics, inspired by Moorish designs, comes in colors adapted from those of the glazed tiles. Included in the group are large-scale and small-scale patterns to be used as Panelgraphics or for draperies. Colors blend with the firm's upholstery fabrics. Ben Rose, Inc.
Circle 103 on reader service card
[Products continued on page 155]


It's Not Serious.
It's Not Really Wool.
It's Marquésa™ Lana. Amoco Fabrics Company's new carpet face yarn that's teased to give it the look and feel of wool. But it's polypropylene, so plain soap and water easily removes almost any stain. Its beauty and durability make Marquésa™ Lana the smart choice for any high traffic area. And its low electrostatic build-up makes it perfect even around computers.
Marquésa™ Lana meets any fashion standard of today. But it costs less than any competitive synthetic carpet yarn.
The name means "royal wool." Marquésa™ Lana means lower cost, lower maintenance, and the latest of fashion. In a variety of colors and stripes.
Available from only the finest carpet mills.
AMOCO
Amoco Fabrics Company
Fibers and Yarns Division
550 Interstate North Pkwy., Atlanta, GA 30339 404-955-0935
Circle No. 375 on Reader Service Card.

Products continued from page 153

Access control and alarm monitoring system, Model 732, controls up to 32 entrances and 8000 employees, who gain entrance by means of individual cards. The system includes card readers, a central control unit, an operator's terminal, and one or more printers. It monitors up to 32 contact switch points. Schlage Electronics.
Circle 104 on reader service card

Roof, mansard, and sidewall shingles and shakes, preassembled into 8-ft panels, eliminate one-by-one application. Formed of red cedar, Kraft building paper, and exterior grade plywood, there are two mansard and sidewall shingle panels and one shake roofing panel. Shake & Shingle Panels, Inc.
Circle 105 on reader service card

'Tailor Made' vinyl wallcoverings with the look of textiles are offered in a wide range of coordinated textures and patterns in varying colors and metallics. Choices in the Wall-Tex collection can be made within one color family or from contrasting groups. Columbus Coated Fabrics, Div. of Borden Chemical.
Circle 106 on reader service card

Hi-Boy heat pumps can be used for home improvement, new construction, modular facilities, apartments, offices, and schools. There are eight models ranging in heating capacities from 18,000–46,000 Btu and in cooling capacities from 17,000–47,000 Btu. The units are UL listed for installation on exterior walls. The compressor is completely enclosed for quiet operation. Bard Manufacturing Co.
Circle 107 on reader service card

Pumparound® factory assembled pump/control center with automatic summer/winter changeover eliminates the need for field fabrication of heat pump systems. It is designed for use in hospitals, office buildings, industrial plants, schools, and other structures requiring large volumes of tempered air to be exhausted to the building's exterior. The system recovers the otherwise wasted heat and recirculates it. Carrier Air Conditioning.
Circle 108 on reader service card

Ground water heat pumps are designed to use well water for economical heating and cooling. The water is circulated through a heat exchanger to help heat or cool air in the house and is distributed by means of a normal system of ducts. Models with cooling capacities from 9500–64,000 Btu and heating capacities from 13,500–94,000 Btu are available. Command-Aire Corp.
Circle 109 on reader service card

The Convectionaire ductless heating/cooling system uses only a small compressor and operates without fans or blowers. For cooling, warm air is passed over cooling coils that extract the heat. By also reducing humidity, the system can be operated comfortably at a higher temperature setting. Excess heat is used for heating water, reducing the need for water heating during the cooling season. Heating is accomplished by extracting heat from the outside air. Valance and baseboard components provide ductless distribution of hot and cold air. Conservation Technologies, Inc.
Circle 110 on reader service card

Executive II Weathertron® heat pump has a digital monitoring control that can be programmed to meet almost every home temperature requirement. It provides time/temperature setbacks up to twice a day. Cooling capacity of the WM Series ranges from 35,000–54,000 Btu. The heat pumps are equipped with a high efficiency, two-speed Climatuff® compressor that allows the pump to operate at low speed 90 percent of the time, automatically shifting to high speed during peak demand. General Electric Corp., Major Appliance Group.
Circle 111 on reader service card

Hinged and pivoted windows for hospital, institutional, monumental, and commercial applications, including thermal-break types, are described and illustrated in a 12-page brochure. Detail drawings of components are provided, along with specifications for the different styles. Fentron Industries, Inc.
Circle 112 on reader service card

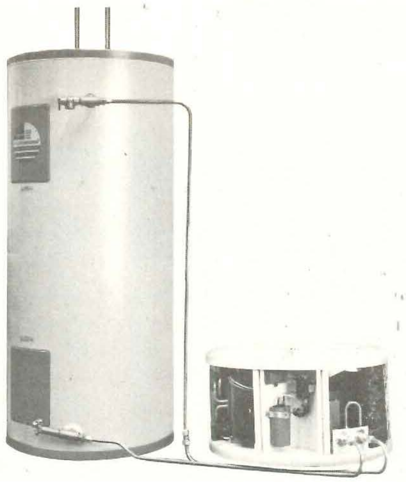
Comfort-Aire® water-to-air packaged heat pumps for residential use are used with water of relatively constant temp-
[*Products continued on page 156*]

Products continued from page 155

erature, such as well water, or with a closed-loop system using a cooling tower and boiler. They come in capacities from two through five tons. Also available with the heat pump units are heat recovery units for domestic water heating. Heat Controller, Inc.
Circle 113 on reader service card

The Whirlpool wedge-shaped heat pump is a design that allows a larger transfer coil surface to be installed in less space than those of conventional shape. The slanting surface also helps ice to drop off in the defrost cycle. The compressor is hermetically sealed and factory lubricated. It has top-discharge design, preventing hot air from being recirculated through the condenser coil. Heil-Quaker Corp.
Circle 114 on reader service card

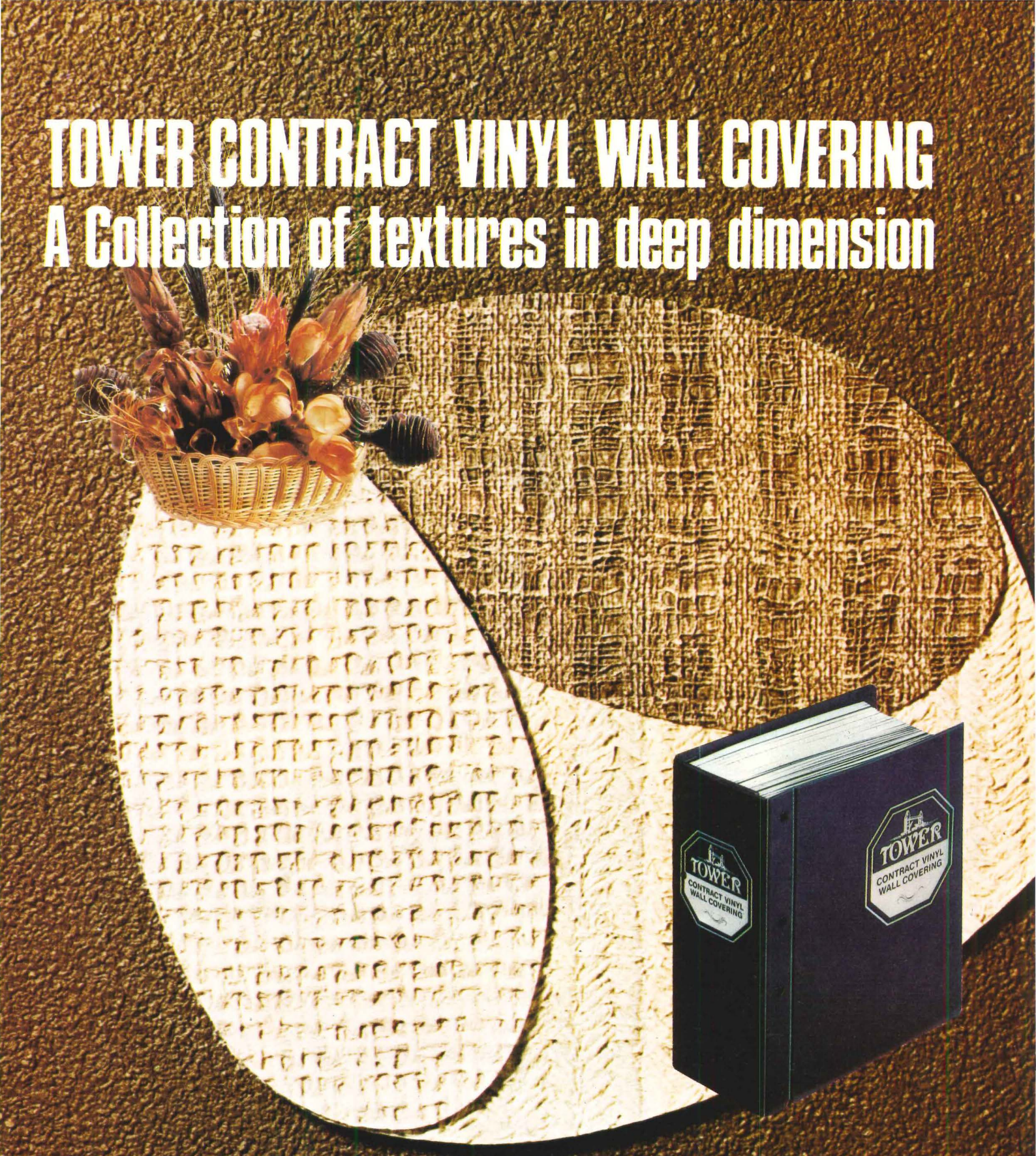
WeatherKing® Add-A-Pump complements existing conventional gas, oil, and electric warm-air furnaces. It is engineered to automatically control fuel use during the heating cycle and to provide whole-house air conditioning in the summer. The thermostat is set at the specific fuel cost balance point, and the automatic changeover thermostat will operate the furnace to meet heating needs at the lowest local rate. Addison Products Co.
Circle 115 on reader service card



The Heat Re-Cycler heat pump for hot water systems extracts heat from the air and rejects it to the water in the tank to help reduce water-heating cost by as much as 60 percent, according to the company. They are available as auxiliary units to be added to existing systems. Another version will be used by tank manufacturers as an integral part of water heater tank assemblies. Fedders Compressor Co.
Circle 116 on reader service card

The Efficiency II™ heat pump water heater can save approximately 50 percent of the cost of heating water electrically, according to the manufacturer. It works like refrigeration in reverse by removing heat from the surrounding [*Products continued on page 158*]

TOWER CONTRACT VINYL WALL COVERING
A Collection of textures in deep dimension



Texture and color as subtle as that of an everlasting bouquet can be found in the 37 patterns of 366 color selections of Tower Contract Vinyl Wallcovering. Featuring textures in deep dimension for fabrics, wood, grass, masonry, leather, etc., Tower Contract Vinyl Wallcoverings can be found in buildings of distinction from coast to coast in the United States and Canada. Consult the distributor directory for catalogue and samples. Material is supplied in 30 yard bolts of 54 inch width. Custom colors and emboss effects are also available.

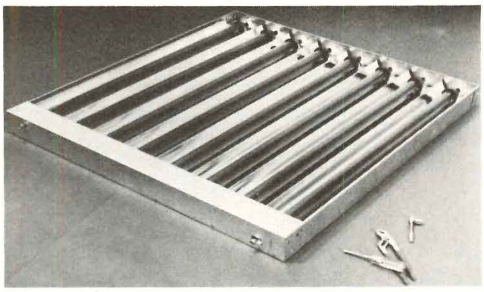
WALL COVERINGS BY CGT

CANADIAN GENERAL-TOWER LIMITED
(OAKVILLE DIVISION)

Circle **No. 317** on Reader Service Card

Products continued from page 156

air and transferring it to the water. Electricity is used only to run a compressor rather than as resistance heating. E-Tech, Inc.
Circle 117 on reader service card



Solartron™ vacuum tube solar collectors, Series TC-100, are designed with a specially shaped reflector which concentrates sunlight onto the glass solar absorber vacuum tube. In addition to improving efficiency, the design makes the angle of the installation less critical. The collectors can be used for residential and commercial space heating and cooling or to produce hot water for industrial processing applications. General Electric Co.
Circle 118 on reader service card

Sundirector and Sundirector II (for southernmost climates) provide solar water heating. Water is circulated by means of a pump from the water source to the collectors, then into the storage tank for domestic use. When solar heat is unavailable, the system drains down to prevent freezing. A heating element is used for backup heat when solar energy is not available. Rheem Water Heater Div., City Investing Co.
Circle 119 on reader service card

E CUBE III (Energy Conservation Utilizing Better Engineering) is a computer program that estimates the monthly and yearly energy consumption of buildings based upon calculations of thermal load requirements, air-distribution system operation, and primary heating and cooling equipment. Mainline programs are Load calculation, Energy requirements and systems simulation, Equipment, Economic analysis, and Data edit. Support programs are Response factors and Weather and permanent data. The program was developed by the American Gas Association. Cybernet Services, HQWO5H Control Data Corp.
Circle 120 on reader service card

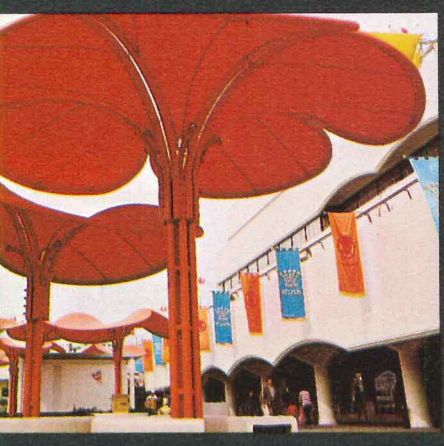
Other literature

'Lexan® products for architectural applications' is a 20-page brochure that illustrates the many uses of Lexan sheet in glazing. Data are provided for several glasses and detail drawings show typical glass systems for interior and exterior installation. General Electric Co.
Circle 206 on reader service card
[*Literature continued on page 161*]

CLOSE HARMONY'

n Graceful ension Structures y Helios.

The delicacy and beauty of these nsioned membrane structures is oroughly practical. In this economi- l shelter for an outdoor music am- itheater, the natural beauty of the site is preserved, with only minimal disturbance for footings for structural elements. The smaller white tensioned structure at the Aspen Design Conference in Colorado is even simpler, facilitating its erection and demounting each year.



All these structures, including the festive rest area sunshades, are fabricated of vinyl-coated polyester material held in tension on a steel framework. The result is a lightweight, rigid structure engineered to withstand heavy wind. Though a tensioned membrane structure is in a higher price class than a tent, it offers far greater strength and durability. Compared to alternative structures of wood, steel or masonry, it typically results in important cost savings.

When your imagination calls up sweeping curvilinear shapes or great enclosed space, Helios Tension Products are the people to try your ideas on. We specialize in helping architects

translate their innovative designs into practical reality. Our expertise includes design, engineering, fabrication and erection—a total, comprehensive service unmatched in the U.S.

For more information, or assistance with a specific project, call or write: Dept. P6, Helios Tension Products, Inc., 1602 Tacoma Way, Redwood City, CA 94063. Telephone: (415) 364-1770, Telex 345590

HELIOS TENSION PRODUCTS, INC.
TAIYO KOGYO CO., LTD.
Soft Shell Structures Division

Circle **No. 341** on Reader Service Card

C O N W E D

Rich but subtle walls and...Conwed quiet.

The new attendB™ wall system proves that acoustical can be beautiful. Fabric covered acoustical panels create attractive work areas while controlling distracting noise.

Conwed® attendB acoustical wall panels will reduce the noise level within a room (NRC .60) while minimizing noise transmission to adjacent rooms (STC of 35 or 40 depending on wall construction). This performance combination is great for offices as noise is both controlled and confined.

The panels' rich fabric covering adds a soft, designer look to any room. Choose from warm earthtone colors of rust, gold, wheat, or tan. The attendB panels stay rich and colorful, too, because the durable, nonwoven polyester fabric resists fading and scuffing. For new construction or renovation, the attendB acoustical wall system carries a Class 25 Fire Hazard Rating.

New attendB acoustical wall system, see Sweets file 9.1/Co or contact Conwed Corporation, Ceiling Products Division, P.O. Box 43237, St. Paul, MN 55164. Phone (612) 221-1184.

Conwed

innovative products for better interior environments

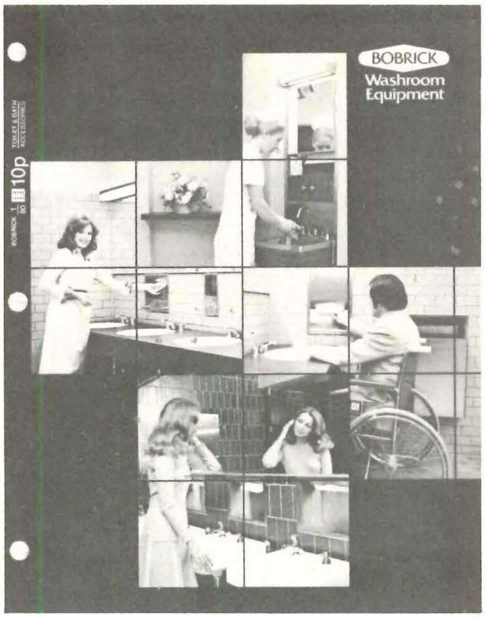
Circle **No. 324** on Reader Service Card

Literature continued from page 158

Vertical blind product manual provides detailed descriptions and color photographs of standard, universal, and Flexalum verticals. The 20-page manual shows colors and textures of the vanes which are wool, acrylic, aluminum, or PVC. Product specifications are included. Hunter Douglas Window Products Div.
Circle 207 on reader service card

Commercial furniture presented in Catalog 1-80 includes office lounge, reception, and conference furniture. There are gang chairs, stacking tables and chairs, and table bases. A foldout section shows colors available in upholstery fabrics, thermoplastics, and frame finishes. For a copy of Catalog 1-80, write on professional letterhead to: Fixtures Manufacturing Corp., 1645 Crystal, Kansas City, Mo 64126.

Carports, garages, and enclosed parking brochure illustrates these structures for multihousing construction integrated with several building styles. Drawings illustrate components. General specifications are included, along with instructions on how to specify. The structures are engineered to withstand 90 mph winds and heavy snow loads. Installation service is provided. Childers Manufacturing Co., Div. of Overhead Door Corp.
Circle 208 on reader service card



Washroom equipment, described and illustrated in a 56-page catalog, includes over 700 stainless steel items. Colors and woodgrains are featured on many products. New are the Designer Series and the Trimline Series of recessed accessories which come in metric dimensions. Bobrick Washroom Equipment.
Circle 209 on reader service card

Low Level Floodlight (LLF) brochure B40 describes outdoor lighting that doesn't require poles. Drawings illustrate its use in courtyards, plazas, resorts, sports centers, malls, and similar installations. The 32-page brochure includes information about light distribution and installation. There are drawings of suggested designs for concrete pedestals. Kim Lighting, Subs. of Walter Kidde & Co., Inc.
Circle 210 on reader service card

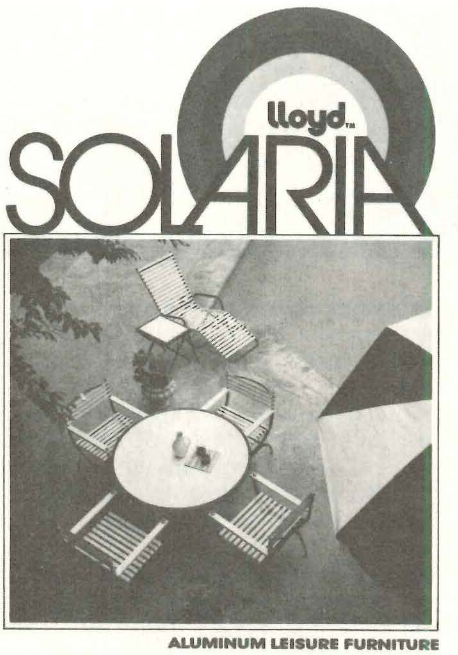
Lascolite® fiberglass-reinforced panels, both opaque and translucent, for industrial, agricultural, institutional, and residential buildings, are described in an eight-page guide for designers. The brochure discusses resistance to weathering, chemicals, and fire, and includes a table illustrating a sample of profiles available as well as data on sizes, weight, and coverage. Lasco Industries, Div. of Philips Industries, Inc.
Circle 211 on reader service card

Ceramic tile sound-rated interior floors. Specifications and drawings are available for four types of sound-rated floors that can be used in installations governed by noise regulations. They include mortar method with either wood or concrete subflooring, and thin-set method with either wood or concrete subflooring. Each specification sheet includes recommended uses, installation requirements, materials, preparation by other trades, and ceiling assembly below. Ceramic Tile Institute.
Circle 212 on reader service card

SolaRoll consists of a heat absorber/exchanger mat and framing strips for [*Literature continued on page 162*]

Literature continued from page 161

attaching glazing. Made of EPDM elastomer, the components will not rust, rot, corrode, chip, crack, or become brittle, says the manufacturer. Temperature range is −60 F to 375 F. A six-page folder describes the components and illustrates typical installations. Pro-Energy Systems, Inc.
Circle 213 on reader service card



Solaria is vinyl-strapped aluminum pool and patio furniture for hotels, motels, and resorts. The catalog lists 26 items including sun cots, lounges, loafers, chairs, tables, and umbrellas, which are also shown in color in typical settings. Lloyd/Heywood-Wakefield.
Circle 214 on reader service card

Moduline 100 Escalator Planning Guide contains clear acetate construction overlays of side and end elevations of escalators in ¼-in. scale. Building support and flooring details and construction details are included. Westinghouse Elevator Co.
Circle 215 on reader service card

Industrial/professional sound products are described and illustrated in a four-color, 32-page catalog. A variety of loudspeakers, theater systems, mixers, power amplifiers, microphones, and special purpose electronics and accessories are included. Altec, Sound Products Div.
Circle 216 on reader service card

Area separation walls, Series IV, for use in nonbearing walls between wood frame dwelling units provide a two-hour noncombustible fire-resistance rating with a 3½-in.-thick wall. Drawings show components of the assembly and illustrate the installation procedure on foundation, in intermediate floors, as interior or exterior walls, and at roof. Flintkote Co.
Circle 217 on reader service card
[*Literature continued on page 164*]

Energy saving can look cool in California.

dryvit OUTSULATION™

Massive insulation placed on exterior walls got this railroad's retrofit off on a fast track.

Architects Albert C. Martin & Associates faced one of the largest and most complex retrofit jobs in Southern California when the Santa Fe R.R. took over 3 buildings as their Western Regional Headquarters.

The challenge was to retrofit with an emphasis on energy saving. And to accomplish the whole project within a year!

Insulation plans for two buildings called for an exterior system to conserve interior space. And the choice was Dryvit Outsulation. Why Dryvit? Because Dryvit not only met California's Title 24 energy and insulation code, but it offered many additional advantages.

Dryvit went up fast. The lightweight 3" thick insulation boards on the outside were easy to work with and bonded directly to the existing walls. The Quarzputz Finish, unlike stucco, promised to be crack-free under climate changes. At the same time, Dryvit offered massive exterior insulation that sealed thermal bridges, equalized outside temperature thus minimizing thermal stress.

The Santa Fe Railroad was on the right track with the Dryvit System. Objectives of handsome buildings and energy conservation were met. On time and at a competitive cost.

Let us prove how Dryvit can work for you. Call or write, stating application: new construction or retrofit.

dryvit® SYSTEM, INC.

420 Lincoln Avenue, Warwick, RI 02888 (401) 463-7150 • Plant Locations: Warwick, RI and Tulsa, OK

Literature continued from page 162

Laminated glass to meet various requirements includes Bi-lite safety glass, Quiet-lite for acoustic control, Gard-lite detention glass, Protect-o-lite for burglar resistance, Mul-t-lite for heavy duty, and bullet-resistant Resist-lite. These products are described in an 18-page brochure, which includes photos of typical installations. Product specifications, solar control and sound control data, and glazing recommendations are provided. Buchmin Industries.
Circle 218 on reader service card

Surface-mounted lighting for a wide range of indoor and outdoor applications, including some linear fluorescents, is shown in an 84-page catalog. Drawings show dimensions, and descriptions provide information about finishes available. Also included is a section on lighting performance data. Prescolite.
Circle 219 on reader service card

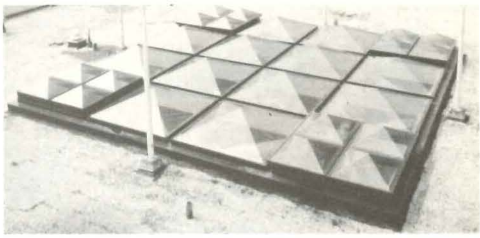
1980 Window and gliding door catalog provides detailed descriptions of the types, characteristics, and sizes of all the company's windows and gliding doors available. Along with other general information, the catalog contains data on insulating values and heat gain, types of triple glazing available, and air infiltration ratings of window and door units. Andersen Corp.
Circle 220 on reader service card

Building products catalog for 1980 covers nine products: paneling, siding, gypsum board, lumber, plywood, particleboard, roofing, insulation, and metal products. Information is provided on specifications, assembly, and installation, with application photos and product details in full color. Georgia-Pacific Corp.
Circle 221 on reader service card

The Gemini Synchronous Inverter is used with intermittent power sources such as windmills, photovoltaic arrays, and solar collector systems to convert current from DC to AC. The system, how it works, application considerations, specifications, and typical applications are provided in a 12-page brochure. Windworks, Inc.
Circle 222 on reader service card

'Simplified Wind Power Systems for Experimenters,' written by Jack Park, is an 80-page book of information needed to design and build a complete system for electricity, water pumping, and similar installations. It covers simplified site analysis, load estimation, windmill sizing and design, and systems. The book is $6 and can be ordered from: Helion Inc., Box 445, Brownsville, Ca 95919.

Multi-Vapor Lamp features, performance data, and specifications are provided in a 12-page brochure. The metal halide lamps, which range in size from 175 to 1000 watts, can be used in new or retrofit installations. Lamp selector chart shows criteria to be met in replacing 400-watt or 1000-watt mercury lamps with multi-vapor lamps. General Electric, Lighting Business Group.
Circle 223 on reader service card



The Solar Energy Skydome,® other skylights, and heat and smoke vents are included in a 16-page, four-color catalog. The acrylic plastic units are available with both single and double domes. Descriptions, specifications, and size charts are included, along with illustrations of various models. Wasco Products, Inc.
Circle 224 on reader service card

Insulated store fronts literature includes charts for estimating savings in heating and cooling costs when Insulcast 450® insulated glass framing and insulated glass are used in store fronts and other low-rise windows. Six-page brochure also explains the reduced likelihood of interior damage from condensation. Kawneer Architectural Products.
Circle 225 on reader service card
[*Literature continued on page 167*]

Some people know us for our sofas. Others know better.

When we founded Atelier International a mere thirteen years ago, we rapidly developed a reputation for carrying modern, innovative design by the world's most renowned architects and designers.

For some of you, however, our fame seems to have stopped at our sofas.

At ai, we feel it is time to correct this unfortunate situation.

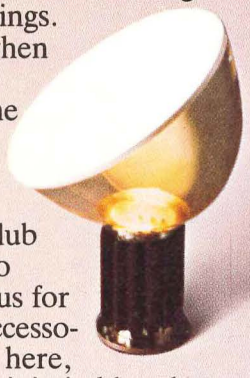
In our Masters Collection, we have returned to the roots of the modern design movement by carrying the works of some of its foremost practitioners: Le Corbusier, Mackintosh and Rietveld.

Le Corbusier's chaise lounge is just one of the classic pieces of design now available through ai.

Our tables and chairs have moved into homes and offices. While many designers choose Mario Bellini's Cab chair and Colonnato table for residential dining, a number of corporations (including Polaroid and Arco) have designed their conference rooms and cafeterias around chairs and tables from ai.

Seating systems—both office and contract—have solved problems for such major corporations as Itel Corp., AT&T, Holiday Inn and Pan Am.

And Babar has proved there is room for innovation even in office design. Babar is the first office seating system to utilize self-skin polyurethane on all parts of its base and frame that might otherwise cause damage to their surroundings.



Finally, when we talk, E. F. Hutton isn't the only one who listens. Johns Manville and the Playboy Club in Chicago also have come to us for lighting and accessories. (Pictured here, Taccia and the inimitable ashtray, U 20/20.)

In short, perhaps we've come further than you thought.

For more information about our complete collection of residential and contract furnishings, write or visit us, Atelier International, Ltd., 595 Madison Avenue, New York, New York 10022 or phone (212) 644-0438.

For your convenience, we have additional showrooms in Chicago, Dallas, Denver, Los Angeles, Houston, San Francisco and Seattle; sales offices in Atlanta, Boston, Miami, Philadelphia, Pittsburgh, Salt Lake City, Washington, D.C. and selected furniture dealers nationally. Member ASID, IBD, BIFMA.

ai

Circle **No. 304** on Reader Service Card

a must for malls

GaiL

Unglazed Brickplate

Ceramic tile floors and walkways are used in virtually all shopping malls in the U.S. And Gail Unglazed Brickplate has been used far more often for a combination of reasons: **Slip-Resistant**—Gail Unglazed Brickplate has an abrasive surface which helps prevent accidents; **Longer-wearing**—Gail Unglazed Brickplate outlasts others because the vitrified clay body withstands foot-traffic from millions of shoppers; **Economical Maintenance**—non-absorbent body resists acids, oils, chemicals, and other abuses... cleans quickly without heavy scouring or waxing; **Frost-proof**—patterns and colors can be coordinated, indoors and outdoors; **Widest Selection**—a myriad of natural, earthtone colors and sizes (2½ x 5 x 10, 8 x 8). For more than 85 y Gail Brickplate has proven itself a the world under the most severe conditions. For additional informa the name of your local distributor one of our four regional sales offi

GaiL Ceramics

1481 North Main Street
Orange, California 92667
Phone: (714) 997-9383

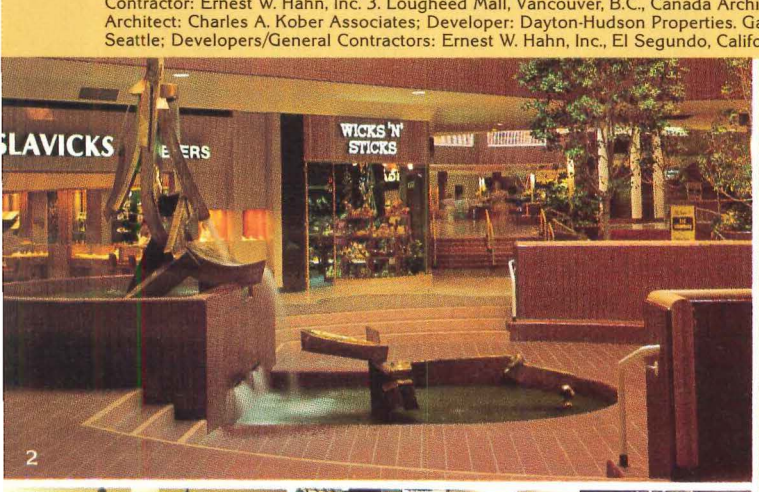
1201 Douglas Avenue
Redwood City, California 94063
Phone: (415) 365-6212

6265 McDonough Drive
Norcross, Georgia 30093
Phone: (404) 448-8304

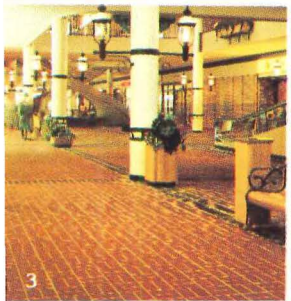
388 Pompton Avenue
Cedar Grove, New Jersey 07009
Phone: (201) 239-7117

Circle **No. 337** on Reader Service Card

Shown above: 1. Greenwood Park, Indianapolis, Ind. Over 93,000 Sq. ft. of Gail Unglazed Brickplate installed; Architects: Charles Kober Associates; Developers: Melvin Simon Associat
2. The Meadows Shopping Mall, Las Vegas, Nevada; Over 45,000 sq. ft. of Unglazed Brickplate (English Red and Leather) specified for floors by architects, Charles Kober Associates;
Contractor: Ernest W. Hahn, Inc. 3. Lougheed Mall, Vancouver, B.C., Canada Architects: Dirrassar, James & Jorgensen; Developers: Trizec Corp., Ltd. 4. Woodland Hills Mall, Tulsa, Okla
Architect: Charles A. Kober Associates; Developer: Dayton-Hudson Properties. Gail Unglazed Brickplate on floor surfaces. 5. Capitol Mall, Olympia, Washington; Architects: John Graha
Seattle; Developers/General Contractors: Ernest W. Hahn, Inc., El Segundo, California.



2


3


4


5

iterature continued from page 164

urface and wall fluorescent lighting. 'hirty-six page catalog/manual proides application and specification data bout fluorescent lighting. Surface ıminaires can be used where recessed ghting is impractical, to maintain fireated ceiling integrity, and for flexibility 'hen layout changes require lighting to e moved. Lightolier.
ircle 226 on reader service card

ecorative fluorescent luminaires, TL eries, for interior application can be all or ceiling mounted. They have a aked enamel finish in nine standard olors and the one- or two-lamp fixtures re 2 ft, 3 ft, or 4 ft long. Four-page rochure illustrates the fixtures and olors available and provides photomtry data. Columbia Lighting, Inc.
'ircle 227 on reader service card

icotchtint' P-19 is window insulating lm which can cut heat loss during the 'inter and heat gain during the sumıer. It also reduces glare. A chart in the our-page brochure shows fuel conımption with and without the film for arious zones of the U.S. 3M Co.
'ircle 228 on reader service card

'arizone rooftop HVAC units, as decribed in a 24-page brochure, combine olid-state control systems with airandling control methods to produce 0 to 30 percent savings in power consumption, compared with conventional variable air volume and closed-loop heat pump systems currently available, according to the manufacturer. Each unit provides heating and cooling for two to 17 zones in a commercial building. The thermostat in each zone transmits information to a central analyzer, which determines the most energy-economical way of meeting demands. There are model sizes with cooling capacities of 16–45 tons, heating maximum Btu of 85,000 for gas, 512,000 for electricity, 1,000,000 for hot water, and 1,110,000 for steam. Lennox Industries, Inc.
Circle 229 on reader service card

Packaged heat-pump systems are described in a product bulletin. The systems have heating capacities from 23,000–58,000 Btu and cooling capacities from 23,000–56,000 Btu. Dimensions, performance data, and specifications charts are included. Illustrations show typical installations. Bard Manufacturing Co.
Circle 230 on reader service card

'Energy savings by design' is a 16-page booklet that discusses the advantages of Thermopane® insulating glass and Vari-Tran® coated glass products. Charts show savings possible with Thermopane in three office styles and five heating zones when heating fuel is gas, oil, or electricity. Copies at 25¢ each are available from: Libbey-Owens-Ford Co., 811 Madison Avenue, Toledo, Oh 43695.

Solar heating brochure describes company capabilities for providing solar heating technical assistance to architects, engineers, and builders for residential, commercial, and light industrial buildings. Included in the six-page brochure is a description of how the warm-air system works, along with a diagram of a house illustrating features and showing air flow. Data table summarizes costs and savings for two homes. Contemporary Systems, Inc.
Circle 231 on reader service card

Solar components catalog, revised edition, is divided into 14 sections: collector covers, sealants and fasteners, installation accessories, absorber plates for air and water, coatings, insulation, differential controllers, liquid and air circulation devices, hardware, passive and active collectors and systems, and educational material. The catalog, "Solar Components," is $2 and is available from: Solar Components Div., Kalwall Corp., P.O. Box 237, Manchester, NH 03105.

Inryco/Wall™ pre-insulated wall panels brochure illustrates panel construction, insulation and typical U-factors, and finishes. Fuel cost analysis compares the product with 8-in. concrete block construction, and test data are provided for wind loads, air infiltration, thermal transmission, and flammability. Inryco, Inc., Building Panels Div.
Circle 232 on reader service card
[*Literature continued on page 168*]

Literature continued from page 167

Solariums and passive solar greenhouses. Sixteen-page brochure describes and illustrates several greenhouse models, some with solar heating equipment. Also described and illustrated is a passive solar house built for the U.S. Dept. of Energy at Brookhaven National Laboratories. Four Seasons Solar Products Corp.
Circle 233 on reader service card

Axivane® fans are described in an eight-page brochure. Comparisons are made of centrifugal and vaneaxial fans, with graphs provided to help interpret the information. Several types of fans are illustrated, with size and specification information provided. Joy Manufacturing Co., Air Moving Products.
Circle 234 on reader service card

Mark V™ solar collector is described in a four-page bulletin. A cross-section diagram illustrates the construction of the collector. Technical specifications and performance data are included. InterTechnology/Solar Corp.
Circle 235 on reader service card

The MPC-8901 Microprocessor Controller is described in a four-page brochure. The controller consists of four programs that unite electrical and mechanical systems: Power demand to reduce demand levels; optimum start, which turns equipment on only as needed; on-off control, which operates mechanical equipment only when absolutely necessary; and duty cycle, which bases cycles on interior requirements and occupant comfort. Barber-Colman.
Circle 236 on reader service card

Building materials

Major materials suppliers for buildings featured this month, as they were furnished to P/A by the architects.

Champaign Public Library, Champaign, Il (p. 85). *Architects: Hammond, Beeby & Babka, Chicago.* Concrete block: La Barge. Steel, beams: U.S. Steel; columns: Fire-trol. Roof: U.S. Steel. Exterior wall: Maune Co. Interior wall: U.S. Gypsum. Windows: PPG. Doors, entrance: Tubelite; interior, Emerson Steel. Ceiling, suspended: Chicago Metallic; gypsum board: U.S. Gypsum. Caulking: Tremco. Insulation: Johns-Manville. Paint: PPG, Benjamin Moore. Hardware: Stanley, Corbin, LCN, Detex. Exterior signs: Superior Sign. Elevators: Long Elevator. Stairs/handrails: International Steel. Lighting: Holophane, Lightron. Electrical distribution: General Electric. Plumbing/sanitary: Kohler, Chicago Faucet, Sloan, Sanymetal, Bobrick, Halsey Taylor. Heating: McQuay, Rite. Air conditioning: Nesbitt. Environmental controls: Robertshaw. Carpets: Kemo Work stations: Herman Miller. Desk: All Steel, Risom. Library shelving: E: tey. Cabinets: All Steel, Meilahn. Table: Meilahn. Lounge seating: Risom, Mu tihex; Breuer chair: Thonet; children seating: Aretmide. Blinds: Levolor. Up holstery material: Cartwright.

Tri-State Center Office Building Northbrook, Il (p. 88). *Hammond, Beeb & Babka, Chicago.* Precast concrete Inland-Ryerson, Swanson Cast Stone Curtainwall: PPG. Precast plank floor and roof: Material Service. Windows PPG. Skylights: Plastico (roof); Circl Redmont (floor lights). Doors: Elliso Bronze, Williamsburg. Floors: Marbelit Floor Co. Roofing: Koppers. Caulking Tremco. Insulation: Owens-Cornin Fiberglas. Partitions: U.S. Gypsum Paint: Detroit Graphite, Sherwin Williams. Hardware: McKinney, Cor bin, LCN. Security: Edwards. Signage Nelson Harkins. Elevators: Westing house, Williamsburg. Stairs: Schmic Iron Works. Lighting: Kim Lighting Metalux. Electrical distribution: Wes tinghouse. Plumbing/sanitary: Elje Sloan, Henry Weis Co., Parker, Wes tinghouse. Heating: American Stabili Air conditioning: York, Peerless, Balti more Air Coil, McQuay, Barber-Cole man. Environmental controls: Thermo dynamics. Blinds: Levolor.

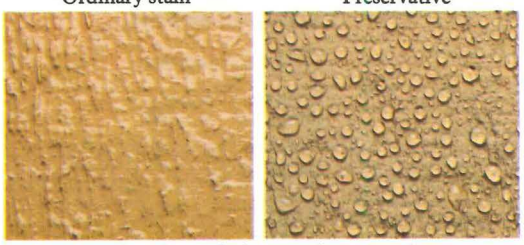
Your stain can turn your natural look into a natural disaster.

All stains are *not* wood preservatives.

Even the expensive, leading brands let water soak right in, and that can cause ugly watermarks, pigment wash-off, mildew and even rot.

Ordinary stain

Cuprinol® Stain & Wood Preservative



freshly applied to rough sawn cedar.

Cuprinol Stain & Wood Preservative meets Federal Specification TT-W-572b, 3.7 for water repellency. The protective Cuprinol formula penetrates into wood to help keep water out and beauty in.

Specify only Cuprinol Stain & Wood Preservative.

Don't settle for stain alone. Protect that natural look with Cuprinol Stain & Wood Preservative. In 10 semi-transparent, 10 solid colors. And Clear Wood Preservative.

Free. Cuprinol literature portfolio. Just write Darworth Company, Avon, CT 06001 for literature and color charts.

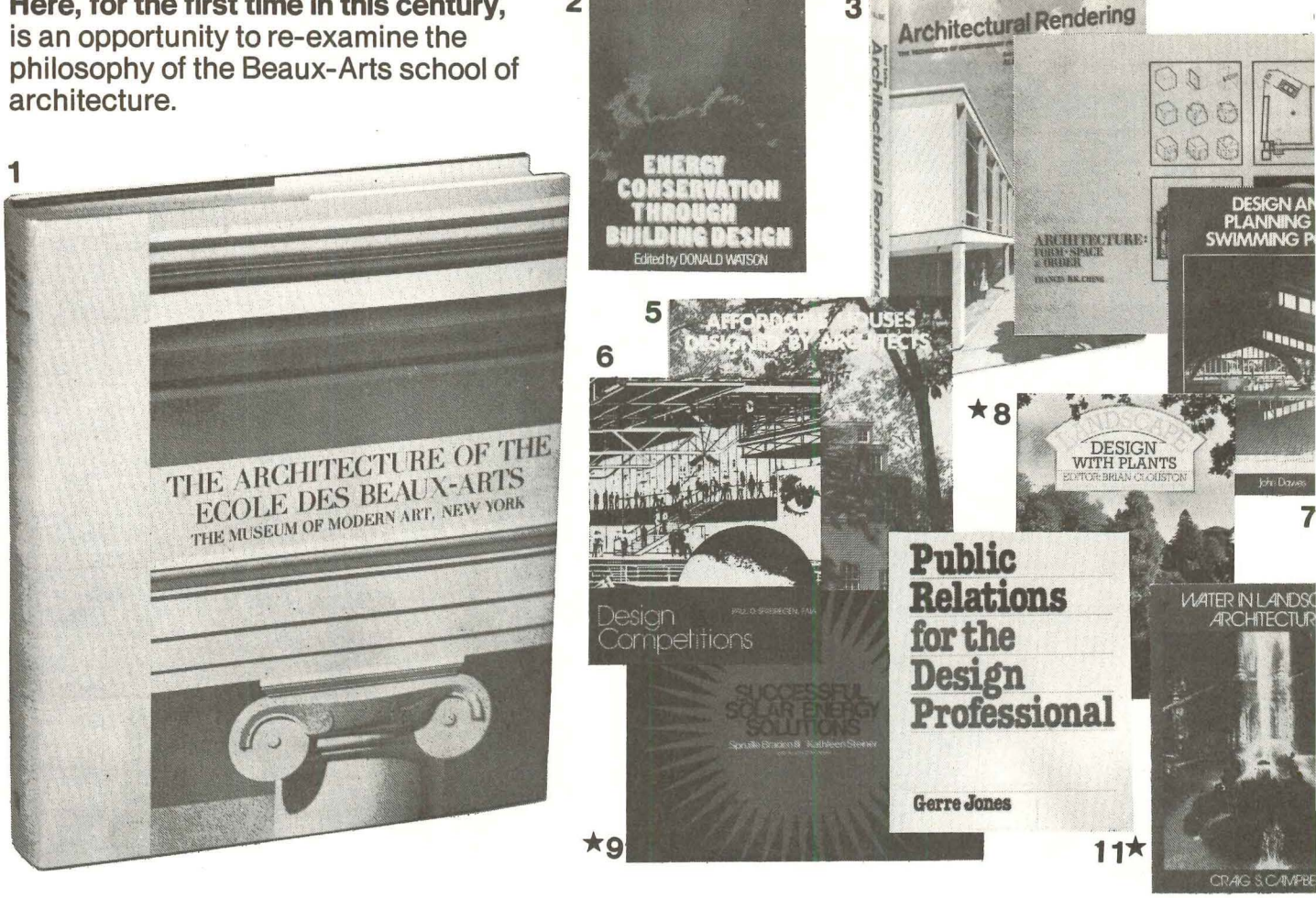
Cuprinol®

Stain & Wood Preservative

When it's wood against weather.®

Circle **No. 325** on Reader Service Card

Here, for the first time in this century, is an opportunity to re-examine the philosophy of the Beaux-Arts school of architecture.



P/A Book Store

Each book has been selected for it's usefulness to you in your professional practice. **Prices slightly higher in Canada. Foreign orders must be accompanied by payment.** It is not necessary to send payment with the order. Circle appropriate numbers on the Reader Service Cards in the back of this issue, add your name and address and mail. Local sales tax **must** be included with payment. Prices subject to change.

For faster service, send the card in an envelope to:

Mrs. Eleanor Dwyer
Progressive Architecture,
600 Summer Street
Stamford, Ct. 06904

P/A Back issues

A limited supply of the following issues of P/A are available at $6.00 per Copy:

May..... Japanese houses/Office chairs/GFRC
April ..... Energy Conscious Design
March..... Gehry profile/Dutch Architecture/Carpet
February ..... Atheneum/Restaurants/Asplund/Natural disasters
December ..... Beyond Modernism/People movers

Send both to:

Mrs. Eleanor Dwyer
Progressive Architecture
600 Summer Street
Stamford, Ct. 06904

1 The Architecture of the Ecole des Beaux-Arts

Edited by Arthur Drexler with essays by Richard Chafee, David Van Zanten, Neil Levine and Arthur Drexler
423 pp., illus. . . . $55.00

The most comprehensive analysis and documentation of Beaux-Arts architecture ever published. Includes large-scale drawings of elevations and plans and photographs of major French and American Beaux-Arts buildings (including Pennsylvania Station and Grand Central Terminal).
Circle B601 under Books.

2 Energy Conservation Through Building Design

Edited by Donald Watson,
305 pp., illus. . . . $21.95

This precedent-setting book provides the bridge between architect and engineer, practitioner and researcher, so necessary to the development of a rational approach to energy conservation. Not limited to new building designs, it also includes methods of analyzing existing structures and specific ways to reduce their energy consumption.
Circle B602 under Books.

3 Architectural Rendering: The Techniques of Contemporary Presentation

By Albert O. Halse, 326 pp.,
illus., 2nd edition, 1972 . . . $37.00

This completely up-dated revision of the most widely used guide to architectural rendering covers all working phases from pencil strokes to finished product — and shows how to obtain the desired mood, perspective, light and color effects, select proper equipment and work in different media.
Circle B603 under Books.

NEW★

4 Architecture: Form, Space and Order

By Francis D.K. Ching,
294 pp., illus. . . . $22.50

Written to foster understanding of design concepts, this rich source of architectural prototype demonstrates how to extract the fundamental principles of form and space from the environment, whether in the architectural one views or inhabits, in architectural visualization, in drawing, or in actual design.
Circle B604 under Books.

5 Affordable Houses Designed by Architects

Edited by Jeremy Robinson,
168 pp., illus. . . . $18.95

This lavishly illustrated volume shatters the myth that architect-designed houses are more costly than developer-built houses. The superb photographs, floor plans, drawings, and details of interiors and exteriors present a wealth of ideas on how to construct beautiful and unique houses within limited budgets.
Circle B605 under Books.

6 Design Competitions

By Paul D. Spreiregen,
310 pp., illus. . . . $24.95

The first comprehensive guide to design competitions based on American practices, it examines in detail all important aspects of this timely subject, including how competitions work and the ground rules that govern most competitions.
Circle B606 under Books.

7 Design and Planning of Swimming Pools

By John Dawes,
276 pp., illus. . . . $49.95

A comprehensive manual that describes the essential characteristics and consequent design requirements of every type of pool imaginable. Also deals in great detail with more technical matters, such as stru
lems and how to solve the
filtration, circulation and
ment, heating and ventilat
Circle B607 under Books.

NEW★

8 Landscape Design wit

Edited by Brian Clouston
456 pp., illus. . . . $39.95

A comprehensive man
compliments "Landsc
niques", combines (for the
a single volume) the the
practical aspects of lan
sign with plants. The tex
into three parts, each with
focus.
Circle B608 under Books

NEW★

9 Successful Solar Energ Solutions

By Spruille Braden &
Kathleen Steiner,
288 pp., illus. . . . $24.50

This information-packed b
that the demands of effi
aesthetic quality can be
structure by presenting s
most innovative, positive
defined solar energy des
past 25 years.
Circle B609 under Books.

10 Water in Landscape Architecture

By Craig S. Campbell
128 pp., illus. . . . $15.95

This profusely illustrated b
first published work that de
stantial detail with the te
well as the aesthetic pri
fountain design. Covers
draulic principles, practi
tions, environment and
equipment.
Circle B610 under Books.

★

Relations for the
n Professional

ones,
s. . . . $18.50

ative book on public re-
ten in easily understood
or architects, engineers
design professionals. Ex-
to plan, set up and carry
rogram that meets special
ts, as well as how to take
of some often overlooked
es for free publicity from

1 under Books.

ropometrics
esigners

oney,
s. . . . $4.50

al book provides an illus-
ount, principally through
of man's dimensions and
sical data, his limitations
culiarities — data essential
ecialized fields of industrial
cial design.
2 under Books

★

gn of Long-Term
Facilities

Aranyi & L. L. Goldman,
us. . . . $29.50

umanize nursing homes
oper design is the purpose
ume, which covers every
ite selection to interior col-
s. Includes guidelines and
s ready-to-use format.
3 under Books.

itectural Illustration
Value Delineation Process

evenson Oles,
us. . . . $34.50

iously illustrated, clearly or-
planation of his value delin-
tem, the author presents a
escription of the process

which has resulted in these award-winning delineations that show realistically how a designed structure will appear when built.
Circle B614 under Books.

15 Earth Sheltered Housing Design Guidelines, Examples, References

Prepared by the
Underground Space Center,
University of Minnesota
318 pp., illus. . . . $17.95

This comprehensive and timely study offers a comfortable and economic approach to underground housing based on modern construction techniques. Provides plans, details and photographs of existing examples, and shows how to design homes using such low-cost natural resources- and energy-saving systems as layers of soil insulation and passive solar heating.
Circle B615 under Books.

NEW★
16 Solar Energy Utilization

By Tim Michels,
272 pp., illus. . . . $18.50

This valuable handbook not only provides ready-to-use information on designing a wide range of passive and active solar energy systems, but puts it into a context of why or why not certain choices in system components and materials are made.
Circle B616 under Books

17 Drawing File for Architects, Illustrators and Designers

By Marc Szabo
251 pp., illus. . . . $14.95

This book provides over 200 pages of figures — in the most common and natural positions, activities, and types of wearing apparel, as well as dozens of drawings of boats and cars, all of which can be copied freely — by direct tracing, photostats, or photocopying machine. The pages tear out easily to form an easily accessible fingertip scrap file.
Circle B617 under Books.

NEW★
18 Design Cost Analysis for Architects & Engineers

By Herbert Swinburne,
317 pp., illus. . . . $18.95

This first-of-its-kind book shows architects and engineers how to analyze and estimate the costs of building construction during the design stage when the potential for controlling costs is greatest.
Circle B618 under Books.

19 Architectural Stained Glass

Edited by Brian Clarke
234 pp., illus. . . . $29.50

The contributors to this book (through their stunning designs) emphasize stained glass as a constructivist art form, taking it out of its medieval ecclesiastical context and putting it into a contemporary framework, both secular and architectonic.
Circle B619 under Books.

NEW★
20 Landscape Techniques

Edited by A. E. Weddle
265 pp., illus. . . . $35.00

This revised and expanded lavishly illustrated edition describes the range of techniques that can be drawn upon in tackling the diversity of tasks encountered by the landscape architect.
Circle B620 under Books.

21 The Architecture of Frank Lloyd Wright A Complete Catalog Second Edition

By William Allin Storrer,
456 pp., illus. . . . $15.00

This second edition, which documents all of the buildings designed by Wright, replaced a number of photographs with new ones that show the buildings to better effect, changed some copy in the text, and incorporated factual information that has come to light since the original publication in 1974.
Circle B621 under Books.

22 New Profits from Old Buildings

By R.M. Warner, S.M. Groff,
and R.P. Warner
291 pp., illus. . . . $22.50

This first business-oriented guide to building preservation is based on 71 case studies of actual preservation projects of old structures, industrial facilities, neighborhoods and commercial districts. Explains how these companies became involved, what problems they faced, how they financed the projects, what benefits they reaped.
Circle B622 under Books.

23 Architectural Presentation Techniques

By William W. Atkin,
196 pp., illus $17.95

This book includes presentations ranging from simple sketches in pencil and pen-and-ink to elaborate drawings, photographs, slide presentations and various combinations of media achieved with overlays, camera techniques and modern reproduction methods.
Circle B623 under Books.

24 Rendering With Pen and Ink

By Robert W. Gill,
368 pp., illus. . . . $9.95

This paper-back edition is a copiously illustrated guide to the techniques and methods of rendering, including sections on perspective, projection, shadow, reflections, and how to draw cars, ships, aircraft, trees, and human figures. The author also describes the very wide range of instruments and equipment currently in use.
Circle B624 under Books.

25 Trees for Architecture and the Landscape Condensed Edition

by Robert L. Zion
208 pp., illus. . . . $11.95

This attractive book will aid communication between landscape architect, architect and layman with a comprehensive collection of photographic portraits of trees whose structure, habit and other characteristics make them especially useful in relation to buildings and outdoor spaces.
Circle B625 under Books.

NEW★
26 How to Recycle Buildings

By Laurence E. Reiner,
244 pp., illus. . . . $18.50

The concensus of opinion by many authorities in the building industry is that recycling is here to stay and to expand. Here is an excellent reference on how to find, evaluate, survey, finance and market recycling projects profitably.
Circle B626 under Books.

The Counterpoint Collection.™
New fabrics for a new environment.

Exceptional color richness. Low-keyed or lively. In worsteds, wool blends and imported tweeds. A palette of nearly 200 of today's colors, beautifully compatible with other Steelcase materials.

Steelcase

Circle **No. 366**

oming next month

P/A in July

he small building
tistically considered

Again, as in July 1979, P/A examines several examples that illustrate the design distinction possible in even the smallest, most circumscribed of architectural commissions. The work documented will include a fire station in upstate New York, sewer plant offices in Texas, a church addition in Ohio, and a nature center in a New Jersey park (1). Notable for its energy provisions, the nature center building will be the subject of an Energy Analysis, one in a series that P/A is publishing. (See page 121, this issue.)

Joseph W. Molitor

1

ultural habitats,
lertzberger style

The cultural center in Utrecht, designed by architect Herman Hertzberger (March P/A, pages 86–97) shows how a major civic asset can fit comfortably into an existing urban context (2). P/A's critical coverage will reveal some of the innovation—and care—behind a large public facility that avoids monumentality.

Ger Van Der Vlugt

2

nterior design:
lew images for Knoll

The new design policies of one of America's most respected furniture producers are discussed, along with examples. Recently opened showrooms in New York and Boston (3) are shown, along with some significant new furniture and some innovative display.

Steve Rosenthal

3

echnics:
mall computers

Technical editor Richard Rush has been poring over the print-outs and peering into the green screen, and is ready to give architectural professionals some well-considered information on computers they can use—and how some colleagues are using them.

P/A in August will include a broad view of planning, preservation, and mushrooming new projects in Miami and Miami Beach. Current development prospects and controversies in this unique metropolis carry lessons pertinent to all urban areas.

P/A in September will be another annual special issue on interior design, this time expanding horizons to survey the best of international interiors, with examples from many countries.

Job mart

Situations Open

Architect: Position available with a multi-disciplined Engineering and Architectural firm. Must have a minimum of three years experience in design of multiple family housing, commercial and industrial buildings. Duties require working with a project team from project concept through construction supervision. Must have administrative abilities and be willing to accept responsibility. Liberal fringe benefits, and an opportunity for professional development. Send resume to Upchurch, Davidson & Associates, 1811 Broadway, P.O. Box 826, Matoon, Il 61938. An Equal Opportunity Employer.

Architectural Illustrator: Long-term position available for person experienced in all phases of very high quality illustration. Young, rapidly growing San Francisco illustration firm with excellent repeat clientele. Emphasis on pencil, ink and color overlay. Salary commensurate with ability. Send resume and examples of work to: Walter Thomason & Associates, 1005 Sansome Street, Suite 218, San Francisco, Ca 94111.

Corporate Design Manager: National grocery company seeks individual with BS/Architecture & minimum 3–6 years supermarket or closely related retail experience. Must be NCARB registered. Supervise 4–6 people, report directly to Vice President. Salary range open. Send resume to: P.O. Box 3975, Culver City, Ca 90230 or call (213) 670-0834. Western States candidate preferred.

Environmental Design—Interior Designer: Faculty position to teach interior design and related 2-dimensional or 3-dimensional design in the Department of Environmental Design and Foundation Program at Rochester Institute of Technology. Visiting Assistant Professor, ten month appointment with possibility of renewal up to maximum of three years; non-tenure. Professional experience in non-residential interior design required. Send resume, recommendations and slide portfolio to: Dr. Robert H. Johnston, Dean, College of Fine & Applied Arts, Rochester Institute of Technology, Rochester, New York 14623. Deadline: July 1, 1980.

Project Architect: Medium-size Denver Architectural firm with diversified practice, needs project architect experienced in mid and high rise projects for developer clients. Design and construction documents experience required. Client contact and project management. Excellent career opportunities. Send resume to: Victor D. Langhart, c/o RNL, Inc., 1576 Sherman Street, Denver, Colorado 80203.

Project Architect to work under registered architect in organization and preparation of construction documents, code analysis of proposed projects, and product research and application. BS/BA Architecture, plus 6 months experience working under registered architect—$940.00 per month. Send resumes to Wilscam Mullins Birge, Inc., 3220 Harney Street, Omaha, Nebraska 68131.

Project Architects/Managers/Designers: Nationwide personnel consulting service. Positions for all experience levels. Emphasis on health-care, institutional, industrial, commercial buildings. William E. Engle Associates, Inc., 909 Investors Trust Bldg., Indianapolis, In 46204, (317) 632-1391.

Faculty Positions: Open at Tuskegee Institute, Tuskegee, Alabama in the Architecture and Construction Programs. Applicants should have experience and ability in two or more of the following subject areas: a.) Architectural Graphics; b.) Design Fundamentals; c.) Design Methodology and Programming; d.) Mechanical and Electrical Systems; e.) Architectural Project Management; f.) Construction Systems and Methods; g.) Construction Management; h.) Cost Estimating; or i.) Architectural History. Applicants should have a graduate degree in Architecture, Construction Science, or any other related area, and professional experience. Professional license with teaching experience are desirable. Applicants should submit resumé, a listing of five references and portfolio to: Chairman, Department of Architecture, Tuskegee Institute, Tuskegee Institute, Al 36088. Application Deadline: June 30, 1980.

Senior Architectural Designer: Minimum 10 years experience, licensed, background in urban design and land use planning. Proven history of community involvement, ability to manage design team. Salary $25,000 annually. Written reply to Stecker/LaBau Architects, Inc., 3 Constitution Plaza, Hartford, Ct 06103.

Supervisor, Architectural Extension—Oklahoma State University: Applications sought for non academic, professional position in the Division of Engineering, Technology and Architecture to plan, develop and supervise Extension seminars, workshops, and conferences for the public and professionals in Architecture and Architectural Extension. Candidates should have an earned Bachelor's degree in Architecture or Architecture Engineering or a Master's degree in adult education and a minimum of one year's experience in continuing professional education. Ability to work with faculty, professionals, and the public essential. Salary commensurate with qualifications; range of $1800–$2000 per month. Send complete resume with references to: Dean E. Griffith, Director, Extension DETA, 512 Engineering North, Oklahoma State University, Stillwater, Oklahoma 74078. Oklahoma State University is an Equal Opportunity/Affirmative Action Employer.

Systems Programming: Computer services provided in Architecture, Interiors, and Urban Planning. Architecture and Interiors Programs include Facilities Programming, Space Planning, Space Management Systems, Computer Graphics, and Site Analysis. Urban Planning Programs include Land Use, Population, Housing, Recreation, Historic Preservation, Schools, Employment, and Community Evaluation. Networks, Inc., P.O. Box 402, Biloxi, Ms 39533.

University Architect to prepare plans and specifications for a wide range of interior and exterior renovation projects. Experience with fire safety and handicap accessibility requirements desirable. Must possess Kentucky registration. Immediate opening. Services will be required for a minimum of one year. Send resume including salary requirements to Vice President for Administrative Services, Murray State University, Murray, Kentucky 42071.

University of Cincinnati has a senior faculty position available in Architectural Construction Science. A joint appointment to the School of Architecture and Interior Design and the Department of Construction Science, it will carry responsibility for courses taught in laboratories, seminars, lectures and studios. Five years academic experience and research or practice plus computer programming skills are required. Apply to: John Meunier, College of Design, Architecture and Art, or Robert Dorsey, Ohio College of Applied Sicence, at the University of Cincinnati, Cincinnati, Ohio 45221. The University of Cincinnati is an Affirmative Action Employer.

Veterans Administration: Assistant Administrator for Construction ($47,889–$50,112.50): Federal SENIOR EXECUTIVE SERVICE position, Washington, D.C., Chief Administrator of the construction program. Responsible for formulating and recommending general policies and plans pertaining to design and construction of medical facilities, cemeteries, nursing homes, domiciliaries plus agency-wide real property management and space management. Comprehensive knowledge of medical facility design and construction gained through high level managerial and administrative experience in medical facilities construction required. Application must be received by June 13, 1980. For Application Information, contact Ms. Joyce Edwards (202) 389-3423. An Equal Opportunity Employer.

tuations Wanted

rchitect: Battle fatigued from Northeast etropolitan rat-race, desires opportunity ith office in attractive small city or town oing wide variety of project types. rowth and partnership potential de- red. NCARB, ten years exceptional and esponsible experience on published and npublished projects. Married with two ildren to feed. Box 1361-388, *Progres- ve Architecture.*

rgentine Architect, 35, eleven years rofessional practice coupled with inten- ve university teaching building construc- on and structures. Currently Guest rofessor at German University. Flu- nt Spanish, English, German. Notions rench, Italian, Portuguese. Desires ssociation with Architecture School or rm for 1981. Interview possible next ly NYC area. Box 1361-337, *Progressive rchitecture.*

owntown & Neighborhood Rede- elopment: Ph.D., Architect. Professional xperience: 5 years (design, construction ocuments, planning, marketing, client & olitical liaison, management). Projects nge from solar greenhouses to univer- y medical school. Teaching experience: years (design, civil engineering, ur- anism). Seek work on challenging physi- l projects. Will relocate. Barry Koren, 29C Eagle Heights, Madison, Wi 53705, 08) 238-3096.

Architectural Services

Computer Applications: Software development services for architectural, engineering and construction management applications. Automated solutions in the areas of computer graphics, space planning, data base systems, cost estimating, and the analysis and maintenance of project and office management information. Write Robert J. Krawczyk, 1220 North La Salle Suite 3E, Chicago, Il 60610, (312) 337-1356.

International Plastics Consultants, Research and Development: Specializing in low and moderate cost housing systems for developing countries and for domestic markets, applications of plastics in building and architecture, specification writing, university lectures, variety of other services. Armand G. Winfield Inc., 2879 All Trades Rd., P.O. Box 1296, Santa Fe, NM 87501, (505) 471-6944.

Rendering Services: Top professional rendering service coast to coast. Architectural, urban, landscape, interiors, industrial, advertising illustration in pen and ink or colour for the best reproduction. Portfolio by appointment. Allow maximum time for job completion. Please call Mark de Nalovy Rozvadovski, (203) 869-4598, 25 Birchwood Drive, Greenwich, Ct 06830.

RitaSue Siegel Agency: An international search and placement organization serving the design professions. Ms. Woody Gibson directs architecture and interior assignments. Our clients include every important corporate design group, consultant office and institution. Please inquire about our screening procedure and the range of services we provide. 60 W. 55 Street, NYC 10019, (212) 586-4750.

Slate Roofs: "A handbook of data on the constructing and laying of all types of slate roofs." Written in 1926 and now reproduced. Completely relevant today. Many details. Send $7.25 to Vermont Structural Slate Co., Inc., P.O. Box 98, Fair Haven, Vt 05743.

The Presentation ADVISOR, a new bimonthly publication and advisory service on newsletters, brochures, and visual presentation techniques. Charter subscribers to 8/1/80 $45/yr. 20 Waterside Plaza, Dept. PA1, N.Y., N.Y. 10010, (212) 889-4672.

Tree Stamps: TREELINE's top quality line of rubber stamps offer the quality of hand drawn trees, people and cars with the convenience of stamps. Write for free catalog. TREELINE, 52 Raleigh Road, Belmont, Ma 02178, Dept. B.

Notice

Please address all correspondence to box numbered advertisements as follows:

Progressive Architecture
% Box .....
600 Summer Street
Stamford, Connecticut 06904

Advertising Rates (Effective January '80 issue)

Standard charge for each unit is **Thirty-five Dollars,** with a maximum of 50 words. In counting words your complete address (any address) counts as five words, a box number as three words. Two units may be purchased for **Seventy Dollars** with a maximum of 100 words. Check or money order should accompany advertisement and be mailed to Job Mart % Progressive Architecture, 600 Summer Street, Stamford, Ct 06904. Insertions will be accepted not later than the 1st of the month preceding month of publication. Box number replies should be addressed as noted above with the box number placed in lower left hand corner of envelope.

Advertisers

Advertising Sales Offices

Stamford, Connecticut 06904:
600 Summer Street 203-348-7531

James J. Hoverman
Publisher

Harrington A. Rose
Director of National Advertising
Francis X. Roberts, Charles B. Selden,
Robert H. Ruston, *District Managers*

Chicago, Illinois 60601:
2 Illinois Center Bldg
Suite 1300 312-861-0880

Tony Arnone, James L. Hobbins
District Managers

Cleveland, Ohio 44113:
614 Superior Ave W 216-696-0300
John F. Kelly, *Western Sales Manager*

Los Angeles, CA 91436:
16255 Ventura Blvd, Suite 301
213-990-9000
Philip W. Muller, *District Manager*

Atlanta, Georgia 30326:
3400 Peachtree Road, NE-Suite 811
Lennox Tower 404-237-5528
Harmon L. Proctor
Regional Vice President

Houston, Texas 77027
2100 West Loop South, Suite 510
713-961-7841
Calvin Clausel, *Director*
Southwest Operations

United Kingdom
Reading, RG10 OQE, England
Wood Cottage, Shurlock Row
(073 581) 302
Cables:
TEKPUB, Reading
Malcolm M. Thiele
Managing Director, U.K.

Verviers, Belgium
1 rue Mallar
Andre Jamar, *Representative*

Tokyo, Japan 160
Bancho Media Service
15 Sanyeicho, Shinjuku-ku
Genzo Uchida, *President*

nstant walls with the master's touch.

Like the celebrated Craft Guilds of yesteryear, today's league of Gold Bond Master Partition Specialists are skilled creators of inner space. They are craftsmen in the art of erecting the new, fully-accessible, demountable partition system from Gold Bond — GB-350.

This revolutionary gravity lock wall system, using a patented clip, unique horizontal steel rail and stud system, is unmatched for speed of erection . . . and fast, easy demounting and rearrangement. The result is a high-performance wall at a highly competitive price.

To assure the highest standards of workmanship and quality, GB-350 is available through a limited number of select Master Partition Specialists around the country. More and more architects, building owners and managers have discovered the many unique advantages of Gold Bond GB-350, and its companion, Durasan predecorated gypsum wallboard.

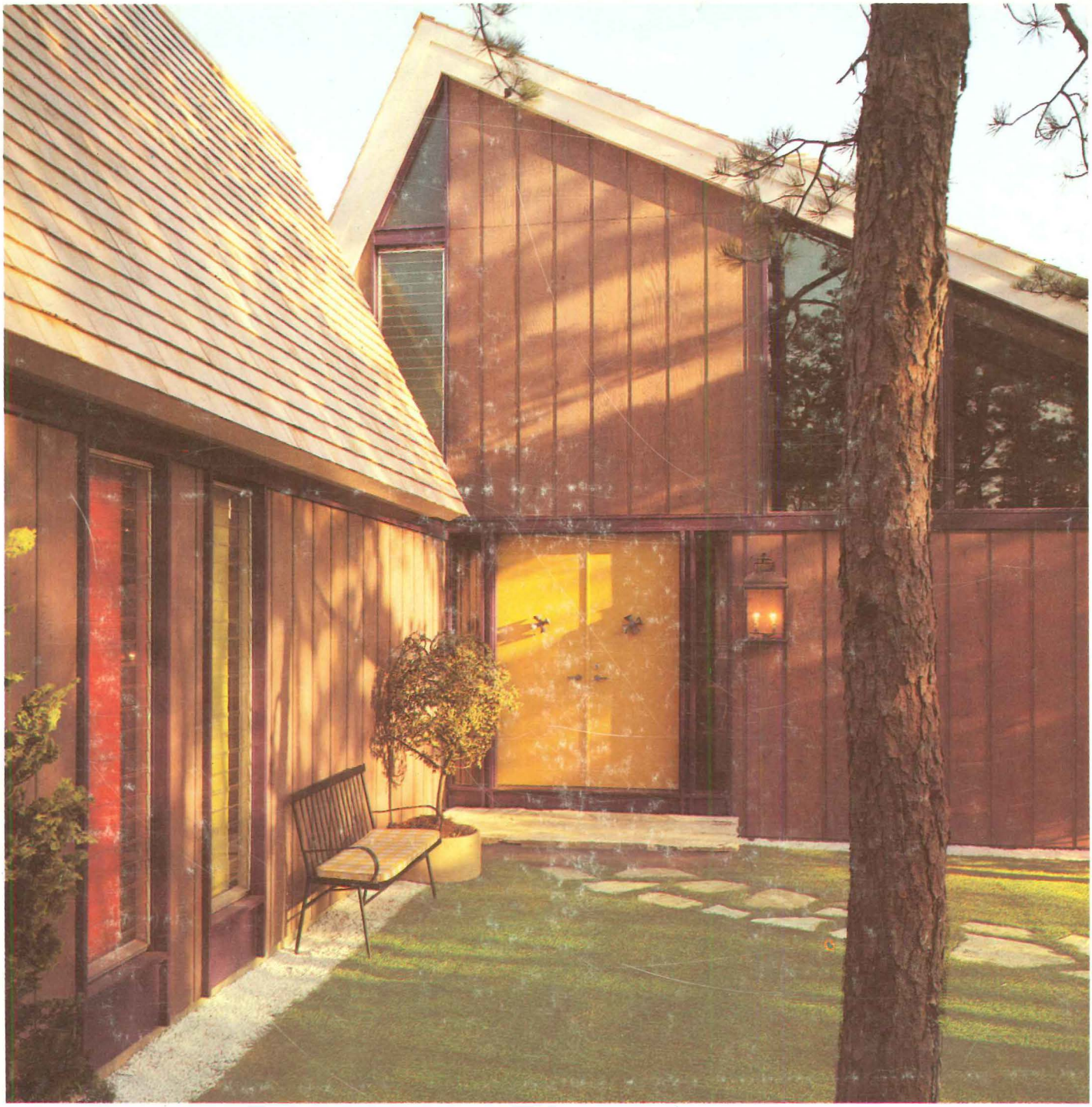
For complete information on GB-350, contact the Authorized GB-350 Master Partition Specialist in your area by calling 1-800-821-7700, extension 350. (Missouri residents call 1-800-892-7655, extension 350). Additional details are also available in Sweet's General Building File 10Go; or, write Gold Bond Building Products/A National Gypsum Division/Dept. PA 2001 Rexford Road/Charlotte, North Carolina 28211.

Gold Bond
GB-350
GRAVITY LOCK
Demountable
Partition System

THE BETTMANN ARCHIVE

Gold Bond Building Products
A National Gypsum Division
Answers that make the difference.

Circle **No. 338** on Reader Service Card



Attractive home on Cape Cod, Massachusetts; Architects Bedar & Alpers, Boston, Massachusetts; Wood siding and wood trim treated with Cabot products.

Wood and Cabot's Stains...made for each other

Cabot's STAINS

Here is a wood at its wonderful best. The architect, in specifying a finish for this home, sought beauty and more...a finish that would stand up to summer sun and winter cold, that would require minimum maintenance while protecting the wood for a long, trouble-free life. His choice: Cabot's Stains.

Cabot's Stains, in 87 unique colors, enhance the wood grain, grow old gracefully, never crack, peel, or blister...are ideal for shingles, siding, clapboards, paneling, and decking. In terms of natural beauty, economy, and ease of application, Cabot's Stains are best for all types of wood, exterior or interior, and all wood surfaces, smooth, striated, or rough-sawn.

Cabot's patented colloidal manufacturing process assures exacting standards of color, deep penetration, and wood preservation. In a world that is constantly shouting "new," Cabot's Stains are very proud to be "old, the original, and still the best."

For color cards and information, write:

Samuel Cabot Inc.

One Union St., Dept. 628, Boston, Massachusetts 02108

"Cabot's Stains, the Original Stains and Standard for the Nation since 1877"

Circle **No. 315** on Reader Service Card