ARCHITECTURAL RECORD

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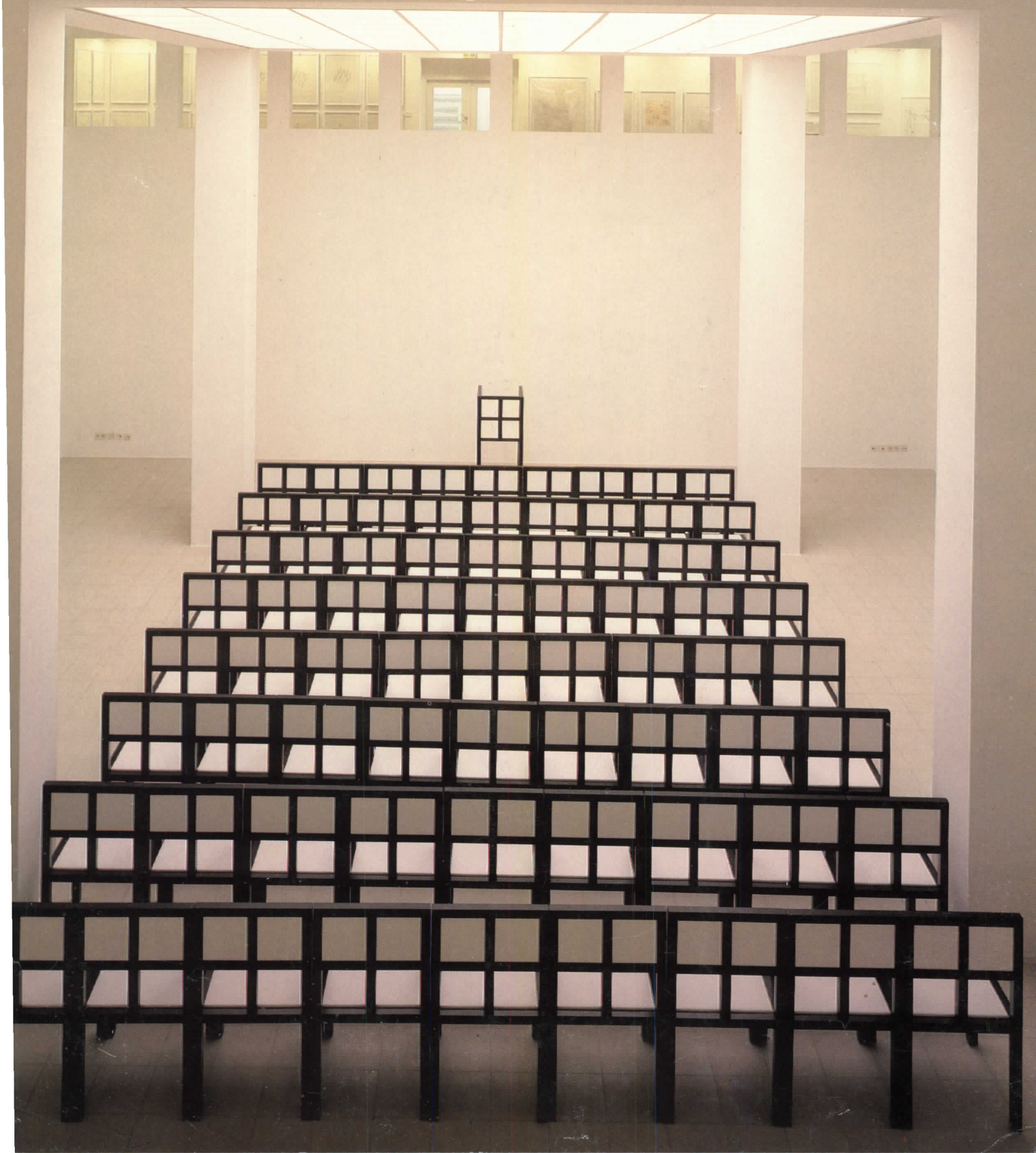

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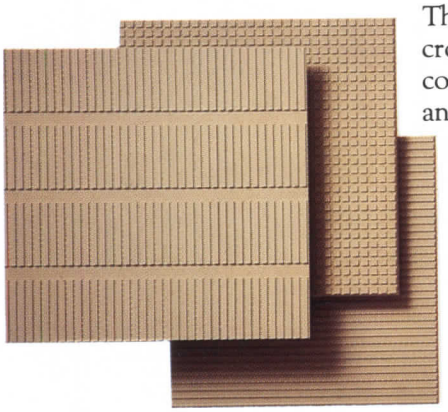

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Letters

I enjoyed reading Denise Scott Brown's recall of the recent past [RECORD, February 1984, page 69 et seq.], though I don't think I recognized many of the events described, perhaps because her view is essentially a very personal one.

She is quite wrong in thinking that Philip Johnson's praises did anything for my reputation in the U. K.—though they may have helped our reputation in the U. S. I personally believe that Louis Kahn was a very great and original architect.

James Stirling
London

Congratulations!

"Cheap thrills, decals, postmodernism and the architecture of illusion" by Christine Benglia Bevington [RECORD, May 1984, page 113 et seq.] is right on. "An architecture with a correct sense of time should automatically be immune to the decal syndrome, therefore yielding buildings that aim to be permanent, trustworthy, brave." Like a good Boy Scout?

Again, congratulations to RECORD and to Ms. Bevington for saying and printing what has been missing in our society.

Paul Bessieres, AIA
Atelier Bessieres
San Francisco

As a public relations professional who was associated with an architectural firm for 14 years, I certainly agree with your editorial in the May 1984 issue: the public's path for seeking "the advice of architects in all matters concerning the built environment" is "for local architects to take the lead in involving the public in local design and planning issues."

However, as a public relations professional who has been associated with a land planning and development firm for 11 years, I grow concerned when architects enter into local issues. So often, when architects become involved in local issues, they forget that their advice is sought on the built environment and become rabid, generally uninformed environmentalists.

You asked, regarding land in your own town, "How should the land be developed, given that, on one hand, it abounds in protected wetlands and, on the other hand, abounds in potential profit for developers and builders?" That is a complete non sequitur. The question should be, "How should the land be developed given that, on one hand, it abounds with protected wetlands and, on the other hand, it abounds with potential for a neighborhood of fine homes in which people can enjoy the wetlands, or for an office building where people can work in a serene setting?"

How in the world did the nasty word *profits* figure? From what I can tell, no developer yet owns the land. But I would like to warn any developer who gets involved with that precious parcel: by the time you go through the endless battles and make the necessary trade-offs, there may be no profit for either developer or architect.

Martin A. Brower
Director of Public Relations
The Irvine Company
Newport Beach, California

Thank you for the article by Stephen F. Verderber on architectural education [RECORD, May 1984, page 63 et seq.]. For me, it was a breath of fresh air. As a practitioner of architectural preservation, I have long felt myself outside the camp of orthodox design as represented by the registration examination. My primary problem has been that the examination addresses so very little of what I actually encounter in my practice.

It is high time that serious consideration be given to addressing those of us outside the mainstream of general architecture. Dr. Verderber's consideration is certainly a step in that direction. Bravo!

David Arbogast
Architectural Conservator
Iowa City, Iowa

Corrections

In RECORD's article on IDP (May 1984, page 59 et seq.), it was stated the NCARB furnishes an IDP Council Record free of charge; in fact, NCARB charges $30 to compile a record, $20 annually to maintain it. In Table B in the article, the first state listed should be Alabama, not Alaska.

Lighting consultant Paul Marantz of the firm Fisher-Marantz should be credited for the Smithsonian Institution project (RECORD, February 1984, pages 112-121).

For the house designed by Andres Duany and Elizabeth Plater-Zyberk (RECORD, mid-April 1984, pages 70-74), credits should have included Santiago and Associates, structural engineers, and ABC Engineering, Inc., mechanical and electrical engineers.

In RECORD's June issue (Round Table, page 49 et seq.), James Stewart Polshek was quoted on page 55 as saying "building a building is fundamentally asymptomatic." In fact, the word he used was "asystemic."

Calendar

Through August 31
Architecture of the Modern Olympiad: 1869 to the Present, drawings and photographs of stadiums; at the Helen Lindhurst Gallery, Watt Hall, School of Architecture, University of Southern California, Los Angeles.

Through September 23
Manhattan Skyline: New York Skyscrapers Between the Wars, with drawings, photographs and architectural ornament; at the Cooper-Hewitt Museum, New York City.

August 6-20
Collaboration at the Station: Art and Architecture for the MBTA, an exhibition of public art installed by Boston's mass transit authority; at the Federal Reserve Bank of Boston Gallery, Boston.

August 29-31
Annual convention, Society for Marketing Professional Services, in Washington, D. C. For information: SMPS, 1437 Powhatan St., Alexandria, Va. 22314 (703/549-6117).

September 18
"Main Street Approach," a 5 1/2-hour videoconference on downtown revitalization, sponsored by the National Trust for Historic Preservation, the U. S. Department of Agriculture's Office of Rural Development, and the Design Arts Program of the National Endowment for the Arts. For information: Mary Beth Newkumet, National Trust for Historic Preservation, 1785 Massachusetts Ave., N. W., Washington, D. C. 20036 (202/466-7800).

September 19-23
Annual conference, The Association for Preservation Technology, addressing the issue "Principles in Practice," in Toronto. For information: Jean Simonton, The Association for Preservation Technology 1984 Annual Conference, 77 Bloor Street, Toronto, Ont. M7A 2R9.

September 22
"Energy Efficient Lighting," a one-day conference, at Brattleboro, Vt. For information: The Solar Association of Vermont, Box 38, Brattleboro, Vt. 05301, or Dr. Adrian Segar (802/257-4333).

October 12-13
Design Expo '85, furnishing exposition and seminars, sponsored by the Pacific Northwest Chapter, Institute of Business Designers, and the Washington State Chapter, American Society of Interior Designers; at the Seattle Trade Center. For information: Design Expo '85, 1882 135th Pl., N. E., Bellevue, Wash. 98005 (206/324-2581).

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Interior design: the pot is boiling briskly

Interior design, most architects now understand, is a design challenge worthy of the best talents. As we said in the introduction of the 1982 *Record Interiors*: "The best architects have always understood that interiors are very difficult to do well, because of the demanding constraints of space, of budget, of client preconceptions (and especially preconceptions about 'image'). The best architects have always understood that the design of interiors is much more than efficient space planning and skillful furniture and materials selection—for as Charles Gwathmey said at one of our Round Tables, 'It is *not* just accommodation. It has to be art.' And the best architects have always understood a truth that Warren Platner reminded us of at another Round Table: 'Interiors are, after all, what the building is there for.' "

More and more architects are getting involved in interior design—95 per cent of our architect readers in private practice, 76 per cent of the staff architects and engineers who work for corporations, 66 per cent of our architect and engineer subscribers who work in government.

It seems that more and more young people—the future of the profession, to coin a phrase—are getting involved in interior design commissions. Maybe that's because there are more interior design commissions than commissions to design buildings, maybe that's because clients are more comfortable "trying out" young professionals with interior design commissions, maybe that's because young professionals are smart enough to see that interior design commissions are quite profitable and relatively free of professional-liability terrors, maybe that's because interior design done well has become such challenging work. Whatever the reason, most of the best and the brightest are getting into interior design (see any recent *Record Interiors*).

The big annual bashes of the interior-design professionals and the interiors marketplace have become more important every year. They have become much more than showcases for the newest offerings of the manufacturers—though WestWeek and NEOCON and Designer's Saturday do that abundantly and richly and with great style. Each of these meetings now attracts speakers and panelists on the cutting edge of design thought—the likes of Joe D'Urso, Lella Vignelli, Hans Hollein, Richard Meier and Bob Stern, for example, at WestWeek (RECORD, May); Robert Venturi, Hennig Larson, Michael Graves, Helmut Jahn, John Burgee, Philip Johnson and Arthur Erickson at NEOCON (see *Design News* this month); and at Designer's Saturday, which will take place in October, the manufacturers are planning a rolling feast of show room conversations with the architects, interior designers and furniture designers associated with their companies. All three programs have come about as far as you can come from being "trade shows"—they are an absolute candy store of the best new products from the manufacturers and the best new ideas of some very thoughtful and important design professionals. The fact that they attract to Los Angeles and Chicago and New York thousands and thousands of architects and interior designers (including a very high proportion of young faces) is a strong measure of the vitality of the interior-design field.

Finally, it seems clear that interior design commissions—as custom houses have long been—are emerging as a way for architects and interior designers to test new design ideas and new design philosophies, new planning schemes and new materials. We used to speak of *Record Houses* as "laboratories of design." That now seems too simple a description of the complex planning and stylistic reaching-out that we see everywhere, not only in house design, but in interior design. The current best work ranges, as Charles Gandee wrote in last year's *Record Interiors*, from "the ultra-modernism of architects Ronald Kreuck and Keith Olsen to the ultra-eclecticism of Robert Venturi and Denise Scott Brown.... Since architects are famous for testing out their design ideas in interior commissions first, we can look to *Record Interiors* for clues foretelling the architectural future. Remember the first Sunar showroom?"

The pot is indeed boiling briskly—and that is good for the quality of the work, that is good for design professionals, and that is good for architecture. *W. W.*

SMPS annual meeting scheduled

The Society for Marketing Professional Services will hold its annual meeting in Washington, D. C. from August 29 through 31. The results of the society's annual merit program for many categories of promotional materials will be presented, along with awards for the top entries. Several hundred entries were submitted this year and ranged from the very professional to the very novel and eye-catching. Results will be covered in an upcoming issue. Discounted travel arrangements may be made by calling 800/368-5965. For full information on the meeting, contact director Jeanne Murphy, The Society for Marketing Professional Services, 1437 Powhatan Street, Alexandria, Va. 22314 (703/549-6117).

Dispute may produce firmer controls on use of UDAG funds

The dispute emerged between New York and Jersey City a year and a half ago, when the Department of Housing and Urban Development tentatively approved the biggest Urban Development Action Grant ever, to help Jersey City develop a major waterfront project including new business facilities.

The catch to the UDAG money, as HUD Secretary Samuel R. Pierce, Jr. made plain in a recent announcement, is that Federal monies must not be used to draw businesses and jobs away from other cities, in this case from New York City, across the Hudson. "I'm going to take a serious look at our regulations and at the law to define more clearly that adjacent communities cannot take Federal funds to get jobs and shift businesses from one to the other," Pierce said. Under the final agreement, HUD is contributing $40 million to the $270 million project, most of it privately financed; Jersey City's share is $35 million.

HUD's $40 million will be spent to build infrastructure facilities for the project such as roads, utilities and parking. Ultimately the development is expected to create 2,200 new permanent jobs.

Originally, the entire package was for 500,000 square feet of office space, 1,000 housing units and a retail center. Revised since then, new plans call for an extra 500 housing units and retail center. To settle any questions of luring jobs from New York, Jersey City and the developer are indicating that they have agreements with New Jersey firms to rent some of the office space. As much as 200,000 square feet of unrented office space may be replaced with housing.—*Peter Hoffmann, World News, Washington, D.C.*

SYSTEMS '84: More powerful, more affordable computers—and some new problems to consider

Final figures show that a record 11,766 people attended this year's A/E Systems Show, held in Baltimore, including 9,250 design professionals—37 per cent more than last year. George Borkovich, one of the show's founders, discerned several trends in the 215 exhibits: "While CAD is still the star, it's only 40 per cent of the show," he said, adding that the news is how reprographics have been integrated with computer graphics. Borkovich also noted that software was receiving prominent attention at the show, that many of the systems shown were based on P.C.'s and microcomputers, and that prices were either dropping or more value was being offered for the money. Finally, he pointed out that facilities management systems were represented at the show in significant numbers, attributing this to advances that have allowed database capabilities and graphics to be linked on the same system.

Many of the show's 100 speakers echoed these observations in the seminars; in fact, several topics came up again and again in different sessions. Donald Fullenwider, vice president and director of computer services for Welton Becket Associates, Los Angeles, was one of the many who pointed out that there has been a migration from large computers to small ones, largely because hardware is getting cheaper and smaller. He got a big laugh when he said: "Hardware is going to continue to get smaller and cheaper at an even faster rate than in the first five years of the decade, to the point where I can imagine a CAD system in my watch."

He then went on to explain: "Everything that we're now doing at Becket on a $400,000 computer system will be available on a $5,000 system by the end of the decade." Fullenwider pointed out that at the moment IBM, DEC, AT&T, Prime and Data General, among others, are starting to compete head-to-head with 32 bit processors. "My hope is that as 32 bit processors become a commodity, and the bottom drops out of their price, people will be able to write software that every architect can afford. There is a great deal of analysis that could be done on a computer, but nobody has bothered to write the software because the cost payoff isn't there in the architecture market."

IBM's Robert Tiel said very much the same thing in a different session."The cost of computing is being cut in half every four and a half years," said Tiel, who is director of CAD/CAM marketing, "and that trend is going to keep going. Whatever you see today, you can buy the same power or function

Continued on page 23

House of Representatives issues findings and recommendations on structural failures

After almost two years of deliberations, the House subcommittee on investigations and oversight, spurred on by such important failures as those at the Kansas City Hyatt and the Hartford Civic Center, has issued its report. At the outset of deliberations chairman Albert Gore, Jr. had said: "We are not here to investigate the cause of any particular failure or to place blame on any part of the construction industry. Rather, our purpose [is] to obtain a better understanding of the actions that either take place, or fail to take place during the course of a building project which eventually result in failure. If we can do that, the industry may be able to determine measures which could help reduce the number of these occurrences."

The committee identified 22 factors as possible contributors to failures and found six to be of primary importance. These are listed below with the committee's recommendations:

- *Communications and organizations in the construction industry* should be controlled by guidelines jointly prepared by designers and builders.
- *Inspection by a structural engineer* should be continuous throughout the construction of the principal components, and this should be mandatory.
- *The importance of professional standards* should be emphasized to clients, who may otherwise be tempted to cut corners without a clear understanding of how buildings are put together, and to the designers themselves, who may have no clear review process.
- *Structural details* should always be designed by a licensed engineer who should then be accountable for his performance.
- *The selection of architects and engineers* should be conducted by an examination of their experience and abilities for a particular job over their ability to produce a competitive bid on their fee.
- *Timely dissemination of technical data* should be carried out by the National Bureau of Standards, which should begin investigation of failures within 24 hours of their occurrence.

For a copy of the complete report, "Structural Failures in Public Facilities," Union Calendar Number 354, write to the United States Government Printing Office, Washington, D. C. 20402.

Lighting research proposals sought

The Lighting Research Institute, Inc., a not-for-profit organization formed in 1982 to promote and sponsor basic and applied research and development in North America for all forms of lighting, is making its annual request for proposals based on its research agenda. Proposals are being sought for research areas with an emphasis on those which have direct human application, such as Photobiology, Vision, Systems Application, and Psychology.

Criteria for selection of proposals for funding will be based on scientific and technical merit, and also on appropriateness for funding by LRI based on the research agenda; timing—both long and short term—with an initial leaning given to short term; risk; and significance of the projects based on criteria for a given research area (e.g., health consideration for photobiology).

The deadline for receipt of proposals is September 14, 1984. For a copy of the Institute's research agenda, proposal application, and/or further information contact: Richard L. Vincent, Program Manager, Lighting Research Institute, 345 East 47th Street, New York, N. Y. 10017 (212/705-7918)

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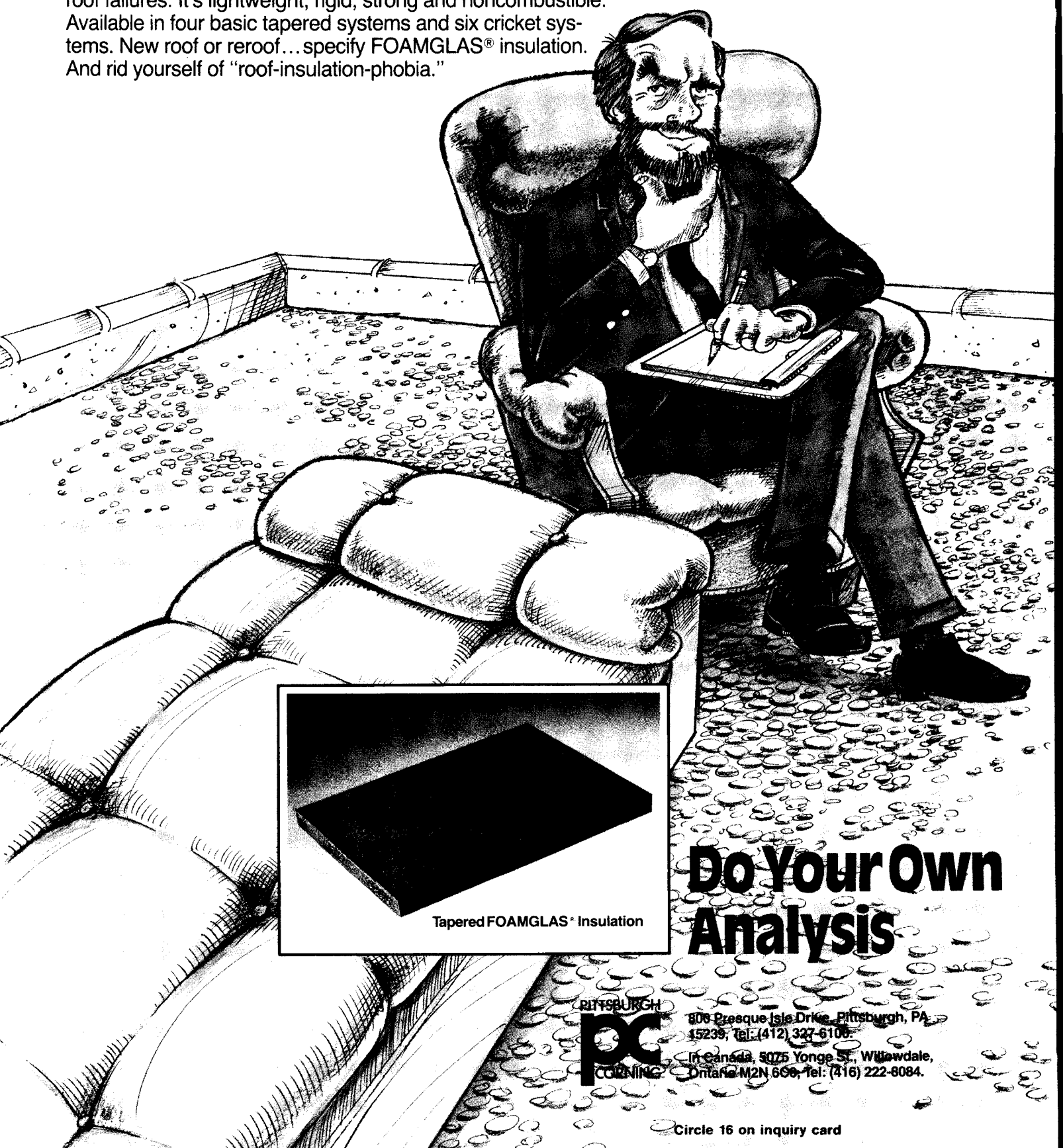

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four or five years from now at half the price. So this has changed the affordability and caused a dramatic change in the market place."

Tiel's counterpart at Computervision, John W. Hurd, pointed to a problem created by the proliferation of CAD systems: "All of a sudden you're generating three or five times as much data and it's no longer in paper format. How do you begin to manage it all?" And going one step further, Hurd pointed out the problems of integrating data when a number of organizations are working together on a large project.

Charles White, director of A-E-C operations at Intergraph agreed: "What we're dealing with is a giant database management problem. Now that there will be greater penetration of the low-end market, the transportability of information from one vendor to another becomes vital." Again, this theme was repeated in different sessions.

"Sharing data among computers is a complicated and poorly understood activity," said Dr. Joel Orr, president of Orr Associates, Danbury, Conn., in a session entitled "Low-cost CAD: What's in Store for A/E's." Orr continued: "It's one thing to take a floppy disk from one computer and stick it in another; it's quite another for us to be plugged into a nice skinny little fiberoptics cable and holler into the pipe, 'Give me drawing ABC,' and drawing ABC comes to our workstation we know not from whence. And then we say, 'Go away, ABC,' and it frees up our local memory and we don't know where it went. We have the technology to do that, but not the understanding of how to organize data."

This problem was also discussed by Charles Foundyller, president of Daratech, Cambridge, Mass., in a session entitled "CADD for A/E's Today: Risks and Shortcomings." Said Foundyller: "Most systems today have what I call the landfill approach to data management—they give you a large area where you dump off your data. When you want to find something, they have a landfill operator's attitude to that too: Go look for it. If you can remember where you put it and you didn't dump anything over it, it's still there. But they don't give you any help."

Foundyller pointed out that people assume that if something is in the computer it can be retrieved quickly, changed easily, and all derivative information computed. "Today this is still very much a pipe dream," he said, adding, "I suspect that as the newer systems come on line, it will be so prohibitively expensive to transfer the existing data that we'll all start over, keeping the old system to maintain the old data." He noted that at present the necessary software and systems for classifying design elements do not exist for the A/E field, although a coding system called group technology is beginning to be used for manufactured parts. "Eventually, the A-E-C field is going to have that kind of capability available," said Foundyller, "but it's not here yet."

Another problem that Foundyller identified: many systems appear to be computationally underpowered and thus slow to respond. Although for the moment, at least, Foundyller sees this improving with the 32 bit minicomputers, he feels that application demands will soon outstrip available computer power.

"Artificial intelligence and expert systems will soon come on the market," he said. "We're going to see systems that can learn how to do things just by 'watching what you do.' They will remember how you respond in various situations and learn to respond the same way. This will demand additional computational power, so just when more power becomes available, artificial intelligence and expert systems will start soaking it up. In the foreseeable future, unless you're willing to pay a great premium or to forego artificial intelligence, the response times are probably going to stay at about 1.2 or 2 seconds and continue to annoy you."

Another thing that came up in various seminars was a concern that a shakeout is imminent in the CAD industry. "There is a mentality developing of dealing with a company you know will survive," said Harry Mileaf, director, technology and product development, for the McGraw-Hill Information Systems Company. "If you take this approach, there are only a few systems you can buy, and I don't know if that's a good idea because the smaller companies, the ones that the big companies call risky, are the ones that pay more attention to what you need and give you more sophisticated systems."

In a panel discussion entitled "CAD: The Inevitable Shakeout," Dr. Malcolm Davies, vice president and general manager of the A-E-C division of the Calma Company, a subsidiary of General Electric, put the subject into perspective: "The minnows do have a lot of advantages including speed of development, because they can change quickly as new technology comes on the scene," he said. "They're good at niche markets. On the other hand the giants offer product support, enhancements, and evolution of the product in terms of software and hardware. Their investment in research and development is a big thing."

Perhaps the most cheerful comment on the subject came from Charles Foundyller: "I've been hearing a lot about the big shakeout for ten years. There has certainly been no CAD company that has failed that was anywhere near the stature of an Osborne in the P.C business. With the market growing up to 30 and 40 per cent a year, it's very difficult to make a big enough mistake to fail. I expect a shakeout sometime, but not any time soon—not within the next 12 months."*N.G.G.*

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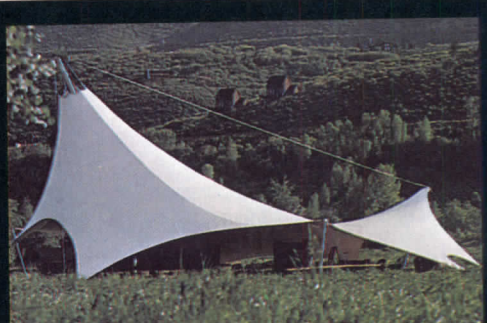

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Legal perspectives: Architects' liability builds in third-party loss cases

A contractual relationship may no longer be required for a suit

By Arthur Kornblut, Esq.

In April 1980, *Legal Perspectives* reported on developments involving the "privity of contract" defense in lawsuits against architects. Historically, a contract had to exist between a plaintiff and an architect before the architect could be sued for negligence during the performance of professional services. Over the years, this defense (the requirement of a contractual relationship as a prerequisite to being able to sue) has been steadily eroded by the courts. Today, it generally has no validity in bodily injury or death cases. In cases involving only economic loss, however, the law remains unsettled.

Two cases reviewed below illustrate how differently the courts can look at cases involving similar circumstances to assess an architect's exposure to liability to the contractor. These cases highlight the architect's dilemma in trying to protect against third-party economic loss claims. By not having a clear idea where the courts are heading on this potentially explosive issue (explosive in terms of both the number of potential plaintiffs as well as the cost to defend and/or settle lawsuits), it will be difficult to develop adequate standard contract provisions to properly allocate liabilities among the major project participants—the owner, architect and contractor.

In a recent Arizona case, the state supreme court overturned almost 20 years of precedent to permit a contractor's suit to proceed directly against an architect for alleged negligence, negligent misrepresentation and breach of an implied warranty that the drawings and specifications were accurate (*Donnelly Construction Co.* v. *Oberg/Hunt/Gilleland, Architects,* February 8, 1984). In this case, a county school board had hired the plaintiff contractor for improvements to a school based on the drawings and specifications prepared by the architect. After beginning the work, the contractor claimed the documents were in "substantial error," which increased the construction costs. Suit was filed against both the owner and the architect after the work was completed.

The architect moved to dismiss the contractor's suit on the basis of prior Arizona case law that prohibited direct actions such as this in the absence of a contract between the parties. A 1965 Arizona appellate court decision, *Blecick* v. *School District No. 18,* which has been relied on widely throughout the United States, held that an architect cannot be sued by a contractor for negligent preparation of drawings and specifications. Despite the long-standing existence and significance of the *Blecick* decision, the Arizona supreme court, in the case now before it, blithely stated: "There is no requirement of privity in this state to maintain an action in tort."

The one court justified going against the architect with the following rationale:

"... An action in negligence may be maintained upon the plaintiff's showing that the defendant owed a duty to him, that the duty was breached, and that the breach proximately caused an injury which resulted in actual damages.... Duty and liability are only imposed when both the plaintiff and the risk are foreseeable to a reasonable person.... Design professionals have a duty to use ordinary skill, care and diligence in rendering their professional services.... When they are called upon to provide plans and specifications for a particular job, they must use their skill and care to provide plans and specifications which are sufficient and adequate.... This duty extends to those with whom the design professional is in privity... and to those with whom he or she is not...."

The significance of this is obvious. By extending the architect's liability to anyone who *foreseeably* might be injured by the architect's alleged negligence, the architect will be exposed to indeterminate liability to the contractor and everyone else because it is foreseeable that anyone who comes into contact with a project, on any basis now or in the future, *could* be injured by an architect's negligence.

Whenever a contractor suffers a loss, he can claim the architect's documents were negligently prepared or that the architect's conduct was somehow faulty. Even if the contractor cannot prove his claim, the mere ability to bring the action puts the architect on the defensive.

The architect will have to weigh his actions throughout the project with concern about a potential lawsuit by the contractor, rather than being able to act freely to represent the owner's interests. Then, if a suit is filed, he will have to choose between spending the time and money to defend against the claim and the cost of a settlement to avoid litigation.

Contrast the Arizona case with a 1982 decision from a Texas appellate court. The Texas court rejected a direct action by a contractor against an architect for increased costs incurred by the contractor as a result of delays allegedly caused by the architect's improper processing of change orders (*Bernard Johnson, Inc.* v. *Continental Constructors).* Ruling that the contractor could not sue the architect directly, the court noted that any negligence on the part of the architect would be imputed to the owner (with whom the contractor had a contract and could maintain a direct action).

The other court defended the architect with different rationale for similar circumstances

The Texas court succinctly identified why the privity of contract rule makes eminent sense in the context of a construction project:

"Courts in some jurisdictions have judicially imposed upon architects a duty of ordinary care in favor of the contractor. These courts have done so based upon the power over the contractor said to be possessed by the architect. We find some of these cases lacking in logical analysis; particularly because they ignore what seems to us a fundamental proposition: the architect's relation to the parties and the work is one specified by the contracting parties in their bargained-for agreement. So long as the contracting parties have freedom to contract as they wish, with respect to the architect's power and role, these will vary considerably and no rule of general applicability may logically be stated that is founded simply upon the status of the defendant as "an architect" or upon what one believes to be the customary relationship between the work, the architect, the owner and the contractor; particularly a general rule should not be founded upon a presumption that the architect has power over the contractor's performance, in general or in any particular of the work."

The Texas court recognized the fallacy of a rule of law based on the proposition that all architects control the work of the contractor and therefore an architect must be liable for any damages suffered by a contractor if the architect performs his services in a negligent manner. The architect's role during a construction project is, at bottom, agreed to in a contract between the owner and contractor. Because of this, the Texas court refused to adopt a legal principle to impose a duty on the architect that runs directly to the contractor. Rather, the court was satisfied that each party's legal rights were better protected if it maintained the concept that the architect's authority is merely a function of his role as a representative of the owner.

Under normal circumstances, the contracts between specific parties to a project define their duties, responsibilities, rights and obligations. The elimination of the privity defense has created this situation: The courts are permitting third parties to sue architects in the absence of any contract between them, but, at the same time, they are relying heavily on the terms of the architect's contract with the owner to determine whether the architect owes a duty to third parties and what it might be.

In the area of bodily injury and death claims, the architect's duties have been carefully circumscribed by standard contract provisions, with the result that such claims often fail when proper contract terminology is employed. (See, for example, the May 1983 *Legal Perspectives* column.) Nonetheless, the time and expense necessary to defend these suits cannot be avoided.

With economic loss cases, however, the situation is somewhat different, and the architect's potential liability to third parties involves at least two distinct groups: contractors (and their subcontractors and suppliers) and members of the public (such as condominium purchasers). With contractors, the contract drafting problem is not too difficult. Contract clauses can be easily developed to require the contractor (and the subcontractors and suppliers) to waive any right of direct action against the architect. The problem will come in trying to get contractors to accept such clauses as standard.

With third parties, the problem is more difficult because of the indeterminate nature of both the potential plaintiffs and the types of losses they might suffer. Given the trends in the law, it would seem prudent to at least try. For example, an architectural contract on a condominium project could include provisions to control the use of the architect's name in sales literature, to require indemnification by the developer in the event of suits by individual purchasers or the condo association, and to clearly state that the architect's duties extend only to the developer. This protection could be extended further by comparable provisions in condominium sales contacts.

Mr. Kornblut is a registered architect and practicing attorney in Washington, D. C.

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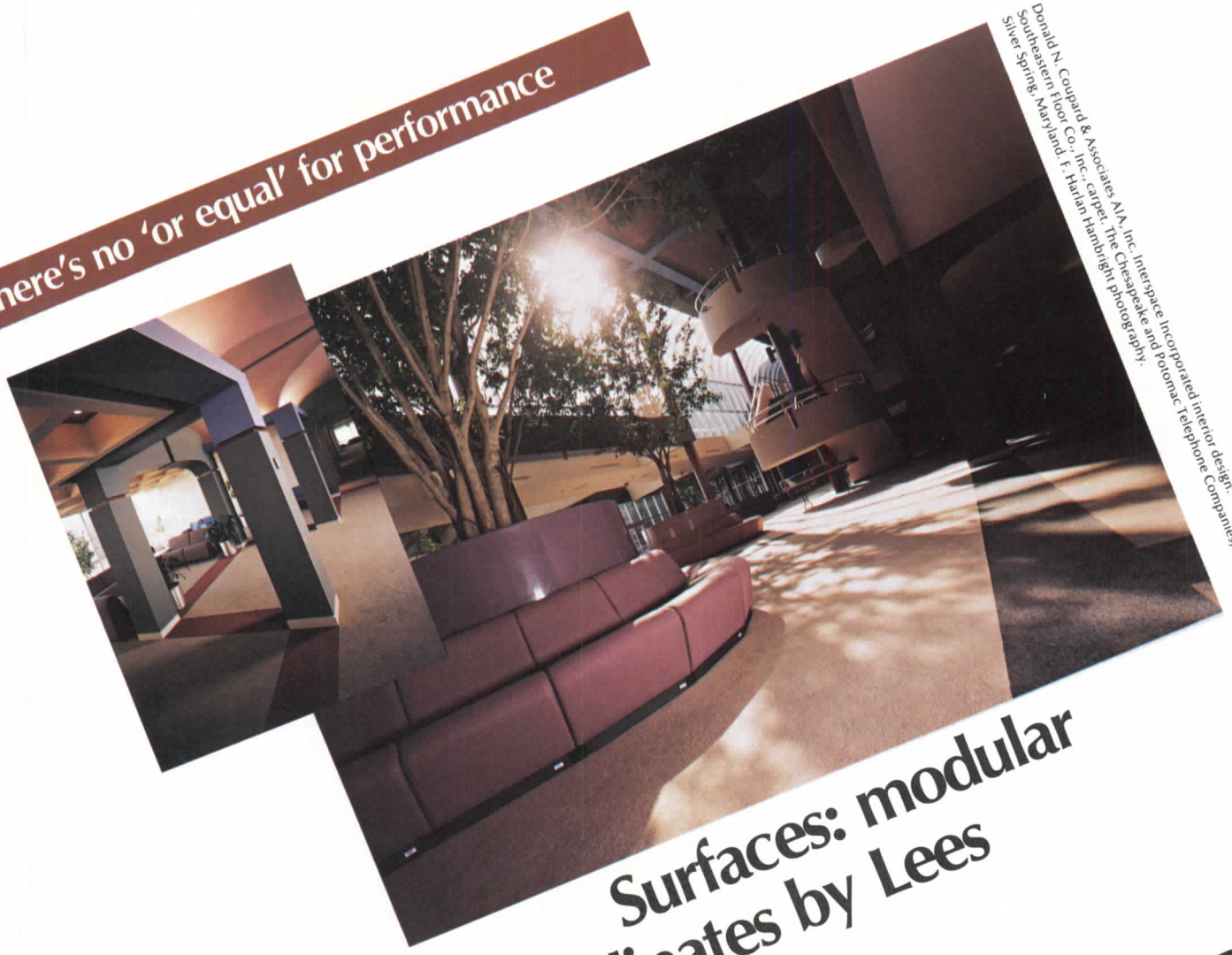
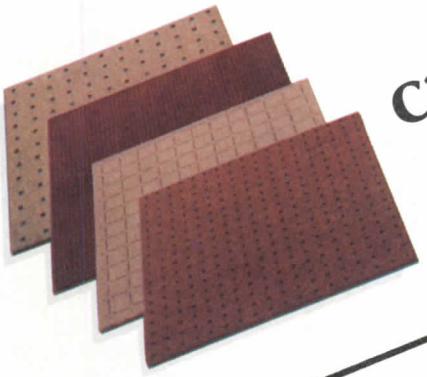


Donald N. Coupard & Associates AIA, Inc. Interspace Incorporated interior design. Southeastern Floor Co., Inc., carpet. The Chesapeake and Potomac Telephone Companies, Silver Spring, Maryland. F. Harlan Hambright photography.

Surfaces: modular carpet coordinates by Lees



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Circle 19 on inquiry card

Marketing: Who's doing what, when and how?

An important survey report...

By Ernest Burden

In April, some 250 architects and engineers, along with a scattering of marketing experts from design promotion firms and members of the press, met in two separate groups, one in Atlanta and the other in San Francisco, to review the results of the fourth survey of design firms. Now established as an annual event, the survey and conference is co-sponsored by Lord Communications, Inc., the *A/E Marketing Journal* and myself.

After four years of results from this survey, it is now possible to make some comparisons, not only on the survey program but also on the general attitudes towards promotion among the design firms surveyed. According to Barbara Lord, who initiated the conference in 1980, "There is no doubt that programs have become more sophisticated *and* more expensive since then. The most dramatic difference is the apparent increased understanding of promotion among those interviewed. The quality of print materials has greatly improved across the board—in concept, graphic design, writing and photography. This is true of brochures, newsletters, stationery and a variety of business development material."

Although each year there have been some excellent programs to identify specific marketing possibilities, a great deal of promotional activity has been for image enhancement, both internal as well as external. Sponsors were impressed this year with the number of firms that had designed programs of simultaneous efforts to achieve certain objectives. For instance, one firm placed feature stories, ran print ads and conducted a direct-mail campaign over a period of several months to reach just one market segment.

"We have also seen a noticeable change in the way firms are now using video, both as a marketing and a presentation tool," said Lord. "The medium's ability to capture and present motion in particular adds realism to views of proposed sites. And the use of dialogue without an apparent script produces a more straightforward documentary approach that maximizes the benefits of the video medium. When coupled with electronic editing techniques and the animation produced by another electronic medium—the computer—the effect can be total communication."

The survey showed an across-the-board increase in promotion efforts

Here's how they broke down: For this year's conference, a survey was done of 100 architectural, engineering and other design firms with emphasis on those that qualify as large. There was a definite increase in those with specific budgets for promotion—57 per cent as compared to 38 per cent in 1983.

The percentage of the total marketing budget spent on promotion varied dramatically—from three per cent to 50 per cent. The average was 15 per cent. Seventy-five per cent of the firms have a full-time marketing staff with an average of one full-time "marketer" per 40 employeees. Of course, this is somewhat distorted because of the greater number of large firms surveyed.

Fourteen per cent of the firms reported employing an advertising agency and 15 per cent a public relations firm. In this year's sample, 82 per cent use computers in their marketing program compared to 36 per cent in 1983.

The most popular method of firm promotion continues to be mailing programs, as was the case for the last two years. A little less than half of the firms are involved in print advertising. The per cent involved in radio and TV advertising has not changed since last year, although there seems to be more talk about TV. Fifteen per cent of firms use video in marketing presentations.

A major change is the increase in firms who consider themselves to have an organized public relations campaign. This increase in public relations consciousness is also demonstrated in the number of integrated promotion strategies programs. A surprising number of firms mentioned the benefits of specific promotion programs to their internal organization. These programs had resulted in a new awareness—a new sense of motivation among employees.

Newsletters always have a problem of purpose. Here's how some firms make them work

Among the firms making successful use of newsletters is McElhanney Surveying & Engineering Ltd., a 500-person firm with 10 offices across Canada. After some critical self-analysis several years ago, management agreed that it was necessary to do a much better job of giving the firm an identity—in-house as well out. One solution was a handsome quarterly newsletter that goes to 2,000 executives worldwide and to all employees. Cost runs about $5,000 per issue.

EDAW, a 200-person landscape architecture firm, opted for an eight-page newsletter in lieu of a national publicity program to provide their nine offices with a way of staying in touch with prospects and clients and to keep editors in the business, real estate and the design press aware of the firm's current work. Seventy-five per cent of the newsletter's readers are architects and developers, so the newsletter makes extensive use of plans and drawings. Five of its eight pages are devoted to a theme or service, one page is a reprint and two pages record news. An essay section contains articles from outside sources. Beautifully executed, the newsletter costs about $12,000 for each issue's run of 4,000 copies.

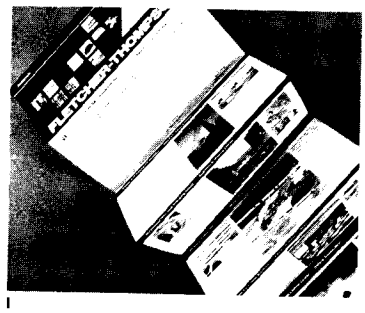
Fletcher-Thompson, an architectural-engineering firm in Bridgeport, Connecticut, has had good response with its newsletter first published in 1980. The newsletter is used to remind corporate and industrial clients of the services provided. The firm received commissions for several interior design projects as a result of one mailing—not because interior design was featured, but simply because past clients were reminded of the firm. Cost of the mailing pieces runs about $8,000 per issue for a mailing of 1,800.

Parsons Brinckerhoff has clients who have been reading its quarterly magazine since it was first published in 1949. The magazine, which is viewed by the firm as an important part of its promotion program, has 24 pages plus a centerfold. The centerfold is printed separately on different stock and in greater quantity than the magazine and is used as a separate mailer. Production budget for the magazine is roughly $12,000 per issue to service a mailing list of 4,600 clients, prospects and friends.

Special mailings are efficient for their purpose if they are targeted correctly

In the area of special mailings, R. G. Vanderweil Engineers in Boston is now well into a carefully planned direct-mail program. Three market areas—laboratories, computer centers and hospitals—were identified in which they wanted to generate interest in their mechanical/electrical services. For each of the market areas, Vanderweil designed a series of five black-and-white six-inch-by-six-inch cards to be mailed sequentially at two- to three-week intervals to a carefully researched list of 250-300 prospects. Each card contained a

Continued on page 31



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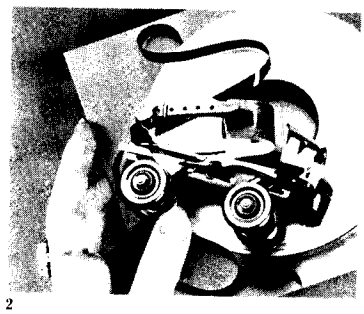

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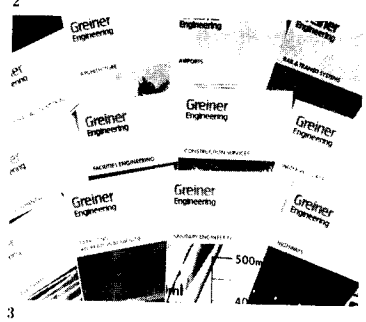

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Newsletter for Fletcher-Thompson (1) takes an accordian format. Standard promotional mailing for Vanderweil Engineers (2) takes a square black-and-white form. Cards inquiring about clients' interests in special fields (3) were mailed by Greiner Engineering. Einhorn Yaffee Prescott Krouner's "turkeygraph" (4) was a neat way out of the usual flood of cards at other seasons.

Mr. Burden heads the firm of Ernest Burden Associates, in New York, and specializes in design-communications consultation. He is author and publisher of a newsletter on design-communication strategies and state-of-the-art presentation techniques called The Communicator's *ADVISOR. is a member of the Society of Marketing Professional Services, and the author of several books, including* Architectural Delineation *and* Design Presentation, *both published by McGraw-Hill.*

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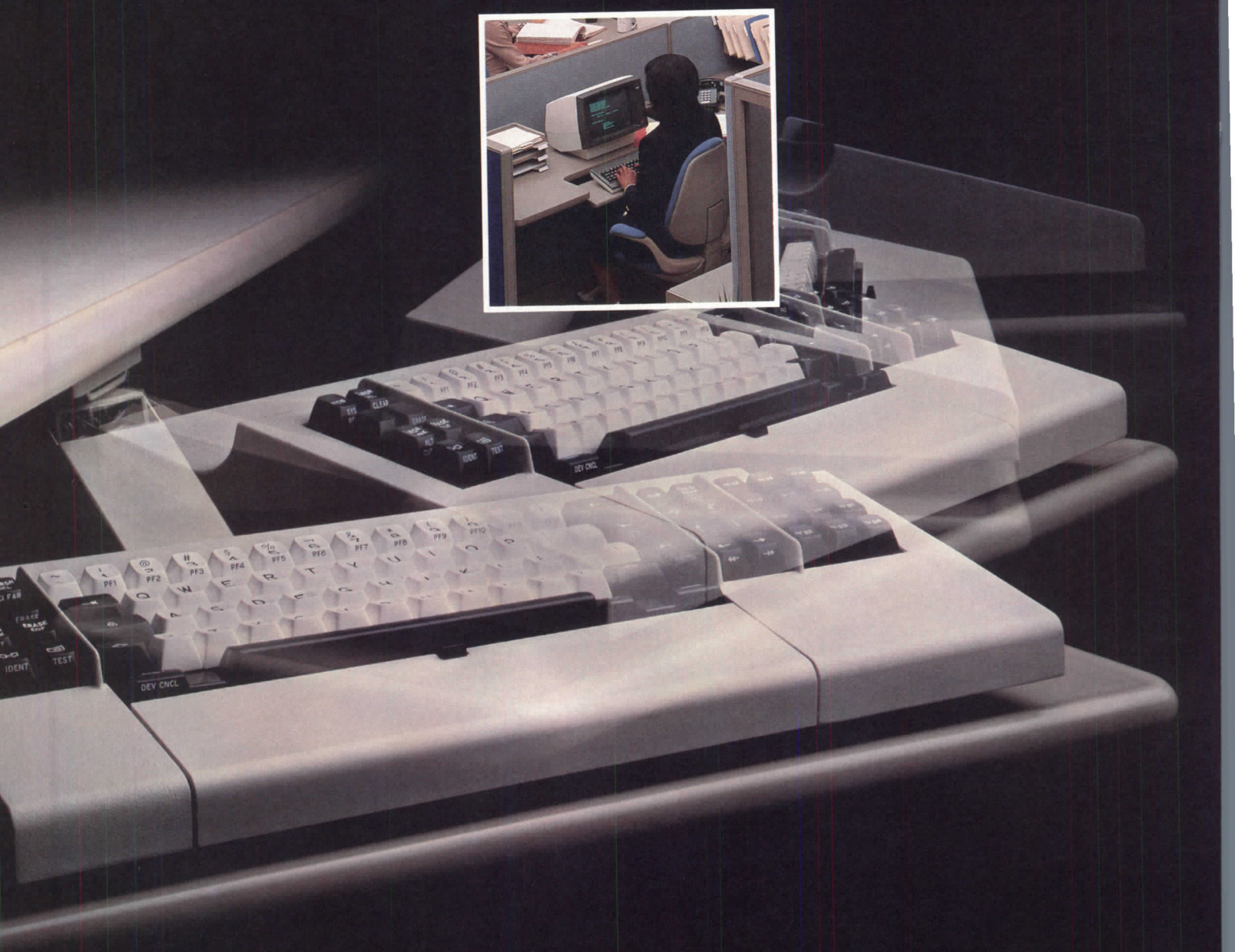

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Circle 20 on inquiry card

Marketing continued from page 29

message about the firm's availability, and response by means of enclosed business reply cards was roughly six per cent. About 60 new projects have been identified in the first two market areas targeted.

Greiner Engineering celebrated its 75th year in business with a mailing to 5,000 clients and prospects. A nicely executed announcement was sent with a reply card asking recipients to check off any of the Greiner services they might want to know more about. Roughly six per cent of the cards were returned, but many more leads came from follow-up letters and phone calls.

Although Einhorn Yaffee Prescott Krouner let their 10th anniversary pass without an announcement, the firm decided to mention it in a Thanksgiving message to clients and prospects. This avoided the Christmas and New Year's rush and competition of cards from other design firms. The "Turkeygraph" was mailed to 1,200 persons for a cost of $1,500.

Gilbert Commonwealth's Energy Transport Systems Division offers inspection services to utilities companies to prevent unauthorized attachments to distribution poles. To bring some interest to this ostensibly dull subject, a mailer was created with a pop-up pole, and 2,000 were mailed to investor-owned and municipal utilities. Budget for the mailing was $5,000.

Another use of a pop-up was in a calendar produced by CBT/Childs Bertman Tseckares & Casendino, a Boston architectural firm. The firm bought the Ames-Webster Mansion in 1972 and has used the building in its marketing programs whenever possible—this year in a pop-up on the calender, which continued a six-year tradition of calendars illustrated with the building.

When Elliot Rothchild, formerly of Baker Rothchild Horn & Bly, announced the formation of his new architectural firm, The Rothchild Company, he knew it would take some special effort to build a new image as a firm specializing in rehabilitation and restoration. An innovative poster-mailing program has helped the firm realize this objective in a relatively short time. The first poster, mailed in May 1982, introduced the members of the firm and made it clear they were specialists in adaptive reuse. In January 1983, a "victory" poster was mailed to the new expanded list of 2,000 names with special interest in rehab. Due to its graphic design, the poster can be seen hanging in offices all over Philadelphia.

The posters do a good job of getting the right kind of attention for The Rothchild Company. For example, the firm got an important hotel rehabilitation project as a direct result of a developer receiving one of them. The total cost for producing and mailing each poster program runs about $3,000.

Another firm using posters for image enhancement is the Callison Partnership in Seattle. A poster commemorating the opening of a new office was given out at an open house, later used as a mailing piece, and finally used as the firm's 1983 Christmas card with the holiday message on a vellum overlay and a calendar underneath.

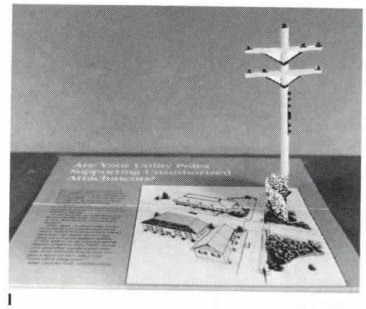
Involvement in the education of the public can bring in clients

An innovative public relations program has been initiated by SHWO, a 150-person Texas architectural and engineering firm. It is an outgrowth of a poster directed to developer clients with "Dealmaker" as the theme. The first poster is in its second printing and the firm is still getting calls for copies from all over the country. Encouraged by this response, SHWO developed an annual "Dealmaker Award" program to honor those people who have most effectively improved communities in Texas through significant real-estate transactions. Some 250 leaders of financial institutions, real-estate brokers, county judges and city officials were invited to submit nominations, and the winners were announced at gala cocktail receptions. In addition to generating favorable publicity, the program gives SHWO an opportunity to know the leaders in Texas real-estate development.

A possible new trend in client-oriented brochures can be seen in two recent publications offering information of value to readers: a brochure on choosing an architectural firm from Allen Drever Lechowski, Architects and a magazine, *Executive Design,* from Whisler-Patri. The ADL brochure, while clearly encouraging the reader to "choose" the the firm, actually educates a client as to the best way to go about selecting an architect. In the back pocket are a selection checklist and an evaluation matrix to aid in the process.

Executive Design by Whisler-Patri contains an interview with principal Charles Schwab, an article on space planning by another of the firm's principals, and a newsbriefs column on trends in the design profession and construction industry. The publication, described by Whisler-Patri as a journal of architecture and design for business executives, is good-looking and interesting reading.

NBBJ produced a commemorative brochure to celebrate its 40th anniversary. The new brochure has lovely subtleties of spatial arrangements, cutouts from photographs that crop up somewhere else and the repeated number 40, always in a different style. The brochure was produced in-house for a surprising total cost of $13,000. Marketing director Mark Cameron says that this was accomplished by working very closely with the managing principal and the designer and shopping around carefully for a printer.



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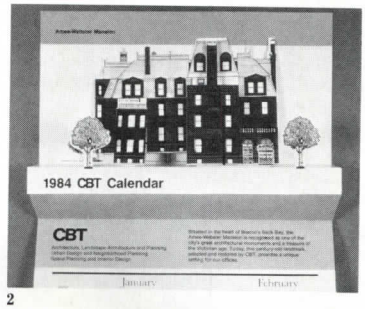

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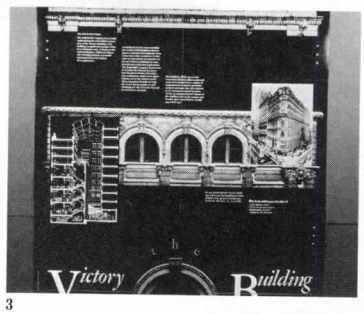

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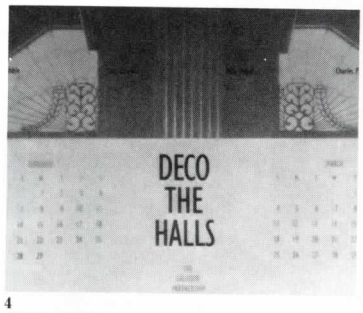

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Gilbert Commonwealth's pop-up poles (1) gave liveliness to an everyday function for a greeting card, as did Childs Bertman Tseckares & Casendino's pop-up (2) of the mansion in which they have their architectural offices. Poster (3) announced the formation of new architectural offices for Elliot Rothchild, as another (4) did for the Callison Partnership.

The meeting attendees also described their experiences with printed materials

Angela M. Kimble told of the 75th-anniversary program of Harley Ellington Pierce Yee Associates, a Southfield, Michigan, architectural, engineering and planning firm. The program began with an image survey, followed by a new corporate identity program, the mailing of posters to announce the new identity and a new brochure developed by an internal task force. Ms. Kimble noted that the people in the firm and their attitudes enhance a firm's image.

Darlene A. Weidert of Gensler & Associates spoke of the firm's communications/publicity program, which combines traditional promotional materials such as newsletters and direct mail with an innovative employee and public relations program. A constant effort is made to gain publicity in the business and client press and to make the firm's expertise available to members of the press. Strategy in each office location includes strong community participation, professional organization participation and events (open houses, art shows) to which clients and all employees are invited.

Michael A. Triassi and Deanne DeFrank of Sear-Brown Associates in Rochester provided attendees with a description of seminars they sponsored to disseminate information on transportation legislation between various levels of the government. By providing this service, the firm established its expertise in highway and bridge design and enhanced relationships with government officials at various levels. Another case study showed how the firm boosted fees in one office 70 per cent with a print ad/radio ad campaign.

David Freeman, of Psomas & Associates, a midsized civil engineering and surveying firm, said that promotion plans should fit both the business plan and the personality of the firm. The thrust of their efforts was to become a resource to target markets. Efforts included a pamphlet on laying of storm drains and a series of seminars on land development and financing.

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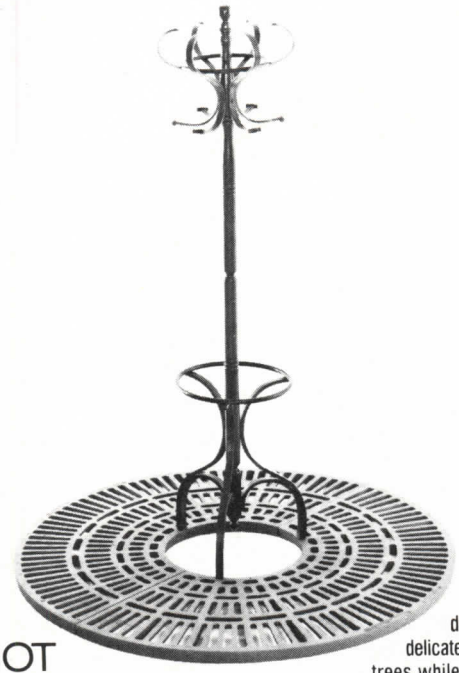

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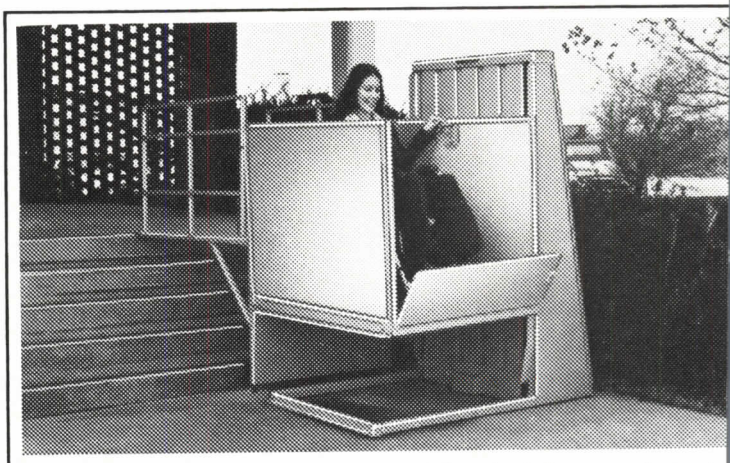

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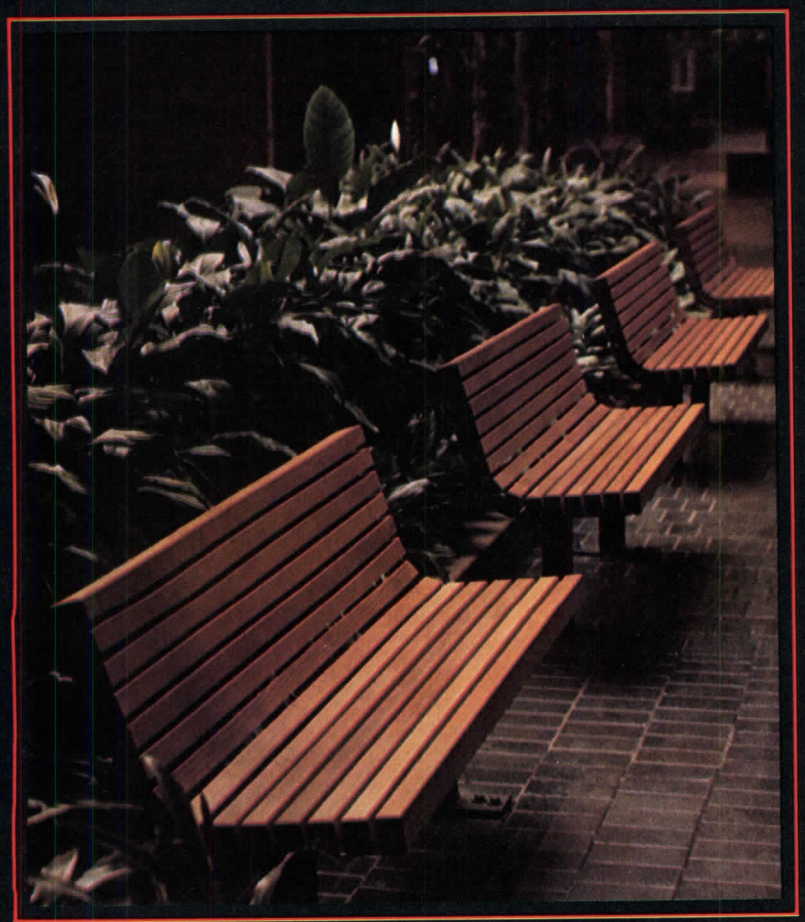

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Circle 21 on inquiry card

Marketing continued from page 31

"Dealmaker" poster for architects SHWC (1 and 2) announces their involvement in development. A commemorative brochure (3 and 4) announces a 40th birthday for architects NBBJ. The use of video in presentations is illustrated by Dewberry & David's giant images (5 and 6) for a new Wolf Trap design. RTKL's announcement (7) conveys a desired festive spirit.

Video may not be gaining in popularity, but those who use it are enthusiastic

The 1984 survey indicated that fewer firms were using video than in 1983. But those who are, are very serious about it.

After fire destroyed the outdoor theater at Wolf Trap Farm, Dewberry & David, a Virginia engineering, architecture and planning firm, completed working drawings for the Filene Center in four months by using their CAD system. At a gala held to kick off the reconstruction fund raising, 12,000 people watched four 24- by 26-foot video screens as the design was rotated, panned and zoomed to show it from different perspectives.

Architects and engineers Kirkham Michael & Associates in Omaha used video to present the redesign of a viaduct over an existing transit corridor to a selection committee. They used a consumer model one-half-inch video camera to record their engineer explaining the site and describing the office's approach to the main issues involved in the project. They realized the easiest way to edit the tape was to go back to the site and redo the sequence with only those parts they wanted, a benefit of the small affordable format.

Sverdrup used video for an underground transit project interview to present their capabilities. It was designed to give the team members expert status by appearing on site and having speaking roles. This establishes knowledge of the project and addresses project-related issues directly.

A strategy even more effective than having the firm's people in speaking roles is to have a client speak on the firm's behalf. This is what Stevens & Wilkenson achieved in a video pitch for a transit design. Interviews were conducted with three previous clients, including the mayor of a town they had served for 20 years. It took about 1 1/2 hours of taping to get one minute of dialogue. However, the effort paid off in the firm being awarded the new job.

When architects, engineers and planners Haines Lundberg Waehler prepared a presentation to get the design of Nabisco's new technology center, they chose the video format because it allowed them to describe the buildings' complex function in very simple terms. They used their CAD system to generate and animate the material and then photographed it directly off the monitor, adding the connecting dialogue and special effects later.

David Beck, an architect in Philadelphia, secured one large job with the use of a video proposal. For a subsequent new project proposal, he reused a major part of the first footage. A new opening and new material relating to the project were added and integrated so carefully that it is difficult to tell what's new and what's reused.

Harvey Construction Company in New Hampshire produced a video to serve as the company's calling card. Describing themselves in the video as "sturdy unflinching New Englanders with a thrifty outlook" is a unique attention-getting device.

Conference attendees spoke out on their experiences with video

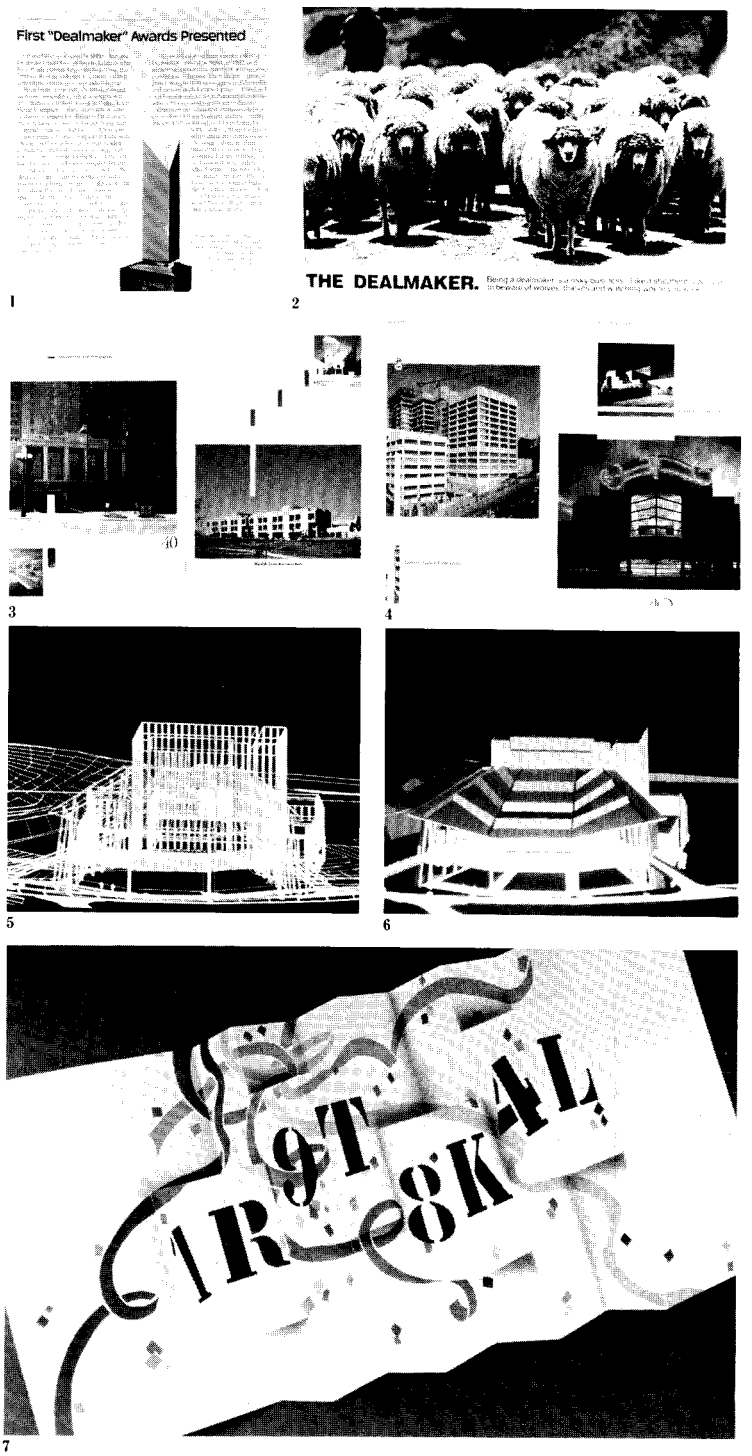
Brenda Terris of Heery Intl., Atlanta, told the conference that the firm's first video was produced in 1980 at a cost of $20,000, fair in relation to the $120 million project they were awarded. Since then they have so enhanced their skills in producing slide and video presentations that they founded Integrated Communication Systems, Inc. to produce shows for outside clients.

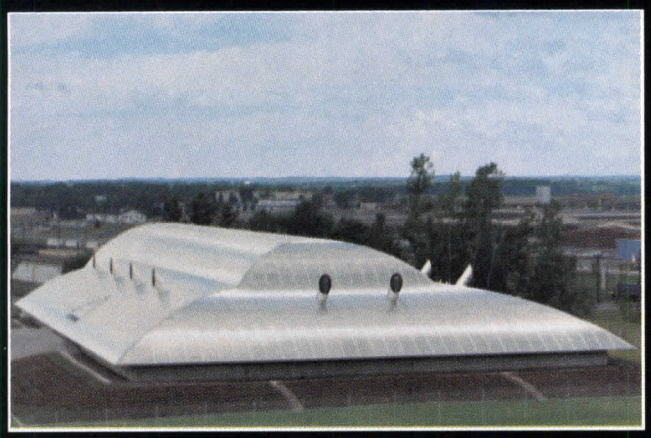
Robert James of Hunt & Co., Architects, a San Francisco firm, told conference attendees of his firm's experience in preparing a video for a presentation to the Southern California Rapid Transit District. The news-gathering approach was used in having 15 project members discuss the issues. The end product was more credible because people weren't talking from scripts.

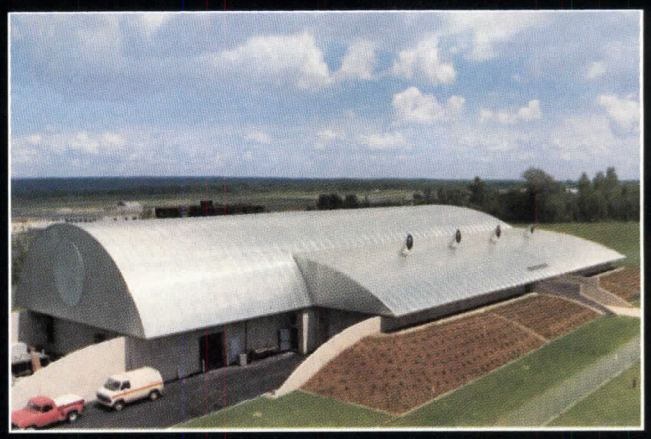
Given that this is the first generation of marketing, where do we go from here?

Weld Coxe moderated the conferences and told attendees, "Essentially what we think we're seeing is that marketers are going to be involved in less planning and more doing. The focus is shifting from strategic to tactical for the long term. There are, of course, many kinds of doing. There's prospecting and lead finding; there's direct involvement in proposals and presentations; there's all the support marketing that gets involved in keeping the resource together. And then there is what is coming to be called 'marketing communications.' Our observation is that marketing communications, or promotion, can be a very efficient part of marketing programs.

"But," Coxe continued, "the predominant message is that the standard techniques for the marketing tools of public relations and some advertising have a lot of room to be effective before they're anywhere near over the hill. We're still in the first generation of marketing communications in its application to professional practice."







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Management: Major construction projects get special insurance

In this installment in the series, a professional-liability insurance manager from the CNA Insurance Companies outlines the advantages of individually insuring your exposure on projects

By Michael Silchuck

There is some good news and some bad news for design professionals involved in large projects.

The good news is that specific-project insurance can help design professionals better cope with the problem of rising insurance costs without curtailing vital coverages when they could be needed most—namely on projects that are unusually large for the general run of the design office's business. Or, even if they are all large, it could be cheaper. Previously a revolutionary concept, insurance for specific projects is being requested by more and more architects, engineers *and* project owners to provide them important long-term protection.

There is, of course, another bit of good news: the recent upturn in the economy that has caused a rebound in the construction industry. While McGraw-Hill Information Systems predicts a low eight per cent gain in nonresidential construction contracting this year over 1983, it also states there is room for a 20 per cent square footage gain when offices are excluded (see *Update*, RECORD, April 1984, page 27).

However, there is some bad news: Design professionals and the construction industry are being confronted by an ever-increasing number of professional liability claims which also are rising in severity. A portion of these have been such headline-grabbing incidents as the Kansas City Hyatt and the Hartford Civic Center structural failures and the MGM Grand Hotel fire in Las Vegas.

But it is the routine costs of everyday claims that are driving premiums up

An accurate perspective on general claim activity involving design professionals is available when one looks at statistics from the commended professional liability insurance program of the combined forces of the American Institute of Architects, the National Society of Engineers, and Practicing Engineers in Private Practice. This program keeps track of statistics on about half the architects in the United States. In 1972, there were 23.7 reported claims for every 100 firms covered by the combined program. The average claim value paid, limited to the first $1 million of coverage, was $47,323 for that year. By comparison, in 1982 the number of claims reported increased 87 per cent, and the average dollar value per claim more than doubled. There were 44.4 reported claims per 100 firms. And the average paid claim cost was $116,071.

Increasing defense costs, remedial costs and other related claim expenses have had a dramatic effect on premium costs. Because some architects and engineers consider the cost of insurance too high even in today's competitive insurance market, many may not be purchasing the insurance they need for protection. This comes at a time, after all, when they are faced with more clients trying to reduce fees.

Project owners and developers have their problems too, caused, or significantly contributed to, by the economy and the ever-increasing complexity of construction and development. So they are demanding more stringent contractual requirements. Professional liability insurance is becoming a customary requirement of the prime professional and all his consultants, with coverage often mandated for the design and construction phases, plus a statute-of-limitation period, at significantly higher limits than the design professional might normally maintain.

What, specifically, does project insurance cover and when is it appropriate?

A concept pioneered eight years ago by the CNA Insurance Companies and Victor O. Schinnerer & Co., project insurance (or insurance for specific projects) offers a single professional liability policy to cover all architects and engineers providing professional services on that project. Coverage is tailored exclusively to meet the particular needs of that project and extends for the length of the design and construction phases, plus up to five years after completion.

Such policies are most appropriate for sizable construction projects in the $10-million-and-up range that take several years to complete. Typical candidates include office buildings, major airport expansions, transportation works, sewer projects and other complex or multiphase construction developments. These may involve one design team (consisting of several firms); or may encompass as many as 50 to 150 firms for more complex, massive projects.

The designers' burden of liability insurance premiums can be reduced substantially

A project-insurance premium is designed as a reimbursable item from the owner in his construction budget. It also may be an expense item that the owner chooses to pay directly.

Customarily, project insurance premiums are less than one-half of one per cent of the total project construction value. This is far less than the contractor's standard coverages and performance bond, which traditionally are paid by owners. Since billings generated for projects covered by project-insurance policies are not reported under the design firm's practice policy, the cost of this basic and necessary practice coverage can be reduced.

Project insurance is now a frequent contractual requirement by owners because it provides the long-term coverage guarantees they traditionally have desired but that previously were unavailable.

In addition, owners can obtain high limits of liability and know that these limits will be available solely for claims on their projects.

This fact, coupled with the ability to identify the premium applicable to the individual project, enables the owner to feel more comfortable reimbursing the design professional for the project-insurance premium.

As an overview, design professionals should consider certain advantages

- One policy covers the prime professional and all consultants, easing the critical need to coordinate insurance coverages of all individuals and firms involved.
- All consultants are included as additional named insureds, eliminating the possibility of the prime professional retaining consultants who do not maintain sufficient coverage.
- Joint-venture partners are included as named insureds, reducing the design professional's exposure for those who may have low liability limits or no insurance.
- The policy period is the entire design and construction phases of the project—regardless of length—with no annual renewals.
- Coverage is extended for up to five years after completion. Extensions of this period are negotiable. (Claim statistics show that the vast majority of professional liability claims are made during construction or within five years after project completion.)
- Limits of liability up to $75 million or more are available. This limit applies to the designated project only and cannot be eroded by claims from the designer's other projects.
- Under the CNA policy, the primary $5-million limit of liability cannot be cancelled with the exception of certain actions initiated by the insured: nonpayment of premium, breach of the policy conditions, or misrepresentation or concealment of information on the application.
- The premium is developed at the inception of the policy, based on the estimated project construction values, length, scope and nature. This premium will not change if the initial underwriting data remains constant. Thus, the premium is not subject to rate increases during the life of the project. Also, a predetermined rate can be included in the policy to reflect changes in

Continued on page 37

Mr. Silchuck is architects' and engineers' program account executive in the CNA Insurance Companies' professional liability division.

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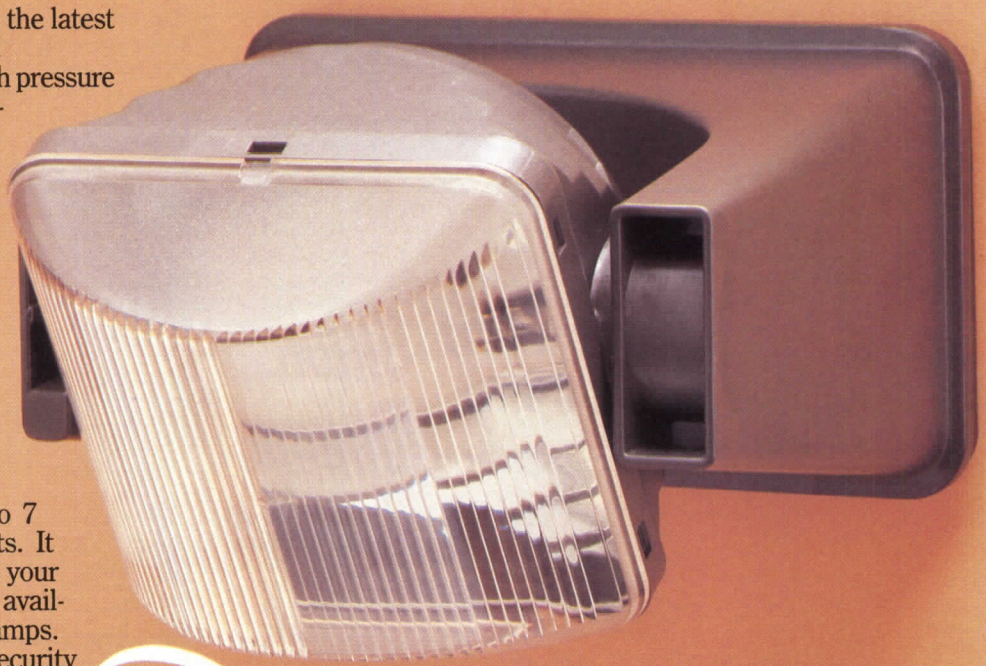

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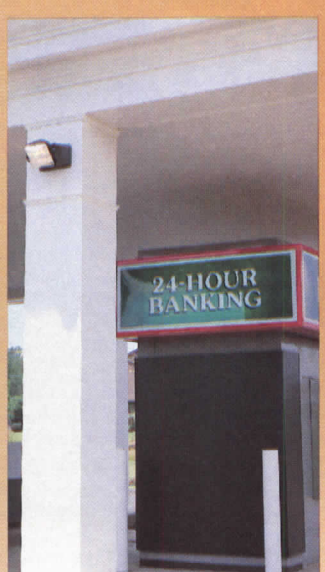


Circle 33 on inquiry card

Continued from page 35

project construction values. This enables the design professional and owner to budget more effectively for inflation and other factors that may affect the final premium.

- Billings generated for the project are reported but not included in the pricing on the design professionals' applications for their basic practice policies.
- Because claims brought under the project policy are not covered under each firm's basic practice policy, they do not affect the premium of the practice policy.
- A memorandum of insurance is issued to the owner specifying the coverage scope. This eliminates the time-consuming and bothersome task of obtaining individual memoranda of insurance from each design professional on an annual basis.

More recently, an "owners' multiproject insurance policy" became available

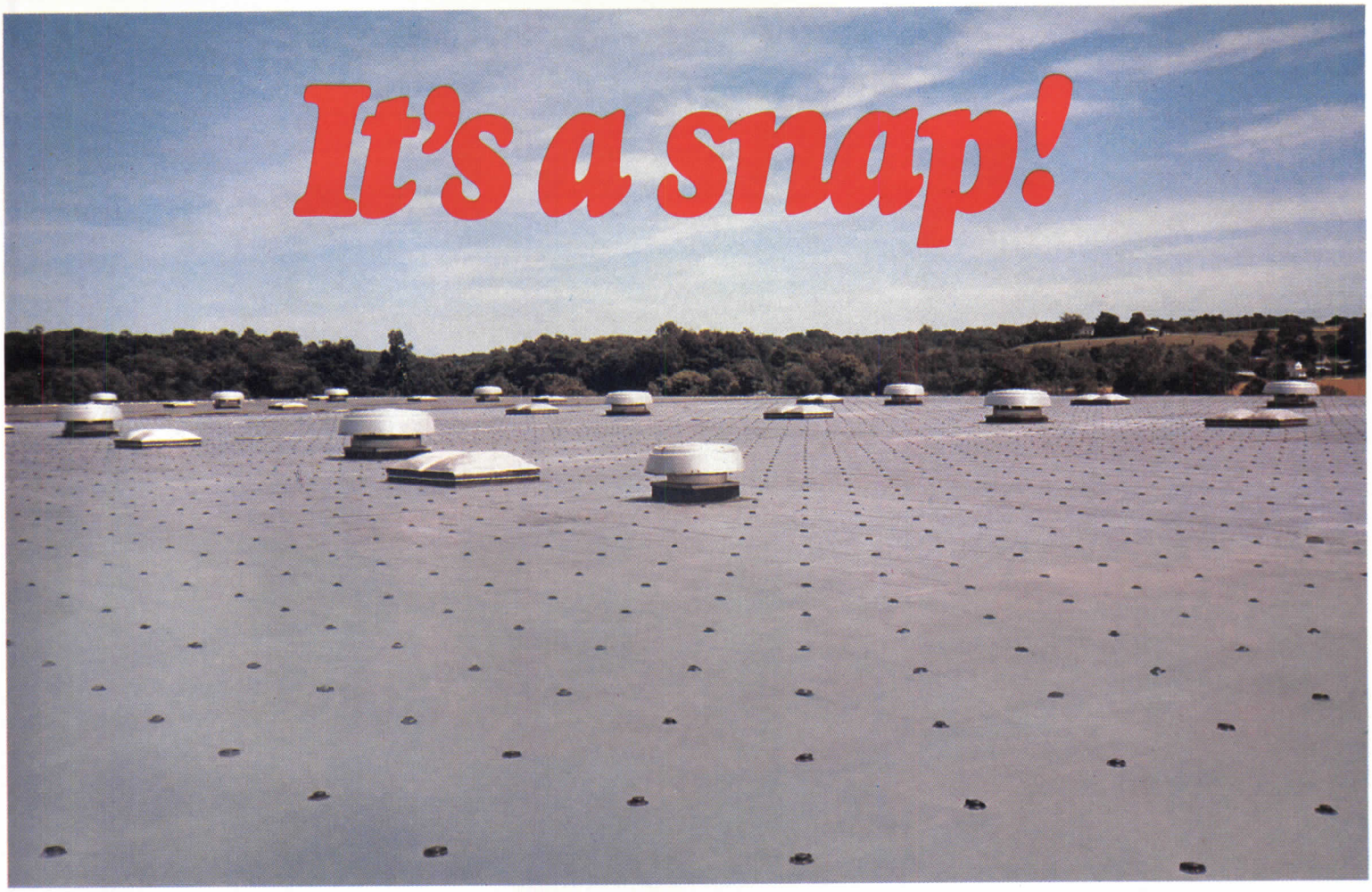
This is in response to requests from owners and developers involved in the concurrent development of multiple projects. Examples of such projects include the development of shopping centers in several parts of the country, or of condominiums.

This concept differs from traditional project insurance in that one policy provides coverage for the design teams on all projects undertaken by an individual owner during the specified policy period. It eliminates the need for separate project-insurance policies for each project and is viewed as a significant administrative benefit to larger developers. A policy period of one to three years is available at the owner's option. The policy also features a guaranteed rate with coverage for new projects included on a reporting basis.

Both project insurance for design professionals and the owner's multiproject policy are offered by Continental Casualty Company, one of the CNA Insurance Companies, exclusively through the program underwriting manager—Victor O. Schinnerer, Inc. Other companies offer similar products. If you or your firm are interested, you should contact your insurance agent about project insurance plans available in your area.

One final word: The project insurance policy for design professionals is *not* a performance bond, or a "kitty" for additional funds, or a guarantee to the owner. The policy is written to afford protection for the design professionals against liability claims arising from errors, omissions or negligent acts. It will give the owner evidence that there is a separate policy in force for his project with separate limits of coverage for the professional-liability exposure of the design team. The project policy will eliminate the possibility of the prime professional having professional consultants who are totally uninsured or whose professional liability policies have restrictions either in coverage or in liability limits.

It's a snap!



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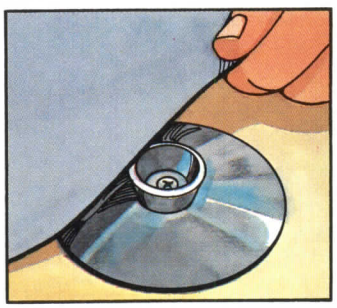
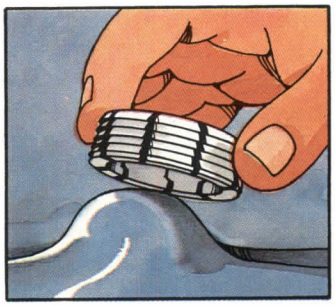
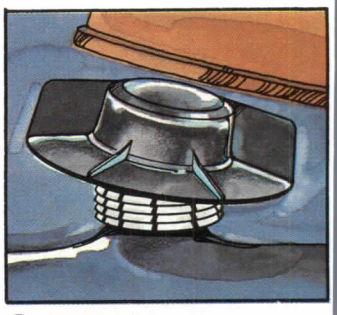


1 Roll membrane over knobbed base plate.



2 Roll and snap on white retainer clip.



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Information resources: An expert's list of books you may need

For those of you who still prefer books over computers, here's a list that one firm finds basic to running a practice

By Sanja M. Nielsen

In an increasingly competitive market for their services, more firms are coming to the conclusion that in order to meet and exceed the competition, their records and resources must be organized, up-to-date and accessible. Firms with 30 or more employees are hiring professional architectural librarians in greater numbers to supply a full range of information services in the areas of design, technical data, management and market research. The smaller firm, however, may not be in a position to hire this professional expertise, even on a part-time basis. This list of suggested titles for a small but comprehensive office collection has been developed to assist the practicing architect in keeping abreast of the state-of-the-art in the nonacademic architectural literature. Many of these technical books are familiar standbys, while others serve specialized needs; in any case, you will want the latest editions, listed here:

ASHRAE Handbook and Product Directory: 1977 Fundamentals. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., New York, 1977. $80.00.

Building Code Requirements for Reinforced Concrete (ACI 318-77). American Concrete Institute, Detroit, 1977. $23.95.

Architectural Graphic Standards, 7th ed. American Institute of Architects, John Wiley & Sons, Inc., New York, 1981. $99.95, $90.00 (members).

Timber Construction Manual, 2nd ed. American Institute of Timber Construction, John Wiley & Sons, New York, 1974. $32.95.

American National Standard Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People (ANSI A117.1-1980). American National Standards Institute, New York, 1980. $6.00.

Catalog of American National Standards. American National Standards Institute, New York, 1983. $10.00.

ASTM Index (section 00). American Society for Testing and Materials, New York, 1984. $25.00.

Safety Code for Elevators and Escalators (ANSI/ASME A17-1981). American Society of Mechanical Engineers, New York, 1981. $40.00.

Architectural Casework Details. Architectural Woodwork Institute. Arlington, Va., 1969. $2.00.

Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program. Architectural Woodwork Institute, Arlington, Va., 1984. $10.00

Architects' Guide to Glass, Metal & Glazing. U.S. Glass Publications, 1982. $3.00.

Paints & Coatings Handbook for Contractors, Architects, Builders, and Engineers. 2nd ed., by Abel Banov. Structures Publishing Co., Farmington, Mich., 1978. $32.50.

Bethlehem Structural Shapes, Catalog 3277B. Bethlehem Steel Corp., Bethlehem, Pa., 1970. Free.

Building Construction Cost Data. R.S. Means, Duxbury, Mass., 1983. 30.00.

Building Movements and Joints. Portland Cement Association, Skokie, Ill., 1982. $9.75.

The BOCA Basic Building Code. 9th ed. Building Officials and Code Administrators International, Chicago, 1984. $32.00.

Masterformat: Master List of Section Titles and Numbers. Construction Specifications Institute, Alexandria, Va., 1983. $22.50.

Dwelling House Construction. 4th ed. by Albert George Henry Dietz, M.I.T. Press, Cambridge, Mass., 1974. $22.50, $8.95 (paper).

Directory of State Building Codes & Regulations. National Conference of State Building Codes & Standards, Inc., 1982. $40.00.

Elevator Engineering Standard Layouts. 1979 ed. National Elevator Industry, Inc., 1980. $4.00.

Factory Finishing of Architectural Woodwork. Architectural Woodwork Institute, Arlington, Va., 1974. $1.50.

Fire Doors Where and When: for Interior Architectural Woodwork. Architectural Woodwork Institute, Arlington, Va., 1982. $5.00.

Gypsum Construction Handbook with Product and Construction Standards. United States Gypsum, Chicago, 1980. Free.

Building Without Barriers for the Disabled, by Sarah P. Harkness. Whitney Library of Design, New York, 1976. $14.75.

Dictionary of Architecture and Construction, by Cyril M. Harris. McGraw-Hill, New York, 1975. $38.50.

Life Cycle Cost Analysis 2: Using It in Practice, by David S. Haviland. AIA, Washington, D.C., 1978. $20.00.

High Pressure Laminates as an Architectural "Woodwork" Material. Architectural Woodwork Inst., Arlington, Va., 1981. $2.50.

Hollow Metal Technical and Design Manual. Compiled and edited by Wayne R. Koppes. Hollow Metal Manufacturers Association, National Association of Architectural Metal Manufacturers, 1977. $12.50.

Designer's Guide to OSHA: A Practical Design Guide to the Occupational Safety and Health Act for Architects, Engineers and Builders. 2nd ed., by Peter S. Hopf, McGraw-Hill, New York, 1982. $36.50.

Construction Materials: Types, Uses, and Applications, by Caleb Hornbostel. Wiley, New York, 1978. $57.50.

Life Cycle Cost Analysis: A Guide for Architects. AIA, Washington, D.C., 1977. $15.00.

Life Safety Code Handbook. Edited by John A. Sharry. National Fire Protection Association, Inc., Quincy, Ma., 1978. $22.00.

Manual of Steel Construction. 8th ed. American Institute of Steel Construction, Chicago, 1980. $36.00.

Mechanical and Electrical Equipment for Buildings. 6th ed., by William J. McGuinness, Wiley, New York, 1980. $39.95.

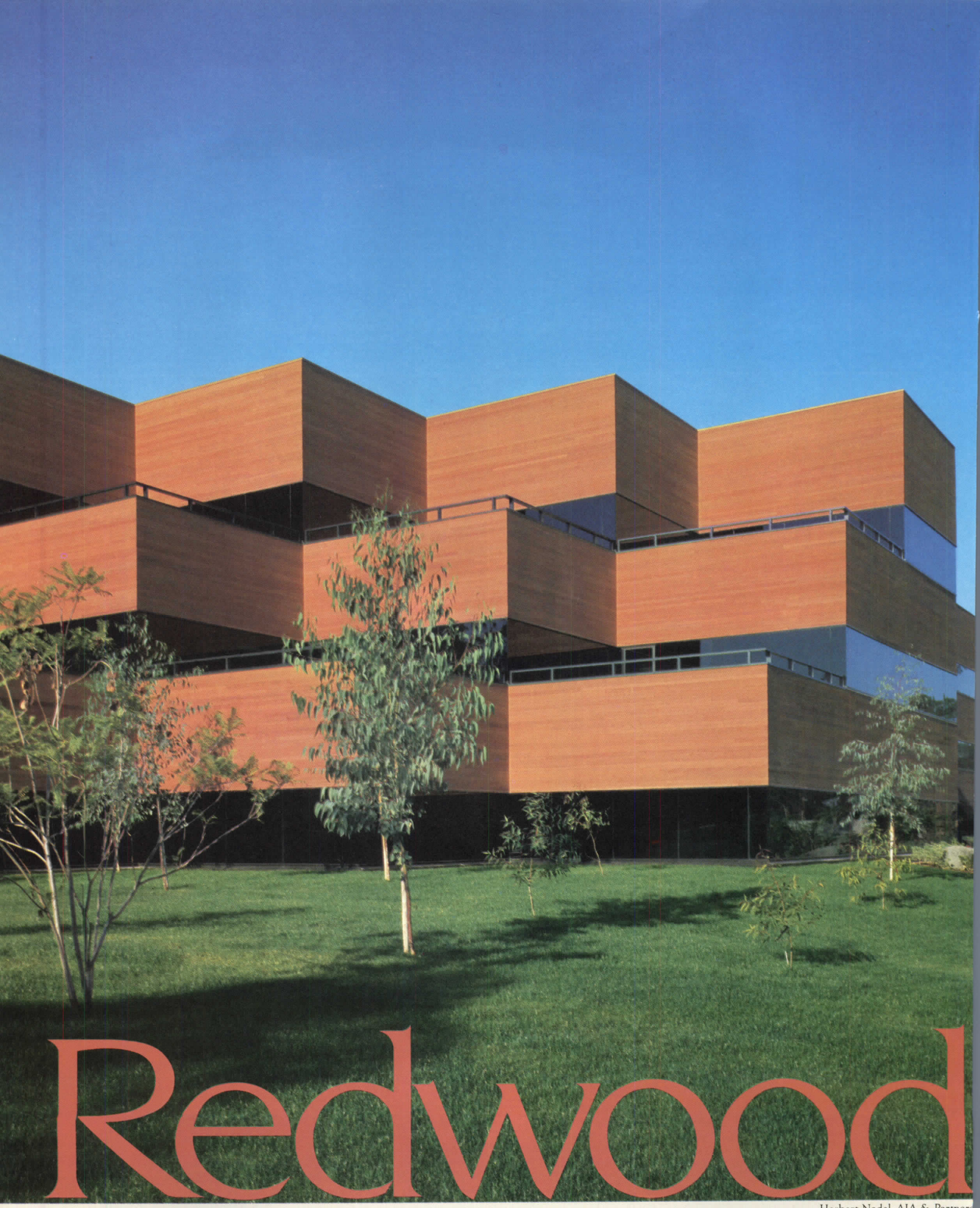
Heating, Ventilating and Air Conditioning: Analysis and Design, by Faye C. McQuiston. Wiley, New York, 1982. $29.95.

Construction Specifications Handbook. 3rd ed., by Hans W. Meier, Prentice Hall, Englewood Cliffs, N.J., 1983. $75.00.

Metal Finishes Manual: for Architectural Metals and Metal Products. 3rd ed. Compiled and edited by Wayne F. Koppes, National Association of Architectural Metal Manufacturers, Chicago, 1975. $15.00.

Metal Stairs Manual. 4th ed. National Association of Architectural Metal Manufacturers, Chicago, 1982. $30.00.
Continued on page 41

Ms. Nielson is the head of library and research services for Payette Associates and an active member of the Association of Architectural Librarians, an informal group representing offices and universities around the nation sponsored by the AIA and set up to exchange information on mutual concerns and continuing education.



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Information resources continued from page 39

National Building Code. 6th ed., 1976. American Insurance Association, New York. 1977 revisions. $6.00.

National Fire Codes. National Fire Protection Association, Quincy, Ma., 1984. $210.00.

The NRCA Roofing and Waterproofing Manual. National Roofing Contractors Association, Oak Park, Ill., 1981. $85.00.

Construction: Principles, Materials & Methods. 4th ed., by Harold Bennet Olin, Interstate, Chicago, 1980. $40.00.

Simplified Engineering for Architects and Builders. 5th ed., by Harry Parker, prepared by Harold D. Hauf. Wiley, New York, 1975. $28.00.

Unigraphs, by Edgar Powers, Jr., Gresham, Smith and Partners, Nashville, Tenn., 1981. $50.00.

A Professional's Guide to Nonshrink Grouting for Owners, Architects, Engineers, Contractors, Specifiers. U.S. Grout Corp., Fairfield, Conn., 1981. Free.

Specifications for Commercial Interiors: Professional Liabilities, Regulations, and Performance Criteria, by S.C. Reznikoff. Whitney Library of Design, New York, 1979. $32.50.

Handbook of Single-Ply Roofing Systems. Roofing Siding Insulation, Duluth, MN, 1982. $9.95.

Contract Carpeting, by Lila Shoshkes. Whitney Library of Design, New York, 1974. $18.50.

Systems Drafting: Creative Reprographics for Architects and Engineers, by Fred A. Stitt. McGraw-Hill, New York, 1980. $19.95.

Suggested Minimum Passenger Elevator Requirements for the Handicapped. National Elevator Industry, New York, 1979. $2.00.

Time-Saver Standards for Architectural Design Data. 6th ed., by John Hancock Callender, editor-in-chief, McGraw-Hill, New York, 1982. $82.50.

Building Materials Directory. Underwriters Laboratories Inc., Northbrook, Ill., 1983. $5.75.

Fire Resistance Directory. Underwriters Laboratories Inc., Northbrook, Ill., 1983. $7.20.

Uniform Building Code. International Conference of Building Officials, Whittier, Calif., 1982. $41.95.

Index of Federal Specification, Standards and Commercial Item Descriptions. General Services Administration, Washington, D.C., U.S. GPO, 1983. $29.00.

USS Structural Steel Shapes. United States Steel Corp., Pittsburgh, 1982. Free.

The Professional Practice of Architectural Detailing, by Osamus A. Wakita. John Wiley & Sons, New York, 1977. $26.95.

With the increasing complexities of modern practice, the following list of books offers expertise in traditional methods and newer concepts, such as construction management and the latest marketing techniques:

Architect's Handbook of Professional Practice. American Institute of Architects, Washington, D.C., 1984. $50.00

Project Management for the Design Professional: A Handbook for Architects, Engineers and Interior Designers, by David Burstein. Whitney Library of Design, New York, 1982. $24.95.

Compensation Guidelines for Architectural and Engineering Services: A Management Guide to Cost-Based Compensation. 2nd rev. ed. American Institute of Architects, Washington, D.C., 1978. $17.50.

Manual of Practice. Construction Specifications Institute, Alexandria, Va., 1983. 2v. $95.00.

Marketing Architectural and Engineering Services. 2nd ed. by Weld Coxe. Van Nostrand Reinhold, New York, 1983. $24.95.

Current Techniques in Architectural Practice. American Institute of Architects, Washington, D.C., 1976. $34.95, $28.00 (members).

Contract Administration Manual for the Design Professions: How to Establish, Systematize and Monitor Construction Contract Controls, by Alan N. Culbertson. McGraw-Hill, New York, 1983, $34.95.

Professional Construction Management and Project Administration, by William B. Foxhall. Architectural Record Books, N.Y., 1976. $27.50.

Managing Architectural Projects: Case Studies, by David Haviland. American Institute of Architects, Washington, D.C., 1981. $7.50.

Simplified Guide to Construction Management for Architects and Engineers, by James E. Gorman. Cahners Books, Boston, 1976. $18.95.

Continued on page 43

Information resources continued from page 41

Financial Management for Architects: A Guide to Understanding, Planning and Controlling the Firm's Finances, by Robert F. Mattox. AIA, Washington, D.C., 1980. $30.00.

Managing Architectural Projects: The Effective Project Manager, by David Haviland. American Institute of Architects, Washington, D.C., 1981. $7.50.

Managing Architectural Projects: The Process, by David Haviland. American Institute of Architects, Washington, D.C., 1981. $20.00.

How to Market Professional Design Services. 2nd ed. by Gerre L. Jones, McGraw-Hill, New York, 1983. $32.50.

CM: Developing, Marketing and Delivering Construction Management Services, by Charles B. Thomsen. McGraw-Hill, New York, 1982. $24.95.

Preparing Design Office Brochures: A Handbook. 2nd ed. by David Travers. Management Books, Santa Monica, Calif., 1982. $10.95.

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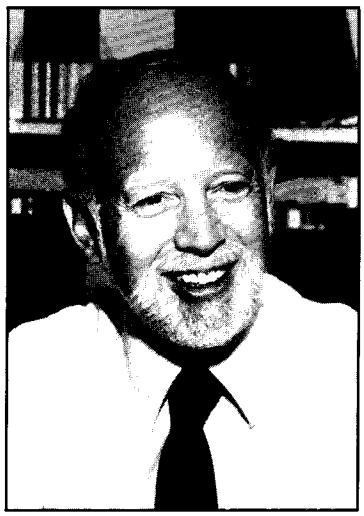
Architectural education: Mies's greatest bequest

What makes a school distinct, forms its reputation? Gerald McSheffrey gives some positive and candid views, as its second dean, on the evolution of the sometimes controversial School of Architecture at IIT

By Gerald R. McSheffrey



Mies van der Rohe left many monuments to his genius. His own judgment was that Crown Hall on the Illinois Institute of Technology campus was his best building. Others admire the Seagram Building, 860-880 Lake Shore Drive, and the National Gallery in Berlin. In 1982, the United States Postal Service decided to reinforce Mies's judgment with a stamp showing Crown Hall. My view is that his greatest bequest was not a building, but the School of Architecture at IIT with its classically structured curriculum, quality of work, and rigorous educational intent. The basics of his great school still remain. In his feisty way, Stanley Tigerman at one time referred to it as a Jesuit seminary. In some ways, that is an astute observation and could be regarded as a backhanded compliment. Stanley admired many things about the school, but not its seemingly narcissistic preoccupation with preserving its past under the shadow of a dead master. The withdrawal of some faculty from architectural debate was sometimes mistaken for elitism.

My connection with the school was for a brief three years, from 1979 to 1982, when I was privileged to become its second dean. In retrospect, I ought to have reflected that Mies probably never aspired to that somewhat grandiose title of dean, because he was aware of the ineffectiveness of middle management. Mies held the title of director, and he obviously knew about the importance of the business of directing, so he easily found his way past the dean of engineering.

The first dean of the restructured Institute of Design and School of Architecture (renamed the College of Architecture, Planning and Design) was James Freed. He was and is an example of the many brilliant and successful architects produced by Mies's school. He stayed an even shorter time than I did, from 1978 to 1979. In his year as dean, he never broke away from the firm of I.M. Pei, where as a principal partner he remains an important and vigorous exponent of contemporary architecture. Again, in retrospect, his approach may have been tentative because he knew more about IIT than I did. Rumor has it that, encouraged by the University administration and notwithstanding the writings of Jane Jacobs on the subject, he tried to bring about cataclysmic change. Even more dark and unsubstantiated rumors were to the effect that a master plan had been formulated for the introduction to the school of postmodern architects more unsettling than the already firmly ensconced Thomas Beeby. Worse still, there was also a much exaggerated story that he really preferred New York to Chicago, as he continued to spend a lot of time there. Charlie Kahn, when dean of the School of Architecture and Urban Design at Kansas, had observed to me more than once that in academia "perception is more important than reality." No doubt as a result of my own rashness, James Freed will one day give his own account of the story.

Mies's teachings were not at all simplistic

And so in 1979, I took up my position in the College with words of encouragement for the future from architects Jack Hartray and Bruce Graham, and dire warnings about my likely demise from Stanley Tigerman. I had some oblique precedent for Irish involvement in the school since the days of Reg Malcolmson and Irish students who had continued to be attracted to IIT since the '50s. Many Chicagoans would have been surprised to know that the influence of the school and its quality was to be found in a number of modern and vernacular Irish buildings. However, I had never been bitten by what had become superficially known as the "International Style" and was more interested in the work of Wright and later, Alvar Aalto, and in the social and urban aspects of architecture. Mies van der Rohe's work appeared to be too simple, and I hadn't really looked closely enough below the surface. Still, I had read Reyner Banham's excellent article on Mies many years previously and remembered his statement that:

"Mies is not a machine esthete, he is a craftsman of technology, and what he has to teach is something that is never very popular—that architectural responsibility is continuous and extends down to the smallest detail. . . . When we have gotten over trying to build him up as an esthetic absolute, we shall have the less comfortable prospect of having to live with him as a moral example."

Harris Stone at Kansas had also given an excellent lecture once, entitled "Mies is not a dirty word." And I naturally made a point of studying Mies van der Rohe's work in depth before I took up my appointment.

I expected to find a school run by some kind of Miesian cult that forbade students to do anything that Mies had not prescribed for them earlier. Imagine my surprise when I found instead a jewel surviving somehow in the sea of sameness that by and large constitutes architectural education. That judgment on architectural education may seem too strong and offensive; it is not meant to be. American schools in particular have an abundance of excellent and talented educators, students, and facilities; but somehow when one looks at the work of most schools, everywhere there is a kind of sameness. Perhaps in the Beaux Arts period one could have made the same comment, although the encouraged diversity of today would not have been present.

The exceptional quality of student drawings and models produced at Cranbrook, Cooper Union, and IIT are well known; but IIT had also an undeserved reputation for producing work that was unimaginative and frozen in the rectilinear mode of Mies. It was as if my own superficial view of Mies's work was in a sense commensurate with that of those who visited Crown Hall for only an hour or so and observed the students at work. I also found to my surprise that the devotion of teachers to their students at IIT was unparalleled with anything I had seen elsewhere. That some were better than others was evident, but the whole teaching effort seemed to be well above the norm.

IIT remained a bastion of quality

George Danforth, who succeeded Mies as director, and Paul Thomas, who succeeded Ludwig Hilberseimer in planning, had steered the school through the entire '60 and '70s. They had kept intact the philosophic direction of the school—a direction that the best students liked to challenge, particularly in the fifth year. More important, they and the faculty had managed to preserve the idea of quality that somehow permeated everything in Crown Hall. When drawing went out of fashion in the '60 and early '70s, IIT remained the bastion of the tradition that stipulated, in essence, that to try and to do was to learn, Suzuki style.

During this period, Arthur Takeuchi and David Sharpe were the outstanding young teachers with Myron Goldsmith and Fazlur Kahn bringing their own special qualities and genius to the Graduate School. But in IIT everyone contributed, and it is almost unfair to single out personalities. The years between George Danforth stepping down and James Freed taking over are somewhat sketchy, but during that period Tom Beeby and Gerry Horn, two of Chicago's best architects, with no former attachment to the school, were on the faculty. Much of the credit for the unique and rigorous architectural education provided at IIT is quite naturally attached to the three Bauhaus

Gerald R. McSheffrey has worked in the British Isles as an architect and planner, in private practice, and with planning authorities and new town commissions. Before coming to the United States in 1976, he was director of development of the Northern Ireland Housing Executive. Since 1976, he has been director of architecture at the School of Architecture & Urban Design, University of Kansas; dean of the College of Architecture, Planning, and Design at Illinois Institute of Technology; and is currently dean of the College of Architecture and Environmental Design at Arizona State University. He is a fellow of both the Royal Institute of British Architects and the Royal Town Planning Institute.

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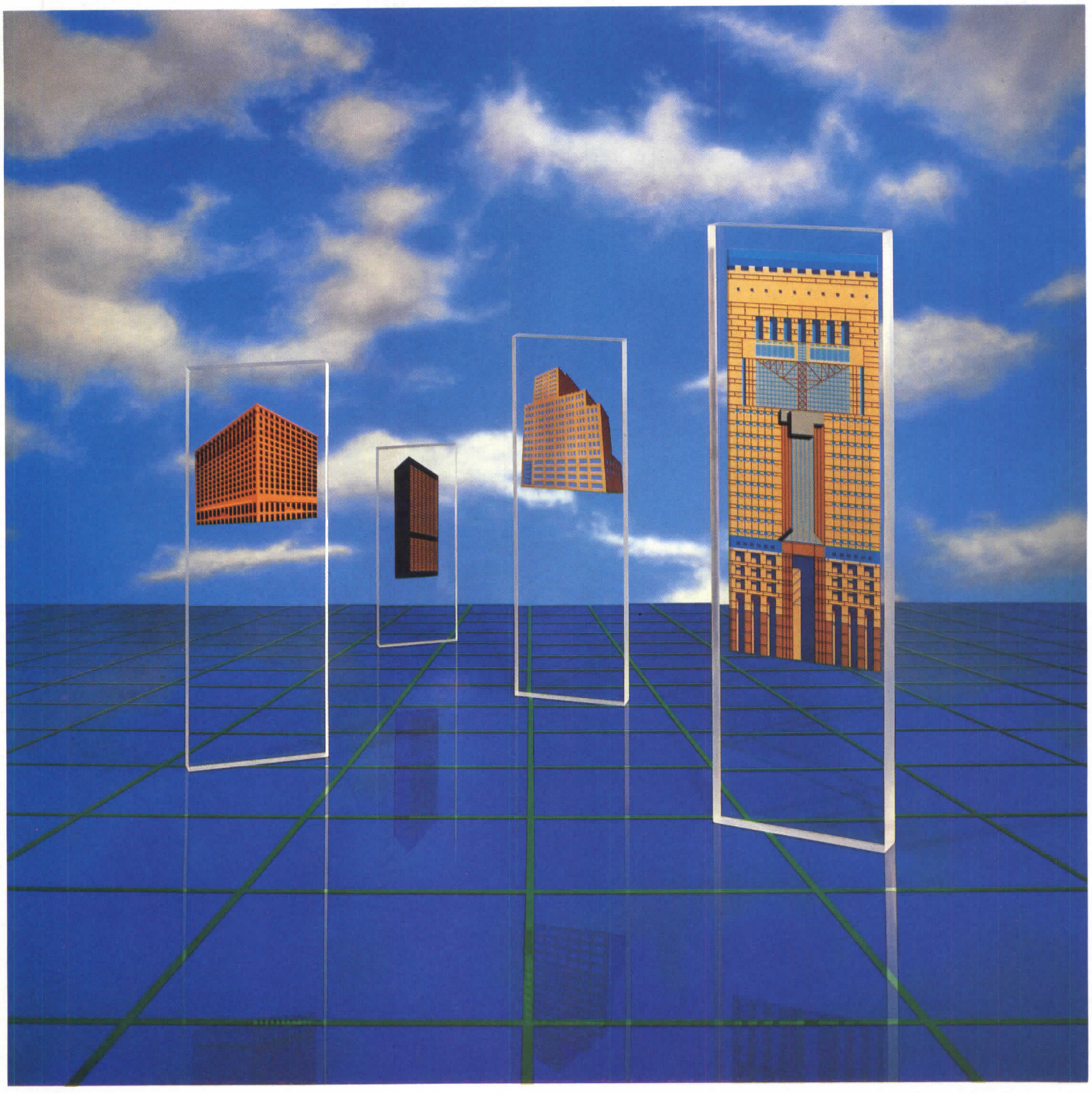

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expatriates: Mies van der Rohe, Ludwig Hilberseimer, and Walter Peterhans.

But there were others and the most vigorous and influential was Alfred Caldwell. What is not generally known outside of Chicago is that Alfred Caldwell taught most of the courses in the early years of the program and was the greatest single influence apart from Mies in establishing the direction for what was then, and still is, an outstanding program. His was a very special contribution. He stood at the juncture between the philosophical ideas of the European architects and those of the Chicago school. His tradition was American and closely attuned to nature. He had worked for Jens Jensen, the great landscape architect, and was undoubtedly influenced by the writings and lives of Emerson, Thoreau, Sullivan, Jensen, and Wright. He immediately recognized the greatness in Mies, the link with Frank Lloyd Wright, and the extension of the natural landscape that came with new spatial possibilities. Out of the logic of structure, the nature of order, and the order of nature, he extracted basic principles of architecture that were forever engraved in the minds of his students. As if these things were not enough, he passed onto his students values of the civilized spirit through the Paideia.

I speak only of Alfred Caldwell in the past tense, because I have been referring to that now fabled period at IIT from the mid '40s to the early '50s. In 1959, he resigned from IIT in protest of the dismissal of Mies as campus architect and went on to teach with Crombie Taylor and others at USC.

I had the privilege as dean of the College of Architecture, Planning, and Design at IIT in 1979 to lure him back into his favorite world of teaching. He agreed to come back as visiting professor on the condition that he be allowed to teach all his old courses in history, and both the sophomore and junior construction studios. I protested that this was two or three times the teaching load of the regular faculty, but in the end gave way. Now in his eighties, only a verse from Horace can sum up his integrity and devotion as a teacher:

"Old age explodes all but mortality;
Austerity offends aspiring youths;
But he that joins instruction with delight,
Profit with pleasure, carries all votes.
These are the volumes that enrich the shops.
These pass with admiration through the world,
And bring their author to eternal fame."

The semester prior to Alfred Caldwell's return, George Schipporeit became chairman of the Department of Architecture. One of Alfred Caldwell's former students ("who drew like an angel and who—as a student—could resolve the most difficult construction details"), he had also worked in the office of Mies van der Rohe. His most important work in partnership with John Heinrich was Lake Point Tower. These two had led a team of young IIT-trained architects to produce a sculpted glass building, referentially Miesian, technically superb, but with a kind of spirited individualism and poetry that transcended the mere eclecticism that had turned and denigrated the originality and meaning of Mies's work into an architectural fashion show.

It appeared that once again it could become a place for trying out ideas. As expressed by Mies, "Let this building be the home of ideas and adventures. Real ideas. Ideas based on reason. Ideas about facts." Just as Alfred Caldwell and Arthur Takeuchi represented the essence and heart of the school, it seemed that the department had a new chairman who could brush away some of the cobwebs.

As it had done so often in the past, IIT's administration now took a hand. For my part, being a link in that administration and working in Crown Hall was, to say the least, anomalous. The past was littered with the skeletons of many notable figures who had passed through the architectural school and Institute of Design.

In the chronology of Serge Chermayeff's book, *Design and the Public Good*, there exists for the year 1951 a cryptic note, "resigns the Presidency [sic] of the Chicago Institute of Design after disagreements with Illinois Institute of Technology over financial and other controls." Henry Heald, who had brought Mies to the campus and arranged the merger agreement between IIT and the Institute of Design, was probably the last administrator of the University with the sensitivity and breadth of understanding to realize what he had accomplished. Successive administrations appear to have been embarrassed to find that the small architectural school and the Institute of Design were better known abroad than the excellent programs in engineering and the sciences. Their actions regarding the programs in Crown Hall ranged from benign neglect to enthusiastic, good-intentioned, but ill-conceived proposals for reform. To be fair, it is not an easy task to keep alive a modestly endowed private university in harsh economic times, and there are also a number of examples of the administration's dignified tolerance and respect for academic freedom and for the eccentricities of many faculty associated with Crown Hall over the years. Again, their acceptance of my recommendation to bring back Alfred Caldwell was an indication of the administration's ability to act both honorably and generously.

Pressures built to adapt to the norm

Now the administration was insisting that curricular reform was urgently needed to revitalize the undergraduate program. In addition to the general education, electives, engineering, and history of architecture courses already taken in other departments, a reduction in studio-taught courses and drawing courses was required. For some reason, there was also a particular antipathy to life drawing and to the mention of architecture as an art.

Under the leadership of George Schipporeit, and in a positive spirit, the additional coursework was introduced with studio courses carefully pared to produce the right number of hours, and to retain the integrity of studio work and quality. The end result was not all that bad, and although the curriculum was beginning to look more and more like that of other five-year midwestern state schools, the essence remained. Most important, the construction sequence and visual training courses originally established by Caldwell and Peterhans were preserved.

This small victory for the administration was approved by the University Curriculum Committee. Although I agreed to some of the changes and with the introduction of computer coursework, I felt that more care and time were needed in making the change, and that the graduate program should have been a first priority. My experiences elsewhere had also taught me that curricular changes seldom led to increases in quality. Improvement in course content usually had a greater impact.

However, as Walter Gropius pointed out, "the success of any idea depends upon the personal attributes of those responsible for carrying it out." I had long been an admirer of Adolf Loos and could recite all his aphorisms from memory. His admonition that "one should not make anything new unless one could make it better" seemed to fit the situation.

At about this juncture, I decided that notwithstanding the small contribution I had been able to make to the College, it was time to leave. There was nothing more that I could do, and I was unwilling to bear the responsibility for implementing the policies of others.

Chicago itself is a major stimulus

Chicago is without doubt the greatest city for architects that I know of. It far surpasses London and New York because of their scale and focus on so many other activities: Architecture is important but it is not central to the life of those cities. Chicago architects love their work and their city. Their lively interest in the art of architecture, and in the conflict of differing philosophies, is only transcended by both the magnificence and subtlety of their enterprises. Chicago is not a pretty city, still less a beautiful city, but is dynamic, powerful, fascinating and magnetic. Today, it has two outstanding schools of architecture where previously it had one; and both are deserving of support. But the great bequest of Mies to the city needs special care and attention, because it is the only school of its kind. It represents the view of architecture as a craft, as construction, and harks back to the ideas of Violet-le-Duc. Yet, it is quintessentially and culturally American. It could not have happened anywhere else other than in Chicago, and its founder more than once publicly acknowledged his debt to Frank Lloyd Wright. It is a cultural heritage more difficult to preserve than any historic building or monument because it is spirit rather than substance—fire rather than stone—a flame often dimmed but never extinguished.

Alongside it is a newer school, but in some ways and philosophically, an older school. It espouses architecture as an enterprise for individual expression and as a fine art. The contrast between the two schools is not just interesting, it is a counterpoint that runs through architectural history. Richard Whitaker and Thomas Beeby had the opportunity to build a new graduate program at the University of Illinois in Chicago (Circle), and build it they did with some of Chicago's most avant-garde professionals including Jahn, Tigerman, Booth, and Nagle.

As the philosophies of both schools ebb and flow and intertwine in the great debate about the future of architecture, it is as if some great hand had reached across the eons of history reinstituting a never-ending drama. The stage is set in Chicago, but without the bequest of Mies, the play has no significance.

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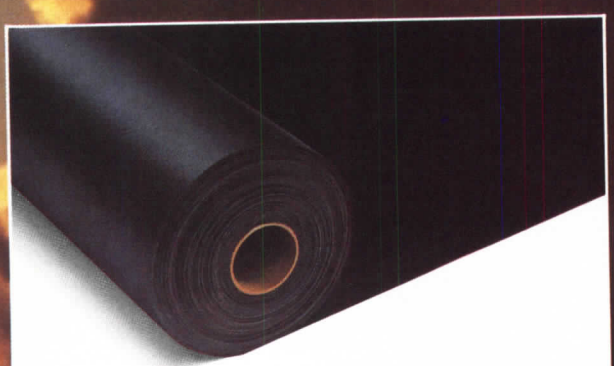

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NEOCON 16: Star-gazing and trend-spotting in the Windy City

Featured guests at NEOCON's Architects' Day luncheon were, from left to right, Rafael de la Hoz, president of the International Union of Architects, Philip Johnson, Arthur Erickson, and John Burgee. Below, Juhani Pallasmaa (left) and Christian de Portzamparc were two participants in a symposium on modern architecture.

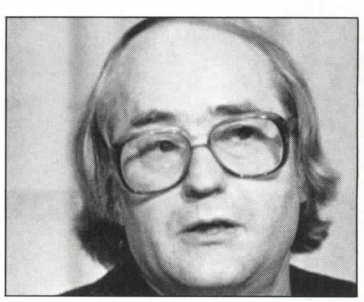
The elevators ran fitfully, stairwells resounded with a strange admixture of regional accents, and Brueghelian crowds swirled in the corridors and show rooms of the Merchandise Mart. It was, in other words, a typical scene at NEOCON 16, the hectic four-day open house in Chicago that combines a market for manufacturers of contract furnishings with a major symposium featuring internationally known architects and interior designers. Although NEOCON for years has been the most-anticipated and best-attended national showcase for new ideas in office furniture, this year's event seemed to have an especially high star-quotient, with such notables as futurist John Diebold, critic Paul Goldberger, and architects Robert Venturi, Hennig Larson, Juhani Pallasmaa, and Christian de Portzamparc, among others, participating in various lectures and seminars. A veritable media event took shape when Michael Graves, the postmodernist guru who draws crowds like Michael Jackson, appeared on a panel with Helmut Jahn and John Burgee. While hundreds packed the Holiday Inn ballroom to hear Graves, many others were turned away as organizers finally closed the doors to the surging crush of architectural groupies.

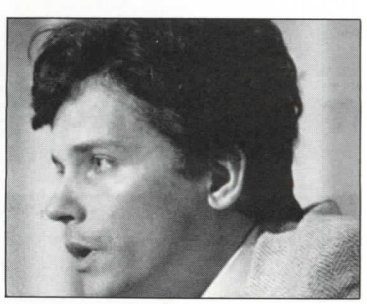
Celebrity watching aside, much of the action at NEOCON occurred in the various Mart show rooms, where manufacturers bombarded visitors with a panoply of new or improved products. Innovative chair designs seemed especially prevalent this year, with Castelli's *Acta*, Domore's *Barto*, Probber's *Soley*, and Herman Miller's *Equa* heading the list. Although there were no real show-stoppers among the unveilings, Sunar Hauserman perhaps made the biggest splash with a striking system of office furniture designed by Niels Diffrient that included a sumptuous work/lounge chair called by one observer "wholesome, but not handsome." Knoll interestingly juxtaposed its sleek new line of office components, designed by Bruce Hannah, with Robert Venturi's furniture collection, which included a fanciful seating group that acquired the tongue-in-cheek sobriquet "carica-chair." Finally, Artec injected a note of jet-set glamor with the unveiling of its *Firenze* series of contract furniture, designed by Paolo Gucci. A color portfolio of these and other significant NEOCON introductions begins on page 138.

Despite the fact that changes in interior furnishings are generally evolutionary, rather than revolutionary, some definite trends could be spotted among this year's NEOCON offerings. "Ergonomics," that catchword of the '80s, is still part of the business lingo, but refinements on the technological side of office furnishings seemed more subtle this year than in the past—a possible indication that designers have gone as far as they can in the creation of "user-friendly" contract furniture. Now that the science of furnishings design apparently has been conquered, there seems to be a renewed interest in creating a more humane office environment: acoustical partitions, for example, are increasingly being offered in "the warmth of wood," and there is a conscious effort to upgrade detailing, hide the computer wires, and get back to the basics of designing beautifully finished furniture. Other trends observed in Chicago included more attention to brighter colors, versus the dusty hues of recent years, as well as the gradual incorporation of Memphis touches into mainstream design.

Regarding the over-all health of the office furnishings industry, the Business and Institutional Furniture Manufacturers' Association (BIFMA) announced at its annual breakfast meeting that shipments in 1984 are running 42 per cent ahead of 1983, at a projected rate of $5.2 billion for the current year. Stephen D. Channer, executive director of BIFMA, noted that these figures reflect the growing influence of electronic data-processing in the office and a concomitant investment by corporations in new or renovated work spaces. Moreover, in case anyone still thinks that modular office furniture is a passing fad, BIFMA revealed that systems furnishings now make up nearly 28 per cent of the market, an increase of two per cent over last year.

Among the major corollary events that distinguished NEOCON 16, perhaps the most important was the announcement of the first annual Chicago Architecture Award, jointly sponsored by the Illinois Council/AIA and ARCHITECTURAL RECORD to recognize "significant contributions to architecture and to the design of our urban environment." Richard B. Cook, president of the Illinois Council, presented the initial award to Arthur Erickson, Philip Johnson, and John Burgee at an Architects' Day luncheon. On the same occasion Randy Vosbeck, an American delegate to the International Union of Architects, announced that Jean Paul Carlhian of Boston was the winner of a competition to design the UIA Gold Medal, an award that will be bestowed on a living architect at the next UIA Congress in Cairo. *P. M. S.*





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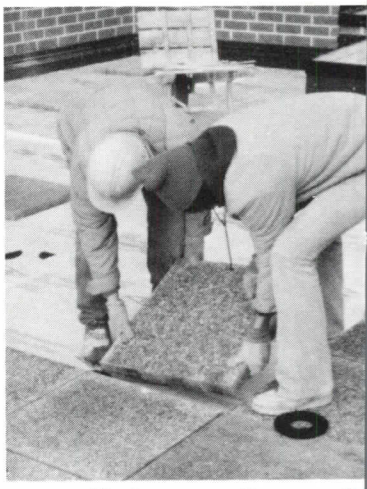

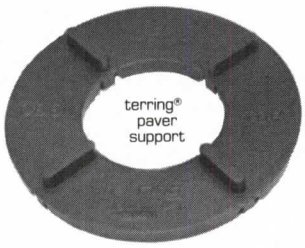

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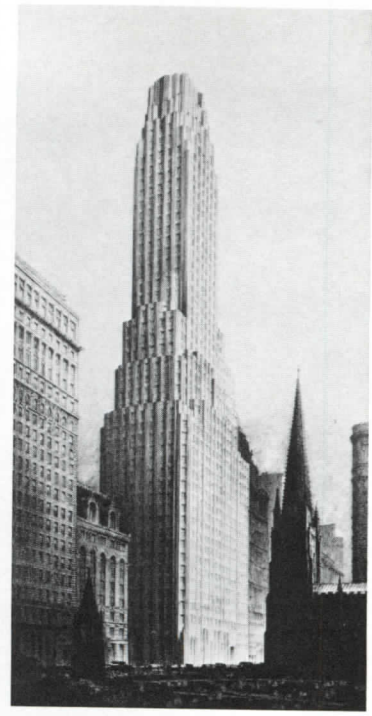
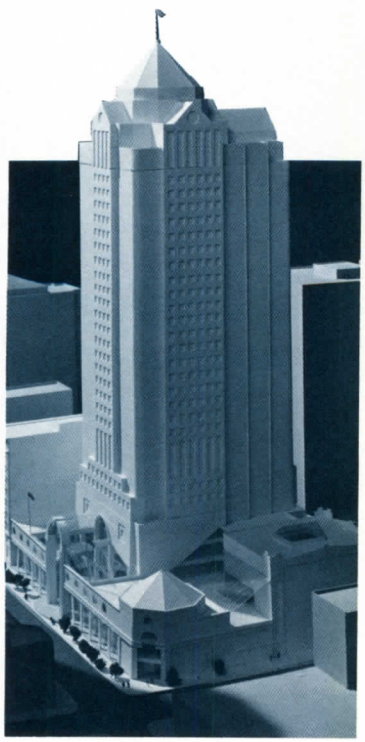
Rearticulating the skyscraper: New York...

Those who still think there is anything new under the architectural sun need only look at the renderings of the new Barclays Bank headquarters now under construction on Wall Street in lower Manhattan (photo near right). Contextualism reaches lofty proportions in Welton Becket Associates' scheme for a 36-story masonry tower that "continues and reinforces the street's traditional canyon image," according to McDonald Becket. Clad in red-brown brick, bronze-tinted glass, and textured metal spandrel panels, the new building is, in effect, a freely adapted hybrid of two nearby buildings in the downtown financial district designed by Voorhees, Gmelin & Walker during the 1920s and '30s. Specifically, the structure's chamfered corners and setback top seem inspired by VGW's Deco Irving Trust headquarters (1931, top right), while a 60-foot-high granite arcade echoes a similar motif found in the older firm's New York Telephone Headquarters (1926, photo bottom right). Most interesting, perhaps, is the fact that both VGW structures are among the buildings featured in a current exhibition entitled "Manhattan Skyline: New York Skyscrapers Between the Wars," on view through September 23 at the Cooper-Hewitt Museum.

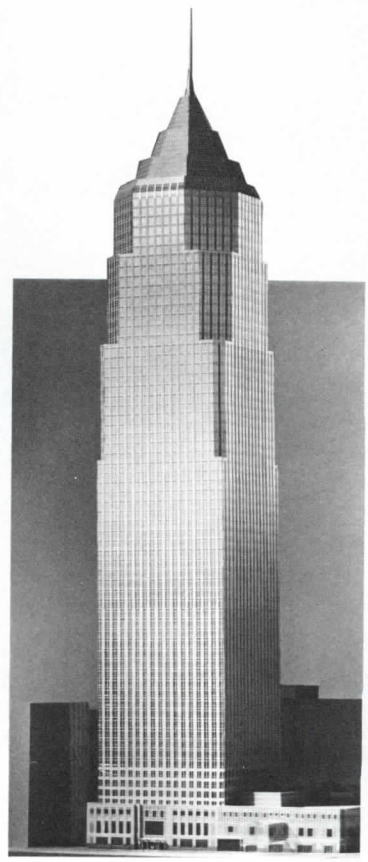


Kansas City...

Now that it has made its postmodernist mark on midtown Manhattan, AT&T is turning its attention to Kansas City, where the company has proposed a midwestern regional headquarters building that promises to be a striking addition to the skyline of the Missouri metropolis. More consciously contextual than its New York counterpart, the Kansas City complex consists of a new 38-story granite-and-glass tower, six floors of retail space organized around a barrel-vaulted atrium, and 2,200 parking spaces. The project fills its downtown block and calls for the rehabilitation of four historic commercial buildings on the site. Architects for the 1.2-million-square-foot development, which is scheduled to be completed at the end of 1986, are Howard Needles Tammen & Bergendoff of Kansas City.



and Minneapolis



Since its completion ten years ago, Johnson/Burgee's IDS Center has had the postwar Minneapolis skyline pretty much all to itself. This situation will soon change with the planned 1987 completion of Norwest Center, a two-million-square-foot office and retail complex that at 950 feet will dominate the Twin Cities and, in the words of architect Cesar Pelli, "bring together silhouettes of individual buildings into one coherent image that will say 'Minneapolis'." With its gently tapering profile, chamfered corner setbacks, and pyramidal crown, the 66-story structure is an oversized adaptation of the landmark Foshay Tower, which for years was the architectural symbol of the city. Pelli's design incorporates stone piers that gradually give way to increasingly wide expanses of reflective glass as they rise toward the building's apex—creating an effect that is solid near the base and diaphanous toward the sky, according to the architect. The new structure will be situated on the city's Nicollet Mall and will feature connections to an existing system of downtown skywalks. A 360-degree observation deck is planned for the tower's 66th floor, and a television and radio broadcast mast will bring the building's over-all height to 1,050 feet.

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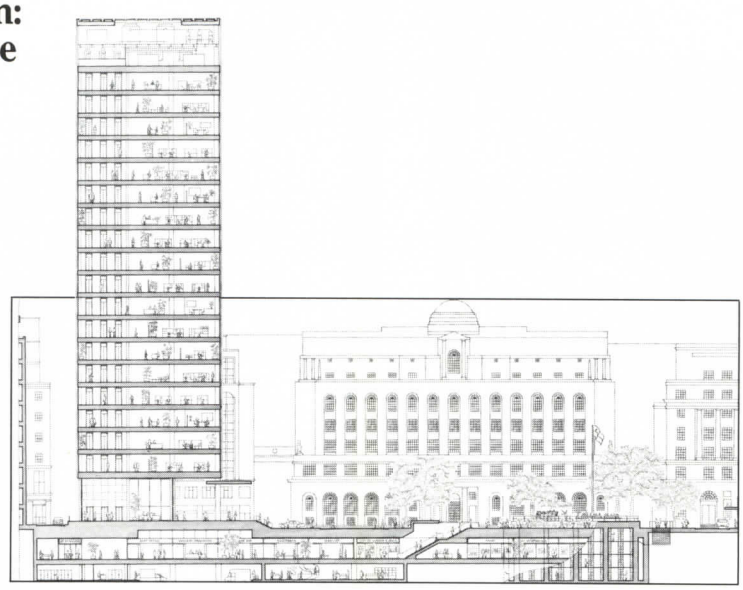
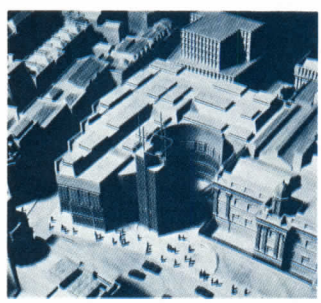
Controversy in London: Mies at Mansion House and a tower for Trafalgar Square





Section and model views (top two photos) of a posthumous project by Mies van der Rohe for Mansion House Square in London. Bottom photos show a model and elevation of projected addition to the National Gallery.

A public hearing has begun in London on plans to clear a central part of the city for a new square and office block designed more than 25 years ago by Ludwig Mies van der Rohe. The project has stirred up a major controversy, fueled in part by comments made on May 30 by Prince Charles.

In a speech at the start of celebrations for the 150th anniversary of the Royal Institute of British Architects, the Prince called the Mies block "yet another glass stump" that would "further ruin the character and skyline of our capital city." The remarks stunned his hosts, yet caused echoes of approval from the general public.

The Mies scheme is being promoted by developer Peter Palumbo and would be carried out under the supervision of English architects Peter Carter and Frank Stower, and Dirk Lohan of FCL Associates, Mies's successor firm in Chicago. The "Mansion House Project," as it is called, is a typically Miesian, 20-story steel-and-glass block with a square in front of it, covering underground shops. An alternative scheme has been drawn up tongue-in-cheek by Campbell Zosolovitch Wilkinson and Gough, slashing the Mies block into two triangles and deleting its square—"the perfect compromise in a country of compromises," according to Peter Gough.

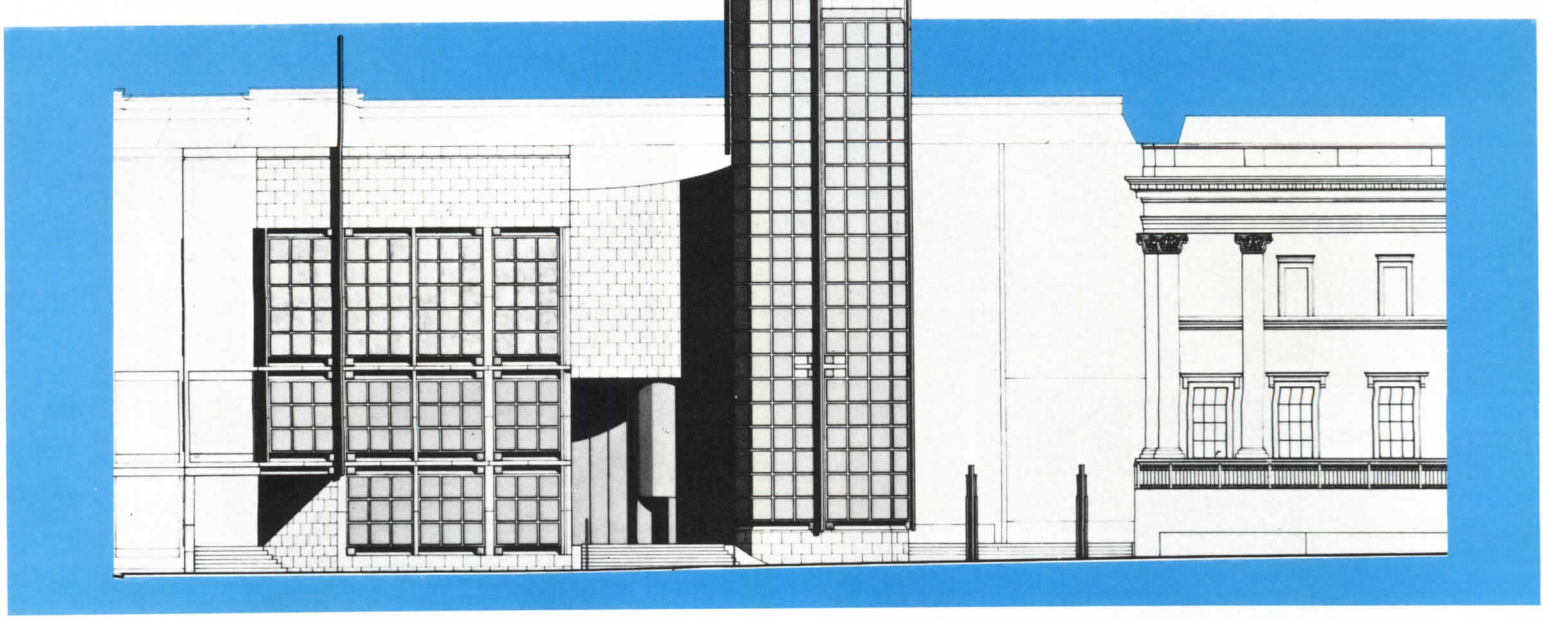
Compromising, however, has gotten another project in London into deep trouble. It is the extension to the National Gallery, also recently the subject of a public hearing and likened to "a monstrous carbuncle on the face of a much loved and elegant friend" by Prince Charles on May 30. The site of the extension, in the corner of London's famous Trafalgar Square, called for a "building of architectural distinction" according to the brief for its 1981 design competition. But it also had to house a self-financing combination of offices below and top-lit space above for one of the world's best collections of early Renaissance paintings.

None of the 79 designs submitted by teams of architects and developers met both requirements. The gallery trustees liked the simple interior of the entry from Skidmore, Owings & Merrill's Chicago office; the jury preferred the gallery wrapped around a circular courtyard offered by a local firm, Ahrends Burton and Koralek, but its curved walls were "inappropriate for the display of Renaissance paintings," they said.

Amid much fuss, ABK was given a brief to "prepare fresh designs" in collaboration with the Gallery. Although the trustees now "unanimously approve" the design, it is rejected by local government. A block has been added that "anchors the leading edge of the circular court," according to Peter Ahrends. The block is higher than neighboring roofs and has a stepped top—"an alien and jarring note," says Ian Lacey, Westminster City Council's planning officer. It looks like "a vast municipal fire station," observed Prince Charles.

The Prince's outburst is raising hopes that both the National Gallery extension and the Mies project will be scotched by the U.K. government's environment secretary, Patrick Jenkin, this summer. Britain's public is behind the Prince's call for "a new harmony in the relationship between the architects and the people of this country."

Peter Heywood
McGraw-Hill World News, London



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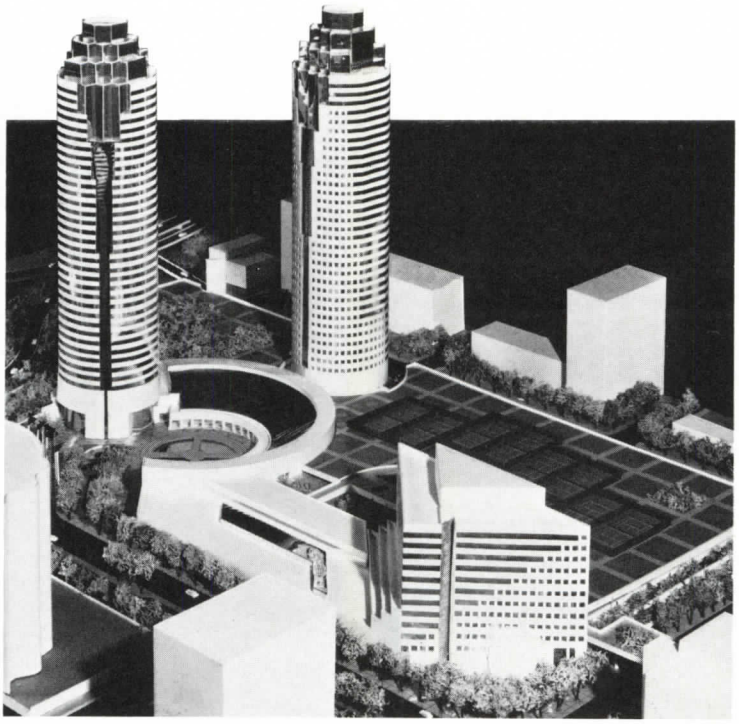
New twin beacons on the Pacific rim

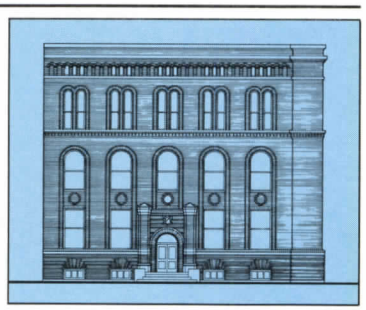


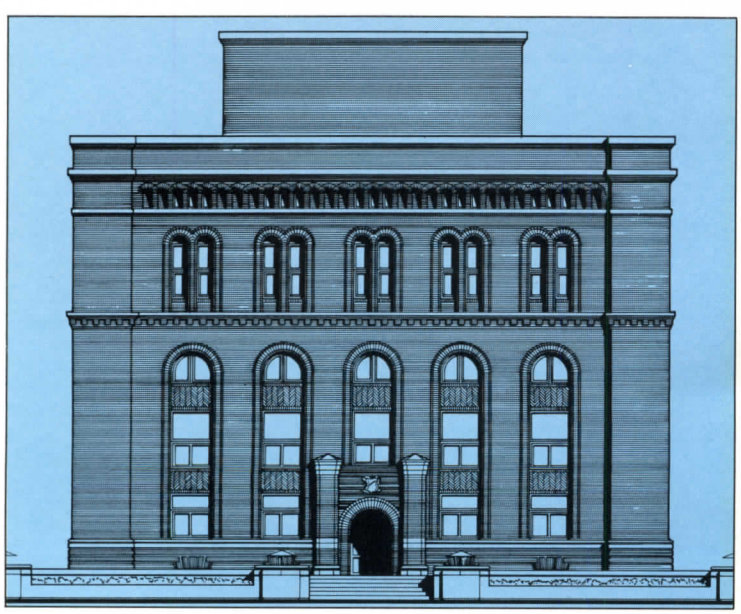
For years a stepchild of nearby Los Angeles, the city of Long Beach may finally be emerging from the shadow of its giant neighbor 25 miles to the north—witness plans for the World Trade Center, a mixed-use development proposed for a 13.5-acre site on the western edge of downtown. The most conspicuous components of the 2.1-million-square-foot project are two 40-story cylindrical office towers connected by a series of crescent-shaped low-rise structures accommodating hotel, retail, exhibition, library, and tourist information facilities. Designed by Ross/Wou in joint venture with Daniel, Mann, Johnson and Mendenhall, the precast concrete towers will be topped by faceted glass crowns that will be illuminated at night—"high-tech lighthouses" overlooking San Pedro Bay, according to project officials.

AIA initiates traveling exhibit program

The Octagon, the historic house museum owned and operated by the American Institute of Architects Foundation, has begun a new program that circulates architectural exhibitions to museums, libraries, historical societies, schools of architecture, and university art galleries throughout the country for a modest fee. The program evolved in response to the increasing demand for exhibitions relating to architecture. The first circulating show, "American Architecture: Innovation and Tradition," was organized by the Buell Study Center at Columbia University. It will travel to 15 galleries over the next three years. Information on the program may be obtained by contacting Judith Schultz, The Octagon, 1799 New York Avenue N.W., Washington, D.C. 20007, (202/638-3105).

A delicate balance





The old adage "better late than never" rarely has been more appropriate than to describe the current restoration of a Romanesque Revival building at Yale University, designed in 1894 by Cady, Berg & See, into the Arthur K. Watson Hall of Computer Sciences. The original structure (shown in the small drawing above right) exhibits a handsome, but strangely asymmetrical facade of brick, terra cotta and sandstone that Roth and Moore Architects plan to restore and incorporate into the building's rehabilitation. Existing interiors will be replaced by six floors of flat slab and brick bearing wall construction and, most significantly, an eight-foot-wide northern addition will complete the symmetry of the truncated main elevation (large drawing).

Learning from the Mississippi

When the elaborate 50-year-old navigational system on the upper Mississippi River needed rehabilitation last year, architects for the Army Corps of Engineers and Harza Engineering Company seized the opportunity to create an unusual mid-river recreational site between Minneapolis and St. Paul. Reached via a pedestrian bridge, the new park is located atop the river wall and features viewing platforms that overlook the functioning locks, dams, and hydroelectric power plant of the hydraulic system. Mechanical equipment salvaged during the rehabilitative work is displayed along the promenade, while interpretive plaques explain the project to visitors. The result, it seems, is an ideal marriage of architecture, engineering, and landscape design.

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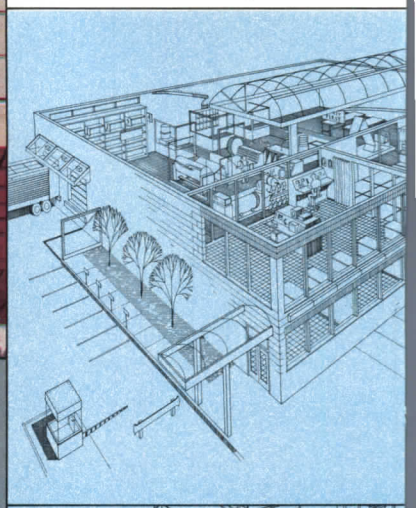

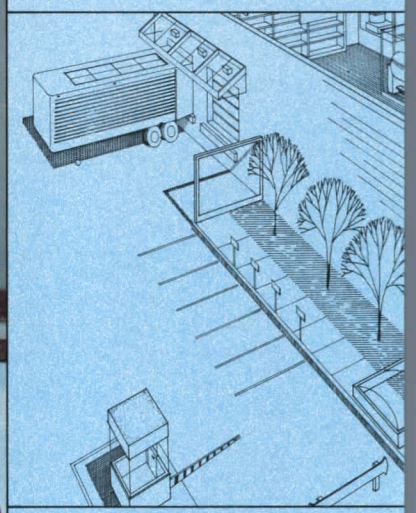

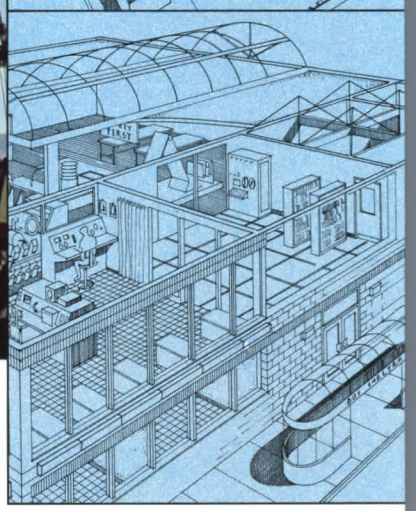

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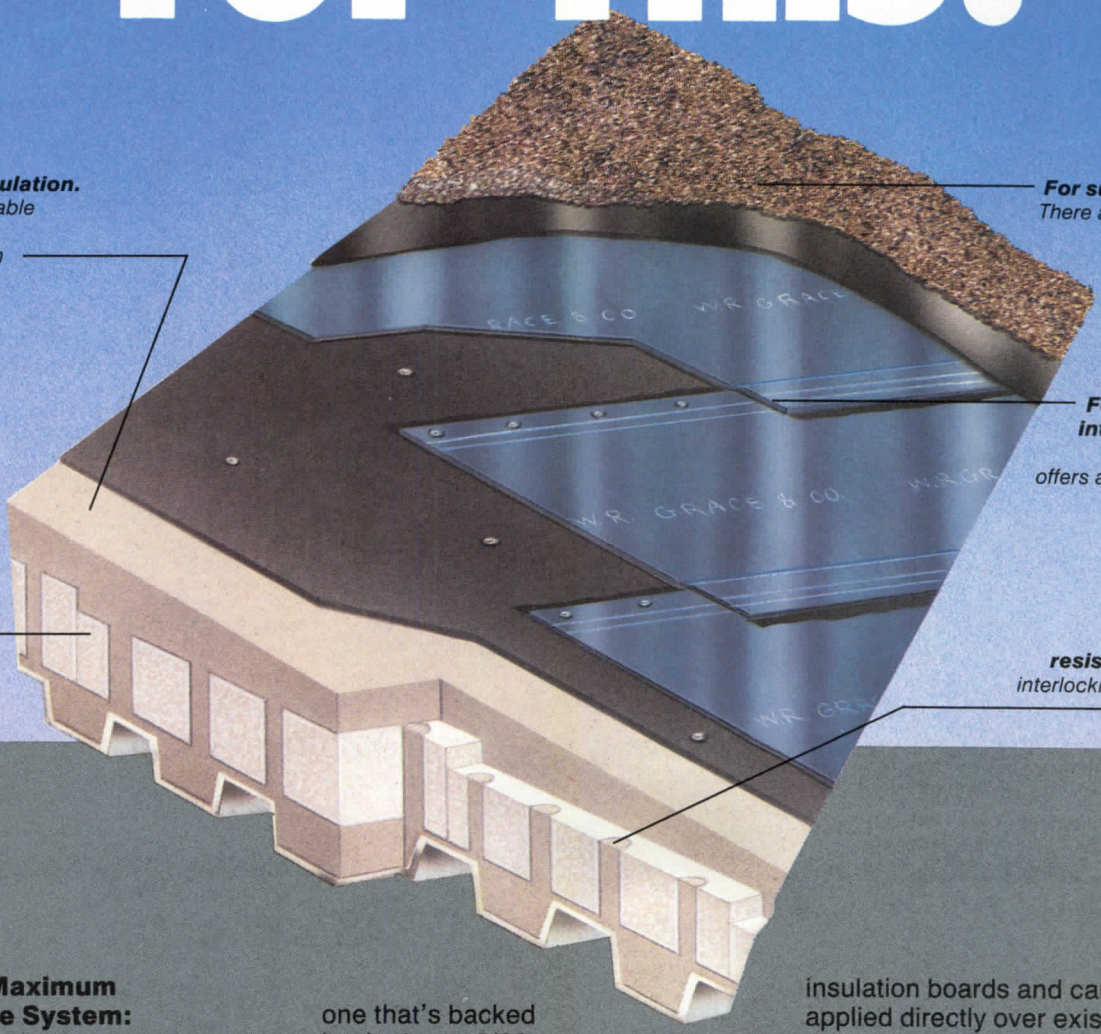

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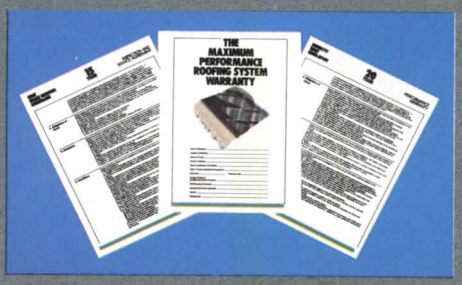

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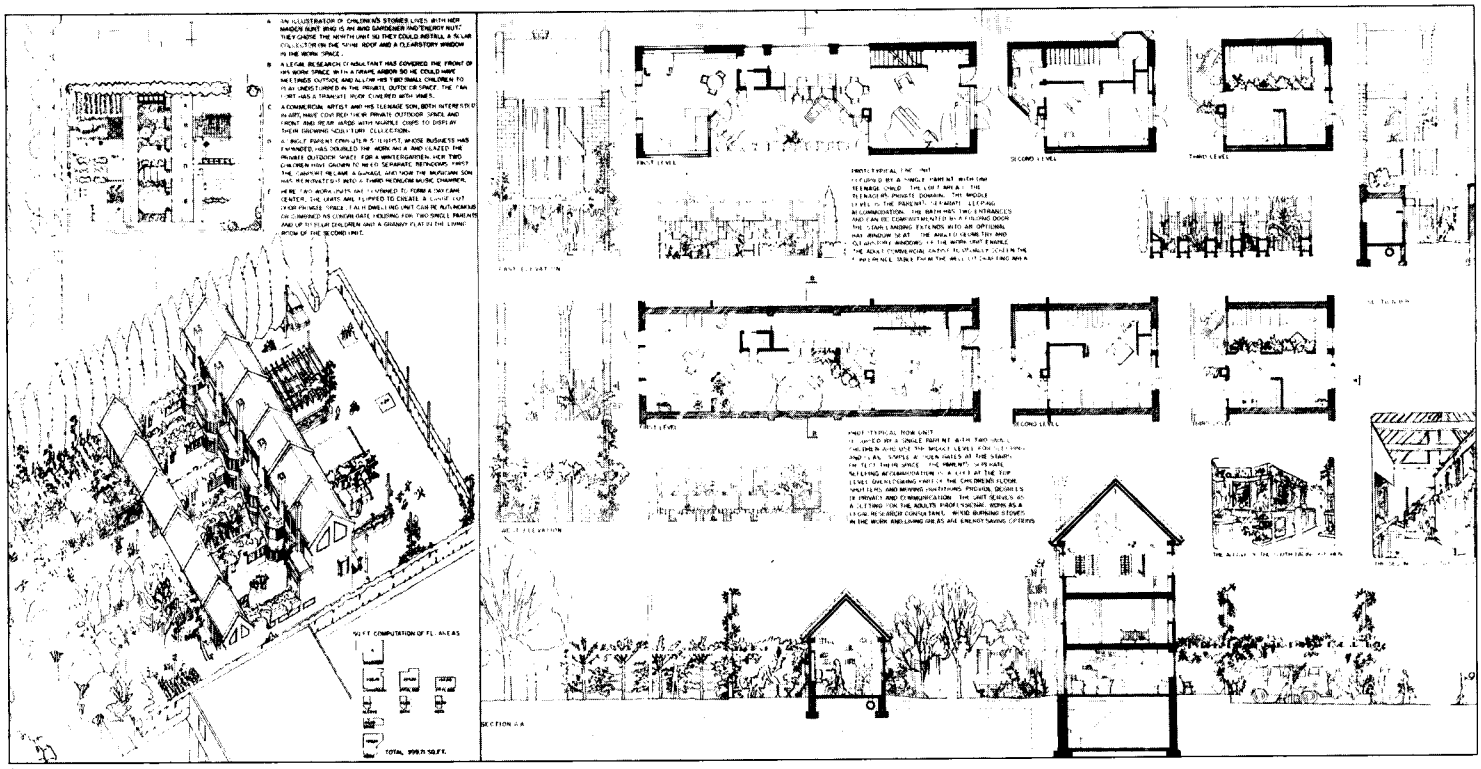
Design awards/competitions: A New American House

The Minneapolis College of Art and Design and the National Endowment for the Arts have announced the winners of "A New American House," an unusual architectural competition that sought designs for urban housing that will meet the needs of an increasing percentage of Americans who now live in "nontraditional, professional" households—i.e. single-parent families, unrelated young adults sharing a single residence, adults without children at home, and active retired people, to name a few. A parallel trend addressed by the competition brief



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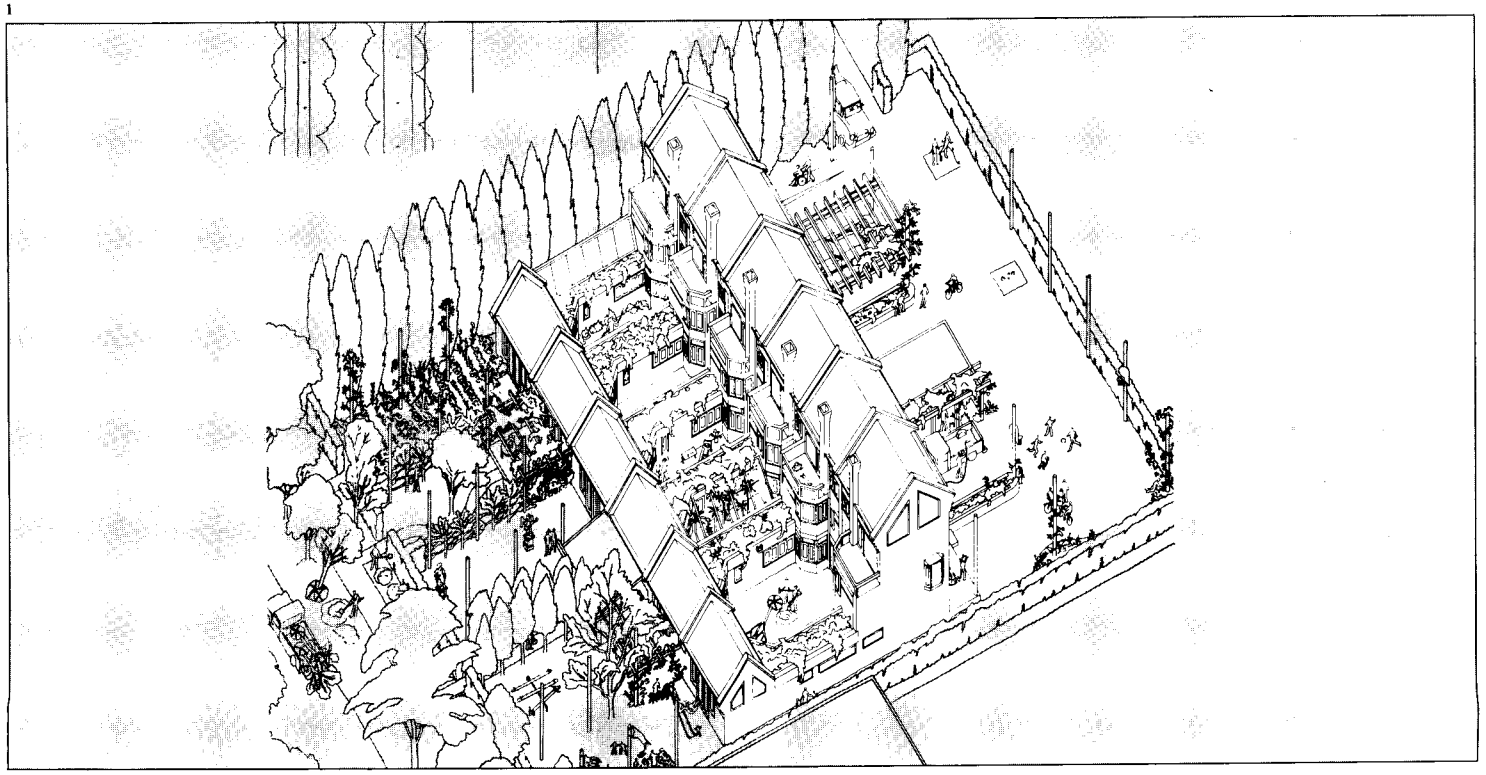

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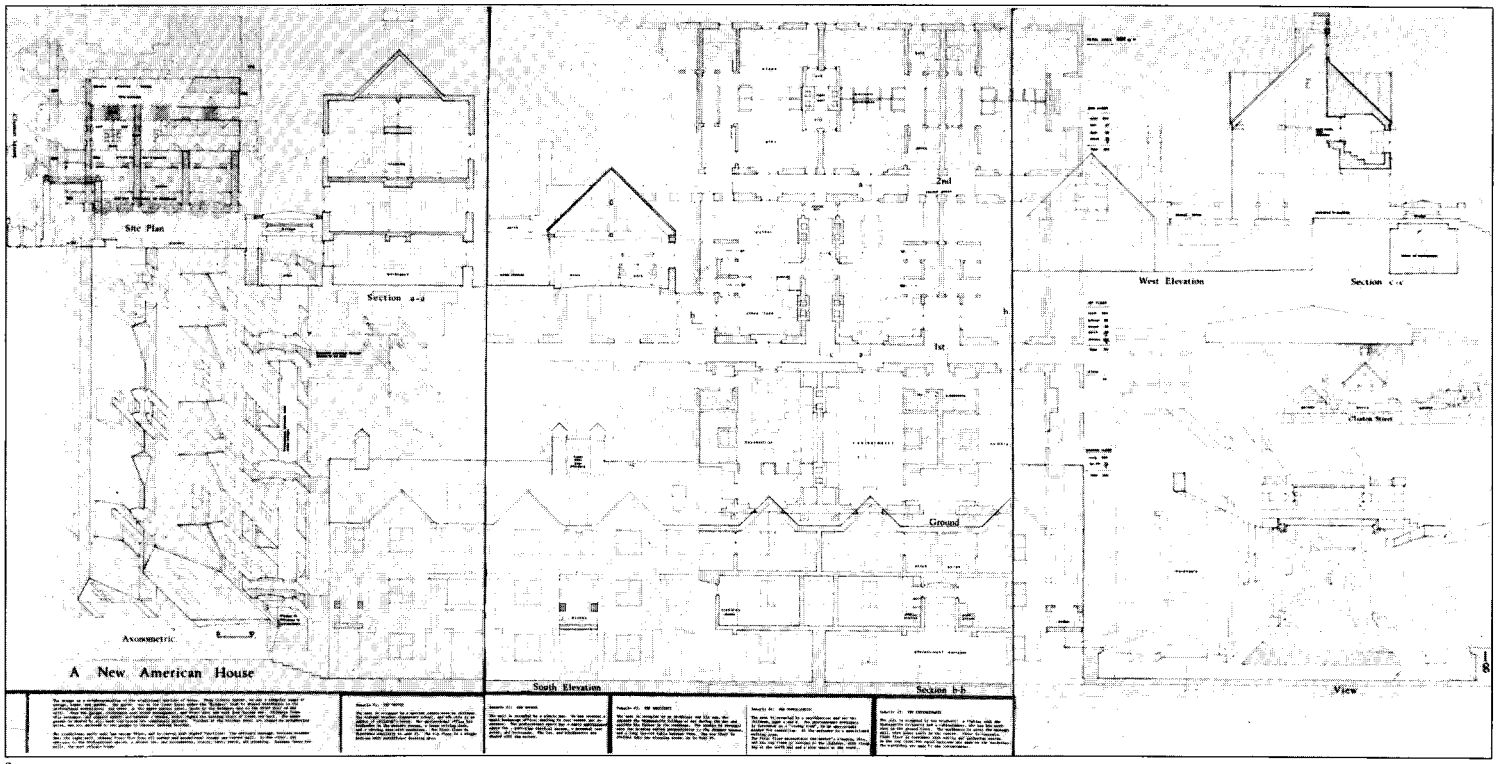
Although the Minneapolis jury admired "the extraordinary number of well-presented, highly professional solutions" among the competition entries, they reserved their highest praise for those submissions that addressed "the tension between the workplace and home, and looked for an esthetic that comes from that tension." The three top award-winners shown here all share loftlike floor plans and "are the nearest to the late 20th-century tradition of making you see something familiar in a new way," according to the jurors. "They let the workplace be a strong expression, not just a submerged element in a typical neighborhood plan."

1, 2. First Place: Troy West and Jacqueline Leavitt, Wakefield, Rhode Island. The winning designers devised a scheme that incorporates landscaped courtyards separating three-level living quarters from a one-story workplace. Arranged along narrow lots and designed to be as flexible as possible, the units can be individually adapted with such variations as carports, winter gardens, and solar heating apparatus. The Minneapolis College of Art and Design is currently seeking a housing developer who will construct the project; the $6,000 allocated for the first-place award, however, was withheld because the winners' entry deviated slightly from the competition presentation guidelines.

is the growing number of people who use their residence as a professional workplace. Accordingly, the competition organizers called for a small, efficient dwelling unit that can function as both residence and workplace within a 1,000-square-foot maximum area. The individual unit also had to serve as the basic module for a cluster of six residences on a specific site in the Whittier neighborhood of Minneapolis. Jurors reviewing 346 entries included Michael Brill, president of BOSTI in Buffalo; Thomas H. Hodne, Jr., head of the School of Architecture at the University of Manitoba at Winnipeg; David Stea, distinguished professor of architecture at the University of Wisconsin in Milwaukee; Cynthia Weese, principal of Weese Hickey Weese Architects in Chicago; and James Wines, president of SITE Projects in New York City.

Awards news continues on pages 64-65 with the New York Chapter/AIA Architectural Drawing Awards, the Copley Square Design Competition, and the Columbus Coated Fabrics Wall Surface Competition.



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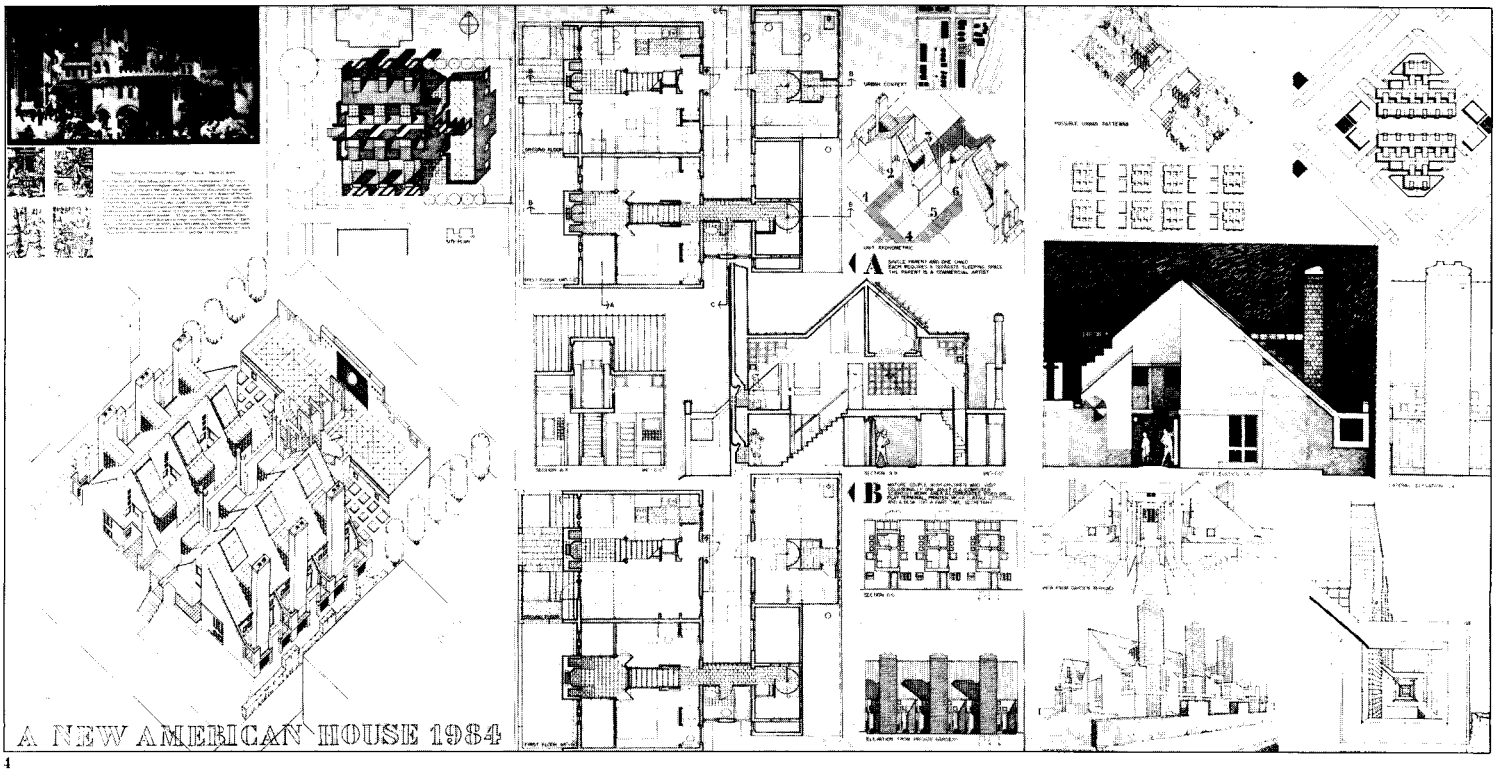

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3. Second Place: Jill Stoner, Architect, Philadelphia. A balance of communal and private spaces characterizes a gabled row-house scheme that features two stories of living quarters above ground-floor professional work areas. Pedestrian bridges over a street-level passageway provide separate entrances to the dwelling units from a raised front garden, while garages are connected to the primary buildings by rear porches. Shared facilities in the work spaces include kitchenettes, lavatories, and vestibules.

4. Third Place: Carlo Pelliccia, Architect, Charlottesville, Virginia. Perhaps more architecturally striking than the first- and second-place entries, this scheme incorporates two rows of steeply pitched dwellings, grouped on either side of a central core of one-story work units. A six-car garage terminating the main axis has a roof that functions as a shared terrace. The over-all concept, according to the architect, is intended as an updated version of the medieval commune which, like the current project, was characterized by enclosed walls, narrow alleys, and an intimate mingling of home, family, and work spaces.

New York Chapter/AIA 1984 Architectural Drawing Awards

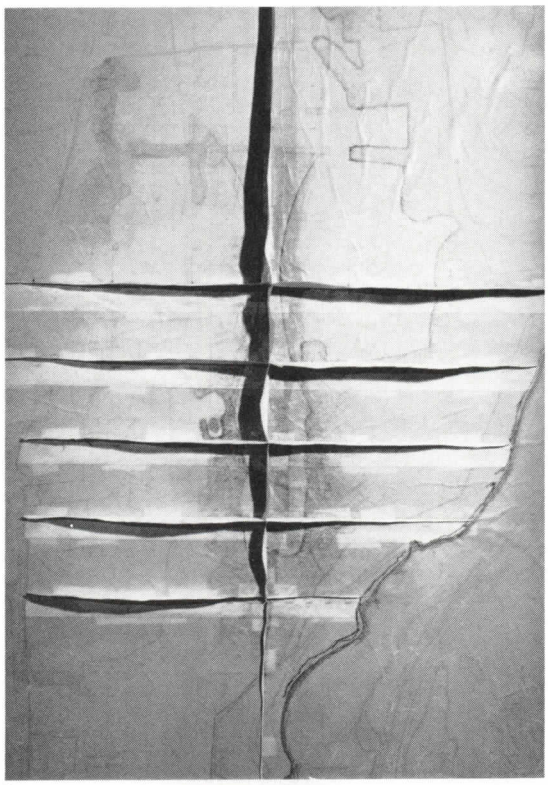
The New York Chapter/AIA issued four honor awards and five citations in its first biannual architectural drawing competition, inaugurated to recognize renderings "as the most important technique that architects use to develop their formal ideas." We illustrate the four top award winners, selected from 85 entries by jurors Gerald Allen, John Dobkin, Rodolfo Machado, Susanna Torre, and Tod Williams.

1. Conceptual site plan for IBM, Somers, New York; I. M. Pei & Partners, Architects; Hakchuk Kim, delineator. A reversed sepia print with color pencils supports cutouts of topographical sections that show how a 750-acre building site in Westchester County is perceived from a distance and along its perimeter. The jury selected the work "because it represents a successful effort to expand conventional drawing notation and to use drawing simultaneously as an analytic and conceptual design tool."

2. Perspective of a garden fountain for the new Procter & Gamble World Headquarters, Cincinnati, Ohio; Kohn Pedersen Fox, Architects; Alexander Ward, delineator. A color pencil and graphite drawing on watercolor paper was intended to illustrate the geometry of the design, the relationship of the fountain to the surrounding landscape, and the qualities of light, shade, and water movement. "An exquisitely rendered and strongly iconographic finished drawing in a traditional vein," noted the jury.

3. Elevation for a proposed building on Manhattan's Upper East Side; The Gruzen Partnership and Agrest & Gandelsonas, Architects; Diana Agrest and Mario Gandelsonas with Leonard Zylberberg, delineator. Selected by the jury as the outstanding panel of an ink, silkscreen, and crayon triptych, this conceptual drawing shows the relationship of a proposed residential tower to existing buildings. The jurors called the elevation "powerful and evocative."

***4. Rendered site plan for* Mission Bay, San Francisco;** I. M. Pei & Partners, Architects; Walter Vangreen delineator. A colored brownline print was completed for public presentation of a development project on a 195-acre site, the last large open parcel of land remaining in San Francisco. The jurors praised the work for "its clarity of representation, excellence of execution, and the way it communicates the idea of the project as a three-dimensional reality."



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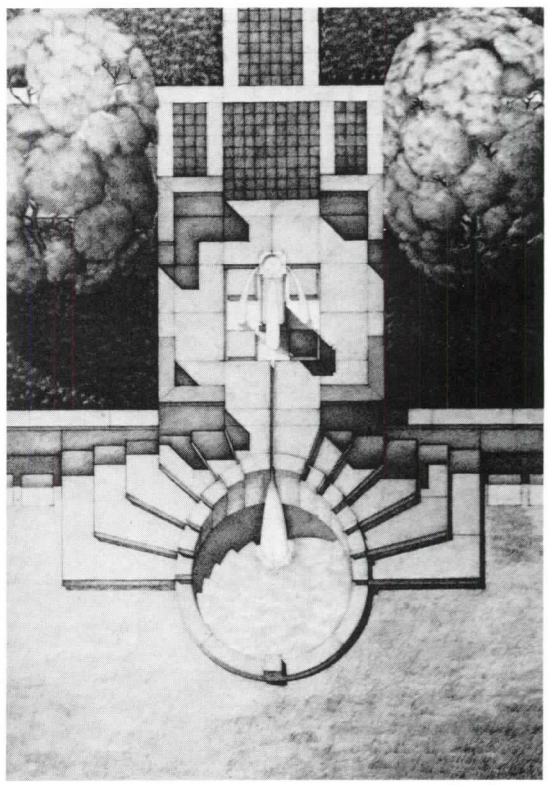

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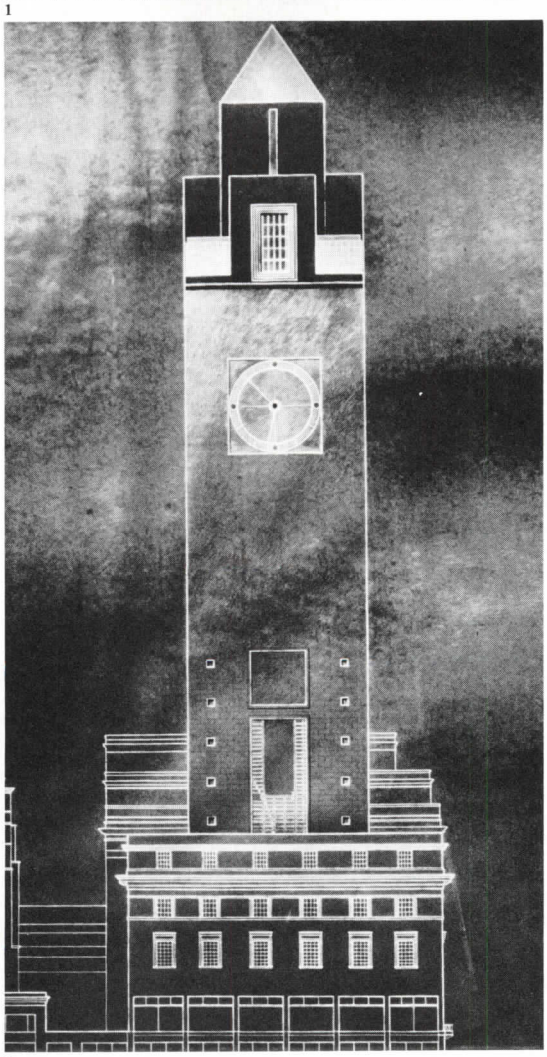

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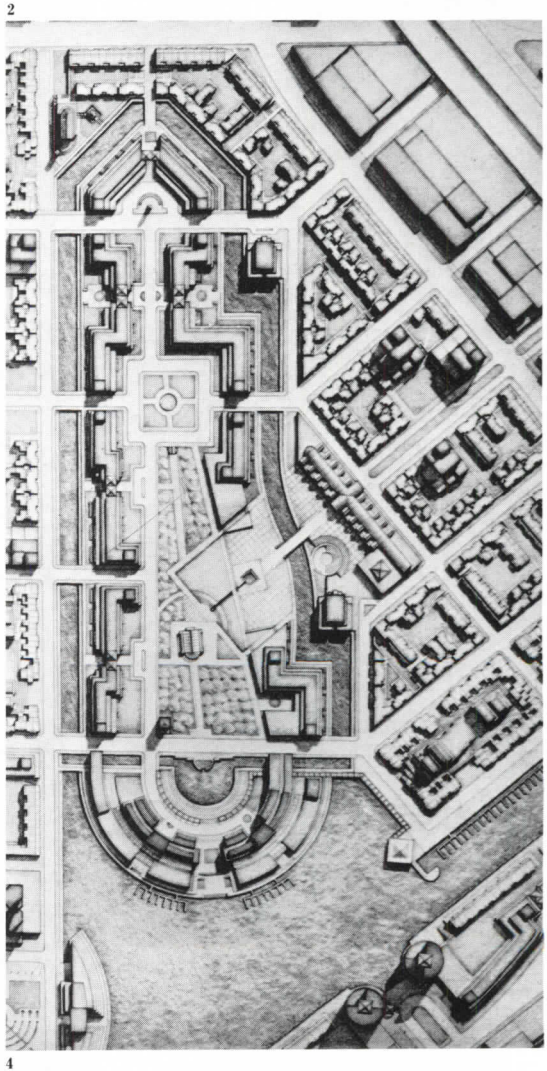

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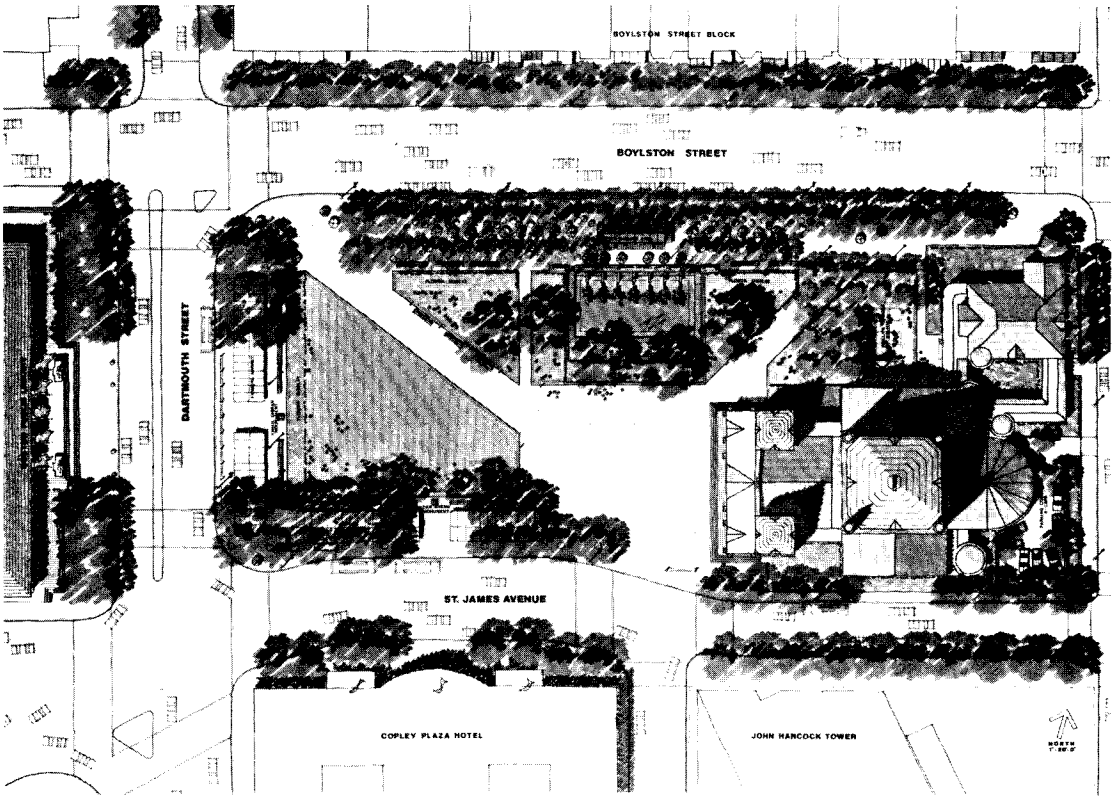
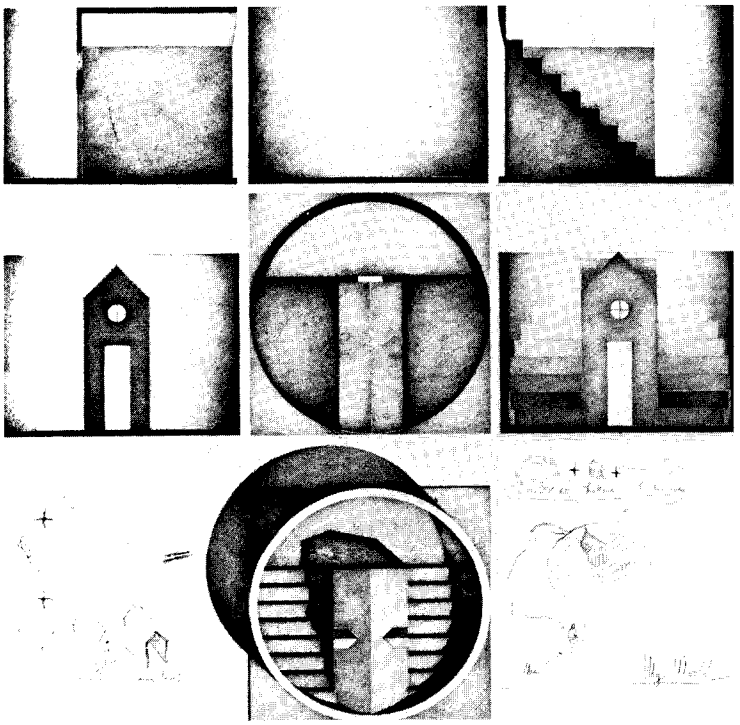
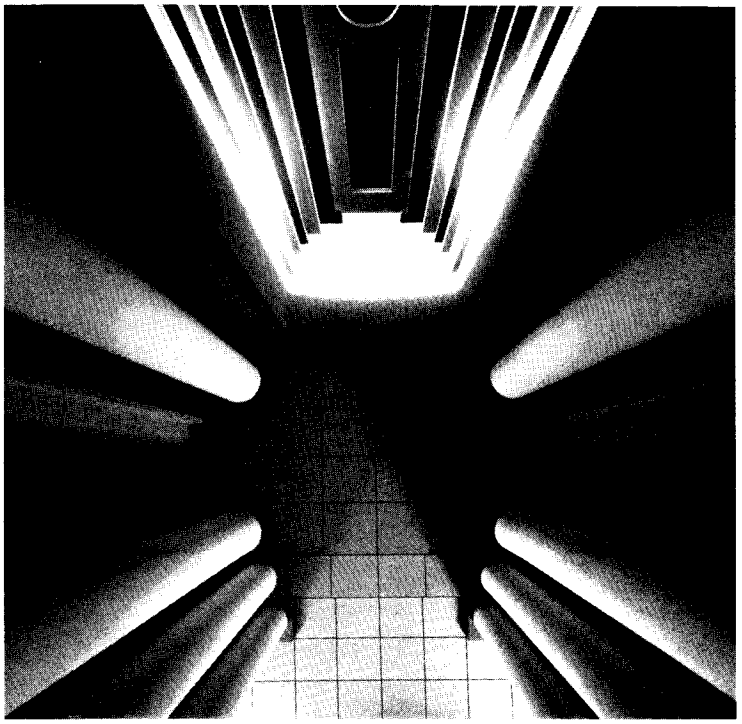
Copley Square Design Competition and the Columbus Coated Fabrics Wall Surface Competition

A nine-member jury consisting of William H. Whyte (chairman), John Belle, Anthony B. Casendino, William J. Johnson, Katherine D. Kane, Joseph W. O'Connor, Lawrence T. Perera, Phillippe Robert, and John R. Stilgoe selected the submission of Dean Abbott of Clarke & Rapuano as the premiated entry in the Copley Square Design Competition. Also illustrated below are the two winning submissions (professional and student categories) in PLACES, the first interior design competition for architects sponsored by the Columbus Coated Fabrics division of Borden.

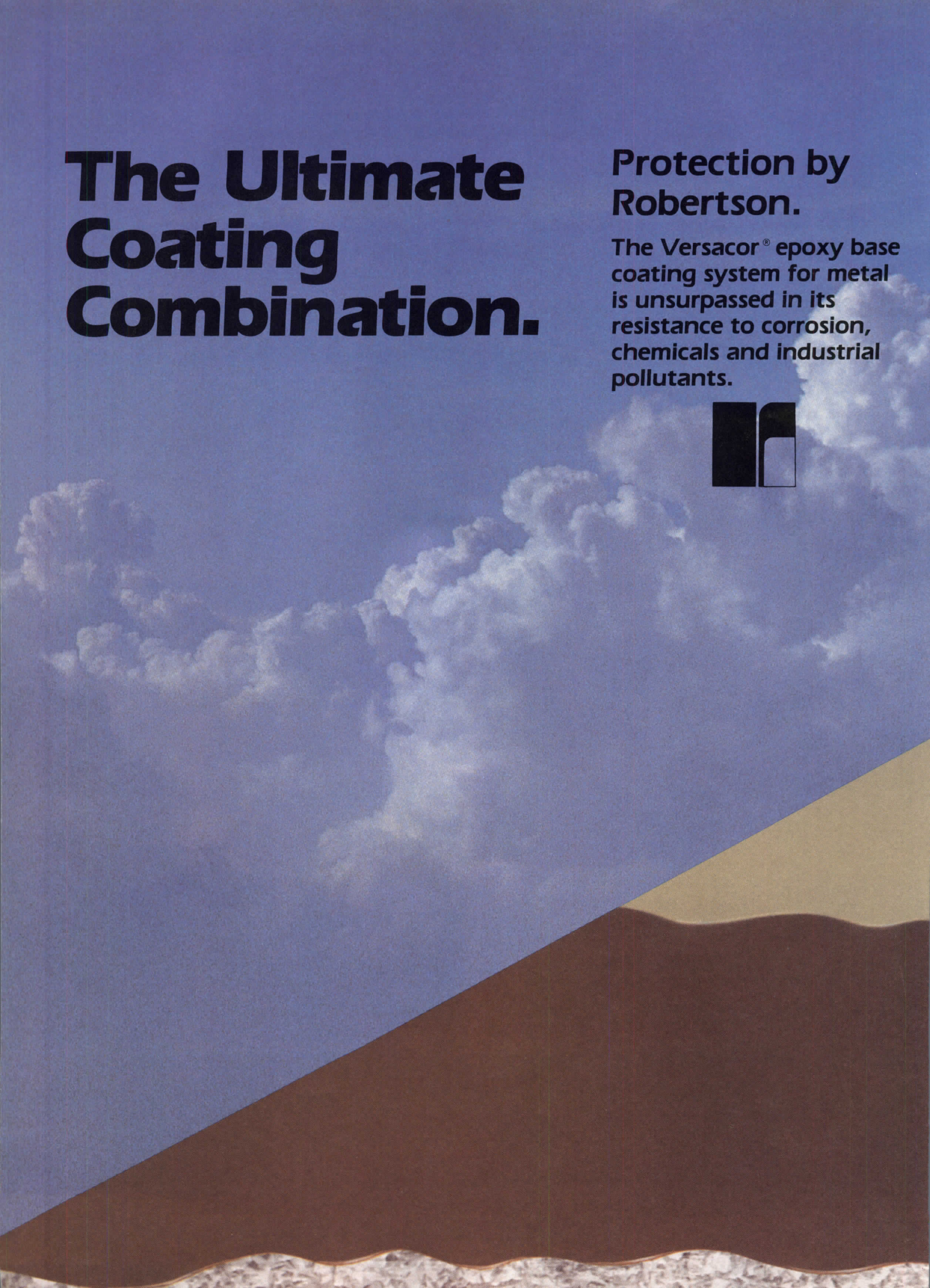
Copley Square
The Copley Square competition was organized to generate design solutions that might transform a well known, but underutilized, 2.4-acre public ground in Boston's Back Bay into "an accessible, safe, enjoyable, and usable urban space," according to Robert J. Ryan, director of the Boston Redevelopment Authority. The winning design by landscape architect Dean Abbott was selected over 400 other entries "for its nice balance between green and paving," said jury chairman Whyte. Dubbing the square "a front yard for Trinity Church and the Boston Public Library," Abbott sought to create "an active streetscape with food stalls and a farmers' market at the perimeter, while leaving the interior for quieter, more relaxed activities and occasional concerts. Although the design contrasts sharply with the superscale development around it, it does not try to separate itself." In second was a team consisting of Krisan Osterby-Benson, Peter Schaudt, Michael Van Valkenburgh, and John Whiteman. The firm of Cooper, Eckstut Associates placed third.







Columbus Coated Fabrics.
Peter Chermayeff, Robert A. M. Stern, and Stanley Tigerman reviewed 39 professional and 73 student entries in PLACES, a competition that called for the design of three types of spaces—anticipation, transition, and gathering—within a given volume. All submissions had to utilize the sponsoring manufacturer's *Guard* line of wall coverings, and a $1,000 prize was awarded in each category. New York architect Livio Dimitriu won first place in the professional division for his "Little Red Riding Hood House," which consists of a narrow, dormered dwelling nestled into a stairway and surrounded by a cylindrical wall (above left). The architect's premise was "to propose the mystery of an abstract volume penetrated by the visitor through a facade cutout reminiscent of the image of a house." Juror Chermayeff called the scheme "a very beautiful expression of what we asked for.... Three strongly defined zones of space, experienced as a procession, flow into each other with surprising complexity, yet by seemingly simple means." In the student division Shawn Michael Johnson of Oklahoma State University won first place for his "Place of Worship" (above right), a concept that borrowed from a classical vocabulary of flat-roofed and round-arched arcades—"a continuous transition," in the designer's words, "from the softly lit and underscaled place of anticipation to the clarity found in the brightly lit open space of the gathering place." The jury admired the design as "a superb solution to the problem posed."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Books

Olympic Architecture: Building for the Summer Games, by Barclay F. Gordon. New York: John Wiley & Sons, 1983, $29.95.

Reviewed by Dennis L. Dollens

While the Olympic events testing architectural design—like strain and endurance—are as removed from the spectators' sight as the training of athletes, Barclay F. Gordon observes that Olympic architecture shapes the character of the Games so significantly that architects "may justly claim a share in the Games' ongoing success." And in fact, over the past decades the distinctive physical character of the various Olympic host cities has been an important factor in the continuing triumph cited by Gordon. Consequently, even though such nonathletic concerns as politics, terrorism, economics, and corruption have in the past overshadowed the Games themselves, as Gordon tacitly acknowledges, he chooses to concentrate on the architectural vanguard that has made the Olympics "one of internationalism's few prolonged successes."

After Gordon quickly leads us through the stormy first years of the 20th century, when supporters and promoters were trying to re-establish the Olympics, he settles on the 1936 Berlin Olympiad to launch his game-by-game inventory. Berlin set an imposing standard of grandeur that affected to some degree all subsequent Olympic architecture: monumentality, urban scale, and lavish state spending all matured at that Olympiad. Leaving Berlin, Gordon then chronicles the architectural achievements of 11 subsequent summer Games by evaluating structures within several categories: beauty of design; success in housing events and hosting audiences; impact on site; and post-Olympic serviceability. He is most enthusiastic in discussing those designers—Nervi (Rome, 1960), Tange (Tokyo, 1964), Candela (Mexico City, 1968), and Otto (Munich, 1972)—who were at the cutting edge of structural dynamics, material manipulation, and architectural grace. In his examination of the architects, their design teams, and athletic structures that advanced or entered design history, Gordon is a dutiful contender, though a bit more detail might have made him a medalist.

One of the more intriguing adjuncts to Gordon's commentary is the role that film and television have played—again, beginning in 1936 at Berlin—in one's perception of the Olympic Games and their architectural legacy. "The Reichssportfeld," he tells us, "was one of German fascism's first major architectural statements," but ironically the lasting voice for that statement subordinated the architect to the cinematographer. As Gordon rightly says, Leni Riefenstahl's celebrated film of the 1936 Games "has given us the best record we have of these designs. . . ." In other words, Riefenstahl's film determined the Olympics as a media event. Architectural setting became set.

The next media mega-leap occurred at the 1968 Games in Mexico City—"full television coverage in color with satellite relay around the world"—once more slotting architecture as the two-dimensional backdrop. Overnight, television became the primary Olympic arena. But did broadcasting reduce symbolic architecture to subservient cipher? No. The 1972 Games in Munich produced one of the 20th century's greatest technical sites, demonstrating that electronics need not relegate architecture to second place. Gordon praises this architectural high point in his typical style: "As background to a media event of almost universal interest, the Munich setting was superb. The park was enchanting, its buildings abstract and highly photogenic. Together they lent a festive atmosphere to events, an atmosphere that television cameras had no difficulty whatever in translating into millions and millions of living rooms around the world." Vanished from the screen, that urban park "still attracts visitors in the tens of thousands." Montreal and Moscow's subsequent architecture achieved no such overall success.

Which brings us to the site—really the non-site—of the XXIII Olympiad in Los Angeles. Gordon stresses these Games as the first to be privately funded and needing minimal building. Instead, Los Angeles accepted the fact of transmission and integrated set with location. Here we saw the most dispersed, nonarchitectural Games in modern history; we witnessed, appropriately for Hollywood, the total union of graphic design with sophisticated media. Paradoxically, then, Gordon concludes his study with a provocative, but essentially nonmonumental event—a forerunner, perhaps, of an Olympic Games devoid of any lasting contribution from architects.

Dennis L. Dollens is editor of SITES, *a literary-architectural magazine.*

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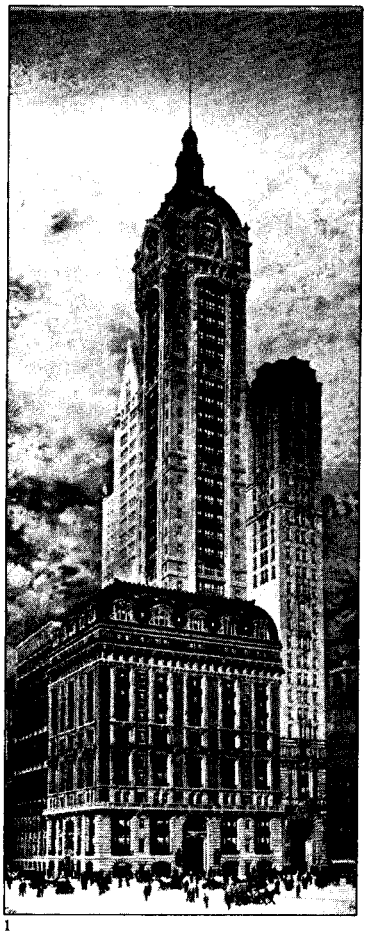
An overambitious tale of two cities

Reviewed by Deborah Dietsch



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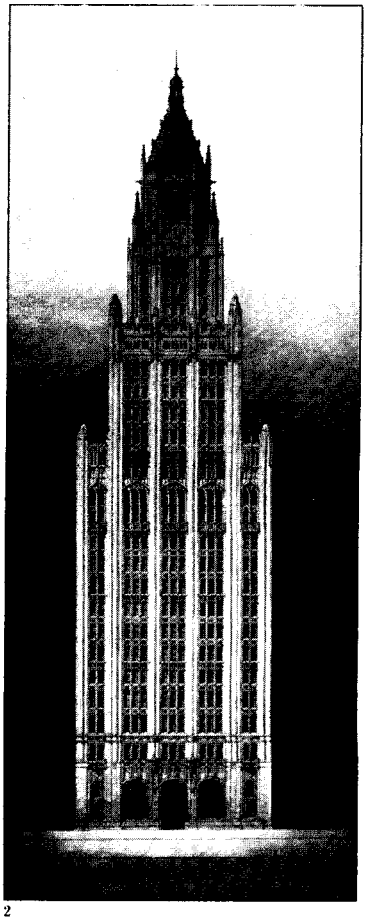

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As the capitals of American architecture, Chicago and New York traditionally have been viewed as embodying architectural opposites: Chicago preoccupied with building and technology, and New York with theory and style. Yet the exchange of practitioners and their ideas between the two cities has a long history that extends from New York architect P. B. Wight's arrival in Chicago after the 1871 fire to Chicago architect Helmut Jahn's proposed towers for Manhattan.

This reciprocal relationship between the cities serves as the subject of the exhibition, "Chicago and New York: More Than a Century of Architectural Interaction," held at the Art Institute of Chicago from March 8 through July 29. Conceived by John Zukowsky, the Institute's curator of architecture, and co-curated by Mosette Glaser Broderick, Carol Herselle Krinsky and David Van Zanten, the show is modeled on the Paris-New York, Paris-Berlin, and Paris-Moscow exhibitions held at the Centre Pompidou in the late 1970s. After leaving Chicago, the exhibit will re-open this fall at the AIA Octagon in Washington (October 17-January 6, 1985), and then will travel to the Farish Gallery at Rice University (February 11-March 31, 1985) and the New-York Historical Society (May 22-October 26, 1985).

"Chicago and New York" relies heavily on original drawings from the Art Institute's Burnham Library of Architecture and from the New-York Historical Society, the co-sponsor of the exhibition, to illustrate the parallel and contradictory history of each city. The show is organized chronologically and is divided into sections dealing with city planning, suburbia, town houses, apartments, commercial buildings, skyscrapers, and world's fairs. A small section of five drawings is exclusively devoted to architects who have worked in both Chicago and New York.

Highly ambitious, the show scores low on delivery. Among the drawings displayed, several related plans and projects are not hung side-by-side to invite direct comparisons, such as maps of both cities and the Chicago Tribune entries. Conspicuously lacking, moreover, is any focus on the important legacy of Mies and SOM, or the seminal New York-Chicago collaboration on the 1893 World's Columbian Exposition. The influence of architects such as Wright, Jenney, Hunt, Olmsted and, more recently, the Chicago "Seven" also is given short shrift. And the historic race between the cities to erect the tallest tower is ignored.

A slide show, written by Robert Bruegmann and produced by the Art Institute's Department of Museum Education, could have filled some of these gaps, but its general, "I love New York-Chicago" theme merely exposes the development of both cities, rather than thoroughly explaining the specific architectural interactions between them. (Amusingly, it concludes: "When the Martians land, after a trip to Disneyland and the Grand Canyon, New York and Chicago will be next on the list.")

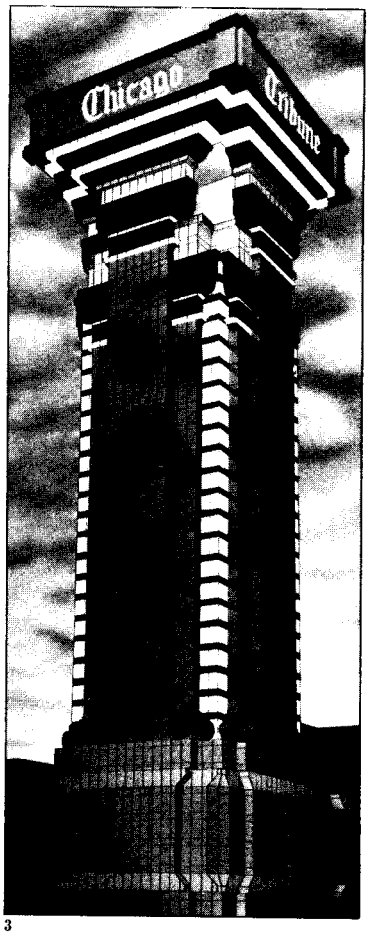
Various economic and political factors that affected building in both cities are discussed in the exhibition catalog's well-researched essays by Zukowsky, Van Zanten, and Krinsky. Brief commentaries in the catalog from architects, historians, and preservationists summarizing what they feel the essence of interaction is between Chicago and New York also breathe life into the subject of the show, and could have been mounted as lively adjuncts to the drawings.

Among the items on exhibition, many simply are beautiful renderings. A Jules Guérin drawing of Burnham's Flatiron Building, John Wenrich's visionary watercolor of Ralph Walker's proposed tower for the Century of Progress Exposition, and a gutsy chalk perspective by Dubin & Eisenberg are just some of the outstanding examples. There are also a few three-dimensional objects in the show, including an exquisite miniature of Rufus Gilbert's New York El railroad, but why devote space to a corroded copper finial from the Woolworth Building when models of more buildings might have strengthened comparisons?

What is missing from this exhibition is an in-depth visual portrayal of its objective—the interaction between New York and Chicago. Many of the developments skimmed over by the show would constitute several excellent exhibitions in themselves: the rise of the skyscraper—a true Chicago-New York phenomenon—or the influence of fairs and expositions held in these cities are two subjects that warrant closer scrutiny. By trying to cover too much territory, the important issues raised by this exhibition get lost, and a dialogue that should be resonant ends up far too restrained.

Deborah Dietsch is a freelance writer from New York.

The Chicago-New York connection, past and present:
1. Ernest Flagg, Singer Building, New York, 1902.
2. Richard Yoshijiro Mine, Chicago Tribune Tower Competition, 1922.
3. Robert A. M. Stern, late entry to the Tribune competition, 1980.
4. Helmut Jahn, proposed tower for Park Avenue, New York, 1983.



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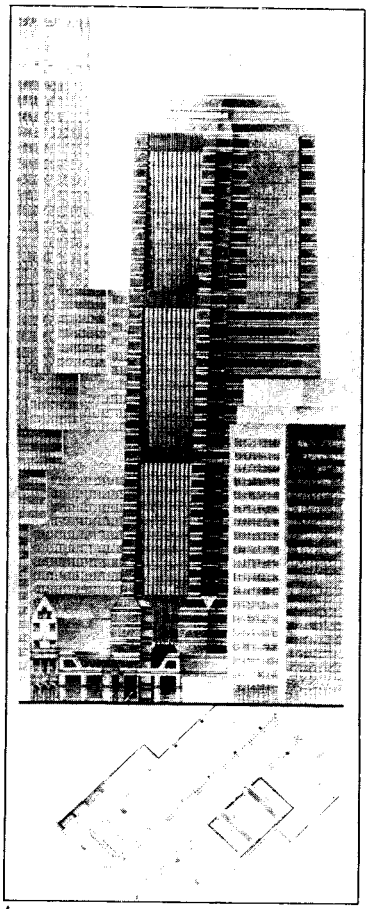


4

Walls that match...

In the private interest

A generation ago, the American Dream centered on a rose-covered cottage with a tidy white picket fence—and for many people that dream persists. But for growing numbers of prospective homeowners it has given way to the vision of a comfortable, well-located, and affordable condominium apartment or town house.

During last year's housing recovery, multifamily residential construction outpaced the market as a whole, soaring by 45 percent to a total of 660,000 units, and economist George A. Christie forecast in the March update of 1984's *Dodge/Sweet's Construction Outlook* that multifamily units will account for almost 40 percent of this year's 1.8 million housing starts.

In part this shift in the mix of single-family and multifamily housing is attributable to the baby-boom bulge of young first-time home buyers for whom the cost difference between a 1300-square-foot condo and the 1600 square feet of the typical one-family house makes the condo not only a viable option but often the only one. It also reflects, though, a growing bulge at the other end of the demographic spectrum: seniors and empty nesters who, weary of battling rush-hour traffic and crabgrass, are forsaking the single-family suburbs for the close-to-everything convenience and easy upkeep of manageably sized near-town condos or apartments. Similar considerations affect the housing choices of other nontraditional households—singles, single parents, two-career families, unrelated mortgage-sharers. And rising costs of land, building, and transportation, combined with the pursuit of buildable open land that is pushing the suburbs to the hem of exurbia, can only reinforce the appeal of close-in, multifamily housing.

Both higher costs and scarcer land, however, imply greater density, which in turn suggests the need for exceptionally skillful design to bring privacy and livability to smaller attached homes on smaller sites—and skillful design, as we know, is the province of the architect. Happily, the developers who produce the lion's share of the nation's housing and who have traditionally avoided what they see as the extravagances and eccentricities of architect-designed housing, leaving our cities and suburbs in effect "undesigned," are coming to that recognition—often forced there by the added complexities of multifamily dwellings over the detached house. For their part, architects who have long shunned tract housing in favor of the occasional one-off custom house for a sympathetic—and tractable—client (my mother, myself) are coming to accept and even relish working within the budgetary and regulatory constraints of developer-built multifamily projects.

The designers whose work is represented here spoke without exception of the social import they see in housing design and their empathy with the needs and wants—and, yes, dreams—of the people who will live in the homes they fashion: value for money, an air (even if more apparent than real) of spaciousness, a special private place. But they also noted the satisfaction they find in the ingenuity needed to bring amenity and grace and a sense of place to spaces modest in size and restricted in cost. Bernardo Fort-Brescia might have been speaking for all when he likened the town-house projects Arquitectonica is strewing across the Sunbelt to an on-going exercise "that helps us keep in shape intellectually." "Besides," he adds, "small spaces are more fun to design than big ones." *Margaret Gaskie*

Haddon Town Houses
Houston, Texas
Arquitectonica, Architects

An introductory passage

In optimistic, anything-goes Houston, Arquitectonica's *faux*-naive kindergarten-kit architecture of pure geometric blocks brightened by poster-paint primaries feels right at home. . . . Literally so, in the case of the Haddon town houses, the first-built in a sequence of striking apartment designs emerging apace from the firm's Houston office.

The town houses line two sides of a busy intersection on the fringes of the affluent River Oaks residential district and only a block away from the boutiques and galleries of the chic River Oaks shopping center. Because they are centrally located near downtown and (relatively) reasonable in cost, they have proved especially attractive to upscale young business people and professionals ("the children," project coordinator Robert Tolmach wryly suggests, "of the River Oaks gentry") who see in their exuberant modernism a cachet that suits the Yuppie lifestyle. In fact it is the esprit of the clientele, rather than the immediate surround of a gentrifying working-class neighborhood, that provides such context as the town houses acknowledge.

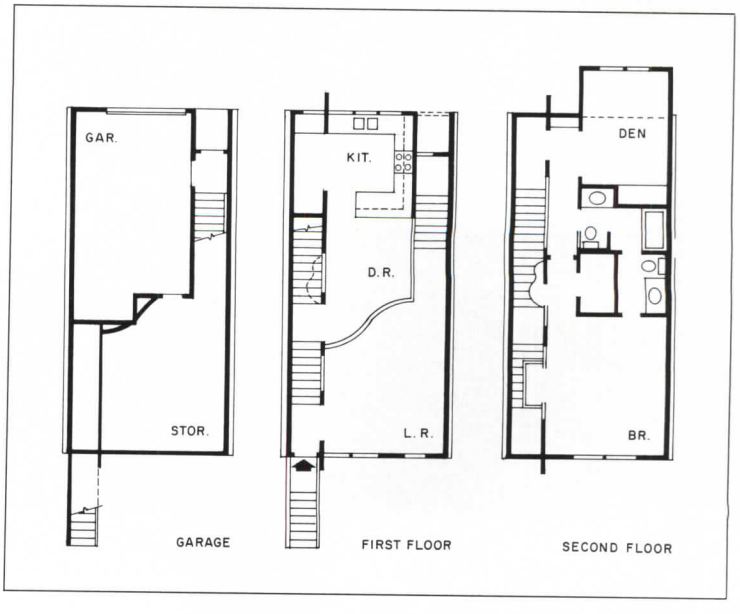
Picturing the project as a gateway between the shopping-center environs and the town-house enclave they foresee developing beyond the Haddon project, the architects succumbed to unwonted formalism in the massing of the buildings, which are symmetrical around the dividing street and inflected toward it. The saw-tooth roofs of the three central houses in each block shift at the street to a squared-off profile that gives the end units greater height, creating flanking "towers" at the portal before receding in shallow steps along the street facade. The volumes are similarly varied at the opposite ends of the blocks, where setbacks allowed the development of a side entrance facade for two-story units broader and lower than the adjoining split-levels.

Against this irregularly framed canvas of pristine white stucco, the architects placed a bold facade composition that recalls in its spirited forms and vibrant color a three-dimensional Mondrian. Bright-blue cantilevered cubes offset above the planar grid of the garage doors play against the red of over-height recessed entrances, designed to add a touch of monumentality to these small houses, and accent the cut-outs of strip windows and square portholes. (On the two-story units, the cube is rotated to project a triangular form and the entrance, still monumental, is carried to the side and recalled by the red curve of a rear balcony.) Most vividly, the yellow flashes of projecting vertical fins—extensions of the inner stair walls—slice through the facade, horizontal glazing strips and all. Because the fins do not align with the roof breaks, they make ambiguous the divisions between the town houses, lending the facade a strong feeling of continuity and expansiveness.

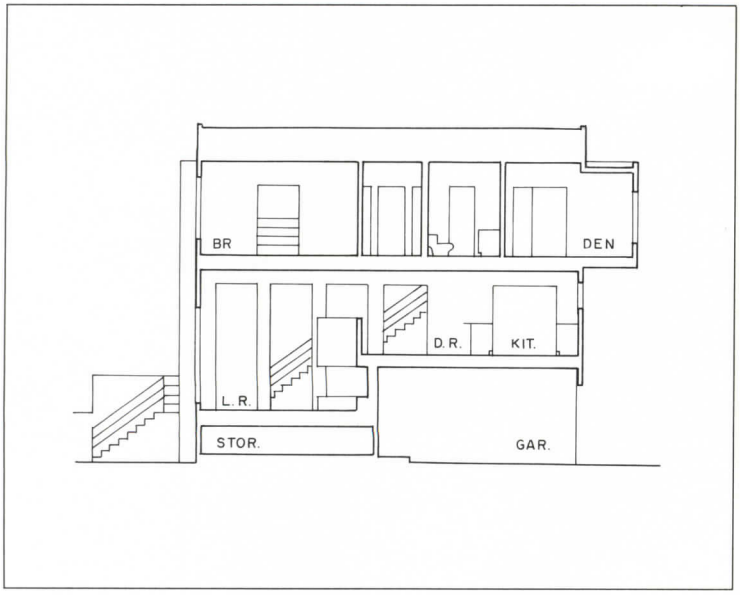
Timothy Hursley photos

To emphasize the conception of the Haddon town-house project as a gateway to the transitional neighborhood beyond, the end units in each row are squared at the roof to form towers flanking the bisecting street. The facades are a bold Mondrian-like composition of sharp geometric forms in shifting planes picked out by rich primary colors and black trim against a backdrop of white stucco on wood frame.

Because the Haddon town houses were to be small (1,400 square feet), low-budget units on a small site that demanded narrow frontages, the architects' principal concern in designing the interior was to avoid the tunnel feeling common to such spaces by introducing visual distractions that give the illusion of spaciousness. To compensate for facades limited to front and back and turn to advantage the necessity for vertical circulation, a "third facade" was created by a yellow-walled, windowed stairwell (photos below) that serves as an interior street. The drama of double-height spaces being precluded by the prescribed unit size, the designers instead inserted an intermediate half level between the first and second floors, stretching the living room to a height of 12 feet and separating it for privacy from the



kitchen and piano-curved dining mezzanine. From the mezzanine landing (photo below) the stairway exposes the full length and height of the living space and its emphatic verticality. The stair is lit by glass-block portholes and an optional skylight, in addition to borrowed light from adjoining rooms. A projecting red piano shape (actually a bedroom cupboard) reprises the mezzanine curve and marks the second level, where stolen windows in the "third facade" overlook the interior street from both the master bedroom and the den, whose otherwise skimpy space is near-doubled by the volume of the cantilevered cube. The houses are entered by a short stair from garage level to the living room floor above and open to fenced backyard patios.



Haddon Town Houses
Houston, Texas
Owner:
The Haddon Venture
Architects:
Arquitectonica International Corporation—Bernardo Fort-Brescia, Hervin Romney, Laurinda Spear, principals and project designers; Robert Tolmach, project coordinator; Duke Fleshman, project manager; Natalie Appel, assistant
Engineers:
Cunningham Associates (structural)
General contractor:
Neartown Builders Inc.

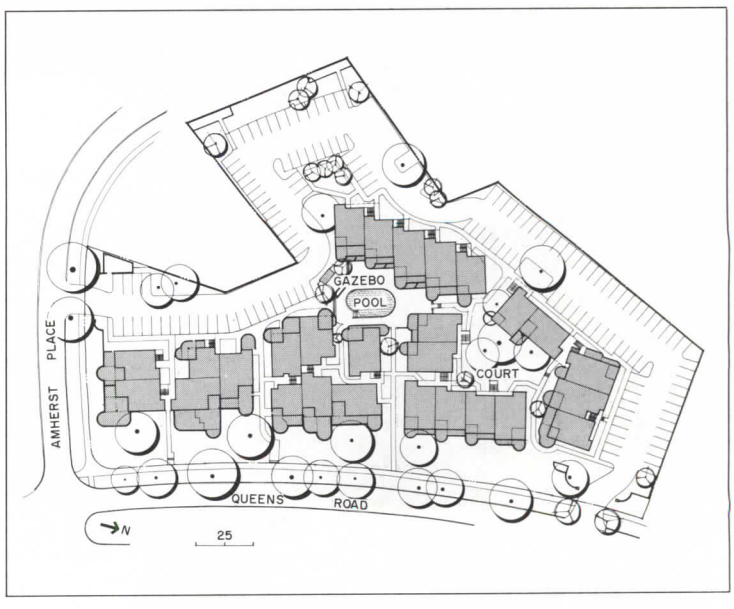
Charlotte observed

Residential Charlotte, in its older quarters at least, is a city of broad streets over-arched by towering oaks and lined with generous emerald lawns embracing rambling many-gabled two-story houses more reminiscent of shingle-style bungalows than of the Old South Colonials that lurk in the expectations of the untutored Yankee. It is also a growing city with a growing demand for more modest and manageably sized housing in just these older, near-town neighborhoods—a combination that has netted for young architect David Furman, a Charlotte native, a thriving practice based in large part on infill apartment projects for local developers.

The Queens Station condominium development lies just inside the main entrance to Myer Park, a brilliantly planned and deservedly prestigious residential area laid out in the early 1900s as one of Charlotte's first trolley-car communities, and takes its name from the nearby stop on the trolley line that traveled through this early suburb on the median of the expansive boulevard now called Queens Road.

The principal problem in designing the project was to place 81 new condominium units on an irregular three-acre site, previously occupied by old houses that had been chopped up into makeshift apartments and fallen into disrepair, without disrupting the residential fabric of the neighborhood—a problem at once compounded and partially resolved by a self-imposed 50-foot setback to maintain the line of the existing homes along the tree-lined boulevard (photo left). The resulting increase in density on the remainder of the plot was not wholly unwelcome to Furman, who believes that higher densities carry with them the opportunity to create more carefully planned and more usable, if smaller, open spaces. But it did require more than ordinary attention to the configurations of the buildings and their placement on the site.

Built in two phases, the project as completed consists of five building clusters, each with three levels of stacked flats joined by open stairs and corridors and oriented either to Queens Road or to landscaped interior courtyards. Although the individual buildings are larger than the surrounding homes, multiple projections and porches, and varied fenestration patterns break their massing down to a comfortably domestic scale, while passages carved through the building clusters connect them back to the streetscape. Indeed, the building forms so faithfully iterate the proportions of the neighboring houses that from the main boulevard it is evident only on second glance that these are multifamily residences. Their appropriateness and "fit" are further enhanced by the tactful use of familiar homely materials and indigenous details appreciatively observed and reinterpreted to reflect the special character of their progenitors.



Queens Station
Charlotte, North Carolina
David Furman/Architecture, Architects

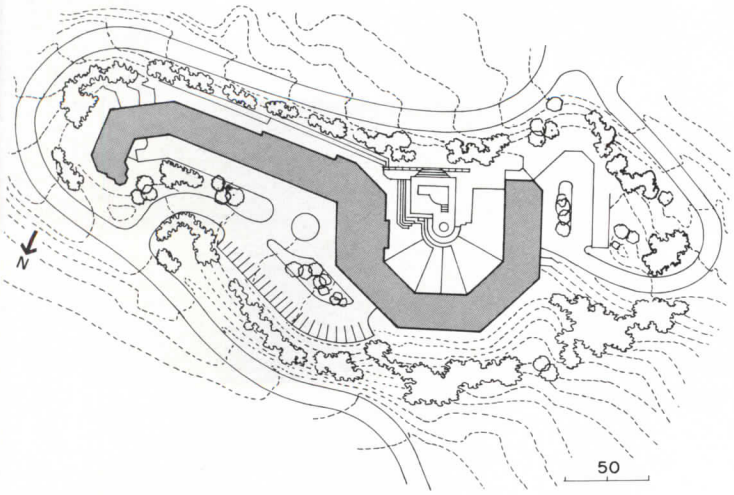
Rick Alexander photos

Though basically repetitive, the building forms of the Queens Station project are invigorated by rich detail: elaborated chimneys, varied fenestration, and railings, keystones, and attic portholes freely borrowed from local motifs. The stuccoed banding at the third story, also borrowed, is reprised at ground level where curving stucco walls shield private patios and soften the bases of the buildings.

Except for those that front on Queens Road, the Queens Station condominiums, which are largely two-bedroom units of 900 to 1,100 square feet (see second-phase plans below), are oriented to the pool court—complete with gazebo—or to a smaller triangular courtyard to the north. Despite the size and tight clustering of the buildings, the courtyards impart an air of uncrowded intimacy and serenity.

Queens Station
Charlotte, North Carolina
Owner:
Martin Development Group
Architects:
David Furman/Architecture—Chip Leaf, project architect; Bruce Keith, Pete Ebersole, project team
General contractor:
Strickland-Martin, Inc.

An Alpine echo in the Rockies



The young and growing year-round resort community of Snowmass guards its Rockies Rustic image—a bland but appealing blend of mountain chalet, mine-camp modern, and '60s mundane—as jealously as Aspen, just down the road to the south, guards its more venerable carpenter Victoriana. Amid this self-conscious simplicity, the new Woodrun Place condominiums bring a refreshing reminder of the hardier tradition of the tight-huddled, stone-wrought, alpen-European farmstead, with overtones of the rambling resort hotels the railroads dotted through the Rockies' upland parks.

But if the massing suggests a spontaneous response to the rigors and resonances of the mountain setting, it in fact devolved from a closely reasoned resolution of political as well as natural building restrictions. Located in a prime residential area on a steep north-facing slope a ski-pole's throw from the major Snowmass lift, the site afforded both sweeping views and the all-important asset of "ski-ability." At seven acres, however, it was less than generous to accommodate 56 condominiums averaging 1,250 square feet, covered parking for each, a central lobby, conference facilities, communal ski storage, and a recreational spa area including an outdoor pool.

In addition, the parcel was hedged in on the east by a bend in the ascending approach road and on the west by the chairlift; required

Woodrun Place
Snowmass, Colorado
William Turnbull Associates, Architects

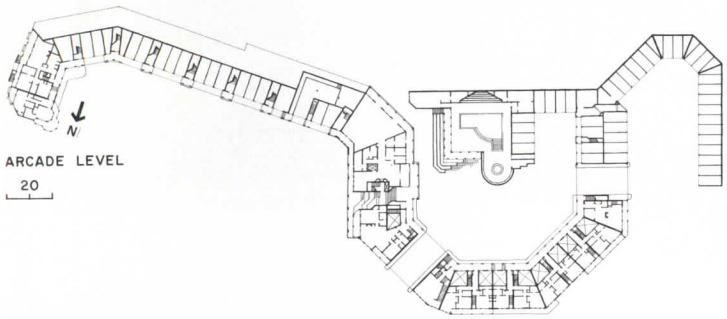
Russell Abraham photos except as noted

setbacks further shrank its buildable area on north and south; and a mandatory fire access road through the site predetermined the point of vehicular entry to the complex. While these constraints, plus a town requirement that no single uninterrupted building face be longer than 160 feet, fixed the building's serpentine footprint, the massing was dictated by severe height and buildable-slope restrictions and by the need to avoid casting ice-encouraging shadows on adjacent roads. Even the choice of materials—stucco over steel frame, concrete-tile roof—resulted from a code requirement that precluded the use of wood.

That the resulting building gives no hint of design-by-regulation is not the least remarkable of its features. But the structure instead weaves its question-mark path across the site with authority, sketching in the entry bus turnaround before shifting to curve around a higher octagonal plaza focused on the arcaded pool. A covered pedestrian arcade, essential in snow-country winters, joins the upper and lower building levels by way of a grand stair portal through the central tower building. The dormered, many-chimneyed roofs rising to the tower, the arcade echoed by cantilevered wood-railed balconies above, and the broken rhythms of the punched windows conspire to lighten the building scale, abetted by the stone-aping scoring of the gray stucco facade, toned to blend with a winterscape of snow and aspen bark.

PLAZA SECTION LOOKING EAST
10

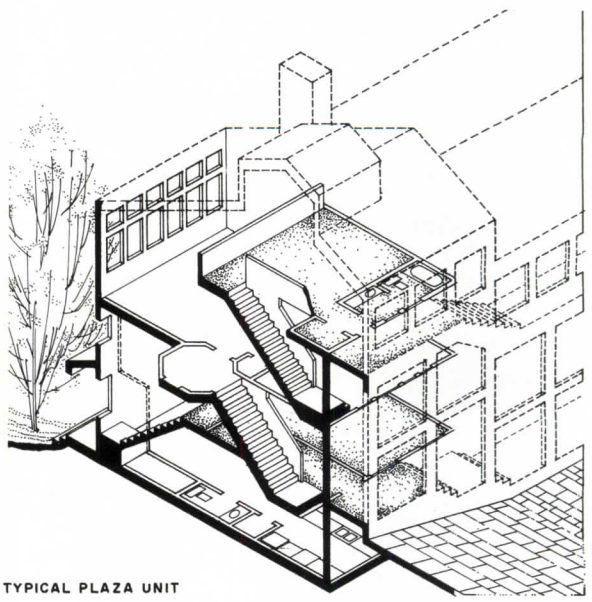
The designers' determination to avoid cookie-cutter apartment plans and "make every unit special" meshed with the owner's insistence that every unit have a deck and a view from its principal living area, to produce an array of floor-through apartments that vary not only in spatial arrangement but in the telling placement of windows. At the plaza on the west, vestibules off the pedestrian arcade lead to one- and two-bedroom lower-level town houses with ski access and upper-level three-bedroom town houses with generous valley views. On the east, vestibules from the entry court open to two-bedroom town houses raised over covered parking, with garden terraces on the south. The tower at the knuckle of the question-mark-shaped building accommodates the lobby and a conference area, with three-bedroom flats above.



Woodrun Place
Snowmass, Colorado
Owner:
Snowmass Company, Ltd.
Architects:
William Turnbull Associates—Hildegard A. Richardson, project designer; Richard Hocking, project manager; Geoffrey Butler, Gregory Chiselko, Jane Hendricks, Marc Laroche, project team

Engineers:
Design Workshop Inc. (civil); Johnson Voiland Archuleta, Inc. (structural); Engineering Partnership, Ltd. (mechanical)
Consultants:
Form + Function, Snowmass Design (interiors); Design Workshop Inc. (landscape)
General contractor:
Greer Construction

David Marlow



TYPICAL PLAZA UNIT

A hilltop academic village

Peter Coutts Hill Faculty Housing
Stanford, California
Fisher-Friedman Associates, Architects

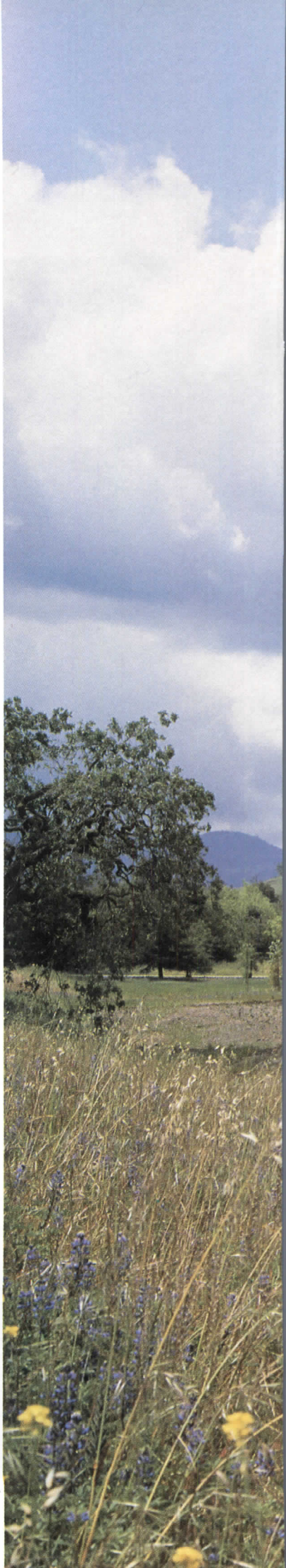
In its designer's mind's eye the paradigmatic "client" for this lively faculty-and-staff village within walking distance of Stanford University was an up-and-coming Ivy League professor newly transplanted to the Bay Peninsula from a sprawling Tudor house set in an acre of tree-shaded New England lawn. The brief: to design affordable housing assuring the newcomer an accustomed measure of privacy and identity within the unaccustomed context of apartment living.

For the client of record, the university itself, the same brief was a pragmatic response to necessity. The bay communities around Stanford boast the doubtful distinction of housing costs that are among the highest in an area noted for its inflated residential market, placing the university at a disadvantage in attracting and holding top academic talent and inspiring its sponsorship of suitable residential development in its own environs—in this case a softly rolling 20-acre hilltop site just south of the campus.

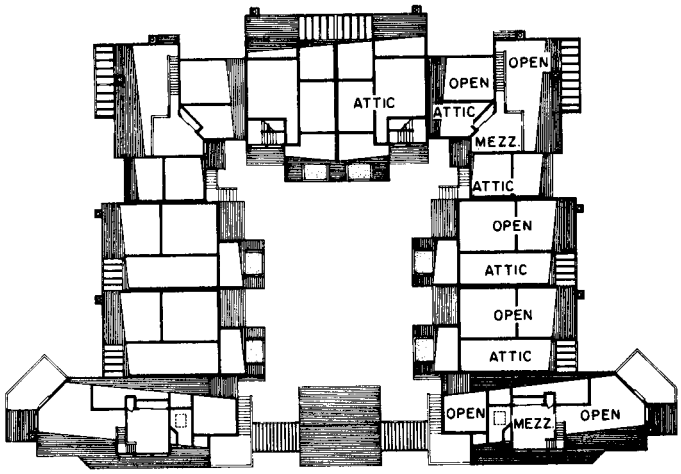
Although the site is approached from a high-tech industrial corridor, it is bordered as well by established neighborhoods whose residents were predictably wary of development on a prominence long considered a de facto community preserve. As a result, the architects were at pains to minimize the visual impact of the new housing—even to the extent of shifting the natural crest of the hill so as to leave 4.3 acres of open land for a park and wildlife preserve. A natural swale at the base of the hill was also retained, which together with the mandated setbacks further restricted the site area available for construction and dictated a particularly compact building organization.

After studying a variety of possible options for the site plan configuration, the Fisher-Friedman design team settled on a loop arrangement of 10- and 12-unit housing clusters spilling up and down the slope of the hill from an encircling ring road. Although garages front on the road, entry to the clustered town houses and flats is through stepped U-shaped courtyards, each differently (and lushly) landscaped, within which each unit is afforded a private entry porch as well as space for a small fenced front patio.

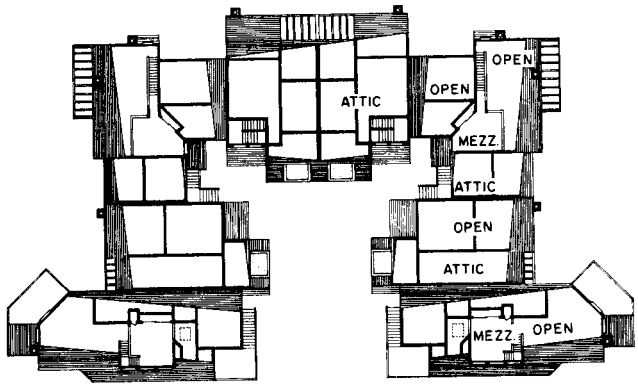
The gentle hill-hugging massing of the natural cedar-shingled, barn-red-trimmed buildings is energized by their rich articulation with bays and decks and outsize dormers, bouncing rooflines and spiky chimneys, which reflect (and contribute to) the extraordinary variety and vitality of the living spaces within (see plans and section page 102). Around the clusters, rolling lawns and meandering paths converge on a pool and recreation building that is bermed into a knoll at the center of the site and capped by a lofty captain's-walk-cum-sundeck commanding panoramic views of the campus, bay, and hills.



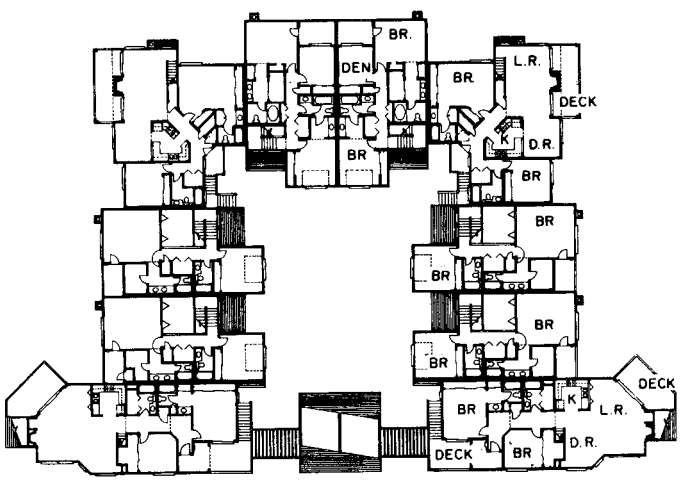
Photo/Stephenson photos



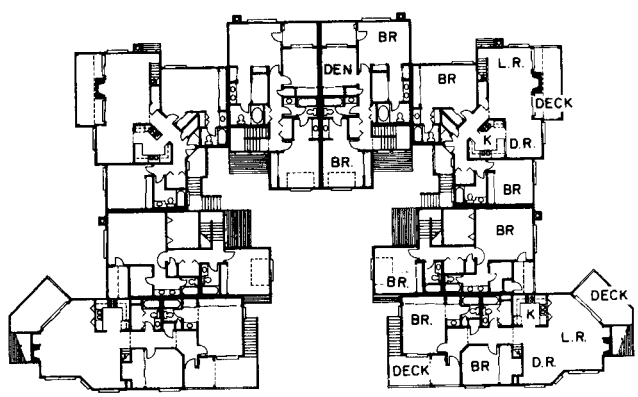
MEZZANINE



MEZZANINE



SECOND FLOOR



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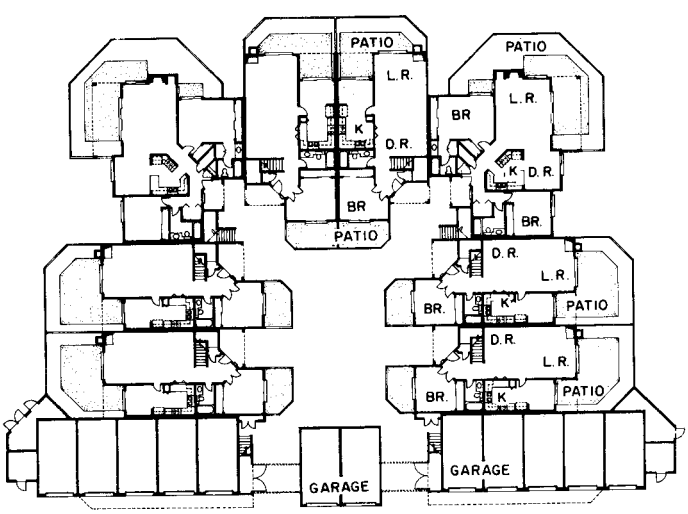
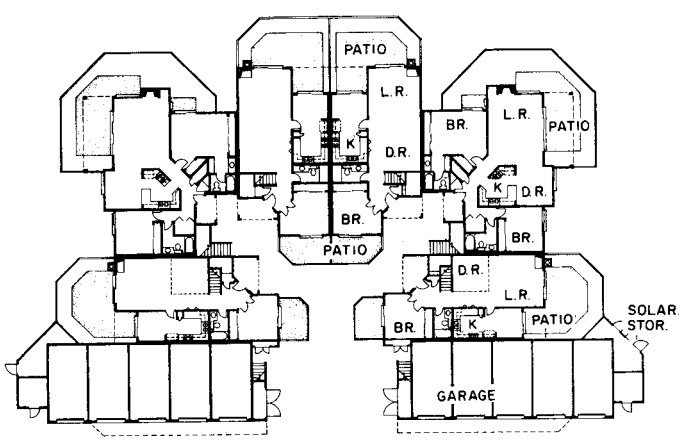
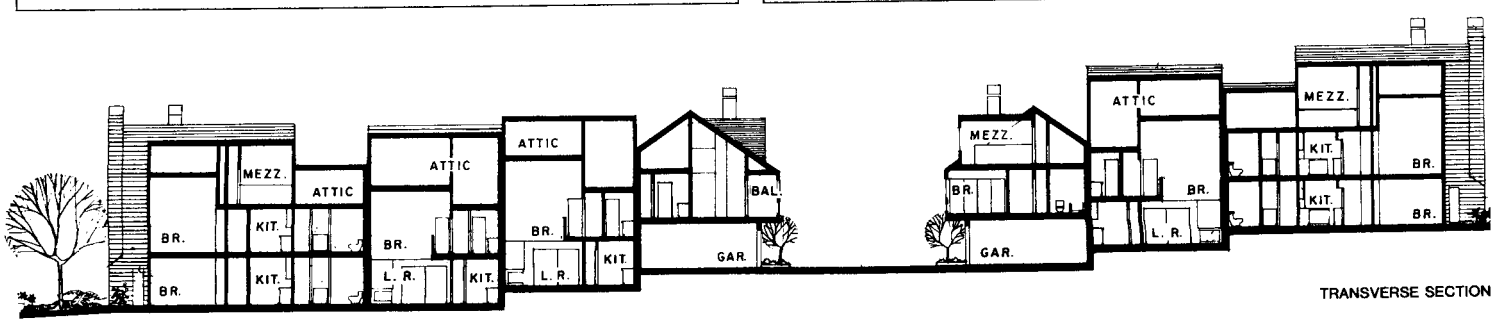


FIRST FLOOR
DOWNHILL 12 UNITS



FIRST FLOOR
UPHILL 10 UNITS



TRANSVERSE SECTION

Although the Peter Coutts Hill development (named for an early settler of the land it occupies) is composed of only four basic building configurations—10- and 12-unit clusters oriented uphill and downhill from the ring road—the one-, two-, and three-bedroom town houses and flats within offer a striking degree of variety and individuality. The hill slope is fully exploited to create interesting shifts in level, while the iconic pitched roofs and projecting bays combine with carefully placed mezzanines and open ceilings to produce stimulating spatial volumes. All units also enjoy generous outdoor living areas in the form of decks and patios, in addition to the quasi-private landscaped space of the entry courtyards. Despite the bay area's generally benign climate, the project design emphasizes energy conservation through tight insulation, double glazing, and sun shades. Domestic hot water is solar heated with panels grouped on the south-facing roof of each building.

Peter Coutts Hill Faculty Housing
Stanford, California
Owner:
Stanford University
Architects:
Fisher-Friedman Associates
Engineers:
Robinson-Meier-Juilly (structural)
Consultants:
Interactive Resources (solar);
Anthony M. Guzzardo & Associates (landscape)

Prototypes and archetypes

Deutsches Architekturmuseum
Frankfurt, West Germany
Oswald Mathias Ungers,
Architect

O. M. Ungers's design of the Deutsches Architekturmuseum transformed an existing villa on the south bank of Frankfurt's River Main into the first of the architectural models on display by enclosing it in a low-rise "precinct." A one-story rusticated building of reinforced concrete surrounds the house with its engaged Ionic order and announces a new ordering principle: the geometric grid that structures the theme of "houses-within-the-house" inside.

By Barry Bergdoll

Among the perennially fascinating milestones in the history of architecture are those rare buildings in which patron and architect have collaborated to realize a manifesto of their mutually held architectural convictions: Palladio's Villa Trissino at Cricoli, Lord Burlington's Villa at Chiswick, or Gropius's Bauhaus at Dessau. The inauguration in June of Oswald Mathias Ungers's new building for the Deutsches Architekturmuseum (German Museum of Architecture) in Frankfurt with an exhibition entitled "Revision of the Modern: Post Modern Architecture, 1960-1980" underscored Ungers's and museum founder and director Heinrich Klotz's joint bid to create just such a manifesto of triumphant postmodernism. For an architect who has dedicated two decades to investigating the very nature of architecture and its representation, and to honing a set of design strategies on paper, a more welcome brief than an architectural museum is scarcely imaginable. The very program of an architectural museum—only a handful exist and most are relatively young—as well as the decision to create the new German museum in the shell of a 1901 bourgeois villa, are indicative of that revisionist attitude toward the heritage of dogmatic modernism's refusal of history and local character manifest in the building and exposition.

At Frankfurt, Ungers was commissioned by one of his own most vociferous advocates to create a building that takes architecture expressly as its subject. The building is indeed as much a part of the new museum's program as the rich collections of drawings and models assembled in the five years since Klotz presented the idea of the museum to Frankfurt's city fathers. From the outset Klotz recognized the prohibitive expense of forming an historical collection and decided that the DAM would be a museum of the 20th century. Focusing in fact on postwar architecture—the DAM has been a major factor in the recent boom for architectural drawings—Klotz set out to define the museum as a platform for the continuing debate on the nature of architecture and its place in history, both locally and internationally.

Certainly few cities bear the scars of modernist attitudes that predominated in German postwar reconstruction and planning to such disadvantage as Frankfurt, often derisively called "Mainhattan." Until recently even the few remaining low-rise villa quarters, notably along the banks of the River Main, seemed only to be awaiting the speculator's grasp. A new cultural policy launched with a change in the municipal government in the late 1970s set out to establish a position on the German cultural map for the country's financial capital. A vigorous museum development program was soon linked to a new politic of architectural recycling. Plans for a museum megastructure were abandoned for the redevelopment of the Main's banks as a museum landscape of small institutions in separate villas, many entrusted to internationally reputed architects. Among the DAM's neighbors on the rechristened "Museumsufer" on the south bank of the Main in residential Sachsenhausen (which should count some 12 museums by the end of the decade) are the newly opened Deutsches Filminstitut next door, also a turn-of-the-century villa remodeled by Bofinger and Partner, as well as Richard Meier's new building for the Museum fur Kunsthandwerk, scheduled to open next spring (RECORD, April 1981). On the other bank, Josef Paul Kleihues has drawn up a project for the Prehistoric Museum in the former Carmelite Cloister and Hans Hollein's project for a new Museum of Modern Art (originally planned to share the Architecture Museum's villa) has run into further difficulties over the full acquisition of its site next to the cathedral. From the start, Klotz and Ungers saw the Architecture Museum as a chance to establish a didactic prototype for Frankfurt's ambitious museum program and to monitor the level of the architectural discourse.

Ungers's original project of 1978 (sketch page 108) is now a classic and oft-cited example of the architect's fascination with the theme of Chinese boxes or the "house-in-the-house." Although budget overruns forced reduction of this scheme, leading Ungers to abandon the continuous open-grid screen he had hoped to insert just behind the villa's preserved facade as the second in the series of four houses-in-the-house, the theme of shifting perception of inside and outside is still predominant. As though to insist upon the ultimate paradox of an architectural museum, Ungers repeatedly plays on the notion of display and progressive reduction in scale inherent in the Chinese boxes conceit. He began by putting the inherited villa itself on exhibition. Set within a one-story pedestal, which fills out the site's perimeter and provides skylit vestibule, circulation, and gallery space, the villa rises above this precinct (itself a metaphor for the city walls) like an object in the museum, as well as but one of the elements in that exhibition that is Frankfurt's new cultural landscape. Moreover, the principal themes that Ungers develops in multiple permutations within the villa are all clearly stated in their primal form in this one-story base. Both the geometric grid and the juxtaposition of the grid with trees, which—like the villa itself—are engulfed in the rusticated pedestal, are themes that are to be progressively transformed and reworked as the visitor penetrates the successive screens that lead to the inner core of the museum. At the villa's center a square light well rises through all five levels of the structure. Capped by a pitched roof set below the central skylight it forms a miniature house, the last in the series of Chinese boxes. Set like a shrine amidst the museum offices and archives on this uppermost floor, the model house is at once the archetypal house from which this latter-day villa was born and the first and the largest of the many architectural models in the collection. Thus at the very heart of the building Ungers represents the notion of architecture itself as well as the prototype of the idea of architectural figuration to which the museum is dedicated. This celebration of the archetype is taken one step further in the inaugural exhibition, however, for Klotz and his staff have out-Ungered Ungers. Not only does the exhibition's account of postmodernism culminate in the fifth floor, which is given over entirely to a display of the DAM's extensive collection of Ungers's drawings, but in the center of that final house-within-the-house, in that very shrine of architecture itself, Ungers's own model of the museum villa is displayed.

The parable of Chinese boxes is but one of the subtly interwoven architectural tales that Ungers's building recounts to the museum visitor. The lessons of one of his self-proclaimed historical mentors, Karl Friedrich Schinkel, are not confined to the hierarchical penetration of screens which successively initiate the visitor to the archetype. As in Schinkel's Court Gardener's House in Potsdam, this grid also bears witness metaphorically to the very birth of the elements of architecture. The juxtaposition of the tree and an abstract gridlike cage of vertical and horizontal members is a playful homage to Schinkel's own evocation of the natural origins of architectural form. The cubic cage at the center of the DAM's garden court is paralleled with the identically dimensioned skylight cage at the heart of the house to establish a dialogue of natural and abstract forms. The archetypal house that crowns the five-story cage is also the culmination of a series of geometrical and metaphorical transformations carefully staged to accompany the visitor's progression through the museum. Semper as well as Schinkel is commemorated in the analysis of architecture's evolution from four simple posts in the ground floor auditorium (cover)—the archetypal baldachino which is the origin of post-and-lintel construction as well as the primal means of consecrating space—through a variety of means of dividing and enclosing that cube of space. This series of transformations culminates in the four-square house model. It can only be lamented that local fire regulations and the reduction of Ungers's first plan resulted in a dislocation of the narrow staircase that was originally to have been adeptly coordinated with the first layer of continuous grid. This would have provided a continuous visual link with the central core and its metaphorical progression as one

ascended. Shifted to the rear elevation, the stair is now entirely enclosed, awkwardly orchestrated, and totally severed from the richly suggestive interpenetration of vertical spaces at the museum's center.

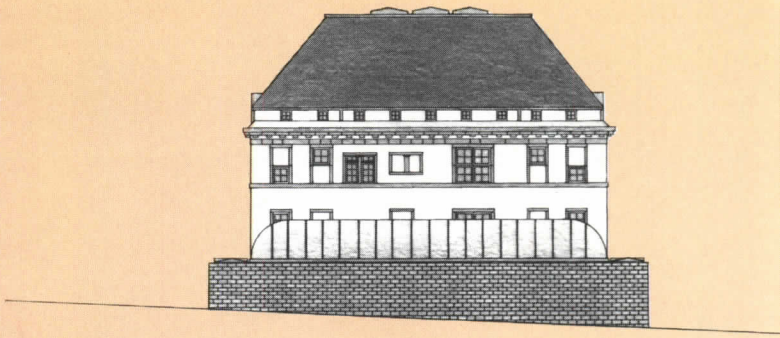
Ungers's tight interweaving of the successive permutations of a geometrical grid in plan and section with the metaphor of the origins and evolution of architecture effect a marriage between precisely those two strains that Klotz considers predominant in the contemporary enterprise of "revising modernism." The inaugural presentation of a portion of the museum's extraordinary collection (scheduled to travel to Paris and later to the United States) reveals just how intimately Ungers's building and the museum's collection embody the same philosophy. For Klotz, "the major part of the reconquered language of architecture consists in the playing out of the oppositions between contemporary-related modern form and historicizing references." This is precisely the aim of Ungers's quest in the DAM—to reinvest the pure white forms of modernism with primordial architectural significance and historical resonance. Postmodernism for both Ungers and Klotz is a "third way" between "conservatism and revolution," a revision of the modernist project. This revision relativizes modernism, recognizes it as an historic phenomenon related to a specific moment, and characterizes it as a development with internal variety. While the potential richness of modernism's formal vocabulary is thus embraced, architects are alerted to the dangers of abstracting that vocabulary from tradition or local context as immutably valid forms. DAM's opening exhibition sets out thus, as does the building itself, to expose several basic themes and explore their variations. Postmodernism is traced to the simultaneous development in the early 1960s of the exploration of multiple imagery, deliberate ambiguity, and historical reference in the work of Venturi and Moore, and of a more philosophical and fundamentalist investigation of archetypes and typology in the theorizing of Aldo Rossi and of Ungers himself. Their common ground was not a formal vocabulary or doctrine, but an attitude that "architecture should be a means of representation and not only an instrument of use."

The exhibition concentrates on what might be called the American-Italo-German axis, juxtaposing, for instance, the most hermetic exercises on the modernist vocabulary by Peter Eisenman and John Hejduk with the pop-art constructivism of Haus-Rucker-Co. Equally celebrated is the investigation of the values of the 19th-century European city in the work of Leon and Rob Krier and of techniques of fragmentation and collage pursued by Ungers's former pupil Rem Koolhaas and his Office for Metropolitan Architecture. The museum promises future exhibitions of its holdings of the work of "hi-tech" proponents and of a younger generation of postmodernists, although already its inaugural exhibition admits such lesser-known talents as Thomas Gordon Smith and Stephen Izenour to the inner circle. Meanwhile the museum is striving to strengthen its collection of earlier 20th-century architectural drawings and models—although it will defer to the prerogative of the Bauhaus Archive in Berlin in the search for modernist icons—as well as its library and photo archive of architecture since 1800. But the message of the inaugural exhibition is manifest. The museum conceives its mandate as the study of the architectural production of the first eight decades of the century in order to stimulate the investigation of that revisionism that will shape its closing years. As Klotz writes in the exhibition catalog: "After 60 years the forms with which the Modern Movement supported its claims have not only lost their esthetic credibility, they have moreover become a factor in the major destruction of the environment." The role that the new museum of architecture aspires to play in the future evolution of just such an endangered environment as that on the facing bank of the Main is apparent. Both collection and building set out, in Klotz's words, "to represent what architecture can be."

Barry Bergdoll is a doctoral candidate at Columbia University, currently living in Paris and preparing a dissertation on Léon Vaudoyer.

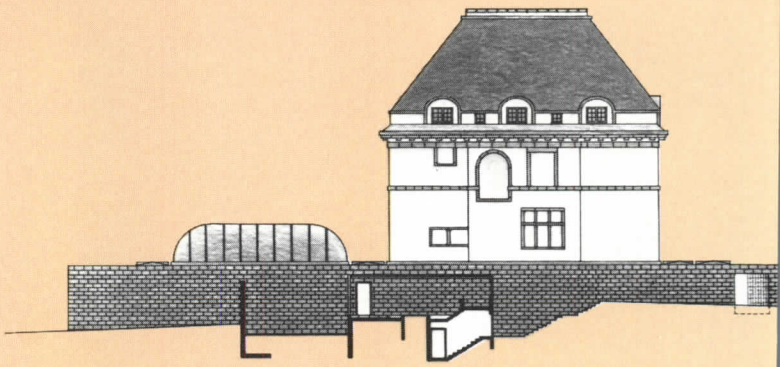
The role of the base as an independent circulation system completely bypassing the house is clearly seen in Ungers's isometric section (right). The house is discretely entered from either of the two lateral corridors that flank the house, or via the narrow stair that clings to the inner face of the garden facade. This somewhat maladroit entry sequence reflects the confined site and the decision to respect the villa's outer walls; but at the same time it heightens the hermetic character of sequential discovery inherent in Ungers's "Chinese boxes" conceit. The dislocation of the entry also explains Ungers's reversal of that villa "topos" the atrium-peristyle sequence, which here begins in the enclosed garden.

Deutsches Architektur Museum Frankfurt/Main

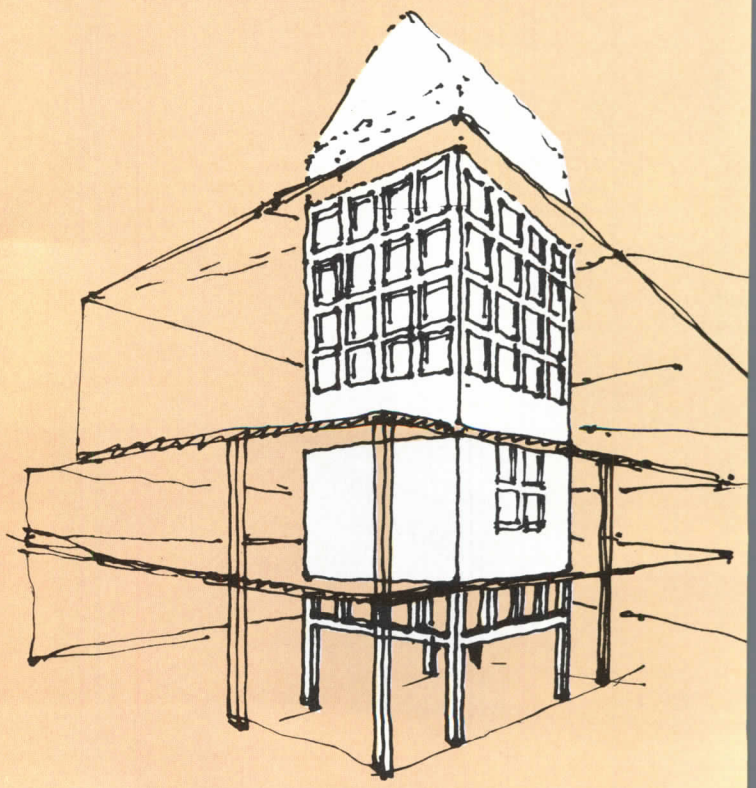


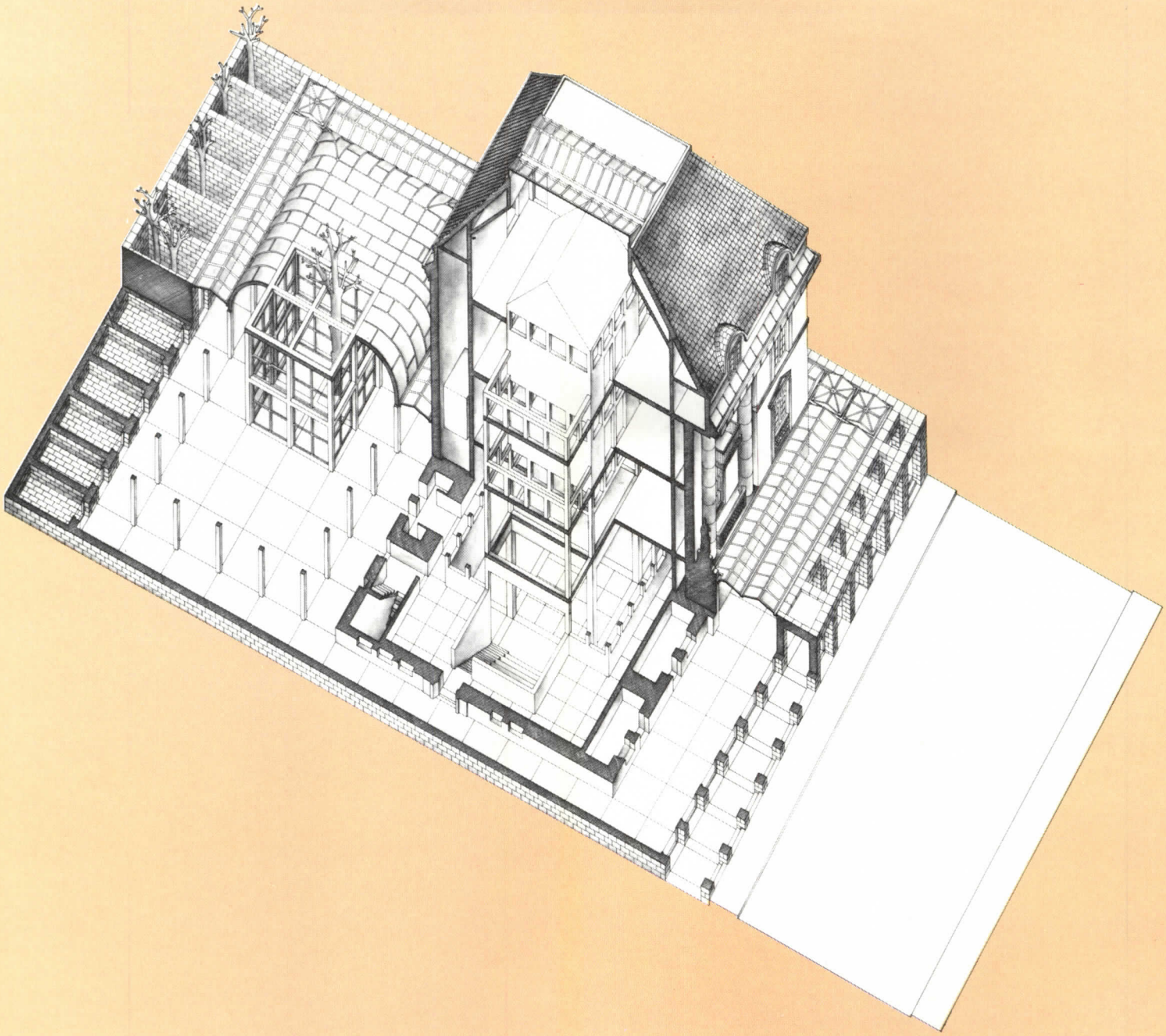
Süd-Osten (Rückseite)

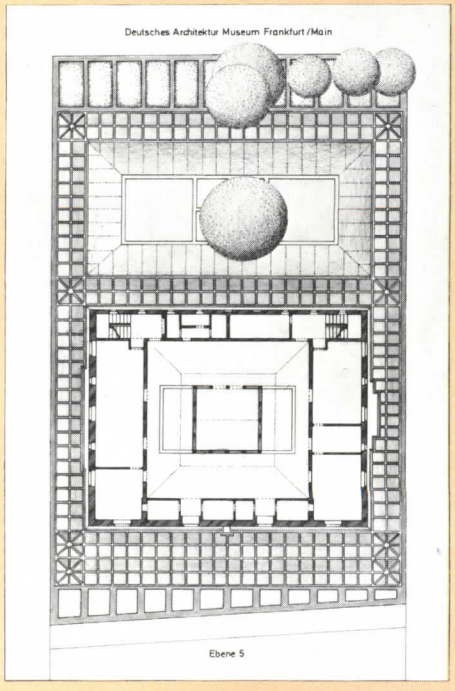
Deutsches Architektur Museum Frankfurt/Main



Nord-Osten (Filmmuseum)



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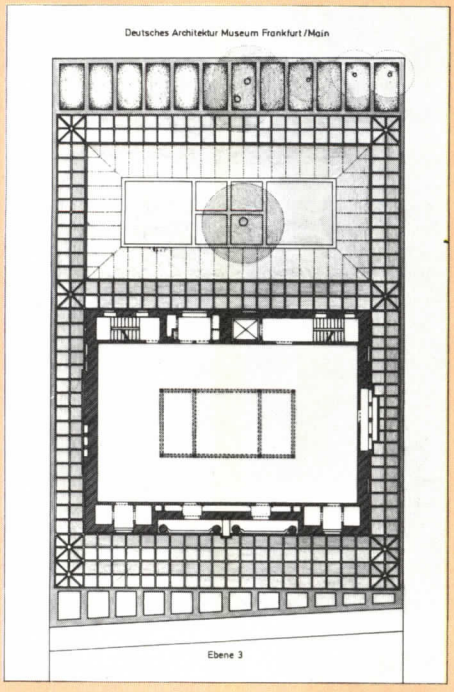
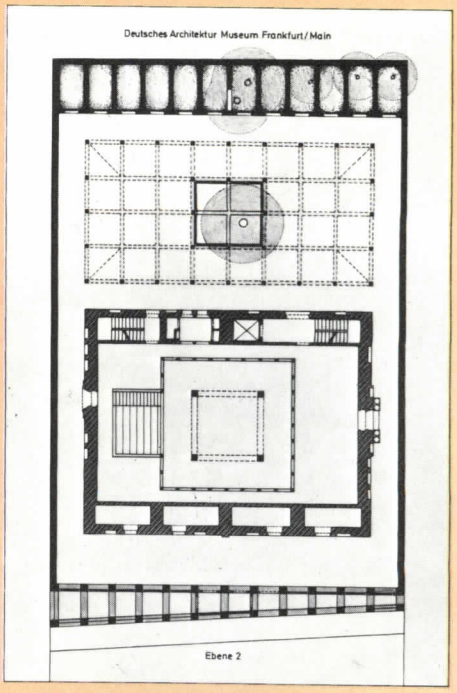
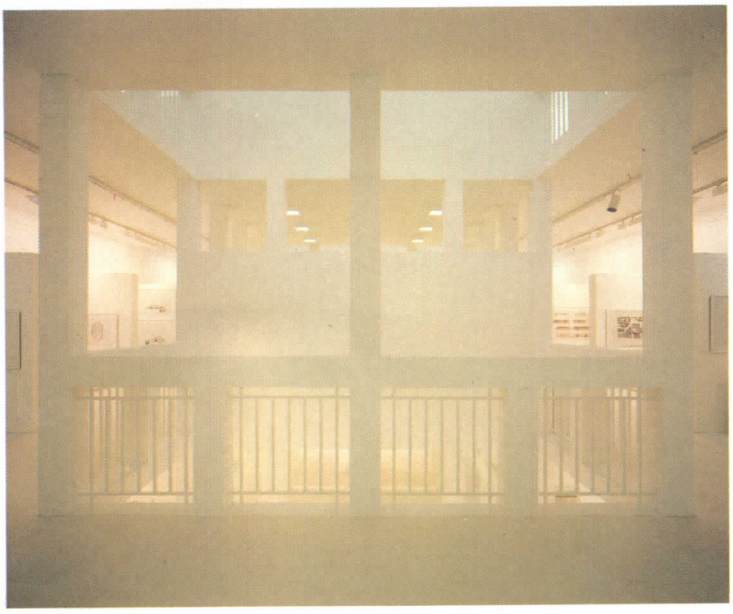
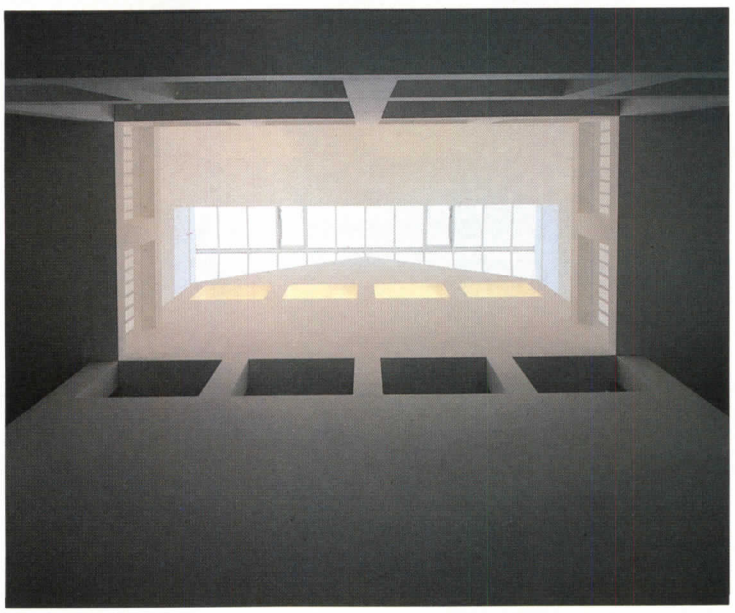
Ebene 5


Deutsches Architektur Museum Frankfurt/Main
Ebene 3


Deutsches Architektur Museum Frankfurt/Main
Ebene 2



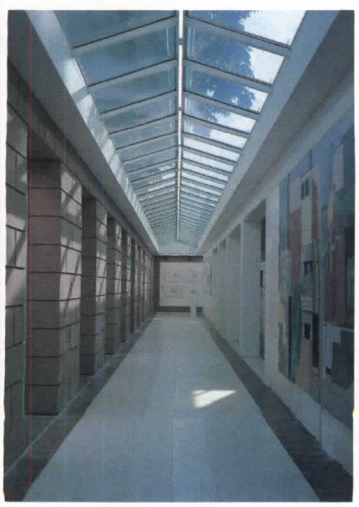
After completely gutting the interior, Ungers created a landscape of interpenetrating horizontal and vertical spaces focused on a central core, (the innermost of his Chinese boxes). The exhibition space is intimately scaled to highlight architectural drawings—traditionally difficult to display to full advantage—and to allow changing glimpses of the building itself and its discourse on architectural form. The successive transformations of the central core are glimpsed through vertical light shafts, which dramatically isolate the pure white structure as it rises through the building as a primal metaphor for the making of architecture.

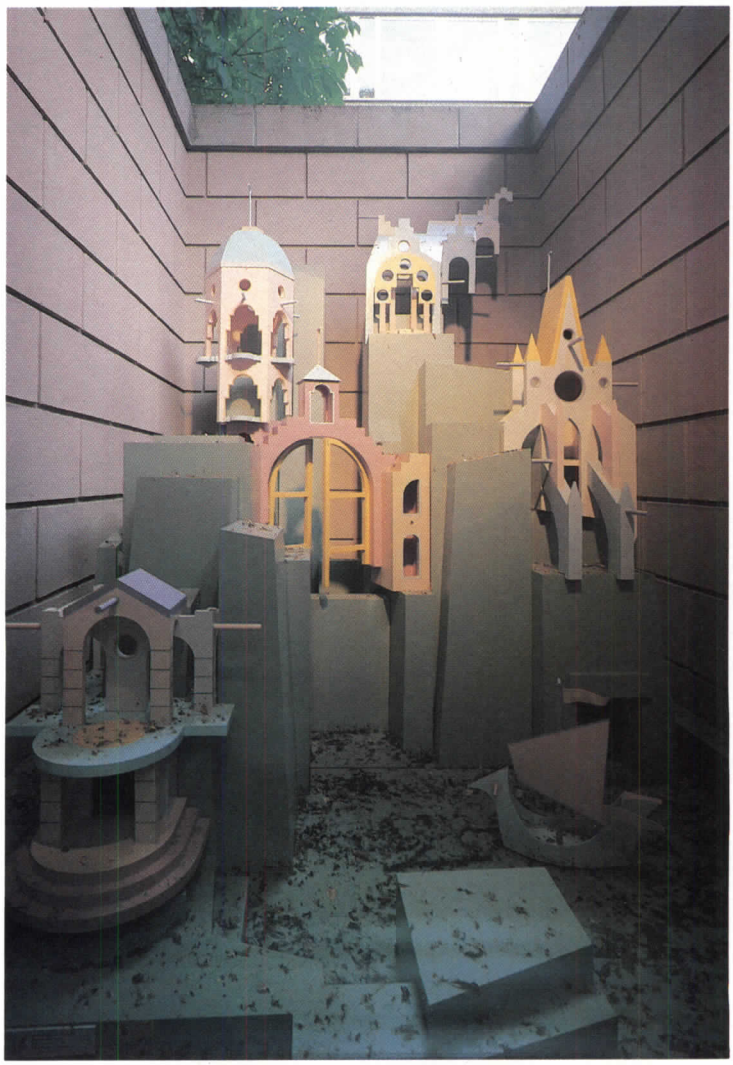


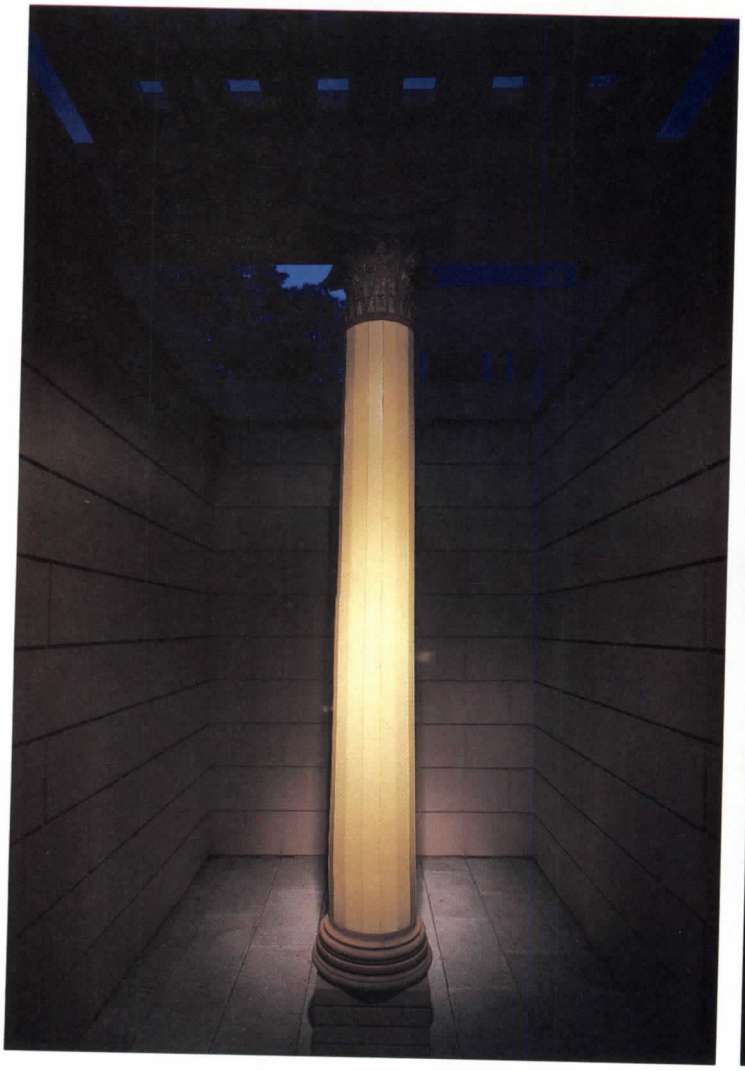
At the heart of the museum, on its uppermost (fifth) floor, the four-square grid is resolved in a miniature building, a pitched-roof model house. This culminates the sequence of "houses-within-the-house" and the transformation of the square grid at the center of each floor. Ungers had originally planned—in his much-publicized first scheme of 1978—that the central element would penetrate the skylight as a belvedere. As redesigned in 1981, however, the model house is floodlit like an object in a showcase, the largest "model" in the collection. For the inaugural exhibition, the museum paid homage to Ungers by devoting this inner sanctum gallery to the display of his drawings for the museum (facing page), as well as a model of the "house-within-the house."

The auxiliary exhibition space of the one-story skylit garden enclosure is a microcosm of Ungers's design for the museum. The same shifting perceptions of inside and outside, variations on a single geometric grid (emphatically stated in the floor tiles), and juxtaposition of nature and architecture are at play here as within the house itself. Ungers in fact engulfed the five trees of the former garden just as he did the existing house in this one-story precinct, offering thus a natural counterpart to the insistent geometric abstraction and whiteness of his architecture. If the allegory of the natural origins of post-and-lintel construction recounted in this juxtaposition of the concrete grid matrix and the tree trunk is a discreet homage to Karl Friedrich Schinkel's Court Gardener's House at Potsdam, the coved skylight vault is a distant echo of Otto Wagner's Postal Savings Bank in Vienna. The garden is both the real and symbolic foyer to the museum, at once an introduction to the galleries and to the developed allegory of architectural evolution recounted inside the museum. In addition it evokes the perennial theme of the atrium villa, thus linking this latter-day bourgeois villa to its typological antique ancestor by creating a zone in which interior and exterior intermingle. In practical terms the enclosed garden offers a generous and flexible space for gatherings and for displaying larger models from the museum's already extensive collection. Seen here, of course (facing page), is Michael Graves's model of the Portland Building in the inaugural exhibition.

The Deutsches Architekturmuseum's opening exhibition "Die Revision der Moderne/Postmoderne Architektur: 1960-1980" (until October 10th) features the work of some 36 European and American architects represented in the museum's rapidly growing collection. Drawings and models were carefully selected and installed to reinforce Museum Director Heinrich Klotz's contention that postmodernism represents a revision and not a rejection of modernism. The architects featured are precisely those who have set out to integrate the lessons of modernism and the heritage of its vocabulary into a larger field of cultural aspirations and references. The series of stall-like "garden sheds" that line up along the back wall of Ungers's garden exhibition gallery (plan page 109) are perhaps one of the least successful aspects of the design. For the exhibition, they have been installed with models by nine architects. Each stall proposes what the exhibition labels an "answer to container architecture" within the confines of these unsympathetic narrow slots of space open to the sky. These are in fact much more whimsical homages in the form of miniature landscapes than architectural projects or manifestoes per se. They vary from models to more evocative and allusive installations such as that of Stanley Tigerman (top right), who accepted the additional challenge of grappling with one of the trees preserved in the garden. Introducing a grid within this claustrophobic space, Tigerman continues his own delights with "objets trouvés" at the same time as he wittily parallels Ungers's own architectural metaphor of juxtaposing trees and manmade abstraction. Also shown here are the installations by Charles Moore (below right), Rob Krier (facing page, above), Thomas Gordon Smith (facing page, below left), and Josef Paul Kleihues (facing page, below right). The photo below shows one of the corridors that flank the house and penetrate the site from front to back. These provide an independent circulation system around the house as well as long expanses of skylit exhibition surface. (The corridors also reinforce that displacement of the entry to the side and rear facades, which was one of the unusual features of the original turn-of-the-century villa.)





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The building as scenario

Elemental House
Los Angeles, California
Charles Jencks and Moore Ruble
Yudell, Architects & Planners

By Charles Jencks

When news of Charles Jencks's latest architectural escapade reached our office some months ago, we—always eager to take that transcontinental flight—headed west to see what was up. Plenty, as it turned out. On a beautiful southern California morning, RECORD *arrived at the Los Angeles compound of the indefatigable postmodernist, to be greeted by a beaming Charles Jencks brandishing a well-worn volume of Milton's poems. After a walking (and reading) tour of the house and garden, we—being a little rusty on our Milton—asked the proud tenant to write down his thoughts. He was only too happy to oblige. C.K.G.*

Modernism has left us heirs to a tradition full of beauty and bereft of iconography. Disdainful of convention, Modern architects never evolved any system of meaning comparable to the Five Columnar Orders. At best they produced fine technical and esthetic solutions, but always of an individual nature. They did not use each others' ordering systems in a conventional and symbolic way, so that a new tradition could develop comparable to the classical one they displaced. As a result their inventions never took root, or where their Columns and Orders were imitated—as in the case of Mies van der Rohe's epochal I-beam (the very Doric of Modernism)—they were supremely nonsemantic. Hence Modern architecture has not evolved, like Modern theater, much beyond the "grunt and groan" school of expression.

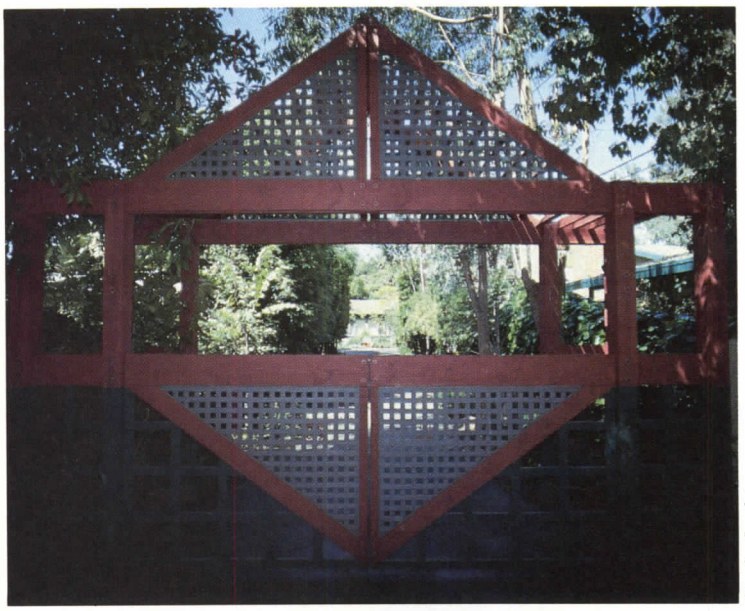
For a long time postmodern architects have felt the esthetic and technical approach was not enough; a semantic dimension was an obvious and necessary addition. For this house in Los Angeles, I was fortunate enough to be able to experiment with symbolic ideas on myself. The symbolism concerns two themes interwoven around a house so basic, or fundamental, that I have termed it "elemental." One theme develops the idea of the Four California Elements, the fact that most every Californian, like an ancient Greek, worships the water, the land, the beautiful views, and the sun—or, in classical terms, Aqua, Terra, Aer, and Ignis. The other theme, John Milton's two poems *L'Allegro* and *Il Penseroso*, was suggested by the active and passive parts of the site. The route through this site is organized around these two themes so that one can follow a symbolic progression, or something comparable to a classical order.

The house, or series of seven pavilions, is situated in a canyon aptly termed "rustic" because of its lush eucalyptus trees and rustic buildings. There are numerous versions of the log cabin, a few examples of what is known locally as "the woodbutcher's art," and quite a few ranch houses in the laid-back and spread-eagled style. Hence other reasons for the elemental style adopted in these pavilions.

The first pavilion is an entrance gate with two primitive pediments (right). But instead of the usual split pediment (or double-layered one in the Baroque manner), there are two pediments placed in opposition to each other—in anastrophic relationship. One is upside-down, the other right side up, and they hold four enigmatic signs in the four quadrants. These are the first clues to the architectural promenade and the first game of "Hunt the Symbol." Another expectation is set up by the elemental "nut-and-bolt" Order of piers, the constructional elements of which are accentuated by shades of pink and red. These slight variations of familiar shapes are meant to provoke uncertainty. What is the meaning of the triangular gable standing on its head? Why are the bolts and washers accentuated with paint? What are the four emblematic signs?

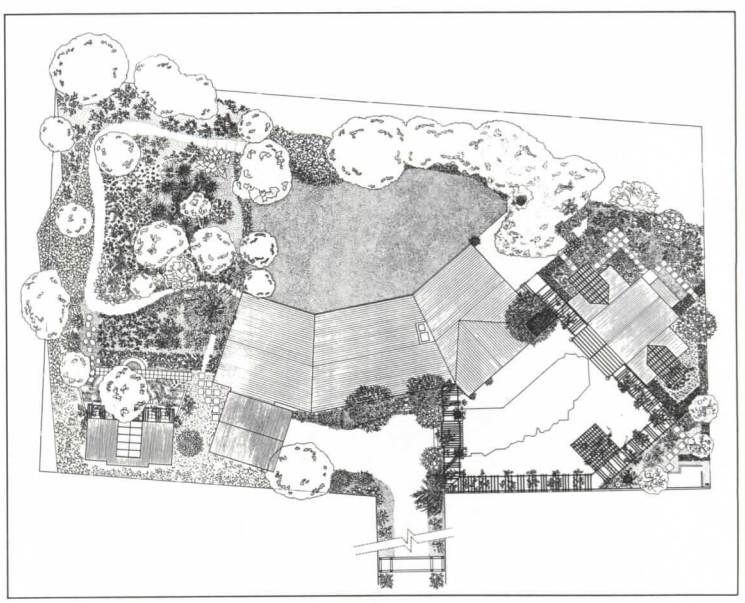
The second pavilion, also a primitive hut, answers some of these questions and raises new ones. It's a garage with a more developed nut-and-bolt Order—now celebrating Mid-Tech quite openly with its redundant washers, sheet metal, and coiling columns of fat culvert pipe (right). Here is the epitome of the garage esthetic, rendered clean and ordered. In fact there is an Order of garbage cans and fire-logs, of chapels and car tracks, all pulled together with a common geometry. And the lettering in elemental, or rustic, script is part of the same esthetic. In the tie-beams of the trusses it starts a new set of associations: "Hence loathed Melancholy,/ Of Cerberus and blackest Midnight born/In Stygian cave forlorn,/'Mongst horrid shapes, and shrieks, and sights unholy!/Find out some uncouth cell,/Where brooding Darkness spreads his jealous wings,/And the night raven sings."

These opening lines from John Milton's *L'Allegro* are quite clearly taken up in the dark and black forms. The "uncouth cell" holds the firewood or garbage, and the parked cars give appropriate "shrieks and sights unholy." But apart from these parallels—between poem and architecture, and one elemental pavilion and the next—it is not clear what the plot really is. It doesn't become comprehensible until a little later, when further cues, stenciled on the architecture and sculpture, are

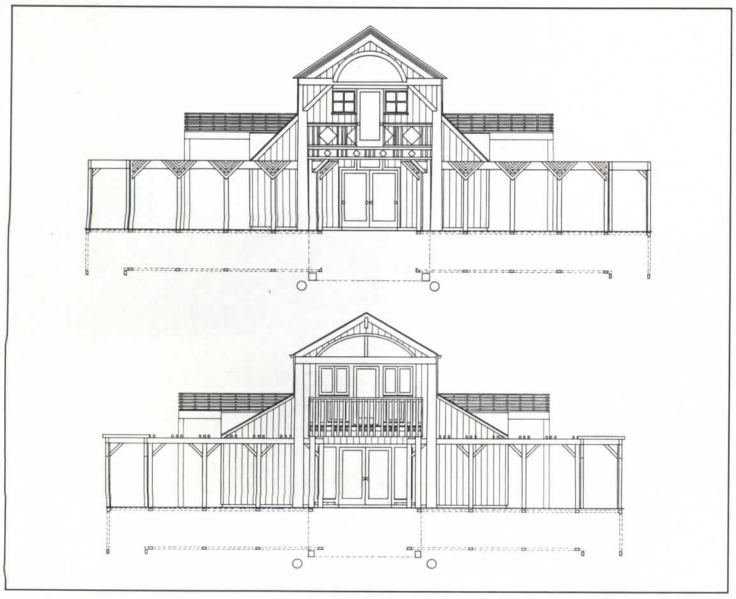


Charles Jencks

Charles Jencks



Charles Jencks



found. Some plants are also picked out, or framed by architectural elements labeled with further lines from Milton. Then the allegorical nature of the site becomes more apparent—its relation to the active and contemplative sides of creative Melancholy, as described in *L'Allegro* and *Il Penseroso.* These correspond to the noisy and quiet parts of the landscape, i.e., the brick paving and the green lawn. The interaction of Milton's poems with the Four Elements produces a double semantics, or two sets of meaning that interweave.

This becomes clear at the third pavilion, the Terra Gate (page 118), which has its California element repeated in rustic lettering on the architrave, as if to say "terror, terror, terror. . . ."

The Egyptian and Greek signs of Terra are split apart—the ziggurat and pyramid have fractures running through them. Thus one particular Californian element is not earth, but earthquake, an indication that a tributary of the San Andreas Fault lies nearby. As one walks through this gate the earth-colored brick splits apart to reveal water, Aqua,—the swimming pool, which is, conveniently, in the shape of California (right). The pool also has a jagged line of rupture underlining the previous fractures. The Four Elements are not only admired and worshiped here, as they were in Greece, but feared: water brings mud slides, fire is a constant threat in the dry foothills, and everyone has heard where air pollution was invented.

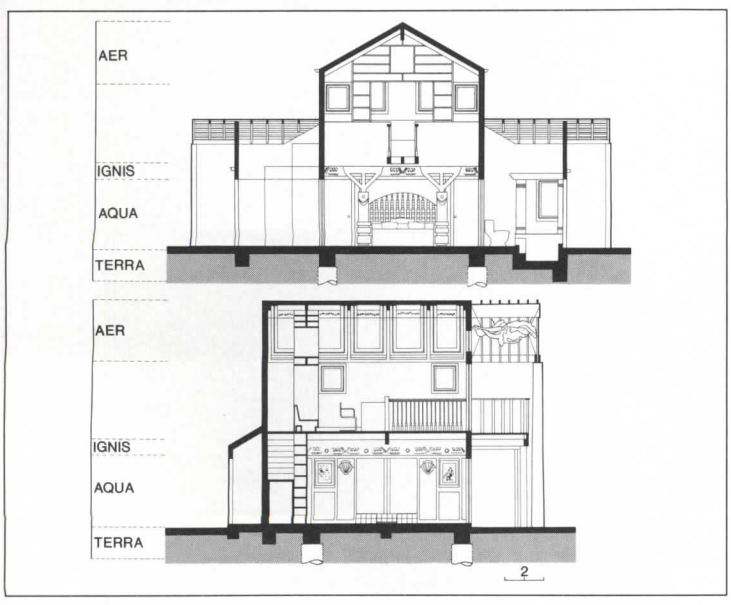
Through the gate the promenade turns right and back to Milton. Ahead is another eye-catcher, a sculpted relief with the incised lines, "Nods and becks and wreathed smiles/Such as hang on Hebe's cheek." Hebe does smile and look to her left, to the "nods and becks" (Bigonia Violace which grow up the L. A. columns) and to the next eye-catcher at the end of the pergola, behind the fourth primitive hut, the Aqua pavilion (right). Here there can be no ambiguity of meaning, as it is labeled AQUAQUAQUAQU like a quacking duck, and it shelters a whirlpool bath. Water foams and bubbles here below the personification of Aqua, which is stylized from Cesare Ripa's Iconologia. Certain liberties are taken with the icon: she holds a steamboat over her shoulder instead of the customary sailing rig.

The Aer pavilion (left), the fifth, is in the same fundamental style as the others, but more brightly painted and more elaborately ornamented because it is inhabited and the culmination of one sequence. As one of the main bedrooms it necessarily has a more delicate Order than elsewhere; in fact, the L.A. columns dressed on the outside with a growing pink flower—the "nods and becks" of Milton's poem—are dressed on the inside with pink curtains (overleaf). The Order is also more refined, and stylized in red with the signs of fire. So like the progression from Doric to Ionic to Corinthian in a classical temple, there has been an ordered sequence from the front gate—from the most primitive to the most developed. Ultimately the Orders in architecture do imply an order. And in the Aer pavilion even the ornament follows this progression with the Four Elements being organized vertically (section page 122). At the bottom are the terra-cotta floor tiles; above these the water level of the lower walls is symbolized by the shades of blue; then comes the fire level of the columns and stencil; and finally, on the ceiling where it should be, is Aer. This last is stenciled and stylized in blue-gray, linear battens.

Ornament, painting, and sculpture clearly state the themes in this pavilion. The Four Elements, or rather personifications of them, occupy the four corners of the lower walls. What had been implicit is now explicit: the notion of fourness of the front gate, and the enigmatic emblems in each of the quadrants. These are labeled on the central window above the bath. An architectural key, like that on a map, is thus provided as a fitting reward to the initial challenge of "Hunt the Symbol." And the stylized arch shapes that one has found in various guises throughout the journey, also become meaningful in the bathroom. This form appeared previously in the Terra Gate and then on sconces and different pieces of furniture. It turns out to be a "face" in the place that faces are looked at every morning, the bathroom mirror (overleaf). Vanity of vanities, the vanity mirror has a profile adopted from Michelangelo and Scamozzi, although here it is rude, crude, and barbarous rather than elegant. It's impossible to cut mirror like the profile of a stone cornice, but there is the explicit connection of architecture with the body, an analogy Michelangelo recommended. It serves to point up the other anthropomorphic meanings where this shape is found again and again throughout the site. There are three different tables with this motif, plus lamps, wardrobe drawers, various chairs, and the collar for a plant. So often is the motif used in different ways that it becomes another variation on a theme—another semantic system in itself.

One intention I had when designing these buildings with Buzz Yudell (a polemical point because it

Charles Jencks



came more from the current situation of architecture than the program of the house) was to use ornament and sculpture semantically, not just esthetically. So much decoration in this stormy age of ornamentalism is just poured over buildings, as if this downpour would compensate for the previous drought. But meaningless ornament is as pointless as none at all—it just confuses the architecture. Hence when working on the pavilions and gardens, I tried to insist on a thematic program before the sculpture was made.

In certain cases, such as the personification of Aer, the thematic design was, I believe, very successful. The artist took Cesare Ripa's model and description of Aer—"a pretty young girl dressed in draperies of transparent white, with wings on her shoulder"—and transformed it in material and color. Because of the sheet metal, because of the surrounding greens, oranges, and reds, and because it is the 20th century and not the 16th century, Aer is not an exact transcription of the type. The artists who worked with me were all asked to reinterpret traditional programs to bring them to life; not to copy but to transform them. They responded to this challenge of iconology with varying degrees of excitement. In spite of the abstraction and autonomy of Modern art, there are postmodern artists willing to work within traditions and reinterpret archetypal content. It partly depends, inevitably, on the particular content and the role for the art. The Four Californian elements and Milton's two poems may not be the most relevant or pressing subject matter of the present, but they are a bit more exciting than "flatness" and the other great subjects of 20th-century masters.

One more polemical point might be made about the Aer pavilion and its ornament. The decorative frieze, combination of the Four Elements, is a repeat pattern. It is designed as a musical figure with a treble and base, or a high and low register, and emphatic phrasing. The figures line up and their visual force, exploding from the center, runs to each side and the punctuation point, the sign of Aer. The scheme is intended to give what Owen Jones and E. H. Gombrich recommend as the esthetic essence of ornament—a pull towards the expected goal, a drive towards the main key or tonic. So the ornament is not simply semantic, or a literal transcription of the signs at the front gate, but a stylization of them for this esthetic momentum.

If the Aer pavilion is the culmination of one plot, the Four Californian Elements, then the other, the poems, continue further around the landscape and through the pavilions. It would be laborious to give a line-by-line, flower-by-flower, description of this walk, and in any case the poems haven't been completely followed. Nonetheless there is enough correspondence here to keep the plot developing. *L'Allegro* continues into the living room of the pre-existing main house, a 1952 "Ranch" which has been stripped to its essentials and repainted in light colors. Here the poem is combined with the theme of California and the result is a light white room filled with allusions to previous themes: for instance in one table there are primitive signs of the sun and several transformations of the face. The paintings of Roland Coate bring out the white bleaching light of California. Sunburst lamps provide a literal reminder of the Ignis-Sun connection, and because this is the Ignis pavilion (with its fire-red chimney) there are many other signs of the sun. Heavy logs, cut in short lengths to reveal their annual rings, are painted a sandy cream to represent the sun, while two sunburst chairs, remodeled and accentuated in their curves, are both "faces" and halos of the sun.

From the main house the journey continues through the second poem, *Il Penseroso,* a celebration of the creative melancholy of the poet. Here the soft garden side of the site plays its role in antithesis to what has come before. Where everything was hard and built, it is now pliable and growing: a giant, statuesque palm dominates one vista, along with leaning acacia and eucalyptus trees. The late afternoon sun sends long shadows of these and other trees across the flat green of the lawn. On a direct axis from the house is the Tibouchina plant with its purple petals and velvety leaves. These represent the positive side of Melancholy—in the poem a "goddess, sage, and holy"—while her imaginary parents, Vesta and Saturn, are represented by a white magnolia and the thorned trunk of Chorissa Speciosa. From here the garden path meanders back and forth pointing up further lines of *Il Penseroso* until it culminates in the seventh and last pavilion, the Hermitage (overleaf).

It is worth quoting several lines of Milton to bring out aspects of the architecture. The Hermitage is celebrated essentially as a peaceful scholar's retreat—part a church with a cloister, and part a "mossy cell" for the hermit poet. "But let my due feet never fail. To walk the studious cloister's pale,/And love the high embowed roof,/With antique pillars massy-proof." The Hermitage does have a cloister and high roof, and although the pillars are not antique, or exactly classical,

Charles Jencks

they are massive. (Actually they take up the same primitive Tuscan Order, in sheet metal, of the other pavilions.)

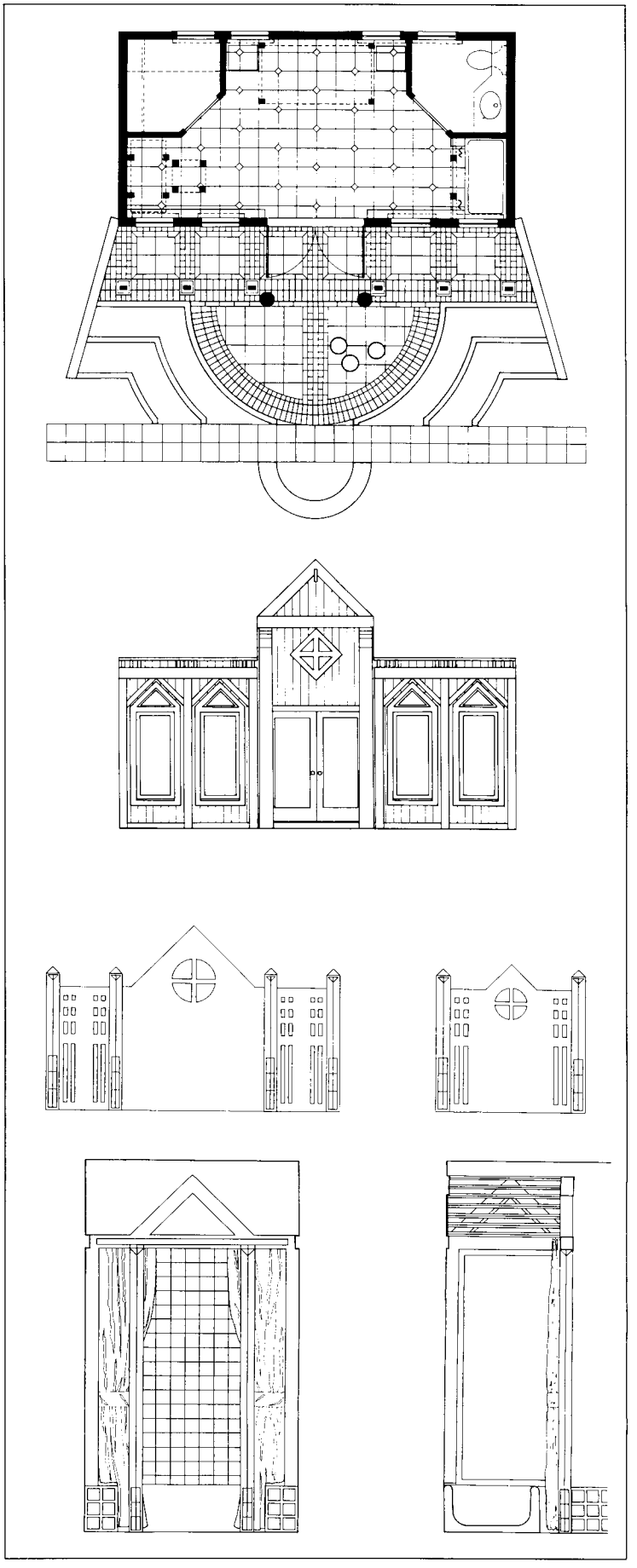
The inside of the Hermitage is described as having clerestory windows that cast "a dim religious light," and although the light from above is hardly dim, the space is given many religious accents, including a window-cross over the door and a baldachinolike shape over the bed. Indeed the bed, bath, alcove, chair, and table are all miniaturized churches, with elemental religious signs and a cathedral plan. Even the tabernacle windows, and interweaving ornament that derive from them, have religious overtones. "There let the pealing organ blow,/To the full-voiced quire below,/In service high, and anthems clear,/As may with sweetness, through mine ear,/Dissolve me into ecstasies,/And bring all heaven before mine eyes."

Those who have slept in this spare bedroom tucked away in the garden and insulated from the noise and bustle of the main house, do value its contemplative calm. Partly this is created by the simplicity of the white-pink coloring and the very simple geometric order—a Latin cross in plan—and partly it's a result of the light spilling through the trees and canopy of glass above the bed. The Hermitage, like all the other pavilions, is basically a very simple primitive hut with a fundamental L.A. Order incised into the furniture. It completes the journey as the last element in the "Elemental House" and brings us back to the garage and the beginning of the route.

If there is one obvious problem to the building as scenario it concerns the danger of over-design: one doesn't know where to stop representing further and further ideas. This can lead to certain anomalies such as the private bedrooms which may become too formal and public, or the modest backroom which may accidentally turn into a grandiose stateroom. Probably not more than one-third of a house should have a full symbolic program.

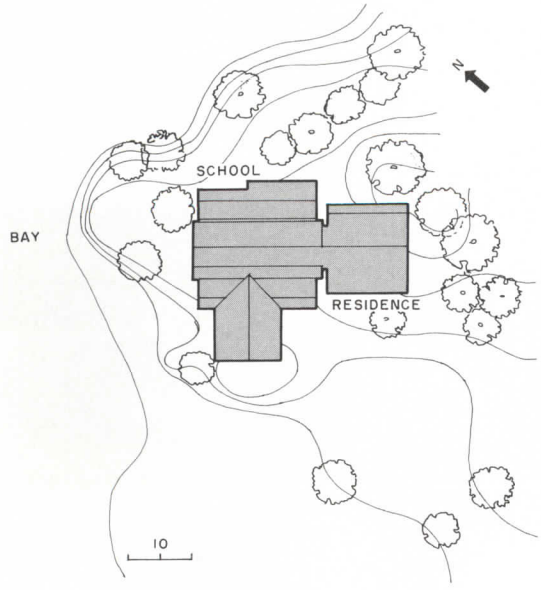
The advantages of following a plot really concern the drama aroused. Architecture like theater is best experienced as a steady build-up of narrative, where the story impels one forward to anticipate and then look for further incidents that relate to the main theme. A large Egyptian temple complex provides the drama of anticipation and fulfillment, indeed several climaxes near the holy of holies, just as the Gothic cathedral provides a clear temporal and visual build-up near the high altar. The tradition of designing a dramatic walk through a site has been extended by Mannerist gardeners, and no doubt they unified their plot under the over-all idea of the "concetto," or concept. One can still find very effective use of this "idea of the idea" at the Villa Lante and Bomarzo, both gardens whose plots have been partially decoded. The picturesque English garden was also composed as a set of discrete frames, or pictures, with mental captions to be imagined as one strolled through on a late afternoon walk. The idea of labeling such a sequence so that architecture and the theater exert their full powers of temporal drama has yet to be fully attempted. Something close to it has been realized in the classic Chinese garden, but no one has fully exploited the possible combination.

Elemental House
Los Angeles, California
Architects:
Charles Jencks and Moore Ruble Yudell—Charles Jencks, Buzz Yudell, project designers; Peter Zingg, project manager; Andra Georges, project staff; Amir Fava (sectional drawings and site plan)
Engineers:
Nakatani Associates, C.A.S.A. (structural); Sullivan & Associates (mechanical)
Consultants:
Maggie Keswick with Pamela Burton (landscape); Tina Beebe (color); Charles Jencks (furniture); Lise Fragments, 1978, Robert Graham (sculpture); Sidney Hurwitz (watercolors of Four Elements); Charles Moore (Aqua figure and waves); Penny Jencks (Hebe Relief)
Contractors:
Carde Killefer (main pavilions); Per Christiansen (Hermitage); David Bemis (entrance gate)



A school for self-reliance

Gary Vannest photos



Making the most of resources at hand is one of the earliest lessons anyone learns in Myers Chuck, Alaska. Founded in the 1880s, this isolated fishing village at the tip of the Cleveland Peninsula has neither roads nor utilities, and is accessible only by boat or float-plane. Seattle architects Larsen Lagerquist Morris wisely heeded the lessons of rural ingenuity in their design for the Myers Chuck public school, a 2,400-square-foot frame structure that replaces the one-room rented shack where local children used to learn the three Rs.

Constructed for $310,000, the new schoolhouse is the largest building in the settlement. Flexible enough to serve the academic and recreational needs of kindergarten through grade 12, and to double as a community center for Myers Chuck residents of all ages, the project also includes living quarters for one permanent teacher and temporary accommodations for instructors, nurses, performing artists, and other visitors who fly in on a circuit through the regional school district (plans and section overleaf).

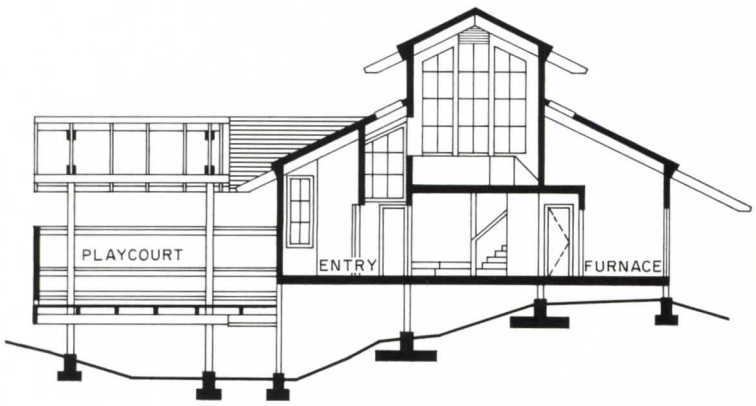
There is no distinctive architectural vernacular in this neck of the Alaskan woods, but Larsen Lagerquist Morris have used forms and materials that call to mind the sheds and cabins of logging camps and other outposts in the wilderness. Even here, of course, the technology of the frontier has changed with the times. Following the usual practice

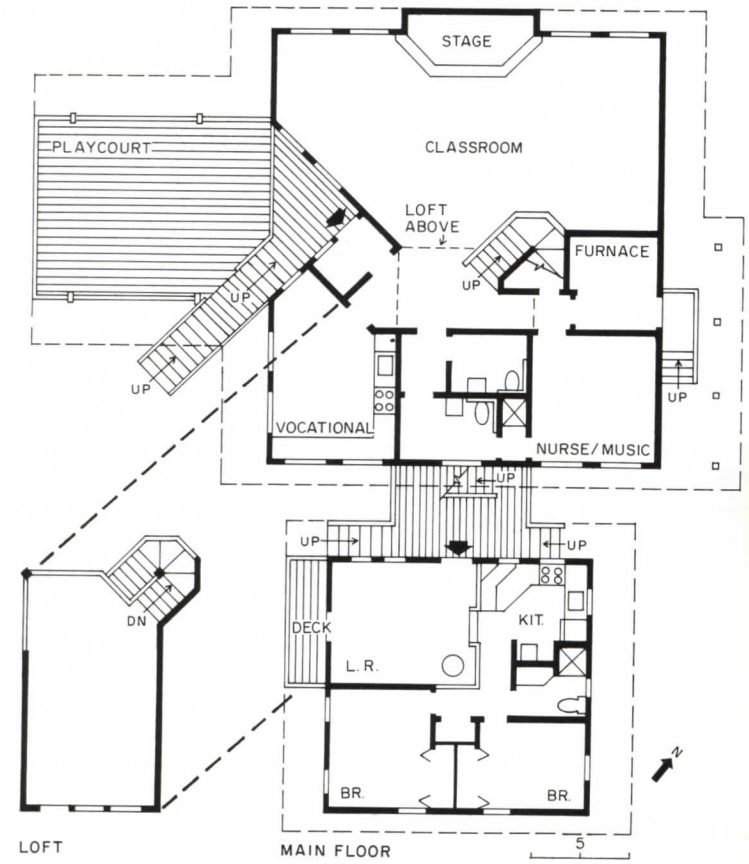
Myers Chuck School
Myers Chuck, Alaska
Larsen Lagerquist Morris AIA, Architects

in southeastern Alaska, all building components for the Myers Chuck school were shipped by barge from Seattle and then hoisted by helicopter onto the steep one-acre site, high on a rugged promontory.

The straightforward timber framing of walls and trusses reflects long-standing tradition, civilized by refinements of proportion and details such as the fish-scale border skirting cedar-shingled walls (lower photo near right), or translucent fiberglass eaves in the galvanized steel roof that allow scarce sunlight to penetrate a central clerestory. A plank-floored deck beneath a fiberglass canopy (details right) furnishes the only sheltered, level playground in this rocky terrain where the annual rainfall averages 186 inches. Water running off the steeply pitched roofs is collected in a 1,200-gallon cistern, filtered clear of pine needles and other forest sediment, and treated in a separate utility building. Sewage passes through a secondary treatment system before it reaches the neighboring bay. A diesel generator provides all electricity, and a forced-air furnace automatically switches between wood and oil fuel.

Spanned by sturdy trusses, the wood-paneled classroom (overleaf) suggests the interior of a remodeled barn. Complete with a book-lined loft, it is a warm and reassuring place in which to study a world that must, at times, seem very far away. *D.B.*





Exposed beams and trusses reflect the character of hand-built houses along the Myers Chuck shoreline. Diagonal stairs and platforms enliven the barnlike simplicity of the clerestory-lighted space. The loft (near right), which is used as a library and quiet reading space, was originally intended to be a sleeping balcony for special instructors and other official visitors who travel through the school district (guests now stay in the second bedroom in the teacher's residence, an addition to the initial program). Rearrangement of furniture transforms the large classroom into a multipurpose community gathering place, equipped with a stage (above right) and a hardwood dance floor.

Myers Chuck School
Myers Chuck, Alaska
Owner:
Southeast Island School District
Architects:
Larsen Lagerquist Morris AIA—Garrett Larsen, Gordon Lagerquist, Eugene Morris, Brad Marczuk, design team
Engineers:
John Klima (structural), Kramer Chin & Mayo, Inc. (mechanical/electrical)
General contractor:
Southeast Island School District

Acoustics for all purposes —but mostly for music

The conductor of the Colorado Springs Symphony believes, emphatically, that concert halls should give their audiences "real music, not reinforced sound interpreted and censored by a technician." This belief, according to acoustician Russell Johnson, was pivotal in the achievement of good natural acoustics for music at El Pomar Great Hall in Colorado Springs, partly because conductor Charles A. Ansbacher is a man of determination, partly because he was chairman of the building committee's design/construction subcommittee.

The fact that El Pomar had to fill many performance purposes, however, did throw a number of spanners in the acoustical works. The warm, reverberant, "live" environment that works so well for symphony does not work for either human speech or rock groups. Still other subtle differences in texture and configuration must occur for opera, for drama and for choral groups (Colorado Springs presents regular performances by its resident chorale). Johnson, fortunately, had had considerable experience already with multipurpose theater design RECORD mid-August 1981, pages 68-73).

Most immediately evident in the auditorium is a series of large complexly curved elements tilted over the side and rear balconies. Their first purpose is to increase clarity of sound by directing reflected sound back to the orchestra and to listeners on the main floor. Robert Wolff, project manager for the acoustic and theater design firm Artec, concedes that the devices steal some sound energy from the balcony—in most concert halls recognized by knowing concert-goers as the preferred location—to benefit the front and center rows downstairs. Nonetheless, sufficient energy remains to strike an even acoustic balance throughout the hall, and the balcony has, in any case, its own set of complexly curved tilted elements for directional reflected sound.

Working with the knowledge that the reflection of light and the reflection of sound follow the same rule—that is, the angle of incidence equals the angle of reflection—Artec used light to design the reflection of sound. In a model of the hall, moving differently shaped and differently angled mirrors around the junction of ceiling and walls and observing which "seats" received reflected light, they configured and placed the rounded acoustic elements. (The translation of such concrete information into the language of measurements needed by a contractor was not altogether easy, reports architect John James Wallace. In order to draw details for connections and finishes, his firm used a computer to dimension the components.)

Both the shape of the room and the texture of its surfaces figure largely in acoustic quality. First of all, the hall does not have the shoe-box form that conventional wisdom equates with good music acoustics. Rather it takes a reverse-fan shape, narrower at the back than at the front, the walls on the main floor slanted only slightly—about 2 deg on each side—but approaching more nearly convergent angles at the mezzanine and balcony where the sound reflectors protrude into the room (see also the article on shaping rooms for acoustics on pages 133-137). For both visual and theatrical reasons, the firm likes the way the reverse-fan seems to envelop the audience and musicians.

Moreover, the room is quite narrow as modern concert halls are measured, about 84 ft wide. The narrowness means that even people seated at the center of the hall receive lateral sound—that is, sound reflected from the hard side walls to the listener's ears.

An unyielding surface is also acoustically important for the reflection of sound. At El Pomar, the ceiling and the curving wall components consist of 3 in. of plaster. Economy mandated concrete-block side walls, an unhappy acoustical material for concert halls since it absorbs sound. To combat this tendency, the walls were first covered with two layers of concrete filler and three layers of epoxy to plug surface porosity, and then were painted dark brown. Further enriching the room's acoustics, the side walls gain intricacy of shape from the shallow plaster-fronted ledges that contain box seats, as well as from the tilted plaster elements. This intricacy increases the number of directions from which sound is reflected to the listener, adding warmth and richness without sacrificing clarity.

Of equal importance to the sound of symphonic and choral music is the reverberation chamber that surrounds the performers. Because dramatic shows, for example, do not require such a device, the reverberation chamber is created ad hoc with movable parts. For orchestral performances, the musicians occupy a pair of platforms raised into the audience chamber by screw-jacks to replace about 300 seats (see plan on page 132). The conversion of stage to reverberation chamber depends on three movable components, in addition to the movable seats and platforms: first, four sound reflectors above the stage; second, a canopy above the orchestra; and third, 15 30-ft towers maneuvered on air casters.

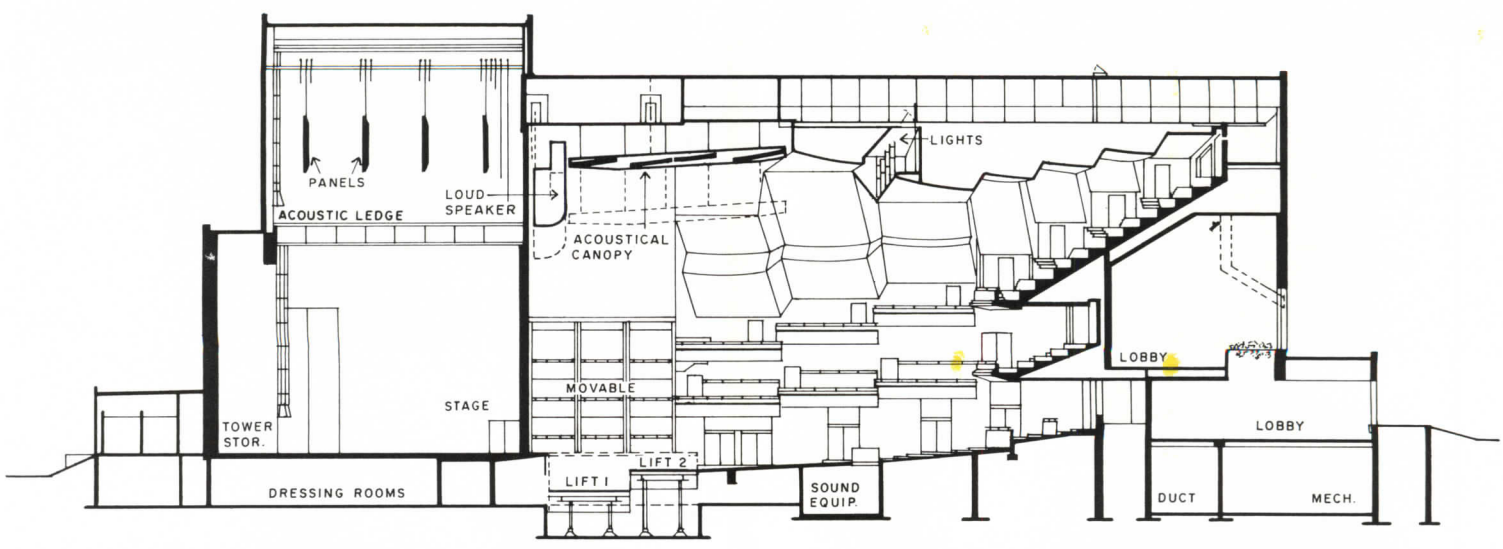
The sound reflectors, shown stored in raised upright position in the section opposite, are lowered and turned to form a solid flat ceiling below the fly space and thus prevent the escape of sound into the upper stage house. The curved canopy, suspended on a counterweight system, is raised and lowered like an elevator as different music may require—it takes a position some 5 or 6 feet lower for orchestral music than for choral music, and is lowered still further for string quartets and solo recitalists, who usually seek greater acoustic intimacy. The towers, which are 10-ft square, have an opaque front with convex panels on one side and a balcony front with sound-reflective wood spandrels on the other. Typically for symphony concerts, seven towers are arranged in an arc behind the musicians, their balcony fronts facing the audience. Three more towers on either side of the platforms become balcony seats, especially popular with students, who thus get a chance to see the conductor's face.

For nonsymphonic performances requiring electronic amplification, an array of loudspeakers above the proscenium comes into play, controlled from a permanent cockpit in the main seating area. (Johnson says he keeps hoping for a budget large enough to allow a retractable cockpit operated like the orchestra platforms.) When acoustically "dead" space is wanted for drama or pop concerts, sound absorbent velour curtains cover the tilted plaster elements and the wall behind the upper balcony (see comparative photos on page 132). As it turns out, the burnt-orange curtains, which for orchestral performances are retracted into ceiling pockets, perform a celebratory function: their rising to unveil the plaster signals the start of each concert.

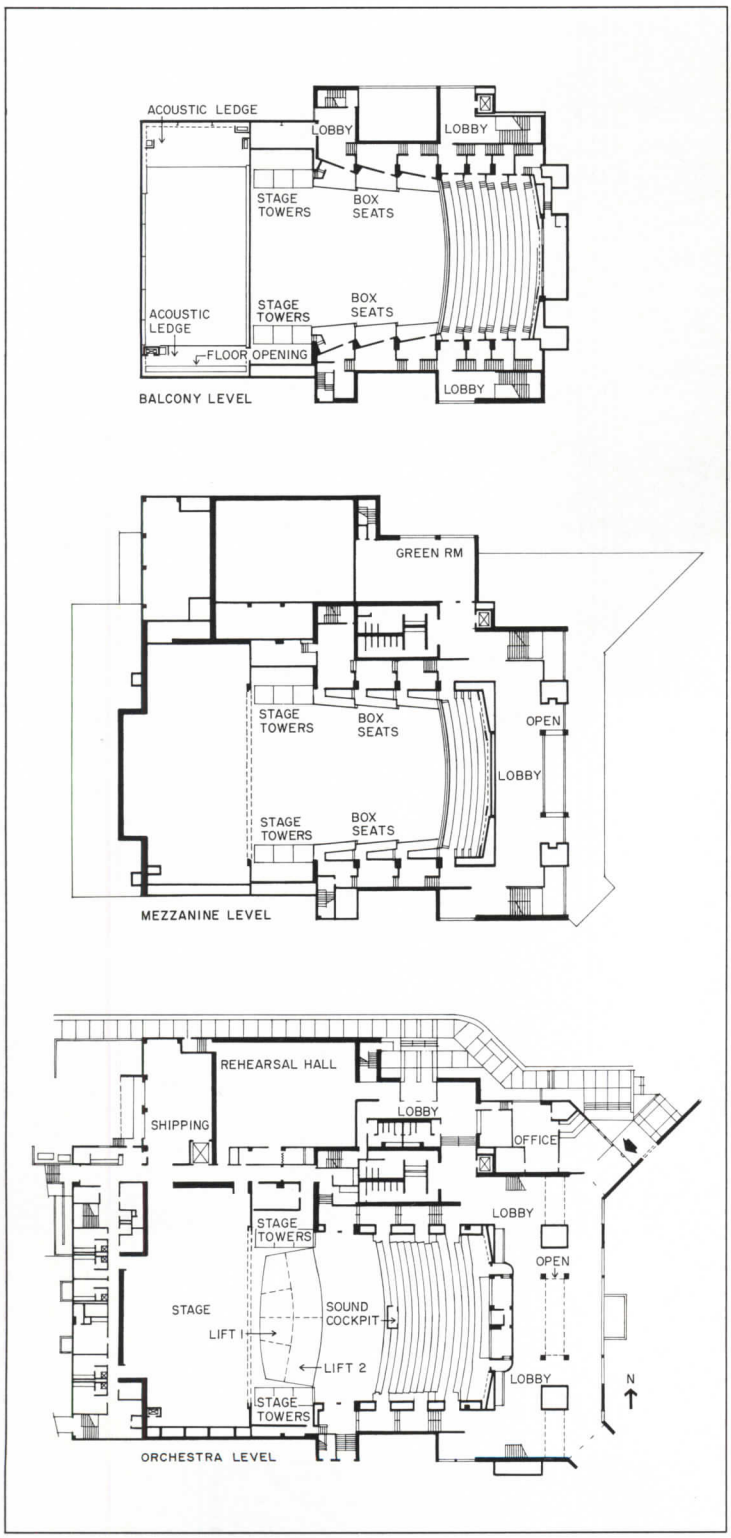
The 2,100-seat auditorium at Pikes Peak Center cost about $13 million, a sum that covered surprisingly generous lobbies, a green room, a rehearsal hall and the hall itself. *G. A.*

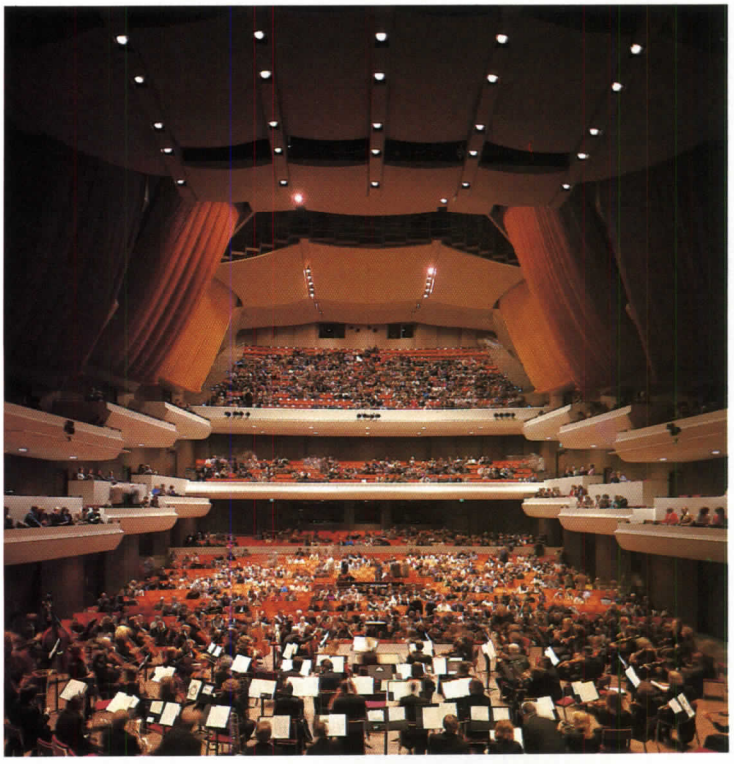
The lighted canopy that curves above the orchestra at Pikes Peak Center can be raised or lowered to accommodate an assortment of acoustical conditions. For the performance pictured below, the canopy, which provides clarity of sound for both the musicians and the audience, was raised to a particularly high position since the sound produced by a large orchestra and a large choral group needs less acoustical help than that produced by, say, a string quartet. What acoustician Russell Johnson calls the reverberation chamber lies within the stage house and behind the orchestra platforms (see section below); its boundaries include the stage as floor, the balcony towers as front wall and the fly-space sound reflectors as ceiling—all movable parts that can take various configurations for various performances. Artec takes especial satisfaction in the audible "tail" produced by the reverberation chamber—that is, the sound that lingers after the orchestra stops playing.

Timothy Hursley photos



The curved and tilted plaster devices above the box seats at the sides of El Pomar Great Hall (top photo) reflect orchestra sound in complex ways throughout the room, especially to the center of the main floor, an area often short-changed acoustically. Moreover, the protrusion of these elements creates a plan that takes the form of a reversed fan, narrower in back than in front, a room shape especially favorable for sound distribution and acoustical intimacy. When performers such as actors or pop groups desire a nonreflective "dead" acoustical environment, plaster elements are covered by sound absorbent banners that are lowered from ceiling pockets (bottom photo). In the case of a symphony concert, they are deployed symbolically and raised as the orchestra takes its place.





El Pomar Great Hall
Pikes Peak Center
Colorado Springs, Colorado
Owner:
El Paso County, Colorado
Architects:
John James Wallace Associates, in association with Clifford S. Nakata & Associates
Consultant:
Artec Consultants Inc. (acoustics and theater design)—Russell Johnson, chief acoustic consultant; Robert W. Wolff, theater consultant and project manager
Engineers:
Howard C. Dutzi & Associates, Inc. (structural); Beckett Harmon Carrier & Day, Inc. (hvac); Consulting Engineers, Inc. (electrical)
General contractor:
G. E. Johnson Construction Company

Considering concert acoustics and the shape of rooms

By Nicholas Edwards

The influence of room shape on the music acoustics of a room is one of the most important questions facing the designers of concert halls, opera houses and other spaces for the performance of music.

Critical listeners often observe that rectangular (shoe-box) rooms have "better" acoustics for music than fan-shaped rooms of similar size. Those halls generally accepted as the world's greatest concert halls, such as the Musikvereinssaal in Vienna, the Concertgebouw in Amsterdam, Tonhallesaal in Zurich and Symphony Hall in Boston—are all basically rectangular in plan and section, and would seat audiences of fewer than 2,000 with present-day seating standards. This observation, of course, offers no proof of a relationship between room shape and music acoustics, but since the turn of the century some acoustical designers have suspected that there is such a relationship.

In the light of recently acquired knowledge in the field of room acoustics, we can suggest some compelling reasons for the acoustical success of these highly praised older halls, and confirm that there is a close relationship between room shape and "good acoustics" for music.

The science of room acoustics, like many other sciences, has had a somewhat checkered history: at times, the limited knowledge held by its practitioners has led to less than satisfactory rooms for music. One of the earliest applications of acoustical science to the design of rooms for music, however, was a triumph: the opening of Boston Symphony Hall.

The fact that none of the concert halls built since 1905 are yet rated as highly as the best of the older halls, including Boston, might suggest that 19th-century acoustical designers possessed some great secrets of acoustics that they failed to pass on to their successors. It is more likely that fortuitous circumstances engendered by the economy of construction with a rectangular plan and by the structural limitations inherent in traditional building led to such pleasing acoustical results.

Wallace Clement Sabine, the acoustician for the Boston Symphony Hall, wrote that the architects, McKim, Mead and White, had first proposed a fan-shaped room, but that this shaping was abandoned because it had "uncertain merit" as a room for music performance. Sabine had reached his conclusions concerning room shape after receiving comments from musicians and conductors in America and Europe. Following the acoustician's advice, the architects proceeded with the design of a rectangular room. The hall is quite closely based on an older hall on Tremont Street, which was the home of the Boston Symphony Orchestra when Sabine worked on the new design.

Sabine had meticulously investigated the reverberation of sound in rooms and discovered that reverberation is related to the cubic volume of the room and the total sound absorbing power of the room surfaces and contents. On the basis of his work, he proposed the quantification of reverberation time, one of the first quantifiable room acoustics measurements. In the 80 years following Sabine's work on the Boston hall, acousticians and architects have chosen to pay more attention to reverberation time than to the effects of room shape, perhaps because reverberation time was more quantifiable.

Although for many years reverberation time was virtually the only consistently accepted criterion for concert hall design, now, partially through a series of acoustical failures, it is recognized that achieving what is sometimes called the "optimum" reverberation time is no guarantee of good acoustics for music. Some excellent halls have reverberation times well below the "optimum" value, whereas some acoustically poor halls exhibit the "optimum" value.

Since reverberation time criteria have been shown to be unreliable indicators of acoustical quality, acousticians have sought other objective acoustical characteristics that relate more closely to listener preferences. Recent investigations have uncovered such objective characteristics, some of them strongly influenced by room shape.

It has been long known that the characteristics of the "early sound"—that part of the reflected sound arriving within about one quarter of a second of the direct sound—are of importance to listener preference, and this has given acoustical designers some insight into the optimum *size* of rooms. More recently, scientists involved in independent research programs in different countries have reached a consensus that listener preference relates in many ways to what is currently being called the "lateralization of the sound field" and thus to the *shape* of rooms.

Increasing the lateralization of sound means increasing the ratio of sound intensity that arrives from the listener's sides (Figures 1, 2, and 3) to that arriving from directions close to the median plane—that is to say, from directly in front, behind or above (Figure 6). The ear/brain will integrate that portion of the reflected sound intensity arriving during the first quarter of a second or so after the arrival of the direct sound into one impression of "room sound" so that one is not aware of the individual "arrivals" of sound. This fact suggests rather surprisingly that sound heard directly from the source can reduce the listener preference for symphony music! Needless to say, lateralization is not the only characteristic that affects listener preference; however, the suggestion is perhaps less surprising when one considers that the best acoustics in concert halls are usually found farthest from the stage (in the rear of the top balconies), and that often the worst acoustics are much nearer the stage (the front of the main floor seating area).

We briefly describe here some of the more important studies completed in Europe and Japan:

- Barron (1), in carefully controlled experiments, has shown that the sensations described as "envelopment" and "warmth" increase with lateralization of the sound field.
- Gottlob (2), reproducing in the laboratory sound fields recorded in existing halls, has discovered a strong positive correlation between lateral sound energy and listener preference.
- Kurozumi and Ohgushi (3) have shown that sound quality, particularly the aural perception of source distance, is dependent on minimizing the similarity of sound at the listener's ears, a phenomenon that occurs when the sound arrives from lateral directions.
- Ando's experiments (4) are designed to find the physical characteristics of optimum sound fields. He has shown that minimizing the similarity of the sounds at the listener's ears, which occurs with maximum lateralization, is required for maximum listener preference.
- Wilkens (5) has suggested that greater loudness is one of the most preferred characteristics of sound fields. Blauert (6) has demonstrated the greater sensitivity of the ear (i.e., greater subjective loudness) with lateral sound.

In general, these results show that the positive subjective characteristics of sound fields described as envelopment, warmth, loudness and intimacy are all improved with the increasing lateralization of sound. No researcher has yet found an upper limit to preferred lateralization: maximum listener preference is achieved with maximum lateralization. All these authors have indicated the importance of lateral sound energy. This leads to the question *how* can greater lateral energy be achieved in the design of a room for music performance.

In order to study the relationship between room shape and sound field lateralization, we have developed a computer program, called IMAGES, that traces the paths traveled by sound "rays" emanating from a source on the stage, reflected from the boundary surfaces of the room, and arriving finally at a particular listener position (Figures 3 and 4).

In the same way as the position of the image resulting from light reflected by a mirror can be found, the computer program we have developed finds the locations of "virtual sources" or "images" of the sound source (Figures 1 and 7). From these image locations, we can trace the paths of the sound rays within the room. This computer model has most validity at higher frequencies and with larger room panel surfaces; diffraction, though it can be important in a real room, is not included in the simulation.

A particularly useful analytical tool for studying directional information gained from the computer model is the "soundrose" (Figure 5). The soundrose shows the impulse response of an auditorium in terms of *direction* and *intensity* of reflected sound energy. The orientation of the radial lines on the soundrose indicates the direction from which reflected sound waves arrive. The length of a radial line indicates the magnitude of the sound intensity—more precisely, proportional to the component of the logarithm of intensity magnitude in the plane passing through the lateral axis and the listener's line of sight to the source.

For the purposes of the present, very general discussion, we can place all angles of incidence into the categories *lateral* and *nonlateral*. Nonlateral angles are those close to one's line of sight to the sound source, directly overhead, and centrally behind—i.e., those near the so-called median plane (Figure 6). Lateral angles are perpendicular to nonlateral ones: one's ears are directed toward lateral angles. Sound arriving from directions near the lateral axis contributes most to lateralization. We can generalize that sound arriving from directions within the cones shown in the illustration is lateral sound, and sound arriving from outside the cones is nonlateral.

With the IMAGES computer model, we can demonstrate several common acoustical phenomena found in concert halls. For example, we can study the rear-wall echo

Mr. Edwards, trained as an architect at England's University of Nottingham, works with the acoustical and theater planning firm Artec Consultants Inc. in New York City.

found in fan-shaped halls. If the rear wall of a fan-shaped room is reflective, a strong "rear-wall echo" is heard on stage, making conditions for musicians difficult or impossible.

We can demonstrate the genesis of the echo if we study the image locations in Figure 7. Note that the images lie in a circular pattern centered on the stage. Thus, to the performer on the stage, the strength and coherence of the sound returning from the rear wall, the dearth of sound energy between the direct sound and that arriving from the rear wall, and the fact that the echo arrives from the end of the room opposite the performers all combine in the brain to emphasize the disturbing aspects of the echo.

We carried out an analysis of the rear-wall echo in an existing auditorium to study how the room shaping gives rise to the strong echo that is perceived on the stage. From the raytraces, we can see how the architectural boundary surfaces of the room work together in creating the echo. Although the sound reflected from the rear wall directly to the stage contributes to the echo, the greater part of the echo is caused by sound that has been guided to or from the rear wall *by the side walls.*

In many fan-shaped halls, the echo is suppressed by the application of sound absorptive treatment to the rear wall. This, as we shall see later, is not an altogether satisfactory solution.

A relationship between lateral sound and room shape can be observed in the sequence of diagrams on pages 136-137 (Figure 10). The principal architectural variable in this sequence is the angle of the side walls with respect to the center line; this angle varies from 24 deg, for the most fan-shaped room, through 0 deg, for a rectangular room, to –24 deg, for the most reverse-fan-shaped room. The room dimensions are based on a foreshortened Boston Symphony Hall. For simplicity, we have omitted side and rear audience balconies. The sound source is located on the stage near the concert master's position, and the listener is located towards the rear of the main floor. The wall and ceiling surfaces are assumed to be perfect reflectors of sound, and the audience seating area to be a perfect absorber. In order to suppress the rear-wall echo discussed above, we have assumed that the rear walls of the more fan-shaped rooms are sound absorptive.

The widest fan-shaped rooms show very little sound arriving from lateral directions. The acoustics in rooms of this shape are usually characterized by a thin, monophonic, distant sound, lacking fullness of tone. The lack of lateral sound in these rooms certainly contributes to their poor acoustics. There are other factors we can observe, too. For instance, musical instruments radiate their sound in very complex patterns: the violin radiates high frequency sound, including bowing noise, in a strongly upward direction, while the instrument's mid-frequency sound radiates predominantly sideways, and low frequency sound in all directions. The precise details of the instrument's radiation characteristics are exceedingly complex and vary from note to note and instrument to instrument (see Meyer, 8 in the list of references, for a more complete treatment of this subject).,

For the listener to hear the full timbre of an instrument, the sound radiated in many directions by the instrument must be reflected to the listener. We can observe that the number of sound rays arriving at the listener is affected by room shape. The greater the number of arriving rays and the more spatially even their emanation from the sound source, the greater the efficiency of the room in its task of providing the listener with the full timbre of musical instruments.

A substantially greater number of rays arrive at the listener's position in a rectangular room than in the widest fan-shaped room. We can thus expect to hear a more complete, full timbre in the rectangular room than in the fan-shaped one. This agrees with experience in real rooms having these shapes.

In the rectangular room, we can observe that the sound reaching the listener arrives from many different directions. Note that this occurs even though in the computer simulation we have assumed perfectly flat walls and ceiling without the "sound diffusing" surfaces sometimes said to be necessary for good distribution of sound in a room.

In reverse-fan-shaped rooms, there is further lateralization of the sound field, with sound arriving strongly from the listener's left and right. Rooms of this shape offer perhaps the greatest promise for future improvements in concert hall design. It would appear that their potential for lateralization is better even than those of rectangular rooms. Perhaps because of the difficulties in accommodating the audience and performers within this shape, very few such rooms have yet been built. Some examples from antiquity do exist, however, like the Greek theater at Syracuse in Sicily.

The shape of a room influences virtually all aspects of acoustics for music performance. Critical listeners often observe that fan-shaped rooms have acoustical qualities inferior to those in rectangular rooms of similar size. We have reasoned here that the basic differences in plan shaping are in large measure responsible for the differences in sound.

The results of recent research indicate the great importance of lateral sound. We have demonstrated the effects of room shaping on lateral sound energy and other acoustical characteristics. Thus acoustical science is moving towards a closer agreement with those musicians and critical listeners who have long observed the superior acoustics of rectangular rooms.

Perhaps most exciting is the prospect of improving on the "best" acoustics currently found in rectangular rooms with designs embodying relatively untried reverse-fan-shaping. It may now be possible to design new concert halls that have better acoustics than the Musikvereinssaal, the Concertgebouw or Boston Symphony Hall.

Wallace Clement Sabine is known mostly for his studies of reverberation time. But it is to his credit that he did not rely solely on his ability to calculate reverberation time in the acoustical design of Symphony Hall, Boston. The importance of his greatest contribution to music performance—a hall with rectangular *shape*—has been for the most part ignored.

1. Barron, M. "The effects of early reflections on subjective acoustical quality in concert halls," Ph. D. thesis, University of Southampton, England, 1974.

2. Gottlob, D., "Comparison of objective acoustic parameters in concert halls," Ph. D. thesis, University of Gottingen, 1973.

3. Kurozumi, K., and Ohgushi, K., "The relationship between the cross-correlation coefficient of two-channel acoustic signals and sound image quality," J. Acoust. Soc. Am. 74 (1984), 1726-33.

4. Ando, Y., "Calculation of subjective preference at each seat in a concert hall," J. Acoust. Soc. Am. 74 (1983), 873-887.

5. Wilkens, H., in Cremer (see reference 7), 604.

6. Blauert, J., Raumliches Horen, Hirzel, Stuttgart, 1974.

7. Cremer, L., "Principles and applications of room acoustics," Vol. 1, Applied Science Publishers, England, 1978.

8. Meyer, J. "Acoustics and the performance of music," Vol. 33, Technical Handbook Series on Musical Instruments, Verlag das Musikinstruments, Frankfurt am Main, 1978.

In a hypothetical room plan showing only a single boundary wall, sound emanating from the source is reflected by the side wall to the listener, and the path taken by the sound wave is indicated by the raytrace (Figure 1). The computer constructs the raytrace by first locating the image of the source—that is, the apparent source of reflected sound; the distances between sound and listener and between image and listener represent the time it takes for sound to travel from source and from image to the listener. In Figure 2, raytraces show the sound reflected only once by the boundary surfaces of a rectangular room. When raytraces show sound reflected more often, their pattern grows more dense and complex (Figure 3). Further, there are ceiling reflections seen clearly only in section (Figure 4). These raytraces show ceiling and "cornice" reflections, the latter constituting sound reflected near the junction of walls and ceiling. Raytraces in both plan and section show sound reflected many times by boundary surfaces in the room.

The soundrose, shown here in both perspective and plan (Figure 5), depicts the direction and the magnitude of intensity of reflected sounds as they arrive individually to the listener. Because the lateral and nonlateral components of sound are of most interest acoustically, the plan projection of the soundrose is often the most informative. The lateral axis of sound passes into the listener's ears, while the median plane passes vertically through the center of the head in the direction of the listener's sightline to the sound source (Figure 6). In general, sound arriving from directions falling within the two 90 deg cones shown on the lateral axis contribute the most to lateralization.

Sound that arrives in the median plane—i.e., directly in front, above, below and behind the listener—does not contribute to lateralization. With both sound source and listener on stage, as two musicians listening to each other would be, the images constructed by computer for a fan-shaped room lie in a circular pattern centered on the stage (Figure 7).

From the listener's perspective, sound from these images will arrive at the ears at about the same time, but will be separated from the arrival of direct sound. In a fan-shaped room, this phenomenon is perceived as an echo from the rear wall. Raytraces, generated here for an existing auditorium (Figures 8 and 9), are associated with an echo observed on the stage and show how the side walls work in conjunction with the long rear wall surface to "focus" the echo on stage.

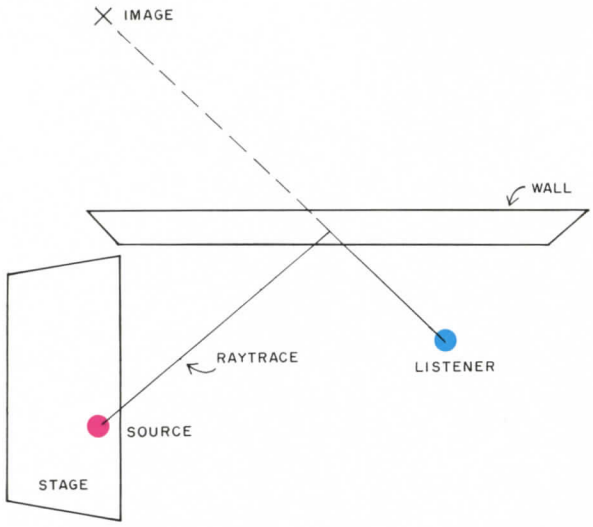


Figure 1

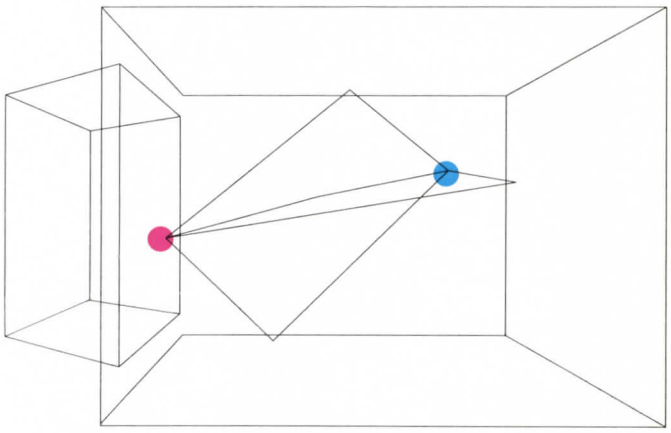


Figure 2

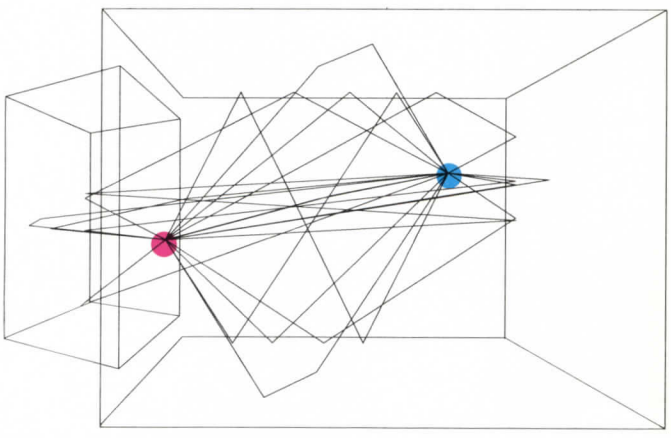


Figure 3

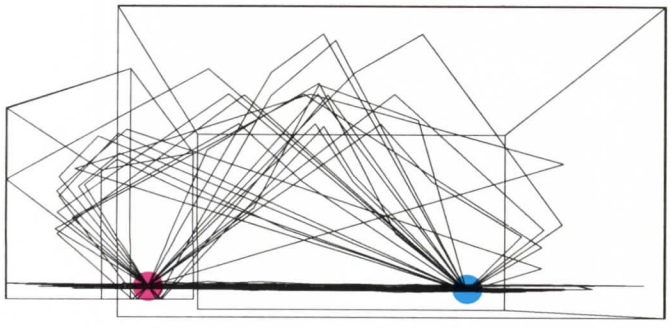


Figure 4

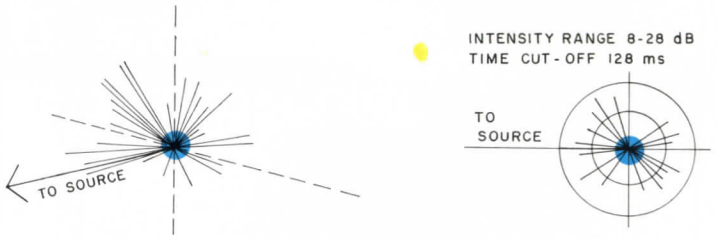


Figure 5

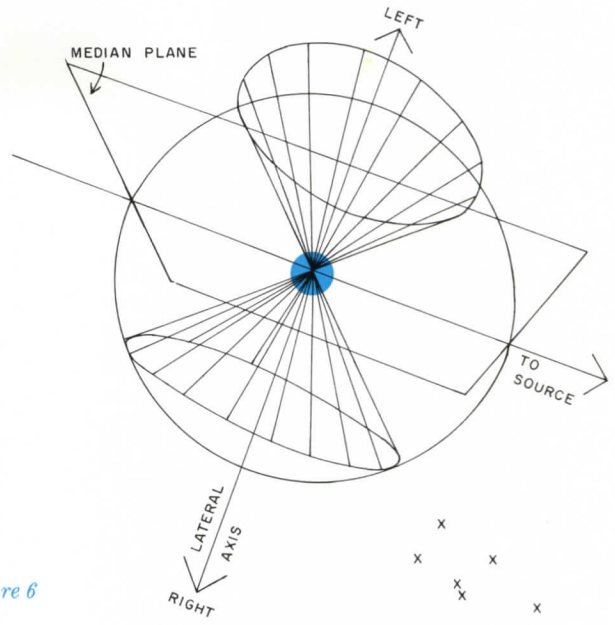


Figure 6

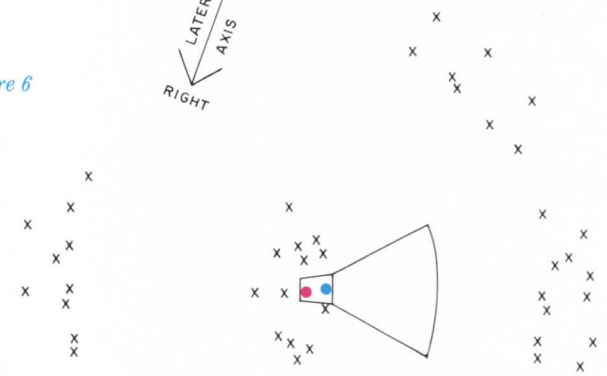


Figure 7

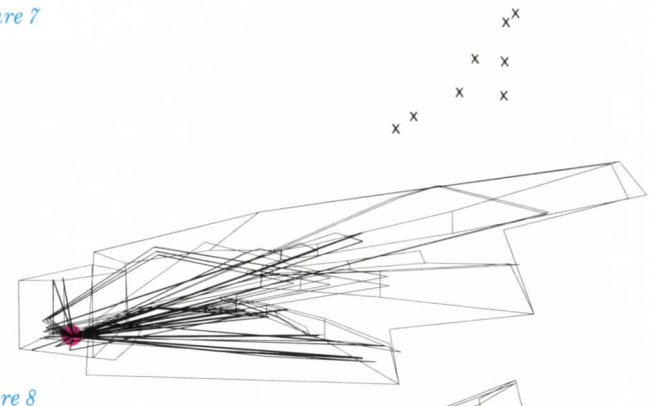


Figure 8

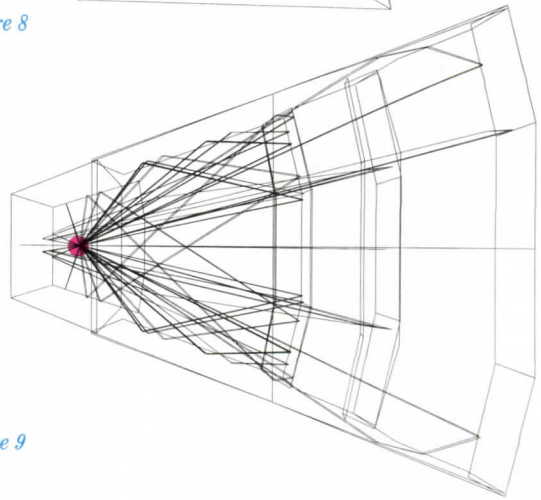


Figure 9

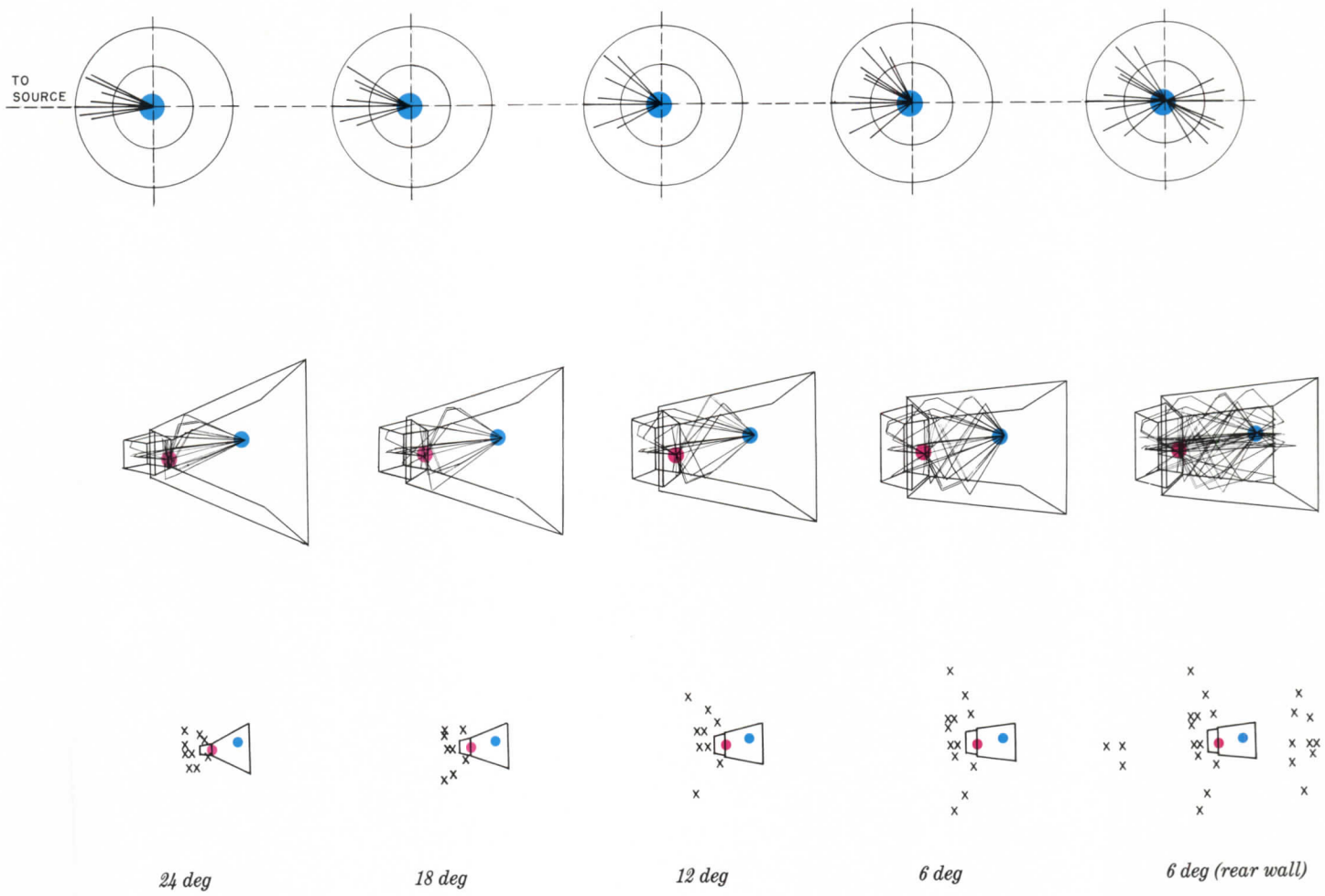
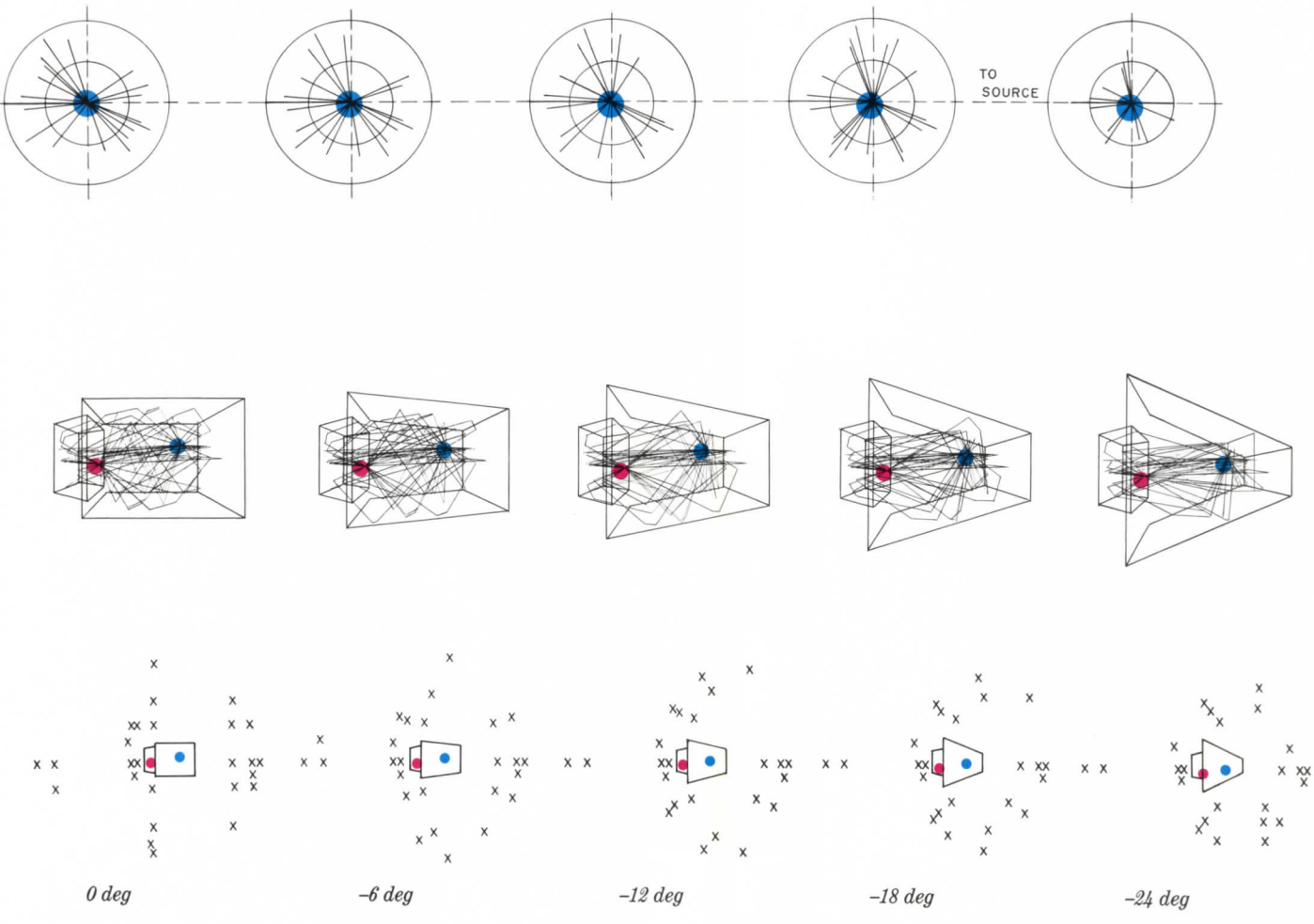


Figure 10

The three sequences shown here depict sound arriving at a listener in 9 different rooms, ranging from acutely fan-shaped to acutely reverse-fan-shaped—that is to say, side walls at one extreme splay from the stage at 24 deg, and at the other extreme approach convergence near the rear wall at –24 deg. The depictions use three different descriptive methods: soundroses at the top, raytraces at the middle, and images at the bottom. As room shape changes from fan-shaped to rectangular (the room with parallel walls angled at 0 deg), sound arriving at the listener becomes more lateralized. (The projected raytraces seen in the plans above include sound reflected from the ceiling and cornices, as well as sound from the side walls.) Whereas the listener receives almost no lateral sound in the widest fan-shaped rooms, lateralization



increases as room shapes progressively approach the rectangular. It is the multiplicity of these lateral reflections that allow the listener such pleasurable musical perceptions as warmth, envelopment and richness of sound. (One must remember that these drawings describe sound patterns for only one hypothetical combination of source and listener; the patterns will change as listeners and sources change positions.)

In reverse-fan-shaped rooms, sound arriving at the listener is even more lateralized than in rectangular rooms. Moreover, many sound images are evenly distributed around the listener, from behind and above as well as from in front. Such rooms offer perhaps the greatest promise for future improvements in concert hall design.

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Circle 300 on reader service card

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Circle 301 on reader service card

3. Computer furniture: The *Connexus* modular office system offers a range of interconnecting modules and accessories. Included in the line are adjustable computer workstations, printer tables, storage connectors, desks, and partitions constructed of white oak with a choice of panel fabrics. Workstations come with manual or electronically controlled position adjustment. Acoustical panels are available in three heights. CI Designs, Medford, Mass.
Circle 302 on reader service card

4. Clothes hanger: Whether it is considered a clothes hanger, a hat rack, or even an art object, the *Albero*, Italian for "tree," is a wooden pole with hook attachments. Designed by Ugo Nespolo, it is available in four different color schemes: light gray for spring, bright green for summer, brown for autumn, and dark gray for winter. (Summer is shown.) Oriqlia, New York City.
Circle 303 on reader service card

5. Wall lamp: The *Tilt*, designed by architect Pier Giuseppe Ramella, features a two-piece semicircular 11 1/2-in.-wide and 7 1/4-in.-high glass face that diffuses the light from two 60W incandescent sources. Light is distributed through the vertical ribbing of the outer glass, which is layered over the horizontal ribbing of the inner glass. Atelier International, New York City.
Circle 304 on reader service card

6. Table: The folding table (shown) is part of the *Spectra* collection that features straight tubular legs beneath square, rectangular, or round table tops. The line emphasizes color and features surfaces in 12 laminates. Howe Furniture Corp., New York City.
Circle 305 on reader service card

7. Chair: Vladimar Hardarson's *Soley* is lightweight, portable, and features an element on two ball bearings that slides around a track recessed in the back, allowing it to fold flat. A lock prevents the chair from closing unintentionally. The frame, available in a variety of finishes, is constructed of steel rod, and the seat is made of laminated beech. Harvey Probber, Inc., New York City.
Circle 306 on reader service card

8. Table desk: The 78-in. table desk designed by Wilfred Hughes features a leather writing surface inserted into a wooden table top. The base is available in either leather with a metal accent, or in wood. Drawer interiors are also finished in leather. Brayton International, High Point, N.C.
Circle 307 on reader service card


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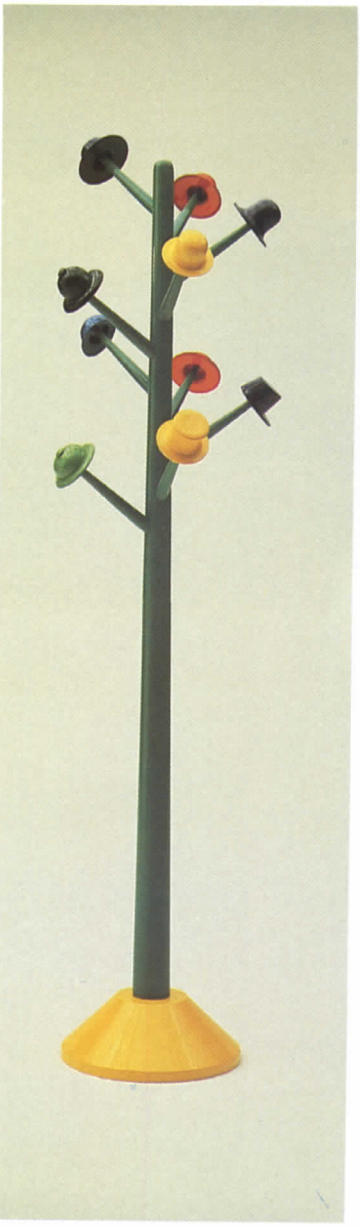
For more information, circle item numbers on Reader Service Card, pages 209-210



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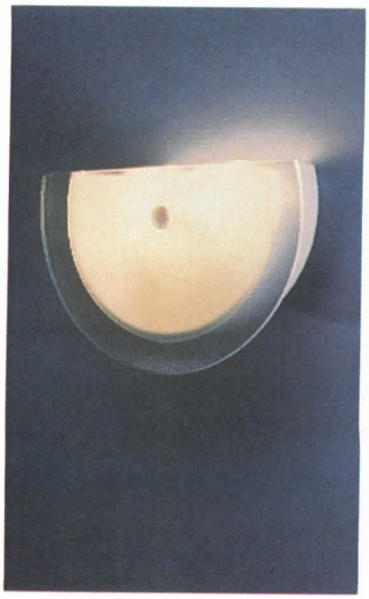

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9. Computer furniture: The *Elective Elements-1* line features products designed to accommodate office automation equipment. Additions include media storage cabinets, adjustable corner work surfaces, and printer cabinets. Stow/Davis Furniture Co., New York City.
Circle 308 on reader service card

10. Chair: Designed by Antonio Citterio, the *Eridiana* has both side- and armchair models. The seat is available in a variety of bright colors with a contrasting upholstered back, and the frame may be specified in either a chrome, or a light- or dark-gray finish. Stendig International, New York City.
Circle 309 on reader service card

11. Lounge chair: The *Jefferson* chair (shown) is part of a system of furniture and panels designed by Niels Diffrient. It features a lever that can adjust the tilt of the back and the headrest. The cushioning is covered in leather. SunarHauserman, Norwalk, Conn.
Circle 310 on reader service card

12. Chair: A stacking chair, designed by Italian architect Paolo Favaretto and available in an arm or armless model, is of all-molded metal with a two-way sculpted seat and contoured back. The seat and frame can be specified in matching or contrasting colors. Kinetics Furniture, Rexdale, Ontario.
Circle 311 on reader service card

13. Chair: The *Barto* chair, designed by Richard Schultz, features an accordion-pleated plastic fan back constructed of a U-shaped steel frame and elastic webbing suspension. Three versions are available: a high- or low-back model, and an operator chair. Domore Corp., Elkhart, Ind.
Circle 312 on reader service card

14. Chair: Designed by Bill Stumpf and Don Chadwick, the ergonomic *Equa* features flexible seat pan, backrest, and sides. The work chair has a five-star aluminum base and is available in a high-back (22-in.) or low-back (18-in.) model. Herman Miller Inc., Zeeland, Mich.
Circle 313 on reader service card

15. Chair Castelli's *APTA* ergonomic chair is designed to adjust to different size users. A mechanism, located in the plates that join the legs to the two sides of the seat, controls the back tilt and lowers the rear of the seat. The chair is stackable, and one model is available with a tablet arm. Castelli Furniture, Inc., Bohemia, N.Y.
Circle 314 on reader service card

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For more information, circle item numbers on Reader Service Card, pages 209-210

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New products: NEOCON 16 continued

16, 17. Chair, table: The Eliel Saarinen armchair and round table, originally designed in 1929-30 for the architect's residence at the Cranbrook Academy of Art, are two components of a collection of Saarinen recreations and adaptations now being manufactured for public purchase. The box-style chair has a solid hardwood frame, with East Indian rosewood, African mahogany, afrormosia, and maple veneers, and is upholstered with the customer's own material. The unit measures 31 in. high by 24 3/4 in. wide by 21 1/2 in. deep. The elaborately inlaid round table is suitable for either conference or dining use and has satinwood, maple, limba, ramin, and ebony veneers. The table is 30 1/4 in. high and has a diameter of 53 in. Both pieces have a clear lacquer finish. Arkitektura, Bloomfield Hills, Mich.
Circle 315 on reader service card

18. Office furniture: The conference table and credenza (shown) are part of an office system designed by Warren Snodgrass. The *Interlock System* features wood solids and veneers, mirror chrome-plated detailing, and drawers with black vinyl inner surfaces. Thonet, York, Pa.
Circle 316 on reader service card

19. **Desk systems:** The *Com System* consists of freestanding desks and storage units that can be connected by additional work surfaces. The system allows for a variety of changeable configurations and features lacquered, leather, glass, or veneer surfaces. Krueger, Green Bay, Wis.
Circle 317 on reader service card

20. **Fabric:** The primitive figures of *Lilliput* are woven in a Jacquard damask accented by a chenille ground. The 100 per cent cotton fabric is made in West Germany and comes in a width of approximately 15 in. Jack Lenor Larsen, New York City.
Circle 318 on reader service card

21. Desk system: Designed by Bruce Hannah, the *Hannah* office system features desks that can be arranged back-to-back, with wires and cables concealed in the "track" space created between them. Workstations also feature task/ambient lighting fixtures and privacy screens. Knoll International, New York City.
Circle 319 on reader service card
More products on page 155

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For more information, circle item numbers on Reader Service Card, pages 209-210

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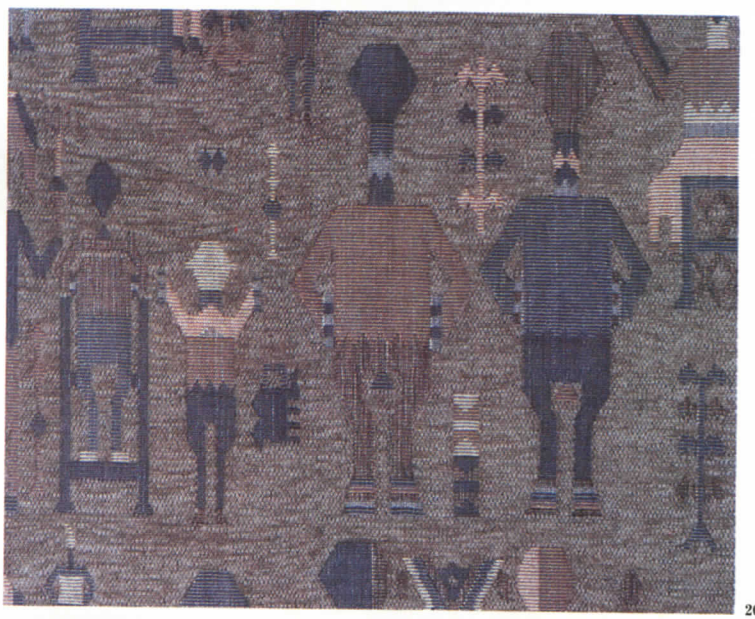

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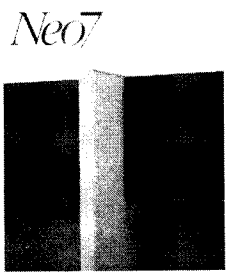
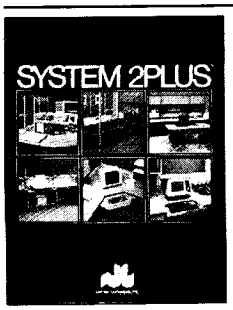
Product literature

For more information, circle item numbers on Reader Service Card, pages 209-210

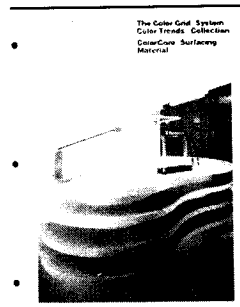


Office system
Components of the *Neo7* system of office workstations, including wall-mounted shelves and movable panels, are shown in a 12-page color brochure. The literature describes the panels' hinge connector as the basis for the system's adaptability. Domore Corp., Elkhart, Ind.
Circle 400 on reader service card

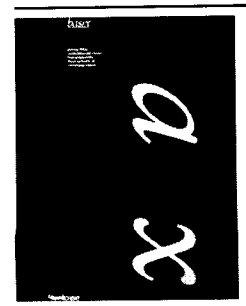


Office components
A 14-page color brochure introduces the *System 2Plus,* developed to increase flexibility in the office system. Photos show the components in several configurations. Diagrams of alternative workstations are also included. Panel Concepts, Inc., Div. of Standard-Pacific, Santa Ana, Calif.
Circle 401 on reader service card

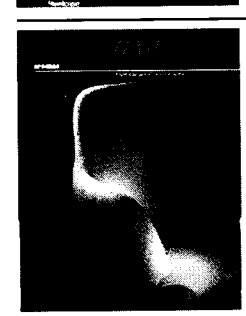
Furniture
A 24-page brochure illustrates the manufacturer's line of European-style furniture. Included are photos of chairs, sofas, and tables ranging from dining to low cocktail models. Decorative vases and a ceramic collection are also shown. Niedermaier, Chicago.
Circle 402 on reader service card



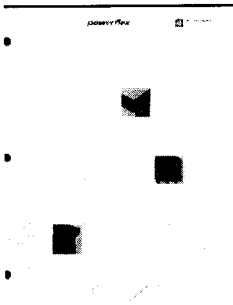
Laminates
Photos of *ColorCore* laminate surfacing material illustrate a 6-page catalog. *Color Trends,* a collection of 18 new shades, is featured, as are the permanently available chromatics and neutrals. Dimensions and details on product performance are included. Formica Corp., Wayne, N.J.
Circle 403 on reader service card



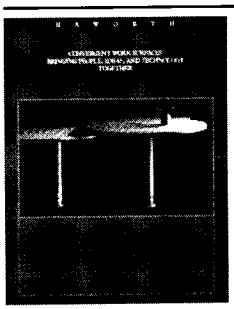
Office planning
Basix, Steelcase's new method of space planning and management, is described and illustrated in 30-page color brochure. The literature includes diagrams and photos of workspaces that represent a range of office furniture configurations. Steelcase Inc., Grand Rapids, Mich.
Circle 404 on reader service card



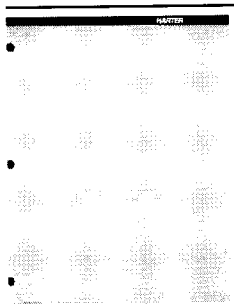
Chair
The *Gail* chair is featured in a 4-page color brochure. Included are photos of side- and armchair models, a description of their construction, and a list of their dimensions. Both chairs have a steel frame covered with highly resilient urethane foam. Arconas Corp., Mississauga, Ontario.
Circle 405 on reader service card



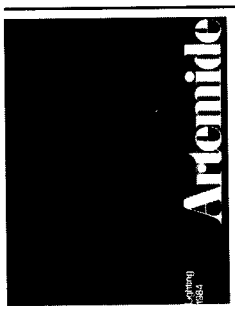
Desk system
A 10-page brochure describes *Powerflex,* a modular desk system composed of a metal chassis spline and a selection of storage units. Diagrams reveal how wire power systems and communication cables are incorporated into the design of the system. JG Furniture, Div. of Burlington, Quakertown, Pa.
Circle 406 on reader service card



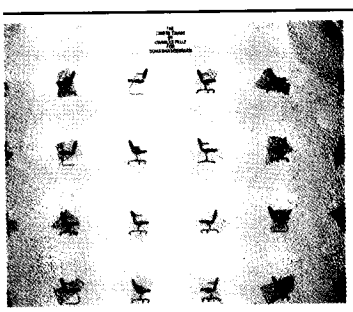
Work surfaces
Convergent Work Surfaces, an addition to the manufacturer's line of office systems, are featured in a 10-page color brochure. The surfaces are available in either a P- or a D-shape. They can be fixed directly to panels, flush, or beneath other work surfaces. Haworth, Inc., Holland, Mich.
Circle 407 on reader service card



Office systems
A 16-page brochure introduces the *Task System* of office components. The elements of the *I/F System,* including *HarterWall,* are shown in a variety of flexible configurations. The literature also includes research into alternatives in office space design. Harter Corp., Sturgis, Mich.
Circle 408 on reader service card



Lighting
A 16-page color catalog features the manufacturer's lighting collection. Included are table lamps, wall/ceiling fixtures, and outdoor/garden fixtures. Dimensions and colors or finishes of the fixtures are also listed. Artemide, Inc., New York City.
Circle 409 on reader service card



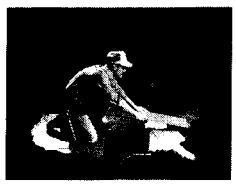
Chair
The ergonomic *Crista* chair, formed of a stamped steel pan covered with foam and fabric, is featured in a 14-page color brochure. Its design and manufacture are described and illustrated; available models are shown. SunarHauserman, Cleveland.
Circle 410 on reader service card

Desk accessories
A desk pad, a double pen base, and a book calendar are included in the collection of desk accessories featured in a 4-page color brochure. The products are shown in mirror chrome, antique brass, and mirror brass finishes. McDonald Products, Buffalo, N.Y.
Circle 411 on reader service card
More literature on page 149

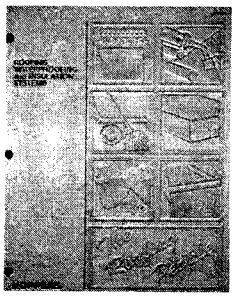
Product literature *continued*

For more information, circle item numbers on Reader Service Card, pages 209-210

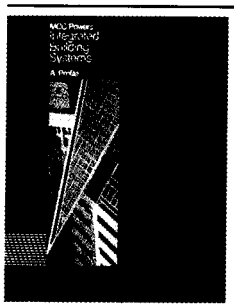
Acoustical ceilings
A 20-page guide describes the selection and installation of acoustical ceilings. The manual contains sections on the basic properties of sound and acoustical materials, including sound absorption and attenuation, light reflectance, and flame spread. CISA, Glenview, Ill.
Circle 412 on reader service card



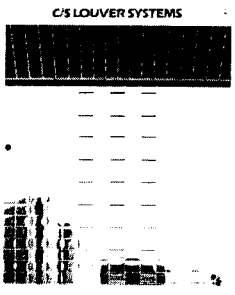
Siding
A 32-page color brochure features exterior residential sidings that are available in many woodlike textures and patterns. Photos of each product are accompanied by a listing of dimensions, surface characteristics, finishes, and installation information. Masonite Corp., Chicago.
Circle 413 on reader service card



Roofing
Roofing, waterproofing, and insulation systems are covered in a 34-page manual. Data and diagrams providing information on built-up roofing systems, reinforcement fabrics, and the manufacturer's own product line are included. Koppers Co., Inc., Pittsburgh.
Circle 414 on reader service card

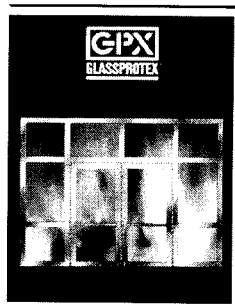


Building systems
A 16-page color brochure covers building systems that integrate voice and data, hvac control, energy, fire and security, and facilities management with tenant services into one multiservice system. MCC Powers, Northbrook, Ill.
Circle 415 on reader service card

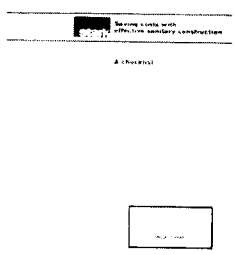


Louvers
A complete line of architectural louvers is described and illustrated in a 32-page brochure. The literature is divided into product sections, each supplemented by test and performance data. Construction Specialties, Inc., Cranford, N.J.
Circle 416 on reader service card

Radiators
Decorative radiators are shown in a 4-page color brochure. Photos are included in the literature to demonstrate the variety of types and available colors. The dimensions of each model are also listed. Runtal Radiators, Hampton Falls, N.H.
Circle 417 on reader service card



Fire rated glass
The *Glassprotex* door and wall system is covered in an 8-page color brochure. The properties of *Contraflam*, a patented glass, are reviewed, as are the system's specifications and suggested applications. O'Keeffe's Inc., San Francisco.
Circle 418 on reader service card



Sanitary construction
A 6-page folder includes a checklist of aseptic requirements for the construction of sanitary environments. It details structural, sanitary, durability, fire insurance, safety, and economic considerations for walls, floors, and ceilings. Stark Ceramics, Inc., Canton, Ohio.
Circle 419 on reader service card

Roof coatings
Factors in the selection of elastomeric coating systems are covered in an 8-page brochure. Charts included contain information on the physical properties of generic elastomers and the manufacturer's own product line. Futura Coatings, Inc., St. Louis.
Circle 420 on reader service card

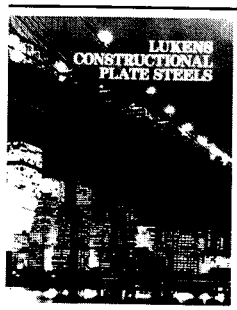
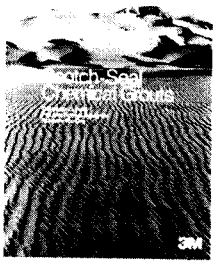
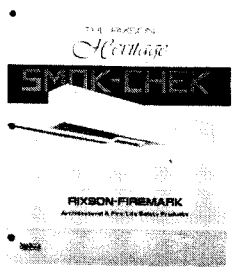


Plate steels
A 16-page brochure covers the manufacturer's line of plate steels, including specialty products. Also in the literature are a revised size card, a description of expanded heat-treating capabilities, and specification charts. Lukens Steel Co., Coatesville, Pa.
Circle 421 on reader service card

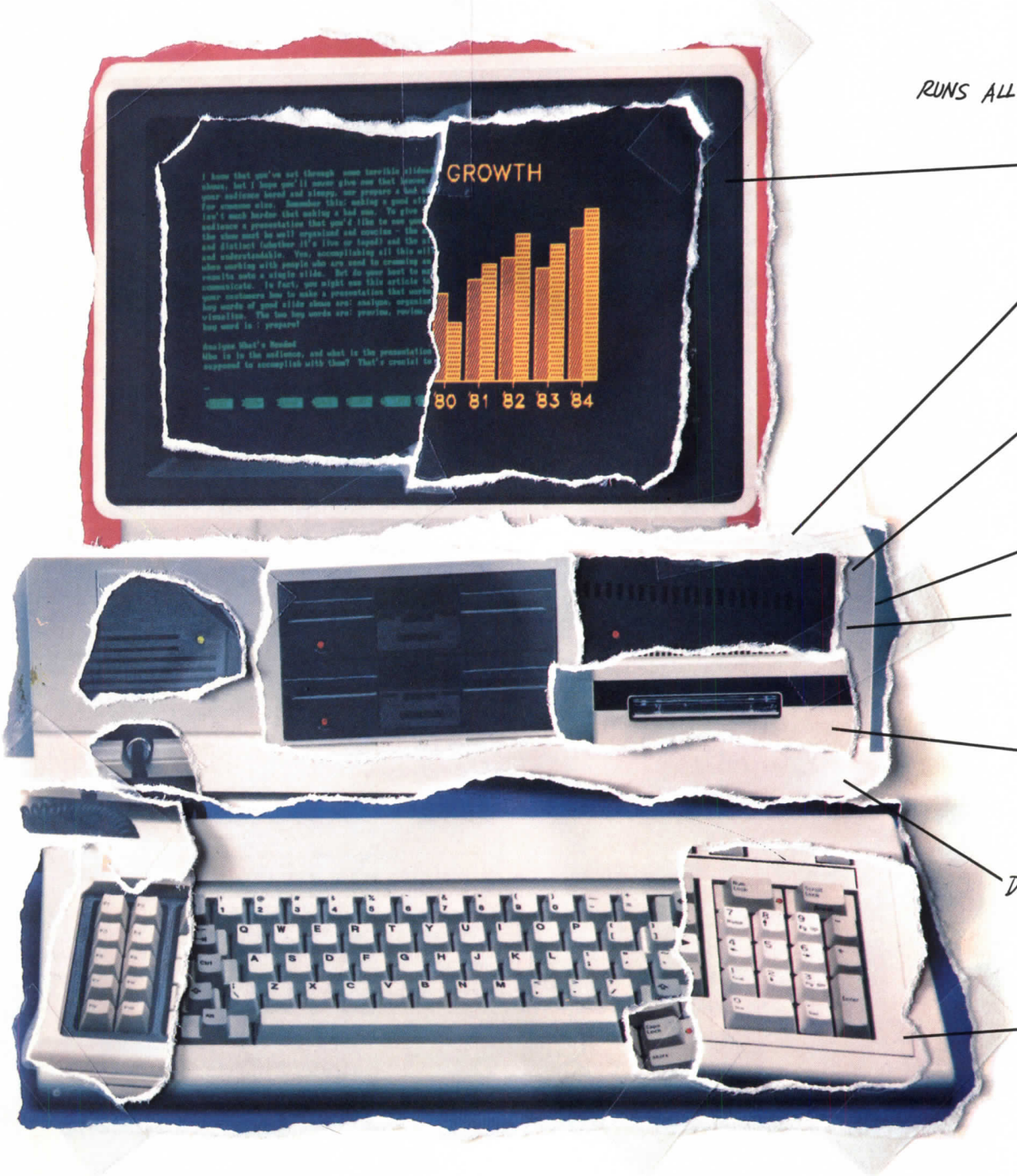


Chemical grouts
Scotch-Seal chemical grouts are featured in a 3-page color foldout. The brochure outlines the various water-control problems where the grouts can be used to stop leakage. The products' durability and flexibility are also discussed. 3M Co., St. Paul.
Circle 422 on reader service card



Automatic door closer
A smoke-actuated door closer is featured in an 8-page brochure. Included in the literature are drawings of the different types of applications appropriate for each model. Product specifications and ordering information are also given. Rixson-Firemark, Div. of Conrac, Franklin Park, Ill.
Circle 423 on reader service card

Computer dreams.



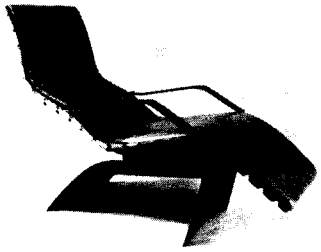
Introducing the new COMPAQ DESKPRO.™ COMPAQ combined the best features of the best desktop computers. And then added exclusives you won't find on others. Today they're together in *one* personal computer. The COMPAQ DESKPRO.

The COMPAQ DESKPRO is the most expandable desktop you can buy. It can grow as you grow, with up to six available expansion slots and four storage devices, including a unique fixed disk drive backup—all *inside the computer instead of out*, saving your desk from clutter.

It's the most rugged desktop, too, because it's the only desktop with a shock-mounted mass storage compartment to help keep disk drives in alignment and help protect you from losing data, downtime, and dollars.

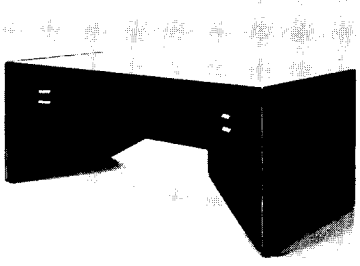
It's also the most compatible desktop, giving you true hardware and software compatibility with the industry's most popular personal computers. The COMPAQ DESKPRO runs thousands of programs written for the IBM® PC and *XT* right off the shelf. Which brings us to the next point.

Products continued from page 143



Lounge chair
The *Antropovarius*, by auto designer Ferdinand Alexander Porsche, is intended to mimic the human body through a system of adjustable "vertebrae" that adapt to different body positions. It features a rigid frame and leather upholstery in 70 colors. Interna Designs, Ltd., Chicago.
Circle 320 on reader service card

Auditorium seating
System 20 is an addition to the manufacturer's line of auditorium seating, and can be ordered with such options as writing tablets, ashtrays, and audio hookups. The seating can be used in either a straight line or curved formation. Comforto, Inc., Lincolnton, N.C.
Circle 321 on reader service card

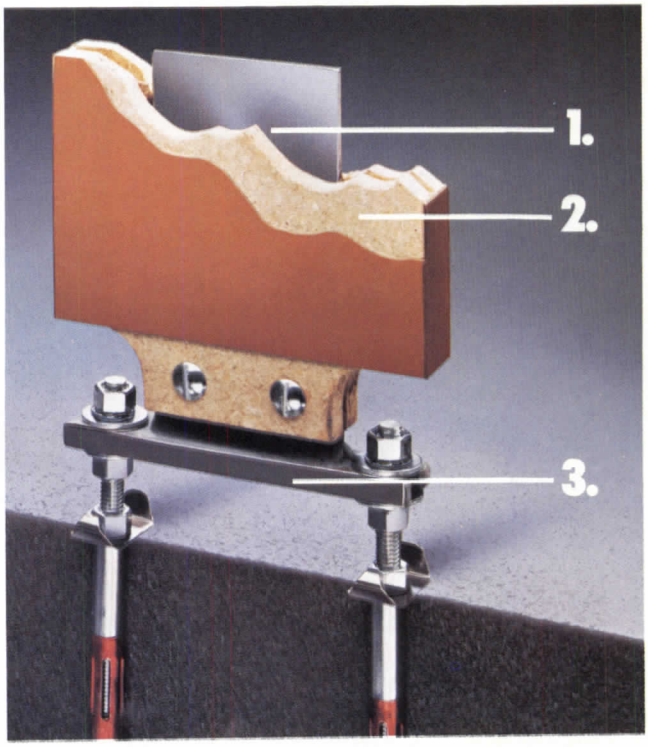


Desk
The *Pelican* desk is bow-shaped and has a glass top with fabric-covered surfaces. The fabric is available in 15 standard colors and is said to be resistant to fading, staining, soiling, and abrasions. Brueton Industries, Springfield Gardens, N.Y.
Circle 322 on reader service card
More products on page 157

The designer in you will like our style.

The Bobrick style: Striking simplicity in laminated plastic toilet compartments and shower dividers. Clean, flush-front design with concealed, stainless steel hardware. All fittings are satin-finish stainless steel. Every component hand-finished. That's the Bobrick way. Choose from a wide selection of wood grains and colors. Over 700 stainless steel accessories and laminated plastic compartments let you create a total washroom design concept from a single, reliable source. Bobrick!

The engineer in you will like our stile.



The Bobrick stile: Thinner is stronger! (1) 11-gauge steel plate (2) bonded to 3-ply, resin-impregnated core (3) is welded to 3/8″ steel leveling bar, making the Bobrick 1″ stile stronger to stay in place longer than thicker stiles of laminated plastic or hollow steel.* Pre-drilled mounting holes and factory-installed threaded steel inserts for easy, accurate, secure installation. Everything's engineered to look better, last longer. Write for catalog to Bobrick Architectural Services, 60 E. 42nd St., New York, N.Y. 10165.

We think like architects, because we ask architects what they think.

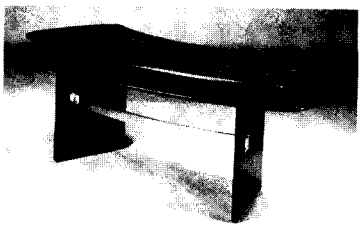
BOBRICK

Circle 72 on inquiry card

*Documentation on request

Products continued from page 155

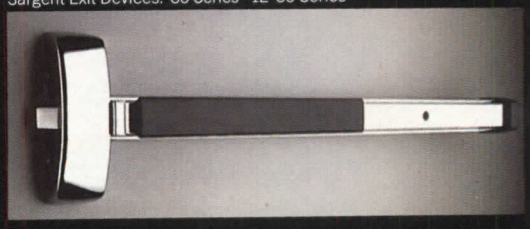
Ceiling systems
The *Wood Grille* system (shown) is part of a collection of new wood and metal ceiling designs. It can be integrated with illumination, air distribution, and sprinkler systems, and is said to be lightweight. Forms + Surfaces, Santa Barbara, Calif.
Circle 323 on reader service card

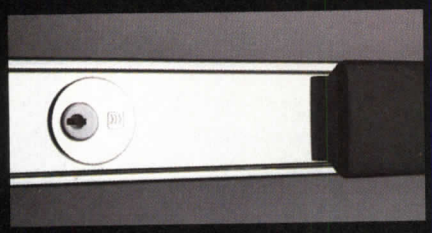


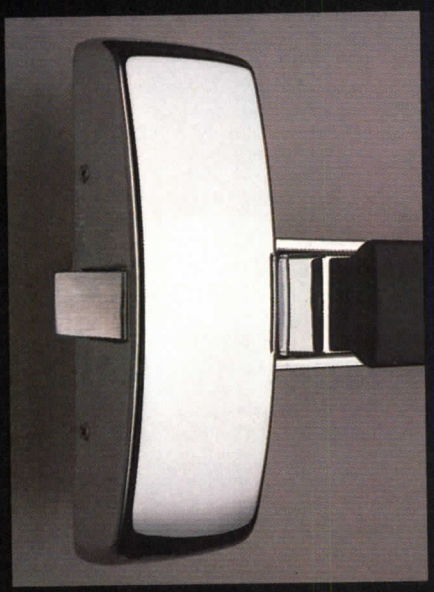
Desk
Designed by Italian Luigi Caccia Dominioni, *Scala* is an executive contract desk made from two asymmetrical tiers. Available in walnut with black lacquer edge detail and a chrome band on its base, the desk is 35 in. by 75 in. by 29 in. NPM, Inc., New York City.
Circle 324 on reader service card

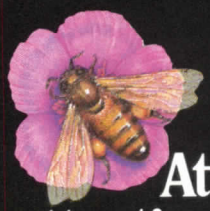
Wall system
Accenta is a modular wall system of 2-ft sections, supplied in kit form. A 1/4-in. gap between the top surfaces of the shelves and the wall panels is intended to conceal wires from audio or video components and computers. The shelving comes in brushed aluminum, or white or black epoxy, and the panels are available in white or black lacquer, or in custom colors. Bang & Olufsen of America, Mt. Prospect, Ill.
Circle 325 on reader service card
More products on page 159

Sargent Exit Devices: 60 Series · 12-60 Series









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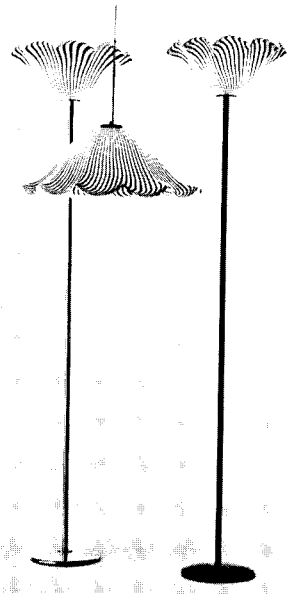
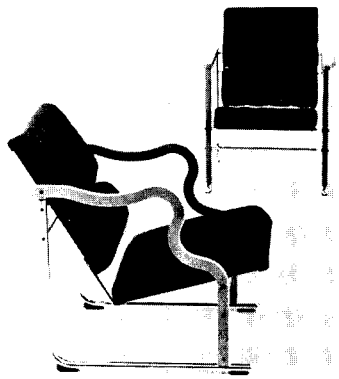
Products continued from page 157



Lamps
The *Paf* line of hanging and floor lamps features shades of hand-blown Murano glass. The incandescent fixtures have bulb capacities of up to 300W. The floor lamp model has a base available in polished nickel, or red or black lacquer. Nessen Lamps Inc., Bronx, N.Y.
Circle 326 on reader service card



Chairs
The *Experiment Series* by Yrjo Kukkapuro is named for the designer's interest in experimentation with color, shape, and ornamentation. The seat, back, and armrests are press-formed birch veneer, and the legs are made of chrome-plated steel tube. The upholstery is polyurethane foam with Dacron and is detachable. Beylerian, New York City.
Circle 327 on reader service card

Chair
The walnut *Courthouse* chair features steambent arms and backrest. It comes in all-wood or partially upholstered versions, and is available in either an arm- or a swivel-chair model. Gunlocke, Wayland, N.Y.
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More products on page 179

Photography: H. Durston Saylor
Interior Design: Lew Dolin

Marlite® Brand Plank

How To Keep A Comfortable Feeling In Hectic Restaurants

The warmth of planked walls helps create a experience customers return to. Time and time again.

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MASONITE CORPORATION COMMERCIAL DIVISION

Masonite Corporation, Commercial Division, 202 Harger St., Dover, Ohio 44622. (216) 343-6621.

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Products continued from page 159

EDUCATIONAL OPPORTUNITIES

INTELLIGENT BUILDINGS & INFORMATION SYSTEMS
Conference — September 16-19 — Boulder. Dr. Francis Duffy — London — Keynote. Topics include: telecommunications, CAD/CAM, multi-tenant issues, integrated office systems, building economics & design.
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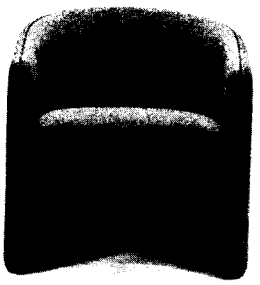

Chair
The *650 Zipper* chair has a padded and upholstered frame that wraps around a floating upholstered seat. Both the arms and the seat have an exposed zipper trim, designed to ease on-site recovering. Metropolitan Furniture Corp., San Francisco.
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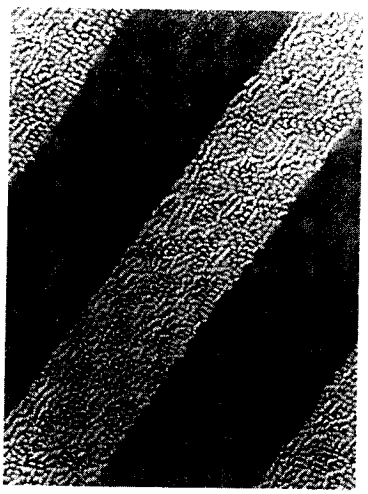

Carpet
The *Mercedes* (shown) is part of a new carpet collection that experiments with color and texture. The product features a wide shear diagonal stripe that alternates with a heavy wool texture. V'Soske, New York City.
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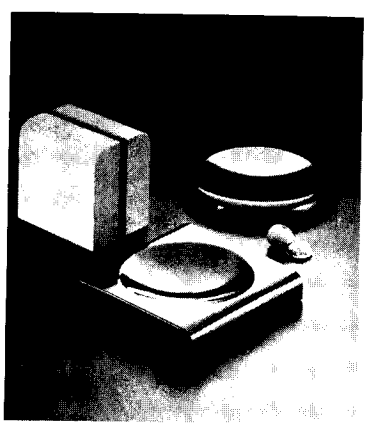

Office accessories
The *Radius Two* collection of desk and office accessories includes bookends, vases, planters, and ashtrays with rounded or squared edges. The products are available in stone and marble, with metal details in mirror-polished aluminum, brass, or bronze. Smith Metal Arts Co., Buffalo, N.Y.
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More products on page 181

No Other Reflective Coating Outperforms Real Gold

Polarpane® Gold Reflective Insulating Glass Units are made with real, 24-Karat gold. Aside from an obvious aesthetic quality, real gold gives Polarpane the highest solar energy rejection value and the greatest insulating value of any glass on the market . . . outperforming imitation gold, silver, and other reflective coatings.

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HORDIS BROTHERS

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Products continued from page 179

Office seating
The *Discovery* line of seating features control buttons that adjust back and seat height and inclination. The five-leg base has a "memory" return on its 360-deg swivel, automatically realigning the chair to the front position. The chair is available in a selection of 90 woolen fabrics and leathers. Fixtures Furniture, Kansas City, Mo.
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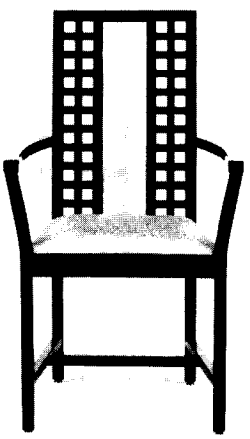

Chair
An adaptation of Charles Rennie MacKintosh's early 20th-century designs has a lacquered square cutout framing an upholstered panel backrest. The cushioning is of urethane foam. The unit is 23 1/2 in. wide, 19 in. deep, and 40 in. high. Shelby Williams Industries, Inc., Chicago.
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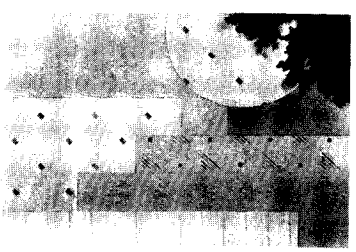

Wallcoverings
The *Vineyard* collection of vinyl wallcoverings includes eight patterns and 21 color schemes. The series features solid tones and linear stripe or geometric prints. All are fabric-backed, trimmed to 28 in. wide, and are said to be washable and strippable. J.M. Lynne Co., Smithtown, N.Y.
Circle 334 on reader service card
More products on page 183

Two office buildings. One new, one renewed.

ELEVATORS BY DOVER

Rising above the Vancouver waterfront are two prominent Dover Elevator installations—the new Daon Centre and, mirrored in its facade, the Marine Building across the street. The 21 floors of the Daon Centre are served by 4 Gearless Dover elevators. The Marine Building, a 50-year landmark in downtown Vancouver, has been enhanced by a modernization program incorporating the advanced Dover Traflomatic 2000 I.C. computer control. For more information on Dover Elevators or Dover Modernization Programs, write Dover Corporation, Elevator Division, Dept. 680, P.O. Box 2177, Memphis, Tennessee 38101. In Canada: Dover Corporation (Canada) Limited, Elevator Division, 126 John Street, Toronto,Ontario M5V 2E3.

Daon Centre
Architect: Musson Cattell & Associates
General Contractor: Dawson & Hall Ltd.
Marine Building
Architect: McCarter and Nairne
Owner: British Pacific Building Ltd.
Elevators installed and modernized by Dover Corporation (Canada) Limited

DOVER

The elevator innovators.

Products continued from page 181

Table and chairs
A table and matching chairs designed by Japanese architect Arata Isozaki are part of the new *Isozaki* collection. The table top is veneered in a radial design and the chair seats are upholstered in leather or fabric. Both the table and the chairs are available in natural or black stained wood. SunarHauserman, Norwalk, Conn.
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Office systems
Included in the *Space Management System* are floor-to-ceiling *T-Series* partitions and furniture components. The partitions are movable, can carry electrical wiring, and are available in several finishes and fabrics. Drawer modules can be attached to each other or placed freestanding beneath work surfaces. Trendway Corp., Holland, Mich.
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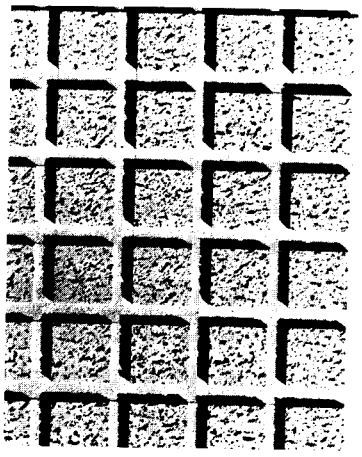

Ceiling tiles
The *Fascination* line of ceiling tiles includes three new geometric patterns. The tile is sculpted into relief patterns of 3-in. by 3-in and 4-in. by 4-in.squares, and 3-in. by 24-in. linear strips on standard 2-ft by 2-ft lay-in tile. Conwed Corp., St. Paul, Minn.
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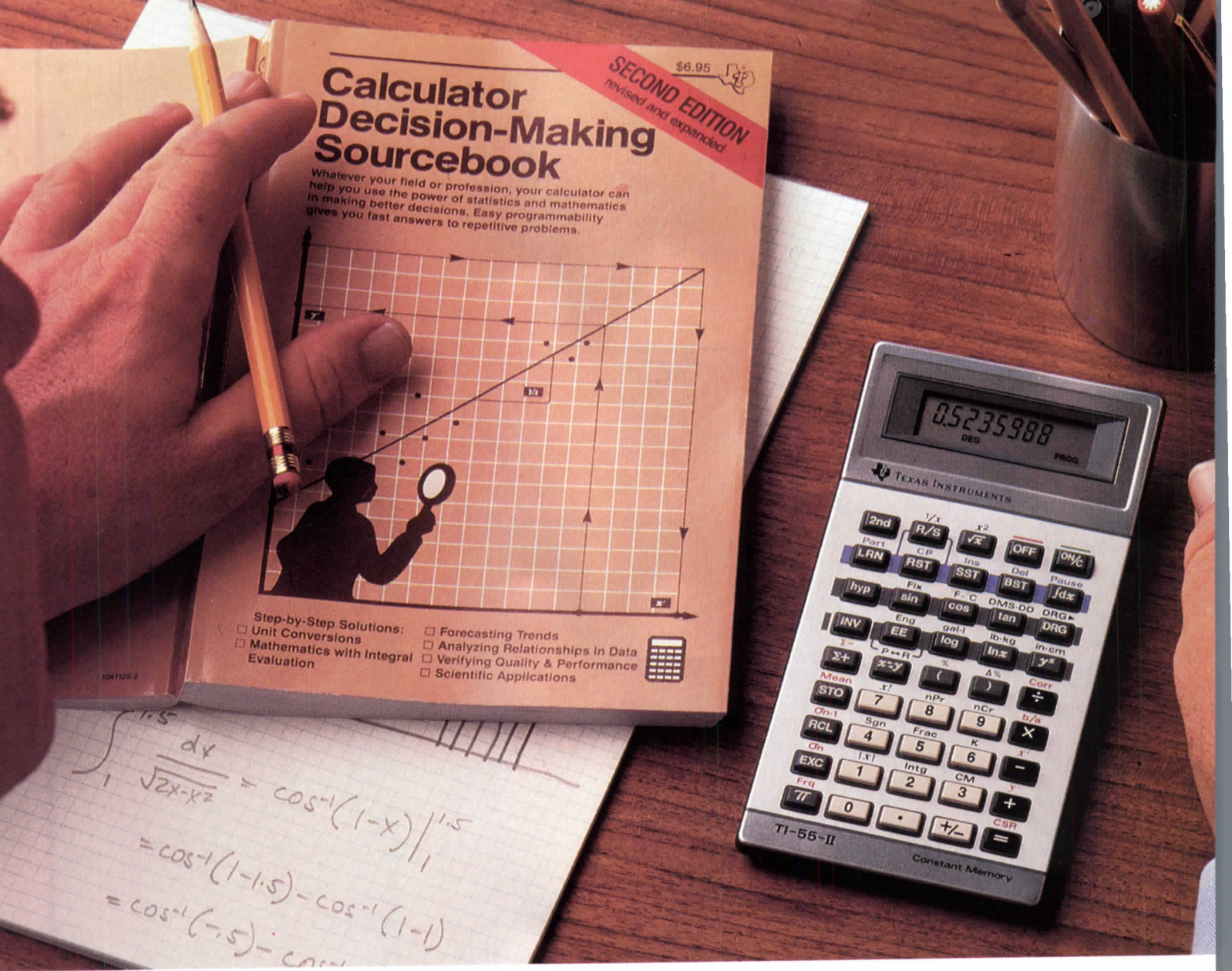

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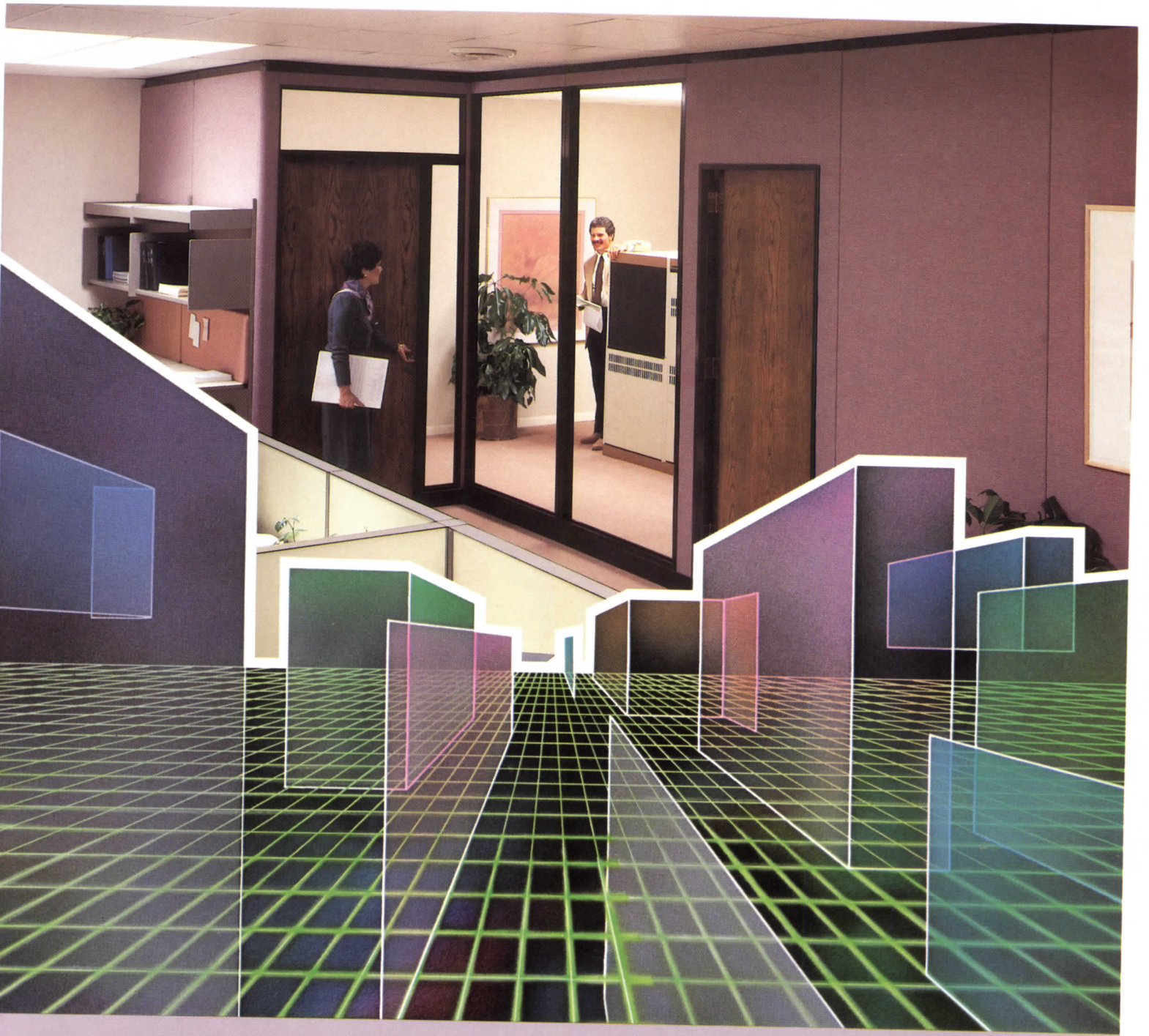

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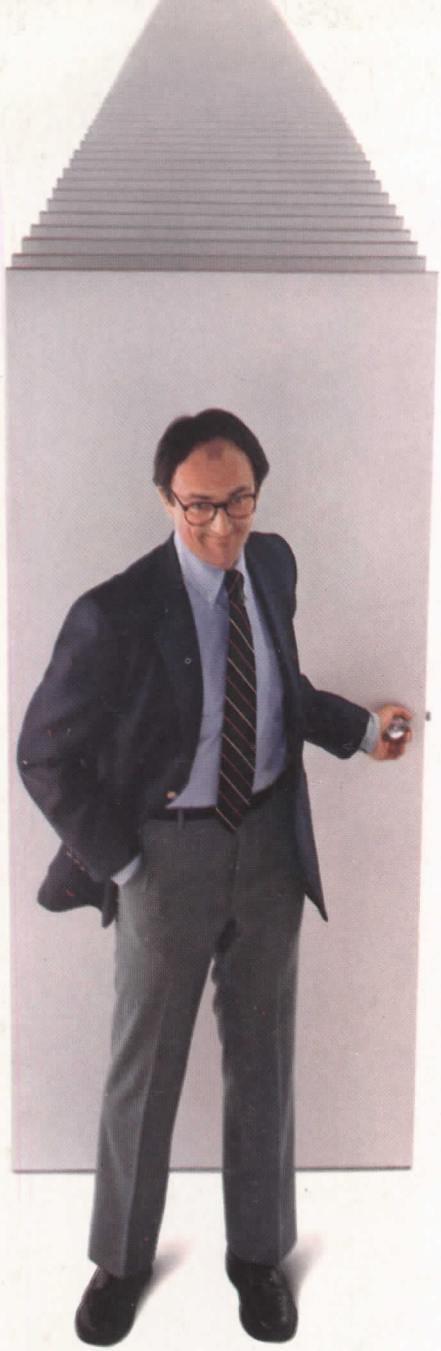

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