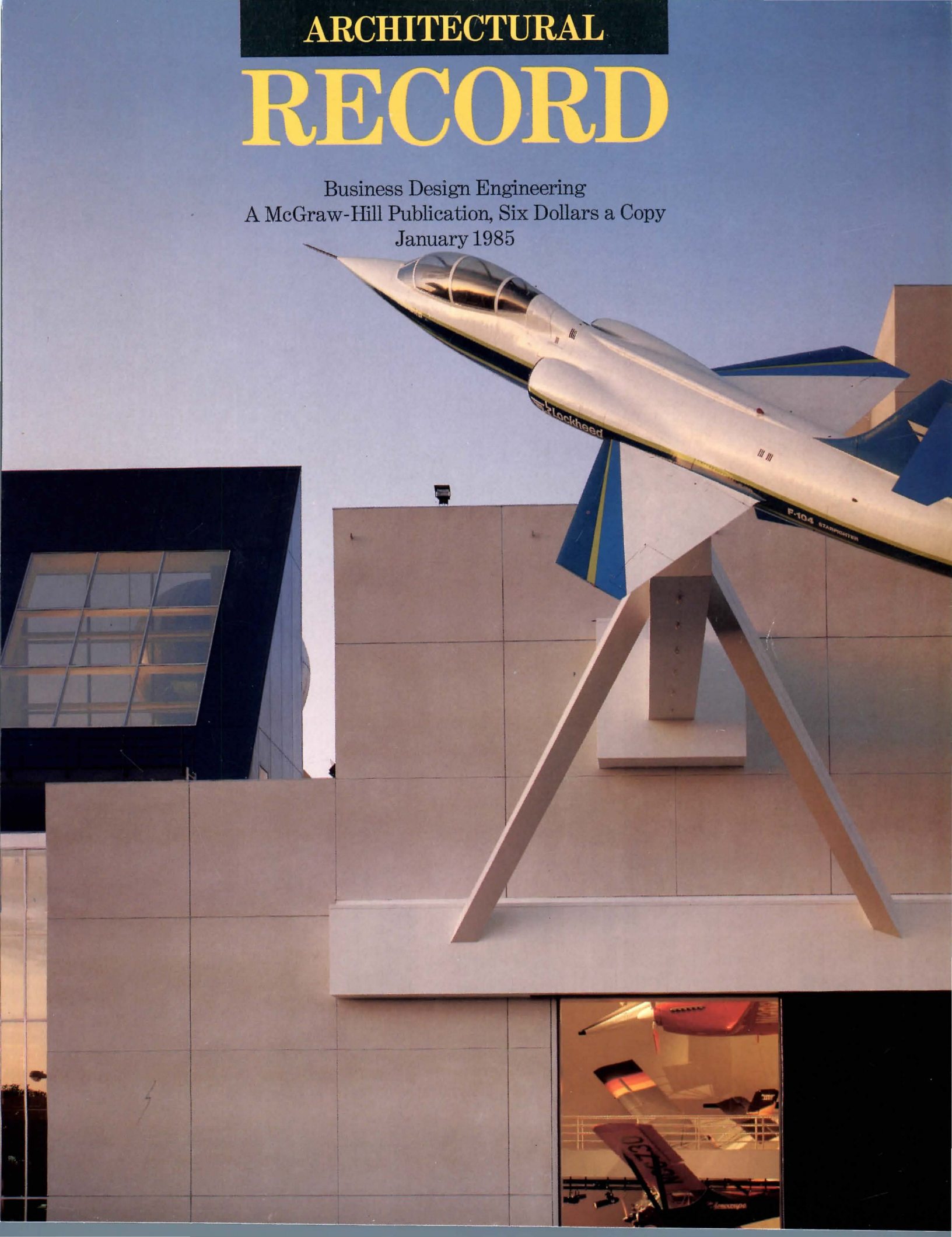
ARCHITECTURAL RECORD

Business Design Engineering
A McGraw-Hill Publication, Six Dollars a Copy
January 1985



A larger-than-life innovation in ceilings.

Artran™: Simplicity of line and texture.

Artran from Armstrong is truly a revolution in ceiling technology. It features detailing significantly more refined than traditional acoustical ceilings and performs effectively without fissures, holes , or deep scoring.

Three precisely registered patterns in 2′ × 2′ panels offer fresh ceiling images. In the Fine Grid pattern, classical stepped-edge detail surrounds the panel. Two wrapped edges combine with two beveled edges for a clean finish in the Wrapped Linear design. And attractive radiused edges border the third Artran pattern, Natural Texture.

All Artran panels surpass standard mineral-fiber ceilings for dimensional stability during installation.

Install Artran in our new narrow 9/16″ Suprafine™ grid system for a highly refined visual.

Patterns are available in white and four neutral colors at only a slightly higher cost than conventional tegular-edge ceilings.

So, for the ultimate refinement in acoustical ceiling design, discover Artran. For more information, write Armstrong, Dept. 4CNAR, Box 3001, Lancaster, PA 17604.

FROM THE INDOOR WORLD® OF Armstrong

Circle 1 on inquiry card

Contents

Cover:
Aerospace Museum, Los Angeles, California
Frank O. Gehry and Associates, Architects
Photographer: ©Timothy Hursley/The Arkansas Office

TAMKO Asphalt Products, Inc.
ROOFING ANALYSIS 2

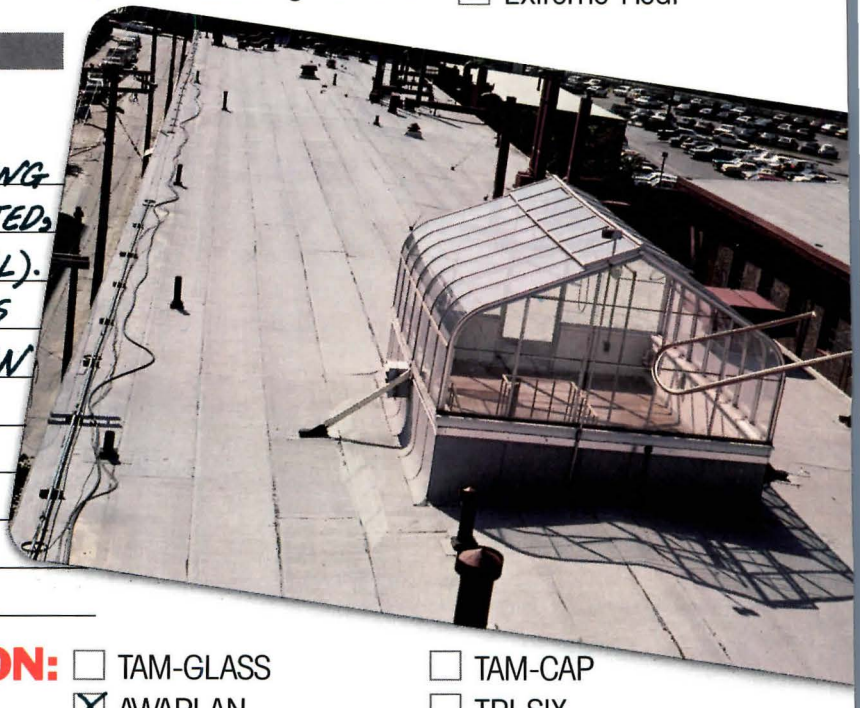
LOCATION: POLAROID CORP. - CAMBRIDGE, MASS.

PROBLEM:

- [X] Irregular Roof Structure
- [ ] Industrial Contaminants
- [X] Building Equipment Vibration
- [ ] Broad Roof Surface Temperature Profile
- [ ] Heavy U.V. Loading
- [X] Snow Loading/Removal
- [ ] New Construction
- [X] Re-Roof: Tear-Off Yes ___ No X
- [X] High Winds
- [X] Roof Traffic
- [ ] Humidity: Exterior
- [ ] Humidity: Interior
- [ ] Extreme Heat

Architect: Senior Architectural Engineer, Polaroid — Richard Massucco
Roofing Contractor: Shea Roofing Company

VISUAL:



DEC.'83

COMMENTS: RESEARCH LAB NEEDS RE-ROOFING (NON-SLIP GRANULE SURFACE REQUESTED, DUE TO ROOF TRAFFIC & SNOW REMOVAL). WOOD & BRICK STRUCTURE; REQUIRES INSTALLATION W/O TORCHES. AWAPLAN SPEC. 101 APPLIED IN HOT ASPHALT.

UPDATE: SEPT.'84 ROOF CONDITION: EXCELLENT! PROJECT A SUCCESS. POLAROID HAS SPECIFIED AWAPLAN ON OTHER BUILDINGS.

R. S.

SOLUTION:

- [ ] TAM-GLASS
- [X] AWAPLAN
- [ ] Walkways: AWAPLAN
- [X] Flashing: AWAPLAN
- [ ] VENT-PLY
- [ ] VAPOR-CHAN
- [X] GLASS-BASE
- [ ] TAM-CAP
- [ ] TRI-SIX
- [ ] No. 15 Perforated
- [ ] Organic Felt
- [ ] Type 43 Base Sheet

TAMKO TOUGH

TAMKO

A Proven Leader in Asphalt Roofing Technology

TAMKO Asphalt Products, Inc. Home Office: PO Box 1404, Joplin, MO 64801

Call or write for your free product brochure. Or consult Sweet's Catalog File: 7.1/TAM.
1-800-641-4691 In Missouri: 417-624-6644

Circle 5 on inquiry card

Letters

Just a quick note of appreciation for your October 1984 issue. The guide to computer software for architects and engineers in that issue [pages 49-80] is like an answer to my prayers. As James Gardner could testify, tracking down architectural software can be frustrating.

The information you provided is exactly the type of thing I've been looking for and trying to compile independently. I'll be looking forward to other computer-related articles in upcoming RECORDs. Keep up the good work!

Bruce Jones, Architect
Shoreview, Minnesota

It may be an exaggeration to say that Christine Benglia Bevington's article "Cheap thrills" in the May 1984 issue of ARCHITECTURAL RECORD [page 113 et seq.] is the best thing written since Hans Christian Andersen's "The Emperor's New Clothes" on the faith of a culture in the powers of illusion, but I'm going to say it anyway.

I'm not an architect, and although I do agree with Mrs. Bevington's architectural criticism (I'm only eight miles from downtown Portland and Michael Graves), her observation that we are living in a period of "stage set design" and show business is both penetrating and profound.

It is too bad her thoughts were not in a magazine of wider circulation, but I am doing my bit by giving Xerox copies to friends.

Jack Radow
Lake Oswego, Oregon

Thank you for the juxtaposition of opinions by Messrs. Rapoport and Beckley [RECORD, October 1984, pages 100 et seq.]. I would like to add a view that falls in the middle.

Architectural design and education are not searches for truth in a closed system, as many of the sciences were considered in earlier, less humble times. Architecture in one sense is close to law, which is founded on a base built by accretion and which continually evolves incrementally to suit its human purposes. Though I ardently oppose the definition of architecture as Art, architecture is in another sense similar to this field, which is subject to the vagaries of fashion and taste and which is vitally sensitive to the incandescence of individual genius.

Architects are neither lawyers nor artists, but their education must encompass attributes covered by the two writers.

Michael Johannes Paul
Gredell & Paul, Inc.
Consulting Structural Engineers
Newark, Delaware

This letter is written in response to the articles by Amos Rapoport and Robert M. Beckley [RECORD, October 1984], in which they debated the validity of the studio in architectural education. I feel a need to voice my opinions as a student representing the heart of the debate: the success or failure of our educational system.

In a studio, as Mr. Beckley describes in his article, a student is exposed to an interactive process via drawing and speaking. This creates a conversation not only between the student and professor but also between peers. The vastly varied backgrounds of students making up a studio allow for an incredible amount of insight into a given problem. The wise student will weed out what he feels is inappropriate and harvest what is good. In the other form of educating students, namely lectures, the students listen to the beliefs and findings of mainly one professor and then disperse to various parts of the campus when the bell rings.

The studio acts as a home base, where students are able to converse about *architecture*. In addition to peer conversation, the student is exposed to many professors in different studios during the course of his education. This exposure allows the student to evaluate the opinions of many professors on the same subject, thus allowing him to form a strong base for his own values and beliefs. It is important to establish these values, as it will help the future professional make sound decisions in everyday practice.

Wishing to become a licensed professional, I for one find it most beneficial to be instructed by a professor who has had actual experience in the profession, and in most cases such a professor is a licensed professional. I would suggest that most of these professors will be found in the studios and not in the lecture halls. But often the ones found in the lecture halls are the best *lecturers*.

Mr. Rapoport states we should only teach topics in which the results of the teachings can be measured with concrete data, thus proving whether or not something is successful. He states that design and/or creativity thus are not suitable topics to be taught at the university since they are strictly subjective. But pragmatic issues *can* be measured in a studio, ranging anywhere from structural systems to accessibility for the handicapped. Might I ask how one measures his love for another, or the feeling one gets in a special place? Is it not the role of the studio, and the architect, to create special feelings within one's heart? If not, aren't we all engineers solving problems with cut-and-dried answers? The studio is the place

Continued on page 24

Calendar

MPA VBPA ABP

Through February 17
Exhibition, *The 20th Century: The San Francisco Museum of Modern Art Collection*, containing about 600 international works of art created between 1900 and 1984; at the San Francisco Museum of Modern Art.

January 15-18
Third annual Interstate Solar Coordination Council conference and workshops, at the Florida Solar Energy Center, Cape Canaveral, Fla. For information: Carolyn Burby or Ken Sheinkopf, ISCC, 300 State Rd. 401, Cape Canaveral, Fla. 32920 (305/785-0300).

February 4 to March 17
Exhibition, *Built for the People of the United States: 50 Years of TVA Architecture*, a traveling exhibit from the National Museum of Building, Washington, D. C., sponsored by Architecture Cluster, Skyline Career Development Center, Dallas, by the Dallas Historical Society and by the National Museum of Building; in the Great Hall of the Hall of State, Fair Park, Dallas.

February 5-8
Exhibition, *The Architecture of Rudolf Steiner*, sponsored by the Anthroposophical Society; at the Pacific Design Center, Los Angeles.

February 22-24
1985 Monterey Design Conference, "Sources: The Origins of Inspiration," sponsored by the California Council, American Institute of Architects; at Asilomar, Pacific Grove, Calif. For information: Sue Breitenbach, CCAIA, 1414 K St., Suite 320, Sacramento, Calif. 95814 (916/448-9082).

February 24-27
Convention, Solar Energy Industries Association, at J. W. Marriott Hotel, Washington, D. C. For information: Scott Sklar, 1717 Massachusetts Ave., N. W., Washington, D. C. 20036 (202/483-6225).

March 14-18
"Research & Design 85: Architectural Applications of Design and Technology Research," with speakers and exhibits on energy, life safety and codes, building redesign, design of specialized facilities, and environmental trends, sponsored by the American Institute of Architects; at Los Angeles. For information: Kim Leiker, Research & Design 85, AIA, 1735 New York Ave., N. W., Washington, D. C. 20006 (202/6236-7300).

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, and WESTERN ARCHITECT AND ENGINEER) (ISSN0003-858X) January 1985, Vol. 173, No. 1. Title® reg. in U.S. Patent Office, copyright© 1985 by McGraw-Hill, Inc. All rights reserved. Indexed in Reader's Guide to Periodical Literature, Art Index, Applied Science and Technology Index, Engineering Index, The Architectural Index and the Architectural Periodicals Index.
Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.
Executive, Editorial, Circulation and Advertising Offices: 1221 Avenue of the Americas, New York, N.Y. 10020.
Officers of McGraw-Hill Information Systems Company: president: Richard B. Miller; executive vice-presidents: Frederick P. Jannott, construction group; Russell C. White, computers and communications group; J. Thomas Ryan, marketing and international. Senior vice-president: Francis A. Shinal, controller; Robert C. Violette, manufacturing and technology. Vice-presidents: Fred O. Jensen, planning and development; Margaret L. Dagner, human resources.
Corporation officers: Harold W. McGraw, Jr. chairman; Joseph L. Dionne, president and chief executive officer; Robert N. Landes, senior vice president and secretary; Ralph J. Webb, treasurer.
Associated Services/McGraw-Hill Information Systems Co.: Sweet's Catalog Files (General Building, Engineering, Industrial Construction and Renovation, Light Residential Construction, Interiors), Dodge Building Cost Services, Dodge Reports and Bulletins, Dodge/SCAN Microfilm Systems, Dodge Management Control Service, Dodge Construction Statistics, Dodge regional construction newspapers (Chicago, Denver, Los Angeles, San Francisco).
Subscription rates for personnel of Architectural, Engineering, Interior Design, Design and other directly related firms and students thereof, are as follows: U.S. and U.S. Possessions $35.00; Canada $37.00; all other countries $70.00. Single copy price for Domestic and Canadian: $6.00; for Foreign: $7.00.
Change of Address: Forward changes of address or service letters to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 2025, Mahopac, NY 10541. Provide both old and new address; include zip code; if possible attach issue address label.
Guarantee: Publisher agrees to refund that part of subscription price applying to unfilled part of subscription if service is unsatisfactory.
Copyright and Reprinting: Title® reg. in U.S. Patent Office. Copyright© 1985 by McGraw-Hill, Inc. All rights reserved. Where necessary, permission is granted by the copyright owner for libraries and others registered with the Copyright Clearance Center (CCC) to photocopy any article herein for the base fee of $1.50 per copy of the article plus 10 cents per page. Payment should be sent directly to the CCC, 21 Congress Street, Salem, MA 01970. Include code with request: ISSN0003-858X ($1.50 + .10). Written permission must be secured for any other copying. Write Reprint Manager for such permission at address below, or to obtain quotations on bulk orders.
Subscription List Usage: Advertisers may use our list to mail information to readers. To be excluded from such mailings, subscribers should send a request to: ARCHITECTURAL RECORD, Mailing List Manager, P.O. Box 555, Hightstown, N.J. 08520.
Publication Office: 1221 Avenue of the Americas, New York, New York, 10020. ARCHITECTURAL RECORD (ISSN0003-858X) published monthly with additional issues in April and September when semi-monthly, by McGraw-Hill, Inc. Second-class postage paid at New York, NY and additional mailing offices. Postage paid at Windsor, Ontario, Canada. Registration Number 9617.
Postmaster: Please send address changes to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 2025, Mahopac, NY 10541.
THIS ISSUE is published in national and separate editions. Additional pages or separate editions numbered or allowed for as follows:
Central Section 32Ca through 32Cb.
Western Section 32Wa through 32Wf.
Sunbelt Section 32Sa through 32Sb.

The best way to get fees (and salaries) up is to keep talking about it—and working at it

One simple fact is that income and profitability in the architectural profession is distressingly low, and certainly not commensurate with the responsibilities accepted by architects and the education and skills required to be an architect. Another simple fact is that we have only ourselves to blame.

Happily, after a long period of inactivity following the Justice Department's shutdown of long-established, gentlemanly, and generally-agreed-upon fee schedules, the profession is talking about the problem. In 1983, the board of the AIA appointed an Architects' Economic & Compensation Task Force to review the growing mass of statistical material being developed around the country indicating that architects are the lowest-paid segment of the construction industry—lagging, for example, contractors, engineers, and design-builders. At the 1984 convention in Phoenix, the New York Chapter offered a resolution, passed virtually unanimously, proposing that "the establishment of a fair return on architects' investments in their practice and the establishment of fair compensation for employees be a major AIA issue for the 1980s." More specifically, the resolution called on the AIA to address *the reasons* for declining profitability among architectural practices nationwide and suggest steps to remedy the causes. This resolution was an outgrowth of the New York Chapter's pioneering study of salaries, which indicated among other things shockingly low starting salaries for graduates (below $15,000), and its pioneering executive-committee resolution calling on all members to raise starting level salaries by 20 per cent per year over three years (a goal which is being met in a considerable percentage of the firms, including firms with less than 10 employees). The Chicago Chapter recently completed a salary survey of its own, producing similar dismal numbers, and its board of directors followed up with a "compensation and fee policy statement," now out for comment and criticism, "the intent of which is to strengthen the architectural profession and its individual members. It is our intent to make a cohesive statement that will bind the profession more closely together without interfering with individual ideas, styles, or fair competition among architects." Specifically, the Chicago statement says, in part: "Architects shall not provide architectural services without compensation. . . . An architect shall not participate in any client request for a proposal where fee is the sole basis of selection. . . . Competition among architects which is based on the quality, nature, and type of services rendered is indicative of professional conduct and shall be encouraged. . . . Pursuit of a commission shall be limited to the fair presentation of the architect's professional experience, services, and capabilities. . . . Architects shall not lead clients to believe that price is the dominant factor in the architect selection process. The fees charged by architects shall be based on the costs incurred to provide those services. . . . Employees of architectural firms should be compensated at a rate that reflects their educational and professional investment and that is comparable to starting salaries in other professions. . . . Architectural firms should immediately establish fees which will enable an entry level salary of $22,000 for an architectural graduate with a professional degree. . . ."

That statement, it seems to me, is a good one and thoughtful one. It's idealistic, and heaven knows we need more idealism in our increasingly materialistic world. And three cheers for the Chicago chapter, a big tough chapter with some very talented members, for issuing it.

How do we get everyone to agree not to "provide professional services without compensation," or agree not to "participate in any client request for a proposal where fee is the sole basis for selection," or to base their fees "on the costs incurred to provide those services?" In short, how do we get everyone to agree not to do work on speculation, or engage in fee-bidding, or in low-balling to " keep the office going"? You can't, of course. Any client can always find someone to do it cheaper.

What you've got to do is persuade/argue/negotiate with the client about the importance of doing it right, doing it better—and being paid to take the time to do it right and do it better. To the client who insists on free service or fee-bidding, or who demands a fee that makes it impossible to function properly or profitably, there is only one suitable answer, and the answer is "No." We will never solve the problem of too-low fees and too-low salaries unless enough architects start saying "No!" to enough clients. Those architects who find they can only get work by fee-bidding and low-balling might well consider, and I mean it, whether they are in the right business—whether they are good enough at their work—as professionals in business and as designers—to command decent compensation for their work. For the rest, the answer has to be thoughtful and forceful negotiation.

The Round Table that begins on page 35 of this issue is full of indications that *most* good clients want good design at a fair price and on time and are willing to pay for it. And what they expect should be a sufficient opening for most *good* architects to make the case for being hired on a professional basis to do professional work.

To the client who won't pay a proper fee, say "No!" and say why. *W. W.*

S-FLOOR, THE NO-POUR ACCESS SLAB!

Poured slab floors have been doing a great job for a long time. They're strong and feel solid underfoot. But, the "eighties office" imposes new demands. Changing computer terminals, open plans and their need to be easily re-configured often exceed the scope of traditional slab floors. And, raceways, flat wire systems and the like are partial solutions at best. You just can't hide air handling ducts or pipe conduits under a carpet!

Enter Innocrete's S-Floor. Now architects and owners alike can specify a floor system which combines the solid feel of a poured slab with the total accessibility of a *stringerless*, raised modular floor. It's S-floor, and please don't confuse it with products adapted from computer flooring. S-Floor will not creep, rattle, shake or become deformed under normal rolling loads.*

S-Floor's remarkable properties: exceptional strength, yet dramatically lower weight than concrete are the result of intensive research and space-age materials. Beginning with the Innocrete compound, two foot square panels are formed into mini-slabs, each with an engineered reinforcing steel-grid network. Panels are then torque fastened into the floor system resulting in a stable mass you have to walk on to believe. Of course, one or several panels may be removed at any time without disturbing the system's integrity.

Since S-Floor helps prevent premature building obsolescence many users predict it can quickly pay for itself.

So if total flexibility is for you, look into S-Floor's elevated modular slab. Call or write for literature or samples, without obligation, of course.

S-FLOOR™

**Independent lab test report available.*

Circle 6 on inquiry card

Innocrete Systems, Inc.
Cranford, New Jersey, Tel: (201) 272-0573
Mississauga, Ontario, Tel: (416) 274-1490
Al Khobar, Saudi Arabia, Tel: 857-4984

A MEMBER OF THECSGROUP OF COMPANIES

Letters continued from page 4

where creative minds are allowed to soar, yet they should be controlled by some of the constraints of the "real world."

The studio also provides us with the closest simulation of the architect/client relationship found anywhere in architectural education. The professor, in Mr. Beckley's terms, "acts as surrogate client to the student." This is an important relationship, as it develops that interactive process in which key questions are or should be asked by both parties. I think the best architects will be those who learn to ask the questions that truly find the clients' needs.

Another positive attribute of the studio experience is the testing of one's ability to manage time appropriately. Usually incremental time periods are set up in which certain things have to be accomplished. This has direct correlation to architectural practice: the best firms set up detailed deadlines for larger, more complex projects.

Another quality the studios offer students is the development of graphic skills. Architects communicate their product through drawings and models that must be understood by the client in order for the two to have a successful relationship. These skills cannot possibly be learned in the lecture hall by listening or by watching. The *student* must *do it!*

Studios also help the profession by producing a few quality students who will end up doing the majority of the best work in the future. There are a lot of students who can read assigned chapters, attend lectures, take good notes, review them, and get good grades in almost any lecture class. It is a rare student who knows how to *think.* The majority of students rely on some programmable solution, which doesn't exist in the studio. These students often reach quick design solutions and end up with pretty drawings come presentation time. But the substance of the true solution lies under that rendered facade.

This leads us to a few problems suffered in the studios. It is too bad that so many students think that they will get out of school and change the world of architecture, only to be crushed when reality hits and they have to get that first job. Most new graduates will start detailing connections and producing contract documents that they really don't understand. The student is usually ill-prepared in these areas, and that's where a problem comes to light.

There are many students who *live* for studio. They don't go to their lecture classes, they get old tests from their buddies and get good grades. But what are grades? These students will hit the fan when it comes time to take the NCARB exam. All they will remember about acoustics is that it had something to do with noise. It is here where they will pay the price—out of school, and too late.

Another problem I have noticed in the succession of studios I have taken is that there doesn't seem to be an increased awareness on the part of the students as to what holds the building up, how it is lit, how the people get out in case of a fire, and so on. These are all major concerns in architectural practice, and I continually see students in their final year of graduate school producing beautiful buildings that don't work! Another shock will come when these students find out what state and local codes are.

Mr. Rapoport argues that too much time is wasted teaching an unteachable subject: design. In his view, the same time might be spent tuning up more valuable skills, such as report writing. Mr. Rapoport conjectures that architects spend much more time doing things other than designing, and he is very correct. Even the standard AIA document B141 (Owner/Architect Agreement) suggests that architects receive only 35 per cent of their total fee for the design services rendered.

But is it not the beginning that allows there to be an end? The schematic and design development phases are where crucial decisions are made, via an interactive conversation between the architect and the client. These decisions produce a ripple effect that flows through the entire project. The end result of these decisions is the product architecture produces: the built environment. It shelters us from the storm, allows efficient interaction in a complex world, and provides, above all, feelings that are indescribable and unmeasurable, but truly eminent.

The human heart is roughly the size of one's clenched fist, such a small part of one's over-all body. Yet without it, there is no life. I would suggest that design is similarly a small, vital part of architecture. Design is the heart of architecture, and without it there is no life, no sense of excitement, no special feeling.

Robert T. Allen
Milwaukee

Mr. Allen currently attends the University of Wisconsin-Milwaukee as a graduate student in architecture and as a member of the school's studio, directed by Professor Beckley and Ken Schroeder. He is also employed by an architecture/engineering firm in Pewaukee, Wisconsin.

Correction

The photograph on page 151 of your mid-September 1984 Interiors issue is so beautiful that I can't sit quietly while another manufacturer is erroneously given credit in your Product literature section for the chairs, which were in fact by Vecta Contract. The chairs in the foreground on page 149 are also Vecta Contract, not credited.

Doris Todd
Communications Manager
Vecta Contract
Grand Prairie, Texas

Architects and engineers join other groups to beat indoor air pollution

Architects and engineers recently joined attorneys, industrial hygienists, chemists and other professionals in San Francisco to learn more about responsibilities, research and solutions regarding indoor pollution. Experts told them that it is often difficult to pinpoint the causes of indoor pollution, which is occuring with increasing frequency in new, tightly constructed buildings. However, speakers warned, designers who don't do their utmost to prevent its occurrence may bear the brunt of future blame.

AIA president George M. Notter said, "People expect—and have a right to expect—that the structures we design are safe and healthful. Without the public's confidence, the critical support provided by the public for architecture and architects will evaporate." Notter called for "intensified" research efforts and "a central information source" for the building industry. While acknowledging "there is still a lot of work to be done before truly meaningful standards can be written," he warned that "the public is not likely to wait around patiently while we debate air-exchange rates."

Gerald Weisback, an architect and practicing attorney in San Francisco, urged architects to spell out in any contracts "if you are responsible for air quality or not, and provide complete services. Regardless of what your fee is, the law will hold you accountable for complete services."

To minimize liability for air quality problems on any job, Weisbach suggested that architects "hire adequate consultants—your liability is directly related to the quality of the people working for you." He also advised architects to document projects well, to use proven technology, and to use proven materials. "The spinoff space-age materials (used in construction) have not been adequately tested," he said.

Other speakers outlined steps designers could take to fend off air quality problems by more carefully controlling hvac construction and use. Barry L. Wasserman, director of the Institute for Environmental Design, California State Polytechnic University, suggested that architects set performance specifications for ventilation systems. This is currently not a common practice, he said.

After a building is completed, he added, designers should make sure the system performs as specified. And during the design process, involve building engineers if possible, the actual people who will be running the building, to make sure the systems will be run as the designers expect.

During construction, buildings are not always put together as designers specify due to variations in construction procedures, noted Hal Levin, president of the California State Board of Architectural Examiners. Monitor construction, he advised, and after construction, "do some baseline testing" with tracer gases to verify air-exchange rates.

Some speakers even called for sacrificing fuel savings at first in the interest of cleaner air. "I would throw away the energy efficiency of a building for a year" by increasing ventilation, said scientist John R. Girman of Lawrence Berkeley Laboratory. Levin agreed, noting "A large portion of the (building materials') outgassing (emission of fumes) occurs in the first few weeks, or at most, months." *David Garfinkel, World News, San Francisco.*

Foreign work by U. S. firms could be encouraged by Feds

A proposed bill in Congress would give teeth to a bill already authorized by Congress to encourage U. S. work abroad by reducing interest rates paid by U. S. firms competing on construction projects with firms based "over there."It would give up to $500 million in loan leverage to the Export-Import Bank for the use of mixed credits—or combined funds from various sources that lower loan interest rates. The previous bill authorized mixed credit use by both the Export-Import bank and the Agency for International Development, but the latter group has failed to use them at all and would be excluded from the current funding. The announcement of the new bill was made by Erland Heginbotham of the Senate Foreign Relations Committee to a meeting of the American Consulting Engineers Council.

Tall buildings to spread?

The Council on Tall Buildings and Urban Habitat, an international organization of planners, designers, architects and engineers concerned with the development of the high-rise, hosted their 45th gathering in New Orleans late last year. The sessions attracted professionals from the United States and as far away as Zimbabwe, Australia, New Zealand, Hong Kong, Saudi Arabia and Canada.

The sessions covered a wide variety of topics about the design, construction and operation of tall buildings—from the philosophy of their existence to technical developments, such as semi-rigid connections in steel construction. In discussing the future direction of tall buildings, council director Lynn S. Beedle said: "We live in the age of telecommunications and computers; will 'telework' and 'telecommuting' make the tall office building obsolete? Researchers are finding out just the opposite. People are social beings, and still need office environments. The rise of muti-use skyscrapers will give people even more options in today's urban complexes." For more *information, contact* Dolores Rice, Lehigh University, Bethlehem, Pa. 18015 (215/861-3525).

Atlanta's Presidential Parkway under fire

Numerous groups and individuals,including the National Trust for Historic Preservation, have filed suit against a proposed highway that would provide easy access to an Atlanta library that would honor former President Jimmy Carter. Affected historic sites include the Olmsted-designed Druid Hills residential district, the Martin Luther King, Jr. District and the General Sherman Campsite.

Private spending outstripping Federal urban renewal

Estimated private-sector spending on building rehabilitation under the tax-incentive provisions of the 1981 Economic Recovery Act will have reached $6 billion dollars by the end of 1984. This is an amount equal to that spent under the entire Federal urban renewal program, which lasted nine years. The gains were acknowledged by President Reagan during a national conference on Downtown Revitalization.

Computers: Another view on desirable size

Last July, RECORD published one large design firm's view that its needs could be admirably met by PCs. Herewith a different view by HOK.

By Jon H. Pittman, Nathan D. Huebner, and Charles L. Atwood

The advent of the personal microcomputer has provided a new dimension to computer use in architectural practice. Personal computers are inexpensive, portable, easy to use and don't require someone else to operate them on a set schedule, so they appeal to many architects. But do PCs make sense for a large architectural practice?

Because each practice is unique, there is no single solution to computer use in architectural practice any more than there is a single appropriate management style. But here the authors argue for the larger minicomputer.

The term "minicomputers" is somewhat deceptive. Today minis have as much storage capacity and speed as the mainframes of the early 1970s. And they have a clear advantage over PCs in storage capacity and speed.

The PC's limitations may not be a problem for the small architectural firm. Those firms employing ten or fewer persons are usually in the same physical location and work on projects of modest scale and complexity. Thus, there is less need for sharing computer information because one person is responsible for all different phases and aspects of a given design. Since the organization is small, it is easier to ensure communications. For large, diverse architectural practices, however, the limitations imposed by PCs are significant.

Larger computers' integration of service and capability is germane to what a large firm is about:

- The ability to deal with projects in many different locations.
- The ability to share data between many different disciplines.
- The ability to share data between many individuals within disciplines.
- The ability to manage information inherent in complex projects over large spans of time.
- The ability to get expeditious answers to major-size problems.

While personal computers can do some of this, their state of art does not allow them to provide fully all of the capabilities necessary to serve a large architectural practice in the most effective way. A larger minicomputer-based system can provide these capabilities while still maintaining some of the advantages of personal computers.

Why is full efficiency important? Large architectural firms with complex projects, design processes and working procedures must be well defined and organized with not only good communications between members of a project team but within the firm as a whole. When computers are used to do this, it is important that computer applications (programs that perform tasks) and computer databases (collections of information) be well organized and able to communicate with each other. Integration, in this sense, is their unification.

The methods of integration that can be addressed by a computer system in a large firm are:

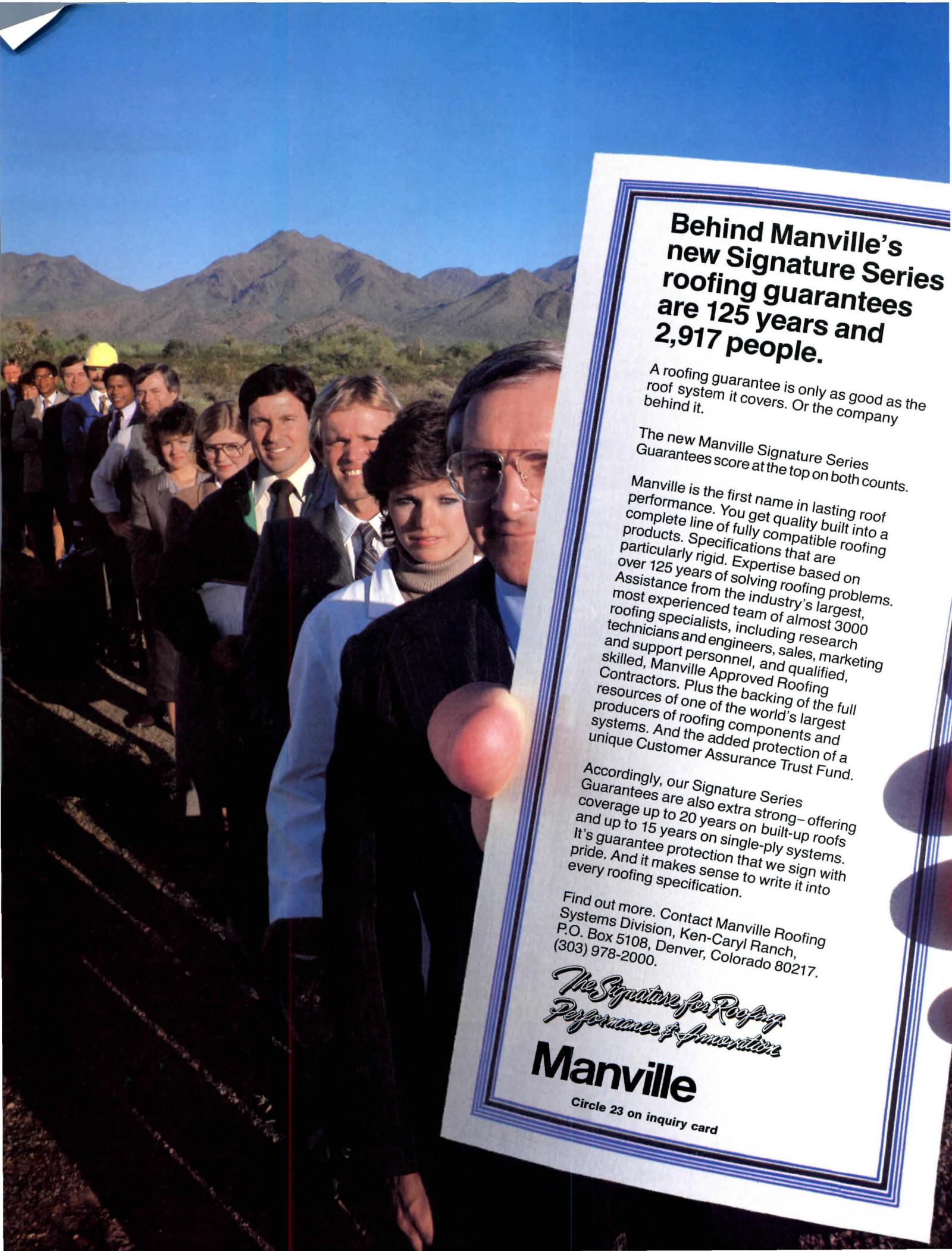
- *Integration between phases.* A design and construction project exists over a fairly long span of time and progresses through many phases. Information is continually refined and augmented from the general to the specific. Information developed in the pre-design phase is used in subsequent phases, including the construction drawings. A minicomputer-based system allows larger databases to store the necessary data and can support more sophisticated applications than the PCs, which are insufficient to allow this.
- *Integration between disciplines.* If a firm is organized into disciplines such as architecture, engineering, planning, etc., it is important that data be capable of being shared between them and that one can take advantage of data developed by another. Personal computers, for the most part, are discrete individual units and do not commonly provide the data management or communications capabilities necessary to effectively support this sharing.
- *Integration between different people working on a project.* Data must be shared in such a way as to eliminate conflicts and updating anomalies. Again, personal computers do not allow effective sharing; a minicomputer-based system can provide an integrated database, which allows multiple users to share information.
- *Integration between applications.* Many different software applications may be used to assist in facilities programming; the generation of schematic design alternatives; the evaluation of design alternatives; analysis of the structural and mechanical systems; preparation of working drawings, specifications, and presentations; and construction administration. It is important that the data developed for one task be accessible to the other tasks and the applications that support them. Although a lot of software is available on personal computers, it is rare to find a high degree of integration in software packages because, by the very nature of personal computer software development and marketing, the applications are developed as small, discrete units. Broad application is simply met best with the larger systems.
- *Integration between architects and outside consultants.* Besides working with engineers and other consultants from outside their firm, architects frequently enter joint ventures with other architects. Because many of these other parties may be acquiring CAD capability, it is increasingly important to be able to exchange data between computer systems using data exchange standards such as IGES or ISIF. Such integration will probably require more computing power than most personal computers can deliver.
- *Integration between geographic locations.* Design projects are often developed by participants in diverse geographic locations. The ability of a computer in one location to access data in another location through telecommunications capability lets such participants keep current on the status of the project. Although some personal computers have rudimentary telecommunications capabilities, they are limited, while a minicomputer system can competently link geographic locations.
- *Integration over time.* Although each project is unique, there can be similarities. As standard details are developed for one project, for example, it is helpful to be able to re-use them on another. Integration over time allows the architect to store reusable data for other projects. Again, the quantity of information that may be stored in a computer is the issue here. In a personal computer, most of the storage is used for the operating system, the application program, and the information with which one is currently working. There is little extra space for archival libraries with details and layers from past projects.

When information for a project exists in a powerful central database that is efficient yet flexible, these types of integration are possible. Such a database is usually managed by a database management system. Although DBMSs are beginning to appear on personal computers, those that can perform sufficiently to provide a reasonable degree of integration and multi-user access must run on larger computers.

Graphics with high resolution, a sophisticated palette of colors, and smooth interaction as well as other means of communicating with users are important too. One personal computer manufacturer in particular *has* pioneered user interaction and graphics techniques, but those familiar with such techniques will find their implementation slow and restricted.

Part 2 of this article will include a discussion of software and a case study of a project.

Mr. Pittman is an associate, Mr. Huebner a vice president and Mr. Atwood senior vice president and director of computer sevices, the HOK Computer Services Corporation.



Behind Manville's new Signature Series roofing guarantees are 125 years and 2,917 people.

A roofing guarantee is only as good as the roof system it covers. Or the company behind it.

The new Manville Signature Series Guarantees score at the top on both counts.

Manville is the first name in lasting roof performance. You get quality built into a complete line of fully compatible roofing products. Specifications that are particularly rigid. Expertise based on over 125 years of solving roofing problems. Assistance from the industry's largest, most experienced team of almost 3000 roofing specialists, including research technicians and engineers, sales, marketing and support personnel, and qualified, skilled, Manville Approved Roofing Contractors. Plus the backing of the full resources of one of the world's largest producers of roofing components and systems. And the added protection of a unique Customer Assurance Trust Fund.

Accordingly, our Signature Series Guarantees are also extra strong– offering coverage up to 20 years on built-up roofs and up to 15 years on single-ply systems. It's guarantee protection that we sign with pride. And it makes sense to write it into every roofing specification.

Find out more. Contact Manville Roofing Systems Division, Ken-Caryl Ranch, P.O. Box 5108, Denver, Colorado 80217. (303) 978-2000.

The Signature for Roofing Performance & Innovation

Manville

Circle 23 on inquiry card

Round Table:
The fast-growing and fast-changing role of the corporate architect

To discuss the role of the corporate architect, RECORD invited to New York, on October 19th, a group of corporate architects and facilities planners who are responsible for their corporation's building and remodeling programs, and a group of architects in private practice who work with these corporate executives much of the time. We discussed, among other subjects, the changing role of corporate architects—and their fast-changing and fast-growing responsibilities; how corporations select consulting architects, how they pay them, how they perhaps should *pay them; to what degree top management "cares"; to what extent corporate facilities planners are involved in business planning; how often corporate standards and specifications are applied; and the effect on corporate design of employees' changing attitudes and expectations. Here is some of what was said. . .*

The Round Table began with this question to the corporate staff architects: Over the past five years or so, in what ways have your responsibilities changed, have the demands of your top management changed, have the building projects for which you are responsible changed?

Victoria Kahn, vice president of real estate/construction projects of American Express began: "I think the most significant change is that senior management has become much more involved in the decision-making process. The buildings we are building, improving, expanding, or renovating represent a major capital investment, and interest rates are still very high. A great deal of money is at stake, and senior management is aware of that and anxious to make the best possible investment. They are participating more in the decisions, and I think that contributes to better projects, better design, more satisfaction for the employees, and greater productivity."

Said Bill Cusick, vice president of real estate and general services of McGraw-Hill: "Change itself is what has been most important in the last five years. New technology is causing a tremendous number of changes in the way we manage our facilities, in the way our businesses are structured, and in the speed at

Laurin B. Askew, Jr.
Vice president, director of design,
The Rouse Company

which we need to respond. In our company, the environment in which we are operating is constantly changing, the business structures within which we operate are constantly being re-aligned, and the need to adapt this kind of change to the new technologies is imposing some considerable responsibilities on our corporate facilities group. The changes imposed by the computer are the most important, but close behind are concerns about the telecommunications, controllable lighting systems, building-control systems, and all of the other new tools that are available to us."

Ed Rosen, now a construction manager but until recently project manager for General Foods: "I see more and more realization of the importance of architecture—what good design can do for the corporation and the end users—for the employees. Five years ago I would not have described General Foods as an enlightened client. But today, in part because of the process of building our new headquarters building [designed by Kevin Roche], I would say there has been an enormous change in attitude at the top."

Russell Jordan, vice president in the architecture and construction division of Marriott Corporation: "Over the past five years, the difficulty in finding funds, and the tremendous increase in competition in the hotel business, has caused far more scrutiny to go into the whole development process. All of the work we do has to be looked at far more carefully, studied in more detail by more people—and that's been a good thing."

Corwin Frost, director of planning and design for CBS: "Our projects have become much more varied and much more complex—both in business terms and technical terms. But I think the biggest change is the realization by corporate management that it takes professionals to manage this kind of operation."

At that point, three of the panelists in private practice commented on the role of the corporate architect, and the changes as they saw them from "the other side of the fence."

Said Gene Kohn, of Kohn Pedersen Fox: "As with all things in life, it depends on the people involved. Some corporations are very well organized, well structured; so that everyone you deal with knows his or her responsibilities and the results tend to be good. Other companies are not as effective in dealing with architects, and somehow the process of building gets more complicated. In general, I would say that the increasing numbers of corporations that have corporate building departments has been good for us in private practice, and surely has increased awareness of architecture within the corporations."

Carolina Woo of SOM: "We encounter more and more architects working for the corporations, and that is good and bad. It's good because they are architecturally trained and understand the process of being an architect and the frustrations of being an architect. It

Leon Brand, AIA
Vice president,
Professional Designs Incorporated

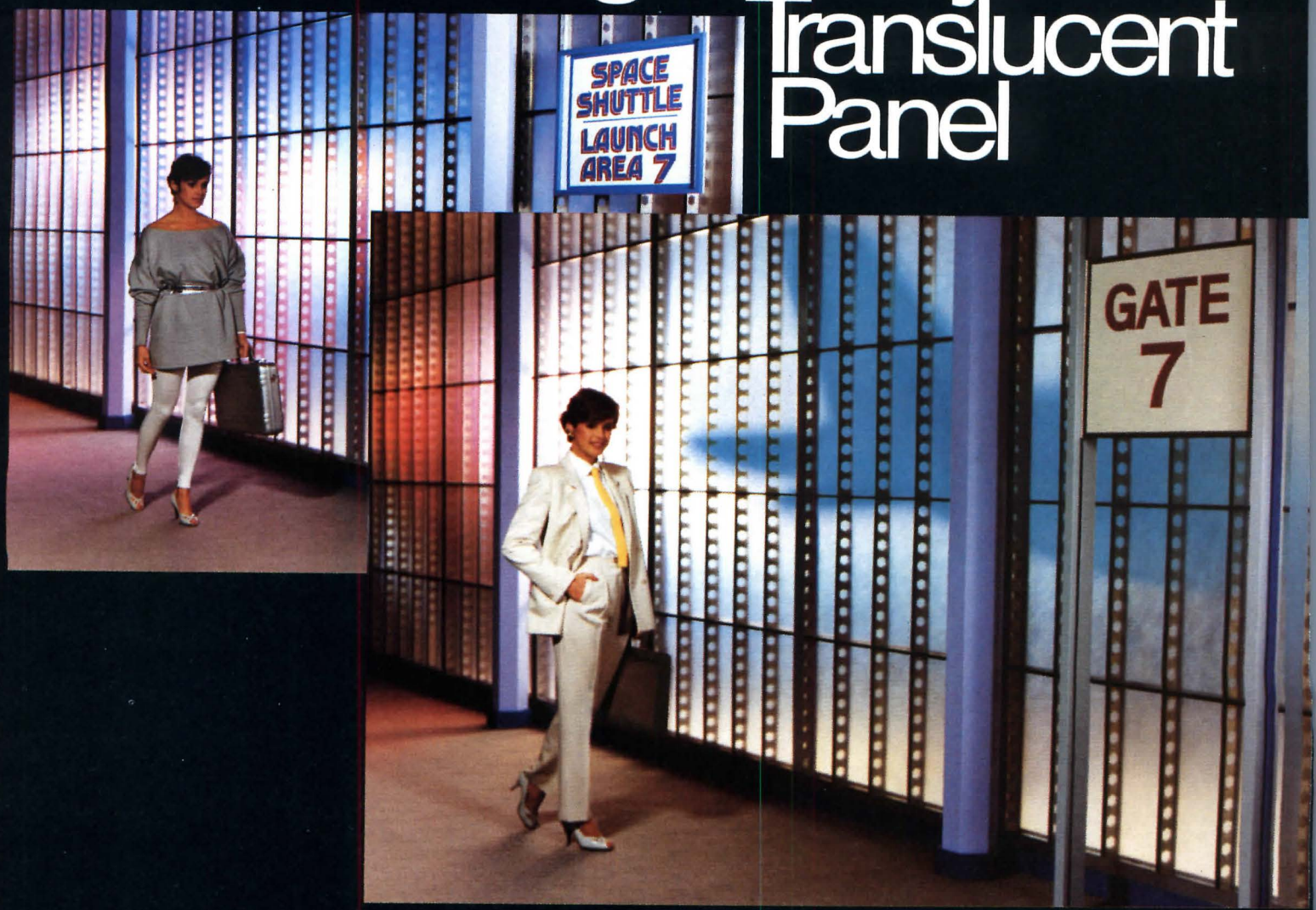
can be bad if they really want to design the project themselves. . . ."

Chip Harkness of TAC: "I see the corporate architect becoming more important in several ways. One, we seem to be getting involved in more commissions where we compete for work as an architect-builder team. While I hope and believe that we don't behave any differently, the design-build concept does raise a potential conflict of interest—the owner has more responsibility to protect himself—and under design-build the corporate architect has more responsibility for supervising and reviewing the job every step of the way.

"The other role that is becoming more and more important is the corporate architect's responsibility for the selection of a consulting architect. Not long ago, architect selection used to be the prerogative of the chairman; more and more often it is now a responsibility of the facilities group. And that of course is one of the most important decisions made in the entire job."

"It is the second most important decision," responded Malcolm Whyte, manager of architecture for IBM: "The first most important is deciding to build a building; then comes the selection of the architect and, without question, the 10,000 decisions that come after that are miniscule compared to architect selection.

21st Century Light...Today's Translucent Panel



The future of natural lighting is here today from EXTECH.™ LightWall,™ the new panelized skylight, window and exterior wall system creates a rhythm of visual effects.

LightWall's unique high-tech design permits natural light to pass through a series of geometric openings in the aluminum structural grid, producing changing patterns of brightness and reflection.

LightWall fills a room, an atrium or an auditorium with brilliant natural light . . . light that's unusually intense yet nearly shadow free . . . light that enhances the character and design of *your* project.

Lightweight *and* strength engineered, LightWall panels install easily anywhere high light transmission and maximum thermal efficiency is required.

LightWall. The look of tomorrow in a practical, affordable, insulating translucent panel. Architecturally the most advanced exterior panel system available today. Exclusively from EXTECH.

EXTECH™

EXTERIOR TECHNOLOGIES, INC.™
P.O. Box 9543, Pittsburgh, PA 15223
412/781-0991
Makers of I-wall panels for windows and skylights.

Circle 24 on inquiry card

"The 10,000 decisions that come after are miniscule compared to architect selection."
Malcolm Whyte

"How has the role of the corporate architect changed? Not long ago the concern over energy conservation and other technologies became of prime importance, sometimes at the expense of esthetics. Today, we see a re-emphasis on the fact that buildings are for people—that design, architecture, interiors, every facet of a building should be geared to the quality of the spaces for people. The right technology is not being de-emphasized; it is being treated as a given."

Eric DeVaris, senior architect at AT&T: "I agree that human resources have become more vital in our decision-making than ever before. Believe it or not, it is because of the computer; because the computer is putting more

Harry S. Culpen, AIA
Senior principal, director of architectural design,
HOK New York

emphasis on office work at the expense of manufacturing work. . . ."

Said Leon Brand of Professional Design Incorporated: "Another change in role for the corporate architect grows out of the corporation's need to get projects built much more quickly, in order to respond to market forces and minimize the penalties of high interest rates. I felt that pressure when I was a corporate architect, and I feel it now from my clients in private practice." But, cautioned construction manager Ed Rosen, "There is a real danger in the emphasis on hurry-up building. What it tends to do is reduce the amount of design time—thinking time—the architect has, and if we shorten the thinking time we build in a ticking bomb that often doesn't explode until the very end. There are other ways to save time on a project—construction management is one—but when I was a corporate architect I resisted as much as I could speeding up the design, because I felt we needed to give the architect enough time to consider our needs and look for the best solutions."

Robert Engel, long in private practice and now project director, facilities design and construction, for McGraw-Hill, Inc.: "Yet another change in the role of the corporate architect is the change from being a fireman, a caretaker, a reactor to emergency situations into a person responsible for anticipating what the corporation is likely to need, an advocate for building the right thing at the right time. Instead of just building what the corporation says it needs, we are being asked to look at the potential; where new or improved facilities can make the operation more efficient, improve the quality of life for employees, improve the organization's financial structure."

Question: To what extent are corporate architects brought into the business-planning process?
The answer seems, in general, to be not as much as our panelists would like or hope for.

Said Peter El-Gindi, project architect for the U. S. Navy Resale Office: "I'd say what usually happens is that the corporate architect is called on to give the feasibility of a project that is part of top management's business planning. We may, for example, have 50 retail outlets on the boards; our job is to advise on which ones are feasible for next year."

Lenore Lucey, project director for ABC's real estate and construction division, outlined a broader role: "We have become more of a participant in the justification process, working with our line groups in developing the business rationale and justification for new facilities. Five years ago, management would come down the line and tell us they needed 50,000 square feet and needed it yesterday, and we'd zip out and get an architect and get it done. Today, we are going through much more involved processes with the financial officers deciding whether a new facility is really justifiable not only from the corporation's point of view, but from a business point of view. So we are now involved in the financial planning—with tremendous responsibility for capital planning from the business-planning end, not just the real-estate end."

Said Russell Jordan of Marriott: "In the business we are in, food and lodging, the building along with the service is the product we sell. So the building is of great importance to the success of our business and all of the senior management is deeply involved in the development of design, the character of the building, the total process from site selection and conceptual drawings through completion—and our business couldn't be successful without that involvement."

Victoria Kahn of American Express: "While I can't say that the

William A. Cusick
Vice president,
Corporate real estate,
McGraw-Hill, Inc.

role of the corporate architect or corporate real estate department will ever be to formulate business policies, we have always reviewed business plans and policies. We used to do them over a five-year period; now we do them over a three-year period. But we've been growing so fast that accurate planning is very difficult—our role has been to offer management the best advice we can in an attempt to provide the most flexible kind of environment for our businesses to flourish."

Gene Kohn offered his perspective as an architect in private practice. "While it should, I really don't think advance planning plays a major role in corporate building programs. Most of the clients that we work for in the corporate world build only when they have to build, when the need has built up to an exaggerated point. That's why we need everything yesterday. Companies like American Express, which is growing so fast, or AT&T, which is changing the very nature of its business, are in such a volatile state that I am sure their planning and building programs are somewhat up in the air.

"I would also argue that the role of the corporate architect in long-range business planning now is affected as much by developers as it is by the corporations they work in. Years ago, the corporation was the big builder and the image maker; the corporations were greatly responsible for much of what happened in America in terms of quality environment and the quality of buildings. With a few major exceptions, including companies represented at this Round Table, I think the developer has taken over the role of major image maker. If you look around our cities, more and more of the important buildings are developer's projects, though a corporation may be the lead tenant or partner that helped make the project real.

"This trend to developer involvement of course drastically affects the role of the corporate architect vis-à-vis business planning. The developers' business plans are seldom long-range, and always are subject to change and adjustment and realignments all along the way. From the point of view of business planning and building planning, the new ball game is a far cry from the days

Eric DeVaris, AIA
Senior architect
AT&T Technologies, Inc.

when the big corporations like AT&T had long-range plans that they worked to with great dependability."

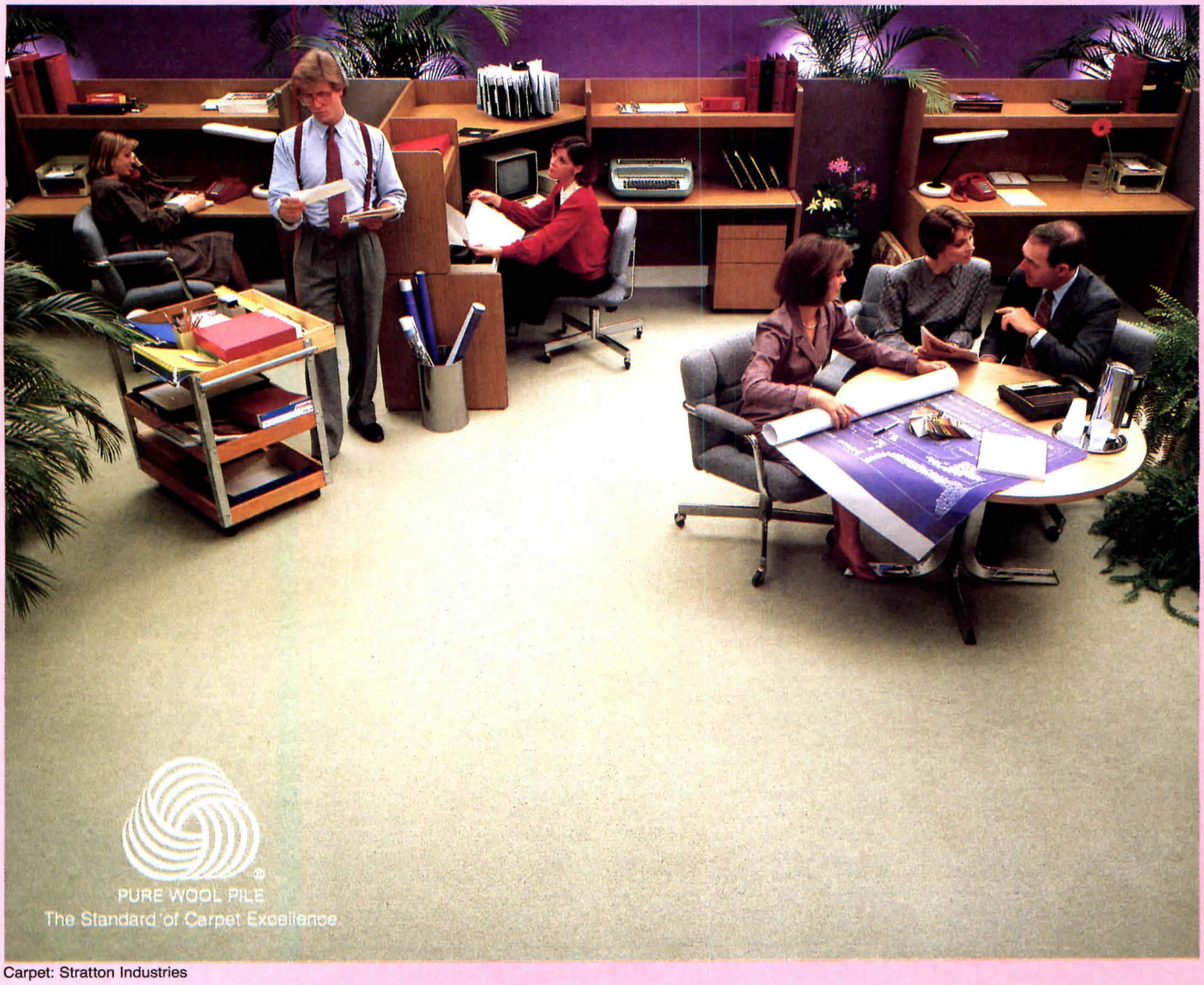
Victoria Kahn of American Express: "While I agree about the increasing role of developers in planning and initiating projects, I would argue that American Express and many of the other corporations are continuing to carry on what you call the grand tradition of corporate building. For example, we are building two million square feet in Battery Park City. We are in joint venture with Olympia & York, but we are our own developers. We took a significant step in this direction a couple of years ago by acquiring a construction company that is now a

There's more to wool carpets than meets the eye.
Much more. Durability...for one.

...And that's because nothing lasts like wool. Its beauty is enduring, no matter where it's used...even in the hectic pace of the busiest office or after 10 years of steady traffic in the Bay Area Rapid Transit system. Wool is the one fiber you can count on to retain its good looks years after it has been installed.

Even when conditions get rough, wool stands up to abuse...time after time. Thanks to its marvelous resilience and built-in memory, the fibers bounce right back, minimizing impressions made from heavy furniture or office equipment. And no matter how it is used, whether as carpet, wall covering or upholstery, wool resists soil and stains, keeping the rich luster of its deep, elegant colors.

Remember, too, that because wool has a greater life span, its good looks will last longer. It is this exceptional durability that makes wool your smartest buy.



Carpet: Stratton Industries

Contact the contract consultant in your area:

Michelle Wildenhaus
Southeast Consultant
The Wool Bureau, Inc.
240 Peachtree St. NW, Space 6F11
Atlanta, GA 30303-1301
(404) 524-0512

Susan H. Moore
Southwest Consultant
The Wool Bureau, Inc.
P.O. Box 58772
Dallas, TX 75258
(214) 328-5028

Martha Gonzalez
Western Consultant
The Wool Bureau, Inc.
930 So. Robertson Blvd.
Los Angeles, CA 90035-1602
(213) 659-9981

Nancy Gilbert
Midwest Consultant
The Wool Bureau, Inc.
11-113A Chicago Merchandise Mart
Chicago, IL 60654
(312) 467-5578

Lorraine Bruton
Northeast Consultant
The Wool Bureau, Inc.
360 Lexington Avenue
New York, NY 10017-6572
(212) 986-6222

Circle 25 on inquiry card

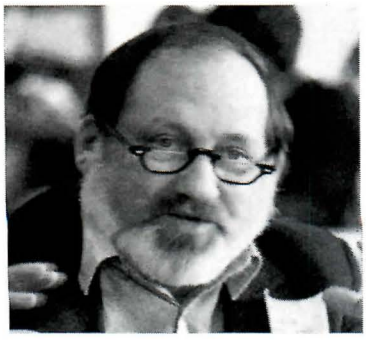
"If we shorten the architect's thinking time we build a ticking bomb that often doesn't explode until the very end." Ed Rosen

wholly owned subsidiary, and the president of that company sits in corporate senior management and participates in the business planning activities. This helps us understand what business our company can plan for—how it can accommodate growth short-term and long-term. And I think that is a trend by the corporations that you are going to see repeated across the country."

Laurin Askew, who is a vice president and director of design for The Rouse Company, made a similar point to that made by Russell Jordan of Marriott: "Architecture and design is an integral part of our business—we are really a retail business, we are research-oriented in terms of finding locations, and the people who work with me are integrated into the process from the beginning. As a corporate architect, I am one of the few people in our corporation who follows a project from its inception until it is up and operating. So our role is absolutely integral to the corporation's business planning. I think that is a different role—and necessarily a different role—from most architects in industry."

Leon Brand: "I agree that architects who work in companies where design and architecture and building are the business of the business—such as Marriott and Rouse—are much more involved in the development of business plans."

Bob Engel of McGraw-Hill: "I believe that it is part of our responsibility as corporate architects to find ways to *get* involved in our corporations' business planning. There are organizations that do business planning by the intuitive feel of the chairman of the board, and there are organizations that do business planning as a logical outgrowth of statistical analysis. In either case, as corporate architects we should search out opportunities to interact with the business planners. We should seek out ways in which new or renovated facilities will support any potential business plan. We can challenge the current methods of operating the business, we can offer alternative recommendations on how the business could be improved by better facility support. We can make it our business to study alternative solutions to problems of growth and change, and present these ideas to senior management. Catalyzing action through your own initiative is far better than waiting for management to push the 'we're-out-of-space' panic button. That's one of the most important ways that facilities planning can be made a part of business planning—not that we are planning what business we are in, but helping to improve the quality of the way that our organization manages the business that it is in."



Jack Dollard, architect

Russell Jordan of Marriott: "Even in our company, where architecture and building are the business of the business, the corporate architectural people don't get involved in the top-level corporate planning, but they are an essential and very large part of the planning. Our company has maintained a 20 per cent growth rate each year, doubling our sales every five years. That quickly generated enormous volume—and took extremely careful planning from a financial standpoint, a marketing standpoint, and a facilities standpoint. Our company's most limiting factor, other than the availability of financing, is to actually get the new hotels built. At our volume, that takes very careful planning, lots of information, lots of work."

Chip Harkness of TAC: "I don't pretend to know much about corporate planning, but it's my observation that it often involves potential alternatives. In architectural terms, for example, the corporation decides that it needs to expand, but the question is open whether it will expand by building a lot of small buildings in the suburbs, or a big building in the city, or next to its existing building, or by remodeling an old building. In my view it should be the corporate architect who should give those answers. If there is not enough staff to actually study those kinds of decisions, then it is the corporate architect who is in the best position to recommend and bring in an outside architect to study those questions, come up with the broad-based answers to the physical alternatives and the costs involved. You have to know what the alternatives are before you can make decisions based on a corporate plan—and studying those alternatives and making recommendations should be the corporate architect's responsibility."

Said McGraw-Hill's Bill Cusick: "Being involved in business planning is one of the most essential things for a corporate architect or facilities group. But I am also convinced that it is one of the most difficult things to do effectively. Ms. Kahn mentioned that American Express has gone from a five-year planning cycle to a three-year cycle;

Peter El-Gindi
Project architect,
U. S. Navy Resale Systems Office

and I think you are lucky if you can really look out that far with any degree of certainty. Because of that, I think what we have to plan for is flexibility—having offices and environments and strategies that are flexible enough to react to any kind of direction the corporation needs to take. But to do that, you must be involved in the planning process."

Malcolm Whyte spoke of the need for flexibility: "Not long ago, mechanical typewriters were one of the mainstays of our business. We don't make them anymore, but the building where they were made still exists and is still manufacturing products—different products. We did a survey last year among architects, asking basically: 'How are we doing, what could we be doing better, what could we do differently? And despite the fact that our top executives have cared about design for 25 years, with what I think is considered as some success in architecture, the perception of the architects we surveyed was that we don't know what we want. Traditionally, when we as a client went to an architect we had a complete statement of requirements, a detailed program. But now, despite the fact that we've been involved and concerned about architecture for years, we're forced to go to architects saying that we want a roof—because we're not sure what we're going to make in the building, and whatever it is we plan to make in that building, we don't know what we'll be making there five years from now.

"We see our role in over-all corporate planning as looking at buildings as living objects that change year after year after year, that will never be finished. And that is not a traditional attitude for us, or, I think, many companies. Neither is the thought of going into partnership with a developer to create a building. Today we are doing that with many buildings, and in certain cases it's the appropriate and right way to get a building. Right now, we are working with developers mostly for large office buildings in major cities. We've known for years that when we sign a lease with a developer, he takes the lease to the bank and gets 150 per cent financing and all kinds of other goodies based on our lease and our name. Now we are asking for, and getting, a piece of the action. This system also gives us the flexibility we need. If we see a current need for 300,000 square feet and a future need for perhaps 500,000 more, in partnership with a developer we can build the 800,000 square feet. We lease some of it out on a basis that lets us take over the extra space when and if we need it. That kind of building gives us flexibility of occupancy at a very low cost."

Bill Cusick of McGraw-Hill suggested that the pendulum might swing back: "A lot of these partnerships with developers began four or five years ago when interest rates increased dramatically and developers were having trouble financing their projects. Conversely, with interest rates at 21 per cent and construction financing what it was, many corporations needed that marriage with the developer to get on with the building projects they needed. Now that interest rates have started to go down, most of the financial analyses will show that it is cheaper to build your own building. At any rate, that kind of analysis is increasingly important in business planning and facilities planning, for the reason that 'housing costs' are becoming a bigger and bigger component of the total costs of doing business."

Now Available — Complete Oil Hydraulic Elevator Systems for Low-Rise Buildings

☐ **SPM® OIL HYDRAULIC ELEVATORS**

Standard Pre-Manufactured models for quick delivery, low cost and reliable service. Designed to Montgomery's rigid standards of high quality. Models range from 1500-4000 lb. capacity. Up to 6 stops maximum. Speeds to 150 f.p.m. Single and two car systems.

☐ **SPM® HOLELESS OIL HYDRAULIC ELEVATORS**

Quickly and easily installed. Jack units are above pit floor. With 1500-4000 lb. capacity — maximum stops three in line — maximum travel, 20 ft. at 100/125 f.p.m.

☐ **HH-II HOLELESS OIL HYDRAULIC ELEVATORS**

2000/2500 lb. capacity at 80 f.p.m., with two in-line maximum stops. Standard design produces lowest total cost.

For a full color brochure and specifications on any of the above systems, please check the box(es) above and mail this coupon to Montgomery Elevator Company or call the closest Montgomery office listed in the Yellow Pages.

montgomery

ELEVATORS ESCALATORS POWER WALKS & RAMPS

MONTGOMERY ELEVATOR COMPANY, MOLINE, ILLINOIS 61265
MONTGOMERY ELEVATOR COMPANY, LIMITED, TORONTO, ONTARIO M9B3S5
OFFICES IN PRINCIPAL CITIES THROUGHOUT NORTH AMERICA — REPRESENTATIVES WORLDWIDE

montgomery moves people

Circle 26 on inquiry card

"Change itself has been the most important change in our responsibilities . . ."
Bill Cusick

What do the corporations with staff professionals look for in retaining an outside architect?
Lenore Lucey of ABC volunteered: "In general terms we look for a firm that's an appropriate size for the project we're doing, has some knowledge or history of similar kinds of work, and in some instances a track record of working with us and knowledge of the team in our office. That means we use the bigger firms for our big jobs, but are similarly committed to using one-, two-, three- or four-person firms for smaller jobs. We don't do any work in-house now, but we're investigating the potential of hiring people to handle the constant and ongoing partition changes and office-rearrangement work. We think that might be easier to do in-house, by people who know the organization and people involved. But I don't think we will ever do a major image facility in-house."

Said Leon Brand: "When I was in corporate work, we looked for experience, we looked for track record and reputation. But the most important and difficult to assess is the personal chemistry between the consulting architect and the corporate people. That's never on the list of criteria, and it's never on the rating scale, but it certainly is a major factor. The corporate architect or facilities group needs to have a sense of compatibility, a sense that it's going to be a pleasure to work with this firm, a sense that the individuals who are going to represent the outside architect are reliable, are significant people in the firm who can be relied on to make the decisions, can be called at night when the executive has the cold sweats, who is someone they will enjoy going to dinner with or just plain socializing with over the two or three or four years of the project. All that is an important but sometimes subterranean factor in architect selection."

Laurin Askew: "It's the most important factor, frankly."

Robert Engel
Project director, facilities design and construction, McGraw-Hill, Inc.

Bob Engel of McGraw-Hill: "We have a traditional system: big projects, big architectural firms; small projects, small firms; middle-size projects, anybody's game. Overlying all of the factors in selection that have been mentioned is the avoidance of unnecessary risk, since every project has an enormous amount of risk for everyone involved and the objective is success of the project. I think selection sometimes depends on what is driving the project: long-range plans, emergency reaction, or something else. I think selection criteria are different for a project away from your home base, for a high-visibility marketing center as compared with an operations center which could be underground. . . . Selection also depends on the champion of the project and his strengths and personal experience— and every project has a champion, whether it is the chairman of the board or the corporate architect or a developer or the mayor of a town or the head of a division. These are the champions who go after and seek out and push through and grab the flag and attract the team to assemble the project—and their attitudes affect selection."

Malcolm Whyte: "Our primary criterion is design, design, design. All of the other stuff about whether they have telephones or computers or a history of similar buildings is nice; it helps support the issue. But the key decision has always been based on design—and I should use the words 'appropriate design for the image of IBM' instead of 'good design.' There is a lot of good design out there that's not appropriate for IBM. I think we have enough experts in the company to make sure that the building is functionally correct, that it gets built on time and within the budget, that the pipes and ducts all work. But when it comes down to the decision of which architect to use, it's a matter of design."

Russell Jordan of Marriott: "Given the volume of building we do, the number of different projects, we just can't afford to sit around and do a lot of brooding about whom we should retain. So a long time ago we established what we hope are objective criteria, just almost by the numbers. We score firms by points, on a weighted scale. We are first interested in the design ability of the firm. We are just as interested in how they manage themselves, because that has an impact on the economics of the whole project. We score their experience, their experience in working with contractors, their experience in dealing with similar owners; their track record in

Corwin Frost, AIA
Director, planning & design, facilities engineering department, CBS, Inc.

working with government officials; their history of meeting budgets and time schedules. We try not to have more than three or four proposals on any one project, but evidently hotels are popular with architects, so we have sometimes listened to as many as a dozen proposals. Size is not a criterion in itself."

Corwin Frost of CBS: "We have no formal procedure for architect selection. We build such a tremendous variety of buildings—ranging from broadcasting facilities to a publishing distribution center to editorial offices to record factories—that it is hard to develop a specific rationale that applies to all. So what we do in the department is to try and establish special criteria for each and every project that comes along. We tend to look first in the locale where the project will be built and then try to find the best firm of an appropriate size—and with the appropriate chemistry—for the project in question. We usually go through the interview process with a short list of two, three, or four firms. We try to represent the actual user—to have someone on the selection panel representing the people in the division that will be using the building, so it's not just our facilities people who are involved. Sometimes higher management gets involved, but usually not."

Gene Kohn, speaking from the point of view of a consulting architect: "I was glad to hear Malcolm Whyte emphasizing design and not technology, though he represents probably the major computer firm. I visualize in the future that all architects and engineers will have the same (or at least compatible) hardware; so what's going to make the difference is the creative talents of people. In our firm, like most and especially most bigger firms, we are making more and more use of the computer. But to clients we stress *people* and design—we just want to stay good at what we do and not try to be all things to all people. We should be damn good designers, relate well to our clients but fight for what we believe in, and assemble the best team of engineers and other consultants to create the project."

Question: How important are fees? The answers varied widely
Russell Jordan of Marriott started a discussion of fees by telling the Round Table that "we build a hotel based on a prediction of how much income that building is going to produce and how much building that income can support. Part of the building cost is professional fees—so if we are going to build a hotel in El Paso, where the income will be

John Harkness, FAIA
Principal
The Architects Collaborative, Inc.

lower than a building in San Francisco, the amount that is allotted to fees is less because the amount that's allotted to every other cost in that building is less."

Said Bill Cusick of McGraw-Hill: "From my standpoint, professional fees are just one of a number of costs of a project that have to be controlled—and in the last couple of years I've seen a tendency for outside architectural firms to become more competitive in structuring their fees." Asked if they are more competitive in a low-bid sense or in negotiating, Mr. Cusick said, "Both. But we do want to negotiate with the firm that is our first choice."

Corwin Frost: "Fee is a criterion,

"The biggest change is the realization by management that it takes professionals to manage the facilities planning operation."
Corwin Frost

but only one of many to look at during the selection process. One part of fee negotiation we sometimes find revealing: has the architect properly understood the project? We have found cases where the fee seems too low, which tends to indicate they have not really understood what we are looking for. That is as much a danger sign as too much fee."

Harry Culpen, director of design for HOK's New York office: "On just that score, I think the corporate architects could be very helpful to their companies in defining the scope of work very clearly before asking for proposals from an architect. We know that we have to be competitive and that we are going to be evaluated on the bottom line. Many things go into a proposal, and we don't like to ask for extras when we come across something that wasn't properly described. Some clients seem to be just looking at the back page to see what it adds up to. We're anxious to do the best possible job, but we have to make money doing it. That's the way it's supposed to be. I don't know of any architects who are making exorbitant profits. A little more thought put into defining the scope of the work would make the quotes a lot easier to come up with."

Peter El-Gindi: "The fee is a factor, but I don't think it is as important as consulting architects think it is. Indeed, I have helped architects negotiate a better fee because they didn't understand the scope of the work. I think the biggest mistake is coming in and trying to sell us on what they have done for other clients rather than what they can do for us. . . ."

Eric DeVaris of AT&T: "My feeling is that architectural fees are very low—that what our corporations get from the architect is worth much more money. And I think that we architects in industry have a responsibility for those fees. I've calculated that $15 billion a year of construction is built by U. S. corporations who employ staff architects. If you assume four per cent architectural fees on this $15 billion of work, some $600 million a year in architectural fees is influenced by corporate architects. That's a tremendous responsibility that we have to be aware of." Leon Brand: "The problem is that you assume fees at four per cent." DeVaris: "That is the current reality."

Gene Kohn suggested that on complex corporate jobs a whole new kind of fee structure was needed: "If I had my 'druthers,' fees would not be negotiated at the outset of the project. I would like to see architects work through schematics with an hourly rate until the full scope of the project is understood by both architect and client. Even with well organized firms and well organized clients, the scope is never clear when you start—in New York for instance, it can take two years to get approvals, while our costs and salaries go up. It's also a bad time for architects to negotiate on a psychological basis. We've all run a race to get the job; the client is in a tizzy, not sure of his return and anxious to minimize costs, and saying to himself, 'My gosh, we just gave you the job, what more do you want?' And that's a bad time to negotiate. I don't think any of us stresses fees, but we do need fair fees to do the work. That's why I try to delay negotiations as long as

Russell Jordan, AIA
Vice president, business development, architecture and construction division, Marriott Corporation

I can until the scope of the work is clear to all of us. . . .

"One other related point: In some cases the name of the architect is helping to make a project valuable—Philip Johnson is an obvious example. We did a building for a developer who put up $4 million, built the building for $40 million, and sold it two years later for $110 million. Shouldn't architects in situations like that maybe get a bonus or a royalty—or at least a higher fee? We have to be fair to each other."

Laurin Askew of Rouse: "Gene is right, you don't know what the fees should be up front—you can guess, you can calculate, but if we as clients back the architect over his head and halfway through the job he's out of money, neither of us has anything and both of us are at fault. On some jobs, we've asked the architect to bill us on a nonprofit, time-and-materials basis through the feasibility stage—concept, diagrams, drawings and so forth. At that point we know our costs, and if it becomes a real project with us we sit down with the architect to negotiate the fee."

Harry Culpen of HOK: "I agree totally with Gene Kohn about what architects are worth. I really think our ideas are worth a lot of money and we should get what's fair. We don't. As to those front-end studies before either of us really understands the scope of the work: I'd prefer a small lump sum for a defined scope of front-end work. Somehow there's less incentive to do your best on a time-card job. But a lump sum lets us give the client good ideas that we have developed over the years and still show a profit on it. We can give the client something very appropriate for a small front-end cost and both know what the job really is. . . ."

Question to the Round Table: To what extent do corporate clients have standard specs. . .
. . . for selection of furniture, materials, finishes, office sizes, quality levels?

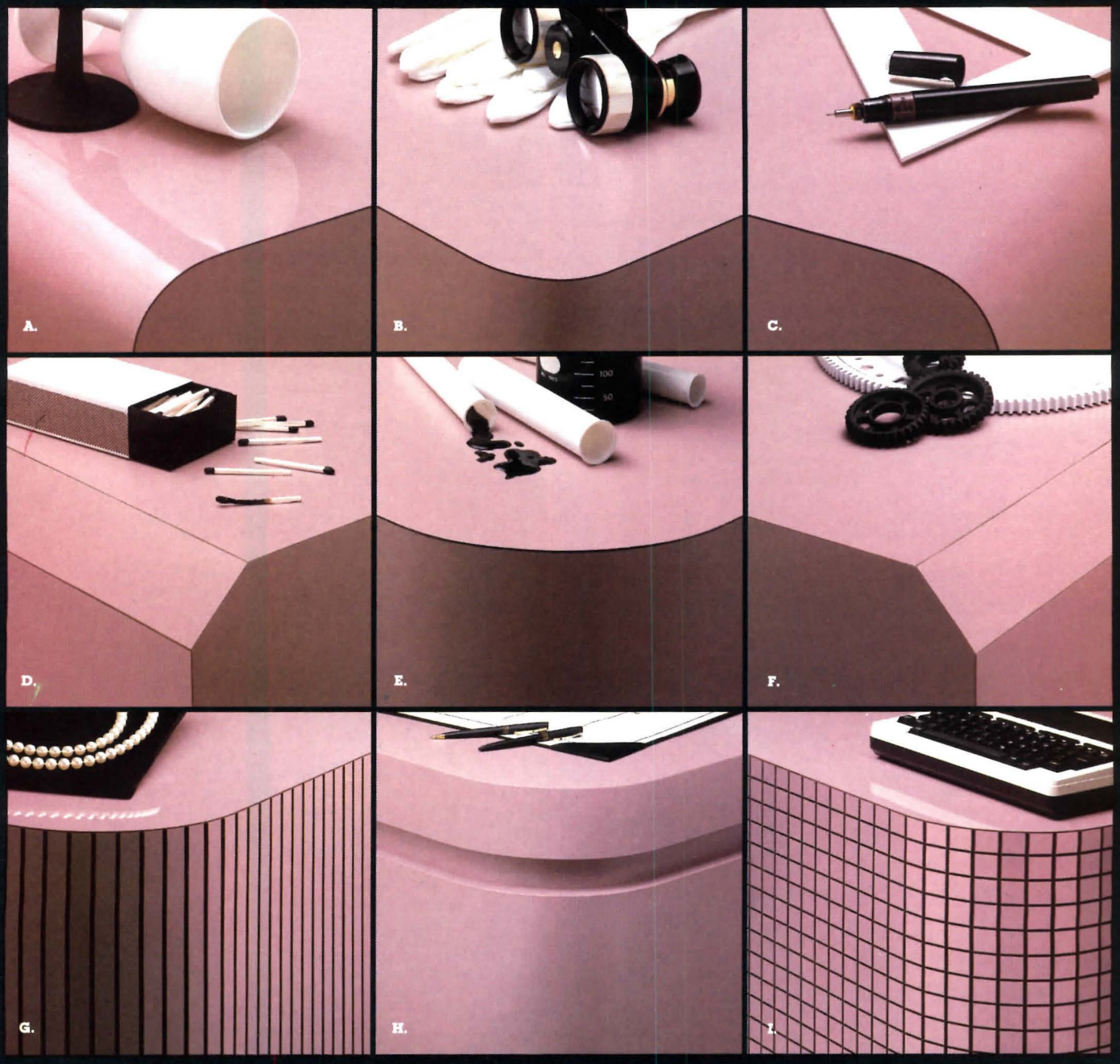
Russell Jordan of Marriott: "We couldn't survive without standards. Or without a process to establish them. First, when we open a hotel, the whole team of people who worked on that building—the architects, the interior designers, the engineers, the contractors, the kitchen consultants—everyone who worked on the job, whether consultants or in-house people—meet and go through a very formal agenda of problems and concerns and suggestions that will bear on future jobs. Two: During every job, the technical people in our architecture and construction division have daily contact with their operational counterparts, so we have daily feedback as to what works and what doesn't, what we should never use again or should use again, what is expensive to operate and what is inexpensive. Through that process we develop and maintain up-to-date on the computer a list of standards. The standards are in three parts: One is standard drawings—not drawings of how to design a hotel but drawings of nitty-gritty things that nobody wants to bother with anyhow; things like locations of plug outlets in a ballroom, dimensions and clearance for service corridors, and the like. The second part of the standards is written criteria; the third part is technical specifications—and that

Victoria Kahn
Vice president, real estate/ construction projects, American Express Company

book we supply to every architect we hire, and every owner who is going to build a hotel for us. And we assign a staff person to assure that the information is interpreted correctly and that the drawings and specs (indeed the building as built) incorporate these guidelines. And mind you they are guidelines—if an architect or engineer wants to make a change, we want to hear the reason and consider it. There is an appeal mechanism for the outside professional."

Said Bill Tabler: "All of the major hotel chains have this 'bible' or list of criteria—about the size of a Manhattan telephone directory. The trouble is that some hotel chains do not have the appeal mechanism that Russell described, and some of the 'bibles' are out of date when they printed. When we have a hotel commission, the first thing we do is define all the things that we want to appeal. And happily, several of the chains have retained us to update their standards."

In contrast, said Corwin Frost of CBS: "We've found it next to impossible to develop across-the-board standards that supply all of the varied kinds of buildings we build. There have been two exceptions: our headquarters building designed by Saarinen and Roche, Dinkeloo with interiors by Knoll Associates, and our broadcast center here in New York where we are halfway through a 10-year update program involving an enormous number of individual projects and many different architects and engineers. If we didn't have some form of standards for that, we would have absolute chaos. So we did establish a design vocabulary for the building covering lighting fixtures, ceiling types, doors, wood and metal desks and where they should be used, standards for carpet in office areas and technical areas. If an architect doing one part of the project has a good reason to depart from the



Now, Over 700 Design Options With the Color Quest™ Solid Color Line

With the Wilsonart Color Quest line of solid color decorative laminates, you have over 700 surfacing options to choose from. We've combined color, finish, function and type into an almost limitless number of combinations. This, in turn, permits you to bring added creativity and style to all of your design opportunities.

Color Quest options are another reason why Wilsonart decorative laminate has become the most specified, largest selling brand on the North American continent.

A. Gloss Finish: In all 80 Color Quest colors. With a tasteful "laquered look." Finish #1.

B. Matte Finish: In all 80 Color Quest colors, in fine and moderate textures, with a gently reflective surface. Finish #6 or #13.

C. Grid Finish: In all 80 Color Quest colors, featuring tiny, embossed checks for visual interest. Finish #76.

D. FIRE-RATED: In all 80 Color Quest colors, a special composition that meets or exceeds the toughest fire codes nationwide. Type 604.

E. CHEMSURF®: In all Color Quest colors except Wineberry, a special surface offering exceptional resistance to organic solvents, alkalis and acids. Type 390.

F. TUFSURF® II: In all Color Quest colors, except the very dark shades, a tough laminate with up to 8 times the wear resistance of standard laminates.

G. Decorative Tambours: In all 80 Color Quest colors, these functional tambours move design opportunities into the realm of the extraordinary. Types 801-804.

H. SOLICOR®: In all Color Quest colors, except Hollyberry, this colorthrough laminate is formable and eliminates brown-line edges. Type 540.

I. Architectural Grid: In all 80 Color Quest colors, the grid is created by intersecting grooves one inch center to center. Type 805.

Note: all applications shown are in Color Quest Mauve Blush color.

The choice is yours.

HOTLINE

For laminate samples and literature, call toll-free:

1-800-433-3222

Texas: 1-800-792-6000

WILSONART®

BRAND DECORATIVE LAMINATE

"We are first interested in the design ability of a firm. Then we are interested in how well they manage themselves. . . " Russell Jordan

standard—either esthetic or technical, we can usually solve the problem in discussion."

Lenore Lucey of ABC: "Our standards are not as elaborate as Marriott's, but we do have a fairly comprehensive set of standards that combine space standards—sizes and types of offices according to corporate ranking with materials standards and construction standards. We have standards for lighting, furniture, acceptable colors, carpet, lighting. We have standard materials and construction methods, standard doors, locks and hardware. . . ."

Victoria Kahn of American Express: "We have very little in the way of published standards. But we have taken great pains in our newest projects to plan the offices very carefully, the furnishings that will go into individual offices, the office sizes and modules as they

Kathleen Kelly
Deputy director, environmental management division, Department of City Planning, City of New York

relate to the building structure and corporate hierarchy. Beyond that, we have spent a great deal of time over the last two years in developing—in conjunction with a number of different furniture manufacturers—open-plan work stations. So we are very active in trying to establish standards that are particular for us and flexible enough to accommodate the change that is inevitable."

Carolina Woo of SOM: "We have actually developed standards for a number of large corporate clients. Space standards are very important in most corporations, especially those where the hierarchy is extreme—if one executive gets two square feet more or less than another, or an extra window, it creates monstrous problems. Also, you need standards of quality—agreed upon in advance—for both cost control and future maintenance. But standards must change continuously, you must upgrade them all the time."

Bill Cusick of McGraw-Hill: "It's going to be a monumental effort I know, but we're beginning to look at functional standards as opposed to standards based on grade level or personnel classifications. That change is being driven partly out of a need to control housing costs and move people instead of space, but also the need to have space that is flexible and can adapt to the requirements of the new technologies."

Jack Dollard, a private architect who works full-time with Aetna: "This idea of standards is one of the toughest things to deal with in a corporation. What starts out as guideline becomes a standard brutally adhered to, and a standard brutally adhered to creates a corporate environment that is really boring. We offer a number of different work environments—a high-rise in the city and a rambling office in the country and some well-renovated old mill buildings and a high-tech education center—a conscious corporate effort by Aetna to create different kinds of environments where employees can work. Then what starts is the fight among the different divisions and these different environments—what they want is parity. . . ."

Kathleen Kelly of New York City's Environmental Management Division: "I worry a lot about corporate standardization of the environment. The new Union Carbide building in Danbury—designed so that everyone has exactly the same size office and in fact an almost identical view of the forest outside, and much talked about in the magazines [including RECORD, October 1983] worries me. As opposed to it being boring, I found that kind of standardization depressing. I wonder about the philosophical and managerial implications of so standardizing spaces. . . ."

Commented Ed Rosen, who was working with architect Kevin Roche at the time the Union Carbide building was going ahead: "The intent of the decision to standardize office size was not at all to dehumanize the office environment, but rather to humanize it by eliminating the kinds of jealousies that result from the corporate pecking order—'I've got three windows and you only have two.' There was also an economic judgment based on the enormous cost of moving the movable partitions and redistributing the space. At General Foods, after we saw what Kevin had done at Union Carbide, we went at least part of the way down that road and eliminated the division between the two most prevalent salary grades

Eugene Kohn
Kohn Pedersen Fox Conway

that caused the most partition moving. When you pass from one grade to another you can get new upholstery or some adjustment of furniture, but most of our employees have simply foregone that corporate perk. So it was not an effort to overstandardize—it was a programmatic issue to try and cut down one of the problems of the pecking order that all corporations live with."

Bob Engel of McGraw-Hill: "Most of us have standards or at least an awareness of standards. We have the management discipline to apply those standards, to use them as a tool. What we don't have is the feedback mechanism to evaluate those tools, those standards, to see whether they are serving the purpose for which they were established. . . . Especially in human terms."

Gene Kohn: "We all know the feeling of going to an airport that looks like every other airport and flying on a plane that looks like any other plane and arriving at an airport that looks the same as the one you just left and renting a car from a girl who is dressed the same as the girl in the airport you left and driving to a hotel that looks a lot like the last one you stayed in and is furnished exactly like the last hotel and go downstairs and get the same food. . . . If we take that kind of thinking to the workplace, it's frightening. It's frightening in an age where the machine is already frightening. I think standards need to permit diversity and choices of materials and color and furnishings, and reflect personal and regional differences. We all have personalities, and our buildings need personality."

The related question of specifications was raised:

Said Victoria Kahn of American Express: "I think the corporations, and specifically corporate architects, are taking a more active role in the specification process. They have very clear ideas as to what they want to achieve in terms of image, quality, life cycle—and they are telling both architects and manufacturers that this is what we want to see, this is when we need it."

Carolina Woo of SOM: "I find that more and more we are not specifying any one single product. The corporate architect and we both have a responsibility to the corporation for competitiveness; so you are going to see specifications of a lot of things based on performance criteria."

Chip Harkness: "We have what I believe is a very good specification department in the office. Not long ago we called for a certain roof spec and the client said he wanted a cheaper roof than that. We finally had to write the owner and say if you want to use that cheaper roof, you are doing it at your risk and we cannot take responsibility for it. Obviously, if that becomes a standard gambit for architects, we are all in trouble because taking responsibility for specs is an important part of our professional responsibility."

Eric DeVaris of AT&T: "We need to remember that corporate work is very unlike the work by a

Lenore Lucey
Project director, real estate and construction division, American Broadcasting Companies, Inc.

Thermafiber®

Sound Attenuation / Fire Blankets

Life safety insulation with a sympathetic ear ...up to 62 STC worth!

Now, the fire blanket that has no equal for life safety provides systems with high STC, too! Comparative fire tests show this superior high melt mineral fiber insulation protects partition framing members significantly longer than glass fiber insulation.

And now, THERMAFIBER SAFB, for short, stands taller in sound attenuation performance as well. Millions of sound-retarding air pockets help deliver from 45 to 62 STC's when installed in stud cavities of U.S.G. partition assemblies.

That's where U.S.G. unit systems responsibility comes in strong! Steel studs. Gypsum board. Joint treatment. Acoustical sealant. Screws. You name it. We make, market and test everything you need for dependable systems performance. See your U.S.G. Representative for specifics. Or write to us at 101 S. Wacker Dr., Chicago, IL 60606, Dept. AR 185

UNITED STATES GYPSUM
BUILDING AMERICA

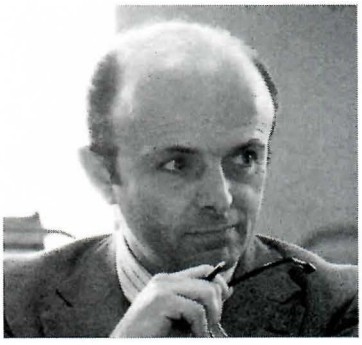
LIFE SAFETY THERMAFIBER

"Today, we're going through much more involved processes deciding whether a new facility is really justifiable. . . " Lenore Lucey

consulting architect for a client who may be inexperienced in building. The corporate architect has to live with his company's buildings, and he does gain experience in the performance of materials. If our experience conflicts with the specifications of the outside architect, we are not going to listen to that architect. But we then need to share the responsibility."

Edward Rosen: "Under certain circumstances it seems to me that the architect working with his corporate client will accept a spec that is not the one that he would have preferred, because he figures that if he saves the owner money, he may be able to get his first choice on another spec that may be more important to him. But, in my experience, most owners will accede to an architect's wishes if the architect really feels strongly about the choice."

Question: Are changing employee attitudes and expectations affecting corporate design?
Victoria Kahn: "I have found employees very vocal about the need for more amenities—more elaborate and extensive cafeterias, health clubs, possibilities for socializing after work, something



Edward Rosen
Vice president,
business development,
Lehrer/McGovern, Inc.
formerly project manager,
General Foods Corporation

outside of the normal working environment as an inducement to stay with the company and contribute more of their time. Our company has been working very actively in that direction, and from what I hear, a lot of other corporations are under the same kind of pressure."

Malcolm Whyte of IBM: "I think if we interviewed our employees and asked them what they want, the answer would be 'more,' and what's important in the 'more' pile changes all the time. In the Scandinavian countries—where every benefit from recreation to retirement is taken care of, we find the employees care more and more about their environment, care more and more about architecture and interiors. In Scandinavia, by law, no employee may work in any occupation without a view to the outside—and as a result a major new headquarters building for IBM Sweden is very long and skinny. People have to walk long distances to get from office to office, but they love it because of all those windows.

"People worry about computers generating sterile offices—no paper, no plants, no pictures. I have to say that in our research and development departments, our employees (all PhDs) have offices full of paper and stuff pinned on the walls, and in one case a parrot. Our standard on what you can do in your own office is exactly the same as our dress code, though we will probably never get rid of the blue-suit, white shirt, school tie image: If it's appropriate, and if you are comfortable, it's OK."

Kathleen Kelly: "The issue that we are not treating explicitly is the effect that architecture and interior design have on the way people behave and the way they think of themselves. If you are sitting in your office and you go to have a meeting with someone else whose office is exactly the same as yours, you think in certain patterns that you would not think in if the office had a whole different personality. My division offices are in left-over space at the top of an old city building, and you have to walk up two flights to get to it. I have 12 individuals working for me, who wear weird things to work and all work in their own way, but who work very hard and are very very good. I am worried about our move to newly renovated offices on the same floor as the chairman with the newest ergonometric work spaces. The issue is not total freedom of design by every employee, which could result in a kind of esthetic anarchy; the issue is that the way an employee's space is designed and controlled does affect the way a person behaves and works."

Leon Brand: "This subject, perhaps more than any other we have discussed today involves issues of corporate culture. The kinds of companies that operate in Silicon Valley and on Route 128 around Boston need to attract those kinds of people with a creative spirit, who need to work in a relatively free environment where they can adapt their work area to the needs of their job and the needs of their own personality. The companies with more rigid corporate cultures produce the exact opposite of environment and tend to attract very different kinds of employees. There is also a difference in the preference of people who were born in different

William Tabler
William B. Tabler Architects

decades—children of the '30s tend toward more secure environments, children of the '60s are looking for different kinds of corporate culture, maybe even different kinds of jobs, and will gravitate toward those environments."

A final thought from all: We are all architects, and we are all in this together
Said Carolina Woo: "Corporate architect or consulting architect, our goal is the same: To create something that will satisfy the needs of the corporation, as well as meet the needs of the people who are going to use the building. It's for us to work together to create the best possible buildings, using both time and money as efficiently as possible. . . ."

Ed Rosen: "The key role of the corporate architect is to make it possible for the outside architect to do his thing properly, and do it well."

Lenore Lucey: "As architects in corporate practice, we are no more a monolithic group than are architects in private practice. We are all individual representatives of our own corporate cultures, which are very different from each other. We need a team effort and support from our outside consultants to produce a building that is an esthetic and financial success for the corporation. We also need the

Malcolm S. Whyte, AIA
Manager of architecture, IBM Corp.

support and hard work of the consulting architect to help the corporation understand what our responsibility is, and how we can develop a quality design atmosphere."

And, with a last word, Leon Brand: "My experience on both sides of the table—10 years as a corporate architect and a lot of other years in private practice—has shown me that the interface, how we communicate with each other, is the critical factor. Each plays a separate but very important role. The corporate architect has a very significant responsibility to be the interpreter for the company of its requirements, all its priorities, all its sensitivities. . . . On the other side, I think the consulting architect has a very significant obligation and responsibility to try to document and develop the corporation's requirements in a very precise way

Carolina Woo
Partner,
Skidmore, Owings & Merrill

and develop and feed them back so there is a mutual understanding before too much time and money is invested.

"Finally, as a representative of important clients, the corporate architect has both an opportunity and, in a societal sense, a responsibility to be a leader, an interpreter, an advocate for the kinds of values that our education and experience have given us all—whether we are corporate architects or consulting architects." *W. W.*

Kohler. At home in any home.

Whether you're involved in tract homes, building a custom home or remodeling an older home, Kohler has the right fixtures and faucets. Right for the home. And most importantly, right for your customers.

With Kohler you receive more than just the right fixture or faucet for your project. You have a choice. Like fixtures or faucets with the broadest range of colors and finishes in the industry. With styles that range from antique and country to traditional and contemporary. At prices that fit any budget. And you install Kohler quality every time.

Every Kohler product—from the Environment Masterbath™ or whirlpools to lavs, kitchen sinks, even the popular Wellworth toilet—is precision-engineered and embodies the highest quality water-saving features and durability. Features synonymous with Kohler quality. Quality acknowledged and respected by your customers. Quality that helps ensure your sale.

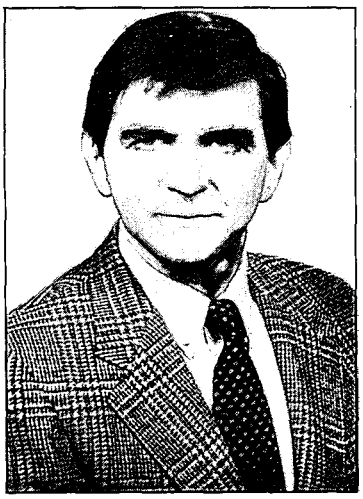
No matter what your plans or budget, Kohler is right at home. Contact your nearest Kohler dealer or distributor or write to: Kohler Co., Dept. R A1, Kohler, Wisconsin 53044.

THE BOLD LOOK OF **KOHLER**

Architectural education: The design studio—Another opinion in defense of the obvious and not so obvious

Professor Hurtt joins the architectural design studio discussion with a strong stand that a studio critic must employ all possible teaching-learning techniques to synthesize vital skills and knowledge into architecture

By Steven Hurtt



I read with interest, and with a mounting sense of rage, the two articles reflecting pro and con attitudes toward design studio teaching by Robert Beckley and Amos Rapoport (RECORD, October 1984). Beckley did a creditable job of arguing for the studio, but he tends to accept Rapoport's characterization of all architectural educators as either academics or designers who are apparently not academic, but are "personal, subjective" and operating on nothing more substantial than their likes and dislikes.

As an architect, a designer, a professor, a studio critic, and most of all a *teacher* (specifically a teacher of architecture and architectural students), I take umbrage at Rapoport's characterization of studios and design criticism—a characterization that is anything but an academic and objective evaluation.

I have, and am now, working both sides of the academic/designer fence, and belong to both camps. I have taught both lecture and studio courses—and also feel the pressure to do scholarly work, or at least achieve peer recognition in some way so that my PhD faculty colleagues can be assured of my worthiness in their company.

The two October articles raise serious questions about the studio and I, too, like most anyone who has been involved with studio education, can find plenty of fault and room for improvement. However...

Architecture is architecture

The first thing we ought to get straight is that architecture is not something else. As Susanne Langer pointed out long ago with reference to painting, if whatever a painting is could be described with *words*, there wouldn't be painting or a need for painting.

Secondly, exactly what architecture is, is elusive and difficult to describe or define. It embraces and impinges on many things. It can be partially described with reference to many bodies of knowledge and understanding—scientific, technical, social, political, artistic, symbolic, and so on. But it is not any of these, or completely described by them. They may aid us in understanding architecture, even help us *do* it, but they are not architecture. And architecture is not design, problem solving, or even creative behavior; although again, what we know of these things may help us understand the mental process we utilize to do architecture.

Next, we ought to recognize that the architectural design studio is where a student tries to *learn about architecture* and how to *do architecture*. It is the place where one teaches architecture, including what one knows about creative behavior, design process, and design theory—all in relation to the necessary levels of consideration and decision-making required to do architecture.

By equating architecture (which is substantive and existing in reality, history, and practicum), with design (which is an act, an insubstantial product of the complex working of the human brain), Rapoport implies that architecture itself, like design, does not have a theory "worthy of that name." He concludes that studio teaching is without a theory and knowledge base and therefore must be "personal, subjective, illogical and not cumulative."

However, because I presume that the student of architecture wants to learn about it and how to do it, I also presume that one of my roles as a studio critic is to refer him to that corpus of architecture as built reality, document, historical interpretation, and theoretical discourse, which he can find in the library or in the field. And I presume he will bring that knowledge back with him to the studio, making it part of his knowledge about architecture (academic), and the doing of architecture (practice).

The nature of criticism

This is hardly the subjective and personal phenomenon that Rapoport finds it to be. Many critics are guilty of saying "I do/don't like." It should read "I do/don't like, because..." of an objective body of knowledge. That knowledge may be specifically architectural, fit into one of Beckley's categories of "professional or cultural," or it may belong to an impinging and enlightening field of study such as Rapoport's anthropology. But it is not personal or subjective except to the extent that it is known by the teacher and possibly as yet unknown to the student. The critic is obliged to place his criticism within the framework of a knowledge base available to the student. Veiling that knowledge base is anti-academic and less than honest.

Person, personality and design studio

Rapoport uncritically connects the *personal*, i.e., the persona, ego, id, and whatever we might understand as an individual, with the "subjective and illogical... do like/don't like it" criticism.

Beckley defends the role of ego in architecture and studio but seems uncomfortable with it. First, he explains it as the imprint that any individual, professional or craftsman makes on his work, the "style of the man" that finds its way into his work. Secondly, the personality of the critic is accepted either as a variation within a "programmed" or "tight" curriculum, or in association with a "loose" curriculum in which students select faculty who represent various points of view.

Of interest here is that these "personal" points of view are what we can easily understand as theories of architectural inquiry, emphasis, and expression, and as such transcend the personal into the realm of architectural theory.

Furthermore, if one accepts the idea that architecture and theory at least change, if not advance, then one might also presume that there will occasionally arise a person (architect or teacher, or both) who has a theoretical point of view that he is advancing and making part of the corpus of architecture. This idea, this theory, in its early stages is *personal* and may be *original*, and is quite likely to be worth sharing with others.

Within architecture and theory there must be room for these people and their contributions. The guest critic, super-star, visiting professor slot so often made available to both *architects* and *professors* is one means by which architectural education accommodates these people and their ideas.

The mistake is for every architect and teacher to presume that he is that person, and that his ideas, just because they are his, have some world-shaking validity.

But ego and altruism play many roles

Surely, people are drawn to architecture for both egotistic and altruistic reasons. Some see architecture as a means of expression of self to the world. Others see architecture as a means to better the world or at least understand the world. Probably about equal numbers of each type are assimilated into practice and architectural education. And probably both orientations are modified along the way, each learning to channel his dreams and aspirations.

The egotist, as teacher, is possibly more inclined to define architectural projects that enhance personal statement. The altruist, as teacher, is more likely to design projects that suppress personal statement. The egotist may be more likely to use competitive strategies as motivational tools, and the altruist to use service to others as a motivational strategy.

The egotist is more likely to encourage dramatic contrast between individual design solutions to achieve *clarity of theory, ideas, and issues*. The altruist may force a

Steven Hurtt is an associate professor of architecture at the University of Notre Dame. He is currently serving on the Editorial Board of the Journal of Architectural Education *and has published articles in* Threshold, Oppositions, The Cornell Journal of Architecture *and* Process. *Professor Hurtt has also taught in The Catholic University of America's summer session for the past ten years and has been its academic coordinator for the past two summers. He is a partner of Hurtt, Kenrick and Associates, Architects.*

The new generation of Manville architectural panels is missing something that you'll never miss.

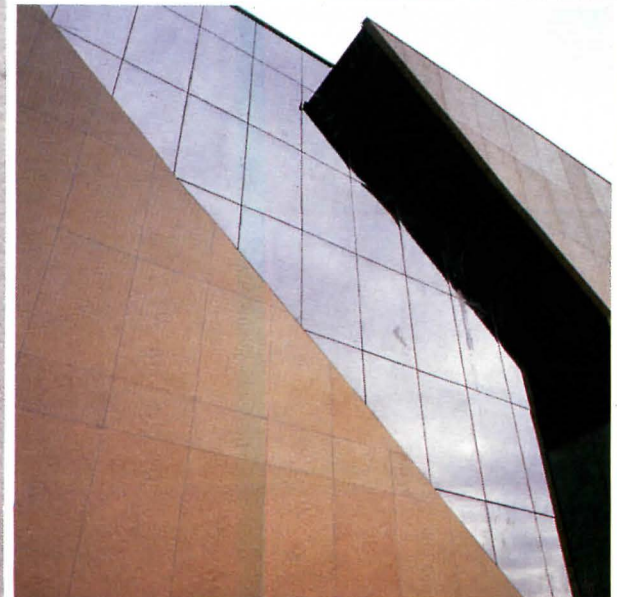
Manville architectural panels are durable, fire resistant and easy to work with. Available in a wide range of shades, textures and colors. With all this going for them, it's hard to believe they could be missing anything. But they are.

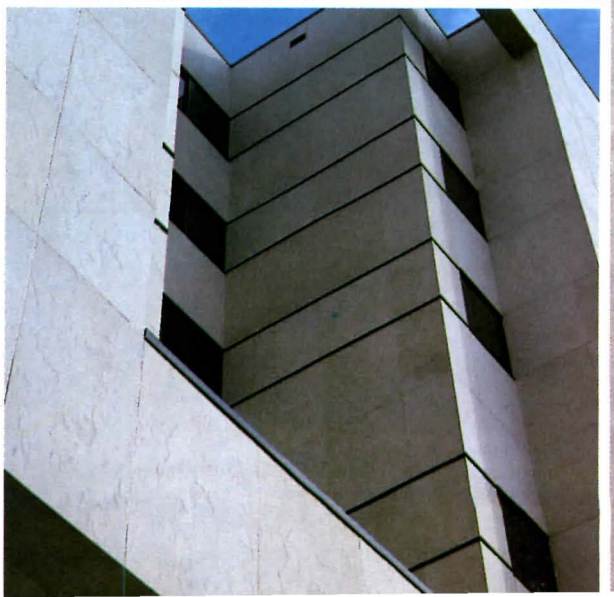
Now, Manville architectural panels are not reinforced with asbestos.

For more information, contact your local Manville distributor. Or Dave Lucy, P.O. Box 5108, Denver, CO 80217. Phone (303) 978-2798.

Manville

Circle 31 on inquiry card





continuous sharing and exchange of ideas in order to clarify *the same theories, ideas, and issues*, along the way—ending with projects that contrast less dramatically, but which have taught the same lessons.

Young students are especially susceptible to the notion that architecture is a form of self-expression. The knowledgeable teacher may utilize that susceptibility as a motivational device, or as easily refute it. The refutation can be a series of simple questions: Who designed this or that famous building? Do you know; do you care? If you don't care, who do you think does? What kind of immortality is it that nobody remembers? Aren't you confusing personal satisfaction with expression, ego, and immortality?

I don't know how *person* got so entwined with architecture. I think the threads or roots of it are in both classical and romantic thought, hero and anti-hero, ego and alter ego, and the cult of the dramatic individual who is sometimes a social hero and other times an antisocial hero.

The roles of both artist and social critic belong to men of special vision, seeing things that others do not. Architects have often played both roles. This, too, leads to an emphasis on the individual and the personality.

Le Corbusier and Frank Lloyd Wright might be seen as two men who had an equal and enormous dose of altruism and egoism. Their care and concern for man, for people, for society, for architecture, knew no bounds. Their efforts were prodigious. Yet their egoism, and the little incidents that prove that egoism, are more remembered by biographical histories than the enormous, socially directed work that these two men sustained throughout their adult lives.

In Beckley's defense of ego, he follows Arthur Danto's argument that "style is the man, comprising qualities that are essentially his." Beckley then asks: "How do we ascertain if an individual's style is essentially his?" Why is this an *important question* and why ask it at all? Is it an art history question, a question of comparative individuality, uniqueness among peers? It seems to me to presume all the wrong things. Is the development of a personal architectural style a litmus test for architectural quality?

The question itself dangerously entwines the individual with architecture for no necessary reason. Is it the psychological study of artists in history, for psychological purposes, that has produced this attitude? Don't art history differentiations of time, place, influence, and person, encourage this type of thought? Doesn't this encourage novelty and superficial stylistic variation for its own sake, rather than architectural quality?

When I see the artifacts of a culture, I can admire their beauty, their exceptional craftsmanship, and be awed by them without knowing who made them, or anything about the artist-craftsman, his family relations, his life, his problems, etc. That knowledge may be scholarship, it may occasionally enrich my knowledge of the artifact. But it confuses whether the work is great with whether the individual was great, and in what sphere he was great. Churchill's paintings are of interest because he was a great person, not the other way around. Van Gogh's life is interesting because his art was great. But architecture school should scarcely be focused on the individual's style—which no doubt is reflected only superficially anyway.

I prefer T. S. Eliot's view of the role of the personality, the "individual talent" he called it, in relation to his work. Eliot believed that the artist or poet, no matter what he did, could not help but have his personality show in his work. That was not the problem. The problem was to do work that was genuinely new and not merely novel. To do that he must have imbedded himself in the very tradition within which his work would be judged. He had to work as hard as possible to attain that tradition, something that could "not be inherited," but "only attained with great labor."

At least Rapoport regards the studio as a place in which one learns a "craft" of "skills and knowledge assumed to be necessary for design . . . sketching, drawing, construction, planning, detailing, and model making." But he sees the studio as wedded to and perpetrating the "archaic master-apprentice system no matter how disguised." He goes on to assert that in the studio there is no way to define who is "master" or what constitutes "mastery."

Don't confuse learning with teaching

Rapoport says the studio's efficiency as a learning mode remains untested. He prefers the efficiency of lecture format or "academic teaching." Beckley regards the split between "academics" and "designers" (or "lecturers" and "studio critics") as a long-standing tradition. I have trouble with all of these assertions.

Architectural education of some sort is apparently as old as architecture itself, craft or otherwise. Architectural education in its present form (the U. S. academic model) is scarcely one hundred years old. Given the comparative quality of the results of the architecture produced throughout history under the various systems of education that preceded it, there is absolutely nothing that I can see that establishes the superiority of the system we now use—which is *not dominated by studio, but by lecture courses.*

Lecture format teaching in architectural education didn't begin until the early 1800s, as addenda to the century-and-a-half-old studio structure of the École des Beaux Arts. The École studios were presumably an idealization of the master apprentice system that preceded and paralleled it. Both systems flourished without lecture format teaching.

What might have been the benefits of this archaic mode of learning? I can think of many. The student was put in a learn-by-doing situation. The initial demands on his intellectual performance were low, but he was surrounded by peers and mentors operating at a higher level. Thus he learned by watching, listening, participating. He had clear role models whom he watched *do* what he wanted to learn to do. The master didn't have to teach him "trivia," or teach it redundantly. He did not feel the burden of a need for either novelty or originality or personal style. His performance criteria were clear: do it as well as the master, the way the master did it—with a comparable result.

Because his subject matter, architecture, was not divided up into theoretical distinctions of *how* (craft), *why* (science) or *what* (social propriety), he learned all three integrally. Because history, sociology, anthropology, and even engineering had not yet been split from theory and practice, these too were integral to *architecture.*

But as those discoveries, events, and methods (that we have called progress) have produced areas of specialization severed from architecture (with their own practicum, culture, methods, and other esoterica), fields of adjacent knowledge necessary to the doing of architecture have grown up.

So the architect must know something about them. And because these fields do not teach architecture per se, architects are lectured about a subject that is not architecture, and often not even from that architectural point of view. But most endure, and even show some mastery of these adjacent fields.

In the United States, this characterization has been especially true. Architecture was assimilated into an existing university structure that stressed a lecture format of teaching—and this assimilation was not begun until the late 1860s. Approximately half the schools were located as appendages to engineering programs, the other half to fine arts, such as painting and sculpture—in either case, a horizontal model, dominated by a lecture-teaching format.

Today the student and his studio instructor are left to *synthesize into architecture* the diverse esoterica purposed from the impinging fields of specialization—with little help, one might add, from those fields themselves.

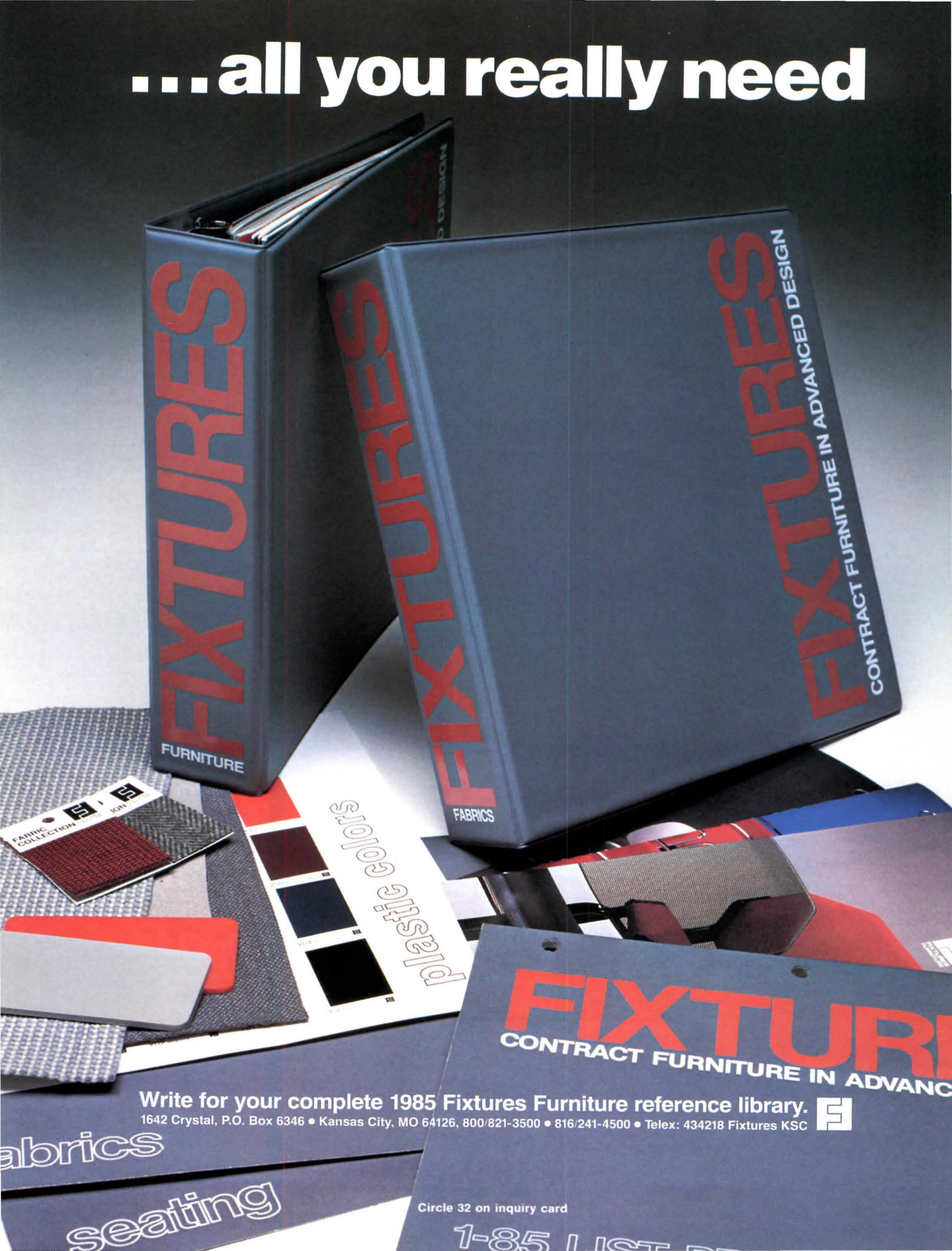
Rapoport's frustration is that he sees very little evidence of students carrying information from these other fields to the studio, and using that knowledge for the *why, what,* and even *how* decisions he must make. He argues that in an increasingly specializing age we need architects who have knowledge of a whole range of new disciplines. Later in his essay, he states: "It also can no longer be assumed that the goal of architectural education is a Renaissance man—a single designer/architect. We need a whole range of people with different skills—hyphenated architects, as it were: architect-programmers, architect-evaluators, architect-researchers, architect-theoreticians."

The hyphenated architect, Renaissance man or average Joe?

But do we need to drastically change education, and I presume professional registration, to require hyphenation as a requirement of both study and practice? Even the most casual look at the range of activities that architects have historically addressed reveals that the conditions we currently face are at least five centuries old. Architects of the Renaissance were also civil and military engineers, city planners, painters, sculptors, and occasionally even writers of poetry, journalism, and history.

We are still discovering the extraordinary range of their activities and interests. We are also discovering the limits of their training and knowledge. In fact, at least since the Renaissance, architects have been prone to address a range of problems far beyond the scope of their knowledge and abilities. They have said we *ought* to do this, and tried *to do it*—often with other people of like interest, but different training. Architecture has mated with numerous new fields of discovery and inquiry, and has spawned landscape architecture; engineering (or at least the civil, structural, and military varieties); archeology;

...all you really need



Write for your complete 1985 Fixtures Furniture reference library.

1642 Crystal, P.O. Box 6346 • Kansas City, MO 64126, 800/821-3500 • 816/241-4500 • Telex: 434218 Fixtures KSC

Circle 32 on inquiry card

architectural history and what, in its vernacular form, is being called material culture; city, urban, and regional planning; and, most currently, the various forms of environmental studies.

So we ought to recognize that it is in the nature of architects and architecture to see themselves and itself in holistic terms and to strive to embrace as broad a spectrum of impinging and influencing fields of study and thought as possible.

Our very mode of operation almost always has been to operate decisively on an inadequate and incomplete body of knowledge and theory. The most recent self awareness crisis produced by this fact has happened to correspond with a parallel crisis in the academic world that has sponsored an attack on our lack of "standard" academic credentials and credibility, i.e., PhD's and specialization.

Perhaps, unfortunately, instead of looking at architecture and defining it in terms of greater depth of study, we have been prone to let those people rule the roost who sought a sufficient theoretical basis outside architecture in an impinging field—not architects per se, but hyphenated architects, and not architecture per se, but something else.

We ought to recognize that we architects are now and always have been a bunch of average Joes of varying ability and training. We have attempted to address a wide range of problems and *do* something called architecture of various scales—from painting and furniture, through building and landscape to city planning. We are now, and always will be, insufficient to the task and in need of the help of others—both generalist and specialist, professional or non-professional, and occasionally academic. Is not such aspiration the human condition?

The centrality of the design studio

Rapoport's main gripes with architectural studio education seem to be the inefficiency it imposes on the teacher; the intrusion it makes on his time for scholarship and writing; and the dominance that the student allows the studio in comparison to other courses, thus interfering with library research and the development of other skills.

In reviewing our own curriculum several years ago, the same question arose. One of my astute faculty colleagues took the trouble to count the course credits in each of three areas of study (essentially following the Vitruvian triad of commodity, firmness, and delight): history (social and environmental), technology, and design. The credit count was about equal.

Moreover, know that in studio I teach more than design. I teach building technology, architectural history and theory, socio-political and cultural history, esthetics, etc. In studio, one *expects* the student to bring knowledge from other areas and apply it. How many other courses can say that?

Does studio keep students out of the library? I constantly send students to the library to search out books, articles, and design projects that address or represent issues they are facing, both individually and as a group. Thus, I apparently believe that there is a useful body of knowledge to draw upon. When I meet resistance to a suggestion to seek such material, I know that the student has encountered a series of teachers who do not make reference to the available knowledge, regard it as non-existent, or worse yet have defined architecture for themselves in such a manner that they find that knowledge "trivial"—a tragedy for both teacher and student.

Granted, students waste time in studio. Why? Many faculty do little to help them develop good work habits, the necessary skills to work effectively and efficiently, and a self-conscious knowledge of creative behavior in relation to design-process work habits.

In a learn-by-doing situation, the learner has little idea of what or how to do what needs to be done. A student describes this by saying, "I don't know where to start." He has little idea of what to do next at any given point in his work (design) processes. So one of the major tasks of a studio critic is to guide that work. This means that the critic uses his own work experience (how) and knowledge base (why and what) to tell or suggest to the student what might or must be done to discover the next layer of problems that must be solved. The critic must simultaneously instigate two opposed processes: one that is decisive and productive, the other questioning and reflective.

One basic assumption of studio learning is that the redundant experience of this work will make the student conscious of what he must do to make architecture.

If studio has a central role in the student's mind—and it does—perhaps one should recount some of the possible reasons why:

- *Most approximate to what I want to do in the rest of my life.*
- *Open-ended and broad projects whose scope encourages more than a minimal effort and rote homework type assignments.*
- *Projects that allow me to explore things I'm really interested in, but for which no courses per se exist, or university requirements prevent me from pursuing.*
- *Regular and personal interaction with a teacher who is concerned about my personal development as well as subject matter mastery.*
- *My skills and knowledge are not what they should be at this point, so I have to spend more time to catch up and do work that is acceptable. This is both my fault for not challenging and pressuring myself, the fault of my former teachers who let me get away with it, and a cultural-educational system that regards visualization skills as messy play—in comparison to language and math skills.*

Visualization skills and architectural learning

A complaint is that studio detracts from students' needs to develop new skills, especially writing.

If students can't write, one might logically find fault with courses that have *taught* reading, writing, grammar, and literature. If a student doesn't know *how* to write, isn't it because he hasn't been required to write? I think it was Hemingway who said if you want to learn to write, you have to write. Isn't this the essence of architecture studio?

Architecture is a visual, spatial, and physical form. In order to imagine it, one must "imagine" such form. In order to explore it, one must represent it to one's self. In order to learn about it from its literature, one must learn not only to read what is written about it, but also to "read" the visual documents that represent it. Therefore, the studio "how" (of architectural design) utilizes "modeling" techniques, as do many fields of inquiry. Would one refute modeling in math, physics, biology, medicine, engineering, and the like? Why should one want architectural and art education to eliminate the learning of the very tools that make it learnable and teachable.

Our culture already devalues visualization and *how-to* skills. The split between academic and vocational subjects, fine arts and craft, profession and trade are all manifestations of class distinction, not subject matter distinctions.

Designing the studio: project and pedagogy

Because architecture is an elusive and broad subject it cannot be hung on a simple eloquent statement or theory as can many fields in the sciences.

Consequently, studio faculty often do little more than agree on a specific architectural project—each teacher may have completely different pedagogical goals that he sees as achievable within that project. He may never discuss these goals with other teachers. Alternately, these faculty may know each other's objectives, goals, and differences (theoretical and methodological) well enough to build into a single project the ingredients to satisfy both their common and their individual pedagogical goals.

Such is not my idea of an ideal studio teaching-learning environment, but it does have a structure, and a pedagogy. John McDermott, now chairman of the department of architecture at the University of Texas at Arlington, suggested to me that "designers" ought to be able to "design" a curriculum that had goals, methods, and means of evaluation, and in fact he has done considerable work in that area.

The studio is an integrating and synthesizing area of thought. Whether one is learning fact or theory, *what, why,* or *how* is often included. McDermott's approach to studio is to make those distinctions clear and to utilize different teaching modes for the many kinds of information and their application that the student is learning.

It is also clear that one can lay out a whole set of pedagogical objectives, and design studio projects, and sub-projects and tasks that maximize student learning. Rapoport characterizes the studio as a place where he is required to "sit around with students, do desk crits, repeat the same thing to each student, go through project after project in juries, again repeating the same thing and deal with trivial, subjective matters that cannot be judged."

This statement suggests that he accepts only crits and review methods in design studio. But any and all teaching-learning techniques are available, including lectures, whether formal or informal.

Where a pedagogy is outlined, lectures that address those pedagogical points, issues, and lessons within a studio project may be defined and described. A student can run into a "problem," i.e., a gap in his knowledge base that is slowing his progress. Such problems are usually redundant. But the professor, recognizing it as such, can immediately call the studio together and extemporaneously deal with the subject matter.

Apparently, Rapoport does not use the students' work as a basis for mutual learning and teaching. The purpose of public review or juries is just that.

My rules for reviews are that all projects are due a minimum of 12 hours prior to review. This assures an awake class at which attendance is mandatory! A student explains his project to the entire class, not just the reviewers. The reviewers

Look at these new Oasis® coolers from a different angle.

Put yourself in the user's place. We did and designed three streamlined, user-friendly models for the handicapped.

All users will appreciate the convenience of electronic activation of the water stream. The secret is our exclusive membrane switch design which activates a solid-state bubbler valve circuit control. Slight pressure starts the flow of refreshing, cold water.

Each of the three models is designed for a specific application: (1) The automatic electronic model that starts with just a tap (and release) on any of its four membrane switch touch pads. Water runs for seven seconds; then stops — automatically. (2) The electronic model that has two touch pads. Water runs as long as there is pad contact. (3) The standard model which is activated by a simple twist of the mechanical Dial-A-Drink® bubbler.

Wheelchair users won't bump against the coolers. The arms of a wheelchair fit easily under the leading edge of the splash basin, and the slender cabinet is angled toward the wall to make even more room for the user's legs.

Visually impaired users will see the water stream better because there is no backsplash to cause mirror distortion.

Take a look at our different angle in coolers for the handicapped. For a detailed specification sheet, write: Ebco Manufacturing Co., 265 N. Hamilton Road, Box 13150, Columbus, Ohio 43213-0150.

O A S I S

WATER COOLERS BUILT WITHOUT SHORTCUTS.

must address their points to the entire class, i.e., use the students' projects as examples on which to teach architecture to the class, not just the individual.

And in terms of developing a knowledge base, I also ask students to research various topics (practical, theoretical, historical, architectural, and so forth), and present that material to the class in studio. Thus each makes a contribution to the whole, often more efficiently than could the teacher. This knowledge is usually of the "normative" and "professional/cultural" type that Beckley discusses and is not truly "scholarly." But what undergraduate or even masters-level work is truly scholarly? This technique, however, expands the normative knowledge base for the student, while allowing the teacher greater time for more truly scholarly endeavor without sacrificing the student's education.

The ideal studio

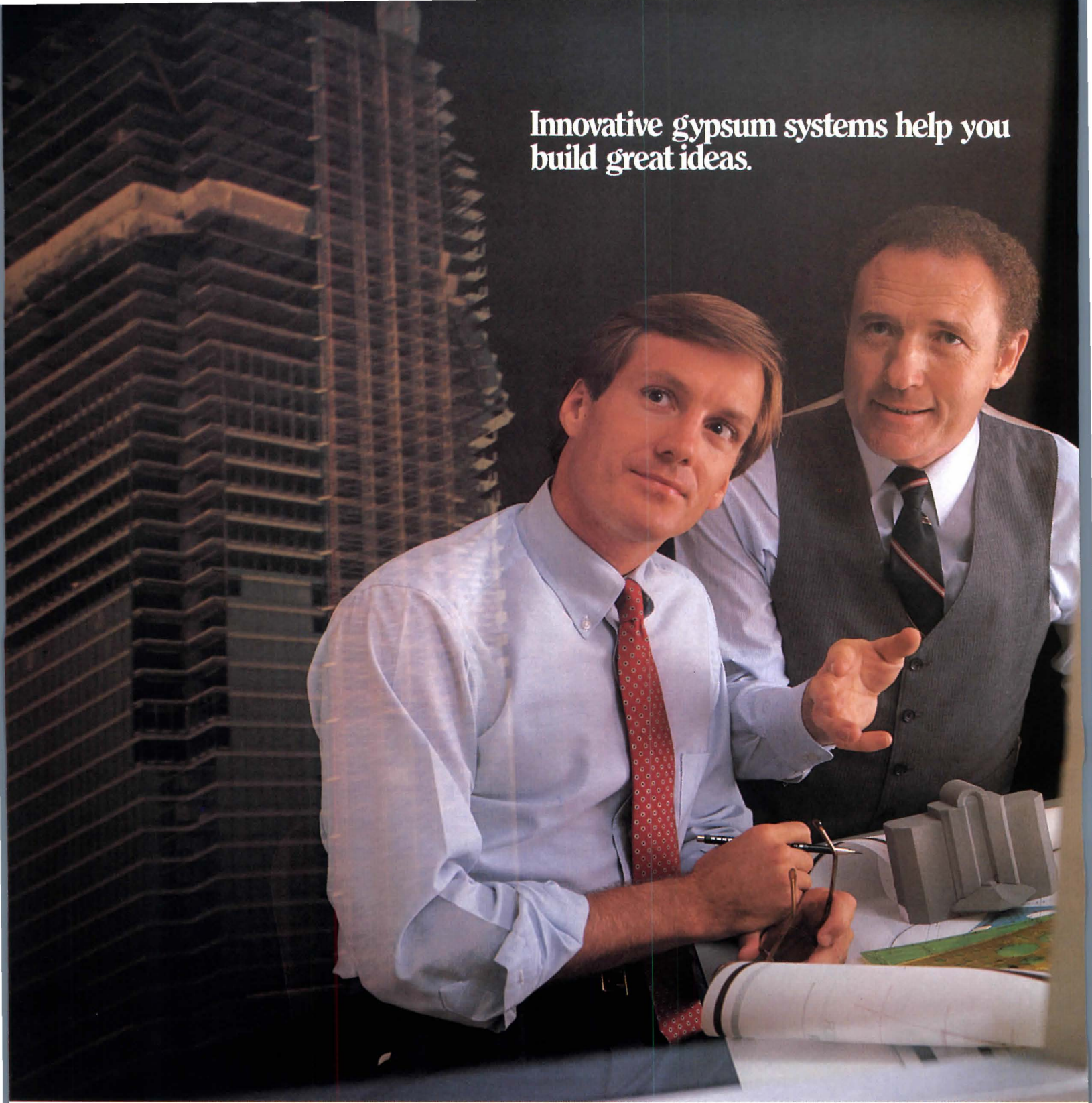
A studio should be made up of a number of things: a clear, complexly related set of pedagogical objectives; objectives which touch on the broadest range of architectural concerns—social, historical, technical, symbolic, expressive; and major studio projects structured to aid the student in attaining these objectives. Projects should include *what*, *why*, and *how* questions—and lectures and readings that are the base materials from which a "reflective dialogue" can occur on an ever-increasing knowledge and skill basis.

Ideally, I know both the general and detailed objectives of each studio session. The student is not left to drift in an intellectual vacuum, but rather is exposed to the heady currents and winds of architectural theory and practice.

He is also coached and guided toward a clearer understanding of creative behavior—and those work habits, visualization skills and tools, enhance it.

So, for me, architectural design studio puts no restrictions on the type of learning or teaching available. Its intent is as broad as I can make it and still have it be architecture. In other words, architecture is a means not just to an architectural education, but to a "liberal" education. It has a focus and asks—unlike most other disciplines in university education—the student to *do* something, as Beckley wisely observes.

Moreover, what it asks him to *do* is nothing less than to grapple with the major intellectual, social, and ethical themes that are the history and nature of man's existence on earth and to make *value* decisions on a knowledge base that is, and will forever be, inadequate to that task. Ultimately, this is to practice how he might *act* in the future, not just as an architect but as a *responsible citizen*, a goal that classical education clearly had—and that modern "scholarship" may well have forgotten.



You're always looking for better ideas to build. And knowing the best materials and systems to specify for a job is at the core of better building.

Genstar Gypsum Products Company manufactures *Flintkote*® wall and ceiling systems. We're one of the most competitive companies in the industry and we stay that way by constantly refining and creating new systems to fit your needs. Such as our new *Flintkote Series V* Shaftwall System.

Series V is the latest in a competitive line of innovative systems from Genstar.

To tell you about *Series V,* we've developed a brochure with all the latest information on shaftwall systems. We'll send it to you free. And we'll include the new 11th edition of the Fire Resistance Design Manual. Just contact Jim Houser or circle our number on the response card in the back of the magazine.

With Genstar, you can be sure that your great ideas are being built with the most sound ideas in gypsum systems.

Genstar Gypsum Products
At the core of sound ideas

GENSTAR™

Genstar Gypsum Products Company
580 Decker Drive, Irving, Texas 75062
(214) 659-9800

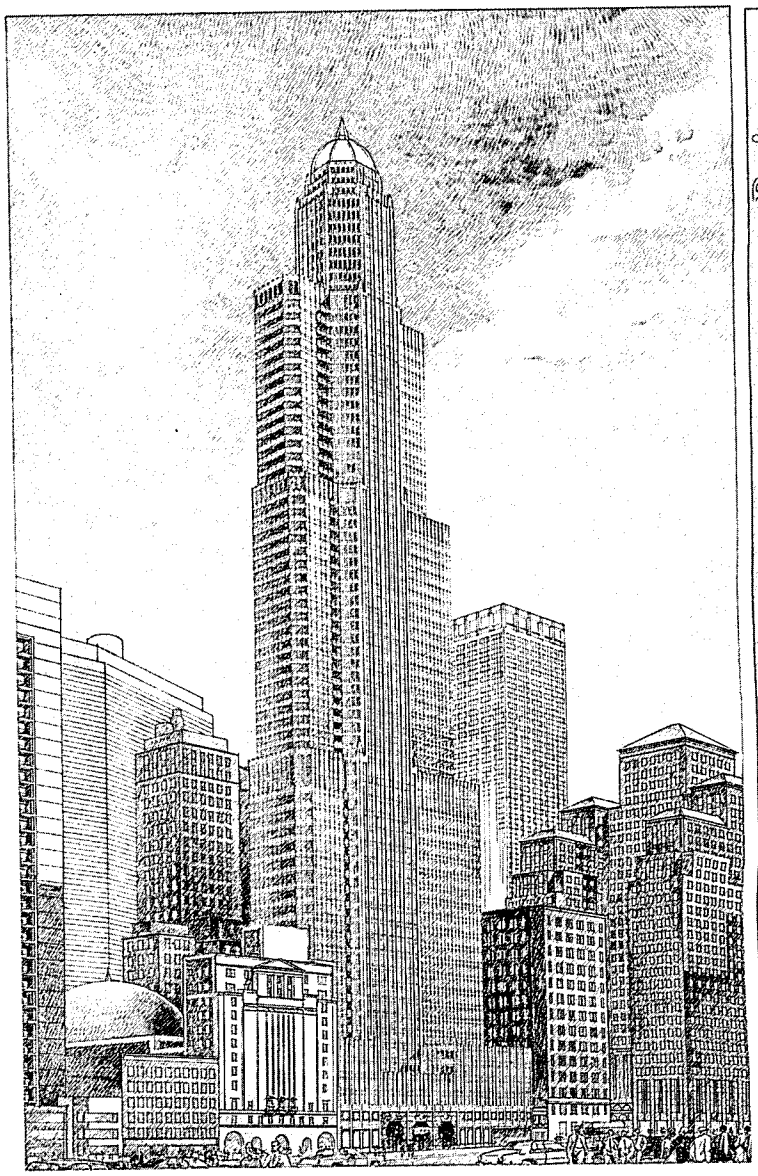
Circle 35 on inquiry card

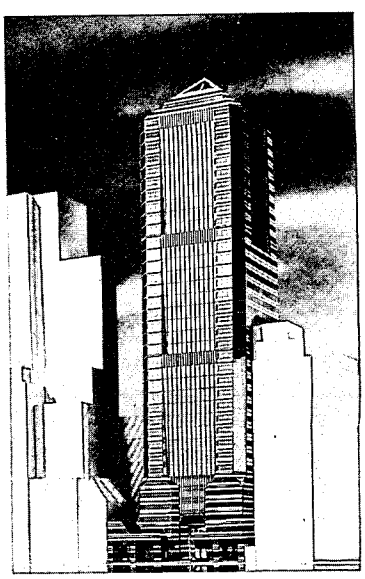
Redefining the Manhattan skyline: Three new projects by Murphy/Jahn

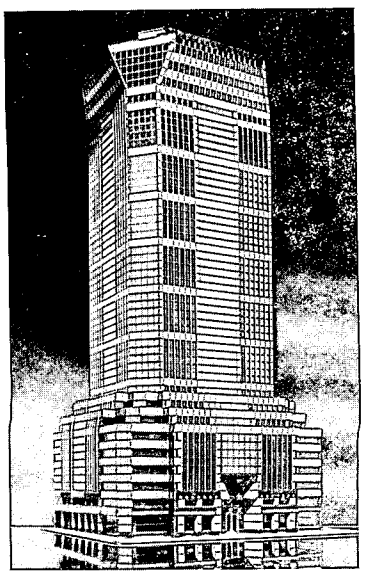
If there is one architect who can reconcile the philosophical differences between New York and Chicago in skyscraper design, it is probably Helmut Jahn, whose idiosyncratic buildings seem a conscious marriage of the stylistic romanticism of New York with the technological considerations that over the years have preoccupied practitioners in Chicago. Three projects by Murphy/Jahn planned for midtown Manhattan exemplify the "high-tech historicist" quality of the Chicago firm's work and are the latest manifestation of the continuing architectural interaction between the two cities.

The most striking of the three proposals—and the most controversial from an urbanistic point of view—is City Center Tower, a mixed-use commercial/residential structure whose 830-foot height is made possible by the utilization of air rights above the landmark City Center Theater (domed building in large photo right). Conceived as "a return to the romantic image of the skyscraper," the design comprises a six-story base intended to fit in with the low-rise scale of West 56th Street, a stone-clad octagonal shaft rising in three setbacks with lateral glass wings projecting east and west, and a domed tower that recalls Bertram Goodhue's 1932 design for the Nebraska State Capitol. While the structure's tripartite configuration has numerous historic progenitors and was in part dictated by new midtown zoning ordinances, many question the appropriateness of a 70-story building—no matter how well-designed—on an 80-foot-wide midblock Manhattan site.

Jahn's two other proposals for New York are more obvious adaptations of specific past architectural typologies. For an East 55th Street site near Park Avenue, Jahn has designed a 36-story, granite-and-glass office tower that slopes inwardly on two sides to form a contemporary interpretation of a classical obelisk (photo near right). The continuous upward sweep of chamfered end walls incorporate traditional New York-style setbacks, while an open pyramid atop the building "evokes an archetypal image of structure, form, and symbol," according to the architect. Another office structure planned for Lexington Avenue (photo far right) will represent what Jahn calls an abstracted version of "architectural history's most ideal tower-and-base configuration"—i.e., Adolf Loos's design for the 1922 Chicago Tribune Competition. In this case, the imagery of the column is startlingly reinforced by a crown that flares outward in deference to the tapering spire of the Chrysler Building across the street. *P. M. S.*

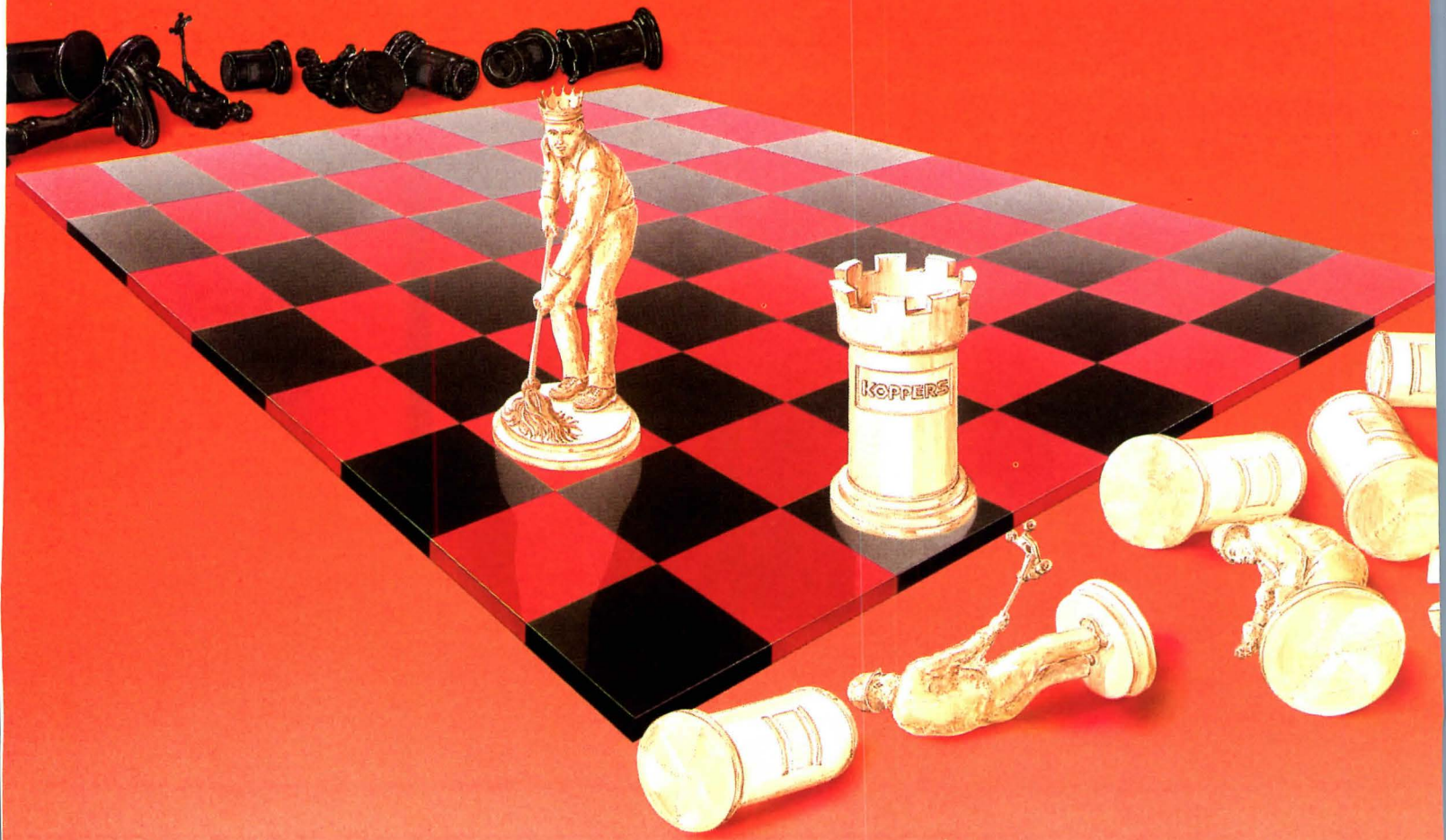






Trust your roof to the "Survivors"...

Koppers built-up roofing systems and the professional roofing contractors who apply them.



Why trust to luck, when you can trust in proven performance?

Both Koppers and the professional roofing contractors who apply our built-up roofing and waterproofing systems have survived 70 years of "new kids on the block"—a seemingly never ending array of unconventional roofing materials. All have one thing in common—none have yet withstood the test of time.

Koppers coal tar built-up roofing and waterproofing systems have! They're *truly proven* systems that have been continuously and successfully used since 1915 by professionals using *proven* application techniques.

You benefit from the combination of time-tested Koppers systems and the expertise of professional roofing contractors who have the know-how to get the most out of the systems. Roofing a building is a complex job, why not trust it to the people who have a proven record of success.

For more information on Koppers coal tar built-up roofing and waterproofing systems use the accompanying coupon.

Send to: T20-8401
Koppers Company, Inc.
Dept. 58A-1
1901 Koppers Building
Pittsburgh, PA 15219

☐ *Please have a Koppers representative contact me.*

☐ *Please send more information.*

Name
Company
Address
City
State Zip
Area Code Phone

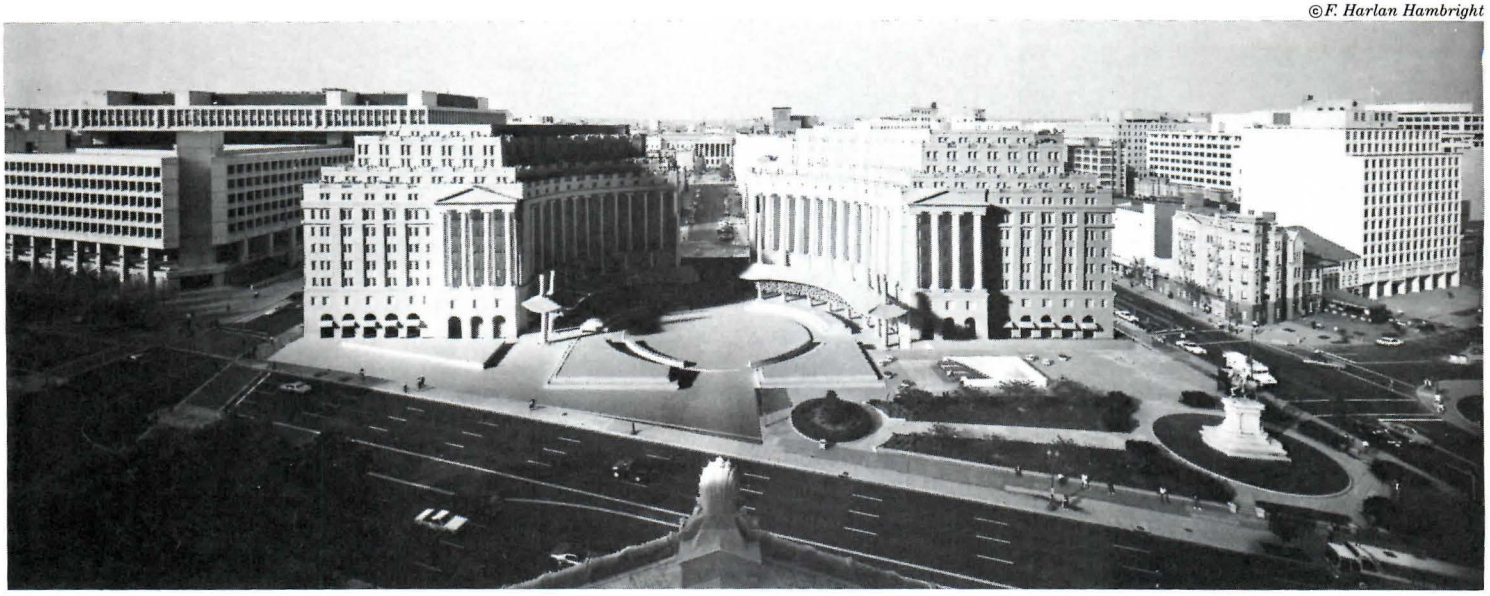
BUR
Built-Up Roofing. A System Above The Rest.

KOPPERS
Architectural and Construction Materials

Circle 36 on inquiry card

Light at the end of the tunnel: Final redevelopment project for Pennsylvania Avenue is unveiled

©F. Harlan Hambright



The Pennsylvania Avenue Development Corporation has selected the design proposal submitted by Hartman-Cox Architects for Market Square, an elaborate mixed-use project planned for the last major tract on Pennsylvania Avenue that had not been assigned development rights during Washington's 20-year effort to upgrade the famous thoroughfare. Strategically situated midway between the Capitol and the White House, the limestone-and-brick complex will comprise twin 13-story buildings with broad semicircular colonnades ringing a proposed Navy Memorial. Plans call for 225 condominium units on four terraced upper floors, 379,000 square feet of office space, and 70,000 square feet of street-level stores and restaurants. The Navy Memorial will consist of a 100-foot-wide flat disk, paved with a stone map of the world that centers on Washington, D. C. Although the height and massing of the complex are rather typical of recent architecture in the city (exemplified by the FBI Building shown at the left in the model photo above), a lavish classical vocabulary of pediments, columns, and rusticated bases should result in a dramatic urban stage setting appropriate for the nation's capital. In another obvious reference to Washington's Beaux-Arts architectural tradition, Hartman-Cox has designed the center to form a neat frame for the axial vista between the neo-classical National Archives and National Portrait Gallery buildings—a sympathetic late-Modern addition to Pierre L'Enfant's 18th-century city plan. Completion of the project is scheduled for early 1988.

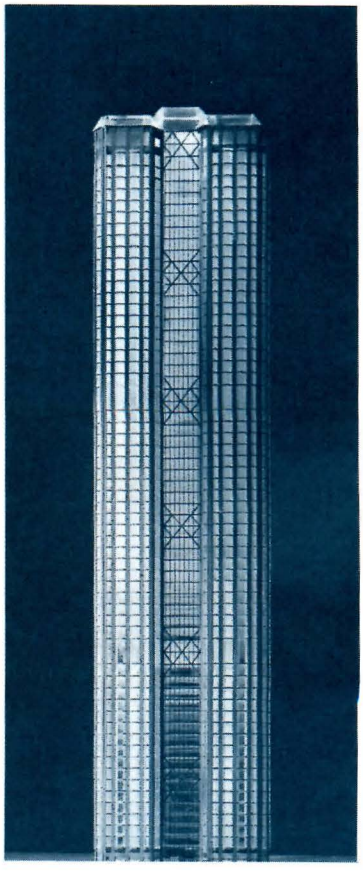
Competition calendar

• Fuller International, a supplier of equipment for the cement industry, seeks entries to a competition calling for new uses of cement that "represent a departure from or improvement upon current technology or practice." Two cash prizes of $10,000 each will be awarded. Entry deadline is May 15. For information write Fuller International, 2040 Avenue C, P. O. Box 2040, Bethlehem, Pa. 18001.

• Kallista, Inc. has announced a national bathroom design competition, open to architects and interior designers, for projects completed between January 1984 and June 1985. Three top winners will receive cash prizes totaling $10,000, along with round-trip flights to San Francisco. Entry deadline is June 1. For information contact Kallista, 200 Kansas St., Showplace Square, San Francisco, Calif. 94103 (415/552-2500).

Major tower will dominate the Chicago Loop

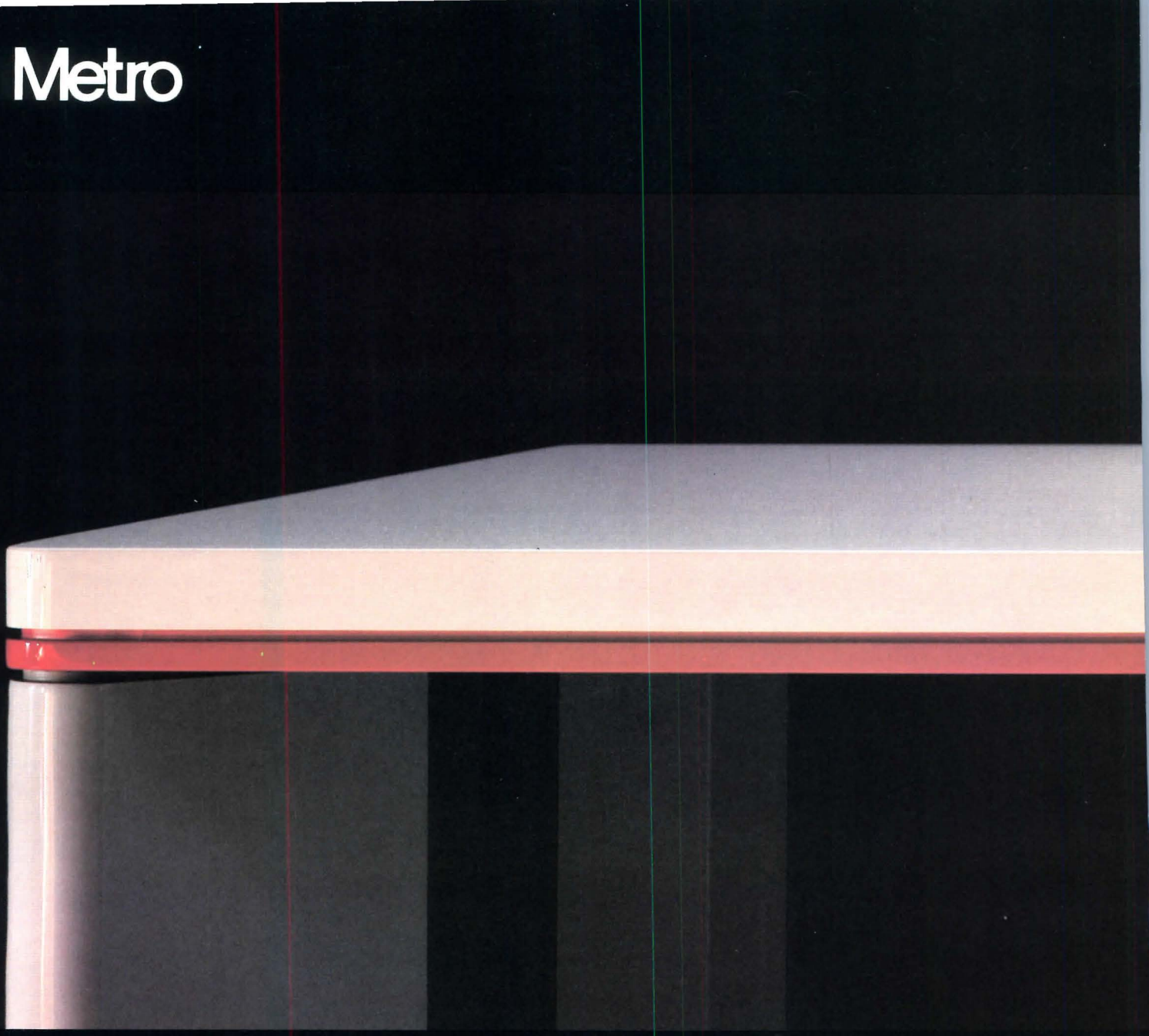
Although tall buildings in Chicago are nothing new, developers of the city's loftiest projects generally have avoided sites within the traditional business district encircled by the Loop. But no longer: demolition will soon begin at the corner of State and Adams streets in the heart of the Loop to make way for Dearborn Center, a 70-story, 2.1-million-square-foot office tower that will challenge the city's big boys. Designed by the Chicago office of Skidmore, Owings & Merrill to rise approximately 900 feet without setbacks, the tower will be clad in vertical bands of granite, aluminum and glass, and will feature no fewer than 11 stacked atriums intended to give tenants within the enormous structure their own identity. A ground-floor shopping galleria will reinforce the retail quality of the existing State Street mall.



Who's hot? Seven architects, says *Esquire*

Anyone who still questions architecture's increasing visibility among the general public needs only to page through the first annual *Esquire* Register, which names seven architects among the 272 men and women under forty who, according to the magazine, represent "the best of the new generation." The culmination of an elaborate selection process that began with a pool of 5,000 nominees, the list of winners includes architects Andrew Batey, Laurinda Spear, Rob Quigley, John G. Lewis, and the Taft triumvirate of John Casbarian, Danny Samuels, and Robert Timme. The purpose of the compendium? To show that "there *are* new ideas in these times, there *are* American heroes, [and] there *is* more to this generation than narcissism and self-interest," explains *Esquire* editor Lee Eisenberg.

Metro



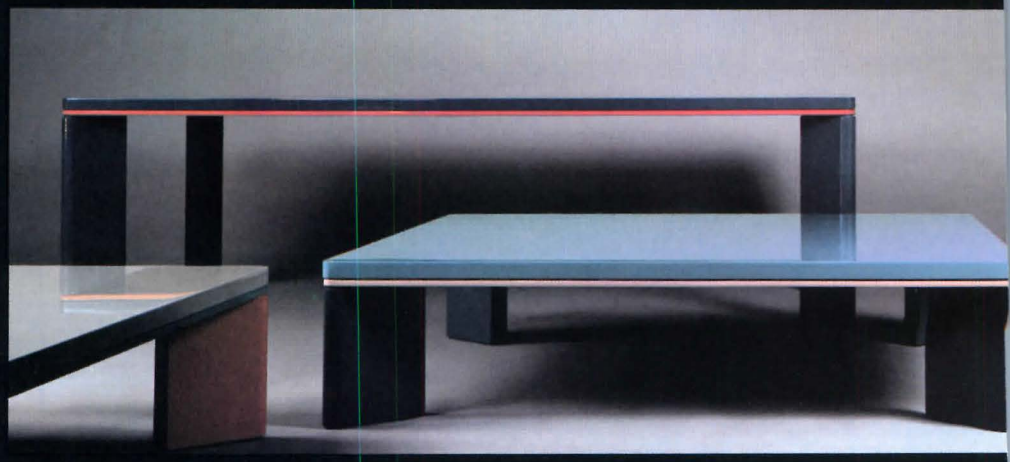
The Belschner Table Group

This table group was designed by architect Andrew Belschner to express color and design in a single statement.

The tables have a refined and definitive form, so the impression of each piece is immediately that of color.

The individuality of the finished product is determined by the designer's selection of a single color or different colors used in harmony. The Metro Color System or custom colors create limitless options for tops, bands and legs.

Available in a wide range of sizes and four shapes…square, round, rectangular and race track, this table group is offered with legs or pedestal bases.



Metropolitan Furniture Corporation 245 East Harris Avenue South San Francisco, CA 94080 Phone (415) 871-6222 Telex 331414
San Francisco Los Angeles Seattle Portland Honolulu Denver Minneapolis Dallas Houston Kansas City Miami St. Louis Chicago Atlanta
Washington, D.C. Philadelphia New York Boston Cincinnati Grand Rapids

New Jersey builds a temple of science

Planned for a prominent site overlooking New York harbor, the New Jersey Science and Technology Center is the latest phase in the development of Liberty State Park on the Jersey City waterfront. The building is organized around a 400-foot-long, four-story-high science gallery that frames carefully composed views of the Statue of Liberty. Another major element of the 450,000-square-foot facility is a glass observation tower housing a giant Foucault pendulum and a built-in laser that will focus its beam on the Statue's torch. The complex will also have the world's largest OMNIMAX theater within a 90-foot-diameter dome. According to architects E. Verner Johnson and Associates, the center's flamboyant design is meant to attract the attention of motorists whizzing by on the nearby New Jersey Turnpike. It will.

Getty Trust taps Meier for new museum complex

The J. Paul Getty Trust has concluded a highly publicized, 18-month architectural search by selecting Richard Meier to design a new fine arts center in Los Angeles. One of the most sought-after commissions in recent memory, the complex comprises a new museum, the Getty Center for the History of Art and the Humanities, and the Getty Conservation Institute—all to occupy 24 acres of a prime 742-acre hilltop site north of Sunset Boulevard and west of the San Diego Freeway. In naming Meier, the Getty Trust culminated an elaborate selection process that began with 11 foreign and 22 American firms submitting their credentials to a seven-person committee chaired by Bill Lacy, president of The Cooper Union. The project, conservatively estimated to cost $100 million, was awarded to Meier over finalists Fumihiko Maki of Japan and James Stirling of Great Britain. Calling the commission "the single most important thing to happen to me," the Pritzker Prize-winning architect has announced that he will move his home and office from New York to Los Angeles in order to devote full attention to the project, which is scheduled for completion in 1991.

Founded on compromise: A prison in New York's Chinatown

Few residential communities are particularly pleased at the prospect of a new jail within their midst. So it was hardly surprising that the residents of New York's densely populated Chinatown were less than enthusiastic when the city announced its intention to build a 500-bed maximum-security facility on the edge of the neighborhood. Loud protests led to a series of review meetings among city officials, community leaders, and the architects. The result: a 237,000-square-foot building combining a 16-level "new generation" prison (open floors, decentralized program areas) with street-level retail space. The complex will include such unusual (for a prison) amenities as a brick pedestrian plaza and a vaguely Art Deco street clock that stylistically echoes the existing Manhattan House of Detention across the street. Clad in precast concrete panels with a granite-sheathed ground floor, the facility will occupy only two-thirds of the building site; the community will supervise the construction of its own building—an 88-unit apartment tower for the elderly with 29,000 square feet of commercial space—on the remaining parcel. Joint project architects are Urbahn Associates and Litchfield Grosfeld Associates.

Our finish takes a beating. Beautifully.

P3 almecolor™ for anodized aluminium.

Now there's a color anodized aluminium finish that's durable enough to use even on exterior surfaces. P3 almecolor from Amchem. And finishes produced by P3 almecolor are as beautiful as they are durable, with a rich tone unequalled by any other color anodizing process.

P3 almecolor keeps your buildings looking better longer—even in harsh climates. With P3 almecolor, anodized aluminum is a practical option in almost any climate. Even when tested in rough marine environments-salt water, extreme temperatures, driving wind and rain-P3 almecolor finishes showed outstanding resistance to corrosion and abrasion. So specifying P3 almecolor eliminates the worry of how rigorous weather conditions will affect the aesthetics of your design.

Colors produced by P3 almecolor stay beautiful. P3 almecolor is applied by a special process that prevents fading, and keeps your new colors looking new. Even in semi-tropical climates and after years of wear, the south wall of your building will still be the same as the other sides.

Get the color you want with the alloy you need. Any of the shades produced by P3 almecolor can be obtained on 1000, 3000, 5000 or 6000 series alloys. So you can get just the color you like and the hardness you require. With P3 almecolor you'll never again have to choose between what's elegant and what's expedient.

More color options for more creative designs. P3 almecolor produces a complete range of contemporary shades from pale champagne to midnight black and all of the bronzes in between. So you can get anodized aluminum curtain walls in the same striking hues as interior aluminum fixtures.

And because P3 almecolor shading is so consistent on any and all pieces, you'll find your smallest accents can be matched exactly to your largest surfaces.

If you'd like more information on just how P3 almecolor can enhance your building, write to Amchem Products, Inc., Ambler, Pa., 19002. Or call (215) 628-1000. Ask for our free P3 almecolor information pack. P3 almecolor. It's the start of a great finish.

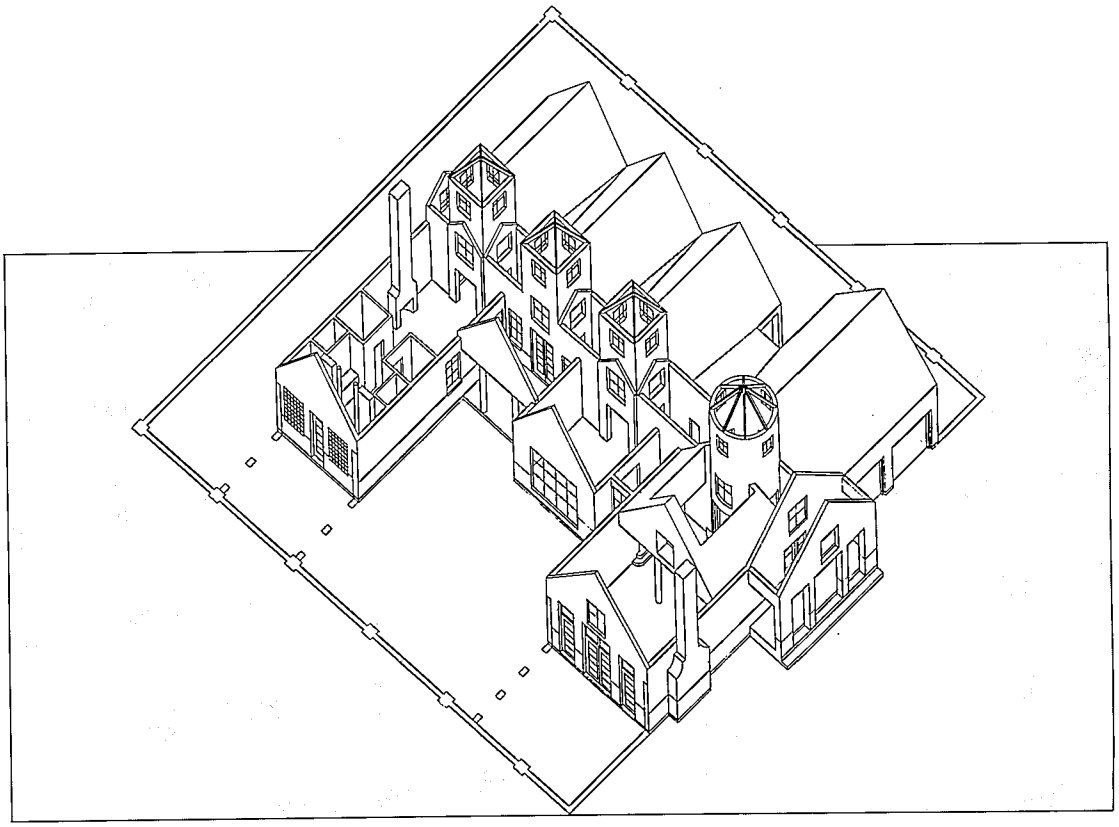
AMCHEM®

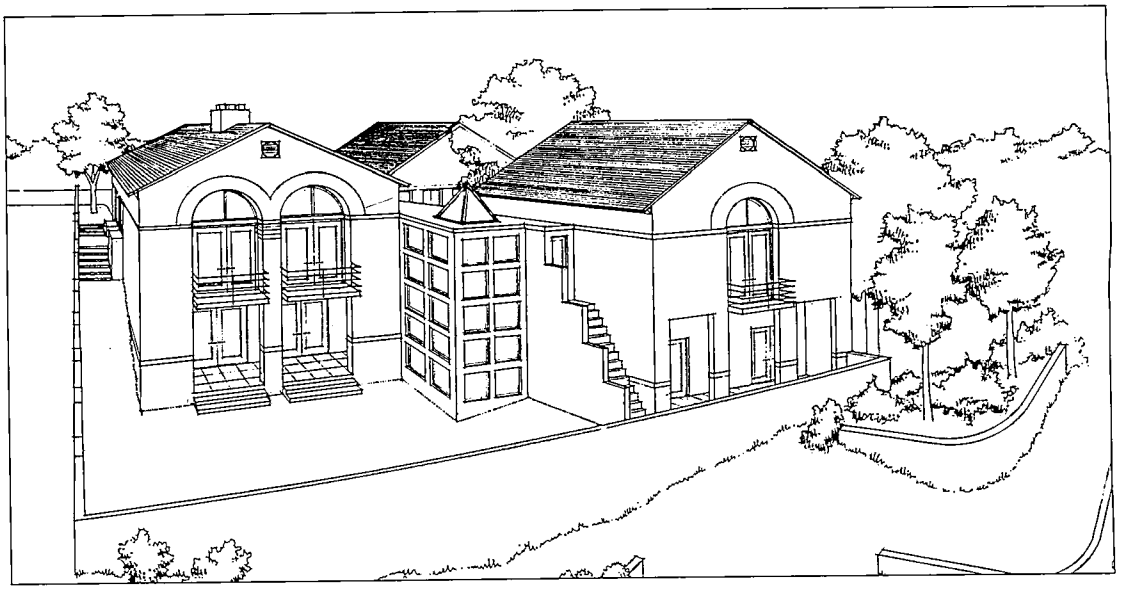
a Henkel company

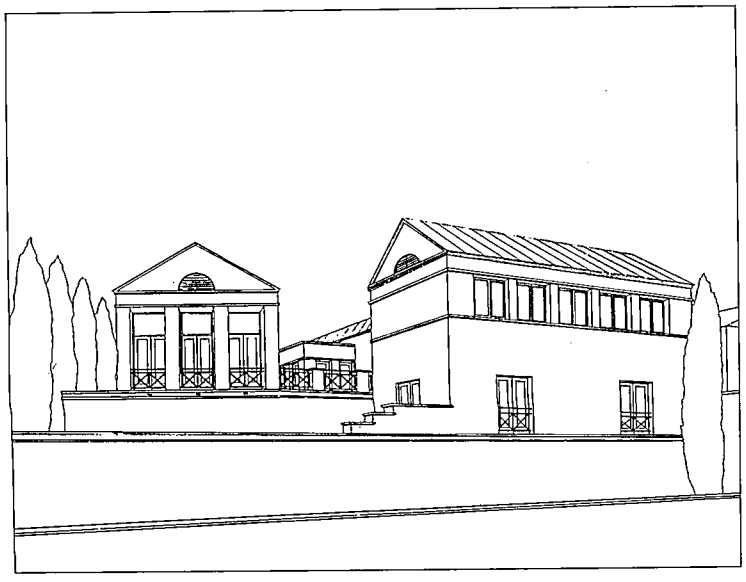
Circle 38 on inquiry card

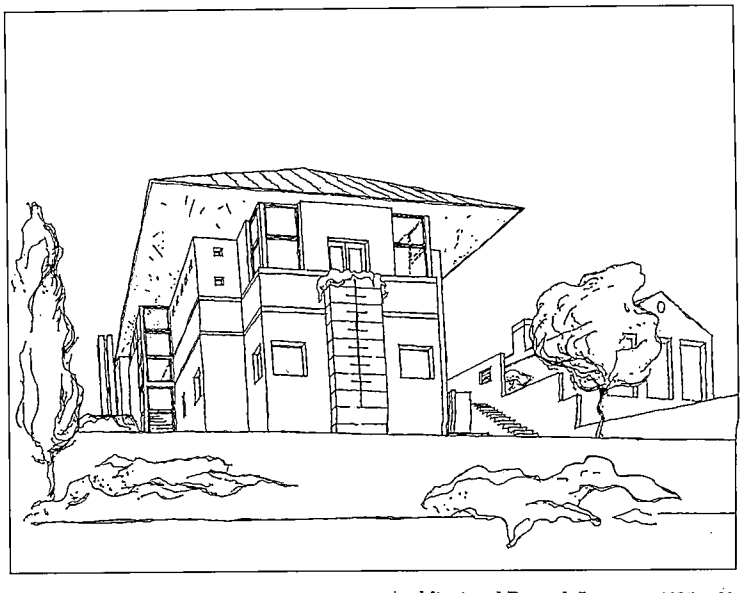
Speculative housing, Texas style

Although Fort Worth's traditional role as a cattle marketing center has given rise to the sobriquet "Cowtown" (much to the delight of some local boosters who want nothing to do with the glitz of neighboring Dallas), the Texas metropolis is beginning to exhibit a bit of flash all its own. Want proof? Then head over to the city's prestigious estate neighborhood of Westover Hills, where developer Haydn Cutler Company has hired four major young architectural firms to complete designs for four adjacent speculative houses—the first phase of a larger residential project known as Westover Square. Faced with steep, narrow lots and required to work within strict design guidelines drawn up by architect David Schwarz that mandated, among other things, sloping roofs and facades mainly of brick (in deference to eight previously built "traditional" houses in the development), the four firms have come up with the intriguing mix of residential typologies shown here. A linear gallery, punctuated by a series of lanterns, organizes the program elements of a house by Taft Architects (top) while a residence by Cass & Pinnell (middle) responds to its ambivalent setting—"too dense to be rural; too separated to be traditionally urban"—with a pair of open and closed courtyards. Andres Duany and Elizabeth Plater-Zyberk have designed a house that exhibits the cool classicism typical of the Miami firm's work, a striking contrast to the horizontal, almost Wrightian quality that characterizes the proposal by Tod Williams & Associates (below). Proof positive that architectural distinction does not come cheap, the houses will be available for prices starting at $725,000.









From the Elegance of Embossed Craftmanship...

Steelcraft® Introduces

Em Craft™

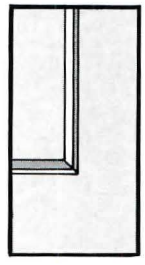
...a new excitement in Steel Entrance Systems

E-21 E-120

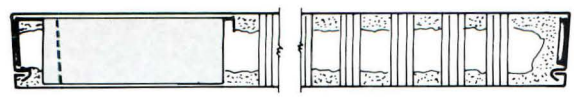
Em Craft™ combines the stability of steel with the beauty of wood. Designed and developed by Steelcraft to add new excitement to that entrance system.

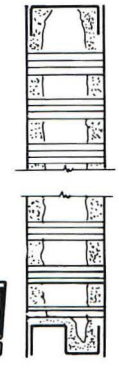
Features include the exclusive honeycomb and polyurethane foam core; beveled hinge and lock edges; closed top; mortised hardware preparation; thermal break at the top, bottom and edges; and more.

Contact your local Steelcraft distributor or Steelcraft for complete information.



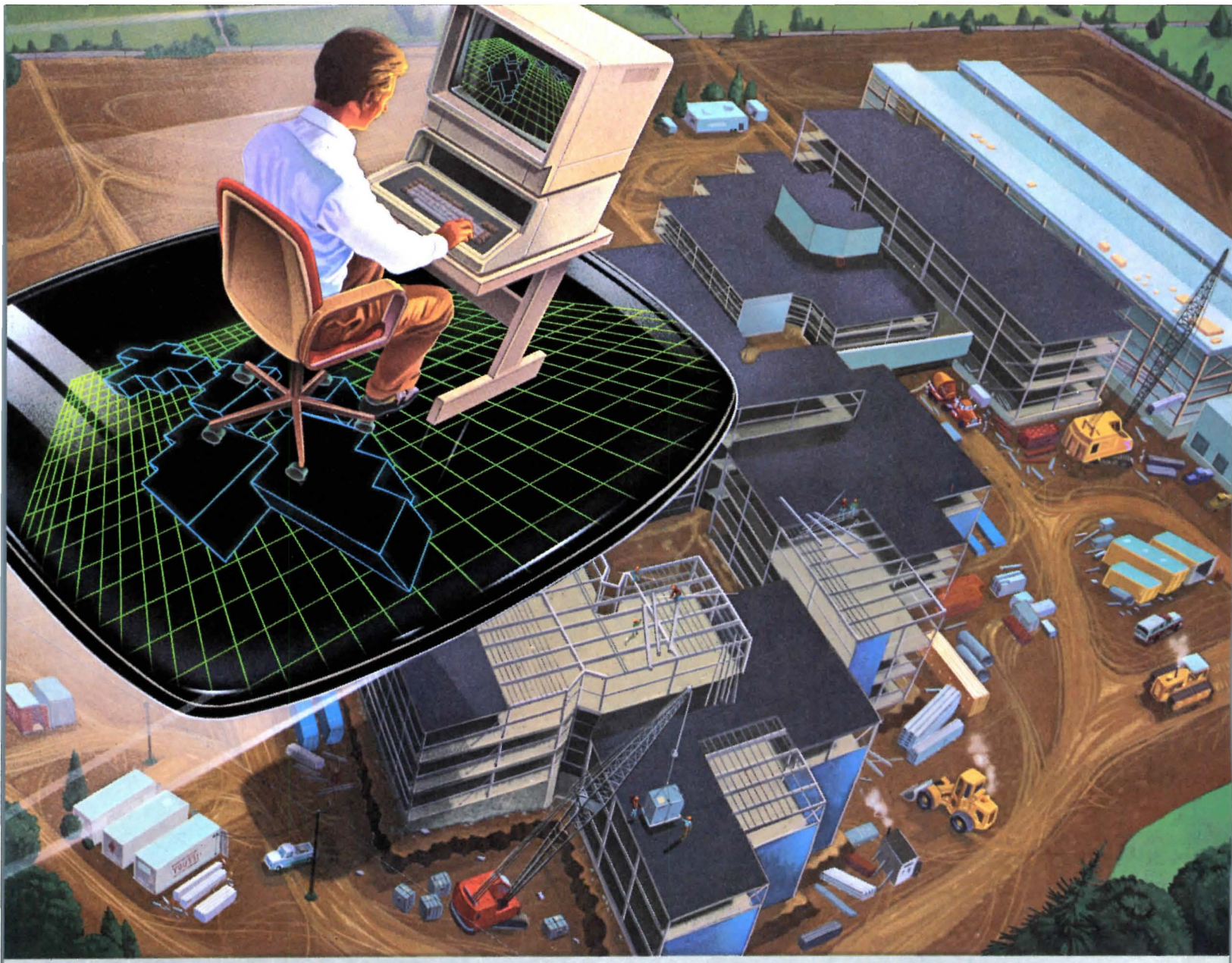
- Deep Embossed Panel
- Exclusive Honeycomb/ Polyurethane Core
- Closed Top
- Beveled Hinge and Lock Edge
- Mortise Hardware Preparations
- Thermal Break Edges
- Thermal Break Top and Bottom
- 24 or 20 Gage Galvanized Steel
- Baked-on Prime Finish





Steelcraft®
by **American-Standard**
9017 Blue Ash Road, Cincinnati, Ohio 45242

Circle 39 on inquiry card



SETTING THE STAGE ON THE ARCHITECTURAL-ENGINEERING FRONTIER

START SMALL, THINK BIG.

For less than $68,000 you can replace manual drafting with the speed and precision of a computer-aided design system using architectural and engineering drafting techniques. You instantaneously upgrade the data base, abolishing tedious revisions and refinements to paper drawings.

Our Building Design-General Drafting System (BDS/GDS)* gives you a more efficient, more cost-effective approach to your time-consuming tasks. That translates into designing structures much faster than by conventional manual methods.

The system can be upgraded to permit continuous 3-D modeling as well as 3-D visibility of structural, mechanical and electrical systems. You can even interface with our structural and civil analysis packages which will assure you of total project coordination—all on the same terminal.

With BDS/GDS you see section, plan, elevation and perspective views. You go directly from the model on the screen to production quality drawings. And you can get help in structural interference checking, quantity survey and cost estimates.

The result: Less tedium, repetition and paperwork. More freedom, creativity and precision. And the bottom line—more functional, more aesthetic and more energy efficient designs for your client—at an attractive price. For more information, call 1-800-325-1551.

*Based on software owned and originated at Applied Research of Cambridge, Ltd.

McDonnell Douglas Automation Company

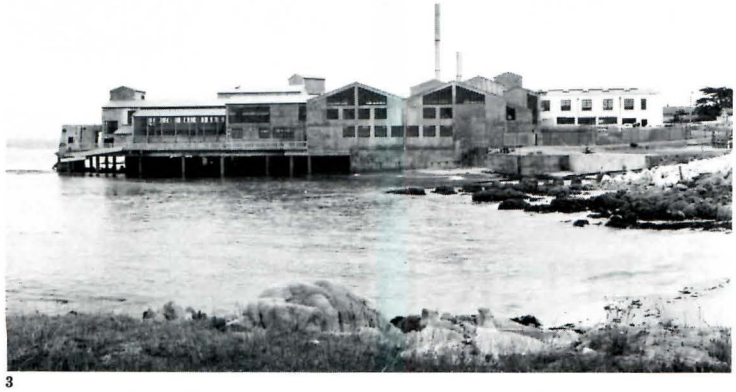
ON THE INFORMATION FRONTIER

Circle 40 on inquiry card

Design awards/competitions: Portland Cement Association 1984 Concrete Building Awards

1 *Doug Symes*

2 *Charles Callister*



3

4 *Fiona Spalding-Smith*

1. Van Ness Plaza, San Francisco, California; Kaplan/McLauglin/Diaz, Architects (Award of Excellence). In order to convert an automobile show room into an office and retail facility, the architects added two floors to the existing three-story, reinforced concrete structure. A barrel-vaulted glazed atrium at the roof line introduces natural lighting into the interior while providing a focal point for the entrance and office space. The building has been resheathed in alternating bands of concrete and green granite panels, and, at the upper levels, a new glass curtain wall. "An excellent transformation of a prosaic footprint into a poetic multipurpose structure," observed the jury.

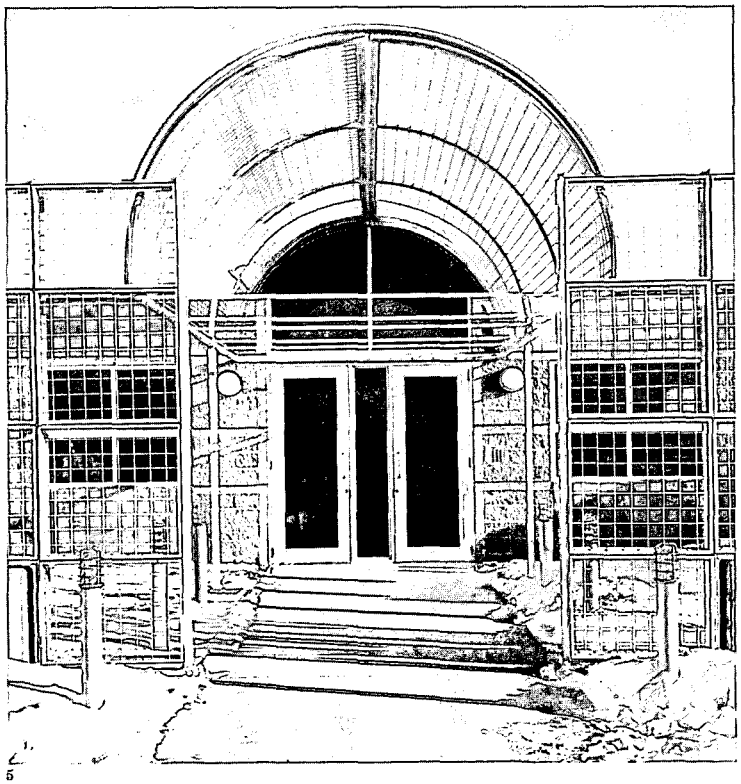
2. The Vintage Club, Indian Wells, California; Fisher-Friedman Associates, Architects (Award of Excellence). The faceted mountains surrounding Palm Springs inspired the pyramidal geometry of an 84,000-square-foot clubhouse (RECORD, February 1984, pages 128-133). Organized on a 24-foot grid, the entire structure is constructed of exposed, cast-in-place reinforced concrete, a material that was also used for planter walls, fountains, bridges, paving surfaces, and lighting fixtures. Complementary Italian travertine infill walls, sun-bleached wood trellises, and plum-colored ceramic tile roofs were selected to harmonize with the surrounding desert landscape. The jury admired the "elegant serenity" of the pyramids and the way light filters through latticework roofs.

3. The Monterey Bay Aquarium, Monterey, California; Esherick Homsey Dodge and Davis, Architects (Award of Excellence). Located on the Monterey Bay shorefront, the nation's largest aquarium was designed in an industrial vernacular style—reinforced concrete framing, corrugated walls, high boiler smokestacks—to blend in with existing buildings on adjacent Cannery Row. In addition to its contextual qualities, cast-in-place architectural concrete was chosen for its ability to withstand the effects of waves acting on the exterior structure, as well as its resistance to corrosion on supporting elements. The jury praised the aquarium as "a strong, harmonious design . . . that continues the silhouette and profile of Cannery Row."

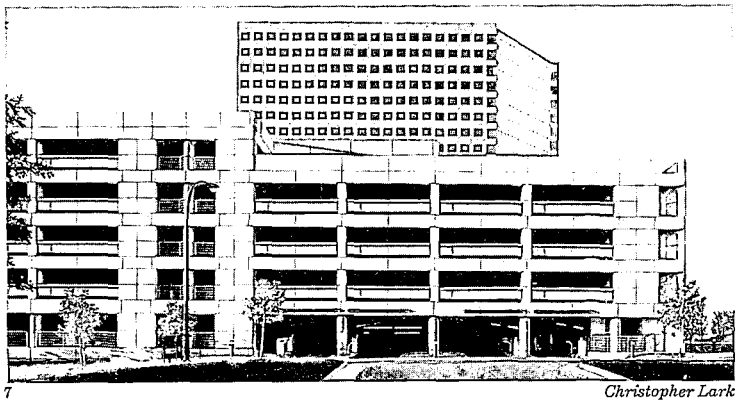
4. Queen's Quay Terminal, Toronto, Ontario; Zeidler Roberts Partnership, Architects (Award of Merit). An unused 1920s-vintage warehouse on the Toronto waterfront was converted into a mixed-use office, retail, and residential center. Early in the design phase, the reinforced concrete structure was determined sound enough to bear the weight of four added stories housing 72 balconied condominium units grouped around roof gardens. For the interior, the architects created two large skylighted atriums by cutting out portions of the structure—a decision that the jury praised as "a thoughtful subtraction from an existing grid that emphasizes the structure and creates wonderful spaces."

An aquarium in Monterey, a mixed-use office/retail complex in San Francisco, and a country club near Palm Springs were the top winners in the 1984 Concrete Building Awards competition, sponsored by the Portland Cement Association. The biannual program was begun in 1982 to recognize outstanding new concrete-framed structures, in addition to remodeled buildings, that incorporate concrete products. Selected from a pool of 133 entries, the eight premiated projects illustrated below were cited by jurors Lewis Davis of Davis, Brody & Associates; Robert Fowler of Robertson Fowler Associates; Herbert S. Newman of Herbert S. Newman Associates; and Walter F. Wagner, Jr., editor of ARCHITECTURAL RECORD.

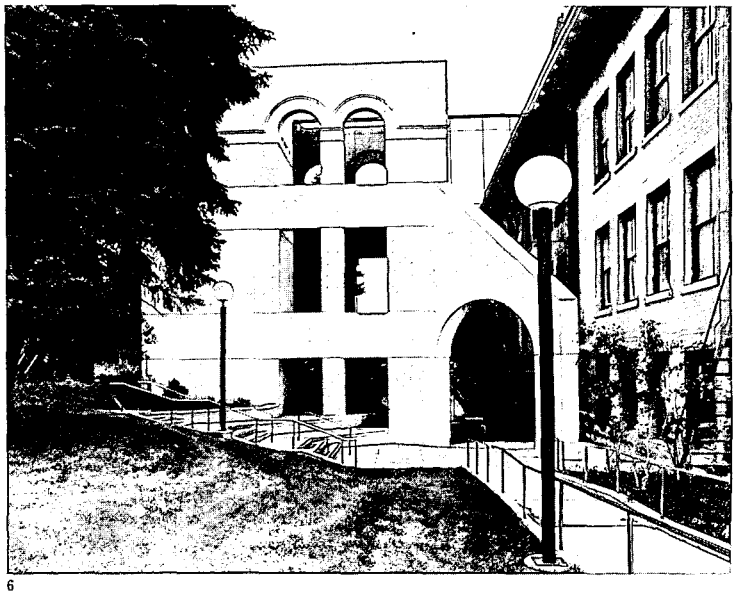
Awards news continues on pages 68-71 with reports on projects honored by the New Jersey Society of Architects and the Prestressed Concrete Institute.



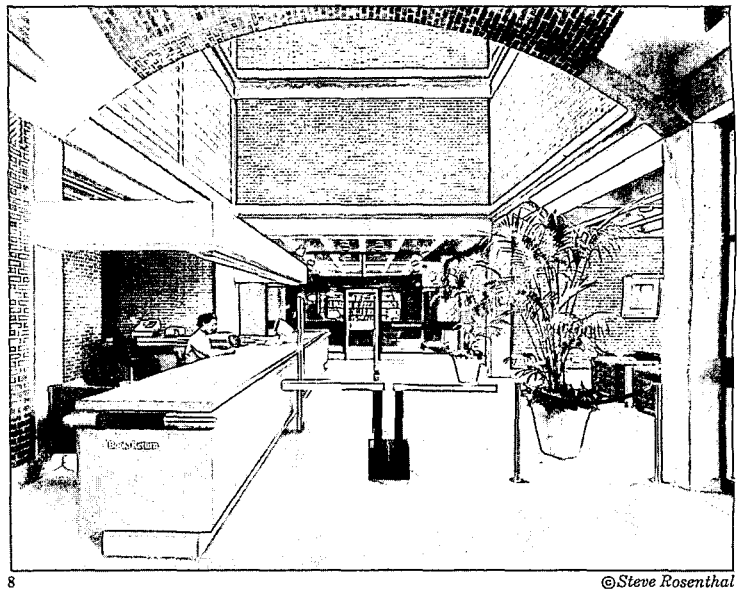
5



7 *Christopher Lark*



6



8 *©Steve Rosenthal*

5. Gallatin County Detention Center, Bozeman, Montana; BGS Architects (Award of Merit). The program called for a new 43-bed correctional facility (RECORD, March 1983, pages 96-99) to replace an outmoded jail built in the late 19th century. A low-profile scheme was developed for the 12,426-square-foot prison, which has cell blocks arranged along a linear service core with access to an outdoor recreation yard. Cell walls are constructed of reinforced concrete sheathed in split-face concrete block, while the roof is a combination of flat slab units and precast vaults over public areas. On the exterior, alternating bands of light and dark concrete block suggest sturdy rustication—and enhance the architects' desired image of security. The jury characterized the design as "strong, bold, humane."

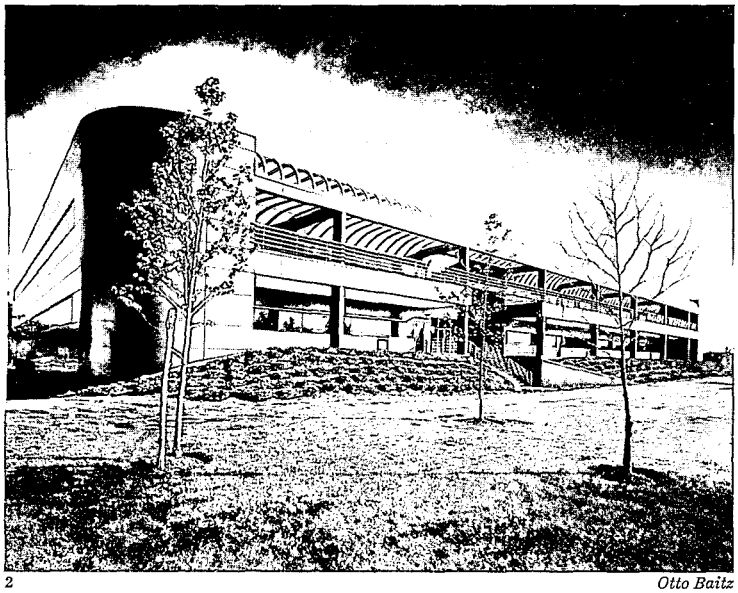
6. Emery Building Addition, University of Utah, Salt Lake City; Brixen & Christopher, Architects (Award of Merit). A new entrance and service core for an existing early-20th-century classroom building exhibits a combination of sandblasted, cast-in-place concrete—selected to harmonize with the gray brick sheathing of nearby campus buildings—and a reflective glass curtain wall. Arched openings surrounded by cast drip moldings are intended to echo similar architectural forms on the older structure. The jury called the relationship between the original building and its new L-shaped addition "ingenious."

7. One Warren Place Parking Garage and Canopy, Tulsa, Oklahoma; Thompson, Ventulett, Stainback & Associates, Architects (Award of Merit). The jury praised a 1,900-car parking garage for its "excellent proportions and detailing," and cited the architects "for paying careful attention to a humble building type and [avoiding] gimmickry." The garage has cast-in-place concrete framing with slabs that are post-tensioned in both directions to improve the serviceability and life-cycle of the structure. Cantilevered triangular stair towers feature glass-enclosed walls that echo the pitched roof of a canopy connecting the garage to an existing office building.

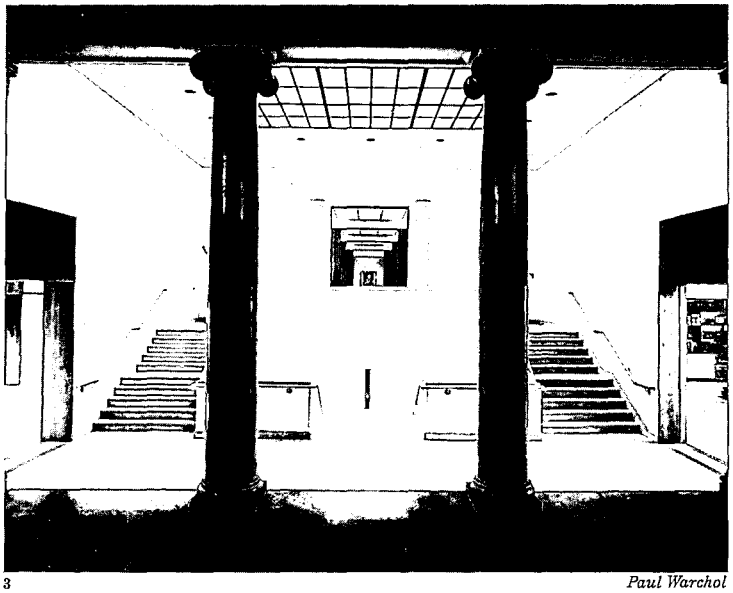
8. Seeley G. Mudd Library, Yale University, New Haven, Connecticut; Roth and Moore, Architects (Award of Merit). A poured-in-place reinforced concrete frame with sandblasted finish was specified for a 1.6-million-volume university storage library and government documents center (RECORD, August 1983, pages 86-90). Exterior infill walls consist of waterstruck brick, laid in Flemish bond, with limestone bull-nosed trim at each floor level set into exposed concrete columns and spandrel beams—a "lyrical combination of materials," in the jury's words, that is repeated in the lobby areas. The 70,000-square-foot building was designed to relate in height, detailing, and color to an adjacent Beaux-Arts structure.

New Jersey Society of Architects 1984 Architectural Awards

1 ©Lawrence S. Williams



2 Otto Baitz



3 Paul Warchol

1. **Moorestown Emergency Services Building, Moorestown, New Jersey;** Herman Hassinger, FAIA, Architect (Award of Excellence). The local board of fire commissioners asked the architect to design a new building for its engine company and emergency squad, and at the same time convert an adjacent 19th-century house into administrative offices, meeting rooms, and training facilities. Separated from the sidewalk by a driveable lawn surface, the new center is a hip-roofed, five-bay-wide structure whose mass is broken up by a vertical brick clocktower—"a sensitive blending of an historic residence and a municipal building that takes into account the context of its Victorian neighborhood," commented the jury. "If you drive along Main Street and think about what could have gone there, this building is a triumph."

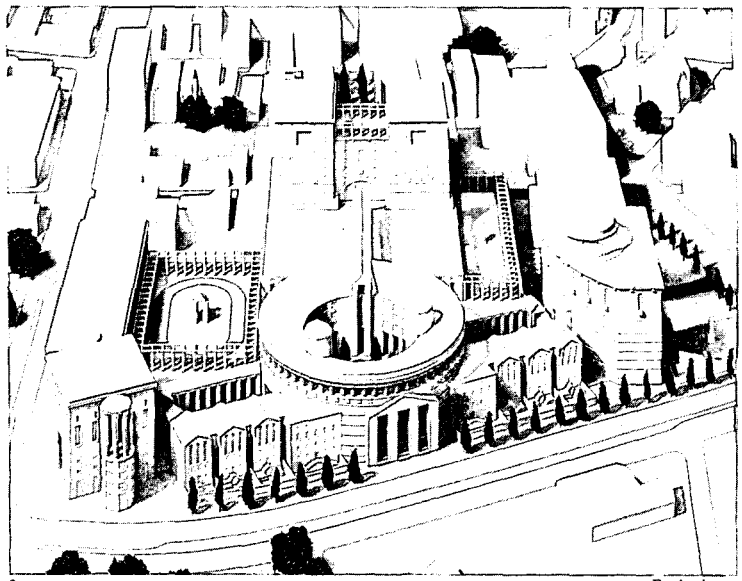
2. **Corporate Office Building, Piscataway, New Jersey;** Barrett Allen Ginsberg, AIA, Architect (Award of Excellence). The jury called this 2 1/2-story, 65,000-square-foot headquarters for an investment corporation "a high-tech building of absolutely the highest quality.... We looked at a great number of similar projects and thought that this one was head and shoulders above the rest." The jury was particularly impressed with the way the architect incorporated energy-saving features into the design of the building's dark aluminum-sheathed facade. On the north, for example, there are protective balconies and a clear glass overhang that permits light to enter; an opaque south-facing skylight, by contrast, shades the interior from heat gain during the summer while allowing the sun's penetration in winter. Other energy-saving devices include above-standard insulation and an earth berm that shields the structure from the winter's prevailing winds.

3. **J. B. Speed Art Museum Addition, Louisville, Kentucky;** Geddes Brecher Qualls Cunningham, Architects (Award of Excellence). The jury praised the architects of this expansion project for reconciling the Beaux-Arts classicism of the original museum with a later International Style addition. The new limestone-and-slate wing contains 14 upper-level cabinet galleries, designed for the display of Old Master paintings and illuminated by natural light filtering through a system of vaulted skylights that the jury called "innovative." Characterizing the structure as "complete architecture," the jurors admired the way the design returns the museum's main entrance to the original building and provides a logical progression of flowing interior space. They added that "all materials seem to have been selected with thought and detailed with skill.... It feels like a tremendous place to be and a great place to experience art."

At its 84th annual convention in Atlantic City, the New Jersey Society of Architects announced the winning entries to its 1984 architectural awards program. Six premiated designs in the categories of completed and proposed projects were chosen from 70 submissions by jurors Richard Green, AIA, president/director of The Stubbins Associates in Cambridge, Massachusetts; Arthur Cotton Moore, FAIA, of Arthur Cotton Moore Associates in Washington, D.C.; and Thomas A. Todd, FAIA, partner of Wallace Roberts & Todd in Philadelphia.

4 *Otto Baitz*

5



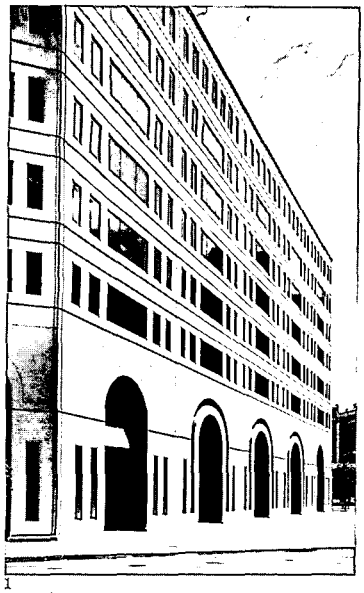
6 *Proto Acme*

4. Corporate Office Facility, Florham Park, New Jersey; Rothe-Johnson Associates, Architects (Award of Merit). The jury was particularly impressed by the way the architects of this 140,000-square-foot speculative office building "used a bit of flash and a bit of design ingenuity to take what could have been an undifferentiated container and create real architecture." The primary building materials employed are white precast concrete panels for exterior walls and columns, clear anodized aluminum for window frames, and dark bands of gray insulated glass. Cranberry-colored tiles lining a colonnade and clear glass utilized at the main entrance are contrasting elements. "Some conscious thought was put into the detailing," noted the jury, which added that "the selection of materials, the scale, and the transition from one size grid to another work extremely well."

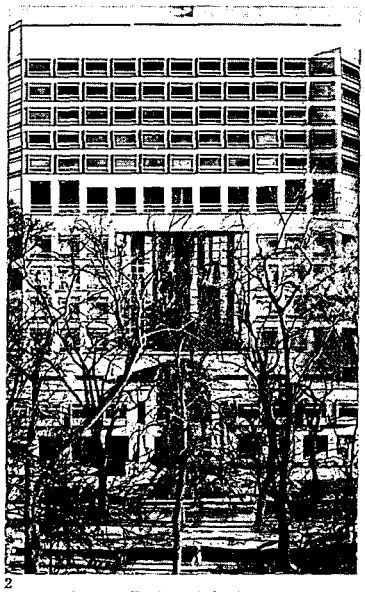
5. Engine Company No. 3 and Ladder Company No. 2, Trenton, New Jersey; Clarke & Caton, Architects (Award of Merit). As part of a program to unify two separate firefighting companies, the city of Trenton decided to expand and upgrade an existing late-19th-century firehouse. The architects elected to replicate the formal composition and some of the details of the original structure, and they sheathed the new building (left in photo) with red-painted exterior insulation molded into shapes that roughly match the brick architectural elements of the existing firehouse. A second-story band of cream-colored insulation visually unifies the two structures, which are physically joined by a new central watch station and a wing containing the facility's firepole. The jury noted that "the use of a symmetrical scheme lends power and impact to a very successful project."

6. Mixed-Use Redevelopment Plan for Blocks 8 and 9, Stamford, Connecticut; Michael Graves, Architect (Commendation for a Proposed Project). The intention of this master plan for a site in downtown Stamford is to re-establish the urban character of the city by massing traditional building types along a reinforced street edge and organizing pedestrian routes through open public spaces. The building program calls for 730,000 square feet of rental office space, 75,000 square feet for retail use, 150 apartments, a 150,000-square-foot municipal office building, and parking for 1,900 cars both below and above grade. A skylighted internal pedestrian street will connect twin 15-story office towers with a large circular outdoor plaza. The jury admired the "clear infusion of classical forms and planning into an American city" and felt that the scheme would "impose a new sense of form and order" on the center of Stamford.

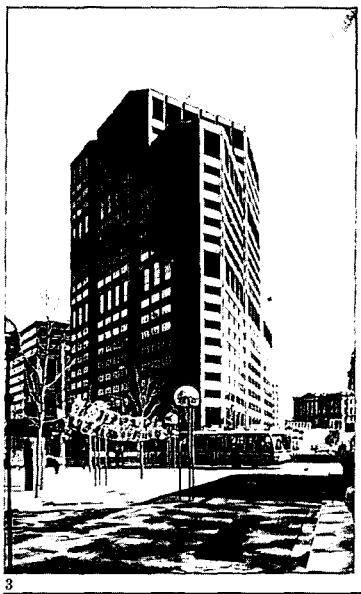
Prestressed Concrete Institute 1984 Awards Program



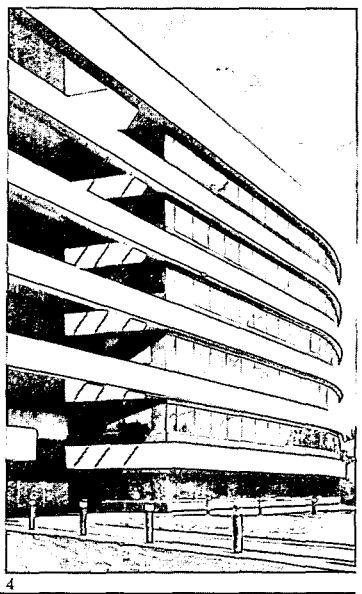
1



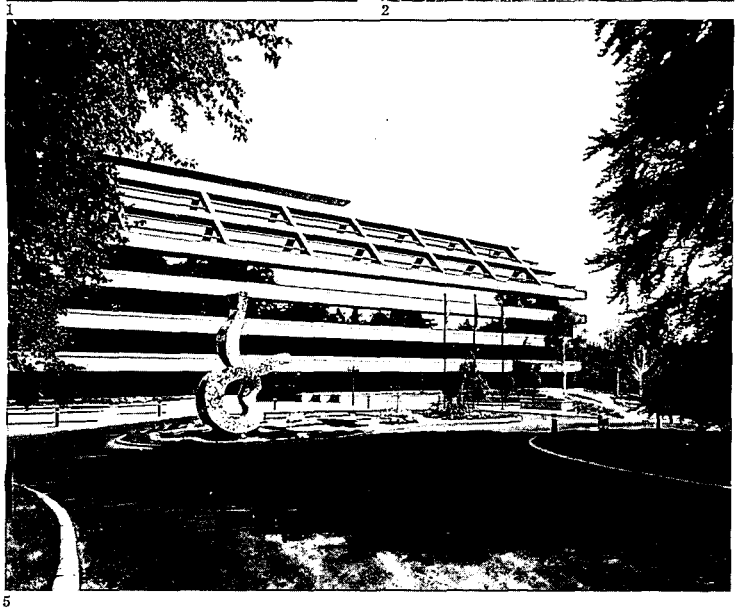
2



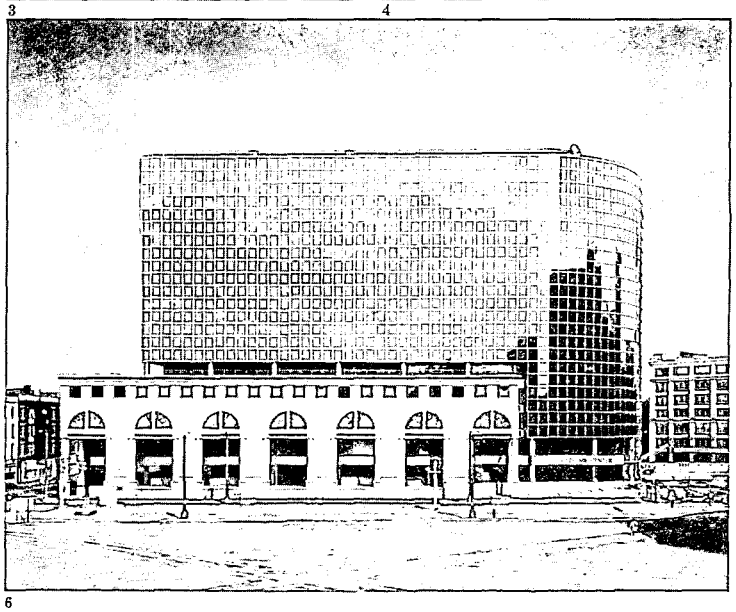
3



4



5



6

1. New Center One, Detroit, Michigan; Skidmore Owings & Merrill, Architects. A new eight-story office building adjoining the General Motors corporate headquarters in Detroit was designed to harmonize with its surrounding neighbors, all stone commercial structures erected during the 1920s. In addition to the exterior application of precast concrete, the material was also used on a series of second-story pedestrian bridges. "The architects have visually related the [new] building to adjacent structures quite effectively," noted the jury.

2. Justice Center, Portland, Oregon; Zimmer Gunsul Frasca Partnership, Architects (RECORD, June 1984, pages 126-135). A programmatically complex, mixed-use government center is characterized by a generous use of precast concrete elements. The exterior is clad in concrete panels, similar in color and finish to the granite of older landmarks nearby. Inside, public areas, courtrooms, and detention cells all have smoothly finished concrete walls. "There is a richness in the detailing," noted the jury. "The contrasts at different levels create a unique artistic effect that is unusual in a public building."

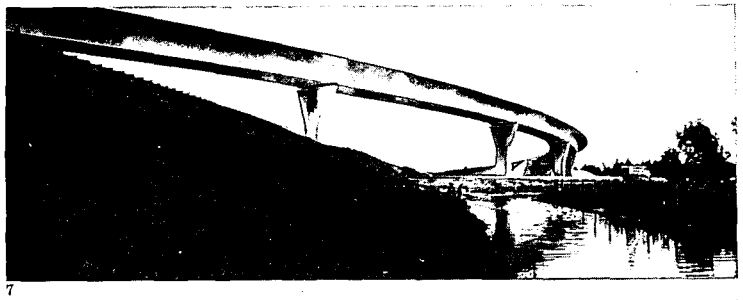
3. One Civic Center Plaza, Denver, Colorado; Hellmuth Obata & Kassabaum, Architects. The architects chose V-shaped precast concrete panels to clad a 22-story office complex located on a prominent triangular site at the end of Denver's downtown pedestrian mall. The building's stepped configuration was devised to take advantage of views of the Colorado State Capitol and surrounding mountains. The jury lauded the structure for its "striking use of color and shapes. The vertical articulations and changing angles are most impressive."

4. 8000 Regency Parkway, Cary, North Carolina; Thompson, Ventulett, Stainback & Associates, Architects. Horizontal bands of custom rose-colored precast concrete panels were selected to minimize on-site construction time and to project a strong corporate image for a speculative office building. South-oriented windows are recessed, allowing the concrete spandrels to provide summer shading. The jury liked the "cleanness and simplicity of the building. The uninterrupted bands stretched across the entrance are an elegant statement."

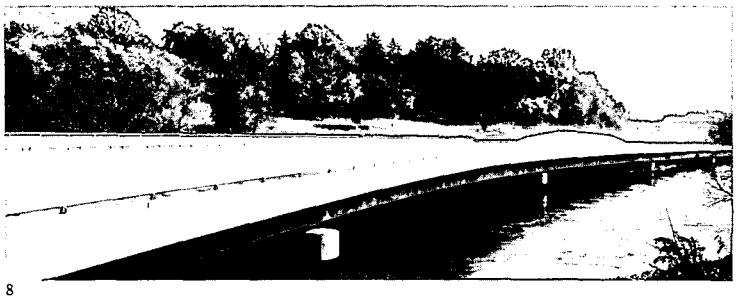
5. Christiana Corporate Office Building, Tarrytown, New York; Matthew J. Warshauer, Architects. Long horizontal bands of earth-toned precast concrete and reflective glass articulate the first four floors of a suburban office building. The top stories step back and have terraces that are protected from the sun by sloping beams. The jury called the structure "a pleasing statement" and added that the precast spandrels "appear to be floating in the landscape."

6. Goldome Bank for Savings Headquarters, Buffalo, New York; Kohn Pederson Fox Associates, Architects. The architects' challenge was to integrate a new corporate headquarters structure with the client's existing Beaux-Arts building. The solution was a four-story frontispiece whose precast concrete rustication and cornice echo granite details on the original bank—"a successful architectural abstraction of the existing building," in the jury's words. Concrete was also used as the exterior core wall for the glass

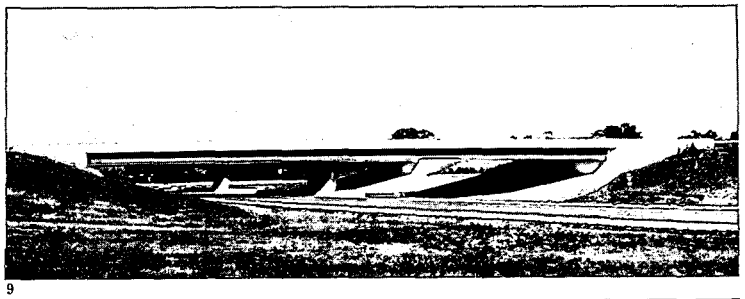
Architects and engineers of nine buildings and three bridges received recognition for their esthetic, functional, and economical use of precast, prestressed concrete in the 22nd annual PCI awards program. We illustrate the 12 winning structures, chosen by jurors George M. Notter, Jr., FAIA, president of the American Institute of Architects and principal of Anderson Notter Finegold; W. Kirk Banadyga, FRAIC, president of the Royal Architectural Institute of Canada; Patrick Shaw, principal of Shaw and Associates; Clellon L. Loveall, engineering director for the Tennessee Department of Transportation; and S. Russell Stearns, president of the American Society of Civil Engineers and professor of engineering at Dartmouth College.



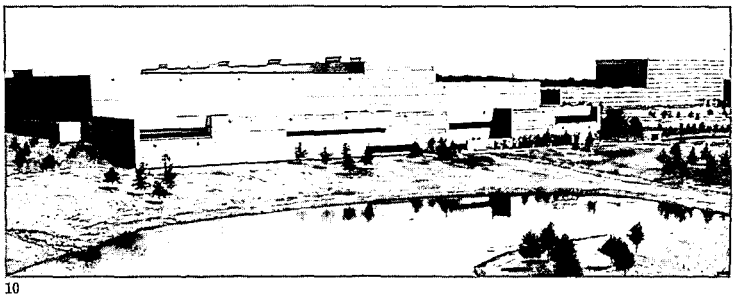
7



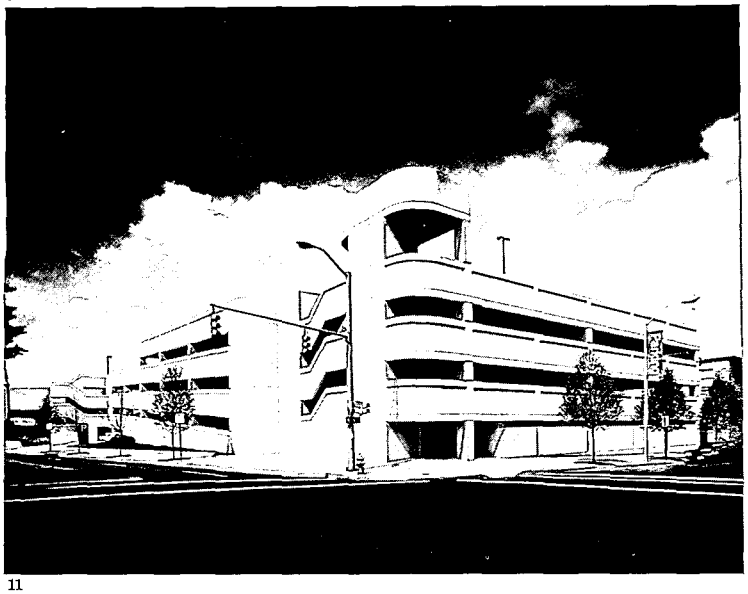
8



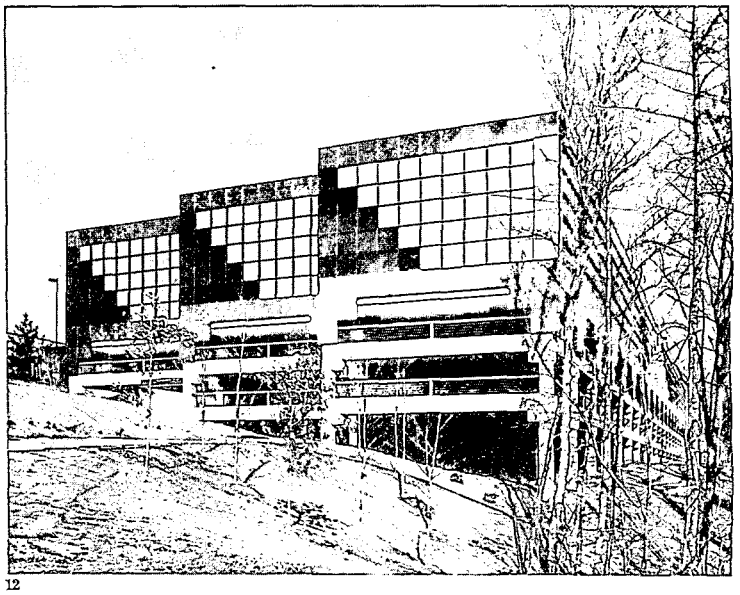
9



10



11



12

curtain wall of an adjoining office tower. "The quality of the precast is excellent and it shows the adaptability of concrete to different forms," concluded the jury.

7. Ramp for the Intersection of Interstate 75 and the Florida Turnpike, Dade County, Florida; Beiswenger, Hoch and Associates, Structural Engineers. Beveled corners and rustication adorn the piers of an 11-span, box girder bridge that forms the third level of a major highway interchange. The jury complimented the engineers "for adding beauty to a typical segmental bridge design. The simplicity of the sweeping curves creates an elegant statement."

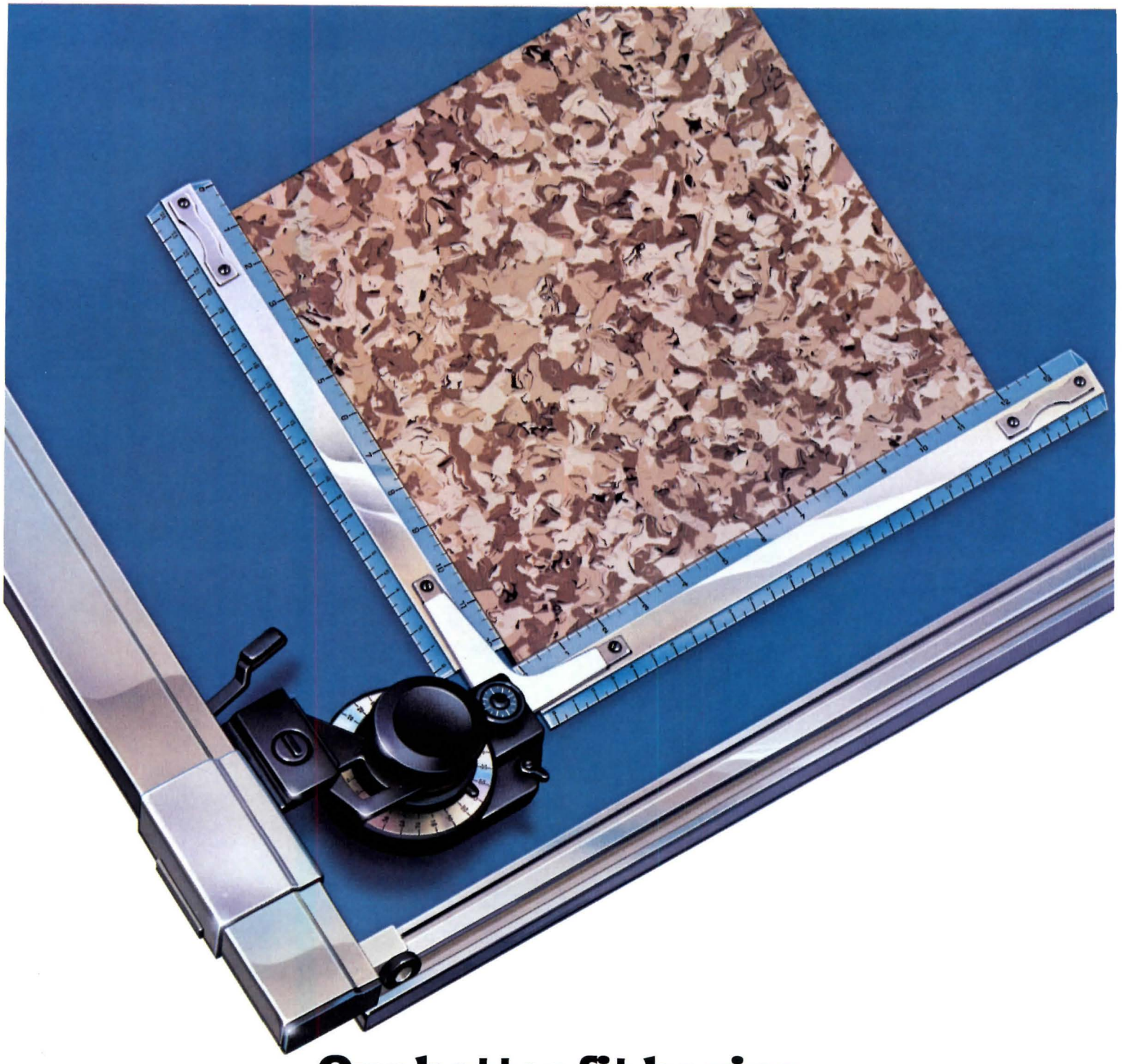
8. Highway 406 Bridges over the Twelve Mile Creek, St. Catherines, Ontario; Ontario Ministry of Transportation and Communication, Structural Engineers. The jurors were impressed by the excellent workmanship and extremely shallow construction depth of dual precast concrete, segmental box girder bridges built by the balanced cantilever method over a fast-moving stream. "It appears as a beautiful ribbon floating on the water," they observed.

9. Bridges for State Routes 111 and 42, Putnam County, Tennessee; Tennessee Department of Transportation, Structural Engineers. Dual bridges feature precast spread box beams and cast-in-place concrete box sections cantilevered from the abutments and center piers. The jury called the bridges "well-engineered and at the same time esthetically pleasing to approaching motorists."

10. Philip Morris USA Manufacturing Facility, Cabarrus County, North Carolina; Herbert Beckhard and Frank Richlan, Architects. In order to reduce the apparent bulk of a two-million-square-foot manufacturing plant, the architects created a patterned facade that comprises horizontal bands of precast concrete panels with alternating exposed aggregate and raked finishes. Smooth concrete panels articulate corners, doors, and windows. The jury called the structure "a good solution in massing for a large-scale industrial plant. The detail and changes in texture are interesting and effective. It really doesn't look like a manufacturing facility."

11. Maryland Concert Center Parking Garage, Baltimore, Maryland; Cochran, Stephenson & Donkervoet, Architects. The sculptural qualities of precast concrete construction are revealed in a four-story parking garage. The jury called the building "a very classy-looking parking structure . . . and an impressive architectural statement not usually seen in structures of this type. The designer's discipline and attention to detail are reflected in the handling of the curves and reveals."

12. Tracor Office Building, Rockville, Maryland; Benjamin E. Brewer, Jr., Architect. Located on a steeply sloping wooded site, a low-rise commercial building exhibits exposed column brackets on two levels of parking that initiate the stepped patterning of a glass-sheathed office block above. The jurors praised the transition between the garage and offices, and noted that the structure represented an effective combination of precast concrete and glass. "A very interesting solution using a simple structural system," they observed.



Our better fit begins with our better fitness program.

You can't get a better fit with any other tile! VPI solid vinyl tile is Micro-squared,™ a VPI exclusive that gives you tighter fitting floors with a virtually seamless appearance.

Vertical edges are cut perpendicular to the surface, too. And gauge is precision controlled to eliminate high edges and assure a smooth, continuous surface. No other tile manufacturer goes to such lengths to make sure you get the very best flooring results.

And VPI solid vinyl tile shows its quality year after year. It keeps its good looks under hard use, and even abuse. It resists indentations and shrugs off most common chemical spills. Its resiliency makes it easy on the legs. And it stays attractive with routine washing and spray buffing.

VPI solid vinyl tile. Micro-squared to fit, manufactured to keep looking fit. Available in 12" x 12" tiles and a variety of handsome colors and patterns. For information write VPI, 3123 South 9th Street, P.O. Box 451, Sheboygan, WI 53081. Or call 414-458-4664.

2108

VPI FLOOR PRODUCTS

Circle 41 on inquiry card

Architect: The Life and Work of Charles W. Moore, by David Littlejohn. New York: Holt, Rinehart and Winston, 1984, $22.95.

Reviewed by William Hubbard

Discount, if you will, the last half of *Architect: The Life and Work of Charles W. Moore,* in which David Littlejohn writes an appreciation of a sizable portion of all the houses Moore has built. With few photographs and no plans, it reads like the wine column of a food magazine: "Take my word as a connoisseur—this is how these houses rate. . . ."

Focus instead on the chapters in the front, where Littlejohn presents one of the most perceptive analyses ever made of the unique contribution of Charles Moore's design. "Surplus overhead space" is one concept Littlejohn names that contains part of the essence of Moore's houses. The feel of the body moving through space is the other key to understanding what Moore has given us. Littlejohn describes both of these ideas with a verve and lyricism that matches and captures the feelings one does indeed get when moving through the best of Moore's houses.

Give yourself the pleasure of Littlejohn's depiction of how Moore designs. The author presents a seductive vignette of a design session—the long weekend at Moore's Sea Ranch condominium during which Moore, Bill Turnbull, and a cast of associates, marooned by a Pacific storm that had washed out the access road, "concepted out" the plan for the New Orleans World's Fair. The scene will seduce you because it is so redolent of the delicious all-nighters we have all spent *en charette*: the witty banter, the tension when the design was stuck, the glorious release when a single conception made it come right. You will say to yourself: "Yes, that is how buildings *happen!* "—down even to the spectacle of the visual reality migrating upward through layers of yellow trace.

Learn from what Littlejohn is attempting here. He is trying to show us the manner in which architecture is actually created. He has scrupulously avoided the structuralist, art-historical approach that explains the generation of form by recourse to some elegant but simplistic system. He has shown us instead the concrete acts by which the shape got imagined, drawn, and then melded into a design. That effort deserves the praise of us all, just as it merits emulation by architectural historians. For it imprints on us (indelibly, one hopes) the image of architecture as a collaborative effort, which we all know architecture to be. Moreover, it asserts that the character of architecture is largely a function of the spirit with which the master orchestrates the talents of his collaborators.

But be wary of the manner in which Littlejohn presents to us the nature of that collaboration. For to the extent that its nature is distorted, we misunderstand the true manner in which Charles Moore's buildings get created. Look carefully at the other scenes Littlejohn describes. In them you will hear the master evaluating the relative abilities of his associates, and you will hear the associates lamenting the vagaries of the master. Is this not, really, the pique of a moment's duration, here given the appearance of long standing by a commitment to print? You know the answer from your own collaborations. Such moments of discontent are, in fact, the precise analogue of our yellow-trace sketches: they will soon be superseded by a resolution and so forgotten. The truth of professional collaborations, and therefore the truth of the creative process that Littlejohn hopes to describe, lies not in the frozen moment but in the long-term resolution.

So *caveat lector.* Buy this book, read this book for the rare truths about the design process that it does contain. But for the places where it misrepresents that process, trust your own knowledge of people. Littlejohn himself tells you a lot about "Charles Moore people" (his phrase). He tells of his own pleasure from their open-handed hospitality—the meals spread before him, the drinks and conversation freely offered. You know such people, the ones who put you at your ease, who take a genuine interest in what you have to say, who show their affection by small but telling gestures. To imagine such people designing together is to come close to an understanding of Charles Moore's design process, and of the particular and personal magic of his buildings.

"My wife just had a great idea: Why don't we build up there instead, so we can catch the morning sun?"

William Hubbard has been for the past year director of architecture of the Urban Innovations Group in Los Angeles and assistant professor of architecture at UCLA. His most recent article, "A Meaning for Monuments," appeared in the Winter 1984 issue of The Public Interest.

Roman holiday

Take one exceptionally creative architect from Vermont, send him to Rome on a six-month fellowship at the American Academy, and watch what happens. In the case of Turner Brooks, the result is Il Risorgimento, *a movable monument of wood, canvas, and steel cable that was inspired by both the images of the architect's native New England and the icons of The Eternal City. After completing a set of pastels that show* Il Risorgimento *in various guises, Brooks took his creation on a tour of Rome. Why* Il Risorgimento*? Brooks's commentary, drawings, and photographs speak for themselves.*

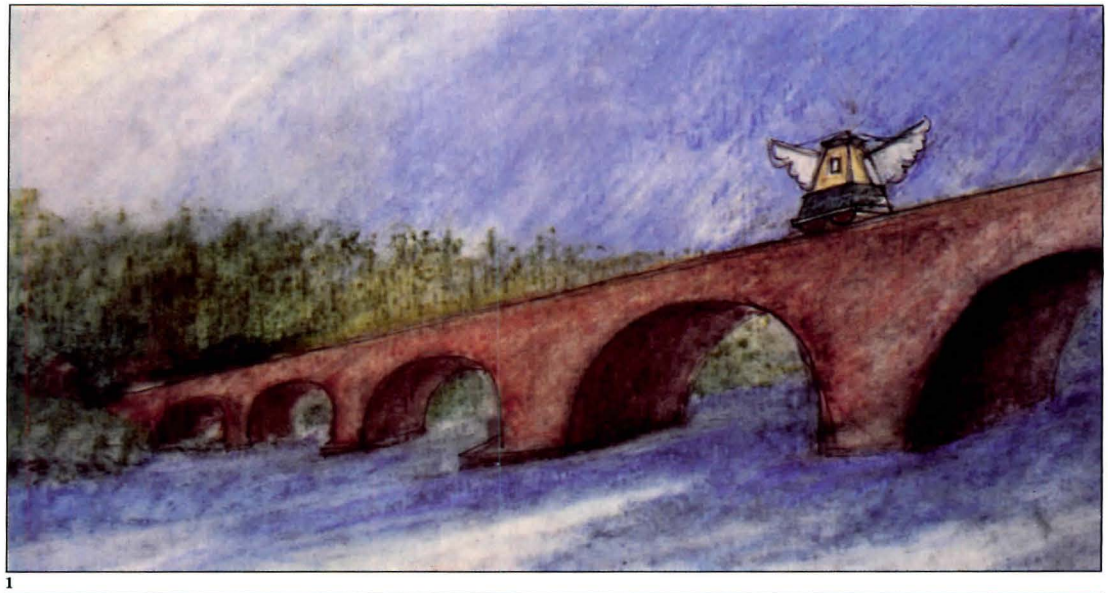
Initially conceived as a 25-foot-high construction, this monument, a sort of cross between an obelisk and a pyramid translated into wood, suddenly shrank to human size and simultaneously sprouted wings. These last not only gave it mobility, but also lent an angelic, Christian element to its pagan origins. To commemorate this small miracle, its original Etruscan name—*Grotto Ferrocco Tusculanus*—was changed, and it was baptized and christened *Il Risorgimento.*

As construction progressed, I began to realize that this shape was one that derived from countless important objects I have known all my life. It is the shape of a stone tower marking the entrance to a harbor in Maine; it is the clapboard top to the firehouse in Starksboro, Vermont. It is the tiny electric engine that pushed the great hot cars at the coke factory in New Haven; it is the bell buoy off the New England coast that I have sailed by numerous times in the fog.

The drawings show various derivations and reincarnations of *Il Risorgimento.* Among the first completed were those that depict the monument responding to calls of distress—acting as a buoy, contemplating its own suicidal demise on a bridge, and hovering over a bleak suburban streetscape. Another documents its important trip to the pyramids. Finally, there are those where, in a fit of inflamed egotism, I saw it not only in heaven with Borromini's Sant'Ivo, but also happily spawning its own progeny.

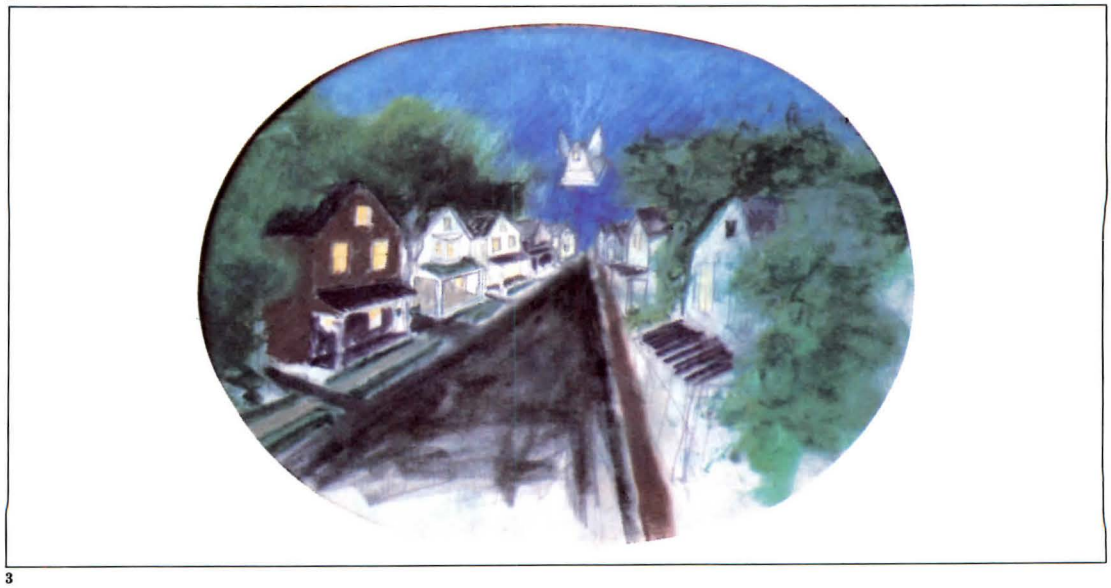
Later during my summer in Rome the monument made a series of appearances around the city. There was a dawn visit to the Piazza del Popolo where, with nothing but pigeons as spectators, it confronted a real obelisk. At mid-day it mounted the steps of the Campidoglio where it addressed the maquette of Marcus Aurelius. It went on to look at Bramante's Tempietto, continued up the Gianicolo to pay its respects to Garibaldi, and glided through the Piazza Navona.

Although *Il Risorgimento* is currently residing in the parking lot at the American Academy, a final, more appropriate resting spot will be sought. I imagine this will be on a rocky outcropping of one of the Alban hills that looks out over a large slice of landscape with Rome in the distance. Here the elements will go to work, peeling the paint, warping the slats, stripping off the wings. Perhaps there will be a time, before it vanishes off the face of the earth altogether, when, the wood bleached, weathered and dried like old bones, its pagan origins may claim it again, and *Il Risorgimento* will be more like a monument than ever before. *Turner Brooks*



1

2



3

Il Risorgimento *in drawings:*
1."Serving as a Buoy"
2."Contemplating Suicide"
3."Crisis in the Suburbs"
4."An Important Visit"
5."Meeting Sant'Ivo in Heaven"
6."Spawning Progeny in Heaven"

Il Risorgimento *in Rome:*
7.Touring Bernini's colonnade at St. Peter's
8.Scaling the Campidoglio
9.Taking a dip in the Acqua Paula
10.Paying homage to Bramante's Tempietto
11.Greeting visitors at the American Academy
12.Touring the town

Turner Brooks photos


4

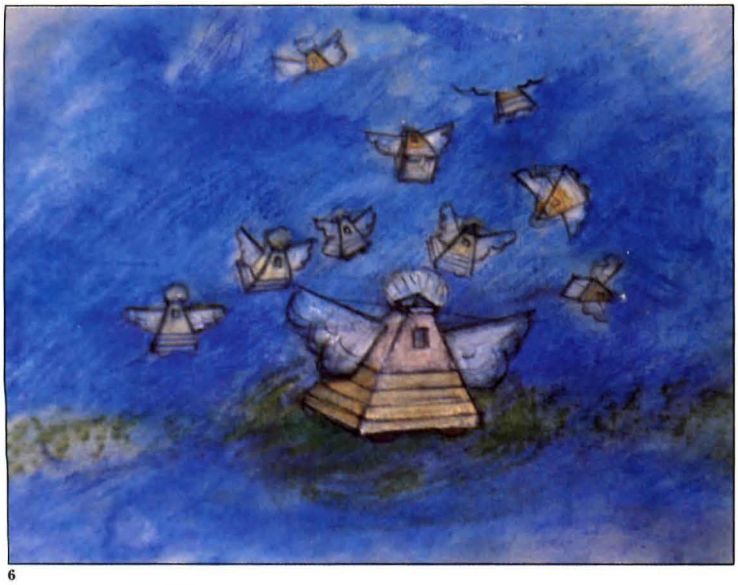

7


5


8


9


10


6


11


12

Trilogy called for intelligent flexibility.

Interior Design by Gensler and Associates/Architects

Thoughtful planning and Haworth open office systems provided it. Computer designers Trilogy Systems Corporation wanted their new headquarters to emphasize high technology, while affording intelligent solutions for growth. The project architects and designers created a contemporary open plan approach with standardized Haworth work stations that are easily reconfigured.

Haworth's comprehensive offering of UniTek™ Electronic Support componentry plus the electrical distribution capabilities of TriCircuit ERA-1® panels best accommodated Trilogy's widely applied office electronics. The result–an intelligent, aesthetically pleasing, systems solution.

Send for the "Haworth Case Study Package" today: Haworth Inc., One Haworth Center, Holland, MI 49423 U.S.A.

HAWORTH®
OFFICE INTERIOR SYSTEMS

Circle 42 on inquiry card

The International Style in Israel: From Europe's utopian dreams to the pragmatism of Palestine

1. Apartment House at 5 Engel Street, Tel Aviv, Shmuel Barkai, 1934.
2. Cafe Noga, Tel Aviv, Yaacov Yarost and Joseph Neufeld, 1931-3.
3. Apartment House at 5 Yael Street, Tel Aviv, Y. Vogel and S. Mukrasky, 1936.
4. Hamaalot House, Jerusalem, Alexander Friedman and Meir Rubin, 1935.

Reviewed by Sarah Williams

Currently on exhibit through February 17 at the Jewish Museum in New York, "White City: International Style Architecture in Israel" reviews its subject through a number of black-and-white photographs (including a separate section of works by photographer Judith Turner), plans, two models, and a lengthy text. "White City" refers to Tel Aviv, probably "the first city in the world to be constructed almost entirely in the International Style," according to exhibition curator Michael Levin, who organized the show for the Tel Aviv Museum to commemorate the city's 75th anniversary.

Levin explains that like Gropius, Le Corbusier, and other Europeans, the Jews who settled in Palestine during the 1920s and '30s were working toward a socialist-based utopia. Hence, they adopted the stylistic idiom of their European mentors, adapted it to verities of climate and economy, and produced a national version of the International Style. Levin states that the details of Israeli I. S. include white reinforced-concrete planes, flat roofs, asymmetrical arrangements, modified band windows, and plenty of *pilotis*. Economic conditions precluded a Miesian devotion to steel, climatic ones a Corbusian passion for light. Moreover, the influence of Erich Mendelsohn, who settled there in 1934, smoothed many of the Israeli style's hard edges into expressionistic curves.

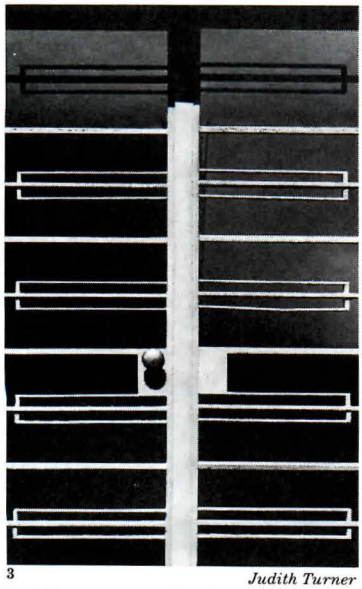
All this seems true enough, and the viewer dutifully nods. However, it should be noted that if we were to analyze this work from a formal point of view, we would see a lot of pretty uninspired architecture. Why? Because for all their superficial sympathy with the International Style, these architects did not share the dreams that fired their European counterparts. They had visions, and needs, of their own.

There are ways, to be sure, in which this analysis is unfair. From 1914 to 1939 Tel Aviv's population jumped from 2,000 to 150,000, and one could say that the city was too busy to concern itself with art. Much of what Levin shows is really building, not architecture, and to his credit he never claims that he is championing unsung gems. But these buildings aspire to artistry, and asking why such aspirations are not often fulfilled reveals that the Western European compulsion to create a new architecture was dissimilar indeed from the project of building a home in Palestine.

Transporting the International Style dissipated its ideological fervor. Much of the dynamism of European architecture derived from its architects' repudiation of late 19th-century eclectic excesses:

1 *I. Kalter*

2 *I. Kalter*



3 *Judith Turner*

4 *Michael Levin*

Rietveldt's Schröder House is powerful in part because of the defiant pose it strikes as it clutches to the side elevation of a traditional Dutch apartment block. Not only do I. S. buildings in *tabula rasa* Tel Aviv lose the power of contrast, but their architects, physically removed from Europe's more conventional contemporary buildings, must have lost some of their passion for rebellion. Moreover, the foundation on which I. S. architects in Europe built their social vision was a symbolic and physical celebration of the machine—a celebration in which architects in Israel could not and did not participate. Palestine was proudly agricultural: it had no steel industry and used reinforced concrete mostly because it was cheap. Allusions to the machine appear only rarely, and while Levin stretches hard to find one—writing that the rounded balconies which appear so often in these buildings are "apparently designed according to aerodynamic principles"—his argument is unconvincing.

In short, settlers in Palestine designing I. S. buildings were not heated by the twin flames that ignited their European counterparts—i.e., the flush of rebellion and faith in the redemptive power of the machine. Although this in part explains why much of Israel's modern architecture seems flat, there is another reason. As pioneers on a lonely desert, the architects' mandate was to help create a sense of rootedness, of place. Even on *pilotis*, their buildings weigh heavily on the ground. Persistently deflecting Hitchcock's and Johnson's dictum to conceive of architecture "as volume rather than mass," Israeli architects devote little attention to orchestrating spatial "experiences" and constantly refocus the viewer's eye on physical presence. For example, Dov Karmi, in a wonderfully paradoxical inversion, uses Corbu's band windows to *accentuate* bulk by carving deep porches from a solid block.

The most successful buildings in the show resolve these tensions by stepping slightly outside the classic I. S. mode. Some of the expressionistic or proto-Brutalist buildings are quite dynamic. In the former mode, Rubin & Friedman's Hamaalot House and Mendelsohn's Schocken Library are best; of the latter, Zeev Rechter's Raab House is a quiet (and alas, demolished) gem. And for the record, there is one superb private dwelling, Shmuel Barkai's Lubin House.

In the end, what this exhibition shows is just how parochial Hitchcock's and Johnson's notion of an "international style" really was. It is in local transfigurations that character, and artistry, reside.

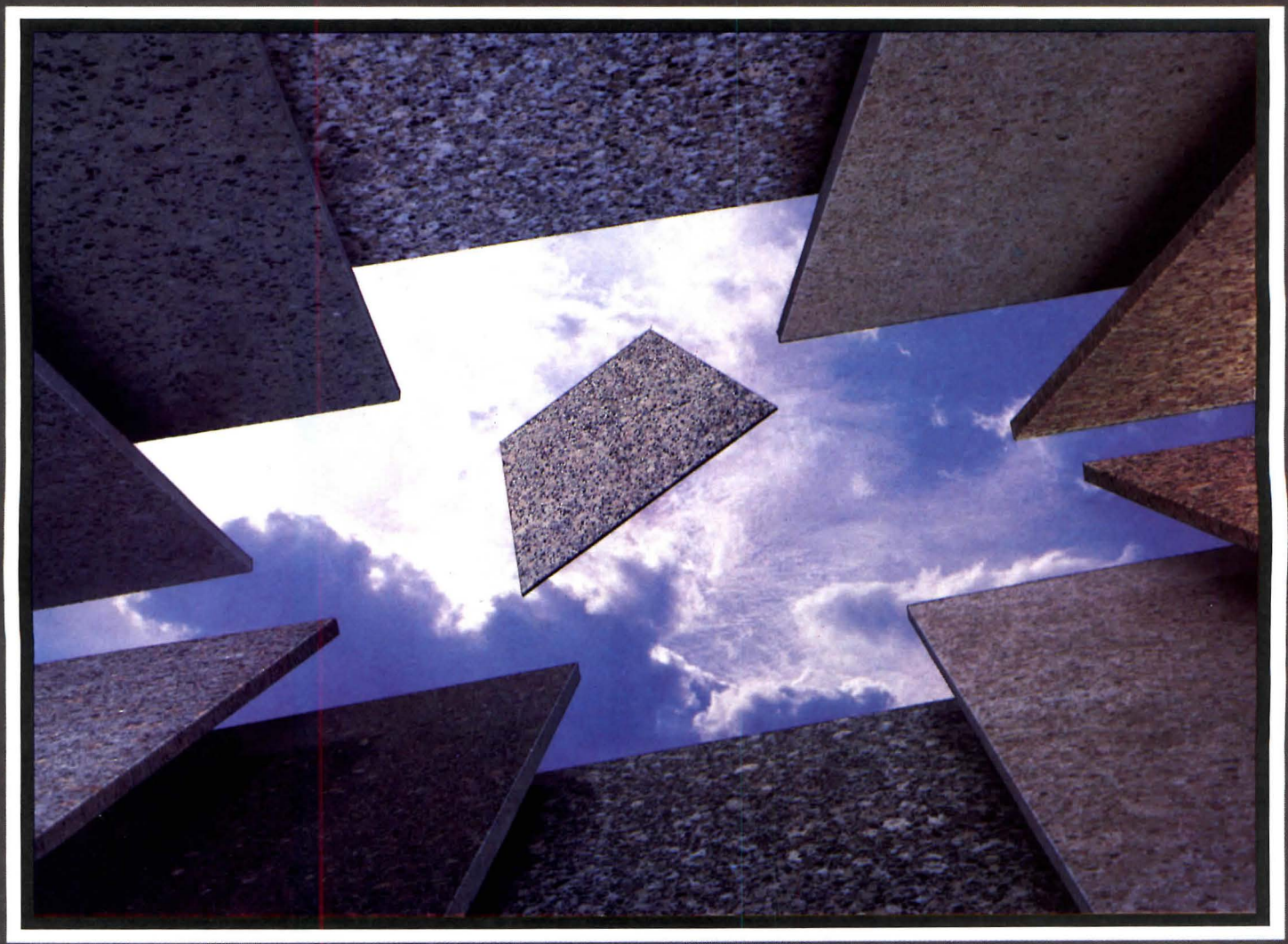
INTRODUCING

ARMSTONE™

INTERIOR SURFACE FINISHINGS

Tones and textures that whisper greatness.

Floor tiles and wall panels of cast stone for contract interiors. Eighteen colors. Polished or honed. 3/8" and 3/4" thicknesses available for a variety of applications—new work, remodeling and traditional stone-type installations. Made in America to exacting criteria. A classic understatement in affordable elegance.



ArmStar

An affiliate of Armstrong World Industries
• Lone Star Industries • Shell Oil Company

For details on Armstone,™ call or write Armstar • Dept. 106 • P.O. Box 820 • Lenoir City, TN 37771 • (615) 986-4040

Circle 43 on inquiry card

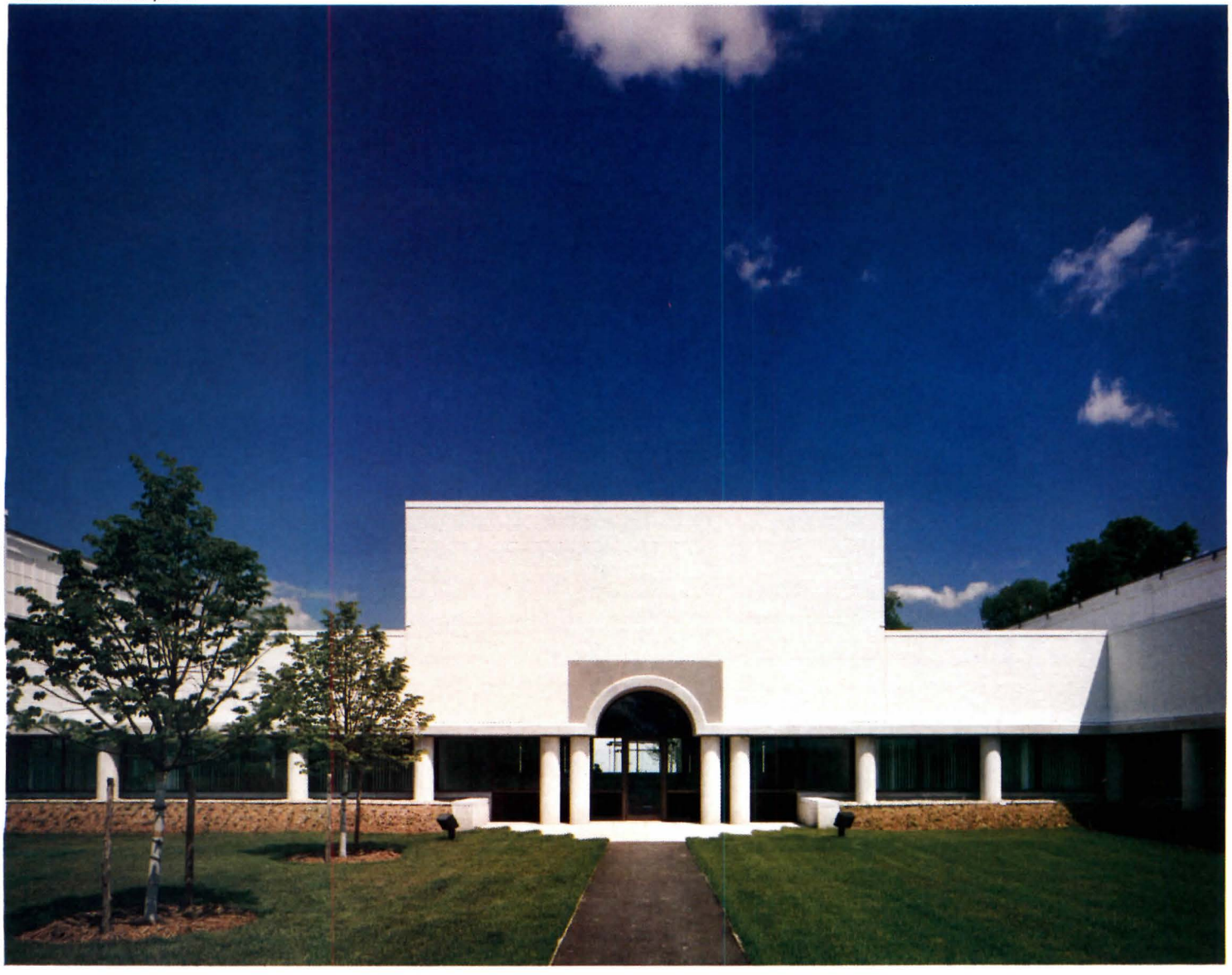
Big scope for smaller scale

Apparently, to the astonishment of many economists, the boom in office building construction is continuing—and seemingly will continue a while longer. During all this rush of construction, the big high-rises have generally seized the most attention. No doubt, this is partly because of their undeniable impact on the skylines and urban-core density of many cities, partly because of their sheer volume of space, and partly because of the eclectic high-jinks that some have affected.

But in the midst of these much-publicized and perhaps titilating towers, there is a vast quantity of smaller, more modest low-rise office structures that—each in its own way—contribute much to the current mainstream of architectural thinking. At their best, they demonstrate strong concern with appropriate regionalism, suitable materials for their locales, and rational and human planning for the needs of the particular occupants. Thus they form a varied lot of designs. If there is possibly one consistent element, it is that most have jumped on the bandwagon of the new "atrium age"—that expansive, glazed-roofed, 19th-century idea that lay fallow for so long, but whose revival is being used just about everywhere to add a dramatic, "contemporary" fillip, even at small scale.

The five low-rise office buildings selected for this study form a small cross section of some of the many design directions and concerns that are being expressed across the country. One, by Papachristou's group, is a white brick retrofit of factory office that adds a somewhat postmodern freshness to its Connecticut town. Morgan makes a strong statement of Floridian concrete and sunshades for a rural divisional headquarters. Stubbins enhances a Pennsylvania insurance complex by a highly sympathetic major addition. For a California company's move from town to country, Marquis interprets a woodsy regionalism in a new way. And, for a rental structure, Severino attracts notice with suave aluminum shapes. Diverse, yes. But what they have in common is a group of happy clients. *Herbert L. Smith, Jr.*

The Purdue Frederick Headquarters
Norwalk, Connecticut
Gatje Papachristou Smith/ASE Furno,
joint-venture architects



The new building hollows out irregular spaces (see plan right) from the original big, square factory, to create park-like courts (photo top right) and lots of peripheral offices. Colonnades and a vaulted entrance (above) create a somewhat postmodern metamorphosis for the original industrial structure. A central factory monitor was used to form tall, atrium-like entance and library spaces (bottom right).

Refreshing retrofit

A lot of ingenuity, and the simplest of means, have been used here by the architects to transform a big, four-square, and aging factory into a delightful, campus-like headquarters building for an international pharmaceutical firm.

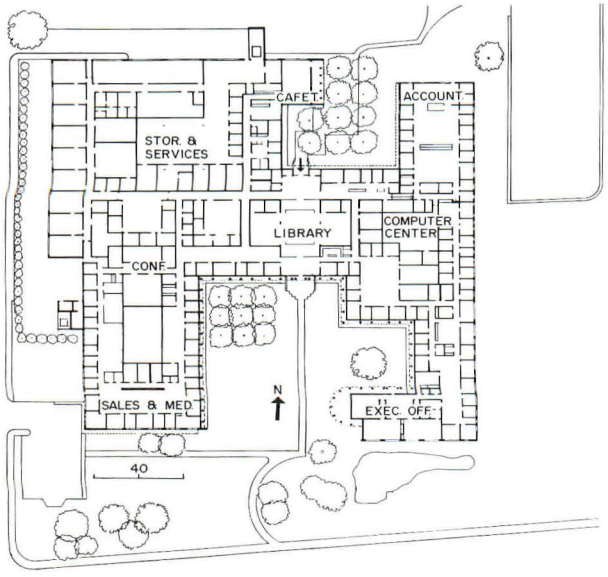
The original, 50-year-old fire-alarm factory was a pedestrian, but stolid, 124,000 square-foot, steel-trussed loft. It was lighted principally from above by five clerestory monitors. Office space was in a typical colonialish "bustle" flanking the street. The location was in a not-too-dense area in Norwalk's city limits.

In addition to the obvious need for a fresh image, the new owner's foreseeable area requirements (including a little expansion space) was only 90,000 square feet. There was also a heavy demand for outside perimeter space with windows. In addition, a stringent budget was mandated by the Industrial Revenue Bonds under which the project was financed.

To achieve all these goals, the architects carved two generous landscaped courtyards from the original square plan, and created quite special entrances for visitors on one side, employees on the other. Inside, the entrances use the full height of the central monitor and its clerestory windows to achieve an atrium-like openness. A central library between them is set off by glass partitions with glass mullions—continuing the visual space. Carving into the structure left a considerable number of previously internal columns with shallow foundations exposed to the elements. To correct this, the designers fashioned three-foot earth berms, set at 45-degree angles along the now exterior column bases to protect them from frost. Concrete was used to clad the columns, non-structural ones were added to create a colonnade around three sides of the main court. The exterior was faced in brick, and all painted white, except for the natural gray of the concrete lintel over the covered walk. Dark aluminum frames on windows under the overhang create a shadowed plane and emphasize the white columns.

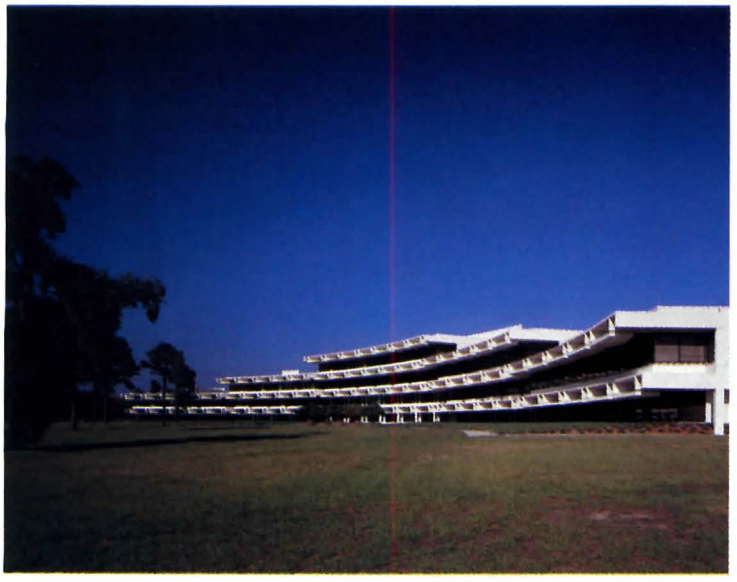
Inside, the plan was divided into four main sections: executive offices; accounting and computer areas; sales and medical research areas; and storage and support spaces. A portion of the latter is for future development into research labs. Each divisional area is differentiated by its own palette of soft colors. Plasterboard is used throughout for partitions and dropped ceilings.

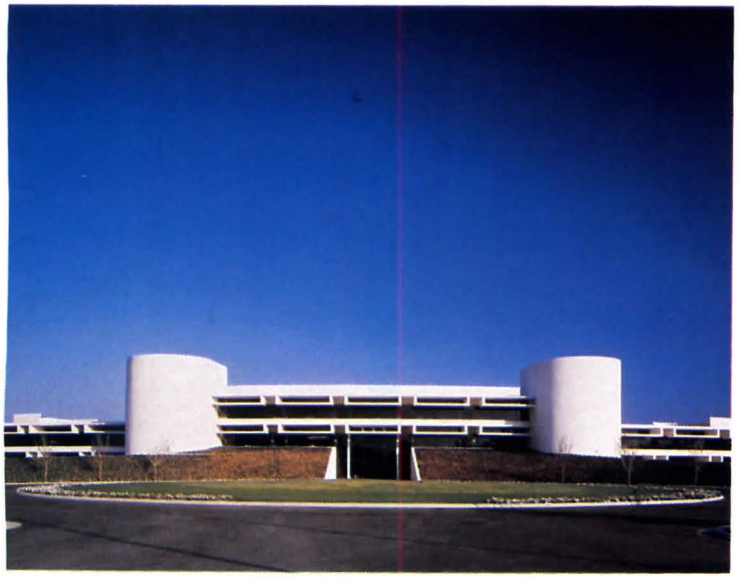
The executive offices are given a slightly special focus by using a curving sweep of the colonnade, which also serves as a terminal motif for the front courtyard. The building's aplomb won it a recent Excellence in Design award from the New York State Association of Architects.



Purdue Frederick Headquarters
Norwalk, Connecticut
Owner:
The Purdue Frederick Company
Architect:
Gatje Papchristou Smith/ASE Furno (a joint venture)—Tician Papachristou and Robert Furno, design principals; Mark Attwood and Stephen Diedemann, project architects
Engineers:
Werner Jensen & Adams (mechanical/electrical); Albertson Sharp Ewing (structural/civil)
Landscape architect:
Peter G. Rolland & Associates
Construction manager:
The E&F Construction Company

Technics for teamwork





"Work together as a team: systematically encourage and support one another." These words are among those inscribed on the cornerstone of this new divisional headquarters for Westinghouse, 10 miles east of Orlando. Thus, a major design criterion for the architects inevitably became that of "openness"—in plan, in general ambiance, in ease of personal communication.

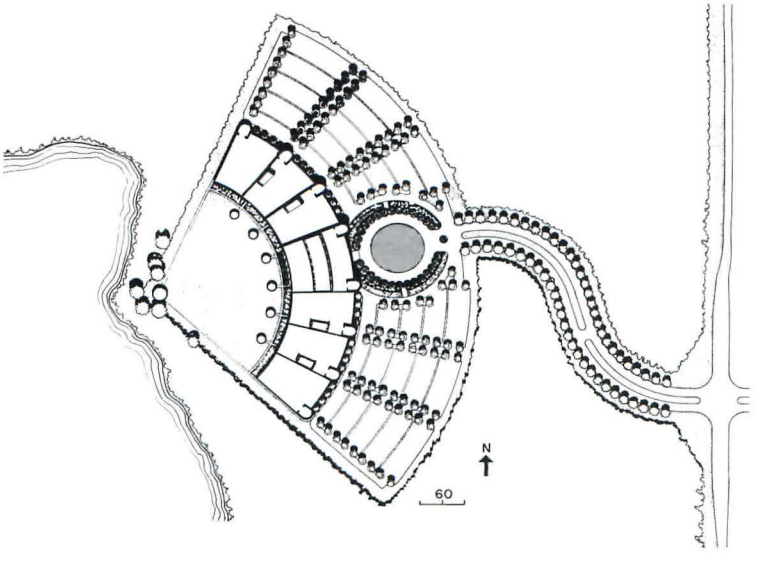
The building houses design, research, marketing and corporate administration for Westinghouse's steam turbine and power generation divisions—with about 900 employees currently. It is a highly technical business, and uses all the latest developments in computers and communications, including CAD, word processing, electronic mail, and a video information network linking its own factories and power plants all over.

Using some of architecture's own technics—unified design expression of mechanical, structural, lighting and building systems—plus his own well-known penchant for concrete, berms and shielding against the hot Florida sun, William Morgan has created a very flexible building with a strong, sculptural impact.

The project is the initial phase of a 400-acre corporate development in a wooded rural area dotted with several small lakes. Although the curving, fan-shaped plan was reportedly designed to "recall the radial arrangements of turbine blades," it also serves to reduce the visual bulk of the 257,500 square-foot structure, shorten horizontal circulation distances, and focus interiors on nearby Lake Ebby. The building steps up from two floors at its extremities to four at the center, with top management on the uppermost level.

The main, visitors' entrance lobby is at the second level, and overlooks a big, four-story atrium. Each of six service towers have employee entrances near the various workstations. Berms around the circular entry drive screen parking areas and truck docks at the base of the central service towers. The layouts of the work floors are simple and straightforward, with a central service spine flanked by open-plan offices created by the owner's own low-partitioned workstation system, and which is a basis for structural bay sizes.

The structure is poured-in-place concrete, with columns in pairs and post-tensioned beams and slabs. Exposed pairs of beams form distribution chases for mechanical and electrical systems. Cantilevers and reflectors are designed to enhance daylighting and sun control around the periphery and over the atrium. General office lighting is provided by continuous strip fluorescent fixtures, with a low-voltage microcomputer controller. All are deftly integrated into a spirited, organized building.

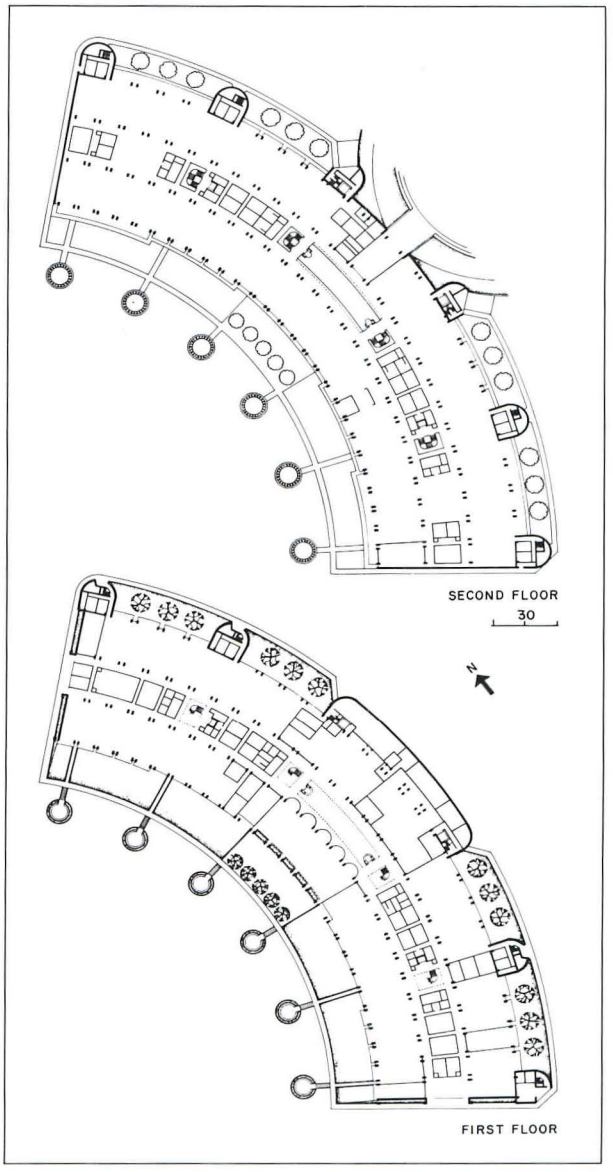


Westinghouse World
Headquarters
Steam Turbine-Generator Division
Orlando, Florida
William Morgan Architects

Steven Brooke Studios photos

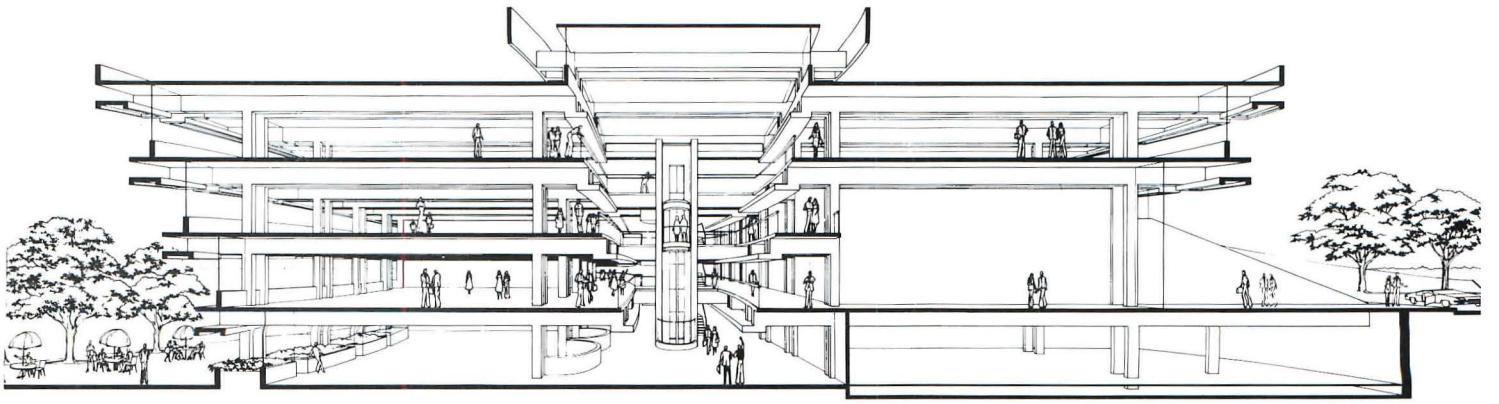
A curving drive leads to a formal circle and the main entrance of this new headquarters building (bottom photo, far left). This facade has six service towers with employee entrances off the parking lots. On the plot at left, an additional bay is shown at each end for future expansion. The rear facade curves to focus on a nearby lake (top photo, left). Strong expression of its details (above) create a rhythmic design.

Dan Forer photos



The interiors are dominated by a big four-story atrium (right) which is toplighted by a clerestory and reflective panels for diffused daylight. The high-ceilinged visitors' lobby (top left) is entered at the second level (see section) and overlooks the atrium. Each of the four floors steps out to provide sun protection for the continuous bands of windows. The first two floors each have five functional bays, expressed on the exterior by service and stair towers. As a counterpart, circular lake-viewing pergolas are planned to be added in the future on the rear facade, as shown on the plans. The two upper floors step back one bay at each end, with three bays on the third level, and a single bay for top administration on the fourth. All general offices are open-plan, with service facilities ranging the center and flanking the atrium in the middle with its freestanding, glass-fronted elevator shafts.

Architects:
William Morgan Architects—Thomas A. McCrary, project architect
Engineers:
Tilden, Lobnitz, Cooper (structural); Roy Turknett Engineering (mechanical/electrical); Richard Carlson (civil); William Lam (lighting); Jaffe Acoustics (acoustical)
Interior design:
Interspace
Interior layout:
Sal Branella, Westinghouse
Landscape architect:
Herbert/Halback
General contractor:
Scandia, Inc.



Revitalizing expansion

Bruce Kiefer

Faced with the pressing need for more office space, the Erie Insurance Group found itself confronted with a dilemma common to many expanding companies. Their existing facilities were located on the edge of downtown Erie, Pennsylvania, in an area that had deteriorated to the point of being known locally as the "combat zone." But, unlike some other companies, in other cities, that have simply relocated, they boldly opted to remain and spearhead a revitalization of the entire area.

To lead the rest of the downtown areas, the company, together with The Stubbins Associates, Inc., prepared a long-range master plan for the development of a six-block area surrounding the original neo-Georgian headquarters building, with its annex and a nearby education building. The site contained some older, "historic" housing that was worth saving, and several severely run-down structures that were not. The latter were razed for the new addition. According to Thomas Hagen, president of the Erie Insurance Group, the company originally wanted a high-rise for the new quarters, but was persuaded by the architects to maintain the four-story scale and materials of the neighborhood and to rehabilitate the best of the existing buildings—as well as develop a park-like landscape for the entire site.

Concurrent with their own building program, the company helped found the "Erie Tomorrow Corporation" to study and spur the entire downtown area. At this stage, Hagen reports that "a bunch of things are happening"—from storm sewers to improved pedestrian and vehicular circulation, refurbished parks and playgrounds, and restoration of some of the older buildings, including a big empty department store that is operating again.

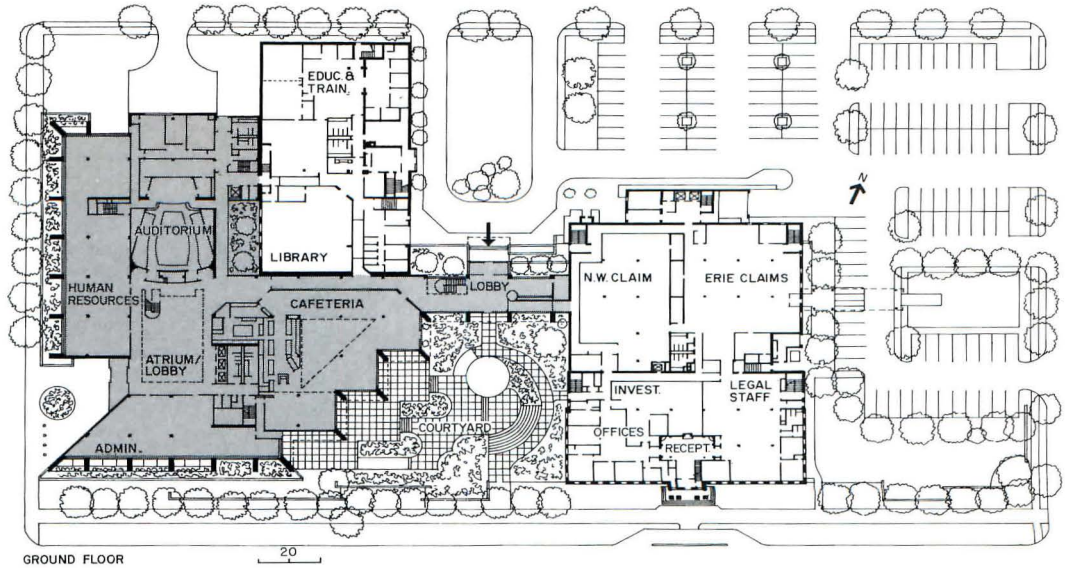
The new 48,000-square-foot company addition abuts the existing education building and uses a two-story link to the older headquarters to form a landscaped courtyard off a new 400-seat cafeteria. It is a quietly handsome contemporary structure of brick, granite and limestone that deftly achieves the dual purpose of "setting off" the older headquarters and having an assured assertiveness of its own. The plan centers on a four-story, skylighted atrium which serves as the main circulation and reception area. This space, along with an adjoining auditorium, is also used for public functions, hearings, concerts, conventions and the like. The upper floors provide office and conference room spaces and have smoking lounges sprinkled through the balcony levels. A full basement containing printing and mailing facilities, storage and mechanical equipment rooms is linked via an underground tunnel to all buildings.

Company president Hagen—now an ebullient architecture buff—comments with some pride, "It's a masterful job."

Erie Insurance Group
Erie, Pennsylvania
The Stubbins Associates, Inc., Architects

The new building added to the insurance company complex (above) respects and complements its environs. As can be seen in the rendering of the entire six-block redevelopment site (bottom, far left), it serves as an anchor for the existing buildings, facilities for parking and storage, and both restored and new housing. The addition connects with the old headquarters by a new employee entrance link (left), which also helps form an attractive courtyard between the buildings (top photos, far left). The main entrance to the new building is marked by cast-iron columns from the razed "Crazy Horse Saloon" which formerly stood on the site. Other architectural elements from the same structure are used as decorative artifacts throughout the building.

Hub of the new addition (shaded area on plan below) is the big four-story skylighted atrium, which serves as a year-round landscaped court for reception, circulation and lounge spaces, as well as acting as a passive solar collector. A visual highlight of the space is a series of 12 elevator doors (three to a floor) by the artist Vera Ronnen-Wall. They use a vitreous enameling technique usually reserved for small objects, with the enamel fired directly to the metal doors. Horizontal color transitions range from vivid reds on the first floor to blues, greens and purples on the upper floors (photo far right). The office areas largely use an open-plan furniture system, with walls and carpets in neutral colors with accents of red and yellow.



Erie Insurance Group
Home Office Expansion
Erie, Pennsylvania

Owner:
Erie Insurance Group

Architects:
The Stubbins Associates, Inc.—Merle T. Westlake, principal-in-charge; Richard Green, principal-in-charge of design; Michael Gilligan, landscape designer; P. Lawrence MacKenzie, project manager; Peter J. Scott, interior designer

Engineers:
Le Messurier Associates (structural); Joseph R. Loring and Associates, Inc. (mechanical/electrical)

Consultants:
Barton-Ashman Associates, Inc. (traffic); Cini Grissom and Associates, Inc. (food service); Vera Ronnen-Wall (elevator doors)

Construction manager:
Turner Construction Company

Warren Jagger

Warren Jagger

Design Professionals Insurance Company
Monterey, California
Marquis Associates, Architects

Monterey imagery

©*Russell Abraham photo*

When the Design Professionals Insurance Company decided to move its corporate headquarters from San Francisco to Monterey, California, a major concern was that the new building have a quiet, but appropriately strong, appeal for its professional liability insurance clients—architects and engineers.

This relatively modest building certainly has that appeal—with its respect for the wooded and gently sloping site, fresh interpretation of the soft-spoken regional style, and unassuming stress on well-executed, exposed structural and mechanical systems.

In designing the 70,000-square-foot, basically two-story structure, a sort of pinwheel plan radiating from a skylighted atrium was adopted to minimize its visual bulk (and, not incidentally, to increase light and views for the interiors). The natural state of the site was further preserved by using basement parking, supplemented by outdoor spaces dispersed through the trees. Existing grades and vegetation were protected by low retaining walls.

The big, light-filled central atrium serves as major entry and circulation space. Additional stairs are set in little skylighted wells at the extremities of each wing. Office layouts combine large open-plan areas with peripheral private offices. With the future in view, the building is somewhat larger than necessary for DPIC's current needs; tenants occupy the excess space on an interim basis. Common spaces occupy an area close to the atrium. The second floor layout is very similar to the first, and includes a lunch room, a library, and a second conference room. The slope of the land permits a direct terrace entrance near those areas.

The "Monterey peninsula style" is expressed in the building's use of simple, natural materials, exterior balconies and sloping roofs. The structure has 20-foot bays of exposed post-and-beam, glue-laminated timber, with perimeter shear walls and cedar siding. Flooring is quarry tile in public spaces, carpet in office areas.

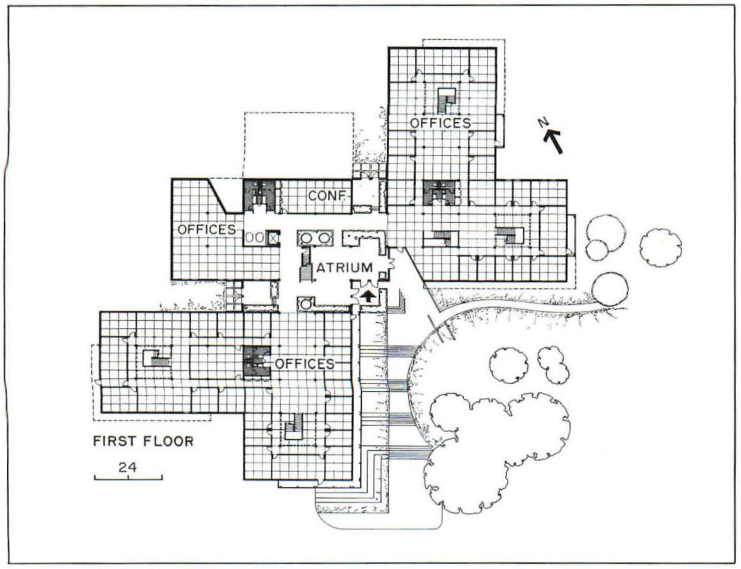
The hvac system is of the low-velocity, variable-air-volume type, with a plenum for return air. Most components are finished in soft-gray and left exposed. There is a basement mechanical area of 2,850 square feet. Louvered lighting "boxes" and other fixtures are simply and frankly suspended from tall ceilings.

Because the site is located near an airport and a major highway, the building shell has been specially designed and insulated to reduce sound transmission from the outside.

Interior furnishings are in natural woods and muted colors to complete a headquarters which (especially considering that insuring liability is their business) conveys quiet security—and pleasure.

Monterey Insurance and Financial Center
Monterey, California
Owner:
Design Professionals Insurance Company
Architects:
Marquis Associates—J. Peter Winkelstein, Robert B. Marquis, Hal Brandes, James Monday, Lucy Harvey, design team; Phyllis Martin-Vegue, Beverly Chiang, interior design team
Engineers:
Shapiro Okino Hom & Associates (structural); GM & TR Simonson (mechanical/electrical); Bestor Engineering (civil); Dames & Moore (soils); Acoustical Consultants, Inc. (acoustical)
Contractor:
Rudolph & Sletten
Landscape architect:
CHNMB Associates
Interior planning:
Spilsted Associates
Art consultant:
Susan Rush

All photos ©Marvin Wax except as noted



Mount Pleasant Corporate Center
Valhalla, New York
Renato Severino Associates, Architects

Sinuous sculpture on spec

©*Norman McGrath photos*

Located in the verdant heart of New York's Westchester County, a burgeoning suburban "corporate area," this eye-catching office building is low-rise, low-cost, low-maintenance—and low-rent for multi-tenant occupancy. Basically a loft building with mechanical and circulation core, plus an elegant little entrance atrium, the sinuous structure was specifically designed to appeal to expanding high-technology companies. "Soft modern for the software industry," comments architect Renato Severino.

The program set out by the developer was relatively simple: "something one can use within a budget," an identity that would be liked by the nearby residential communities, and flexibility for partitioning and furnishing by the individual tenants.

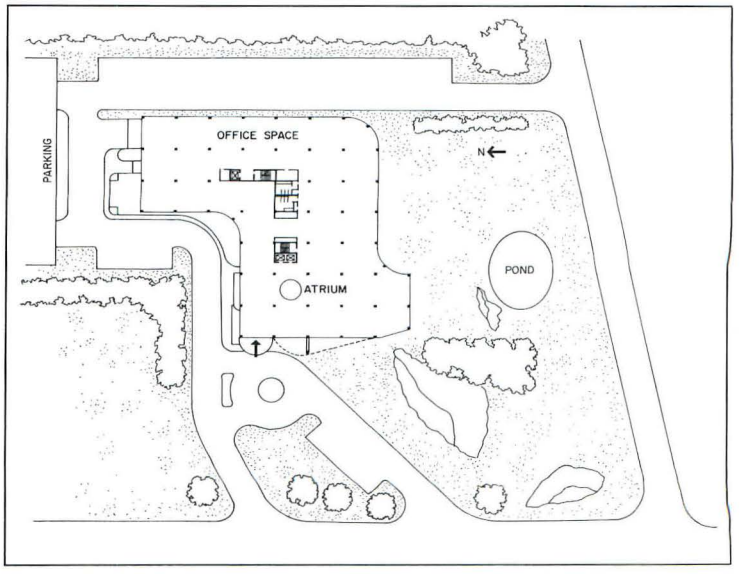
Severino's response is a free-flowing piece of architectural sculpture—a purely arbitrary composition of off-white aluminum panels and glass that seize the eye and reflect the trees, and with a "little ambiguity in the shadows" of the overhanging curves. Severino adds, "It is not all rational—that can be a little boring. It's a link between technology and art."

The building contains 130,000 square feet of enclosed space on four floors, and for all its flowing shapes is constructed on a simple, regular, structural-bay system. The central, L-shaped mechanical core contains three elevators, toilets, two stairs, and janitors' closets. Lighting and wiring are very flexible to adapt to tenants' needs and today's omnipresent computer invasion. Costs were kept down (about $37.50 per square foot) by using "the best of ordinary" materials and equipment—in other words, standard items of quality.

As added amenities for the tenants, the building was developed with a restaurant-cafe and a fully equipped health center and spa. Outdoors, in its park setting, are ponds, jogging paths, benches, and ample covered parking spaces.

All this has certainly given the building a stylistic appeal seldom found in relatively small, speculative rental offices. The considerable care in design and detailing—the interplay of forms, massed and banded fenestration, the welcoming, almost ceremonial entrance and atrium (see overleaf)—have brought positive response.

The client and the community like it, and the real estate agent considers the approach very successful: the building is currently occupied by AT&T, New York Telephone, and Nynex marketing units. And Severino notes that it has led to more developer clients: "Even the very conservative development firms in the area are now looking to construct 'designed' buildings, and hiring the firms that can produce this kind of architecture—a very encouraging message!"



With much more style and character than most suburban office buildings, this rental structure has a high-tech sleekness fitting for the New York suburbs, and more than keeps its identity in the midst of a lot of relatively new corporate buildings (for example, a Pepsi-Cola research center is across the street). From the main road, and through the sweep of an impressive entrance drive, the main facade (below) presents a composed glitter of reflections. This is enhanced by a stepped panel of mirrors attached as a fin to the tall column supporting the roof overhang (top left). All this is emphasized by special lighting at night. The main entrance (bottom left) is at the second level, up a short sweep of steps.

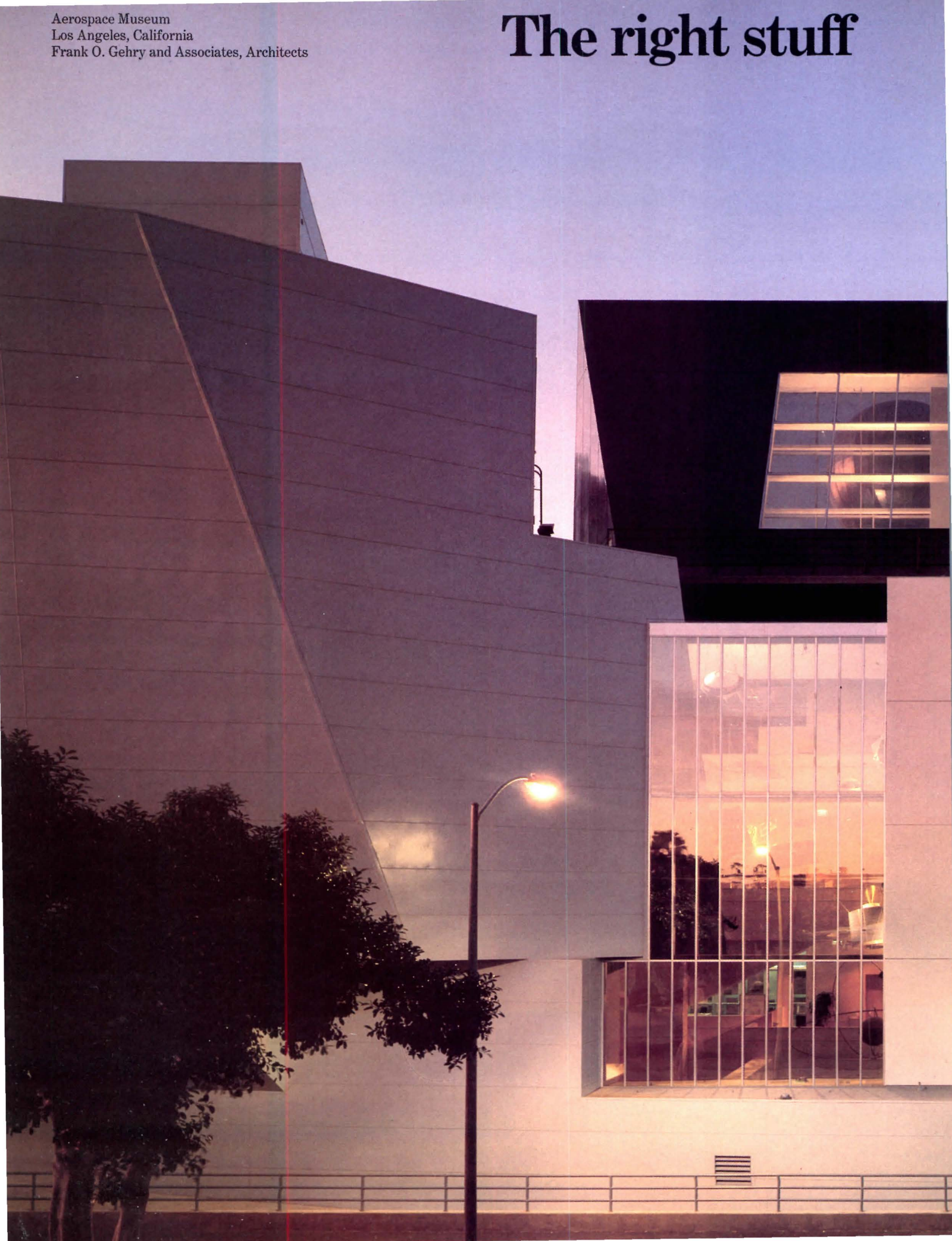
Just inside the main, second-level entrance is a trim lobby (photo below), dramatized by a three-floor circular atrium. This is topped by an aluminum-framed glass dome (bottom photo). On the middle level (below right), the atrium is glassed-in and the area around it is developed as a lounge. All this is linked by a tall, fairly exuberant tree. The basic structure is steel frame, with concrete floor slabs. With the exception of the lobby, most interior finishes and fittings are provided by the respective tenants. The white aluminum cladding for the exterior is formed of four-foot panels, which were selected, according to Severino, "because they can be curved at no extra cost." In spite of the over-all sinuous appearance of the building, only three corners and the overhangs are actually curved—the rest of the structure has straight, standard

walls. Off to one side of the building, at the back of the lot, is a covered garage structure clad in similar aluminum panels. Two lower floors are for tenant parking, topped with two added floors for extra rental space. Opposite this is a small dock-loading area for the main building.

Mount Pleasant Corporate Center
Valhalla, New York
Architects:
Renato Severino Associates—Renato Severino, partner-in-charge; Daniel Davis, assistant designer and project manager
Developer:
Cappelli Development Company
Engineers:
Arne Thune Associates (structural); Michael Dalton Associates (mechanical/electrical)
General contractor:
Saturn Construction Company

Aerospace Museum
Los Angeles, California
Frank O. Gehry and Associates, Architects

The right stuff




Lockheed
F-104 STARFIGHTER

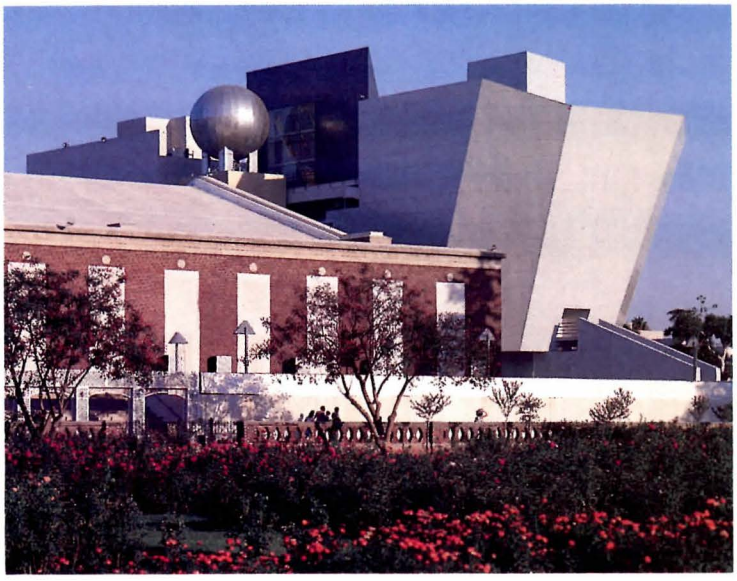
Frank Gehry is generally regarded as a regional architect—an idiosyncrasy peculiar to the helter-skelter culture of southern California. Though few would contest his place in the contemporary pantheon of architectural luminaries, Gehry has the dubious reputation of the promising but prodigal son who hied west after Harvard and got caught up in all kinds of bizarre shenanigans. The perception is based on the past decade of Gehry's practice, which dutifully followed a straight and narrow path charted by developers and department stores until the exigencies of construction (money, materials, craftsmanship) and a sensitivity to socio-political events conspired with a growing interest in contemporary art to push his work . . . well, left. The juncture came in 1976 when, after completing a very straight and narrow corporate headquarters for The Rouse Corporation, Gehry unleashed a portfolio of projects and buildings he dubbed "cheapscape architecture" (RECORD, July 1976). He referred to an "invisible architecture . . . that doesn't shout 'Look at me, I'm Architecture!,' " and, what was deemed worse, he claimed to be "confused as to what's ugly and what's pretty." Others, not at all confused on the ugly/pretty question, called it "junkitecture." Three years later, when Gehry renovated a modest, pink shingle house for his family, they called it avant-garde but decidedly out of bounds. Though the instantly infamous Gehry House was conceived as an "experiment," i.e., it was "deliberately overdone," the architect's iconoclastic reputation was nonetheless galvanized. If there were rules in architecture—and there were—this didn't abide by any of them. The image of unpainted plywood, chain link fencing, corrugated metal, and exposed studs playing hide-and-seek—if not tackle—with the little house on the corner lot in a once-quiet Santa Monica neighborhood was hard to forget; the aqua concrete block wall in the yard and the black asphalt floor in the kitchen were hard to forgive. Though Gehry picked up a National AIA Honor Award for the project, (the jury comments were carefully qualified), he paid for it with incredulous colleagues and nervous clients who, six years ago, were having trouble digesting cardboard columns and gypboard keystones.

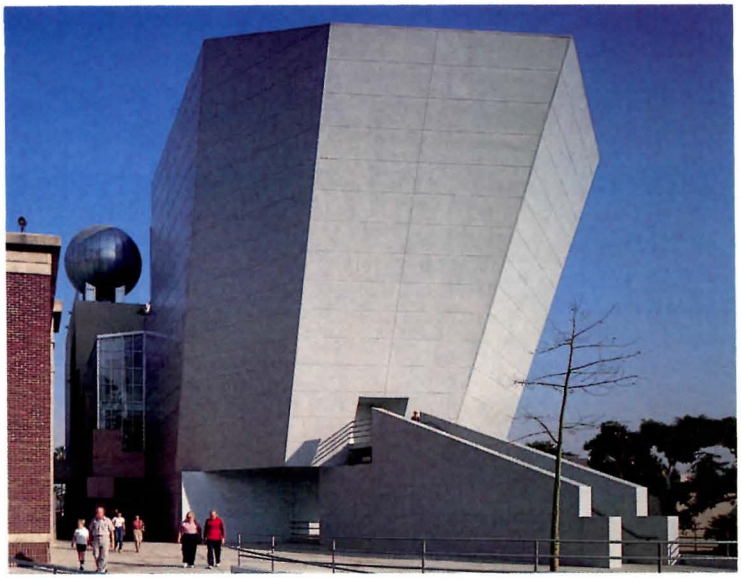
But things are now looking up for Frank Gehry's reputation. Or, as they say in L. A., Gehry's "star" is in the ascendant. His $15,000 to $40,000 *Colorcore* fish lamps are selling briskly in East and West Coast art galleries, a Rizzoli monograph will soon enshrine the first 25 years of his career, a much-publicized joint venture with Klaus Oldenburg on a summer camp for terminally ill children promises to expand our current understanding of architect/artist collaborations, and the firm's drawing boards are humming with an enviable variety of perfectly respectable projects. (A parenthetical note re-affirming Gehry's current *célèbre* status is supplied by the constantly-on-the-cutting-edge executives at SunarHauserman, who chose Gehry to design a new contract furniture show room in Dallas.) But what's more to the architectural point is the work now emerging from Gehry's Venice office. First seen in model form 19 months ago (RECORD, June 1982), the Loyola Law School, the Norton House, the Beverly Hills Apartment, and the Aerospace Museum are fulfilling at full-scale the exhilarating promise they held at one-eighth scale. Gehry's alleged "favorite" of the group (a prejudice that admittedly changes from day to day) is the last, which, coincidentally, was finished first.

Completed last July—just in time for the summer Olympics—the Aerospace Museum is but the first phase of a two-phase plan that calls for the eventual annexation of the 60,000-square-foot armory lurking behind it (site plan page 119). Though the sturdy but unremarkable armory was initially considered as the obvious site for the museum, the state legislature's non-expandable, $3.4-million budget was hopelessly inadequate to the task of transforming the aging behemoth into a showcase for jet age technology (the money would merely bring the building up to code). With an eye toward the ultimate goal of expanding into the armory, architect and museum officials opted for a more patient, long-term approach to their goal: they decided that a dramatic initial statement could better introduce the museum and its theme, better excite the public's interest, and better garner the necessary support for the future expansion. Gehry's task then, as it evolved, was not so much to build a museum as to build a museum "starter kit"—a starter kit, not incidentally, upon which the ambitious future plans hinged. Gehry did not take the responsibility lightly: the Aerospace Museum got its dramatic initial statement.

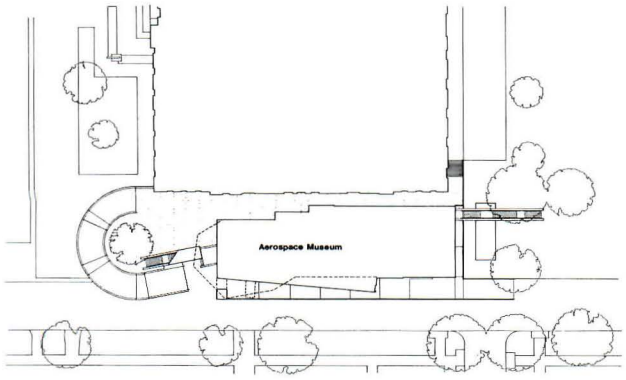
Although the Lockheed F-104 Starfighter impaled on the cruciform strut above the 40-foot hangar door is surely the most sensational aspect of the museum's design—an aspect that can alternately be a source of delight and foreboding—the giant, thematically appropriate gargoyle does not upstage the structure it adorns. Which, considering the drama of the plane, is no small feat. The F-104 Starfighter is simply very bold ornament applied to a very bold building which, according to the architect, began life as a big dumb box. Although Gehry patiently outlines how he shifted and molded that box to accommodate entrances and exits, building lines and light, he also acknowledges that there is a point in any design—after all the functional requirements and constraints have been acknowledged, after all the massing forms are essentially in place—when the architect is "free to fly . . . to soar." That point came early at Aerospace since the programmatic requirements, as presented to the architect, were minimal: "I thought they were going to hang 10 planes in there and that was it." Working not unlike a sculptor, Gehry refined the established elements—pushing them and pulling them, collaging them and colliding them into what may most accurately be termed a volumetric assemblage. The resultant three-part building is composed of a leaning, metal-skinned polygon divided from a comparably scaled but clearly "background" stucco box by a giant central window. For those with a penchant for references and allusions, the giant central window is capped with a triangular "tent" (or could it be a cockpit?) complete with multi-paned window which frames a metallic sphere (is it the sun, the moon, the earth . . . a weather balloon?). Though some have compared the triptych-like building to a three-dimensional constructivist billboard, less-sophisticated visitors have merely commented that it reminds them of an airplane hangar or, no less appropriately, an aircraft carrier. Whether hangar or carrier, the message the building conveys is clear—through its forms, materials, and scale it evokes at least the spirit, if not the letter, of the industry and technology it houses.

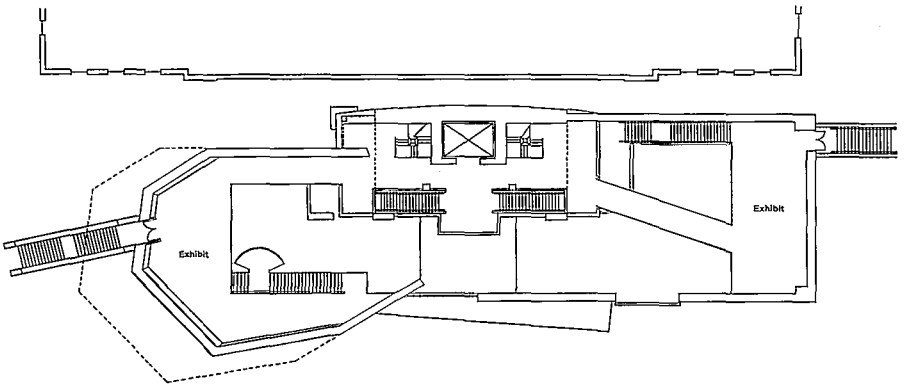
There is, however, another message that the Aerospace Museum conveys—one that can be gleaned even from a distance. And that is that while the building and the plane are hard to miss, as they say, they're not *so* hard to miss as to steal the cacophonous visual show that is Los Angeles. They are but one more rich layer in the very densely layered urban fabric, which is neither pretty nor ugly. And while the building is dramatic, to be sure, it nonetheless looks right at home amid that erratic patchwork quilt of flashy fast-food restaurants and tacky used-car lots, of grand turn-of-the-century museums and formal rose gardens that comprises its context. What the Aerospace Museum reveals is that Gehry has not only not abandoned his love of unorthodox materials, of agglomerating disparate forms and finishes, of awkward connections and collisions, but pursued that love even further. The juxtaposition of disparate forms, materials, and textures not only acknowledges but responds to the ad hoc character of the American city—the real, not the ideal, American city. What Gehry's work suggests is an alternative route in the search for an architecture that is appropriate and relevant to its time and place—an alternative that is neither nostalgic nor grandiose. It is a welcome message, and a timely one. One hopes the students who thronged into the lecture hall at Harvard's Graduate School of Design last November, when the 55-year-old architect returned to his alma mater as the Eliot Noyes Design Critic in Architecture, understood what they heard: "Looking back is depressing," opined Gehry, who isn't a bit. *Charles K. Gandee*



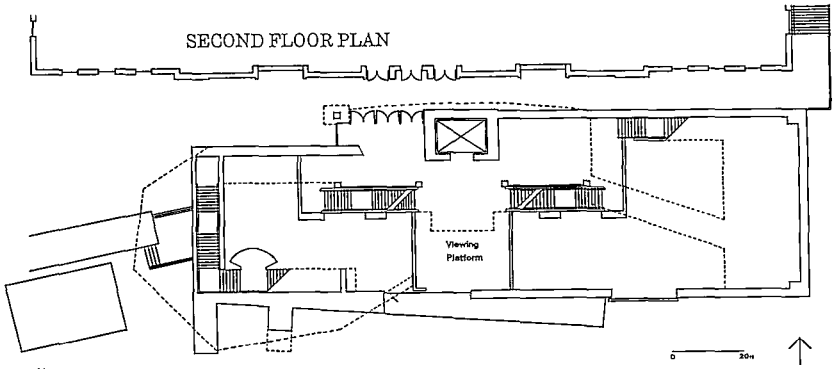


For sheer architectural thrill, the polygon forming the west wing of the new Aerospace Museum is hard to beat. Shimmering dramatically under the California sun, the multi-faceted metallic form works not only as a three-dimensional anchor for the very high but very shallow museum, but also as a visual foil to the Lockheed F-104 looming around the corner (facing page). The polygon is a by-product of an oblique circulation route that leads both general and handicapped visitors up a 20-foot ramp from the street to the museum entrance at the rear (below left). Gehry deflected that corner of his building to create a more generous, funnel-like entry sequence (plan below). The "back-door" entrance—situated as it is in the 10-foot-wide "alley" separating Gehry's building from the red-brick armory it adjoins—acknowledges the museum's ultimate plan to incorporate the armory; when that happens, visitors will have the option of entering either Gehry's building or the armory building. (Also, not incidentally, retaining the existing armory entrance satisfied the State of California, which required it as a fire exit for the armory; similarly, the 10-foot "alley" is a response to a California law that says when you attach a new building to an old building you inherit all the code problems—of which the armory has an abundance.) The metallic sphere perched atop the yellow stucco entry structure may be regarded as a nose cone—but only if you're willing to regard the stepped entrance structure as a belly-up cubist airplane. The terrace along the west of the armory replaces formal steps that previously led to the Rose Garden below (above). The terrace is currently, and regrettably, bedecked in latticework and bunting donated by Anheuser-Busch for the Olympics.

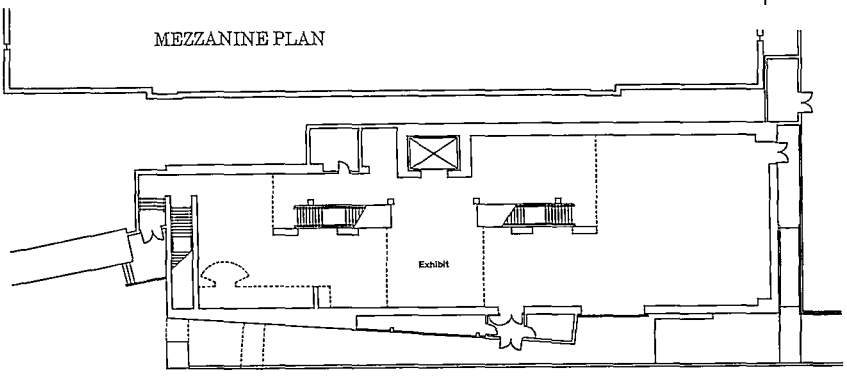




SECOND FLOOR PLAN

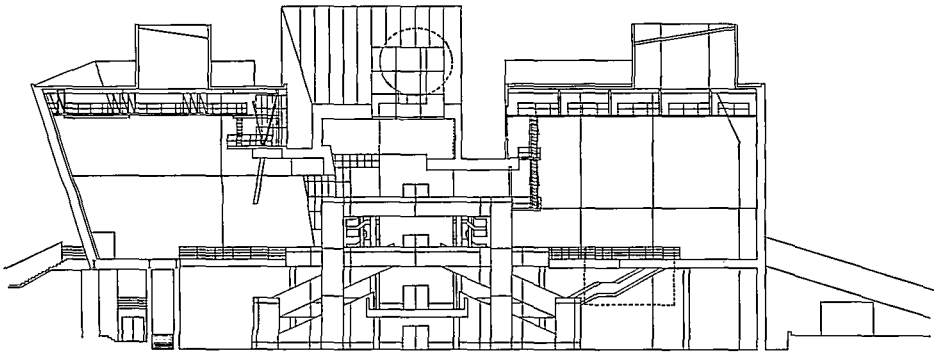


MEZZANINE PLAN

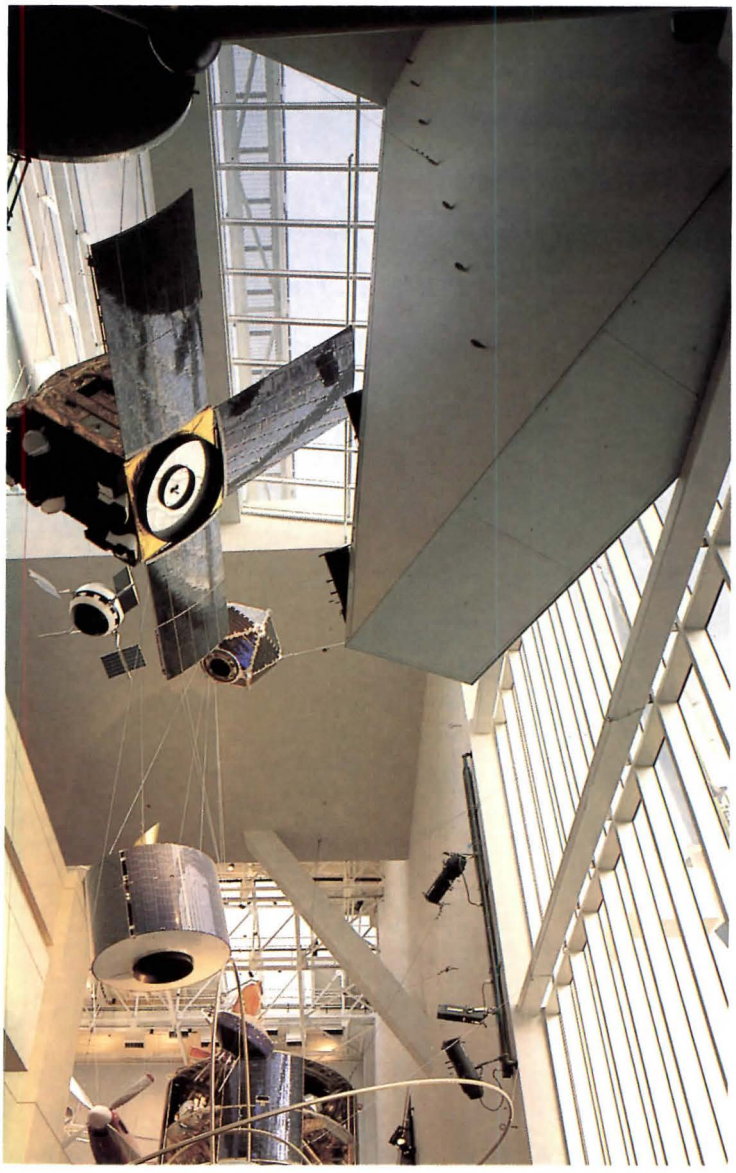


FIRST FLOOR PLAN

The east wing of the Aerospace Museum (facing page) is bland when compared to the dramatic west wing (previous spread) and the variegated south facade (page 114), because the $3.4 million budget could stretch only so far. Gehry originally intended the now-uniform box to take the shape of a fan, but sacrificed the amphitheater form when the choice came down between it and the costly polygon. The original design would have been better, but the built design is not tragic: the museum is sufficiently rich in forms, materials, and textures that it can comfortably accommodate a "background" element. Enlivening that element is the fire stair (facing page) spilling out to the plaza in front of an octagonal IMAX theater (not shown). While it—and its companion piece on the polygon side—may look something like children's slides, the two fire stairs might also recall flying buttresses supporting the museum's almost unwieldy dimensions. Gehry never mentions it, but it's a thought. Gehry does, however, mention the possibility of throwing both fire exit doors open, as well as the monumental hangar door, so that the museum would be more "porous," and visitors and views could wander in and out. The simplicity of the Aerospace Museum plan (left) is not surprising, considering that the building was intended to introduce visitors to the history of flight through hanging displays. And what better way to present the wonder of flight than with a lofty, open plan? The yellow entrance structure, visible in the crevice between museum and armory, emerges intact inside the museum as a building-within-a-building (section below). It houses the elevators and stairs, but, alas (as more than one visitor has been heard to complain), no lavatories!



If the exterior of the Aerospace Museum can be termed riveting—and it can—the interior can be termed exhilarating. Those unorthodox Gehry forms and collisions create spaces whose complexity and scale defy the photographer's art. In Aerospace, Gehry outdoes himself with the bulbous leaning polygon hinged to the big dumb box by the 45-foot-high window. The resultant spaces go a long way toward creating the perfect vantage point from which to ponder the wonder of space. The ability to manipulate light has always been a Gehry trademark—something he learned in the early days designing department stores—and at Aerospace we see that talent in full sway. Natural light streams in from a range of sometimes-hidden, sometimes-visible sources: from the 18-foot-high diamond-shaped skylight capping the polygon, from the 18-foot-high cruciform skylight capping the big box, and from the "window" in the triangular "tent" capping the central window. The effect of the spatial and lighting gymnastics can best be appreciated at ground level, peering up through the maze of planes and satellites veering to and fro. A welcome viewing platform from which to assay the passing scene—as well as gain access to the maze of ramps, stairs, and bridges weaving around and about the installations—may be found in the three-story, gypboard-faced structure (facing page). (Gehry intended the gypboard to be tile, but the budget dictated otherwise.) A sad note. The exhibit designers felt strongly that a theater be located in the polygon; despite Gehry's protest, "You're ruining my building," a space frame filled in with blackout panels was inserted (facing page). Gehry was right, the polygon's impact is all but lost.



Aerospace Museum
Los Angeles, California
Owner:
California Museum of Science and Industry, California Museum Foundation
Architect:
Frank O. Gehry and Associates—Frank O. Gehry, principal-in-charge; John Clagett, co-designer; Rene Ilustre, project architect; Greg Walsh, Ron Johnson, Patricia Owen, Sharon Williams, Josh Chaiken, Dean Perton, Yuk Chan, Adolph Ortega, David Kellen, design team
Engineers:
Kurily & Szymanski (structural); Paller-Roberts (civil); Athans Enterprises (electrical); Store, Matakovich and Wolfberg (mechanical)
Exhibit designers:
Joseph A. Wetzel Associates—Joseph A. Wetzel, principal; Howard Litwak, project manager; Eileen Zalisk, programmer; Bill Ruggieri, Cia Mooney, Mary Aufmuth, Penny Perez, designers; Harlan Hadley, associated architect
Consultants:
Edgeware Systems (software); Dave Kaestle, Richard Maurer (graphic design); Pat Gallegos (lighting); Bob Lambert (special effects); Ray Bradbury (script); Image Stream (theatrical production); Chedd-Angier Production Company (video); Terry LeBlanc (technical illustration)
General contractor:
Chartered Construction Corporation


N1202

Big park for the Big Apple

Westway State Park
New York City
Venturi, Rauch and Scott Brown,
Clarke + Rapuano, and
Salmon Associates, Designers

For the last ten years and more, the papers and television have bombarded New York City with news of and opinions on Westway, a projected underground interstate highway to run in landfill along the Hudson River. Controversy about the project has seethed to a degree exceptional even for contentious New Yorkers. But one positive factor on the proponents' side is the proposal for Westway State Park, a green strip on top of the roadway that would recapture three and a half miles of waterfront for the use and pleasure of pedestrians.

The Westway site extends nearly four miles to connect Pelli's Battery Park City at the southern end with Pei's convention center at 34th Street. It will be about 400 feet wide, with a little less than half the width dedicated to the park, the rest reserved for residential and commercial development between the park and existing neighborhoods. Moreover, the design required three park enclaves—one each at Chelsea, Greenwich Village and TriBeCa—to satisfy the Federal highway law that requires mitigation to communities who lose existing parks to interstate roads. Added to these design constraints are protective structures for the Holland Tunnel, which carries automobiles, the PATH railroad tubes and the Amtrak tunnel, as well as ventilation structures for all tunnels, including a new one for the highway. Not to mention highway exits at 25th, 14th and Canal Streets.

Architect Robert Venturi reports that when his firm and landscape architects Clarke + Rapuano were commissioned to design the park they of course looked at important parks around the world. In the end, though, New York City itself provided the lessons they sought, lessons taught by the august Central Park and by three riverside parks built over transportation—Clarke + Rapuano's own Riverside Park, Carl Schurz Park and the Brooklyn Heights Esplanade. From these parks came back basic information about the relationship of size to scale, and at this point in his narrative Venturi is quick to bring in architect Craig Whitaker, who with a variety of city agencies has seen and thought about Westway through many metamorphoses in the last dozen years.

The first thing to confront the designers of the 97-acre Westway park was sheer size—3.5 miles require a different order of conceptualization than architects generally have to deal with. Venturi and Whitaker agreed that for a large park, which qualifies as civic design rather than landscaped garden, scale should include only LARGE and SMALL, ignoring middle scale altogether. "No piazzification," says Venturi.

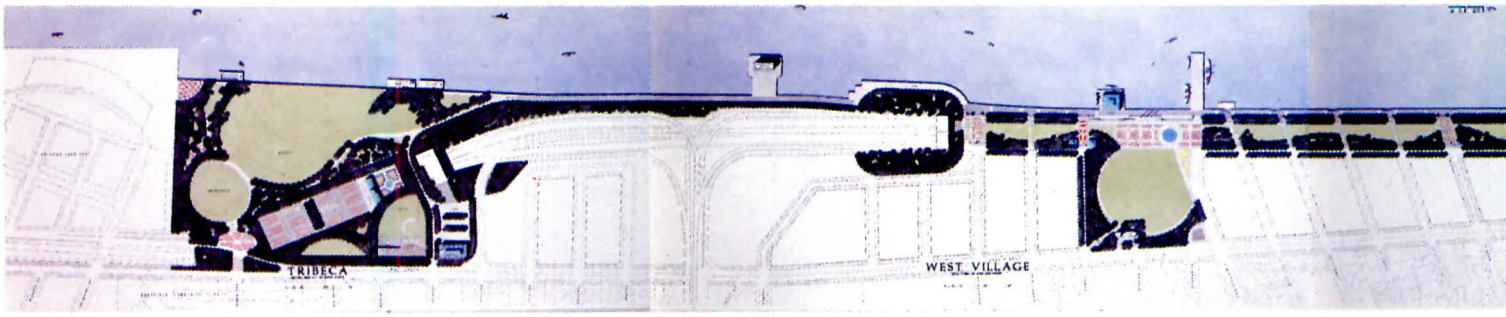
The most commanding element setting a scale for the park is the Hudson River, the majesty of which would make any adjacent smallness look exceedingly silly. For a strong design that can hold its own against such competition, the designers bounded the park with a no-nonsense esplanade that runs the entire length of Westway and allows no spatial intrusion whatever. The establishment of this unyielding edge demonstrates a lesson learned from Olmsted at Central Park, where a continuous stone wall opens only at carefully selected points for entry, and cleanly separates sylvan park from large apartment houses fronting streets on all four sides.

Three other circulation routes traverse the length of the park to bind it as a single entity. Nearest the water is a promenade next to the esplanade but separated from it by a "seating" wall. The wall and the change in ground level differentiate the tranquil tree-lined promenade and its strollers from what Whitaker calls "the spartan territory of joggers" at the water's edge. Down the center, a more sinuous path will accommodate bicycles along a route intended mainly for sunshine, though from time to time cyclists will duck under trees. Finally, at the city edge of the park, the designers established another strong border of walls and trees. In the interest of hospitality, however, this edge does not convey the sense of power perceived at the river. This boundary will parallel a new city street to run the length of the landfill.

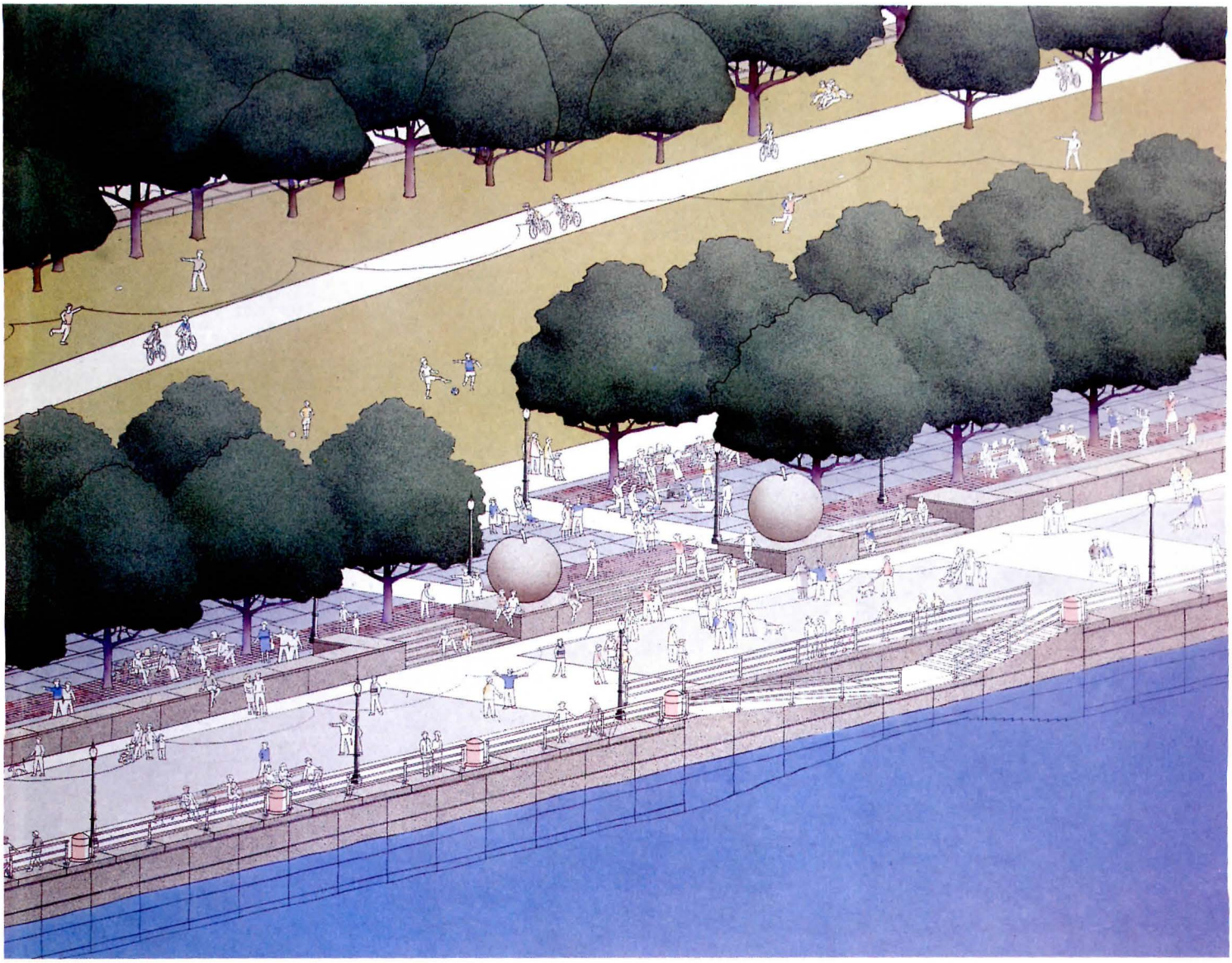
Coming to the concept of small scale at Westway Park, one must remember that scale is a relative: areas making up small scale in a 97-acre park are bigger than a backyard, let alone a breadbox. The small-scale elements encompass, in Venturi's catalog, "rich varieties of paving patterns and materials, niches and steps, ramps and sculpture, lighting standards, railings, interrupted patterns of trees—all elements you see close up as you move around them." Most important, the strength of the large-scale boundaries will allow a great variety of internal small-scale development without diminishing the park's character as users find they want a playground here or checker tables there. Such additions would simply add grace notes to the composition.

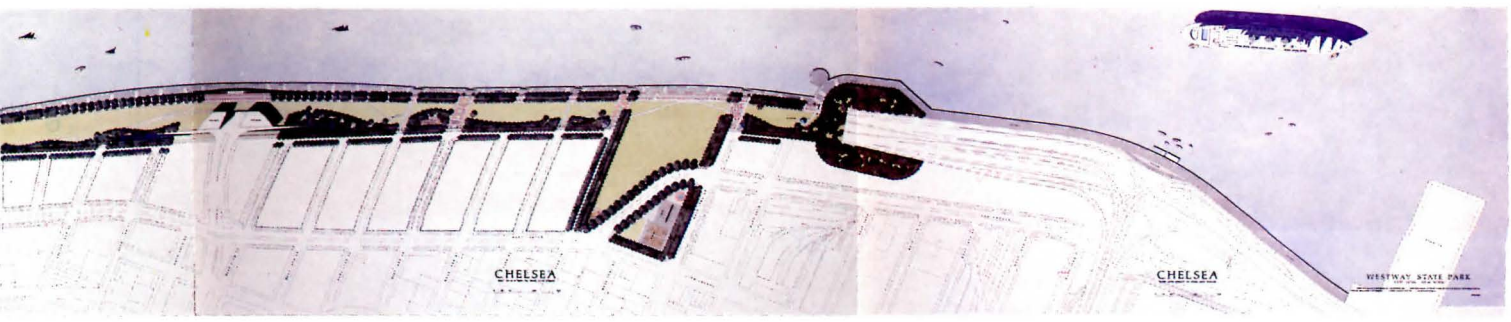
At this writing, after 10 years of studies and hearings, the construction of Westway remains problematic. Though the state has approved provisions for air and water quality and for tidal wetlands, and though the Federal government has approved the design and location of the highway, the Army Corps of Engineers still has under advisement the necessary permit for dredge and fill. The stumbling block for this decision is the fate of the striped bass, a commercially valuable migratory fish whose young winter in the shelter of the decaying wharves that would be demolished for Westway.

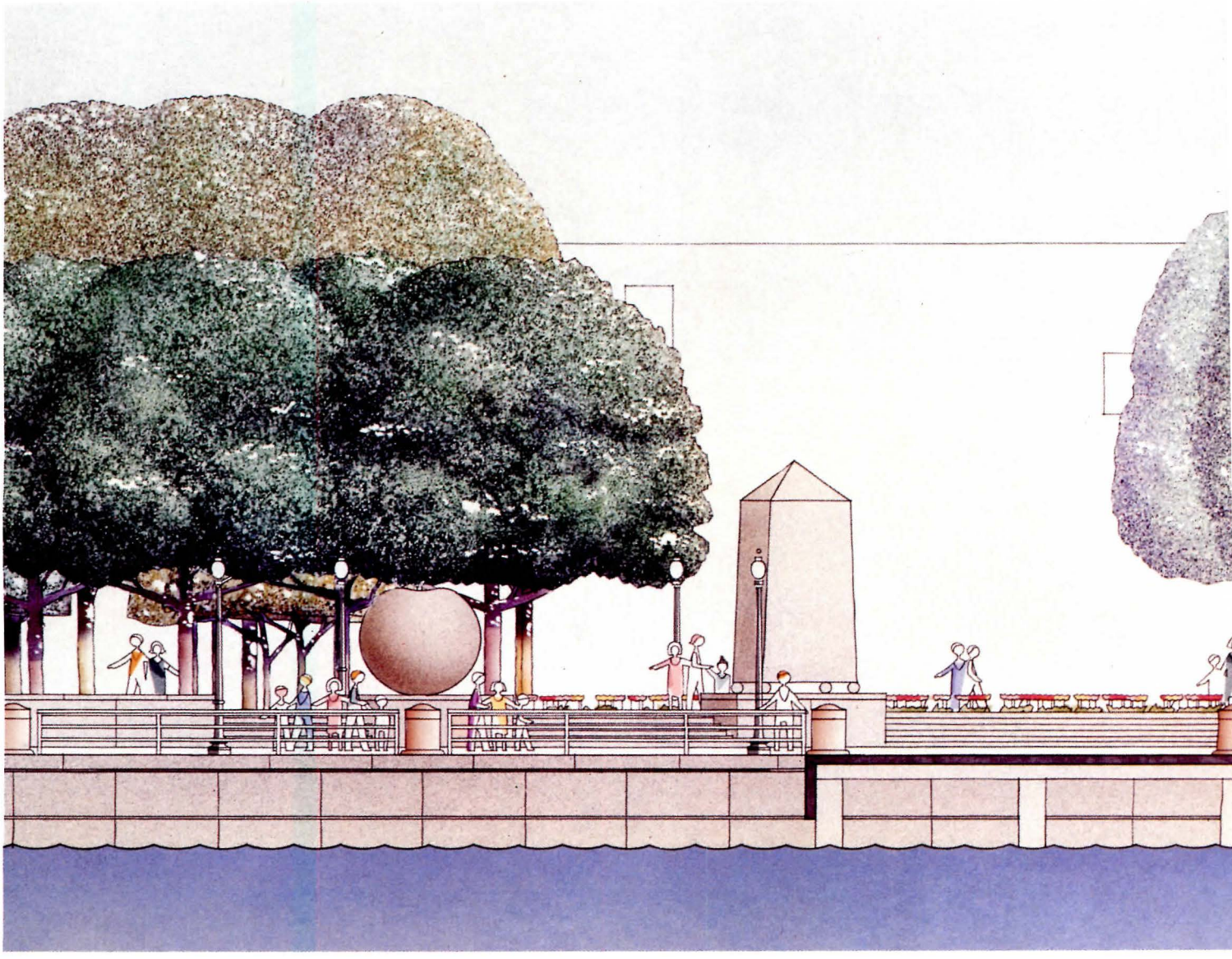
Meanwhile, Governor Mario Cuomo and Mayor Edward Koch, who both endorse the project, have used the park's "truly extraordinary design" (the Governor's words) as ammunition in their battle for the realization of Westway. *Grace Anderson*



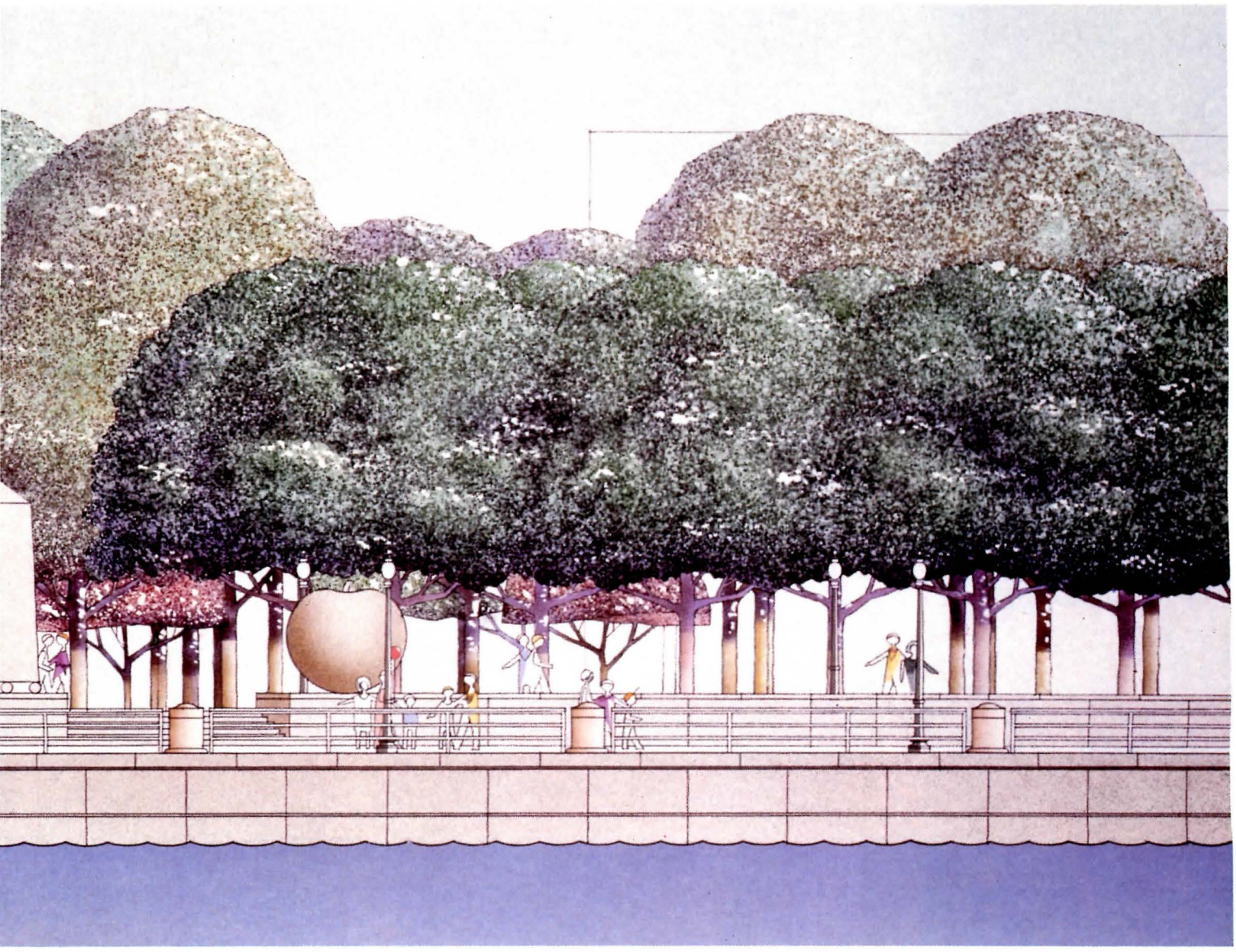
The designers' strategy for the 3 1/2-mile-long Westway State Park called for the containment of small-scale elements within simple but strong and unmistakable edges (site plan at bottom). The strongest border, at the river's edge, consists of a 34-foot-wide esplanade stretching the entire length of the park, unadorned except for benches, bollards and lampposts. At one side, the esplanade has a 4 1/2-foot-high wall that becomes only 2 feet high along a parallel promenade so that it can be used as a bench (see rendering directly below). The promenade, shaded by an allée of trees, will accommodate pedestrians whom Venturi sees as "ladies with parasols," a laughing but not wholly jocular view. Inside the promenade, a meandering lawn contains a winding bicycle path that also unites the park longitudinally; the designers see the variable depth and curvature of the lawn as a major source of spatial rhythm within the park. At Park Street, a new thoroughfare on the east side of the park separating park from new residential and commercial development, walls and plantations of trees will establish another strong edge. Small-scale entries will open on transverse paths that extend the city grid to the river, where from time to time "get-downs" provide steps and ramps for pedestrian access to water level. The road will enter its tunnel at 25th Street, emerge to run at grade at Houston Street, reenter at Laight Street and finish at Battery Park City. Another exit will occur at 14th Street; this interchange will create the only hill in the flat park, as the layer of earth rises to cover prominent trapezoidal ventilation structures on either side of the road.

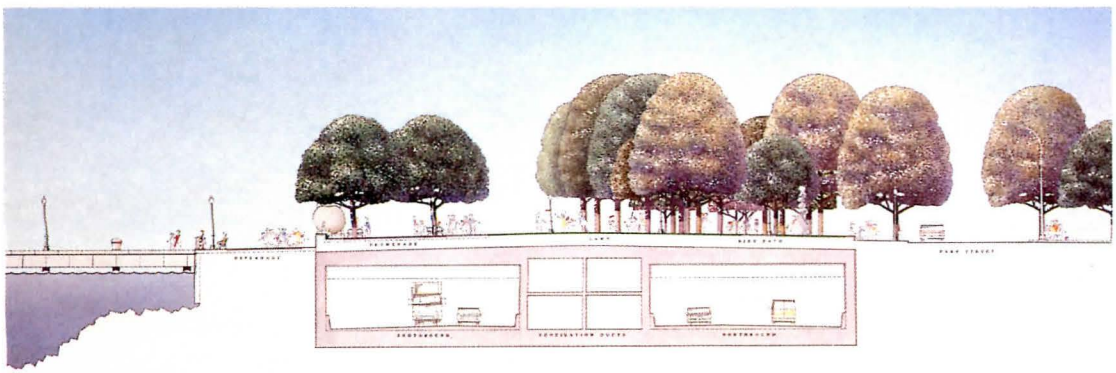




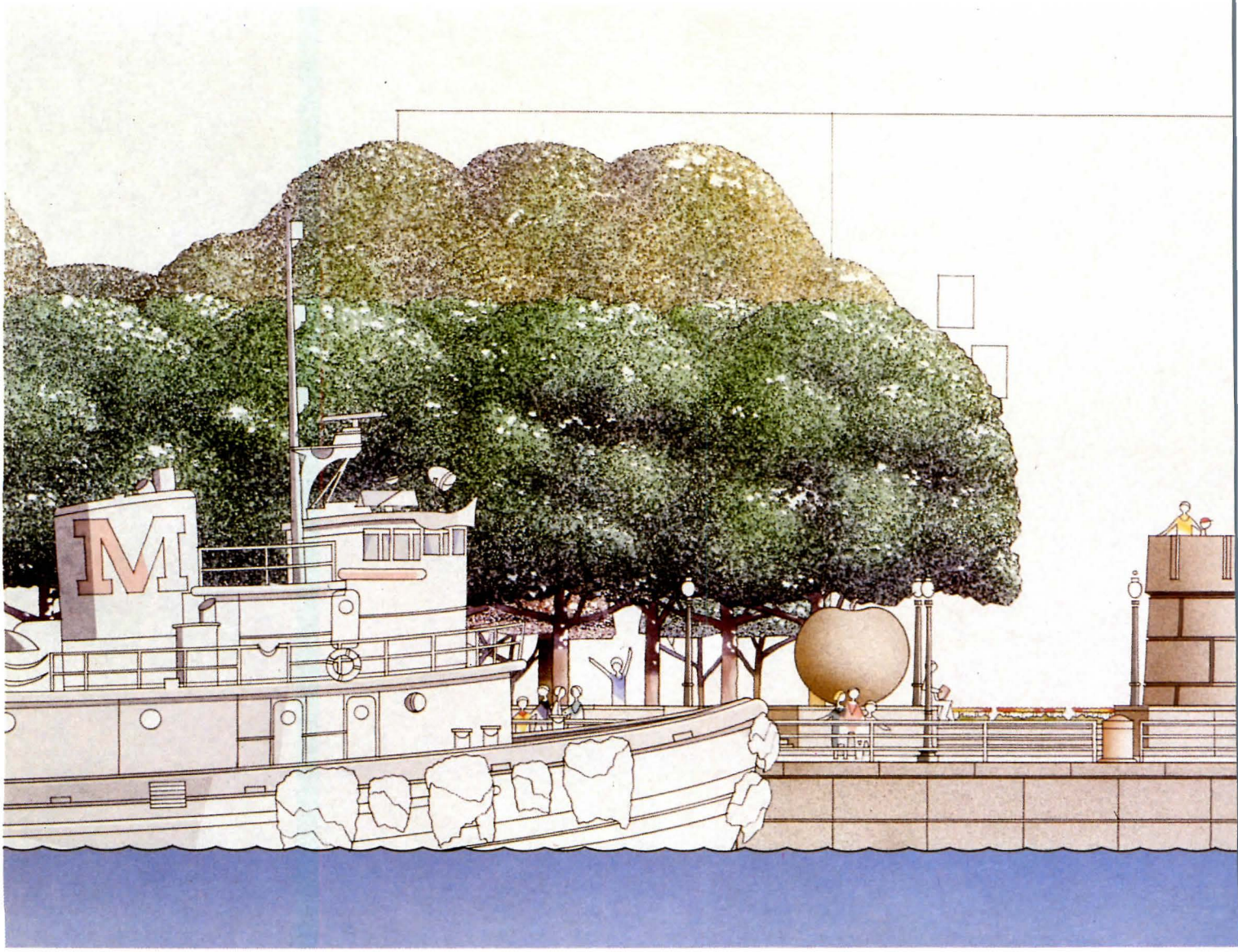


Toward the water, Westway Park will present a long, unbroken front, an esplanade backed by trees and punctuated by clusters of obelisks and the like marking entrances to the park from the esplanade (directly below). The lawns and playing fields in the park will consist of 4 feet of earth overlying the highway tunnel, itself a concrete box supported by piles (section at bottom). (The road was proposed to replace the elevated West Side Highway, which collapsed in 1973 and has since been razed.) Low seating walls separate the green park from the esplanade on one side and from the city street on the other, and at the same time signalize the dimensions of the underlying tunnel. The park's attachment to the river will be further intensified by the addition of wharves and piers along the esplanade. Because of the compositional strength created by the undeviating esplanade and the precast concrete bulkhead below it, the wharves can be constructed anywhere along the water as need or desire suggests without diminishing the park's presence.

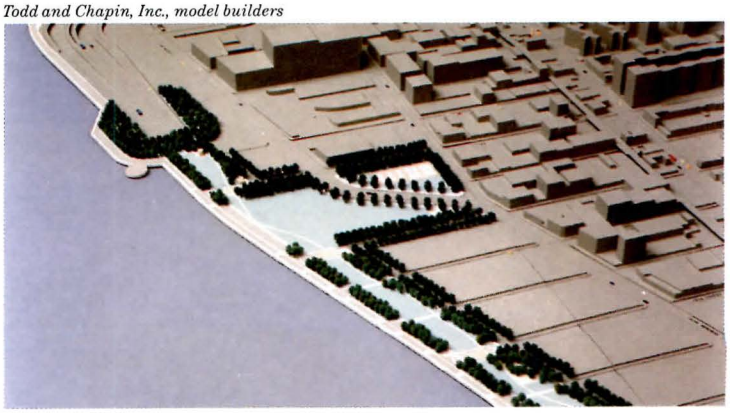




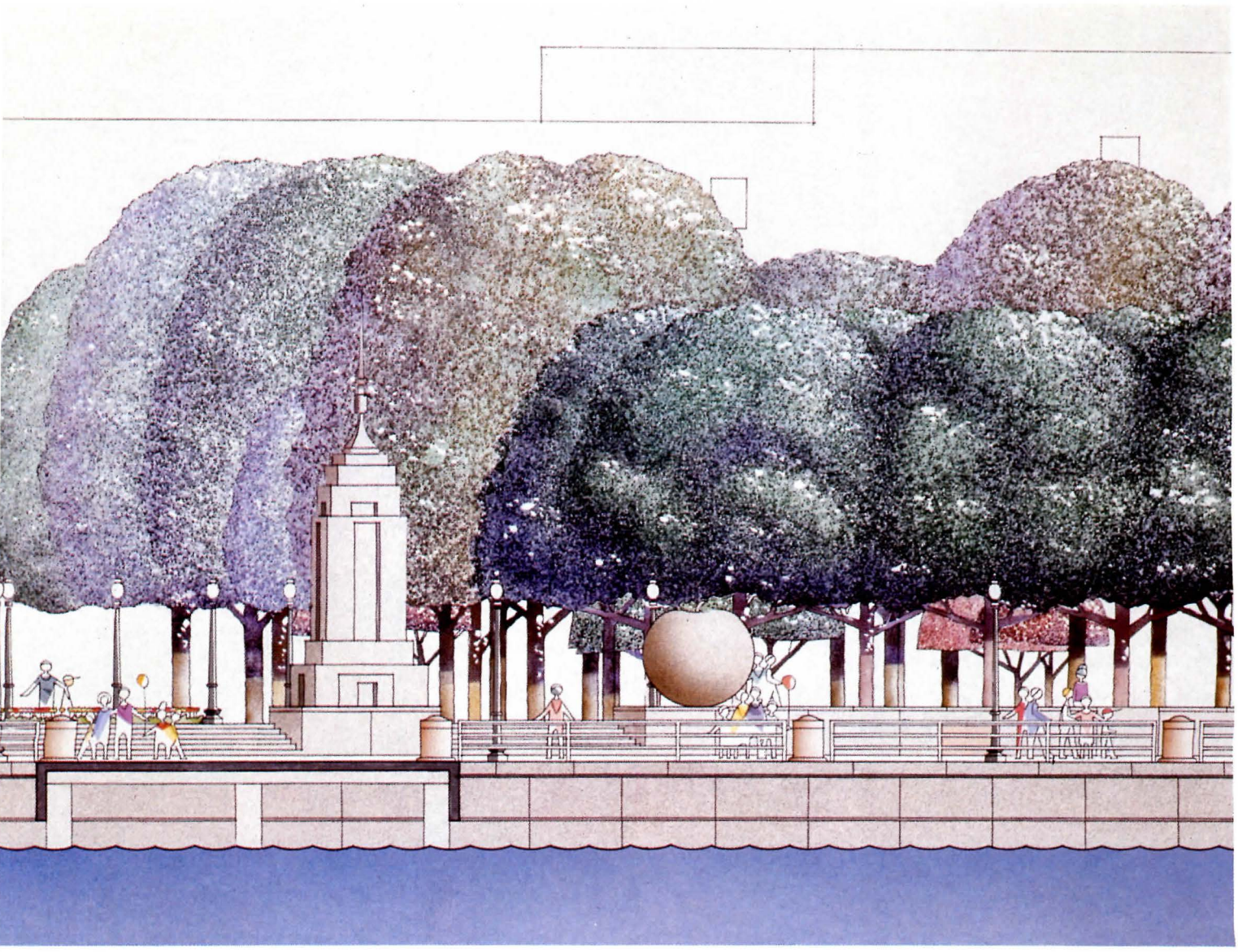
Clusters of decorative elements are intended to designate openings from the esplanade to the promenade and lawns. The smaller of these clusters will contain only two ornaments (see axonometric rendering on opening pages), but more important entries will have larger clusters of four ornaments. Venturi's design interpretation of these elements embraced classical forms like obelisks and globes, forms that can easily accept such playful variations as castles, miniature Empire State Buildings and apposite apples. The small-scale elements within the large-scale park would also provide users with familiar landmarks. Three parks within the park will extend greenery past the new Park Street to the extant West Street. The small parks include one at 23rd Street for the Chelsea community (bottom left) and another at

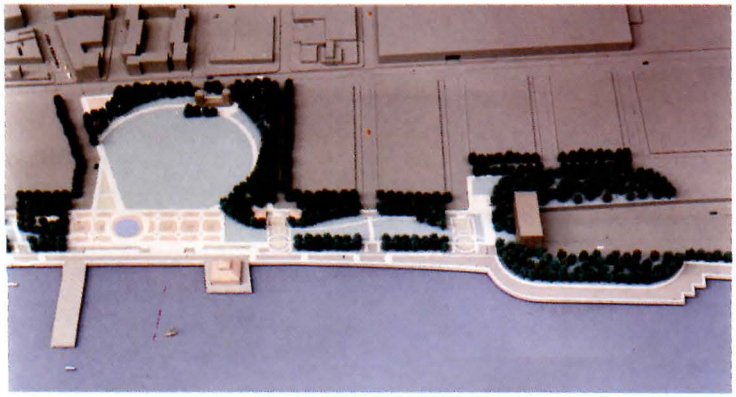


Todd and Chapin, Inc., model builders

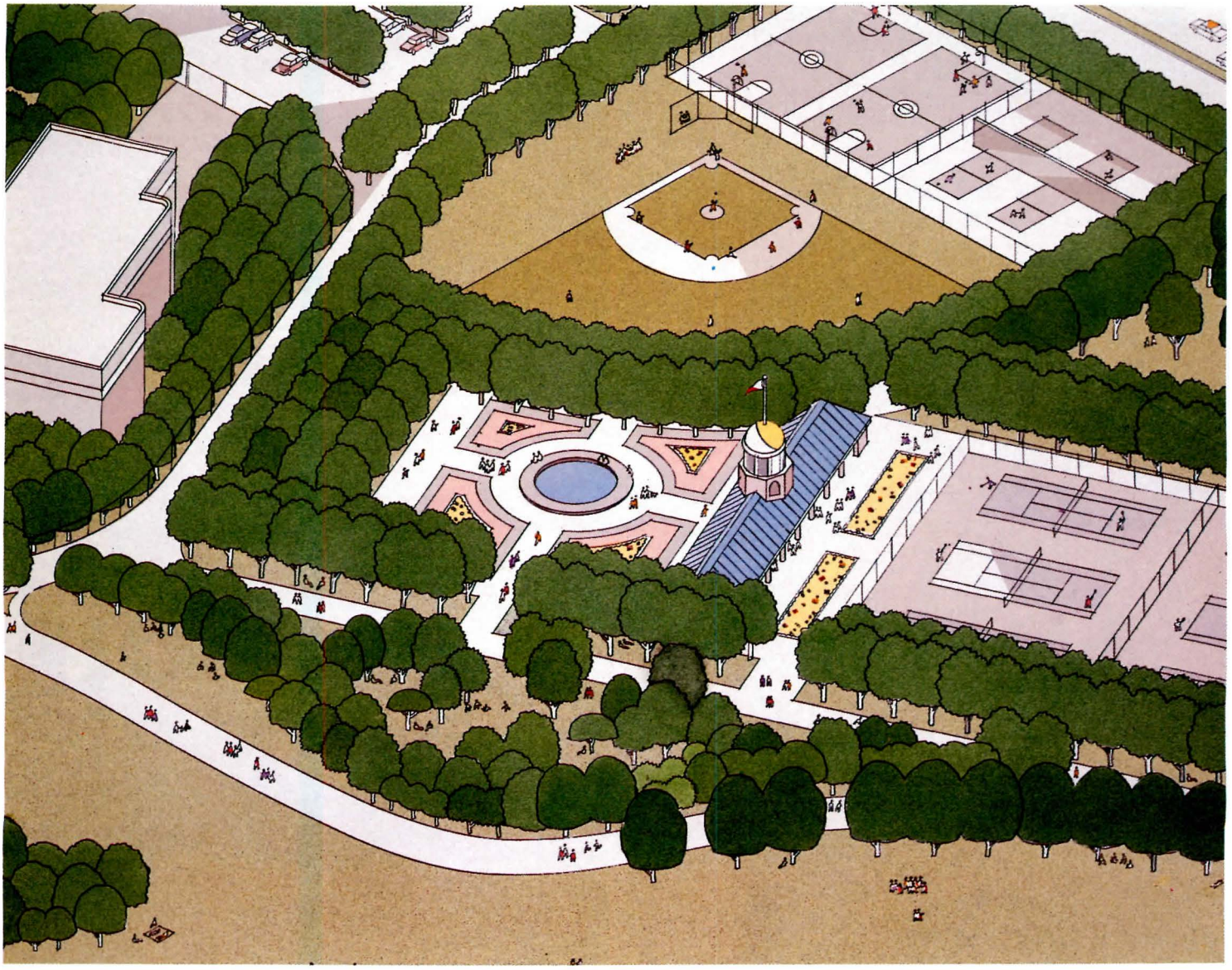


Christopher Street for Greenwich Village (bottom right). The Chelsea park, which is crossed by 12th Avenue, is in effect a new playing area built in mitigation for the sacrifice of an existing park at this location. The Christopher Street park, with its large circular lawn and formal plaza overlooking the river, can accommodate less energetic activities (see also rendering on page 131). Both areas have adjacent "get-arounds," horseshoe-shaped plantations that surround tunnel entrances when the highway emerges to run at grade. The devices enclose the entrances on three sides with pedestrian walkways that constitute the only exception in the esplanade's firm edge, which in these cases is carried out over the water. Distance protects pedestrians against noxious automobile fumes, and the trees screen views of traffic.



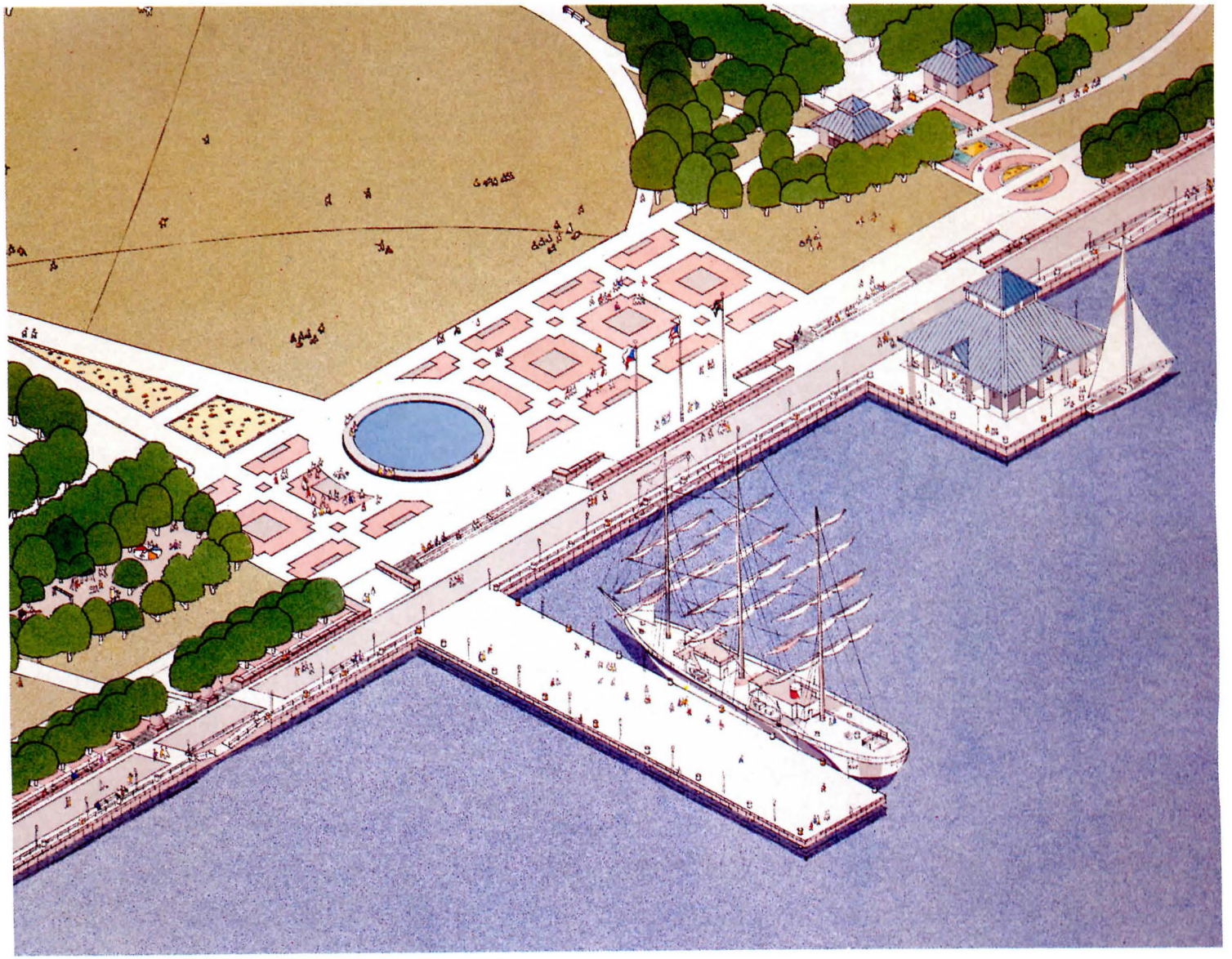


The corner of the large park-within-a-park at South Meadow, which will serve TriBeCa (rendering directly below and site plan on opening pages), will be the only section in the park with conventional playing facilities like tennis courts and a small softball field. South Meadow will also have the largest open lawn at Westway. The park parcel at Christopher Street (axonometric rendering opposite) illustrates one of Venturi's favorite juxtapositions: formal French against easy English. The asymmetric plan reflects the convergence of axes from the street grid outside the park, and Venturi allows that the Campidoglio was much on his mind as he designed. The pavilion perched on the deck over the river makes a virtue of necessity: the deck roofs a protective structure that keeps the weight of landfill off the PATH tubes. The esplanade (at bottom across page) will be 34 feet wide, a comfortable dimension borrowed without apology, like the benches, from Carl Schurz Park on the Manhattan side of the East River.

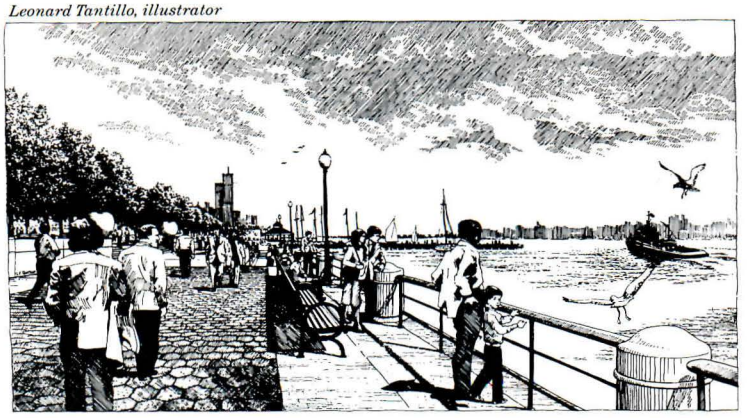


Leonard Tantillo, illustrator

Westway State Park
New York City
Clients:
New York State Department of Transportation, New York State Office of Parks, Recreation and Historic Preservation, New York City Department of Parks and Recreation, and Federal Highway Administration
Design team:
Venturi, Rauch and Scott Brown, Architects—Robert Venturi, principal-in-charge; John Rauch, principal-in-charge; Frederic Schwarz, project director. Clark + Rapuano, landscape architects—Domenico Annese, principal-in-charge; Dean Abbott, project designer. Salmon Associates, structural engineers. System Design Concepts, Inc.—Craig Whitaker, architect.
Engineers:
Parsons, Brinckerhoff, Quade & Douglas, Inc. (civil and transportation)

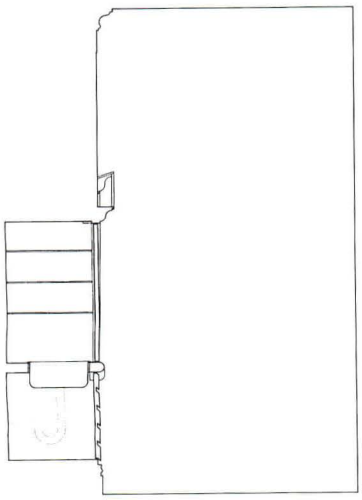


Leonard Tantillo, illustrator

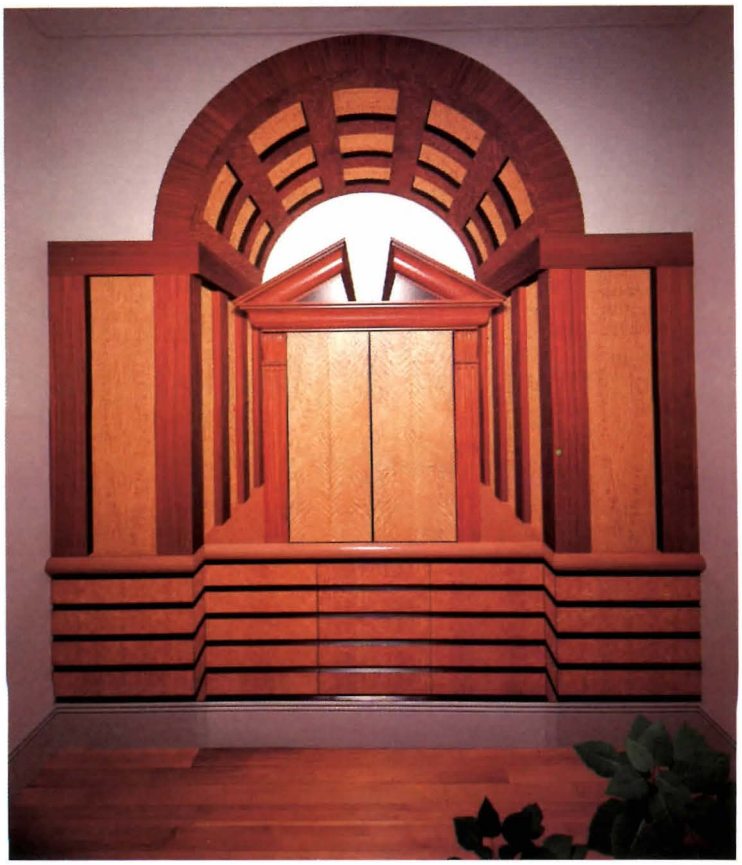


An elegant illusion

Bar for a house, in Boston
Peter Forbes and
Associates, Architects



©*Paul Ferrino photos*



The use of illusion, the transformation of what is real into what is believed to be real, has been a standard architectural technique since the Renaissance. The question in using illusion has always been: Can it be used to produce something more than a clever architectural one-liner; can it be used to produce design of genuine substance?

For a house on Louisburg Square, the center of Beacon Hill and the embodiment of Bostonian substance, architect Peter Forbes was presented with the modest problem of converting an unused 8- by 12-foot room into a useful adjunct to the grand, floor-through living room. The solution was to create an illusion—but of such rigorous order, fine materials, and craftsmanship that the result is an object of quality and importance comparable to the rest of the house—*a trompe l'oeil* executed in marquetry, and perhaps the most elegant little bar in Boston. Essential to both the quality of the object and the success of the illusion was the consummate craftsmanship of the builder. Jamie Robertson is a gazeteer of woods—he produced an initial selection of 140 from which twelve were ultimately chosen; a mathematician who calculated the shape of each piece; and an encyclopedia of the technical and esthetic qualities of woods. For this project he developed an entire structural vocabulary within a dimension of 5/8 of an inch—a 3/8-inch clear maple core is veneered front and back to minimize stresses and movement. The pediment is two inches deep, the bullnose at counter level an inch and a half, the sink, drawers and shelves are two feet deep, reducing the 8-foot depth of the room to six feet.

Though the notions of illusion, marquetry, and artisanship are almost inherently historical, any reproduction of purely historical detail would have overwhelmed the scale of the room, and Forbes wisely chose a simplification, so that the metaphoric structure—pilasters, beams, and vaulting—amplified the space rather than filling it up, and the richness of the marquetry is both controlled and enhanced. The owners are delighted by this stunning solution to a modest problem—despite the number of guests who have broken glasses by putting them "down" on vertical surfaces. *W. W.*

Owner:
Mr. and Mrs. Emery Rice
Architects:
Peter Forbes and Associates—
Peter Forbes and Patrick Hickox
Builder:
Jamie Robertson
General contractor:
John Benjamin

Low-income housing: A lesson from Amsterdam

A leading Amsterdam newspaper invited an international jury (right) to select the winner of its newly founded Amsterdam Housing Prize. The winning architect turned out to be Rem Koolhaus, author of "Delirious New York," pretext enough for the competition to be of more than local interest. But there is an even better reason why a wider audience, particularly U. S. architects, should pay attention to a housing competition in Holland. The Dutch still think it is important to house poor and low-income people well, and they believe this to be government's responsibility.

Not so long ago, American and European architects and planners engaged in large-scale housing projects at the behest of their governments. An older generation will remember the most famous of the once admired master plans: Le Corbusier's *Ville Contemporaine* (1922), and his *Unitês d'Habitation Marseilles* (1946-52); Mies van der Rohe/Ludwig Hilbersheimer's Lafayette Park, Detroit (1956); Ernest May's *Riedhof,* Frankfurt (1927-30); O. M. Ungers's *Berlin Lichterfelde* (1975); Leon Krier's *Quartier de la Villette,* Paris (1976); and others. During the 1970s in the United States, construction of such large projects gradually came to a halt in response to strong counter forces. Government and public had become aware of the failures of public housing, most notably the destruction of existing communities and other forms of social displacement as well as vandalism and crime within the projects. Excessive construction and maintenance costs made low-income housing even more unpopular.

These social and functional deficiencies somehow became mixed up with matters of architectural style, becoming symptomatic in the minds of postmodernist polemicists of what they chose to call The Failure of the Modern Movement. Then Pruitt-Igoe was dynamited and we all know what Charles Jencks made of that.

Responsible criticism of public housing's practical failures might have led to their eventual eradication, had the United States continued to build significant numbers of units for low-income people. Unfortunately, postmodernist stylistic criticism played directly into the hands of political conservatives who under President Reagan are at last succeeding in phasing out all housing subsidies. Today, architects who remain interested in what has become a virtually abandoned architectural and planning task must look to Europe in search of progress there, at least until the hoped for (but not soon expected) turnaround comes.

It is not the same in Holland. The Dutch Ministry of Housing is now completing 120,000 units of housing per year. Ninety per cent of these are funded by the Netherlands government, the rest are free market. Of the government subsidized houses, most are being built with direct government loans (so-called Housing-Act houses). The remainder are constructed with government assistance under a subsidy scheme for private building projects. The government itself builds only a small number of houses. The total number of dwellings built in the Netherlands in 1981 was 8.2 (finished) per thousand inhabitants. By contrast, the United States in 1982 produced 4.5 per thousand. Taken together, Boston, Philadelphia, Cleveland, Detroit and Milwaukee produce less than 45,000 housing units per year. Not many built in the United States are for people of low-to-moderate incomes, a category that has been priced out of the new-home market for years.

Amsterdam, unlike New York City, does not have a conspicuous number of homeless people camping out on the streets. There are now said to be 40,000 single homeless people and 11,000 homeless families in New York City as the supply of housing continues to shrink, in part because of tax incentives to developers to gentrify aging buildings after evicting their low-rent-paying occupants. (The New York City Housing Authority has 175,000 families on the waiting list. If people thought it would do any good to get listed, there would be twice this number.)

Furthermore, the small quantity of Federally- or state-supported housing for people of limited means now being finished has been drastically reduced in unit size, simplified by type and stripped of even the most modest architectural amenities. The Dutch, in spite of the extraordinary volume of their housing construction, have not found it necessary to similarly pare dimensions or amenities. It is clear that they regard social housing differently from us. For them it is an essential,

Nieuwmarkt: a community victory

By Tracy Metz

It was all-out war. The riot police approached the narrow bridge from one side, the squatters and activists from the other. They clashed in the middle. For a few minutes it was man-to-man combat, although the activists knew they stood little chance, up as they were against police armed with shields, helmets, gas masks, billy clubs and dogs. Suddenly a deep rumble was heard close by. The mob turned to look and could not believe its eyes: a water tower was grinding its way through the narrow street, and it was not a police vehicle. It drove right up to the bridge and let off a salvo: of talcum powder and confetti.

Fact being stranger than fiction, this really did happen, in one of the most turbulent years in Amsterdam's history, 1975. In that year, the conflict centering around the construction of Amsterdam's first subway line reached its climax. Hundreds of old houses were demolished, there were many casualties among both the rioters and the police, and—inevitably—construction of the subway began.

The Nieuwmarkt neighborhood is one of Amsterdam's oldest. It would seem to have made a tradition out of making trouble for the authorities. As far back as the Middle Ages, when the Nieuwmarkt was on the edge of the city, the inhabitants were protesting against the ban on draining the swamp outside the city walls and on building houses of anything but wood. (The swamp was one of the city's natural defences in wartime, and the houses had to be able to be dismantled quickly).

In 1580 the swamp was reclaimed, and the Nieuwmarkt attracted several shipyards. The shipping activities later moved to the west of town but the Nieuwmarkt survived as a residential area. It became one of Amsterdam's most densely—and intensely—inhabited neighborhoods. There has always been a strong sense of belonging among the people who live there.

The subway riots were not the first "war" the Nieuwmarkt had experienced. But the one that just preceded it was infinitely more tragic. From the sixteenth century on, the Jewish population of the city was concentrated in this quarter, called the Jodenhoek. Most of the Jews lived in stark poverty, eking out a living by trading in rags and lump metal. It was not uncommon for families of ten or twelve to live in one room. Moreover, the houses were in poor condition: there was little if any incitement for the landlords to invest in maintenance. Still, the neighborhood was famed for its character and, above all, its sense of humor.

Ever since the seventeenth century there had been a market on the square around the Waag, the old weighing-hall and erstwhile city gate. It is now the home of the Jewish Historical Museum. (The Waag is in urgent need of restoration: its walls have served as a public urinal for so many centuries that the bricks are eaten away.) In the twenties and thirties there was also a famous market in the Jewish quarter. It was a nationwide attraction; the national railways even had a special train going there. One legendary figure was "Professor Kodadorus," the professional pseudonym of Meier Linnewiel, a pitchman who claimed to be "confidant of the great" and the Queen's own supplier of sponges and mops.

When the Nazis invaded Holland in 1940, they quickly earmarked the Nieuwmarkt as a *Judenviertel,* a Jewish ghetto, and as the war progressed Jews from all over the country were forced to move there. The underground toilets were pressed into service as bomb shelters and later as prisons for Jewish children. In 1942 and 1943 the mass deportations of the Dutch Jews began. Thousands upon thousands were rounded up in the

Tracy Metz is an American working as a journalist in the Netherlands.

The jurors for the Amsterdam Housing Prize were Geert Bekaert, Ionel Schein, Mildred F. Schmertz and Francesco Dal Co.

respectable environment to be constructed as well as possible, for a lifetime. To be fair, Holland has been building so-called democratic housing far longer than we have. From 1915 to 1930, Amsterdam was a remarkable center for planning experiments, most notably those of H. P. Berlage, the planner of Amsterdam South. Today his splendid master plan is still intact, and so is most of the housing by architects of the Amsterdam School, including M. de Klerk and J. J. P. Oud. Early in this century, Holland also pioneered the concept of non-profit housing societies—workers' groups organized to erect model dwellings for themselves using low-interest loans provided by the central government. Descendants of these original groups still sponsor housing today. Finally, Dutch eminence in the field of social architecture must be attributed in part to the fact that public control of land use has long been a tradition in Holland. Dutch below-sea-level soil is difficult and therefore expensive to build upon, demanding cluster, rather than sprawl. And the pressures of a dense population demand that not one square foot of land be wasted.

Today, Amsterdam has approximately 6,000 social housing units in construction or nearing completion. Most are new construction, the rest are being rehabilitated. Wishing to honor this accomplishment, Kees Tamboer, editor of the Amsterdam daily *Het Parool,* with the assistance of Jaap Engel, housing coordinator of the City of Amsterdam and chairman of STAWON, a foundation for architectural research in the fields of housing and the environment, organized the Amsterdam Housing Prize to be given periodically to honor outstanding architectural design and site planning in the low-income housing field. The jurors were the architectural historians Geert Bekaert from Antwerp and Francesco Dal Co from Venice, the architect/planner Ionel Schein from Paris, and myself. The jury chairman was the Dutch film maker Jan Vrijam.

The jury was allotted two days to visit 29 pre-selected projects and one day to think them over before meeting to award the prize. The site visits revealed to us that the Amsterdam housing bureaus exercise many options. We were shown housing on medium-to-large, formerly industrial plots in or near the central city, and were taken to vast developments on outlying sites in former rural areas. We saw a lot of infill projects on medium-to-small, odd-shaped plots in older neighborhoods. Aging or dilapidated units within Amsterdam's great rectangular housing blocks dating from the period of Berlage are being rehabilitated in a manner that conforms to existing street patterns and adjoining building heights. A total of 22 projects comprising either new construction or rehab are being completed within the perimeter of Central Amsterdam on choice sites near public services and transit. Instead of segregating new housing from old, Amsterdam is fitting its new housing into existing communities. It is clear that the city authorities, at least for the present, are not allowing "higher economic uses"—office buildings, hotels, and new luxury apartments—to replace low-to-moderate-income residential uses in the older city districts.

Since it seemed to me that Amsterdam's three-pronged attack on its low-income housing shortage—the provision of in-town infill, the use of nearby abandoned industrial sites for medium-to-large-scale construction, and the development of the largest estates in nearby rural areas—is admirably well balanced, I believe that the jury should not have been required to give an award chosen from one single category in this careful mix. Ideally, there could have been the choice of awarding three prizes for the best architectural design and site planning in each classification. As it happened, none of the jurors wished to argue very hard in behalf of the master planning and housing design of the large outlying estates. The Dutch have given up building multi-story elevatored slabs of housing on these sites and have instituted urban

streets or dragged out of hiding and carted off to elimination camps.

When the war ended in 1945, the Nieuwmarkt was virtually empty. More than half of its inhabitants had been annihilated. The severe fuel shortage had driven many to tear out all the wood from the empty houses—even the synagogue was plundered in this manner—and a large number of houses simply collapsed. The inhabitants who had known the "good old days" were keen on finding a place to live with fewer painful memories attached, and many moved out to Amsterdam's old harbor. In 1930, 22,000 people lived in the Nieuwmarkt; by 1940, the number had dropped to 17,800; and in 1975, there were a mere 7,000 inhabitants. For years the Nieuwmarkt suffered the deepest neglect.

In the late sixties, however, the area started becoming fashionable among students, squatters, young people in search of an alternative lifestyle and cheap housing. In the beginning there was considerable tension between them and the original inhabitants, but as it became apparent that the young people were intent on improving the neighborhood, relations improved.

Meanwhile the subway had come into the picture. The city council approved a detailed plan, 38 votes to three. At that stage the plan entailed a network of subway lines that would service the entire city. This fact was to have far-reaching consequences for the Nieuwmarkt, for it meant that the subway would have to go right through it. That, combined with the fact that Amsterdam's swampy ground makes it impossible to construct a subway under existing buildings, could only mean one thing: a swath of demolition.

The Nieuwmarkt activists were on their toes. In the seven years that the city council spent discussing the subway, the inhabitants had built up the best-organized citizens' action group the Netherlands have ever known. They had their own radio stations ("Mokum," a nickname for Amsterdam, and "Siren," later used to call for help), newspaper, printing shop, finance and defense groups, and a "subway museum." They even offered guided tours through the neighborhood. A special committee was set up to select candidates from the many who wanted to live there. A candidate had to be dedicated and willing to fight to defend his house—and willing to pay the mandatory 125 guilders to the communal house repair fund. Activist Steef Davidson said in 1974: "We need people who are disobedient, who are capable of using their own minds."

The first encounter with the police was on December 12, 1974, and involved one house. When the activists saw the police coming, several climbed up into the belfry of the Zuiderkerk—coincidentally, the first church built in Amsterdam for Protestants—and warned their allies by ringing the bells. Apparently the police still underestimated their adversaries, for they didn't withdraw until the activists started pelting them with roof tiles. But they came back with a vengeance on March 24, 1975, a day that is still referred to as "Blue Monday." Seven hundred riot police and MPs were called up to evict a handful of squatters from houses barricaded with barbed wire, bedsprings and mattresses. Twenty-seven people were wounded. During the battle a suspension bridge which connected two blocks of houses separated by a canal was used by the squatters for intercommunication and as an escape route. (Not until years later did it leak out that the bridge had been designed for this purpose by Theo Bosch and Aldo van Eyck, architects officially working for the city government.)

An event that had taken place shortly before, on February 14, had embittered the activists. A bomb had been found at a recently completed subway station far out from the center of town. The mayor, Ivo Samkalden, immediately blamed the activists. They took him to court, and a few days later he had to retract his statement publicly: the bomb had been placed by an extremist right-wing organization to discredit the Nieuwmarkt.

The third pitched battle was on April 8, this time with no fewer than a thousand police. The last riot took place on June 2. By the time the tear gas had lifted, 241 people had registered complaints about physical mishandling.

All along, the city government had assumed an attitude of inflexibility. Hadn't the city council voted for the subway plan, making it a democratic decision? The activists, on the other hand, said: how democratic is a decision that has to be implemented with tanks and tear gas?

rectangular street systems consisting of huge four- and five-story walk up blocks enclosing vast, overscaled courtyards. Typical layouts, including a recently finished estate to the south of the city called Venserpolder, are crude parodies of the street and row house layouts of Berlage in Amsterdam South. Appropriate for the time and place in which they were built and eminently worth preserving for residential use, Berlage's master plans and housing blocks cannot be successfully upscaled to the densities planned for these estates. For sites beyond the older city, *Unitês d'Habitation* is still a better model than *Takbuurt*, but an appropriate architectural language for today has yet to be found.

The jury was left with the necessity of making a choice from one of the two remaining categories. In the infill classification the Nieuwmarkt project was outstanding. An old center-city neighborhood which had lost much of its housing in World War II and was to lose more by the construction of a subway underneath it, Nieuwmarkt had been slated for non-residential redevelopment. Offices and public buildings were to fill vacant areas and take the place of housing unaffected by the construction. As the article by Tracy Metz (below) describes in detail, local residents first fought the subway and, after losing that battle, then fought for the preservation of the remaining houses and new housing construction for the empty sites. Architects Theo Bosch and Aldo van Eyck joined the struggle as community advocacy planners and helped persuade the city to keep Nieuwmarkt residential. The activists won, and Theo Bosch became the master planner of the neighborhood and the architect of some of its infill.

Juror Ionel Schein and I urged that the housing prize should go to Bosch for the sensitivity and elegance of his master plan and the architectural quality of his infill. Furthermore, it seemed to us that the housing officials of the City of Amsterdam who continue to insist that low-income people be housed in reconstituted older inner-city residential areas near their jobs deserved recognition. We thought, and I believe that the photographs on the following pages help prove, that if the city rebuilds its oldest quarters in the manner established by Nieuwmarkt, Amsterdam has a good chance of remaining one of the most beautiful cities in Europe.

Jurors Dal Co and Bekaert, however, wished to focus upon what the city was doing with its newer quarters, on change rather than continuity. Believing that the Amsterdam Housing Prize should not go to what they declared to be "outmoded urban forms," however skillfully reconstituted, and deeming estate planning rather than infill to be the more difficult and urgent design challenge, they argued in behalf of the mass housing project IJ-plein, a new town in town by the Office for Metropolitan Architecture, Rem Koolhaus's firm in Rotterdam. A goad to postmodern nostalgic pseudo-vernacularism, it reverts in style to the forms of the early Modern Movement with Russian Constructivist overtones (another form of nostalgia perhaps), and appears to function extremely well (pages 134-143). Built on a former dock and shipyard site, it adjoins and has been carefully related to a turn-of-the century Amsterdam district, is directly across the channel from Nieuwmarkt and shares the latter's proximity and convenience to jobs and services.

Because the jury would not agree, its chairman, Jan Vrijman was required by the rules to cast the deciding vote. He sided with Dal Co and Bekaert, giving the prize to Koolhaus. Theo Bosch received the only honorable mention. Both projects are serious and successful architectural efforts which, because they are not really comparable, should have been judged in separate categories and received equal awards. Cities and people need both continuity *and* change.
Mildred F. Schmertz

Actually, the Nieuwmarkt had long bowed to the inevitable subway construction and was concentrating on ways to rehabilitate the neighborhood as quickly as possible. One concession the activists had managed to wring from the authorities was the opportunity to choose their own architects. A team of twelve, headed by Theo Bosch, was designated to resurrect the quarter. They had to swear to side with the inhabitants should a conflict with the city arise. The architects were to confirm the philosophy that one of them captured in the words: "The essential thing is to bring the entire neighborhood back to life, not just to fill the holes."

On paper, that had been the city government's main aim too: as early as 1971 it had proclaimed that an active policy would be pursued with regard to housing construction. But nothing had happened. The infuriated inhabitants drew attention to the fact that between the end of the war in 1945 and 1971 a grand total of six dwellings had been built. In 1975, a similar statement by the city appeared, reassuring the inhabitants that they need have no fear of speculation and big development, that they would not be sacrificed to the interests of big money. But that was exactly what was happening, while the authorities looked the other way. Investors with foresight were already buying up old houses that they planned to restore and lease for huge sums.

The city's commitment to rehabilitation meant giving priority to the former inhabitants in the new housing. By 1976, Amsterdam finally met its moral obligation to bring back low- and middle-income houses for the people whom the subway had driven out. Construction began and will not be finished until 1987. But building on top of the subway tube, and along the old street pattern, involved tremendous extra costs. (Architect Guido van Overbeek, who has built housing in the Nieuwmarkt, says: "It costs more to build thirty dwellings here than it does to build five hundred in "a tower in the park at the edge of the city.") In fact the city was having to fight just as hard with the Ministry of Housing for extra subsidy as the activists were fighting with the city. Ultimately, the city did win its subsidy. That made it possible to keep the rents for dwellings right on top of the subway tube at the same level as that of low- and middle-income housing elsewhere in Amsterdam.

The unusual location demanded the utmost of the architects' creativity. Architect Hans Borkent's building, shaped like a piece of pie, has the most remarkable foundation in the Netherlands: one corner rests on rubber blocks above the subway, the others are supported by long piles driven deep into the ground, and for convenience sake, two old restored buildings with weak foundations have been attached to the new structure. Theo Bosch built the remarkable five-sided building called the Pentagon (a name that the communists in Amsterdam's government objected to, for obvious reasons).

Now most Amsterdammers are enthusiastic about the subway extension, but Theo Bosch is still not convinced. "The city built a subway no one asked for. It is foolish to tear down neighborhoods for the sake of building transportation to them." It would seem that the local government now agrees, at least for the time being, that subway construction in Amsterdam is too expensive and too destructive. In 1975, the city council withdrew the plan for continuing the subway network beyond what had been already begun. Theo Bosch continues: "I think it's only just to demand that the neighborhood's old climate be the starting point for the renewal. This part of town has a very complex character, it is by definition chaotic."

The Nieuwmarkt is well on its way to recapturing its former architectural and urban character, but social problems remain. One of the most serious now is heroin. The inhabitants feel unsafe because of drug-related crimes, the children play with discarded syringes and make a game of finding packets of heroin the junkies have stashed away. To the dismay of the architects and the community, many of the pleasant areas in among the houses that were intended to be accessible for everyone have had to be fenced off.

But the Nieuwmarkt can be proud of what its inhabitants have accomplished and what it has become. Theo Bosch sees the course of events as a major breakthrough: "It was the trend all over Europe—tear it down, build wide streets, huge complexes. The Nieuwmarkt was the turning point." Adds his colleague Hans Hagebeek: "If the subway had not been built, the new housing would not have been of such high quality. You can see the neighborhood's fighting spirit in its houses."

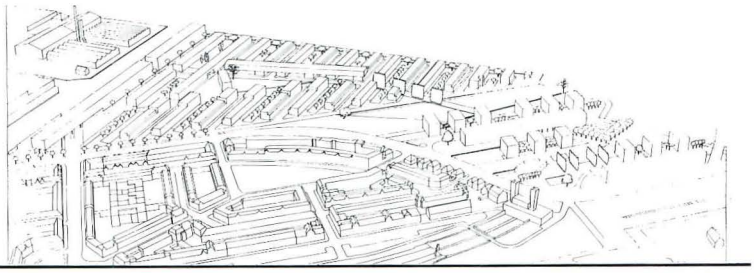
Shaded sectors in the plan below include the award-winning schemes. To the north is the winner of the Amsterdam Housing Prize: IJ-plein designed by the Office for Metropolitan Architecture of Rotterdam, headed by Rem Koolhaus. Directly opposite is the Nieuwmarkt district, damaged in World War II, which suffered further loss of housing because of the construction of a subway line. It is being rebuilt using infill housing. An honorable mention went to the master planner and the architect of some of its best infill housing, Theo Bosch of Amsterdam.

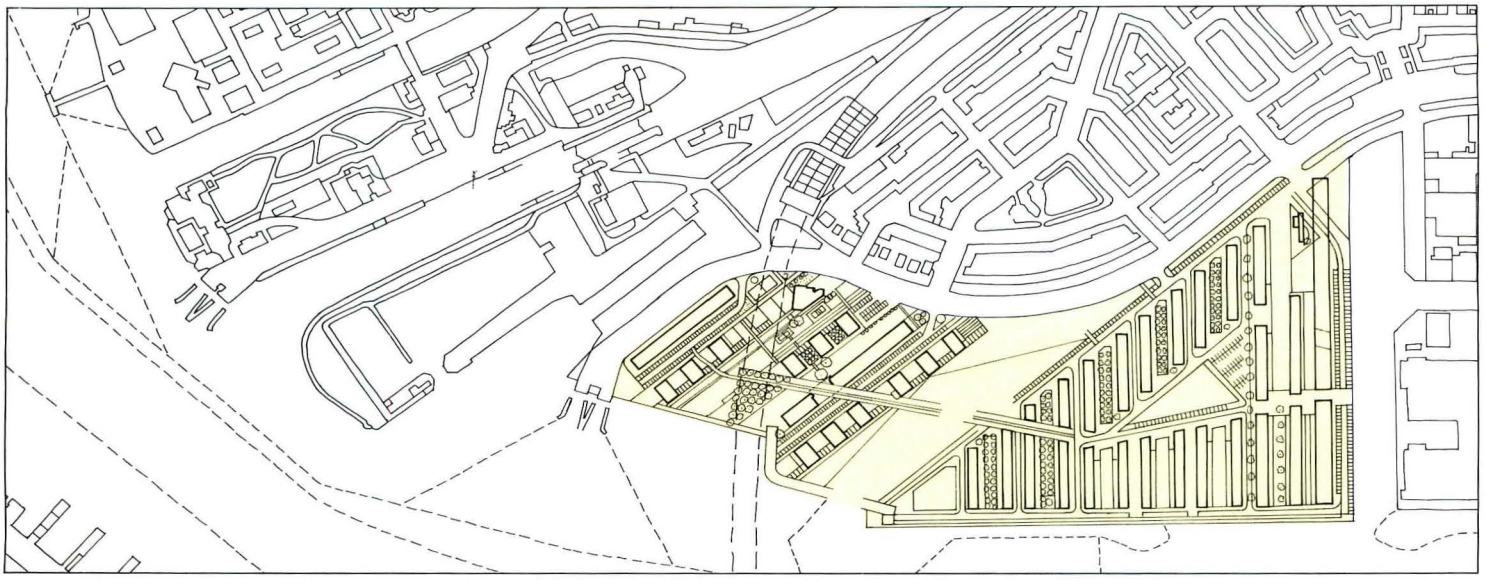
Wabbo de Jong

Wabbo de Jong

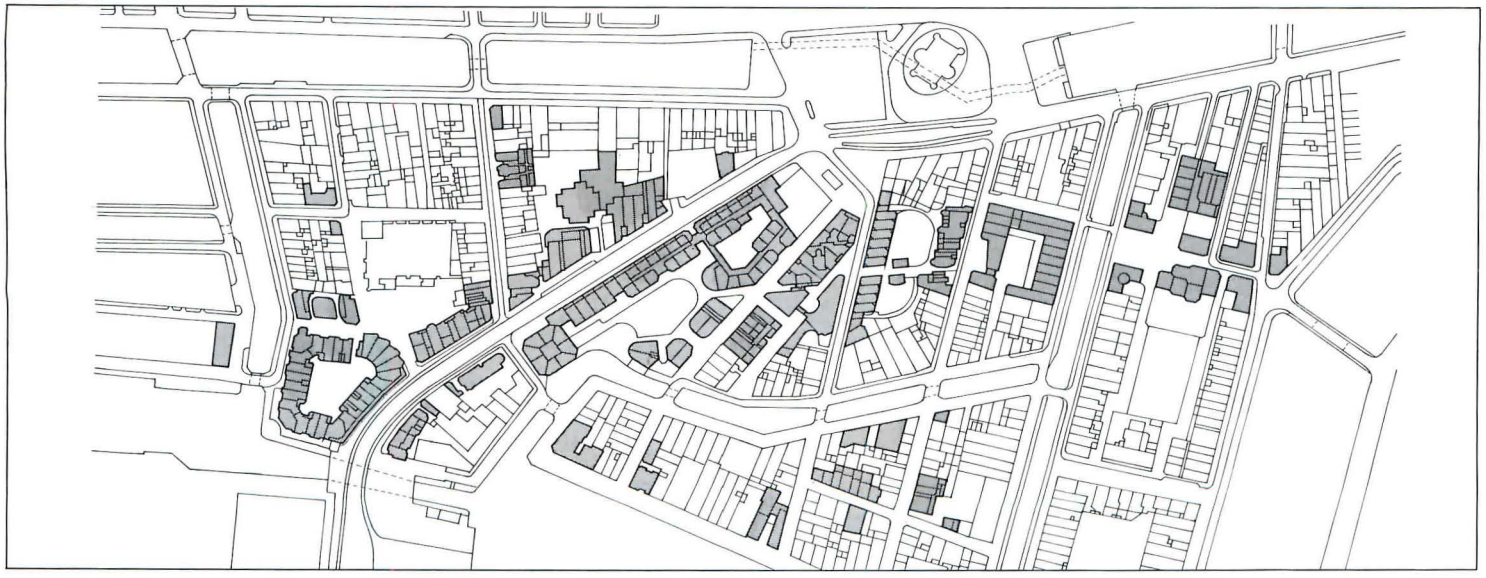
Ten years ago, the Nieuwmarkt district was inhabited by squatters and urban poor who demonstrated (left) and fought hand to hand with riot police against the evictions resulting from the subway construction that was to turn their neighborhood into a wasteland (above). They lost their battle against the subway, but won the war to get demolished housing replaced.

Amsterdam Housing Prize:
IJ-plein master plan
Office for Metropolitan Architecture, Architects



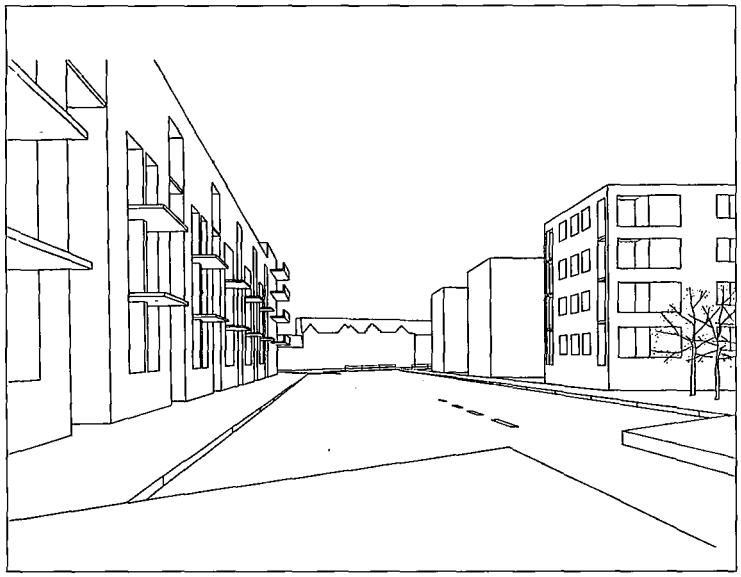


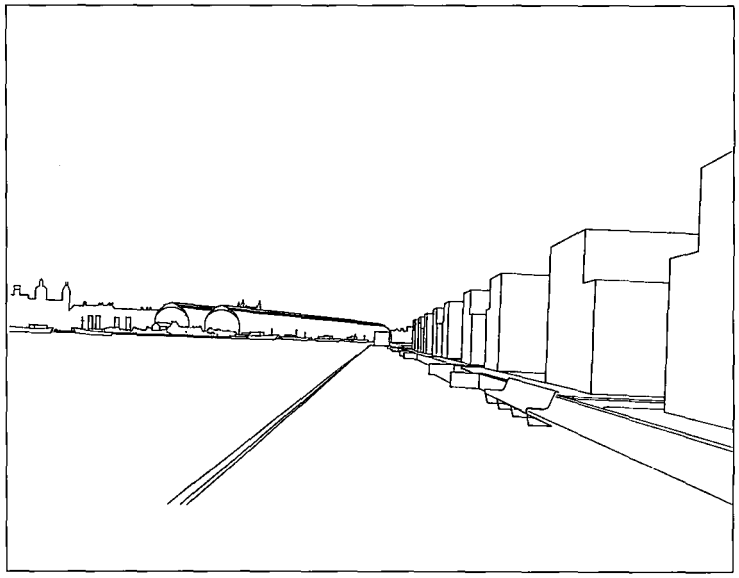
Planned by Rem Koolhaus and the late Jan Voorberg with Herman de Kovel, Kees Christiaanse, Ruurd Roorda, Gerard Comello and Willem-Jan Neutelings, IJ-plein will eventually have 1,375 housing units. It is located on the northern shore of the so-called IJ, the former harbor which divides Amsterdam-North from the center city. Amsterdam-North includes an older residential district (shown in foreground of axonometric above) adjacent to IJ-plein. This community consists of small-scaled turn-of-the-century row housing forming garden courts. It is surprisingly village-like in character—a Dutch version of Ebenezer Howard's garden city ideal. Formerly this community was insulated from the water by a belt of docks and shipyards. The removal of the latter westward toward the sea allowed the belt to become a new housing site. Complicating the master plan were two givens, an underwater tunnel connecting the two halves of Amsterdam, which passes directly through the western end of the site, and a large area of landfill replacing a former dock. It was economically unfeasible to construct housing in either of these locations. The OMA solution was to pinpoint twelve small five-story blocks (perspective opposite) and two linear five-story slabs in a manner that misses the tunnel, while converting the landfilled area into a generous park with playgrounds.



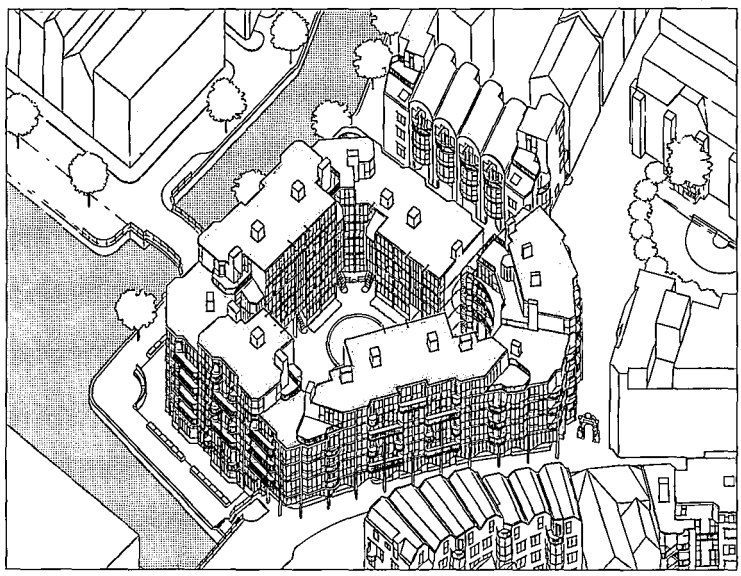
Amsterdam Housing Prize
Honorable Mention:
Nieuwmarkt master plan
and infill housing
Theo Bosch, Architect

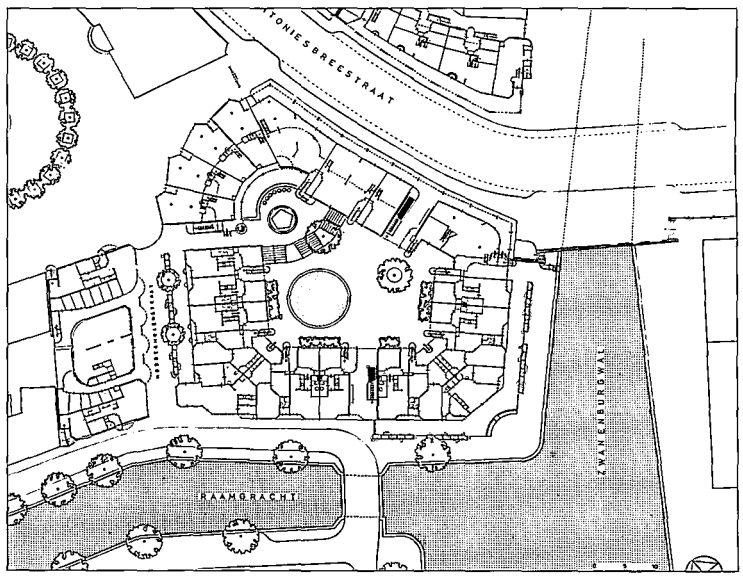
Seventy per cent of all the land within the city limits of Amsterdam is owned by the city, which leases it to non-profit housing societies to construct the various projects. Several of these organizations are involved in the Nieuwmarkt infill. The dwellings will remain the property of the housing societies. Occupants, mostly working class, young people, or elderly, pay rent subsidized in part by the government. The site plan above comprises the entire Nieuwmarkt district. As master planner, Bosch established the mix of housing, social, and commercial facilities in consultation with other infill architects, the existing community, and those who, having lost their homes, had priority to move back.





This park divides the site into two halves, affording a view from the older neighborhood across the IJ towards the center of Amsterdam. To the east of this park are rows of single-family units, with multifamily units at the eastern edge and around a triangular court. The streets are perpendicular to the water. Between the rows of housing are green zones that consist of partly private and partly collective gardens. A promenade for cyclists and pedestrians links both halves of the project and connects to the ferry that crosses to Amsterdam's central station. The waterfront (perspective top right) will be hard-edged suggesting the formal typology of Dutch dams, dikes and polders. It will serve as the principal promenade offering magnificent views. IJ-plein has easy access to shopping in the adjoining older community (the focal point in the perspective top left). Soon it will have a supermarket and a neighborhood center at the east end of the village, as well as a health clinic and other community facilities. These are to be included in a complex under design by OMA, their only actual building commission on the site. (It should be noted that OMA won the Amsterdam Housing Prize for the site planning and massing of IJ-plein, not for the architecture of the housing per se, which was carried out by others.)





Théo Bosch's own infill project (axonometric and plan above) is known as the "Pentagon," as it is five-sided in plan. Because it straddles the subway, it was complex and expensive to construct. The unit plans are ingeniously shaped to follow the street and canal pattern, while functioning efficiently as living spaces. Corners are well turned and entrances and balconies successfully articulated.

Timothy Hursley The Arkansas Office photos

The location plan and sectional configurations, proportions, massing, and colors of the IJ-plein housing were determined by OMA and carried out by other architects. The architect for the five-story blocks in the photos above was Hein van Meer. Group 69 were the architects for the slabs. Rem Koolhaus's first proposal was to combine high- and low-rise. Maintenance costs of elevators, mechanical equipment, and public spaces of high-rise buildings proved too high if social housing rent ceilings were to be maintained, so the tower concept was abandoned. Said Koolhaus: "We studied housing typology. Take the slab. We use slabs because slabs are inevitable in this economy. But what is wrong with the slab and how can we correct it? Most slabs have only one entrance, so there is no activity on the perimeter. The typical slab cannot create a street. We compensated by having a kind of mutant slab with entrances every so many feet [photo far right] interconnecting by stairway four stories of apartments on either side of each stair hall." Penthouse apartments and dwellings in other segments of the slab are reached by a more typical stairway and gallery system. The freestanding five-story blocks also contribute to the collective space, forming in combination with their landscaping, walls that contribute to the definition of the street. OMA has fashioned an exacting site plan for

The Nieuwmarkt housing in the photos above is by Hans Hagebeek and Hans Borkent. Bosch's master plan determined the heights and massing of the infill units and the landscaping of the streets and canal banks. When housing is constructed on the empty lot to the right in the photo above, this street will have the scale and character that Bosch's scheme calls for.

IJ-plein that focuses upon vistas, plantings, street definitions, pedestrian and cycling networks, outdoor recreational facilities, and a repertoire of water-edge conditions. It is all currently being put in place. Rem Koolhaus is proud of IJ-plein. "It is interesting to do something sober, rational and normal. To the extent that this master plan has a virtue, it is that you can be in these streets without sensing an overwheening architectural ambition, or the dream of a social utopia. It is all fairly straight."

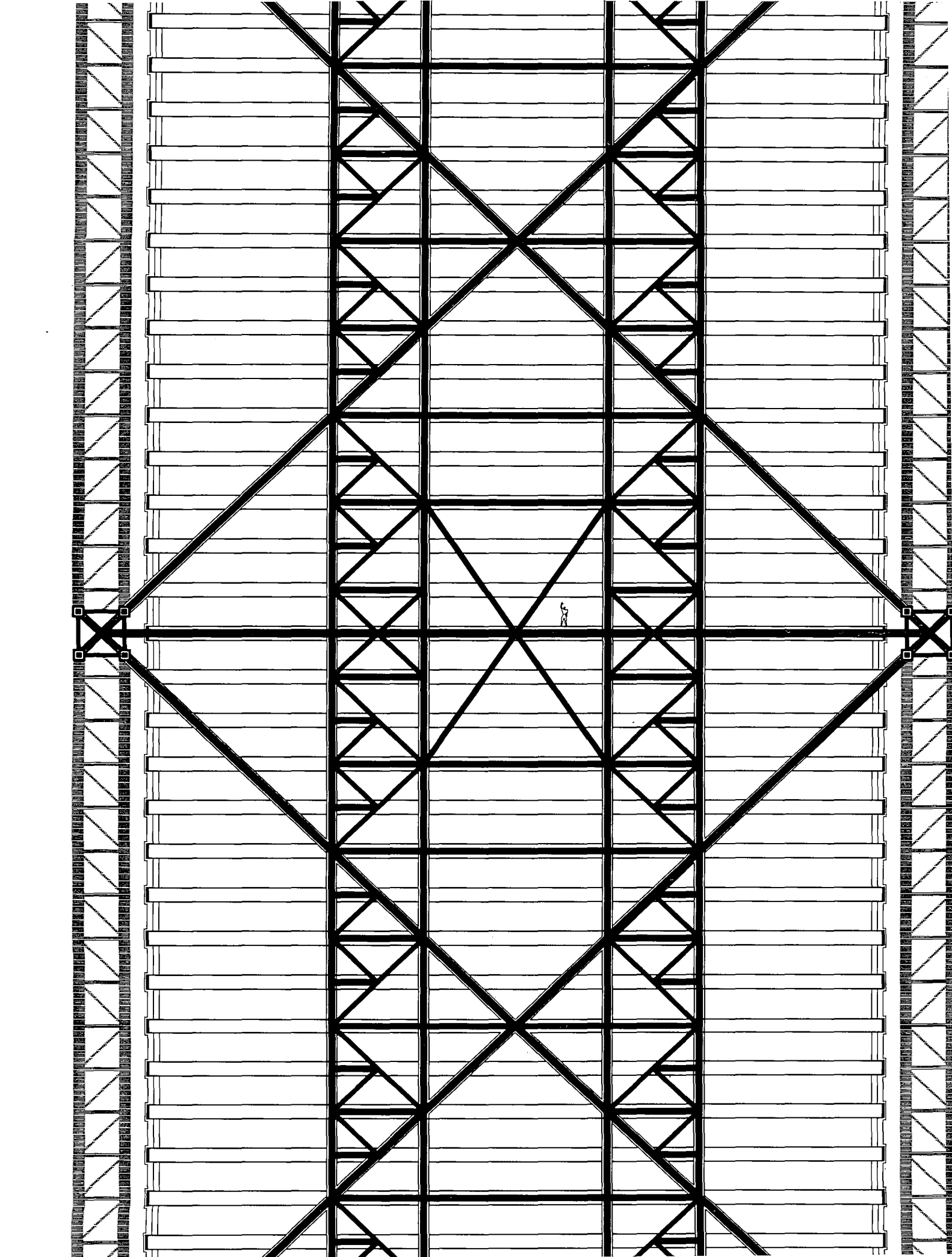
Bosch's Pentagon forms a curved edge to one courtyard and the complete perimeter of another. The courtyard (above left) is completed by the nave wall of a landmark church (not shown), now used as community center. Bosch's housing appears to the right and Hagenbeek's to the left in the photo. The courtyard (above right) is completely surrounded by the Pentagon. The courtyards were originally intended for public recreational use and share six passageways interconnecting with the street and canal network. Unfortunately, heroin addicts find the courtyards to their liking, as well as adjoining building entrances and open stairways, so all such spaces will soon be fenced off by locked gates with access by tenants only.

The single-family row housing (above left) was designed by De Kat and Peck as was the multifamily unit (above right). In this part of the site, all the units are lined up in rows marching toward the water's edge, opening up a series of vistas for the inhabitants of IJ-plein and their neighbors in the adjoining village to the north. The development appears raw, in part because it is far from finished. The landscaping should relieve the starkness. At present, this portion of the master plan appears less than successful, but one needs to remember what a difference a few years of gardening can make.

The infill in the photos above is the work of architects Guido van Overbeck (far left and above), Theo Bosch and Hans Hagebeek (left), and Bosch (right). The care with which the new housing is scaled to the old can be seen by comparing van Overbeek's housing with its 19th-century neighbor opposite. And Bosch's master plan creates or accentuates vistas, particularly of Nieuwmarkt's landmark church.

Public lobbies (above left) are simple, if not austere. Apartment sizes are very generous by low-income housing standards, as the photo of a typical living-dining area (above right) indicates. This appears to be true of most of the social housing being built in Amsterdam today.

Individual rooms in Nieuwmarkt apartments, like the kitchen (left) are comfortably sized. Many infill projects have shops at the ground floor level (above). This shop interior was designed by van Overbeek.



William J. LeMessurier's super-tall structures: A search for the ideal

"I get very excited about the ideal. Underlying my search for the ideal is the pursuit of elegance. Who am I designing for in the end? For my own soul."

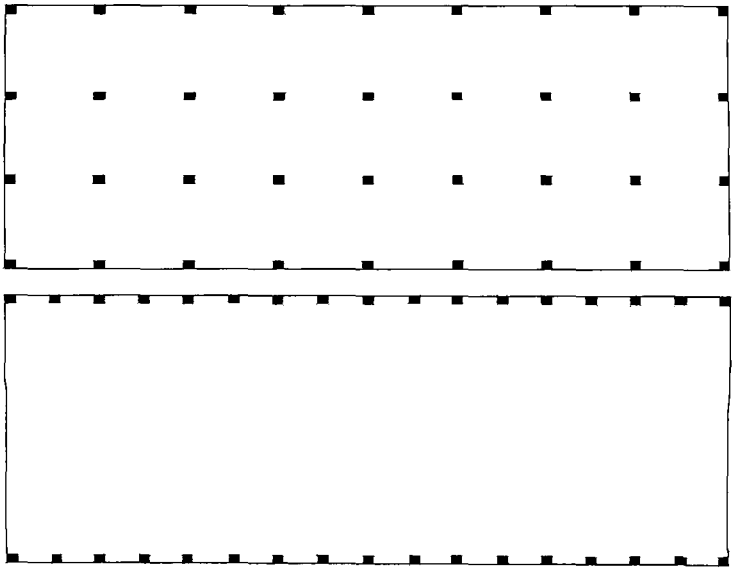
These words by William J. LeMessurier express both his fundamental intellectual interest in engineering, and his creative motivation for design. In the distinguished career he has forged, LeMessurier has been a champion of innovative forms, and an unwavering proponent of a structural esthetic based on simplicity, grace, and economy. In recent years he has focused his attention on the problems posed by very tall, very slender structures. The following article is the first of two that will explore the formation of LeMessurier's paradigm for such structures, and examine that paradigm's application in a series of skyscraper designs.

Super-tall buildings are generally defined in architectural terms as skyscrapers with a silhouette whose proportion in height to width is at least 5:1. To an engineer, a super-tall building is one in which the response to the dynamics of wind is the dominant factor in structural design. Wind-tunnel tests indicate that this will happen when the slenderness of the load-carrying structure reaches a proportion somewhere between 5:1 and 7:1. At that point, the engineering demands posed by lateral loads exceed those of gravity. (Interestingly, it is possible for a 40-story building that appears squat to be a super-tall structure in engineering terms if it has a slender core taking all lateral loads.)

The laterally directed force of wind blowing against a building tends to both push it over (bending), and snap it (shear). In the structure's resistance to failure, a tug-of-war ensues that sets the building in motion, thus creating a third engineering problem—vibration. If the building sways too much, human comfort is sacrificed. LeMessurier contends that the ideal structural form to resist the effects of bending, shear, and vibration is a system possessing vertical continuity in a continuous partition located at the farthest extremity from the horizontal center. He identifies a masonry chimney form as a perfect super-tall structure.

The chimney may be a rational if not inspired engineering model—its form offers height possibilities that are virtually unlimited—but, LeMessurier would be the first to point out that a windowless structure is inadequate as an architectural model. In translating the ideal form of a chimney into a more practical skeletal structure, LeMessurier thinks of a skyscraper in terms of a beam cantilevered from the earth.

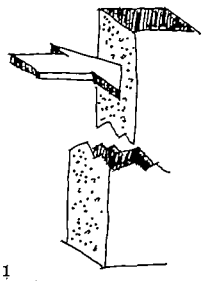
Continued on page 148



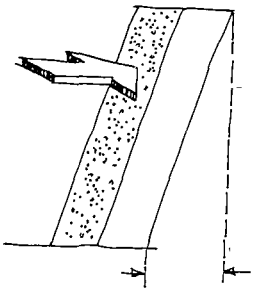
LeMessurier's key idea in conceptualizing a tall, narrow building is to think of it as a beam cantilevering from the earth. Since an efficient beam concentrates material at its flanges, it follows that all gravity columns should be at the edges of the building plan—thus the lower plan (left) would be preferred over the upper plan. Opposite: partial section for a 1/2-mile-tall building.

On shear stresses

Tall buildings must have a system to resist shear as well as bending. 1. The building must not break by shearing off. 2. And the building must not strain too much from shear.



1



2

The effectiveness to resist shearing strain is measured by its Shear Rigidity Index, or SRI. For any system, if Shear is S, Height is H, Deflection is Δs, Volume of Material is V, and Modulus of Elasticity is E, the Shear Rigidity Index is defined as:

$$SRI = 250 \frac{SH^2}{EV\Delta_s}$$

For a pure plate or wall, the SRI is set at 100.

In the drawings at right:
A. The ideal system is a plate or wall without openings. B. The second-best shear system is a web of diagonals at 45-deg angles. (The verticals or columns belong to the bending system and are not counted in the material volume.) For this system, SRI = 5/8 x 100 = 62.5. This system is used in the Erewhon Half-Mile Center to be shown next month.
C. Another bracing system combines diagonals and horizontals. It uses more material but is easier to build. If the slope of the diagonals is $\sqrt{2/1}$

the SRI = 5/16 x 100 = 31.3. This system is used at Citicorp Center and the Bank of the Southwest (page 148).

The most common shear systems are rigidly joined frames. The efficiency of a frame as measured by its SRI depends on the proportions of members' lengths and depths. The key proportion is:

$$P = \frac{H + L}{D}$$

The set of four frames labeled D,E,F,G all have the same value of

$$P = \frac{H + L}{D} = 12$$

They therefore have the same SRI.

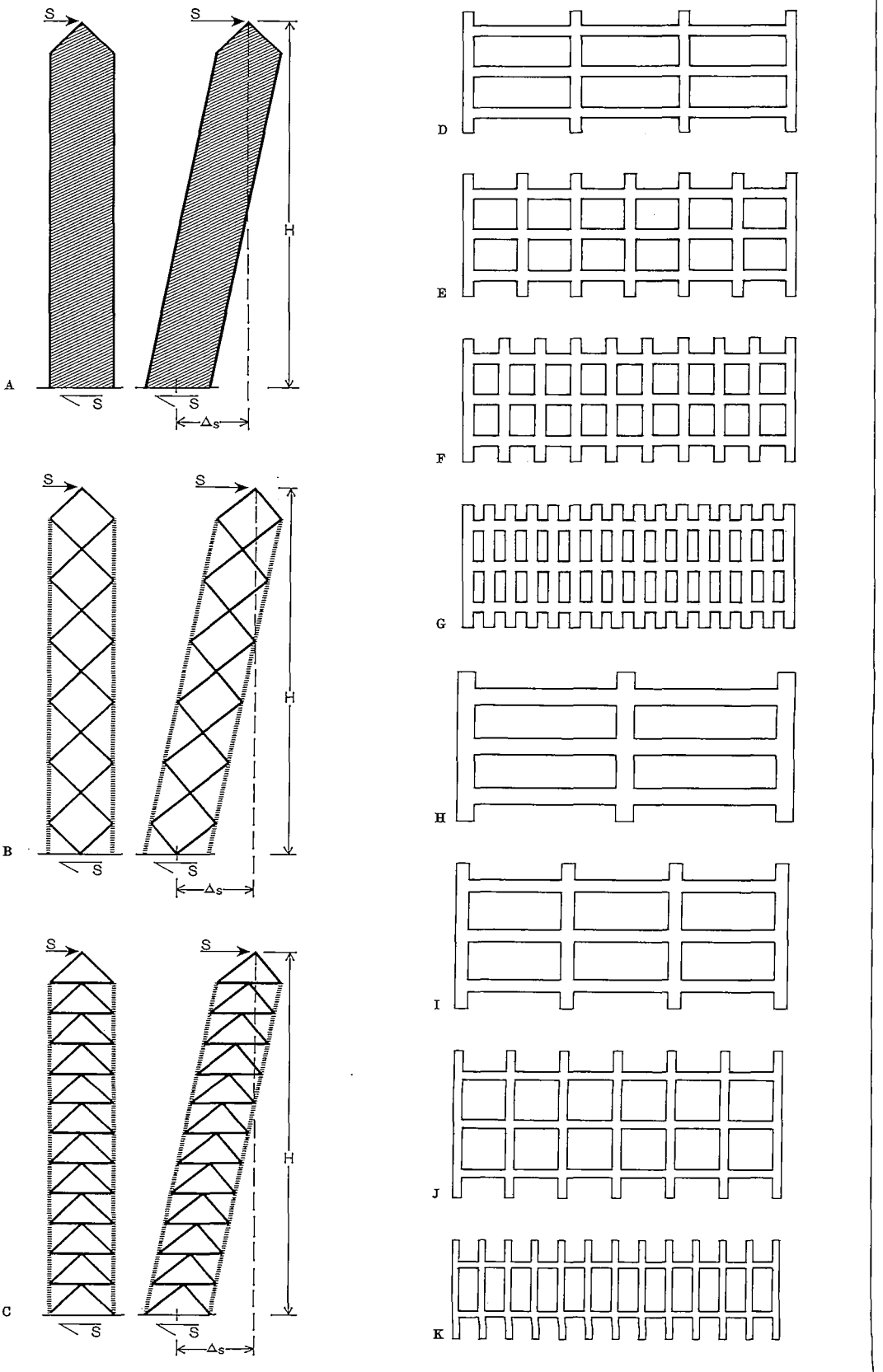
For frames built from steel, wide-flange sections:

$$SRI = \frac{500}{P^2 + P + 4}$$

All four frames have the same SRI:

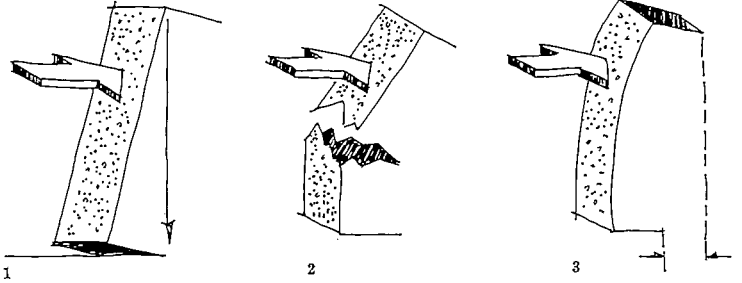
$$SRI = \frac{500}{144 + 12 + 4} = 3.1$$

Frames (H through K) have the same member depth D and varying values of P. With 36-in. steel sections, all four frames have essentially the identical total weight of material, but the fourth frame is more than four times as rigid as the first. A frame like the fourth used in all four exterior walls of a square building has high shear rigidity and also uses two-thirds of its material in columns, which are available to do double duty as a good bending system. The resulting configuration is properly called a "tube" and is the basis for the world's two tallest buildings: the Sears Tower and the World Trade Center.



On bending stresses

Tall buildings must have a system to resist bending which satisfies three needs: 1. The building must not overturn from the combined forces of wind and gravity. 2. The building must not break. 3. The building must not be strained beyond the limit of elastic recovery.



The resistance to strain from bending is powerfully affected by the way columns or walls carrying gravity are arranged in plan (see drawings at right).

A. For a square building, the ideal plan for maximum bending rigidity concentrates gravity loads on four corner columns. This plan has maximum bending strength, rigidity, and overturning resistance and therefore has been assigned the ideal Bending Rigidity Index of 100. The Bending Rigidity Index (BRI) is the total moment of inertia of all the columns of a building plan participating as an integrated bending system. (For the examples given below, it is assumed that the total column cross section is the same for each plan.)

B. The traditional tall building of the past, such as the Empire State Building, used *all* columns as part of the wind-bending system. For columns arranged with regular bays, the BRI is 33.

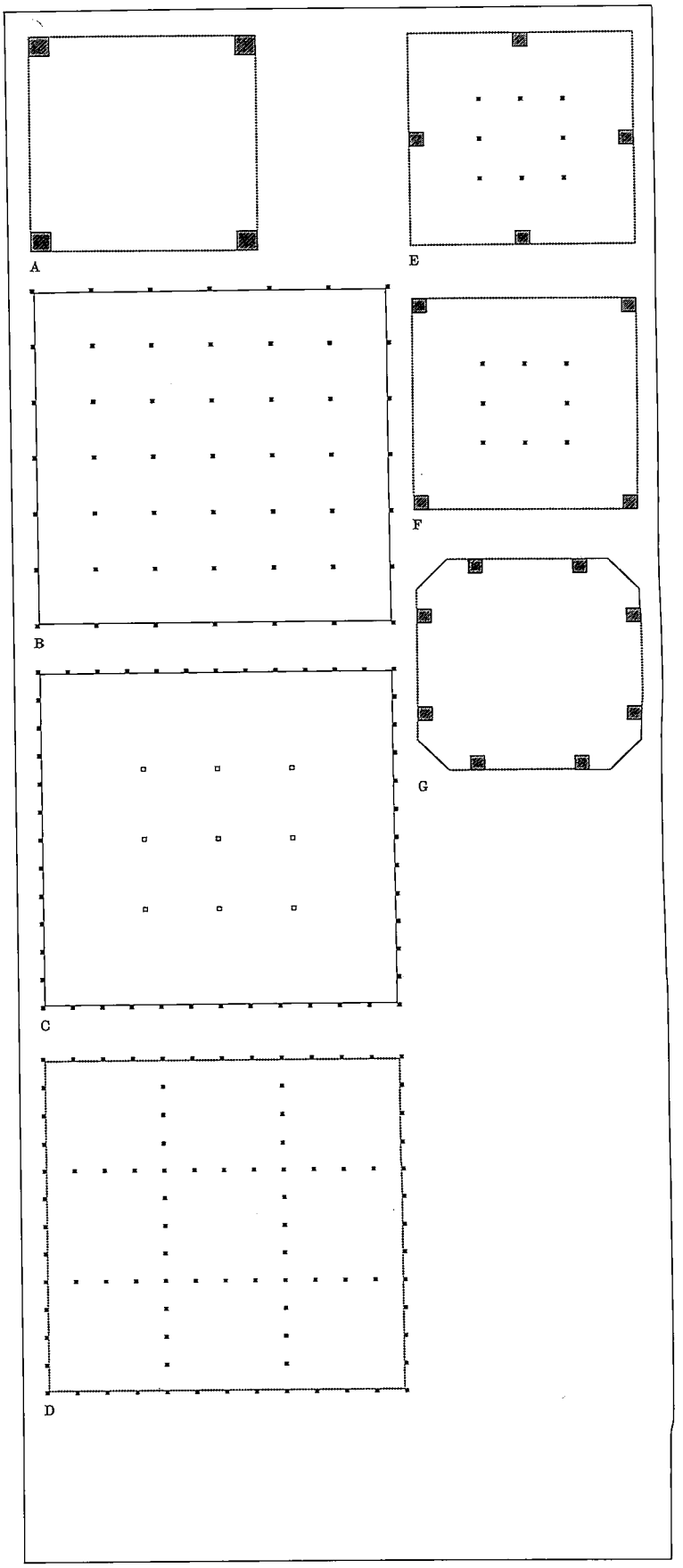
C. A modern tall building of the 1960s and 70s had closely spaced exterior columns and long clear spans to the elevator core—an arrangement called a "tube." If only the perimeter columns are used in the wind-bending system, the Bending Rigidity Index is 33. An example of this plan type is the World Trade Center in New York City.

D. The world's tallest building is the Sears Tower in Chicago. It uses all of its columns as part of the wind-bending system in a configuration called a "bundled tube," but also has a Bending Rigidity Index of 33.

E. The Citicorp Tower uses all of its columns as part of its wind-bending system, but because columns could not be placed in the corners, its Bending Rigidity Index is reduced to 31.

F. If the columns were moved to the corners, the Bending Rigidity Index would be increased to 56. Because there are eight columns in the core supporting loads, the BRI falls short of 100.

G. The plan of the Bank of the Southwest in Houston (see page 148) approaches the realistic ideal for bending rigidity with a BRI of 63. The columns were split and displaced from the corners to allow generous views from office interiors.



Continued from page 145

This concept of building-as-cantilevered-beam has been in development by LeMessurier since he participated in a 1967 research project funded by the United States Steel Corporation. The project, conducted at MIT, investigated economical ways to build tall, thin apartment and hotel buildings and resulted in the "staggered truss" system (RECORD, June 1966). Like a chimney, the "staggered truss" system gathers gravity loads at its edges. But really more akin to an I-beam turned on end, this system uses its trusses, like a beam's web, to resist shear. In his more recent super-tall projects, LeMessurier has continued to concentrate gravity loads at, or near, the building periphery. Design for shear has been accommodated with either diagonal bracing or a frame with rigid joints connecting floors with columns. The two projects shown in this article—the Bank of the Southwest Tower to be built in Houston (see right) and the InterFirst Plaza Tower of the Dallas Main Center (pages 150-151)—differ in their response to shear. The Dallas building uses a rigid frame; the Houston building, a network of diagonals. In studying the sections of these buildings, one is reminded that skyscrapers are very much structural configurations, and, apart from the expression of the facades, are greatly indebted to the engineers' art. (One almost regrets that these pristine armatures by LeMessurier are eventually hidden behind a building envelope.)

Like all ideals, LeMessurier's paradigm for his recent super-tall projects is disarmingly simple: a chimney form is opened by dissolving the wall into columns, and the columns are stabilized by a network of cross braces and/or rigidly joined frames. In applying the ideal to specific commissions, the engineer has steadfastly brought general design criteria to bear that, though not ideals, are certainly guideposts to idealization. For LeMessurier, a design is complete when there isn't anything that you would want or need to change by adding elements or taking them away. The design should depend on no quirks or tricks. The solution should result in a structural diagram that is immaculately clean in concept and as fundamental as the diagrams you would put on a blackboard for an engineering student in his first year. The structure should relate to the plan, playing a direct role in the partitioning of space to maximize utility and the appreciation of the interiors. Structures should be easy to construct. And they should be economical in their use of resources, relying upon the power of geometry rather than a muscle-bound flex of material for their strength.

The challenge of designing super-tall structures requires the engineer to set aside the common wisdom experience has taught for conventional tall buildings and return to basic principles. This is precisely what LeMessurier has done. And his process has led to ideal forms that are opening up an exciting realm of possibilities—possibilities that may reach beyond mere height. For, as much as there's a thrill in pushing at the boundary of space, LeMessurier does not fail to recognize that there is a need to respect the breadth of concerns encompassed by architecture. As he stated in a symposium on super-tall buildings, in response to the challenge of building higher for height's sake (*Engineering News-Record,* November 3, 1983):

"There is more fun than anything else in doing a more elegant solution for an ordinary 75-story building. We have a long way to go to make the skyscraper what it really can be, and it doesn't have to be super-tall to do this. There are ways to open up space, to make it more economical and to face the problems of fire and transportation and pedestrian joy at the bottom. These are much more interesting problems."

As with his creative endeavors in structural form, these concerns too are very much in keeping with LeMessurier's intelligent, honest search for ideals. Who is he designing for in the end? There is no conflict between the user and William J. LeMessurier's own soul.

Darl Rastorfer

Bank of the Southwest, Houston

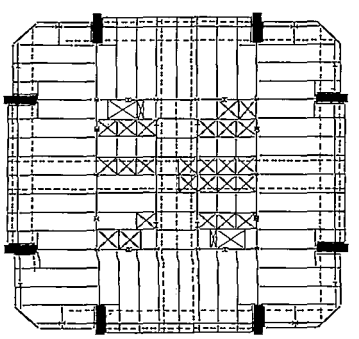
The key requirement for this project was that it be the dominant building in downtown Houston. Because the tower diminishes to 150 feet square at the top, it was necessary to make the structure exceptionally rigid to prevent structurally damaging vibrations in Houston's hurricanes. To achieve great rigidity at an affordable price demanded a very efficient geometry.

In general, the most economical super-tall structures result when all the material required for gravity is also arranged to work effectively to resist wind. The architectural design of the Bank of the Southwest by Helmut Jahn implied from the start that the building be supported by two great columns on each of the four sides.

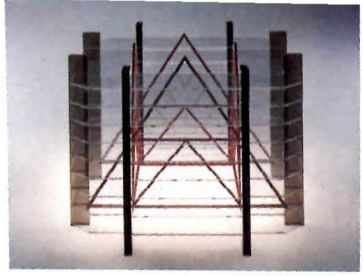
The key to the structural design is the efficient shear system which interconnects columns on opposite sides of the building, carrying gravity loads to the perimeter columns and efficiently resisting wind shear. Steel diagonals pass through office space for four floors but are then enclosed in the service core walls for five floors. The owner's initial concern over "rafters" in the offices disappeared when he realized that this solution would save more than $20 million compared to feasible alternatives.

An additional economy in the design results from the use of concrete columns in combination with steel A-frames and steel floors. The steel assures rapid construction of the frame, with concrete placement following. With 10,000-psi concrete columns, one dollar buys over five times the bending rigidity for the building that steel columns would provide.

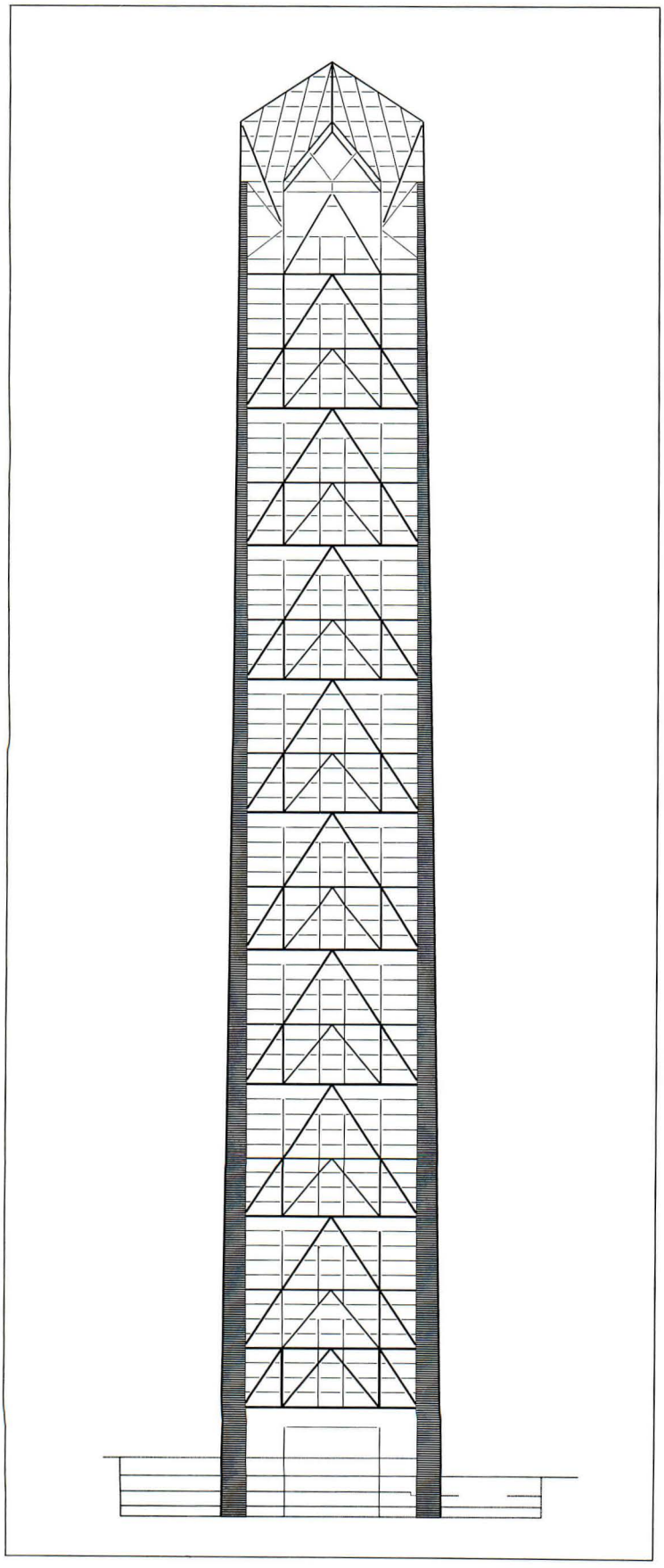
Structural engineer: LeMessurier Associates/SCI, Cambridge, in joint venture partnership with Walter P. Moore & Associates, Houston
Architect: Helmut Jahn, Murphy/Jahn, Chicago, and Lloyd, Jones & Brewer, Houston
Owner: Century Development, Houston
Stories: 78
Height: 1220 ft above grade

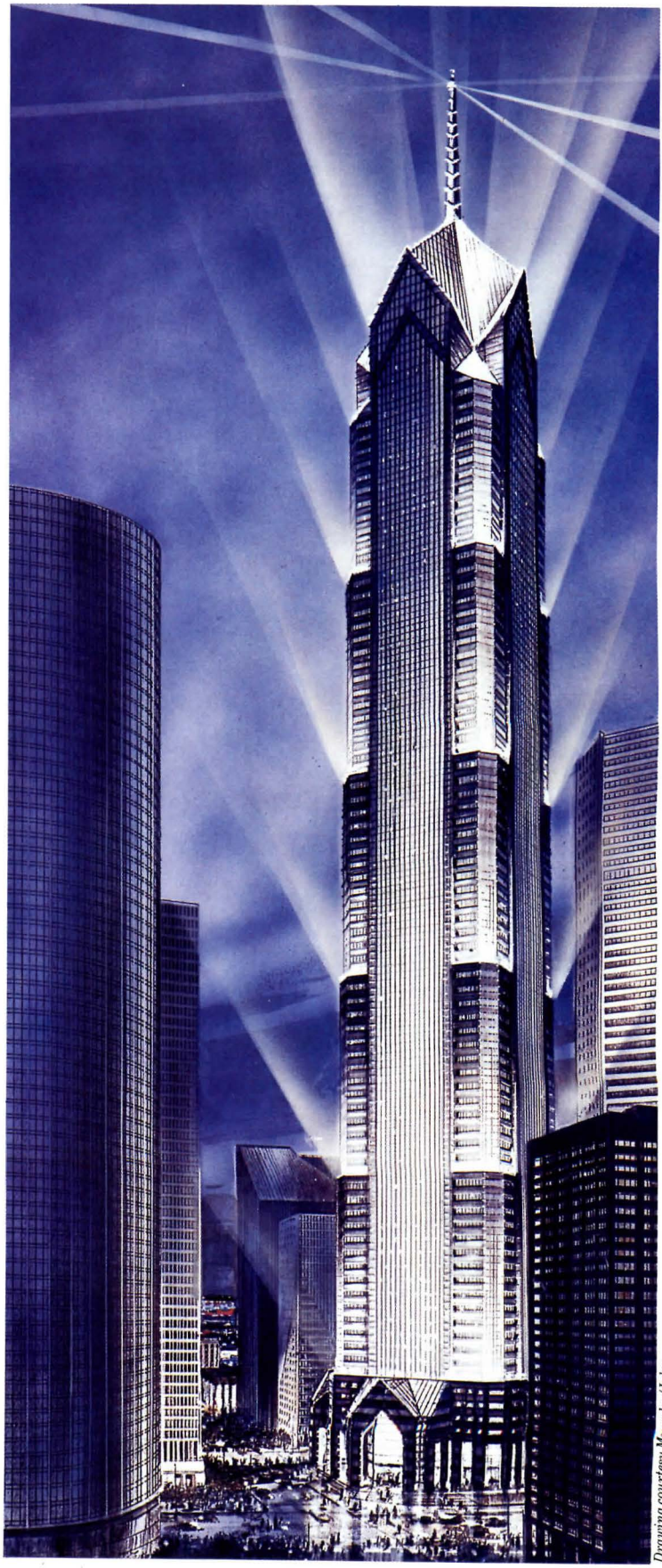


The structural section of the Bank of the Southwest is a clear diagram of forces (below left). The reinforced concrete corner columns gather all gravity loads. As forces steadily increase toward the ground, the profiles of the columns respond by widening. The chevron configuration of steel wind bracing is organized in nine-story modules. The bracing crosses in plan to define the building's core (see typical floor plan, opposite page). The gravity load of each floor is collected by the bracing and eventually conveyed to the columns at the base of each module. The model at right shows the primary structure of each nine-story module. Below right: Rendered elevation of proposed tower projected within the existing context of downtown Houston.



Gorchev & Gorchev





Drawing courtesy Murphy/Jahn

InterFirst Plaza of the Dallas Main Center, Dallas

In the InterFirst Plaza of the Dallas Main Center, gravity and bending stresses are taken by 16 columns circling the building interior at 20 ft from the glass curtain wall (see typical floor plan at lower left). Shear is engineered with a two-way rigid frame acting as Vierendeel trusses (see the building's structual section, below right; and model, opposite page, top). The 42-in.-deep steel sections needed for these members were not available from U. S. steel makers. They were therefore rolled in Luxembourg. The corner setbacks illustrated by the elevation (below left) contribute to the "sparkle" of the tower when sheathed with a reflective glass curtain wall. Opposite page: topping out ceremony, 3 July, 1984.

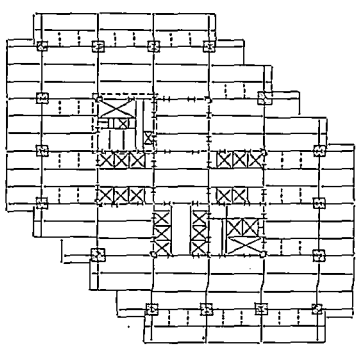
The Dallas Main Center has a plan which maximizes the number of corner offices. The owner and the architect, Jarvis Putty Jarvis, both desired a structure which would not spoil the perimeter with the closely spaced columns typical of most very tall buildings. The solution was a six-sided, 16-cornered outline with column centers located 20 feet inside the glass line. The dimension between the columns and perimeter glass allows a continuous band of offices with uninterrupted views. To compensate for the loss of bending rigidity, no other interior columns were used.

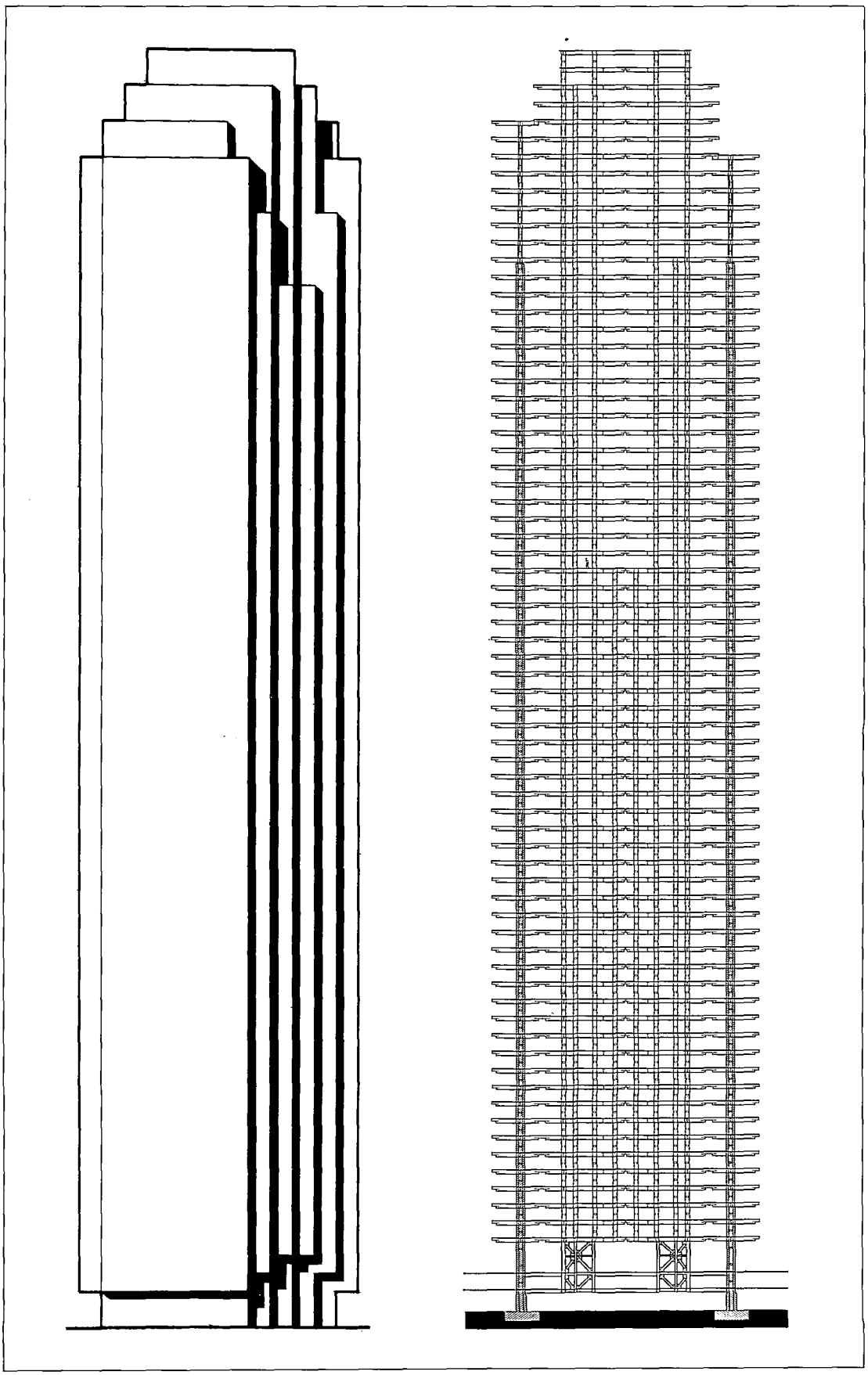
To connect the columns across the building, two-way rigid frames acting as Vierendeel trusses were used as the wind-shear system. These frames double as the gravity system to span between the columns. *No loads are transferred to the ground by the core.* To guarantee that gravity loads are carried by the outer columns, the core of the building is made to hang from the interior steel frame rather than to rest on a foundation. As a result, the core transfers its wind shear to the exterior columns through the grade and concourse-level floors.

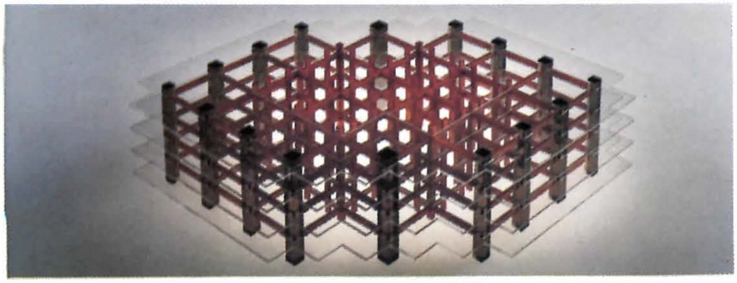
Having concentrated all gravity forces on the 16 columns, more than $10 million was saved by building the columns with high-strength concrete. Light steel cores inside the concrete allowed the steel erection to advance nine stories ahead of the concrete placement.

When the building was topped, it gained the distinction of being Dallas's tallest tower and one of its most slender. The ratio of height to structural width of the InterFirst tower is 7:1. By comparison, the structure of the World Trade Center towers has a slenderness ratio of 6:1.

Structural engineer: LeMessurier Associates/SCI, Cambridge, in joint venture with Brockette Davis Drake, Dallas
Architect: Jarvis Putty Jarvis, Dallas
Owner: Bramalea Texas, Dallas
Stories: 73
Height: 920 ft above grade







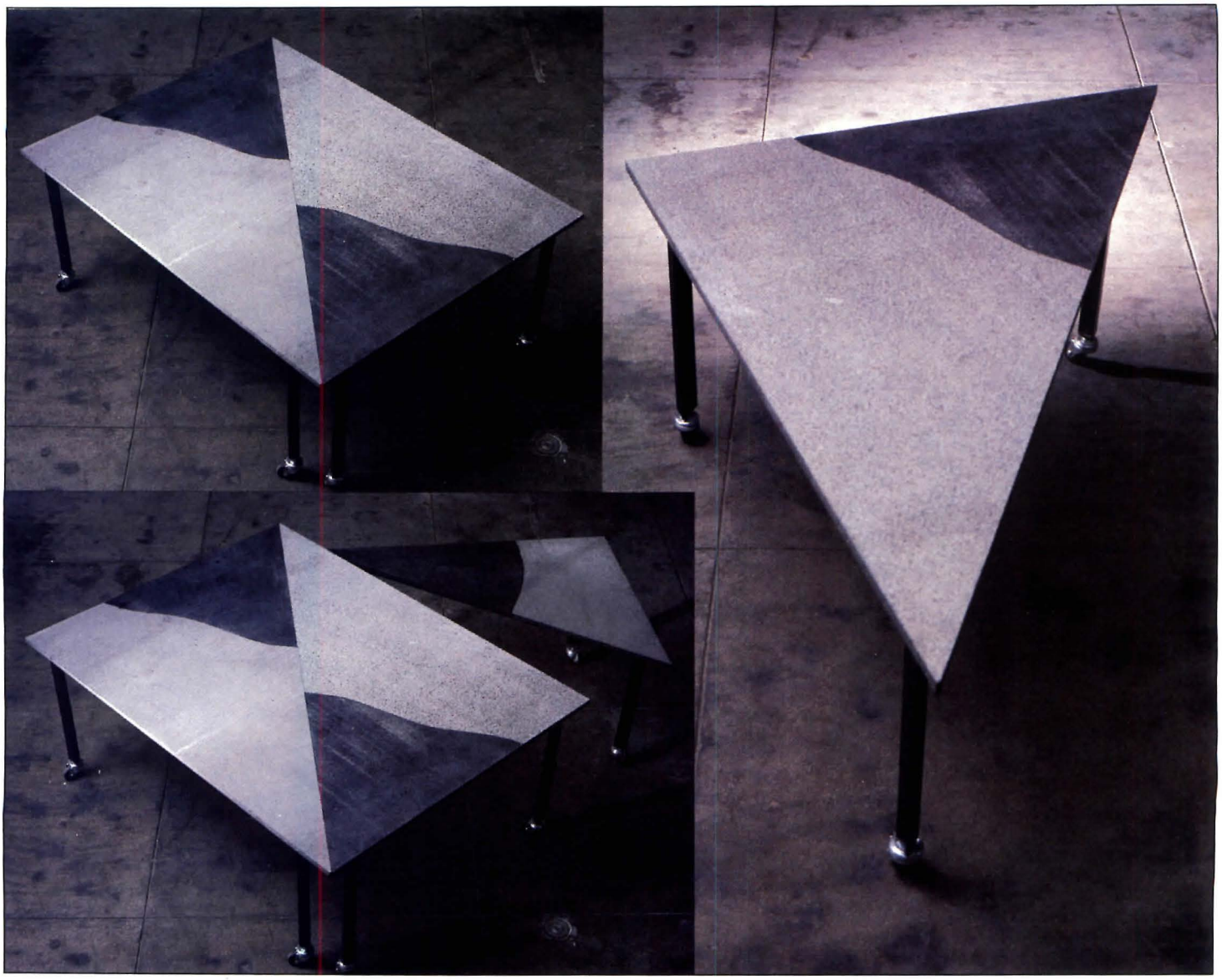
Gorchev & Gorchev

Ray Ivey

New products

For more information, circle item numbers on Reader Service Card, pages 215-216

Antoine Bootz



Snips and snails and . . .
Loosely woven wool sweaters and long skirts with rolling hemlines are only part of Japanese designer's Rei Kawakubo's oeuvre. During the past several years she has been expanding her horizons. In addition to designing the interiors of her boutiques herself—an international assortment that numbers over 40, including a one-year-old 7,000-square-foot space in New York City's SoHo and a brand new shop in San Francisco—Kawakubo has added several pieces of furniture to her company's line.

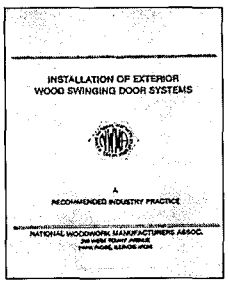
Although her company, *Comme des Garçons*, gained notoriety in 1983 when the fashion vanguard turned toward the Orient for the newest wave of design inspiration, Kawakubo's methods represent anything but a passing fancy. Rather, the design philosophy that motivates all of her work approaches a manifesto—one that opposes conventional fashion or design strategies. As a part of this philosophy, Kawakubo forbids advertising of her company's line. Such promotion, in her view, only reinforces furious but short-lived "in" then "out" cycles. Kawakubo aspires to timelessness, and she rejects the fashion consumer's hankering for the latest, greatest, sexiest thing around. Instead she strives to portray permanence, stability, and self-confidence in both her clothing and her furniture collections—concerns that, for the time being, are receiving widespread acceptance.

The furniture collection, initially for in-house use only in the offices of Kawakubo's Tokyo-based operations, is now available in the United States through Furniture of the Twentieth Century. The shapes of the pieces are at the same time primitive and futuristic and, like the clothing she designs, combine materials that originate primarily in the quarry (or on the loom) and not in a chemical lab. The triangular tops of the tables (photos above), made from slabs of polished and semi-polished granite joined by a jagged edge, rest on steel legs with castors. Resurrecting the old claim that "less is more," the table's stone is excised, not embellished, in the same manner that her clothing's fabrics are dissected and not decorated. Two tables of the same height may be rolled together to form a rectangle or the 26-in.-high table can be pushed underneath the 29-in.-high model.

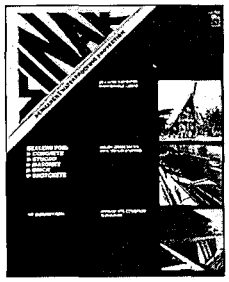
The collection also includes a box-shaped tempered steel chair with a mesh seat (photo right). While the granite and steel are a departure from bamboo, wood, and other indigenous materials, they are manipulated with a familiar Japanese rigor. Some concessions, however, must be made for Westerners: seat cushions for the steel chair are available for those with more delicate bottoms. After all, *Comme des Garçons* does not work with sugar and spice . . . *K. D. S.*
Furniture of the Twentieth Century, New York City.
Circle 300 on reader service card

Product literature

For more information, circle item numbers on Reader Service Card, pages 215-216



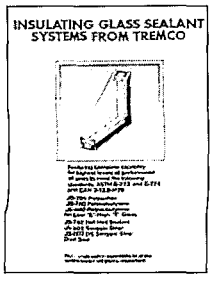
Swinging-door installation
An 8-page brochure reviews the installation of exterior wood swinging door systems. Installation procedures that improve the thermal effectiveness and reduce air and water infiltration are discussed. A glossary of related terms is included. National Woodwork Manufacturing Association, Park Ridge, Ill.
Circle 400 on reader service card



Concrete and masonry sealers
The manufacturer's concrete and masonry sealers, designed to prevent de-icing salt penetration and moisture damage, are featured in a 4-page brochure. A selection chart describes each product's characteristics, uses, coverage, and installation methods. Sinak Corp., San Diego.
Circle 401 on reader service card

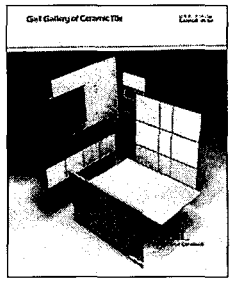
Fireproofing and insulation
The manufacturer's line of semi-rigid products for fireproofing, insulation, and acoustical control is featured in an 8-page color brochure. The performance characteristics of *Blaze-Shield, Heat-Shield,* and *Sound-Shield,* all said to be asbestos-free, are reviewed. United States Mineral Products Co., Stanhope, N. J.
Circle 402 on reader service card

Office furniture
A 48-page color brochure reviews the manufacturer's *Round Office* furniture line. The literature includes photos of the Swedish-designed workstation components that can accommodate electronic equipment. Screen and upholstery fabrics and tabletop finishes are shown. Round Office Inc., San Francisco.
Circle 403 on reader service card

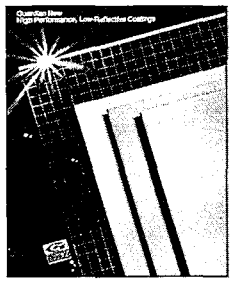


Sealant systems
The performance of the manufacturer's insulating glass sealant systems is reviewed in a 6-page brochure. Moisture transmission, fogging, and adhesion characteristics of the single- or dual-seal systems are discussed in the literature. Sealants for perimeter caulking are described. Tremco, Cleveland.
Circle 404 on reader service card

Lecterns
A 24-page brochure reviews a line of lecterns. Models with high-power amplifiers, speaker systems, and microphones are shown in color photographs. The dimensions, reading surface heights, and finishes of each model are listed in the literature. Oravisual Co., Inc., Div. of Heritage Communications Co., St. Petersburg, Fla.
Circle 405 on reader service card

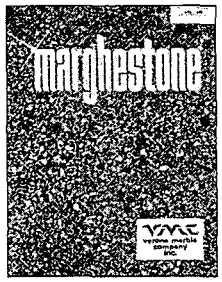


Ceramic tile
A 16-page color brochure reviews the manufacturer's line of ceramic tile intended for interior and exterior, commercial or residential applications. Tile and trim colors for several product lines are shown in the literature. Gail Architectural Ceramics, Tustin, Calif.
Circle 406 on reader service card

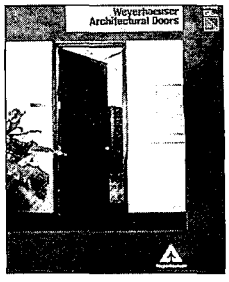


Glass coatings
Three new reflective glass coatings, each available with light transmissions of 8, 14, or 20 per cent, are reviewed in a 4-page color brochure. The thermal and solar performance of the coatings are discussed. The proprietary vacuum-sputtering production process is described. Guardian Industries Corp., Carleton, Mich.
Circle 407 on reader service card

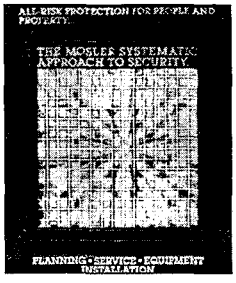
Skylight system
A cross-arched skylight system that uses *Vestar* fabrics is featured in a 4-page color brochure. Single- and multiple-module plans and sections are shown, along with steel- and concrete-edge curb details. The translucency and energy efficiency of the system are discussed. ODC Inc., Div. of Dow Corning Corp., Norcross, Ga.
Circle 408 on reader service card



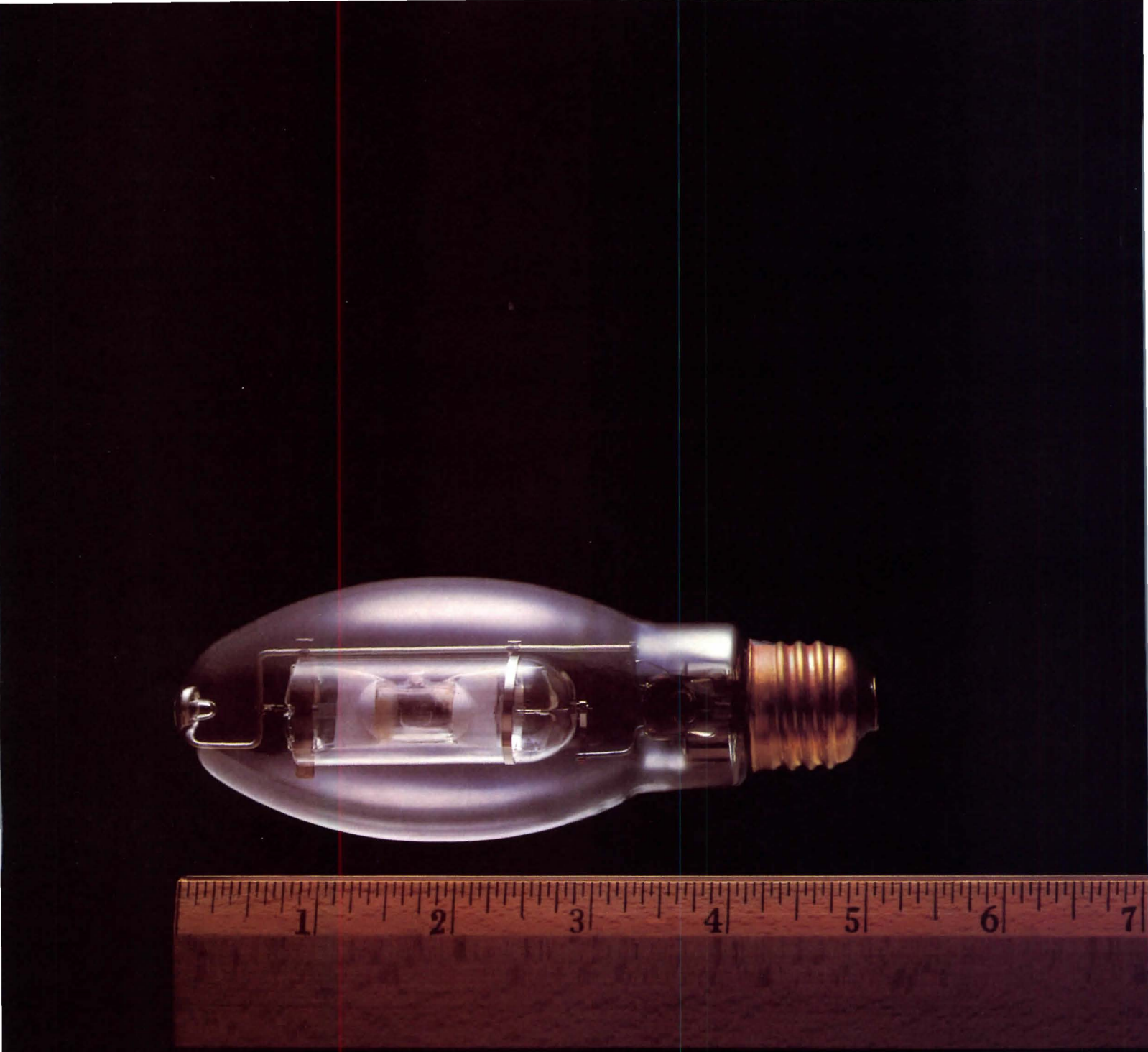
Precast tile and slabs
Marghestone, an Italian-made precast material composed of marble chips bonded together with resins to form tiles and slabs for floors and walls, is featured in a 6-page color brochure. Installation, using adhesives or cement with sand bedding, is reviewed. Photos show available colors. Verona Marble Co., Inc., Dallas.
Circle 409 on reader service card



Doors
A 20-page guide reviews the manufacturer's line of wood and plastic-clad doors. Solid or hollow-core doors, fire doors, sound-retardant doors, and moldings and louvers are shown in the literature. Standard product specifications are included. Weyerhaeuser Co., Tacoma, Wash.
Circle 410 on reader service card



Security systems
A 12-page color brochure reviews the manufacturer's security systems for personal and property protection. System components, including access control units, closed-circuit televisions, desktop printers, alarm systems, and police monitors, are described in the literature. Mosler, Hamilton, Ohio.
Circle 411 on reader service card
More literature on page 163



We've added a whole new dimension to our Metalarc line.

Introducing the 100 Watt Metalarc® lamp.

It's everything designers have been looking for in a metal halide lamp.

It's small. So it performs like a true point source for more accurate and more controlled lighting. What's more, it fits comfortably in low ceilings.

It's warm. With a correlated color temperature of 3200K, it has all the superb color rendering attributes of our Metalarc line.

It's compact. The 100-watt Metalarc lamp fits neatly into most new low profile luminaires.

It's incredibly efficient. At up to 85 lumens per watt, the 100-watt Metalarc lamp makes the perfect addition to our energy-saving ESP family of Sylvania light sources.

In short, it's a lighting designer's dream come true.

And why not. There's no other metal halide lamp like it. For more information, contact your IED Independent Electrical Distributor or write or call GTE Products Corp., Sylvania Lighting Center, Danvers, MA 01923 (617) 777-1900 ext. 2650.

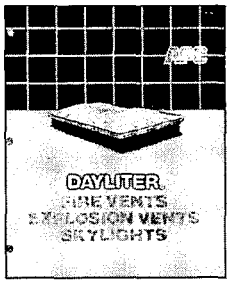
SYLVANIA esp ENERGY SAVING PRODUCTS

SYLVANIA GTE

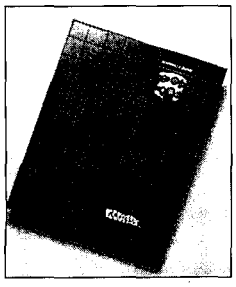
Product literature *continued*

For more information, circle item numbers on Reader Service Card, pages 215-216

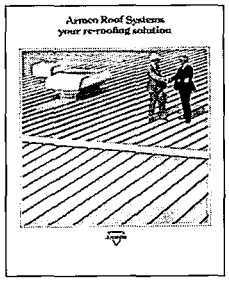
Emergency lighting
A 12-page brochure reviews a line of emergency and exit lighting fixtures. Features of each model, including solid-state electronic design, 1 1/2 hours of illumination for emergency flood heads, and vinyl-coated steel housings are described in the literature. Elan Emergency Lighting, Div. of Altus Corp., San Jose, Calif.
Circle 412 on reader service card



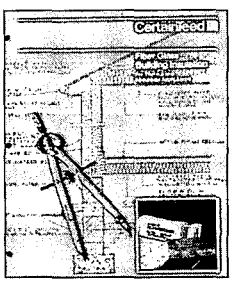
Industrial skylights
A 12-page catalog reviews the manufacturer's line of automatic fire vents, explosion-relief vents, and industrial skylights. The *Dayliter* series of vents, designed to shrink out during a fire and provide ventilation, are featured in the literature. The illumination benefits of the vents are discussed. APC Corp., Hawthorne, N. J.
Circle 413 on reader service card



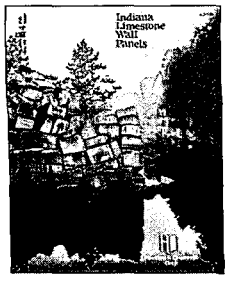
Play centers
Playscapes play centers, designed for installation in waiting areas of clinics and hospitals or in day care centers, are shown in a 6-page brochure. The laminate exterior and carpeted interior walls are described. Diagrams and floor plans of the different configurations are included in the literature. Children's Environments, Madison, Wis.
Circle 414 on reader service card



Re-roofing
An 8-page color brochure describes the installation of the manufacturer's roofing system over an existing structural system. The weathertightness of the system's flat *Steelox* roof panels is discussed. Insulation values achieved by using fiberglass batts or rigid insulation over an existing roof are reviewed. Armco Building Systems, Boston.
Circle 415 on reader service card

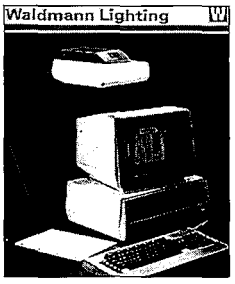


Fiberglass insulation
Fiberglass batts and rolls, *Insul-Safe II* blown-in insulation, and additional insulation products for residential and light-commercial use, are reviewed in a 12-page color brochure. Charts indicating product availability by size, R-value, and sound and fire ratings are included. CertainTeed Corp., Valley Forge, Pa.
Circle 416 on reader service card

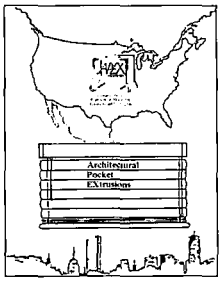


Limestone panels
A 16-page color brochure reviews five types of modular or custom-fabricated limestone panels that are available in a selection of six textures. Typical wall and spandrel details and installation photographs are included in the literature. Cutting, setting, and fitting information is given. Harding & Cogswell, Corp., Bedford, Ind.
Circle 417 on reader service card

Light panel
A 4-page color brochure features the *Astra Lite* single-unit light panel. The light spread provided by the panel—ranging from a broad wash to a down-directed spotlight—is described in the literature. The six available finishes, including three that are reflective, are shown. Chicago Metallic Corp., Chicago.
Circle 418 on reader service card

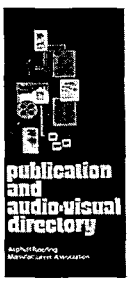


Office lighting
Light fixtures designed specifically for the illumination of CAD and CRT workstations and for drafting and design areas are shown in a 4-page color brochure. The parabolic louver of the adjustable *Walcolux 801* model, for computer areas, and the fluorescent tube of the tabletop *TL 109/215* are described. Waldmann Lighting Co., Wheeling, Ill.
Circle 419 on reader service card

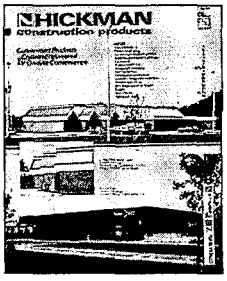


Pocket extrusions
A line of self-contained pocket extrusion systems designed to support and conceal drapery tracks, vertical blind tracks, and mini-blind headrails is reviewed in an 8-page brochure. Diagrams show the construction and installation of the extrusions. Dimensions of each product are given. Apex Systems, Framingham, Mass.
Circle 420 on reader service card

Transportation system
The *Tramex* overhead system, which transports loads through a production cycle in individually programmable carriers, is reviewed in a 12-page color brochure. Features of the system, including its modular construction and operation speed of 300 ft per minute between stations, are discussed. Litton UHS, Florence, Ky.
Circle 421 on reader service card

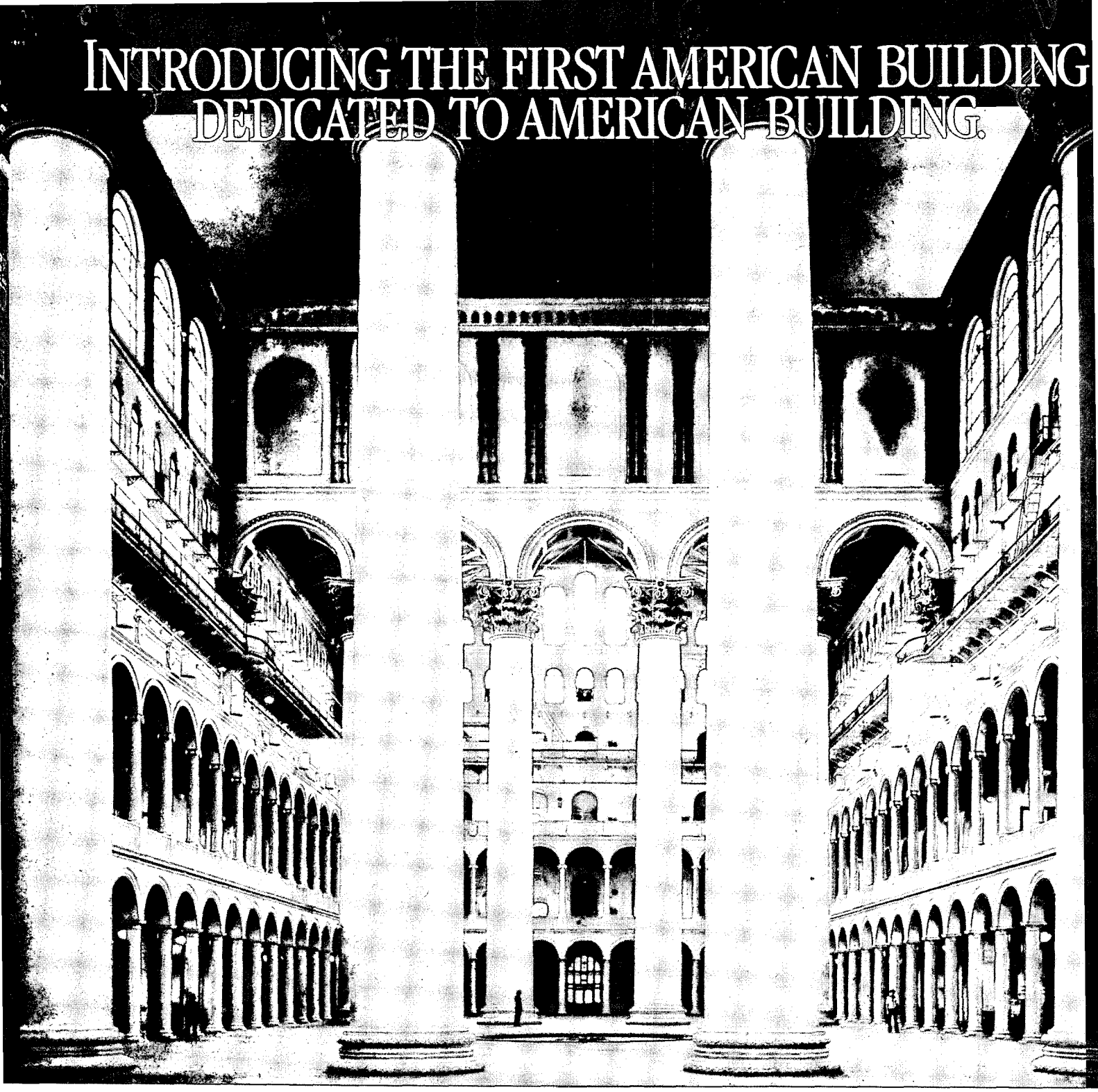


Roofing
A 12-page directory reviews available publications and audio-visuals on steep and built-up roofing. Included in the literature are summaries of manuals on such subjects as residential asphalt roofing, application of asphalt strip shingles, and steel-deck deflection. Asphalt Roofing Manufacturers Association, Rockville, Md.
Circle 422 on reader service card



Roof edge products
A 16-page color brochure reviews the manufacturer's line of roofing products, including molded roof drains, framing systems, downspouts and gutters, fascia panels, and reglets. Diagrams of each product are accompanied by listings of specifications and dimensions. W. P. Hickman Co., Asheville, N. C.
Circle 423 on reader service card

INTRODUCING THE FIRST AMERICAN BUILDING DEDICATED TO AMERICAN BUILDING.



The National Building Museum. A home for all members of the building community. A place to exchange ideas, information, and opinions. A rallying point to celebrate and promote building. A center to enhance public understanding and appreciation of the building arts and sciences.

The National Building Museum's program of exhibitions, films, and publications covers all aspects of the built environment. Its information center supplies the building industry with current and historical technological data. Its documentation center collects both written and visual materials to aid writers, teachers, and researchers.

The home of NBM is the century-old Pension Building in Washington, D.C., an architectural and engineering marvel whose Great Hall is pictured above.

A nonprofit institution, NBM needs your support in order to support you. Join us.

Become a charter member of the National Building Museum

Members are sent BLUEPRINTS, the museum's publication, and receive discounts on special activities. NBM is a nonprofit corporation. Your membership is tax-deductible.

Name_____

Address_____

City_____ State_____ Zip_____

Regular $15	Sponsor $50	Patron $500
Contributor $25	Benefactor $100	Student $5
		Overseas $22

Make checks payable to:
National Building Museum and send to:

Membership/National Building Museum
Pension Building
Judiciary Square, N.W., Washington, DC 20001

NATIONA
BUILDIN
MUSEUM

Software update

Our October 1984 issue contained a Guide to Computer Software for Architects and Engineers that we promised to update from time to time as we located new sources of architect-specific software. Herewith the first update.

301 INTEGRATED FINANCIAL MANAGEMENT/GENERAL ACCOUNTING SYSTEM
Micro Mode, Inc., 4006 Mt. Laurel, San Antonio, Texas 78240—William Henderson, 512-341-2205 • For use with IBM PC-XT/AT, AT&T 6300, DEC Rainbow and compatible hardware running CP/M or MS-DOS; requires 64k RAM and 10mb disk storage • Price: $6,250; Updates: published semi-annually at $150 each • Training: on-site (travel plus $50/hour).

Integrated Financial Management/General Accounting System is a series of integrated programs designed to meet the needs of A/E firms for control and audit of costs and revenues. Emulates features of the AIA standardized accounting system and ACEC Guidelines to Practice. Entry of time sheets and expense data updates all project files and all related files such as payroll, accounts payable, accounts receivable and general ledger. This software package is currently used by more than 300 A/E firms throughout the U.S. and Canada.

302 STEEL-3D
Auto-trol Technology, 12500 N. Washington St., P.O. Box 33815, Denver, Colo. 80233—Tom Gortz, 303-452-4919 • For use with Auto-trol Advanced Graphics Workstation System, which is based on 32-bit Apollo monochromatic or color computers • Price: $20,000 each for first two workstations; $3,500 thereafter; Updates: included with service/maintenance agreement • Training: on-site, in-house, manual and seminars.

Steel-3D enables designers to model basic structural concepts on a screen, develop these concepts into steel-framing schemes and then analyze and refine them with respect to safety, function, feasibility, and esthetics using information from the program's database. Among design analyses performed are forces, deflections and code-check reports. Outputs include pen plots of the geometry, deflected shapes and shear and moment diagrams. *Steel-3D* interfaces with *A-Frame* (see listing below) to produce finished steel-framing drawings.

303 A-FRAME
Auto-trol Technology, 12500 N. Washington St., P.O. Box 33815, Denver, Colo. 80233—Tom Gortz, 303-452-4919 • For use with Auto-trol Advanced Graphics Workstation System, which is based on 32-bit Apollo monochromatic or color computers • Price: $3,000 each for first two workstations; $1,000 thereafter; Updates: included with service/maintenance agreement • Training: on-site, in-house, manual and seminars.

A-Frame drafting software generates framing-plan drawings, elevations and column schedules for structural steel buildings either from information in the database of *Steel-3D,* a graphics design and modeling system (see listing below), or by defining the member end-points and selecting the member designations from a menu. A full catalog of rolled shapes from the AISC Manual of Steel Construction is included.

304 DOCUDRAFT
DocuGraphix, Inc., 1340 Saratoga/Sunnyvale Rd., San Jose, Calif. 95129—Donald E. Block, 408-446-9700 • Turnkey system is based on Motorola 68010 workstation and includes 17-in. high-resolution monochromatic display, single-button mouse, detachable keyboard, expandable 15mb Winchester hard disk drive, 2mb RAM and dot-matrix printer. Multiple-pen plotters or laser printer are optional. • Price: $35,900 for base system; Updates: included with service/maintenance contract • Training: on-site, in-house, seminars, on-screen-help and manual.

Docudraft enables users to generate, store, access, and amend two-dimensional drawings and all text associated with these drawings and accompanying specifications, project manuals, or other documents. The software supports symbols and parts libraries and has a relational database and multiple windowing with zoom, pan and scroll, which permits simultaneous access to, and development of, several parts of a project's construction documents. *Docudraft* operates with or without user prompts and help screens.

305 VERSACAD
T&W Systems, Inc., 7372 Prince Dr., Suite 106, Huntington Beach, Calif. 92647—Bob Murphy, 714-847-9960 • For use with IBM PC, PC-XT or compatible computers; version also available for 200-series Hewlett-Packard computers with a hard disk; IBM version requires two floppy disk drives or one drive and a hard disk; uses HiPad, Summagraphics, Kurta or Versa Cad digitizer and Houston Instruments or Hewlett-Packard plotter; Hewlett-Packard versions support HP digitizer and plotter • Price: $1,995 for IBM version; $4,995 for HP version; Updates: billable • Training: seminar, in-house, on-site, manual and videotapes.

Versacad is a two-dimensional design and drafting system that permits users to assemble drawings

Continued on page 166

Continued from page 165

using nine primitives contained in memory: lines, arcs, circles, rectangles, ellipses, regular polygons, Bezier curves, fillets, and text. These primitives may be created, scaled, and located along user-selectable coordinates in several different ways. Other features are automatic dimensioning, symbols libraries, windows and snap modes. A bill-of-materials feature is optional.

306 CADAPPLE
T&W Systems, Inc., 7372 Prince Dr., Suite 106, Huntington Beach, Calif. 92647—Bob Murphy, 714-847-9960 • For use with Apple II+, Apple IIe or Franklin ACE 1000 or 1200 with two floppy disk drives or one drive and a hard disk; supports HiPad digitizer and Houston Instruments or Hewlett-Packard plotters; requires 64k RAM • Price: $1,795; Updates: billable • Training: seminars, in-house, on-site, manual and video tapes.

Cadapple is a two-dimensional drafting system featuring single key-stroke commands, user-generated symbols, 250 layers, grids, and the capability to handle a 4,000-object drawing. Options include network-capability and high-resolution color with the addition of a graphics board and Princeton SR-12 color monitor.

307 PRIME MEDUSA AEC - ARCHITECTURAL DESIGN
Prime Computer Inc., Prime Park, Natick, Mass. 01760—Mark Pipas, 617-879-2960 • For use with PW 200 stand-alone workstation, all Prime 50-series 32-bit virtual-memory CPUs with PW 150 or Tektronix 4109 or 4115B terminals • Price: $6,000 - $12,000 for software; turnkey packages available to suit a variety of budgets; Updates: free • Training: in-house and manual.

Prime Medusa AEC - Architectural Design is a two- and three-dimensional graphics package for solids-modeling, schematics, working drawings, bills of materials, and reporting. Some of its features are variable-bay structural grid, multi-line wall placement, automatic scheduling and standard symbols and details libraries. Additional software modules are available for program development, database administration and system interfacing.

308 DRAFT/NET
Graphic Horizons, Inc., 60 State St., Suite 3330, Boston, Mass. 02109—Mary Cancian, 617-396-0075 • Graph/Net CID turnkey system consists of PERQ2 super-mini computer, 1mb memory, portrait screen, 35mb Winchester disk drive, floppy disk drive, workstation with built-in digitizing tablet and dot-matrix printer/plotter; hardware options include wide-screen upgrade, 2mb memory, Ethernet sub-system, 1/4-in. streaming tape cartridge, color monitor subsystem, photo-digitizing subsystem, Canon laser printer, Houston Instruments pen plotters, Versatec electrostatic printer/plotters and Benson electrostatic plotters • Price: $45,000-65,000 depending on software modules and hardware options purchased; Updates: free for first 12 months; available with service/maintenance contract thereafter • Training: manual and three days on-site training included with purchase price.

Draft/Net is a general purpose drafting program that generates lines, rectangles, angles, splines, arcs, complex curves, or circles at any scale, in different line widths rounded off to any module. Line segments may be edited, moved, rotated, repeated individually or joined with other segments to create symbols, which may be similarly modified or copied. The software is designed to minimize the use of a keyboard and uses simplified commands to make learning the system easier.

309 VU/NET
Graphic Horizons, Inc., 60 State St., Suite 3330, Boston, Mass. 02109—Mary Cancian, 617-396-0075 • Graph/Net CID turnkey system consists of PERQ2 super-mini computer, 1mb memory, portrait, screen, 35mb Winchester disk drive, floppy disk drive, workstation with built-in digitizing tablet and dot matrix printer/plotter; hardware options include wide-screen upgrade, 2mb memory, Ethernet sub-system, 1/4-in. streaming tape cartridge, color monitor sub-system, Canon laser printer, Houston Instruments pen plotter, Versatec electrostatic printer/plotters and Benson electrostatic plotters • Price: $45,000-$65,000 depending on software modules and hardware options purchased; Updates: free for first 12 months; available with service/maintenance contract thereafter • Training: manual and three days on-site training included with purchase price.

Vu/Net is a three-dimensional perspective simulation program that enables a designer to examine interior or exterior perspective views from specific viewpoints or in a sequence. Viewpoints may include those for perspective, plan or elevation views, all at various scales. Displays may contain hidden lines or facing walls only, with or without toning. The software also displays outlined or fully toned shadows cast by the project for any location and time of day, month and year.

Continued on page 169

Continued from page 166

310 COMPUTER DATA BASE FOR STRUCTURAL SHAPES
American Institute of Steel Construction, The Wrigley Building, 400 N. Michigan Ave., Chicago, Ill. 60611—William Noble, 312-670-2400 • These databases are available in card deck, 9-track magnetic tape or 8-in. diskettes suitable for IBM 3741-compatible computers • Price: $40 each; Updates: none planned • Training: Explanations of the variables specified in each of the data fields is provided.

These databases correspond to information published in Part I of the 8th edition, AISC Manual of Steel Construction for the properties and dimensions of the following structural shapes: W, M, S, HP, C, MC and WT. Included are database formats, explanations of variables and listing of a read/write Fortran program and complete database images.

311 KOALACAD
Zericon Inc., 1100 S. Main St., Racine, Wisc. 53403—Dave Zimmerman, 414-633-7381 • For use with IBM PC or PC-XT with 192k memory, color adapter and two disk drives or Apple II+ or IIe with 128-192k RAM and two disk drives; supports Hewlett-Packard, Houston Instruments or EnterGraphics plotters • Price: $395 introductory—includes KT2010 precision Koala digitizing tablet; Updates: $50 with return of old disk • Training: seminars, in-house, on-site, manual and application hotline.

Koalacad is a two-dimensional drafting package. Its capabilities include dual dimensioning in English, metric, fractional or decimal units, 256 registered overlays, variable text parameters, grids, symbols libraries, cartesian-, polar-, local-, or relative-coordinates, and 12-decimal-place accuracy. The software permits automatic measurement of distance, length and angular relationships. Among commands are stretch, mirror, rotate, fillets, blends and chamfers.

312 FACILITY MANAGEMENT SYSTEM
The Computer-Aided Design Group, 2407 Main St., Santa Monica, Calif. 90405—Don Carter, 213-392-4183 • For use with IBM 370, 30XX and 43XX series running MVS/TSO or VM/CMS and 3270-series terminals (3279 for viewing graphic output); DEC/VAX models running VAX/VMS using VT100- or VT200-series terminals (VT125, 240 or 241 required for viewing graphic output) • Price: approximately $25,000 per software module; Updates: included with service/maintenance agreement • Training: computer-aided-instruction on IBM PC and manual.

Facility Management System is a computer-based management tool intended for users or managers of facilities comprising a half-million or more sq ft. The program integrates stand-alone computer-aided drafting (not included) and database management with separate software modules, each designed to help facilities managers make informed decisions. Among the 17 separate modules available are space programming, cost estimating and budgeting, move coordination, master planning, and real-estate management.

313 ACOUSTICOMP-RT
Acoustic Design Associates, Inc., 2560 Electronic Lane, Suite 112, Dallas, Texas 75220—Richard Schrag, 214-350-4546 • For use with IBM PC, Osborne and TRS-80; requires 64k RAM; program written in Basic source code • Price: $295; Updates: none available • Training: manual.

Acousticomp-RT is used to compute and optimize the reverberation time of a room at each of six frequency bands, given the volume and finish materials. The variables may be altered at any time to test alternatives and optimize the design. Finish materials' absorption coefficients may be input automatically by selecting materials from a pre-programmed list or entered manually from manufacturer's literature. The program suggests optimum reverberation times for comparison with calculated results.

314 E2000
Carrier Corp., P.O. Box 4808, Syracuse, N.Y. 13221—Christopher Jones, 315-432-6838 • For use with Hewlett-Packard Model 16 or Model 36 under the Series 200 computers and compatible HP peripherals including monochrome or color high-resolution displays, printers, plotters, digitizers, cables and data storage units • Price: Turnkey systems from $21,000 to $49,000; leases from $450 to $1,050 per month; additional workstations from $14,500 to $26,000 ($310 to $550 per month on lease); Updates: annual update fee is $1,200 • Training: seminars, in-house, on-site, manual, computer-aided instruction, and hot-line.

E2000 is a general-purpose design and drafting package that can generate multi-color presentation drawings and half-tone bluelines as well. It is equally suited to needs of architectural-, civil-, electrical-, industrial-, mechanical-, and structural-engineering disciplines, and offers several applications packages tailored to specific tasks: computer-aided drafting and bill of materials, specifications writing, financial management, word processing, hvac and sheet metal. A scaled-down, less expensive version, called *E2000 Jr.*, is available for the IBM PC.

Continued on page 175

Once you start using VELUX roof windows, it's difficult to stop.

With over 40 years experience specializing in roof windows and working closely with architects around the world, we've learned a thing or two. In terms of design, function, ease of installation, weather tightness and the availability of a complete program of options, including special glazings, you could not ask for more. Economically priced from about $200 to $500, they conform to all major building codes and may be used in passive solar applications.

VELUX. The world leader in roof windows and skylights!

VELUX®

Roof Windows

VELUX-AMERICA INC.
P.O. Box 3268
Greenwood, SC 29648

In Canada
VELUX-CANADA INC.
2525a J. B. Deschamps
Lachine
P. Q. Canada H8T1C5

Architect:
D. F. Trees Associates

Circle 71 on inquiry card

Continued from page 169

315 RISK ANALYSIS
J & S Associates, 13407 Quapaw Rd., Apple Valley, Calif. 92307—Jon Prescott, 619-247-7219 • For use with IBM 360/370, DEC-VAX/VMS, VAX/780, IBM PC and DEC Rainbow • Price: $5,000 - $7,000 one-time license fee, depending on options; Updates: free • Training: manual; additional training negotiable.

Risk Analysis is a planning tool designed for general-business applications where management wishes to assess, with as much certainty as possible, the specific risk of a new business venture.

316 EASYTHREE
BruningCad, 611 E. Skelly Dr., Tulsa, Okla. 74135—William F. Albu, 918-663-5291 • For use with *Easydraf2* turnkey system which consists of an MC68000-based processor, 1.9mb RAM, 14.5mb Winchester hard disk drive, dual 3 1/2-in. floppy disk drives, 1024 by 768 16-color monitor mounted on an articulating arm, 3-button optical mouse and full modular keyboard; printer not included • Price: $2,500 for software only; Updates: offered as part of comprehensive support package for one per cent of system price per month • Training: on-site.

Easythree is a three-dimensional add-on modeling package to *Easydraf2* (for drafting) intended to assist architects and clients with massing studies, functional relationship studies, interference checking and schematic presentation drawings. Up to nine active display windows permit simultaneous design, alteration and evaluation in the frame of reference most convenient to a user. Drawings may later be incorporated in *Easydraf2*.

317 TQ CONTINUUM CAD
TecQuipment Inc., P.O. Box 1074, Acton, Mass. 01720—Andrew Spencer, 617-263-1767 • Turnkey system consists of MC68000-based CPU with 330k RAM, 12-in. monochromatic monitor, dual 8-in. disk drives, keyboard, Houston Instruments DMP-29 8-pen plotter and Houston Instruments DT-11 digitizer • Price: $15,000 for basic system; Updates: free • Training: on-site, in-house, seminars, manual and help-routines.

TQ Continuum CAD assembles three-dimensional wire-frame drawings from two-dimensional data (including primitives and symbols from libraries) input to a database via keyboard and digitizer. Drawings may be viewed, edited or plotted from any viewing position. Applications include solar views for landscape or solar heating plans, exterior and interior eye-level views and topographic projections for multi-structure relationships. Add-on word-processing and graphics software modules permit text and drawings to be integrated. Spreadsheet and database programs are available as well.

318 PRODUCTION LINES
LCM Corp., 155 E. Campbell Ave., Suite 203, Campbell, Calif, 95008—George MacDonald, 408-374-7868 • Turnkey system consists of IBM PC with 512k RAM, 5 1/4-in. floppy disk drive, 30mb Winchester hard disk drive, keyboard, color monitor, joystick, Calcomp 1043 8-pen, E-size plotter, and workstation furniture • Price: $34,000; Updates: free during first year; $600 per year thereafter • Training: on-site installation and training included.

Production Lines is a two-dimensional electronic overlay drafting system for architecture and surveying. Images are entered into the program's database using coordinates based on real numbers: line lengths are entered in feet and inches, eliminating the need for scaling factors or user-defined units. Other features include interactive prompts, a multi-level command structure and built-in word processing with note-libraries for creating, storing and editing notes.

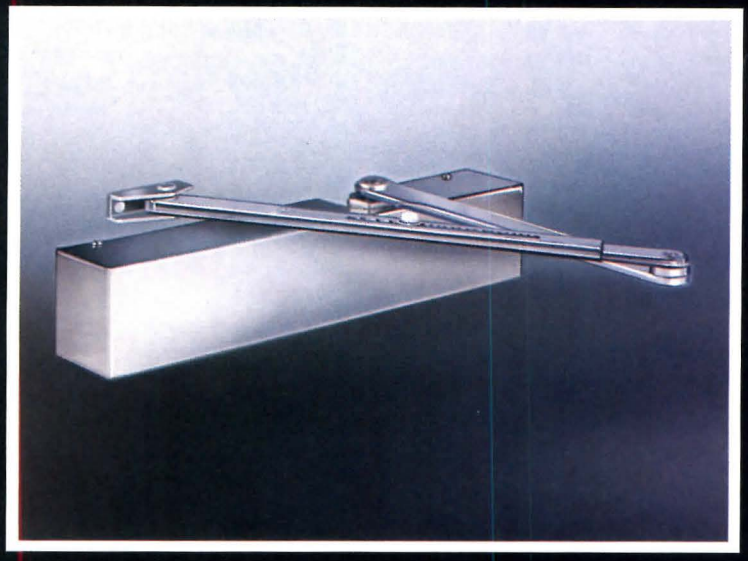
319 ADP ARCHITECTURAL DESIGN PACKAGE
CalComp, 2411 W. La Palma Ave., Anaheim, Calif., 92801—Diana Harrelson, 714-821-2299 • Turnkey system consists of 32-bit CPU with dual MC68000 processors, 20/65/143mb Winchester disk drive and two-display design station with keyboard and digitizing tablet/stylus; 1/4-in. or 1/2-in. streamer tapes available • Price: $5,000 for software; $65,000 for hardware; Updates: provided as part of service/maintenance contract • Training: seminars, manual and in-house or on-site instruction for operators and systems managers.

ADP Architectural Design Package comprises a set of general-purpose design tools that enable users to create and revise plans, elevations and sections and generate isometric and perspective views automatically. Macro commands simplify the editing of wall lines where two walls cross or partially intersect. Available symbols libraries include doors, windows, plumbing fixtures, electrical symbols, appliances and cabinets. Non-graphic attributes-libraries enable finish schedules to be generated from optional *Report Writer Application.*

320 SOLIDS MODELING
CalComp, 2411 W. La Palma Ave., Anaheim, Calif. 92801—Diana Harrelson, 714-821-2299 • Turnkey system consists of 32-bit CPU with dual MC68000 processors, 20/65/143mb Winchester disk drive and two-display design station with keyboard and digitizing tablet/stylus; 1/4-in. or 1/2-in. streamer tapes available • Price: $8,500 for software; $65,000 for hardware;
Continued on page 201

RIXSON *Sets the Mark!*

Rixson sets the mark for top performance with its Heritage™ series of attractive, extremely versatile surface mounted door closers for exterior and interior applications.



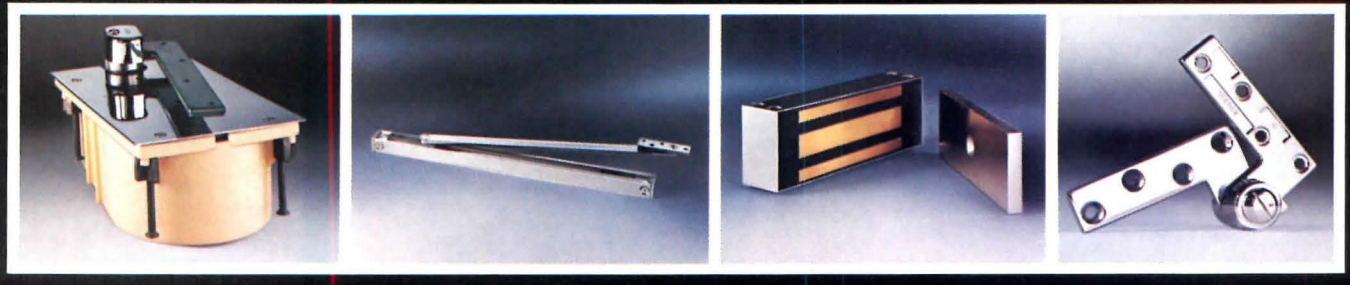
Easy, on-site adjustability, with strong, cold-rolled steel arm configurations; rugged one-piece cast-iron bodies; and attractive, heavy-gauge steel covers available in custom finishes.

The Heritage series . . . just one more fine product from Rixson-Firemark's quality line of door control products—including floor closers, pivot sets and Checkmate control arms—plus fire/life safety and security products.

RIXSON-FIREMARK

9100 W. Belmont Ave., Franklin Park, IL. 60131 Ph. (312) 671-5670

A DIVISION OF
CONRAC
CORPORATION



Circle 76 on inquiry card

Manufacturer sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified

Pages 98-99
The Purdue Frederick Headquarters
by Gatje Papachristou Smith
Page 98—Entrance and windows: Kawneer. Masonry paint: Pittsburgh Paint Co. Glazing: PPG (Solar Seal). Roofing: Watpro. Precast sections: Valcast (New Jersey). Floodlights and bollards: McGraw.
Page 99—(bottom) Carpeting: Bigelow (Regency Row). Door pulls: Brookline. Hardware: Yale. Interior paints: Pittsburgh Paint Co. Sprinkler heads: Reliable. Exit signage: Dualite. Fluorescent fixtures: Columbia Lighting. Globe fixtures: Prescolite. Armchairs: Zographos (Tuxedo Chair). Library tables: Redco Panelend (7248 PETR). Chairs: Stendig (Breuer, Cesca). Coffee table: Redco Panelend (4848 PETR).

Pages 100-103
Westinghouse World Headquarters
Steam Turbine-Generator Division
by William Morgan Architects
Pages 100-101—Window frames: Kawneer. Glazing: PPG (Solar Bronze). Entrance: Blumcraft. Masonry paint: Tex-Cote. Recessed downlights: Prescolite. Paving: KraftTile.
Page 102—(top) Door pulls: Blumcraft. Hardware: Russwin. Lounge chairs: Scope Furniture Ltd. Upholstery fabric: DesignTex. Rug: Stratton. Tile flooring (throughout): KraftTile. Reception desk: Custom by architects, fabricated by George Doro Fixture Co. Fabric wallcovering: Carnegie. Ceiling tile (throughout): Armstrong. (bottom)—Wallcovering: DesignTex. Carpeting: Milliken. Lay-in fixtures: Westinghouse. Paints: MAB. Office partitions: Westinghouse ASD.
Page 103—Elevator: Westinghouse.

Pages 104-107
Erie Insurance Group Home Office
by The Stubbins Associates, Inc.
Pages 104-105—Fountain: William Hobbs Fountain Equipment. Granite: Cold Spring Granite (Carnelian, Honed Finish). Masonry: Glen Gary (Watsontown). Curtain wall: Hopes Windows (fixed and vertical pivot). Spotlights: Simes Co. Outdoor furniture: Kroin. Paving: Cold Spring Granite. Downlights: Marco. Entrance canopy: Sentinel Aluminum Products Ltd. Bollards: Kim Lighting. Entrance: Kawneer. Pulls: Brookline. Exit device: Von Duprin.
Pages 106-107—Paving: Cold Spring Granite. Bench/table units: Custom by architect. Curved modular units: Herman Miller Inc. (Chadwick). Wood tambour: Environmental Interiors (Woodline). Railing system: Livers Bronze Co. Atrium skylight: Sentinel Aluminum Products Ltd. Glazing: Sterling Glass/Falconer Glass. Planters: Macotta Corp. Strip fixtures: Columbia Lighting. Carpeting: Interface. Desks, partitions and seating: Steelcase. Ceiling tile: Armstrong (Travertone). Elevator: Westinghouse.

Pages 108-109
Monterey Insurance & Financial Center
by Marquis Associates
Page 108—Roof: Architectural Engineering Products Co. Siding: Clear Western Red Cedar. Finish: Samuel Cabot Inc. (Bleaching Oil) Windows: Andersen (Permashield). Glazing: Hordis Brothers, Inc. (Solex insulating glass). Bollards: Illumination Concepts & Engineering. Brick paving: Muddox. Laminated beams: Standard Structures (Architectural Grade).
Page 109—Atrium skylight: CemCel Corp. Quarry tile: Structural Stoneware (Traffic Tile). Storefront windows: (exterior) Kawneer Corp. Red birch interior units: J. DiCristini & Son, Royal Glass. Entrance: Kawneer Corp. Hardware: Schlage, Adams-Rite, Rixson. Pulls: Builders Brass Works. Panic bolts: Von Duprin. Lobby seating: Heibert/Metropolitan. Reception desk: (counter top) J. DiCristini & Son. Fiber concrete surround: Olympian Stone Co. Benches: Jack Cartwright. Hanging light fixtures: Holophane. Laminated beams: Standard Structures. Paints: Kelly-Moore Paint Co. Ductwork: George H. Wilson, Inc.

Pages 110-113
Mount Pleasant Corporate Center
by Renato Severino Associates
Pages 110-111—Wall panels: Consolidated Aluminum. Butt-joint windows: Antracite Plate Glass Co. Reflective glazing: Hordis Brothers Inc. Architectural Glass. Recessed downlights: Prescolite.
Page 112—Ceiling tile: Armstrong. Sprinkler heads: Automatic Sprinkler Corp. Planters: Fib-Con Corp. Entrance: Antracite Plate Glass Co. Door pulls: Seeco Supply Corp. (bottom) Skylight: Supersky Products, Inc. Panels: Alucobond.
Page 113—Carpeting: Patcraft Mills Inc. Seating: Herndon Co. Troffer fixtures: Lightron.

Pages 114-123
Aerospace Museum
by Frank O. Gehry and Associates
Pages 114-115—Exterior wall panels: Weiss Sheet Metal. Aluminum-framed windows: Bradco. Tinted, reflective and clear tempered plate glass: PPG. Sliding hangar door: Electric Power Door Co.
Page 118—Metal door: Security Metal Products Co.
Page 122—Skylights: Bradco. Theatrical-type light fixtures: Colortran. Fire equipment cabinet: Potter-Roemer, Inc. Sprinklers: Reliable. Elevator: Coast Elevator. Carpet: J.P. Stevens (Gulistan). Hinges: McKinney. Lockset: Schlage. Closers: L.C.N. Closers.

FACULTY POSITIONS VACANT

Associate Professor and Coordinator of Graduate Programs, Iowa State University's Department of Architecture. We are seeking candidates for a full time, twelve month, tenure track appointment at Associate Professor rank and administrative appointment as Coordinator of Graduate Programs. The position is available July 1, 1985 and involves teaching and research responsibilites. The deadline for applications is February 15, 1985. Please send a letter of application, resume, and the names of three references to Ken Carpenter, Chairman, Department of Architecture, Iowa State University, Ames, IA 50011. Iowa State University is an Equal Opportunity-Affirmative Action Employer.

Assistant or Associate Professor of Architecture, Iowa State University's Department of Architecture. We are seeking candidates for a full time, nine month, tenure track appointment. The position is available August 21, 1985 and involves teaching and research responsibility is in the Architectural Technology are (advanced materials and methods, and large scale construction management). The deadline for applications is February 15, 1985. Please send a letter of application, resume, and the names of three references to Ken Carpenter, Chairman, Department of Architecture, Iowa State University, Ames, IA 50011. Iowa State University is an Equal Opportunity-Affirmative Action Employer.

The University of North Carolina at Charlotte's developing architectural program, which is dedicated to addressing major architectural issues, seeks faculty committed to working together to provide innovative, holistic and rigorous architectural education. Persons desired to teach: 1. Architectural Structures and Environmental Control Systems courses as well as be a resource for studio courses. 2. Site and *Landscape Design* lecture and studio courses. Positions available from junior Assistant Professor through full Professor levels. Masters in Architecture or equivalent is required. Prefer persons with teaching and practice experience. Long term tenure track and one-two year visiting faculty positions are available, including position of Distinquished Visiting Professor. Salary and rank commensurate with qualifications. Forward letter describing approach to teaching and design with vitae to: Dean Charles C. Hight, College of Architecture, UNC-Charlotte, N.C. 28223. Affirmative Action/Equal Opportunity Employer. Deadline for receipt of applications is March 1, 1985.

Syracuse University School of Architecture has junior fulltime faculty positions open in the architectural design sequence, beginning in the fall of 1985. These are tenure track appointments with two year initial contracts, rank and salaries negotiable. Requirements include first professional architecture degree, and teaching experience. Advanced degree, secondary interests, and/or professional experience/registration desirable. Please send resume by March 1, 1985, to: Professor Raymond DiPasquale, Faculty Search Committee, School of Architecture, Syracuse University, 103 Slocum Hall, Syracuse, New York 13210. Syracuse University is an Equal Opportunity/Affirmative Action employer.

Faculty Position, Montana State University. 9/85. Tenure-track. 1) Teach design studios, prof. practice, working dwgs. and specs.; B. Arch + M. Arch or b. Arch plus significant office experience in a responsible leadership position req'd.; license and pertinent office exp. req'd. 2) Teach design studios and basic design, Intro to Arch; M. Arch as 2nd prof. degree and license req'd. Teaching exp. preferred. Send resume, portfolio, names, addresses, and phone numbers of 3 current ref. to: School of Arch., MSU, Bozeman, MT 59717. Postmarked by 3/15/85. AA/EOE. School is an accredited 5-year program with 350 students. MSU is largest University in the State and Bozeman, a town of 30,000, is located in beautiful setting near many scenic recreational areas, such as Yellowstone Park and Big Sky ski area.

University of Illinois at Urbana-Champaign, School of Architecture — The School of Architecture is seeking applications for full-time, nine-month, tenured and tenure track positions to begin 21 August 1985: Architectural Design Assistant/Associate Professors to teach undergraduate or graduate Architectural Design Studio and seminar or related elective courses. Qualifications: Advanced professional degree in architecture and professional registration is required with teaching and/or research experience desirable. Housing Environments — Associate Professor or Professor to teach a graduate housing design studio and seminar or related course in housing theory, design/economics, design/research or similar housing-related topics. Advanced professional degree and professional registration is required. A combination of practice, teaching and research experience in the housing field is desirable. Salary and rank of positions commensurate with background and experience. To receive full consideration, submit resume and names of three references by February 14, 1985 to Search Committee Chair, Professor R. Alan Forrester, Director, School of Architecture, 608 E. Lorado Taft Drive, Champaign, Illinois 61820. Phone (217)333-1330. The University of Illinois is an Equal Opportunity/ Affirmative Action Employer.

Cornell University — Hotel Planning and Interior Design — The School of Hotel Administration at Cornell University is seeking a faculty member to teach a required course in hotel development, planning and interior design. The candidate should also be qualified to teach an advanced seminar covering similar material. Preferred qualifications include a degree in architecture or hotel management (master's degree preferred); a combination of teaching and industry experience; an ability to communicate effectively with students; and the desire to work in an interdisciplinary hospitality management program. Lecturer rank; salary commensurate with qualifications. The nine month academic year provides the opportunity to present seminars and consult. Appointment begins August 1985. Candidates should send a letter of application, resume, and names and addresses of three references to: Dr. David C. Dunn, Assistant Dean, School of Hotel Administration, Cornell University, Ithaca, NY 14853-0224. Affirmative Action/Equal Opportunity Employer.

Princeton University School of Architecture is seeking candidates for the full-time position of Assistant Professor of Architecture or Lecturer in Architecture, for Undergraduate and Graduate Programs, to teach Design and a related area of study, preferably one of the following: Urban Design, Building Technology, History and Theory. Applicants should send resume before January 31, 1985 to: Faculty Search Committee, School of Architecture, Princeton University, Princeton, NJ 08544. Princeton University is an Equal Opportunity/Affirmation Action Employer.

The School of Architecture at Oklahoma State University is seeking qualified candidates for the position of Assistant or Associate Professor. The appointment will be a tenure-track appointment. Rank and salary are to be commensurate with the successful applicants qualifications and experience. Qualifications including holding an earned Professional Degree in Architecture or Engineering with a professional license and experience in both teaching and private practice preferred. The successful applicant must have background in and a clear working knowledge of HVAC systems, alternative energy systems, illumination, fire safety and plumbing. Duties will include primary responsibility for teaching three required Environmental Control Courses per year coupled withsome elective offerings and adjunct service in upper level design studios. The School specifically seeks applicants who are excited about developing innovative teaching techniques which will be effective in introducing environmental control concepts and practices to architectural students. Application with vita plus *references to: John H. Bryant,* AIA, Head, School of Architecture, OSU, Stillwater, OK 74078. Deadline for application is February 15, 1985. OSU is an Equal Opportunity Affirmative Action Employer and actively seeks candidates who are women or are members of minority groups.

Up to one year full-time lectureship appointments available for 1985-86 AY. Teaching areas, one or more of the following: Upper and Lower Division Design, Practice, Graphics, Environmental Control Systems. Applicants to the area of Environmental Control Systems with experience in Architectural applications are preferred. Salary is commensurate with qualifications and professional experience. Send request for application and qualifications to: Chairman, Search and Screen Committee, Architecture Department, California Polytechnic State University, San Luis Obispo, CA 93407. (805) 546-1316. Closing date: February 15, 1985. Affirmative Action/Equal Opportunity Employer.

Tenure track professorships are available beginning September 1985. Rank and salary commensurate with qualifications and experience. Teaching areas, one or more of the following: Upper and/or Lower Division Design, Practice, Graphics, Environmental Control Systems. Applicants to the area of Environmental Control Systems with experience in architecture preferred. Send request for application and qualifications to: Chairman, Search and Screen Committee, Architecture Department, California Polytechnic State University, San Luis Obispo, CA 93407. (805) 546-1316. Closing date: February 15, 1985. Affirmative Action/Equal Opportunity Employer.

POSITIONS VACANT

Director of Design — Phoenix based mid-sized and growing architectural firm with diversified practice has opening for qualified Architect capable of assuming position of Director of Design leading to principal role. Candidates should have strong Academic background and a minimum of ten years experience in designing architecturally significant buildings and proven skills in marketing. Candidates, send resume and salary history in confidence to: Metz Train Youngren of Arizona, Inc. 2721 North Central Avenue, Suite #1102, Phoenix, Arizona 85004.

Executive Management Consulting Service for Architects. Aware of the finest career development opportunities nationwide for Principal and Leadership professionals, esp. Medical. Inquire: William E. Engle Associates, 290 Century Bl., Indianapolis, IN 46204 (317)632-1391. (Also TX office).

COMPUTER SOFTWARE

SUPER ACCURATE ESTIMATING WITH THE INDUSTRY'S MOST EXTENSIVE COMPUTER DATA BASE IS NOW AS EASY AS:

1, 2, 3.

1. Your terminal
2. Your phone
3. The Dodge Data Base

- Costs for 25,000 building components
- Precise labor costs/time estimates for 22 trades
- Cost adjustments for 700 zip codes

Now you can do Conceptual Budget Analyses and Preliminary Design Estimates in minutes.

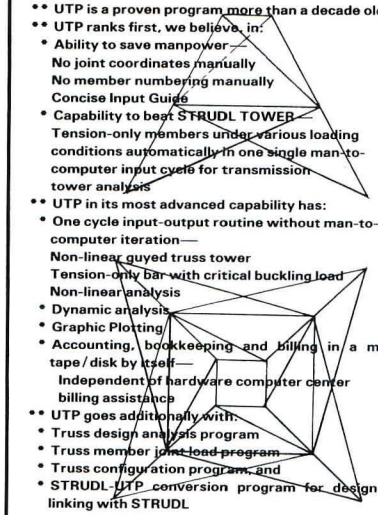
FOR LINK UP BY NEXT WEEK, CALL TOLL FREE

1-800-257-5295

(in N.J. 1-609-921-6500.)

Cost Information Systems
McGraw-Hill Information Systems Company

UNIVERSAL TRUSS PROGRAM



** UTP is a proven program more than a decade old
** UTP ranks first, we believe, in:
* Ability to save manpower—
No joint coordinates manually
No member numbering manually
Concise Input Guide
* Capability to beat STRUDL TOWER—
Tension-only members under various loading conditions automatically in one single man-to-computer input cycle for transmission tower analysis
** UTP in its most advanced capability has:
* One cycle input-output routine without man-to-computer iteration—
Non-linear guyed truss tower
Tension-only bar with critical buckling load
Non-linear analysis
* Dynamic analysis
* Graphic Plotting
* Accounting, bookkeeping and billing in a medium of tape/disk by itself—
Independent of hardware computer center billing assistance
** UTP goes additionally with:
* Truss design analysis program
* Truss member joint load program
* Truss configuration program, and
* STRUDL-UTP conversion program for design use and linking with STRUDL

MicroGANTT®

Control your project! You describe the work, **MicroGANTT** calculates the schedule and budget. Adjust the critical variables until the schedule is on time and evenly loaded. Time management, resource allocation, project tracking, personnel billing and fixed cost capabilities. Flexible critical path charts. Unlimited size and scope. PC-DOS, MS-DOS, CP/M-80. Free brochure. Demo available.

EARTH DATA CORPORATION
P.O. Box 13168 Richmond, Va. 23225

(804) 231-0300

*** Direct Interactive Telephone Dial-up by end users for FREE Input Guide and Free Trial uses**
*** Asyncnous Communication**
Phone: 203-529-4488 300 Baut
203-529-6665 300 Baut
203-529-5025 1200 Baut
203-721-9264 1200 Baut
*** Protocol: 8 data bits, 1 stop bit, no parity**
*** Procedure after telephone connect:**
type key 'esc'
type keys 'ctrl' and 'd' simultaneously
type key 'carriage return'
*** Login ID: ARCHFIRM**
ENGIFIRM
CONSFIRM
STUDENT
FACULTY
*** Usage Charge Auctioned by a User to be LOWEST at—ALL TIMES—**
*** Usage Charge Determined by and Known to A User at—ALL TIMES—**
*** No Written Contract to Use for Individual Engineers Needed**
*** Turnkey System Composed of Hardwares, System Software and Application library available**
*** Call 203 563-7788 for person-to-person Information and/or Answer Assistance**

COMPREHENSIVE ANALYTIC ENGINEERING, INC.
STRUCTURES-PROGRAMMING-VIBRATION-FOUNDATION-CIVIL
247 Ridgewood Dr., Rocky Hill, Ct 06067
Tel. (203) 563-7788

SPECIAL SERVICES

Architect/Engineer Vacations: Charter 41 ft. cruiser to the Keys or Bahamas. Ideal for couples or family, with or without crew member. Architect owned and operated by Professional Yacht Charters Ltd. 414/351-3703.

EDUCATIONAL SERVICES

Architect Reg. Exam Study Guide: "The Architect's Responsibilities In The Project Delivery Process." 30 sections on the various aspects of an architectural project & 28 filled out sample AIA Documents & other forms illustrate architect's responsibilities in a representative project. 200 p., soft cover, $23.95, shipping included. Send order with payment to: H.L. Murvin, AIA, 500 Vernon St., Oakland, CA 94610.

TO ANSWER BOX NUMBER ADS

Address separate envelopes (smaller than 11" x 5") for each reply to:

Box Number (As indicatea)
Classified Advertising Center
Architectural Record
Post Office Box 900, NY 10020

Advertise your software for only $132.40

For only $132.40 per inch you can advertise your software, designed specifically for the architectural field, to a no-waste audience specifically in need of it—Architectural Record's paid circulation of 75,000 subscribers.

You'll waste no advertising dollars on waste circulation. These decision-makers need software applications designed specifically for their industry. That's why AR's Computer Software Section is a perfect interface because it is programmed to connect you with specific industry interests.

Send your copy/art to the address below. For more information, call Ilene Fader at 212/512-2750.

Architectural Record Computer Software Section

Post Office Box 900
New York, NY 10020

1985 ARCHITECTURAL RECORD COMPUTER SOFTWARE SECTION

Sizes		Material
1 Inch	7/8 x 2 1/4	Artwork or
2 Inch	1 7/8 x 2 1/4	film preferred.
3 Inch	2 7/8 x 2 1/4	Typesetting
4 Inch	3 7/8 x 2 1/4	free of charge.

1985 RATES

Unit	1X	6X	12X
1 Inch	$132.40	$125.95	$122.35
2 Inch	264.80	251.90	244.70
3 Inch	397.20	377.85	367.05
4 Inch	529.60	503.80	489.40

Call Ilene Fader 212/512-2750

Sales offices

Main Office

McGraw-Hill, Inc.
1221 Avenue of the Americas
New York, New York 10020

Publisher
Paul B. Beatty (212) 512-4685

Director of National Advertising
Harrington A. Rose (212) 512-2838

Business Manager
Joseph R. Wunk (212) 512-2793

Marketing Services Manager
Camille Padula (212) 512-2858

Classified Advertising
(212) 512-2556

District Offices

Atlanta
4170 Ashford-Dunwoody Road
Atlanta, Georgia 30319
Terry G. Blackwood (404) 252-0626

Boston
607 Boylston St.
Boston, Massachusetts 02116
Louis F. Kutscher (617) 262-1160

Chicago
645 N. Michigan Ave.
Chicago, Illinois 60611
Anthony Arnone, (312) 751-3765
Cheryl L. Shores, (312) 751-3705

Edward R. Novak, (312) 658-7133
ER&J Associates, Inc.
P.O. Box 348,
Algonquin, IL 60102

Cleveland
55 Public Square
Cleveland, Ohio 44113
Michael F. Charlton (216) 781-7000

Denver
655 Broadway, Suite 325
Denver, Colorado 80203
John W. Maisel (303) 825-6731

Detroit
4000 Town Center, Suite 770
Southfield, Michigan 48075
John W. Maisel
(313) 352-9760

Houston
1 Northwind Plaza, 7600 W. Tidwell
Houston, Texas 77040
Lockwood Seegar (713) 462-0757

Los Angeles
3333 Wilshire Blvd., South Tower
Los Angeles, California 90010
Stanley J. Kassin (213) 487-1160

New York
1221 Avenue of the Americas
New York, New York 10020
Theodore C. Rzempoluch
(212) 512-3603

Philadelphia
Three Parkway
Philadelphia, Pennsylvania 19102
Blair McClenachan (215) 496-3829
Paul Scaliti (215) 496-3817

Pittsburgh
6 Gateway Center, Suite 215
Pittsburgh, Pennsylvania 15222
Michael F. Charlton (412) 227-3640

San Francisco
425 Battery Street
San Francisco, California 94111
Stanley J. Kassin 1 (800) 621-7881

Stamford
300 Broad St.
Stamford, Connecticut 06901
Louis F. Kutscher
(203) 359-2860

Overseas Offices

Frankfurt/Main
Elsa-Brandstroem Str. 2
Frankfurt/Main, Germany

Sheffield
146 West St.
Sheffield S14ES, England

Milan
Via Baracchini No. 1
Milan, Italy

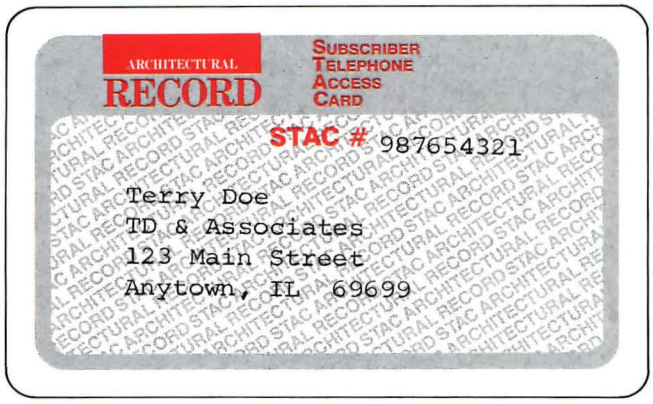
Paris
17, rue Georges Bizet
75 Paris 16e, France

Tokyo
2-5, 3-chome
Kasumigaseki, Chiyoda-ku
Tokyo, Japan

South America
Empresa Internacional de
Comunicacoes Ltda.
Rua da Consolacao, 222
Conjunto 103
01302 Sao Paulo, S.P. Brasil

Subscribers: Need product information *fast*?

Use your STAC card!



Your *Subscriber Telephone Access Card* can help speed information to you about any product or service in the editorial or advertising pages of this issue of Architectural Record.

Not in weeks, but in *days*...maybe even *hours*.

When you key your more-information requests directly into our computer via touch-tone telephone—through Architectural Record's *exclusive* STAC system—you save days, even weeks of mail-delivery, handling and processing time.

The day after you call, advertisers can access your request by phone from our computer, and begin the process of mailing materials to you, or forwarding your request to a local office. That can cut more days and weeks off the turnaround time needed to answer your more-information requests.

If the advertiser is computer-linked, and if you asked for a sales call, you may be contacted within *hours* of your call!

When you need information for a right-now project, fast, free help is as close as your STAC card.

And STAC service is available 24 hours a day, 7 days a week.

Here's how to use your Architectural Record *Subscriber Telephone Access Card:*

BEFORE YOU DIAL:

1. Write your STAC ID number, as imprinted on your STAC card, in the boxes in Step 4 below. Some ID numbers will be shorter than the 9 spaces allowed—do not add Øs.

2. Write the Reader Service numbers for those items about which you want more information in the boxes in Step 6 below. Do not add Øs. A maximum of 17 numbers can be entered per STAC call.

CALL STAC:

3. Using a touch-tone telephone, call 413/442-2668, and follow the computer-generated instructions.

ENTER YOUR STAC NUMBER AND ISSUE NUMBER:

4. When the recording says, "Enter your subscriber number," enter your STAC number by pushing the numbers and symbols (# or *) on your telephone keypad. Ignore blank boxes. Enter:

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ [#] [#]

5. When the recording says, "Enter magazine code and issue code," enter these numbers and symbols:

[2] [5] [#] [0] [1] [5] [#] [#]

ENTER YOUR INQUIRIES:

6. When the recording says, "Enter (next) inquiry number," enter the first Inquiry Selection Number, including symbols, from your list below. Ignore blank boxes. Wait for the prompt before entering each subsequent number (maximum 17 numbers).

1.	☐	☐	☐	☐	#	#	10.	☐	☐	☐	☐	#	#
2.	☐	☐	☐	☐	#	#	11.	☐	☐	☐	☐	#	#
3.	☐	☐	☐	☐	#	#	12.	☐	☐	☐	☐	#	#
4.	☐	☐	☐	☐	#	#	13.	☐	☐	☐	☐	#	#
5.	☐	☐	☐	☐	#	#	14.	☐	☐	☐	☐	#	#
6.	☐	☐	☐	☐	#	#	15.	☐	☐	☐	☐	#	#
7.	☐	☐	☐	☐	#	#	16.	☐	☐	☐	☐	#	#
8.	☐	☐	☐	☐	#	#	17.	☐	☐	☐	☐	#	#
9.	☐	☐	☐	☐	#	#							

END STAC SESSION:

7. When you have entered all your Inquiry Selection Numbers and the recording prompts, "Enter next inquiry number," end the call by entering:

[*] [*] [9] [1] [#] [#]

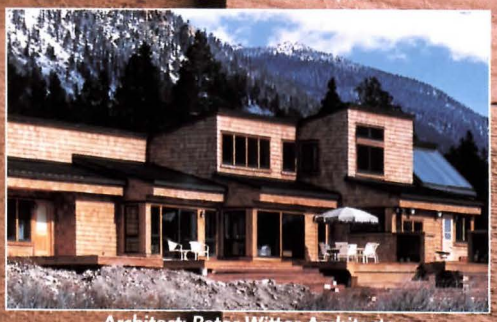
If you are a subscriber and need assistance, call 212/512-3442 during regular business hours. If you are not a subscriber, fill out the subscription card in this issue, or call Architectural Record Subscription Services at 914/628-0821.

ARCHITECTURAL
RECORD

THIS IS THE PANEL OF EXPERTS.

Architect: Lawrence Simons & Associates
Project: Waterfall Towers Office Park
Photo: Karl H. Riek

Architect: Fisher-Friedman Associates
Project: Hilltop-Meadowcrest Residential Park
Photo: Charles Callister, Jr.



Architect: Peter Witter Architects
Project: Custom Home
Photo: T.S. Gordon

This 8-foot long panel was the siding of choice of some of America's top architects. Why did they all specify Shakertown?

Because there's no better way to get the unmistakable look of real Western red cedar shingles in a system that's easy to install.

So take it from the experts: Shakertown Siding looks beautiful from any angle.

SHAKERTOWN® SIDING

For free architect's manual call toll-free
1-800-426-8970 (In Washington State 206-785-3501)
or write Box 400-AP, Winlock, WA 98596.

"O'Hare International Airport puts the world's busiest restrooms on automatic pilot with Sloan OPTIMA® No-Hands systems."

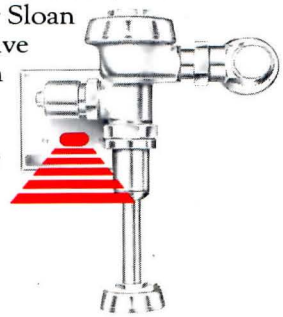
Maintaining clean, sanitary restroom facilities for more than 40 million travelers each year can be an expensive, labor-intensive operation. At O'Hare International, the world's busiest airport, this problem was solved by installing Sloan No-Hands automated flush valves and sink faucets in public restrooms.

A Sloan OPTIMA system uses an electronic sensor that "sees" the user and automatically flushes the sanitary fixture—or turns the faucet or appliance on and off—only as needed. This eliminates unflushed urinals and toilets as well as assures that faucets and hand dryers are turned off after use.

The results: Improved sanitation. Reduced water usage. A cut in energy consumption. Fewer repairs. And less maintenance.

The Sloan OPTIMA system meets all building code requirements and automatically solves the problem of mandated access for the handicapped. The system easily adapts to soap dispensers, hand dryers, shower heads, and more.

Ask your Sloan representative about Sloan No-Hands automated systems. Or write us.



SLOAN VALVE COMPANY
10500 Seymour Avenue, Franklin Park, IL 60131

Circle 107 on inquiry card

O'Hare International Airport—Chicago, Illinois