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- Roof Traffic
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- Humidity: Interior
- Extreme Heat

VISUAL:

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Circle 5 on inquiry card
October 1894, in which they debated the validity of the studio in architectural education. I need to feel 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 relationship only between the student and professor but also between peers. The vastly varied backgrounds of students making up a studio allow for an endless amount of information. 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 them in many professional and personal decision-making exercises.

Wishing to become a licensed professional, I find one must be benefitted by an instructor who has had actual experience in the field. Such an instructor is himself a student and must possess inspiring qualities, possessing the qualities of a good teacher.

Mr. Rapoport states we should continue to study and design systems. He observes that the studio is not in the lecture halls. But often the ones found in the lecture halls are the best lecturers. Mr. Rapoport states we should only use such topics, that the results of the teachings can be measured with concrete data, thus proving whether or not something is successful. He states that design education is valid, not for the student who has no experience in the profession, and in most cases such a professor is a licensed professional. I would suggest that most of these teaching systems are used in the studios and not in the lecture halls. The lecture halls are the best lecturers.

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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 “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 cause. 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.
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!

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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 decisions 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 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 either listening or 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 but actually unmeasurable, unclear, and mundane.

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 Interior 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

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Submissions: Entries must consist of 35mm slides of the interiors, free of any identification of firm name. At least four slides must be submitted showing the interior from different suggestive points. Slides must be accompanied by a design rationale, no more than one page, double-spaced, on plain paper, not exceeding 8 1/2 x 11 inches in size. A standard #10 envelope for DuPont ANTRON Design Award, Room X-95534, Wilmington, DE 19898. Entries must be postmarked by March 15, 1985. Each entry must be submitted in a separate envelope with a separate entry blank. Photographs of the entry blank are acceptable. All entries become the property of DuPont Company and may be used in advertising, brochures, and publicity releases.

Circle 14 on inquiry card
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 occurring 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 Weisbach, 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."


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. Group members hope that legal actions will help slow down or stop the highway project.

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 multi-use skyscrapers will give people even more options in today's urban complexes."

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.

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 overseas. 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 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.

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For more information, contact Dolores Rice, Lehigh University, Bethlehem, Pa. 18015 (215/361-3325).
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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. Here is 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 much greater 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 PCs’ 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 lack the need to manage information or 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 store data between many individuals within disciplines.
- The ability to manage information inherent in complex projects over large spans of time.
- The ability to get expedient answers to major-size problems.

While personal computers can do some of this, their state of art does not allow them to provide nearly 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 and processing 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 utilization.

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, those that can support this sharing, are limited, while a minicomputer 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; 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 integration.

Although a lot of software is available on personal computers, it can be difficult 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. Technology of these other firms may be acquiring CAD capability. It is increasingly important to be able to exchange data between computer systems using data exchange standards such as IEC or ISO. Such integration will provide a valuable computing power to all personal computers can deliver.

- Integration between geographic locations. Design projects are often developed by partners in diverse geographic locations. The ability of a computer in one location to access data in another location through rudimentary telecommunications capabilities is 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 other projects. 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 archiving libraries with details and layers from past projects.

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

Graphics with high resolution, a sophisticated palette of colors, and other capabilities will, as well as other means of communicating with users, be important too. One personal computer manufacturer in particular has pioneered user interface techniques, but these 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.
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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 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 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 impact of new tools—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 an enormous change in attitude at the top."

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 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 decision 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.
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“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

emphasum 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 approved 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 ahead and the projects with the 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 the 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 Luc ey, 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 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 corporation was 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

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 planning 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
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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 follow 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 and we 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 in the business of building we are in, but helping to improve the quality of the way that our organization manages the business that it is in.

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 organization 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 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, 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 a hot train Express has gone from a five-year planning cycle to a three-year cycle; 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 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 didn'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, that will never be finished. That is not a traditional attitude for us, or, I think, many companies. Neither is the thought of going into partnerships 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 flexibility. We were determined 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 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."
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What do the corporations with staff professionals look for in retaining an outside architect?  
Lenore Lucsey 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 are investigating the potential of hiring people to handle the constant and ongoing partition changes and office-arrangement 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 Edel: "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 personality of the man. 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 sweat, 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 subtleranean factor in the architecture selection."

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

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. Overruling 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 every project. We have a sense of compatibility, a sense of chemistry for the individual who is going to handle the job. Sometimes we use more than one firm 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 the director of a major division of a corporation. These are the champions who go after and seek out and win 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. All of the other stuff about whether they have telephones or computers or a history of similar buildings is nice, but it's support of 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 functional, 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 buildings 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 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 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 the biggest 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 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 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 were 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,
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Circle 27 on inquiry card
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 that Culpen or I 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 or appointing 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 A.T. & 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. We are responsible for that if we don’t understand the value of architecture. 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 possible.”

“The biggest change is the realization by management that it takes professionals to manage the facilities planning operation.”

Corwin Frost

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 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.”

“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 lump sum for a defined scope of front-end work.”

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. . . 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—even a hotel person who worked on the job, whether consultants or in-house people—meet and go through a very formal agenda of problems and concerns and then we put it in standard form. We have a responsibility for those fees. 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.”

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

Katkean Kelly
Deputy director,
Environmental management division, Department of City Planning, City of New York

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 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 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

Eugene Kohn
Kohn Pedersen Fox Conway

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
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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 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. People worry about computers generating sterile offices—no paper, no plants, no pictures. I have to say that in our research and development departments, all 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 ergonomic work spaces. The issue is not total freedom of design by every employee, which could result in a kind of aesthetic anarchy; the issue is that the way an employee’s space is grid 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 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 Caroline Woot: “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 individuals 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 aesthetic and financial success for the corporation. We also need the 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 consulting architect has a very significant obligation and responsibility to try to develop the corporation’s requirements in a very precise way 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.”
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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 “‘person subjective’ and operating on nothing more substantial than their likes and dislikes.

As an architect, a designer, a professor, 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 likely to fence, and belong to both camps. I have taught both lecture and studio courses—and 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 Suzanne L. L. 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 other fields of study; and is 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. Architecture is not design, problem solving, or even creative behavior; although again, we know that of these things may help us understand the mental process we utilize in doing 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 processes, and design theory—all in relation to the necessary levels of consideration and decision-making required to do architecture.

By positing architecture (which is substantive and existing in reality, history, and praxis), with design (which is an act, an indispensable product of the conflict within 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, within 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, doctrine, history, 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 anthropological. 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. Veting that knowledge base is anti-academic and less than honest.

Person, personality and design studio

Beckley correctly connects the personal, i.e., the person, ego, and whatever we might understand as an individual, with the “subjective and illogical... do like/don’t like it” criticism. Beckley defines 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 do not represent various points of view.

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

Furthermore, if one accepts the personality of the critic or 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 in its later stages be worth sharing with others.

Within architecture and theory there must be room for people and their contributions. The great critic-super-stars or 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

Some 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 it 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 academia, and 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 may use 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...
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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 enmeshed 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 perception, seeing the whole, often having to struggle to be heard. 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 the question of architecture, knew no bounds. Their efforts were prodigious. Yet their egoism, and the little incidents that prove that egoism, are more remembered by later generations than their achievements. But their very personalities show in their work. That was not the problem. The problem was that it would work to do work that was genuinely new and not merely novel. They did not do the things that they had 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. He did not feel that he had 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—no more, no less.

At least Rapoport regards the studio as a place in which one learns a "craft". Rapoport says that the studio's efficiency as a learning medium 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 Ecole des Beaux Arts. The Ecole 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 the archaic mode of learning? I can think of many. The student was put in a learn-by-doing situation, the teacher was a sort of master and his personality show in his work. That was not the problem. The problem was that it would work to do work that was genuinely new and not merely novel. They did not do the things that they had 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. He did not feel that he had 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—no more, no less.

Because his subject matter, architecture, was not divided up into theoretical distinctions of how (craft), why (science) or what (social product, field) was 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 discoveries, events, and methods (that we have called progress) have produced areas of specialization severed from architecture (with their own practice, 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 demand something 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 1800s. 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 areas of knowledge. Students are also asked to deal with 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 feels that in an increasingly specializing age we need architects who have knowledge of a whole range of new disciplines. Later in his essay, he says: "If I were to assume 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 what we do? Do we need to demand a 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 our activities and interests. We are also discovering the limits of their training and knowledge. In fact, at least since the Renaissance, architects have known that it was necessary 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 a landscape architecture; engineering (or at least the civil, structural, and military varieties); archeology;
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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, if possible, their work 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 to a parallel crisis in the academic world that has sponsored an attack on our lack of “standard” academic credentials and credibility, i.e., Ph.d and professorial titles to aspire to. 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 bundle 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 sorts. In doing so, we have sought 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 same thing and deal with trivial, “designers” who lack skill 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 and the studio director’s fault. I am pressuring myself, the fault of my former teachers who let me get away with it, and a cultural-educational system that regards visually oriented 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, 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 architectural 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. Thus, the studio “how” (of architectural design) utilizes “modeling” techniques, as do many fields of inquiry. Would one refute modeling in math, physics, biology, medicine, etc. 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 devales visualization and how-to skills. The split between academic and vocational subjects, fine arts and crafts, 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 abstruse formula. It can be defined and perceived in such a way that allow me to explore the visual documents. Some of the projects whose scope encourages more than minimal effort and rote processes.

The work of the studio critic is to guide that student so he can run into a “problem,” i.e., a gap in his knowledge base that is slowing his progress. Such problems are usually caused by the student’s work as a basis for further study. 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 method may be available, including lectures, whether formal or informal.

Where a pedagogy is outlined, lectures that address those 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.”

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 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 Austin, suggested to me that “designers” ought to be able to “design” a curriculum that had goals, methods, and means of evaluation, and in fact be hands-on considerable work in that area.

The studio is an integrating and synthesizing area of thought. Whether one is learning fact or theory, it 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 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.”

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Architectural education 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 and objectives that touch on the broad 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.

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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.
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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.

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.

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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 227,000-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.
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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.
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1. Van Ness Plaza, San Francisco, California; Kaplan/McLaughlin/Diaz, Architects (Award of Excellence). In order to convert an automobile showroom 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 reshathed 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 128-139). 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."

Charles Callister
Fiona Spalding-Smith
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. Gallatin County Detention Center, Bozeman, Montana; BGS Architects (Award of Merit). The program called for a new 48-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, Stainbeck & 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. 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. 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 780,000 square feet of retail 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.
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 aesthetic, 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, FRCA, 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.

1. 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.”

2. 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.

3. Bridges for State Routes 111 and 42, Putnam County, Tennessee; Tennessee Department of Transportation, Structural Engineers. Dual bridges feature precast spread beam 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.”

4. 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.”

5. Maryland Concert Center Parking Garage, Baltimore, Maryland; Cochran, Stephenson & Donkervoort, 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.”

6. 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.
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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 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 on 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.

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.

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

Initially conceived as a 22-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 midday 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
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 Paola
10. Paying homage to Bramante's Tempietto
11. Greeting visitors at the American Academy
12. Touring the town

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

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 Messianic 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:

Rietveld'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 counterparts, 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, 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 & Friedmann'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 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.

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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 woody 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 entrance 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: Gatz Papachristou Smith/ASE Furno (a joint venture)—Tician Papachristou and Robert Furno, design principals; Mark Atwood 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
"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.
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.
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. McCravy, project architect

Engineers:
Tilden, Lobitz, Cooper (structural); Roy Turknett Engineering (mechanical/electrical); Richard Carlson (civil); William Lam (lighting); Jaffe Acoustics (acoustical)

Interior design:
Interspace

Interior layout:
Sul Branella, Westinghouse

Landscape architect:
Herbert Halback

General contractor:
Scandia, Inc.
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.”
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:
LeMessurier 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
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
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
Frank Gehry is generally regarded as a regional architect—an idiosyncrasy peculiar to the helterskelter 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 died 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/prettiness 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 executives at Sunar Hauserman, who chose Gehry to design a new corporate headquarters for The Rouse Corporation, Gehry unleashed a "junkitecture." 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 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 gargoyles do 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?).

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 conveys 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 that he's continued 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.
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 regretfully, bedecked in lattice work and bunting donated by Anheuser-Busch for the Olympics.
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 be best 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 Ilustray, project architect; Greg Walsh, Ron Johnson, Patricia Owen, Sharon Williams, Josh Chalken, Dean Perton, Yuk Chan, Adolph Ortega, David Kellen, design team
Engineers:
Kurtly & Szymanski (structural); Paller-Roberts (civil); Athens Enterprises (electrical); Store, Motakovich 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 Maxer (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
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 allee 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 apple trees. 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...
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.
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,


Engineers:
Parsons, Brinckerhoff, Quade & Douglas, Inc. (civil and transportation)
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 gazetteer 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

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 (1929), and his Unité d’Habitation Marseilles (1946-52); Mies van der Rohe/Ludwig Hilbersheimer’s Lafayette Park, Detroit (1966); Ernest May’s Riedhof, Frankfurt (1927-80); 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 emerging from the political wilderness. As far back as the 1970s, architectural and planning task must look to Europe in search of turnaround comes.

Excessive construction and maintenance costs made low-income housing even more unpopular. The 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.

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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, 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 lump metal.

Fact being stranger than fiction, it 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, the streets marred by casualties among both the rioters and the police, and—invariably—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 defenses in wartime, and the houses had to be able to be dismantled quickly.)

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—populated 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 Jodenhok. Most of the Jews lived in stark poverty, eliding 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. And so during 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 radio 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 “confident 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 for Verwoesting, a Jewish ghetto, and as the war progressed Jews from all over the country were forced to move there. Thousands upon thousands were rounded up in the
respectable environment to be constructed as well as possible, for a
time. To be fair, Holland has been building so-called democratic
housing far longer than we have. From 1916 to 1980, 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 for 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 Bekbaert 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.

Meanwhile the subway had come into the picture. The city council
approved a detailed plan, 88 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 swampland 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
times would prove that the Nieuwmarkt activists had built up the best
organized citizens' action group the Netherlands have ever known. They
had their own radio station, the “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 Streek Davidson
said in 1974: "We need people who can use their own minds.'"

The first encounter with the city police was on December 12, 1974,
and involved one house. When the activists saw the police coming,
they climbed up into the belfry of the Zuiderkerk—coincidentally, the
first church built in Amsterdam with the money of Amsterdam
Protestants—and warned the police that if they ventured any further into the belfry, they would be shot. The police responded with a 
swath of demolition. The Nieuwmarkt activists were on their toes. In the seven years that the city council spent discussing the subway, the

The Nieuwmarkt activists were on their toes. In the seven years that the city council spent discussing the subway, the

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
elevated slabs of housing on these sites and have instituted urban

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need have no fear of speculation from the authorities was the rehabilitate the neighborhood as big development, that they advocacy planners and helped persuade the city to keep Nieuwmarkt as 1971 it had proclaimed that an neighborhood back to life, not just concentrating on ways to submarine 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 1976, a similar statement by the city appeared, reassuring the inhabitants that they need not have any fear of speculation and big development, that they would not be sacrificed to the interests of big money. But that was 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 building. 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 convinced. “The city built a subway no one asked for. It is foolish to tear down neighborhoods for the sake of building,” he 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.”

Mildred F Schmerts
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 Koolhaas. 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.

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

Planning by Rem Koolhaas and the late Jan Voorberg with Herman de Kovel, Kees Christiaans, 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 landfill area into a generous park with playgrounds.

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.

Amsterdam Housing Prize
Honorable Mention:
Nieuwmarkt master plan
and infill housing
Theo Bosch, Architect
This park divides the site into two halves, offering 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.)
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 Koolhaas'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 Koolhaas: "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 Hoogeveen 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 Koolhaas 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 overwhelming 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 Hagenbeck'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 Overbeek (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
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 $\Delta_s$, Volume of Material is $V$, and Modulus of Elasticity is $E$, the Shear Rigidity Index is defined as:

$$\text{SRI} = \frac{2500 SH^2}{2EV\Delta_s}$$

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 shearing 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, $\text{SRI} = \frac{5}{8} \times 100 = 62.5$. 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 is $\frac{5\sqrt{2}}{16} \times 100 = 31.3$. This system is used at Citicorp Center and the Bank of the Southwest (page 148).

The most common shearing 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:

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

All four frames have the same SRI:

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

Frames (H through K) have the same member depth $D$ and varying values of $P$. With 35-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.
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 68. 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.

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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 1969). 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 8, 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 Raftorfer

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 with concrete placement following. With 10,000-

Stories: 78
Height: 1220 ft above grade

Bank of the Southwest, Houston
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.
InterFirst Plaza of the Dallas Main Center, Dallas

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

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 structural 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.
New products

Snips and snails and ... Loosely woven wool sweaters and long skirts with rolling hems are only part of Japanese designer 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
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 406 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 408 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 405 on reader service card

Sealant systems  
The performance of the manufacturer’s insulating glass sealant systems is reviewed in a 9-page brochure. Moisture transmission, fogging, and adhesion characteristics of the single- or dual-seal systems are discussed in the literature. Seals for perimeter caulking are described. Tremco, Cleveland.  
Circle 404 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 400 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 403 on reader service card

Security systems  
A 15-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

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 409 on reader service card

Glass coatings  
Three new reflective glass coatings, each available with light transmissions of 8, 14, or 30 percent, are reviewed in a 4-page color brochure. The thermal and solar performance of the coatings are discussed. Guardian Industries Corp., Carleton, Mich.  
Circle 407 on reader service card

Skylight system  
A cross-arched skylight system that uses Vector 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 406 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

Architectural Record January 1985 161
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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 Allus Corp., San Jose, Calif. Circle 418 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—a range from a broad wash to a down-directed spotlight—is described in the literature. The six available finishes, including those that are reflective, are shown. Chicago Metallic Corp., Chicago. Circle 418 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 Duplitor 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 419 on reader service card

Office lighting
Light fixtures designed specifically for the illumination of CAD and CAT workstations and for drafting and design areas are shown in a 4-page color brochure. The parabolic louver of the adjustable Wallbox 501 model, for computer areas, and the fluorescent tube of the tabletop TL 168/216 are described. Waldmann Lighting Co., Wheeling, Ill. Circle 419 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

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

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. Armaco Building Systems, Boston. Circle 415 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 900 ft per minute between stations, are discussed. Litton UHS, Florence, Ky. Circle 421 on reader service card

Fiberglass insulation
Fiberglass batts and rolls, Insmul-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

Roofing
A 12-page directory reviews available publications and audiovisuals 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

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

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
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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 a 32-bit Apollo monochromatic or color computer • 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 a 32-bit Apollo monochromatic or color computer • 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.
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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.

360 CADAPPLE
T&W Systems, Inc., 7372 Prince Dr., Suite 106, Huntington Beach, Calif. 92647—Bob Murphy, 714-847-3980 • For use with Apple II+, Apple IIe or Franklin ACC 1000 or 1500 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: free • Training: 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, 617-879-5860 • For use with pw 500 stand-alone workstation, all Prime 50-series 32-bit virtual-memory CPUs with pw 150 or Tektronix 4010 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-size 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.

309 VU/NET
Graphic Horizons, Inc., 60 State St., Suite 0330, Boston, Mass. 02109—Mary Cancian, 617-396-0075 • Graph/Net ctd 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/ploter; hardware options include wide-screen upgrade, 2mb memory, Ethernet sub-system, 1/4-in. streaming tape cartridge, color monitor sub-system, 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.

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
310 COMPUTER DATA BASE FOR STRUCTURAL SHAPES
• 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, 414-635-7461 • For use with IBM PC or PCXT 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 EnterGraphic 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, 303X and 3X8 series running MVS/TSO or VM/CMS and 3270-series terminals (2375 for viewing graphic output); DEC/VAX models running VAX/VMS using VT100 or VT200-series terminals (VT100, 200 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., 2590 Electronic Lane, Suite 112, Dallas, Texas 75229—Richard Schrag, 214-350-4546 • For use with IBM PC, Osborne and TOS-80; requires 64k RAM; program written in Basic source code • Price: $295; Updates: none available • Training: manual.
Aco sonicomp-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, 315-432-6883 • 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 blue lines 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.
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Circle 71 on inquiry card
Continued from page 169

315 RISK ANALYSIS
J & S Associates, 13407 Quapaw Rd., Apple Valley, Calif. 92207—Jon Prescott, 619-247-7219 • For use with IBM 360/370, DEC VAX/VMS, VAX/V80, 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
BriningCad, 611 E. Skelly Dr., Tulsa, Okla. 74125—William F. Albu, 918-663-5291 • For use with Easycad2 turnkey system which consists of an MC-88000-based processor, 1.9mb RAM, 14.5mb Winchester hard disk drive, dual 3/2-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.

Easycad2 is a three-dimensional add-on modeling package to Easycad2 (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 Easycad2.

317 TQ CONTINUUM CAD
Tecquipment Inc., P.O. Box 1074, Acton, Mass. 01720—Andrew Spencer, 617-263-1767 • Turnkey system consists of MC88000-based CPU with 580K RAM, 12-in. monochromatic monitor, dual 8-in. disk drives, keyboard, Houston Instruments DM1-28 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: $5,000 for software; $65,000 for hardware; Continued on page 201

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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 Gajte Papachristos Smith

Page 98-99 —Entrance and windows:

Page 99 —bottom) Framing: Bigelow
(Regency Row). Door pulls: Brookline.


Page 100-103
Westinghouse World Headquarters
Steam Turbine-Generator Division
by William Morgan Architects

Pages 100-101 —Windows frames: Kawneer.

Page 102 —top) Door pulls: Blumcraft.
Hardware: Ruswin. Lounge chairs: Scope


Pages 104-107
Erie Insurance Group Home Office
by The Stubbins Associates, Inc.

Pages 104-105 —Fountain: William Hobbs


Page 106-107 —Paving: Cold Spring Granite. Bench/table units: Custom by architect. Curved modular units: Herman Miller Inc. (Chadwick). Wood tambour:

Environmental Interiors (Woodline).

Bailing system: Livers Bronze Co. Atium
skylight: Sentinel Aluminum Products Ltd.
Glazing: Sterling Glass/Palmero Glass.

Planters: Mascotta Corp. Strip fixtures:

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
Illumination Concepts & Engineering.

Brick paving: Muddex. Laminated beams: Standard Structures (Architectural Grade).

Pages 109-111 —Atrium skylight: Camelot Corp.

Quarry tile: Structural Stonewall (Traffic
Tile). Storefront windows: (exterior)
Kawneer Corp. Red birch interior units: J.
D.Cristini & Son, Royal Glass. Entrance:
Kawneer Corp. Hardware: Schlage, Adams.
Rite, Rixson. Pulls: Builders Brass Works.

Patio bolts: Von Duprin. Lobby seating:
Heilbert/Metropolitan. Reception desk:
(counter top) J. D.Cristini & Son. Fiber
concrete surrounding: Olympian Stone Co.


Pages 110-113
Mount Pleasant Corporate Center
by Renato Severino Associates


Page 112 —Ceiling tile: Armstrong
Sprinkler heads: Automatic Sprinkler Corp.

Planters: Fib-Com Corp. Entrance:
Antracite Plate Glass Co. Door pulls: Seeco
Supply Corp. (bottom) Skylight: Supersky
Products, Inc. Panels: Acorebond.

Page 113 —Carpeting: Patcraft Mills Inc.
Seating: Herndon Co. Troffer fixtures:
Lighttron.

Pages 114-123
Aerospace Museum
by Frank O. Gehry and Associates

Pages 114-115 —Exterior wall panels:

Page 116 —Metal door: Security Metal
Products Co.

Page 122 —Skylights: Bradco. Theatrical-
type light fixtures: Colortronix. Fire
equipment cabinet: Potter-Roemer, Inc.

Sprinklers: Reliable. Elevator: Coast
Elevator. Carpet: J.P. Stevens (Gulistan).


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 responsibilities. 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.

Faculty Position, Montana State University. 9-month, tenure-track, rank of Assistant or Associate Professor, beginning August 1985. Candidate must have completed the Ph.D. degree and have evidenced a record of teaching and professional experience. Responsibilities include teaching courses at the undergraduate and graduate level in architectural history, design, and professional practice, doing research, and participating in student advising and professional organizations. Applicants should send a letter of application, a curriculum vitae, and three letters of recommendation to: Dr. J. J. Buerg, Chair, Architecture Search Committee, Montana State University, Bozeman, MT 59717.

The 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 beginning August 1985. The School is particularly interested in candidates with research and teaching interests in non-architectural design. Special consideration will be given to candidates with a background in environmental design, communication, art history, history of ideas, social science, and environmental studies. Position responsibilities include teaching courses at the undergraduate and graduate level, conducting original research, and participating in the academic life of the School. Applications are solicited for both assistant and associate professor positions. Qualifications: Ph.D. or equivalent degree in related fields is required. Salary and rank are commensurate with experience and qualifications. Applicants should submit a letter of application, curriculum vitae, and three letters of recommendation to: Dr. John H. Bryant, AJA, Head, School of Architecture, OSU, Stillwater, OK 74078. Deadline for application is February 15, 1985. AA/EOE.

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 responsibilities in the Architectural Technology are advanced materials and methods, and large scale construction materials. 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.

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 beginning August 1985. The School is particularly interested in candidates with research and teaching interests in non-architectural design. Special consideration will be given to candidates with a background in environmental design, communication, art history, history of ideas, social science, and environmental studies. Position responsibilities include teaching courses at the undergraduate and graduate level, conducting original research, and participating in the academic life of the School. Applications are solicited for both assistant and associate professor positions. Qualifications: Ph.D. or equivalent degree in related fields is required. Salary and rank are commensurate with experience and qualifications. Applicants should submit a letter of application, curriculum vitae, and three letters of recommendation to: Dr. John H. Bryant, AJA, Head, School of Architecture, OSU, Stillwater, OK 74078. Deadline for application is February 15, 1985. AA/EOE.

The University of North Carolina at Charlotte’s developing architectural program, which is dedicated to addressing major architectural issues, seeks faculty committed to teaching, design, and research through full Professor levels. Masters in Architecture or equivalent is required. Preference is given to candidates with teaching and practice experience. Salary and rank commensurate with qualifications. Forward letter describing approach to teaching and design with vitae to: Dean Charles C. High, College of Architecture, UNC-Charlotte, N.C. 28223. Affirmative Action/Equal Opportunity Employer. Deadline for receipt of applications is March 1, 1985.

Cornell University — School 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 have completed courses at the undergraduate level and graduate level apprenticeships. Preferred qualifications include a degree in architectural technology or similar professional degree. The School of Hotel Administration is a rapidly growing division of the College of Human Ecology, and offers an accelerated B.S. degree in Hotel Administration and a four-year professional M.S. program in Hospitality Systems. The School is located in beautiful Ithaca, New York and draws students from throughout the United States and international locations. Salary is commensurate with qualifications and experience. Salary is commensurate with qualifications and experience. Applicants should send a letter of application, curriculum vitae, and three letters of recommendation to: Dr. David A. Dunn, Assistant Dean, School of Hotel Administration, Cornell University, Ithaca, NY 14853-0224.

Syracuse University School of Architecture has junior full-time 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 inter­ est or professional experience registra­tion desirable. Please send resume by March 1, 1985, to: Professor Raymond DiPasquale, Faculty Search Committee, School of Architecture, Syracuse University, 303 Slocum Hall, Syracuse, New York 13210. Syracuse University is an Equal Opportunity/Affirmative Action employer.

Princeton University School of Architecture is seeking candidates for the full-time position of Assistant or Associate Professor in Architecture. 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 a letter of application and resume to: Dr. Donald D. Bryant, Chair, Search Committee, School of Architecture, Princeton University, Princeton, NJ 08544. Princeton University is an Equal Opportunity/Affirmative 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 having an earned Professional Degree in Architecture or Engineering with a major in Architectural History or Design, a minimum of three years professional experience in both teaching and private practice preferred. The successful applicant must have background in and a clear working knowledge of computer systems, Illumination, fire safety and plumbing. Duties will include primary responsibility for teaching three courses per year with three courses per year with an expectation of publishing and generating research proposals. The position is available July 1, 1985. Applicants should send a letter of application with vita plus references to: John H. Bryant, AJA, Head, School of Architecture, OSU, Stillwater, OK 74078. Deadline for application is February 15, 1985. OSU is an Equal Opportunity/AA/EOE. Affirmative Action Employer and actively seeks candidates who are women or members of minority groups.

Up to one year full-time lecturership assignments available for 1985-86. Teaching areas, one or more of the following: Upper and Lower Division Design Practice, Graphics, Architectural History, Environmental Control Systems. Applicants to the area of Environmental Control Systems with experience in 3-D design programs, preferred are encouraged to apply. Salary is commensurate with qualifications and professional experience. Send application to the area of Environmental Control Systems. Applicants to the area of Environmental Control Systems with experience in 3-D design programs, preferred are encouraged to apply. Salary is commensurate with qualifications and professional experience. Send application 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/Affirmative Action 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: Urban and/or Lower Division Design Practice, Graphics, Environmental Control Systems. Applicants to the area of Environmental Control Systems with experience in 3-D design programs, preferred are encouraged to apply. 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/Affirmative Action Employer.

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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. Education is required. Candidates should have strong Academic background and a minimum of ten years experience in designing commercial/retail buildings. Applicants should send resume and salary history in confidence to: Metz Train Youngren of Arizona, Inc., 2721 North Central Avenue, Suite #1102, Phoenix, Arizona 85004.

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