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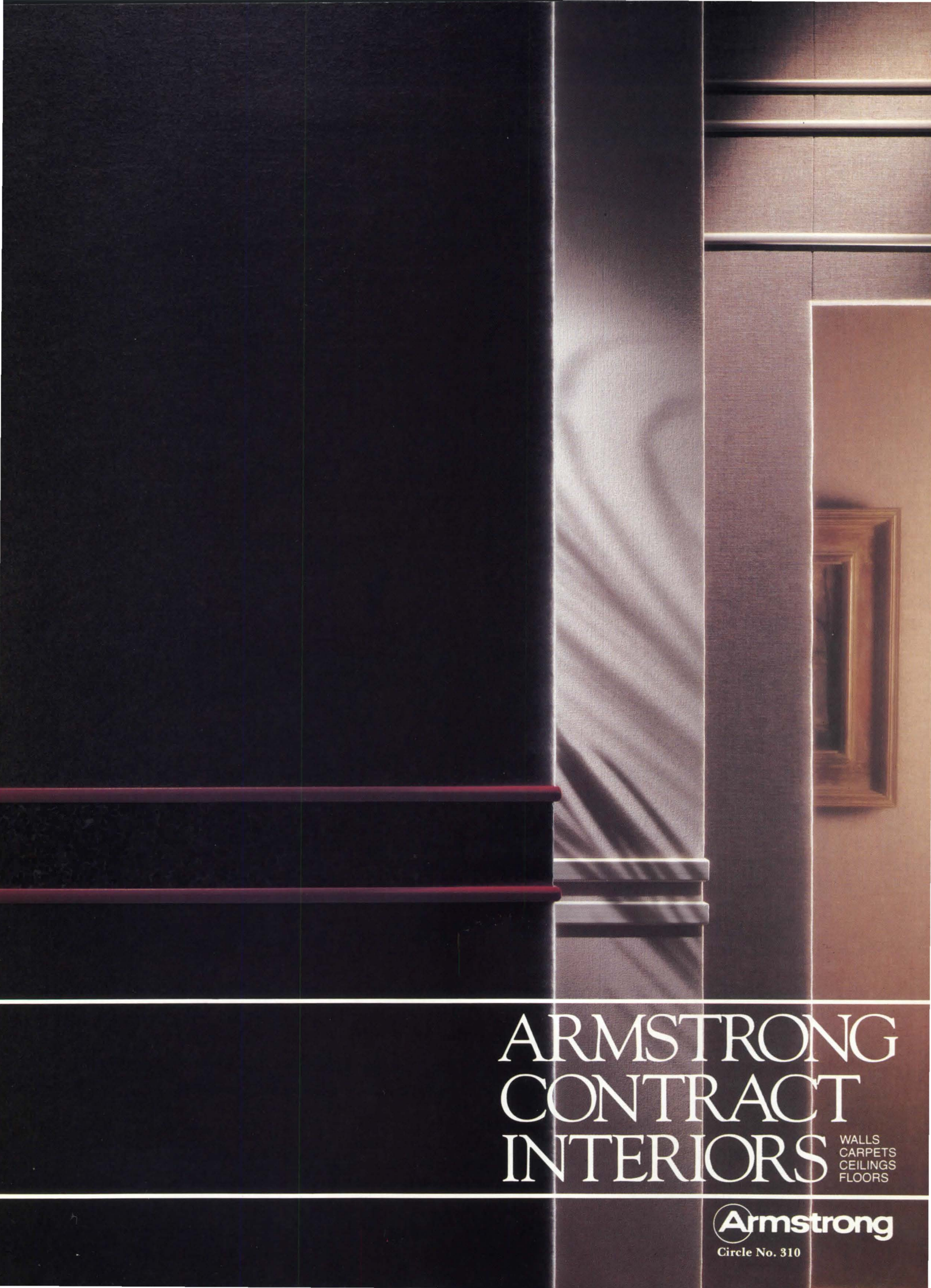

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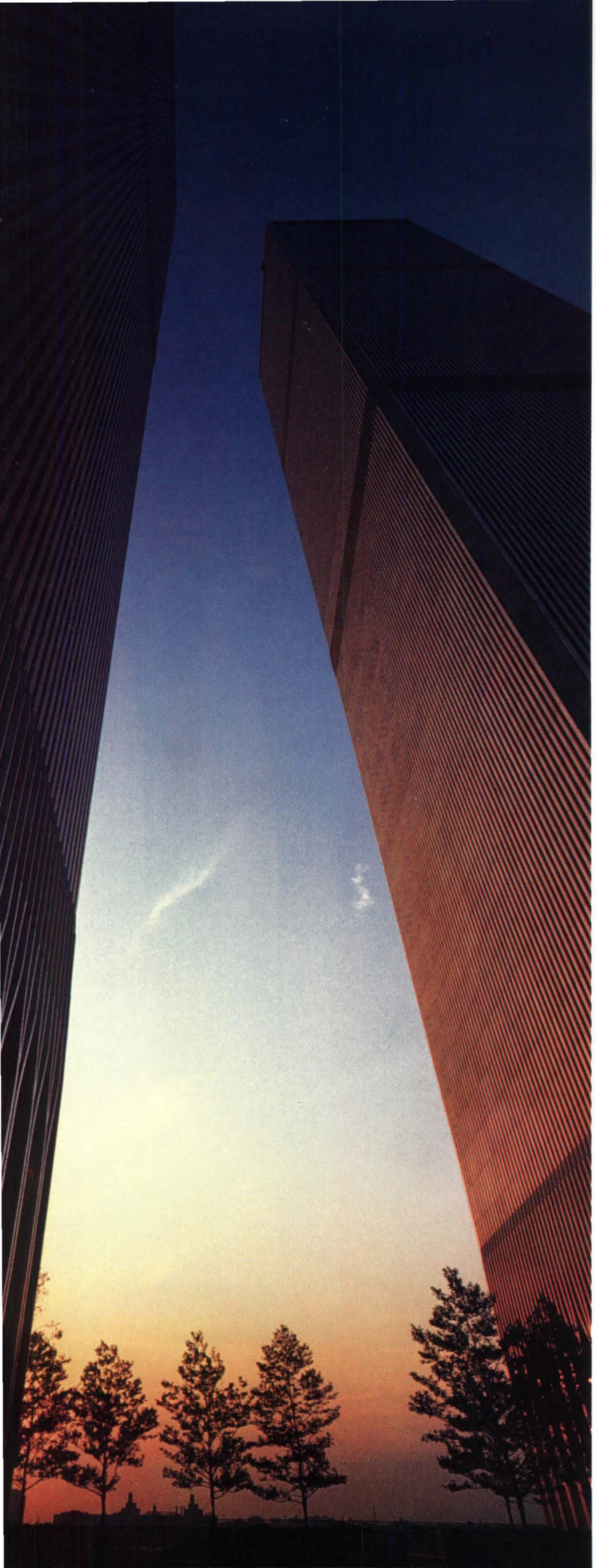

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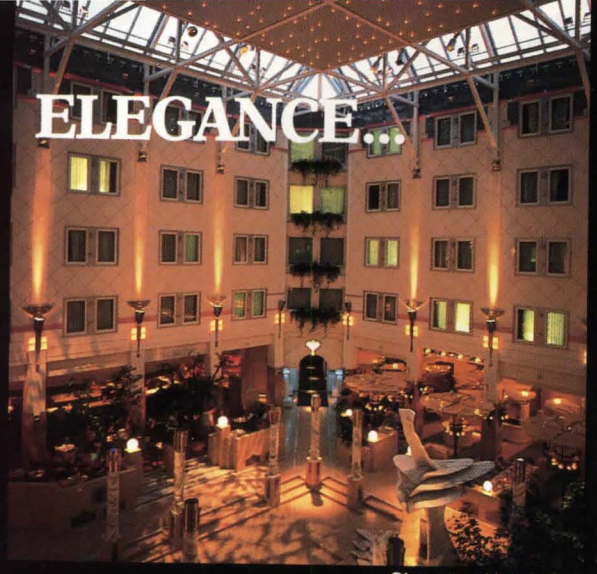
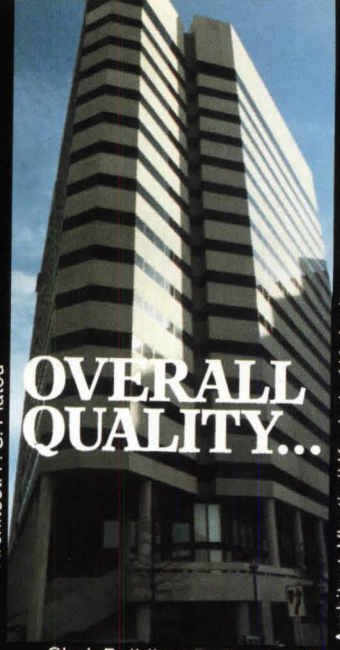


Sheraton Hotel, Oslo

Architect: F. S. Platou



Clark Building, Bethesda, MD

Architect: Vlastimil Koubek, AIA Architect

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Architect: Götaverken

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TECHNICS

68 Jeff Goldberg/ESTO

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DEPARTMENTS

LIFESTYLE SUPPLEMENT

Cover:
The flight path into Columbus, Ohio, airport seen through "scaffolding" at the Wexner Center for the Visual Arts, by Eisenman/Trott Architects (p. 68). Photo: Jeff Goldberg, ESTO

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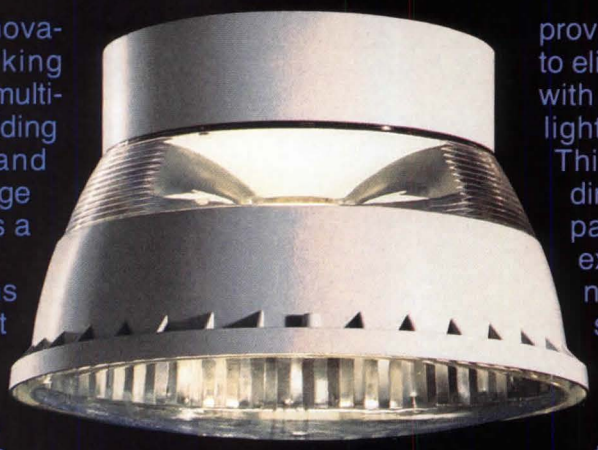

providing ceiling illumination to eliminate the "cave effect", with the additional bounce-light softening shadows. Third, the PGL is a semi-direct luminaire toward the parking stalls, providing extra fill-light where it is needed for safety and security. The PGL is a design statement that says parking garages are more than just utilitarian structures.

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Women's Place in Architecture

Women do not feel fairly treated in this profession, a fact that is confirmed by the latest P/A Reader Poll (page 15)—and by almost any woman in the field.

THE slow integration of women into the profession of architecture is exasperating. The slowness itself retards change by sustaining the old expectation that an architect should be a man.

Women's special difficulties in this profession are compounded by the fact—vividly shown in our poll—that men hardly perceived their problems. As a rule, established majorities seem to underestimate the difficulties of minorities. (Surveys also show, for instance, that white Americans think blacks are now treated with full equality.) In architecture, the tendency to overlook the particular problems of women—or blacks, for that matter—is reinforced by the fact that architecture is perceived to be a difficult field for just about everybody in it—hence anyone who complains is seen as just not able to take it.

As we go to press, a new book has appeared that complements the findings of our poll with very perceptive observations by women in architecture. Called *Architecture: A Place for Women* (Ellen Perry Berkeley, editor; Matilda McQuaid, associate editor; Smithsonian Institution Press, Washington), this compact paperback should be read by anyone interested in the role of women in architecture—and who in this profession should not be?

One of the book's essays, by Rochelle Martin, identifies the root problems quite succinctly. The profession, Martin observes, subscribes to a "mystique of the expert," whose identity is determined by subjective, male-dominated standards. She also points out the stress the profession places on "total commitment," to the exclusion of family concerns, a commitment women are not expected to maintain.

The irony of resistance to women in the profession is provocatively raised by Boston architect Joan Goody, as quoted in Ellen Berkeley's introduction to this book: Goody asserts that architects, in relation to their clients, often display typically female attributes ("they are sensitive, artistically creative, and malleable") and flaws ("they are temperamental, spendthrift, and late"). Whether these stereotypes are accurate or not, she is right in suggesting that the resistance to admitting women to the circle of "experts" involves some contradictory feelings.

One well-established architect, Cloethiel Woodard Smith of Washington, has submitted a "dissenting opinion" to the book. Head of her own productive firm since 1963 (and, incidentally, the first woman to serve as a P/A Awards juror, back in 1960), Smith never had to ask for special consideration—and she obviously doesn't think women should today.

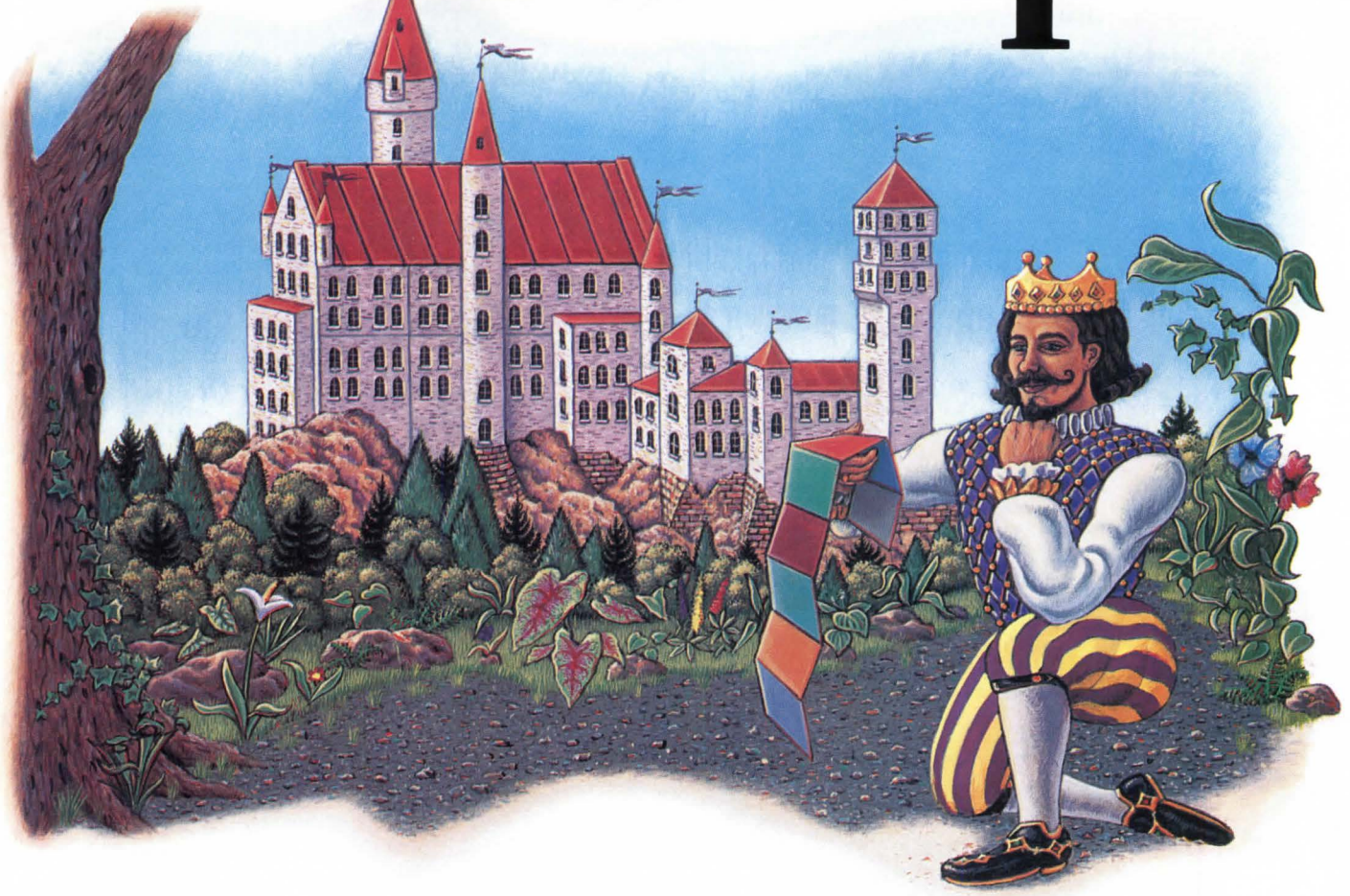
Some of the most intriguing findings of our poll have to do with those instances where women share top responsibilities with men. It was surprising how firmly both men and women rejected the proposition, "A husband and wife partnership is the best way for women to practice in the profession," considering how common this arrangement actually is. (Of some 25 female architects I know on a first-name basis, over half are partners with their husbands.) While this professional couple arrangement helps greatly to ease the strains involved in having a family, its rejection seems related to the strong consensus among those polled that, "In firms where both men and women are principals, the men are perceived as being in charge."

On the subject of who's in charge, Denise Scott Brown's candid and articulate essay in the cited book reports some telling incidents. As a principal of Venturi, Rauch & Scott Brown (one of the few firms with women principals to have won the AIA Firm Award) she finds too many of the firm's accomplishments ascribed to "Venturi," regardless of who was responsible. She mentions a client meeting where a board member considered Venturi unprofessional for bringing his wife with him; she recalls the dinners for architect colleagues where she was not included because "wives weren't invited." Her firm has raised journalists' consciousness about crediting firms, not individuals, but with—as she admits—some loss of good will.

Unfortunately, even women who are clearly in charge have to combat the impression that they are assistants to a man. One woman principal of a firm was telling me only recently of touring a school in connection with a new commission. The person leading this site visit addressed all comments to the male associate she had brought with her—to the embarrassment of them both.

Only when numbers substantially change will expectations change, too. One of the strongest traditional obstacles to women in architecture was the belief that they would be out of place on the construction site, but today the construction work force itself includes many women, so that excuse must be scrapped. It would help the integration of women if more consultants were women, and—needless to say—more clients. And the numbers are changing. With women comprising over one third of the students in professional degree programs, the numerical change will have to accelerate. That has got to be a good thing for the profession. ■

Madcap



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Views

Internship Efforts
I have read with great interest the results of your reader poll on internship and registration (June P/A, page 15). The tremendous increase in IDP activity in the last few years, both in numbers of interns and in states requiring IDP training, has led the national IDP Coordinating Committee to evaluate its accomplishments to date and to consider long-range goals appropriate to the mission of the program.

The survey confirms our conclusion that many practitioners are unfamiliar with the advantages of IDP in structuring the internship experience and bridging the gap between architectural school and professional registration. One major program goal for the next few years is to encourage more firms to support the needs of interns and accept their role as mentors in the development of competent professionals.

If, as the Morrisons conclude, internship programs lack regulation and "serious omissions in practice experience are evident," increased support for IDP and increased participation by firms offer an important opportunity for improvement. We would suggest that it is not so much regulation that seems needed as cooperation—a recognition of the benefits to both employer and intern of balanced professional training. By structuring the time spent on the various aspects of practice, IDP offers a guide for distributing the internship experience effectively. The requirements in areas such as construction observation and cost analysis recognize that difficulties may exist and are intended to assist interns in gaining this critical experience.

The Coordinating Committee stands ready to assist and will play an important role in increasing the understanding of all program participants.
Anne B. Vytlacil, AIA
AIA Co-chair
IDP Coordinating Committee
Washington, D.C.

Hazards and Liability
I have read your editorial "The Next Asbestos" (August P/A, page 7).

I am 75 years old and still active. As much as I am the victim of toxic wastes, gases, electrical hazards, asbestos fibers, and food additives, I am not alone. As AARP can confirm, I have a lot of fellow sufferers, so many in fact that we seniors are overtaking the population. How could society permit such horrors to exist? Not too many years ago life expectancy ended at 55.

Of course I am in favor of improving the environment, but I resent fear-mongering.

What irritates me even more is the constant tendency to put responsibility on the shoulders of the architect. Suddenly it will be discovered that we are responsible for "unbalanced electricity" in a building we designed 20 years ago. Some lawyers will say we "knew or should have known" and will produce your editorial to prove it.
Leon Rosenthal, Architect
Babylon, New York

Designer's Saturday
Technical Innovations in Wall Systems, an all-day event on Thursday, Oct. 12, will be held at the KI showroom, A & D Building, 150 E. 58th St., New York (not at IDCNY, as listed in September P/A, page 3DS).

UVA Dean Correction
The new dean of the University of Virginia School of Architecture is Harry Porter, not Michael Dennis as reported (August P/A, Pencil Points, page 20).

Calendar Adjustment
The exhibition "Preserving an Architectural Heritage, Decorative Designs from the Domino's Pizza Collection," showing works of Frank Lloyd Wright, will be at the Albright-Knox Art Gallery, Buffalo, New York, July 13 through September 2, 1990 (not 1989, as reported in August P/A).

Illustration Credits
The illustrators for the Brooklyn Museum façade shown in "Presenting Ideas" (June P/A, page 88) were Cameron Mactavish, David Genther, Michael Pearson, and Tony Atkin. Tony Atkin & Associates, Architects is the successor firm to Atkin, Voith & Associates.

High School Credits
Mimbres Inc., the associated architects for the Capital High School (August P/A, page 78–81), were accidentally left off the credits. The project architects were Kestutis Germanas and Sam Jamrom; the landscape architect was Edith Katz.

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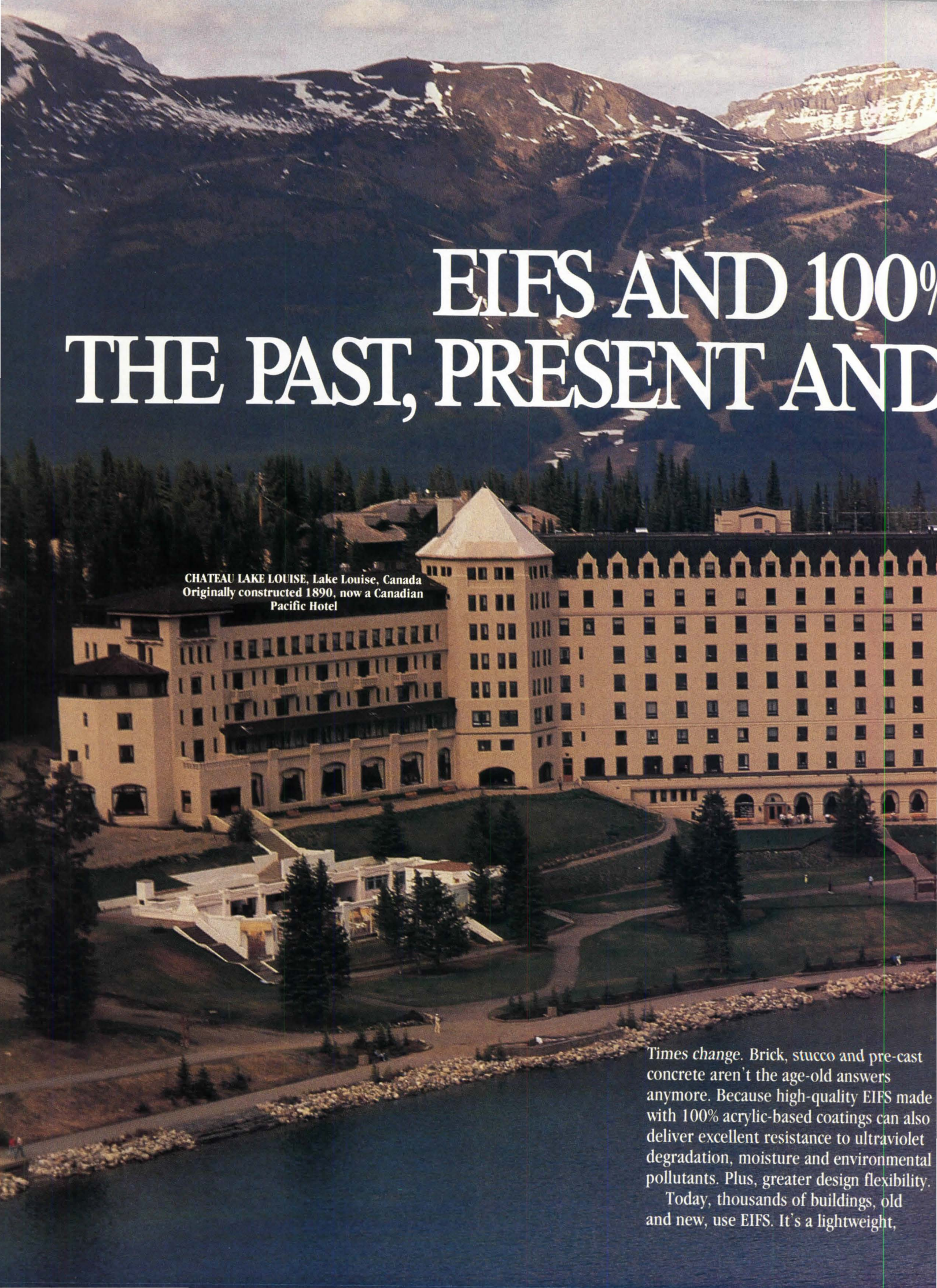

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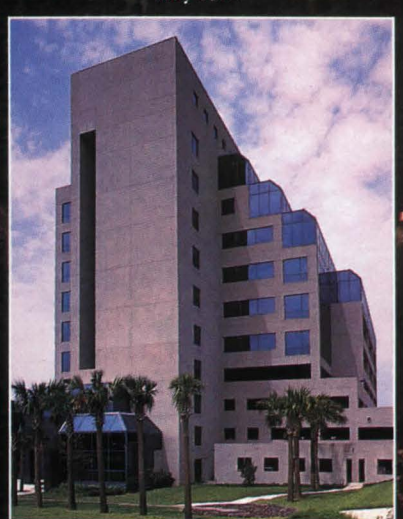

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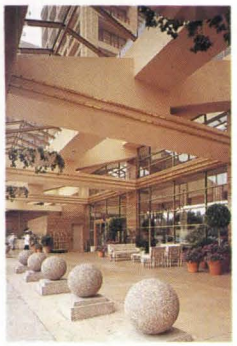

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P/A Reader Poll
Women in Architecture

Women in the field of architecture are at a disadvantage, say P/A readers in the latest poll, but men and women perceive this gap very differently.

In the field of architecture, women are offered fewer opportunities and receive less compensation than do men with similar experience, according to the 12th P/A Reader Poll. This is true, say both our female and male respondents, when it comes to professional opportunities, recognition, and rewards. At best, in a very few situations, respondents feel that women get treatment equal to men, but almost never do they feel women get better treatment. And overall, women feel even more pessimistic than men about their situation.

"It may be," say P/A's research consultants, Morrison & Morrison, "that men are simply not aware that women face additional barriers . . . (or) it may be that women are more likely to define some circumstances as a threat to their advancement which men of similar experience do not."

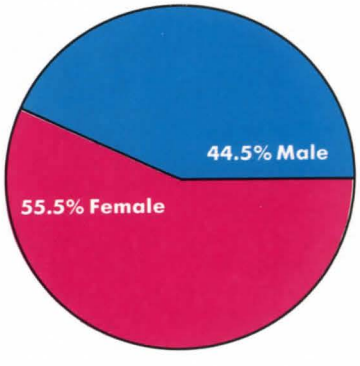
The Respondents (Fig. 1–3)
P/A's poll on Women in Architecture drew over 1300 responses, about average for these polls. As might be expected given its subject, the poll drew a particularly high percentage (55.5 percent) of women respondents, high in comparison to the general make-up of the profession. Among all those who responded, men were twice as likely to be owners in their firm (42 percent versus 18 percent), while women were twice as likely to be designers and draftsmen (28 percent versus 14 percent). The majority of women who responded, however, have been in the field four to ten years (52 percent, compared to 38 percent of the men), with a fairly high proportion of the men respondents practicing 11 to 20 years (32 percent, as compared to 20 percent of the women).

Opportunity (Fig. 4–6)
Perhaps the most important question regarding women in architecture is whether they are given opportunity equal to that offered to men. Women respondents agreed resoundingly with the statement "Women are generally given fewer opportunities than men with comparable experience": 84 percent of the women concurred with the statement, with 43 percent agreeing somewhat and 41 percent agreeing completely. Men, too, agreed with this statement but with a much smaller majority—54 percent.

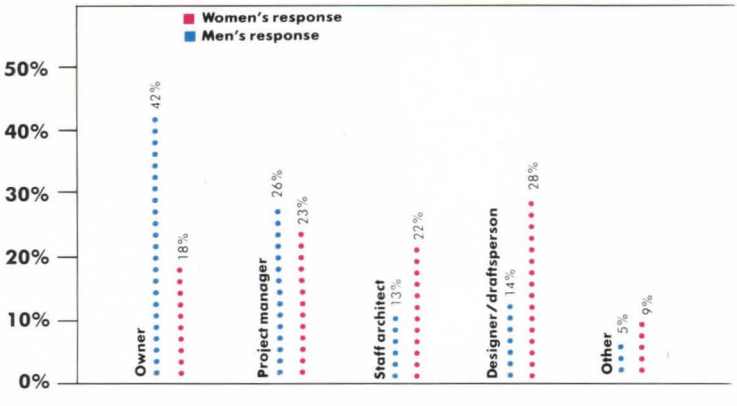
As to what size firm offers women the greatest opportunity, the majority of women respondents (57 percent) felt that small is better. Men were less pronounced in this opinion, with 37 percent feeling small firms were best for women, and 36 percent feeling that medium-sized firms offered women the best chance of advancement and growth. In fact, the largest percentage of women respondents (41 percent) work in small firms, and 35 percent of the women work in medium-sized firms. While 24 percent of the women respondents actually work in large firms, only 11 percent feel that women have the best chance of advancement in such an office.

When asked to indicate activities in their offices in which women are given significant opportunities, women and men agreed in the ranking of these areas (though the actual percentages differed somewhat). All agreed that women were given the most opportunities in managing small projects, closely followed by opportunities in interior design. Next was the area of design responsibilities in general, though here it's interesting to note that 77 percent of men, but only 67 percent of women, felt that this area offers significant chances for women. Marketing services, public relations, and construction visits, in that order, were ranked next. Offering the least opportunity for women, according to respondents, are client negotiations, the managing of large projects, and, lowest of all, top management. Only 22 percent of men, and 21 percent of women, felt that

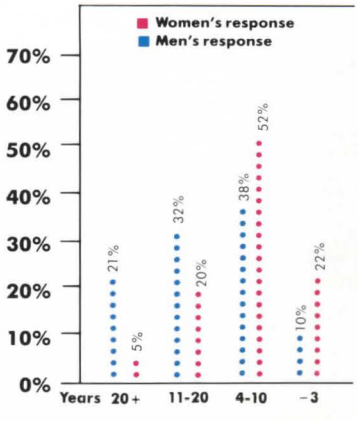
1 **Composition of poll respondents**



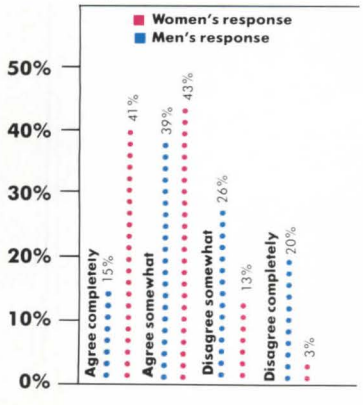
2 **Role in firm**



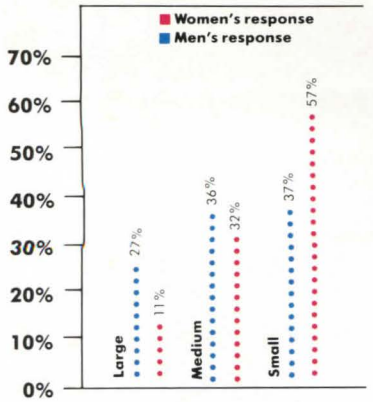
3 **Number of years in profession**



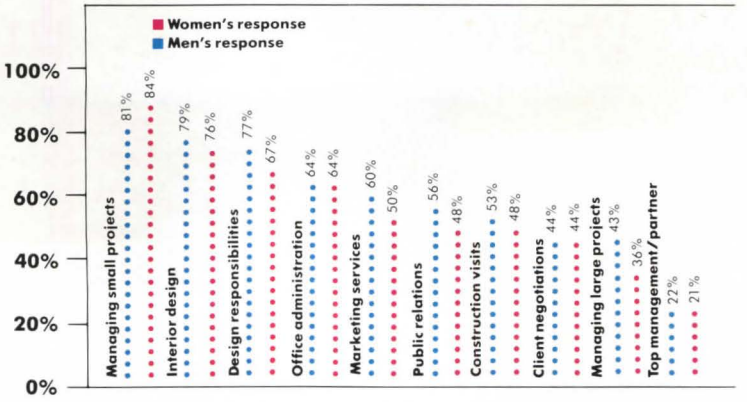
4 **Women have fewer opportunities than men of same experience**



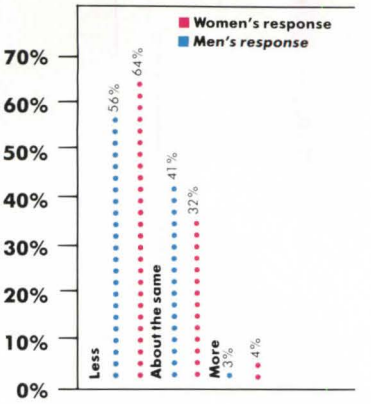
5 **Opportunity by firm size**



6 **Activities in which women have significant opportunities**



7 **Compared to men, women are rewarded with management opportunities**



women are given significant opportunities in top management and partnership. Overall, men consistently felt more optimistic about opportunities for women than women themselves did.

"Given the average number of years women have been working in the profession (7 years)," observe the Morrisons, "these opportunities do not seem to indicate that women are experiencing drastic limitations in their own offices."

Rewards (Fig. 7–11)

Allied to opportunities for women in architecture is the reward they receive. How much are women given, relative to men, in terms of responsibilities, recognition, and salary? In all cases, women felt they receive less reward than men of the same experience; men generally agree with this assessment, but less resoundingly. In every case, only a tiny percentage of respondents, both male and female, feel that women get "more" rewards; at best, a notable proportion feel women get "about the same."

In terms of rewards, as in opportunity, women fare best, it seems, in design. Of the women respondents, 51 percent felt that women are given less design responsibility than men of the same experience, while 47 percent of the women respondents felt that women receive "about the same" rewards in this area. Male respondents were even more optimistic about the responsibilities women receive in the design area: 70 percent felt that women receive about the same rewards in terms of design responsibilities, and only 25 percent felt that women receive less than men.

In the area of management, 64 percent of the women respondents felt that women are given less responsibility than men, and 56 percent of the men agreed. And the situation is worse, the women respondents felt, in the area of professional recognition: 77 percent of them indicated that women get less professional recognition than men (less than half the men agreed). But the situation is worst, according to the women, in the area of salary. A full 81 percent of the women who responded felt that women receive less salary than do men of the same experience, though over half the men felt that women get about the same as they do. Unfortunately, an examination of the actual salaries reported by respondents tends to bear out the women's opinion here. While median salaries seem to be at about the same level for men and women at the beginning of their careers, they diverge by more than 10 percent in favor of men at the four-to-ten-year stage and the spread widens to over 30 percent, for those with over 20 years experience (the latter numbers, derived from artificially constructed mean salaries, are not conclusive). The reported salary ranges shown in Figure 11 (which are statistically reliable) show the lopsided distribution for the four-to-ten year group, the most numerous in our poll.

Support, Discrimination (Fig. 12–14)

If we look at the encouragement and support that women have felt in entering and pursuing their careers, and at the discrimination they feel they have experienced, their situation is not too bad compared with men. In terms of discrimination, the mean rating among women respondents reveals a slight sense of discrimination from all sources, the least discrimination coming from fellow students, the most from superiors. On average, male respondents felt that women receive slightly preferential treatment from fellow students and professors. (On Fig. 12, 3.0 equals neutral treatment.)

In terms of support for entering the profession, women respondents received somewhat less encouragement than men (35 percent versus 45 percent) and more discouragement (19 percent versus 8 percent). In school, only 48 percent of the women had female role models (still a significant number considering the number of women in the field), while 99 percent of the men had male role models.

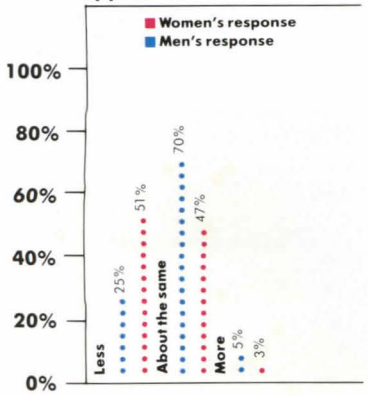
"While both men and women find support through male practitioners," note the Morrisons, "it appears that women also tend to actively seek out other females as mentors."

As to the support women receive from professional organizations, a majority of women respondents (55 percent) felt that these organizations are not making adequate efforts to promote equality for women, and 38 percent agree somewhat that they are. A larger majority of men (62 percent) felt that these organizations are making adequate efforts towards equality.

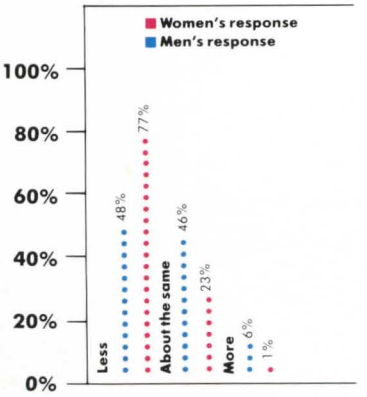
Presence and Perception (Fig. 15–17)

The number of women in architecture remains fairly small, both in offices and schools, according to our respondents. A full 63 percent of all respondents are in firms with women comprising fewer than 25 percent of the professionals; in 90 percent of their firms, women comprise no more than half. In the architectural schools that our respondents attended, the number of women faculty members was also meager, though the situa-

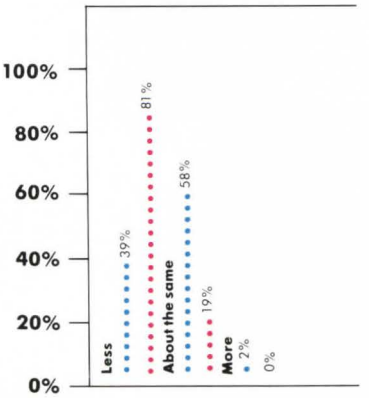
8 **Compared to men, women are rewarded with design opportunities**



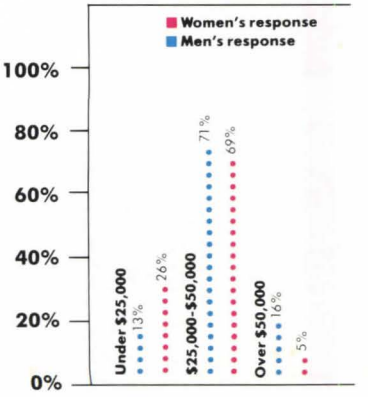
9 **Compared to men, women are rewarded with peer recognition**



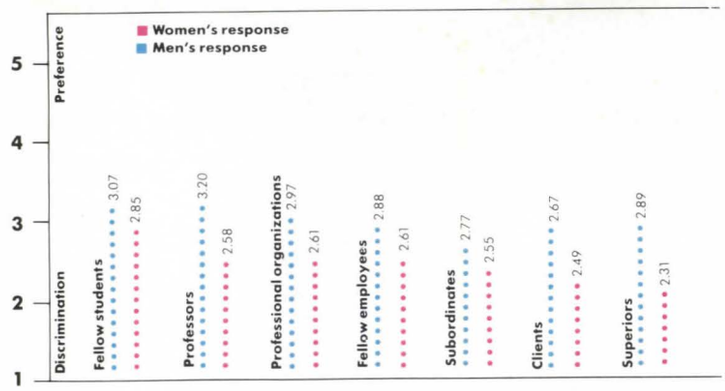
10 **Compared to men's salaries, women's are**



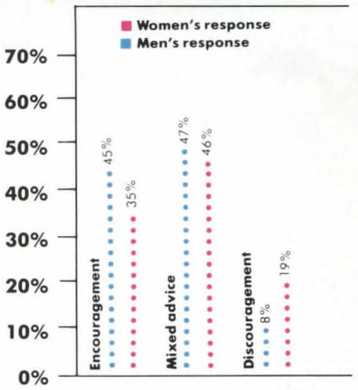
11 **Salary ranges for those with 4-10 years' experience**



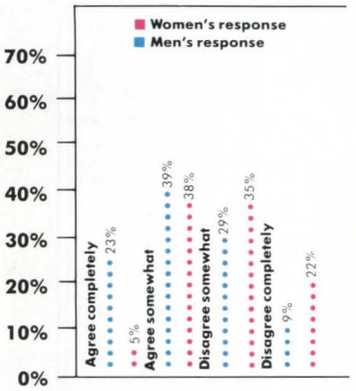
12 ***Degree of discrimination*** **or preferential treatment women encounter with:**



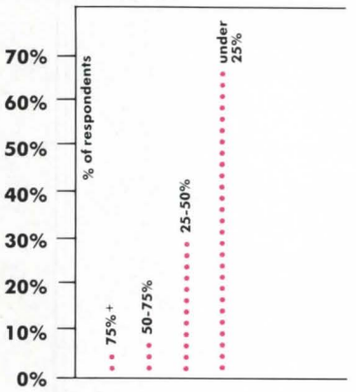
13 **Career advice you got from those who you consulted**



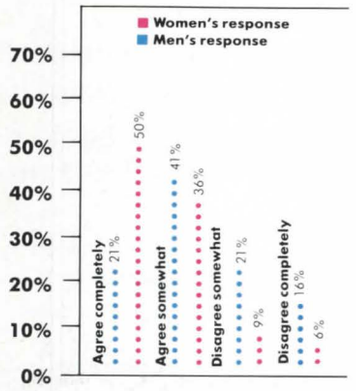
14 **Professional associations adequately promote equality**



15 **Percentage of the professionals in your firm who are women**



16 **In firms with both male and female principals, men rule**



tion has been improving: Those entering the profession most recently report that women constitute 13 percent of faculties, while those in the field over 20 years report, on average, only 4 percent.

A majority of both male and female respondents agree, somewhat or completely, that men are perceived as being in charge in firms where, in fact, both men and women are principals. A full 50 percent of women agreed "completely" that this is true, and 36 percent agreed somewhat; men, while agreeing, are less strong on this point. Given this situation, it is no wonder that when asked whether a husband and wife partnership is the best way for women to practice in the profession, both men and women responded with a resounding "No." Two-thirds of both men and women gave a completely negative response; only 11 percent saw the husband and wife partnership as being particularly beneficial for women.

Parenthood (Fig. 18)
While a majority (59 percent) of male respondents felt that, in their offices, there is no significant loss to a woman's career when she has children, the women respondents themselves were less sanguine: Only 35 percent felt this to be true. A significant number of the female respondents felt that having children would lose women in their office the chance to be principal (43 percent), the chance to be project manager (40 percent), and the equivalent of five years (34 percent). Far fewer of the male respondents felt that having children would have these effects.

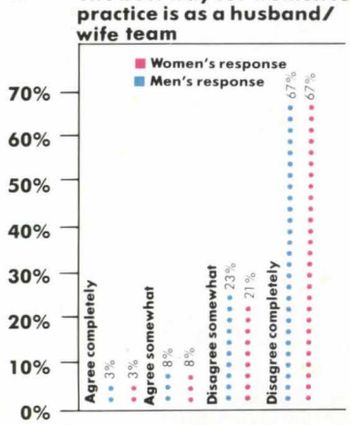
More surprising was the response to the question of whether the respondents' firms offer flexible hours for parents. Over half (59 percent) of the men, and almost half (48%) of the women responded "Yes."

Design Differences (Fig. 19–20)
A majority of the female and male respondents (60 percent and 62 percent respectively) felt that there is no difference between architectural design by women and by men. In fact, when asked whether specific building types are better designed by men or by women, in every case at least 75 percent of male and of female respondents answered "Men and women are equal." It is interesting to examine the responses of the remaining people who did express a preference for the design of one or the other sex, though because of the small sample sizes, these results are not completely dependable statistically. Among female respondents, 24 percent felt women are better than men in designing single-family housing, while no female respondents felt men are better in this category. This opinion has a certain following among the male respondents as well: 9 percent also felt women are better at single-family house design, versus 3 percent who felt men are better. Women also give themselves a slight edge in the design of (in ranking order) multifamily housing, schools, and museums. Men give themselves an edge in the design of city halls, with 14 percent of the male respondents feeling men are better at this, and only .5 percent of them feeling women are better at city halls. Men also give themselves an edge in the design of office buildings and museums, while giving women some credit for the design of schools. Again, given the sample sizes, these actual numbers are shaky. Still, it might be observed that among the very small minority that do not feel the sexes are equal at design, the usual stereotypes hold: Women are better at design related to "caring"—housing, schools—and men are better in design related to power and commerce. Plus ça change . . .

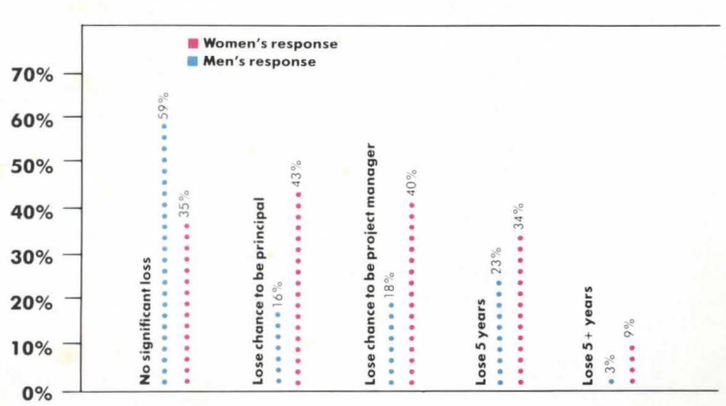
Susan Doubilet ■

The author, a former Senior Editor at P/A, is now a freelance writer in New York and New Jersey.

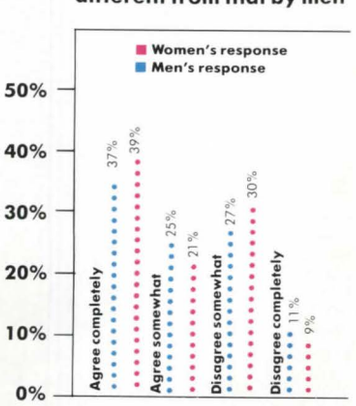
17 **The best way for women to practice is as a husband/wife team**



18 **In your office, what is the effect of a woman having children?**



19 **Design by women is no different from that by men**



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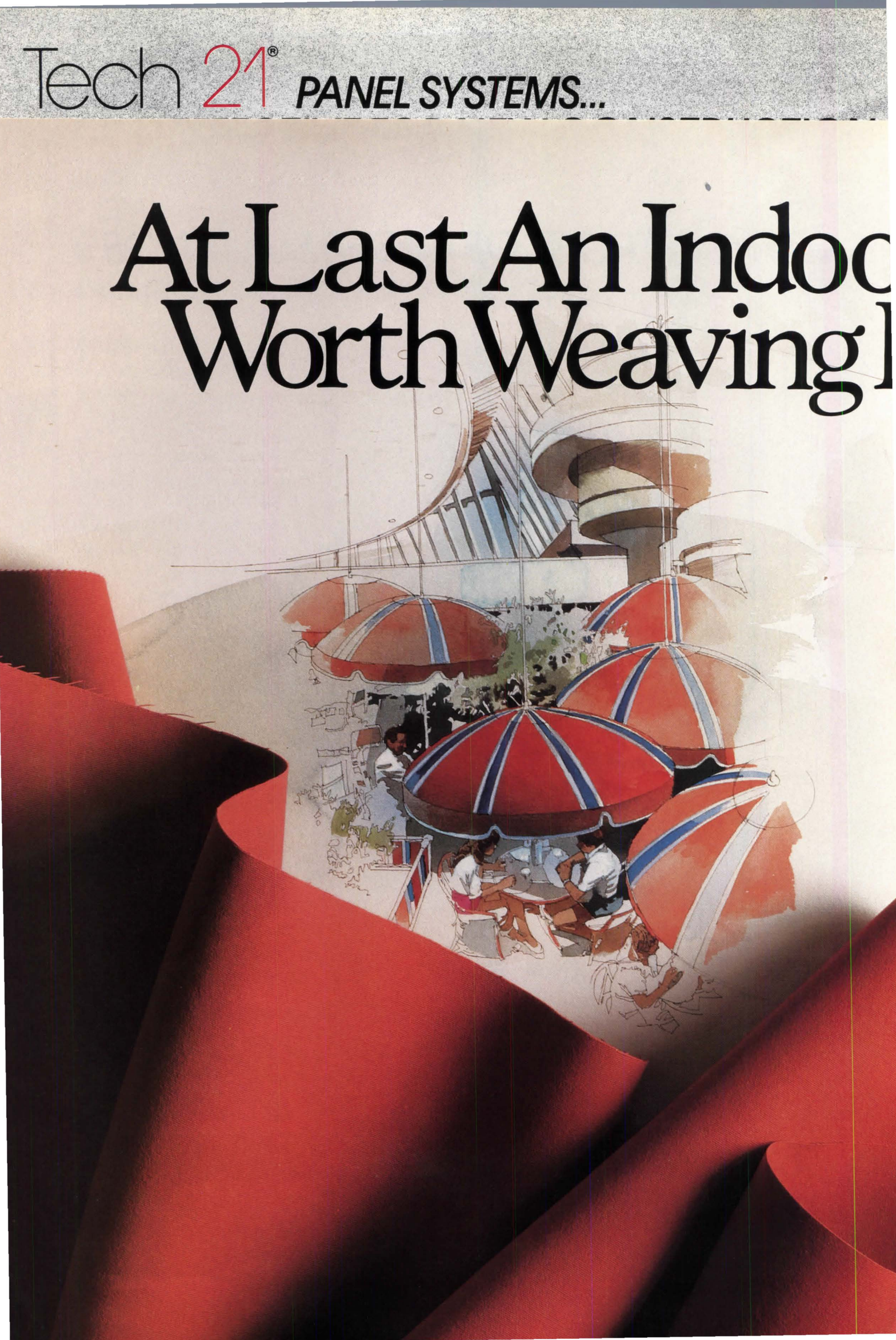

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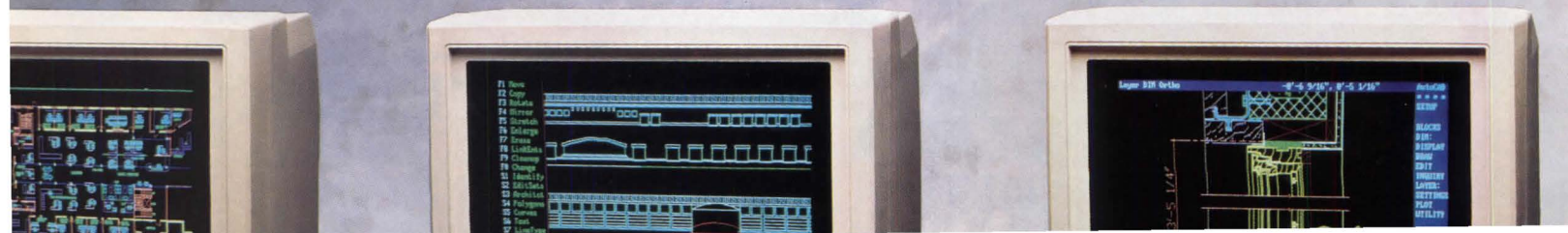

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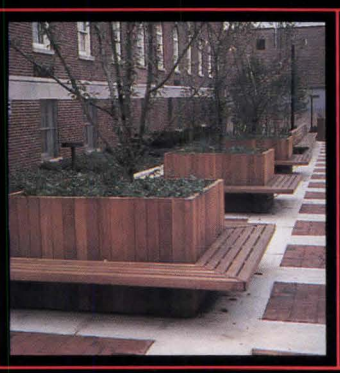

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Group it...

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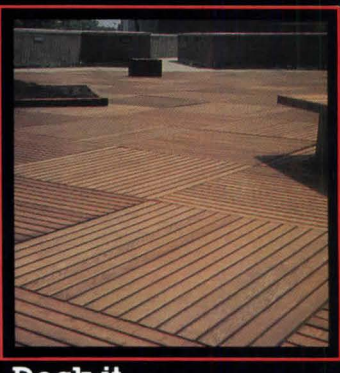

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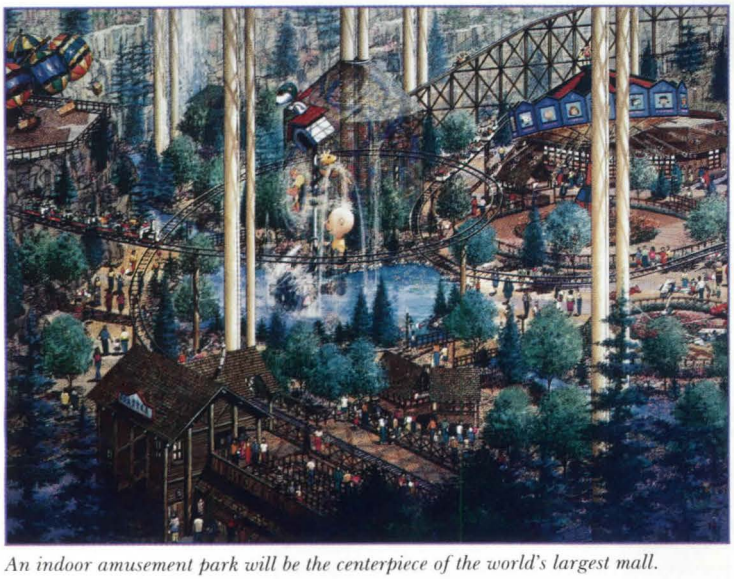
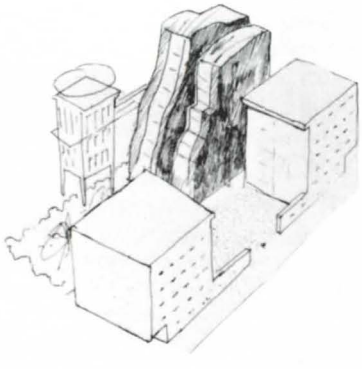
P/A News Report



An indoor amusement park will be the centerpiece of the world's largest mall.



Western architects meet Japanese urbanism at Fukuoka housing exhibition. (Shown here: housing by Christian de Portzamparc.) Perspectives, page 39.

A "Megamall" in Minnesota

At a time when the American landscape is replete with shopping malls, the nation's most ambitious shopping center developer has announced plans for America's largest and most spectacular mall. Long gone are the days of plastic plants and concrete block walls; Melvin Simon Associates' latest mall offers babbling brooks and balmy evergreens under a skylighted roof.

Simon bills the Mall of America in Bloomington, Minnesota, as the "ninth wonder of the world." It will have 9.5 million square feet of enclosed shopping, entertainment, and hotel space. In addition to four major department stores and 800 specialty shops, this "megamall" will include a skating

(continued on page 34)

New Scheme for Times Square

The long-standing dispute over New York's Times Square Redevelopment Project took an odd turn last month as the developer presented a restyled version of the project's four towers by John Burgee Architect. Burgee, whose 1981 scheme for the site consisted of four similar, staid Post-Modern towers, said the new design, a colorful assemblage of signs and materials, would "reflect the varied nature of the area."

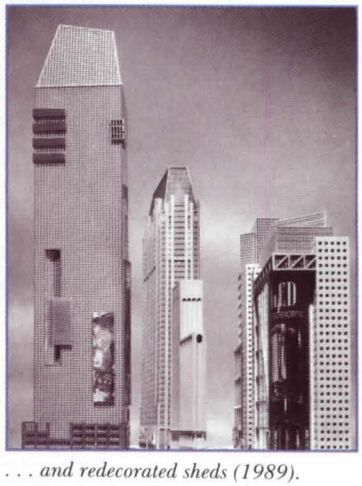
Responding to criticism of the earlier buildings' sameness and sterility, Burgee has invented new architectural personalities for each of the towers. The tallest northeast tower uses apses, bays, and large signs to break up its enormous glass façade. The signs, several stories high, are all but invisible from within the offices behind them. The northwest tower faces Times Square with a 27-story cylindrical sign, and uses granite, steel trusses, and several colors of glass; the southwest tower is similarly clad. The center tower is a more traditional design that recalls the first scheme.

Burgee says he drew inspiration for the seemingly arbitrary application of façade details from the signs attached to buildings elsewhere in Times Square.

(continued on page 27)

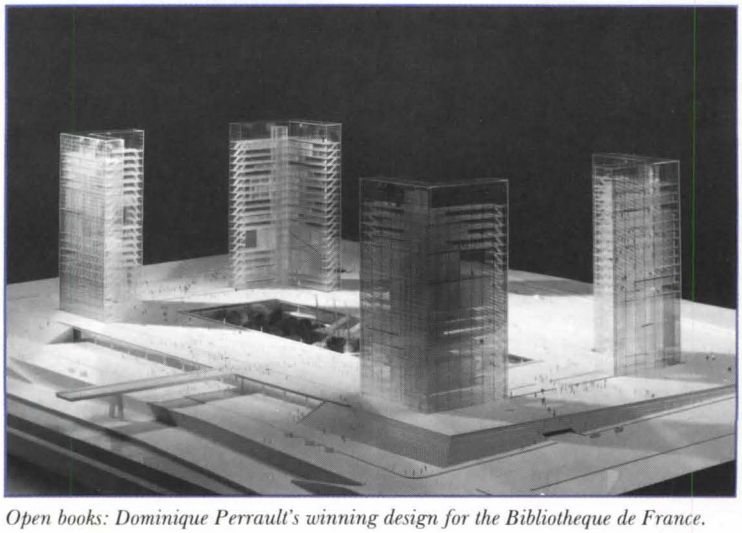
Nathaniel Lieberman

Times Square designs by John Burgee: Decorated sheds (1981) . . .



Nathaniel Lieberman

. . . and redecorated sheds (1989).



Georges Fessy

Open books: Dominique Perrault's winning design for the Bibliotheque de France.

Perrault Wins French Library

Yet another *grand projet* will soon rise in Paris, this time in an industrial section of southeast Paris that has been targeted for redevelopment. French architect Dominique Perrault beat out a field of 20 architects in an invited competition to design the Bibliotheque de France, a new national library that will sit on the left bank of the Seine in the 13th arrondissement.

The competition program called for a four-part library (new acquisitions, sound and moving image, reference, and research) capable of holding seven million books and accommodating between five and eight million visitors per year. Perrault, noting that the other

(continued on page 26)

Pencil Points

More than 30 years after first collaborating under one roof, I.M. Pei & Partners' Henry Cobb and James Ingo Freed have been given equal billing; Pei, Cobb, Freed & Partners is the New York firm's new name.

Deborah Dietsch, formerly executive editor at *Architectural Record*, has been named editor-in-chief of *Architecture*. She replaces Donald Canty, who has accepted the position of editor-at-large at *Architectural Record*—he will be covering the West Coast.

Louis Sullivan's 1914 Van Allen Department Store building in Clinton, Iowa, may be getting a new lease on life. Architects Crombie Taylor, Gyo Obata, and John Vinci have established the Van Allen Foundation with the purpose of buying and renovating the now-vacant landmark for use as a Sullivan museum/cultural center.

Britain's Prince Charles has revived his self-styled architectural crusade with the publication of his book *A Vision of Britain*, a continuation of the Prince's tongue-lashing of British architecture today. RIBA president Maxwell Hutchinson has struck back with a book of his own, *Building the Future: An Architect Replies to the Prince of Wales*. Hutchinson recently accused the Prince of deeming "honorable that which would have been considered cowardly half a century ago: the renunciation of the new in favor of the old."

The 1989 Lloyd Warren Fellowship-76th Paris Prize in architecture was awarded to Peggy McDonough of Notre Dame University by the National Institute for Architectural Education. The fellowship includes an $8000 prize for travel abroad.

The New York State Court of Appeals has ruled that a New York City law prohibiting the conversion or demolition of single-room-occupancy housing is unconstitutional on the grounds that the law sanctioned a "physical taking" of private property.

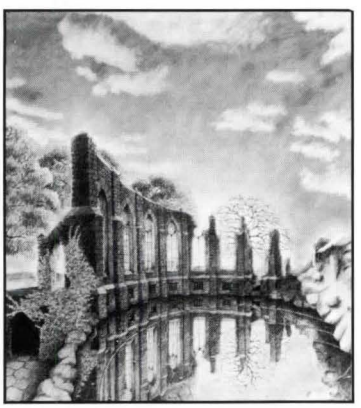
The 1988–89 AIA/ACSA Research Council-Otis Elevator Student Design Competition was won by Andrew MacKenzie Hull, Carleton University, with faculty sponsor *Tom Dubicanac*. The program, which called for a mixed-use development on a "historically sensitive" site in London, required that spiral escalators—currently being developed by Otis—be prominent in the design solution.

Library *(continued from page 25)*

grands projets "are connected to a site, to a history, in other words, to a space," designed his library around a newly defined space of its own, a 12,000-square-meter garden, calling such a space "the greatest gift for Paris today." The garden, traversed by aerial walkways through its treetops, is defined by four L-shaped glass towers—"like four open books facing each other"—each 80 meters high.

Although the towers seem to be a visible diagram of the library's four-part organization, the four sub-libraries are actually housed below ground and have glass walls facing the garden; the towers are for service spaces, offices, and stacks.

Besides Perrault, who was best known previously for his technical school at Marne-la-Vallée, three other finalists were chosen: the British firms James Stirling Michael Wilford and Future Systems, and Philippe Chaix and Jean Philippe Morel of France. Jean Nouvel and Rem Koolhaas received special mention from the international jury. ■



Ferriss Prize rendering by Dan Willis.

Third Ferriss Prize Awarded

Dan Willis of University Park, Pennsylvania, has been awarded the third annual Hugh Ferriss Memorial Prize for rendering, sponsored by the American Society of Architectural Perspectivists and Van Nostrand Reinhold publishers. Willis, an assistant professor of architecture at Penn State University, won for his pencil rendering of a memorial to Edgar Allan Poe.

The rendering is among many that will be on view at the Art Institute of Chicago through November 26, in the ASAP's annual exhibition. The show will then travel to Detroit, Toronto, and Montreal. The exhibition catalog is available from ASAP, 320 Newbury Street, Boston, Massachusetts 02115. ■

Robert C. Lautman

Washington National Cathedral, nearing completion after 82 years.

D.C. Cathedral Nearing Completion

The Washington National Cathedral will celebrate the laying of its final stone in September 1990, 83 years to the day after Teddy Roosevelt laid the first foundation stone in 1907. The scaffolding and construction crane that still festoon its nearly-completed south tower notwithstanding, the final form of the building is now discernible.

Pierre L'Enfant envisioned a church for this site in his 1791 plan for Washington, intending to serve all denominations, but he could hardly have anticipated the grandeur of the eventual result. Set atop Mount Saint Alban (where Wisconsin and Massachusetts Avenues intersect), the cathedral is arguably this city's most visible architectural landmark.

Officially named the Episcopal Cathedral Church of St. Peter and St. Paul, the church has been visible from many distant points in and around Washington since completion nearly 25 years ago of its 676-foot-high central tower—still the highest point in the District of Columbia. The building is the second largest cathedral in the United States, after St. John's in New York, and ranks sixth in the world.

Although a succession of architects and artisans contributed to its design, the main work, executed in the 14th-Century English Gothic style, is attributed to Boston architect Philip Hubert Frohman. The cathedral design has long been considered complete, although to this day a number of firms and individuals have served as consulting and superintending architects to finish various unresolved details.

The majority of the building's construction has taken place since 1953, under the stewardship of Canon Richard Feller. His official title, clerk-of-the-works, indicates the extent to which the enterprise is rooted in traditions and crafts of a distant past. Feller says that he was attracted to the cathedral project as a young man out of a devotion to perfection and quality, which are evident throughout.

The cathedral employs the stone-on-stone, load-bearing construction techniques that are characteristic of centuries-old European counterparts. Only in the areas of mechanical lifting, which involve the use of modern tower cranes, and stonecarving, which employs pneumatic hammers for all but the finest figure work, have concessions been made to contemporary building methods.

Built by generations of skilled masons, carvers, carpenters, laborers, and helpers—many brought from outside of the United States, notably from Italy and Scotland—the cathedral is built of Indiana limestone, chosen nearly a century ago for its color and plentiful supply.

The building is distinguished by, among other things, its abundant and exceptionally detailed architectural stonecarving, attributable not only to the building's intricate Gothic design, but results also from the relative softness of limestone, which permits greater relief and detail

than harder stone used on many European cathedrals. The figure carving on the cathedral's more than 100 gargoyles and 320 angels is also remarkable for its fineness and for the richness of its subjects.

Over the years, the various committees and churchmen concerned with completion of the cathedral have managed to sustain an original vision of a wholly-unified design in the High Gothic tradition. This aim is helped by the continuity of the limestone's appearance, which contributes also to the cathedral's sense of great scale.

On several occasions it appeared that funds needed to complete the project would never be forthcoming. Work was halted completely at least twice over the past eight decades. Once, in the 1970s, prospects for completion seemed very dim indeed. Still, Feller scoffs at what he says is the myth that cathedrals are never finished. "Well," he says, not without a wistful note, "this one is." What a welcome outcome that is.

Thomas Vonier ■

Times Square *(continued from page 25)*
The design also suggests Post-Modernism in its adoption of the "decorated shed" idea, especially when one observes the seeming facility with which Burgee swapped a historicist motif for one he says "can be said to parallel Russian Constructivism."

Regardless of the value of the architecture, the revised towers are but new bottles for the old wine—4.1 million square feet of speculative office space—that critics say could destroy Times Square while trying to save it. More importantly, they are of essentially the same excessive size as the original towers. This is clearly a project that needs a second look in terms of bulk more than cosmetics.

Mark Alden Branch ■

Soviets View American Design

Thirty years after Richard Nixon and Nikita Khrushchev squared off in the famous "kitchen debate" at the American National Exhibition in Moscow, the United States Information Agency has sent another kitchen to Moscow—along with a 13,000-square-foot exhibition on design in America. "Design USA," an exhibit that covers current trends in American architecture, product design, graphic design, and design education, opened in Moscow on September 4, and will travel to nine Soviet cities.

"Design USA" attempts to go beyond Cold-War-era propaganda with an emphasis on "information exchange." To that end, a library of design-related books for the perusal of Soviet professionals is a central part of the exhibition, and the 24 Russian-speaking guides on the tour have undergone a five-week training program in design at Carnegie Mellon University.

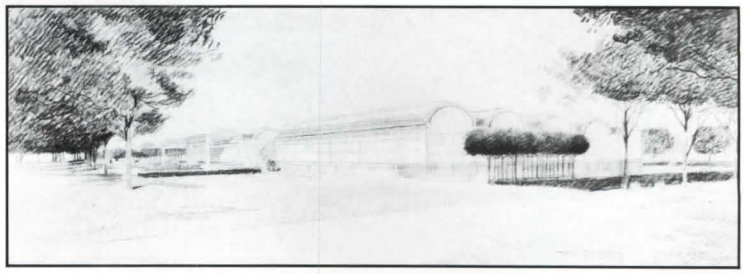
The exhibition's architecture portion includes video tours of six American cities, a section on urban design featuring a model of Skidmore, Owings & Merrill's Rowes Wharf development in Boston, a section on housing, and—tempting the Soviets with appliances once again—a full-sized, fully equipped American kitchen. As part of the exhibition's emphasis on the design process, Kohn Pedersen Fox is

Design USA, exhibition by Mockbee-Coker-Howorth, Communication Arts.

featured in a display on architectural practice. Highlights of the other sections include video disks of American advertising campaigns, a complete graphic design studio, and a 1989 Corvette.

The exhibit design, by competition winners Mockbee-Coker-Howorth Architects and Communication Arts Company of Jackson, Mississippi, divides the exhibition into its four parts with a pair of corridors that meet in a rotunda, which serves as the library. Architect Tom Howorth said the blue-walled corridors provide contemplative space to counteract the density of the information in the exhibits.

In accordance with a 1985 cultural exchange agreement, the USSR is also sending an exhibition to the US focusing not on design but on the current changes in the Soviet Union. "USSR: Perestroika" will open in Orlando, Florida, in December. ■



Kimbell Museum expansion (foreground) by Mitchell/Giurgola and Thorp.

More Vaults for Kahn's Kimbell

The Kimbell Art Museum has announced plans to add two 14,000-square-foot gallery wings by Mitchell/Giurgola and Thorp Architects, Canberra, Australia. They will be the first-ever additions to the museum, which was designed by the late Louis I. Kahn and built in 1972. "We had to think about the space we needed for the future, bearing in mind our responsibilities to this great building," said Director Edmund Pillsbury.

In an extraordinarily self-effacing proposal (prepared with architectural engineer Frank Sherwood, Fort Worth), designer Romaldo Giurgola went back to Kahn's early schematic designs; his additions extend Kahn's vaulted galleries to the north and south in five-vault groups that replicate the massing and forms of the existing gallery areas. "It was almost as if Kahn had left 'design intent' instructions for how the museum could be expanded," Giurgola writes in his schematic design description. The additions will be joined to the existing structure by 20-foot-wide flat-roofed "links" that preserve the proportions of Kahn's original vault modules while separating old from new.

Nevertheless, the new additions will make substantial changes to the Kimbell: The sculpture garden by the late Isamu Noguchi will be moved close to the museum's west entrance, and covered parking areas will be created under the new galleries. Also, a light well in the new covered parking area will pull visitors to Kahn's ceremonial west entrance; most visitors now enter through what was intended primarily as a staff entrance.

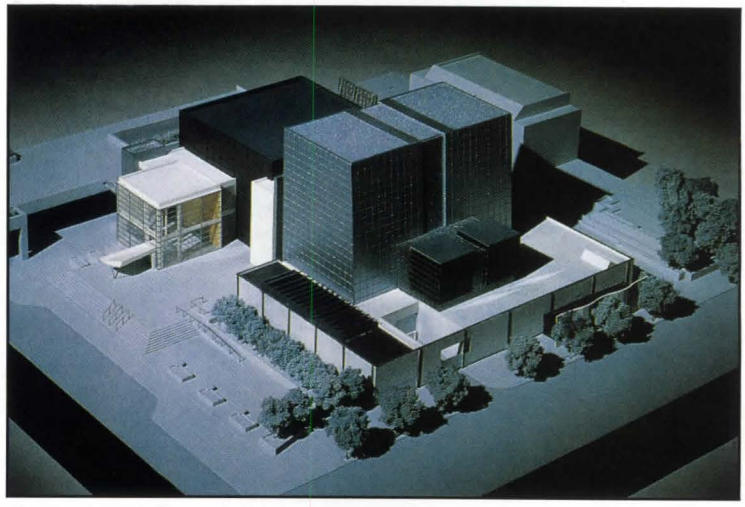
Plans call for construction to begin next summer and to be completed by the fall of 1992. The anticipated $8 million cost has already been raised from private sources.

Joel Warren Barna ■

SF Tries Again With Yerba Buena

The cultural center and landscaped esplanade that was planned for the San Francisco Redevelopment Area called Yerba Buena Center 30-odd years ago is at long last approaching reality. The Visual Arts Center, designed by Fumihiko Maki and Associates with Robinson Mills & Williams, and the Yerba Buena Theater, designed by James Stewart Polshek and Partners, will occupy the east side of YBC's Central Block 2, which is bounded by Mission, Third, Howard, and Fourth Streets. Running through the middle of this block and linking the three central blocks internally is the esplanade, designed by Mitchell/Giurgola Architects, Philadelphia. If all proceeds as

(continued on page 28)



Jock Pottle/ESTO

Theater at Yerba Buena Center by James Stewart Polshek & Partners.

Fumihiko Maki's Visual Arts Center at Yerba Buena.

Yerba Buena *(continued from page 27)*
planned, it will have been worth waiting a few decades for what promises to be a benchmark in the city's architectural and urban design history.

The current plan replaces two earlier proposals (1969 and 1984) that suffered legal challenges and financial problems. Olympia and York awarded the projects to the present architects in 1985. The schematic design phase, which began in 1986, had to take into consideration the expansion of the Moscone Convention Center now in construction under Central Block 2.

The consultation among the architects from the four offices involved in the design has produced harmony without limiting individual expression. Because the visual arts and theater buildings address two major streets, the esplanade, and each other with equal emphasis, their designers have given them sculptural compositions with edges but no fronts or backs. Both buildings have several entrances and corners cut out for public plazas. The counterpoint of voids and solids created by the articulation of the two buildings suggests free movement around the buildings and into the esplanade.

The esplanade itself has two distinct edges. The east edge which enjoins the cultural center buildings is the dynamic or "romantic" one, from which an irregular grove of trees strays into the middle of the meadow-like central space. The western edge is a formal allée with its trees spaced according to cavities in the waffle slab of the new underground structure's roof. The formality is also a response to the uniform edge of the retail buildings that will line Fourth Street.

The cultural center is a new kind of institution for this city. Neither the theater nor the arts center will have a single or resident user. According to the newly appointed director, Gerald Allen, the facilities will be devoted to showing off the varied talent in the visual and performing arts fields that at present has little chance for public exposure. This open-ended approach to programming is reflected in the buildings, where spaces have been designed to serve several kinds of productions and exhibitions.

Maki's three-story Visual Arts Center is a modest, horizontal building with silvery, aluminum-clad walls anchored to its site by a five-foot granite base. The roofscape is enlivened by three glazed monitors and a tower with a mast piercing its roof. The elevation facing the esplanade bows to the de Stijl movement in an abstract composition of solid, geometric elements set in the grid of a window-wall.

The center will have three galleries, a 7500-square-foot forum with a wide range of events from receptions to concerts to theater, and a 100-seat video and film theater. By allowing the gallery functions to overflow their respective spaces and even to spill out-of-doors, the architects hope to merge the internal life of the building with the public realm outside and thereby to realize the civic vision of the facility.

Polshek's 750-seat proscenium theater is an assemblage of separate parts around the house and stage volumes. Like the arts center, it uses reflective materials to heighten the responsiveness to its surroundings. Here the colors are white and black with accents of red and yellow. The main materials are charcoal gray tile panels with red metal reveals for the house, matte aluminum panels for the stage and fly volume, and white enameled cladding for the stair tower.

The construction schedule for the cultural center buildings and the esplanade will depend on completion of the Moscone Center expansion. With any luck—and this area certainly deserves some—construction will start in 1990. Sometime early in the 1990s, the century-old prophecy that San Francisco would one day have a vital center south of Market Street will be fulfilled. Stay tuned . . .

Sally Woodbridge ■

Domino's 30: The Ins, the Outs

Thomas Monaghan, the pizza magnate, has enrolled a selection of the world's leading architects into his annual court of honor: the Domino's 30. A shrewd businessperson as well as an architecture aficionado, he has simultaneously promoted his fast food franchise and his image as an enlightened patron: The number 30 refers to his half-hour pizza delivery; the quantity of architects enrolled suggests that Monaghan's architectural interests do not end with Frank Lloyd Wright.

Monaghan's pronouncement bears a second agenda—one that is more subtle and intriguing. While architects and critics fault superficial media coverage of the design fields, Monaghan exploits journalists' appetite for news items and uses them to broadcast his rapport with big league architects. He has rendered the announcement of each year's register a media event to kick off the Frank Lloyd Wright symposium he hosts in Ann Arbor, Michigan.

Most likely, the Domino's 30 appreciate the press coverage and the award sculpture (perhaps an alternative to the Oscar) that accompanies their nomination. However, they probably put more value on the prospect of a building commission from Domino's Pizza or those who will build mini-estates in The Settlement, a Monaghan-sponsored suburban development near Ann Arbor. Monaghan also invites other patrons to refer to his list so that more high caliber designs can be built.

The 30 ought not to assume that their tenure as Monaghan laureates will be lengthy. The list, like Monaghan's nominating committee, has changed dramatically from 1988 to 1989; one hopes that a revolving door pattern for architectural honors does not ensue. The roster is a strategic media event, but its yearly revisions contradict the slow maturation of an architectural practice. It takes years to design and construct buildings; architectural careers are not suited to annual reviews and press conferences. ***Philip Arcidi*** ■

Copyrights Sought for Architecture

A report delivered to Congress this summer by the U.S. Copyright Office concludes that United States law needs modification to ensure adequate protection for works of architecture.

Coinciding with the issuance of the report was an application filed by the Frank Lloyd Wright Foundation seeking copyright protection for several of Wright's designs. Experts in copyright
(continued on page 30)

DOMINO'S 30 ARCHITECTS: 1988/1989

1988	1989
Tadao Ando	Tadao Ando
Gae Aulenti	Arquitectonica
Edward Larrabee Barnes	Edward Larrabee Barnes
Gunnar Birkerts	Mario Botta
Arthur Erickson	Joseph Esherick
Aurelio Galfetti	Norman Foster
Frank Gehry	Frank Gehry
Michael Graves	Michael Graves
Charles Gwathmey	Gwathmey/Siegel Associates
Hugh Hardy	Herman Hertzberger
Hans Hollein	Steven Holl
Arata Isozaki	Hans Hollein
Philip Johnson	Arata Isozaki
Fay Jones	Helmut Jahn
Henning Larsen	Koning Eizenberg
Fumihiko Maki	Rem Koolhaas
Richard Meier	Ricardo Legorreta
Charles Moore	Fumihiko Maki
Jean Nouvel	Richard Meier
I.M. Pei	Mockbee-Coker-Howorth
Cesar Pelli	Rafael Moneo
Renzo Piano	Morphosis
Reima Pietila	Jean Nouvel
Kevin Roche	I.M. Pei
Richard Rogers	Cesar Pelli
Paul Rudolph	Renzo Piano
James Stirling	Richard Rogers
Benjamin Thompson	Aldo Rossi
Aldo Van Eyck	James Stirling
Robert Venturi	Robert Venturi

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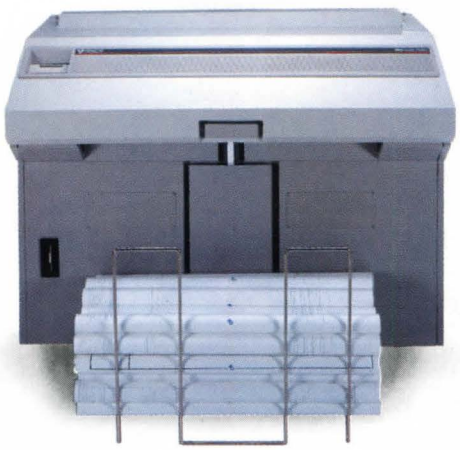

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Copyright *(continued from page 28)*
law agree that architectural plans, sketches, drawings and three-dimensional models are protected under existing law but say that courts generally have been unwilling to prohibit unauthorized construction of structures depicted in such documents and representations. Although courts have found infringement on architectural copyrights in some cases, ordering owners or builders to pay damages to the originating architect, problems have arisen in enjoining the actual construction of copied architectural works.

One difficulty with works of architecture is that, unlike other protected artistic works in such fields as painting, literature, and music, buildings usually have a significant and often overriding utilitarian dimension. From this vantage point, buildings may be regarded as what the 1976 Copyright Act defines and prohibits from protection as "useful articles." To qualify for protection under existing copyright law, a building's artistic aspects must be separable from its utilitarian aspects.

For this reason, a New York court recently held that owners "remain free to duplicate [buildings] depicted in plans unless and until the designs embodied in such plans are secured by patents." It is unclear just what, if anything, is patentable in an architectural design, although certain purely decorative aspects of designs apparently are eligible for protection by copyright.

These legal fine points may be engaged soon: On the same day that the copyright report was issued, the Frank Lloyd Wright Foundation applied for copyright protection of, among other Wright works, the Guggenheim Museum in Manhattan and Temple Beth Shalom in Pennsylvania. The Foundation's application request copyright protection for Wright's built works themselves, not simply for his plans, sketches, drawings, or models. Wesley Peters, who delivered the Foundation's apparently unprecedented application, did not say whether there was a case or a threat of infringement involved. The Foundation has previously litigated over rights to designs for architectural ornaments (see P/A, Nov. 1987, p. 118).

The report by the Library of Congress Register of Copyrights urges Congress to consider four options, including one that would not amend existing law, leaving eventual determination

(continued on page 32)

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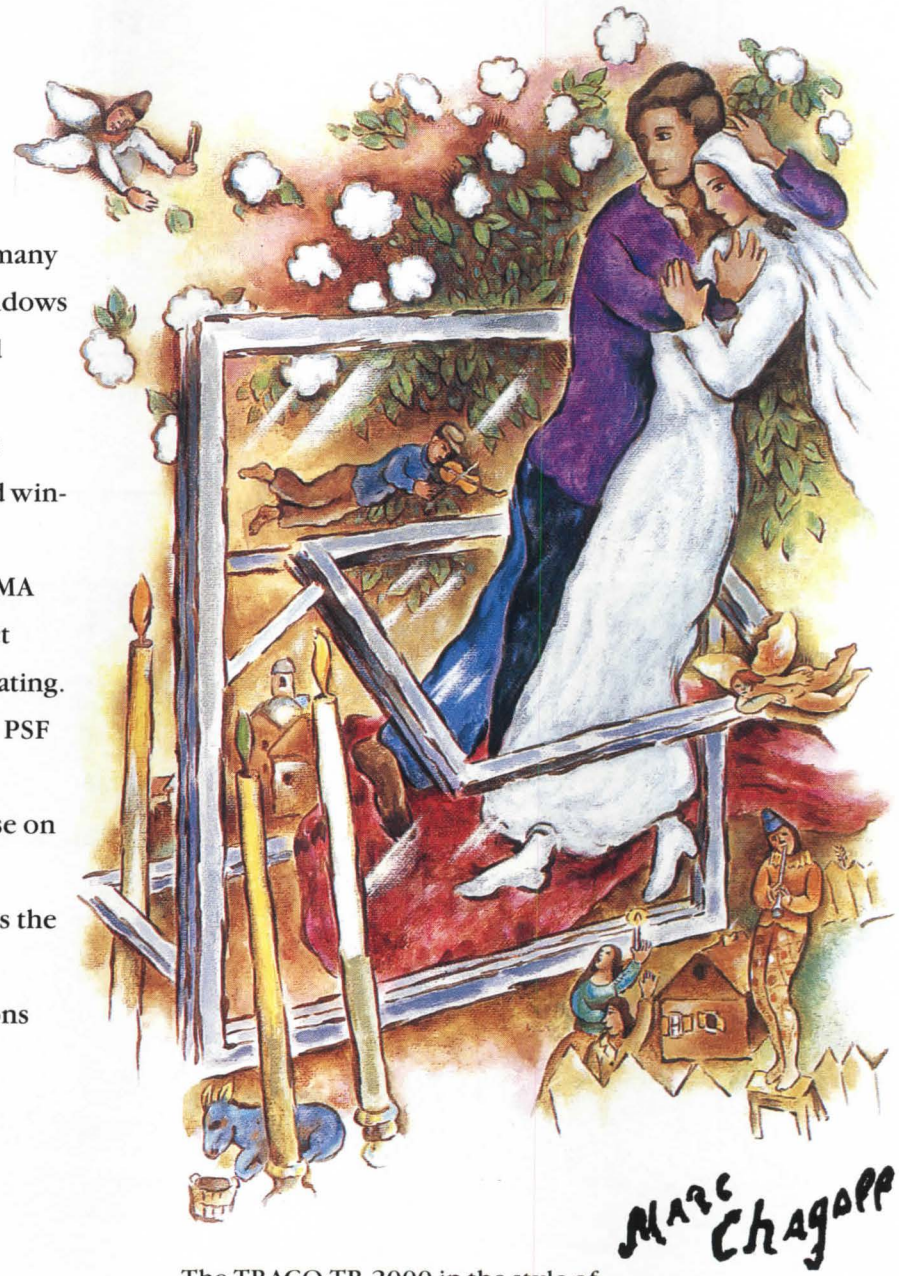

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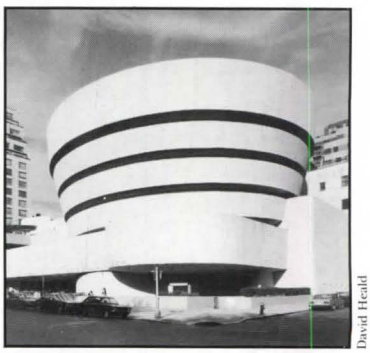
Copyright *(continued from page 30)*
of the extent of protection to precedents established in case law. The other options identified in the report are: drafting a new subject matter category for works of architecture in the Copyright Act, with "appropriate limitations"; excluding unique architectural structures from the definition of "useful article" in the Act, thus allowing



David Heald

Guggenheim Museum, candidate for copyright protection.

copyright protection for "certain exceptional buildings," but not for such quotidian structures as tract homes; and amending the Act to give the copyright owner of architectural plans the right to prohibit unauthorized construction of substantially similar buildings based on those plans.

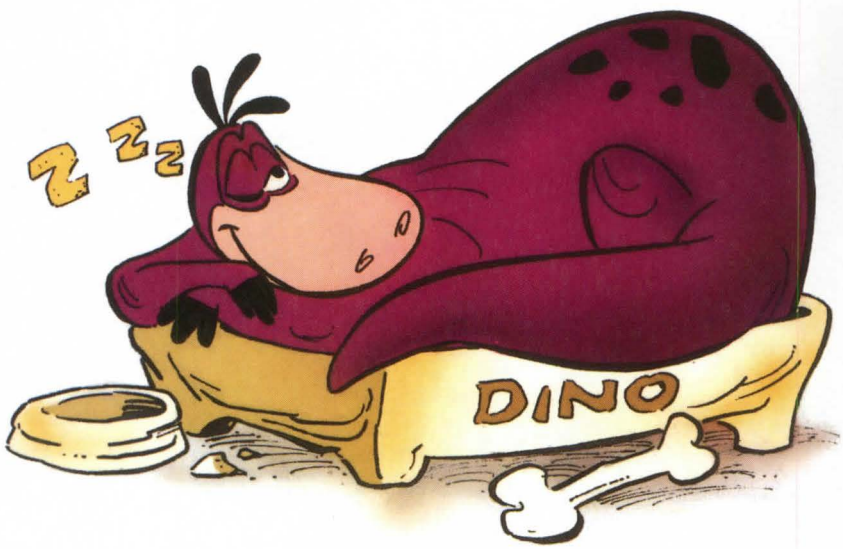
The report was received by Rep. Robert W. Kastenmeier (D-Wis), chairman of the House Subcommittee on Courts, Intellectual Property and the Administration of Justice. He expected Congress to take action on the matter in the near future but did not specify an exact timetable or indicate which option was most likely to be supported.

American Institute of Architects legislative affairs director Albert C. Eisenberg stated that the AIA had not yet decided which option to favor but stressed immediate concern with closing what many see as the loophole permitting unauthorized "copycat" construction.

Thomas Vonier ■

(News Report continued on page 34)

You just can't beat CarpetBoard for keeping things quiet.



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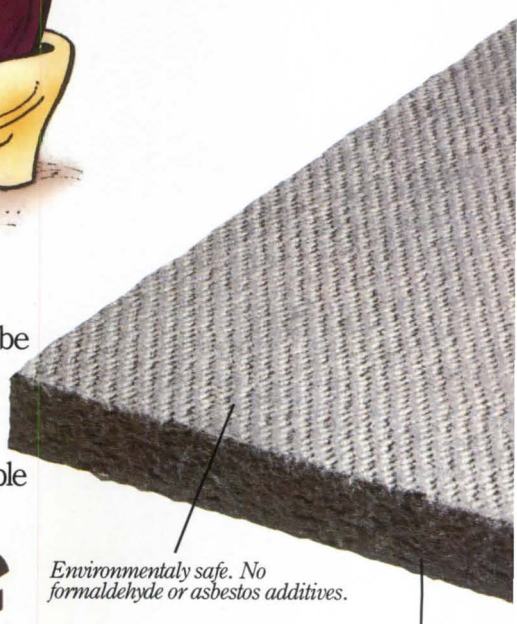

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Megamall *(continued from page 25)*
rink, a miniature golf course, an 18-screen movie theater, 100 restaurants and nightclubs, and a seven-acre amusement park.

When the mall is completed in the late 1990s, it will be the largest enclosed shopping/entertainment complex in the nation. It is expected to draw shoppers from all over the Midwest, as well as the hometown crowd from the Minneapolis/ St. Paul region. Because the mall is too large to cover on foot in a single day, planners expect people to spend two to three days to see it all. One thousand hotel rooms and mobile home hook-ups in the parking lot will provide accommodations for people expected to vacation here.

Simon's partner in the development is the Triple Five Corporation of Alberta, Canada which pioneered the shopping mall and amusement park concept with the 5.2-million-square-foot West Edmonton Mall (North America's current largest indoor shopping center). Using the Canadian mall as a model, Simon directed the architects, the Jerde Partnership of Los Angeles, to adopt the planning ideas normally applied to amusement parks. Like Disneyland, the mall will be divided into several theme "neighborhoods," each with a distinctive architectural style and special attractions. The differences, however, will be largely superficial. Although one section will resemble glamorous Fifth Avenue and another flashy Times Square (minus streetwalkers), people will see the same sweater from the same chain store in both "neighborhoods."

The mall's major attraction will be Camp Snoopy, an indoor amusement park with a four-story roller coaster and flume ride, managed by Knott's Berry Farm. Included will be a 70-foot steel-and-concrete mountain that will be visible from most vantage points in the mall.

With the American passion for things big, the spectacle of the Mall of America is not surprising, but where is the end of the road for increasingly overwhelming shopping complexes? Perhaps even more lavish and spacious megamalls will spring up as Americans continue to be drawn to them. But urban observer William Whyte, pondering the significance of the world's largest shopping mall, likens this new building type to the steamship: "Their most glorious manifestation came at the time when they were about to become obsolete." ***Julie Meidinger*** ■

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The contractor reports that the panelized walls, glued laminated girders and Southern Pine roof trusses cost from 10% to 15% less than steel bar joists and concrete. According to Western Auto, the wood component system helps stores open 30 to 60 days sooner than competitive systems. It also makes the buildings more adaptable for future changes and expansions.

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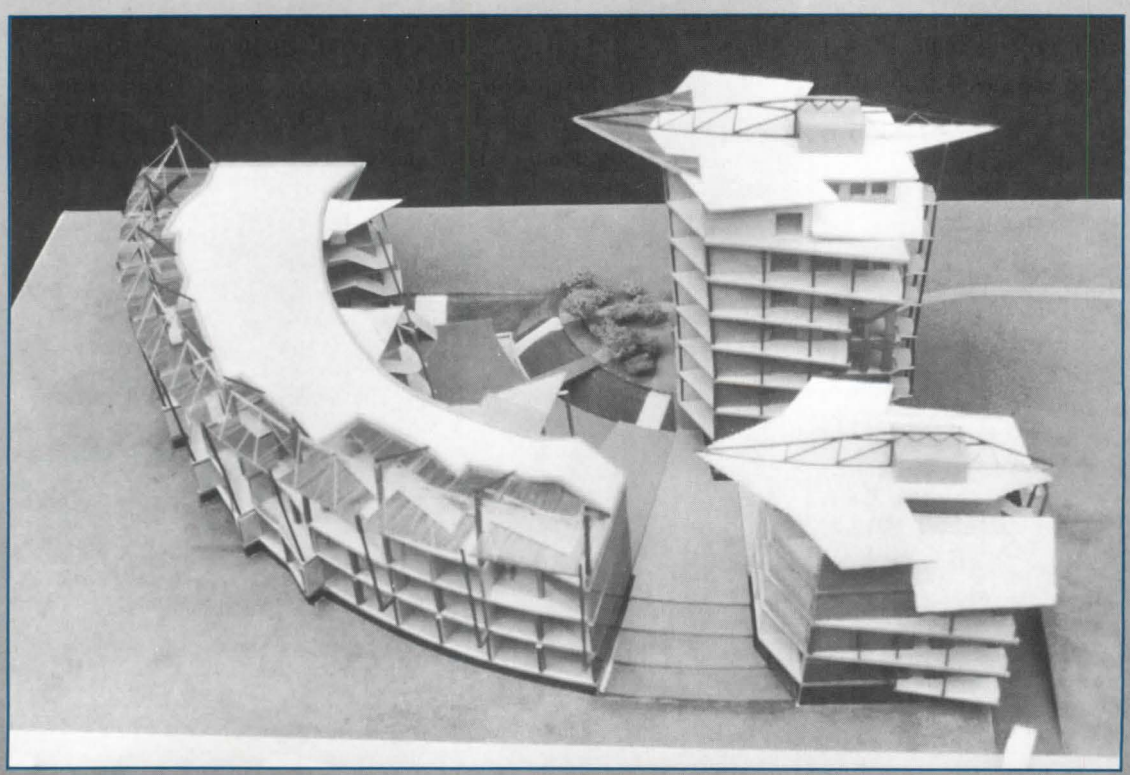
Perspectives

In the conference accompanying a Japanese housing exhibition, Western architects encountered a different outlook on urban design.

Model of Fukuoka-Jisho's Kashii site, with Isozaki towers and condominium buildings by, left to right, Holl, Koolhaas, Mack, Ishiyama, Portzamparc, and Tusquets.

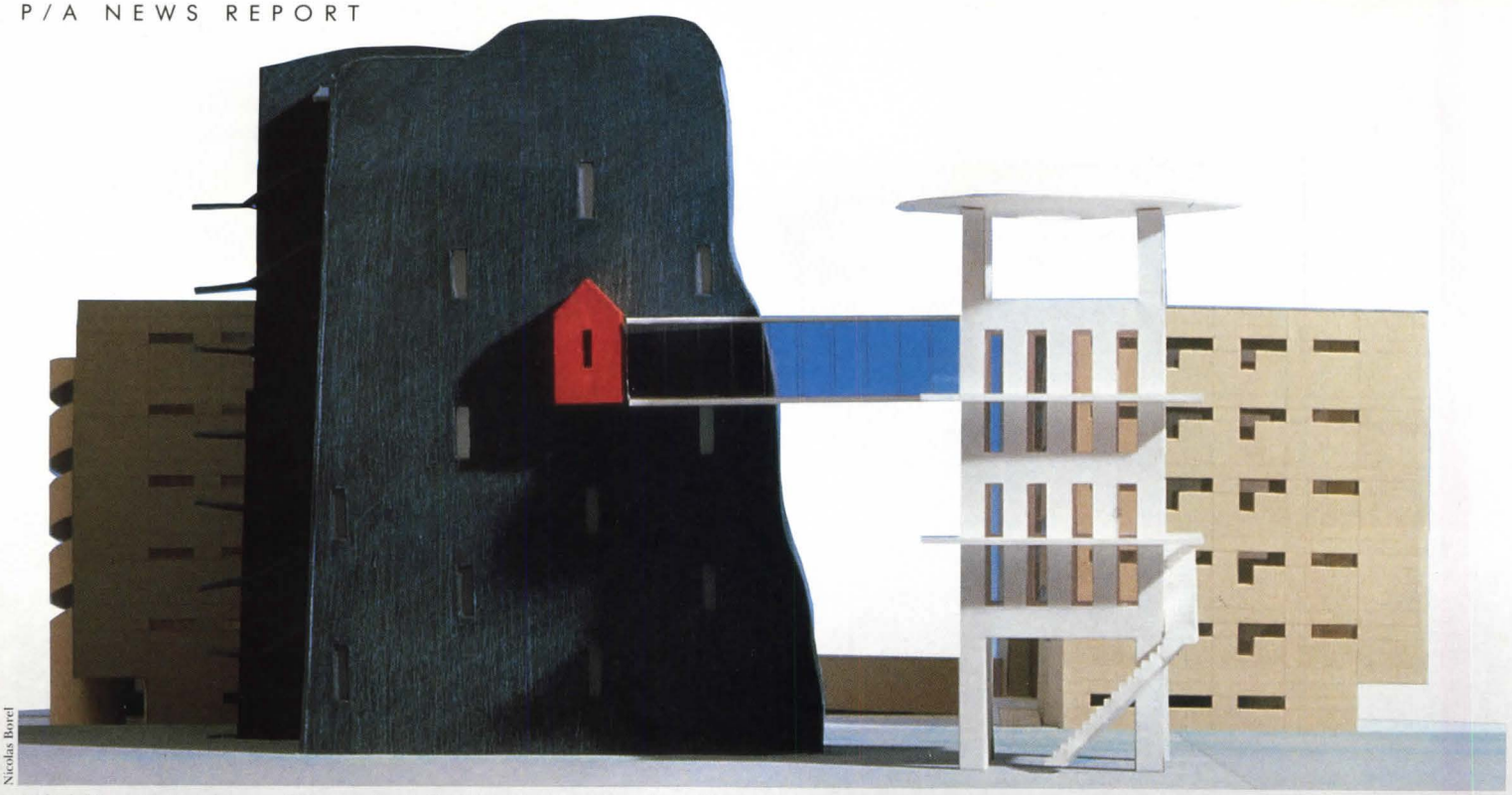


Osamu Ishiyama's building at Kashii, curved to gain more southern exposure.

"Mini-IBA" at Fukuoka

Until recently, contemporary buildings designed by foreign architects were as unknown in Japan as imported rice. But in the past three years American and European architects have been deplaning in Japan with increasing regularity. Last year, inspired by an exhibition in Tokyo of the Berlin IBA, the Fukuoka Jisho, a development company, imported seven Western architects to design a mini-IBA for Fukuoka, a major port city on Kyushu island. The company retained Arata Isozaki to advise them on planning the project and to organize an international conference of architects and critics. Held in Fukuoka on May 26 and 27, the conference addressed the topic "Architecture and the Contemporary City—Living in the Urban Environment." The agenda also included presentations of designs

(continued on page 40)



Nicolas Borel

"Black Mountain" and tower of Portzamparc's Kashii composition. (See also p. 25.)

Completed condominiums at Seaside Momochi by Tigerman (right) and Graves (left).

Graves's "bare-bones" building at Seaside Momochi.

Fukuoka *(continued from page 39)*

for the two building exhibition sites on land reclaimed from Hakata Bay.

One of the sites, Seaside Momochi, has a street lined with completed buildings. Leading the parade on one side are condominium buildings by Michael Graves and Stanley Tigerman. Graves's building addresses the corner in a conventional way with a tower element. The red Indian sandstone cladding and bare-bones quality of the design contrast with Tigerman's energetically deconstructed building next door. Across the street are commercial buildings by Kisho Kurokawa and Shoei Yoh. Yasufumi Kijima, Kan Izue, and Junji Mikawa designed the other three buildings. Construction will start in the fall at Kashii, the other site, on seven condominium buildings by Steven Holl, Osamu Ishiyama, Arata Isozaki, Rem Koolhaas, Mark Mack, Christian de Portzamparc, and Oscar Tusquets.

The architects' presentations of their designs for the housing projects on the first day of the conference provided the basis for broader discussion on the second day. Isozaki opened the discussion by stating that a concept of urban housing has yet to be established in Japan. The chaos in Japanese cities results, he said, from the sudden modernization of ancient village forms. An important component of the village, the single house-in-garden, is still every city dweller's ideal. The prime need in Japan's supercities is for new housing types that supersede both the no-longer-feasible traditional house and the undesirable high-density barracks built in the post-war period.

Despite a commonality of goals between East and West for creating new housing types, the actual discussion never really got beyond an attempt to define the role of urban design in the process. The commentary mainly illuminated the disparities between Japanese and Western cities in respect to urban patterns and lifestyles. While the Western architects proposed creating hierarchies of inner and outer spaces as the basis for an enduring urban order, their Japanese colleagues spoke of the paramount importance of invisible order, particularly in the age of electronic information technology. "The city is a state of mind," said Toyo Ito, "a fragmentary, floating sea of sensation. Its architecture is a perpetual regrouping of fragments." Shoei Yoh, a nationally prominent Fukuoka architect, echoed this attitude by estimating the life of Fukuoka's commercial buildings to be 20 to 30 years; he added that Momochi's buildings should be considered a removable implant.

The Western architects also criticized the use of the building exhibition concept in which, as Christian de Portzamparc gloomily observed, "each architect exhibits his obsessions in his project," rather than contributing to an integrated design for the ensemble. The rootless quality of the buildings extends to

(continued on page 42)

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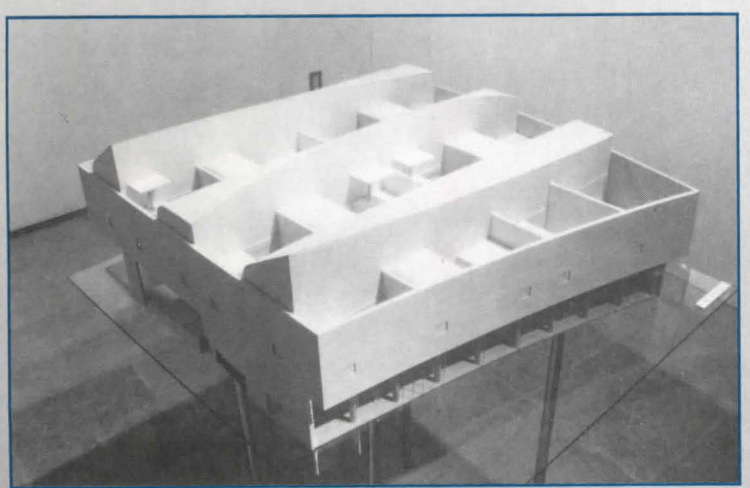
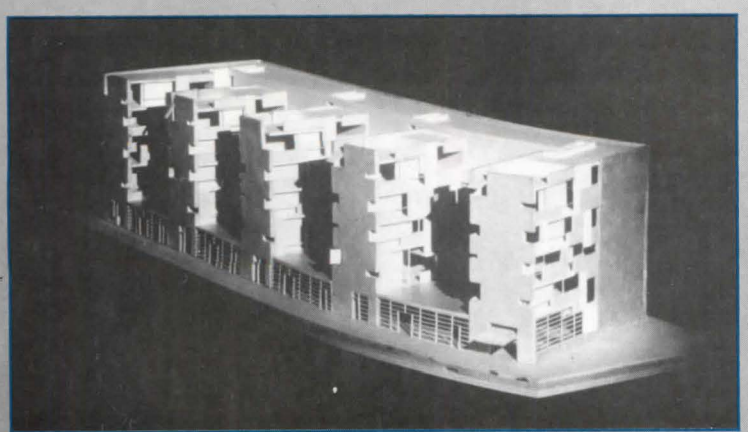
Mark Lohman

Mark Mack's Kashii project defines an urban plaza (right) and an interior courtyard.

Buildings by Oscar Tusquets close off the Kashii site's east edge.



One of two similar blocks by Rem Koolhaas at Kashii.



Steven Holl's Kashii project.

Fukuoka *(continued from page 40)*
the sites, which are discrete compounds unrelated to the rest of the city. The comparison with American theme parks is irresistible. But again, the Japanese seemed resigned to this situation, perhaps because the astronomical cost of urban land makes for an easy acceptance of buildings as movable pieces in the real estate Monopoly game.

Lacking opportunities to work together toward urbanistic solutions for Kashii as a whole, the architects have done their best on their individual sites to avoid having their buildings appear simply strung along the streets. Their solutions present a catalog of solutions to site design. To cope with the problem of sunlight access on the north-south site, Portzamparc devised a scenographic composition of four elements that progress from the street across a stagelike courtyard and a stream to a garden with a symbolic black mountain and a tower at the back. Ishiyama twisted his building to create more southern exposure for the units. Tusquets sited his buildings to strengthen the two corners of his site and provide gateways to a rear courtyard. Mark Mack's approach created an urban plaza for his street corner and a private courtyard behind by designing his structure as two distinct buildings.

Given a site split in two by the only street running through the block, Rem Koolhaas designed his two walled, courtyard buildings as gateway elements that provide a visual base for Isozaki's towers. According to Isozaki, the placement of these highrise buildings as the central focus for the site was more an afterthought than a determinant of the site plan. His slightly different towers, he said, express the failure of conversation as communication. Whatever that means, the buildings have little chance to communicate with their context, given the jump in scale.

As for the interior plans for the housing, Steven Holl's use of rotating hinged walls to create nine different unit types was the most inventive approach, giving interior spaces the flexible character that is most typical of the Japanese way of living.

Setting aside the question whether building exhibitions inevitably become architectural zoos, the conference provided a rare opportunity to hear some of the best and the brightest architects in the international sphere state their positions, even disagree, on important issues of mutual concern. On a practical level, several of the Westerners testified that they had seldom had better working relationships with developers and contractors. Stanley Tigerman, for one, was positively euphoric, saying that this was the best building experience of his career.

The faster architects jet around the shrinking globe, the more they are in danger of simply strewing images in their paths. If conferences like the one in Fukuoka were held before instead of after the design process, international architects might grow deeper roots.

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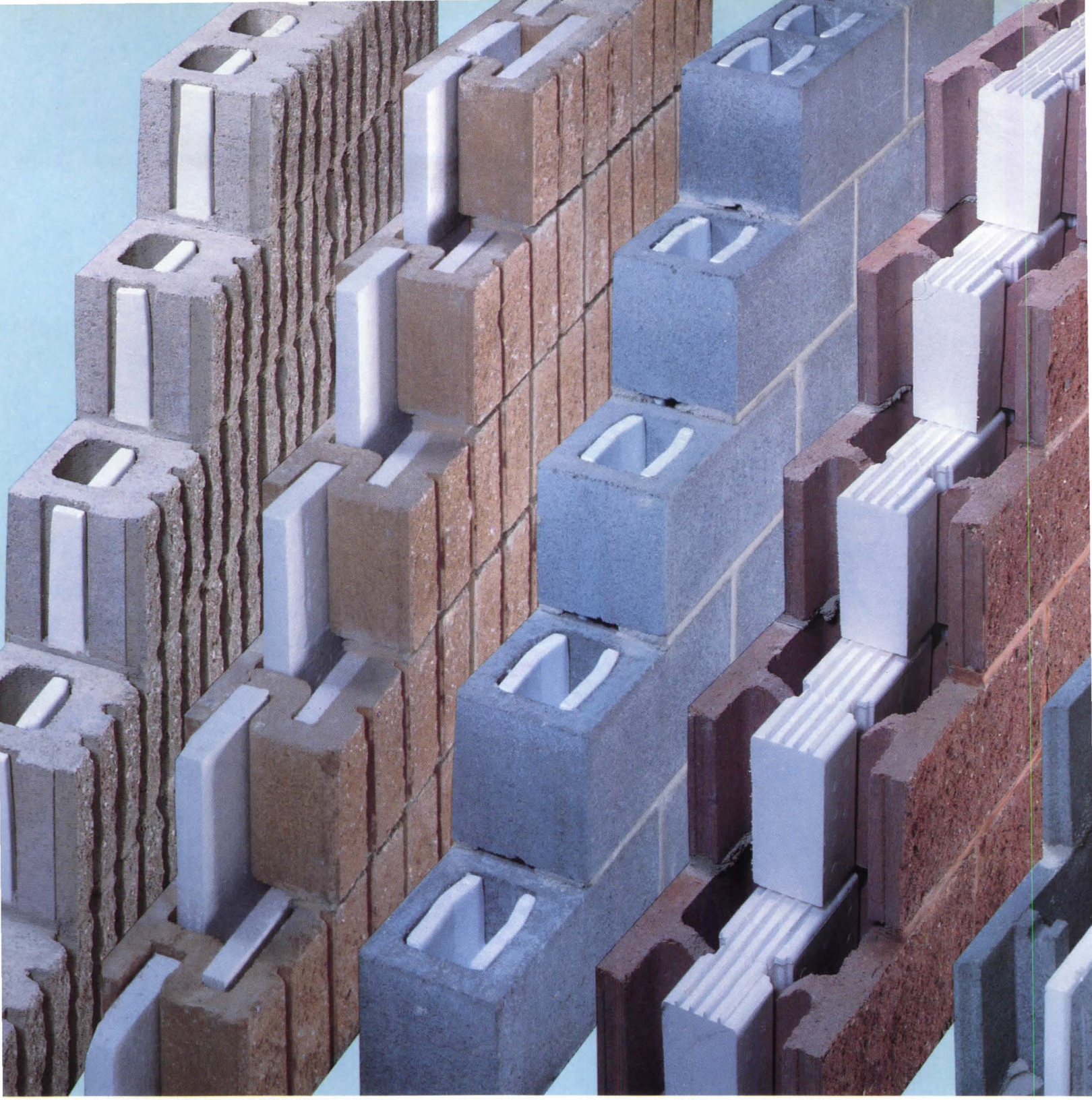

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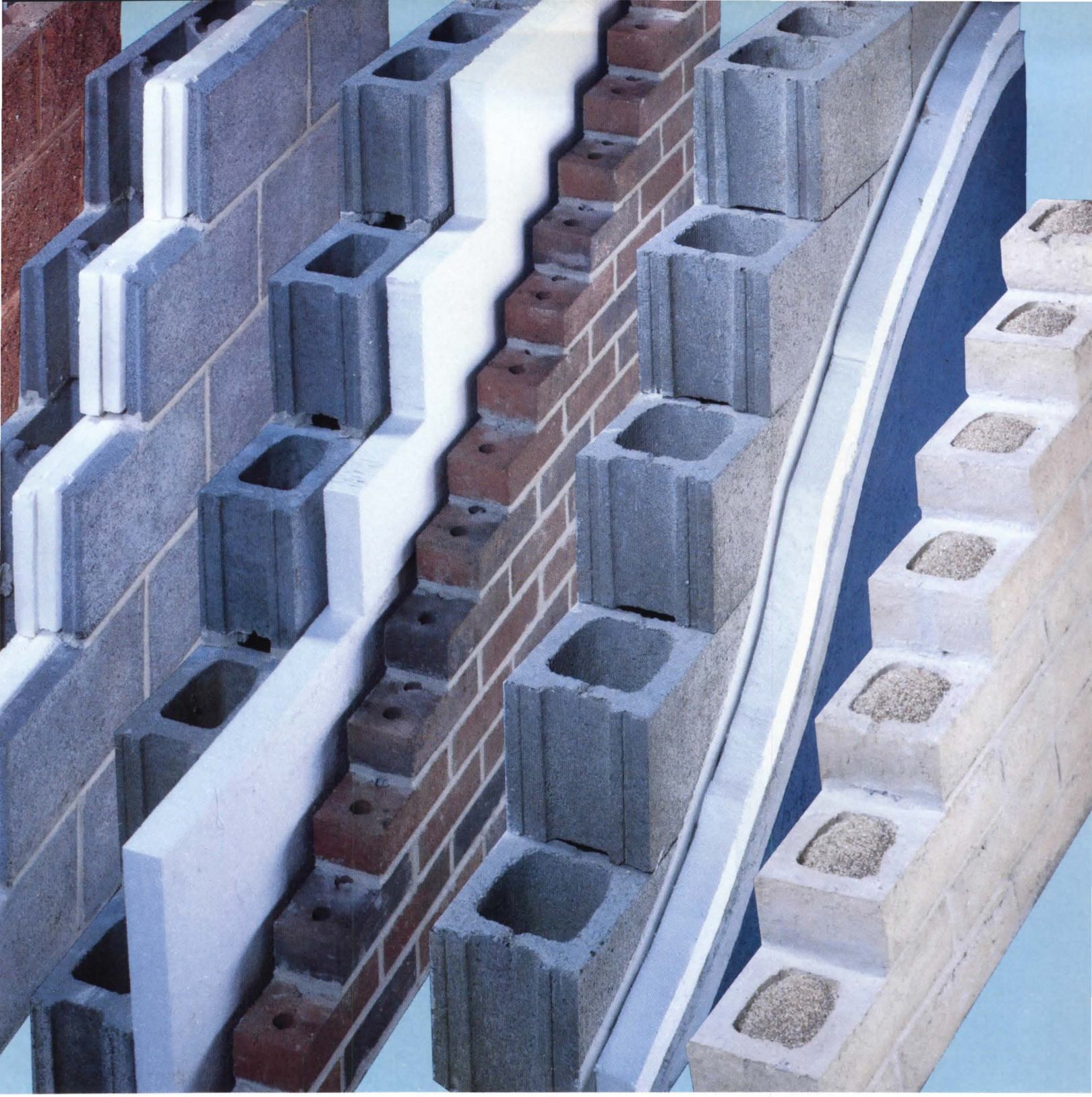

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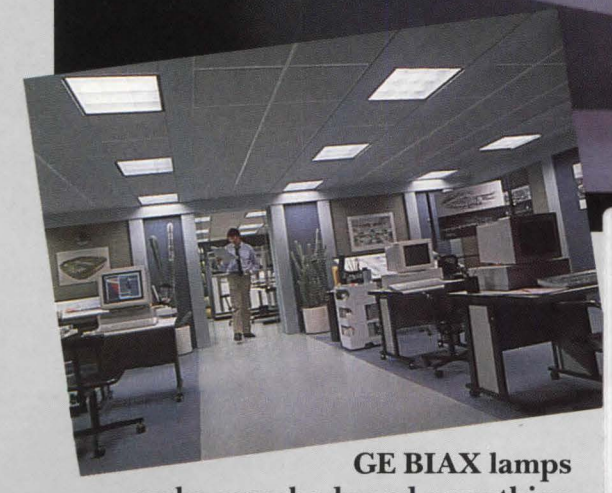

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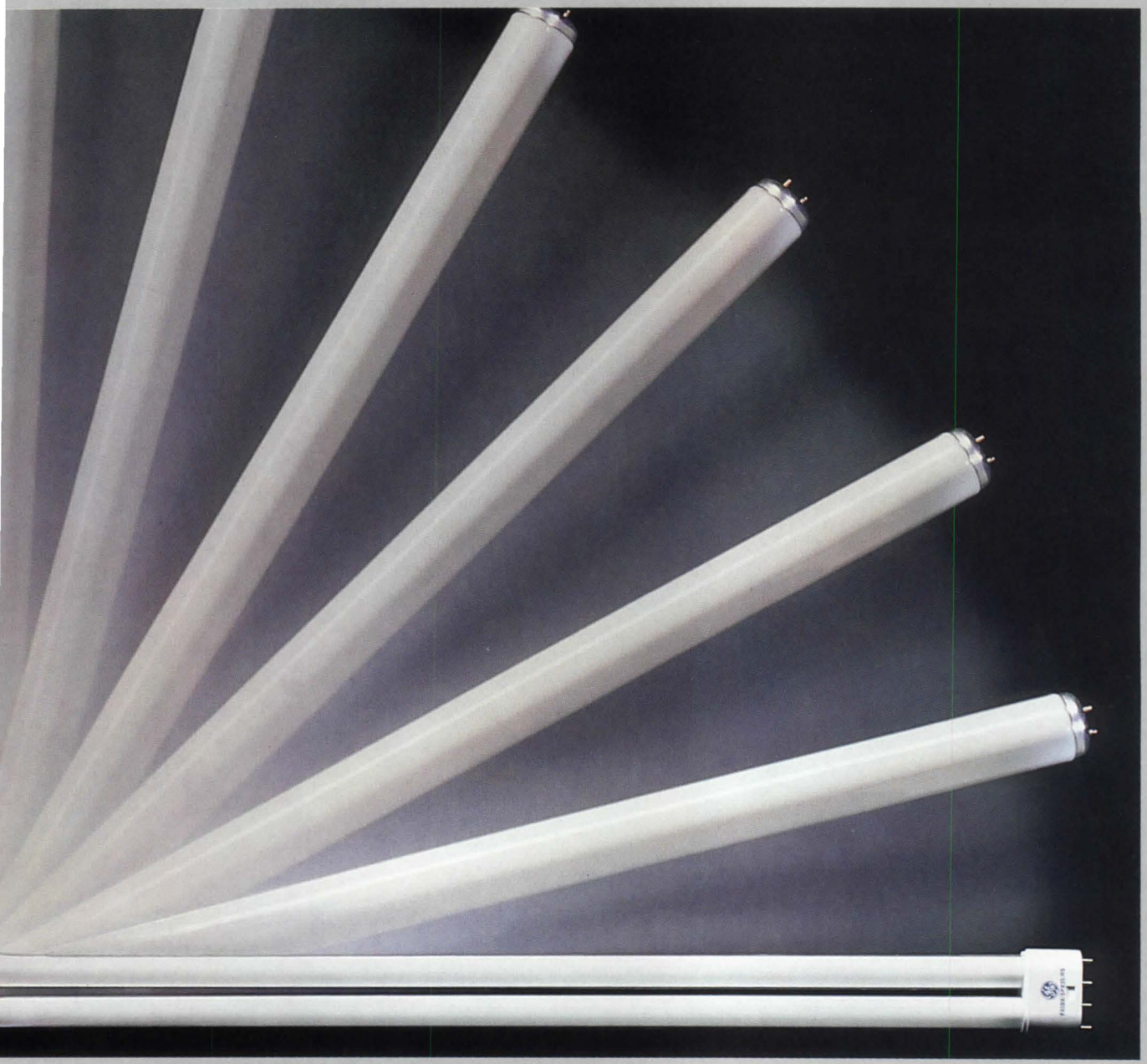

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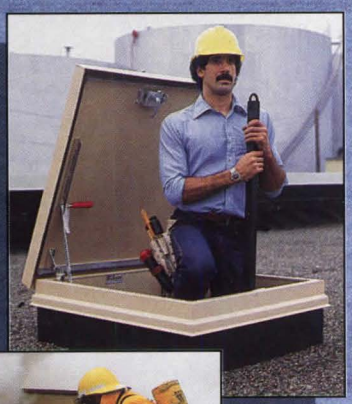

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P/A Calendar

"Cinétisation" of World Trade Center towers, New York, from "Pol Bury" at Prakapas Gallery through October 28.

EXHIBITIONS

Pei in Dallas
This is an exhibition of original materials—models and plans—of Pei's Meyerson Symphony Center and of Henry Cobb's Fountain Place. Dallas Museum of Art.
Through October 22.

Pol Bury
Belgian artist Pol Bury's "cinétisations"—photographs distorted through the incision of concentric circles—are on display. Prakapas Gallery, New York.
Through October 28.

Giovanni Battista Piranesi
"Exploring Rome: Piranesi and His Contemporaries" includes approximately 30 drawings by the 18th-Century architect plus works by Panini, Robert, Fragonard, and Robert Adam. Pierpont Morgan Library, New York.
Through November 6.

Arts & Crafts Movement
Among the 100-plus exhibits in the show—including furniture, ceramics, lighting, posters, and photographs—look for dining rooms by Charles and Henry Greene, Frank Lloyd Wright, and Gustav Stickley. Hirschl & Adler Galleries, New York.
Through November 18.

Pueblo Revival Architecture
This exhibition of over 400 drawings, plans, models, and furnishings traces the evolution of Pueblo Revival architecture and documents the career of its leading advocate, John Gaw Meem. Albuquerque, New Mexico, Museum.
Through November 19.

Architecture in Perspective
The fourth annual competitive exhibition sponsored by the American Society of Architectural Perspectivists and Van Nostrand Reinhold includes 59 drawings and paintings. Art Institute, Chicago.
Through November 26.

Case Study Houses
"Blueprints for Modern Living: History and Legacy of the Case Study Houses" documents the case study program initiated by *Arts & Architecture* magazine in 1945. Reconstructions, drawings, photos, and models of the prototype houses are on exhibition. Museum of Contemporary Art, Los Angeles.
October 17–February 18, 1990.

Peter Eisenman
An exhibition titled "Snakes & Ladders" will include recent works. (See this issue.) Max Protetch, New York.
October 28–December 2.

Moshe Safdie
A selection of models, sketchbooks, and photographs of the Ballet Opera House, Toronto, Museum of Fine Arts, Montreal, Hebrew Union College, Los Angeles, the National Gallery, Ottawa, and other projects are included in the exhibition. Harvard Graduate School of Design, Cambridge, Massachusetts.
October 31–November 24.

COMPETITIONS

Chain Link Fence Awards
The program, sponsored by the Chain Link Fence Manufacturers Institute, calls for work by architectural or engineering firms that demonstrates innovative use of chain link fencing. Contact CLFMI, 1776 Massachusetts Ave., N.W., Suite 500, Washington, D.C. 20036 (202) 659-3537.
Entry deadline November 1.

CSI Competition
The Construction Specifications Institute has announced its 1990 Specifications Competition. The competition is a call for entries from construction industry professionals "who prepare quality written construction documents." Contact CSI, 601 Madison Street, Alexandria, Virginia 22314-1791 (703) 684-0300.
Entry deadline November 7.

Reynolds Memorial Award
Entries for this annual award must use aluminum in a substantial way. Preference will be given to work completed in the three years prior to January 1, 1990. Contact R.S. Reynolds Memorial Award, American Institute of Architects, 1735 New York Avenue, N.W., Washington, D.C., 20006 (202) 626-7300.
Nomination deadline November 13, submissions due December 18.

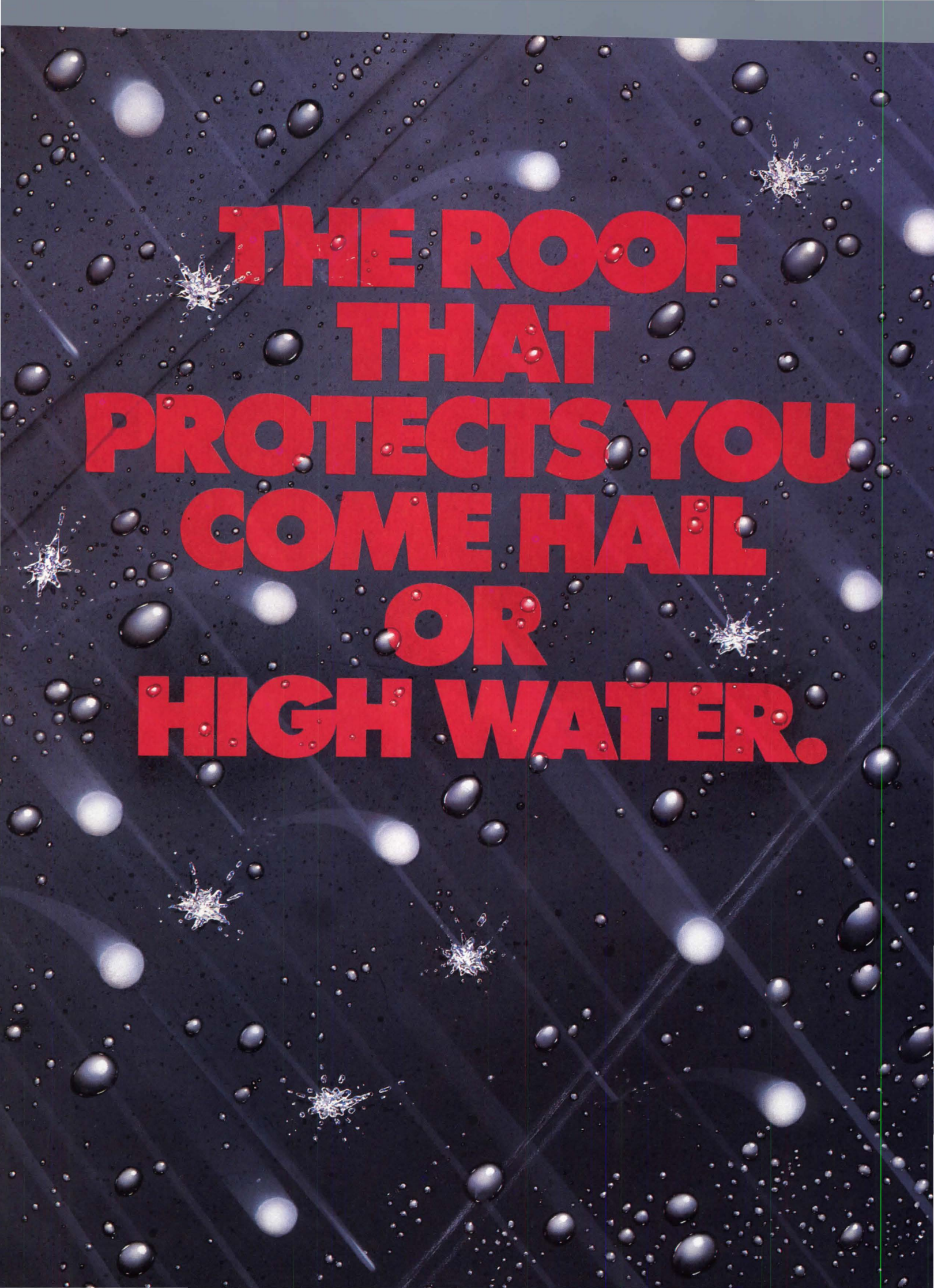
Rome Prize
The American Academy in Rome has announced its 1990–91 Rome Prize Fellowship Competition in the fields of architecture, landscape architecture, design arts, historic preservation, and urban planning and design. Fellows receive a stipend and compensation for related expenses during independent study in Rome. Contact Fellowships Coordinator, American Academy in Rome, 41 East 65th Street, New York 10021-6508 (212) 517-4200.
Application deadline November 15.

CONFERENCES

National Trust
Affordable housing is the focus of discussion at the National Trust for Historic Preservation's 43rd annual conference in Philadelphia. Renovation of existing housing stock in historic and older neighborhoods, both urban and rural, is the main topic of discussion. Contact NTHP, 1785 Massachusetts Ave., N.W., Washington, D.C. 20036.
October 11–15.

Master-Planned Communities
Subtitled "Shaping Exurbs in the 1990s," this conference, held at the University of Washington, Seattle, brings together professionals currently involved in "edge city" development and other large-scale projects. Presentations, discussions, and workshops on land use and regulation controls, urban design patterns, and other issues will be included. Contact Anne Vernez-Moudon, Dept. of Urban Planning & Design, 410 Gould Hall JO-40, University of Washington, Seattle, Washington 98195 (206) 543-4190.
October 20–21.

Urban Development
The International Federation for Housing and Planning is holding its annual conference in Chiba, Japan. This year's theme is the "Changing Roles for the Public and Private Sectors in Urban Development." A variety of events, from symposiums to workshops, is scheduled. Contact IFPH Congress Department, 43 Wassenaarseweg, 2596 CG The Hague, Netherlands tel. 281504/244557.
November 13–17.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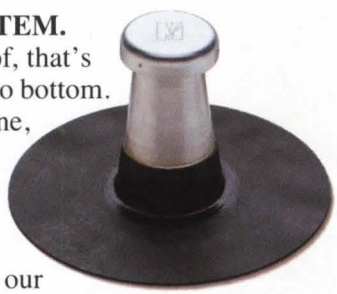

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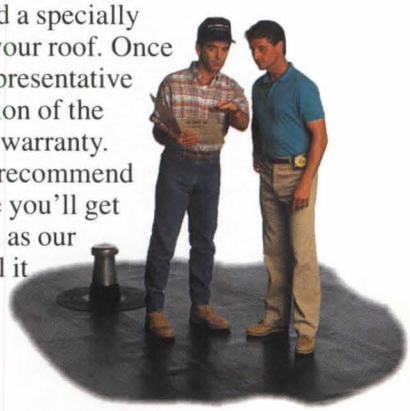

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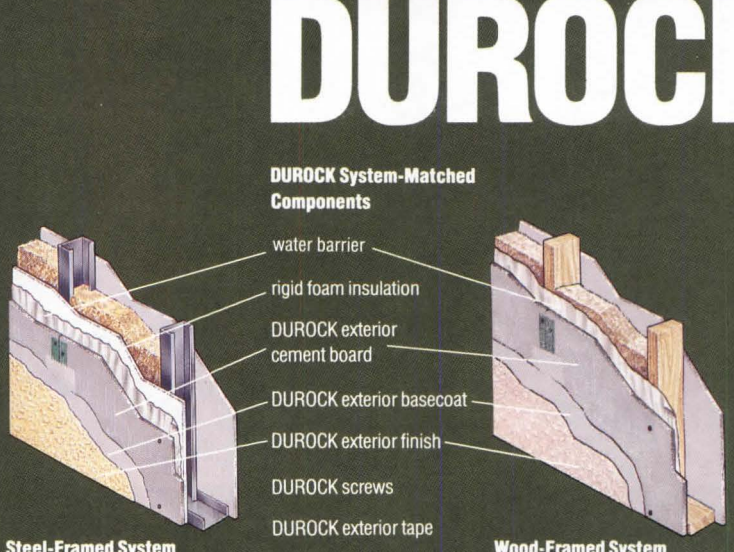

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P/A Practice

Management: The Coxe Group discusses a case in handling profits.
Specifications: Walter Rosenfeld considers the aspects of elevators.
Drafting: William Malpas suggests changes to drawing conventions.

Illustration: Kristin L. Reid

Management: Dividing Profits

As increasing numbers of firms are now able to charge what they are worth, they are making greater profits and finding the allocation of these profits a management issue. A case in point (with the real identities changed) is Able Baker Architects.

Background
Arthur Able established the firm in the early 1950s and over the years focused on institutional work—educational, health care, and government projects. As the firm grew to a staff of around 20, Able devoted most of his time to client relations and marketing and developed two key project managers to carry out the work. Able invited them, in the early 1970s, to become owners at 5 percent each.

By the early 1980s, Able was approaching the age of 60 and realized that his two junior partners, while excellent technically and at serving clients, were not developing into the kind of client leaders and marketers who would assure the continuation of the firm. Able began to have conversations with Basil Baker, a 40-year-old architect whom Able had known since he served on a jury at Baker's architectural school. Baker was a rising star who made a specialty of adaptive use and historic preservation. He was in demand as a speaker at client and professional conferences, and he had obtained work in ten states for the large firm in which he was a senior vice president. That firm, however, was publicly owned and Baker did not want to be an employee forever.

On January 1, 1981, Baker joined Able as an equal, senior partner with a 45 percent interest in the firm, whose name was changed to The Able Baker Partnership.

Key Developments
The partnership was an instant success. Within two years Able/Baker had grown to a staff of 40

(continued on page 54)

Specifications: The Packaged Elevator

While elevator, escalator, and dumbwaiter specifications are often written or at least heavily influenced by manufacturers and their representatives, the architect still has the overall responsibility to review what has been proposed and to coordinate these critical sections with the rest of the project manual. Though larger and more complicated buildings generally require the use of elevator consultants, low-rise schools, smaller commercial buildings, and multifamily housing often make use of standard "packaged" elevator units for common situations, including the need to facilitate access by the physically handicapped. Usually hydraulic-electric designs, these packages use equipment readily available off

(continued on page 56)

Drafting: Information on Drawings

Construction drawings must express declarative ideas about buildings in the procedural language of measurement. The terms declarative and procedural are borrowed from computer science and can be briefly defined as follows: The statements in a declarative description have no particular order or sequence; all statements are true, and all relationships are valid. In contrast, the statements in a procedural description must be evaluated in the same order in which they occur. Measurements are procedural in that they have a starting point, a direction, and a length.

Designers encounter a fundamental problem when they try to express a declarative design in procedural terms, such as the measurements on a working drawing. Anything that depends on sequence in construction tends toward the unpredictable.

Even aspects of construction that, given adequate supervision, conscientious workers, and quality materials, ought to be predict-

(continued on page 58)

Practice Points

Annual remodeling expenditures in the U.S. will rise from an expected $80 billion in 1990 to $100 billion by the year 2000 according to *Builder* magazine's demographic and economic forecast for housing. The trend is expected to cross most geographic boundaries and may make up for the slower growth in all other areas of the construction industry.

The architectural labor force has grown more rapidly than other professions such as law or engineering, says Roger Montgomery of the University of California, Berkeley. According to U.S. census data, the architectural labor force saw a 253 percent increase in number between 1960 and 1980, with the largest growth occurring on the West Coast.

The employment rate of architects is also expected to rise faster than the average for all occupations through the year 2000, according to the Department of Labor, despite cyclical slowdowns in construction and the increased use of labor-saving computer technology. Much of the increase in job openings, however, is expected to arise as architects take up other occupations or leave the labor force entirely.

New standard contracts for public agencies, according to the American Institute of Architects, favor owners at the expense of architects and contractors. Nine associations representing the construction industry, including the AIA and the American Society of Landscape Architects, have signed a letter to the National Association of Attorney Generals asking that it reconsider the new contracts.

Bonuses among A/E firms are at record levels, reports Practice Management Associates in its recent Executive Management Salary Survey. Overall bonuses were up 30 to 60 percent; some managers had bonuses exceeding 50 percent of their salary. Individual salaries, in contrast, were up 5 to 6 percent.

Management *(continued from page 53)* and had large adaptive-use projects underway in five states in addition to its continuing institutional practice. As Baker's part of the firm grew, he recruited a senior project designer and project manager from his former firm, who joined Able/Baker as 5 percent owners equal to Able's two original partners.

The base compensation of Able and Baker was $75,000 each, and of the other four $45,000 to $55,000. In 1984, the firm grossed $2,500,000 and earned, after partner draws and staff bonuses, an 11.5 percent pre-distribution profit of $287,500. When it came time to divide this profit in December 1984, the six partners scheduled a one-day meeting with a consultant who had been asked to help them develop a policy for partner compensation and a specific allocation for that year. During this meeting, it was revealed to the junior partners, for the first time, that Baker had made a special deal for himself when joining Able. Baker was to receive 5 percent of the gross fees he personally sold, plus his 40 percent share of any remaining profits. Applying this to the available profits in 1984 (when Baker sold $1,500,000 of the work), the resulting allocation can be seen in Table 1 at left.

PROFIT ALLOCATION/COMPENSATION

Partner	*Draw*	*Sales Allowance*	*Distribution*	*Total*
Able	$ 75,000		$ 85,000 (40%)	$160,000
Baker	75,000	$75,000	85,000 (40%)	235,000
C	55,000		10,625 (5%)	65,625
D	50,000		10,625 (5%)	60,625
E	45,000		10,625 (5%)	55,625
F	45,000		10,625 (5%)	55,625
	$345,000	$75,000	$212,500 (100%)	$632,500

Table 1.

Once this potential allocation was made clear, the meeting quickly erupted into what one junior partner later called an "explosion." No decision could be reached, and the partners agreed to meet again, a month later, to work *something out*.

Actions Taken

At the next meeting, a second consultant was asked to join the compensation specialist to help the partners deal with communication and trust within the group, which they understood were the underlying issues. Various exercises were conducted to help the partners discuss the issues that made monetary distribution so difficult for them, including discussion of the relative importance of partner roles and responsibilities such as marketing and client, office, and project management.

Finally, each partner was asked to indicate the percentages of profit he thought appropriate for himself and the other partners. When those allocations were summed up, the averages almost equaled the amounts that each sought for himself. See the results in Table 2 below.

REVISED ALLOCATION

Partner	*Original*	*Revised*
Able	$160,000	$143,750
Baker	235,000	204,167
C	65,625	77,917
D	60,625	66,875
E	55,625	66,875
F	55,625	65,833
	$632,500	$632,500

Table 2.

Subsequent History

The partners have continued the practice of annually conducting a self-evaluation ranking of their contributions, but not without some difficult moments. In principle, those who receive lower compensation are encouraged to ask for peer feedback in order to hear how they may increase their profit allocation in subsequent years. These conversations are often not as candid as some would like.

When Able finally retired and Baker assumed control, one of "his" junior partners departed because he felt Able's 40 percent interest was inequitably redis-

(continued on page 56)

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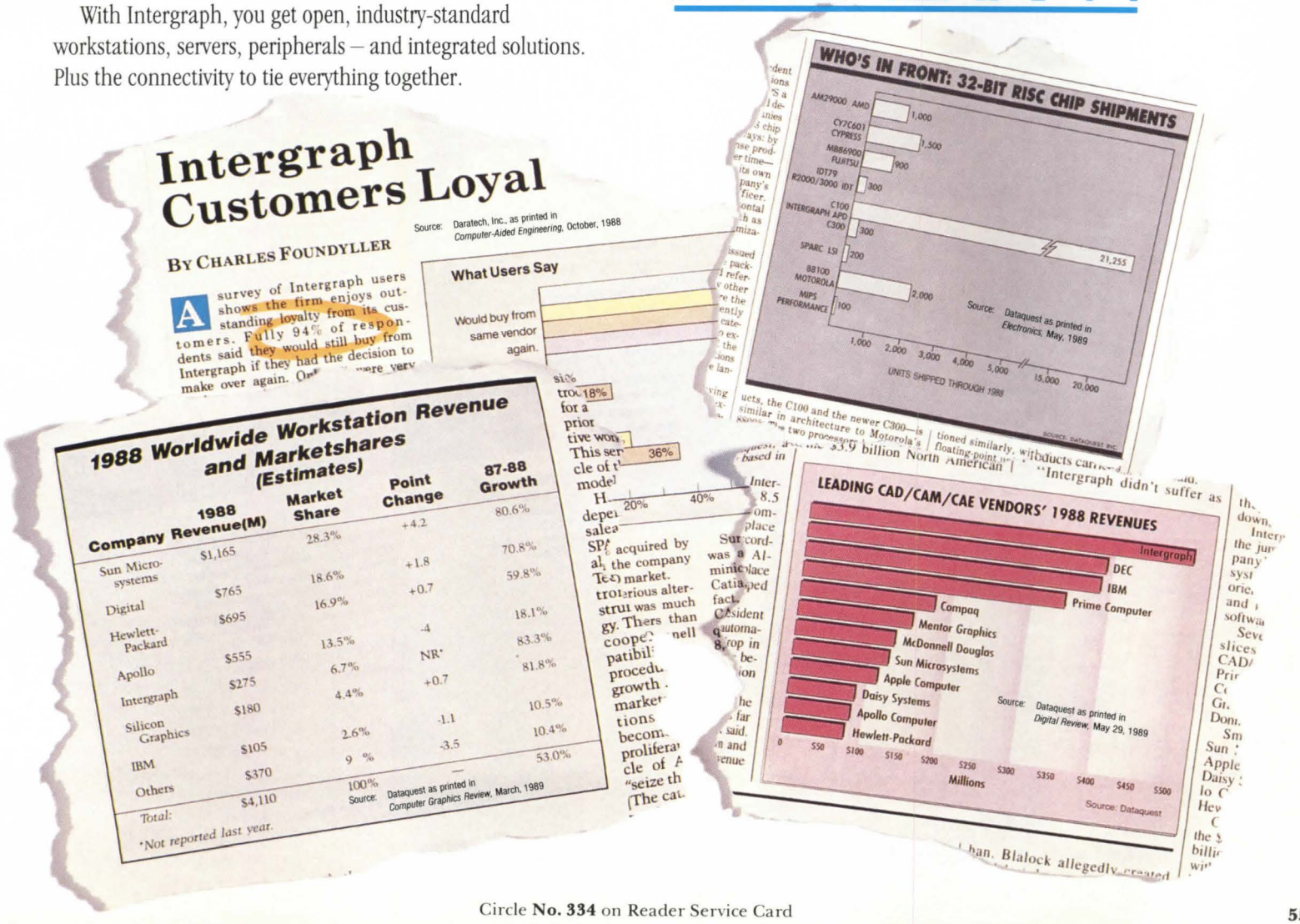

Management *(continued from page 54)*
tributed. Two new junior partners have been added. Baker personally sets base compensation of the partners, and his own draw is double that of the next highest partner. Nevertheless, there is agreement among the partners that the annual self-evaluation is worth continuing. Perhaps equally significant, the firm has remained highly profitable.

The Coxe Group ■

The Coxe Group is a Philadelphia-based concern specializing exclusively in the management of architectural, engineering, interior design, planning, and other professional design firms.

Specifications *(continued from page 53)*
the shelf, with options limited to reduce cost. The optional elements allow some customizing for each application without affecting its overall economy, and the architect should be alert to their implications, even when the manufacturer doesn't point them out.

Few building construction specifiers feel knowledgeable enough to "go it alone" when it comes to elevators, though guide specifications from AIA (Masterspec) and CSI (Spectext), among others, are available to help. The gap between the manufacturer's terse engineering outline of technical information and the final project specification is filled to some extent with elevator safety code definitions and requirements which must be included, even if only by reference. Most manufacturers do provide more detailed standard specifications for their equipment packages along with catalog cuts and hoistway plans and sections, but the specifier is still required to choose among the options and to turn the information into completed sections suitable for inclusion in the project manual. The choices to be made generally involve signal devices, cab equipment and finishes, control panels, operating systems, and the like. Some of these may lie within the architect's capability and interest, but others may not. The conscientious specifier will at least raise the right questions. The right answers must then be sought.

One thing manufacturers do inevitably include in their outlines is the number of landings and the number of openings. For construction specifications this data often proves redundant since the drawings are there to supply the needed information visually. Furthermore, including rise or openings in the specifications opens the door to conflicts with what the drawings may indicate and to unanticipated changes, errors, and inconsistencies. It's best to let the drawings do what they do so well—show the elevator shaft with all its dimensions—and let the specifications tell speed, load capacity, voltage, and other characteristics not easily drawn.

While the electrical engineer will have determined the voltage available to run elevator machinery, he or she would really like to know what size motor (horsepower) will be used so that power supply circuits can be sized properly. That's often difficult to find out, especially in competitive bidding situations where the manufacturer won't be determined until the contract documents are done and bids are received. Be careful. Different manufacturers use different size motors to accomplish the same tasks, reflecting the relative efficiency (and cost) of the motors they supply. The risk of over- (or under-) sizing electrical components is one that must be grappled with in terms of cost and later inconvenience.

Where should position indicators be located? Of course there will be one in the cab, but how about outside the elevator? It's expensive to put one on each floor, and it seems to encourage irritation or game playing in a lot of users. For packaged applications, most architects tend to provide an indicator at the ground floor only (often required by the local fire department) and to let the upper waiting passengers think about other things until they hear the gong.

Floor covering is another area of choice. Even if the standard package cab is used, the floor covering must be specified. Often the low-cost solution is vinyl composition tile, but where is it to be specified? Should it match VCT used elsewhere in the building for visual continuity and replacement ease? Should it be specified under Resilient

(continued on page 58)


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Specifications *(continued from page 56)*
Flooring? The best answer seems to be to specify it in the Elevator section and to let the elevator subcontractor and the flooring subcontractor work it out. Where carpet is used, the same considerations apply.

There are, in addition, items important to the owner that the code does not cover and most manufacturers do not adequately address. One such item concerns guarantee and maintenance provisions, which must be brought into agreement with the project's general conditions, the standards in the other sections, and the realities of construction practice. For example, while the typical guarantees for equipment and workmanship under most general conditions run for at least one year, the maintenance clause found in most elevator manufacturers' standard specifications is usually for only three months. Potential problems exist, for example, if the elevator breaks down six months after substantial completion of the building. Who will take on the cost of repair?

The way to head off potential confusion is for the specifier to change the proposed three-month maintenance period to one year to run concurrently with the general building guarantee. This way maintenance will be done; the owner pays only once (at competitive bid rates rather than service rates); the responsibility is clear, and the subcontractor can adjust the price to reflect the additional cost before bidding on the work.

Though selection of technical characteristics and operating systems is perhaps best left to elevator experts, the architect clearly has an important role to play in making the other decisions necessary to complete the elevator specifications, even for pre-packaged installations. Elevator consultants are available and manufacturers are usually very helpful and willing to assist, but in the end, experience and judgment are still needed to guide architect, owner, and manufacturer to the right contract requirements. ***Walter Rosenfeld*** ■

The author is an architect and specifications consultant in Newton, MA.

Drafting *(continued from page 53)*
able, are not because of cumulative statistical error. Consider an office remodeling with 100 doors. There are two widths, two heights, two fire ratings, two swings, two wall thicknesses, and two lockset functions, for a total of 64 different types of door. Intuition indicates that each time the possibilities double, the chance of a mistake increases by some factor. If the factor were only 1 percent, at least six doors would be wrong.

How does the unpredictability of construction affect the translation of dimensions on drawings into measurement in the field? For a scaled dimension to correspond with the actual field measurement, they must share the same starting point, head off in the same direction, and go the same distance. Drawings often give the direction and length of a line, but, with rare exceptions, omit the starting point. More important, when one dimension depends on another, the succession must be made clear. Trying to construct a complex building without starting points is like trying to read a novel with every third page missing. People in the field must either infer what the designer intends or scale dimensions off the drawing.

If starting points and dimension sequences were included on drawings, would our troubles be over? The answer is no. The unpredictability of construction sequence means that dimensions may be needed before their logical predecessors are available. A floor-to-floor height, for example, that is necessary to calculate piston travel of a hydraulic elevator, is generally needed long before floors exist from which to measure. Since it is so difficult to translate dimensions on drawings into actual measurements, what alternatives exist?

1) Explain the Design
Each project should begin with a written explanation of the design. An explanation is an overview of the project that should discuss the look and function of the finished product, the intention of the design, and the expected level of finish. If the purpose and goals of the design are clearly stated at the beginning of construction, there is less chance

(continued on page 61)

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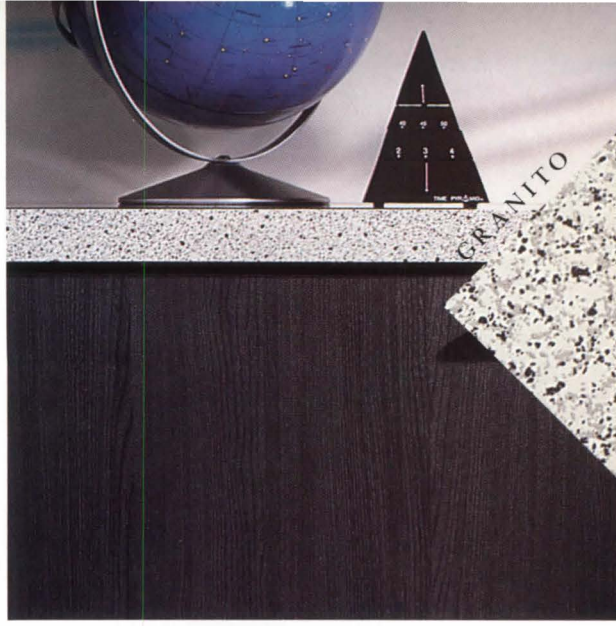

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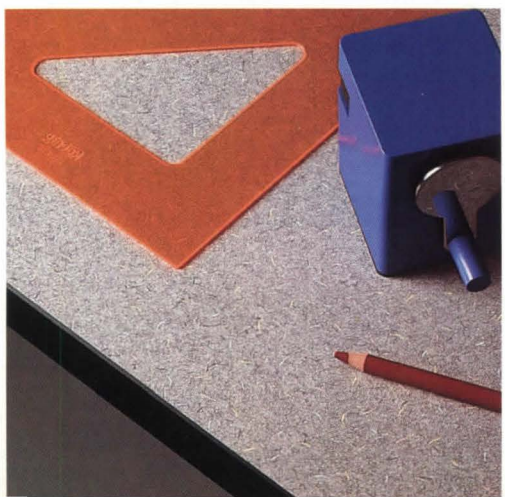

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Drafting *(continued from page 58)*

of misunderstandings and a greater likelihood that all parties will head in the same direction. Such an explanation also helps the builder produce more precise budget and enables the estimators to call in appropriate subcontractors to achieve the indicated quality and delivery.

Finally, an explanation of the design avoids the resolution of problems on a case by case basis, allows decision making to occur at the lowest effective level, and enables the layout people in the field to infer or extrapolate information not shown on the drawings.

2) Use Words, Not Numbers

Whenever possible, replace dimension on the drawings with declarative terms, "equal," "flush," "center," and "align" and proportions such as "X" and "2X." The drawings should also indicate where modules begin and end, so that reference lines or planes in the real world can be made to correspond to the logic of the design. Where stock components are to be incorporated, the drawings should note "center component here" or "align edge of component here," and the specifications should include a tear sheet of the component. This leaves the various calculations for thicknesses of materials to be done full size at the time they are needed, rather than the tortuous (and frequently inaccurate) scaled details so common on drawings.

3) Do the Research

Incorporating tearsheets of components in the specifications has several benefits. The research is done once by the designer rather than by each estimating team bidding the job, and the estimators know exactly what to price so there is a better chance that the bids will be comparable. It may even be possible for the designer to check on the availability of components and to use this as a criterion for selection.

4) Confine Measurements to the Smallest Logical Module

Measurements should be confined within the smallest appropriate subdivision or module of the design. Modules can be anything from the column bays of a big building to four-foot-wide sheets of plywood on a house. When a measurement is needed, and its logical predecessor is not yet available, the potential error is confined within that module and doesn't accumulate throughout the building.

These proposals aid the construction process without increasing the designer's liability. Being held accountable for carefully chosen wording in an explanation is an improvement over being held accountable for words spoken in meetings and in impromptu conversation. And, since errors in addition are almost inevitable, opting for declarative statements in lieu of dimensions on the drawings may actually reduce liability.

Incorporating tearsheets in the specifications also makes it less likely that unacceptable alternates or substitutions will be bid. It shifts the burden of proof that a proposed alternate is compatible back on the person proposing the alternate, because the clearances are worked out full scale in the field in terms of the specific component to be used, not on the drawings.

Plans and drawings produced with an awareness of the above points look no different from conventional drawings. What is different, however, is that methods are incorporated into the contract documents to resolve conflicts between theory and reality and to realize more accurately the designer's intentions.

William Malpas ■

The author is a Project Manager for a design-build general contractor in San Francisco.

Solving the problem.

Street & Lundgren, an Aberdeen, Washington architectural firm, was hired to design a fire station for a nearby town. The project was completed, there was a grand opening celebration, and Street & Lundgren received the "keys to the city."

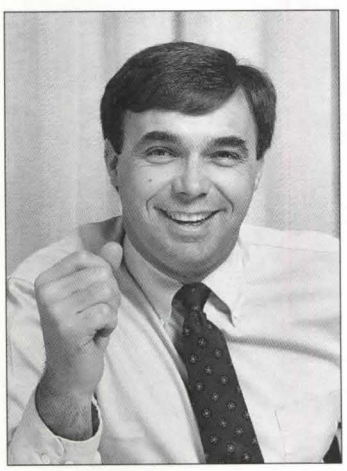
Almost six years later, the town filed a suit against Street & Lundgren. There was water leakage into the fire house and some hairline cracking of exterior masonry. The town was afraid the building might not be structurally sound.

Roy Lundgren called Dale Currie, DPIC's regional claims manager in San Francisco, and described the situation. The leakage appeared to be due to the town's failure to waterproof the structure on a regular basis. The cracking was almost certainly cosmetic, due to expansion during freezing.

Dale believed the problem was solvable.

He made two trips to Washington during the next few months; first, to meet with the town and hear its grievances and second, to conduct a roundtable discussion to mediate the dispute. It was a delicate situation. The town's building inspector was convinced the structure had serious problems. Street & Lundgren and the project's structural engineer were confident the building had been well-designed.

Dale managed to keep the dialogue open. Ultimately, the town hired a consulting structural engineer to assess the situation. This engineer's opinion fully supported Street & Lundgren, and convinced the town its fire station *was* structurally sound. Now, all that was left to be done was help the town resolve the existing problems. In the conciliatory environment established by Dale, Street & Lundgren provided maintenance guidelines for the fire station as well as advice on how to repair the cracked masonry.



Dale continued to work with the town's attorney. A year and a half after the initial action, the town agreed to a *dismissal with prejudice*, meaning it was satisfied no further litigation was necessary.

R. Dale Currie

Richard Dale Currie is an assistant vice president and manager of DPIC's regional claims office in San Francisco. He is a graduate of the University of California at Berkeley and the John F. Kennedy University School of Law and a member of the California bar. He has over a dozen years of experience in construction-related claims management.

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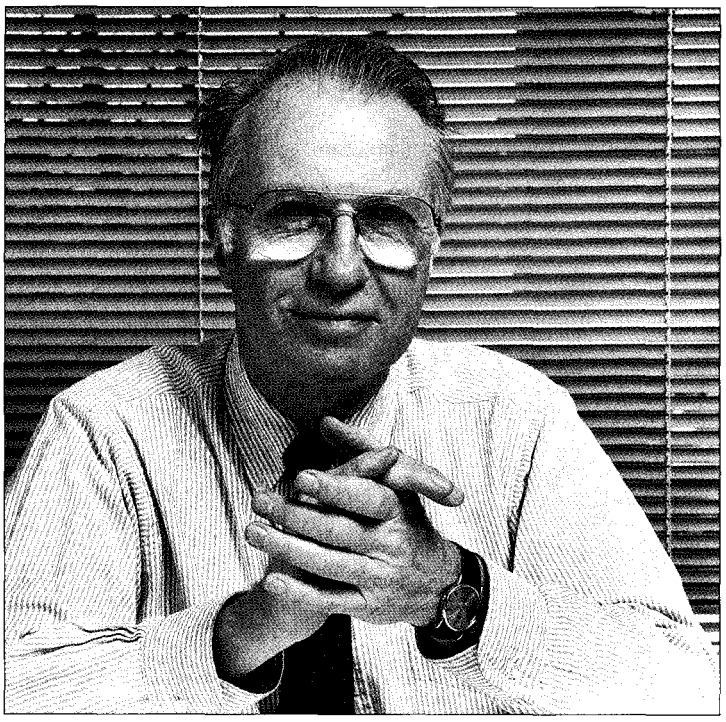
"I liked Dale Currie immediately for his grasp of the situation, his concern about our welfare, his willingness to come up promptly and talk the situation over.

Dale was very skillful in seeking a solution to the city's doubts about the building—a difficult job based on the evidence that had been presented by their home-grown people, whom they know and trust. He showed a willingness to understand their problems, and to come to a resolution that satisfied them. He showed his concern for them in a way that made them very comfortable. And they responded very positively to him.



The idea of the roundtable was his. And he mediated and orchestrated it. He suggested what we should do to allay the fears of the city and we did it. And everything worked.

In essence, what Dale Currie and DPIC did was put out a fire before it really got started.

And you realize, from a business standpoint, all this cost us was our time."

Roy E. Lundgren

Roy Lundgren is a principal in the firm of Street, Lundgren & Foster, a 39-year-old architectural firm based in Aberdeen, Washington. He is a past director of the Southwest Washington chapter of the AIA and former building code commissioner for the city of Aberdeen. We value our relationship with his firm and thank him for his generosity in talking about an important subject for design professionals.

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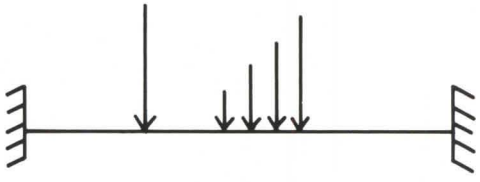

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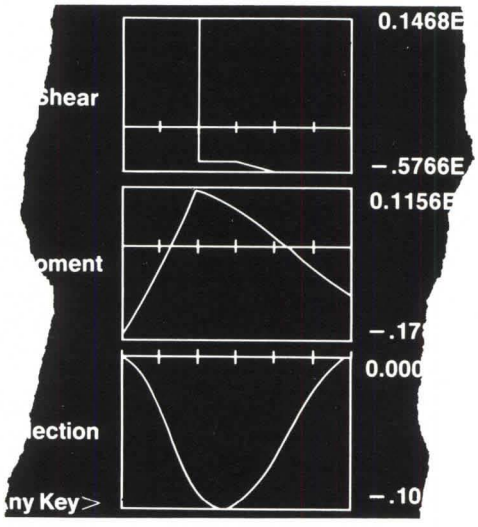

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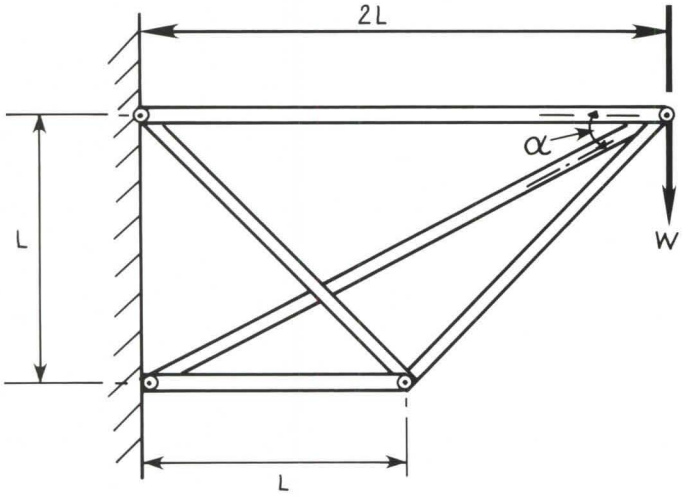

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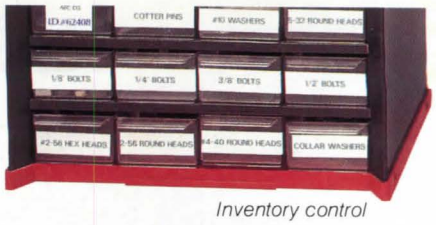

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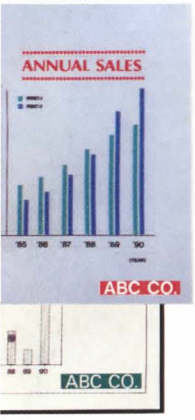

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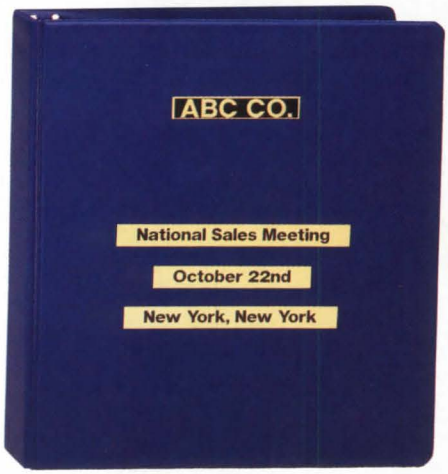

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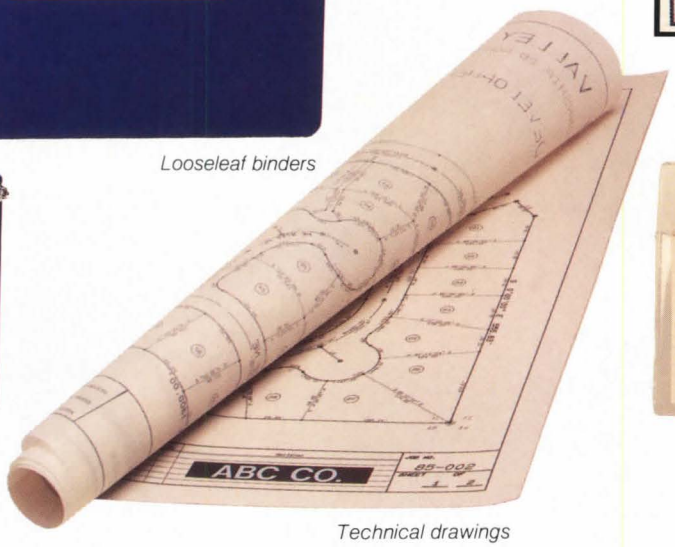

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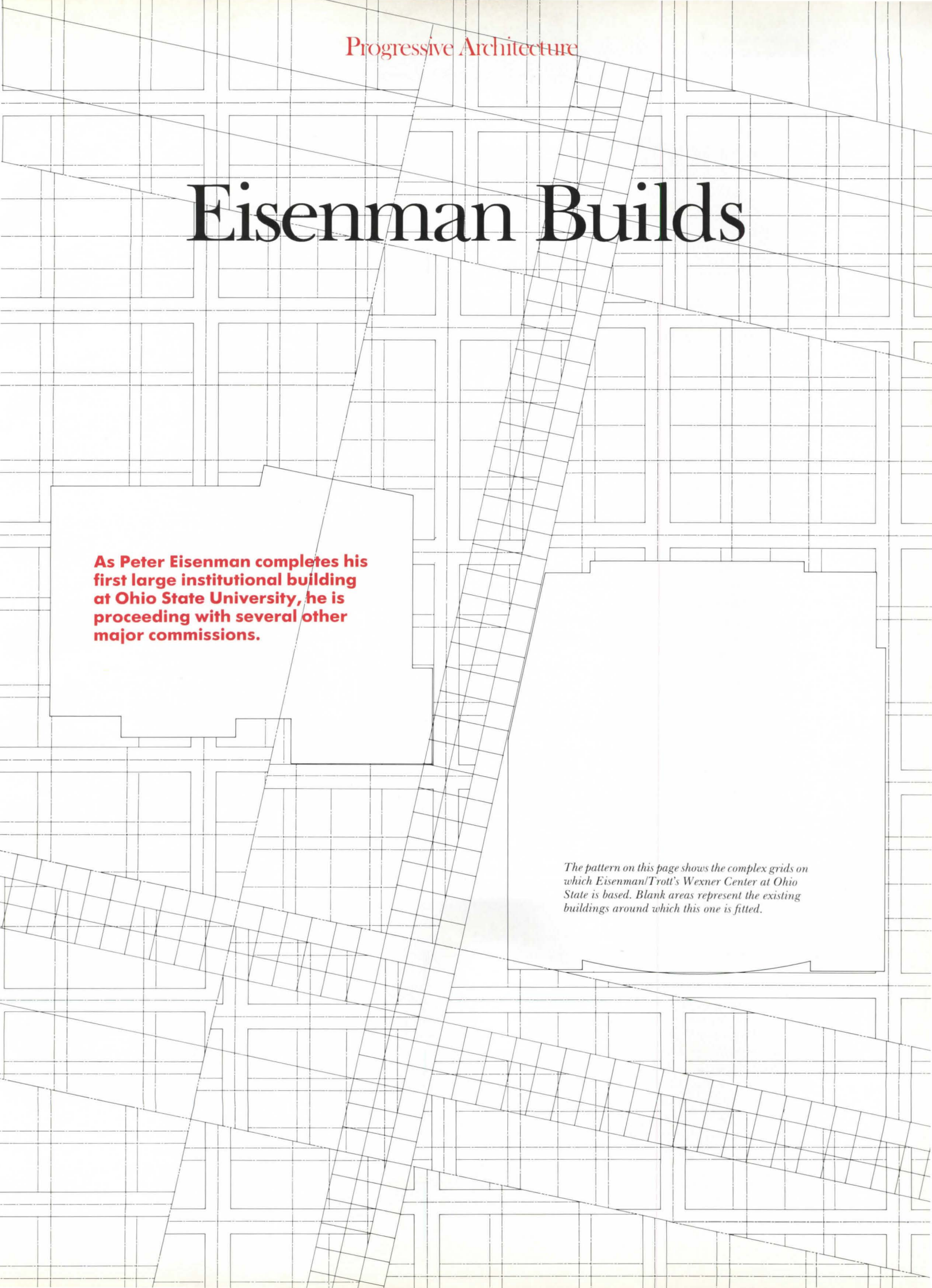
Eisenman Builds

As Peter Eisenman completes his first large institutional building at Ohio State University, he is proceeding with several other major commissions.



The pattern on this page shows the complex grids on which Eisenman/Trott's Wexner Center at Ohio State is based. Blank areas represent the existing buildings around which this one is fitted.

Wexner Center for the Visual Arts
Ohio State University, Columbus

intro/duction

PETER EISENMAN is a thinking man's architect. His career has had a decided intellectual bent—teaching at a number of architecture schools, founding the Institute for Architecture and Urban Studies in New York, guiding its weighty and sometimes obscure journal, *Oppositions*, and writing and lecturing widely on architectural theory. If architecture could be said to have an impressario, Eisenman is it.

But his career has not been all talk. He designed a series of small, carefully wrought houses throughout the 1970s (P/A, Mar. 1972, p. 80–87; May 1974, p. 92–99; Jun. 1977, p. 57–67), and after forming a partnership with Jaquelin Robertson from 1978 to 1988, Eisenman began to produce larger-scale work, such as the apartment building at Checkpoint Charlie in Berlin (P/A, Mar. 1987, p. 82–91) and the University Art Museum at California State University at Long Beach (P/A, Jan. 1987, p. 115–117).

What links all of this work is its strong philosophical underpinning: Virtually every building that he has designed has had as a primary goal the exploration of ideas, often drawn from outside the field of architecture. From structuralists, for example, he adopted ideas about logical processes and universal "deep structures" to create the early houses, with their serial transformations of cubic forms. And from post-structuralists, he has more recently drawn ideas about the repression inherent in Western humanism and dualism to create the fragmented, decentered, broadly contextual work, of which the Wexner Center for the Visual Arts at Ohio State University is the first major example.

The building is remarkable on several counts. Winner of a prestigious competition (see p. 70 and P/A, Aug. 1983, p. 38, 96–97) and honored with a P/A Award (P/A, Jan. 1985, p. 98–100), the Wexner Center is not only the most ambitious project Eisenman has built to date (see p. 90 for upcoming work) and the clearest embodiment yet of Deconstructivist architecture (P/A, Aug. 1988, p. 25, 27), but a major critique of current design ideas. Implicit in its post-structuralist fragmentation is a suspicion of dogma, a resistance to holistic visions, and a questioning of certainties. At almost every turn in the Wexner Center, Eisenman confronts our design conventions and challenges our often unexamined assumptions, creating a building that aims not to provide comfort or consolation, but one that tries, successfully, to shake us from the complacency of our convictions.

Consider, for example, its challenge to historicism and the belief in the communicative power of historic styles. Eisenman questions that idea on at least two fronts. The fragments of the armory that form one side of Wexner Center stand as an analogy to the fragmentation of the past that historicists have, ironically, brought upon themselves with the idea that history is a matter for specialized, scientific study. If, as Eisenman suggests, the past for many people has become like those towers—so many slices of disconnected information, only vaguely understood—then what does the use of historic styles mean?

A related question is whether a unified view of the past is desirable or even possible. One of the legacies of post-structuralism has been to reveal how we use language to create false unity and to suppress dissention—and how often language confounds such efforts. The historical language of architecture, Eisenman implies, is no exception to this. It is, like the fragmented armory wall, a façade or false front bound to crack, a display of strength or self-assurance that cannot be sustained.

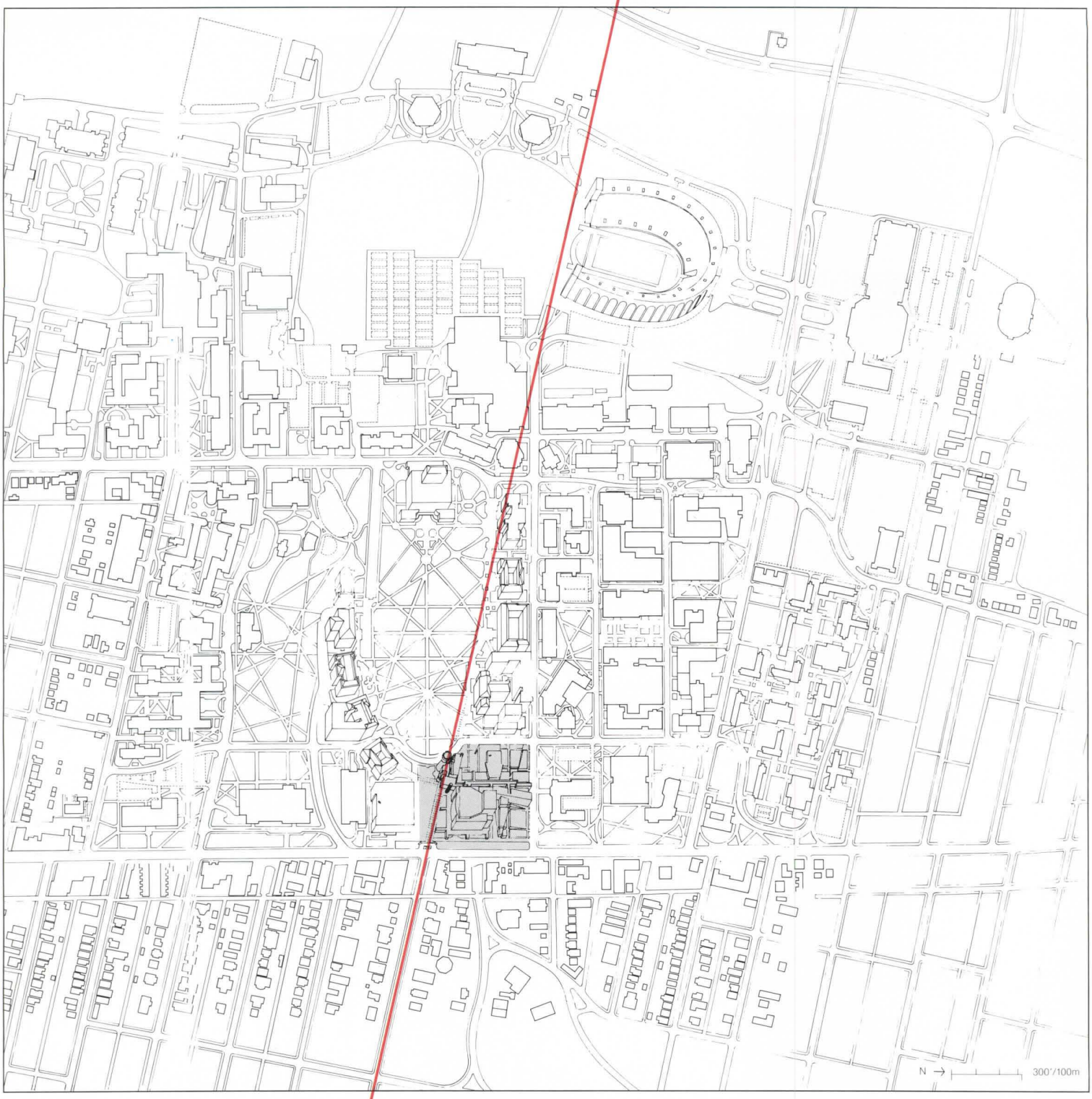
Wexner Center raises other questions about contextualism and its emphasis on the making of visual and spatial connections among structures. The building is aligned, for example, not with the adjacent Oval or nearby library, but with the real center of Ohio State life for many students and alumni: the distant football stadium. And it refers, not only to the campus and city grid, but to the historic grids used in the surveying of Ohio, which determined the very nature of community life in the state. Such relationships may not be immediately apparent when looking at the building. But the richness of their allusions suggests that, by restricting a building's context to the structures and open areas around it, we overlook larger connections that can offer us greater insight. By suppressing the non-visual and essentially literary aspects of architecture, contextualists may not go far enough in responding to a setting.

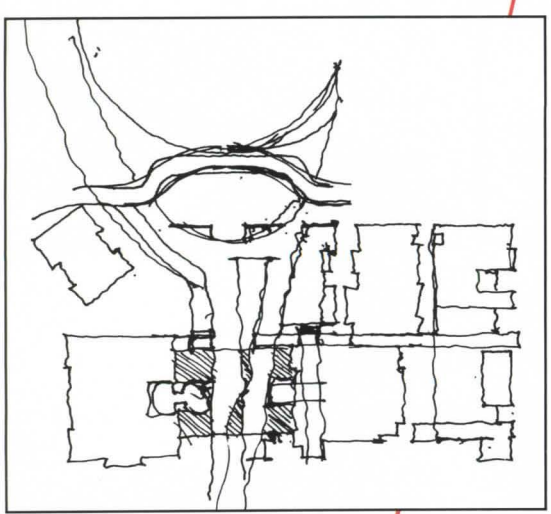
Classicists, on the other hand, may go too far. The references in classically-composed buildings to the human body, with its bilateral symmetry and tripartite order, assume that the world should be made over into our likeness and bent to our needs. Eisenman reveals that for what it is: a humanistic conceit firmly rooted in the Western tradition. There is much evidence to show that our dominance over nature (or for that matter, over non-Western cultures) has probably done more harm than good, causing untold environmental problems and social upheaval. Wexner Center, with its lack of center, colliding grids, and unbalanced forms, purposefully upsets our sense of superiority and supposed command of the world. By humbling us and displacing us, it makes us wonder if, in fact, we ever really controlled the forces of nature or of the Third World.

A similar idea underlies Eisenman's rejection of functionalism. The demand that function takes priority in buildings assumes that the satisfaction of our needs is not only of central importance, but above challenge. While the Wexner Center functions well enough, it counters our expectations at almost every turn, with windows at the floor, columns in the stairs, walls that lean, beams that angle. Through such surprises or inconveniences, the building forces us to question not only our assumptions about the physical world—about the straightness of walls or horizontality of beams—but about our conventional behavior. How, for example, might we use an office differently with its windows along the floor?

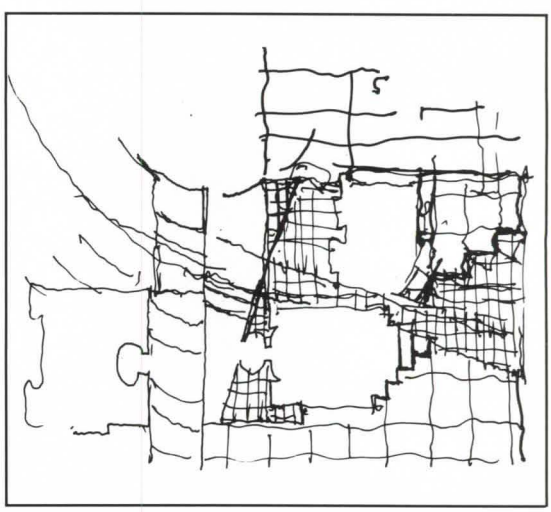
Such insistent questioning of conventions, such suspicion of established customs, recalls the early years of Modernism, before it was codified into a style and fossilized into a set of dictates. Wexner Center uses the vocabulary of Modernism, but violates most of its grammatical rules—rather than separating unlike materials, it juxtaposes them; rather than distinguishing between structural and nonstructural elements, it conflates them; rather than reducing the number of parts, it increases them. This subversion of Modernism's most basic tenets is a very Modernist thing to do. Eisenman is overthrowing Modern architecture to return it to its original, unconventional path, one in which nothing was sacred, nothing assumed.

That was not a popular tack then, and it is not now. By challenging our cherished notions, and confronting our conventional behavior, Eisenman and his post-structuralist colleagues have picked up the torch of Modernism dropped years ago when it became an answer rather than a question, a final product rather than an unending process. Not everyone may want to take up the same torch, but by its light, we cannot help seeing ourselves and the world around us, anew. ***Thomas Fisher*** ■





The red line that Eisenman drew on a plan of the Ohio State University campus originates in the city grid (bottom of drawing above), enters the campus at the end of 15th Avenue, skims one edge of the central Oval, and crosses the end of the football stadium; it also marks the major flight path into Columbus airport (see Cover). The area of Wexner Center is toned gray. An early sketch plan (left) shows the arts center site with two angled axes, existing buildings, and potential new volumes. A later sketch (right) shows the crossed major axes of the final design, based on the red line.

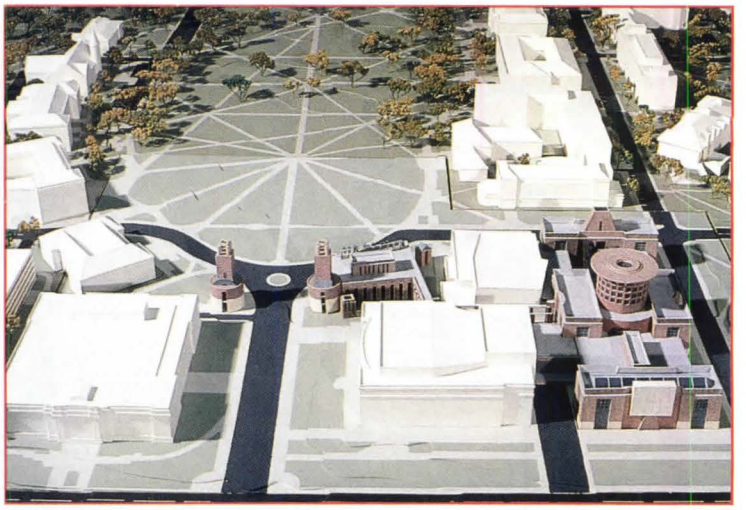


Wexner Center for the Visual Arts
Other competition schemes

Dalton, van Dijk, Johnson & Partners, Cleveland, and Cesar Pelli & Associates, New Haven, Connecticut

A unified, symmetrical structure was proposed to give the campus Oval stronger definition at its east end (and to balance the tall library at its west end, beyond top of photo). For those approaching the campus from the east (bottom in photo), the building was to be an axial landmark, its curved east front and pergolas announcing the outline of the Oval. A skylighted passage along the building's central axis would have led to spaces disposed more or less symmetrically on four levels. A sculpture terrace above the tall ground story was to be broadest on the west, overlooking the Oval.

Lorenz & Williams, Dayton, Ohio, and Michael Graves, Architect, Princeton, New Jersey



In this scheme, the major part of the center's program was to be housed in a classically organized block on the north edge of the site (right in photo), connected by an "outdoor allée" to smaller structures framing the east approach to the Oval. At the center of the major structure, a drum-topped rotunda was to be a circulation node and accommodate university and community events; it was also to open onto an outdoor sculpture court within the block. Flanking an axial approach to the Oval were to be two "gateway" towers, one for orientation to the campus as a whole, the other an entrance to the fine arts library, which was to hug one portion of the Oval.

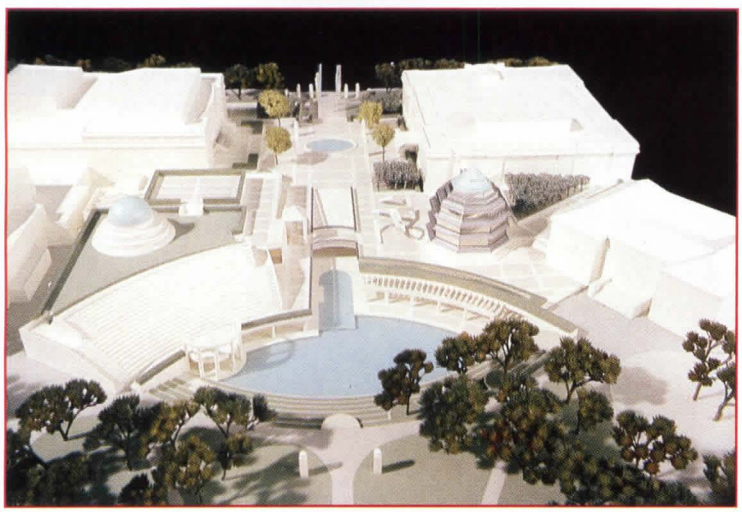
An unusual competition process pitted Eisenman against four well-known firms with far more built work behind them.

IN 1983, when a competition jury awarded the OSU commission to a team under the design leadership of Peter Eisenman, he had not previously completed anything larger than a house. Yet the team of Eisenman/Robertson of New York, with Trott & Bean of Columbus, was chosen over four other star-studded teams (see captions). This daring choice is attributable largely to the university's strong intention to make a major architectural event of its new visual arts center and to a carefully plotted competition process.

This design competition, directed by OSU architecture professor Richard Miller, assured the participation of architects with national reputations. (Miller, who died in 1988, had previously been a partner in the New York firm of Westermann & Miller and had spent some years on the editorial staff of *Architectural Forum*.) The scenario was to form competing teams, each composed of an Ohio firm with out-of-state architects. A selection committee named 9 home-state firms and 17 interested out-of-staters (out of 27 they contacted), then let the firms form teams. Of the nine teams, five were then chosen to submit designs; each received a $25,000 fee.

The process candidly acknowledged the shortage of Ohio archi-

Feinknopf, Macioce & Schappa, Columbus, and Arthur Erickson, Architects, Vancouver, British Columbia



In this scheme, the east end of the Oval (east at top in this photo) was to be revised to allow a lens-shaped pool, around which art center facilities would be disposed in a long, low curve. Most of the facility's volume was to be underground, where connections could be made to the performance facilities in neighboring buildings. Loggias around the sunken pool would open this level to the light. A long ramp on the main axis would lead down from the campus entrance to the pool level. The only structures above ground level were to be a polygonal office tower and a large block housing the upper part of a theater and galleries under a sloping bank of seating.

Nitschke Associates, Columbus; Kallmann, McKinnell & Wood, Boston; Lyndon/Buchanan Associates, Berkeley, California

These architects developed a "composition of discrete, identifiable volumes consonant with the scale and shape of individual buildings that surround the Oval," their cornice lines, roof slopes, and materials emphasizing formal continuity. The axial link from the campus entrance to the Oval would have been delineated and confined by new structures lining it on the north (top in photo)—one standing directly in front of Mershon Auditorium, the other (housing the principal galleries) with a concave face along the Oval. The fine arts library was to be entered through a compact block on the south side of the axis, with its stacks underground beneath the walkway.

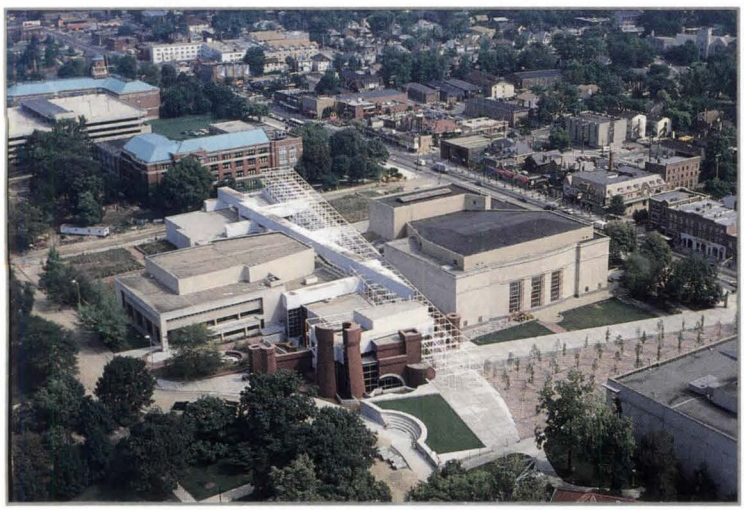
tects of national stature by requiring outsider participation, yet it gave the local architects a certain leverage as they were courted by a larger field of outside firms. Interestingly, the same kind of team-entry strategy was used in the 1989 competition for the Columbus Convention Center (page 94), and that contest, too, was won by Eisenman and Trott.

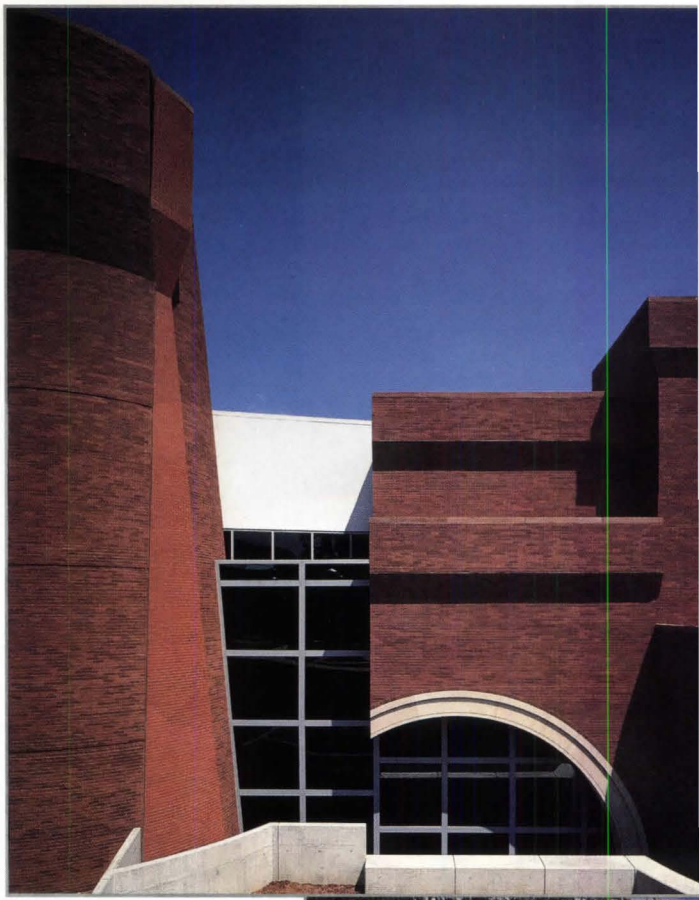
While the program for the arts center left some leeway for competitors to adjust areas and adjacencies, the siting of the new complex was left very much to the competing teams, and there was no obvious way to resolve it. A zone, rather than a site, was specified. It was a highly visible tract straddling the path from the university's main entrance to the campus Oval, the open space at its heart. But all the zone's locations for major buildings were already occupied; the new center would have to rise on scraps of land surrounding two existing performance halls or intrude on the open space of the Oval (a strategy that was encouraged in team briefings, but later encountered strong on-campus opposition). Henry Cobb, principal of I.M. Pei & Partners, New York, was appointed chairman of the competition jury, which included Columbus architect Noverre Musson, the directors of art museums in Columbus and Miami, Douglas Davis, architecture and arts critic of *Newsweek*, and four members of the university faculty and administration.

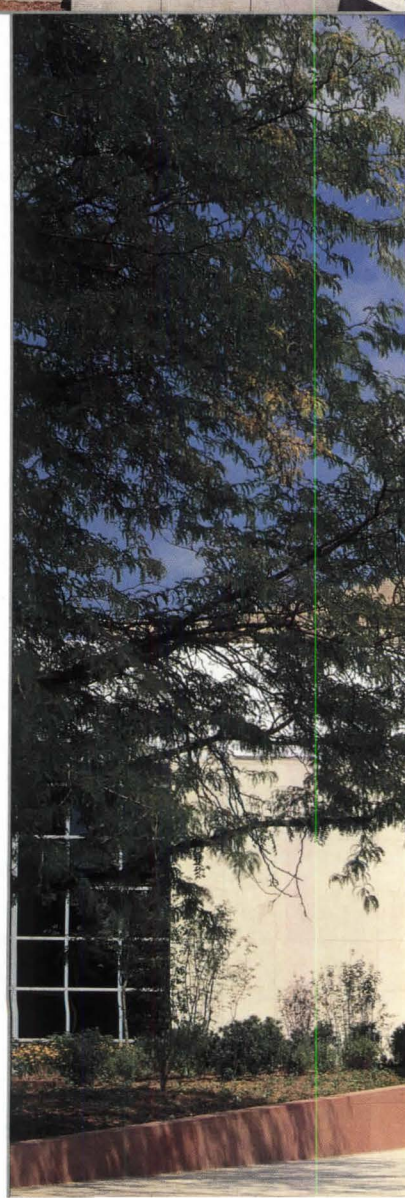
The jury's reasons for choosing were clearly stated in Cobb's report of their unanimous decision. In commending the five participating teams, Cobb observes that "rarely have the diverse positions in contemporary architecture been so eloquently set forth." But this scheme, says the report, "best captured the spirit, dynamism and open-endedness of the new center's programmatic needs." Particularly impressive, for the jurors, was the way the scheme exposed the center's activities to observation by people passing through this campus crossroads. The design's combination of abstract grids and figurative reconstruction of the old armory led to the conclusion that: "The design proposal affirms the interactive roles of memory and invention as catalysts for the visual arts."

The jury recommended that the university award the contract to the Eisenman and Trott team and fund the construction.

John Morris Dixon ■







THE Eisenman-Trott team won the OSU arts center competition with their uncanny skill at fitting a major facility where there was no room for one. The complex they designed infiltrates its context, slipping a line of galleries into a cleft opened between existing structures, disguising some facilities as an extension of one building, and placing a large proportion of the required spaces below grade.

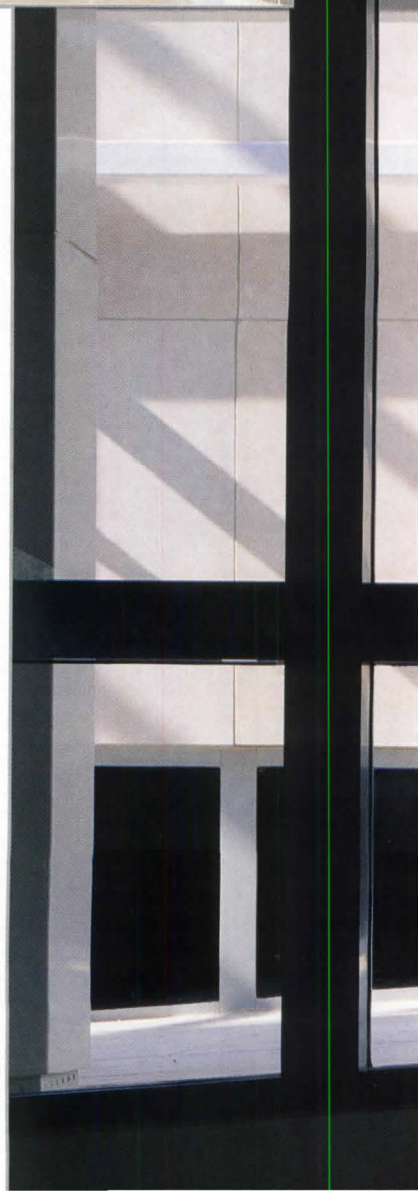
While the resulting building appears to take up little space, it is by no means inconspicuous. Instead of presenting a unified bulk to the viewer, it offers a set of memorable artifacts through which space appears to pass. The parts one sees first, on the main approach to the center, are a cluster of brick towers and the leading edge of a white steel framework that Eisenman calls "scaffolding." Variously split, peeled away, and tilted, these constructions seem to be in a state of flux, with indistinct boundaries. And as objects they mix the characteristics of architecture, construction, and conceptual art.

Both the armory and the scaffolding elements were derived—through very different processes—from the context of this center. But context for Eisenman includes more than what is immediately adjacent; it includes what was there before and cues from the city and region. (see R.E. Somol essay, page 88). The armory forms represent a real armory that stood on this site until 1958, when a major fire led to its demolition; Eisenman revived its towers, shifted their position, split and peeled them, then used them to mark the arts center's presence at the gateway to the campus Oval. The scaffolding is the most visible expression of the planning grid that underlies the entire scheme, which draws on the land surveys of this area.

An aerial view of the completed complex, looking roughly north (above left), shows how new construction fits between the Brutalist Weigel Hall (at left) and the stripped Classical Mershon Auditorium (at right). The white steel "scaffolding" marks the main walkway, and "armory" fragments rise at the edge of the Oval. Empty metal-clad boxes on the roof, dubbed "student housing," respect the campus grid. In the foreground, seating in the form of an amphitheater terminates the long axis of the Oval, and a grove of trees occupies the area to the east. Systematic fragmentation of the armory portions produced a sliced arch (above). A peeling effect exposes conceptual layers of brick, laid up with eloquent precision. Some portions have low relief grid patterns, as if the past had been branded with a "trace" of the present. These brick towers, graded from rudimentary to fully formed, guard the south end of the main scaffolding-canopied walkway (facing page, top) and the west approach to the cross-axial passage (right). The first figural elements in Eisenman's work, these towers looked like conventional re-creations in the competition scheme and were later reworked.

Survey, Traces, Flight Paths

The prevailing grid of the OSU campus is twisted 12¼ degrees from the north-south survey grid that governs most of the city of Columbus (see drawing, page 69). The axis of 15th Avenue, which leads to the main campus gate from OSU's "fraternity row," thus hits the campus at an angle. Extending this approach line, Eisenman found that it aligned with the end of the football stadium—the center of OSU loyalties—which holds to the city grid. When he realized that the approach to Columbus airport's main runway also lay right on the line of 15th Avenue, Eisenman concluded that this axis (red line on drawing, page 69) could link the arts center to the broader city and state context, while setting up a skewed relationship to immediate



neighbors. Using this rotated alignment, he was able to establish a new line of movement into the campus, continuing the thrust of 15th Avenue, jogging slightly as it passes through the arts center, meeting the Oval as a tangent, and heading symbolically toward the stadium. (Eisenman likes to picture the university's champion band marching this way to games.) At a right angle to this, he developed a second axis that seems to peel off the end of the Oval asymptotically and slip deftly between the volumes of two existing buildings, Weigel and Mershon. Along both of these new lines, Eisenman placed walkways that pass through his complex under the symbolic canopy of his steel scaffolding (no weather protection here).

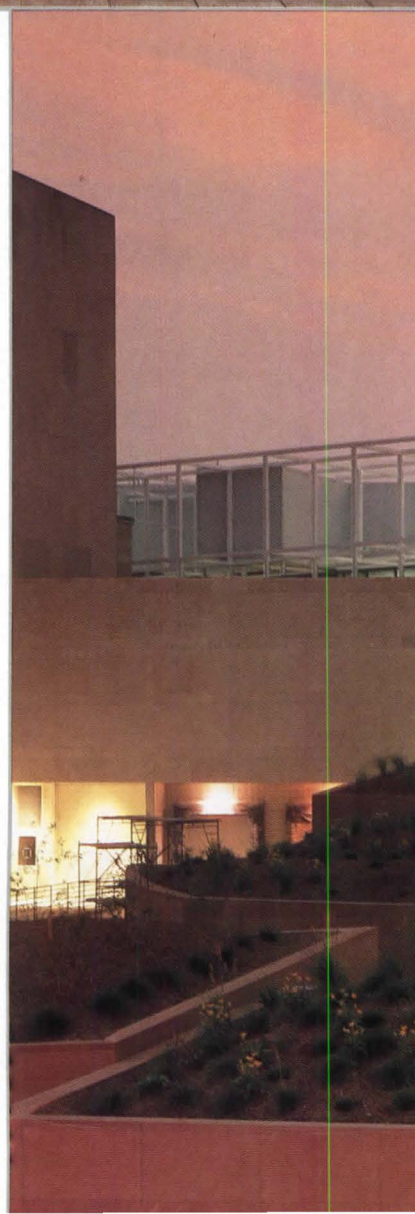
In a more controversial move, he has interrupted the old route from the 15th Avenue intersection along the axis of the Oval with the center's film theater, half burying it and topping it with a canted plane of grass. Eisenman feels he has improved the Oval by giving it a suitable termination in his new embankment, capturing the end of its long axis in an amphitheater-shaped seating niche; the previous view east, after all, merely fizzled out in some 15th Avenue storefronts. On the now-blocked right-of-way just inside the campus gate, Eisenman has placed a grove of trees that should provide an attractive mingling space.

Just inside the main pedestrian entrance to the campus (above left), the white steel "scaffolding" reaches out to mark the arts center and the two passages through it. The main doorway to the building is on the axis of the walkway from this direction under the scaffolding. The grove that occupies the closed roadway here has a grid of linden trees overlaid with a skewed pattern of ginkgos—their grids marked by granite paving strips. A generous parapet for sitting should help make this a popular mingling area. The scaffolding itself offers a variety of visual experiences. Sighting along the north-south walkway (above), one sees tilted planes, defined by steel tubes, appearing to converge though actually parallel. Looking up (above right), one sees scaffolding members superimposed on grids of curtain wall and, at the top, the empty metal-clad volumes known as "student housing." Different types of glass, laid out in complex patterns in the curtain wall (above, far right), variously reflect the scaffolding. Seen from many areas, the shadow patterns of the scaffolding (right) enhance the center's surface materials.

No Certain Grade Level

The tilting and carving of the terrain over the film theater also serves to announce, at the center's main approach, that Eisenman does not accept the existing ground plane as a given. Deep wells around the "armory" portions of the complex make these brick masses seem to be ambiguously sinking or rising; the tilt of the scaffolding suggest either rising at one end or subsiding at the other.

Another powerful reminder that the ground level is variable lies in the "plinths" with which Eisenman has filled the northeast and northwest corners of his site. Mixing the characteristics of architecture and landscape (and involving, from the initial sketches, landscape architect Laurie Olin), these raised planting areas, laced with walks between sandstone walls, suggest portions of the earth thrusting up along the lines of Eisenman's complex grid. Contrasting with the crisply cut walls of the plinths, their tops are mounded up and planted with wildflowers and grasses—wise choices in terms of maintenance, but also, reports Eisenman, an allusion to the Indian



The architectural domain of the arts center extends over adjoining open spaces in the form of "plinths" (above left) designed by the architects, with Laurie Olin of Hanna/Olin, landscape architects. Planted with tall grasses and wildflowers, these evoke a primeval Ohio landscape, as if thrust up on monoliths of red sandstone. In the northwest corner of the complex (above), these plinths are bounded by the massive walls of a new theater and rehearsal rooms (left in photo), which have been given forms like those of the existing Weigel Hall (background). In the northeast quadrant (photos at right), the plinths cover the underground fine arts library, containing its entrance lobby and escape stairs. Grid patterns of different scales—in the plinths, scaffolding, and curtainwall—relate to the network of the overall plan (page 67). Eisenman wanted the scaffolding to extend across the campus street to the north, but it now stops short at the building end. The "student housing" at the top was to have a greenish color, complementing the red sandstone of the plinths, but the architects accepted a standard off-white for the prefinished cladding.

mounds scattered across Ohio. To add further allusions here, Eisenman has slashed the plinths with a grid shift, which he calls the "Greenville Trace" in homage to the line across Ohio where two regional surveys failed to mesh (see Mark Taylor's essay, page 89).

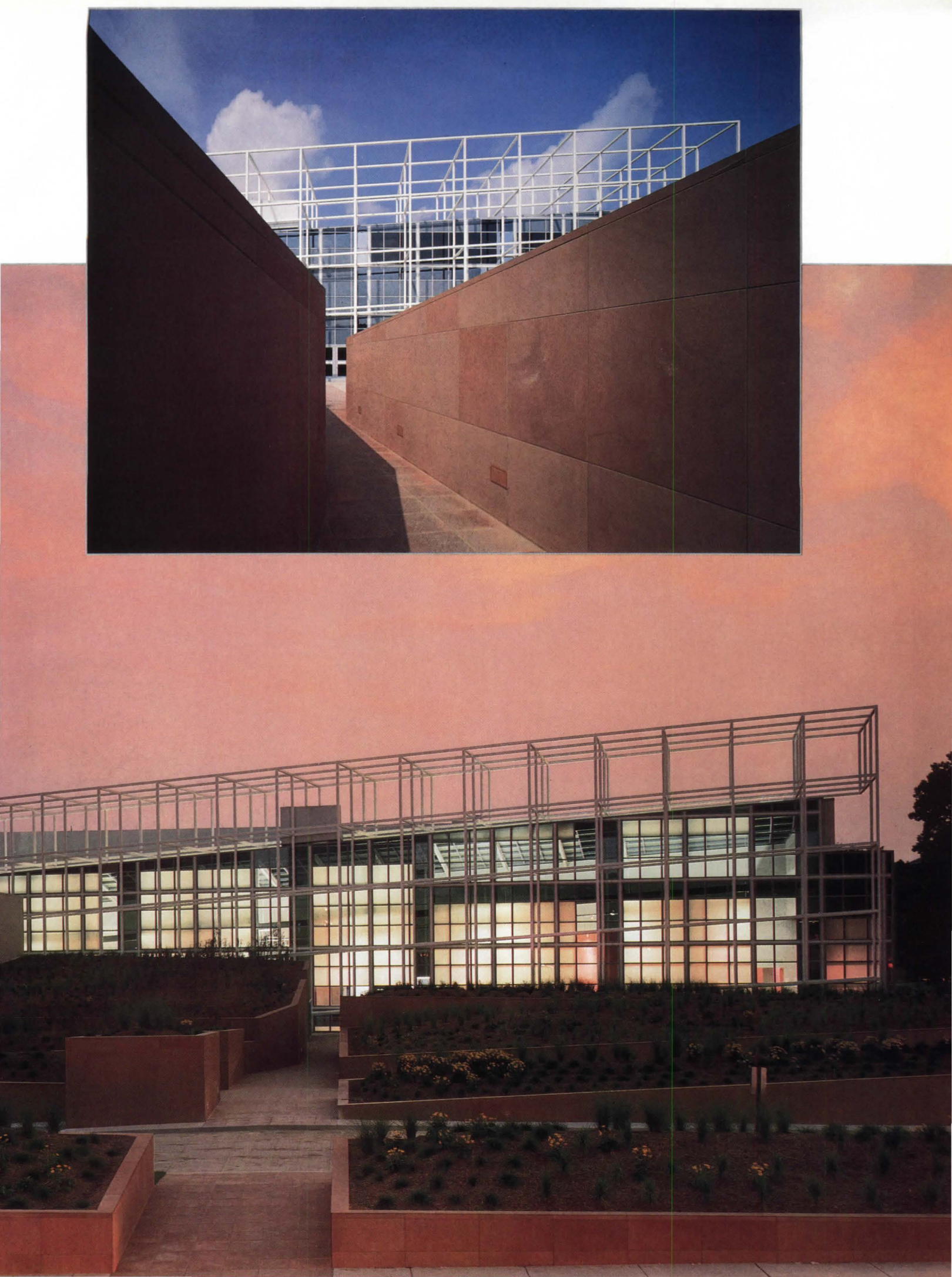
The disparate formal qualities of the armory towers, the scaffolding, and the plinths enforce the deliberate lack of unity of this design—much as the juxtaposition of unlike elements expresses discontinuity in current art. The actual building envelope is largely curtain wall with complex gridded patterns of varied glass—easily confounded visually with the scaffolding and its shadows—some metal siding, and sections of limestone cladding that emulate neighboring structures. At the top of the complex hover some metal-clad volumes containing absolutely nothing, which are always referred to as "student housing." These boxes play a role in the overall concept and, in reality, raise the silhouette of the complex to a height comparable to neighboring buildings, but the subtleties of their disposition cannot be appreciated from the ground.

Inner Workings of an Arts Center

Although composed of unconventional forms, the Wexner Center has to house a real program of exhibitions, performances, studios, workshops, offices, and even a café. The name "visual arts center" seems a misnomer, particularly since the adjoining Mershon Auditorium and a recital hall in Weigel are operated as part of it. The center's program from the outset emphasized experimental art and new media, and this thrust undoubtedly influenced the jury's choice of the Eisenman/Trott proposal. The avant-garde character of both the program and the winning design apparently prompted the decision of Leslie Wexner, the Columbus retailer who founded the chain of Limited stores, to underwrite most of the center's cost with a $25-million contribution.

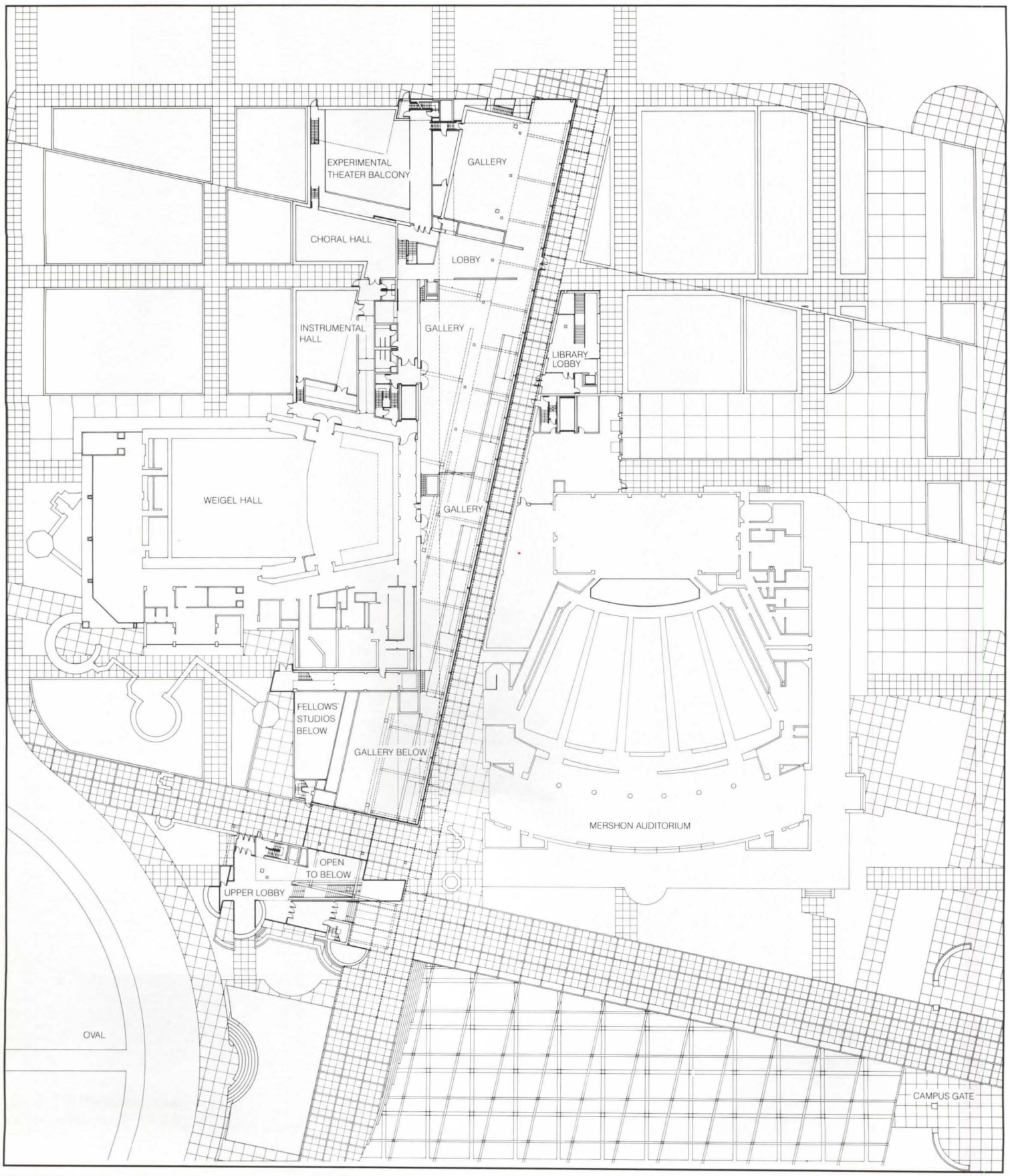
All parts of the art center are organized around a long passage that parallels the north-south exterior walk, just inside the curtain wall. This interior spine, however, is not at ground level, but ramps up gradually from basement to ground level as it runs north. At the south end of the spine, just down a grand stair from the entrance, it communicates with the underground theater and, via a new escalator well, the Mershon Auditorium.

(continued on page 81)

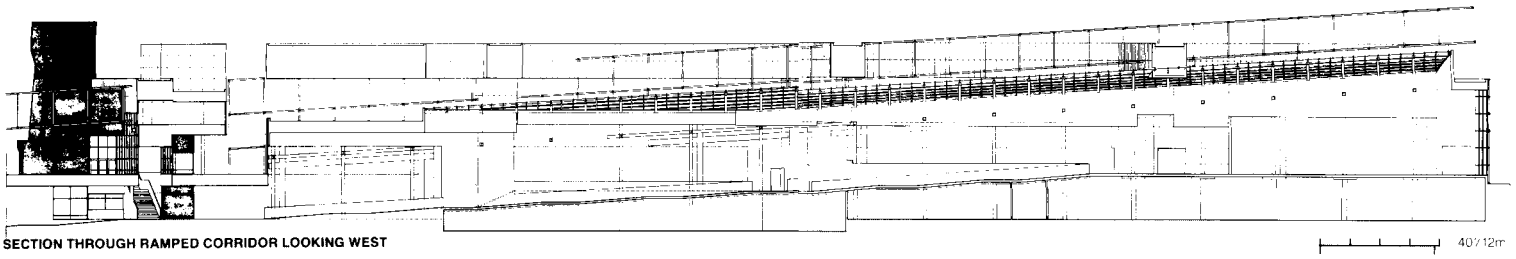


Wexner Center for the Visual Arts

Plans and Section

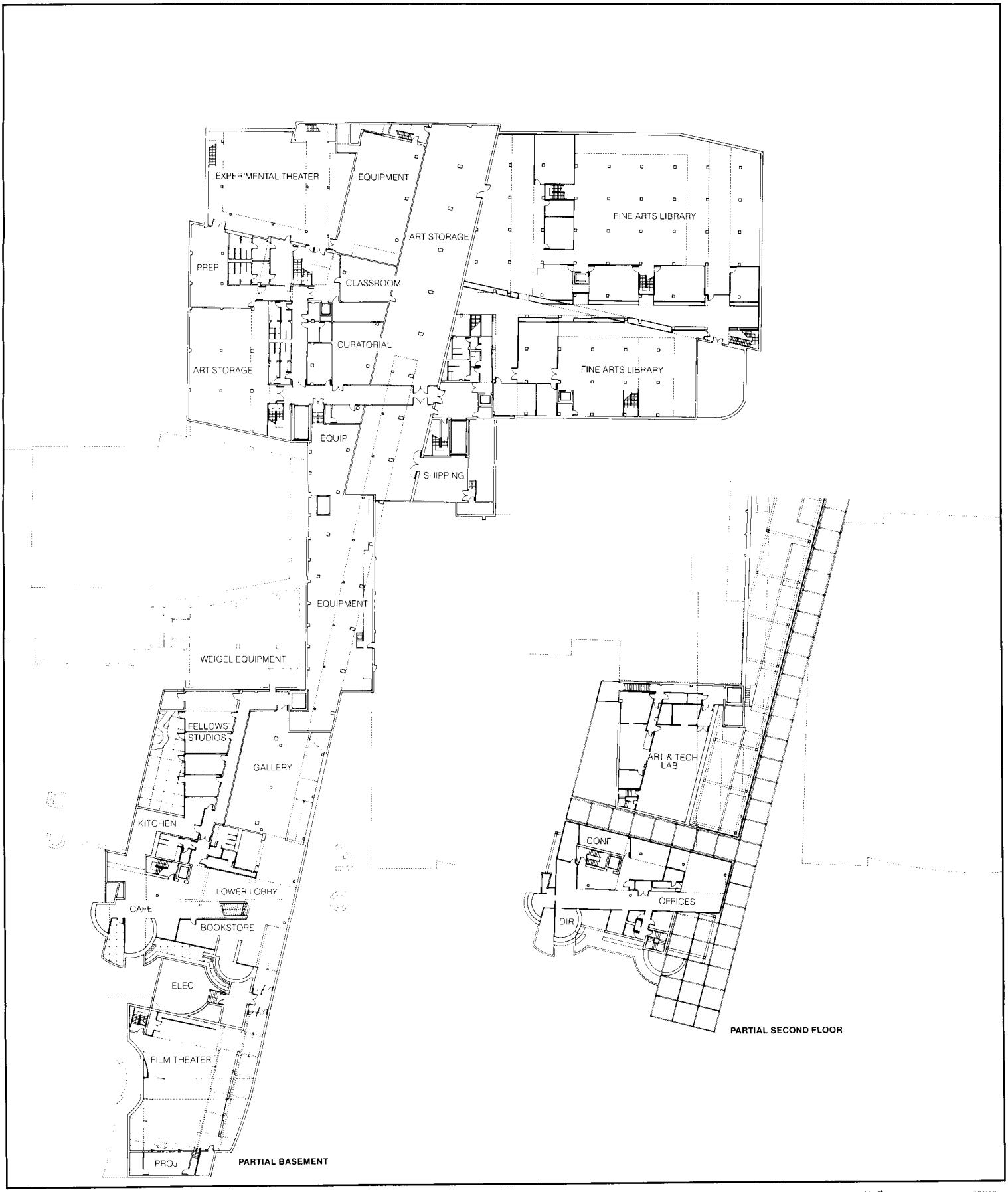


FIRST FLOOR



SECTION THROUGH RAMPED CORRIDOR LOOKING WEST

40'/12m



PARTIAL BASEMENT

PARTIAL SECOND FLOOR

N

40'/12m


Wexner Center for the Visual Arts

The center's galleries extend out from a north-south circulation spine and share the same light-filled volume. Individual galleries (left) rise in terraces off the long, ramped corridor (below left). Partitions that partially enclose these galleries are cut off parallel to the sloping roof; relief panels on the corridor side are reminders of the actual horizontal. Fluorescent fixtures designed by Fisher and Marantz, with small-scaled white grids (below), delineate the circulation band; lighting for the gallery portions will be tailored to installations, which will begin in early 1990. Light from the east wall and the skylights, striking framing members and mullions (facing page), generates an ever-changing, luminous environment.

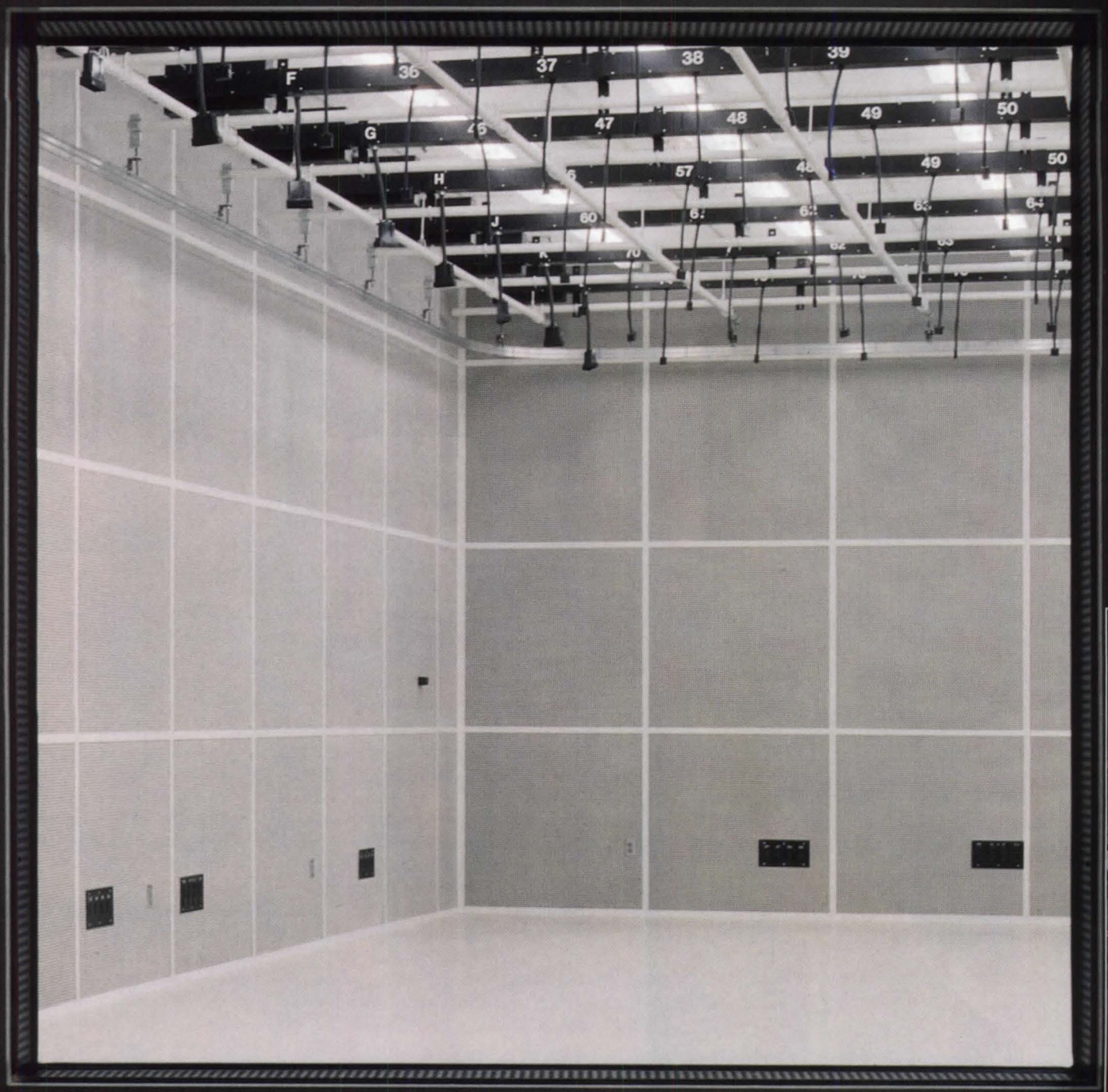
(continued from page 76)

Lining this ramped passage and rising with it in terraces are the center's art galleries. Separating the galleries from the circulation spine are partitions that rise from about waist high, their tops following the slopes of the ramps. Substituted during construction for earlier uniform parapets, these barriers give the galleries more definition and add spatial richness, without obscuring the overall spatial volume. Vincent Scully (page 86) feels, however, that they compromise the space. These partitions add virtually nothing to the hanging area, which is small in line with the program's stress on unconventional art. The northernmost gallery can be walled off by a ceiling-high movable partition, to accommodate art or performance that demands control of light.

Behind the armory towers are a two-story lobby, with café and bookstore at basement level, and administrative offices on the second floor. The administration occupies a fairly straightforward rectangle, with private offices in the odd volumes inside the brick towers, each with views framed by structural fragments. Many of the office windows occur in a band on the lower half of the wall. When asked about this departure, Eisenman justifies it several ways: The system governing these openings just worked out this way (though it does not seem so rigid elsewhere); seated people will be able to look straight out and have a better campus view than with conventional sill heights (true); there will be no furniture against these outside walls, according to plans (but will these plans be followed?); women will not feel uncomfortably exposed to view from below because the glass is mirrored (at least until dusk). While this window arrangement will provide a fascinating case study, it is unlikely to delight the staff.

Other facilities in the complex have had to be fitted into odd spaces, and this has precluded clear routes of access. The art and technology laboratory, which is mainly for filming and taping, and the visiting fellows' studios below are not easy to reach, nor are the rehearsal halls adjoining Weigel Hall. The experimental theater, though in a relatively unencumbered location, is reached rather unceremoniously through a portion of the galleries.

Under the plinths at the northeast corner of the site is the fine arts library—not a component of Wexner Center and not finally located in this complex till after construction had begun. Once planned to be at the northwest corner, in better relation to the cam-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The center's performing spaces embody various aspects of its architectural character. The art and technology lab (facing page) has a simple trapezoidal plan, a precise grid on its sound-absorbent walls and a regular pattern of hanging connections. The experimental theater (below left) is also simple in plan, with generous catwalks laid out on angled grids. (All columns here will be painted dark gray.) The broad, low volume of the underground film and video theater (below and left) has arrays of ceiling planes and lighting in two skewed orientations, reflecting the same collision of systems that occurs above it. Eisenman speaks of the building's geometric themes recurring in microcosm.

pus, the library was displaced when a rock ledge was found to interfere with its two-story underground volume. It is criticized by Scully (page 86) for its lack of natural lighting—except at its entrance from the main walkway—but Eisenman says that library administrators ruled out top lighting, which could have been worked into the plinths. Now a perimeter band of double-height space around the main stack area, flooded by cool-colored fluorescents, gives a suggestion of natural light.

Intentions and Outcome

When the Wexner Center opens in November, it will have no installed art. The focus will be on the building itself—subject of a special taped tour—and on inaugural performances. Center director Robert Stearns and his recently-assembled staff will be planning a series of initial exhibitions starting in early 1990.

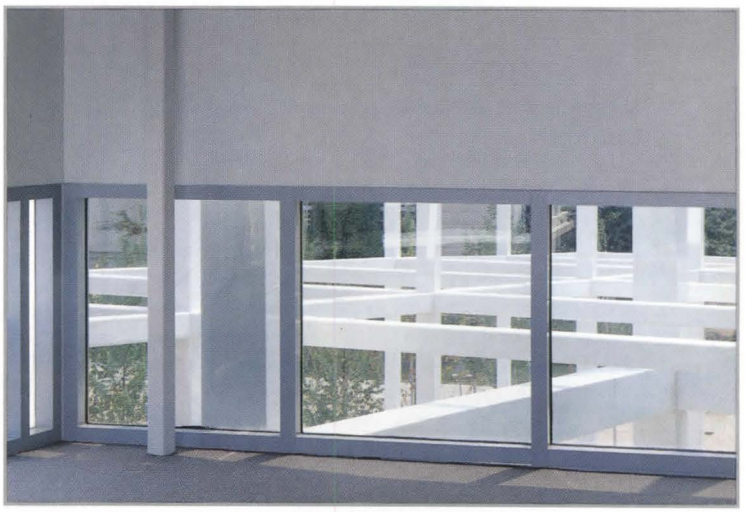
The complex unveiled next month will surely serve Eisenman's objective of shattering conventional perceptions. For visitors, it will be very hard to construct a mental image of the place. On the other hand, it will be very clear that there is an underlying order—much as there is in the natural "chaos" that now gets so much scientific attention. Also evident will be the heavy dependence of the design on the existence of adjoining conventional buildings; as Eisenman readily admits, he even recreated the armory to reinforce this relation to traditional architectural form.

One of the surprises is that a building with such abstract, intellectual intentions behind it is, in fact, very sensuous. The juxtaposition of various stones and kinds of glass, the intricate patterns of light and shadow, the tricks of perception (as where parallel angular lines appear to converge), the repetition of geometries at different scales—all add up to a rich environmental experience that transcends the methodical design process. Eisenman, who had never used brick before, knows how to make construction itself an aesthetic event.

And Wexner Center embodies Eisenman's belief that architecture, like the sciences and other "discourses," must ever change to remain relevant. This project is his most effective effort to date to advance the Modernist agenda of innovation and discovery. As Eisenman observes with evident satisfaction, "This is a building that ups the ante." ***John Morris Dixon*** ■

The Center's two-story main lobby (facing page) features a grand stair that descends from entrance level to the main circulation spine, one floor down at this point. A convergence of framing members, real and conceptual, occurs at this stair. In the offices above the lobby (left and below) much of the window area is in bands along the floor, which Eisenman says the geometric systems generated. Seen through various kinds of glass, views of the campus extend out when one is seated; furniture, yet to arrive, is not to abut these windows. A garden north of the offices (below left) is built around foundations of the original armory (which had to be re-created after a contractor mistakenly demolished them). Courtyards off the fellows' studios (right in photo) are meant to show their work in progress.

Artog/D.G. Olshavsky



Project: *Wexner Center for the Visual Arts, The Ohio State University, Columbus, Ohio.*
Architects: *Eisenman/Trott Architects (a joint venture of Eisenman Architects, New York, and Richard Trott & Partners, Columbus—at the outset of this project, Eisenman/Robertson, Architects, and Trott & Bean, Architects). Partners in charge: Peter Eisenman, Richard Trott, Arthur Baker. Project Director: Michael Burkey. Project Associates: George Kewin, Thomas Leeser, Richard Morris, Faruk Yorgancioglu. Project architects: Andrew Buchsbaum, James Rudy, Harry Ours. Project team: Andrea Brown, Edward Carroll, Robert Choeff, David Clark, Chuck Crawford, Tim Decker, Ellen Dunham, Frances Hsu, Wes Jones, Jim Linke, Michael McInturf, Hiroshi Maruyama, Mark Mascheroni, Alexis Moser, Joe Rosa, Scott Sickeler, Madison Spencer, Mark Wamble.*
Client: *The Ohio State University (Jim Swiatek, university project architect; Tom Heretta, university project manager).*
Site: *flat area between the central campus Oval and the main gateway from the city at 15th Avenue; site was largely occupied by two buildings, Mershon Auditorium and Weigel Hall.*
Program: *exhibition, performance, production, instruction, library, curatorial, and administrative spaces for film, experimental art, computer graphics, etc., to be used by university and community. New construction, gross area: 108,750 sq ft (includes 12,000 sq ft of galleries, 6000 sq ft of administrative offices, 300-seat film theater, 250-seat experimental theater, 30,000-sq-ft arts library). Existing buildings, gross area: 155,530 sq ft (includes 3074-seat Merschon Auditorium and 720-seat recital facility in Weigel Hall).*
Structural system: *steel frame with cast-in-place concrete floors.*
Major materials: *exposed painted steel, steel-framed skylights, translucent and tinted glass curtainwalls, brick, limestone, sandstone, drywall, granite and hardwood flooring, precast pavers (See Building Materials, page 136).*
Mechanical systems: *dual-duct VAV systems in art storage and library; air systems supplemented with hot-water radiation at glass areas.*
Consultants: *Hanna/Olin Ltd. (Laurie Olin, partner in charge), landscape; Lantz, Jones & Nebraska, Inc. (Tom Jones, partner in charge), structural; H.A. Williams & Associates, mechanical; Jules Fisher & Paul Marantz, lighting; Jules Fisher Associates, theater; Bird & Bull, civil engineering; Chapman/Ducibella Associates, security and fire; Robert Slutzky, graphics and color; Dunbar Geotechnical, soils engineering; Boyce Nemec, audiovisual.*
General contractor: *Dugan & Meyers (Jim Smith, project manager).*
Costs: *approximately $43 million, including equipment, furnishings, landscaping.*
Photography: *Jeff Goldberg, ESTO, except as noted.*

Theory and *delight*

Vincent Scully
The author is the Stirling Professor of the History of Art at Yale and author of numerous articles and books on American and Modern architecture.

PETER EISENMAN'S Wexner Center is a curious building, in part utterly delightful, in part rather less so. I first saw it in the rain one winter night when it was about half complete. I was powerfully moved by it at the time, especially by the illusionary perspective of the metal lattice that runs through and alongside it and by what seemed to me the bold imagery of its brick towers. These are intended to invoke the ghost of the fine old armory that once stood on the site and had to be torn down after a fire in 1958. I was then, and remain, mightily impressed that any architect could persuade any client to spend money in this way. It seemed to me to represent a splendid blow for contextual design, strongly and wittily struck. This was especially so because the brick was, in part, laid up in layers as if peeling to destruction, much as it looked in photographs taken during the demolition of the original towers. A kind of valiant endurance, or a rebirth, was suggested.

Seeing the building again in early August, I was still very taken with the lattice, somewhat less so with the towers. The former populated my dreams that night much as the colonnade of Aldo Rossi's Galaratese housing had done when I first saw it many years ago. Rossi's vision, though, is of the body in space, Eisenman's of the void. Rossi's columns march like Titans through the night; Eisenman's grid tocks like a clock marking off empty hours.

That magical vision of emptiness is the most memorable thing about Eisenman's building, but the design as a whole poses some interesting and rather puzzling questions having to do with the effect of his preoccupation with "deep structure," linguistic analysis, and pictorial Constructivism. From their earliest days those interests have resulted in buildings whose complex set of intersecting, overlapping, and sometimes competing axes in plan and, so far as possible, in three dimensions, have derived from Eisenman's reading of the various formal suggestions offered by the site, the construction and program of the building, and—it must be said—by his own spatial and pictorial preoccupations of the moment. His early houses were compelling because they really seemed to "look like" his theoretical analysis of that complicated process. His verbal and visible forms were thus integrally related to each other.

This was heartening because architectural theory ought to be about architecture, after all, not about itself. It ought to be able to be tested in the realm of the senses. Otherwise it can become self-referential madness, a pretentious refuge from perception and fact. Yet European architectural theory has always had a strong component of insane obsession in it. When the French advisers at Milan Cathedral in the 14th Century reproved the Italians for their perfectly successful architectural practice with the words *Ars sine scientia nihil est*, "Art without science is nothing"—which can be roughly construed to mean, among other things, "It doesn't matter if it is right if the theory behind it is wrong"—they were voicing for the first time what was to become one of the silliest and most persistent beliefs of French criticism, which was to pop up in various guises throughout history, culminating, if that is the word, in the peculiar twist of Deconstructivism itself, wherein "art" is in fact made by the critic, by "science."

The critic was to shape it all, sometimes in surprising ways, as in an article by the French philosopher Jacques Derrida, where Eisenman is deconstructively compared to Nietzsche, Plato, and Christ. Naturally enough, a good many young architects were soon mad for it all, since it not only more than sustained their threatened heroic status as modern artists (now as modern critics), but also transformed them into top-flight intellectuals. Yet, architectural Deconstruction has, in reality, had little to do with the literary variety. Despite everything, architects need forms even more desperately than they need ideas (or slogans), and here they found them, superficially enough, in the dynamic diagonals, the explosive abstractions, and the impeccably revolutionary credentials of Russian Constructivism—so setting up an intriguing and entirely meaningless play on words as well.

Of all this Eisenman has been without question the leader, the artist who best understood the theory and whose design seemed to embody it most dramatically. Hence the canonical diagonal is his major siting device in the Wexner Center, and the cross-axial articulation of the building as a whole derives from it. Eisenman loves to draw it as a powerful red line that extends the diagonal axis of 15th Avenue well past the Ohio State Oval to cross the open end of the football stadium in the distance. There is in fact a fairly feeble tower at the side of the Oval along that line, but the stadium itself is entirely invisible, so that the red line is not a generating line of sight through and past the Oval, but a conceptually arbitrary and purely graphic device in that area. Eisenman has indeed used it as the formal generator of the numerous pictorial abstractions that he has since painted of this and other buildings, so moving the whole into that realm of free formal invention which is especially open to the painter and into which many modern architects have tried to follow, all too often at the expense of architecture itself as a contextual and urbanistic art.

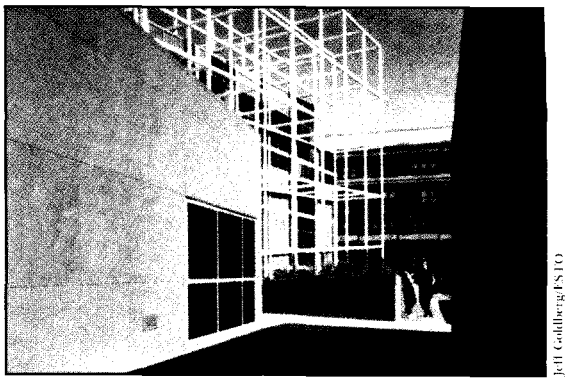
Axes opened and closed

The question is whether or not the diagonal line works urbanistically in the Center. The answer has to be qualified. It does act supremely well to bring the town grid powerfully into the campus up 15th Avenue; here the axis is a truly visual one on the site. It seems to me, though, that it reads best when viewed from the entrance to Eisenman's building back down 15th Avenue, since the forms that Eisenman assembles at its entrance to attract our eye from the town to the building itself are not powerful enough to do the job. The largest of the towers is set behind the others in this perspective and is visible primarily from the Oval. Even there none of the towers acts as powerfully as one might hope, perhaps because none of them is nearly as big as the largest of those that crowned the old armory.

What about the entrance to the Oval itself, which must remain, despite Eisenman's diagonal, the spatial heart of the campus? Here nothing good happens. The grove of trees, a happy idea, which Eisenman had hoped would inflect us off the diagonal toward the axis of the Oval, turns out not to do that at all because it is cut off from the Oval itself by the protruding roof of his underground movie theater, which should not be there. We are told that there were problems with the water table in that area; all the more reason to get the thing out of the way. As it now protrudes from the ground, it traps the base of the brick towers in a tight and rather sordid areaway of banal concrete and almost masks the lively half-arch that Eisenman has schematically reconstructed between them. All this may underscore the fact that the towers and the arch represent the archaeology of the site, but such would have been even more strongly indicated if they had been directly involved with the grove of trees as it fanned out into the campus at ground level—as it should have done. Seen from the Oval itself, the present set of relationships leaves much to be desired. The tiny hemicycle that has been cut on axis

Don Oblinsky/ARTOG

The protruding roof of the film theater.



Jeff Goldberg/ESTO

One of the windows illuminating the underground library's entrance lobby.

into the face of the theater does little to focus the view from the Oval, and the steep slope of the roofline above it—responding unnecessarily to the roof slope of the main building—negates whatever spatial definition remains. The effect is of a spatter of small forms blocking the major ceremonial entrance to the campus. The rigidity of the graphic device as embodied in the Constructivist-Deconstructivist diagonal is surely responsible in large part for this urbanistic failure. A little less preoccupation with the "deep structure" of the cross axis could also have helped Eisenman focus on what has to be the main point here, which is the relationship to the Oval and particularly to its axis, which is in fact that of the campus as a whole.

Filling the Voids

Inside, the building is a different and much happier story. As we approach its not very inviting entrance from 15th Avenue, the first thing we see is the wonderful white basket frame of the gridded lattice running up and away to our right, leaping out to shape a perspective toward infinite space between the new building and the pre-existing auditorium, whose corner was lopped off to receive it. Straight ahead we enter at the intermediate level of some equally delightful spaces. Up above, the offices are squirreled in and between the towers, lighted primarily from windows at floor level, offering all kinds of views down between the towers and out into the Oval. The white lattice is seen reaching out to the existing building on that side, while another wholly mad and obviously non-structural metal member rushes portentously through the spaces and comes to a shuddering halt just in front of the window glass. Here is Eisenman's theory of "deep structure" and its resonances (millions of grids) put to the service of architectural delight, and I am all for it. The same is true of the stairway that leads down toward the main level. Massive square columns, acting in accordance with some demented law like a French driver of the 1930s defending the right of way, crash down onto the stairs or are cut off above them to hang suspended just beyond head height. I like this too. The effect is exhilarating and fun, spatially detonating most of all. The fluorescent lighting fixtures are themselves clothed in little white metal grids that invoke the big steel lattices and lend a science-fiction glitter to the scene. They run all through the building in their wild, deep-structural diagonals, humanizing what would otherwise be a very primitive lighting device.

From this lobby area the very best and most characteristic of Eisenman's spaces, housing the exhibition galleries, take off on their cross axis. They mount through the building, pushing out in diagonally-directed volumes on the left side, while a continuous ramp slants upward on the right. These are the spaces, still unfinished, that moved me most during the winter. The whole sequence is totally interstitial; it simply fills in the voids that were left over when the pre-existing buildings were modified to let the new building slide in between them. As such, these spaces amply justify, at least in this particular place, Eisenman's fundamental theory of anti-classic, post-humanist design, since they can be said merely to have happened in response to the whole structural archaeology of the site. They can also be described, however, as wholly contextual for much the same reason.

All the more regrettable, therefore, that Eisenman should have sought to divide that deeply indivisible spatial structure with a head-high barrier wall running along the outer side of the ramp where only the most minimal railing, if required, ought to be. The wall not only breaks up what really is one space, but suggests the kind of functional device that is utter anathema in Eisenman's theory. In any event, it is a minor point, easily remedied if desired.

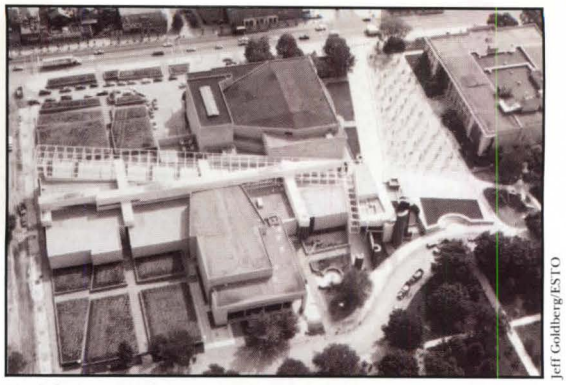
Less minor, in my view, is the lack of any natural light in the library. Except for one flash from above in its lobby, it is entirely underground and artificially lighted. But natural light is a necessity in a library, if only for visual relief. In the larger sense, "a man with a book goes to the light," as Kahn said he did, so that there is something at once more deeply human and soundly theoretical in the proposition as well. Eisenman could readily have let light in from above in various ways, but he clearly did not want to break up the rather heavy abstraction of the salmon-colored masonry planting blocks which he builds up above ground in this area and which are all that he lets us see of the library on the outside. He seems to have felt this was the best way to set off the soaring lattice of his grid, which looks from the town a little like the whitened skeleton of a spaceship that has crashed into the campus. In that view, as from inside as well, one would like to have seen it extended even further into space, perhaps even cantilevered at last to seek the heavens. The blind masses below it do it little good, and they make a depressing and rather dangerous-feeling labyrinth anyway. Perhaps all this could have been avoided by placing the library above grade on the other, campus side of the building at this point, enlivening the present drearily monolithic elevation there with some windows, perhaps even providing an alternative space where the library now stands, for the egregious movie theater.

It is true that the library was a late entrant in the university's program, and the university must be held at least partly responsible for its windowless state, which is surely no credit to theory or perception either. Here, one is in fact reminded of Mies, who tended toward the last to put most of his functions underground in order to leave only one perfect structure showing up above. Eisenman's perceptions, no less than his theory, are much more complex than those of Mies. He wants to do a lot of complicated things with his buildings, and one hopes that he will continue in that vein. He also wants to be contextual, just as he is equally determined to rival painting's capacity for experimental invention. By their very natures these things are often in conflict with each other, and Eisenman is sometimes able to resolve their rival claims, sometimes not. Sometimes his "deep structure" becomes an obtrusive and rather obnoxious graphic device. Sometimes it just seems urbanistically wrong-headed and visually unjustified. But sometimes it produces a lot of rich, fresh, invigorating architectural delight, and for that one is anxious to forgive Eisenman almost anything—especially those of us who don't care whether the theory is lousy if the building is good. ■

O-O*

R.E. Somol

The author is a Ph.D. candidate in the Committee on the History of Culture at the University of Chicago whose research has focused on the neo-avant-garde in American architecture.



Jeff Goldberg/ESTO

Aerial view showing Wexner's four quadrants.

AT the Wexner Center for the Visual Arts, Peter Eisenman combines his early interest in formal autonomy with the processes of excavation and digging later explored in his Cannaregio project for Venice and House 11A. Moreover, he exchanges and reassembles collective and personal narratives, collapsing references to the avant-garde in America with a catalog of his own strategies over the last 20 years. Wexner achieves this not through particular formal or figurative elements but by experimenting with conditions of between and processes of becoming. Eisenman's Armory Show represents his most complete realization yet of a post-humanist, post-functionalist architecture.

The initial archaeological excavation at Ohio State provided the impetus for reconstructing fragments of the armory that had previously occupied part of the site. Here, Eisenman's burrowing emerges as a form of castling where, as in the writings of Kafka, the castle and burrow become emblems for the multiple passageways and connections of the labyrinth. The relationship of tower and grid at Wexner also suggests a connection to castling in chess, the only move where two pieces are simultaneously in motion, passing through one another and reversing positions. At Wexner, the sovereign grid (reason) is allowed a doubling two-step with the rook, suspending the laws of normal movement and development. This process produces a third term for the avant-garde object, between the sphere and the labyrinth, where the becoming-grid of the castle and the becoming-castle of the grid produce an imperceptibility. The "final" structure exists in a state of between, a supplement to architecture, part landscape and part scaffolding.

The mutational design logic of Wexner makes it unproductive to fixate on any particular figure in the Eisenman/Trott assemblage. Undoubtedly, some critics will focus exclusively on the fragmented armory forms located in the southwest corner of the site, drawing parallels to the work of James Wines, James Stirling, or Michael Graves. Rather than serving as an example of Peter Eisenman's belated adoption of a figurative or historicist Post-Modernism, however, Wexner enables us to redefine what Post-Modernism was all along, to recover its contestatory aspects and undermine the facile stylistic history that has been marketed for the last decade.

The formal solution of the building results from the dynamic twisting and multiplication of two grids, those of the city and the campus, 12.5 degrees askew. In Wexner, Eisenman advances the grid to its conceptual and lyrical limits. Walking through the escalating layers of grids in the interior gallery or exterior arcade one begins to imagine the unimaginable: that somewhere on an Ohio farm there is a piece of the Wexner grid, even if registered only through an "absent," fallow square. The limitation of the grid at Wexner, however, is that it can only work at the level of increasing scale. The gridding process cannot be successfully reversed or miniaturized, for then the grid becomes a merely decorative and immobile thing, a fixture, as in the smallest grids at Wexner used to cover one set of the fluorescent tubes.

Eisenman's practical, theoretical, and historical investigations have always revolved around the displacement of the ground plane, man's upright datum, by floating or submerging it, by raising it and razing it, outbidding the terrestrial logic of an erect subjectivity. In Eisenman's projects, and particularly at Ohio State, the places of habitation are extraterrestrial and subterranean. Confronted with the prospect of being buried alive or placed in suspended animation, the inhabitant-user must abandon classical means of understanding the object as well as any self-satisfied liberal "truths" about the post-Enlightenment subject.

This attempt to estrange and activate the viewer is especially appropriate for an institution that promotes the production and display of art. The Wexner Center thus operates to challenge the institution and the works that it simultaneously protects and frames. The triadic relationship among viewer, object, and setting is made thematic, with each term sliding into and redefining the others.

Suturing Mershon Auditorium to Weigel Hall, the building acts as a weed that proliferates within the spaces left between cultivated areas, between the institutions of cultural Modernism and structures of architectural modernity. In that sense, Wexner approaches the status of a rhizome—a horizontal, underground stem able to produce the shoot and root systems of a new plant. Unlike the tree that imposes a hierarchical structure, the rhizone circulates underground making unordered connections and affiliations, sometimes penetrating even the rooted trunks of trees and putting them to new uses.

In contrast to the vertical or hierarchical model of the tree, Wexner fabricates a lateral mapping of the site that can only be understood through a criterion of performance and a strategy of tactile reception. This rhizomatic aspect marks the project's greatest contribution to a critical architecture distinct from the Classical-Enlightenment tradition and contemporary practices that masquerade as its progeny. This proposal for an avant-garde architecture is perhaps most fully delineated in the four quadrants around Wexner's intervention.

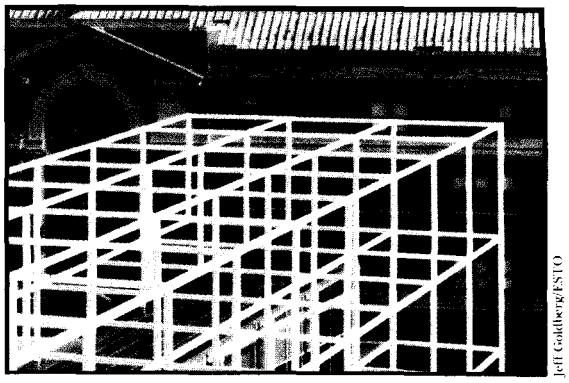
As a mock historical narrative, the first three quadrants (southeast, southwest, and northwest) refer to architectural types from the mid-18th, 19th, and 20th centuries respectively: the formal garden of the rationally gridded buckeye trees, the solid masonry of the reconstructed armory, and the banal late-Modern box continued from the side wall elevation of Weigel Hall. Eisenman's own alternative paradigm is most readily seen in the northeast quadrant where a maze of landscaping—one that rises above street level yet nonetheless induces the experience of being underground and below variously inclining embankments of earth and weeds—becomes aligned with the intersecting strands of unevenly pitched grids that form Wexner's central spine. This implied equivalence between weed and architecture does not result from resemblance or imitation, but from a non-parallel evolution, distinct from the continuous tripartite history simulated in the first three quadrants.

The Wexner Center for the Visual Arts represents a break with the architectural discipline instituted by the Enlightenment, undermining the domestic tree metaphor that has petrified architectural discourse. Wexner is not an arborescent architecture, not a tree house; it is not involved with roots, origins, or ends. Strictly speaking, it has no identity. With Wexner, Peter Eisenman instigates an architecture that pushes reason to unreasonable speculation, inventing histories and deploying coincidences to escape tradition. These muliplications of fictions, however, exhibit an incredible specificity with regard to the site and program at Ohio State. While the deterritorializing process undertaken at Wexner raises the possibility for a truely critical architecture and a regionalism without roots, it is not a formal model to be copied or imitated. Other places will require other maps. ■

* The chess notation for castling.

eisenman's COUP

Mark C. Taylor
The author is the William R. Kenan, Jr., Professor of Religion and Director of the Center for the Humanities and Social Sciences at Williams College. A specialist in modern philosophy and religion, his work explores the intersection of religion, literature, art, and architecture.



Jeff Goldberg/ESTO

Wexner's open-ended grid confronts adjacent buildings.

THE VVexner Center for the Visual Arts is a center that is not a center, a museum that is not a museum. It is a (w)edge (d)riven between other buildings, creating an irreducibly open structure that "is" nothing but edge. As always, Eisenman leaves us somewhat edgy. His unsettling construction faults the metaphysics of closure by deploying strategies of dislocation and interruption: fragmentation and doubling.

Fragmentation is the pulling to pieces (the tearing) of that which has never pre-existed (really or ideally) as a whole, nor can it ever be reassembled in any future presence whatever. Fragmentation is the spacing, the separation effected by a temporalization that can only be understood—fallaciously—as the absence of time . . .[1]

His work is also an exercise in duplicity. Nowhere is that duplicity more evident than in his use of the grid. From his early houses to his recent Frankfurt project, grids dominate Eisenman's buildings. The function of the grid, however, has changed significantly over the years. In his early houses, Eisenman remains committed to a classical Modernist aesthetic in which the grid is the mark of the clarity and transparency of structure. In the VVexner Center, Eisenman uses the grid to displace and subvert the grid.

The grids that structure and ornament the building assume multiple forms: exterior and interior scaffolding, window, door, floor, wall, and ceiling patterns, mirrors, ladders, catwalks, stairs. The intersection of the grids opens the "Center" by allowing the outside in and turning the inside out until the grids of the building point beyond to the campus, city, and state. Contrary to expectation, the interpenetration of interior and exterior does not result in transparency. As grids double and redouble, they repeatedly shift, oscillate, and alternate. It becomes impossible to locate stable axes that provide orientation. Layered grids function like moiré patterns that tremble ever so slightly. Angles of vision constantly shift, erasing any sense of centeredness. Eisenman has fabricated a Center for the Visual Arts without a center of vision.

One crack, and building crumbles and initiates the endless reading of its ruins . . .[2]

One of the most important differences between the Modern and Post-Modern concerns the relation of the present to the past (and vice versa). While Modernism seeks release from a past that seems to limit and restrict, Post-Modernism searches for a return to and of a past that promises to enrich the present. In Post-Modern architecture, the trace of the past often takes the form of ornamentation added to structures that remain essentially Modern. In many cases, quotation and citation are ironic or paradoxical pastiches. Rarely does such irony or parody question the metaphysical presuppositions of building and dwelling represented in Modern structures.

In the VVexner Center, the past returns in the present to call into question the very possibility of re-presentation. Eisenman doubles parody by parodying Post-Modern parody. The "shape" of the past is the trace—the trace of the armory that was near the site of the current building until 1958. At first glance, Eisenman's use of details from the armory seems to be a classical Post-Modern gesture. But there are differences, and these differences constitute an important critique of both Modernism and Post-Modernism. This critique can be seen most clearly in two aspects of Eisenman's reference to the armory: the outline of the foundation and dominant tower.

The foundation of the original armory is present as a trace that is neither a simulation nor a dissimulation. As is so often the case, an accident proved productive—more productive than the original intention. In the plan for the site, Eisenman had intended to preserve what remained of the original foundation of the armory. By mistake, however, workmen removed the remains. Committed to inscribing the trace of the past in the present, Eisenman reconstructed the outline of the armory's foundation. Like the fragile lines of a text, this faint outline traces the site of the withdrawal of the original foundation. What appears to commemorate the presence of a solid foundation turns out to mark the absence of a grounding structure. Though apparently a representation by which the past enriches the present, Eisenman's "textual" supplement is a depresentation through which the inaccessibility of the past hollows out the present as if from within. By following Eisenman's nonfoundational outline(s), it becomes possible to read Modernity's desire for clarity and transparency as well as Post-Modernism's ironic play with the past as two versions of nostalgic longing for an impossible presence.

Time, time: the step/not beyond, which is not accomplished in time, would lead outside of time, without this outside being timeless, but there where time would fall, fragile fall, according to this "outside of time in time" toward which writing would draw us, if it were permitted to us, vanished from us, from writing the secret of the ancient feat . . .[3]

From a certain perspective, Eisenman's tower appears to be whole. As such, it looks like a direct quotation of the past. As one shifts his or her angle of vision, however, the whole falls apart. More precisely, one discovers that the whole was never whole but was "originally" a fragment. That which is (always already) rent cannot be whole. The pieces simply do not fit together. Lines that appear to converge do not meet; walls that seem complete break off; the grid etched in brick abruptly ends; perpendiculars become diagonals; rectangles and squares are cut to form wedges. As one walks around the tower, the circle disappears in a ceaseless play of edges.

There is yet another trace of a trace "in" Eisenman's construction but "outside" his building. At the corner of the site opposite the tower, there is a labyrinth made up of a complex network of wedges. In one of the walls, there is a gap. Even if the sides of this passageway were extended, they would not meet. How is this space to be read?

The gap in the labyrinth is not an exit from the maze but is the trace of another trace—the Greenville Trace. The territory of Ohio was originally plotted by two teams of surveyors: one working from North to South, the other working from south to north. One of the aims of the surveyors was to integrate the traditional Jeffersonian grid with smaller, more localized grids. The grids were supposed to meet on an axis that passes through Columbus. But the surveyors failed; they missed the mark. Their measurements were off and thus the grid was disrupted by a gap. This gap is called the Greenville Trace. The opening in the wall of Eisenman's labyrinth is the sign of the missing (of the) mark.

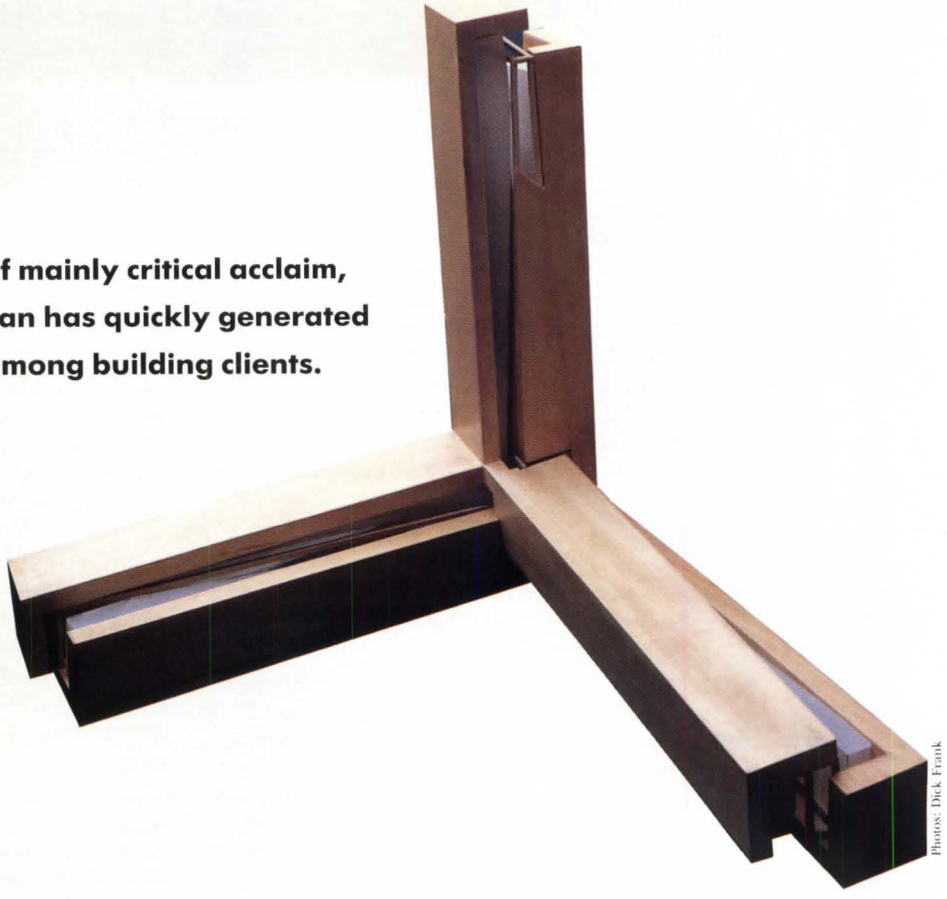
Wandering through Eisenman's mazing construction, we (re)discover what we already know but struggle to repress: There is no exit from the labyrinth in which we are destined to err. ■

1. Maurice Blanchot, *The Writing of the Disaster*, trans. by A. Smock (Lincoln: University of Nebraska Press, 1986), p. 60.

2. Edmond Jabes, *El, or the Last Book*, trans. by R. Waldrop (Middletown, CT: Wesleyan University Press, 1984), p. 104.

3. Maurice Blanchot, *Le Pas au-delà* (Paris: Gallimard, 1973), p. 8.

The Pied Piper Syndrome



Photos: Dick Frank

TWO DESK LAMPS FOR KOIZUMI

After years of mainly critical acclaim, Peter Eisenman has quickly generated a following among building clients.

JUST a short while ago, Peter Eisenman was well known, even famous, for abstract architectural exercises, provocative, instructive, and beautiful, only a few of which were actually built. He was slotted as a thinker, the type that would frighten clients away. Yet now he has numerous clients and several fairly large projects, notably the six on the following pages. Still, the work is intense, personal, complex, intellectual, the kind that continues to fascinate critics and stir students. The dual success is undoubtedly due to Eisenman's continued and relentless pursuit of self-established goals. With his eyes fixed upon a singular, personal line, producing work that is both provocative and seductive, he makes a compelling Pied Piper.

The Power of Beauty

Eisenman's work is beautiful, a fact that may seem to contradict its intentionally provocative qualities. Or does it? The key lies in a quotation from Tolstoy which Eisenman used to begin an essay in a recent AD Monograph (Deconstructivism II): "It is amazing how complete is the illusion that beauty is goodness." If beauty is goodness, does Eisenman intend to be "good"? The essential word, here, is illusion.

At least in our society, beauty is not associated primarily with goodness. Eisenman's architecture exposes the condition of beauty today. It shows an uneasy balance between the joyous effect of beauty and the aggressive provocation of the new and the unknown. While the formal explorations in his work become more complex and vigorous, the surface increasingly mitigates, with sensuous materials finely arranged, their supercharged effect. The beauty mitigates the tension; the tension heightens the pleasure. Some clients must find the combination irresistible.

The "Genius" Syndrome

Architectural clients have always been attracted (if they've dared) to the "artiste," who (a) sweeps away conventions, (b) looks deep into their eyes to find the real "them," and (c) dictates the brilliant solution. Eisenman explains that he "listens closely to the client," but he is also, he says, "the restaurateur with no menu, who cooks up what moves him that evening." This creates an immensely seductive aura. In this age of the pursuit of personal realization, brave clients are eager to patronize the lone explorer. What other architect today could rise, as Eisenman has done, to a client's directive to express the "control of knowledge"?

Eisenman's genius goes beyond the aura, which accounts for his continued critical success. It lies in his intuitive and intellectual pursuit of certain basic notions and goals he has set for himself.

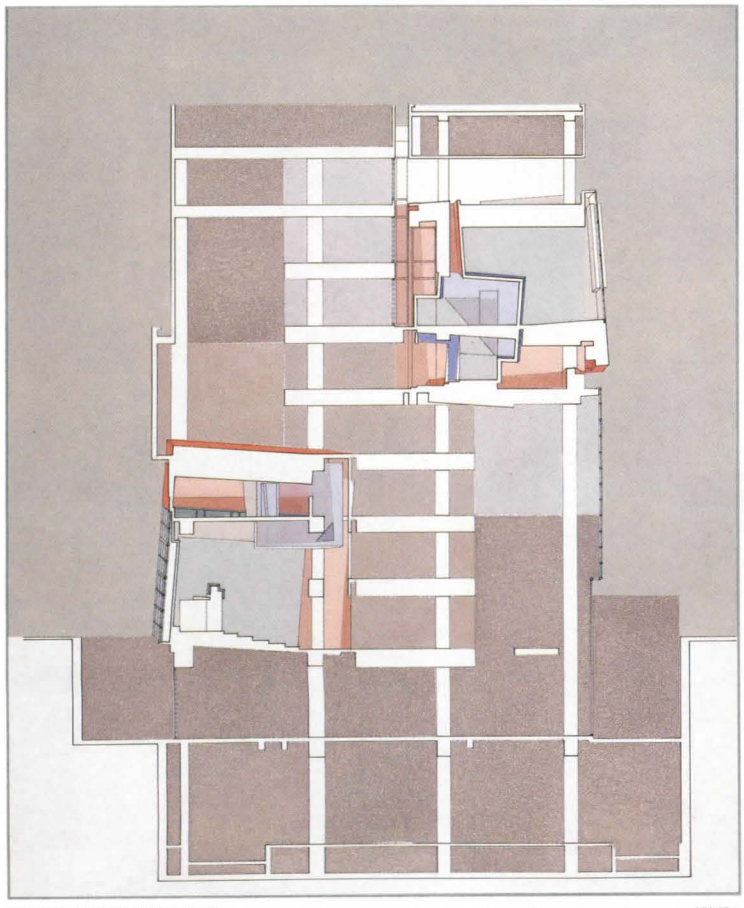
Convention Discarded: The "Weak Image"

Eisenman has a personal need to break new ground in architecture. In a conventional world, he must be unconventional. In this era of image-making, he aims to invent a new building image, the "weak" image.

In architecture today a few clicks of the camera can capture most buildings. The building itself is not the important creation; the photograph of the building is potentially the work of art. If one actually visits the building, one doesn't really see it, argues Eisenman; the mind notices a few clues and

(continued on page 98)

MODEL OF KOIZUMI BUILDING IN CONTEXT



SECTION OF KOIZUMI BUILDING

40'/12m

Koizumi Sangyo Building, Tokyo

Eisenman Architects has designed two showrooms in this eight-story, 43,000-square-foot office building, and has collaborated with K Architect & Associates of Japan in the design of the building itself, which is now under construction. The showrooms are cubes of 35-foot sides, each divided into a two-story and a one-story space.

The client for showrooms and building is a lighting fixture manufacturer, and this provided a metaphor for the architectural design. Not only is glass used prominently in the building so that the entire structure will glow, but the design ideas themselves were developed for application in lamps, as well as in the showrooms.

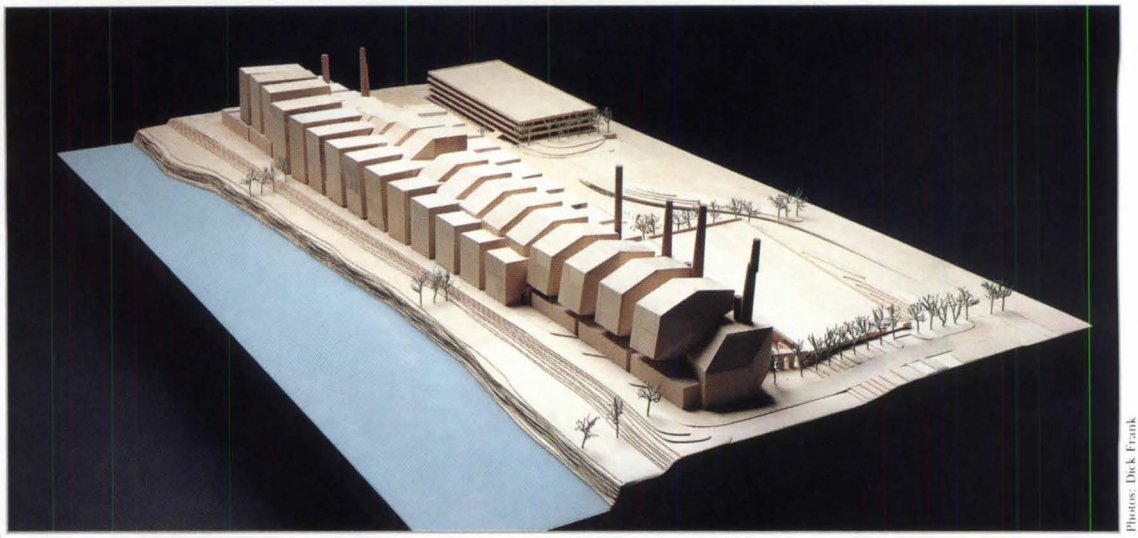
The design was inspired by the concept of atopia, or the place of no place, which represents the Westerner's comprehension of Tokyo itself. It is also a concept intrinsic to Japanese thought and is given form in the Japanese language in the words ma ("the space between") and ku ("no place").

The element, light, marries ideally with the concept, "a place between." The point of a lamp is not the designed part, the solid frame; it is the light itself which has no solidity.

Eisenman-designed glass and aluminum lamps for Koizumi provide an active demonstration of the idea of imprint and trace as records of past and future conditions, which the showrooms then freeze in time. The act of separating the parts of the lamp (hinging it open to form the corner of a 3-D grid) simultaneously switches on and reveals the light. The opened lamp can be examined to see how its parts fit together—how the shape of one piece is imprinted on the other. The play of light and shadow will, in fact, and dramatize these effects.

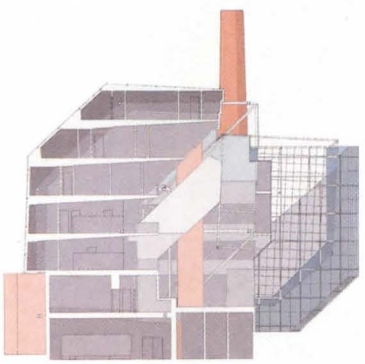
The two showrooms freeze the concepts, operational in the lamp, in time, permanently recording the conceptual shift in parts—where each element has been and where it now is.

This building demonstrates Eisenman's idea of imprint and trace and his abstraction of contextual concepts to inspire design. Architect: *Eisenman Architects, New York; K Architects & Associates, Tokyo.* Partners in charge: *Peter Eisenman, Kojiro Kitayama.* Project architect: *Hiroshi Maruyama.* Client: *Koizumi Sangyo, Inc., Tokyo.*

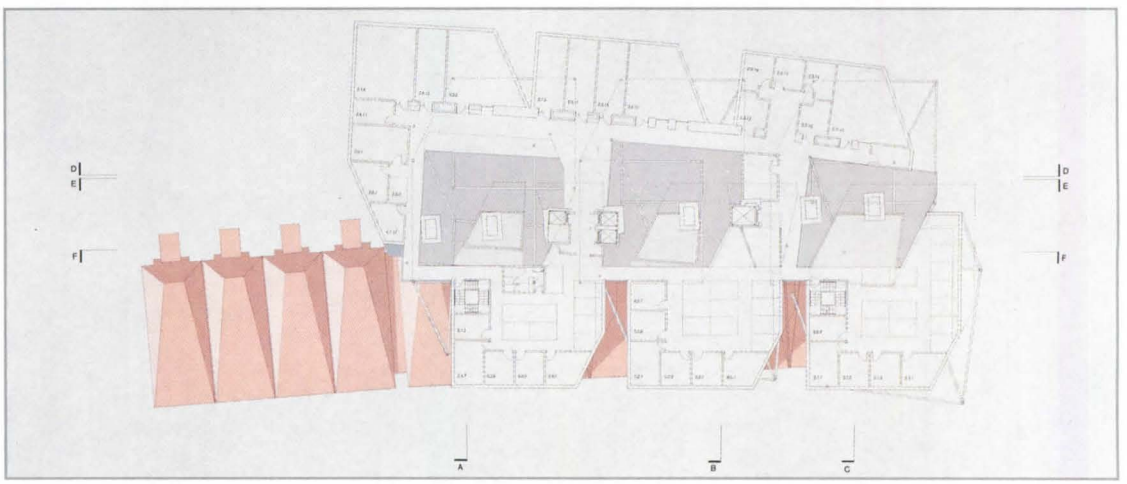


Photos: Dick Frank

SCHEMATIC MODEL OF CARNEGIE MELLON RESEARCH INSTITUTE



CROSS SECTION 40'/12m

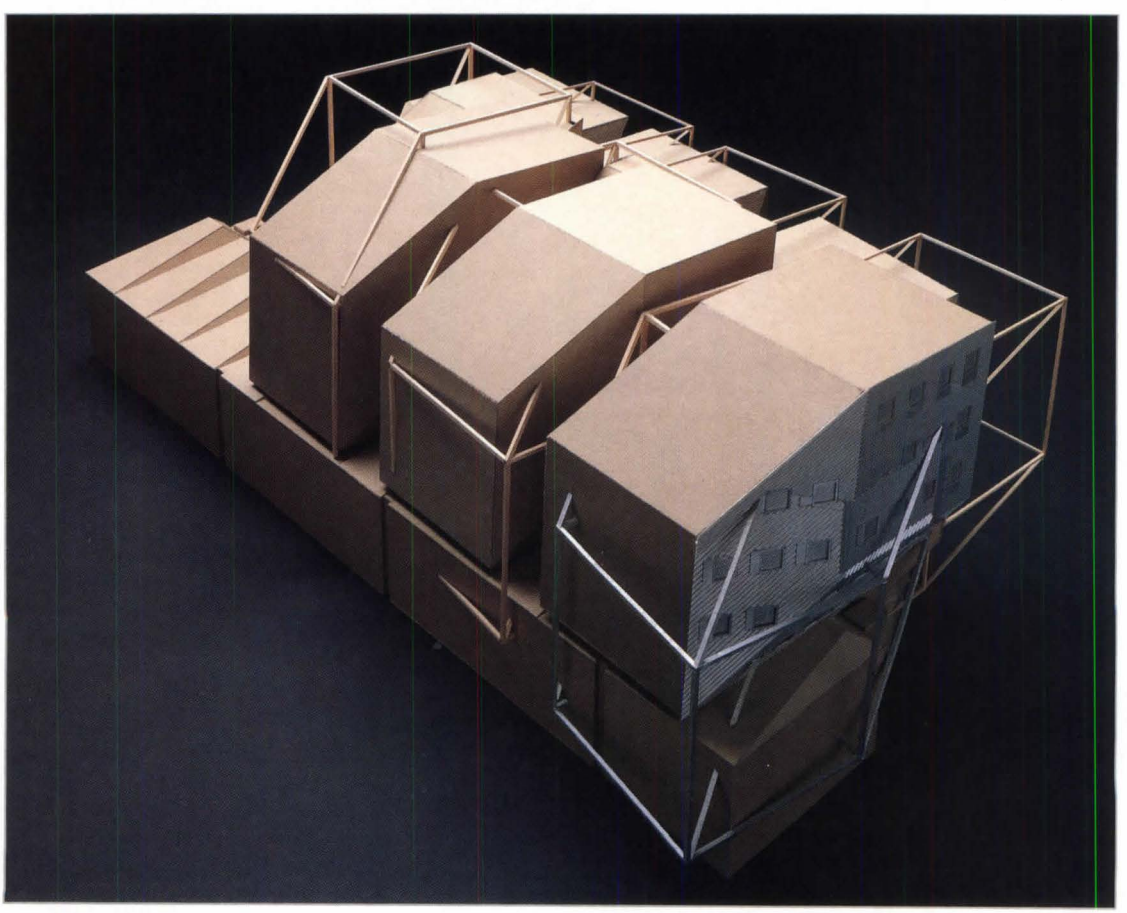


FOURTH FLOOR PLAN, CMRI N 20'/6m

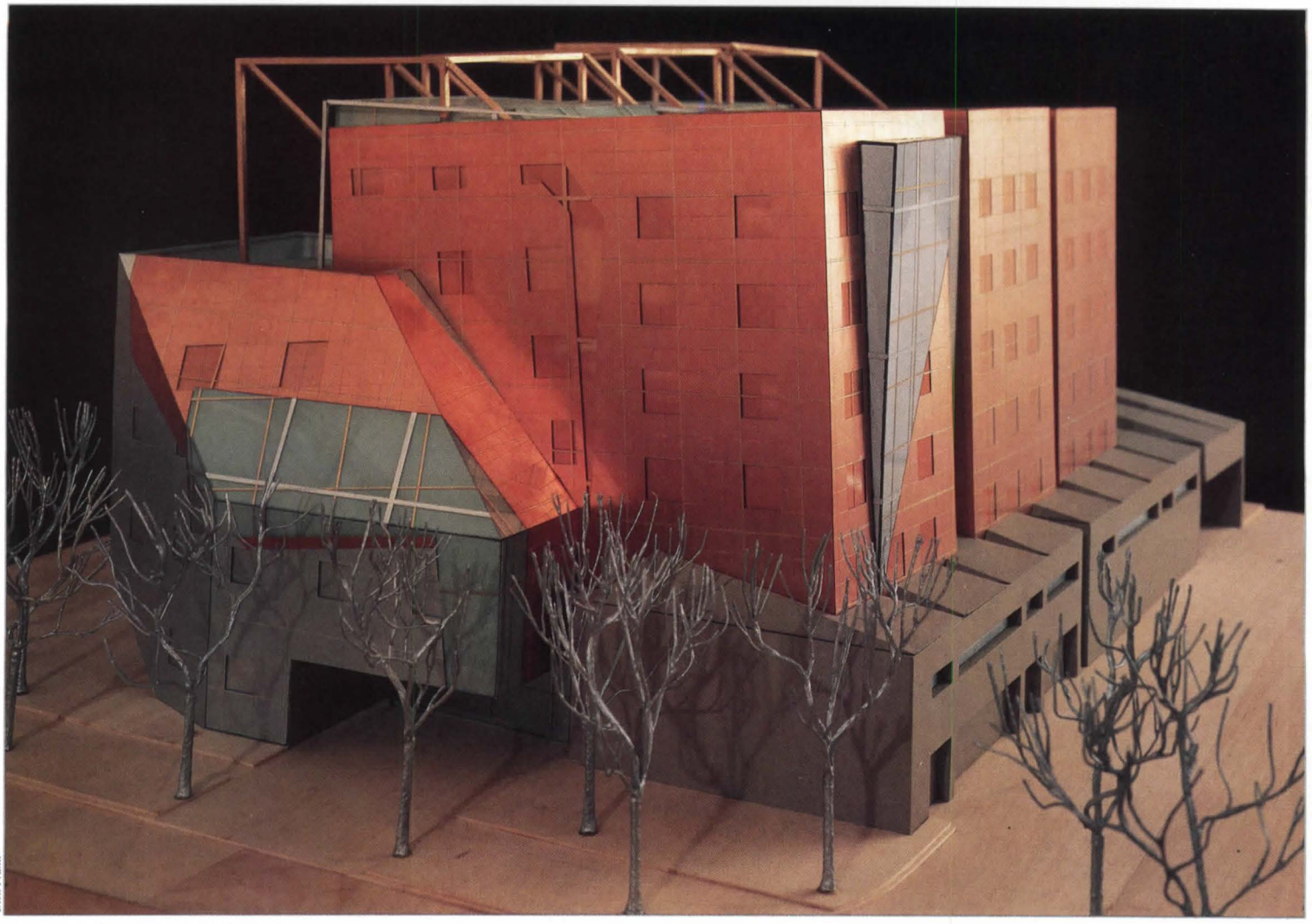
The Carnegie Mellon Research Institute and The Pittsburgh Technology Center Building, Pittsburgh, Pennsylvania

Carnegie Mellon University commissioned Eisenman Architects to develop a Master Plan for the Pittsburgh Technology Center and to design a new laboratory facility in this center for the Carnegie Mellon Research Institute. The Master Plan calls for a building of 500,000 square feet; at the moment, two parts of the building, comprising three pairs of modules at either end of the final form, are to be built, with a completion date of 1991. One part, with 85,000 square feet and a $13-million budget, will house the Carnegie Mellon Research Institute; the other part, with 100,000 square feet and a $7.5-million budget, will form the Pittsburgh Technology Center Building, a private research center developed jointly by Oxford Development Company and the university, with space available to Carnegie Mellon and other research laboratories. The two buildings are planned to grow towards each other as additional modules are built.

The President of Carnegie Mellon is said to have asked Eisenman for a



MODEL OF CMRI, FIRST PHASE



Dick Frank

MODEL OF PITTSBURGH TECHNOLOGY CENTER

building that would symbolize man's capacity to overcome the proliferation of knowledge. Eisenman responded by giving architectural form to the Boolean cube, the mathematical concept that is considered a key to the development of Artificial Intelligence. It was an eloquent response to the request for control over knowledge: For an architect, understanding a concept enables him to build, and building deepens his understanding. For the scientists using the building, seeing a concept from their domain appropriated and transformed into another discipline, physicalized and rendered beautiful, allows them, as it were, to "inhabit" the idea and perhaps to come closer to "controlling" it.

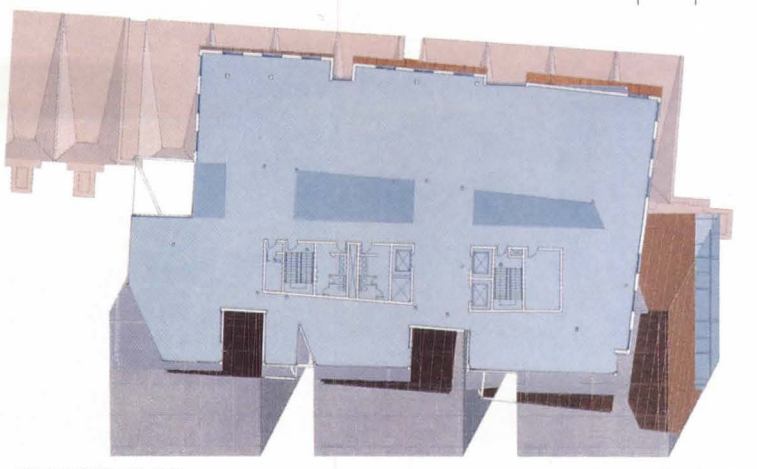
Each pair of building cubes contains two solid cubes and two frame cubes of 40- and 45-foot dimensions, for office and laboratory modules respectively. The cubes overlap, and the frame cubes leave voids in the interior of the buildings, forming atrium spaces between the office and laboratory cubes. The atrium space and the bridges across it are designed to promote interchange between the different groups of researchers using the building. The cubes are arranged linearly along an exponential curve, so that the spaces between them change from one pair to the next.

Eisenman Architects also mined the broader context of the site for use as inspiration to the design. The Technology Center is located on the north bank of the Monongahela River on the site of a defunct steel mill. Both river and mill are recalled in the design, the river in a pedestrian link (referred to as the "Green River") through the site, and the mill in the exposed pits and tunnels under the site, which are to be excavated and incorporated into pedestrian spaces, and in the base of the buildings themselves, which will contain mechanical and laboratory support systems and whose forms represent the old coke ovens.

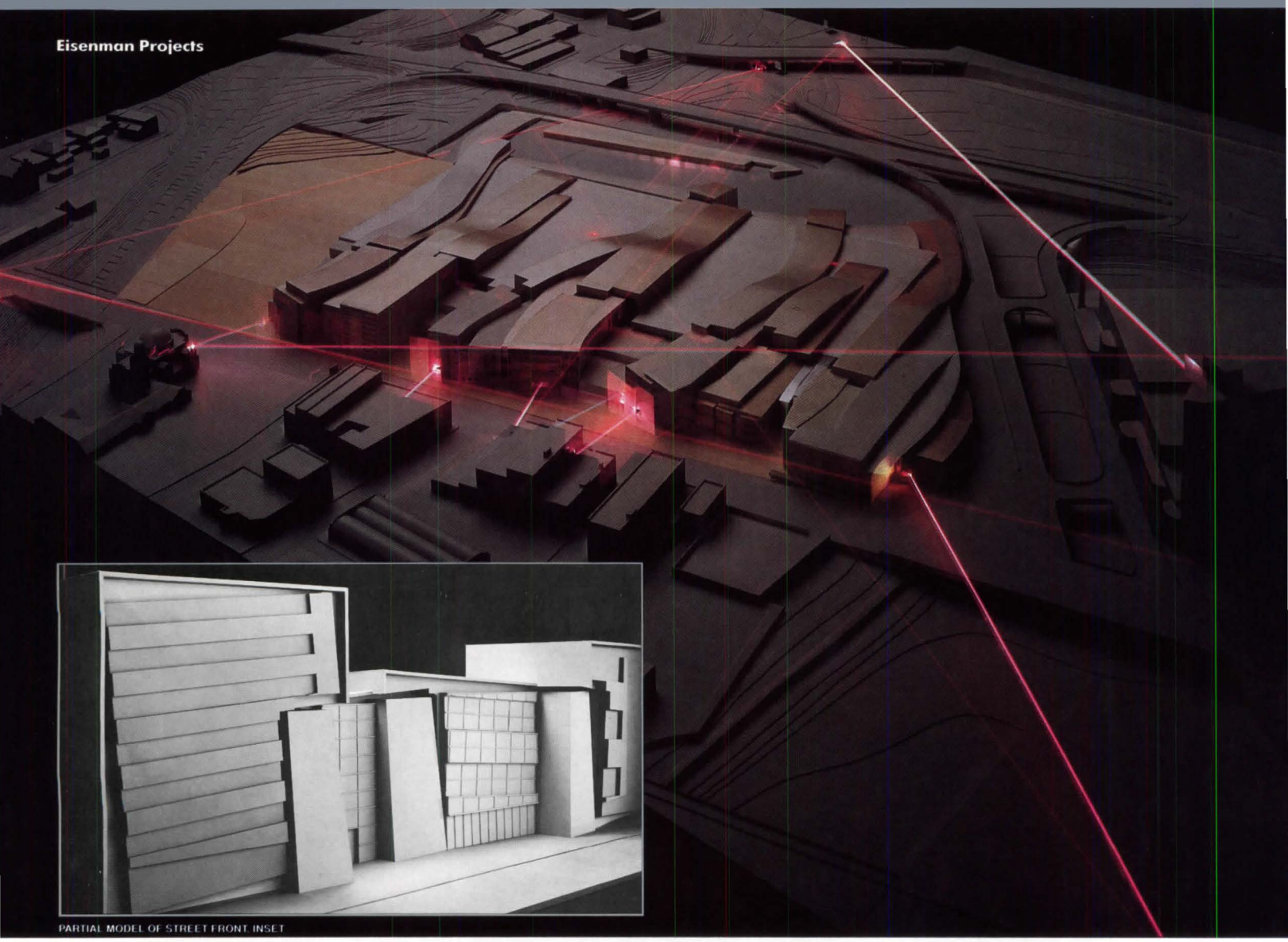
The base is likely to be clad in ground-faced concrete block and the cubes in a metal skin, while the frames are to be of aluminum or steel.

Architect: *Eisenman Architects, New York.* Associate architect: *Damianos & Associates, Pittsburgh.* Partner in charge: *Peter Eisenman.* Consultants: *Hanna Olin, landscape; Jaros, Baum & Bolles, mechanical; Ove Arup & Partners, structural.* Clients: *Carnegie Mellon University for research center, Oxford Development Co. for technology center.*

NORTH ELEVATION, PTC

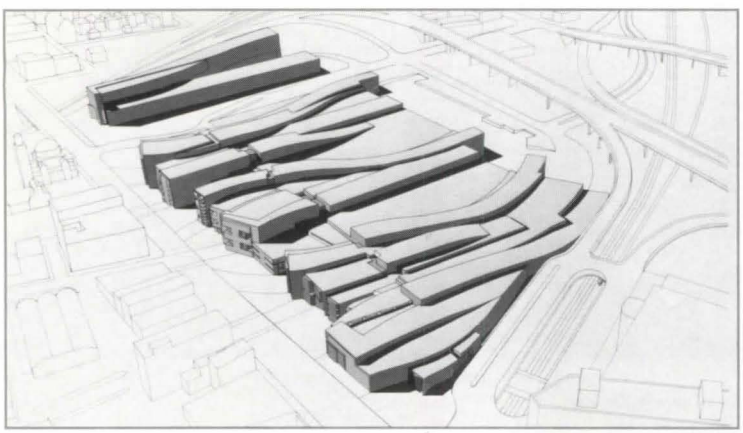


SIXTH FLOOR PLAN, PTC

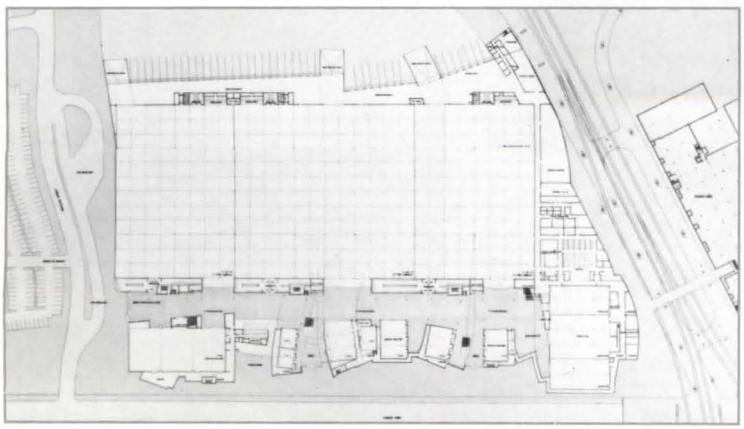


PARTIAL MODEL OF STREET FRONT INSET

OVERALL MODEL, WITH LASERS



AERIAL PERSPECTIVE



FIRST FLOOR PLAN

N ↖ 300'/100m

Columbus Convention Center, Columbus, Ohio

This 530,000-square-foot, $55-million convention center is scheduled to go into construction this fall on a fast-track schedule and is expected to be completed in 1992. Not far from the OSU Visual Arts Center, the convention center is also the product of a design competition (P/A News Report, Feb. 1989). It is to be wedged into a valley where railroad yards once stood, between the urban center, highways, and suburban development, and it fronts on Columbus's main street.

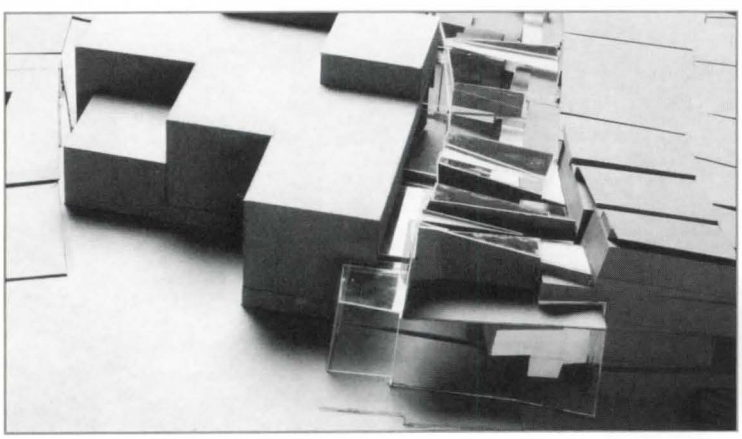
The building loosely takes on the form of highways, or railway tracks, and its organization is based on the metaphor of the information cable. The back of the building, the loading docks, is the receiver of information; the central part, the convention hall itself, is where information is displayed, and the front part of the building, the meeting rooms, is where information is processed. Physically, the highways, or tracks, or cables are represented by penthouses which incorporate mechanical services and are seen in cable-like forms that snake over the main ground-level boxes of the building. The façade of the building is made up of the "plugs" at the head of the cables. Architectonic in form, and in size like small urban buildings, these plugs are beautifully articulated (probably in brick surrounded in glass), in a way that makes the scale ambiguous, and they are twisted at angles to the ground and to the street, reflecting the twist of the "cables" they cap. To drive home the message of high-tech information, Boston laser artist Walter Gundy has been commissioned to create laser effects.

The project is organized in a neat, straightforward way, and the "cable" forms have been applied on top. In the cable-like shapes, Eisenman has allowed himself the luxury of a purely intuitive form, but the curves lack the rational resonance of his other works. Here, the argument has not progressed beyond the questions, "Why a Classical pediment on top? Why not an electronic cable instead?"

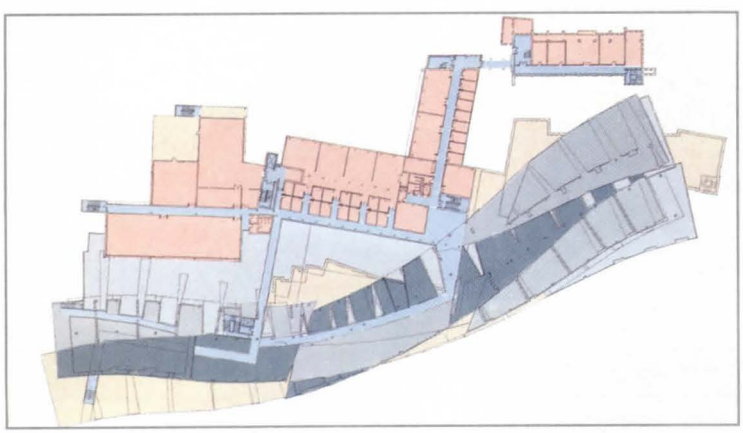
Architects: *Richard Trott & Partners, Columbus, and Eisenman Architects, New York.* Partners in charge: *Richard Trott, Peter Eisenman.* Associate in charge: *Thomas Leeser.* Engineers: *Lorenz & Williams.* Consultants: *Phillips/Graveline, convention centers; Ove Arup & Partners, structural; Jaros, Baum & Bolles, mechanical.*

Photos: Dick Frank

MODEL WITH EXISTING BUILDINGS TO REAR



MODEL, SHOWING ATRIUM BETWEEN EXISTING AND NEW



MID-LEVEL PLAN

The College of Design, Architecture, Art and Planning, University of Cincinnati, Cincinnati

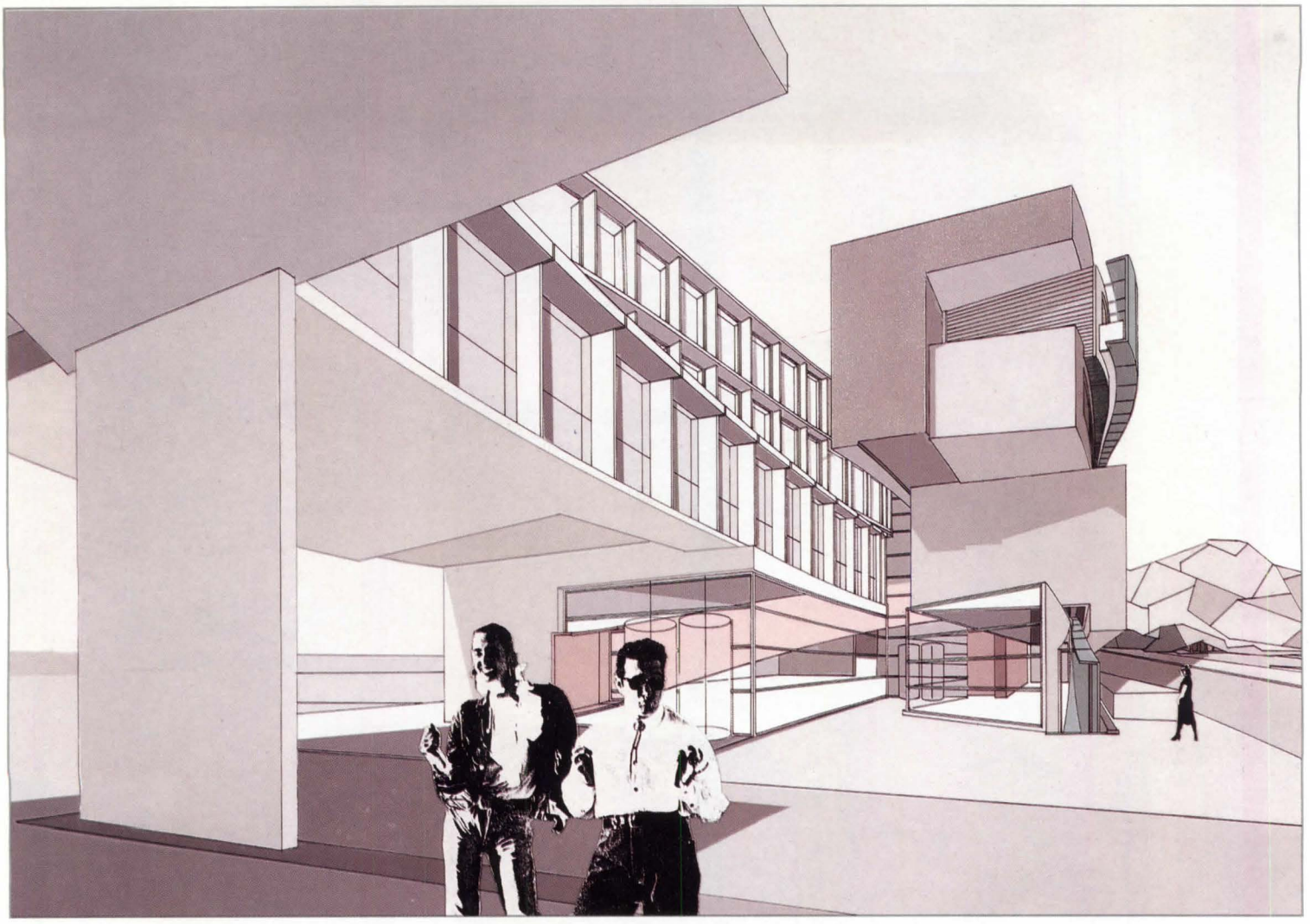
The design program for this College includes the reorganization of the existing 145,000 square feet and the addition of 128,000 square feet of new space for design studios, offices, lecture halls, and social and crit spaces. The project is to be completed in 1993, for an estimated cost of $31.1 million.

Two major forces inspire the form of the addition: the exploration of the element, "line," and the form of the site itself. The existing building, with glass and brick exterior walls between expressed concrete slabs, steps back and forward in plan (Eisenman refers to its "chevron" form). The site for the new building slopes down from the old. As these are the only contextual clues informing the new design, the concept is relatively simple.

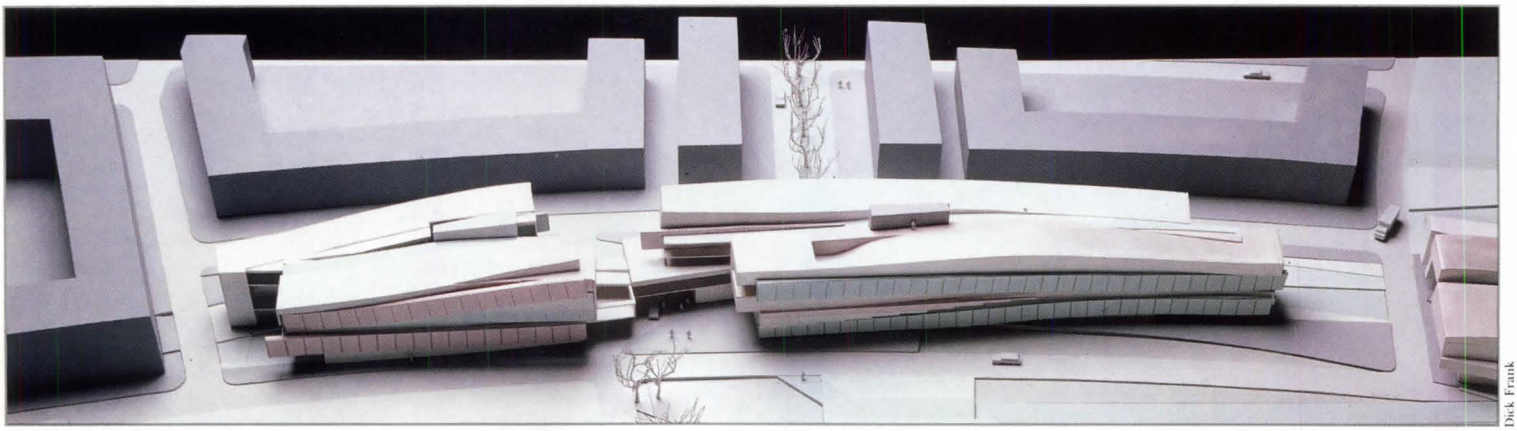
This design can be seen, on the other hand, as an attempt to rationalize and thereby give force to the intuitive curves of the Columbus Convention Center. The line (which is ultimately realized three-dimensionally, as a 70-foot-deep three-story building) is divided into 40-foot lengths, which are overlapped in exponential increments. It is curved exponentially, then twisted and shifted asymptotically—all in relation to the existing building and the site. To connect the new and old buildings together, Eisenman uses the atrium, which here has numerous functions—as a major path from one end of the building to the other, as social gathering space, and as presentation space.

One can imagine the building resembling a giant reptile slithering against the grassy slope, or an overscaled metal toy, or a batmobile. The building will probably be constructed with a concrete frame and be clad in metal, like the plates of an armadillo. The final effect of this building will depend on its detailing. If given too specific a "look," it will succeed in conveying a non-architectural image but will not achieve a "weak image."

Architect: *Lorenz & Williams, Eisenman/Trott Architects.* Partners in charge: *Peter Eisenman, Jim Harrell, Richard Roediger.* Project architects: *George Kewin, Jerry Flynn.* Consultants: *Lorenz & Williams, structural and mechanical; Hargreaves Associates, landscape; United Consultants, civil.* Client: *University of Cincinnati.*

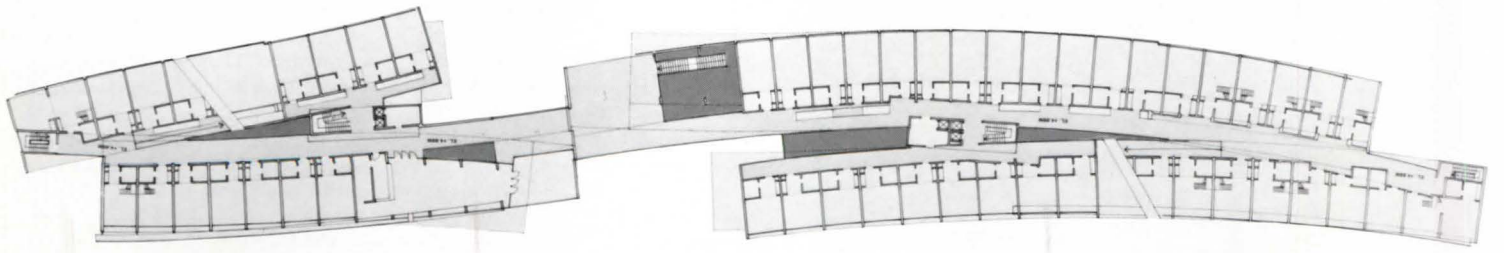


HOTEL ENTRANCE



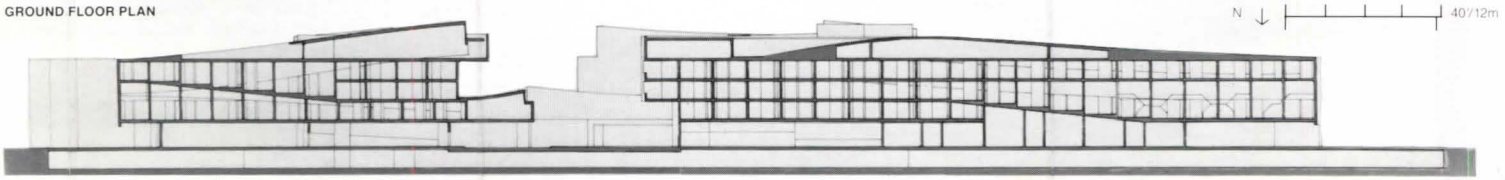
Dick Frank

MODEL



GROUND FLOOR PLAN

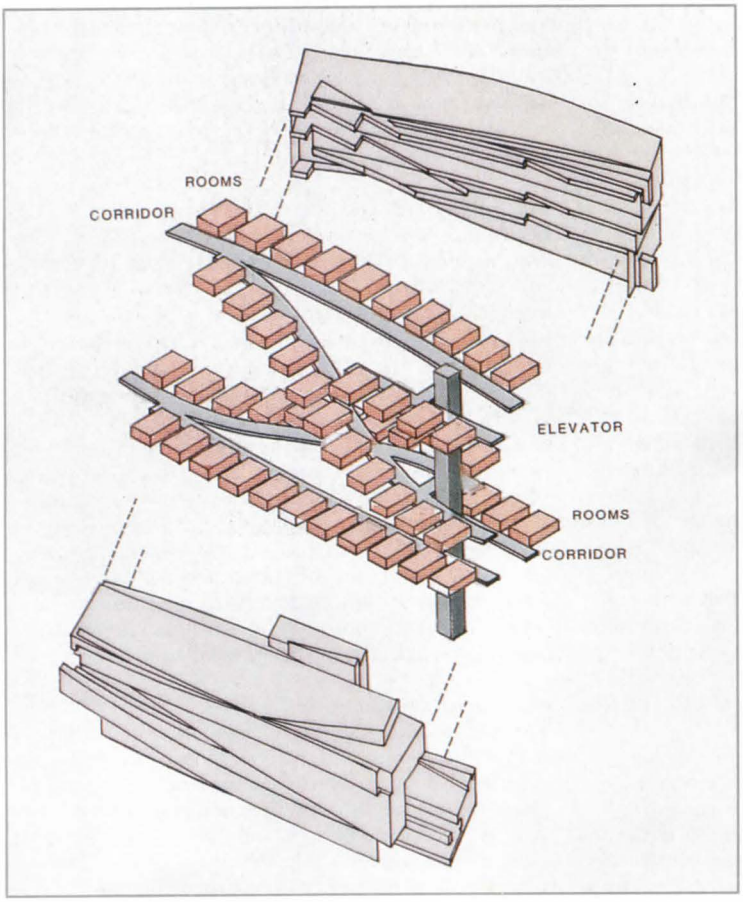
N ↓ 40/12m



LONGITUDINAL SECTION

40/12m

SETTING WITH HOTEL AT LEFT



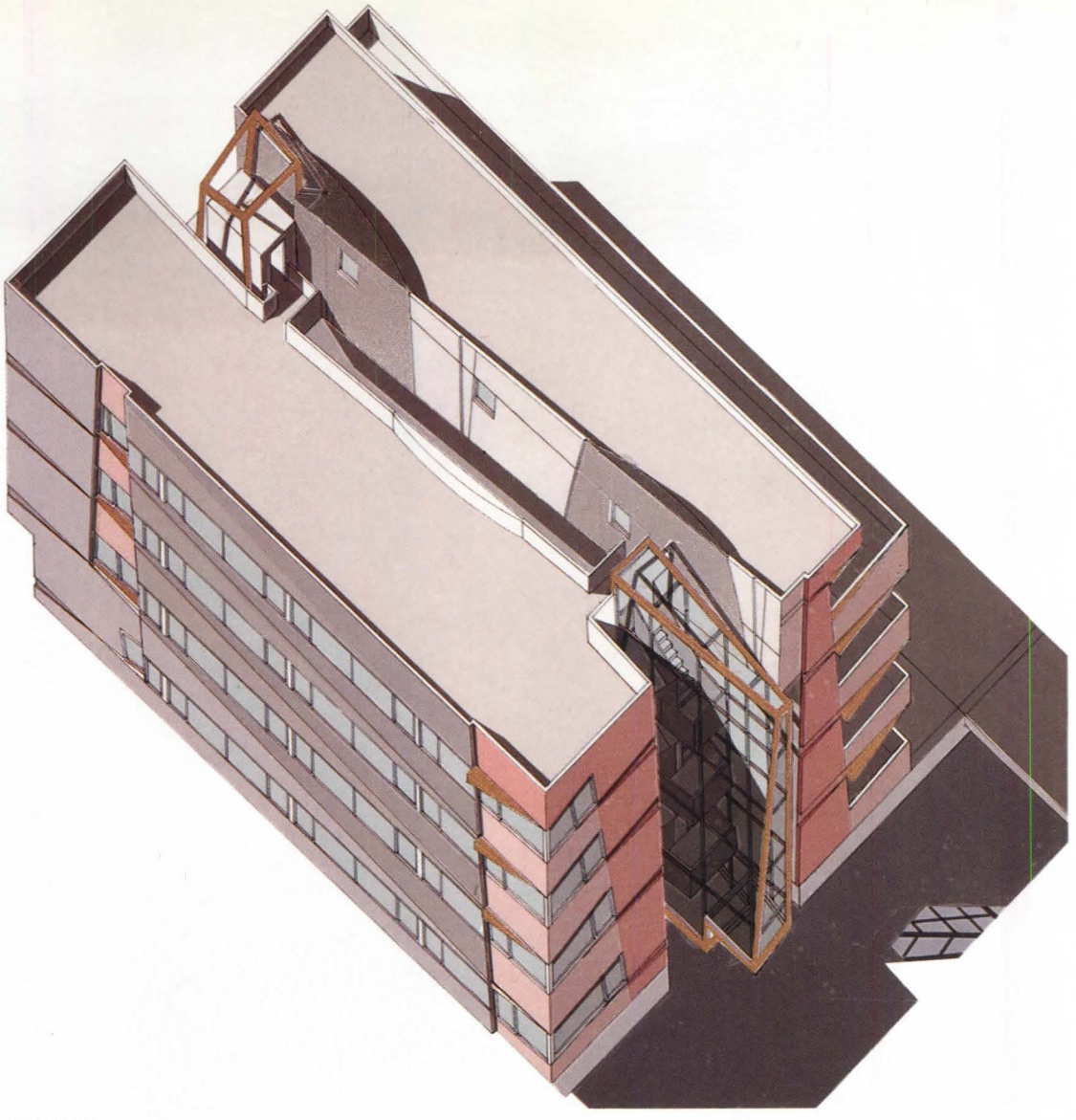
ROOM ACCESS DIAGRAM

Banyoles Hotel, Banyoles, Spain

This 150-room hotel is to be built beside the lake where the rowing competition of the 1992 Olympics is to be held. The design takes its cues from the form of the agricultural divisions established in the town around the turn of the century, as well as from the arcs of the sweeps of an eight-oared rowing shell. The two rows of traditional hotel rooms curve in plan and section and separate in plan both longitudinally and laterally. The lines of movement are carried out into the landscape of a park between the hotel and the lake. The lines of building and landscape reflect the slipping and sliding that appear to occur between the rowers, the oars, and the boat itself.

This design is Eisenman's most recent exploration of the concept "weak image." The aim is a nonconventional image, one that is not automatically categorized and quickly dismissed. Here, the form is inspired by physical elements and by the sensation of their movement, but it does not simply reproduce the elements or primarily recall them. It does not "look like" a rowing shell, though it incorporates the shell's energy. The hotel is likely to be one of Eisenman's most successful realizations of the "weak image" concept.

Architect: *Eisenman Architects.* Partner in charge: *Peter Eisenman.* Associates in charge: *George Kewin, Thomas Leeser.* Consultants: *Static structural engineers.* Client: *Generalitat de Catalunya.*



AXONOMETRIC

Housing Festival, The Hague, Holland

Eisenman Architects has been chosen to design a 17,000-square-foot, 17-apartment "Urban Villa" as a part of The Hague's Housing Festival. Eisenman's building will be completed in 1991, for an approximate cost of $1.5 million.

The Festival, organized by the City Council with the Office of Metropolitan Architecture, celebrates the completion in 1989 of the 200,000th home in the city by studying and constructing, in a largely neglected area of the city, every conceivable housing type, designed by architects selected for their innovative ideas.

Eisenman Architects' Urban Villa arranges two-story apartment units on either side of the common circulation spaces. The central space is created by "pulling" apart the two halves; this "rupture" is recorded in the resultant form, with trace frames that tie the two halves back together.

Architect: *Eisenman Architects.* Partner in charge: *Peter Eisenman.* Associate in charge: *George Kewin.* Consultant architects: *Valtos, Rotterdam.* Client: *The Hague City Council.*

(continued from page 90)

automatically refers back to one or another of the image types already categorized there.

It is this automatic reaction that Eisenman wants to break. He doesn't want his buildings to be glibly categorized and forgotten. So he avoids making buildings that look like buildings always have. Not only does he avoid applying the pediment or any other piece of conventional architectural language (after all, Modernists have avoided this for most of this century), but he rejects rationalized organization as an unnecessary interpretation of reality. Arbitrariness is part of reality, too, and should be incorporated. A column can be placed in the middle of a staircase; it doesn't block the way but causes other aspects of the building to be noticed.

Shedding conventional architectural imagery, however, may not be sufficient to produce a "weak image." If a work of architecture recalls a strong specific (though non-architectural) image, it does not achieve the condition of "weak image." Some of Eisenman's work (the Columbus Convention Center, for example) teeters across this fine line.

While rejecting conventional forms, Eisenman looks to basic notions, some of his own devising, to inform his architecture—the nature of the line; trace and imprint; and certain aspects of context.

Context as Spur

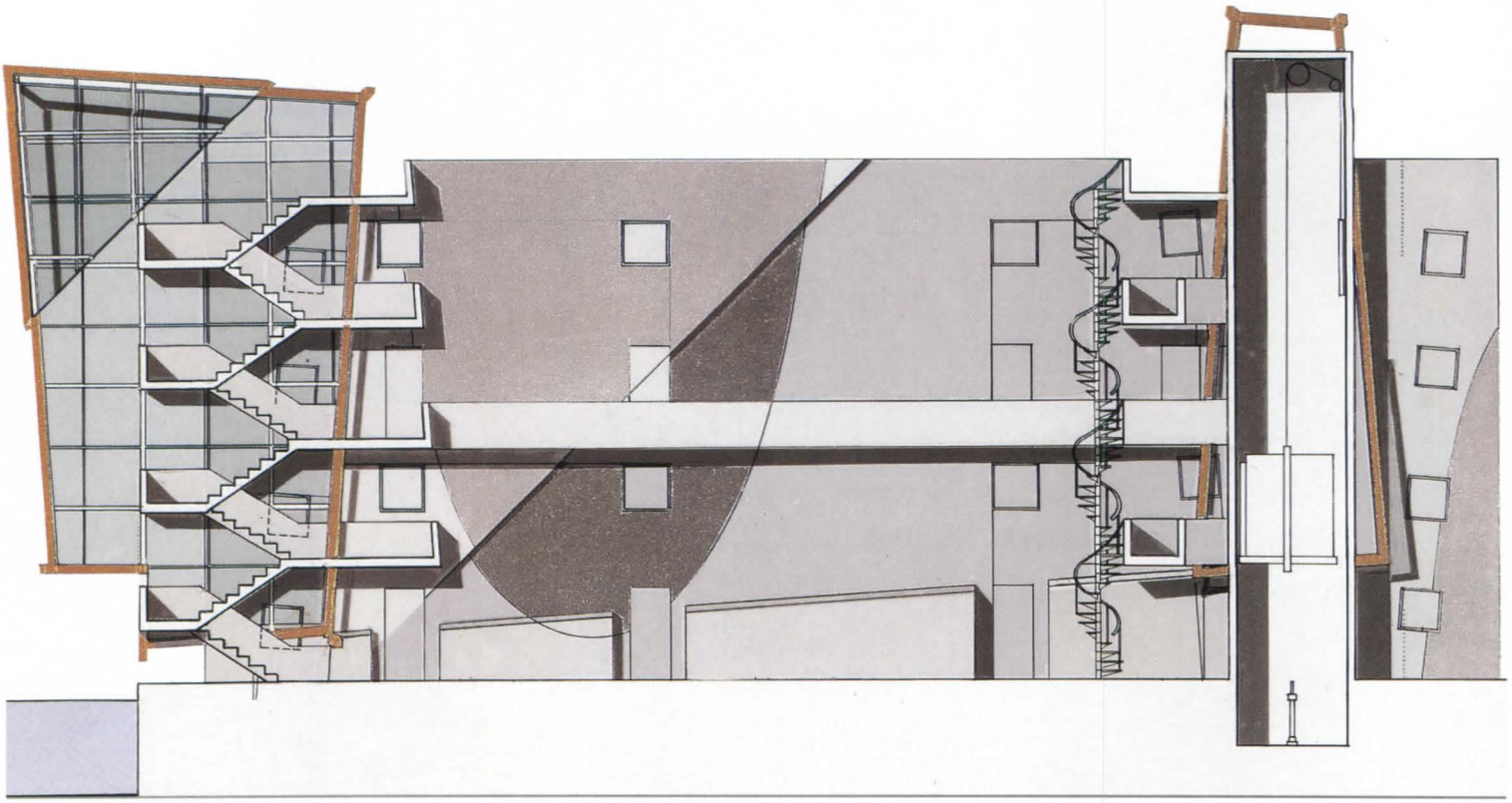
In Eisenman's first essays in design, site was irrelevant. Now, issues of context are always incorporated into his designs: the Monongahela River in the Pittsburgh Technology Center project, for example. But in Eisenman's projects, consideration of "context" has nothing to do with accommodation to it, with making a building "match" its neighbors. Contextual ideas are but grist for the imagination mill. Eisenman has progressed from exploring his own interior to mining the outer world for imagery; the use of the nuggets remains intensely personal, but the result is enriched.

The Line Explored

Eisenman has become interested in the sinuous line, with its shifts in direction. He uses the elusive exponential curve, whose points are in a progressively changing relationship one to another. In the Carnegie Mellon project, for example, the cubic modules are arranged along such a curve, so that the spaces between the second set of modules are different in size and angle from those between the first set, and so on. This arrangement is far more exciting than equal spacing along a straight line. The University of Cincinnati project also employs exponential curves which relate asymptotically to each other (they approach, but never quite meet, one another). It is the mathematical tension of these sinuous lines that produces a heightened excitement; the Columbus Convention Center's freehand lines lack this mathematical foundation.

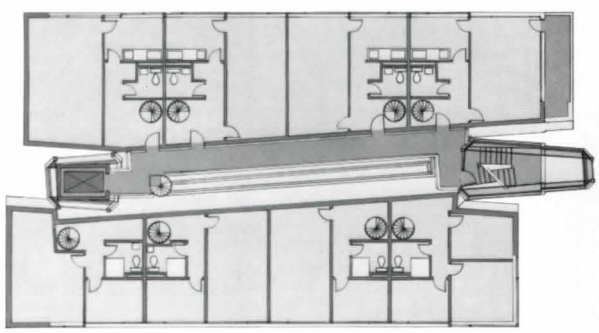
Pentimenti: Imprint and Trace

To extend architecture beyond the third dimension, to incorporate the dimension of time, Eisenman uses devices he calls "imprint" and "trace." To explain these, he uses the metaphor of the footprint in the sand: The foot makes an imprint, and when it has passed, it leaves the trace of having been there. The lamps for Koizumi Sangyo will provide an active demonstration of trace and im-



LONGITUDINAL SECTION

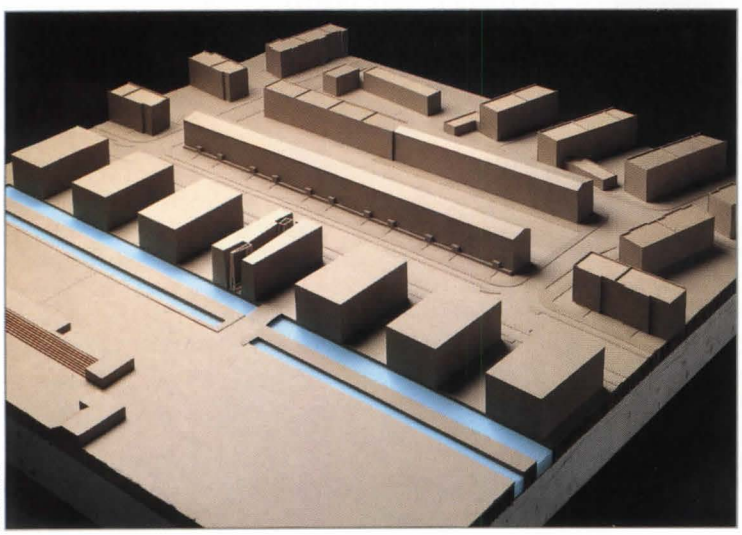
10'3m



TYPICAL PLAN

N

20'6m



Dick Frank

MODEL SHOWING PORTION OF PROJECT

print. Trace and imprint incorporate time into architecture. They reflect the idea of movement, as in the Banyoles Hotel, where the relative positions of oars, oarsmen, and boat are portrayed, and they record the process of design, as in the University of Cincinnati project.

The Center Does Not Hold

Eisenman avoids the traditional notion of center, where all is resolved and about which all revolves. In The Hague Social Housing project, for example, the center is the void left when the body of the building shears apart. The ubiquitous contemporary atrium space is left over, but here made resonant by the imprints and traces of the earlier connections, inspiration for the imagination to configure what was and what might be.

Inclusiveness

Eisenman's genius lies in the personal and relentless exploration of his chosen issues. Intelligence is applied to intuition; neither one suffices alone. The more issues he explores, and explores thoroughly, in any one project, the more satisfying the project is. The Carnegie Mellon project is a fine example: incorporated are the larger context of the river, the archaeology of the defunct steel mills, abstract mathematical concepts, the idea of the control of knowledge, and social aspects beyond the straightforward programmatic requirements. Eisenman began his career by limiting parameters; he is now expanding it by including an unusual array. ***Susan Doubilet*** ■

The author, a former Senior Editor at P/A, is now a freelance writer in New York and New Jersey.

P/A Technics
Inside EIF Systems

The best guide to Exterior Insulation and Finish Systems is to understand better how they go together.

THINGS are changing in the Exterior Insulation and Finish Systems industry. Not only has the number of systems manufacturers increased over the years, but more and more manufacturers are expanding their product line. Manufacturers who used to compete on the basis of different kinds of products now compete head-on with an assortment of similar ones. While this is true of only a few producers at present, the industry trend seems to be for each manufacturer to offer architects a broader and more diverse product line. This is good news for architects, but it also can make product evaluation a little more complicated.

Definition and Classification

The term "Exterior Insulation and Finish System" (EIFS) may generally be defined as an exterior cladding assembly consisting of a cementitious finish that is wet-applied to insulation boards which are fastened to the building sheathing or the structure behind. The system includes all the accessories and subcomponents necessary to install and to provide long-term performance of the assembly.

The cementitious finish, or stucco, varies in composition from manufacturer to manufacturer. The EIFS industry's Exterior Insulation Manufacturers Association (EIMA) classifies EIF systems as polymer based (Class PB), polymer modified, mineral based (Class PM), and mineral based (Class MB). The "mineral base" is portland cement; other polymers may be used but acrylics overwhelmingly dominate the U.S. industry. While contractor-assembled insulated stuccos using portland cement have been possible ever since board insulation was introduced, the current popularity of EIFS is a result of manufacturers' systems optimization and packaging.

Polymer modified (PM) stuccos are often referred to as thick coat, hard coat, and rigid finishes, while polymer based (PB) systems are often called thin coat, soft coat, and flexible finishes. Some manufacturers appropriate variations on these descriptions for their trade names, although the industry as a whole is trying to encourage architects and contractors to use the PB and PM designations.

Exterior walls can be categorized functionally as barrier systems or rain screen systems. Barrier systems, of which below grade waterproofing and membrane roofing are also examples, rely on the continuity of an impermeable membrane to bar the entry of wind-driven rain and snow. Rain screen systems, of which shingled walls and roofs and brick cavity walls are examples, incorporate an air space with some provision for drainage. EIF systems are designed as waterproof membranes that do not—and with adhered insulations, cannot—provide internal drainage.

Interior Side of EIFS

The interior finish material has no effect on the EIFS, except as regards vapor transmission and airtightness of the overall wall assembly. The EIF system, in combination with these, determines if and where condensation may occur.

Vapor retarders are not much discussed in EIFS literature, as they are not part of the EIF system. Few architects know what criteria to use to evaluate when a vapor retarder is necessary, and there are no widely held standards for guidance. The ASHRAE *Fundamentals Handbook* and a few other references describe methods for predicting condensation as a result of vapor diffusion through the assembly. Some EIFS manufacturers will analyze condensation conditions as a free service to architects. The vapor permeability of EIFS stuccos is several times greater than the insulation boards that carry it, so the stucco itself does not retard vapor diffusion out of the wall.

Exterior Substrate

The most common substrates over which EIFS are applied include exterior sheathing boards, on either metal or wood stud walls, and masonry. If the masonry has an acceptably clean surface, adhesively

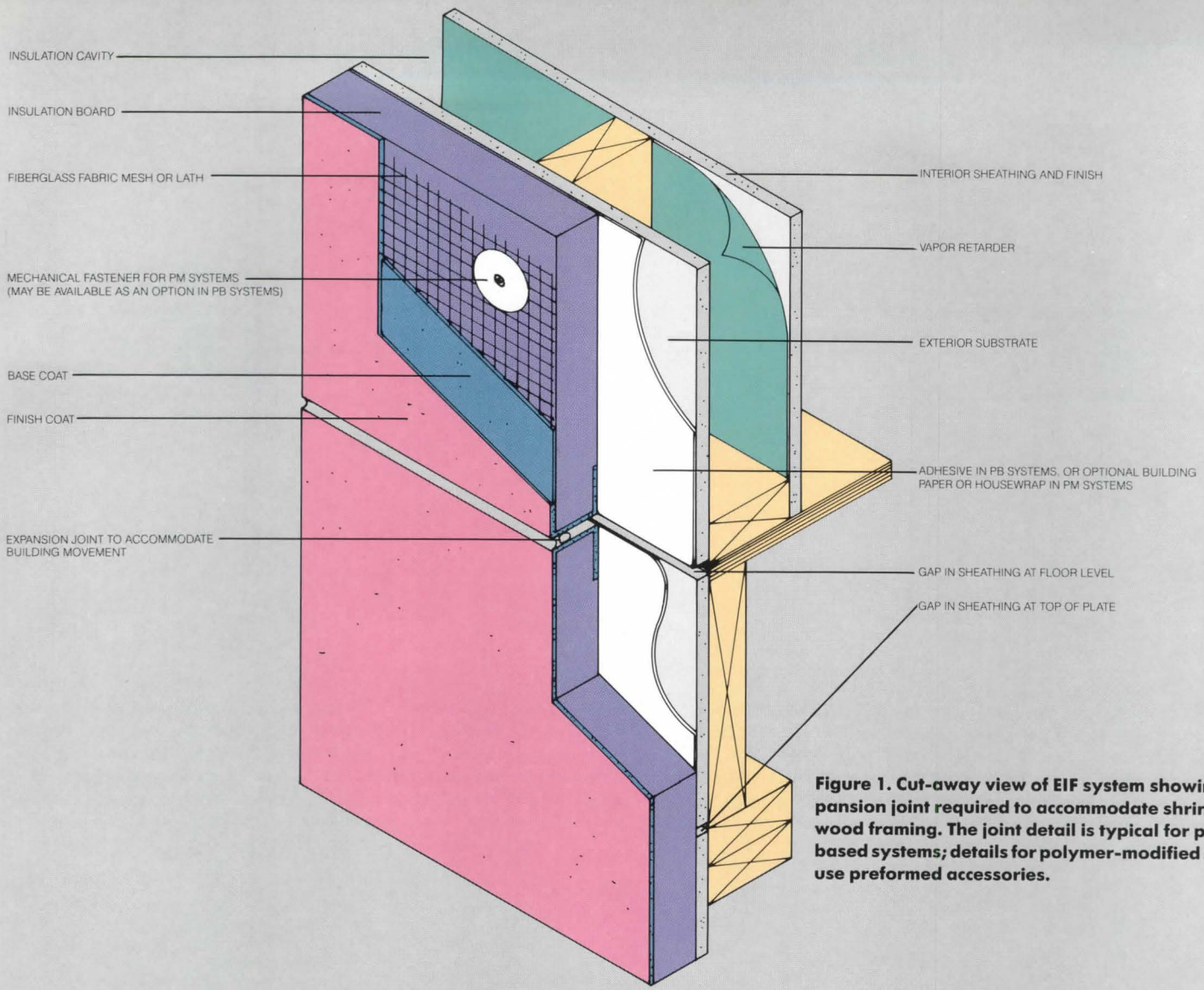


Figure 1. Cut-away view of EIF system showing expansion joint required to accommodate shrinkage in wood framing. The joint detail is typical for polymer-based systems; details for polymer-modified systems use preformed accessories.

applied PB systems are suitable, although surface priming may sometimes be necessary. Surfaces with poor adhesive properties (peeling paint, for example) may require mechanical fastening. In either case, a surface evenness of ¼ inch within four to ten feet is required.

Irregular and spalled surfaces and old wood sheathings can be "improved" to accept PB systems by mechanically fastening a 2.5 or 3.4 lb/sq yd galvanized lath to the substrate or the structure beyond. The lath accepts an adhesive that bonds the insulation to the wall. This system offers superior water and wind resistance without the thermal bridging of screws passing through the insulation.

New Sheathings

EIF systems can be applied over a variety of sheathings, including plywood, oriented strand board, exterior gypsum board, fiberglass mat-faced gypsum board, and cement composition board. The most common is the least expensive, namely, exterior gypsum board. A "residential" EIF system using glass fiber-faced polyisocyanurate as both insulation and sheathing has recently been introduced. The insulation is adhered and mechanically fastened directly to wood studs.

Gypsum-based products deteriorate with prolonged exposure to moisture, and there are documented instances of the paper facing delaminating from the gypsum core in EIF systems where water has penetrated joints. The industry takes the position that EIFS are barrier membranes and, as such, protect the gypsum board. The Gypsum Association, which represents 14 gypsum product manufacturers, has distanced itself from the issue with the disclaimer that the performance of EIF systems and their method of attachment is the responsibility of the manufacturer. It may be noted that the Gypsum Association promotes exterior gypsum sheathing as a substrate for conventional portland cement stucco applied to metal lath.

Many architects and diagnostic experts recommend upgrading the gypsum sheathing from a paper-faced board to a fiberglass mat-faced board or, even better, to a cement composition product. Many manufacturers agree that fiberglass-faced sheathing is more desirable than, and a relatively inexpensive upgrade from, paper-faced sheathing. Others regard it as an unnecessary expense. And while some manufacturers will concede that a cement composition board is an ideal substrate, they do not see this as a justifiable precaution.

At this time, one can only speculate on how effective improvements in the substrate may be, if the barrier fails; might the board maintain its integrity, but the screw threads or holes they are seated in give way, instead? Ultimately, the durability of the systems depends on the waterproofness of the finish and sealants, and that is largely a matter of workmanship and quality control in application.

Insulation and Attachment

While the industry classifies EIF systems according to the polymeric versus portland cement-like characteristics of the stucco finish, it is helpful for architects to think about the type of insulation board used. The surface and mechanical properties of the insulation govern the method of its attachment to the substrate and of the stucco to the board. Expanded polystyrene (EPS) dominates the industry, with extruded polystyrene (XPS) a distant second. Mineral wool and fiberglass boards have recently entered the market, chiefly to satisfy non-combustibility requirements of some fire districts. Polyisocyanurate is also available in the specialty system described above. These materials have slightly different R-values per inch and very different water vapor transmission properties.

EPS

The EPS board used in EIFS systems is usually 1 pcf density and must meet criteria stipulated by the manufacturer, including bead fusion, aging, and dimensional tolerances. Four inches of EPS is the maximum allowed by many fire codes on the basis of fuel content

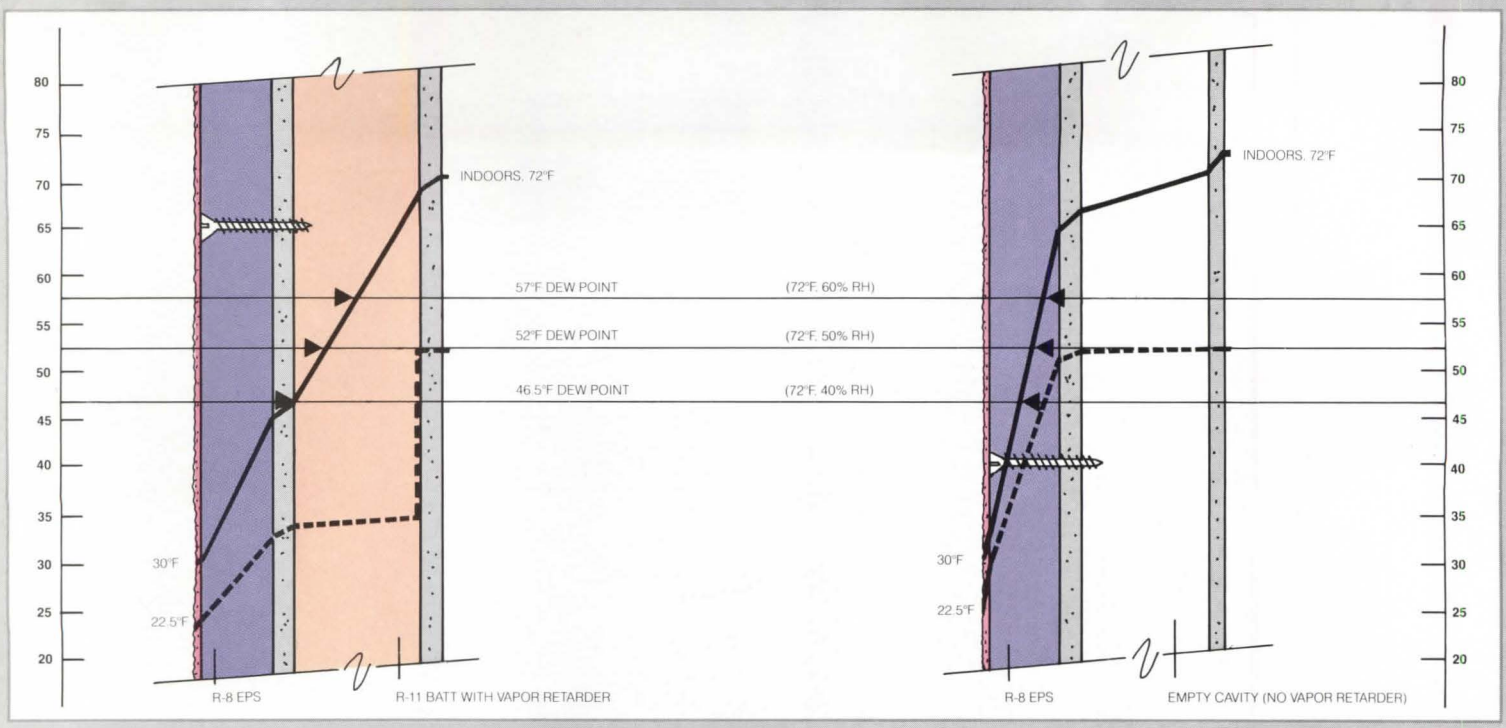


Figure 2a and 2b. These figures compare the dry-bulb temperature gradient across 2 x 4 stud walls with and without 3½" kraft-faced batt insulation. Both walls have 2" EPS (R-8) exterior insulation. The dew point temperature gradients are also plotted, and these decrease from inside to out as a result of the vapor resistance of wall materials. Condensation will occur if and where the dry-bulb temperature falls below the dew point temperature. It is not predicted in either wall cavity under the assumed conditions. If moist indoor air leaks into the cavity (through cracks around windows and outlet boxes, for example), however, the dew point temperature within the wall may be much closer to that indoors, and condensation may occur. (Vapor transmission analysis by which the gradients were plotted by courtesy of Dryvit Systems, Inc.)

of sheathing (6000 Btu/sq ft), and this is much less than any mechanical or other limitation of the material itself. EPS is the most common insulation because it offers the greatest R-value per unit cost and because its surface readily accepts adhesives. An inch thickness of EPS has a nominal thermal resistance of R-4 and a vapor permeance in the range of 1.2 to 2.2 perms.

One manufacturer explains that about 30 percent of EPS board area has to be adhered to meet desirable performance criteria, and this is satisfied by ribbon-and-dab application. In response to concerns about delamination due to leakage, BOCA is now requiring continuous adhesive application for systems installed over paper-faced gypsum boards. Some manufacturers require this in any case.

Mechanical fasteners are not economical as a means of attachment for EPS: material properties require these to be very close together, and close spacing in itself creates a plane of weakness within the board. Manufacturers do offer mechanical fasteners as an extra for EPS systems: They generally don't promote this option and offer it only to satisfy specifiers who want redundancy in fastening methods.

Extruded Polystyrene

Extruded polystyrene (XPS) is nominally 2 pcf in density and must meet dimensional and mechanical criteria specified by the manufacturer. Two inches is the maximum thickness typically allowed by fire codes on the basis of fuel content (at twice the density of EPS, XPS can be only half as thick). There are some practical limitations imposed by fastener length for greater thicknesses, but up to four inches is possible. An inch thickness of XPS has a nominal thermal resistance of R-5 and a vapor permeance of 1 perm.

The smooth skin of XPS board does not readily accept adhesives, but the strength of the material allows enough spacing between mechanical fasteners for these to be practical. This also means that the system is anchored back into the structure, rather than to the sheathing. Since the insulation is independent of the sheathing, it is possible to install a polyolefin housewrap or building paper between the two, providing a second moisture barrier. While this backup membrane has fail-safe appeal, the PM stucco that normally is coupled with XPS insulation requires regular control joints that create leakage opportunities. One benefit is, therefore, offset by an accompanying vulnerability.

Fibrous Insulation Boards

Some manufacturers now offer mineral wool insulation boards to create noncombustible systems. Although these have adherable surfaces, they don't have sufficient internal strength for adhesive application. They are temporarily adhered and then mechanically fastened. Mineral wool boards have densities in the range of 8–9 pcf, and thermal resistance ranging between R-3.7 and R-4.3 per inch. They are more expensive than competing systems and are more sensitive to workmanship in application. Mineral wool systems aren't promoted by their manufacturers except where noncombustibility is required. Since these products are relatively new, architects should check that the system has the necessary approvals to meet local codes.

At least one manufacturer offers a 4 pcf fiberglass board with a factory-bonded fiberglass mesh lath. An inch thickness of the board has an R-value of 4.35 and a permeance exceeding 15 perms. The boards are produced in 4′ x 8′ sheets in thicknesses of 1, 1.5, and 2 inches. While normally mechanically anchored to stud framing, the glass boards can be stapled to ½ inch plywood sheathing.

Stucco Lamina

PB and PM stucco finishes are laminates consisting of two layers of stucco and a reinforcing fabric mesh (that serves as lath in PM systems). In high impact PB systems, a heavy duty mesh and another stucco layer may be added. Polymers are the only binder in most

Courtesy of ISPO

Blockbuster Video Store, Tulsa, Oklahoma. Architect: Bruck Associates, Tulsa.

Courtesy of Dryvit Systems

Cupertino City Center, Cupertino, California. Architect: Fisher/Friedman Associates, San Francisco.

stucco finish coats and in some base coats as well. For the most part, polymers are combined with portland cement (PC), and it is the relative mix of these with sand aggregate that determines whether the material behaves like a portland cement stucco or a polymeric stucco. Polymers are expensive construction materials, so EIF systems are designed to optimize their use. Before discussing manufactured PM and PB systems, it is useful to review the generic Class MB, three-coat portland cement stucco from which they have evolved.

Three-Coat PC Stucco

For a three-coat stucco on light frame construction, rigid insulation simply substitutes for the roofing felt or waterproof paper that is used to protect moisture-sensitive sheathings from the wet plaster. According to the *Portland Cement Plaster (Stucco) Manual*, a three-coat PC EIF system requires installing a galvanized lath over the insulation and anchoring it back to the studs. The lath may be expanded metal, weighing no less than 2.5 lb/sq yd, a hexagonal woven wire fabric (WWF) in 18 gauge with 1 inch openings, or 17 gauge hexagonal WWF with 1.5 inch openings. The lath serves primarily to anchor the plaster to the substrate, but it also reinforces it and distributes shrinkage stresses. Portland cement product that it is, the stucco is weak in tension and requires control joints at regular intervals to relieve shrinkage stresses in predictable locations. These should be spaced ten feet apart, and should partition off areas not exceeding 150 square feet.

Generic PM EIFS

Proprietary polymer modifiers are available in the general market for exterior one-coat stuccos that are internally reinforced with chopped glass fibers. According to the *Plaster and Drywall Systems Manual*, the stucco is installed ⅜ inch thick, typically on 20-gauge galvanized hexagonal WWF, or galvanized expanded metal lath weighing no less than 1.75 lb/sq yd. The lath should be self-furring and is anchored through the insulation to the studs with fasteners spaced six inches on center. Weep screeds are installed at the bottom of the finish, and edges are protected with galvanized metal J trim. The one-coat stucco may have pigment added by the manufacturer or at the job site, or it may be top coated with a ⅛ inch decorative, colored PC stucco. The insulation specified in the *Manual* is 1.5 pcf tongue-and-groove EPS in 1 or 1.5 inch thickness.

Proprietary PM EIFS

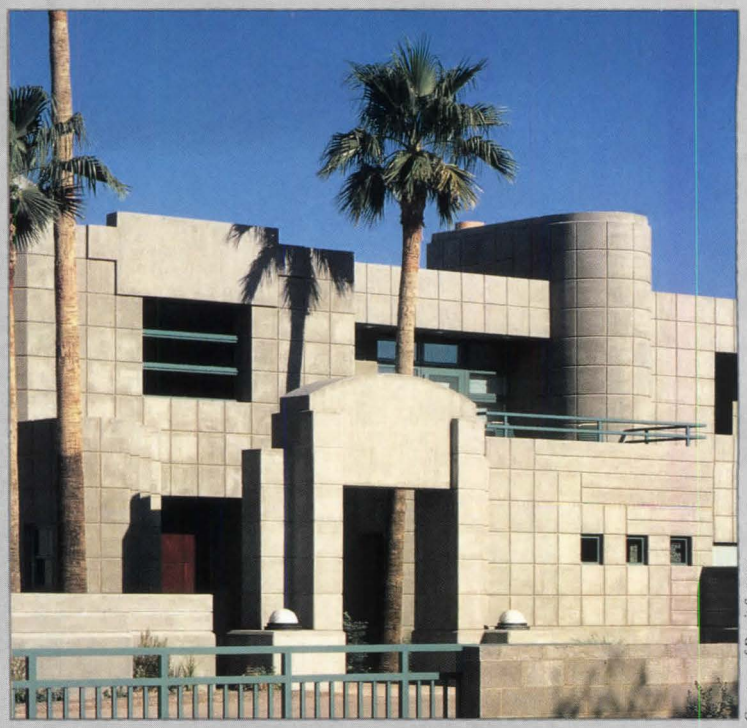
Some proprietary EIF systems use metal laths and differ little from the generic system described above. The major manufacturers of packaged PM EIF systems all use fiberglass mesh as the lath and reinforcement, and they supply the lath, fasteners, polymer modifier, and chopped fiber reinforcement. They may supply other accessories or list their approved manufacturers. Thickness of PM systems on fiberglass mesh usually ranges between 3/16 and ⅜ inch.

Because the stucco is supported on and anchored back to the wall by lath, the type of insulation board is a secondary consideration. XPS has become the standard partly because it enhances the impact resistance of the stucco and partly because it also requires mechanical fasteners, and the same fasteners can be used for both the lath and the insulation.

PM stuccos retain many properties of portland cement plasters, including the need for control joints. These are also limited to spacings of 10 to 12 feet, creating panels no larger than 140 to 150 square feet. No panel should have ratios of sides exceeding 2.5:1. Joint locations should be delineated on the drawings and not left for the contractor to decide in the field. *(continued on next page)*

Peter Olson

Comfort Inn at Penn's Landing, Philadelphia. Architect: Friday Architects/Planners, Philadelphia.



Courtesy of Dryvit Systems

Residence, Phoenix, Arizona.

Polymer Based Stuccos

Polymer based stuccos may have a 100 percent polymeric binder in the base coat, but most are mixed with some portland cement. Even so, there is a high enough fraction of polymer for the material to behave like a polymeric product. A high polymer content gives the stucco excellent adhesive and flexural properties that allow it to be applied directly to EPS board without lath. The EPS board, in turn, cushions and isolates the finish from irregularities in the building substrate. Together, these qualities allow the PB base coat to be applied in a very thin layer, typically about 1/16 inch.

Fiberglass mesh is embedded in the base coat as it is applied. The mesh has three purposes: 1) it has a much higher tensile strength than the plaster, and it reinforces and distributes shrinkage and thermal stresses so completely that no temperature control points are required; 2) it serves as a screed that gauges the thickness of the base coat material as it is applied; 3) it contributes to the impact resistance of the finish. Increasing the weight of the mesh increases impact resistance. It also increases the thickness of the base coat, and this increases cost. Manufacturers typically offer a fabric mesh weighing about 4 oz/sq yd as standard, and 10–12 and 20 oz/sq yd as more impact resistant systems. Meshes in the 4–12 oz/sq yd range are applied in a single layer, while the 20 oz weight range are applied as a foundation, and a second, lighter mesh is installed over it.

High impact resistance base coats may have a final thickness of 1/8 inch or more. Since impact resistance increases cost, economy dictates that high impact bases be localized to where they are needed—typically around doorways and traffic areas. The extent of high impact treatment should be clearly delineated on the building drawings so that bidders can accurately estimate the job.

Strips of reinforcing mesh are used as a vehicle to carry the PB membrane around wall corners and returns at window and door joints, and to backwrap the edges of the EPS boards. They are also used as extra reinforcing on the wall surface at outside corners of doors and window openings to help resist cracking emanating from the corner. No reinforcing in EIF systems can control cracking caused by movement in the structure behind.

Finish Coat

Finish coats for PB and PM systems are similar in composition and consist of acrylic polymer, pigment, sand, and other fillers or texture-producing additives. They are applied in thicknesses sufficient only to cover the base coat and to support the aggregate. Although every manufacturer has a set of stock colors, major manufacturers report that the vast majority of colors shipped are blended to match samples provided by the architect. One manufacturer warns that some colors can be matched exactly only by using unstable organic pigments that fade over time. They recommend that architects understand and discuss this with the sales staff. Designers should be prepared to face the trade-off between getting the color they want, but which might be unstable over time, and getting a less desirable approximation that is stable. Deep blues and blue-reds, and colors using these pigments, require special consideration.

Large aggregate finishes are possible only in PM systems, in which they are embedded in the base coat. As a general rule, aggregate size cannot exceed twice the 1/4 to 3/8 inch base coat thickness.

Finish coats can normally be applied the day after the base coat. Finishes should not be applied in sunlight, and one occasionally hears reports of shadow patterns which fell on the finish coat at time of application being recorded faintly in the surface. Although PB stuccos do not require control joints, designers should anticipate and discuss with the EIFS contractor the need and proposed locations for cold joints, where phases of application can be ended and resumed. It is generally a good idea, from a color control point of view, to locate these joints at corners. Differences in curing conditions

Courtesy of STO Industries

TRC Center, Virginia Beach, Virginia. Architect: Walsh/Ashe Associates, Virginia Beach.

Courtesy of Synergy

Remington Park, Oklahoma City. Architect: Ewing Cole Cherry Parsky, Philadelphia.

from one day to the next may produce subtle changes in color that are noticeable at abutting panels in the same plane.

EIF systems easily conform to simple curves, and both planar and curved surfaces can have strips, blocks, or patterns of material added in relief. "Sculpting" of the surface is mostly limited to layering, but it is easy to do. "Aesthetic joints" can be routed in the insulation board (at least ¾ inch of material must remain) to create shadow lines or to partition areas for different color applications.

General Discussion

PB systems are more economical than PM systems—they use less expensive insulation board and they use less stucco material, but in a more efficient way. The major distinguishing characteristics of PM systems are higher penetration resistance, mechanical—rather than adhesive—attachment, and use of extruded polystyrene insulation. Heavy-weight fiberglass reinforcing can be used to upgrade the impact resistance of PB systems, but there are limits to the cost effectiveness of adding layers, after which PM systems are less expensive.

Mechanical fastening is not limited to PM systems, since 1) PB/EPS systems can be adhered to metal lath that is mechanically anchored to the structure, and 2) mechanical fasteners can be added as an optional extra to adhesive applications. Mechanical fastening is required on substrates that aren't suitable for adhesive application, although it has advocates who favor it when EIF systems are applied over paper-faced exterior gypsum sheathing. There is no advantage—and a cost penalty—to adding mechanical fasteners to adhered systems, beyond a "belt and suspenders" attitude about delamination of paper-faced gypsum board.

Extruded polystyrene has slightly greater thermal resistance than EPS, but it costs more per unit R-value. Some advocates favor it because it is superior to EPS as a water barrier, which may be valuable in the event of water penetration of the finish. It also has lower vapor permeability, which may increase the condensation potential within the wall assembly.

Manufacturers differ in their recommendations regarding use of EIF systems below grade and on weather-exposed sloping surfaces. Some prohibit below grade application and show details holding the material six to eight inches above grade level, while others take it to, but not below grade. Still others have special below grade finishes and switch from EPS to XPS in the transition.

Diagnostics investigators have noted that polymeric finishes can soften with prolonged contact with moisture (a point acknowledged, at least indirectly, in some manufacturers' literature), and caution designers about details where the finish may be exposed to standing water (termination at sidewalk), capillary transfer (soil contact), puddling (parapet tops without copings), and other damp environments and areas subjected to rain splash.

System Enhancements

When asked where money could be spent on the building envelope in ways that might enhance or ensure the long-term performance of EIF systems, industry representatives answer in different terms, but there is remarkable congruity in the themes. Aside from getting the best qualified applicator, and sometimes a third party inspector, emphasis invariably turns to specifying the best sealants, flashings, and highest quality (zinc) joint accessories. Windows with flanges and flat plate bottoms that provide a good sealant receiving surface are recommended. Some manufacturers whole-heartedly suggest or endorse upgrading paper-faced gypsum board to fiberglass mat-faced gypsum board or, better yet, to cement composition board. Others feel there is no need to design the wall assembly with the presumption that the watertight barrier will fail.

The new Executive Director of EIMA, Dick Hopkins, believes that the best way to ensure success of EIF systems is to get everyone

Field inspection checklist for PB EIFS systems

Material storage, ambient conditions

- ☐ Insulation protected from sun
- ☐ Liquid products protected from freeze
- ☐ Gypsum products protected from rain
- ☐ EIFS products approved by manufacturer
- ☐ Substrate condition sound, dry, clean
- ☐ Substrate evenness 1/4" in four feet
- ☐ Substrate temperature above 40°F
- ☐ Weather clear at time of application

Insulation installation

- ☐ Adhesive over entire back of board
- ☐ Boards butted tightly; cracks exceeding 1/16" filled with insulation slivers
- ☐ Boards mounted in running bond
- ☐ Boards finger-jointed at corners
- ☐ Minimum insulation thickness: 3/4"
- ☐ At least 3/4" remains behind routed joints
- ☐ Tongues project up in T&G boards
- ☐ Drip grooves at soffits
- ☐ Sufficient gap width joints
- ☐ Surface rasped smooth and clean

Base coat and fabric reinforcement

- ☐ Insulation edges backwrapped
- ☐ Base coat applied before adding mesh
- ☐ Corners of doors, window heads, other penetrations diagonally reinforced
- ☐ Fabric mesh lapped at least 2 1/2"
- ☐ Two ply reinforcing at corners
- ☐ Pattern not visible on base coat
- ☐ Fabric not damaged or cut

Finish coat and sealants

- ☐ Base coat cured for 24 hours
- ☐ Texture as per approved sample
- ☐ Wet edge maintained; no cold joints
- ☐ Finish coat applied to surfaces in shade
- ☐ Finish protected from rain
- ☐ Rain cover does not contact finish
- ☐ Joint width as specified
- ☐ Closed cell backer rods of proper size and depth in joints
- ☐ Bond breaker tape at joint bottoms
- ☐ Sealants approved by manufacturer
- ☐ Finish cured before sealing (minimum 24 hours)

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involved early on. This means for the architect to discuss what he's trying to achieve with the manufacturer, and to have the manufacturer review details, joint conditions, and other special features of the envelope. Hopkins also suggests that the architect go over the job thoroughly with the contractor, to reveal issues surrounding phasing of application, cold joints, the practicality of details of the assembly, and other issues that may not occur to the designer.

Finally, the architect should thoroughly investigate the warranty offered by manufacturers. While warranties covering installation and workmanship are rare, they are offered by some manufacturers and can sometimes be negotiated with others. These typically require a third party inspection of the work, which is a good idea, in any case. And some manufacturers, while not offering workmanship warranties, do promote quality assurance programs that help coordinate all parties involved in the EIF system installation. EIMA is an important source for model specifications and quality control information.

Conclusion

EIF systems offer many features and capabilities that are unique to them, among these being a wide selection of colors, texture, relief, curvature and splaying of surfaces, and shaping of profiles. EIF systems insulate the outside of the envelope, where they minimize the structure's thermal movement and reduce condensation potential within the wall cavity. The systems are light in weight and easy to attach. Both characteristics make them ideal for many retrofit and rehabilitation applications. Panelized versions of the products are also available and are especially suitable to mid-rise construction and cold-weather installation. The relatively thin membranes can be damaged by impact and vandalism and, like all barrier systems, require vigilance in the inspection and maintenance of joint seals over the life of the building.

The known failures of EIF systems seem, almost without exception, to be a problem of either faulty installation (the vast majority), or faulty detailing. The latter usually involves extending the material beyond its approved applications or by creating details that can't be executed in the field. Architects can avoid detailing problems by having the manufacturer's technical staff review the drawings. Inspection is the means to maintain quality in the installation. This is best done by third parties or manufacturer's representatives. A checklist compiled from different industry sources is included here to aid architects in the field. Before going to the site to inspect the work, architects should obtain and read the manufacturer's installation and inspection manuals.

Things aren't what they used to be with EIF systems. There are more manufacturers, more new products, and more "look-alikes"—although not all of these are the same under the surface. And, more architects are beginning to explore the design possibilities of exterior insulated finishes on their own merits—beyond being an economical way of covering thousands of square feet at once. While it may be an overstatement to say that EIF systems are entering a new era, their future looks more and more interesting. ***Kenneth Labs*** ■

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Lawrence Miller, Thoro System Products

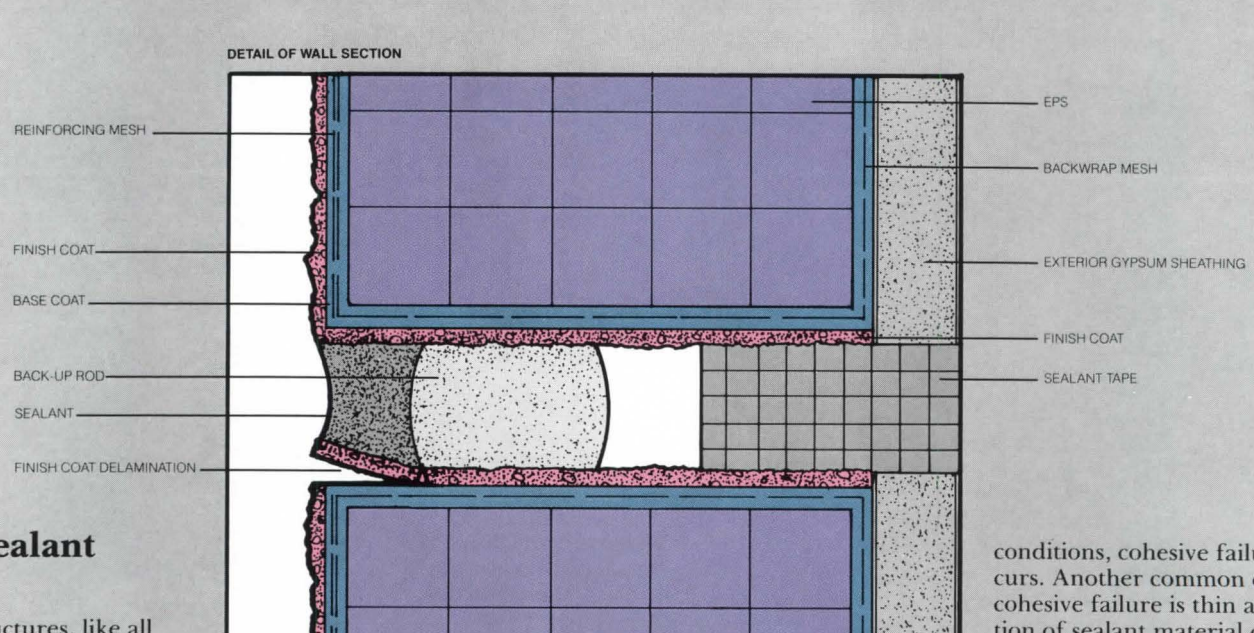

Figure 1. Delamination of finish coat from base coat.

Use of Sealant in EIFS

EIFS-clad structures, like all buildings, are subject to the vicissitudes of weather and thermal movement. Good sealant joints accommodate these factors and ensure a moisture-tight EIFS cladding. Moisture within EIFS layers causes system components to deteriorate, a process that can jeopardize wall integrity and necessitate costly repairs. This raises the question: What are the best approaches to sealing EIFS-clad structures? The answer lies in a knowledge of sealant and EIFS materials, their properties, performance and application. The expertise and shared knowledge of design professionals, manufacturers and tradesmen must be brought together to ensure the success of EIFS.

Sealant Materials

EIFS claddings utilize urethane sealants, elastomeric materials capable of maintaining a good seal when completely cured. Urethane sealants are generally acknowledged to have a high rate of recovery (compared to polysulfide sealants) and good workability, adhesion, and movement capability. They have excellent resistance to ultra-violet (UV) exposure and ozone and negligible cracking even after long-term weathering.

Most EIFS installations specify multicomponent sealants, products which are mixed on-site just prior to application. Multicomponent sealants offer some advantages. First, they cure faster under normal conditions because curing is activated by chemical catalysts. Single-component sealants, on the other hand, are cured by the catalytic action of moisture from the air. Second, multicomponent sealants typically cost less than single-component sealants, which are more difficult and costly to manufacture. Last, issues of package stability and sealant shelf life are generally less pertinent since components are packaged separately.

The proper mixing of sealants rests squarely with the applicator. Of course, strict adherence to mixing proportions is critical. The amount of each component used—base compound, curing agent, and optional coloring compound—must be correct. One pitfall of improperly mixed sealant is chemical incompatibility. If the ratio of curing agent to base compound is incorrect, solvents such as toluene and xylene can adversely affect the EIFS cladding, causing deterioration of coatings and EPS insulation board. Equally important is the degree of mixing. Sealant manufacturers usually provide explicit mixing directions to ensure that the curing and coloring agents are fully dispersed in the base compound. Excessive or high-speed mixing can cause a rise in temperature which reduces the sealant's work life and creates air pockets.

Cohesive Failure

Cohesive failure of sealant joints—failure within the sealant material itself—is likely if recommended mixing proportions and procedures are not followed. Because the curing of multicomponent sealants depends on a chemical reaction between components, incorrect proportions or inadequate mixing inhibits catalytic action and results in a "sticky" sealant, which may never fully cure. With time, uncured materials are a basis for cohesive failure.

Aside from improper mixing, cohesive failure can be caused by the omission of materials—namely, bond-breaker tape or back-up rod. These materials prevent adhesion at the critical base part of the joint. If tape or rod is omitted, a three-point adhesion of sealant in the joint cavity may result. This configuration restricts necessary joint movement. As the sealant joint expands and contracts to accommodate weather and thermal conditions, cohesive failure occurs. Another common cause of cohesive failure is thin application of sealant material or excessively narrow joints. A thin layer of sealant lacks the substance needed to endure the stress of joint movement; narrow joints may be unable to accommodate movement. Typically, the sealant material fissures and breaks internally, causing open longitudinal gaps in its surface.

Adhesive Failure

Adhesive failures are those that occur at the bonding face between sealant and EIFS. The detailing of this juncture is not the same for all EIF systems. Methods of sealing EIFS claddings differ and depend on whether the system is polymer-modified (PM) or polymer-based (PB). In most PM applications, preformed joint accessories serve as the sealant substrate; in most PB systems, the finish coat is the sealant substrate. Whether accessories or the finish coat are used, it is imperative that the sealant substrate selected provides a stable bonding surface. An increasing number of adhesive failures, specifically on PB systems, suggests that this may not always be the case.

In PB systems, the finish coat functions as part of the EIFS lamina, a composite layer that also includes reinforcing mesh and base coat. The finish coat must maintain its cohesion with the lamina as it provides a substrate for the sealant. Numerous investigations of PB installations throughout the country have uncovered adhesive failure of sealant joints in conjunction with delamination of the finish coat. Why is this happening?

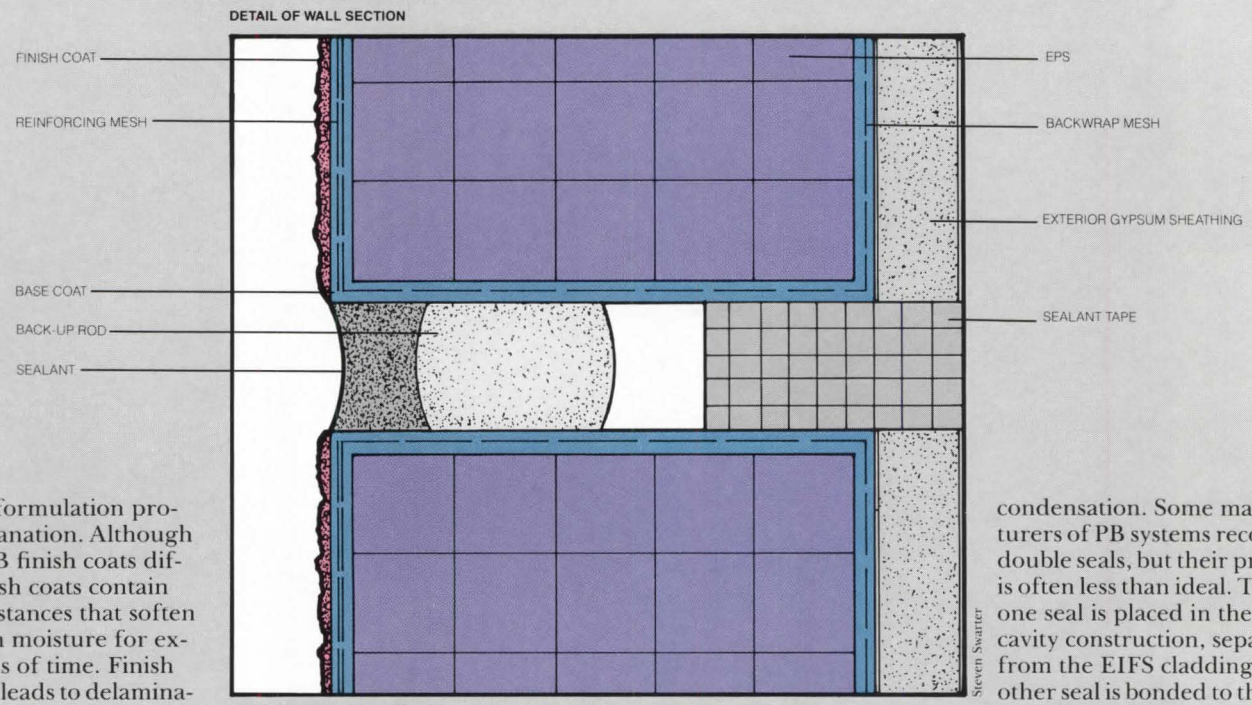

Figure 2. Alternative detail of sealant applied to base coat.

Finish coat formulation provides one explanation. Although proprietary PB finish coats differ, all PB finish coats contain polymers, substances that soften in contact with moisture for extended periods of time. Finish coat softening leads to delamination at sealant joints. A tentative hypothesis, supported by preliminary materials laboratory testing, is that the bond between the finish coat and sealant is stronger than the bond between the finish and base coats. Under certain conditions, the sealant retains its bond to the finish coat, but the finish debonds from the base coat.

Microscopic examination of PB finish coats lends further insight into the softening process observed in field investigations. The porosity of the finish coat contrasts with the relatively nonporous appearance of the underlying base coat. Voids on the surface of the finish coat function as "conduits," hollow formations capable of carrying unwanted moisture into the finish coat, which then causes softening and delamination.

Sealant primers are required by some PB manufacturers because finish coat porosity and irregularity offer inadequate bite for sealant adhesion. Primers are intended to stabilize the surface by filling in voids and strengthening weakened areas. However, even when a primer is used, the potential for moisture conduction through voids is not entirely eliminated if the sealant is applied to the finish coat. Sealant primer is applied to joint interfaces only; moisture will continue to have access through voids located on the surface of the finish coat. With or without primers, applying sealant before the finish coat has cured can trap moisture within the joint.

It is important to understand how finish coat softening and voids cause the adhesive failure of PB sealant joints in the field. Using standard seal-to-finish-coat details, the finish coat is carried from the EIFS face into the joint interface. This detailing allows moisture to enter the finish coat at an oblique angle and penetrate the joint (Fig. 1). As moisture from the surface passes through finish coat voids into the sealant cavity, the process of softening, delamination and adhesive failure is set in motion.

Possible Alternatives

Clearly, application alternatives for PB systems should be explored. The best approach seems to be a transfer of the finish coat's role as the sealant substrate to other components. The base coat should certainly be considered. Some manufacturers now approve this as an option, and it is a common detail in some panel systems. In this scenario, the finish coat would be carried to the edge of the sealant joint on the building surface and stopped (Fig. 2). In contrast with standard practice, the finish coat would not be applied to the joint interface. Standard application and tooling of the sealant material to the base coat would then follow. The rationale is simple. When the finish coat is omitted from the joint interface, moisture is less likely to enter the joint through voids in the finish.

Accessories such as J-shaped edge terminations offer a second alternative. Again, sealant material would be applied to a substrate other than the finish coat. Few US PB manufacturers include edge and joint accessories in their systems. By contrast, European systems have long relied on them for detailing—and with much success. As awareness of adhesive failures due to PB finish coat delamination grows, professionals may look at these accessories with renewed interest.

Regardless of the alternatives, consideration should be given to detailing PB sealant joints with a double seal and vent. The double seal provides "added" insurance against sealant joint failure, and the vent accommodates moisture condensation. Some manufacturers of PB systems recommend double seals, but their procedure is often less than ideal. Typically, one seal is placed in the wall cavity construction, separate from the EIFS cladding; the other seal is bonded to the finish coat. This does little to avoid the source of adhesive failure—the finish coat as substrate. A better approach may be to place a primary seal in the base coat, backed up by a secondary seal in the EIFS layers, if possible. Of course, the actual detailing of any double seal requires a thorough assessment of specific project conditions and construction allowances. EIFS are truly systems, and architects should keep in mind that any detail that deviates from standard practices may invalidate applicable warranties. We encourage architects to discuss and review alternative joint details with the manufacturer's technical services staff for their approval to ensure warranty coverage.

There is a need for design professionals, sealant manufacturers, and the EIFS industry to work together to foster a clearer understanding of EIFS claddings, their materials, properties, and performance. An upcoming symposium on Sealant Technology, sponsored by ASTM Committee C-24 on Building Seals and Sealants, promises to be a good step in this direction. It will be held January 31 in Fort Lauderdale, Florida.

Mark F. Williams and Barbara Lamp Williams ■

Mark F. Williams and Barbara Lamp Williams are founding principals of Kenny/Williams/Williams, Inc., a building diagnostics firm located in Maple Glen, Pennsylvania.

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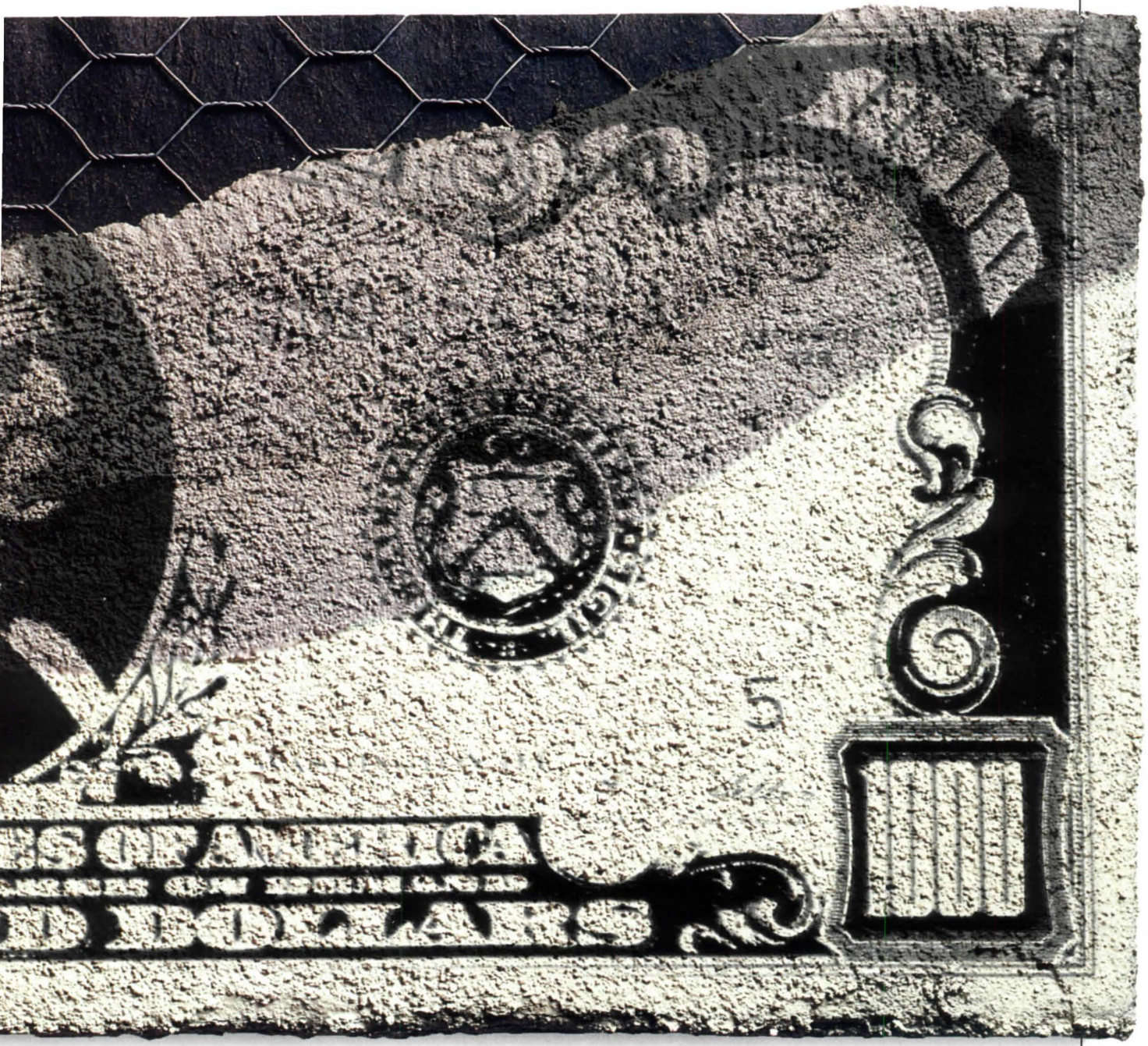

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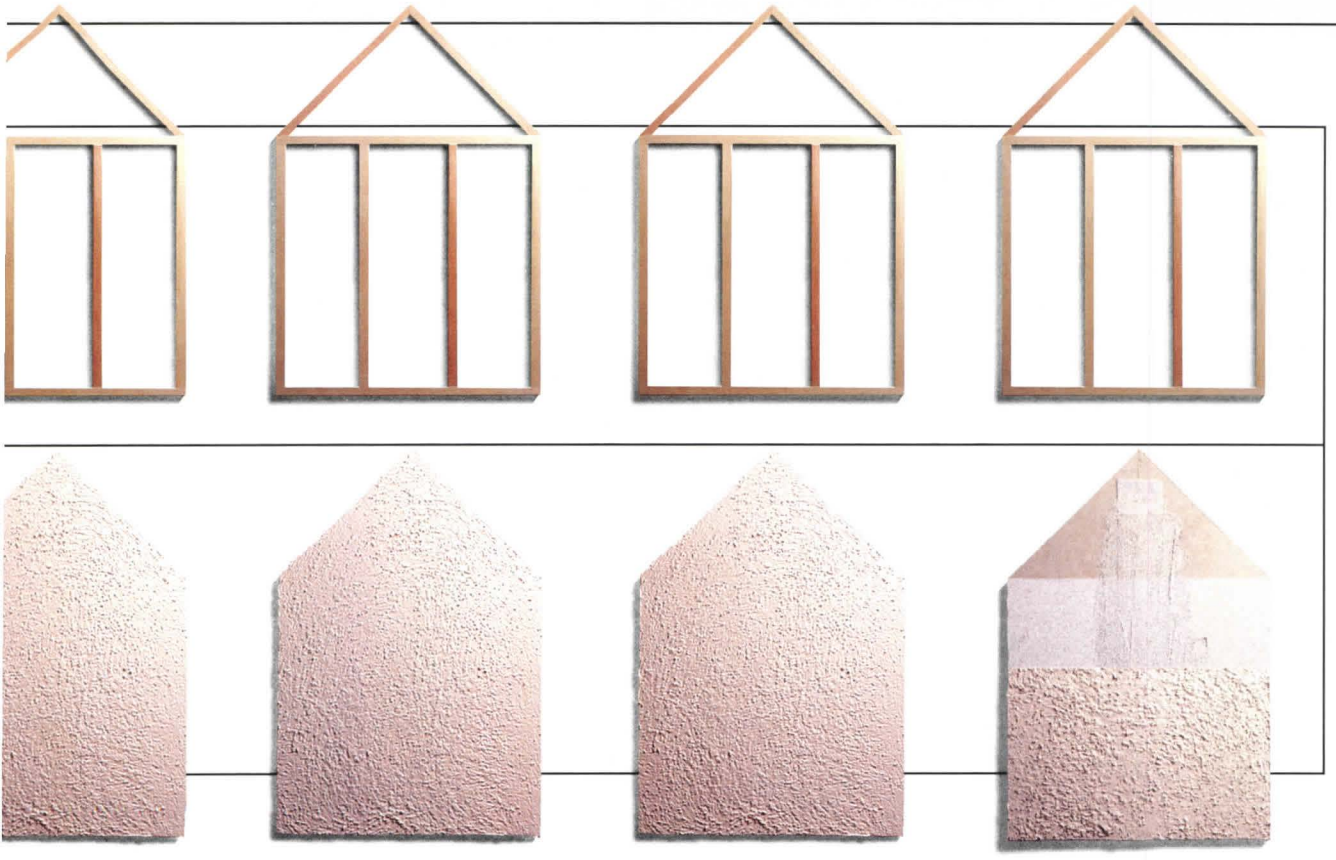

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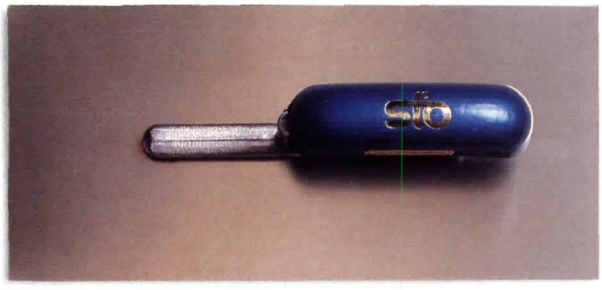

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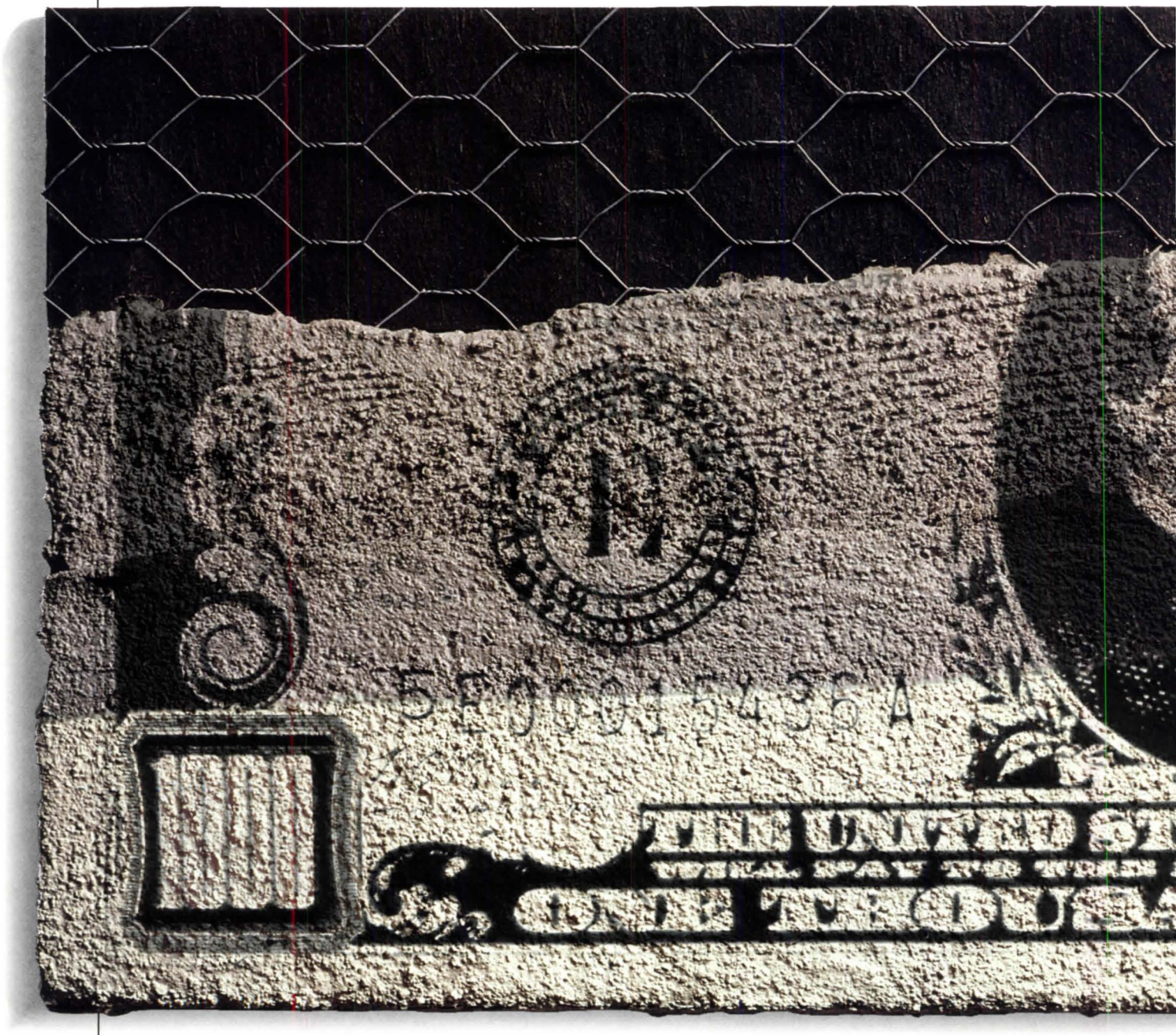

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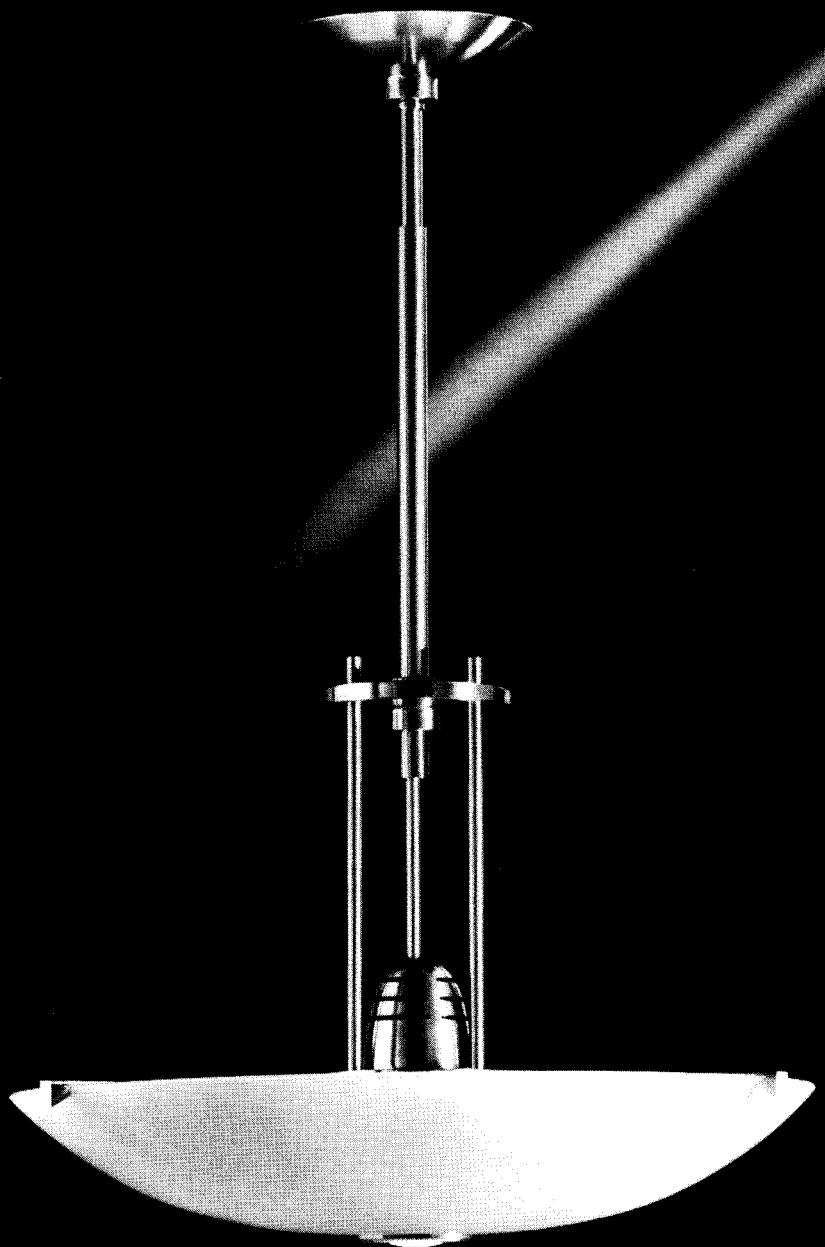

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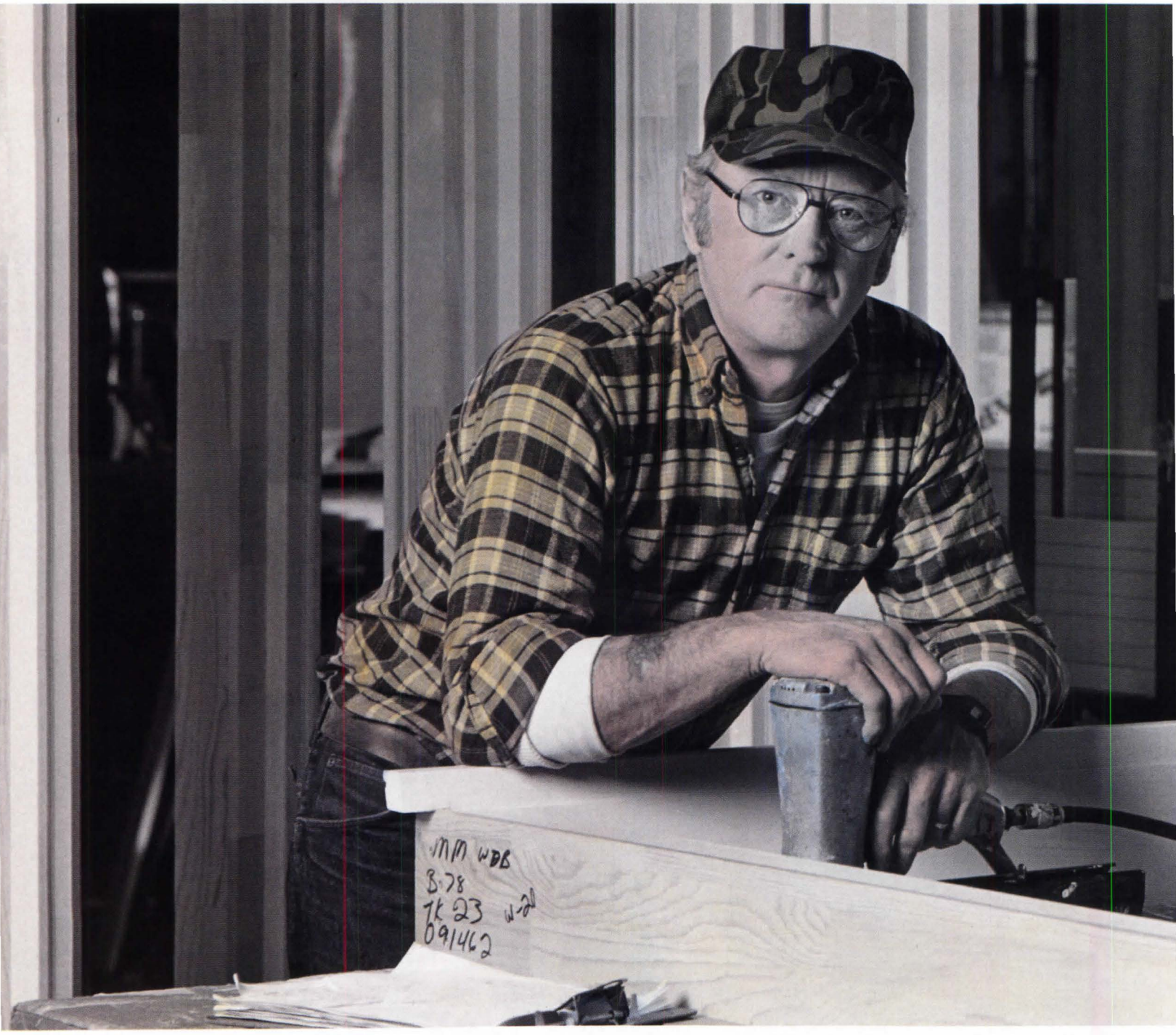

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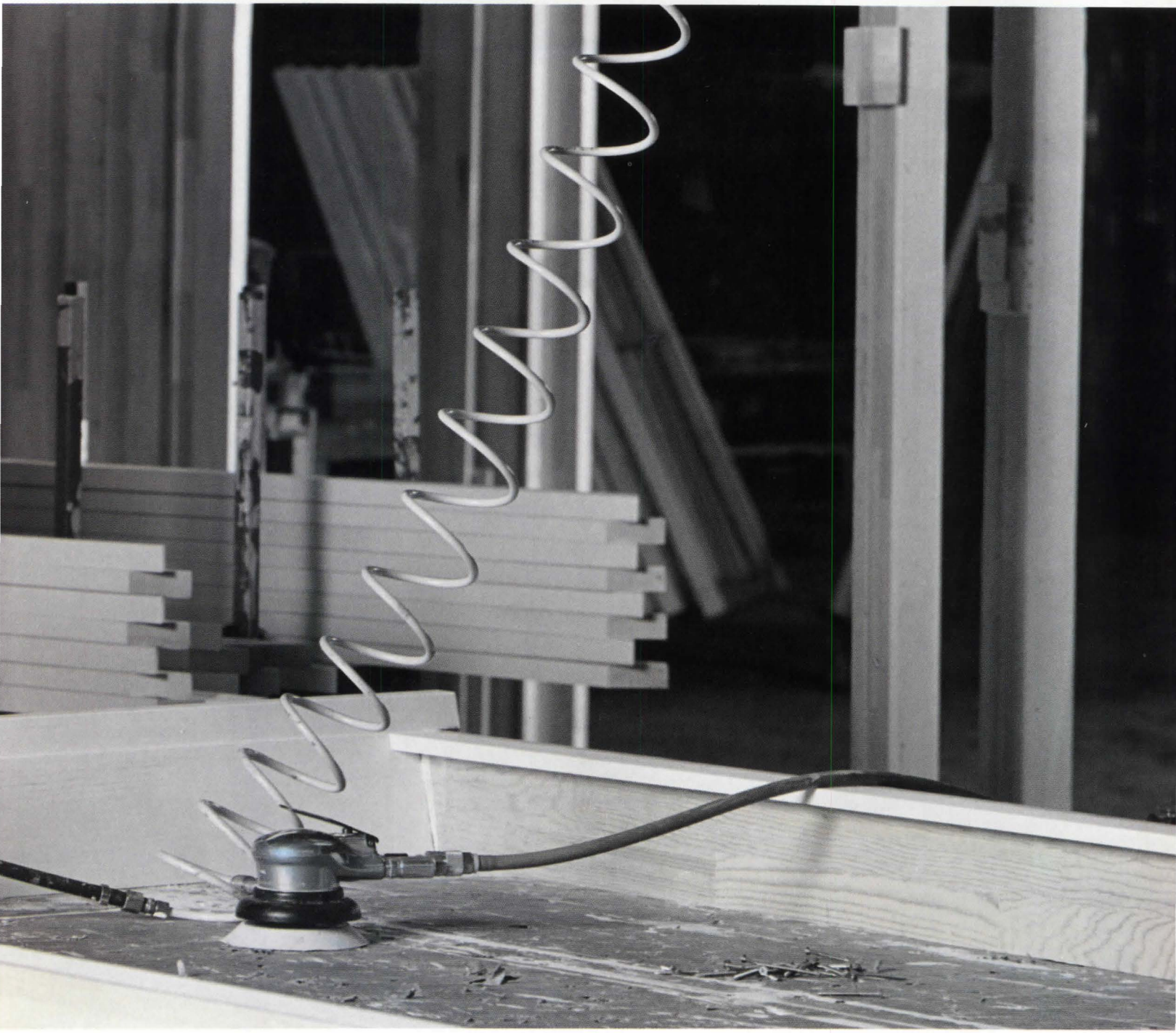

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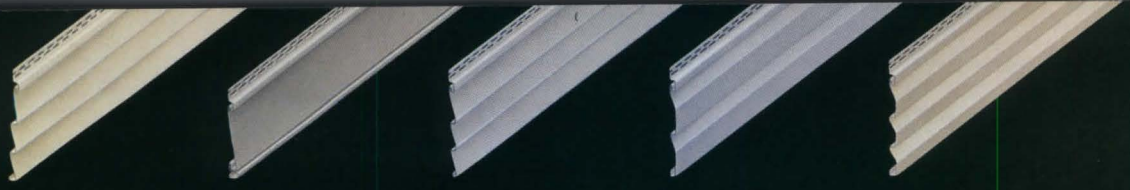

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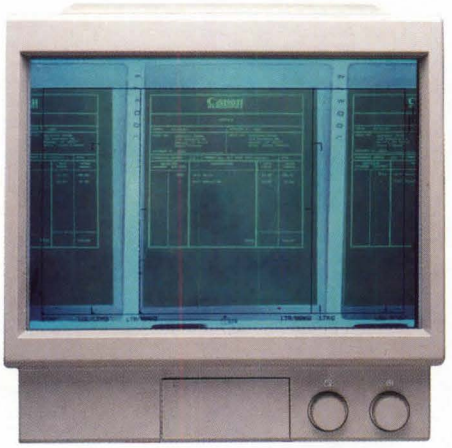

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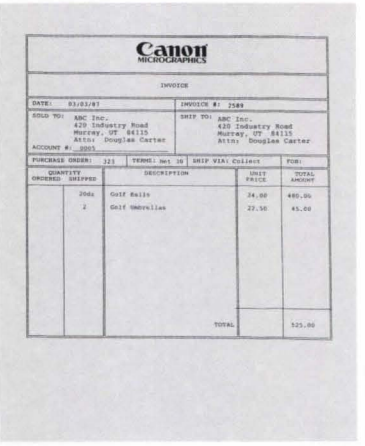

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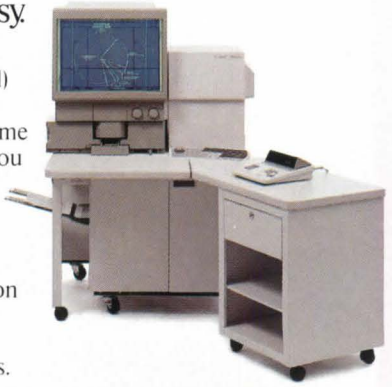

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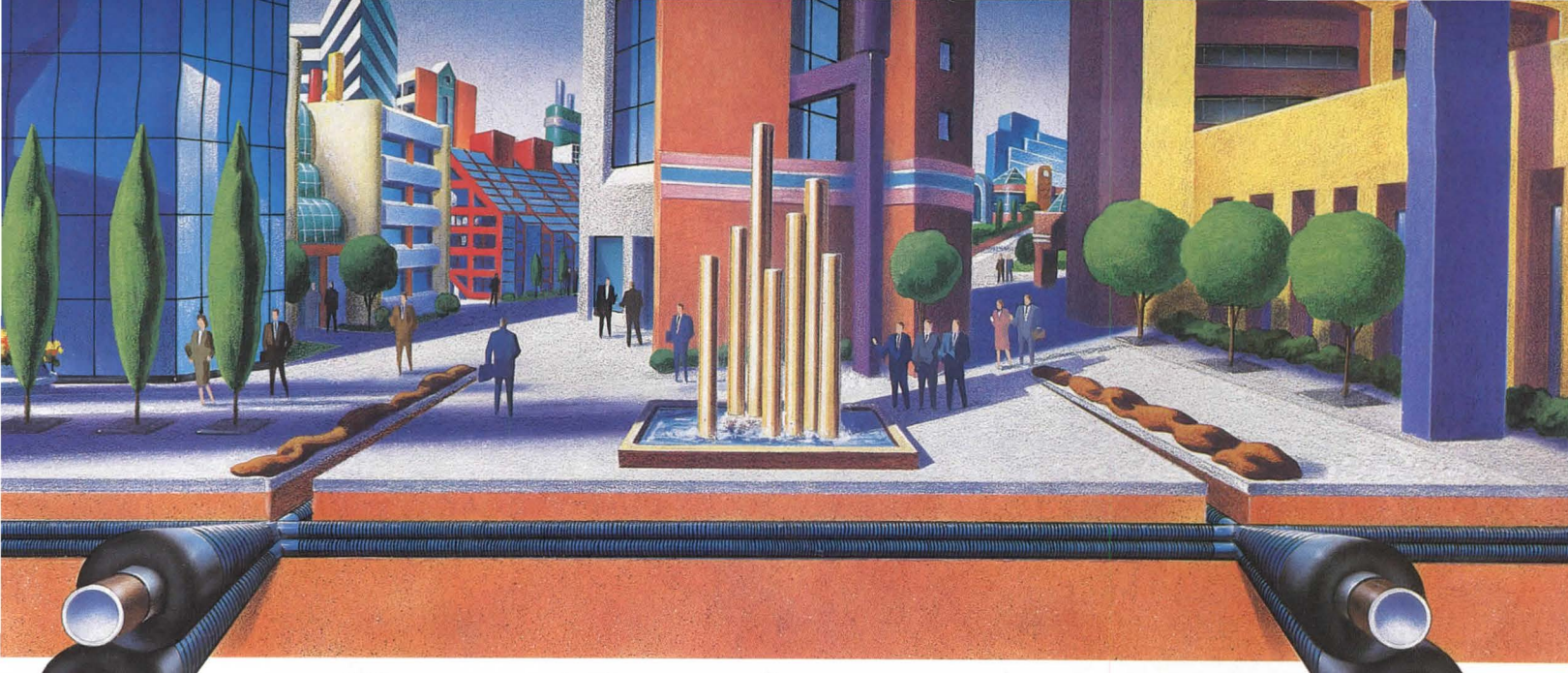

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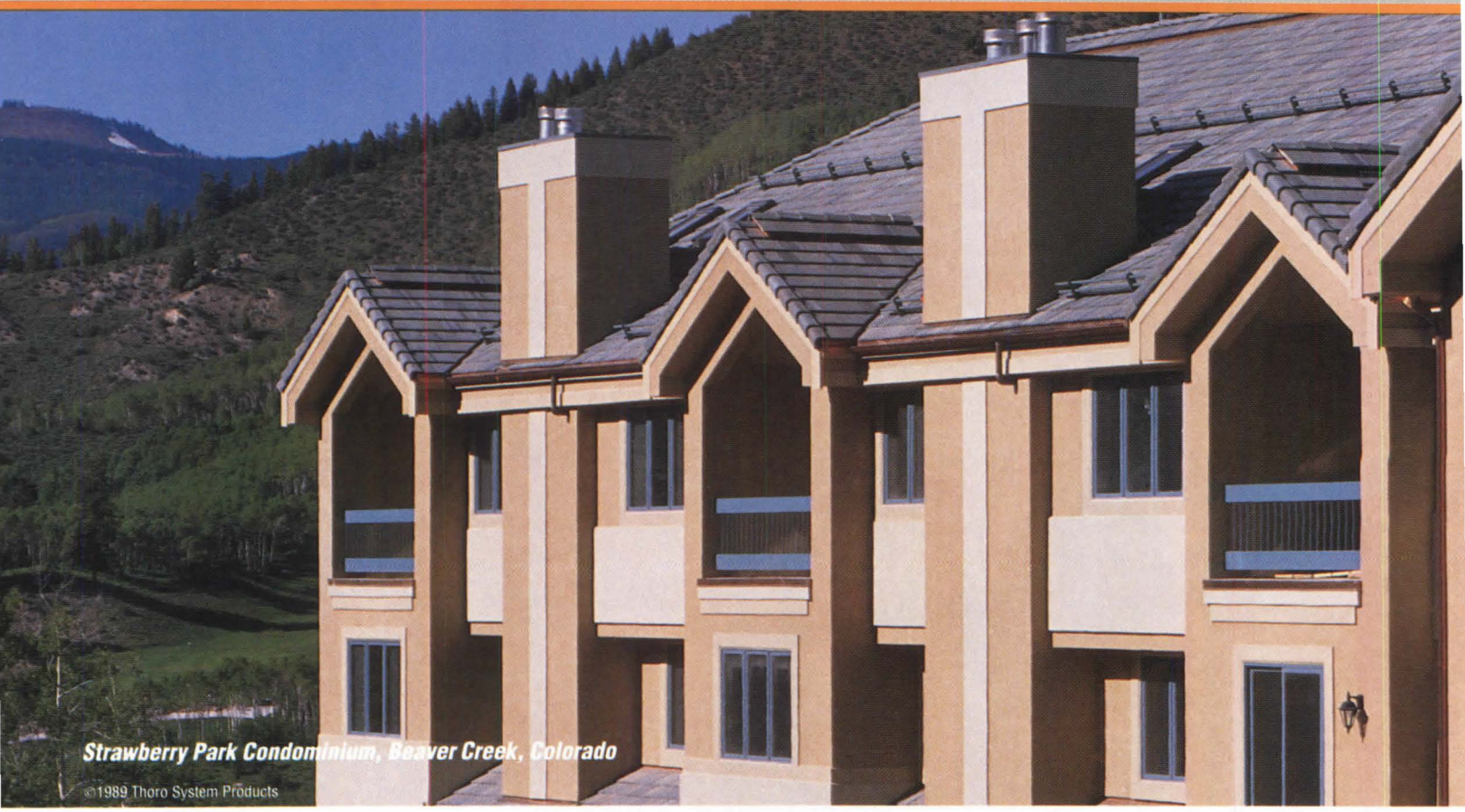

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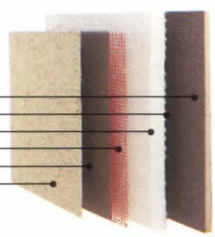

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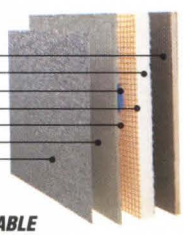

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Architect Michael Graves will make his contract furniture debut for Atelier International with two office pull-up chairs to be introduced at this year's Designer's Saturday. Oculus (top, right) and Finestra (middle and bottom, right) mark a departure from the chunkier stylizing of Graves's earlier furniture (P/A, September 1988, p. 100); their cabriole legs and rhomboid-shaped posts offer a more subtle amalgam of Classical forms. Graves wanted to make an elegant chair, one "not overly domestic, overly corporate, or overstuffed"—a cross-over chair as suitable for an executive office as for a living room or restaurant. The beechwood chairs can be finished in ebony, mahogany, maple, oak, walnut or special stain, and seating can be specified in a variety of fabrics, leathers, vinyls, or customer's material. Atelier International.

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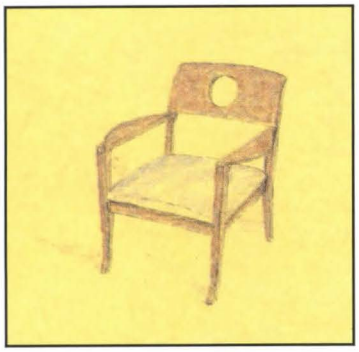

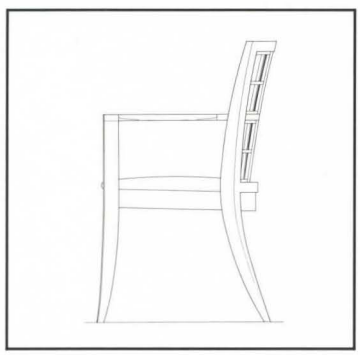

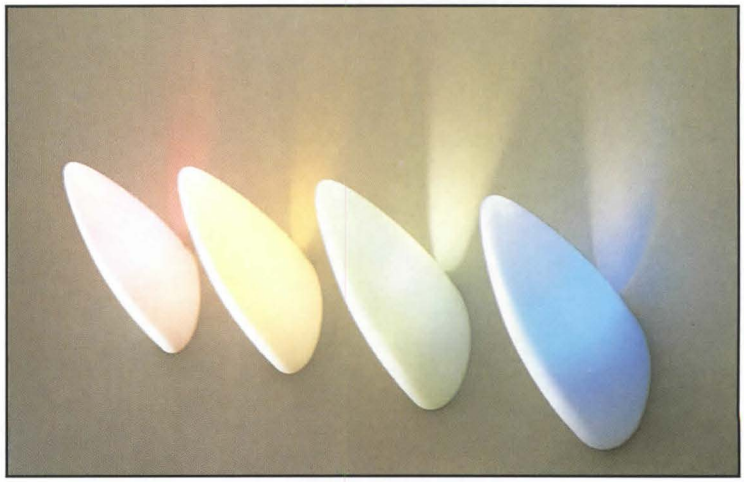

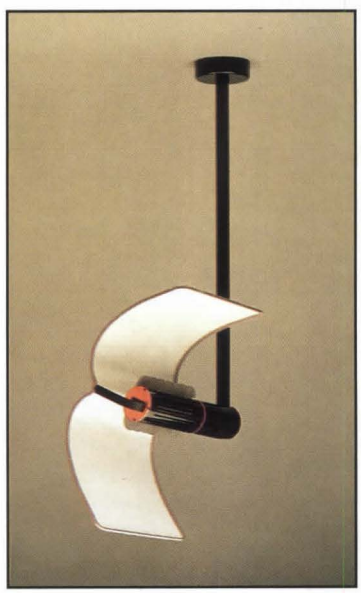

FLOS veterans Afra and Tobia Scarpa and second-year man Philippe Starck will add to the company's repertoire with introductions at Designer's Saturday. The Scarpas's Vol-au-Vent lamp (left), available in floor or ceiling models, employs a metalized fiberglass gull-wing to act as both reflector and diffuser. The winged mechanism—spanning 23.6 inches—rotates 360 degrees around a cylindrical lampholder, which holds a 500-watt single-ended halogen lamp. Starck has taken his horn motif to more sensual ends with the Lucy Fair wall sconce (above). The softly curved, horn-shaped diffuser—which offers direct upward illumination and an ambient glow—is blown from opal white glass and acid-etched (shown with colored lamps). The sconce is 9.5 inches deep and is wired for halogen or incandescent sources. FLOS.

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This suspension fixture called "Light" has a curved and tempered rectangular crystal diffuser and an anodized aluminum body. Multiworld.
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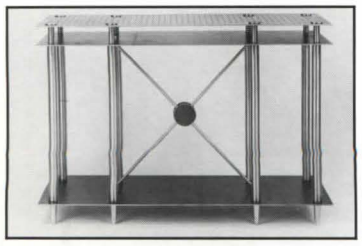

A new table made of steel, stainless steel, and bronze is called Xenox Console. Tables can be custom-sized and are offered in several finishes. Studio Steel.
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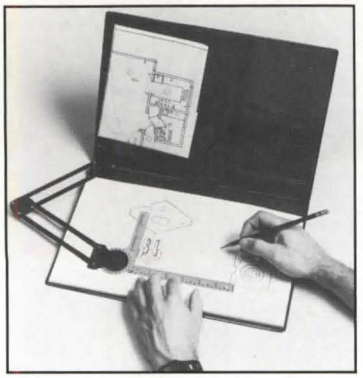

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A new upholstered executive chair features adjustable seat height, tilting tension control, and a five-prong base. Boling.
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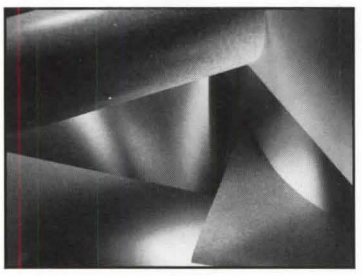
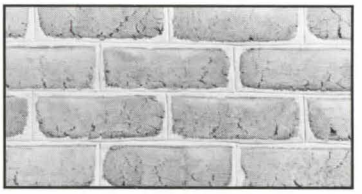


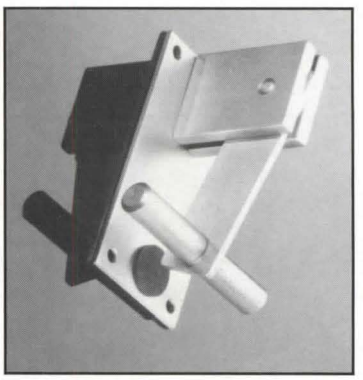
Five new colors have been added to the Medintech line of vinyl commercial sheet flooring. Opal, carnation, sky, wintergreen, and lava extend the range to 11 colors. Armstrong.
Circle 110 on reader service card

Roofing slates installation guidelines are offered in an instructional booklet. Eternit.
Circle 213 on reader service card

A line of downlighting and track lighting products named Light Moods™—for incandescent, compact fluorescent, and H.I.D. light sources—is described in manufacturer's literature. Hubbell.
Circle 214 on reader service card



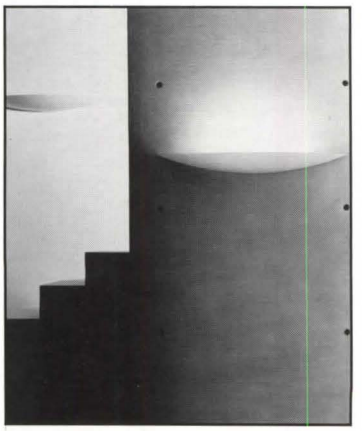
A machine-moulded brick resembles the texture of handmade brick. The Antiques Collection is available in CALVERT™ Brick shades. Cushwa.
Circle 111 on reader service card



New stainless steel handles from the Prologue Pulls collection can be mounted to function as hooks or pulls. Loosening and retightening the socket cap screw adjusts the hardware. Prologue 2000.
Circle 112 on reader service card

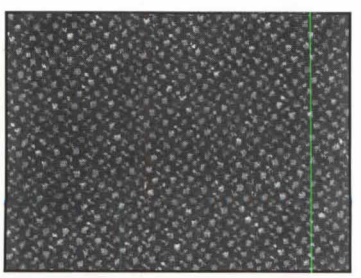
A new tapeless tape measure uses ultrasonic waves and displays feet and inches (or metric units) on an LCD screen. Digitool.
Circle 113 on reader service card

A collection of modular casegoods includes the Volute occasional table. It has fluted edging and can be specified in mahogany or cherry wood. Gunlocke.
Circle 114 on reader service card



A wall-mounted sconce called Cirrus has a white cast aluminum body. Custom finishes can be specified. Artemide.
Circle 115 on reader service card

Perforated asphalt shingles can be folded into four equal parts to achieve a "dimensional" appearance. The 39⅜" x 13¼" shingles are pre-tapered. Elk.
Circle 116 on reader service card



A multicolor cut pile graphics carpet is made of Commercialon Soil-Hiding Nylon. Stock, optional, and custom colorways and patterns can be specified. J&J Industries.
Circle 117 on reader service card
(continued on page 132)

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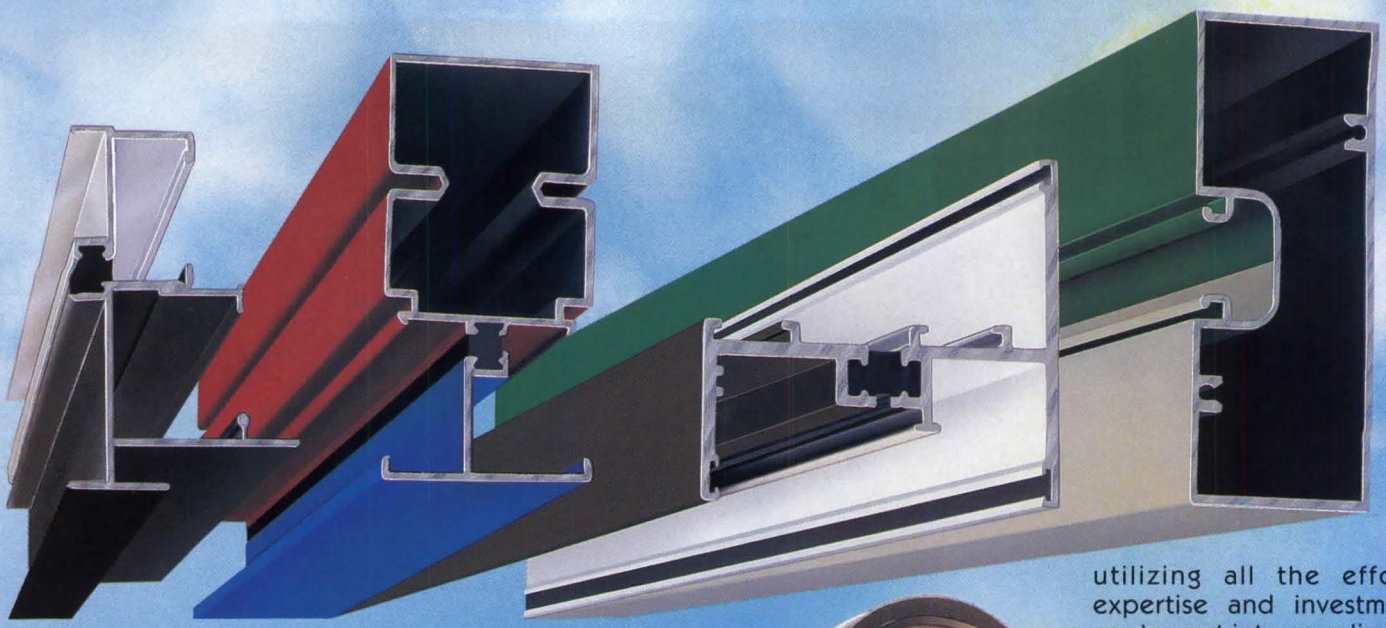

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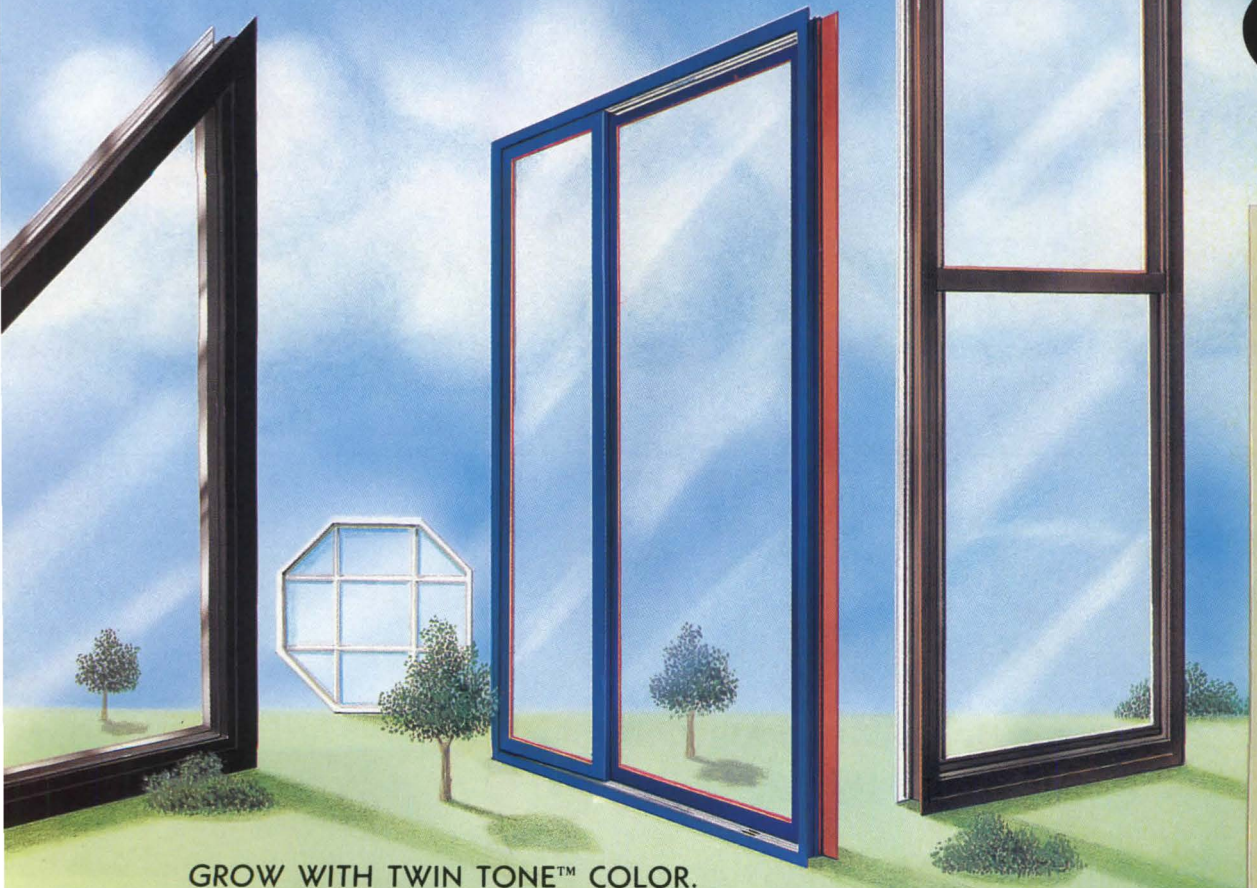

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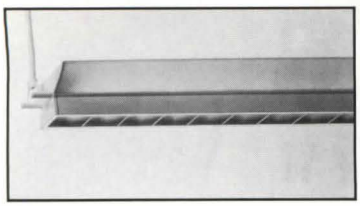
(continued from page 128)

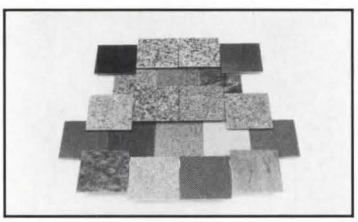


A lighting system designed for "VDT-intensive environments" provides direct and indirect illumination. Zumtobel Lighting.
Circle 118 on reader service card

Six-inch corner glass blocks can be specified in clear, wave pattern, or "heavy-duty" security models. Glashaus.
Circle 119 on reader service card

Several finishes can now be applied over DUROCK® Exterior Cement Board; textured surfaces, tile, brick, or aggregated epoxy matrix are among the finishes that can be applied. USG.
Circle 120 on reader service card

Softpave™ tiles are cast from thousands of tiny rubber granules and can be used for indoor or outdoor applications. Carlisle.
Circle 121 on reader service card



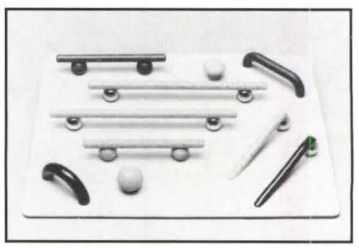
Thin-set granite tiles are available in twenty colors and three finishes. Tiles are 12 inches square. Cold Spring.
Circle 122 on reader service card

Terra cotta paving tiles called Cottoimpruneta are made of Italian clay and can be used for public and private applications. Tile Group Italia.
Circle 123 on reader service card

The use of fire-retardant-treated lumber and plywood is the subject of a report by the USDA Forest Service's Forest Products Laboratory. Guidelines are offered on design considerations, job-site precautions, and questions to ask FRT wood suppliers. Forest Products Laboratory.
Circle 215 on reader service card

Indoor and outdoor lighting fixtures from the Ovalla® system are the subject of a new brochure. Progress Lighting.
Circle 216 on reader service card

Two lampholders with perforated shades have been added to the Power-Trac line. Both use the MR-16 lamp. Halo Lighting.
Circle 124 on reader service card



Plastic pulls and knobs are designed to look like stone. Decorative balls are also available. Outwater Plastic.
Circle 125 on reader service card
(continued on page 136)

Bold and exciting! Two support styles, a variety of seating panels, and an innovative litter receptacle are the basis for the new Petoskey Group from LFI.
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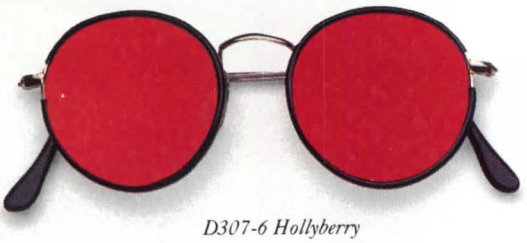

D307-6 Hollyberry

D346-6 Dresden Blue

D362-6 Nile Green

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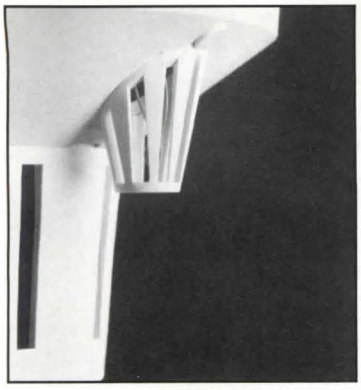

Electronic thermal sensors for smoke detectors are now available for the Phoenix and 3040 Series detectors. The thermistors are optional on photoelectric and ionization models. Pyrotector.
Circle 126 on reader service card

A new lockset features a Best Interchangeable Core, Masterkeyed System, solid brass knob, and self-aligning trim. Best Lock.
Circle 127 on reader service card

Site furnishings for playgrounds, multi-housing units, and office buildings are the subject of this catalog. Picnic tables, benches, and planters are described.
Landscape Structures.
Circle 217 on reader service card

Two-ply polyurethane-bound rubber tiles called Rebound Blocks provide a shock absorbent surface. California Products.
Circle 128 on reader service card

A no-wax, polyurethane finish called ForEver™ is available on the new Contemporary Series™ of hardwood flooring products. Robbins/Sykes.
Circle 129 on reader service card

Building Materials

Major materials suppliers for the building featured this month as they were furnished to P/A by the architects.

Wexner Center for the Visual Arts, Ohio State University, Columbus (p. 72). *Architects: Eisenman/Trott Architects, New York.* Steel structure and "scaffolding": J.T. Edwards. Curtainwall and sloped glazing: Midwest Architectural Metals. Glass: Viricon. Brick: Hanley Brick. Sandstone: Carl Schilling Strinwerk. Metal panels: Fabral Division Alcan Building Products. Limestone: Indiana Limestone. Interior drywall: US Gypsum. Aluminum entrance doors: Midwest Architectural Metal. Hollow metal doors: Fenestra. Rolling grilles: Kinnear. Sound doors: Overly Manufacturing. Granite paving: Cold Spring Granite. Precast concrete pavers: Wausau Tile. Wood flooring: Kentucky Wood Floors. Acoustical tile ceilings: Armstrong. Elastomeric sheet roofing: Goodyear. Sheet membrane waterproofing: W.R. Grace. Plaza walkway and plinth insulation: Dow Chemical. Interior batt and rigid insulation: OCF. Bifolding doors: Modernfold. Operable partitions: Industrial Acoustics Corp. Scaffolding paint: Tnemec Protective Coatings. Interior paint: Sherwin-Williams. Waterproof protective coating: Hydrozo Coatings. Pivot, butt hinges: Hager Hinge Co. Mortise locks: Russwin. Door closers: LCN. Exit devices: Russwin. Speaker system: Industrial Sound & Communication. Access flooring: Tate Architectural Products. Security system: Industrial Sound & Communication. Fire detection: Simplex. Lockers: Interior Steel Equipment. Theater seating: American Seating. Telescopic platforms: Irwin Telescopic Platform Co. Platform seating: Krueger. Elevators: Dover. Escalators: Hitachi. Stairs and handrails: Vampco. Exterior accent lighting: Sterner. Theatrical lighting: Strand/Vincent Lighting. Recessed incandescents and track lighting: Edison Price. Interior fluorescents: Illumination Concepts and Engineering. Electrical distribution: Westinghouse. Lavatories and water closets: American Standard. Sump pump: Weil Pump Co. Terrace drains: Zurn. Flush valves: Sloan. Toilet partitions: American Sanitary Partition Corp. Washroom accessories: American Specialties. Drinking fountains: Elkay. Modular accessory heating unit: Accessory Specialties. Air-handling units: Temtrol. Chillers: York. Pumps: Aurora. Temperature controls: Johnson Controls. Radiant heating: Airtex. Carpeting: Mohawk Commercial Carpet. ■

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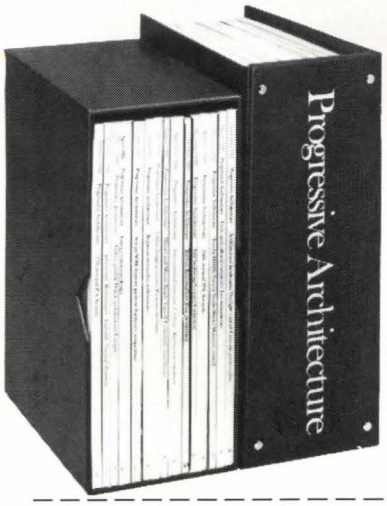

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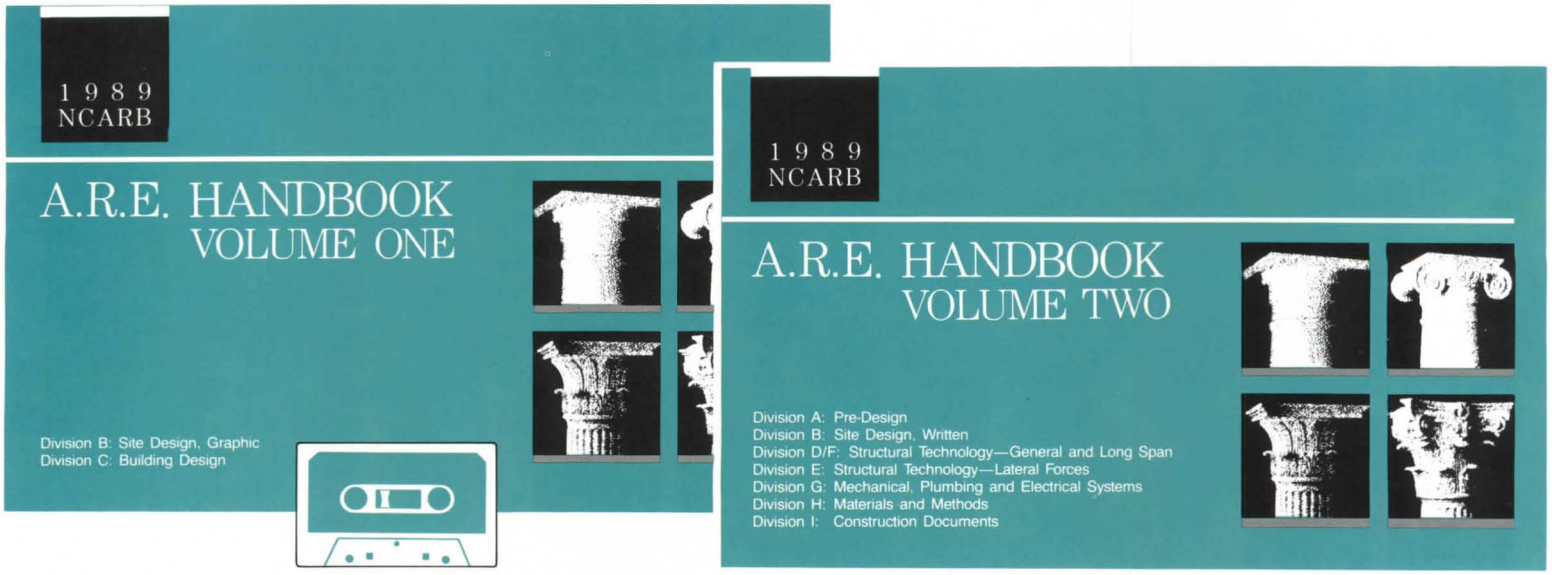

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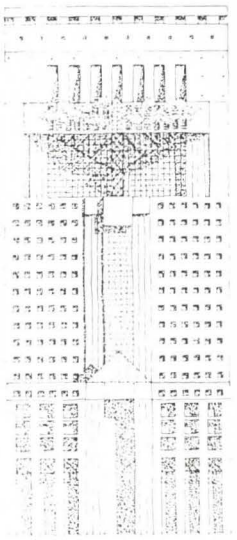

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Application forms for this position are available from the Secretary to the Search Committee, Department of Architecture, College of Environmental Design, University of California, Berkeley, California 94720. Completed applications must be postmarked no later than December 1, 1989.

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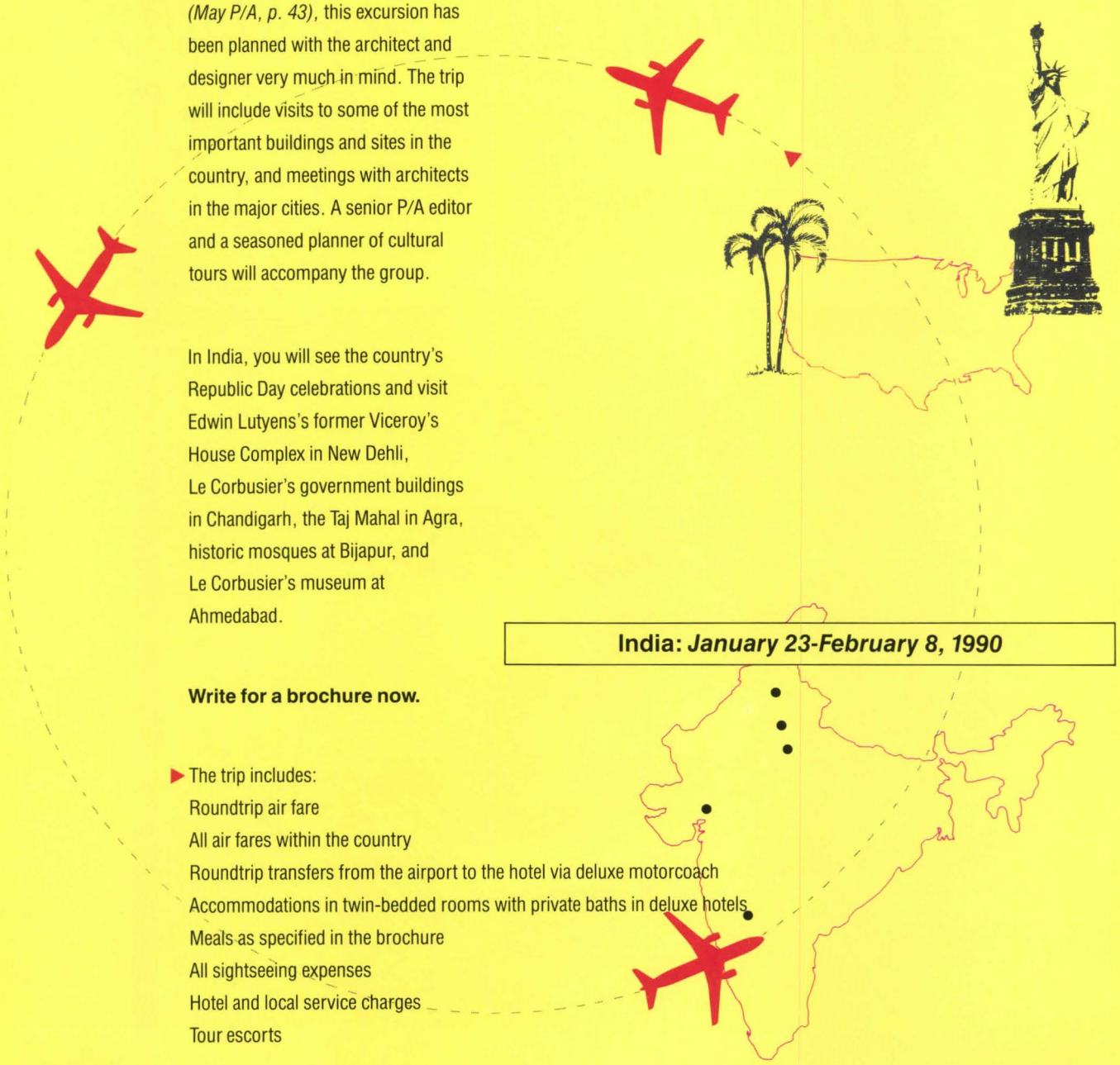

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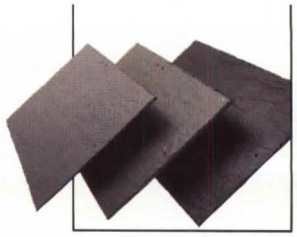

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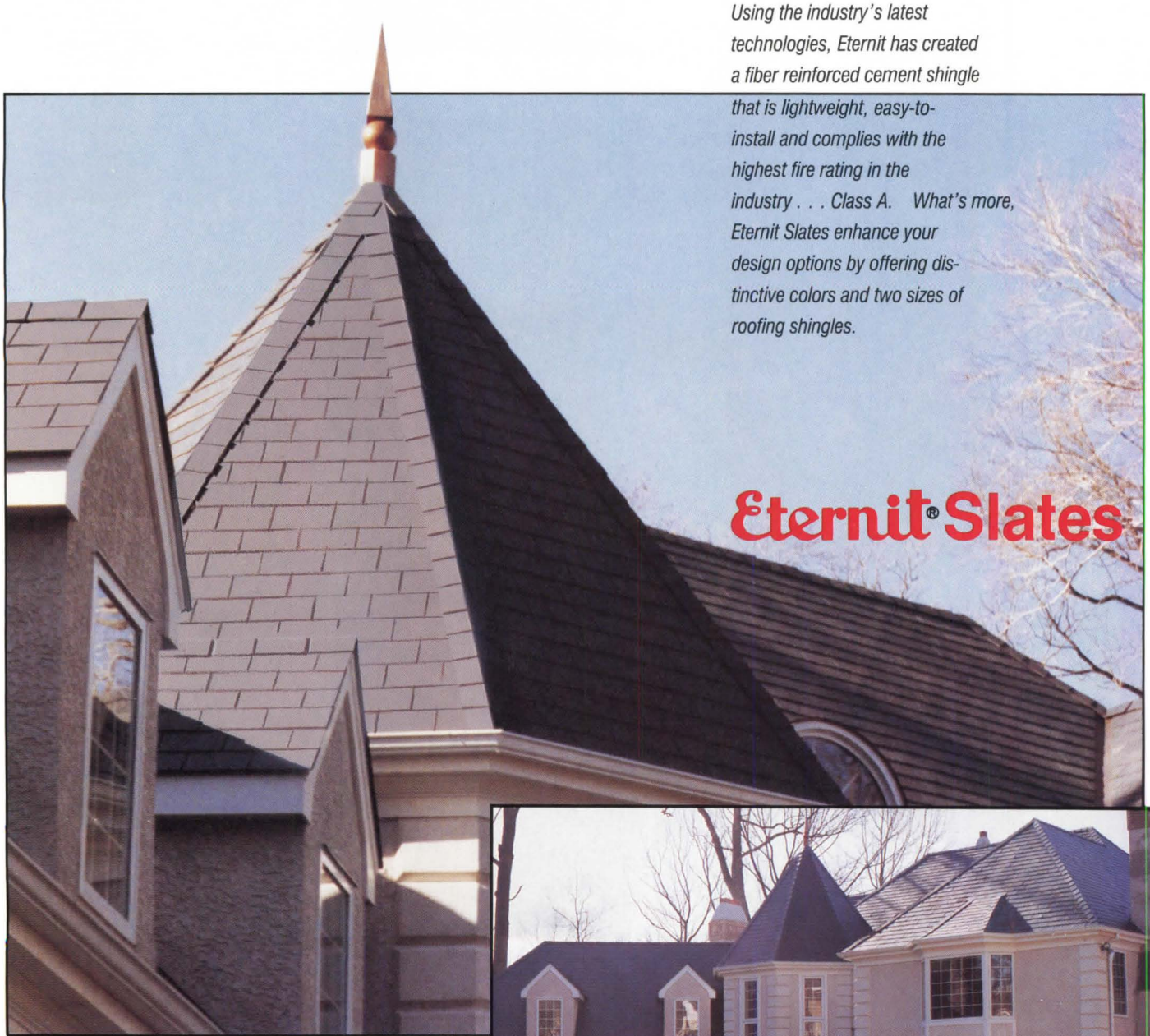

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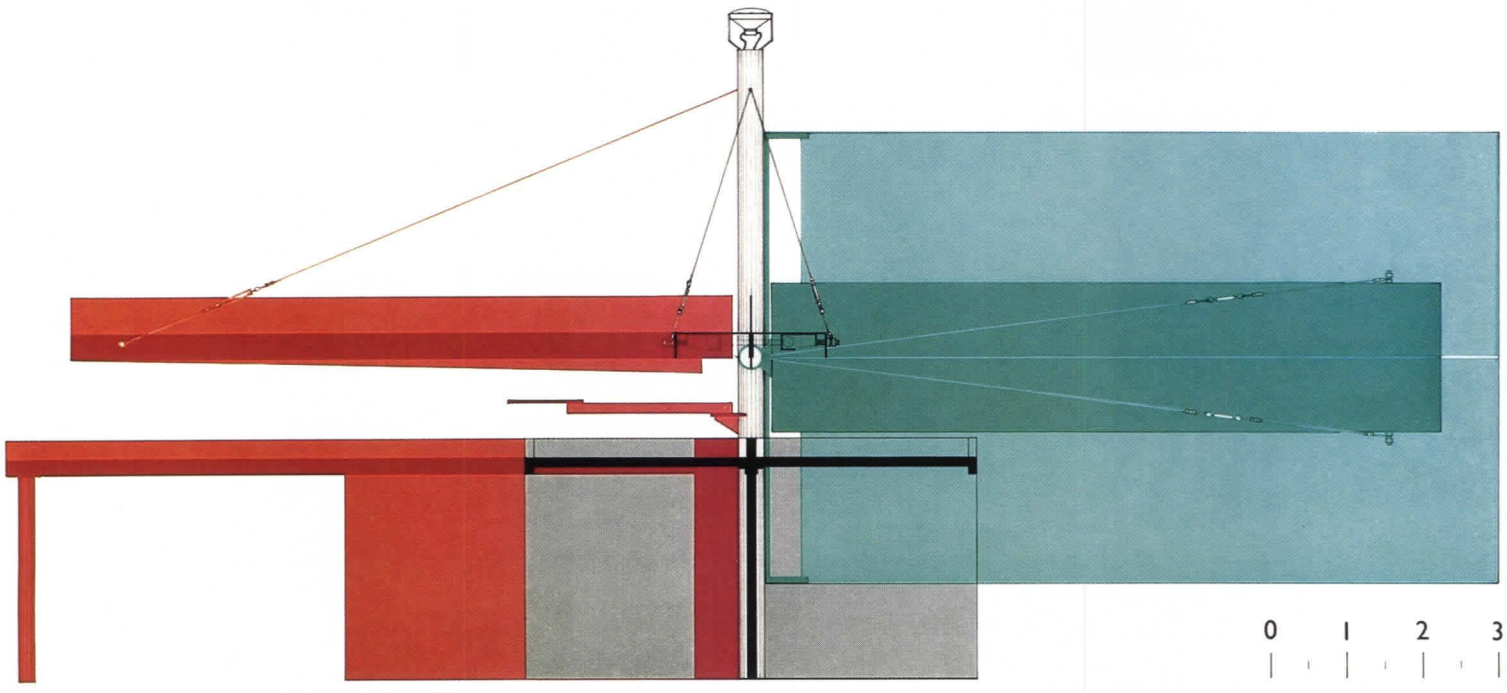
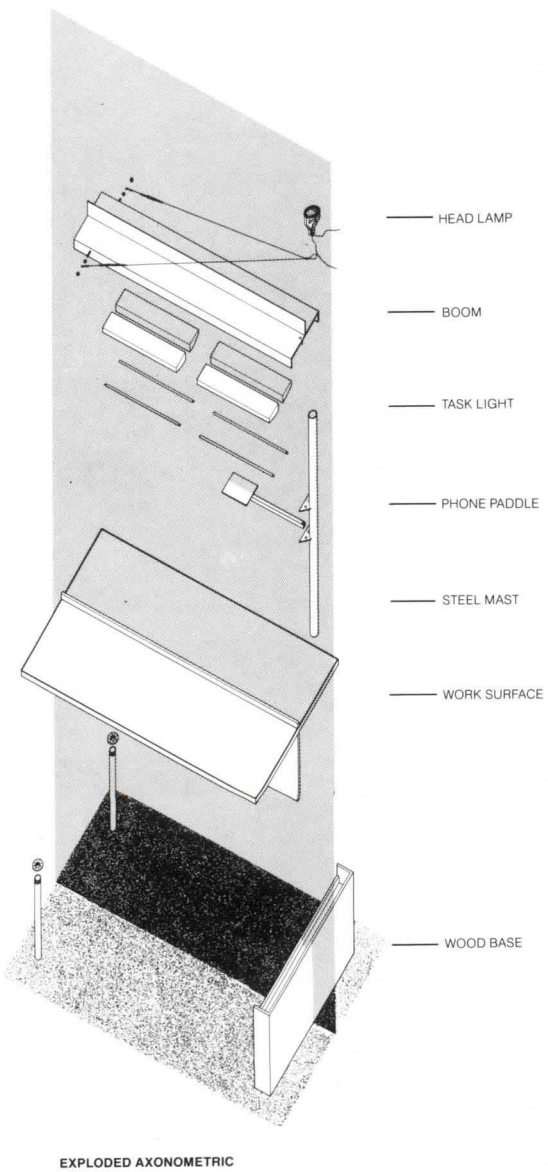


COMBINED ELEVATION, SECTION, AND PLAN OF THE WORKSTATION.



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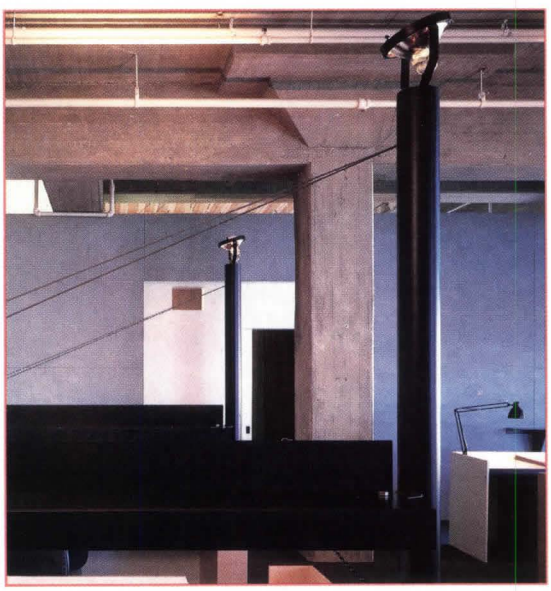

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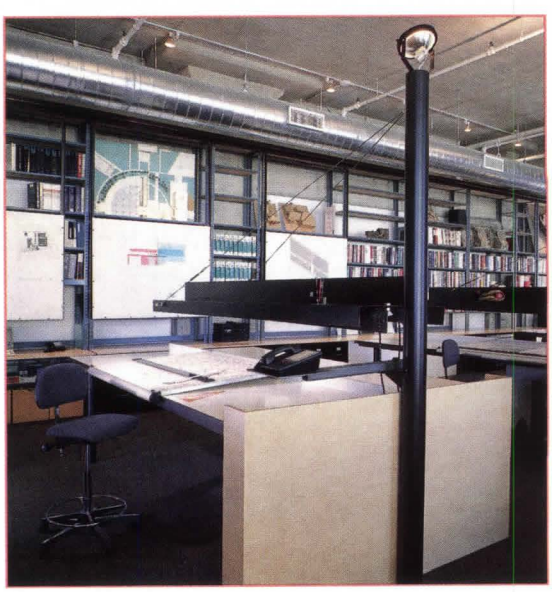

PAIRED WORKSTATIONS SHARING A CABLE-SUPPORTED BOOM.

Photos: Sharon Risedorph

Drafting workstation
Offices of Tanner Leddy Maytum Stacy Architects (formerly Tanner & VanDine Architects)
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For all of the attention given to office workstations, it is ironic that those in architects' offices are rarely considered or carefully designed. That is what makes these drafting stations in the offices of Tanner Leddy Maytum Stacy Architects so noteworthy. Designed by Charles Dilworth, each workstation consists of a wood base and steel-edged work surface, above which are suspended a pivoting steel arm with a "paddle" that holds a telephone and a steel shelf hung by cables from a tubular steel mast. Task lighting is tucked under the down-turned edge of the steel shelf, while ambient lighting is provided by the pivoting fixture that tops each of the masts.

There are both functional and symbolic aspects to the workstation. Hung at the eye-height of a seated person, the steel shelf or "boom" visually separates yet acoustically connects the paired workstations. The phone paddle, on its swinging arm, also allows access from both sides yet keeps the telephones off of the desks. At the level of symbolism, the workstation's mast and its cable-suspended steel structure recall both the sailboats and freighters docked in the nearby harbor and the Bay Bridge which stands above the firm's offices. ■

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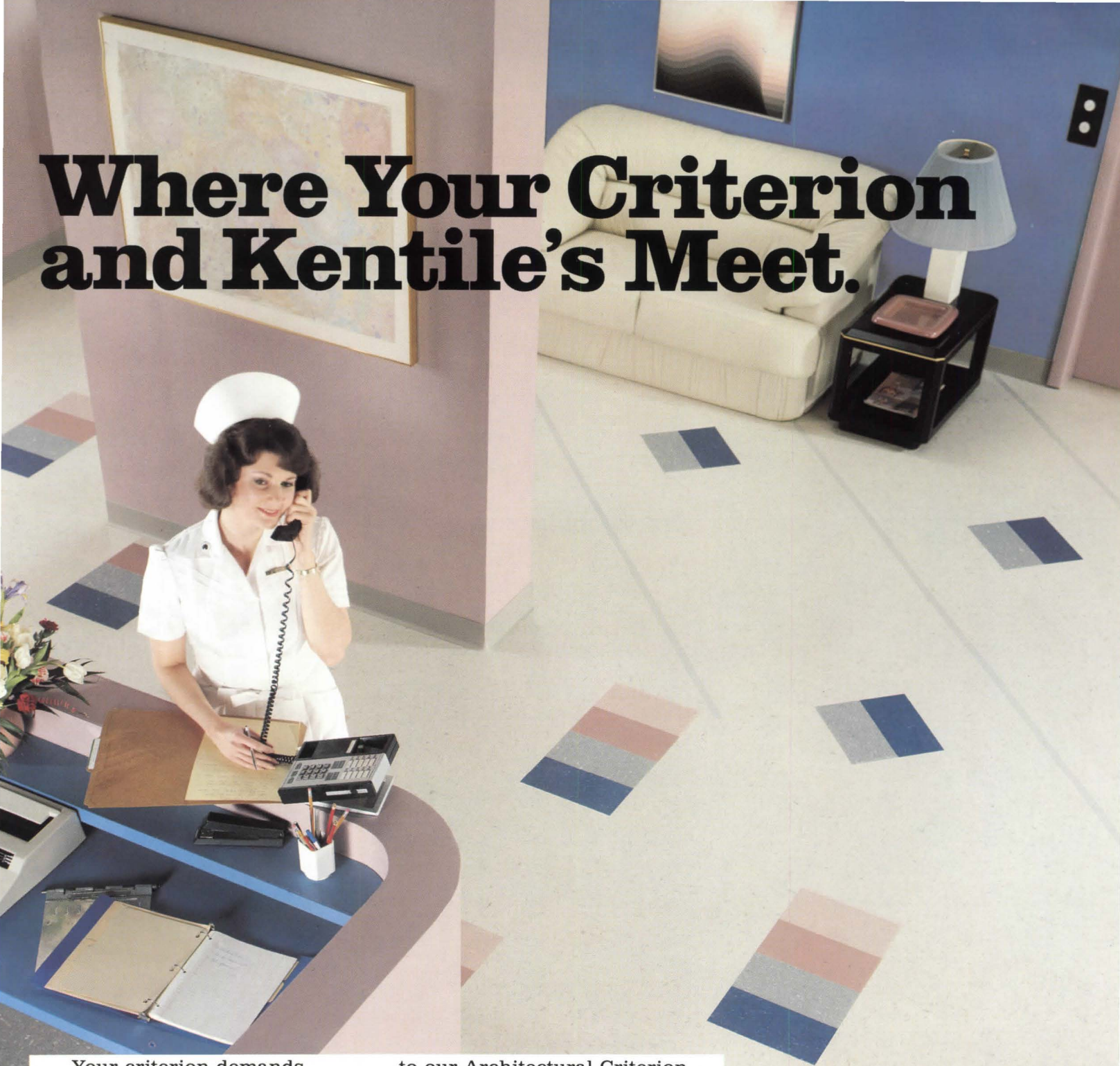

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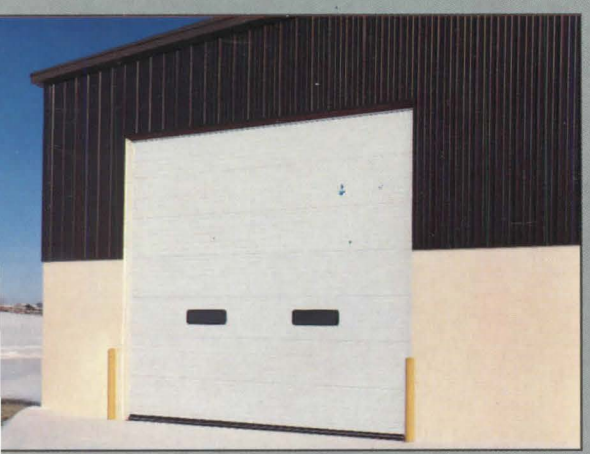

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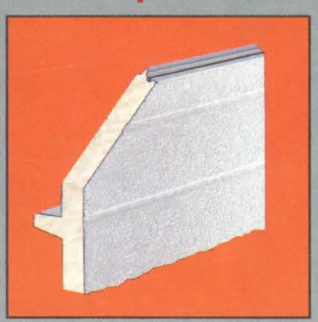

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