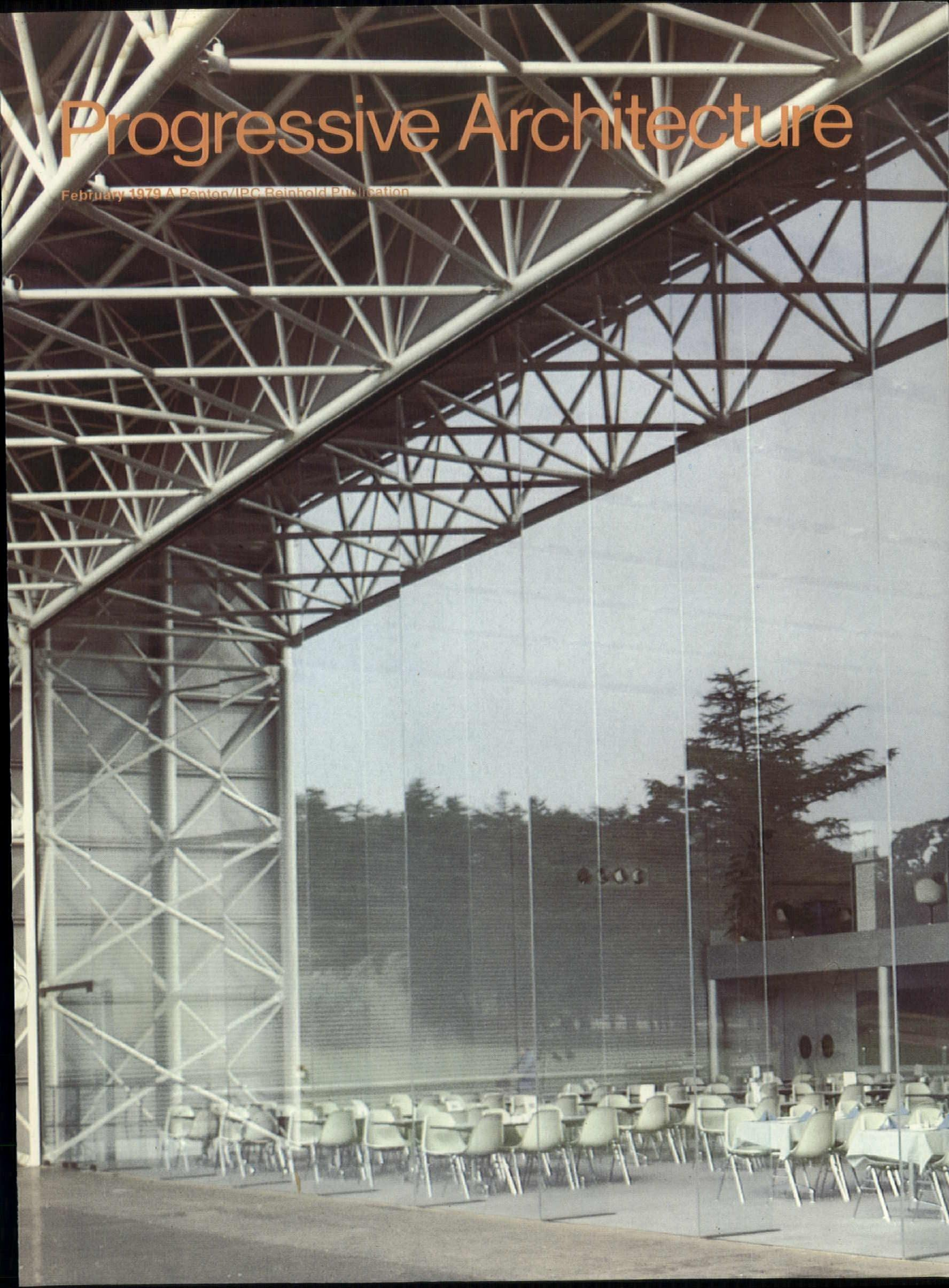
Progressive Architecture

February 1979 A Penton/IPC Reinhold Publication



The Armstrong Commercial Corlon® Flooring System. A new concept that's been proved in use for over 20 years.

Sandoval,™ newest of the Vinyl Corlons, is a styling breakthrough in resilient flooring. It offers the expensive look of terrazzo at a sheet vinyl flooring price.

Today, all across the nation, many millions of square yards of Armstrong Vinyl Corlon are performing beautifully. And many of these installations have been in place for over 20 years. That's just one reason Armstrong .090" gauge sheet Vinyl Corlon is one of the most widely

specified commercial floors. Another is the system that makes it work.

It looks monolithic.

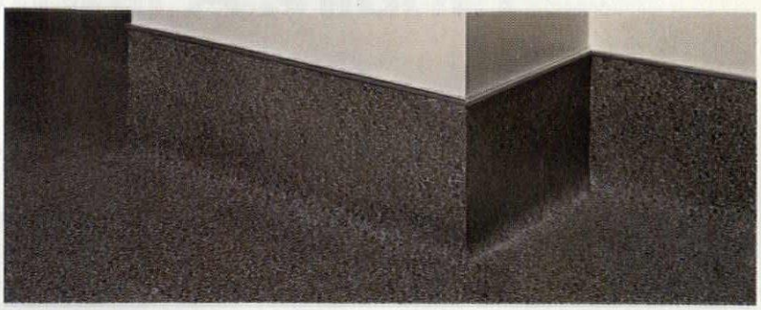
Corlon comes in 6'-wide rolls up to 90' long. You get a monolithic look because there are few seams. For example, you'll have about 93% fewer seams with Vinyl Corlon than with the same area of 12" x 12" tile.

Chemically welded seams.

An exclusive Armstrong adhesive chemically welds the seams without heat or special tools. They won't come apart. And they won't trap dirt and moisture.

Wide range of colors and designs.

Armstrong Vinyl Corlon comes in five distinctive chip patterns and 28 colors ranging from bright and modern to neutral and natural.



Coving where dirt can't hide.

Flash-coving makes it simple to create a gentle radius where floor meets wall, eliminating the sharp corner where dirt can hide.

The pattern lasts and lasts.

Armstrong Vinyl Corlons are inlaid materials. Because the pattern and color go all the way through to the backing, they won't wear off like printed products. And because the inlaid construction is smooth and dense, spills wipe right up. Simple regular maintenance keeps the floor looking like new. These floors meet the flame-spread and smoke-developed requirements of the U.S. Dept. of Health, Education & Welfare under the Hill-Burton Act.

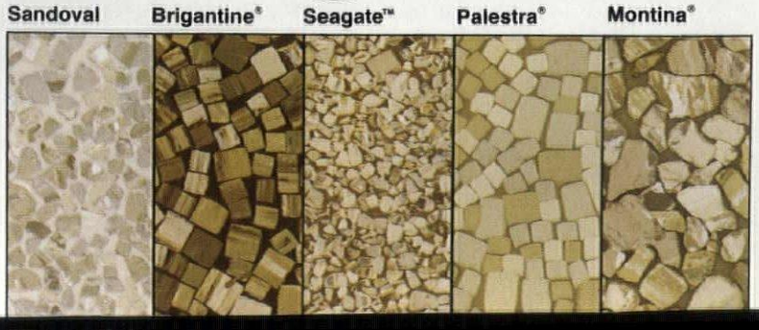
Vinyl Corlon floors can be installed with a perimeter bonding system developed by Armstrong. In most cases, you can install them right over an old floor and eliminate a lot of work and expense.

The Armstrong Vinyl Corlon Commercial Flooring System. Specify it, and you'll get one beautiful long-lasting floor. For more information, write Dept. 92FPA, Lancaster, PA 17604.

FROM THE INDOOR WORLD® OF

Armstrong

Sandoval Brigantine® Seagate™ Palestra® Montina®



Finally. A lighting system that reduces energy costs by 40% yet actually helps you see better.

Armstrong Luminaire C-60. Considering the soaring costs of energy, it's the ceiling system whose time has come.

The Luminaire C-60 provides lighting comparable to that of a conventional ceiling with 4-lamp troffers, yet it operates on 40% fewer watts per square foot. And it does something else, too. It helps you see better.

High-quality light.

Seeing better is not just a matter of shedding more footcandles of light on a subject. It's a matter of increasing the usefulness of what light there is. And the most accurate measure of usefulness is Equivalent Sphere Illumination (ESI).

ESI measures precisely how well a viewer can see what he's doing while performing various tasks. In the comparison chart, notice how the C-60 System, with 24% fewer footcandles and 40% fewer watts per square foot, provides an ESI level significantly higher than the recessed troffer system.

Virtually eliminates glare.

The Luminaire C-60 System evenly distributes light and minimizes glare. Its special quality of light is produced with the help of vaulted modules. Acoustical panels angle outward from each single-lamp fixture. They reflect more than 80% of the incident light and diffuse it so that glare is minimized.

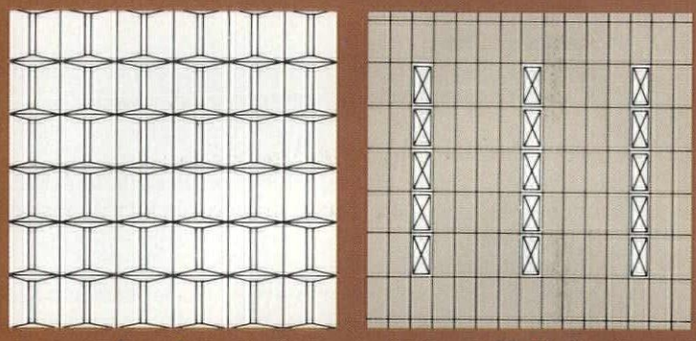
Because of the uniformity of light, there's less need to place fixtures over specified work locations, making it an ideal system for open plan spaces. It's aesthetically more pleasing, too.

An integrated ceiling system.

The Luminaire C-60 does more than put a room in quality light for less energy. It diffuses air evenly for cooling and heating. And its panels are both acoustical and fire-retardant. They'll quiet noise and give you up to two-hour-rated fire protection. Why not find out more about this completely integrated ceiling system.

The comparison data quoted here is part of our informative show entitled "Light Wars." It's a highly entertaining film that includes an explanation of ESI and a documentation of energy savings.

Systems Performance Comparison*



Armstrong C-60 Luminaire	Fixture	2'x4' Recessed Troffer
Prismatic	lens	Prismatic
1	lamps/fixture	4
36	no. of fixtures	15
	classical footcandles	
90	initial	127
70	maintained	95
44	ESI level	40
1.84	watts/sq. ft.	3.07

*30'x30'x9' room; task—ESI pencil. All test data was supplied by independent laboratories; complete information available on request.

If you wish to see "Light Wars," or receive a free booklet on ESI and the C-60 Ceiling System, just write to Armstrong, Dept. 92NPA, Lancaster, Pa. 17604.

FROM THE INDOOR WORLD® OF Armstrong

February 1979

Progressive Architecture

Cover: End elevation, Sainsbury Centre, University of East Anglia, Norwich, England, designed by Foster & Associates, p. 49. Photo: John Pile.

Penton/IPC

Progressive Architecture is published monthly by Reinhold Publishing Company, Inc., a subsidiary 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.

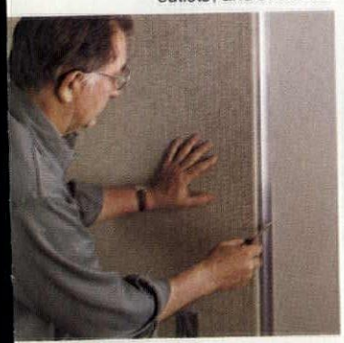
Executive and editorial offices, 600 Summer St., Stamford, Conn. 06904 (203-348-7531).

Subscription information:
Send all subscription orders, payments, and changes of address to Progressive Architecture, P.O. Box 95759, Cleveland, Oh 44101. Subscriptions payable in advance. Publisher reserves right to refuse unqualified subscriptions. Professional rate of $10 per year is available to architectural and architectural-engineering firm personnel and architects, designers, engineers, and draftsmen employed in allied fields. Professionals outside U.S., U.S. Possessions, and Canada: $22 per year. Nonprofessional domestic rate: $20 per year. Nonprofessionals outside U.S., U.S. Possessions, and Canada: $35 per year. Single copy $5, payable in advance. When filing a change of address, give former as well as new address, zip codes, and include recent address label if possible. Allow two months for change.
Send all claims to Progressive Architecture, P.O. Box 6192, Cleveland, Oh 44101.

Indexed in Art Index, Architectural Index, Engineering Index. Publication No. 850700. Second-class postage paid at Cleveland, Oh and additional offices. Volume LX, No. 2. Printed in U.S.A.

ABP ABC MPA

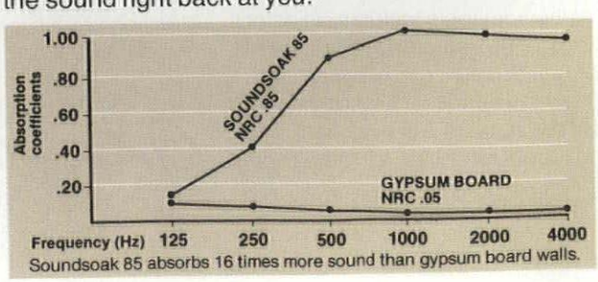
Kerfed panel edges lock around concealed aluminum splines for quick attachment to all wall surfaces. The mineral fiberboard is easily cut to accommodate doors, windows, outlets, and switches.



Soundsoak™ 85 Wall Panels absorb 16 times more sound than basic bare walls.

If you're designing a work space where speech privacy is essential, Soundsoak 85 Wall Panels may well be essential, too. They have a noise-reduction coefficient of 85%. And in the speech frequency range, average sound absorption is 98%!

Conventional gypsum-board walls, on the other hand, have an NRC of only 5%. They bounce 95% of the sound right back at you.



Soundsoak 85 absorbs 16 times more sound than gypsum board walls.

As a result of its absorption, Soundsoak 85 greatly reduces annoying sound reflection, providing an NIC'_F of 20. So Soundsoak 85 is the right specification for open plan spaces.

Along with super quiet, you get super beauty in six natural and six accent colors. Fire-retardant panels are 24″ wide by 9′ high, and they can be installed overnight.

So, when you want a great looking, easy-to-install acoustical wall panel, the only choice is Soundsoak 85. Sixteen times more sound absorbent than basic bare walls. For a free sample and literature, write Armstrong, Dept. 92NPA, Lancaster, PA 17604.

FROM THE INDOOR WORLD® OF Armstrong

Architecture executed

February 1979

In the February issue each year, P/A returns to the subject of completed buildings, after an issue devoted entirely to award-winning projects. We are reminded that the transformation of design concepts into real constructions involves many subtle considerations, which too often get short shrift.

Modern Architecture has been particularly vulnerable to these lapses between design and execution. A rapid turnover in design ideals has discouraged refinement of detail—or consigned such accomplishments to early obsolescence. Emphasis on design artistry in some firms—and on sheer productivity in others—has often left serious matters of detail in the hands of junior employees, short of time or patience to work them out fully; too often they rely on dubious precedents or simply wing it.

Then, too, there is a tendency toward formal abstraction that is fundamental to Modern Architecture; surfaces are conceived as continuous and uniform—indoors and out, from grade level to roofline—meeting at knife-edge corners. For the most part, full-size reproduction of the cardboard model still remains the ideal for execution. That ideal can be attained with painstaking design effort and costly construction, as at the East Building of Washington's National Gallery (P/A, Oct. 1978, pp 49–59), but more often it is clumsily approximated.

There have been Modern architects, of course, who let the properties of materials and connections play their rightful role in determining workable details. There was Mies's treatment of glass and steel, honorably carried on by his followers and extended to new levels of virtuosity by high-tech masters such as Norman Foster (pp 49–64). There were the efforts to use the inherent characteristics of concrete and masonry by Rudolph, Kahn, and many others. One of the dubious aspects of Post-Modernism—whatever its positive intentions—is a tendency to treat all construction as if made of nameless, homogeneous matter, with details unrelated to construction.

The detailing discussed so far involves, as the word is generally understood, the design treatment and execution of surfaces and joints. But there is another kind of detail to consider in translating the concept to the building: the small-scale, close-up qualities perceived by the user. Here is where the abstract ideals of Modern design can be particularly obstructive—in denying the distinction, for instance, between the surface we confront at the entrance to a building and the surface 50 stories above. Here is where the Art Deco—and other impure styles of its period—often showed magnificent sensitivity. Behind that was a long history of treating surfaces within reach differently from those beyond (even if this involved no more than a change in the type of paint at doorhead height, as in your old elementary school). Among Modern Masters, only Aalto made a point of such distinctions; among contemporaries, Venturi has addressed them.

I've become quite conscious recently of how often we are brought into uncomfortable intimacy with coarse concrete surfaces that present at least an implicit threat to our elbows. Or, at the opposite extreme, we are thrust up against fragile-looking stucco or plaster—in public places—that seems to invite our pity. (This usually happens in plazas, lobbies, atriums, etc.; past that point interior designers intercede, often "spoiling" the architectural concept with recognition of real-life needs.)

One of the admirable features of Foster's Sainsbury Centre, featured in this issue, is the appropriate distinction between interior and exterior surfaces, a fundamental feature of the scheme. Yet even here, as Suzanne Stephens points out, there seems to be no innate connection between the overall concept and the means of entry, which is simply piercing the wall at a seemingly random point—with minimal acknowledgement in detail—a device with a certain kind of impact, but not much deep satisfaction.

John Morris Dixon

Entrance to Johnson/Burgee's Pennzoil tower, Houston—just an ad hoc intrusion into the large-scale geometry of the structure.

A look back into the issues of *Pencil Points* (P/A's original name) from the 1920s and 1930s reveals that period's obsession with detail and with elements of close user scrutiny, such as entrances, stairways, fireplaces, and show windows. Sometimes, refinement of detail was enough to create a fine building; the Los Angeles Biltmore, for instance (P/A, Nov. 1978, pp 66–71), has superb detailing applied to an undistinguished design concept. But more often, detailing of that period failed to breathe life into formula architecture.

Today, with a greater variety of design ideas than ever bubbling up out of a fluid mix of principles, the danger is that too few designs will get the detailed consideration—of real experience and of construction processes—required for a true test of their validity.

John Morris Dixon

Bonded Bronze™

Bonded Bronze is more than beautiful. It is durable, exceptionally resistant to abuse, and offers the advantage of moulded corners, columns and curves. A wide selection of textures and designs is available.
FGM83, in the photograph, is part of a series of interesting new textures by artist Joy Verner.

Forms & Surfaces Box 5215
Santa Barbara, CA 93108
(805) 969-4767

Circle **No. 322,** on Reader Service Card

FORMS+SURFACES

Views

Miami from both sides now

Regarding your 12/78 Editorial: "Silver Lining Over Miami," *Progressive Architecture's* nickname as the "Yale Journal of Architecture" once again rings true. Your smart-alecky perception of Miami as a "smudge of asphalt on the city's tapestry of greenery" smacks of having been written by a sophomore journalism major locked away in the bowels of a New York high-rise, who has never been south of the Mason-Dixon Line nor west of the Hudson.

Philip Johnson tweaks the nose of the local architectural establishment by doing some cute "Mediterranean" act which the local architects have had the good sense to boo off the stage (The style is no more indigenous to South Florida than palm trees to New York.); then the master plan is bent to accommodate his whimsy, making it look like a 1960 Boston redevelopment plan.

The South Florida image and history has been eclectic and inconsistent at best (red tile roofs have been used on houses because they are heavier than most roofs, and thus less likely to blow away in a hurricane), but to open up huge outdoor areas such as the one in Geddes' plan is naive to the frying nature of the Miami summer sun. It is a solution typical of northern architects/planners who carve "strongly defined open space" out of their crummy gray cities seeking some relief from the ugliness.

The Geddes plan is a boring solution for a northern city, and is totally insensitive to the Miami climate and life style; proving once again that "post-modern" means: after modern, anything goes.

And all this just so Philip Johnson can have himself a chuckle.

Bruce W. Wade, AIA
Jacksonville, Fl

[To set the record straight: none of us at P/A has ever spent more than a few hours at Yale; I have been in Miami on six visits; I discussed the Government Center with two Miami architects before writing this piece; downtown Miami has little magnetism for a metropolitan area of this size—not a slur, just a fact; Johnson's scheme has been "booed" by some Miami architects, praised by others, and is by no means "off the stage"; it is the earlier plan, not Geddes', that looks like "1960s urban renewal," with lots of zooty angles; tile roofs have the same density on libraries as they do on houses; triangular high-rises with concrete eye-shades are hardly indigenous to Miami, either; open spaces for Miami should not be designed for midsummer noon—when they won't be used anyway—any more than northern plazas should be expected to function in a blizzard; paved elevated platforms would hardly have solved the climate problem; as the Editorial stated, Geddes' plan recognizes the existing street grid, the need for phased construction on it, and the fact that large parking garages require large rectangles; it is not just a response to the "whimsy" of Johnson's buildings.—Editor]

Piazza: mixed reactions

Thank you for the article in the November issue on the Piazza d'Italia. It was a relief to have the complicated story of the Piazza's evolution told neatly and clearly as it is one that is often clouded with misunderstanding even among the architectural community in New Orleans.

I am writing, however, to comment on an aspect of the Piazza not specifically dealt with in your article—its value as a teaching device for architectural students. The Third-Year students at Tulane have just completed a study of the area of the Piazza and of the Piazza itself and are now designing an office building for a site across the street from the campanile. We have visited and discussed the Piazza a great deal as a thing in itself and as part of the context that a new building would react to.

Student opinion has been mixed (general concern over the fountain's durability was interesting), but most feel that the Piazza has heightened their sense of what is possible in architecture. For them New Orleans has a rich and complex architectural presence, but little contribution to its sense of place has been made by recent buildings. This is partly due to the restricted expressive capabilities of some modern buildings but more, I suspect, to a deadly combination of sleepy provincialism, insularity, and poverty (most of New Orleans' so-called "characteristic" architecture dates from the city's period as a major wealthy trading center). There is little good new architecture to talk about.

The Piazza startled people here as it has leapt up from this long architectural nap directly into passionate tarantella—some just don't know how to react. But some do. This semester the Piazza allowed the Third-Year students and me to discuss, with an example at hand, the positive value of responding to and generating context, of finding the right architectural response for the situation, of being involved in developing (and even initiating) the situation to design for, of the importance of scholarship, erudition, and wit as creative forces, of proportion and color, and of seeing an idea developed beyond some basic level of resolution.

The Piazza celebrates, above all, the architects' tireless and inspired search for the right degree of polish and reinforcement of their ideas so that one can sense and even experience this joy in the craft of handling ideas.

And this is no small thing of value—the Piazza is a modern reminder (and partner with the most evocative of New Orleans buildings) that the essence of architecture must come from deeply felt experiences and must evoke in the user the right combination of mixed and heightened responses. This makes it possible for the user and the architect to suddenly come together and share the thrill of a common experience, and this kind of silent but joyous connection is, in the end, what gives us the energy to go on.

Errol Barron
School of Architecture
Tulane University
New Orleans, La

Differences of opinions notwithstanding, a put-on is a put-on. Quite a few architectural put-ons, with matching articles, have been adorning your magazine. Some built and some, fortunately, not. Recent examples include: The Best Products building in Houston (P/A 1:76), the Pembroke Dormitories in Providence (P/A 2:76), the City Edge Proposal for Philadelphia (P/A 4:76), the Franklin Court in Philadelphia (P/A 4:76), the American section of the 1976 Venice Biennale (P/A 10:76), the Oberlin College Art Museum addition (P/A 10:77), the law office interiors (P/A 9:78) and so on and so on.

It is irrelevant here to speculate whether your writers, in intellectualizing these projects, are actually joining ranks with the put-on artists or are victims themselves without knowing it. But I do hope that the public and, more important, history will not be misled and will recognize these mockeries as such.

Now, your November issue serves up the so-called Piazza d'Italia. You and the responsible party for this joke are doing a remarkable job "selling the new clothes to the Emperor." The Emperor, or victim, in this case, is the Mayor and the Italian community of New Orleans.

If it were not for your dead seriousness, it would have been just another joke of extremely poor taste by someone who obviously hates Italy and/or New Orleans. However, fearing that some of your readers, especially future architects and urban designers, may fall victim to the put-on, I feel obligated to write this letter to let them know that there are those of us who do not believe in difference for difference's sake, who do not confuse cheap sensationalism with design quality, who resent being put on and are yelling: "The Emperor is nude!"

By the way, I can't help but agree with one of the joke's authors who used his own sculptured head as a gargoyle: While his face is laughing, he is puking too.

Ted Wu
Architect and Industrial Designer
Los Angeles, Ca

[Differences of opinion are valid, and the writer's opinion can never turn the projects he cites into "put-ons" for those of us who appreciate what they are contributing to our architectural heritage.—Editors]

Adding Deco to Deco

While a student at Columbia University's Architecture School Historic Preservation Division, I, along with another student, Joseph Lombardi, a practicing architect, made a proposal for the adaptive reuse of the Chrysler Building as a cooperatively owned apartment building. We came into close contact with the project director at Mass Mutual, Mr. Calvin Glazier, and he offered much invaluable material for our school project. He assured me that Mass Mutual was concerned with an appropriate solution to the lobby that would consider minimal intervention

[continued on page 12]

All-Steel 8000 Series Systems Furniture:

New freedom of choice for your office plan.

Consider the possibilities inherent in the 8000 Series. At one extreme, it is a complete system of integrated, modular components which can be combined to create the total office plan.

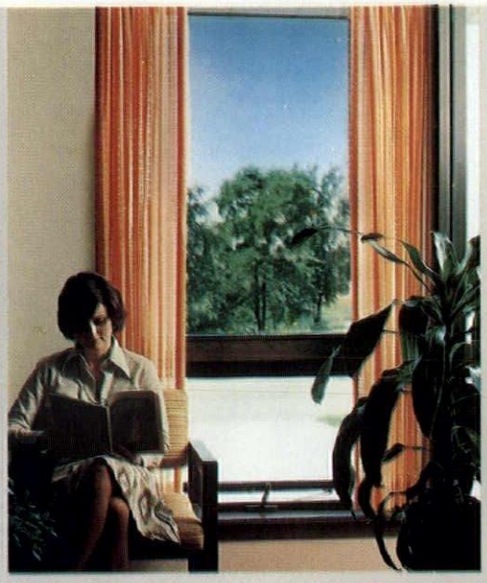
At the other extreme, 8000 Series components can be introduced into any existing office piece-by-piece, over an extended period of time. The transition will be smooth because Series 8000 components are compatible with conventional free-standing furniture.

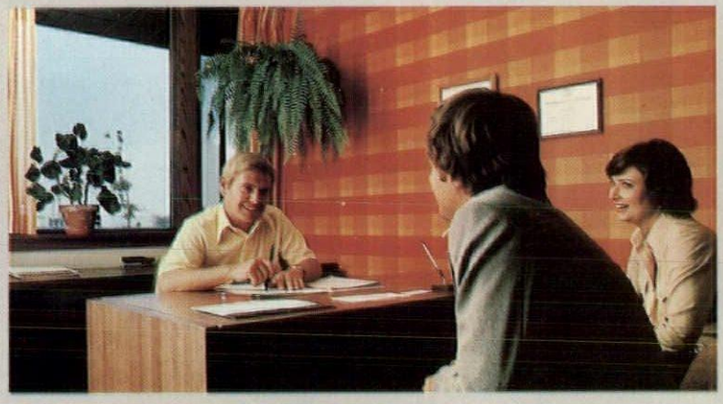
As growth, change, or relocation require, Series 8000 components can be rearranged quickly and easily to meet new needs.

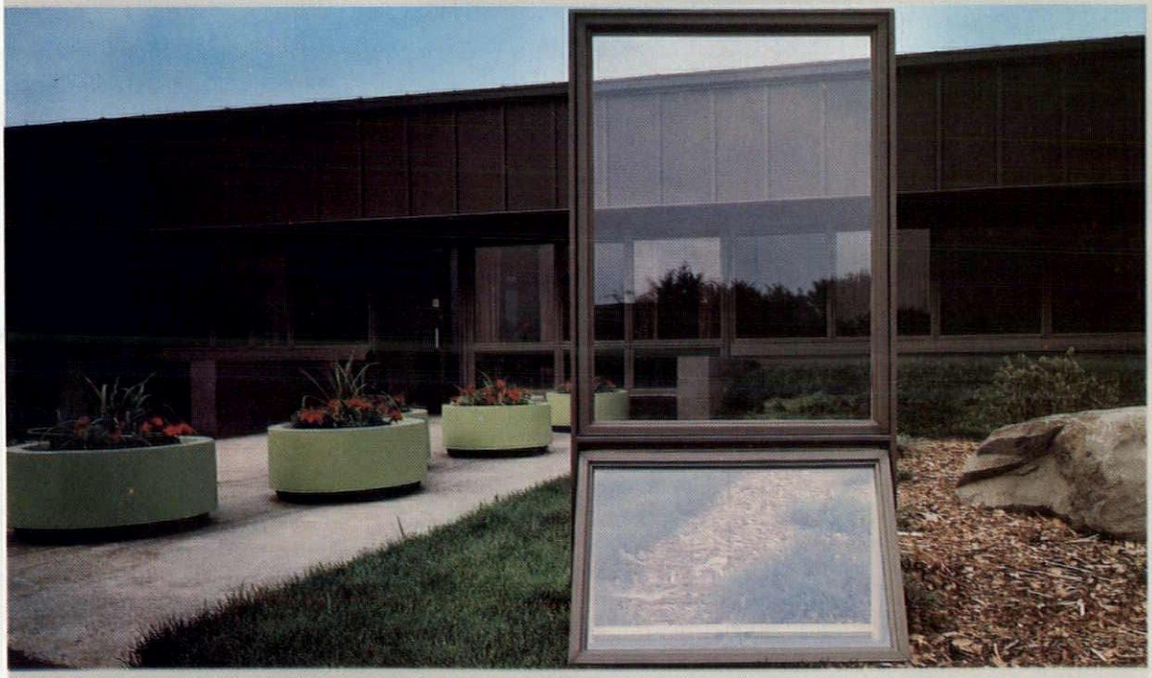
To learn how smoothly our 8000 Series Systems furniture can meet the present and future needs of your clients, write All-Steel Inc., Aurora, IL 60507.

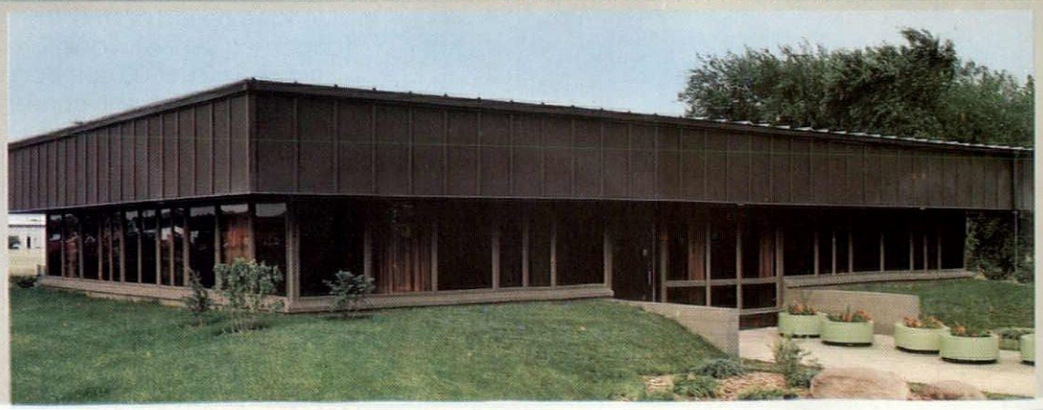
ALL·STEEL
ONE OF THE CIT COMPANIES

Showrooms in:
Chicago
New York
Los Angeles
Aurora
In Canada:
All-Steel Canada Ltd.
Montreal, Toronto









Color to bank on.

It's Andersen Terratone.

A rich natural color you can count on to solve many design problems.

In this country bank, the architects relied on Andersen® Perma-Shield® casement and awning windows in Terratone to add interest and savings.

They knew the earthy color of Terratone would appeal to these down-to-earth people. It brought the color of the land to the face of their bank.

Terratone also blended beautifully with the earth-tone fascia, the spandrel glazing, the exterior walls, even the rolling countryside.

And these Perma-Shield windows provide dependable savings.

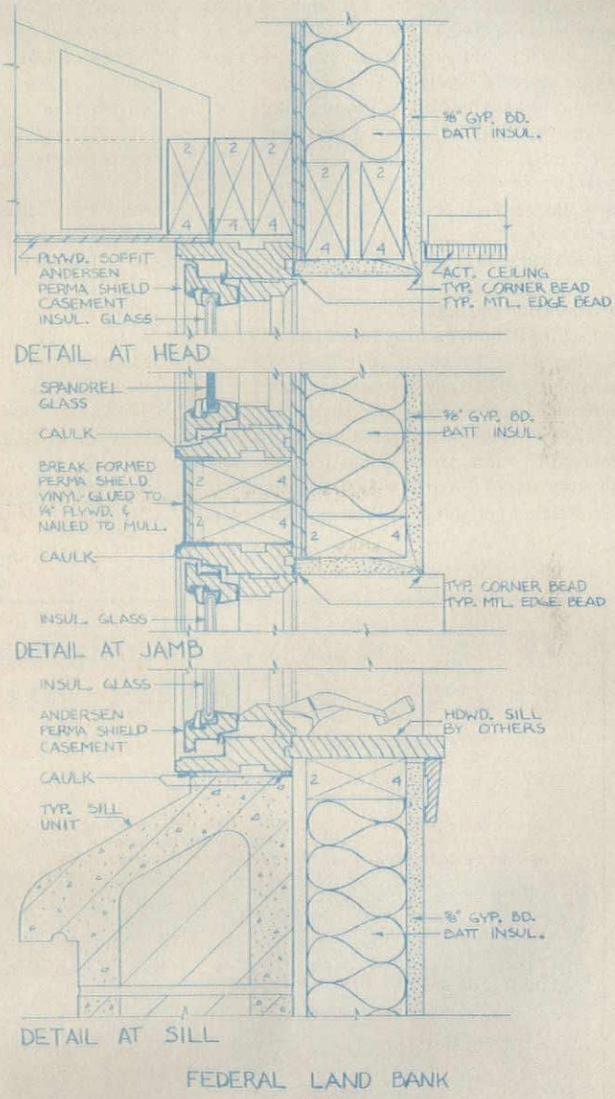
Andersen windows help reduce heating costs. They're made of wood—a natural insulator—and double-pane insulating glass. And they're built two times more weathertight than industry air-infiltration standards to help seal out the winter. Help seal in comfort and save on annual fuel bills.

Finally, the architects counted on Perma-Shield windows to hold maintenance costs in check. Andersen's long lasting low maintenance rigid vinyl sheath won't rust, pit or corrode. Won't need painting every few years.

Perma-Shield windows in Terratone. They add daily interest and yearly savings in a color that'll match just about any structure.

Sound reasons to specify Perma-Shield awning and casement windows in Terratone for your next project.

For more details, see Sweet's File 8.16/An or your Andersen dealer or distributor. He's in the Yellow Pages under "Windows". Or write us direct: Andersen Corporation, Bayport, Minnesota 55003.



FEDERAL LAND BANK

Federal Land Bank
Northfield, Minnesota

Architect: Architects Plus
Faribault, Minnesota

Printing limitations prohibit exact duplication of Terratone color. Use actual sample for building specification.

The beautiful way to save fuel®

Andersen Windowalls®

Circle No. 375, on Reader Service Card

Views continued from page 8

into the historic fabric of this recently declared New York City Landmark Interior. Indeed Mass Mutual commissioned an historic structures report based on our school study this past May 1978 and completed in August.

It certainly came as a shock to me to learn that the JCS & Associates' plan is still being considered (P/A, Nov. 1978, p. 78). Their Art Deco-izing of one of the Rembrandts of "Skyscraper Style" will only add misunderstood forms. These past images have no historical precedent in the lobby, nor any relation to the present.

The addition of major new elements, such as the lotus forms to be placed on the elevator lobby ceilings, copying the elevator cabs' veneered patterns, would be similar to "in-painting" an old master. As in any work of art, the more original a piece is the more valuable it is!

Kevin Lee Sarring
Harry Weese & Associates
Chicago, Il
[Agreed.—Editors]

Preservation particulars

I would like to comment on one misleading heading under "Preservation Ironies" in the November, 1978 issue. It reads "In Economically Troubled New York, Historic Building is Saved, While One is Lost in Prosperous San Francisco." Although the article does not deal with the costs of rehabilitation, it would appear from this heading that the article makes a point that preservation is more expensive than new construction. Since many readers do not read further than the first few paragraphs of an article, this heading may well stick in people's minds.

I find it a preservation irony that on the next page you come back with an article on the Biltmore Hotel in Los Angeles. The costs of rehabilitation are compared with new construction and rehabilitation wins out. I think more consistency should be tried, and writers of articles should be more aware of what their headings might mean to people who glance through your magazines. From experience, preservation is almost always cheaper than new construction.
Wilson G. Martin
Preservation Development Coordinator
Department of Development Services
Salt Lake City, Ut
[Our reference to the economic policies of the two cities had to do with the priorities they give to increased taxes on individual properties vs preservation of architectural assets.—Editors]

I read with interest your recent issue on the preservation of historic buildings; may I recommend that the architects who designed these buildings when they were first built receive proper acknowledgement in the "project credits" section? A listing like "original architect" would be appropriate, if the material really is of interest to you.
Christopher S. Gray, Director
Office for Metropolitan History
New York, NY
[A good point. We shall try to do this consistently.—Editors]

A beautiful structural system with built-in savings. A first for Hawaii.

On the warm, scalloped beaches of Maui stands one of the first high-rises ever built of loadbearing masonry in Hawaii.

It is the 12-story Kahana Beach Resort near Kaanapali, a graceful, soaring structure that faces the extinct volcanic palisades of Molokai across the Pacific.

Architect John R. Mock, AIA, of Hendrick and Mock Architects, San Diego, California, studied the site, the design problems and found there were several reasons to use masonry:

"We priced it for both masonry and poured-in-place concrete and masonry won. Using loadbearing masonry provided considerable savings."

The structural system consisted of loadbearing combed-face concrete block. This meant that the building could rise faster.

It also meant that fire walls would be inherent to the system, and according to Mock: "Fire proofing is absolutely essential in this kind of multi-family structure."

Sound proofing between units was another factor and another plus for masonry in this popular family-oriented resort.

But aesthetics played as big a role in Mock's choice as any other consideration.

"Masonry has a much warmer effect than concrete," he noted. "In this beautiful environment that's important—the beauty and flexibility of exposed masonry work fine here."

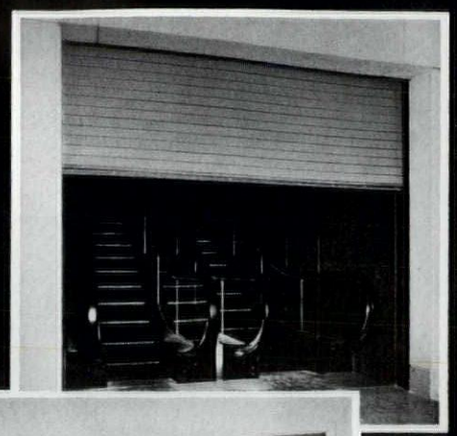
There are other long-term advantages to an engineered masonry building, too. Because of its mass, masonry means energy savings, lower heating costs—which may not be so important in Hawaii—and lower cooling costs, which certainly are. And masonry walls are virtually maintenance free.

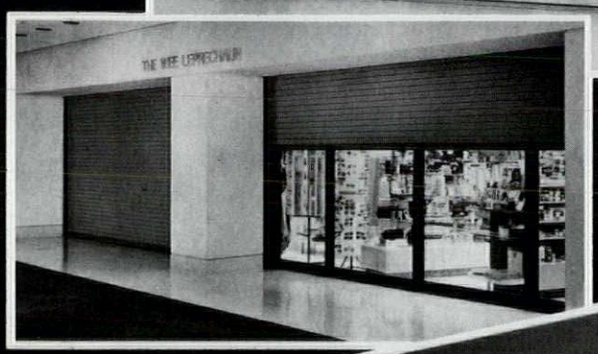
If these beautiful loadbearing masonry walls are a first for Hawaii, one thing's certain: They won't be the last.

For more information about the aesthetics and built-in savings of loadbearing masonry, write IMI.

Hendrick and Mock, Architects
F&M Contractors, Inc.
Suda Construction and Mason, Inc.
Local 1, Hawaii, BAC

IMI International Masonry Institute
(The Bricklayers' International Union and the Mason Contractors in the U.S. and Canada)
823 15th Street, N.W., Suite 1001
Washington, D.C. 20005
(202) 783-3908



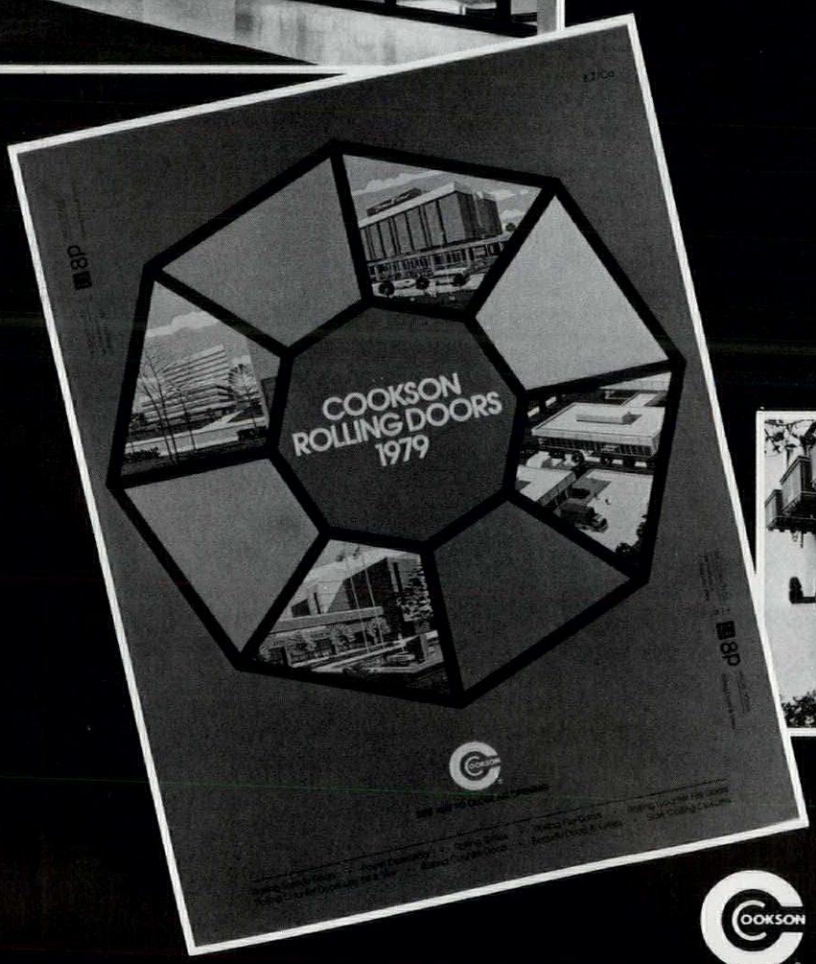


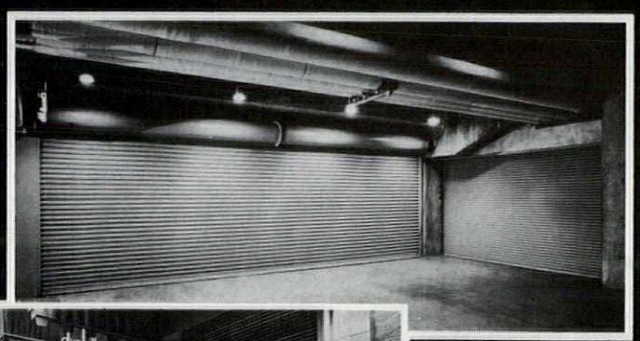
Now-easier than ever to specify quality.

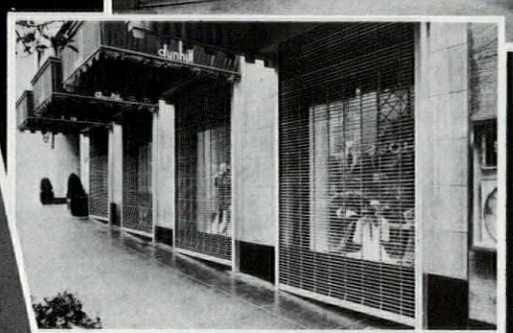
Cookson Rolling Doors

New 1979 edition gives you everything you need to select, specify, draw and detail.

For your free copy of the most complete rolling door catalog, write, phone, or circle our reader service number. (Also in Sweet's–8.7 Co.)







Architects prefer

Cookson Rolling Doors

Best way to close an opening.

700 Pennsylvania Avenue • San Francisco, CA 94107 • (415) 826-4422
Eastern Plant: 800 Tulip Drive, Gastonia, NC 28052

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

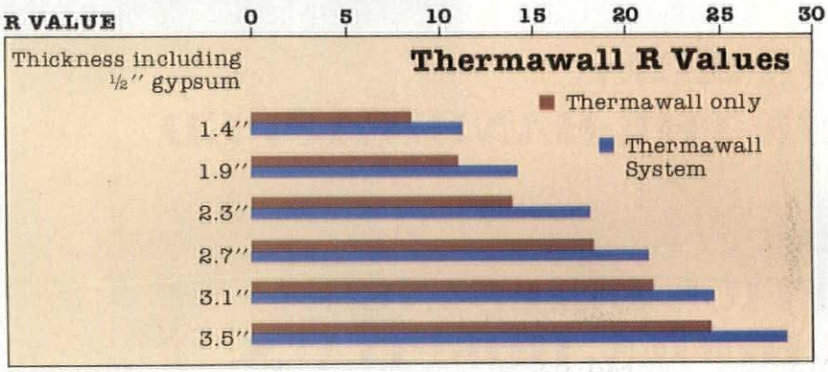
Putting up Rmax™ Thermawall™ means tearing down a few old ideas.

Conventionally, commercial wall insulation and finishing has consisted of three things. Studs, batt insulation and gypsum board. At Rmax, we have an approach that is slightly unconventional.

And simply fantastic.

Rmax Thermawall. A rigid urethane core permanently bonded to gypsum board and wrapped by highly reflective aluminum foil.

Together, it combines the most efficient insulator available with a practical, time saving method of installing finished drywall. Resulting in unsurpassed savings. Both in installation costs and future energy bills.

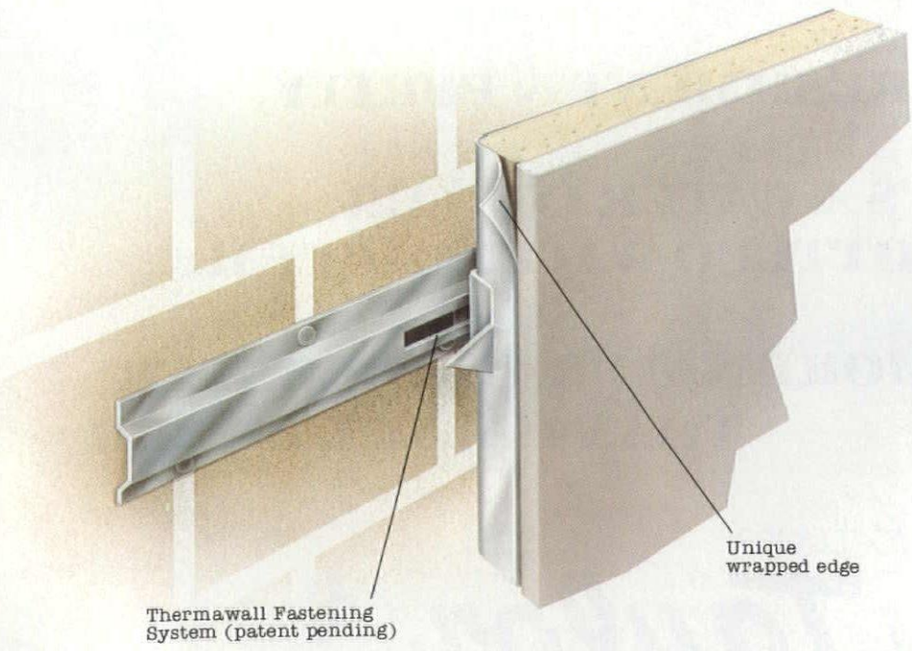


Our unique Thermawall Fastening System (patent pending) eliminates common studs and batt insulation. It's thinner than conventional stud walls, so you gain floor space. And at the same time solve an old problem of increasing square footage for tenants.

We're helping solve a new problem, too.

Rmax Thermawall is perfect for insulating residential cathedral ceilings. It's efficient enough to achieve maximum insulation value when used with standard 2 x 6 roof rafters and R19 batts. Which eliminates the need to change construction techniques. And in turn, saves money.

Call Rmax about an unconventional look at your insulation needs. By tearing down a few old ideas, we can help you build in more value.



Thermawall by Rmax

Rmax, Inc.,
13524 Welch Road, Dallas,
Texas 75240 214/387-4500

Rmax also manufactures a complete line of rigid urethane insulation for commercial roofing and sheathing requirements.

FOR . . .
RELIABILITY
DURABILITY
AESTHETICS

FOR . . .
ARCHITECTS
ENGINEERS
WHOLESALERS
CONTRACTORS
BUILDING OWNERS

***FOR* KIDS**
***FOR* THE HANDICAPPED**

FOR . . .
OFFICE BUILDINGS,
SCHOOLS, HOSPITALS,
INSTITUTIONS & INDUSTRY

FOR . . .
PARKS, CLUBS, RECREATION AREAS

. . . AND FOR REFRESHMENT & PURITY

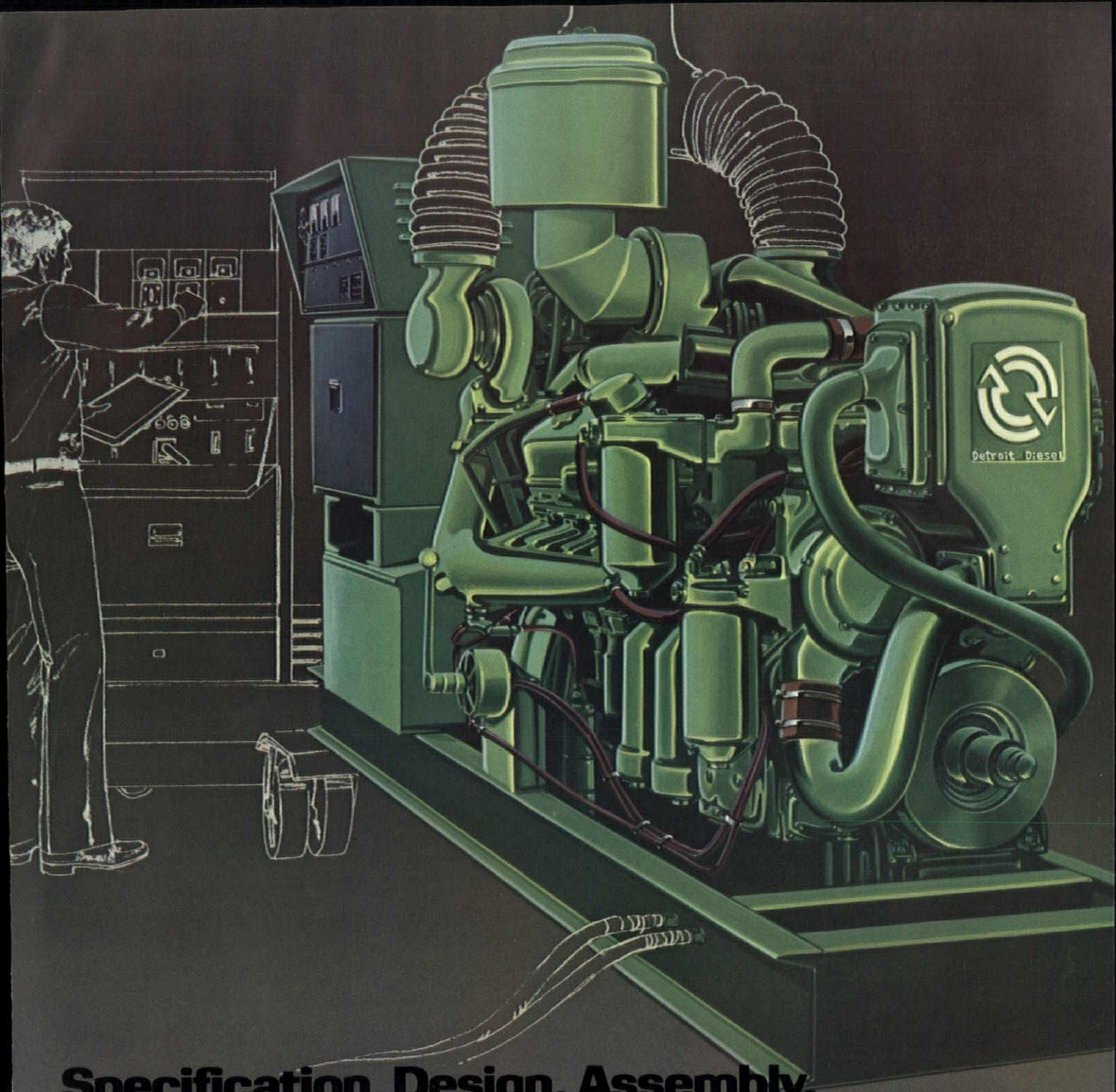
. . . WHETHER IT'S A WATER COOLER,
A FOUNTAIN, A BOTTLED WATER SYSTEM

. . . "NOTHING'S MORE NATURAL FOR WATER"
THAN HALSEY TAYLOR

nothing's more NATURAL for water

Halsey Taylor ... since 1910®

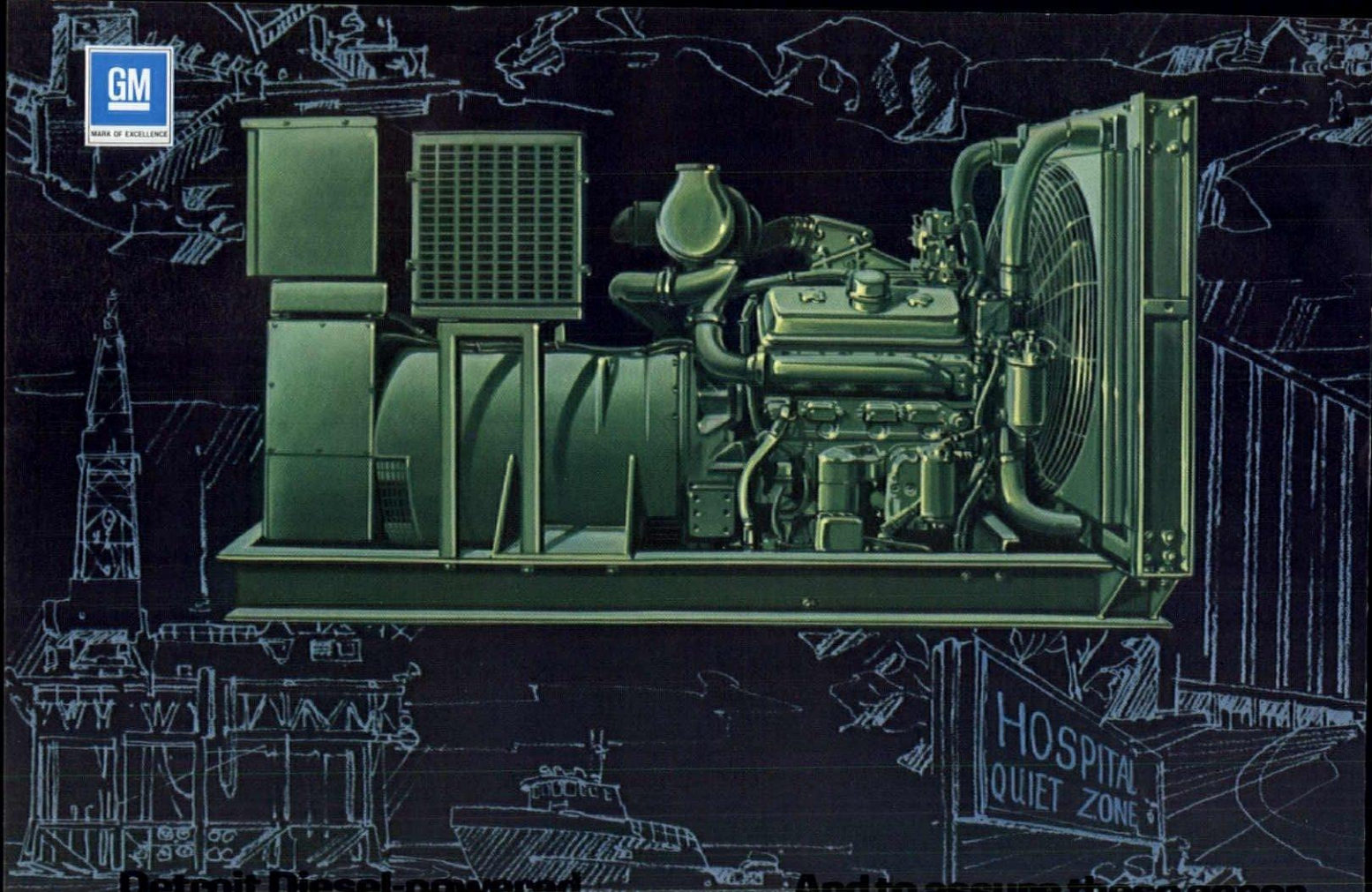
KING-SEELEY THERMOS CO.
ROUTE 75, FREEPORT, ILLINOIS 61032



Specification. Design. Assembly. Installation. Service. All this to make your generator set fit your exact power requirements. And that's not all you'll get from your Detroit Diesel Allison PowerPro...

plus...

Keystone Diesel Engine Co.



Detroit Diesel-powered generator sets provide these important features:

- Slow piston speed for long engine life
- Exceptional dead-load pickup
- Fast response
- High power-to-weight ratio, plus compact configuration
- Excellent performance at high altitudes
- Clean operation

And to assure these generator sets stay productive:

- 24-hour service and parts
- Single source capability for both electrical and mechanical service
- Factory-trained mechanics
- Full stock of Detroit Diesel Allison parts
- reliabilt® remanufactured assemblies

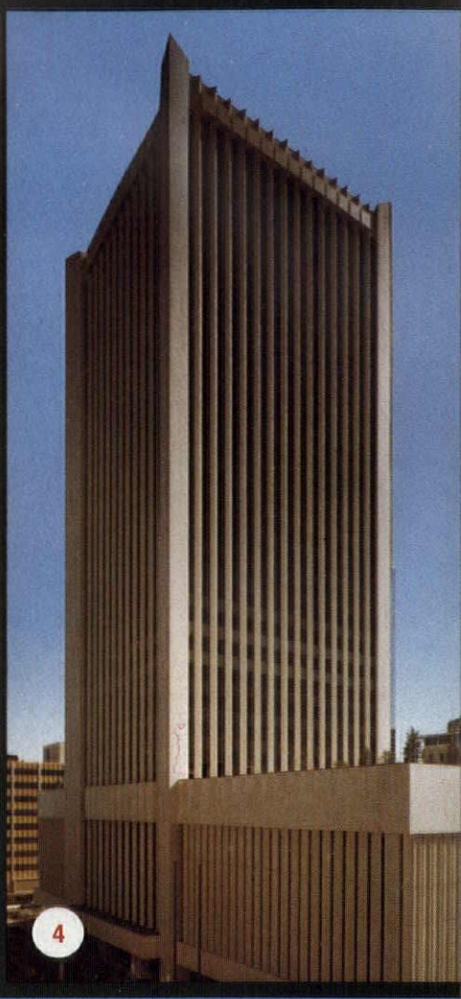
At your Detroit Diesel Allison PowerPro...

Keystone Diesel Engine Co., Inc.
U.S. Highway 19 (Cranberry Industrial Park)
(Suburb of Pittsburgh North)
Zelienople, Penn. 15090
(412) 776-3237

Interstate 90 & Route 18
Girard, Pennsylvania 16417
Phone: (814) 774-3147

Concrete lets you create energy-efficient buildings.

Today's need for energy-conserving buildings makes concrete the designer's logical choice. Concrete lends itself naturally to design which is highly creative—and at the same time—can be dramatically energy-efficient. For example, the Lincoln Library (shown here) has a concrete building envelope that contributes to the overall efficiency of the building. Concrete walls, limited glass area, sun shading and reflective surfaces combine to form an envelope that dramatically reduces the heat load of the building. What's more, when used throughout, concrete's design integrity provides pleasing visual continuity and contributes long-term investment advantages. Mail the coupon. We'll send you more information about designing for energy conservation with concrete.



OUR CATALOG IN SWEET'S 32(d)/Po

PORTLAND CEMENT ASSOCIATION
Old Orchard Road, Skokie, IL 60077
312/966-6200. Ext. 366 Dept. PA-29

Write for details on how the buildings shown here took advantage of concrete design to save energy.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____STATE_____ZIP_____

1. Basin Electric Cooperative, Bismarck, N.D.
   Architect: Ritterbush Associates
2. Zora Neale Hurston Building, Orlando, Fla.
   Architect: Lewis and Burke Associates, Inc.
3. Terraset Elementary School, Reston, Va.
   Architect: Davis, Smith and Carter
4. Arizona Bank Building, Phoenix
   Architect: Kelley-Marshall Associates
5. Lincoln Library, Springfield, Ill.
   Graham, O'Shea and Wisnosky, Architects & Planners, Inc.

Circle **No. 340**, on Reader Service Card

Celotex makes the stuff the best roofs are made of.

The Pink Stuff: Thermax® Roof Insulation

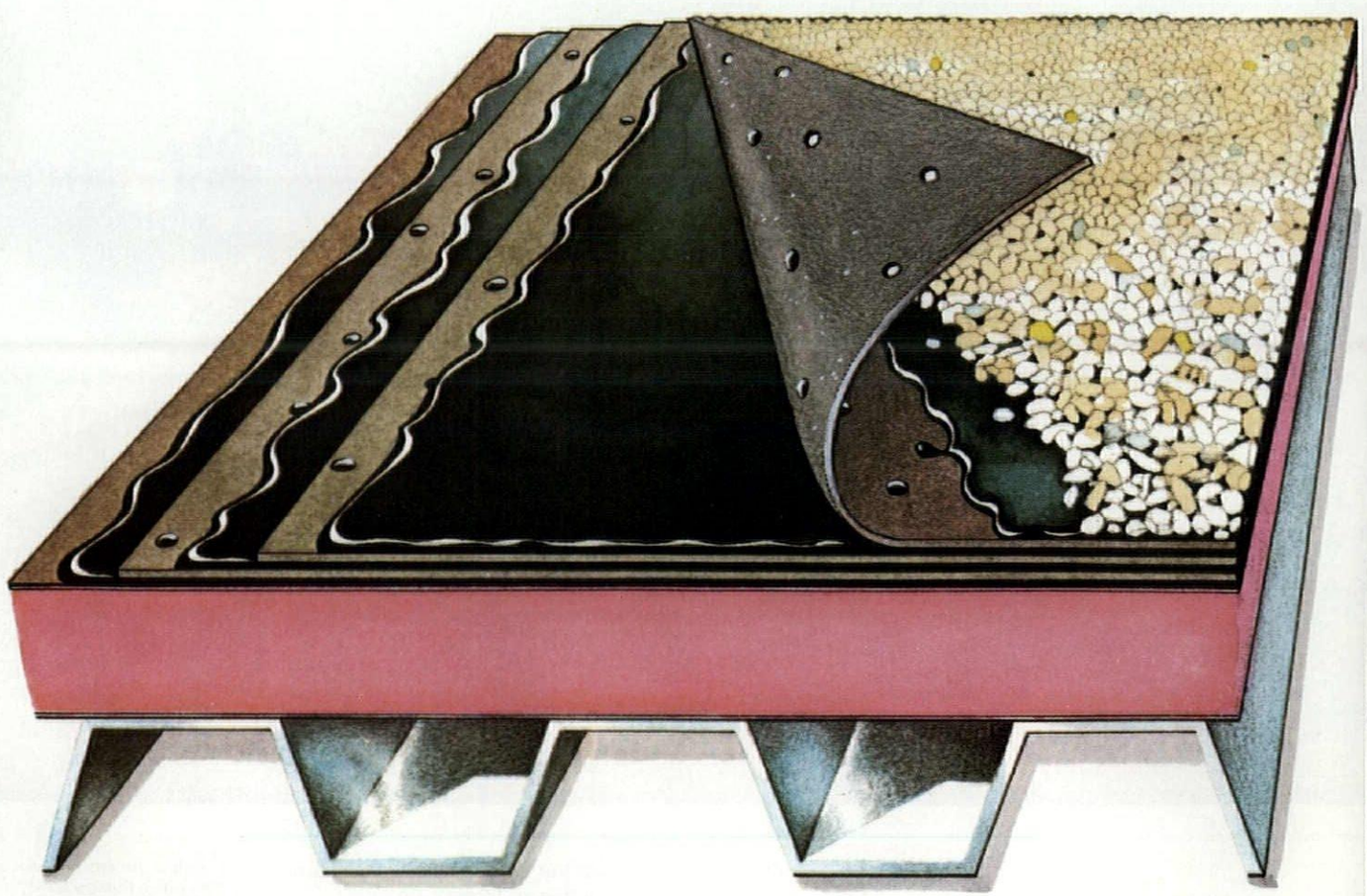
Thermax Roof Insulation is the most efficient on the market with a Factory Mutual Class 1 Fire Rating. Thermax provides from 75% to 250% more insulating efficiency per inch than fibrous glass, composite, perlite and fiberboard roof insulations. Yet Thermax's unique construction makes it thinner and lighter than less efficient insulations.

Thermax's isocyanurate foam core is reinforced with glass fibers for greater dimensional stability. It is sandwiched between two asphalt-saturated inorganic facers which give it the additional strength necessary for good roofing application. It can be installed directly over steel decks with no other material (like perlite) between.

For architects, that means: less deadload factor, thinner nailers at roof perimeters and around roof openings, and smaller fascia design.

The Green Stuff: Tempchek® Roof Insulation

Tempchek gives you the same high "R" factor as Thermax, with the same top-rated insulating efficiency per thickness. Tempchek also has the same



lightweight, easy cutting, easy handling, easy application characteristics as Thermax, and the same compatibility with hot asphalt.

Its glass-reinforced urethane core gives Tempchek excellent dimensional stability. And Tempchek costs less installed than the greater thicknesses of conventional, lower-efficiency materials required to achieve the same insulating results. That makes Tempchek the first choice for any non-fire-rated job.

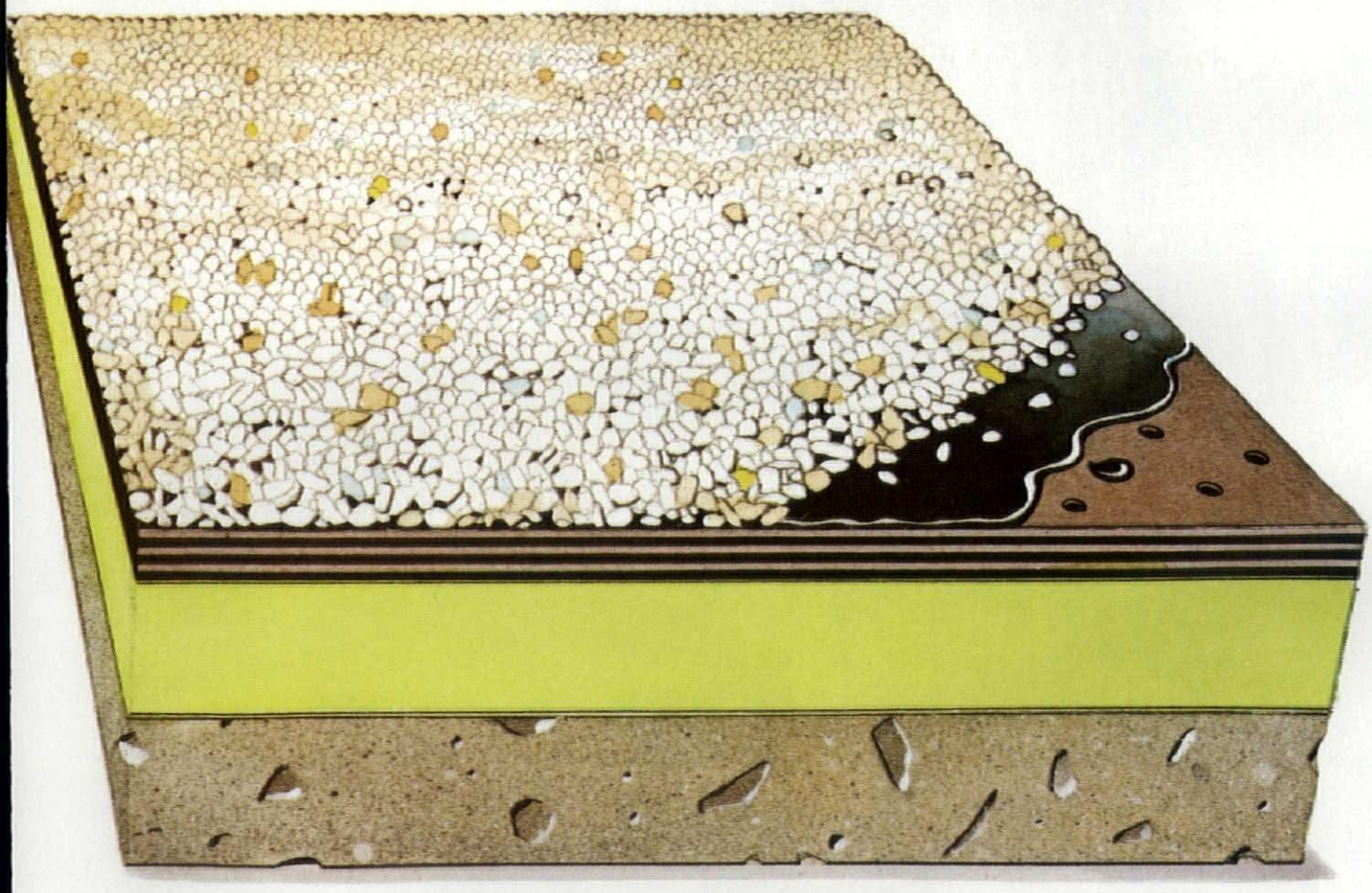
The Stuff With Holes In It: Celotex Vented Ply Sheet

When laying a roof, inadequate brooming is one of the major sources of roofing problems. Sometimes even the most careful brooming can trap gases, vapor and moisture that can cause blistering later on. Celotex Vented Ply Sheet has 1/4" holes that allow gases, vapor and moisture to escape during application, so the whole brooming process is eliminated. The holes are computer-patterned so they fall in different places in each successive layer of felt. The results are a roof that is easier to install because no brooming is necessary and, more importantly, a roof that is almost blister-proof.

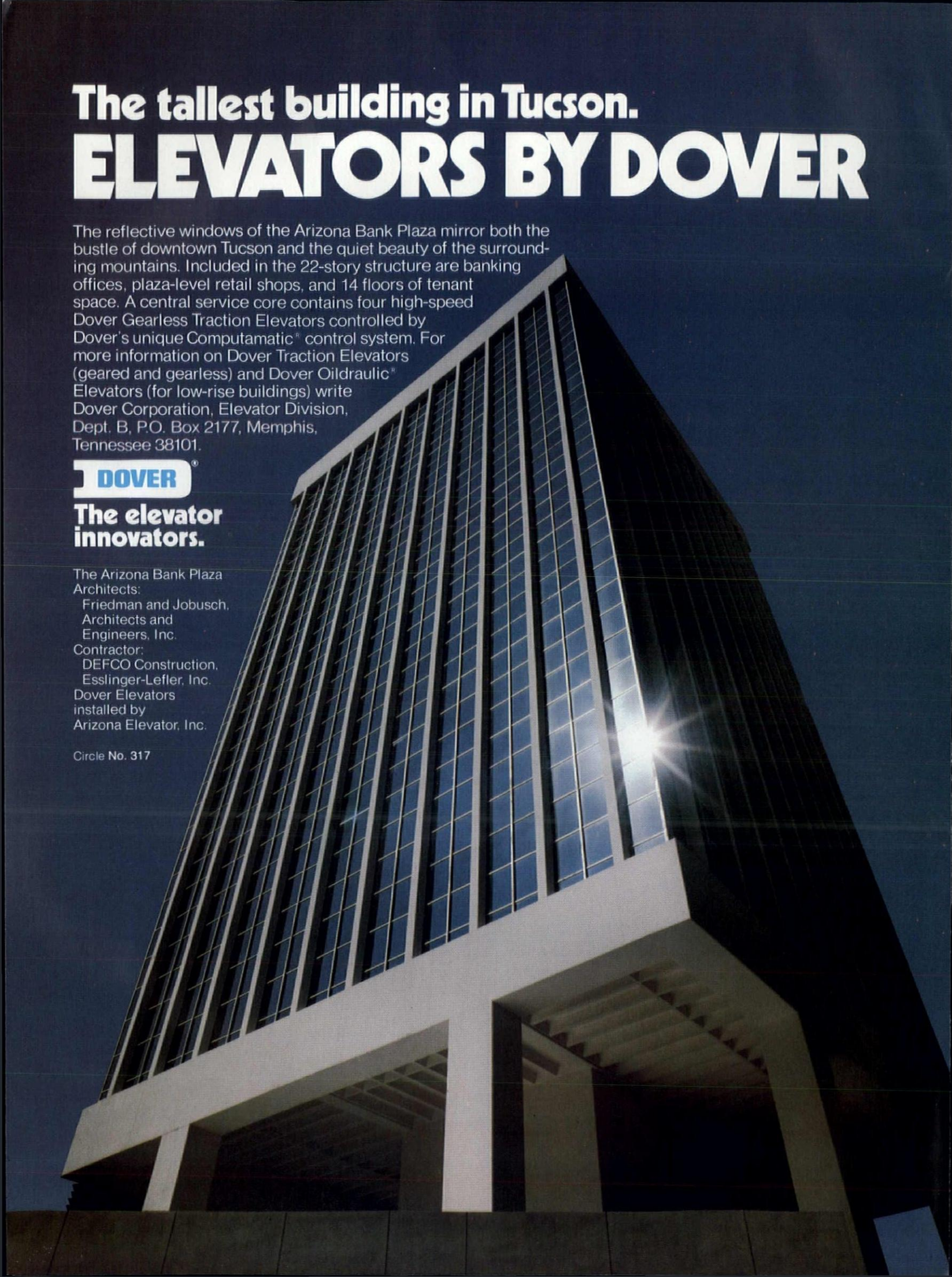
Celotex Vented Ply Sheet further reduces installation cost by requiring only three plies instead of the conventional four. (Over insulation and non-nailable substrates, only three plies are required. And over nailable substrates, lay down three plies and a Celotex base sheet.)

The Pink Stuff, The Green Stuff and The Stuff With Holes In It. They add up to a roof that gives you what you want: maximum insulating efficiency, minimum weight, and no problems. For complete details, contact your Celotex rep or write: John Hasselbach, The Celotex Corporation, P.O. Box 22602 Tampa, Florida 33622.

Celotex®
ROOFING PRODUCTS
The Celotex Corporation, Tampa, Florida 33622
a Jim Walter company



The tallest building in Tucson.
ELEVATORS BY DOVER



The reflective windows of the Arizona Bank Plaza mirror both the bustle of downtown Tucson and the quiet beauty of the surrounding mountains. Included in the 22-story structure are banking offices, plaza-level retail shops, and 14 floors of tenant space. A central service core contains four high-speed Dover Gearless Traction Elevators controlled by Dover's unique Computamatic® control system. For more information on Dover Traction Elevators (geared and gearless) and Dover Oildraulic® Elevators (for low-rise buildings) write Dover Corporation, Elevator Division, Dept. B, P.O. Box 2177, Memphis, Tennessee 38101.

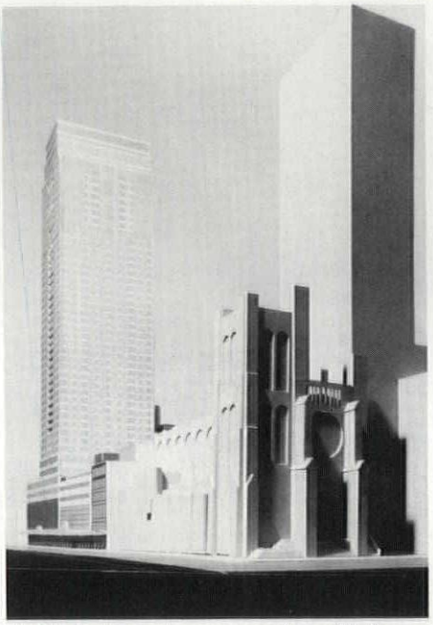
DOVER®

The elevator innovators.

The Arizona Bank Plaza
Architects:
Friedman and Jobusch, Architects and Engineers, Inc.
Contractor:
DEFCO Construction, Esslinger-Lefler, Inc.
Dover Elevators installed by Arizona Elevator, Inc.

Circle No. 317

News report



Model of planned tower seen from 5th Ave.

Photo: Richard Weiss

Goodwin and Stone façade as it was in 1939.

MOMA tower, trust approved by high court

On Dec. 27, the NY State Court of Appeals, the state's highest court, reversed a lower court decision and upheld the constitutionality of controversial legislation permitting the construction of a condominium tower by the Museum of Modern Art (MOMA) via an arrangement whereby in lieu of real-estate tax, equivalent payment would be made to a special Trust for Cultural Resources for the benefit of the museum. In supporting MOMA's plan to build a 44-story luxury condominium tower atop 10 stories of expanded gallery space, the 5-to-2 decision quashed the constitutional objections raised by the Hotel Dorset, a neighbor of MOMA whose views would be obstructed by the planned tower. But more important, it set precedents for potential future diversion of tax revenue to cultural institutions and for subsequent urban planning decisions in New York (P/A, Sept. 1977, p. 7; Nov. 1977, p. 21; and Sept. 1978, p. 46).

At issue in the court case was the constitutionality of two separate but related statutes enacted together by the State Legislature in 1976, after intensive lobbying by city politicians, state officials, and friends of the museum. These are the New York State Cultural Resources Act (SCRA) and the New York City Cultural Resources Act (CCRA), a special law enacted pursuant to SCRA, which creates a "Trust for Cultural Resources" for New York City. The argument of the Dorset, and the opinion of the lower court judge, Joseph P. Sullivan, was that the statutes were "special interest laws which unconstitutionally grant tax exemptions and condemnation powers for the benefit of a private corporation, the MOMA, through the artifice of the Trust."

Three specific objections were raised: a) that SCRA was not a general law but a special law (tax exemptions may be granted only by general law); b) the exercise of the condemnation power must be for a "public use," and no public use was involved; c) the legislature acted in violation of the State Constitution by enacting a special law without a home-rule message from the City Council of New York.

The most powerful of these objections, the contention that SCRA was a special law, was based on the fact that the legislation was conceived as a package for the express benefit of MOMA, and that MOMA is the only participating cultural institution which meets all the statutory eligibility criteria. The recent decision in favor of the TCR held that, although this is true at present, there "is no showing that other institutions could not, in time, meet them also," as the majority opinion stated.

It would appear that the Whitney Museum and the several other city museums that filed a "friend-of-the-court" brief in support of the legislation indeed believe that they "may be able to benefit from the provisions of the legislation by participating and expanding their facilities," as the brief stated. The Whitney, for example, may envision acquiring contiguous property up to the requisite 50,000 sq ft through its trustees. Certainly city museums are favorable to what they see as an innovative way to channel tax revenue to cultural institutions.

No one argues that the economic and social contribution of the city's cultural resources is undervalued in the NY budget, or that the financial situation of most city cultural institutions, MOMA in particular, has been especially grave recently. But many public officials and others view such "gimmicky legislation" as one City Planning Commission member termed the SCRA and CCRA, with alarm. As Judge Charles D. Breitel and Judge Matthew J. Jasen put it in their strong dissent: "The evil is that . . . the net result of the statutory scheme is to conceal from taxpayers, perhaps for the long future, and from those concerned with the city's credit, the permanent, unreviewable diversion of anticipated city tax revenues to the museum."

Despite the favorable ruling, there are several points of design and implementation to be settled before the MOMA tower goes ahead. The recent ruling means that MOMA now has condemnation powers over the site, including the right to buy the easement which the Dorset owns or the property adjacent to the hotel. The price of that easement, however, must be negotiated with the Dorset. In addition, attorney David Richenthal, counsel for the Dorset, says the hotel is "seriously investigating possibilities of future litigation concerning the process of the building's construction and its conformity to the approved statute." The design for the $43-million, 44-story tower was originally executed jointly by architects Cesar Pelli of Yale for the museum and Jaquelin Robinson of New York for Arlen Development Corp. During the lengthy court debate, MOMA's letter of intent with Arlen was allowed to lapse by mutual agreement,, probably because of Arlen's financial difficulties and because MOMA felt it could obtain more favorable terms. Negotiations with a new developer, the choice of whom will affect the choice of architect, the final design, and the precise economic arrangements, are presently nearing conclusion.

News report continued from page 21

The design by Pelli approved, in the main, by the MOMA trustees in June 1978 called for a tower of transparent and opaque glass in shades of gray. Although the planned tower on the large site conforms to the allowable FAR for the central business district zone in which MOMA is located, MOMA had to obtain a zoning variance to place the bulk on the 53rd St. streetline, as Pelli's design demands, rather than further back.

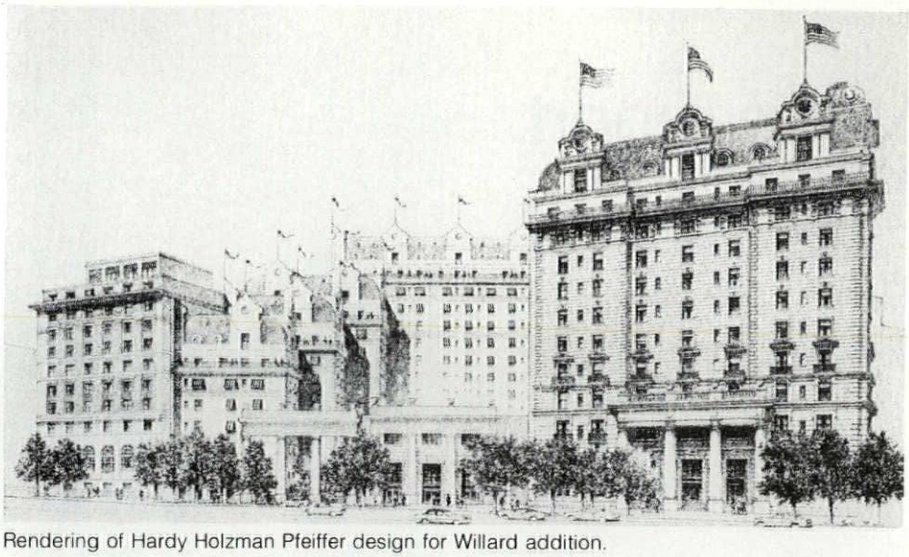
Possibly the most disturbing aspects of the project are its implications for urban design and planning policy. A tall, midblock building contradicts New York's longstanding planning policy of concentrating bulk and height along the north-south avenues while protecting the crosstown streets as low-rise pedestrian-oriented zones. MOMA's tower does not actually violate present zoning regulations since, by some oversight whose logic is now inexplicable, these do not impose such stringent height restrictions on crosstown streets in midtown. (The distinction of these as "commercial" areas seems an inadequate rationale.)

Paradoxically, while the legislation was constitutionally questionable because it was admittedly designed specifically for MOMA, it is questionable on issues of design policy if, as the court found, other cultural institutions in the city *could* meet the qualifying restrictions. The secret to the success of the TCR and MOMA's tower was that they took advantage of unlegislated areas of economic and urban design policy. The issues which the State Legislature, the City Planning Commission, and the courts were entitled to consider and judge were extremely limited—and, in a sense, tangential to the real issues: what sort of precedent is set by such tax legislation, by such a midblock tower, by such an affiliation of an ostensibly public-serving cultural institution with a private developer to exploit the public property that is the city? Under the recently approved law, all the public can do is wait and see.

Post-modernism strikes it rich on Penn. Ave.

The historic Willard Hotel on Pennsylvania Avenue in Washington, DC, is going post-modern. The Pennsylvania Avenue Development Corporation announced on December 19 the winner in a national competition to restore and enlarge the long-threatened hotel.

The PADC board of directors chose a plan by New York City architects Hardy Holzman Pfeiffer Associates for Florida developer Stuart S. Golding and the Fairmont Hotel chain of San Francisco (financial backing will come from Lazard Freres & Company). Construction of the 600-room, $50-million hotel should start next year and be completed by 1982.



Rendering of Hardy Holzman Pfeiffer design for Willard addition.

Speaking at the press conference where the winning plan was announced, architect Malcolm Holzman said that the 300-room addition, which is evocative of the original, would be kept secondary in importance by stepping back the new portions in four segments around a courtyard. Holzman, describing the addition as "post-modern," said there would be lots of mansard roofs and corners, similar to those architect Henry J. Hardenburgh employed in his 1901 French Beaux-Arts original design. The original exterior will be carefully restored as will some of the public spaces inside. The rest of the 400-room hotel will be converted into 300 larger rooms.

Hardy Holzman Pfeiffer specializes in what it calls "interpretive restoration" (they did the St. Louis Art Museum and the Cooper-Hewitt Museum in New York City). In each case, the highlights of the original formed the basis for the new design.

Although the exact details are still being worked out, it is likely that the exterior of the addition, reflecting current technology, will be made of prefabricated masonry panels attached to a steel frame. Building profiles, cornices, quoins, porticoes, and windows will be in proportion to the original, but with changes of value and material rather than changes in plane and form.

For example, a freestanding double portico on Pennsylvania Avenue, echoing that of the main hotel entrance, will mark the entrance to the courtyard, which will be lined with 60 boutiques on four levels. The mansard roof will be dotted with windows similar in style and placement to the original fenestration.

Why did the Hardy Holzman Pfeiffer design win? It appears that one of the primary factors was architectural excellence, just as in the October PADC selection of Mitchell-Giurgola's design, backed by developers Quadrangle-Marriott for the mixed-use project across the street (P/A, Dec. 1978, p. 22). While some believe there were other excellent designs left out of the three finalists (the PADC board reduced the nine developer/hotel/architect teams to three in early December), this clearly was the best of those three. The other two were Washington developer Oliver T. Carr with Intercontinental Hotels (architects Cossutta & Associates, David N. Yerkes & Associates and Hellmuth, Obata & Kassabaum) and developer MAT Associates for Trusthouse Forte, Inc. (architect Welton Beckett Associates).

Writing in *The Washington Post,* critic Wolf Von Eckardt said the Carr proposal was "common commercial" while others have said it resembled an "IBM punch card." It, as well as the MAT Associates' plan, seemingly bore little relationship to the Willard.

The proposed use was also a consideration. Carr planned a retail/office complex in the addition, while MAT Associates would have had a residential complex with office and retail space. One PADC board member, who had reservations about the Hardy Holzman Pfeiffer design because it was perhaps "a bit jazzy," nonetheless voted for it because he did not believe "one hundred and fifty condominiums costing $250,000 would keep the avenue alive," one of the purposes of the project. He thinks that conventioneers will use the streets, shops, and theaters as a few residents would not. The Willard, the new mixed-use project approved in the fall, and the existing Washington Hotel at the other end of the block from the Willard will produce a total of approximately 2000 hotel rooms in the area.

PADC acquired the Willard for $4.5 million last year and will purchase the land,

[News report continued on page 24]

New, factory-formed zinc roofing systems

The Coleman Residence, Arlington, Tx; Architect: David Sprague, Dallas; Installation: Coleman Metal Products, Arlington.

MICROZINC 70

reduces on-site costs in Dallas-Ft. Worth

In the Dallas-Ft. Worth area, Microzinc 70 is well-known for its beautiful pre-weathered patina — the reason it was chosen for this stunning residential design.

But Microzinc 70 is even more attractive in economical ways!

Each Batten-seam or Standing-seam LOK System is delivered in pre-engineered form. Installation is so simple that on-site labor costs are substantially reduced. No cleaning, no special soldering tools, no painting needed —and no priming should you want to paint. Once Microzinc 70 is installed it becomes still more attractive... *no maintenance problems;* no leaks, no staining from run-off, and no rotted materials. Investigate the on-site cost savings of Microzinc 70 pre-engineered components. For further information, write today or call 615-639-8111.

Ball Metal & Chemical Division

Greeneville, Tennessee 37743 (615) 639-8111.

Beautiful inside, too!

News report continued from page 22

now occupied by parking lots, where the addition will be built. It will then lease the development rights to the property.

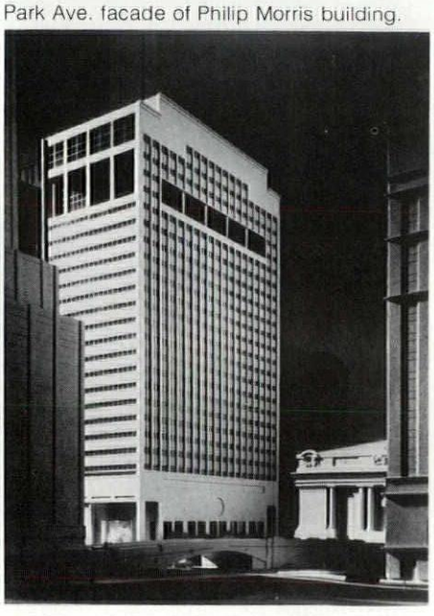
A note of irony came during the press conference when the recently appointed vice chairman of PADC, architect Nathaniel A. Owings, welcomed the restoration plan. It was Owings who in the 1960s led the efforts to demolish the Willard for a huge National Square.

At long last, the Willard has been saved, and most Washingtonians believe that what will be going in next door to it is an exciting change for the city. Few disagree with the assessment of developer Golding, who told the press conference that the Hardy Holzman Pfeiffer design "is a work of inspired architecture, full of excitement and exuberance." In the past, Washington has had all too little of that. [Carleton Knight, III]

Philip Morris tower design

Ulrich Franzen's design for the new Philip Morris corporate headquarters, a $50-million, 26-story granite-clad tower located on the former site of the Airlines Terminal opposite Grand Central at Park Avenue and 42nd St. (P/A, Nov. 1978, p. 24) exemplifies current New York City Planning Commission policy and architectural thinking about Midtown development. The 475,000-sq-ft building is taller and bulkier than normal zoning allowances permit, but the inclusion of a "public amenity"—a 42-ft-high, block-long enclosed public sculpture garden—made it eligible for bonus floor space, under New York City's incentive zoning policy. Philip Morris also purchased, from PennCentral, 75,000 sq ft of the air rights over Grand Central, paying over $2 million for these.

Park Ave. facade of Philip Morris building.

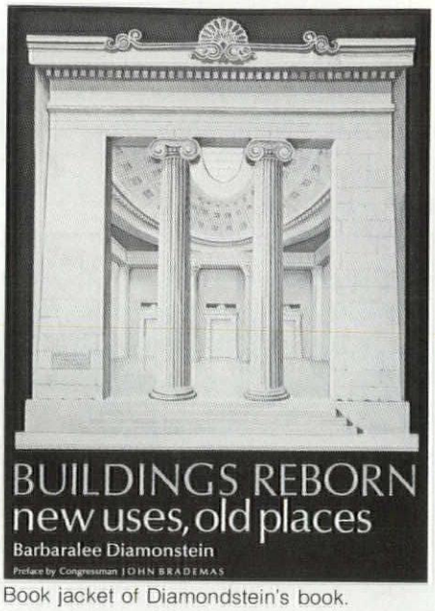


The Philip Morris building is a major part of the city's efforts to encourage the private sector to upgrade the area south of and adjacent to Grand Central. Other major renovations and developments in the area include the luxury New York Hyatt Hotel, a radical remodeling of the former Commodore Hotel building, the restoration of the Chrysler Building (P/A, Nov. 1978, p. 78), and the planned improvements to the Mobil Oil corporate headquarters.

According to Franzen, the corporate house design is strongly contextual. The formal Park Avenue façade has a monumental base which relates to Grand Central's classical façade. Vertical strips of gray granite articulate the middle section of the tower, ascending to a cornice molding at the top of the building. The 42nd and 41st St. façades, on the other hand, are nonornamented darker gray granite. This strong emphasis of the Park Avenue façade, a decorated front on a plain box, appears to derive from a bird's-eye perception of the building, not from that of the pedestrian. Isolated by the vast expanse of Park Avenue and juxtaposed against Grand Central, the formal façade on Park seems appropriate. But the several thousand people who emerge from the terminal onto 42nd St. will see the potentially jarring juxtaposition of the 42nd St. and Park façades. Whether the Philip Morris building will prove an exemplary asset to New York, therefore, will depend largely on how Franzen works out the presently unfinished architectural details.

Buildings Reborn: A Cultural Lobby

Adaptive reuse of old buildings has come into its own; it is recognized as a viable concept. This is the message of *Buildings Reborn,* a book, touring exhibition, symposium, and affiliated cultural programs written, organized, and initiated, respectively, by Barbara Lee Diamondstein. As a writer, editor, television interviewer, and public official, Diamondstein has played an active part in forwarding landmark preservation and recycling for some ten years. The intent of her "Buildings Reborn" crusade is to create public awareness of, and support for, her ultimate goal: the establishment of a national policy for recycling architecturally or historically significant buildings. Under the envisioned policy, states and major cities would set up commissions for this specific purpose. If the individual portions of this lobbying (the book, exhibit, and symposium) each seem inadequate to justify the billing they received, they add up to an impressive



Book jacket of Diamondstein's book.

marshaling of culture as a political tool.

The recently published *Buildings Reborn* documents 95 recycling projects of widely varying scope across the country. (The exhibition, which first opened in Chicago Oct. 6 and is traveling to 22 cities over the next three years under the auspices of the Smithsonian Institution Traveling Exhibition Service, excerpts some 54 of these.) The diversity of scale, expense, professionalism, and impact of these projects is instructive, demonstrating that adaptive reuse has become, in Joan Mondale's phrase, "a grass-roots movement." But the corresponding diversity of the documentation, photos, and text contributed by architects, tenants, amateurs, and professionals, etc., results in a very uneven narrative. The presentation of some projects is seductive, of others inadequate, of a few, sloppy.

In New York, the opening of the exhibit on Dec. 11 at The Museum of The City of New York was marked by a symposium on this theme. Diamondstein fielded a stellar group of professionals in related fields to discuss three aspects of adaptive reuse: the economics of reuse, adaptive reuse for public buildings, and architectural attitudes towards reuse. The symposium was opened by Mayor Koch and House Majority Whip John Brademas (D-Ind.) and ended with the opening of the exhibition by Henry Geldzahler, New York City Commissioner of Cultural Affairs. Key figures sat on the panels: for economics, Mathias de Vito, of The Rouse Co., and Charles Forsberg, President of Citicorp; for public buildings, Robert Wagner, Chairman of the New York City Planning Commission, and J.W. Solomon of the GSA; for architecture, Ben Thompson and Denise Scott Brown of Venturi & Rauch—to name only a few. However, the panels were disappointing. [News report continued on page 27]

Eight ingenious ways to save energy, even in a bitter cold New Hampshire winter.

This is the new Norris Cotton Federal Building in Manchester, New Hampshire. Here, where the winters are long and icy, energy conservation is a must.

Today, in fact, the federal government is setting performance standards for energy conservation in all of its buildings. This one was specially designed as a prototype to demonstrate many energy-saving features.

To the architects, Nicholas and Andrew Isaak of Manchester, this was an unusual design challenge.

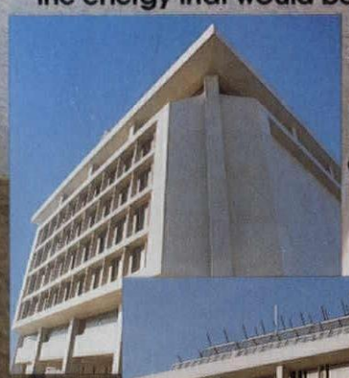
The material selected was masonry.

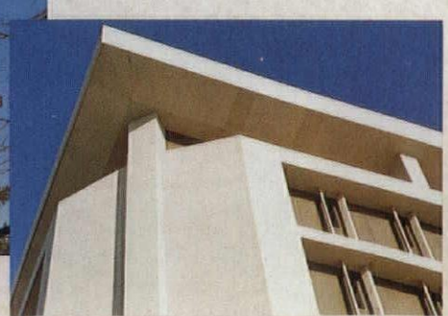
Because masonry has the mass and density to make it more thermally efficient than other materials, it keeps heat in during winter months and heat out during summer months. According to the General Services Administration, this masonry building is estimated to save 53 percent of the energy that would be used by a conventionally constructed building of the same dimensions.

Now, read about some of the design features of this building that can save energy and money on other buildings:

1. The shape, as cubical as possible, minimizes wall area exposed to elements—unlike more traditional rectangular buildings.
2. The massive north wall has no windows, and core elements (stairs, elevator shafts, toilets, etc.) are located adjacent to north wall. This, of course, is a masonry wall.
3. The window area is only 12 percent of the other three walls.
4. The mass (weight) of the masonry exterior walls (100 lbs. per sq. foot) takes maximum advantage of thermal storage. Walls are granite veneer, insulation, 12-inch concrete block.
5. A light-colored roof serves as heat reflector.
6. Windows are shaded by fins. Fin size varies with orientation of facade.
7. The lighting systems are designed for minimum impact on inside heating and cooling systems.
8. Solar collectors, which augment the heating system, have been installed on the roof.

If you would like more information on the energy-saving performance of masonry, write IMI.



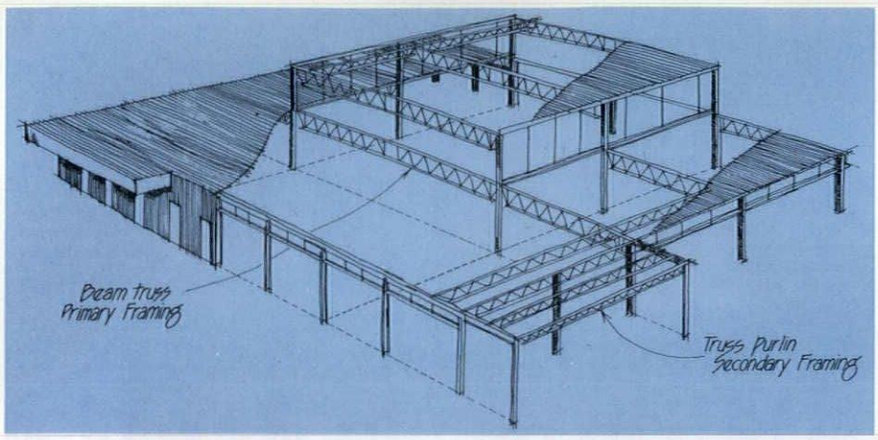


Nicholas Isaak and Andrew Isaak, Architects
Davison Construction Co.
Local 6, New Hampshire, B A C

International Masonry Institute
(The Bricklayers' International Union and the Mason Contractors in the U.S. and Canada)
823 15th Street, N.W., Suite 1001
Washington, D.C. 20005
(202) 783-3908

Circle No. 329, on Reader Service Card

LANDMARK.™
IT'S A SYSTEM YOU DESIGN WITH. NOT AROUND.



We know you're not thrilled at the prospect of working within the strict confines of most pre-engineered structural systems.

But, at Butler, we have some systems that might just change your mind about systems.

Landmark, for example.

Coca-Cola Bottling Co.,
Charlotte, North Carolina
Architect: Odell Associates, Charlotte, North Carolina

It's a flexible system combining a flat roof look with all the inherent advantages of systems construction. Large, open bays, straight columns and open web trusses for utility access are Landmark characteristics.

The basic system consists of columns and open web trusses.

The columns are available in one-foot increments from 13 feet through 29 feet. Bays of up to 50 feet are standard, as are single slope spans of up to 80 feet. And multiple stories are possible.

Components are factory engineered and delivered to the site for immediate erection. Parts bolt together. Field labor costs are cut to a minimum.

Landmark also features an exclusive, machine applied double-lock, standing seam roof that acts like a single membrane covering the entire building. It's designed to allow for expansion and contraction and carries a U.L. Class 90 wind uplift rating. It can be fully insulated.

Designing with our system gives you a definite time advantage, too. Not only is construction simpler and, thus, faster but pre-engineered parts have predictable costs. So you can figure in-place costs from preliminary drawings and take advantage of fast track construction.

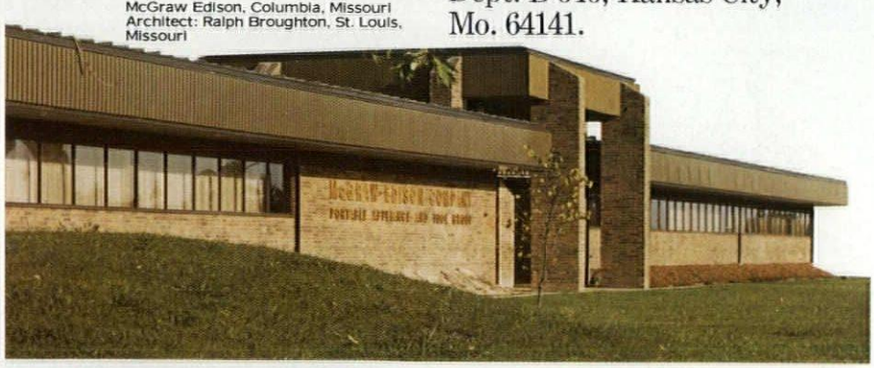
The Landmark system is not wishful thinking. It's here. Right now. Some of its exciting applications are shown in this ad. But what you can do with it is limited only by your imagination.

For more information about Landmark, see Sweets Catalog, Pre-engineered Buildings 13.6/Bu.

We also have some other architectural systems that should interest you. We invite you to send for our free book, "Architectural Building Systems." Write: Butler Mfg. Co., BMA Tower, Dept. B-646, Kansas City, Mo. 64141.

Send for our free book.

McGraw Edison, Columbia, Missouri
Architect: Ralph Broughton, St. Louis, Missouri



BUTLER

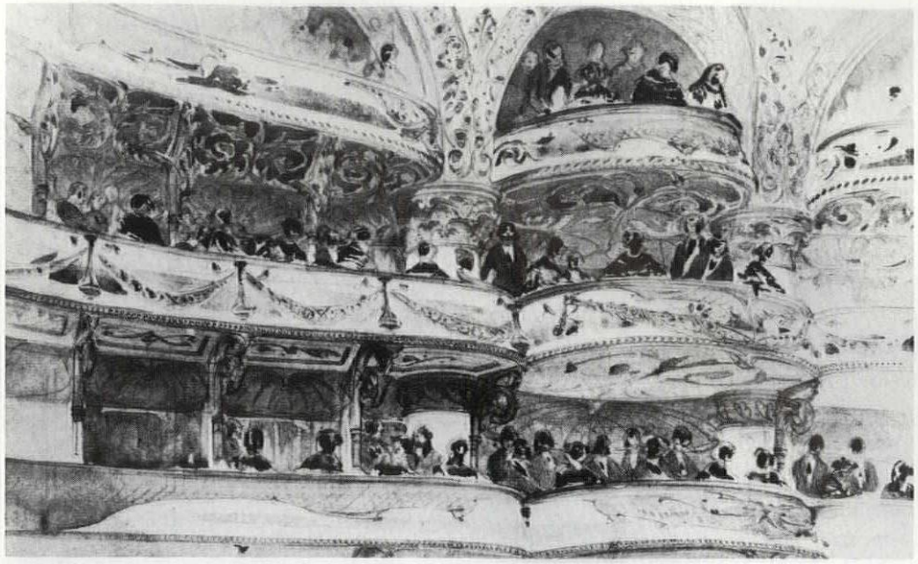
SYSTEMS YOU DESIGN WITH.

68108

News report continued from page 24

There seemed to be a prevailing gentlemen's agreement to touch on no controversial or problematic issues. With the sole exception of Paul Goldberger, the panelists did not discuss the drawbacks or limitations of the current ideology of preservation and reuse. The few references to problems of implementation pinned the blame on federal, state, or city government. Moreoever, the panelists made no effort to relate their presentations, to discuss common problems or alternative approaches. Perhaps adaptive reuse merits such self-congratulation now, but the educated public attracted by the eminent panelists deserved something more than mutual back-slapping.

One newsworthy event, which indicates the success of recent preservationist lobbying, was the announcement by Solomon of the creation of a task force to review GSA historical preservation policies and suggest ways to accelerate the program. As part of Carter's urban policy, the GSA has been charged to house federal agencies in recycled buildings where possible. The panel, on which Diamondstein served, convened in Washington Jan. 16–18. As Diamondstein says, "preservationists are tired of fire-fighting."



Viollet-le-Duc, *Project d'Opera*

Architectural drawings and décor

The Second Empire: Art in France Under Napoleon III
Oct. 1–Nov. 26, 1978
Philadelphia Museum of Art
Jan. 15–March 18,1979
Detroit Institute of Art
April 24–July 2, 1979
Grand Palais, Paris

Albeit the Second Empire (1852–70) in France was a period of incredible richness and development in all the arts, from architecture to the decorative arts, from painting to photography, historians of art and architecture have until recently neglected its glories. This monumental exhibit (378 works, 75 percent of which have never been exhibited outside France) is long-awaited. Such a well-organized, carefully researched, and resplendently presented artistic event is rare.

The show presents a coherent, sweeping view of the culture of a period of great, if quiet, change. The Second Empire witnessed the grand arrival of the bourgeoisie on the cultural scene. The impact of the taste of that class on the arts was direct and specific; the art they preferred presented an idealized yet familiar and recognizable reality—the best of all possible worlds. While advancing the notion of progress in the arts as in commerce and industry, the bourgeoisie also wanted to conform to the aristocratic aesthetic values they had long envied. The result was a style that seems paradoxically pragmatic and fantastic at once. In painting, for example, the historic narrative tradition developed into both a more idealized style (Moreau or Delaney) and a serious attempt to elevate contemporary subjects to the same level (early Manet). In the decorative arts, earlier styles were slavishly imitated in new objects. A case in point might be the guard's armchair, designed by architect Ruprich-Robert in accordance with the Renaissance style of the gallery in which it was to be placed.

But it is above all in architecture that these conflicting desires for opulence and restraint are most clearly seen. The design of the period oscillates between fantasy and rationalism; the overly cerebral Romantic Rationalist school, which placed principle over form, gave way to the theatricality associated with "Second Empire style," a style that culminated in Baron Georges Haussmann's boulevards and Charles Garnier's Paris Opera. The Ecole des Beaux-Arts emerged as the leading architectural school, with a program based on certain principles of formal composition that had emerged out of the various schools' confrontation.

The exquisite collection of Beaux-Arts architectural drawings in this show, most of which come from Parisian archives, documents the development of the era's major architects. The drawings of Victor Baltard's recently destroyed Les Halles, that vast umbrella of iron and glass tracery, have a particular poignancy. Those of Garnier's Opera are fascinating essays in the coordination and elaboration of spaces, while Labrouste's designs for decorative details exemplify his careful reworking of classical forms. Jean-Baptiste Lassus' drawings of Notre Dame de la Taille propound the Gothic, which he considered the last systematic French style, as the correct mode for Second Empire architects. Viollet-Le Duc's richly ornamented project for the interior of the Opera evokes the ceremony of the period.

The imperial cradle, designed by architect Baltard, decorated with sculpture and enamels.

While the architectural drawings and the paintings of contemporary exteriors and interiors are the most historically revealing, the objects in the exhibit are tantalizingly sumptuous. The imperial cradle designed by Baltard, whose ornate description exudes symbolism, perfectly represents the aims of the art of the period, as does Ingres' famous *La Source* (on view for the first time in the US). The period's art is awesome; this exhibit does it justice.
[News report continued on page 28]

News report continued from page 27

26th Annual P/A Design Awards gala

The 26th annual P/A Design Awards were presented Friday, January 19, 1979, at the customary gala luncheon at The Plaza Hotel in New York. The day began at 9 a.m. with the yearly P/A AdAwards Seminar, addressing principles of design, information, and impact in advertising. The seminar culminated in a short address by publisher Philip H. Hubbard, Jr., who then presented AdAwards to the 23 firms.

The Design Awards ceremonies, orchestrated by Administrative Editor Barbara McCarthy, began with a reception, followed by luncheon and the awards presentation. Welcoming speeches by Hubbard and Editor John M. Dixon preceded the announcement of the awards in the three categories of architectural design, research, and urban design and planning, by Associate Editors Martin Filler and Richard Rush, and Senior Editor Suzanne Stephens, respectively.

This year's awards program, which fielded a record 923 entries, marked the end of a decade of architectural diversity. As a comment on the state of the art, the 26th awards suggest an architectural frontier wider, more complex, and subtler than any simplistically defined "cutting edge" (P/A, Jan. 1979).

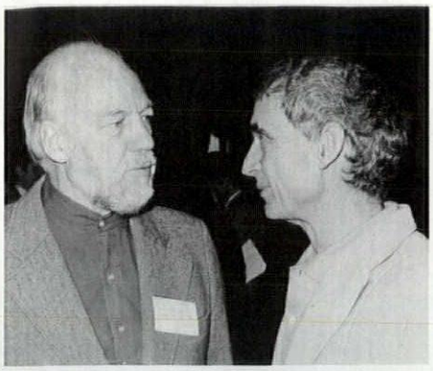
Design awards indicate new directions. The first award went to a bridge. Of the five awards and ten citations, three awards and one citation went to cultural centers, one award and one citation to projects whose main import was their relation to indigenous architecture and/or the environment, but two citations to residences whose merits were mostly formalistic.

The boom in the number of research entries indicates the field's growth in size and importance. Most of the winning studies were large-scale, government-funded projects, but the criterion stressed above all others by the jury was imagination. The five urban-design awards pointed to at least one clear trend: the increasing tendency of urban planners to try to think organically, to work from within the existing situation and on a relatively small scale.

One architect commented on the proportionally large number of team-designed winners; that, too, may reflect an increased complexity in the design process as well as in design considerations. Another designer noted the pluralistic aesthetic reflected in this year's awards. Indeed, if P/A awards are accurate indications, the architectural watchwords of the 1970s may prove to have been "complexity" and "contradiction."

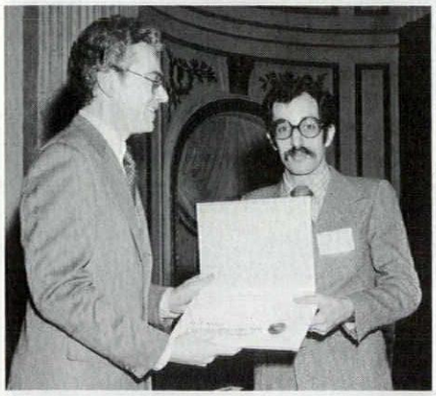
[News report continued on page 30]

Welcoming speakers Hubbard (l.) and Dixon (r.)



Pioneers: John Johansen (l.), Paolo Soleri (r.)

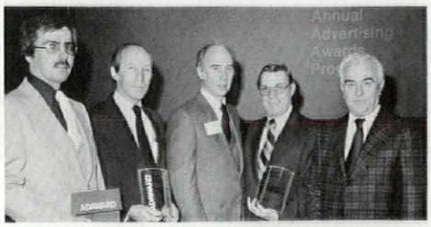
First award (design) l. to r.: Dixon, Michael McCarthy, T.Y. Lin, James Brown, Leo Dondaville, Filler.



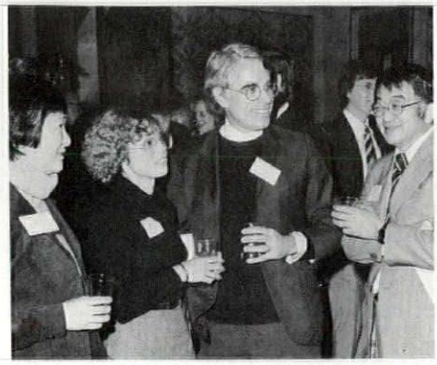
First award (research) winner Louis Wasserman

Above, l. to r.: Peter Calthorpe, Scott Matthews, Bruce Corson. Below, l. to r.: Harry Ellensweig, Jacquelyn Hall, Anthony Pangaro.

P. Chermayeff and Dixon, above; below, M. Hisaka, K. Wheeler, P. Eisenman, D. Hisaka.



Proud winning ad firms and their agencies. Above: Emhart/Russwin; below, Koch & Lowy.



Photos: Henry Krupka.

Beautiful... Permanent... Economical... Energy Efficient.

Port Huron Municipal Office Center Building, Port Huron, Michigan / Arch: Richard C. Cogley / All white material in photo is Cherokee marble, supplied by Genesee Cut Stone & Marble Co., Flint, Michigan

it's CHEROKEE MARBLE!

An exclusive new finish further enhances the appeal of this unique stone, it's called GAMARTEX, a new deep texturing treatment that does interesting things, it softens the veining, the stone is brighter, more reflective, and the large crystals that characterize this beautiful marble glint and sparkle with glancing light.

For the architect, Cherokee affords a flexibility in design limited only by the imagination. And to solve the owner's problems, this beautiful stone is available at firm contract prices with a guaranteed schedule of delivery regardless of project size.

Why not consider White Cherokee for your next project? Services of application engineering, detailing, budget pricing, specification assistance or just answering questions are offered without cost or obligation. Call us today.

georgia marble company

STRUCTURAL DIVISION / Nelson, Georgia 30151 / (404)

News report continued from page 28

Report from Rome

Mosque planned for Rome by 1981

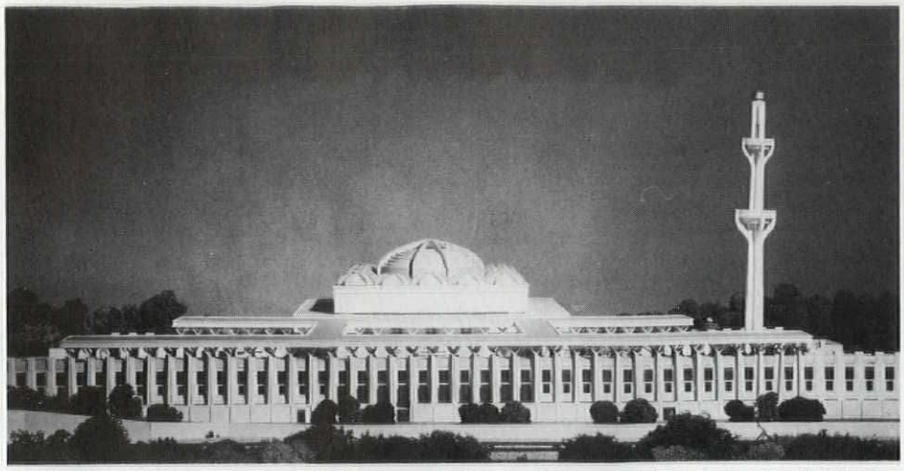
Next month will see groundbreaking of what is arguably the most iconoclastic architectural project of the decade: a mosque in Rome. Construction of the roughly $20-million mosque and Islamic center complex at the northern end of the Eternal City is intended as a gesture of mutual goodwill on the part of the Arab states who are financing the project, the Italian government, which donated the land from the holdings of the city of Rome, and the Vatican, which has to approve any religious edifice in the city.

However, the disproportionate degree of controversy that the mosque project has aroused indicates that putting an Islamic temple in the capital of Christendom disturbs most Italians profoundly. For ideological shock, it's comparable to building a Center for Communist Studies in downtown Washington. The issues raised in the popular and professional press have focused on the design and its relation to its urban context, but the intensity with which the debate has been waged suggests an underlying sense that some unstated assumptions about what Rome represents, and what a Roman monument should be, are being flouted.

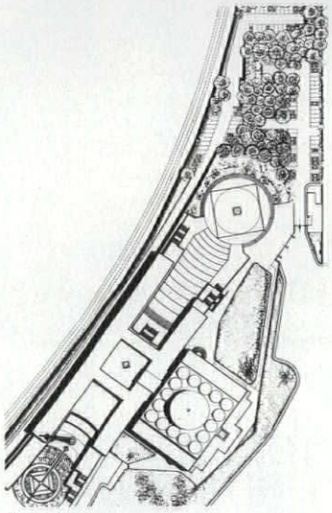
The Arabs made the first overtures to the Italian government on the buiding of a mosque in Rome in the early 1960s, but the Vatican refused permission until 1973. When, in that year, the Church inclined to detente via-à-vis Islam, then-President Leone of Italy negotiated an agreement with King Faisal of Saudi Arabia whereby the city of Rome would donate the land for a mosque if the Arab nations would finance the construction. The mosque complex, funded primarily by Saudi Arabia, will also house the Islamic Cultural Center of Italy, an independent religious organization founded in 1966.

The political gesture of good will was rather at odds with popular sentiment. In trying to find a site for the complex, the city repeatedly encountered opposition—from the Vatican, neighborhood organizations, and other interest groups. Romans view the mosque with dismay, as the potential nucleus of an Arab ghetto.

The site was finally allocated in 1974. After an initial project failed to win the approval of the city's planning committee, an international competition was declared in 1975. Two finalists were selected: the Italian architectural firm of Paolo Portoghesi & Vittorio Gigliotti of Rome, and that of Sami Mousawi & Partners, an Iraqi firm with offices in Manchester. It was a politically apposite choice, but apparently not a productive collaboration; Portoghesi terms it "a continual battle."



Horizontal view of the mosque complex as seen from the nearby major arteries (model shot).



Site plan of complex.

Prayer room cupola: concentric rings over columns.

Credit for the monumental outcome seems mainly due to Portoghesi. Better known in the US as an architectural historian (author of *Baroque Rome* among other works), Portoghesi allows his historical knowledge and resultant sensibility to inform his design without falling into a derivative idiom.

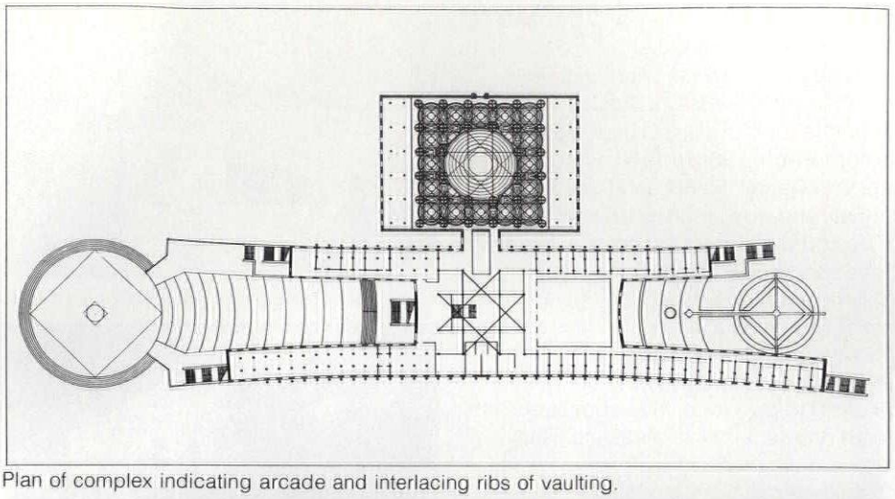
The mosque project, which Portoghesi described in a recent P/A interview as one climactic result of his long passion for Islamic architecture, tries to resolve the conflict between Islam and Italy. It enunciates the temple's function as a place for the Arab faith, yet located in a Western city, and it offers imaginative interpretations to both Arab and Italian communities.

Although, as Portoghesi remarks, the site was probably chosen because it is set relatively apart from the city, the design makes the mosque bear meaningful relation to the metropolis. The curving strip of land along the base of Monte Antenne is accessible only at the two ends of its length; these two points establish a NE-SW axis. But a mosque must face Mecca, southeast of Rome.

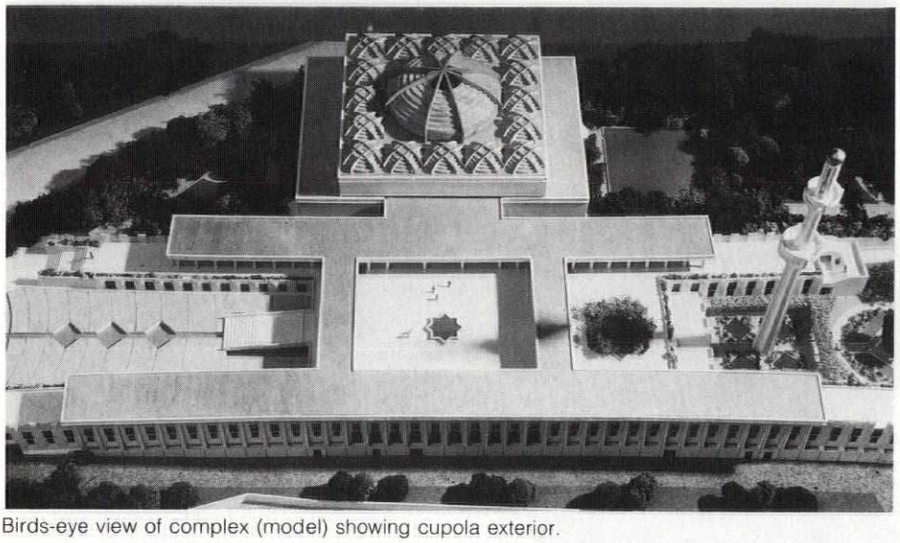
The solution: the cultural center is housed in a three-level pedestrian street laid out along the axis dictated by the topography of the site. This structure consists of two parallel, arcade-topped flanking buildings connected by a central square element.

Next to this elongated and slightly concave H, opening off the central court and facing southeast, is the mosque proper, a squat rectangle surmounted by a square crowned by a central dome surrounded by smaller domes. The two parts of the complex thus set up two intersecting axes: one along the public areas of the Center from one entrance to the other; one into the enclosed prayer space facing Mecca.

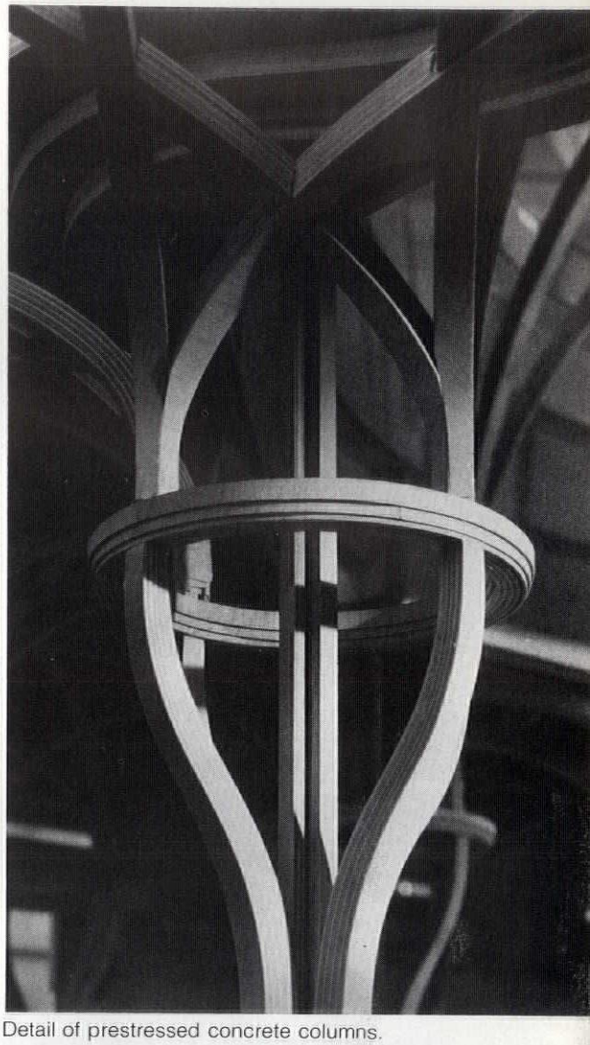
Details add to the sensation of motion and stasis on opposing axes. From the minaret at the south end of the street, the arcade's rhythm moves horizontally through the central court and follows a geometrically designed canal down the other section of the mall. The dome of the prayer room, however, has a vertical thrust, created by the concentric concrete rings that form the cupola.



Plan of complex indicating arcade and interlacing ribs of vaulting.



Birds-eye view of complex (model) showing cupola exterior.



Detail of prestressed concrete columns.

The elements of the complex parallel the buildings found adjacent to a mosque in an Arab city. The lower stories of the mall contain a school library, offices, a museum, and student dorms; the top floor is an arcade with a central open court.

Portoghesi, who has executed several projects in the Middle East, sees Islamic architecture as akin to Gothic and Baroque sensibilities in stressing the anticlassical and nonrational. "The complex geometries and element of fantasy (in Islamic idiom) make it particularly apt for my own critique of Modernism" says Portoghesi, whose work is much criticized in his own country by Italian Modernists (Leonard Benevolo or Bruno Zevi). "I've been striving in the opposite direction," he elaborates, "to create an architecture that frees the fantasy. . . . [In the mosque] I want to force the imagination to ignite."

The architectural details of the mosque spur the imagination by the associations their forms evoke. The columns, four slender shafts of prestressed concrete that rise together but spread apart at the top, are reminiscent of Greek columns in their classical entasis and of Islamic columns in being many-yet-one. The immediate connotation of this arcade of branching columns, however, is that of a stand of palms. Water, trees, domes suggest an oasis.

The Arabian Nights imagery is also stressed in the central prayer room, where the cupola fuses Baroque and Islamic architectural visions of the sublime. The entwining shafts create a geometric skeleton for the structure. Through repetition, the forms become an arabesque, an overall pattern intended to make those within space out—in meditation or dreaming. "The design has connotations of spirituality for Islamic users and embodies a fantasy Orient for Romans," Portoghesi feels.

Where this double imaginative reading is forced, it goes awry. Portoghesi plans to inscribe verses from the Koran around the continuous cornice with Italian translations in the pavement. The Arabs will take their text from above while the Romans will scan the earth for theirs—an accident not without irony.

But on the whole the difficult transition from Italian context to Islamic concept is negotiated smoothly. The exterior of the structure will be of Roman brick and travertine, while the white concrete columns and mosaicked interior of the cupola will create an Eastern atmosphere within. The stepped exterior of the cupola refers to that of the Pantheon, and defers in height to that of St. Peter's, a condition imposed by the Vatican.

The minaret, which stands apart from the mosque, has the same palmlike form as the columns. The autonomous tower can also be read as an obelisk, traditionally placed as a visual focus at the end of Roman streets.

Much of the design strives for drama. The square element on which the central dome and its attendant cupolas sit appears detached from its base, and the separation will be illuminated from within. Floating on what appears to be a cloud of light, over the forest of concrete columns and the real forest of pines below, this topmost sector will seem to be a flying carpet. Italians will probably respond to such magnificent operatics.

The construction, which should take two years to complete, is being carried out by MEFIT, an Italian consulting engineering firm specializing in African and Middle Eastern projects. Principal MEFIT project consultants are Aldo Spirito, Guido Guy, and Gino Parolini. [EC]

[News report continued on page 32]

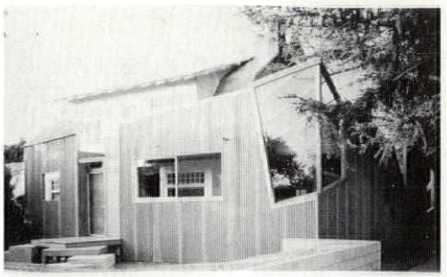
News report continued from page 31

Best in the West: California AIA

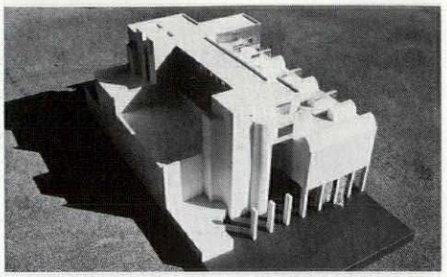
CCAIA Conference
Nov. 1–4
Newport Beach, Ca

The California Council AIA held its annual statewide convention Nov. 1–4 in Newport Beach. Labeled "The Best In The West, California Architecture '78," the conference was an in-depth review of the state-of-design in California.

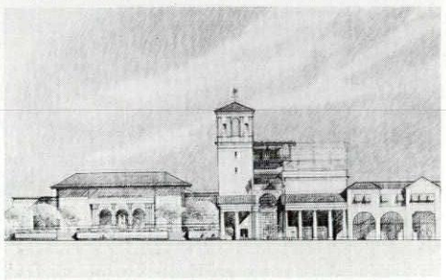
The keynote speaker was Cesar Pelli, Dean of Yale University's School of Architecture. Pelli practiced architecture in California from 1964 to 1968 as vice president with Daniel, Mann, Johnson, & Mendenhall, and from 1968 to 1976 as partner for design with Gruen Associates. His address encouraged architects to meet the challenges of the new technology and the new age through a deeper understanding of what Pelli described as "performance in architecture." "Performance," for Pelli, means 1) to give form, 2) to complete, 3) to create drama, and 4) to evaluate. Finally,



Frank Gehry residence, Santa Monica.



Vreeland's Santa Barbara museum extension: original design (above), as built (below).



Pelli described "a quality of optimism in Southern California . . . that requires a certain sense of naivete, which I find endearing and which keeps me a Californian."

The design conference itself was composed of twelve groups of six architects from throughout the state who showed slides and conducted seminars under the guidance of six moderators: David Gebhard, Shelly Kappe, Susan King, Panos Koulermos, Carleton M. Winslow, and this writer. Some groups displayed work that was elegant and accomplished, such as that of Skidmore, Owings & Merrill (Chuck Bassett) and Daniel, Mann, Johnson, & Mendenhall (Tony Lumsden). Other groups included younger, more avant-garde architects such as Eugene Kupper and Eric Moss. Work of some participants, such as Mark Mack and Coy Howard, bordered on the bizarre.

At the end of the day "The Best In The West" joined the 800 registrants for a round-table discussion led by the indomitable Reyner Banham, who described the conference as a meeting between "traditional arrogance and the new humility."

It is true that recent architectural consciousness-raising has created a reinterpretation of the term contextualism and has brought the energy-efficient environmentalists out of the closet. Tim Vreeland's Santa Barbara Museum extension defers

[News report continued on page 34]

Design with Trailblazer lighting from Holophane.

Because people depend on you to show them the way.

Walkways can be more than just paths from parking lots to lobbies.

Proper lighting transforms them into lucid architectural statements. Statements that flatter your clients.

That, in part, is just what energy-efficient Trailblazer™ luminaires from Holophane® are designed to help you do. Of course, appearance is not everything. So Trailblazer luminaires are ruggedly constructed with the same attention to detail and quality that has made Holophane a leader in outdoor lighting.

Learn more about the Holophane line of architectural lighting products and the many new geometric forms available. Ask your local sales representative to show you how you can help your clients compliment themselves.

Or contact Jim Dresden, Johns-Manville Sales Corp., Holophane Division, P.O. Box 5108-PA-2, Denver, CO 80217. Phone 303/979-1000.

JM

Johns-Manville

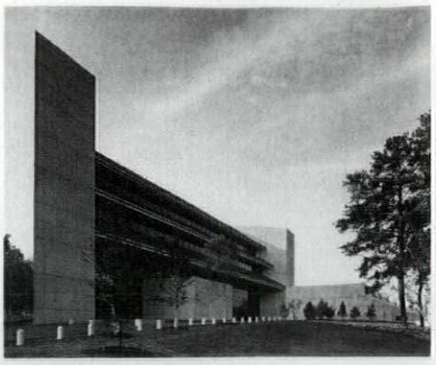
Circle **No. 356,** on Reader Service Card

News report continued from page 32

to its Mission-style context more than Vreeland himself would have preferred, and the energy-efficient office building by The ELS Design Group is a conservative, three-story series of simple courtyard office clusters, which are purposefully unaggressive.

At the opposite end of the philosophical spectrum from the contextualists are the avant-garde idealists whose individual concepts are visually assertive. Frank Gehry's irreverent house in Santa Monica, for example, mixes the traditional California bungalow with low-tech corrugated-aluminum siding and chain-link fencing in a fascinating metaphorical juxtaposition rarely seen in contemporary architecture. And the young Turks such as Eric Moss and Coy Howard in the South, Mark Mack and Daniel Solomon in the North are shedding the skins of architectural tradition for a more robust and aggressive integration of form and space than we've seen produced in California since Cesar Pelli's Pacific Design Center.

California architecture today expresses a vibrant dichotomy between delicate eclecticism and aggressive formalism. The traditionalists are producing stucco Pueblo-Revival cottages in the South and shed-roofed sons-of-Sea Ranch barns in the North, while the Post-Functionalist form-makers are beginning to shake up



1

2

the architectural establishment at both ends of the state.

AIA President-elect Erhman Mitchell hailed the conference as the first of a series of national conferences that would analyze, assess, and applaud design excellence. [Michael Franklin Ross, AIA]

Design Awards in the Southeast

During the past summer, two separate conventions of architects gave a total of ten design awards for ten different buildings in the Southeast to five architectural firms. This apparent monopoly of design talent merits review.

Last August the Georgia Association of the AIA gave four design awards to three Atlanta firms during its convention in Savannah. The Woodruff Medical Center Administration Building (1) at Emory University, Atlanta by Heery & Heery, Architects and Engineers of Atlanta; the IBM Corporate Headquarters Building, Atlanta, and the Honeywell Office Building (2), Decatur, Ga, both by Thompson, Ventulett, Stainback & Associates; and the National Institute Food Distributor Association Headquarters Building (3), Marietta, Ga, by Rufus R. Hughs/Dale A. Durfee, Architects. The jury members were Pershing Wong, AIA, of I. M. Pei & Partners, New York, jury chairman; Stanley Abercrombie, AIA, editor of *Interiors* magazine; and Roger H. Clark, AIA, of the School of Design, North Carolina State University.

In Asheville, NC, last September, six design awards were given to four architectural firms during the biennial convention of the South Atlantic Region (North

3

4

5

Carolina, South Carolina and Georgia) of the AIA. The six buildings and their architects are: The Greater Cincinnati Airport, Boone County, Ky, by Heery & Heery; The World Congress Center, Atlanta, by Thompson, Ventulett, Stainback & Associates; the Mecklenburg County Courthouse (4), Charlotte, NC, the Equitable Life Assurance Society Southern Service Center, Charlotte, and the New Wing of the School of Design, North Carolina State University, Raleigh, all by Wolf Associates, Charlotte; and Our Lady of Lourdes Roman Catholic Church (5), Raleigh, by Roger H. Clark, AIA, in association with John D. Latimer Associates, Durham, NC. All six recieved the "Award of Merit"; none was singled out for the highest citation of "Honor Award."

The jurors for the awards were Henry N. Cobb, FAIA, of I.M. Pei & Partners, New York, jury chairman; Gerald Allen, associate editor of *Architectural Record,* and Charles Gwathmey, AIA, of Gwathmey Siegel, Architects, New York.

It would seem that there ought to be a greater variety of design solutions than the ones illustrated here. The horizontal idiom may be a relief from the vertically "proud and soaring thing." But too much of any one idiom approaches monotony.

Perhaps other methods of seeking out the best-designed buildings in our region need to be found. While the quality of those buildings chosen cannot be questioned, what can be asked is whether they reflect anything new or innovative that is going on from a design standpoint in the architectural firms of the Southeast? Design awards ought to be given for work that is not only outstanding, but in some way significant to the rest of the profession in terms of design or technical innovation. We should be honoring great design not just competent design. If there is nothing great to acknowledge, then perhaps we ought to make no awards. [Jon H. Carlsten]

Pier Luigi Nervi dies at 87

Pier Luigi Nervi, Italian engineer known throughout the world for his revolutionary architectural works of reinforced concrete, died at his home in Rome on January 9 at the age of 87. Nervi had gained international prominence by the 1950s. In this country, his design for the George Washington Bridge Bus Station in New York City was completed in 1963. That structure, with widespread wings supported by columns flanking the Manhattan approach to the bridge, reminded many of an alighted butterfly. It expressed, as well as any of Nervi's buildings, the dramatic and eloquent possibilities inherent in reinforced concrete. It was a material generally regarded as "earth-bound," but one

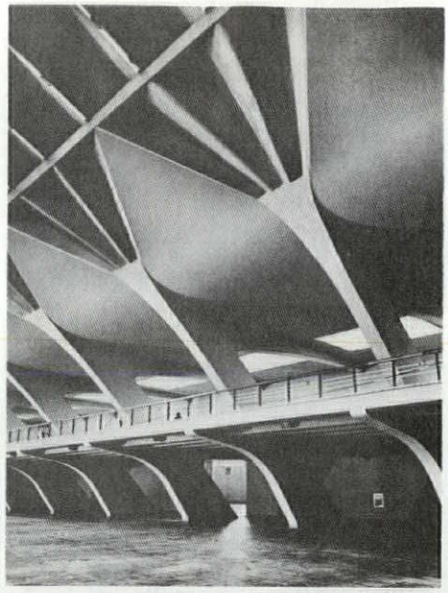
[News report continued on page 36]

News report continued from page 35

that was nevertheless employed by him to achieve the taut, soaring structures for which he became so renowned. Following the station's completion, Nervi was honored with the AIA Gold Medal in 1964.

Nervi was born in Sondrio in the Italian Alps in 1891. In 1913, after attending the University of Bologna, he received a degree in civil engineering, and in 1923 began his own engineering and construction firm in Rome, where he also taught architecture at the University throughout most of his career.

Nervi's first all-concrete structure was a small film theater built in 1927 in Naples. His first important structures in that material, however, began in 1938 with the construction of six 330-ft clear-span hangars for the Italian Air Force, which the retreating German army dynamited before the liberation. In 1949, Nervi's huge exhibition hall was completed in Turin. Its concrete and glass and barrel vault spanned an even greater distance, and marked Nervi's first use of ferrocement, which he invented. In the postwar construction period of the mid-1950s, his most notable works were the collaboration, with Marcel Breuer, on the UNESCO headquarters building and auditorium in Paris, and on the 32-story Pirelli rubber company skyscraper in Milan, with Gio Ponti. Perhaps his best-known works in Italy, however, are the structures for the 1960 Rome Olympics, the Palace of Labor of 1961 in Turin, and the Vatican audience hall. They well express his belief in the purity of simple, rational form, from which he felt beauty must necessarily emerge. [DM]



P.L. Nervi. Exhibition Hall, Turin, 1948–49.

Calendar

Feb. 14–16. "Solar Energy" seminar, presented by New York University School of Continuing Education, San Francisco, Ca; subsequent dates: **March 7–9.** Atlanta; **Apr. 2–4.** Chicago; **May 14–16.** Boston.
Feb 14–16. Electrical Generating Systems Marketing Association Winter Conference, San Antonio, Tx.
Feb. 19–20. International Security Conference 31st Symposium, Los Angeles, Ca.
Feb. 21–24. "Architects and Critics" conference, Center for Architecture and Urban Studies, San Francisco.
Feb. 22–23. Plant Energy Conservation. Association of Energy Engineers, Atlanta, Ga. A two-day intensive seminar. Also to be held in Chicago, April 23–24, and Los Angeles, June 21–22.
Feb. 27–Mar. 2. National Roofing Contractors Association 92nd Annual Convention and Exhibit, Houston, Tx.
Feb. 28, 1979. Closing date for submission of projects in lighting design, Metropolitan New York area, for the 1979 Lumen Award Program. The program is sponsored jointly by New York Section Illuminating Engineering Society and the International Association of Lighting Designers.
March 1. Deadline for the ASID/Barcalounger third annual interior design awards. ASID, 730 Fifth Ave., New York, NY 10019.
[News report continued on page 38]

Introducing MARV-A-GARD

Presenting maintenance-free exteriors for the world's warmest wood windows: Marv-A-Gard.

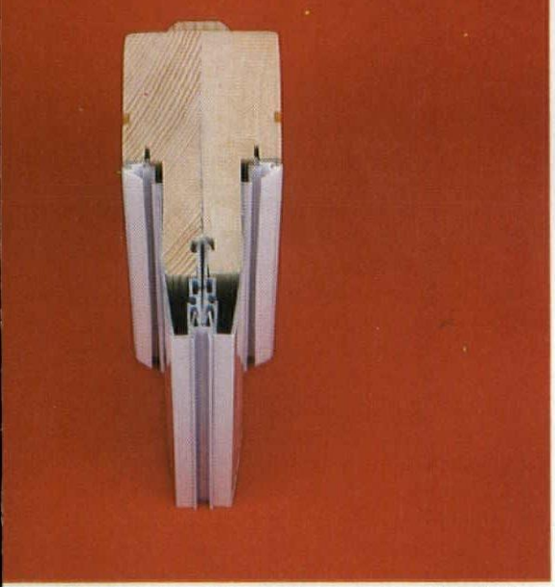
Marv-A-Gard windows are the answer to a tough combination of design requirements: Permanent protection outside, warmth and beauty inside, energy excellence, and easy operation. Here's why.

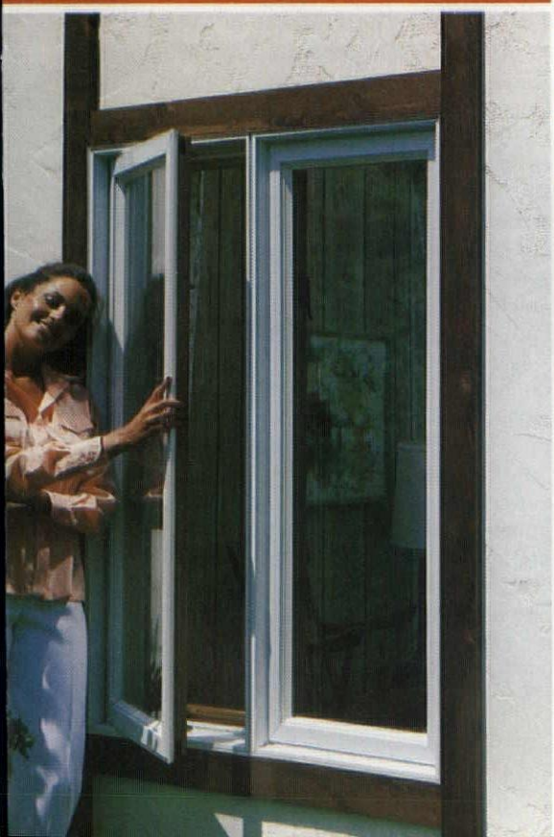
Marv-A-Gard is precision-fitted aluminum with a baked-on Acrylic finish, in gleaming white or rich dark brown. Heavy extruded sections are used on the outside of jambs, head, and sill. The sash exterior is rolled aluminum. Glazing stops are white vinyl or brown Lexan. The inside of the window is beautiful, insulating wood. The Marvin Casemaster shown here has a heavy 6/4 frame, 1¾″ sash, extremely low air infiltration, and double or triple glazing.

Write for Marv-A-Gard literature (Bulletin 203) and complete catalogs. Marvin Windows, Warroad, MN 56763. Phone: 218-386-1430.

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

Circle **No. 335,** on Reader Service Card





Marvin Windows

News report continued from page 36

Energy update

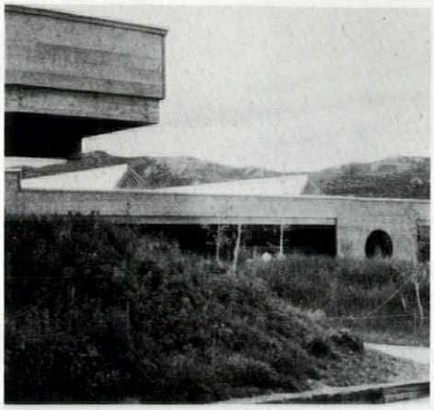
Owens-Corning Energy Conservation Awards

The 7th Annual Owens-Corning Energy Conservation Awards were presented in December to ten architectural and engineering firms for projects which make significant contributions to energy-conserving design. The program, sponsored by Owens-Corning Fiberglas Corp., was endorsed by the AIA in 1975, after having won acclaim throughout the building and design industry. The original competition categories—"Industrial," "Institutional," "Governmental," and "Commercial"—were broadened in the 1977 competition to include residential and other projects under a "Special" category. The program's increasing success can be gauged by the rapidly growing number of entrants (103 in 1978) and of winners (ten this year, including honorable mentions).

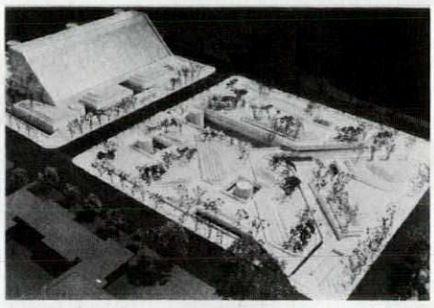
In the Institutional category, a Bus Maintenance Facility designed for Aurora, Co, by the architectural firm RNL, Inc. of Denver, was named a winner. Solar collectors on the roof supply 50 percent of the building's heat. Honorable mention was given to the Wastewater Treatment Center for Cleveland, renovated by Malcolm Pirnie, Inc. of White Plains, NY. Sewage skimmings, heat pumps, and heat recovery wheels are used to generate energy from the sewage-treatment process itself, resulting in annual fuel savings of over $1 million.

The winner in the Institutional category was the Museum of Science and Industry, Tampa, Fl, designed by Rowe Holmes Associates, Inc. of Tampa. The energy-saving features of the building will be exposed and explained to visitors, providing on-site demonstrations of new energy technology. The design of the University of Minnesota Law School in Minneapolis, by Leonard Parker Associates, was awarded an honorable mention. The design uses terraced roof gardens to provide additional insulation and reduces glass on the north and west exposures.

The restoration of three landmark buildings for the State University of New York Headquarters in Albany, by William A. Hall & Associates, New York, was the winner in the governmental category. Renovation of the Gothic complex, which now incorporates a heat recovery unit, has already resulted in revitalization of downtown Albany. The General Services Building in Sacramento, Ca by Benham Blair & Affiliates of California, Inc. was also a winner. Solar collectors form the south face of the main structure, from which two sunken wings, with roofs landscaped as parks, extend on the east and west sides. An honorable mention in this category was given to Goodwin B. Steinberg Associates, of San Jose for the solar mechanical system and other energy devices used in the Police Services and Fire Administration Building in Mountain View, Ca.



Pitkin County Air Terminal by Copland Finholm Hagman Yaw Ltd.



General Services Building by Benham Blair & Affiliates of California, Inc.

Two honorable mentions were given in the commercial category: one to Crawford, Giattina & Associates for their administrative headquarters for the South Central Bell Telephone Co.; and one to Heery & Heery, Architects and Engineers of Atlanta for the Georgia Power Co. headquarters in Atlanta (P/A, Oct. 1978, p. 30).

Architecturally outstanding was the winner in the special category: the Pitkin County Air Terminal in Aspen, Co, designed by Copland Finholm Hagman Yaw Ltd. of Aspen. On the staggered south walls, a "bead wall" system was installed. The fiberglass containers 3 in. thick that form the wall automatically fill with foam insulating beads to form a thermal barrier during periods of heat loss, emptying during periods of heat gain so that the sun can pass through the glass. In addition, a "skylid" system, a series of aluminum louvers whose opening and closing is controlled by the expansion or contraction of freon-filled tubes, was installed on the roof. The combined systems account for 43 percent of the building's heating and cooling needs.

[News report continued on page 40]

The only true Perlite/Urethane/ Perlite sandwich insulation.

GREFCO, Inc./Building Products Division, 3450 Wilshire Blvd., Los Angeles, CA 90010
Please send me a free sample of Permalite Pk Plus Roof Insulation.

Name _____ Title _____

Company _____

Address _____

City _____

State _____ Zip _____

Sweets File 7.15/Gr.

New, more efficient, long-lasting Permalite Pk Plus is FM approved for class 1 insulated steel deck construction and for windstorm resistance classifications 1-60 and 1-90.

What makes Permalite Pk Plus so great?

- ☐ Permalite Pk Plus is a true, chemically bonded 3-part composite sandwich of perlite, urethane and perlite in which the rigid, urethane core is protected from extreme temperature fluctuations.
- ☐ In hot weather and long exposure to sun, the top perlite layer with its Sealskin® surface helps protect the BUR from excessive loss of oils and natural elasticity.
- ☐ Permalite Pk Plus helps keep the urethane warpfree and stressfree. Asphalt can be applied at normal application temperatures.
- ☐ Permalite Pk Plus is fire rated...dimensionally stable...and proven in hundreds of installations.
- ☐ Integral Sealskin® treatment of top perlite layer provides resistance to bitumen soakup and superior bond of roofing felts to insulation.

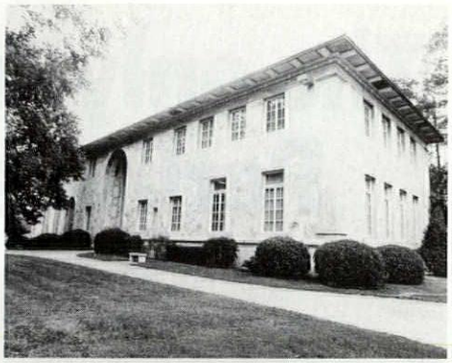
Permalite®

GREFCO, Inc./Building Products Division
General Office:
3450 Wilshire Blvd. Los Angeles, CA 90010
National Sales Office: 2905 Butterfield Road
Oak Brook, IL 60521—(312) 654-4500
grefco A subsidiary of General Refractories Company.

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

News report continued from page 38

Report from Atlanta



1916 chapel exterior (above)
and entry lobby (below)

A study in pink

Paul Rudolph, a native Southerner, has received relatively few commissions from the South. The Candler School of Theology at Emory University has given Rudolph his first opportunity to build in Atlanta, thereby making him only the second major architect who is not from Atlanta to work on the Emory campus.

The first was Henry Hornbostel who developed the original master plan. One of the buildings on the quadrangle was the Durham Chapel, completed in 1916, which Rudolph has renovated into expanded library facilities for the Candler School's Pitts Theological Library. The building, a 'T'-shaped structure in Spanish Colonial style, combines red clay-tile roofs and two Georgia marbles—Cherokee white and Etowah pink. Courageously, Hornbostel used the pink in the chapel sanctuary; the stone, with veins, blotches, and splashes of orange, is totally unpredictable in color and pattern. Rudolph's treatment is equally wild and seemingly unpredictable. The usual dynamic forms and layerings of space that always have marked Rudolph's work are colored various shades of pink: the carpet, steel railings, columns, bookshelves—even the identification cards on catalog files. The initial shock, however, gives way to an appreciation of the phenomenal continuity of color and the complementary nature of the chosen palette to the hue of the existing stone. Rudolph has been successfully outrageous again.

The renovation works in a peculiarly jarring way. One would not expect this highly decorated space to be the research library for Wesleyan theologians. The simplicity of the original seems more consistent with Methodist ideology; but times do change, and the church is presenting a contemporary imagery.

Preliminary studies for the chapel renovation were made by Atlanta architect Jack D. Haynes after the school purchased a collection of 220,000 rare volumes. Haynes proposed expanding the library into the chapel building and constructing a new chapel. The commission for the work was given to Rudolph in association with Haynes. Working drawings for the new chapel are in early stages, designed by Rudolph in association with Tippett-Taylor Associates of Atlanta.

Within the old chapel, Rudolph placed two galleries tiered around the central space to achieve the necessary additional square footage. The galleries literally are hung within the space, and the distinct separation of the new steel and the original marble hall is visually coherent and spatially dramatic. The execution, however, is not as clear, and to a layperson the space might appear to be unfinished.

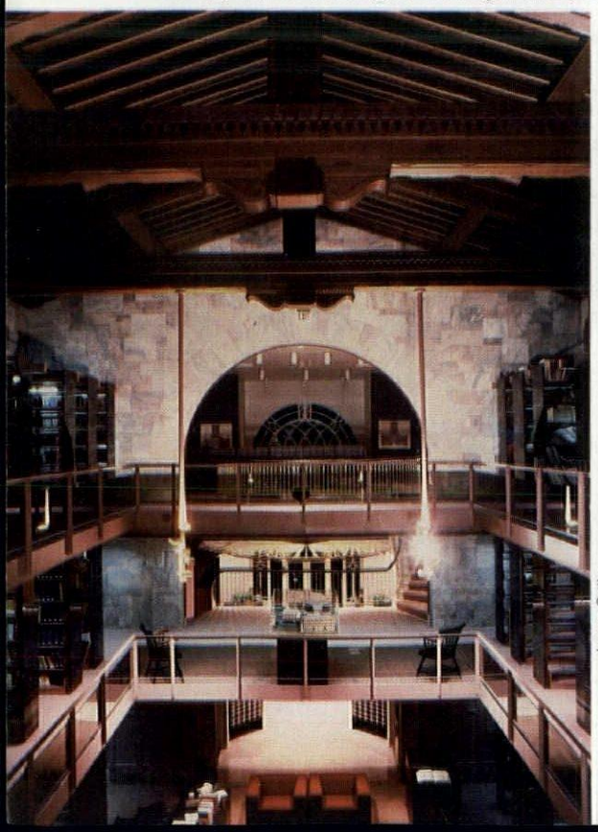
The lighting, all designed by Rudolph through the modification of standard fixtures, contributes in a multitude of ways: decoratively, with the baroque oval of pinpoint lights that define the entry lobby and existing oval staircase; dramatically, in an almost medieval way, as great quartz-light torches pick up highlights of both the new and existing architecture; and perfunctorily with fluorescent task lighting at the study carrels and fin-louver strips between the customized book stacks.

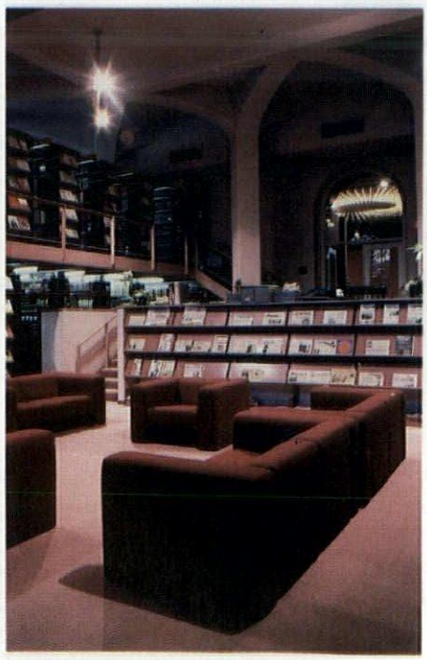
[Jon Carlsten]

Carlsten is with the architectural firm Aeck Associates in Atlanta

[News report continued on page 42]

Library interior, showing the tiered galleries (left) and pink color scheme (right).





James Grillo

INTRODUCING TOMORROW'S DOOR CLOSER

Now available only from Rixson, the remarkable Century 2000 . . . so easy to specify . . . so economical in every respect

Designed without compromise, in the Rixson tradition.

- No sizing or spring adjustment required. Simple selection of proper closer
  Regular Closer — for most interior door applications
  Heavy Duty Closer — for high frequency interior doors
  Exterior Closer — with new high efficiency control
- Unique hydraulic backcheck system. Pre-set at 75° field adjustable between 50° 180° regardless of arm application or degree of opening
- Facilitates uniform opening and closing forces throughout building
- Exclusive fluid filtering hydraulic system assures smooth closing action
- High style: narrow projection *with* narrow stile
- Heavy metal cover and cold-rolled steel arm
- Multiple spring backup system
- Exceptional quality plating and finishing at reasonable price

And many more advantages including independent stroke and on/off latch valves — precision cast closer body . . . accommodation for reveals to 8" U.L. approval and five-year warranty

Ask the door control specialists

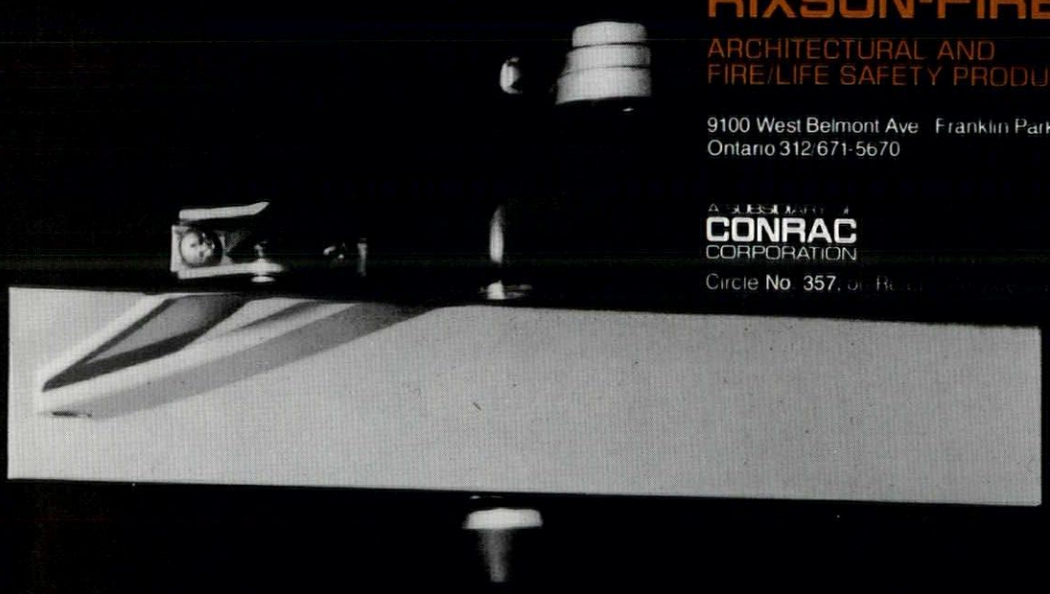
RIXSON-FIREMARK

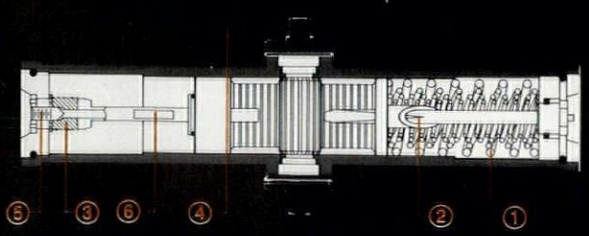
ARCHITECTURAL AND
FIRE/LIFE SAFETY PRODUCTS

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

A SUBSIDIARY OF
CONRAC
CORPORATION

Circle No. 357, on Re...



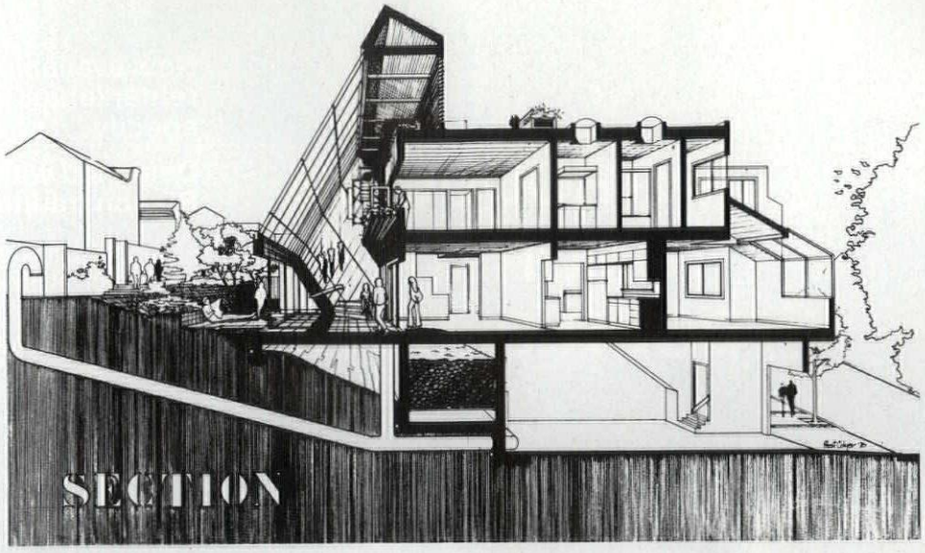


Rixson's Century 2000

① Multiple spring system
② Unique hydraulic backcheck
③ Fluid filtering system
④ Heavy Steel arm
⑤ Independent stroke valve
⑥ On/off latch valve

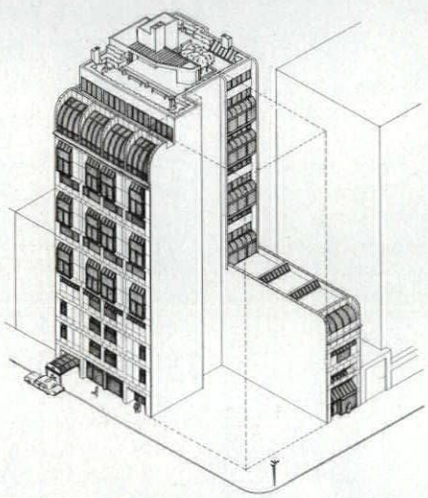
News report continued from page 40

In progress

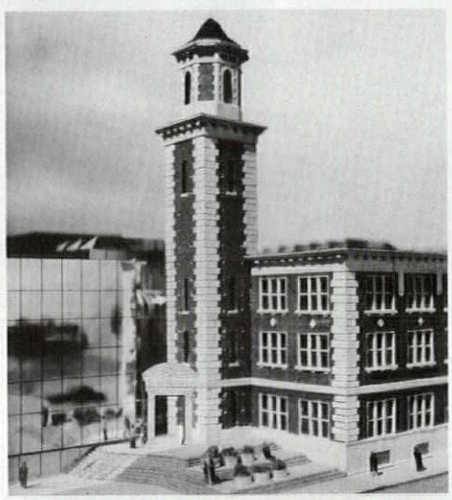


1

1 Sunhouse Complex, San Francisco, Ca. This five-unit passive solar townhouse complex, designed by Zoe Works of San Francisco, and located within an urban redevelopment area, demonstrates that solar energy can be utilized in an urban context. The approximately $600,000 condominium project, developed by the Delameter Group, was selected by the redevelopment agency and backed by neighborhood groups for its low density and innovative design. The design takes into consideration the topography of the site, a corner lot sloping east; the character of the middle-income neighborhood, with its Victorian-style houses; the temperate, sunny San Francisco climate, which necessitates some year-round heating but favors solar collection; and regulatory restrictions. The key element in the design is the use of individual solar greenhouses on the south-facing back façade of each unit. Excess heat generated by solar radiation is collected by the greenhouse walls and paving. Drawn by convection to the living areas and by fans to the underground rock heat storage bin, it is reradiated through the space at night. Solar collectors on the roof provide energy to heat water. The passive system will cost about $10,000 per unit, a figure for which the payback period is estimated at less than 20 years. A conventional heating unit will also be installed to conform to regulatory requirements. Completion is planned for July 1979.



2

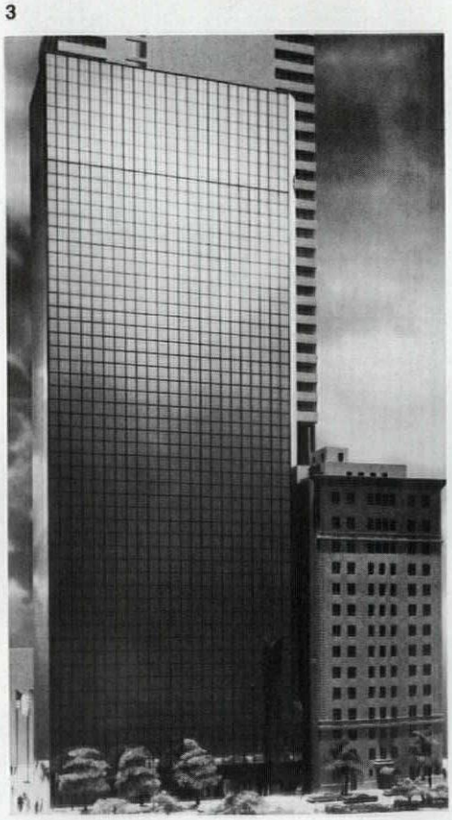


3

2 Gallery Apartments, 32 East 76 St., Madison Ave., NY. A mixed-use building, designed by Stephen B. Jacobs and Associates and located in the gallery neighborhood of the Madison Ave. Special District tops four floors of commercial art galleries with 36 units (11 stories) of luxury apartments. The façade, modeled on the turn-of-the-century Beaux-Arts buildings of Manhattan, formally describes the duplexes behind it. The layered effect which Beaux-Arts buildings achieve through the use of masonry relief has been reinterpreted here using glass and limestone flush, recessed, and protruding glass and limestone. Completion of the $3-million structure is scheduled for late 1979.

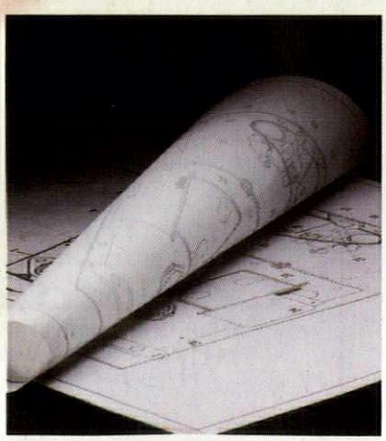
3 Meredith Corp. Office Building remodeling, Des Moines, Ia. Architect Charles Herbert and Associates unified the hodge-podge assortment of additions to the Meredith Corporation's original 1910 headquarters in downtown Des Moines by sheathing the later elements of this architectural collage in a flush-glazed aluminum-and-glass ventilated solar screen. The new walls reflect and set off the old brick and terra-cotta facade and its adjoining tower, which have been restored to form the north façade of the structure. The main entrance to the building, next to the old tower, is framed by a flat, free-standing aluminum replica of the main door in the old facade. The redesigned interior layout groups offices and conference areas around a three-level circulation spine. Off this open three skylit courts whose detailing refers to that of the old facade.

4 Park Tower, New York. I.M.Pei and Partners have designed a 25-story glass-faced tower for the southeast corner of Park Ave. at 59th St. The wrap-around glass exterior is accentuated by the two clipped-off corners of the building and the V-shaped indentation that mark the street-level plaza and arcade running diagonally through the building from Park Ave. to 59th St. In the arcade, a 60-ft sculpture garden leads to the concourse level below; approximately 15,000 sq ft of retail space will be located on these two levels. The floors above are reserved for luxury office space (one or two tenants per 10,000 sq ft of floor). The exterior of the enclosed public space, retail space, and lobby is clear glass, while that of the office floors is gray, heat-absorbent glass which permits views out over Park Ave., but is opaque from the exterior. George Klein is developer for the approximately $30-million project, scheduled for completion in early 1980.



4

When you reach for the stars, it takes more than vision. It takes revision.



In exploring the vast reaches of space, there's no room for error. So you have to work out all the bugs in advance.

That's why it's reassuring to lay your plans for any exacting project with the help of Bruning's full line of drafting intermediates.

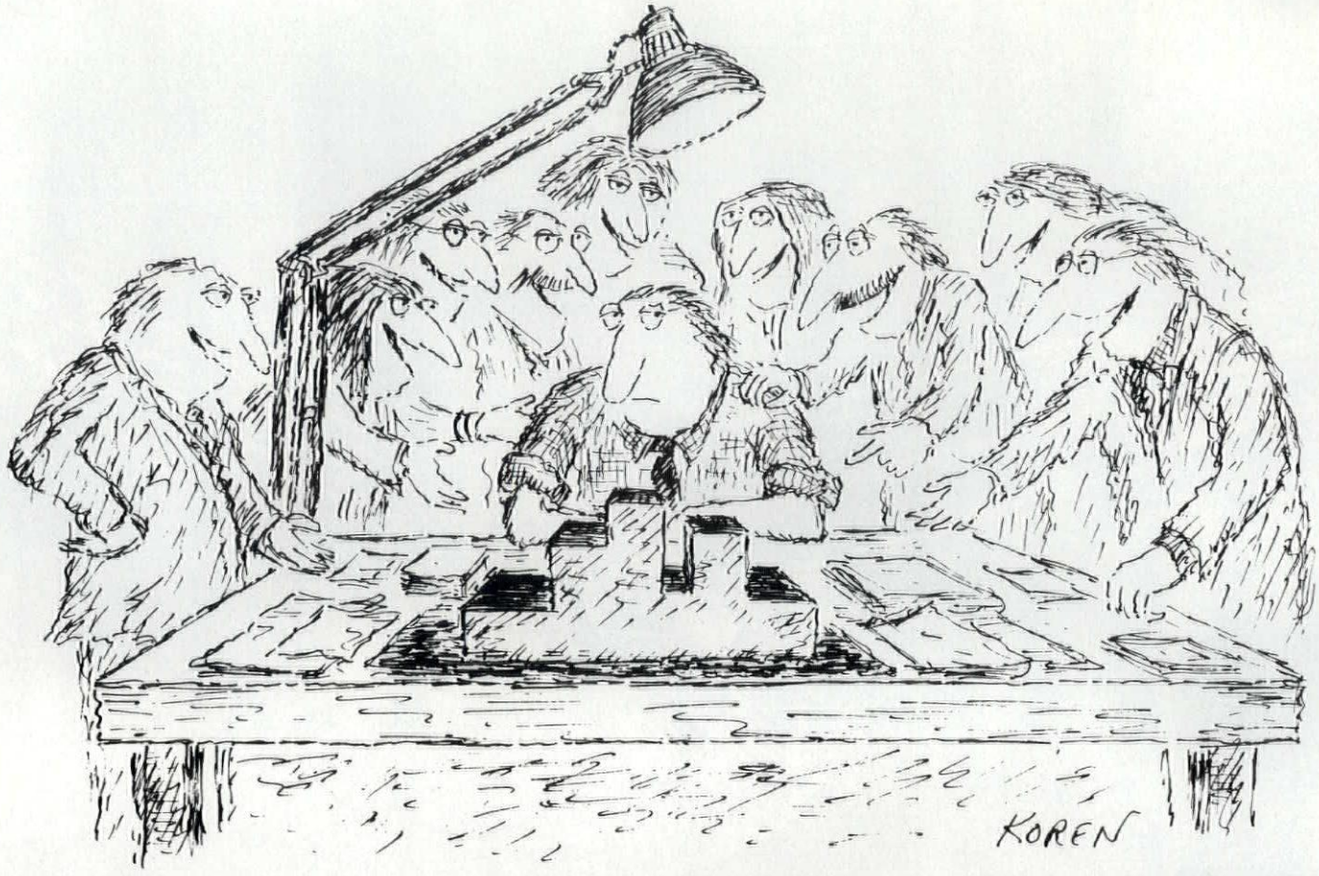
Bruning's Optirase™ erasable sepia, for example, assures clear, crisp reproduction—even after countless erasures and revisions. And because it's 100% rag, translucent paper, your visions and revisions come through looking their best.

There's lots more, of course. Bruning has a full line of top-quality engineering reproduction equipment and supplies.

For more information, call your nearby AM Sales Office. Or write AM Bruning, Dept. E, 1834 Walden Office Square, Schaumburg, IL 60196.

We help bring your vision to life.

AM Bruning
the Informationists.



How many people can you please when you design a building?

You want to please yourself. You have to satisfy your client. And if you can make the investors and tenants happy, you will have accomplished quite a feat! You'll find that designing with Fluropon-coated metal curtainwalls can help you please the people who will determine the success of your projects.

You're looking for great design opportunities.

You can create magnificent statements with Fluropon-coated panels because Fluropon offers virtually unlimited possibilities with the shape, form and even the texture of the metal panels. You may even discover new opportunities in metal curtainwall design!

But your client wants a financially successful building.

Fluropon, the full-strength Kynar 500® coating, has the longevity to compete with anodized coatings. However, Fluropon-coated panels cost less and provide better color integrity and availability. Plus, Fluropon has the long-term ability to maintain its original color and deliver years of maintenance-free protection. And that makes Fluropon an even better choice!

Investors want a good return on their money.

Fluropon's exceptional durability and color integrity can help maintain the marketing impact of your initial design, so the building's investors can expect the same flow of tenants and income, along with the resale potential, that they were looking for when the building was first conceived.

Make your public happy, too!

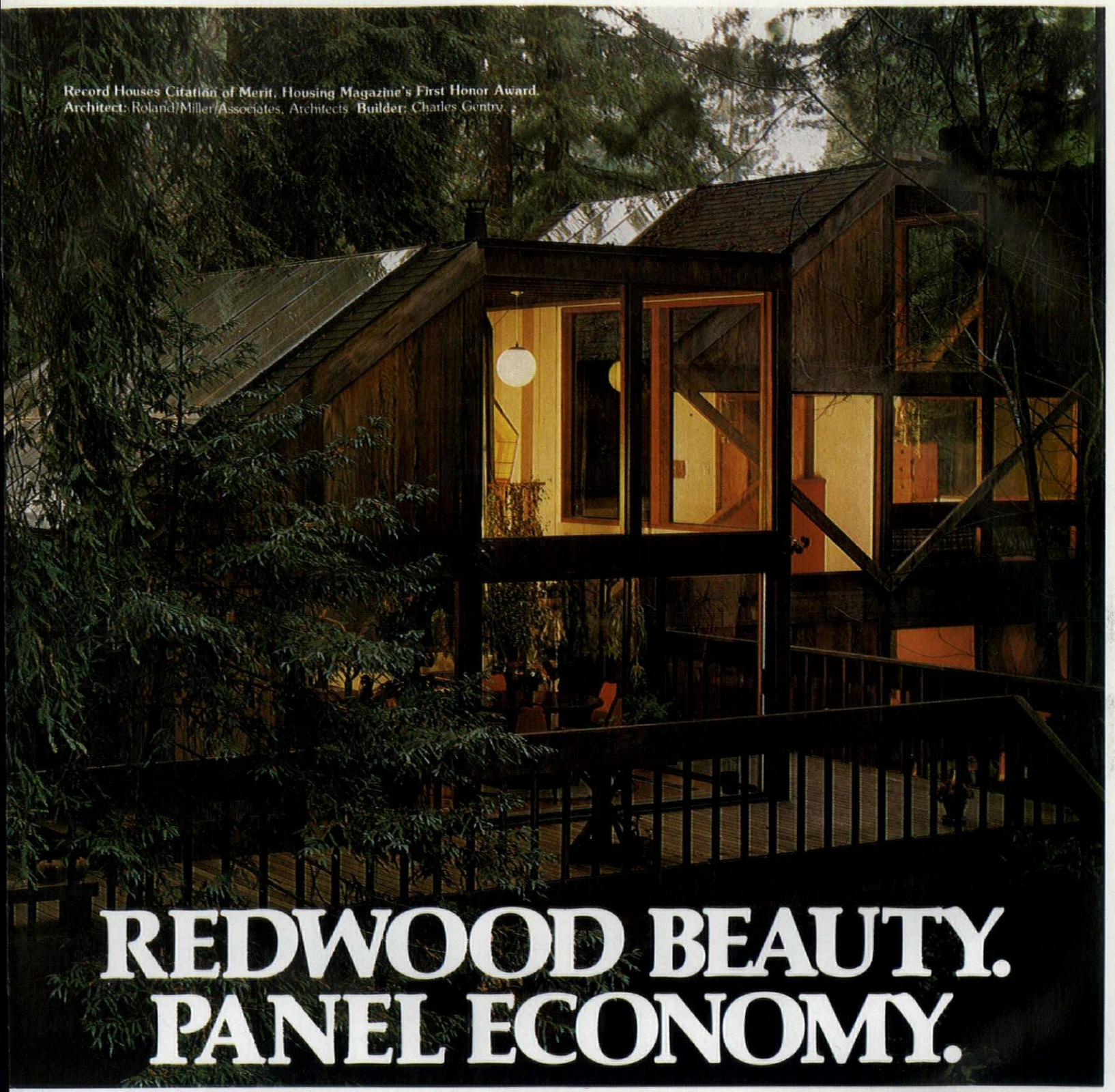
Your statement will become part of the public's architectural heritage. And the sweeping designs and exceptional durability that are possible with Fluropon will help your building work with its environment and become a lasting community asset.

Call or write today for more information about Fluropon.

DeSoto, Inc.
1700 South Mount Prospect Rd.
Des Plaines, Illinois 60018
(312) 391-9364

Fluropon®: A People-Pleasing Product for Architects Designing Metal Panel Buildings

Kynar 500 is a registered trademark of Pennwalt Corporation
See our insertion "9.10 Des." in Sweet's Industrial Construction and Renovation File.



Record Houses Citation of Merit, Housing Magazine's First Honor Award.
Architect: Roland/Miller/Associates, Architects **Builder:** Charles Gentry.

REDWOOD BEAUTY. PANEL ECONOMY.

As you can see, Simpson Redwood Plywood is every bit as beautiful as redwood lumber. That's because it is redwood, real redwood. But it's plywood. So it's a lot more economical to use than lumber.

Simpson Redwood Plywood weathers beautifully. It resists surface checking and takes stain beautifully. No other wood holds a finish any better.

Redwood plywood boosts home sales too. The natural beauty of redwood automatically increases curb appeal wherever you build with it.

And you don't have to wait for Simpson Redwood Plywood. It's available now.

Why not contact your Simpson Representative now or write Simpson Timber Company, 900 Fourth Avenue, Seattle, WA, 98164.

Custom Redwood Plywood

Simpson

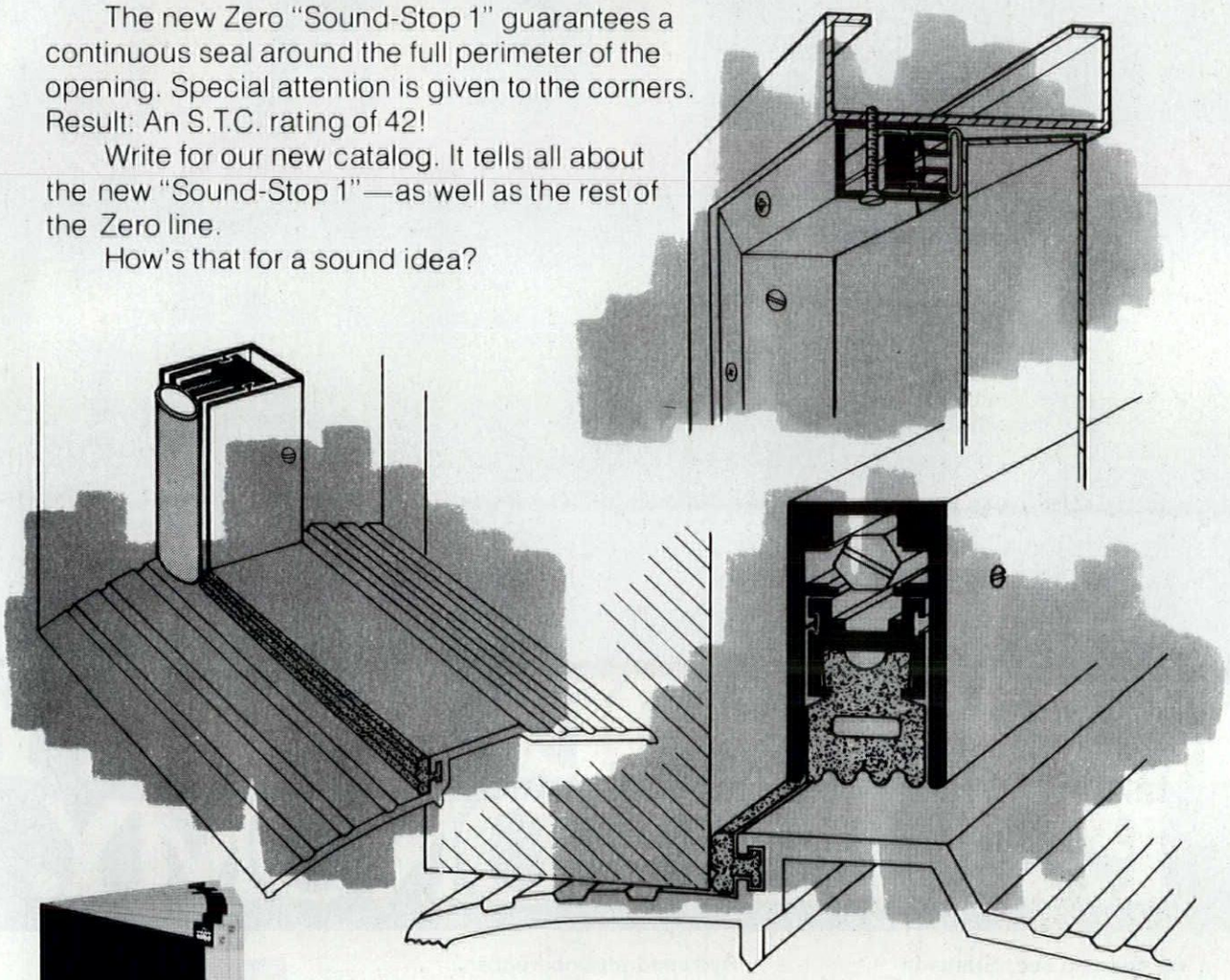
Redwood is a renewable resource.

Zero's new "sound-stop 1" door system

The new Zero "Sound-Stop 1" guarantees a continuous seal around the full perimeter of the opening. Special attention is given to the corners. Result: An S.T.C. rating of 42!

Write for our new catalog. It tells all about the new "Sound-Stop 1"—as well as the rest of the Zero line.

How's that for a sound idea?

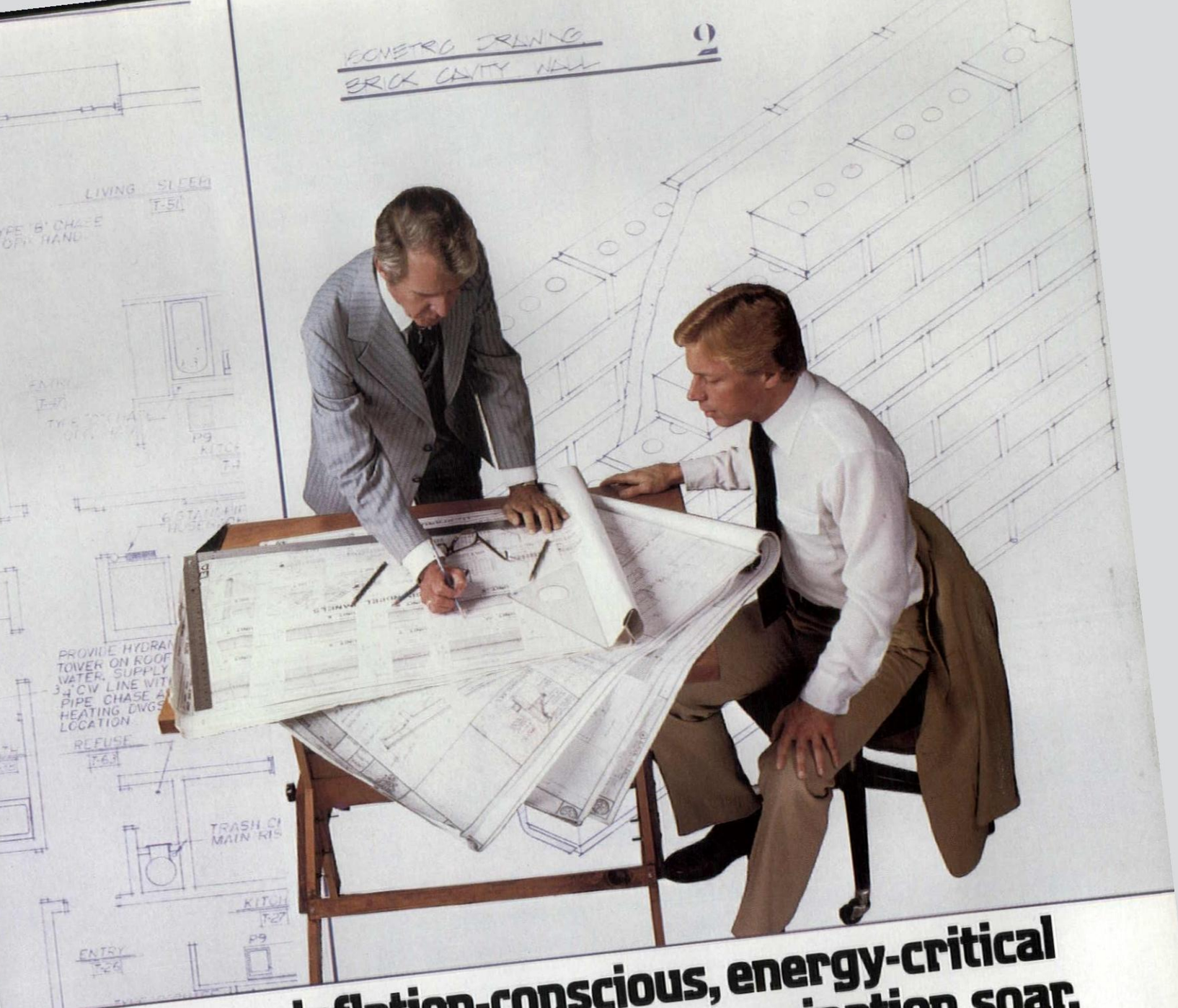


SOUND STOP SYSTEM 1

Zero Weather Stripping Co., Inc.

415 Concord Avenue, Bronx, N.Y. 10455 / (212) LUdlow 5-3230

1924-1979...55 years of opening the door to progress.



In these inflation-conscious, energy-critical times, you can still let your imagination soar.

Trust Brick.

Trust brick to hold down energy costs better than any other building material. Because of its mass, brick serves as an energy envelope, keeping heat in during the winter and out in the summer. Brick usually accommodates a smaller heating and cooling plant than other materials.

Trust brick to provide a long-lasting, maintenance-free structure that will hold its value over the years regardless of inflation. Brick requires no maintenance. And it provides ample fire protection.

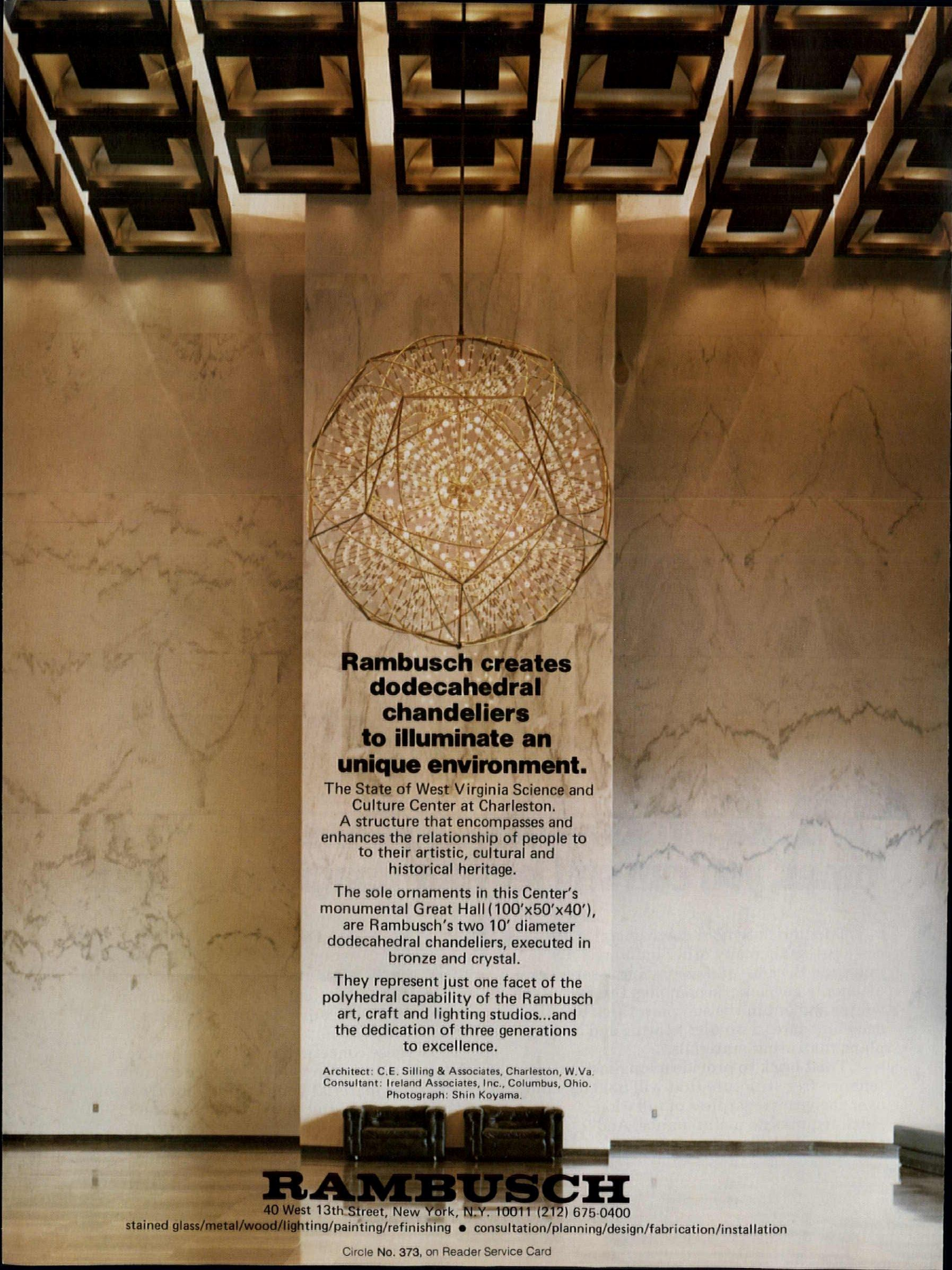
Most of all, trust brick to give your dream a reality. It comes in 10,000 shapes, sizes and colors. It turns corners, it soars as high as your imagination can go. Brick is a broad palette for your design ideas.

In these concerned times, when you're reshaping your design values, it's nice to know there's one material you can put your trust in.

If you'd like to know more about the values and characteristics of brick, write us.

We're the Brick Institute of America.

BIA
Brick Institute of America
1750 Old Meadow Road/McLean, Virginia 22101



Rambusch creates dodecahedral chandeliers to illuminate an unique environment.

The State of West Virginia Science and Culture Center at Charleston.
A structure that encompasses and enhances the relationship of people to to their artistic, cultural and historical heritage.

The sole ornaments in this Center's monumental Great Hall (100'x50'x40'), are Rambusch's two 10' diameter dodecahedral chandeliers, executed in bronze and crystal.

They represent just one facet of the polyhedral capability of the Rambusch art, craft and lighting studios...and the dedication of three generations to excellence.

Architect: C.E. Silling & Associates, Charleston, W.Va.
Consultant: Ireland Associates, Inc., Columbus, Ohio.
Photograph: Shin Koyama.

RAMBUSCH

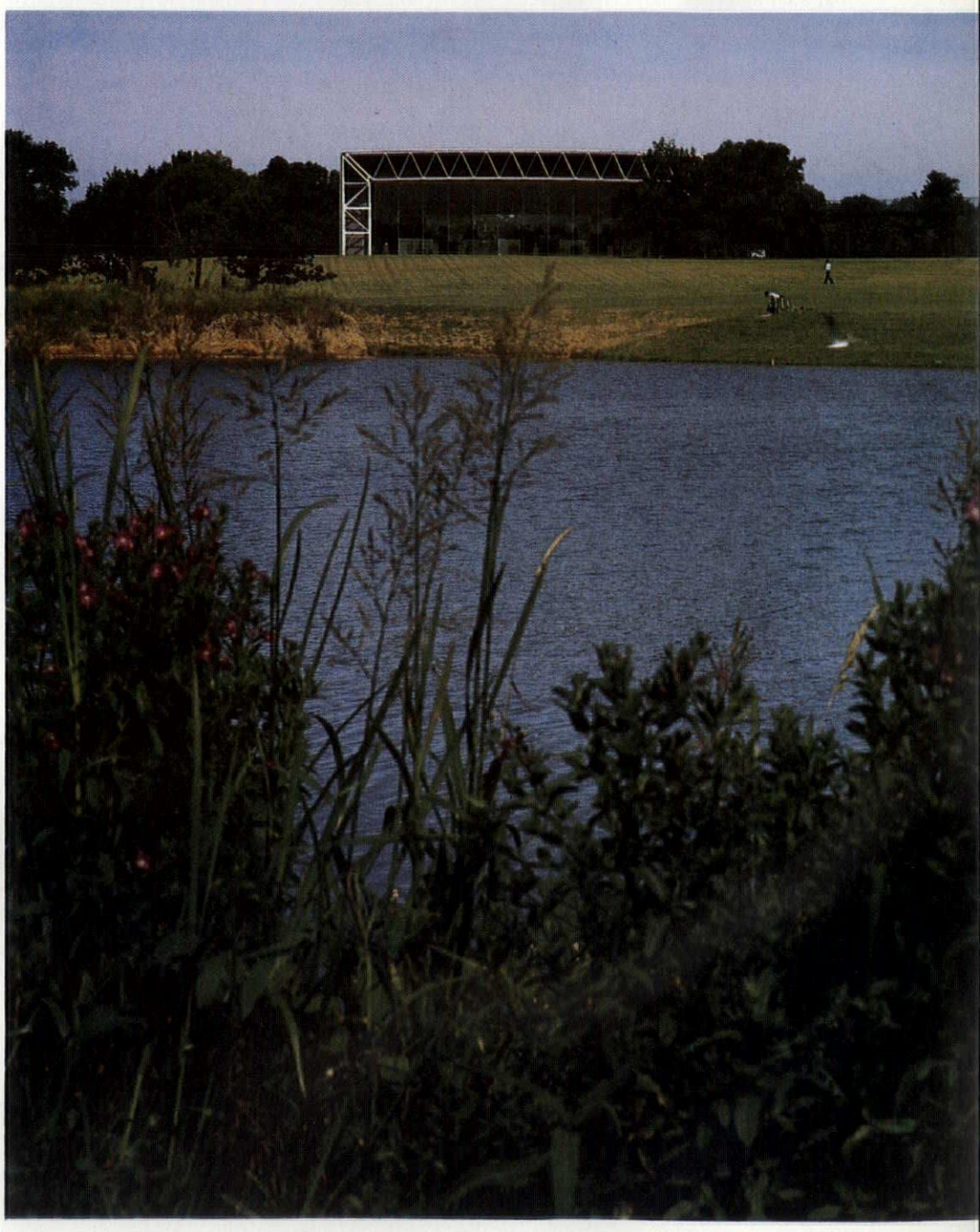
40 West 13th Street, New York, N.Y. 10011 (212) 675-0400
stained glass/metal/wood/lighting/painting/refinishing • consultation/planning/design/fabrication/installation

Circle No. 373, on Reader Service Card

Sainsbury Centre for Visual Arts, Norwich, England

Modernism reconstituted

A museum to house a collection of art donated to the University of East Anglia was designed by Foster Associates of London in a manner that raises anew the debate about architecture's definitions.



The Sainsbury Centre does *not* adhere to the definition of "Architecture" being devised now; it evolves from Modernism's earlier premises that held such buildings could become high art by solving problems of *building* on an innovative, technical level. Sainsbury does indeed accomplish this on its spare reductivist terms.

As seen in this exquisitely fashioned, machine-tooled object, precision and consistency yield paramount aesthetic effect. Of course the building too represents a prime example of the modernist paradox—that its best works are shelters created with a great economy of means achieved through lavish attention to detail and workmanship.

Nevertheless Sainsbury Centre will not be likely to convince those attempting to redress Modernism's mistakes that they can be solved without a complete change-around in thinking. In fact, the Centre retains some of the old well-known defects of Modern architecture, both formally and programmatically. Yet the building does raise important questions about the nature of design quality and architectural meaning worth investigating. And for those sinners wavering between architectural allegiances, it reassures them Mae West was right: It's not so much what you do, but how you do it.

The technological imperative

At Sainsbury, Foster Associates took the skin, structure, and services and integrated them into one double-membrane shell wrapping around a 97½' x 432' clear-span space 20 ft high. The same ex-

terior cladding sheathes walls *and* roof in one continuous surface of aluminum, glass, and grill panels.

In executing the shell, Foster Associates designed the cladding system. They even designed the die for aluminum panels molded like plastic in a process they developed with the manufacturers. With previous projects they had already experimented with bonding for the panel system (p. 62). In this situation, the architects designed neoprene gaskets for the panels that would allow water to run off.

The glazing for the end walls marks another Foster refinement: here the firm again exploits the "no hands" glass assembly developed by the firm for the Willis Faber Dumas building at Ipswich (p. 59). At Sainsbury, sheets of butt-jointed glass with glass fin mullions rise to a 24-ft height.

The inner skin of the building is unconventionally conventional: it actually is a giant aluminum venetian blind, perforated and painted white. Louvers on the ceiling link up to sun sensors to automatically open and close according to natural lighting conditions; the walls can be manually controlled from the information desk.

It is still too early to tell whether leaking, wracking, corrosion, buckling, and all those afflictions known to Modern Architecture will happen here, regardless of testing. But keeping in mind the fact that visual impact of this kind of building does *not* increase with a patina of age, perhaps we can believe, along with Foster, that the sins of the Modernist fathers need not always be visited on their sons.

The technical performance does elicit admiration, cognitively and emotively. Prefabricated parts, clear spans, translucency, and weightlessness—these are all motifs of Modern Architecture recurring since the 19th Century in exhibition halls, railroad stations, and greenhouses. From Joseph Paxton to Buckminster Fuller to Mies, the pursuit of a more rationalized and lighter shell to enclose space has consolidated the tradition.

However, because the building as the Modernist response par excellence comes at a time of serious questioning of architectural values and attitudes, the Sainsbury Centre has to be measured not only on its own Modernist terms but also against a background of emerging expectations about architecture's role.

Context and contextualism

In contradistinction to modern architecture's tendency to beget ordered geometrical objects detached from their environment, architecture, Stuart Cohen argues (*Oppositions 2*, 1974), should acknowledge both the *physical* context—through devices such as scale and building configuration—and the *cultural* context, through symbolic associations.

In either sense, Sainsbury Centre is not "contextual." Physically, a pedestrian bridge does link to the University of East Anglia, a megastructure of terraced concrete buildings, designed for the most part by Denys Lasdun. But that is it. The design of the building has no more to do with Lasdun's complex than a helicopter. Although Lasdun's scheme was conceived as an open-ended plan that could be extended from here to eternity, the placement of Sainsbury Centre in the path, it seems, would alter that growth to the west.

No tears need necessarily be shed over this event. The University's monolithic campus, with its obsessive use of concrete walls and overscaled piers at ground level, does not inspire the wish for more of the same. Yet the terraced configuration seen best at the second level makes a nice formal adjustment to the slope of the land and the lake view. It could have been retained and exploited with the design of the Sainsbury Centre. But that would have meant an entirely different building and a different point of view about architecture.

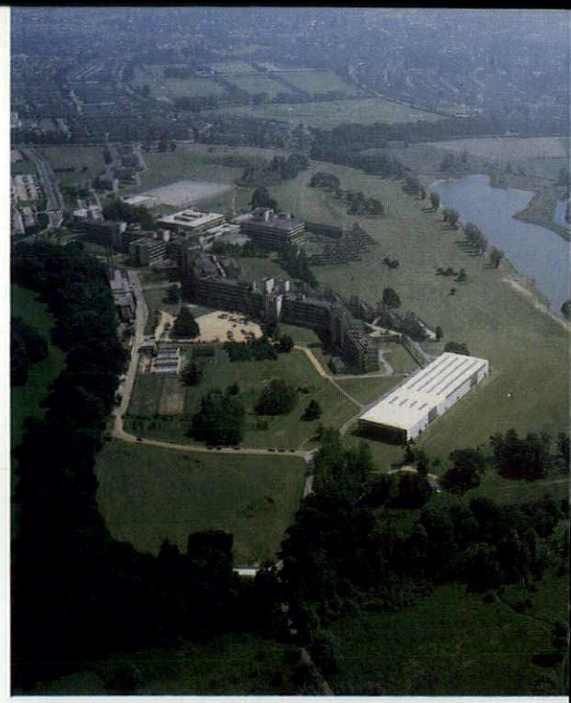
Instead this building stands apart from the rest of the architectural milieu, easy to spot, to attribute its presence to the generosity of private donors who gave their collection and the building to the university, and its distinctiveness to the talents and will of the architect.

Sainsbury Centre's design is shown to best effect in the rural setting rather than an urban one, for its sensitive siting means that the building opens out to views of the natural landscape. The building's scale, muteness and cool mien would deaden the urban context. In the pastoral milieu, this kind of form—minimal, lightweight, reflective and almost transparent from one end to another—intrudes only reticently on the landscape. Little more could be asked of it, except for it to be pushed to its logical conclusion: become virtually invisible.

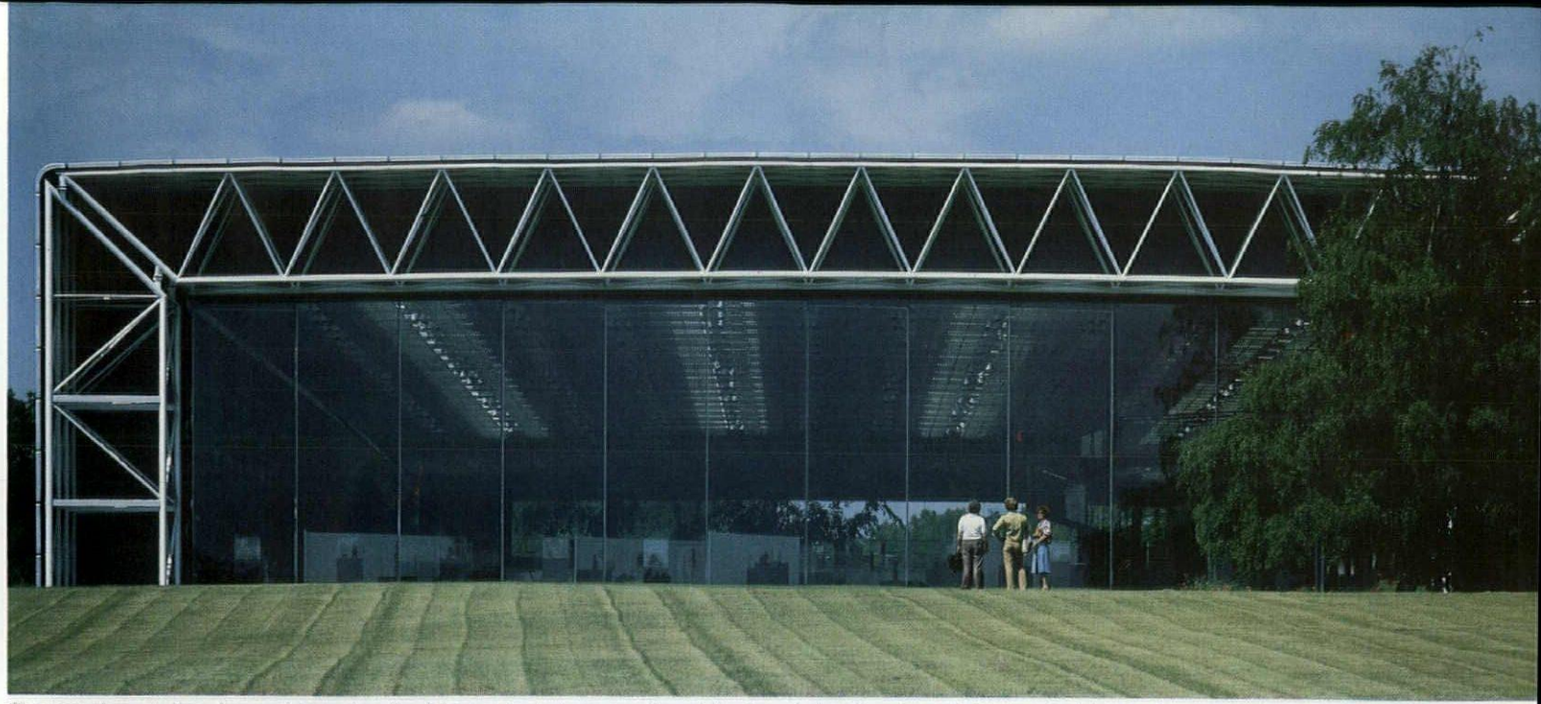
On the other hand, the work of other "contextually" minded architects seeks to use nature as a source for metaphorical reference that enriches the architecture through building configuration, choice of color, ornament, and manipulation of the landscape itself.

Programmatic fit

In formulating the design of the Centre, Foster Associates looked principally toward three examples of the type of museum design that seemed particularly successful. The Louisiana Museum at Humlebaek near Copenhagen by Jorgen Bo and Vilhelm Wohlert appealed to Foster because of its direct ties to the natural setting, Alvar Aalto's museum in Aalborg because of its effective use of natural light



The center in relation to University of East Anglia.



The view through the glass gable end-walls of the center to trees on other side; view of elevation shows interchangeable aluminum and glass panels.

received through skylights, and Mies's New National Gallery in Berlin because of its flexibility.

Yet the simple shed employed at Sainsbury, with its large, clear-span space, has always proved to be one of the most difficult types of forms for Modern architecture to justify programmatically. While Sainsbury's design tries to correct these built-in drawbacks to some extent, it cannot perform the impossible. It still does not prove that an open space containing a number of different activities can work to everyone's satisfaction. If anything, parts of Sainsbury substantiate the claims of the Post-Modernist camp that differentiated spaces work best for separate and even similar uses, the most workable of which might well be inflexible "rooms."

A mix of activities has been fitted into the overall container in addition to the exhibition space for the Sainsbury collection. A restaurant, serving the university community, a faculty club, plus the School of Fine Arts and storage/study Center all share the same space. The different activities present different and sometimes conflicting needs, with the School of Fine Arts the most obvious case in point. Located between the exhibit area and the restaurant, it is defined by two double-level buildings-within-a-building (see plan). Offices for professors underneath the mezzanines all open onto the central reading/research space. Slide lectures for small seminars must take place in the professors' offices. Professors comment that their offices become stuffy and claustrophobic after a while because of the small size of the cubicles and poor ventilation, yet at the same time the sound transmits too easily from one office to another. Most of the ones who virtually live in their offices miss natural light; the only glazed portions of their offices face onto the open library space, not the outdoors. In the summer the heat builds up considerably because of the absence of air conditioning; in the winter, one feels the chill.

But aside from environmental considerations, more directly functional conflicts occur, especially with regard to the lecturing requirements for large groups. The lecture "area" is in the exhibition area. Since the light levels must be much lower for viewing slides than for viewing art, ceiling and wall louvers for the entire gallery are closed during slide talks. Thus museum visitors at these times lose the benefit of seeing the art under natural light or looking out to the landscape. The ventilation system and carpeting nicely muffle unwanted noise but also mean that professors lecturing in the gallery must use microphones. Then the voices carry—too far.

Restaurant at end of the center (above), separated from gallery by School of Fine Arts (below).

The faculty at the school concede they were consulted about their needs, and even saw a mock-up of some of the spaces at Foster's office. But one or two suggest that the consultations were performed more for public relations than design input.

Form type

With regard to the applicability of this form type to museums in general, the loftlike plan does allow flexibility in display. Where it might create the most difficulties is on the intimate level—the viewing of small-scale objects in a vast space.

For the Sainsbury collection of small-scale Indian, Columbian, and North African artifacts, and its early 20th-Century Modern paintings and sculpture, Foster Associates designed stunning acrylic glass vitrines and arranged partitions to create a sense of a "living room." The art works on display can thus be seen appropriately, but this kind of installation does clutter up the foreground of one's perception of the overall interior. And while certain angles effectively bring forth associations with montages executed by Mies for his 1942 "Museum for a Small City" project, the manipulation of these interior planes differs tellingly. Mies used art as well as his screen walls to define space; his planes conformed to the grid in at least one direction, at the same time functioning as free-standing entities floating in the void. Foster does not. Mies played his art and his screen walls against the natural landscape in a contrapuntal juxtaposition; Foster does not.

The ceiling becomes Foster's tour de force and makes up a lot spatially for what the installation obstructs. One's eye is constantly pulled up and out by its horizontal stretch of layered planes. The transparency and translucency created by the filigree of ceiling louvers, structure and ducts, catwalks, with strips of the glass and aluminum panels above, skillfully mesh to create a work of art.

The "slice of salami" quality of this form creates other problems architecturally. Like, where do you enter? Foster says anywhere that is needed, since doors are changeable; two entries are placed sym-

Exhibition space for Sainsbury collection is located between school and main entrance where spiral stair leads from pedestrian bridge.

metrically along the closed wall facing the Lasdun megastructure. One entry leads to the fine arts school and the restaurant, the other, the museum. This latter entry, we can tell, is *the* major one, only because the pedestrian bridge from the megastructure slices through the wall above at a 45-degree angle. Two entries stacked on top of each other must be going somewhere. (The problem, of course, is that the entry that would conceptually and perceptually make the most sense would be at the glass end-walls, if they could just roll down into the earth and visitors be brought in on the *ponts roulants* or traveling cranes used at the Galerie des Machines in 1889 in Paris.)

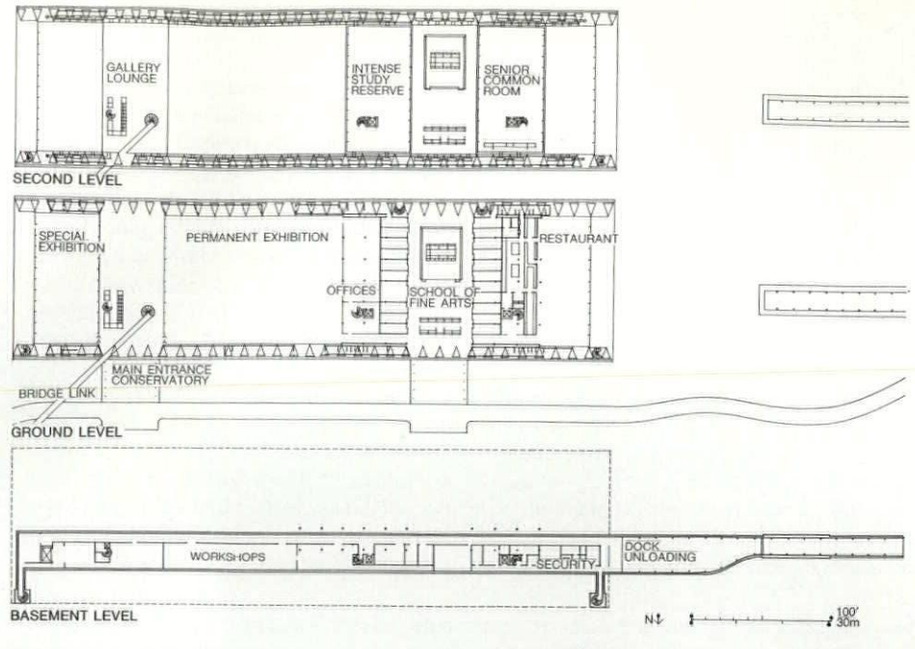
The bridge entry extends the principal path of circulation at East Anglia, but does debouch in a rather mean little space between the inner and outer skin, before terminating with the narrow spiral stair leading down to the main level. The circulation route through the space —always along the entry wall and through turnstiles that separate one area from another for security reasons—is uninteresting and bothersome to say the least. The circulation is logical enough, essentially acting as a single-loaded corridor in diagram; but the experience of the space as one proceeds through it remains unidimensional.

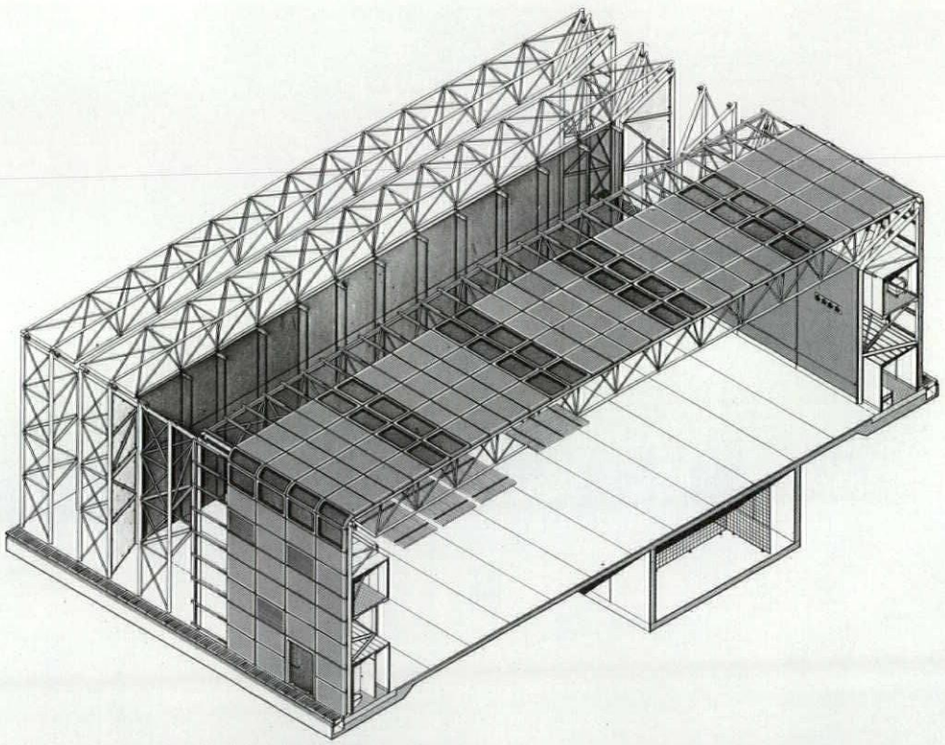
Going up to the second-level mezzanine areas of the faculty club or study center, or coming down from the spiral stair, adds some dimension to the perception. Yet it does not compare with the peripatetic experience afforded by the second-level gallery at the Palm House at Kew Gardens, one of the truly remarkable examples of lightweight glass and iron rib architecture molding and enclosing space. Modernist buildings like the Sainsbury seem less designed for the kinesthetic appreciation of a visitor walking through it than for the impact afforded by standing in one spot; any spot. The logic of the diagram, the rationalism of the structure take precedent over a conceptual idea about form or the manipulation of space.

Conclusion

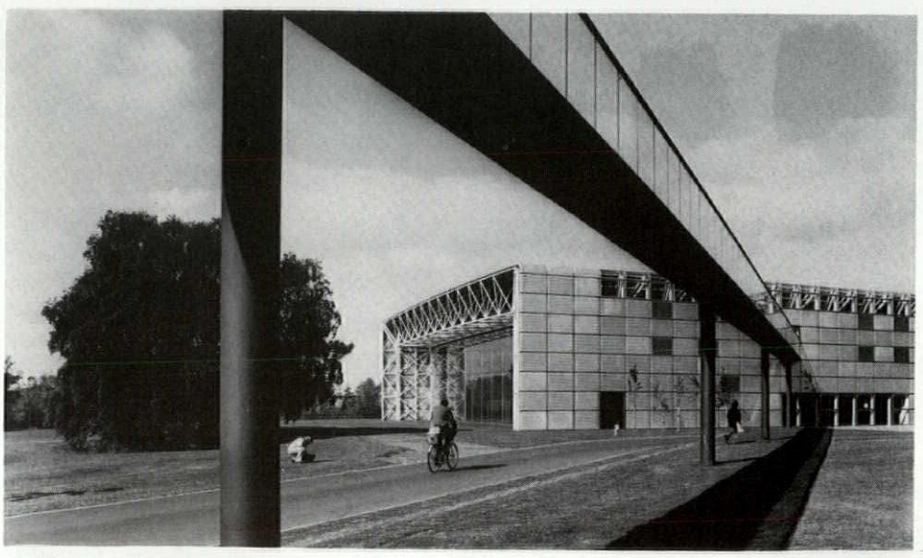
Nevertheless, at the same time, the neutrality of the space, the absence of weight or mass, corresponds to a metaphysical attitude about architecture that Steven Peterson has described in a discussion of Mies van der Rohe (*Inland Architect,* May 1977): Mies' minimalism, his nonhierarchical spaces, Peterson contends, aims at creating a de-materialized architecture that would "eliminate the object as form that obscured the transcendental reality, revealing an infinite universal space, itself unformed, conceived as the void."

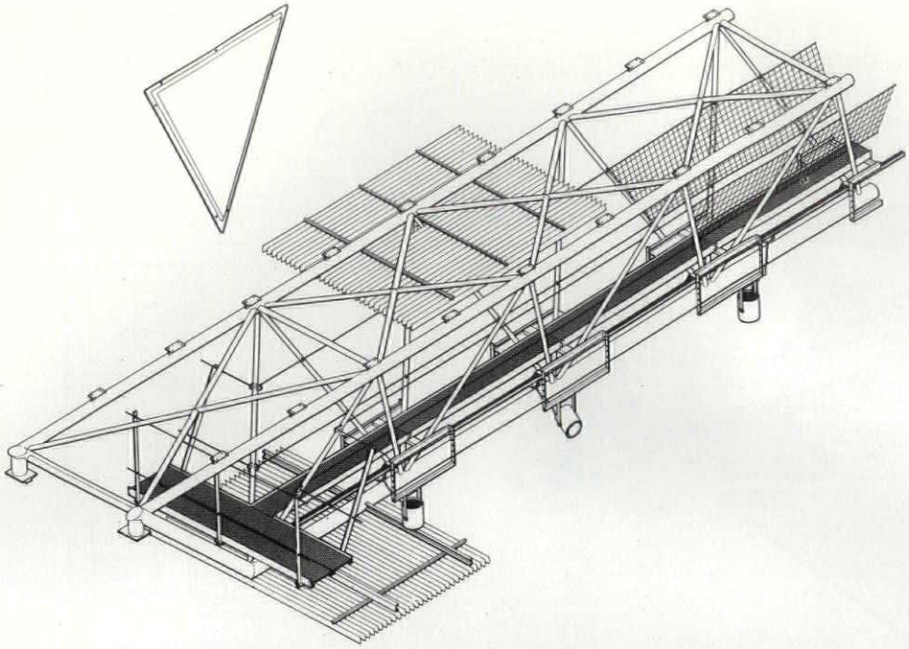
At some level this metaphysic behind



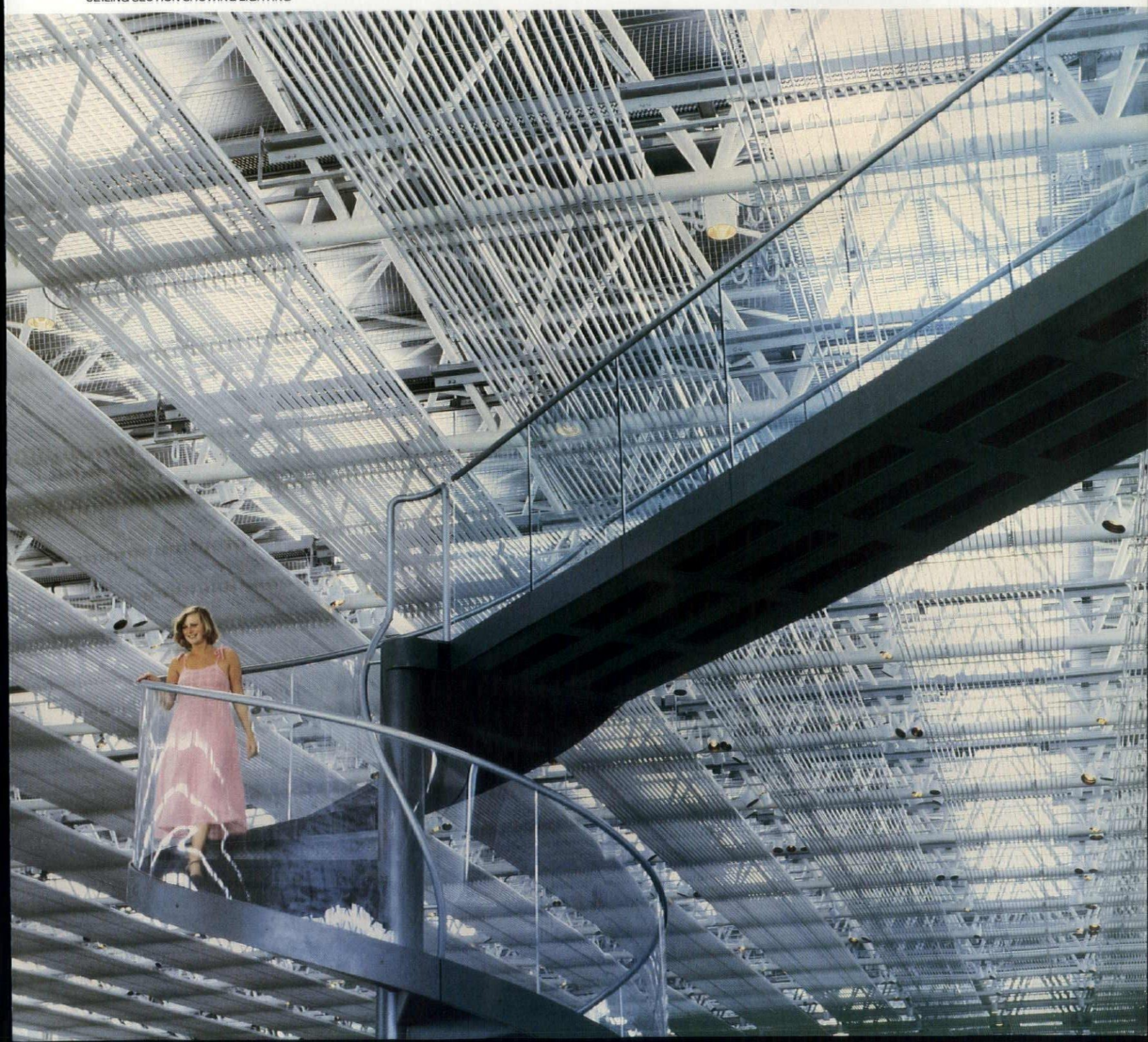


Entrance from university is bridge (below) slicing through skin, terminating in stair (opposite).





CEILING SECTION SHOWING LIGHTING



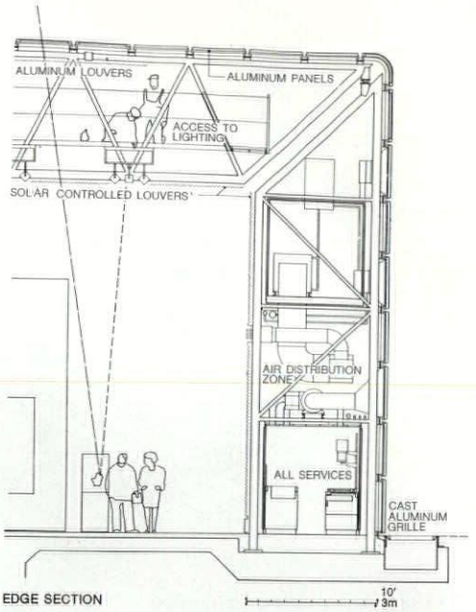
Sainsbury Centre for Visual Arts

reductivist architecture still can have a strong appeal. The seductiveness of this kind of architecture lies in the emotive pull as well as the intellectual: the kind of floating feeling one has standing at the prow of a boat, gliding in a plane, walking across the Seagram Plaza, moving through a Richard Meier house. The feeling is of transcending everyday life and its disorder and mess; call it metaphysical, spiritual, aesthetic (or neurotic), peace and calm come from this limpid purity.

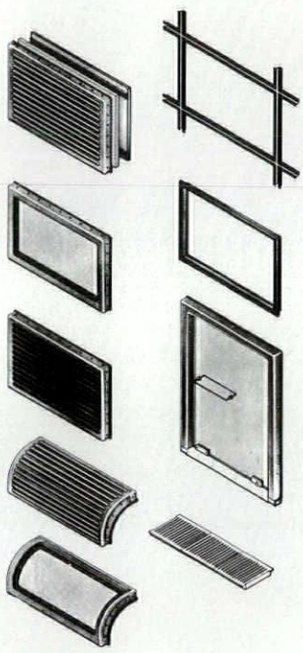
Not all of modern architecture can pull this off. Imitations of this kind of effort often lose the essence and leave architecture at the level of building. Even Sainsbury Centre didn't quite achieve it because it didn't fully exploit movement through the space in spite of its elegant and exquisite distillation of physical facts.

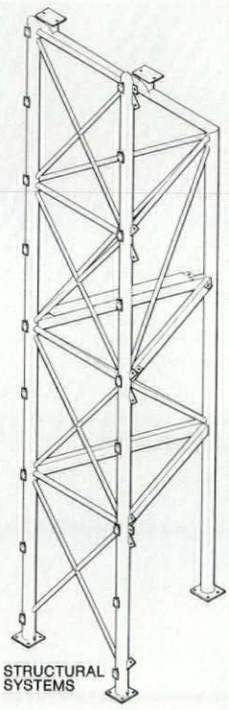
Because most architecture and building have to deal with reality and everyday life, architects today are looking not to the abstracted artifact, but to architecture that had appeal and meaning in previous eras. Their philosophy may be based more in the direct perceptual experience of a physical world made meaningful through the manipulation of a familiar language of columns, doors, gable roofs, articulated surfaces, mass, or humanly scaled elements. They define architecture as an integral part of the natural and socio-cultural milieu, not a discrete entity.

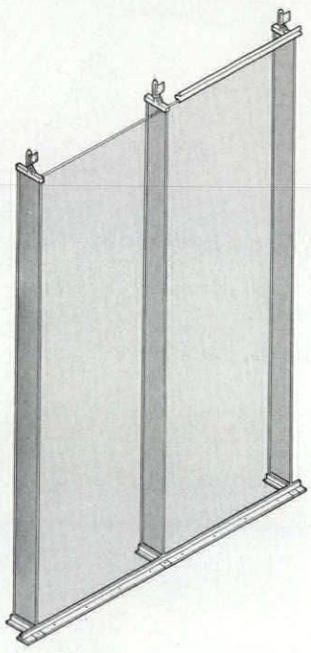
Yet modern architecture's successes, its potential to suggest the possibility of transcendence, need not be dismissed. The desire for this mental state has been around a long time. While it is unrealistic to assume that it can and will be achieved with every try, every so often, with certain kinds of buildings like Sainsbury, it is still worth attempting. [Suzanne Stephens]



EDGE SECTION


CLADDING SYSTEMS


STRUCTURAL SYSTEMS

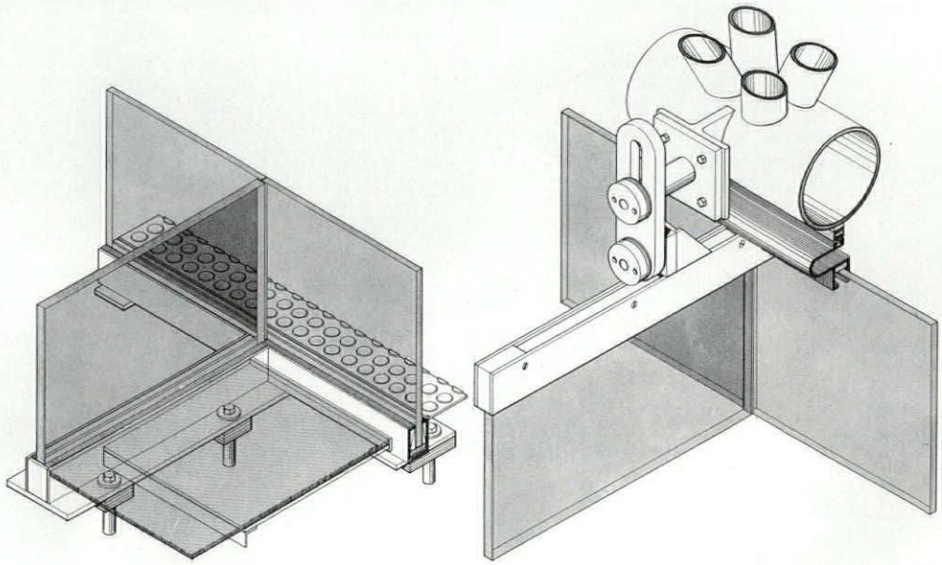

GABLE WALL SYSTEMS

Data

Project: Sainsbury Centre for Visual Arts, The University of East Anglia, Norwich, England.

Architects: Foster Associates, London and Oslo; Arthur Branthwaite, Loren Butt, John Calvert, Chubby Chhabra, Ian Dowsett, Howard Filbey, Roy Fleetwood, Norman Foster, Wendy Foster, Birkin Haward, Richard Horden, Caroline Lwin, David Nelson, Tomm Nyhuus, John Yates, project team.

Program: to house the art collection of 500 works of painting, drawing, and sculpture, including the primitive and oceanic sculpture as well as work by Picasso, Moore, Giocometti, and Bacon being donated by Sir Robert and Lady Sainsbury to the University. The 64,431-sq-ft building would also house the School of Fine Arts for the University, a restaurant, a special exhibition area, a faculty lounge, and a study reserve area, plus additional storage and


GLASS WINDOW MULLION DETAILS, SILL (LEFT), HEAD, RIGHT.

From the mezzanine (above), one looks over exhibit space, which assumes a different character spatially with night lighting (below).

Sainsbury Centre for Visual Arts

workshop space and truck unloading docks at basement level.

Site: at the western end of the University of East Anglia in the rolling countryside near Norwich, a town northeast of London.

Structural system: foundations are concrete strip footing with an integral floating ground slab. The structure itself is composed of 37 welded tubular prismatic steel trusses that span 122 ft. They are supported on similar lattice towers creating a column-free tube 432 ft long, with a ground-to-ceiling clear height of 20 ft to permit the installation of large art works and the insertion of mezzanines. Exterior cladding is formed of 8′ x 4′ aluminum, glass and grill panels. The aluminum panels, of sandwich construction, have a Phenelux foam filling and a highly reflective anodized aluminum surface to provide maximum insulation value and cut heat gain. Each panel is fitted into a continuous net of neoprene gaskets that double as rainwater channels. All panels are interchangeable by unfastening six bolts. End walls are clear glass 97½ ft in length, 24 ft high. Each sheet of glass, 8′ x 24′, and its supporting fin are held by steel channels anchored into the floor slab and joined with a silicone sealant.

The interior lining system is composed of perforated aluminum strips backed with acoustical wadding. On ceiling plane they are electrically adjusted.

Mechanical system: forty packaged warm-air heating and ventilation units are contained in the 8-ft space between inner and outer skins of building. Primary heat is drawn from the campus's central water distribution system. Air discharge is generally achieved through long-throw sidewall diffusers.

Major materials: steel tubular trusses, aluminum, glass, carpeting, rubber flooring, concrete.

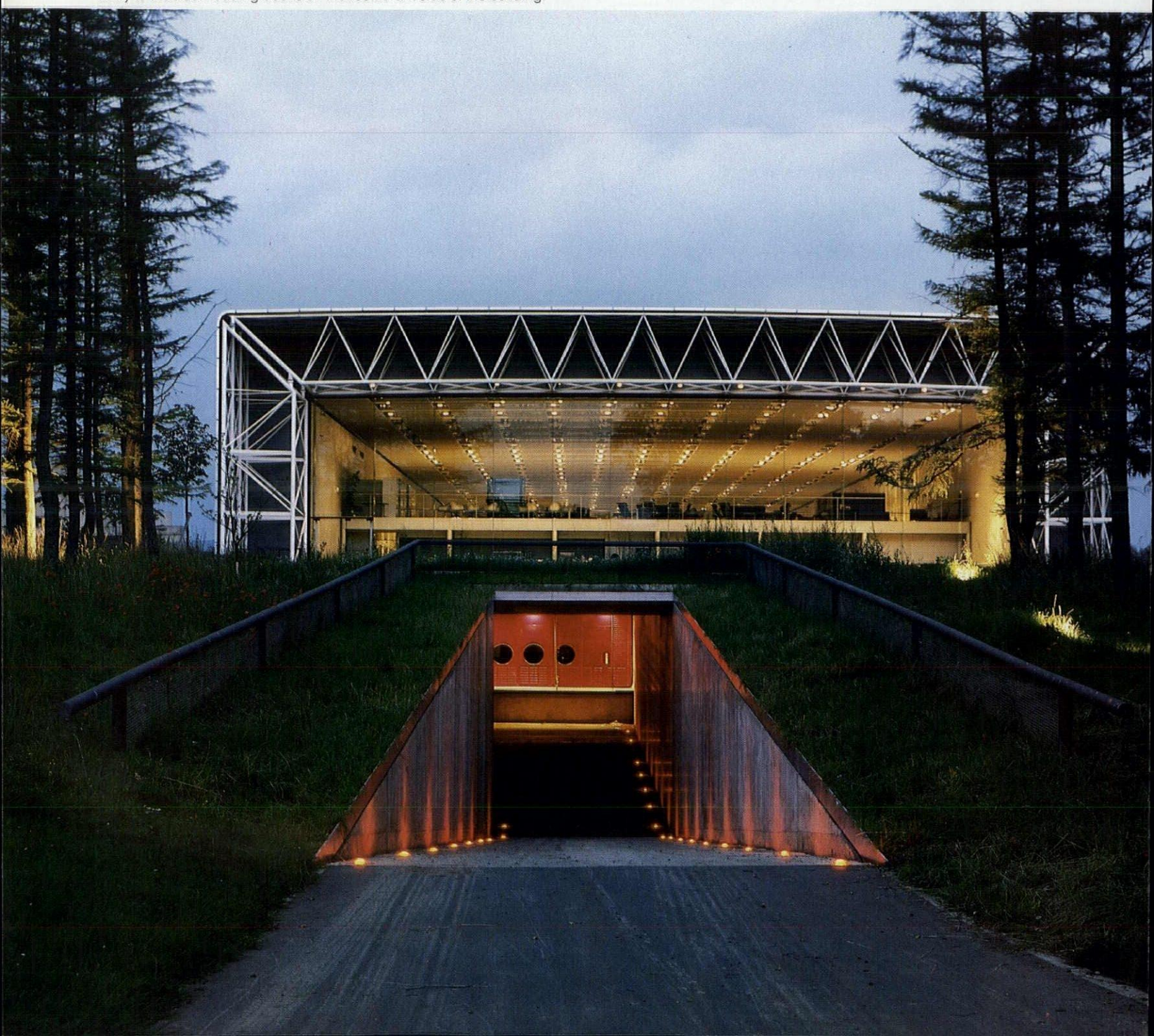
Consultants: Anthony Hunt Associates, structural; Tony Pritchard, cladding; Hanscomb Partnership, quantity surveyors; John Taylor & Sons, drainage; Lanning Roper, landscape architect; Sound Research Laboratories, acoustical; Claude Engle (Washington), lighting; George Sexton, display, design, and exhibition lighting; Minale Provinciali, graphics.

Clients: Sir Robert and Lady Sainsbury and the University of East Anglia (Gordon Marshall).

Cost: Approximately $4 million, or $60 per sq ft.

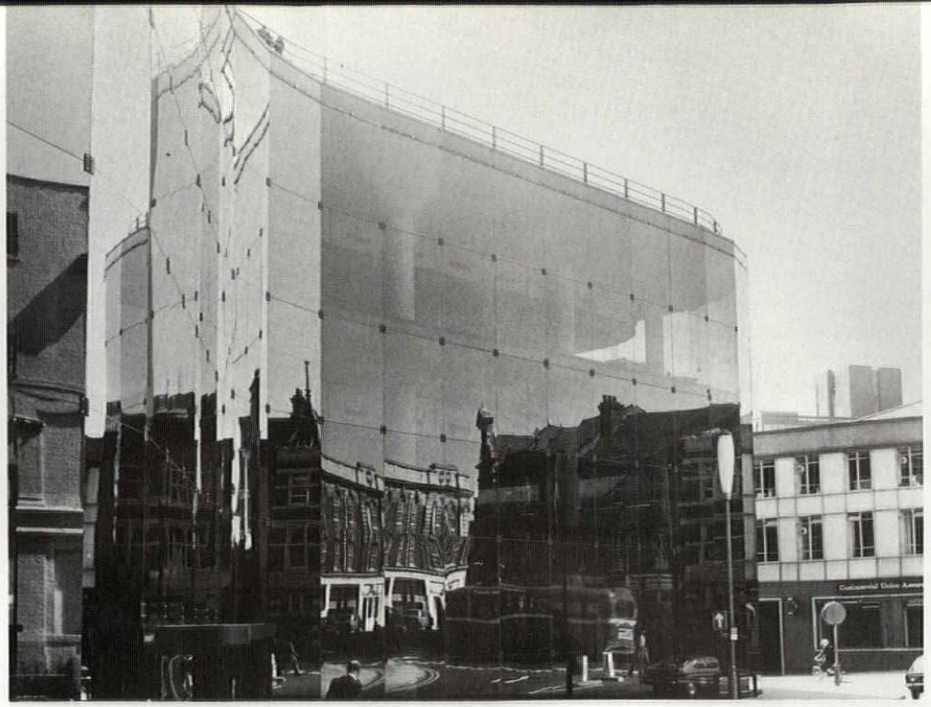
Photography: Ken Kirkwood (color) and John Donat (black and white).

Entry to the truck loading docks on the restaurant side of the building.



Foster Associates

Technical effects



Willis Faber Dumas office building in Ipswich wrapped in glass skin.

Old standby modern values and new construction techniques have put this firm at the leading edge of one form of architectural effort. But where next?

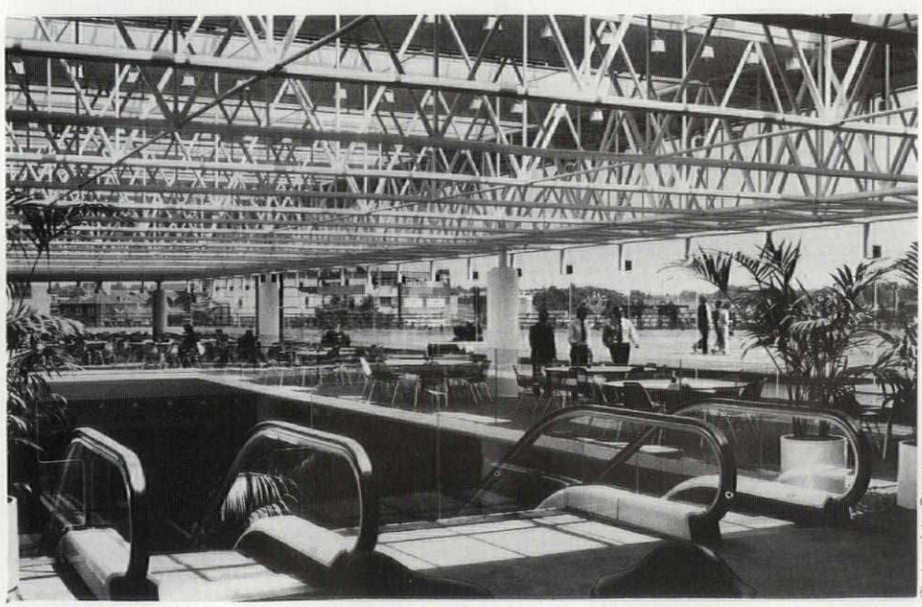
Foster Associates made its mark in England in the last decade, continuing the tradition of true modernists who used technology to reveal truth (and beauty) about architecture. Technical, not formal, inspiration has yielded aesthetic results. Headed by architect Norman Foster, its goal is to improve the quality of its innovations so that design and technical engineering become inseparable. In many ways it already has, although strictly (formally) speaking the firm has chosen to stay with a limited vocabulary of form generators—the modular gridded structure, open-ended and open-planned spaces, curtain-wall façades—of the recent past.

It is not surprising that Foster Associates owes much of its success at technical innovations to close scrutiny of advances in other fields, such as containerized shipping and the aircraft industry. Foster himself learns more at aircraft trade shows than building products exhibitions. He flies glider planes for fun, helicopters for business, and the Concorde for trips overseas.

The firm comprises specialized environmental engineers as well as architects, all of whom work together on the same project. Generally, when the project first comes into the office, certain people, including Foster, get together and conceptualize the design. These key people will then move with the design to the production phase, with others added as the project goes through its various metamorphoses. Foster attends these meetings, too.

Norman Foster carefully establishes the "team" image in the way he organizes the office and the way the credits are listed.

The reflective opaque exterior reveals little of the openness inside (below).



Photos: John Donat

Foster Associates

Even the open-plan spaces of the office carefully obliterate a blatant sense of hierarchy. Nevertheless, spending any amount of time in the office confirms the notion that the firm is very much run by one person. Foster, not given to appearing flappable, moves from project to project, team to team, decision to decision.

He does evidently have a gift for putting groups of people together and obtaining their seemingly undying commitment to a project. This kind of arrangement may be more fully tested as the firm expands. Right now it has offices in Oslo and may be carrying out projects there with Buckminster Fuller and Shoji Sadao.

Foster first came to the States for his master's architecture class at Yale University in 1961–62. Before that he had studied architecture at Manchester University, and previous to his architectural schooling had worked as an accountant, joined the RAF, and studied electronics.

Foster was at Yale during Paul Rudolph's reign, and at a time when James Stirling was visiting critic. With one of the English students there, Richard Rogers, of Centre Pompidou fame (P/A, May 1977, p. 84), Foster formed a practice back in England. There they continued in the simple brick aesthetic in a partnership called Team 4 with Wendy Cheesman Foster and sister Georgie Wolton.

About 1967, Norman and his wife Wendy Foster formed Foster Associates. With partner Michael Hopkins who has since gone on his own (P/A, July 1978, p. 50), the firm began taking the design further and further on its high-tech course.

Now the 45-person office is enjoying awards, success, and extensive publication. In the current brouhaha over which direction architecture should go, the 43-year-old Foster remains committed to the modernist purist vector. The idea of Post-Modernism, not surprisingly, repulses him. And despite attention given to social concerns or energy conservation, the firm's interest in prefabrication, flexibility, umbrella structures, and integration of structure, skin, and services makes a strong case for the primacy of technically oriented problem-solving.

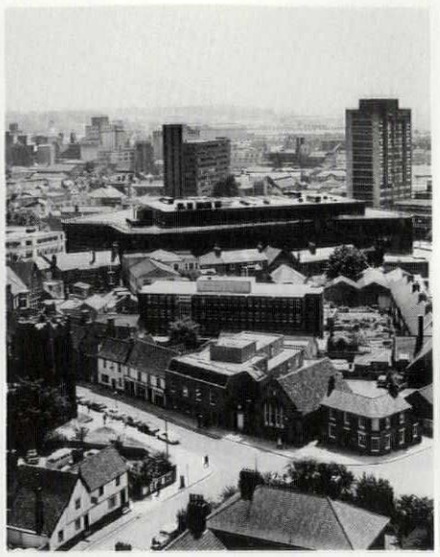
Willis Faber Dumas offices

The Willis Faber Dumas office, completed in 1974, for many reasons presents a surprising kind of solution in terms of the general body of the firm's work. One sees a pure Modernist attitude on one hand; the contextual on the other.

Its contextual form was determined by the boundaries of the site, ring roads at one end, medieval village streets at the other, on the edge of town near the railroad

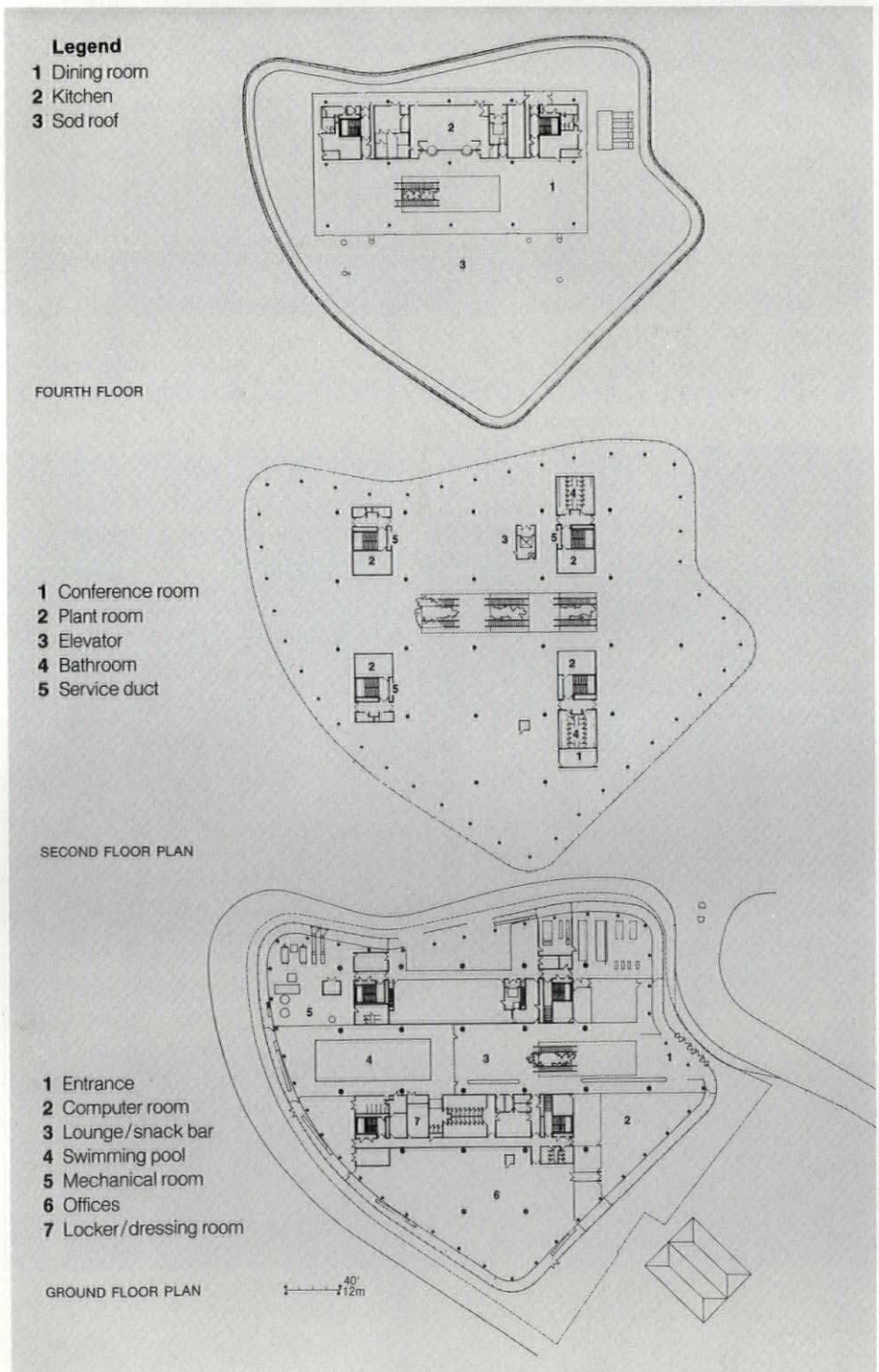
Grass on roof gives employees open space four levels up.

The aluminum channel ceilings dramatize offices and computer terminal (below).



Photos: John Donat

Latter-day Baroque stair (left); low-rise form in context (right).



station. Fortunately, much of the medieval village remains (obviously this assemblage didn't help the cause of preservation) so that the glass skin can be shown to dramatic effect. The flat panes of solar glass, suspended from the edge of the perimeter cantilever at the roof level, reflect the numerous and varied architectural delights in the town. The low height of Willis Faber maintains the scale of the environs as well, and adds to the surprise. One glimpses the building from various directions, a shiny but unaggressive black blob, hiding from view even, because of the reflections, as you approach it head-on.

If the exterior presents an impermeable closed-off skin, the legible open-plan interior of the building contradicts those impressions. To attract employees, Willis Faber included certain recreational features in their headquarters building, where much of the back-up paper work for the London office transactions gets done. A swimming pool on the ground floor, a restaurant and roof garden on the top provide nicely surreal surprises to visitors. In this manner, the service and recreational floors act as a sandwich to the two floors of office space between. (The sandwich theme extends to infrastructure as well: the architects have tucked air-supply ducts, diffusers, pipes, etc., in between the concrete waffle slab and the suspended aluminum channel ceiling system. They also raised the floor to allow channels for telephone and electric outlets, providing further flexibility to the open offices.)

While the building functions as a "sandwich" in terms of functional organization, its spatial development contradicts that. In fact, two different spatial conceptions seem to be at play here: the progression of spaces up the escalator, from the rather closed to the more open spaces, borrows from the Baroque; at the same time, the pull of spaces laterally outward on each floor sets up the Modernist countertheme. The progression upward heightens the effect of seeing a landscaped ground plane—the sod roof—four stories in the air. Yet the two different spatial notions seem to need a more contained resolution than that given by the gridded roof structure—a Bucky-type dome appeared in conceptual diagrams but was later dropped.

In addition, the ground-floor lobby area and entrance do not solve the need for the proper transition formally between the flat skin and the vertical central space: the entry doors are embedded in the irregularly shaped surface of the building so that one enters off axis to the main lobby escalator bank. Because the lobby expands to accommodate the breadth of the doors, circulation patterns are diffuse; the path to the skylit escalators, past columns in the way, loses in dramatic impact.

Willis Faber Dumas' skin attracts much

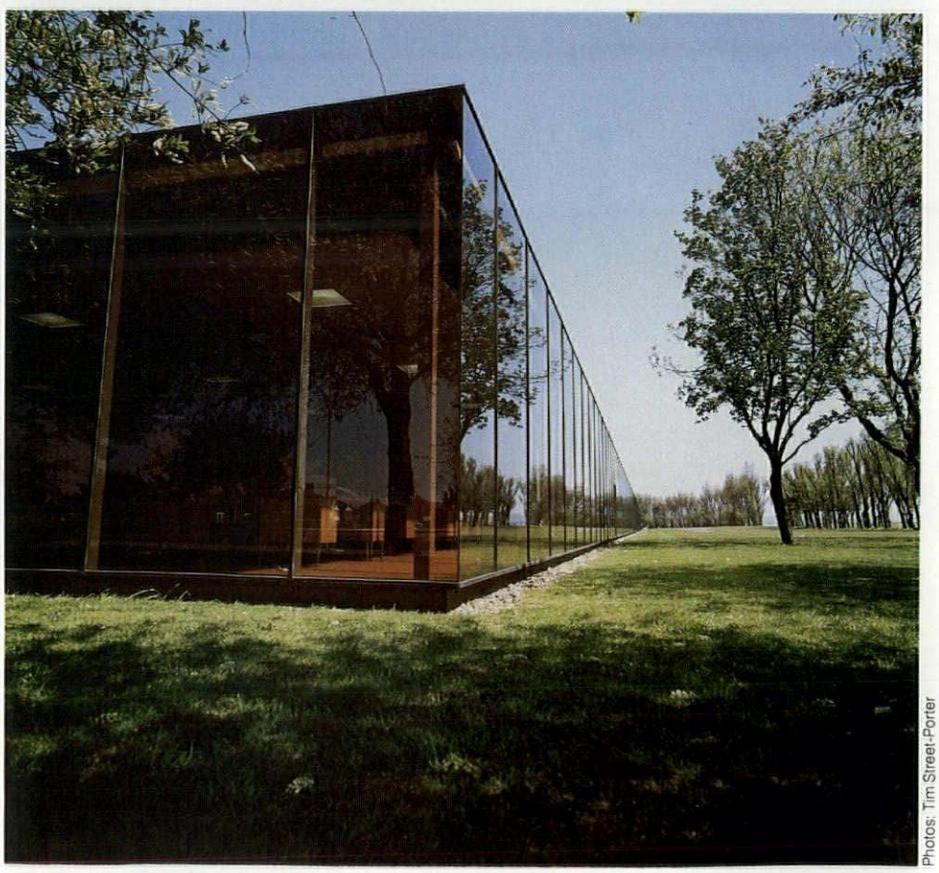
comment and envy (especially from US architects since many fire codes don't permit the floor-to-floor skimming of the glass skin outside). Foster Associates wanted very much to have a suspended assembly technique using solar glass. Since glass is strongest in tension they figured it was possible, but had to produce the calculations and working drawings to convince the glass manufacturer.

The manufacturer not only then reproduced the assembly, but liked it enough to give their design warranties to the system in exchange for rights to it. Each glass light is independently supported from a central bolt, with top clamping strips helping to spread the load across the glass. Half-story high glass fins deflect wind loads; a sliding fitting allows vertical movement.

As far as energy considerations are concerned, the firm points out that the solar glazing, the deep-plan floors, and the sod roof conserve heat as much as a normal building would. Foster also adds that while the sod roof was more costly than asphalt, it eliminated the need for an expansion joint with the extra row of columns and associated pilings. Nevertheless, the company admits that air-conditioning needs are greater than those for comparable structures.

Skin gets thin: Fred Olsen center, London Docks (above); Modern Art Glass, Thamesmead (below).

IBM center at Cosham (below) mirrors nature.



Photos: Tim Street-Porter

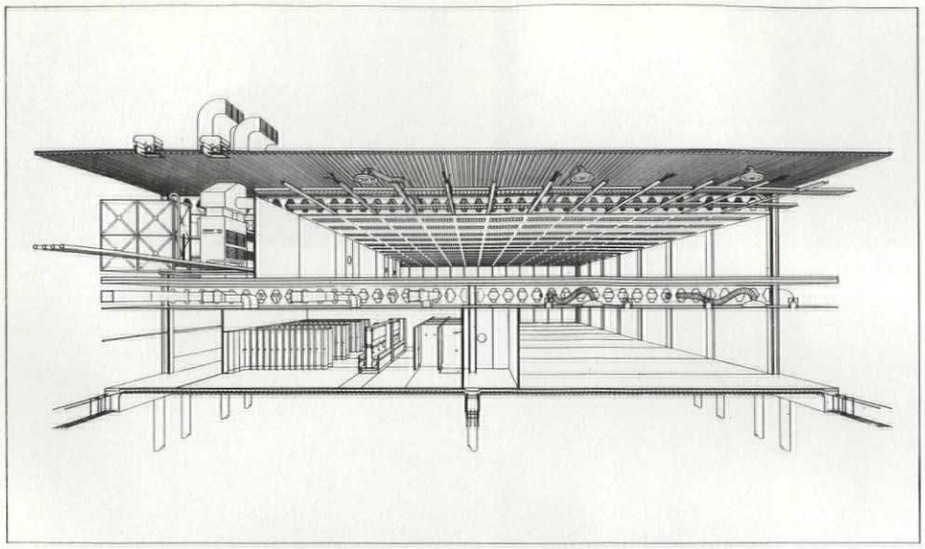
Recurring motifs

In looking over their past work, one is interested to see recurring patterns in terms of design ideas, technical experiments, and generally an attitude about building. Not every building leads in a direct line to the next one; they have veered from here to there, some tentatively. But one can see, generally, the straight and ordinary kind of integrated shed construction slowly being refined until the firm would emerge at the leading edge of high-tech.

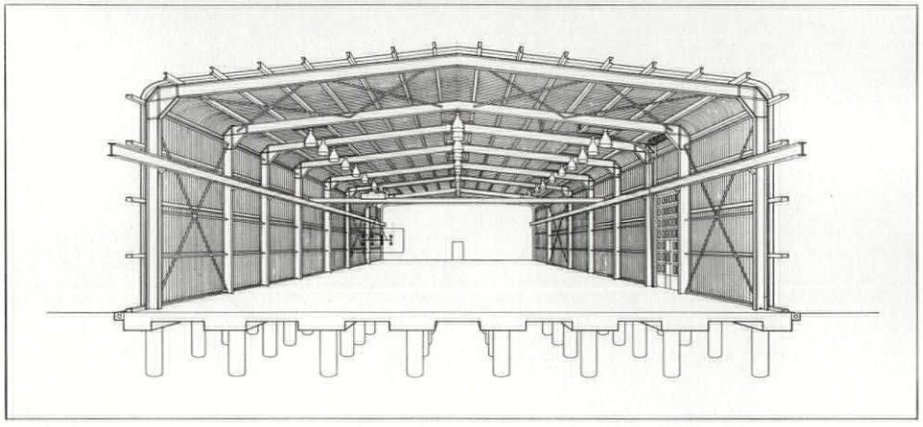
An electronics factory in Wiltshire in 1966, Foster recalls, proved to be the turning point for Team 4, at the point when it left traditional materials and construction and began experimenting with prefabricated industrialized systems offering flexibility in plan. The SCSD system for California schools, with an integrated structural and services system, had its influence.

In the design and construction of an operations and amenities center for Fred Olsen at the London Docks 1969, the firm used reflective glass for the first time in England. Foster actually went to the PPG plant in Kokomo, In, to detail the two-story solar glass wall, which is clipped onto a silver-anodized frame.

For another building in the docks (unbuilt) the firm looked to the container-shipping industry for inspiration. It came up with a skin of sandwich panels of



Steps to Sainsbury: Integration of services at Olsen (above); wrapped skin at Thamesmead (below).



IBM at Greenford (below): dematerialization through reflection continued.

Ken Kirkwood

aluminum and polyurethane foam zipped together with aluminum and neoprene extrusions, an idea modified for application at Sainsbury. An aluminum skin wraps the exterior long walls and roof of the Modern Art Glass Offices and Warehouse at Thamesmead of 1972, but it is corrugated. The wrapping and the configuration of the shedlike structure nevertheless prefigure Sainsbury. The Modern Art Glass's end walls use a glazed gable system specially worked out for the project. Here, tubular mullions support the glass held by steel and neoprene external mullion strips with silicone horizontal joints. Minus back-up support and minus mullion strips, this glazing assembly in its ever more lightweight mutations would dazzle us at Ipswich and Sainsbury.

In one sense, the IBM Pilot Head Offices at Cosham, Hampshire of 1972 marked the arrival of the firm. The consummately cool machine-object-like glass skin showed the firm's ability to carry technological refinement to exquisitely abstract extremes. The membrane skin of vertical strips of solar glass held in neoprene gaskets, the loft space, and the Miesian grid were motifs that were to constantly recur as they do in the recently completed IBM plant at Greenford. At Greenford, however, a "new" twist appears: glass curtain wall on the south is clear with louvers to shade the sun inside. While the idea sounds retardataire, it fits in with current energy conservation recommendations. Experts suggest that reflecting or heat-absorbing glass is best for east-west exposures, while clear glass facing south (with blinds) helps heat gain in the winter.

The preindustrial era

The fascination with glass had existed throughout Foster's career, even in the masonry period of the early 1960s when he and his Team 4 partners were busy designing houses. Top-light glazing with structural gaskets was seen there, along with some open plans and zoned spaces that would continue to appear in different settings and situations. The cockpit canopy retreat of 1963, the terraced Skybreak house in 1968, and the Mews house in 1964 illustrate such efforts. The Creek Vean House of 1965, with its entry via an upper level bridge, plus the interior spine, embodied circulation ideas developed further in Sainsbury.

The most interesting attitude architecturally is the relationship many of these houses, built and unbuilt, manifested with regard to the site. The relationship suggests a *submergence* into nature, witness the Creek Vean house and its sod roof. Years later, the sod roof recurs at Ipswich, of course, but yanked out of the ground. On the other hand, the later buildings show an acquiescence to nature

Foster Associates

through *suppression* of form, illustrated by the IBM buildings with their lightweight structures and highly reflective surfaces, or Sainsbury with its lightness, its reflections, and its transparency.

Here the reductivist aesthetic achieved by technology allows nature to perceptually dominate. With the earlier houses, carved out of hills, nature physically dominated. (Not surprisingly, Foster collaborated on an underground building project with Buckminster Fuller in 1968, and erected a short-life air structure in 1969—the submersion and suppression motifs manifested in their extremes.)

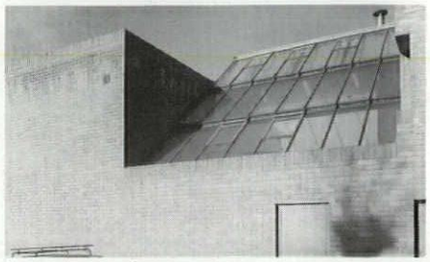
In the firm's progression and permutations, the question remains. Where does it go from here? The reductivist aesthetic leading to lighter and lighter structures makes sense in particular settings (e.g., natural) with particular uses. While Willis Faber Dumas shows this kind of attitude can be bent according to the *urban* setting, its success owes much to the narrow winding streets around the building that promote surprise, the irregular shape of the site, and the fact that the building reflects a variegated landscape of visual interest—not parking lots, concrete parking garages, etc. As a form-type, Willis Faber presents a provocative example of the firm's work because of the way it *swerves*, the way it engages internal contradictions about its grid and its configuration, its outside membrane and interior spatial notions. It does not, however, resolve these contradictions in an integrated, formal prototype that suggests further application.

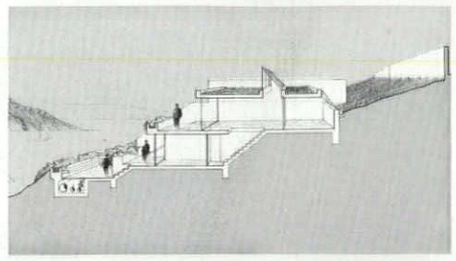
So despite the achievements thus far, there are several pressures on architectural effort that the firm will have to come to terms with: one is the demands of urban form; another, the demands of form as a thing in and of itself. Not all situations can be resolved with the restricted formal premises given by the open plan, long-span, lightweight membrane structure. A third pressure would be energy conservation. In this case, however, Foster & Associates' belief that energy conservation can be achieved through the technical improvement of materials as well as planning is also shared by many experts in energy (see P/A's forthcoming April 1979 issue).

Finally, it is the questions about form and how form should be generated that will decide whether the firm will be great builders—building within a defined tradition that they in turn refine; or great architects—pushing building through form, technique, and function, out of its everyday life into that sphere that transcends, enlightens, and influences.
[Suzanne Stephens]

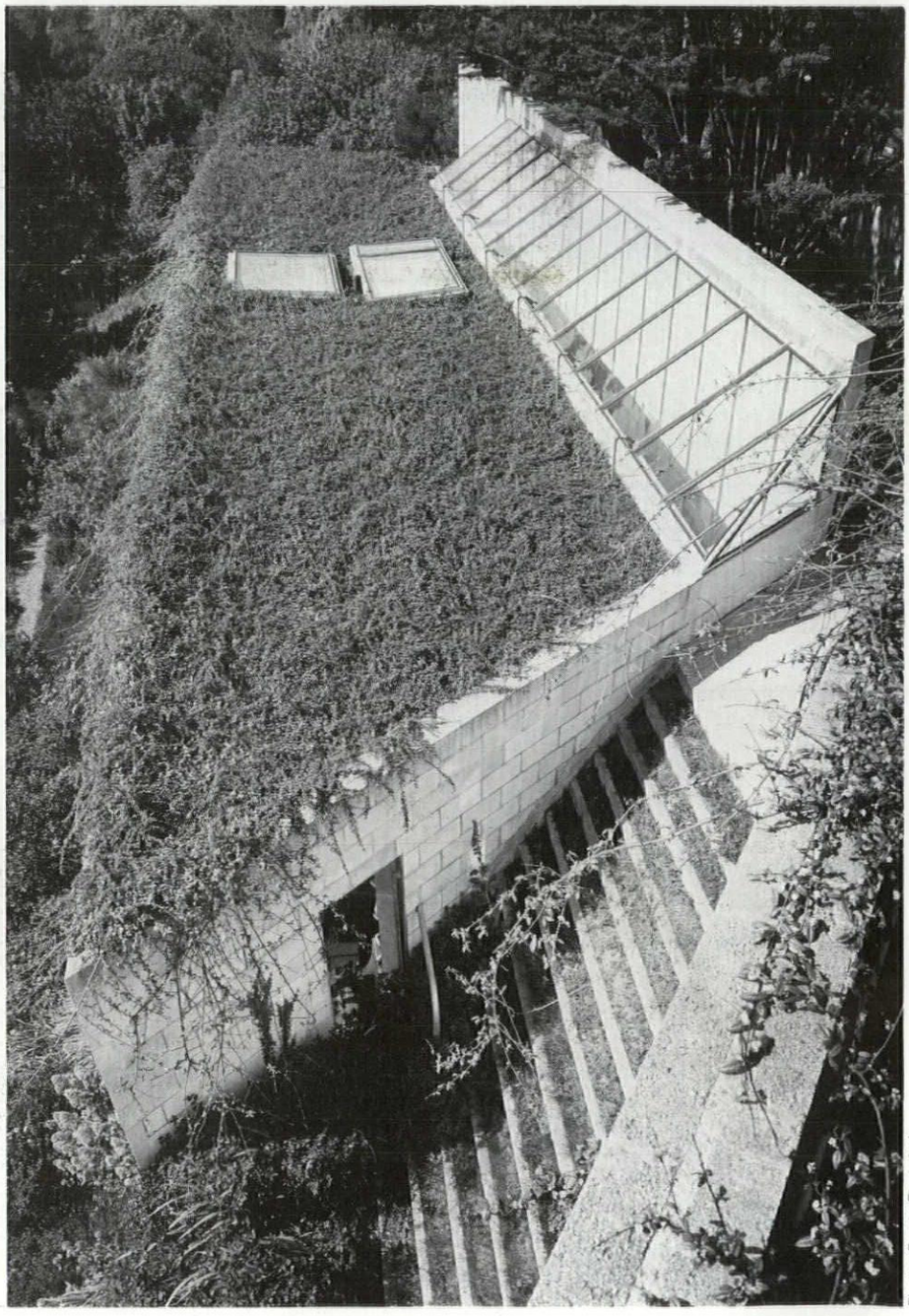
Camera Craft.

Team 4 designs masonry and glass: Skybreak House, 1968; Cornwall retreat, 1963 (left and right).





Mews House, 1964 (left), Cornwall project, 1964 (right), Cornwall House, 1966 (below).



Photos: Brecht-Einzig Ltd.

Interior design: Executive offices, Prudential Insurance Co., Boston

A piece of the Rock

Daroff Design's exceptional solution for a large insurance company creates a setting that is calmly understated, possessing qualities rare in modern office design: repose and restraint.

When the elevator doors open onto the 18th floor of the Prudential Insurance Co.'s Northeastern Home Office building in Prudential Center in Boston, the visitor can sense at once that this is no ordinary office. This is not the cliché reception area typical of American Big Business, which often resembles a surrealistic office seascape: the receptionist marooned at an island-like desk, the paired Barcelona chairs adrift amidst a sea of deep-pile carpeting stretching to a horizon fringed with *dracaena* palms, the corporate logotype gleaming in the distance like the strange sun of a new solar system. Rather, this space is one of startling gravity (but not starkness), admirable reserve (but not remoteness), and an altogether fitting (and unwittingly symbolic) expression of the weighty and fateful business that is conducted within.

Upon this rock

The reception area of the Prudential executive offices is as hard and uncompromising in its way as the insurer's actuarial table is in its: factual, unembellished, but in the end easier to accept for its clear, forthright expression. The floors, reception desk, and sarcophagus-like benches are all of the same unpolished Black Andes granite, exquisitely assembled with craftsmanship all too rare in the installation of stonework in this country. Walls separating the reception area from the corridors that surround it are mat-finished aluminum panel and dark gray solar glass (which appears variously reflective or transparent, depending on one's distance from it). The rather low ceiling is covered with the shiny,

The granitic elegance of the reception area is in marked contrast to many corporate offices.

perforated aluminum tiles that one had heretofore assumed to be copyright property of Gwathmey Siegel Architects.

But the most arresting element in that entry space is a sculpture, in Persian red travertine, by the American sculptor, Walter Dusenberry. Entitled *Porta Lucca,* and executed in 1967-68, the six-foot-high piece stands in rich contrast and striking counterpoint to the predominant material and coloration of the reception area. The Dusenberry fits in so well that it is impossible to think of a better choice. The sculpture's orthogonal form reinforces the architectonic nature of the space, the portal configuration of the piece suitable for a place of arrival and departure, its sensitive installation emphasizing the compositional relationships among the other freestanding elements in the entry area.

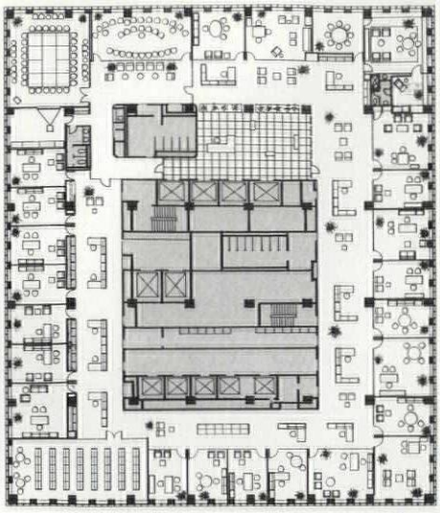
The low, rectangular granite benches are preferable to the absurdly deep and soft couches found in most business reception rooms, and the severity the benches possess is mollified by the office practice of quickly ushering visitors into inner waiting areas adjacent to the offices of the executives. The somber simplicity of the entrance is a welcome antidote to the conventions of corporate plush, and it is to be hoped that the inevitable suggestions to "soften" it—with carpeting, plants, or other furniture—will be sternly resisted.

Through a glass darkly

The outer ring of offices, occupied by executives of top-level managerial rank, faces the outer corridor with walls of mullionless gray glass, admitting some light and affording some privacy. Centered between those gray-glass outer office walls and the gray-painted walls of the core are the secretarial work stations, with their light oak desks, deep-gray metal filing cabinets, and elegant chrome-trimmed, linen-covered partitions. The work stations are flanked by aisles that separate them on one side from the core and on the other from the periphery, and those secretarial areas manage to seem unusually private for open-office components, yet connected to the larger design scheme in an integrated and coherent way.

The private offices on the 18th floor were designed individually in consultation with their future occupants. The furniture was selected from an excellent collection of modern high-design classics chosen by the Daroff office, and then installed in accordance with the work habits and arrangement preferences of each executive. The resultant effect, as one walks around the floor, is one of distinct personality within a system that avoids dogmatic impositions while still maintaining high de-

Solar glass wall (below) separates reception area from private offices (above).



EXECUTIVE FLOOR PLAN 20' 6m

Secretarial work stations (above) and executive office (below) share minimalist aesthetic.

sign standards. The neutral color scheme of gray, black, and white seems surprisingly rich when given that sense of variety, and the occasional reappearance of a piece of furniture here and there on the executive floor bespeaks unity of concept, and not mere repetition.

The only departure from the basic coloration of the project comes in the president's corner suite. Consisting of office, study, and conference room, these spaces share a reddish tonality: maroon fabric-covered walls in the conference room, warm wood-plank floors covered with a maroon carpet in the president's office, wooden shutters in office and study. One wall of the president's office is dominated by a vast 19th-Century oil painting of the Rock of Gibraltar—Prudential's symbol—and is the only piece of pre-modern art on the 18th floor. The artwork elsewhere in the executive offices is as intelligently selected as the furniture and gives the same sense of interrelated individuality as does the furniture. Selected from Prudential's permanent collection by the corporation's curatorial staff, under the supervision of Lois Dickson, Prudential's director of interior design, the works include oils, posters, and graphics by such artists as Jim Dine, Frank Stella, and Robert Motherwell. The art was chosen, as the furniture was, for each office by its occupant, and it was noted with some pleasure that a real interest (and a surprising adventurousness) was displayed in the allotment and arrangement of the pieces. As a result, they seem as much a personal expression as the furniture.

Rock of ages?

What the client wanted most of all in these offices was a design that could stand the test of time, both physically and stylistically. This is only the first renovation of the executive offices at Prudential Center since the building was completed 15 years ago, and the company's officers called for a scheme that could last at least as long again. They've probably gotten it. The whole question of "timelessness" is an extremely difficult one to predict, since the vagaries of taste, and not the inherent merit of any design, determine our perceptions of it after a given period of time. But it is safe to say that these offices stand an excellent chance of looking contemporary for much longer than the excessively showy and flashily obsolescent designs that are much more common in the business world than this low-key approach. If you were taking out a policy on the longevity of corporate office design today, it would be safe to say that Prudential seems like a pretty good risk. [Martin Filler]

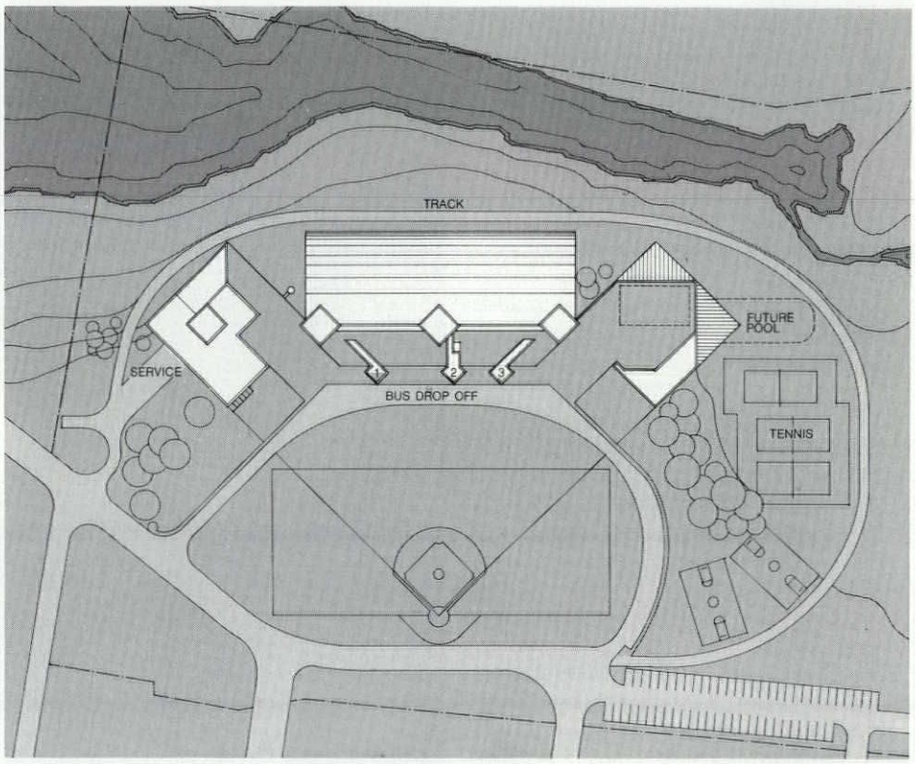
Data

Project: executive offices, Prudential Insurance Co. Northeastern Home Office building, Boston.
Interior Design: Daroff Design, Inc.
Architect: Hoyle, Doran & Berry, Inc.
Program: renovation of executive office floor for large insurance company.
Major materials: granite, solar glass, and aluminum panel walls; granite and carpeted floors; perforated aluminum tile and acoustical tile ceilings; fluorescent, incandescent, and accent lighting (see Building materials, p. 122).
Consultants: Lois Dickson (Prudential director of interior design), art.
General contractor: Sewell Contracting Corp.
Client: Prudential Insurance Co.
Cost: withheld at request of client.
Photography: Tom Crane

Jackie Robinson Middle School, New Haven, Ct

A light touch to learning

A new middle school designed by Stull Associates may dispel some notions about how "solid" a school should be.

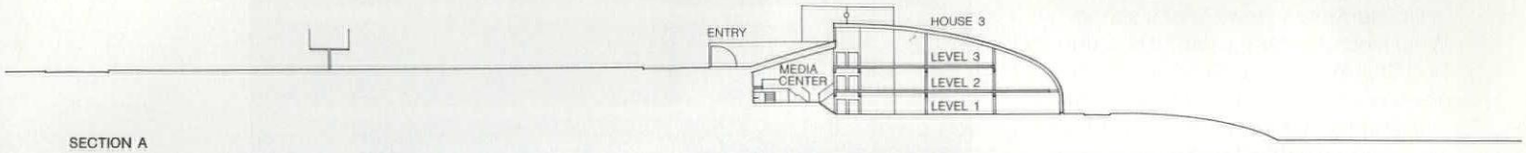


SITE PLAN

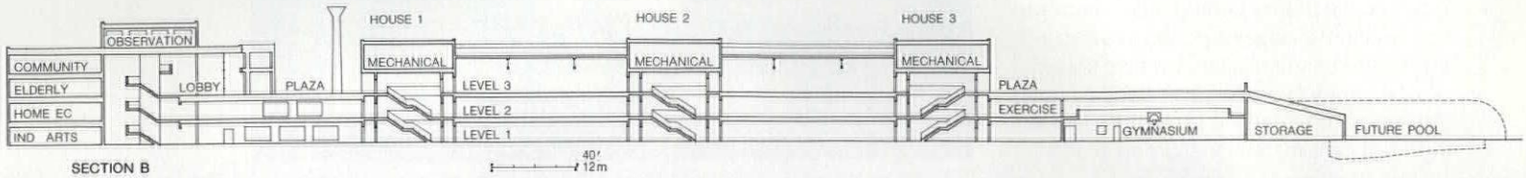
"You either love this place or hate it—there's no middle road," said one teacher recently of the Jackie Robinson Middle School in New Haven, Ct. She, however, was not speaking of the people who work in the building, of the students, or of the elderly people and preschool children who come from the community for a variety of daily programs. If any of them had problems with the building initially, they seem to have adjusted to them quite well after having been in it for a year now. Today, you would be hard pressed to find anyone critical of the building who is familiar with it. But there are still aspects of it that put some people off initially. One of them is not, surprisingly, its rather unconventional, space-age form of poured concrete, steel frame, and translucent acrylic skin. "The building evolved out of a long and deep involvement with the community," architect Don Stull notes, "and no one was surprised by the form that finally took shape."

What some people were disturbed by, and what still bothers some who come to the school for the first time, are its brightly painted, exposed ducts, its high-ceilinged spaces, and its sheer size. The first two problems, which are actually "compounded" by a profusion of natural light inside the almost totally translucent structure, are, by all accounts, rather quickly overcome and then even liked. The question of the building's size, however, seems not to be as quickly overcome, and this is particularly vexing to the architect. "We did a lot with the design of this school to break its mass down into small-scale elements," Stull notes, "and it's disturbing that some still perceive it as 'too big.' " But in fact, the building is big. Any 108,000-sq-ft (147,000 gross sq ft) building designed for 900 students that also includes spaces for neighborhood educational, recreational, service, and cultural activities would be. With such requirements any real sense of intimacy would be difficult, if not impossible. The real achievement here is that the place does not appear even larger than it is.

Although Stull had no voice in the selection of the site, he has used it to very good advantage to minimize the impact of the building's presence on its parklike setting and to take advantage of a quite attractive view to the east. The school is sited just over the edge of a drop in the land, and thus results in a structure that reveals only the highest of its three levels from the entry side. Three separate entry portals that extend from the front of the building identify the three houses that make up the school. From each entrance a skylit stair/bridge leads down through the upper reaches of a two-level underground media center that stretches across the front of the building. Each stair/bridge terminates at the middle level of the classroom portion of the building, where it provides direct access to its own house and to a major circulation spine, along which are located the three stair towers that serve the houses. Over this main classroom portion of the building, a roof of fiberglass-reinforced acrylic sheets gently curves down to meet the ground, and thus also becomes the back wall. All of the other walls on the backs and sides of the building are clad in the same



SECTION A



SECTION B

The school's three houses are identified by separate entrances and stair towers (bottom); most exterior walls and roofs are translucent (above).

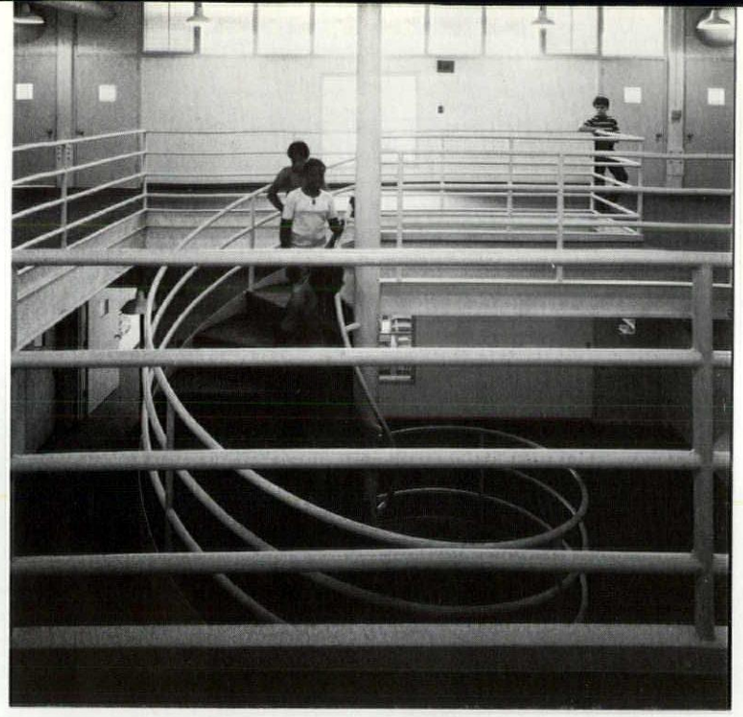
material and punctuated with horizontal bands of clear glazing that give uninterrupted views to the streams and marshland to the east.

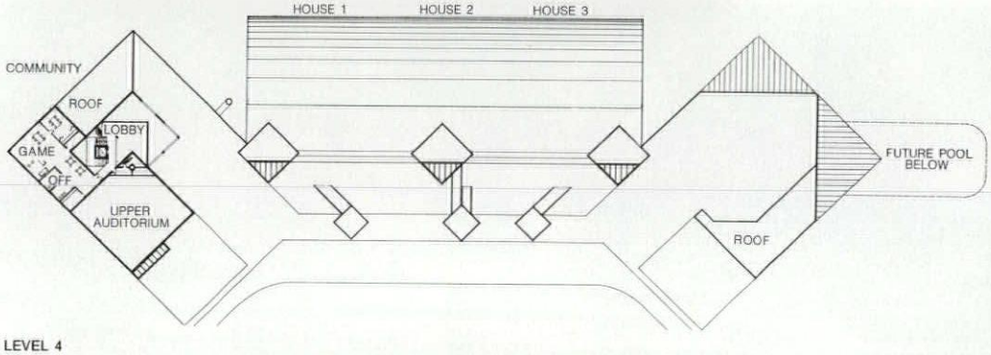
Uninterrupted views? For a school? What kind of heresy is this? It is a kind that Don Stull feels particularly strong about. "I never understood this fad for windowless classrooms," he says, "and never knew why children had to be shut up in prison-like spaces." He knows as well as anyone else that the theory behind this incarceration was that it was supposed to encourage better concentration. He also knows, as one hopes everyone else does by now, that school children will be better off when that idea joins institutional green in its final resting place.

Inside, a major circulation spine at each level gives direct access to the media center from each of the three "attached" houses. This same spine extends to the nonacademic, "detached" portions of the school, and thus becomes the major route for all activity throughout the building. To reinforce the idea of openness, there are few solid walls along the circulation spine in the academic portion of the building. Here, the major glass-and-metal-mullion partitions of each house are painted a different primary color to give further distinction to each unit.

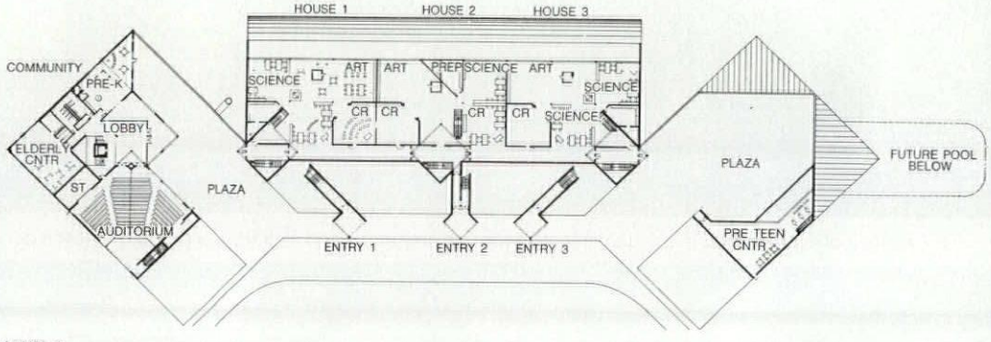
"I wanted this place to be as bright and light as possible," Stull says, "and that's what led us to the materials we chose. We wanted something that would allow maximum light, but that would also be shatterproof and fire-retardant, and that's why we decided on Kalwall for the skin. This building and the Kent State Art School (P/A, Feb. 1973, p. 66) are the two most effective applications of it so far; but at Kent it's used as an infill panel and here it's used as skin. That is how I see it, conceptually, because of its plastic quality, its ability to bend. Used as a panel material, it restricts you to a module, which I wanted to avoid."

Because of the extensive use of transparent and translucent materials, except at the solid entry façade, and the general feeling of openness and light inside the school, the building projects a general image of delicacy, or even fragility. Because it is not of the indestructible "bunker" type of school normally seen, but is in fact in direct opposition to that, one would imagine that this building would be less resistant to the typical problems of vandalism and graffiti that occur in most schools. But after a year's use, there has been almost no abuse of the building. Could it be that if we don't put children in schools designed as bare-bone bunkers they won't treat them as if they are? Jackie

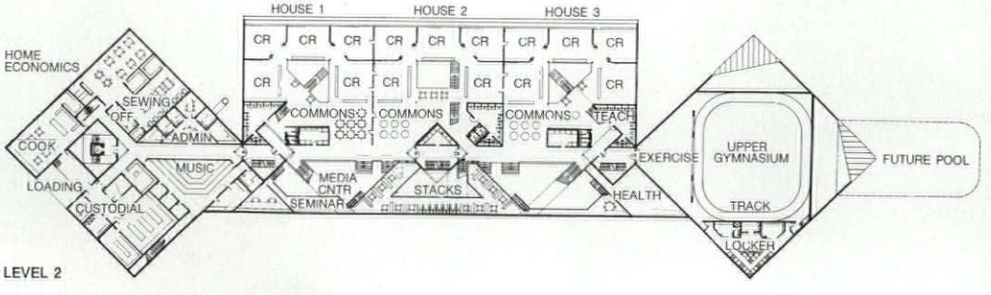




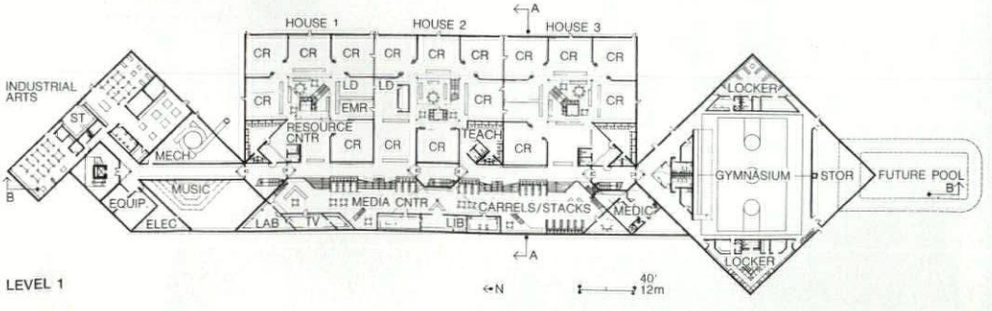
LEVEL 4



LEVEL 3



LEVEL 2



LEVEL 1

Because the school is clad in acrylic sheeting with banded windows on the translucent walls, it is especially bright inside, as seen in one of the classrooms (right) and in the arts and sciences instructional spaces at the third level (below). Spiral stairs (opposite) connect first two levels of academic classroom spaces.

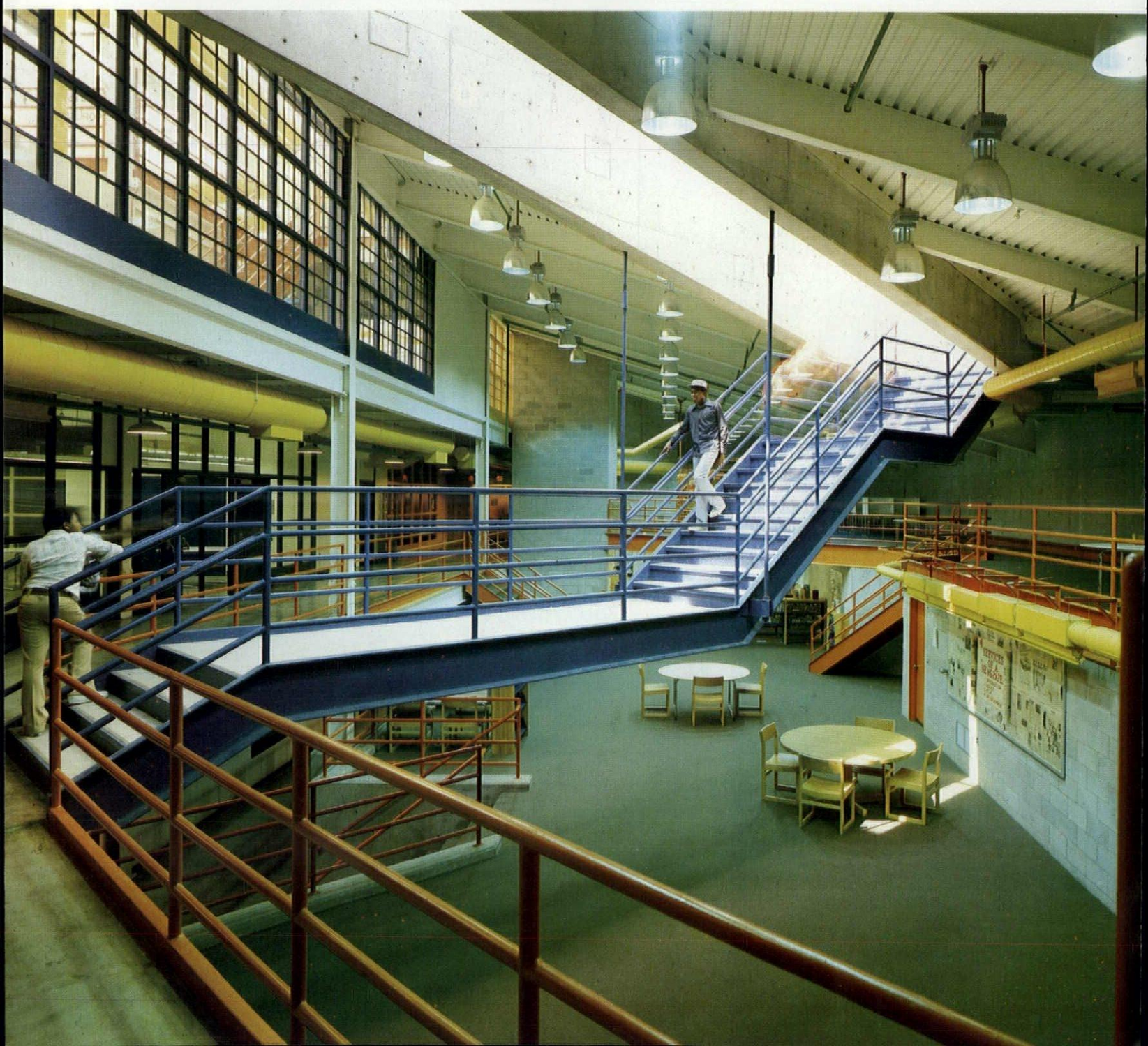
Jackie Robinson Middle School

Robinson Middle School is not in the most "delicate" neighborhood of New Haven, and it seems to suggest that if such an attitude toward a school building could work there, it might very probably work elsewhere. [David Morton]

Data

Project: Jackie Robinson Middle School, New Haven, Ct.
Architects: Stull Associates, Boston; Donald Stull, design director; David Lopatich, project director; Fred Warren, job captain; Barry Marukelli, Ivar Viehe-Naess, contract documentation and contract administration.
Program: middle school (grades 5 through 8) designed for 900 students, but also to be used by community and to include facilities for elderly and preschool children.
Site: school is sited on an embankment overlooking marshland in a 12-acre public open space within urban residential neighborhood.
Structural system: concrete foundation, steel frame, steel frame and concrete walls, metal deck and concrete floors, steel frame and concrete roof.
Mechanical system: gas-fired, variable volume, forced warm air via exposed metal ducts; chiller with rooftop condenser and air handling units via exposed metal ducts.
Major materials: translucent insulated acrylic exterior wall panels, gypsum board partitions, concrete block; prefinished aluminum windows; prefinished metal, wood, and rolling steel doors (see Building materials, p. 122).
Consultants: Dan Kiley & Partners, landscape; Stull Associates, interiors; E.J. Flynn Associates, mechanical; Ewell W. Finley P.C., structural; Lottero & Mason Associates, electrical.
General contractor: The Fusco-Amatruda Co.
Client: New Haven Public Schools.
Cost: $8,750,000; $64.00 per sq ft.
Photography: Norman McGrath.

Entry ramps (below) lead through the two-level media center to the middle level of each of the three houses within the 900-student school.



School safety down to earth

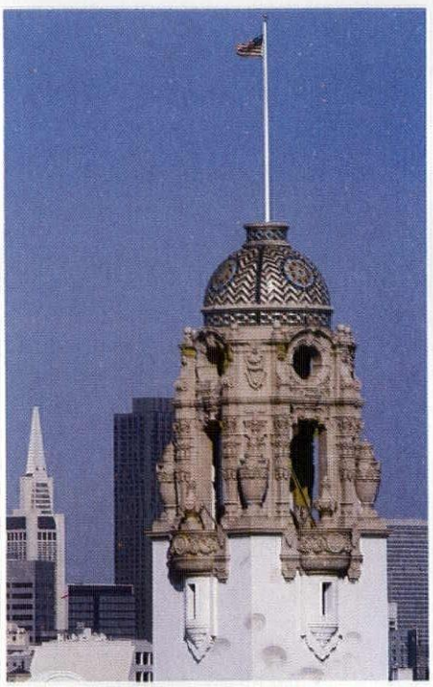
California's earthquake standards for its public schools, enacted in 1933, are only now being seriously enforced.

In a period of declining student enrollment and spiraling construction costs, school districts in the San Francisco Bay Area are finishing up a building program comparable to that of the boom era following World War II. Was this program caused by an upsurge of interest in the public school system? An educational reform movement? Alas, no. It was, undramatically, the result of long overdue enforcement of the 1933 Field Act, which set standards for public school construction to minimize the effects of earthquakes.

Actually, the delayed code enforcement was a blessing in disguise. Because of deteriorating urban school situations, building programs had dwindled to providing portables or trailers to needy schools. Only the issue of life safety could change this.

San Francisco and Oakland faced the task of rebuilding more than 40 percent of their schools, which range in age from 45 to 65 years. Had the structural issue been the only one, the program would have been shorter, possibly more efficient, and certainly less arduous for everyone involved. Instead, the issues were multiple and complex, and they differed from those of the past.

Today in an urban context, issues of historic preservation of some of these facilities posed problems. A majority of the noncomplying schools, built in the 1920s, were lavishly embellished with "falling hazards." These were the pieces of plaster and terra-cotta ornament of the exuberant neo-Churrigueresque style that proliferated in California after the 1915 Pan-Pacific Exposition. In San Francisco's most notable example of this style, Mission High School, all the architectural detail had to be removed and reset.



Rob Super

The terra-cotta ornament on San Francisco's Mission High School was removed and reset.

In new school construction, neighborhood compatibility was achieved both by intention and by a somewhat fortuitous combination of factors. Even with state financial aid, funds were insufficient for Type I—multistory, reinforced-concrete construction. For this reason architects were permitted to break precedent and use Type 5—steel or wood frame with wood or stucco exterior. Fire codes for Type 5 suggested a one- to two-story structure with outside corridors and open courts.

This positive view is the outsider's; the insider's view, from school district maintenance offices, is one which despairs for the future. Realistically, as officials point out, Type 5 construction belongs in the home and not in hard-used public buildings, such as schools.

The salient educational issue concerning the new schools was that of open planning for classroom space. From the state level on down to that of the up-to-date concerned parent, there has been increasing interest in the concept of classrooms without walls. To a greater or lesser degree the new schools express, architecturally, this educational innovation by being divided into "pods" composed of three or four flexible teaching stations and a service or work area. This format was supposedly accepted by site-planning committees, composed of school administrators, teachers, parents, and students, which represented majority views. In practice, teachers have been unenthusiastic about the liberating possibilities of the scheme. Noise, they maintain, is what is liberated. Teacher conservatism on this issue is a mixture of habit and teaching style. Those who enjoy team teaching welcome the change; those who are threatened by exposure cling to the idea of the homeroom as a definable, defensible space. At this point it appears that the conservatives have won; the walls remain in place.

In the planning phases, both cities displayed admirable determination to address user needs by intensive community participation programs and to find the best architects to design for them. However, the good feelings generated by these policies were severely eroded by the ruthless cuts of the budget committees.

In San Francisco about 50 schools have been involved in Field Act Construction programs; 15 schools are new. In Oakland, 30 of the 100 schools affected were replaced or remodeled; 12 are new. The 3 new schools presented here reflect the strengths and weaknesses of the programs. If any lesson has been spelled out, school-primer style, it is that public work is increasingly a gladiator's arena for the architect. [Sally Woodbridge]

Cabrillo Elementary School

Cabrillo Elementary School, completed in 1974 as the first of the new San Francisco schools, established the precedent for Type 5 construction, in this case steel frame and stucco walls. The white, rectangular box sits astride the block at the north end of the site, leaving an expanse of asphalt-topped playing field to the south. The narrow strip left over on the building's north side is occupied by a small outdoor amphitheater and an upper terrace shaded by two venerable pine trees.

The design program has a long and complicated history whose final sequence featured the community taking over the planning process, dismissing a previous architect, and hiring Marshall & Bowles. The old school was razed and the site enlarged by acquisition of adjacent residential property.

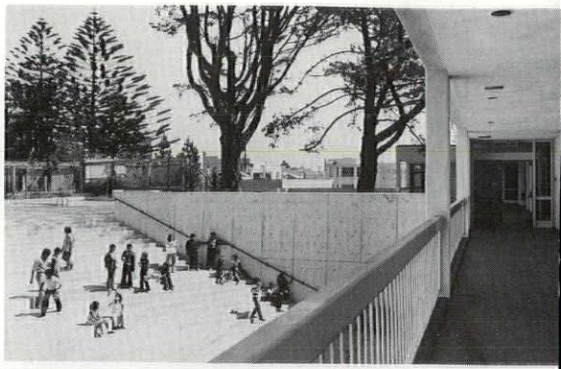
The community site committee favored the prevailing educational paradigm of the open-plan pod as the basic school unit. Working with this idea, the architects designed an independently functioning 15-ft module with integrated HVAC and lighting as the minimum spatial unit. Four of these modules make up a teaching station; there are three teaching stations plus a work center with toilet, stove, storage, counters, etc., in each pod. Lightweight, vinyl-covered panels form easily demountable walls. The idea was that the teachers, taking stock of their program, would arrange the space accordingly.

The resulting building is at home in a neighborhood also composed of light-colored stucco boxes. Exterior corridors give an appearance of openness which contrasts favorably with the prisonlike quality of the former school.

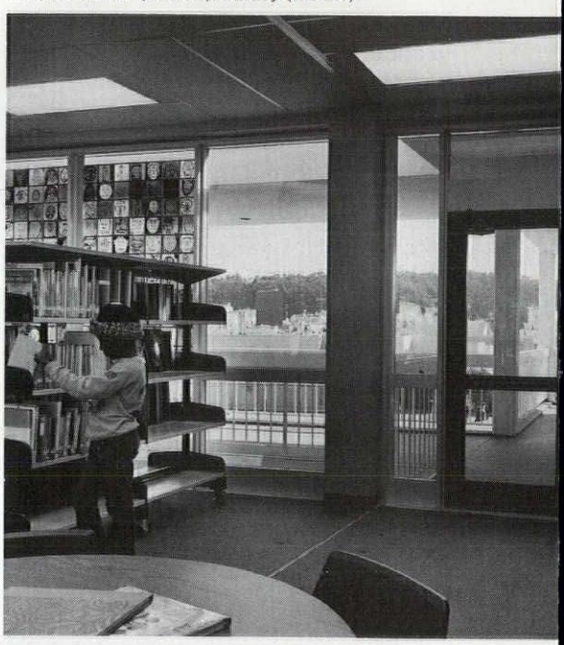
Inside, it is clear that every square foot was contested. The most obvious space compromise is on the east end of the building where an absence of vestibules and halls makes the visitor's experience of entering the school a bit like that of entering a motel office. Behind this administration section, the combined cafeteria/auditorium is a slice of space through the building which, though pleasant and cheery, has severe conflicts of use during inclement weather, of which there is plenty during the school year.

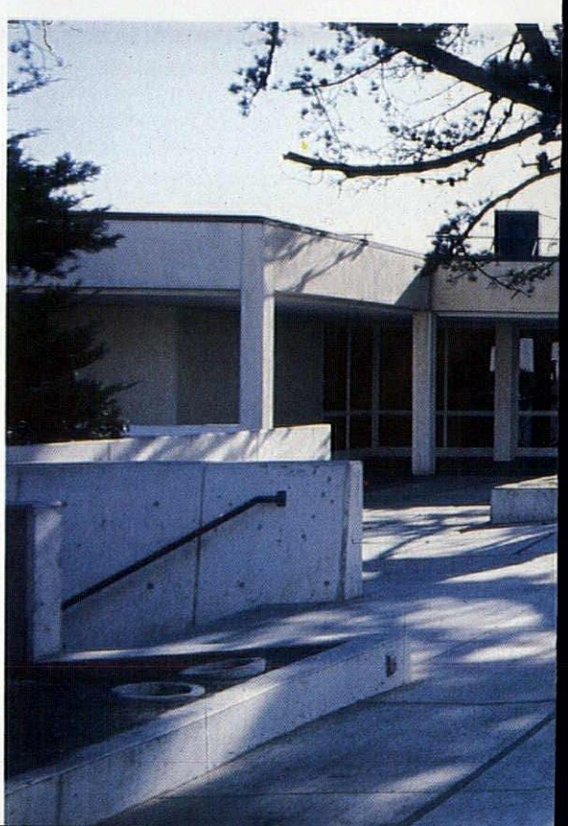
On the west side of the building the library and teaching pods are, again, pleasantly informal areas full of the kind of busy-bee clutter that seems right and familiar. In spite of the theoretical adoption of an open plan, the teaching arena is little changed. When asked why, the teachers respond with a lament for lost walls that has the ring of a pop refrain. Rather than as movable screens, the teachers view the partitions as walls that are too thin, whose tough surfaces resist tacks and staples but not noise. Only on the second floor in the pod adjoining the library have the walls disappeared. As the architects point out, the refusal to use the relatively expensive partitions as designed is particularly wasteful in this low-budget situation. Real walls would have been cheaper. But it is certainly unfair to ask teachers to give up walls when storage space is so inadequate that there is no place to stack unused books, papers, etc., except against walls.

Even the exterior openness of the school is somewhat compromised by the fact that standard-sized doors are all that open to the outside. Window sash are fixed, which seems foolish in San Francisco, where there is almost always a breeze. These paradoxical results of rigid specifications and inadequate funds are the cause of the architect's lament, no less poignant than the users'. Although good design has achieved much, the casual resemblance between today's new schools and motels does not bode well for the future.



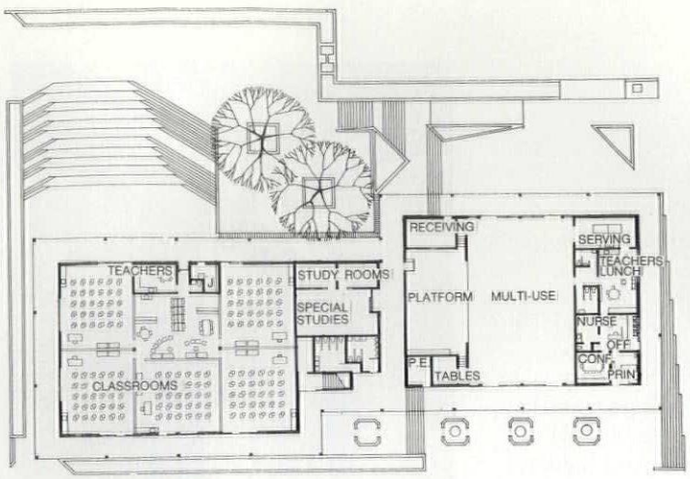
Amphitheater (above), library (below).



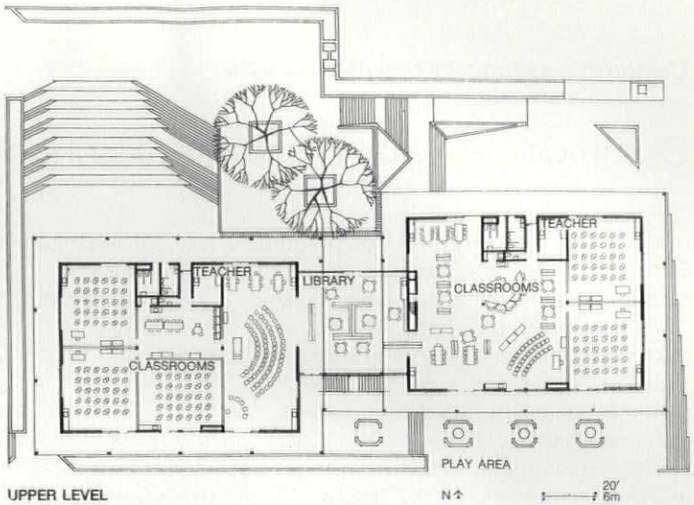


Data

Project: Cabrillo School, San Francisco, Ca.
Architects: Chester Bowles, Jr., Architect, Marshall & Bowles, San Francisco.
Program: earthquake-safe elementary school for 4–6 grade students.
Site: 1920s urban residential.
Structural system: foundation of concrete with spread footings and grade beams, braced-steel frame, composite concrete/steel deck.
Mechanical system: packaged rooftop AC units.
Major materials: concrete, steel, stucco on gypsum sheathing exterior walls, resawn fir plywood on gypsum board interior partitions (see Building materials, p. 122).
Consultants: Marshall & Bowles, landscape, interiors; Marion Cerbatos & Tomasi, mechanical; Forell/Elsesser, structural; Stanley H. Anderson, electrical; Hales Testing Labs., testing.
General contractor: S.J. Amoroso Const. Co.
Client: San Francisco Unified School District.
Cost: $1,281,000, $33.00 per sq ft.
Photography: Gerald Ratto, except bottom, p. 75, Rob Super.



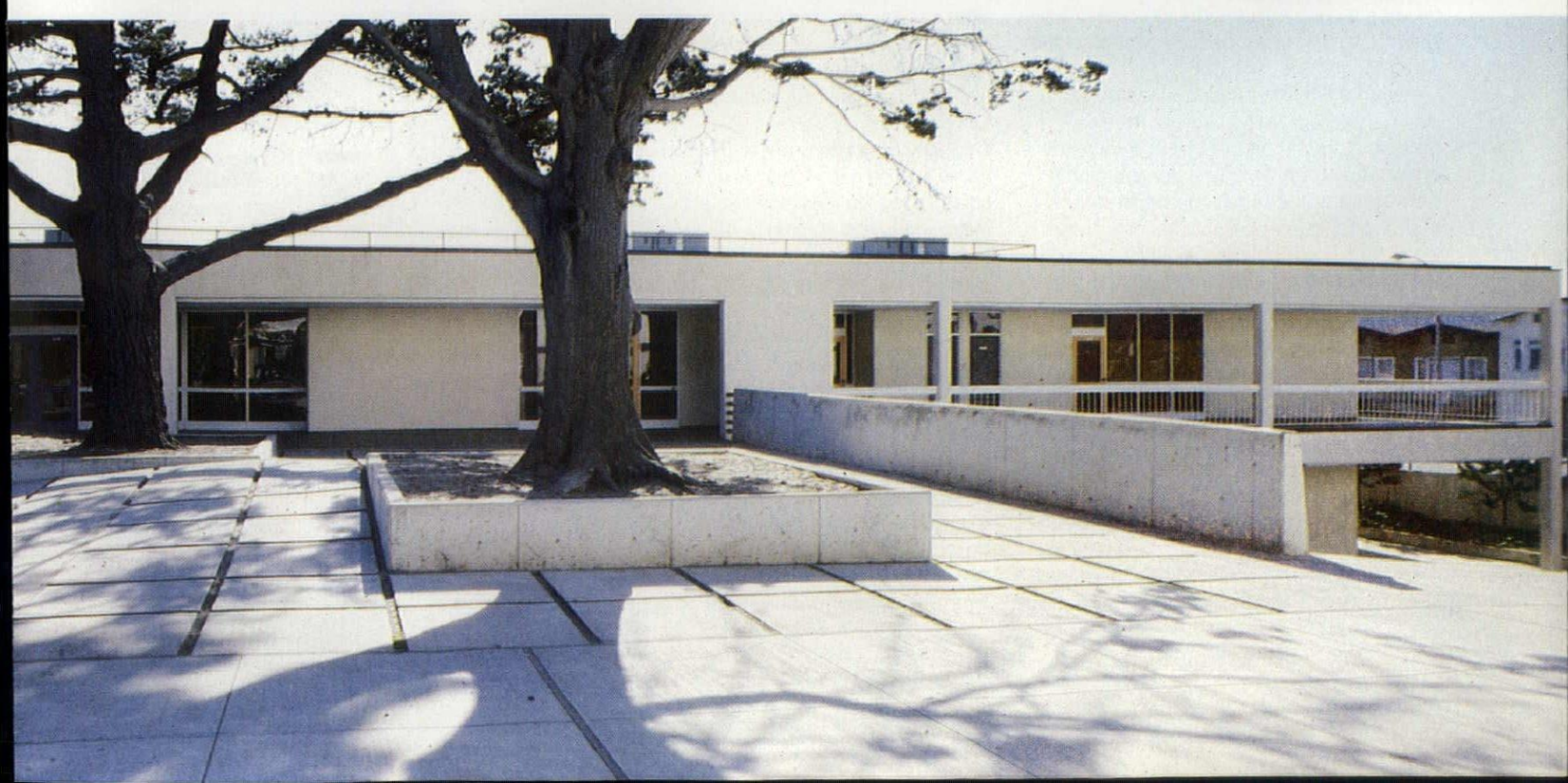
LOWER LEVEL



UPPER LEVEL

Cabrillo was the first school built to the earthquake standards, and it set the precedent for steel-frame and stucco-wall construction.

Most circulation throughout the school is by exterior corridor, seen at the north (bottom) and south (below) sides of the building.



Commodore Sloat Elementary School

Preparation for the design of Commodore Sloat Elementary School began with an elaborate "take-part" workshop held in 1974 in the existing building, which is soon to be partially or totally demolished. Because of its prominent location at one corner of a major five points intersection, the school had always been a showcase for the neighborhood. The pleasant, middle-class community did not want to lose a status symbol.

The workshop, based on the pioneering efforts of Lawrence Halprin and James Burns, was designed to make even those who had a day-by-day familiarity with the building as teachers, administrators, or students look at it with fresh and critical eyes. The two-day session involved participants, including community representatives, in such exercises as awareness walks and group planning sessions. Notebooks were filled. Even the indifferent got involved.

What evolved thereafter was a design that responded with sensitivity to both outside and inside community needs and desires. The most striking thing about the product is its enhancement of the existing architectural context. By preserving the old cafeteria section and auditorium as a frontispiece, the school continues its relationship with a Christian Science church of the same vintage on a neighboring site. The Mediterranean and Moderne styles of the buildings on the other intersection corners are echoed in the circles and arches of the new structure. Stepping up the hill in one-story increments, the new section contributes a crisp and playful modernity while extending the urban design context of the whole.

Within the new block, the classroom pods are structurally discrete from each other and from the older, front part which is the space shared with the community. A network of arcades ties the parts of the building together and shades classroom windows. The building's main path leads from the entrance past the administration section, the teacher's lounge, and the auditorium, and turns the corner into the central court off the cafeteria. This space, filled at lunchtime, is available for a variety of events. From it ramps lead to the media center, to the playground, and to another landscaped court on the east side.

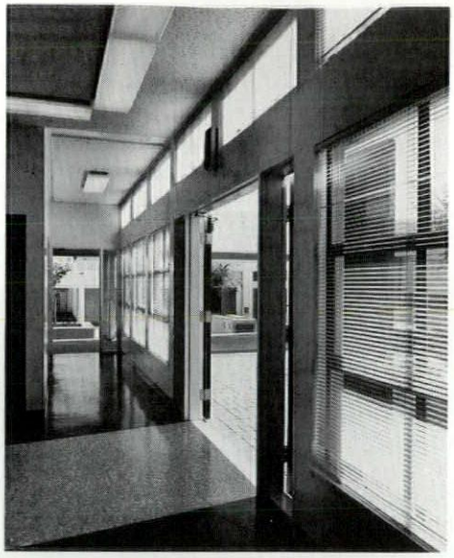
From the court and from several vantage points around it, there are diagonal views through the complex which increase the sense of spatial flow and clarify the plan. This openness is much valued by teachers and administrators who must supervise the school area.

The media center itself is visually and functionally successful. A largely undifferentiated space is ordered by a strong techtonic treatment of the bay ceilings. In one corner a stepped, carpeted area for telling stories has a child-height keyhole door. Two round, stained-glass windows by local artist Narcissus Quagliata, depicting the sun and moon, strike a rare note of elegance in the otherwise spartan public school scene.

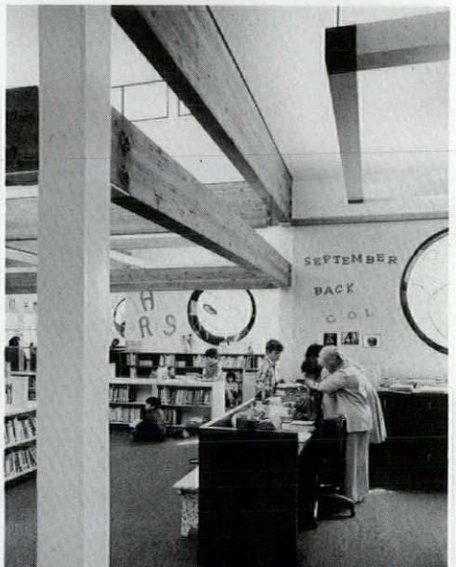
The classroom blocks or pods have more or less the same format here as at Cabrillo (p. 74), with flexible modular teaching stations and a shared work or service area. Resistance to demounting walls is evident here too; shelves and stacks of supplies are usually set against them. But other innovative elements, such as the shared work areas, appear to work well, while the outdoor classroom/courts offer the kind of alternative space that is particularly appropriate in this climate, fog notwithstanding.

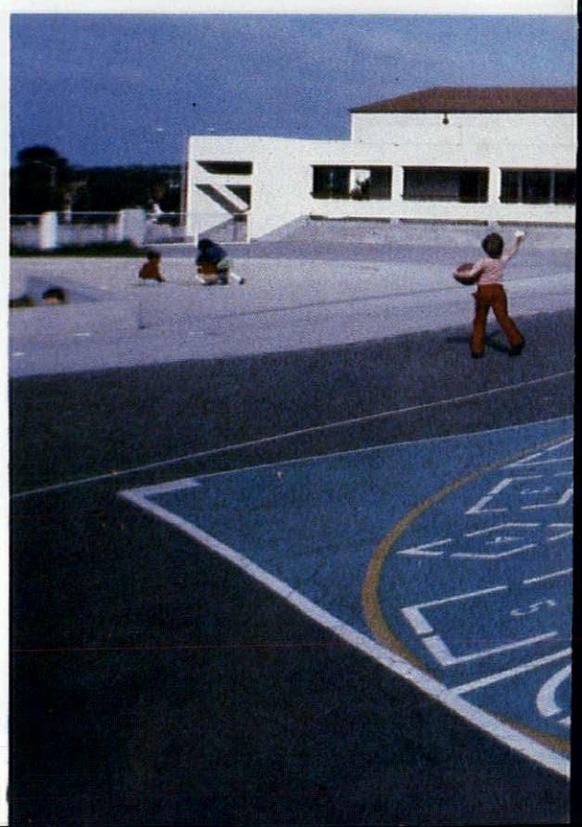
Data

Project: Commodore Sloat School, San Francisco, Ca.
Architects: Marquis Associates, San Francisco, J. Peter Winkelstein, principal in charge; Cathy Simon, project architect; Malcolm MacKenzie, project staff.
Program: earthquake-safe elementary school for K–6 grade students, auditorium and cafeteria of 1921 demolished facility to be saved for community uses.
Site: an urban residential block surrounded by mostly neo-Spanish one-family houses.
Structural system: slab-on-grade foundation, exposed steel columns, conventional wood frame.
Mechanical system: rooftop mounted multizone heating and ventilating units, individually controlled by zone based on solar orientation.
Major materials: concrete, steel, wood, laminated beams, stucco-on-wood exterior walls, gypsum-board interior partitions (see Building materials, p. 122).
Consultants: CHNMB Assocs. (John Anderson), landscape; Marquis Assocs., interiors; Montgomery & Roberts (Rodney Roberts), mechanical; Forell/Elsesser (Eric Elsesser), structural; Marjorie Spiegelman, graphics.
General contractor: joint venture of S. J. Amoroso Construction/Trans-California Corp.
Client: San Francisco Unified School District.
Cost: $2,377,811, $53.01 per sq ft.
Photography: Marquis Assocs., except top, p. 76, Philip Molten; bottom, p. 77, Rob Super.



Corridor (above), classroom (below).

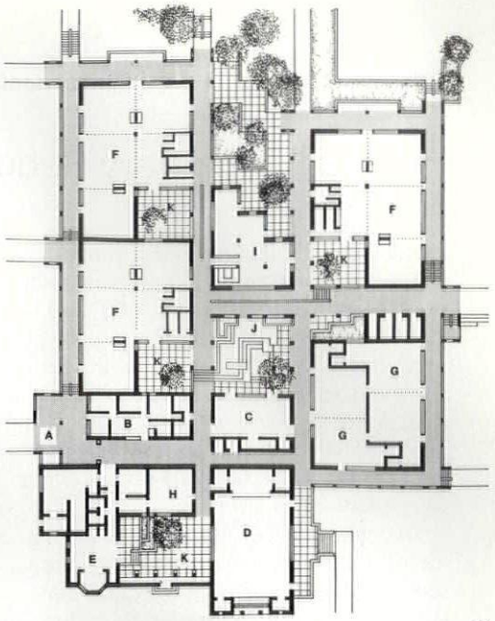




New additions to the Sloat school echo earlier building styles in its surroundings. The old auditorium and cafeteria wing (below) will remain. A network of arcades and courtyards ties the old and new parts of the building together.

Legend

A Entrance
B Administration
C Cafeteria
D Auditorium
E Faculty lounge
F Classroom blocks
G Kindergartens
H Special classes
I Media center
J Central court
K Courtyards



PLAN N 20' 6m

California's earthquake-resistant schools

Peralta Elementary School

Peralta Elementary School is a smart, crisp, low-profile complex of boxes which are standard relocatable 12′ x 60′ and 12′ x 56′ steel-framed units. The building straddles the site, acting as a buffer between an active play area on one side and an outdoor teaching area on the other. The site is constricted and cut into by residential properties; one finds the school almost by chance.

That the school exists at all is a victory for the local community. School Superintendent Marcus Foster had argued that small schools were a fiscal drain on the district, that Peralta's 87 percent black student body had passed the point of no return for reintegration, that the school's enrollment was falling. In a whirlwind of activity, a small group of parents challenged all this by organizing a majority of parents to call for a year-round curriculum, open enrollment, and a new, earthquake-safe school. They came up with the idea of a relocatable building in case Foster's predictions turned out to be true. The superintendent was won over, but the fight broke four principals in 18 months.

The program worked out by the architects and the site committee called for three semiopen plan pods to house the equivalent of three K–1 classes, three 2–3 classes, and three 4–5 classes. Because the school operates year round, the staff rotates in a cycle of nine weeks teaching and three weeks vacation. The teachers are nomads who move about the building storing their props when they are off duty. Their students spend the vacation in a separate classroom structure called "Intersession."

Additional requirements for space were for administrative services, part-time nurse, psychologist, and music instructor, and a multipurpose room for lunch, assembly, and community use. As worked out in the plan, the multiuse room is housed in a box which forms one side of an inner court. Originally the courtside wall of the multiuse room was to be demountable so that the stage inside would be available for the outdoor amphitheater.

The landscape budget was spent in the outdoor area adjacent to the smaller classrooms to provide a much-needed breathing space. Russ Ellis, U.C. Berkeley Sociologist who served as consultant for the architects to the school, remarked, "In the land of stone-ground whole-grained redwood values, the Astroturf in the outdoor teaching areas was courageously conceived and supported by the site committee. These spaces take pressure off the classroom activity, and the kids enjoy the artificial surface immensely."

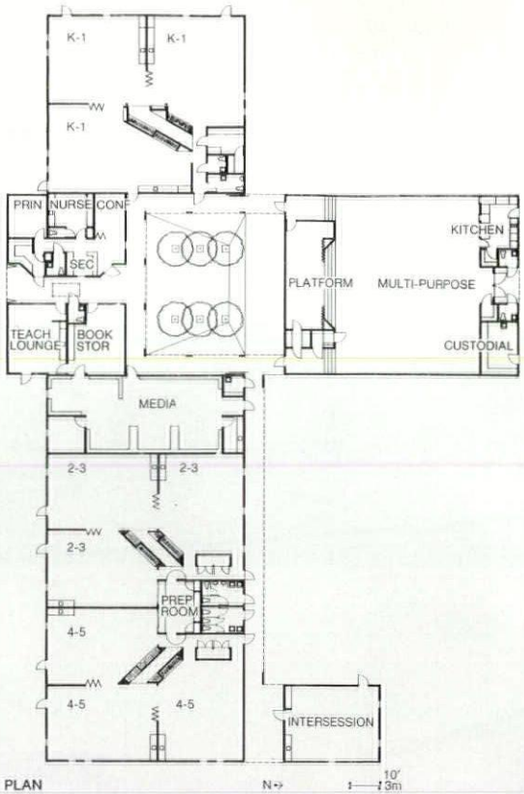
Still, the use of artificial grass is ominous, not so much because of its ersatz quality, but because it indicates the bare-bones nature of the budget as a whole. To quote again from Ellis's report on the school, "Public school districts get a good deal of strength from being permanently broke. This does protect them from the excesses of architects and others who want their money. While the Oakland school district was exemplary in its encouragement of real user participation in planning and design, it sure was mean with the money!" One result was that steel frames were filled in with stained, scored plywood with white painted trim and closure panels over the 12-ft module joints. Can plywood be expected to survive in any public facility that gets hard, continuous use? Neither the architects nor Dr. Don Cruse, administrative director of capital planning and construction for the district, thinks so. Given their agreement, why did it happen?

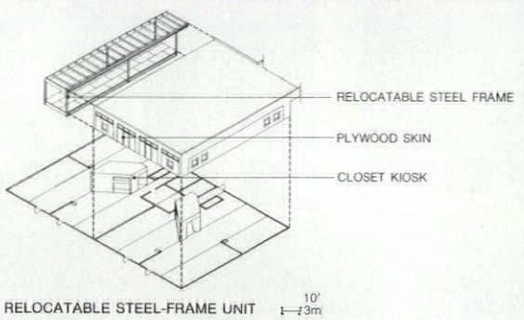
The cause is no surprise. School districts were dependent on state aid to carry out their building program. But the amount of aid available precluded doing the job well. In such a situation, the architects' task was heroic.

The design solution was to create an immutable grid inside the pod in which all the cheap, standard components—wallboard, T-bar ceiling, blackboard, tackboard—could be integrated in an orderly way. Second, areas for different age groups were distinguished from each other by colors. Third, the grid was broken to create a change of pace by the use of large-scale elements such as freestanding closet/hallways. In contrast to the jointed quality of the spaces controlled by the grid, these areas were plastered smooth.

Bifold partitions between these diagonal elements and the exterior walls make a flexible space arrangement possible. But even in these much more restricted spatial units, the teachers have declined the opportunity.

Issues of insufficient storage space and noise have been absorbed by the larger problems of maintenance and physical survival. "You see," says the principal with a wave of her arm, "these are nothing but glorified trailers." And yet an environment has been created here that is as positive as ingenuity and tender loving care could create, given little more than bright colors to work with.

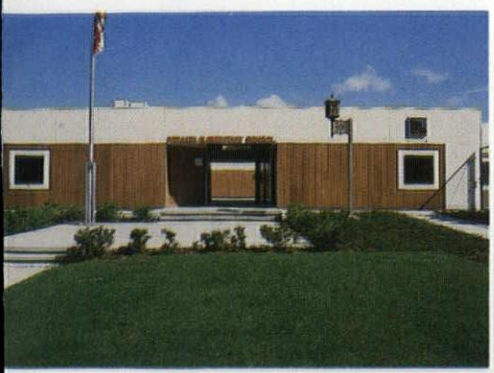


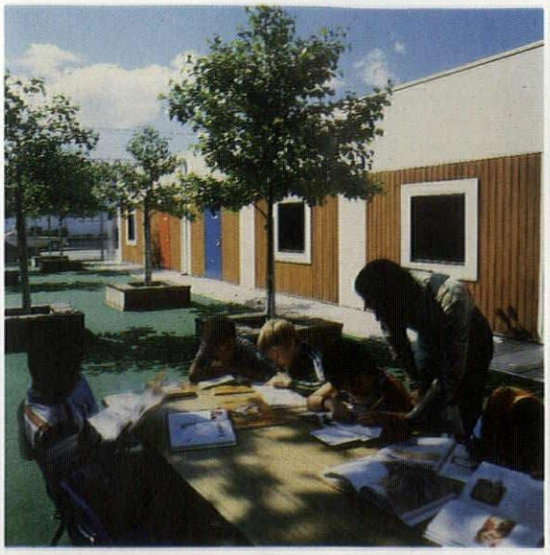


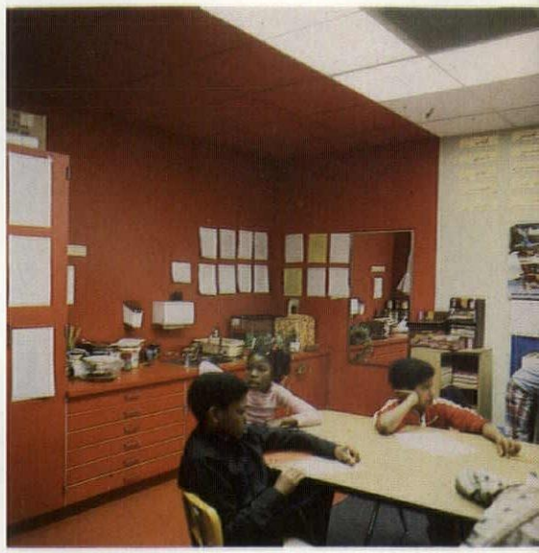
Data

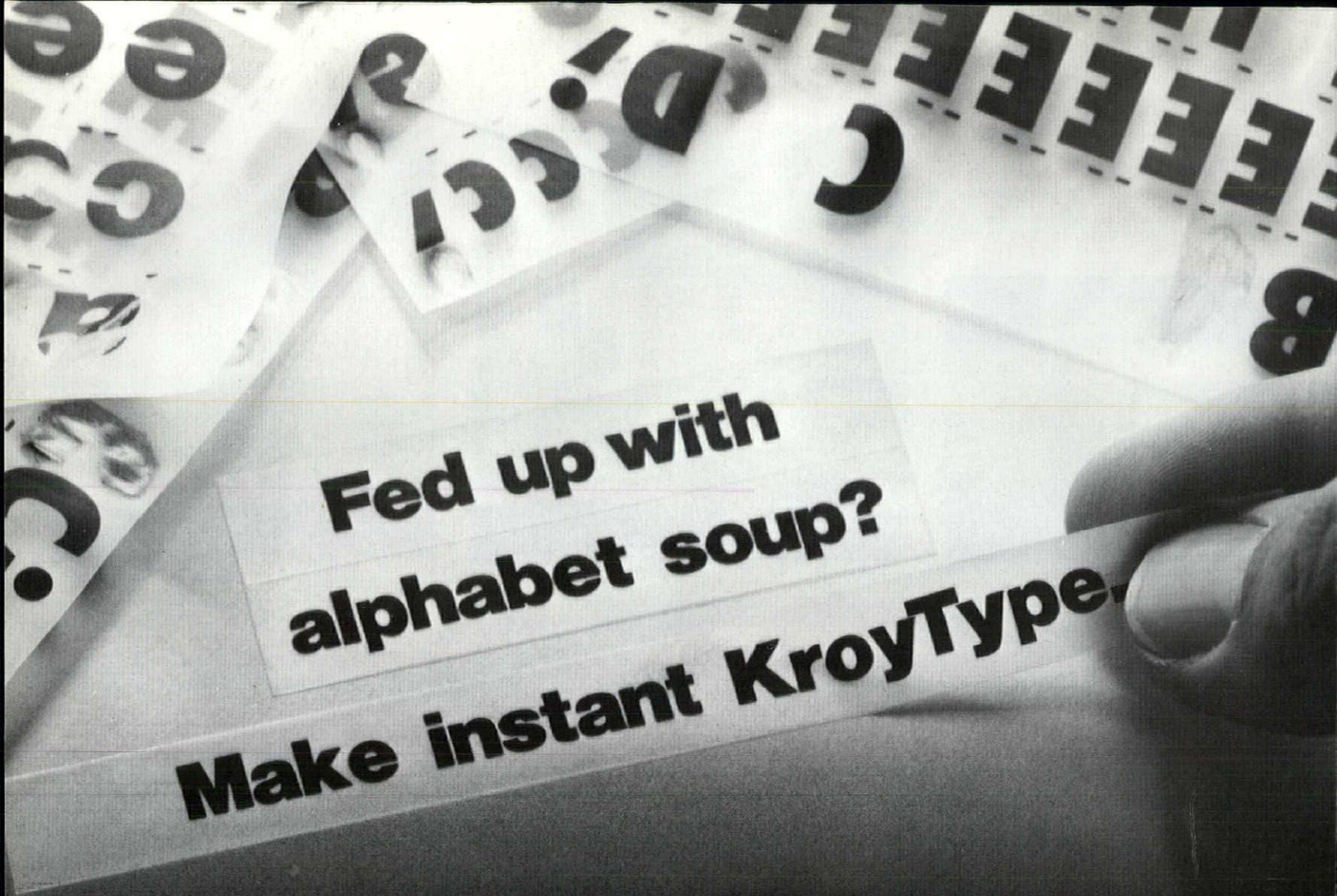
Project: Peralta Elementary School, Oakland.
Architects: joint venture of Kirby Ward Fitzpatrick, Daniel Solomon, Karren & Seals, San Francisco; principal in charge, Daniel Solomon; job captain, Roland Lazzorotto.
Program: earthquake-safe elementary school for 325 K–5 students. The year-round school is organized into semi-open plan pods that are fully relocatable.
Site: low-scale residential neighborhood.
Structural system: poured-in-place concrete foundation, relocatable rigid steel framing.
Mechanical system: rooftop heating and cooling units.
Major materials: steel frame, wood or mortar studs, plywood roof and floor on steel joists, vinyl-wrapped gypsum board, imperial plaster (see Building materials, p. 122).
Consultants: Max A. Schardt, landscape; David E. Ovendon & Assocs., electrical; William Russell Ellis, programming.
General contractor: Wesley Thomas Co.
Client: Oakland Unified School District.
Cost: $920,000; $45.00 per sq ft.
Photography: Joshua Freiwald.

Peralta school is a complex of standard, relocatable steel-frame units that straddle the site and wind around residential properties. Stage in multipurpose room (bottom) was to be accessible to outdoors, but budget cut gave it fixed walls.









Press-on letters may be good and cheap.

But they're also good and messy.

Too many of some letters. Not enough of others. Never the ones you want when you need them most.

KroyType™ gets you out of the soup. Instantly.

You set KroyType on an adhesive backed, repositionable tape. Placement is quick, dry. Automatically spaced and aligned by the Kroy Lettering Machine in a variety of type styles and sizes. And similar in cost to press-on letters. Just 3¢ an inch.

Just what you need for callouts, title block data and presentation drawings. Compatible with all equipment used for blueline reproduction.

Take a few minutes to talk type with a Kroy representative. We'll fill you in on KroyType.

PHONE 800-328-1306 TOLL FREE

(In Minnesota, call 612-770-6176.) Or circle the reader service number. We'll send you our new KroyType brochure. Free!

Circle **No. 333,** on Reader Service Card

kroy

KROY INDUSTRIES INC.
GRAPHIC SYSTEMS DIVISION
1728 Gervais Avenue
St. Paul, MN 55109

CARPET BEAUTY THAT LASTS!

The carpet shown here is "IRONCLAD" by Patcraft made of Zeflon 500™ Solution Dyed Nylon that locks colors into the fiber so they won't fade or streak. The dye lots match exactly... The rich, heathery pile... mellow and slightly textured... creates a luxurious wool-like look.

IRONCLAD is permanently shock resistant and soil repellent. It carries a 5-year wear warranty... a life-long Zefstat® anti-shock warranty... a Performance Certification label... and comes in plain colors and handsome coordinated stripes.

Available with
Du Pont TEFLON
carpet protector

...and that's what makes it a PATCRAFT CARPET!

DOW BADISCHE

Zeflon 500™ is a trademark of Dow Badische Company.
Zefstat® is a registered trademark of Dow Badische Company.

Patcraft
MILLS INC.
Box 1087 • Dalton, Ga. 30720

INTRODUCING TUFFAK® CM-2 THE MOST WEATHERABLE POLYCARBONATE PLASTIC SHEET YOU CAN BUY

Also Featuring Outstanding Abrasion Resistance and Virtual Unbreakability
New TUFFAK CM-2 from Rohm and Haas Company has a clear, hard coating that offers the following advantages over any other coated polycarbonate on the market:

- **Retains its abrasion resistance longer**
- **Provides greater resistance to the effects of ultraviolet rays**
- **Preserves its chemical resistance longer**
- **Has greater resistance to delamination**
- **Retains superior optics over time**

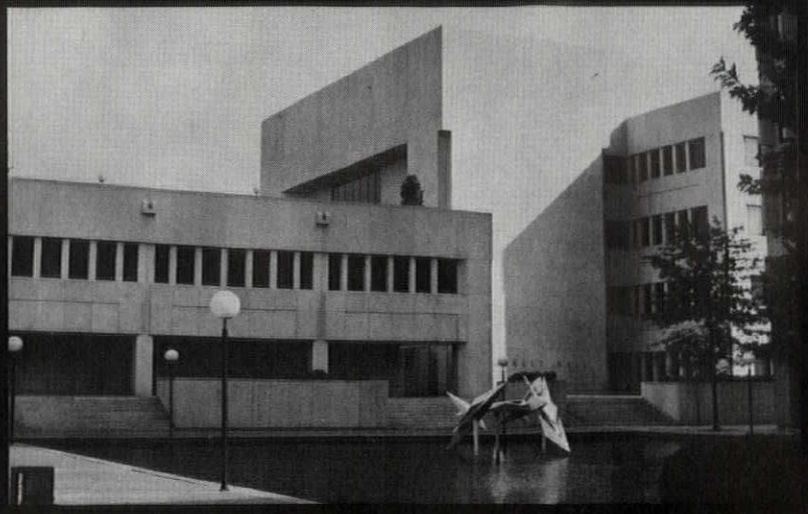
This weatherable coating has virtually no adverse effect on the impact strength of the polycarbonate substrate. TUFFAK CM-2 meets the impact requirements of Underwriters' Laboratories for burglary-resistant glazing. What's more, TUFFAK CM-2 meets the requirements of a safety glazing material as defined by the Consumer Product Safety Commission's Architectural Glazing Materials Safety Standard (16 CFR 1201), Categories I and II, and the requirements for light-transmitting plastics under building codes.

A comprehensive, illustrated brochure provides full details on new TUFFAK CM-2, the most weatherable polycarbonate available today. To receive your free copy, circle the reader service card number.

ROHM AND HAAS
PHILADELPHIA, PA. 19105
In Canada: West Hill, Ontario M1E 3T9

Tuffak® *CM-2*
THE POLYCARBONATE FOR ALL SEASONS

TUFFAK polycarbonate is a combustible thermoplastic. Observe fire precautions appropriate for comparable forms of wood. For building uses, check code approvals. Access panels may be required for evacuation and venting of rooms glazed with TUFFAK. Avoid exposure to heat or aromatic solvents. Clean with soap and water. Avoid abrasives.



drama in stone

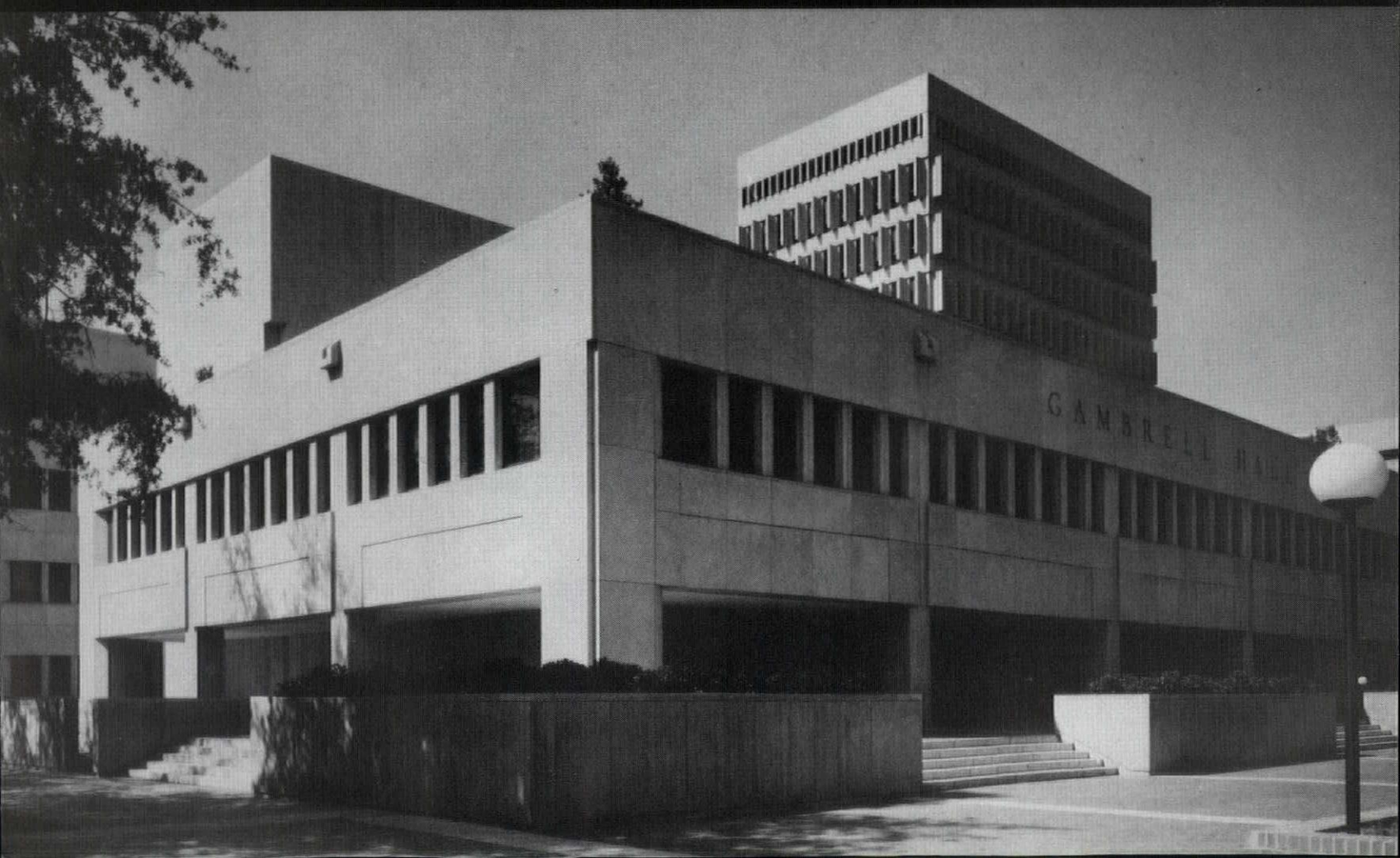
Gambrell Hall, University of South Carolina

The distinctiveness of Gambrell Hall — five stories of classrooms and offices for the department of History and Government and International studies — is matched only by the incredible speed of construction required for the University's 150th anniversary.

Indiana Limestone was used to design Gambrell Hall into the rest of the campus. Natural stone, with its sharp edge — enforced the clarity of outline and surface texture and produced a striking linear design. In addition, a structure with important savings in building time and money was erected.

Architects • Engineers • Planners: J. E. Sirrine Co., Greenville, S.C.

Building Stone Institute • 420 Lexington Avenue, New York, NY 10017 Circle No. 374



The way we teach masonry says a lot about the way we build with masonry.

Twenty-two years ago Gerrard Jenniges* was an apprentice mason—and a good one, good enough to win the National Apprentice Championship. Now, he's repaying the last generation of craftsmen—who taught him his skills—by teaching the next.

Jenniges is imparting his knowledge and experience to two young apprentices—David Sweitzer (left), his employer's son, and Paul Pfutzenreuter, son of the man who taught Jenniges his trade more than two decades ago.

The masonry industry makes craftsmen the way it makes buildings—one at a time, by hand, with skill, care and pride. It's those qualities that keep masonry the most economical of building materials, and have kept it competitive in an increasingly mechanized world.

Jenniges sees the national energy crisis causing more and more architects, engineers, builders and owners to turn to masonry, which means an even brighter future for masonry craftsmen. "It's the best way you can build," he says. "My apprentices have years of steady work ahead of them." Jenniges adds: "There are so many different masonry materials to work with. Not just the hundreds of varieties and sizes of brick and concrete block, but stone, marble, ceramic tile, terrazzo, mosaics, and plaster. You have to work hard at this trade, but when you finish a building, you can turn around, look at it and say, 'I had a hand in that building and I'm proud of it.'

"In a way, that's how I'd like to feel about my apprentices years from now—that I had a hand in making them skilled craftsmen, and I'll be as proud of them as I am of any building I've worked on."

There are hundreds of reasons why your next building should be masonry. Among the best reasons are the masonry craftsmen themselves—people who devote their working lives to constructing good buildings, and are equally dedicated to making the next generation of masons even better than the present one.

The best materials, the finest craftsmanship: That's a winning combination. If you want that winning combination working for *you* in your next building project, all you have to do is make sure it's a masonry building.

Craftsmen: The Heart and Hands of Masonry.

International Masonry Institute
(The Bricklayers' International Union and the Mason Contractors of the U.S. and Canada)
823 15th Street, N.W., Suite 1001
Washington, D.C. 20005
(202) 783-3908

Circle No. 330, on Reader Service Card

*Member, Local 1, Minneapolis, Minn., International Union of Bricklayers and Allied Craftsmen.

Using section 01010 summary of work

William T. Lohmann

The means of effectively coordinating the construction work of all size projects is found in the keystone of Division 1.

Probably the most important development in specification writing within memory was the introduction of the CSI 16-Division Format in 1963 by the Construction Specifications Institute. It filled an embarrassing void in contract document organization and is now a construction industry standard throughout the United States and Canada.

CSI's concept of Division 1—General Requirements is a logical location for administrative items, procedural matters, and temporary construction facilities. Supporting that concept is the keystone of Division 1—the section called "Summary of Work." It has been assigned the impressive number 01010 in the "Masterformat—Master List of Section Titles and Numbers" (June 1978), a joint publication of CSI and Construction Specifications Canada. It contains the most basic information in the contract documents. CSI's Document 01010 "Specifying: Summary of Work" (April 1978), part of its new Division 1 Master Guide Specification Series, describes the nine major articles recommended for Section 01010. Only the first two are considered mandatory for all projects. The other seven articles are optional and may not pertain to every project.

Work Covered by Contract Documents. The first article officially identifies the project by title and locates the site geographically. The type of work is described (general construction, renovation, demolition, landscaping). Cross-references point to related information in other parts of the contract documents.

Contracts. The second article establishes the type of contract(s) which will be awarded for the work described in the documents. A single contract will usually be on a fixed sum, cost plus fee, or unit price basis. If the work is to be done under multiple contracts, the scope of work under each contract should be defined by reference to applicable sections of the specifications. Separate contracts, which will be assigned to a prime contractor by the owner, are defined in the same manner.

Work by Others. If parts of the work are being awarded under separate contracts which are described in other documents, they should be explained for the benefit of the contractor. He may be required to coordinate his work with conditions established prior to his arrival on the job site. He may also have to prepare for subsequent work by others.

Future Work. When the project contains provisions for additional facilities, modifications, new equipment, and other future work, the contractor should be alerted. He should be cautioned against encroachment into areas destined for future work. Structural connections, knockout panels, utility services, site preparation, and other similar considerations should be specified in the appropriate sections in Divisions 2–16 and cross-referenced in Section 01010.

Work Sequence. Phasing of portions of the work is often important when the owner will continue to occupy the site during construction. Other concurrent work and need for public access may also affect sequence of the contractor's operations. If they are critical, dates for starting and completing each phase should be listed.

Contractor's Use of Premises. The contractor should know if he has unrestricted use of the site. Limitations, such as public access, owner's use, cramped or nonexistent storage facilities, and the work of other contractors, will affect his costs and operations.

Owner Occupancy. Provisions must sometimes be made for the owner's occupancy during construction or for early completion of portions of the project for the owner's use. The article must describe access to the occupied areas, parking, use of elevators, cost of utilities, security, maintenance, insurance, and other requirements. If several areas are designated for early occupancy, mandatory completion dates should be established.

Preordered Products. When the owner has preordered certain products, for subsequent purchase and installation by the contractor, the products should be identified and cross-referenced to the sections in which they are specified. A copy of each purchase agreement should be similarly identified and bound in the project manual after Section 01010.

Owner-Furnished Products. Products which the owner will furnish and pay for must also be identified and cross-referenced to the appropriate specification section. In addition, the article should also clearly define the owner's responsibilities for shop drawings, delivery to the site, damaged items, and warranties as well as the contractor's responsibilities for receipt, protection, and installation of the products.

Master text for Section 01010 "Summary of Work" is available through the PSAE Masterspec system and from CSI's Comspec program. The latter is presently geared for single contract work only, but a multiple contract version is forthcoming.

Author: William T. Lohmann, AIA, FCSI, is Chief Specifier for C.F. Murphy Associates, Chicago, Illinois.

Innovation in masonry

Masonry technology is having new ideas while masonry research is testing them. As the walls are ever growing in height, designers give them strength and beauty.

The roots of architecture are made of clay. Brick was the first building material produced by man by adding ingredients together instead of hacking unwanted material away. A modern mason takes pride in adding another brick or concrete block to a wall idea that goes back to the walls of Jericho and endures in the pyramids or the Great Wall of China. End to end and row upon row, masonry has a logic so simple children can use it.

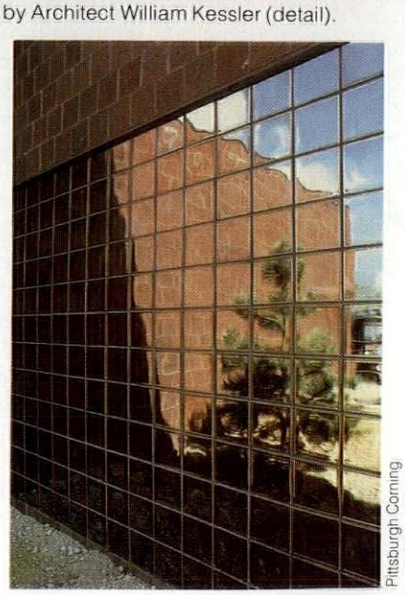
A masonry wall cannot be separated from the man who builds it. It is unique. The units are of the land—clay, gravel, and rock. Its design responds to the natural forces and its detailing respects the weather. The technology of masonry, therefore, provides a challenge. Steeped in tradition and timeless constants, each problem demands new valid variations.

Ideas in masonry ripple through the fabric of its technology. They may originate in the earth materials and pass through the manufacturer to the units and construction of the walls, or begin in the factory, later to be inherited by the masonry units. Innovation can begin with a new block design, at the construction site, or on the drafting board. Research may initiate thoughts which are passed down through design. Finally the acts and laws of nature may literally shake the buildings until the vibrations, or heat waves, have passed through the technology and the industry until they come to rest in the base materials.

Balthazar Korab, courtesy Masonry Institute of Michigan

Livingston County Courthouse, Howell, Mi (1889) restored by Architect William Kessler (detail).

Peter Kosinski



Pittsburgh Corning

(Left) Architect Peter Kosinski's masonry Edgewater Tower, New Haven, Connecticut. (Right) A new addition to our masonry repertoire is the reflective glass block.

General Shale Products

Masonry Institute of Michigan

(Left) This clay brick was discovered under the Biblical city of Jericho and dates back nearly 10,000 years. The thumb marks added contact surface for the mud mortar. (Right) Modern brick masonry is a fitting descendent from such an ancient ancestor.

'Nobody keeps anything secret'

The life of a clay brick is long but its journey is short. Brick companies exist near the clays. Even the larger companies commonly ship their products to at most a half dozen adjacent states. This regional character of the industry means steady progress in manufacturing techniques. The Brick Institute of America's director of engineering and research, Alan Yorkdale, explains why: "Nobody keeps anything secret." Since the brick companies do not often compete with each other for manufacturing process improvements, they show off their new inventions to each other "like they are grandchildren."

Manufacturing inventions occur at every level of production. The clays themselves are now being blended to alter the material properties with scientific accuracy. Firing is controlled by instrumentation rather than an "eyeball" to a peephole. Molding of brick is automated, and new texturing processes provide pattern wheels to give surface variety as the bricks are extruded. The dried bricks then enter tunnel kilns.

The innovation in manufacturing of brick which has most influenced our buildings is probably the increased use of the tunnel kiln. As the name implies, the bricks are fired stacked in a line instead of piled in a circular "beehive" formation. The characteristics of the brick vary vertically in the stack but remain uniform along the firing line. As a result, brick choices range from straight color (all the same color) to blends (a mix of colors) and mingles (where the blend is selected from a carousel full of bricks).

What about the bricks? The virtual disappearance of clay-tile products and the changes in the concrete block in recent years have inspired brick to grow and change to compete. One West Coast brick company began 15 years ago with a new 10-in -long brick. It simply took less labor to lay and meant a cost saving for the wall. The company followed with a 12-in.-long brick which resulted in more savings. The company then produced a 16" x 2¾" x 6" brick and now makes a 16" x 6" x 8" "hollow" unit. The hollow units are a product of the 1970s and have found wide use across the country. A hollow unit is simply a brick which is over 25 percent cored. The Brick Institute of America is in the process of writing a new design standard for the use of such hollow brick.

The Block Age

As brick begins with clay, the concrete block begins with the aggregate of the concrete mix. While availablity of types of portland cement might vary in parts of the country, it is the aggregate which makes the blocks regional. Kevin Callahan, senior design engineer of the National Concrete Masonry Association explains: "In brick [manufacture], the expense is in the burning; in block, the expense is in the aggregate." Each aggregate has its own color and material properties which are difficult to duplicate. Concrete blocks rarely travel more than 50 miles in radius from the manufacturing plant.

Basically, the economy of a concrete masonry plant is dependent on the "turnover" rate of the curing racks. Until cured, a concrete block is delicate and is handled as little as possible. An increased use of mechanization since World War II was to accomplish the goal of the "push-button" plant. Present day block manufacturers are reevaluating this goal in light of new energy restrictions.

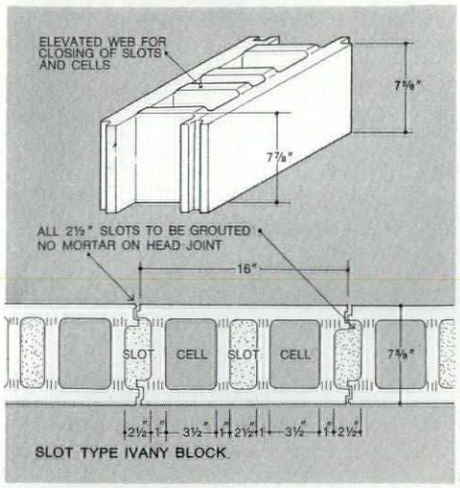
What's new on the old block? Two years ago, Hank Lefer's December 1976 P/A Technics article had the title: "What's new on the old block." The article briefly outlined the recent history of the concrete block. Architects Wright, Rudolph, and Stone all played a role in the emergence of the through-wall block and the use of concrete block as a grade "A" exterior material. New thinking produced the "architectural facing unit" as we have come to know it: split block, scored block, split ribs, fluted blocks, and slump blocks.

The concrete block is a versatile source of invention in the construction industry today. For about $3000, in less than a month, a form can be fabricated to produce a new block, a rate of innovation not easily matched. The Besser Company of Alpena, Mi, publishes its "block of the month." Such companies are constantly adjusting and perfecting their block designs. An architect who can justify the expense can build his building with a block of his own design. Do not be misled. The design is not simple! In addition to compressive strength, water permeance, and weight, the block must represent a system. It must turn corners, accept reinforcing, door frames and windows, accommodate insulation and expansion, and possibly provide for conduit or chase space. Not the least of the problems is removing complex three-dimensional blocks from their forms. Here are some current thoughts on new loadbearing blocks.

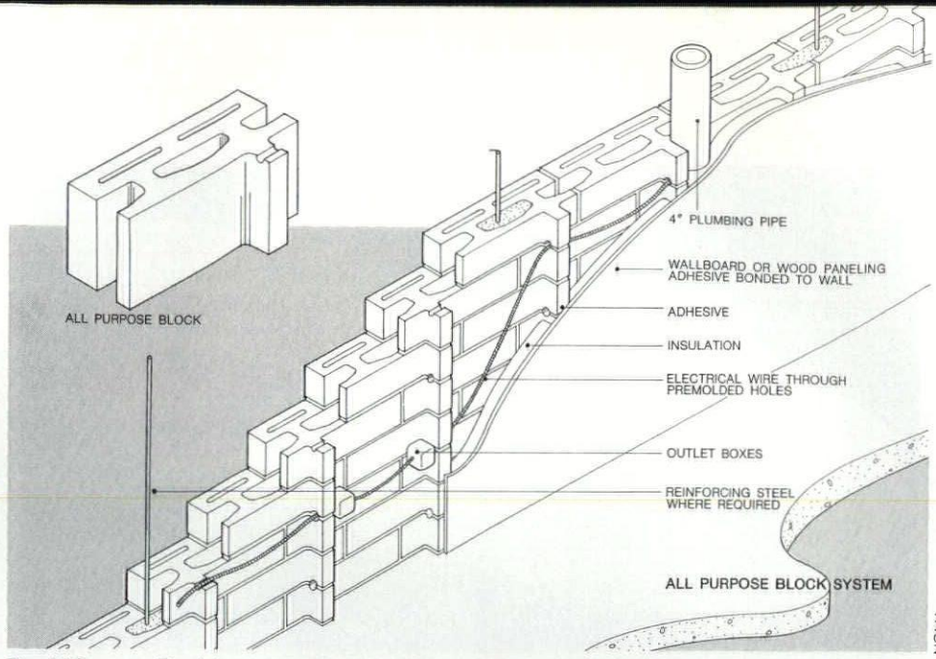
Single Core Masonry Unit: Engineer Howard Noziska is executive director of The Minnesota Masonry Institute. He explains the idea behind this "energy" block: "The block has been developed primarily to aid in the installation procedure of core-fill insulation. It is designed so the cores line up from top to bottom when laid in running bond." The open ends of the block form a space large enough to accommodate vertical steel reinforcing and promise to speed construction to reduce costs. Other recent types of innovative "energy" block designs are fitted with expanded polystyrene cores for insulation.

The all-purpose block: Thomas Redmond of NCMA has great expectations for this new experimental block. It is designed with concrete nubs protruding on the interior of the wall. The nubs form vertical ribs

Loadbearing masonry

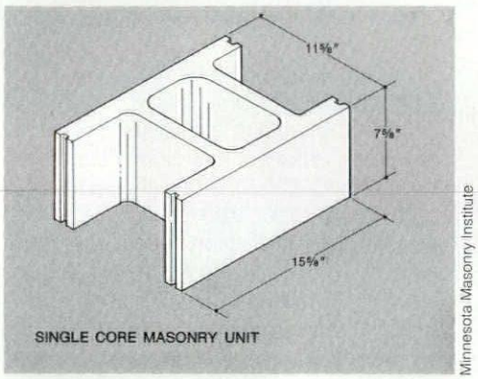


George R. Ivany

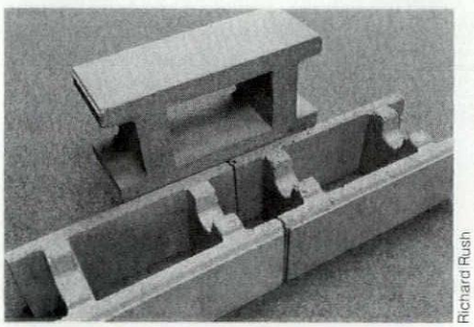


NCMA

The All Purpose Block is an experiment in block design aimed at the combined result of concrete block, gypsum board, and service lines. The block ribs line up to obviate added studs.

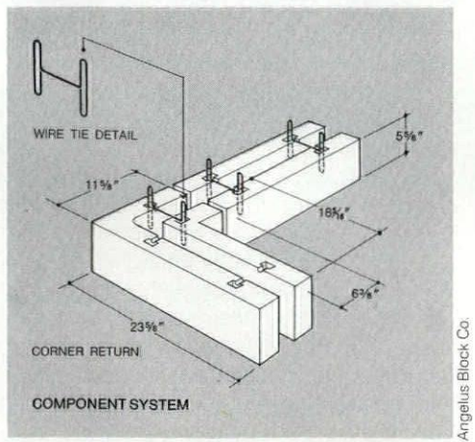


Minnesota Masonry Institute



Richard Rush

Dr. Juan Haener's Interlocking Blocks.



Angelus Block Co.

The concrete blocks above are fresh ideas in masonry. The inside and outside surfaces of the wall are practically the same. Within the wall, they offer a variety of solutions.

spaced to support gypsum board construction without the use of additional studs and are deep enough to accommodate pipes and electrical services. Adhesive is used to attach the gypsum board to the blocks.

The 'slot' type Ivany Block: Cleveland block designer George Ivany began ten years ago to produce a unique concept in concrete block design. Since its inception the Ivany block has been used in over 5000 buildings in 23 states. The blocks are designed to receive both horizontal and vertical steel bars. The "slot" type Ivany blocks have interlocking keys in their ends to eliminate the head-joint mortar. The horizontal steel is placed along with the bed mortar. The vertical steel is grouted into the block cores tying the two-way steel fabric together.

Interlocking block: Dr. Juan Haener of San Diego has invented a mortarless concrete block system. Lugs on top of the block ribs nest between the ribs of the blocks laid in running bond on the course above. The vertical cores line up and allow space for vertical steel and grout which gives the horizontal and vertical steel integral action.

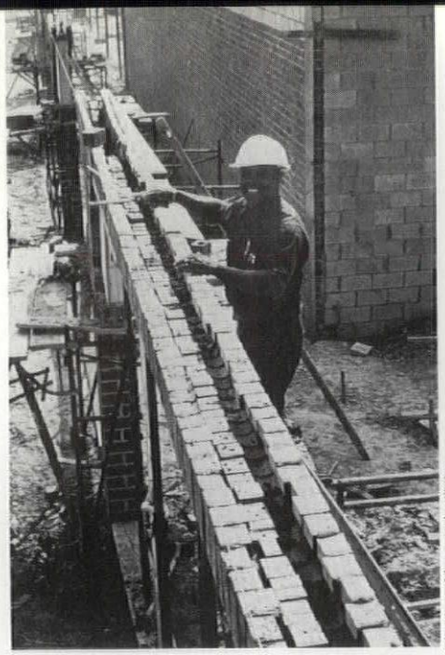
The component system: Sun Valley, Ca's Angelus Block Company produces what they call a component block system. Two long slender blocks are laid as a "cavity" wall. Notches are designed in the mortar-bed surfaces to receive wire ties. The cavity is then filled with reinforced concrete. The system allows several different widths to be constructed using the same units by varying cavity size. Exterior blocks can receive different textures. The blocks are fast-laying, easy to grout, and allow space for freedom of reinforcing steel.

New unit frontiers: Energy conservation is leaving its mark on masonry unit design. Dr. Gil Robinson at Clemson University is developing a "one-way" glaze for brick. Once it is successful, clay bricks may be glazed to permit the brick to absorb the sun's heat with minimal reradiation to increase solar heat gain. The opposite goal has been achieved recently by Pittsburgh Corning Company. Glass blocks are now on the market whose highly reflective oxide surface is thermally bonded to the block's exterior side. The reflective block reduces the solar heat gain to less than 25 percent that of a clear glass block.

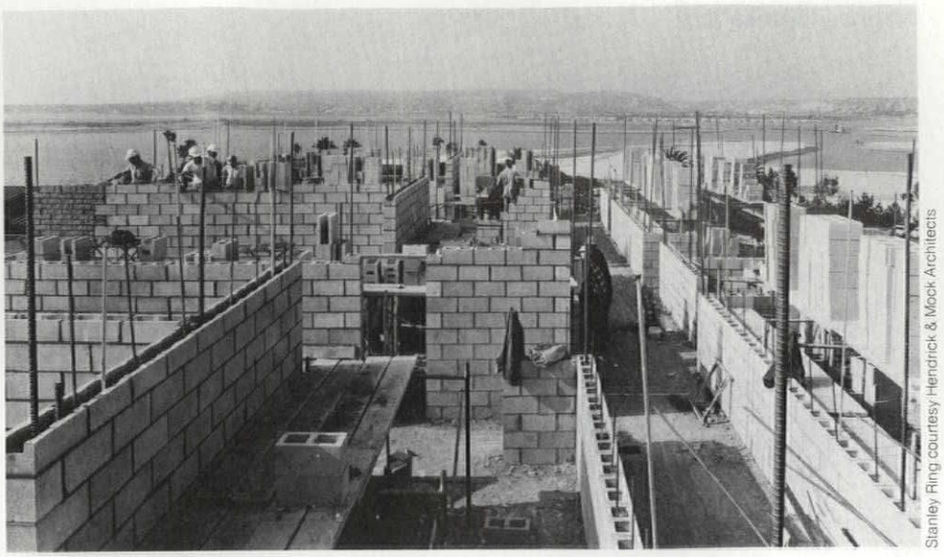
The mason contractor

BIA's Alan Yorkdale explains: "For a contractor, a primary means of being successful is being innovative." This explains why Yorkdale calls the biggest innovation in the construction side of the industry the introduction of "the mason contractor as a construction manager and a business man." Reading computer-produced specifications and plans, and coordinating complex CPM and PERT fast track building processes, have sent many contractors back to school or caused them to seek additional management expertise.

Howard Noziska stresses construction "momentum" as a key ingredient of successful masonry construction. Noziska points to a developer/builder firm, Knutson Construction Company of Minneapolis, as a typical example. Knutson is perfecting a multistory residential construction system which uses the Ivany "slot" block for bearing walls and prestressed-concrete floor slabs. The masons progress rapidly up the height of the building in block, adding the planks at each floor. When they reach the top they work up again applying a brick veneer outside the block walls. The masonry crew never breaks stride or waits for another trade. In the meantime, on the first floors the other trades have arrived and are working in a weather-protected environment at their own speed. The result has proven to be a very economical loadbearing masonry building (the buildings are reinforced on the lower floors). These in-



Michigan Masonry Institute



Stanley Ring courtesy Hendrick & Mock Architects

The modern brick and block mason has met the challenge of new construction methods.

novations and others in the Minneapolis area have yielded year-round employment for masons during the last two years.

San Diego architect John Mock uses the construction speed of his high-rise reinforced masonry hotels and apartments to great advantage. His buildings proceed at the rate of one floor a week and often show great profits by allowing the owner to begin occupation of the lower stories while building construction still continues.

All weather construction: Another vintage import from Europe has been the increased use of "all-weather construction." In the late 1960s, a team of masonry industry experts toured Europe investigating the procedures used to permit masonry construction in bad weather. The result was a publication entitled: "Recommended Practices & Guide Specifications for Cold Weather Masonry Construction." First published in late 1970, the booklet is now in its sixth printing. The recommendations include increased use of covering and windbreaks for weather protection of materials and construction procedures. Requirements may include thawing frozen building materials and heating mortar mix ingredients. Masonry industry officials now boast what they believe is the most weather-independent method of building construction.

Still more control: As the understanding of reinforced masonry in buildings increases, the potential for prefabrication of column, wall, and beam elements has encouraged contractors to develop viable methods of prefabricating. Where construction conditions are ripe for this approach, the result can mean greater quality control as well as speedier construction. One Midwest company has developed and patented an automatic mortar spreader to speed up in-plant prefabrication, while a West Coast firm is machine-prefabricating concrete masonry wall panels as highway acoustical barriers.

A new, rational masonry code

The chances are very good that if you are an architect and reading this article, the design of masonry buildings was not covered in your required structures courses in school. The reason is very simple. Up until recently, the rational knowledge of masonry structures has not been made into a generally accepted brick and block code.

Richard Gensert is presently the chairman of ACI committee 531. Since 1968, Gensert and 37 other experts have been working on the country's first official code for concrete masonry structures. The code will be issued in early summer of 1979. Gensert is also chairman of a new combined ACI-ASCE committee to write a combined brick and concrete masonry code. The results are expected by 1981.

Code history in a nutshell: The development of steel and reinforced-concrete technology in this country in the early years of this century left masonry technology behind. The regional character of brick masonry and the concrete block industry in its infancy was not looking towards the possibility of high-rise structures. Architect John Root's Monadnock building in Chicago (1893) has walls six feet thick at its base, too much of a sacrifice of floor space.

Two events have changed the face of the industry. First, the earthquake in Long Beach in 1933 caused great destruction. Second, European masonry technology began to demonstrate that thin-walled masonry could be successfully used to construct high-rise buildings.

Following the Long Beach earthquake, California engineers began to seek rational ways of protecting their masonry buildings and their occupants. Their first attempts applied the working stress design methods prevalent in reinforced concrete to reinforced masonry design. Creative engineers of the 1930s translated concrete technology into engineered reinforced masonry primarily at the National Bureau of Standards. Confidence and experience coupled with moderate research caused masonry to extend its boundaries.

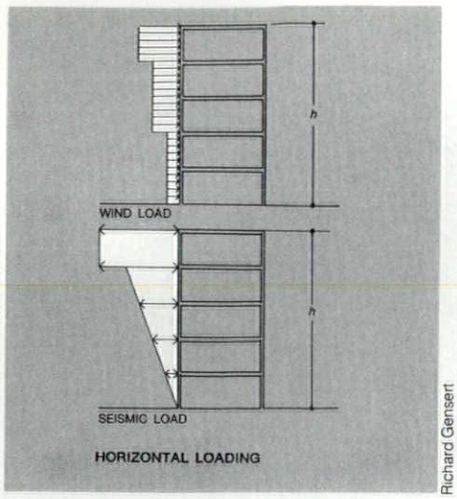
The 1960s: The 1961 edition of the Uniform Building Code showed the first traces of influence by engineered design of masonry. By 1965, the National Building Code of Canada had issued the first rational code for nonreinforced masonry structures. The Canadian engineers could now do design calculations instead of using empirical formulas. An early result was the construction, in Canada, of a thirteen-story nonreinforced masonry building. Funded research in masonry construction began in earnest, first in the brick industry.

By the early 1960s, the Structural Clay Products Institute, now BIA, issued its recommended standard for brick engineered masonry construction. "Rational" design was born. Within two years, NCMA had developed its own recommendations for the engineering of concrete masonry structures. The standards are referenced by building codes. The American Concrete Institute established ACI 531 in 1968 to write a new Concrete Masonry Code. Ten years later we are about to receive the new code, accompanied by commentary and specifications.

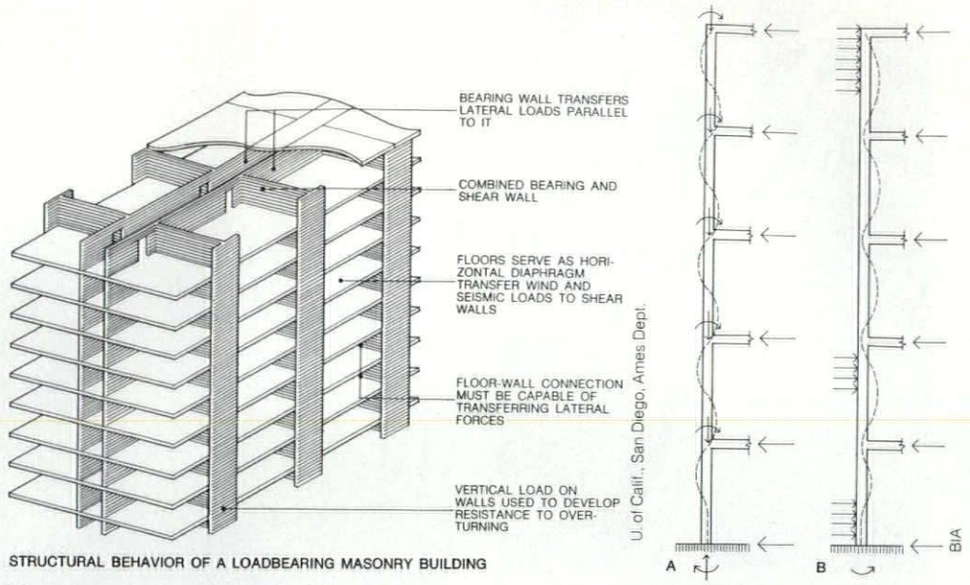
The new code: The basic difference between the old American Standards Code and the new code is that the old codes used the old empirical proportioning systems which Gensert traces to Vitruvius. These standards permit low allowable stresses and have a safety factor of ten. The new ACI Concrete Masonry Code in certain circumstances will narrow the factor of safety down to three.

The first logical question is, why can't engineers simply extrapolate from the concrete codes? The answer is a complicated one. Two readily understood reasons are: First, the geographic characteristics of block manufacture and

Loadbearing masonry



Richard Gensert



STRUCTURAL BEHAVIOR OF A LOADBEARING MASONRY BUILDING

Wind or seismic loading must be approximated as part of the structural analysis for loadbearing masonry. The walls assume a deformed shape under (A) vertical and (B) horizontal load.

masonry workmanship do not necessarily yield the kind of consistency and uniformity of construction that the concrete industry has been able to achieve. The second, and a more "hard-nosed" reason, is that the location of reinforcement in the noncavity masonry wall is restricted heavily by the location of the horizontal joints and vertical cores of the masonry.

Why can we not extrapolate a brick masonry code from a concrete masonry code or, more simply, why has the single masonry code been so long arriving? The answer is that the two materials do not have identical behavior in a masonry wall. Clay products, for example, tend to cycle with temperature change and may expand because of moisture. Clay bricks also have a modulus of elasticity very much higher than concrete masonry and are stronger in compression. Concrete masonry more often has problems of shrinkage and creep after construction.

MIA structural engineer James Amrhein states: "Masonry has made great strides through research and quality control to rival concrete and steel as a realistic construction system." The final question might logically be, how long will it be before the masonry industry develops ultimate-strength design instead of working-stress design? The answer is, they are working on it. The key to the area is research. A great deal of current research useful to working-stress design will be pertinent if ultimate strength becomes a reality. Incidentally, there are some who don't believe it will ever be necessary.

What is rational design?

Most architects need not concern themselves with engineering design, per se, in larger buildings. The structural characteristics of masonry, however, bear an intimate interrelationship to the wall layout and design, and the analysis of such structures should not be a "black box" to us.

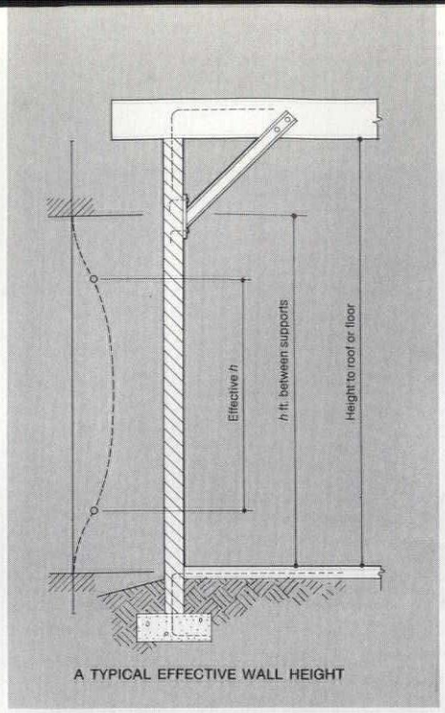
Most importantly, rational design of masonry does not represent revolutionary new concepts in structures. On the contrary, it is largely an adaptation of the working stress methods of design with which we are already familiar.

External forces: The wind forces acting on a building are, of course, independent of the building's construction. The weight of a masonry structure helps it to resist hurricane and tornado wind forces. The seismic forces are another matter. The stiffer the building is, the shorter is its period of vibration in an earthquake; the heavier the building is, the greater is the horizontal load assumed acting at each floor. The dynamic analysis of buildings by computers enables engineers to determine the first, second, and third modes of vibration under earthquake loads. As the vibrations are prolonged and more severe, the building and the earth can easily be considered to be moving in opposite directions. The initial analysis of the earthquake loads therefore is concerned with predicting the largest vibratory load.

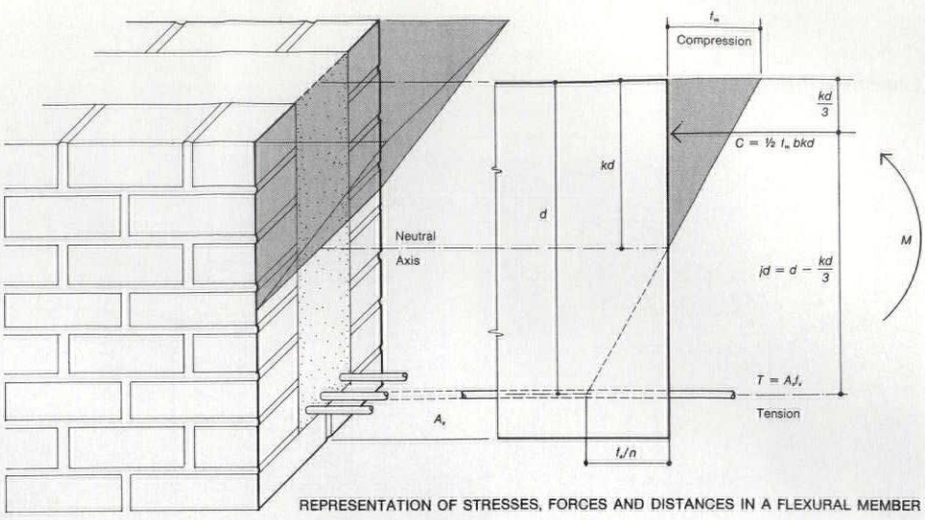
The whole building: The rectangularity of most masonry units and the vertical orientation to the ground usually imply that masonry buildings have two sets of walls perpendicular to each other which continue unchanged through the height of the building. The building as a whole, therefore, is usually conceived as being loaded horizontally in those two orthogonal directions. If the external horizontal loads are applied at the floor lines, it is clear that the building must resist the shearing force between the floors as well as the tendency on the narrow side for the building to overturn. Under large external horizontal loading in combination with vertical loading, an individual wall between floors could be asked to bend either within the face plane of the wall or from end to end, causing one end to compress while the other is in tension (or the whole wall could be either in tension or compression). Before calculating the moment and shear within a wall, it is essential to make an assumption about the nature of fixity of the connections. The slab can act as a diaphragm, in concert with the walls, through the connections. James Amrhein, in his book "Reinforced Masonry Engineering Handbook," refers to the "effective height or length" of a wall depending upon its support conditions as do all rational codes. A wall which is "pinned" at both ends is not nearly so capable of resisting load as one that is fixed at both ends. Architects who are aware of such relationships are frequently able to convince building officials to allow extended floor to ceiling heights by specifying the appropriate connections.

The walls: The compressive forces within a wall can be admirably controlled with masonry; large tensile forces require steel. In order to design the wall in compression or in moment, a compressive strength of the masonry must be assumed. The designer must attempt an approximation of how the mortar and masonry units (grout and steel) will perform together. He may follow two routes to this goal. He may accept the allotted value of the block condition he has chosen as per the code, or he may choose to mock up a test "prism" and actually test the desired wall strength. If the construction is fully inspected, this stress value is twice the value of the uninspected situation. California has pioneered an inspection accrediting program for this reason.

The designer then analyzes the building, isolating those walls which can be similarly designed, and designs them individually for their worst composite conditions. High predicted seismic forces or design situations requiring high ductility of a member in bending leads to the choice of reinforced masonry. In so doing, the engineer makes exactly the same assumption about the behavior of masonry in bending as he has in the case of concrete. That is, when

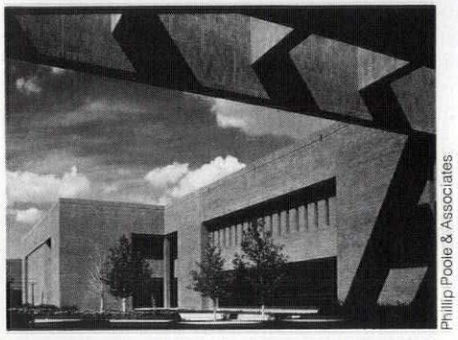


A TYPICAL EFFECTIVE WALL HEIGHT

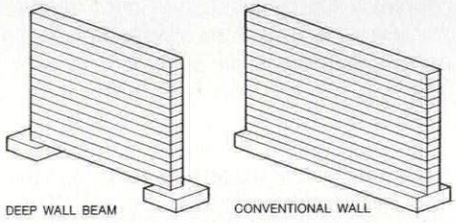


REPRESENTATION OF STRESSES, FORCES AND DISTANCES IN A FLEXURAL MEMBER

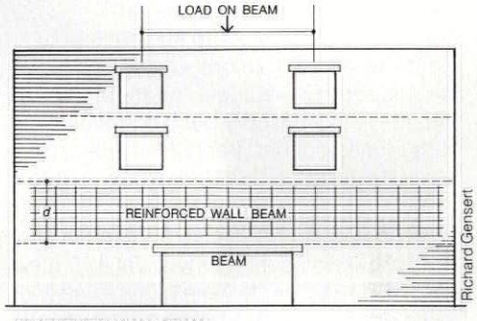
Rational masonry codes permit designers to use the effective length principles familiar to us from column design. If a wall is required to resist large tensile stresses induced in bending, engineers cut the beam at the point of worst load and analyze its equilibrium as shown above. Drawings by permission of J.E. Amrhein from Reinforced Masonry Engineering Handbook.



Phillip Poole & Associates



Deep wall beams in reinforced masonry can span foundation piers, or door openings. Another use is shown (left) in the Cedar Valley Jr. College by Dallas Architect Jarvis, Putty, Jarvis Inc.



Richard Gensert

REINFORCED WALL BEAM

the masonry element is asked to bend, its section remains linear. The compression side of the bending member therefore receives the linearly varying compressive stress, and the tension side is a "cracked section" resisted only by the steel reinforcing. The rest of the design is very similar to conventional concrete design for shear and bending. Deflection and buckling are rarely excessive in masonry due to the innate stiffness of the material. As a result, in the base stories of multistory masonry buildings subjected to large wind or seismic loads, the critical walls can receive reinforcing through their length and height.

In a reinforced loadbearing masonry structure, the walls and floor act together. The wall is rigidly connected to the floors, and loads induced in the walls will be transferred into the floors, and vice versa. For this reason, reinforced masonry buildings are frequently analyzed as a collection of three-dimensional cell structures acting together.

Engineered masonry engineers

The formalization of engineering concepts in masonry has equipped engineers with new tools for solving old problems. The early uses of the engineered design concepts were in rather dramatic applications and have expanded to more conventional buildings. The Park Mayfair East in Denver, Co, is a 17-story 11-in.-thick brick bearing wall design by architects Anderson & Loos. It was finished in 1967. From the same period, Pittsburgh's 23-story Penn Circle Apartments are by architect Tasso Katselas and engineer Richard Gensert. In Detroit, construction was completed on a 14-story spec office building by architect Nathan Levine in 1973. "Tower 14" was constructed in seven months using prefabricated composite brick and block bearing walls engineered by William Lefkofsky.

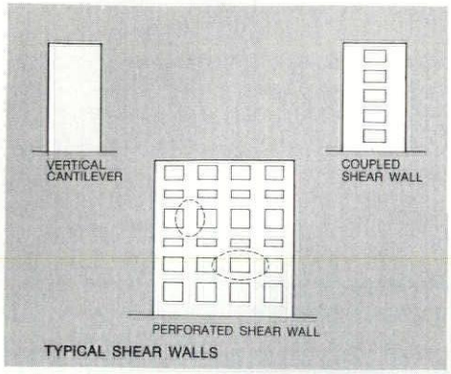
Prefabrication: The inspiration for prefabrication of Tower 14 walls came to engineer Lefkofsky after trying to destroy a previous wall which he had designed using grouted brick and block. Impressed by the strength of the bond, Lefkofsky decided to grout and reinforce more to his advantage. Prefabrication and precast floor T's enabled the construction crew, starting 21 days behind schedule, to catch up in 7 days.

Brookhaven College in Dallas uses prefabricated brick channels as forms for reinforced concrete beams. Clever coordination and cooperation between architects Pratt Box Henderson & Partners, engineers Datum Structures Engineering Inc., construction manager Avery Mays, and masonry contractor Dee Brown meant that above ground only the masonry trade was needed to erect the walls, columns, and beams. A similar approach is used on a building under construction in Seattle, where prefabricated brick column and beam cladding protects a steel structure.

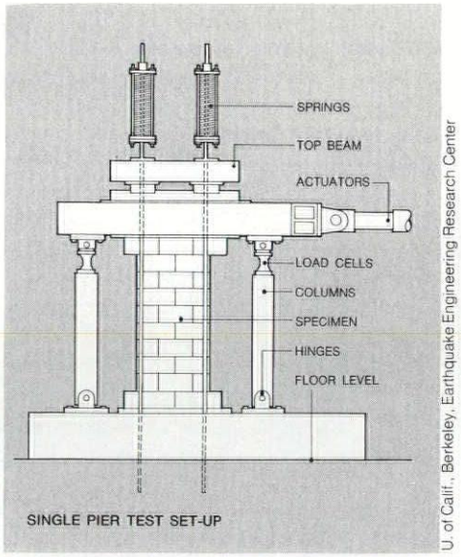
Deep-wall beams: PCA developed the deep beam concept in the early 1950s. The Masonry Institute of America is largely responsible for the recent recommendation by ICBO that reinforced grouted clay brick or grouted clay block walls be permitted to span as a beam between two foundation supports. A maximum height-to-thickness ratio of 36 for loadbearing or shear walls is allowed (and not more than 48 for other uses). Using the example of a single-story bank, warehouse, and firehouse, an MIA report verified research findings that piers at the ends of deep-wall beams were perfectly adequate as support and as an alternative to expensive continuous footings. The recommendation means thinner walls and less material and labor. Engineers like Richard Gensert have used similar reinforced masonry advantages to span door widths. The deep wall above an opening is an alternate to the more conventional steel channel or beam.

Tall buildings in loadbearing masonry: In the summer of 1978, NCMA published a brochure called "Tall Buildings With Concrete Masonry Bearing Walls." The subject of the publication was to summarize two recent related projects sponsored by NCMA. The basic question that the publication asks is: "Can we safely and economically design and construct tall build-

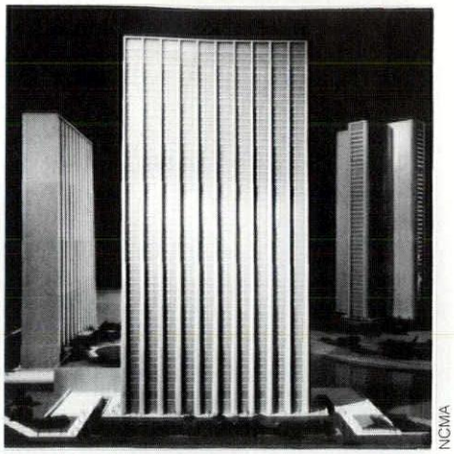
Loadbearing masonry



Seismic research at the U. of California, Berkeley promises to increase our understanding of masonry wall configurations. Tests apply horizontal and vertical loads.



U. of Calif., Berkeley, Earthquake Engineering Research Center



NCMA

Research sponsored by NCMA at IIT and PCA explored use of loadbearing masonry in tall buildings. Master of Architecture thesis shown above is by Faramarz Shoai.

ings above 50 stories in masonry?"

In 1972, NCMA went to an engineer, Dr. Fazlur Khan of Skidmore, Owings & Merrill of Chicago, requesting a "futuristic" approach to tall masonry buildings. Khan in turn requested that grant money be provided for three of his IIT architecture students to investigate the question. Says Khan in retrospect: "I felt we should take a material like masonry and look at its natural forms." The students were given three buildings to design: a hotel, an apartment building, and an office building, on a real site in Chicago. The object was to "create a whole masonry environment." The natural forms of which Dr. Khan speaks are wall forms in compression with minimal tension.

Early in the investigation stages the question arose: "How does each floor shrink with time as the building is being built?" Khan wanted to know how the block, grout, and steel interrelated over time under load. This research was carried out by PCA. The conclusion was that there was "no undue or unknown behavior."

Khan continues: "By doing a masonry building, you could be very competitive and potentially very exciting in architectural form. We have not recently used masonry in a monumental way. As soon as we got steel, we moved away from it. Potentially, we are back again." Using high-strength, specially designed blocks, high-strength mortar, and a maximum of 1 percent steel reinforcing grouted in place, Khan feels certain that masonry buildings as tall as 60 stories could be imminent. Monadnock building, move over!

Reinforced masonry research

Fazlur Khan's optimism towards the use of loadbearing masonry in tall buildings may have to be tempered in an earthquake zone. Professor Ray Clough, a leading researcher at the Earthquake Engineering Center at the University of California at Berkeley, has reservations. Says Clough: "It doesn't appear to be a likely prospect in the near future to build a 40- or 50-story masonry building in an earthquake zone."

Masonry research as a whole is still a recent innovation. Serious comprehensive efforts began barely 20 years ago, and the most significant results have taken place in the last 10 years. Over 40 different research projects are underway today in America. They range in scope from materials to methods of construction and deal with all types of natural forces acting on the masonry wall. Two of the largest projects are studying the effect of earthquakes on masonry structures. Efforts to pin down the intimate interrelationship between grout, steel, mortar, and brick or block will most certainly ripple through the industry and yield improved masonry knowledge for us all.

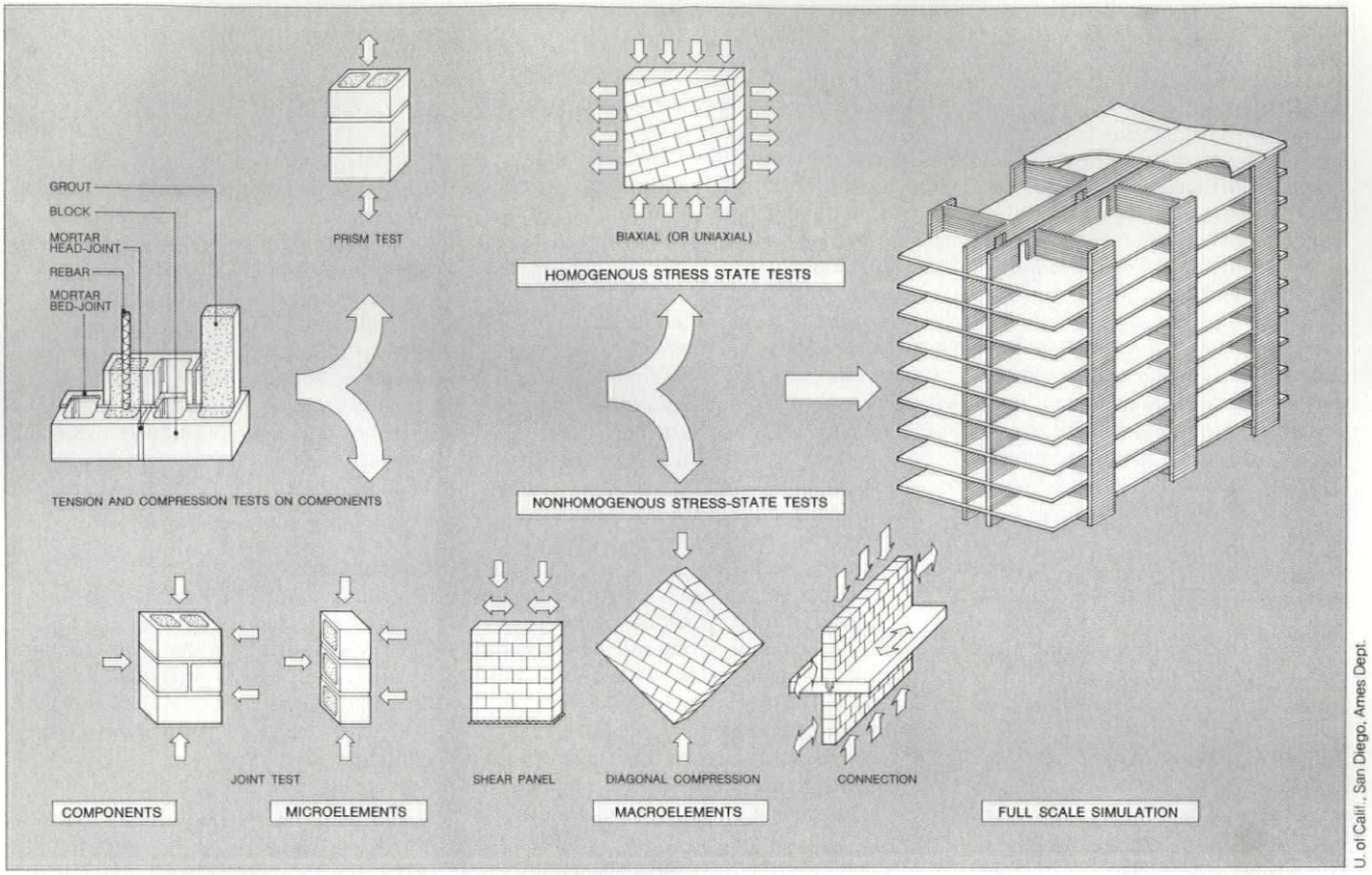
San Diego architect John Mock was among the pioneers in recognizing the effective use of high-rise masonry. Ray Clough's NSF grant to study the behavior of multistory masonry buildings originated after Mock's work. "It was probably his [Mock's] work that began creating concern about masonry construction in seismic regions," says Clough. "It was because of that concern that we made a proposal to do the study for The National Science Foundation."

NSF at Berkeley: The NSF grant dates back to 1972. The goal is to understand the seismic behavior mechanisms of masonry buildings in the range of 10 to 20 stories and, Clough includes, to discover "to what extent standard masonry practice can be made earthquake resistant." It is unreasonable to believe that no cracking would occur in a masonry building during a quake. It is instead the post cracking behavior that is critical. Obviously, control of this problem is accomplished by the configuration of steel which is confined in the masonry. Another consideration is the location and frequency of wall openings.

Early in the research, assumptions had to be made as to the location and shape of elements which would be tested. Three typical masonry shear walls were isolated. The first type was simply a vertical shear wall with no openings at all. The second type was a "coupled shear wall." This wall consists basically of two full height shear walls connected by spandrel beams creating openings down the center of the wall. These spandrels are the subject of later work to be conducted at Berkeley. The third type, and, to the research group, the most immediate problem, is the perforated shear wall. This wall contains window openings and window piers of various sizes and shapes. The research that is presently underway is to study the seismic behavioral relationships between 1) the geometry of the openings, 2) the material and wall types used, 3) the location and quantity of reinforcing, and 4) the role of the vertical load.

Researcher Pedro Hidalgo clarifies the stages of the research as being to identify the failure mechanism, to model the behavior analytically by computer, and to try to control the behavior with design. The walls being tested in the laboratory are constructed of concrete block, hollow clay brick, or cavity walls. An oscillating load is applied to the wall that causes a sinusoidal displacement increasing in amplitude similar to the earthquake loading.

HUD at Berkeley: The Berkeley research group also has a grant from HUD. The HUD grant resulted when the geological survey maps for Arizona changed in the early 1970s. The new seismic zoning map altered certain seismic zones for the region from Zone 1 to Zone 2. Because of this overnight change HUD introduced a reinforcing requirement in walls that the day before had been built without it. To gain HUD subsidies, a community had to comply with their suggestions. To deal with



U. of Calif., San Diego, Ames Dept.

Shown above is a diagram tracing the evolution of the seismic research headed by Prof. G.A. Hegemier at U. of California, San Diego.

the local uprising which ensued, HUD decided to fund research into the seismic resistance of single-family masonry homes subjected to the kind of load Zone 2 would suggest. To accomplish this, the Berkeley researchers construct a series of small masonry "houses" full size on the Berkeley "shake table." A wood truss roof covers each test house, and a metal framework within it provides a base for measurement and instrument protection.

San Diego research: The Berkeley efforts in seismic research are classical methods of building research common in structural engineering. Major building elements are constructed full size and tested, with the results extrapolated to other construction situations. Professor Gil Hegemier at the University of California at San Diego has a different philosophy. His research concept is generically a structural mechanics approach. Also funded by NSF, Hegemier starts with micro-elements and works his way to the larger scale structures. The research program is three years old.

According to Hegemier, buildings are being constructed in the absence of adequate knowledge, and, says Hegemier, "we are not necessarily conservative." The project is making a massive effort to "fill the gap as fast as we can." The purpose of the experiments is to more clearly define the masonry material properties and the role of the connections so critical to the design procedure.

The intent is to synthesize the behavior of a structure from simple to complex by piecing it together on a computer. Given the block, grout, mortar, and steel, what can be said to accurately predict the behavior of a given structure in an earthquake? The researchers believe that the prism test used in masonry design is poorly understood. It is difficult to extrapolate to a wall without using a large safety factor. Their object is to tighten the design factors of a wall to meet more stringent code requirements with less material and more safety.

Hegemier did not intend to get involved in construction practices, but early in the research he discovered significant differences between grout shrinking characteristics. Grouted walls which had been "puddled" or rodded to compact the grout and a wall that used mechanical vibrators or "stingers" showed different performances. The mechanical vibrator produced a much better grout strength and quality. The combination of mechanical vibrators and grout admixtures also improved results. Says Hegemier: "For pennies we are increasing the structural integrity of the materials." Both grout methods are used in tests with results carefully separated. Another result of the early testing was the discovery that masonry head joints do very little good in an earthquake. Of more critical importance in reinforced masonry is the vertical and horizontal grout flow.

The research studies the strength, stiffness, and ductility of masonry under earthquake load. Walls are laid and tested and results matched to predicted analytical data. The analytical procedures are themselves studied to evaluate existing programs and to discover if they are economically feasible to use. Accurate computer models for earthquake loads exist for the elastic and inelastic range for frame and elastic range for shear wall construction from steel and concrete. What is needed are accurate programs for inelastic behavior of shear walls. Once this is a reality, the basic information about unit strength, steel, mortar, and grout will be put in one end of the program and structural design numbers in masonry will come out the other.

Hegemier's approach is relatively new in building research. Trained in aeronautics, he uses research philosophy that is more easily compared to aircraft research than building research. He compares his project to the success of the Venus probe, asserting: "We cannot afford to make mistakes anymore." He continues: "Knowing the location of faults and the types of faults, we can now tune buildings to minimize damage by an earthquake." What an exciting new role for a 10,000-year-old technology!

Loadbearing masonry

San Diego architect

In 1964, the Uniform Building Code increased the allowable stress in loadbearing concrete masonry from 1600 psi to 3500 psi. Walter Dickey was then head of Masonry Research (later MIA) in Los Angeles and had followed the work of Swiss architects in high-rise masonry in the late 1950s. He had also closely monitored the construction of the Sportsmen's Lodge in the San Fernando Valley engineered by Albyn Mackintosh. The building used loadbearing reinforced concrete masonry walls and site-cast concrete slabs. Excited by the potential for such systems, Dickey traveled to San Diego to lecture on the subject. In the audience was an architect named John Mock. Two years later, Hendrick and Mock Architects constructed the Hanalei Hotel in San Diego. The eight-story building was the tallest reinforced concrete masonry building in the country. (See P/A November 1966, "Block Walls One Inch Per Story.")

Since those early experiments, Mock has designed reinforced concrete masonry hotels, apartment buildings, and office buildings. Referring to the structural system used, he states: "I don't know why people don't use it, it is so simple!" Mock starts with basic block shapes and modifies them to accommodate grout and reinforcing. He has used either regular or high-stress blocks. One problem in the engineering design is that the test prism takes 28 days to cure, and the buildings proceed at the rate of one floor a week! Tight designing can mean difficulties.

The cellular nature of a hotel fits the structural system ideally. Identical rooms can be designed in plan and section providing two-way shear walls, and wall loads are transferred directly to the ground. The concrete slab can be poured in place, site cast, or, for longer spans, prestressed precast concrete floor slabs. The economics of local construction eventually govern the final choice. Site casting saves formwork, but twice the floor area of the building is needed for forming on the ground. Apartment and hotel uses can have exposed ceilings, but an office building and dropped ceiling implies a greater floor-to-floor height. The buildings can be irregular in plan but usually cannot economically support a parking garage beneath them. In the Southwest, grouted walls a single 8-in.-block thick can suffice for interior and exterior walls and make excellent sound barriers.

Geographical aspects of detailing

The buildings that John Mock builds in San Diego are different from those he built in Texas and Hawaii. They must be. They are all in masonry. Masonry construction materials are very sensitive to water, wind, cold, and heat, and the materials and methods of construction themselves are never the same from place to place.

Water permeation: Water permeation can be a problem today in detailing masonry structures. Single wythe construction can solve the bearing problem and save on material but may, if unprotected, result in water finding its way into the building. Ribbed and split-faced fluted blocks have large exposed surface areas. Their horizontal joints may suffer from inaccessibility for tooling. Taller structures exposed to driving rains need to be carefully detailed.

Albert Isberner is a senior research engineer for PCA who specializes in such problems. Says Isberner: "A lot of waterproofing mortar admixtures are worthless." He considers portland cement paint and portland cement plaster to be the best protective coatings on the market. He urges architects to pay attention to mortar-joint tooling designed to shed water and to "be more attentive to the published performance characteristics" of both brick and block. He advises against anything but horizontal courses laid in vertical walls. He cautions against brick sills and wall copings. Says the engineer: "Anytime you put brick in a horizontal position, it is exceedingly difficult to waterproof the joint."

Kevin Callahan of NCMA has more suggestions. Tooling the joint at the proper time reduces the possibility of shrinkage cracks. Says Callahan, "In an architectural facing unit it is the joint which can leak—the concrete in the block is better than that used in cast-in-place concrete." Pressurizing the building, especially in low-rise structures, can also reduce permeation.

Walter Dickey is heading a task force for ASTM which will eventually result in a rain permeance standard based on a rain machine called the McKittrick Spray. The machine steadily waters a wall with a fine, rainlike spray at a 45-degree angle. The time that the water takes to get from one side to the other of the wall will determine its level of water permeance. The Masonry Industry Committee is preparing a state-of-the-art designer's guide on the subject of water permeance.

Insulation and energy conservation: Some designers feel that the only guaranteed method to control water permeation in a masonry wall is to build a good cavity wall. Howard Noziska of the Minnesota Masonry Institute also recommends the cavity wall for energy reasons. Such construction provides a "thermal break" between outside and inside wall construction which can be filled with insulation.

"It would be difficult to talk about innovation without talking about energy," declares BIA engineer Alan Yorkdale. The thermal mass characteristics of masonry and concrete structures have been the subject of research combining the efforts of groups in the Masonry Industry Committee. (P/A, May 1978, "Innovations in concrete.") Recent research indicates that the thermal mass of grouted concrete masonry makes a very effective "trombe wall" for passive solar use. The contribution of air infiltration in masonry structures is also being studied.

Another result of such research has been the study of proper placement of insulation for masonry. Places as diverse in climate as Southern California and New England promise to benefit from the use of insulation placed on the exterior of the masonry wall surface. Detailing this kind of solution will call for new thinking of exterior building appearances.

Conclusion

Michigan engineer Lefkofsky declares: "Everyone wants to do a cavity wall today." Cavity walls are also common in New York and Texas. Architects in some parts of the country who specify a ⅜-in. joint may find themselves using a brick in another region with a size variation of ⅝ in. Some parts of the country show a large market of used bricks; in California, the grout used is so strong that it takes too much effort to remove from the brick. New bricks are manufactured to look old.

The ornery idiosyncrasies of masonry have not repelled us. On the contrary, those who have taken the time to learn to use it, cherish its rich personality. Maybe it is because the last brick or block on the top of that 60-story building will probably be laid by human hand. [Richard Rush]

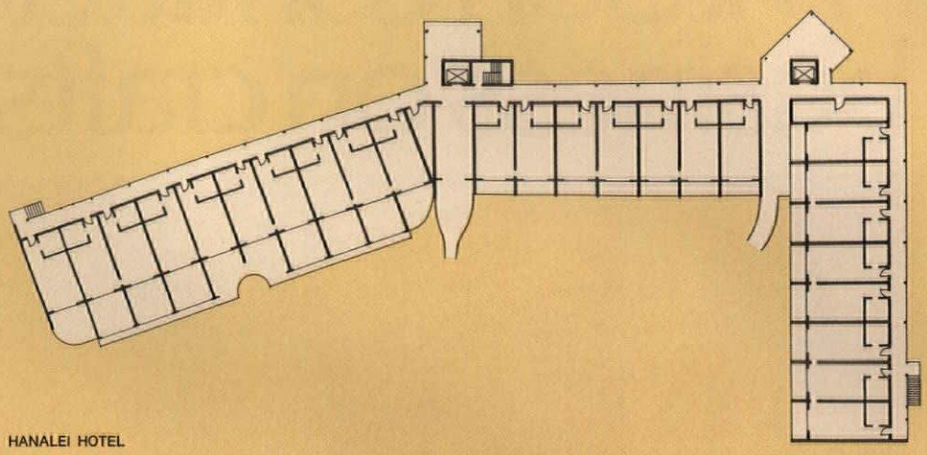
Acknowledgements

We wish to thank the following architects, engineers, organizations, educational institutions, and manufacturers for their help in preparing this article: ACI; Acme Brick; Angelus Block; Applied Technology Council, Dr. Ronald L. Mayes; Belden Brick; Besser Block; Best Block; BIA, Alan Yorkdale; Walter Dickey; The Dow Chemical Co.; General Shale Products; Richard Gensert; Dr. Juan Haener; Higgins Brick; IMI, Buck Richardson; George Ivany; William Kessler & Associates; Peter Kosinski; William Lefkofsky; Albyn Mackintosh; MIA, James E. Amrhein; Masonry Institute of Michigan; Masonry Institute of Northwestern Ohio; Minnesota Masonry Institute; John R. Mock; Dr. Irving Oppenheim; Pittsburgh Corning; PCA, Albert Isberner, Gene Corley; The Proudfoot Company; Skidmore, Owings & Merrill, Dr. Fazlur Khan; NCMA, Kevin Callahan; Univ. of California at Berkeley, Prof. Ray Clough; Univ. of California, San Diego, Prof. G.A. Hegemier; Utah Masonry Research & Promotion.

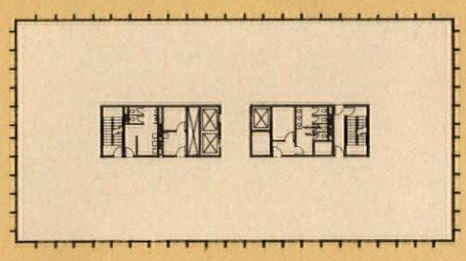
For masonry product and literature information see p. 109.

Hendrick & Mock Architects

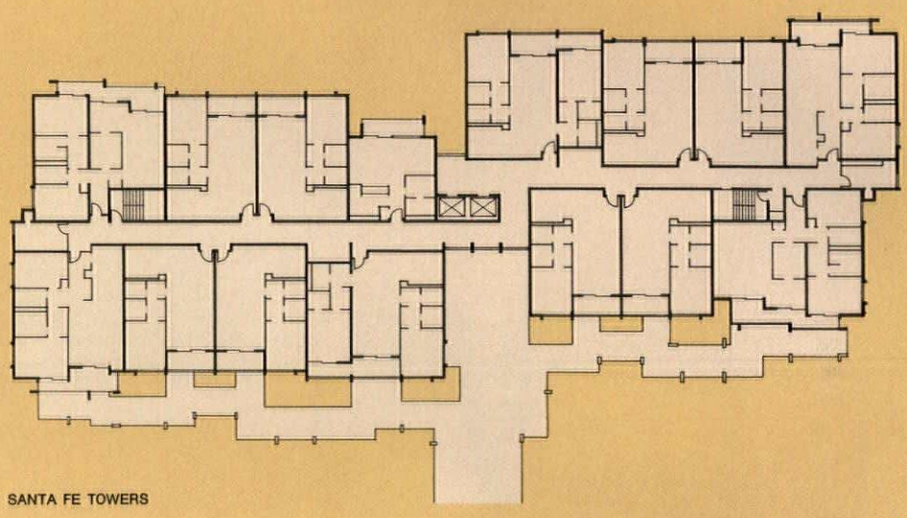
In 1966, the Hanalei Hotel was the tallest reinforced concrete masonry building in the country. Since its construction, architect John Mock has explored other building types. The office building shown in plan below is not yet built. Its reinforced masonry walls will support pretensioned precast floor slabs, justified by long wall to wall spans. The "pinwheel" hotel plan is for a building located in Dallas, Tx.



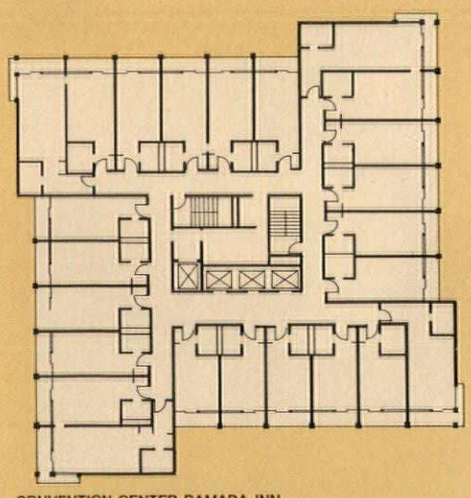
HANALEI HOTEL



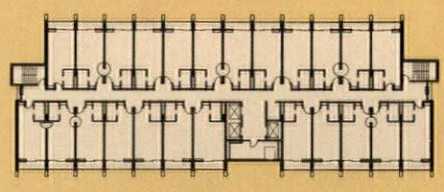
OFFICE BUILDING (PROJECT)



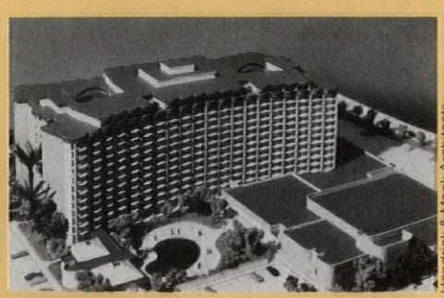
SANTA FE TOWERS



CONVENTION CENTER RAMADA INN

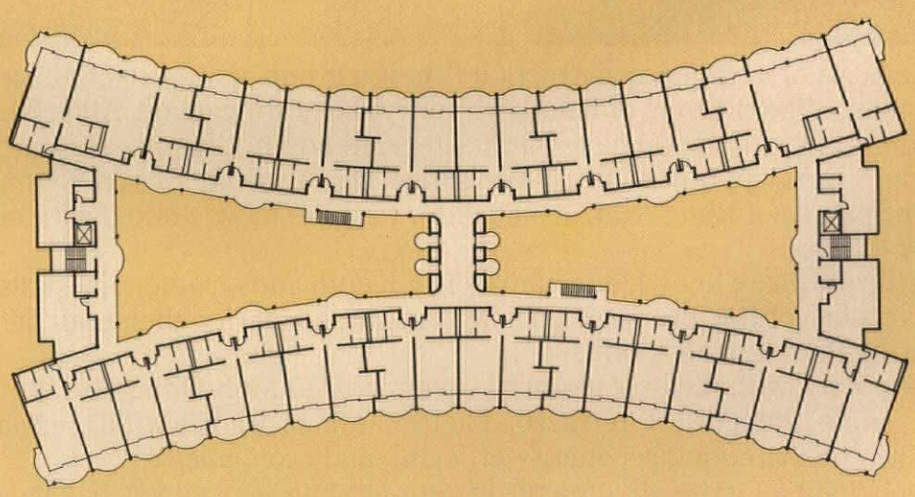


FT. WORTH HILTON INN



Hendrick & Mock Architects

The atrium space for the hotel shown above is created by facing curved masonry high-rise buildings. Masonry has admirably matched the virtuosity of architect Mock. The building plans shown here represent 12 years of evolution and demonstrate the innovation in masonry that has occurred during that time. Economy and speed of construction are welcome by-products of such variety and formal exploration.



HOTEL (PROJECT)

Mason contractors build business on craftsmanship.

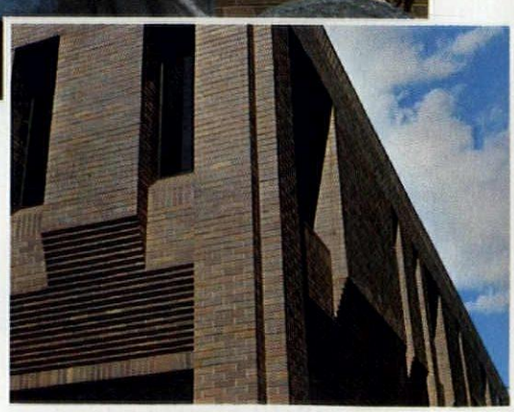
The heart of masonry construction firm is a group of able, experienced craftsmen—like the men of Knuth Masonry, Inc., Milwaukee. Allan Knuth, president, (front left) and his general superintendent, Clarence Burkart (left rear) were apprentice bricklayers together. Men like Robert Neumer, Roger Spahn and Rudy Rudzinski (center to right) have worked with him nearly as long.

To this intimate knowledge of masonry Knuth adds managerial skills. Most mason contractors were bricklayers first, mastering their craft before acquiring their business skills.

They work with the best materials ever devised for building: Brick, block, stone, tile, plaster, terrazzo. Their buildings are beautiful, permanent, low on maintenance, energy-efficient, and economical.

If you want all these advantages in your next project, all you have to do is make sure it's a masonry building.

Craftsmen: The Heart and Hands of Masonry.



International Masonry Institute
(The Bricklayers' International Union and the Mason Contractors of the U.S. and Canada)
823 15th Street, N.W., Suite 1001
Washington, D.C. 20005
(202) 783-3908

Architect: Py-Vavra Architects-Engineers, Inc.
Project: 9800 Building
Milwaukee, Wisconsin

Introductory offer to new members of the ARCHITECTS' BOOK CLUB

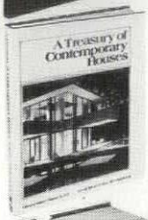
any one of these great professional books for only $1.89

values up to $54.50

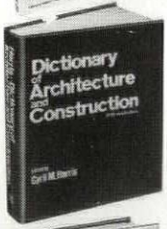
Special $1.89 bonus book comes to you with your first club selection

162/166
SITE PLANNING STANDARDS
by J. DeChiara & L. E. Koppelman
Pub. price, $27.50
Club price, $20.25

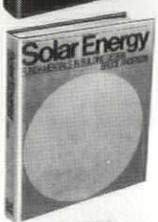
226/784
INTERIOR PLANTSCAPING: Building Design for Interior Foliage Plants
by R. L. Gaines
Pub. price, $22.95
Club price, $17.95



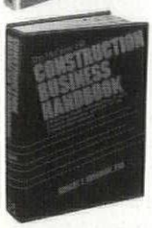
023/301
A TREASURY OF CONTEMPORARY HOUSES
by Architectural Record
Pub. price, $18.95
Club price, $14.95



267/561
DICTIONARY OF ARCHITECTURE AND CONSTRUCTION
by C. M. Harris
Pub. price, $38.50
Club price, $26.95



017/514
SOLAR ENERGY: Fundamentals In Building Design
by B. Anderson
Pub. price, $23.95
Club price, $17.95



149/828
THE McGRAW-HILL CONSTRUCTION BUSINESS HANDBOOK: A Practical Guide to Accounting, Credit, Finance, Insurance, & Law for the Construction Industry
by R. F. Cushman
Pub. price, $32.50
Club price, $24.00

629/382
MODEL BUILDING FOR ARCHITECTS AND ENGINEERS
by J. R. Taylor
Pub. price, $22.95 — Club price, $15.95

287/341
STANDARD HANDBOOK OF ENGINEERING CALCULATIONS
by T. G. Hicks
Pub. price, $27.50 — Club price, $19.95

415/20X
BUILDING CONSTRUCTION HANDBOOK
by F. S. Merritt
Pub. price, $43.50 — Club price, $31.95

771/43X
WORKING DRAWING HANDBOOK
by R. C. McHugh
Pub. price, $12.95 — Club price, $10.50

463/45X
STANDARD STRUCTURAL DETAILS FOR BUILDING CONSTRUCTION
by M. Newman
Pub. price, $25.00 — Club price, $17.50

096/473
TIME-SAVER STANDARDS FOR ARCHITECTURAL DESIGN DATA, 5/e
by J. H. Callender
Pub. price, $39.95 — Club price, $29.95

162/182
TIME-SAVER STANDARDS FOR BUILDING TYPES
by J. DeChiara & J. H. Callender
Pub. price, $42.50 — Club price, $29.95

089/248
ARCHITECTURAL DELINEATION: A Photographic Approach to Presentation
by E. E. Burden
Pub. price, $27.00 — Club price, $19.95

767/629
ARCHITECTURAL PRESENTATION TECHNIQUES
by W. Atkin
Pub. price, $15.95 — Club price, $12.75

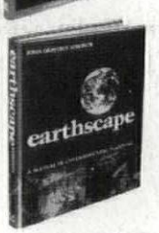
026/386
SPECIFICATIONS: For Architecture, Engineering and Construction
by C. Ayers
Pub. price, $18.00 — Club price, $12.50

124/302
ENERGY TECHNOLOGY HANDBOOK
by D. M. Considine
Pub. price, $54.50
Club price, $37.95

785/112
THE PHOTOGRAPHY OF ARCHITECTURE AND DESIGN
by J. Shulman
Pub. price, $25.00
Club price, $18.75

304/726
THE HOUSE AND HOME KITCHEN PLANNING GUIDE
by The Housing Press
Pub. price, $18.95
Club price, $14.95

023/255
BUILDING FOR THE ARTS
by Architectural Record
Pub. price, $26.50
Club price, $21.25



573/956
EARTHSCAPE: A Manual of Environmental Planning
by J. O. Simonds
Pub. price, $24.95
Club price, $19.50

278/903
BEHAVIORAL ARCHITECTURE: Toward An Accountable Design Process
by C. Heimsath
Pub. price, $17.50
Club price, $12.95

save time and money by joining the ARCHITECTS' BOOK CLUB

Here is a professional club designed to meet your day-to-day architectural needs by providing practical books in your field on a regular basis at *below publisher prices.* If you're missing out on important technical literature—if today's high cost of reading curbs the growth of your library—here's the solution to your problem.

The Architects' Book Club was organized for you, to provide an economical reading program that cannot fail to be of value. Administered by the McGraw-Hill Book Company, all books are chosen by qualified editors and consultants. Their understanding of the standards and values of the literature in your field guarantees the appropriateness of the selections.

How the Club operates: Thirteen times a year you receive free of charge *The Architects' Book Club Bulletin.* This announces and describes the Club's featured book of the month as well as alternate selections available at special members' prices. If you want to examine the Club's feature of the month, you do nothing. If you prefer one of the alternate selections—or if you want no book at all—you notify the Club by returning the card enclosed with each *Bulletin.*

As a Club member, you agree only to the purchase of four books (including your first selection) over a two-year period. Considering the many books published annually, there will surely be at least four you would want to own anyway. By joining the club, you save both money and the trouble of searching for the best books.

MAIL THIS COUPON TODAY

ARCHITECTS' BOOK CLUB
P.O. Box 582, Hightstown, New Jersey 08520

Please enroll me as a member and send me the two books indicated. I am to receive the bonus book at the introductory price of $1.89 plus my first selection, plus tax, postage and handling. If not completely satisfied, I may return the books within 10 days and request that my membership be cancelled. If I keep the books, I agree to take a minimum of three additional books during the next two years at special Club prices (guaranteed 15% discount, often more). I will receive the Club bulletin 13 times a year. If I want to examine the featured selection, I need take no action. It will be shipped automatically. If, however, I want an alternate selection—or no book at all—I simply notify the Club by returning the convenient card always enclosed. I will always have a minimum of 10 days in which to return the card and you will credit my account fully, including postage, if this is not the case. Membership in the Club is continuous but cancellable by me at any time after the four-book purchase requirement has been filled. *This order subject to acceptance by McGraw-Hill. Orders from outside the continental U.S. must be prepaid. Company, business, or institutional tax exemption status is not applicable to purchases made through individual Club memberships. All prices subject to change without notice. Offer good for new members only. A shipping and handling charge is added to all shipments. Members are billed when books arrive.*

Write Code # of $1.89 bonus book selection here

Write Code # of first selection here

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

EXTRA SAVINGS: Remit in full with your order, plus any local and state tax, and McGraw-Hill will pay all postage and handling charges.

A36226

Architects' liability for construction safety

Norman Coplan

Whether an architect is liable for safety conditions at a construction site varies from one court district to another.

There is a conflict in the judicial decisions of the various jurisdictions of the United States in respect to the responsibility and liability of an architect in connection with safety conditions at the construction site. This issue was recently considered by the Supreme Court of Wisconsin in a case instituted by a carpenter for the general contractor who had been injured at the construction site when a cave-in occurred while he was working in a deep excavation (*Luterbach vs Mochon, Schutte, Hackworthy, Juerisson, Incorporated,* 267 N. W. 2d 13).

In the complaint asserted by the workman against the architect it was alleged that the excavation in which he was injured was improperly shored and braced and that his injuries were caused by the negligence of the architect in failing to properly supervise the construction and in failing to take appropriate action to assure that the site was a safe place to work. The architect, in response to the complaint, denied that his duties included any responsibility greater than seeing to it that the completed structure was in conformity with the plans and specifications. The action against the architect was dismissed by the Trial Court, and such dismissal was eventually appealed to the Wisconsin Supreme Court.

The owner-contractor agreement provided that the architect would "have general supervision and direction of the work . . ." and "has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the contract." The plaintiff contended that since the owner-contractor agreement mandated that the work would comply with the construction safety standards of the Department of Industry, Labor and Human Relations, the architect should be subject to liability for failing to assure that those standards were maintained by the contractor. However, the owner-architect agreement specifically defined and limited the architect's responsibilities during construction. The agreement provided that the architect would make periodic visits to the site to familiarize himself generally with the progress and quality of the work, that he would endeavor to guard the owner against defects and deficiencies in the work of contractors, but that he would not "be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work."

The Wisconsin Court first concluded that since the owner-architect agreement made reference to the owner-contractor agreement in defining certain of the architect's duties, it was appropriate for the Court to consider both agreements in determining the architect's duties. The Court then considering both contracts stated:

"Viewing the contracts as a whole, we conclude that the (plaintiff's) expansive definition of supervisory powers cannot be accepted. The contracts are not ambiguous. The architect had no duties in regard to insuring the safety of the construction site; these were the duties of the contractor. Summary judgment was properly granted dismissing the complaint."

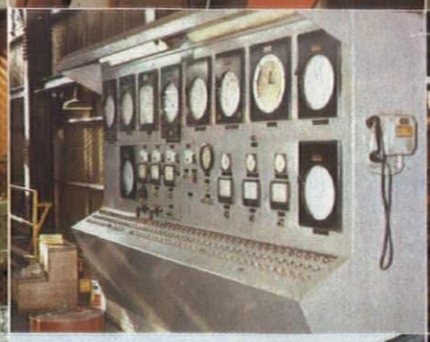
The Court expressly indicated its disagreement with a line of cases from other jurisdictions in which an architect was charged with liability in connection with the personal injury of a workman at the site premised on the architect's duty to supervise construction and his power to stop the work to assure that it conforms to the contract. The Court stated that it disapproved "of efforts that parlay general duties of supervision into a duty to insure the safety of construction sites."

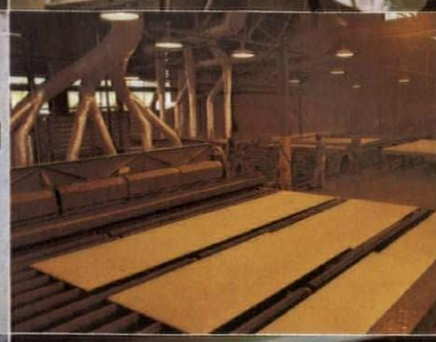
Some jurisdictions have adopted statutes which place a responsibility and potential liability to third persons upon the owner of the project, as well as the contractor, for unsafe conditions at the building site. A question that may be raised by such a statute is whether the architect, as agent for the owner, is subject to liability even though his contract with the owner may expressly exclude any responsibility for such safety conditions.

New York, for example, has adopted a statute as part of its "Labor Law" which provides that both contractors and owners "and their agents" must comply with certain requirements in respect to the construction or demolishing of buildings. One of these requirements is as follows:

"All areas in which construction, excavation or demolition work is being performed shall be so constructed, shored, equipped, guarded, arranged, operated and conducted as to provide reasonable and adequate protection and safety to the persons employed therein or lawfully frequenting such places."

The New York Court of Appeals (*Allen* vs *Cloutier Construction Corp.*, 405 N.Y.S. 2d 630) has held that there is absolute liability upon the owner (as well as the contractor) for breach of the duties imposed by the statute "irrespective of his control or supervision of the construction site" and that such responsibility is nondelegable. Since the architect is the agent for the owner in rendering construction contract administration, some concern has been evidenced whether the statute could be interpreted as imposing a responsibility and potential liability upon the architect despite any contractual disclaimer to the contrary. The courts have not spoken on this subject, and such an interpretation may well be unjustified. In any event, however, such a statute would undoubtedly make an owner reluctant to accept an owner-architect agreement which expressly relieves the architect of any responsibility for safety conditions at the construction site.





Solitude Tile (5/8″ x 12″ x 12″) is beveled, kerfed and rabbeted . . . designed for installation with a concealed spline suspension system, or with adhesive.

The aesthetic side of SOLITUDE

For a handsome appearance, acoustical efficiency . . . and economy . . . specify noncombustible Solitude ceilings from Gold Bond. They're ideal for virtually every commercial and institutional application. Four sizes of Solitude panels, from 2′ x 2′ to 2½′ x 5′, and five different patterns, give you exceptional design versatility. A scrubbable P/C Plasticrylic finish is available on all panels. And now Solitude is also available in 12″ x 12″ tiles, in fissured and non-directional patterns and a standard P/C Plasticrylic finish.

The quiet side of SOLITUDE

Gold Bond Solitude panels and tiles carry a Class 25 fire rating and an NRC from .50 to .65, depending on the pattern. They are made from the highest quality mineral fibers, rigidly quality-controlled and thoroughly tested to meet specifications. ☐ A national distribution system through approved acoustical contractors and distributors insures on-time delivery anywhere. And a staff of experienced Gold Bond sales representatives — the largest in the industry — is ready to work with you on any Solitude application.

For the information and answers you need, contact your nearby Gold Bond representative, refer to Technical Information Bulletin 9-4384. or write Gold Bond Building Products, Division of National Gypsum Company, Dept. PA, Charlotte, North Carolina 28211.

Answers that make the difference

Gold Bond Building Products

A National Gypsum Company

Circle No. 368, on Reader Service Card

California's guides

William Mooser, Santa Barbara County Courthouse, 1929.

A Guide to Architecture in Los Angeles & Southern California *by David Gebhard and Robert Winter. Peregrine Smith, Salt Lake City, 1977. $11.95. Illus. 728 pp.*

A Guide to Architecture in San Francisco & Northern California *by David Gebhard, Roger Montgomery, Robert Winter, John Woodbridge, and Sally Woodbridge. Peregrine Smith, Salt Lake City, 1973. Illus. $7.95. 557 pp.*

These are the Baedekers among guides of American cities, except they are not on Bible paper and are too big to fit a pocket; nor will the long, narrow format accommodate to the quick-reference shelf where they belong, so they lie on their sides on top of *Learning from Las Vegas*. There has been nothing like them in California since the WPA Guide Series of the 1930s; these, however, have 3000 or more photographs and maps, bibliographies, and a picture and word guide to the growth of styles.

The publication of the northern guide coincided with the 1973 AIA convention in San Francisco, and two of its five editors were P/A correspondents Montgomery and Woodbridge. The guide to the south was promised the following year, and either the four-year delay or the sprawl of Los Angeles accounts for the extra 200 pages in length. Some of this is taken up in the expanded style glossary in the back, some in little histories of areas and cities—both helpful to newcomers who are puzzled by the different character of towns or how the little puddles flowed into the big pool. The Northern guide is more architectural and precise, addressing the building itself rather than trying to relate it to a style; the Southern one is more inclusive and ambitious.

An earlier guide to the south, a ten-ounce real *vade mecum* by the same authors, was published in 1965 when their tastes were more pristine. But the floodgates opened in the 1960s to pop, and Art Deco was made official. With both plentiful in LA, the expansion to include them was expected—Gebhard has a scholarly interest in Art Deco, as Winter has in the Craftsman style; Gebhard has a zest for pop, Winter for architectural follies. By

[continued on page 102]

Don't let lackluster finned-tube enclosures spoil an imaginative interior.

Sterling custom enclosures are made to order to enhance your design.

Finned-tube enclosures don't have to be a dull afterthought. Or a necessary eyesore. In fact, they can be an aesthetic plus.

We ought to know. For more than 30 years Sterling has specialized in the design and fabrication of custom finned-tube assemblies. And during that time we've met the specialized needs of architects and engineers on thousands of prestigious commercial applications.

At Sterling, we build custom enclosures that really look customized. Rugged and functionally efficient. Yet with a respect for form that preserves the integrity of an imaginative design.

The range of Sterling's metal fabrication capabilities is unsurpassed in the industry. Enclosures of meticulously finished reinforced steel as thick as 14 gauge, as well as stainless, aluminum, anodized aluminum, and vinyl-clad assemblies are all everyday fare at Sterling.

But we love a challenge, too. You'll find that Sterling people aren't afraid to explore innovative concepts and designs. We won't blunt your imagination, either, by telling you that what you want is "unavailable."

At Sterling, we build enclosures to meet your needs—not ours.

So go ahead. Let your imagination run wild. Drop us a line and we'll send you more information on Sterling custom enclosures along with some recent application case histories to help you get started.

We think you'll find them anything but dull.

STERLING® RADIATOR
DIVISION OF REED NATIONAL CORP.
260 No. Elm St. • Westfield, Mass. 01085

Books continued from page 100

constantly crisscrossing the state, they enlarged these and other categories. Nothing escaped them. The seldom-explored byways turned up some unknown or forgotten gems. The books will stand for a long time as a model for all other city or regional guides. [Esther McCoy]

On programming

Facility Programming: Methods and Applications *edited by Wolfgang F.E. Preiser. Community Development Series, Dowden Hutchison and Ross, Stroudsburg, Pa. 1978. 352 pp. $32.00.*
Methods of Architectural Programming *by Henry Sanoff. Community Development Series, Dowden Hutchison and Ross, Stroudsburg, Pa. 1977. 208 pp. $20.00.*
Problem Seeking: An Architectural Programming Primer *by William Pena with William Caudill and John Cocke. CBI Publishing, Boston. 1977. 204 pp. $14.95.*

Reviewed by Peter G. Rowe, Assoc. Prof., school of architecture, Rice University; Research Director, Rice Center, Houston.

After something of a hiatus in publications dealing with aspects of the design process, three offerings have recently emerged in the area of architectural programming. Although exhibiting strong similarities in their definition and placement of programming in the process of design, the three publications have, on the whole, quite different orientations. The principal objective of Preiser's *Facility Programming* is to provide an authoritative overview of current user-oriented programming approaches that are to be found at work in architecture and environmental design. To this end the book is structured to reflect what are perceived to be the three major areas of professional programming activity: programming firms, architecture firms, and research firms. The topics covered within the sections range from problem definition, cross-cultural programming and post-occupancy evaluation to adaptive re-use and other more specific examples of facility programming. Each chapter is largely self-contained although of a consistent format. The similarity between topics discussed in the major sections makes for interesting comparisons. In the end the book seems to be more about attitudes towards programming and about the breadth, scope, and indeed prospects of the field. The presentation of this type of perspective is both a welcome and a timely contribution.

As a complement to the Preiser volume, Sanoff's *Methods of Architectural Programming* is very much about the "nuts and bolts" technical aspects of programming. Here the material moves, within a tripartite organization, from data gathering techniques, through methods of synthesizing and organizing data, to field application of programming techniques that make use of user expertise. Throughout, the volume is copiously illustrated and full of worked examples. It stresses a general flexibility of approach where techniques may be combined and merged depending upon the situation at hand. All three authors stress the need for a high level of user participation during the programming process, but perhaps Sanoff goes the furthest in offering the necessary technical assistance for this dialogue.

By contrast, Peña's *Problem Seeking* is an aggressive presentation of one and only one approach; the by now familiar CRS method of programming. The five-step process is presented in "lock-step" fashion and, should the message be missed, is followed by some partially worked examples. Rather than the adoption of a flexible attitude towards the organization of information, the role of the programmer is seen to conform the data into a

[continued on page 104]

Decathlon Athletic Club, Bloomington, Minnesota.

Pella Wood Folding Doors. The attractive solution to space-control problems.

Pella Designer Doors combine the look of richly paneled walls with the design freedom and flexibility you need to bring space into efficient, full-time use. Large areas can be spanned by joining several Pella Doors together. The space can be further divided in an almost unlimited number of ways by using Pella switches and curved track. Pella Folding Doors operate quietly with minimum effort and come in a selection of high quality, genuine wood veneers, or vinyl finishes, over a stabilized wood core.

Circle **No. 343,** on Reader Service Card

For more detailed information, send for your free copy of our full color catalog on Pella Wood Folding Doors. See us in Sweet's General Building File, call Sweet's BUYLINE number, or look in the Yellow Pages under "doors", for the phone number of your Pella Distributor.

Name _____

Firm _____

Address _____

City _____ State _____ Zip _____

Telephone _____

Mail to: Pella Windows & Doors, Dept. T35B9, 100 Main St., Pella, Iowa 50219. Also available throughout Canada. Coupon answered within 24 hours.

Pella®

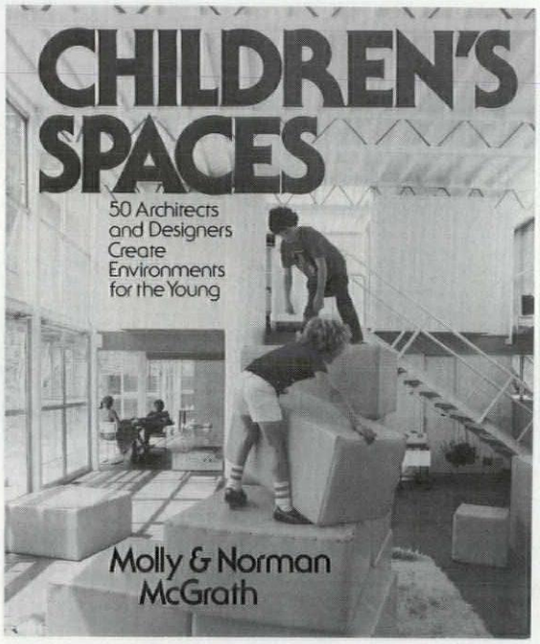
Books continued from page 102

general but nevertheless predetermined format.

Taken together, an ordering suggests itself from Preiser's more discursive general overview, to Sanoff's emphasis on general technique, and finally to Peña's documentation of *a* technique. In style of presentation, the reverse order suggests itself. Peña gives the impression that *Problem Seeking* is by and large definitive, whereas Preiser sees his collection of essays as being provisional and the "state of the art" at a point in time.

As far as reader audience is concerned, all would no doubt appeal to the professional architect. With its methodological bias, the Sanoff volume may appeal more to the programming specialist. The direct nature of *Problem Seeking* may make it marketable for the layperson wishing to gain a quick understanding of the subject. In the long run, however, the Preiser volume would probably prove more durable in this regard. Both the Preiser and Sanoff books would make excellent college texts, and might well be read together.

Kids' rooms

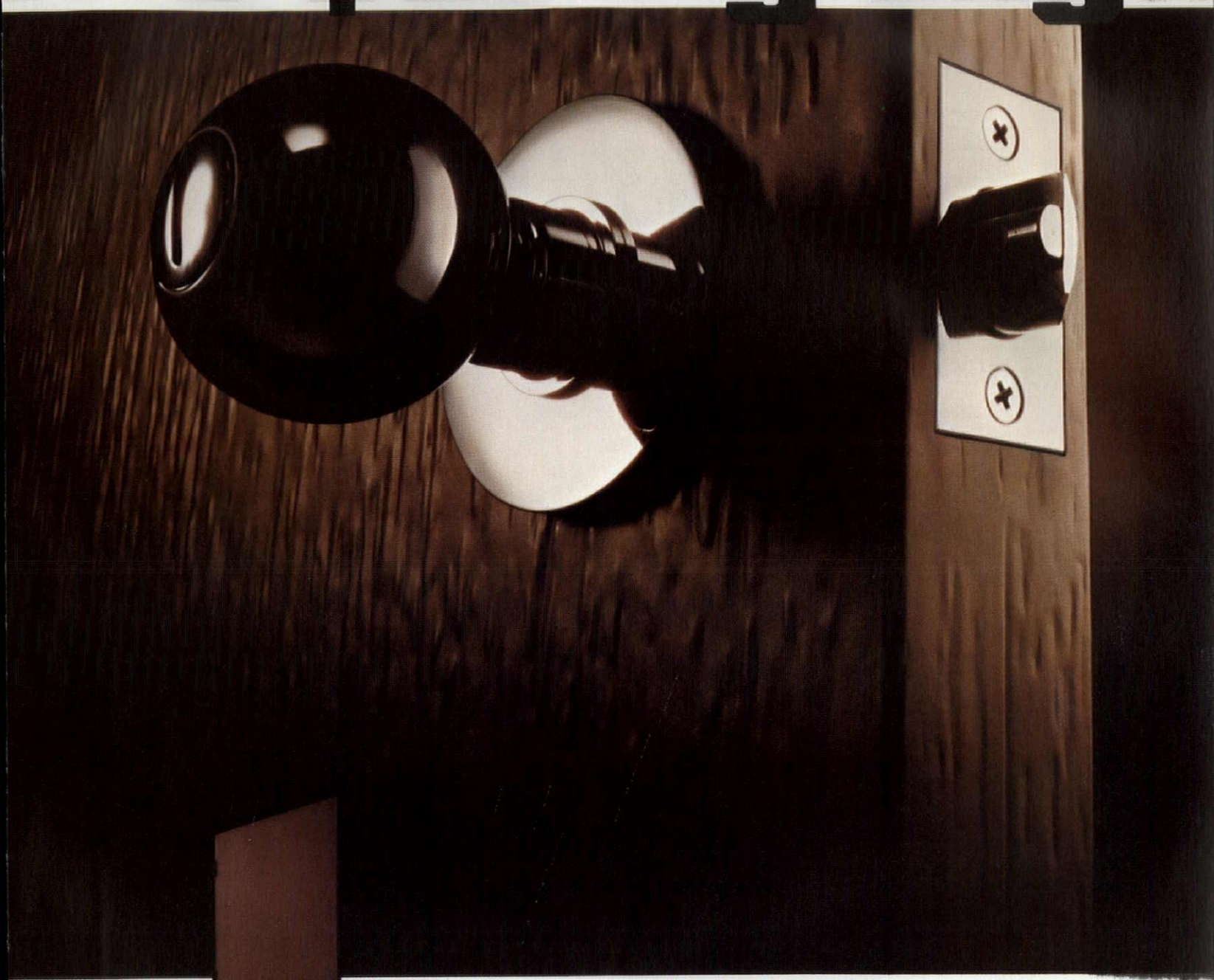


Children's Spaces *by Molly and Norman McGrath. New York, William Morrow & Co. 222 pp. illus. $29.95.*

In this book, the McGraths (he is the well-known architectural photographer; she is an editor of *Baby Talk* magazine) show the spaces designed for children by 50 architects and interior designers. A great many of the rooms have been published before in architectural and other journals, but they are gathered together in one place here for the first time.

After a foreword by Ivan Chermayeff and an introduction by the McGraths, the main body of the text is given over to the designers' own discussions of their attitudes toward designing spaces for children. Examples are given to show how a small child's space can be planned from the beginning to change as the child grows, and other examples show how to get the most out of both restricted and more elaborate spaces. A particularly helpful aid to parents who might wish the aid of professionals is a complete listing of names and addresses of the designers at the back of the book. The photographs are large, in both color and black and white, and the book is altogether easy on the eye.

The Quality Edge



Bark Texture. A special finishing by Republic.

You get it only on Republic's new McKenzie door.

The exclusive McKenzie lock edge is achieved with a continuous weld seam which is planished to put all evidence of the weld bead inside the door – leaving a flat, smooth "customized" seamless look.

Our McKenzie Edge not only looks better, it's stronger. No other door matches it without the add-on cost of expensive customizing.

And we make the McKenzie's other edge, the hinge edge, stronger with a continuous 16-gage channel and 3/16-inch hinge reinforcements.

A custom look with superior strength. It's a quality combination other doors can't deliver at a standard price.

Specify more quality at no more cost. Specify McKenzie doors. They're backed by Republic's expanding distributor network. And that means ready stock, quick service, fabrication capability, and technical expertise.

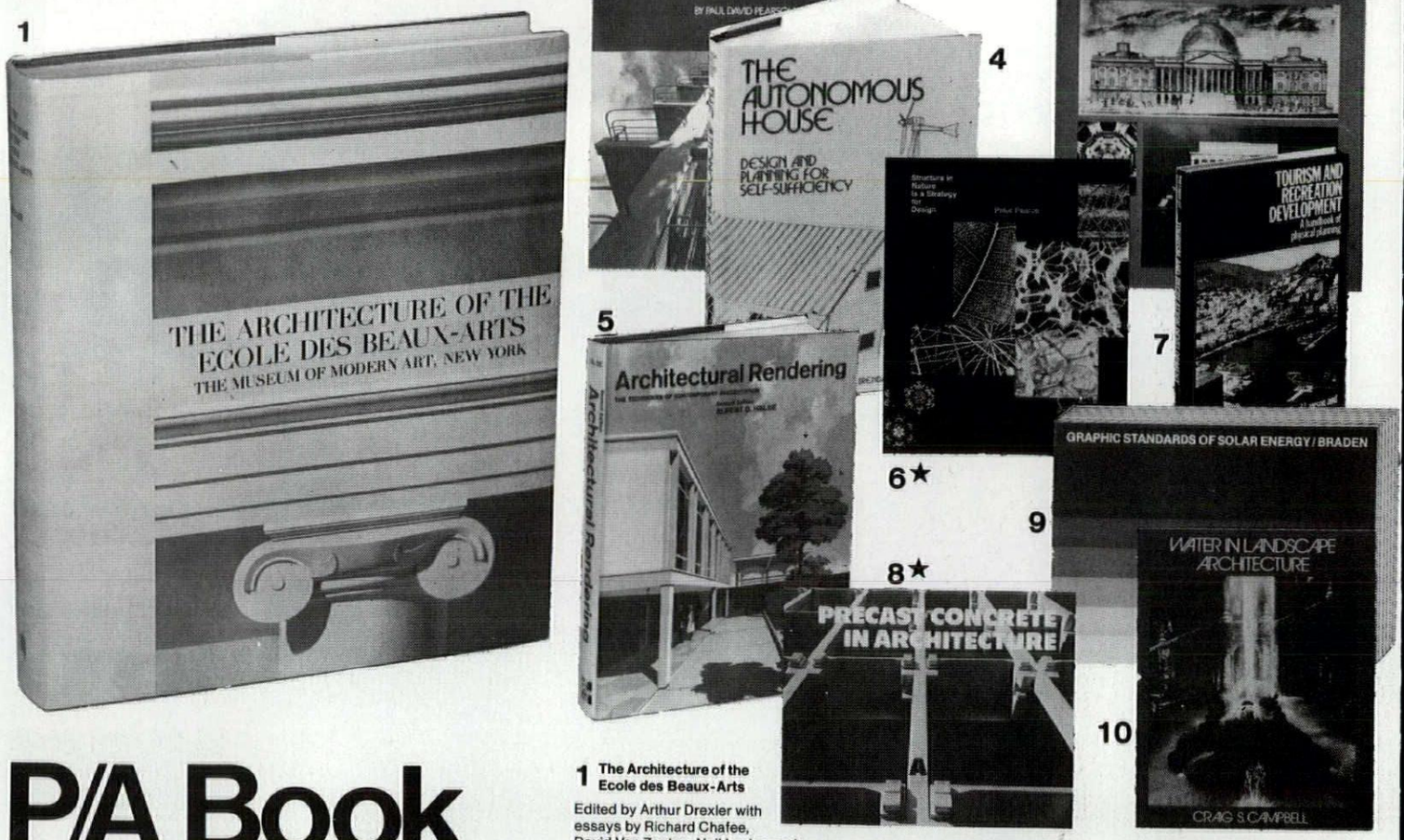
For full information look for your Republic distributor under Doors-Metal in the Yellow Pages, call Sweet's "Buy Line," or write to Republic Builders Products Corporation, P. O. Box 478, McKenzie, Tennessee 38201.

McKenzie. The door with the competitive edge.

Republic

doors · frames

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 $5.00 per Copy:

January ..... 26th annual P/A awards
December ..... Retail facilities, Plaza lobby, Flooring, Seating
November ..... Reclaiming the past/Underfloor systems
September .... Interior design Built-up roofing
August ..... Color minimalism/Innovations in Housing/Bathing & fitness
June ..... Taste in America

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. . . . $45.00

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 Alvar Aalto and the International Style

By Paul David Pearson,
240 pp., illus. . . . $27.50

Although Aalto's heritage is being carried on by those he worked with and personally influenced, he left no written legacy of his design philosophy. This timely critical study fills that void by analyzing his personal form of expression as the last great leader of 20th century architecture.
Circle B602 under Books.

NEW★

3 The Federal Presence Architecture, Politics & Symbols in U.S. Government Building

By Lois Craig & the Staff of the Federal Architecture Project
580 pp., illus. . . . $37.50

This profusely illustrated reference is not only a major pictorial resource for the architectural historian, but a sort of American album, a scrapbook of a special aspect of our cultural history. Includes an extensive bibliography of pictorial and written sources.
Circle B603 under Books.

4 The Autonomous House

By Brenda and Robert Vale,
224 pp., illus., . . . $10.00

Two architects offer practical solutions to the design of a house that operates independently within its environment. This "Autonomous House" is not linked to utility lines for gas, electricity, water, or drainage; but instead uses the energy of sun, wind and rain to service itself and process its waste.
Circle B604 under Books.

5 Architectural Rendering: The Techniques of Contemporary Presentation

By Albert O. Halse, 326 pp.,
illus., 2nd edition, 1972 . . . $29.00

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 B605 under Books.

NEW★

6 Structure in Nature Is a Strategy for Design

By Peter Pearce,
245 pp., illus. . . . $45.00

Ann innovative and completely illustrated approach to architectural and environmental design, based on a study of responsive and adaptive structures in nature (molecules, crystals, living cells) that conserve energy and materials.
Circle B606 under Books.

7 Tourism and Recreation Development: A Handbook of Physical Planning

By Fred Lawson &
Manuel Baud-Bovy,
220 pp., illus. . . . $39.95

This comprehensive book sets out step-by-step planning techniques for tourist resorts and recreational parks, from the national down to the local level. Practical measures are included for conservation and for monitoring developments.
Circle B607 under Books.

NEW★

8 Precast Concrete in Architecture

By A. E. M. Morris,
584 pp., illus. . . . $42.50

This profusely illustrated book traces the development of the architectural use of precast concrete for individually designed buildings (rather than industrialized construction systems) from the re-discovery of concrete in the early 19th Century to the present day.
Circle B608 under Books.

9 Graphic Standards of Solar Energy

By Spruille Braden,
224 pp., illus., $19.95

A timely design reference guide for those involved in the structuring of our environment. The author melds energy-conscious design with mechanical systems for commercial, institutional and residential buildings, providing quick and efficient extrapolation of data from design concept to working drawings.
Circle B609 under Books.

10 Water in Landscape Architecture

By Craig S. Campbell
128 pp., illus. . . . $15.95

This profusely illustrated book is the first published work that deals in substantial detail with the technical as well as the aesthetic principles of fountain design. Covers basic hydraulic principles, practical limitations, environment and available equipment.
Circle B610 under Books.

NEW★

11 Carpenter Gothic 19th Century Ornamented Houses of New England

By A. deC. McArdle &
D. B. McArdle
160 pp., illus. . . . $24.50

The origin of Carpenter Gothic, a uniquely American architectural amalgam of the 19th Century, is traced to its roots in the picturesque revolt against the rigid, symmetrical demands of classic forms. The authors document the influence of Pugin's Gothic, culminating in Andrew Jackson Downing's rural Gothic.
Circle B611 under Books.

12 Hotel and Restaurant Design

By Douglas Smith,
240 pp., illus. . . . $17.95

A comprehensive guide for owners and operators of small to medium-sized hotels and restaurants that will stimulate ideas on schemes of all sizes, from extending and improving old buildings to planning new developments in town and in the countryside.
Circle B612 under Books.

NEW★

13 The Business Idea From Birth to Profitable Company

By G. N. Dorland & John Van Der Wal,
196 pp. . . . $14.95

An excellent guide that explains in practical, step-by-step terms what the entrepreneur needs to know to set up, build and expand a business.
Circle B613 under Books.

14 The Kitchen 100 Solutions to Design Problems

208 pp., illus. . . . $25.00

Whether its style is contemporary, colonial or country, today's kitchen must be designed to function as a convenient, congenial living center. This collection of 100 successful ways to design kitchen spaces explains the particular design problem for each kitchen area and illustrates the solution with superb photographs.
Circle B614 under Books.

15 Open Office Planning A Handbook for Interior Designers and Architects

By John Pile,
208 pp., illus. . . . $15.95

Presents a systematic approach that requires the use of specific methodology in organizing the physical layout of an open office with the primary purpose of facilitating communication among the staff.
Circle B615 under Books.

NEW★

16 A Dictionary of Architecture

By Nikolaus Pevsner, John Fleming, and Hugh Honour,
554 pp., illus. . . . $17.95

This valuable reference book is a truly comprehensive dictionary that briliantly describes, catalogs and explicates the history and development of architecture from prehistoric tombs to modern skyscrapers. Includes 2400 entries with over 1,000 illustrations.
Circle B616 under Books.

17 Drawing File for Architects, Illustrators and Designers

By Marc Szabo
251 pp., illus., . . . $13.95

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 Living by Design

By the Partners of Pentragram
300 pp., illus. . . . $15.00

Introduction: Using Design is by Peter Gourd. This informative book on the use of design covers product design, environment design, identity design, interior design, graphic design, living by design, exhibition design. (Soft bound)
Circle B618 under Books.

NEW★

19 Living Spaces: 150 Designs from Around the World

Edited by Franco Magnani,
Translated by Bobbi Mitchell,
120 pp., illus. . . . $22.50

This magnificent book provides a wealth of imaginative and practical ideas for homeplanning and decoration for people confronted with the problems of confined living space and the resulting tensions which are often exacerbated by noise and pollution. The superb full-color photographs demonstrate interiors to satisfy aesthetic as well as practical needs.
Circle B619 under Books

20 Working Drawing Handbook A Guide for Architects & Builders

By Robert C. McHugh,
166 pp., . . . $13.95

This guide is a step-by-step presentation on how to produce working drawings as an integral aspect of communication between designer and builder. Includes convenient check-lists, budgeting information, and data on dimensioning that helps minimize chances of errors.
Circle B620 under Books.

NEW★

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 factural information that has come to light since the original publication in 1974.
Circle B621 under Books.

22 Learning from Las Vegas The Forgotton Symbolism of Architectural Form Revised Edition

By Robert Venturi,
Denise Scott Brown
and Steven Izenour
244 pp., illus. . . . $17.50

Includes the full texts of Part I of the original, on the Las Vegas Strip, and Part II, "Ugly and Ordinary Architecture, or the Decorated Shed". This book created a storm of controversy in its original edition, calling on architects of be more receptive to the tastes of common people.
Circle B622 under Books.

23 Architectural Presentation Techniques

By William W. Atkin,
196 pp., illus., . . . $16.95

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., . . . $8.50

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 Site Planning for Cluster Housing

By Richard Untermann &
Robert Small
306 pp., illus. . . . $22.50

An invaluable guide to planning low-rise, medium-density cluster housing environments. Also covers jurisdictional and technical considerations of site planning, and includes more than 600 drawings and photos that illustrate design principles and techniques.
Circle B625 under Books.

NEW★

26 Downtown USA Urban Design in Nine American Cities

By Kennerh Halpern,
Forward by Edward Koch,
Mayor of the City of New York
256 pp., illus. . . . $27.50

The author, newly appointed Director of the Mayor's Office of Midtown Planning & Development in New York City, shows the different approaches taken, or deliberately not taken, to give a sense of order to the unpredictable, constantly changing organism of the City.
Circle B626 under Books.

The ultimate in space utilization... and seating people.

unimax

Press a button . . . unimax extends and chair modules set up automatically! After the event, return the system to the stored position just as easily . . . by pressing a button. Set-up and take-down time is virtually eliminated. "Clean Sweep" design speeds up cleaning between events and minimizes labor time and cost. For complete details on unimax . . . the ultimate in space utilization and seating people, contact the Leader in Public Seating. American Seating, 901 Broadway, N.W., Grand Rapids, Michigan 49504 · 616/456-0600

American Seating

Circle No. 302, on Reader Service Card

Products and literature

Loadbearing masonry

The following items are related to the Technics article on loadbearing masonry beginning on page 86. They are grouped here for the convenience of the reader.

Literature

Brick colors and textures. Brochure shows the many colors and textures of brick that the company produces. Colors range from creamy whites, buffs, and grays through shades of pink, red, and brown. Included are diagrams of brick sizes, and pattern and joint variations. The Belden Brick Co.
Circle 200 on reader service card

Soundblox structural masonry blocks, said to have the compression strength of ordinary hollow concrete blocks of the same composition, are load-bearing and sound-absorbing. Cavity-and-slot construction contributes to sound absorption which is further enhanced by using a metal septum to divide the cavity. Eight-page brochure describes and illustrates the blocks and shows several installations that benefit from their sound-absorbing quality. The Proudfoot Company, Inc.
Circle 201 on reader service card

Structural glazed facing tile. Product specifications, wall construction, color selection, bonding patterns, and specifications are all covered in a 24-page technical brochure. Data include fire resistance, heat transmission, radiation protection, and sound transmission and absorption. There is also a glossary of terms. Stark Ceramics, Inc.
Circle 202 on reader service card

The Ivany structural system, which eliminates formwork and the need for construction trades other than bricklayers, is said to reduce costs of poured-in-place steel reinforcing walls by 40–50 percent. Blocks have grooves in which horizontal reinforcing bars are placed. After walls are erected, vertical bars are put in place and the hollow cores, which line up, are filled with liquid concrete. Brochure illustrates the construction technique and the various blocks available, and lists specification considerations. Chas. Svec.
Circle 203 on reader service card

Tomax™ masonry panels up to 12 ft high and 20 ft long can be used as fencing or sound barriers, or for warehouses, factories, and apartment buildings. The concrete blocks are assembled with high-strength mortar and have embedded joint reinforcing. Best's Blocks, Inc.
Circle 204 on reader service card

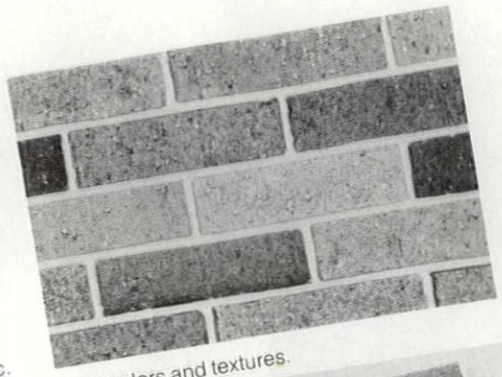
Eco-Seal waterproofs masonry and concrete and protects surfaces from the effects of frost damage, vapor lock, efflorescence, and damage from salt and other chemicals. The manufacturer also says that surfaces treated with Eco-Seal will accept cement-patch, paint, and other materials. Eco Industries, Inc.
Circle 205 on reader service card

Water Seal® transparent waterproofing sealer can be used on concrete, masonry block, mortar, stucco, brick, and other exterior materials. In concrete curing, it is said to provide water retention to resist cracking and checking during the curing period. Depending on the surface being coated, Water Seal can be applied by brush, spray, or roller. Other products include a color water seal and a waterproofing seal-stain. E.A. Thompson Co., Inc.
Circle 206 on reader service card

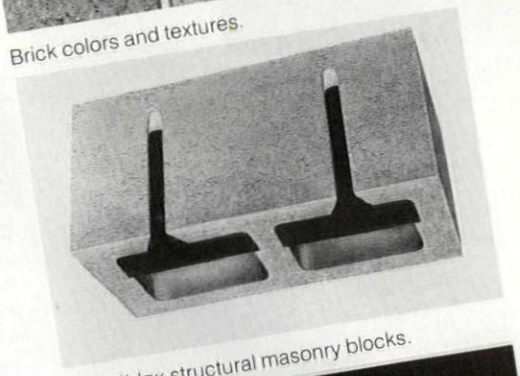
Brick, Its History and How It Is Made is the story of brickmaking from early times until today. There are photographs of ancient sun-dried bricks and some of the buildings in which they were used. A story told primarily in photos and captions, the 24-page booklet brings us up to date on the process and shows current buildings. The company maintains displays in its Museum of Ancient Brick. A limited number of copies are available, at a cost of 50¢ each for mailing expense, from General Shale Museum of Ancient Brick, Johnson City, Tn 37601, Att: Basil Saffer.

Tall Buildings with Concrete Masonry Bearing Walls reports the results of two studies that examine the use of concrete masonry loadbearing walls in buildings from 25 to 50 stories high. One, a laboratory study, investigated elastic and inelastic deformation. The other was an architectural study of the system in terms of strength, economy, and flexibility when applied to buildings of 50 or more stories. The technical report is available for $2.70 postpaid from National Concrete Masonry Association, P.O. Box 135, McLean, Va 22101.

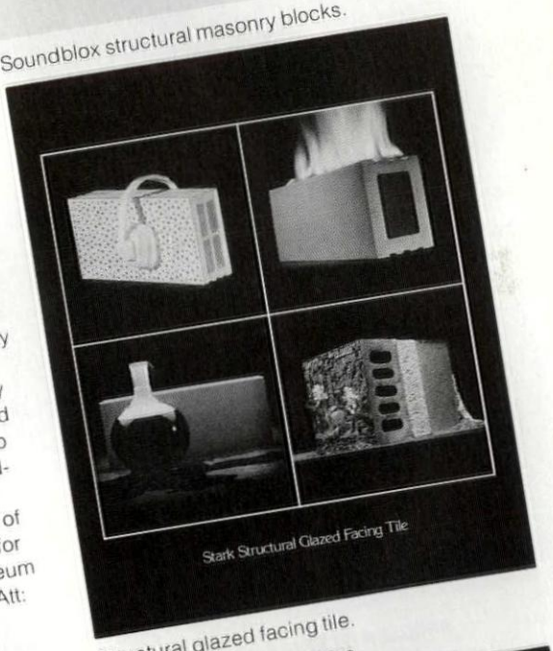
Thermal Inertia in Architectural Walls. Energy consumption for space heating and cooling is affected not only by insulation in walls, but also by their ability to store heat—the thermal inertia of walls. This is a report about the conditions under which this property can be used to help compensate for the absence of insulation and, under certain conditions, to reduce energy used in buildings. The report is available at $2.35 from National Concrete Masonry Association, P.O. Box 135, McLean, Va 22101.
[continued on page 110]



Brick colors and textures.

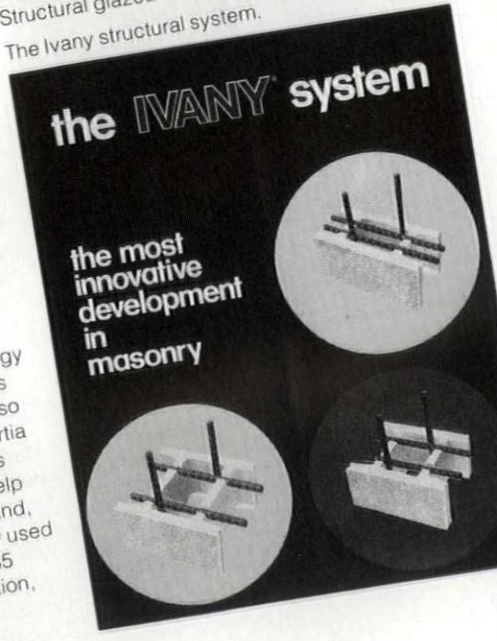


Soundblox structural masonry blocks.

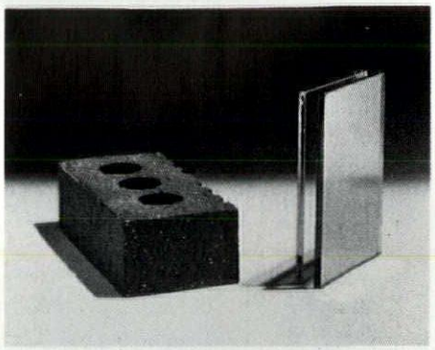


Structural glazed facing tile.

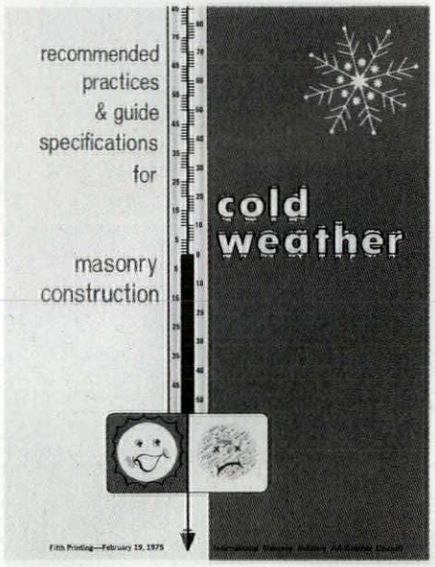
The Ivany structural system.



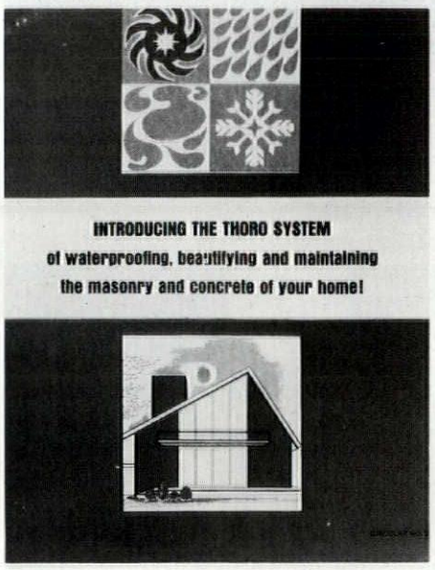
Literature continued from page 109



Masonry vs glass office buildings.



Cold weather masonry construction.



Concrete waterproofing and maintenance.

Masonry vs glass office buildings. Six-page brochure summarizes findings of research into relative costs of all-glass versus 80 percent brick, 20 percent glass office construction. Buildings were compared for construction cost, operating costs, and rate of return on real estate investment. Acme Brick Co.
Circle 207 on reader service card

Cold weather masonry construction. Recommends practices for providing strong, durable masonry construction during cold weather in order to overcome the seasonal nature of this type of work. Discusses low temperature performance of materials, admixtures, heating and heaters, and protection of construction materials. International Masonry Institute.
Circle 208 on reader service card

Concrete waterproofing and maintenance. Eight-page booklet about Thoro waterproofing contains suggestions for waterproofing walls before painting or paneling, protecting swimming pools, and solving dampness problems above and below grade. Standard Dry Wall Products.
Circle 209 on reader service card

Concrete block offers soundproofing, fireproofing, energy saving, and structural strength. Twenty-four page booklet charts these qualities in relation to materials used, construction details, block size, and/or finishes applied. Copies of booklet No. CN232 are available for $1 from National Concrete Masonry Association, P.O. Box 135, McLean, Va 22101.

Modular concrete block. Technical brochure illustrates typical sizes and shapes of concrete block in both US and metric measurements. Charts provide technical data on fire resistance, heat transmission, sound transmission, etc. Several installations are shown in color, and diagrams show block patterns, construction details, and decorative block configurations. Besser Company.
Circle 210 on reader service card

Glass blocks in several types, including a solar reflective one, are shown in company brochure. Interior and exterior applications are illustrated in color. Charts provide technical information about dimensions, light transmission, impact strength, and U and R values. Diagrams illustrate installation details. Pittsburgh Corning.
Circle 211 on reader service card

Brick veneer brochure provides information about the selection, specification, and installation of brick veneer. Color photographs show variations in earthtones and textures. Veneer application is discussed in text and shown in diagrams. Also included are an outline specification and notes to the specifier. Higgins Brick.
Circle 212 on reader service card

Masonry Cost Guide sets forth the advantages of using masonry in building. It estimates the cost of construction per sq ft of various bricks, blocks, and stone; costs of masonry reinforcing, insulation, and grout; and fire insurance cost comparisons. Request copies, at $1.25 each, from Masonry Advisory Council, 1550 Northwest Highway, Park Ridge, Il 60068.

Masonry audio-visuals, promotion aids, and publications. Lists films and audio-visual aids available for purchase or on loan and distributors from whom they can be ordered. Promotion aids include buttons, bumper stickers, and other novelty items. Categories of publications are: All-weather construction; careers; cost; design; energy; loadbearing masonry system; and fire. International Masonry Institute.
Circle 213 on reader service card

TEK bulletins, digests of technical research concerned with concrete masonry, which are published monthly, are listed in the NCMA catalog of publications and audio-visual presentations. Areas covered include waterproofing, loadbearing systems, wall design, basements, swimming pools, construction details, energy conservation, and fire safety. Films, both for sale and for rent, are also listed. In addition to TEK bulletins, other design and construction literature is offered. National Concrete Masonry Association.
Circle 214 on reader service card

Masonry publications and films listed offer information about materials, construction, inspection, design, engineering, code requirements, and developments in the field of masonry. Catalog also provides names and addresses of sources from which items can be ordered and prices for each. Masonry Institute of America.
Circle 215 on reader service card

Catalog of Publications lists publications about the use of brick for the design professional and the homebuilder, construction plans, slide presentations and films, along with the prices for each. Also listed are the available technical notes on brick construction, indexed by title and subject. Brick Institute of America.
Circle 216 on reader service card

Directory of Brick Manufacturers. Lists brick manufacturers alphabetically by company name and by state. Included are a directory of BIA members and the addresses of regional offices. Request copies, at $2 each, from Brick Institute of America, 1750 Old Meadow Rd., McLean, Va 22101.

The Use of Solar Energy Heating Systems in Brick Buildings. Twenty-eight page booklet discusses developments in the use of solar energy in the US. Principles of both passive and active solar heating systems are outlined, and methods of heat storage are covered. Eight examples of buildings that use solar systems are described and illustrated. Some sources of further information and a reading list of solar literature are included. Request copies, at $1 each, from Brick Institute of America, 1750 Old Meadow Road, McLean, Va 22101.

Machine-molded and handmade brick. Brochure illustrates in color the various types of machine-molded and handmade bricks the company manufactures, with dimensions for each type included. A specialty is handmade replicas of colonial brick. Also offered are architectural shapes, custom shapes, pavers and treads, and arch pieces. Alwine Brick Co.
Circle 217 on reader service card

Chemstruction System 1-2-3- brochure recommends specific products for use in typical construction conditions. Included are masonry treatments, joint treatments, grouts, waterproofing, protective coatings, and architectural sealants. Sonneborn-Contech.
Circle 218 on reader service card
[continued on page 112]

Shoppers to attract, traffic to flow, packages to carry. This is the place for Stanley automatic entrances.

Retail stores and shops find it good business to ease the way for busy customers. Bulky packages, umbrellas, children in tow. These are the problems that Stanley automatic doors are designed to answer. They're also engineered to provide broad architectural flexibility and years of trouble-free use. Everything, in fact, you expect from the originator and world's foremost maker of quality automated doors. Stanley Magic-Door, Division of The Stanley Works, Farmington, CT 06032.

Circle No. 347, on Reader Service Card

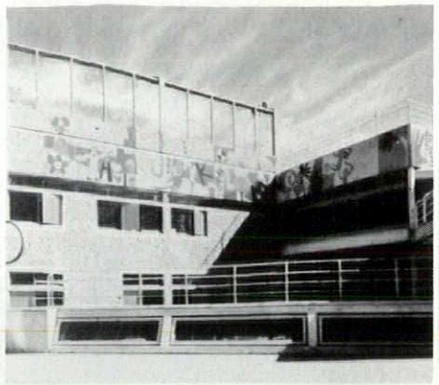
STANLEY

helps you do things right.™

Products continued from page 110

Other products

Permagraphics on porcelain panels can be used to inform or decorate. Logos, charts, maps, and drawings, as well as certain types of photographs, can be reproduced. The virtually indestructible surface resists stains, fire, scratches, and weathering. Marks from pens, pencils, and lipsticks wipe off easily, and sprayed-on paints can be removed with common solvents without harming the porcelain. Wolverine Div., AllianceWall Corp.
Circle 100 on reader service card



Permagraphics on porcelain panels

No Problem LC typing and text editing system combines an electronic keyboard, a video display, magnetic disk storage, and a high-speed printer. Preparation time for reports, manuals, specifications, technical publications, and similar documents is said to be reduced substantially using the system, with improved quality. The video display allows the typist to see what has been typed and make necessary corrections before the information is printed. It can store and handle up to 256 pages of copy. Lanier Business Products, Inc.
Circle 101 on reader service card

Wallpaper patterns, in keeping with the current interest in King Tutankhamun, include "Ancient Egypt," household scenes on panels 8½′ x 40"; "Anubis," featuring the jackal god, in both wallcovering and fabric; and "Egyptian," adapted from an ancient painting. Patterson-Piazza.
Circle 102 on reader service card

Adaptalab laboratory furniture, which installs in fixed locations, can be combined with Flexalab movable furniture to meet changing needs. Designed to be used together, the two lines maintain a uniform appearance while permitting flexibility in arrangement. The many base cabinets can be used with any one of eight work surfaces. Chemical-resistant finishes on door and drawer fronts come in five colors. Curtin Matheson Scientific, Laboratory Furniture.
Circle 103 on reader service card

WordWizard electronic typing is said to be an economical means of handling the typing load in medium-sized businesses. The operator can take dictation on the machine, edit the rough copy without lengthy retyping, and insert standard stored copy as needed. The machine stores up to 110 pages of information from as many as 20 documents. Final copy is produced at 480 words per minute. Processor Technology.
Circle 104 on reader service card

Lightweight silicone/urethane roofing can be installed over existing roofs by spraying in place. Urethane foam, which provides thermal insulation, is topped by silicone coating that forms a seamless, flexible membrane to protect the foam from weathering and ultraviolet light, and seal the roof against moisture. Dow Corning.
Circle 105 on reader service card

The new Berba color-coordinated carpeting of Dow-Badische BCF nylon is static controlled and has a five-year limited-wear warranty. Berba Point is a cable-look level loop; Berba Stripe is a level loop in striped effect; Berba Craft is a cut and loop texture; and Berba Lux is a cut pile. There are also additions to the company's Specta-Graphics and Floor Fantasy series. Wellco Carpet Corp., Mannington Mills.
Circle 106 on reader service card

Stacking chairs, designed by Arne Jacobsen in 1958, are reintroduced to the US market. The chair stacks or gangs; has legs on a swivel base, a jury base, or a tandem base. It is available with or without arms, or with tablet arm, and comes in several wood veneers, lacquer colors, or wood stains. Other options include upholstered seat only, upholstered inside only, or fully upholstered. International Contract Furnishings, Inc.
Circle 107 on reader service card
[continued on page 116]

Design flexibility and good engineering have been major objectives in the development of Blum railing systems. Components of the several systems are interchangeable to offer the designer the widest possible selection of metal, acrylic/wood and plastic components. Examples shown here illustrate the variety achieved by designers and executed through the ability of metal fabricators.

Blum's comprehensive catalogs supply data and methods for engineering design as well as clear and complete details of stock components. Thus the designer can specify Blum railings for style and appearance, for economy and structural soundness, and design railings to meet applicable codes or safety requirements.

All components are carried in warehouse stock in quantity and are available through architectural metal fabricators in all parts of the United States. Refer to Sweet's catalogs or request Catalog 13.

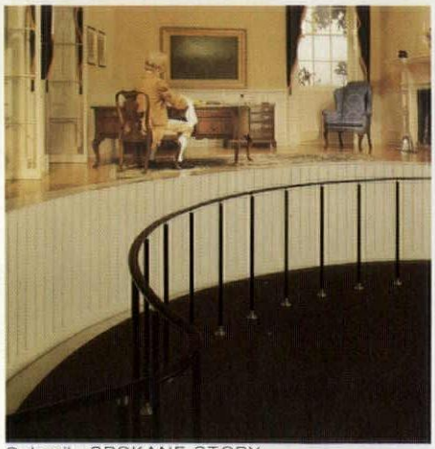
RAILING SYSTEMS

Carlstadt®
Acrylic/Wood Colorail®
Connectorail® Ornamental

JULIUS BLUM & CO., INC., CARLSTADT, NEW JERSEY 07072
N.J. (201) 438-4600 • N.Y. (212) 695-2236 • TELEX 13-3491

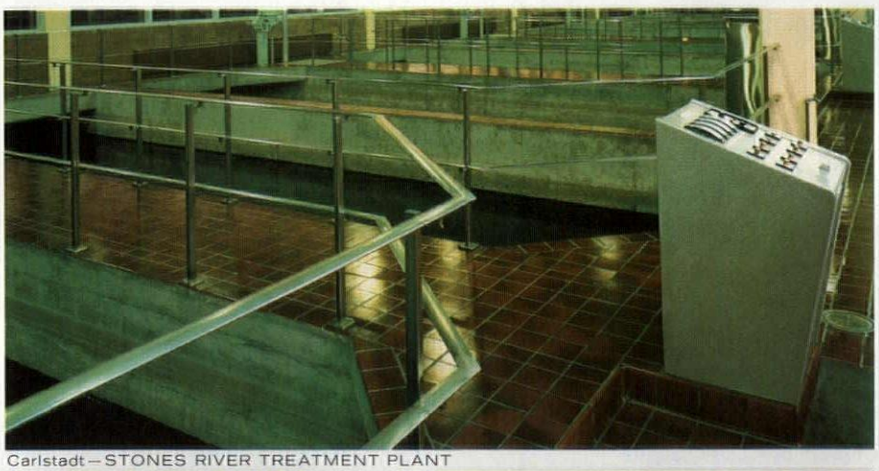
THE MOST COMPLETE SOURCE FOR ARCHITECTURAL METALS

Member of NAAM, NOMMA, NAAD & Steel Service Center Institute

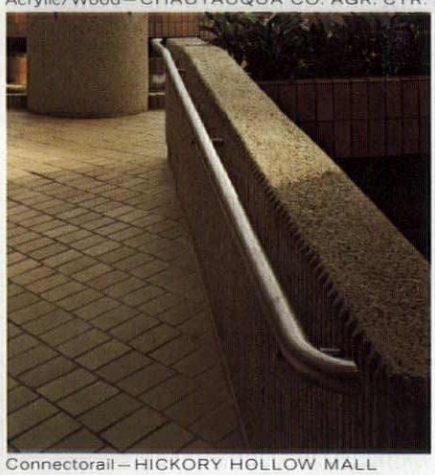


Colorail—SPOKANE STORY

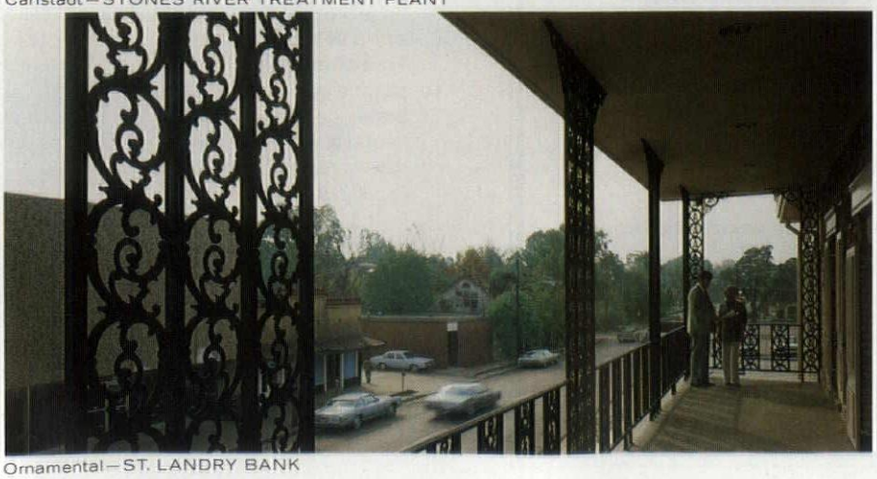
Acrylic/Wood—CHAUTAUQUA CO. AGR. CTR.



Carlstadt—STONES RIVER TREATMENT PLANT



Connectorail—HICKORY HOLLOW MALL



Ornamental—ST. LANDRY BANK

STONES RIVER TREATMENT PLANT, Nashville, Tennessee—
Arch: The Chester Engineers;
Fabr: USONA Manufacturing Co.

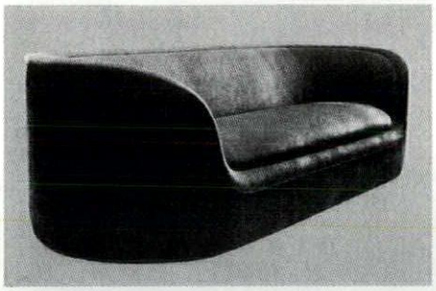
ST. LANDRY BANK, Opelousas, Louisiana—
Arch: Bank Bldg. Equip. Corp. of America;
Fabr: United Steel Co.

SPOKANE STORY, Spokane, Washington—
Designer: Zentis Design.

CHAUTAUQUA COUNTY AGRICULTURAL CENTER, Jamestown, New York—
Arch: Naetzker/Englund Architects;
Fabr: Jamestown Fabricating Steel.

HICKORY HOLLOW MALL, Nashville, TN—
Arch: Cooper Carry & Associates, Inc.;
Fabr: Justice Steel Company.

Products continued from page 112



Cartouche curved sofa.

Cartouche, a new design by Ward Bennett, is a curved sofa inspired by ovals on ancient Egyptian monuments. It is fully upholstered, approximately 7 ft long and 32 in. deep. Brickel Associates, Inc.
Circle 108 on reader service card

Bent plywood chair. The Holohan chair of bent oak plywood comes with swivel base or as guest chair on legs. Upholstery follows the contour of the design. It is suitable for areas requiring comfortable seating of moderate scale. The Gunlocke Company.
Circle 109 on reader service card

The Montage collection of contract carpets includes Portico, Basque, Legend, and Tapa. Pile is 100 percent Anso nylon which has a five-year wear guarantee. Carpets have been treated with Avitex for anti-static properties. According to the company, they meet ASTM E-84 tests for flame-spread, smoke density, and fuel contribution. Shaw Industries, Inc., Magee Carpet Div.
Circle 110 on reader service card

Oscilloscope overlays are removable grids or charts that can be placed on the screen to record the information to be transferred to drawings or any other surface. The sheets can be repositioned several times without losing adhesive properties. Grids are available in red, green, blue, orange, and black. Stanpat Products, Inc.
Circle 111 on reader service card

Versacor multilayer protective coatings for steel building components provide long-term resistance to corrosion. According to the manufacturer, the finish stands up to abrasion, humidity, salt fog, pollutants, and exposure to ultraviolet radiation. Basic protection is provided by G-90 zinc coating; second layer is an epoxy-base coat; and an outer layer of modified polyester provides an attractive finish. There is a wide range of standard and custom colors, on profiles and shapes to fit design needs. H.H. Robertson Co., U.S. Building Products Div.
Circle 112 on reader service card

Vinyl wallcovering, manufactured in Europe by Vescom for their 1979 collection, consists of approximately 250 selections of subtle patterns. Some have as many as four color combinations, with matt finishes and varied textures. Gilford.
Circle 113 on reader service card

Textured vinyl wallcovering. Four additions to "Guard" contract wallcoverings are moire (8 colors), hopsacking (30 colors), a neutral texture (24 colors), and a heavy-duty, leather-look fabric (8 neutral shades). There are 800 colors and textures in the Guard group. Columbus Coated Fabrics.
Circle 114 on reader service card

A modular bedroom wall storage unit offers a choice of: deep or shallow drawers, pullout shelves, wire baskets, TV pullout swivel, shoe and tie racks, and pneumatic-lift clothes poles. Handtooled interior hardware comes in brass or silver. Cy Mann Designs, Ltd.
Circle 115 on reader service card

Other literature

Small-business computers. The use of computers in small business is discussed in a 12-page brochure. Shown are the various elements available to build a system of appropriate size. Time allocation for billing, payroll, information storage and retrieval, reports, and similar uses are suggested. Installations can be expanded from simple desktop units to multistation combinations. Wang Laboratories, Inc.
Circle 219 on reader service card

Woven-wood window treatments are shown in color, along with suggested trim colors. Woods are painted or stained slats or reeds, with trims in one or more colors to coordinate with the wood. Six-page brochure also illustrates trim styles. Kirsch Woven Woods, Kirsch Co.
Circle 220 on reader service card
[continued on page 118]

Join the discoverers. Let the sunshine in on energy problems.

ACRYLITE® SDP* double skinned acrylic sheet provides outstanding thermal insulation in skylights, window walls and swimming pool enclosures... large and small area applications...new construction and renovations. Longitudinal air cells between the ribs give ACRYLITE SDP sheet a U factor equal to insulated glass, at substantially lower cost. Buildings can open up high, wide and handsome to daylight. Because ACRYLITE SDP sheet combines visual excitement with cost efficiency, in construction and long term fuel savings. And that's not all.

A remarkably versatile high performer, ACRYLITE SDP sheet also offers high rigidity and load strength, impact resistance and weatherability, easy workability and thermoformability. Designers gain increased freedom for tailoring daylight to the application, adding drama and distinction — with savings on construction as well as in heating and lighting costs.

Especially well suited to large area glazing, ACRYLITE SDP sheet and its special mounting system, consisting of ACRYLITE SDP double skinned sheet in 47-1/4" width and lengths graduated to 20', and specially designed aluminum fittings, provide fast, efficient glazing on 48" modules. ACRYLITE SDP sheet is equally efficient in custom designed units. Light weight, high strength and workability permit extensive prefabrication, and easy handling and transportation.

Nonyellowing ACRYLITE SDP sheet is available in clear, translucent, white, and solar tints. There's a polycarbonate version, too. Both have properties geared to expand the range of architectural possibility, ACRYLITE SDP sheet presents a superior alternative to glass in many situations.

For practicality, economy and visual excitement — join the discoverers of ACRYLITE SDP double skinned acrylic sheet, and design in daylight.

For more information on ACRYLITE SDP sheet and its special mounting system, including technical data and design assistance, write Lou Cipriani, CY/RO Industries, Wayne, New Jersey 07470. Can't wait? Call (201) 839-4800.

CY/RO — making news in transparent plastics.

CY/RO INDUSTRIES

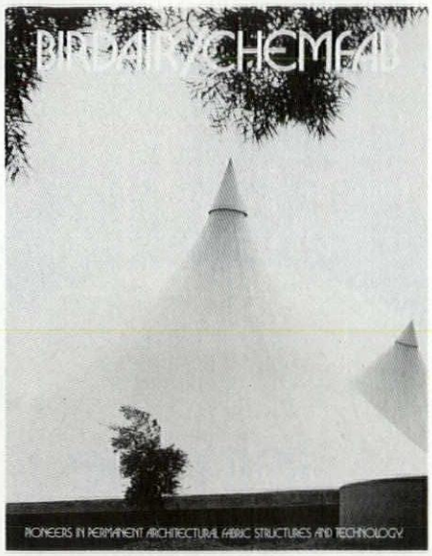
A Partnership of Cyanamid Plastics, Inc., and Rohacryl, Inc.

*Trademark

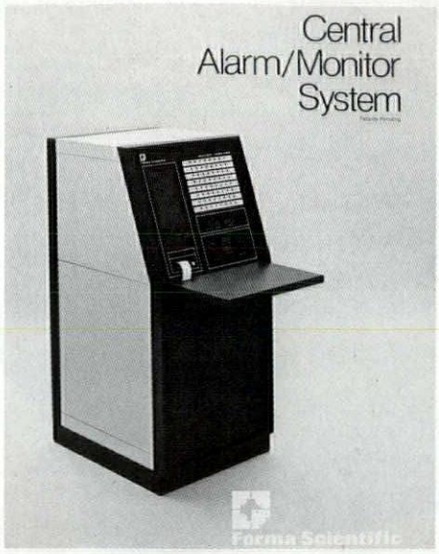
Circle No. 362, on Reader Service Card

Literature continued from page 116

Permanent fabric structures. This 16-page brochure begins with a brief history that explains the development of fabric structures. Several illustrations of existing buildings show some of the many design possibilities. Advantages claimed include construction economy, minimal maintenance costs, energy cost savings, and design freedom. Chart shows typical specifications for two fabrics produced by Chemical Fabric Corp. for these buildings: Teflon®-coated Fiberglas® Sheerfill® and a sound-absorbing material, Fabrasorb®. Diagrams illustrate the four construction components. Birdair Structures, Inc.
Circle 221 on reader service card



Permanent fabric structures.



Central Alarm/Monitor System.

Central Alarm/Monitor System provides protection against overheating or underheating, with up to 64 sensors leading to the central monitor. Six-page folder has a diagram of a typical installation and illustrates the control panel. An optional printer provides a permanent record of sensor activity. Forma Scientific, Div. of Mallinckrodt, Inc.
Circle 222 on reader service card

NRCA Rooftop Equipment Program provides a complete list of rooftop equipment manufacturers who certify that their equipment meets NRCA criteria. A copy of criteria for rooftop curb approval, detailing proper design of rooftop equipment curbs to ensure compatibility with roofing systems, is included. Four construction detail plans illustrate proper design of equipment stands, deck frames, and piping penetrations. Request copies ($1.50 each, $0.75 each for five or more) from National Roofing Contractors Association, 1515 N. Harlem Ave., Oak Park, Il 60302.

Hardwood plywood and veneer directory lists names and addresses of association members who manufacture plywood in hardwood species from ash to zebrawood, as well as specialty items. In the 48-page publication, association laboratory facilities and testing capabilities are also discussed. Hardwood Plywood Manufacturers Association.
Circle 223 on reader service card

Profile extrusions of plastic are illustrated in an application guide. Suggested uses include corner guards, bumpers, handrails, and interior trim. DualExtrusions serve as decorative and wire-carrying wall components. Crane Plastics.
Circle 224 on reader service card
[continued on page 120]

PPG OFFERS A STUNNING ALTERNATIVE TO THE DRAB SLAB.

Discover a spectacular exterior wall treatment that puts new designs on all that it surrounds. Discover PPG's Solarcool® Spandrelite® wall cladding.

In addition to dramatic beauty, Solarcool Spandrelite wall cladding offers outstanding performance capabilities. In new or existing applications. And at a cost that's lower than the expected exterior wall treatments: masonry, aluminum, stone and polished stainless steel.

An advanced structural silicone glazing system with the mullions inside can make Solarcool Spandrelite wall cladding appear seamless.

You're free to choose glass types and thicknesses previously unimagined.

And Solarcool Spandrelite works as an energy-efficient opaque curtain wall or a window area. Can even hang in front of insulation.

Since 1965, PPG has led the world in creative application of structural silicone glazing systems. And began to build more "oohs" and "aahs" into buildings.

Find out more. See Sweet's 8.26/Pp. Or write Environmental Glass Sales, PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

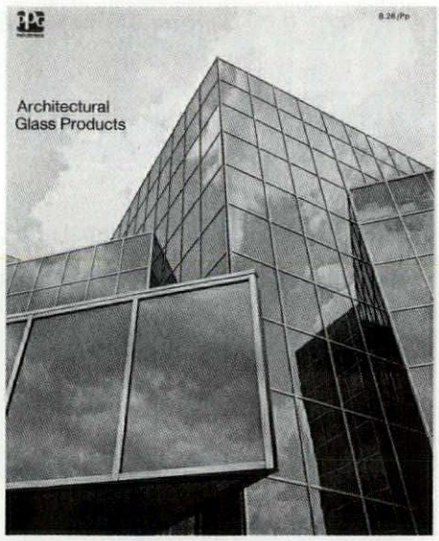
PPG: a Concern for the Future

Circle No. 338

PPG INDUSTRIES

Architect: Robert Bridges Associates, New York

Literature continued from page 118



Architectural glass products.

Architectural glass products. A 32-page booklet gives performance and appearance information about architectural glasses such as Solarban® reflective insulating glass, Solarcool® bronze reflective glass, Twindow® glass-edge insulating units, high-strength laminated products, and structural silicone glazing systems. Color photographs illustrate product applications. PPG Industries.
Circle 225 on reader service card

Metal doors and frames in seven series are detailed in this 16-page 1979 catalog. Technical charts cover designs, sizes, and UL information. Drawings show feature details. Typical specifications, hardware information, and a color chart are included. Amweld Building Products.
Circle 226 on reader service card

Heatherbrown Welsh quarry tiles are fired from Marl clays in natural earth brown tones compatible with any color. The tiles are said to be durable and maintenance-free. Four-page color brochure illustrates the tiles and shows typical installations. Shep Brown Associates.
Circle 227 on reader service card

Contract carpet brochure shows 68 full-color examples of designs that illustrate the variety of patterns produced. Custom designs include logos, emblems, initials, and motifs which can be produced in many color combinations. Fibers are all wool, wool and nylon, or acrylic and nylon, with antistatic fiber added. Pennsylvania Carpet Mills, Inc.
Circle 228 on reader service card

Interior paint selection guide. Wisconsin Painting and Decorating Contractors Association, in collaboration with the School of Architecture and Urban Planning, University of Wisconsin, has prepared a chart that provides information on the correct use of six generic paint binders. Each is rated for resistance to a range of typical exposures, recoatability, and suitability for ten different interior spaces. Copies of the chart are available for $2 each from The Wisconsin Painting and Decorating Contractors Association, 8705 N. Port Washington Rd., Milwaukee, Wi 53217.

Flooring in planks, parquet patterns, custom designs, and other choices is described in an eight-page brochure. Diagrams show the various patterns, many of which are preassembled. Color illustrations show installations using several varieties of hardwood. Kentucky Wood Floors, Inc.
Circle 229 on reader service card

Playground equipment catalog.

Playground equipment catalog contains 42 pages of full-color illustrations and descriptions of items for children to play on. There are suggested playground layouts, space requirements, and component specifications. Included are climbers, chain networks, and special equipment for handicapped children. Playscape Products.
Circle 230 on reader service card

sound-absorbing

VICRACOUSTIC® 80

lowers the boom . . . with lightweight beauty

Vicracoustic 80 . . . for easier, quicker and more economical installations – especially those that require work at height. Because Vicracoustic 80 is really lightweight, yet still boasts an effective N.R.C. of 80. And Vicracoustic 80 is beautiful . . . decorated with any of the more than 100 textures and 1700 colors available in the Vicrtex® vinyl wallcovering collection – and in new Vicrtone® fabrics. A superb addition to the family of Vicracoustic sound-absorption systems for architects, interior designers and acoustical engineers. Brochure and price list available.

L.E. CARPENTER and Company A Dayco Company. 170 North Main Street, Wharton, N.J. 07885, (201) 366-2020/NYC (212) 751-3565

DISTRIBUTED BY: VICRTEX SALES DIVISION, New York, Atlanta, Chicago, Dallas, Los Angeles, San Francisco, Boston, Minneapolis, Toronto, Montreal. HOWELLS, INC., Salt Lake City/PAUL RASMUSSEN, INC., Honolulu

Circle **No. 363,** on Reader Service Card

Building materials

Major materials suppliers for buildings that are featured this month as they were furnished to P/A by the architects.

Prudential Insurance Co. Northeastern Home Office executive floor, Boston, Ma (p. 65). *Interior design: Daroff Design, Inc., New York and Philadelphia.* Solargray glass wall panels: Libbey Owens Ford. Alucobond metal wall panels: Bufkin Industries. Nature Trail (Baghdad Series) carpeting: Bloomsburg Carpet. Aluminum perforated pan ceilings: Simplex. Desk accessories: Smith Metal Arts. Filing cabinets: Steelcase. Cabinetwork: Ralph Iaccarino & Sons, Inc. Marblework: Colonial Marble. Coffee tables: Intrex. Desks: Knoll International. Desk chairs: Brickel; Herman Miller; Knoll International; Stendig. Lounge chairs: ICF; Knoll International. Settee: David Edward, Ltd.

Cabrillo School, San Francisco, Ca (p. 74). *Architects: Chester Bowles, Jr., Marshall & Bowles, San Francisco.* Foundation: Pacific States. Steel frame: U.S. Steel. Steel studs: Inland Ryerson-Milco, Western Metal Lath. Concrete/steel deck: H.H. Robertson. Stucco: Peerless Stucco. Plywood: U.S. Plywood. Gypsum board: U.S. Gypsum. Ceiling surfacing: Armstrong, Lok-Products. Roofing: Flintkote. Movable walls: PSA/Modernfold. Windows: Box Lench Co., Lexan/General Electric. Hardware: Schlage, Hager. Paint: Fuller/O'Brien. Kitchen equipment: Dwyer. Lighting: Marco, Smoot Holman. Plumbing and sanitary: American Standard, Sloan. A.C. units: Carrier.

Commodore Sloat School, San Francisco, Ca (p. 76). *Architects: Marquis Associates, San Francisco.* Steel columns: Fire-Trol Corp. Truss joists: Trus-Joist Corp. Laminated beams: Standard Structures. Stucco: Peerless Stucco. Gypsum board: U.S. Gypsum. Floor surfacing: Firth, Armstrong. Acoustical tile: Armstrong. Roof surfacing: Johns-Manville. Demountable partitions: Papsco, Inc. Windows: Herzog, Lexan/General Electric. Doors: Forderer Cornice Works. Hardware: Schlage, LCN, McKinney, Richards Wilcox, Von Duprin. Paint: Fuller/O'Brien. Lighting: Peerless Electric. Plumbing and sanitary: American Standard, Sloan. Heating: Fernsten Industries.

Peralta Elementary School, Oakland, Ca (p. 78). *Architects: Joint venture of Kirby Ward Fitzpatrick, Daniel Solomon, Karren & Seals, San Francisco.* Exterior walls: U.S. Plywood, Tufide Corp. Interior partitions: Kaiser, U.S. Gypsum. Ceiling surfacing: Armstrong. Exterior paint: Olympic. Lighting: Peerless, Prescolite, Well-Made.

Jackie Robinson Middle School, New Haven, Ct (p. 68). *Architects: Stull Associates, Boston.* Foundation: Clark-Barone. Steel frame, roof: New England Iron Works. Floors: Roll Form Products. Exterior wall surfacing: Kalwall Corp. Interior partitions: U.S. Gypsum. Floor surfacing: Commercial Carpet Corp., Todco. Ceiling surfacing: Kalwall Corp., Roll Form Products, Albi Mfg. Corp. Roof Surfacing: Kalwall Corp., AMSPEC. Concrete block: Plasticrete. Windows: Kalwall Corp. Doors: County Fire Door Corp., Peerless, North American Door. Hardware: Sargent and Co., Stanley Works.

KAWNEER SEALAIR® WEATHERING SYSTEM.*

For all those times when a door is a wall.

Of course, a door is meant to open and close. And during the operation, energy efficiency is a total loss. But, for more than half of its life a door is really a wall. Therefore, it should weather like a wall.

Unfortunately, during those times the only thing most doors let in is . . . air. The conventional pile weathering found on most entrances is so inefficient that air infiltrates it at a rate equivalent to cutting a 2" x 4" hole in the glass.**

Sealair Weathering System shuts the door on air infiltration.

Sealair Weathering for Kawneer Entrances is an advanced system of weathering components which tightly seal a door's perimeter to create a positive air infiltration barrier. The result is a reduction in air infiltration of as much as 86% when compared to conventional pile weathering. This revolutionary system is now standard on all Kawneer 190 (narrow), 350 (medium) and 500 (wide) stile entrances. These are the same aluminum entrances which are specified more often than any other entrance system.

No printed page can tell everything you'll want to know about all the benefits of this new entrance weathering system. So, for more information about Kawneer entrances with the Sealair Weathering System, please contact your Kawneer sales representative or write: Kawneer Company, Dept. C, 1105 N. Front Street, Niles, MI 49120. (616) 683-0200.

Kawneer
The designer's element

Job mart

Situations Open

Architect: Demonstrated marketing skills and design abilities needed for growing 100 man Maine/New Hampshire architectural firm. Broad range of projects includes housing, medical, educational and municipal facilities. Attractive coastal location. Salary commensurate with skills. Stephen Bowers, WRIGHT-PIERCE, 99 Main St., Topsham, Me 04086.

Architects/Draftspersons: Immediate openings at all experience levels. Large institutional, educational, energy management workload. Progressive, established firm in Adirondack area offers unique living/working opportunities to qualified applicants. Send experience, education, etc. to Box 229, Glens Falls, NY 12801.

Architect/Health Planner: Position open with major consulting A/E exibiting excellent growth history. Qualified professional should possess highly design oriented background of 8–10+ yrs. in the health care and/or teaching facilities area with additional professional expertise in complete facilities Master Plan preparation and programming. Supplementary qualifications should also include the ability to conduct effective oral and written communications, supervise related project personnel; and, to assist in some marketing efforts. Position offers excellent compensation along with future personal growth. Respond in confidence to our representatives: G. Marshall Assoc., P.O. Box 66083, Chicago, Il 60666.

Architectural Planner: The Medical College of Pennsylvania is seeking an individual with an Architectural Degree to handle design and development of renovation projects. Additional duties include space planning, code review with implementation project development, coordination of outside consultant activities, long range plan development and project management. A minimum of six years experience with architectural firm and client contact background required. Send resume to The Medical College of Pennsylvania, 3300 Henry Ave., Philadelphia, Pa 19129. Equal Opportunity Employer, M/F.

Assistant Professor of Industrial Design: Requirements: Masters Degree or its equivalent. Three years minimum professional experience in Industrial or Interior Architectural Design. Some teaching experience related to the discipline. Teaching responsibilities: Studio courses in Product and Interior Space Design (intermediate/advanced) depending upon experience, supportive in the areas of Basic Design within two and three-dimensional concepts and theories, Design Methods, and Materials and Manufacturing Processes. Departmental responsibilities: Committee and service work required. Please contact the Search Committee, % Charles Wallschlaeger, for further information. We are an Equal Opportunity/Affirmative Action Employer.

Assistant Professorship: INTERIOR DESIGN/INTERIOR ARCHITECTURE. Beginning September 1979, 3 year renewable contract, tenure tract position. Send resume and 3 letters of recommendation to: University of Washington, School of Art DM-10, Seattle, Wa 98195, Attn: Richard Arnold, Director, School of Art. Application Deadline March 1, 1979. The University of Washington is an Affirmative Action/Equal Opportunity Employer.

Dean: The University of Tennessee, Knoxville, invites nominations and applications for the position of Dean of the School of Architecture. The School offers a five-year professional program leading to the Bachelor of Architecture degree with concentrations in Administration, Design, History/Humanities and Technology. A proposed graduate program is under development. New physical facilities are now under construction. The School has an enrollment of over 500 students and more than 30 full-time equivalent faculty positions. The University of Tennessee is both the state university and a land-grant institution. The Knoxville campus, with a student body of 30,000, serves as the comprehensive campus of the university and the principal center for graduate study in the state. The candidate should have experience in administration and the ability to work effectively with other administrators, faculty, and students. Desirable qualifications include those requisite for professorial rank in the school such as the Master of Architecture degree, professional registration, and recognition through professional practice. The deadline for applications is March 15, 1979. Nominations should include as much detail as possible; applications must include resumes and names of references. Both should be sent to: Chairperson, Architecture Search Committee, Office of the Vice

[continued on page 126]

For Interior Elegance and Durability Whitacre-Greer Thin Pavers in Warm Earth Tones

Whitacre-Greer Thin Pavers bring beauty and durability to lobbies, foyers, game rooms and other interiors. Just 5/8″ thick, they are available in a wide range of distinctive earth tones.

Whitacre-Greer Architectural Pavers are products of one of the country's richest clay areas — east central Ohio. The character and wide appeal of this unique range of earth tones is due to these rich Ohio deposits, processed with a variety of additives, under rigidly controlled firing conditions.

For the name of your nearest Whitacre-Greer representative, call SWEETS BUYLINE. Or, write or call collect to Whitacre-Greer, Waynesburg, Ohio 44688. Phone (216) 866-9331.

Thin pavers shown here are available as 3⅞″ x 7⅝″ rectangles. All are 5/8″ thick. Compressive strength 10,500 psi. Maximum average absorption rate 4%. Freeze-thaw cycles, 100 minimum. Size and distortion tolerance and color variations on pavers will meet ASTM Designation C-216, Type FBS.

CANDLELIGHT | CALEDONIA BROWN IRON SPOT | RUSTIC

ANTIQUE RANGE | FULL RANGE IRON SPOT | MULBERRY FLASHED RANGE

WHITACRE-GREER

WAYNESBURG, OHIO 44688

Job mart continued from page 124

Chancellor, Academic Affairs, University of Tennessee, Knoxville, Tn 37916. UTK is an EEO/ Affirmative Action/Title IX/Section 504 Employer.

Design Studio and Theory: (Full or associate professor). Environmental Control and Design Studio (associate or assistant professor). For application and further information: G. Anselevicius, Chairman, Architecture Department, Hayes Hall, State University of New York, Buffalo, NY 14214. SUNYAB is an Affirmative Action, Equal Opportunity Employer.

Faculty: Dept Arch Auburn U anticipates several vacancies Sept. 79 in fundamental and advanced design. Advanced degree and office experience required. Registration and teaching experience desired. In addition to design studio, teach a lecture or seminar in area of expertise. Salaries open and competitive. Applications and vita to Dean Keith McPheeters, School of Arch and Fine Arts, Auburn U, Auburn, Al 36830. Affirmative Action Employer.

Faculty: The Department of Architecture at California State Polytechnic University, Pomona, is seeking applications for part-time and full-time lecture or tenured track faculty positions for the 1979–80 academic year in the following categories: architectural design, history, structures, environmental controls, and professional practice. Minimum requirements: bachelor's degree in Architecture with a master's degree in Architecture or the related professions, i.e. Landscape Architecture, planning, ecology, etc. or national or international distinction within the profession plus three years of professional experience in Architecture or the related fields. The Department of Architecture is part of the School of Environmental Design which also includes programs in Landscape Architecture and Urban Planning. An Equal Opportunity/Affirmative Action Employer. Send resume and request application form by February 21 to: Chairman, Faculty Search Committee, Department of Architecture, School of Environmental Design, 3801 West Temple Avenue, Pomona, Ca 91768.

Faculty: The Syracuse University School of Architecture has two full time positions open for the Fall of 1979. Both positions are in the Architectural Design Sequence of the program. Tenure track; rank, salary, and length of initial contract negotiable. Registration and secondary capability preferred. Please send resumes and references to Julio M. San Jose, Associate Dean, School of Architecture, Syracuse University, Syracuse NY 13210. Syracuse University is an Equal Opportunity/Affirmative Action Employer.

Faculty Positions: Openings for nine-month appointments beginning September 1, 1979. Rank and salary commensurate with qualifications. Responsibilities: teach graduate and/or undergraduate courses in construction, structural design, and contract documents. Qualifications: graduate professional degree in Architecture; demonstrated specialization in area of study evidenced by publication, research, or other recognition; professional registration required and practice experience highly desirable. Application deadline: April 1, 1979. Send resume and three references to: Richard Dodge, Chairperson, Faculty Search Committee, School of Architecture, The University of Texas at Austin, Austin, Texas 78712. Hal Box, Dean. An Equal Opportunity Employer.

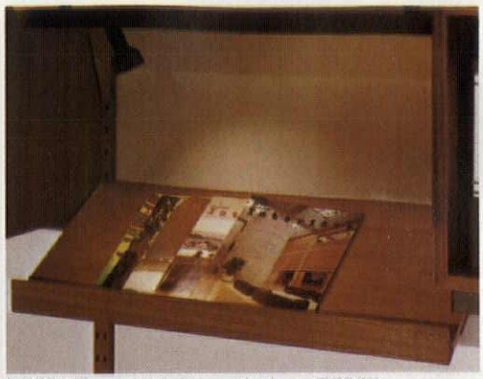
Project Architect: A respected professional architectural firm in the Midwest offers an exceptional opportunity for a skilled architect with management ability. The selected individual will take charge of all elements of a project from design concept through construction completion. It is intended that this person will become a partner within 5 years and participate in directing the organization. Starting salary is in the $30,000 range. At least 8 years experience is required in general architectural design. Send resume to: Box #1361–261, *Progressive Architecture.* Replies will be held in confidence by an independent consulting firm and will not be disclosed without candidate permission.

Job Captain/Architect: Position available with prominent consulting architect. Qualified individual should have degree and 2–5 yrs. intensive exp. in project production facets, some design exposure and the ability to assume ever increasing responsibilities for total project supervision. Position offers excellent compensation package and future professional growth opportunities. Contact our representatives in confidence: G. Marshall Assoc., P.O. Box 66083, Chicago, Il 60666.

Marketing/Business Development: Our Architectural, Engineering & Development firm is looking for an experienced person to direct the marketing and business development activities for our corporation. We are a medium size firm with Multiple regional offices. Our needs can best be met by a professional marketing specialist with experience with professional architectural and engineering firms, or an architect/engineer with proven capabilities in

[continued on page 128]

No.151 Bar cabinet with drop front and rear mirror.

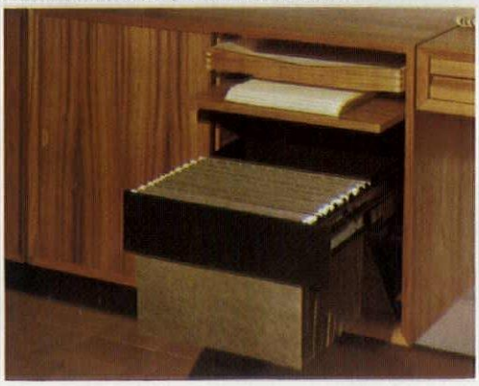


RS201 Track Lighting with three RS202 basic lights and one RS203 spotlight, attractive illumination for Cado magazine shelf.

NOT YOUR ORDINARY OFFICE...THIS IS A CADO SYSTEM

No.134 cabinet with optional refrigerator.

No.112 cabinet with No.236 file frame, No.114 drawer tray and No.115 shelf.



More than an efficient working environment, a Cado system office is comfortable enough to entertain in. Featured is the Wall System, the Executive Desk No.301; the No.208 Executive Chair, swivel with padded armrests and upholstered in leather, the 162-03 Sofa and the 209 Conference Chair, all in teak; and from Cado's Gallery Loom Works, Phaistos No.102, 100% wool area rug.

CADO

CADO/ROYAL SYSTEM, INC. P.O. Box C-76, 57-08 39th Ave., Woodside, N.Y. 11377. Showrooms: 979 Third Ave., N.Y. 10022/Atlanta/Cincinnati/Los Angeles/San Francisco/Denver/Houston/Seattle/ Miami/Philadelphia/Chicago.

Job mart continued from page 126

this area. Please send resume or other pertinent data to: Orput Corporation, 1200 Central Ave., Suite 300, Wilmette, Il 60091.

Positions Open: Carnegie-Mellon University, Department of Architecture, seeks applications for the following: 1. Assistant or Associate Professor in Architectural Design beginning September 1979. Advanced degree in Architecture, practice and teaching experience preferred. Responsibilities: Architectural design studio, middle or upper levels; additional design-related course, and/or research. Those with interests and experience in an additional discipline will be given special consideration. 2. Position in Architectural Technology beginning September 1979. Advanced degree in Architecture and/or Engineering. Candidates with teaching experience (and professional experience) will be given preference. Responsibilities: Lecturer in courses in environmental systems, with emphasis on active and passive systems. Some knowledge of electrical distribution and illumination desired. In addition, critic in design studios, with or without emphasis on technical issues. 3. A one-year appointment in Architectural History beginning September 1979. Ph.D. degree and teaching experience required. Responsibilities: Two courses per semester within program of general architectural education. 4. Position in Architectural Computer-Aided Design beginning September 1979. Advanced degree in Architecture. Special interest will be given to applicants qualified in areas complimentary to those existing in the Department. Such areas might be: building technology, computer-aided instruction, construction management. Responsibilities: Selected person will be expected to participate in and expand teaching and research activities and to participate in directing the studies and research of Ph.D. students in this area. Salary and rank for each category will be negotiable dependent upon qualifications. Send curriculum vitae and names of three references to John Pekruhn, Chairman, New Faculty Search Committee, Department of Architecture, Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213. "Carnegie-Mellon University is an Affirmative Action/Equal Opportunity Employer and encourages applications from minorities and women."

Project Architect, Designers, Space Planners: Fast growing, professionally oriented national design-build firm specializing in medical projects needs experienced architects. Top salaries, excellent fringes, advancement opportunities. Send resume and salary history to J. A. Bagala, AIA, American Medical Buildings, 735 North Water Street, Milwaukee, Wi 53202.

Project Architects/Managers: Nationwide personnel consulting service. Superior positions for all experience levels. Emphasis on health care, institutional, industrial, commercial buildings. All expenses company paid. For career advancement, inquire in strictest confidence: William E. Engle Associates, Inc., 909 Investors Trust Bldg., Indianapolis, In 46204, (317) 632-1391.

Project Designers: An expanding medium size A/E firm has a position open for an experienced project designer. Registration is preferred, but openings are also available for architects in training with three to five years experience. Recent hospital experience is preferred, although not essential. We are a multidisciplined design-oriented firm with a wide variety of project types. We are located in a Big Ten university community with outstanding opportunities for cultural and athletic activities. Iowa City provides an excellent environment for family-oriented activities as well as personal growth potential. We offer a full benefit package and a salary commensurate with experience. Call Duane Roggow at 319/354-4700 for further information or send resume, in confidence, to Hansen Lind Meyer, P.C., Drawer 310, Plaza Centre One, Iowa City, Ia 52240. An Equal Opportunity/ Affirmative Action Employer. M/F.

Sr. Design Architect: Lead Design position available with major A/E firm in NE. Qualified professional should possess degree and registration in addition to 8+ yrs. exp. in effective design and/or design direction of major commercial and office bldg. projects encompassing both high and low rise systems. Individual should also possess the ability to interact with clients and conduct oral presentations coupled with the desire to assist in future marktg. efforts. Position opening is due to firm's growth and offers excellent compensation and future. Please respond in confidence with resume to our representatives: G. Marshall Assoc., P.O. Box 66083, Chicago, Il 60666.

Teaching position: Available in FIDER accredited Interior Design Program. Assistant Professor. Teaching areas: Undergraduate architectural drafting and detailing, specifications, architectural design and delineation, basic design, as well as graduate level instruction. Qualifications: Master's degree in Architecture, professional architectural experience, teaching experience at University

level. Applications will be received until February 20, 1979, or until a suitable applicant is found. Contact: Paul J. Lougeay, Acting Director, Division of Comprehensive Planning & Design, Southern Illinois University, Carbondale, Il 62901. SIU-C is an Equal Opportunity/Affirmative Action Employer.

Vice President Architectural Department: We are a registered architectural firm which specializes in the design and construction of medical facilities. In the past 29 years we have built over 1,500 medical buildings throughout the United States and overseas. Our national reputation for excellence and integrity is beyond reproach. We are looking for an outstanding individual with design sensitivity and superior administrative ability to take charge of the Architectural Department consisting of about 30 professionals. For the right individual with a proven record of accomplishments, we can offer an excellent position in a sound and financially strong firm. Excellent pay, stock options and fringe benefits. Marshall Erdman and Associates, 5117 University Avenue, Madison, Wi 53705, Tel. (608) 238-0221.

VISTA: Needs volunteers for architecture, planning, housing, weatherization, and solar energy projects. One-year commitment; your expenses paid; singles & couples. Information: Linda Friedman, VISTA, A–2, Washington, DC 20525. An Equal Opportunity Program.

Situations Wanted

Architect: Strong business orientation, multiple licenses, overseas experience, can relocate and travel. Over 20 years with major A&E firms and private practice, high-rise & corporate office buildings, medical facilities, hotels, housing, airports. Seeking promotable and responsible position office management, marketing or department head in progressive firm. Box 1361–260, *Progressive Architecture*.

Architectural Services

Architectural Computer Services: Software development services for architectural, engineering and construction management applications. Specializing in the solution of unique information processing problems and investigations in the areas of computer graphics, space planning, data analysis, and cost estimating. Write Robert J. Krawczyk, 211 East Delaware Place, Chicago, Il 60611, or call (312) 944-4450.

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., 82 Dale St., West Babylon, NY 11704, (516) 249-2462.

NCARB Exam Success: Start preparing now for the DECEMBER 1979 professional exam with our study program. Learn score-maximizing techniques; the best states to apply to; what to (and not to) study; candid advice from dozens of former candidates. For complete information, write: Bonus Pointers, 2328 Webster, Berkeley, Ca 94705.

Rendering Services: Top professional rendering service coast to coast. Architectural, Urban, landscape, interiors, industrial, advertising illustration in pen and ink or color for the best reproduction. Portfolio by appointment. Allow maximum time for job completion. Please call Mark de Nalovy-Rozvadovski (203) 869-4598, 25 Birchwood Dr., Greenwich, Ct 06830.

RitaSue Siegel Agency: Ms. Woody Gibson introduces creative architects, interior designers and urban planners to our international clients. RitaSue Siegel identifies and evaluates industrial and graphic designers. You are invited to submit confidential resumes. Our clients pay all fees. 60 W. 55th St., NYC 10019, (212) 586-4750.

Tree Stamps: TREELINE's top quality line of rubber stamps offer the quality of hand drawn trees with the convenience of tree stamps. Write for free catalog. TREELINE, 52 Raleigh Road, Department B, Belmont, Ma 02178.

Notice

Please address all correspondence to box numbered advertisements as follows:

Progressive Architecture
% Box .....
600 Summer Street
Stamford, Ct 06904

Advertising Rates

Standard charge for each unit is Twenty-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 Fifty 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
Publishing Director

Harrington A. Rose, *Eastern Sales Manager*
Francis X. Roberts, Charles B. Selden,
District Managers

Chicago, Illinois 60601:
2 Illinois Center Bldg
Suite 1300 *312-861-0880*
Tony Arnone, *District Manager*

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 77081
2100 West Loop South, Suite 510 *713-961-7841*
R.W. Whit Jones, *Representative*

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*

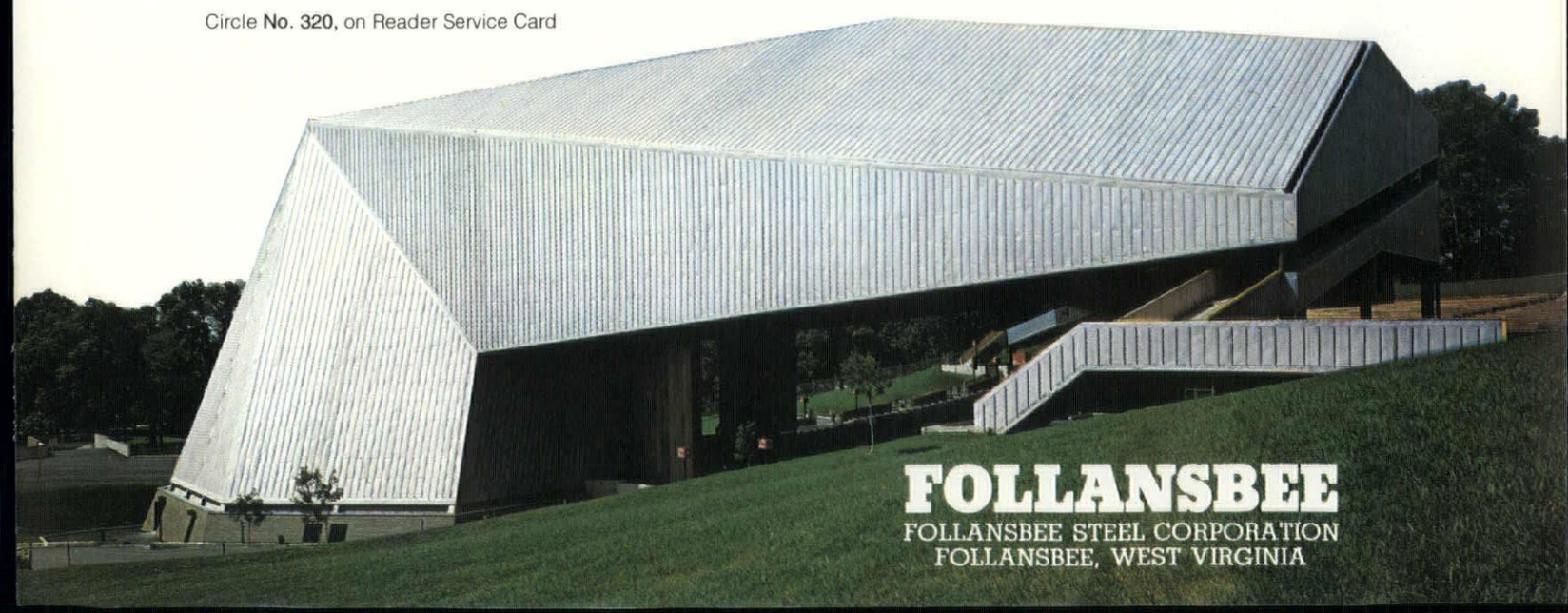
Robin Hood Dell West, Philadelphia, Pa. • Architects: John H. MacFadyen and Alfredo De Vido, New York • Associate Architect: I. Demchick, Philadelphia, Pa. • Roofing Contractor: Warren-Ehret-Linck, Philadelphia, Pa.

TCS...THE LOGIC OF ITS USE

Rarely if ever has metal roofing been employed with more stunning visual impact than on Robin Hood Dell West, the Philadelphia Orchestra's new summer home, which will also serve as a creative center for other groups in the performing arts.

In specifying over 80,000 square feet of TCS (Terne-Coated Stainless Steel) on this exciting structure, the architects were primarily influenced by several practical as well as aesthetic considerations. Among them was the material's unsurpassed durability which is measured in generations rather than years. They were also aware that TCS weathers naturally to a uniform and attractive warm gray; that, properly installed, it will never need maintenance; and that it is highly resistant to even the most severe corrosive attack.

Circle **No. 320**, on Reader Service Card



FOLLANSBEE

FOLLANSBEE STEEL CORPORATION
FOLLANSBEE, WEST VIRGINIA

A beautiful way to make an exit and bar an entrance.

Russwin 900 Series labeled rim exit devices. Positive two-way protection styled to flow harmoniously in any decor. Oval-contoured cross bar provides sure grip . . . triggers instant release. Touch button deadlocks massive ¾" latch against intruders.

Rugged stainless steel chassis. UL listed class "A". Available in a wide range of types and finishes.

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

RUSSWIN

Circle No. 344, on Reader Service Card