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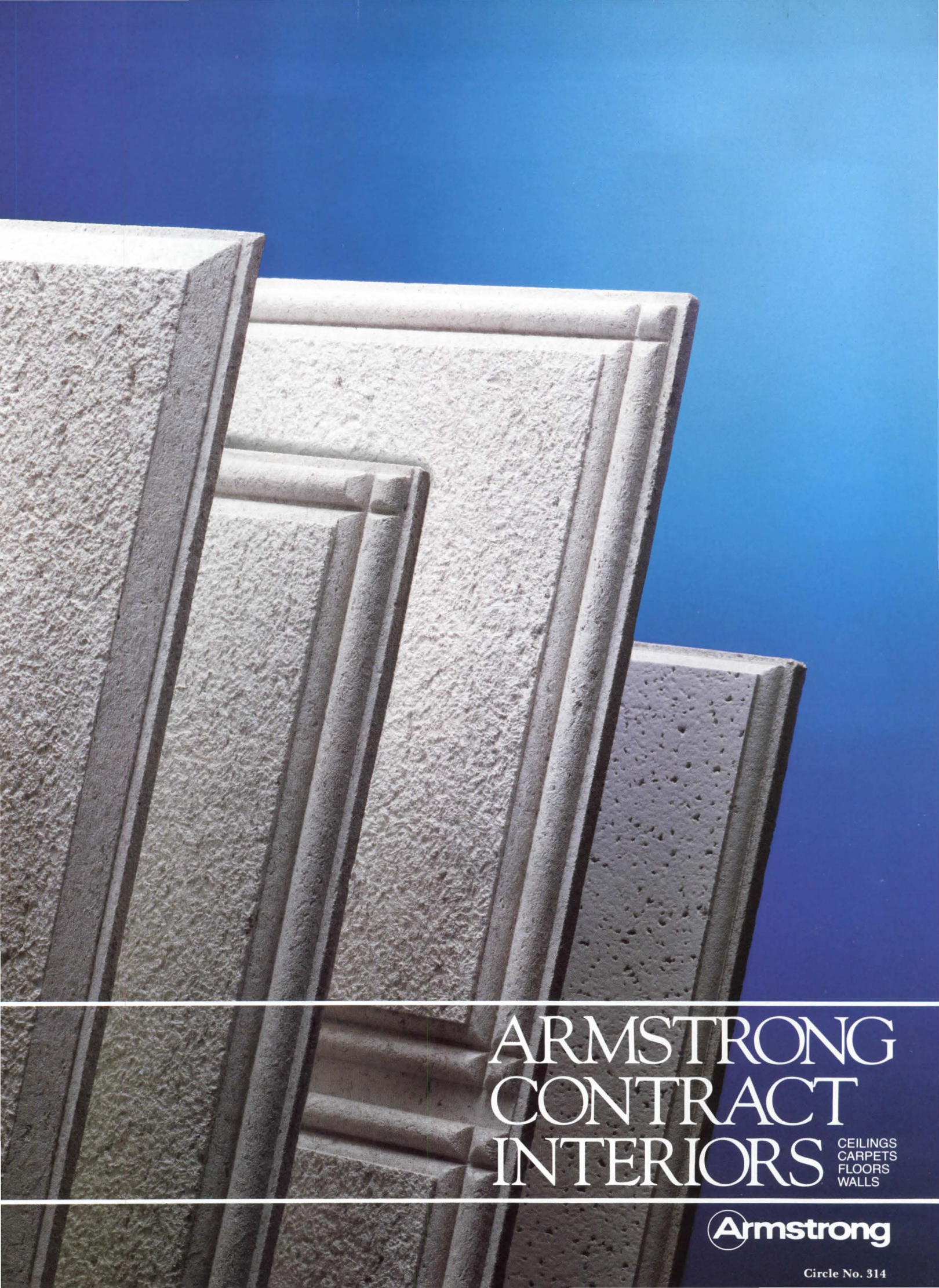
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ARCHITECTURAL DESIGN

Editor in charge: James A. Murphy

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The Fine Arts Center at Arizona State University in Tempe, designed by Antoine Predock Architect of Albuquerque, is a "sensurround" experience manipulating sight, sound, and touch to shape an oasis in the desert. *Daralice D. Boles*

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Cover:

Three 180 degree views of the Fine Arts Center at Arizona State University, designed by Antoine Predock, Architect. Photos: Timothy Hursley, The Arkansas Office.



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How Japan Builds

The exceptional construction detail that characterizes the best Japanese architecture relies less on superior skills than on a collaborative approach to building.

ON a trip to Japan this spring, I was struck, as many other Americans have been, by the fine quality of current Japanese construction. This high standard of building seems to encourage design approaches that depend on precise detailing of a kind that is obtained rarely in the United States and then only at extraordinary cost. As one admires the meticulous concrete and steel of a building by Tadao Ando, one has to wonder whether such details could be achieved in this country. And the high quality of construction in the works of such renowned designers as Ando or Fumihiko Maki is not greatly out of line with norms for new Japanese construction generally.

At a time when our American industrial establishment is gripped with admiration and envy for Japanese know-how, it is important to realize that this quality is not the result of any mysterious, innate Japanese ability. Construction quality in Japan seems to be based mainly on the collaborative character of the effort, whereas in the United States the building industry, in particular, is marked by adversarial relationships. Negotiations and contracts here usually proceed on the assumption that the client and architect want the most product for the least expenditure—and that contractors and suppliers want to deliver the least. In principle, all that keeps their demands within reason is the eternal competition between peers—architect against architect, contractor against contractor, supplier against supplier.

In Japan, by contrast, the whole construction process is much more collaborative. The relevant laws may not differ in principle, but the practice is very different. To begin with, the whole society is less adversarial: Statistics from the early 1980s show one attorney for every 10,250 people in Japan, while the U.S. had one for every 630. And the number of Japanese attorneys per capita has been dropping for decades. What's more, it would be considered out of order to bring a lawyer to a business negotiation in Japan, a country where mutual trust is the only basis for proceeding.

A distinct and controversial feature of the Japanese architecture scene is the strong role played by design-build firms. Takenaka, one of Japan's "big five" leading construction companies, has an architecture staff of 1300, second in size only to that of the independent architecture firm Nikken Sekkei. Such firms are entrusted with most large-scale work—including virtually all major commercial office buildings. Embracing design, engineering, and construction within their corporate structures, these design-build firms are able to support substantial research-and-development departments, which are very scarce in the U.S. Japanese design-build firms do not necessarily design all that they build; Takenaka, for instance, works with other architecture firms on 30 to 40 percent of its projects, and these include such prestigious designers as Fumihiko Maki and Mario Botta.

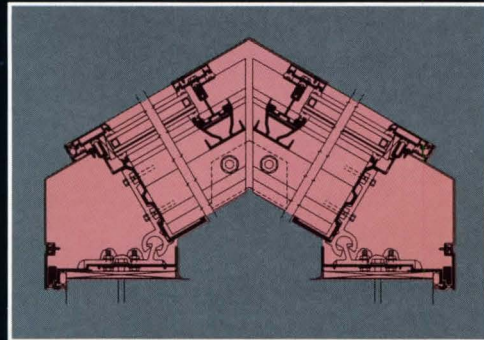
Even when the architecture firm and the contractor are separate entities, there is considerable collaboration at the detail level. The architects' working drawings carry the process about 60 or 70 percent as far as in the U.S. With documents that set the parameters for the details, but do not spell them out fully, the contractor makes a commitment to construction cost. From there on, details are worked out jointly, with an eye to these costs, largely on the site. Since contractors are usually chosen for subjective reasons (even in cases where there is bidding), there is a strong chance for firms to work together repeatedly. A much larger proportion of the architecture firm's work takes place at the site than in America, and it's customary to have staff members with design expertise in site offices.

All this is not to say that architects, as such, are in a favorable position in Japan. They do not have the power over the contractor that their American counterparts do—at least on paper. They are also poorly organized, with no encompassing professional institute (notwithstanding the efforts of Tange and others to shape one), so they have little effect on government policy.

For American architects, the lesson of Japan's finely crafted new buildings is that we earn mixed rewards for maintaining ethical detachment, separate accountability, and unfettered competition. We are promoting an adversarial situation—typical of our business culture—that may make it harder, and more costly, to build well. In the interest of quality and efficiency, we should be reexamining the more collaborative options available even within the American system. ■

John Morris Diefen

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Preserving Modernism

Your April issue of P/A is outstanding in your focus on “one of the new issues in historic preservation.” Your essay introducing the case study on “Restoring Modernism” is a sound statement that the principles of architectural conservation apply to all architectural landmarks and not just the monuments of an earlier era. You have identified all the aspects of philosophy and practice that must be addressed if we are to protect, conserve, or restore the architectural character and fabric of historic buildings that are significant to our own time.

Your identification of lost or threatened Modernism in the “P/A News Report” is also significant and timely. It may be the role of architects, reinforced by a few historians, to convince building owners, public officials, and preservationists that some modern buildings are really worth saving. It will be up to us to define what to save, why we should save it and how it will be done.

You have made a good start in the April issue! I hope that you will continue to expand this theme.

Hugh C. Miller
Chief Historical Architect (Retired)
National Park Service

Restoring “Glass Boxes”

I thought your April issue was very well done, and I very much enjoyed the articles on restoration. I had just finished reading the issue, when I was called by a developer to discuss what could be done to replace reflective glass that had gone bad on a building he had purchased.

I suppose we could say that the pinnacle of Modernism was the reflective glass box, of which there are many. Whether we like it or not, it just happens that that style was at its peak when the greatest building boom in the history of the world was nearing its peak. At the same time, the world was in the midst of the energy crisis, and since reflective glass reduces energy usage in buildings, compared to clear

glass, we have many reflective all-glass buildings across the country today.

Obtaining replacement glass that matches existing glass may be nearly impossible. Substituting another type of glass may not work either. The selection of glass on most of those Modern buildings was so closely tied to glass performance (how well the glass insulated and kept out solar energy), that substituting another type of glass could mean that a complete overhaul of the HVAC system is required (but then that may be necessary for other reasons anyway).

So where does that leave the restoration architect? In deep difficulty, I would think. I feel that 20 to 40 years from now, if restoration architects still exist and if they care, they will be facing a tremendous challenge and must ask themselves a very difficult question: Is it worth the effort to try to find a way to restore reflective glass boxes to their original condition?

It may be that the same approach will be taken that was taken on a large project in Dallas a few years ago. Instead of trying to restore the reflective glass box building to its original design (the original glass was no longer available), the basic structure was used as a framework on which a new façade was created. All the existing reflective glass, much of which had failed, was replaced with seven different types of new reflective glass. This new façade was designed by a prestigious architectural firm. If it is standing 40 years from now, this building will be reaching an age when restoration architects may be looking at it as a landmark. Which design will they use for restoration, the original or the renovated? And the big question is, will they be able to get the materials?

Stephen L. Crandell
Glazing Technology Consultant
Plano, Texas

Diversity and American Cities

I just read your editorial on American diversity (April P/A, p. 9) and find it a particularly insightful one. You identified a tradition so obvious that I missed it. Diversity, alas, seems to be our condition more than ever, at least stylistically. I, for one, would be happier with more agreement, more coalescence, more conviction among architects. It is true that diversity yields vitality in culture, as in biology, and that our architectural gene pool may be that of the happy mutt. But without some unity, that innocent mutt may turn into a mongrel. Many of our cities have already deteriorated to that point, socially if not architecturally. As a critical regionalist, I believe we should celebrate and reinforce the fact that different cultures do some things better than others (e.g. the Italians make good food and good cities; the French make grand food and grand cities; we do neither very well). Popular excellence usually grows out of shared values—for which we should strive despite our polyglot heritage. Our last hope for a genuine commons is at the regional or local level.

Americans have always valued invention over convention. And as Modernists, architects have lavished their greatest creativity and originality at the scale of the single building. This inventiveness has produced some of the best individual buildings of all time but not good streets, not a single good city. It's a question of the scale at which diversity should be encouraged. We've got to express ourselves more at the scale of the room and the detail and at the scale of urban design, rather than pumping out more stylized object buildings that are turning our cities into World's Fairs. Urban buildings, most of which need to be background anyway, can be more typologically consistent, even conventional. Let's express our diversity more at the scale of detail urban design and region.

Doug Kelbaugh, Architect,
Seattle, Washington

Education and Practice

What a pleasure it was to read Gordon Brown and Mark Gelernter's article on education in your March issue (page 61). As a third-year intern who has recently graduated from architecture school (RISD, '86) I wholeheartedly agree with their sentiments.

I would echo the authors' suggestion that architectural education needs to be longer—a minimum of six years, preferably seven—to a B. Arch. This additional time should not be filled up with more design studio courses, important as they are, but with liberal arts subjects such as history and literature as well as practice-related skills such as management (just what do you do when you become a project manager), and business-related courses. Such changes, while they would probably be resisted by some students and academics, would put architects on a much stronger footing, both within their own profession and in competition with related professions that are gradually (or not-so-gradually) taking over more and more of our profession's traditional prerogatives.

Peter Borgemeister
Architectural Preservation
Providence, R.I.

[Six or more years may be justified for a first professional degree, but please let's call it a Master's, not a Bachelor's—Editors]

Goff Review Correction

Jeffrey Cook's review of the book *Bruce Goff: Toward Absolute Architecture* (March P/A, page 129–131) should have referred to Goff's widely scattered houses for middle class clients as “largely unavailable to the public” (rather than “largely unavoidable . . .”).

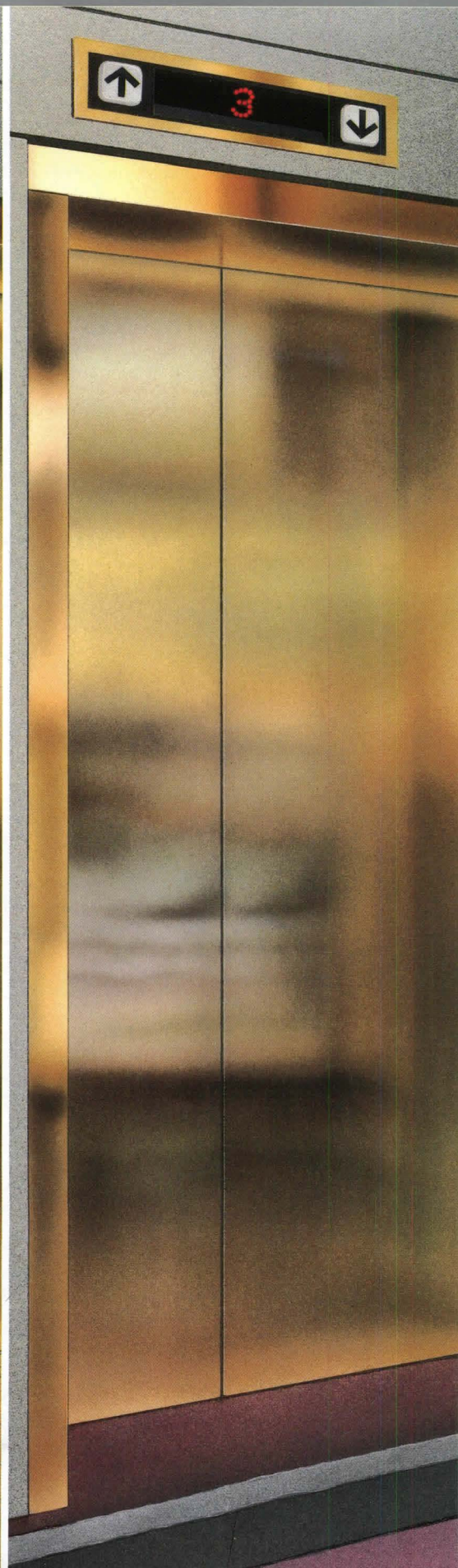
Modillions, Not Medallions

In the Selected Detail drawings for mantels by Allan Greenberg (April P/A, page 199), a row of modillions was incorrectly labeled “medallions.”

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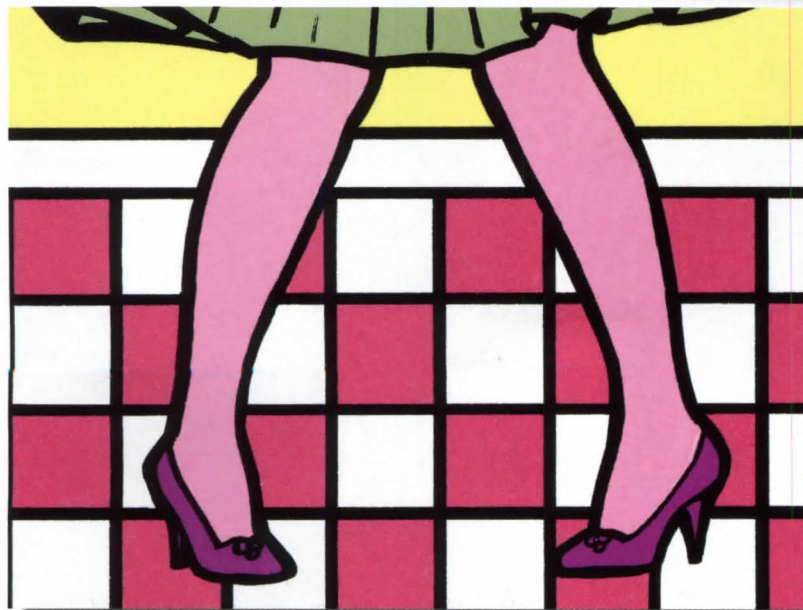
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P/A Reader Poll Internship and Registration

The period since the advent of the Intern-architect Development Program (IDP) in the mid-1970s makes it logical now to question its role and its efficacy.

As the practice of architecture has become more complex, the older, more established methods of imparting knowledge through the experience of mentors have become diluted or eliminated entirely. Involving a number of organizations but administered mainly by the AIA and the National Council of Architectural Registration Boards (NCARB), the Intern-architect Development Program has been initiated to fill the gap in the transfer of acquired knowledge to less experienced, aspiring architects. This reader poll addresses the issues of who is involved with IDP and how and what it is seen to be contributing by P/A readers.

Who Responded (Fig. 1, 2, 3)

The poll evoked over 1000 responses, with 84 percent of those from readers employed by or owners of A/E firms. The remaining 16 percent represented other related disciplines. Of those in A/E firms, 38 percent were owners or principals of their firms, 27 percent were project managers, 18 percent were designers/draftsmen, and 14 percent were staff architects.

The majority of respondents were mature professionals, with about 70 percent having been in the profession from 4 to 20 years. Those who had been in the profession for over 20 years

accounted for about 18 percent of the total, students and those with under three years of professional experience, 12 percent. Those holding a Bachelor of Architecture degree made up the majority of responses (57 percent), Master's degree was next (26 percent) then no professional degree (17 percent).

Also in the majority, those who have passed the licensing exam totaled 60 percent of those polled, with about half having passed on the first attempt, the other half having repeated some portion of the test; 17 percent have taken the exam, but still need to retake some of it to pass, 23 percent have not taken it.

There is the expected correlation between the respondent's professional age/job title and the exam experience; a similar tie can be observed between the percentage of those who have passed/taken the exam and their experience with IDP. Because the IDP program as such has only been in place since the middle 1970s, the number of respondents with more than ten years in the profession (about 46 percent) is certain to have had an important effect on some of the poll results that follow.

The Internship Experience (Fig. 4, 5)

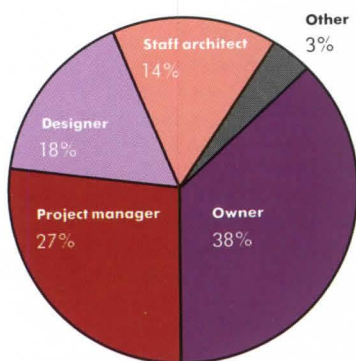
Significantly, 72 percent of those polled had not participated in

the Intern-architect Development Program in any direct capacity. Participation as an intern was listed by 17 percent, as a supervisor, 12 percent. (Total is over 100 percent due to a few respondents' participation as both intern and supervisor.)

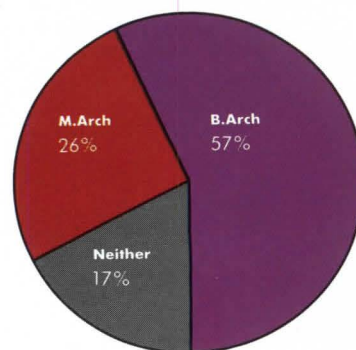
According to P/A's research consultants, Morrison & Morrison, "The current architectural internship process seems to be a source of discontent among many professionals. A disparity in standards is evident throughout the practice, as architects report that critical areas of the internship process are not being administered uniformly."

One measure of the prevalent divergent attitude is the response to a question regarding the length of time internship should cover. Those polled replied strongly but equally (42 percent and 42 percent respectively), saying on the one hand that the standard period should be three years, and on the other hand that qualification should be based on experience, not time. Fewer readers (12 percent) said the period should be two years, and a smaller number (4 percent) preferred one year.

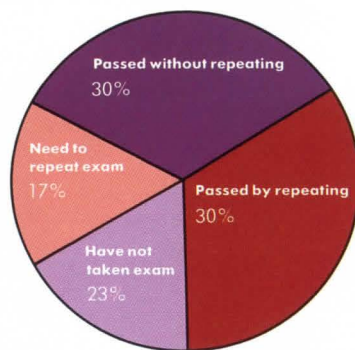
On the question of how well today's interns were prepared compared to the individual reader's experience, over 25 percent felt that preparation was slightly better than their own,



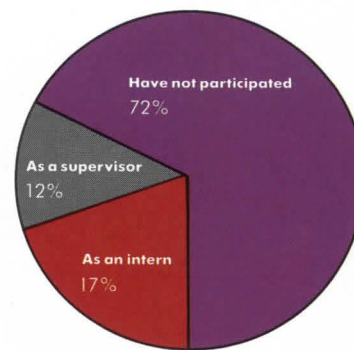
1 Role in firm



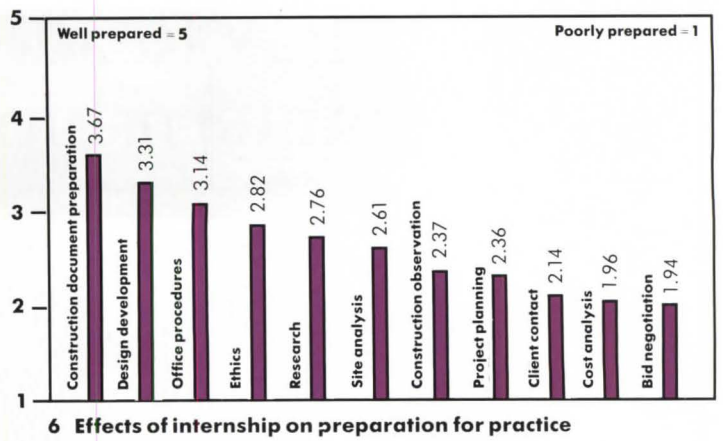
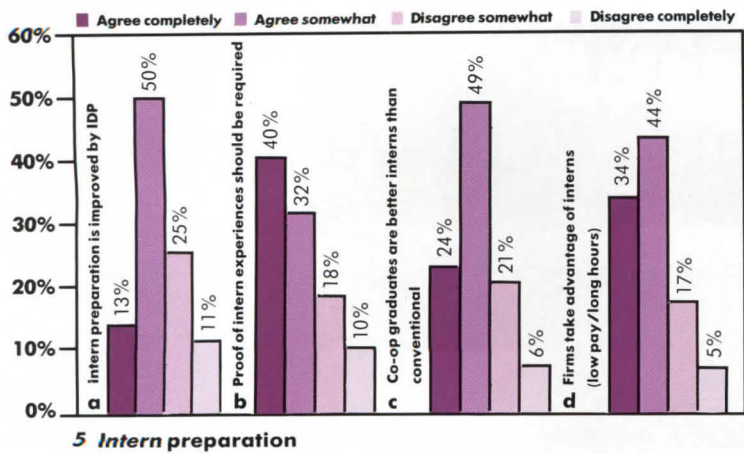
2 Reader's degree



3 Reader's experience with licensing exam



4 Reader's participation with intern development program



just over 8 percent rated the preparation better than that. On the other side, almost 39 percent felt the intern was slightly less prepared, and 28 percent ranked them lower than that.

The Morrisons note that, while the IDP appears to have made some difference in the quality of the internship process, “many P/A readers may not be entirely familiar with the program. The longer a professional has been in practice, the more likely he/she is to believe that today’s interns are less prepared for practice compared to their own experiences.”

Those who agree strongly that IDP has improved the quality of intern preparation (5a) counted for 13 percent of the total, while just over 50 percent said they agreed somewhat; those who disagreed somewhat with that premise amounted to a bit over 25 percent; those who did not feel there was improvement were 11 percent of those polled. Read another way, about two-thirds of the respondents felt that there was a gain in the strength of interns, at least in some degree, because of IDP.

Stronger agreement came on the issue of requiring proof of intern experience for licensing qualification (5b). A large majority (72 percent) said that some proof should be required, with over half of those opinions held

strongly. Work-study college programs likewise scored favorably (5c), with 73 percent of the readers responding that graduates of co-operative programs perform better than graduates of conventional degree programs.

Asked whether firms took advantage of interns, offering low pay and requiring long hours (5d), an imposing 78 percent said yes, at least in some degree. Predictably, owners of firms are less likely to agree that interns are subjected to unfair treatment than are professionals with project responsibilities.

Intern Preparation (Fig. 6, 7)

In terms of preparation of interns for practice, certain areas of professional development fared much better than others. On a scale of one to five (five being well prepared, one being poorly prepared), the area of construction document preparation rated the highest, with a 3.67; bid negotiation and cost analysis nearly tied for the lowest score, 1.94 and 1.96 respectively. Respondents listed intern preparation for all other responsibilities between a low two and a high two; the only other areas above three were office procedures and design development.

The next highest importance was assigned to schematic design/design development, with a 3.31

ranking on a 1–5 scale. Here again the professionals in the 4–10 year experience range, followed by those in the 11–20 year bracket, gave the highest scores to interns; 33 percent and 23 percent of those groups gave ratings of 3–5 in preparedness. In both of these groups, it should be noted, the responses were strongest in the 3–4 rating range.

Each of the 11 areas of preparation carried with it similar breakdowns, in terms of length of time in the profession, degree earned by the respondent, role in the firm, type of firm, and exam experience. The numbers illustrated indicate the position in which all of these data place the intern-architect. Similar breakdowns are the basis for all of the figures shown.

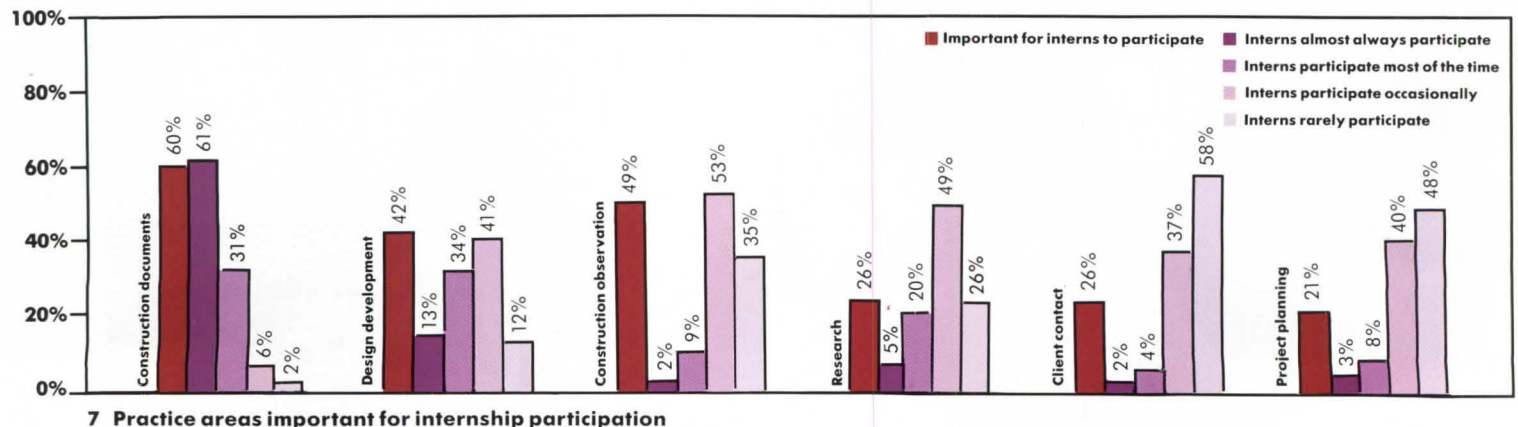
Figure 7 shows the dichotomy between what P/A readers view as the most important areas of preparation and those subjects that are actually covered by offices during the internship period. This is one of the most telling areas of the poll.

When they compared the responses in these two areas, the Morrisons point out that this is where “the difference between what areas of practice interns are being prepared for and what areas are considered important to experience can be dramatized.” Interns are indeed given a fair amount of training in both

the construction documentation and design areas, both listed as important in the first question. This indicates that these concerns seem to be addressed in the current programs.

The poll results indicate, however, that construction observation, listed as an even higher priority than design aspects, is given a radically smaller amount of an intern’s time. How frequently are interns involved in concerns listed as important? While “almost always” or “most of the time” are listed for construction documentation by an impressive 92 percent, construction observation is shown to occur frequently by only 11 percent in practical fact, compared to the 49 percent who indicated it to be important. Materials research, client contact, and project planning, also shown to be important, are apparently given little internship emphasis.

From the data, the Morrisons derive a view of the apprenticeship program as lacking regulation, and as such, a “dis-service to the developing practitioner. We can conclude that internship programs prepare young professionals best for only a few aspects of the profession, while serious omissions in practice experience are evident.” Noting that firms appear to delegate the most time-consuming aspects of project work



P/A Reader Poll Women in Architecture

Men and women are encouraged to respond to this poll. The value of the results will depend on the broadest possible participation. Please tear out, fill in, and mail promptly.

For each of the following indicate the degree to which you agree with the statement.

Write in the number using this key:

4 = Agree completely 3 = Agree somewhat
2 = Disagree somewhat 1 = Disagree completely

- Women in architectural practice today are given fewer opportunities than men with comparable experience: _____
- Professional organizations, such as the AIA, are making adequate efforts to promote equality for women in architecture. _____
- Women and men received equal treatment in architecture school when you were a student. _____
- Architectural design by women is no different from architectural design by men. _____
- A husband/wife partnership is the best way for women to practice in the profession. _____
- In firms where both men and women are principles, men are perceived as being in charge. _____
- In deciding on a career, what kind of advice did you get from those you consulted:
 Encouragement Mixed advice Discouragement
- In the school you attended, approximately what percent of the architectural faculty was female? _____
- In school and in practice, have you had role models who were: Check either, neither or both.
 Women Men
- In the architectural field, how do you believe women are now rewarded compared to men with the same experience. Check the appropriate box for each category.

| | Less than men | About the same | More than men |
|-----------------------------|--------------------------|--------------------------|--------------------------|
| Salary Level | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Professional Recognition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Design Responsibilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Management Responsibilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- In your office, women architectural professionals are given significant opportunities in which of the following capacities? Check all that apply.
 - Design responsibilities
 - Managing small projects
 - Managing large projects
 - Construction site visits
 - Negotiating with clients
 - Marketing services
 - Public relations
 - Interior design
 - Top management/partnership
 - Office administration
- Of the following types of buildings, which do you think would be better designed by men or women?

| | Women better | Men better | Equally good |
|----------------------|--------------------------|--------------------------|--------------------------|
| Single-family houses | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Multifamily housing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Museums | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| City halls | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Office buildings | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Schools | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- For each of the following situations, please indicate the degree of discrimination or preferential treatment which you feel women in architecture generally encounter. Circle your answers according to the following scale:

| Discriminated Against | Preferential Treatment | | | | |
|----------------------------|------------------------|-------------------|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Treatment of women by: | | | | | |
| Fellow students | | 1 · 2 · 3 · 4 · 5 | | | |
| Professors | | 1 · 2 · 3 · 4 · 5 | | | |
| Fellow employees | | 1 · 2 · 3 · 4 · 5 | | | |
| Subordinates | | 1 · 2 · 3 · 4 · 5 | | | |
| Superiors | | 1 · 2 · 3 · 4 · 5 | | | |
| Clients | | 1 · 2 · 3 · 4 · 5 | | | |
| Professional organizations | | 1 · 2 · 3 · 4 · 5 | | | |

- In your opinion, women have the best chance of advancement and professional growth if they are in which of the following situations. Check one only.
 - Large firm Mid-Sized firm Small firm
- In your office today, what do you expect would be the effect of a women's having children. Check all that apply.
 - Lose equivalent of up to 5 years experience
 - Lose equivalent of more than 5 years experience
 - Lose chance to be project manager or equal
 - Lose chance to be a principal
 - No significant loss
- Does your firm offer flexible hours for parents?
 - Yes No

The following questions are for classification purposes only.

- You are a:
 - Man Women
- Number of Years in Profession:
 - Under 3 4 to 10 11 to 20 Over 20
- Role in Firm:

| | |
|--|--|
| <input type="checkbox"/> Owner/Principal | <input type="checkbox"/> Interior Designer |
| <input type="checkbox"/> Project Manager or Equivalent | <input type="checkbox"/> Engineer |
| <input type="checkbox"/> Staff Architect | <input type="checkbox"/> Support (Administrating, Marketing, etc.) |
| <input type="checkbox"/> Designer/Draftsman | <input type="checkbox"/> Other |
- What is your annual income from your primary job?
 - Under \$25,000
 - \$25,000 to \$50,000
 - \$50,000 to \$75,000
 - \$75,000 to \$100,000
 - Over \$100,000
- Type of firm:
 - Architectural or A/E firm Other
 - Design Firm
- Number of Employees in Your Firm:
 - 1-9 10-49 50 Plus
- Approximately what percentage of the architectural professionals in your firm are women?
 - Under 25% 50%-75%
 - 25%-50% Over 75%

P/A Reader Poll Women in Architecture



FASTEN HERE

Women and Men:
All members of the architectural profession are urged to answer this questionnaire.

To be sure your opinions are counted, fill out and mail this form before July 7.

Results will be published in the October 1989 P/A.

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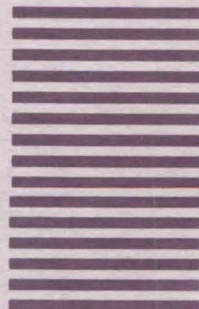
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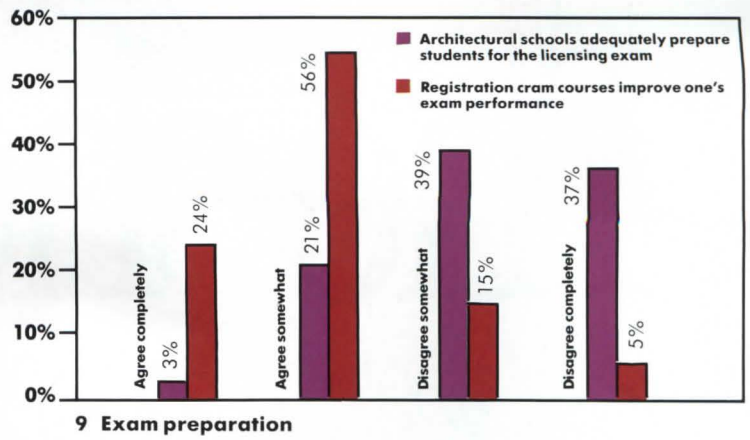
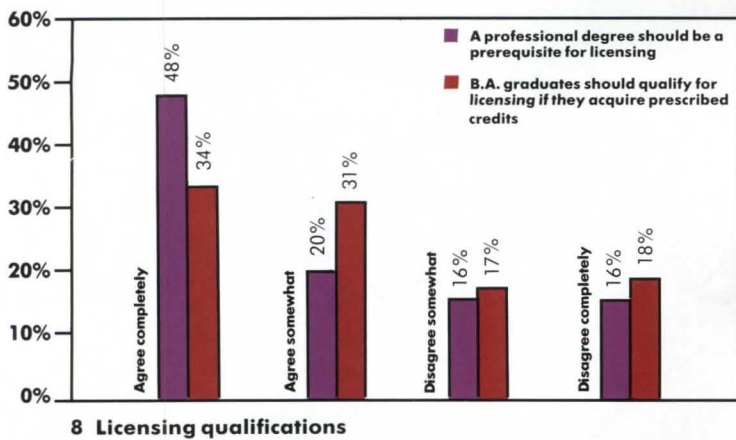
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to interns—"a ready and cheap source of manpower," the researchers observe that "without a balance of practice-related tasks, undertaken in a sequential and planned term, interns may have little opportunity to hone their skills in some critical areas of the profession," thus prolonging the apprenticeship process needlessly.

Registration (Fig. 8, 9, 10)

Among the poll questions dealing with registration and preparation for the examination, the results seem to show more agreement among professionals.

Asked whether they strongly agree, agree somewhat, disagree somewhat, or disagree strongly with the statement that a professional degree should be a prerequisite for licensing, almost half of those polled strongly agreed. A full 68 percent agreed in some measure, compared with 32 percent who did not. Those respondents holding B. Arch degrees accounted for 42 percent of the positive answers and those with M. Arch degrees for 20 percent. It is interesting to note that an equal number of those disagreeing strongly (6.5 percent) fell into the B. Arch and neither-degree categories.

Those results notwithstanding, those polled gave the seemingly paradoxical nod to an alternative path to registration.

Asked if graduates of a four-year non-professional program (BA in Architecture or equivalent) should be able to qualify for licensing if they acquired the prescribed credits, respondents said "yes." Again, 65 percent agreed that such candidates should be allowed to qualify. Of the number responding in the B. Arch, M. Arch, and neither degree categories, 86 percent of those with neither degree were—understandably—in agreement. A majority of all three categories were in favor, with B. Arch degree-holders giving a 62 percent, and M. Arch respondents a 58 percent "yes" vote.

On the subject of whether architectural schools adequately prepare students for the licensing exam, an overwhelming 76 percent of the readers said "no," all categories of those polled being in proportional agreement, with those in the practice over 20 years being the most favorable to architectural school preparation (33 percent of those polled in that category responded "yes" in some degree).

Registration "Cram Courses" received a strong approval, with a full 80 percent of the poll participants saying that such courses improve one's performance on the licensing exam. Here again, with some minor variations, the different categories were in agreement. In terms of exam

experience, those who had passed after repeating part of the test gave the courses the highest score, with over 82 percent of those in that category saying they saw improvement. Even the lowest rating, among those who had not taken the test was over 75 percent approval.

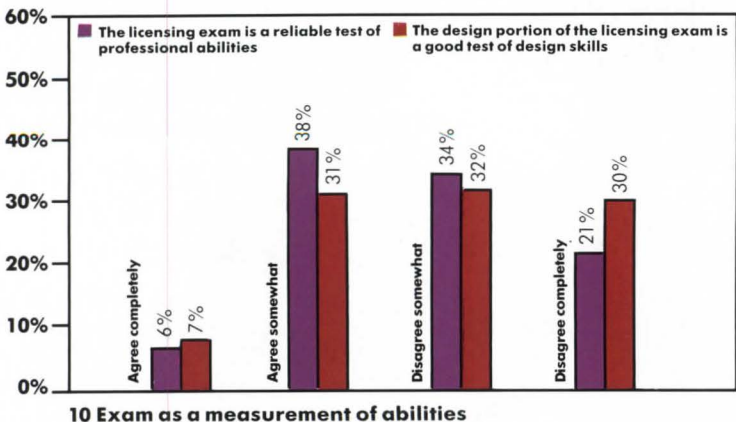
There has always been a question of whether the licensing exam is an accurate measure of an architect's capability. Those polled, as might be expected, were not always in agreement on this question. Nearly 56 percent of P/A readers feel that the test is not an accurate measure of professional abilities, at least in some degree, while 44 percent feel that it is adequate, with about 6 percent strongly supporting it. A higher proportion, 62 percent, do not feel the design portion of the exam is a good test of abilities. The results of this question established an almost equal number of those who feel strongly that the design test is a poor measure to those who feel only somewhat positive about it and those who feel somewhat negative, right around 30 percent for each; only about 7 percent gave the exam top marks. Predictably, in each question on the validity of the exam, individuals who need to repeat some portion were more likely to question the test than those who had already passed.

One other question, not illustrated, is whether continuing education should be required of all licensed professionals. The response is heavily in favor, with just over 79 percent of those polled favoring it. The highest percentages of those categories in favor are over 85 percent from those holding no architecture degree, and an equal number from those who are students or in the profession for under 3 years. Some disagreement came as 25 percent of those holding Master's degrees voted not to require continuing education.

Morrison & Morrison draw some summary conclusions from the poll as a whole. On the subject of the Intern-architect Development Program, they comment, "Programs such as the IDP may be vital to the maturation and professional growth of today's graduates if they stress areas of importance to practicing architects. However, to have a positive effect on the industry, more firms and individuals will need to participate in and sponsor such programs."

The Morrisons note that "Registration seems to be an aspect of professional life which is less controversial than internship, although many architects express discontent with the licensing exams."

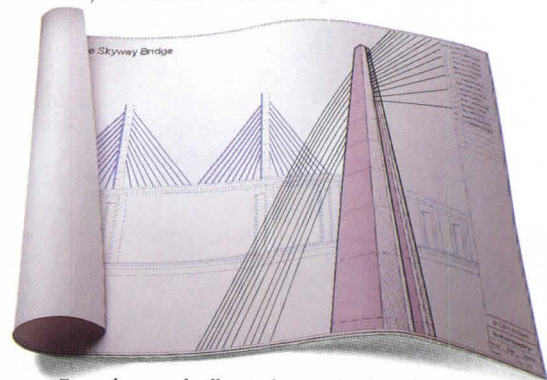
Jim Murphy ■



The shortest distance is inspiration



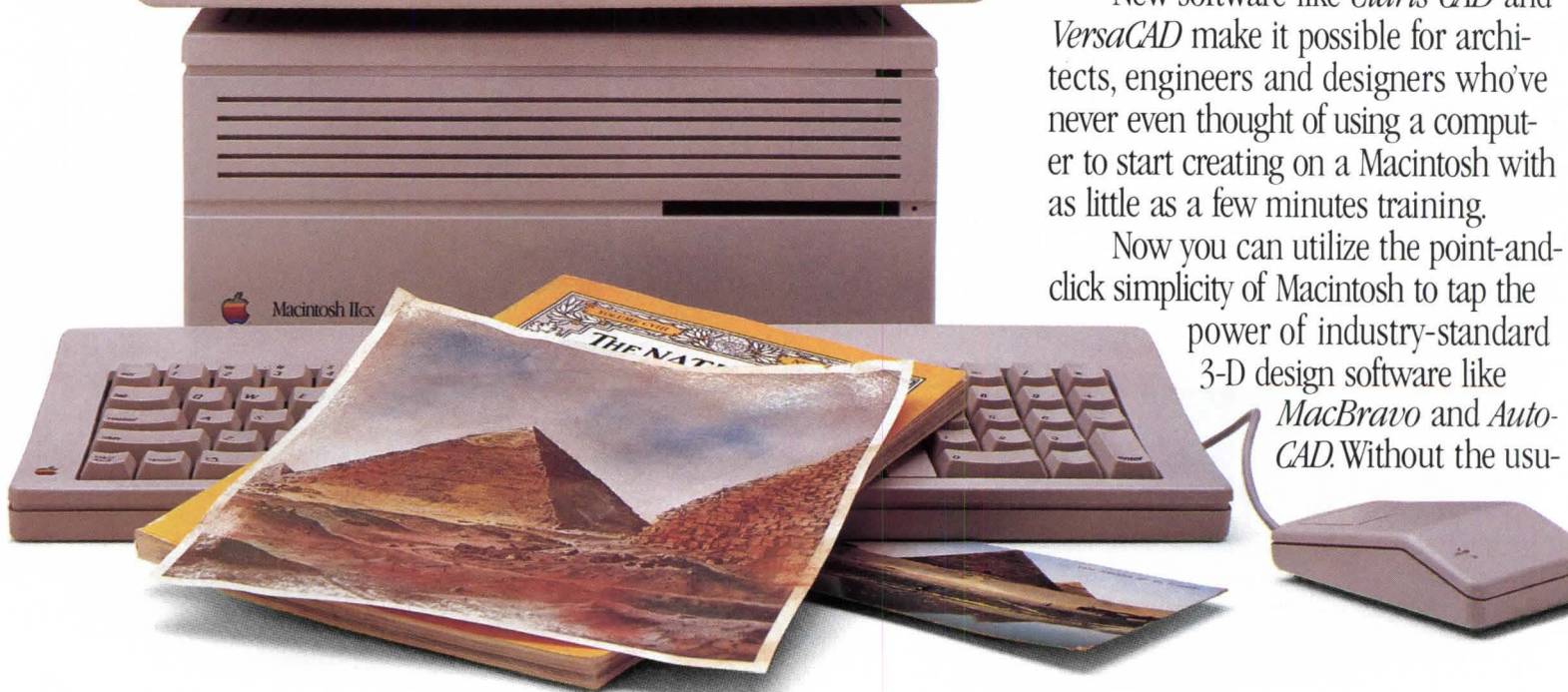
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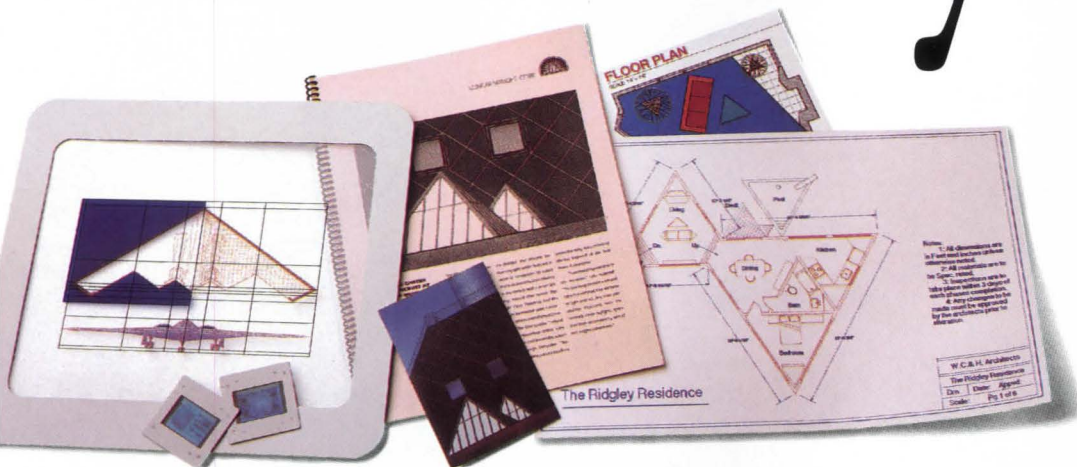
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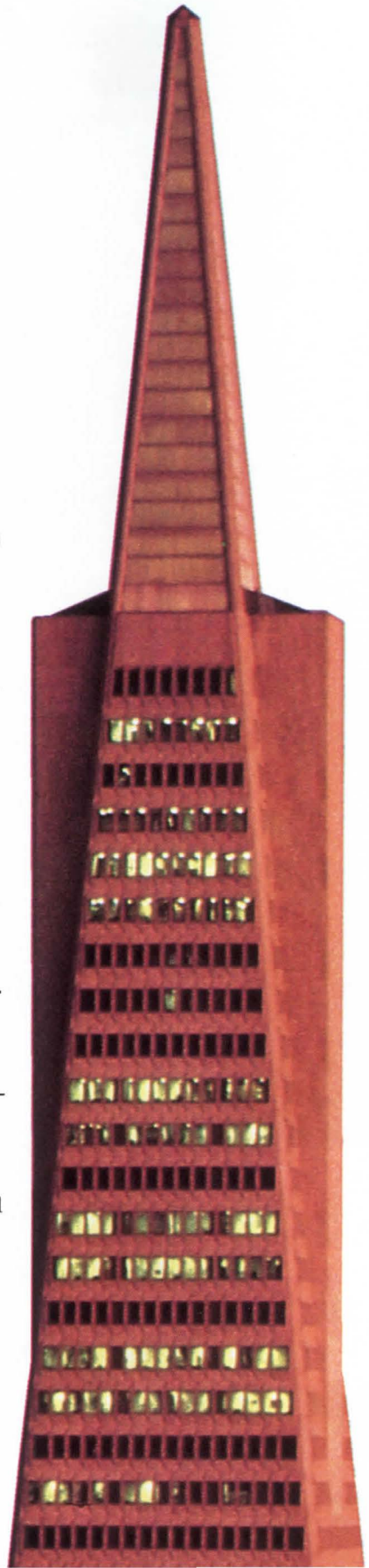


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Deirdi von Schaeuwen

A converted French public embraces Pei's pyramid. Perspectives, page 37.

Eisenman Wins Convention Center

The big news from Columbus, Ohio, is not just that Peter Eisenman won a second competition there; it's also why he won: for "sensitivity to the neighborhood" and for producing the most functional design, neither of which were part of Eisenman's agenda in his earlier work. But Trott/Eisenman, a joint venture of Columbus firm Richard Trott & Partners and Eisenman Architects, followed up their success with the OSU Visual Arts Center with a convention center design that counters that building type's "dumb box" syndrome.

(continued on page 25)

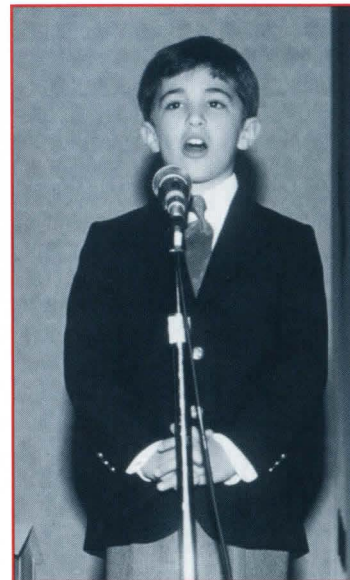


ARTOG/D.C. Oshavsky

Trott/Eisenman's winning scheme for the Columbus Convention Center.

P/A Tours to Australia and India

Following a rewarding trip to China (see May, p. 43), P/A senior editors will lead two more excursions to see the architecture of distant places and meet with foreign colleagues. One group will visit Australia from October 13th to the 28th, 1989, with the Victorian Tapestry Works in Melbourne, the Parliament House in Canberra, and the Opera House in Sydney among the tour's highlights. From January 23rd to February 8th, 1990, India will be the destination. Among the landmarks on the tour are the former Vice-roy's House Complex in New Delhi, the landmarks of Chandigarh, and the Taj Mahal in Agra. See page 146.



Joseph Caporale, age 9, addresses the AIA Convention.

AIA Convention: Soviet Initiative

Only a handful of the 7000 attendees at the 1989 AIA Convention in St. Louis were in the general session for an "International Presidents' Roundtable" when one of the convention's most substantive events occurred: Yuri Platonov, president of the Union of Soviet Architects, surprised even the AIA leadership by announcing that he had brought along a proposal for an exchange program between architects in the United States and the U.S.S.R.

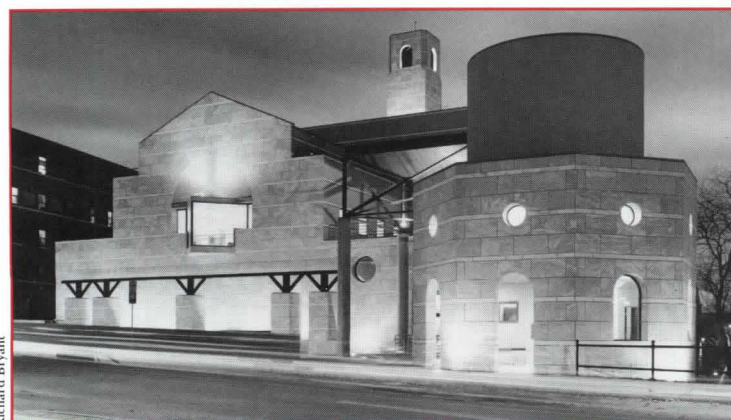
Prepared in accordance with the 1985 cultural exchange accord between Secretary of State George Schultz and Soviet Foreign Minister Eduard

(continued on page 28)

Stirling Performs at Cornell

The difference between a good building and a great one often has less to do with the talent of its architect or the support of its client than with the nature of its budget, site, or program. Cornell University's new Center for the Performing Arts proves the point. It had a talented architectural firm in James Stirling, Michael Wilford & Associates (who collaborated with Wank,

(continued on page 26)



Richard Bryant

Stirling's Cornell Center for the Performing Arts.

Pencil Points

Twenty architects have been chosen for an invited competition for François Mitterand's *Bibliothèque de France*, the latest of his *Grands Projets*. Among those chosen (ten French, ten foreign) are Richard Meier, Arquitectonica, James Stirling, Ricardo Bofill, Bernard Tschumi, Jean Nouvel, Fumihiko Maki, and Mario Botta.

In a pre-AIA convention article, *Boston Globe* architecture correspondent and AIA member Robert Campbell aired his disapproval of Rev. Robert Schuller as keynote speaker. Campbell attacked the Reverend's brand of positive thinking ("Possibility Thinking"), and labeled him a "bragging Babbit." Next year, said Campbell, the AIA should "pick someone who holds real opinions about real architectural issues." "Prince Charles," Campbell added, "might be a good choice."

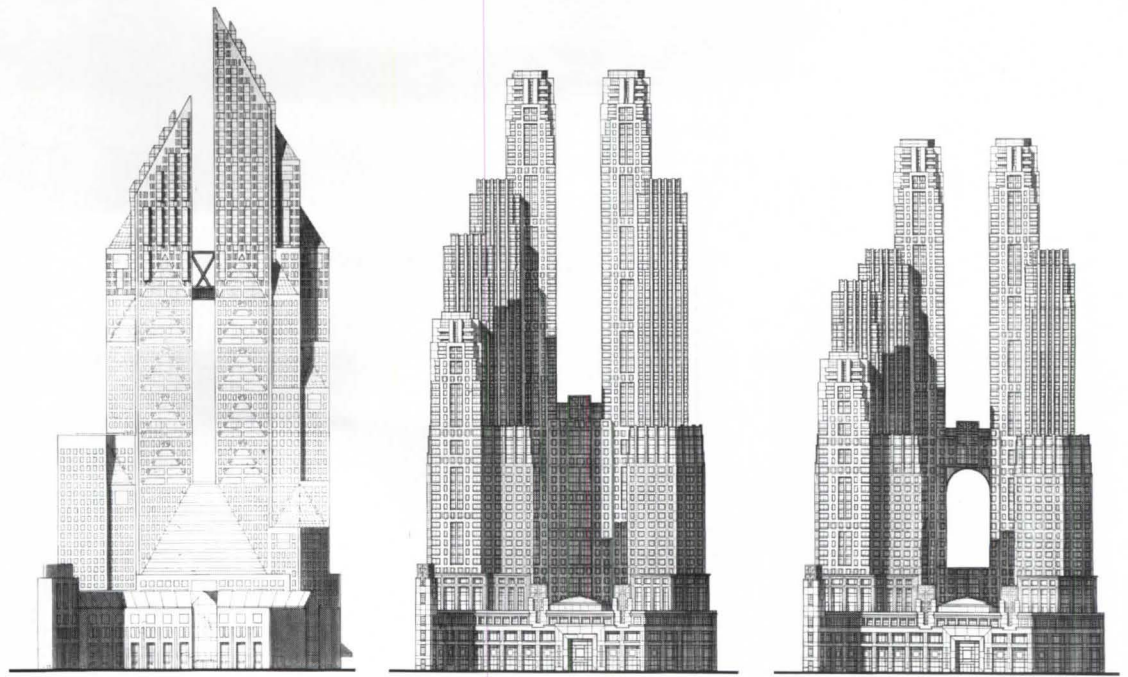
Steven Holl, New York, has won the competition for the American Memorial Library addition in West Berlin. Karen van Lengen, New York, and Lars Lerup, Berkeley, California, were also finalists.

The American Academy in Rome awarded its annual Fellowships to architects Grace R. Kobayashi, New York; William Keating Vinyard, Portland, Oregon; and Ross S. Anderson, New York. Fellows attend the Academy to work on independent projects.

Author Brendan Gill, a vocal opponent of the Times Square redevelopment plan, has sent New York architects a slyly worded questionnaire soliciting their opinions of the plan. A sample agree/disagree statement by Gill: "New buildings, pavement and construction realistically cannot retard crime." In rebuttal, John Burgee, architect of four proposed Times Square towers, wrote to the same "community" blasting Gill's "biased questionnaire."

Architectural historian Heinrich Klotz, founder and director of the German Architecture Museum (DAM) in Frankfurt, has left that post to establish a proposed art, design, and media center in Karlsruhe, Germany.

The AIA has recently published *The Search for Shelter Workbook*, a how-to guide based on principles developed in the three-year-old Search for Shelter program. The book is available for \$25 (\$15 for AIA or AIAS members) through AIA, 1735 New York Ave., N.W., Washington, D.C. 20006.



The Shrinking Columbus Center: Moshe Safdie, 1985; SOM, 1988; SOM, 1989.

Third Columbus Center Unveiled

The five-year fight over New York's Columbus Center project appears to have been settled at last, as developer Mortimer Zuckerman has appeased angry community organizations with a smaller version of the twin-towered scheme unveiled by Skidmore, Owings & Merrill last year (P/A, July 1988, p. 25). In this version, the towers reach 752 feet instead of the 850 feet in SOM's first proposal or the 925 feet of Moshe Safdie's scheme.

From a design standpoint, the revised SOM scheme differs from their first scheme only in height, except for the notable addition of a giant arch centered on the axis of 59th Street and separating the two tallest towers. The massing and detail of the complex, inspired by nearby landmarks such as the Art Deco Century apartment building, remain the same.

Leaders of the protest against the earlier schemes—including Kent Barwick of the Municipal Art Society and community board representative Ethel Sheffer, plaintiffs in a suit to stop the project—appeared at a press conference with Zuckerman, Mayor Ed Koch, and David Childs of SOM to voice their approval for the new deal, in which the city will provide 120 units of housing for the homeless near the site. Also important to those who had protested was Mayor Koch's assurance that the city will look beyond the profit motive when selling real estate in the future.

Eastern Bloc Shows in Germany

A recent trio of exhibitions in West Germany served as examples of how Soviet Premier Mikhail Gorbachev's policies of *glasnost* are beginning to affect the exchange of architectural ideas. These exhibitions—two in West Berlin and one in Frankfurt—display the Eastern Bloc's new willingness to reveal their architectural activity to the West.

"Ideas in Soviet Architecture 1917–1988," was held at West Berlin's Staatliche Kunsthalle in March and April. Displaying newly created models, original drawings, collages, and photographs, the show attempted a textbook survey of 70 years of architectural production in the Soviet Union. Of particular interest are the images from the 1920s, where architects struggled with marrying the nascent language of Modern Architecture

to new socialist building types ("A Communal House for Workers," "A Teaching Building for Vkhutemas"). Neo-Classicism in style and a monumentality in scale, applied to building forms so divergent as the Moscow subway or schemes for the Palace of the Soviets, dominates the exhibited work of the 1930s up to the 1950s. Architecture from the past decade was documented in photographs of built projects, dominated by museums in Neo-Islamic, Post-Modern Classical, and Expressionist styles.

A selection by younger architects included a collection of three carefully detailed etchings by A. Brodski that explored themes of nostalgia ("The Museum of Vanishing Houses"), openness ("A Forum for 1000 Truths"), and utopia ("Crystal Tower"), reflecting the increasing value of a personal voice in a collective society.



■ "Alchemy House" by Dariusz Kozlowski from Polish drawings show.

"Paper Architecture," an exhibition currently on display at the German Architecture Museum in Frankfurt, showcases the work of emerging architects whose presence will be more widely felt in the next few years, as they begin to participate more in international competitions. Accompanying this work are images from the Moscow Studio for Experimental Children's Architecture, where children between the ages of 6 and 17 created Deconstructivist-style architectural fantasies.

Since West Berlin lies closer to the Polish border than to the Federal Republic of Germany, some Polish architects view the spirit of openness represented by "Polish Architectural Drawing of the Present," on display at the Aedes Galerie in West Berlin simply as evidence of a return to a natural exchange of ideas. This exhibition presents a number of small works, mainly from architects practicing in Cracow. Particularly noteworthy is the high level of craftsmanship evident in the work, which tended towards studies and impressionistic drawings rather than images from final presentations.

It is hoped that these exhibitions represent only the tip of the iceberg of architectural activity soon to be appearing from the Eastern Bloc. While some economic barriers still make exchange of materials between East (particularly Poland) and West difficult, it seems the idea of *glasnost* in architecture is coming to fruition.

Mary Pepchinski

The author, an architect working in West Germany, writes frequently for PIA.

The Vision of Inigo Jones

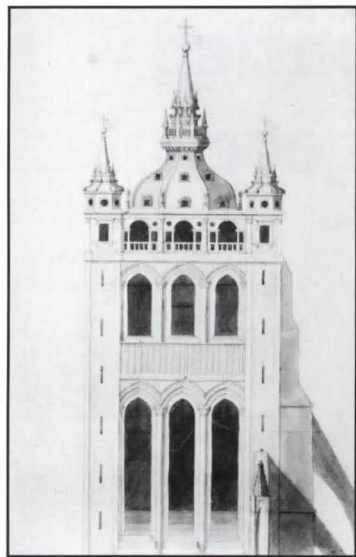
Inigo Jones (1573–1652) did not just bring Palladian architecture to 17th Century England. He introduced a new vision of how the English people might live and think about their world. When Jones was appointed the Surveyor of the King's Works in 1613, "it is doubtful if (his) subordinates . . . had the remotest idea of what would hit them," writes historian John Harris in the catalog for a major show of Jones's drawings at the Drawing Center in New York through July 22.

English architecture in the early 17th Century was still largely influenced by the Dutch, who viewed the built world as a series of discrete objects in space and a building as an assemblage of discrete parts. Jones over-

turned that concept. Rather than treat buildings as isolated elements in the landscape or as individually gabled façades along city streets, he showed, with the Queen's House, how a structure and its surroundings could be interwoven, or with the warehouse for Lord Maltravers, how to unite rows of buildings.

He accomplished much the same with the layout of interior space and the design of façades. In his plan for a centralized villa, Jones moved the British away from using a few, multi-purpose rooms arranged along corridors toward that of more single-purpose, interconnected spaces. And whether in an elevation for a palace or a stable, he turned the awkward compositions of Dutch-inspired work into proportionally coherent designs.

Despite the historical importance of Inigo Jones, his architectural drawings have never been exhibited in any great number until The Drawing Center show, which makes it an event of some

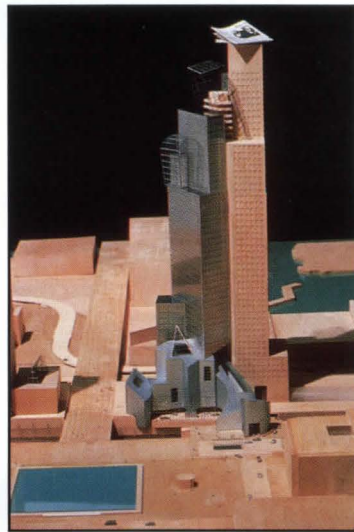


Tower addition for St. Paul's Cathedral, by Inigo Jones, 1608.

historical importance in its own right. The drawings mainly depict Classical palaces and playthings for royalty, which raises the question of what they have to say to us now.

Quite a lot—for they represent the early salvos of modernism in the English-speaking world. The drawings reveal a man who saw the past not as received tradition, but as something worthy of scholarly study; a man who saw the world not as unconnected events, but as an interrelated whole; a man who saw creativity not as a communal act, but as a matter of individual vision. Such are our debts to this son of a clothworker who became the architect of the king.

Thomas Fisher



Gehry's proposed Progressive headquarters, with Oldenberg newspaper on top.

Big News in Cleveland

If you've ever had to deal with a paper boy who always seemed to land your morning's news on the roof, take heart: A giant folded newspaper, one of a number of recent collaborations between Frank Gehry and artists Claes Oldenberg and Coosje van Bruggen, may soon appear atop Gehry's proposed Progressive Insurance Company building in Cleveland.

The 50-story office tower, sited at the end of the city's Burnham Mall atop railroad tracks that run along Lake Erie, would join skyscrapers underway by Kohn Pedersen Fox and Cesar Pelli & Associates on the Cleveland skyline (P/A, May 1989, p. 26). Besides serving as Progressive's headquarters, the building would include a number of public facilities at ground level. However, Progressive has yet to announce its intentions to build the tower, and it remains to be seen how plain-dealing Clevelanders will respond to the scheme.

Shingle Style Classic Rebuilt

While many architects have been inspired in recent years by houses in the Shingle Style tradition, none have gone as far as Jane Goodrich and her husband Jim Beyor. The couple has been working for seven years to recreate a well-known but long-demolished Shingle Style house called Kraggsyde.

Originally designed by the Boston firm Peabody & Stearns and built in Manchester-by-the-Sea, Mass. in 1882–4, Kraggsyde was praised by architectural historian Vincent Scully in his 1955 book *The Shingle Style*, and the house has become a symbol epitomizing the style. Goodrich first saw the house in Scully's book as a child, then again in college when she decided she wanted to live in it. After a trip to Manchester, she and Beyor discovered the original Kraggsyde had been destroyed in 1929, so they built their own from scratch.

"We both are concerned with architecture and design," said Beyor. "We were moved by the rambling, gentle, carefree life" displayed by the original. "This house was worthy of being rebuilt," Beyor said.

They purchased six acres of oceanfront property on an island off the coast of Maine, unearthed the original plans in the Boston Public Library, and began work on the 13-plus-room house in 1982, exactly 100 years after the original was built. The house has progressed slowly; Beyor, a builder by trade, works mostly on weekends and evenings, and mostly alone.

Beyor and Goodrich are being as faithful to the original plans as possible, using the traditional construction methods most likely

(continued on page 25)



The original Kraggsyde, 1882–1929.



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Shingle (continued from page 23) used on the original. Beams were raised using ropes and pulleys, the knee brackets for the soffits were handmade, and no structural plywood was used. Beyor spent a year custom-building each of the approximately 200 windows of the house.

Some changes, though, have been unavoidable. Because the topography of the site is somewhat different than the original, the new Krag-syde is a mirror-image of the old one. Also, interior spaces have been changed slightly to bring the new Krag-syde into the 20th Century: they have enlarged the kitchen, added a pantry, and turned one of the original primary bedrooms into a bathroom. In place of the original boudoir over the archway is a library. To preserve the rustic feel of the first Krag-syde, Beyor plans to face the modern, poured concrete foundation with stone.

Debra Ladestro

The author is a former P/A assistant editor.

Eisenman (continued from page 21)

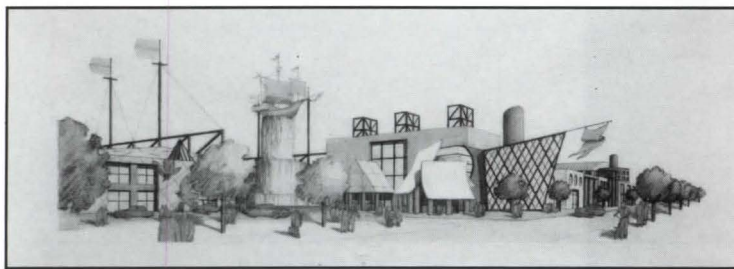
The Trot/Eisenman scheme, which was chosen over entries by Michael Graves and Holt Hinshaw Pfau Jones, employs a series of narrow, winding volumes that course through the building and form a varied, small-scale streetscape on High Street, the site's major pedestrian entrance. The architects' statement explains that the forms

"echo Ohio's prairie farms, its highway ribbons, the rail yards that once occupied the site, and the delicate overlays of fiber optic lines." The fiber optic allusion is part of the design's theme of light as a symbol of the information age; the building will use laser art for "communication and aesthetic expression."

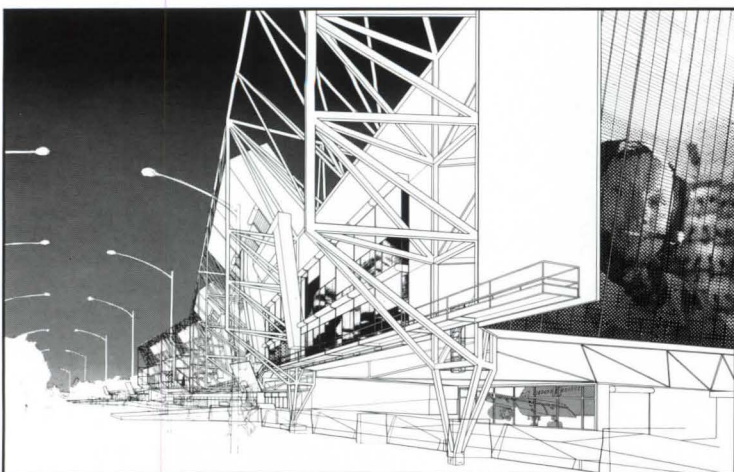
Holt Hinshaw Pfau Jones and John B. Foster Associates of Columbus also turned to technology in their design, offering a structure of exposed Cor-Ten steel trusses and a façade enlivened by steel rolling doors that regulate light for the exhibition space. The architects collaborated with the Industrial Light & Magic Company, filmmaker George Lucas's special effects concern, to create a "high-tech canvas" using video screens, lasers, and sound effects to recreate scenes from the city's history.

Michael Graves's design, with Acock Schlegel Architects, characteristically employed more literal, playful historical allusions, including a wall and plaza pattern featuring leaves of the ubiquitous Ohio buckeye tree and a re-creation of Christopher Columbus's ship resting on a column of water. The nautical metaphor extended to the flag-topped masts rising from the trusses that spanned the exhibition hall. The design also included an open courtyard that would have doubled as a public garden.

(continued on page 26)



Columbus schemes by Michael Graves and Acock Schlegel . . .



. . . and by Holt Hinshaw Pfau Jones and John B. Foster Associates.

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Eisenman (continued from page 25)

The jury, which included architects John Burgee, Paul Kennon, and Ohio State architecture chairman Robert S. Livesey, found functional flaws in both the losing designs, but objections among local jury members to the "domineering" scale of the HHPJ scheme and the "too direct" imagery of the Graves design also played a part. Eisenman's façade treatment, praised for the most part, was criticized by Burgee as "not developed."

The Franklin County Convention Facilities Authority, which sponsored the competition, plans to see the new building completed on time for the city's celebration of the 500th anniversary of Columbus's voyage in 1992. **Mark Alden Branch**

Stirling (continued from page 21)

Adams, Slavin Associates), and a supportive client in Cornell. But neither could quite overcome a program that was too large, a site that was too tight, and a budget that was too small.

The program included a 456-seat proscenium theater, a flexible theater, a dance performance studio, a black box/laboratory theater, an auditorium for viewing films or small performances, and various classrooms, studios, faculty offices, and extensive back-stage facilities for a net total of 113,000 square feet. That all had to fit on a narrow, one-acre site wedged between an apartment building, a college dorm, and a gorge. And it all had to be built for a modest \$149 per square foot.

This was accomplished with the best intentions. Cornell selected the site, with the advice of Sasaki Associates, because of its proximity to the central campus and its symbolic location at the meeting point of town and gown. Stirling, too, did his part. His firm conducted a contextual study of the area and recalled, in the building's front gable and porch-like trellis, the houses of Collegetown, and in its elevator-shaft campanile, the many towers of Cornell.

The overall organization of the building also responds well to its site. A steel-framed colonnade running along the gorge provides a covered route to the mid-block, three-story-high lobby which separates the proscenium theater at the rear of the building from the studios, classrooms, and offices at the front. The individual theaters and studios, too, are generally well-handled. The horseshoe proscenium theater, for example,

(continued on page 28)



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The Terraces at Perimeter Center, Atlanta, Georgia. Architect: Skidmore, Owings & Merrill, Chicago, Illinois.



Sunshine Skyway Bridge, Tampa Bay, Florida. Architect: Figg & Muller, Tallahassee, Florida.



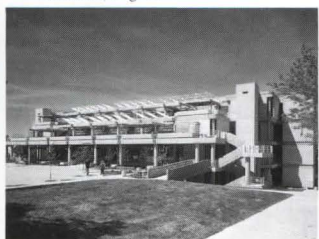
1315 Peachtree, Atlanta, Georgia. Architect: Thompson, Ventulett, Stainback & Associates, Inc., Atlanta, Georgia.



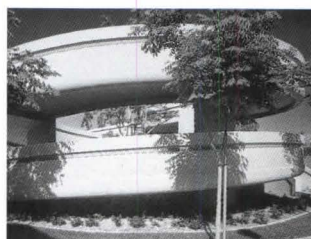
Ameriwest Financial Center at Park Square, Albuquerque, New Mexico. Architect: Holmes & Narver, Inc., Albuquerque, New Mexico.



The Diamond, Richmond, Virginia. Architect: Baskerville & Son, P.C., Richmond, Virginia.



University of Utah Student Services Building, Salt Lake City, Utah. Architect: Astle/Ericson & Associates, Salt Lake City, Utah.



UCI/Campus-Drive Pedestrian Bridge, Irvine, California. Architect: SGPA Planning & Architecture, San Diego, California.

Stirling (continued from page 26)

has an intimate house and ample backstage area, and the upper dance studio, with its adjoining terraces and prow window overlooking the street, is pleasant.

But packing too much program onto the site has resulted in a labyrinth of corridors and a confusion of doors in the studio and classroom block and a lobby that is too small to hold most of the audience during intermission. Budget cuts have taken an equal toll on the exterior. The original cladding of brick and stone that matched that of the adjacent structures was replaced by a less expensive and less appropriate combination of white marble and a scored exterior insulation system. Also cut was an exterior stair that connected the rear parking garage through an alley to the front plaza.

At the same time, other seemingly expendable elements were retained. Both architect and client admit that the wall closing off the front, sunken plaza from the street was a mistake and may be removed at some future point. And, while support remains for the two-story octagonal structure to one side of the colonnade, the loss of its original function as a ticket booth creates a disjunction between its dominant form and modest function as a bus shelter and office.

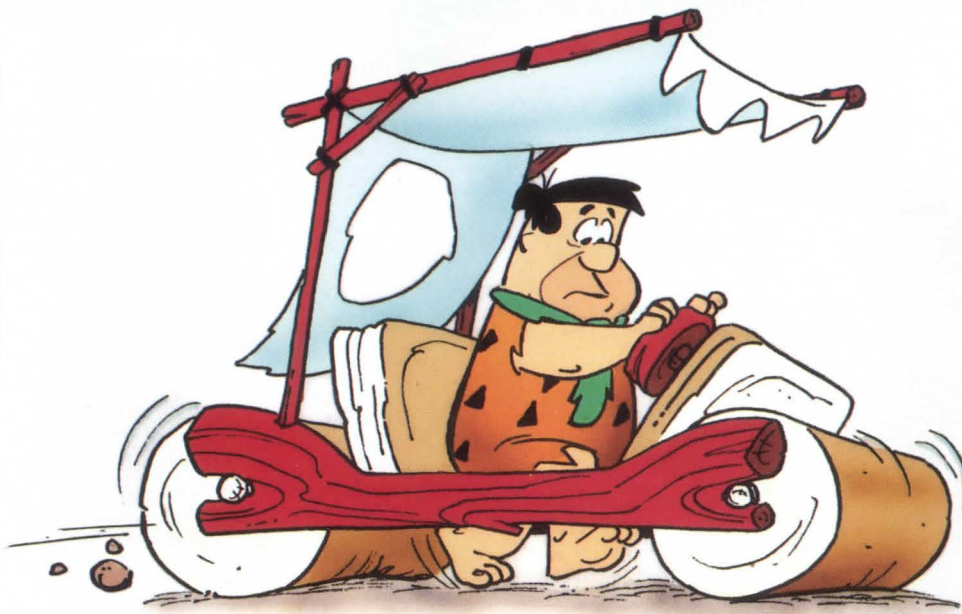
That the Center for the Performing Arts came out as well as it did testifies to Stirling's design skill and to Cornell's determination, after almost 20 years of planning, to get the facility built. Yet skill and determination are not enough to make a good building great. It also takes a reasonable program, an adequate budget, an accommodating site, and perhaps even a little luck. **Thomas Fisher** ■

AIA (continued from page 21)

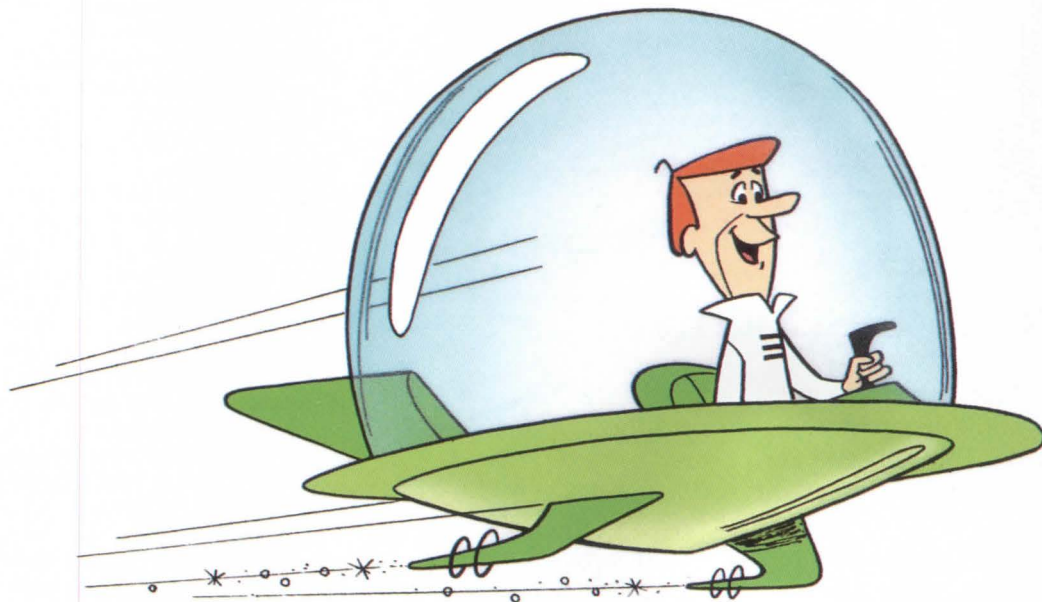
Shevardnadze, the proposal calls for annual exchanges of architects, exhibitions, educators and students, and for greater reciprocity in architectural competitions. (An AIA spokesperson said that the board of directors is still reviewing the document.)

The increasing international awareness of the AIA seen in the President's Roundtable was one of a number of themes to surface at this 121st convention. Among others were a new emphasis in professional development seminars on problems of small firms, a trend lauded by those who in the past have seen AIA as catering to large firms. A resolution passed in the general session called for the creation of a task

(continued on page 30)



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AIA (continued from page 28)

force to study the problems of small practitioners.

Also receiving special attention were *young architects*; the newly registered were invited to attend the convention free of charge. A panel of 36 recently registered architects chosen by AIA regional directors convened to discuss issues of interest to their generation. The group presented a mild manifesto to the convention endorsing mandatory intern development programs, mandatory continuing education for architects, more practical architectural education, and political activism among architects. An especially touching tribute to youth in the profession came at the opening session, where a San Jose 3rd-grader named Joseph Caporale wowed the convention with an earnest address about why he wanted to be an architect. Caporale had won a Bay Area “Hold on to Your Dream” contest, and his prize was a “dream day” at the convention.

Keynote speaker and television evangelist Robert Schuller, whose invitation to speak was controversial, neither enlightened nor outraged this writer with his chatty, self-serving speech, full of homilies and mildly entertaining stories about his adventures as a client of both Richard Neutra and Philip Johnson.

Enlivening the convention’s official business sessions was a debate over the AIA’s recent accord with interior design associations to work toward a solution to the licensing problem. A group of delegates tried, in effect, to void the agreement, complaining that the new policy was “ill-considered and rushed.”

This year’s convention was also characterized by an impressive use of the host city. On the schedule were “mobile case studies” on St. Louis’s housing, riverfront, and the redeveloped Union Station; these featured local officials speaking candidly about the projects’ successes and failures. Much was made, and rightly so, of Eero Saarinen’s Gateway Arch, one of those rare tourist attractions that is equally attractive to architects. AIA president Benjamin E. Brewer, Jr. dedicated a plaque at the arch’s base to Saarinen, and the general session passed a resolution endorsing a bill now in Congress to develop the east side of the Mississippi across from the arch, in accordance with Saarinen’s original concept. **Mark Alden Branch** ■

Reported by Daralice D. Boles, Jim Murphy, Thomas Vonier.

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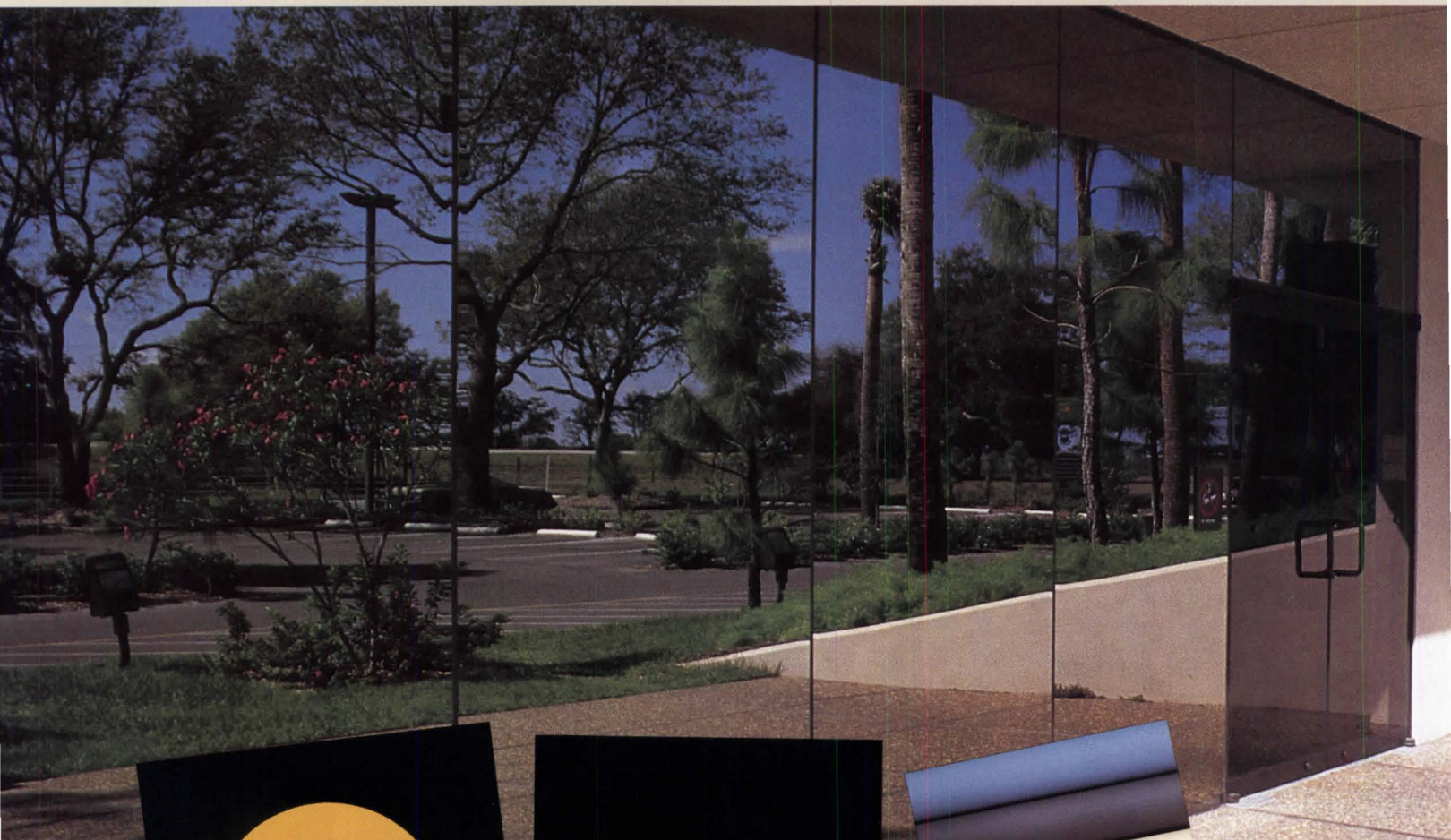
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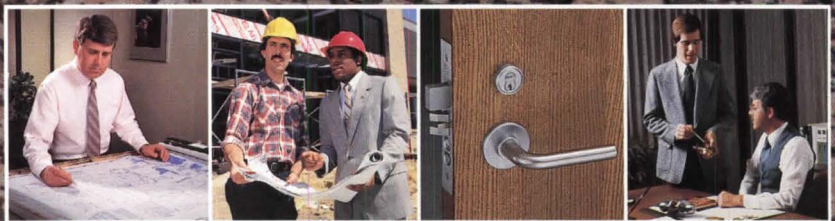
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Perspectives

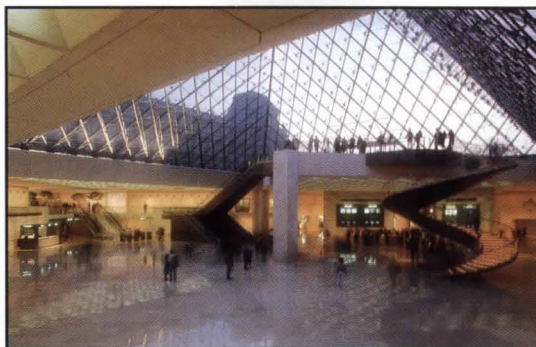
Greeted with cries of "Scandal!" in 1985, I.M. Pei's addition to the Louvre—and its infamous pyramid—are now an accepted part of Paris.



Pei's pyramid, on axis with the Arc de Triomphe (center), dominates the Louvre's Cour Napoleon.



The pyramid's modest entrance (lower left).



The limestone-clad lobby beneath the pyramid.



Visitors descend the corkscrew stair to enter.

The Pyramid Prevails

New T-shirts sold in the souvenir shops of the Louvre Museum bear the image of the pyramid, the crystal with which architect I.M. Pei has pierced the heart of Paris. Each day since its opening to the public in April, visitors have pressed forward to see the pyramid and descend through, and to discover for themselves the underworld beneath it.

The Cour Napoleon has had a facelift. This great space, one and a half times the size of the Piazza San Marco, is now anchored by a dramatic intersection of horizontal and diagonal lines. The immense uniform surface of a new stone plaza is cut by great flat basins of water. Silhouettes of the crowd are reflected there in miniature, as they are at Versailles during the water festivals. The pyramid, with its great planes of inclined glass, also seems somehow small in this vast space, changing with the hours and the light. It is, in fact, not a tall structure, rising only 71 feet to a point just below the top floor of the Louvre, its footprint—13,455 square feet—is surrounded by a wide expanse of empty space in which three smaller pyramids set up an attenuated echo.

A glass entrance is drawn on one face of the pyramid.

(continued on page 38)

(continued from page 37)

Through this door press the visitors, numbering as many as 50,000 on Sundays, when they may be forced to wait an hour or more in line. The only evidence of this entrance, however, is a slight crease in the plaza, and it seems regrettable that this threshold is not somehow better emphasized.

Once inside, visitors descend by a corkscrew stair or a more ordinary escalator. (An open-platform lift can serve the disabled.) A horizontal underworld extends in all directions. The first impression is one of golden light. The stone façades of the Louvre palace are visible through the glass, and all interior surfaces are clad in clear, luminous limestone or fine precast concrete. The space is somber, with a kind of suspended monumentality.

Prior to the pyramid, the Louvre had no one front door dignified with its name. And, unlike the Centre Pompidou or the Musée d'Orsay, which attract huge crowds to their blockbuster shows, the Louvre had become something of a shrine, a tourist's obligation. The price for seeing La Joconde or marveling at Egyptian antiquities was an awkward, incommensurate journey along a labyrinthine path. The Grand Louvre has changed all that. In truth, Pei's task was more a project of museography than of architecture.

The Louvre plan is a simple, orthogonal sequence of galleries arranged around two courtyards—the 16th Century Cour Carrée and the Cour Napoleon. Pei's plan was to use the territory beneath these courts for circulation connecting the far-flung wings and their galleries, supplemental space for temporary exhibitions, and technical services.

While awaiting the opening of all underground passages, visitors are now able to follow two itineraries via the Denon and Sully passages. The latter merits particular attention, for it has the feel of a trip through time. Passing from the pyramid under one of the smaller pyramidal skylights, visitors move gradually into artificial light and shadow, toward two galleries. One houses temporary exhibitions of acquisitions and donations. The other, designed by scenographer Richard Peduzzi, is a treasure chest of models and images telling the history of the Louvre from the first fort of Philippe Auguste in the 12th Century.

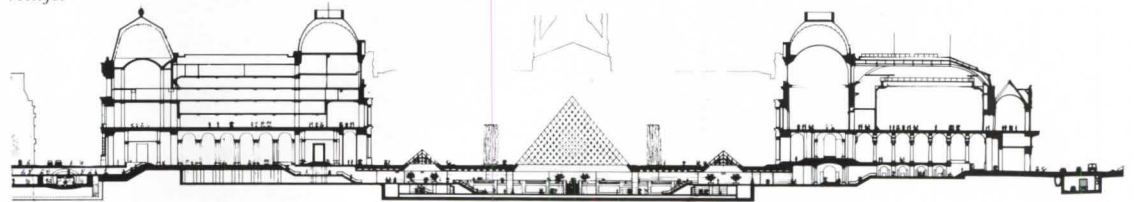
Although architects for the other Grands Projets have been selected by competition, Pei was



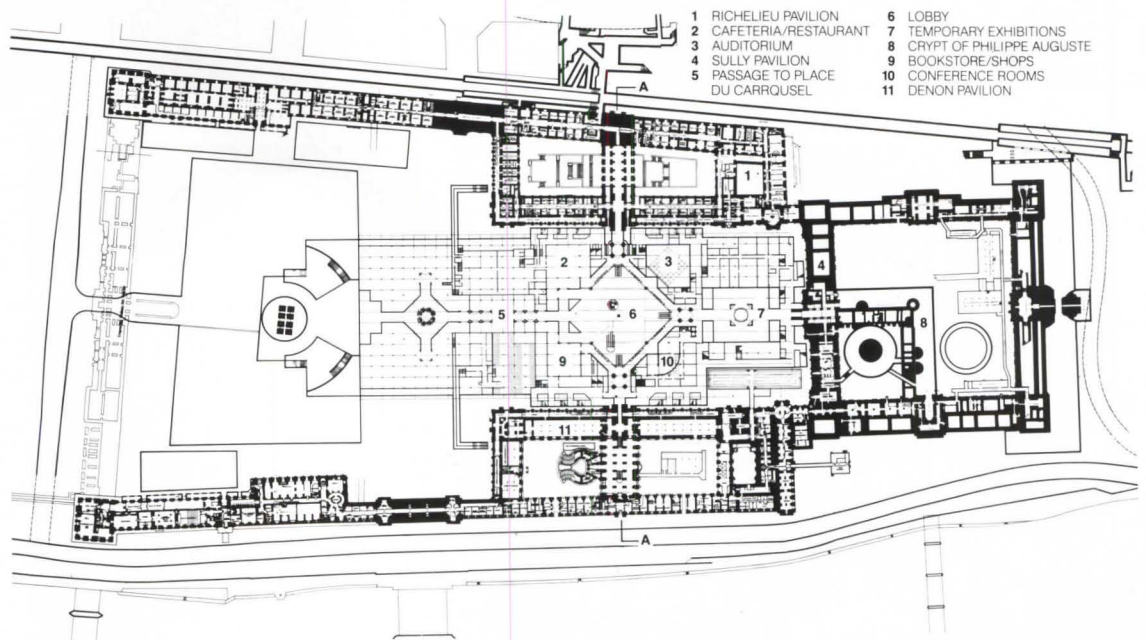
Rotunda of temporary exhibition space with 15th-Century bas-reliefs.



Newly unearthed Crypt of Philippe Auguste.



SECTION A-A



MEZZANINE LEVEL PLAN

chosen personally by President Mitterrand, for his experience in handling museums and other large commissions and for his classically Modern style. A team of French architects led by Michel Macary was associated with Pei for the project, along with Architects of the Louvre Georges Duval and Guy Nicot.

The public presentation of the model in 1985 elicited diverse reactions. Although most of the critical establishment who favored Modernism appreciated the principle behind Pei's intervention, a certain Parisian public more inclined towards historic architecture banded together to oppose the plan. However, even that group agreed that the Cour

Napoleon had become a parking lot for tourist buses and that something had to be done.

Now, it seems, Paris can only applaud Pei for imposing so clear an idea and building it. The "unacceptable" juxtaposition of history and modernity has been accepted, conditioned by the unexpected discretion of the pyramid, which seems finally no more than the polite manifestation of a project directed by functional considerations.

Since the pyramid's opening, public opinion has taken a complete turnaround. The journal *Liberation* has called it "the eighth wonder of Mitterrand the Second." The more conservative *Figaro*, which had greeted the

project with cries of "Scandal!" has abandoned that position and even staged its own fete in the Cour Napoleon. Fashion magazines use the pyramid as a backdrop; Chanel posed its models in the fountains, leaning against the skylights' sloping glass walls. Taxi drivers direct tourists there. Thanks to the Pyramid, all Paris is rediscovering the Louvre. Once having frightened, the pyramid now seduces, acting as an icon of the present while offering the heroic illusion of moving towards the future. **Marie Christine Loriers**

The author is a senior editor of *Techniques et Architecture*.



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| X-Windows | X | X | X | X | X | X |
| PHIGS | X | X | X | X | X | X |
| GKS | X | X | X | X | X | X |
| Ethernet | X | X | X | X | X | X |
| TCP/IP | X | X | X | X | X | X |
| DECnet | X | X | X | X | X | X |
| NFS | X | X | X | X | X | X |
| RS232 | X | X | X | X | X | X |
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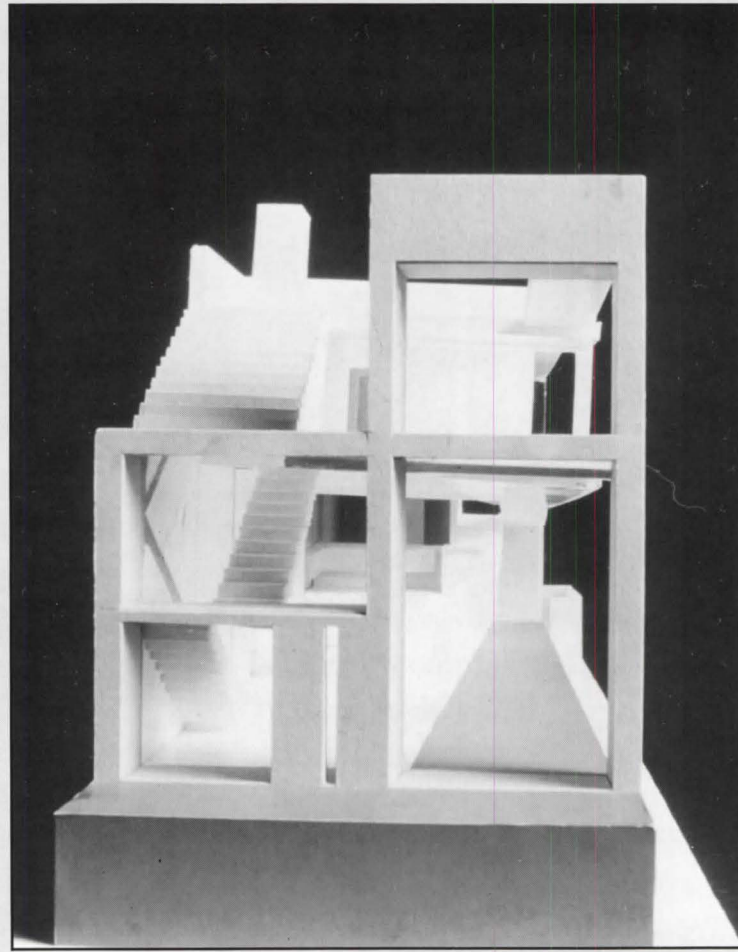
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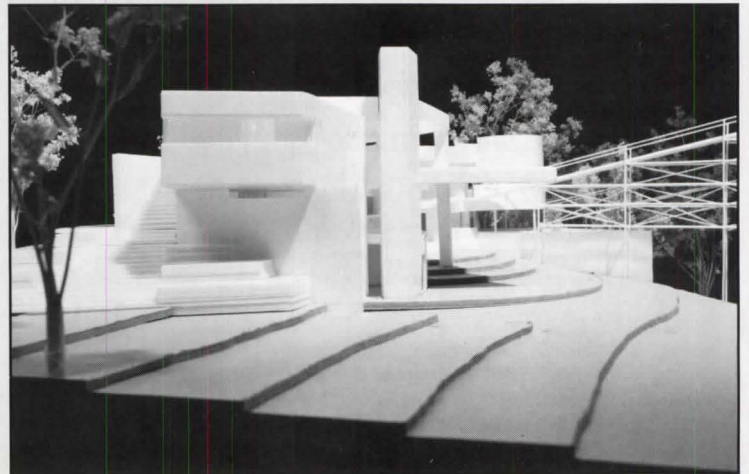
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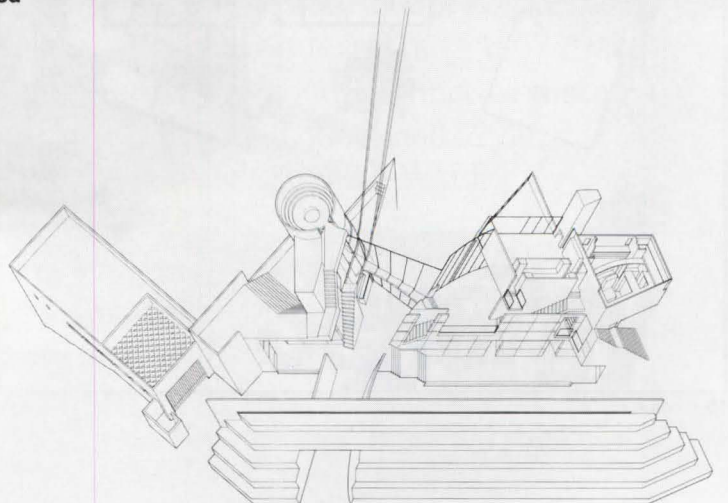
2 Beach House, Venice, Calif.
Architects: Antoine Predock Architects, Albuquerque, N.M. For an elevated urban site on the beach in Venice, Predock has set up a “reverse perspective” view from the inland side of this house. By using an upward-sloping ceiling and a diagonal swath of black-stained wood on the floor, he “draws the water toward the viewer” and focuses attention on the ocean rather than on the beach. The window at the end of the axis—9 feet wide and 13 feet high—pivots horizontally. A granite-clad retaining wall with water running over it separates the house from a public walk along the beach six feet below.

2b

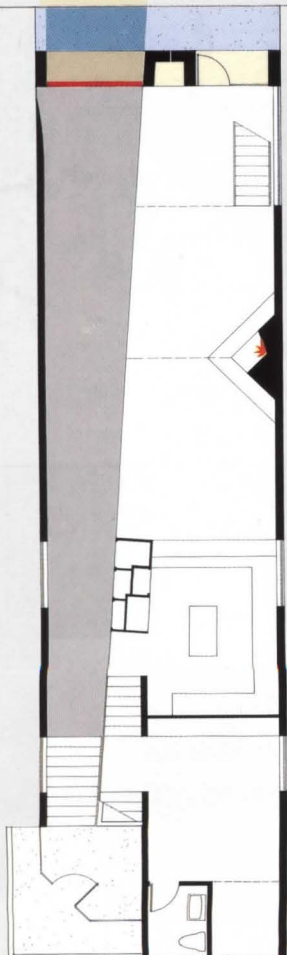
3 Rose House, Dallas, Texas.
Architects: Antoine Predock Architects, Albuquerque, N.M. Called a “theater of the trees” and designed to accommodate the owners’ interest in bird-watching, this house falls—according to Predock—along a prehistoric trail that follows a vein of limestone. The house is entered through a “fissure” in a series of stepped limestone retaining walls. The entry divides the structure into north and south “houses,” the former for everyday living and the latter for formal gathering and private retreat. The houses are reached through an internal corridor or “art moat” for the owners’ art collection. Bird-watching is enhanced by a rooftop terrace, a series of walkways atop the house, and a “sky ramp” projecting into the canopy of trees.



3a



3b BIRD'S EYE PERSPECTIVE



2a N ↗ 10'/3m

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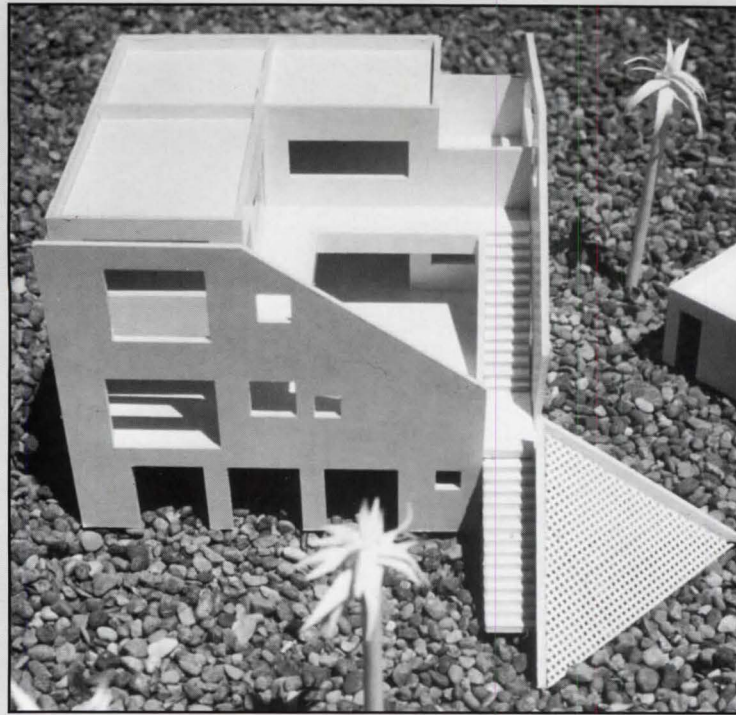
PA-6

F L E X C O

WORKING FLOORS FOR THE WORKING ENVIRONMENT.

Circle No. 334 on Reader Service Card

4 Rosenthal House, Manhattan Beach, Calif. Architects: Antoine Predock Architects, Albuquerque, N.M. Designed as a home and studio for a toy executive, this house, says Predock, "wanted to become a kind of toy." The house sits in the right angle of a small triangular site in Manhattan Beach. Inside the stuccoed outer enclosure are three distinct levels: the first a living area, the second, largely glass, a studio, and the top a "sleeping lantern" clad in translucent glass panels. The triangular structure at the base is an arbor accessible from the house's interior.

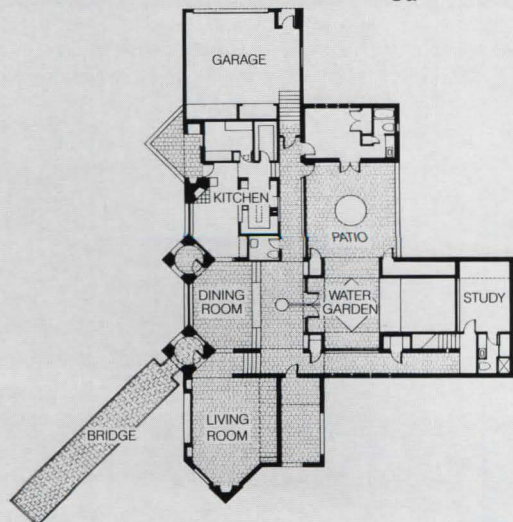


4a

5 Zuber House, Paradise Valley, Ariz. Architects: Antoine Predock Architects, Albuquerque, N.M. Predock sees this structure on the face of a mountain as a juxtaposition of two houses. On a north-south axis, the first house contains the master suite and anchors the composition to the hillside. A water course runs from the mountain toward a pool at the entry gallery. The east-west house, which seems to be held in place by the towers of the first, forms the major façade and houses the public areas. The bridge off the east-west house serves as a viewing platform.

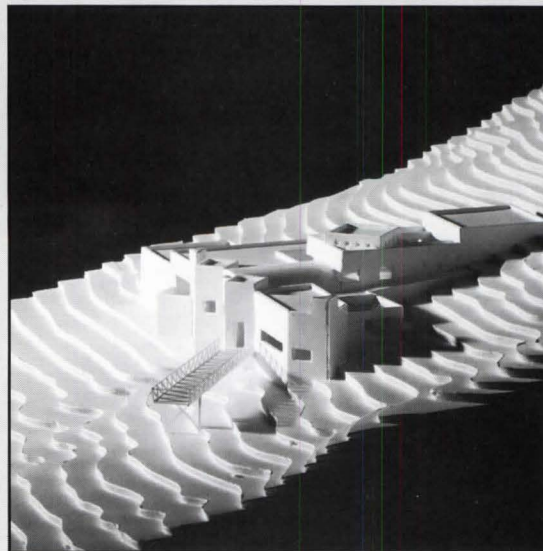


5a

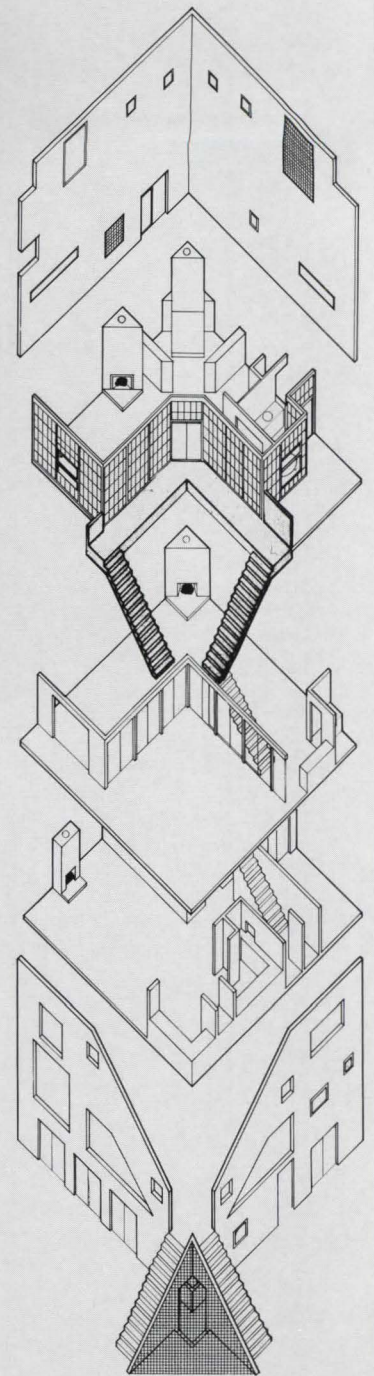


5b FIRST FLOOR PLAN

N → 40'/12m



5c



4b EXPLODED AXONOMETRIC



Project: The Centre of Park Forest
Owner: Plaza Partnerships I, II & III
Developer: Cordish Embry & Associates
Architect: Patrick F. Daly & Associates Ltd.
Roofing Contractor: Specified Roofing Inc.
Richton Park, IL
Color: Forest Green

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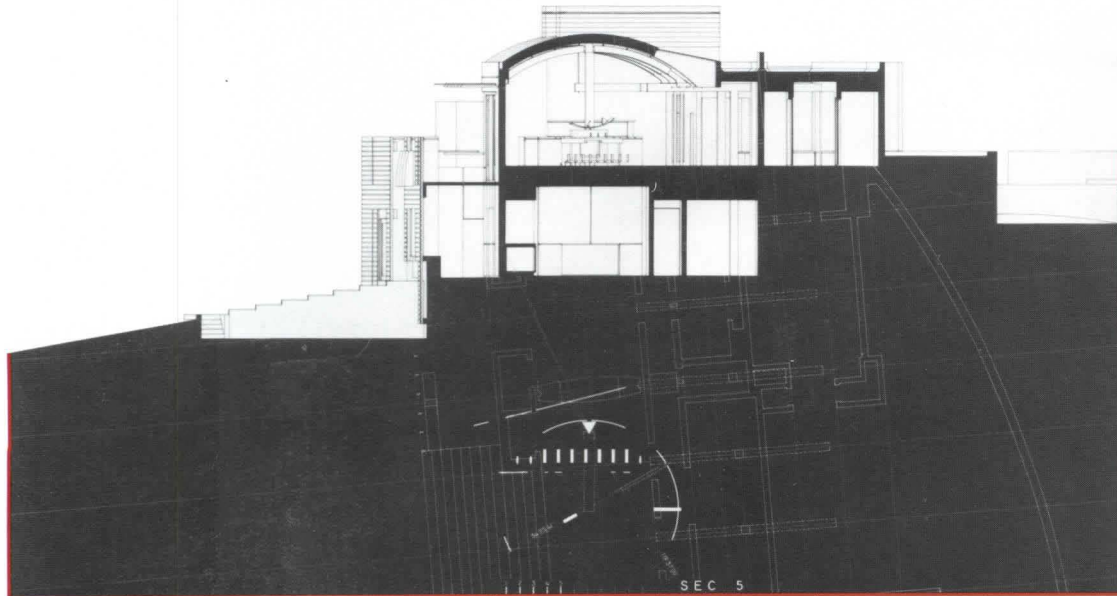
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Circle No. 309

P/A Calendar



Morphosis, Crawford House, from Walker Art Center's "Architecture Tomorrow" through July 16.

Exhibitions

Through June 24

Stanley Tigerman: The Architecture of Exile. Donna Grossman Gallery for Architecture, Los Angeles.

Through June 24

American Fictions. John Nichols Gallery, New York.

Through June 25

Good Offices: The Seventh Arango International Design Exhibition. Ft. Lauderdale, Fla. Museum of Art.

Through June 26

Louis Kahn in the Midwest. Chicago Art Institute.

Through June 28

Suburban Home Life: Tracking the American Dream. Whitney Museum, Downtown at Federal Reserve Plaza, New York.

Through June 30

Ogden Codman and the Decoration of Houses. Octagon, Washington, D.C.

Through July 2

Robert Adam and Kedleston: The Making of a Neo-Classical Masterpiece. Philadelphia Museum of Art.

Through July 8

The Experimental Tradition: Twenty-five Years of Architectural Competitions. National Building Museum, Washington, D.C. (P/A, July 1988, p. 28).

Through July 15

Bauhaus Design. Neuberger Museum, State University of New York at Purchase.

Through July 16

Architecture Tomorrow: Morphosis. Walker Art Center, Minneapolis.

Through July 19

Chair As Art. Gallery of Functional Art, Santa Monica, Calif.

Through July 22

Inigo Jones: The Complete Architectural Drawings (this issue, p. 23). Drawing Center, New York.

Through August 22

A Modern Museum: The 1939 Goodwin/Stone Building. Museum of Modern Art, New York.

Through September 30

Parks and Gardens. Pompidou Center, Paris.

June 6–July 16

Vienna Furniture. Vienna Secession, Vienna, Austria.

June 8–September 12

Frank Lloyd Wright: In the Realm of Ideas. Museum of Science and Industry, Chicago (see P/A, March 1988, p. 37).

June 9–August 2

Emilio Ambasz and Steven Holl. La Jolla, Calif., Museum of Contemporary Art.

June 10–August 6

Emilio Ambasz: Architecture, Exhibition, Industrial, and Graphic Design. La Jolla, Calif., Museum of Contemporary Art.

June 23–July 28

That Exceptional One: Women in American Architecture, 1888–1988. Pacific Design Center, Los Angeles.

July 1–August 15

Projects: Elizabeth Diller/Ricardo Scofidio. Museum of Modern Art, New York.

Competitions

June 16

Submission deadline, 1989 Steel Bridge Competition. Contact American Institute of Steel Construction, 400 N. Michigan Ave., Chicago, Ill. 60611 (312) 670-5422.

July 1

Submission deadline, Ralph Wilson Plastics Maximum Exposure Design Competition, recognizing planned, in progress, and finished projects using Wilsonart® laminates. Contact WRP Maximum Exposure, 600 General Bruce Dr., Temple, Tex. 76504 (800) 433-3222.

July 30

Entry deadline, Home Renovation Awards. Contact National Trust for Historic Preservation, 1785 Massachusetts Avenue, NW, Washington, D.C. 20036 (202) 673-4141.

July 31

Preliminary entry deadline, Building and Social Housing Foundation Habitat Awards. Contact Diane Diacon, Building and Social Housing Foundation, Memorial Square, Coalville, Leicestershire, England LE6 4EU, UK (0530) 510444.

July 31

Submission deadline, Precast/Prestressed Concrete Institute 1989 Design Awards Competition. Contact Brian D. Goodmiller, 175 West Jackson Blvd., Chicago, Ill. 60604

Conferences

June 13–16

NEOCON® 21, Merchandise Mart, Chicago. Contact Gloria Zylowski, 470 The Merchandise Mart, Chicago, Ill. 60654 (312) 527-7550.

June 13–18

1989 International Design Conference, The Italian Manifesto, The Culture of Nine Hundred and Ninety Nine Cities, Aspen, Colo. Contact Lita Talarico, IDCA Program Coordinator, IDCA, 21 E. 4th St., 6th fl., New York, N.Y. 10003.

June 19–23

Solar 89: The National Solar Energy Conference, Denver, Colo. Contact American Solar Energy Society, 2400 Central Ave., B1, Boulder, Colo. 80301 (303) 443-3130.

June 23–25

Construction Specifications Institute. National Convention, New Orleans. Contact John W. Atherton, CSI, 601 Madison St., Alexandria, Va. 22314 (703) 684-0300.

July 8–13

Beaux-Arts Exposition: The Best of Architecture and Landscape Design on Long Island. Community House, Montauk Highway, Bridgehampton, N.Y.

July 11–14

CADD Futures '89, Harvard Graduate School of Design and MIT School of Architecture. Contact Special Programs Office, Harvard University, GSD, 48 Quincy Street, Cambridge, MA 02138 (607) 495-4004.

July 26–30

Assessing Wright's Legacy: The Myth and the Reality of Frank Lloyd Wright, Domino's Farms, Ann Arbor, Mich. Contact University of Mich. Conferences & Institutes, 200 Hill Street, Ann Arbor, Mich. 48104-3297.

July 27–29

Stanford Conference On Design, Stanford University, Calif. Contact Beverly Smith, Bowman Alumni House, Stanford, Calif. 94305-4005 (415) 723-2027.



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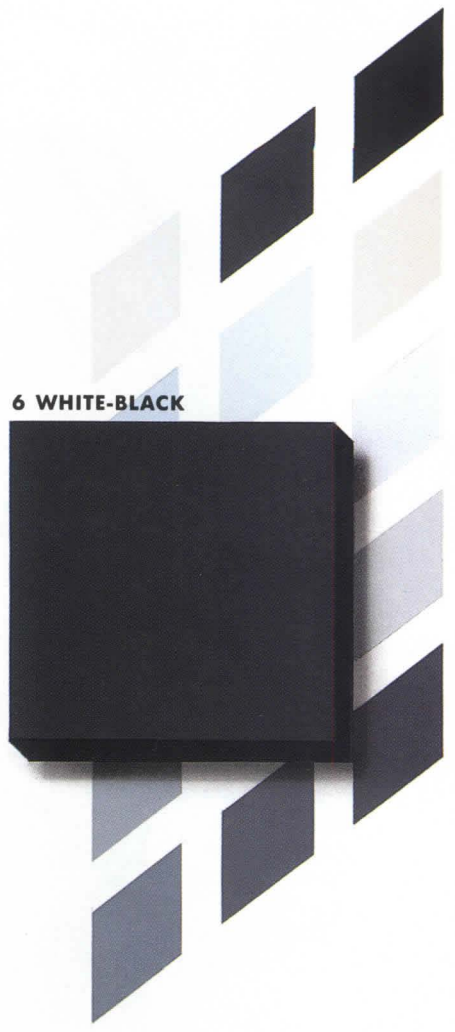




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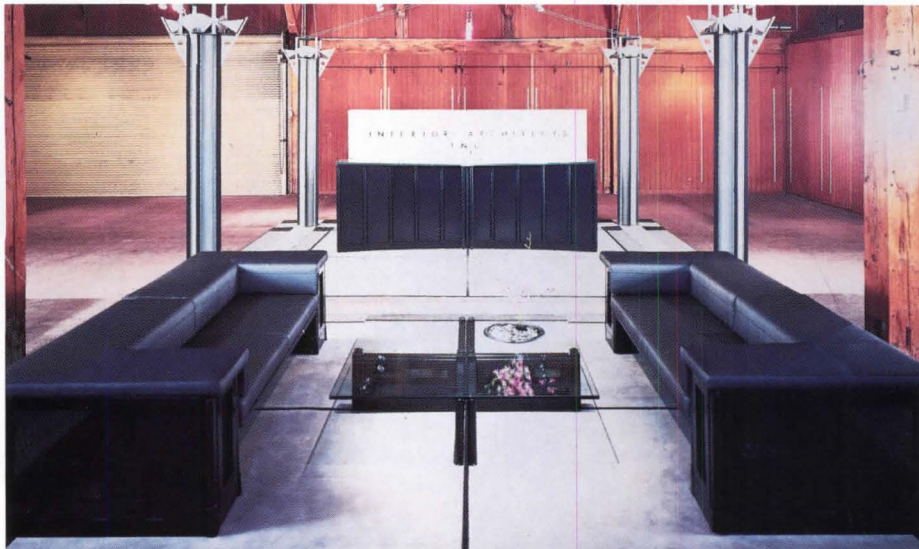
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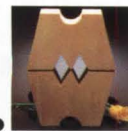
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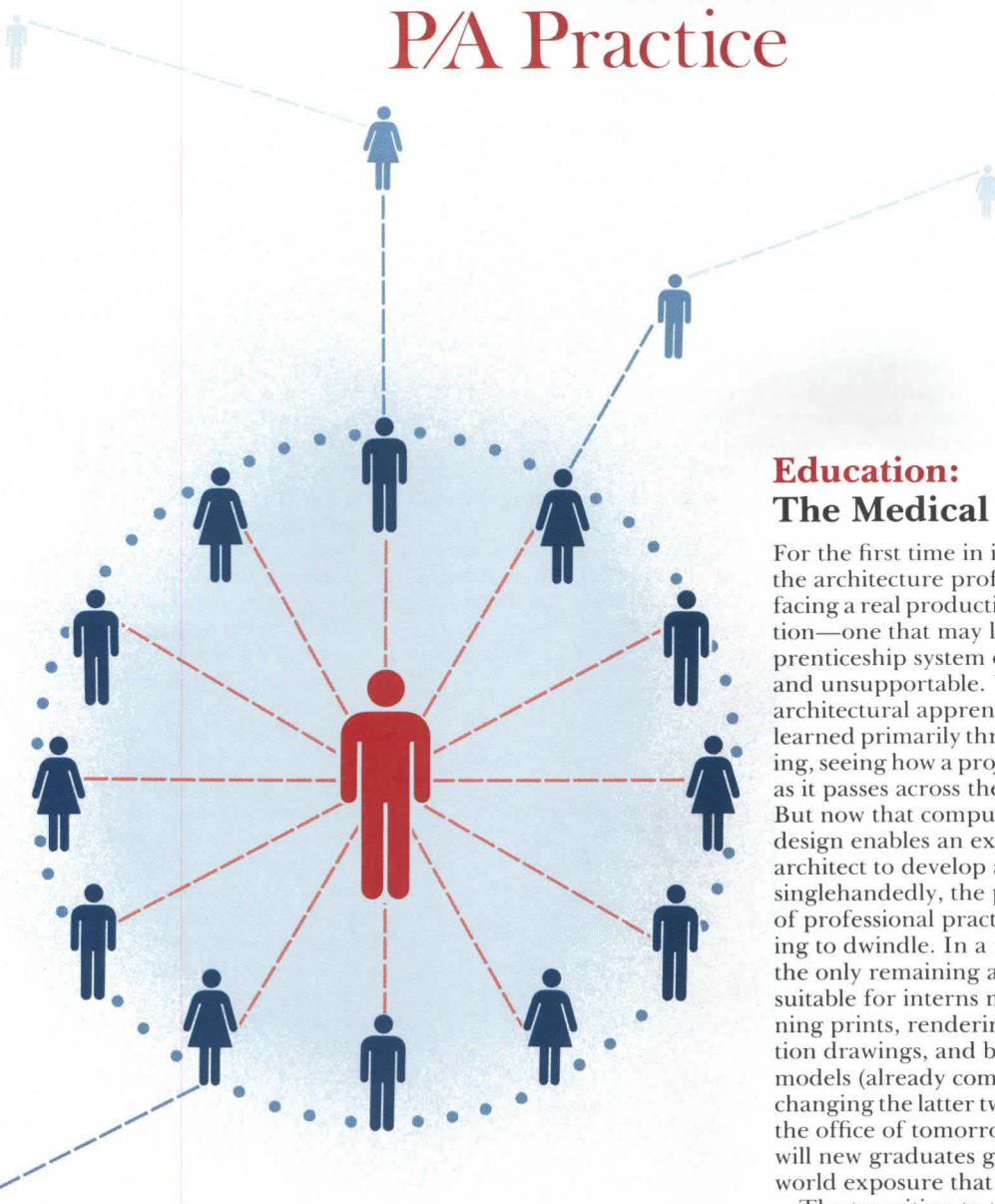
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P/A Practice



Specifications: Good Communication

The flow of communication in the construction industry is almost as important as cash flow. It is the means of transferring an architect's concept into physical reality, thereby serving a client's needs. It is also the network that binds the many diverse parties involved in a project into a single-minded, mutually supportive force. Communication must be smooth, clear, rapid, and consistent or the project will develop scheduling problems, additional costs, and conflicts in the work. Bad tempers and subsequent lawsuits may follow.

The architect's role in communication is pivotal. Both AIA Document B141 "Standard Form of Agreement Between Owner and Architect" and AIA Document A201 "General Conditions of the Contract for Construction" place the architect at the center. All information moving between the "Owner" and "Contractor" flows through the "Architect." This reinforces the

architect's administrative role and should focus responsibility for making the communication process work.

Unfortunately, communication problems persist. In reality, the traditional triumvirate of Owner, Architect, and Contractor consists of many tiers of participants—project architect, detailers, superintendents, attorneys, specifiers, product manufacturers and their representatives, contractors, suppliers, and clerical staff. They are often supported by specialty consultants, sometimes with consultants to the consultants. Contractors may bring in subcontractors and sub-subcontractors. With an overlay of zoning, code, and other municipal officials, the complexity of the network is readily apparent.

Communication problems are further increased by geography. As more large design and construction firms tackle work on a nationwide or international scale, they encounter and must deal with unfamiliar codes and

(continued on page 56)

Education: The Medical Model

For the first time in its history, the architecture profession is facing a real productivity revolution—one that may leave its apprenticeship system obsolete and unsupported. Until now, architectural apprentices have learned primarily through drafting, seeing how a project evolves as it passes across their desks. But now that computer-aided design enables an experienced architect to develop a project singlehandedly, the paper trail of professional practice is starting to dwindle. In a few years, the only remaining assignments suitable for interns may be running prints, rendering presentation drawings, and building models (already computers are changing the latter two tasks). In the office of tomorrow, where will new graduates gain the real-world exposure that they need?

The transition to the CAD-based profession is already well along: draftsmen-wanted ads often specify CAD training. But even that promises to be temporary. The new job description, "CAD operator," will survive only until systems become sufficiently user-friendly that senior architects can use CAD proficiently, or, at most, until CAD operators gain enough project experience to take over responsible positions. By turning out projects themselves, architects can avoid both the hazards of rookie errors and the need for coordinating team members. Eventually, there may no longer be any teams—just experienced architects creating buildings electronically.

At that point, apprentices will represent a pure cost burden, and the profession may begin to evade its moral obligation to train them. Apprenticeship certainly will no longer be a dependable route to professional competence, which raises serious questions about the current structure of architectural education. The profession has long depended on a tacit agreement

(continued on page 58)

Specifications: William Lohmann looks at communication problems.

Education: Douglas Harvey proposes a new model for education and internship.

Practice Points

The recently enacted California Clean Air Act may directly and indirectly affect the design industry reports SMPS newsletter. Among other measures, the three-stage plan restricts the use of certain types of interior and exterior architectural coatings and ties construction and occupancy permits for industrial plants and smaller polluters such as dry-cleaners, to tougher emission controls. "As California goes, so goes the nation where air pollution is concerned," cautions SMPS.

Compensation for managerial design professionals increased six percent in 1988, according to results published in the 1989 PSMJ Executive Management Salary Survey. Record high bonuses ranging from 13 to 60 percent of salary pushed compensation higher. The rise reflects a trend among the design professions of making compensation more directly dependent upon results.

Billings for design work completed in 1988 jumped to \$20 billion from \$14.9 billion the previous year. According to a poll of ENR's top 500 design firms, domestic billings climbed \$4 billion in 1988 while fees collected for foreign commissions were \$1 billion more than those in 1987. Hazardous-waste-related work and industrial and powerplant upgrading led the growth.

Citizen groups opposed to local and regional growth are themselves meeting mounting resistance. According to a report in Development Trends, 1989, published by The Urban Land Institute, the pro-growth movement has become increasingly popular. Supporters no longer fear some of the potential consequences of growth—traffic problems, denser residential areas, and possible damage to natural resources—but favor job security and probable economic expansion.

Specifications (continued from page 55) construction practices. When working with foreign associate architects and consulting engineers, language sometimes becomes a problem. Materials and other building components may come from distant places. Stone for a project in Illinois may be quarried in India and fabricated in Italy, reflecting the growing global economy.

Communication in the broad sense takes many forms—contract documents such as agreements, drawings, and specifications, memos, change orders, telephone conversations, minutes of meetings, the meetings themselves, even informal (“by the way . . .”) exchanges. All have the primary purpose of transfer-

ring information for a specific purpose. Each exchange should be clarified with the sender if the intent is not clear or agreeable to the receiver. Most verbal communication should be documented. After the fact (and passage of time), communication fallout becomes grist for the courts and interpretation by people far less knowledgeable than the original parties of the conditions that first engendered the exchange. Thus project communication processes must be developed seriously and the architect must take the lead in establishing them. Following are some guidelines.

Establish a clear working relationship with the client at the beginning of the project. The

benefit cannot be overemphasized. By early discussion of expectations, potential roles, and a basis for exchange of information, the way will be paved for continued cooperation. The same applies to consultants, contractors, and other participants when they join the team. A frank discussion of who is in charge, who to call with specific questions, who to copy with distributions, and agreement on responsibility and scheduling for portions of the work will start the flow of information in a controlled and orderly manner. The architect should prepare a project administrative manual that documents the communication process.

Prepare contract documents

in accordance with established, familiar standards. Drawings should be organized in a logical sequence for ready reference, preferably as recommended by the AIA CONDOC program. Specifications should follow the CSI Masterformat. Information should be shown in only one place, with cross-references elsewhere if necessary. Maintain a consistency in nomenclature on the drawings and in the specifications, avoiding excessive descriptions on the drawings and using generic terms only. Do not use notes indicating parts of the work to be done by a specific contractor or subcontractor. It is the general contractor's responsibility to subdivide the work. Do not use the term “by others.”

Develop and maintain an efficient, consistent review process and describe it in the administrative manual. Determine the degree to which the client wants to review the design and contract documents as they evolve. Some clients are interested only in the architect's response to space program requirements while others insist on overseeing every detailed step. The client's comments, once solicited, must be acknowledged and answered. The same applies in a more technical sense to consultants—and their work is equally subject to review by the architect. The contract documents should be reviewed before being issued by a “third party,” someone who has not been directly involved in their development. In all cases, establish prior mutual agreement on the form, content, and schedule for steps in the review process.

The review of contractor submittals—shop drawings, samples, product literature, test reports, certifications—demands special attention. Since fabrication and delivery of materials for the work depend directly on the review of such submittals, timing is critical. They must be processed expeditiously and a log should be kept to track submittals, their status, comments, and review deadlines. Most submittal problems stem from two factors: The general contractor often ignores a standard contract requirement to review and coordinate subcontract submittals before forwarding them to the architect; the architect is often guilty of deferring final design decisions until after the contract has been signed and shop drawings have been received. Both situations delay the shop drawing review process and invite trouble.

(continued on page 58)

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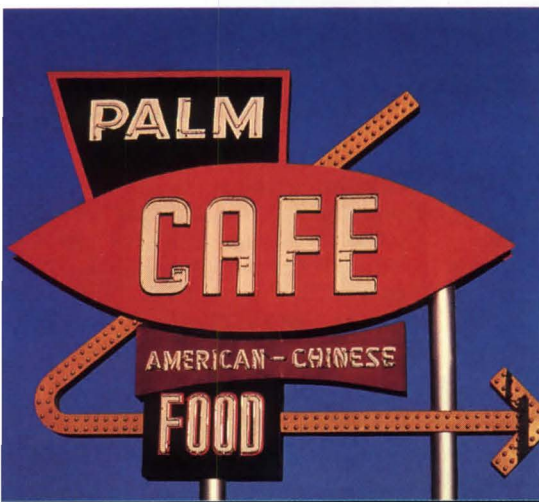
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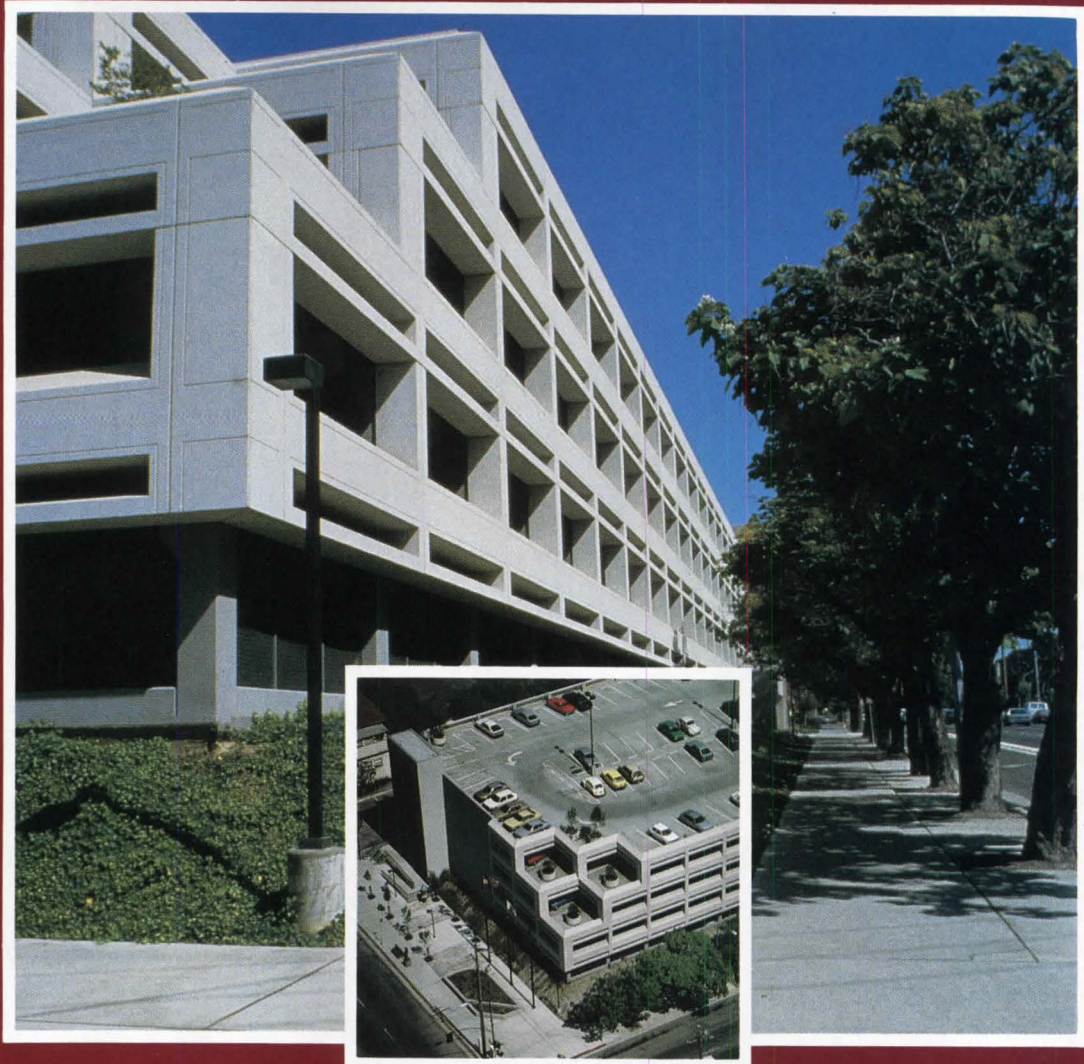


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Magic Mountain

Antoine Predock's Fine Art Center at Arizona State University draws on all the senses of sight, smell, hearing, and touch to tell its several tales.



Predock's Fine Arts Center, Taliesin Associates' cylindrical Music Center (middle) and Wright's Gammage Auditorium (right rear).

SHORTLY after the new Fine Arts Center at Arizona State University opened in April, a professor in the School of Architecture gave his sophomore students the assignment of visiting the complex. In the quiz that followed their tour, he asked, "Do you think the architect Antoine Predock had a concept or story in mind when he designed the museum? If yes, what is it and what is your evidence?" "His story may have been that of an Indian chief led past people (columns and cacti) standing on both sides as he passes. He travels into a buried tomb, full of riches," wrote one student. "I think his concept was to take the observer through intricate passages and spaces so that he will feel almost lost," commented another. One described "a flow of water narrowing in the places meant to be moved through quickly and broadening at the points where we were meant to stand and ponder," while another commented on "little coves that the viewer flows into for pondrance [sic] of the works of art."

This is *architecture parlante*, Southwestern style. And yet, the Fine
(continued on page 68)



Photographs taken with a 180 degree camera (above; see also pages 70, 74) capture the sweep of the Fine Arts Center Plaza. This view also explains the center's basic organization, with the museum at left beyond the tower bridge, the drama wing straight ahead, and the playhouse and smaller dance studio at right behind the brick arcade.

Although many of Predock's metaphors relate to desert history, the architect also sustains a deep and abiding affection for pop culture in the West. (See also *In Progress*, page 43.) His fly tower is transformed at night into a drive-in movie screen with images projected onto its surface from the tower bridge (left below) and viewed by spectators near—on the plaza's bleachers and balconies—or far off campus.





By placing the museum on Mill Avenue, Predock reinforced the public edge of the campus established by Frank Lloyd Wright's Gammage Auditorium to the south. The museum's ceremonial entrance (below) sets up the entire sequence of movement through the center, and the central metaphor of an oasis in the desert is reinforced in the transition from cacti to columns.



(continued from page 65)

Arts Center is not a simple building, nor is it one readily understood. It escapes documentation in two dimensions—via plans, photographs, or the simple and generally inaccurate diagrams attempted by the students. This 3-D design calls upon all the senses, extending the palette of architecture to encompass sound, smell, and touch. In the process of choreographing a “sensurround” experience, Predock has sacrificed some legibility for imagery, but that too may be considered part of his plan. “It’s not that I want to get people lost, but this building is an adventure, a discovery,” says the architect.

For ASU, the adventure started four years ago when Predock won an invited competition kicked off by a matching grant from the National Endowment for the Arts. None of the solutions by four other finalists—Edward Barnes of New York; ELS Design of Berkeley; Arthur Erickson of Vancouver; and Barton Myers of Los Angeles—came close to the kind of theatricality conveyed in Predock’s magic mountain. He presented not a building but a stageset designed to celebrate the transitions from city to campus, from desert to oasis. “The winning design is full of delightful surprises and creates interesting, lively points of encounter between the visual and performing arts,” commented the jury.

The heart of the plan in both physical and metaphorical terms is the central plaza with its “mountain.” Predock’s own love of the arts—of dance in particular—is evident in this extravagant, multi-

purpose performance space. Here the architect envisions performances that could begin inside, then spill outdoors onto balconies and bleachers. His playhouse fly tower doubles as a movie screen or a canvas for light shows, while the museum terraces can connect to the plaza to shape one big party space.

If the plaza is the heart of the performing arts, the nymphaeum beneath it is the center of the visual arts. Just as spectators climb the mountain to watch the stars, both heavenly and human, so visitors to the museum descend into the mountain to find its buried treasures. The public entry sequence from Mill Avenue is a perfectly choreographed affair. The threshold is marked in all sensory dimensions—by the abrupt switch from sunlight to shade, by the delicate scent of herbs in the shallow concrete bowls that flank the entrance, and by the cool breeze drawn down into the nymphaeum as hot air exits through the bleachers. The idea, says Predock, is “to deliberately disorient in order to establish new perceptual data through quiet, water. In the desert, shade and respite from heat are crucial, so we go into the ground.”

Just as visitors entering the center have the choice of going down into the museum or passing through at ground level to the plaza, so those who enter the museum face a rich array of possible paths. The multi-level plan encourages wandering. Throughout, there are resting places “for poudrance of art” as the student puts it, from the

(continued on page 72)

A metal gate at the foot of the southern tower (visible at the head of the stairs, facing page) can be opened, allowing museum events to spill over from the sculpture terrace to the plaza or vice versa. An elevator located in the heart of the mountain at right connects down to the nymphaeum and museum entrance on lower levels.

Students and visitors approaching the museum or playhouse from the main campus must find their own way. This perhaps overly casual arrival sequence is betrayed in Predock’s own directions to the theater lobby, “Follow the arcade half way around and take a right at the fountain.” The arcade itself, however, is a delightful, shaded space, its curve a gentle echo of the Music Center designed by Taliesin Associates.



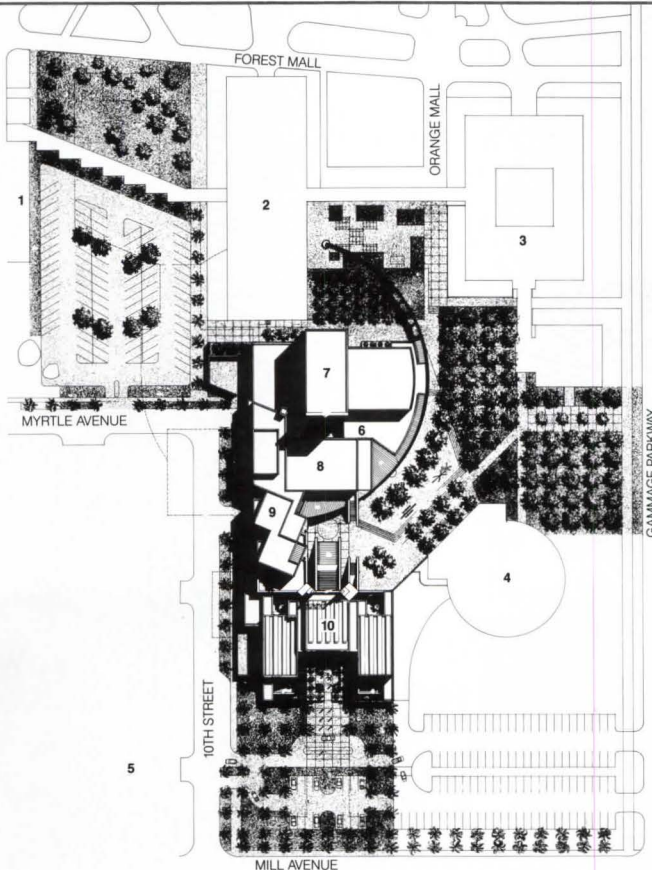




Predock's handling of the north side of his complex (above) was based on the assumption that 10th Street would be closed to through traffic and the adjacent blocks developed. Even under those circumstances, however, students and visitors approaching the Arts Center from the north—where other arts buildings are concentrated—must either enter through a formidable wall or walk the long way round.

SITE PLAN

- 1 COMMUNICATIONS ARTS BUILDING
- 2 PAYNE HALL
- 3 EDUCATION BUILDING
- 4 MUSIC CENTER
- 5 SHOPPING CENTER
- 6 FINE ARTS CENTER
- 7 SAVIN PLAYHOUSE
- 8 DANCE STUDIO
- 9 DRAMA WING
- 10 UNIVERSITY ART MUSEUM



SITE PLAN

N ← 100/30m

MUSEUM ENTRY LEVEL PLAN

- 1 NYMPHAEUM
- 2 PUBLIC ELEVATOR
- 3 ENTRANCE
- 4 AMERICAN CRAFT GALLERY
- 5 PRINT GALLERY
- 6 PRINT STUDY ROOM
- 7 ART STORAGE
- 8 LAYOUT AND ASSEMBLY
- 9 MECHANICAL
- 10 CLASS/MEETING ROOM
- 11 SHOP STORAGE
- 12 KITCHEN
- 13 GALLERY SHOP
- 14 ARCHIVE LIBRARY
- 15 MUSEUM OFFICES

FIRST FLOOR PLAN

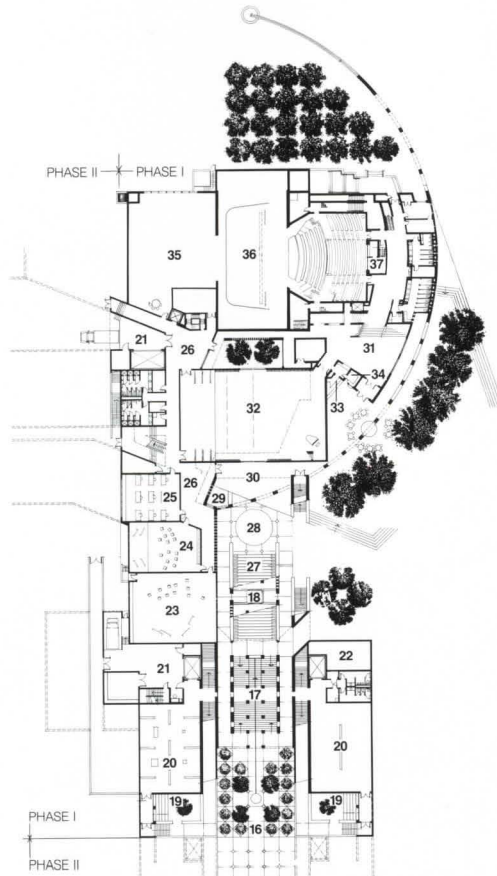
- 16 ENTRY COURT
- 17 DOWN TO NYMPHAEUM AND MUSEUM ENTRANCE
- 18 ELEVATOR
- 19 SCULPTURE TERRACE
- 20 AMERICAN ART GALLERY
- 21 LOADING DOCK
- 22 PLENUM
- 23 REHEARSAL ROOM
- 24 DIRECTING STUDIO
- 25 DESIGN STUDIO
- 26 THEATER/DANCE LOBBY/LOUNGE
- 27 BLEACHERS/SUN CONTROL LOUVERS
- 28 PERFORMANCE SPACE
- 29 FOUNTAIN
- 30 OUTDOOR PLATFORM
- 31 LOBBY
- 32 DANCE STUDIO THEATER
- 33 CAFE
- 34 TICKET WINDOW
- 35 SCENE SHOP BELOW
- 36 STAGE HOUSE BELOW
- 37 SOUND/LIGHTING BOOTHS

SECOND FLOOR PLAN

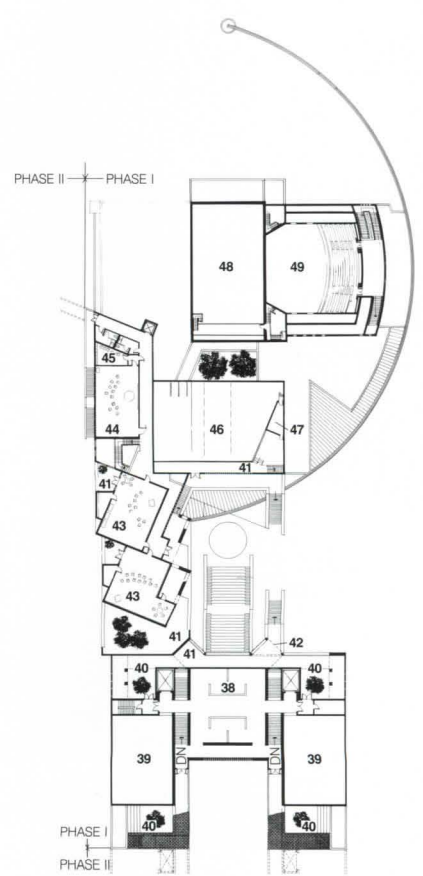
- 38 19TH CENTURY AMERICAN ART GALLERY
- 39 GALLERY BELOW
- 40 SCULPTURE TERRACE
- 41 TERRACE
- 42 GATE
- 43 ACTING STUDIO
- 44 CHILD DRAMA
- 45 OBSERVATION
- 46 DANCE STUDIO BELOW
- 47 CONTROL
- 48 FLY SPACE
- 49 AUDITORIUM BELOW



MUSEUM ENTRY LEVEL PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

(continued from page 68)

deeply shaded "dugouts" in one sculpture court to the wood benches in each gallery.

The movement sequence to and through the plaza above or museum below is Predock's triumph, and he has sacrificed some of the more conventional institutional signs, such as a well-marked front door, to achieve it. Those who enter the center from Mill Avenue cannot possibly lose their way. But those who approach it from the campus may have a harder time. It's all too easy to envision some efficient docent pinning a sign on the mountain that reads "Take this elevator down one flight to the museum or proceed left beneath the bridge, take a sharp right and go down stairs." The problem is more acute for the Gavin Playhouse, whose entrance is perhaps too casually situated slightly left of center beneath the semi-circular brick arcade. Again, Predock counts on water—a splashing fountain—and the evidence of activity at the box office window or adjacent gelato stand to clue in new arrivals.

This aspect of the design more than any other earned criticism right from the start. The initial jury expressed their concerns in a special letter to the dean in which they questioned "the rigid symmetry in the organization of the entry sequence" and urged that "public circulation movement within the complex needs further attention." "Entries to institutional buildings should facilitate public access rather than play games of hide and seek," wrote architecture

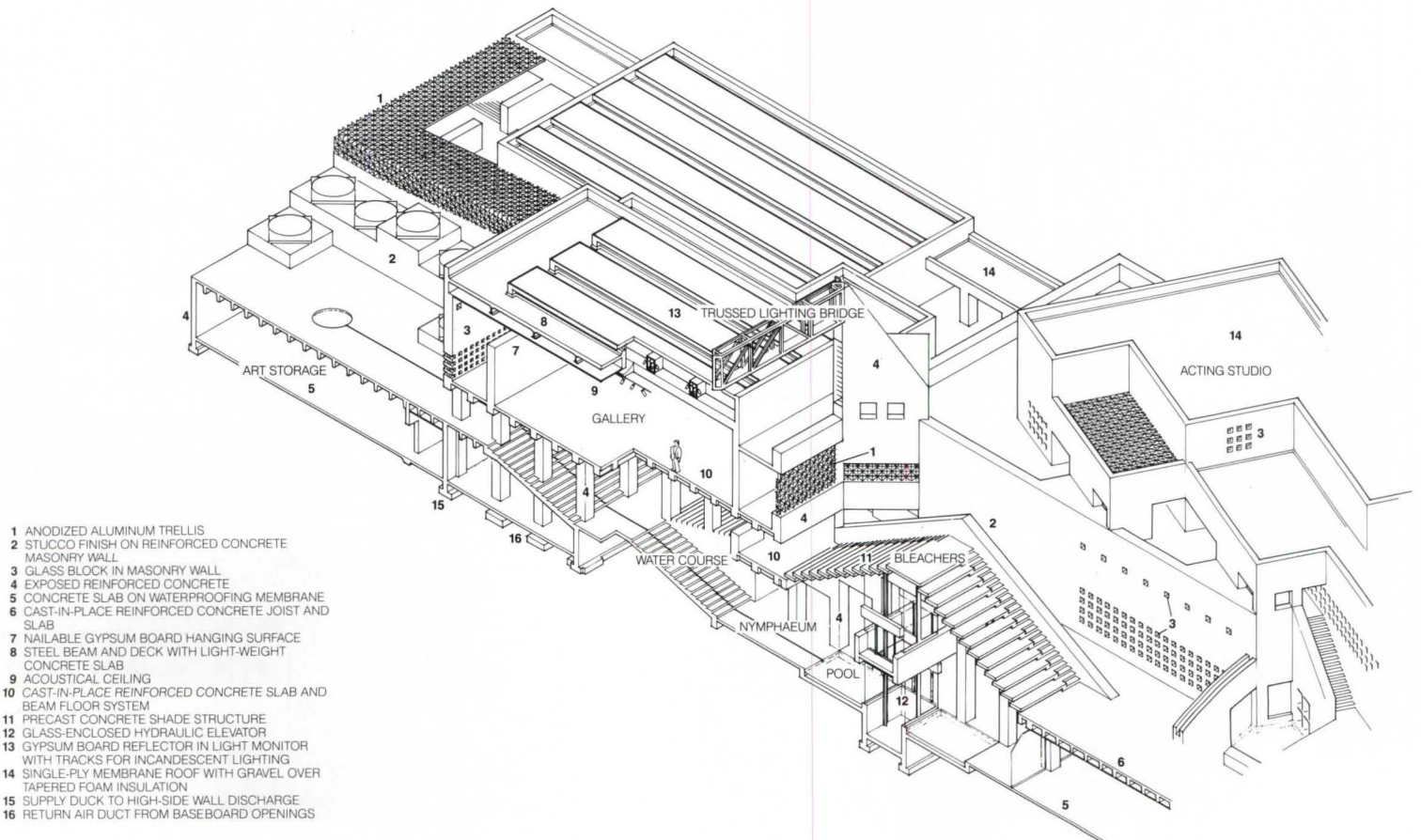
professor Paul Zygas in a rather prim critique published by the school magazine. Must they? Certainly the visitors I watched seemed to take great pleasure in discovering this building's secrets for themselves. Is it, moreover, appropriate in a controlled campus setting to assume the users know generally where they are going?

Given the logic of this argument, however, it is unfortunate that those who suffer the most circuitous or unceremonial entrance are those who use the center every day. Students approaching from the north—where the other arts buildings are located—enter from "back stage," penetrating a formidable wall or, as the architect might prefer, walking all the way round via Orange Mall.

Yet this treatment of the drama wing as a back stage building follows the metaphor of central plaza as stage, and it therefore, like so many other aspects of this complex, represents a deliberate design decision that favors image and experience over use. You cannot cross that stage without feeling yourself for the moment an actor, and that flash of self-awareness is a unique experience on this campus of bland buildings and pleasant but poorly focused pedestrian malls. The stage-like quality is even conveyed in the stucco walls, which reminded one architecture professor of theater flats sanded down and awaiting paint for a new production. That impression should please Predock, as should the reaction of a sophomore who wrote "It was like a scene from *Raiders of the Lost Ark*. It was neat."

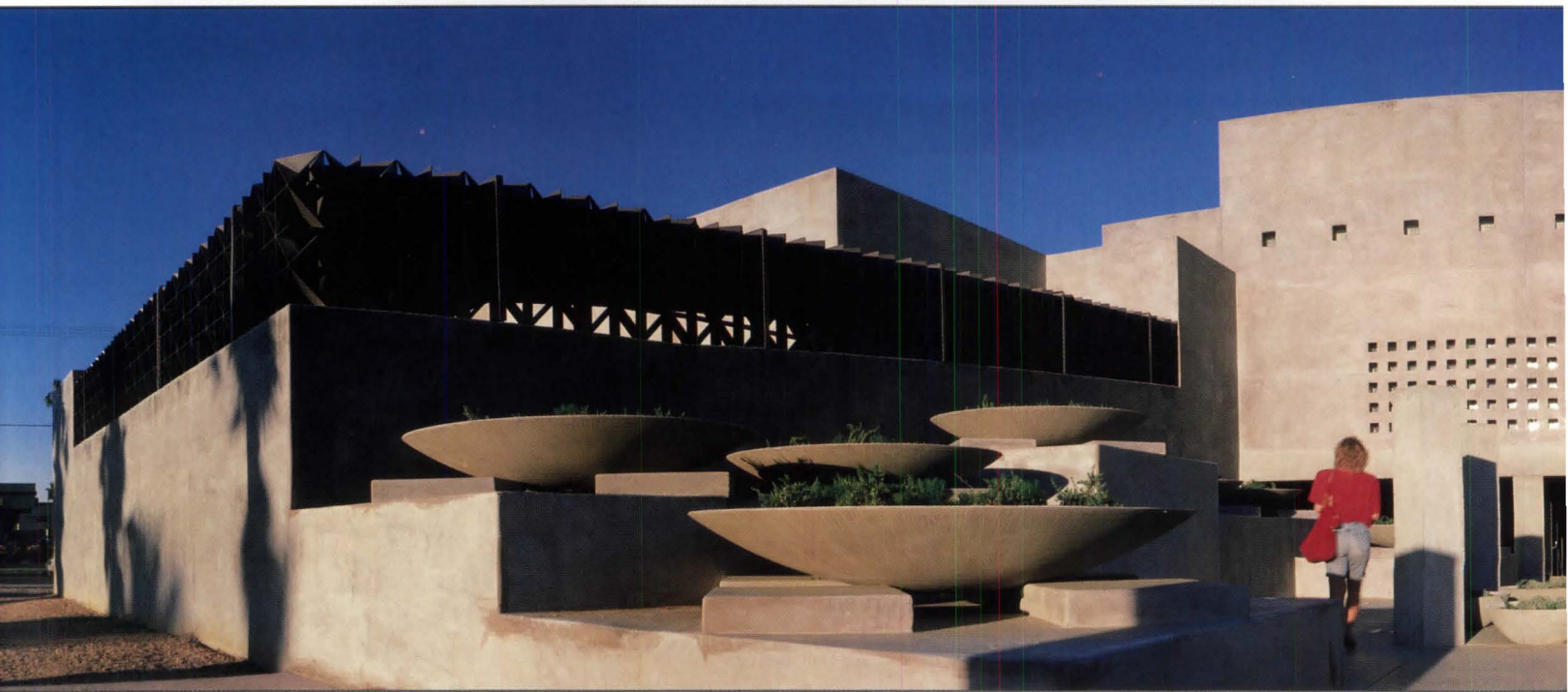
Daralice D. Boles

The sound of running water draws visitors down into the nymphaeum (facing page, top). Hot air rising to escape through the bleachers draws a cool breeze down the stairs into this magical hall of columns, which is surrounded by galleries and the museum lobby (facing page, bottom).



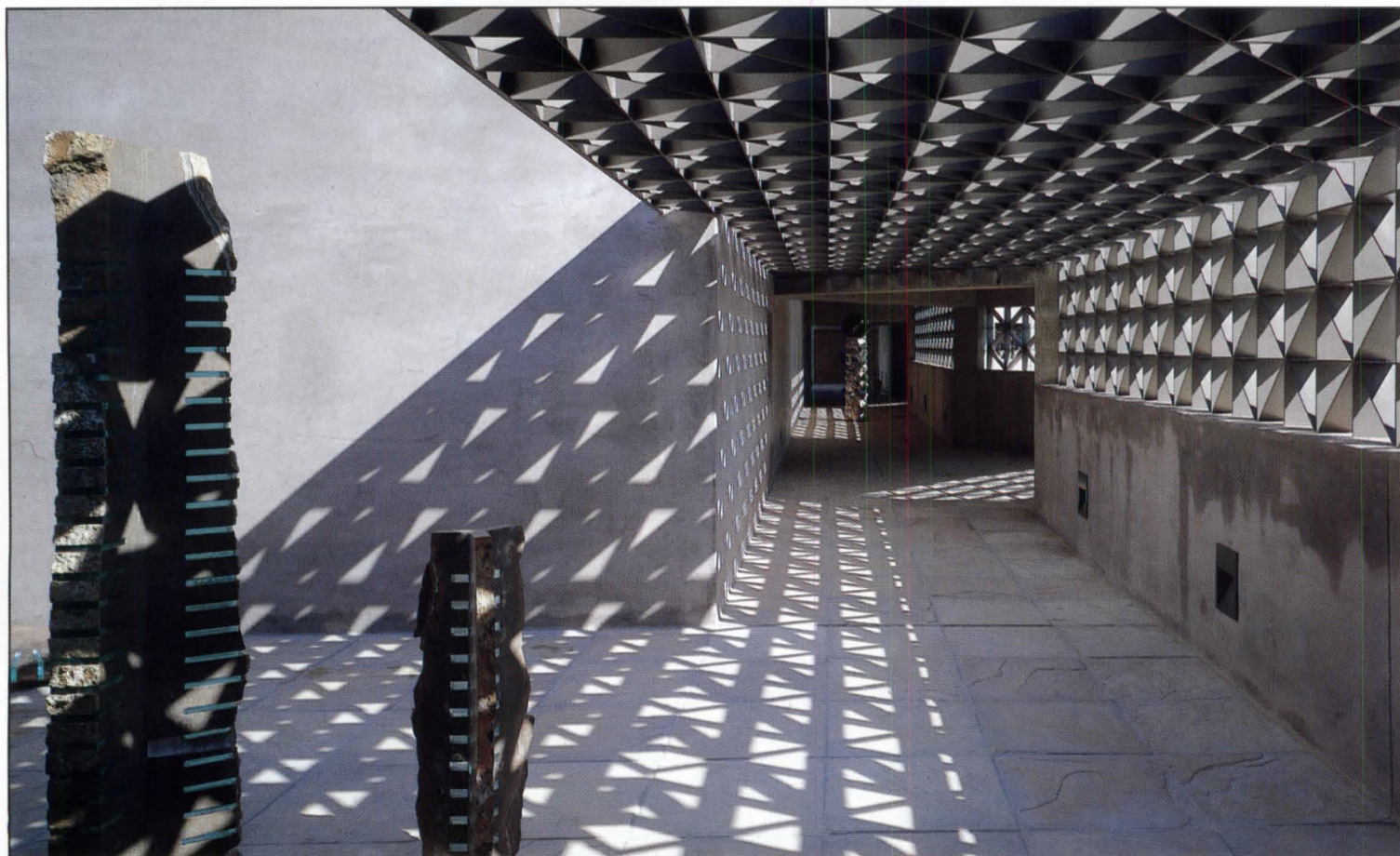
MUSEUM AXONOMETRIC





The center's processional sequence begins in the museum's entry court on Mill Avenue (above). Flat bowls modeled after those designed by Frank Lloyd Wright and planted with scented herbs or night-blooming jasmine establish an olfactory threshold. The sound of running water defines an auditory edge, reinforced by the sudden transition from bright sunlit plaza to dark breezeway.

Trellis-covered passages mediate between the climate-controlled galleries and outdoor sculpture courts, which occupy all four upper corners of the museum. The passage on the eastern edge of the museum (below) connects through gates to a continuous balcony surrounding the central plaza on three sides.





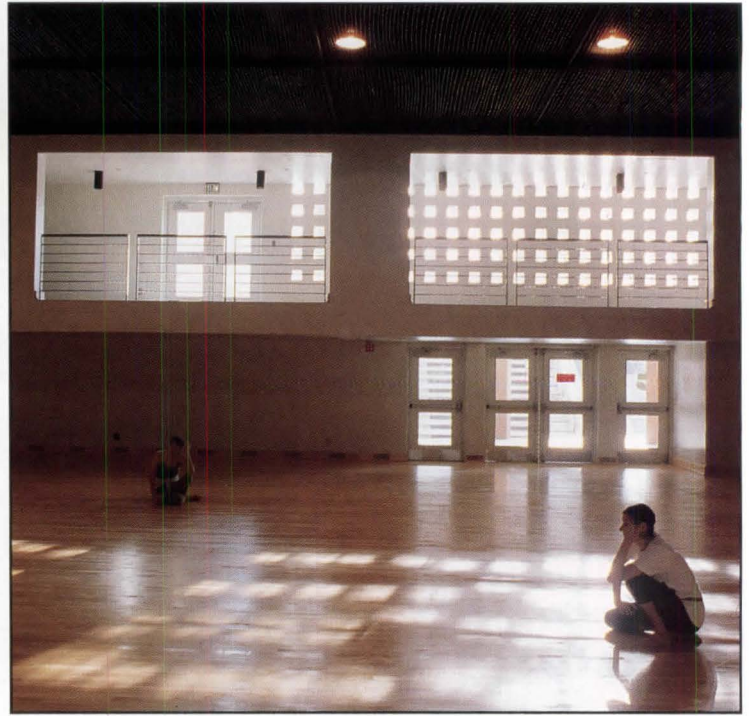
The twin American art galleries on the museum's second floor are lit by simple raised monitors that filter daylight (below).

The main changing exhibition space (below) is located directly over the main entrance from Mill Avenue and lit by a wall of punched openings (visible above, center). This passage has been filled regrettably with far more art than appears in this photograph. Vestibules leading to the outdoor sculpture courts are similarly overstocked, but future installations may be better edited.

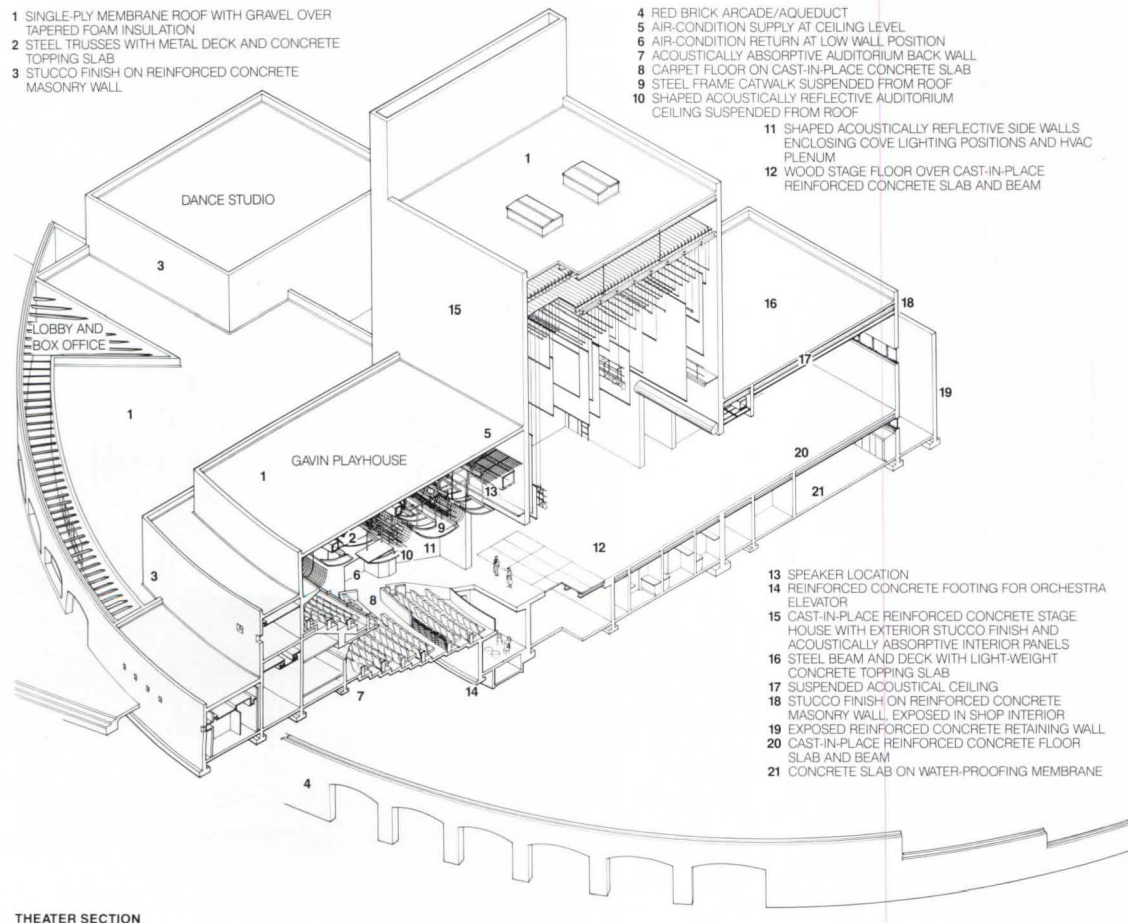




Passage from outdoors through the playhouse lobby into the inner auditorium is accomplished by a gradual gradation of color from light to dark that allows the eye to adjust. The auditorium itself (above) is flexible, with 150 of its 500 seats organized in balconies that can be closed for smaller productions. The seating is a hybrid of continental and aisle arrangements.



The dance studio/theater (above) opens directly to an outdoor stage that faces the bleachers in the central plaza, permitting performances to spill outdoors beneath a spectators' balcony. Viewed from the bridge connecting to the central elevator, the bleachers shape a magical mountain through which light and air penetrate (facing page). This, the heart of the Center, is its most memorable space.



Project: Arizona State University Fine Arts Center, Tempe, Arizona.
Architects: Antoine Predock Architect, Albuquerque, New Mexico (Antoine Predock, principal; Geoffrey Beebe, Jon Anderson, project architects; Ron Jacob, Tim Rohleder, John Fleming, Kevin Spence, project team).
Client: Arizona State University.
Site: 3.34 acres on campus.
Program: 49,700 sq ft art museum; 32,050 sq ft dance department; 39,260 sq ft theater complex; arts plaza; amphitheater.
Structural system: cast-in-place concrete slabs and cmu bearing walls.
Major materials: cement stucco, brick, steel, gypsum board, Arizona sandstone, maple, concrete (see *Building Materials*, p. 142).
Mechanical system: central plant.
Consultants: Antoine Predock, landscape design; James Abell, landscape consultant; Robin Parke, structural; Baltés Valentino, mechanical; E.B. Brown, security; John Von Szeliski, theater systems; Smith, Fause, acoustical and sound systems; Richard C. Peters, lighting.
General contractor: Westbrook.
Costs: \$13,936,837.
Photos: Timothy Hursley, The Arkansas Office.



Conspicuously for Consumption

To create a stop and shop design mecca in the nondescript heart of Los Angeles's industrial area, Michele Sae of Building resorts to sign language that puts the showcase on the road.



LOS ANGELES, of the ad hoc sprawl, is hardly a city you'd expect to encourage contextual thinking. Yet, in transforming a onetime plexiglass factory into the fourth flagship store of Design Express, Michele Sae drew on L.A.'s car culture and on the existing building's industrial origins to power his parti for the 40,000-square-foot retail furnishings outlet.

The 32-year-old architect faced a dual challenge: to create a container stylish enough to enhance displays of every size and configuration and to avoid overwhelming the goods contained. He also had to endow the store with sufficient street presence to lure in chance passersby—the lifeblood of retail success.

"One of the characteristics of L.A. is that everything is viewed from a moving car," Sae says. Accordingly, his new concrete, steel, and glass front, added on to the building's basically unaltered shell, is scaled to read like a billboard.

Capitalizing on an existing floor level raised 42

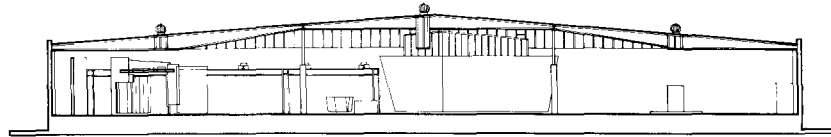


Roland Bishop

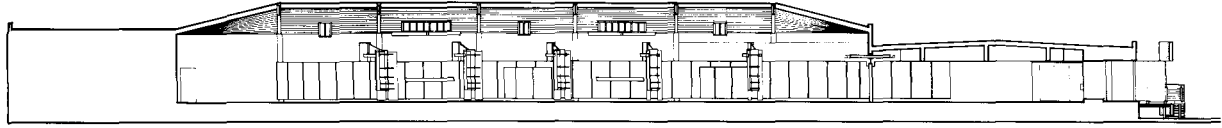


To distinguish the main entrance, Saeed gave the door a dramatic, three-dimensional presence on the façade (left). Rather than align the opening with the plane of the window wall, the architect placed the door's massive wood and steel wing at an angle, allowing a deep wedge of exterior space to invade the building. The door travels on a curved track, guided and steadied by a convex metal railing that bridges the wedge and penetrates the interior when the portal is open full swing. A secondary door (at left, photo below, and facing page) is tucked behind an attention-grabbing steel and glass vitrine.



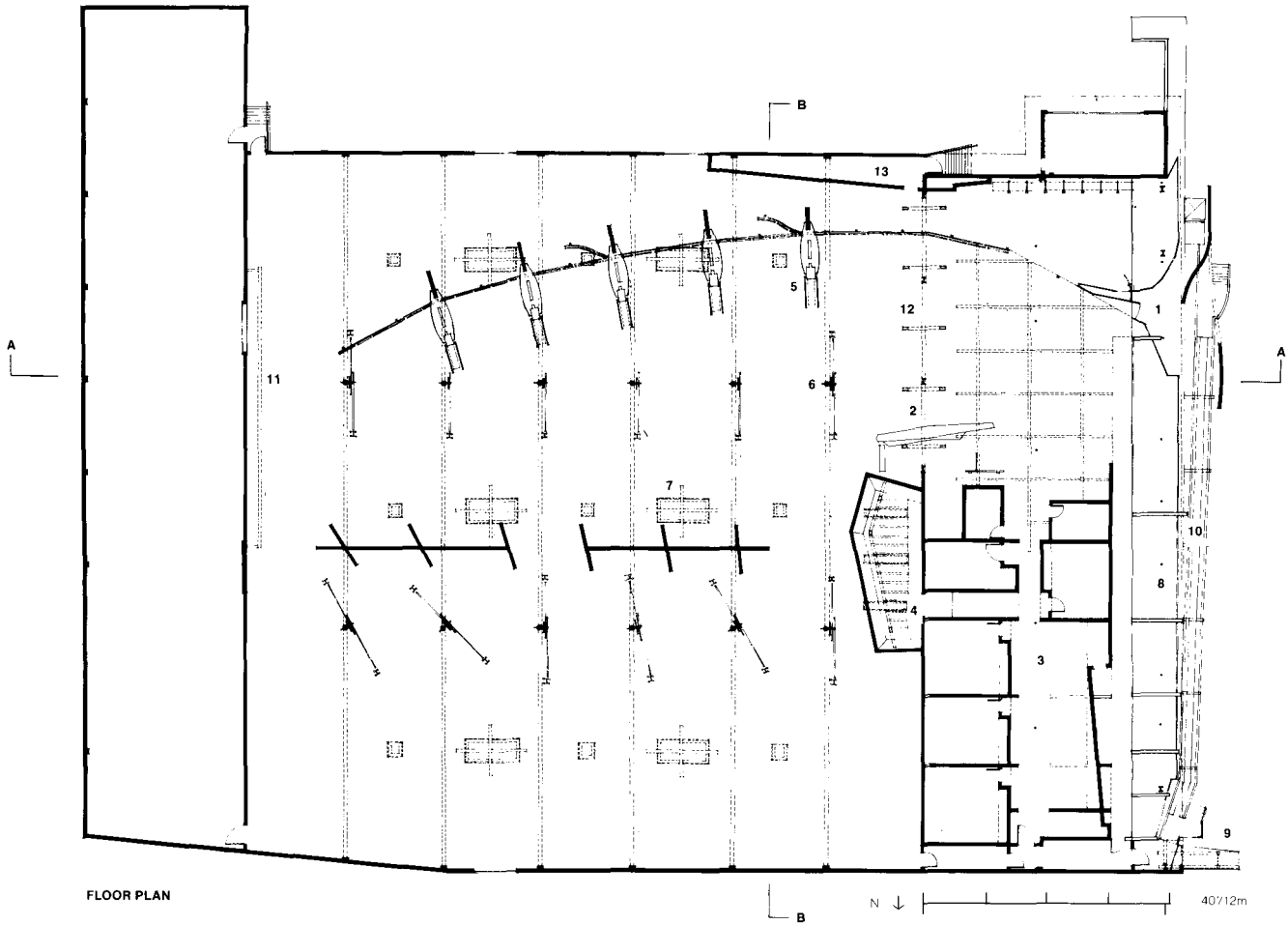


SECTION B-B



SECTION A-A

40/12m



FLOOR PLAN

40/12m

- 1 ENTRY
- 2 MAIN DESK
- 3 OFFICE DISPLAY
- 4 CONFERENCE ROOM
- 5 DISPLAY CASE
- 6 BOOM LIGHTS
- 7 SKYLIGHT
- 8 STOREFRONT DISPLAY
- 9 CORNER VITRINE
- 10 CATWALK
- 11 LIGHTING DISPLAY
- 12 BEAM LIGHTS
- 13 STORAGE

inches above grade (a residue of the former factory's loading dock requirements), Saeed formed an extended storefront that is visible above the roofs of parked cars to traffic passing on busy La Cienega Boulevard. At the south end of the elevation, he stressed the main entrance with an undulating, freestanding concrete frame; at the opposite end, he tucked a lesser entrance behind a protruding glass showcase, which struts the shop's stuff to Jefferson Boulevard and the railway tracks that skirt the north lot line. Between those two sculptural elements, Saeed stretched the store's neon-limned, metal-letter logo of his design, as well as a raised catwalk—the architect's wry allowance for pedestrian window shopping and a counterpoint to the façade's built-for-speed appeal.

An alumnus of Superstudio and Morphosis, Saeed was born in Iran, educated in England, and trained as an architect in Italy. He established Building, his independent practice, in 1985.

The architect's pragmatic brand of contex-

tualism, evident in his treatment of the building exterior and its relationship to the street, carries through to the interior. "Our design wanted to keep the building's industrial spirit," he explains. "It was a conscious decision to keep the structure intact—and make the building into what it should have been."

One example of such enhancement can be seen in the entrance foyer. Its ceiling followed the factory roof slope to unsettling effect, but it couldn't be covered since the sprinkler system had to remain exposed. To correct the ceiling's disquieting appearance, Saeed installed a perpendicular grid of drywall segments, which establishes a new and level plane. A more substantial change was made to the load-bearing wall that separated the front administrative portion of the erstwhile factory from the production halls: Saeed erected a post-and-beam scaffold and scooped away the wall. The scaffold's chief elements remain as a gritty steel gateway to the showroom beyond (right, top). Smaller compo-



nents of the support structure were salvaged and fashioned into “balancing beam” light fixtures.

In organizing the vast showroom space, Saeë resisted prescribing a procession. “I hate spaces that you walk into and are totally directed by architecture,” he says. “Especially in a showroom, you want to be left alone to make your own decisions.” With that browsing inclination in mind, the architect interfered only minimally, installing two partitions—one, a wood frame and drywall construction of solid planes intersected by skewed “fins,” the other a progression of glass and steel display cases strung along a curving plywood wall.

The resulting center and left aisles are devoted to the display of furniture ensembles, as well as individual pieces; the aisle screened by the plywood wall is given over to storage systems. Both partitions guide the view toward the showroom’s rear wall, where a drywall soffit functions as a lighting gallery to display sconces and hanging lamps.

The entire “open ground” created by Saeë’s min-

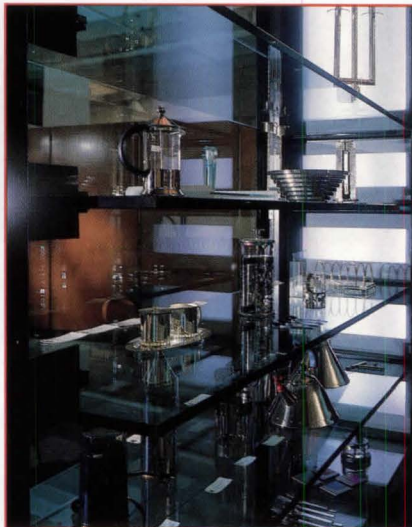
imal divisions is anchored by a streamlined, angular plywood desk, situated beneath the steel gateway—so that anyone manning it can be seen from every point in the store.

To boost the original building’s industrial aesthetic, Saeë used the existing system of columns and skylights as the foundation of his lighting strategy. The skylights are augmented with painted wood frame “cages,” whose translucent infills diffuse daylight. The cages and the cruciform beams suspended beneath them mitigate the hall’s 20-foot height so that shoppers “won’t be shocked” by its scale.

To the factory columns Saeë affixed slender steel rods, with paired incandescent fixtures at each end. These can be manipulated for effect: Raised, the booms provide graceful cadence and ambient light; lowered, they theatrically spotlight staged design vignettes.

The secret behind the showroom’s effectiveness is architecture that is responsive to the scale of

Steel fins (above) divide the glazed shopfront into uneven bays, which accommodate discrete window exhibits. The fins’ texture is derived from in-situ welding and grinding—processes Saeë chose to celebrate rather than hide. Electrical outlets in the concrete floor allow the vignettes to float free of the walls. The raw steel and concrete provide high-contrast foils for luxurious furniture. Each window exhibit is accessible from the store interior, thanks to a corridor Saeë designed along the façade. A cramped warren of offices was gutted to make way for more generous office display rooms. A post-and-beam scaffold forms a gateway to the showroom (top).



objects on display: Bold gestures, such as the steel gateway and sculptural partitions, make suitable frameworks for full-size furnishing scenarios; smaller exhibits benefit from the bay rhythm set up by the showroom's series of display cases. Decorative objects, such as the Alessi tabletop collection (top, left), are shown to advantage in these elaborate vitrines. The cases' machine-like appearance is no accident. They contribute to the overall "industrial spirit" the design team wished to preserve and could, Saeë explains, "substitute" for factory tooling that was removed.

And while machine imagery and "common" industrial materials may be the stuff of trend elsewhere, Saeë's use of lowly plywood (stained to resemble oxidized metal), welded steel, and rough concrete stucco is native to the context he is working in. "I hate intellectualizing architecture," he says. "I love metaphors—but they are not my sole inspiration. Architecture is about craft, about making things." *Ziva Freiman* ■

Mimetic imagery finds its place in the partition Saeë designed to set off the space devoted to displaying storage systems. These, in the home, are usually "behind the scenes." Accordingly, the architect treated the plywood surface to look like a backstage set (right) with exposed wiring, and even (serendipitous) industrial "graffiti," which he left intact. One leaf of the wall peels away, providing the connection to the rest of the showroom. By contrast, Saeë's fine-tuned detailing of the enclosed vitrines (top and above), built of plywood, steel, and plate glass, complements the refined wares exhibited within.

Project: Design Express, Los Angeles.
Designers: Building, Los Angeles (Michele Saeë, designer; Max Mascie, design assistant; Richard Lundquist, David Lindberg, Florence Lecher, John Scott, Sam Solhaug, Emiko Teragawa, design team).
Client: Design Express.
Site: 55,500-sq-ft lot in industrial area next to partly used railway.
Program: conversion of 40,000-sq-ft industrial building into store.
Major materials: see *Building Materials*, p. 142.
Consultants: Miguel Castillo & J.S. Chung, structural.
Contractor: Charles So Construction.
Costs: \$850,000.
Photos: Peter Cook, except as noted.



PRESENTING IDEAS

The media and methods used to present a design to a client have become more varied and their meaning, more complex. And they, themselves, have become a way of exploring design ideas.



1 LTV Tower, Dallas. Architects: Skidmore, Owings & Merrill, Houston. Illustrators: Stephan Hoffpauir and Joyce Rosner, Houston. Media: Watercolor wash.

“THE content of any medium,” said Marshall McLuhan, “blinds us to (its) character”—a blindness to which the architectural community is especially prone. We often become so focused on a design that we fail to consider the appropriateness of its presentation.

Not that we lack the information to do so; there are many—almost too many—books on presentation techniques, offering useful tips on how to handle particular rendering media or model-building tools. What we lack is a thorough understanding of the relationship between design ideas and presentation methods, how each one affects and is affected by the other.

The Right Medium

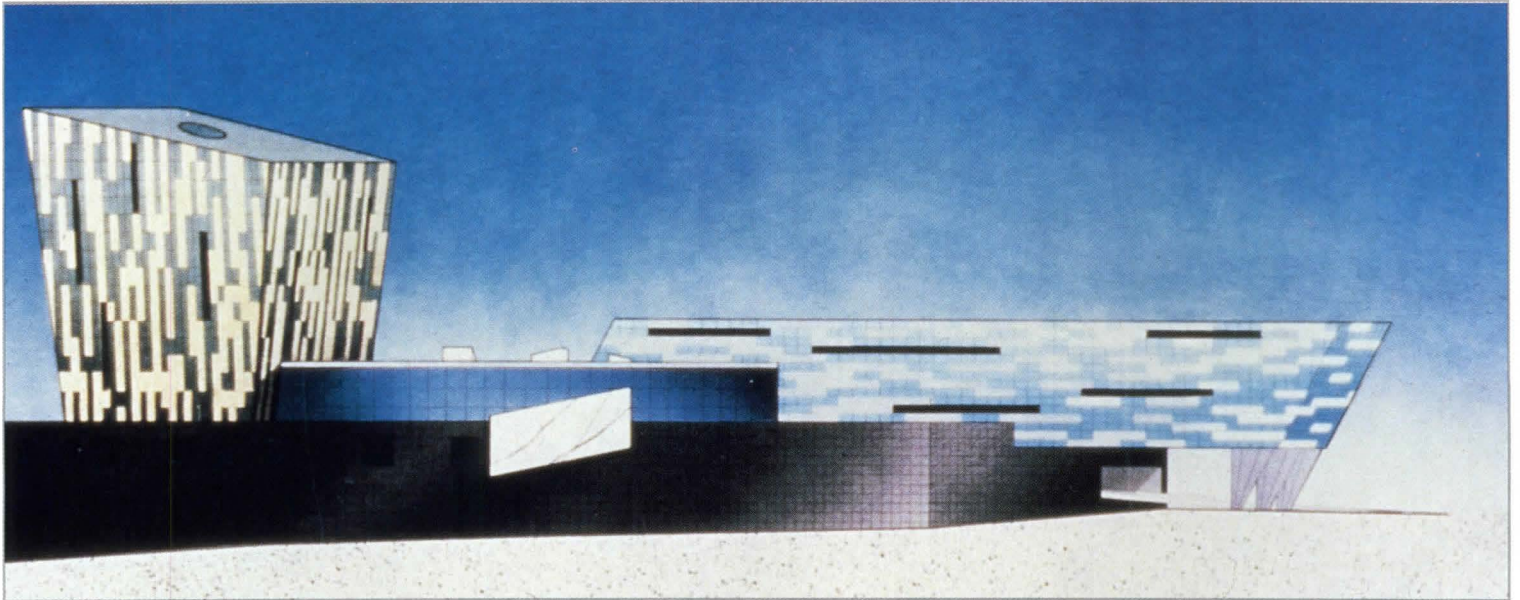
Impeding that understanding have been the long-held assumptions that an idea must precede its representation and that every medium has its ideal application. In architecture, for example, ink line drawings were traditionally considered ideal for showing a building’s form and contours, shaded pencil drawings for showing its surface finish and textures, watercolor washes for showing its color and shadows, plain cardboard models for showing its mass and volumes.

Such relationships between the media and the message, of course, still obtain. But in our post-McLuhan world, the situation now seems much more complex. It is no longer possible, for example, to insist that the representation always follows the idea. “It is a two-way effect,” says architect and renderer Paul Stevenson Oles. “Does Beaux Arts architecture look the way it does,” he asks, “because it was rendered in watercolor wash, or was that presentation technique adopted because it showed the necessary aspects of the architecture? I suspect it was a little of both.” That two-way effect certainly seems born out in the experience of others. “Our use of watercolor,” says architect Tony Atkin, “has affected our use of color and light in our work. In some buildings, we will even match those colors that looked good in the wash.”

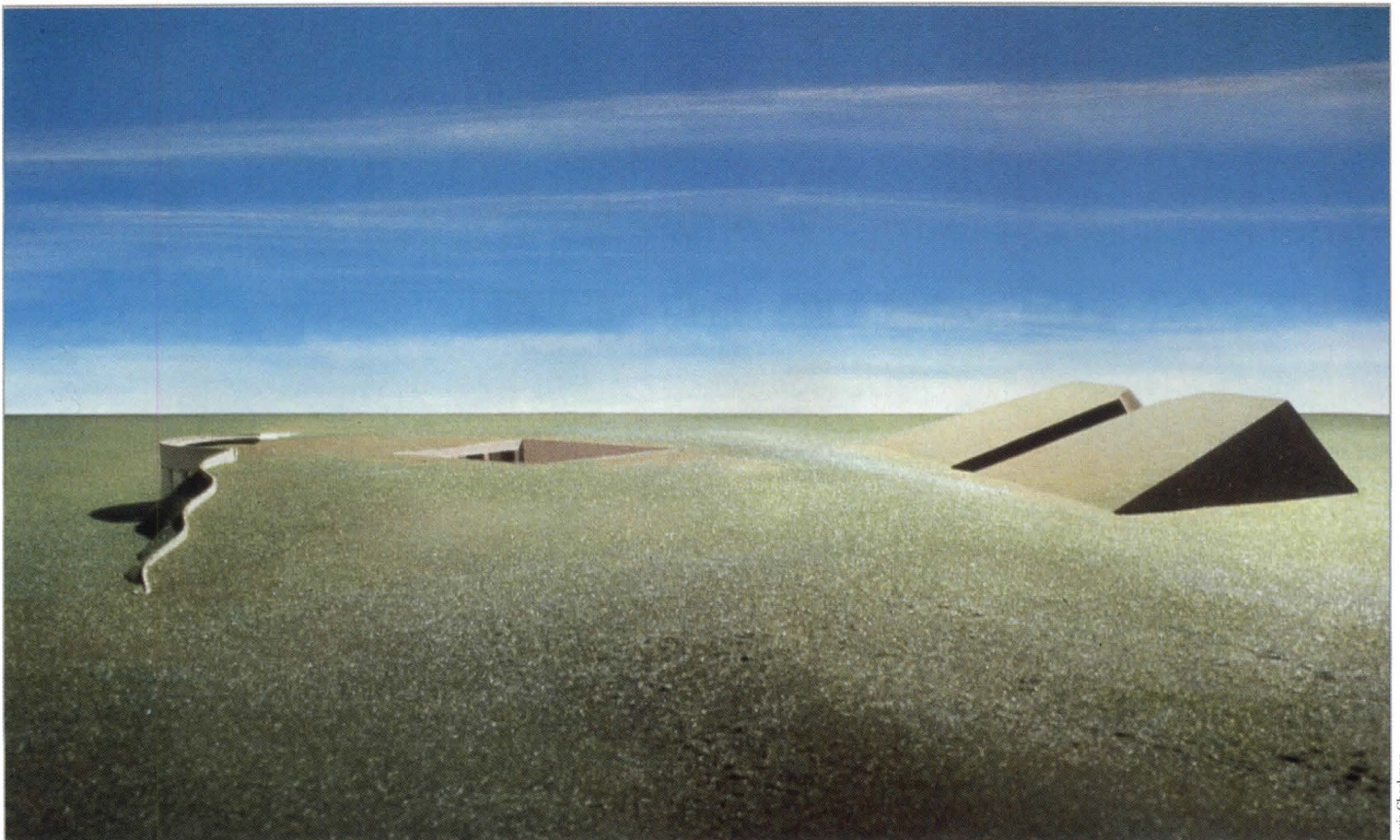
Nor is it possible to insist that every application has its ideal medium. Colored pencil, a medium that has been revived in recent years, is now commonly used to create shimmering fields of color, invading the traditional domain of watercolor, itself a medium recently rediscovered. New technology also is breaking down the media monopolies. The marriage of computer graphics and video, for

SURREALISM

Characterized by a dream-like quality, surrealist presentations either eliminate the actual context to emphasize the sculptural or poetic aspects of a building (2, 3) or use various graphic devices as metaphors for a project's idea or organization (1). Favorite rendering techniques include airbrush or wash; models are often painted.



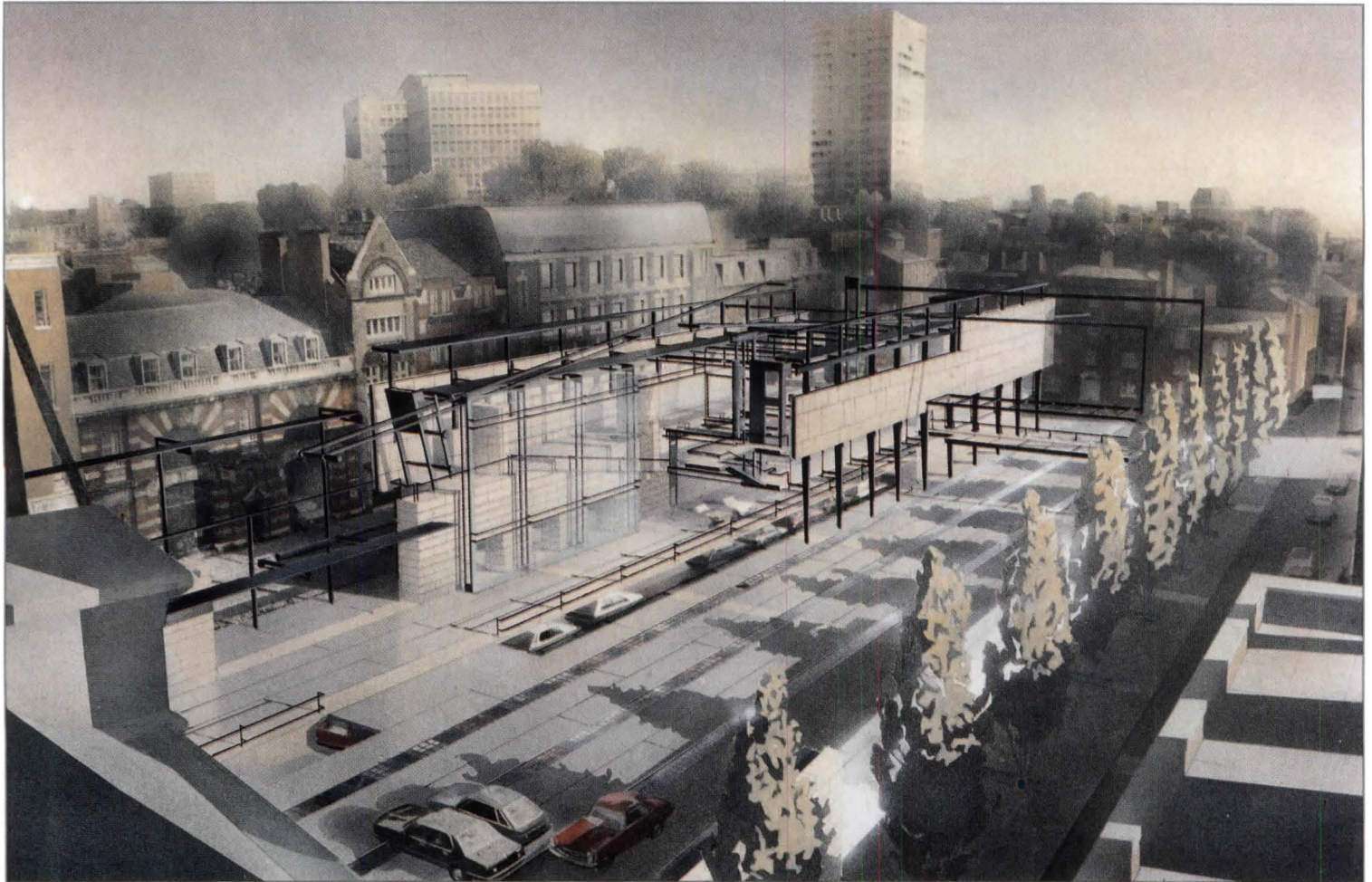
2 *The Center for Innovative Technology, Herndon, Va.* Architects and illustrators: *Arquitectonica International Corporation, Coral Gables, Fla.*
Media: *Airbrushed gouache.*



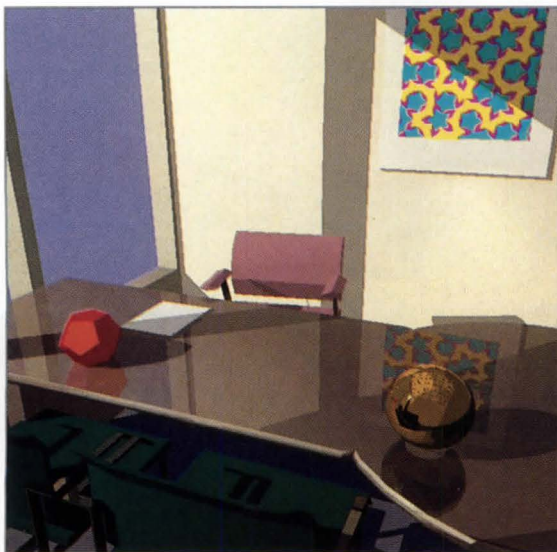
3 *Project for Leo Castelli residence, Northeast, U.S.* Architects: *Emilio Ambasz & Associates, New York.* Model builder: *Daniel Trupiano.* Media: *Acrylic.*

SUPER - REALISM

An almost photographic quality distinguishes this presentation work. The techniques vary from airbrush to computer ray-tracing, and particular attention is paid to the transparency of materials (4), the reflections of surfaces (5), the play of shadows (6), and the quality of light (7)—all of which seem especially important to the buildings represented.



4 Project for a Museum, London. Architect and illustrator: D.C. Paine, Boston. Media: Airbrushed gouache.



5 Office Interior. Architects: Hellmuth, Obata & Kassabaum, St. Louis. Illustrators: HOK Animation, St. Louis. Media: Computer-generated ray-traced image.



6 Project for Warden's House, Alcatraz, Calif. Architects and illustrators: Holt Hinshaw Pfau Jones, Architecture, San Francisco. Media: Ink with dot screen overlays.



Katsuhiko Oshima

7 Competition entry for Kansai Airport, Osaka, Japan. Architects: Cesar Pelli & Associates, New Haven. Modelbuilder: Nishimihon, Osaka, Japan. Media: Acrylic.

example, has begun to rival even the most detailed models in simulating the three-dimensional character of a proposed project. At the same time, the overlay of computer graphics and photography has begun to replace various types of rendering in depicting a project in its actual setting.

While some renderers worry about the competition from computers—"I definitely see computers replacing what I do in five years," says architect and renderer Donald Paine—others discount its threat: "Computers offer no advantage over hand-rendering except time," says Oles. Even some computer consultants are skeptical of the usefulness of the computer as a replacement for hand-rendering. "A rendering doesn't model reality," notes Nicholas Weingarten, an architect and computer consultant. "It aims to describe an image, which requires distorting reality. It is much harder to lie with a computer."

Whether or not they become the dominant presentation tool, computers have begun to alter the handling of traditional media. Many firms report using computers to lay out perspectives before they are hand-rendered. Modelmaking, too, has been affected. Some of the biggest model shops are using computer-driven lasers to cut out

materials, which are then assembled and printed or covered with paper by hand. Such handwork, while not always the most efficient, is often desired for the warmth that it gives a presentation, suggesting that even the most sophisticated computer graphics may have a limited use.

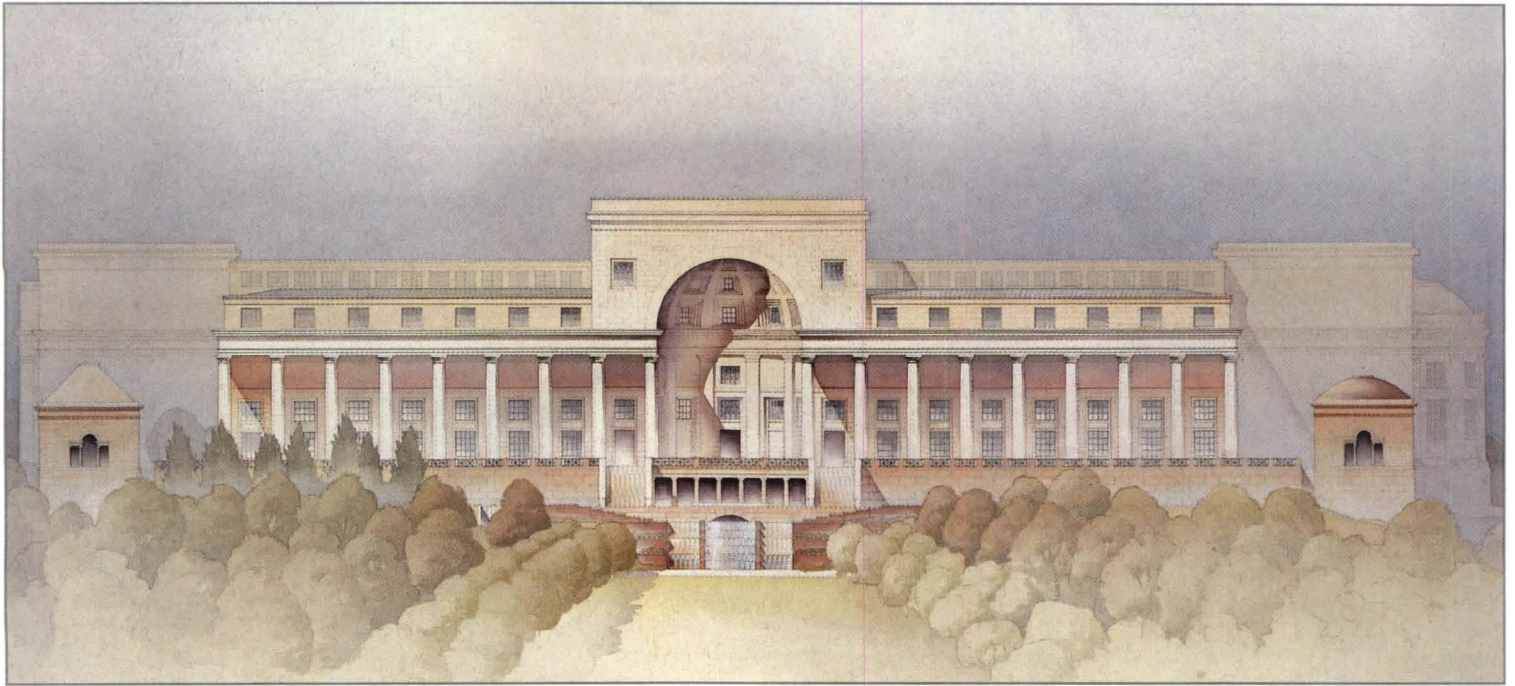
Presentation Methods

Another long-held assumption involves our perception of the physical world. It was once thought indisputable that a framed perspective of clearly-delineated forms most closely matched the way we see. But that view has come under attack from at least two directions, both of which pertain to the representation of architecture.

Take the question of what we see. Beginning with some groundbreaking experiments on perception in the 19th Century (which greatly influenced the Impressionist and Pointillist painters) and continuing up to the present with the work of perceptual psychologists and fractal geometers, we now know that the visual (let alone the physical) boundaries among things are much less distinct or certain than we once thought. "We don't perceive a line as a line," observes

REALISM

In realistic presentations, the medium itself has a considerable presence so that one is always aware of looking at a representation of a project rather than the real thing. The best work takes advantage of each medium's inherent qualities, be it the transparent color of wash (8) or the shimmering effect of shading with colored pencil (9), the crisp blackness of a lead pencil (11) or the soft grayness of a wax-based pencil (12), the simplified pattern or solid mass of an acrylic or wood model (10).



8 Competition entry for Brooklyn Museum Masterplan, Brooklyn, N.Y. Architects: Atkin Voith & Associates, Rothzeit Kaiserman Thomson & Bee, Goldman Sokolow & Copeland, John Milnor Associates. Illustrators: Tony Atkin & Associates, Architects, Philadelphia. Media: Watercolor wash.

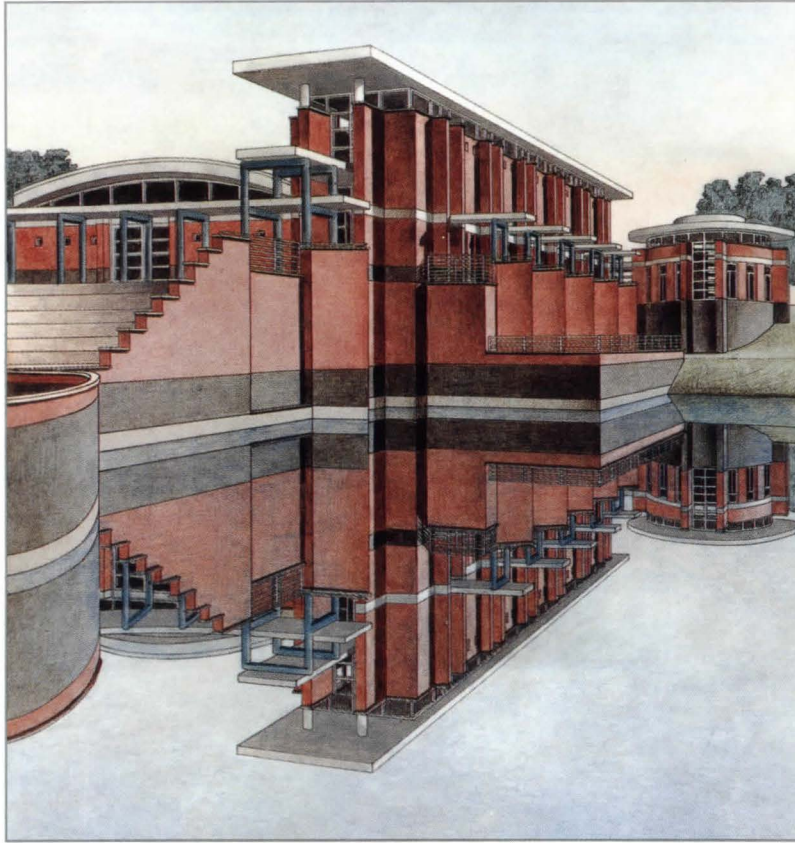
Oles, "but as a series of points or retinal firings." Oles's own rough-textured pencil drawings, as well as some airbrush or watercolor work, seem to reflect these ideas.

Or take the way we perceive forms in space. Once dominant, the single-station-point perspective is now seen as only one of several approximations of how we view the world. "Perspective," notes architect Brian Healy, "is a device inherited from the Renaissance. It has become the norm (in presenting a design), but it does not necessarily equate with reality." Here too, perceptual psychologists, along with physicists and even art historians have shown that our perception and memory of objects is at once more dynamic and more conceptual than what the standard perspective allows. First explored visually in the work of Cubists and Futurists, this notion has affected architectural representation in various ways. The fragmentation of a drawing into a number of images, whether as isolated vignettes or as a dense collage, seems related to current thinking about our perception of objects as a collection of details or selectively focused views. And drawings and models that abstract a project in some way, emphasizing, say, its color or plan organization, also seem related to theories

about perception as a bringing of order to what we see.

Which is not to say that traditional perspective renderings or realistic models do not have their place. Because they are the norm, those presentation tools are invaluable in helping clients understand projects. "Clients typically want to see presentations that are representational," admits Ralph Johnson of Perkins & Will, which, like many firms, produces one set of realistic perspective drawings for the client and another set of more abstract, diagrammatic drawings for publication. Some firms strike this balance with a representational model and more abstract drawings. "The model is there to comfort the client," says Marc Hinshaw of Holt Hinshaw Pfau Jones, "so that the drawings can reach for a higher level of understanding about a project. It is like a one-two punch."

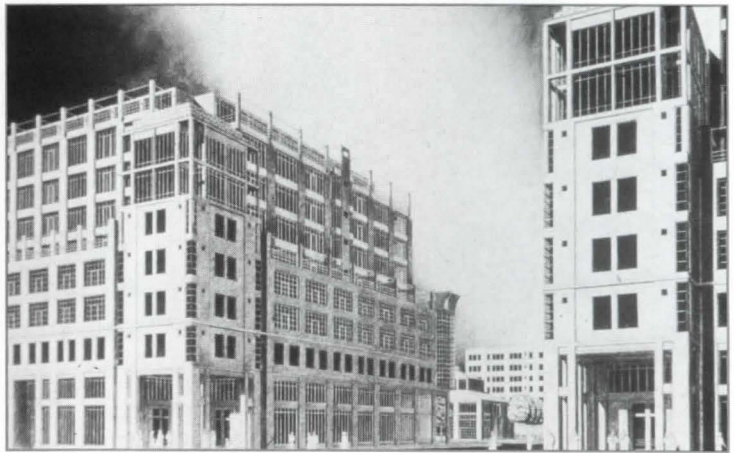
The selection of one type of presentation method over another, however, involves more than such pragmatic client concerns. "Any medium," said McLuhan, "has the power of imposing its own assumptions on the unwary," and so it is with any presentation method. Each carries with it a set of assumptions that may or may not coincide with the intent of a design. A perspective drawing, for instance,



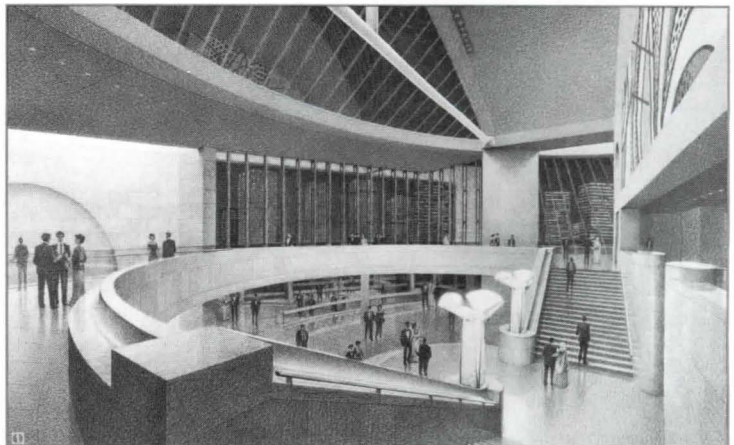
9 Orland Park Village Hall/Civic Center, Orland Park, Ill. Architects and illustrators: Perkins & Will, Chicago. Media: Colored pencil.



10 Bond Building, Sydney, Australia. Architects: Kohn Pedersen Fox Associates, New York. Modelbuilders: Awad Architectural Models. Media: Acrylic.



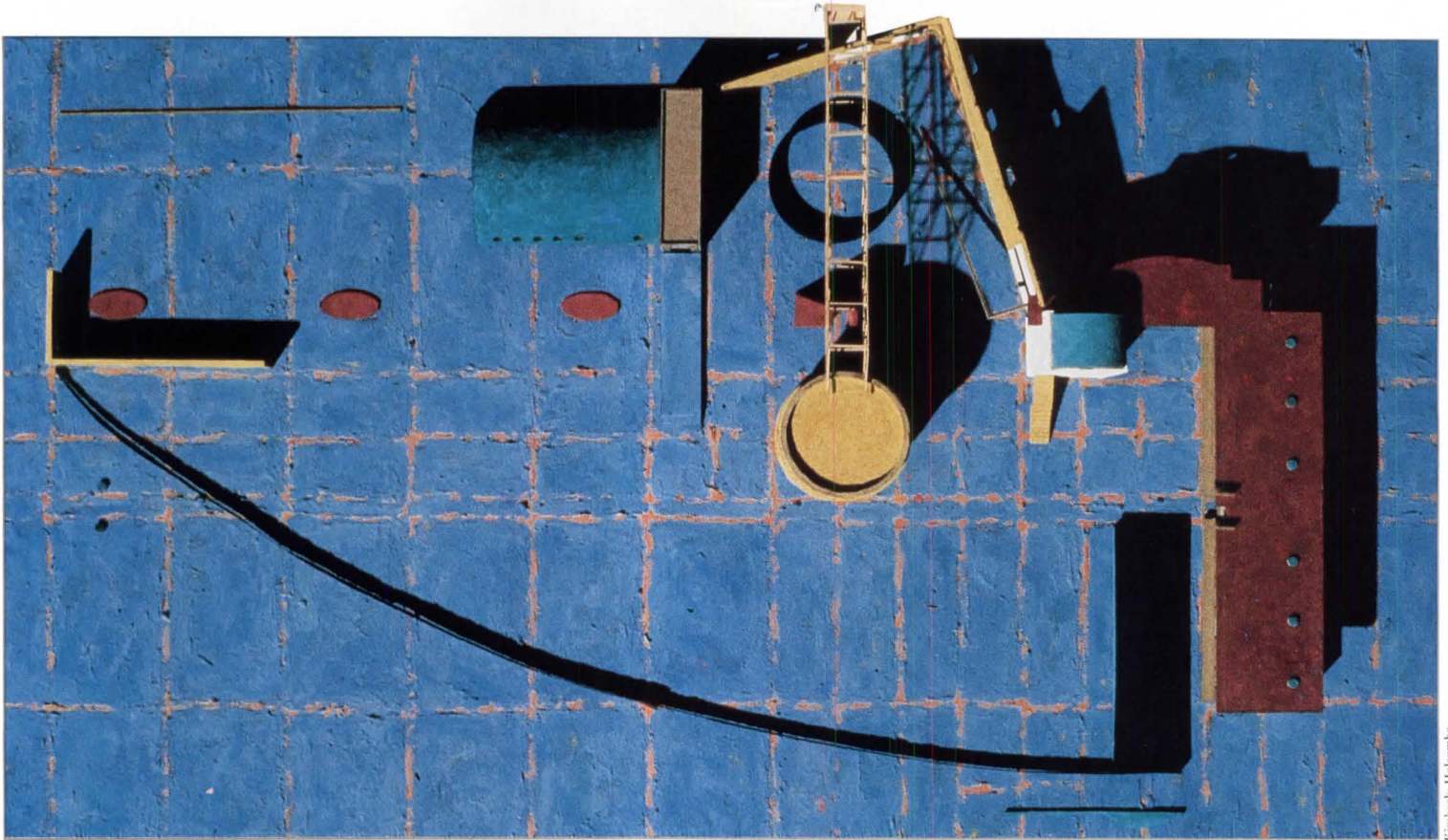
11 Project for Miller Park District, Chattanooga, Tenn. Architects: Koetter, Kim & Associates, Boston. Illustrator: Brian Andrews. Media: Lead pencil.



12 Lobby of Dallas Symphony Hall, Dallas. Architects: I.M. Pei & Partners, New York. Illustrators: Paul Stevenson Oles, Newton, Mass. Media: Black Prismacolor pencil.

MINIMALISM

Minimalist presentations, often of Modernist buildings, reduce the number of media, using only bronze, for example, in a model (14) or inked shadows in a drawing (16). This work also abstracts and simplifies an image, using gesso and dry pigments, for instance, to represent the organization of a plan (13), Pantone on a computer-generated perspective to highlight a planar composition (15), or Pantone marker on the back of a photocopied drawing to suggest color (17).



13 House, South Dartmouth, Mass. Architects and illustrators: Brian Healy Architects & Associates, Boston. Media: Gesso and dry pigment, wood.

suggests a concern with user response and the experiential qualities of a project; oblique or axonometric drawings, with compositional, organizational, or other formal questions. A plain cardboard model suggests a concern with the space or mass of a project, a realistic model, with its materials. Misunderstood, a presentation method can undercut the best design.

The method with which presentation drawings or models are developed also says a lot about design philosophy. Some architectural firms farm out this work to professional renderers or model shops; such "outside consultants," says Gail LaCava of Kohn Pedersen Fox Associates, "know their business and can get the work done more quickly." The implication here is that architecture is about the making of a product, of which the presentation materials are just one part. Other firms object to the separation of presentations from the act of designing, a view based upon the idea that the process of architecture counts as much as the end result. "When drawings and models are produced in-house," says Harold Gildstein of SOM, "they become more of a design tool." The very idea of presentation drawings repels some designers. "Such drawings," says architect Peter

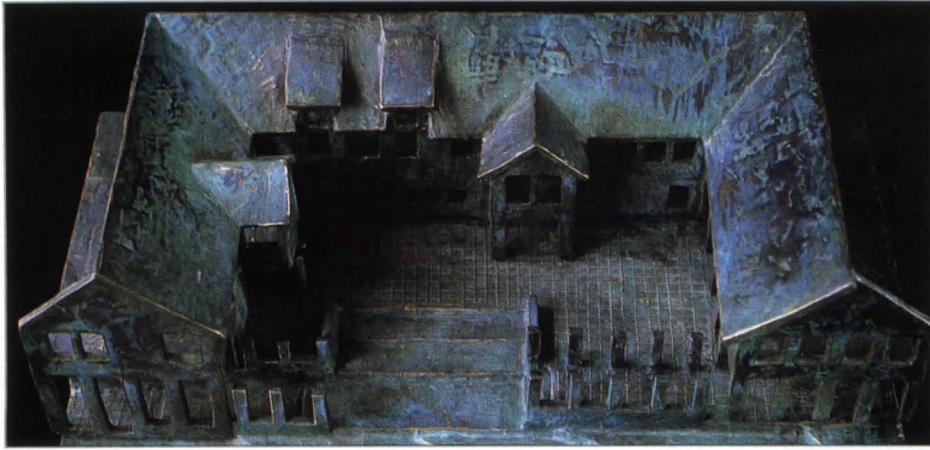
Forbes, "can become an end in themselves, rather than what they should be: a means to building."

The rise of architectural galleries seems to reinforce that last point. Such places have an obvious appeal; in some cases, architects have made more money from selling their drawings or models than they have from the client's fees. These galleries also reflect a growing public interest in architecture and a growing respect for presentation materials. But the speed with which some final drawings make it to a gallery wall suggests that they are increasingly being done, at least in part, with that in mind.

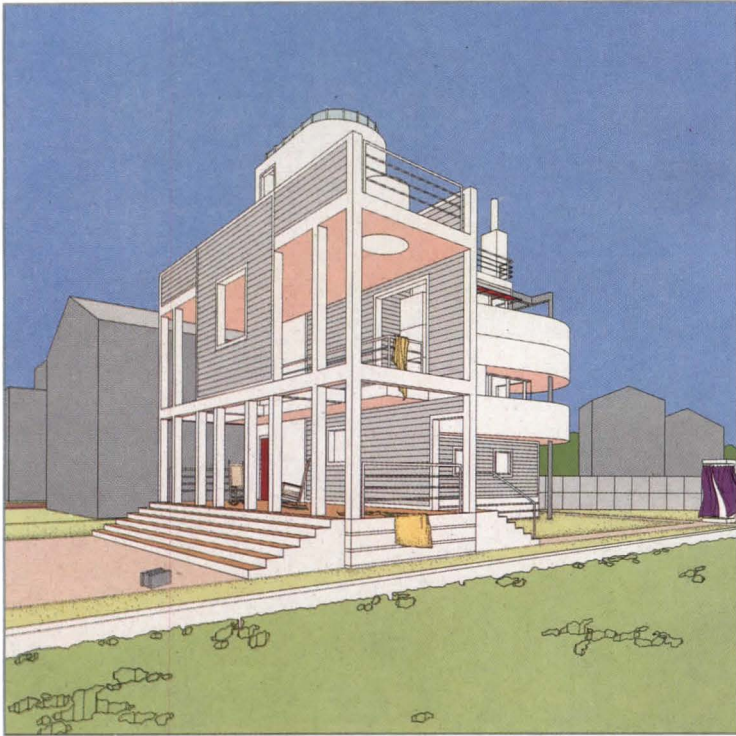
Presentation Art

The images on these pages show that renderers and model-makers, both inside offices and out, have not only become extremely skillful in their various media, but they have begun to explore aesthetic concepts that relate to and sometimes extend current architectural thinking.

Various forms of Realism and Minimalism seem to be the two most common aesthetics. Both employ a wide range of media—drawings



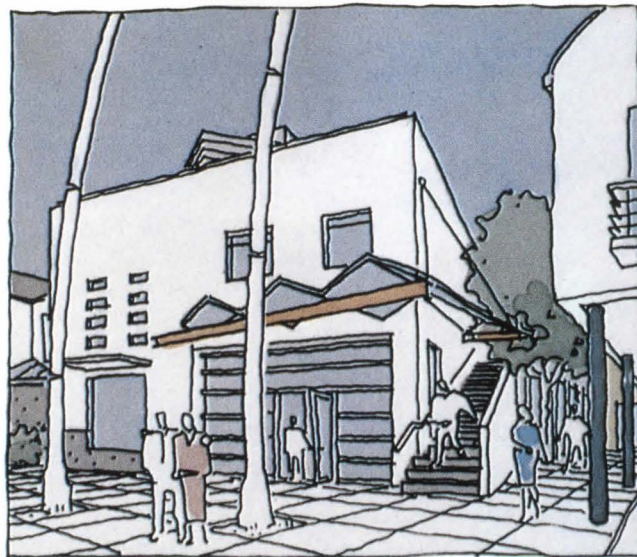
14 Student Center, University of California, Santa Cruz. Architects and modelbuilders: Fernau & Hartman, Berkeley, Calif. Media: Bronze.



15 Project for house, Seaside, Fla. Architect: Anthony Ames. Illustrators: Alan Brown, Clark Tefft. Media: Pantone on computer-generated perspective.



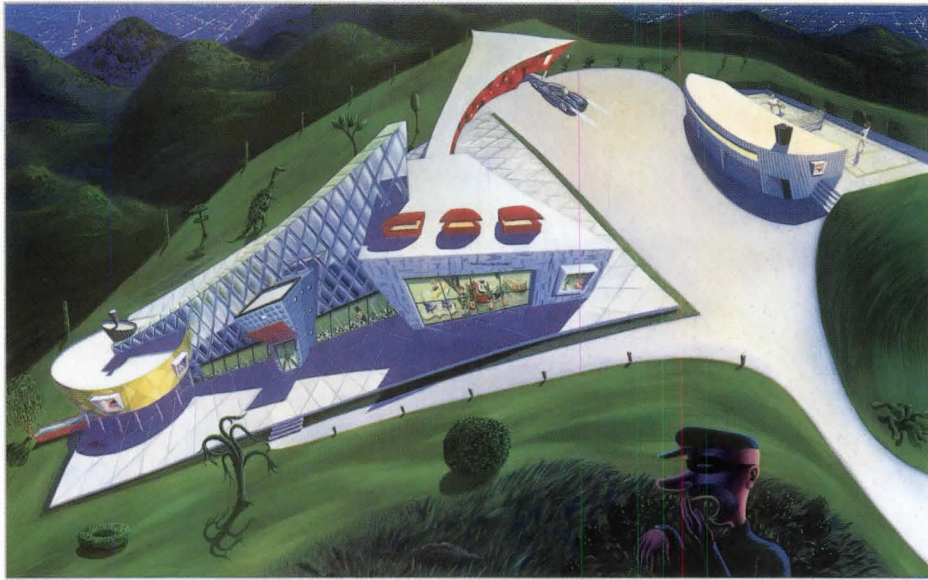
16 Orland Park Village Hall/Civic Center, Orland Park, Ill. Architects and illustrators: Perkins & Will, Chicago. Media: Ink.



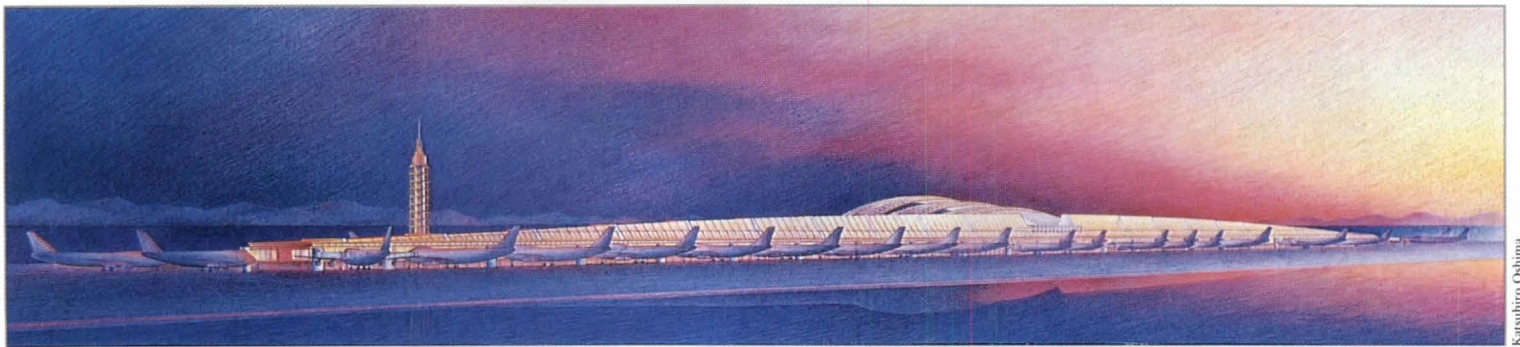
17 Ken Edwards Center for Community Services, Santa Monica, Calif. Architects and illustrators: Koning Eizenberg, Architecture, Santa Monica, Calif. Media: Pantone marker on the back of a photoreproduction of a felt-tip pen drawing.

EXPRESSIONISM

Relatively rare among architectural presentations, expressionistic work exaggerates some aspects of a building or setting to convey its spirit or emotional effect. Perspective is often distorted (18) and colors are often intense (19). While not essential, such presentations work best with buildings that are, themselves, exaggerated in some way or that seek a strong response from their users.



18 *Project for a house, Los Angeles.* Architects: *Kammer Associates, Los Angeles.*
Illustrator: *Georgianne Deen, Los Angeles.* Media: *Gouache.*



19 *Competition entry for Kansai Airport, Osaka, Japan.* Architects: *Cesar Pelli & Associates, New Haven.* Illustrator: *Jon Pickard.* Media: *Pastel and colored pencil.*

in graphite, ink, watercolor, or paint; models in cardboard, paper, or metal—and the architecture that they illustrate is widely divergent. Realism and historicist buildings tend to go together, not surprising considering the value both place upon popular communication and artistic conventions. Also as one might expect, the Minimalist presentations tend to illustrate architecture that itself is minimal in form and material, such as Neo-Modern or Rationalist work.

A strain of Super-realism also emerges in this presentation material. This work uses a narrower range of media, such as airbrushed paint or ray-traced computer images. And like Super-realistic paintings, with their attraction to reflective surfaces and machine-made materials, it often illustrates buildings that are themselves highly polished or mechanistic.

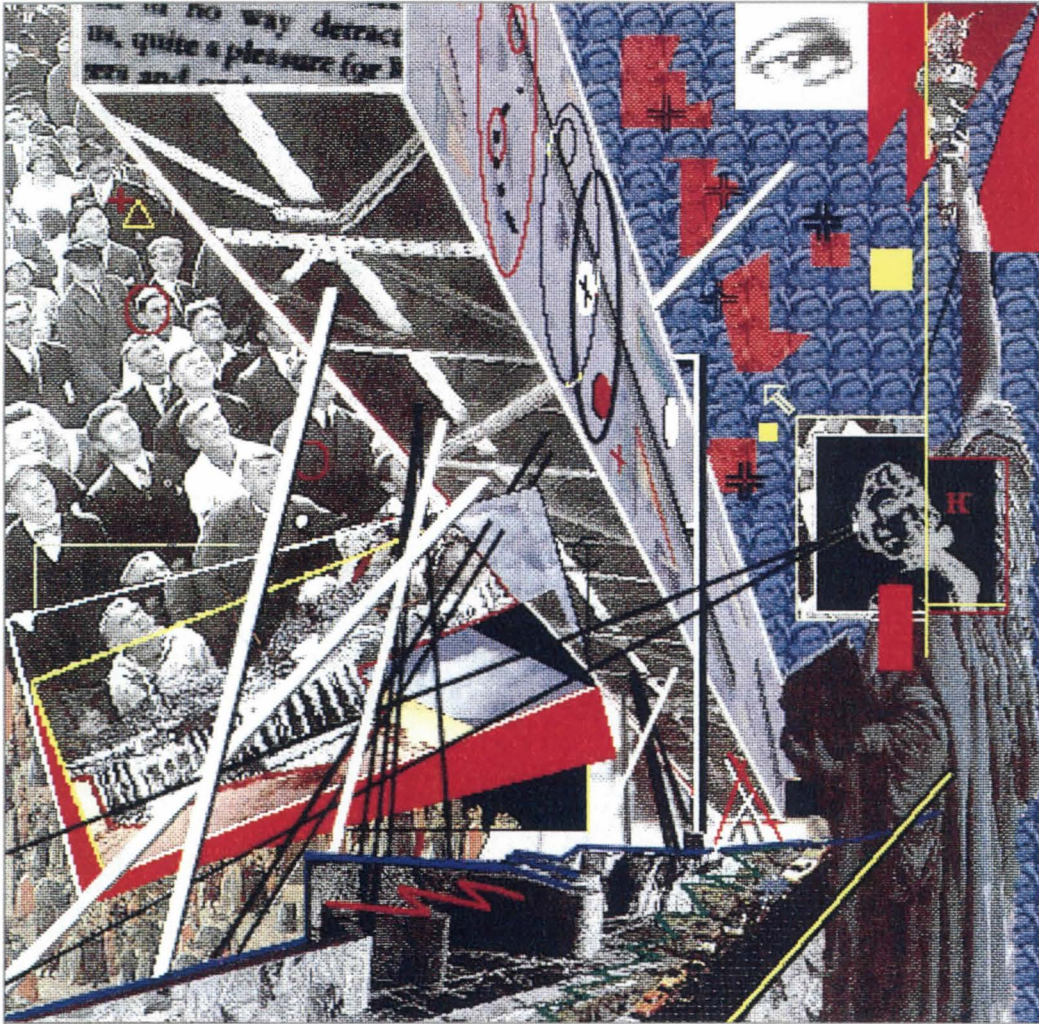
Another small, but impressive body of work explores Surrealistic ideas, with most of it rendered in watercolor wash or depicted in realistic models. These presentations sometimes isolate a project in an otherworldly landscape as if in a dream, and at other times allow odd elements to intrude upon or surround the main image as if to comment upon it.

Forms of Expressionism and Cubism, too, have found their way into presentations. The Expressionist work, using media such as paint or pastels, typically exaggerates either the form or setting of buildings, many of which also seem to play upon ideas of formal distortion or spatial drama. The Cubist presentations, in contrast, almost always represent Deconstructivist buildings in an eclectic mix of media, such as models that combine metal, acrylic, and wire, or drawings that mix computer paint programs and digitized photographs or videotapes.

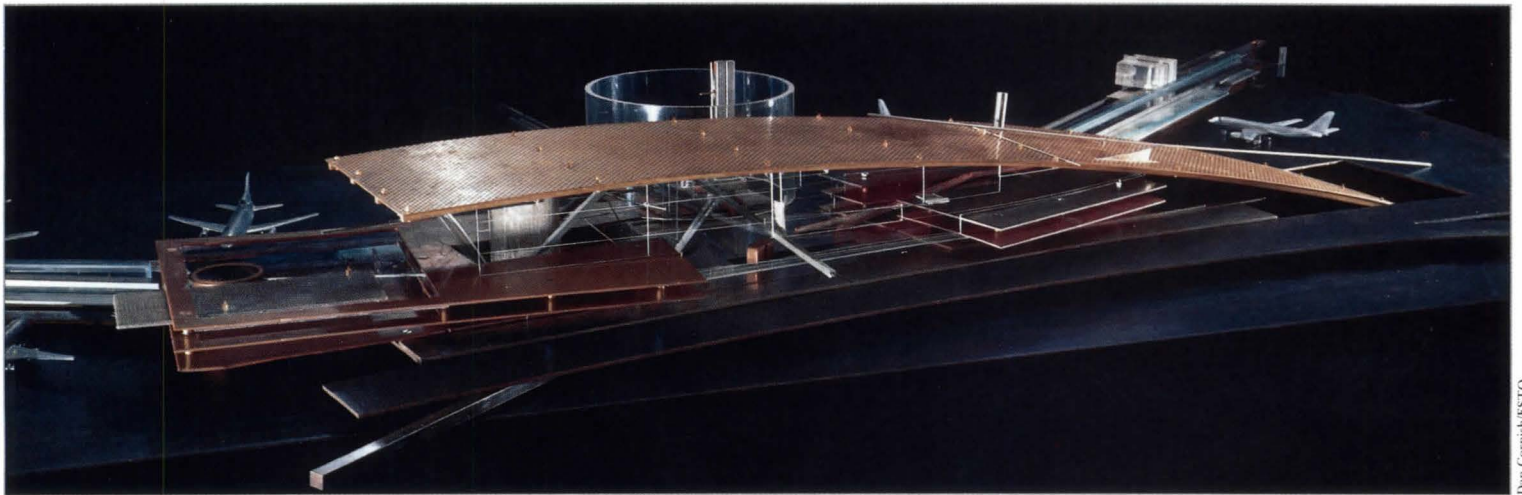
It is telling that presentation materials discussed in this article seem to fall more comfortably within the categories of art history than within those of architecture, for it suggests that such material is not just a communication tool, but an art form with all of the complexity and subtlety that that entails. "Our conventional response to all media," said McLuhan, "is (to ask) how they are used." In the case of presentation media, we also must ask why they are used and what they mean. **Thomas Fisher** ■

CUBISM

In this category, architectural presentation comes the closest to becoming pure art. The images are often barely representational, and the media, like the buildings, involve a collage of elements, such as the overlay of computer graphics and photography in a perspective (20) or the juxtaposition of various acrylic and metal parts in a schematic model (21).

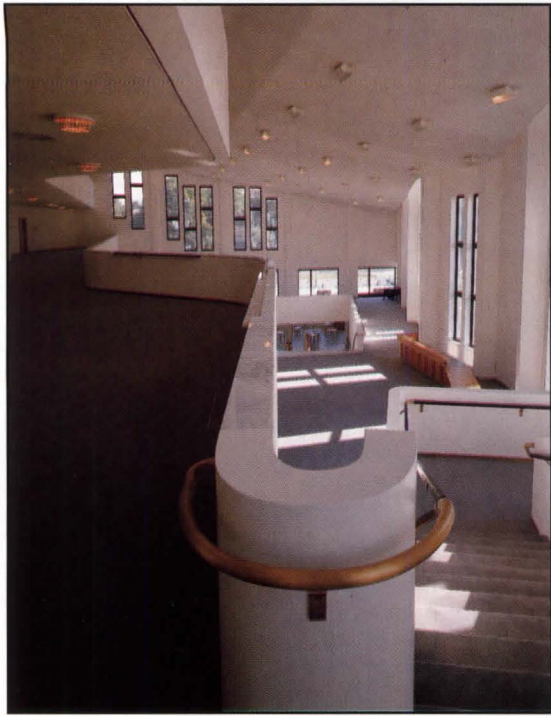


20 *City Edge project, Berlin.* Architect: Daniel Libeskind, Milan, Italy. Illustrator: Daniel Libeskind working with Image Network, Coral Gables, Fla. Media: Photographic and computer-generated images.



21 *Competition entry for the consolidated terminal of American and Northwest Airlines, JFK Airport, New York.* Architects and modelbuilders: Leibowitz/Ellerbe Becket, New York. Media: Metal, acrylic.

Aalto Theater



Klaus Frahm

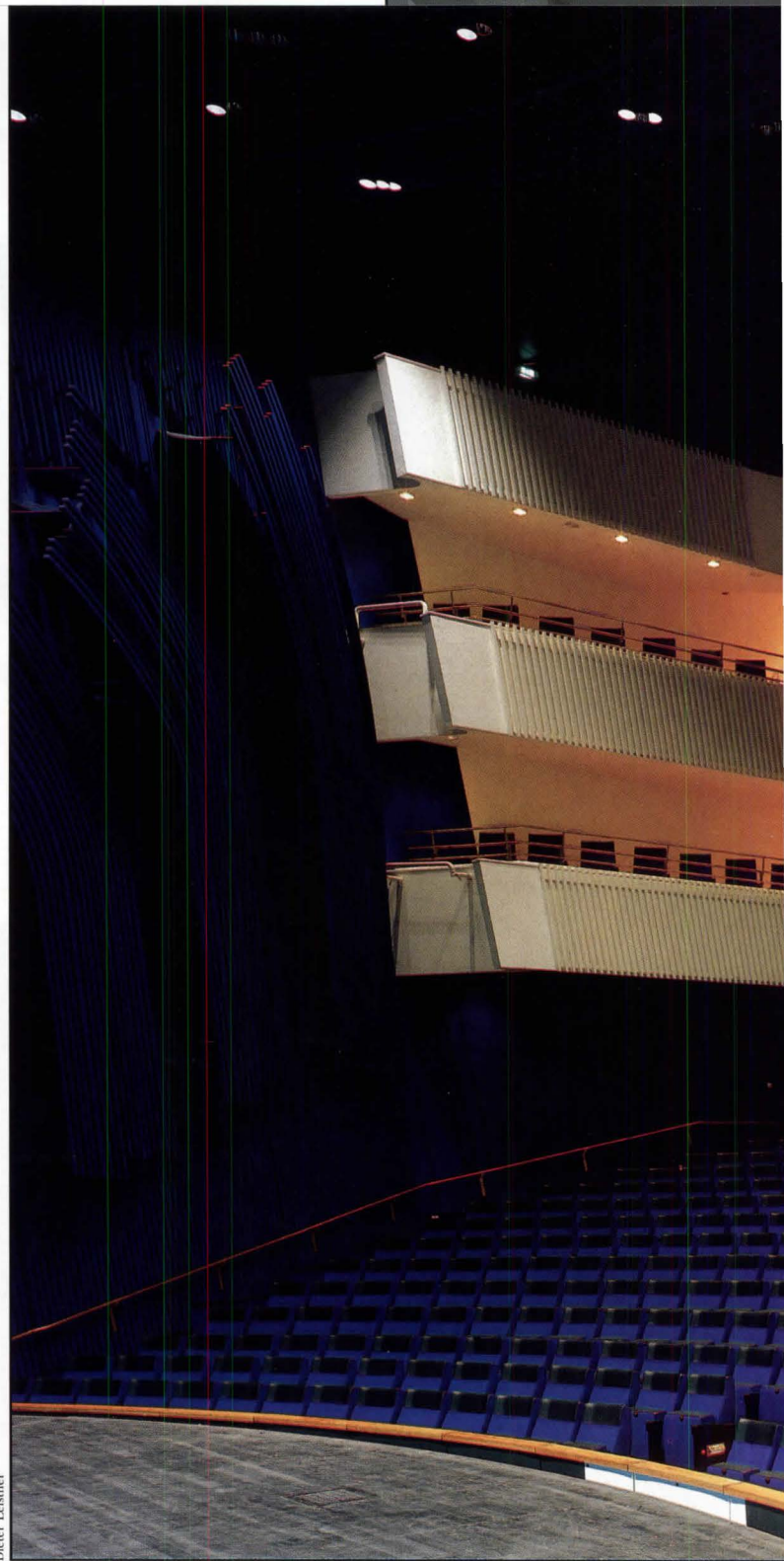
lamps, leather couches, and curving wooden banquettes are seen in the theater's major public spaces. Aalto's particular sensitivity to surfaces is evoked in such details as the bronze handrails wrapped in strips of leather and the interior entrance doors to the theater, which are upholstered in woven Chinese horsehair.

Yet on other levels of architectural detailing, the building suffers. The arrangement of the exterior Sardinian gray granite cladding was unskillfully handled; because of a failure to match adjacent panels by color, the façade does not appear lively and variegated but blotchy. When one recalls projects in Finland that display Aalto's love of custom made windows, the basic dark aluminum windows used in Essen are especially disappointing.

Behind the scenes, the numerous administrative and technical offices and spaces are organized along long corridors which run completely around the theater on the upper levels. These uncomfortable hallways are finished with white painted concrete walls and gray rubber floors, creating an uninspiring atmosphere for workers. One only wishes that some of the magic of Aalto's materials and interior spaces would have also appeared in these important spaces that are hidden from public view.

For any posthumous work of architecture, one question persists: Can a building whose construction was begun several years after its master architect's death be authentic? Clearly, any work of great architecture is a collaboration between an architect with a particular vision and his or her like-minded staff, who make innumerable decisions in the process of design and construction. It is unfortunate that Aalto's still extant office in Helsinki was not commissioned to be more integrally involved in this project, as its contribution could have brought the project closer to the theater Aalto had envisioned for post-war Essen. **Mary Pepchinski** ■

The author, an architect working in West Germany, writes frequently for P/A.



Dieter Leistner

The bronze handrails of the lobby stairs (top left) are wrapped in leather. The theater (above) is surprisingly intimate given its 1125-seat capacity. The startling deep blue interior appears in Aalto's 1959 competition proposal. The topmost of the three balconies was retained from Aalto's design as technical space after problems with capacity and fire codes prevented it from being used for seating. The tall, thin shafts of wood on the theater walls were seen in Aalto's drawings, but whether he would have painted them the same color as the wall behind is debatable.

Project: Aalto Theater, Essen, West Germany.

Architects: Alvar Aalto, design; Harald Deilmann, design development and construction drawings; Thomas Deilmann, project manager; Elissa Aalto, design supervision and furnishings.

Client: Gemeinnützige Theater-gesellschaft mbH, Essen.

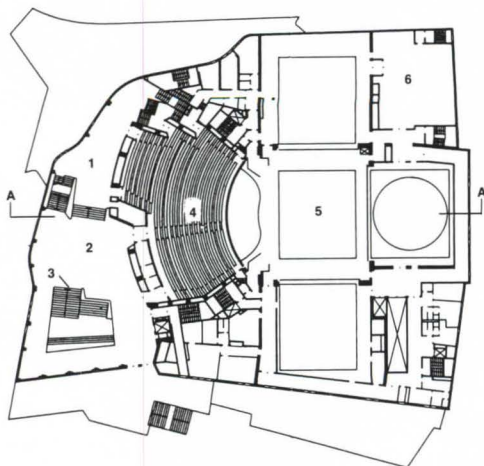
Site: A park in central Essen.

Program: 1125-seat theater, offices, cafeteria, parking garage.

Major materials: granite cladding, copper roof, wood floors, Carrara marble lobby.

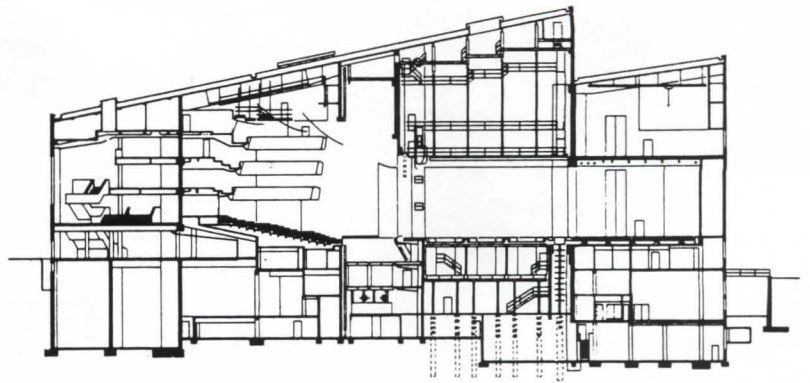
Consultants: Horst R. Grun, consultant for building physics; H. Stredich & Partner, electrical; Muller BBM GmbH, acoustics.

Costs: \$71,280,000.



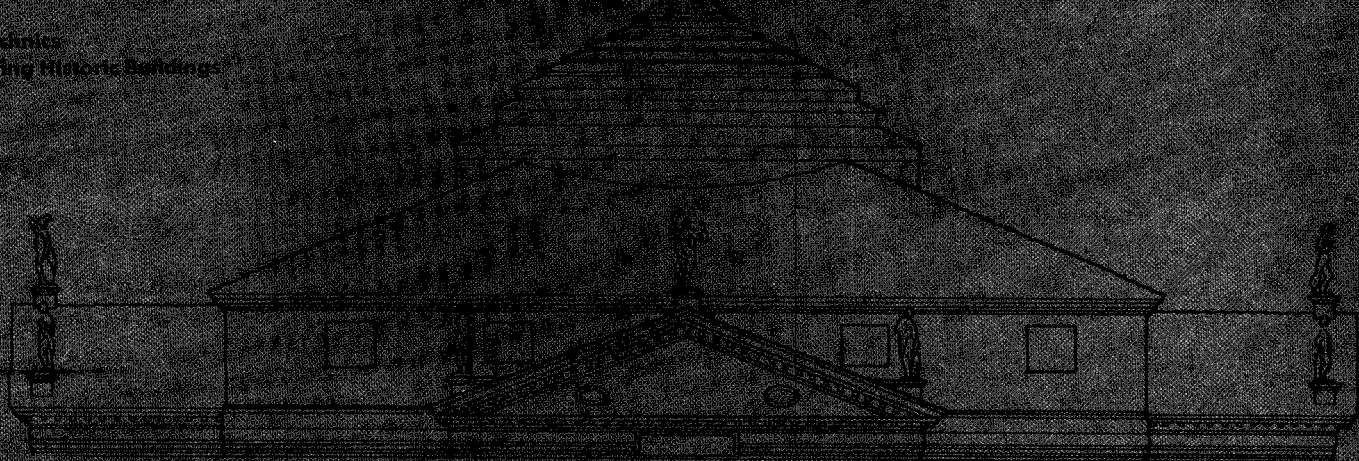
ORCHESTRA LEVEL PLAN N ↑ 100/30m

- 1 UPPER LOBBY
- 2 LOWER LOBBY
- 3 STAIRS TO GARDEROBE SPACE
- 4 ORCHESTRA LEVEL SEATING
- 5 STAGE
- 6 STORAGE



SECTION A-A

100/30m



PA Technics Historic Reroofing

Putting a new roof on a historic building first requires a discovery of old materials and techniques.

REROOFING a historically significant building is similar to reroofing any other building in that the goal is to make the building watertight. Yet the challenge of working within the constraints of an existing building is magnified by the necessity of replicating historic accuracy. Still, one must recognize that the ideal situation—to restore a building in strict accordance with period materials and installation techniques—is just that, an ideal.

The time period reflected in the restoration may not be the period of original construction but may be influenced by later uses or noteworthy events that occurred in the building. Economics may also be influential in making this choice; the removal of later additions, for example, may cause sufficient loss of rentable space to make the project economically unsound if it is planned for commercial use.

Historic research is then done to determine what the building looked like during the chosen period. In addition to collecting fundamental materials such as contemporary photographs and documents, on-site investigation is imperative. His investigation must determine the source of leaks, and if any unearthen clues that will identify historic materials and installation methods.

Also important is the condition of the substrate, framing, and structure. After years of weather and temperature changes, these hidden parts of the building usually have undergone a considerable amount and need extensive repair before the roof can be replaced. For this reason, it is absolutely necessary to remove an area of the waterproofing membrane and examine the substructure.

Not until architects know what exists can they begin to design the replacement work. Two schools of thought prevail here. Some designers maintain that the historic accuracy of the restoration is paramount. Not only should the membrane materials accurately reflect those used on the original roof, but the roof configuration and framing materials must also be exact. Others believe that one should adapt modern technology to the historic building and that it is only necessary to retain the historic appearance.

To provide historic accuracy, the study of old product catalogs and construction trade manuals is helpful in understanding the materials and techniques used. A knowledge of local traditions and

building practices is also required.

Sometimes designers must decide whether to add new elements. Many historic buildings, for example, were erected without overhangs or eaves. A history of water pouring off the roof has damaged the walls and justify a break from tradition. Also, investigation of the building may reveal the original roofing system to be defective. And since roofs will inevitably fail, the architect may choose to use in areas where little or no maintenance is likely to occur alternative materials that are more durable and will withstand wear and tear better than the historic ones.

Pragmatics will sometimes inhibit the use of historic materials. Modern building codes, for example, may prohibit use of historical roofing materials, or the availability of such materials in the needed quantity or dimensions may be limited. In general, however, historic materials can be found—for a price. At times, then, high-cost overhangs a short-term solution, reroofing the building until sufficient funds are available for the permanent restoration.

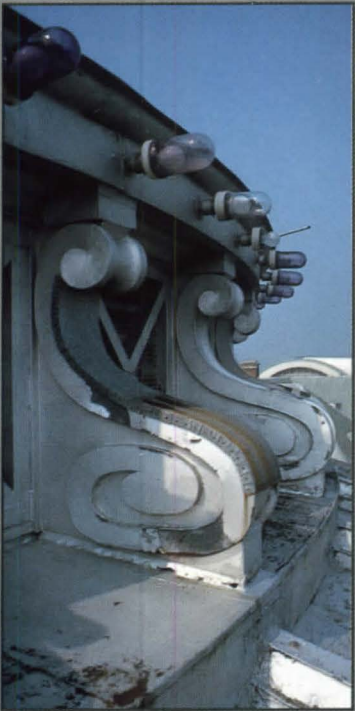
One should also consider that the environment within which the historic material is being used to survive may have greatly changed since the building was constructed. Thought must be given to dealing with roof penetrations—plumbing vents, antennas, or air conditioners—that would not have existed during the time period. Not only do these need to be worked into the fabric of the design, but careful consideration must be given to flashing these penetrations to avoid leaks. And in the corrosive urban environment, where it has to do with copper roofing and attachments, possibly copper is still available for roofing, and a material painted to look like copper may be a preferred solution.

Similar, but More Watertight

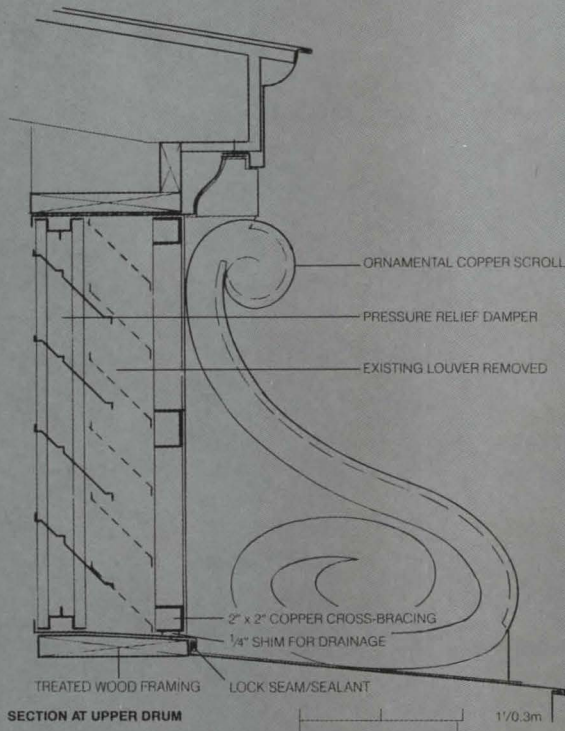
Modern technology will also have an effect on the design of the historic roof. Metal flashing can be used at intersections of roof deck and vertical walls and at ridges to waterproof areas that, if done to strict historical accuracy, would invariably leak. The modern material can be suitably disguised to look similar but provide better protection for the building. So the importance of using the historically accurate material must be weighed against the



Russell Phillips

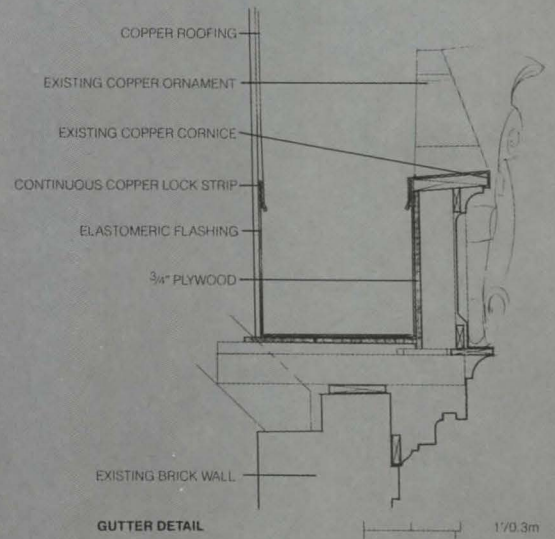


Walker Johnson



SECTION AT UPPER DRUM

1/0.3m



GUTTER DETAIL

1/0.3m

Foellinger Auditorium,
University of Illinois, Urbana.
Restoration architects: Holabird &
Root, Chicago.

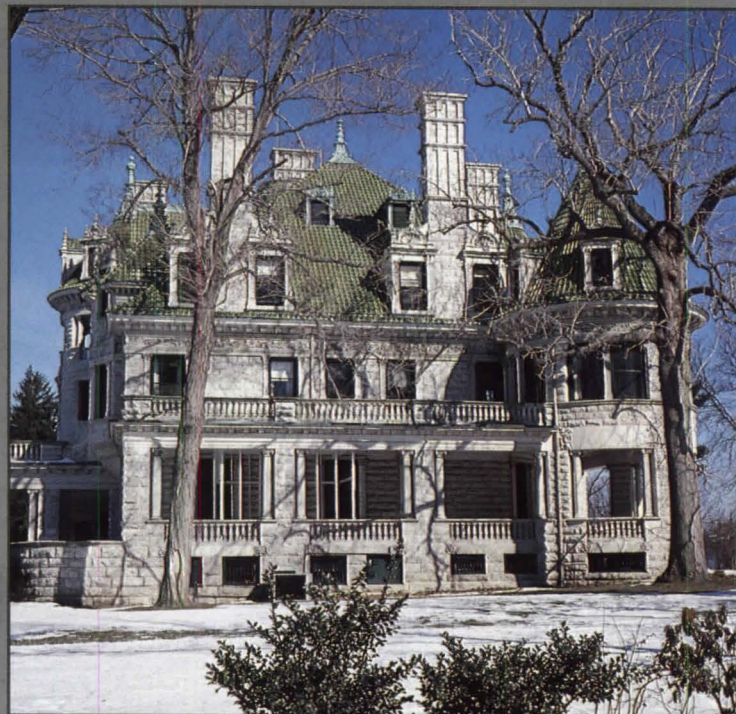
Budget cuts during construction of this campus landmark, designed in 1905, led to its being roofed in sheet metal. But working drawings in the university archives revealed the original architect's intent: a copper roof. While the restoration architects were inclined to reroof the dome with copper sheets laid vertically and using standing seams, the contractor successfully challenged their notion. He proposed using trapezoidal copper sheets cut to fit the configuration of the dome and detailed with battens and horizontal float seams designed to move with

expansion.

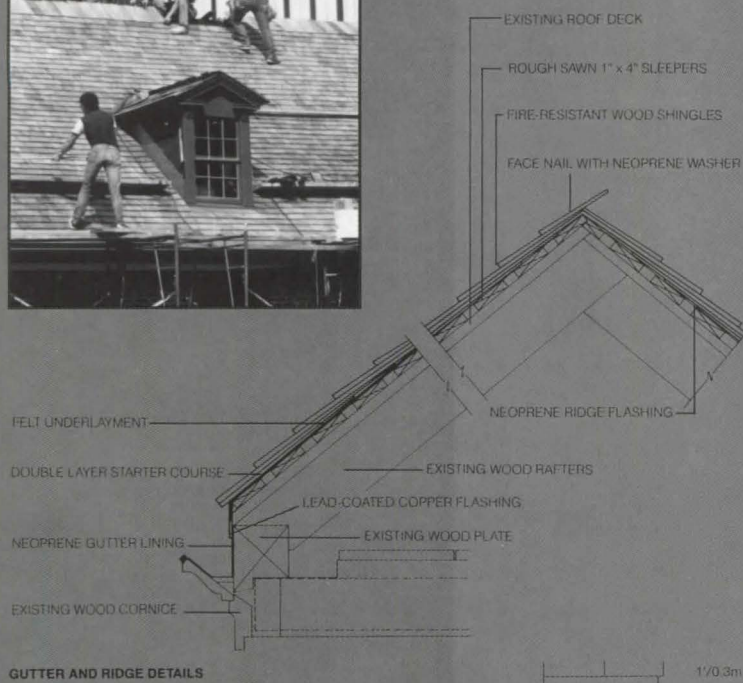
While the dome and standing seam cover on the lantern were easily installed, the decorative elements posed many problems. Most of the copper scrolls, harps, soffits, and fascia needed repair. To accomplish that, new photographs of the details were used to make accurate construction documents. The existing harps were removed, disassembled, and cleaned. But most decorative copper work was beyond repair. An example of each was removed, its parts marked for identification, and its solder joints melted apart. The parts were then used to make a new mold, from which new scrolls were stamped in copper in a brake press.



Photos: Mesick, Cohen, Waite



Mesick, Cohen, Waite



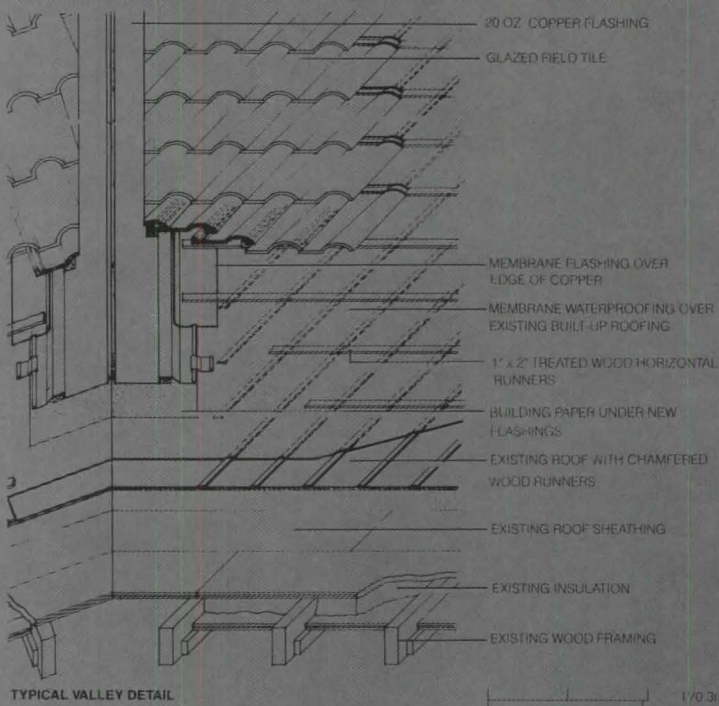
Old Barracks, Trenton, New Jersey.

Restoration architects: Mendel, Mesick, Cohen, Waite, Hall (now Mesick, Cohen, Waite), Albany, New York.

This historic officers quarters, part of the Hessian compound that was George Washington's destination when he crossed the Delaware River, had undergone in 1917 a restoration that involved attachment of a fieldstone façade and slate roof, both of which were historic anomalies. In the ensuing years, the roof framing began to sag and separate under the increased weight, and the loadbearing walls showed signs of bulging in the center. The new restoration plan was twofold:

to replace the brick exterior on the formal entry façade and return the roof to wood shingles.

Sawed cedar shingles, impregnated with salts to retard combustibility, were chosen for historic accuracy over hand-split shakes. The original construction included no flashings; the restoration relied on concealed, lead-coated copper flashings to preserve the historic appearance yet offer adequate protection. Tie rods and steel beams added to the building also were removed, so the attic now has its 18th-century appearance. Framing members were secured and epoxies were injected into rotted sections to stabilize the members.



Morrison Hall, Middletown, New York.

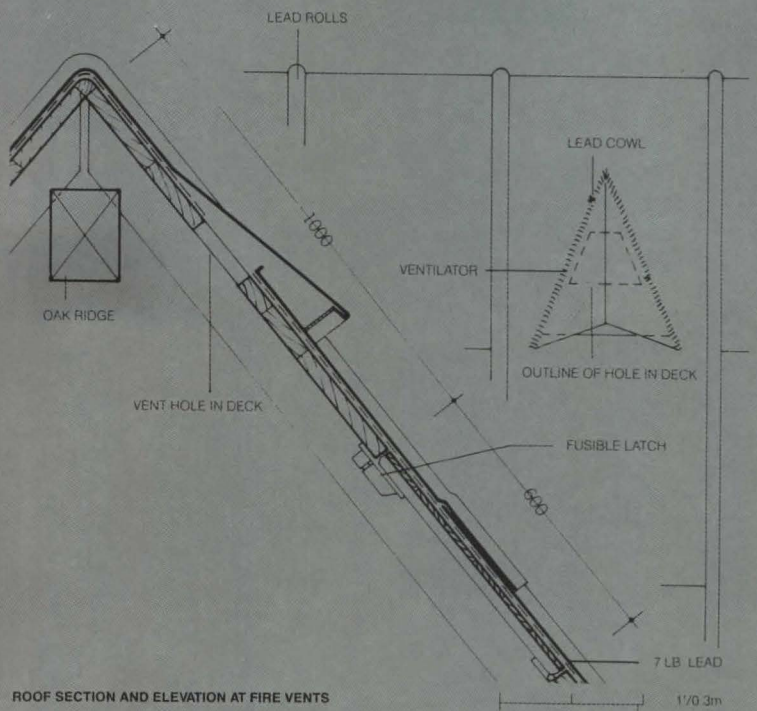
Restoration architects: Mendel, Mesick, Cohen, Waite, Hall (now Mesick, Cohen, Waite), Albany, New York.

This elaborate marble-walled house, built as a residence and used now as administrative offices for Orange County Community College, presented a difficult materials challenge. Recovering the roof demanded more than 50 different shapes of green clay tile, a product that was out of production. While many tiles were salvaged from the original installation, a manufacturer capable of making new tiles (and confident enough to offer a 50-year warranty) had to be found.

The original roof system consisted of a steel frame and wood deck, on top of which was applied furring strips, a built-up roof, and the roof tiles. In the reroofing, workers removed the asphalt layer and replaced it with an EPDM single-ply membrane to add reliability to the system. New furring strips to receive copper wire fasteners for the tiles replaced the old strips (above). "That particular building technology was more developed than it is now," says architect John Waite, who encourages architects to develop comprehensive details for historic projects. "If you leave the details up to the contractor, you'll end up with something that is historically not acceptable and technically not dependable."



Photos: Courtesy Dean and Chapter of York



ROOF SECTION AND ELEVATION AT FIRE VENTS

importance of preserving the building from decay.

Opting not to preserve exact historical accuracy, however, may also have detrimental effects on the building. As an example, changing from a batten sheathing to a solid sheathing will affect the way the roof weathers. Changing the spacing of a standing seam metal roof will affect the scale and appearance of the building, even though the material is historically accurate.

Yesterday's Methods or Today's

Finally, finding a contractor to install historical materials may be as difficult as finding the right materials. Installation techniques should be researched as closely as the materials, and contractors should be identified at the same point in the process. Sometimes, long-established contractors can resurrect tools and equipment to help analyze how products were installed. Like historic materials, qualified contractors are available, but often at a premium cost. The importance of using antique

York Minster Cathedral, Ogleforth, York, England.

Restoration architects: *Hinton Brown Langstone, Warwick.*

A 1984 blaze consumed the wooden vault and timber-framed roof of the south transept at York Minster, a 13th-century construction. The decision was made to replace both the roof and vault in timber, partly in response to the client's demand for a long-lasting roof (timber can last 500 years, if maintained) and partly because the material could accommodate the irregularities of 600-year-old walls. The inherent fire-resistance of oversized timbers also supported the choice.

Detailing of the roof was driven by the need for proper ventilation

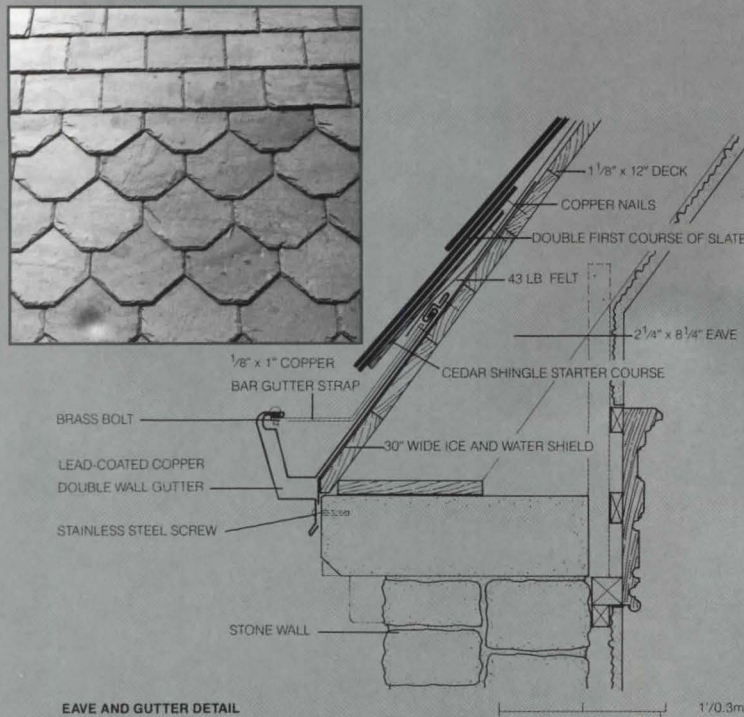
of the space between vault and roof. It was essential, for example, for tannic fumes released from the drying oak to vent freely, not only for the good of the timbers, but to prevent corrosion on the underside of the lead sheet covering the roof deck. The significant change from the original roof was rebuilding the vault webs (bottom left) of plaster on expanded metal, rather than of wood. For additional fire protection, vents were formed in the deck. Forty-eight bottom-hung trapdoors also were installed, each door fixed by a fuse-controlled latch (above right) that fails in the event of fire and vents the flame in a way that reduces lateral spreading.



Photos: Laurence O'Connor



Clay S. Palumbo

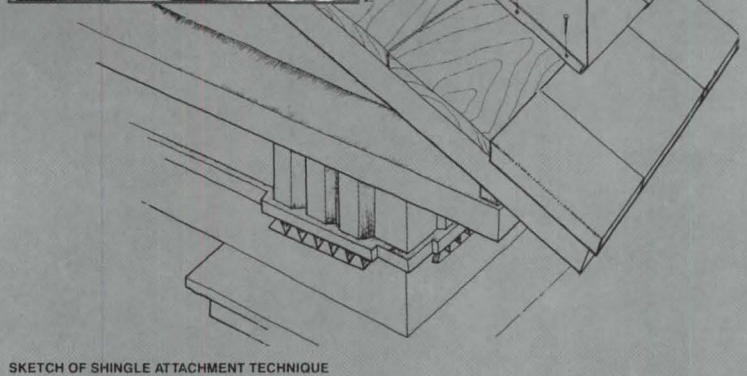


EAVE AND GUTTER DETAIL

1/0.3m



Mesick, Cohen, Waite



SKETCH OF SHINGLE ATTACHMENT TECHNIQUE

Christ Church Cathedral, Indianapolis.

Restoration architects: Woollen, Molzan & Partners, Indianapolis. Roofing consultants: Wiss, Janney, Elstner Associates, Chicago.

Replacing the slate roof on this 132-year-old landmark building was aided by old photographs that documented the number of courses and pattern of the original slate. Existing HABS drawings showed in detail the terra cotta ridge crest that had been removed in a 1950s reroofing. Damage to the roof system included rotten sections in the hand-carved wood trusses, which were repaired with epoxy wood restorer. New slates were installed with 43-pound felt as an underlay-

ment. Cedar shingle shims were placed beneath the bottom-row slates to allow succeeding slates to lay flat against their foundation, a protection against cracking if stepped on.

The roof's original gutter attached directly to the wall's stone cap and did not slope to the downspout. This was remedied by installing a false visible gutter that maintained the original appearance but included a second, sloped gutter inside (above). To increase the roof's longevity, the architects used lead-coated copper in the gutters and flashings, and specified Vermont unfading green slate, which was recommended for durability.

Pavilion X, University of Virginia, Charlottesville.

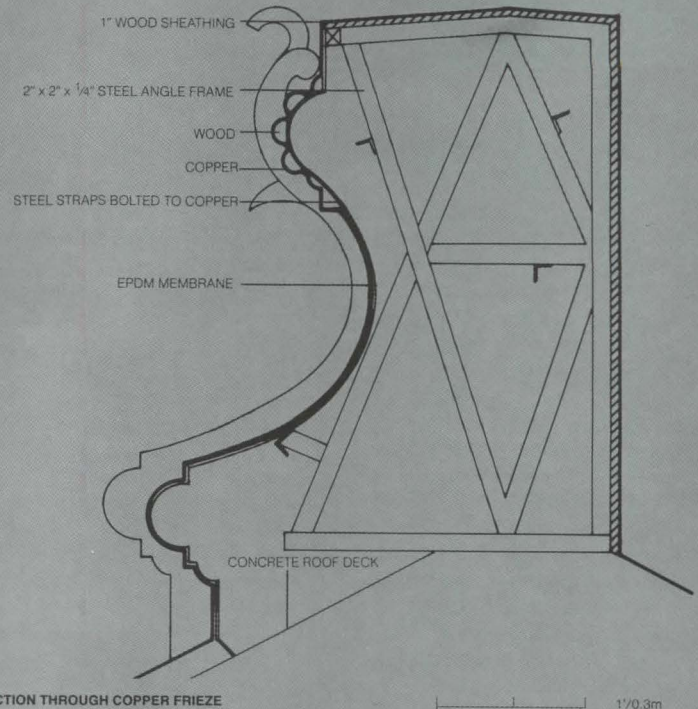
Restoration architects: Mendel, Mesick, Cohen, Waite, Hall (now Mesick, Cohen, Waite), Albany, New York.

A search for the cause of a badly leaking roof uncovered a big surprise at Thomas Jefferson's academical village: an original but long-forgotten system of folded tinplate shingles. That discovery prompted research that, in turn, revealed new evidence of Jefferson's inventiveness. His exposure to metal roofs in France led to materials experiments at his home, Monticello. And in tests done with wrought iron, tin, copper, and zinc, tinplate proved most durable. Recognizing the lack

of skilled labor available to him, Jefferson in the 1820s devised a system of interlocking shingles (above) that required only basic carpentry skills to install. The original shingles, made of thinly rolled wrought iron coated with tin, were replaced in the restoration by the closest thing available: terne-coated stainless steel. After removing the slate roof added in the late 19th Century, workmen attached a new roof on top of the deteriorated original. First, plywood decking was laid down to provide a smooth working surface. Then a single-ply neoprene layer was added for waterproofing. Finally, the terne-coated shingles were interlocked and nailed into place following Jefferson's technique.



Photos: Nathaniel Lieberman



Maureen A. Ward

installation methods and the results obtained must be weighed against the practicality of using them.

Reroofing a historic building provides its own unique set of challenges. Careful investigation of the existing conditions, diligent research into materials and methods used in the chosen time period, and meticulous design and detailing of the replacement roof can provide a system for the historic building that will fulfill its intended function—keeping the building dry—while producing an appropriate aesthetic. **Karen L. Warseck** ■

The author is president of Building Diagnostics Associates roofing and waterproofing consultants in Hollywood, Florida.

Grand Central Terminal, New York.

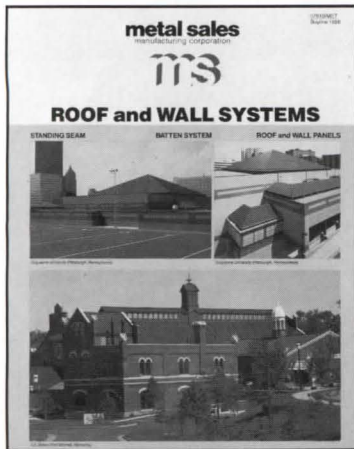
Restoration architects: Lee Harris Pomeroy Associates, New York.

Roofing consultants: Simpson Gumpertz & Heger, Arlington, Mass.

The challenging task here was preserving the 700-foot-long copper frieze that caps the main sloped roofs of the building. More than an acre of sloped copper roofing is topped by a seven-foot-high ornamental copper frieze (above left). Originally, the frieze was not only decorative but served as a watertight cap for the sloped roofs. The stamping process that formed the sheet copper into deep relief creased and thinned the copper substantially.

Weathering and metal fatigue eventually destroyed its watertightness. Fabricating a new frieze was too expensive, and locating and patching all the pinholes in the copper was nearly impossible. But, because the structural capacity of the frieze was still intact, it was decided to reuse it while eliminating its waterproofing function. An elastomeric sheet membrane was installed behind the frieze, making the roof watertight without compromising its appearance. The base of the core area lightwells was covered with built-up roofing, a task that required a temporary superstructure in order to raise tons of material eight stories from the street, over the ornamental copper roof, and down four floors again.

Technics-Related Products

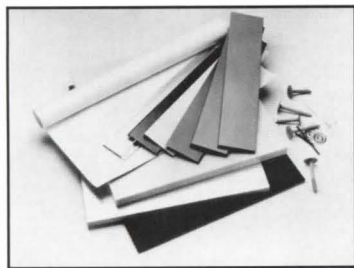


Standing seam, batten system, and concealed-fastener panels are made of base metal with four finish coatings. Standard and custom colors are offered. Metal Sales.

Circle 205 on reader service card

A synthetic rubber single-ply roofing system called Hypalon® gradually vulcanizes and becomes stronger when exposed to moisture and UV light. DuPont.

Circle 206 on reader service card



A white, single-ply roofing membrane reflects the sun and lowers cooling costs. Accessories include fasteners, adhesives, and insulation. Stevens.

Circle 207 on reader service card

An attachment system, System 2001, for rubber and thermoplastic roofing membranes eliminates the need for fasteners except along the perimeter. The membranes are available in black or white and are chemical- and fire-resistant.

Kelly Energy Systems.

Circle 208 on reader service card

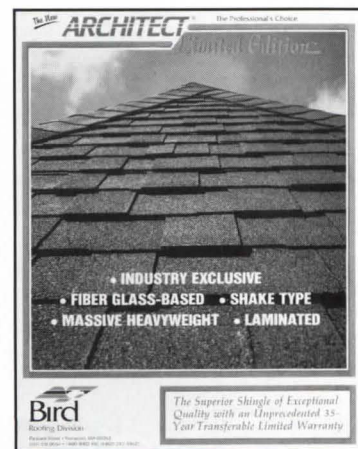
A fire-resistant, modified bitumen rolled membrane requires no insulation, additional coatings, or gravel, and can be specified over both combustible and non-combustible decks. GS Roofing Products.

Circle 135 on reader service card



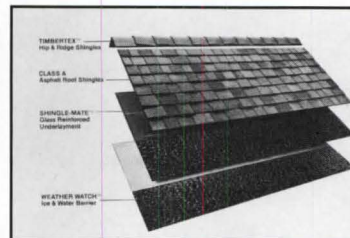
Fiberglas® roofing insulation offers guaranteed thermal stability. Its surface is both solid enough for a new roof but pliable enough for reroofing. Owens-Corning Fiberglas.

Circle 209 on reader service card



Laminated, extra-heavyweight shingles are made of ceramic granules embedded in an asphalt coating. A fiberglass mat provides fire and wind resistance. Bird.

Circle 210 on reader service card

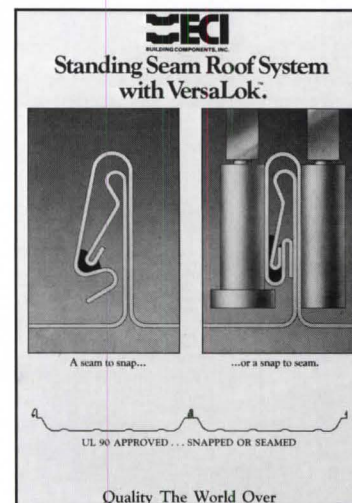


A line of roofing products includes an ice and water barrier, a fiberglass-reinforced underlayer, and three shingle choices. GAF Building Materials.

Circle 136 on reader service card

Zinc-enhanced, granular surfacing hinders the growth of fungus and algae on these fiberglass shingles. Ten colors are available in four styles. Georgia-Pacific.

Circle 137 on reader service card



Standing seam roof panels may be either snapped together or mechanically seamed. The seam contains a waterproof sealant. ECI Building Components.

Circle 211 on reader service card

A reroof framing system features telescoping tubes to adjust to uneven roof surfaces. Components necessary to install a new roof system—structural purlins, support columns, channel plates, bracing, and screw fasteners—are included. Fabral.

Circle 212 on reader service card

A felt-backed membrane can be used over lightweight concrete, smooth asphalt, and mineral cap sheet roofs. The membranes are seamed with the hot air welding method and may be specified in 21 colors. Sarnafil.

Circle 138 on reader service card

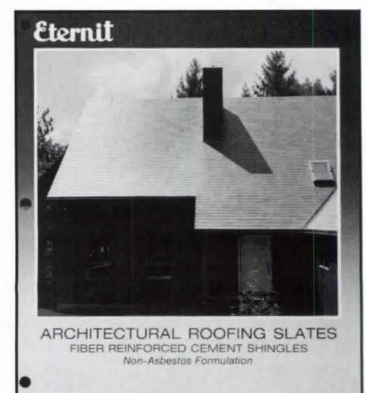


Roof-edge systems feature an anchor bar, snap-on cover, and stainless steel fasteners. Accessories include miters and scuppers. Anchor-Tite.

Circle 213 on reader service card

Polystyrene insulation is available with square edges, shiplap edges, or drainage channels. It can be used with most single-ply membranes. Amoco Foam.

Circle 139 on reader service card

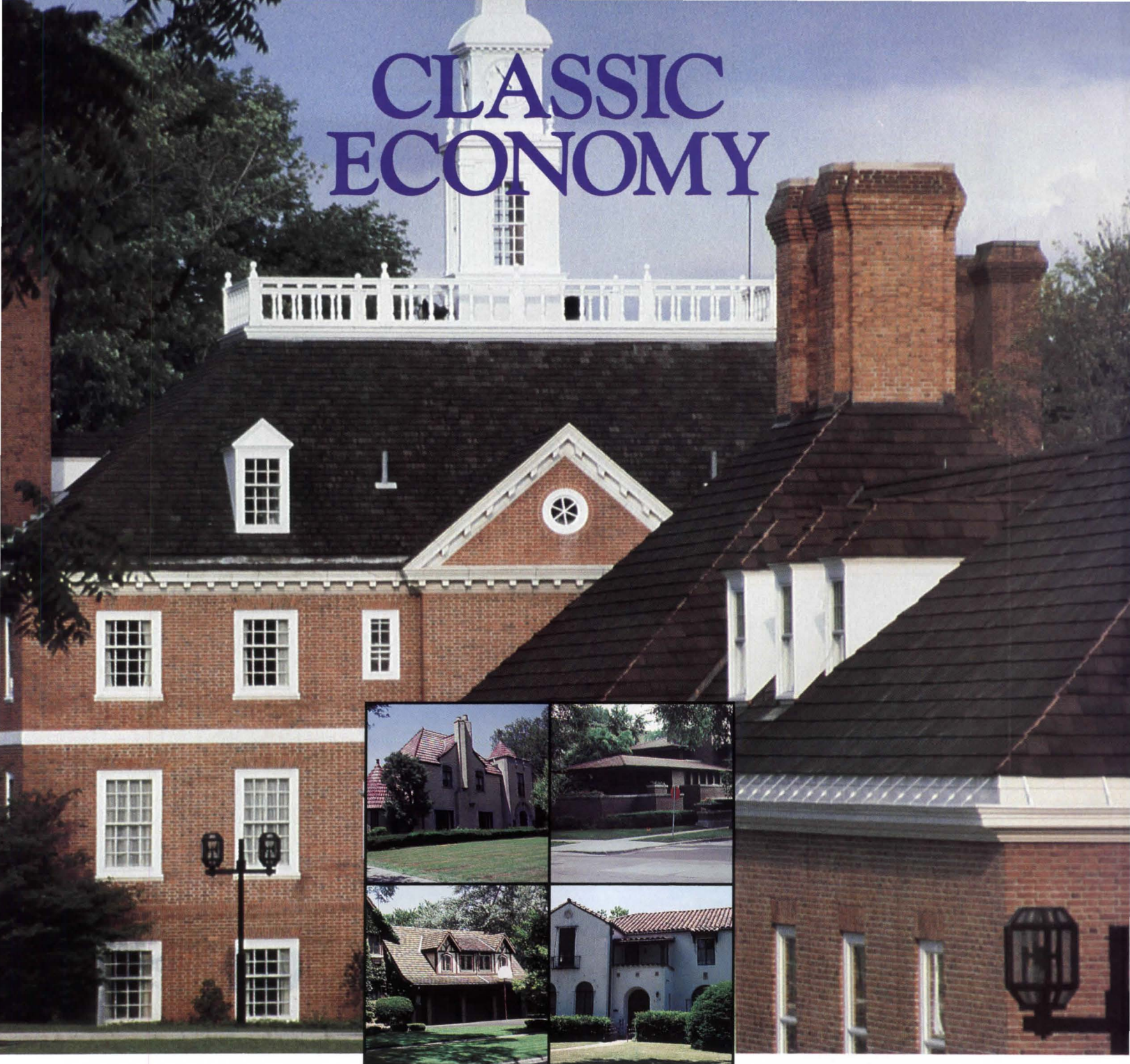


Fiber-reinforced cement shingles are integrally colored, waterproof, and asbestos-free. Eternit.

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(continued on page 106)

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Products (continued from page 104)

A standing seam roof system contains a movable tab that allows the roof to expand and contract with temperature changes. It can be used for new roofs or to reroof directly over the existing roof. Butler.

Circle 215 on reader service card

Rectangular, beaver-tail-shaped, and simulated-slate shingles are made from asbestos-free, fiber-reinforced cement. The standard color is charcoal; custom colors are also available. FibreCem.

Circle 216 on reader service card

A metal tile facsimile roofing panel is manufactured of stress-free metal and is available in a variety of colors. Copper Sales.

Circle 140 on reader service card

Coated spikes are designed to facilitate installation of single-ply membranes over structural concrete decks.

WestPoint Pepperell:

Circle 141 on reader service card

Steel roof deck subpurlins feature a wide bottom flange to support foam board or roof tile. Tech Truss Tees.

Circle 142 on reader service card

A rooftop walkway system is elevated over roof level and is slip-resistant. Fastener-free installation preserves membrane integrity. GS Metals.

Circle 217 on reader service card

Laminated shingles with overlay tabs and smooth surfaces replicate the look of wood or slate shakes. A variety of colors is available. CertainTeed.

Circle 143 on reader service card

Standing seams and battens are available in different panel styles. Custom dimensions may be specified.

Peterson Aluminum.

Circle 218 on reader service card

Insulating boards made of polystyrene and latex-modified concrete interlock to protect roofing membranes. Goodyear.

Circle 144 on reader service card

Polyester-reinforced membrane is featured in a fully-adhered roofing system especially for oddly shaped or pitched projects. Carlisle SynTec Systems.

Circle 145 on reader service card

(See Technics, Historic Reroofing, p. 98)



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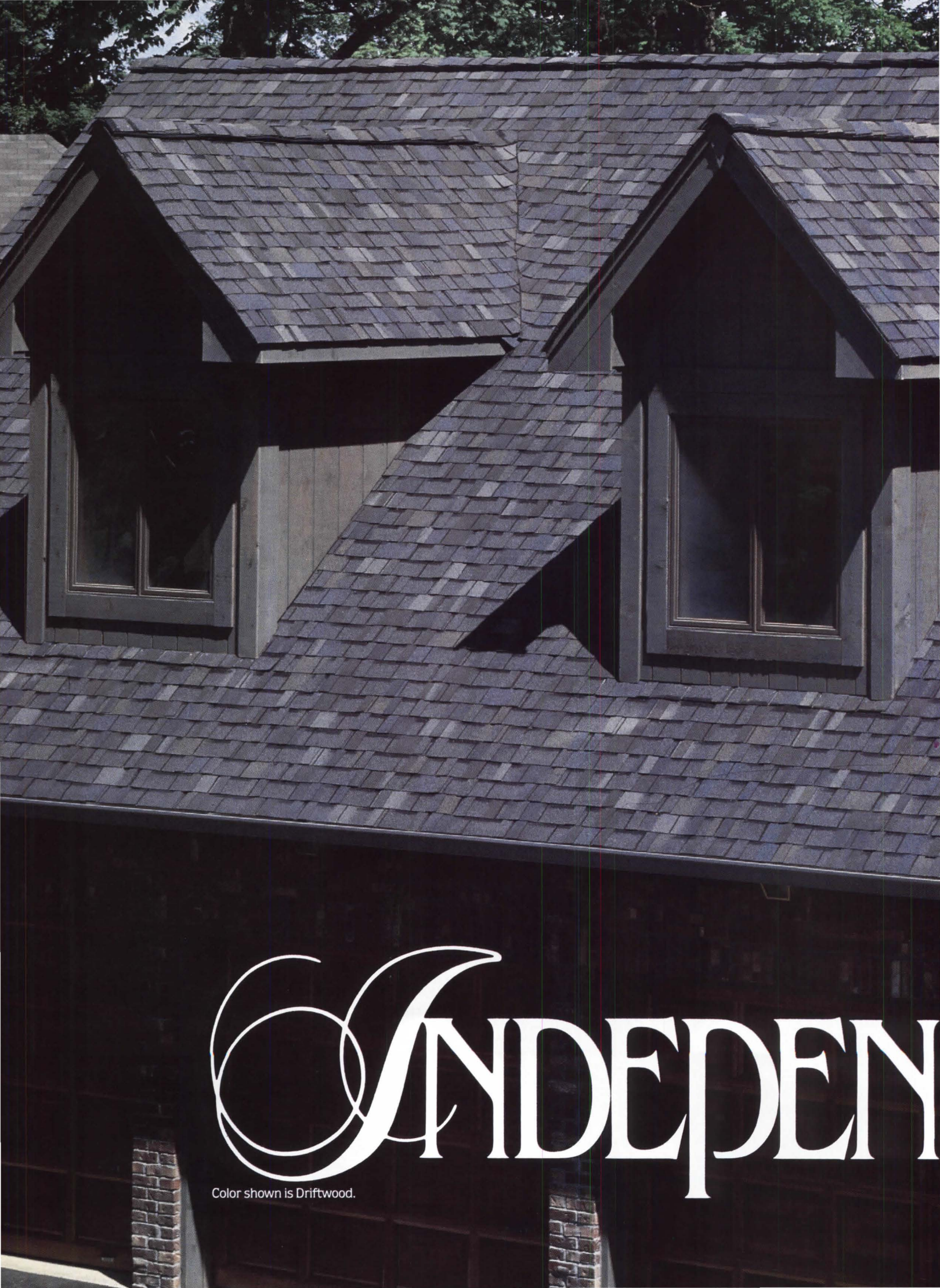


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Please fill out all parts and submit, intact, with each entry (see paragraph 14 of instructions). Copies of this form may be used.

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Project:
Location:
Client:
Client phone number:
Category:

Entrant:
Address:
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I certify that the submitted work was done by the parties credited and meets all Eligibility Requirements (1-7). All parties responsible for the work submitted accept the terms of the Publication Agreement (8-9). I understand that any entry that fails to meet Submission Requirements (10-18) may be disqualified. Signer must be authorized to represent those credited.

Signature _____
Name (typed or printed): _____

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

2 All entries must have been *commissioned, for compensation, by clients with the authority and the intention* to carry out the proposal submitted. Schemes developed for design competitions must meet the same qualifications; the submitted design must be the one the client intends to execute. (For special provision in Research category only, see Item 6.)

3 Prior publication does not affect eligibility.

4 Architectural design entries may include only buildings and complexes, new or remodeled, that are scheduled to be completed after January 1, 1990. Indicate *schedule* on synopsis page (Item 12).

5 Urban design entries must have been accepted by the client who intends to base actions on them. Explain *implementation plans* on synopsis page (Item 12).

6 Research entries may include only reports accepted by the client for implementation or research studies undertaken by entrant with intention to publish or market results. Explain basis of eligibility on synopsis page (Item 12).

7 The jury's decision to premiate any submission will be contingent on verification by P/A that it meets all eligibility requirements. For this purpose, clients of all entries selected for recognition will be contacted by P/A. P/A reserves final decision on eligibility and accepts no liability in that regard. Please be certain entry meets above rules before submitting.

Publication agreement

8 If the submission should win, the entrant agrees to make available further graphic material as needed by P/A.

9 In the case of architectural design entries, P/A must be granted the first opportunity among architectural magazines for feature publication of any winning project upon completion.

Submission requirements

10 Entries must consist of legibly reproduced graphic material and text adequate to explain proposal, *firmly bound* in binders no larger than 17" in either dimension (9" x 11" preferred). No fold-out sheets; avoid fragile spiral or ring bindings.

11 No models, slides, films, or videotapes will be accepted. Original drawings are not required, and P/A will accept no liability for them.

12 Each submission *must include* a one-page synopsis, in English, on the first page inside the binder, identifying the project and location, clarifying eligibility (see Item 4, 5 or 6), and summarizing principal features that merit recognition in this program.

13 To maintain anonymity, no names of entrants or collaborating parties may appear on any part of submission, except on entry forms. Credits may be concealed by any simple means. Do *not* conceal identity and location of projects.

14 Each submission must be accompanied by a signed entry form, to be found on this page. Reproductions of this form are acceptable. All four sections of the form *must be filled out, legibly*. Insert entire form, intact into *unsealed* envelope attached inside back cover of submission.

15 For purposes of jury procedure only, please identify each entry as one of the following: *Education, Houses (Single-family), Housing (Multiple-unit), Commercial, Industrial, Governmental, Cultural, Recreational, Religious, Health, Urban Design, Applied Research*. Mixed-use entries should be classified by the larger function. If unable to classify, enter *Miscellaneous*.

16 Entry fee of \$90 must accompany each submission. An early submission fee of \$75 per entry will be accepted for entries postmarked August 22 or earlier. Fee must be inserted into *unsealed* envelope containing entry form (Item 14 above). Make check or money order (no cash, please) payable to *Progressive Architecture*.

17 P/A intends to return entries intact, but can assume no liability for loss or damage.

18 Deadline for sending entries is September 5, 1989. Early submission deadline is August 22 (Item 16). Any prompt method of delivery is acceptable. Entries must show postmark or other evidence of being en route by midnight, September 5 (August 22 for early submissions). Hand-delivered entries must be received at street address shown here, 6th floor reception desk, by 5 p.m. on specified date.

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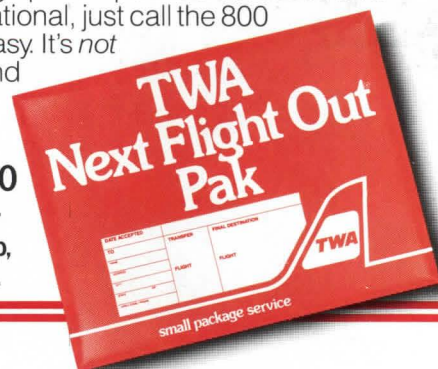
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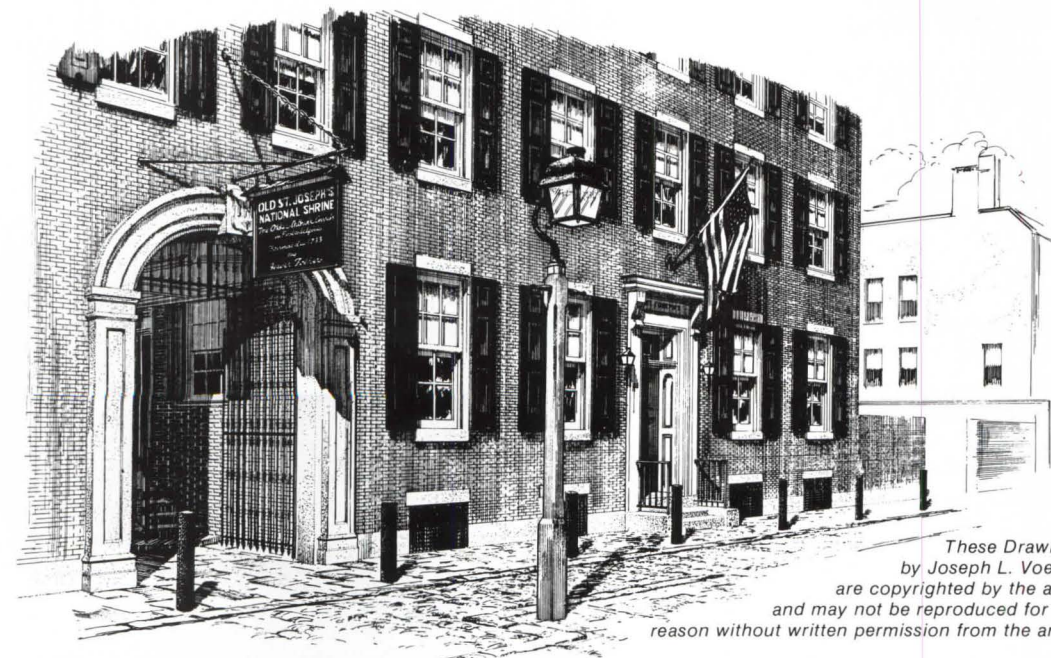
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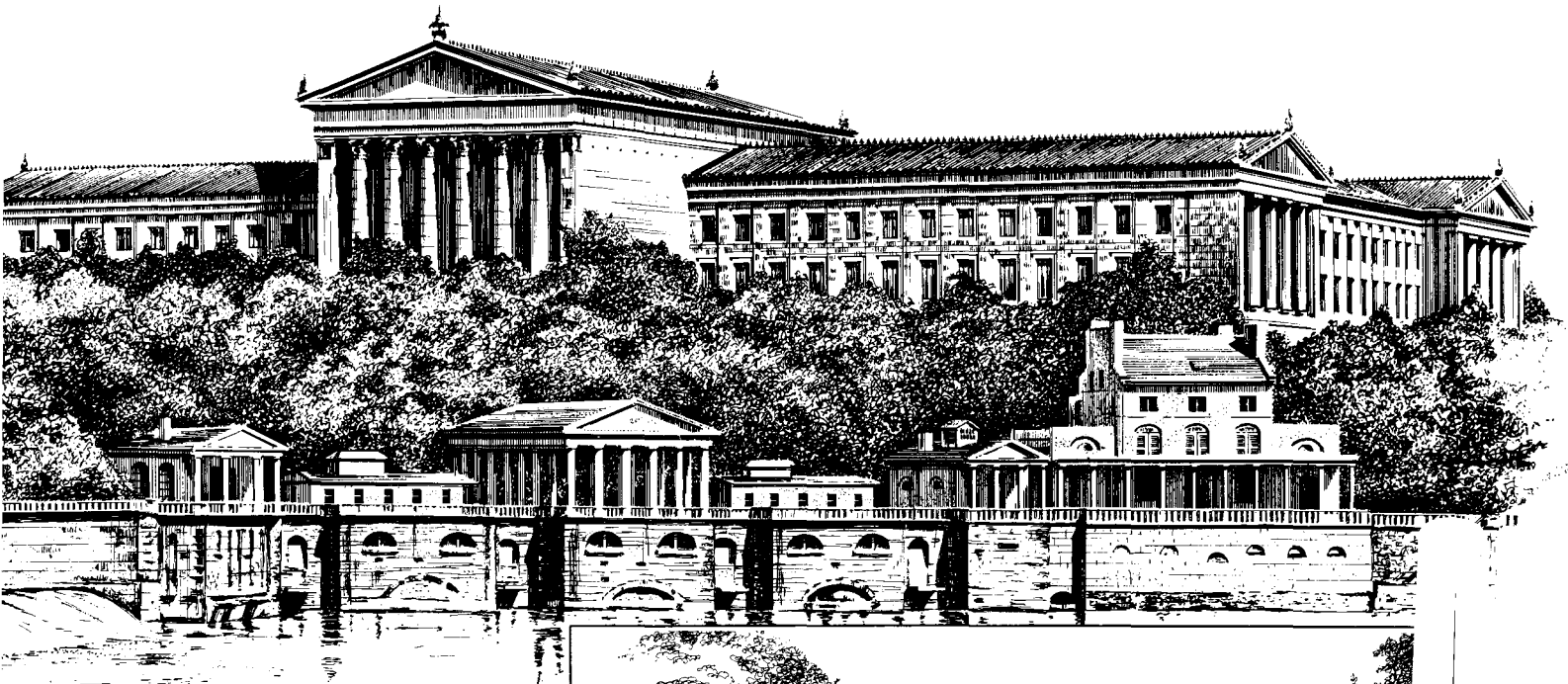
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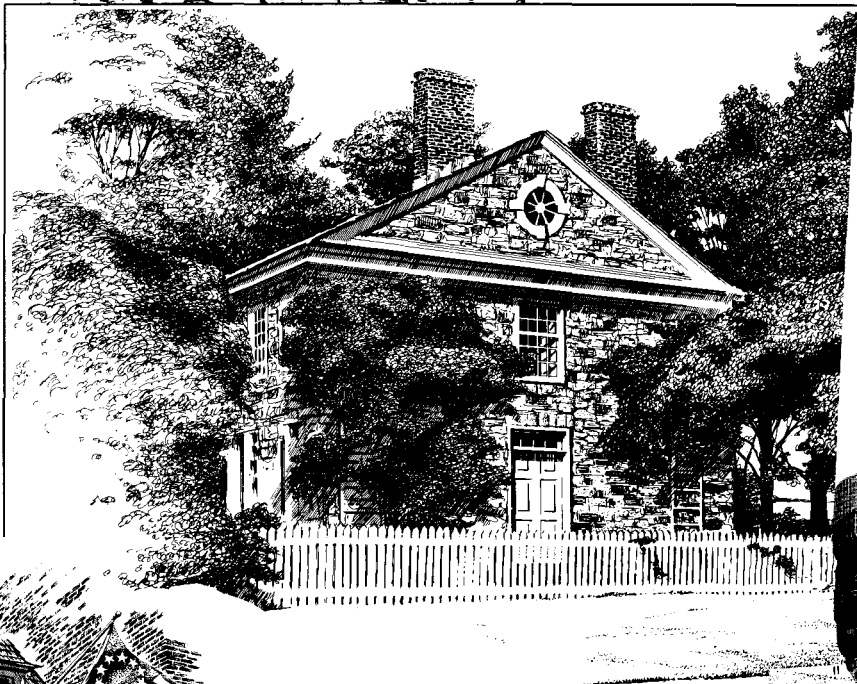
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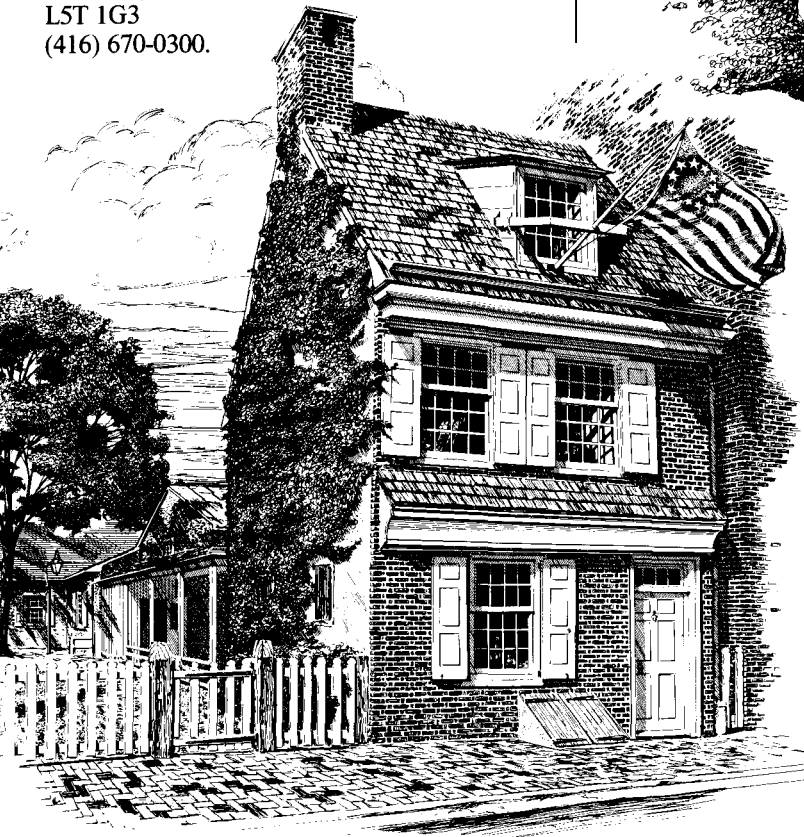


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Karl Bischoff

The Heritage Building in Seattle typifies the structural complexity of older masonry buildings.



Dick Bushner

Post caps on the columns are load-bearing and absorb shaking forces.

Teaming Up for Seismic Retrofit

Seismic rehabilitation as an engineering discipline is only now emerging. Knowledge of how older buildings react to earthquakes, the best methods of assessing potential damage, and proper retrofit techniques have only been developed in the United States in the past 10 to 20 years. The cost of rehabilitating older buildings and adequately addressing the economic and life safety risks they pose make rehabilitation a laboratory for new means of collaboration between the architecture and engineering professions. This collaboration is essential because both the architect and engineer must work in tandem to preserve the character of these often historic buildings.

It is an article of faith in the design professions that, in an ideal world, members of a design team work together to bring

forth buildings both beautiful and functional. With new construction, the need for teamwork is less pressing because the design parameters are generally recognized by both architect and engineer. But rehabilitation of an existing building involves a host of unknowns and, hence, requires much closer collaborative effort. In rehabilitating old buildings, our prerogative is to destroy as little as possible while making a building safe, economical, and useful once again.

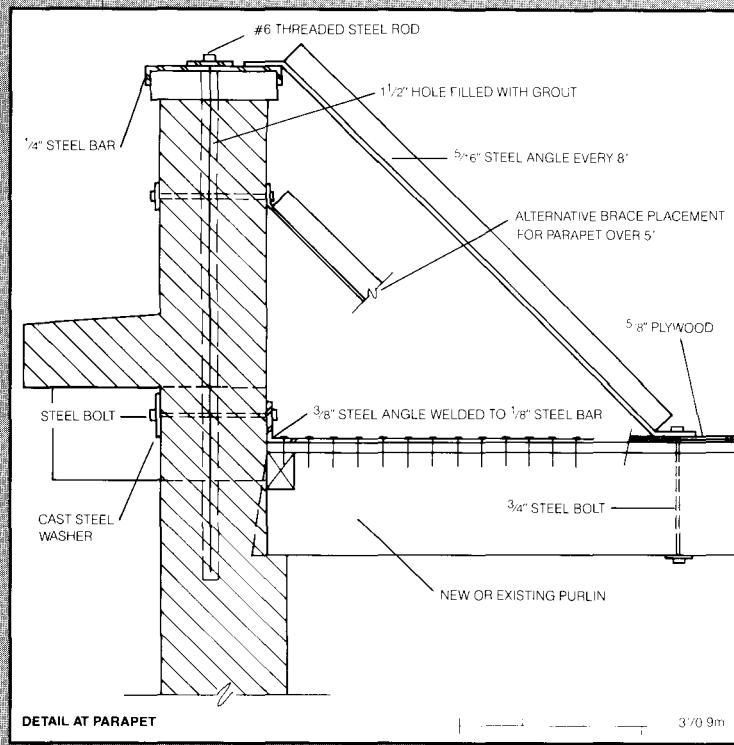
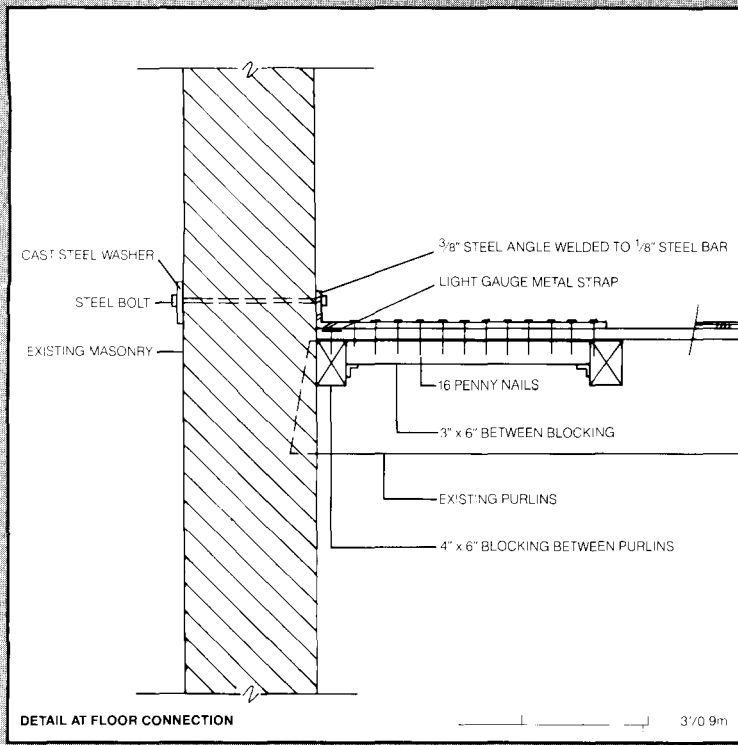
Seismic codes have existed in the United States for well over 50 years; however, their effective use in many localities dates only from the 1950s. Before then, most structures were constructed without any concern for lateral forces. Designers of more complex buildings provided for wind resistance but, by and large, construction methods resulted in structures so heavy that wind loads could be regarded as inconsequential.

Significant earthquakes are

rare events even in the most seismically active regions. And, in the vast majority of areas where earthquakes are rarer still, these forces were simply ignored. Paradoxically, the very mass that allowed early building designers to ignore wind loads works against the satisfactory performance of these structures in seismic terms. Earthquakes act by shaking buildings—that is, by activating their dead weight. The heavier a building, the more mass there is to respond to ground shaking and the greater likelihood of damage. Today's structures tend to be light, continuous frameworks that not only reduce the effective mass available for seismic response, but also provide continuity of structural and non-structural components. Not so, the majority of older buildings.

Recent Examples

The Mutual Life Building in Seattle, rehabbed by Olson/Walker Architects of Seattle, is a



Anchorage details used in retrofit of the Heritage Building in Seattle.

perfect example of how difficult it can be to rehabilitate an older building seismically. Constructed in a number of phases over several years, the building is an amalgam of structural types, ranging from cast iron to structural steel, timber, brick, and sandstone. There is almost no continuity among the various building components. The heavy exterior walls that are a principal factor in the development of seismic forces often were not attached positively to the floors. And, even if they were attached, the floors, when acting as diaphragms, could not transfer seismic forces to an effective shear wall or frame system. Corrective measures on the building began with a complete anchorage program, tying the walls and floors together. The main intervention, though, involved inserting a structural steel braced frame from foundation to roof to stabilize the entire building against lateral forces.

Many of the same problems were present in the design process for the Heritage Building rehabbed by The NBBJ Group of Seattle. Like most older buildings, it was extremely heavy, and it was unclear how its enormous mass, particularly of the walls, could be transferred to the diaphragms and down through other brick walls to the ground. The Heritage Building was difficult to understand from a seismic viewpoint because it was constructed with large, commer-

cial storefronts at the first floor. The openings of this "soft story" and the necessity of deep commercial space required the addition of structural steel braces and ductile frames to allow seismic load to travel to the ground. The additional structures also stiffened the first floor against excessive lateral movement.

These historic properties offer a fairly complete view of the problems of older structures. They are heavy, disjointed, and often poorly configured to withstand the shaking they receive during an earthquake.

Developing Standards

In the past ten years, a considerable amount of experimental and empirical data has been collected on earthquakes and the response of buildings to earthquake forces. More recently, there has been an effort to organize this information and develop standard practices. Several organizations, including the National Science Foundation, the Applied Technology Council, the Structural Engineers Association of California, and the Federal Emergency Management Agency have worked with scientists and engineers to develop evaluation criteria and model codes. The State of California now has a mandatory earthquake evaluation law that requires cities to adopt a plan addressing the hazards associated with unreinforced masonry buildings. Los Angeles, Long

Beach, and other California cities have developed codes that require building owners to either retrofit or demolish recognized hazards associated with unreinforced masonry buildings. These codes are in many instances mandatory and focus on improving the most threatening elements of poor seismic behavior.

Although there still remain differences of opinion among engineers, depending upon configuration, use, and materials, some simple prescriptive solutions have been widely accepted. They include tying the floors to the walls and roof systems and securing appendages, such as cornices and parapets. With most other problems in existing buildings, there remains a great diversity of opinion. The multitude of studies on a wide variety of building types have yet to yield what could be called a "building code" for existing building seismic rehabilitation. Consequently, practicing engineers and building officials in seismically active regions outside of the larger cities have not had a chance to react.

Because there are generally no codes to guide them, the architect and structural engineer must work together early in the design to establish each other's needs. Once they reach their conclusions, they negotiate a further collaborative agreement with building officials. Collaboration early in design allows the structural engineer and, to a

large extent, the building official to become a more integral part of the design process. This is critical to seismic rehabilitation because the buildings generally are unsystematic and often poorly documented. Team efforts are required to understand the complex existing conditions.

With older buildings, it is very difficult to distinguish clearly among structural types. While some may look similar by virtue of their masonry construction, for instance, their uses and the various construction techniques employed by their builders differ considerably. This diversity and the difficulties it causes are the reasons why it does little good to bring the structural engineer in when the design is largely complete. The most important lesson to be learned is not necessarily a technical but a philosophical one. In essence, seismic retrofit requires an approach that recognizes the complex structural systems of older and historic buildings. To strengthen them to withstand seismic forces and maintain their historic character is a difficult process.

Todd Perbix and Padraic Burke

Todd Perbix is vice-president of Rattis Perbix & Clark, the firm that provided consulting engineering services for the buildings discussed in this article. Padraic Burke, chairman of the Northwest Institute for Historic Preservation, has been a consultant on seismic studies for the National Science Foundation and the Smithsonian Institution.



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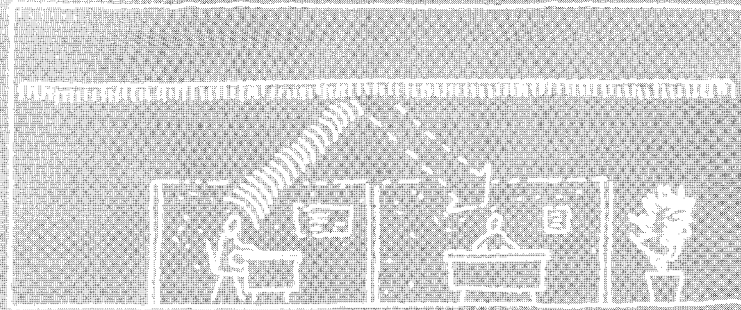
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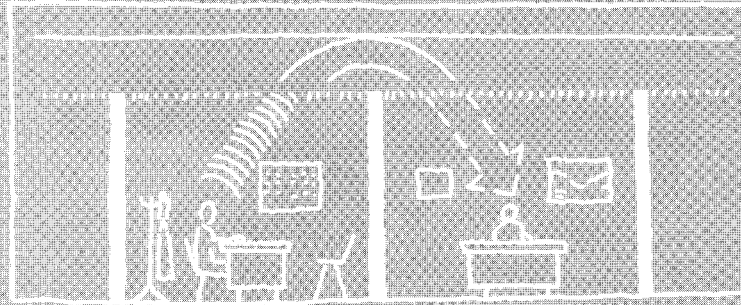
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A ceiling with a high NRC reduces sound transmitted between open-plan offices.



A ceiling with a high STC reduces sound transmitted between enclosed offices.

The ABC's of Office Acoustics

Good acoustics are critical to the proper functioning of an office. And knowing the basic properties of acoustical tiles is essential in specifying the right product.

When we think of acoustical ceilings we usually think of sound absorption. By absorbing some of the sound energy in a room, such materials prevent it from bouncing (reverberating) and building to disconcerting levels. The effectiveness of a material in reducing noise is frequently specified by a single number, known as the noise reduction coefficient (NRC). This number represents the average percent of the sound absorbed in certain frequency bands, and can range, theoretically, from zero to one. Zero means no absorption (100 percent reflection), while one means 100 percent absorption (no reflection). Most acoustical ceilings have NRC ratings of between 0.50 and 0.80, although a few rate higher.

Materials with very high NRC's are essential in open-plan offices, where sound may be reflected over the tops of acoustical screens by inefficient ceilings. This often causes serious problems with acoustical privacy. Acoustical ceilings with NRC ratings of less than 0.80 should not be considered for open plan offices. The best type of ceiling for this application is 1" or 1½"-thick textured fiberglass, which has an NRC of 0.90 or greater and reflects very little sound energy between work stations.

If such fiberglass ceilings are

so good for open plan offices, aren't they also suitable for closed offices? Quite often the answer is no. Several years ago, an employee at a local high-tech company called with a serious acoustical privacy problem. The sound of a telephone ringing in an adjacent office was so loud that he often answered his own phone by mistake. Investigation revealed that the ceiling consisted of perforated metal pans with a low-density glass fiber blanket above. Partitions terminated at the ceiling. Most of the sound was going up through the ceiling, over the partition, and into the next room. The ceiling was an excellent sound absorber but a poor sound barrier. From an acoustics point of view, the two people might as well have shared the same office.

Textured-surface fiberglass ceilings are similar to the ceiling discussed above. If the partitions around conventional offices extend up through the ceiling to the structure above, fiberglass ceilings will do a good job of controlling noise and reverberation. But if the partitions terminate at or just above the ceiling, watch out! This is where sound transmission class (STC) comes into play. The STC of a ceiling is its rating as a sound barrier when, for instance, it is installed as a suspended ceiling over rooms with partitions that terminate at the ceiling. Roughly speaking, it is the amount, in decibels, that a sound is reduced in traveling from one room to another, through the ceiling and plenum. Typical STC ratings of acoustical ceilings are between 20 and 45; the higher the

number the better. For fully enclosed offices with partitions terminating at the ceiling, a good rule is that the ceiling's STC rating should be at least as high as the STC rating of the partitions. It makes no sense, for example, to use an STC-30 ceiling with an STC-45 partition. The result would be an STC-30 construction.

The difference between NRC and STC is further illustrated by considering a room with an open window. All of the sound in a room that reaches the open window goes out through it; none is reflected back into the room. The open window absorbs 100 percent of the sound that strikes it, so it has an NRC of 1.0. On the other hand, it represents no barrier at all to the passage of sound and, therefore, has an STC rating of 0.

Most ceiling materials with NRC's high enough for open-plan offices have low STC's; conversely, most ceiling materials with STC's high enough for closed offices have low NRC's. This poses a dilemma in many contemporary office buildings, since open-plan and fully-enclosed offices often share the same floor. Often the ceiling is continuous, and partitions terminate at the ceiling. One solution is to use two different materials, one for the open offices and one for the closed. Another solution is to use a material with a high NRC and install lead plenum barriers above the partitions. The barriers consist of ¼" lead foil, which can easily be cut with scissors to fit around obstructions and then taped in place with duct tape. A third

technique is to lay mineral fiber sound-absorbing blankets on top of the ceiling, extending four feet on both sides of the partitions. However, all three techniques have drawbacks: Two different ceiling materials may not be visually acceptable, lead plenum barriers are not compatible with plenum air return systems, and blankets above lay-in ceilings create access problems.

Ceiling manufacturers are aware of these problems, and there are now several ceiling materials that can be successfully used for both open and closed offices. One manufacturer offers a mineral wool fiber product with a painted cloth facing; Others are promoting a sandwich of textured fiberglass and mineral fiberboard. The latter can be used for an entire installation or just in the closed offices in combination with standard textured fiberglass in the open offices. In addition, there are some mineral fiber acoustical ceilings with both high NRC's and high STC's that can be used for open and closed offices, but they are not as effective in open offices as the two materials mentioned before.

Parker W. Hirtle ■

The author is an architect and a supervisory consultant in acoustics for Acentech Inc., Cambridge, Massachusetts.

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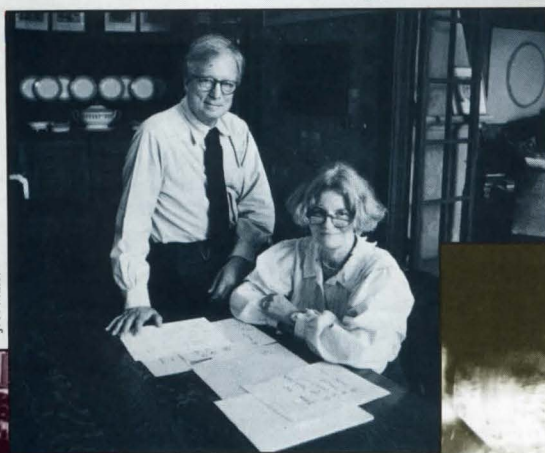


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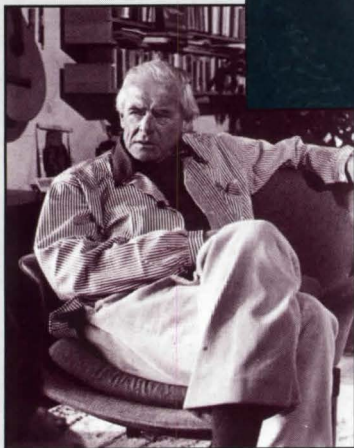
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Robert Venturi and Denise Scott Brown (above); Ralph Erskine (left), and Frank Gehry (right).



Architecture on Film

Michael Blackwood's films on current architecture take a giant step from the printed page to the world in which buildings exist. Beginning with *Beyond Utopia* in 1984, Blackwood has created an impressive repertoire that explores the present state of the art. While this first work was thematic, sub-titled *Changing Attitudes in American Architecture*, the films under review here are architectural monographs. Like Blackwood's earlier films on Mies van der Rohe and Richard Meier, they are concerned with the life and works of individual architects.

Unlike those series on architecture specifically designed for television, such as Robert Stern's *Pride of Place* and Spiro Kostof's *America by Design*, Blackwood's films have been shown in a variety of venues and have been completed without the considerable backing of public television and its powerful sponsors. As a group they raise certain questions: How can film explore works of architecture and examine the design process? How may we evaluate the success of these films as a means to communicate architectural theory and practice? Who constitutes the audience?

The films, part of an ongoing series entitled *The New Architecture*, are fundamentally biographical in the introduction of

individual architects and descriptive in the presentation of their works. Analytical statements are offered by various critics, historians, journalists, and occasional observers, and by a series of narrators—Rosemarie Bletter and Martin Filler (Stirling), Mead Hunt and Kendrick Simmons (Erskine), and Suzanne Stephens (Ungers)—who comment intermittently on a given building, its impact and reception, and its broader implications. The emphasis on individuals perpetuates the myth of the architect-hero, rather than the reality of the architect as part of a larger corporate body, subject to the vicissitudes of the society.

"New" historians might well prefer a more standard documentary dealing with the building, its social, cultural, political, and environmental contexts, or even with ideology and theory, although the latter might have only limited visual appeal. As a professional film-maker, however, Blackwood rightly aims to combine the didactic with the delightful, both of which are essential to a profitable undertaking. These films speak, above all, to professional architects, critics, and students, who are fascinated by all components of building and eager to see works in detail, learning more about the artistic formation and working procedures of their illustrious colleagues. This appreciative audience extends to architectural historians and, not least, to

a foreign market, where the films may serve as welcome supplements to slide lectures.

The strength of these films lies in the depiction of personality as much as in the works discussed. Witness *James Stirling*. "Museums are public buildings . . . monumental and informal, abstract and representational." Stirling's voice accompanies our view of his sensational museum additions in Stuttgart, Cambridge, Massachusetts, and London. The architect, his life, his work, his ideas, and the critical response elicited, are all intricately interwoven.

Words and pictures prove that inconsistency, not consistency, is Stirling's by-word for a richer architecture, varied in materials, scale, and expression. Rejecting simplistic labels, he opts for the tenets of Modernism which he describes as an architecture of space and depth, rather than the surface effects of Post-Modernism. To critic Colin Amery, one of several cameo interviewees, Stirling is a "rogue architect like Butterfield and Hawksmoor." To the latter, Stirling renders homage, while arguing for a different collage, drawn from Freud, Picasso, and Le Corbusier.

Like many contemporary architects, Stirling is more appreciated outside his native land. He finds the atmosphere in London ever hostile to modern architecture, which is seen as an

(continued on page 128)

James Stirling, O.M. Ungers, Robert Venturi and Denise Scott Brown, Ralph Erskine, Frank Gehry, each 58 mins., color, 1986–88. Michael Blackwood Productions, 251 West 57th Street, New York, NY 10019. Film or video rental: \$110; film purchase: \$875; video purchase: \$495; VHS or BETA cassette: \$290; 10 percent discount for five or more.

Architects of Fortune: Mies van der Rohe and the Third Reich by Elaine S. Hochman. New York, Weidenfeld & Nicolson, 1989. 384 pp., illus., \$22.50.

A compelling, if somewhat sensationalist discussion of Mies's involvement in Nazi Germany.

Anchoring by Steven Holl. New York, Princeton Architectural Press, 1989. 142 pp., illus., \$24.95.

A beautifully spare monograph balances Steven Holl's philosophy and practice in a book designed according to the Golden Section.

Hendrik Petrus Berlage: Complete Works by Sergio Polano. New York, Rizzoli, 1989. 266 pp., illus., \$65.

Erudite essays, fabulous photographs, delicate drawings—all the hallmarks of a Rizzoli monograph are here, plus a full text of Berlage's 1911 manifesto *Modern Architecture*.

The Digest of Building Contract Awards. Los Angeles, Marshall & Swift, 1989. Available by subscription, (800) 533-7650.

Formerly published by Dodge Cost Systems, this reference presents awarded contract costs for various building types; the figures can be adjusted for actual costs in different locales.

A History of Western Architecture by Lawrence Wodehouse and Marian Moffet. Mountain View, California, Mayfield Publishing Company, 1989. 538 pp., illus., \$28.95 paperback.

The authors' attempt to expand the traditional, European-based architectural canon still leaves plenty of room for Bernini and the rest.

Architecture and Body edited by Scott Marble, David Smiley, Marwan Al-Sayed, Sean Flynn, et al. New York, Rizzoli, 1988. 288 pp., illus., \$35.

A single-theme forum for architectural theoreticians invited by Columbia students. A bit over-intellectualized, but fascinating.

(continued from page 127)

essentially alien import. His opinion is borne out in the film in the person of Gavin Stamp who, as he rants about the "awful" colors of Stirling's Clore Gallery, personifies the right-wing "young fogey" Stirling criticizes.

Returning with us to Liverpool, where he was born in 1926, Stirling recalls that urban dockland with its "huge objects which slithered around, the big and small ships, transatlantic and ferryboats jamming the harbor" in striking contrast to the now empty city which he calls "de-identified."

Stirling talks too about his early practice with James Gowan and the "new brutalism," as translated in his garden apartments at Ham Common in 1958. "Its noisy reception made us notorious and that led on to a little bit of work," says the architect. That "little bit" was the seminal Engineering School at Leicester of 1963, followed in short order by the Cambridge History building. The film then follows Stirling's practice abroad. Aerial views and walk throughs of the State Museum at Stuttgart permit us to enjoy details such as the hi-tech day-glo metallic handrails as we wander among

its terraces, footpaths, and open circular court.

The film *O. Mathias Ungers* begins and ends in Frankfurt. On the opening day of his Architecture Museum in that city in 1984, Ungers reflects on crises and solutions, from the seemingly trivial ("I'd like to bring in a commando squad to get rid of those flowers") to the complex problem of placing a new building within an 80-year-old villa. His response to Hans Hollein's query "Why not tear the old one down?" frames his defense of this difficult resolution. "People would say that's where the old villa stood," he says. This dimension of memory, of continuity between past and present, mingles with the desire to create a poetic architecture.

Coincidentally, the opening of the Frankfurt Museum occurred on the same day as that of Ungers's new design for Constantine Square in Trier, a work which met with even more controversy. Ungers's solution, a plaza surrounding the Fourth-Century Roman basilica, did not allow for any "participatory design," a process he deploras as the architects' flight from responsibility.

The portrait of Ungers that emerges is one of the architect

theoretician. The film follows him to Karlsruhe where he studied after World War II, then moves on to discuss his years from 1969 to 1975 in the Department of Architecture at Cornell University, where theories of contextual architecture were developing. At all times, this architect reasons in the difficult dialectical terms of thesis and antithesis, discussing, for example, glass versus stone in his design for the Frankfurt Trade Fair building.

If *Ungers* pursues a metaphorical monologue, *Robert Venturi and Denise Scott Brown* sustains an ongoing conversation. *Time*: the present. *Place*: Bramante's Tempietto, Rome. *Action*: Venturi and Scott Brown behold this paradigm of High Renaissance classicism. *Prologue*: "Our reliance on history and precedent is not new."

At a fast clip, Venturi sums up Eclecticism and Modernism, then introduces his new reality, which he bases on combination rather than on invention. To these "historical underpinnings," Scott Brown adds a social dimension.

We move to the London National Gallery where Venturi presents his winning scheme for an addition. We attend the

ground-breaking ceremony in March 1988, when the Prince of Wales gives thanks to patron grocers of the Sainsbury family for provisions of bread and stone.

We witness the emergence of Prince Charles as aesthetic arbiter, with his denunciation of an earlier design for the addition by other architects as "a monstrous carbuncle on the face of a beloved friend." From there, says Jules Lubbock on camera, "he rubbished the architectural profession" and "transformed the practice of architecture in England." "Architects wish he would disappear . . . He speaks for the man in the street," Colin Amery tells us.

We learn about Venturi's conservative Beaux-Arts education at Princeton, with its emphasis on architectural history reinforced by a Prix de Rome. As Venturi points out, each generation finds its own Rome; he himself was fascinated by Mannerist architecture—its contrasts in scale, its surprises, its deviations from the Classical norms. Scott Brown amplifies Venturi's vision with an excursus on Las Vegas and "the witty, but aesthetic profundity of the ducks and decorated sheds."

(continued on page 130)

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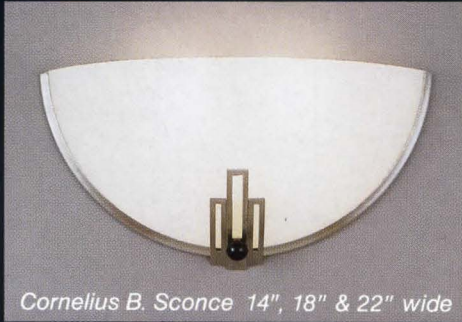
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(continued from page 128)

From the terrace of the American Academy in Rome, the film reviews Venturi's polemic as it takes us on a tour of his recent buildings at Oberlin and Princeton and, finally, more lovingly, back to his first commission, the seemingly simple, amazingly sophisticated house for his mother, "a patient and understanding client . . . whose house is now all over the world."

That Prince Charles has become a force on the international architectural horizon is reaffirmed by the first Prince of Wales prize in urban design, just bestowed by the Harvard Graduate School of Design on Ralph Erskine for his Byker Redevelopment at Newcastle-on-Tyne. Born in London in 1914, but based in Sweden since 1939, Erskine is perhaps the least familiar subject in the film series, though long known to the architectural cognoscenti. Beginning, as he defines it, with "people, desires, needs," his is a true architecture of participation. Blackwood sets out to prove how the development of socialism in Sweden and the pursuit of a life constantly in touch with nature encouraged this work. Attention to regional and environmental characteristics—the sun in a

northern climate and the dramatic seasonal changes—and Erskine's adherence to a human scale are clearly conveyed in this film.

If Erskine may be described as low-profile, Frank Gehry has, in the past decade, captured the limelight. "He doesn't pose like an architect . . . he's playing the funky end of the game," says Billy Al Bengston, one of Gehry's Southern California artist friends. In a profession not lacking in pomposity, Gehry's overtly relaxed manner is decidedly winning on film.

We visit Gehry in his own house within a house, now as much an icon of American architecture as Mrs. Venturi's home. Other small early projects done for clients who are artist-friends are affectionately introduced by their maker, who takes us on a tour of the pristine Bauhaus studio for Louis Danziger, a tilted hay barn supported on eight telephone poles in San Juan Capistrano, and the illusionistic studio and house for artist Ron Davis. But the architect seems most in his element in the home and office he designed for a screen-writer client whose overlook podium on Venice Beach seems to recapture the owner's days as a lifeguard.

Blackwood then accomplishes a jump in scale to larger, more recent Gehry works such as Santa Monica Place and the Loyola Law campus. The sources Gehry cites as inspiration for these designs are diverse and sometimes far fetched, from the columns of the Roman forum to Philip Johnson's estate in New Canaan. Our surprise at Gehry's collaboration with David Childs of SOM on the new design for the building on the site of Penn Station and Madison Square Garden in New York—now abandoned—is echoed by the architect, who likens the undertaking to scaling Mount Everest.

"You only have one idea in your life." "I think it's time to let artists become architects." "Usually, there is too much preciousness built into the museum experience." "All great architecture leaks." "I don't take myself seriously . . . I don't feel I will change the world." Where these and other quotes suggest that Gehry is down-to-earth, the critics espousing his work are quite the contrary. Listen to Kurt Foster's erudite gloss on Loyola or Kenneth Frampton's critique of Gehry as a subversive architect, whose own house is an anti-aesthetic inversion of the classic balloon frame.

Viewing these films as a group, we are struck by certain commonalities: These architects are steeped in Modernism, yet harbor a respect for tradition; they are concerned about environmental problems, yet focused on formalist experiments. Still, the writers, narrators, critics, and, above all, the architects themselves enlarge our understanding of building today and give us some idea of the creative process and politics of the profession.

Unlike a book, a film is governed by time. A single screening does not permit sufficient time for most observers to contemplate or review particular passages. (All the reels run for 58 minutes; for programming in classrooms, offices, and TV, the producer might consider the 50-minute hour.) Withal, however, the medium allows a reading of architecture that moves far beyond the printed page to a closer simulation—albeit subject to the camera's eye and the editor's mind—of form in space.

Naomi Miller

The author is professor of art and architectural history at Boston University.



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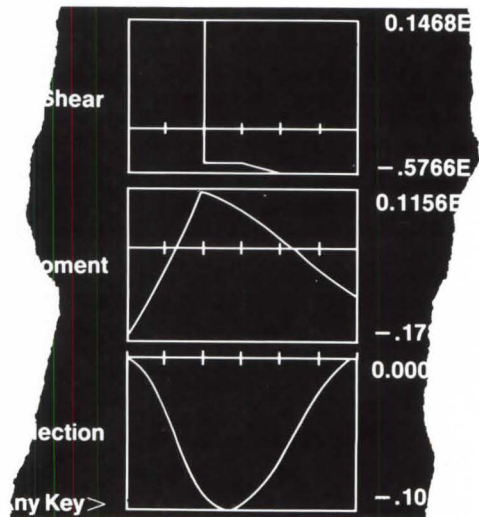
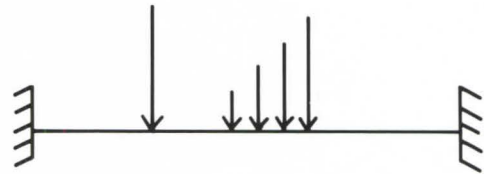
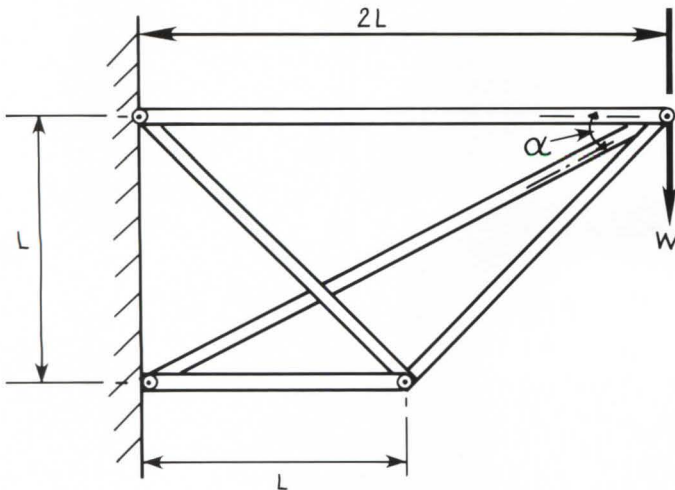
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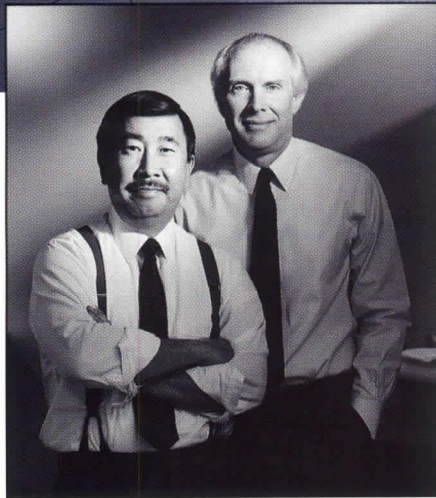
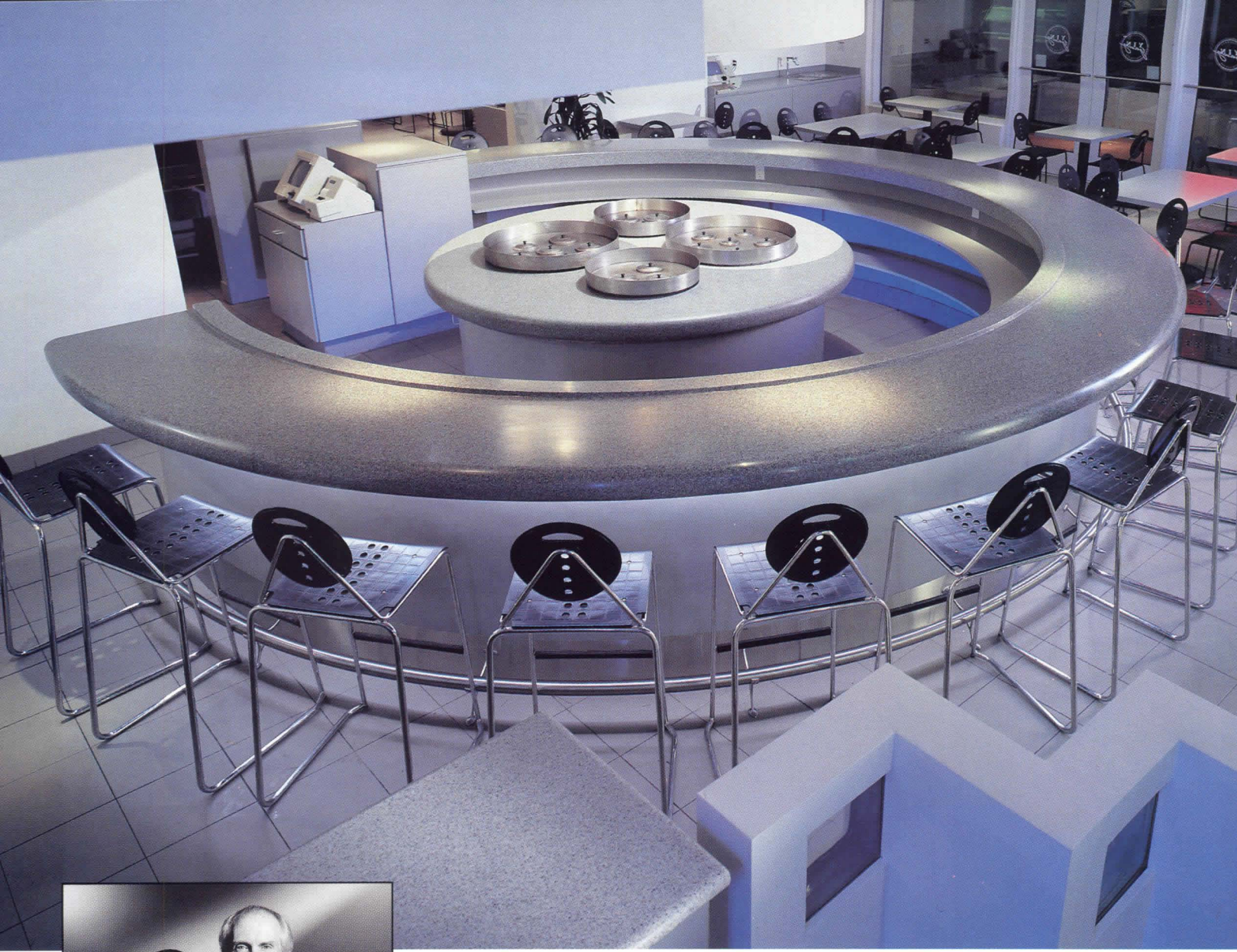
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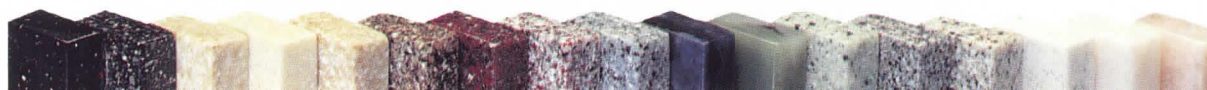
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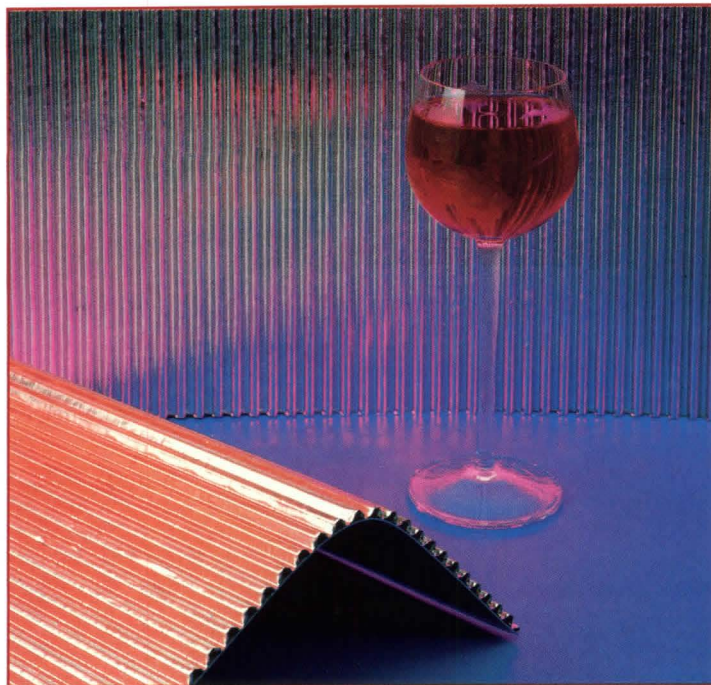
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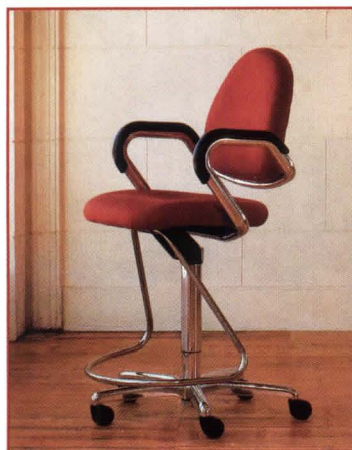
New Products and Literature

138 **Products and Literature**
continued
104 **Technics-Related Products**



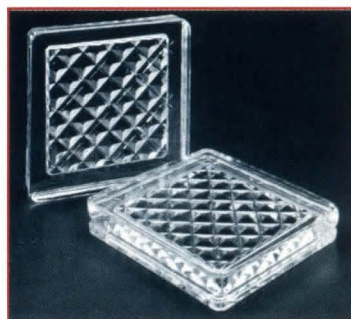
New aluminum panels called Aluflex are corrugated on one side and flat on the other. Designed for architectural applications such as ceiling or wall systems, the fire-resistant panels are supplied as flat sheets or in 59-inch-wide rolls and measure 4.7mm thick. Corner connector pieces and related hardware may be specified for the lightweight panels. Metawell.

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An operational chair from the Bühk 100 seating collection provides upper back support for individuals working at elevated levels. Finish options for the height-control ring and stool include four epoxy colors, four metallic finishes, or polished aluminum. Allsteel.

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Circle 103 on reader service card

A new glass building component called GlassBlock® Paver Units are compatible with most concrete, steel, and aluminum paver frame systems and can be used in horizontal, vertical, or curved applications. Pittsburgh Corning.

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A casegoods system called Versailles 4000 is constructed from Carpathian Elm Burl and finished in contrasting natural or dark mahogany veneers. A variety of desks, credenzas, and storage units make up the collection. Paoli.

Circle 104 on reader service card

White bronze hardware for residential and commercial windows and doors can now be specified for projecting and casement windows. A patented end cap provides a more secure closing action. Bronze Craft.

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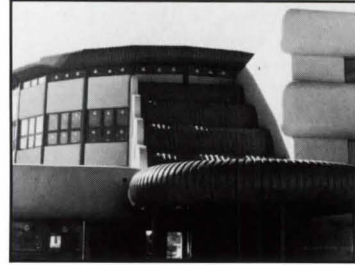
Glazing gaskets are the subject of an illustrated brochure, which discusses four types of lock strip gaskets: Tongue and Groove, Sta-Wind, for high wind loading requirements, Inner-Glaz, for

continuous window bays, and Secondary Seal, designed for corners and trouble spots. Wright Building Products.

Circle 200 on reader service card

Woven commercial carpets are illustrated in a 16-page, full-color catalog that features five of the ten available styles in the Themes and Variations® collection. Karastan.

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Curved roofing, wall systems, canopies, decking, and more are the subject of a new four-page, illustrated brochure. Design guidelines, technical data, and ordering information is also detailed. Curveline.

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A ribbon window system called Visionary™ RW-600 includes standard mullions for curved and angled façades, various sight lines, and perimeter conditions.

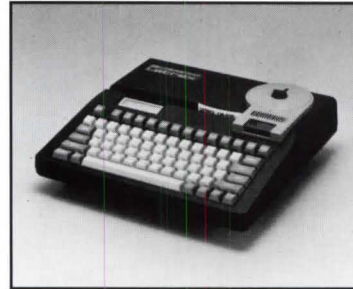
The one-piece continuous sill component is baffled and weeped to form a gutter which directs water to the outside. Vistawall.

Circle 106 on reader service card

The products and literature described below relate to the preparation of architectural presentations (pages 84-93).

A drawing reduction system called Macromaster reduces full-size A/E drawings to 8½" x 11" sheets for standard three-ring binders. The system produces either a film positive made of whitened translucent Mylar or a film negative. The durable reductions can be enlarged on standard copiers. Du Pont.

Circle 107 on reader service card



A new lettering machine called Letrex LM-500 can change character size from 6 points to 43

points. Letters can also be expanded or condensed. The machine can vary the angle or slant of letters from 75 to 105 degrees. Max.

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A new thermal printer called TPG-4300 outputs 300-dot-per-inch full color images on A- or B-size paper or transparency film from Mac II and any compatible color monitor. Up to eight program pre-sets for different video timings and specifications permit hardcopy sharing. Toyo Spectrum.

Circle 109 on reader service card

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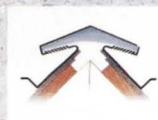
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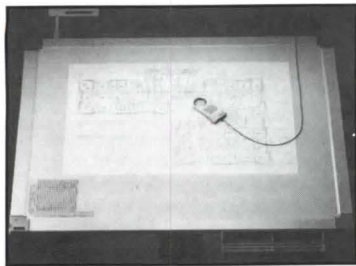
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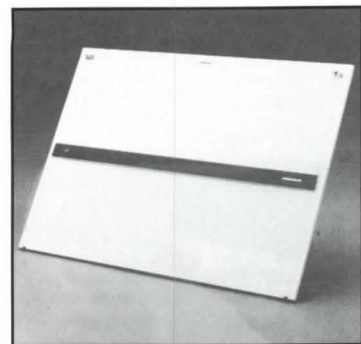
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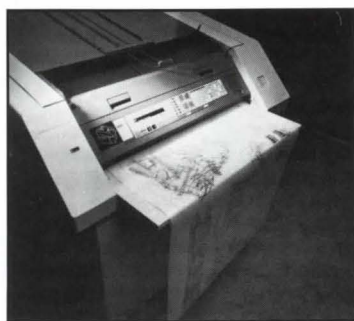
A new digitizer from the DrawingBoard 9500 Series allows users to select any resolution, in whole numbers, between one and 10,160 lines per inch. The digitizer is available in D-, E-, and J-size models. CalComp.
Circle 111 on reader service card



A parallel rule called LineMaster features ball bearing rollers to minimize track marks. The rule also features a built-in brake and a raised beveled ruling edge.

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A printer called the 5080 Engineering Printer reproduces documents from 8½" x 11" to 36" x 50". Electronic indicators show the type of media in use, the size and shape of the documents being copied, and which special features are selected. Xerox.
Circle 113 on reader service card

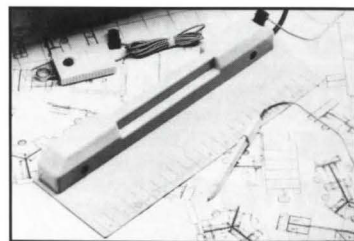
New software called Architron II allows designers to define the colors of a building and its components and specify the type and position of a light source to create realistic shades and shadows. Users can also modify the building in section view and adjust openings in elevation. Gimeor.

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Reproduction materials, including dry diazo opaque paper, pressure developed opaque paper, and neutral moist opaque paper are the subject of a new brochure.

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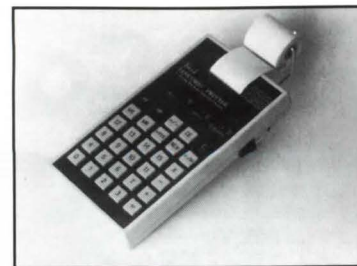


A drafting rule that works with IBM-compatible personal computers calculates quantities, lengths, and rectangular areas. The Geo:Lat can also analyze and verify production processes as well as prepare bills of material from construction drawings. Geo Instrument, % The Netherlands Consulate General.

Circle 116 on reader service card

A rotatable drafting board adjusts 360 degrees horizontally and can be positioned between 27 and 44 inches high. A black baked enamel tubular base supports the table which is offered in three sizes. Kelpro.

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A new calculator will directly add, subtract, multiply, and divide in feet, inches, and sixteenths of an inch and thermally print the results. The calculator also has four independent memories. Boyd Calculator Co.

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Drafting and graphic supplies are shown in a new, comprehensive catalog. Electric erasers, planimeters, cutting instruments, and other related tools are discussed. SAGA.

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(continued on page 140)

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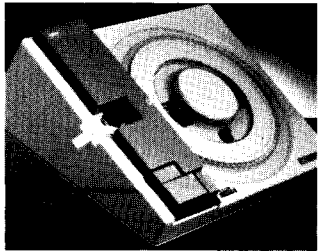


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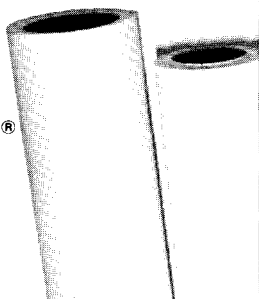


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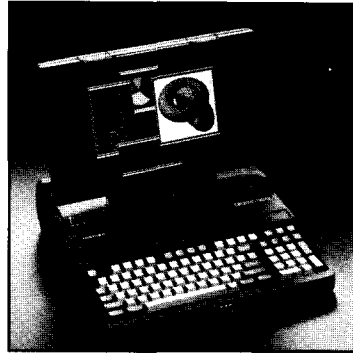
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(continued from page 139)



A portable computer called the T5200 comes in two models—a 40 megabyte hard disk drive and a 100MB hard drive unit. The 18.7 pound personal computer performs many high-end desktop tasks and supports VGA graphics. Toshiba.

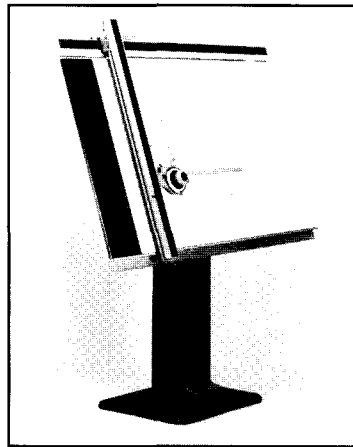
Circle 120 on reader service card

A new printing accessory called the Eograph Plus plugs into conventional matrix printers and outputs high-resolution graphics. The board can support many current dot matrix, laser, ink jet, and thermal printers for PCs. Full C-size drawings are possible in lengths up to 15 feet. Eotron.

Circle 121 on reader service card

Updated software for AutoCAD release 9.0 and subsequent versions is called Block Librarian. The program stores and organizes files of graphic symbols such as original symbols, a single line or a full drawing, or commercial reference libraries. SoftSource.

Circle 122 on reader service card



Drafting tables from the Status Series that are counter-balanced can be moved vertically up to 19 3/4 inches and tilted from 0 to 70 degrees. Four metal stiffeners keep the work surface flat. Alpia.

Circle 123 on reader service card

An overlay drafting punch allows CAD operators to register

pre-plotted drawings to a back-lighted cross hair display and then accurately punch the standard seven-hole register pattern. The board measures 36" x 48". J & D Mechanical.

Circle 124 on reader service card

A new desktop easel for design presentations is lightweight and folds up to fit easily into a portfolio or briefcase. Three sizes—14" x 11", 17" x 14", and 21" x 17"—are offered. RAK Enterprises.

Circle 125 on reader service card

A design template for lighting layouts permits rapid location of track and recessed lighting on plans in quarter inch scale. A set of beamspread guides shows beam angles ranging from 6 to 42 degrees. Capri.

Circle 126 on reader service card



A leather case for carrying rolled documents, maps, charts, or technical drawings features saddle stitching and brass fittings. Lined with impact-resistant P.V.C., the tube is 31 inches long and 3 1/2 inches in diameter. Obier Studios.

Circle 127 on reader service card

A new ultra-fine tip for a disposable plotter pen offers a hard tip point measuring .18 mm. and is available in two styles for Hewlett Packard and CalComp 10450 series plotters.

Koh-I-Noor Rapidograph.

Circle 128 on reader service card

Cost estimating software called G2 ESTIMATOR® has a new flexible reporting format, digitizer support, global markup, inquiry, on-line report viewing, and other updated capabilities. Version 2.0 still offers "what if" analysis and estimate cloning, among other options. G2.

Circle 129 on reader service card

Presentation equipment for IBM PC-compatible and Macintosh computers includes projection pads with liquid crystal displays, a new overhead projector, and a laser pointer. Kodak.

Circle 130 on reader service card

(continued on page 142)

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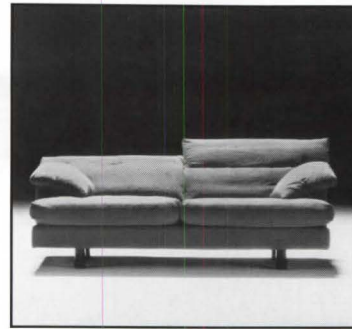
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(continued from page 141)

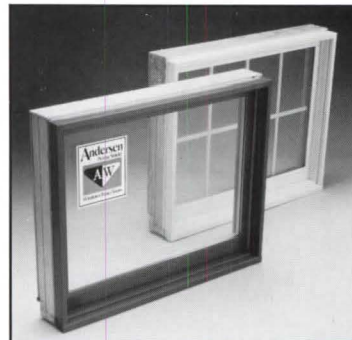


A new sofa called the Waldorf was designed by Jorge Pensi and features individually adjustable backrests. A loveseat and two- and three-seat sofas comprise the collection. Kron U.S.A.

Circle 131 on reader service card

Plastic panels featuring a honeycomb design do not crimp when shaped by strip bending, drape forming, or vacuum forming. Thickness dimensions also remain constant. The plastic honeycomb panels come in a variety of thermoplastic grades and in four standard sizes. Norfield.

Circle 132 on reader service card



New transom windows are made of vinyl-clad wood, arrive pre-assembled, and feature two types of low-emissivity glazings. Designed for installation over double-hung windows, the stationary units are offered in many sizes. Andersen.

Circle 133 on reader service card

Building Materials

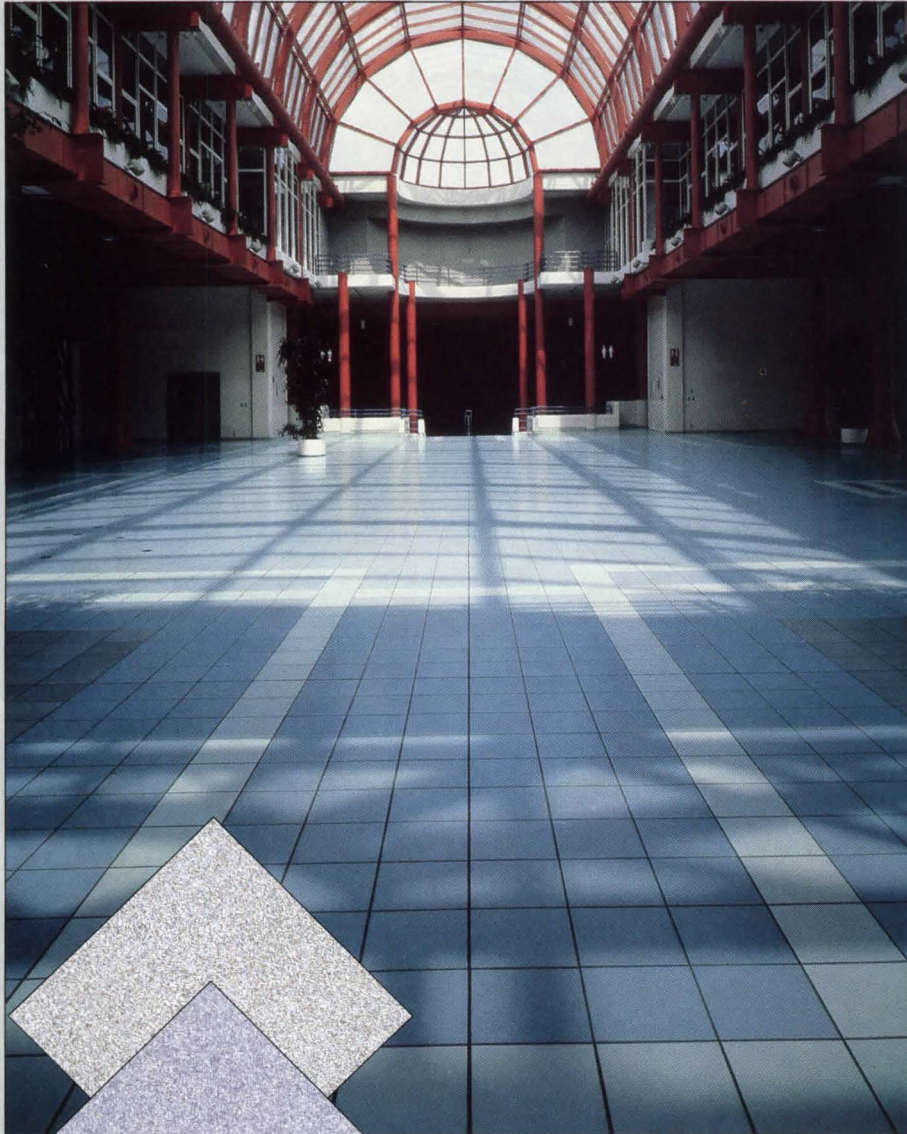
Major materials suppliers for buildings that are featured this month as they were furnished to P/A by the architects.

Arizona State University Fine Arts Complex, Tempe, Arizona (p. 65). Architect: Antoine Predock
 Architect, Albuquerque, New Mexico. Cast-in-place concrete spread footings and caissons: Westbrook Construction. CMU and cast-in-place concrete walls: Superlite Builders Supply. Cast-in-place concrete floors: Arizona Portland Cement. Cement stucco

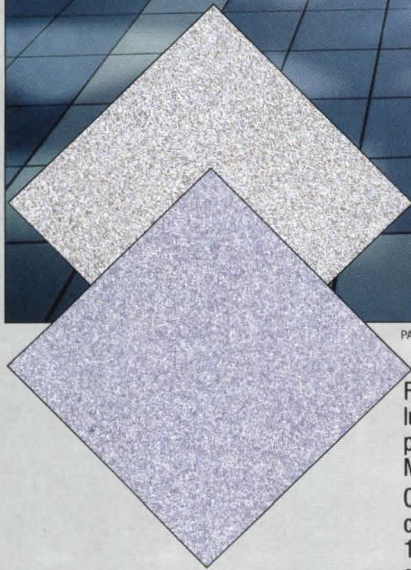
surfacing: Ruseo Plastering. Gypsum board: Gold Bond. Steel-frame windows and museum clerestory: Hope's Architectural Products. Doors: Weyerhaeuser (acoustic), Buell Door (maple solid core), Cookson (flatslat steel coiling). Floor surfacing: Sun Valley Masonry (Arizona Sandstone), American Olean Tile (ceramic and quarry tile), Armstrong (vinyl composition tile). Acoustic ceiling tile: Armstrong. Rubberized asphalt waterproofing and roof insulation: W.R. Grace. Cast iron drains: Zurn Roof Drains. Paint, exterior and interior: Pittsburgh. Hardware: MicKinney (hinges), Sargent & Co. (locksets, door closers, panic exit), Rixson Firemark (pivot door closers), Hafele, Blum, K&V (special casework), Pemko (acoustic seals). Control booth access floor: Tate. Security: Johnson Controls. Fire detection: Walter Kidde. Lockers: List Industries. Theater seating: Irwin Seating. Theater rigging, draperies, and orchestra pit lift: Stagecraft Industries. Custom and standard stainless steel elevator cars: Montgomery. Custom precast bleachers: Buchner & Co. Custom steel handrails: Modern Ironworks. Recess walk lights and museum track lighting: Edison Price. Theater lighting: Strand. Electric distribution: Siemens. Wall-mounted water closets: Kohler. Lavatory faucets: Symmons. Stainless steel, ceiling hung toilet stalls: Acurate Partitions Division. Washroom accessories: Bobrick Washroom Equipment. Air handlers: Sun Manufacturing. Environmental control system: Honeywell. Carpets: Lees. Furniture: Steelcase (desks, files/shelving, cabinets), Kinetics (tables), Herman Miller (chairs). Horizontal miniblinds: Levolor. Custom perforated steel acoustic panels: Jones Noise Control. Fountain equipment: Roman Fountains. Custom precast concrete urns: Buchner & Co.

Design Express, Los Angeles (p. 78). Architects: Building, Los Angeles. Structure: wood studs, concrete. Roofing: built-up. Exterior wall surfacing: cement plaster. Interior wall surfacing: gypsum board, plywood paneling. Windows: metal frame. Entrance doors: steel, wood frame. Interior doors: steel frame and solid-core wood. Interior floor surfacing: industrial gray carpet. Partitions: steel frame and stained plywood paneling. Stairs: steel frame, concrete treads. Railings: steel, stainless steel cable.

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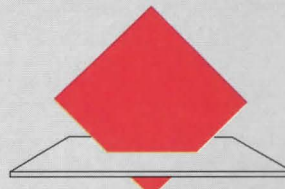


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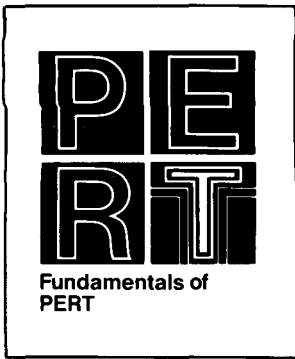
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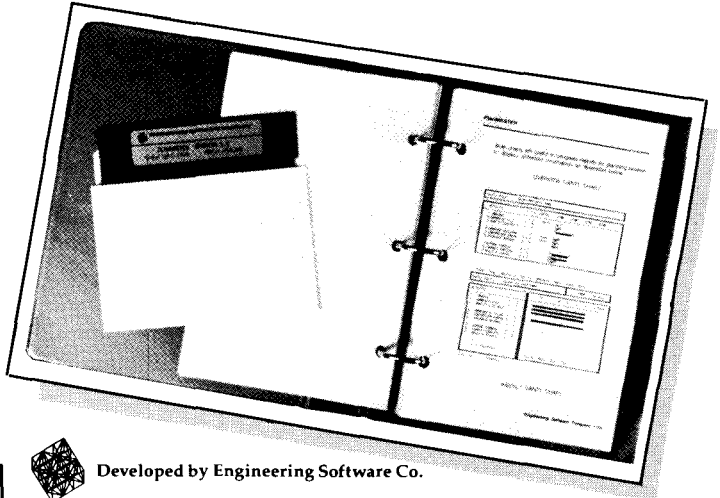
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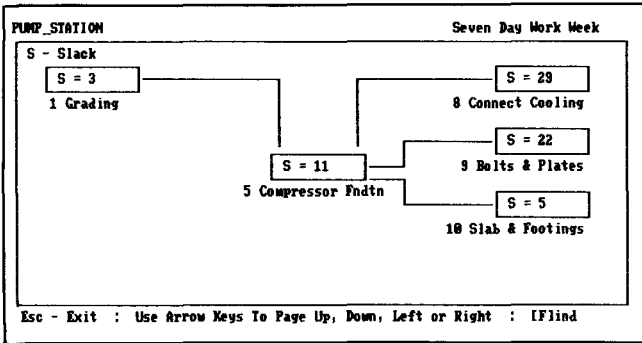
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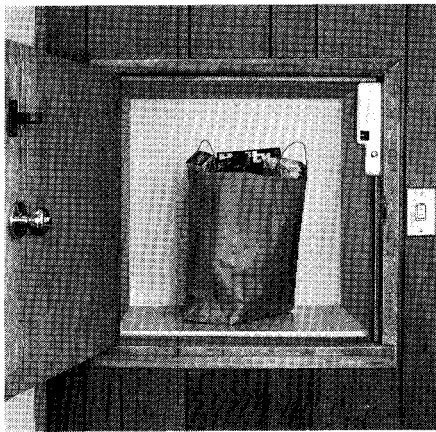
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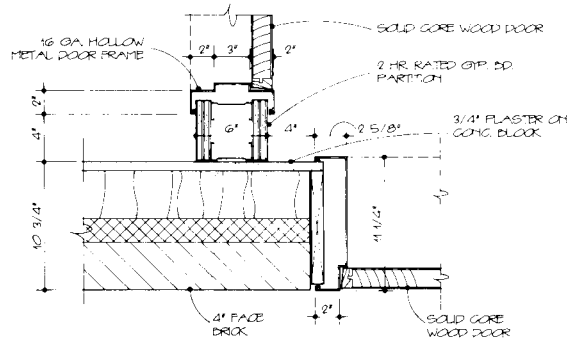
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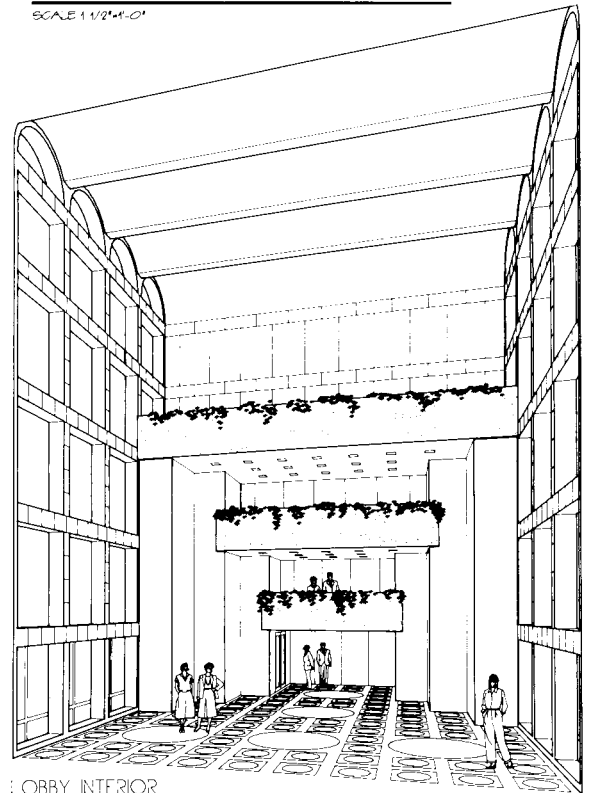
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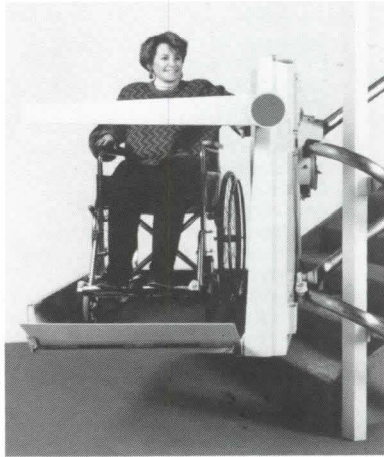
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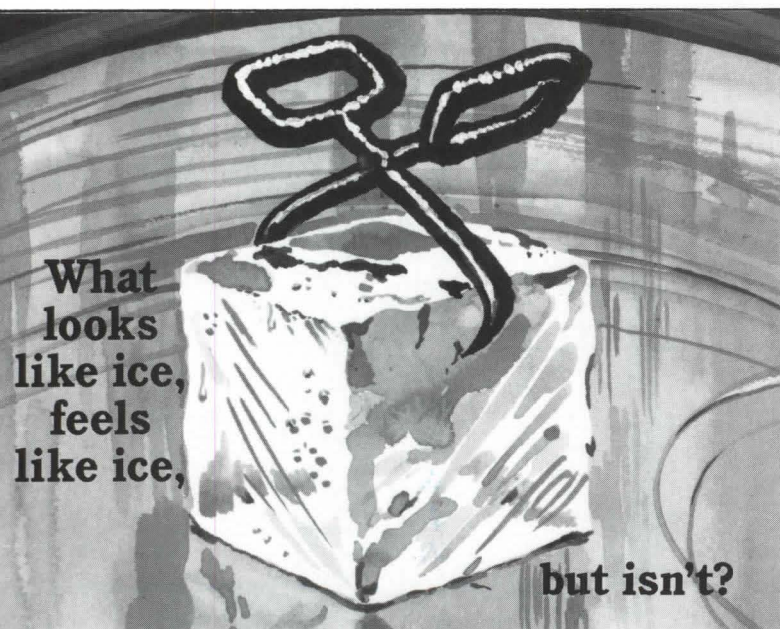
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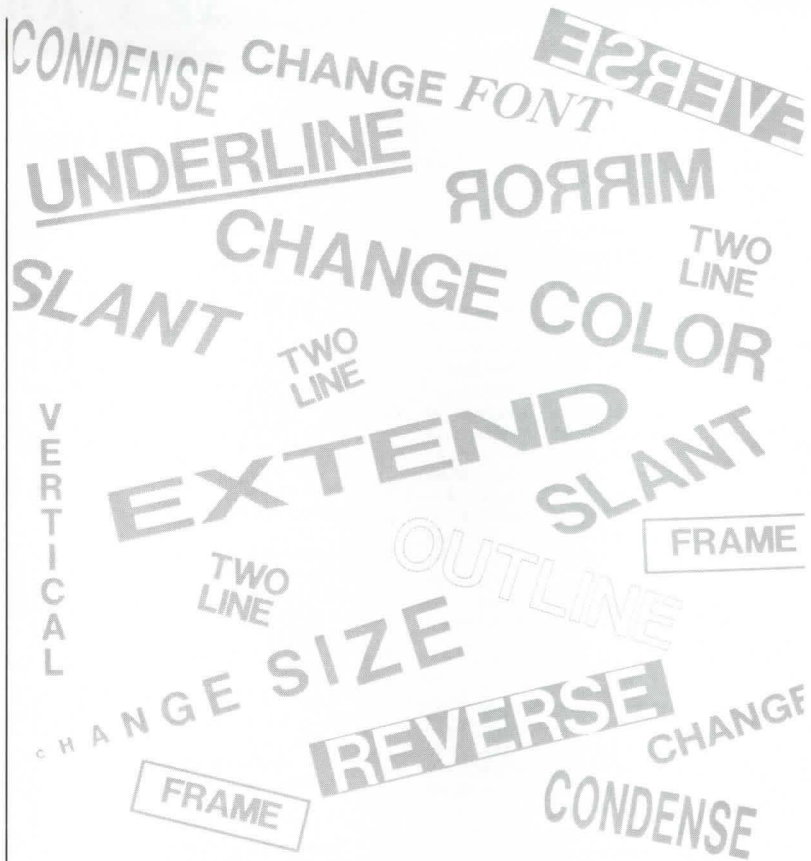
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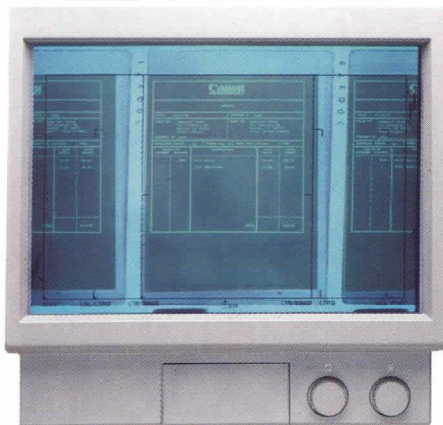
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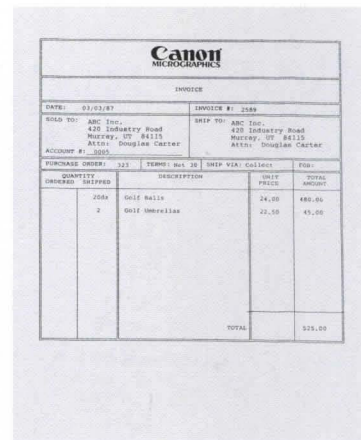
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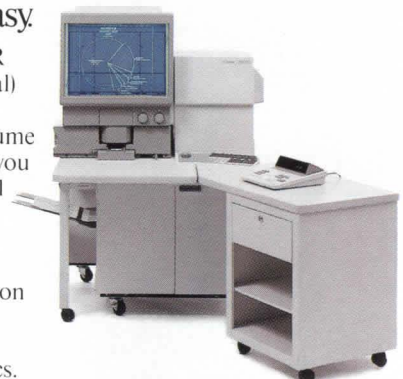
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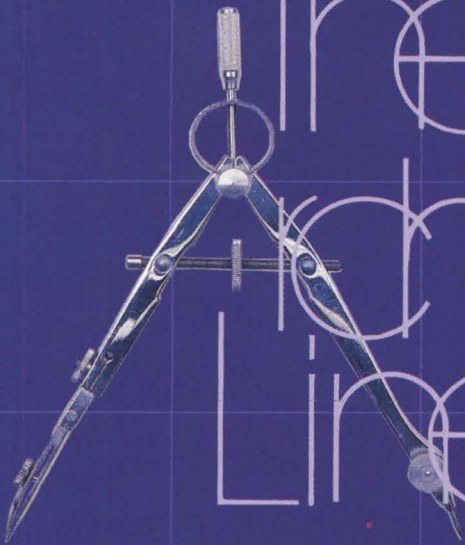
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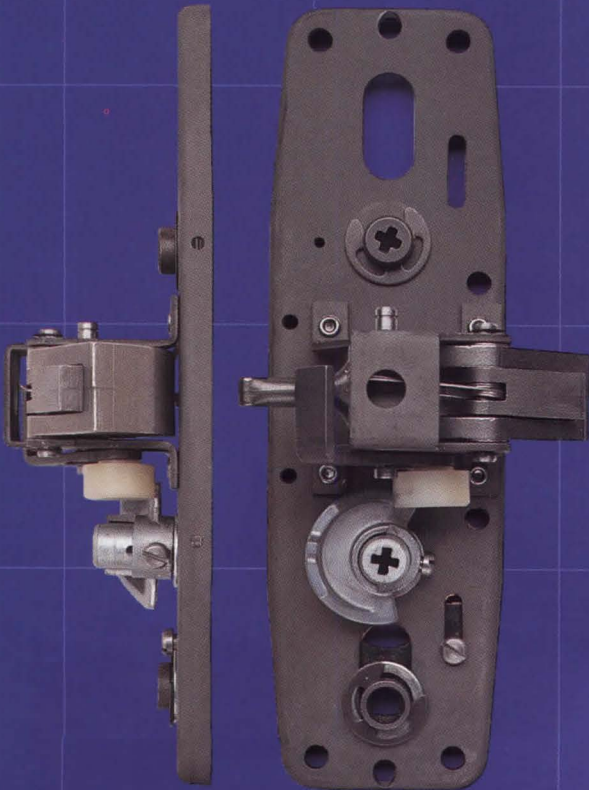
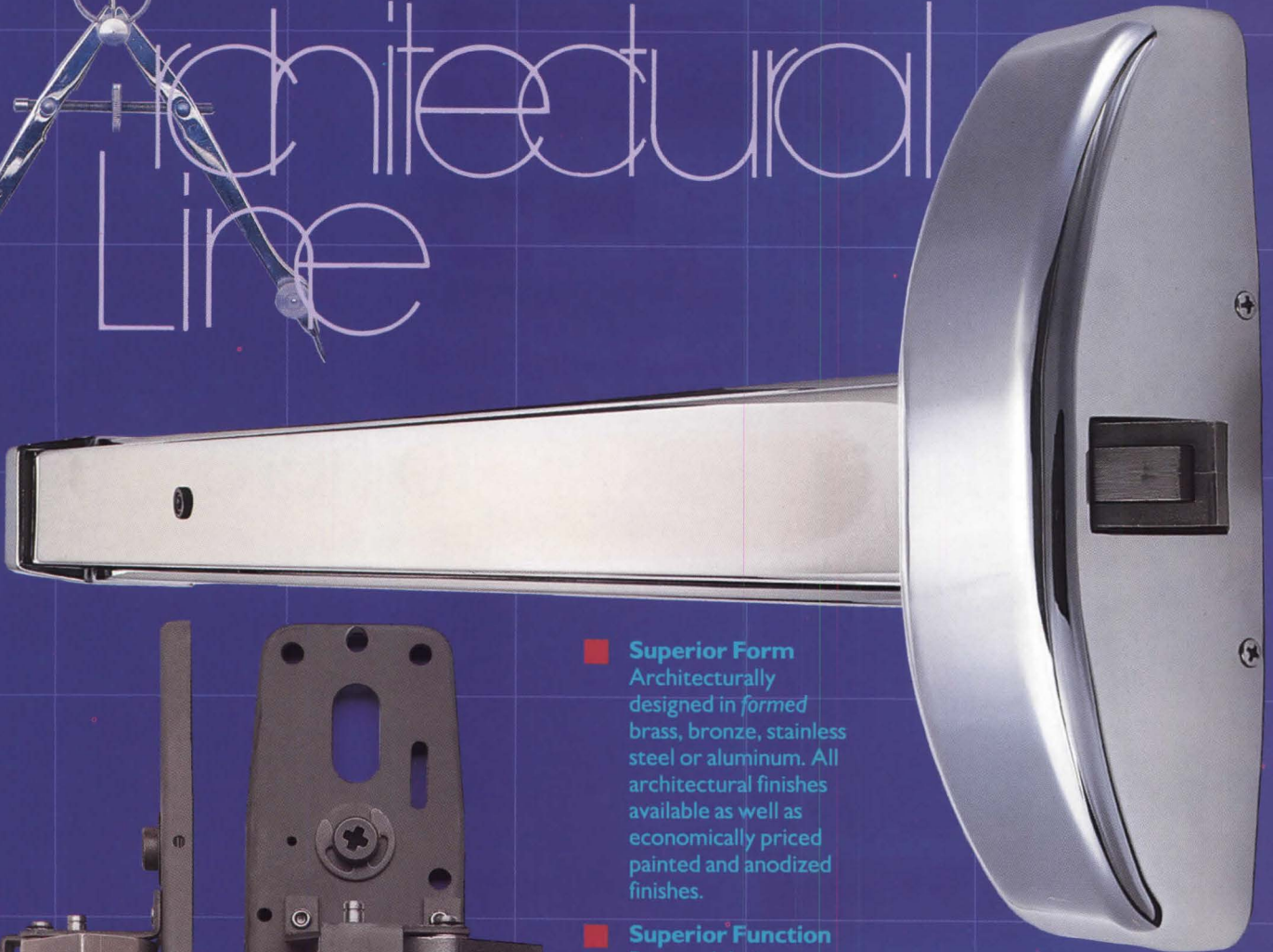
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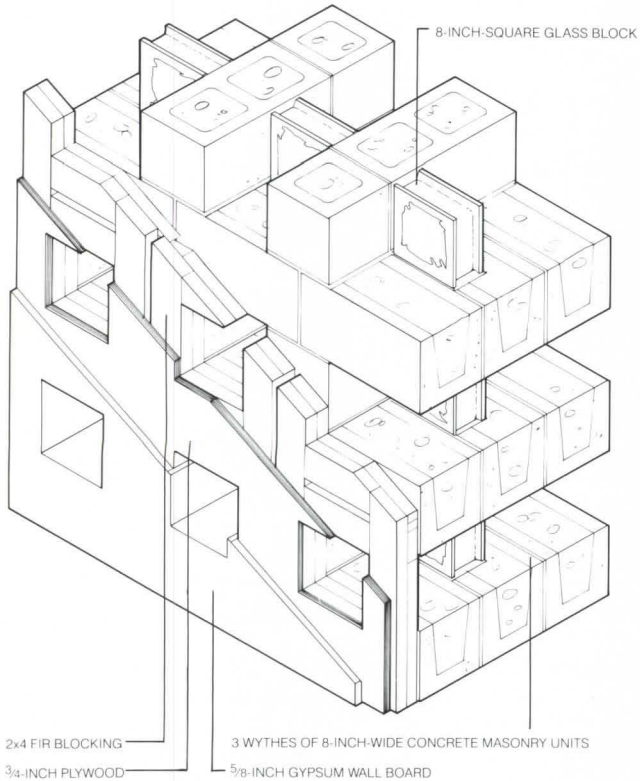
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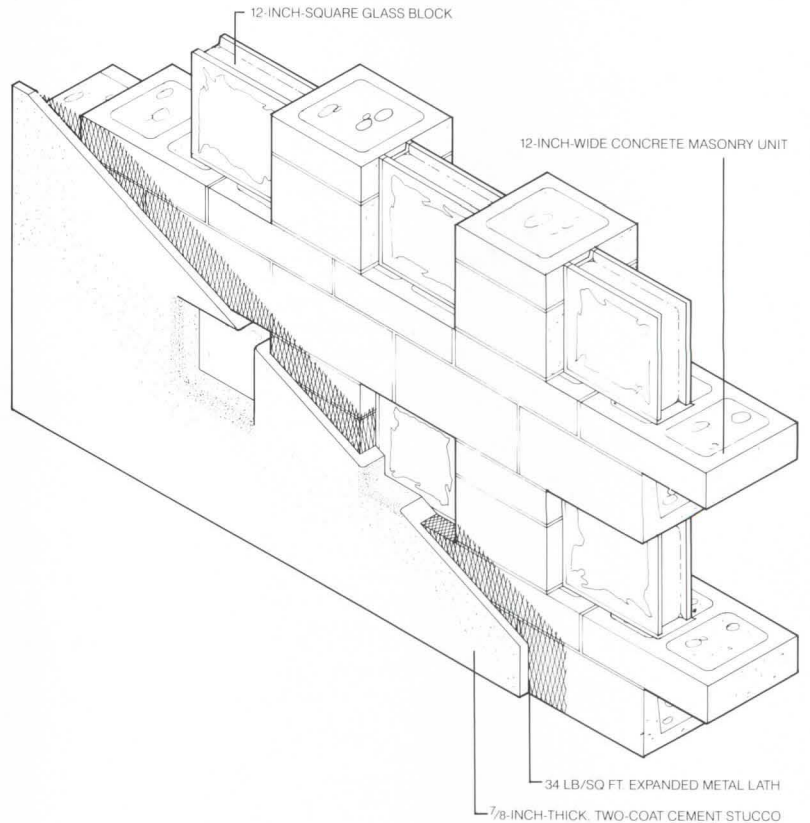
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Manufacturing Company
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Steeleville, IL 62288
(618) 965-3491
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Selected Details



INTERIOR AXONOMETRIC AT 8-INCH GLASS BLOCK GRID



EXTERIOR AXONOMETRIC AT 12-INCH GLASS BLOCK GRID

2/0 6m



Twelve-inch glass block grid from the interior.



View of same grid from the exterior.

Glass Block Windows Fine Arts Center Arizona State University

In the unrelenting heat and sun of the Southwestern desert, the massive walls and small, shaded openings of the region's traditional architecture are still pertinent to the problem of indoor comfort. The difficulty comes in translating those architectural features into modern materials. Antoine Predock at Arizona State's new Fine Arts Center (p. 65–77) offers one solution to the problem. He attains mass in the building's walls with concrete masonry units whose cores have been filled. Some of those walls use one wythe of 12-inch-wide block, with 12-inch-square glass block providing interior illumination. Walls requiring greater mass and shading have three wythes of 8-inch-wide block, with deeply recessed 8-inch-square glass block. Their exterior surfaces consist of a two-coat cement stucco on expanded metal lath, and their interiors, of gypsum board on plywood and 2x4 fir blocking. ■

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Brian Keenan, District Manager

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16255 Ventura Blvd, Suite 300
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Barbara Couchois, District Manager

New York, New York 10168:
Chanin Building, Suite 900
122 East 42nd Street
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James J. O'Brien, District Manager

Philadelphia, Pennsylvania:
600 Summer Street, P.O. Box 1361
Stamford, CT 06904 Fax 203-348-7531

Francis X. Roberts, District Manager

San Francisco, California 94010:
840 Hinchley Road, Suite 233
Burlingame, CA 94010
415-692-1381 Fax 415 692-7406

Susan M. Werner, District Manager

Paris, France:
Continental Europe
12 Avenue Franklin-Roosevelt, 75008
Telephone: 43 59 36 06 Telex: 260717,
Fax: 43 59 76 70.

Yvonne Melcher, Manager

Tokyo, Japan 101:
Bancho Media Service
Dai-Ichi Nisawa Bldg, 5th Fl.
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No surprise here to anybody who knows Kentile. We've been matching designer/architect/building-owner criteria for a good 90 years!

Kentile Criterion tile measures 12"x12". Architectural Criterion is available in 3/32" and 1/8" thicknesses; Criterion Solids in 1/8" thickness.

To let Kentile Architectural Criterion and Criterion Solids meet your criterion, call your Kentile Representative today.

The Kentile decision . . . it's the easiest one you'll ever make.

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Kentile Floors Inc. Brooklyn, N.Y. 11215

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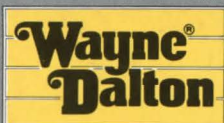


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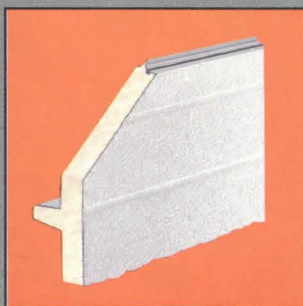
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