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THURSDAY OCT. 10

Facilities Management Day: Featuring four one-hour presentations held at each participating showroom, commencing at 9:00 a.m., 10:30 a.m., 1:30 p.m. and 3:00 p.m. Lunch will be served at 12:00 noon. The schedule of seminars will be appearing in the September issue of this magazine. Tickets are not required.
Cocktail Reception: AT&T Building, 550 Madison Avenue at 56th Street. 5:30-7:30 p.m. Open to facilities executives and designers. Admission tickets, $25. Send in the attached coupon.

FRIDAY OCT. 11

Critics' Choice 1985: A multiple-image presentation, panel discussion and cocktail reception. At The Great Hall of The Cooper Union, Cooper Square, Third Avenue at Seventh Street. 5:30-9:00 p.m. C. Ray Smith, author and editor, will moderate the event which will feature projects chosen by a distinguished panel of tastemakers from the world of design. Panelists will include Stanley Abercrombie, editor, *Interior Design Magazine*; Owen Edwards, design writer, *California Magazine*; Beverly Russell, editor, *Interiors Magazine*; Michael Sorkin, architecture critic, *The Village Voice*; and Pilar Viladas, interiors editor, *Progressive Architecture.* Admission tickets are $10. Please send in the attached coupon.

SATURDAY OCT. 12

Gala Reception: The Metropolitan Museum of Art, Fifth Avenue and 82nd Street. 7:00-9:00 p.m. The Designer's Saturday finale! Buffet and bar in The Great Hall, drinks and dancing in the Temple of Dendur, refreshments and relaxation in the American Wing Courtyard. Also a preview of *Liechtenstein: The Princely Collections,* a royal gathering of the most elaborate artworks and artifacts imaginable, and *India!* an enchanting exhibit of 14-19th-century Indian Art. The $15 admission tickets (a tax deductible contribution to the Museum) may be purchased at all member showrooms or at the Museum on Saturday evening.

PARTICIPATING SHOWROOMS

The following firms will be open from 9:00 a.m. to 5:00 p.m. Thursday, Friday and Saturday, October 10th, 11th and 12th. Lunch will be served each day at 12:00 noon.

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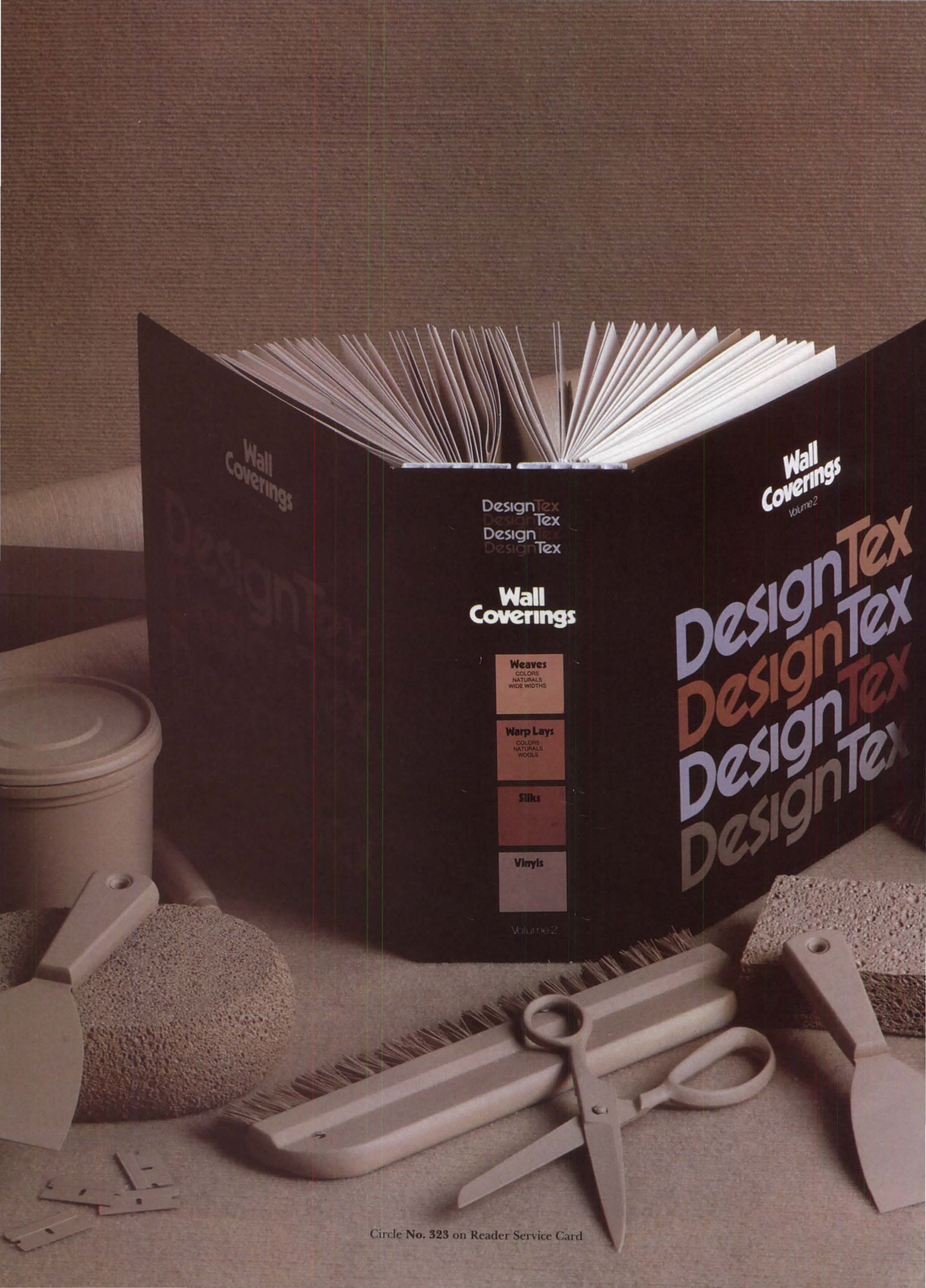

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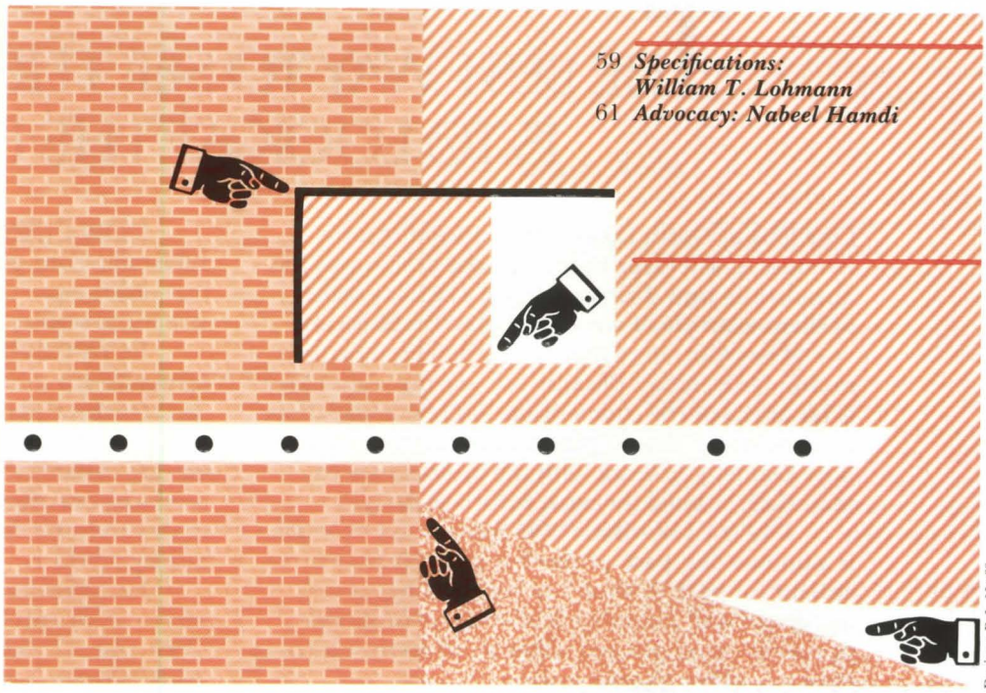

Design: R.J. Huff

Specifications: Workmanship—Are We in for Trouble?

We hear it all the time: "Nice building but the workmanship is poor. What ever happened to peoples' pride in their work? Nobody seems to care."

Shoddy workmanship has always been a problem in the construction industry. But upon close examination, the workmanship of today's building is better than even 20 years ago. The real question is whether we can continue to stretch between increasingly sophisticated manufactured and custom fabricated products and the reality of conditions encountered in the field.

The demands for quality in construction work are greater than ever before. Technology is moving us inexorably to narrow specialization, increasing levels of prefabrication and preassembly, and change as a way of life. The clockwork assembly of curtain-wall systems, the complex chemistry of sealants and solvents, and the structural interdependence of space-frame components all represent applications of new technology that ultimately rely on shop and field workmanship of a precise nature for successful performance.

Major changes in construction technology were attempted in the United States in the 1960s. The State of California school development program and HUD's Operation Breakthrough, for example, developed detailed performance specifications for large building components and were aimed at extensive prefabrication of them. The industry responded with new products, improved concepts of trade coordination, advanced erection techniques, and special training for workers. It was a far cry from workers' reactions to 19th-Century industrialization. The English Luddites destroyed machinery to protect their jobs, while Ruskin called for a return to medieval craftsmanship, advancing the idea that "good" work should be made by hand and should be creative, not imitative or repetitious. Workmanship should be imperfect because the worker is imperfect, he advised us.

Large-scale activity here has declined since the early 1970s, although full industrialization still flourishes in Europe. Analysts cite many reasons: lack of uniformity in building codes, union restrictions, transportation costs involved in national distribution, faltering economy, etc. The profound aftereffect, however, has been a quantum increase in the quantity and quality of smaller scale shop and factory prefabrication, preassembly, and prefinishing within the industry. Look at the size of Sweet's catalog and the number of shop drawings that we now process for a typical project.

The advantages of working in a plant or shop (or temporary enclosed site facility) are relatively obvious. Without weather problems and conflict with other trades, work can proceed efficiently. Proper tools are at hand and effective quality control programs can be implemented. Sophisticated chemical processes are possible. The size of components may be limited by available space (and transportation constraints), but preassembling and dismantling large elements of a building before shipping can successfully avoid erection conflicts later. Field work, including installation of prefabricated components and site "manufacture" of materials such as terrazzo, is accomplished under more difficult conditions, to say the least.

Thus we are faced with establishing workmanship requirements on two significant levels. Utilizing the benefits of manufacturing and custom fabrication techniques, we can detail and specify machined shapes, repetitive elements, tighter tolerances, high performance materials, special finishes, visual controls, laboratory testing, and extensive coordination before erection for such products as stone panels, curtain-wall components, and acoustical ceilings. Strict quality control requirements can be imposed. Acceptable industry and government standards exist and can be specified for most manufactured products and many shop procedures (such as welding, preparation for painting, and finishing).

Standards for field workmanship are another matter. Some shop standards are also usable for work in the field. In other cases, trades responsible for site "manufacture" of materials, such as cast-in-place concrete, built-up roofing, and plaster have prepared reasonable guidelines for their work. The normal aggravation of field conditions, however, often leads to unsatisfactory results in such work.

Even greater problems lurk in the interface between precise manufactured and custom fabricated items and their installation as part of a building. Then construction becomes a real jigsaw puzzle. Scheduling, discrepancies in field measurements, errors in adjacent work, cramped and awkward working conditions, and poor coordination with other trades become critical.

Our workmanship controls for field work are still developing. Erection tolerances, especially for steel-framed structures, have been tightened over the past several years. New survey equipment and techniques make verification more reliable. More sampling and testing of installed materials is being done. Particularly on large projects, we require more mockups for evaluation of workmanship before construction can proceed. Some mockups are temporary. Others are permanent and are left as part of the construction after they have been accepted, serving as standards for subsequent work. Field testing, from structural loading to checking for curtain-wall leakage and acoustical performance testing of partitions, is becoming more and more sophisticated.

The great majority of building components are now complex products that are manufactured or custom fabricated and preassembled and prefinished. They are far more precise than handmade products, leading both building owners and designers to expect a "perfect" building. As a result, designers may be in trouble if they do not detail and specify in a manner that is consistent with current shop and field capabilities. At the same time, the construction trades will be in trouble if they do not continue to keep up with rapidly changing technology and become unable to bridge the gap between precise products and working in the mud. ■

William T. Lohmann, AIA, FCSI

The author is Specifications Manager for Murphy/Jahn, Chicago.

[*continued on page 61*]

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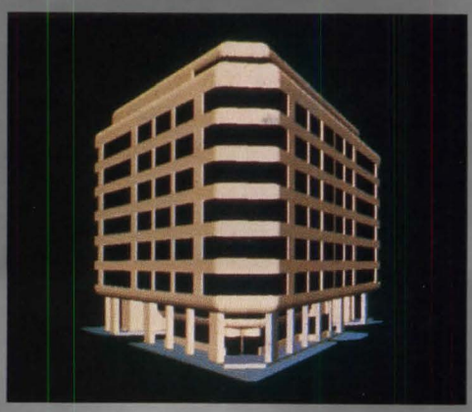

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Evaluation

The first step is for all parties to agree on the nature and immediacy of problems. As distinct from knowledge (how do things work), evaluation is invariably judgmental (do they work well). Three kinds of interlocking evaluations are relevant, and each first has to be understood in terms of the objective (why do an evaluation) and the procedure (how to go about it in the most effective way). This understanding will lead to results less ponderous and more directed and immediately useful. In each, architects have an important role.

The first, and the most common, is largely technical, and draws on comparative case studies of completed projects. It provides "bench marks," ensuring a better fit of housing to its context and allowing the generalization of the most common causes of failure. The information usually sought ranges from design and construction information of dwellings, of land subdivision (land utilization, network efficiency, density, etc.), and costs. Some basic design indices, together with site observations and user interviews, help measure the outcome in terms of performance and cost effectiveness. A number of lessons can then be drawn, and problems can begin to be focused. For the practitioner, these lessons provide valuable examples of failures and successes—a window through which the client can observe, at first hand, conditions that may need to be corrected or avoided in subsequent design work. The practitioner will develop a checklist of issues to watch for. He may, in addition, reveal principles that can be generalized for wider application, principles that have universal value in both developed and developing countries.

The second type of evaluation—integrally related to but unfortunately far less common than the first—is an assessment of decision-making: who, how, and when. The objective is to understand the various roles that different parties played in both initiating and implementing proposals, and how those parties related to each other. It offers insight into how programs (rather than projects) can best fit the context, and whether the terms of reference match the circumstances. Many programs are written by people who may know little of the context in which the project or program will be implemented, and will therefore often represent the priorities of its initiator rather than the recipient. Decision analysis, as a way of evaluating projects, may reveal that the real problems are seeded outside of the context in which they appear.

While this type of evaluation is largely policy oriented and generally considered outside of architecture, architects can make an important contribution. They are, after all, in the business of giving social and economic systems physical form and are, therefore, the implementers of policy. They can highlight the inflexibility of prescriptive terms of reference and help set priorities, define goals, and formulate an implementable program. They can indeed indicate where flexibility is needed in program formulation, who might be involved, when, and how. The project teams may emerge as very different from those usually prescribed, including people and organizations (users, community and religious leaders, local craftsmen and small contractors, local housing managers) not normally involved in either program formulation or even project development.

The third type of evaluation we might call impact assessments. Typically, these judge the intentions of government or policy against their performance and outcome over a given period of time, i.e., the numbers of houses built, the amount of land allocated, the numbers of loans disbursed, and so on. The results are certainly useful as background data, but unhelpful in improving practice. They usually tell governments what they already know, and their counting methods are often less than accurate.

These processes, then, tend to measure success of policy in units of production or supply, rather than in the number of targeted families who benefit. These macro scale assessments are usually the prerogative of planners and economists. In addition to assessing the impact of policy on government performance, however, it may be congruent with the emergent "support" policy to judge their impact on people and communities locally. This introduces the idea of project monitoring in which architects, rather than planners, have a significant role. The important difference for architects will be their commitment to project work beyond the conventional "completion date," a commitment that is particularly relevant given the incremental way most housing projects emerge and the plethora of changes and adjustments that occur.

Two kinds of project monitoring are relevant here, the first very much the prerogative of architects and their local counterparts, the [*continued on page 65*]

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second of social scientists, health workers, and community development officers. The first is day to day, aimed at improving design and building operations as work progresses and projects emerge, which can be over a period of years. The second, with broader goals, involves issues such as health improvement, crime, and employment. The first deals more with project work, the second with policy. The first informs policy, the second, design and project development.

Design and incremental interventions

If we assume that the purpose of design is to cultivate an environment in which housing will grow, then it follows that monitoring will rate high on the development agenda. What does this mean for architects?

An architect, for example, may decide to create a "focal point" for his low-income housing. He might cluster units around a lighted street intersection, widen the streets at this intersection, and provide space for activities which at this stage are anticipated but uncertain. His intention is clear (even if the outcome is not), based on his knowledge that many impoverished school children do homework in public places where there is often more light and less crowding than in their homes. The architect may use this knowledge of place as a basis on which to build his idea. He will avoid overformalizing his design and will, instead, see how things grow, before expending his client's limited capital. As he monitors progress, he may indeed find this area develops as a gathering place for children. Sooner or later, informal vendors collect around the children to make money. An adjoining house converts a part of its front into a shop or extends into the space available by the widened street. Later, a canopy will appear with chairs on the street. The architect's proposals, in other words, will have been specific as a strategy, but unfinished as a project. He will have enabled the community to have free interpretation within a larger ordering framework that could be filled in in different ways.

In another case, monitoring may assist in identifying the skills required to tackle a problem—is it a problem of design, management, or basic provision? In Cairo, for example, where we were asked to upgrade informal settlements, our surveyors assured us that adequate water existed, and according to their standards and measurements, they were right. Standpipes for the prescribed number of families were neatly spaced at standard intervals. But discussions with families revealed a very different picture. Standpipes to the north of the site were often congested with lines of people waiting for water, indicating to us that while the numbers were right, the locations were not. Further discussion revealed that with the development of small industries and shops along the northern boundary, those using this facility now included many who had not been counted in the original calculations. The issue had shifted from one of water provision to one of water management.

Mike Cohen of the World Bank once wrote: "It is not an overstatement to assert that the establishment of a training institution in a specific country will be of greater importance than the provision of an additional 5000 plots in that country."[2] The general concern that prompts this kind of comment is, in current jargon, replicability. The general question is how to scale up operations from isolated or single demonstration projects to urban or even national programs. The question for architects—or is it for planners—is how to connect the various components of their projects in ways that generate income, build local organizations, and assist in training to reduce the drain on local resources and avoid programs coming to a standstill.

The question of the architect's role in the development has generated substantial debate within the profession about the kind of contribution they can make. It is a debate about the precarious and shifting balance between interlocking and always jibing professional responsibilities. Should the architect be a supplier of design models and styles or a teacher in the field; a project maker or maker of tools, methods, and procedures that others can use in making projects? Should the architect be advocate or public servant, strategist or technical expert, initiator or respondent? All of these services are relevant. Their balance, though, depends upon the role the architectural profession adopts within the field of development.

Nabeel Hamdi ■

The author is a professor of architecture at MIT.

References

[1] Hugh Stretton, *Urban Planning in Rich and Poor Countries*, Opus, Oxford University Press.

[2] Michael A. Cohen, *The Challenge of Replicability—Towards a New Paradigm for Urban Shelter in Developing Countries*, Openhouse International, Vol. 8, No. 4, 1983.

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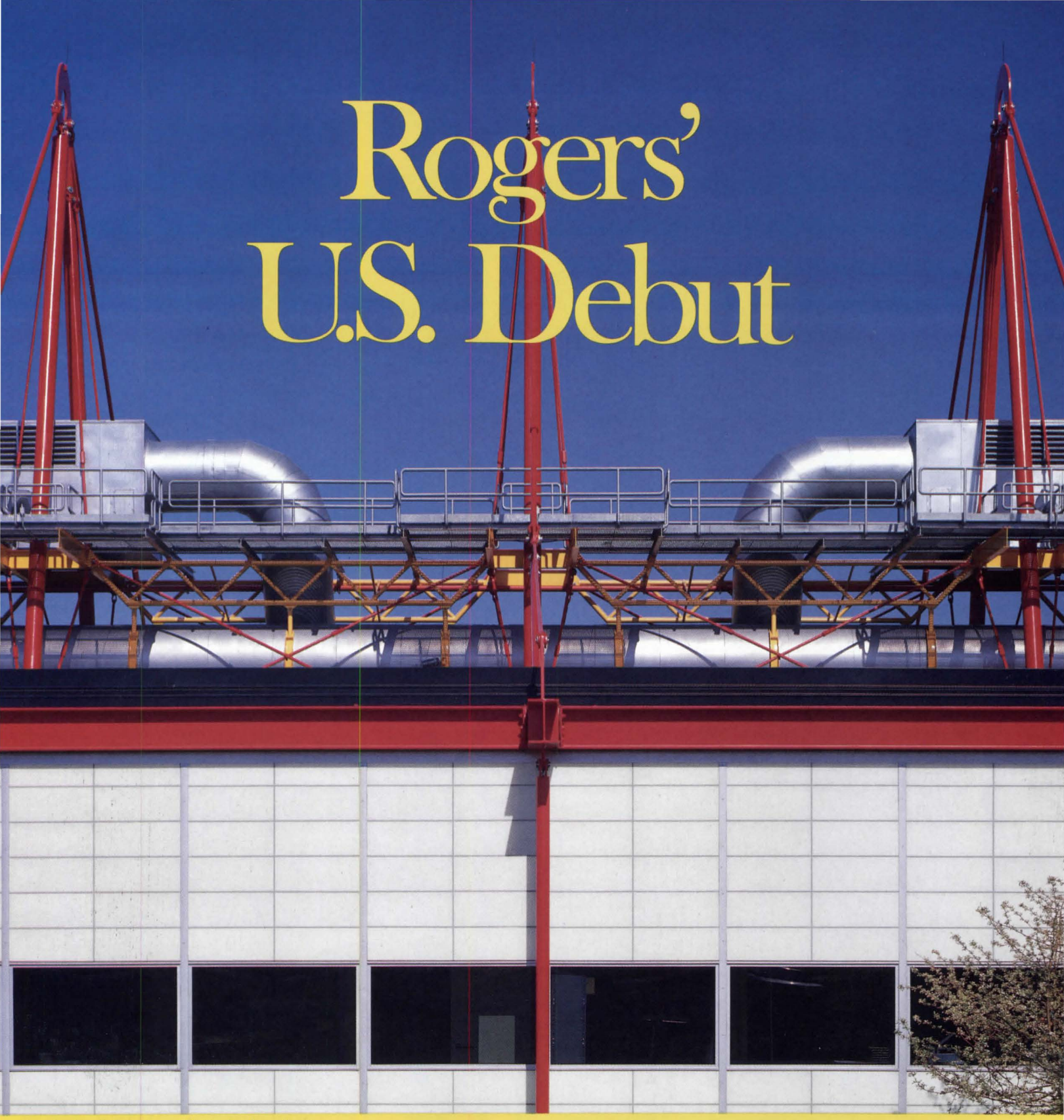


Longitudinal elevation, PA Technology Center.

The PA Technology Facility in Hightstown, N.J. is the first work in the U.S. by British architect Richard Rogers, with Kelbaugh & Lee of Princeton, N.J.

PA Technology Facility
Hightstown, N.J.

Nothing prepares the casual visitor for this vision of PA Technology, set in the office park environs of Route 1, near Princeton, N.J. The crystal clear separation of structure, services, and enclosure is easily read. The crisp mast and "sheets" are sheer rhetorical flourishes, and the ship metaphor of Early Modern architecture springs inevitably to mind.

PA Technology Facility

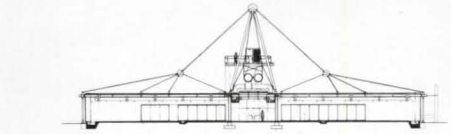
Eight years after the opening of his first major work, British architect and 1985 RIBA Gold Medalist Richard Rogers is still best known in this country as the architect, with Renzo Piano, of the celebrated—and excoriated—Pompidou Center in Paris. In the post-Pompidou era, few Americans have closely followed the careers of Rogers, or for that matter his contemporary (and one-time partner) Norman Foster, with whom he shares the British throne as high-tech stylist extraordinaire. Word of Rogers' commission to design a new headquarters for insurance underwriters Lloyd's of London, a true coup, had reached these shores; yet, other key (albeit unbuilt) projects for the redevelopment of Coin Street on the South Bank and for the National Gallery extension—works that have kept Rogers constantly and controversially in the British limelight—are virtually unknown to American audiences.

All that may now change. Rogers' spring stint as visiting professor at Yale coincided with the opening of his first building in this country—the PA Technology Laboratory and Corporate Facility in Princeton, N.J., designed in collaboration with the local firm Kelbaugh & Lee. Rogers clearly hopes that this American project is the first of many. He has already won a limited competition in Seattle, in joint venture with Broome Oringdulph O'Toole Rudolf Boles of Portland, Oreg., for a mixed-use development whose program he likens to Citicorp, in New York.

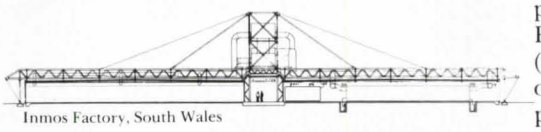
PA Technology Center is more properly viewed not as a first, but the latest in a line of successive commissions executed by Rogers & Partners over the past decade. As such, it owes much to the Fleetguard factory in Quimper, France; the Napp factory in Cambridge, England; and the Inmos factory in Gwent, South Wales. The Princeton project is also the second commission completed for PA Technology, Britain-based international management and technology consultants. (The first for PA, in Cambridge, U.K., is now undergoing expansion.)

PA's program dovetails nicely with Rogers' own interests in technical innovation. Although the 42-year-old company engages in traditional management consulting and personnel services, its newest and fastest growing branch is involved in product and process development, ranging from designing a domestic telephone—and the machine to make it—for the German market to reorganizing the classified ads section of the French magazine *L'Express*. Rogers' concept of the flexible "well-serviced shed," as Reyner Banham has called it, seems ideally suited to just this type of client whose spatial and mechanical requirements are entirely unpredictable. (The architect has also collaborated with PA Technology on several applied research projects related to building technology and construction.)

PA's closest antecedent, both chronologically and typologically, is the Inmos factory in South Wales. The use of a lightweight roof structure suspended from a central mast to permit maximum column-free space; the concentration of mechanical services in a cradle suspended from the mast to permit relatively easy access for repairs and replacement; the creation of a social "condenser"



PA Technology Facility, Princeton, N.J.



Inmos Factory, South Wales

Although the glass vestibule (above) appears open and inviting, few visitors to the PA Technology Facility are permitted past the reception and conference areas. The spine (facing page) is no rigid walled enclosure but a more fluid space, enclosed as a library, or opening out into adjacent office areas (see plan, p. 72). Bubble skylights expose the color-coded mechanical systems suspended above.

where employees can interact while en route to the labs—all are ideas carried over from the Inmos building.

But there are significant differences between the two commissions. The most obvious and most important is the change in profile and proportions of the central mast. Both Inmos and Princeton are buildings generated primarily by the section, not the plan. (Both are designed to expand in a longitudinal direction.) The boxy, rectangular section of Inmos is replaced at Princeton by a more elegant and geometrically resolved triangle. (See sections above for comparison.) That change alone yields a stronger silhouette and a clearer, simpler diagram of structural forces acting on the frame.

Princeton's very simplicity of profile may be blamed for its weakest element—the longitudinal elevation (see photo, p. 67). It isn't surprising that Rogers prefers oblique views of this building. Viewed end-on, or obliquely, the triangular masts hold their own strong silhouette; sideways, however, the 2-D forms disappear like the proverbial Thin Man. One jumps to untenable conclusions: Is the translucent Kalwall supporting the edge beam? Is the mechanical superstructure in reality not suspended from above but supported from below? To the extent that the PA Technology Center strives for structural clarity—and even exhibitionism—such ambiguous readings are problematic. The Rogers team wrestled long and hard with the essentially aesthetic concern that the building not only is supported but *looks* supported. For example, project engineer Peter Rice of Ove Arup & Partners, writing for *The Architectural Review* (July 1983, p. 47), explains the introduction of certain trusses supporting the mechanical platforms as necessary for both the physical and the *visual* stability of the lofty masts.

Accustomed to experimenting with new parts and processes in building manufacture and construction—a key aspect of their architecture but one that is not always evident beneath the bright colors—the Rogers team found itself restricted at Princeton to off-the-shelf items and workshop welding, custom construction being prohibitively expensive in the U.S. Even so, PA Technology *was* expensive, weighing in at $110 per square foot. (Indeed, the high cost of high tech may help explain why the style has yet to catch on in this country.)

As a striking and costly import, PA Technology arouses mixed reactions in those who visit it and write about it; the building elicits a sense of surprise, as only something new can do, coupled with the curious sensation of *déjà vu*. This one-off endeavor by a British architect for a British client with unique spatial and programmatic requirements would appear on the surface to have little relevance to the bulk of architectural commissions in this country.

Yet, leaving aside the question of style (and its cousin, taste), there are lessons to be learned from PA Technology, points relating to process and practice that American architects would do well to examine and, perhaps, emulate. First and foremost is the integration of the engineer into the design process from the outset. High tech's high priests—Rogers, Renzo Piano, and Norman Foster—share equal billing with a list of highly regarded engineers: Peter Rice, Tony Hunt, and others. The involvement of these engineers, not as executors but as collaborators, ensures that innovation is more than skin deep. Closely allied to this concept of collaboration is Rogers' belief that architects must regain control of the production process if they are to reassert their traditional, primary role in the building process. He believes that architects belong in the laboratory and the workshop where technical innovations and refinements take place that can advance the art of building. He argues further that the average life of a building is about 50–75 years, while the life of its mechanical system may be only 25 years. This premise is the basis of his buildings, in which structure and services are clearly separated, the latter placed on the outside surface for easy access.

It's a long way from that rationale to the actual look of Pompidou or PA Technology. American architects tend to dismiss the "look" as mere styling, or worse, window dressing, and overlook its implications for practice. The tenets of high tech, as typically professed by Rogers and his peers, suggest a more radical rethinking of the way buildings are designed and built in this country.

Daralice D. Boles ■

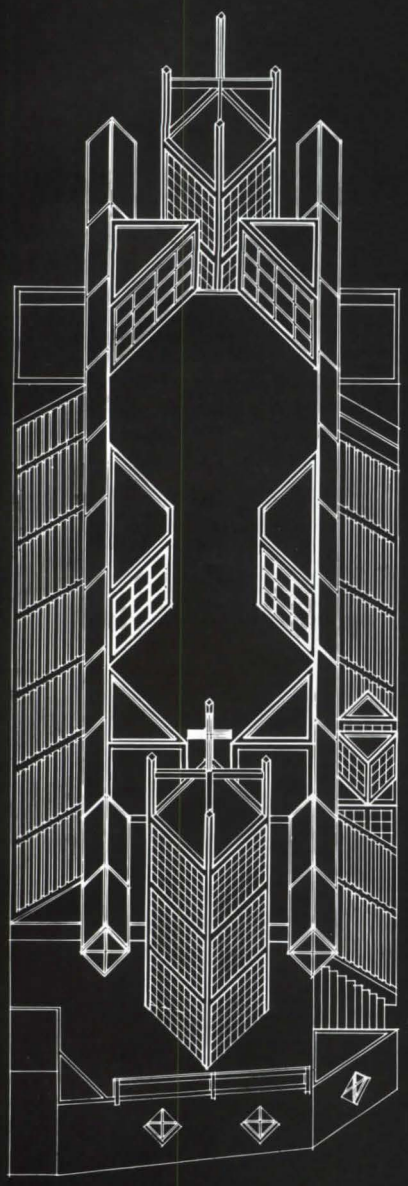
PA Technology Facility

Project: *PA Technology Laboratory and Corporate Facility, Hightstown, near Princeton, N.J.*
Architects: *Richard Rogers & Partners Ltd., London (Ram Ahronov, Gennaro Picardi, John McAslan); Kelbaugh & Lee, Princeton, N.J. (Sang Lee, with Doug Kelbaugh, Ron Ellis, William Noval, and Vicki Myers); Pierre Botschi, consultant architect.*
Client: *PA Technology (Max McGregor).*
Site: *12.5 acres of flat land approximately 8 miles east of Princeton, the first parcel of a larger office/research development.*
Program: *office space and common facilities; laboratories; conference rooms, totaling 42,600 sq ft.*
Structural system: *nine 60-ft-high tubular steel masts, from which are suspended 80-ft-long steel beams to either side; stainless steel pin connections.*
Major materials: *tubular steel; translucent fiberglass sandwich panels; demountable partitions; open office furniture (see Building Materials, p. 138).*
Mechanical system: *gas-fired steam boiler; roof-top unit air conditioner and gas heater; exposed and color-coded HVAC, plumbing, and electrical elements.*
Consultants: *Zion and Breen, landscape; Ove Arup & Partners, U.K., and Robert Silman Associates, U.S.A., structural; Ove Arup & Partners, U.K., and Syska & Hennessy, U.S.A., mechanical.*
General contractor: *John W. Ryan Construction Co.*
Costs: *$4,704,000 completed ($110 per sq ft).*
Drawings: *Richard Rogers & Partners.*
Photos: *Otto Baitz.*

Mechanical pipes puncture the roof plane only at the spine, feeding a secondary, internal system suspended in metal troughs on either side of the central spine (see photo, p. 71).

Vital Abstractions

Miguel Angel Roca's work in Argentina reflects his city and his training under Kahn. A church, a cultural center, and several urban projects are shown here.

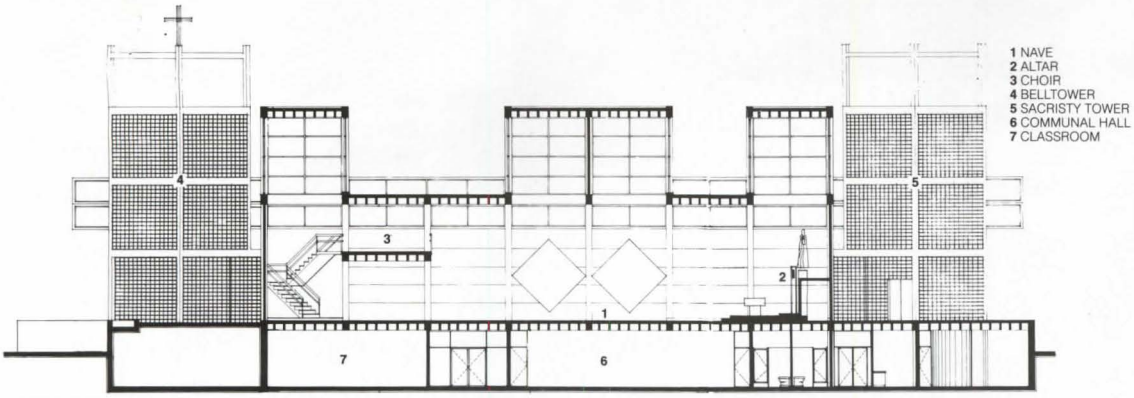


The Parish Church of the Sacred Heart (above) is located on a highway lined with garish, brightly lighted tourist attractions, not the least of which, a club named the Cuckoo Clock, stands directly across from the church. To create a nocturnal presence in this provocative environment, Roca designed the church with a bold scale and with elements that glow at night: two blue glazed towers, one the belfry, one the sacristy; and two horizontal plastic tubes, which light the interior by day.

Miguel Angel Roca, who studied for three years with Louis Kahn at the University of Pennsylvania, is an architect and urban planner in Cordoba, Argentina. His talents have recently received international attention, as evidenced by numerous publications, invitations to teach at American universities (including his alma mater in Philadelphia, where he has given two design studios in the past two years), and his recognition this year as an Honorary Fellow of the AIA. His professional accomplishments are especially noteworthy in two ways, both tributes to the teachings of his early master: the vigorous and vital Modernism of his architecture, and the successful realization of his theories of urban design.

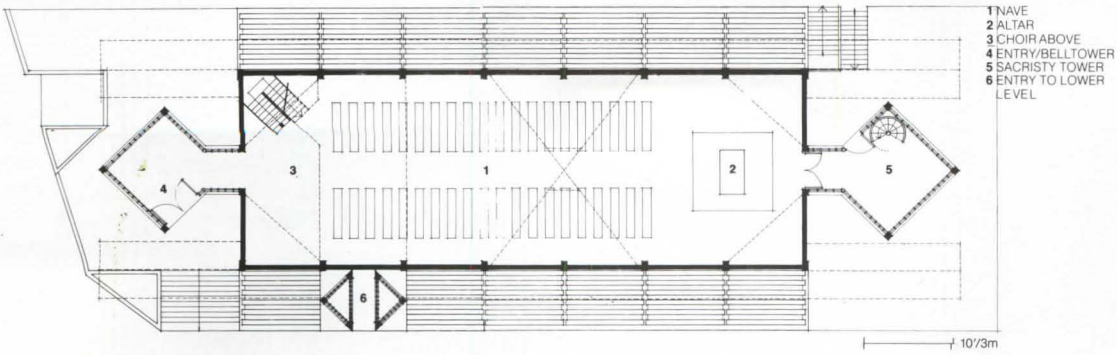
The Parish Church of the Sacred Heart, shown on the first three pages of this article, illustrates the first accomplishment. Here are bold abstract forms, structurally and functionally generated, with careful attention paid to capturing and directing daylight. References to historical elements are transformed within the Modern idiom: a pair of church towers—located, however, at the ends of the longitudinal axis; and a central dome—but split, with the two halves [*continued on page 80*]

Parish Church of the Sacred Heart



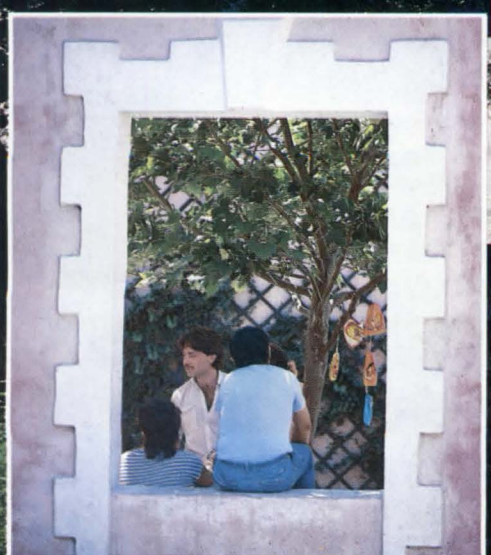
LONGITUDINAL SECTION

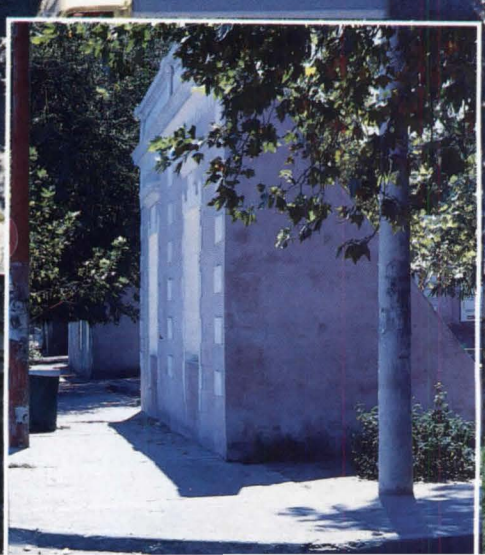
Spatial sculpting of the otherwise simple rectangular nave is effected by a choir balcony, which compresses the height at the entry, and by high triangular light scoops, which occur at the four corners and at either side of the center (below and section left). The central light scoops are intended as a reference, in reversed form, to the classic central dome. The altar has a backpiece of stone, marble, and concrete.

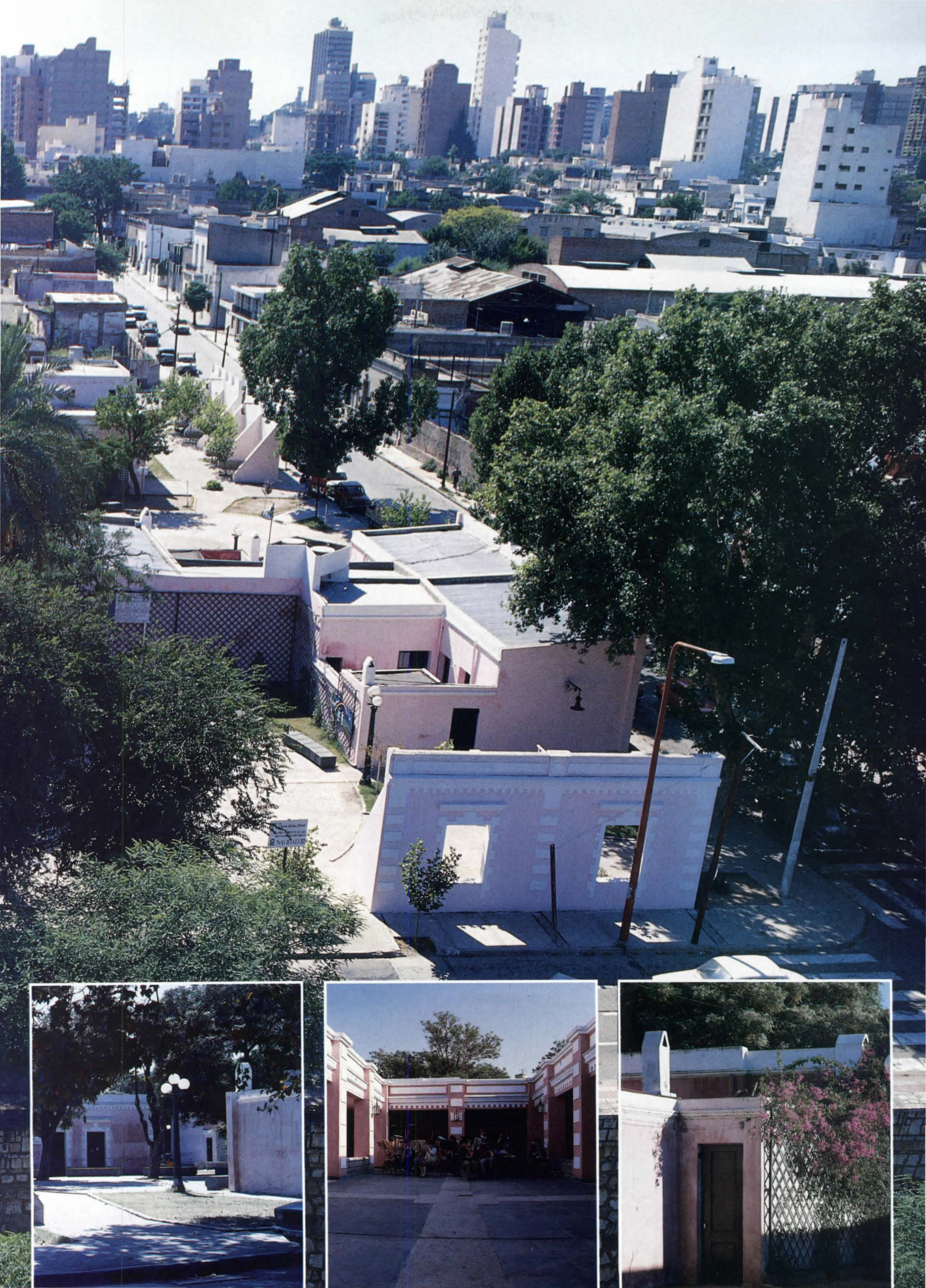


The reinforced concrete framework is infilled with bluish glass around the entry/belltower (facing page) and with decorative concrete block around the body of the 700-seat church. The base is formed of large rough-cut stone pierced by diamond-shaped windows, and sloped louvered skylights bring additional light to the communal hall and classrooms in the lower level.

Paseo de las Artes Cultural Center

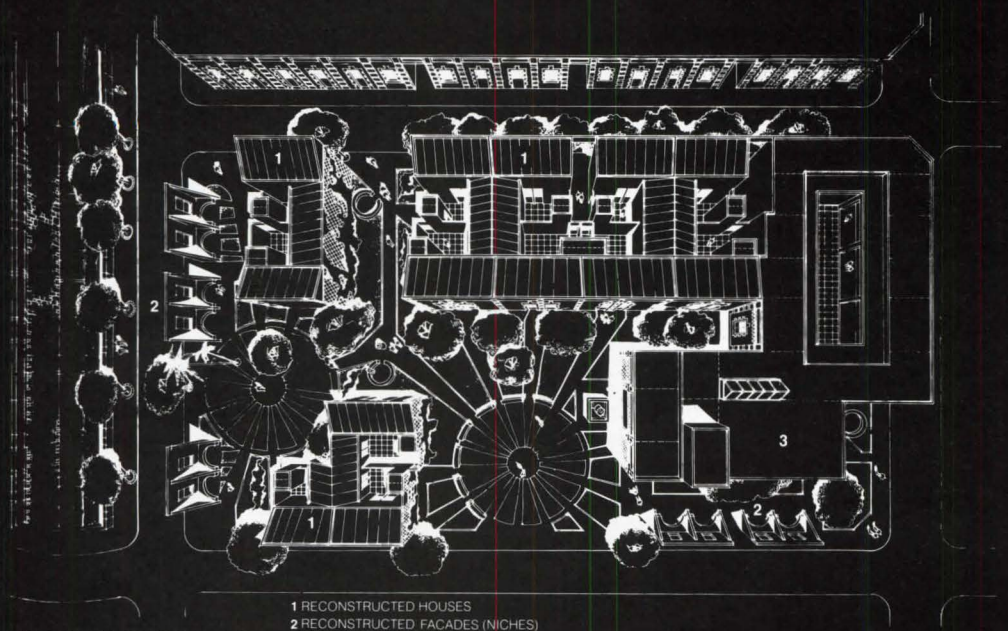






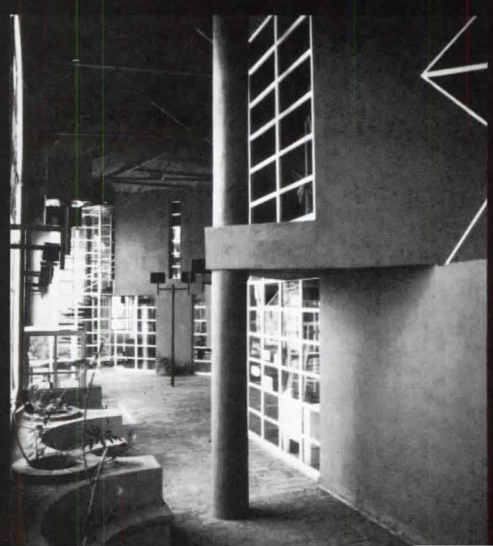
Project: *Parish Church of the Sacred Heart, Villa Carlos Paz, Cordoba, Argentina.*
Architect: *Miguel Angel Roca.*
Client: *Parish Church of the Sacred Heart, Father Carlos Marella.*
Site: *corner site on Highway 20.*
Program: *church, community hall, meeting/classrooms.*
Structural system: *seismic-resistant exposed concrete.*
Major materials: *exposed concrete, concrete block, glass.*
Mechanical system: *central A/C.*
Photos: *supplied by architect.*

Project: *Paseo de las Artes Cultural Center, Cordoba, Argentina.*
Architect: *Miguel Angel Roca.*
Client: *Cordoba City.*
Site: *urban block, Barrio Guemes.*
Program: *rehabilitating a primary school and 15 rowhouses for use by cultural groups; adding a lecture hall and coffee shop.*
Photos: *supplied by architect.*



PASEO DE LAS ARTES SITE PLAN

1 RECONSTRUCTED HOUSES
2 RECONSTRUCTED FACADES (NICHES)
3 LECTURE/CONCERT HALL



In the Paseo de las Artes Cultural Center in Cordoba (preceding two pages and bird's-eye site plan, top), houses were rebuilt and a new program incorporated. Also illustrated are: the square "Homage to the Waters of Cordoba" (above), now known as Plaza Italia; the Plaza de Armas (above right) with the "shadow" of the cathedral traced in the pavement; and the Alta Cordoba Cultural Center (right), one of a number of existing structures into which Roca has inserted an urban microcosm.

reversed. There is also irony in the total conception, as two huge, illuminated plastic tubes rise to the occasion on a honkytonk highway strip.

As Secretary of Public Works for Cordoba from 1979 to 1981, Roca was able to put into practice his ideas of urban intensification and recycling. He prepared a master plan, much of which was enacted, which included the reclaiming and creation of green spaces around the meandering La Cañada canal and river, the redefining of major pedestrian zones within the city, and the creation of several new public squares.

One of the strategies used to redefine inner city pedestrian zones is illustrated in the Plaza de Armas, shown at left. Here, "shadows" of the 17th–18th-Century Cathedral and of the adjacent old Town Hall, as they actually occur during the summer solstice, are "cast" in marble on the pavement, giving a new dimension, says Roca, to the historical monuments. Other strategies include a double colonnade of topless, rusticated columns, umbrella-shaped pergolas, and lines of trees.

The Plaza Italia (illustrated far left) is one of a number of new public squares built by Roca. This one, originally called "Homage to the Waters of Cordoba," celebrates the artificial lake system built between the two mountain ranges that surround Cordoba. Renamed in honor of the city's Italian community, it tells at least part of its story in the ground plane, as does the Plaza de Armas mentioned above, and as does the square of similar name in New Orleans, by Charles Moore. Unlike the latter square, according to critic Udo Kulterman, Roca's has become part of the rhythm of the total city. The permanence of its materials, though not the heaviness of some of its forms, is to be lauded.

The Alta Cordoba Cultural Center (also illustrated, left) is one of a number of rehabilitations conceived by Roca that use the shells of existing abandoned buildings to shelter an urban microcosm. Many of them, including this one, contain cultural resources: museum, library, theater.

The Paseo de las Artes Cultural Center (pp. 78–79) involved a special initiative on the part of Roca as Secretary of Public Works. A block of working-class dwellings was being demolished when Roca proposed halting demolition and reforming the block, which included a primary school, as a center for arts associations and crafts fairs. The rebuilt houses are used for nonprofit arts groups and are lent as studios on a rotational basis to arts school graduates, who are expected to exhibit their work. To preserve the street line, some of the demolished façades were recreated, and they form seating niches. Circular plazas with radiating paths were built, and a snack bar and lecture hall were incorporated. Aiming high, the complex, like the Argentinian president's house, was painted pink. ***Susan Doubilet*** ■

Room to Move

In their two most recent houses, Thom Mayne and Michael Rotondi of Morphosis explore collision and synthesis in provocative ways.

Lawrence house, south and east (rear) sides, seen from alley.

The Southern California towns of Hermosa Beach and Venice typify the contradictory nature of many of the region's residential neighborhoods. They are urban, small-scale, and dense, yet they cling tenaciously to the single-family house ideal; even apartment buildings are domestic, rather than commercial, in scale. The average lot is small and narrow, but what it lacks in breadth it often makes up for in impressive panoramas of ocean or mountains. And even the most antithetical building styles seem to coexist peacefully in the cheek-by-jowl accretion of pocket-sized sites. In both the Lawrence and Venice III houses, Thom Mayne and Michael Rotondi of Morphosis attempt to address these contradictions, but with very different results in each case.

The Lawrence house, designed in 1981 and completed last year, occupies a narrow, sloping lot facing towards the ocean in Hermosa Beach, a neighborhood characterized by single-family houses and small apartment buildings. Mayne and Rotondi's design addresses these building types by means of a collision of two conceptual parts: the "House," an asphalt-shingled, gable-roofed structure set symmetrically inside the site in memory of a house that once stood in its place; and the "Block," a rectilinear box that slices through the House on the diagonal to exaggerate the collision and which, according to Mayne and Rotondi, refers to the apartment houses around it. The House contains entry, foyer, stairs, kitchen, and master bath, and other services, while the Block contains living areas and decks. It is the Block that is visible from the street and alley, and while its tough, meticulously detailed, galvanized metal skin hardly typifies its neighbors, its elevations are scaled and modulated with deliberate reserve, to contrast with the diversity of the interior.

The entrance is placed on the side of the House, both to subvert common assumptions about front and back, and to emphasize the use of the site's interior for vertical circulation and organization, which frees the east and west ends of the building to take advantage of light and views. Passing through the glass and steel front doors, one enters a monumental, semicylindrical vestibule that rises up through the building's three floors. Two sets of stairs (required by code in a three-story house) zigzag up along either side of the vestibule, alternately doubling back on it and leading to the living areas and decks. While all the services are concentrated in the House, those that are conceptually connected to the central volume—the master bath and kitchen—are placed on axis with the entry, to be seen through openings in their walls that align with analogous openings in the vestibule wall. These "framed" views impart a clearly ceremonial quality to what are usually considered the most prosaic rooms of a house. Even more ceremonial is the emphasis on dynamic vertical circulation in the vestibule and stair, where the sense of compression contrasts sharply with the more relaxed, "horizontal" feeling of the living areas, where windows de-emphasize the corners of the Block and balance the sense of shelter with that of expansiveness.

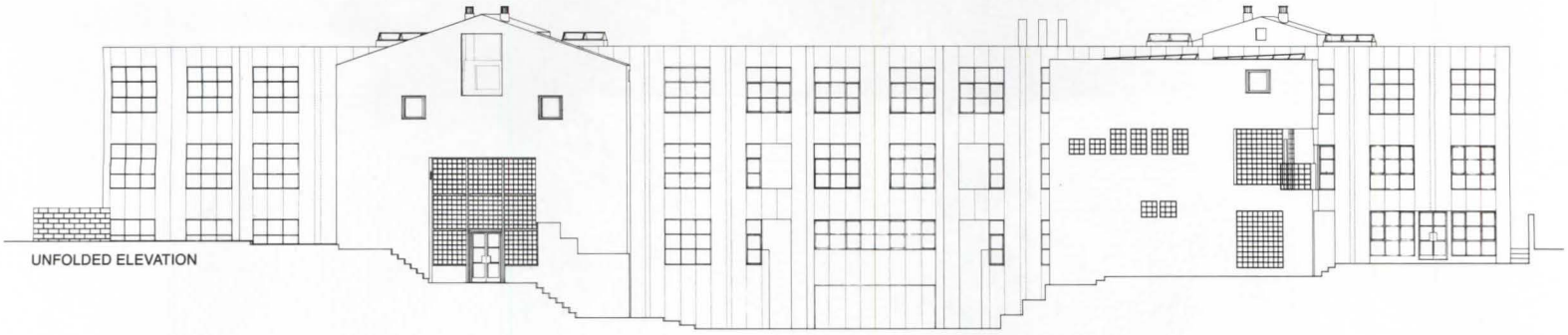
The so-called collision of the house's two typological pieces is most obvious in plan, and in the skylights along the north and south walls. Inside, the building is not nearly so much a collision of types as it is a collision of purposes—the ritualistic and the mundane. The dramatic circulation piece occupies an extravagant 40 percent of the project's total square footage, threatening at times to make the rooms around it seem almost incidental. Almost, but not quite. Mayne and Rotondi avert this particular danger by designing the vestibule and stairs to draw you up through their volume, constantly refocusing attention on it but always offering you the option of exploring the areas to which they lead. And the axial views on every floor create a sense of ease and breadth rarely found in such a narrow container.

The Lawrence house, the first single-family house by Morphosis to be built, is also the least typical of their work. While its rigorously unadorned quality is characteristic, its pristine, sculptural quality is not. Even though it is the most opulent of the firm's buildings to date, it is also the most reserved. Its smooth, "carved" volumes differ sharply from the almost obsessively detailed expressions of construction that characterize the 2-4-6-8, Sedlak, and Venice III alley houses. But the luxurious aura of the house is still balanced by Mayne and Rotondi's distinctly rational rigor. The clients, William and Dorothy Lawrence, chose Morphosis not because they are aficionados of current architecture but because they saw some of the firm's drawings and liked what they saw. They admit that they got more house than they bargained for, but they like what they got. Complex but minimal, austere but sensual, the house embodies the contradictions not only of its context, but of its creators as well. ***Pilar Viladas*** ■

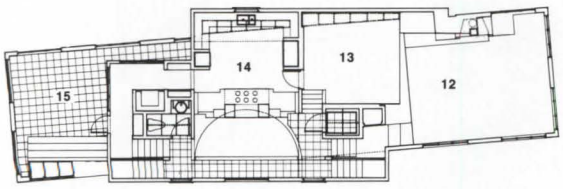
The west façade of the house (facing page) presents an austere, galvanized steel image to the densely populated street. The building is conceived as a collision of two conceptual pieces: the metal "Block," containing living areas and decks, diagonally intersects the "House," an asphalt-shingled piece, set in the interior of the site, which contains entry, vertical circulation, and services. The building is entered from the north side, through a pair of steel and glass doors set into a tall glass-block portal (left and top left). The doors open into the entry and foyer (top right), whose glass-block wall completes the translucent axis of the entry.

Since the best views of the Pacific Ocean can be had over the tops of the houses across the street, the program was organized from top to bottom, with the living room on the third floor, master bedroom and enclosed deck on the second, and guest room on the first, directly above the garage entrance.

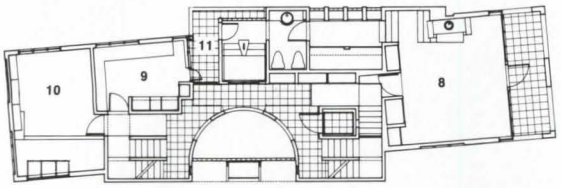
Lawrence Residence



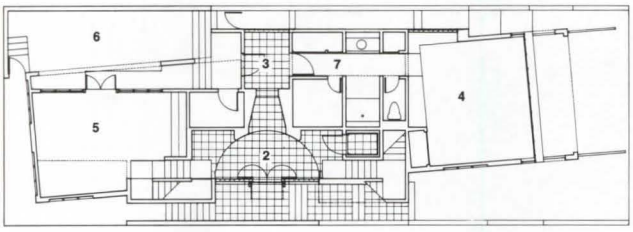
UNFOLDED ELEVATION



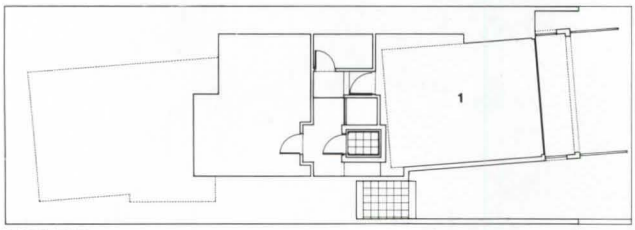
THIRD FLOOR



SECOND FLOOR



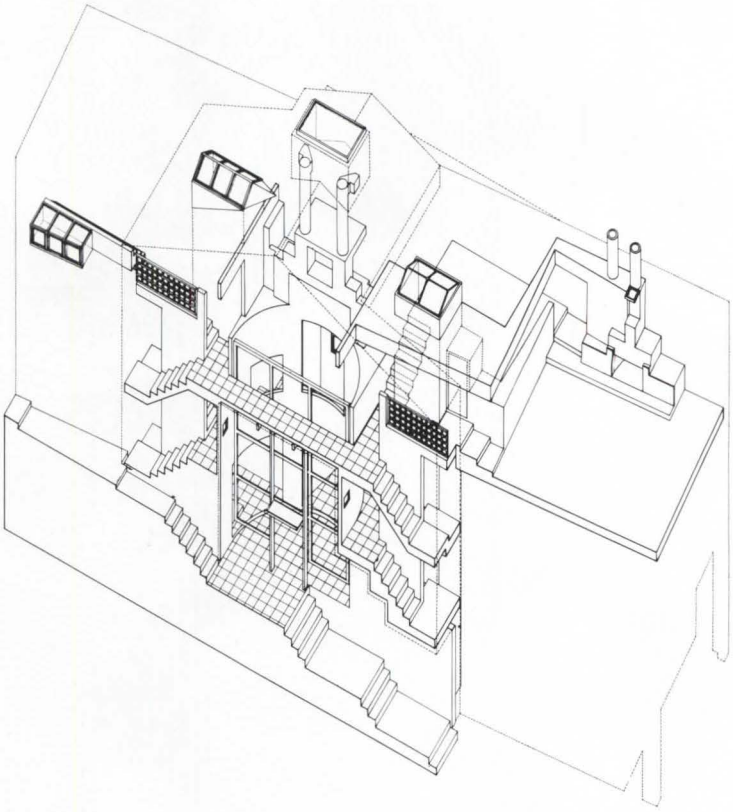
FIRST FLOOR

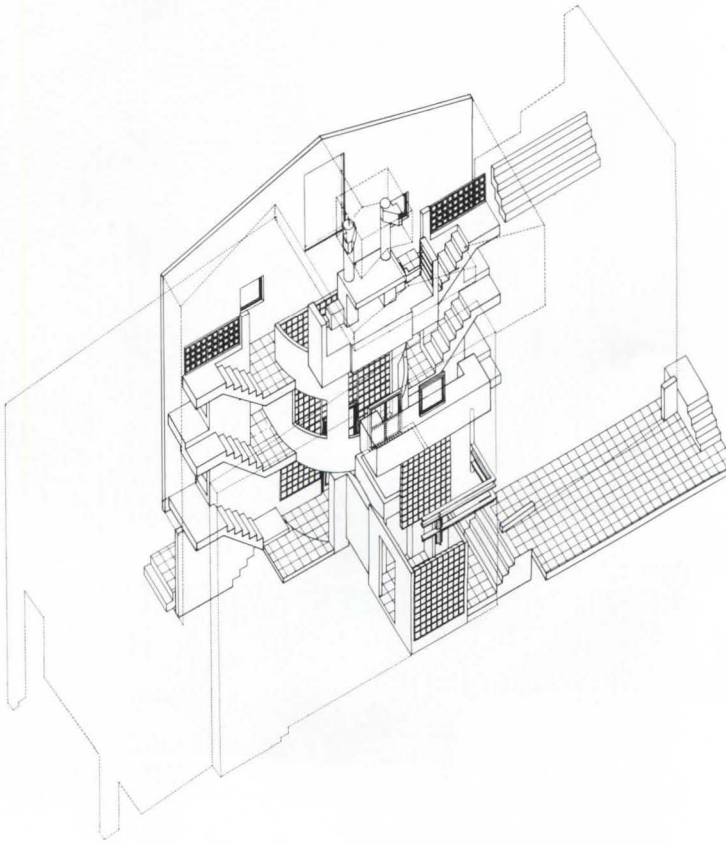


BASEMENT

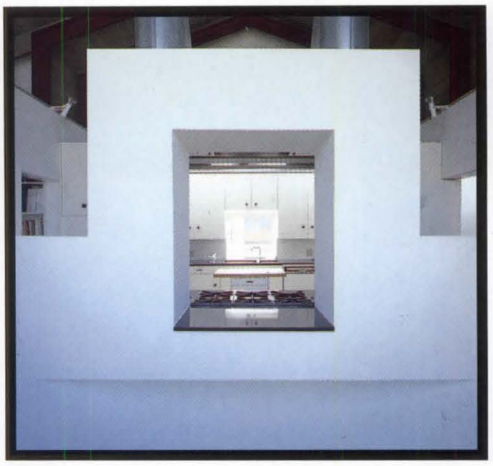
N ↓ 20'/6m

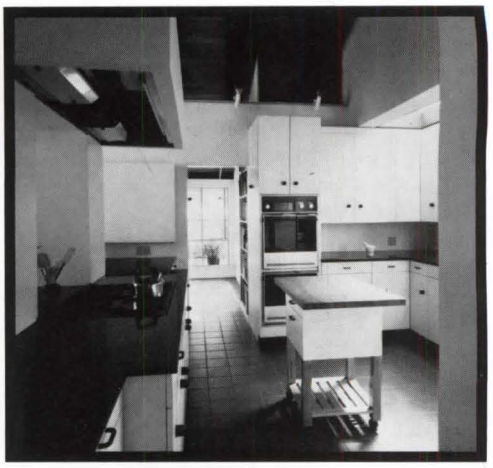
1 GARAGE
2 ENTRY
3 FOYER
4 GUEST ROOM
5 FAMILY
6 PATIO
7 SAUNA
8 MASTER BEDROOM
9 WORK ROOM
10 DEN
11 DECK
12 LIVING
13 DINING
14 KITCHEN
15 DECK

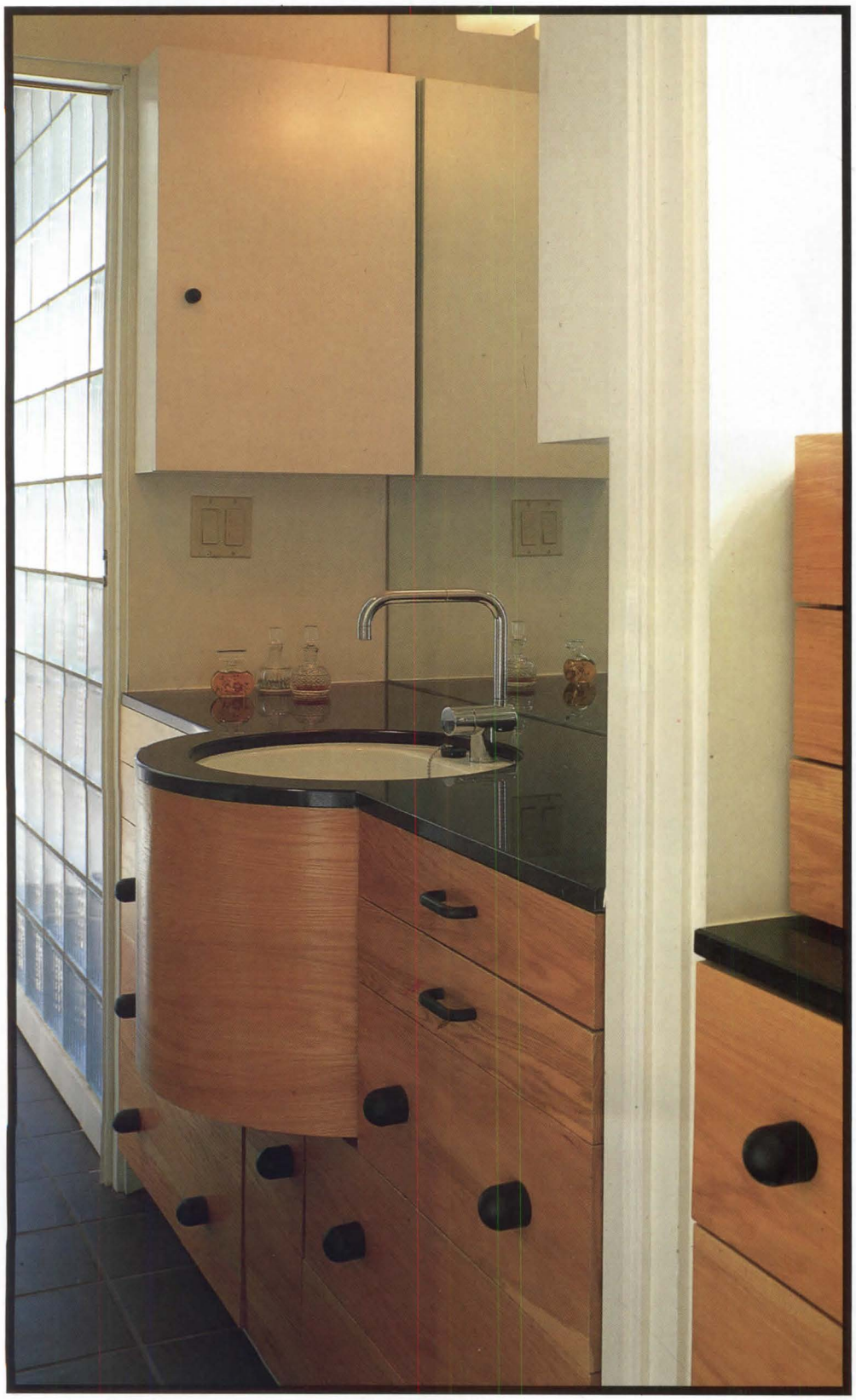




The semicylindrical vestibule soars up through the three stories, almost to the gabled roof of the "House" piece (near left, seen opposite the glass-block entry wall). Openings in the vestibule wall frame views of those rooms that are set on axis with the entry, such as the master bath (below). Landings in the twin stairs flanking the vestibule offer varied vistas through the space (far left).

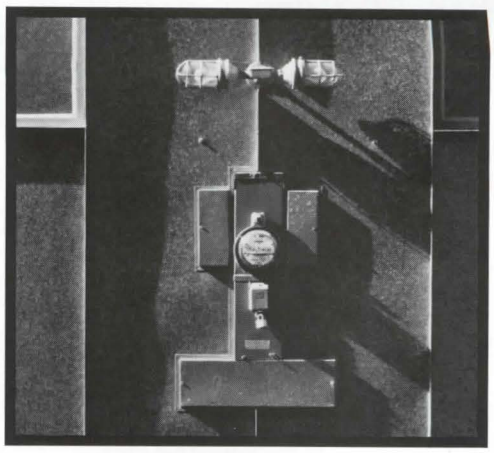






Elegant stacks of cabinets line the dressing room that links the master bedroom and bath (left) on the second floor. The third-floor living room (top left), looking out over the ocean, is flooded with daylight, and a tiny skylight centered over the fireplace aims a narrow beam of light down at the hearth.

The top of the vestibule wall serves as a frame for the view across the short axis of the kitchen (top center); the "columns" topping this composition are actually the exhaust vents for the stove. The view down the long axis of the kitchen (top right) leads to the third-floor deck, which is enclosed by the east end of the "Block" (facing page, top left and center). The windows are open at this end except along the bottom row of lites, which are glazed to protect the deck from wind. Consistent with the idea that there is no primary street façade, the alley side of the building (facing page, large photo) is treated as the equal of the street side. Typical of the care with which Morphosis treats mundane materials is the composition of meter and lights centered between the blank windows on this façade (facing page, top right).



Project: *Lawrence Residence, Hermosa Beach, Calif.*
Architects: *Morphosis, Los Angeles, Calif. (Thom Mayne and Michael Rotondi, principals; with Benjamin Caffey, Frank Lupo, Marylou Vergelers, and Kiyokazu Arai).*
Client: *William and Dorothy Lawrence.*
Site: *a 30-ft-wide, 80-ft-deep lot that slopes 15 ft from back to front, in a densely populated residential neighborhood.*
Program: *a residence that includes a master bedroom and dressing room, guest room, study, sewing room, and family room, totaling 4000 sq ft.*
Structural system: *wood and steel, with concrete block and concrete foundation.*
Major materials: *wood, galvanized steel, asphalt shingles, glass.*
Mechanical system: *floor radiant heat.*
Consultants: *Pam Burton, landscape; Eldelyi-Mezey Associates, structural; Jerry Sullivan & Associates, mechanical; Saul Goldin & Associates, electrical.*
General contractor: *Morphosis.*
Costs: *withheld at client's request.*
Photos: *Tim Street-Porter.*

Venice III
Venice, Calif.

Venice is familiar territory to Mayne and Rotondi. The community offers a diversity of culture, economics, and small-scale domestic architecture. It is here, behind a neat 1920s bungalow, that Morphosis has built its third alley house. The alley house type is ubiquitous here, but with the 2-4-6-8 House and the Sedlak addition, Mayne and Rotondi have, according to Esther McCoy, "taken the nostalgia out of the type and turned it into an art object on a pedestal" (P/A, March 1982, p. 80). In the latest alley house, Venice III, the pedestal is gone, but the object is, more than ever, art.

The client, Anne Bergren, a professor of Classics at UCLA, asked for a library, workroom, bedroom and bath, which could be used as a studio/retreat, guest house, or independent dwelling. Mayne and Rotondi responded with an extremely complex dialogue between the permanent and the ephemeral. The "datum" of the building is a series of three "permanent" volumes, clad in galvanized steel, and aligned on an axis skewed to the existing house: a skylight over the second-floor sleeping area; a two-story skylight space; and a two-story tower that houses a workroom below grade and a bathroom halfway between first and second floors. These pieces are also intended to create the appearance of many different spaces without actually fragmenting the interior. The next "layer" is clad in asphalt shingles. A black-shingled volume, set orthogonally on the site, contains the library and dressing area above. A gray-shingled volume, while tied conceptually to the black piece, is part of the skewed rectangular plan described by the metal pieces it encompasses. The third and outermost layer is meant to be the most ephemeral and dynamic: tentlike canvas pyramids above each skylight, held by metal tension/compression members in an arcane system of cables and counterweights. Mayne and Rotondi use this outer layer to "re-prioritize" building elements. As in the 2-4-6-8 House, where the window became the focal point of the building, seemingly unimportant pieces become crucial: the handrails on the second floor are integral to the tension compression system; without them, the skylight voids would lose their roofs.

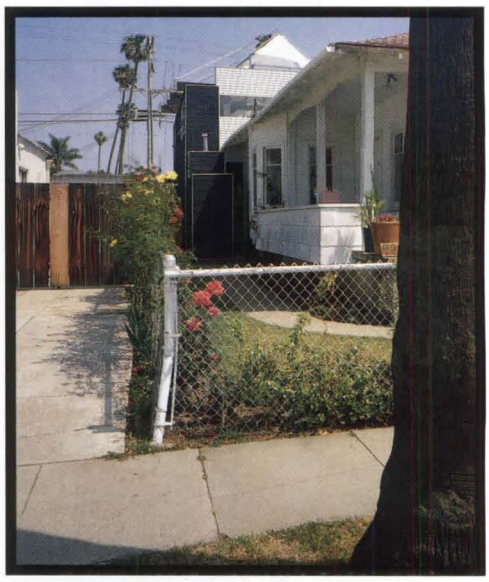
The house is entered either through the kitchen of the existing bungalow or from the outside just east of the kitchen. Through this entrance, you look down the library wall, which appears to be (and *is*) resting on a single steel fulcrum in the shape of a (slightly distorted) pyramid. The double-height light well draws you up to the second-floor bedroom and roof deck.

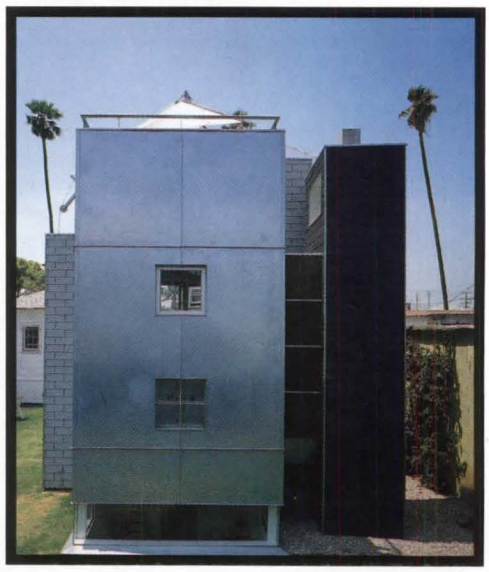
The articulation of the exterior's various parts borders on the fanatical. But what appears as obsessive on the outside reveals itself as elegant synthesis on the inside. Where the Lawrence house is smooth and seamless, here and there Venice III is stripped to its skeletal origins, reminding you how carefully worked out its geometry is. For example, the delicate screen of wood members and cables that marks the end of the double-height volume exposes the 3-6-3 rhythm of the design and reveals the half-level placement of workroom and bath beyond the cantilevered metal stair treads. On the other hand, the "floating" library wall is the kind of willful (and poetic) formal trick that distinguishes Mayne and Rotondi from some of their more literal-minded peers.

Venice III is far and away the most complex of the alley houses. The first two were clearly studio spaces, single volumes not equipped for the details of daily life. Venice III encompasses an almost complete (save for a kitchen) residential program in miniature form—but also in a single volume. While the house is organized into distinct functional areas, there are no "rooms" per se, except for the bathroom. As intended, the three metal volumes modulate the interior, and the meandering circulation path from sunken workroom to roof deck creates the illusion of more house than actually exists. The exterior maintains the varied, purposefully banal texture of its surroundings, while the interior is a cool haven of light and space. In this respect it is like the Lawrence house, but there is a fundamental difference between the two: while the Lawrence house is a complex circulation piece that is attached to a house, Venice III is a complex circulation piece that *is* a house.

Like the Lawrences, Anne Bergren chose Morphosis purely on instinct and, like the Lawrences, she stayed out of the design process. She felt not only an aesthetic kinship with Morphosis, but an intellectual one as well, and says that the house parallels her own readings of the Classics in its "paradoxical interplay of ancient and modern." She finds that the house bears repeated readings, calling it "intricate and demanding, yet confident and harmonious."

The house, which won a P/A citation for architectural design (Jan. 1985, pp. 114–115), is indeed demanding; it lacks the sweet, endearing qualities of the first two alley houses, and its tensions and contradictions raise more questions than they answer. But tackling these questions is a consistently rewarding enterprise: Mayne and Rotondi know the difference between complexity and complication, and that makes all the difference. ***Pilar Viladas*** ■





Entered to the east of the existing house (top), the alleyhouse addition comprises three metal-clad pieces, two of which are skylight volumes enclosed by a shingled volume; the third houses a work area and bath (facing page). The black-shingled tower (above) contains the toilet. Pyramid-shaped canvas structures form roofs for the skylights and are held in place by a tension-compression system (facing page, inserts).

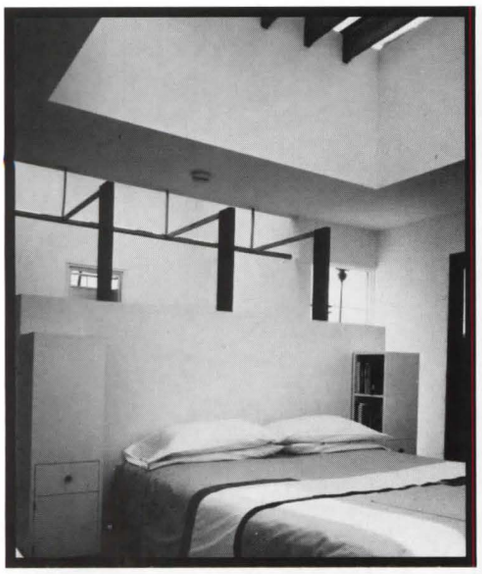
FIRST FLOOR

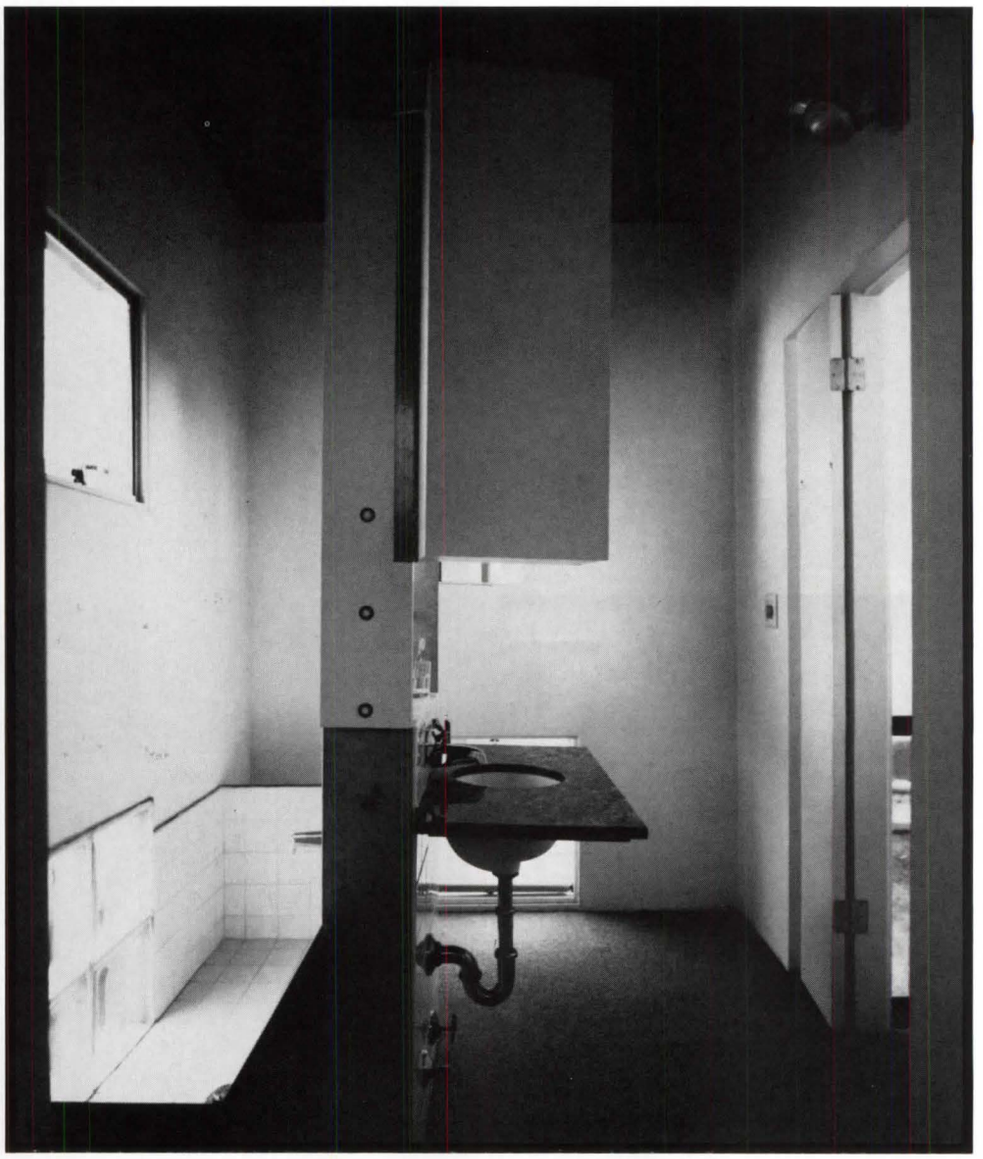
SECOND FLOOR

← N ⊢——⊣ 10'/3m

Venice III

In the bathroom (below), the galvanized steel tub enclosure meets a "column" that supports mirrored medicine cabinet and sink. The tub itself has a four-square glass block window, with a clear glass window at standing eye level. At the top of the stairs (bottom left), the light well parapet is topped by a steel railing; the skylight-covered sleeping area is visible at the far end of the space. The drywall headboard (top left) "floats" on steel supports that appear to run through it up to the ceiling, making the headboard structure rather than furniture. The far (north) wall of the addition is the party wall, clad in contextual white siding, between old house and new; the dressing area is visible along the far right side of the space.





Project: *Bergren Residence (Venice III), Venice, Calif.*
Architects: *Morphosis, Los Angeles, Calif. (Thom Mayne and Michael Rotondi, principals; Gianluigi Irsonti, Mahmood Michele Saie, Rachel Vert, project team; Tom Adolph, Eric Kahn, Kathy Rea, Alexandra Reduneau, Jay Vanos, assistants).*
Client: *Anne Bergren.*
Site: *the rear of a 40' x 80' lot, behind an existing bungalow in a neighborhood characterized by similar small houses.*
Program: *a library, bedroom, bath, and study, totaling 850 sq ft.*
Structural system: *wood frame.*
Major materials: *wood, galvanized steel, asphalt shingles.*
Mechanical system: *forced air.*
Consultants: *Gordon Polon, structural; Saul Goldin, electrical.*
General contractor: *Morphosis.*
Costs: *$65,000; $75 per sq ft.*
Photos: *Paul Warchol.*

Rose City Agora

Portland's Pioneer Courthouse Square, by Willard K. Martin and team

Pioneer Courthouse Square
Portland, Oreg.

It appeared among *Time* magazine's fitful choices for 1984 design kudos, along with a running shoe and a computer. It was first the winner of a national competition in 1980, then of a citation in the P/A Awards program (P/A, Jan. 1981, p. 148). Pioneer Courthouse Square in Portland, Oreg., is a veteran, having run the gauntlet of public scrutiny, competition juries, and professional and publication critics. Its harshest and most influential tests undoubtedly came from its creators, Willard K. Martin of Martin/Soderstrom/Matteson (no longer one firm) and an interdisciplinary team.

It is the result of a design process that only an idealist would attempt. Will Martin *is* that, being equally at home doing evocative watercolors and designing buildings. It stands to reason that, for a public work, he might well assemble an interesting team. Martin created a piece of urban architecture based on about three months of weekly critique sessions including a landscape architect (Doug Macy), a graphic artist (Robert Reynolds), a sculptor (Lee Kelly), a historian (Terence O'Donnell), and a writer (Spencer Gill).

As in most competitions, there were recriminations in 1980, when the local group won out over national competitors Eisenman/Robertson, GBQC, Halprin/Moore, and Machado/Silvetti with Schwartz/Silver. Martin's group alone took seriously a warning that a large federal grant might be lost by enclosing too much of the square.

Proposed for a downtown site that had previously held first a public school, then a Stanford White hotel, and finally a truly ugly parking structure, the amenity was a critical one for Portland. A number of urban forces and physical characteristics imposed demands on the designers. While there are several gracious open areas in the central business district, there is little other visual relief in this area from the street grid, stores, and office buildings.

In a roughly west to east (Broadway to Sixth Avenue) direction, the grade elevation drops approximately 19 feet; a plaza is usually relatively flat, yet it was desirable to allow pedestrian access to the square from all four sides. An already established and successful transit mall (bus) was a given at the east boundary, and a new light rail line linking outlying districts with the CBD was to run along streets to the north and south. (It is now well along toward completion.)

Martin's scheme was the only one that took the opportunity presented by the grade change; the design called for the excavation of the western and southern edges, allowing 17,000 square feet of space to nestle into the ground under the higher plaza area. Ticket sales, souvenirs, and the local transit authority all became factors in the square's financial viability. In short, the captured space made commercial sense, while not detracting from what Martin likes to call the "downtown family room."

Unfortunately, like most public undertakings, this project was a prime target for local political figures who took more than a passing interest in shaping the square into a tribute to their own taste, competition winner or not. The ensuing posturing was lengthy, and threatened to stop the project or to deliver it into the hands of other designers altogether. The battle wore on.

However, other groups, citizens and more friendly political allies, fought to continue with the Martin proposal. The parking facility came down finally, and as interim encouragement, Martin led a group of citizens in painting a bright, full-scale abstraction of the square on the site. Local support prevailed at long last, and the architectural contract with Martin was signed. Such modifications as were made in the parti were minor.

Still more midwives were required, however, for this birth. A spirited group, the "Friends of Pioneer Courthouse Square," launched, among other things, a brick sale. Striking an agreement with the manufacturer of the chosen brick, the enterprising supporters proposed that modest means could avail a citizen of a personal place in the square. Bricks, with names inscribed before firing, would help pave the square. At the initial price of $15, little monuments sold very well; the price later went up to $30, and honorees can now purchase a locator guide for a fee (or a specific location plot for a slightly higher fee) to ease their search for their immortality. All of this is taken with the appropriate good spirit, of course, since the square *does* have to live. One of the substantial delights of visiting the square is people-watching the brick-watchers.

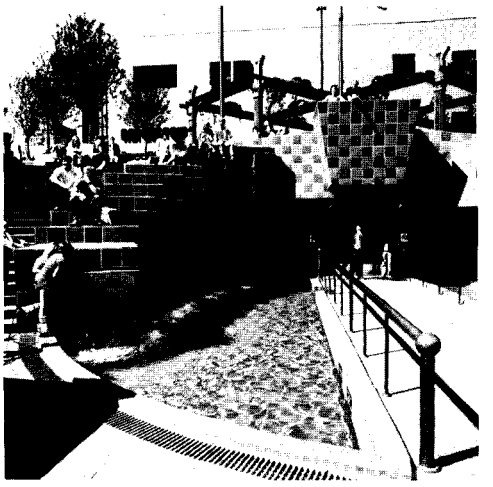
Portland flocks outdoors in nice weather, possibly a bit more eagerly than other places because of its well-known rainy climate. The first and foremost duty of the new square is to accommodate this fresh-air urge. For the horizontal, stepped, and base elements, the design called for a slightly brighter-than-life red-orange brick. This selection stands up well on gray days, and except for its upstaging the brick on Nordstrom's store to the west, it is a strong, cohesive force.

Imagery, largely Greek, was an intended conspirator in the design process. The square itself, as Portland's agora, was ringed by columns, some missing or fallen. Mixing historic metaphors, the perimeter also includes the entry gate from the hotel removed from the site in 1951. Along the south edge, a full line of columns engages transparent canopies for waiting light-rail passengers. Glass block at the upper plaza level transmit light to the ticket and souvenir area entered between the fountain's purple arms and under the oversize keystone. From said keystone, orators may address the forum. Large concentric circles form seating for the larger plaza, and a smaller amphitheater can serve as either seating or the backdrop for smaller performing events. Bronze trellis and transparent tinted sheet loosely define the semienclosed food pavilion.

For Will Martin, human nature hasn't really changed much since the Greek culture that originated some of these forms of gathering. For those who would have such a public amenity a more tightly controlled thing, of one cloth, Pioneer Courthouse Square is not the answer. One P/A juror in 1981 called the solution "episodic," a description Martin agrees is apt. It was never his intention that the square should carry on a monologue. He counted on the people that will continue to use it by the hundreds, as they have since its opening, to integrate it. Ask some of those hundreds sometime if they are enjoying the conversation.

Jim Murphy ■

Bronze and aluminum trelliswork and columns (preceding page) are the armature for the restaurant and the closest backdrop for the fallen stoa "ruins" (below). Noting the austere upper surface of the base for the "toppled" column, one of the workmen suggested a chess board, an addition made during construction. Entry to the ticket and souvenir area is between the two fountain cascades, and under the keystone "lectern" (bottom). From the top of the courthouse for which it is named (facing page), the square is seen in the context of buildings diverse in materials included in it. In the center, workmen install a new section with name-bearing bricks.



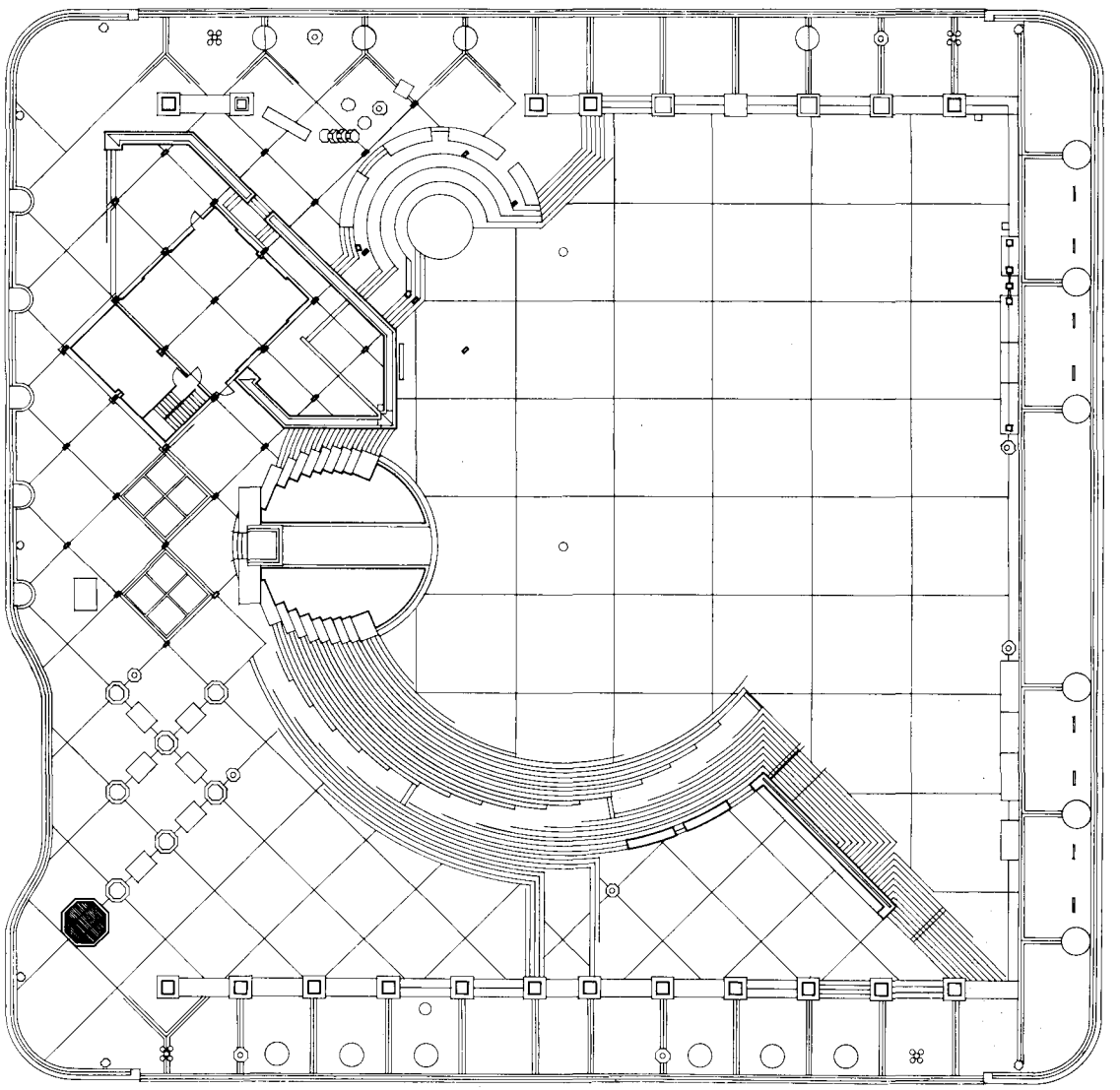

nordstrom

Pioneer Courthouse Square

Project: *Pioneer Courthouse Square, Portland, Oregon.*
Architects: *Willard K. Martin of the firm Martin/Soderstrom/Matteson, Portland, Oregon (Willard Martin, design; Marcus C. Bevans, project architect).*
Client: *Portland Development Commission, Pat LaCrosse, director.*
Site: *one full block in the central business district, 200' x 200' with 19' grade change.*

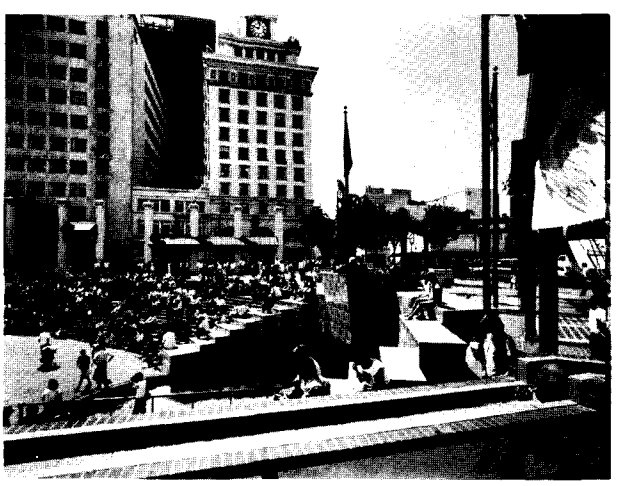
Program: *public square, with enclosed public spaces, restaurant, and transit offices.*
Structural system: *cast-in-place concrete, with bronze and aluminum members in pavilion.*
Major materials: *brick, ceramic tile, bronze, terra cotta columns.*
Mechanical system: *electric HVAC.*

Consultants: *Walker/Macy/Mitchelltree/Erickson, landscape; Roger McGarricle, structural; Zanders/Billings, mechanical; Lynn Andrews of Morrison/Funitake/Inoyue/Andrews, electrical.*
Contractor: *Island Construction Company.*
Costs: *$3.85 million.*
Photos: *© 1984 Strode Eckert Photographic, except p. 94 and insets pp. 96, 97, Joshua Friewald.*



UPPER LEVEL PLAZA PLAN

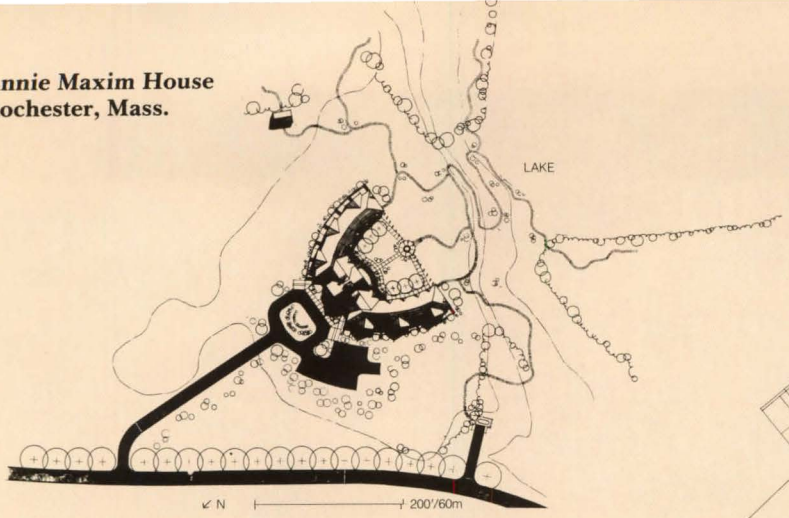
Among the consistent daily activities in Pioneer Square, the search for a name on a brick (inset photos, preceding pages) is at the top of the list. Strolling is probably next, slower on sunny days, when it is joined by ray-gathering and fountain-perching. Trees and plantings, including especially the trellis vines, are still immature and incomplete, and are crucial to the softening and integrating role they are assigned by the designers. Even sheets of water flow from the fountain edges, complemented by channels of moving water around the upper plaza areas—symbolically emanating from the mouths of cast bronze heads reminiscent of Greek comedy/tragedy masks. It is a coincidence, say the designers, that there are the same number of heads as city council members in Portland.



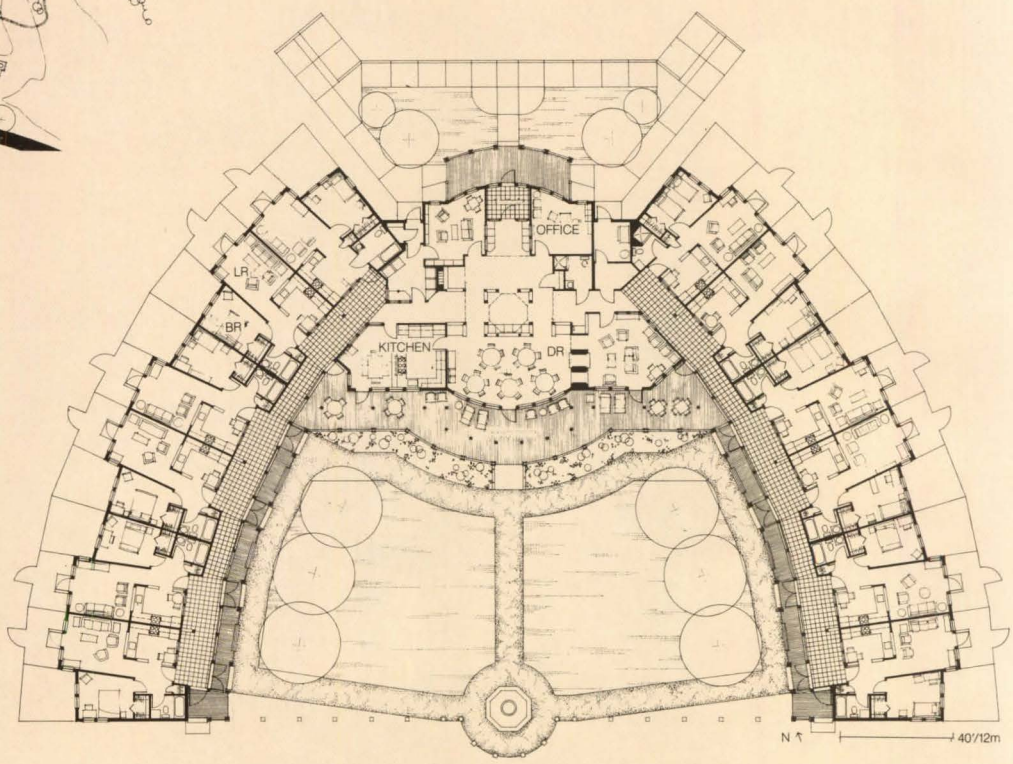
Congregate Manor

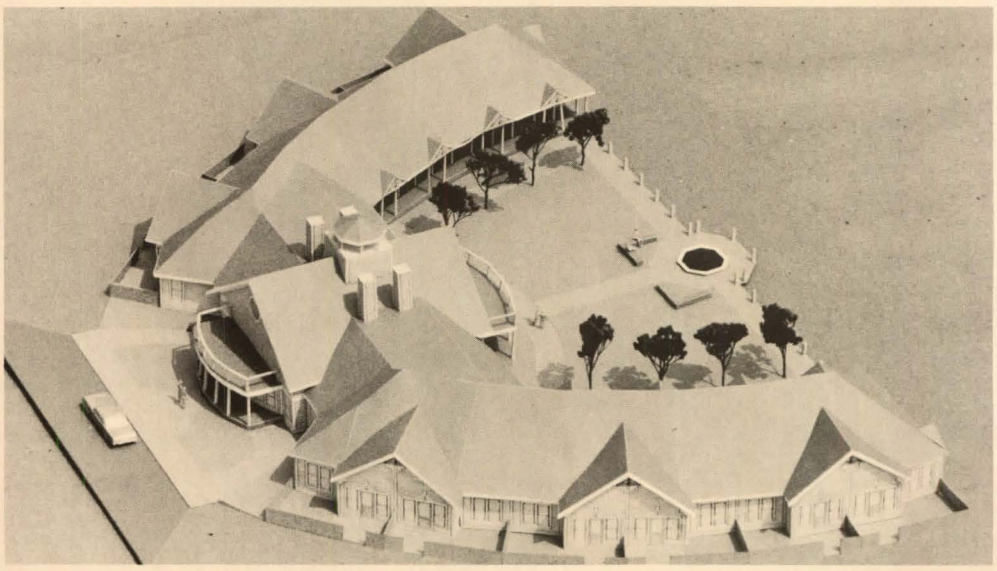
Fifteen elderly create their own community in KJA's Annie Maxim.

Annie Maxim House
Rochester, Mass.



Sited at the edge of a meadow overlooking a vast pond (site plan, above) Annie Maxim House is a dominant feature in its landscape, made the more prominent by its massive roof (model, below right). The floor plan is rigorously symmetrical, with common functions—kitchen, living room, dining room, library, and laundry—concentrated in the central pavilion, and units lined up along two wings. These wings are curved, and unit entrances are paired to shorten the corridor length and enliven the route traveled.





When millionaire George A. Cowen died, he left a most unusual will. In it, the cranberry magnate designated his 200-acre estate as a residence for needy elderly from the surrounding community, intending the home as a memorial to his wife, Annie Maxim. Over the course of 20 years, Cowen's trustees shepherded his investments, increasing the endowment, while consolidating acreage in Rochester, Mass., through land swaps and purchases. When these trustees finally felt prepared to build, they selected a Cambridge firm well practiced in the science and sociology of communities for the elderly. For their part, architects Barry Korobkin and Eric Jahan of KJA Architects found the commission a welcome alternative to public-funded projects, with a budget that was, if not extravagant, certainly ample.

Annie Maxim departs from the norm for congregate care facilities in several respects. The average age of residents—69—is comparatively low, as stipulated by the trustees who require that all residents be capable of caring for themselves. At 12 units for 15 adults, Annie Maxim is slightly smaller than the standard elderly apartment building (15–20 units), slightly larger than the shared apartment model (8 individuals) in Massachusetts. Residents pay no rent, although the tenants have established a *voluntary "rent"* fund whose proceeds are used for charitable programs. Most have kept their cars for daily jaunts, exercising a mobility made all the more crucial by the home's relative isolation. Not only is Annie Maxim buffered by its own 250 acres, most of them heavily wooded, but the surrounding communities are small and scattered. This remote, rural situation directly contradicts the conventional practice of locating old-age homes at the center of town.

In spite of, or perhaps because of, their isolation, the residents at Annie Maxim have formed an unusually tight-knit community. Most are fairly, some fiercely, independent. But the separation and definition of individual turf versus common ground, and most important,

Common spaces (seen from the kitchen, below left) revolve around a central clerestory-lighted seating alcove (seen from the entrance, below right). Corridor connections are treated as streets, composed of façades with doors and operable windows. Paired units share an entrance alcove (bottom left) although the dividing line between them is clearly marked by post and wall. These units open to the public corridor, which in turn opens onto a covered porch (bottom right).

the carefully modulated transitions from one to the other, foster a sense of personal security at one extreme, camaraderie at the other. These in-between spaces—entry alcoves, corridors, and porches—encourage circumstantial social contact; happenstance is by design.

Annie Maxim enjoys full benefit of lessons learned by KJA on an earlier project, the Captain Eldridge House in Hyannis, Mass. (P/A, Aug. 1981, pp. 64–68). At Eldridge, the grouping of units in pairs with recessed alcoves overlooking a central atrium never really worked as intended, perhaps because the idea of interior porches facing a completely internal space was somewhat contrived. At Annie Maxim, that atrium has been replaced by a courtyard, open to the south, and full of natural activity. Residents have accordingly taken full possession of their porches, which enjoy spectacular pond views, filling them with plants, chairs, and other personal mementos. The courtyard itself is just small enough to allow contact across open space; friends communicate via porch light signals and hand waves. This kind of contact is crucial to the group's sense of mutual security. Annie Maxim is not heavily staffed, its personnel list consisting of a much loved (and immensely capable) director who works days (albeit long ones) only, and a caretaker and cook who live in the farmhouse across the road. Although all rooms are equipped with emergency buttons, the residents rely on each other for routine check-ins. When one resident lost her balance in the corridor, for example, a couple across the court saw her fall and sounded the alarm. Routine health care is handled on site by three visiting nurses who trade off for monthly examinations.

The careful distinction of public, semi-public, and private maintained in the corridors is of course waived in communal rooms. Common spaces in the central pavilion, although strictly symmetrical in plan, function as a more casual ensemble, with ample room for milling around. A seating alcove beneath the clerestory, which brings light into a deep interior, serves as a holding space for visitors and

Annie Maxim has two fronts: a public entrance on the main road (below left and facing page) and individual entrances off the courtyard, marked by small gables (below, right). Great glazed doors open onto the covered porch, which wraps the entire courtyard (bottom left). Views and activity are focused inward on the court, but more than one resident voiced the desire for a back porch to soften the abrupt passage from unit to yard to meadow (bottom right).

residents alike, before meals and after. If the plan promotes casual contact, it also allows escape: all rooms have multiple entrances (or exits). Individual units are organized, as at Eldridge, with most semipublic functions (eat-in kitchens) on the corridor, private bedrooms to the rear. Less successful are the backyards attached to each unit. One wishes for more lawn, less fence; the subtle gradation from public to private space in the courtyard corridors might have governed the transition from wood, to meadow, to yard. Some residents have planted private gardens in their yards, but most prefer to devote time and energy to shared projects, such as a vegetable garden that stocks a modest summer market, or the raising of ducks and pheasants, or cooking for family-style dinners (there is stiff competition in the kitchen).

The sense of a complete, finished community is reinforced by the building itself. Like a grand manor house overlooking the pond, Annie Maxim beckons to the curious, many of whom assume it is public property by virtue of its size and siting. At first amused, then annoyed by the "tourists," the residents have posted a sign by the front door. It reads "This is a PRIVATE residence," and has deterred all but the most intrepid invaders.

Siting, massing, and detail all conspire to create this unintended confusion. KJA's Annie Maxim is not anti-institutional; but it is noninstitutional, drawing upon a vocabulary that is as readily associated with country inns and restaurants as elderly housing. Furthermore, in selecting the most prominent bluff on which to build—the obvious and virtually inevitable choice—the architects have made the task of future architects, perhaps KJA themselves, all the more difficult. Should the trustees choose to build again, they will have a tough time of it; the present Annie Maxim is a complete unit, both architecturally and socially. ***Daralice D. Boles*** ■

Project: *Annie Maxim House, Rochester, Mass.*
Architects: *KJA Architects, Cambridge, Mass. (Barry J. Korobkin, Eric Jahan, partners in charge; Kathleen Ryan, Robert Wegener, team).*
Client: *Trustees under the will of George A. Cowen.*
Site: *small, south-facing bluff at the edge of a ten-acre hayfield, overlooking the two-mile expanse of Snipatuit Pond; surrounding 250-acre estate undeveloped.*

Program: *12 one-bedroom apartments each with entry "porch," eat-in kitchen, and fenced backyard; shared library, living room, dining room, eat-in kitchen, laundry, and porch organized around a central courtyard. Total enclosed area: 10,750 square feet.*
Structural system: *concrete footing and foundation walls; concrete slab on grade; 2x6 wood frame walls; wood truss roof; post-and-beam porch.*

Major materials: *red cedar clapboards, fiberglass roof shingles; copper cupola (exterior); skim coat plaster walls and ceilings with fir trim, quarry tile, nylon carpet, oak flooring, ceramic tile baths, sheet vinyl kitchens (see Building Materials, p. 138).*
Mechanical system: *three independent hot air furnaces for public spaces; central gas-fired hot water boiler for unit-controlled baseboard radiation.*

Consultants: *Pat Loheed, Watertown, Mass., landscape; Chapin Associates, Norwood, Mass., structural; Panitsas/Zade Associates, Boston, Mass., mechanical; Johnson & Stover, Middleborough, Mass., electrical; Charles E. Rowley & Associates, West Wareham, Mass., site.*
General contractor: *DeLoid Associates, New Bedford, Mass.*
Costs: *$860,000; $75 per sq ft.*
Photos: *Steve Rosenthal.*

Design with Fear

Results of one of three bombings of U.S. posts in Beirut.

Greater concern about terrorism places new opportunities before the design community. If protection is considered from the outset, design can make buildings and people safer.

Despite the acts of deranged people and a few terrorist incidents, public life in America remains far more open and free from terrorism than life in many other countries of the world. But if Americans are relatively safe from terrorism at home, the same cannot be said for that sizable portion of them who travel and work abroad.

"Americans and American interests are the number one terrorist target in the world. We're the number one bad guys on almost every international terrorist group's list," Alexander M. Haig, Jr., said recently in a well-received talk to corporate security managers and facility directors. He's not alone in making this observation and analysts' figures back him up: The U.S. has been the target of more than 50 percent of terrorist attacks worldwide for several years running; the number of incidents is growing and their toll is becoming deadlier by the year. Bombings are by far the most frequent form of attack worldwide.

Ambassador Parker W. Borg, deputy director of the State Department's office for counterterrorism, states, "The situation is very bad and, for a variety of reasons, it will get worse." His assessments: terrorism will remain a major international problem for Americans through at least the end of this century; most of the threats to Americans will continue to be abroad, yet there is potential for serious problems at home; attacks will become more grotesque and violent; a broader spectrum of citizens, mostly civilians, will be victimized; the motives of terrorists have changed over time and will continue to change; traditionally "open" societies will be prime scenes for attacks; and the fact of state-sponsored terrorism should raise new levels of alarm. Little wonder, then, that corporate security (variously called loss prevention, asset protection, and even industrial relations) has been elevated from a level that one consultant described as "something just above the OSHA compliance department" to a position of major authority and responsibility within many private organizations. Terrorism holds dangers for business that reach beyond the damage and destruction brought on by any incident itself: corporate insurance carriers and legal counsels now suggest that any company that does not make reasonable efforts to protect its employees, customers, and others against terrorism and the violent acts of deranged persons may be exposed to lawsuits and large judgments awarded to survivors and relatives of deceased.

Dr. Robert Kupperman, a noted authority on counterterrorism at the Georgetown Center for Strategic and International Studies, puts it plainly: "American business would be imprudent to think that governments will handle the problem of international terrorism. While we don't want private armies, business must take steps." He further observes, "Terrorism is violent theater and needs a stage." Perhaps because buildings are so often vulnerable, sometimes symbolic and nearly always gathering places, they increasingly provide that stage. The offices of banks, large multinational corporations, utilities, and defense contractors lead the lists as both targets of and settings for terrorism.

Design Contribution

The design of buildings and grounds can be an effective and unobtrusive element in a system of defense against terrorism and other security breaches.

Architects and their colleagues need to address these security challenges in design terms, as an integral element of the design charge. Without such efforts, more and more people seem destined to work in increasingly fortresslike environments, amidst artless forms concocted to act against real and perceived threats. Worse, we may lose many significant opportunities for enhancing security through the architectural means that are too often unrecognized or overlooked by security specialists and hardware salespersons.

Unfortunately, because the motives, methods, and targets of terrorists are so different, there are few parallels between protective measures taken against burglary, robbery, and pilferage and those designed to counter terrorist attacks. Standard industrial security measures don't really apply.

Some First Questions

What are the assets? There are three basic types of assets: people, sensitive information, and facilities (or equipment). Protection is almost always afforded in that order, although some policies and practices knowingly place security personnel in positions of defending information and installations with their lives, if necessary.

Security specialists recommend development of corporate security surveys and policies that can become quite elaborate. Such plans can identify the levels of protection for people in various positions, for specific types of information resources, and for particular types of installations or facilities. Companies working in sensitive areas under contract to the military or to other government agencies are often required to implement detailed and stringent safeguards against espionage, sabotage and terrorist attacks.

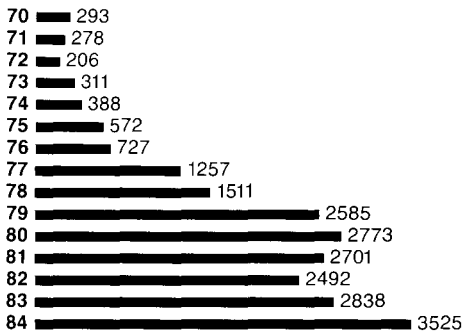
International Terrorist Incidents Against U.S. Citizens and Property 1973-1983

	Kidnapping	Barricade-hostage	Bombing	Armed attack/ assassination	Hijacking	Other*
73	22	3	106	12	0	81
74	14	2	130	8	1	32
75	23	1	94	15	2	27
76	9	2	112	22	5	67
77	6	2	125	11	4	35
78	8	0	158	19	2	184
79	8	6	115	16	12	79
80	9	6	95	25	20	117
81	9	1	93	21	18	115
82	7	3	168	11	10	202
83	10	8	96	32	1	66
Total	125	34	1292	192	75	1005

*Includes Arson, Shipping, Threat/Hoax

U.S. Department of State, *Patterns of International Terrorism: 1982 and 1983*

Chart of Domestic and International Terrorist Attacks Worldwide 1970-1984



Risks International Inc., *Executive Risk Assessment* (April 1985)

U.S. companies and government organizations are increasingly the targets of international terrorism. There are differences in the ways these episodes are counted (above), but there is no disagreement that the problem is serious and growing, especially overseas. Buildings are frequently the targets of and settings for terrorist incidents, with bombings leading the list as the means of choice. Many analysts suggest that state-sponsored terrorism will bring further escalation, providing attackers with better intelligence and even deadlier weapons.

What are the threats? Only with the best of intelligence resources—and even then only rarely—is it possible to know for certain the precise nature of any threats. When U.S. law enforcement agencies and the FBI obtain such information, they will of course alert any known domestic targets of the potential for terrorist attack. The State Department and other agencies also offer assistance and warnings, when possible, to companies and others working or operating abroad.

But like certain other forms of crime, terrorism relies on the element of surprise. When and where terrorists will strike is never known. Worse—perhaps because terrorist acts are usually intended to capture public attention, which tends to wane with repeated use of the same tactics—terrorists have shown a tendency to escalate means. "Eighty percent of what terrorists want is publicity," says the now-retired developer of the FBI's hostage rescue team, "and they know how to get it 100 percent of the time."

Terrorism reaches continually for new, often deadlier approaches. And as countermeasures escalate, so may the techniques employed by those intent on destruction. Some security specialists advocate driving the "price of participation" up to the point where only the most serious and determined terrorists—of whom there are presumably fewer—can succeed. And, some have observed, with the "hardening" of U.S. government targets abroad, there may be a continuing redirection of terrorist efforts abroad toward private firms and other, easier targets affiliated with U.S. interests. In short, not everything can be anticipated or designed against; actual threats may never be known. Nonetheless, careful threat assessment is an important step because it helps define the nature and level of protection needed.

Good Fences, Good Neighbors

Site selection and design are critical. In an unfortunate analogy, some security specialists describe a secure building as a prison turned inside out; the site perimeter is the first, not the last, line of defense. Where vulnerability to vehicle bombings and some forms of electronic eavesdropping are concerns, the greater the distance between the building and "uncontrolled" surrounding areas, the better. The State Department now seeks perimeter setbacks or standoff distances of at least 100 feet for new embassy buildings, and even at that distance—difficult to obtain in most urban settings—vehicle bombs will yield explosive forces that are hard to design against.

Most perimeter fences and walls designed to discourage intruders, even when apparently formidable, are of little use against a determined and modestly equipped person or group. The use of simple hand tools can defeat most fences in minutes.

Designs are being developed to provide true vehicle-stopping resistance, but this is a new area. The so-called "Jersey barriers" seen on the nation's freeways and now littered around the outsides of various federal buildings are only a little better than chain-link fences. Originally designed to resist glancing blows from vehicles moving in a parallel direction and to be "forgiving," these precast concrete units can do little to stop a head-on attack. Better results have been obtained with a large diameter, deeply anchored cyclindrical concrete bollard and with larger, decorative planters built of heavily reinforced concrete.

Gates and entryways are more difficult. A principle of security planning is to minimize the number of openings, especially for motor vehicles. "Active" barriers can be lowered to admit traffic selectively but otherwise remain raised. These barriers are available in many configurations, but each presents difficulties. In the event of a head-on assault, should a guard or attendant stationed nearby be relied upon to activate the device, if it is down, possibly at the cost of his or her life? Automatic triggering devices are available, but these can be defeated. Most of the effective barriers are very expensive to manufacture and install. They involve many moving parts and may require frequent maintenance. This is a real problem in some overseas locations. If out of service, they can cause nightmarish logistical problems. A few of them can be made acceptable to look at, but most are thoroughly objectionable. Secure sally ports, the use of circuitous approaches and well-planned and integrated vehicle entry systems—none of which can be purchased off-the-shelf and precious few of which exist—are considered the best alternative by Michael Davis, head of the Perimeter Enhancement Group in Alexandria, Va., whose firm has devised several experimental designs that offer promise.

Higher, thicker perimeter walls may defeat drive-by attacks and impede the progress of a mob, but preliminary research suggests that perimeter walls and land-forming can do little to dissipate the force of a blast outside the wall; shock waves may be deflected for a short distance, but soon reform at their initial strength. In any case, means exist to breach a wall and then set off a larger charge inside.

Knowing that a breach of the perimeter is being attempted or has been made, even if it cannot be stopped, can afford precious

Protection against determined forced entry is always difficult and often expensive; many apparently "solid" measures can be defeated quickly and readily with a few simple tools by knowledgeable intruders (below). There are few standard product test methods; in any case, attackers can be expected to use unexpected means. Otherwise satisfactory products may not perform suitably once placed in an assembly, and should be tested against various forms of abuse.

time for alerting occupants and taking other protective steps. In this regard, various monitoring and intrusion detection devices are available, many boasting elimination of troublesome false alarm problems that have plagued such systems in the past. Here the architect and site designer must assure that detection equipment can be laid out efficiently, effectively, and unobtrusively. Strain detectors and motion detectors can be used in areas that cannot be served by the infrared and radar systems, which are best suited to long, open expanses.

Hardening Entries and Buttoning Up

A body of knowledge exists about the vulnerability of buildings to certain forms of assault, but little of it is applicable to buildings whose primary use is essentially for non-defensive purposes. The challenge is to find measures that will help and can be accomplished within acceptable architectural vocabularies. It is possible, but never easy or inexpensive, to minimize openings, orient them away from the perimeter, raise them all above the ground, and provide doors, windows, grilles, and other devices that resist ballistic weapons, explosives, and attempts at forced entry. Retaining a sense of openness, operable sash, views, and adequate lighting levels become difficult.

Interior planning is crucial. The most sensitive areas should be located high and well away from exterior zones. Thought must be given to the use of spaces behind or near windows (most deaths and injuries from bombings and snipings occur at or near glazed areas). Aside from the use of ballistic- and blast-resistant glazings, which are expensive and present other problems, such interior protective devices as bullet-resistant shields integrated with furnishings and low-height partitions or blast-curtains may offer the most promise. Tests are being carried out on experimental designs for "cushioned" and "crushable" door and window systems, which would be able to resist pressures better from exterior bomb blasts. Inside the building, zones of security may be established, with various types of access control devices reinforcing physical separations. Protected work stations are critical in many occupations. Ballistics-resistant glazings and partitions are now common in banks, retail establishments, and other cash-handling facilities, but even some of these are seriously flawed once in place: one manufacturer's literature shows a "bulletproof cash window and package receiver" being installed at chest height with ordinary screws in a standard 2 x 4 stud and gypsum board wall. Several companies now offer integrated, bullet-resistant wall

Technics-Related Products

MasterGuard vandal-resistant window has a dual glazing system of polycarbonate on the exterior and 3/16-inch or 1/4-inch glass on the interior (or both glazings of polycarbonate). Frame is custom manufactured of strong, extruded aluminum with heavy-duty bronze-cast hardware. The window protects against vandalism and is energy efficient. It is designed for easy installation from the inside of the building. AirMaster.
Circle 101 on reader service card

The ASP blast- and fragment-resisting walling system is capable of withstanding conventional military weapons. It consists of steel sheets that interlock in a zigzag to form a rigid mold, which is then filled with concrete. The wall is quick and easy to erect, and is cost effective. Damage is usually localized. Innovative Military Technologies, Inc.
Circle 102 on reader service card

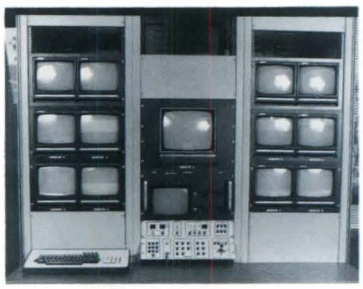
Micro 2 Card Readers, used with Micro Central, control entry into parking areas, buildings, and specific rooms. A crystal clock eliminates time-zone bypass problems. Battery backup assures round-the-clock operation, and increased memory storage covers ten days of transactions. Federal Signal Corp.
Circle 103 on reader service card

The DU-169 Equalizer motion sensor recognizes the difference between random motions of background disturbances and an intruder's movement. Wall-mounted, it covers an area 30′ x 25′; ceiling-mounted, it covers a 30-foot circle. The case is designed to be unobtrusive. Aritech Corp.
Circle 104 on reader service card

Secur-Tem + Poly glass-clad polycarbonate laminate is manufactured in several combinations to meet ballistic and physical attack threats. The products have passed UL Standard 752 for bullet-resisting equipment. Globe Amerada Glass Co.
Circle 105 on reader service card

MRL-Macome access card system is easily mounted at any door. Cards can be coded to provide multiple levels of access, controlling entry to selected areas. The system can operate alone or as part of a master card system. MPL, Inc.
Circle 106 on reader service card

Concealed door cord 3515 connects sensing devices in doors and casement windows. The cord is completely concealed when the door is closed for both appearance and security. The door cord is available in two- or four-terminal models and a timesaving model with built-in magnetic contact, all in high impact housing with durable coiled cord. Sentrol, Inc.
Circle 107 on reader service card

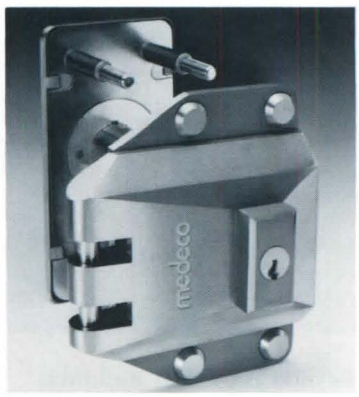


Omni 1000 modular control system can switch 1–1000 cameras, pan/tilts, zoom lenses, alarms, and monitors. It has interface capabilities with card access, alarm, audio, and motion detection systems and host computers. The keyboard controls remote operation of doors, lights, sprinklers, and alarms. It can be used to protect property ranging from a retail store to a nuclear power plant. Javelin Electronics, Inc.
Circle 108 on reader service card

Automatic identification system uses a low-frequency radio transponder program to transmit a unique code. When the transponder passes within range of a reader, it is automatically read and validated, and its presence communicated to a computer. It can be attached to a vehicle, object, or person. The standard transponder is 2″ x 2″ x .52″ and weighs 1.6 ounces; a smaller, lighter version can be incorporated into an identification badge. Cotag International, Ltd.
Circle 109 on reader service card

COMSEC™ security communications system coordinates security, access control, energy control, closed-circuit television, and fire/life safety in one system. A central monitoring unit detects changes at as many as 60,000 points and houses the data process unit. It can support up to eight controllers, each capable of communicating with 1–64 remote terminals. The system is described in a 36-page brochure that shows components of the system and a composite of an integrated network. Mosler.
Circle 200 on reader service card

Unican 1000-1 keyless access control secures high traffic areas in commercial, institutional, and industrial buildings. It has thousands of combinations, no keyway to pick, and is UL listed for A-label doors. The lock is completely mechanical, requiring no electric wiring. Combinations can use as many of the buttons as desired, in sequence or in unison, and can be changed quickly. Simplex Security Systems, Inc.
Circle 110 on reader service card



The D-10 high security dropbolt has been approved for UL listing. Tests consisted of harsh kicking, prying, and hammering aimed at the strike's hold, the bolt, and the ability to keep the door locked to the frame. Medeco High Security Locks.
Circle 111 on reader service card

Security glazing of glass-clad polycarbonate is available in three types. OmniArmor™ resists high-powered ballistics, prolonged ballistics attack, and combined physical and ballistics attack. OmniLite™ offers maximum resistance against physical attack. OmniGard™ provides maximum resistance to break-ins of display cases and store fronts. An eight-page brochure provides properties and specifications for each and lists options available. Sierracin/TransTech, Div. of Sierracin Corp.
Circle 201 on reader service card
[*continued on page 112*]

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Nighwatch™ concealed rotary astragal panic door allows egress but not unauthorized entrance. It is available as a standard door with a choice of narrow, medium, or wide stiles or as a flush panel door with or without vision lites. The astragal meshes with an adjustable fin on the opposing door, and unlike some panic bars, it cannot be operated with an object, such as a coat hanger, inserted from the wrong side. Vistawall Architectural Products.
Circle 112 on reader service card

Intellipoint microprocessor-based security annunciator offers a solution to false alarms, service problems, and closing time delays. It tells at a glance the status of every security point, establishing the location of trouble. The two-wire system is easily added to new or existing systems. Honeywell Protection Services.
Circle 113 on reader service card

RES Cardentry® System uses a plastic card encoded on the inside to prevent tampering for access to 1–256 locations. Inserting it into a card reader instantly transfers information, including name, location, and time of entry, to the controller. Readers function even with loss of power. The system can expand as needs change and can also be used to control copier access. Rusco Electronic Systems.
Circle 114 on reader service card

Photo Trap is an economical security camera that snaps one bright, clear picture when triggered by a motion detector, door contact, or holdup switch. Features include automatic film advance and exposure control. It uses conventional disc film that is quickly developed. The camera can be used alone or it can be connected into a security system. Mountain West Alarm Supply.
Circle 115 on reader service card

Bullet/forced entry-resistant equipment brochure includes bullet-resistant teller-type windows and framing, bullet- and forced entry-resistant doors and frames, and entire wall systems with bullet-resistant armor panels and louvers. The brochure provides specifications, security level ratings, descriptions, and installation photos. National Bullet Proof, Inc.
Circle 202 on reader service card

Bullet-resisting door/frame assembly specifications are covered in a six-page Spec Savvy brochure. The specification indicates information needed from the architect to provide appropriate bullet-resisting products. The Relative Ballistic Threat table included is useful when the type of firearm likely to be used is established. Chicago Bullet Proof Equipment Co.
Circle 203 on reader service card

Guard-Vue security glazing of glass-clad polycarbonate is available in several degrees of strength. Resistant to both bullet penetration and forced entry, the glazing is suitable for jails, hospitals, banks, government buildings, storefronts, zoos, and museums. A 12-page brochure illustrates the composition of different grades and provides technical and testing data. Binswanger Security Products.
Circle 204 on reader service card

Fluorescent lights with unbreakable polycarbonate diffusers are designed for use in unsupervised areas. The injection molded diffuser has a mounting system that absorbs the shock of repeated blows and is fastened with screws that can be unfastened only with a special tool. Since they seldom need replacement, their use results in reduced maintenance costs. Kenall Manufacturing Company.
Circle 116 on reader service card

Electric strike, Model 3140, is UL listed for fire and burglary protection. It is constructed of stainless steel throughout in a choice of five finishes. For remote door security, the strike is designed for standard ANSI A115.1 and 115.2 frame cutouts. A dual signal switch option monitors strike condition and latch bolt position. Von Duprin Inc.
Circle 117 on reader service card

Vehicle detector Series 400 requires no external processor. Two models use lithium batteries, making them ideal for use with wireless equipment. Probes detect the motion of ferrous metal objects by sensing variations in the magnetic field. Installed at the roadside or under vehicle paths, they detect cars, trucks, motorcycles, and bicycles. Intrusion Detection Systems.
Circle 118 on reader service card
[*continued on page 114*]


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Security control hardware brochure covers Dentco entry control systems, exit alarms, exit control locks, remote indicating panels, and control systems. Entry control includes card readers and card readers combined with pushbuttons for higher levels of security. Remote indicating panels increase the coverage of guards, with audible sound in the event of intrusion and a light to indicate location. Detex Corp.
Circle 205 on reader service card

Security products in a four-page brochure include Electro Magnetic Powerlock II, solenoid-operated power bolts, power control units, and station controls and signaling devices. Powerlocks provide safe, positive door control with 500 or 1200 pounds of direct holding force. There are no moving parts or mechanical linkages to wear, bind, or break. Removal of power deenergizes the door for emergency exit. Locknetics Security Products, Div. of H.B. Ives.
Circle 206 on reader service card

Security Screens & Doors catalog features Defender II and Van-Guard II security screens with integrated astragal for increased security. The 28-page catalog covers steel, stainless steel, and aluminum screens, narrow line aluminum Van-Guard screens, Defender, heavy, utility, and commercial doors, safety and insect screens. Applications are in public housing, commercial buildings, prisons, utilities, hospitals, and schools. Kane Manufacturing Corp.
Circle 207 on reader service card

Access control brochure describes several types of control and how to select the system suitable for a particular application. It suggests defining what is to be protected, how to obtain the degree of security needed, system adaptability, and employee access. Schlage Electronics.
Circle 208 on reader service card

Maximum Security Barrier MSB II, designed and constructed by Nasatka & Sons, Inc., is a hydraulic barrier of one-inch steel plates and a two-inch-diameter steel hinge bar designed to stop entry of unauthorized vehicles. It can be guard controlled or operated by card readers, digital keypads, or other identification system. In an emergency the barrier can attain the up position in one second. Battery backup will operate six full cycles in the event of a power failure. One hydraulic system can operate multiple barriers. AutoMatic Operators.
Circle 119 on reader service card

Security Pyramid literature describes a five-level system of key registration and key control procedures. All levels use the high security Twin 6000 cylinder with a duo locking mechanism that operates with a distinctively shaped key. Design of the cylinder enables it to resist common forms of attack. ASSA, Inc.
Circle 209 on reader service card

Model KSS-400TR Telscanning digital TV transmission system uses standard telephone lines to transmit slow-scanning TV surveillance pictures over standard dial-up voice grade phone lines or dedicated phone lines. It can operate and transmit high-quality pictures from four cameras sequentially. It also permits two-way data transmission over the same pair of lines without interfering with video display. The receiver can transmit five control signals to the remote transmitter to activate controls such as doors, lights, and communicators. Alcon International, Inc.
Circle 120 on reader service card

Vandal-resistant window Series 5000 is described in a six-page, full-color brochure. The aluminum replacement window combines energy-saving performance with breakage resistance of GE's Lexan® polycarbonate sheet. Charts show thermal and impact resistance data. The brochure includes detail drawings, general specifications, warranty information, and color photos of installations. Kassl Window Co.
Circle 210 on reader service card

Blast-resistant doors, described in an eight-page brochure, include low-range, medium-range, and high-range doors that can resist blasts greater than 25 psi. The high-range doors are suitable for use in storage of records or drugs, security areas, isolated banking services, guard houses, and for vandal protection. The brochure provides technical data, detail drawings, and specifications. The Peelle Company.
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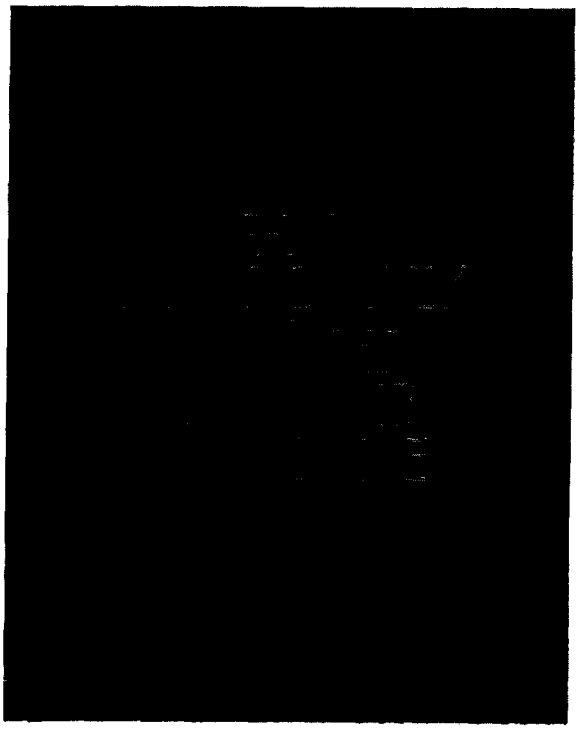

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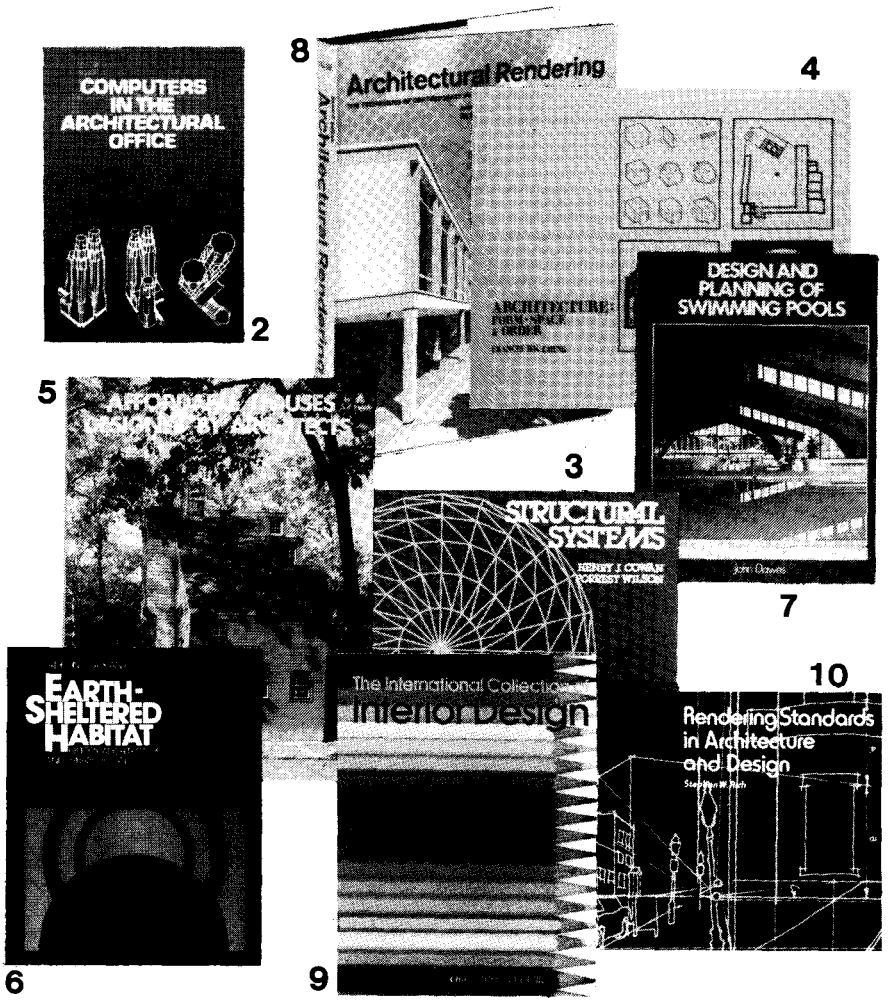

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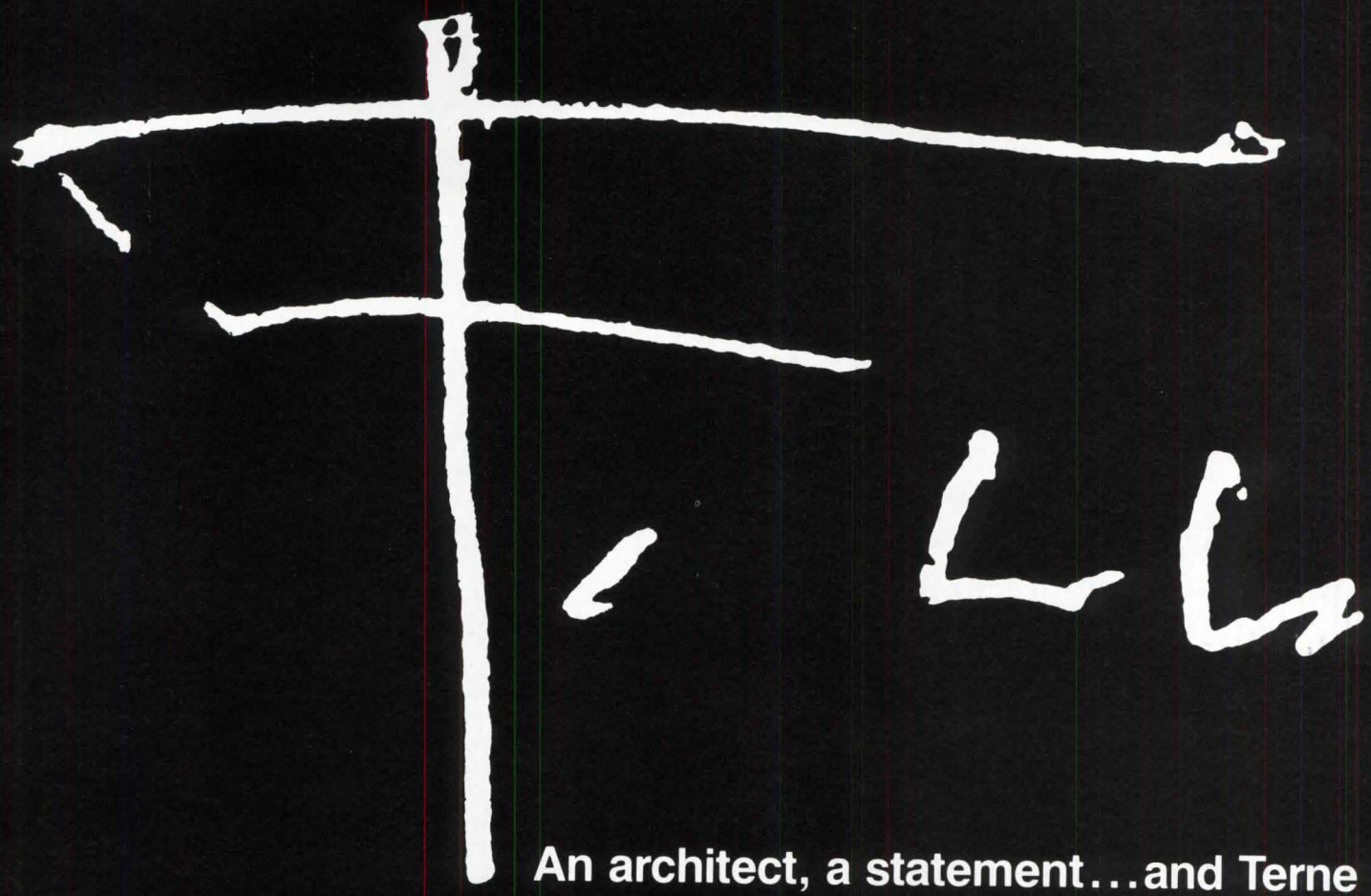

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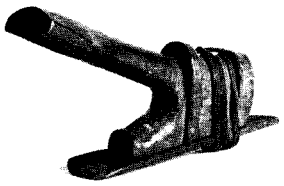

Handmade adze with cedar handle used by the Suquamish Indians to carve canoes.
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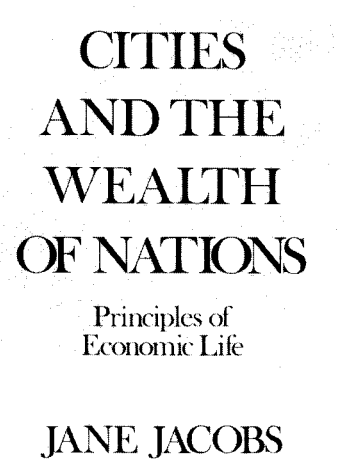
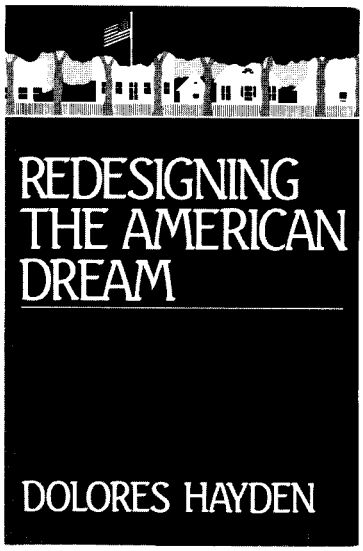
Red Cedar Shingle & Handsplit Shake Bureau

Books

Cities and the Wealth of Nations: Principles of Economic Life by *by Jane Jacobs. New York, Random House, 1984, 257 pp., $17.95.*

Redesigning the American Dream: The Future of Housing, Work, and Family Life *by Dolores Hayden. New York, W.W. Norton & Co., 1984, 270 pp., $17.95.*





The Just City

Can our suburbs be saved? Do they need to be saved? Are cities the engine of the perpetual motion of our economy, hindered by all attempts to simplify and rationalize them and to subject them to larger national interests? Such questions go beyond interpretations of style or structure, yet they have their place in the drafting room. The built environment is, after all, more than a collection of designed artifacts. It is a representation of our culture, our society, and its dominant ideology. Jane Jacobs and Dolores Hayden, two of the most astute critics of those representations, have just published their latest responses to that ideology, and the changes they propose in our urban forms and spaces, and the strategies we use to arrive at them, are far-reaching, if not always well defined.

Both volumes share a rejection of the methods that have been used in the past to explain or predict the evolution of our cities. Jacobs sees the problem in our refusal to recognize that it is the intricate economic web of and between certain cities, not the relationship between supply and demand, or between nation-states, which defines our societies. Hayden looks at the way we have actually shaped our urban and suburban environment, and sees a problem with a planning and design process dominated by men, nonhumanistic experts and defenders of an entrenched economic and social status quo.

In *Cities and the Wealth of Nations,* Jacobs proposes an economic model based on the ability of a city to act first as a switching station (a market town or port) for an area with a certain amount of natural resources in order to supply an already existing and more advanced city with raw materials. With the capital gained from these exports, the city is able to import finished goods, and then to replace those imports with local imitations. The crafts and skills mimicked from the imports will engender further invention and other crafts, which will lead to the invention of local variations and eventually new goods and crafts. These finished goods can then in turn be exported to other cities in return for imported luxury items, in their own time to be replaced by local variants. At the same time, the city will transform its local supply region into the primary market for its own goods. These local regions will in their turn develop regional centers that will undergo the same process as their "mother city" and create mini-regions around themselves. Cities beget cities, which beget different versions of themselves. If, for some reason, the city stops replacing its imports with home-grown exports and starts converting its exports into capital either to be directly invested in other areas, or to be used to subsidize other economic entities, the city will atrophy and die.

Jacobs' analysis sees the world as a web of cities connected by trade and commerce. Agricultural or supply regions are either primitive societies subject to natural, not man-made laws, or remnants of developed city regions that have lost contact with their cultural and economic focus. As an example of the first, she describes a small North Carolina town and a French provincial hamlet abandoned by the Romans. The problem with our economic policies, says Jacobs, is that we try to revive such areas through massive infusions of capital and economic aid, such as the TVA dams, instead of trying to induce the appearance of local economic activity based on innovation and invention. That is because we have organized ourselves as nations, and nations are always living off the wealth of cities. Rules are made by taking averages and grouping unlike cities together. As a result, the feedback mechanism of economic demand and the availability of capital, which controls each urban economic entity, gets false inputs from a central government.

Moreover, great empires of the past, such as England or Portugal, drained their capital cities by demanding capital investments and discouraging the growth of local economies. The only country that has managed to use its national structure, in the form of import barriers, to foster the growth of cities is everybody's favorite miracle story, Japan. But even it will be damaged by current demands to subsidize backward areas and build up its armed forces.

For Jacobs, the perfect society is that of early medieval Venice, which used its trade with Constantinople to jump-start cities all through Europe, or the cities of the Pacific Rim such as Singapore, Hong Kong, and Taipei, which are revitalizing their part of the world. Jacobs' view is harsh: If a region, like a person, is poor and uneducated, you cannot help it with a handout; that only makes it more dependent and more helpless. The current plight of the debt-ridden South American countries, arguably in worse economic condition than they were before massive infusions of Western aid, is an eloquent testimony to this view. Within a vibrant city, outdated technologies should be allowed to be replaced by new ones: Route 128 in Boston is the road to the future. In other words, planning a welfare state, mandating equality of economic opportunity, does not work.

Jacobs' only suggestion for saving our economy from its own faults is to break up nation states and to allow each city to operate according to "the esthetics of drift," improvising solutions as problems arise. To pursue the architectural implications of this conclusion, we should not subsidize large-scale development, but also not try to save landmark buildings. We should rejoice in the chaotic vitality of the urban scene. Jane Jacobs is an anarchist in every sense of the word. Only through small-scale, mutual cooperation can a society work. If that breaks down, death and destruction might and should follow in order to blast away the rubble of imprisoning traditions and government orders, allowing creativity to blossom. Architecture as fixed forms is an impediment. As a tool in the reformulation of technological and social structures, it could be useful.

Dolores Hayden does not seem nearly so enamored of the city, but she does cherish a vision of a small-scale world in which high-density, innovative architectural forms allow people to combine in novel social and economic enterprises. Her ideal, formulated in *Redesigning the American Dream: The Future of Housing, Work, and Family Life*, is that of the suburb transformed by intensifying its land use, breaking up the one-family home into units reflective of the plethora of sexual and occupational relationships now available to us, and organizing it around common open spaces and communal economic activities.

Hayden comes to this vision after a rejection of the most central image of the American Dream, the one-family home. Originally the home was the place for cultural definition, an ordered universe that formed an intelligible microcosm of outside society. In the books of the 19th-Century reformer Catherine Beecher, and in such experiments as the wartime Vanport, Oregon, factory community, architectural forms expressed the functions and activities of daily life structured so that the inhabitants had direct control over their world. Unfortunately, the inhabitants were women, who lacked political or cultural power. The home therefore became an isolated prison for women, cut off from the city and plugged helplessly into its technological systems. Women constructed their dreamworld at home with the help of electricity and sewers, while men went off on their trolleys to make a real world. The sexes were separated physically and given stereotyped roles. Because the role of men was in controlling the actual production of goods on the urban scene, they controlled the economic weight of the different occupations and the boundaries of the spheres of the different sexes. Men are paid, housewives aren't. Women surround themselves with a "feminine" environment at home, a dreamworld that often becomes a neurosis or a nightmare, and as soon as they pass the threshold they are assaulted by signs and symbols of their status as sex objects and servants.

The American Dream Home is, moreover, a waste of natural resources, and the percentage of our economy spent on its production precludes both an equitable use of our resources and the availability of the home to all but a socially and racially select few.

The answer to this predicament lies once again in a rejection of traditional planning and a concentration on the strategies of innovation, complexity, density, and multiple ordering devices offered by both urban forms and, paradoxically, certain "primitive" societies: "Each of these designs encompasses a use of economic arrangements concerning men, women, and children: through the organization of space they reinforce people's relationships to land, task, rooms, animals, fire, food, and each other."

The spaces that matter most to Hayden are the meeting places of the sexes and of our society: communal gardens, courtyards for playing, places for communal production, and ". . . a much richer and more complex set of transitional spaces . . . to connect private life and public life effectively." This reviewer cannot help thinking that only the vitality and diversity of the city can provide for such spaces.

Both Hayden and Jacobs arrive at urban forms of architectural complexity as answers to the problems of a society divided between rich and poor, supplier and demander, man and woman. Neither proposes specific architectural forms for such cities, precisely because the architecture of the city tends to monumentalize certain people, objects, or activities and thus create impenetrable shrines divorced from the life of the city. Architecture builds monuments or reflections of abstract plans. Jacobs and Hayden are much more interested in the vernacular of the bustling marketplace or the adaptive forms collaged together by a diverse group of makers and users.

In their city, there is no place for architecture as we know it. Yet they also reject perfect and idealized places. In their City of the Just there is place for contradiction, messiness, and a dense web of structures that cannot be read in isolation. There is place for a web of life thrown over the rhythms of nature, embroidered in a syncopated beat and impossible to understand by drafting or describing it. They argue persuasively that one must become an integral part and builder of the just city. ***Aaron Betsky*** ■

The reviewer is an architect and architecture journalist working in the office of Frank Gehry in Venice, Calif.

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The Charter at Beaver Creek. Architects Jack Miller & Associates, Aspen, Colorado.

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P/A in September

Wolfgang Hoyt/© ESTO

Alexander Julian Shop, Dallas. Designers: Elias Moser and William M. Goodwin, Jr. of PYT, Inc.

Interior Design: the Search for Style

P/A's ninth annual special issue on Interior Design will examine a variety of completed works that go beyond merely choosing one style among the many current alternatives. These projects include shops and showrooms, apartments and offices, plus a major museum interior. As P/A's Interior Design Editor, Pilar Viladas, puts it, they embody a "consistent, personal mode of expression that is appropriate to a given time, place, and project"—her definition of having *style*.

Technics: Wood as an Interior Finish

At a time when wood is getting increasing attention as an interior material, P/A Technics Editor Tom Fisher will offer an insightful survey of the various woods in use and the ways to detail them effectively.

Designer's Saturday

A definitive guide will cover the events and products to be shown at the annual October design gathering in New York.

P/A in October: Buildings, Technics

A variety of current architectural accomplishments will be critically examined in this issue, which will include a Technics feature on Below-Ground Technology.

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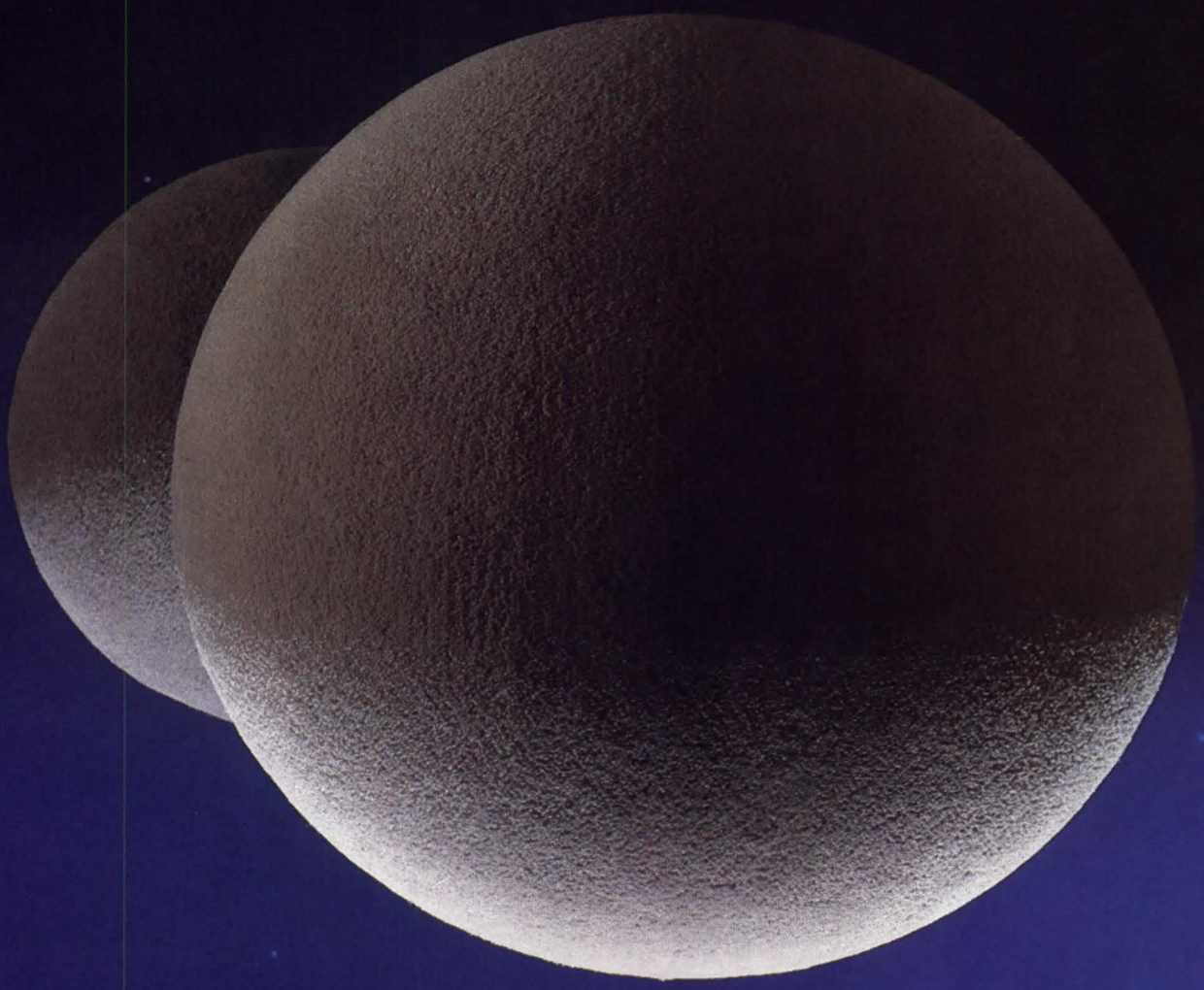

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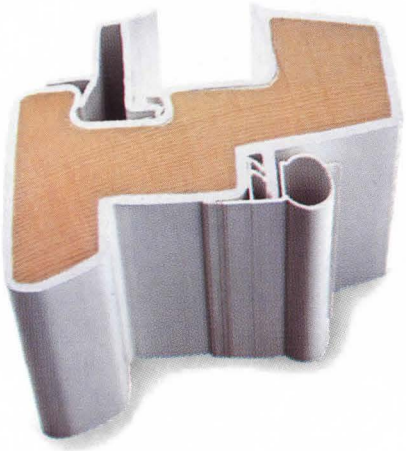

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New Products and Literature

Skantek SK-1010

For companies with computer-aided drafting and design systems, converting existing drawings into digital form for use on the CAD system has been a problem. Skantek's SK-1010, a computer-based peripheral, provides a relatively inexpensive, relatively fast solution.

The product's scanning unit (incorporating a stationary fiber-optic scanhead), its microprocessor circuitry, and its data-conversion software enable the data scanned from the existing drawing to be edited and displayed on raster- or vector-based CAD workstation terminals and to be stored on tapes or disks in IGES and other CAD system file formats.

A user with little training can feed a drawing (up to 40 inches wide and any length) into the scanner, which resembles a desktop blueprint machine, check on the monitor that the scan is reading properly, and leave the machine. For an E-size drawing, it will take about 10 minutes to scan and about 45 minutes to vectorize. The resultant file will still require time—perhaps several hours—for manual editing. Given the high cost of other scanning equipment, or alternatively the lengthy time required for manually digitizing large drawings (up to 40 hours for a complex drawing), it seems worth it.

Where high-end scanning systems can cost well over $500,000, Skantek's costs between $125,000 and $165,000, depending on the optional extras. The options include SK-102, which allows scanned drawing files to be put directly into CADAM-based systems; SK-301, which separates scanned drawings into layers; and SK-401, recently introduced optical character recognition software for reading and digitizing hand-lettered and printed text. ***Susan Doubilet*** ■

Circle 100 on reader service card

SK-1010's component subsystems are the Scanning, Electronic Processor, Magnetic Tape, and Touch-Screen Control units. An operator, who needs little training, feeds a drawing into the scanner, and then uses the touch-screen controls on the monitor to adjust the image brightness and contrast, and control the scan.

New Products and Literature

Panelook vertical sliding doors and windows have heavy-duty bronze anodized aluminum frames. Glazing can be glass, acrylic, or polycarbonate, depending on the degree of security required. They combine visibility with security in malls, retail shops, and restaurants. Open panels stack out of sight in a 20-inch soffit. Panels are 3–14 feet high, 5–20 feet wide and can be used in multiples for wider openings. NASCO Corp.
Circle 121 on reader service card

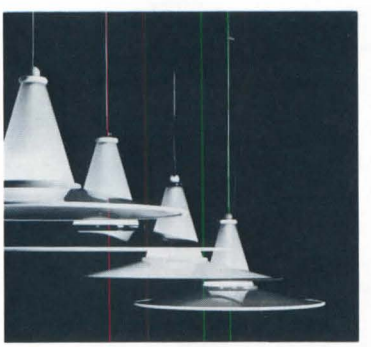
The Video-Tracing System uses a video camera to project drawings onto a monitor. With the CAD drawing screen overlaid on the image, the operator can quickly and accurately trace the drawing into the CAD system. According to the company, it is more accurate and faster than conventional tablet digitizing. Applications include tracing drawings, X-rays, mapping, and seismic records. Brighter Images.
Circle 122 on reader service card

Personal Architect PC-based system provides the architect with the services needed for computer-aided design (CAD) and architectural office management. The five software packages available are: Architectural design and drafting; Advanced (2D and 3D) architectural drafting; Schematic/Urban design; Architectural (2D) drafting; and CV/CFMS project management, payroll, and accounting. Computervision Corp.
Circle 123 on reader service card

Mainframe™ media storage system stores conventional file folders, tapes, printouts, diskettes, and disk packs. Heights range from 3′-3″ to 16′-3″, widths are 36″, 42″, and 48″, and depths are 12″ or 15″. Options include closed backs and sides and locking doors. Borroughs Div., Lear Siegler, Inc.
Circle 124 on reader service card

BEEM software evaluates the energy impact of different sizes, types, and orientation of windows. It calculates total energy cost or saving, which is reported in dollars. Besides effects of heating, cooling, and lighting, the program calculates geographic locations and local energy costs where these values are known. Ross & Baruzzini, Inc.
Circle 125 on reader service card

A/E Micro II™ entry level computer graphics system for building designers includes the MicroVAX-based Micro II data processing system and the InterPro 32 workstation. It includes basic nucleus software and a choice of one of five architectural/engineering software programs. Micro II is an expandable system that can support up to four Intergraph workstations. Intergraph Corp.
Circle 126 on reader service card



Samurai ceiling-hung lamp, manufactured in Italy by Tre Ci Luce, has a shade consisting of a frosted glass cone with a yellow or white metal ring. The metal canopy and rubber trimming are red, white, black, yellow, or sky blue. The lamp can be used for residential or contract interiors. Lightning Bug Ltd.
Circle 127 on reader service card

CEADS-CAD 2000 2D drafting software with the capability of showing 3D views of drawings was developed for the Hewlett-Packard Series 1000 computers. It can support from four to over 12 stations plus plotter and digitizer. Applications include structural design and analysis, civil engineering design, architectural design, facilities design and space planning, and general drafting. Holguin.
Circle 128 on reader service card

The Quick/Response, High-Challenge sprinkler has a fusible link that has a Response Time Index of 50, six times faster than the standard High Challenge sprinkler. In tests it greatly reduced fire suppression time, water flow requirements, number of sprinklers required, and combustibles consumed by the fire. It is available in ½-inch and ¾-inch thread sizes. The Viking Corp.
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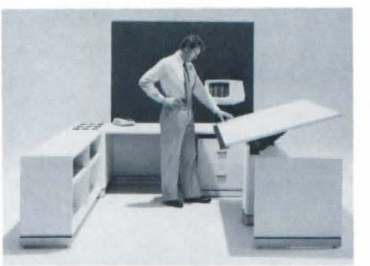

Horizon™ workstations for design professionals provide storage space, computer hookups, and wire management with ample power outlets. A space 16′ x 32′ can accommodate eight workstations that include drawing table base, drawing board, pencil tray, desk, monitor arm, pin-up board, taboret, and connector. The connector can be a flat work surface, a basket, or it can contain roll storage tubes. Colors are black, white, or teak. Hunt Manufacturing Company.
Circle 130 on reader service card

Casement windows and patio doors equipped with Heat Mirror™ provide better insulation than conventional double-glazed products. Heat Mirror invisible polyester film is factory sealed between layers of glass. It allows short-wave solar rays, including visible rays, to penetrate while reflecting longer wavelength heat rays. According to the manufacturer, the glass has an R-value of 3.7 compared with 2.6 for triple glazing and 2 for double glazing. Louisiana-Pacific.
Circle 131 on reader service card

Dekguard two-coat protective sealer is designed to reduce the penetration of chloride and water into a porous concrete structure. The acrylic/silane sealers, intended for slabs, decks, walls, and abutments, resist water and chloride intrusion while maintaining the breathability of concrete. Preco Industries, Ltd., Road and Paving Division.
Circle 132 on reader service card

The Solid Brass Collection of faucets for bar, kitchen, bath, and lavatory are one-piece castings of solid brass with several handle styles. There are four-inch and wider lavatory faucets, four-inch bar and eight-inch kitchen faucets, tub and/or shower valves, single-lever Scald-Control™ shower valve, and bidet fittings. Indiana Brass.
Circle 133 on reader service card

Prestique® Plus shingles of laminated fiberglass are coated on both sides with weather grade granules. The random cut design simulates the appearance of wood shingles. Fewer shingles and reduced labor are required because they are 20 percent larger than standard shingles. The roofing carries a UL Class A fire rating and a UL wind rating. Elk Roofing Products.
Circle 134 on reader service card

Lualdi doors from Italy have a highly polished lacquer finish available in six standard lacquer colors or in twelve woods, including cypress, teak, fir, and pear. There are three door models, each offered in two standard sizes. NPM, Inc.
Circle 135 on reader service card

A fire-rated glass wall system with Contraflam® glass has a UL 60-minute rating, and stops passage of fire, smoke, and heat. Of modular construction, it has open glass areas up to 4′ x 7′ and provides 85 percent light transmission and a 48 dB noise reduction. Applications include restaurants, office lobbies, banks, hospitals, airports, and schools. EICH Corporation.
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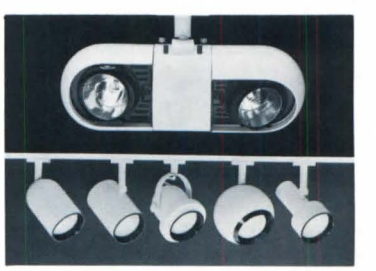
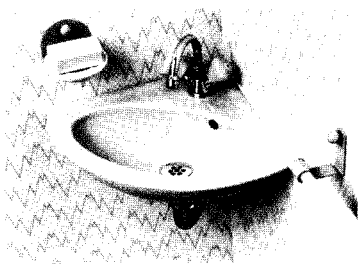


Lite Trac® single- and two-circuit track lighting includes a twin beam model, Lite Capsul™, that incorporates two MR-16 lamps in one housing. The housing remains constant, regardless of the direction of the independently aimed lamps. This and other retail, commercial, and residential track lighting is covered in a 48-page catalog. Prescolite, Div. of U.S. Industries, Inc.
Circle 212 on reader service card

'Sunlight and Shadow' window shading system brochure features Guestar™ folding shade

for the hotel industry, Trackstar™ track-guided folding shade for curved glass installations, Pacifica™ folding window shade, and Rollstar™ springless roller shade for vertical window solar screening. The brochure includes information about fabrics, and motor and manual operation, and photos of installations. Castec, Inc.
Circle 213 on reader service card

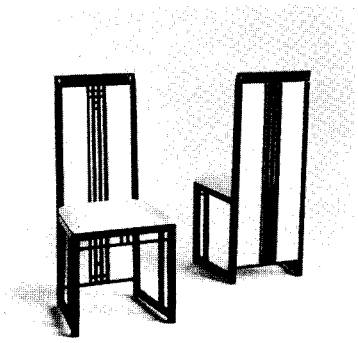
Fireplace systems planning guide is an eight-page brochure showing several single or multiple fireplace installations. Zero clearance design allows placement near combustible surfaces and lighter weight requires no special floor support. Drawings show features of several models; tables provide chimney height and offset dimensions. Heatilator, Inc.
Circle 214 on reader service card



The Angle china handbasin is a space-saving corner fixture that is only 16 inches deep overall. Available in champagne or white, it is suitable for the compact powder room. The basin is drilled for a single-hole faucet. Porcher, Inc.
Circle 137 on reader service card

Low-voltage lighting combines interchangeable housings, trim, transformers, track, lenses, and filters to provide energy-saving fixtures for commercial and residential uses. Described and illustrated in a 44-page catalog, the lights include recessed, retractable, and track-mounted styles. Retrofit adapters convert 120-volt recessed housings to 12-volt. The brochure also provides photometry charts for various lamps. CapriLighting.
Circle 215 on reader service card

The Independent Software Vendor catalog with 533 entries is organized into seven color-coordinated sections: Manufacturing/industrial control; Architectural engineering and construction; Mechanical/electronic; Energy; Engineering management and analysis; and Engineering utilities. There is an index by industry. The 330-page catalog costs $10 and is available from Data General, Technical Products Division, 6300 South Syracuse Way, Englewood, Colo. 80111 (303) 694-2900.



The Giorgetti dining sidechair is made of solid hardwood in several finish choices. There are highback and lowback versions, with upholstered or open back. IPF International, Inc.
Circle 138 on reader service card

Glasweld panels of opaque mineral-fiber-reinforced cement have been reformulated to be asbestos-free. A 16-page color brochure illustrates cladding systems and curtain wall applications for the panels and includes a chart showing the 17 natural and earth-tone colors available. GII Corp.
Circle 216 on reader service card

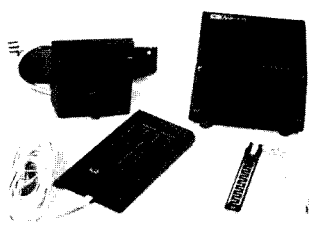
Revolving doors shown in a four-page brochure offer draft-free access to commercial and institutional buildings with direct savings in heating and cooling costs. Consisting of a circular enclosure, a ceiling, and three or four wings, standard doors have aluminum frames, with ¼-inch clear tempered glass for wings, ¼-inch clear bent annealed glass for the enclosure. The company offers other framing and glazing options. Crane Fulview Door Company.
Circle 217 on reader service card

Ornamental steel forgings, called "italia," are malleable, low-carbon steel fashioned into rosettes, balusters, and other architectural forms. There are contemporary designs as well as reproductions of period styles. The forgings are said to weigh about half as much as castings and to be less fragile. A 200-page catalog illustrates 100 stocked patterns. Custom designs can also be produced. Barry Pattern & Foundry.
Circle 218 on reader service card

Laticrete® mortars and grouts for installing tile, brick, marble, mosaics, pavers, and stone are covered in a 12-page color brochure. Sound control underlayment and Latapanel™ Portland cement backer board, for installation of tile, marble, or stone on walls or floors, are also included. Drawings show details of installation, and descriptions, property tables, and short form specifications are provided. Laticrete International, Inc.
Circle 219 on reader service card

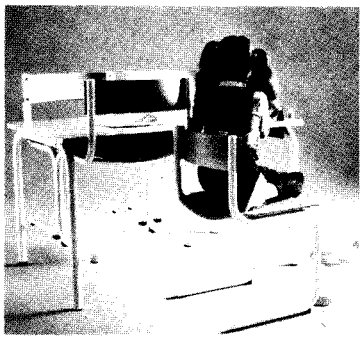
Flexway™ undercarpet wiring systems catalog covers power, telecommunications, and data systems. All three allow quick, easy renovation, reduce installation time, and offer design flexibility. Burndy Corp.
Circle 220 on reader service card

Tubelight 1000 low-voltage lighting system is parallel wired for flexibility. Lamps are powered independently so that in the event of failure, only one bulb is affected. Tubes can be cut to fit field requirements. The system is described and illustrated in an eight-page brochure that provides specifications. Also described are Lightgems® of durable, water-resistant clear or smoked plastic available in two lamp intensities for decorative or illumination purposes. M^2 Designer's Studio, Inc.
Circle 221 on reader service card



The Electric Window Opener operates awning and roof windows in hard-to-reach locations. The installation kit includes an operator that is attached to the window, a power pack, a command module, and a rain sensor that automatically closes the window if it rains. Accessories make it possible to open or close up to four windows individually or in series. Andersen Corp.
Circle 139 on reader service card

Entrances and Store Fronts brochure provides detail drawings and descriptions of several doors and glazing systems. Vertical stiles range in width from 1⅜ inches to 5 inches, depending on application. Nightwatch™ concealed rotary astragal panic door has a "turnstile" action that provides a positive interlock with the opposing door and resists tampering. Vistawall Architectural Products.
Circle 222 on reader service card



Canteen and work furniture, shown in a colorful eight-page brochure, has tubular steel frames and legs finished with a scratch-resistant, impact-proof epoxy coating. The group includes chairs, tables, trolleys, work accessories such as files, typewriter extension tables, and shelves. Conference, stacking, and tablet chairs with swivel arm have molded beech plywood seat and back. Square, rectangular, semicircular, and circular table tops have a composite wood core, solid beech edges. Kroin Incorporated.
Circle 223 on reader service card

Censor room temperature control detects the presence or absence of people in a room and adjusts temperature accordingly. It allows occupants to set their own comfort level, which will be maintained as long as the room is occupied, then change to energy-saving operation when they leave, and return to the level selected when they return. It installs without opening the case. About 32 functions are preset at the factory. Elektra Systems, Inc.
Circle 140 on reader service card

Hardwood doors and wall paneling are discussed in new literature. New features are an improved mineral-core fire door stile and a UL-labeled 20-minute rated wood beaded lite opening kit. Other products included are an acoustical door and a lead-lined door. There is a full description of each door and panel type, and veneers and color tones available are shown. Algoma Hardwoods, Inc.
Circle 224 on reader service card

Glass and aluminum bending capabilities for architectural applications are explained in an eight-page brochure. All types of uncoated clear glass in thicknesses up to one inch can be bent. The firm can also laminate and insulate bent glass. Buildings using bent glass and aluminum are illustrated in color. Dlubak Studios.
Circle 225 on reader service card
[*continued on page 138*]

Identifone visitor entry phone for apartments, condominiums, and office buildings works over existing phone lines. It allows the resident, after identifying the visitor, to open a locked lobby door or elevator door by pressing or dialing 7 on the regular phone. Identifone is available with or without directory, for surface or flush installation. It has a built-in postal lock and a multicode digital lock. It can be installed in new or older buildings and has the capacity to handle up to 1000 residents. Aegis Technologies, Inc.
Circle 141 on reader service card

Snap-together floor deck in 12″ x 12″ modules has posts that interlock with matching sections, with no adhesives required. There are three types of self-draining floors. Tuff-Dek for industrial use can withstand lift truck traffic and is impervious to oils, grease, and other hydrocarbons. Super-Dek for use behind bars and commercial workstations is impervious to chemicals, oils, greases, and other toxic liquids. Stat-Dek for computer rooms is static-dissipating. Pawling Corp., Standard Products Division.
Circle 142 on reader service card

Insulated sectional doors brochure describes the manufacturing process of laminating Bethlehem Steel's Galvalume™ sheet steel and polyurethane by a computerized, television-monitored line. The door panel is lightweight, strong, waterproof, and energy efficient. The brochure offers test data and hardware specifications. O.H.D. Thermacore, Inc.
Circle 226 on reader service card

Travertine, granite, marble, slate, and onyx are offered in a wide array of colors. The natural stones, which come from North and South America, Europe, and Africa, are suitable for both large commercial applications and residential use. Marble Modes, Inc.
Circle 227 on reader service card

Building Materials

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

PA Technology Laboratory and Corporate Facility, Hightstown, N.J. (p. 67). *Architect: Richard Rogers & Partners, London, U.K.; Pierre Botschi; Kelbaugh & Lee, Princeton, N.J.* Steel fabricators: Kunkin Associates. Corrugated metal deck: U.S. Steel. Acrylic double-dome skylights: Naturalite. Glass entrance vestibule: Pilkington. Partitions and hollow metal doors: Hauserman/Acme. Sectional overhead door: Insoport Industries. Rubber flooring: Nora Flooring. Integrated metal ceilings: Industrial Acoustics. Roofing: Alcan Building Products, Goodyear. Paint: Tnemec. Butt hinges: Stanley. Locksets: Corbin. Door closers: Sargent. Panic exit: Blumcraft. Door pulls: HEWI. Refrigerator: SubZero. Oven: Thermador. Dishwasher: Hobart. Fire sprinkler: Fire Protection Industries. Security system: Wells Fargo. Pole-mounted floodlight: Aktraflood, Widelite. Bollard walkway lights: Guardian Light. Interior lighting: Lightolier. Underfloor cable trays: Square D Company. Water closets: American-Standard. Flush valves: Salon. Metal toilet stalls: General Partitions. Stainless steel bathroom accessories: American Dispenser. Water cooler: Filtrine. Gas-fired steam boiler: Industrial Boiler. Roof-top unit gas heater and air conditioner: McQuay-Perfex. Compressed air, automatic control system: ATC Systems. Carpet tiles: Interface. Open office furniture: Herman Miller. Venetian blinds: Levolor.

Annie Maxim House, Rochester, Mass. (p. 99). *Architects: KJA Architects, Cambridge, Mass.* Wood trusses: Wood Structures. Windows: Andersen. Solid pine panel, half- and full-glazed doors: Morgan. Custom fabricated pine window frames: CCI Woodworking. Quarry tile: American Olean. Oak flooring: Bruce. Carpet: Philadelphia. Roofing: Bird (shingles); Goodyear (rubber membrane). Insulation: Owens-Corning. Partitions: Gold Bond. Paint: Benjamin Moore. Hardware: Hager, Almet, Glynn Johnson, Stanley, Pemko, Ives, Baldwin. Kitchen equipment: Merillat, Crown, KitchenAid, GE, Hotpoint. Intercom: NuTone. Fire detection: Kidde. Emergency call system: Sesco. Sundial: KJA Architects (design), James Moss (technical), Omni Sign (fabrication). Weather instruments: Maximum. Mail boxes: Bommer. Lighting: Prescolite, KIM, Lightolier (exterior); Lightolier (interior). Electric generator: I.T.E. Superior. Plumbing: American-Standard, Symmons. Bathroom accessories: NuTone. Heating system: Weil McLain (boiler), Stirling (fin tube), and Friedrick (hot air furnaces).

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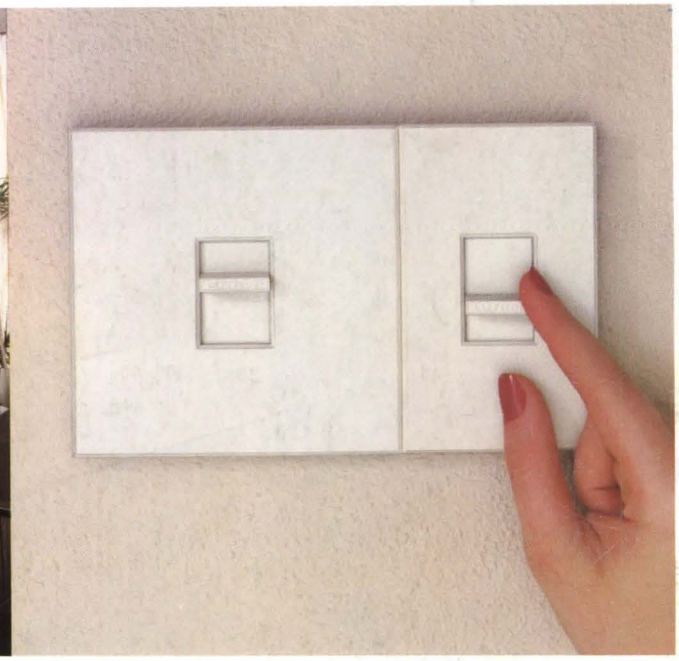

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