Progressive Architecture

August 1981

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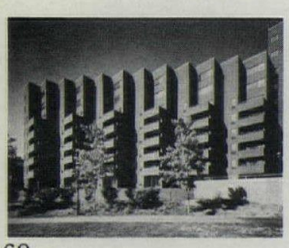

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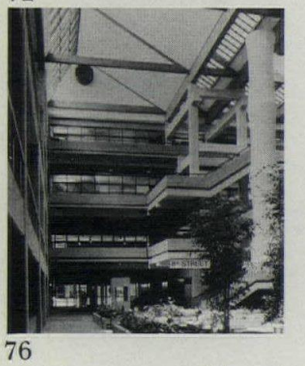

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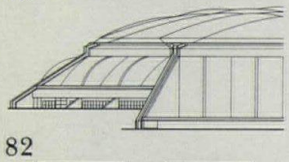

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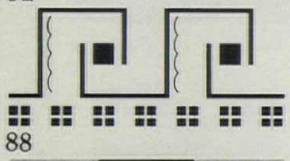

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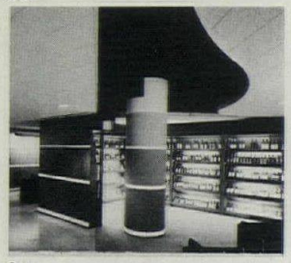

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Cover: *View through window of Captain Clarence Eldridge Housing, Hyannis, Ma, by Barry Korobkin, John Zeisel, Eric Jahan, and Donham & Sweeney. Photo: Steve Rosenthal.*

Penton/IPC

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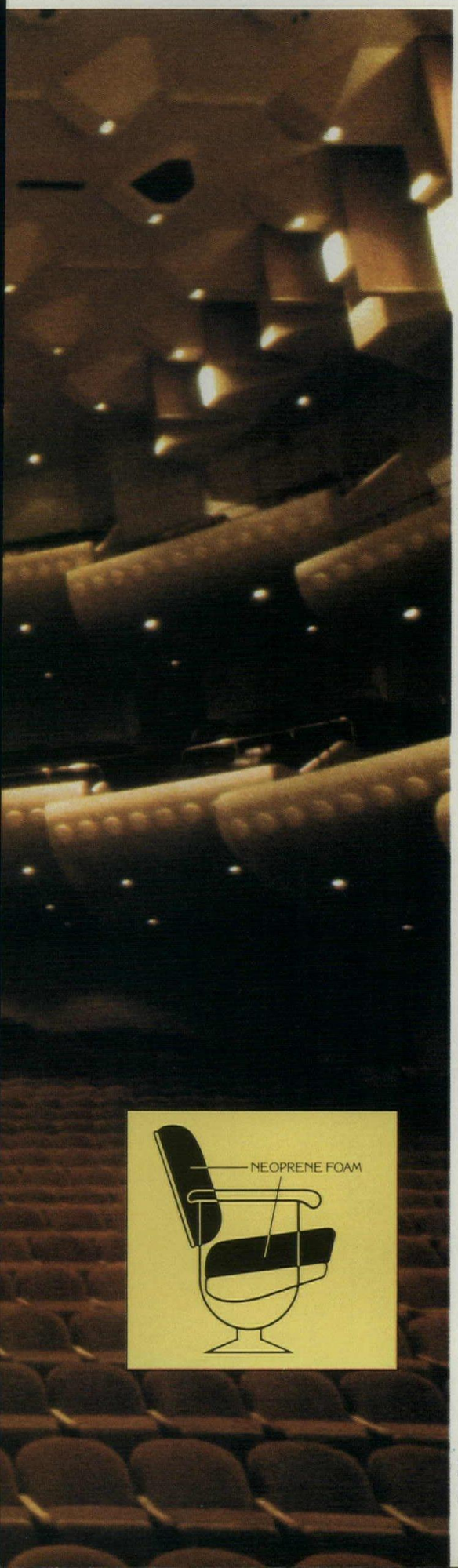
in more than comfort



Ron Scherl

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Architects for the Louise M. Davies Symphony Hall at the San Francisco Performing Arts Center specified Neoprene foam for its 3000 seats not only because of cushioning comfort, but also for its proven durability and effective flammability performance. Its chemical content makes Neoprene foam less susceptible to ignition and burning than exclusively hydrocarbon-type rubbers.

Symphony Hall designers had plenty of evidence to support their decision to specify Neoprene.

Neoprene foam has proven its comfort and durability in over two decades of use as marine bedding on oil tankers (see photo at right). As one captain remarked: "I've slept on this foam mattress for over 20 years. I have no complaints about its comfort. It should last many more years."

Neoprene foam mattress, installed for comfort and durability, is still comfortable after 21 years of service on oil tankers.

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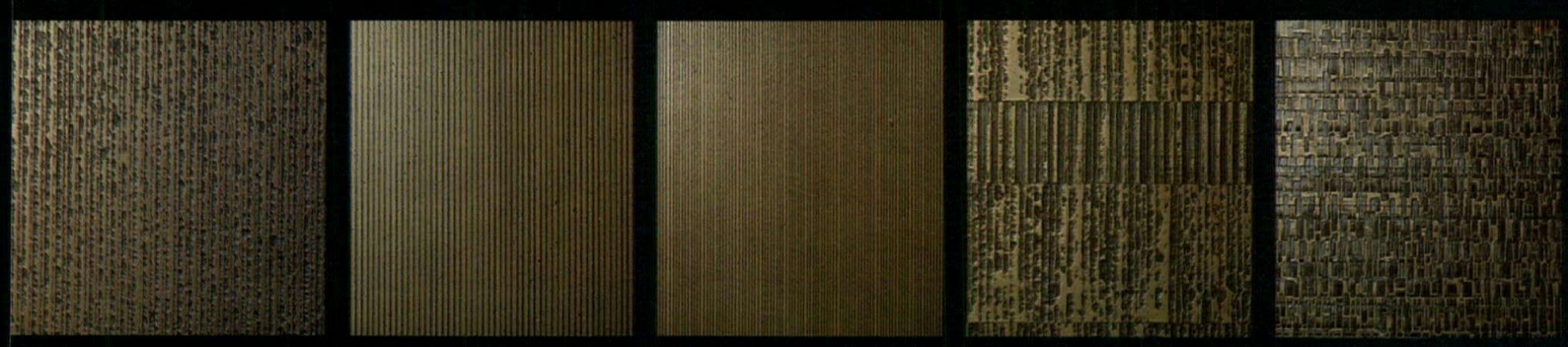


Competition contention 4

Freed from the burden of orthodox rules, clients are finding design competitions more enticing, but architects entering should proceed with caution.

It has been several years since the mandatory AIA code on competitions was invalidated, but it took a few years of resurgent building activity before clients realized the options now open for pitting designs against one another with no referee and only their own personnel as judges. A substantial and apparently increasing amount of work is being commissioned through variations on the design competition: requests for proposals (RFPs) answered by developer/design teams; design/build RFPs, generally for public agencies; interviews with concept presentation, for firms either invited or chosen through open credential reviews.

The proliferation of these various procedures—all trading on the prestige of the word competition—deserved thoughtful scrutiny and prudent action by the architectural profession. The AIA Design Committee, at an open meeting during the recent national convention in Minneapolis, discussed a draft position paper on the subject, which analyzes the process perceptively and raises some practical cautions. It points out for starters that such competitions generally take place "without sufficient program information, without the guidance of a professional adviser, and without a panel of qualified jurors." These factors lie behind the drawbacks I hear about from architects who have been through the process.

Vague ground rules: In open competitions, at least some conditions have to be disclosed equitably. But in some invited "competitions" firms entering aren't told who else is participating or whether everyone is working on the same schedule with the same requirements.

No independent professional adviser: Somebody with professional background may be in charge for the client, but a staff person is likely to give priority to pressures from superiors.

Vague programs: Without the independent professional adviser, programs are likely to be incomplete and in some cases downright misleading. They may give lip service to high-minded design objectives that nobody really wants to pay for, and—worse—they may be silent on unresolved issues within the sponsoring organization; the competition entries may end up as pawns in an organizational—or community—showdown. (This can occur, of course, even with a professional adviser.)

Lack of anonymity: In several versions of the latter-day competition, competitors present their schemes in person. This introduces elements of salesmanship and diplomacy, tempting architects to leave loopholes in their proposals, so they can adjust to the temper of the jury.

Lack of qualified juries: Since some juries may include no design professional at all, a presentation that exudes confidence—or just expense—will carry undue weight. In-house professionals will, of course, bring deeper expertise to the process, but may defer to their superiors.

Vague selection criteria: How will formal appeal rate in relation to economy, efficiency, energy-conservation, and so on? The expedient thing is to call for all of them. Admittedly, finer distinctions tend not to be taken seriously by architects.

Lack of jury report: Rarely do these modified competitions disclose the reasoning behind their decisions. This not only deprives the entrants and the profession of informative feedback, but reduces the jury's obligation to act responsibly. In extreme cases, entrants have not even been informed when a decision has been made.

Misappropriation of designs: Usually these procedures offer participants no protection against the adoption of design features that appeal to the sponsor, for inclusion in the winning design. Jurors may even commission the architects they liked best to work up a preferred concept by another firm.

Compensation gap: Because most of these procedures are entered through a qualifying interview stage, by invitation, or in association with a developer, there usually is a fee, which should not be expected to cover more than a fraction of actual costs; as in *any* competition, the pooled costs to the participants constitute "marketing" expenses for the winner. The chance to snow a nonprofessional jury may aggravate the ever-present tendency to overspend on competitions—and in-person presentations, in themselves, add cost.

The observations above are condensed from numerous reports, by winners and losers, and most readers have either heard such stories or experienced them personally. Why, then, are firms participating in such quasi competitions—to the extent that some get most of their commissions this way? Many desirable commissions today can be obtained only this way—and spurning even an unappealing "competition" may mean not being invited by the client or developer when the big chance does come along.

Are there are any signs that these recent variations of the old competition can be made more constructive instruments? The AIA position paper mentioned above makes some sound recommendations and—what is even more encouraging—some actual recent contests may be setting positive precedents.

More about these next month.

John Morris Dixon

Clarification: A sentence inadvertently omitted from the opening portion of the July Editorial would have made it clear that the subject was the AIA's new *Handbook of Architectural Competitions,* which will be distributed to components and be available this month from AIA headquarters in Washington.

Four-acre skewed space truss tops Reunion Arena in Dallas.

Credits:

Owner: City of Dallas, Texas

Construction Manager: Henry C. Beck Co., Dallas, Texas

Architect/Engineer: Harwood K. Smith & Partners, Inc., Dallas, Texas

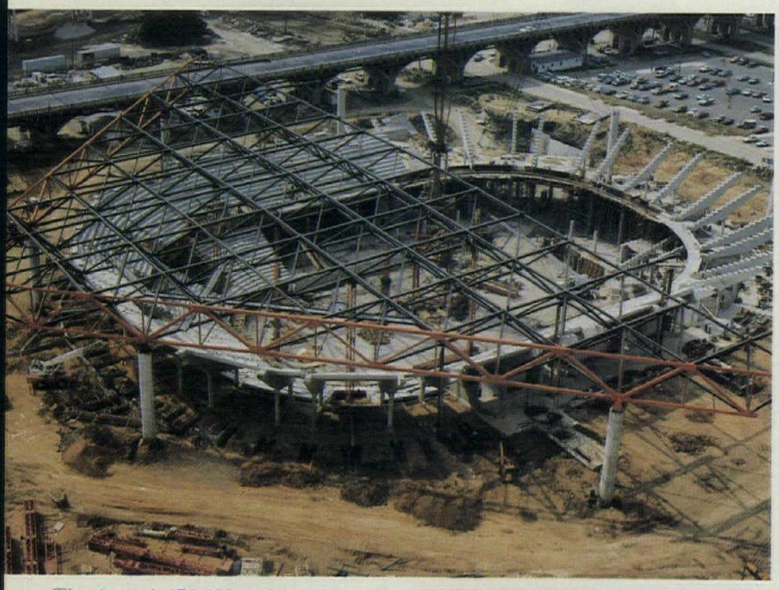
Consulting Engineer (Space Truss): Dr. Paul Gugliotta, New York, N.Y.

Steel Fabricator: Mosher Steel Co., Dallas, Texas

Steel Erector: John F. Beasley Construction Co., Dallas, Texas

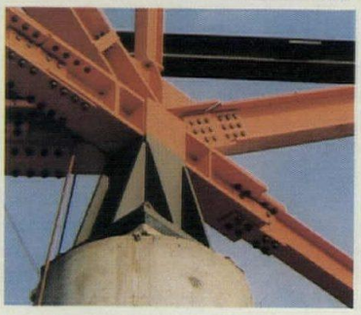
Project Facts: Reunion Arena, Dallas, Texas

Cost: $24 million
Roof Dimensions: 420 ft x 420 ft
Steel Truss Weight: Approximately 2,600 tons
Unit Weight: 27 lb/sq ft
Steel Grades: ASTM A572 Grade 60 and A36
Steel Supplier: Bethlehem furnished more than 2,000 tons of structural shapes



The Arena's 176,400-sq-ft space truss is supported on eight 6-ft-diam columns. The roof has a 412-ft clear span and overhangs the substructure by 4 ft on each side. The frame's corners cantilever 70 ft from the column line.

Back-lit at night, the space truss appears to float above the seating substructure. Nearly 1,900 steel members were erected individually to complete the roof structure.



Steel box sections embedded in 5-ft-high column caps are bolted to the space truss with 3-in.-diam anchor bolts. Four-foot-square elastomeric pads accommodate rotation at each connection.

Reunion Arena, a 17,200-seat sports and show place in Dallas, Texas, is housed under the largest space truss in the world. Located at Reunion Place, a theme area reflecting the city's mixture of old and new, the new arena joins the 50-story Reunion Tower and mirrored glass-clad Hyatt Regency Hotel.

Skewed space truss covers 176,400 sq ft

According to the space truss consulting engineer, Dr. Paul Gugliotta, "The skewed space truss is more efficient than a two-way truss system for spanning long distances. With the space truss, the loads are spread more evenly over many members rather than just a few. The two-way truss system tends to concentrate loads in the nearest trusses.

"Skewing the space truss grid 45 degrees in plan stiffens the corners and reverses the stresses across them, effectively reducing the midspan moments and deflections. This action is similar to that in continuous beams with cantilever end spans that reduce the midspan moments. Member forces are correspondingly reduced."

A hybrid structure

The space truss, having a unit weight of 27 lb/sq ft, is based on a 36-ft 5-in. module and an 18-ft 10-in. centerline depth. Top and bottom chords are parallel and staggered from each other in plan one-half module in each direction. The nodes (shop-welded joints of wide-flange members) allow the chords and diagonals to be field bolted in place without any reduction in section area or strength.

The top and bottom chord members are fabricated of A572 Grade 60 wide-flange sections ranging from W14x34 to W14x233. Truss diagonals, fabricated mostly of A36 steel, vary from W10x33 to W12x79 sections. All field connections are shop bolted with 1¼-in. A490 high-strength bolts. Connection plates are fabricated of both A572 Grade 50 and Grade 60 steels.

Floating effect

The entire perimeter of the space truss is enclosed in glass. Back-lit at night, the frame appears to float above the arena floor and seating substructure.

The Reunion Arena seats 17,200. Its action area includes a 200 x 85-ft playing floor which is designed to accommodate a wide variety of activities including boxing, rodeos, ice shows and musical concerts.

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Views

Scarpa savored

It is a rare treat, indeed, to have the comprehensive coverage provided in your May article (pp. 117–137) on the late Carlo Scarpa. Designers can inhale a deep breath of sensitivity and savor Mr. Scarpa's unique genius at difficult orchestration. One can hardly exhaust such inspiration with a single taste.

Perhaps his work will speak for itself to generations to come, outliving the ever-reaching homogeneity of Modernism, soaring on Gossamer wings, untethered by the lines of singular composition.

A masterful orchestration of a multicolored opera of one man's work deserves an enthusiastic "Bravo!"

Addio, Caro Maestro.

Chris Doran, Architect
Phoenix, Az

SOM examined

As a Skidmore, Owings & Merrill alumnus, I read the article "Firm Profile: SOM" in the May issue of Progressive Architecture (pp. 138–149) with considerable interest. You are to be commended on the thorough research as well as your perceptive analysis. I was particularly taken with what you had to say about the need for a periodic critique of the firm's designs; this has universal application and is usually slighted in the press of time and deadlines. I am sure many former SOM associates and staff will be equally interested in your article; we comprise a large fraternal order.

Donald D. Powell
Powell/Kleinschmidt
Consultants for Interior Architecture

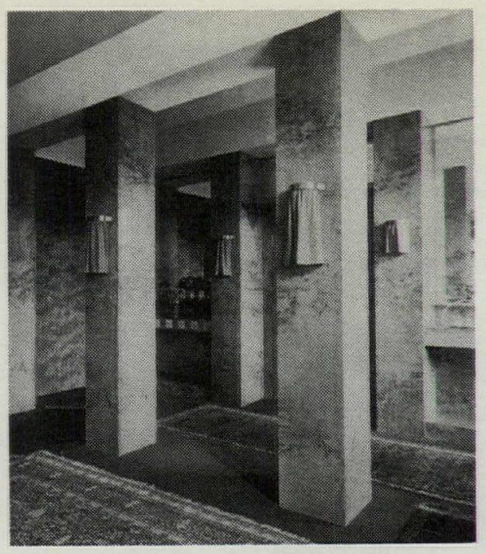
What direction will Skidmore, Owings & Merrill take? While some may think this unfair and incomplete criticism (or praise), I think the essence of the direction Skidmore, Owings & Merrill is pursuing can best be described by a line from the "Wish You Were Here" album by the poet musicians known collectively as Pink Floyd.

"Welcome, my son, welcome, to the machine."

Dirk S. Hinnenkamp
Columbus, Oh

Furniture judgment

One of the requirements of your International Conceptual Furniture Competition was that submitted designs must *not* be substantially identical to existing or known designs. (One assumes this to include designs of the past not necessarily in production today.) Thus I was most surprised to find the distinguished and learned jury selecting for special mention the wall curtain lamp submitted by Gary Wolf. Not that it is not a wonderful lamp, which it is, only that it was designed by Adolf Loos who used it extensively in his own work, among them the flat for Hans Brummel in Pilsen (of which I enclose a photograph) with slight variations appearing in the



Loos lamp for Brummel flat in Pilsen.

Kartner bar, the Steiner house and Knize's in Paris. Large size pictures of the lamps in location appear in Munz and Kunstler's book on Adolf Loos published by Praeger in this country in 1966. So let us give credit where credit is due.

Stuart Wrede, Architect
Guilford, Ct

[We may not have made it clear enough that the Wolf design is intended to be executed with glass in the shape of a blowing curtain, and thus is a transformation of the Loos design (also of some Hoffmann precedents, as the jury noted). The jury understood this to be a knowing reference to a historical model.—Editors]

Miami Bayfront sculpture?

The item "Noguchi's Miami Bayfront Park," which appeared in the May issue of *Progressive Architecture* (p. 30), is accurate, but not broad enough.

There is no community consensus for this park. In fact, our chapter of the AIA has made the implementation of intelligent planning for the Bayfront Park system a continuing project.

William Cox, Architect
Coral Gables, Fl

[An article by Beth Dunlop in *The Miami Herald* (May 17, 1981) questions the process of awarding the commission to Noguchi and many specifics of the design—while acknowledging some strengths, as well. She questions in particular the berm that interrupts the street-level view and characterizes the design as "more formal and elitist than spontaneous and pluralistic." According to Edward Levinson, author of the P/A article, the Noguchi proposal has been approved after the requisite public hearings and is out to bid. No alternate plan has been endorsed by the AIA. A spokesman for the Downtown Development Authority confirms this and notes that the AIA chapter's earlier recommendations have been substantially met in this park design.—Editors]

Collaboration criticism

In a recent news report (P/A, May 1981, p. 44, "Oil and vinegar"), Suzanne Stephens analyzed the emulsion concocted by the Architectural League of New York for its centennial exhibition.

I would suggest that her version of this fabrication failed because, relying on conventional cookbooks and familiar labels, she added too much vinegar (perhaps a column too much), and she omitted two essential ingredients, namely Charles Moore and Alice Wingwall.

Fortunately, a book, *Collaboration* (Whitney Library of Design), was published in conjunction with the exhibition. The book lists *all* of the participants in the exhibition, with extensive visual documentation of the projects designed for the show. Therefore, the general public will be better informed than the readers of *Progressive Architecture.*

Alice Wingwall
Berkeley, Ca

[Owing to limited space, P/A did not discuss all projects in this show. The suggestion that readers refer to the book is a good one. Any comments by Suzanne Stephens on the Moore/Wingwall collaboration might have been like adding overalls to the cioppino.—Editors]

Credits extended

Two names were omitted in the news story about PLENAR (P/A, April 1981, p. 32). Design principal for the laboratory building is Jurg P. Branschi; project manager is Werner Tangemann. They are co-owners of the Steiger Partnership, Ltd., Zurich.

The photograph accompanying the news story about West Week (P/A News report, June 1981, p. 43) was the work of Marvin Rand.

Project manager for the Opa-Locka Neighborhood Service Center, Miami, Fl (P/A, June 1981, p. 102), was Leopoldo Gimenez.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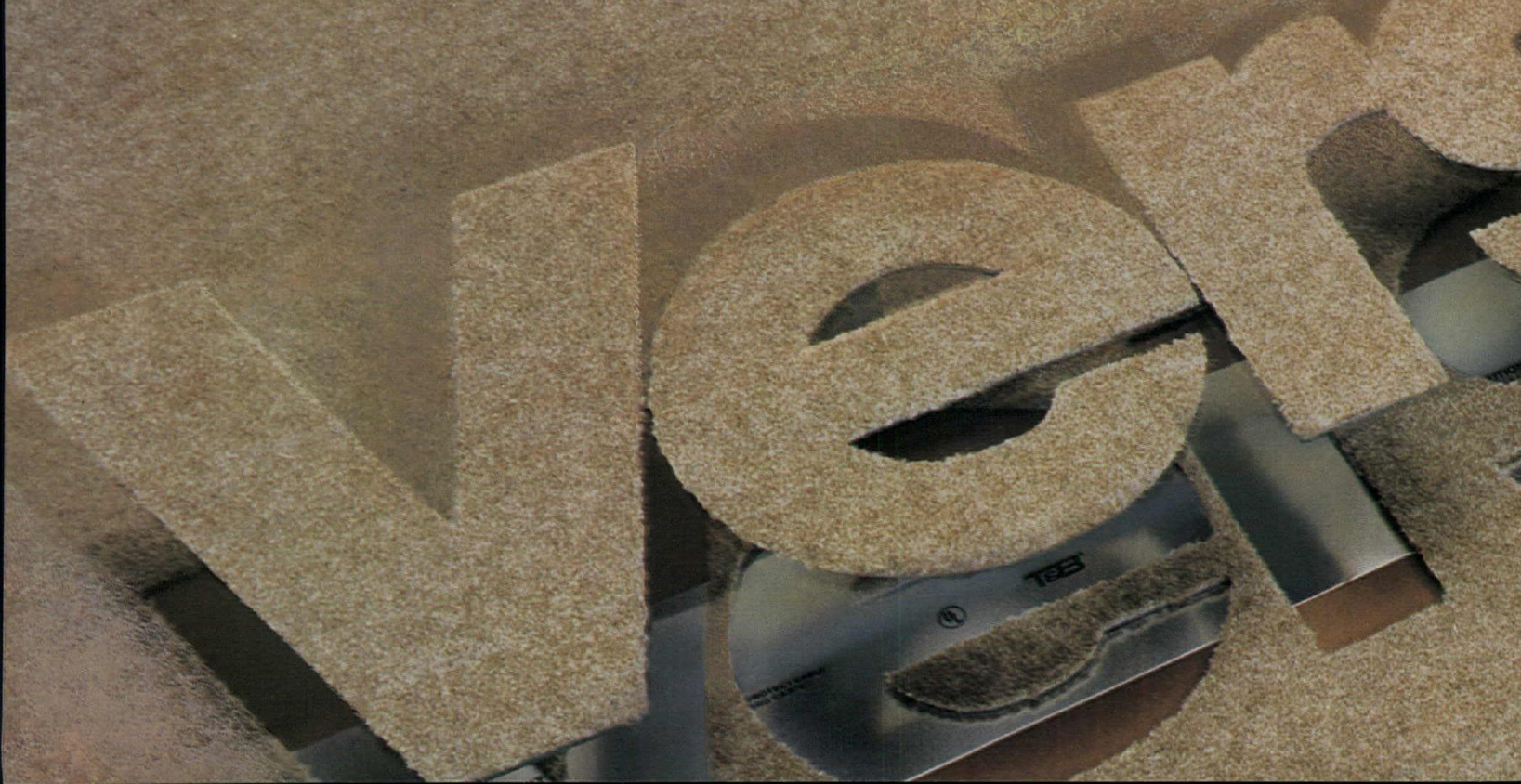

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P/A Awards program

29th annual competition for projects not yet completed

in architecture planning and research

Progressive Architecture announces its 29th annual P/A Awards program. The purpose of this competition is to recognize and encourage outstanding work in architecture and related environmental design fields before it is executed. **Submissions** are invited in the three general categories of architectural design, urban design and planning, and applied architectural research. Designations of **first award, award,** and **citation** may be made by the invited jury, based on overall excellence and advances in the art.

The jury for the 29th P/A Awards program: **Thomas H. Beeby,** AIA, principal, Hammond Beeby & Babka, Chicago, and Director, School of Architecture, University of Illinois at Chicago Circle; **David M. Childs,** AIA, General Partner of SOM, Washington, DC; **Jeffrey R. Cook,** AIA, Professor of Architecture, Arizona State University, Tempe; **Pleasantine Drake,** programming consultant and sessional lecturer, Carleton University, Ottawa, Ont.; **James Ingo Freed,** FAIA, Partner of I.M. Pei and Partners, New York; **Michael Graves,** FAIA, architect and Professor of Architecture at Princeton University; **Dolores Hayden,** author and critic, Associate Professor of Urban Planning, University of California, Los Angeles; **Gary T. Moore,** Assistant Professor and Director, Environment — Behavior Research Institute, University of Wisconsin-Milwaukee, and Principal, Cohen/Moore Associates, Consultants.

Judging will take place in Stamford, CT, during September 1981. Winners will be notified — confidentially — before Oct. 1. First public announcement of the winners will be made at a presentation ceremony in New York in January 1982, and winning entries will be featured in the January 1982 P/A. Recognition will be extended to clients, as well as professionals responsible. P/A will arrange for coverage of winning entries in national and local press.

Eligibility

1 Architects and other environmental design professionals practicing in the U.S. or Canada may enter one or more submissions. Proposals may be for any location, but work must have been directed and substantially executed in U.S. and/or Canadian offices.

2 All entries must have been commissioned by a specific client. Only work initiated on the client's behalf — *not* in fulfillment of academic requirements — is eligible (but design teams may include students).

3 Any project is ineligible if it has been, or will be before Feb. 1982, the subject of publication (on one full page or more) in *Architectural Record* or *AIA Journal.*

4 Architectural design entries may include only buildings or complexes, new or remodeled, scheduled to be under any phase of construction during 1982.

5 Urban design and planning entries may include only proposals or reports accepted by the client for implementation before

Your attention is called in particular to revised rules in paragraphs 3 and 7.

the end of 1982. Feasibility and implementation strategy should be documented.
6 Research entries may include only reports accepted by the client for implementation before the end of 1982. Submissions should deal with programming, design guidelines, or post-evaluation for a *type* of project or problem. Research methodology and ways of disseminating findings should be documented.
7 The jury's decision to premiate any submission will be contingent on verification by P/A that it meets all eligibility requirements.

Entry form: 29th P/A Awards Program

Please fill out all parts and submit, intact, with each entry (see paragraph 13 of instructions). Use typewriter, please. Copies of this form may be used.

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I certify that the submitted work was done, for compensation, on behalf of a client with the power and intention to execute the proposal (or, in the case of research and planning entries, to adopt it as policy) and that all other stipulations listed above have been met.

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Publication agreement
8 If the submission should win, the entrant agrees to make available further information, original drawings, or models, as necessary, for publication in the January 1982 P/A. The entrant will also provide appropriate slides for the presentation ceremony and reproducible black-and-white graphic material for press releases.
9 In the case of architectural design entries only, the entrant agrees to give P/A the first opportunity among architectural magazines for feature publication of any winning project upon completion.

Submission requirements
10 Each submission must be *firmly bound* in a binder no larger than 11″ x 17″. Binders 9″ x 11″ are preferred.
11 Submissions must include illustrations and drawings necessary to a full understanding of the proposal — all legibly reproduced. P/A assumes no liability for original drawings. No actual models or slides will be accepted. P/A will take every reasonable precaution to return submissions intact, but can assume no liability for loss or damage.
12 Each submission *must include* a one-page synopsis, in English, on the first page inside the binder, summarizing the intent and principal features of the entry. Synopsis should take up economic, environmental, energy, and user need aspects of the proposal. Synopsis must conclude with a statement on: *why this submission deserves recognition.*
13 Each submission must be accompanied by a signed entry form, to be found on this page. Reproductions of this form are acceptable. All four sections of the form must be filled out — using typewriter, please. Insert entire form, intact, into *unsealed* envelope attached inside back cover of submission.
14 For purposes of jury procedure only, please identify each entry as one of the following: *Education, Housing (Single-family), Housing (Multiple-unit), Commercial, Industrial, Governmental, Cultural, Recreational, Religious, Health, Planning and/or Urban Design, Applied Research.* Mixed-use entries should be classified by the larger function. If unable to classify, enter *Miscellaneous.*
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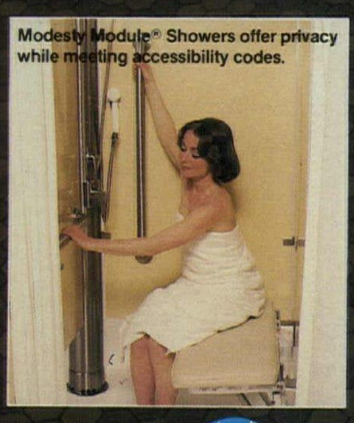

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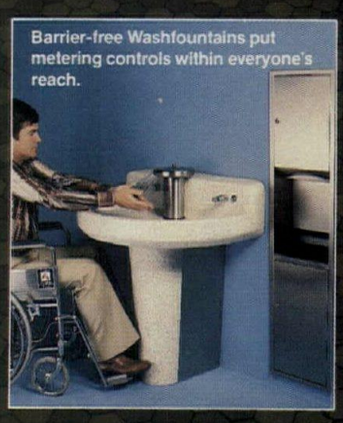

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P/A News report

A lively NEOCON

Chicago's NEOCON 13 was packed with events, pseudo-events, and introductions this year. Buckminster Fuller gave the shortest standing-room-only talk of his career. ASID held a glittering ball under the Tiffany domes and mosaic vaults of Chicago's Cultural Center to celebrate its 50th anniversary.

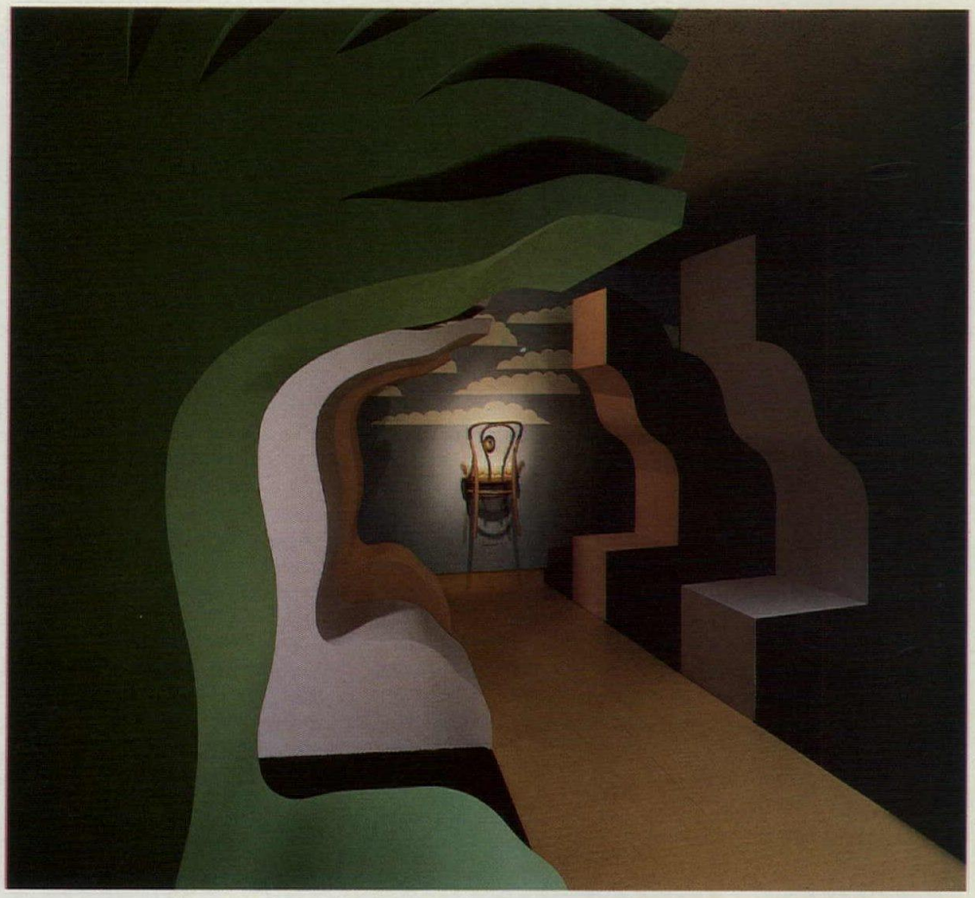
The Thonet showroom was the talk of the week (see below). But eyebrows were raised as well by Metalstand: its yellow rubber tile runway made show-stoppers out of customers and put the furniture in the audience—to music from *Gypsy*? Designers were Stanley Tigerman and Richard Saul Wurman.

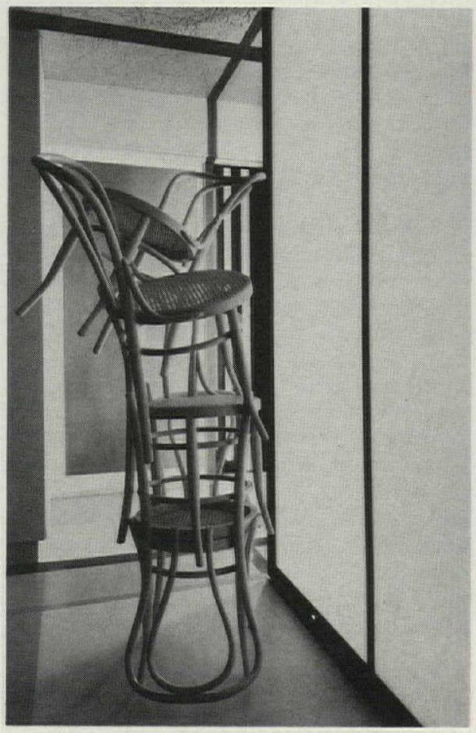
Beylerian introduced an in-depth collection of Eileen Gray revivals, including her Lota sofa, tube light, and Castellar mirror. Knoll unveiled a series of button-down desks with cantilevered fronts by Charles Gwathmey and Robert Siegel, and a group of tables by Paul Haigh, with slick inset lines and corner joinery. A number of new ergonomic chairs were presented: Krueger's Dorsal (by Emilio Ambasz and Giancarlo Piretti), Herman Miller's Vitra import, HAG's kneeling stool on pedestal, and Haworth's Intra-System. And no fabric house was to be found without offerings in the pastel tertiaries that Michael Graves's work reintroduced into what has become widespread popularity. [NM]

Thonet Takes Five

Although Thonet celebrated its 150th birthday last year with a look at its own past, the company, wishing to emphasize the interaction between architecture and furniture design that has been its mainstay from the beginning, invited five Chicago architects to transform its Chicago showroom into a celebration of that special collaboration.

The result, "Thonet Takes Five," was unveiled at NEOCON 13. Phyllis McCullough, Director of Marketing, and Joan Burgasser, Vice President of Design, asked architects Thomas Beeby, Helmut Jahn, Ronald Krueck, Kenneth Shroeder, and Stanley Tigerman to interpret their concept of Thonet and its history by redesigning a portion of the showroom. Positions were drawn by





Sadin/Karant

Thonet displays by Stanley Tigerman (top), Krueck and Olsen (left), and Tom Beeby (above).

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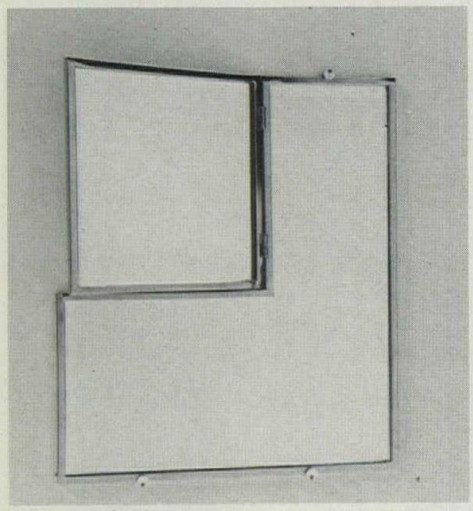
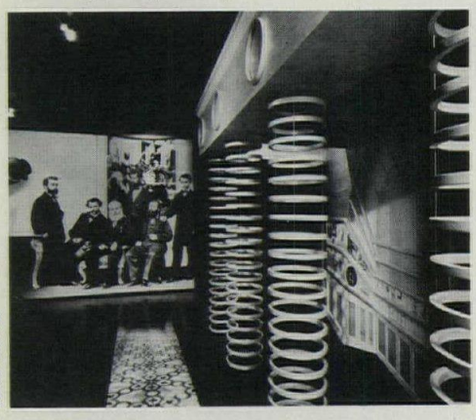


Beylerian revivals of Eileen Gray's tube light (top) and Castellar mirror (above). Thonet displays by Ken Schroeder (below) and Helmut Jahn (bottom).



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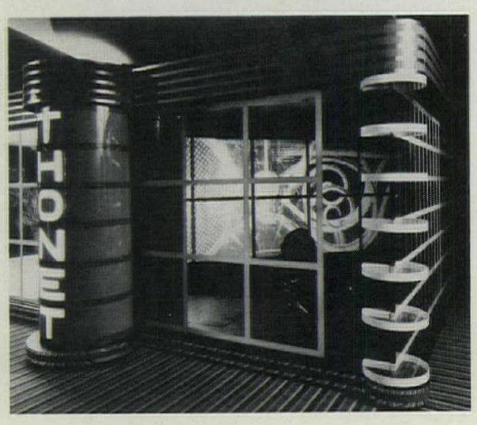

Sadin/Karant

lot, and the only restriction was the $5000 budget for each exhibit. (Note: no more than $5000 per exhibit.)

Stanley Tigerman drew the entrance, and so was best able to utilize the split symmetry—man on one side, nature on the other—that has become an important metaphor in his work over the last five years. Here, representations of trees and of their wood being bent into furniture create a colonnade; at the end of the axis is a Thonet Vienna café chair floating in a clear blue sky. Tigerman's recent interest in the cemetery-as-metaphor led to the interpretation of the chairback as a tombstone, so a photograph of Tigerman with the inscription "Stanley Tigerman 1930–1981" terminates the axis, while a set of votive candles on the chair seat completes the metaphor.

Thomas Beeby's exhibit emphasizes Thonet's association with café seating and is a study in associations, memory, and nostalgia. Inside a miniature building, patterned after a mausoleum designed by Adolf Loos for Anton Dvorak in 1904 (Loos also designed furniture for Thonet), is a mirrored room with a Vienna café setting, featuring the Fledermaus chairs designed by Josef Hoffmann (in 1904); outside is a set of stools that Otto Wagner designed for the Austrian Postal Savings Bank, also from 1904. Music from Kurt Weill's "The Threepenny Opera" can barely be heard as one peers into the café, further stirring the imagination and evoking memories of a past era.

If Beeby's is the most literal exhibit, then Ron Krueck's is the most abstract. A Thonet Vienna café chair is engaged in a dance with a bentwood coatrack, suspended inside the perceptual space of a painting by Barnett Newman. Edges dissolve, transparencies overlap, and mixed metaphors appear—Roy Lichtenstein Pop Art dot screens become, for example, Thonet cane seats-as-walls. Vertical fluorescent tubes heighten the effect of the transparencies and layerings.

Kenneth Schroeder's section is, most literally, an exhibit. A time line of important collaborations between Thonet and architects is presented on a Classical temple façade (in wood, of course), complete with forced perspective and a colonnade of seating hoops. A cross-axial relationship, to a family portrait of Michael Thonet and his five sons, is emphasized by a photograph of the floor of the Palais Lichtenstein set into the showroom floor. Michael Thonet's first collaboration with an architect was the restoration of the Lichtenstein palace in 1843, and the intricate bentwood scrollwork in the floor was his most virtuoso contribution.

In many ways, the most poignant of the exhibits is Helmut Jahn's. In the developer's world, where Jahn is so often a participant, the architect seldom is able to participate beyond the skin of the building. For Thonet, then, Jahn approached the problem in similar fashion. Having drawn the corner position facing the elevators, he created a building façade in his familiar "Deco-Tech" style, culminating in a fat column with the name of the company backlit. Inside (although meant to be viewed from outside) is simply a black room, with a multiscreen slide show of Thonet history. The one "interior" piece of Jahn's space is a bentwood rocker rising out of the black floor. According to Jahn, this represents Thonet's emergence from the past, its continued emphasis on design quality, and its similar trajectory into the future.

The five exhibits on display each make that point in their own way: representation of Thonet's history, a prediction of its future, and a comment on our elusive present. [David Greenspan]

Lightweight in Aspen

The 31st annual International Design Conference was held in Aspen, Co, June 14–19. After attending one of those conferences some years ago, this reviewer swore never to go back; but the 1981 theme proved too seductive. Program Chairman Bill N. Lacy, president of The Cooper Union in New York, had organized the six days around the general subject of "The Italian Idea." He planned that the meetings would "focus attention on the contribution of Italian culture to the rest of the world, with particular emphasis on current trends," featuring prominent architects, filmmakers, and automotive, product, and fashion designers from Italy, as well as American Italians who have achieved prominence in their fields in the U.S. Basically, the meetings were intended to deal with the idea of what "being Italian means, in the cultural and aesthetic sense," as Lacy noted in the program brochure. The "telltale" clues that for him make Italian designers so special are their "willingness to take risks, the diversity of their design, their ages-old cultural context, and the comfortable design-technician rapport they have."

Although there were generally agreed upon highlights during the meetings, notably in the presentations by Emilio Ambasz and by Massimo and Lella Vignelli, the whole affair started disappointingly and never really picked up. Bill Lacy opened the conference with a long slide presentation about those who, though invited, did not attend; he then proceeded to read, in the freezing cold main tent, the names of those who had come and the schedule, seeming to forget that all attendants had a printed program containing that information. Two major speakers, stateswoman Susanna Agnelli and writer-editor Alberto Arbasino, although brilliant, spent most of their time berating Italy—the

[*News report continued on page 29*]

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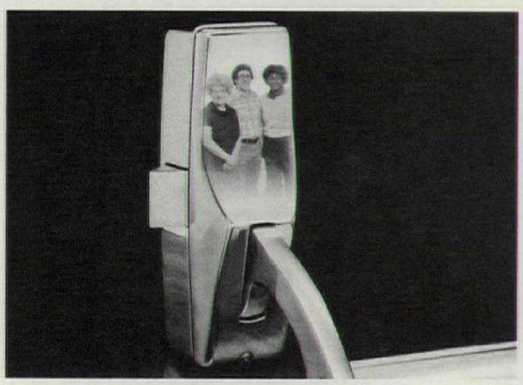

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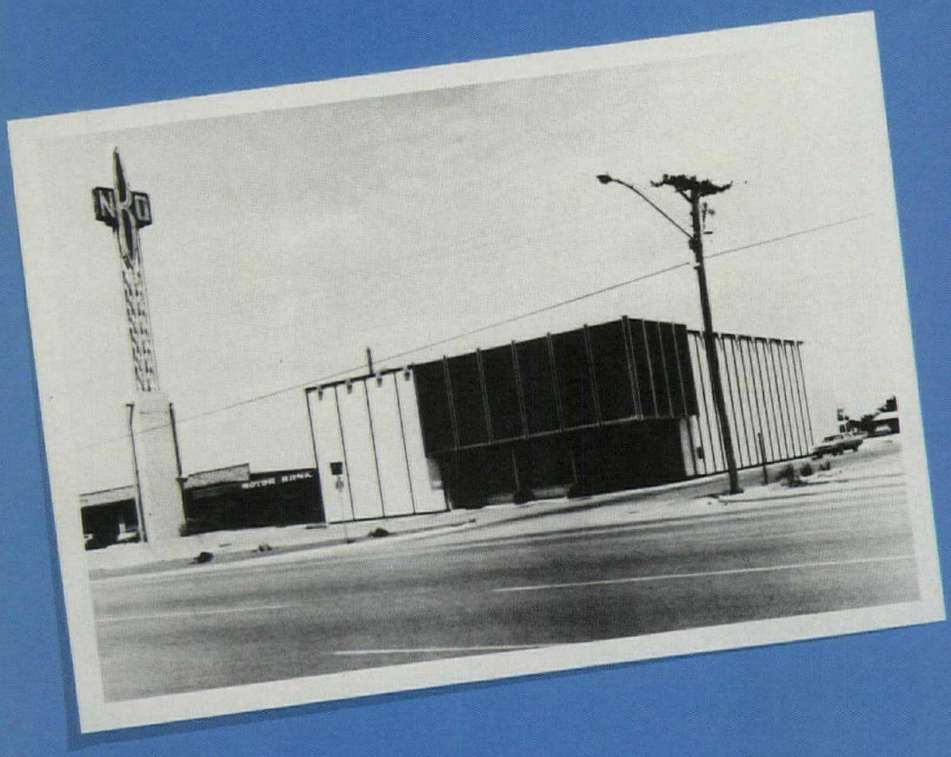

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The two-story, 22,000 sq. ft. headquarters of The First Savings & Loan Assn., Odessa, Texas. Architects: Covington-Shelton-Taylor. Material: 4' x 8' x ⅝" desert tan Stonehenge panels.

News report continued from page 24

crime, the need for bodyguards, and the inefficiency.

On a purely operational level things did not go smoothly. Architect and industrial designer Mario Bellini showed his exquisite work, but went on for over three hours when scheduled for one-and-a-half. Olivetti showed a somewhat self-serving film about the "design history" of the firm, which was presented one minute out of sync throughout its length. Slides were shown out of focus, and at least one film, Fellini's "8½," could have derived its title from the frequency in minutes in which it broke. Another problem lay in the scheduling of events: on one afternoon, there were 11 events between 2:00 and 4:00; on the following afternoon from 12:00 to 4:00, there were none.

But beyond these operational difficulties, there were more serious problems with this conference. Some people attended expecting design to be discussed, but this rarely occurred in any real depth. Presentations were generally "show and tell," consisting of little other than factual material. This seemed, however, to please some of the audience.

In the IBM Fellows' Architecture Roundtable, John Hejduk was criticized by the audience both for not building and for *teaching* (those who can, can; those who can't, teach). He tried to explain the value of theory, art, and poetry in architecture, with a rather eloquent assist from architect Piero Sartogo, but to little avail. Subjects went back to the mundane until one courageous soul spoke out and said "I didn't come all this way and spend all this money to get the latest building news—I can get that at home." He expressed the feelings, not of everyone, but of those who could not have found this conference one of their more enlightening experiences. Shown such an undeniably ravishing array of architecture, product and industrial design, fashion, graphics, film, and automotive design, many people were hungering for much more than just the cold facts. [DM]

Monterey conference: 'Going Beyond'

In late May, Monterey was once again the setting for the annual California Council/AIA Conference on Design. Its theme, "Going Beyond," sought to encompass the many forms of design communication, ranging from film, slides, and renderings, to live presentations. There were films by Glen Fleck and Peter Bosselman presenting the unbuilt as built, and film classics by Charles and Ray Eames, one of the most delightful of which being "Atlas (The Rise and Fall of the Roman Empire in Two Minutes)." Presentation subject matter included all aspects of current practice—landscape and interior design, adaptive reuse, urban design, and energy conservation. Conference director Richard Saul Wurman carried out the master of ceremonies role in his accustomed easy-going, lighthearted manner throughout the weekend's major gatherings.

Sounding more upbeat than anyone expected, Michael Pittas, director of the Design Arts Program for the National Endowment for the Arts, urged the audience not to discount the program's future, even though Reaganomics will certainly hurt the NEA. The search for worthy projects, he said, will not stop.

Frank Gehry dropped in for a few hours to present his recent work, noting that his presentation was entitled "I'm *not* weird." San Diego architects Rob Quigley and Tom Grondona each gave separate presentations of their work, and showed an effervescent European slide travelogue called "Two lonely boys from San Diego."

In "Going Beyond," however, the conference left some things behind. As happened last year, the extremely heavy schedule of talks was burdened—as perhaps it must be in a state council—by a number of less interesting sessions; and some sessions were held in inappropriate halls. The session with the most would-be attendees featured Grondona, Mark Mack, Eric Moss, and Michael Rotondi and Thom Mayne of Morphosis, but was held, and not repeated, in a hot room too small for half the crowd; meanwhile, in the auditorium across the hall, an energy symposium drew attendance easily within the capacity of the room "The Kids" were playing.

Some of the most interesting presentations covered adaptive reuse. Thomas Butt of Interactive Resources gave a thoroughly heartwarming account of how sweat equity and a $67,000 grant from California's Historic Preservation Office brought restoration, appropriate technology, and a profitable commercial enterprise—bed-and-breakfast accommodations—to the East Brothers Lighthouse. Gilbert Sanchez gave a straightforward and informative talk about the low-tech and unromantic process of restoring adobe buildings. Jim Scroggin of Esherick/Homsey/Dodge & Davis presented the exemplary restoration of portions of the Stanford University Quad, particularly History Corner.

The task of shoe-horning new buildings into cramped older settings was accomplished nicely by George Matsumoto in the new engineering building, Bechtel Hall, put mostly underground in a congested area of the U.C. Berkeley campus, and by Bobbie Sue Hood's (of the Hood Miller Partnership) condominiums slipped into a sliver of space on San Francisco's precious Russian Hill slope.

Sunday's fare was a presentation of the five submissions to last year's Bunker Hill competition. Tim Vreeland, who recently joined Albert C. Martin & Associates, and Edward Helfeld, administrator of the L.A. Community Redevelopment Agency, led off the presenters. On hand were Joseph Fujikawa, Fujikawa, Conterato, Lohan & Associates, Chicago; David Martin, Albert C. Martin & Associates, Los Angeles; Maris Peika, Skidmore, Owings & Merrill, Los Angeles; Barton Myers, Barton Myers Associates, Toronto; and Arthur Erickson, Arthur Erickson Architects, Vancouver. Somewhat to the surprise of a number of the attendees, the presentations were informative and enjoyable. There was no backbiting by the non-winners, and the separate approaches varied widely.

Overall, the conference was definitely valuable, and an improvement over last year's beginnings. If the scheduling log-jam is eased next year, the Monterey Conference could be one of the more important events on the U.S. architectural calendar. [JM, SW]

Washington Post photograph

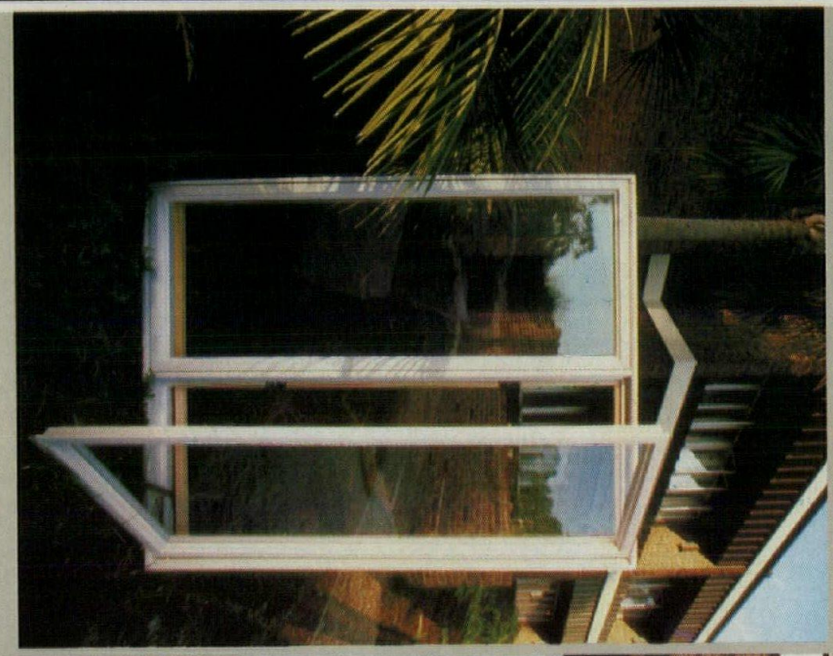
Breuer in front of his Health and Human Service Building, Washington.

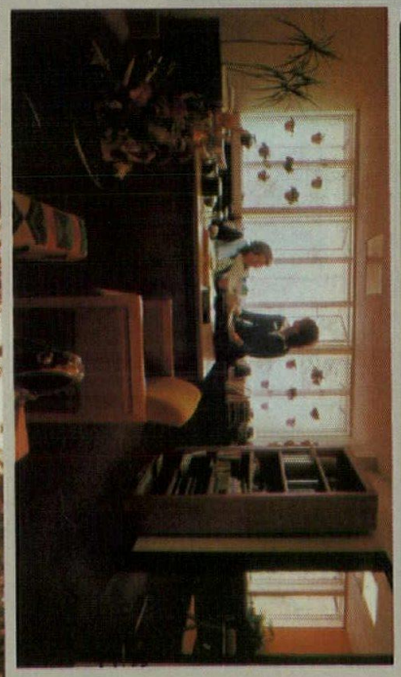
Marcel Breuer: 1902–1981

Marcel Breuer, one of the country's most respected architects, died on July 1, 1981, at the age of 79. The recent presentation of several major awards to Breuer and the current Museum of Modern Art exhibition of his furniture and interiors have appropriately focused attention on his long and varied career.

Born in Hungary in 1902, Breuer studied and eventually taught at the Bauhaus where he emerged as one of the most talented and original of the students. In 1925, at the age of 23, he arrived at one of the most stunning innovations in the history of design—the invention of modern tubular steel furniture. While we today take his famous tubular steel designs for granted, their impact on the architectural world of the late 1920s was profound. In 1928, after three years as a teacher at the Bauhaus, Breuer resigned to establish his own architectural practice in Berlin, although lack of commissions dictated that he spend most of his time working on interior renovations—mostly apartments—

[*News report continued on page 32*]





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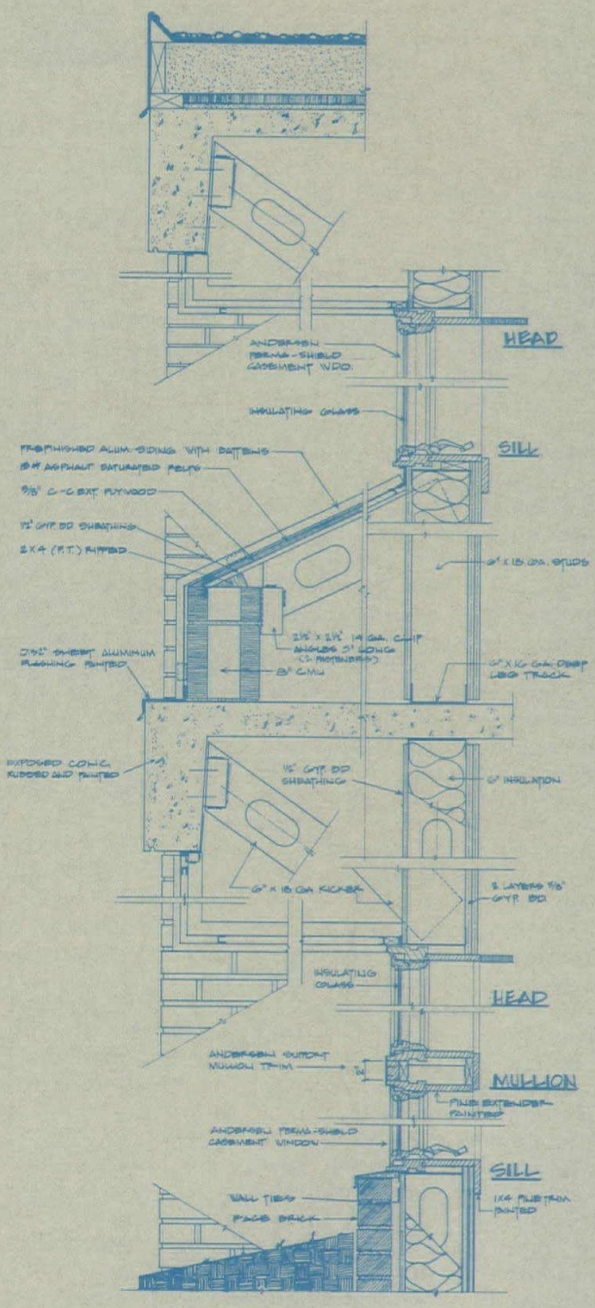

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News report continued from page 29

and furniture. His architecture existed only in project form until 1932, when, at the young age of 30, he built the Harnischmacher house in Wiesbaden.

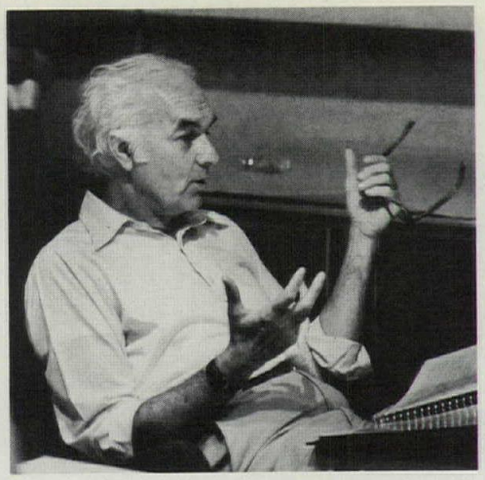
During the following years, he traveled around Europe and the Mediterranean, continuing to design furniture and interiors, and finally realizing (together with Alfred and Emil Roth) designs for the Doldertal apartment buildings in Zurich. In 1935, with the assistance of his friend and former teacher Walter Gropius, he immigrated to England where he formed a partnership with F.R.S. Yorke and designed furniture for the Isokon company.

Two years later, in 1935, Breuer joined Gropius on the architecture faculty at Harvard. The two men not only influenced an entire generation of architects through their teaching, but formed a partnership that, until its dissolution in 1941, produced many of the finest houses of the period. Abandoning the brick and stucco of European Modernist buildings, they embraced traditional American materials and construction methods. Their small Chamberlain house of 1940, and Breuer's own Geller house of 1945, with its binuclear plan and sloping "butterfly" roofs, were widely imitated well into the 1950s.

In 1946, Breuer moved his office to New York, eventually forming a partnership with Herbert Beckhard, Robert Gatje, Hamilton Smith, and Tician Papachristou. Influenced by an increasing number of large public, institutional, and commercial commissions, Breuer's aesthetic shifted: he became increasingly concerned with solidity and monumentality, with sculptural effects achieved by exploiting the structural possibilities of concrete. Among the best known examples of this work are the St. John's Abbey complex in Collegeville, Mn (1953–1968), and the IBM Research Center in France (1960–1961). The Whitney Museum in New York (1963–1966) was perhaps the firm's finest work, distinguished for its sculptural clarity and integrity. Breuer retired from active practice in 1976.

Marcel Breuer designed many important buildings; still it seems likely that he will best be remembered for his work as a furniture designer. His tubular steel chairs, in particular, remain among the most original and vital designs of our time. More important, they have a ubiquity and continuing presence in our daily lives to which few architectural designs could aspire. [Christopher Wilk]

Christopher Wilk is an art historian, author of Thonet: 150 Years of Furniture, *and guest curator and codirector of* Marcel Breuer: Furniture and Interiors, *currently showing at the Museum of Modern Art.*



John Dinkeloo: 1918–1981

John G. Dinkeloo, a partner in the architectural firm Kevin Roche, John Dinkeloo & Associates, died in June at the age of 63.

Dinkeloo received a Bachelor of Architecture in Architectural Engineering from the University of Michigan in 1942, and was head of production for Skidmore, Owings & Merrill in Chicago until he joined the firm of Eero Saarinen in 1950. After Saarinen's death in 1961, Dinkeloo continued the firm, with Joseph N. Lacy and Kevin Roche. They completed ten major Saarinen projects, including the TWA Terminal Building at Kennedy International Airport, Dulles International Airport outside Washington, and the CBS Building in New York; and the firm went on to design many other prominent buildings, among them the Oakland Museum in California, the Ford Foundation Building in New York, and the new wings of the Metropolitan Museum of Art, for which they prepared the master plan.

With his engineering background, Dinkeloo developed several technical innovations: the use of heat-deflecting metallized mirror glass; the employment of structural Neoprene gaskets for the fastening and sealing of exterior walls; and the incorporation of high-strength low-alloy weathering steel in the exposed structures of buildings and bridges.

Energy: Conferences, competitions

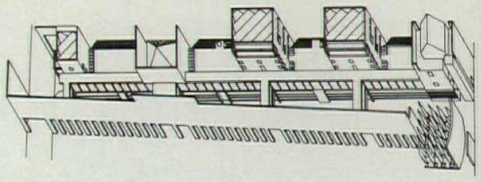
Many energy-related conferences and competitions took place during May, and P/A editors participated in several: the second annual Design + Energy ACSA competition jury; the AIA National Convention on Energy, a symposium on Energy and Big Building Design, held in Philadelphia for architects and engineers; and the ISES Convention, also in Philadelphia.

ACSA competition

The Design + Energy 1981 competition, sponsored by the Association of Collegiate Schools of Architecture and supported by D.O.E., AIA, the Royal Architectural Institute of Canada, and the Canadian Department of Energy, Mines and Resources, was particularly revealing of the state of the art of energy design in American and Canadian architectural schools. Over 2700 students from the United States and Canada registered to compete within one of two design options: Category 1, a college center for the visual arts; or Category 2, open submissions. The competition focused on daylighting as the major design determinant.

While the entries indicated little difference between the abilities of American and Canadian students, one message was clear: the schools are not leading in the field of energy. Even the best solutions did not demonstrate the kind of experimentation expected from unrestrained creativity. There were no surprises.

But there were surprises within the jury, which included James Ingo Freed, William Lam, Arthur Cotton Moore, Susana Torre, and this writer. About half the jurors would support only entries of excellent overall architectural design; others felt that excellence in energy conservation was the bottom line, and used the quality of the architectural design to distinguish the highest awards. This controversy was evident in the awards selection, which revealed a full spectrum of attitudes.



Barrett's winning design.

The jury unanimously supported the First Award winner, Nancy Barrett of Tulane University, who competed in Category 1. (No first prize was awarded in Category 2.) Miss Barrett's project for a visual arts center was lauded for absorbing a sophisticated use of energy strategy into a sensible architectural organization of space.

The remaining awards included projects that incorporated good energy or

[*News report continued on page 36*]

UNPLAIN GEOMETRY

The solution for the Augusta Richmond County Civic Center was Alcoa Alply panels.

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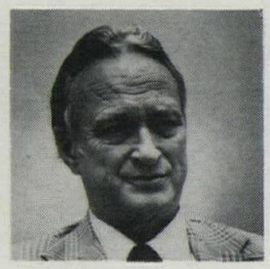
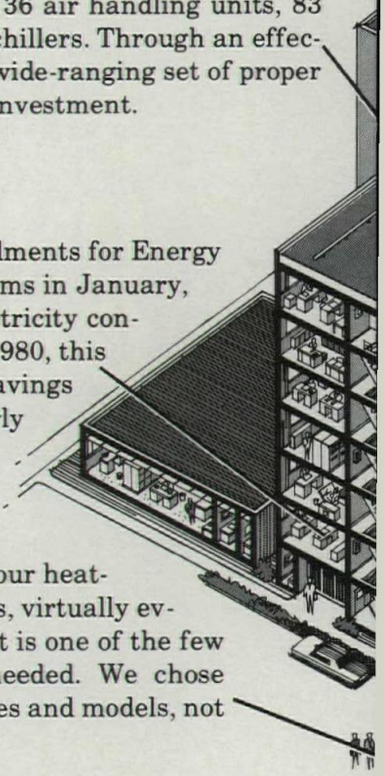


How did you get total control?
Johnson Controls installed the JC/80 building automation system. It simplified and tightened building operation control by taking command of 36 air handling units, 83 temperature sensors, two 1,000 ton chillers and two 250 ton chillers. Through an effective set of guidelines and the JC/80, we can now maintain a wide-ranging set of proper conditions in addition to receiving a tremendous return on investment.

How is it working?
Exceedingly well. The JC/80 and what I call the '10 Commandments for Energy Management' reduced steam consumption from 127,513 therms in January, 1979 to 25,841 therms in January, 1980. The amount of electricity consumed in January, 1979 totaled 47,783 therms. In January, 1980, this figure was reduced to 28,935 therms. Measuring monetary savings in cost-avoidance dollars, we averaged a savings of nearly $100,000 a month in the first four months of ownership compared to the previous year.



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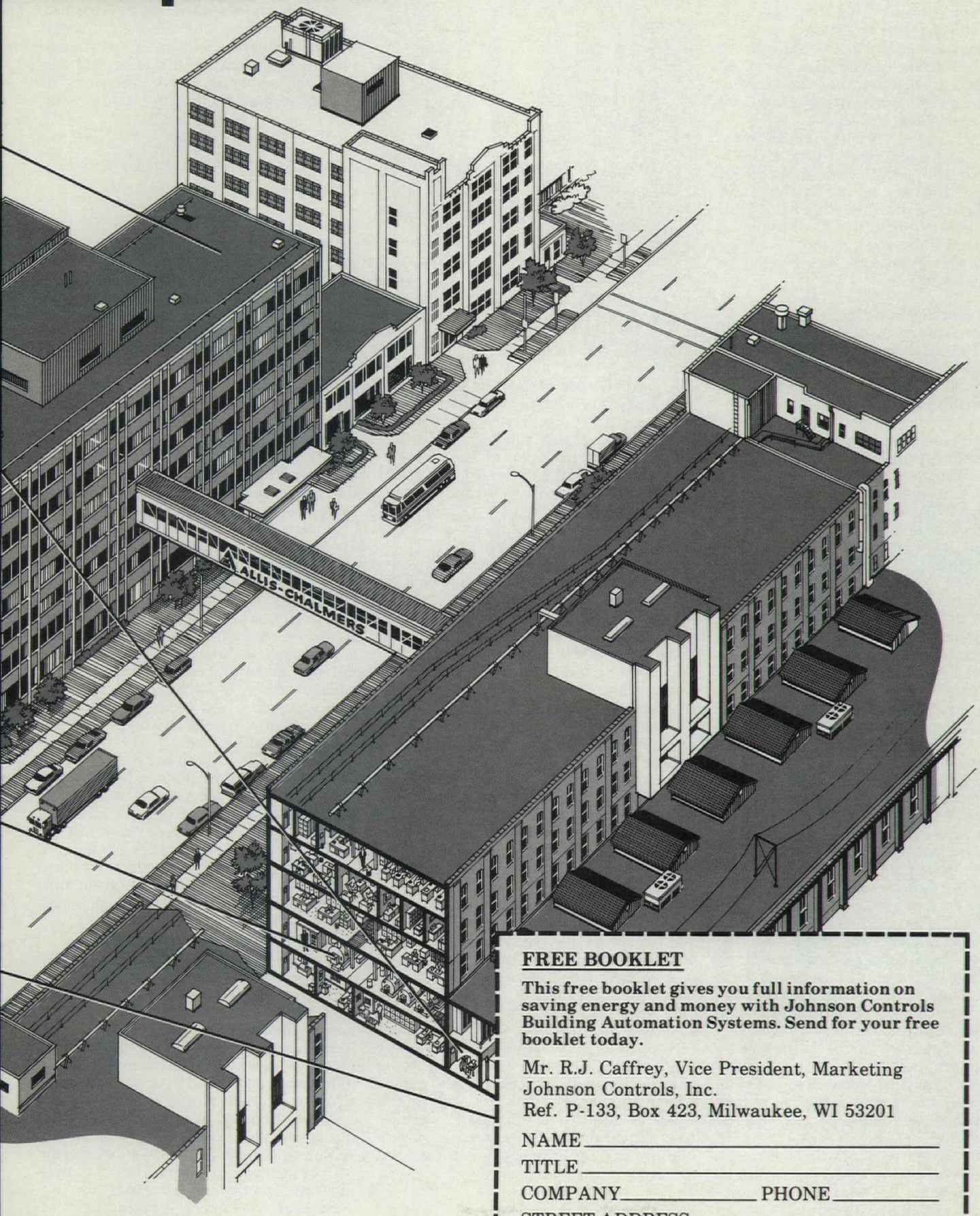

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News report continued from page 32

daylighting considerations, but were weak in building planning; and equally adventurous explorations of building form which only slightly involved energy conservative techniques.

In Category 1, Merit Awards went to Linabeth Barber of the University of Wisconsin, Steve Dayton of the University of Virginia, and Clifford Hasert of Washington State University.

In Category 2, Second Prizes were awarded to Joyce Rosner of the University of Houston and to Kwang-Woo Kim of the University of Michigan; and Third Prizes to Jim Shields of the University of Wisconsin and David Allison of Clemson University.

Honorable Mentions were given in both categories.

Energy and big buildings

The symposium for architects and engineers had no such schism; in fact, the speakers seemed, at times, to be "preaching to the choir." The two-day conference, organized by Doug Kelbaugh, was structured to cover the most advanced computational techniques, daylighting strategies, and mechanical systems, and to show case studies. The new TVA office building (P/A, April 1980, p. 117), for example, demonstrated beam daylighting, incorporating mirrored surfaces and movable sunshades. The Site 1-A building (P/A, April 1980, p. 117 and p. 76 this issue) was analyzed by Peter Calthorpe, one of its designers. The overall message proved to be similar to that of P/A's April 1981 issue: that there are some large buildings being constructed today that incorporate energy strategies so deftly that they shine both as good architecture and as good energy design.

The state of the art

Where do professionals (and future professionals) stand with regard to energy? This writer emerged with mixed reactions from the above experiences. Some top architects still do not know the basic vocabulary of energy design. At the same time, some of the innovators in the field of energy design, those who developed the theories and fought to incorporate them in real buildings, no longer persist in seeking new frontiers. And the schools seem fully satisfied to trail behind the practitioners in the real world, as economically restrained as it is.

The energy "movement" cannot be allowed to stagnate, nor to wait for the vast body of architects to catch up. The lifeblood of a concept is its access to new ideas. Innovation must be encouraged at every level.

At the other end of the train, one must remember that efforts must still be made to reach those who are just beginning to understand the function and design value of energy conservation. Conferences—and magazine articles—discussing the rudiments of energy design are still necessary. [RR]

GSA competition selects NY team

The joint venture of Gruzen & Partners, The Ehrenkrantz Group, and Syska & Hennessy, Inc., has been selected as the winning design team in a competition sponsored by the General Services Administration for the design of a new $70 million Social Security Administration Northeast Program Service Center to be constructed in Downtown Jamaica (Queens County), New York.

Because of the significance the structure holds for Jamaica and the Federal government—the 15-story, 943,000-sq-ft building will occupy a key location on the area's main thoroughfare, and will serve over 3000 employees—the GSA employed stringent guidelines for the competition, the first of its kind it has sponsored.

Architects and engineers from GSA screened the credentials of 19 architectural/engineering design teams, who had submitted initial proposals, and selected six finalists. The finalists, each of whom was awarded a $10,000 contract for the preparation of a conceptual design, consisted of The Eggers Group, P.C.; Kohn Pederson & Fox Associates, P.C./Cannon Design, Inc.; Perkins & Will/Urbahn Associates, Inc.; Swanke Hayden Connell & Partners; John Carl Warnecke & Associates; and the Gruzen/Ehrenkrantz team.

A selection committee of professionals from GSA offices in Washington, DC, New York City, and Kansas City, as well as from the SSA, was then assembled to determine which design scheme best fulfilled the goals as outlined in the charge to the architects: a high level of design quality, flexibility of workspace, efficient circulation, quality of worklife to enhance productivity, relationship to community, energy conservation, and adherence to budget.

The proposed building

The 15-story building will step back, in four- and six-story increments, to adjust to the scale of the neighborhood. It will have a south-oriented solar court, around which will be clustered conference and training rooms, auditorium, computer center, and cafeteria. Energy-saving elements will include passive solar heating, and the mechanical system will incorporate the recovery of heat generated by lighting, equipment, and people.

The business of business is business

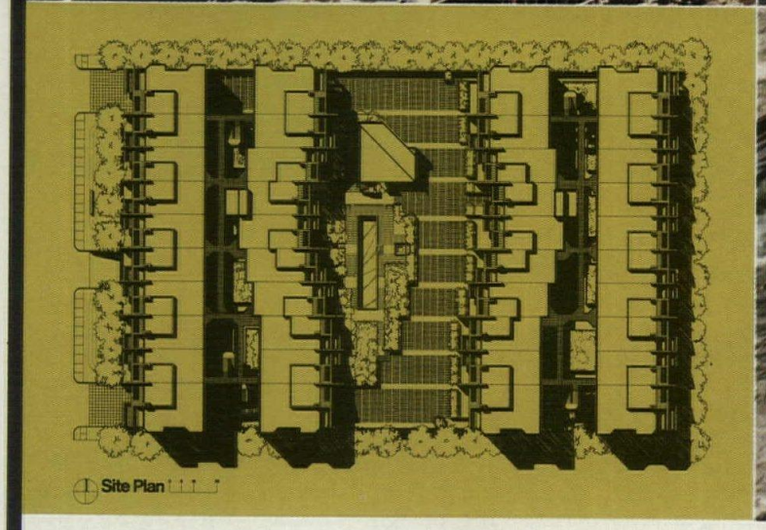
Under sponsorship of the U.S. Department of Commerce National Bureau of Standards and the U.S. Chamber of Commerce Construction Action Council, nearly 70 representatives of various elements in the building community gathered early last month in Washington, DC to discuss research related to construction industry productivity. The day-long session began with hopes expressed by Charles E. Peck, conference cochairman and executive vice president of Owens-Corning Fiberglas Corporation, that if the group could define needs and opportunities, then activity in the research community would follow. He placed emphasis for the session on commercial construction and stressed the view that productivity is a concern in all aspects of building design, construction, and use. The group heard speakers on topics following this theme.

In a clear expression of the new view at the Department of Commerce, deputy secretary Joseph R. Wright, Jr., stated that until recently "the federal government's role with respect to private enterprise has been to place hurdles in front of the winners and institutionalize the losers." The new role, he said, will be to help by getting out of the way. Recent declines in building industry productivity, as measured by his department's surveys, have not been adequately explained and may not reflect the facts, Wright acknowledged, but he wondered if U.S. executives and managers might not learn a great deal from Japanese and European management models.

Wright's strongest emphasis was on the need to reduce regulatory burdens, a theme driven home by Joseph Newman, president of Tishman Research Corporation and chairman of the National Institute of Building Sciences. Beginning with the dictum that "time is money," Newman cited reduction in the time required for construction as a principal source of productivity gains, and stressed the need to streamline the permit approval process, citing professional self-certification and "one-stop" permit offices (already in place in several jurisdictions) as promising alternatives.

Several speakers, including researchers from the Harvard/MIT Joint

[*News report continued on page 40*]



40 more units with Inryco™ steel framing

Soaring land prices are forcing architects and developers to seek creative solutions to hold down project costs. Sandy/Babcock & Associates, architects for Augusta Court Condominiums, chose a unique midrise concept instead of conventional 2 and 3 story wood frame construction. Local building codes restrict conventional wood frame construction to 3 stories. Inryco's steel stud and joist framing system was selected as an economical alternative in achieving the desired density of 65 units per acre.

Augusta Court consists of 152 units in four 4 story buildings over a subterranean parking garage. Each building pair is connected by an open steel bridge, providing access to units through open courts. This creative solution provides security, openness and 40 additional units.

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Project:
Augusta Court Condominiums, Houston, Texas
Owner:
A joint venture of David Mitchell Companies and Mac-Carey Properties, Inc., Houston
Developer:
David Mitchell Companies, Houston
Architects:
Sandy/Babcock & Associates, San Francisco; project architect, Steven House AIA
Structural Engineer:
M. Hourani & Associates, Houston
General Contractor:
Urban Construction Company, Houston
Framing Contractor:
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Center for Urban Studies, expressed concern over the inadequacy of existing measures of construction industry productivity, considered necessary in understanding construction activity nationally and in improving productivity.

In what was perhaps the most impassioned presentation of the session, former labor secretary John T. Dunlop, now professor of business at Harvard, reiterated his longstanding call for a "family of measures" related to construction activity, disagreeing with the view that sector productivity has been on the decline. He echoed calls from other speakers for careful review of projects on a case-by-case basis—as contrasted with aggregate measurement—for clues about productivity issues and strategies for improvement.

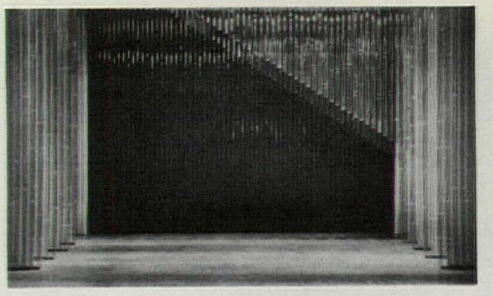
Other speakers, including architect Ezra D. Ehrenkrantz, FAIA, Richard Marshall of the National Bureau of Standards, and Steven Fenves of Carnegie-Mellon University, touched on life-cycle costs, methods of reducing structural failure risks, and possible influences of computer technology as these issues pertain to productivity.

To some observers the session was also revealing for what it failed to cover. Nothing was said about the prospects for a growing foreign construction force in the U.S. In Europe, construction work is largely the domain of foreign nationals working outside their native countries. What implications might an open U.S. border with Mexico—a concept under discussion at the White House—have for this country? No mention was made of metrication and its implications for both domestic construction productivity and overseas competitive positioning. Even within the confined discussion that did take place, issues such as materials wastage and site damage to supplies—identified in Britain as major drains on the construction input/output equation and probably at least as significant in the U.S.—went unmentioned as areas of research need.

On a broader level, there was no strong acknowledgment that productivity is not an end in itself. Only in John Dunlop's passing remark that we tend to confuse public and private productivity was the view expressed that productive activity is a means to achieving a variety of societal goals, as well as the more frequently raised private economic goals. No statement echoed the view expressed at a 1979 National Research Council conference on the same theme, which pointed out that while productivity may decline in the terms measured by Commerce Department statistics, substantial improvements have been made in achieving the equality of housing and employment opportunities, in reducing job hazards, and in a range of other areas that should be the aims of social productivity.

One left the session wondering whether, in this climate of concern about general economic conditions and foreign competition, the confusion between private profit and public good—all under the rubric of enhancing productivity—may not signal an unfortunate narrowing of interests and, ultimately, a lowering of aims within the building community. [Tom Vonier]

Tom Vonier is an architect, president of Tom Vonier Associates, Inc., Washington, DC.



Norman McGrath

Two configurations of the Tschaikovsky set.

Tschaikovsky under plastic

When New York City Ballet's George Balanchine asked architects Johnson/Burgee to design a new stage set for the June Tschaikovsky Festival at Lincoln Center's State Theater, the image he requested was an "ice palace" with a modern, crystalline feeling. The architects responded by providing a vast plastic environment, which was underexploited as a potentially brilliant light diffuser and which elicited some praise, but also some disturbing metaphors—"Saran wrap" and "shower curtain"—from balletomanes and press.

Forty-one thousand pounds of Tenite butyrate plastic were used to create six miles of vertically suspended, clear extruded tubing that could be arranged in various configurations on stage. The 36,000 tubes, joined into chains up to 30 ft long, created one full-length tubing backdrop, four arches, twelve borders (curved, straight, and angled), eight pillars, and a chandelier. The set was executed by Sander Gossard & Associates, theatrical production specialists.

Besides the various effects made possible by different configurations, dramatic results were planned by the reflection and diffusion of brilliant colored and white lights; in fact, the company installed a second set of lights for the festival.

According to Johnson, the architects "wanted to provide the simplest possible shapes for the greatest number of sets—all with the same 'grammar.' It was up to the theater to make poetry with this grammar."

Unfortunately, choreographers Balanchine and Jerome Robbins and lighting designer Ronald Bates seemed shy of—or indifferent to—experimenting with the sets to find their full poetic potential. A timid approach to lighting, said John Burgee, meant that the brilliancy achieved during the design phase by daring lighting cast upon the design model was scarcely realized on the stage. Furthermore, during the two performances that this reviewer attended, the actual presence of the tubular configurations was limited. Robbins especially seemed to want to keep the sets as little in view as possible. When the overhead arches were used, they were not dropped sufficiently to give a sense of envelopment, to create the "stalactite" effect that Balanchine claimed to have wanted.

The Ballet Company's unimaginative handling of the set may be the main reason for the less than satisfying results, but the set itself had distinct drawbacks. Plastic does not produce a "crystalline" effect; the feeling, instead, is almost "oily." The set is decorative in the Late Modern manner—as is the State Theater itself, designed by Philip Johnson and Richard Foster in 1964 (and soon to be renovated by Johnson/Burgee). It is a

[*News report continued on page 44*]

ACME BRICK

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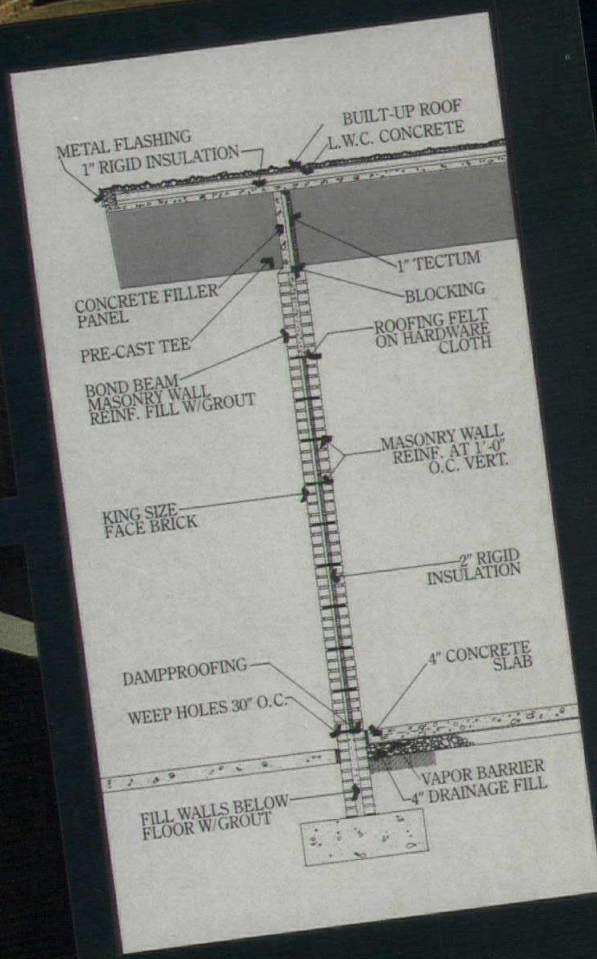
E SCHOOL BOARD SKED FOR A BARGAIN. CME BRICK GAVE HEM MORE THAN THEY ARGAINED FOR.

Loadbearing Acme Brick were lected for the Barling Elementary School r Fort Smith, Arkansas. Its curved walls every corner were accomplished by a ery simple factory modification to stan- dard king-size brick. The double wythe wall provides its own finish surface, both inside and out. A wall, that for the life of the school has been, and will continue to be, totally maintenance-free. Maintenance and energy costs have been further reduced by limiting the number of exterior windows. Glass breakage has been reduced to an absolute minimum.

Miles Shopfner, Director of Maintenance and Purchasing, Fort Smith Public Schools: *"Glass breakage savings alone can justify the selection of brick."* He further added, *"Our average school interior needs to be completely repainted every ten years, or even more often. This is eliminated at Barling. And besides, the building is less costly construction-wise."*

Fire safety is another factor all parents and school officials are concerned with. Walls of Acme Brick are totally fire-resistant. Principal Rex Cochran: *"The fire drill is an exercise we really don't need—with walls that just can't burn."*

In this school's seven-year life, the 200,000 Acme Brick have paid for themselves several times over by savings to School District and the people of



For more information on Acme Brick's Loadbearing Design, and for cost data on Barling Elementary School, call collect (817) 332-4101, ext. 365. Or write Acme Brick Technical Services, P.O. Box 425, Fort Worth, Texas 76107.

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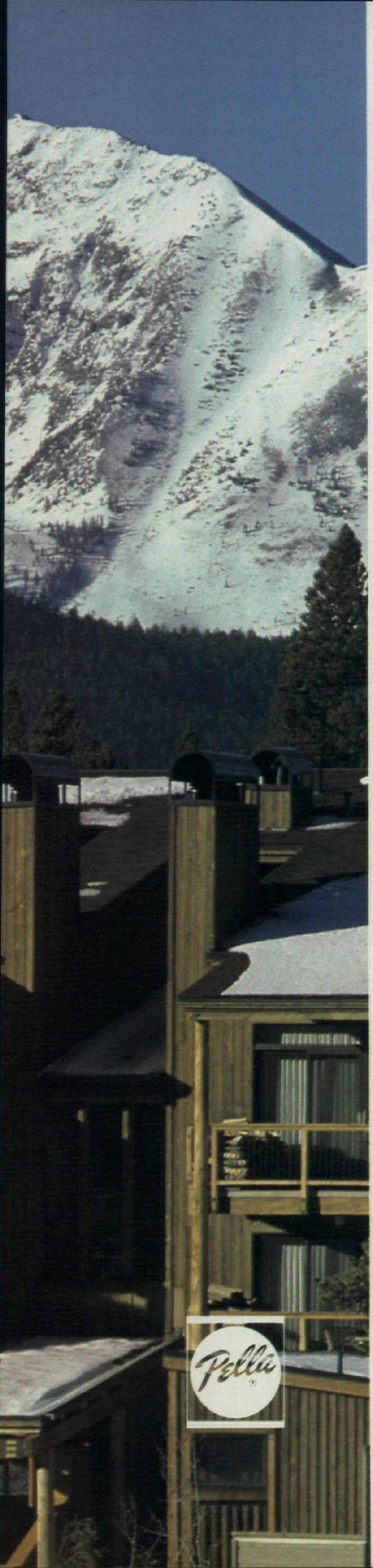
Owner: Special School District of Fort Smith, Fort Smith, Arkansas
Architect: Saxton Wanslow Smith Associates, Fort Smith, Arkansas
Structural: Burrough-Uerling-Brasuell, Engineers, Fort Smith, Arkansas
General Contractor: Gary Crawford Construction C Fort Smith, Arkansas
Masonry Contractor: Ronald Ray Masonry Contrac Fort Smith, Arkansas



Climb any mountain around Keystone and you'll see a lot of Pella doors and windows.

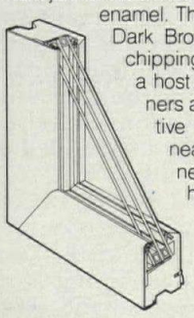
Hundreds and hundreds. With more on the way as Keystone Resort continues its carefully planned growth.

Why so many?

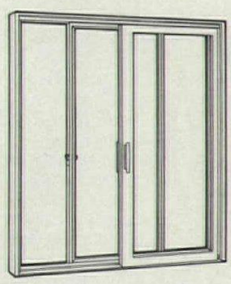
Well, for one thing, condominium homes in resort towns are a little different than your average multi-family unit in the flatlands. While each condo here at 9300' may be the owner's castle-away-from-the-castle, it's also most likely in the rental pool and accommodates many families and visitors week by week, year around. (Here at Keystone, the occupancy rate is a stratospheric 85%, all year!) This kind of use makes it imperative that low-maintenance and sturdy construction be key criteria in selecting building materials.

The logical choice for doors and windows? The Pella Clad System. At the Lodgepole Condominium shown here, each living room has wall to wall, floor to ceiling Pella Clad Sliding Glass Doors and Pella Clad Fixed Windows to match. From inside, not only is the view of the ski runs terrific, but the beauty and warmth of real wood sash and frames definitely says "home", not "hotel."

The Pella Clad System. Completely covering the exterior surface of doors and windows is a sturdy aluminum jacket that's finished with high-temperature baked enamel. This tough coat, in either White or Dark Brown, resists color degeneration, chipping, flaking, peeling, cracking, and a host of other plagues. The sash corners are carefully lap-jointed for effective weather protection and give a neat, mitered appearance. Underneath, the solid wood construction has been vacuum treated with a water and insect repellent preservative – after forming and *before* units are assembled. Perhaps the best part of the Pella Clad System is that custom sized and shaped fixed windows are available with the same low-maintenance Cladding to match doors and operable windows.

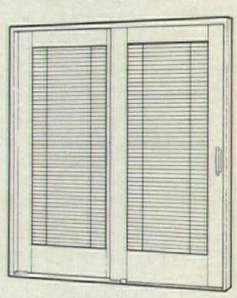


Pella's own Triple Insulating Glass is available in sliding glass doors. This system puts two 5/16" air spaces between three panels of glass for energy efficiency that significantly outperforms conventional 5/8" insulating glass. Standard glazing is two panes of glass separated by 1/2" of insulating air space. Environmental glass is also available to reduce heat gain and glare. And, because the sliding panel is mounted on the outside of the unit, the harder the wind blows, the tighter the weatherstripping seals for effective control of air infiltration.



The self-closing screen is framed with solid wood, steel reinforced to stay straight and true. Its non-derailing design keeps the door on track, and the smooth riding rollers can be adjusted to accommodate installation variations. Yet, the most appreciated feature of the spring-operated screen door is that it closes and latches securely all by itself.

Only Pella offers you the Contemporary French Sliding Glass Door. Identical in many ways to the Standard Sliding Door, the Contemporary French style offers some unique qualities of its own. It uses the exclusive Pella Double Glass Insulation System that features a removable inner panel of glass with a full 13/16" of insulating air space between panes. This interior panel can also be specified as Solarcool® Bronze glass to reduce heat gain and glare.



The Contemporary French also accommodates the exclusive Pella Slimshade® – adjustable narrow slat metal blinds set between panes of glass. Or specify authentically proportioned window pane dividers made of solid wood, ready for stain or paint.

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Pella. The significant difference in windows and doors.

Lodgepole Condominium, Keystone, Colorado

Architect: Backen, Arrigoni & Ross, Inc., San Francisco, California
General Contractor: Beaudoin Construction Co., Denver, Colorado

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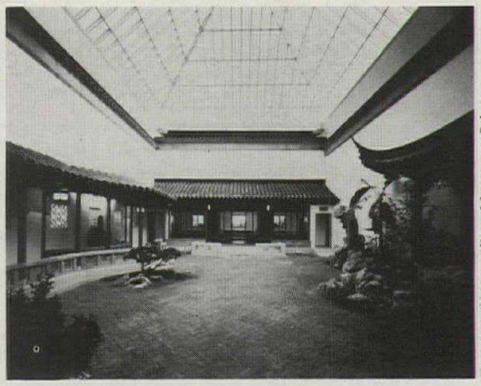
News report continued from page 40

manner that twists, curves, or overlays modern materials to abstractly approximate traditional richness. Like the "grammar" in commercial best-sellers, and like fast food, it glosses over the sensual point—the icy, biting edge of crystal, in this case.

The unusually complicated Johnson/Burgee settings were retained a week beyond the scheduled Tschaikovsky festival; they were then dismantled and, according to their original mandate, will not be reused. [SD]



Courtesy Metropolitan Museum of Art

The Astor Court.

Never the twain shall meet

Part of the Metropolitan Museum of New York's massive building program is also this country's first permanent cultural exchange with the People's Republic of China. It is a Chinese garden court, the centerpiece of the museum's new Far Eastern installation, conceived by Brooke Russell Astor and funded by The Vincent Astor Foundation.

The projects involved experts in both China and Princeton. Astor Court is modeled after a courtyard in the Garden of the Master of the Fishing Nets, and Metropolitan's consultant Wen Fong of Princeton, together with a team in China, researched Ming Dynasty architectural details from the famed garden city Soochow. Rare nan wood was brought for the pillars, an imperial kiln was reopened in China to make the tiles and bricks, and 27 engineers and craftsmen from the Soochow Garden Administration spent five months in New York assembling the court, and performing countless operations including hand-grinding the tiles.

The whole process was so undeniably sincere that it is heartbreaking how little the experience in Astor Court resembles walking in a genuine Chinese garden. The details are meticulous. One enters through a moon gate, and can follow a walkway that bends in and out, covered in a series of gray tile roofs. Latticed windows look out onto Chinese greenery. A spring bubbles around fantastically eroded Chinese rocks. And the walls are bisected by a perfectly detailed cornice as if they were exterior walls.

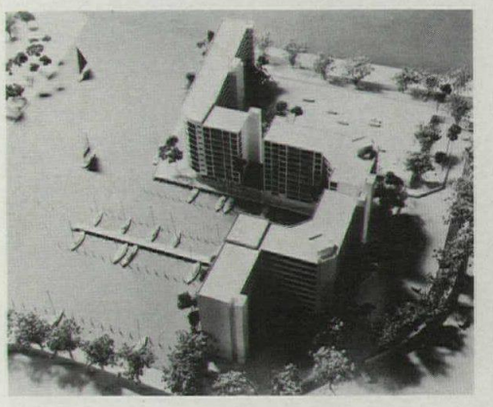
But they are not. The court is indoors, built into an existing light well. The walls continue above the cornice and into a gabled skylight. The tile roofs butt up against the walls and disappear. The bamboos beyond the lattice windows stand in shallow, artificially lit niches.

It is not a question of slight translation. Essential to the long and subtle Chinese tradition is the presentation of each garden, indeed each element of each garden, as a piece of an infinitely extending landscape. Ingenious sleights of hand are attempted here, but they are resoundingly defeated by the pervasive walls and rectilinearity. Because there, under the skylight, what the Metropolitan presents is a charming quiet courtyard, hung and embedded with exquisite collected and reproduced fragments, just as Western museums always have. [NM]

Miami River cleanup

The Miami River, long a place of flotsam and jetsam, is slowly coming back to life. One auspicious development, recently announced for the area by architects Roger Fry Associates, is River Run, a $20-million apartment/sports center/marina development to be located on a six-acre site along the north shore of the river opposite a public park. The area includes a boat slip, which has become a storage space for a variety of live-aboard vessels, and the land area has been the scene of ship repairing, welding, and other industrial uses.

Pollution and blight are common along most of the river, which runs along the south edge of Miami's downtown, and provides a break between that downtown and the area on Brickel Avenue which is seeing a virtual



explosion of luxury building construction. There is little public access to the Miami River, and the view along the debris-strewn banks is ugly. But high gas prices, snarled traffic, and lack of parking facilities in Downtown Miami have caused commuters to eye inner-city locations for residential possibilities. Furthermore, a rapid transit station scheduled to open in 1985 will connect this area to all points downtown, increasing the desirability of the River Run development.

The new development proposes to clean up the site by repairing bulkheads, correcting the eroding shoreline, add-

[*News report continued on page 46*]

When was the last time your elevator said "Good Morning"?

No high-rise elevator can match the new Elevonic 401 for technological innovation and comfort. As with its predecessor, Elevonic 101, all normal elevator functions are controlled by microcomputers. This improves car leveling, reduces waiting time and cuts energy consumption by 30%.

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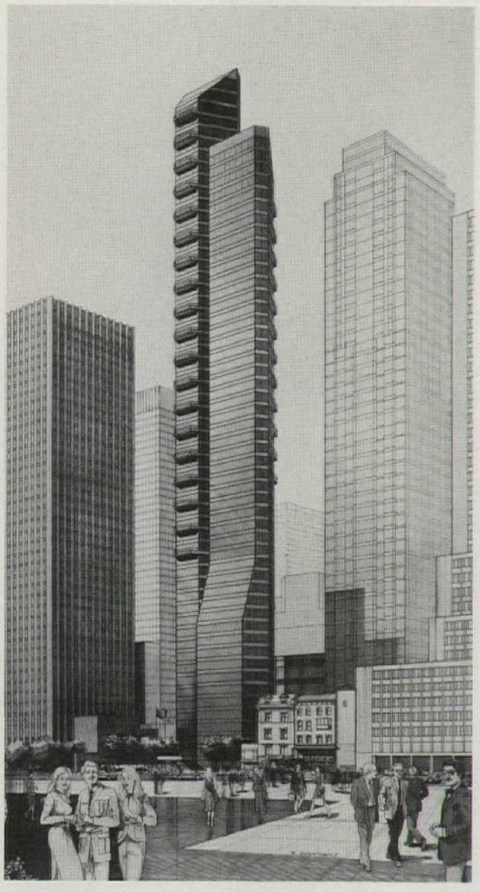
News report continued from page 44

ing a boardwalk, and replacing the illegal, polluting houseboats with small pleasure craft controlled by a condominium association. The ragtag view will be transformed into the clean, colorful sight of sailboats bobbing in a marina.

The three apartment buildings will be somewhat unusual by Miami standards. The units, one and two bedrooms only, will be relatively inexpensive—$60,000 to $110,000. And single-loaded semi-enclosed corridors, ideal for Miami's climate, will permit cross ventilation, natural light in all rooms, and direct views to the Miami River and the marina. The first building (already half pre-sold) will be completed in 1982. [Edward D. Levinson]



Another skybreaker in Manhattan

Just three years after the Museum of Modern Art won its permit to build a tower, designed by Cesar Pelli (P/A, Sept. 1977, pp. 7–8), in the low-rise mid-block of 53rd Street between Fifth Avenue and Avenue of the Americas, a similar proposal is being made for the 52nd Street mid-block. And this at a time when the city is planning to ease midtown congestion.

The developer, Madison Equities, with Raul de Armas of Skidmore, Owings & Merrill as architect in charge, has announced plans to build an extremely slender 650-ft-high 58-story tower that will house offices and apartments, in a

[*News report continued on page 48*]

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Headquarters Building, Square D Company, Palatine, Illinois
Architects: Loebl, Schlossman & Hackl, Chicago, Illinois
Roofer: E. W. Olson, Chicago, Illinois

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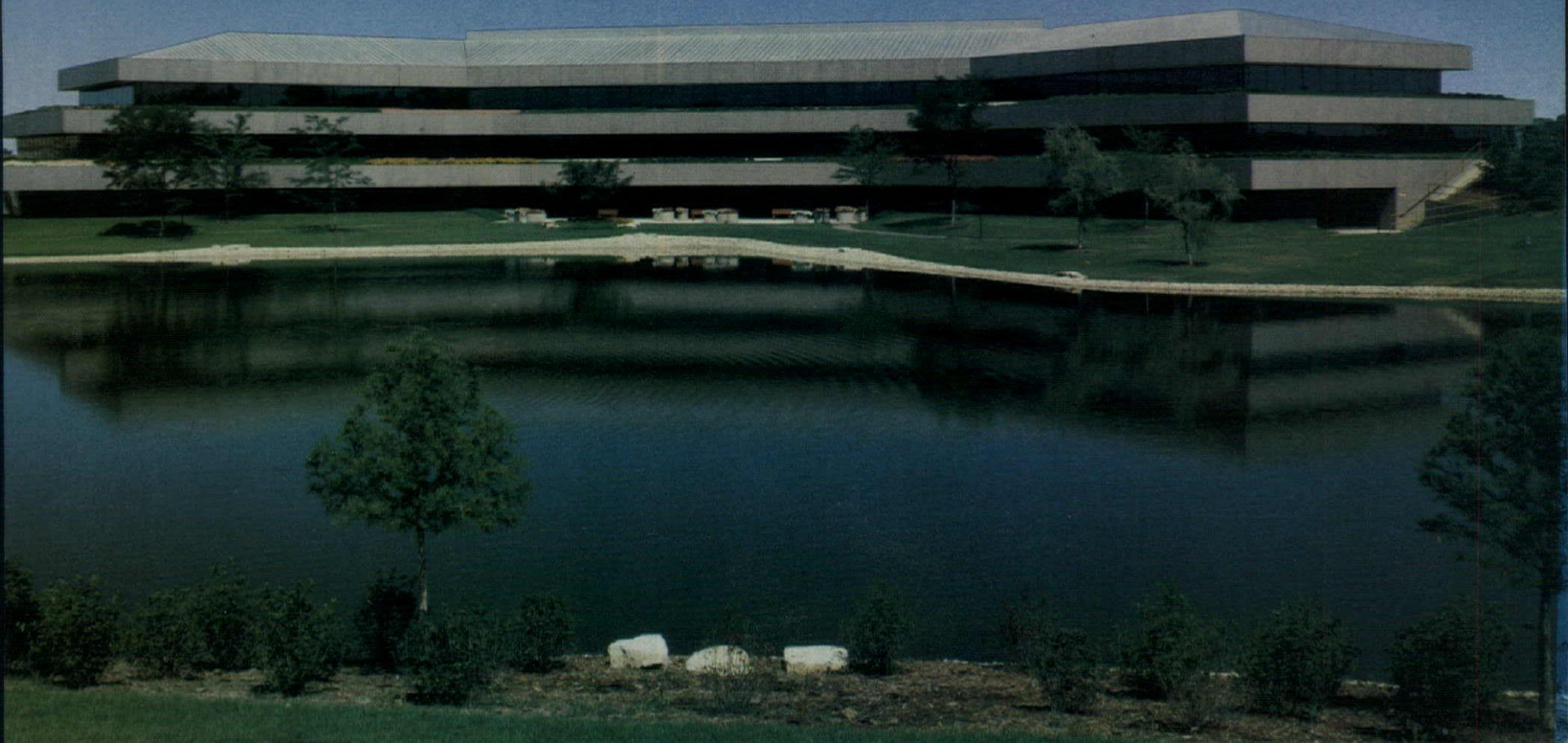

News report continued from page 46

form that bunches two six-sided tubes for structural stability. Rising vertically from a landscaped plaza, the lower 24 floors, about 6000 sq ft each, will contain offices, which will taper back to meet the shallower residential floors, 34 stories with 4500 sq ft, and only two apartments, each. The apartments, with 11-ft ceilings, marble foyers, and large balconies, are planned as condominiums; the offices may also be offered as condominiums, a precedent for a new building in New York.

The building's concrete structure will be sheathed in rough and polished granite alternating with glass. According to the developer, the project was designed to conform to zoning and building regulations, and thus is not subject to public review.

Calendar

Exhibits

Through Aug. 23. "SITE: Buildings and Spaces." Crocker Art Museum, Sacramento, Ca.

Through Aug. 27. Terminal Station and Depot. Gallery at the Old Post Office, Dayton, Oh.

Through Aug. 30. Architecture and Ornament in Late 19th-Century America. The Octagon, Washington, DC.

Through Aug. 31. The drawings of Andrea Palladio. The Art Institute of Chicago. Subsequent dates: **Sept. 15–Nov. 1,** Ackland Memorial Art Center, University of North Carolina at Chapel Hill.

Through Aug. 31. The Kling Partnership Retrospective Show. Kling Gallery, 2301 Chestnut St., Philadelphia.

Through Sept. 6. "The End of the Road: Vanishing Highway Architecture in America," an exhibition of photographs by John Margolies. Hudson River Museum, Yonkers, NY.

Through Sept. 7. New England village in miniature, including models of the Walter Gropius House and an experimental solar house. Museum of American Architecture, Wellfleet, Cape Cod, Ma.

Through Sept. 15. Metaphors for a Sense of Place: Wall Street at "0" Gravity, drawings by architect Grover Mouton. The Lobby, 369 Lexington Ave., NY.

Through Sept. 15. Marcel Breuer: Furniture and Interiors. The Museum of Modern Art, New York. Subsequent dates: **Oct. 13–Nov. 22,** Baltimore Museum of Art.

Through Oct. 4. The Art Fabric: Mainstream. Minnesota Museum of Art at Landmark Center, St. Paul.

Aug. 12–Nov. 1. The Golden Age of Naples: Art and Civilization Under the Bourbons, 1734–1805. Detroit Institute of Arts.

Aug. 28–Sept. 23. Fisher/Florian: an exhibition comparing the work of two urbanists. Frumkin & Struve, Chicago.

Sept. 2–Sept. 24. Along a Grand Boulevard: Architecture and the Landscape of the Mississippi River. Gallery at the Old Post Office, Dayton, Oh.

Sept. 11–20. Habitare 81, Helsinki International Fair Centre. Contact Finnish Furniture Exporters, Arkadiankatu 4–6 B, SF-00100, Helsinki 10, Finland.

Sept. 12–Dec. 12. "New Chicago Architecture." Gran Guardia Vecchia, Verona, Italy.

Sept. 17–Nov. 1. Art of the Olmsted Landscape. Metropolitan Museum of Art, New York.

Sept. 24–Dec. 28. Retrospective exhibition of the work of Jack Lenor Larsen. Musée des Arts Décoratifs, Pavillon de Marsan, Palais du Louvre, Paris.

Sept. 29–Oct. 22. The Artist Views the City. Gallery at the Old Post Office, Dayton, Oh.

October 25–29. SaudiBuild '81—international construction exhibition which reflects the priorities of the Kingdom of Saudi Arabia's third Five Year Plan. Further information from: Gerry Dobson, Overseas Exhibition Services, Ltd., 11 Manchester Square, London W1M 5AB.

Oct. 27–Nov. 19. Architecture, Design and Engineering at the University of Cincinnati. Drawings, sketches, and scale models by faculty and students from the College of Design, Architecture and Art and the College of Engineering at the University of Cincinnati. Gallery at the Old Post Office, Dayton, Oh.

Nov. 24–Dec. 17. The Work of Mario Botta. Gallery at the Old Post Office, Dayton, Oh.

Competitions

Aug. 28. Submission deadline, Owens-Corning Fiberglas 10th Annual Energy Conservation Awards Program. Contact Mary G. Reinbolt, Owens-Corning Fiberglas Corp., Fiberglas Tower, To-

[*News report continued on page 50*]

Two graceful structures.

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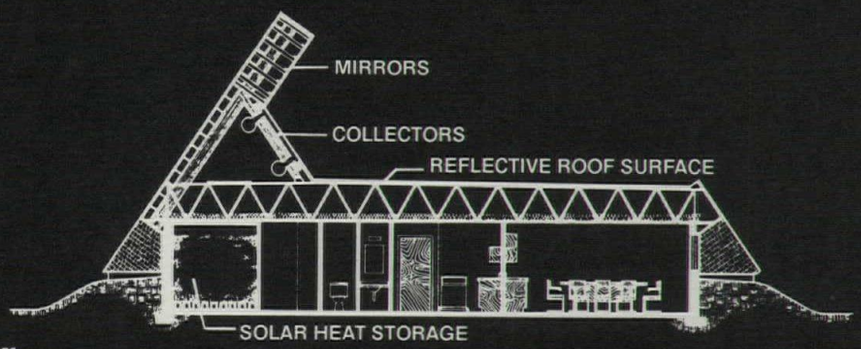
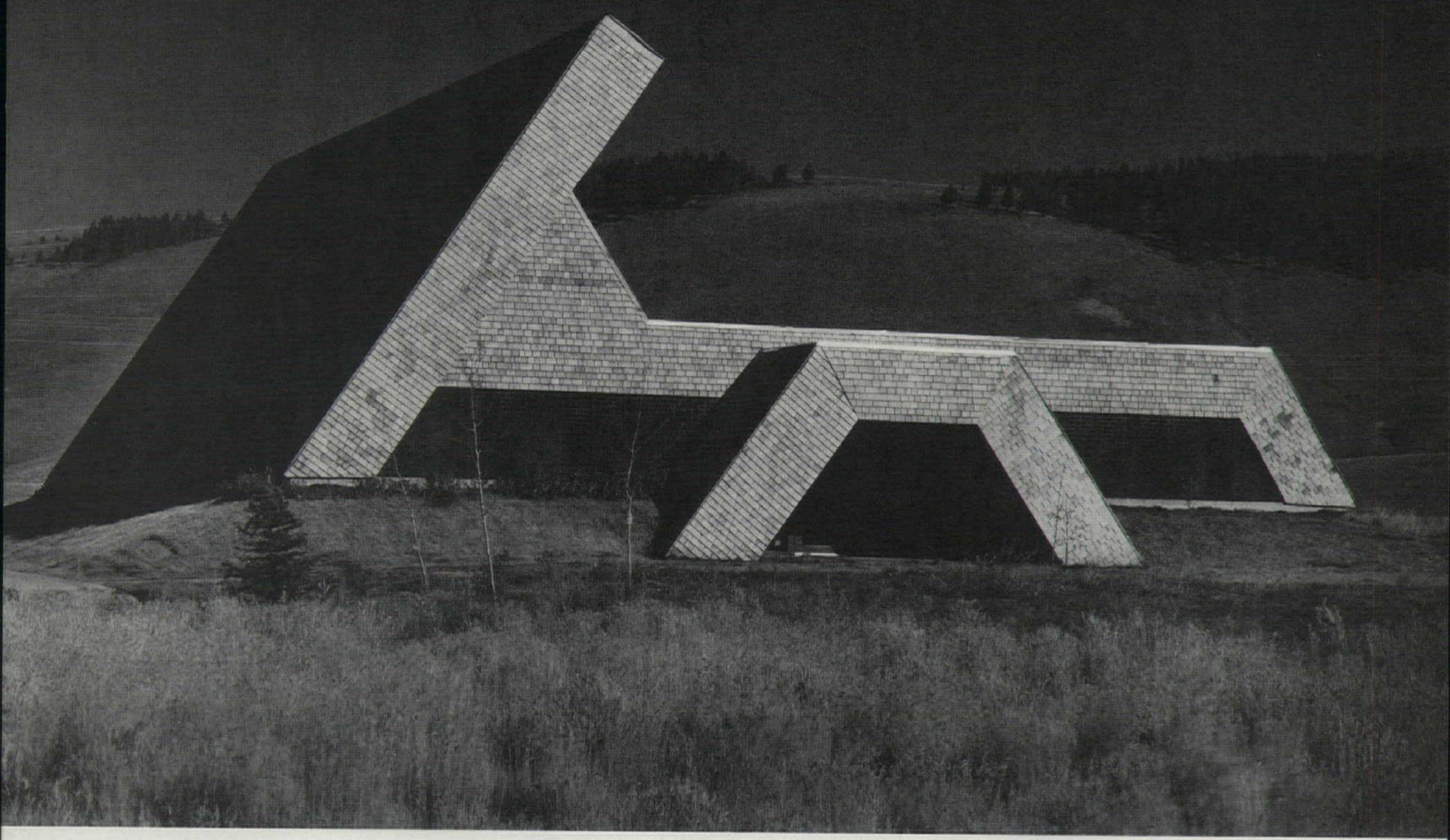
News report continued from page 48

ledo, Oh 43659 (419) 248-8053.
Aug. 31. Submission deadline for Shinkenchiku Residential Design Competition: An Exhibition on the Grounds of a Museum of the Twentieth Century. Contact Shinkenchiku-sha Co., Ltd., Attn. Editorial Section of the *Japan Architect,* 31-2 Yushima 2-chome, Bunkyo-ku, Tokyo, Japan.
Aug. 31. Mailing date for P/A Awards entries (see entry rules p. 15).
Sept. 15. Entry deadline, North Central and East regions, American Wood Council nonresidential Design Award program. For forms and information, contact: American Wood Council, Suite 500, 1619 Massachusetts Ave., NW, Washington, DC 20036 (202) 265-7766.
Sept. 30. Registration deadline for Walker/Group Student Competition. Contact Competition Director, Walker/Group, Inc., 304 E. 45 St., New York 10017. Submission deadline: **Nov. 30.**
Oct. 15. Submission deadline First Annual Allmilmö Kitchen Design Competition. Contact Tomorrow's Kitchen Today, P.O. Box 629, Fairfield, NJ 07006.
Oct. 31. Mailing date for entries, Laminator's Safety Glass Association "Design of the Year" Award. Contact LSGA Design Scholarship Award, 700 Van Ness Ave., Fresno, Ca 93721.
Nov. 1. Deadline for entries, Concrete Reinforcing Steel Institute Design Awards VI Program. Contact Vice President/Marketing & Promotion, Concrete Reinforcing Steel Institute, 180 N. LaSalle St., Chicago, Il 60601 (312) 372-5059.
Jan. 26, 1982. Deadline for mailing entries, The Second Annual International Conceptual Furniture Competition. Contact International Conceptual Furniture Competition, Progressive Architecture, 600 Summer Street, Stamford, Ct 06904.
Feb. 1, 1982. Submission deadline, Fourth Arango International Design Competition. Theme: Multi-Purpose Furniture. Contract Intercon Arts, Inc., The Metropolitan Museum and Art Center, 1212 Anastasia Avenue, Coral Gables, Fl 33134.

Conferences, seminars, workshops
Aug. 17–Sept. 5. Summer Institute for Sustainable Design multidisciplinary workshop. University of Venice, Italy. Contact Mike Holtz, Coordinator, International Institute for Energy & Architecture, 1708 13 St., Boulder, Co 30302.
Aug. 21–23. 30th Northwest Regional Conference, The American Institute of Architects. White Pass, Wa. Contact: Ed Weber, 633 Miller Bldg., Yakima, Wa 98901.
Sept. 5–11. International Federation of Landscape Architects Congress, Canberra, Australia. Contact Congress Secretariat, P.O. Box 3, Belconnen, A.C.T. 2616, Australia.
Sept. 8–12. Sixth National Passive Solar Conference, Portland, Or. Contact AS/ISES, RIAT/U.S. Hwy. 190 West, Killeen, Tx 76541 (817) 526-1300.
Sept. 9–12. Fifth Annual 1981 Interior Landscape Conference, Hyatt Regency, Atlanta. Contact ALCA/Interior Landscape Division, 1750 Old Meadow Rd., McLean, Va 22102.
Sept. 9–13. National Association of Women in Construction Convention. Sheraton-Waikiki, Honolulu, Hi. Contact Betty Kornegay, Executive Director, P.O. Box 181068, Fort Worth, Tx 76118.
Sept. 16. Classical Architecture: Drafting of the Orders and Classical Ornament. Four-month course, National Academy School of Fine Arts, New York. Contact Henry Hope Reed, Classical America, Box 821, Times Square Station, New York, NY 10036 (212) 753-4376.
Sept. 19–21. Teilhard and Metamorphosis, An International Centennial Conference/Celebration, Arcosanti, Az. Contact Jeff Stein, 6433 Doubletree Rd., Scottsdale, Az 85253.
Sept. 20–25. American Concrete Institute Convention, Quebec Hilton, Quebec, Canada. Contact Cynthia A. Clapp, Convention Coordinator, ACI, Box 19150 Redford Station, 22400 West Seven Mile Rd., Detroit, Mi 48219.
Sept. 26–30. International Federation for Housing and Planning Congress. Liege, Belgium. Contact IFHP Congress Dept., 43 Wassenaarseweg, 2596 CG The Hague, The Netherlands.
Oct. 4–6. First North American Conference on Industrial Architecture, sponsored by The American Institute of Architects, Detroit. Contact Maurice Payne (202) 626-7364.
Oct. 5–6. Passive solar and earth sheltered housing conference, Jackson, Ms. Subsequent dates: **Oct. 8–9,** Atlanta. Contact Gayle Wells, P.O. Box 6282, University of Alabama, University, Al 35486.

Rocky Mountain High: Solar power, cedar power.





Solar Plaza Professional Building, Granby, Colorado
Architects: Dixon/Carter Architects

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—Daniel W. Dixon

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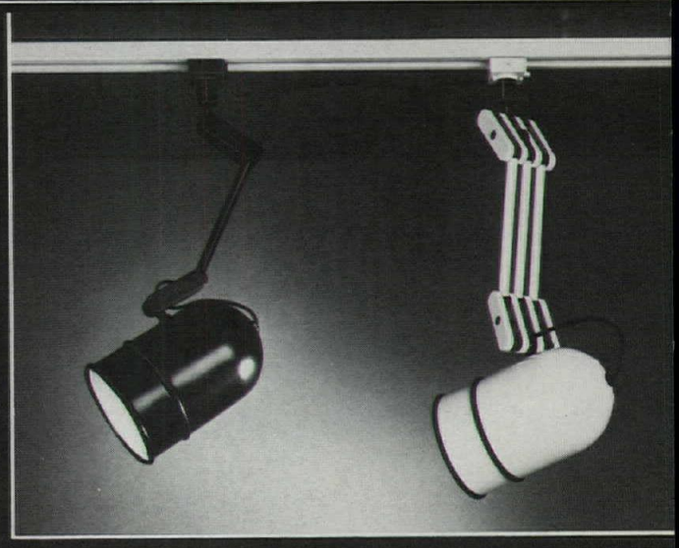
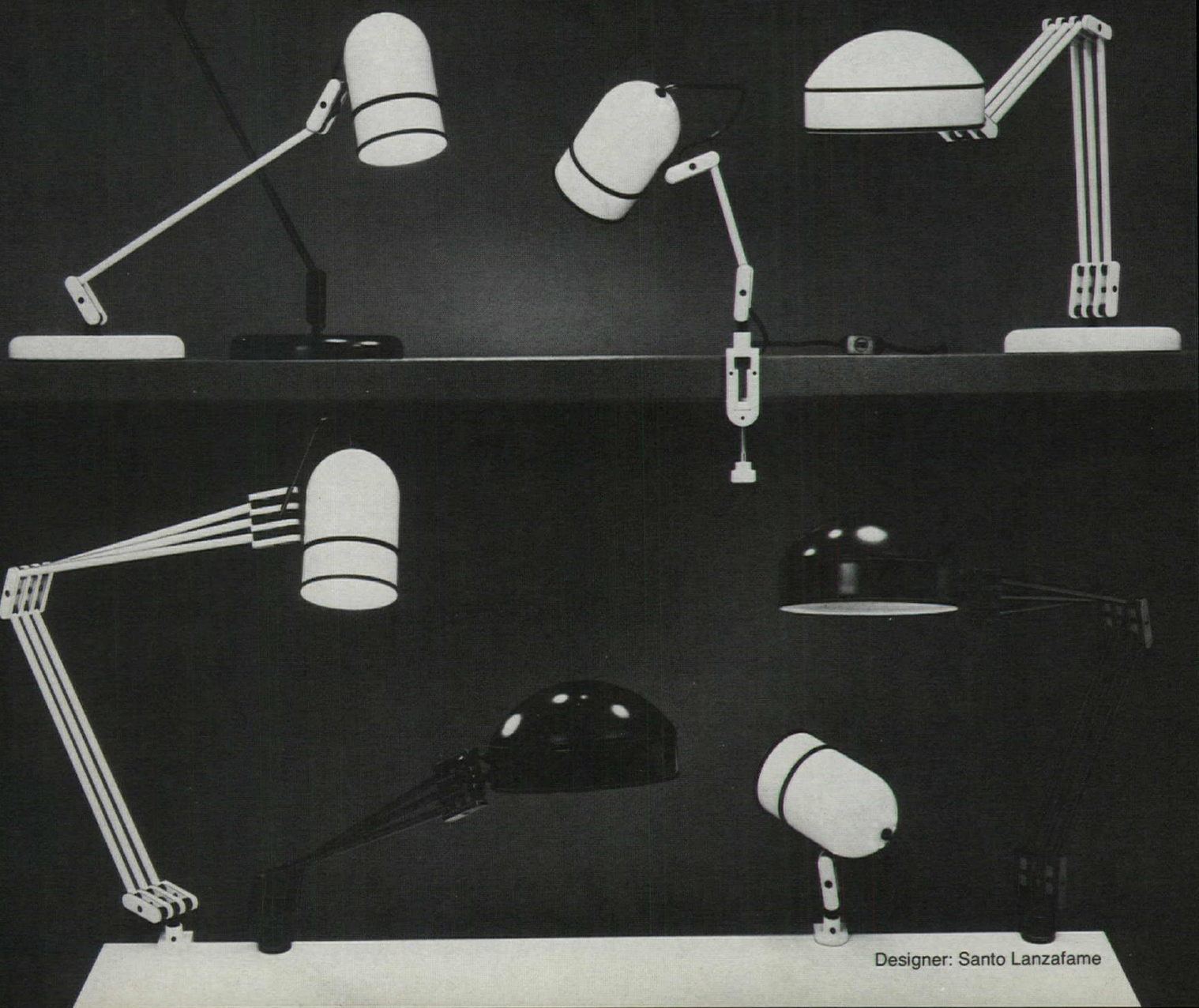
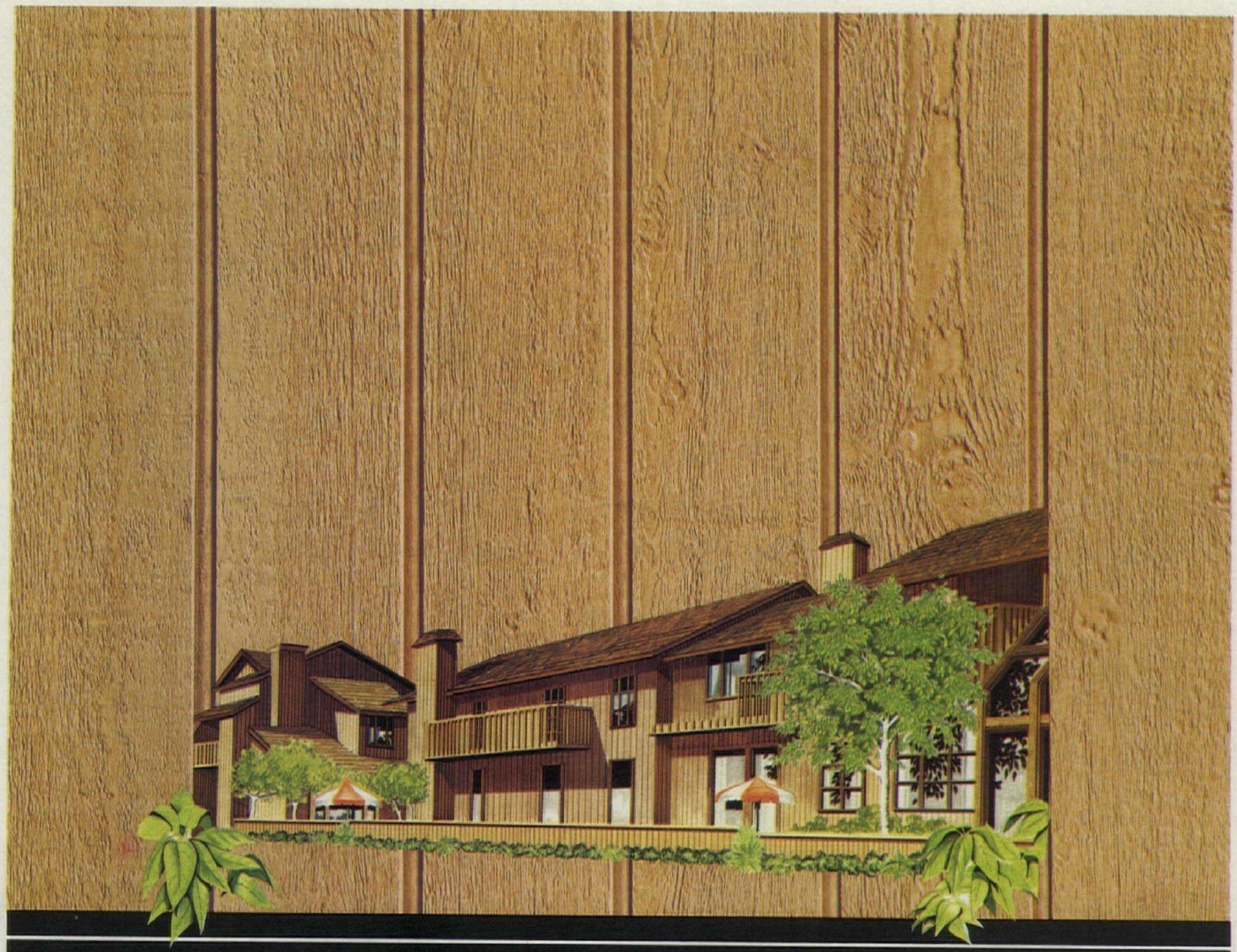




Designer: Santo Lanzafame



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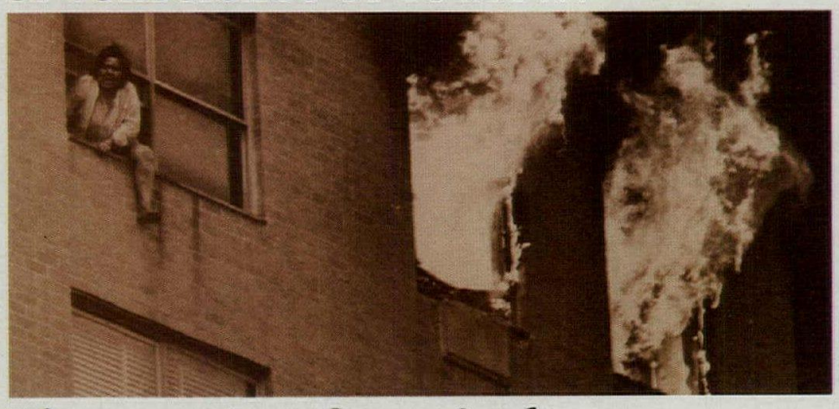
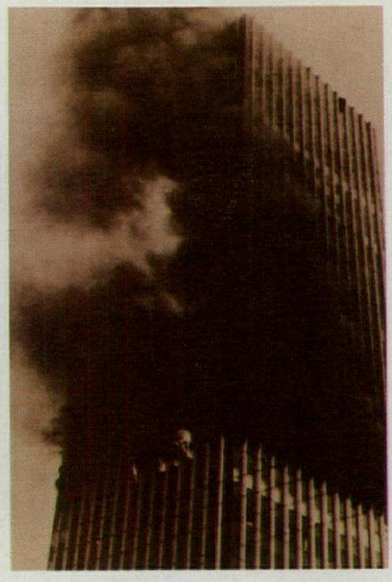
LIFE/FIRE safety in high rise buildings is no longer just a matter of conscience or codes...





It's a matter of survival.

"We don't want anything above the 2nd floor!"

People around the world are becoming increasingly aware that most lives lost in high rise fires are a result of *SMOKE, TOXIC GASES,* and *PANIC.* Three problems not even sprinklers can resolve.

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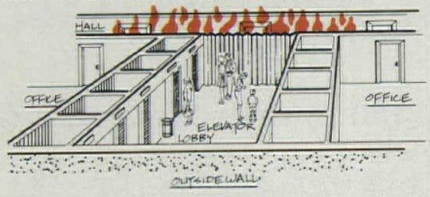
Fire officials have agreed for some time that life/fire safety in high rise buildings depends on: 1. rapid isolation of elevator shafts in order to



retain their use for evacuation and to prevent vertical spread of fire and smoke, 2. in-place protection or "Safe Refuge" areas for those who find themselves trapped on the upper floors.

Unfortunately, most also agreed that flexible fire barriers necessary to create these safe areas was probably a long way in the future.

That is, a UL tested, 1 and 1½ hour labeled retractable fire barrier that is also exceptionally effective in blocking smoke and toxic gases. One that passes the low back-face temperature rise test. In other words, one that will remain cool on one side while an inferno rages out of control on the other. An automatically activated, easy to operate (even for the handicapped) multiple pass-through, continuous closing barrier that operates on its own fail-safe power supply. One that can always be overridden manually, retracts into the wall, and never interferes with the normal traffic or usage of the building. One that can span unlimited widths, is remotely controllable from central engineering spaces and can assure contamination-free safe areas from central status monitoring.

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Fire officials and analysts who witnessed the testing of the barrier at Underwriter's Laboratory, are seeking their use not only for high rise refuge and elevator isolation, but for a wide variety of applications for both life and property safety.

Says State Fire Marshall Grant Walker, "In my judgement, the flexibility and fire protection advantages of this new flexible barrier represent one of the most significant breakthroughs in recent memory."

Fire code analyst John G. Degenkolb, says, "The model building codes are in basic agreement in requiring elevator lobbies of high rise buildings to be separated from the remainder of the building by fire-rated barriers. This UL R6799 Fire-Guard barrier is the best means for accomplishing that requirement."

For further information contact your area Won-Door representative or call toll-free 1-800-453-8494.

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Progressive Architecture announces the second annual competition recognizing outstanding furniture and lighting design proposals, not yet being marketed by any manufacturer as of entry deadline, January 26, 1982. The competition is intended to give the design professions a forum to express ideas about the next generation of furniture design. Designers are encouraged to consider the aesthetic and ideological implications for furniture design implied by the current concerns within architecture and other design disciplines. Physical feasibility must be considered, but the design need not be constrained by existing production or marketing practices.

Winning projects will be published in the May 1982 P/A in an article by Nory Miller, P/A Interior Design Editor, who developed the competition, and they will be displayed at NEOCON 14, the National Exposition of Contract Interior Furnishings, at Chicago's Merchandise Mart, June 1982. Awards will be presented to winners in an evening program attended by press, designers, and NEOCON manufacturers. A traveling exhibit of winning projects to major cities is also planned.

In addition to the exposure afforded the submissions, the competition will encourage further discourse between the entrants and respected furniture producers. Any ongoing discussions will, of course, be up to the individual designers and manufacturers, but benefit to both is anticipated.

Submissions are invited in all categories including chairs, seating systems, sofas, tables, desks, work stations, storage systems, lighting, and miscellaneous furniture pieces. Designations of **award** and **citation** may be made by the invited jury, based on overall excellence and advances in the art.

The jury for this competition:

Emilio Ambasz, architect, graphic and industrial designer, former curator of design at The Museum of Modern Art, New York.
Kenneth Frampton, Professor of Architecture, Columbia University, Fellow of the Institute for Architectural and Urban Studies, an editor of *Oppositions*, and author of *Modern Architecture: A Critical History*.
David Gebhard, architectural historian, Professor of Architectural History and Curator of architectural drawing collection, University of California at Santa Barbara, currently president of the National Society of Architectural Historians.
Hans Hollein, architect in practice in Vienna, author, and Professor at Academy of Art, Dusseldorf.
Coy Howard, designer, principal of Coy Howard and Company, Venice, Ca.

Judging will take place in New York City during the month of February. Winners will be notified — confidentially — before March 15. Public announcement of the winners will be made at the presentation ceremony at NEOCON 14 and in the May 1982 issue of P/A. P/A will arrange for cov-

The Second Annual

International Conceptual Furniture Competition

sponsored by

Progressive Architecture

with winning projects to be displayed at

NEOCON 14

June 1982
The Merchandise Mart
Chicago

erage of winning entries in national and local press.

Eligibility
1 Architects, interior designers, industrial designers, and design students from all countries may enter one or more submissions.

2 Design must be original. If found to be substantially identical to any existing product design, entry will receive no recognition.
3 Designer may be under contract to or in negotiation with a manufacturer for this design, but design must not be available in the marketplace as of entry deadline.

Entry form: International Conceptual Furniture Competition

Please fill out all parts and submit, intact, with each entry (see paragraph 11 of instructions). Use typewriter, please. Copies of this form may be used.

Entrant:
Address:

Entrant phone number:
Category:

Entrant:
Address:

Designer(s) responsible for this submission (identify individual roles if appropriate):

I confirm that the attached entry meets eligibility requirements (paragraph 1–3) and that stipulations of publication agreement (paragraphs 4–6) will be met.
I verify that the submission is entirely the work of those listed on this form (or an attached list as necessary).

Signature _____

Name (typed) _____

Furniture Competition Progressive Architecture

600 Summer Street, Stamford, CT 06904

(Receipt)
Your submission has been received and assigned number:

Entrant:
Address:

Entrant:
Address:

Publication agreement
4 If the submission should win, the entrant agrees to make available further information, original drawings or model photographs as necessary, for publication in the May 1982 P/A and exhibition at NEOCON in Chicago and other major cities.
5 P/A retains the rights to first publication of winning designs and exhibition of all entries. Designer retains rights to actual design.
6 P/A assumes no obligation for designer's rights. Concerned designers are advised to document their work (date and authorship) and seek counsel on pertinent copyright and patent protections.

Submission requirements
7 Submissions become the property of P/A and *will not be returned.*
8 Drawing(s) and/or model photo(s) of the design should be mounted *on one side only* of one 20″ x 30″ foamcore board presented horizontally.
9 There are no limits to the number of illustrations mounted on the board, but all must be visible at once (no overlays to fold back). No actual models will be accepted.
10 Each submission *must include* a 5″ x 7″ index card mounted on the front side of the board with the following information typed on it: intended dimensions of the piece of furniture, color(s), materials, components, brief description of important features, design assumptions and intentions. This information is to be presented in English.
11 Each submission must be accompanied by an entry form, to be found on this page. Reproductions of this form are acceptable. All sections must be filled out (by typewriter, please). Insert entire form into *unsealed* envelope taped *to back of submission board.* P/A will seal stub of entry form in envelope before judging.
12 For purposes of jury procedure only, projects are to be assigned *by the entrant* to a category on the entry form. Please identify each entry as one of the following: Chair, Seating System, Sofa, Table, Desk, Work Station, Storage System, Lighting. If necessary, the category *"Miscellaneous"* may be designated.
13 Entry fee of $15 must accompany each submission, inserted into *unsealed* envelope containing entry form (see 11 above). Make check or money order (no cash, please) payable to *Progressive Architecture.*
14 To maintain anonymity, no identification of the entrant may appear on any part of the submission, except on entry form. Designer should attach list of collaborators to be credited as necessary.
15 Deadline for mailing is January 26, 1982. Other methods of delivery are acceptable. Entries must show postmark or other evidence of being en route by deadline. Hand-delivered entries must be received at the address shown here by January 26.
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The age of the aging

For well over two decades the influence of social research on the built environment has continued to grow. The examples of elderly housing that are featured in the articles which follow this one have all had social research input into the design process. The penetration of this kind of research into design could pave the way for the research community to influence many solutions for environmental design.

With all of the government and private stimulus (see next page), one would expect that the research and knowledge of the last 20 years into the elderly environment would have generated many buildings in which the information has been incorporated into architecture. In fact, progress has been slow.

Lorraine G. Hiatt, of the Unit on Aging of the American Foundation for the Blind, describes the process graphically in the introduction to her paper presented at the 1979 EDRA Conference. We excerpt it here:

"My own first design-research collaboration meeting [10 years ago] was abruptly interrupted by a fit of nausea. As I recall it, the room contained three behavioral scientists . . . and five architects. I had come into the meeting securely prepared to present research on the psychosocial needs of older people, thinking these were pertinent to our task of designing a geriatric health center.

"But as the morning discussion progressed, I became more aware that this information, our credentials, and indeed our presence were not compelling those present to some new conceptualization of space or design. Couldn't they see our shiny badges of environmental psychology?

"We reconvened in the early afternoon . . . [when] the firm's prestigious senior member—notably absent from the morning's session—joined the group and proceeded to trace the elevation for the building as he thought it should be created from an eight-year-old plan of an award-winning design constructed elsewhere. As I felt the familiar waves of childhood motion sickness rise, he commented that the most important design consideration was a 'statement,' a 'distinguishable shape on the horizon,' a 'landmark for the community.' This encouraged a lively discussion on the Beaux Arts tradition, and it appeared that the design concept had emerged: a low-slung structure culminating in a large central element.

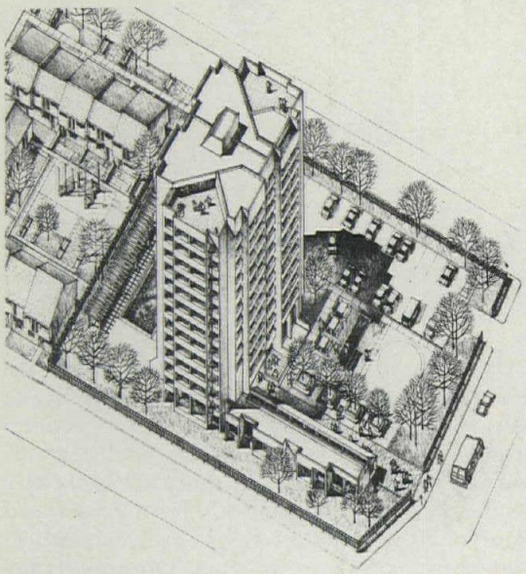
"With mounting discomfort, I realized that while I had been trained to consider people's function in and responses to spaces from the inside out, his orientation was from the outside in. Nothing in the training or experience I had then received had prepared me to reconcile our perspectives."

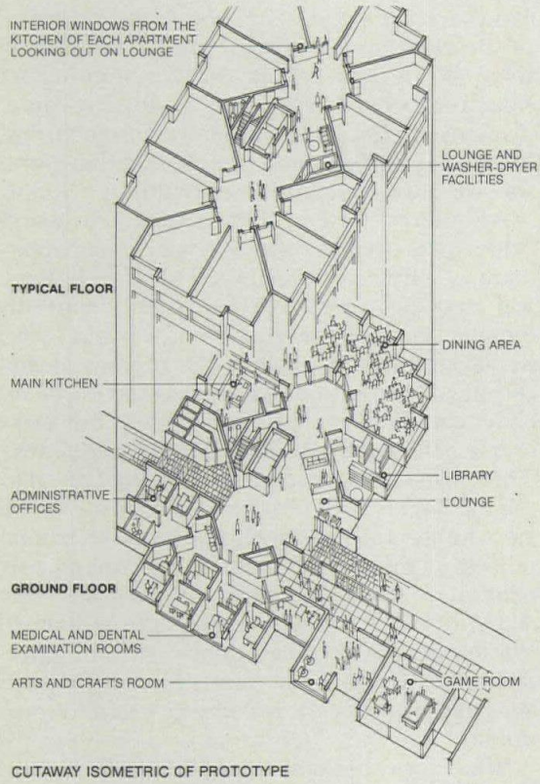
Part of the nausea associated with Ms. Hiatt's experience is common to consulting of all sorts. It partially accounts for the growing trend among such researchers and consultants to request input and more control early in the design process. Both John Zeisel and Sandra Howell, whose books are reviewed in this issue, consult only when confident they can directly influence design decisions. But there are some elements about the problem of the elderly which create an inertia unique to it. While few people without training in structural engineering, for example, would pretend to have an opinion on structures, most of us know elderly people and therefore feel we have expertise to draw upon.

Another critical problem is that the word "elderly" is used to refer to a very broad spectrum of physical capability. The elderly person may be 62 or 102 years old, male or female, married or single, of various economic strata, ethnic groups, or regions of the country. The definitional issue could occur in code compliance, and application for economic assistance, as well as design guidelines. This problem is compounded by the fact that the mental and physical state of the individual can change radically within a relatively short period of time. An efficiency apartment, for example, while perhaps undesirable for sighted elderly is preferred as sight weakens. While the prototypical elderly person does not exist, we do know that as an individual ages, his or her needs become more and more unique.

Whoever these older people are, there are certainly growing numbers of them. Their present population in the U.S. is unprecedented and represents a situation that our culture has not fully accommodated socially or physically.

There are few generic environments which require such total design reconsideration as designing for elderly people, from large scale to small. The planning of a project where older people are expected to live must consider greater limitations on travel distance and transportation type to events in the community and the possible necessity of duplication of such facilities nearby. Support buildings, such as senior centers, for example, have played a growing role in recent years. Philadelphia architect Joe Jordan has written two books on the subject: *Senior Center Facilities* and *Senior Center Design,* both published by the National Council on Aging. Edward Steinfeld and Stewart Brecher have re-





CUTAWAY ISOMETRIC OF PROTOTYPE

In his new book, Community of Interest, *New York architect/planner Oscar Newman includes the subject of security in design for the elderly. Outside the building (top), careful attention is given to fencing out intruders and concentrating access at particular points with good surveillance. The project for Newark, NJ, is exclusively for the elderly. Narrow corridors and hidden alcoves (above) are eliminated from both the ground floor and the typical living floors. Instead, lounges which have natural surveillance from adjacent spaces are created. Clearly, maximizing security for the elderly can be a major design determinant.*

searched the subject thoroughly for the Pennsylvania Senior Center Institute.

The related problem is that of security or undesirable access by the community surrounding a building to the dwellings of older people. This is a considerable threat and continues to be a subject of dispute within the research community. The specific problem is the serious antagonism suffered by elderly people from malevolent teenage children. To reduce the potential of danger from these youths, many projects are opting for complete segregation from children of all ages.

The question of planning for maintenance is directly related to security and safety. A covered parking garage is desirable for the maintenance of the older person's automobile, but untended it is a security liability. Steps, ramps, and walkways must be closely examined for the correct height, slope, and surface condition. The older the person, the more difficult both stairs and ramps are to use safely. How are repairs made to these elements, who makes them, and how often?

How does the building change?

As one arrives at the building, smaller details become larger issues. What color should the sign be, or the door itself, for best vision or orientation throughout the day? Shouldn't the lettering and numerals be larger? How large? Shouldn't they be lower? Is there a security peep hole? The smooth, round doorknob is hard to grasp by an arthritic hand; flatter handles can be used by everyone. Is there a place to put packages while searching for the key? The door should not be surprisingly light nor too difficult to push open or to close. How is the dwelling entry illuminated; do I need a ladder to change the bulbs?

The bathroom, kitchen, and bedroom all represent particular opportunities for reconsidered design. Kitchen cabinets that are too high or too low will only infrequently be used. The electric range should incorporate a light that visually records its use. Can I read the oven temperatures? How easy is the stove to clean? Does a larger refrigerator and freezer make sense (less shopping trips but more load)? How far must I carry the garbage?

The bathroom is particularly a problem; slips and falls there can be especially lethal to an older person. The major decision is wheelchair access, an eventuality in some cases. All of the resulting widths, heights, and locations are dependent upon this choice. Handrails and grab bars need to be carefully thought out. Older women seem to prefer baths to showers while the reverse is true for the men. Many elderly facilities provide showers exclusively in the apartments but have baths available for common use. A handrail at the perimeter and perhaps a fold-down seat make a shower usable to the majority of people while the tub requires the ability to negotiate different body positions and to step over an obstacle. Smooth, round knobs on faucets are difficult to use.

In the bedroom, the storage position and access are critical. Positioning a window for

Historical briefing

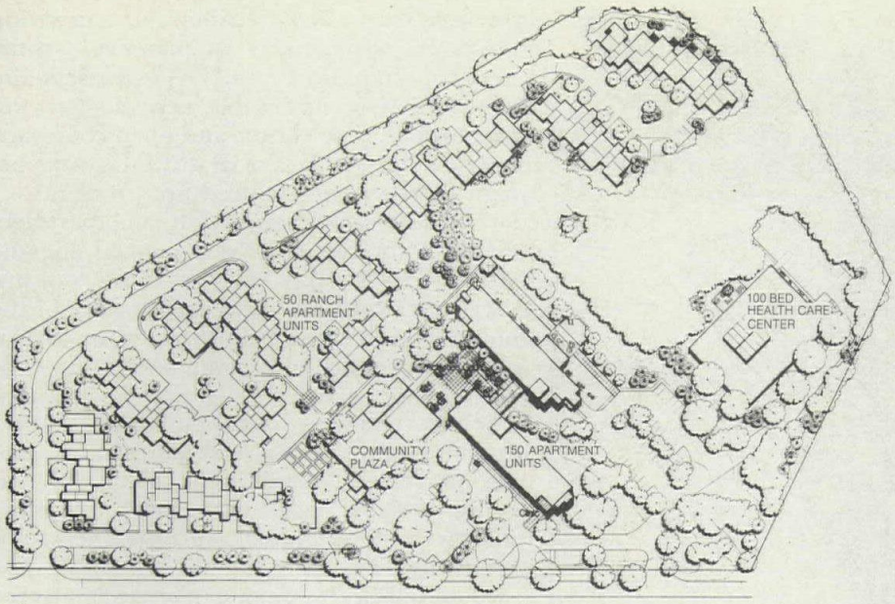
In 1950, when the first Federal-State Conference on Aging was held in Washington, very little specific elderly research existed. A National Institute devoted to aging was suggested at that time, but although the Administration on Aging (within HEW) was created in 1965, the National Institute on Aging did not come into being until 1974.

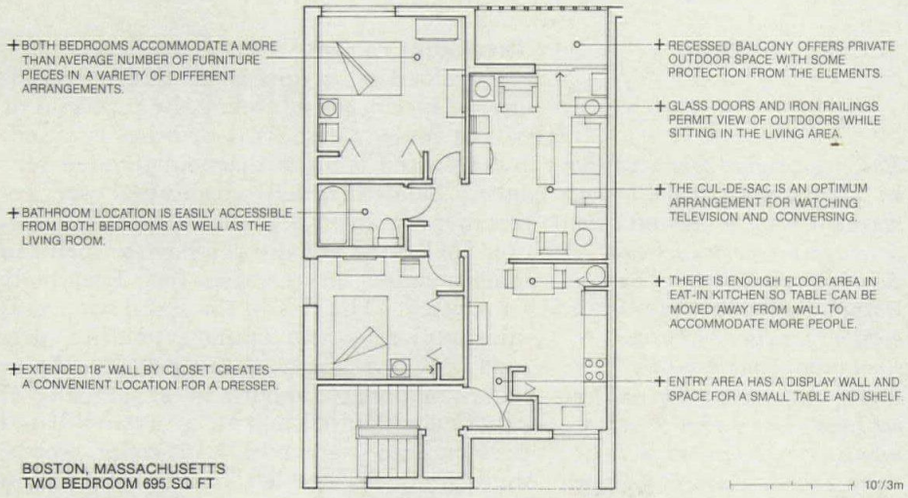
Congress first authorized HUD to build housing specialized for the aging in the late 1950s; the first units were opened by 1960. The last 20 years have been sprinkled with important congressional bills providing HUD with funding to become a major support system for elderly housing. The Congregate Housing Services Act of 1978 is a recent example.

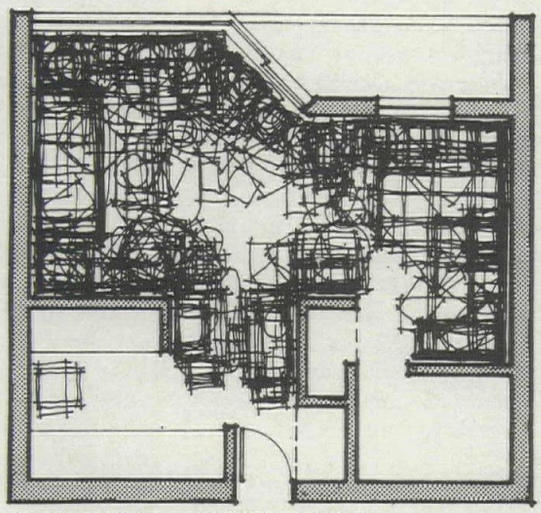
Through the decade of the 1960s, the National Institute on Mental Health funded four major research projects related to evaluating federal and other programs for the elderly. In 1971, HEW (through the AOA) sponsored a four-year study by the Gerontological Society of America into the relationship between the environment and the aging that yielded 14 books and monographs. Throughout the decade of the 1970s, dozens of interdisciplinary workshops were held, attracting psychologists, sociologists, planners, and architects, as well as administrators. In the mid-1970s, the Gerontological Society of America conducted a three-year study of elderly-concerned curriculums in architectural schools throughout the country.

This 30-year time period was punctuated by White House Conferences on Aging in 1961, 1971, and the one in progress this year.

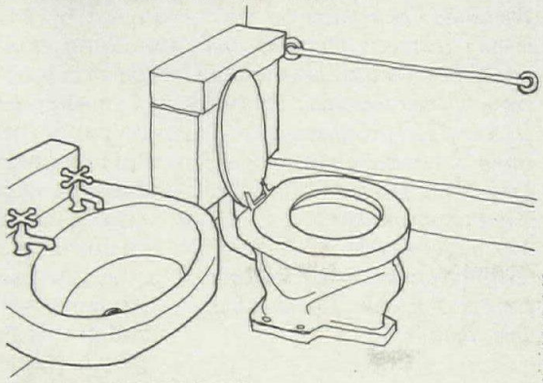
All of these influences, coupled with dozens of other significant shorter term research projects, served to transform the field from a small kernel of devoted pioneers to a vast reservoir of talent and expertise now available throughout the country.







AGGREGATE FURNITURE MAPPINGS OF 22 UNITS



DETAIL: BATHROOM GRAB BAR

Edward Steinfeld

The Ohio Presbyterian Homes in Willoughby, Oh, shown in site plan (top) are a representative example of a retirement community. In the design, the Hoffmann Partnership, Inc., of St. Louis has provided single-level "ranch" apartments as well as congregate apartment building, a community center, and health-care facilities. In this complex, a person can change abode without the need of a new social environment. Part of the reason to change abode is a lack of compatibility with the environment. In her new book, Designs for Aging: Patterns of Use *(above, reviewed on p. 110), Sandra Howell identifies the kinds of flaws present in housing for the elderly. The superimposition of different uses on the same apartment space (right) graphically expresses the necessity for flexibility in design. Design for the elderly (bottom) often begins with simple, small-scale sensitivity.*

view while reclining is desirable. Even the simplest activity, such as making the bed, can be difficult if access is not thought through. The operable windows should themselves be easy to operate and clean, but difficult to break accidentally. Even the location of the electrical outlets should be raised (in all rooms) for easier access without stooping.

There are hundreds of such considerations throughout the building. In the case of the Trenton housing competition (p. 69), itemized research by architect Thomas Schumacher and sociologist Galen Cranz was disseminated to entrants and figured strongly in the executed winning design. The most obvious area of greatest impact for the social researcher in the design process, is in the creation of the program. Cranz also worked with architect Robert Herman programming Woolf House (p. 72). However, while many researchers would agree on the details involved, there is enough ambiguity to support several different strategies for overall housing organization.

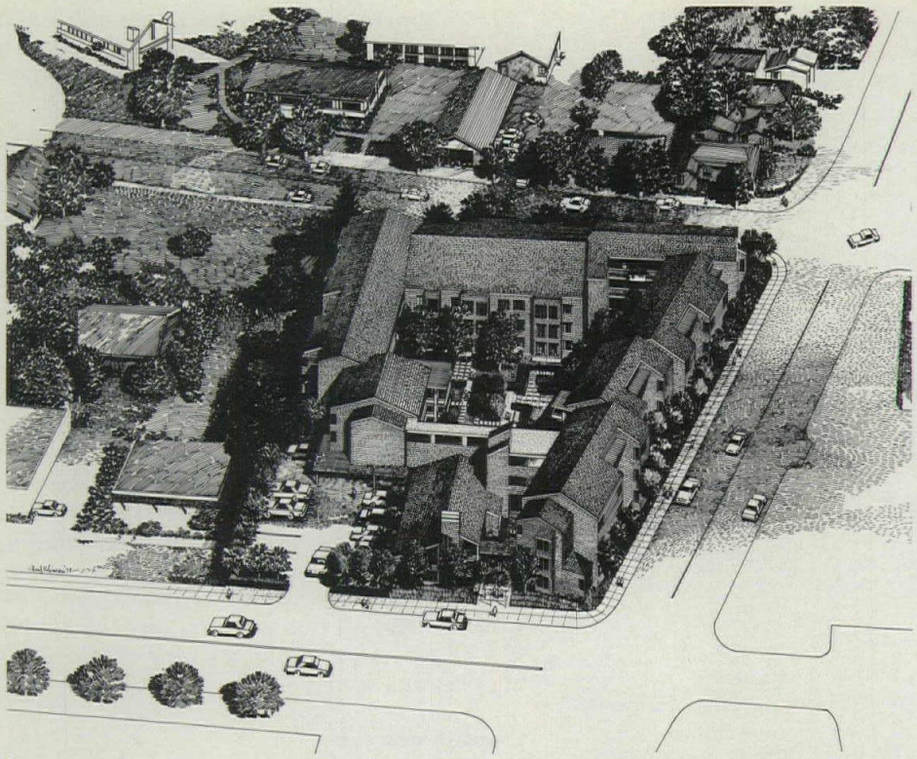
Overall strategies

One basic concept that most would agree upon is that people should ideally be able to live independently as long as possible. For many, this means a sequence in the later years from single-family dwelling to multiperson or multifamily dwelling, to dwelling with medical care.

Today only a small percentage of the elderly population is housed in a nursing home, but the necessity of changing abode is a difficult and uprooting experience for anyone. For this reason, one popular strategy in recent years has been to offer a retirement community which has both single-family homes and apartment facilities. Housing type can be altered without necessarily changing the social environment. An alternate plan is espoused by Tom Byerts of the University of Illinois Gerontology Center. Says Byerts: "We should try to create more flexible policies, service components, and facilities to accommodate age-related changes. This solution includes the potential to rehabilitate without uprooting the individual."

The concept of shared housing is growing in popularity throughout the country. Another solution is congregate housing as in the Hyannis building (p. 64). After years of living in a single-family residential environment, elderly people often prefer sharing a homelike environment with age peers.

The HUD program of financial assistance has played a fundamental role in creating public housing for the elderly. The Section 8 rental subsidy program and Section 202 mortgage subsidy program have specific requirements that affect building form. Owners of multistory buildings are frequent applicants for such programs. In high-rise apartment dwellings for the elderly, there are those who strongly encourage an atrium solution as opposed to double-loaded corridors. The strength of the atrium is that it can function like an interior street throughout the year and help to generate a vertical sense of community. The acoustics of the atrium must



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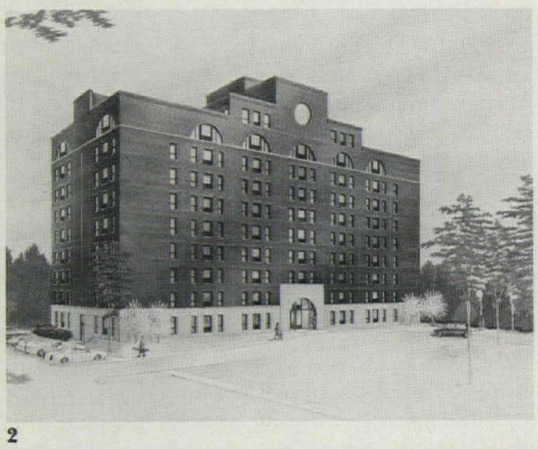

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Housing designed specifically for an elderly population throughout the country can be very difficult to recognize from the exterior. 1 San Rafael Commons, San Rafael, Ca, has been designed by San Francisco architects Kaplan/McLaughlin/Diaz. Eighty-three units of three different types provide 47,000 sq ft of living space. 2 Taylorville Elderly, Taylorville, Il, by Chicago architects Nagle, Hartray & Associates, is designed to maximize view of an open site. The 125 one-bedroom apartments total 100,000 sq ft of living space. 3 Ohio Presbyterian Homes (see previous page of site plan) include a 150-unit apartment complex (132,530 sq ft) as well as 50 single-story ranch apartments (66,000 sq ft). 4 Scheuer House of Bayside, Bayside, NY, provides a 150-unit apartment house for senior citizens. The architect is Gruzen & Partners of New York.

Acknowledgments

We would like to thank the following architects, planners, and researchers for their contributing freely of their thoughts: Thomas O. Byerts, Jesse Gertman, Lorraine G. Hiatt, Sandra Howell, Joe Jordon, Joseph A. Koncelik, Powell Lawton, Herbert McLaughlin, John McRae, Oscar Newman, Ted P. Pappas, Leon A. Pastalan, David I. Sanders, John Zeisel.

be designed to avoid echoes and competing noise. Its weakness is its increased spatial needs and therefore cost. The expense is also increased by considerable necessity for fire precautions. The cluster and open courtyard solution has similar social advantages in benign climates with reduced fire problems.

The key consideration in an apartment dwelling for the elderly is maintaining the sense of community while guaranteeing privacy. In cold climates, the interior life of the building in the winter must foster the ease of chance meeting and communication while waiting for a friend or doing the laundry. The alternative is long hours alone. Many buildings are run by sectarian groups, and are perceived (correctly or incorrectly) as being socially more homogeneous, more selective of the residents, and less likely to be unscrupulous with rental demands. The Trenton project is unique in being sponsored by a group of architects.

The thanks you get

Once the door is opened to design consideration specifically attending the problems of older people, a vast array of issues is raised. But research is more than enlightened sensitivity. Sandra Howell explains that every researcher is greeted periodically with the question: "What the hell did you have to spend so much money on research for. Everybody knows that." The task of the social scientist is not simply to portray opinions that they personally believe are true, but rather to be as factual as possible about a great sampling of experience. Howell makes "a research-based performance statement." In other words, they generate usable "hard" information about people.

Several distinct methodologies present themselves. One is to look at a given fixed environment which is occupied by many different people. A second is to take the same people to many different environments. What is frequently the case is that different people are analyzed in different living environments where the only common denominator is the researcher. Powell Lawton's analysis of 100 public housing projects and 50 Section 202 buildings done in 1971 helped to pioneer methodology in this field. Lorraine Hiatt is another who has personally visited hundreds of elderly environments. It is possible to glean valuable information by comparing the consensus of various researchers who have studied several situations over time. These methods have sometimes been questioned by architects. Using mistakes in one building as a guide for new design, they argue, has built-in flaws.

Another solution is to take the elderly person out of the specific living environment and into the laboratory where the reaction of that person to explicit testing is observed. The designer or researcher can also try to simulate the impediments found in older people using a specimen sample of younger people. Leon Pastalan's work at the University of Michigan typifies this approach (P/A, April 1978, p. 94).

Such studies yield a picture of aging. As we age, our bodies change. The information the

environment sends us is altered. Our eyesight requires more light, glare becomes a confusing problem, perception of color changes, and greater color contrast is needed for clarity. With age, we become more sensitive to high-pitched sounds and more easily confused by multiple sounds. Disorientation and stress in general are increased as memory and perception are altered. The body becomes increasingly sensitive to temperature and more easily can accommodate an uncomfortably hot situation than a chilled one. Bones become more brittle and more susceptible to serious injury while the stature changes, often pushing the torso outward and causing the sight lines to lower.

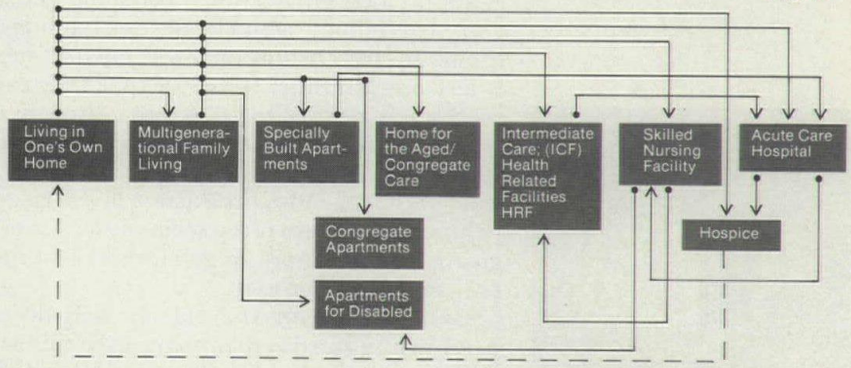
Architect David Sanders of the Hoffman Partnership in St. Louis refers to the significant social response among older people to making the transition from independence to a nonambulatory state. Not only does the individual find the transition physically difficult, but the social reaction to other nonambulatory elderly people can change radically. With Medicare, hospital care for the elderly is usually not a financially unwieldy solution. There is no Medicare for social problems.

When mental impairment takes over, a nursing facility is one environmental solution. At the Philadelphia Geriatric Center, Powell Lawton is head of behavioral research. Says Lawton, "We haven't seen anybody in their 60s for years." The average age is in the middle 80s. The average stay is less than five years. His efforts have greatly improved such environments.

In contrast to other problems of the built environment, these are far from lean years for researchers and designers whose specialty is the elderly. As the amount of research grows, its substance is bound to be digested by the architectural community. The real question is speed. Not only is the population of elderly people growing, but the social characteristics of each generation of people also change. The problem becomes not only an understanding of the issues, but a constant vigilance of their evolution. The relationship between the elderly population, the research community, and the design community will never be a static one. It is a situation which certainly merits permanent representation in the education of young architects. Practicing architects would also benefit from increased contact with both researchers and building users.

The mastery of the stages of life is a subject thousands of years old and one that cultures solve with varying degrees of success. One cannot survey the field of design for the elderly without some sense of the extent to which the culture itself fails its older citizens. No matter how deftly we consider the social and physical needs of older people in our buildings, we seem content to unplug them from the productive interchange with the rest of society well before their physical capability demands it. In all honesty, we create a social environment where we encourage them to unplug themselves. A culture is a tough adversary at any age. [Richard Rush]

The photograph captures the heart of the problem: Social researcher Lorraine Hiatt has created the table and diagram below for the purpose of presenting the full range of options ideally available to the elderly in a community. When such a spectrum is available, the community is said to possess a "continuum of care." Most people make a move from their own home, but a given individual does not typically proceed from type to type. Only a small percentage will experience nursing home care, for example. The procession is usually to a higher level of care despite the importance and potential, often, for rehabilitation.



*Lower levels of care refer to the common instance where fewer staff and fewer services are available.

CONTINUUM OF CARE:
TYPICAL PATTERNS OF MOVEMENT WHEN ALL LEVELS OF CARE ARE AVAILABLE

Services**	Type of Institution	Brief Description
High	Acute Care Hospital Rehabilitation Hospital	Diagnosis, Medical Supervision, Surgery (see above + Therapy Emphasis)
Moderately High	Hospice	Care for Terminally Ill Cancer Patient
	Skilled Nursing Facility (also: SNF, Convalescent Home, Rest Home)	Registered Nurse 24 hours/day; about 2.5 hrs/patient day of nursing care; all meals; housekeeping; activities
Moderate	Intermediate Care (also: Nursing Home, Rest Home, ICF)	Licensed Practical Nurse (requirements vary) supervises; about 1.5 hours/patient day of nursing care
Moderate-Low	Homes for the Aged (also: Adult Homes; Personal Care Homes)	Meals; housekeeping; personal assistance, may be a nursing staff available (not generally required)
	Congregate Care Apartments	Apartment residences with central meals available or accessible; may be emergency or coordinating staff available
	Apartments for Disabled	Like Congregate Care Apartments; typically more architecturally accessible
Very Low	Group Homes	Smaller residences for adults and/or children; emphasis on minimal staff intervention in adult residences
	Shared Housing/Small Group Cooperative Housing/Self-help housing	Clusters of 8-30 older people in residential style community-based housing; tasks may be shared by occupants and/or supplemented by community agencies.
	Specially Built Apartments (also: Apartments for Elderly; High Rise for Elderly; Garden Apartments; Retirement Housing)	Apartment residences, typically age and often income prerequisites; may include government rent support for some or all apartments; may be no meal service

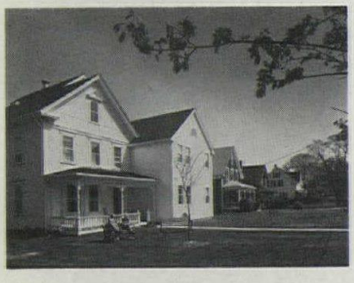
Note: The overwhelming majority (70%) of all older people reside in homes which they own, NOT in institutions, apartments or shared living arrangements. There are exceptions to the amount or degree of care in individual cases. Multi-level care or retirement campuses typically offer two or more of these types of facilities.

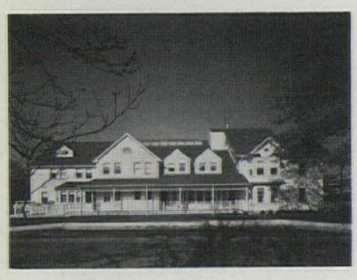
**Number and variety of services.

Captain Clarence Eldridge House, Hyannis, Ma.

Congregate living

A new type of elderly housing on Cape Cod shows how architectural research can enter the realm of the humane.





The east end of the building (top) shows Captain Eldridge's original Victorian house at the left. A further view of the east front (middle) shows the building's relation to its Cape Cod neighbors. The south side massing (below) also follows that of nearby buildings.

One of the most striking visions in many nursing homes is the number of older people who really do not seem to belong in them. Often, some elderly people are not capable of living completely alone, but they also do not require the degree of care or institutionalization offered by a nursing home. In fact, there is growing belief today that the nursing home, with the psychology of dependence it fosters, is not the best environment for some people, and that it may actually be detrimental to them. In any institutionalized environment, where opportunities for self-actualization and motivation do not exist or are seriously diminished, people become apathetic. Institutionalized elderly are a particular problem; with full and productive lives largely behind them, there often seems little to lose by giving up and simply "vegetating" if other opportunities do not exist.

How to care for the elderly who do not need institutionalized nursing care but who are also incapable of living completely independently was the primary problem that guided the design of the Captain Clarence Eldridge House in Hyannis, Ma. It is one of 13 "congregate" housing complexes initiated and funded by the state's Executive Office of Communities and Development. The first such complex was occupied in 1976; the others have been occupied or in construction since 1979. As one of the more recent congregate residences to become occupied, Eldridge House was able to benefit from the first one completed—the Norfolk project in Cambridge, which was converted from a convent. Eldridge House differs, though, in being almost all new construction; 8500 sq ft of its space is a new addition to a 19th-Century Sea Captain's house of 2000 sq ft. Because of this, a wider range of design opportunities were available than in the Norfolk Project.

In the design and planning stages, architect Barry Korobkin, research sociologist John Zeisel, and associated architects Donham and Sweeney organized and participated in a series of five housing seminars that were attended by managers of other elderly housing facilities, by the architects of other congregate housing facilities the state is funding, by the housing authority directors who are clients for those buildings, by environmental researchers with experience in the field, and by state design review representatives. Also, they made site visits to the other occupied congregate houses, interviewed residents of other elderly housing facilities, and held expert-group interviews with elderly-homecare personnel and elder-affairs directors. These did not answer all the questions, though, so the members of the original design team carried out more focused research.

They explain that since the theory behind congregate housing is that many older people can maintain a large degree of independence if they have the social support of others, "then the main question becomes: what traditionally personal areas could residents share without losing dignity and control over their lives?" They concluded that "these questionable personal areas included kitchenettes, toilets, sinks, bathtubs, showers, and front doors to the rooms." Of all of these areas, the one perceived as the most private was the toilet; prospective tenants voted unanimously that it not be shared.

In working out a design concept in which the elderly could have both the dignity of privacy and also the advantage of important opportunities for sharing, a scheme ultimately evolved that differed from the other congregate houses. In this one, the tenants are not forced to share anything, and more areas than only the bedroom are private. The concept of the house is based on the idea that tenants share certain things because they want to. When compared to other residential types, Eldridge House is closest to the traditional boarding house. But there are some significant differences.

As in the boarding house, each tenant has a private room. Showers and tubs are shared by four, but sinks and toilets are private. There are shared living spaces in the form of a front and back parlor (the original ones of the old house), a sitting room near the vehicle drop-off area, a large dining room where one hot meal is provided each day, and a long front porch with rocking chairs and tables.

To make the house as inviting and comfortable as possible, the architects were careful to blend it stylistically with the older

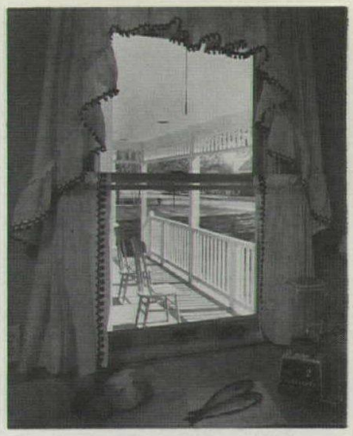
The original parlor of the old house (above) remains as the formal parlor today. The long porch facing south (left and top) is heavily used in good weather.

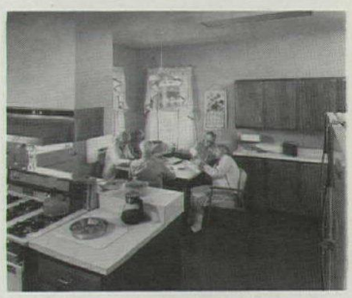
Captain Clarence Eldridge House

building to which it is an addition, thus maintaining the Cape Cod character of the architecture that the tenants would be most familiar with. The two-story massing typical of the neighborhood has been repeated, as were other elements such as the white clapboard (but in this case vinyl) siding, the pitched roof, dormers, and front porch. The same attention was given to small-scale elements such as the trim, roof overhangs, rails and balusters, all of which further enhance the residential character of the building.

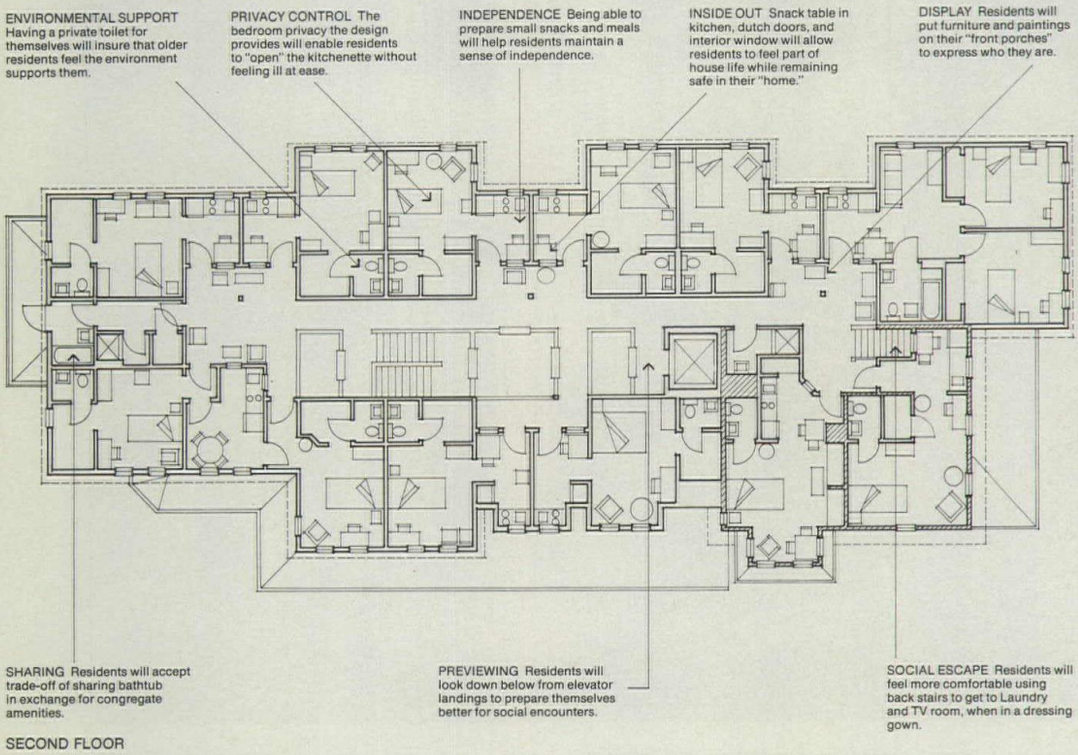
It is on the inside, though, that the Eldridge House departs most radically from the boarding house type and from other elderly housing facilities. The main difference lies in the variety, complexity, and hierarchical organization of public, semipublic, semiprivate, and private spaces.

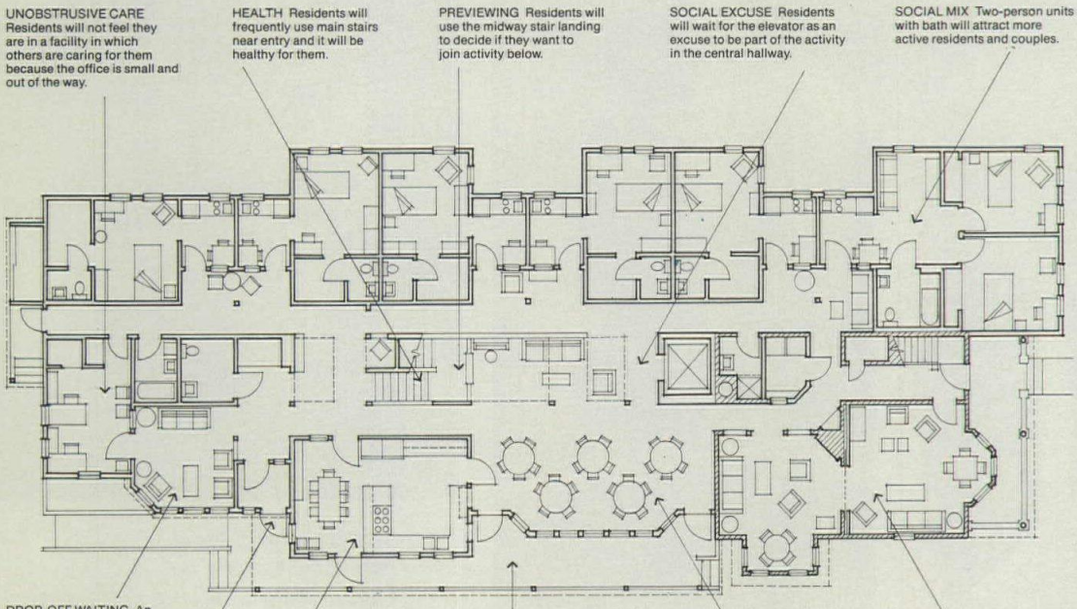
Other than the major public spaces of dining and living rooms on the first floor, there is also a large kitchen with a table and chairs available for all to use. One tenant makes coffee there every morning for all the residents, but more often the room is used as a gathering place for the women to visit and play cards; the men seem to prefer the nearby sit-

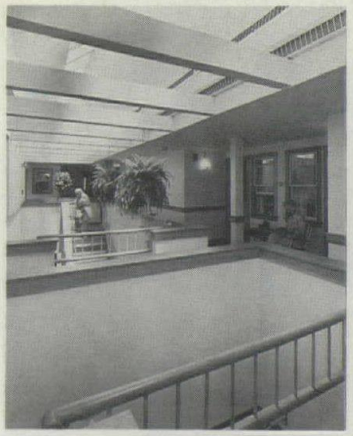




The main kitchen (above) is used for socializing and looks out to the front porch (top). The plans (left) are annotated to show the research and design hypotheses around which the building was conceived.







All major public spaces, such as the dining room (bottom right), are in or around the central skylighted atrium (other photos), which is designed as a place where one can observe public activity before entering into it. Doors and windows of individual rooms on second floor can be closed by degrees depending upon privacy desired.

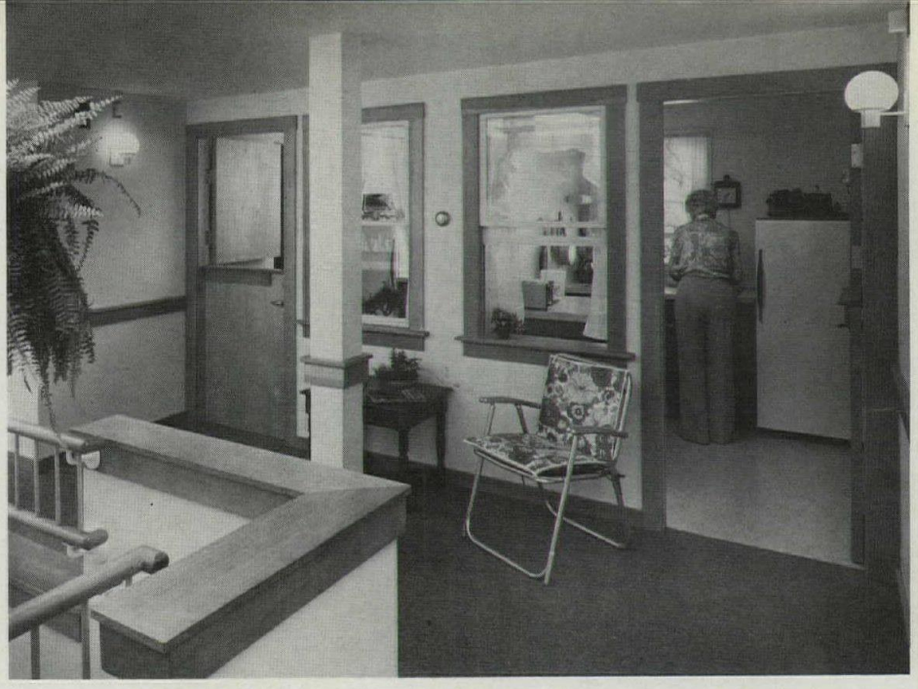
ting room overlooking the auto drop-off area. In addition to these rooms facing south over the front porch, there are also six private "apartments" at the north side of the building. All of the spaces face into a central interior, floor-through, skylighted atrium. At the upper level, most rooms on both the north and south sides of the building also face into that space from the upper gallery.

The private rooms are tight—only about 275 sq ft each—but because they are organized more like small apartments than simply as bedrooms, they seem larger than they actually are. At the farthest end of each unit is a w.c. off a large closet and dressing area. Next is the main room, which many tenants have furnished to look more like a sitting room than a bedroom. This leads to a small kitchenette/entry area with a window and a Dutch door facing into the public hall under the skylight. In front of each unit, an indentation in the hall is designed to give each apartment a clearly articulated private entry place, or "front porch," which also can be decorated and furnished by the tenants as they wish.

The purpose of this hierarchical graduation in space from the most public to the most private is to give the residents every opportunity to communicate and share their lives with others as much as possible, but also allow them to retreat, in varying degrees or in complete privacy, depending upon their wishes. Accordingly, the double-hung kitchen window, or the shade or curtains on it, can be opened or closed, as can the top of the Dutch door, depending upon the degree of contact one wants to encourage. One can also open the front door, which is situated to minimize views to the interior, and sit on the "front porch," which "belongs" to the unit, but which is separated from its neighbor's by a slender column.

The central focus of the interior of Eldridge House is the skylit atrium, but it serves a greater purpose than simply to bring a bright space into the middle of the building. Since the halls and major public rooms are oriented in or around this major activity space, and the main staircase goes through it, one can easily see who is doing what there before entering. The space is designed so one never faces the situation of having entered a place one wishes he or she hadn't, which can make withdrawal embarrassing. The landing in front of the elevator, at the opposite end of the atrium from the stairs, is designed and placed where it is for precisely the same purpose.

The two formal parlors in the old section remain as they were originally, and each can be closed off when a resident wants to entertain family or friends in the "living room," or tenants want to watch TV together or have a serious card game in a place other than the kitchen.



All rooms have their own private "front porch" overlooking atrium.

If tenants wish not to join in the communal main meal, they can prepare something in their own kitchenettes. They do many of their own house chores and often also help out in the main kitchen.

The only space in Eldridge House that seems not to be working out as intended by the designers is the front porch at the unit's entry. No tenant has yet occupied this space, and one senses that it is not perceived as a semiprivate area, although tenants are told it is their own. The division between it and the public hall is either not clear enough, or the residents have not been in the house long enough to feel comfortable using it.

One purpose of the design of Eldridge House is to show that older people have special needs and have certain requirements, but that if given the option they do not want to live very differently from anyone else. If able, they do not want their lives scheduled and taken care of for them, but want to remain self-activating with purpose to their existence.

The special needs and desires of the elderly are often not fully appreciated. One of the most traumatic situations for many is to be needlessly pushed off into a nursing home. The congregate house offers an alternative. One only has to talk for a minute to those residents who came from nursing homes to Eldridge House to understand its importance. Without exception, all said it has revolutionized their lives. Some, who have been in nursing homes for a long time, say they feel they are now living for the first time in years. It is through such response that we will begin to see the true value of research and design when the two work together. [David Morton]

Data

Project: *Captain Clarence Eldridge House, Hyannis, Ma.*
Architects: *Barry Korobkin, architect; John Zeisel, sociologist; Eric Jahan, architect (design research team). Associated architects: Donham & Sweeney, Brett Donham, partner in charge.*
Client: *Massachusetts Executive Offices of Communities and Development, Boston; Barnstable Housing Authority, Hyannis.*
Site: *a flat corner site of 25,000 sq ft, ½ block off main street; existing wood frame house was renovated and integrated.*
Program: *living accommodations for 20 older people who cannot live completely independently but who also do not need full nursing care.*
Structural system: *concrete foundation walls on spread footings; wood frame construction.*
Major materials: *painted pine casing and trim; vinyl siding; vinyl-clad double-hung windows; refurbished existing wood shingles and trim. Gypsum board walls and ceilings; oak floors.*
Mechanical system: *gas-fired hot water boiler with fin-tube radiation; individual room thermostats; ventilating central skylight with interior windows facing into space below it.*
Consultants: *William Lewis, landscape; Tsaing Engineering, structural; Thompson Consultants, mechanical and electrical; Pam Shea, OKM Associates, congregate housing.*
General contractor: *McDuff Building Corp.*
Costs: *$575,000; $52 per sq ft.*
Photography: *Steve Rosenthal.*

Architects Housing, Trenton, NJ

Competition for longevity

Sponsored by architects, founded on research, and designed through a competition, an urban apartment complex for the elderly is the embodiment of a model process.

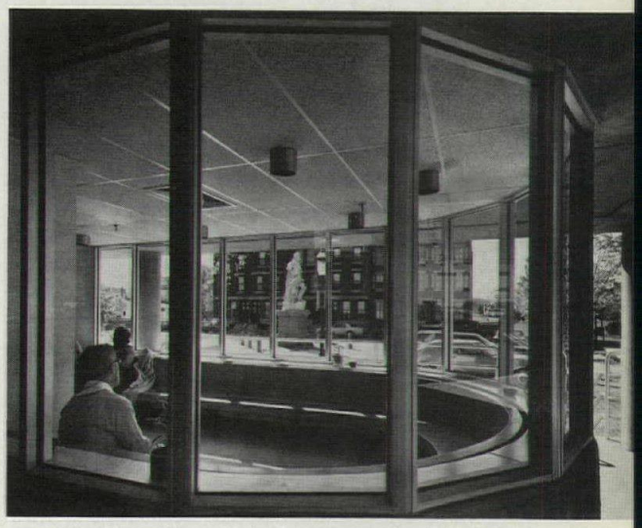
Main entrance to housing from busy street and parking lot to north (top photo far right) is marked by glassed-in seating area sheltered under soffit (lower photos). This area of only 240 sq ft offers residents ideal opportunity to observe traffic in and out of building and on plaza to west (bottom photo and following pages).

The social commitment of architects may have declined sadly since the 1960s, but a few tangible results are still coming to completion. Outstanding among these is a 122-unit apartment building for the elderly in Trenton, NJ, initiated by the local AIA chapter. The design is based on some eminently sound research, and the architects, Geddes Brecher Qualls Cunningham, were chosen through a competition that has been cited as a model for such contests.

The process was a model of responsibility and moderation. The intentions were truly high-minded, but the design program was well within the capabilities of modest firms in the chapter area—to which the competition was limited—and it called for a building that would contribute to the city of Trenton, not dazzle the world.

The process began in 1974, when the Central Chapter of the New Jersey Society of Architects, under the leadership of its president, John M. Zvosec, decided to undertake the project in Trenton, the state capital and major city in the chapter's area. A nonprofit corporation, The Architects Housing Company, was set up to manage the project, as it still does today. After a site was obtained and the support of funding agencies lined up (see Data), a design competition was announced, with a deadline of June 20, 1975. Meanwhile, researchers at Princeton University—led by architect Thomas Schumacher and sociologist Galen Cranz—were completing a two-year study entitled *The Built Environment for the Elderly*, for one of the state agencies involved, the Department of Community Affairs. Based on evaluation of the state's existing elderly housing, this study was among the recommended readings for entrants in the design competition and was subsequently the basis for a conference held at Princeton (only a few miles from the housing site) on May 15, 1975. This opportunity for the researchers, plus invited experts, to discuss the elderly environment face to face with potential architects for the project was the single most significant step in the process, linking the benefits of research with the innovation potential of the design competition.

In late June 1975, 27 submissions were scrutinized by the jury (architects Theodore Liebman, Samuel Brody, David Todd, and Harold Edelman of New York and social researcher Sandra Howell of MIT, with technical consultants and representatives of the community attending; William Wilson of



Gruzen & Partners was professional adviser). First-place winner was completed in 1979 with only moderate changes in floor plan and fenestration. Architect Robert Geddes, dean of the architecture school at which the research report was prepared, emphasizes the reliance his firm placed on its recommendations.

The resulting building is, like the process behind it, notably *sensible*, and it has the design strengths and weaknesses of the proverbial sensible shoe. Functionally, it suits all of its foreseeable uses admirably; formally, its principal virtue is that its considerable bulk is understated.

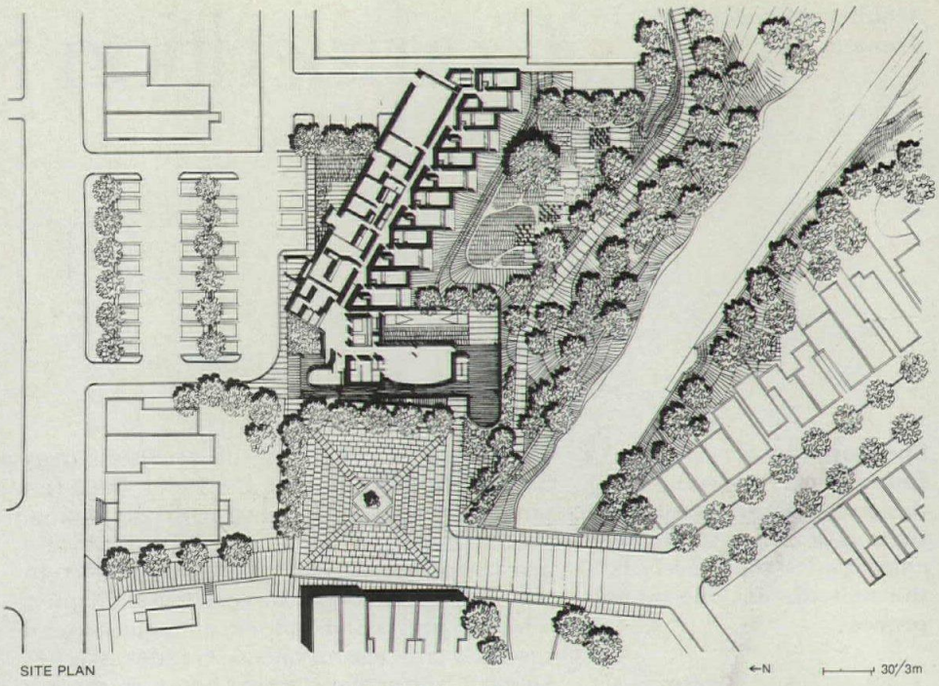
Sociability, coming and going

The building's single most effective feature is the glassed-in seating area that adjoins its main entrance. The key function of this space—recommended in the research—is to give residents and visitors going in and out a chance to observe each other and an *option* (not an obligation) to pause and socialize. Visually, this glassed insert helps identify the entrance to a building that must accept traffic from two sides—from a bus stop and parking area along the busy street to the north and from the plaza and residential enclave to the west. Placed at this point, it allows residents in it to oversee outdoor activity in both directions. The form of this space—somewhat like the observation car on an old streamlined train—accommodates its programmed purpose in a way that is very literal yet transforms it into metaphor.

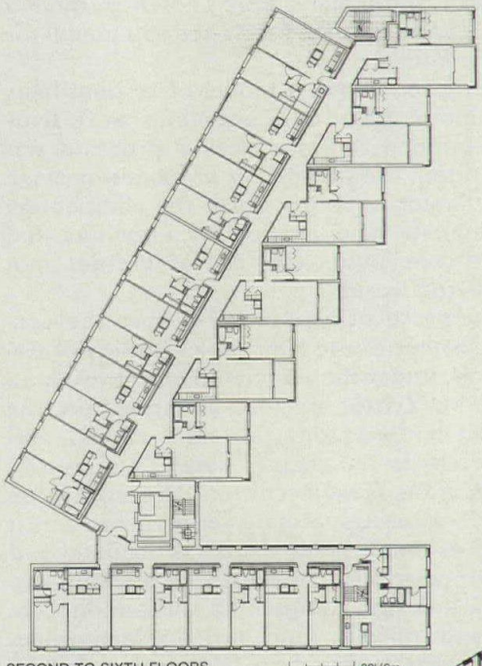
A polygonal lobby allows entrance doors, mail boxes, and elevators to be observed from a main desk. The main communal room just off the lobby overlooks the plaza and presents an invitation to neighborhood residents to use the room, as they do. Adjoining terraces, partly sheltered by overhangs, lead from there to lawn, garden, and planted public walk along the creek.

Individual living units are remarkably varied, considering the state's requirement for a single type—one bedroom—and an economic dictate to stick close to the minimum square footage set by HUD. Four unit types were developed, some with balconies, some approached along daylighted single-loaded corridors, others along double-loaded corridors with angular door niches. Angular layouts were applied without imposing awkward corners. Numerous bay windows, originally proposed, were sacrificed to economy; even where rooms have square corners and ordinary windows punched through the bearing exterior walls, however, placement of these windows at room corners yields dividends in terms of furniture placement, light distribution, apparent spaciousness, and ventilation.

Urbanistically, this design won high praise from the competition jury for its response to varying development around the site; its forms can quite literally be read as responses to context. To the west, fronting the neatly classical plaza, developed simultaneously with

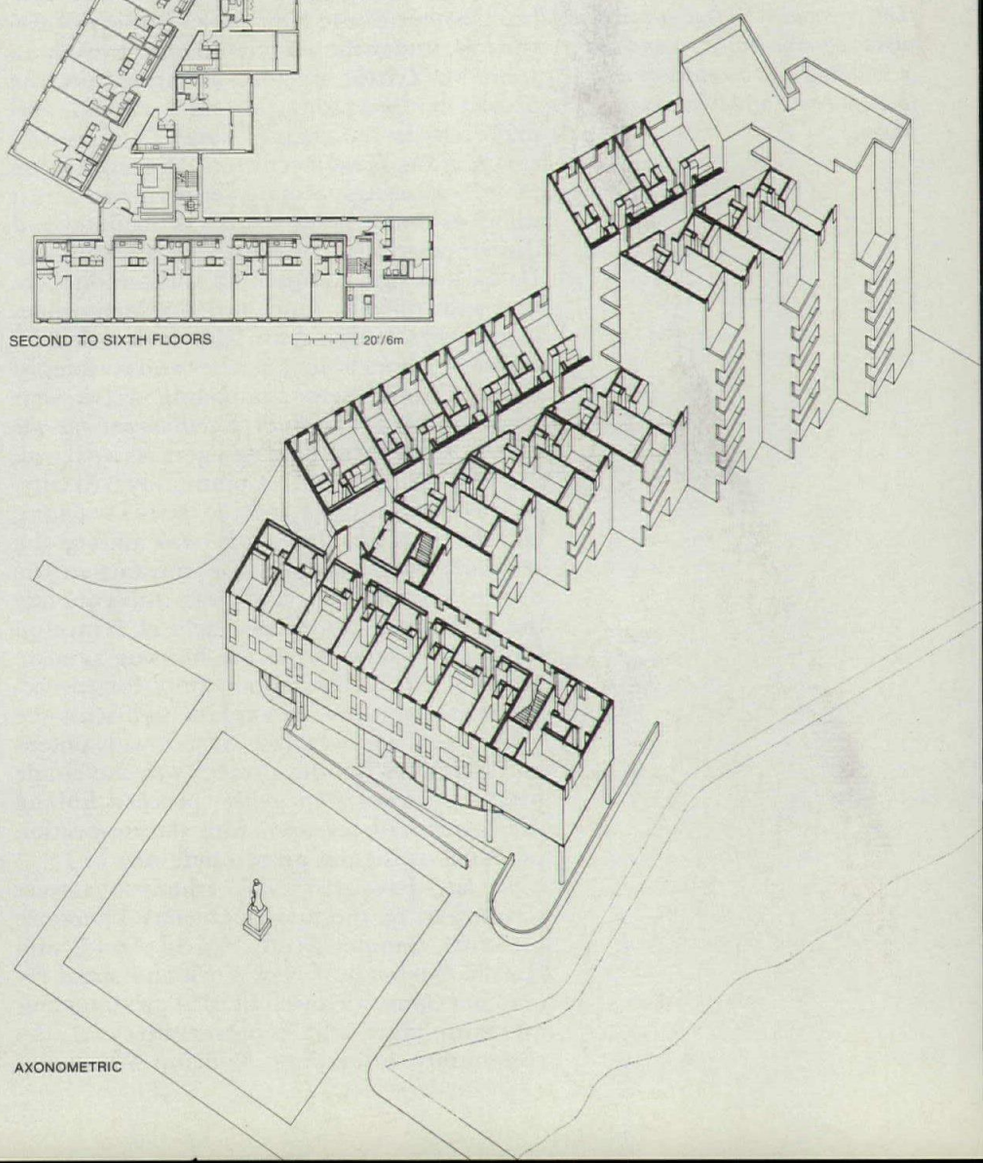


SITE PLAN



SECOND TO SIXTH FLOORS

Plan shaped like "7" acknowledges lines of streets, plaza, and stream, gives all units good views and some direct sun. Top two floors have no west wing, no south balconies, and small inset balconies facing north (photo, previous page; not in drawing below).


AXONOMETRIC

Building mass looks different in views from Mill Hill district (left) and from plaza to west (below left), a paved cul-de-sac dominated by Victorian statue of Washington; plaza was designed by John Clarke and Fred Travisano (then architect/planners for city) who did overall plan for area. Red brick and white window frames were chosen for compatibility with restored townhouses nearby.

the housing, the building presents a roughly symmetrical six-story façade with openings and relief more or less in scale with that of the old four-story townhouses opposite. The eight-story block attached to this is held back out of view from the square; toward the commercial district to the north, this substantial bulk is plainly presented, while a serrated wall, broken up by the brick parapets of balconies, overlooks the wooded creek bed to the south.

Special consideration was given to the view from the Mill Hill area across the creek, where a precious few blocks of 19th-Century townhouses have been restored, since residents of this area had initially seen a public project of over 100 units on this site—even for the elderly—as a threat.

The overall form of the building demonstrates, however, the pitfalls of massing as a response to context. In form, this building is really effective only in its role as a wall to the plaza. From other angles and ranges, the incoherence of the overall composition becomes all too obvious. So does the overall scale, which cannot really be reconciled with its neighbors, but merely mitigated. Even that effort is undermined by the boldness of the red brick, which the community favored, ironically, for its compatibility with the old fabric.

Here, then, is a building that embodies fine intentions, quite successfully as a building to move through, to live in, and to look out of. As an architectural form to look at, however, it succeeds only in fragments. Fortunately, it is *seen* mainly in fragments, but it is still too bad that they resist being integrated into a more coherent whole. [John Morris Dixon]

Data

Project: *Architects Housing Company elderly housing, Trenton, NJ.*

Architects: *Geddes Brecher Qualls Cunningham, Princeton, NJ (Robert Geddes, principal designer; Neville Epstein, senior designer; James Dill, senior designer; John DeBello, project architect).*

Client: *Architects Housing Company, Inc. (with funding from N.J. Dept. of Community Affairs, N.J. Housing Finance Agency, U.S. Dept. of HUD).*

Site: *1.2 acres in an urban renewal area; commercial street to north, park along creek to south, new plaza to west; restored houses on plaza and across creek.*

Program: *122 one-bedroom apartments (12 for handicapped) each 591–657 sq ft; communal area, first floor, 3688 sq ft; manager's office; superintendent's apartment. Total building area, 116,642 sq ft; parking for 46 cars.*

Structural system: *8-in. concrete masonry bearing walls; precast concrete floors.*

Major materials: *brick veneer exterior; painted block interior walls (corridors only), gypsum board elsewhere; carpet in corridors, vinyl asbestos tile in apartments and communal rooms.*

Mechanical system: *hot water radiant heating, oil-fired central heater; central air conditioning, first-floor public spaces; pressurized air system, corridors; sleeves for wall air conditioners, individual units.*

Consultants: *Geddes Brecher Qualls Cunningham, structural; Michael Garber Associates, mechanical.*

General contractor: *Costanza Contracting Co.*

Cost: *$5,200,000 (actual, 1979 completion).*

Photography: *Norman McGrath.*

Woolf House,
San Francisco, Ca

The new gray neighbor

Housing for low-income elderly people living in Downtown San Francisco offers an environment carefully designed to respond to aesthetic desires as well as functional needs of users.

The nice thing about the Woolf House is that it looks like a small residential hotel. The canopy at the entrance, the built-in wood benches on either side, the small, intimately scaled foyer, the discretely defined spaces of the lobby with the cove lighting, wood cabinetry, beveled glass, and fabric-upholstered furnishings create a genteel ambiance belying the public subsidies that support the housing. Even though the apartments are small, their bay window configurations and recessed balconies are hardly associated with the term "project" or "replacement housing."

The intent in designing the elderly housing in the Yerba Buena Center district of Downtown San Francisco was to stress the more intangible psychological characteristics of environmental response linked to the elderly's *aesthetic* desires rather than only perceptual and functional ones.

As much research has shown, the perceptual and functional needs of the elderly need to be taken into account. But findings have prompted, for example, the extensive use of bright colors since the ability to distinguish dull shades diminishes with age, the installation of bright lighting, and the clear and conventional arrangement of spaces and objects so those with dimmed eyesight may tread over new areas with confident familiarity.

In designing the Woolf House, architect Robert Herman consulted several environmental researchers, including Galen Cranz, a sociologist specializing in architecture and planning from the University of California at Berkeley, who proposed emphasizing attributes that would approximate "high-status" and "prestige" environments. Her stress on "elegant" rather than "trendy" decor corroborated the hypothesis of the architect and the clients that muted colors, soft lighting, and natural materials would be more to the tenants' liking. Herman and his office showed that these qualities could be handled so that the infirm would still be able to see and move

Arnie Lerner

Rob Super

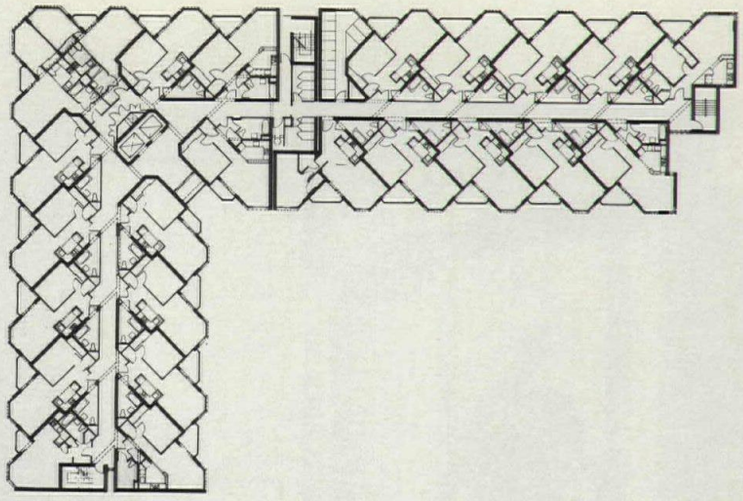
The modulated massing of the First Phase of the Woolf House creates a strong towerlike form at the corner, where the subsidized supermarket is located on the ground floor. The entry is off to one side. The building embraces a large open court, which the residents may reach via public spaces at ground level. A subsidized café (opposite) on the ground floor provides another kind of meeting place.

with ease. There are handrails in the hall—although they are wood, not metal.

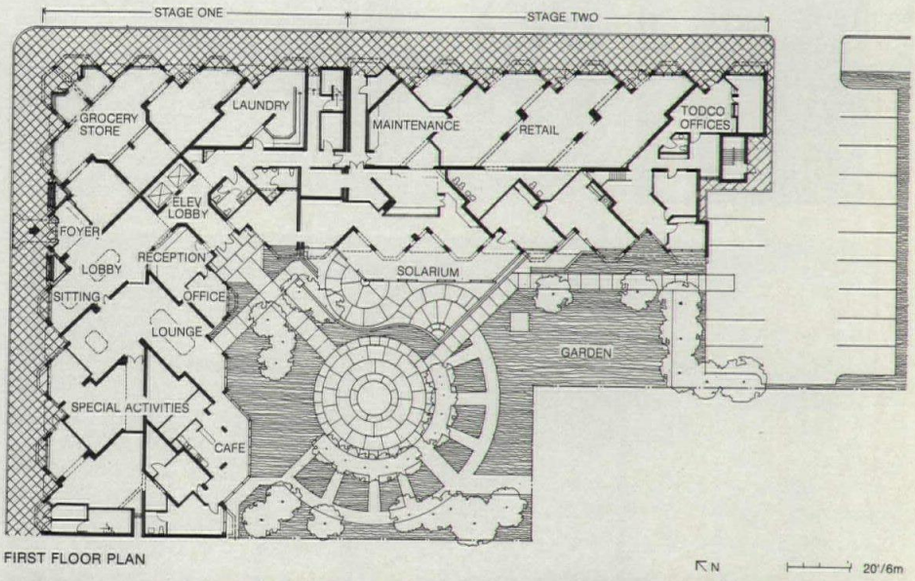
Political background

Robert Herman and his firm were hired to design the phased three-stage housing as a result of a struggle in the late 1960s between local residents and the redevelopment authority. The authority, interested in economically exploiting the area adjacent to the convention center, began to demolish the single-room-occupancy hotels for low-income people. They promised to provide 276 dwelling units of replacement housing as a palliative gesture to the 4000 occupants who were to be removed. The local residents, many males, formed the Tenants and Owners in Opposition to Redevelopment, and elected 80-year-old ex-union leader George Woolf as its head. They then filed a suit against the Redevelopment Agency and HUD, and to good effect: the judge ruled in their favor in 1970, issuing an injunction against further demolition and relocation. The TOOR eventually agreed to drop the suit in return for housing built by the Redevelopment Agency—400 low-rent units in the Yerba Buena area and up to 1800 units elsewhere in the city.

This victory would mean that the housing would take on special significance symbolically on an already prominent site hard by the soon-to-be-completed convention center. Under director Steven Dutton's guidance, TOOR formed the Tenants and Owners Development Corporation, then undertook a user-needs survey and hired Robert Herman as the architect. He has designed 182 dwell-



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Sandy Marks

Photos: Sandy Marks

ing units for this site, built in two stages, and 185 units for a site nearby.

The user-needs study was conducted and written by environmental planners Chester Hartman and Jerry Horovitz, with the added participation of the architects. Their findings stressed certain tangible and intangible aspects that should be taken into account in the design. For example, the intended residents showed a strong desire for well-defined division of private and communal spaces, inside and out. They held different opinions about how public spaces should be used, depending on gender: men were keen on having checker-playing facilities, women on gardens. The residents clearly wanted the mail room to be located well within the building so they would not have to fight muggers waiting as impatiently as they for the monthly pension check. Upstairs, the future occupants desired doors to apartments to be inserted in the foyers off the hall and staggered so they didn't face each other. They indicated strong preferences for balconies, but wanted wind baffles. They did not care for rooms with a boxy, rectangular shape or large expanses of flat walls. And they wanted carpeting.

In response to these desires, architects began working out a plan where the building would wrap around a large garden on two sides, which was not only secure but accessible from the public rooms on the ground floor. They laid out the apartments and public spaces on a grid rotated 45 degrees to the street alignments so that building elevations of notched surfaces, angled windows, and recessed balconies would be generated from the plan. Similarly, the niches along the interior corridor create foyer-like spaces for the apartment doors opening onto the hall at an angle. Not only are the elderly able to enjoy open space on their balconies and in the common garden, but they can find a range—sitting rooms, game areas, and even a pleasantly appointed café on the ground floor. Adjoining the lobby is a 2500-sq-ft supermarket subsidized under a special state experimental program.

In working out his architectural solution to the programmatic needs, Herman decided to call upon Galen Cranz, to sound out her views on his design scheme. Cranz had previously researched the aesthetic preferences of the elderly in New Jersey (see p. 69) and San Francisco. In discussing aesthetic as well as perceptual and functional design matters for the elderly, Cranz and Herman conceptually walked through the plans. The need to balance the sense of privacy and the sense of security prompted Cranz to advise a sequence of movement that would take the residents diagonally through the lobby from the small entry foyer toward the elevator and mailroom, always under surveillance of the manager's office (see plan). The waiting area in the lobby was placed to one side so that people entering the building won't feel they are running the gauntlet of keen-eyed observers—a priority that had been identified by Hartman and Horovitz. Activity areas for residents were located beyond the lobby space, where Cranz strongly supported plac-

Data

Project: *Woolf House, San Francisco, Ca.*
Architects: *Robert Herman Associates, Inc., San Francisco (Robert Herman principal in charge; Samuel Noily, project architect; William Boehm and Jennifer Clements, associates).*
Research: *Chester Hartman and Jerry Horovitz, user needs analysis; Galen Cranz, design research.*
Client: *Tenants and Owners Development Corporation (John Elberling, director; Peter Mendelsohn, president, Stephen Dutton, former director [during design], Sandy Marks, assistant director).*
Site: *downtown redevelopment area, overlooking Yerba Buena convention center; 35,250 sq ft.*
Program: *Stage I: 112 d.u.s.; 104 one-bedroom units, 8 studios, 80,000 sq ft; common space (8000 sq ft), commercial shops, with grocery (2500 sq ft). Stage II (under construction): 91 d.u.s.*
Structural system: *mat foundation, cast-in-place bearing walls, columns, slabs, precast balcony rails and bay-window folded beams.*
Major materials: *concrete, plaster infill panels (exterior); aluminum, gypsum board, carpet (see Building materials, p. 126).*
Mechanical system: *gas-fired boiler; forced hot-water baseboard radiation.*
Consultants: *Omi-Lang Associates, landscaping; Raj Desai Associates, structural; Montgomery & Roberts, mechanical; Charles Salter, acoustic; Joseph Yarnell, civil; Bobby Patri, graphic design.*
General contractor: *Williams & Burrows.*
Costs: *$4,450,000 total; $48.37 per sq ft; includes 2500-sq-ft commercial shell.*
Drawings: *Shannon Devine.*

The small, intimate entry (opposite, top) allows for ease of surveillance. In the public rooms, there are various sitting areas (middle) and game tables (opposite, bottom). A typical one-bedroom apartment shows diagonal thrust of the spaces toward the windows. The views from the corridor (middle and bottom) help orient the residents.

ing an indoor solarium for contact with sunlight on cold days.

Benefits of a dialogue

Cranz and Herman thought the discussions were extremely productive. The personal, face-to-face contact between the two, Cranz felt, was more beneficial to the working relationship than for the sociologist merely to submit a report to the architect; here the two could integrate and synthesize the information and data according to the specific situation. Thus the design refinements would go a long way to fill that nebulous gap between a user-needs program and the actual features the architects would include.

Obviously, research costs money. So do elements such as a bay window configuration, the insertion of hung plaster ceilings and wood trim in the lobby, and the durable carpet and upholstery. Herman and the city split the cost of the preliminary user-need research, and Herman then paid for additional consultation. He estimates the building itself ran ten percent over the price of normal housing schemes, and probably many features would not have been possible to include had the city not been willing to cover the difference with a special increment of the hotel tax—a willingness no doubt spurred by the history behind the project and its location in the newly developing section of town.

Architectural aspects

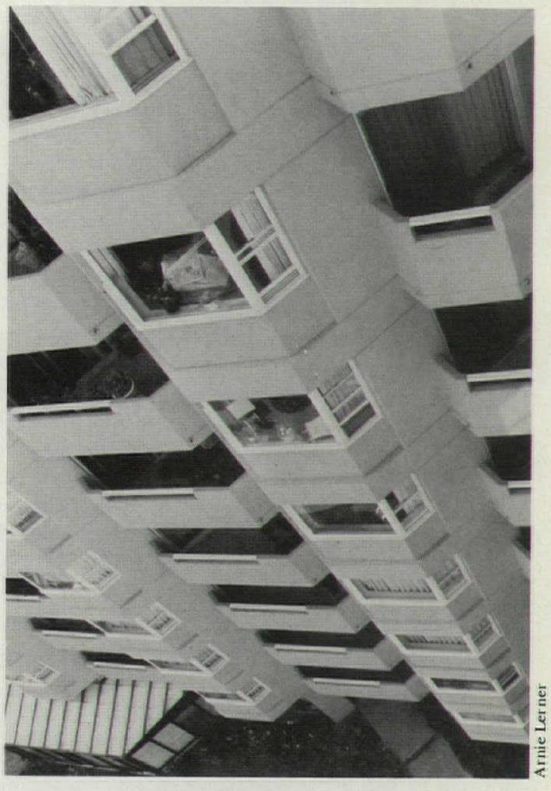
Still it's not as if the housing didn't have to be economical. It was financed, after all, by the California Housing Finance Agency and The City of San Francisco, with Section 8 rent subsidies from HUD. The economical design and construction decisions that characterize most housing architecture are still there: the simply painted concrete exterior, the minimal prefab-type detailing, the matter-of-fact integration of precast concrete elements on the building exterior, the reliance on skip-troweled surfaces within. All of these features bear the earmarks of a low-budget job, something that even white-painted aluminum sash or canopies over doors cannot fully mitigate.

Yet the apartment building as architecture has to be judged on its own terms. It forms a "background building" that still breaks out of the box, by way of notches and bay windows. The articulated exterior walls and the 45-degree rotated plan accomplish useful things —such as cross ventilation, views in two directions, and protected recessed balconies for the 575-sq-ft units, without too much space being lost in intriguing nooks and crannies.

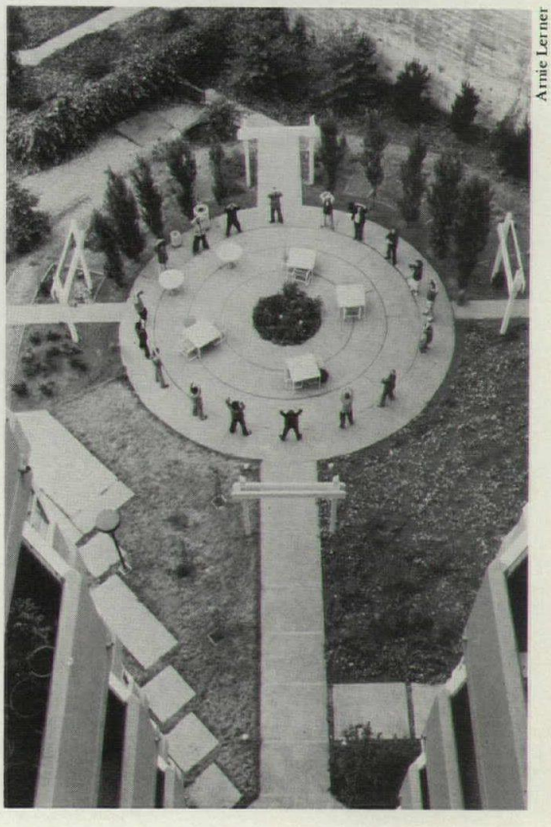
The interior appointments and features, such as soft lighting, dignified furnishings, and solarium with narrow slatted blinds, all make the final difference. They provide the touches that transform the "project" into a "dwelling." It is this level of detail that counts: the amenities and aesthetic quality reflect well the contributions of researchers Hartman and Horovitz in the beginning and Cranz at the end, and the ability and willingness of architect Robert Herman to take the findings and do something with them.

[Suzanne Stephens]

Rob Super



Arnie Lerner



Arnie Lerner

State office building, Sacramento, Ca

State intentions

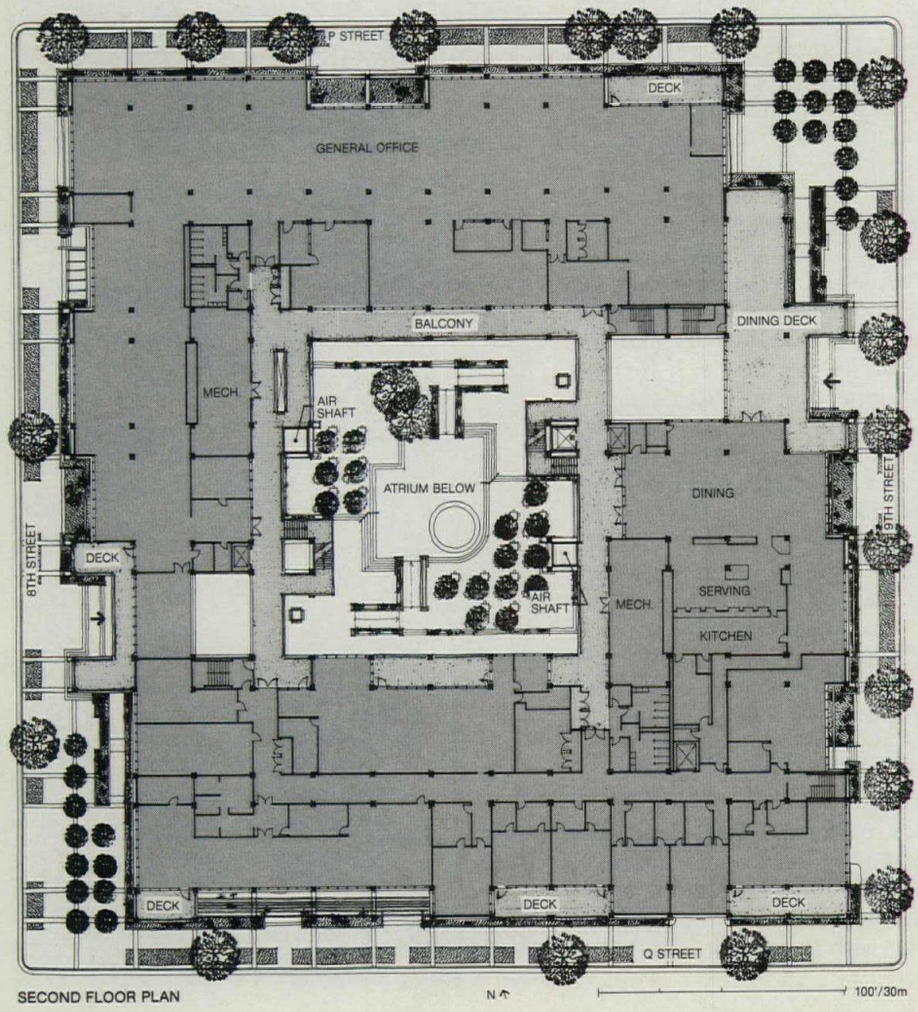
Part of a major plan to build and revamp areas near the State Capitol in Sacramento, a new state office building conserves on energy.

State office buildings across the country have frequently been hard to love, aesthetically or functionally. To a large extent that has a lot to do with patronage and little to do with design skill. But California does things differently. In a move as unprecedented as it was bold, Governor Edmund Brown, Jr., named an outspoken architect, Sim Van der Ryn, to the post of state architect in 1975, launching an energy-conscious project for building a series of state office buildings. The first of these, which informally goes by the state project designation "Site 1-A," is now completed in Sacramento and is occupied. Having won a citation in the P/A Awards program in 1979, the scheme was lauded by the jury because it originated with a state agency that cared about both design and energy.

Still, this was hardly an ordinary state agency. Besides Van der Ryn, the team included Barry Wasserman—who succeeded to the post of state architect in 1978; Peter Calthorpe, Bruce Corson, and Scott Matthews were the primary designers; Bobbie Sue Hood headed programming work for the whole state program. (Van der Ryn, Calthorpe, and Matthews are now in private practice together.) A complete list of credits is included in the *Data* section at the end of this article.

Although it is a complex mix of energy strategies, Site 1-A is a very clear statement architecturally. The concrete structure is the dominant theme, played off against infill of wood, window wall, and shading devices. The building steps in and out in plan, reducing the apparent mass into smaller elements and making the façades more active. While the overall expression could hardly be described as light, the many decks and the eroded northeast and southwest corners join with the orange fabric shades and wood infill to produce a noninstitutional informality. At one stage of the design, the wood panels were supposed to have been a more natural shade, according to Peter Calthorpe; that might have been better, since they are *not* redwood, but they are not offensive.

Sensing devices control the fabric shades, on the east and west, rolling them up and down throughout the day to exclude sun or allow views. A fixed system of concrete trellis planks shades parts of the south façade in summer, but allows insolation during winter months. There is no shading on the north.



SECOND FLOOR PLAN

At heart

On the interior, the 150′ x 144′ atrium is immediately identified as the building's premier feature. Topped by enormous angled clerestories punctuated by north-facing skylights, the space is gracious and flowing. On summer days, vertical louvers automatically close the south-facing clerestory surfaces, while the skylights continue to admit light. Winter sun is allowed to penetrate, to be stored in the thermal mass of the atrium and rockbed storage below. Banner screens are lowered in the winter also, to bounce sunlight into the space. Large vertical canvas tubes are equipped with fans and serve to destratify and recirculate

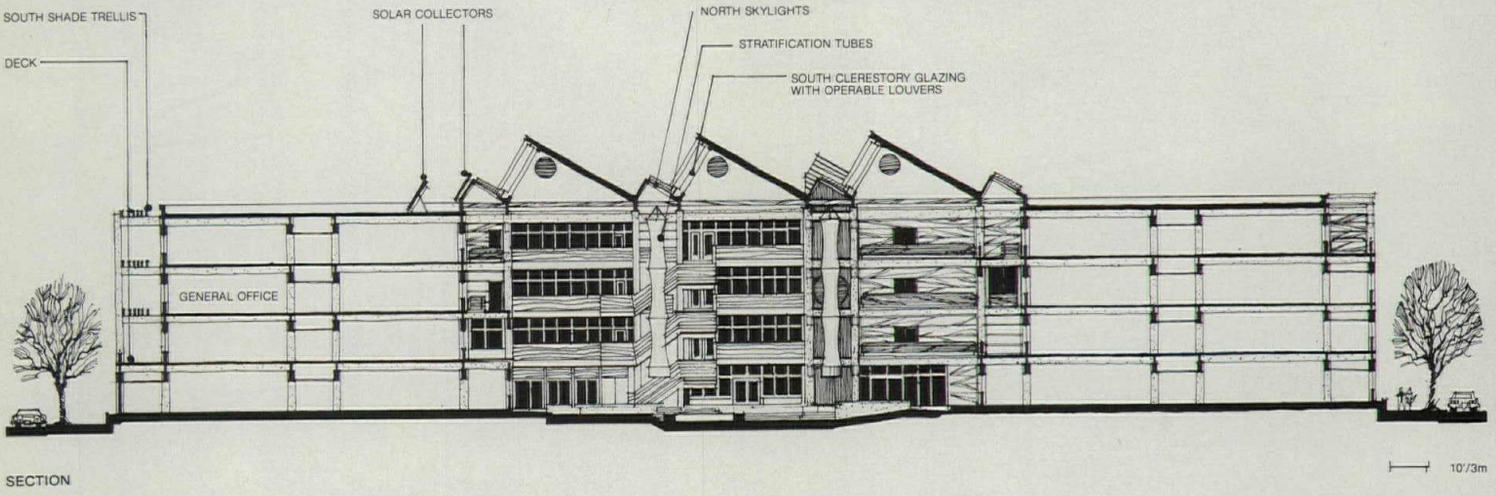
At the south entry (above and left), the building steps back with a series of decks; the main cafeteria deck, on the second level, has no furniture as yet. The reflective doors are in evidence above, and the fabric shades show in both photos. The floor plan (facing page) of the second level indicates office layout, which varies from first to fourth floors.

State office building, Sacramento, Ca

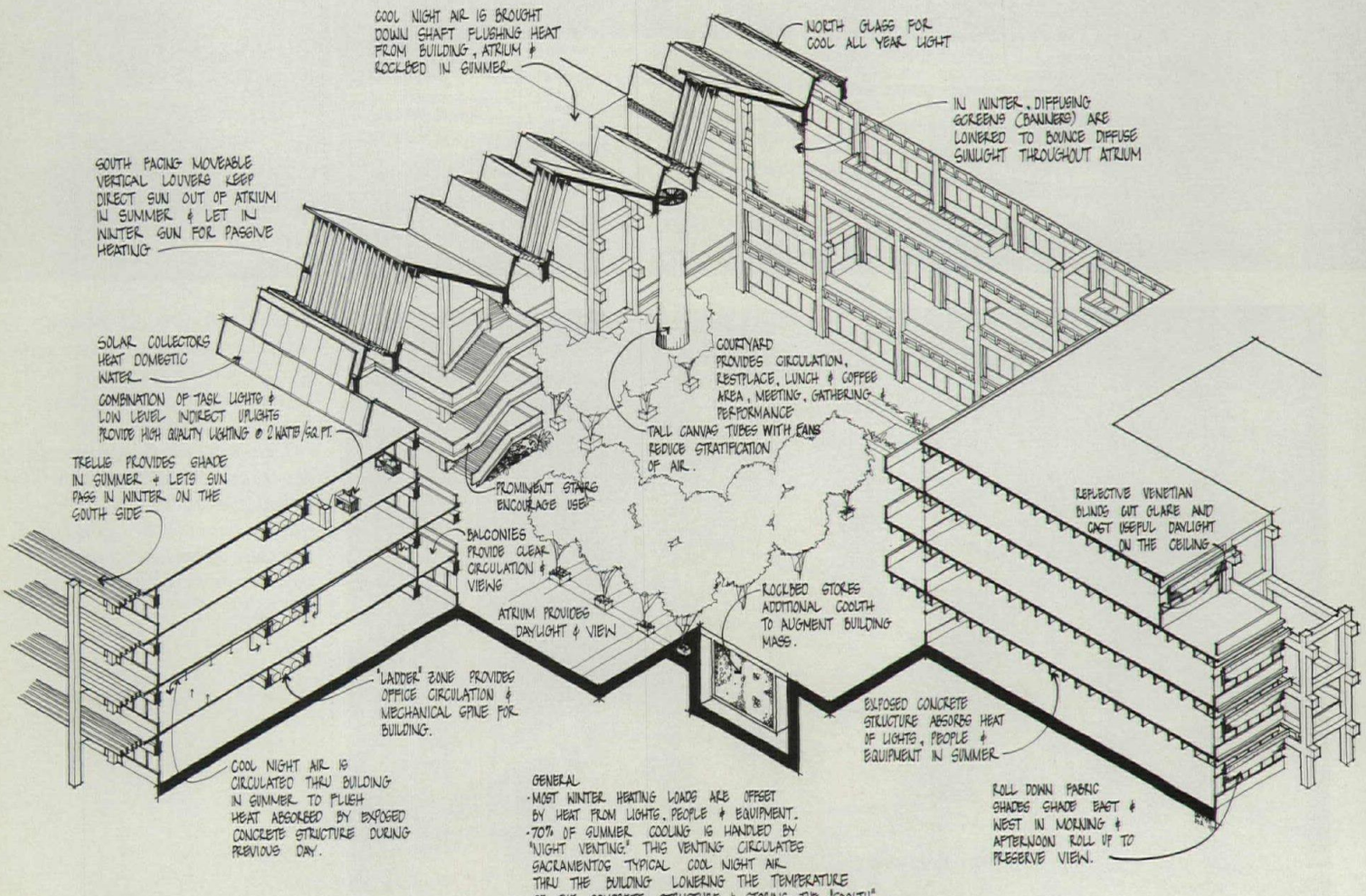
atrium air. In the summer, the atrium is purged by bringing cool night air down large air shafts and releasing heat through skylight vents. The atrium is not air conditioned, but even visited on a day with 102 F temperatures, it is not uncomfortable.

The main stairs in the atrium were consciously played up in prominence, inviting use in place of the building's three elevators. People-watching is enhanced by the stairs and the circulation areas on upper levels. Even though the cafeteria is on the second level, the atrium itself takes on a sidewalk café look, especially at lunchtime. It also draws pedestrians through it, as intended, from nearby

Canvas destratification tubes (opposite page) are only one facet of overall energy strategy depicted in drawings (below). Clerestories/skylights (left and opposite) feature automatic louvers and exhaust fans.



SECTION



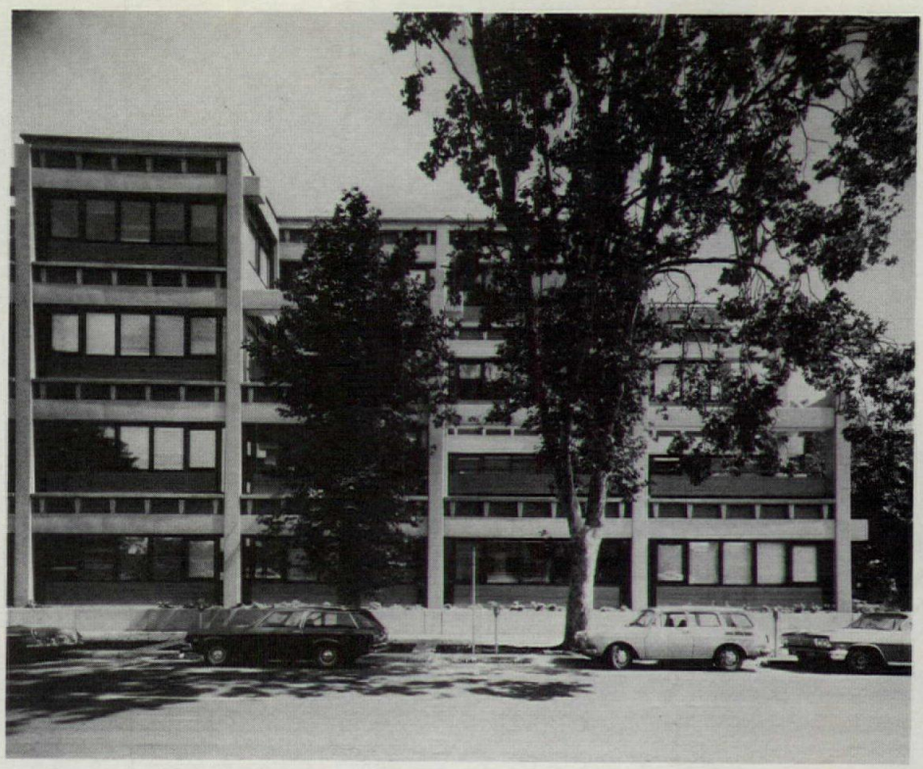
office buildings on the way to parking, bus stops, or the capitol. Because of the atrium, all work spaces are within 40 feet of a daylight source. To reduce the amount of lighting energy used, the design incorporates indirect ambient lighting and direct task lighting, controlled at the individual desks.

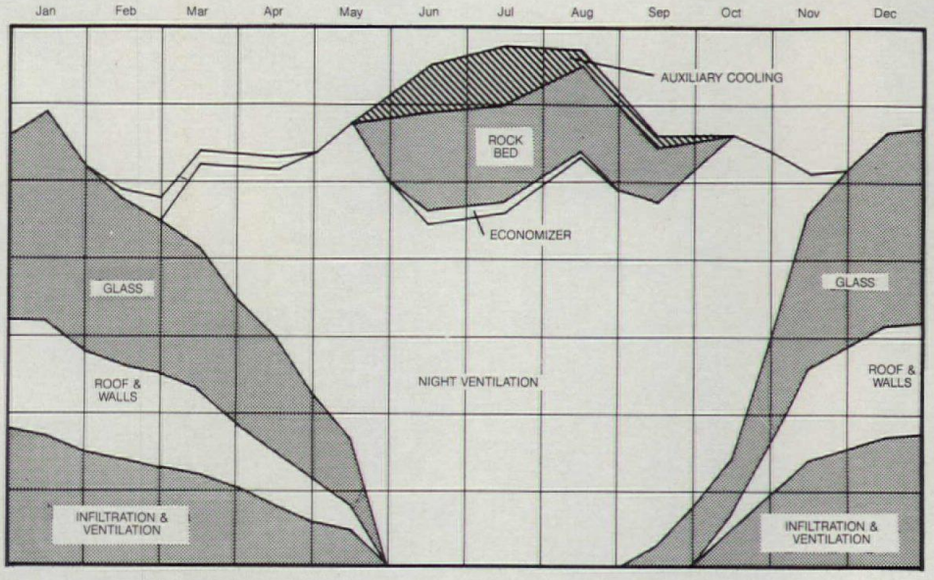
Ceilings in most office areas are a combination of the exposed concrete structure and a suspended acoustical baffle system. The intention is that the concrete will absorb the heat of the lights, the occupants, and the office machines. During the night, cooler outside air will be used to purge interior spaces of the accumulated heat. The two rock-bed storage chambers under the atrium each contain 660 tons of rocks ¾ in. to 1½ in. in diameter. Heat is pumped either in or out of storage through air-wash units by reversible fans.

Domestic hot water will be heated by 2000 sq ft of solar collectors. Building functions will be operated by a computerized central control unit. Along with the fans, dampers, louvers, and shades it monitors, the system is expected to make the facility's environment even more comfortable than it was on the 102 F day in June. Most other energy aspects of Site 1-A are remarkably untechnological, a tribute to thoughtful design.

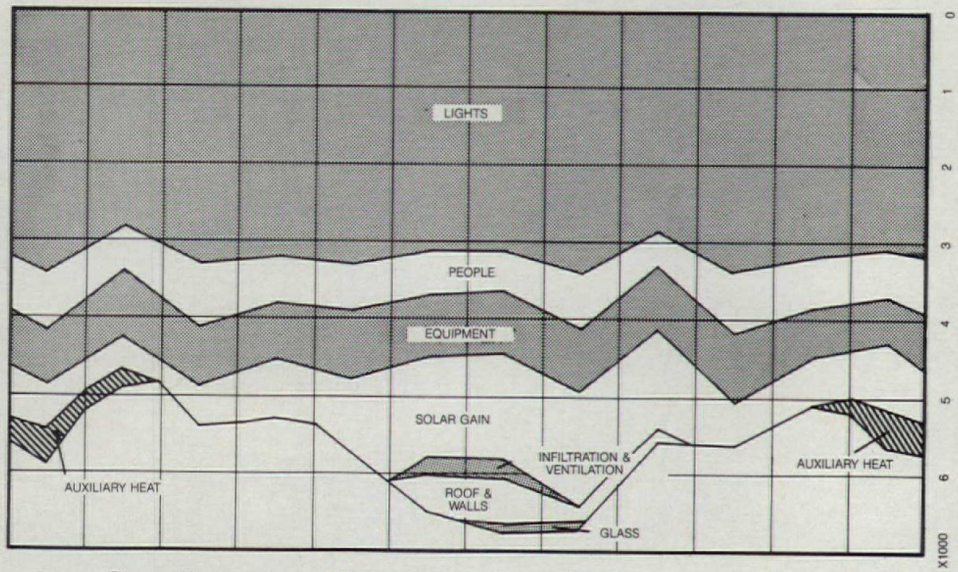
According to Peter Calthorpe, that's the way it should be. Energy considerations, he feels, should be only one very natural part of any building program. Equally important in these state projects is the initial programming and its sociological implications. Since the building is only recently occupied, things are still in a shakedown period, and the users have hardly had time to find out how well it works.

Office interiors with acoustical baffles.





HEAT LOST OR REMOVED FROM BUILDING



HEAT GAIN OR INPUT TO BUILDING

A few points show up already, however. The reflective glass in the entry doors makes it impossible for someone on the outside to see if another person inside is headed for the same door. This causes collisions and could lead to injuries. Despite the ample decks, and especially the one adjacent to the cafeteria, there is no furniture on them for lunch or break periods. The chairs in the table area of the atrium are a shade of purplish red not very complementary to the other vivid colors there.

But aside from these relatively minor wrinkles, the building seems to accomplish what its designers intended. It blends a host of energy concerns with great skill and little fanfare. It is strong aesthetically, while avoiding most of the stifling monumentality common to the building type. That is unusual for a state building, more so for having been done by state employees. But, as noted, that's California. [Jim Murphy]

Data

Project: *state office building, Sacramento, Ca.*

Architects: *Office of the State Architect (Sim Van der Ryn, State Architect; Barry L. Wasserman, Deputy State Architect/design; Lew Desch, Chief, Architecture and Engineering; Peter Calthorpe, Bruce Corson, and Scott Matthews, design; Glenn Hezmalhalch, Jim Barnett, and Ed Street, architects; Doug Yee and Angelo Spataro, electrical engineers; Karl Stricker, structural engineer; Vern Thornburg and Russ Ahrnsbrak, mechanical engineers; Sam Kaneko, landscape architect; Bobbie Sue Hood, Bill Harrell, Dan Hood, programmers; Ben Shook, civil engineer).*

Client: *California Department of General Services.*

Site: *full city block of 2.5 acres.*

Program: *office building for use by varied state agencies, most, but not all, related to health care. Energy considerations required the design to meet or exceed federal and state energy limitations. Total gross area is 267,000 sq ft, not including the atrium.*

Structural system: *precast concrete ladder frames on concrete piles; cast-in-place beams; precast double tees with topping slab.*

Mechanical system: *steam and chilled water from central plant; variable volume system with perimeter hot water reheat coils; two 660-ton rock beds, air-wash units, and reversible fans; night venting for building cooling.*

Major materials: *exterior, concrete frame, aluminum window walls, metal stud walls with glued laminated wood panels. Interiors, metal stud and gypsum board walls, tackboards and vinyl fabric coverings (see Building materials, p. 126).*

Consultants: *Wilson, Ihrig & Associates, acoustical; Hesselberg, Keesee & Associates, vertical transportation; Berkeley Solar Group, energy; Ayers Associates, controls.*

General contractor: *Continental Heller Corporation.*

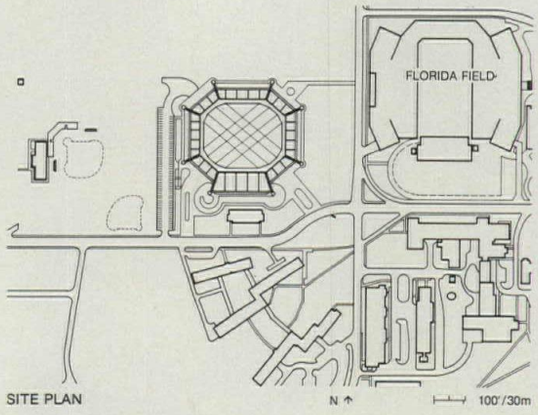
Costs: *$18 million; $62 per sq ft.*

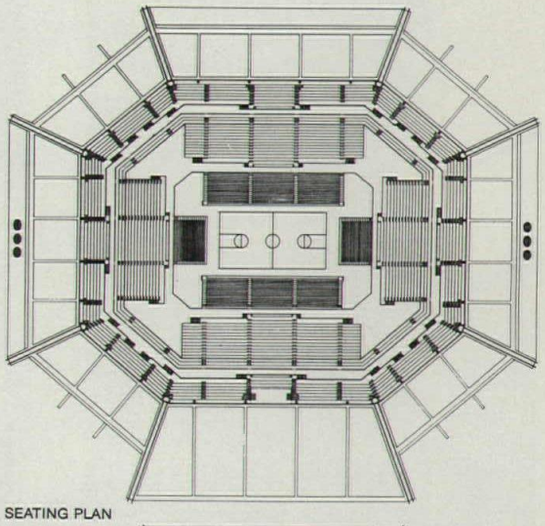
Photography: *Rob Super.*

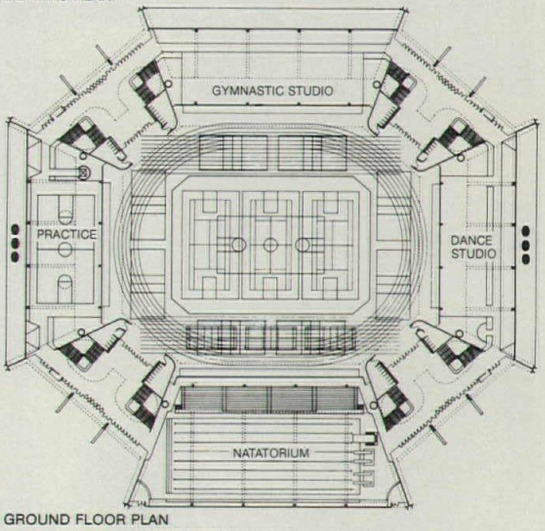
Stephen C. O'Connell Center, University of Florida, Gainesville

Mr. Bubble

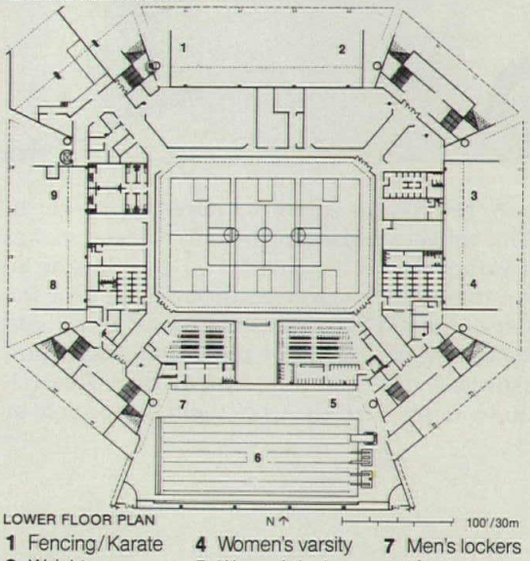
An extraordinary building in Florida proves to be both a complex team effort to design and build and a flexible collection of spaces to use. Add daylighting, speed of erection, and spectacular forms, and architecture is the result.




SEATING PLAN



GROUND FLOOR PLAN



LOWER FLOOR PLAN

1 Fencing/Karate
2 Weight room
3 Visiting room
4 Women's varsity
5 Women's lockers
6 Natatorium
7 Men's lockers
8 Men's varsity
9 Perf. dressing

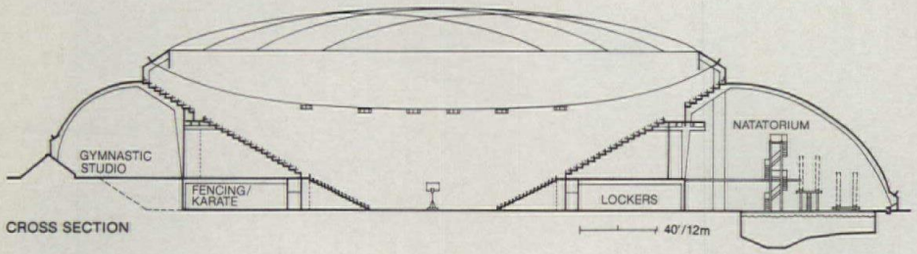
When James Dalrymple comes to work each morning, he can tell what condition his roof is in by pushing on the rear entry door of the building. Dalrymple is director of the Stephen C. O'Connell Activities Center at the University of Florida. By the time he reaches his office, the pressure-sensing instrument built into the middle of the wall opposite his desk has verified his door-pushing-pressure guess (about 5 psf).

The air pressure that inflates the roof is also pushing against Dalrymple as he enters the building. If the door is relatively easy to open, the pressure is correct. Shouldering the door open means trouble. Such was the case recently at the new building. A call to the central computer, which automatically starts each of the four huge fans, revealed that the machine was reading 99-mile-per-hour winds from the anemometers on the top of the building and was overpressurizing to accommodate the winds. An investigation revealed that vandals had, in fact, stolen two of the wind-measuring devices, leaving open holes where the cupped instruments once were. The air passing the holes looked to the computer like a tornado.

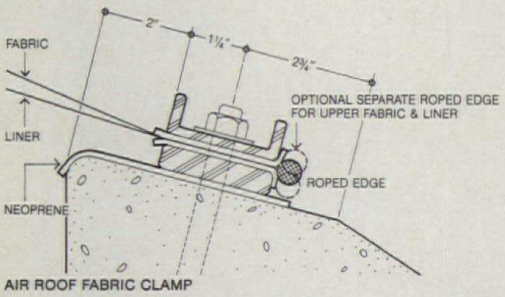
Dalrymple has learned how to control such situations over the last six months of use for the new center. In fact the entry and exit condition of the building is one that is carefully controlled and monitored by the director and his staff. If, for example, an arena full of people is leaving the building during a rainstorm, all four giant fans are activated manually in "rain mode." Excessive depressurization during a rainstorm can lead to ponding, a potential problem for an inflated roof.

There are four explicit modes that the building adopts to meet its various occupancies. At night, when the building is unoc-

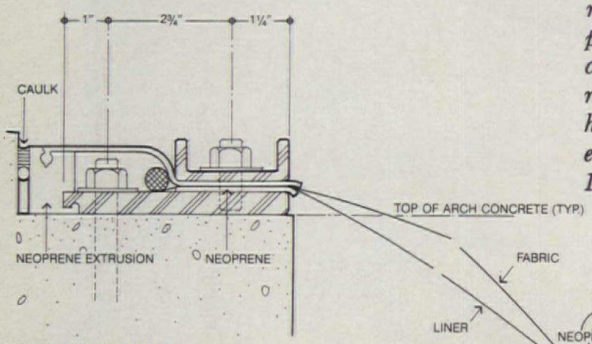
As the site plan and floor plans portray, there is an enormous capacity for athletics within a very small radius on the University of Florida campus. In many ways, the most spectacular place of all is the natatorium (at right). The combination of color, light quality, reflection, shadow, and translucence makes for rich space.



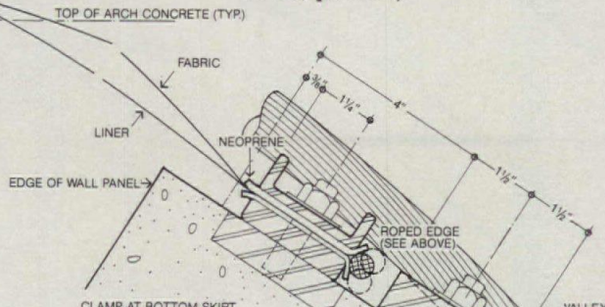
CROSS SECTION



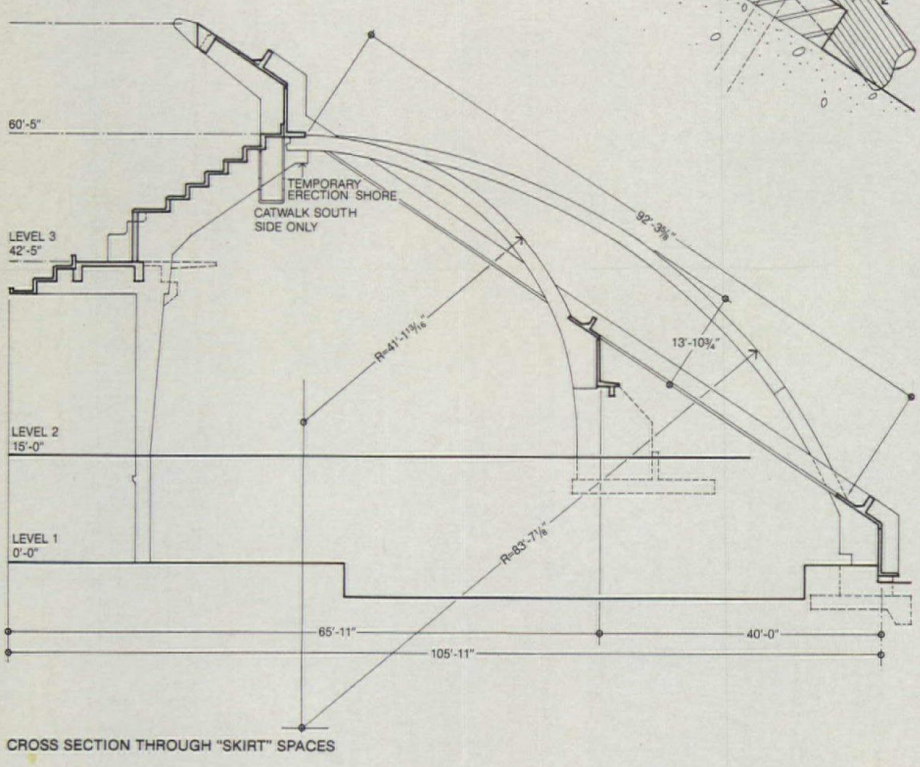
AIR ROOF FABRIC CLAMP



CLAMP AT BOTTOM OF TOP RING



TENSION ROOF CLAMPS



CROSS SECTION THROUGH "SKIRT" SPACES

The combination of roof fabric in tension and concrete ideally in compression represents the potential for dramatic formal interplay. Much of the surrounding structure takes its geometrical cue from the needs of the air-supported arena roof and seating structure. Precast concrete has the added advantage of erection speed and flexibility to match rapid roof construction. Note the position of the light equipment cable (at left) below the deflated roof line. The details themselves have been part of a constant evolutionary process. (P/A, June 1980, p. 119.)

cupied, only one fan is needed to inflate. When the building is occupied for normal student purposes, two fans are used. For "mass seating" when the arena is full, all four fans are running. The fourth option is rain mode.

Vents in the roof will control overpressurization automatically, or the director can simply leave doors open. Dalrymple can use the front doors for a pressure gauge as well. When there is too much pressure, the closed doors yield a low whistle not unlike the jet airplane sound heard from inside an airport.

Orchestration of the roof pressure is only one aspect of controlling the dynamics of the Gainesville building. When the university is in session, the building operates from 5 A.M. to 11 P.M. seven days of the week. Dance classes, gymnastics, and basketball practice are deftly balanced with karate and weightlifting for men and women. The swim team is one of the top collegiate teams in the nation. (The pool temperature is closely coordinated with the air temperature to avoid condensation in the natatorium.) Most of these events take place under the "skirts" that encircle the main arena. The roof over these spaces is a tensile fabric roof, tautly stretched over precast concrete arches. The combination of tension and air-supported roofs, although combined under one roof in the engineering office partnership of Geiger-Berger in New York, has not been married in a building design prior to this one. David Geiger is the master of the air-supported building, and Horst Berger the man with the magical touch with tensile structures (P/A, June 1980, pp. 110–123).

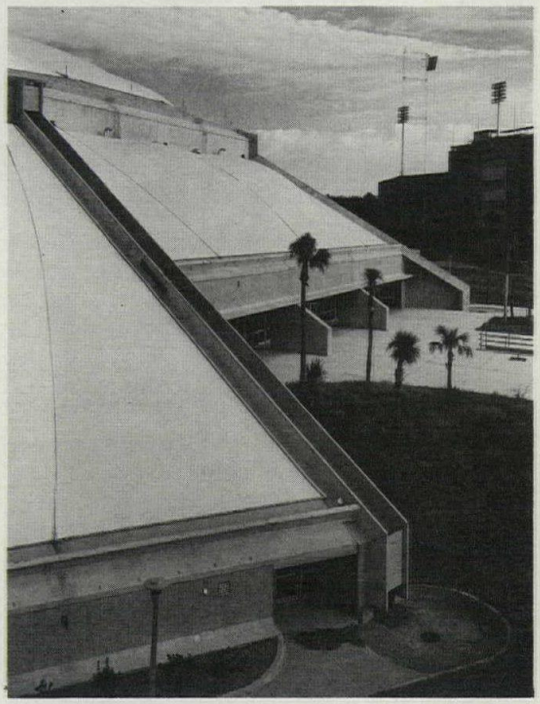
If nothing else, the Gainesville building is testimony that technology and form can still reinforce each other to produce great architecture. This kind of cooperation is more than a marriage; it is a team effort, and an experienced team at that. The project architect is no slouch in dealing with new technology. Moore, May, Graham, Brame, Poole/ Architects Inc. has also recently completed the new Gainesville Airport terminal which is solar cooled and heated. The client, however, specifically wanted a fabric roof. Geiger-Berger was invited to join the team, as was Caudill Rowlett Scott who had been so successful with the Santa Clara air-supported roof building (P/A, May 1976, pp. 94–99). The manufacturers and fabricators of the fiberglass coated with Teflon roof material and the other building contractors also played no small role in the team.

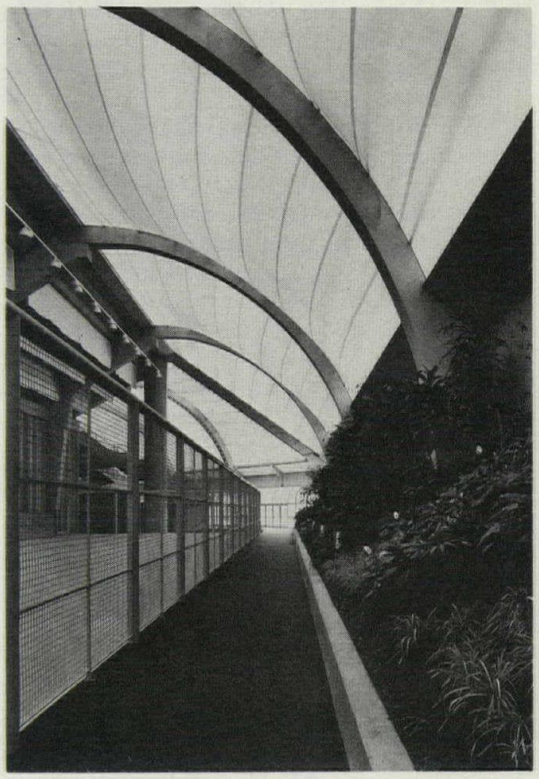
One does not appreciate the kind of coordination which was necessary to design this building until one witnesses the kind of coordination it takes to keep it running. The main arena can accommodate events as different as basketball, commencement exercises, or a rock concert. Last spring, three different high school commencement exercises were held in succession on one day. Another day, a swim meet and a commencement were held simultaneously on different sides of one wall.

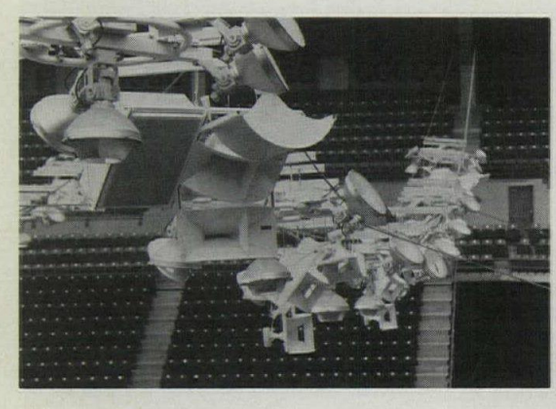
One key to the flexibility is the seating. Bleacher seats fold up or fold out onto the main arena floor (and to accommodate swim

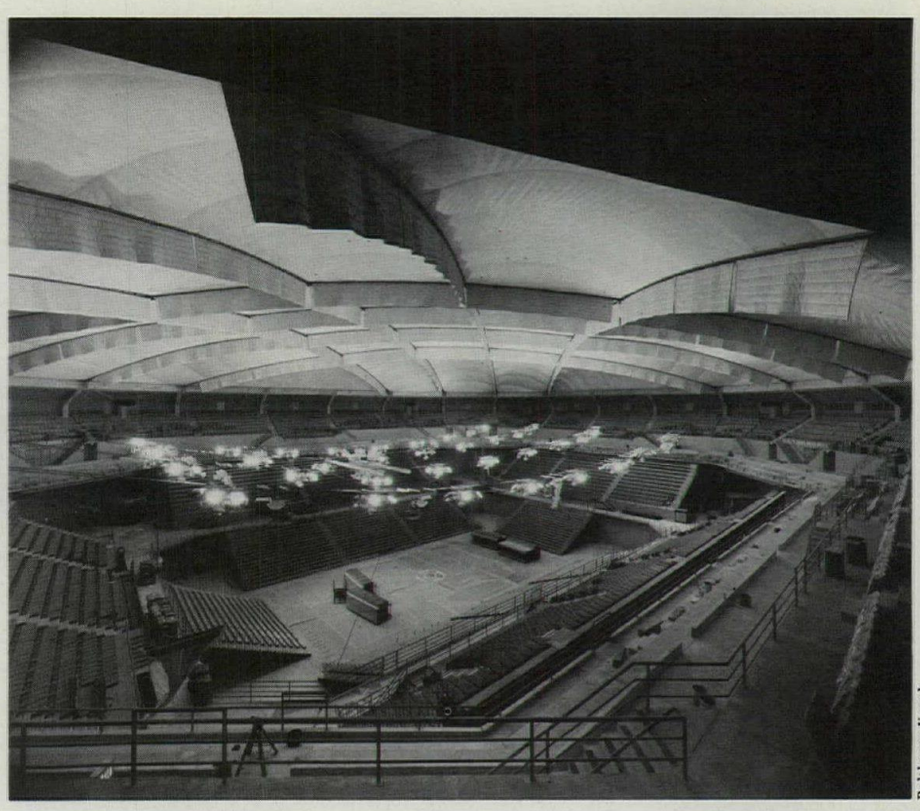
Fred Rex

In a large, intensely used building such as the O'Connell Center, a diversity of activities must occur simultaneously. By ringing the arena with smaller scale activities, the designers were able to segregate the different uses as well as provide an air buffer for the arena to avoid excessive pressure loss. Because the roof of the smaller spaces is a translucent tensile structure, the sun's path around the building had to be incorporated into the occupancy scheduling and spatial sequence. Sunlight is most acceptable to the natatorium and least desirable in gymnastics. The natatorium is also the warmest space because of the pool temperature. The exterior of the building (top) represents an entirely new architectural image. It is somewhere between a bubble and a pillow, with the uneasy possibility that it has just landed from another world. At the entry points around the building (near right), the size of the building is no longer apparent. Inside the building (far right), the arena is straight ahead, flanked by stairs to the upper seating levels. Security fences (bottom left) were necessary around the dance studio to protect sound equipment. The gymnastic studio (bottom right) had similar security needs but required more space.









Balthazar Korab

meet spectators). On the first level above the arena floor, the individual (blue) fiberglass seats telescope in rows out of the way, 1000 at a time, exposing an indoor track surface. This 1000-seat feat is accomplished by only two people lifting up the seats in each row and one person pressing a button or an extension cord. Seats back out of sight in seconds.

While the lighting in the ancillary skirt spaces is reasonably similar each day, the arena can have different lighting and acoustical demands for each kind of event. Of course events which occur in the arena while the sun is falling on the roof must contend with a translucent roof surface and a space which is uniformly daylighted. A commencement, for example, can occur with minimal additional lighting. The disadvantage is that the arena cannot be darkened during the day. Even though the arena space is roofed with a double layer of fiberglass coated with Teflon (one for acoustical purposes), the space is quite bright.

The translucency is apparent also at night. When the hall is lighted from within, the roof glows from the exterior, serving as a night light for the surrounding campus and also allowing campus security to survey the roof for vandals.

Within the space, directing light up onto the fabric bounces even illumination throughout the space. For sporting events, this kind of lighting is not usually desirable. Downlights are used for basketball. Theater or performances demand spotlighting. An auto show at night could use only uplighting.

The lighting requirements and sound needs are a significant formal challenge for the space. The speakers must be centrally located pointing towards the different seating zones and carefully planned to avoid overlapping of sounds and echoes. The arena when unoccupied has a surprisingly low reverberation time (two or three seconds by estimation). The lighting task was to illuminate well without shining the lights in the eyes of the spectators, athletes, or performers.

The solution was to suspend the great majority of lights and speakers by cables above the arena floor. The clusters of electronic equipment are hung, therefore, in a shallow catenary formation (below the deflated roof line) and painted an off-white. From below, the clusters are inconspicuous against the off-white roof of the space. Some seats are at roughly the same level and some are actually above the clusters. Of course none of the lights are in the line of sight of the spectators, but in the upper seats, the equipment represents a distracting eyesore.

As the building is actually used, very few of the evening events use uplighting. Yet these huge fixtures are constantly in view. The parallel cables that hold the equipment counter the visual discipline set up by the crossed cables on the roof. The attachment of the equipment to the cables is done in the most expeditious manner and does not support the overall composition of space. One wonders if the lights and speakers could not have been dynamic along with the seats and roof. In short, while this building admirably blends technology and form in most situations, in this one, the technology wins and the form loses.

Not including the arena, the building accommodates 800 or 1000 students per day. The designed capacity was 1000–1200. The original intent was that 95 percent of the time would be devoted to intramural events, with only 5 percent mass seating. Current management of the facility estimates that the proportions could easily become 70/30 in the future.

The ring, or skirt, of spaces which encircles the arena is where the architecture really shines. The geometry left from the arena roof and seating is a very strong determinant in these spaces. The skirts even double as an airlock for the arena. The translucence of the skin both provides for the capability of growing plants and demands that the designers pay close attention to the path of the sun

The lighting, both inside and outside the arena, is a significant design consideration. The interior lighting is less successful than the exterior; but the outside is splendid.

Data

Project: *Stephen C. O'Connell Center, University of Florida, Gainesville, Fl.*

Architects: *design architect: Caudill Rowlett Scott, Houston (Paul Kennon, design principal; Jim Hughes, project director; Suthipan Smitthipong, project designer). Project architect: Moore, May, Graham, Brame, Poole/Architects, Inc.*

Client: *State of Florida, University of Florida; Gary Koepke, Director of Planning and Analysis, University of Florida.*

Site: *relatively flat 480,000 sq ft bounded by campus on all sides. Open ROTC training field to north; ROTC building to south. Baseball and tennis facilities to west; football stadium separated by drive on east.*

Program: *total square footage 246,900.*

Major program requirements: *main arena, 100,000 sq ft; natatorium, 23,100 sq ft; gymnastic studio, 7300 sq ft; practice/intramural court, 6700 sq ft; weight/training rooms, 5000 sq ft; dance studio, 5000 sq ft; fencing/karate studio, 4000 sq ft; plus lockers, dressing rooms, offices, storage.*

Structural system: *precast con-*

Marshall Prine

crete bents and arches with eight cast-in-place hollow columns at each entry quadrant. Eight steel cables support the inflated fiberglass roof.

Major materials: *the roof is fiberglass coated with Teflon; the support structure is reinforced concrete (see Building materials p. 126).*

Mechanical system: *four 100-horsepower fans with an air conditioning capacity of 750 tons. Separate swimming pool air-handling units are capable of 60 tons of air conditioning.*

Consultants: *Geiger-Berger & Associates, structural engineer; R. Jackson Smith, aquatics engineer; Flack & Kurtz, electrical engineer; Robert C. Coffeen, Coffeen, Anderson & Associates, Inc., acoustical engineer; The Eggers Partnership, aquatics, R. Jackson Smith, AIA, principal in charge.*

General contractor: *Dyson & Company.*

Costs: *$11,954,418.*

Photography: *Balthazar Korab Ltd., unless otherwise noted.*

around the building, both lighting (glare) and heating the spaces. In addition to these amenities, the earth berming has energy qualities. The consciousness that is shown in these areas is nowhere more apparent than in the lower level spaces where both planting and daylight reach down and take the "basement sting" away.

In a building of this nature there are a thousand details that must be well thought out: How to light the basketball practice area so that the balls won't break fixtures; how to keep volley balls off the arena floor when the first level is used for practice; how to keep vandals out from under the telescoping seat structure; where to put the TV cables for televised sports events. There is even an added unforeseen problem with the local bird population.

As one sits in the quiet of the empty main arena, there is the sound of birds chirping. They apparently manage to fight the air pressure to get in the building, then flourish on spent popcorn and candy. They even have plant life for a home. The building is so large and all-encompassing, there is a sense of total environment, and oddly enough, the sound of birds is not foreign to the space.
[Richard Rush]

Sunar showroom, New York

Full circle

In a sense Sunar is Michael Graves's Mont Sainte-Victoire. He is presented, as Cézanne presented himself, with subject matter sufficiently repetitive to allow the most exacting and subtle investigations.

A major addition to the vocabulary is silkscreen patterning that recalls Victorian stencils. Graves uses two patterns, both in bright blue with a brass stud in the center of each repeat. Circling the walls at chair-rail height, they provide a metaphor for horizon line, as well as focus appropriate to viewing furniture.

Michael Graves sent the shockwaves of current architectural upheaval through unfamiliar waters when his first showroom for Sunar opened in New York in February of 1979 (P/A, June 1979, pp. 86–89). Since then, Graves-designed Sunar showrooms have opened in Chicago, Houston, Los Angeles and, now finally, a new and much larger showroom back in New York.

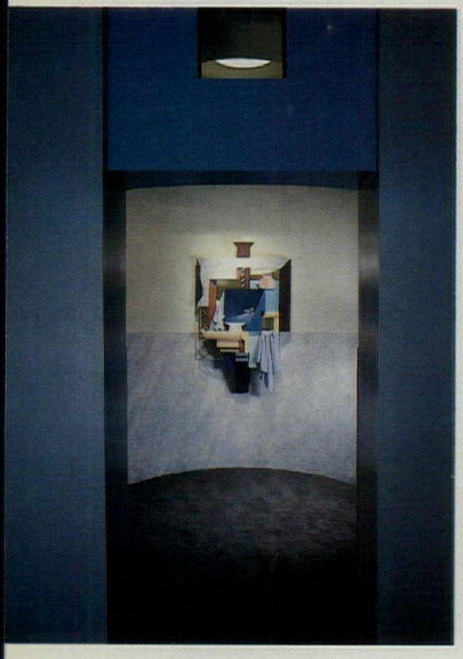
The story is quite familiar to readers of architectural magazines. How ex-Knoll executive Bobby Cadwallader took over Sunar; how he added new furniture and fabric lines. Especially, how he hired the well-known but only slightly tried Graves, making Sunar openings the talk of the industry and Graves the reigning source of despair for more Bauhaus-inclined designers.

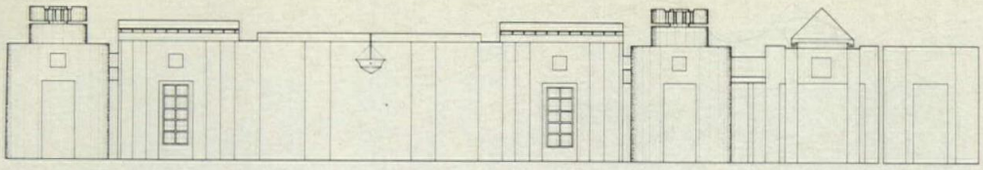
The showrooms represent an almost methodical development. The hierarchical plans have been further and further elaborated, while the instantly identifiable vocabulary has been gradually but continuously modified and extended. With the latest showroom, Sunar also introduces Graves's first table design. [Nory Miller]

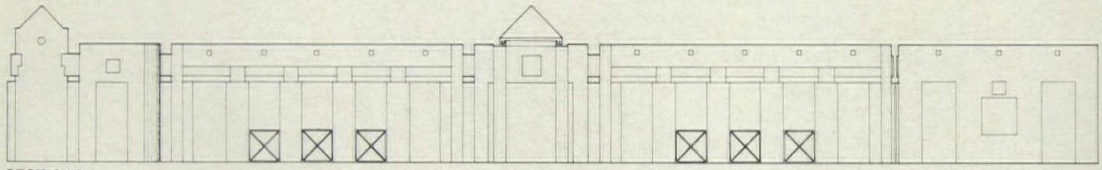
Left: The entryway funnels people in and turns them to the gallery. With its pitched roof and window, it reads a little like a front porch. The end wall carries a medallion of an easel supporting abstracted furniture pieces and—Sunar is a textile firm too—a hanging drapery. Not far from the constructed drape is a swag of real cloth marking the primary axis of the showroom which opens just across.
Facing page: Looking back at the entry from one of the "hinge" rooms. It is the hinge between primary axis that continues on to the textile room and cross axis that turns into the furniture rooms. The square plan, aedicula, and pyramidal roof disengage the axial thrust temporarily and allow movement in any of three directions equally. The brass studs, which appeared first in the Los Angeles showroom, are actually blown-up versions of upholstery studs, but tacking nothing to anything, simply litter the wall with hardness and shimmer.

Sunar showroom, New York

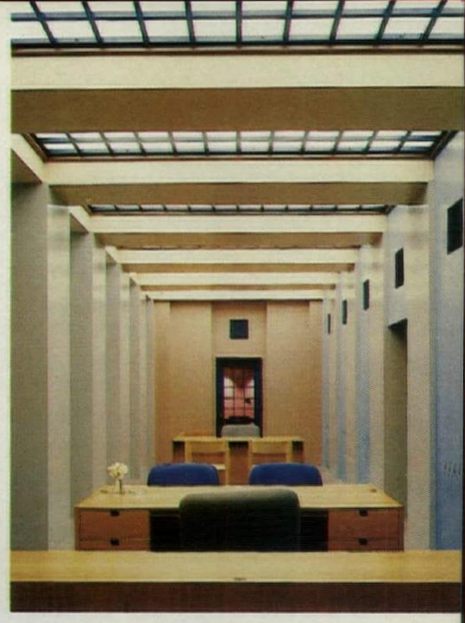
The foyer (right) curves toward reception as if the room were pressured in that direction. The thrust thus created is channeled into a single axis through door and transom. Further on is the textile room (below right). The large table is Graves's, to be done in two versions: one with diamond-shaped fragments of bird's-eye maple separated by lines of ebony with mother-of-pearl tesserae, and another (pictured) in lacquer with the inlay pattern silkscreened on. Below: The end of the secondary axis. It is circular in plan, domed in elevation, with a recessed lantern, edged in tiny columns. Above the not quite marbleized wainscoting is a Graves assemblage.







SECTIONS



Data

Project: *Sunar showroom, New York.*
Architect: *Michael Graves, architect, Princeton, NJ (Steven Harris, job captain).*
Program: *9600-sq-ft furniture and textile showroom.*
Consultants: *Thomas A. Polise, mechanical/electrical; DeSimone & Chaplin, structural: Cosentini, acoustical; G & T Harris, audio-visual.*
Contractors: *A.J. Contracting, general; Nordic Interiors, cabinets; Marke, painting.*
Photography: *Norman McGrath.*

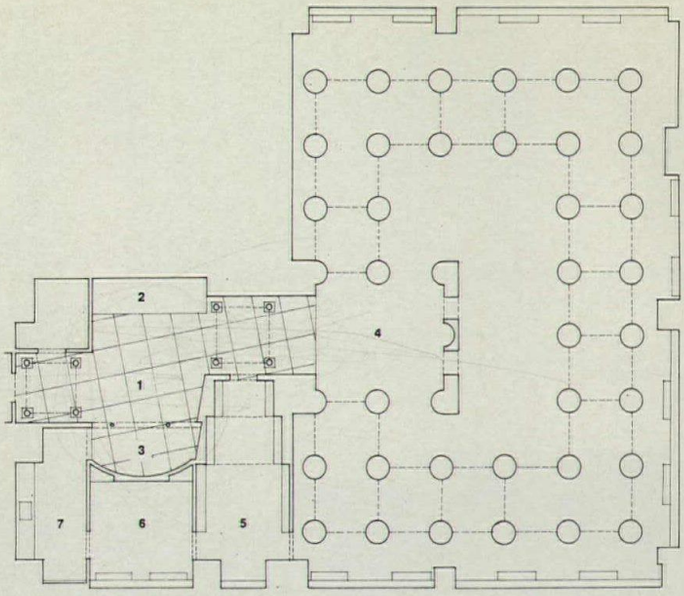
Close-up of the textile room (above) with Graves's table, the gold column capitals that double as light sconces and luminous niches for examining fabrics. The furniture rooms are arranged as a "T" intersection between the

largest room and a "nave" flanked by "aisles." The aisles (above right) have luminous ceilings in a dark green lattice grid, held by a terra-cotta wood strip studded in brass. The walls alternate mauve piers and blue niches with windowlike air-conditioning grilles. In the largest room, Graves ends another long axis with an assemblage of the story of Terminus flanked by draperies.

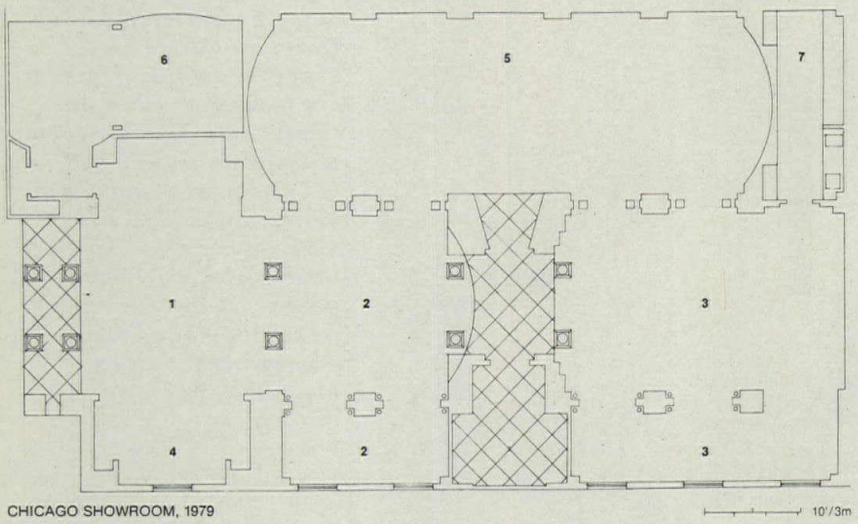
Sunar showroom, New York

Five showrooms have meant five different, often difficult, configurations within which to work largely the same program. Along with specific adaptations to each site, there has been a gradual development in forming and interlacing processional axes: more complicated hierarchies, foreshortened perspectives, shaped walls and ceilings, and elaborations of end points with murals and assemblages.

Legend
1 Reception
2 Temporary display
3 Mural
4 Showroom
5 Fabric
6 Private office
7 Kitchen



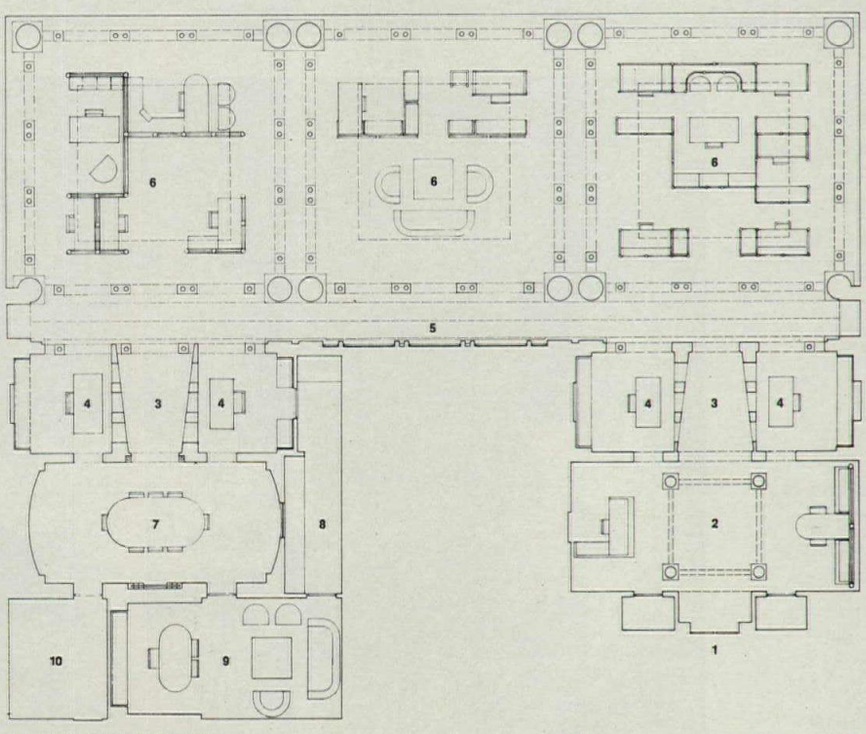
FIRST NEW YORK SHOWROOM, 1979 10'/3m



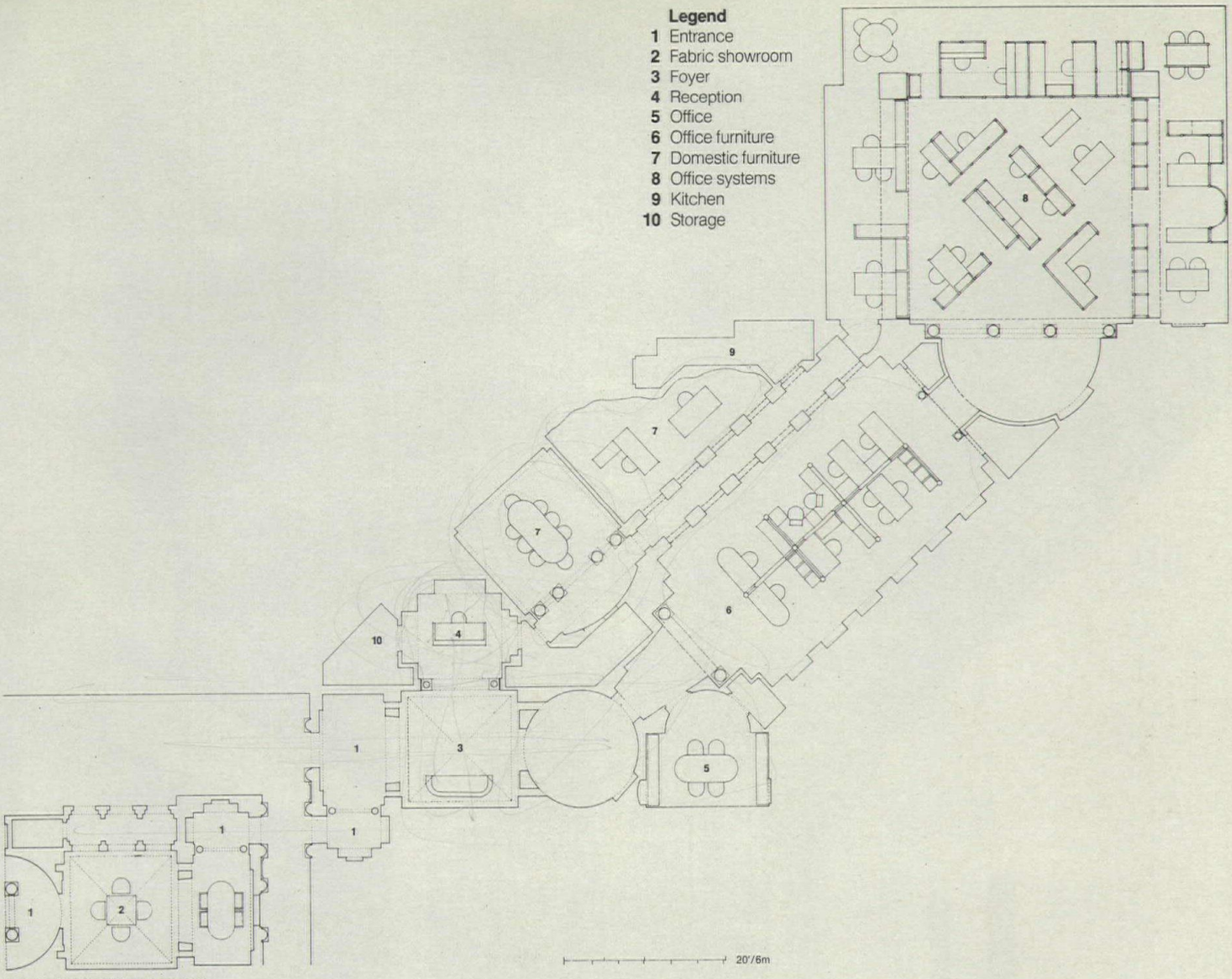
CHICAGO SHOWROOM, 1979 10'/3m

Legend
1 Foyer
2 Domestic furniture
3 Office furniture
4 Fabrics
5 Office systems
6 Private office
7 Kitchen

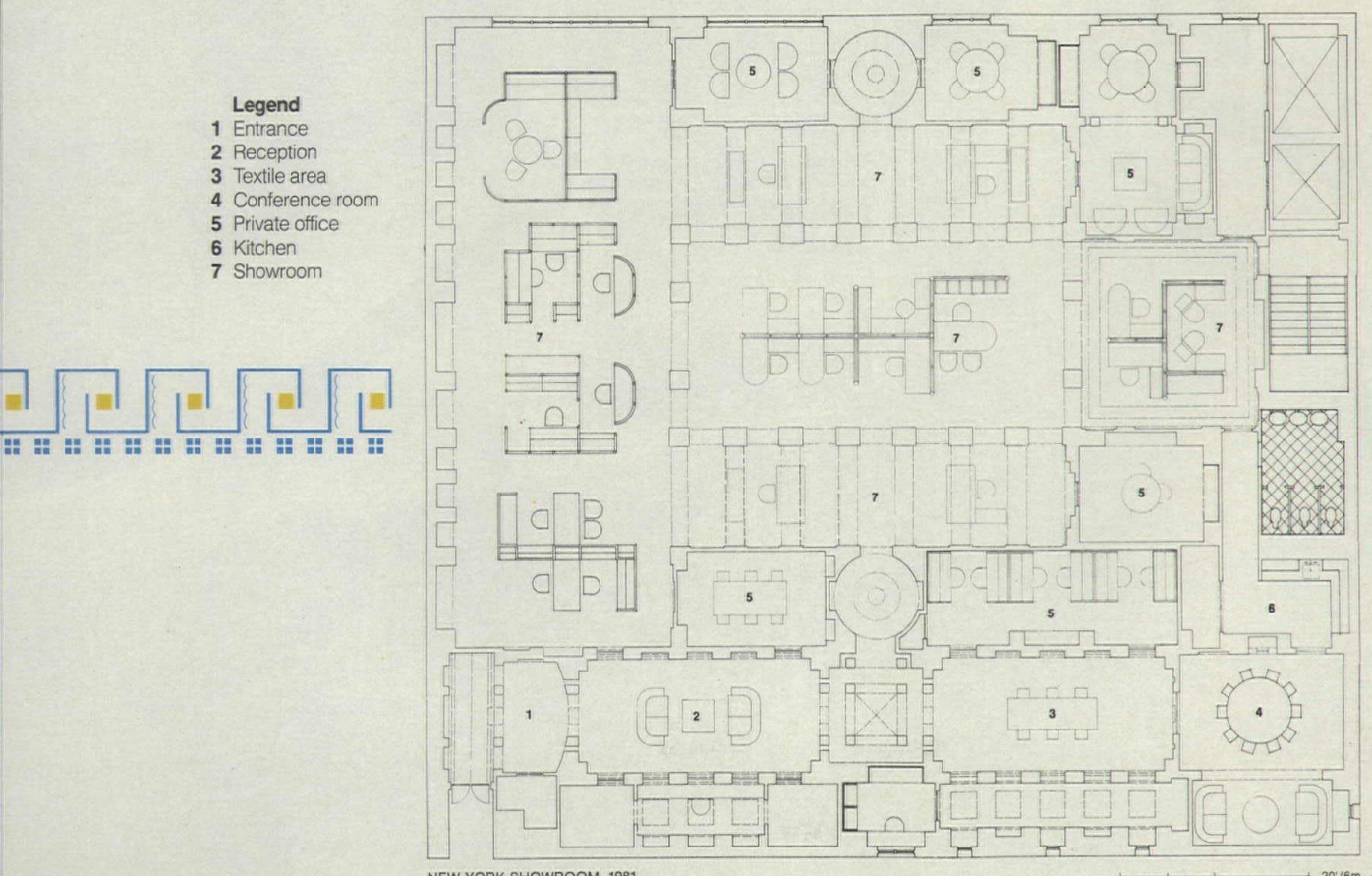
Legend
1 Entrance
2 Reception
3 Passage
4 Furniture
5 Gallery
6 Office systems display
7 Conference textiles
8 Kitchen projection
9 Office
10 Storage



HOUSTON SHOWROOM, 1980 N 10'/3m



LOS ANGELES SHOWROOM, 1980

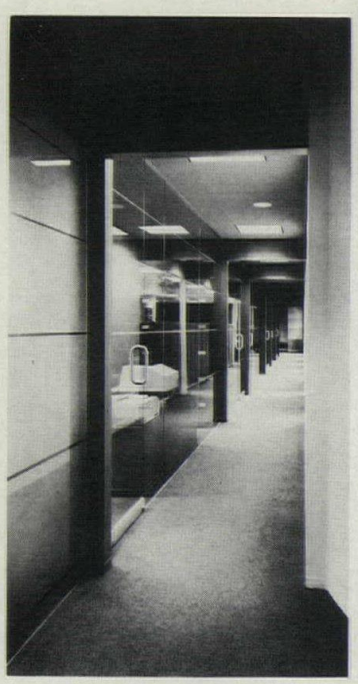


NEW YORK SHOWROOM, 1981

Italian Trade Center, New York

Mind over materials

Sumptuous materials and rough ones, custom-made materials and "off-the-rack" ones, simmer side by side within a coolly intellectual ordering system, in the four-level Italian Trade Center in Manhattan by Design Collaborative.



The entrance foyer (facing page), sixth-floor administrative office corridor (above), and basement exhibition hall (above right) use diverse materials to express diverse activities and to delineate underlying "strategies."

When a clear set of generating strategies —intellectual, verbal, diagrammatic—locks horns with the daring sensuality of materialism—the Italian passion for experimentation and juxtaposition, the American fascination with industrial products—the result is bound to be provocative. It may also be problematic, if the intellectual ideas are not consistently resolved. Hence the multifaceted nature of the Italian Trade Center designed by Piero Sartogo and Jon Michael Schwarting, on four floors of a new I.M. Pei & Partners-designed office building on New York's Park Avenue.

The four floors of the Italian Trade Center are not contiguous. The 1500-sq-ft foyer, adjacent to the building's street-level lobby, serves as the reception and lounge area and connects via a prominent stairway and a two-story elevator with the basement level. The latter, 12,000 sq ft of open space, holds trade shows, art exhibits, and large gatherings. Upstairs on the fifth floor (8850 sq ft) are the wine "library," kitchen, and conference center. And on the sixth floor are administrative offices.

A tale of two generating strategies

The tale, as told by the architects, is simple enough, involving two strategies. One strategy identifies each floor with respect to its vertical location in the tower, by drawing horizontal bands of varying widths across columns and other elements. On the lowest floor, the bands are wide, with wide, intensely colored spaces between them. They become narrower and lighter in tone as one ascends the building.

The second strategy reinforces the diagonal implications established by the given building envelope's chamfered surfaces. This diagonal movement is expressed in various ways: by stepped walls, by straight and curved diagonal walls, by diagonally oriented ceiling and floor elements, and by a curved diagonal edge to the suspended ceiling in some areas.

Italian Trade Center, New York

The tempest of expressions

Within this fairly simple ordering system of horizontals and diagonals simmers the infinitely complex world of expressive gestures acknowledging, through materials and forms, the activities of the Trade Center. These complex responses are inspired in part by the diverse nature of the functions, and in part by the contradictions within the building, which contrasts the rough weight of a concrete structural system with the smooth black scalelessness of the glass curtain wall; but they result especially from the contrasting natures, personal associations, fascination with materials, and historical interests of two architects with enough energy and abandon to explore and experiment at every psychological and physical turn, leaving "system" far behind.

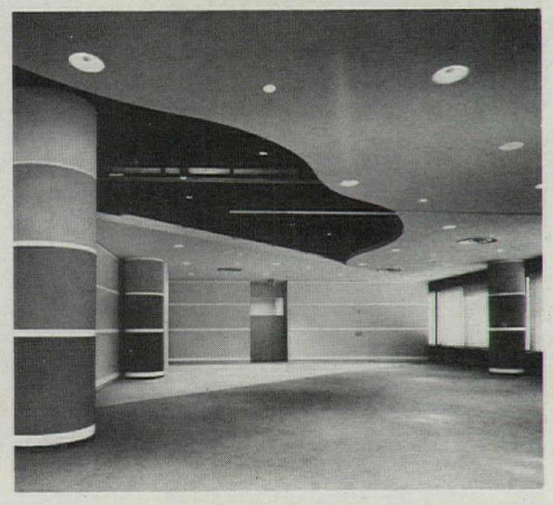
There is the cool sophistication of juxtaposed grays and Eileen Gray-ish aluminum in the emphatically narrow street-level foyer; the rough, punk, even decadently underground nature of the corrugated-aluminum-clad basement; the warm sensuousness of wood and curves in the fifth floor wine library and bar; and the icily pristine elegance of gray-framed, magenta-accented etched glass in the administrative offices of the sixth floor. And there is more, as each of these effects is superimposed with other effects, sometimes to heighten them, and sometimes, unfortunately, to mitigate them.

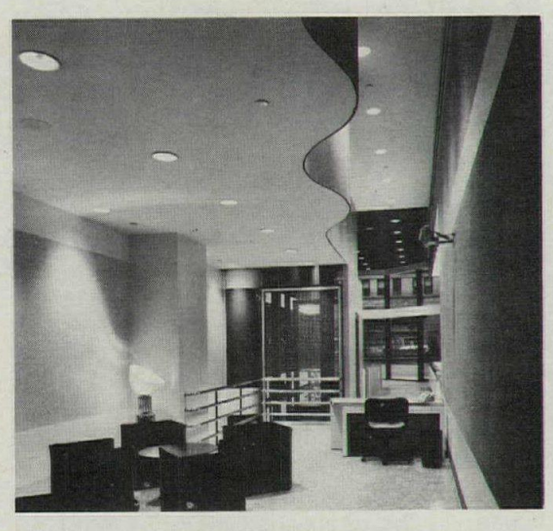
Subtle presence

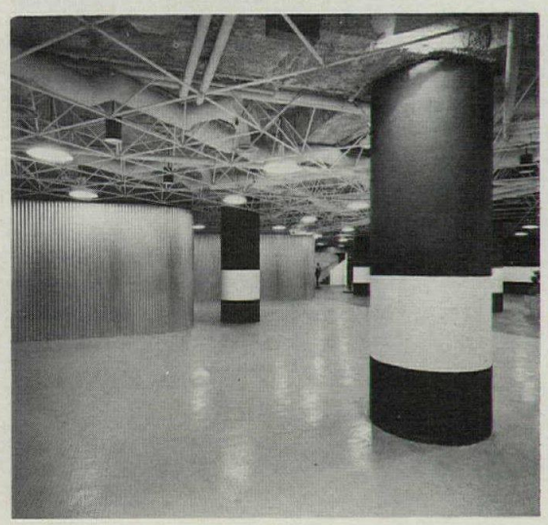
The most successful visual totality occurs at the ground-floor foyer. Here, the white bands take on their most physical form, as rectangular nuts bulge out from the nearly black columns. Against this dark and brute lateral wall, the chain link and perforated aluminum sheets forming the elevator cage, with the black steel structure lurking mysteriously within, take on a surprisingly precious delicacy. And the sinuous aluminum-clad balustrade, brushed and perforated on the side, polished on the top, slides quickly across the gray dappled terrazzo.

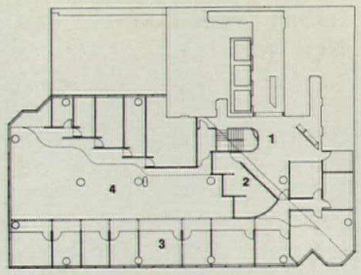
Spatially, the foyer is unusual as well, its high narrowness emphasized in two ways: by the diagonal curve, which lives in the balustrade in the front half of the space and which rises to form the cloudlike edge of the dropped ceiling in the lounge in the rear; and by the penetration of wells to the basement level, a device which attempts to give dignity to the lower level.

Furthermore, in the foyer, the elevator cage is split apart at its centerline to reinforce the anthropomorphic centrality of entry and movement; but it is rendered assymetrically, by changes in scale and color, to express the dual entries from the street and from the office lobby, and to connect the front half of the foyer with the basement. This split, parallel with the street, is repeated in the basement by a corrugated aluminum beam (somewhat scrawny) that makes a transition (not entirely successfully) into an undulating wall. The front/back split at the lobby level adds a tonal

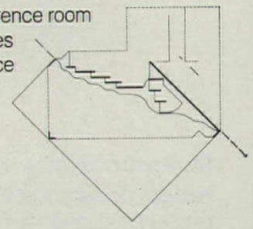




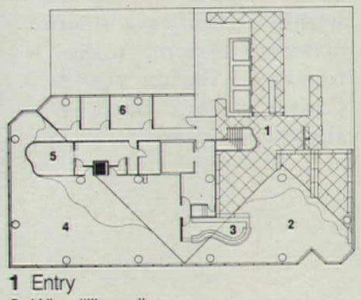




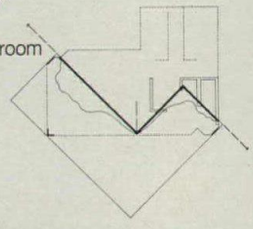
1 Entry
2 Small conference room
3 Private offices
4 General office area



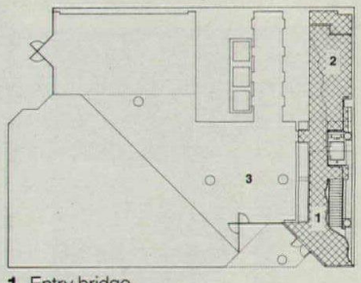
SIXTH FLOOR



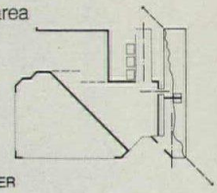
1 Entry
2 Wine "library"
3 Bar
4 Conference room
5 Kitchen
6 Offices



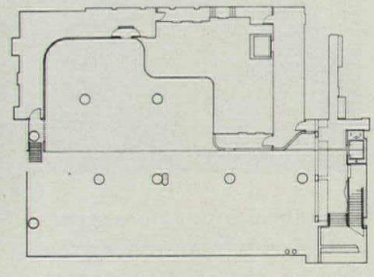
FIFTH FLOOR

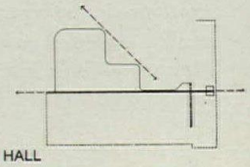


1 Entry bridge
2 Lounge/exhibit area
3 Office lobby



GROUND FLOOR FOYER

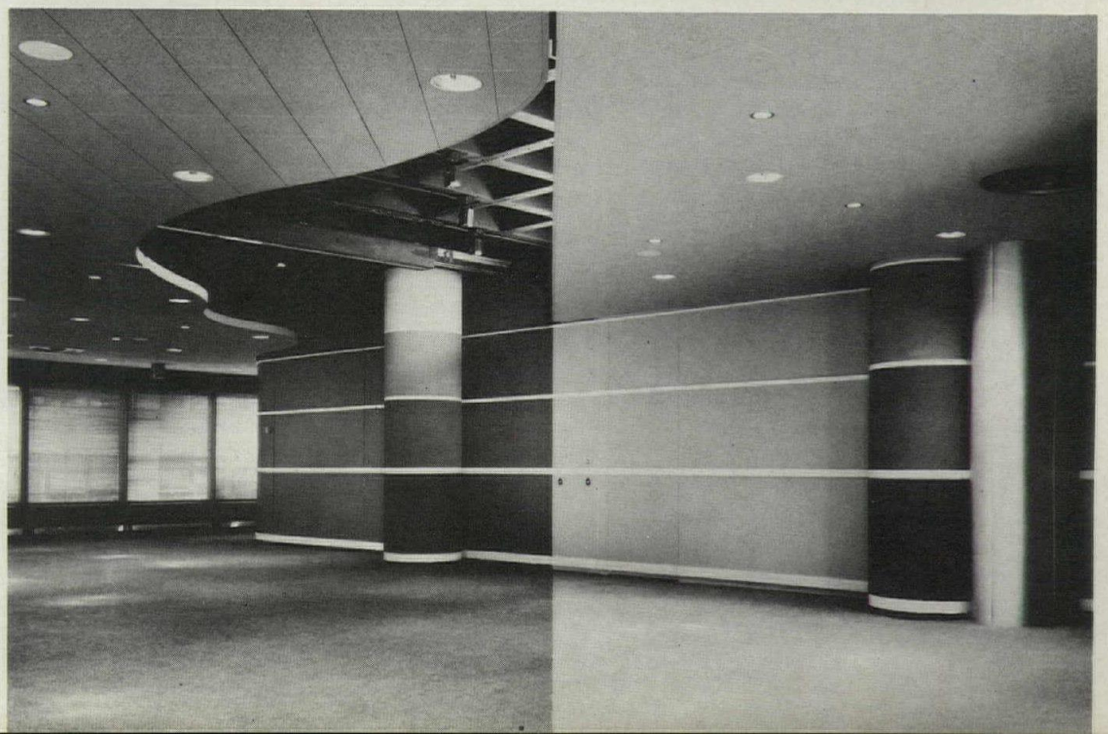




BASEMENT–MAIN HALL

The diagonal strategy (facing page), a response to the chamfered building envelope, is realized in diagonal walls, stepped walls, color and material changes, and curved edges of ceiling planes. Under the floor plan of each level is shown a diagram with the diagonal forces indicated by bold lines, curves, and dotted arrows; the "virtual" spaces are shown "completed" beyond the boundary of the existing building. To the left are photographs of selected diagonals on each floor: at the basement, a corrugated wall undulates along a stepped line; in the ground-floor foyer, a curved diagonal line forms the edge of the dropped ceiling; on the fifth floor, color changes occur along a straight diagonal line along the floor, walls, and ceiling, while the acoustical tile ceiling is pulled back along a curved diagonal line, to reveal the structure above.

Views of the fifth floor are seen at right. The wine "library" (top) and bar (middle) use wood and curved forms to create a sensuous mood. In both can be seen the color changes of the diagonal strategy and the bands of the horizontal strategy. The conference room (bottom) also clearly exhibits these ideas; in the photograph, the diagonal color changes on floor, walls, and ceiling are vertically aligned. A folding wall can divide this space.



subtlety and spatial mystery to an already subtle and mysterious space.

But problems exist. The tantalizing obscurity described above occurs down the right half of the space as one enters. On the left is an ordinary semigloss white-painted wall, whose common corporeality is increased by overbright overhead lights, and clear mirrors continue the demystification process. The architects, in fact, had other intentions (surrendered because of time pressures): this wall was to be left as unpainted plaster, to suggest the unfinished insides of Pei's granite lobby wall; and the chalky, pearly finish would indeed have had the appropriate depth.

The elegant Bellini chairs, at this level as at others, seem too black, chunky, and mundane in the pale and delicately scaled environment.

The emperor wore virtual clothes

At the fifth floor, the wine-tasting and conference level, ideas outstrip reality. Here, diagonals drawn perpendicular to the chamfered exterior walls define "virtual" spaces that are independent of the "actual" orthogonal spaces, and are reflected by color changes where diagonal meets orthogonal: ochre changes to gray on floors, walls, and ceiling, and yellowish stain changes to brown stain as the diagonal line works its way up the wooden wine shelves. The orientation of the acoustical ceiling tiles and of the terrazzo divider strips reinforces the diagonal emphasis.

Meanwhile, overhead, a curving diagonal line, tight at the perimeter and looser at the interior, pulls the white suspended ceiling back to reveal the black-painted concrete waffle slab above.

The architects bestow dignity upon these strategies by naming them evocatively, but reality will tell. The diagonal "spaces" may be called "virtual," but they are visually weak and they add little, in fact, to the unremarkable "actual" spaces that they grace. Violence may be implied by using the words "cracks" and "fissures" to describe color and form changes in floor and ceiling; but the reality is a tame shadow of the ideas. The carpet "cracks" are nothing more than seams, after all. And the seething nature of the term "fissure" far exceeds the effect achieved by a smooth curve in a standard, uninteresting acoustical tile ceiling, interrupted by an indifferent pattern of lights and vents. The "fissure," the most vigorous of the center's diagonal motifs, requires a strikingly physical material for its realization, a material either sumptuous to contrast with the rough concrete above, or rugged to reinforce the violence of the idea; limp, common acoustical tile just doesn't do it.

Furthermore, color choices are disturbing on this floor, where medium gray borders darkish beige as the "virtual" Yin and Yang. But the contrast is murky; the beige has a greenish-gray cast, deadened by being applied in a non-glossy finish, and further neutralized in places by the fluorescent highlights above the "fissure" edges.

Super-expression

The horizontal bands achieve their most elegant realization on the sixth floor. Here, smooth white-painted bands contrast with a textured white-painted field on a curved wall; and even more pristinely, clear strips melt across etched glass and etched strips across clear glass on a series of doors along a dark gray corridor, with flashes of hot color on square arch reveals. As for the diagonal strategy, it returns clearly and forcefully (if too tightly) on this floor.

Ideas abound: icy glass-walled private offices contrast with hot, textured, stepped walls in the common office spaces; and the two worlds interlock in the "portico" of the corridor. The success of these ideas is reduced, unfortunately, by their quantity: too many, too hotly colored, for the size of the space.

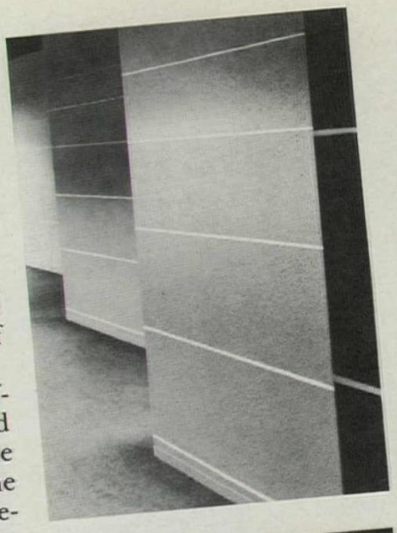
Finale

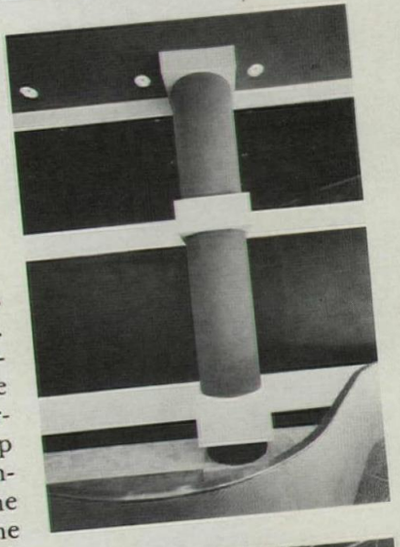
In the Italian Trade Center lies proof of the obvious yet oft-forgotten lesson of architecture—that no verbal polemic, nor any seductive diagram of strategies, can succeed without consistent resolution. The Design Collaborative partners, with vision, talent, and energetic involvement, transformed many of their ideas into expressive, three-dimensional forms and spaces with architectural materials; but they left some ideas dangling ineffectually.

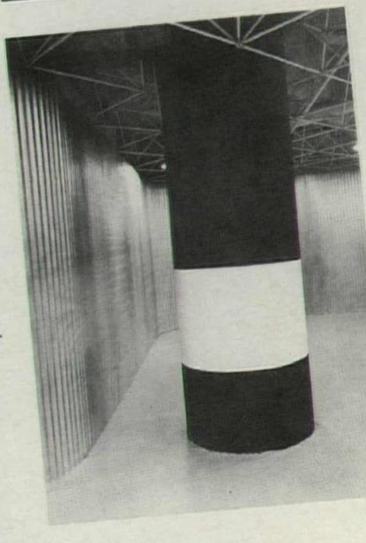
The horizontal band strategy does imprint itself as a continuous force throughout the four separate floors; and it works well, both as a primary physical element and as background for other elements, its scale changing appropriately with its use. Where it is applied subtly—in the etched glass of the sixth floor—or boldly—in the square outgrowths in the foyer—it is exciting. When its details are not worked out—when wood moldings end unceremoniously on the fifth floor—it is awkward and immature.

The diagonal strategy is weakly realized as an intellectual organizer of "virtual" space. The diagonal drift can be sensed in the basement, but the low hugeness of the space is the dominant effect. The foyer diagonal perversely and brilliantly reinforces the deep narrow space, but it scarcely repeats the intended message, as it is nonorthogonal to the building chamfers. On the fifth floor, the diagonals of the "virtual" space are weak shadows of the idea, and are rendered in inappropriate colors and materials. And while on the sixth floor the diagonal force returns, propelling one vigorously through the space, the elements are disturbingly compressed.

Most important, however, the architects pushed well beyond the limits of their intellectually imposed systems. While they raised more issues than they could resolve, the very wealth of material is provocative. And at times, the effects are nothing short of sublime. [Susan Doubilet]

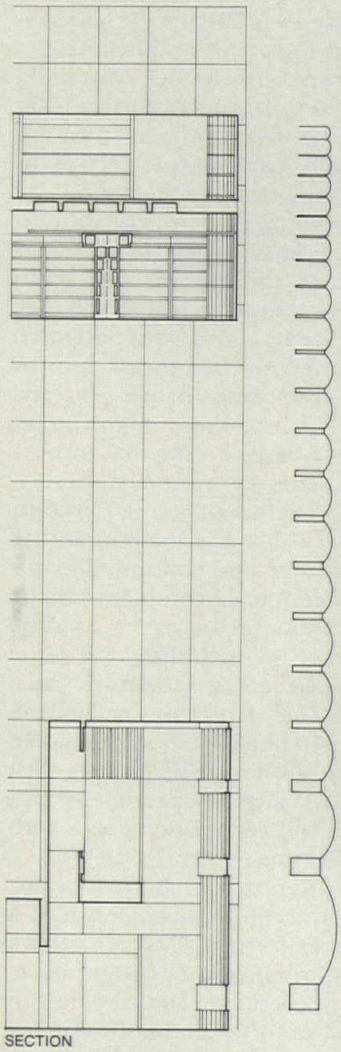




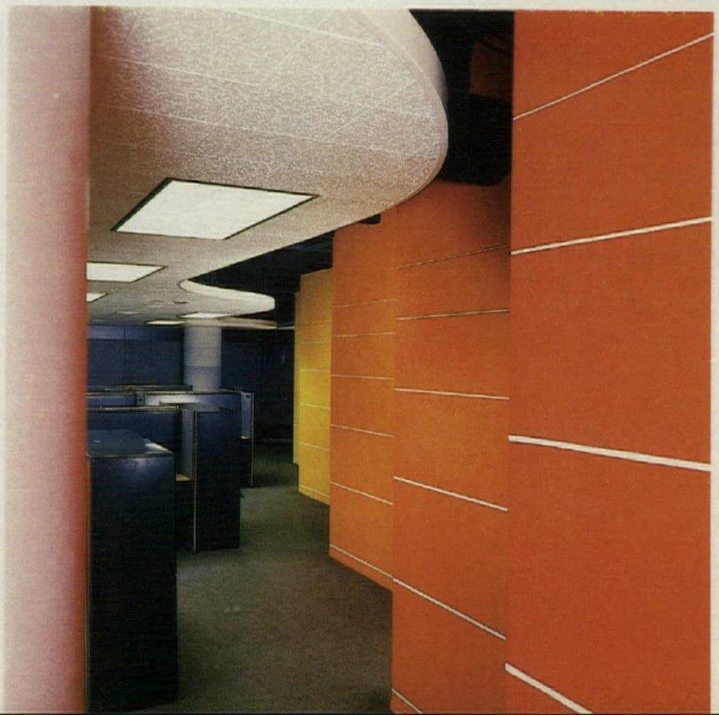


The horizontal strategy uses bands that diminish in width, spacing, and color intensity as one ascends through the building, as seen in the section below. The detail photographs (facing page) show, from top to bottom, bands on sixth-floor walls; on curved fifth-floor stairway; on column in the foyer; and on basement column.

Dramatic stairway (foreground, right) and elevator connect basement and foyer. Stepped walls (right below) and retracted ceiling occur in sixth-floor general office space.



SECTION



Data

Project: *Italian Trade Center, New York.*
Architects: *Design Collaborative, New York (Piero Sartogo, Jon Michael Schwarting, principals; Edward Walsh, Peter Szilagyi, project architects).*
Program: *31,200 sq ft on four floors of a new Midtown Manhattan office building by I.M. Pei & Partners, with a ground-floor foyer, a basement exhibition hall, a fifth-floor business and meeting center, and a sixth-floor administrative office area.*
Major materials: *walls: painted concrete and hardboard, corrugated aluminum, perforated and polished aluminum, mahogany paneling, glass, and mirror. Floors: terrazzo, resilient rubber, wool carpeting. Ceilings: suspended acoustical tile, painted hardboard, Metro-Form M space-frame system. Lighting: incandescent, fluorescent, quartz.*
Contractors: *H.R.H. Construction Company, Inc.*
Consultants: *Cosentini Associates, mechanical; Irwin C. Cantor Associates, structural; Vignelli Associates, graphics and furniture; Gabriele Roos, color.*
Photography: *Norman McGrath.*

Where do we go from here?

The National AIA Convention in Minneapolis this year provided an opportunity for P/A to host a private feedback session on our Energy Analysis Program. A cross-section of architects, researchers, educators, and producers normally attend the convention. Our effort was to create a small, diverse group that would articulate the successes and failures of the program. What follows is a selection of the comments made during the session.

Rush: We have three people here who have had analysis performed on their buildings: Paul Kennon, whose firm designed the Gainesville air-supported building (P/A, June 1980, p. 121); Mark Mendell, who helped design the Hooker Chemical building (P/A, April 1980, p. 105); and Bob Peters, from the Kress residence design (P/A, June 1981, p. 109). Obviously, they are a very important selection from the group because they have had direct experience with the analysis. Gentlemen, what kind of values do you put on energy analysis? How does it affect the building and the design process?

Kennon: Let me take a crack at that. When you, Vladimir, and Jim approached us on this I must say we thought: My God, what's going to happen. Here we've designed this thing, it's a controversial building because it's technically innovative as an air structure and tensile structure combined. Are we opening a hornet's nest? But we said, in the interest of science and research, let's let it all hang out! And so we rushed our working drawings off to Vladimir and the computers whirred. There were visits to the site and with the clients at the University. The "warm fuzzy" came out, which really began to prove out our intuition, if you will. Energy design objectives were met or really exceeded. This gave us, of course, a warm fuzzy feeling, it gave us confidence.

Our client was elated because something very positive was being demonstrated with reasonably hard data. We have used that work and the published graphs in saying, now look how our profession is moving forward. There is a new level of design skill emerging. Not only are we coping with the significant overall design issues facing us as architects, but our creative ability is such that we can be responsive to energy questions. That was the real value in terms of the Gainesville project. Monitoring is a serious issue. Only through monitoring (not that you can do everything through monitoring) can we have hard feedback. Then as a design profession I think we'll go forward. I would also like to see you continue to focus on the award-winning projects with the analyses because I think through awards programs on the national level, you are going to be able to influence the integration of energy and the art of architecture.

Mendell: Well, we certainly felt we were sticking our necks out as well, and I must say that we got tremendous encouragement from the owner who wanted to have more objective information beyond the designer's making. As a sidelight (this gets into some of the evaluation on a post-occupancy basis), there is considerable concern on the owner's part as to how he really ought best to use this particular building to maximize its conserving potential. We've gone back to Vladimir to ask him to run a host of different kinds of use patterns to see what the effects of these might be, at least on a predictive basis. I'd say that owners probably do not have a very refined appreciation of the time and effort that is required to produce the data. I think it is something that will just come with time and continued exposure, but I have a couple of comments about the program itself in terms of its totality. I think the absence of including the basic building systems—elevators, escalators, fans, things like that—does tend to weaken the total presentation somewhat. One can make extrapolations, but it's not really playing with a full deck; I think that really perceptive and concerned owners will keep coming back with those kinds of questions.

As for the presentation in terms of its value to other people, either those we deal with on a professional basis or owners at large, I think frankly that you don't provide enough space. Vladimir is compelled to consolidate an enormous amount of information into such a small space that it can be very difficult to comprehend without explanation by someone who understands what the process was or the intentions of the graphs are. Once it's explained, there is enormous enthusiasm and then a real thirst for more information, which also because of space isn't there as well. So I would say from our experience that the program is very well received, but if anything, there is a desire for expansion.

Rush: Thank you, Mark. Now let's go on to Bob Peters.

Peters: Well, since our project isn't published, I can say anything I want to.

Rush: That's a very interesting place to be, because you might talk about some of the apprehensions you have.

Peters: I guess we're not going to worry about what you're saying, but since it's only a house, it may be a little different from analyzing the larger projects. I think that would be my first comment. How many houses do you want to do, or should the program constitute larger scale projects?

You did ask some questions about how the owners used the house, and we found just in the few projects that our new office has done that use has a great effect. I'm interested to see your numbers because we have two other sets of numbers from other sources. Since you interviewed the clients about two-and-one-half weeks after they had moved in, they probably weren't too coherent. Neither were we very coherent at that point, since all the floor tile had to be taken up and there was an inch of dust about two days before we started photographing.

From other houses we've done, we know that in practice the performance of the house is almost always different from what the data would tell us. In the case of a house in Santa Fe, it was considerably better, almost ten percent better than had been calculated. It is in part a function of the way the owners manipulate and control things and how many times a day they open and close the doors and do various things.

Some of the people in New Mexico in general are fiddling around with solar houses of the kind you usually see in the solar books with all the technological things hung on them. In basically old-fashioned building designs they are making a kind of fetish of this thing of manipulating and maneuvering the house. By opening and closing your skylid or pushing the button to have the Beadwall on or off, you are participating with the basic elements of nature, and that's the thing. From where I am, it's a fetish, and it's amusing to me because in a dozen years at SOM I could usually just jockey into position and get the right in-house engineer to push enough air around. I could do anything and he would justify it. So this new life out there is different to me. I'm not sure how important it is to your program.

We're trying to say that there is no option to building the kind of building we are building and that when the client comes and asks how much extra it will cost to make a solar solution, we say that the solar solution is what we do anyway. In the case of this house, the extra amount of money involved is probably four more inches of concrete on the south face than we would have had anyway and the cost of glass and frame for the trombe wall. It's a small percentage of the total. My view is that having the analysis in the magazine on a regular basis is simply reinforcing our position. This is the regular kind of process. Solar design is not a special design. Solar is not added to the architecture, it's part of it.

Weidt: I think the real value of the work that's published is to help develop designers' intuition on how buildings and what kinds of buildings use energy for heating, cooling, lighting, or whatever. On that basis I think it's extremely important. The buildings that have been selected thus far are exceptional buildings in many ways. Not all of us have an opportunity to design crystal cathedrals or whatever, and I think it would be useful if some examples were selected that in some sense were a little bit more conventional or that were a little bit closer to the kinds of things that many architects are working with on a day-to-day basis. It also might be useful to choose carefully some historic examples and model those. I'd like to see the Seagram building modeled and maybe some of Wright's or Sullivan's office work so we can get a historic perspective. That would be data that would help tune our intuition a little bit.

Francis: Well I can only really support your view to the extent that in our practice we find that immediately people want to tear down a building because it's old. We don't have an awful lot of data to refer to in order to demonstrate that this building is, by nature, energy efficient. We've been told, for instance, that one of the energy award winners presented yesterday was less efficient than the 1880s courthouse in the same town. Whether in fact that is true, we don't know. It's just a kind of scuttlebutt that goes around. We would like to have that data at hand. I think that the historic resource constituency can support it financially.

Weidt: There is something important that has been touched on in this historical analysis conversation. We have been predicting energy for a number of years now. We don't have any published data on how much energy buildings use. I would encourage you very, very strongly to ask your participants to return new data on actual energy consumption. This could include their analysis on why it is or isn't working or their amazement at the fact that it is as good as the machine said it was. I would really like to see actual energy consumption, because that is the bottom line. That's the beauty of the historical building. You've got the fuel bills.

Bazjanac: There is an associated problem which is really a big problem: when we run DOE-2 or any other simulation model, we run at a level where we have to make assumptions about its use, and I know that we can never duplicate through our simulation the actual measurement that you might have from an existing building. We can never duplicate exactly the logic of use that individuals make in that building, and it would be unfair to try to compare our simulation results to actual measurements. We are not essentially trying to estimate how much energy we think we are going to use. We are trying to estimate which decisions in the design process make more sense than others.

Participants

Vladimir Bazjanac, University of California, Berkeley; Dale Bentrup, University of California, Berkeley; Jean Boulin, DOE; James Boyce, D.F.I. Systems; Harvey Bryan, MIT; John Cable, DOE; John Clancy, Goody, Clancy & Associates; Sam Davis, University of California, Berkeley; John Eberhard, Architectural Research Associates; Charles Eley, Charles Eley Associates; Edward Francis, William Kessler & Associates; Sanford Hirshen, Hirshen Gamill Trumbo & Cook Architects; Dwight Holmes, Rowe Holmes Associates; Mike Jeroff, MIT School of Architecture and Planning; Chris Jofeh, ChemFab; Paul Kennon, Caudill Rowlett Scott; Ralph Knowles, UCLA; C. Levonne Laughinghouse, University of Wisconsin-Milwaukee; Thomas Marvel, Torres Beauchamp Marvel; Roger Mellem, Metcalf & Associates; Mark Mendell, Cannon Design; Murray Milne, UCLA School of Architecture and Urban Planning; Ibsen Nelsen, Ibsen Nelsen & Associates; Robert Peters, Alianza Arquitectos; Jim Russell, Honeywell; Richard Schoen, RSA Architects; Lora Spiller, ChemFab; James Stillwell, Owens-Corning Fiberglas; Thomas Vonier, Thomas Vonier Associates; John Weidt, John Weidt Associates; Larry Yaw, Copland Hagman Yaw.

The energy analyses are prepared in the Center for Planning and Development Research, College of Environmental Design, University of California, Berkeley; Vladimir Bazjanac, Ph.D., Project Director. The work is funded by the Buildings Division of the U.S. Department of Energy.

Weidt: That only applies when you actually know how well the building is doing in fact. I understand all the caveats you've got to throw in between this hypothetical or that real situation, but if all we have is hypothetical data, laboratory data, and if we don't know how it affects the actual performance of buildings in the field, it's meaningless. We're worried about saving energy, not about printing graphs.

Rush: I'd like to know how you research people feel about the project; what improvements do you see, or what flaws do you see?

Jeroff: There are really three pieces that could be discussed. One is the one that I think is well in hand, the actual analysis of the buildings. To do more there is really a matter of decision about having more spare money there, but that part seems in hand. There is the other question about getting more into how buildings are actually being used, and that's another series of research questions. I think someone made reference before to the increasing amount of post-occupancy research. The problem is that most of it is not being translated, or presented in ways that are really useful for architects. I think that part of the problem is not the research methodology; it's a journalistic problem. There is a third piece of research that is not going on. Paul Kennon mentioned that what was nice about the analysis was that it proved his design intuition. There is a ring to that I think we really have to think about. I think most architects will read research and somehow absorb it. We're not quite sure how that absorption happens, but perhaps we need to think about describing the process by which people put buildings together. I think this is not something new to anybody, but we always talk about evaluating the building. Well somehow when a building gets built, it's not just design intuition that God gave us; it's some kind of process that develops over time. It would be very nice to do some real research about indicating how people make choices and think about energy-conscious design.

Rush: Let's get back to the analysis per se. I want to know whether in your professional offices you are using energy analysis. Is there somebody in your office who does energy analysis, who reads this every month? Is this getting into the office on the desk of your draftsman? Do people know that energy analysis is being given in P/A and sponsored by DOE? Does it help?

Clancy: I think very much so. We have a very typical, medium-size office with a variety of sizes and types of projects; our staff has quite a few younger people. It's very hard to hang onto P/A when it comes in; the issues in the library are gone. They take them to lunch. The thing that is important to us is that the energy analysis being published has made everyone much more aware of the elements of the analysis. Our designers at the initiation of a project are not only talking proportion and scale; we are also talking shading and all the various components that go into making the building more energy efficient. I think the thing that is important to us is that the energy analysis does appear regularly. When people read it continually, it can become part of their intuitive design problem. Which is what it should be.

Holmes: There seems to be quite an intensity certainly among the younger practitioners. They seem to be more aware, more sensitive to it. Perhaps they started to achieve some educational incentive through training to become involved in energy analysis. I think the younger persons in our firm are certainly more involved and are more eager to become involved in every issue, and that's very encouraging.

Mellem: I think both these gentlemen have spoken words for me because that's exactly the pattern I have seen in our firm, and I'm very happy to see it develop. Unfortunately I think some of the older ones of us in the firm don't pay as much attention as the young people with hands on these projects actually do. I think we also have tended, over many years, to rely heavily on our consulting engineers to give us a little bit more lead than we should have ourselves. I was encouraged mightily by several of the people who, knowing that I was coming here to participate in these energy sessions, asked that I bring back as much as I could. It's a healthy sign.

Nelsen: Well, I wanted to make some comments. The kind of sophisticated buildings that we are into today, of course, require these kinds of analysis. There isn't any other way to do it, I think, and be responsible. But it reminds me of a friend of mine that has a long-tailed cat. I went over to see him one day and the cat had a short tail and I said, what did you do to that cat? He said, well I cut his tail off. I said, what did you do that for? He said, to save energy. It took the cat too damn long to get out of the door in the morning. So this is what the perspective is, and I'm a little bit worried. There are so many issues in our picture that I'd hate to see P/A devote so much to energy that all these other issues are left out. We can't as architects forget that there is a perspective on what we are doing. I think that we have to be responsible to the energy, but I think we also have to realize that there are a lot of other issues we need to know about, and I hope the magazine can keep on showing the other things. □

The specific questions addressed to the attendees were as follows:

1 Should DOE continue to fund such research?

2 Should P/A continue to publish it?

3 How can we improve the selection of buildings?

4 How can we improve the architect/analysis interface?

5 Do the readers understand the analysis?

6 Do architects use the analysis?

We have published the selected comments here for two purposes. One is that we are pleased with the overall quality of them and the response to the analysis they represent. The other is that we hope they will stimulate reader response on the very questions printed above.

What is your response to the Energy Analyses P/A has published over the last several months? Responses should be addressed to:

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Senior Editor
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Stamford, Ct 06904

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Keeping up

William T. Lohmann

Technological developments demand vigilance on the part of the specifications writer. It is an awesome task. Think about it. Toffler is writing about the "Third Wave" and most of us have not yet surfaced after the second.

One theme which has recurred many times in this column is "constancy of change"—a seeming contradiction of terms, but apparently the legacy of our generation and those to come. We are overwhelmed with new, untried, unfamiliar products. We feel hemmed in by burgeoning legislation and code requirements. We sense that changes in professional practice are imminent, but we do not know what they may be.

Building products—the "raw" materials of our craft—are changing dramatically for several reasons. Technological innovations by the sealant industry have produced catalyzed and moisture-curing elastomeric materials. Environmental concern over lead and aromatic solvents has forced the coatings industry to reformulate most paints in the last ten years.

Product quality and workmanship in the built-up roofing industry are partially responsible for our roof problems, the greatest source of claims against architects in the United States. And it may be leading to another revolution. In December 1980, the National Roofing Contractors Association published a list of 33 single-ply roofing manufacturers, but informal reports from the latest NRCA convention count over 120 producers. The major single-ply roofing manufacturers anticipate a 35–40 percent slice of the roofing market by the mid-1980s, up from 1 percent in the mid-1970s. Somehow the situation is reminiscent of the plastering industry's shift to gypsum board systems.

The impact of legislation has been no less significant. OSHA requirements introduced in 1970 changed basic design precepts and construction methods. The 1977 safety glazing standard promulgated by the Consumer Product Safety Commission affects almost all remodeling and new construction today. In spite of efforts to consolidate requirements for building accessibility by the handicapped, we presently contend with different standards from four major federal agencies. Energy conservation legislation continues to evolve.

In our offices, the changes caused by automation, foreign work, and eventual conversion to the metric/SI system are only beginning. Probably at no time in history has the impetus toward the unknown been so great.

Problems arise because change directly affects the quality of our services. Small wonder that the possibility of error in our documents is increasing. Less wonder that the litigation industry is moving rapidly to expand our professional liability through extension of product liability doctrine and implied warranties of habitability.

Unfortunately, risk increases in two directions—getting too far ahead of current practice and failing to keep up with an accepted norm. The first can be partly offset by doing more research, improving our quality control methods, and transferring increased risk to (or at least sharing it with) the contractor, manufacturer, and owner. But falling behind is difficult to explain in court.

Help is available. The American Society for Testing and Materials, American National Standards Institute, and many trade associations publish current consensus standards which, when used properly, are recognized as part of the norm of professional practice. The Construction Specifications Institute sponsors the "Spec-Data II" microfilm system of building product literature, which is updated regularly. Master specification texts with professional monitoring are available through CSI and the American Institute of Architects. Insurance company bulletins urge us to develop effective quality control programs, establish technical libraries, and pursue continuing education resources.

Continuing education may be the best thing we have going for us. An incredible number of publications, technical meetings, management seminars, university classes, and product exhibits are available. Some are geared for the beginner, but most benefit the practitioner. If time is short, intensive short courses may be the answer. If travel is a problem, consider using cassettes and videotapes. Or organize regular product presentations and discussions within your office. But do it.

Self-education will continue to be voluntary for some time. States that now require education credits for renewal of professional registration are moving slowly on their programs. AIA debated, and rejected, the idea of continuing education as a basis for renewal of membership. CSI also dropped its original intent to require evidence of continuing education and professional development for renewal under its certified construction specifier program.

So it is up to us. And many of us have a long way to go simply to catch up, let alone keep up, with our industry today. □

William T. Lohmann, AIA, FCSI, is Specifications Manager for Murphy/Jahn, Chicago.

Elderly research

Books

Inquiry by Design: Tools for Environment-Behavior Research *by John Zeisel. Monterey, Ca, Brooks/Cole Publishing Co., 1981. 250 pp., illus., paperback, $8.95.*

Reviewed by Gary Hack, associate professor of Urban Design and director of Environmental Planning and Design Program, MIT.

John Zeisel's book appears at an important time for environment-behavior research. Just when the field has become a respectable dimension of architectural practice, a number of architectural schools are quietly abandoning the teaching of behavioral subjects. Zeisel no longer teaches at Harvard, and no replacement has been appointed. Because his book summarizes so clearly what the field stands for and can offer to practitioners, it provides a chance for stock-taking about the apparently short-lived affair between designers and those who inquire about the suitability of places.

New intellectual fields generally emerge either out of a belief that there are better ways to pose and address old questions or because an established discipline has no way of answering new questions served up by society. A little of each was behind the migration of social scientists into the architectural realm. The newly arrived argued that if buildings and other environments were seen as behavioral settings, not simply objects with surfaces and structure and atmosphere, a new kind of knowledge was needed to ensure that they suit their occupants. There were plenty of examples where the longstanding way of designing had failed: abandoned public housing projects, college dormitories resisted by even the most pliable students, vandalized school buildings, vacant and threatening open spaces, and other forms of architectural litter wherever one cared to look. The message of social scientists was that dependable knowledge for architectural decisions could only be had through careful inquiry, and methods could be borrowed from the laboratory and the academy to fit the task. Since few architects had the time or inclination, not to mention resources, to engage in what was considered respectable research, the tacit assumption was that behavioral specialists would be needed as part of the architectural team whenever human performance really mattered. And designers were chided for even supposing that it didn't matter most. Hence the slogan of "interdisciplinary collaboration" became an article of faith.

But environment-behavior research also filled a gap created by the emergence of new buildings types. Government sponsorship of elderly housing, homes to deinstitutionalize the handicapped, community mental health centers, transitional and congregate housing, and new types of hospitals created the need for guidance about both programmatic and environmental decisions. Many of the large-scale studies done to understand the environmental needs of special groups were difficult for designers or policy-makers to comprehend, and were equivocal when it came to prescriptions. But they spawned a cottage industry among more venturesome social scientists who engaged in the production of design guidelines. Thus the collaboration between social scientists and designers was vicarious, but an engagement nonetheless.

Inquiry by Design chronicles the work done from each of these vantage points through the rich array of examples in-

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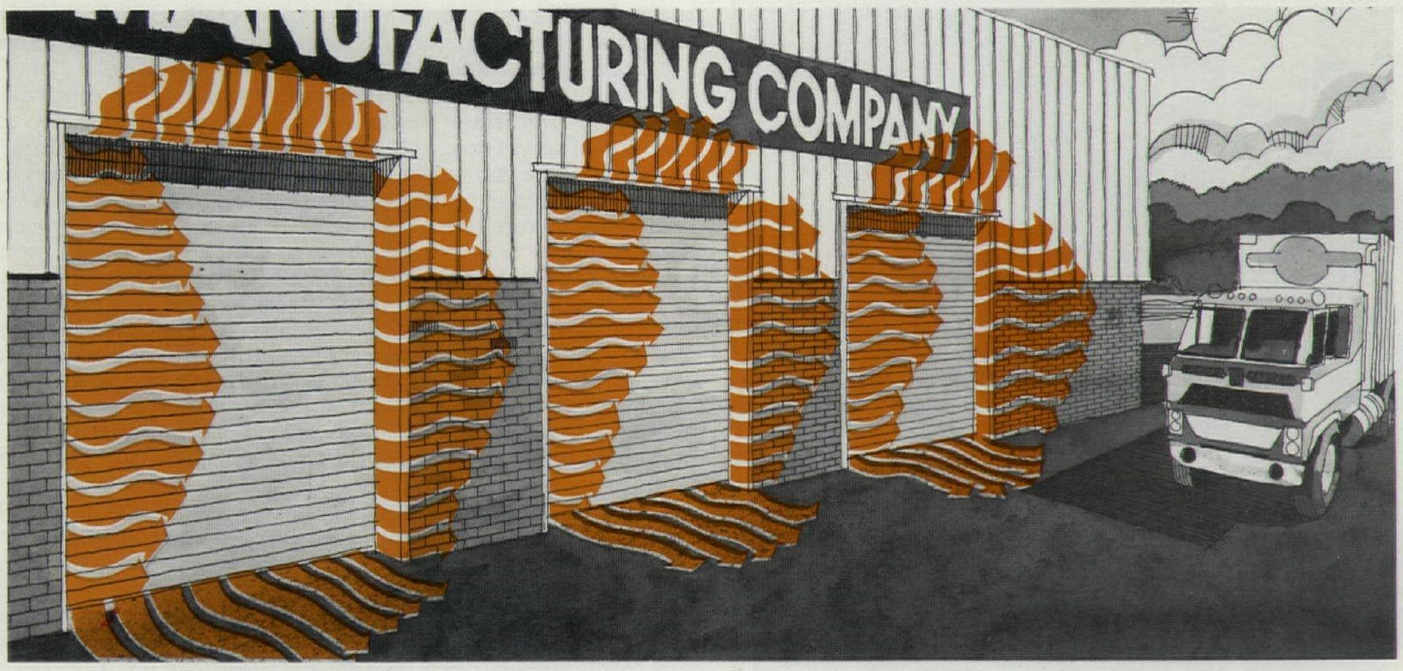

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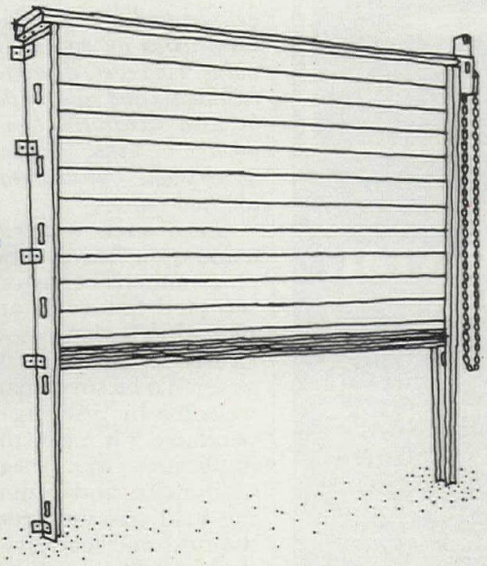

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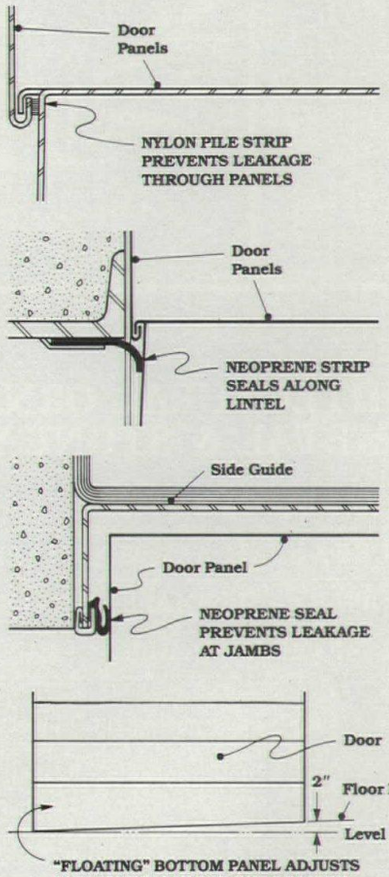

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Books continued from page 110

cluded between its covers. In one way, it is a traditional book on environment-behavior research methods: seven of its twelve chapters are devoted to questions of research strategy, assuring research quality, and the variety of methods which can be employed to collect data and make sense of it. But what makes it different from other books on methods is its constant emphasis on what designing might do with the information obtained—the practical consequences of inquiring.

Thus, the book is about inquiry *and* design, not simply the design of inquiries. Design, Zeisel suggests, ought to be thought of as a form of inquiry and organized accordingly. Research, to be consistent, should always be designed with the uses of knowledge in mind. Chapter 1 outlines what we know about how designers' minds work—how they image, present, and test ideas. It is followed by a chapter which draws parallels with the work of researchers when they develop concepts, draw hypotheses and test them. Meshing the two endeavors will not only assure researchers an audience, Zeisel notes, but also will improve knowledge by providing the opportunity to use buildings for testing theories. All this is said plainly, yet laced with references to much of the published literature and to many projects where collaboration has been fruitful. It makes the book equally useful as a handbook for designers and for researchers.

Part II of *Inquiry by Design* breathes life into the dusty subject of research techniques and compiles in one place the variety of methods that have proven effective for examining the fit between people and their settings. It provides a way to think about each technique and when it might be useful, offers examples of how it has been used and what was learned, and coaches researchers on the subtleties which may make or break the endeavor. The writing shows the mark of an experienced hand who is creative in his choice of technique, but not overawed by technical virtuosity.

In a nutshell that is the message of the book: that the test of research methods is the difference they can make for designing.

"If you see research and methods as nothing but a set of clearly defined and highly valued rules, you can easily begin to carry out research as an end in inself—that is, as if the rules had intrinsic value. However, if you realize that research methods, quality criteria, techniques and rules of thumb have been made explicit so that they can be used selectively, then they become useful tools." (p. 229) *"So what?"* he asks. *"The payoff is the prospect of improving tools as well as decisions, but that requires researchers and designers to join in a common inquiry."*

Since such a perspective appears sensible, if not self-evident, it leaves one grasping for explanations for why environment-behavior research has not become a universally accepted fixture in architectural curricula. The obvious explanation is that research in the area has not always been as clearly connected to the issues of form-making as Zeisel proposes. To be sure, many social scientists have overstayed their welcome by insisting to the end that knowledge is only dependable if it meets the tests of scholarly publications and, by implication, that designers are irresponsible by acting largely on hunches and intuition. A quite opposite explanation is that the field has succeeded in what it set out to do: that practitioners and teachers of architecture have skimmed off what they consider useful from the repertoire of social research and see no need to continue a dependence on specialists. Certainly many architects who engage in programming adopt such a view as do many who have centered their design practice in groups with special environmental needs.

But I think the more powerful explanation rests with the changing preoccupations of the field of architecture itself, especially in the rediscoveries that buildings can have second and third lives, that people look to their environments for illusions as well as certainties, that places can elevate exierience as well as accommodate routines. Notions such as these are curiously absent in both text and examples in *Inquiry by Design,* as from most of the research in the environment-behavior patterns. Social relationship subtly encourages the design of "tight-fit" environments. There is no recognition that buildings as well as people have histories, and that the

[*Books continued on page 114*]

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The knowledge business

Books continued from page 112

latter may be more changeable than the former. "History" warrants no mention in *Inquiry by Design,* nor does "economy," or "symbolism," or "allusion."

In one sense, it is unfair to ask social scientists to shift their ground with each new fashion in a field which prides itself on constantly changing. They have made their point: that environments have direct consequences for their occupants and that more than casual empiricism is needed if they are to be understood. John Zeisel's book provides tools for inquiring about what matters most to those affected most immediately. But the field of environment-behavior research runs the risk of calcifying if it cannot extend its horizons beyond poured-in-place sociology. For architects, there are equal dangers in neglecting the role which research can play in informing their work.

Designing for Aging: Patterns of Use *by Sandra C. Howell. Cambridge, The MIT Press, 1980. 392 pp., illus., $25.*

Reviewed by Thomas O. Byerts, AIA, director, University of Illinois Gerontology Center, and associate professor of Architecture, University of Illinois Circle Campus.

The lively quilt-and-graph-paper montage printed on the book jacket sets the tone for this informative mosaic of a publication entitled *Designing for Aging: Patterns of Use.* The many observations, techniques, and recommendations gathered from various sources and contained in this volume are based on extensive research studies of public housing for the elderly. These studies were conducted over a five-year period by the author, psychologist Sandra C. Howell, and her associates at the Department of Architecture, Massachusetts Institute of Technology.

The work was begun in 1974 during the author's fruitful collaboration with M. Powell Lawton, director of Behavioral Research for the Philadelphia Geriatric Center. Together they resurveyed 53 public housing sites sampled by Dr. Lawton in 1971. They included a new component evaluating the HUD Minimum Property Standards. These findings and two other in-depth studies of public spaces and private space in selected buildings in the Boston area, directed by Dr. Howell, form the core of *Patterns.* Together they add significantly to our body of knowledge about apartment living for the elderly with specific reference to the public housing scene. Broad-based design decisions and minor details often overlooked or considered insignificant are explored, lending new insights. The two major case studies presented in *Patterns*—"Shared spaces" (the behavioral implications drawn from the comparison of three similarly designed but slightly different sets of public spaces) and "Private space" (Research award, P/A, Jan. 1979, an in-depth study of living and furnishing patterns of older people in 55 efficiency and one-bedroom apartments) were each published previously by Dr. Howell as monographs. The author "knits" them together with new information, and the collective impact forms an important new contribution to the field. Publication in the hard-bound format adds to the permanency/accessibility of the material.

The book demonstrates that a pragmatic approach to environmental psychology can generate hard and useful information on a wide spectrum of subjects. Major themes deal with issues of livability, sociability, and furnishability as determined from buildings in use. Subject matter ranges from site-planning issues to specific design details to room layouts. Even with this strong emphasis on the physical environment, a humanistic concern for older people is evident throughout the work.

The content of *Patterns* is confined specifically to research on and design of public housing for the elderly. Much of the information and many of the research and design principles described here, however, could prove useful to other forms of elderly housing and for considering generic issues affecting housing in general.

Throughout *Patterns,* the great variety of the elderly (people become more different from one another with age) and concomitant need for a diversity of design responses is

[*Books continued on page 116*]

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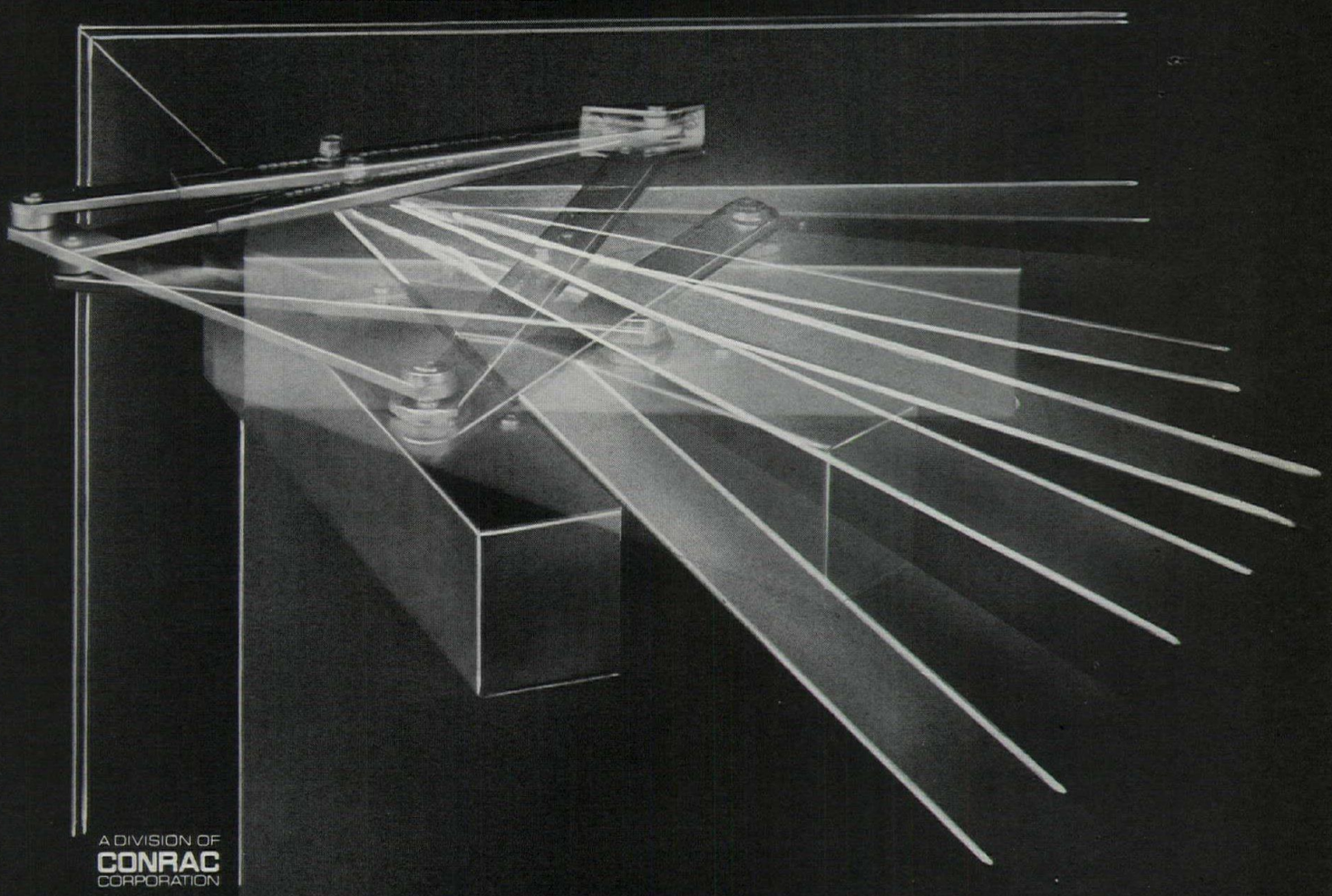

A DIVISION OF
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Books continued from page 114

stressed. Examples and interpretations taken from the surveys, interviews, and observations conducted by Dr. Howell provide the bases for the findings. Use of excerpts from interviews and illustrated case histories serve to personalize the data and speak to the breadth of need. A discussion of research techniques and performance-based design guidelines is included. A number of drawings and photographs further illustrate the text.

Patterns is really designed for a multidisciplinary audience of designers, researchers, and developers who have at least an intermediate exposure to environments and aging in general and knowledge of the constraints of public housing in particular. With such a background, the assumptions and findings highlighted in the text can be tested against readers' past experience. On the other hand, the novice should find the work interesting but perhaps not so useful as a more basic text or overview that presents theory and background on the entire spectrum of environments and aging.

Dr. Howell has wisely avoided the trap of prescribing solutions for architects. Instead, she lays out a series of informative and provocative concerns and options. Guidelines are presented, and examples about pieces of the environment are displayed for the reader, although an integrating framework would have been useful.

Researchers and developers representing the other half of the primary audience for *Patterns* should also find the volume valuable. Many environmental issues taken for granted by architects are made more explicit for the benefit of researchers and developers. Methodology and techniques are discussed, though not in the depth of a scientific paper. A minimum of statistics is employed, and many relationships are diagrammed or otherwise illustrated. Also, the extensive research instruments are included in the appendices for review and potential use in larger collaborative efforts.

While neither designer nor researcher/developer may be fully satisfied with *Patterns*, the volume does offer a great deal of good information to both camps. The mystique of scientific writing is overcome for the benefit of all. The sacrifice is clear documentation of the specific application of findings or method for weighting the many recommendations. Therefore, the readers must rely on the author's good judgment for the synthesis from research data to design parameters. Then it is up to the readers to apply the content to their own situations.

On the pragmatic side, some additional editing was clearly in order. Hard-bound books with typed formats can cut publication time and expense. However, *Patterns* lacks unifying graphic style and editorial consistency. The table of contents is distracting, since some of the subheads do not synchronize with the text, nor are they numbered. Since the two major chapters are 90 and 101 pages respectively, intermediate page designation would be most welcome. The table of contents for the extensive 80-page research-oriented appendices is more detailed, but hard to find in the back of the book. The research material is also not well marked. A modified layout for the 392-page publication could have saved at least 25 pages and their associated costs.

On a more substantive level of criticism, some of the case study material and floor plans describe a number of obvious and, at times, age-irrelevant points. While this may demonstrate that good design for the aged is good design for other groups (though the converse is not necessarily true!), age-irrelevant material does take valuable space. On the other hand, errors of omission might have been worse. Finally, the links between raw data and design recommendations cannot be traced.

Dr. Howell calls for combining findings from a variety of research-based sources so that a solid data base can be developed. This can be used to supplement traditional design determinants, such as codes and standards, economics, architectural dogma, and stereotypes based on biased samples and limited experiences. Accordingly, a better understanding of and hence improved quality of the built environment should emerge for the elderly. This approach should be a fruitful model for other populations as well. It is hoped that this book can stimulate such an effort. □

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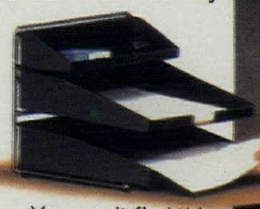

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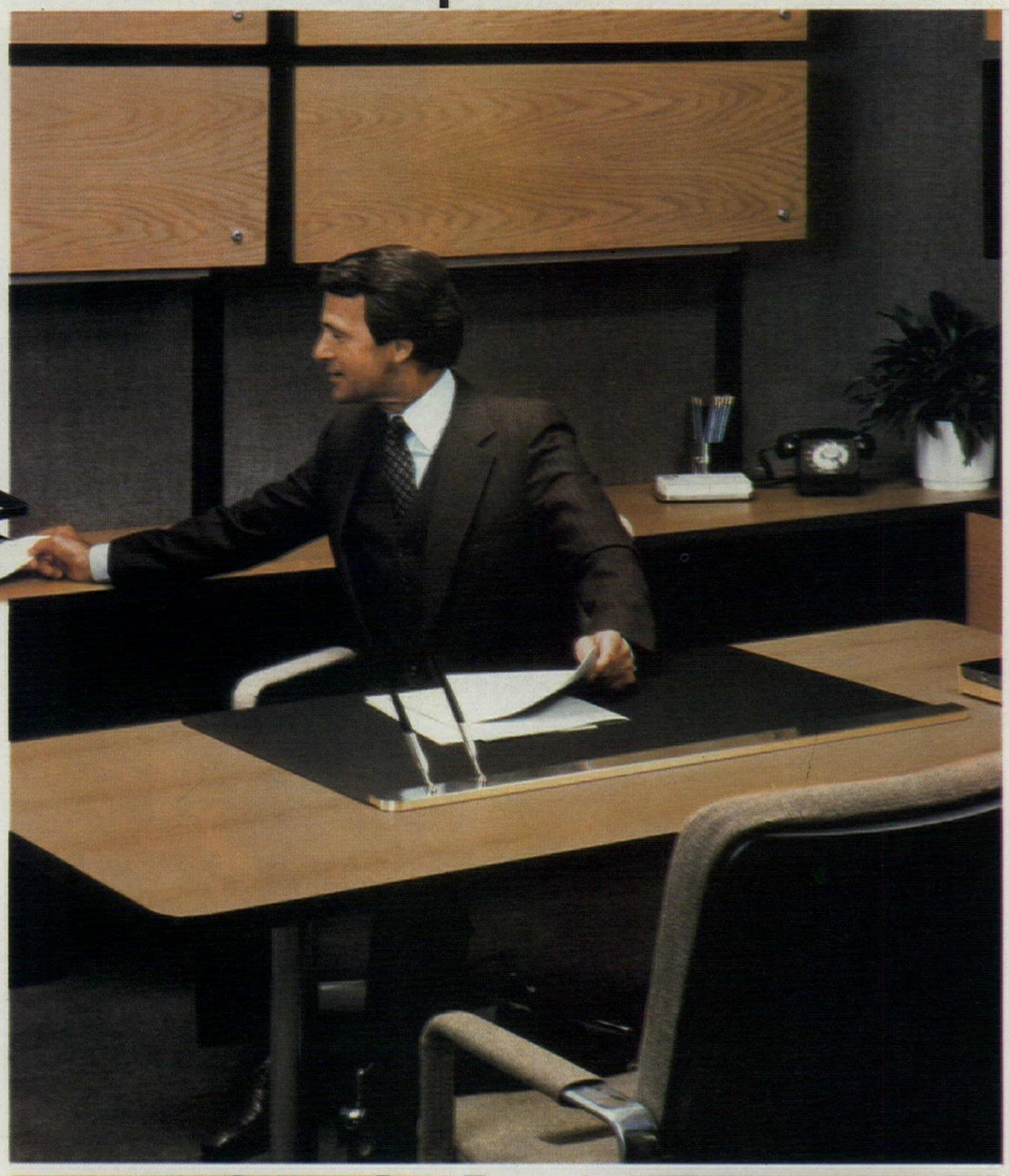

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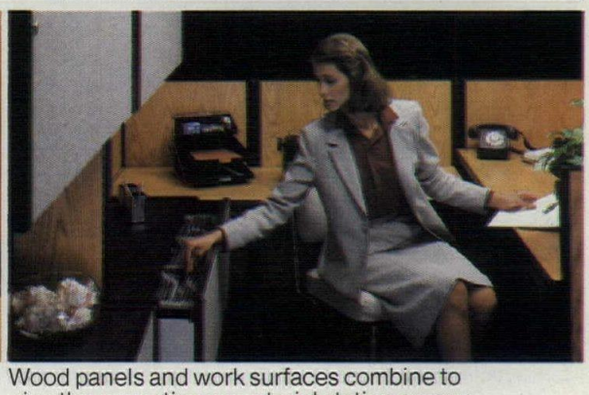

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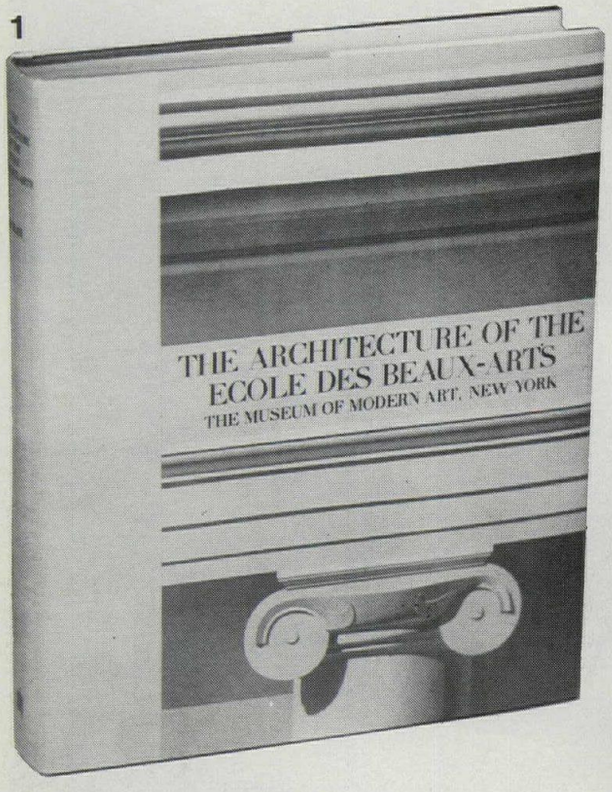

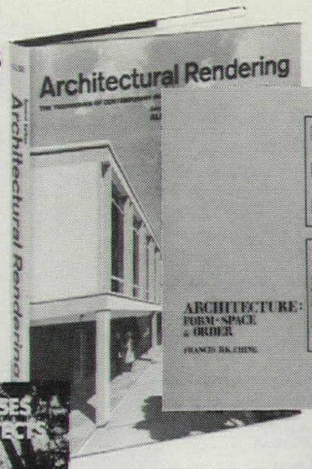

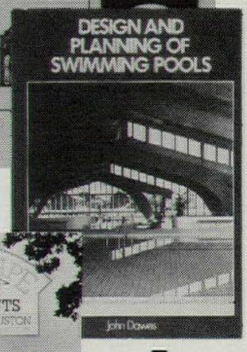

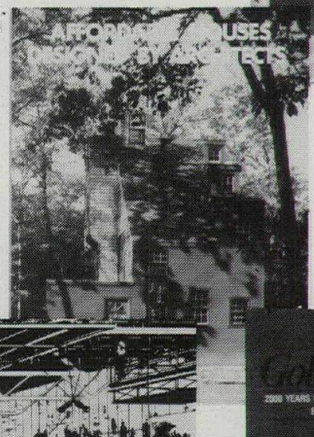

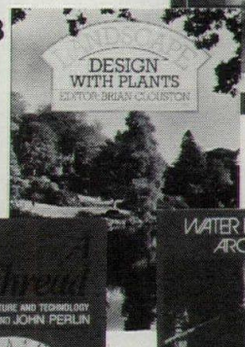

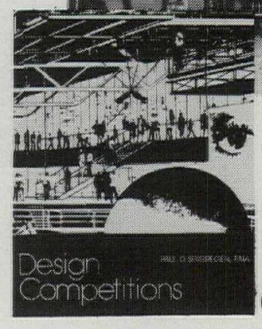

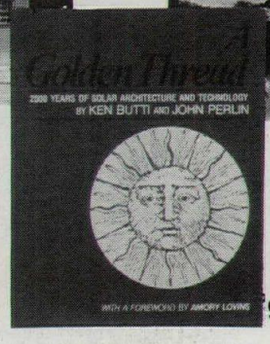

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Coming next month

P/A in September: Interior design

Jayme Odgers

The China Club by Sampei Abe.

An architectural dig into the present will be the subtitle of P/A's big September special issue on interiors. Interiors on the very frontier of today's design thinking will be analyzed as physical evidence of the state of our culture today. Brief essays by a variety of culture watchers will further illuminate these connections.

Technics for September will take up the possibilities for Insulating with Windows, showing that prevalent impressions about the energy performance of windows can stand to be radically updated.

P/A in October will concentrate on the latest manifestations of a return to Classicism in design. Our Classical heritage is being resurrected by architects here and abroad in ways that range from reverential to freewheeling, as indicated by the striking current examples to be featured. A major Technics article will explore the evolving properties and applications of Plastics.

Products and literature

Products

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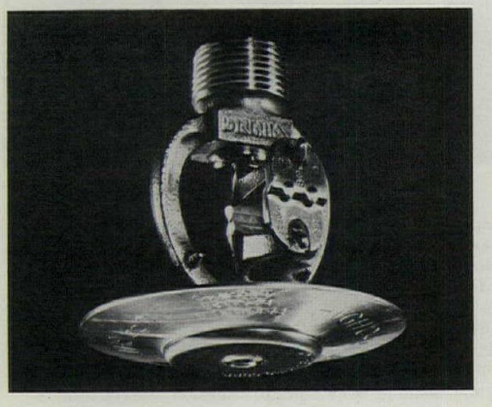

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The Signa System is a method for converting single-glazed windows to insulating glass by adding spacers and an additional sheet of glass. The conversion is usually done from the inside, with the perimeter of the added glass hermetically sealed by means of rubberlike material. Insulation is provided against both heat and sound. Scandinavian Insulating Glass of North America.
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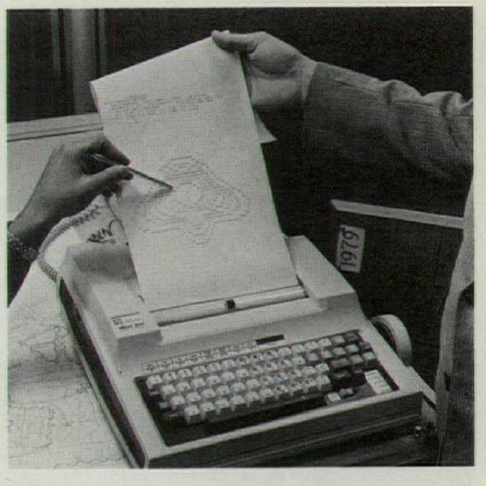

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An architectural accounting software package for DEC computers performs payroll, payables, and receivables functions. It provides detailed reporting by month, project, and year to date for comparing billings and expenses with the project budget. It also provides a history by project, division, account, and state. Frontier Management Systems.
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HP-400 Thermal Slot ribbon window system is a single-piece system with multiple slots punched into the web connecting inside and outside members. The air slots reduce connecting metal, minimizing conduction of heat and cold. The system is designed for use as horizontal fixed ribbon windows, vertical strip fixed windows, or as individual units for punched openings. Howmet Aluminum Corp., Architectural Products Div.
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Products continued from page 122

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Therml Impac™ Panel is made up of polystyrene foam strips reinforced with wire trusses spaced on 2-in. centers. The wire projects approximately ⅜ in. beyond the face, forming embedment for a ⅞-in. portland cement plaster finish that is applied to the face after panels have been erected on site. Panels are 4′ x 8′ and have a nominal thickness of 3 in., making a 4-in.-thick finished wall after application of plaster. Covington Technologies.
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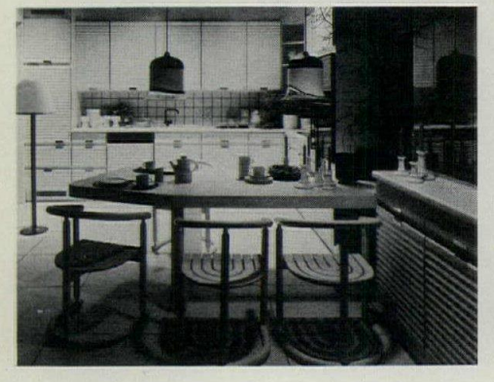
Literature

'Low Rise Housing for Older People: Behavioral Criteria for Design' (150 pages) is written to be understood by laypeople as well as those involved in design. It discusses areas progressing from the private unit, through shared areas within the housing facility, to accessibility to the community. It was researched and prepared for HUD by Zeisel Research, Cambridge, Ma. For a copy, at $3 each, order Stock No. 023-000-00434-8 from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.



Kitchens in white, wood-laminate combinations, modern style wood, and period style wood are illustrated in color in a 104-page catalog. Complementing the kitchens are "Zeiloset" dining tables, chairs, and bar chairs and the "studio a" ceramics collection of tiles, function tiles, and tableware. Request a copy of the 104-page 1981 catalog, on professional letterhead, from allmilmö corporation, 70 Clinton Rd., Fairfield, NJ 07006.

'Galvanized Steel vs. Wood Framing Systems' compares materials and labor costs of home framing systems of wood with those of galvanized steel. One-story, two-story, and bilevel houses are studied. Comparative costs of building these three typical homes in six cities are shown in tabular form in this 12-page brochure. Zinc Institute, Inc.
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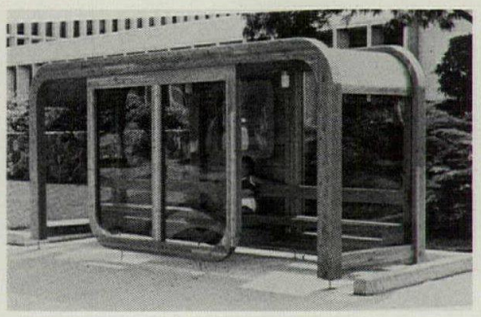

Site furnishings, illustrated in an eight-page, full-color brochure, include wood benches, kiosks, litter containers, planters, and Kinnebrew™ shelters. The products have all-weather finishes. Modular shelters, up to 160 sq ft of shelter per module, can be expanded to meet a variety of needs. Scyma Div., Michigan Industrial Packaging.
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Solakleer™ clear, low-iron flat glass, which transmits up to 91 percent of solar energy, can be used for passive and active solar systems. A data sheet provides information about spectral transmittance, physical properties, and specifications. General Glass International Corp., Solar Glass Div.
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Aluminum trusses for solar collectors are described in a four-page brochure. Drawings show construction of trusses, flange details, span supports, and the position of collector panels on the trusses. Pfaff & Kendall.
Circle 203 on reader service card

Drafting paper catalog in a looseleaf format includes unruled, graph papers, logarithmic forms, metric profiles, and others. Catalog pages are samples of the papers offered and include descriptions, specifications, and prices. A list of compatible pencils, ink, erasers, typewriter ribbons, and tapes is provided. Clearprint Paper Co.
Circle 204 on reader service card

A stained-glass window folder illustrates in color various installations to meet specific conditions. Contributions of client, architect, and glassman are discussed, along with factors affecting decisions about color and design. Rambusch.
Circle 205 on reader service card

Single-ply synthetic rubber roofing systems and their advantages are described in a 20-page guide entitled "A good roof is one you can forget." Illustrations show methods of installation and buildings on which the roofs have been in use for some time. The brochure discusses three systems: loose-laid, partly adhered, and fully adhered. E.I. du Pont de Nemours & Co., Inc., Elastomers Div., Polymer Products Dept.
Circle 206 on reader service card

Vinyl and textile wallcoverings, produced by Viscom in Holland, are described and shown in a full-color brochure that also includes samples. Textiles include wool, linen, silk, and cotton, either coated or paper-backed. A list is provided of installations in buildings in many countries, along with illustrations of several typical settings. Vescom B.V., Gilford, Inc.
Circle 207 on reader service card

Snap-a-Pleat® drapery systems consist of track, traversing hardware, snap tape, and draperies, with optional liners. The tape provides four points of suspension for each pleat. The system is described and illustrated in a four-page color brochure, which also provides specifications. Baker Drapery Corp.
Circle 208 on reader service card

'Saving Lighting Energy,' a six-page brochure, discusses various types of lighting products and their efficiency. It explains how residential and industrial users can calculate lighting costs and describes incandescent, fluorescent, and high intensity discharge light sources. GTE Lighting Products.
Circle 209 on reader service card

Air-handling systems reviewed in a four-page brochure are designed especially for commercial use. The brochure discusses Z-Duct® air-to-air heat exchanger and Z-Pack packaged heat recovery system features, lists typical applications, and provides suggested specifications. Des Champs Laboratories, Inc.
Circle 210 on reader service card

Insul-8 preinsultated piping has an outer jacket of PVC, steel, coated steel, aluminum, fiberglass, stainless steel, or polyethylene. Urethane foam insulation, 1 in. to 5 in. thick, separates the outer jacket from carrier pipes, which can be copper, steel, aluminum, PVC, fiberglass, or stainless steel. The piping is described in a 16-page brochure that includes case histories of its use in domestic hot water systems, chilled water systems, solar heating systems, and others. Rovanco Corp.
Circle 211 on reader service card

Water coolers in four similar models are compared for energy use, initial cost, and life-cycle costs at various electricity rates. The four-page brochure explains test methods, extrapolations, and factors considered for the eight-gallon,
[Literature continued on page 126]

. . . For High-Rise Buildings Using Gail Brickplate Panels in Steel Stud Framing!

This new prefab system offers "Mercedes-Benz quality at VW prices."

Basic elements are shown in the cutaway drawing. Significant advantages are obvious: • Tons of expensive design deadload and structural mass are eliminated since panels weigh 80% less than precast concrete • Significantly less expensive than glass or aluminum curtainwalls • Eliminates costly scaffolding • Provides a chase for pipes and wiring in exterior walls for faster, more economical installation • Virtually maintenance-free—no painting, sandblasting, acid-cleaning • Work proceeds regardless of bad weather since panels are assembled in an enclosed structure • Excellent insulation values, energy efficient.

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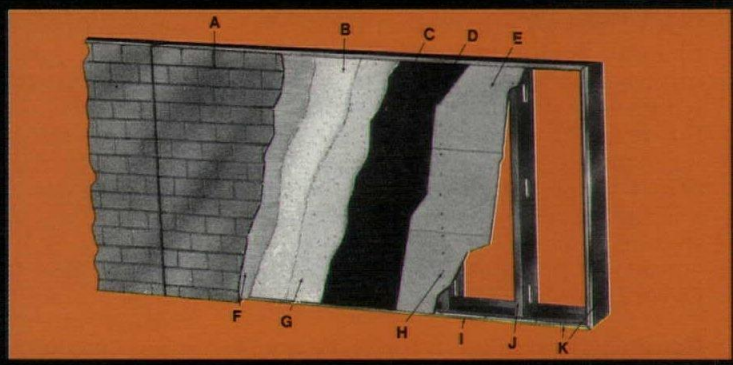
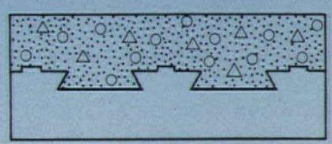
A. Gail Brickplate Tile (Keyback Design) **B.** $\frac{3}{8}$" leveling coat of cement plaster with latex and chopped fiberglass strands **C.** 3.4 lb. self-furred Diamond Mesh Metal Lath (galvanized or painted where rust-resistance is required), secured to studs with self-tapping screws (washers optional) **D.** 15 pound tarred felt stapled to gypsum board **E.** Tongue and groove asphalt impregnated $\frac{1}{2}$" thick gypsum plaster board (Installed horizontally, tongue up) **F.** $\frac{1}{4}$" latex modified portland cement, scored, toothed, troweled **G.** $\frac{3}{8}$" scratch cement plaster **H.** Gypsum board screwed to steel channels **I.** $1\frac{1}{4}$ inch plaster stop, tack screwed to frame 12" on center **J.** 16 gauge steel channels, 16" to 24" on center **K.** 18 gauge welded 2" x 6" steel channel frame



CERAMIC TILE EXTERIOR - PRE-FAB ECONOMY



Frostproof Gail Brickplate is permanently locked into panels with keyback ridge design

The spectacular new Lincoln Court Building, Denver, Colorado. Architect: McOG Associates (Denver); General Contractor: Turner Construction; Tile Contractor: Ace Tile & Terrazzo (Denver).

Literature continued from page 124

wall-mounted models. Halsey Taylor Div., King-Seeley Thermos Co.
Circle 212 on reader service card

'APA Design/Construction Guide: Residential & Commercial' incorporates information about performance-rated panels and design and installation data for residential and commercial floors, walls, and roofs. The 60-page guide also offers recommendations for finishing and information about specialized panel systems, such as fire- and wind-resistant construction. American Plywood Assn.
Circle 213 on reader service card

Ceramic tiles suitable for walls and/or floors include Atomar, nonfrostproof; and Atomar S and Marsint, both frostproof grades. Weights vary from those for light residential use to one commercial grade suitable for heavy foot traffic. A 20-page brochure provides general product descriptions, technical characteristics of each type, conformance with applicable standards, and suggested architectural specifications. Marazzi USA.
Circle 214 on reader service card

'Redwood Lumber Grades & Uses' is an eight-page brochure illustrating in color the various grades of redwood and including an explanation of patterns, grains, and textures. There are also several color photos of typical uses of redwood. Other literature available listed includes data sheets, construction tips, grades, properties, uses, finishing, nailing, and design ideas. California Redwood Association.
Circle 215 on reader service card

'Color, Form & Texture in Architectural Precast Concrete' illustrates the choice of colors and surfaces available with precast concrete. Several buildings constructed with a variety of concrete forms are also shown. The text discusses factors affecting the selection of shape and form details. Preco Industries, Ltd.
Circle 216 on reader service card

Western Red Cedar mill directory lists 18 manufacturers in the U.S. and Canada and their sales offices. It indicates in tabular form which mills produce clear siding, clear paneling, knotty specialties, and framing lumber, with notations of special services. Western Red Cedar Association.
Circle 217 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.

Captain Clarence Eldridge House, Hyannis, Ma (p. 64). *Architects: Barry Korobkin, John Zeisel, Eric Jahan; Donham & Sweeney, associated architects, Cambridge and Boston, Ma.* Vinyl siding: Mastic. Gypsum drywall: U.S. Gypsum. Windows: Andersen, Wes pine. Skylight frame: Janco; glazing: CY/RO. Pine doors: Brosco. Floors: resilient flooring, Armstrong; ceramic tile, American Olean; carpet, Gulistan. Asphalt shingles: Bird. Insulation: Dow, Owens-Corning Fiberglas. Paint: Benjamin Moore. Locksets: Almet. Kitchen equipment: G.E., Hobart, Broan, Thermadore, Crown, KitchenAid, Hotpoint. Security: ESB Corp., Simplex. Elevators: Payne Elevator. Lighting: Lightolier, Benjamin, Litecontrol, Alkco. Plumbing and sanitary: American-Standard, Symmons, Delta. Grab bars: Bobrick. Bathroom accessories: Hall Mack. Shower floors: Fiat. Heating: Hydrotherm Boiler, Dunham-Bush, Beacon Morris. Room thermostats: Honeywell, Braukmann. Exhaust fans: NuTone.

Woolf House, San Francisco, Ca (p. 72). *Architects: Robert Herman Associates, Inc., San Francisco.* Concrete mat foundations and concrete frame: Rhodes & Jameson. Steel reinforcing: Bethlehem Steel. Concrete wall surface and plaster: Portland Cement. Gypsum board partitions: U.S. Gypsum. Aluminum frame windows with baked enamel finish: Rusco Industries. Anodized aluminum skylights: Aluminex Co. Oak doors: Beaver Lumber Co. Anodized aluminum doors: U.S. Aluminum Corp. Exposed aggregate exterior paving: Livermore Aggregate. Ceiling surfacing and roofing: U.S. Gypsum. Built-up roofing: Johns-Manville. Caulking: Vulkum. Rigid insulation: Owens-Corning Fiber-

[*Building materials cont. on p. 128*]

Roof for roof, synthetic rubber sheeting is today's solid investment.

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Building materials cont. from pg. 126

glas. Roof and deck drainage (lightweight concrete): Elastizell Corp. Steel stud and gypsum board partitions: U.S. Gypsum. Exterior concrete and stucco primer and sealer, and interior paint: Kelly Moore. Hinges: Hager Hinge Co. Lever handles: Schlage. Door closers: Norton Closer Co. Panic exits: Von Duprin. Range/oven, refrigerator: Whirlpool. Dishwasher: Sears. Intercom and security detection: Auth Electric Co. Entry doors, signage: Thomas Swan. Elevators: Westinghouse. Steel stairs: Curaco. Interior lighting: Shaper Lighting, Wellmade Lighting. Tubs: Norris Co. Lavatories: Kilgore. Water closets: American-Standard. Plumbing fittings: Delta Co. Flush valves: American-Standard. Boilers: McQuay Co. Fin-tube baseboard radiation: Vulcan Co. Nylon carpeting: Bigelow. Floor lamps: Koch & Lowy, Inc. Greenhouse tables: Knoll. Coffee tables (oak): Gibson International. Dining and garden chairs: Samsonite. Sidechairs: Monterey Company. Blinds (in greenhouse): Levelor. Draper hardware: Kirsch.

State Office Building, Sacramento, Ca (p. 76). *Architects: Office of the State Architect.* Glued laminated trusses and beams with purlins: Cobbledick-Kibbe. Pressed metal door frames: Stiles. Vertical pivoting windows: Marmet. Projected windows: Torrence. Entrance doors: U.S. Aluminum. Overhead rolling grilles: Cookson. Brick pavers: Muddox. Vinyl asbestos tile and acoustical lay-in ceilings: Armstrong. Four-ply built-up roofing: Johns-Manville. Fiberglass batt wall and rigid board roof insulation: Owens-Corning Fiberglas. Elastomeric deck surfacing: Gaco Deck. Standing seam metal roofing: Architectural Engineering Products. Acoustical interior screens: Intra Systems. Semitransparent wood stain: Olympic. Stipple enamel: Fuller. Full mortise hinges: Hager. Cylindrical locksets and surface-mounted door closers: Corbin. Heat recovery on exhaust down draft hood: Toma. Security/detection/fire system with microprocessor: Simplex. Signage: Architectural Graphics. Canvas anti-stratification tubes: Goodwin/Cole. Motorized fabric shades: Joel Berman & Associates. Motorized aluminum louvers: Brown Manufacturing. Hydraulic elevators: Otis. Fluorescent lighting: Globe. Cellular floor duct system: Robertson. Plumbing fixtures and shower heads: American-Standard. Self-closing faucets: Chicago. Flush valves: Sloan. Toilet stalls: Knickerbocker. Washroom accessories: Bobrick. Water coolers: Sunroc. Variable air volume boxes: Connors. Reheat coils: Singer. Variable volume, variable pitch fans: Woods (England). Building automation and control computer: Johnson Controls. Carpet: Bigelow. Metal halide lighting: Sterner. Horizontal blinds: Levolor. Acoustical suspended baffle system: Sonotrol. Fluted steel/fiberglass air shaft walls: Lok Products Co.

Stephen C. O'Connell Center, Gainesville, Fl (p. 82). *Architect: Caudill Rowlett Scott, Houston, Tx.* Precast concrete: Printer Contracting Co. Roof: Irvin Industries, Owens-Corning Fiberglas, Du Pont. Entrance doors: International Steel Co. Fire doors: Firedoor Corp. of America. Restraining cables: Bethlehem Steel. Paint: PPG. Hardware: Sargent. Sound systems: Florida Sound Engineers. Clocks and bells: Simplex. Switches and panels: General Electric. Plumbing: American-Standard. Fans: Joy Manufacturing.

Sunar showroom, New York (p. 88). *Architect: Michael Graves, Princeton, NJ.* Paint: Pratt & Lambert. Custom silk-screening: Izmo Productions. Wallpaper: Louis W. Bowen. Carpet: Rodeo Mills. Lighting: Lightolier. Brass drapery hardware: S. Parker. Audio-visual system: Kodak.

Italian Trade Center, New York (p. 94). *Architects: Design Collaborative, New York.* Paint: Sherwin Williams, Pittsburgh Paints. Partitions: Abbott Glass, National Folding Wall. Ceilings: Armstrong. Floor: (terrazzo) Port Morris Marble and Tile Co.; (resilient rubber) Mondo Canada, Ltd.; (carpeting) Bloomsburg Carpet Industries. Lighting: Edison Price. Wall paneling: Structural Systems Corp., Alpro Acoustics Div., Erdle Perforating Co. Ceiling space frame: Uni-Strut Corp. Work stations: Sunar. Furniture, lamps: Cassina. Custom paneling, cabinetry, wine racks: Midhattan Woodworking Co. Music system: Soundolier, Inc. Projection system: Da-Lite Screen Co.

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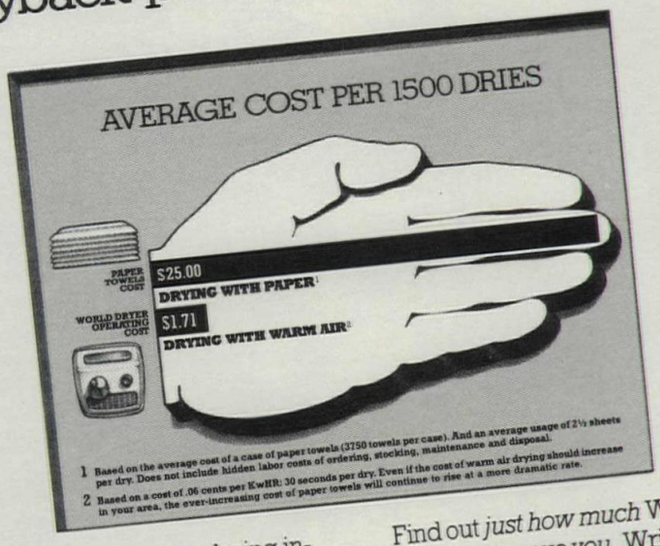

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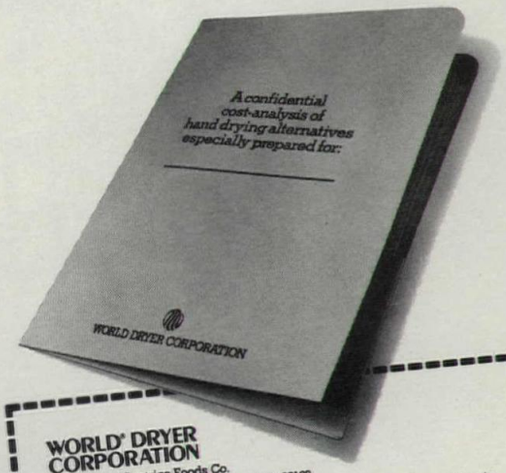

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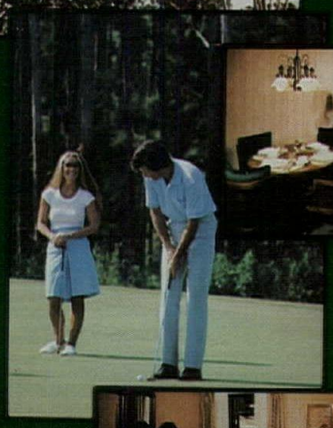

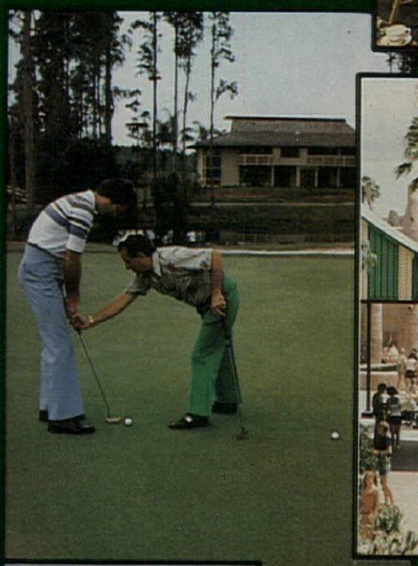

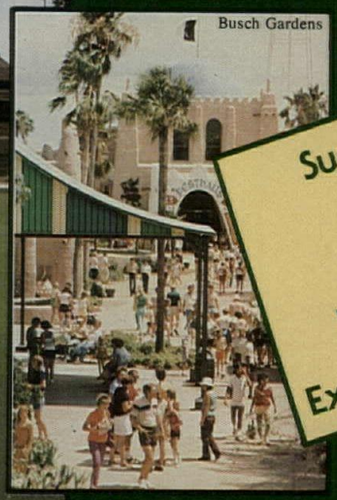

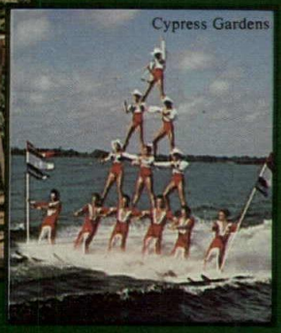

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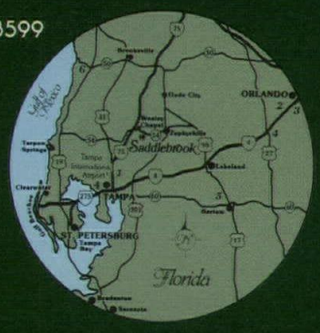

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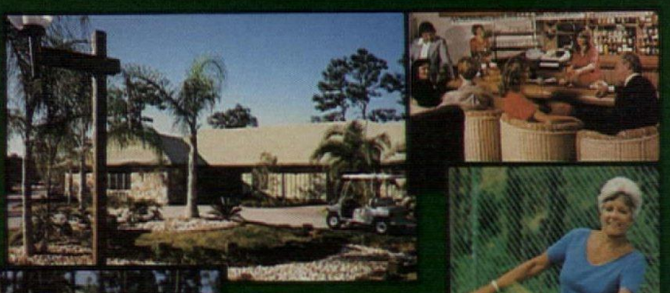

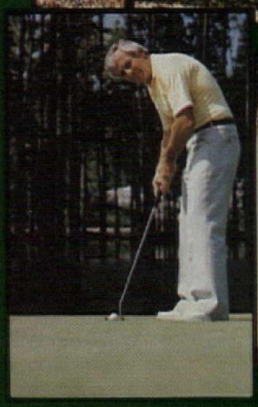

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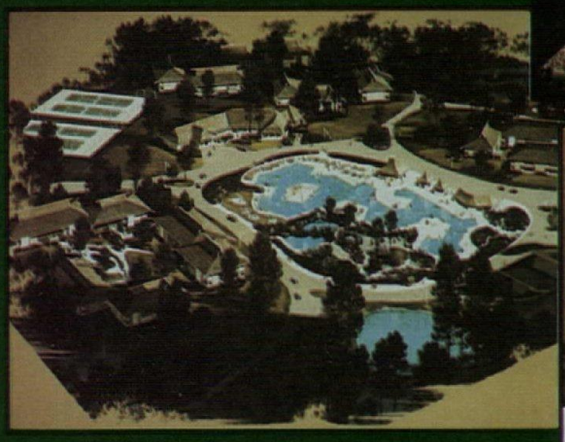

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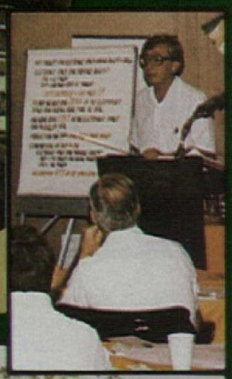

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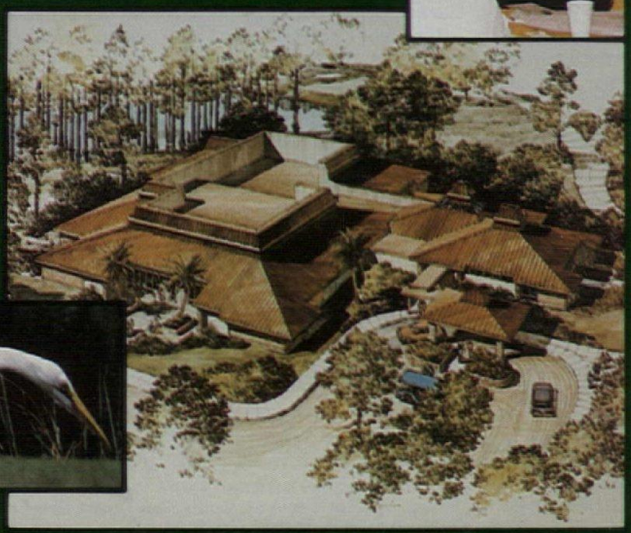

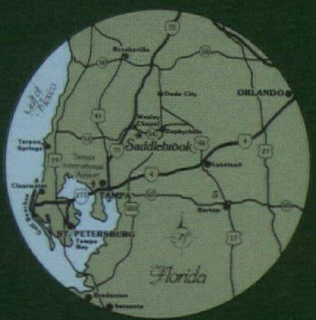

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Harvard Graduate School of Design—faculty position available beginning academic year 1982–1983. Applications are invited for the position of Professor (tenured) for a person to teach and conduct research in the general field of Architectural Technology, with emphasis on the design of structures. The person shall also be responsible for leading course development in Architectural Technology and for coordinating the field with other aspects of the Architectural program. The person shall be qualified to offer graduate level instruction and to supervise doctoral studies in the area of specialization. Application deadline September 15, 1981. Write with resume to the Graduate School of Design Appointments Committee, c/o Lynn Tronti, Harvard University, 48 Quincy Street, Cambridge, Ma 02138, USA. The University is an Equal Opportunity/Affirmative Action Employer.

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