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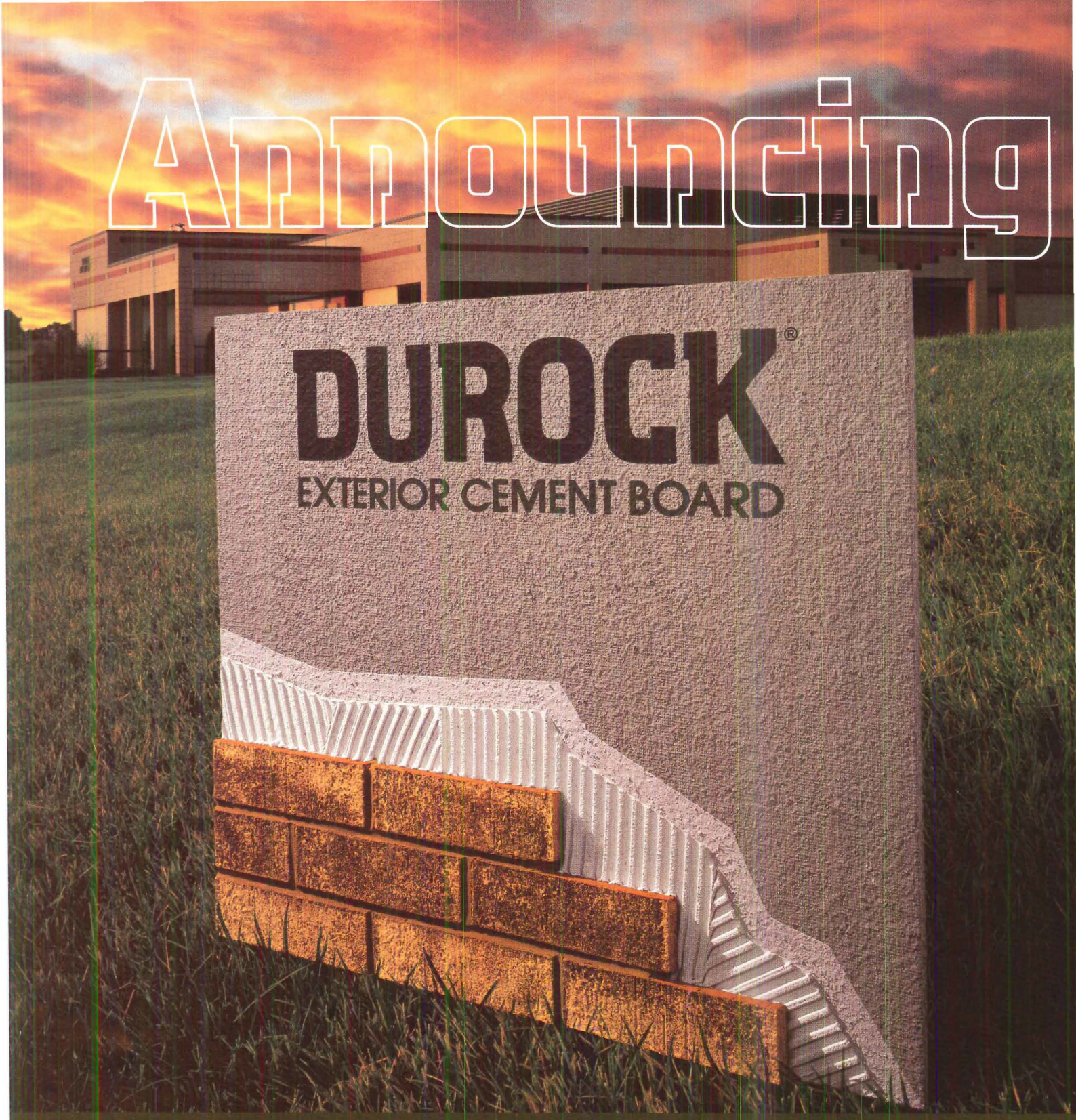

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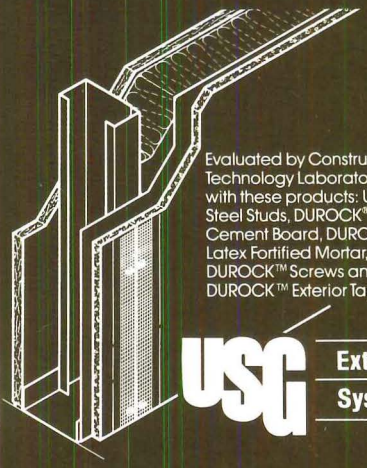

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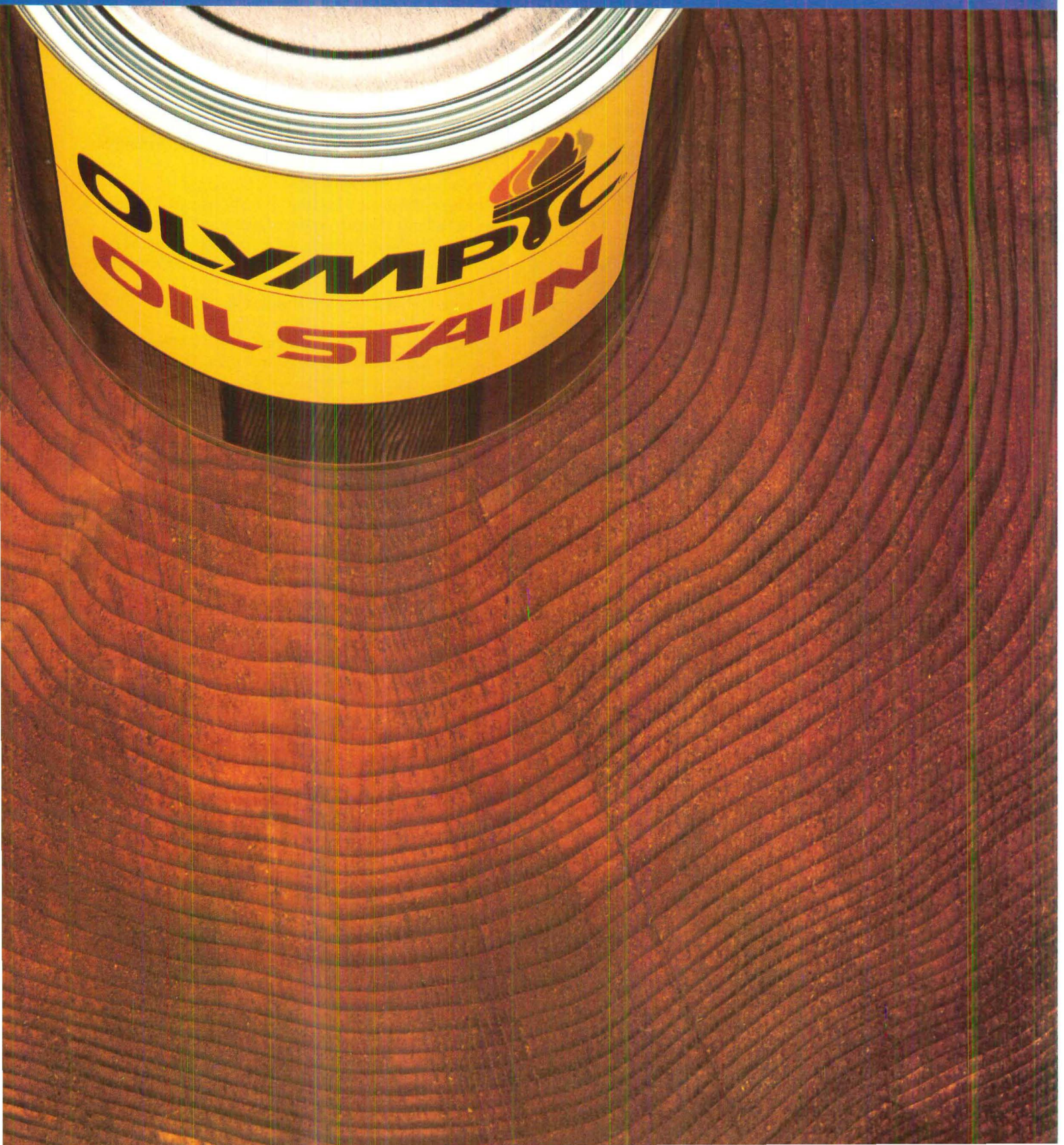
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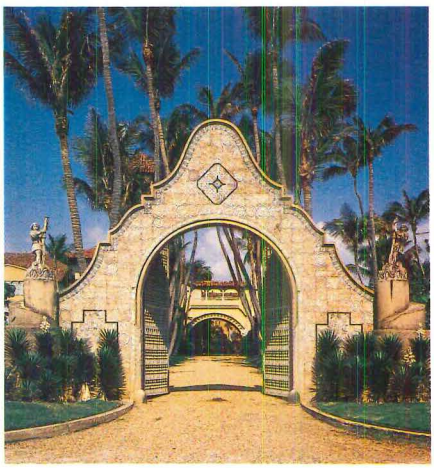

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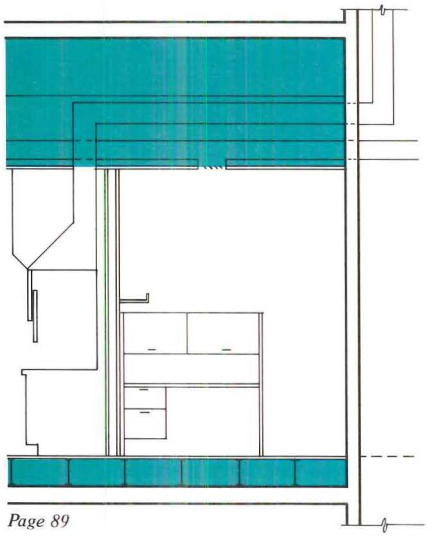

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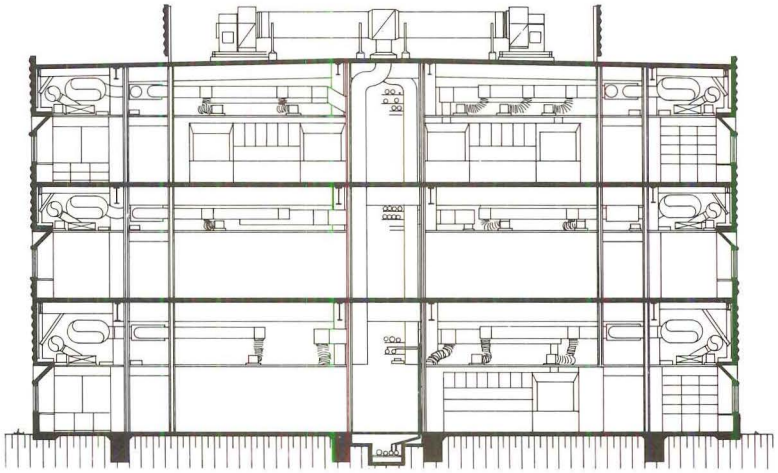

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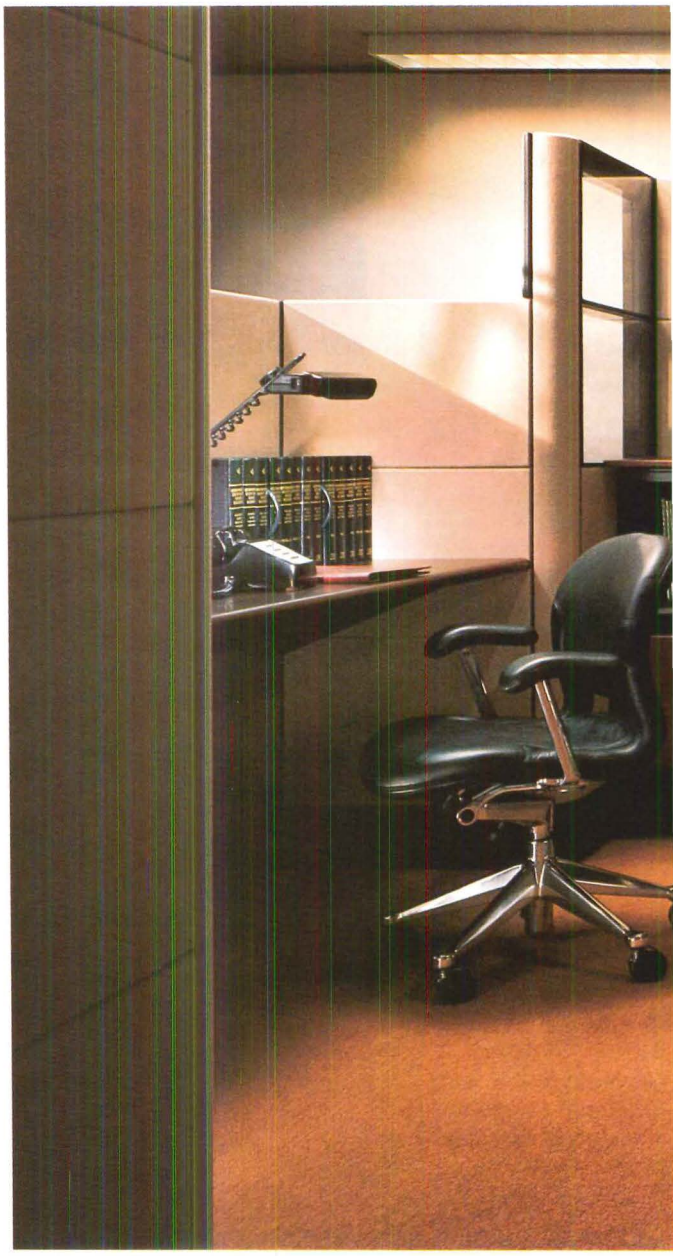
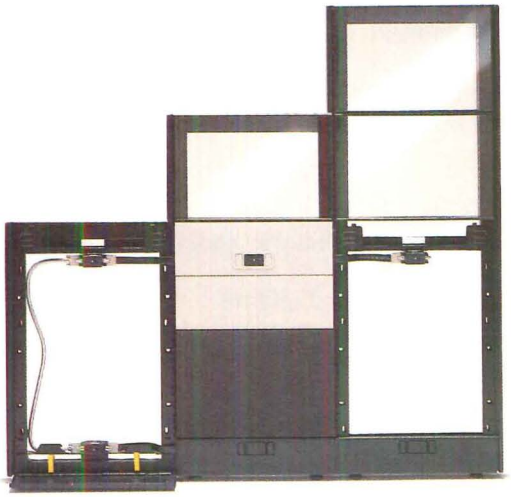
Cover
Photograph by Steven Brooke of the Savannah Beach Pavilion by Tom Christ in the town of Seaside (see page 56).

News

The Beauty of Ethospace





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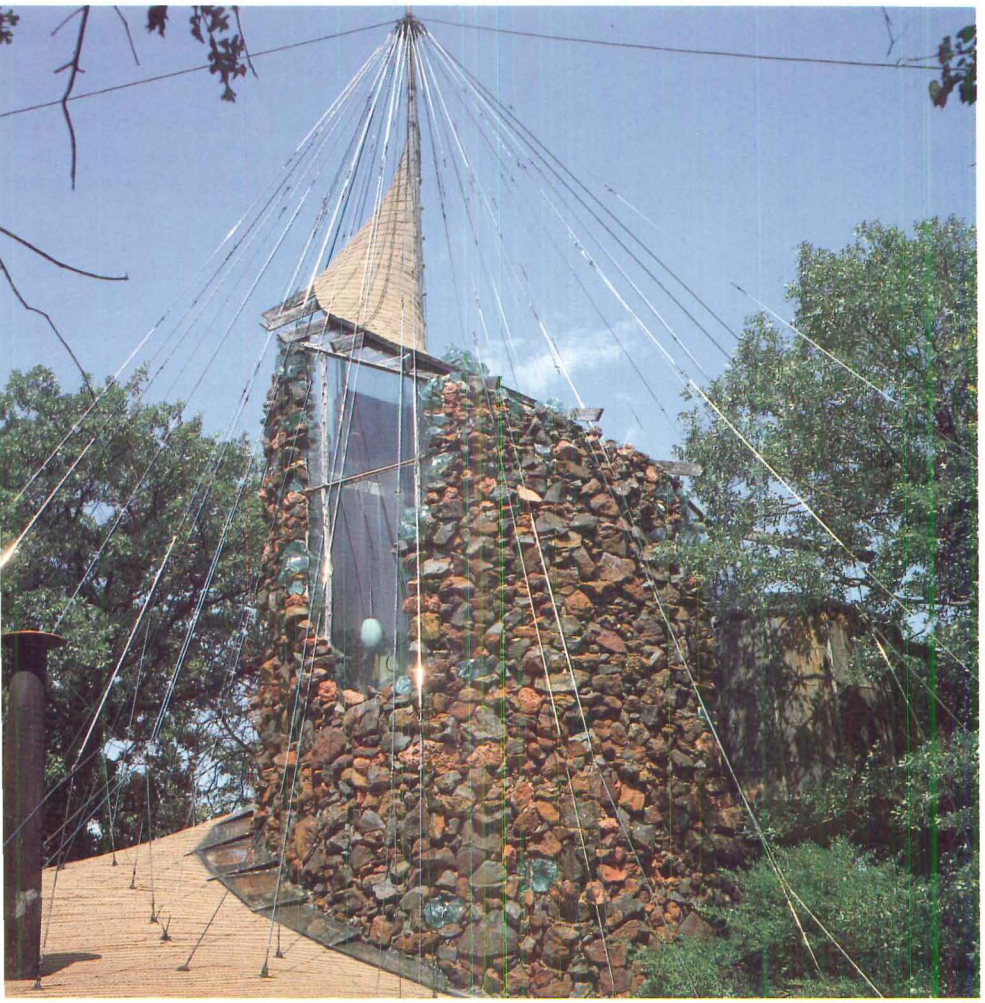
Like all real beauty, the beauty of Ethospace interiors comes from inside. From strong steel frames that support work surfaces and storage, and accept an incredibly varied assortment of modular tiles.

Those tiles are the Ethospace skin. You choose it from colors and patterns in viny or fabric, and from various wood finishes. And the tiles needn't be the same on both sides of an Ethospace wall.

But the beauty of Ethospace is not just how the tiles look but what they do. A rail

Awards

Bruce Goff's Bavinger House to Receive AIA's 25-Year Award



Bruce Goff's Bavinger house, a telescoping spiral of rock, glass, wood, and metal, is the recipient of this year's AIA 25-year award. Designed in 1950 and completed in 1955, the house is still occupied by the original clients and has changed little in 32 years.

The house is sited in a rocky ravine beside a stream, about five miles east of Norman, Okla. Writing about the house's design, Goff admitted that Eugene and Nancy Bavinger came to him seeking an alternative to what they felt were the cubical confines of conventional houses. They wanted a house that reveled in natural materials, color, openness, and a multiside of levels. The interior also had to accommodate Eugene's hobby of plant raising. The budget was small, almost nonexistent, for the Bavingers paid for the house out of their pockets "a sack of cement at a time," as Eugene describes it. An artist and professor at the University of Oklahoma, Eugene supplied much of the labor to build the house, and many of the materials were donated or scrounged. Some of Goff's students at Oklahoma, where he was dean of the architecture school from 1947 to 1955, filled out the construction crew.

Goff's design is elegantly simple but rendered with an effusion of means. The house's backbone is a 96-foot-long wall of red sandstone rock, plentiful on the site and the surrounding area, that in plan spirals in a logarithmic curve and ascends to a height of more than 50 feet. Rising from the center of the spiral is a steel mast that supports an array of cables that hold the spiraling roof in suspension. (Roof rafters are tied into the rock wall.) Suspension is also provided by aluminum airplane struts, an example of Goff's trademark—common materials used in uncommon ways. At the time of construction the struts were plentiful and cheap (five cents apiece), and they serve as suspenders throughout the house.

The rock wall acts as an armature from which are hung five pods (Goff referred to them as "bowls") accessible from a wall-hugging staircase fashioned by Eugene from a storm-felled walnut tree hauled from Oklahoma City. The pods contain the house's private spaces (bedrooms, a playroom, and a studio/guest room) and a conversation area. Some of the pods have curtains and fishnet that can be drawn for privacy, and each has a tubular appendage that serves as a revolving, copper-sheathed closet.

Guests are greeted at the first suspended pod—a circular, sunken, gold-shag-carpeted seating area—no doubt a precursor of the quadriphonic, strobe-lit passion pit that was essential home decor in the pages of *Playboy* years later. Below the five pods, which ascend the spiral

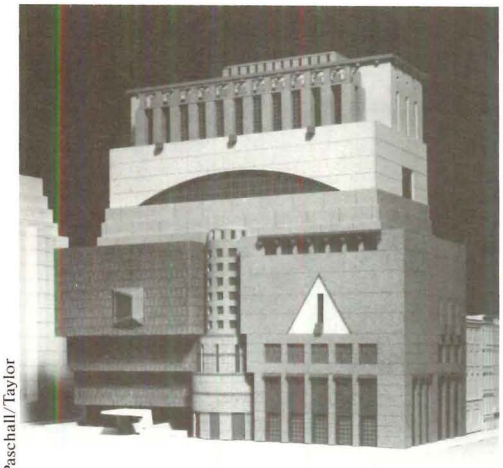
from the entrance (where the roof is lowest), the house's living areas unfold. Following the curve of the wall, one finds spaces for reading, conversation, and dining that eddy in and around still ponds circumnavigated via terraces and stepping-stones. The rock wall, washed by natural light, is alive with plants, and birds soar through the interior. Outside, the house gradually disappears beneath a blanket of ivy, fern, and vine that creeps up the wall and curls around cables.

When the house was completed it didn't take long for a steady stream of curious visitors to appear (1,500 on finishing day, by Nancy Bavinger's count), and the clients conducted tours. In fact, the admissions collected in the first few months offset the house's cost.

In relation to the body of Goff's work, the Bavinger house is one of his most organic and least geometrical. It has the quality of a tree house—hidden and private, materially inventive and resourceful, gravity defying and lawless. Conventional, academic architectural catagories fail adequately to define it, yet it is the product of a genuinely American attitude of novelty, humor, daring, and rugged individualism. The award citation reads in part: ". . . It spirals joyously into the Oklahoma sky, cut loose from the earth by a mind as free as the prairie landscape, a celebration of the spirit of man and nature united in architecture."

—Michael J. Crosbie

William Taylor



Paschall/Taylor

The Whitney Museum in New York City presented on March 10 a revised scheme of Michael Graves's addition in response to pressure from community groups and the media and petitions by 600 prominent architects, preservationists, and artists decrying the scale of Graves's December 1985 design.

The new plan reduces the proposed addition by nearly a quarter, shrinking the square footage by 24 percent and eliminating two of 10 stories. Most dramatically altered—at 40 percent of its original size—is the top structure bridging the original Marcel Breuer building and the addition. It is 47 feet shorter and much plainer, has been shorn of its much maligned "eyebrow" window, and is set back 20 feet on the corners.

The "hinge" between the buildings has also been scaled back, Graves's new entrance on 74th Street has been eliminated, and the restaurant will be located on the ground floor.

UIA Gold Medal Awarded to Finnish Architect Reima Pietilä

Finnish architect Reima Pietilä, Hon. FAIA, has been awarded the International Union of Architects' gold medal. In making the selection the jury wrote: "For 30 years Pietilä's work has progressed along his own course in architecture, never deviating from the true spirit of our time and proving that creative metamorphosis in architecture is still necessary and possible."

Pietilä was born in Turbu, Finland, in 1923 and graduated from the Institute of Technology in Helsinki in 1953. His first major commission, the Finnish pavilion at the Brussels 1958 World's Fair, won in a competition in 1956 and attracted international attention.

In 1961, Pietilä married Finnish architect Raili Paatelainen, and the union "resulted in a charming continuity and harmony between home and office that is firmly within the Finnish tradition," wrote Malcom Quantrill in *Contemporary Architects.*

Pietilä was named professor of architecture at the University of Oulu, Finland, in 1973, and five years later was named dean of the school's department of architecture.

Pietilä and his wife have worked together throughout their careers, beginning with the Kaleva Church in Tampere, Finland, and the Dipoli International Conference Center for the Institute of Technology in Otamiemi, Finland. The UIA awards jury praised the Dipoli building's scale, color, organization of space, and "intimate involvement with nature that has made Pietilä so emphatically a Nordic and Finnish architect."

In addition to his well-known buildings in Finland, Pietilä has designed a major government complex in Kuwait City. The complex is comprised of the Ministry of Foreign Affairs buildings, the Council of Ministers buildings, and an addition to the Emir reception hall in the Sief Palace. The three interconnected buildings relate in forms and materials to the Sief Palace, a traditional-style building constructed in the early 1970s to respond to the desert climate. The jury wrote that "Pietilä's sense of regionalism also has a historical dimension, expressed most outstandingly in the waterfront Sief Palace area buildings."

In addition to awarding the gold medal the UIA recognized two organizations and seven individuals in an international awards program. The Sir Patrick Abercrombie award for town planning or territorial development was given to AIA's Regional/Urban Design Assistance Team program. Organized in 1967, the R/UDAT provide urban design and planning assistance to local communities.

An honorable mention in town plan-

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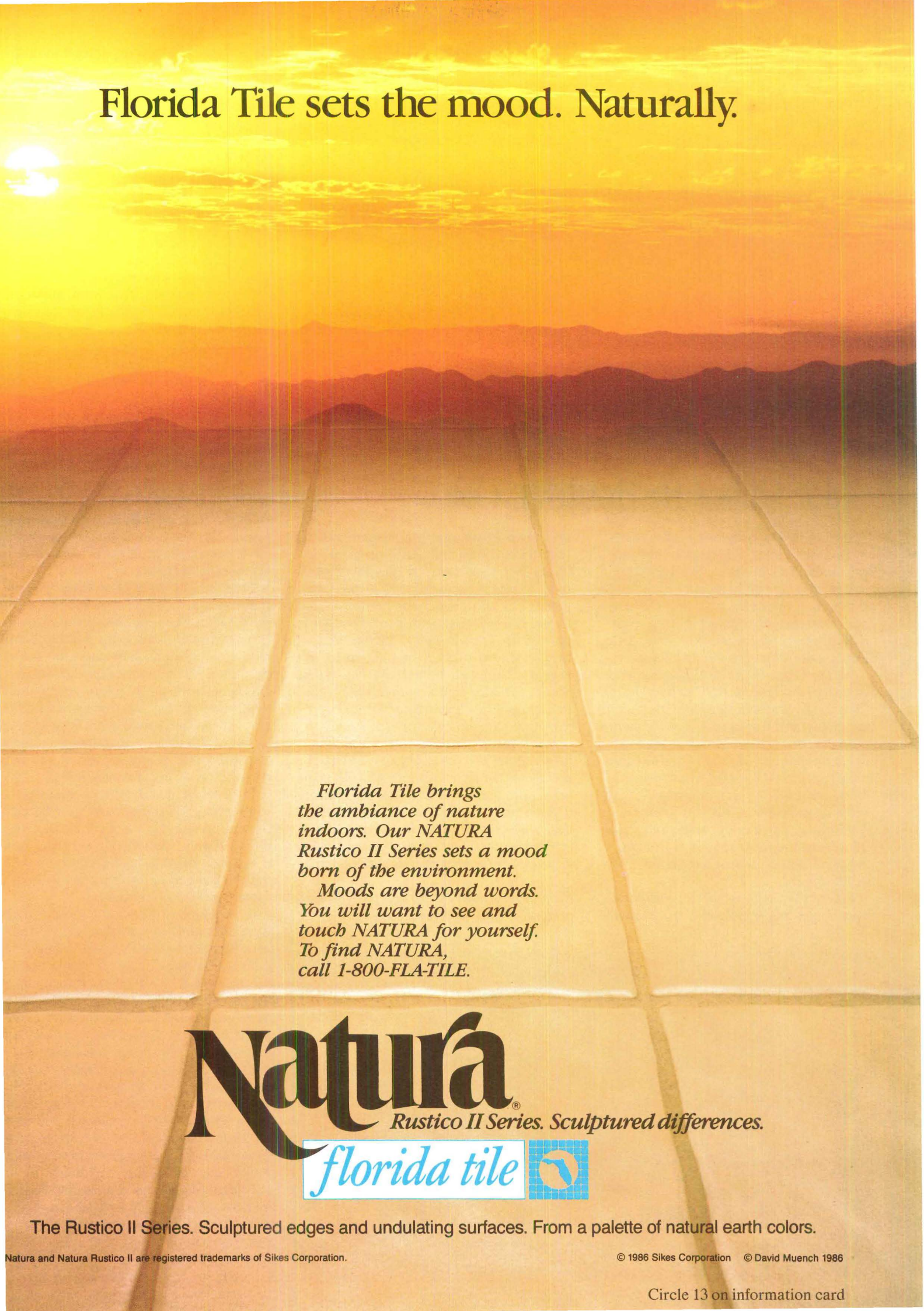

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Awards *from page 20*
ning was awarded to Spanish architect Eduardo Leira for his body of work as a city planner and for his general plan for Madrid. Lothar Bortenreuter, Kurt Griebel, and Hans-Georg Tiedt were cited for their joint efforts with the East German city of Gera to establish a development program for the downtown area.

The Sir Robert Matthew prize for improvement in the quality of human settlements was presented to the housing reconstruction program in Mexico City. Sponsored by the Mexican government in response to the earthquakes of September 1985, the program replaced 44,000 buildings that were destroyed.

Spanish architect Santiago Calatrava was presented the UIA's August Perret prize for applied technology in architecture for his "integration of the technology of engineering with the creativity of architecture." The awards jury wrote that the design of the Stadelhofen subway station in Zurich shows "the skillful alliance between architecture and engineering which serves as a model for ending the absurd rivalry between engineers and architects for the last two centuries."

The Jean Tschumi prize for architectural criticism or architectural education was given jointly to Christian Norberg-Schutz of Norway and Ada Louise Huxtable, Hon. AIA.—Lynn Nesmith

Design

Voluntary Design Guidelines Take Effect in Boulder, Colo.

A design review ordinance takes effect in Boulder, Colo., this month that supporters hope will assure the economic future of a central business district twice threatened by the success of a suburban mall. Detractors contend that the ordinance represents too much—or too little—public control of private development.

At the heart of the ordinance is a set of design guidelines, the "Urban Design Plan for Downtown Boulder," that a citizen board will use to review projects proposed for downtown. Review is mandatory, but compliance with the board's recommendations is voluntary. How well this stick-and-carrot experiment will work remains to be seen. But win, lose, or draw, the experiment is attracting strong interest as the most recent of Boulder's many efforts to control and shape development.

Founded in 1859 as a base camp for miners heading up into the mountains to seek their fortunes at places such as Gold Hill, Sugar Loaf, and Caribou, Boulder in the 1980s is a town of 100,000 inhabitants, 20,000 of them students at the University of Colorado's main campus. Only 25 miles northwest of Denver, Boulder is part of the Denver metropolitan area, though that is a fact local citizens do not always accept with equanimity. One could argue, actually, that a motivating force in local politics has long been the determination to be different from Denver.

For if history is a bit thin in Boulder, as it is in all the relatively new towns of the West, the air is often thick with citizens' initiatives. In 1959, Boulder passed a "blue line" law, which, by limiting the availability of city water, limited development in the foothills just west of the city, thus preserving the "mountain backdrop." In 1968, citizens agreed to raise the city sales tax by nearly half a cent to pay for what is now 16,000 acres of public open space. In 1976, Boulder passed a widely publicized "growth control" ordinance, which aimed to slow population growth to 2 percent a year by limiting residential building permits. Boulder has since passed laws to preserve solar access, conserve energy, promote solid-waste recycling, and control wood smoke from fireplaces. One well-known local activist has said that she regularly logs 50 unpaid hours a week as a concerned citizen.

Prominent corner of the Pearl Street Mall area, now under the guidelines.

This, then, is the civic atmosphere in which discussions of the future of downtown Boulder take place. Those discussions grew urgent in the late 1960s, when the resounding success of a shopping center built outside the city limits threatened the economic stability of the downtown core. Several years and major studies later (the first study was by Victor Gruen), four blocks of Pearl Street, the road that had led the miners up to the mountains, were closed to traffic. Paved and planted in 1977 according to a design by local architect Everett/Zeigle, with Communication Arts Inc. and Sasaki Associates, the Pearl Street Mall itself became a resounding success.

Then, about three years ago, two new challenges arose. The very success of the Pearl Street Mall spurred new construction downtown, and some attractive infill projects were conscientiously urban in character. But several other new buildings became instantly infamous for their suburban massing and disregard of context. At the same time, the shopping center two miles east of downtown, by then renovated and greatly expanded, put new pressure on downtown businesses.

Once again, discussions of the future of downtown grew urgent, and in 1984 the city council charged a citizen task force with devising a plan for downtown. One of the measures the task force proposed and the council approved was the development of design guidelines.

To implement the plan, the city hired as its principal consultant Noré V. Winter, a Boulder resident who for many years had traveled the country advising communities on historic preservation and design review. Winter and city officials agreed that guidelines for Boulder could not be based on strict notions of historic preservation. There are some historic buildings downtown, and Boulder has designated a "Downtown Boulder National Register Historic District." The city maintains a list of landmark buildings, and there is a landmarks board. But downtown as an economic center is larger than the rather small cluster of historic buildings.

Instead, the guidelines combine suggestions for preserving the physical record of the past where that record is clear with suggestions for strengthening visual continuity where the record is incomplete

continued on page 2

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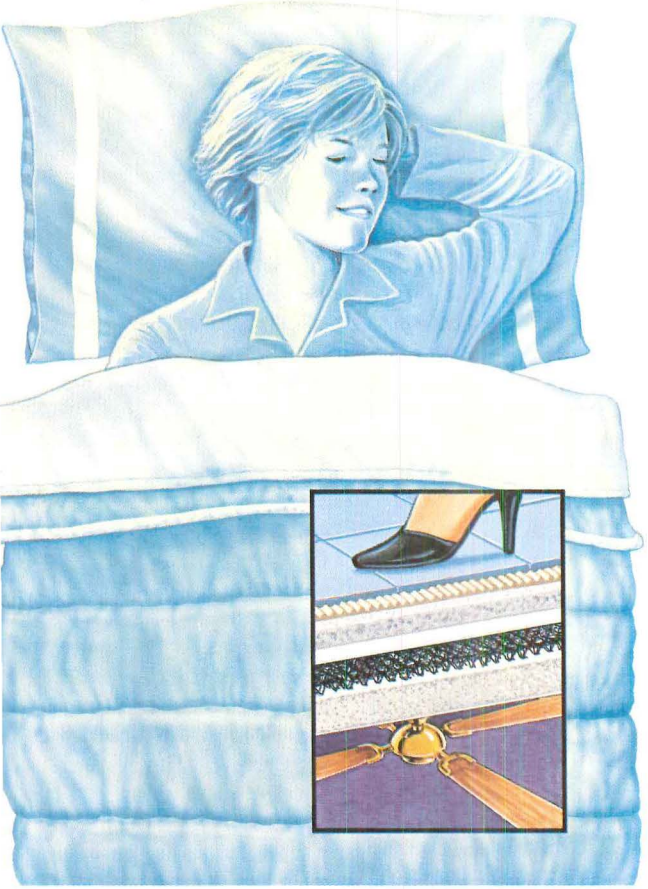

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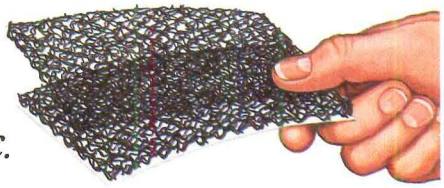

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AIA 04

Design *from page 22*
The underlying motive, according to Winter, is to foster development, not impede it. Ed Gawf, director of Boulder's planning department, agrees that the purpose of the guidelines is economic preservation rather than historic preservation. "Downtown was already a success. We knew we had an asset, and the purpose of the guidelines is to capitalize on it," says Gawf.

Making compliance voluntary was another key decision, one that affects the content of the guidelines as well as their use. Because the guidelines can only encourage compliance, they are heavily illustrated with examples of suitable and unsuitable design elements. Formal guidelines are followed with elaborations; the tone is explanatory rather than legalistic.

The guideline that has received the most early publicity is actually the least characteristic—a list of "indoor-outdoor carpeting, corrugated metal, corrugated glass fiber," and other materials "considered to be generally inappropriate in the historic commercial area." More typical is the guideline that says simply, "Develop the first level of buildings to provide visual interest to pedestrians," which is followed by a discussion of display glass, wall murals, display cases, plant materials, and other possible design elements.

Reactions to the design guidelines have been, predictably, mixed, though somewhat more muted than one might expect in a community that tends to relish its controversies. Two of nine city council members voted against the ordinance, for reasons that some members of the local design community say they sympathize with. City government should not dictate taste, said one council member. Guidelines may stifle creativity, said another.

Still, many local architects seem essentially sympathetic to the guidelines' major premise—that designs for an urban setting should respond to the urban context—even if the architects do not welcome the addition of yet another stage to a lengthy approval process. "I can certainly understand that bringing downtown buildings up to some common level of acceptability is important," says James Leese, AIA, chairman of Boulder's planning board and president of Architecture Four Collaborative. "But I'm convinced that the guidelines must remain voluntary. It's O.K. to have a kind of 'dress code' for buildings, but a great designer must have the option of breaking the code for the sake of truly spectacular results. What we need is a board with the sensitivity and wisdom to allow excellence."

The city council is now choosing members of the review board. At least three of its five members must be design professionals, and some of Boulder's strongest designers have volunteered to serve.

Garth Braun, AIA, a board member of the Architects and Planners of Boulder, says his organization has taken no official position on the design guidelines. Braun himself thinks a community mandate for good design may help architects convince clients to build better projects. "A process that weeds out bad design will help people with a strong commitment to good design," he feels.

Louis Sauer, FAIA, who teaches at the University of Colorado at Boulder, goes one step further. A community as attractive to new development as Boulder is should have mandatory standards, not voluntary guidelines, to protect its downtown, he argues, because "the risk of discontinuity in the design review board is simply too great. Social accountability should be a part of design, and creativity should understand how to shake hands with the past."—Joslyn Green

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Joslyn Green is a Colorado writer who specializes in architecture.

Fate of the Regional City Explored at Yale Conference

"Developing the American City," a symposium at Yale's school of architecture, brought together a group of designers and observers of American urbanism to consider the fate of the regional city. Regional cities are of middling size and possess many of the urban amenities and problems of larger cities. But because their economies have been tied to the fortunes of their locale, regional cities, such as New Haven, Cincinnati, Albuquerque, and Portland, Ore., for example, lack the economic and political diversity of huge metropolitan areas and are thus more vulnerable to the vagaries of federal policy and the economy.

The notion that a city can be "regional" in a cultural sense is questionable, given the effects of mass media and huge corporations: one can barely distinguish one city from another. Also of concern is what happens to the special character of regional cities as they come within the orbit of large cities. A good example is Stamford, Conn., which has virtually lost its own identity in the shadow of New York City. Moreover, Stamford's apparently unrestrained urban development has made it a miniature Houston. The symposium's organizers saw the regional city's character as fragile, despoiled by the city's efforts to lure development that would subvert the regional city's sense of place.

Vincent Scully Jr., Hon. AIA, Sterling Professor of art history at Yale, opened the symposium with a look at New Haven's history—from its beginnings in 1640, as a grid of nine squares with the center devoted to open space and houses of worship, to its position as a premier city of urban renewal under former mayor Richard C. Lee, who captured for New Haven the largest percentage of federal aid grants to any city in the U.S.

Robert Wood, Henry Luce Professor of government studies at Wesleyan University and former secretary of HUD under President Johnson, set the regional city within the context of change in the national economy from industrial based to service based. Wood spoke of the rise of what he called the "entrepreneural city," marked by its rush to lure investors and development of any kind, and the "urban village," such as Tysons Corner, Va., dominated by office towers and shopping plazas, "urban amenity with suburban sprawl," as Wood described it.

While regional cities lack economic autonomy, Wood noted, they are much easier to manage than larger cities because of their size and can adapt more quickly to change. For New Haven, he saw opportunities in biotechnologies that might be linked with research at Yale. Wood bemoaned the fact that architects, in their role as servants to those who develop and build cities, have little influence on urban design because they usually are called into play after all the major decisions about city form have been made.

David Harvey of Oxford University's geography department gave a Marxist critique of American cities, which he saw in competition with each other, plying their resources to draw developers and the nouveau riche at the expense of the urban poor. One manifestation of this, said Harvey, was the cities' use of "symbolic capital," flaunting their wealth by building extravagant museums and convention centers while placating the masses and fostering inner-city unity with urban spectacles such as Harborplace in Baltimore and Fanueil Hall Marketplace in Boston. He suggested that architects work for inner-city cooperation and resource sharing.

Jonathan Barnett, FAIA, director of the City College of New York's graduate program in urban design and author of numerous books on urbanism, noted that cities traditionally develop by "following the rich." For example, the cable-car suburbs of the upper classes at the turn of the century completely redirected the focus of the city's growth. Barnett pointed to the arena of regulation as one where architects could affect urban design. Environmental impact statements, for instance, can be used to brake development (because they are part of a slow, bureaucratic process).

An example of the potency of architectural regulation in cities was offered by Dean Macris, San Francisco's planning director, who is responsible for implementing that city's downtown plan. The plan is designed to shift growth to parts of San Francisco that are better able to accommodate it, to preserve the city's best buildings, to give urban design priority over individual building design, to channel private resources to public needs, and to manage the city's growth through careful space allocations (see Aug. '85, page 25). *continued on page 26*

TROCAL PVC WINDOWS AREN'T THE REASON CHURCH COURT IS GREAT ARCHITECTURE. ON THE OTHER HAND, DOES GREAT ARCHITECTURE DESERVE ANYTHING LESS?

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Design *from page 24*

Macris reported that some have criticized the plan because it appears to give too much power to planners and places too many restrictions on architects. But the plan has not put a damper on development in San Francisco, as many feared it would.

Macris warned that the plan as developed addressed the special problems of San Francisco (its limited avenues for growth because of geography, for example), and that the plan should not be seen as an answer to every city's problems.

The Yale symposium highlighted the predicament in which architects find themselves: they are sensitive to urban design issues but virtually powerless, in their traditional role, to effect change. Symposium participants agreed that more attention should be given to how architects can channel their creativity into the political, social, and economic conduits that shape the city.—MICHAEL J. CROSBIE

Stubbins Proposal for Reagan Presidential Library Unveiled

A mission-style design by Hugh A. Stubbins Jr., FAIA, for the Ronald Reagan Presidential Library adjacent to the Stanford University campus in Palo Alto, Calif., has been unveiled to opposition from members of the Stanford faculty and community residents.

The Reagan library is to be built on a 20-acre site nestled in a swale of the foothills along the western portion of the campus. Both the style and materials of the library are reminiscent of the missions along the California coast and relate to the original core of Stanford buildings, which were designed in the 1880s by Charles A. Coolidge and landscape architect Frederick Law Olmsted.

The Stubbins design calls for walls of warm-colored stone or stucco and gabled and hipped roofs with large overhangs and covered with red terra-cotta tiles. The main entrance is through a loggia to a 150-foot-square cloistered courtyard. The 115,000-square-foot complex is comprised of three wings housing the exhibition hall, reading rooms, and administrative offices. The archives will be stored in two underground levels.

Stubbins said that the patios and outdoor spaces were designed to give the complex a Western ambience, while the "formal and symmetrical courtyard is befitting the office of the President." However, Stubbins added, "there is a fountain with a little trough that you could use to water a horse, if necessary."

Some university officials were offended by Stubbins's offhand jokes about including a horse trough in the courtyard and reacted strongly to the architect's references to the quality of the sandstone and tile roofs of the Stanford buildings. Community resistance to the proposal stems from residents who use the site for jogging and recreational activities rather than from opposition to Stubbins's proposed design for the library.

The library will serve primarily as research center for scholarly study of the Reagan presidency and as an archival repository. Only approximately 10,000 square feet, or 10 percent, of the complex will be devoted to exhibition space.

Critics of the proposed library argue that a memorial to Reagan is inappropriate and disapprove of the role of the Hoover Institute (a conservative think tank on campus) and recent comments concerning the library by Hoover's director Glenn Campbell. The faculty senate voted to condemn statements by Campbell in a Hoover report that said the Reagan library allows the institute and the entire university to "boast of a Reagan connection."

Stubbins won the commission for the presidential library through a multistage, invitational competition. He is the founder of The Stubbins Associates Inc. of Cambridge, Mass. Project manager for the library is Sacramento architect Fred E. Hummel, FAIA, who served as architect of the State of California during the Reagan governorship.

Martin E. Anderson, Hoover senior fellow and secretary of the library foundation and former White House domestic counsel under Reagan ascribed much of the opposition to the library to politics. He was quoted in the Washington *Post* as saying, "I'm waiting for the day when someone stands up and says, 'I support the policies of Ronald Reagan, but I still have some objections to the library.'"

Stubbins scheme for Reagan library.

Johnson Donates Glass House

Philip Johnson, FAIA, has donated his Glass House and grounds in New Canaan, Conn., to the National Trust for Historic Preservation.

Under the conditions of the donation, Johnson will maintain control over the complex and continue to live in the house as long as he desires. After the estate is turned over to the National Trust, the complex will be open to the public for tours.

The gemlike glass and steel house, built in 1949, is the centerpiece of the 30-acre estate, which includes six auxiliary buildings that document Johnson's changing design approach over the past 35 years. Johnson's additions to his compound range from his underground painting gallery to the isolated studio, to a six-foot-high neoclassical pavilion, to a concrete block sculptural tower. In making the presentation, Johnson said the timing of the gift was based on changes both in the tax laws and in his attitude after his 80th birthday.

NPS Design Competition

The National Park Service and the National Endowment for the Arts are cosponsoring a design competition for the Wesleyan Chapel Block in the Women's Rights National Historical Park in Seneca Falls, N.Y., where the first women's rights convention was held in 1848.

The one-stage idea competition is the first open design competition sponsored by the federal government since the 1920s. The program calls for creating a "physical place that preserves the remain of the Wesleyan Chapel and celebrates the events of 1848." Competition proposals should also include a visitors' center, an open plaza space, and parking facilities.

The first-place winner will receive a prize of $15,000; second-place will receiv $10,000; and a maximum of 10 honorable mentions with awards of $1,000 will be presented.

The deadline for registration is July 1 For more information, contact Elayne Anderson, National Park Service, Denve Service Center, 755 Parfet St., P.O. Box 25287, Denver, Colo. 80225.

News continued on page 2

PRACTICE POINTERS: DOCUMENT CONSEQUENCES OF REDESIGNS

Requests to downgrade invite lawsuits.

Frequently, architects are required to revise designs to meet reduced budgets. But, revised designs can lead to costly lawsuits as the claim files of CNA Insurance and Victor O. Schinnerer & Company show.

One common example is a request to change the heating/ventilating/air conditioning system. When such changes are requested, you usually tell the owner that modifications may result in a less effective system. Generally, however, these warnings go unrecorded. Then, when there are complaints that the system does not function as expected, there is no proof that the architect acted responsibly.

We recommend that you give the owner a letter stating possible shortcomings of any downgraded design. Such documentation can be the key to successfully defending you in a lawsuit.

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Deaths

Henry-Russell Hitchcock: First Modern Architectural Historian

"All of modern architectural historiography has been irradiated by his work and presence for six or seven decades. He was so fantastically energetic and productive as to be almost a geological force in our time," observes James Marston Fitch, Hon. AIA.

Henry-Russell Hitchcock, who died Feb. 19 at the age of 83, is credited with founding modern architectural history as we know it. His approach was that of the connoisseur; he was "an eye scholar," as Philip Johnson, FAIA, put it. "It was a new field, one he invented," says Johnson. "We had architectural historians before Russell, but they were interested in domes of ancient Syrian-type stuff. Russell Hitchcock was the first combined critic and historian, and all younger critics branch from his work, including Scully, Jordy, all of them." Among Hitchcock's more than 25 published books are *In the Nature of Materials, The Buildings of Frank Lloyd Wright; The Architecture of H.H. Richardson; Rhode Island Architecture;* and *Architecture: 19th and 20th Centuries.*

"Hitchcock was, with Lewis Mumford, the father of us all," says University of Virginia historian Richard Guy Wilson, pointing out that, unlike Mumford, Hitchcock believed that individuals, rather than social forces, are primary in shaping architecture, and he therefore focused on formal, esthetic aspects of building.

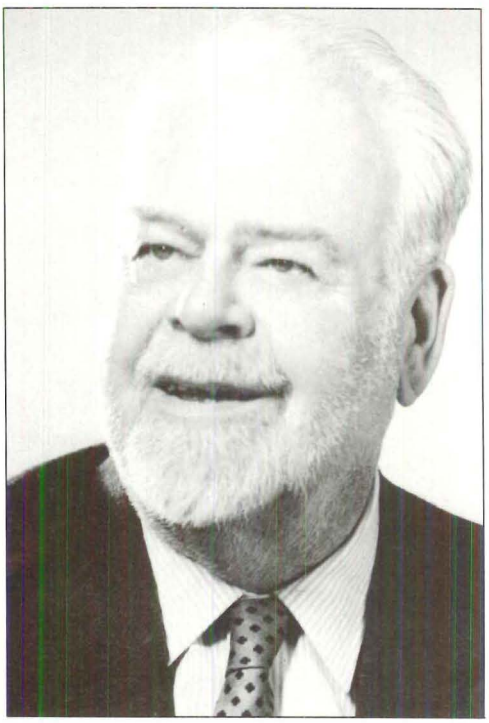
Hitchcock also had a major hand in bringing modern architecture to the U.S. and making it respectable. He began by writing his *Modern Architecture* of 1929, the first English-language book on the subject. Next came his and Philip Johnson's momentous 1932 exhibit for the Museum of Modern Art in New York City. It was called, of course, "The International Style" and was accompanied by the book of the same name. Ironically, perhaps, Hitchcock had little interest in style per se, was never polemical, and especially in later years remained aloof from stylistic controversies, which partly explains why historians and practitioners of conflicting convictions claim him as mentor and his work as inspiration.

The 1932 book and exhibit took form somewhat as follows, Johnson recalls. "We met each other in Paris; we both had a great interest in modern architecture, and decided to go looking for it. I got a car and we took a trip, and it occurred to us to publish. I was the enthusiast and publicist, but the ideas and writings were all Russell's. The title was actually invented by Alfred Barr."

While the tendency of most scholars is to specialize more and more, Hitchcock, after completing the "International Style" exhibit, began a lifelong process of broadening his purview, while reaching further and further back in time. He turned first away from modern Europe to a study of 19th-century America. The result was *The Architecture of H.H. Richardson and His Times* in 1936. It, too, appeared in conjunction with an exhibition prepared for the Museum of Modern Art and was, in Frederick Gutheim's view, "a first evidence of Hitchcock's impeccably sure judgment, his ability to look under the surface of things, rather than at trends, and find what was really important."

Hitchcock was blessed, as an academic, with "an unquenchable enthusiasm and energy," according to Gutheim, "a magnanimous and generous spirit toward students," according to Fitch, a broad curiosity (he wrote reviews of avant-garde music, theater, and fiction), and a remarkable memory. Lifelong bachelorhood allowed him fully to concentrate on his teaching and writing. He was on the Smith College faculty from 1948-68, and at various times on the faculties of the University of Massachusetts (Amherst), Vassar College, and Wesleyan University.

Hitchcock's influence as a teacher and shaper of sensibilities is attested by a 1983 collection of essays published in his honor under the title *In Search of Modern Architecture, A Tribute to Henry-Russell Hitchcock*. Helen Searing was editor, and Philip Johnson contributed a preface in which he wrote, "I am only proud that I was right in 1929 to claim that Russell Hitchcock is the leading historian of architecture in the world today. My judgment has not changed." Now, four years later, he says it still hasn't changed.



Vincent Scully Jr., Hon. AIA, explains in an introduction how Hitchcock influenced not only younger historians such as himself (Hitchcock was Scully's teacher) but also practitioners such as Robert A.M. Stern, FAIA, and Robert Venturi, FAIA. Their interest in the shingle style was whetted, says Scully, by Hitchcock's writing, in his book on Richardson, about the Low house by McKim, Mead & White in Bristol, R.I., which Hitchcock compared to Richardson's and Wright's best wooden houses.

By the end of his life, Hitchcock had been claimed by the avant-garde, the rear guard, and the unguarded, with malice from none. For Hitchcock had, as Fitch puts it, "no agenda," an unmatched breadth of knowledge, and an unquestioned commitment to scholarship. And, as Wilson observes, "Hitchcock had a quality of perception that was uncanny. The people he picked out as young men grew up to be the major figures in architecture."—ANDREA OPPENHEIMER DEAN

Architectural Writer and Editor Carleton Knight III Remembere

Carleton Knight III, prolific architectural writer and editor, who for the past four years was a contributing editor to this magazine, is remembered by architects and colleagues especially for his enthusiasm and dedication to design and preservation. He died at the age of 44 in late February in Washington, D.C.

A lanky New Englander, Knight came to Washington in 1971 as managing edito of *Historic Preservation* magazine, published by the National Trust for Historic Preservation. Terry Morton, his editor there, recalls that although the magazine was considered more prestigious Knight soon accepted editorship of *Preservation News,* the Trust's monthly tabloid, because "he preferred the challeng of reporting in newspaper fashion, and h could write fast. The stories usually wen through his typewriter only once."

During his 10-year stewardship, Knigh became an important source on preservation trends and efforts to save good, old buildings around the country. "He wa always the person you touched base witl in Washington," says writer Suzanne Stephens. "He knew everything that was going on nationally, and locally he coulc show you the newest whatever or the mo recently renovated whatever. He got suc pleasure from architecture, and he coul impart that to his fellow writers."

After leaving the National Trust in 198 Knight freelanced as an architectural writ for both general-audience and professiona publications. "Carleton's greatest qualit was that he could describe architecture

continued on page

eaths *from page 28*

words that laymen would understand," s John Burgee, FAIA, who also admired night's optimism. "He always found the ngs he liked about a building and wrote th enthusiasm." As Robert A.M. Stern, IA, puts it, "When some writers come talk to you, they grill you as if you had mmitted a major felony. He was not e of those."

Asked how Knight would have liked to ve been remembered in the profession, ilip Johnson, FAIA, remarked on "his eat competence" as an architectural jour-list. "In the skillful handling of the opin-n and news in our field," Johnson said, e was the best I knew."

Typically, when Knight delivered a man-cript to ARCHITECTURE, he would stop to see the various editors, to tell about s latest travels, or enthuse about a build-g he had just seen. His former colleague ane Maddex, editor of Preservation ess, said simply, "Carleton loved to write out architecture."—THE EDITORS

ractice

riteria for Design Competitions eveloped by AIA Task Force

esign competitions—welcome oppor-nities for some architects, objects of sdain for others—are the focus of a cently introduced checklist from the stitute.

The AIA committee on design compe-ions task group recommends that archi-cts consider the following questions fore entering a design competition.

Competition subject. Is the competi-n subject interesting to you? Is it of ecial public and professional interest, in an area of design that needs explo-ion and development?

Responsibility of the sponsor. Can you pect the sponsor to maintain and uphold per competition procedures? Is the nsor capable of building the project, d likely to do so? Is the sponsor utable and conscientious in serving blic and professional interests in hitecture?

Competition procedures. Are the rules erning the competition complete and ar? Are the competition procedures rough and reliable? Are procedures propriate to the scale of the project? you have the time and resources to et all submittal requirements? Is a con-tual relationship between the spon-and competition winner clearly stated he procedures? Do contractual rights elected competitors stand even if the ject does not proceed to construc-n? Is there a registration fee and, if so, reasonable? Are the awards ade-te and commensurate with the work ected? Is the sponsor's proposed pub-y and documentation of the competi-n results acceptable to you? Is the

continued on page 33

WHY COAT STAINLESS STEEL?

As nearly all architects are now aware, TCS (Terne-Coated Stainless Steel) is chrome-nickel stainless coated on both sides with an 80% lead/20% tin alloy.

But the question may still remain as to why any coating of stainless is desirable.

In the first place, the application of such a coating creates an end product which is demonstrably superior to both stainless and copper in durability and corrosion resistance. Secondly, TCS weathers to an attractive and uniform warm gray. Stainless, on the other hand, retains its original bright finish indefinitely, while the weathering of copper has been highly unpredictable in recent years. TCS also solders perfectly without special preparation whereas copper must be pretinned, and stainless requires a time-consuming and relatively costly procedure to obtain a leak-proof joint. Furthermore, TCS, unlike copper, is neutral toward other metals.

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actice *from page 31*
scription of ownership of winning
signs appropriate? Do competitors have
e right to publicize their designs after
e competition? Has the sponsor pro-
ded a mechanism for questions?
Competitors, advisers, and the jury. Are
e requirements for competitor eligibil-
clearly defined? Has an experienced
d capable competition adviser been
signated? Is the jury professional and
perienced? Do the rules require that
rors adhere to the project program? Is
e jury composition balanced among dis-
plines appropriate to the project? Does
include architects? Will the jury exam-
e all submissions? Will the identity of
bmission designers be withheld from
rors during their selection?
For those interested in a listing of
otential competitions, a design compe-
ions registry is available from "Dead-
es," HC1, Box 17, Hawley, Mass. 01339.

BS Develops Concrete Testing

he National Bureau of Standards has
eveloped a nondestructive ultrasonic
chnique for finding flaws in concrete.
For more than 30 years researchers
ave been trying to apply ultrasonic tech-
ques to nondestructive testing of con-
ete. Even though such techniques have
ng proven successful in steel testing,
rogress with concrete has been limited.
nlike steel, concrete is composed of sev-
al different materials, including tiny air
ockets, that tend to scatter and absorb
und waves, says Dr. Nicholas Carino, a
vil engineer in the NBS Center for
uilding Technology.
In the procedure developed by Carino
d Dr. Mary Sansalone, 4- to 16-millimeter
ameter steel balls dropped onto the con-
ete slab create sound waves of desired
equencies. A high-fidelity transducer—
veloped by Thomas Proctor of the NBS
enter for Manufacturing Engineering
d more sensitive than transducers for
el testing—converts the reflected
und to measurable pulses of electricity.
Carino and Sansalone have been able
detect flaws below steel reinforcement,
ckets of unconsolidated concrete, and
e depth of surface cracks. They also
ve been able to distinguish concrete-
vered hollow metal duct from concrete-
vered duct filled with grout. They are
ll working on testing columns and
ams and detecting voids beneath slabs.
For field applications, Carino sees the
ed for a spring-loaded impactor and a
re rugged transducer that can operate
horizontal and vertical surfaces.
Impact Echo: A Method for Flaw
tection in Concrete Using Transient
ess Waves (NBSIR 86-3452), a detailed
ort on testing methods, results, and
a analysis, is available for $24.95 pre-
d from the National Technical Infor-
tion Service, Springfield, Va. 22161.
News continued on page 34

The Institute

Johnson and Tange to Speak At National AIA Convention

Philip Johnson, FAIA, will comment on future directions and trends in American architecture during the closing ceremonies of AIA's convention to be held June 19-22 in Orlando, Fla. Japanese architect Kenzo Tange, Hon. FAIA, will serve as the convention's honorary chairman.

Johnson last addressed an AIA convention in 1978, when he received the Institute's gold medal. In his acceptance speech, Johnson espoused the movement of architecture away from the International Style toward postmodernism.

Following Johnson's speech at this year's convention, a panel comprised of Kurt Andersen of *Time* magazine, Paul Gapp of the Chicago *Tribune*, Paul Goldberger of the the New York *Times*, and Johnson's partner, John Burgee, FAIA will further explore trends in American architecture. The program will be moderated by Franz Schulze Jr., professor of art at Lake Forest College, Ill., who is writing a biography of Johnson.

Economist and educator Walter W. Heller will discuss tax reform and the construction market in a "focal point" them session. Heller is professor of economic at the University of Minnesota and serve as economic adviser to large companies. During the Kennedy and Johnson administrations, he was chairman of the President's Council of Economic Advisers.

Following Heller's speech, specific construction markets and client interests stemming from economic factors and tax reforms will be further explored in a forum discussion moderated by Robert Campbell, AIA. Joining Heller on the panel will be architects George E. Hartman, FAIA, of Washington, D.C., and Thomas W. Ventulett III, FAIA, of Atlanta; George A. Christie, vice president and chief economist for McGraw-Hill Information Systems; and J. Chandl Peterson, Atlanta financial analyst.

A second discussion forum, also moderated by Campbell, will explore th relationship between architects and clients. The panel will be made up of representatives from Disney Development Co.; Houston-based developer Gerald Hines; Robert J. Boerema, AIA, direct of building construction for Florida's Department of General Services; Roge L. Pickar, president of The Marketing Consortium; and architects A. Eugene Kohn, FAIA, of New York City, and Antoine Predock, FAIA, of Albuquerq

Attractions in the exposition hall wi include the federal government intervi program, software tutorial workshops, and displays on new products and serv ices from more than 200 exhibitors.

The convention will also feature mc than 200 workshops and seminars on pr tice, design, and management.

rban Design Awards Program
IA is seeking entries for the 1987 awards rogram for excellence in urban design. he program recognizes urban design pro-cts, planning programs, civic improve-ents, environmental projects, and re-evelopment projects; submittals must be ominated by the local AIA chapter. The eadline for 1987 nominations is May 1. or more information, contact Bruce M. riviskey, AIA, at Institute headquarters 02) 626-7452.

laking Cities Livable Conference
n international conference for urban esigners, architects, and city planners nd officials will be held June 17-22 in enice, Italy. The conference will focus n methods and approaches for "designing vable cities." For more information, con-ct Suzan H. Crowhurst Lennard, Mak-g Cities Livable Conference, Center for rban Well Being, P.O. Box QQQ, South-mpton, N.Y. 11968.

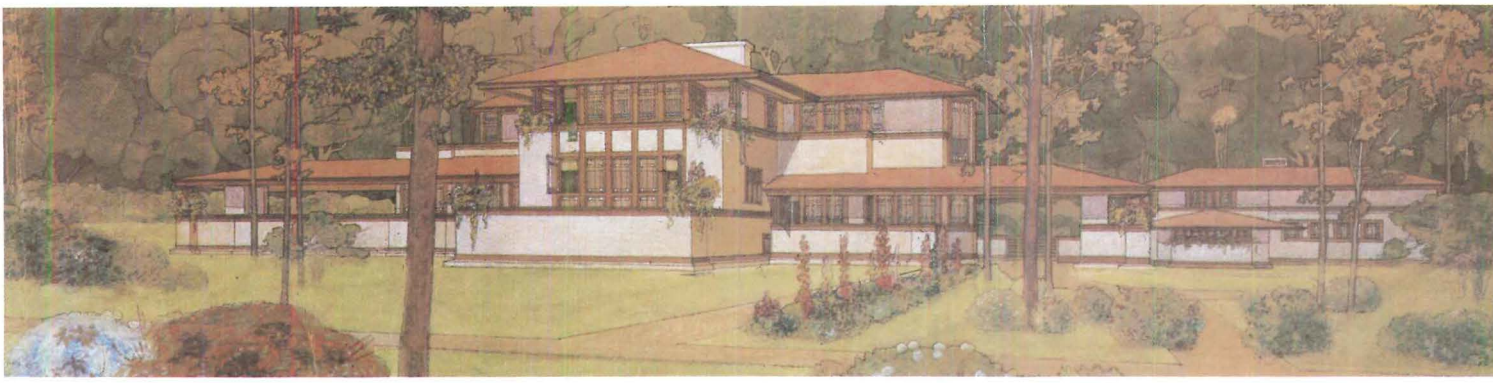
IAE Officers
obert Kupiec, AIA, of Kupiec & outsomitis Architects, will succeed oward H. Juster, AIA, as chairman of e board of trustees for the National Insti-te for Architectural Education. Other IAE executive committee members are ichard E. McCommons, AIA, Byron Bell, lan Schwartzman, FAIA, and Susan wan. Newly elected to the board are obert F. Fox Jr., AIA, John Maudlin-ronimo, and Giorgio Cavaglieri, FAIA.

pring Courses Offered
arvard University Graduate School of esign is offering 36 courses and work-ops in real estate, architecture, land-ape architecture, construction manage-ent, interior design, and professional actice. Courses last one to eight weeks. or more information and a catalog, con-ct the Office of Special Programs, arvard University GSD, 48 Quincy St., ambridge, Mass. 02138.

utdoor Design Award Competition
opitone Furniture Company is spon-ring a competition for "imaginative signs for the outdoor environment." The adline for entries is June 15. Contact ny Atwell, Aves Public Relations, 8th oor, Grand Plaza Place, 220 Lyon Square, and Rapids, Mich. 49503.

ork Space Design Competition
n international work space design com-tition, sponsored by the LIMN Com-ny, is designed to produce new solutions architects and designers to specific oblems in the workplace. The winner ll receive a $5,000 prize. The entry fee 40, and deadline for entries is June 1. r more information, contact Meredith omble, LIMN, 821 Sansome, San Fran-co, Calif. 94133. □

The Frank Lloyd Wright Memorial Foundation, Taliesin West, Scottsdale, Ari



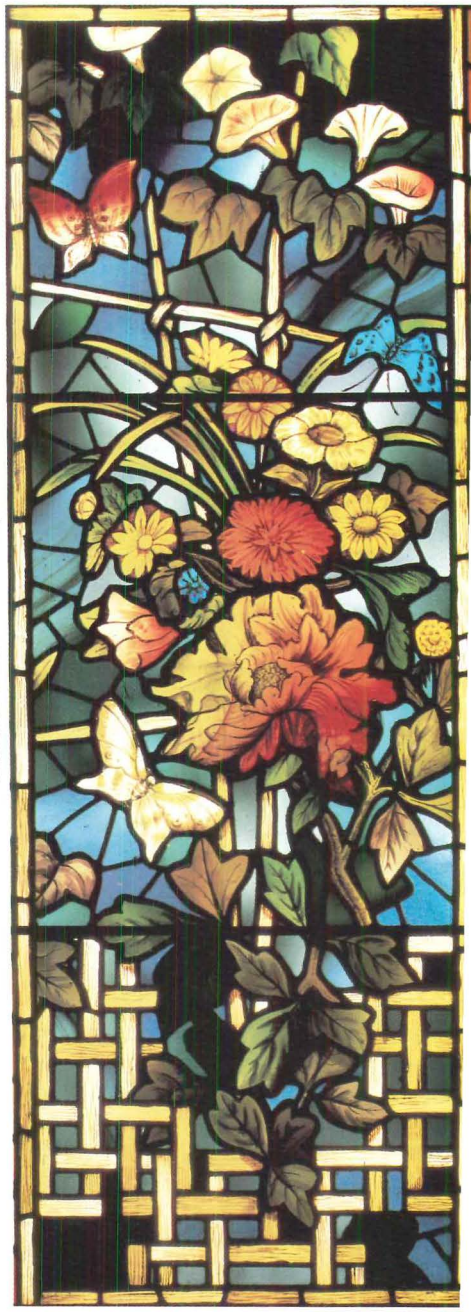
The Arts

Objects of the Arts and Crafts Movement

As the industrial revolution hit its stride in the late 19th century, architects, artisans, and craftsmen took stock of the cumulative effects of the new age and recoiled in alarm. What they saw were cities dense with smoke and noise, inhuman living and working conditions for factory laborers, and the grinding destruction of craft and creativity within the gears of mechanical production. The arts and crafts movement was born of this industrial nightmare.

The movement started in England with John Ruskin and William Morris and later was adopted in the U.S. by Gustav Stickley, the Greene brothers, and Bernard Maybeck, among others. Arts and crafts manifested itself in dozens of societies, studios, and utopian communities promoting the restoration of handcraft and the design and production of buildings, furniture, jewelry, books, and other articles with clean lines and uncluttered adornment. There was an emphasis on expressing the materials and their joining. In some ways, the arts and crafts movement paved the way for modernism, which espoused similar ideas.

"The Art that is Life," an exhibit of American arts and crafts work produced between 1875 and 1920, brings 225 objects together that show the full range of the period's creative output. Included in the show are stained glass windows by Purcell & Elmslie, furniture by the Greenes, H.H. Richardson, and Stickley, and drawings of works by Frank Lloyd Wright and Irving Gill, as well as textiles, ceramics, and metal work.



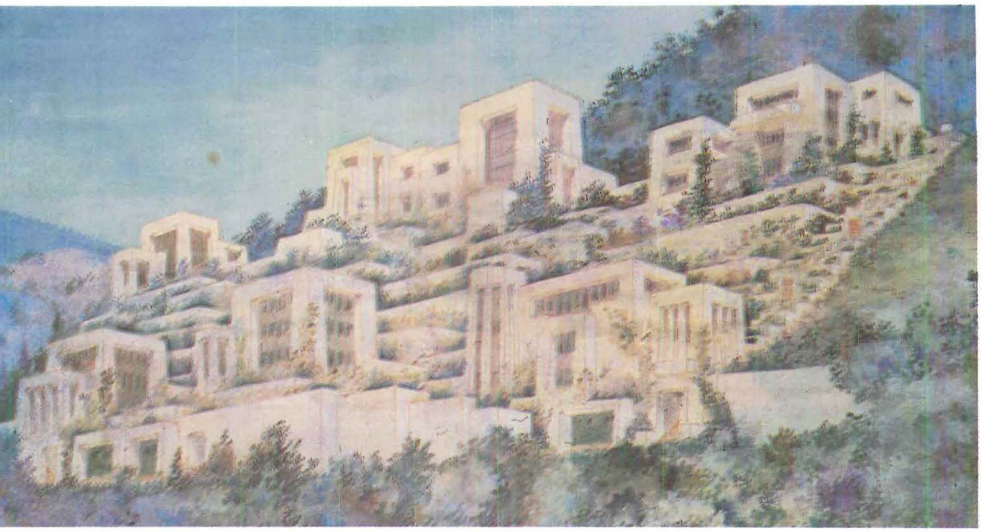
Collection of Don and Rosemary Burke

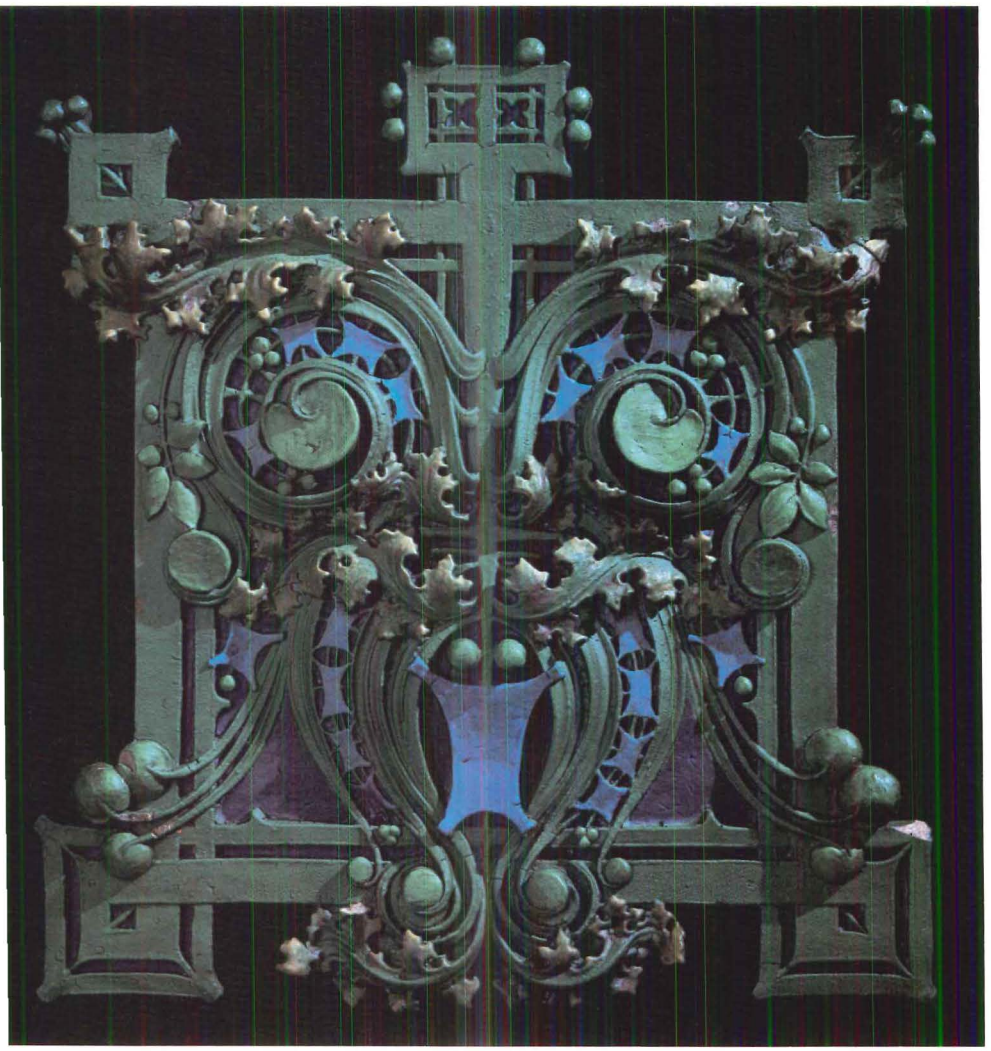
Above, rendering of Frank Lloyd Wright's Ward Willits house; middle, standing desk by Mary Louise McLaughlin; right, stained glass window by John La Farge.

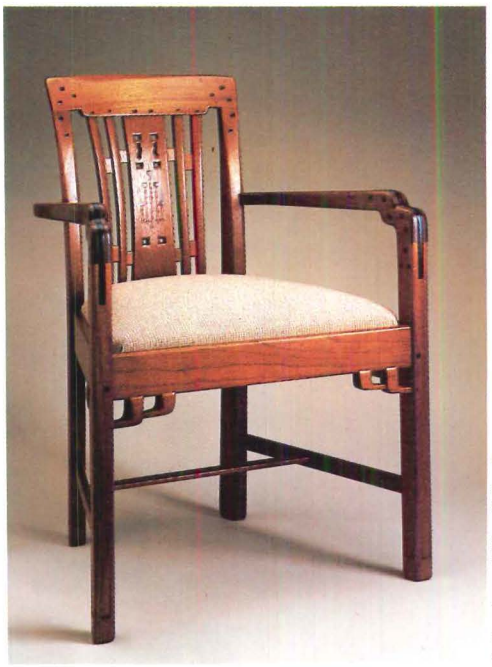
The exhibit, now at Boston's Museum of Fine Arts, will travel to Los Angeles, Detroit, and New York City. Sponsors include the Fidelity Foundation and the National Endowment for the Humanities.

—Michael J. Crosbie

rchitectural Drawing Collection, University of California, Santa Barbara

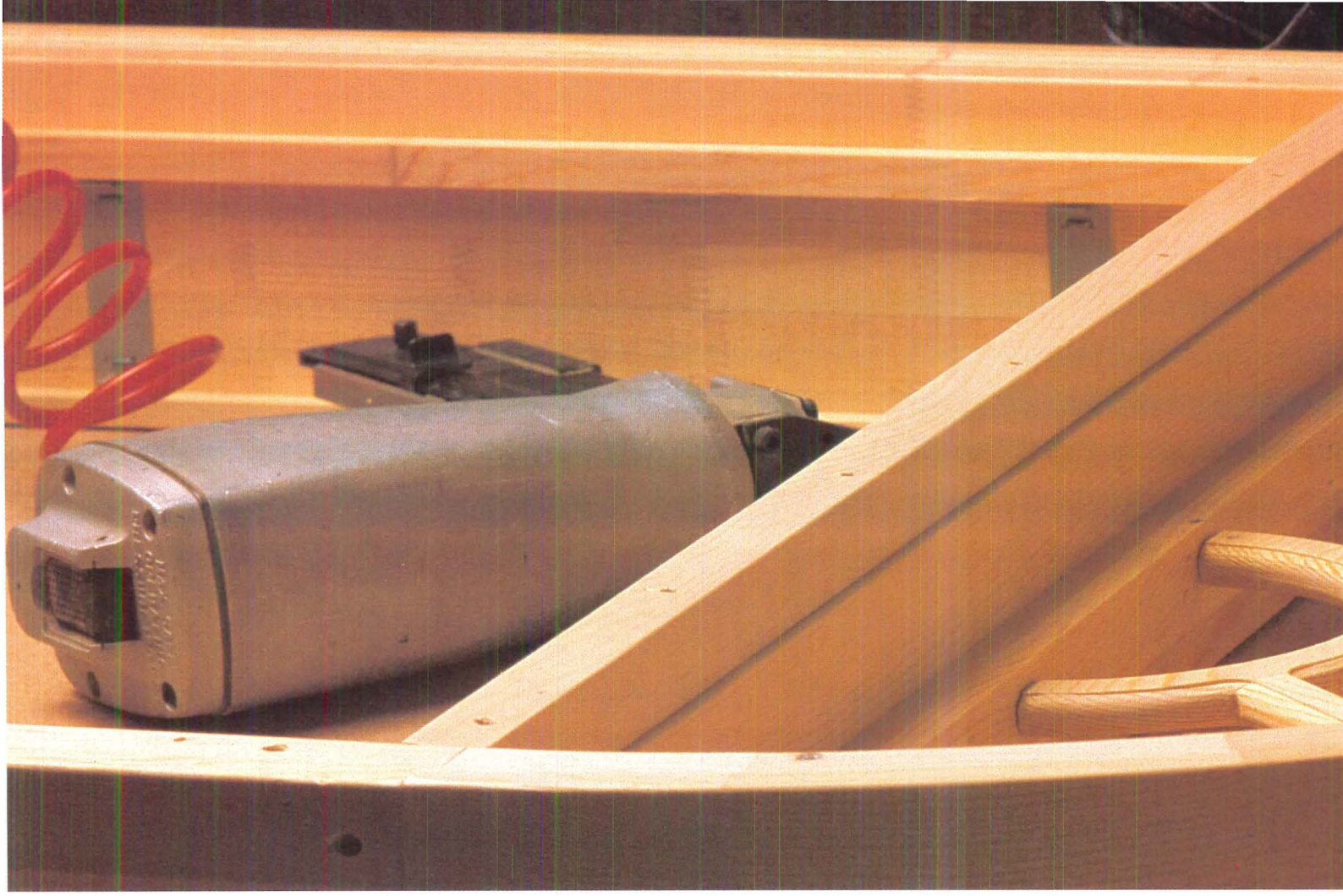






Collection of Max Palevsky

Above left, rendering of Irving Gill's Laughlin house; left, ornament for Babson house by Louis Sullivan and George Elmslie; above, armchair from the Blacker house by Charles and Henry Greene.



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ARCHITECTURE

Sometimes, in these spring issues dealing with AIA convention sites, we go beyond the specific city to a larger context. Thus, at the time of the Phoenix convention we did the entire desert Southwest, and when AIA was in San Francisco we did the Napa and Silicon valleys as well as the city itself. Similarly, in this issue we approach the entire state of Florida instead of only Orlando.

We started the planning of this one with the thought that, like the others mentioned above, it would have the basic theme of regionalism. But we quickly found that regional themes and influences in Florida were being engulfed and in some cases swept away by tidal waves of growth. So we made growth itself the theme: some of its prices in terms of lost architectural treasures; efforts to manage and shape it. The issue also contains a Kaleidoscope of recent Florida architecture and a look at what Disney's EPCOT Center does and does not have to say about futurism.

On another subject, undoubtedly the hardest story in this issue to write was the one on the loss of Carleton Knight III. He was one of the best friends that ARCHITECTURE and architecture had; we and the profession will miss him.—*D.C.*

© Jane Lidz

Saving 'the Bold, Bizarre, Beautiful'

The uphill struggle to protect Florida's architectural past. By Beth Dunlop

In the beginning, Ponce de Leon came to seek nothing less than eternal life, in the form of the fountain of youth. Much later, more pragmatic dreamers arrived—idealists, capitalists, adventurers, poets. They all left their marks, one way or another. Few fantasies were too remarkable for Florida in the decades of its early development, the years between the end of the Civil War and the end of the Depression. That was a period of promise and progress, and Florida offered the perfect opportunity to perpetrate the bold, the bizarre, the beautiful. What was already there took the form of muck and mud, sand and sea, mostly.

In Florida, there are relics of utopian quests and remnants of towns once planned to be perfect. There are grand, lavish, elegant hotels that were the cornerstones of even grander development schemes or the capstones of amazing financial careers. Florida has always been a place more imagined than real—a tropical paradise at the end of the interstate, a land of glimpses captured for picture postcards.

Some of America's richest, most famous, and most important figures—presidents, industrialists, literary giants—erected homes in Florida, some of them truly fabulous, others astonishingly modest. Then too, in the storehouse of Florida's architecture, are the homes of the unsung—pioneers who ventured into virgin oak hammocks or down uncharted streams, those who came to Florida seeking a simple life in the sun. Their legacy—the legacy of the orange growers and the fishermen—is as special to Florida as that of a Kennedy or a Rockefeller.

And it is just as endangered.

The historic architecture of Florida is in constant jeopardy, for Florida is a state where the land is almost always worth more—in dollars, that is—than buildings. The saga of a developer wiping out a neighborhood of bungalows is commonplace. The beachfront cottage has all but disappeared, making way for condominiums, hotels, or grander residences. The buildings of Frank Lloyd Wright and Paul Rudolph, FAIA, garner little more respect than the works of an unknown artisan. The pace of building and rebuilding in Florida is so rapid that new works of architecture—buildings not old enough to be legally declared landmarks—are in equal jeopardy with older works. The first building designed by the acclaimed Miami firm Arquitectonica, a small stucco apartment house called the Babylon, has been in danger of demolition since it was completed in 1982 because it sits amid much bigger buildings in Miami's fast-growing Brickell financial district.

Important historical landmarks—say, John D. Rockefeller's winter home in Ormond or Harry Truman's "Little White House" in Key West—are abused, allowed to decay, or even auctioned off as if they were surplus grain, as happened to the Truman annex just last fall. At best, it seems, historic homes end up as restaurants or clubhouses for posh condominium developments; that fate has lately befallen the Alfred I. DuPont estate, Epping Forest, in Jacksonville, and the William K. Vanderbilt house on Fisher Island, which lies between Miami Beach and Key Biscayne.

Hospitals, universities, and even governments are avid devourers of historic buildings. The city of Miami Beach tore down several art deco hotels to make way for a new police and courts

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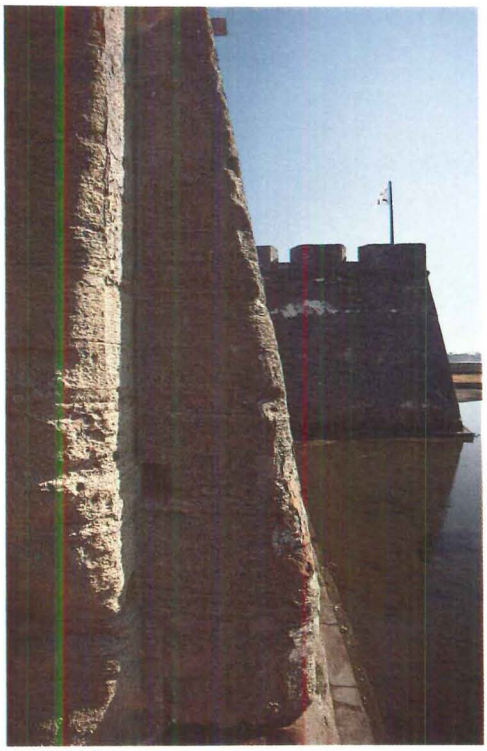
Left, fantastically gaudy Florida Theater, KBJ restoration architects. Above, lavish pier at Vizcaya.

Below, in St. Augustine, the country's oldest city, a 16th-century Spanish fort contrasts with the 20th-century street scene. Across page, typical of Mizner's Mediterranean/Spanish style mansions in Palm Beach is Mar-e-lago, once owned by Marjorie Merriweather Post.



facility; the fact that the new building is a fine one doesn't erase the irony. And earlier this year, Miami Beach began demolishing the city's last remaining boom-time hotel, the Biscaya, the day after a developer turned in plans to renovate it.

The hot air, salty breezes, and incessant humidity make it hard enough to conserve history. Neglect and age take their toll as well. In just one example, north of Tallahassee, the home of a famous carpetbagger named Malachai Martin was ignored so long that it simply crumbled. It is still listed on the National Register of Historic Places, for it is almost more difficult to get a building off the roll than to get one on it.

In St. Augustine, which bills itself as America's oldest city, only the all-but-lost 16th- and 17th-century heritage is cherished. Legitimate 19th-century buildings, most of them tremendously charming, are considered fair game; in the "old city," some authentic hundred-year-old buildings were demolished to allow the erection of simulated Spanish ones.

And that may not be the most egregious of sins. For in Florida, the attractions and the architecture weren't ever necessarily of the land or of the place, though in the past at least, they always spoke to it, and kindly. From the start, the impulse to show off African monkeys or Brazilian parrots or to build a Moorish castle or Venetian palazzo was powerful. It wasn't so much to create an ersatz other world—the way Disney and Busch did later in Orlando and Tampa—as to enjoy and enhance the world that was already there. Disney brought in undersized Eiffel Towers and miniaturized Main Streets; Busch re-created the African plains and let you see them by monorail after stopping at a Moroccan bazaar. The latter-day worlds may provide entertainment but they don't offer any metaphors, any insights into the place where they have been plopped.

All over Florida, the land and water meet in abrupt juxtaposition, and the analogy to Venice has been always irresistible and often apt. When James Deering built his remarkable Villa Vizcaya, he chose as his model a palazzo from the Veneto; the gondolier who has a concession to ply the waters of Biscayne Bay looks as if he had been included in the original design. In Coral Gables, a quarry was transformed into a Venetian pool so startlingly beautiful that it offers an utterly transcendent experience—and right in the middle of the suburbs. In Fort Lauderdale, canals were dredged and the streets lined with royal palms to give a developer his version of the Venice of America, though except for the slogan there's scarcely a resemblance. On the gulf coast in the early 1920s, the Brotherhood of Railroad Engineers hired the renowned city planner John Nolen to lay out a whole town called Venice; he designed one, however, that had more relationship to visionary city plans of the times than to its namesake, but at least it was elegant.

Evoking whatever mood or age or style seemed appropriate at the moment counted for a lot. In Florida, it was not sufficient simply to build a hotel. The hotel had to be an ode to another world—Moorish, Spanish, Italian, French—a made-up architecture for a made-up place. Of course, a sofa that Marie Antoinette lounged on or stained glass by Louis Comfort Tiffany could add to the illusion, and every little bit helped. When John D. Rockefeller's Standard Oil partner Henry Flagler decided to move to St. Augustine (bringing, of course, his railroad with him), he hired some young architects to reinvent a Spanish world, one that might have mystified the Moors in its grandiosity. Flagler, Carrère & Hastings created a flamboyant new style, one more of Florida than of Spain, really. In Palm Beach, Addison Mizner combined art and enterprise, inventing

romantic Mediterranean style that took in the best of many worlds. Mizner initially combed Europe for the accoutrements o his architecture, but that took too much time. Eventually, he imply set up shop to manufacture 14th-century trimmings for he mansions he had designed.

For Coral Gables, every detail was sketched out as if it were lready in a picture book—fountains and plazas and gates that ould give the city an otherworldly aura. A focal point of all his was the Biltmore Hotel, which was given a graceful tower eminiscent of Seville's Giralda. At that time the Biltmore was ne of three "Giraldas" Schultze & Weaver were designing for ie Miami area, but they were all so lyrical and lovely that it idn't seem to bother anybody much that three of the town's allest buildings sort of matched.

After years of abuse and neglect, the Biltmore reopened in anuary, gorgeously restored as a hotel, its polychrome Spanish enaissance ceilings gleaming, its gigantic pool—where once sther Williams held court—sparkling. It had survived years as n Army outpost and then a Veterans Hospital and had endured lmost two decades of occupation by pigeons, vandals, and oxes. The other Giraldas did not fare as well. One, the Roney laza Hotel, was demolished years ago. The other, built by forer Ohio Governor James Cox as the headquarters for his newsaper, *The News,* eventually became the primary processing enter for the legions of Cuban immigrants arriving in Miami the 1960s and '70s and was renamed the Freedom Tower. It ts empty today, Miami's own version of the Statue of Liberty decay, awaiting a new—and yet undetermined—use.

The fate of Freedom Tower is typical in Florida, where monments are often simply disregarded. In Lakeland, a surrealisticooking promenade, studded with Corinthian columns, was erected around a downtown lake in 1926 as a vast civic venture and the city's crowning glory. Picture postcards from the time depict it as if it had been painted in place by El Greco—moonlit, glowing, almost eerie. But the Lake Mirror Promenade has been left derelict too long. Road widenings turned the wide promenade into a narrow path, now in some spots inaccessible. Parts of it were reduced to rubble, columns were chipped, and light fixtures disappeared.

Daytona's expansive beach was adorned with a sprawling stone pavilion, a handsome bandshell, and a clock tower whose face, instead of showing numbers, spelled out D-A-Y-T-O-N-A-B-E-A-C-H. In other towns, in the Midwest for example, this would have been the town square; in Daytona, it was the beach, and it helped make the beach famous. The beach is still famous in Daytona, but the pavilion is no longer a showplace. It is dotted with benches sporting ads for pizza parlors and country-western bars; the bath house has a tacky red and blue plastic sign. The bandshell is well kept, but that is about all.

DeFuniak Springs in the Florida Panhandle flourished in the 1880s as the second home of the Chautauqua movement; the town's focal point was a remarkable cupola-topped building, the Chautauqua Auditorium. Today that fragile wood building is the headquarters of Walkton County's chamber of commerce, and not to its enhancement. Ceilings have been dropped and floors covered with indoor-outdoor carpeting; and the building is in general disrepair.

James Deering's beautiful Vizcaya was built to capture the bay breezes and luxuriate in them, with a vast central courtyard and lofty loggias. But last fall, Vizcaya was closed in and airconditioned, its courtyard topped with a dark glass pyramid roof that destroys the frontal view of the building and darkens

the interior enough that, at times, lights must be on during the day. The arches that looped across the west and east facades have been filled in with glass; doors have brushed-steel handles. It looks awful, but just as bad, it feels awful and sounds awful, with the whoosh of cold air dominating the old senses and noises—breezes and bird calls.

Frank Lloyd Wright came to Florida to design nine buildings for Florida Southern College in Lakeland, the largest congregation of Wright's work in a single location. In the beginning, these buildings were set gently into an orange grove. They were trimmed in copper and studded with colored glass that picked up the strong Florida sunlight and glimmered. Wright connected his buildings with a series of open breezeways. The orange grove is gone now, and where once there was landscaping now there are newer, lesser—and sometimes even inimical—buildings. The realities of modern-day university budgets have forced Florida Southern to patch up rather than conserve. In one important example, the college, unable to afford replacing the copper, painted a simulated metal trim instead. It is a makeshift approach, not a curatorial one.

When he first came to Florida, in the decade after World War II, Paul Rudolph used to make pilgrimages to Florida Southern, and the influence of Wright's work is easy to see. Rudolph lived and worked in Sarasota then, and his early work has a striking spareness, a breathtaking delicacy. Fragile lattices shaded slender columns. Light wells and clerestory windows dappled courtyards with sunlight. But today, too few of Rudolph's seminal early works—some provocatively different from later buildings and some fitting right into a continuum—are cherished. Only a handful have been well cared for. Others have been added to clumsily, repainted gaudily. His two famous schools, Riverview High and Sarasota High, have been bullheadedly altered. Once-light corridors have been turned into dark tunnels; windows have been blocked to make blank walls.

The list goes on. Last summer, a new owner got permission to alter the Via Mizner by removing a set of stairs. The stairs led to Addison Mizner's home and studio; one might assume that, if nothing else on Palm Beach's Worth Avenue was considered a landmark, this would have been. Historic Hialeah Park Race Track stands in jeopardy of losing so much money, as a result of being allotted the worst possible racing dates by the state, that it faces an uncertain future. Some of the state's most magnificent old hotels—among them Pensacola's San Carlos and St. Petersburg's Vinoy Park—stand empty, a testimony to our inability to work miracles against age, time, and urban problems.

Florida's incredibly scenic fishing villages, tucked into coves along the coast, have been given over to latter-day commerce—chain restaurants, condominium complexes, shopping centers full of nautical boutiques. High-priced yachts fill marinas where once battered fishing boats owned the water; where once fishermen dried their nets, now merchants ply their wares, more likely made in Korea than in Key West. The historic Tarpon Springs Sponge Exchange, where a century ago Greek-descended sponge divers sorted and sold their undersea wares, was demolished to be replaced by a cluster of boutiques. Ceda Key has become hopelessly commercialized, and even Cortez, a little-known fishing town tucked into a cove near Bradenton, is on the way out.

The fragility of Florida's intimate offerings—cottages on the seashore, small springs, landscaped gardens—has put them in constant jeopardy. Before the era of the airplane and the interstate, Florida was a place to partake up close and slowly. That

Left, a newly renovated Biltmore Hotel, originally designed by Schultz & Weaver, towers over the smaller scaled residences in Coral Gables. Right, the Coral Gables estate—be it large or small—is typically of a Mediterranean/Spanish style with tropical, formal landscaping.

ra of the mom 'n' pop motel and the small-scaled attractions f Florida's 27 springs and countless orchid and azalea preserves as been partly preserved in state and county parks: Ravine Gar- ens in Palatka and Homossassa Springs near Inverness are two xamples.

For years, Florida's economy boomed so, that little thought as given to what had gone before. The future was always so mminent—and so sunny—that it didn't seem to matter that ntire streets of architecturally important houses made way for igh-rise condominiums or that cities such as Jacksonville and Miami lost virtually every 19th-century building in their down- owns. Last year the Florida legislature voted $8.2 million to help ave 24 endangered buildings, among them Lakeland's Lake Mir- or Promenade. Yet preservation in Florida is always like the hildren's game of "Mother May I"—two steps forward, one step ack. Still, developers can be encouraged to invest in history ather than destruction as long as the economic climate (most nportant, the U.S. tax credits for restoration) is encouraging. lmost every year, those tax credits eke out their continued xistence in a shaky congressional victory.

So the upgrading of Miami Beach's art deco district contin- es from year to year without an assured future. What has appened there in just the last two years is little short of iraculous—the kind of infusion of money and energy that is ne dream of every historic district. The art deco district looks etter today than it ever has in the past thanks to the efforts of handful of developers, entrepreneurs, and artists who have een the mile-square district of stucco buildings as a kind of oHo south—a place where the chic and the hip will gather to ip wine and savor art. It is, of course, much different from the orthern version in that it has the beach and the ocean—and a hotel-lined beachfront promenade that could rival Nice or Cannes.

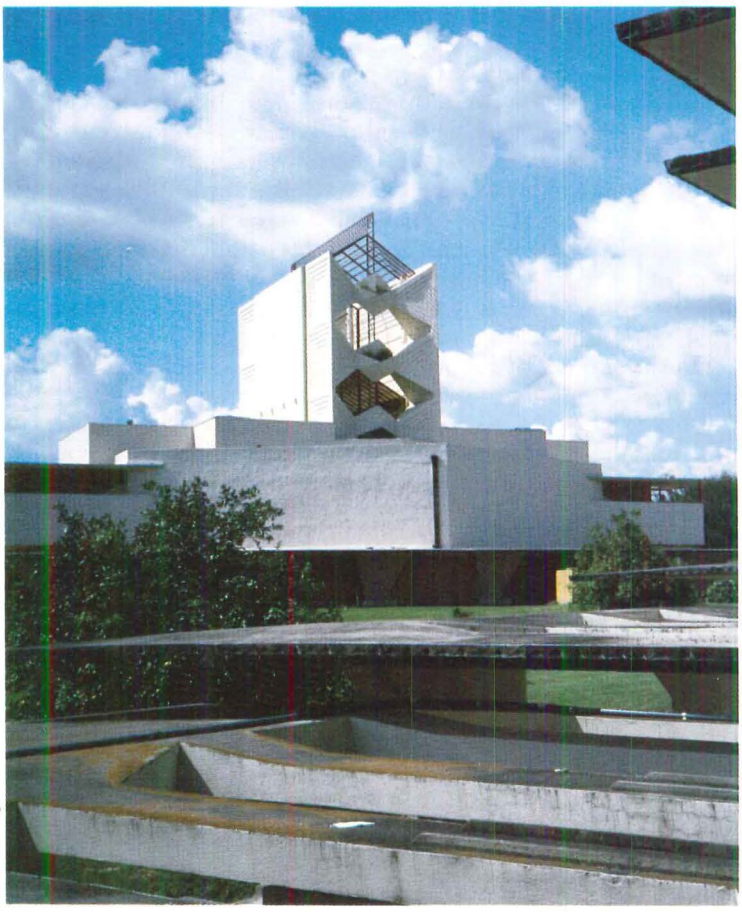
Right now, the old hotels are sporting coats of pastel paints in utterly imaginative and thoroughly inauthentic colors—peri- winkle, papaya, peach, persimmon. A new restaurant, cafe, or jazz club opens almost weekly, and on weekends, dining and entertainment spots turn people away. But the art deco district also has its share of exploiters—building owners who slap on coats of pink paint and jack up the rents without taking any care to meet code or better. Miami Beach's city government only grudgingly has come to acknowledge the treasure trove of whim- sical 1930s architecture in the historic district.

On the subject of historic preservation, municipal govern- ments in Florida do run the gamut from caring to cavalier in Florida. Things slip by even the most obsessive of the protec- tors of the past. In Palm Beach, witness the Via Mizner stair- case episode. The city of Miami has a strong heritage ordinance, but even that didn't save the oldest Catholic school, part of an important complex of church buildings, from demolition by the archdiocese. Nor has municipal interest helped find a new use for the foundering Freedom Tower.

But Sarasota's John Ringling Towers, a massive old hotel that hunches right over Highway 41, found reprieve when city offi- cials allowed its owners to plan to increase densities on the site with an addition, proof that governments are not always help- less when faced with a difficult architectural dilemma. And still in Florida—where once it was simply assumed that eternal youth was an inevitable end—optimism is never lost. For all the ter- rible tragedies that have afflicted fine works of architecture, there is still hope.

Hope comes in the form of towns such as Fernandina, a

Below, Frank Lloyd Wright's chapel building at Florida Southern College is now timeworn. Right, the successfully preserved art deco district in Miami Beach. Across page, bottom, the fate of the once-sleepy town of Apalachicola is yet to be determined.



Beth Dunlop

lumber-shipping town and splendid repository of Victorian archi tecture just south of the Georgia border. Fernandina has survived into this century with its buildings mostly intact. There is also hope in Century, two miles south of Alabama in the far northwest corner of the state, a turn-of-the-century mill town that is a sociologist's dream—a study in values depicted in architecture.

Some of the state's old hotels are being carefully refurbished—for example, the Lakeside Inn in Mount Dora and the Crown Hotel in Inverness. For every one that stymies public officials and private developers, there is one that can be saved. If the Ormond Beach Hotel, one of the world's largest wood-frame structures, has little prospect for the future, at least the Belleview Biltmore, an even larger wood-frame structure (albeit now covered in aluminum siding), has been renovated. Three of the major grand hotels—the Rolyat, the Tampa Bay, and the Ponce de Leon—have been saved as university buildings. And if the balance between the architectural and the academic is sometimes uneasy, at least the buildings have not been badly damaged along the way.

In Jacksonville, the finest work by Florida's premier Prairie School architect, H. J. Klutho, may be restored. It was a domed and skylighted department store completed in 1913 that over the years had been altered almost beyond recognition. Now, its owner, May-Cohen's Department Store, is planning to restore the skylight, which would be a major victory.

Away from the beaches and the theme parks, away from the march of retirement villages, there is promise. Where the new highways bypassed, chances are that only time and not the wrecking ball have worked against history and architecture and thus such towns as DeFuniak Springs and Arcadia have a shot

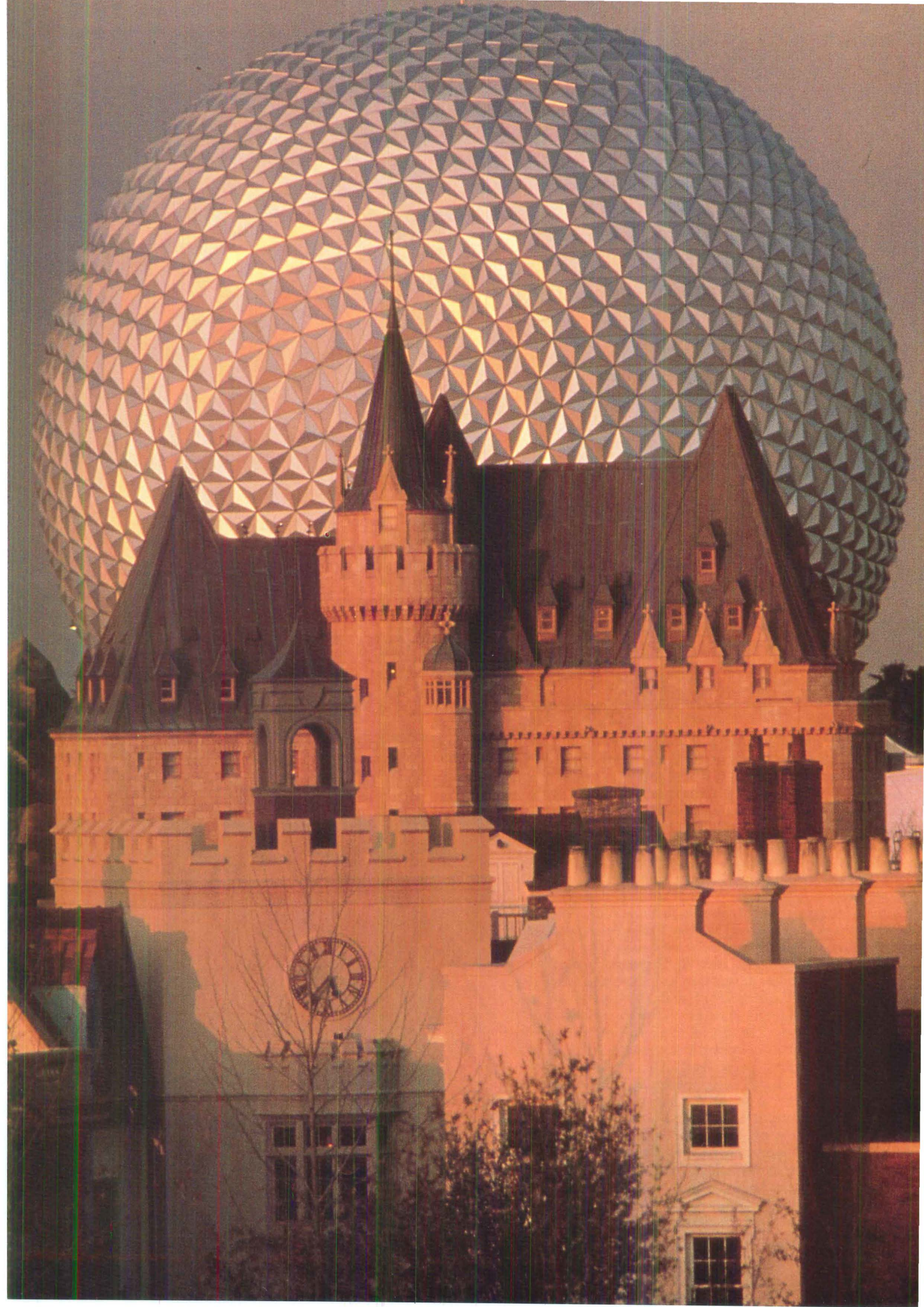
© Steven Brooke

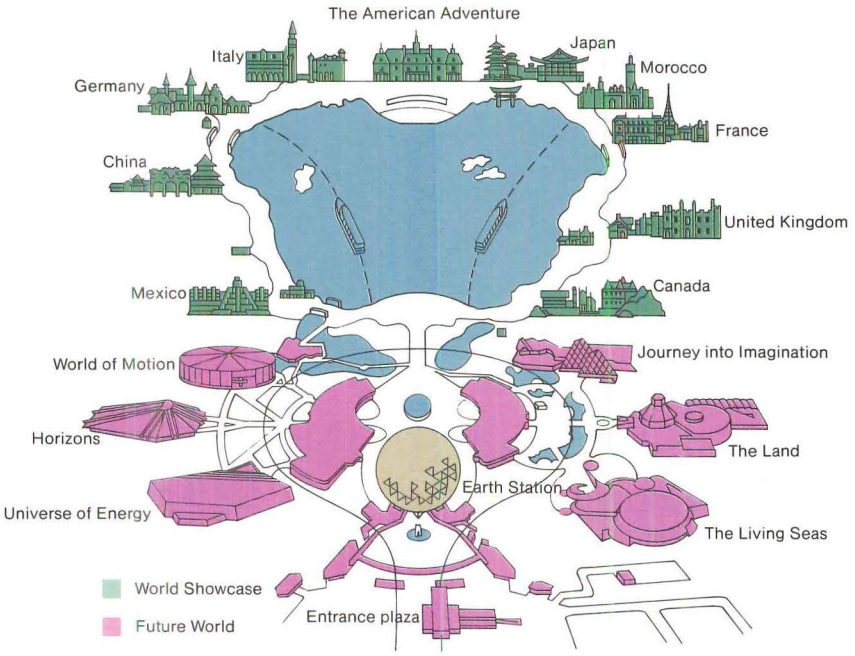
moving into the next century with a legacy of Florida's past. And there is one place perhaps more remarkable than all the hers, because it has survived as a veritable museum of history, industry, commerce, and architecture. It is the city of palachicola in the Florida Panhandle, once a cotton shipping wn, later a lumber port and mill town, and always a fishing lage. On the bluff overlooking the bay, mill owners and merant shippers built vast houses with grand porches and roofp lookouts; the seafarers and mill workers built more modest t no less charming houses.

Eventually, the times left Apalachicola behind. For years this traordinary town with its extraordinary architecture has been st a fishing town, buffeted by hurricanes and dependent on e vagaries of the oyster beds. Now Apalachicola is under tight utiny. As the Panhandle grows more overdeveloped each day, palachicola is being squeezed in several directions. State preservation officials are frankly scared by it, for Apalachicola is in ny ways a last chance. The town's hotel, the Gibson Inn, was ingly restored in 1985, a moment of luxury for Apalachicola's wntrodden main street. There is an effort to train the grandildren of the old woodworkers in almost-lost skills in a school restoration crafts; and a more ambitious proposal would have e state buy the whole wharf area as a kind of working useum—something shy of Mystic Seaport and more authentic. all this works, if the economy is infused with new life and the ildings are cared for as they ought to be, Apalachicola could come one of the finest historic towns in the United States—t corny, not contrived.

And in a state where the most prosperous main street of them is behind the gates of a theme-park concession stand, that uld be saying something. □

Beth Dunlop





The New City as a Perpetual World's Fair

Disney's EPCOT Center is alive by day, deserted by night.
By Robert A. Ivy Jr., AIA

Once upon a time, not too long ago, a creative and powerful leader decided to build a new city in the sun. The new city would be a showcase of the best that American technology could offer, by "introducing and testing and demonstrating new materials and systems." It should never be completed but remain experimental, in a state of "becoming." American industry, the source of technology, would help build the city. The benevolent genius behind the enterprise, Walt Disney, named it EPCOT.

The Experimental Prototype Community of Tomorrow was announced by Disney in October 1966 as part of the master plan for Walt Disney World, his 28,000-acre corporate duchy near Orlando, Fla. Disney dreamed the dream and saw Walt Disney World get under way, but died shortly thereafter. His true experimental community has yet to be realized.

What has been built is EPCOT Center, a 260-acre "international showplace," opened in October 1982. "There has been no attempt to show a city per se," says Charles Ridgeway, director of press and publicity for Walt Disney World. EPCOT Center, like its sister area, "The Magic Kingdom," is an entertainment center. If the land of Tinkerbell and pirate ships aims at the young at heart, then EPCOT aims higher, at a mature audience.

EPCOT Center is actually a classic World's Fair improved and made permanent. It is almost as if the New York World's Fair of 1964 had been beamed up to a starship and reconstituted in Orlando's orange groves. In fact, Disney had participated in the New York Expo, although he declined to participate in later fairs. The elements are almost identical: an exposition that combines a grand plan around a central theme (innovations in technology for the future) with individual pavilions underwritten by corporations (American Express, United Technologies, et al.) and foreign countries (Japan, the United Kingdom, et al.), in partnership with the sponsoring organization (the Disney group).

The park that holds the exposition is divided into two parts: the north half contains Future World, an area that highlights discovery and scientific achievements" in nine major structures; the south half, World Showcase, circles a lake with a collection of 10 countries housed in groupings of theme pavilions.

Examine the artifact. Set in a park, Future World is an ensemble of buildings that house exhibits, movies, and restaurants. Future World attempts to communicate while entertaining, to examine themes with implications for the future such as transportation, energy, and agriculture by taking visitors on rides, to theaters, on walks, or to participatory exhibits. The content of these exhibitions should be the topic of another exploration.

World Showcase, by contrast, reflects an idealized present. Together, the two halves form a laboratory for exploring issues relevant for our communities, which, like EPCOT, are in the process of becoming.

What does Future World say about the future? A clue lies in Spaceship Earth, a 180-foot-tall "geosphere" that is EPCOT Center's hallmark. Idealized, dreamlike geometry sets the stage—here, an immense geodesic ball covered with aluminum panels. The structure, like the organization of the park underneath it, is neoclassical, a direct descendant of Boullée's 18th-century cenotaph dedicated to Sir Isaac Newton. The geosphere is a formal idea made flesh. Like many sleek ideas, it is not particularly accommodating to people.

There is no clear entrance to the structure, and no sense of the space within, for the mighty globe holds a ride that proceeds in darkness and could take place within any enclosure. The shape and huge size of the sphere are external messages that communicate EPCOT Center's importance from a distance and from beneath.

The entry plaza that leads up to Spaceship Earth holds clues as well. Its broad expanse is ringed with low, horizontal covered walkways reminiscent of a bus or train depot. The lines of the plaza are low and curved, subordinate to the Spaceship

Across page, the Future World juxtaposed against the World Showcase: the 180-foot-tall, aluminum geodesic dome looms menacingly above a French chateau.

Above, the geosphere marks the entrance to EPCOT Center. In the foreground is Future World, with its neoclassical plan; surrounding the lake are the World Showcase pavilions.

Earth hovering above. Hierarchies are clearly defined in the neoclassical order of the design.

Imposed abstract order produces a future that already looks dated at Future World. Proceeding through the concentric rings of walkways, theme pavilions rise like space capsules resting in a corporate office park. Their shapes, like the sphere, are simplified geometric forms with smooth surfaces of gray or white metal panels, stucco, or ribbon glazing. In some cases buildings are buried in a berm, as at "The Land," with its cavernous entrance and a stylized cone of glass exposed; in others, they are freestanding and exposed, as in the stainless steel drum that forms the "World of Motion."

Future World is most successful in its accommodation to public movement, for the Disney "Imagineers" have studied and mastered how to move people, how wide walkways need to be, how long the public is willing to queue, and how to provide diversion and relief for people in line for rides or exhibits.

Lining the walkways is color—green, red, white. Broad planes of single hues seem to have been laid out with a French curve in planting areas. Walkways of pastel-colored concrete converge at the central plaza created by the twin semicircular pavilions and labeled the "Communicore." Parasols at an outdoor restaurant in the Communicore plaza are smooth tubes of glass fiber that flare as they rise; handrails are unembellished pipe. Fountains are large and fill the open space at the heart of the plaza. Plants almost completely obscure the plain walls of the central building group, which resembles the civic architecture of the 1960s. Communicore could be an airline terminal or a cultural center.

Bland Communicore, at the heart of Future World, raises a fundamental question. Why is the imagination numbed when considering the future? Why do otherwise creative minds fill in the blanks with unrelieved planes, geometry, horizontal lines, and overwhelming mass? Spaceship Earth and Communicore provide some answers. The future is an abstract idea, unaccommodated to the human condition. Once built, the future becomes the present, loses the force of the idea, and devolves. Future World is in a state of becoming, but it is becoming the past.

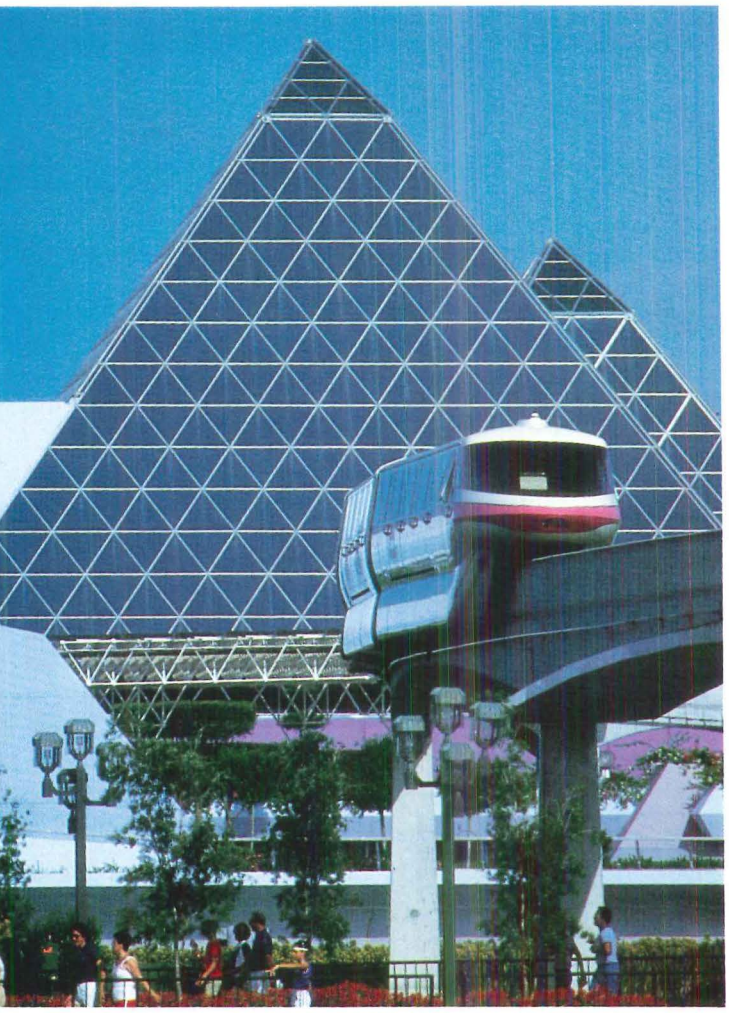
The present lies a short stroll away. A 40-foot-wide, 1.3-mile promenade around a lagoon defines World Showcase, the southern half of EPCOT Center, and the difference between that and Future World can be heard in a sigh of relief. World Showcase is a street to amble along, with wooden benches and graceful gas lamps along the way, street vendors, a lake to look out at, and the pavilions of 10 countries offering themselves to the viewer episodically, one country at a time.

A major difference lies in the details. If Future World attempts to distill the new (a world that is smooth and without warts), World Showcase glories in recreating and heightening the minutiae of the real world. The medium is frequently painted glass fiber and the result is stage setting, but there is an obvious delight in the mastery of observation and materials.

Each pavilion is a tour de force of the illusionist's art. At the China pavilion, for example, Beijing's Temple of Heaven has been shrunk to fit the lot and arranged with other structures into a forced perspective, forming a courtyard beside an inlet. The proportions of the copied temple are similar to those of the original, and plantings recall Chinese shrubs and trees. One major deviation lies in actual construction materials, since the 25,000 individual tiles on the roof of the Disney temple are made of blue glass fiber.

Odors and sounds enliven Morocco's setting. The visitor is greeted by a twisting street that passes into the Medina, the Old City, opens onto a courtyard of a Moroccan home, and emphasizes the light and shadow that play on the carved plaster and wood. Midway through an exploration, a band complete with dancers whirls through.

A stucco wall at the Italian pavilion might show a small, chipped corner, more real than the real thing, while the wall beneath a green copper roof might exhibit the oxidized residue



Courtesy Walt Disney Productions

Above, the Journey into Imagination pyramids of glass as a backdrop for the Disney monorail (which runs between EPCOT Center and the Magic Kingdom). Above right, the World of Motion's stainless steel building. Right, centrally located, the Communicore's pastel-colored concrete walkways lead to a central plaza.

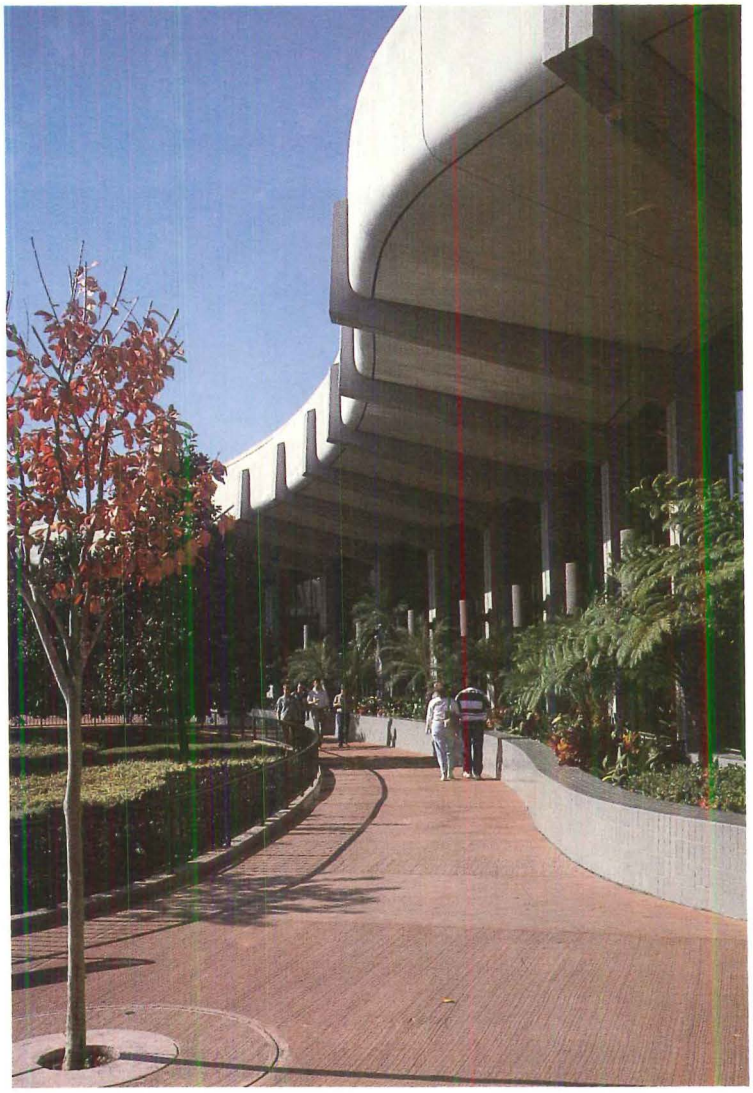
of generations of rainfall—all re-created imaginatively by the Disney designers, not merely imagined.

Of course it is hokey. But it has been so carefully considered nd so expertly executed by real artisans (Disney raised the mas- ery of glass fiber to craft, and an art director accompanied ach construction crew) that it bears the signature of the skilled uman hand in design and execution.

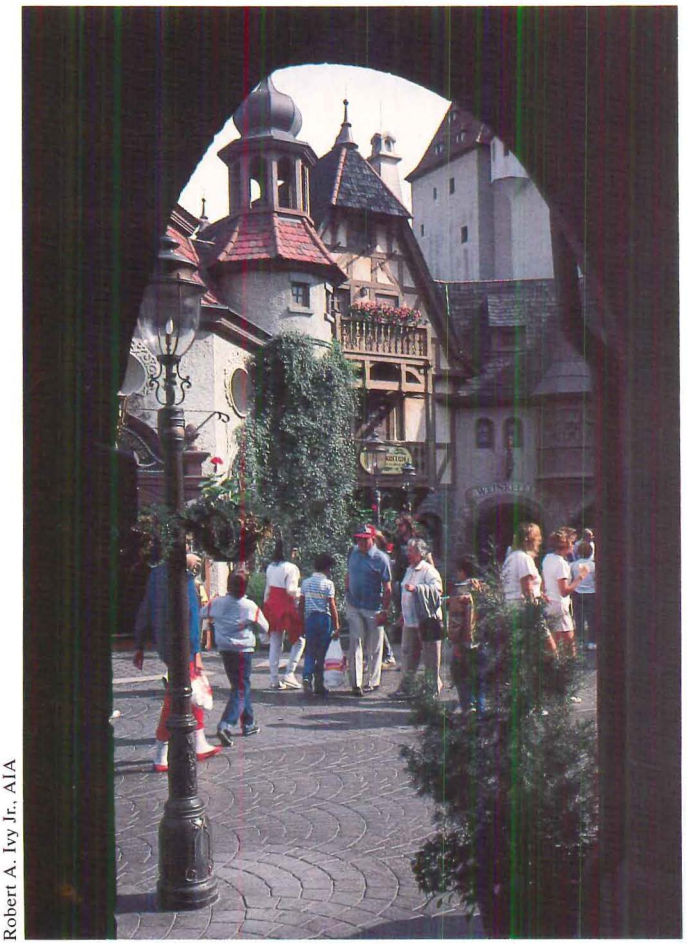
The result is a pleasant, synthetic city out of time. During ıe daylight and early evening hours, when World Showcase is ccupied, it captures many of the recognized delights of the uilt environment. At night the stage is darkened and the city eeps alone.

And what of Disney's real community? Norm Doerges, the irector of operations for EPCOT Center, says the entire Walt isney World property should be considered EPCOT—the com- ıunity of tomorrow. He points out that, although no one lives ermanently at EPCOT, some 150,000 persons inhabit Walt Dis- ey World's grounds on a good day, sleep in its rooms, and eat : its tables.

Moreover, he says, the entire property has been a proving ound for new technologies and new ideas. His list of accom- ishments is impressive, from the fiber optic telephone system he first in the world) to the separation of people from serv- es (underground "utilidors" at the Magic Kingdom, service ones surrounding EPCOT Center). He cites the central energy anagement system, the central security system that monitors 000 critical points for fire or distress, the environmentally sen- tive design (which has preserved 7,200 acres as permanent ilderness and monitors all water flowing through the water- ed), and novel building codes that adapt to new technologies. e mentions the contemporary hotel, which remains a strong



Robert A. Ivy Jr., AIA



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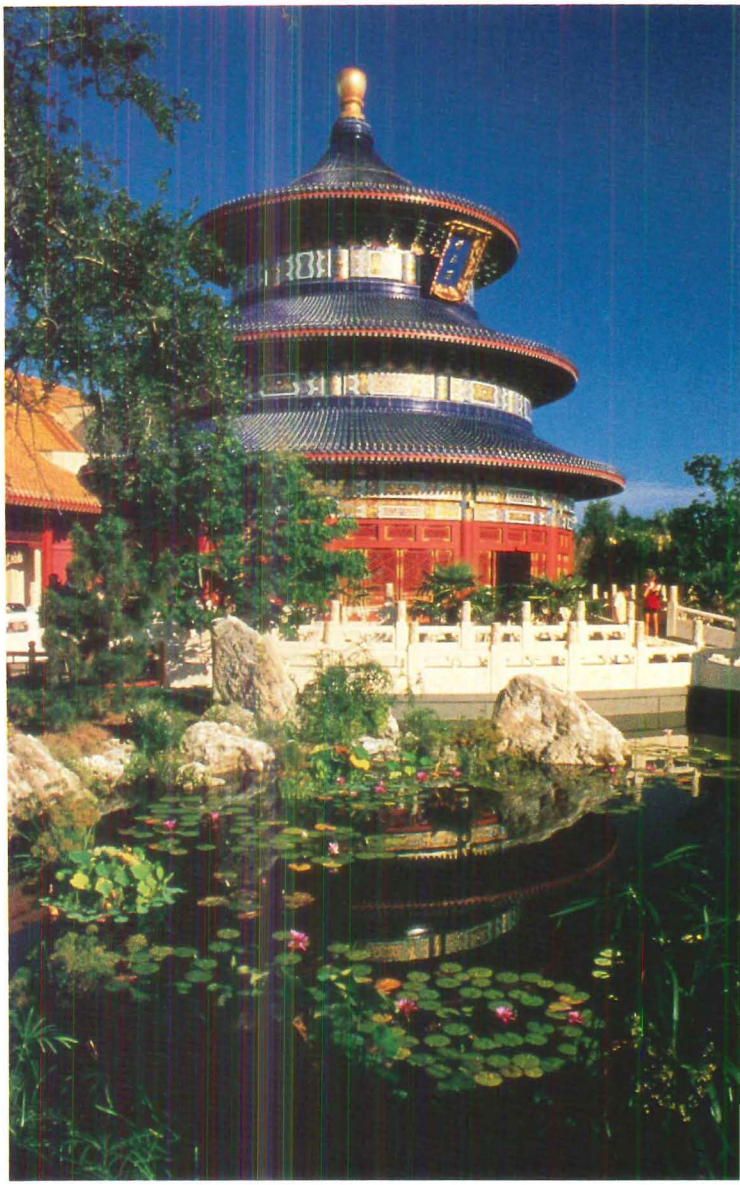
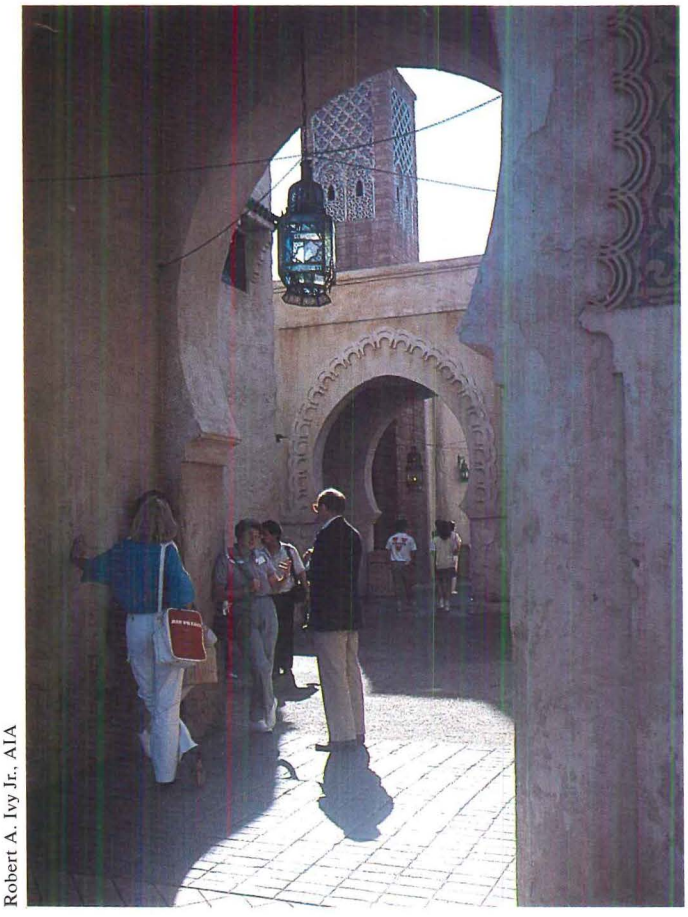




Robert A. Ivy Jr., AIA

This page, clockwise from above, World Showcase images: a miniaturized Beijing (China) temple, a Moroccan courtyard, a German village. An ambling walkway connects the 10 pavilions Opposite, Disney's popular personalities ready for blast-off.

architectural statement with its soaring lobby pierced by a monorail. And he recalls that the hotel's very construction was innovative—an assemblage of modular, post-tensioned rooms.

Charles Ridgeway states that, while there has been some discussion about the introduction of permanent residents to the property, no such development is immediately anticipated. Disney left no explicit blueprint for introducing homeowners to his experimental community—a complexity that his heirs have been reluctant to embrace.

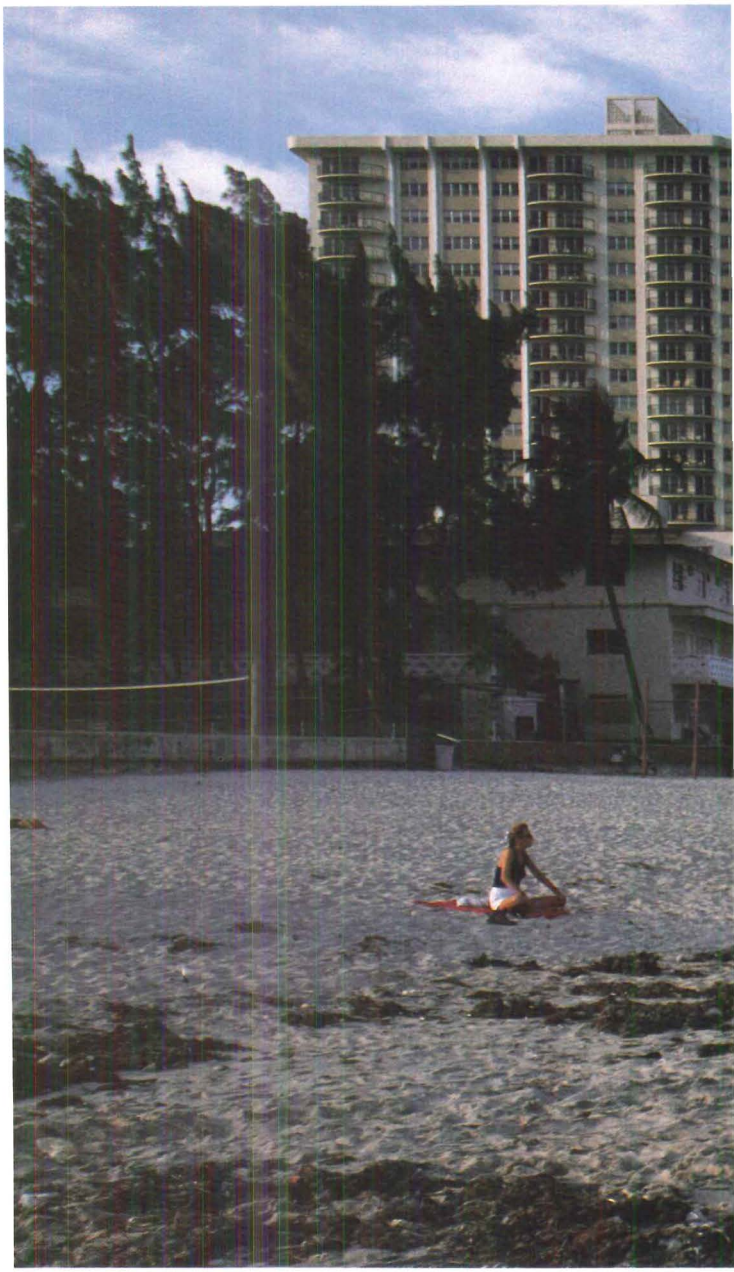
The property attempts to communicate a future in which technology is a tool for building a better world. At EPCOT Center we admire the fruits of technology: we appreciate the cleanliness, the state of repair, the quick answers from computers. But there is another level of exploration at EPCOT—beneath the surface, where our feelings lie.

A critical look at Future World teaches us that an overly optimistic reliance on technology, as reflected in the design of the park, can result in sterility. The esthetics of the machine, even the solid state machine, do not mate easily with the human psyche. World Showcase, by contrast, recalls recognized pleasures of the real world.

As an experimental prototype, Disney's community of tomorrow proves the theory that human beings continue to long for delight, order, scale, texture, color, and surprise. When present, these qualities can enliven an uninhabited stage set; when ignored, their absence can chill a city in the sun. □

Desperate Efforts To Shape Florida's Runaway Growth

State and local plans seek to check rampant despoliation and sprawl.
By Nora Richter Greer



Any way you measure it, the population growth in Florida has been and will continue to be awesome. Between 1960 and 1970, the state's population increase of 37.1 percent was the fastest in the nation. By 1980, Florida was the seventh largest state in population, and by 1988 it is expected to move up to fourth. Between 1980 and 1995, Florida is projected to undergo a 40 percent population increase. This all adds up to tremendous development pressures, which in the past have often resulted in miles of tacky commercial strips, cities with no coherent urban center or individual character, unrelentingly ugly mobile trailer parks and manufactured housing clusters, and bland beachfront developments that sit precariously on delicate coastal dunes.

While outsiders might envision the final demise of a once splendid tropical playground, Floridians are hopeful that their paradise will be recovered or at least the best of what is still there will be maintained and the worst replaced. The natives' optimism is centered on the adoption in 1985 of a statewide growth management plan that many say will ultimately result in an environment—built and natural—that is more congenial to large numbers of people than any other in the nation.

Although Florida is now considered a leader in the growth management field, its arrival has been a painstakingly slow process. It was the last state in the nation to adopt zoning enabling legislation (in 1969), though immense growth pressures were evident immediately after World War II, if not earlier. It often seemed that development occurred without apparent rhyme or reason, as explained by Tom Lewis, AIA, a former secretary of the state's department of community affairs: "In the '70s, Orlando experienced tremendous growth. I used to call it the fastest-growing rural area in America. . . . We had tremendous growth that just happened, like motels and hotels, and fast-food outlets and little convenience stores, that were almost uncrated. They'd bring them in in a box and uncrate them and they'd appear overnight." Even though the Orlando area was growing rapidly in response to the arrival in 1971 of Walt Disney World, the greatest growth problems were evidenced in the most urbanized areas—Dade, Hillsborough, Broward, and Pinellas counties.

In the early '70s, the public focus was not on controlling growth but on stemming the tide of environmental degradation. As explained by John DeGrove, director of the Joint Center for Environmental and Urban Problems, Florida Atlantic University, "The issues were the destruction of the beaches by bulldozing down sand dunes and cutting off access, polluting water by raw sewage. We didn't think of urban runoff too much in those days, but just sewage—dumping into the canals, lakes, and the ocean. There were water quality problems. There were salt water intrusion problems. It wasn't so much worrying about things like the urban environment and its appearance. It wasn't so much transportation." Earl Starnes, FAIA, chairman of the urban and regional planning department, University of Florida, suggests: "We had literally raped the landscape and pushed and shoved the state around to the point that we just had virtually lost, in many areas, all of the natural systems."

Those natural systems in Florida are extremely delicate. A low-lying plain, most of Florida is less than 100 feet above sea level, with sedimentary deposits of sand and limestone cover-

Allen Freeman

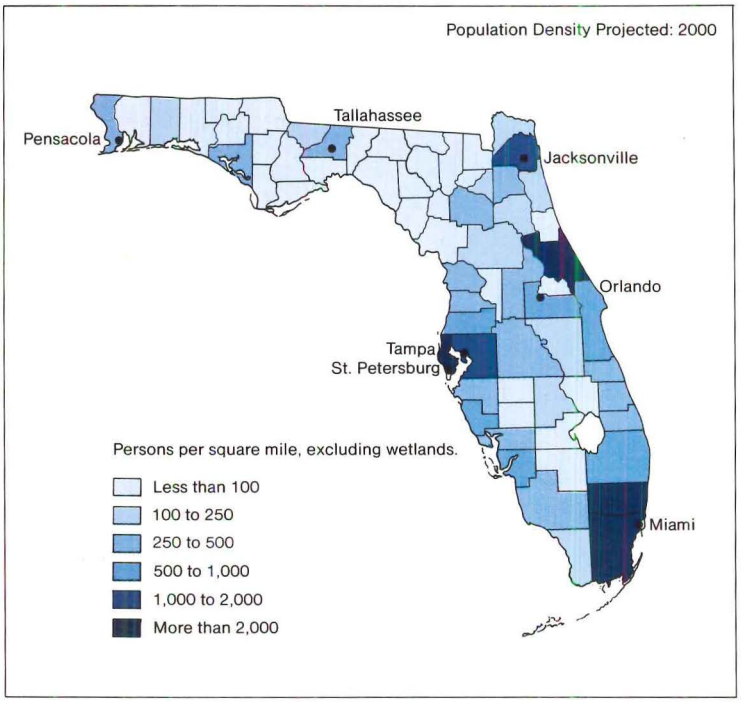
g most of the state. This flat landscape is crisscrossed by 1,711 reams and 30,000 lakes, a vast water network fed by a porous nestone substructure, which stores large quantities of water. In ct, Florida sits on the second largest aquifer in the world. here are 300 species of trees and 3,500 varieties of plants.

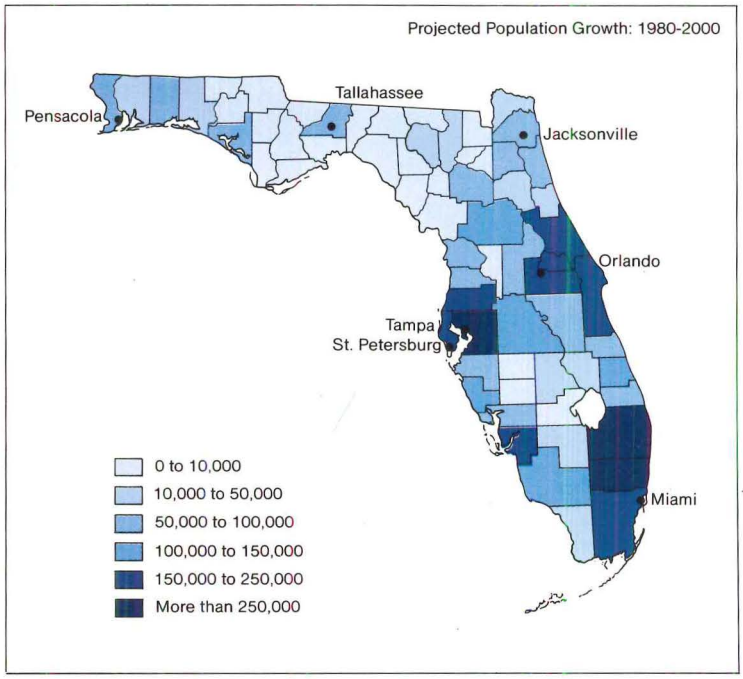
In 1972, a State Comprehensive Planning Act was adopted, ıt for advisory purposes only. It was largely ignored. But the me year the Environment Land and Water Management Act eated, among other things, areas of critical state concern (the g Cypress wetlands in Collier County adjacent to Everglades ational Park; Green Swamp, a major area of wetlands for re- ıarge of the Floridian aquifer in Lake and Polk counties; the orida Keys, which includes rapidly developing urban com- unities; and the Apalachicola Bay Area in Franklin County) ıd the state's developments of regional impact (DRI).

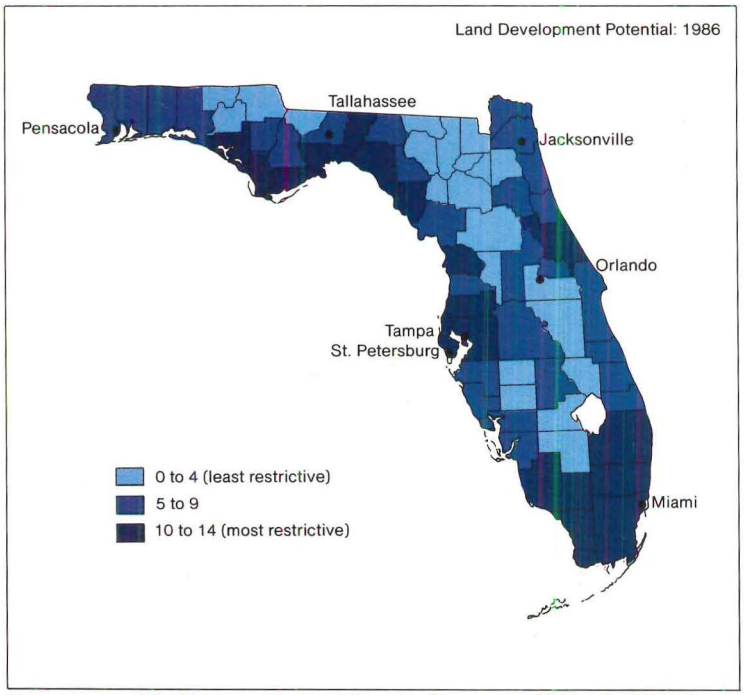
Under the DRI program, any developer wishing to build a ɔusing project larger than the established threshold had to ıve those plans reviewed by local and state government agen- es, to see if adequate infrastructure would be provided by the velopers. "The DRI process was an example of what the new 985] planning process hopes to achieve—a rational approach," ewis says. The DRI program met with limited success due to adequate funding and enforcement provisions, but it provided ı essential network of regional councils for future growth pro-

© Steven Brooke

bove, condominiums on Ft. Lauderdale's Galt Mile straddle e dune line. Now development is prohibited beyond that line. ght, Dade County's metro rushes past the Miami skyline.







Maps courtesy of the Urban and Regional Planning Department, University of Florida

grams. One problem with the threshold concept was that "a lot of bad developments were too small to review," Starnes says. "So, we had a lot of little bad developments statewide."

In 1975 the Local Government Comprehensive Planning Act was passed, but it too was flawed. "Unfortunately," DeGrove says, "that act proved to have fundamental weaknesses that gave us no assurance that local plans of adequate quality would be developed, and even less assurance that after development they would be implemented." Inadequate funding was again a problem. While almost all of the state's 400 local governments adopted comprehensive plans, "the quality of these plans varied greatly. Many were below the level required to properly manage growth and development," says Brenda Valla, assistant director of growth management studies at the University of Florida's College of Law. While a few exemplary growth plans were developed before or during this time, such as Dade County's and Sanibel Island's (in the Gulf of Mexico), more often than not damaging rapid growth continued unabated.

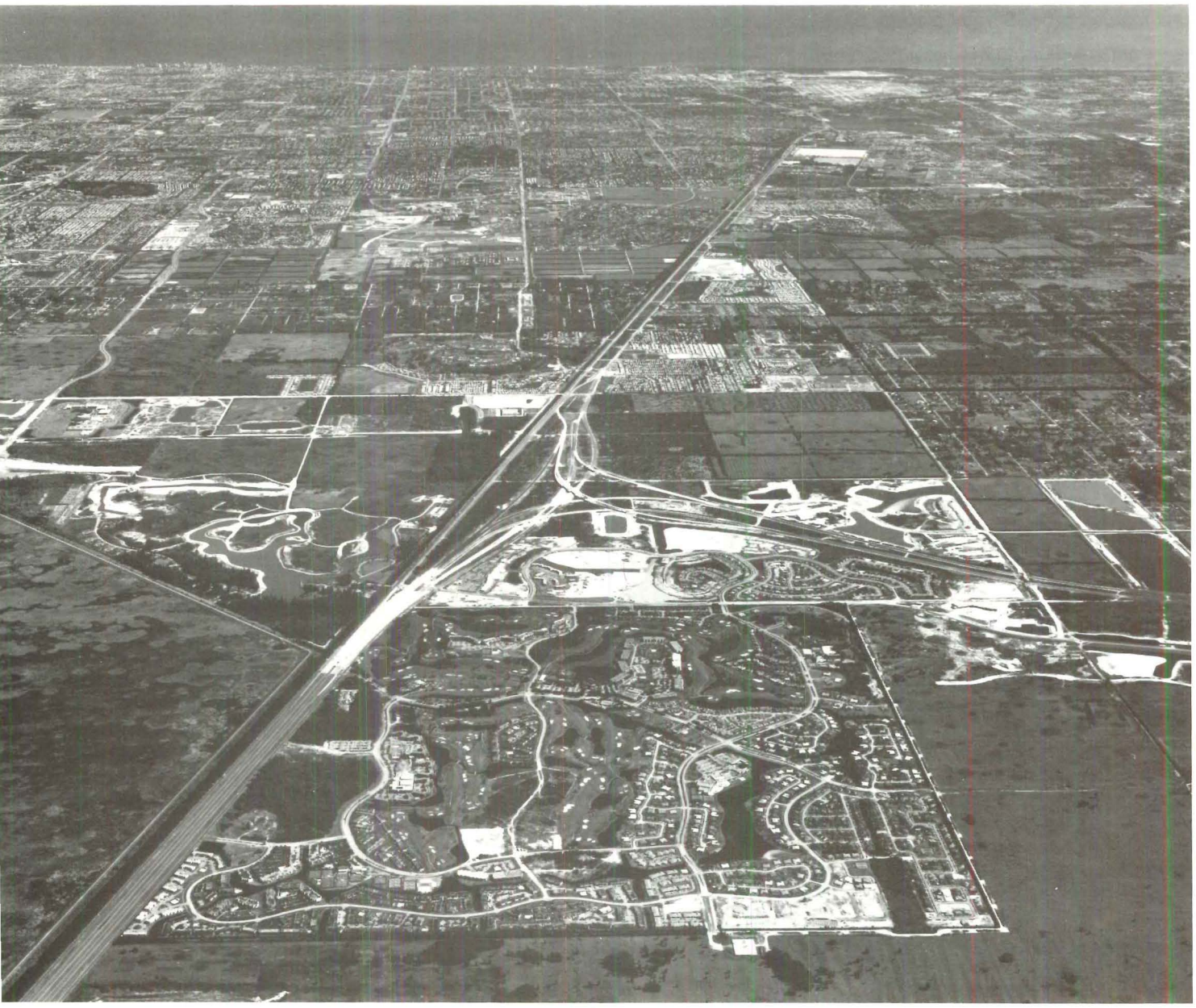
For the Sanibel plan, the Philadelphia architecture firm of Wallace, Roberts, Todd was called in, with William Roberts, FAIA, leading the effort to oppose what many residents of the island thought were overdevelopment plans drawn up by Lee County. The county envisioned 40,000 more dwelling units on Sanibel. "Some of the citizens realized that this would pose serious threats to water supply and sewage treatment and traffic problems and evacuation," Roberts says. He was able to substantially downscale the future residential growth, based mainly on "how many people could safely leave the island under hurricane warning," because only 4,000 extra people could be safely evacuated from the island via the two-lane causeway. Under the plan each sector of the island was divided up into ecological zones and allocated a certain number of dwelling units. Roberts calls it the "first major comprehensive city plan that was based upon ecological results, which were determined entirely by the geology and topography and hydrology and plant materials that existed on the island."

Dade County's plan was much more complex, in accordance with the larger size and greater diversity of its jurisdiction. The county's plan, first adopted in 1965 and updated in 1985, represented, in the words of Reginald R. Walters, Dade County's planning director, "a very strong growth management statement, a guide to orderly growth and development."

It wasn't until the early '80s that growth management once again received serious attention at the state level. Under the direction of then Gov. Bob Graham (now U.S. senator from Florida and an honorary AIA member), two resource management task forces were formed consisting of environmentalists, developers, local government representatives, architects, planners, lawyers, and others. The work of these two groups led to the State and Regional Planning Act of 1984 and the State Comprehensive Plan and the Growth Management Plan of 1985. A major strength of the final growth management plan would turn out to be "the way in which it was created," Starnes says. "By striking out into relatively uncharted waters in comprehensive planning and growth management, Florida has managed to produce a set of regulations both substantially and administratively tailored to its needs."

"The system envisaged by the legislation comprises no less than a revolution in the approach to planning for the state's growth," DeGrove says. It calls for all municipalities and counties to adopt comprehensive plans that must be consistent with regional policy plans, which must, in turn, be consistent with the State Comprehensive Plan. Florida is now thought of as one of the leaders in the country as regards a statewide system of growth management.

The heart of the growth management plan is minimium criteria (Rule 9J-5), which all jurisdictions must meet and are encouraged to exceed. As Starnes suggests, "Rule 9J-5 has the function of making these new standards stick. It is the woof and the warp of the state, regional, and local planning and growth management cloth." Under Rule 9J-5, each locality must analyze its current condition and examine how future growth will



ɔove, urban sprawl in Broward County. In the foreground is a w country club/housing development. Looking east, downtown . Lauderdale and beachfront condominiums in upper left corner.

ect it and also neighboring communities in terms of land use, ıffic, housing, sewer and water, coastal management, conser- tion, recreation and open space, intergovernmental coordina- ın, and capital improvement. Highlights from Rule 9J-5 follow.

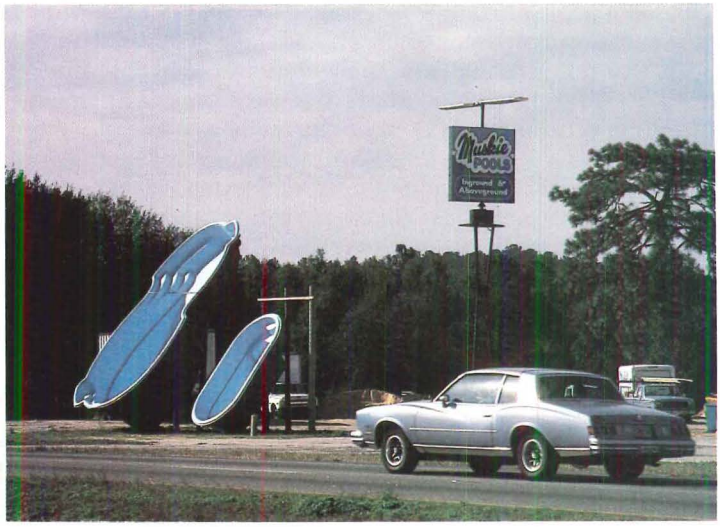
Future land use. The rule requires that maps must illustrate rious land uses, such as residential, commercial, industrial, d so on. The analysis must examine population projections, e availability of major facilities, characteristics of vacant land, levelopment needs, and the development suitability of flood- ɔne areas. Emphasis is to be placed on the coordination of ıd use controls with the inherent characteristics of the topog- ɔhy. Also emphasized are the redevelopment and renewal of ghted property and the protection of natural and historic ıources. Local governments are required to identify and con- er land uses in adjacent jurisdictions.

Transportation. Current service-level demands and projection future demands in relation to capacity limitations must be ntified, with emphasis on ingress and egress routes and use ensities. Again, coordination of transportation planning with ıd use planning and with transportation planning of nearby isdictions is stressed.

Housing. Each community's analysis must determine type, age, ıt, and value of housing. Projection of future populations and using needs is stressed. Also emphasized are the provision of cent, affordable housing, the discouragement of exclusionary zoning practices, and the encouragement of rehabilitation of substandard housing. In addition, local governments are to consider the availability of sites for special housing types, such as group homes and foster care facilities.

- Environment. The general purpose is to protect the state's natural resources and scenic beauty for enjoyment by the public. Emphasized in this section are protection of environmentally sensitive areas from development; maintenance of clean air, water, and land; use of existing and development of new recreational facilities, and the implementation of special development standards in areas prone to hurricane damage.
- Coastal management. Local coastal governments must provide an inventory and analysis of beach and dune systems, including policies for restoring and enhancing dunes. Coastal governments are also required to include hazard mitigation and hurricane evacuation procedures in their comprehensive plans.
- Conservation. Here, extensive information is required—on ambient air quality, rainfall patterns, and groundwater sources, as well as the more traditional conservation land uses such as wildlife habitat, wetlands, forested lands, and critical vegetative communities. Also addressed are the elimination of point and nonpoint pollution sources, as well as issues more nearly particular to Florida, such as preservation of exotic vegetation and natural species.

While local governments are not required to consider urban design issues, Rule 9J-5 discourages urban sprawl and the resultant sense that "there is no there there," as Gertrude Stein said. Some of the anti-sprawl criteria are obvious and basic, such as discouraging construction of new water and sewer facilities



Photographs by Allen Freeman

where unused capacity exists, a requirement that favors infill development over sprawl. "Even the notion that we must move away from the dune line on the coast is going to have some impact on those coastal communities," says Starnes. "Protection of wetlands and flood plains will have more impact on urban form than in the past."

In addition, infrastructure for a new development must be in place before actual construction begins. "We must start paying before we go," DeGrove says, "Transportation, water, sewers, solid waste, parks and recreation, schools, etc., have been shortchanged for decades as Flordia has grown. The consequences are beginning to be apparent all across the state. This failure to adequately fund infrastructure needs has been a gradual drain on our quality of life."

Current infrastructure needs alone are estimated at $30 billion to $50 billion statewide. And there are an estimated million platted lots in Florida that are undeveloped. To raise revenues for backlogged, as well as new, infrastructure demands, state taxes are likely to be increased. "Florida has the fiscal capacity to provide the funds needed to implement fully and effectively growth management systems that have been put in place. We are a low tax-effort state with substantial unused fiscal capacity," DeGrove says.

To raise additional money for these new infrastructure needs, impact fees may be levied by local governments against developers. However, some argue that impact fees "may be the nemesis of growth management," in the words of Julian Conrad Juergensmeyer, director of growth management studies at the University of Florida. "Impact fees are unresponsive, by and large, to the issue of what growth should occur, how much, and what type."

Establishing urban design goals, though only an optional provision of the growth management plan, can provide a role for local architects. "The architects could play a role by insisting that the communities in which they live establish urban design goals," Starnes says. "They have time, there's time yet."

In fact, it was architects who played a pivotal role in directing attention to the need for planning in the state. In the early '70s Nills Schweizer, FAIA, conceived of red flag charrettes, to be conducted by AIA chapters. These charrettes identified critical problems in several communities. "That was a major contribution to heightened interest in planning in Florida," Starnes says. For the charrette, architects enlisted the aid of naturalists, ecologists, lawyers, and others. "I think what it did more than anything else was it coalesced a constituency for statewide planning that didn't exist," Starnes adds.

And what about environmental esthetics? DeGrove believes that Floridians are slowly becoming more and more concerned about the built environment's appearance, "about how ugly much of it is. How terrible blinking neon signs and billboards and clutter and trash and flags and junk look. There is much more interest in doing something about that. It takes various forms. There must be dozens of cities and counties in Florida that are working on landscape ordinances, tightening up sign controls. Some places, though, are so conservative, you'd think they'd never thought of anything like adopting stricter sign controls.

"In the Florida Keys we're going to de-uglify the whole Highway 1 strip, taking all the billboards down," DeGrove continues. "We call it the re-tropification of Highway 1. We're going to put in palms. Of course, palms aren't truly native, but they're seminative. It is going to visually make a great difference in a place like Marathon. Set right in one of nature's most beautiful settings, it's one of the ugliest places one can image. However, because of the intervention of the government, because of our work in the Keys—the critical area designation and the mandate to redo their plan in the process of four-laning the highways i

Scenes from rural and small town Florida, clockwise from upper right: frozen-out orange groves, now on land for sale; thoroughbred horse farm; a collapsed tin barn near Williston; Cedar Key built out over the gulf; two views of Highway 27; a grand entrance to a less than grand development; and the ubiquitous billboard

arathon—we're removing a lot of ugly stuff and putting in a lot beautiful landscaping."

Nathaniel Reed, former undersecretary of the state's interior partment, puts it this way: "There is not a speech that I give the state of Florida that I don't say, 'Ladies and gentlemen, e of the greatest changes in my 54 years in Florida is that are getting so much uglier. Good planning and growth should mbine to be beautiful.'"

While DeGrove acknowledges that the beautification move-ent is hardly a statewide phenomenon, he believes such con-rns will eventually spread. "Panama City Beach is the ugliest ace in the world to be in such a beautiful setting. It's got some g damn old dinosaur that was left over from a carnival sitting ght along the main street. All the buildings are inappropriately ilt on bulldozed sand dunes, and it's a disgrace. It's going to ke a long time to get Panama City Beach spruced up. But even at will come. I think the movement is in the direction of eater and greater concern."

How growth management relates to historic preservation also s a bearing on urban form. Rule 9J-5 states that each locality ust consider historic preservation in its provisions for housing, ture land use, coastal areas. Inclusion of a historic and scenic eservation element remains optional, but the way is paved for ore emphasis to be placed on preservation later. For example, der the future land use provision, land use maps must depict storic properties meriting protection, which means that all cal governments must begin surveying and documenting his-ric properties. The housing requirement calls for the identifi-tion of historically significant, as well as other, housing for rposes of conservation, rehabilitation, or replacement. And r local coastal areas, protection must be provided through eservation, including sensitive adaptive use of historic and chaeological resources.

It is through the historic preservation provisions, though, that sign guidelines might first appear. For example, the city of rasota is considering a design review board for its main down-wn street. "There are a lot of facades where the original brick stone has been covered up," says Michael Taylor, a planner th the city of Sarasota. The city plans to have the original '20s pearance of Main Street restored, a process that will be care-lly scrutinized by a local design review board. Taylor and oth-s hope this effort will "create a sort of focal point for Sarasota, perhaps attract people to us, because we are competing with e malls."

The first overall assessments of the state's growth management an won't be possible until the early '90s, when the last local d regional plans are due. And a final verdict won't be possible til the late '90s or beyond. Certain problems are already clear. ie most immediate and visible drawback, Starnes says, "is the st to local governments both in manpower and money." He timates that compliance with the plan will cost local govern-ents $22 million over a three-year period.

Secondly, Starnes says, "although local governments are now ovided with clearer guidelines and the review process will be nplified at the state level, localities may also lose some of their lividuality." Asked if the new growth plan emphasizes the cre-on or maintenance of downtowns, Reed says, "I hope it racts the city planners to that. I hope that the new plan also mulates individual city commissions to stress diversity and lividuality. One of the great problems of having two strip ies—one on the east coast and one on the west coast—is at they are all beginning to look alike. It is all ugly. . . . Towns ould have their own character and flavor."

Starnes wonders, too, if the minimum criteria rules will dis-urage communities from seeking higher standards and if the lure to distinguish between large and small municipalities will ve any severe drawbacks. "Early on we considered trying to ve different thresholds for a community of 1,000 people, say, rsus a community of 800,000," says Jan Ollry, of the state's partment of community affairs. "We decided the department community affairs should use discretion in what is actually quired in the analysis, because some small communities that

aren't growing don't need terribly sophisticated plans."

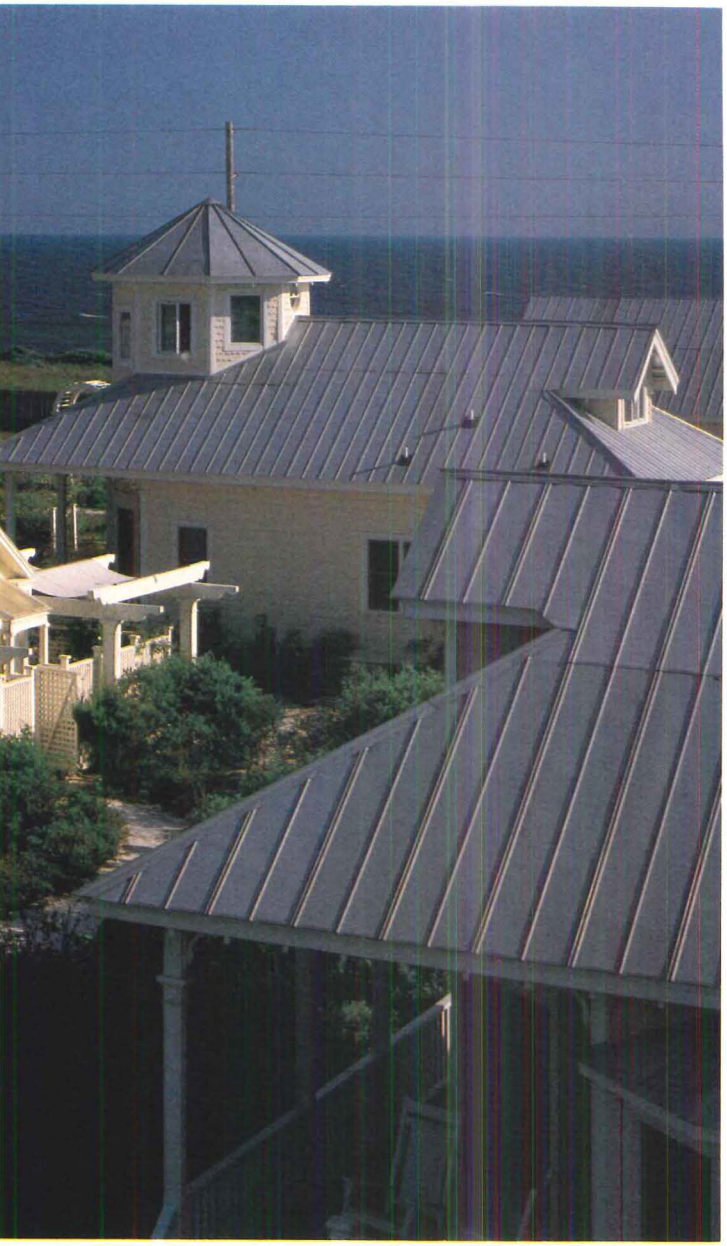
Generally, Starnes believes the strengths of the plan outweigh the weaknesses. For example, he believes the comprehensive nature of each locality's plan will "focus attention on special areas that might otherwise be overlooked by local governments—issues such as group homes, historic districts, groundwater." And Starnes points to the participation of the public in the growth management movement as a strength. "We've been planning together for 12 years, and the citizens have learned about planning statewide. . . . There are probably 3,000 people out there who have literally participated in the process, which was nonexistent up until the early '70s."

To continue watchdogging the state's efforts, Starnes, DeGrove, Reed, and other early growth management supporters have founded 1,000 Friends of Florida, modeled after 1,000 Friends of Oregon. "We have a very narrow purpose," Starnes says, "to make the growth management system that we've put together in Florida work. We'll use two devices: education and litigation." Reed echoes, "What concerns all of us is that we will see inadequate response by cities, counties, regional planning councils, and may not see enough enforcement from Tallahassee. . . . Disaster lurks right around the corner all over Florida, but I know there is only one way to change it, and that is to try." DeGrove believes continued citizen participation is crucial to the success of statewide growth management, without paralyzing the process.

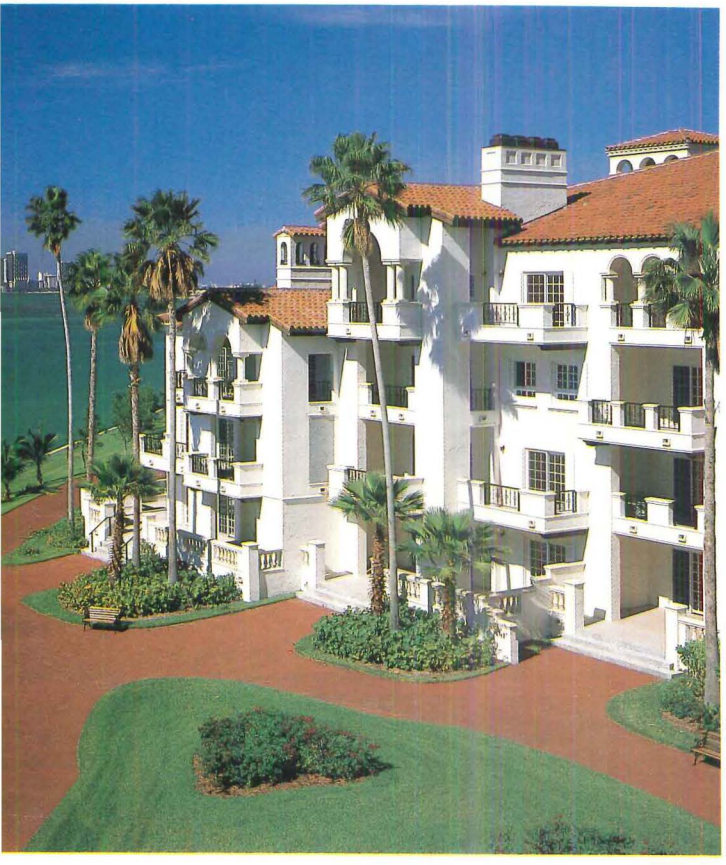
Without the guidance of a statewide growth management plan, any vision of Florida at year 2000 has to be a tropical nightmare of traffic jams on Interstates that are walled in to keep noise and lights away from adjacent residential neighborhood of rivers and lakes dead from pollution and the Everglades dar aged beyond repair; of overpopulated urban areas that spread out like pancakes, where services normally taken for granted—adequate schools, police, and fire—are lacking; and on and o

Instead, growth management leaders in Florida anticipate more communities—newly planned and rehabilitated—that a as delightfully congenial, beautifully designed, and conceive with clarity as, for example, the new town of Seaside on Flori da's Panhandle. For this 80-acre, gulf-side resort, architect-student-turned-businessman Robert S. Davis wanted an idyllic small town setting. What Miami architects Andres Duany, AIA and Elizabeth Plater-Zyberk, AIA, offered was a plan for a hybrid European and American community, one that mandate no single prototype of architecture, but rather a mixture of many types, though mostly Southern, ranging from the Charle ton side-lot house to the antebellum mansion to the ubiquitou American bungalow.

While the town's slogan is "the new town, the old ways," its plan borrows a bit from the past and looks to the future, at lea as regards Florida development. It visually contrasts with nearb gulf-shore communities where condominiums are stacked as close to the water's edge as possible. At Seaside, the only intr sions on the 2,300-foot beach are the community beach pavilion which are set high on the dunes. The houses stand further inland, with the central focus being the "town center." Public buildings are scattered throughout. Perhaps, though, if Seasid is the development of the future in Florida, the state's popula tion may grow even faster than originally anticipated. □



Left, the delightful town of Seaside on the gulf coast was master-planned by Andres Duany and Elizabeth Plater-Zyberk. Below, a Mediterranian-Spanish style condominium on Fisher Island, designed by Sandy & Babcock. Downtown Miami is in the background.



Photographs © Steven Brooke

Kaleidoscope

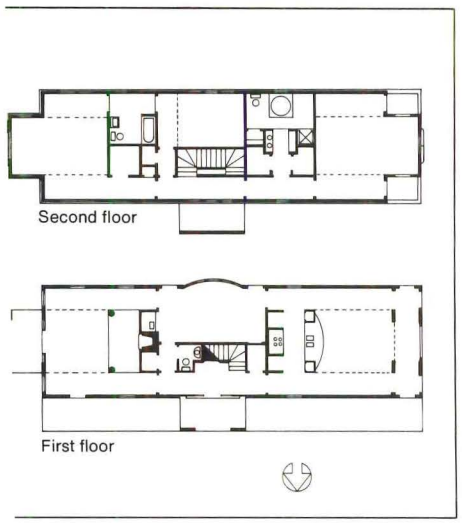
Sophisticated Miami Villa Amid Suburban Ramblers

The setting is a dead-level, wooded subdivision of 1960s ranch houses in south Miami. For some 20 years, a house much like the rest occupied the long, corner lot. It was a rambler exhibiting a cacophony of residential facing materials: stone, brick, and wood, with pieces of stucco here and there.

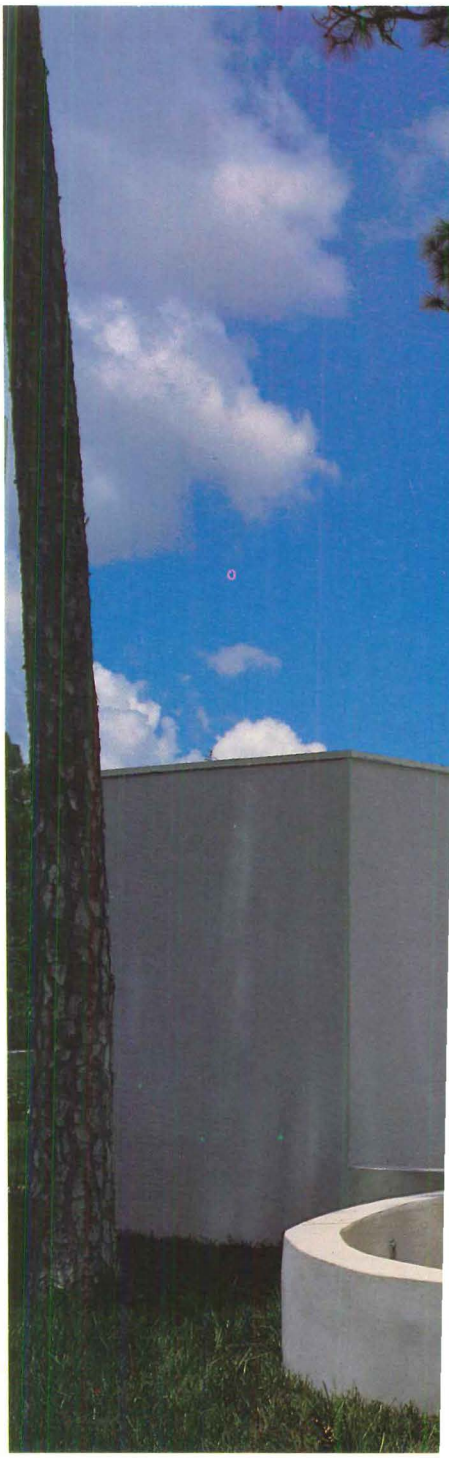
When a couple with a teenaged son bought the house, they sought remodeling advice from Aragon Associated Architects of nearby Coral Gables, a now defunct practice headed by John Ames Steffian, AIA (then chairman of architecture at the University of Miami), with Cameron Roberts and Armando Montero. After seeing the house ("really tacky," remarks Steffian), the architects convinced the owners to double their investment to about $300,000 by tearing down and building anew on the old foundations. The new, 2,700-square-foot, two-story, three-bedroom, stuccoed villa has a footprint two feet longer than its predecessor and about the same width; it uses some of the original concrete block walls.

The house is a hybrid. Masonry peripheral walls rise to a one-inch setback midway up the second level; above is wood frame. Virtually all of the second-story and roof loads, however, are carried on interior columns set along a central spine that runs the length of the plan. In section, the spine is topped by a peaked roof along which are set regularly spaced clerestories. This lends something of a basilican appearance, although Steffian denies that there were intentional historical references.

The symmetrical plan is driven by the linear structural bay, with corridors extending along the plan's edges. Steffian et al. placed the entrance at the center along the north elevation and flanked it with a pair of cores—master bathroom over kitchen



Opposite, the west elevation facing the swimming pool, with twin balconies off the master bedroom. Peaked pavilion and vine-covered fence in foreground provide privacy for pool. Below, the living room on east end of the house.



and second bath over fireplace. They put the main living spac
at the extremities, with the master bedroom above a family roo
on the west end opposite a second large bedroom above the l
ing room at the east end. Cathedral ceilings make the end be
rooms seem important; the small, square clerestories high in
north and south walls of the spine fill these rooms with soft d
light. And at night in views from the grounds, the little squa
of light punctuate the spine like lanterns.

The ground plan is ordered by two pavilions placed along
long, north elevation, with a third pavilion in a line with the
extending west. A vine-covered fence connecting the central a
western pavilions shields the swimming pool from the drivev
The landscaping, like the house, is sophisticated, controlled

The plans and photos on these pages show the house as
designed and built. It has since changed ownership and bee

Photographs © Martin Fine

›p left, the front, north-facing elevation with front door behind ›creen-like element. Bottom left, the east end, with garage tending right in photo. Above, the west side with pool.

›dified (by other hands) for people who require more space entertaining. Unfortunately, several changes diminish the clar- of the design, including a malproportioned, one-story exten- ›n centered on the south elevation; enclosure of the entrance eezeway element, which makes it read as a solid volume ruding on the relationship among the three pavilions; and ɔ addition of clumsy white gutters and downspouts.

There has been another significant change in the neighbor- od. A couple of blocks away a ranch house has been stuc- ed and set off by a peaked pavilion in front. It is a flattering, nost good imitation.—Allen Freeman

Cheerful, Intricately Knitted Student Housing

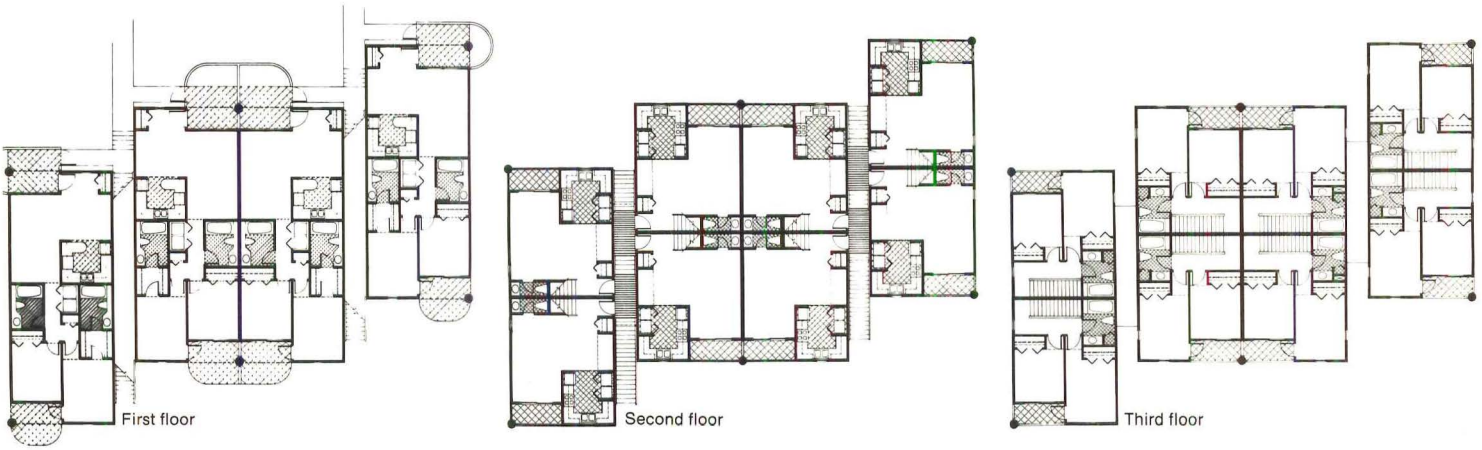
Johnson Peterson Holliday Architects, of Tallahassee, Fla., wanted to provide a refreshing alternative to the run-of-the-mill student housing at Florida State University. Student condominiums have become popular at the Tallahassee campus, but, as Ivan E. Johnson III, AIA, explains, most are predictable-looking Sea Ranch knockoffs. The architect, acting as developer, designed these units with an eye for fun in the sun.

The units first appear as three separate buildings, but they're actually connected by cleverly hidden stairways and slightly staggered. There are 12 units in all. The first level has four single-floor units, and the second level eight two-story units. This arrangement saves any resident from having to climb three stories. Each unit has two bedrooms and two baths and is just under 1,000 square feet. The second-level units have balconies accessible from living areas and all the bedrooms.

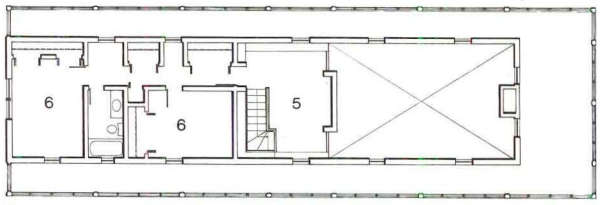
The gabled roofs lend a homey quality, while horizontal pine siding, trim, and open balcony rails reinforce the domestic scale. The concrete columns at the corners of the balconies are larger than they need to be structurally, but their girth is necessary to give the structure reassuring visual weight. (A 4x4, Johnson says, was sufficient but looked flimsy.) Painting the columns pink lightens them up a bit and, combined with the light gray siding and aqua railings and gable panels, completes the color palette that has come to be known as "Miami Vice" and synonymous with Florida architecture. The architect claims this wasn't the intent, but the choice of colors led to rumors, reported in the student newspaper, that Don Johnson actually owned one of the units. In any case, the private pool and patio is the perfect place to catch some rays with Crockett and Tubbs.

—Michael J. Crosb

Photographs by Bob Martin



'Cracker Vernacular' House With a Boat-like Plan



Second Floor

First Floor

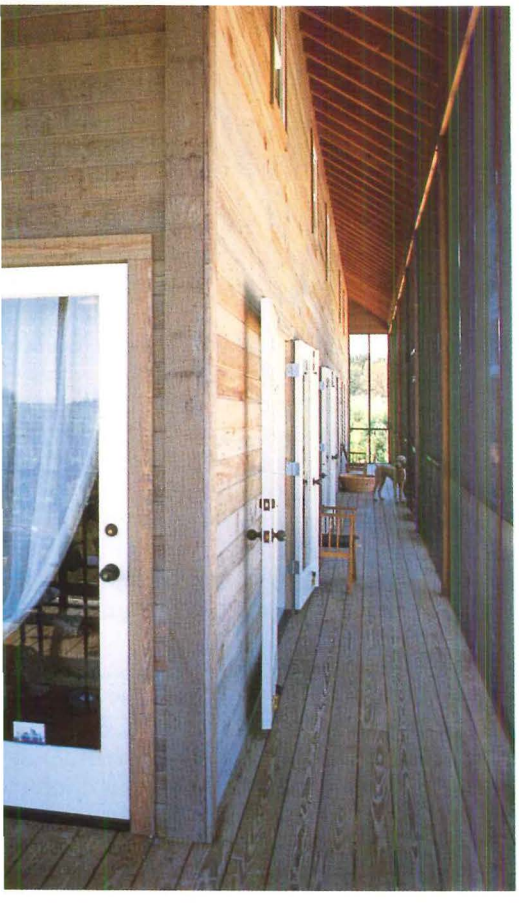
1 Living room
2 Dining room
3 Kitchen
4 Master bedroom
5 Library
6 Bedroom

This house for a retired New Jersey couple is located on Sanibel Island off the southwest coast of Florida. The couple wanted something rustic, and in this part of Florida rustic means cracker vernacular, a departure for Andres Duany, AIA, and Elizabeth Plater-Zyberk, AIA, who are better known for their classically inspired architecture. Duany explains that the beach house, being cracker, is in character for the architects, who are responding to the imagery of the local tradition. In the Miami-North Palm Beach axis, where Duany and his partner do most of their work, Mediterranean style is the "vernacular." Same design approach, different style.

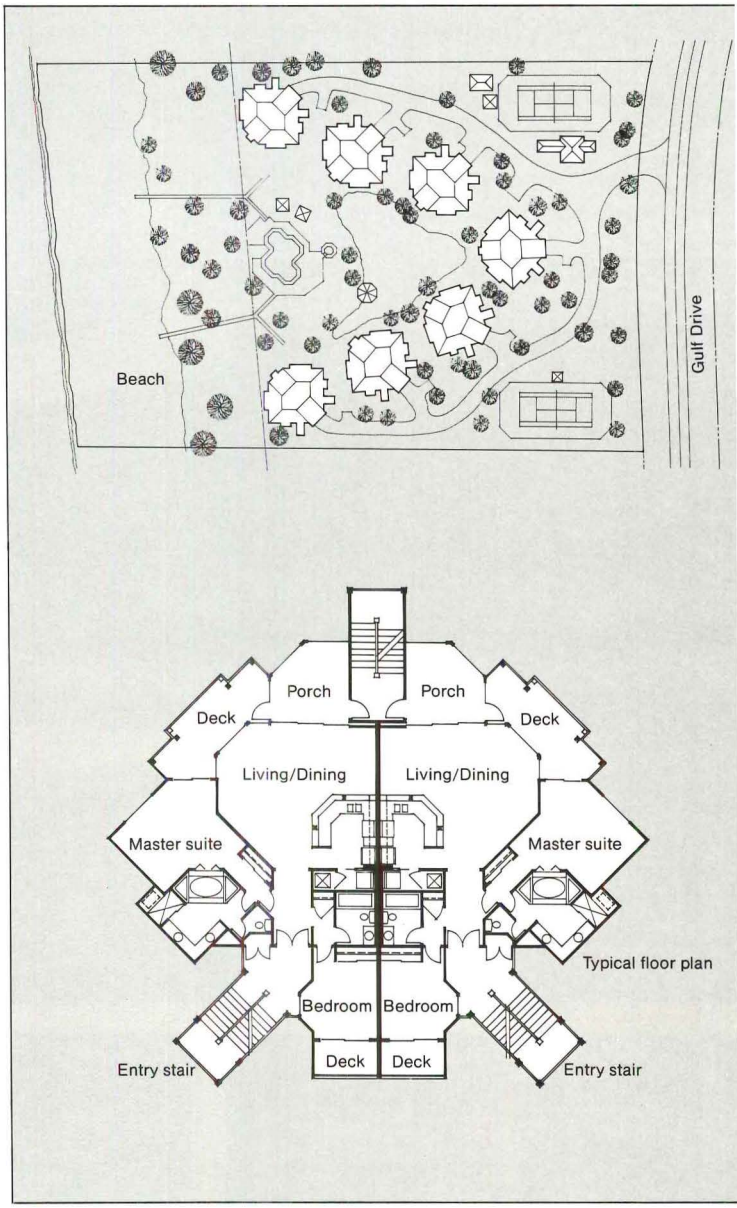
But this is no simple cracker box. It has simple materials, associated with the vernacular—such as post and beam construction, cedar siding, and a corrugated metal roof. And one enters the house from its long side, as many cracker houses are entered. But there the resemblance to its poor cousins ends. From a distance, this house looks like a little temple, a Maison Carrée by the sea, and in fact is approached from an oblique, classical angle. It is elevated for reasons of flood, affording parking beneath, hidden by latticework. Closer up, it becomes clear that the house isn't little, either—a long, thin building of more than 2,800 square feet.

In plan, the building is like a houseboat. The cedar-clad structure is completely surrounded by a deck, which in turn is wrapped by screening. The plan's proportions allow for efficient cross ventilation. The east side, the prow, has a double-height living and dining area. At the west end is a bedroom, with kitchen and baths in between. The second level has more bedrooms and a library that overlooks the living area.

—Michael J. Crosbi



Pleasantly Angular Resort Recalls Quieter Times



Right, the cottages borrow from the Florida clapboard vernacular, with tin roofs and large wraparound porches, above. The horseshoe arrangement maximizes views to the Gulf of Mexico.

In olden days the island of Sanibel on Florida's gulf coast was an idyllic setting where it wasn't difficult to find a cozy cottage near the water's edge. The addition of a causeway from the mainland in the '60s brought with it an unprecedented surge of growth and much development that had no connection to the island's heritage. However, that trend has changed since Sanibel adopted a growth management plan (see page 56) that ties new development more closely to the island's ecology and history. A fine example is Sanibel Cottages, designed by Joseph Barany, AIA, and Ronald Weaver, AIA, of Architectural Resources Corporation in Fort Myers, Fla.

Sanibel Cottages, a time-share resort, consists of seven buildings placed in a horseshoe arrangement, with the center of the horseshoe open to the gulf. Each cottage has two stories; two units are on each floor. The party wall symmetrically splits each floor's units beginning at the entrance stairwell. From there the two units unfold like a fan. Each unit has a kitchen and living/dining room along the party wall. The master suite is off the living/dining room; a second bedroom with bath and private deck completes the floor plan. This layout and the horseshoe arrangement are intended to maximize views to the gulf. Screened porches and open decks wrap the buildings.

Because Sanibel is subject to hurricanes and flooding, local codes require that buildings be raised 12 feet above grade. Barany and Weaver used this requirement to their advantage by placing all on-site parking underneath the cottages (with space for six autos per cottage). To visually soften the parking areas, all openings except the entrance are covered with latticework and are heavily landscaped. Located in the center of the horseshoe are a small retention pond, a pool and spa area, and a gazebo, which work to provide a foreground to longer views of the gulf beyond. From here two elevated walkways lead to the beach. Tucked into the site's east corners are two tennis courts, the office, and the maintenance building.

Overall, the style of the cottages—the tin roofs, clapboard siding, large wraparound porches—is meant to reflect the Florida resort vernacular. Also, according to the architects, the buildings are meant to be familiar and comfortable with weathered and faded finishes, fabrics, and furnishings. Without a doubt, Barany and Weaver graciously achieved one of their main goals—to create a self-contained environment with a strong sense of place, presence, identity, and fantasy.—Nora Richter Greer

Tent-like Nature Center For Observing Wildlife

The Chinsegut Nature Center, north of Brooksville, Fla., was designed as a refuge for nature lovers to view the wildlife of a 400-acre preserve without being seen themselves. Rand Soellner, AIA, of Soellner Associates, Casselberry, Fla., says that the Florida Department of General Services wanted a building sympathetic to the surroundings and suggested something on the order of a log cabin. Soellner found such a rustic image a bit too literal and instead designed a building more akin to a tent in the woods—with light earth-tone colors and a corner entrance like two open flaps.

The building is sited on the brow of a gentle hill, about 150 feet from visitor parking to shield the center from the noise of engines and slamming car doors. Two existing bird feeders determined the building's position, allowing the central meeting room to frame views to the north and west on a northwest-southeast axis, with restrooms and offices to the south and east.

The meeting room is glazed on the north and west sides with mirrored glass that, in effect, causes the center to disappear as it faces the woods and conceals the observers from the observed. Apparently, this camouflage works so well that birds occasionally attack their own reflections. At the entrance, marked by two quarter-round louvers, is an outdoor teaching area that is shielded from torrential summer rains. Here the roof structure of gang-nailed trusses is exposed and affords the sensation of standing beneath a canopy of tree limbs. The interior can be ventilated in warm weather with the use of screen doors.

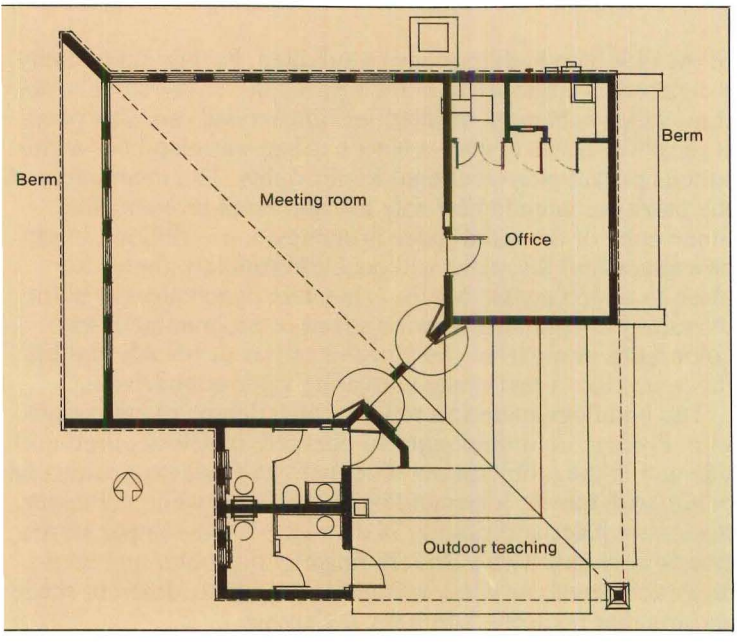
The center's base is of split-faced concrete block (which is exposed in the meeting room) with the upper portion clad in horizontal cedar siding. The cornice is trimmed with shades of maroon, similar, Soellner points out, to the clay soil found in the region.

The good earth is used for more than just esthetic purposes. The nature center is bermed on the west and east sides to make the building part of the site itself and to create what Soellner refers to as a "thermal flywheel effect" that helps save energy use. The west side is also shaded by an overhang, and the tinted glass is double-glazed, further cutting utility costs.—Michael J. Crosbie

© Soellner Associates Architecture

© George Cott

Left, view of nature center from the southwest, showing projected entry used as an open-air classroom and glazed observation at left in photo; right top, view from southeast of the building's 'prow'; right bottom, central meeting room with one-way mirrored glass.



Multiuse Complex Sensitively Incorporates Historic Gateway

© Steven Brooke

Coral Gables was the product of one of Florida's many entrepreneurial dreamers: George Merrick, whose family farm south of Miami became one of the first planned communities prompted by the City Beautiful movement in the region. Merrick envisioned his city as a Mediterranean-inspired enclave entered through eight ceremonial gateways, the most elaborate of which was Douglas Entrance, completed in 1927, which included shops, galleries, and apartments. In 1957 the entrance was closed as an artery, and an apartment building was raised that blocked a street linking Eighth Avenue, a busy commercial strip, with Ponce de Leon, a major street. A decade later the building, slated for demolition, was acquired by the local architecture firm of Spillis Candela & Partners, which moved there and got the building listed on the National Register.

Douglas Entrance is now the centerpiece of an office/retail/residential project designed by Spillis Candela. The first phase is now complete. The obstructive apartment building is gone and the vehicular link re-established. The new buildings create an open space just west of the Douglas Entrance gateway. Cupping this space to the west are a 12-story tower and a six-story building that wraps a parking garage. Yet to be built is another 12-story tower and, on an adjacent site to the southeast, a 250-room hotel and apartment complex.

The first phase is a sympathetic response to a historic piece of the city. The buildings have a subdued, background quality, which seems appropriate in their proximity to the older structure, which is being renovated for office/retail use. The plaza is sensibly scaled, neither a barren urban wasteland nor a gratuitous pocket plaza tendered for air rights. The inner edges of the plaza are intended for cafe use and retail promenading. Since none of the retail space is occupied, it is difficult to say how successful this plaza will be. Unfortunately, there's no place to sit and people-watch. A fountain punctuates the plaza, its water jets regulated by wind speed or programmed (with color lights at night) to the piped-in strains of Vivaldi that fill this space like a real estate marketing video soundtrack.

The buildings' materials reflect a high degree of craftsmanship. Precast, color-impregnated concrete panels are used outside and in the lobby spaces. The first two stories are rusticated ochre, with mortar joints and bull-nosed sills, while the upper stories are paler and simpler in detailing. On the upper stories, panels were cast with a smooth finish of one color and then recast to accentuate window frames in a slightly different shade and rougher texture.—Michael J. Crosbie

Above, complex from southwest, with old building at right; far right, above, detail of old building; far right, below, plaza from old building; right, complex with old building in foreground.

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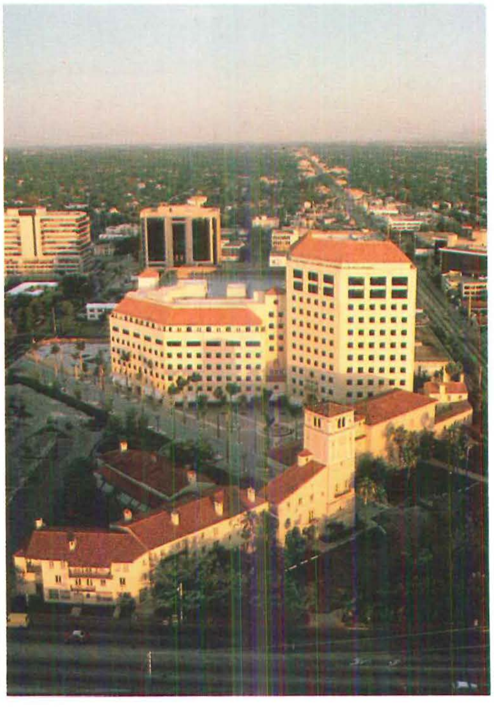
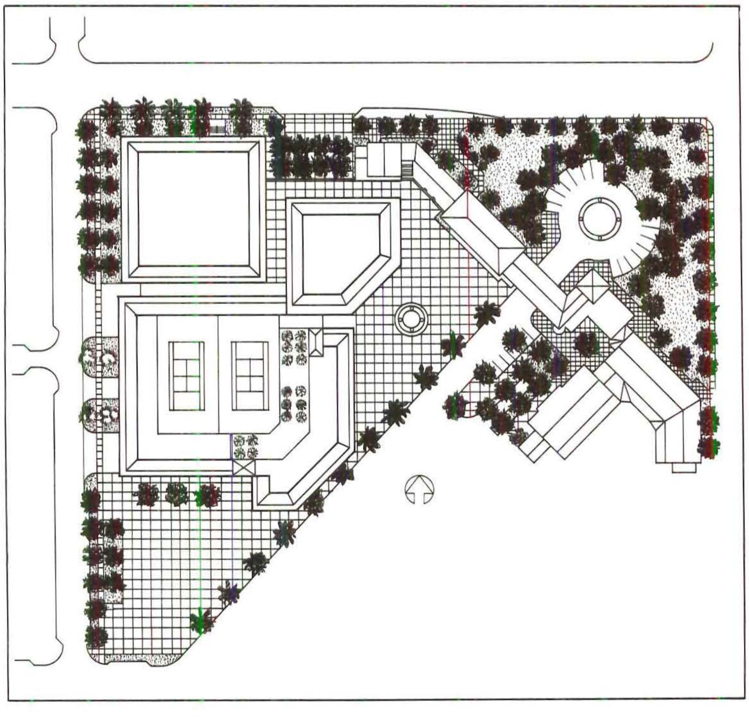
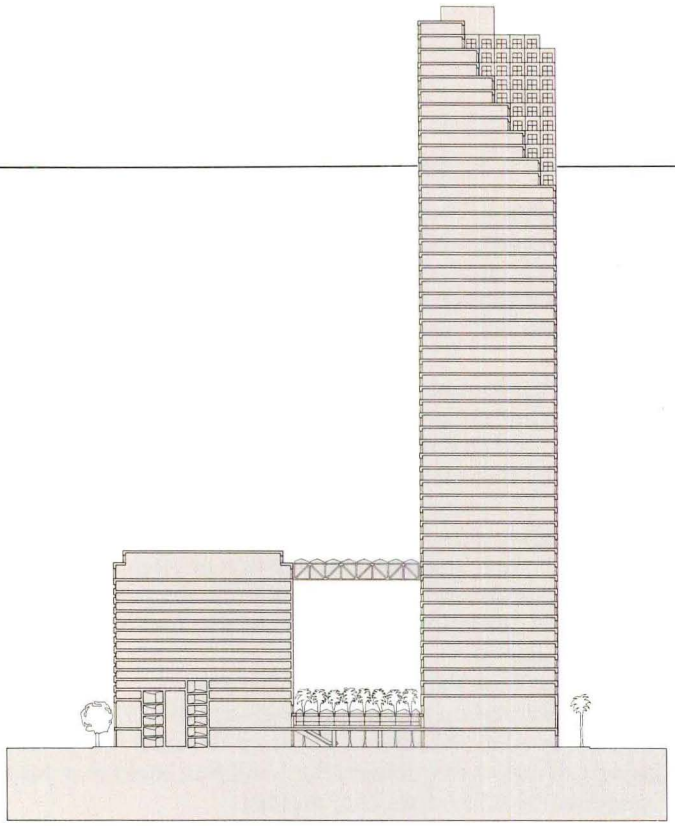
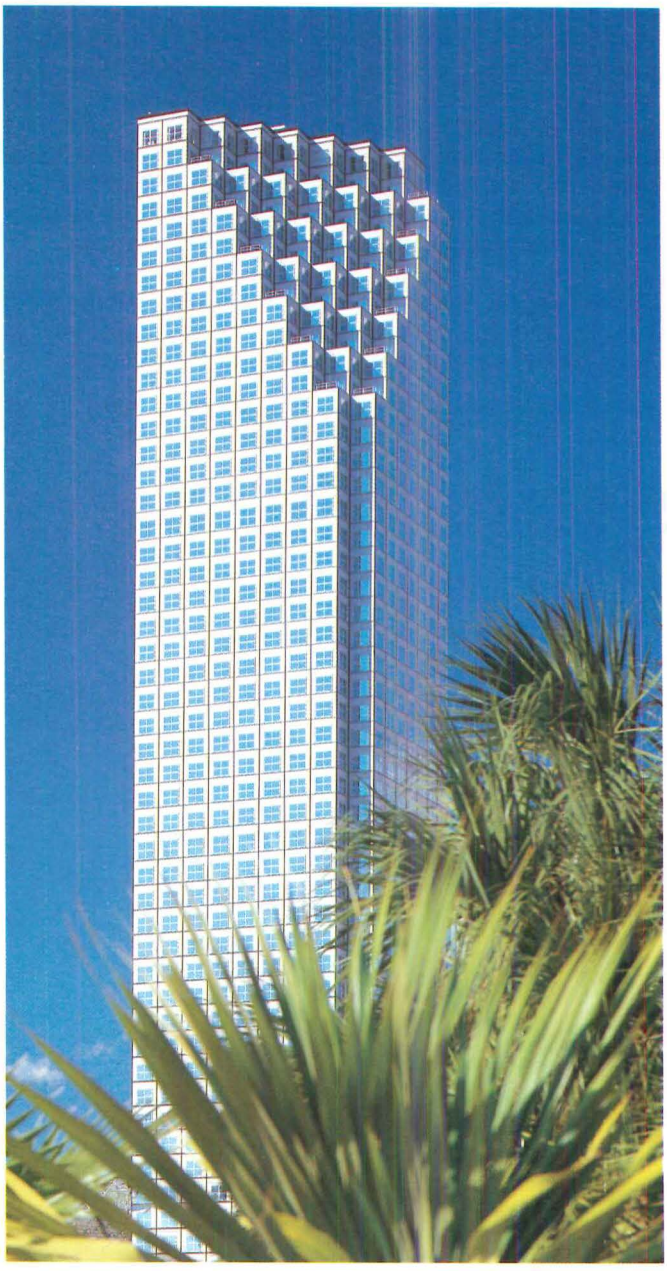


Forest Johnson



Distinctive New Presence On the Miami Skyline





Southeast Financial Center is a navigational beacon, a landmark visible from as far away as Fort Lauderdale or the coastal waters of the Bahamas. It is taller, at 55 stories, than any other building in the city; it is the tallest building, in fact, south of New York or Chicago and east of Houston. It shapes Miami's city skyline.

And yet, for its size it is a strangely evanescent building; day to day, it never seems to look quite the same.

At times, it is very pale, so pale that it seems almost to disappear. Its architect, Edward Charles Bassett, FAIA, once called it a "fugitive" building, an apt description. From certain angles at certain times of day, it seems almost ephemeral.

At other times it is powerful, a building with a commanding presence. Sometimes, when the sun dips behind clouds and makes the whole building a monochromatic gray, it seems solemn. More often, it is the converse of that: a sparkling and spirited building with the sunlight bouncing off thousands of pale silver mirrored windowpanes.

The building bears the name of Southeast First National Bank, but it was jointly developed by the bank, which occupies about half of the building's 1.2 million square feet, and Gerald D. Hines, the Houston-based developer who has gained a deserved national reputation as a patron of fine architecture. Both the bank and Hines agreed easily on the choice of architect. Bassett, who retired in 1984 from the San Francisco office of Skidmore, Owings & Merrill, has always shown a devotion to both classicism and modernism and an impassioned precision. Southeast Financial Center is no exception. It is elegantly detailed, right down to the doorknobs and elevator call buttons. Even the "Exit" signs and bank home mortgage disclosure signs bear the architect's imprint.

None of the tower's five sides is precisely the same as any other. The front, which looks out across Bayfront Park to Biscayne Bay, is sawtoothed, with the zig-zags stepping inward to form a pyramid at the top. It is that pyramid—purposely undersized a bit in proportion to the building—that gives Southeast Financial Center its distinctive profile.

The back of the building, the west-facing wall, is broad and flat but has a deep vertical incision at the center, making it look—at night or from a distance—like two extraordinarily slender towers, not one building. Both the deep "V" on the western wall and the roof are banded in polished black granite, a firm outline that emphasizes the tower's contour.

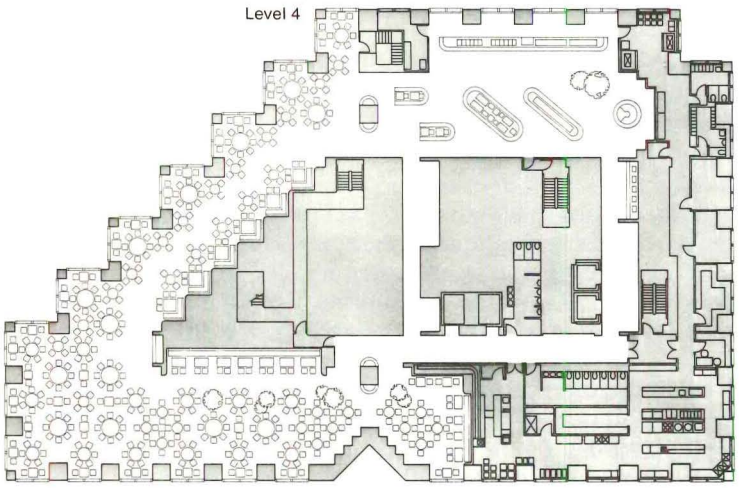
The whole building is clad in a rhythmic, repetitive pattern of Sardinian granite squares inset with glass windows. The squares are bounded in shiny black stone; the windows—which are not centered but set in at the bottom of the square—are cross-hatched in painted white aluminum. The pattern is crisp and fastidious, as if it were a menswear plaid from a fine haberdasher.

The granite is pale, almost white, speckled with gray and black and even pink—a stone with both richness and subtlety. But viewed from afar, it seems merely gray. In fact, the building's biggest disappointment is that such a rich and intricate granite is so subtle that it reads as concrete, not stone, at a distance.

The tower itself is just one element of the 2.4-acre Southeast Financial Center complex. An open plaza joins it to a 15-story parking garage, which houses shops at the ground level; a "banking hall" occupies the second and third floors. The banking hall idea was developed by Bassett in San Francisco's Bank of America building and refined here.

For Southeast, he designed a subdued and elegant banking hall with marble floors and gray leather furniture. A mezzanine

Two different faces of the complex: opposite page, from the west the elegantly detailed 15-story garage in the foreground; left, the tower's zig-zagged, sawtooth profile facing Biscayne Bay.



floor for what is known as "personal banking" is tucked behind the tellers, separated by oak louvered walls, an allusion to the airy "great houses" of the old south. The look here is one of restrained lushness; it has none of the old-fashioned opulence we often associate with banking halls, yet the message gets across anyway.

The rather formal plaza is, at once, grand and intimate. Rows of royal palms are arranged in a grid along the north and south entrances, and striking black metal benches and light standards, designed by Bassett's SOM colleague Richard Tobias, furnish the plaza. The plaza is covered with a plexiglass roof, 150 feet up, too high to serve any real function in Miami, where strong gusty winds carry tropical rains sideways as often as straight down. The roof does provide a visual link to tie the tower to the garage and it gives definition to the open space, making it more like a room and less like a park.

Southeast First National Bank's chariman emeritus, Harry Hood Bassett (no relation to the building's architect), is married to the renowned architect and furniture designer, Florence Knoll Bassett. Under her tutelage, the bank has became a corporate connoisseur of fine furniture and art.

For its new headquarters, three major works of art were chosen. A kinetic wind sculpture, "The Grand Cascade" by Michio Ihara, extends 85 feet along a wall in the banking hall—1,400 gold-plated "weathervanes" attached to a steel frame. A brilliant-hued, predominantly red and purple Aubusson tapestry, one of the "Color Sound" series by Parisian Karl Gerstner, hangs in the otherwise stark foyer of the tower, a cavernous, three-story space. And a wonderful, movable brass disc by Tony (Bernard) Rosenthal is set into the floor of the second-level elevator lobby where passersby can slowly spin it.—Beth Dunlop

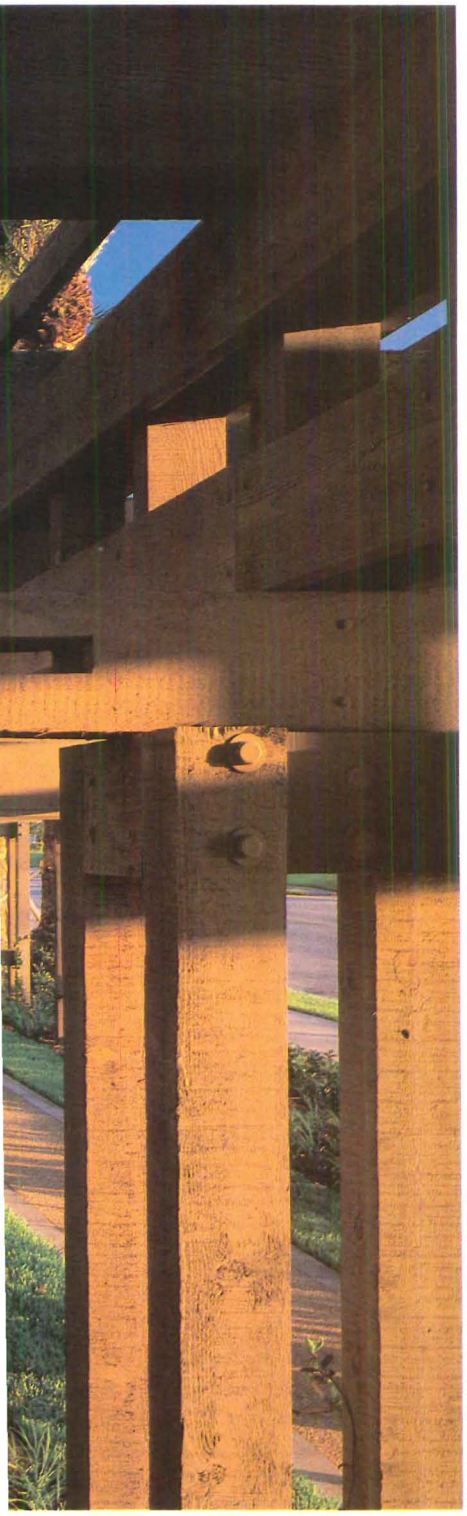
Below left, the tower's second floor elevator lobby; below, the banking hall. Right, the formal yet friendly plaza with rows of royal palms connects the parking garage and tower.

Media Center: 'A Beautifully Detailed and Crafted Object'

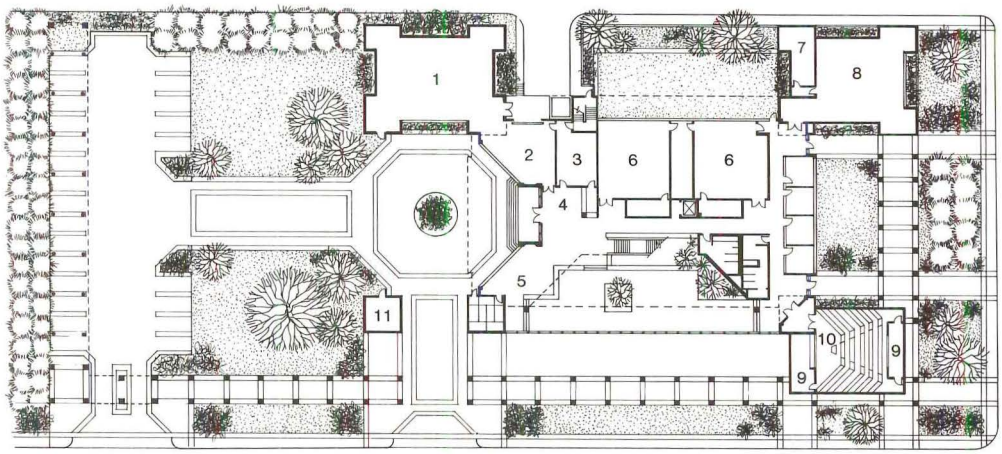
Jung/Brannen Associates of Boston has created a minor masterpiece on Bayboro Harbor in St. Petersburg, Fla. Its design for the Poynter Institute for Media Studies excels in two ways: as a clear, unencumbered solution to the institute's functional needs, and as a beautifully detailed and crafted object of mahogany, marble, and natural stone.

First, the functional requirements. Robert Haiman, the institute's president, says that he wanted a building that would elevate the spirits and labors of those who use the building—from the most distinguished scholars and Pulitzer-decorated journalists to the grade school kids who go there to acquaint themselves with news media. Haiman wanted the building to be "memorable, something new and yet timeless, certainly not trendy." He also wanted something that would last a century o so and he didn't want plastic.

When people go to the institute they spend most of their tin in conferences and seminars, usually conducted by the half-doze or so institute faculty. There was a need for varied spaces whe large and small groups could meet. To these ends, the buildin is diagrammatic in its design, easy to understand by the first-time user. A large, 50-foot-high, sun-filled hall at the building' center, open on its east side, orients the visitor. It is surround by seminar rooms, an auditorium, a graphics lab, and faculty offices, distributed in hip-roofed corner pavilions with deep ov hangs that snuggle up to the central pavilion. The seminar room about eight in all, of various sizes, are a delight to be in, appoint



1 Publication storage
2 Shipping/receiving
3 Mail room
4 Reception
5 Waiting area
6 Seminar room
7 Darkroom
8 Graphics lab
9 Projection room
10 Amphitheatre
11 Storage



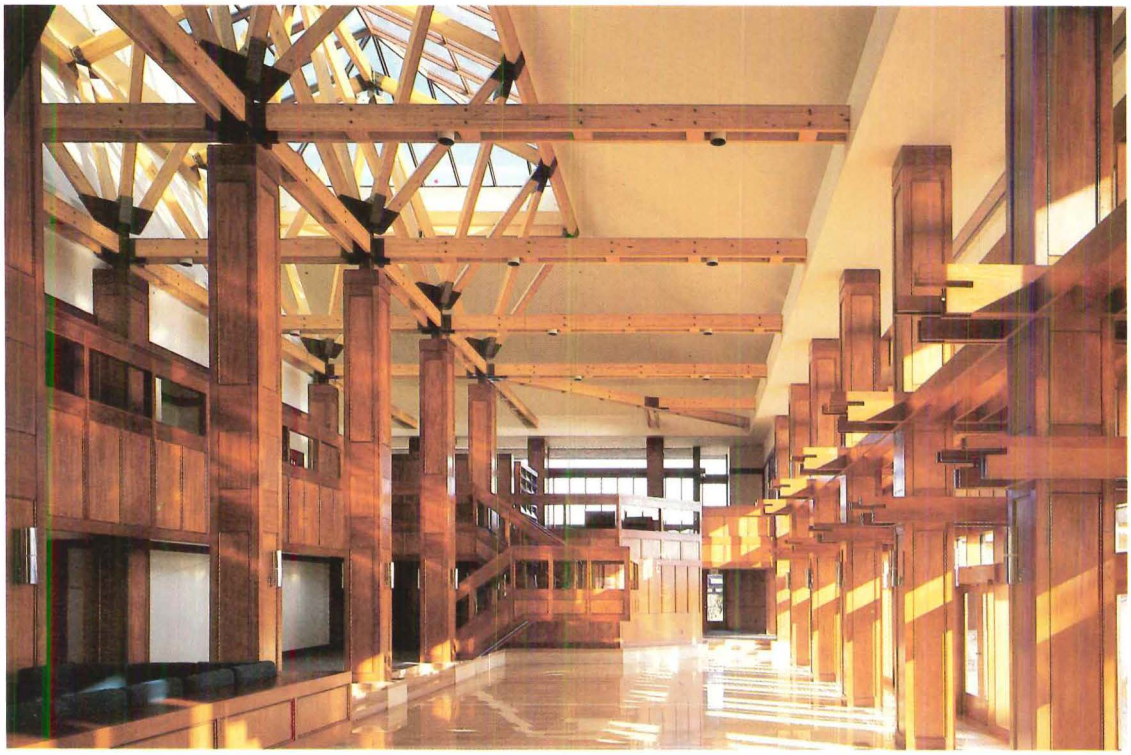
Photographs © Steven Brooke

›ove left, reflecting pool accessible from the main hall, with dar-trellised walkway at right. Tiled, hip roofs are regional flavor. Above right, east view showing pavilion forms and ·rtal to entry court in pavilion farthest left in photo.

th the same fine materials as the public spaces and outfitted th built-in furniture. All the seminar rooms have views out to ıdscaped gardens—they are virtually outdoor rooms. A few ve physical connection, allowing seminarians to converse under ·edar gazebo, on the grass, or beside a reflecting pool on the st side. Having used the building for about a year, Haiman ›orts that it exceeds the staff's expectations of day-to-day ·commodation.

But if the Poynter Institute itself ceased to exist tomorrow, we would be left with a vessel of architecture that honors the discipline's most rudimentary definition as "the art of building." Its materials are rendered with great care: red, tan, and white Italian marble and travertine designed in patterns that reiterate the structural frame; native keystone cut from a long-dead reef that bears the prehistoric, fossilized traces of what Haiman refers to as "our earliest Floridians"; book-matched Honduran mahogany, whose hand-rubbed finish is deep and rich and velvet to the touch; a sculptural truss of laminated Alabama pine that supports the main hall's skylit roof and acts as a great diffusing lantern.

Even the exterior painting, which might at first be mistaken



Above, main hall with centr
stair in distance. Mahogany o
riggers at right in photo are
rendered in cedar as they pa
through east wall and hove
over reflecting pool, right. Le
mezzanine from library, nort

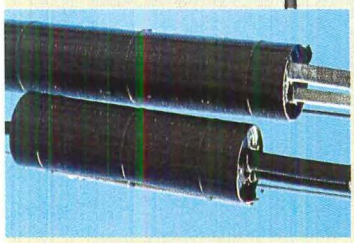
for inlaid stone, has the sureness of line, weight, and color that distinguishes the work of true craftsmen.

In its woodwork, especially, the building has the presence of a large piece of fine furniture. In fact, nearly 60 master woodworkers, some from as far away as Indiana, heard about the project on their grapevine and showed up for work. The best of them built the central staircase, which took four months.

Haiman says that one of his fellow academic administrators, wanting a building of this caliber for his own school, was daunted when he learned of the $200-per-square-foot price tag. But 100 years from now, when one can still enjoy the wood's glow and the stone's polish, that won't seem like very much.

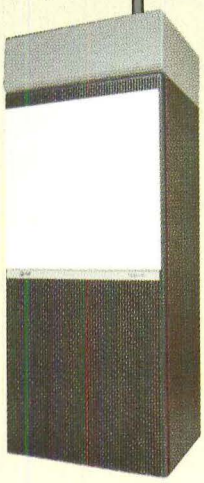
—Michael J. Crosbie

INTRODUCING THE CROSS-CONNECT SYS STANDARDIZATION



Flexibility is a key issue in voice and data communications.

And the central issue in cross-connect systems. Whether you're retrofitting or building new, the system has to cope with present requirements, and whatever might come along.



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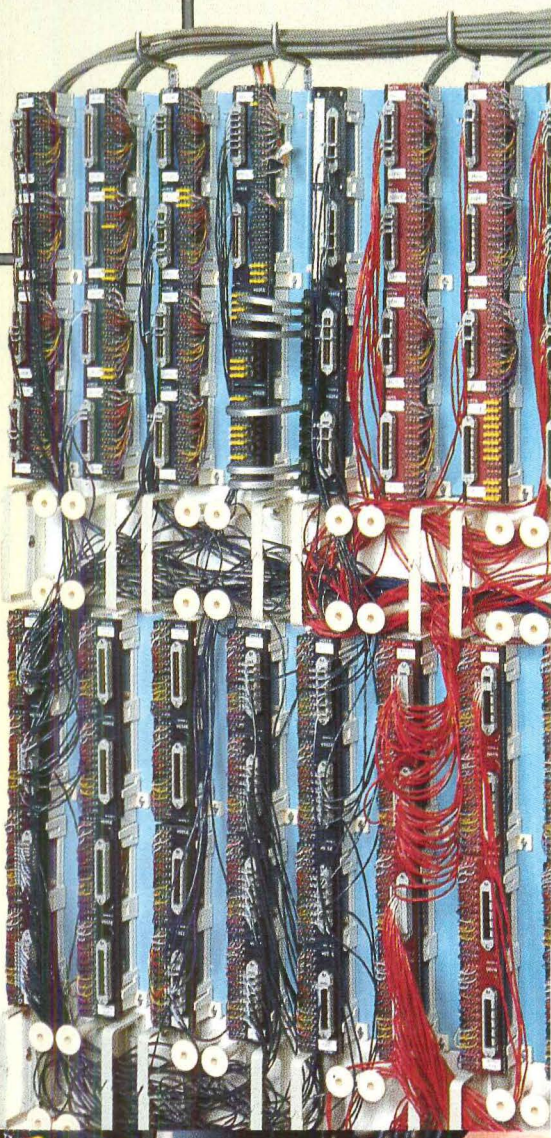
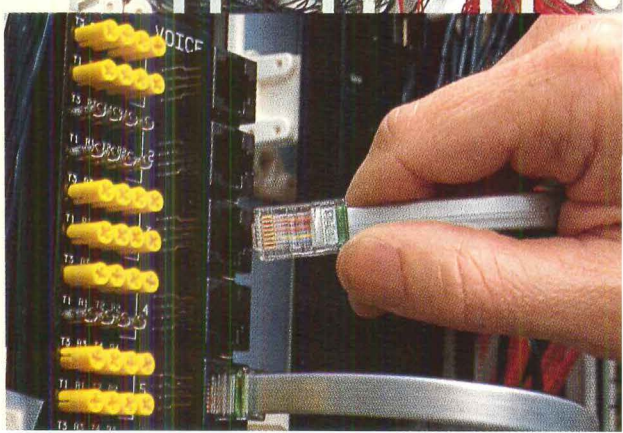




Flexibility by Design

It is more than a matter of engineering or 'widgets.'
By Bea Sennewald, AIA

Flexibility. It's a buzzword on a pedestal with motherhood and apple pie. But what does it mean? Many of the buildings designed in the name of flexibility are blocky, boring, and—when put to the test—actually quite inflexible because of missing spare parts, incompatible systems, or just plain bad planning.

The pace of change in buildings is accelerating. Leases are becoming shorter, programs change quickly, and constant remodeling is the order of the day. Corporations used to have 10- or 15-year plans for their facilities. Today master plans are crumbling under mergers, restructurings, acquisitions, and divestitures.

Corporate facilities managers now plan barely a year ahead, and the largest companies estimate their moves and changes at 35 percent per year. Does this mean that the average building, which may take two years to design and construct, will be 50 percent obsolete by the time it is built? Are we approaching the day when we will be stuck forever reworking schematic designs, in a kind of architectural gridlock, because we can't catch up with building programs that change faster than they can be drawn?

This may sound farfetched, but it is not absurd. I know of a manufacturing plant for computer chips that, since going into construction, has been redesigned twice to bring the manufacturing processes up to date—and this building is still two years away from completion.

Nor is it only corporate America that is affected. Tampa (Fla.) General Hospital spent $2.5 million on remodeling in 1986. University of Virginia maintains an in-house design staff of 40 architects and engineers, mostly for facility changes. According to government statistics, twice as much money was spent on renovations last year as on new construction.

Flexibility is the architect's answer to this quickening change. Everyone loves it. No one is against it. Without fail, flexibility occupies two or three slides in every architectural presentation. No article is written without at least a mention. Architects would no sooner admit to designing inflexible buildings than they would admit to murdering concrete subcontractors.

So what is a flexible building? One answer would be a very inexpensive structure that can be amortized in just a few years—in essence a disposable building. Build something very cheaply and it can be discarded rather than renovated.

But history shows this approach doesn't work. Buildings don't politely disappear when their time is up. Look at the thousands of quonset huts built during World War II. For each one that has been replaced there are hundreds still in use today around the country. Rustic and often rusty, these buildings continue to be indispensable because the institutions that own them are ironically short of space and can't afford to replace them. If one takes this lesson to heart, it does not make sense to design buildings according to an amortization schedule.

Another widely accepted concept of flexibility involves the open-plan office introduced by European architects some 30 years ago. For many design professionals, flexibility is synonymous with the building products that came on the heels of the open-plan office: systems furniture, movable partitions, and services access (trench floors, raised access flooring, and under-carpet wiring, for example).

When European architects developed the open-office idea in the '50s, the standard commercial design consisted of private offices for executives and professionals and open bull pens for everyone else. The big innovation of these designers was that they literally turned walls into furniture. They reasoned that the open plan would foster more interaction between workers, promote open-door policies, and adapt easily to changing space needs.

Architects and interior designers in the U.S. adopted the open plan with such enthusiasm that it soon became space-planning gospel. By the early '70s, open planning was used as universally as closed offices had been 20 years earlier.

Lately there has been a swing back toward a mix of open and closed office spaces as companies have become more sophisticated at deciphering their needs. As it turned out, organizations felt the fundamental need to express their hierarchical structures. In other words, the bosses were clamoring for corner offices.

Clearly, the open-plan concept is still widely used and has many merits. But its claims on flexibility can certainly be challenged. The early marketers of demountable furniture could not talk enough about flexibility. They brought in mock-ups and demonstrated how easily the pieces came apart and how they were interchangeable. They envisioned that the office worker of the future would be able to change his or her work station by simply going down to the storeroom and picking up another drawer or work surface.

It never happened this way. Most companies didn't warehouse the parts. Nor did the systems dealers. Facilities managers who inherited the job of making flexible furniture work tell of myriad problems: products are discontinued, the same company's new products are not compatible with its older lines, and the systems are now so complicated that they cannot be relocated by in-house staff using simple tools.

To make changes, specialty contractors and electricians have to be hired and parts ordered weeks in advance. Many managers point out that it is often cheaper and easier to demolish and rebuild a stud wall than to move a demountable partition. "I'd sooner move a whole floor of drywall than have to deal with demountable partitions. Each time you move one of those it takes three weeks and you lose at least 20 percent of the panels," says one IBM manager at a suburban Washington, D.C., facility.

It is interesting to note that museums, which change their partition layout almost as often as they change exhibits, shy away from movable partition types for the same reasons. Stud walls are easier to rebuild and, in the end, *more* flexible because they have no visible seams and can adapt to curved arrangements.

Raised access flooring is another product that did not quite

work as intended. Here the goal was to create a horizontal space where wiring could be run in any direction without the interference of beams, slabs, or metal decks. Changing the wiring is supposed to be as easy as removing one cable and installing another. In practice, however, the old cable is usually just disconnected, not removed. After about five years the space under the raised floor is absolutely solid with a spaghetti tangle of wires. As with furniture and wall systems, there is often a mismatch between the designer's intent and the owner's use of the product.

When building owners use their "flexible" systems merely to hide the mess of makeshift change, it is hardly flexibility in action. But is it the designer's responsibility to see that the design is used as intended? To most architects, who are used to closing out their projects after the final punch list, this may seem to be an impertinent question; but some firms would answer with a resounding "yes."

Under the name of "space management" some architects have begun to offer guidance to facilities staff on how to maintain flexible systems and how to change them in ways consistent with the concepts of the original design. The focus of such an approach is on long-term planning, beyond the completion of construction. Usually the architecture or space planning firm offers a computerized data base as part of its services.

The cost of flexibility

By definition, flexibility makes it possible to defer decisions on specifics. By definition, it also has a price tag. Computer manufacturer Hewlett Packard is well aware of these costs: the company has spent years developing flexibility parameters for its buildings. With assistance from the firm Ehrlich-Rominger, Hewlett Packard has identified the costs associated with creating flexible buildings (see below).

Changing technology is probably a larger factor in the computer industry than anywhere else, but even Hewlett Packard cannot justify incorporating all the features listed below into their buildings. According to Douglas White of Ehrlich-Rominger, about 30 to 50 percent of the features are used in a typical building.

Structure	Cost
15 ft. floor-to-floor	Struct. cost base
Add 5 ft. to floor-to-floor height	Struct. cost + 10%
Add 10 ft. to floor-to-floor height	Struct. cost + 15%
40x25-ft. bay	Struct. cost base
30x30-ft. bay	Struct. cost + 3%
36x36-ft. bay	Struct. cost + 6%
HVAC	
15% to 20% upsize of ducts/coils above initial requirements	HVAC cost + 10%
Chilled water loop for future computer rooms	HVAC cost + 2%
Variable speed drives (larger than 15 HP)	HVAC cost + 15%
DDC expandable control system	Control system + 10-15%
Plumbing and fire protection	
Floor drain grid	Plumbing cost + .1%
Re-circulating hot water	Plumbing cost + 2-5%
Stub-outs (H.W., C.W., and waste)	Plumbing cost + .2%
Upsize of sprinkler mains	Fire protection cost + 2%
Electrical	
25% power reserve	Electrical cost + 10-25%

Engineering flexibility

If one reverses the question of flexibility to read, "What are th major problems in remodeling existing buildings?" it becomes apparent that architectural issues take a back seat to engineering concerns. As much as we may argue the benefits of movable walls, integrated ceilings, and cellular floors, the real limits to flexibility usually are found in the size of the air handling units, in cooling capacity, or in power distribution. Unlike walls, these systems are not easily changed and, at first glance, appear to fall into the domain of the consulting engineer. But on closer examination, they are too important to be divorced from the architecture of the building.

The technological innovations of the last 20 years have some thing in common: they consume unforeseen amounts of electrical power and generate more heat loads than anyone anticipated. They also affect just about every building type from schools to hospitals, and from laboratories to manufacturing plants. Unless building systems can be designed to meet future utility demands, architectural flexibility means very little. The discussion of spare mechanical and electrical capability strikes at the heart of flexibility and is often the topic of heated debate among architects, engineers, and clients.

Since the days of the 1973 energy crisis, it has become customary to analyze a building's life-cycle cost. Operational costs including the expense of fuels, are projected over a five- to 20-year time span, and engineering recommendations are based on the long-term cost rather than the immediate construction cost. The projections used for growth in equipment and associated power and cooling needs traditionally have been too low.

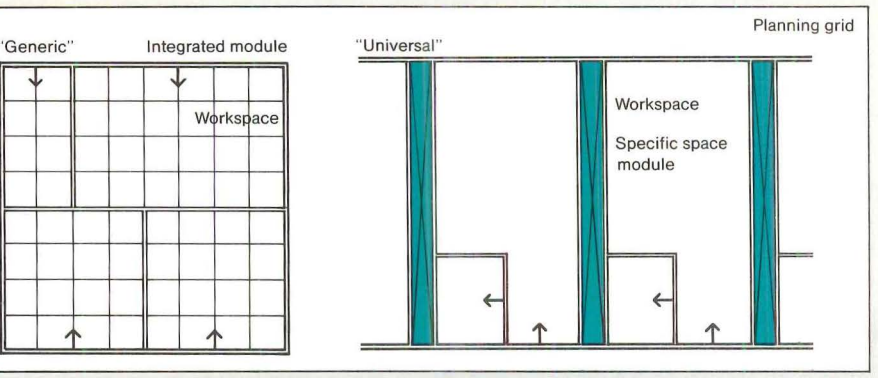
The resulting dilemma is familiar to every architect who has tried remodeling: additional rooftop units and transformers appear like pimples on the building, ceilings have to be dropped for new piping and ductwork, and fortunes get spent without much visible effect.

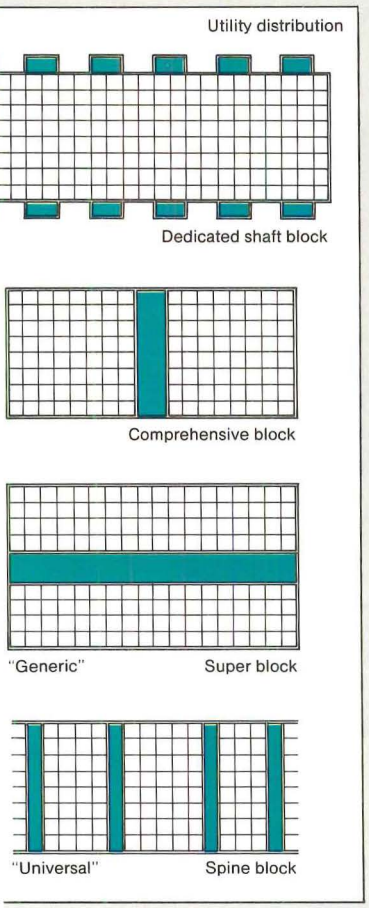
In a flexible building it should be easy to find additional mechanical and electrical capacity when needed. To be sure, is difficult to decide how much future power and cooling to pla for. One owner may peg the spare power requirement at 10 pe cent, another at 50 percent. But at any rate, this discussion should be as much part of the schematic design as a review of the building's exterior.

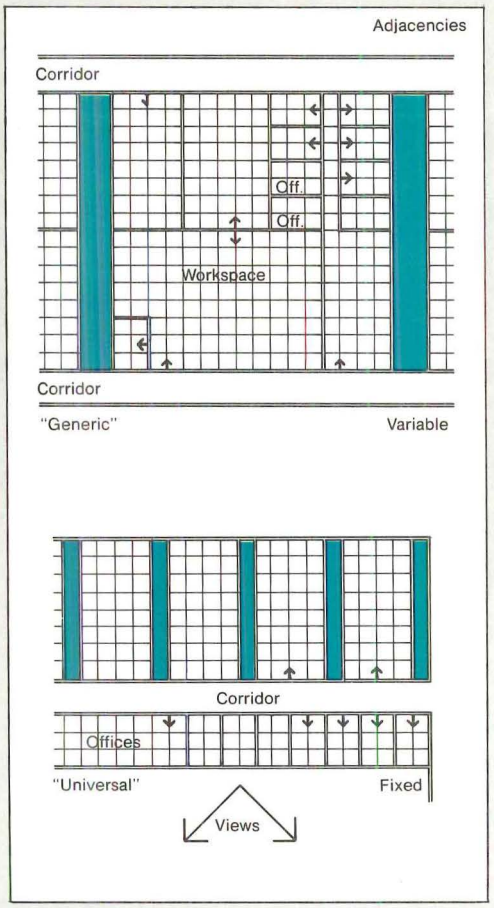
Client funding structures will influence their decisions. Man owners are reluctant to spend extra money up front. "Regardless of how much we spend now," the argument goes, "we will need to spend more later." They prefer to defer the cost of add tional equipment to when it can be purchased through operations and maintenance money and not construction funds.

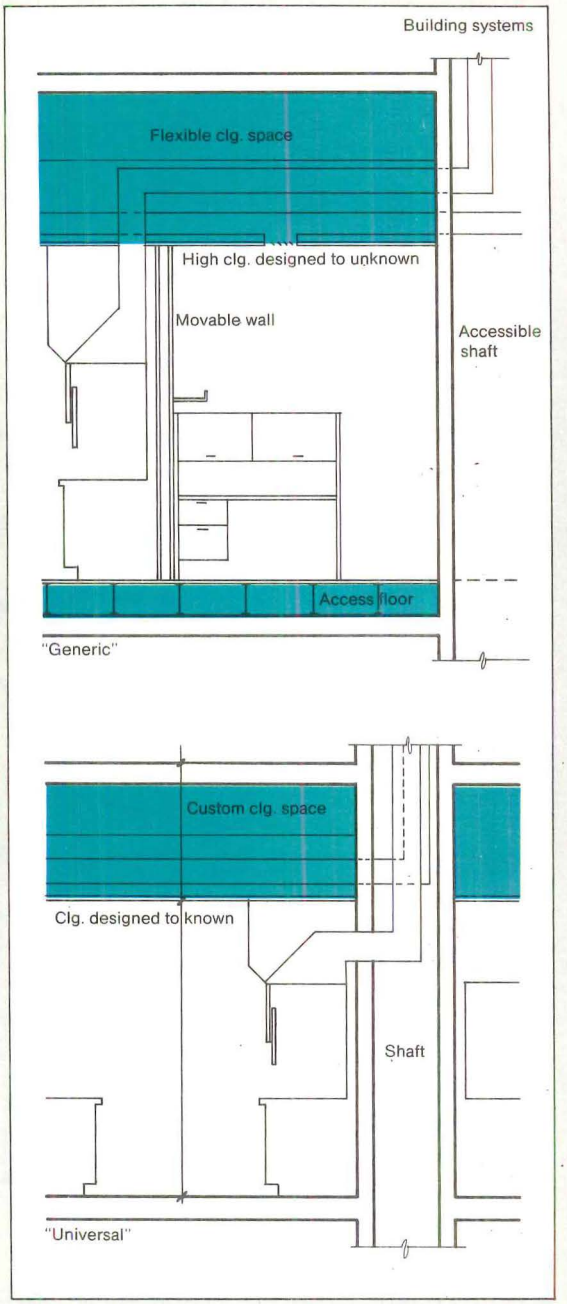
This position is certainly legitimate, and it relieves the desig team of having to guess at future demand. But the building design then needs at least to make it possible to add more chillers, air handling units, or switch gear at a later date without despoiling appearance or hindering occupants.

The task becomes one of judiciously allocating *empty* spac in mechanical rooms, electrical rooms, communications closets, and shafts. Although sensible, this is actually very difficu to do. First there is the battle with the construction manager, tl developer, or the budget committee over "wasting" space. The there is another battle with the design team itself to actuall keep the empty space empty. Somehow piping, ductwork, co duits, and water fountains have a way of taking over any blan spots in construction documents.









or J. Cardona, AIA, and Andrew A. Vazzano, AIA, of h, Hinchman & Grylls Associates Inc. have prepared a parison of two concepts of flexibility, which they term eric" and "universal." Generic flexibility entails adapting the cal environment to changing technologies, while universal ility means developing a prototypical environment to mmodate a range of technologies.

e thesis behind Cardona's and Vazzano's analysis is that the critical decisions made in the planning of corporate facili- ccur in the initial design phases of the project, and choos- n appropriate approach to flexibility in terms of planning gurations, distribution of utilities, space adjacencies, build- stems, and initial and life-cycle costs fosters decision ng. Additionally, the architects contend that addressing an ach to flexibility helps answer the most common concerns ilding owners:

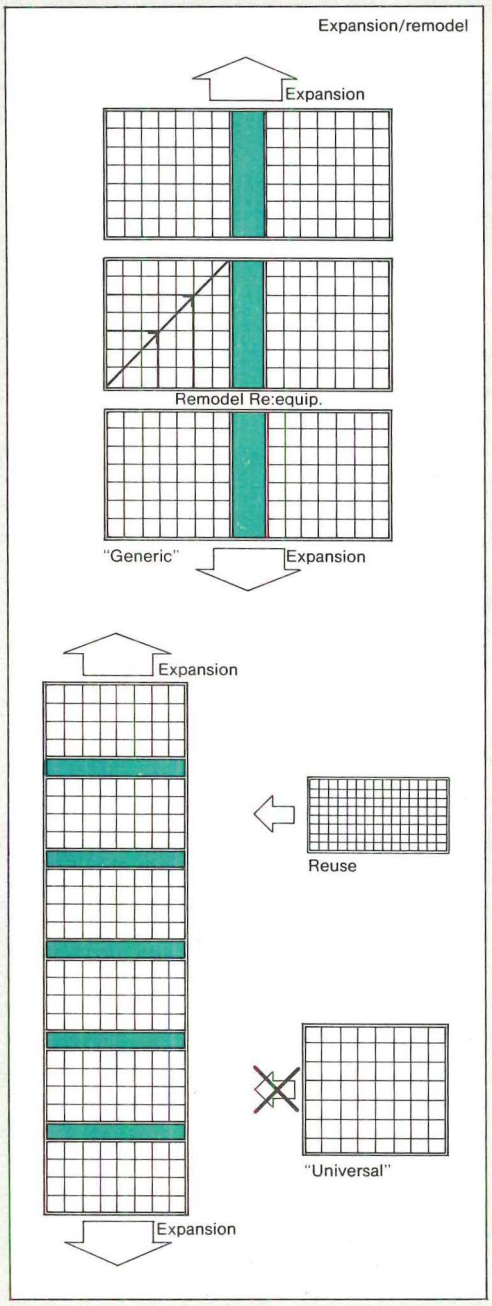
- modular planning an asset or an unmanageable constraint?
- /hat level of flexibility is necessary?
- oes the ease of change promote more frequent requests for ge?
- oes systems flexibility imply more sophisticated utility onents?
- /hat provisions can be designed to accommodate rapidly ging communications technology?
- ould buildings adapt to users, or users adapt to buildings?
- oes flexibility promote facility versatility or disorganization?
- esides providing unused lounges, what else can we do to promote interaction among those who occupy the building?
- Should computer access flooring be incorporated throughout the facility?
- What cost premium for flexibility is justifiable?
- Should expansion provisions be built into the initial construction phase?

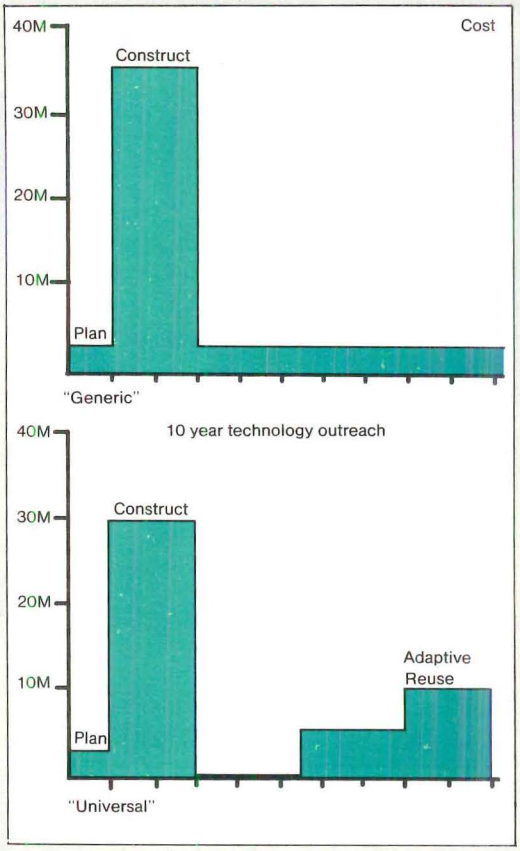
The accompanying drawings illustrate the basic differences between generic flexibility and universal flexibility.

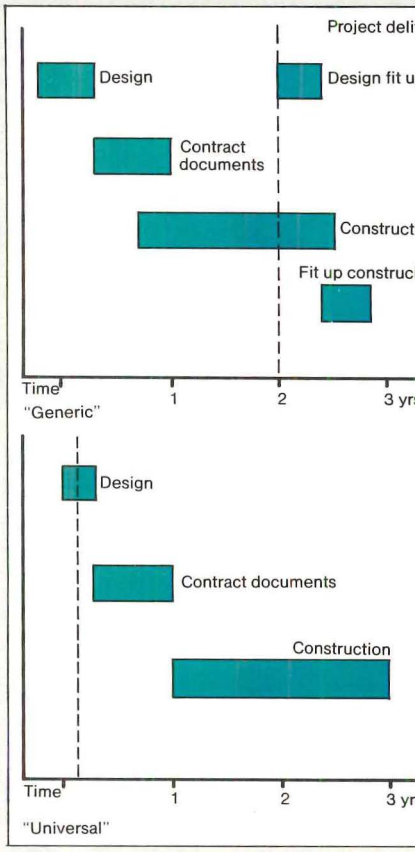
Planning grid. *Generic: Dimensional grid is absolutely required; planning levels include component (5-foot grid); space module (10x20-foot, 8-person module); integrated block module (50x50-foot, 40x140-foot). Universal: Optional dimensional grid; planning levels include building element components (luminaire size); space module (specific size for each space); block module (specific by space types, offices, labs, etc.)*

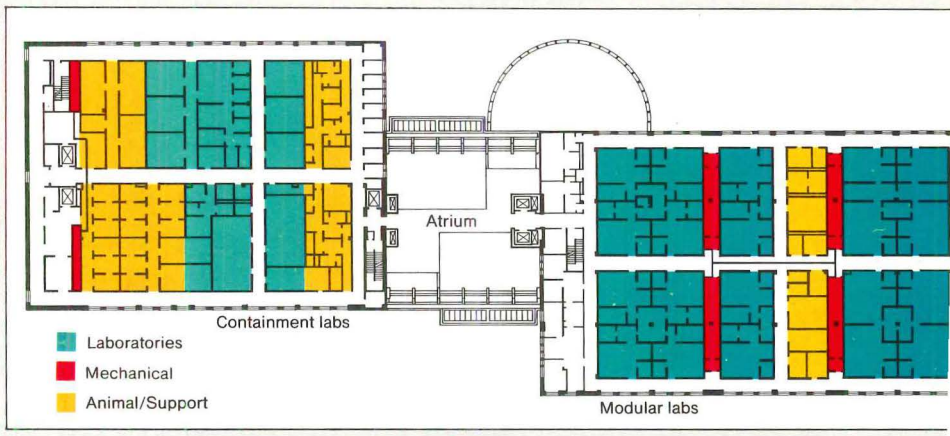
Utility distribution. *Generic: Ease of physical change is imperative; must accommodate additional substitution of services, change of usage, location accessibility, and organization. Universal: Change of use of services must be convenient and comprehensive.*

Adjacencies/people interaction. *Generic: Circulation is planned, organized, and variable; major circulation is fixed, intraspace circulation is variable and flexible. Adjacencies are variable. Interaction takes an impromptu approach. Universal: Both major circulation and intraspace circulation is fixed. Adjacencies are*









fixed and often optimized with regard to views, etc. Interaction is strategically planned.

Building systems. *Generic: Components are systemized for flexibility and adaptability. Component selection is an integrated choice with more comprehensive performance requirements. Universal: Components are selection-specific to optimize exact application to need. Component selection is an individual choice to meet more exact performance requirements.*

Expansion/remodeling. *Generic: Involves systematic expansion of the initial planning level, and incremental remodeling and re-equipping. Universal: Involves duplicate expansion of specific physical configuration, and eventual adaptive reuse.*

Cost. *Generic: Based on first cost and life-cycle cost, and has an impact on higher building volume. Involves a lower density of utility distribution system. Cost for flexibility is treated as an initial project cost. Universal: Based on first cost and life-cycle cost, and has an impact on lower building volume. Involves a higher density of a utility distribution system. Cost for flexibility is deferred to an operational cost.*

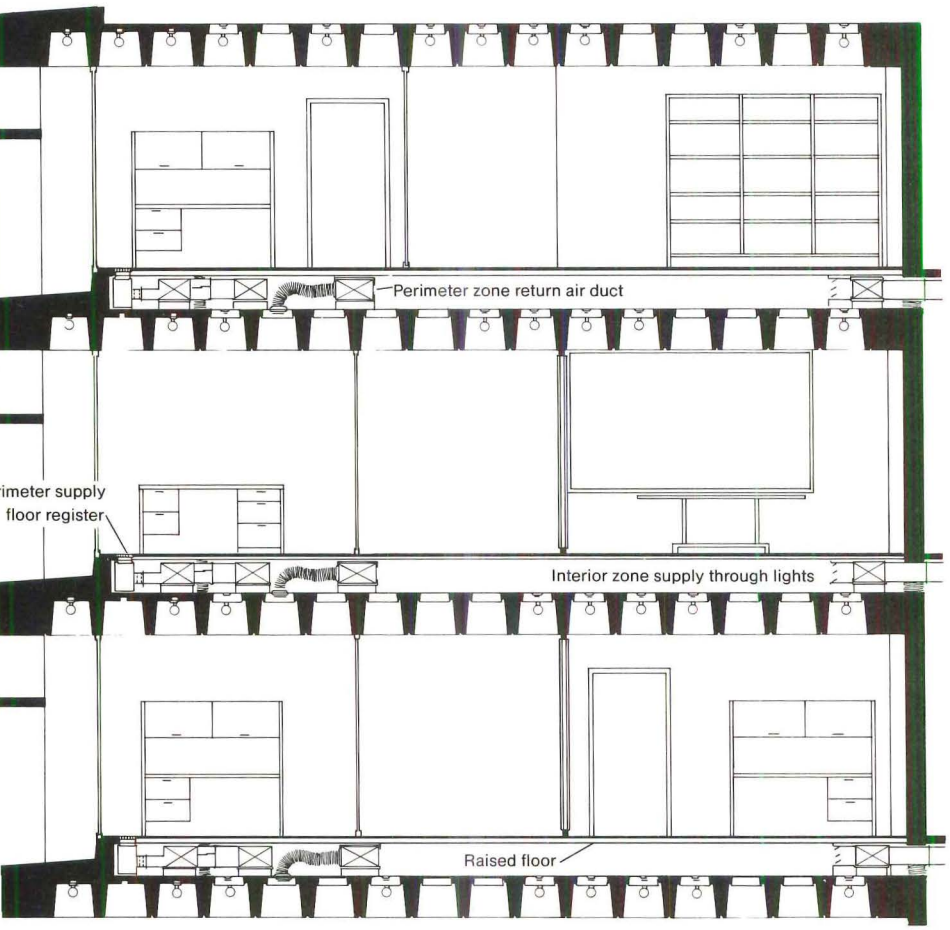
Project delivery. *Generic: Focuses on phased design and construction and attempts to incorporate the latest technology. Core and shell followed by fit-up during construction. Scope is specific, and criteria less defined. Universal: Focuses on total initial design and construction, and anticipates future tec nology. Considers planned delivery of complete facility. Sc is specific and the criteria level is more firmly defined.*

Smith Hinchman Grylls designed the Eli Lilli & Company medical Research Center (above) in Indianapolis with the go providing exceptional flexibility of lab layout for team-orie research. The building is configured as two separate resea towers (containment/noncontainment), which rise from a s port base and are connected by an atrium containing food vice and a conference tower.

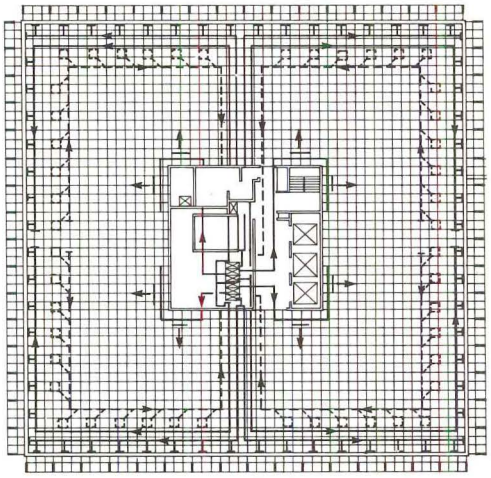
The noncontainment tower houses 192,000 of the 321,00 square feet of space on three floors. The labs are arranged series of 60x60-foot "superblocks," each separately served vertical risers. The superblocks are 3,000-4,000 square fee area and accommodate four to six lab modules.

The containment tower provides 64,000 net square feet or floors and permits operation of P2 or P3 levels of contain One of the key flexibility issues for the containment space provision for mechanical system maintenance without inte tion of ongoing research. To this end, the architects design walkable mechanical space about each of the containment fl The three-corridor plan uses cross corridors to define lar suites. The clean supply corridor is at a positive pressure to clean room levels, and the primary return corridor is posi pressured in comparison to both secondary corridors.

—Stephanie S



The ubiquitous and interchangeable "spec" office offers flexibility through allocation of additional mechanical and electrical space in the design.



Examples of flexible buildings

'here are some existing building types that work very well in ɛrms of flexibility. An example is that favorite creation of real state developers, the "spec" office building. It is ubiquitous and ıterchangeable with any of its cousins from Seattle to Miami—ne of its less endearing qualities. Its design is based on the prin-ıple of most bang for least buck—meaning fanciful facades and ɔlendid lobbies leading to millions of square feet of blank shell ɔace.

Actually, these buildings are quite adaptable. Designed for ɛnants with two- to 20-year leases, they can accommodate any ɪsiness that uses desks, telephones, typewriters, and comput-ʿs. An accountant can move out on Friday; a travel agent can ɛt up shop the following Monday. Speculative office building ɛsign has been honed over many years to achieve front-end ɔonomy and maximum rentable space.

These office buildings typically have a compact core of stairs, evators, toilets, and shafts. Mechanical and electrical systems ɛ decentralized (and sometimes metered) on each floor. The mainder of the space is unfinished until rented. Usually the de-ɛloper includes fit-up of the space in the rental package, allow-g the leaseholder to choose from a variety of standard finishes ıd arrangements.

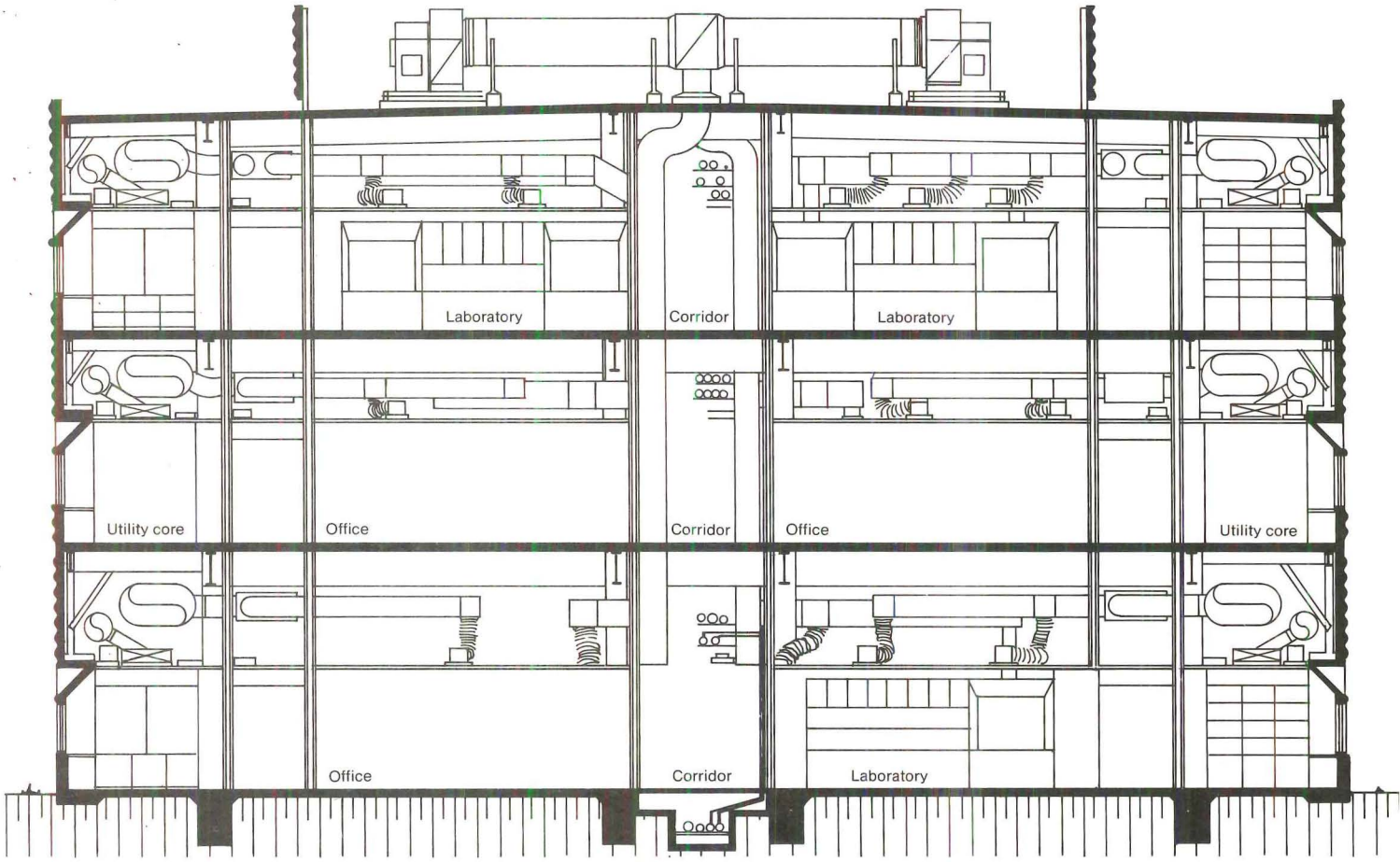
Modular walls and ceilings are almost never used in these ıildings. Metal stud and gypsum board partitions are the norm. ıe most prevalent form of wiring management is the old poke-rough method. Although unsophisticated, spec office space ɔes pass the flexibility test: when one tenant moves out, the fit-up is simply demolished and rebuilt to the new tenant's specification.

Sometimes, however, as in other buildings, the mechanical system cannot keep up and a split airconditioning unit must be added on the roof of a 20-story building to serve a computer on the tenth floor.

Another building type that holds some lessons in flexibility is the standard-issue industrial park building—the kind that looks like a big box with a little box in front. These buildings are never drawn up in architects' offices, and they are often ugly. But they are certainly flexible. One evening about a year ago I counted 22 of them in an industrial park in New Hampshire—all leased. The businesses that had found a home in these buildings included two shoe factories, an electronics plant, and a bingo parlor.

Spec industrial buildings are even more minimalist than spec office buildings. Typically, a couple of offices and toilets are roughed in in the little box in front, while the main space consists of nothing more than steel columns, bearing walls, and a roof. A water line and an electric feeder may have been brought in from the street. There is no heating, no airconditioning, and no floor. Once the tenant's requirements are known, mechanical and electrical systems are designed and built to suit. If the tenant moves out, the developer simply starts over.

If spec buildings are flexible because of how little is built into them, research laboratories represent the opposite end of the spectrum. They are usually designed for very specific uses and have requirements for gases, special plumbing, and exhausts. Yet they also have to accommodate constant change in research programs. In the best of these buildings, laboratories

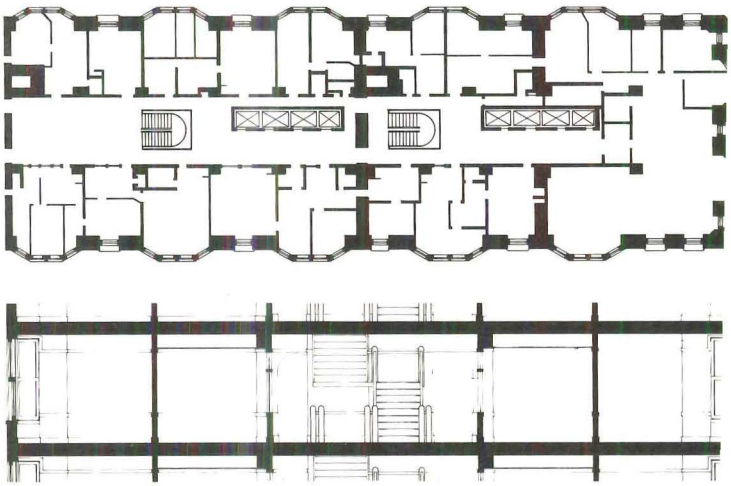


are designed on a module and prime importance is placed on *accessibility* of the utility distribution system. One way of providing access is to place chemical exhausts, plumbing, gases, and power feeders in vertical shafts, with a catwalk at each floor level. When a lab needs to be modified, all the mechanical and electrical construction can take place in the chase without disturbing the research work in adjacent labs.

If someone asked me to pick an example of the ultimate flexible building, I would choose one of those 19th-century masterpieces that have lived through more uses and adaptations than one could count. In a way, these buildings are a paradox, since they certainly were not designed to be flexible. Yet they adapt beautifully to their new uses as office buildings, shopping malls, museums, theaters, and restaurants.

The technical reasons for this versatility are simple: old buildings have tall floor-to-floor heights, which make it easy to add sprinkler systems, lighting, and ductwork and still leave room for spacious ceilings. They also tend to be very solid structures with that little bit of extra capacity that permits cutting out a bay here and there for an elevator bank or an atrium. It is generosity of design that makes these buildings flexible.

Besides, these buildings are beautiful. Their floorplans have nooks and crannies, yet they end up being easier to use than the large rectangular blocks in new buildings. One can tell the third floor apart from the second floor because of differences in fenestration, proportion, wainscots, or moldings, not because the carpet is a different color. These buildings demonstrate that flexibility has little to do with widgets and much to do with design. □



Laboratories, such as the one shown above, represent a flexibility paradox in that they are designed for very specific uses yet must be able to accommodate constant change in researc programs. The key is often accessibility of the mechanical sy tems, allowing modification of the systems without disruptio of ongoing research. Many 19-century buildings, such as the Monadnock building in Chicago (above), display a generosity of design in space and structure, rendering them flexible enou to convert to modern uses. Originally designed by Burnham a Root in 1891, the Monadnock building renovation by Holabi and Root started in 1982 includes a new mechanical system, wrapping around the perimeter of the building.

Changes in a Dozen Basic Documents

By Joseph Dundin and Dale Ellickson, AIA

This month, the American Institute of Architects will publish the 1987 editions of 12 contract documents—the largest number of documents the AIA has ever published at one time. These include A201, General Conditions of the Contract for Construction, and B141, Standard Form of Agreement Between Owner and Contractor.

While the new documents have been substantially revised, they represent a refinement of rather than a departure from their precursors. "AIA's drafting process is intended to provide the construction industry with a family of consensus documents," says Paul Sieben, AIA, chairman of the documents committee of AIA's practice commission. "The documents are both reactive and proactive as necessary to be responsive to current building practices. This involves the review of traditional concepts and practices along with a mix of innovative concepts to create a series of working agreements."

The process of drafting the revised documents began late in 1981, when the documents committee began soliciting comments and meeting with representatives of industry organizations in an effort to build an industry consensus. Among the organizations consulted was the Associated General Contractors of America (AGC), whose endorsement will appear on five of the documents. Others include the American Subcontractors Association (ASA), the American Specialty Contractors (ASC), the Engineers' Joint Contract Documents Committee (EJCDC), and the American Arbitration Association (AAA).

An owners' forum was convened in January 1983 to provide input from the client's viewpoint. Forty representatives of building owners from the private and public sectors attended a one-day meeting with the documents committee to discuss a variety of proposals for updating the A201 document.

Why is it necessary to revise the documents? According to John Webb, FAIA, past chairman of the documents committee, "More than once I've been speaking to a group of architects about the documents and heard them say, 'We had good documents—why did you people have to go and mess with them? Why not leave them be?'

"There are two basic reasons for updating the documents. One is to bring them up to date with the state of the art in the construction industry, in terms of both the technology and the delivery process. The other is to take account of changes in the legal climate."

As might be expected, numerous disagreements surfaced in the course of the drafting process. Owners pressed for deletion of the A201 provision requiring disclosure to the contractor of the owner's financing, a change the documents committee felt would be unfair to the contractor. Later, a major conflict arose between AIA and AGC over the warranty, correction of work, and substantial completion provisions of A201.

In addition to substantive changes, much of the language has been revised for greater clarity. A concentrated effort was made to eliminate extraneous words and "legalese." Gender-specific pronouns have been eliminated in accordance with a 1976 resolution of the AIA board of directors.

A201—General Conditions

A201, the keystone document, has undergone substantial revision to clarify the rights and obligations of the owner and contractor and to take account of changes in the construction industry since 1976. The document has also been reorganized so that the articles follow a more logical sequence. Provisions dealing with the rights and responsibilities of the architect have been moved from Article 2 to Article 4, retitled Administration of the Contract, to focus on the owner and contractor as the principal parties in the document. Miscellaneous Provisions, formerly Article 7, is now Article 13.

Major changes to A201 are incorporated into the following sections:

Warranty (3.5)—The warranty provision now explicitly excludes damage or defect caused by abuse, modifications not executed by the contractor, improper or insufficient maintenance, and normal wear and tear under normal use.

Review of shop drawings (4.2.7)—The provision governing the architect's review of shop drawings has been expanded and now requires that the architect be given sufficient time in his or her professional judgment to conduct an adequate review. The general limitation on the purpose of the architect's review—checking for conformance with the information given and the design concept expressed in the contract documents—has been retained. In addition, language has been added specifically excluding checking of details that are the responsibility of the contractor. Similar language is included in B141.

Claims and disputes (4.3-4.5)—Provisions governing the handling of claims and disputes have been expanded and brought together in a single paragraph to spell out procedures more clearly and sequentially. In the interest of expediting arbitration proceedings, A201 now requires a notice of demand for arbitration to include all causes of action then known to the party filing the demand. Limitations on consolidation or joinder in arbitration of the architect or the architect's employees or consultants have been retained.

Delays due to adverse weather conditions (4.3.8.2)—Claims for delay due to adverse weather conditions must now be substantiated by data showing that such conditions were out of the ordinary and impeded the scheduled construction.

Mr. Dundin is editor for the AIA documents program, and Mr. Ellickson is senior director of that program.

Contingent assignment of subcontracts (5.4)—A new provision assigns subcontracts to the owner in the event that the construction contract is terminated, and also provides for adjustment of the subcontractor's compensation if termination has resulted in suspension of work for more than 30 days. Both owner and subcontractors are thus given a measure of protection from the effects of termination.

Changes in the work (7)—This article has undergone substantial revision and provides for a new type of document. "The change order is now required to be signed by the owner, contractor, and architect," says Dean Hilfinger, FAIA, chairman of the A201 task group. "In the event the contractor's agreement cannot be obtained, we now provide that a construction change directive, signed by the owner and architect, shall be issued. Both of these situations were previously covered by change orders. Now they are separated so that they can, if necessary, be handled independently." As before, the architect may unilaterally order minor changes in the work that do not involve a change in the contract sum or contract time.

Applications for payment (9.3.1)—The owner now has the explicit right to require that copies of requisitions accompany the contractor's applications for payment.

Asbestos and PCB (10.1)—The problem of hazardous wastes is addressed, for the first time in AIA documents, in a paragraph prescribing procedures to be followed in the event such substances are encountered on the site. Under its provisions, the work may proceed in the affected area only by written consent of the owner and the contractor, or in accordance with a determination by the architect upon which arbitration has not been demanded.

Insurance and bonds (11)—The insurance article has been expanded to cover bonds as well, and it is now provided that bonding requirements must be made known to the contractor in the bidding requirements or at the time the contract is signed. The contractor, in turn, is required to furnish copies of the bonds on request to any person appearing to be a beneficiary.

The owner's property insurance is now required to be written in the full amount of the contract sum and adjusted for changes in the contract sum effected by change order. The coverages to be included on the "all-risk" policy form are given in much greater detail, an important point because "all-risk" merely means coverage of all the risks not specifically excluded. In addition, the owner is now required to insure materials stored off-site or in transit.

"The changes in the insurance provisions are not major ones," says Bernard Rothschild, FAIA, author of the *AIA Bonds and Insurance Guide*. "What we've mainly tried to do is keep abreast of changes in the insurance industry."

Correction of work (12.2)—The correction period has been extended with respect to work performed after substantial completion, so that such work also is covered by a one-year correction period.

Statutory limitation period (13.7)—A separate paragraph has been included under Miscellaneous Provisions, giving the dates of commencement of the statutory limitation period with respect to acts or failures to act occurring at different points in the project. "This paragraph covers the whole range of situations," says Hilfinger. "It sets three commencement dates: one for occurrences before substantial completion, another for those taking place between substantial completion and the issuance of the final certificate for payment, and a third for those taking place after the final certificate has been issued."

Termination or suspension of the contract by the owner (14.3)—Procedures are set out for suspension of the contract by the owner for reasons other than the fault of the contractor. A provision allowing for termination in like circumstances, considered for inclusion in document A201, has instead been included in A511.

Owner/Architect Agreement

Like A201, this document has undergone substantial revision. However, a more sweeping reorganization of the articles was rejected after being considered by the documents committee and the practice commission. The principal format changes involve merger of the provisions governing direct personnel expense, reimbursable expenses, payments to the architect, and the architect's accounting records into a single article immediately preceding the compensation provisions; and the division of the architect's services into three articles at the beginning o the document.

A101 Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is a Stipulated Sum

A107 Abbreviated Form of Agreement Between Owner and Contractor for Construction Projects of Limited Scope Where the Basis of Payment is a Stipulated Sum

A111 Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee With or Without a Guaranteed Maximum Price

A117 Abbreviated Form of Agreement Between Owner and Contractor for Construction Projects of Limited Scope Where the Basis of Payment is the Cost of the Work Plus a Fee With or Without a Guaranteed Maximum Price

A201 General Conditions of the Contract for Construction

A401 Standard Form of Agreement Between Contractor and Subcontractor

A511 Guide for Supplementary Conditions

A701 Instructions to Bidders

B141 Standard Form of Agreement Between Owner and Architect

B151 Abbreviated Form of Agreement Between Owner and Architect for Construction Projects of Limited Scope

C141 Standard Form of Agreement Between Architect and Consultant

C142 Abbreviated Form of Agreement Between Architect and Consultant to Be Used in Conjunction With a Standard Form of Agreement Between Owner and Architect

A change in terminology that runs throughout the document s the substitution of *estimate of construction cost* for *statement f probable construction cost*. While courts have continued to onstrue *statement of probable construction cost* as an estimate, t was felt that the word *statement* was potentially misleading nd could be taken to convey a greater degree of certainty than as appropriate.

A more substantial change involves Article 3, Additional Serves. "There are additional services that are performed at the wner's option," says William Love, AIA, chairman of the B141 ask group. "It's really the owner's choice who should perform hem and whether they should be done at all. Others, though, re required due to circumstances beyond the architect's control. If work is damaged by fire, for example, the architect's consultation may be necessary in connection with repairs. We call services like these 'contingent additional services.' The wner may decide to do without them, but that requires written notice to the architect. Full-time project representation is overed under a separate heading because we felt it was important enough to be singled out."

By distinguishing among the various categories of additional ervices, the committee has attempted to clarify the rights and bligations of the parties under the agreement. Says Love, "As n educational tool, this document can be tremendously useful n establishing a full understanding of the scope of services the wner can expect."

Other sections modified in B141 are:

Professional certification (2.6.12)—By a new provision that s duplicated in A201, the architect is entitled to rely on certifiations of professional engineers supplied by the contractor.

Consultants' services (4.6.1)—The owner is now required to urnish the services of consultants other than geotechnical ngineers when such services are reasonably required and are equested by the architect. Such services would, of course, be n addition to normal structural, mechanical, and electrical lesign services furnished by the architect if these are retained s part of the architect's basic services.

Architects' certificates and certification (4.11)—When these re required of the architect or the architect's consultants, they ıust be submitted at least 14 days prior to execution. In addiion, the owner is barred from requesting certifications requirıg knowledge or services beyond the scope of agreement.

Ownership of drawings (6)—This provision, duplicated in ı201, now explicitly assigns the copyright to the architect. In ddition, the architect's rights are extended to include docuıentation other than the drawings and specifications. The xception in the event of default by the architect is retained, ut the architect must now be adjudged to be in default. Implicit ı the term "adjudged" is the requirement that the architect be ɔund in default by a court or in arbitration, and not simply eclared so by the owner.

Termination, suspension, or abandonment (8)—Full compenıation for services performed prior to suspension is now equired to be rendered to the architect if the project is ıspended for more than 30 days; the time period was three ıonths in the 1977 edition. Abandonment is presumed after 90 ays, in which case the architect may terminate the agreement. 'he architect may also terminate the agreement in the event f nonpayment by the owner.

Disclaimer of third party claims (9.7)—While contract lanuage cannot provide absolute protection against third-party aims, it was thought prudent to include language shielding the owner and architect from claims of contractors and subcontractors claiming to be third-party beneficiaries of the owner-architect agreement.

Asbestos and PCB (9.8)—Primary responsibility for dealing with asbestos, PCB, and other hazardous wastes encountered on the site has been assigned to the owner.

Professional credit (9.9)—The owner is required to provide professional credit for the architect on the construction sign and in promotional materials for the project. The architect is also given the right to include representations of the design in his or her promotional materials, subject to the owner's designation of specific information as proprietary and confidential.

Reimbursable expenses (10.2.1.6)—Expenses associated with CADD and directly attributable to the project are now included. In addition, the requirement that records of the architect's reimbursable expenses be kept on generally accepted accounting principles has been dropped. This requirement turned out to be meaningless in practice given the wide variation in accounting methods used by various architecture firms.

An extended family of documents

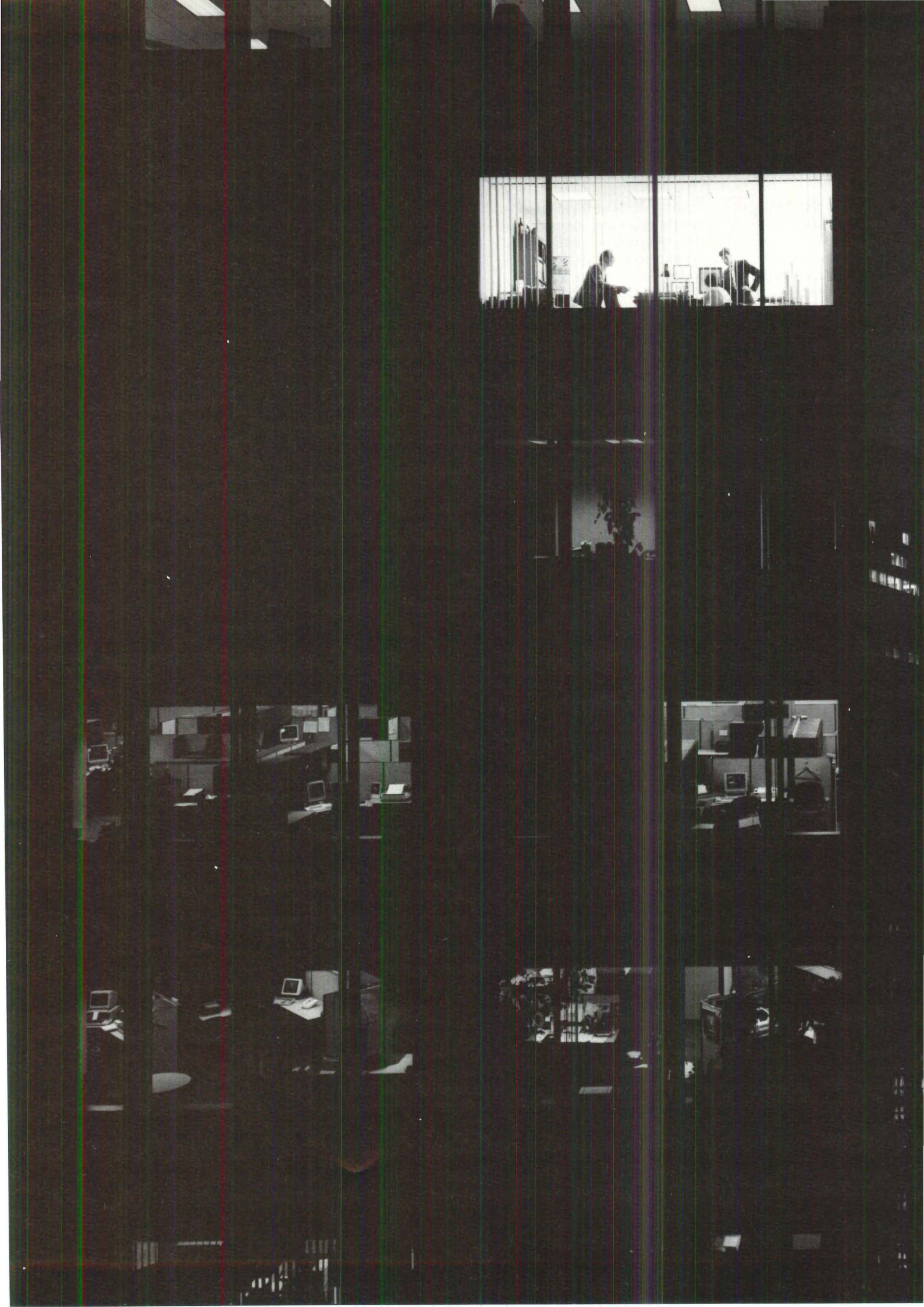
The 12 documents have been drafted concurrently and are being released simultaneously in order to produce a fully integrated set of contract forms. Together they comprise what is sometimes referred to as the A201 "family": they are primarily intended for use in the custom project delivery mode wherein the owner contracts separately with the architect and the contractor, and all but two are intended for use on construction projects governed by A201. The exceptions, A107 and A117, incorporate abbreviated general conditions based on A201. The new A111 and A117 documents have been greatly expanded. As before, they are intended for use either with or without a guaranteed maximum cost (the latter term having been changed to guaranteed maximum price to conform with accepted industry usage). The previous editions merely outlined these options; however, the new editions cover them in detail.

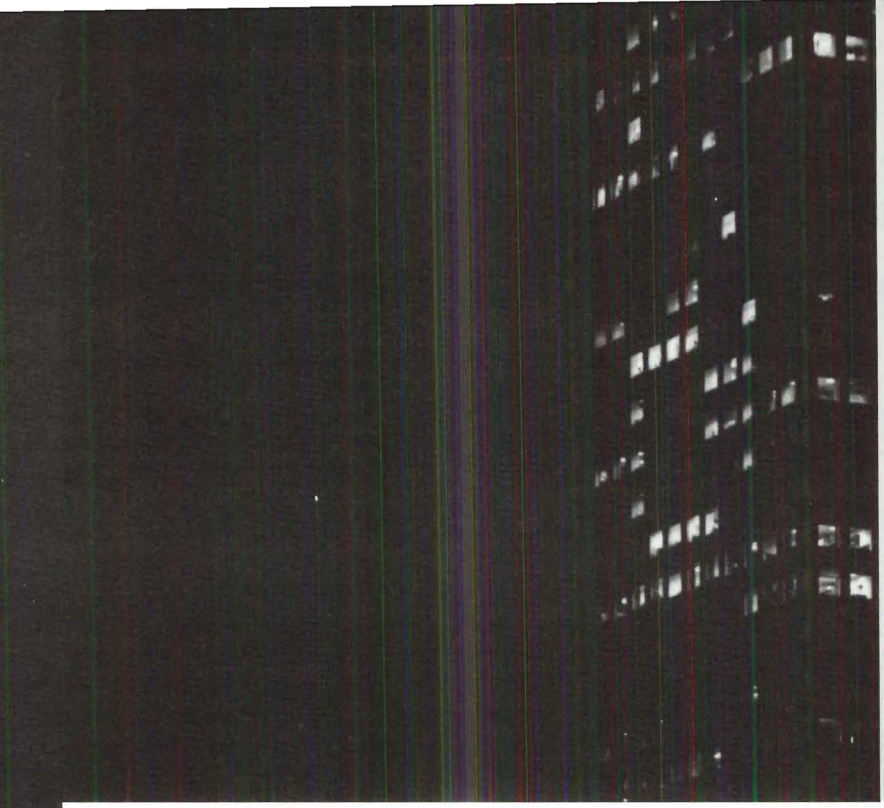
The C141 document, formerly entitled Standard Form of Agreement Between Architect and Engineer, has been revised for use by consultants other than engineers. The consultant now retains ownership of drawings, including the copyright, in a pass-through of provisions governing the architect's drawings under B141. Another change is that the consultant's professional liability insurance may now be required unilaterally by the architect, rather than by mutual agreement.

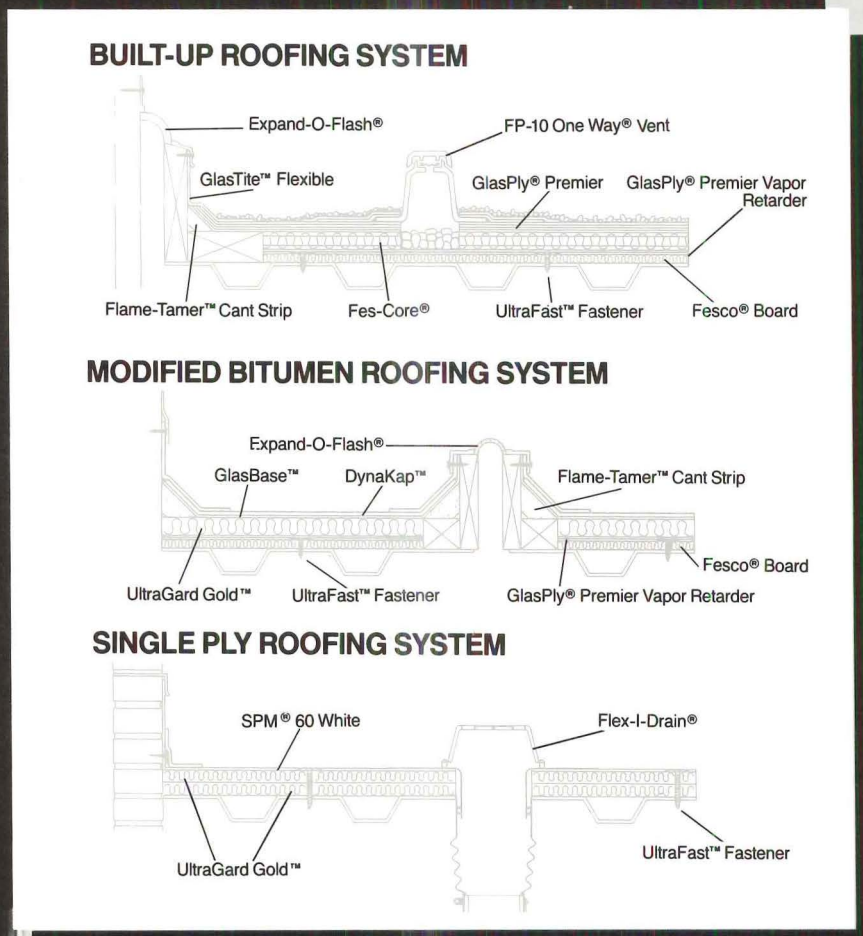
Document C142, Abbreviated Form of Agreement Between Architect and Consultant, is entirely new. This document is intended for use as a "wraparound" agreement, incorporating the provisions of B141 by reference rather than by repetition as in C141.

In the months ahead, AIA will publish chapters of its *Handbook of Professional Practice* on the revised A201 and B141 documents, setting out in greater detail the differences between the new editions and the previous ones, and explaining the uses and purposes of the new provisions.

Over the next two years, the AIA documents committee will revise the construction management and interiors documents, incorporating language and concepts embodied in the revised A201 family. "The process is a continuum," says Sieben. "The publication of the A201 family of documents marks the end of one cycle and the beginning of another." □







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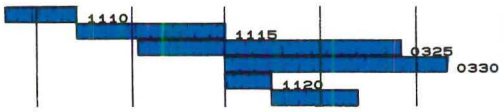
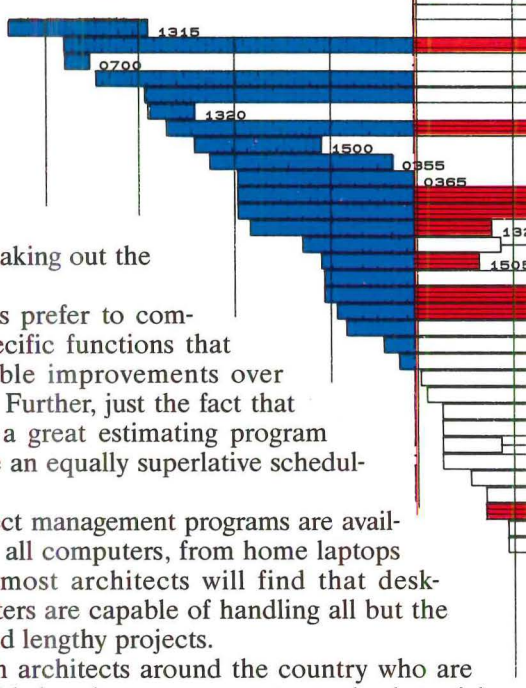


Software for Project Management

It is proliferating and becoming steadily more useful.
By Oliver R. Witte



Behind any well orchestrated project is usually a well orchestrated plan. Some architect has cared enough about how the client's program would be executed to think through the process and issue timely, effective instructions to those who are responsible for carrying out the client's intent.

This kind of process planning, called project management, today is emerging from the backwaters of architecture to assume an important role in obtaining commissions and executing them profitably. Computers are making it possible for architects to extend their control over complex projects and to maintain control despite changes that could overwhelm the mind aided only by a stubby pencil. Powerful new programs relieve the architect of minutiae and permit a more orderly consideration of the effect of an event or a decision.

No universally accepted definition of project management has emerged, but a description usually involves the juggling of time, money, and other resources such as people, materials, and equipment. The goal is the development and faithful execution of a superior design on time, on budget, and at a profit to the architecture firm. Expressed in negative terms, the goal is to avoid surprises, and the claims that usually follow surprises.

The range of applications is broad enough to require decisions by the firm on how project management software will be used. On one end of the range are internal applications. They help the firm manage the project through the office. At the other extreme are external applications. They help the firm manage the construction of the project, from feasibility studies through completion of the punch-list. This article will focus primarily on internal applications and, on the financial side, it will stop short of discussing the accounting applications such as invoicing.

More than 100 computer programs claim to be project management tools. The early ones focused almost exclusively on scheduling time. They offered a choice of critical path (CPM), project evaluation and review (PERT), and Gantt methods of graphic representation.

New programs are becoming more adept at combining the advantages of each method. For example, the problem of most network diagrams is that they aren't time-scaled. Gantt charts, on the other hand, don't show relationships between tasks. Overcoming the discrepancy, some programs, such as MicroPert, produce a time-scaled network diagram. Some programs schedule time and resources, others schedule time and costs, and a few cover all three.

Users disagree about how much integration to buy. The ideal program, it might seem, handles both office and construction problems and can follow a job from the initial fee or cost estimate, through budgeting, to scheduling, to payroll, to billing and accounts payable, to cash flow tracking—finally posting the general ledger and making out the tax return.

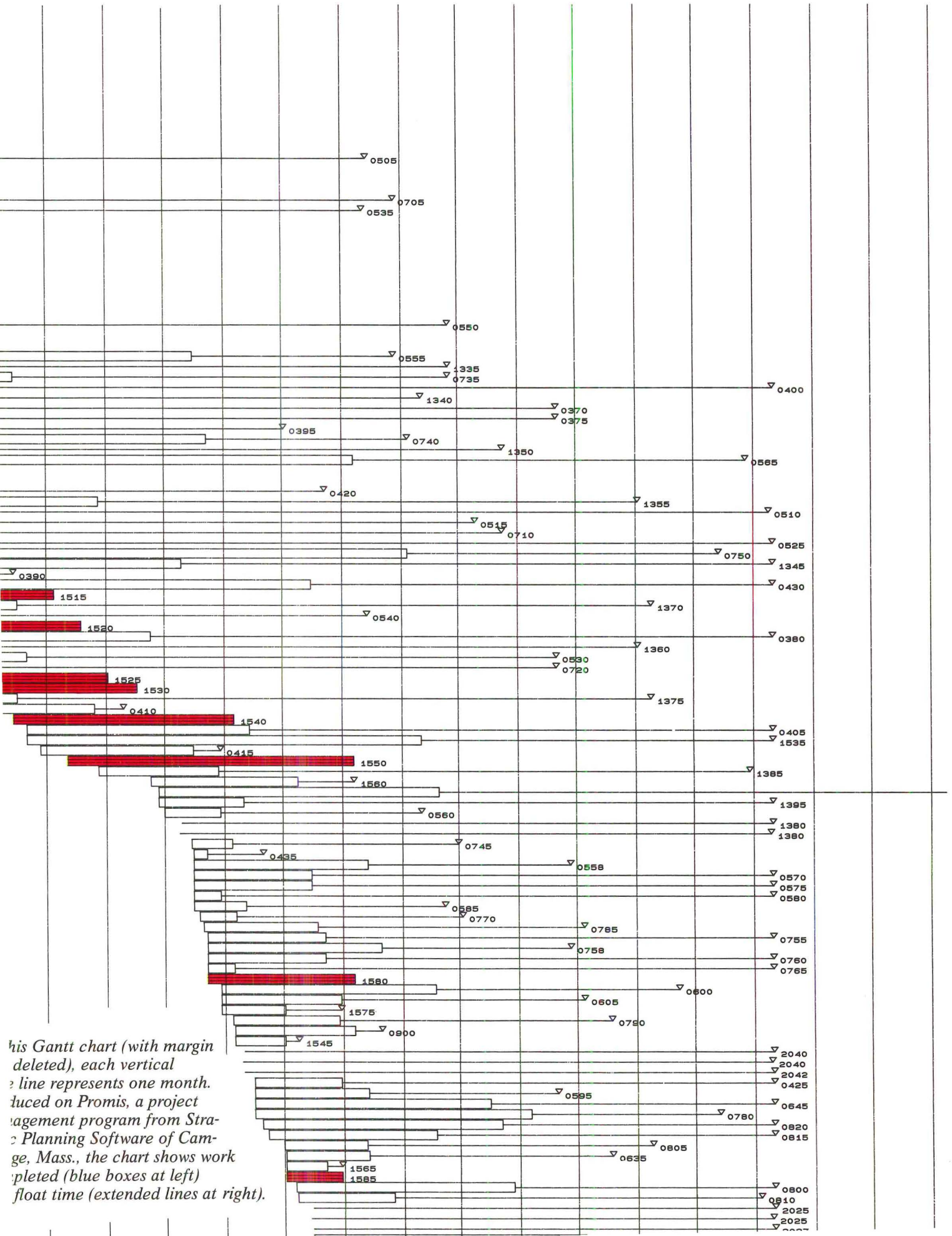
But some users prefer to computerize only specific functions that offer demonstrable improvements over manual methods. Further, just the fact that a vendor makes a great estimating program doesn't guarantee an equally superlative scheduling program.

Although project management programs are available for virtually all computers, from home laptops to mainframes, most architects will find that desktop microcomputers are capable of handling all but the most complex and lengthy projects.

Interviews with architects around the country who are doing computer-aided project management reveal substantial enthusiasm for the current generation of software. Most of them now say they can't understand what took them so long to take the plunge. Although dozens of programs were mentioned during the interviews, few users felt they had made a bad choice. Even the worst of the programs worked better for most architects than the old combination of memory and stubby pencil.

The most important features identified during the interviews were:

- Cost. Prices range from $100 to thousands of dollars.
- Complexity. Most architects buy their first project management program to solve a specific need. Architects interviewed advise novice computer users to keep their software simple at first and move up to more involved programs later rather than trying at the outset to buy for all anticipated needs.
- Integration. Again, buy only what you need. The theoretical advantages of one-entry-does-it-all did not impress most of the surveyed group. In fact, some described complete integration as risky because errors are difficult to correct.
- Graphics. The ability to see the schedule and the interaction of the basic elements is crucial. Project management programs differ sharply in the power of their graphic output.
- Support of output devices. The program should be able to drive 24x36-inch plotters by Hewlett Packard or Houston Instrument. Support for one of the new high-resolution color dot-matrix printers like the Toshiba P351C also is important. Laser printers or devices limited to a maximum page size of 8½x14 inches are not viewed as relevant to project management.
- Ability to make changes to a time, cost, or resource and have the program automatically update the effect of the changes on the rest of the project.
- Manual and tutorial. Learning materials rarely explain the program succinctly.
- Ability to exchange data with related programs, such as Lotus



his Gantt chart (with margin deleted), each vertical line represents one month. duced on Promis, a project agement program from Stra- Planning Software of Cam- ge, Mass., the chart shows work pleted (blue boxes at left) float time (extended lines at right).

1-2-3, other project management programs, and graphics programs, including CADD.

Kaplan McLaughlin Diaz Architects of San Francisco eased into computer-aided project management three years ago. The firm was growing and, with its studio system, felt it was continually reinventing the planning wheel, according to Phillip G. Bernstein, AIA, an architect with the firm. With no scheduling standards for the firm, each studio approached the process in its own way.

"We'd start out each project with a beautiful hand-drawn schedule," Bernstein said. "By the third change, the chart had been trashed and everyone was winging it. Then accounting would stop by to ask how far along we were and someone would guess 35 percent, only to realize later that it takes half the hours to get from 90 percent to 100 percent completion."

Now the firm knows more precisely how much time has been spent on each project, its stage of completion, and how far ahead or behind schedule the design team is. Bernstein said the computer allows the firm to do resource projections, which determine how many people will be needed at each phase, and resource leveling, which applies the optimum number of people to each project for peak efficiency.

One developer used a schedule developed by the firm to help convince a banker of his seriousness. Then the developer kept asking for more and more people to shorten the design time, before the managing partner called a halt.

The human element in project management also comes through in the graphic display, Bernstein said. "Most people do not like to look at network diagrams. They're so complex they're scary to both clients and project managers. But if you take a network diagram and assign tasks to people, you can get 'Bob's bar chart'—a document he can see and understand."

Kaplan McLaughlin Diaz uses Project Planner by Primavera Systems of Bala-Cynwyd, Pa. It costs $2,500 and is compatible with Autocad. The program runs on MS-DOS system computers. "Computer-aided project management is both inexpensive and easy to learn and use," Bernstein said. "It's silly for the profession to be 10 years behind contracting firms. I don't understand how firms can run large projects without it."

Lester B. Knight Associates, a big Chicago E/A firm, has found a place for both simple and powerful project management programs, according to Brian Smith, an architect for the firm. At the low end, the firm uses VisiSchedule, which costs $100, and at the high end, Promis, which costs $2,995. VisiSchedule is a product of VisiCorp. Promis is sold by Strategic Planning Software. The firm also uses Microsoft Project, which costs $395.

"We've used the software for quite a few proposals," Smith said. "Some clients are interested in seeing us use computer scheduling tools, and they help us get work." Project management programs still are used mostly when the clients demand them. Schedules are submitted as part of the construction documents, and clients use them to evaluate contractor bids and performance. Knight also uses the programs internally as an aid in coordinating schedules and priorities. The simpler programs get the heaviest use because more project managers feel comfortable with them.

Smith said computer-aided project management has been crucial to the success of a current factory design (which is being fast-tracked) with 38 bid packages. The client provided a schedule that showed when he expected to bid the packages and get the buildings. "We worked backward to establish a schedule for design, documents checking, and client review," said Smith.

One advantage not fully appreciated when the programs were purchased was their value as a communication tool with clients, consultants, and contractors, he continued. A prompt and clear understanding of the significance of a delay reduces disputes at the end of the projects. If a project management program does nothing more than help head off claims and blames, it has proven its value.

The less expensive programs produce PERT and Gantt charts. They are easy to learn and easy to use.

Victor V. Gelsomino Jr., AIA, president of Gelsomino-Johnson Architects in Houston, said his use of computerized project management gives a competitive edge to his clients and thus to his firm. He phrased the explanation in terms of a familiar AIA theme—value architecture.

As an example, he selected one of the firm's hospital renovation projects. The hospital could not afford to let any floor space stand idle. An analysis of the schedule showed the drawings and construction could be finished quickly, but selecting the equipment and getting it delivered would take an extra nine months. Rather than delaying construction, the hospital elected to convert the floor space temporarily to revenue-generating beds.

Like most others interviewed for this article, Gelsomino praised the use of computer-generated charts to document the effect of delays. "It's important to show the client when a decision is needed and the effect of not making a timely decision," he said. "It's simply easier to understand when you can show the client promptly, rather than just say so in a letter." By the end of the project, executive amnesia has set in, Gelsomino said. Unless the schedule has been updated every two or three weeks, it's easy for the client to blame the architect and hard for the architect to present a convincing defense.

Gelsomino uses Microsoft Project for internal management of his firm's design work. The program has the capability of doing cash flow analysis.

One of the most significant powers of a computer is the ability to do "what if" analysis. A good project management program should excel in that function, according to Anthony X. Ching, AIA, an architect/planner for Media Five in Honolulu. The program he chose was Micro Planner by Micro Planning International. The program runs on both IBM and Apple Macintosh computers. He chose the Macintosh version because, he believes, it is easier to use and the graphics are better. Also, the Macintosh can display several scenarios at one time, each in a separate window.

"We are able to identify a resource, such as manpower, and see what would happen to time and costs if we increased or reduced that manpower," Ching said. "For example, what if we reduced manpower by half? When would we finish? The program enables us to take into account the different productivity of various technical personnel." Redirecting resources interactively permits the planner to optimize the use of resources.

Ching said computerized project management made his firm both more competitive and more profitable. "We can see where we stand," he said. "If we're way ahead of schedule, we can bill accordingly." Experience from past projects is saved and extracted as an aid to fee negotiations on future projects. Further, by being able to plot out exactly what is involved in designing a project, he is able to show the client what his fee is based on and why it is worth the amount.

The ability to see relationships between resources, and

etween the wise use of resources and profitability, convinced evin R. Cantley, AIA, a principal in Cooper Carry & Associates of Atlanta. He uses Time Line, a $395 program by Breakrough Software, to streamline firm operations.

"If we move people from one project to another, the program elps us see the effect on our costs and profitability," Cantley id. He likened the benefit of the program to the creation of ore hours in the day, especially in writing proposals and estiating fees.

Cantley intentionally uses the program backward when he orks with fees. He has a keen idea of how large a fee the ompetition and the client will allow, and how much he needs om the project in overhead and profit. Then he marshals his esources to meet his goals. "Time Line helps us know a lot ore about what we're doing," Cantley said. "If we push here, e know what will come out on the other side."

Help in estimating fees and in monitoring budgeted costs with ctual costs throughout the development of construction docuents was the reason the Balzhiser Group in Eugene, Ore., ought Fee Perfect by Designers Research. The program, priced $495, prompts the architect to remember every important ost, including reimbursables, and then tracks and compares job rogress and billings. "If a client asks where we stand on fees xpended, we can tell him," said Brad G. Black, AIA, an assoate in Balzhiser. "But more important, we can tell whether e're running ahead or behind. When the back room tells me e are 50 percent complete and I see that we've spent 80 perent of our budgeted hours, I can make adjustments before the tuation gets out of hand."

For the past year, Black has been using Fee Perfect to main- in control over fees, Time Line to maintain control over schedles, and Symphony as a catch-all to maintain the data. The ombination, he contends, makes the firm more competitive nd, by reference to an ever-growing data base, more profitable.

The issue of integration produced a lively disagreement nong architects interviewed for this article. Some like to keep e various management functions in separate compartments, hile others prefer to combine them so that an entry in one area fects records in a related application.

Dean J. Amantea, a principal in Mele Amantea Architects San Diego, favors integration. Like several firms conted for this article, Mele Amantea has Harper & Shuman's oject management module, which is part of its computerized counting system, as well as another project management proam—SuperProject Plus by Sorcim/IUS. CFMS/Micro Project anagement, by Harper & Shuman, costs $1,000 plus $500 for optional billing module. SuperProject Plus costs $495. With oject Management, the firm enters labor, supplies, and overad and gets reports on project completion, employee proctivity, and exception reports. SuperProject Plus includes heduling, job costing, payroll, invoicing, and estimating.

So what is Mele Amantea (and the others) doing with two (or ore) similar programs? Amantea uses Project Management for cost accounting and budgeting. He describes the Harper & uman product as an accounting and bookkeeping system that ppens to include job cost accounting. For scheduling and arting project progress, he uses SuperProject.

"With Harper & Shuman, it all happens automatically," nantea said. "I have to enter data from the time cards anyw and so I get data into my other financial records for free." t he considers SuperProject equally indispensable. "I set up PM chart and plug in critical dates and events for the design, and the program punches out three or four versions of the schedule in different formats, including what we do in house and what our consultants will do and when." One printout is furnished to his consultants and another is used in-house to help keep the project on schedule. The ability it offers to display relationships between projects and to control them "on the fly" makes the program valuable to the firm. "One printout gives us hours, the other gives us money," Amantea said.

He compares Project Management favorably with sliced bread. "I just wish I'd gotten it sooner," he said, sounding a familiar refrain.

A different view was expressed by James C. Jankowski, AIA, managing associate of Carol Ross Barney Architects of Chicago. He uses Harper & Shuman's Project Management, Accounting, and Payroll programs and Breakthrough Software's Time Line. Jankowski stopped short of buying the Harper & Shuman invoicing module. With only a dozen or so invoices a month, an automated system is not essential to him. But more important, he occasionally needs to edit the time cards before posting them to client records. Making adjustments after automatic posting can cause trouble.

"The Harper & Shuman system is basically an accounting package based on the AIA chart of accounts, but it's project-based," Jankowski said. "Every hour is attributed to a project, so it permits project monitoring and control."

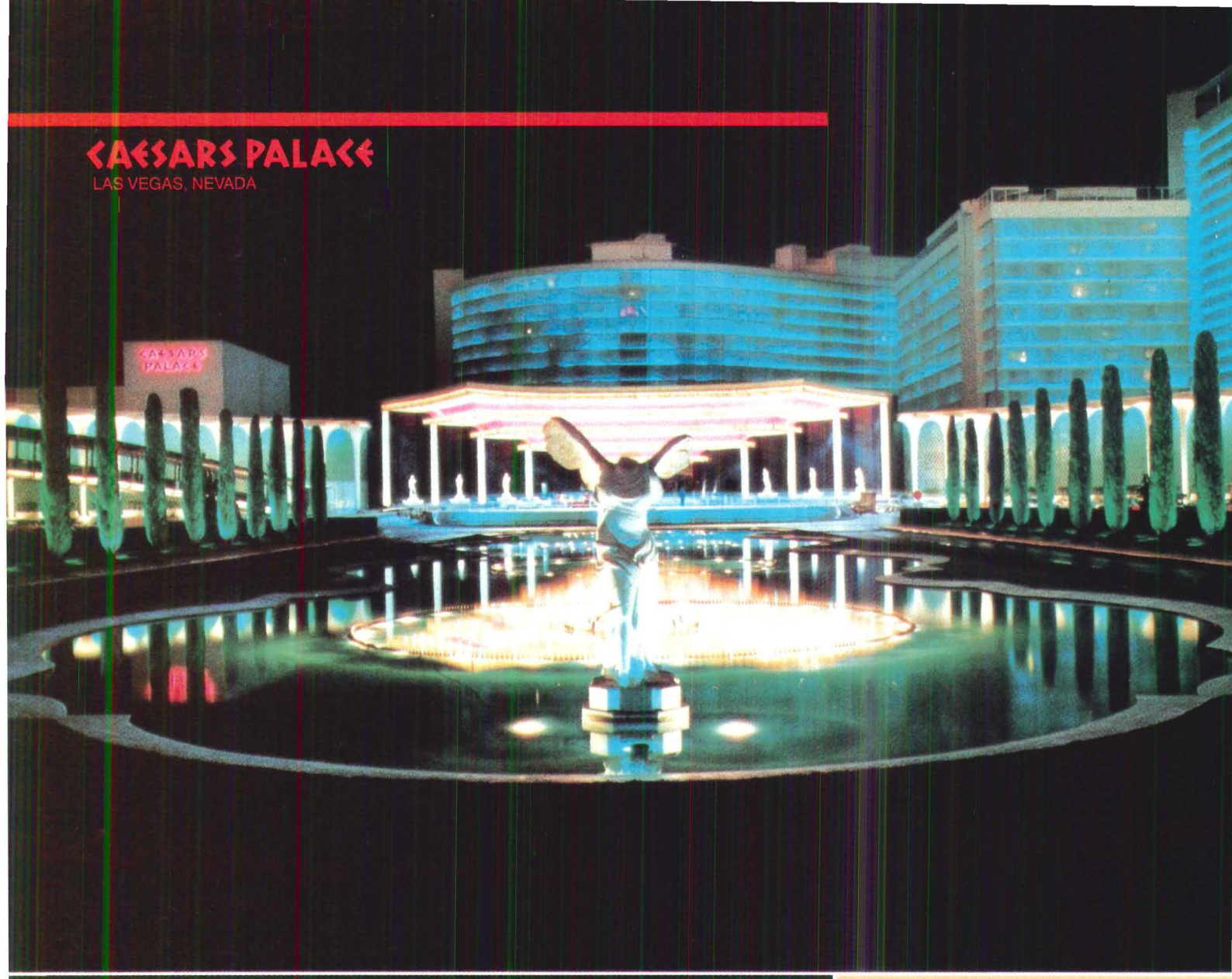
But for planning projects, fees, and people—and for studying how projects interact for cash flow purposes—he uses Time Line because it offers a time-based planning capability. "Time Line gives me a schedule for each project and tells me the fees it is generating," he said. "If the project is delayed, the budget may not change, but staffing and when we get paid do change. With 14 projects going, it can get complicated without computerized tracking. Then I plug the results into the Harper & Shuman program to monitor actual and budgeted revenues." Jankowski uses Time Line as a planning tool and Project Management as a tracking tool.

J. Blake Mason, AIA, principal of Arch.1 in San Mateo, Calif., agreed with Jankowski. The program he uses is by Creative Software Systems. It integrates accounting with project management, automatically distributing data to its modules. "If I want to edit the data, I have to track it down and back it out," Mason said.

Project management doesn't need to be integrated with accounting, he continued. "The kind of data and the integrity of the data differ. For example, the integrity of the time cards is suspect, whereas financial accounting can't be fudged. I wish we'd kept them separate." Mason said he would buy the Timberline job costing module if he had it to do over again.

Less enthusiasm for project management software was expressed by Michael K. Schley, a Washington, D.C., consultant in computer-aided facility management and design. He called the programs a solution in search of a problem.

"Critical-path scheduling is not a major problem for architects," Schley said. "They have a 3-D manpower planning problem: people, weeks, and projects. They need to know how to deploy their people." He views most of the programs mentioned in this article as more suited to large construction managers than to small architects. One exception might be facilities management, where the designer often gets involved in contract management. With change orders in various stages of completion and a variety of costs in need of allocation, a project management program might have value, Schley conceded. □



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The Basics of Starting a Firm

The first step is a business plan.
By Victoria Venker

A year and a half ago, beginning out of a home office, Linda Serabian, Gregory Olving, AIA, and Peter Maratta began an architecture practice—SOMA—that has since taken on 75 projects with an estimated gross billing of $350,000.

"We have been lucky, but we've also been cautious," says Serabian about getting the firm established. "We depend on the advice of our attorney, who tells us what we need to know rather than waiting for us to ask questions we wouldn't know to ask. But we wouldn't be doing as well as we are now if it weren't for the experience and solid business contacts we established in the area through working for both large and small firms. I wouldn't advise starting a practice without commitments from at least one strong client." "But the hardest part was leaving the security of our old jobs, even with client commitment," adds Olving.

George Calomiris, AIA, who started his firm, Calomiris & Associates, in 1975, offers a different perspective. "My partner, Atul Patel [AIA], and I started moonlighting for developers while employed at a large design firm. We found that we could work together very well and, when the extra projects seemed large enough, we decided to go out on our own," says Calomiris.

However, when asked if they started out with a business or a marketing plan, Calomiris laughed. "Never had 'em, never will." He does, however, admit that he employs accountants and "more lawyers than I have fingers and toes."

Speaking to young architects considering starting up their own businesses, Calomiris says, "I'm not sure the average architect out of school for five years is adept enough at understanding the actual execution of building to be ready to go out on his or her own. In order to design buildings, you have to know how buildings are built. I've known too many contractors who refer to working drawings as 'comic strips.' I would advise young professionals to get their hands dirty, and really get to know the limitations of technology and the details that make buildings into architecture. They'll be ready for a broader base of work. If architects are involved with all phases of a project—design, building, and development—they gain control over architecture and are better equipped to fulfill clients' needs. Then the work they get won't be so cyclical and so dependent on the whims of the market."

Ms. Venker is a freelance writer in Bethesda, Md. Her sources for this article included AIA task force meetings.

Peter Hetzel, whose design firm is two years old, has slightly different advice for young architects. "Don't wait too long to start up your own firm—take the risk. After five years of architectural practice, you probably know enough to take on small projects. And don't shy away because of lack of start-up money. Though it's nice to have a nest egg, you really don't need a great deal of cash to start a practice," he says. Hetzel feels that the most difficult part of the education necessary for an aspiring firm owner to acquire is business management. "You have to learn it in the field, because architecture schools don't teach it."

Business planning is too often an unappreciated facet of firm start-up despite the fact that bankers require profit/expense projections for loan approval and marketing strategies are essential to keep work on the boards in a competitive market. Just as a new building must have architectural documents before construction begins, a new architectural firm should have the "design" of a business plan. The plan precedes any other step in starting a new firm, with the possible exception of partner selection.

A business plan identifies future market opportunities and obstacles, calculates a strategy and time frame for entering the proposed market, and establishes goals and evaluative strategies to measure progress. An added benefit to the business plan is the cogeneration of information required for other regulative or marketing applications such as tax forms and financing proposals.

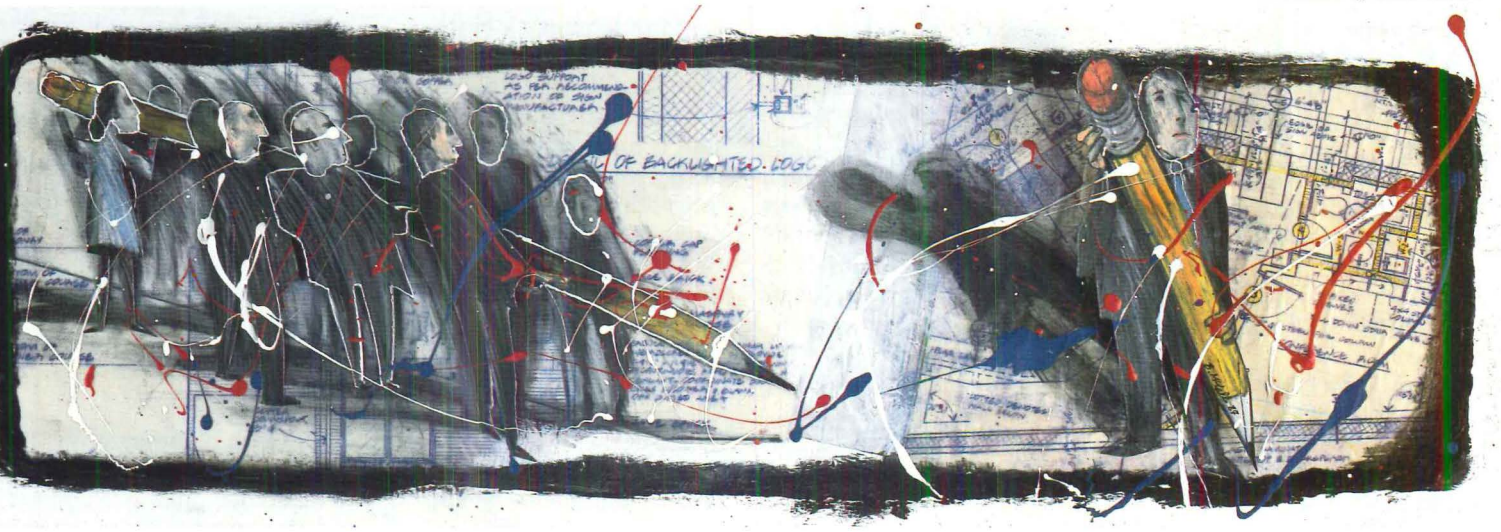
As Dan Steinhoff advises in *Small Business Management Fundamentals,* thorough business planning involves:

- Surveying a targeted market to determine if architectural services have a potential for growth, which helps ascertain the best location for a firm.
- Preparing a statement of assets needed. This step is dependent on a thorough listing, with specific dollar amounts, of the proposed firm's needs such as design equipment, clerical equipment, and other supplies.
- Preparing an opening-day balance sheet that compares start-up costs with current assets, which helps the principals determine whether they have enough money to proceed and, if so, whether they should buy or rent equipment and office space.
- Choosing the legal form of organization, with an attorney drawing up the formal agreement, which then becomes part of the prospectus for financing.
- Analyzing estimated expenses in terms of their fixed or variable nature. By identifying variable expenses, which can be seen as economic expansion joints, the principals identify and prioritize areas to cut back if money is short and expand when the budget looks good. This analysis later becomes a tool for firm financial management.
- Determining a firm's break-even point. This step should be a realistic appraisal of the minimum amount of billings necessary to sustain a new firm. A break-even date is an essential goal.
- Determining a desirable profit margin, taking into consideration the time and money to be invested. This establishes a projected income statement for the first year.
- Setting a personnel policy.
- Establishing an adequate system of accounting records.
- Establishing billing procedures and credit policies.

A good business plan serves three important functions: those of a feasibility analysis, an operations guide, and a source of information with which to communicate firm identity to people both inside and outside the firm.

A primary consideration when starting an architectural practice is what form of ownership should be adopted. The three

Illustration by Brian McCall



asic forms are proprietorship, partnership, and corporation.

A sole proprietorship is a business owned and managed by ne person. It is probably the simplest way to open an architec- ıral firm: rent space, buy or lease equipment, and start work- ıg. The owner and the firm are synonymous in the eyes of the .w. All assets are owned by the proprietor subject only to the abilities incurred in the firm's establishment and operation. The roprietor is solely responsible for proprietorship debts, incurs s losses, assumes all its risks, provides all its capital, and pro- des its total management. The only requirement for the sole roprietorship's establishment is that the owner obtain the quired city, county, and state professional and business licenses efore commencing business.

This form of ownership has several advantages. For one, the ganization entails no formality; the owner has freedom to ake all decisions. Further, business losses are deductible from ersonal income when federal income tax is calculated, and ıere is relative freedom from government control and special xation.

There are also distinct disadvantages to a proprietorship. An dividual seldom possesses all the entrepreneurial characteris- cs and abilities required for a successful business operation. lso, it is sometimes difficult to acquire capital. The proprietor's ersonal resources determine the amount of money he or she ın borrow. Lending institutions frequently avoid long-term ans to sole proprietors.

Another disadvantage is that in a proprietorship there is usu- ly a limit to the life of the architecture firm. Accidental death · disability of the proprietor can have serious ramifications for e firm. To top it all off, a firm proprietor carries unlimited lia- lity. In the case of a business failure, the owner's personal sets—including home, car, and other properties—are subject claim by creditors.

However, a firm that begins as a sole proprietorship is not ɔligated to remain that way. Many firms begin with individual vners and evolve as they grow. With additional capital needs ıd increased management responsibilities, a new form of own- ship may become necessary.

A partnership is usually defined as the association of two or ore persons who engage as co-owners of a business venture. ırtnerships are based on an agreement, which should always committed to writing (although this is not a legal require- ment). Such an agreement usually includes the partners' investments in or contributions to the firm, duties, responsibilities, and compensation; bylaws regulating distribution of profits and losses, how a partner may withdraw, and how a new partner is admitted; a stipulation of the duration of the partnership agreement; and provisions for the resolution of policy disputes between partners and the distribution of assets in the event of dissolution.

The advantages of partnership are shared responsibility for the success of the venture; more capital and less borrowing; and possible tax benefits, since business losses are deductible from the personal income of each partner.

Two disadvantages of the partnership are that each partner is liable for all debts incurred by the firm, and that the entire firm can be bound by the acts of just one partner.

The corporation is the third major organizational form. A corporation is an entity legally independent of its owners. The term brings to mind large organizations, but many small architectural firms find advantages in this form of ownership.

With a corporation, business liability (as distinct from professional liability) of owners or stockholders is limited to the amount of money they have invested in the firm. Capital may be more easily acquired and ownership more easily transferred through sale of stock. Further, a corporation's legal life continues even if ownership changes completely.

Incorporation does carry with it some undesirable factors for the small-business owner. The first requirement of incorporation is filing of a charter in the corporate home state. The activities of the corporation are limited to those specified in the charter; legal counsel is a necessity. Filing the charter and related legal services can involve substantial fees. A corporation is subject to more separate and distinct taxes than a proprietorship or partnership, and corporations are required to maintain more records.

Financing a new practice

Securing financing is often the key obstacle to starting a firm. The value of a firm is based largely on its proven ability to bring in work, and of course new firms don't have such proven ability. To make the situation worse, since architects usually have few real assets, such as equipment or back stock, compared with

other businesses, they have little collateral to offer lenders.

A practical strategy for financing must include research that identifies all available funding sources and development of a convincing argument that the proposed new firm will be profitable.

It is generally necessary for new-firm principals to invest their own savings. Many lending institutions, concerned about the percentage of the architects' personal investment in their new practice, require that the owners' equity should be a minimum of 25 percent. Some recommend 50 percent. If loans from friends or relatives are involved, they should be formalized as business transactions.

When banks consider prospective borrowers, they usually consider the character of the applicants, the managerial ability of the principals, the profit prospects for the new firm, and the collateral put up to insure payment. In the second consideration, a solid cash flow analysis is vital, with estimated billings, expenses, and profits.

Commercial banks are a primary source of debt-capital funding for small businesses. Short-term loans predominate, but under favorable circumstances the loans are subject to virtually continuous renewal. As a firm stabilizes its cash flow and develops a steady stream of back work, both the amount and the duration of its loans tend to increase.

As an alternative to the more traditional business loans, many individuals are able to arrange unsecured term loans, called "character loans," which have a preferred credit rating derived from repayment of past personal loans and usually require listing personal assets. In the event bank financing is not feasible, an alternate source is the Small Business Administration. Congress has also provided the Small Business Investment Company Act, which is designed to encourage the creation of privately owned companies and has as its sole purpose to make long-term loans or even equity loans to small business firms. Also, many states, as well as local communities, have private business development companies that often work through the area chamber of commerce.

Raising capital may also necessitate taking on additional partners. If partners are to be unequal, either in financial contributions to the new firm or in their time commitment, compensation can be used to equalize the responsibility. As an example, if one architect doesn't match the other partners' investments, he or she might compensate by assuming additional administrative responsibilities.

The benefits of bringing partners into a firm are quite appealing. First, there are three important areas of responsibility to have covered—design, production, and management—and partners represent a means of filling the talent pool.

Partnership is a delicate proposition. Personalities are involved and unless the parties respect and trust each other—especially each other's business decisions and acumen—there are going to be problems.

The overriding reason for including partners is the combination of skills—with good judgment and thinking ability being as vital as design skills. Extreme care should go into selection of partners. One wrong person can put an entire venture into jeopardy. Most management advisers suggest partnerships in which individual talents and philosophies complement each other but personalities and backgrounds differ. The most successful practices are launched with partners whose combined abilities give depth to the firm and whose different backgrounds serve as a buffer against excesses.

A fundamental objective of organizational design is establishing an efficient project management strategy. Common types of organizations employed—depending on the size and scope of the firm—are the studio organization, in which the technical staff is divided into separate interdisciplinary teams that follow each project to completion; the departmental organization, in which the technical staff is subdivided into functions or discipline-oriented units that work assembly-line style on all firm projects; and the matrix organization, where a strong project manager guides each job through a departmental organization.

Necessities for starting work

There comes a point in firm creation when planning gives way to actualization, and commitments of time and money must be made. Equipment, personnel, and insurance must be acquired. Even a sole proprietor should consider securing office space, because working out of one's home has its limitations, and having a convenient, formal place to meet clients is important. The decision, then, is whether to buy or lease office space, based on how it affects the firm's financial picture.

Although leases for office space may extend for 10 years or more, it is usually advisable for new firms to get a one- or two-year lease with an option for a five- to 10-year renewal. The lease may have clauses for such things as who pays for any remodeling, the liabilities and duties assumed by each party, and the permission for the tenant to make alterations to the premises if needed in the future. Legal counsel before signing a formal lease agreement helps avoid untenable lease traps.

Procuring office space is only the first step. The space must also be furnished. As with office space, principals must decide whether to purchase or lease furniture and equipment. The principal advantage of purchasing is that, once the items are acquired and paid for, the firm will not have to meet continuing carrying charges, and there may be some tax advantages. The disadvantage of purchasing is the necessity of raising the capital in the first place. Installment buying can combine many of the advantages of leasing with the advantages of purchasing, but again tax considerations should be investigated before the choice is made.

Developing an insurance protection program is another important early step. The program should include fire, theft, and accident insurance for the office; health insurance for employees; general liability insurance for principals; and, what has become the most expensive of all, professional liability insurance.

"Programming" a new firm may be compared to programming a building design—asking the right questions at the onset can save a lot of backtracking after the job is undertaken. In summary, the basic questions anyone starting a firm should consider include:

- What are the reasons for establishing the firm?
- What are the professional goals for the firm?
- What are the realistic goals for the first year, and also for years two through five?
- How do these goals fit in with today's market?
- By what strategy can these goals be accomplished?
- How long is the lead time for establishing financing and commerce business operations?
- Who are the firm's potential clients?
- What is the marketing plan and strategy for the firm?
- Finally, what is the overall business plan for the firm? □

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Strategies for Saving Energy Used for Lighting

They must be integrated into design.
By Hayden McKay

In the "good old days," when buildings were lighted primarily by daylight, the interaction of light and space and form was a central architectural concern. However, the abundance of electrical energy in the '50s, along with technological advances in lighting and HVAC, and scientific advances in illuminating engineering, resulted in a profound change in the way architects relate to light. In the atmosphere of "more light is better," architects began to turn over lighting responsibility to their electrical engineers. While the results were seldom unworkable, the luminous environments were generally mediocre, bland, and unstimulating, and rarely enhanced the architectural design or provided positive integration of daylight.

Fourteen years ago, the energy crisis generated some rethinking of the issues surrounding lighting design. The built results have been mixed. On the positive side are greater variety and flexibility, with "put light where it is needed" being the new maxim. Best of all, daylighting was rediscovered. The improvements have been sporadic, however, for although architects have begun getting more interested and involved in lighting and all energy conservation issues, they are hampered primarily by lack of education or experience in creating lighting systems that are both energy-efficient and provide quality light.

With the current energy glut, building owners are showing more concern for first-cost savings than energy conservation. However, national energy standards and local codes continue to get more stringent, and architects are still feeling the pressure to design energy-efficient buildings. As tolerances narrow and limits get more restrictive, only a comprehensive design approach can achieve lighting designs that create successful environments that offer an attractive first cost and are at the same time energy-conserving.

Setting goals for lighting and energy

Establishing criteria for the effective use of light not only forces the design team to integrate lighting from the project onset, but also creates the benchmark for evaluating a project's success. Lighting goals are not constant from one application to the next. Good quality lighting can be used to alter the occupants' perception, behavior, and sense of time, space, and well-being. The goal of one retail store, for example, might be to use lighting to create an elegant image, carefully flattering customers and expensive merchandise, and enhancing a relaxed, service-oriented atmosphere. A second store might require lighting to create a colorful, kinetic environment and emphasize the space rather than the merchandise to encourage impulse buying.

Ms. McKay, a registered architect, is an associate with Howard Brandston Lighting Design Inc. in New York City. She was an assistant professor of architecture at the University of Maryland, where she taught lighting, sun control, architectural design and computer-aided design. She is also active in developing the lighting section of ANSI/ASHRAE/IES Standard 90.

Clearly, the same qualities of light would not be as effective one application as the other. And it isn't just in retail applitions where lighting has such a broad impact—for example, ghting the workplace is not limited to just work light.

The more broadly one applies lighting criteria for project als, the easier it becomes to justify the costs of higher qual- lighting design. The obvious tendency in a cost/benefit anal- is is to include only those factors that are easily quantifiable. wo systems equal in energy benefits may be different in other, ss quantifiable benefits. Many lighting technologies save ergy at the price of the quality of the luminous environment. or instance, watt-saving lamps generate poor color rendering nd reduced output, while high-efficiency luminaires have ecreased shielding. This doesn't have to be the case, as it is ossible to specify lamps, luminaires, ballasts, and controls that ve energy without negative effects on quality, but at a higher rst cost.

Although direct links between quality lighting and employee roductivity have yet to be quantified, certainly many owners pport the notion that a good environment (large windows, od lighting, a comfortable chair, etc.) creates a situation that lps them attract and keep productive employees. So, when nsidering the cost implications of a well-lighted versus a eaply lighted environment, one should remember that the first st of constructing and outfitting a building is only about 2 rcent of the lifetime costs of operating the facility, and that nployee salaries are the truly significant long-term expense. ving energy at the price of project goals could defeat the pur- se for which the building is built. The owner needs to be own that good lighting is good business.

Although the energy used for lighting is a function of power d time, the initial response to the energy crisis was to reduce e connected load, or power portion, of the energy equation. Watts-per-square-foot heroes" were created, each striving for e lowest connected load. But this overreaction to the waste- l energy practices of the previous generation has created a w generation of wasteful buildings, i.e., buildings not func- ning for their intended use. Part of the problem stems from ersimplifying the subject. In addition to the architect's sur- nder of lighting as a design element, a wealth of engineering owledge continually gets reduced to the single issue of illu- nance, or quantity of light. In search for simple solutions and les of thumb, the footcandle has been elevated, quite unfor- nately, to the status of "most significant criterion." The illu- nance selection procedure is not lighting's equivalent of the ychrometric chart. While probably the easiest lighting factor calculate, it is far from the most important element in achiev- a successful lighting design. People don't see footcandles, t rather perceive the brightnesses of a variety of surfaces and urces in the field of view. The color and direction of light, contrast and combination of brightnesses, coupled with the aptation level of the eye and a host of physical, physiologi- l, and psychological interactions, are far more significant fac- s. There are more exceptions than rules of thumb when nning lighting design strategies.

A big mistake is to make lighting decisions in isolation from the total design process, especially by locking into lighting equipment selections too soon. "Energy-saving" technology does not necessarily provide energy effective design, and if used inappropriately, as it often is, technology has the potential to become part of the problem.

There is a large number of strategies, almost totally within the control of the architect, that can be used to significantly improve energy performance and reduce waste while improving the quality of the luminous environment. Quite a few of these strategies also require that the building owner becomes an active and supportive member of the design team.

- *Programming.* During programming, an examination of the current work environment and specific visual tasks can lead to energy savings before the lighting is even designed. Tasks involving poor contrast materials (small type, dark backgrounds, shiny papers subject to veiling reflections, or phosphorescence) can be identified and, with the owner's cooperation, changed. Thus, instead of designing the lighting system for the lowest contrast task, the tasks themselves are improved to require less light and less specialized design. As an example, an owner's agreement to treat video display terminal screens with anti-glare shields enables the lighting design to be aimed at the total visual needs of the worker, creating better environments than those that are forced to revolve around eliminating reflections in the screens.
- *Space planning.* Further energy savings can be achieved by space planning that recognizes specialized task needs or occupancy schedules. If workers with special visual needs, or those with similar work schedules, can be located together, then the lighting can be designed more specifically and used for more distinct time periods without waste.

Even though the owner's program initially calls for future flexibility, a realistic compromise should be sought. Requiring that a lighting design be capable of accommodating an open plan design, where any task can be moved to any location, can be extremely wasteful of energy if the lighting is designed to the lowest common denominator for the entire space. A better solution is a system with some fixed elements, such as corridor zones, service areas, etc., and a methodology for accommodating future change, such as modular wiring. Workers with more difficult visual tasks or special visual needs can be encouraged to use locally controlled task lighting.

There is a clear relationship between room geometry and energy use for lighting. The greater the ratio of wall-surface area to floor area, the more electric lighting power that is required for the same visual effect. This means buildings with lots of small offices or high ceilings will require a higher connected load than buildings with large, open plan spaces. The actual energy use for small spaces can still be quite low, however, with the proper specification of controls and use of natural light.

Intermediate partitions in open plan spaces also have an important impact on lighting energy. Not only do high partitions absorb the ambient light, requiring more fixtures and closer spacing, but they also result in shadows on the work sur-

faces and under cabinets, requiring additional supplemental sources and a higher lighting load. For example, six-foot-high partitions in an eight-foot-high space could require up to 60 percent additional energy to provide an equivalent quantity and quality of light as four-foot-high partitions in the same space.

• *Transition Zones.* Transition zones not only provide change, interest, and stimulation, but also contribute to energy conservation. These zones are effective for changes in intensity and color of light and help establish a visual hierarchy. They allow the eye to adapt slowly or provide a needed distraction and relief when leaving one space and before entering another.

Uniformity is not always desirable. Creatively varying the type of light within a space can provide a more effective environment, as well as optimize the energy used. However, "putting light where it is needed" should not be taken too literally. Creating a space that becomes visually chaotic can be counterproductive to the goals of the project. The ambient lighting system can be used as an organizing element, and the related task lighting can vary according to need and stay within a framework for visual clarity.

• *Finishes and color.* The most significant area of interaction between light and architectural form is the selection of materials and finishes. Most architects, however, would be quite surprised at how wide a difference there is between the perception of reflectivity and actual reflectance values. What most designers would probably consider medium to light tones reflect less than 30 percent of the light. Different colors of materials can reflect the same amount of light, and one may appear brighter than the other. Because brightness and contrast are such important elements in achieving good quality of lighting, finishes should be kept as light as possible in the working environment. This is especially important for work surfaces, vertical surrounds, and surfaces adjacent to fenestration. The higher the reflectances, the less lighting energy is required for a desired

A lighting expert as part of the design team

1. Choose the right firm for the job. Look at past work, check references, and look for experience with similar space types. Evaluate the backgrounds of the team assigned to the project. Visit the firm and inquire about mocking up or testing facilities, daylighting techniques, and computer capability.

2. Involve the lighting consultant in the earliest planning and programming meetings. A team approach can result in some innovative programming changes. A consultant with daylighting expertise is invaluable in siting of the building, fenestration design, and selection of materials, glazing, and even plants.

3. To maximize design input, start with design intent. The architect who describes the three-dimensional visual intent of the design is more likely to get lighting that enhances the architecture than one who starts out in schematics with "I thought we'd use wall brackets on these columns, and down light in here."

4. Coordinate the work of all the consultants. The architect should resolve areas of overlap between consultants early, especially between lighting consultants, electrical engineers, and audio-visual consultants. Such details include "typing" of fixtures, detail drawings, energy budgeting, circuiting, controls, and specifications.

5. Expect to be educated by your consultant. The lighting guru who makes demands without explanation makes a poor participant to the design team. Ask plenty of questions and expect clear answers. Lighting can be quite complex and difficult to describe, but most concepts can be demonstrated physically, if all else fails.

6. Design lighting with models and mock-ups. The lighting of almost any project can be improved with the use of physical representations, preferably full-scale mock-ups. The owner has early input and is assured of an acceptable solution.

7. The consultant helps protect design quality. In addition to providing schematic input, your lighting consultant should help develop the design. Carefully review specifications with the consultant and expect complete performance-related descriptions. The lighting consultant's tight specifications can help, if supported by the architect's close monitoring of the construction schedule. Finally, the consultant's experience is invaluable for an additional review of shop drawings.

8. Keep the consultant informed on decisions that interact with lighting. Design development decisions such as material finishes, room geometry, changes in floor plans, furniture, and partial height partitions should all be reviewed with the consultant, along with fenestration design and glazing materials. Review architectural details related to lighting, such as coves and troughs, as well as locations of special items such as art work, sculpture, or mirrors.

9. Allow enough time for good quality work. Frequently, the lighting consultant is involved too late, and then given very short turnaround times in order to allow the electrical engineering to take place.

nse of brightness. Architects should familiarize themselves ith the reflectance values of materials and strive to keep ceil-gs within the 70 to 80 percent range, and walls and furnishings 50 percent and above. More saturated colors or glossy/shiny nishes can be used selectively, as flooring accents, chairs, etc., nd in transition zones between work areas.

The color spectrum of the light source has an enormous ffect on the perception of the finishes in a space. Color tem-erature, (e.g. 3,000 degrees Kelvin) or color rendering index CRI) do not serve as adequate predictors of the effect of a articular source on a particular finish. There is no substitute r selecting finishes and lamps under the actual light source, nd very little is required to make a permanent setup for testing. he spectral distribution will be different from one lamp man-facturer to the next, so the selection processes must be quite norough.

Operation and maintenance. Lighting systems are over-esigned by as much as 25 to 30 percent to account for long-rm degradation of the lamps and dirt accumulation on lamps, xtures, and room surfaces. By including the owner on energy anning, more aggressive maintenance schedules can be estab-shed to greatly reduce the necessity for overdesign. Cleaning mps and fixtures every six to 12 months and relamping at 85 ercent of total lumen output have been shown to be cost-ffective based on energy savings alone. The additional bene-s are a lowered first cost due to reduced overdesign, and a nsistently brighter and cleaner luminous environment.

Lights burning when they are not needed constitute the most nnecessary waste of lighting energy. On the face of it, auto-atic lighting controls would appear to be the most effective lution, but they are also the most costly. Again, the architect n involve the owner to get truly cost-effective savings through e use of manual controls. Education, encouragement, and centives may be necessary to get maximum cooperation from e users, but the payback can be quite significant. Manual ntrols work quite successfully in Europe and Great Britain cause of the greater responsibility given to the users for their vironments. Establishing control zones, labeling switches, and ining users can save a tremendous amount of energy with-t degrading the luminous environment. Even the use of tomatic controls requires owner and user involvement to max-ize benefits. Control systems that do not require user accept-ce are usually overridden, resulting in wasted investment and ergy.

Mock-ups. To ensure maximum energy savings and human nefits, probably no technique is more cost-effective than the hting mock-up. Because the qualitative aspects of a lighting stem are so difficult to predict, much less describe, designers ually use a "factor of safety" in marginal situations. As light-g levels have lowered in recent years, the range of accepta-e tolerances for contrast, glare, reflections, etc. are narrowed, d caution is warranted. The use of full-scale mock-ups not ly allows for more innovative design that lowers the neces-y safety factors, but offers the entire team the opportunity familiarize themselves with the design and appraise its accept-ability. The mock-up keeps the architect totally involved in the design of the lighting system and all the other factors that inter-relate. To maximize both energy savings and lighting quality, the architect should construct an active, working mock-up, large enough to test the lighting of both the overall space and the individual workstations.

Lighting technology is a tool of the designer, and an understanding of the capabilities and characteristics of lighting technology is essential. The term "energy-saving" to describe lighting equipment has as much meaning as "dietetic" does for food. Just as a diet comprised of products labeled "dietetic" can be more fattening and less healthy than the use of products without such claims, the term "energy savings" has no meaning out of the context of specific application. The use of the wrong equipment for a given installation, no matter how "energy-saving" it may seem, can be counterproductive.

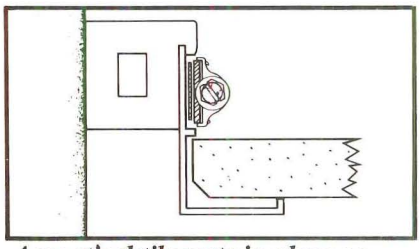
Energy-conserving technology

The specifications of "energy-saving lamps," should be examined with caution. A watt-saving lamp may not be the cost-efficient choice. Unfortunately, many building owners require reduced wattage lamps as a building standard, in spite of the increased cost or possible inappropriateness. Lamps must be selected based on all the requirements for the design, and lamp ballast combinations carefully analyzed for cost-effectiveness. This is an area of acute confusion at this time, and a cause of many ill-conceived solutions.

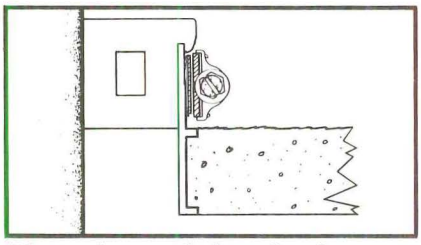
As with all such technologies, lamps labeled "energy-saving" or luminaires labeled "energy-efficient" should be carefully scrutinized. The use of "building standard" or even "design office standard" lighting fixtures, without a thorough analysis of the unique needs and spaces of each building, is contrary to the goals of energy optimization. For example, the most misapplied luminaires of this decade have been the low-brightness parabolics, unfortunately considered the new "building standard" for upscale buildings. Because tasks, spaces, and design goals differ, no luminaire serves all purposes equally well. When used indiscriminately in ceilings, without regard to worker location, or when used in spaces where workstations are not fixed, the potential exists for excessive glare. The resulting glare can be disabling, especially if the task involves the use of VDTs. The sharp cutoff of the parabolic reflector either leaves the walls of the space dark or causes harsh patterns when located close to vertical surfaces. Even when a parabolic is used appropriately, it cannot replace a lensed fixture one to one. Except in small daylighted spaces, wall washing is generally required to balance the brightness ratios in the space.

Optimizing the energy used for lighting is a challenging process that can lead to exciting and innovative solutions when the whole design team is involved. The emphasis should be on education, the integration of lighting with the total building design, and team flexibility that allows for the creative application of the most appropriate solutions. □

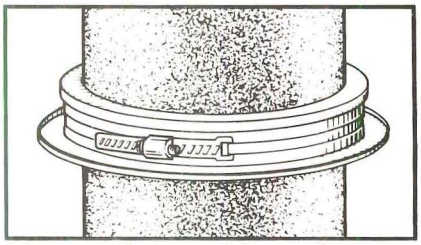
Fry Reglet's New Column Collar: You'll Find Us In Tight Circles.



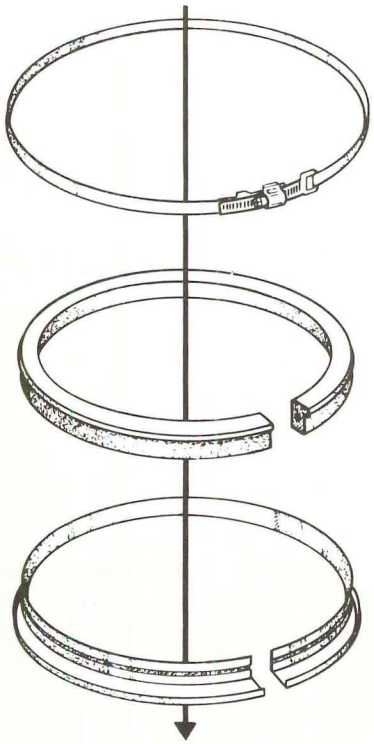
Acoustical tile rests in place on fitted aluminum angle.



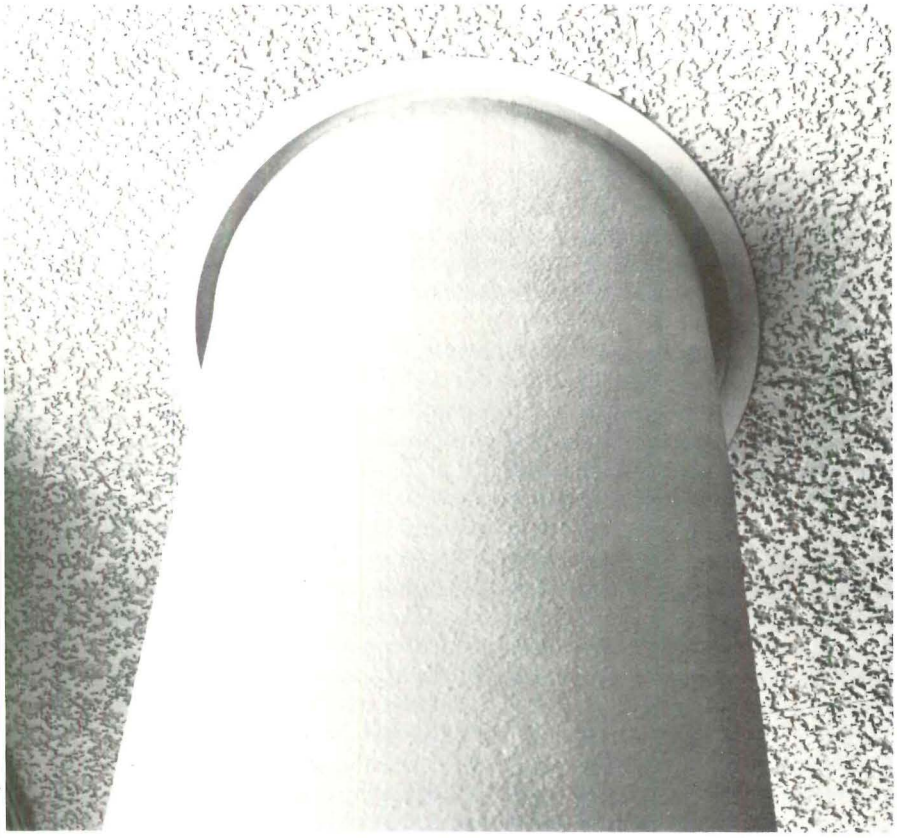
Plaster is screeded to aluminum reveal.



Fits on columns with a radius as small as six inches.



Two simple components secured by adjustable band.



Introducing Fry Reglet's new Column Collar — finally a workable molding which fits around small radius columns!

There exist today many well designed buildings with either crudely hand cut tiles fitted around a column or poorly joined plaster around a column. Accordingly, there is a demand by architects and builders for an economical molding which can be installed around columns to create a neat juncture for ceiling tile or plaster. Fry's new column collar does just that!

Fry's new Column Collar is a simple and inexpensive reveal molding for use around a column with a small radius. One part comprises a plastic spacer easily wrapped around the column; the other part comprises an extruded aluminum molding (of simple configuration) that is flexed or roll formed to the curvature of the column. The two parts interfit and are secured to the column by a band clamp.

Collars can be manufactured to fit around columns with radii as low as 6″. The aluminum molding is available painted (medium bronze, dark bronze, black and white) and clear or color anodized (medium and dark

When your needs call for a column collar that is easy to install, adjustable, and attractive, ask for the column collar that is found in tight circles. **Call Fry today.**

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Circle 34 on information card

Criteria for Selecting Glazing Types

Now that there are three times as many glazing types as a few years ago (see March, p. 60), a new problem arises—how to sort one's way through them to find the system that best suits a specific building design in a specific location. The choices awaiting architects include tinted, coated, tempered, heat-strengthened, laminated, insulating, and low-e glass, as well as polycarbonates and acrylics. These glazing types, along with a variety of films suiting many purposes, can be combined into almost innumerable permutations.

Equally important, however, is defining the design criteria that the selected glass type must satisfy, including energy conservation, appearance, and cost. Much research lately has been devoted to design and analysis tools to help the architect identify these necessary criteria and put the right glass type, and proper window design, to the job.

Lawrence Berkeley Laboratory (LBL) at the University of California, Berkeley, has been a leader in the development of glass technologies and application techniques for the last 15 years. One of their major recent developments is WINDOW2, a microcomputer program to calculate basic energy performance values for a given window design. Though to date it has been used mainly by manufacturers (LBL estimates approximately 100 companies), architects and engineers may find its simplicity and ease of use invaluable for comparing manufacturers' data and, conversely, designing the "ideal" window to suit a particular application.

"What we are trying to do," says Stephen Selkowitz, director of LBL's windows and daylighting group, "is to provide the design community with good performance information on any option, on any type of glazing, on shading devices, on architectural solutions to shading, and to do it in a consistent way so that you can compare, say, exterior blinds on the building to reflective glass or interior venetian blinds, and make a decision on what is the best system to use for that given application. What are the thermal and visual comforts as well as energy properties? If you are going to make a decision about glazing, then you want to deal with energy and comfort and appearance."

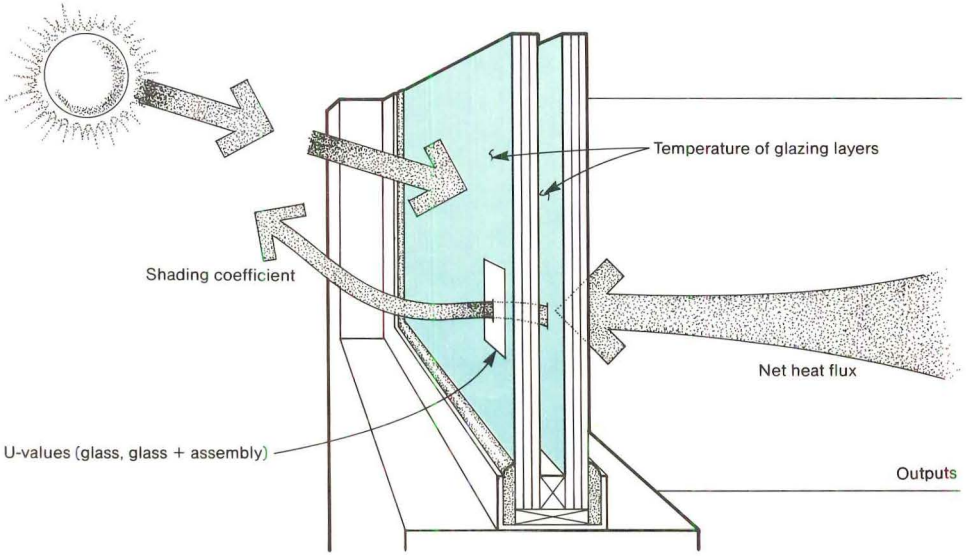
WINDOW2 provides the user with five major criteria by which the window design's energy performance may be judged:

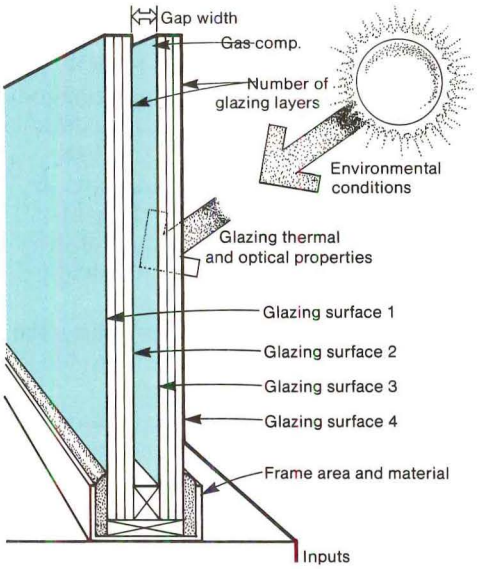
- *The glazed area's center-of-pane U-value*—the time rate of heat flow per unit area from the warm side of the glass to the cool side, per unit temperature difference between the two sides, expressed in Btu/hr-ft²-F.
- *The window's U-value*—the heat flow through the window assembly, including the frame.
- *The shading coefficient (SC) for the glazed portion of the window, if solar radiation is specified*—the ratio of how much solar heat gain is actually allowed through a particular window assembly to the amount of solar heat gain through ⅛ inch of clear glass. For example, clear ⅛-inch glass has a shading coefficient of 1.00, ⅛-inch heat-absorbing glass has a shading coefficient of .83, and ¼-inch heat-absorbing glass has a shading coefficient of .69.
- *The net heat flux through the glazing (not including the solar radiation transmitted)*—the amount of heat, in Btu/hr-ft², going through the glazing, from the warm side to the cool side.
- *The temperature of the glazing layers*—an indication of how high the relative humidity can rise before condensation forms on the glass surface.

WINDOW2 runs on any IBM-compatible microcomputer. The user pops the disk into the machine and WINDOW2 prompts him or her through eight major steps to determine major design values for the window being analyzed. WINDOW2 accommodates calculations in English or metric units. And the software immediately warns the user if the values for the entry data are physically impossible.

In order to obtain the design values, the user inputs data (or may choose to use the default data provided) for:

- *Environmental conditions (outdoor and indoor temperatures, wind speed, solar insolation).* The user may input supplied values for ASHRAE winter conditions (outside temperature 0 degrees Fahrenheit, inside temperature 70 degrees Fahrenheit, wind speed 15 mph, and 0 incident solar radiation at night); ASHRAE summer conditions (outside temperature 95 degrees Fahrenheit, inside temperature 75 degrees Fahrenheit, wind speed 7.5 mph, and incident solar radiation 248 Btu/hr-ft²); or supply the user's own input value.
- *Number of glazing layers,* from one to ten.
- *Thermal infrared properties*—the long-wave infrared transmittance of each glass layer and the surface emissivity of both sides of each layer. (Default values are zero for infrared transmittance of glass and .84 for emissivity of each glass surface. These values change significantly for plastics.)
- *Solar optical properties*—the solar transmittance for each glazing layer, and the reflectance of each glazing surface. (The user may also calculate nighttime values by not inputting the solar optical properties of each glazing layer.)





• *Gap widths*—the spaces between all of the glazing layers, expressed as fractions.

• *Composition of gas fill* in the gaps. The user may choose air, argon, nitrogen, or krypton, or input values for any other gas.

• *Window frame material and percentage area* may be entered if the user chooses to calculate the window's overall thermal performance. The choices include frame type (wood, aluminum, aluminum with thermal break, or the user's defined value) and the fraction of the gross window area defined by the frame.

After being loaded with this information, WINDOW2 calculates and displays the design values on the screen. It then prompts the user to change one or more of the chosen input values and rerun the program.

The WINDOW2 software is accompanied by a user and reference guide containing step-by-step instructions; examples of program prompts, inputs, and outputs; tables of reference data; and appendices explaining the calculation methods used in WINDOW2.

Example 1

Say the user wants to evaluate the winter U-value of a double glazed unit with a ½-inch air gap. WINDOW2 prompts the following inputs:

• desired units of measurement (the user chooses English units);

• environmental conditions (the user elects to use ASHRAE winter conditions, rather than input individual data);

• gap gas or material options (air is the gas selected);

• infrared radiation transmission and surface emissivities (the user selects default values; layer one = 0, .84, .84; layer two = 0., .84, .84).

• frame correction (the user selects not to make a correction based on frame material and size).

The printed output for this set of data shows the U-value for this window design to be .50 BTU/hr-ft²-F; and the net heat flux to be 35.12 BTU/hr-ft² traveling from the inside space to the outdoors.

Example 2

WINDOW2 now will prompt the user to make changes in the input data. Suppose the user wishes to modify the glazing by widening the air gap to ⅝ inch, using argon as the fill gas, and placing a low-e coating on the third surface. After these new inputs are made to the program, the printout will show that the U-value has been reduced to .29, and the net heat flux to 20.24 BTU/hr-ft² from the inside to the outside.

Example 3

Suppose the user now decides to test the window for a specific location: Washington, D.C. This necessitates the input of specific environmental data, namely outside temperature (17 degrees Fahrenheit), inside temperature (72 degrees Fahrenheit), and wind speed (8 mph). The printout will indicate that the modified window design in a Washington, D.C., location, yields a U-value of .27 and a net heat flux of 14.88 BTU/hr-ft² from inside to outside.

The WINDOW2 program, plus the user and reference guide, may be ordered for $25 (check) from:

Martyn Dodd
Michael Gable Associates
1818 Harmon
Berkeley, Calif. 94703
(415) 428-0803

Selkowitz and his associates at LBL are now working on WINDOW3, which is projected to be available in late 1987. WINDOW3 will improve upon WINDOW2 by including calculation of ultraviolet transmission, important to designers, Selkowitz says, because of its potential to cause damage due to fading of interior materials. WINDOW3 will also contain an extensive library of standard materials, such as coatings.

Another interesting project in the works at LBL is the development of a fenestration design tool—a software program that will allow the designer to determine heating, cooling, lighting, and cost associated with fenestration selection as a function of orientation, window size, shading systems, etc. Currently funded by the Lighting Research Institute, the initial effort, Selkowitz reports, has resulted in a mock-up for demonstration purposes. The next phase involves actual development of the PC-based tool, and LBL hopes that the demo program will excite manufacturers, utilities, and other groups to help support the effort financially. If all goes well, the fenestration design tool should be available to the public in a year or two.—M. Stephanie Stubbs and Nora Richter Greer

Inquiries about the program may be addressed to:

Stephen Selkowitz
Windows and Daylighting Group
Lawrence Berkeley Laboratory
Building 90-3111
University of California
Berkeley, Calif. 94720
(415) 486-5064

or:

Richard Vincent
Lighting Research Institute
1170 Broadway
Room 1114
New York, N.Y. 10001
(212) 685-8680. □

****

Window Configuration:

Layer (out->in)	IR Trans.	Emissivity out	Emissivity in	Solar Trans.	Solar Reflec. (o/i)	Gap Width (in)	Gap Gas
1	.00	.84	.84	–	-/-	.50	air
2	.00	.84	.84	–	-/-		

Environmental Conditions: ASHRAE Std. Winter

Window Performance Results:

U-Value BTU/hr-ft2-F	U-Value (W/m2-C)	Shading Coeff.	Total Solar Trans.	Heat Flux (BTU/hr-ft2) (out->in)
.50	(2.85)	–	–	-35.12

Layer Temp. (out->in (F))= 6.9684760 44.8361500
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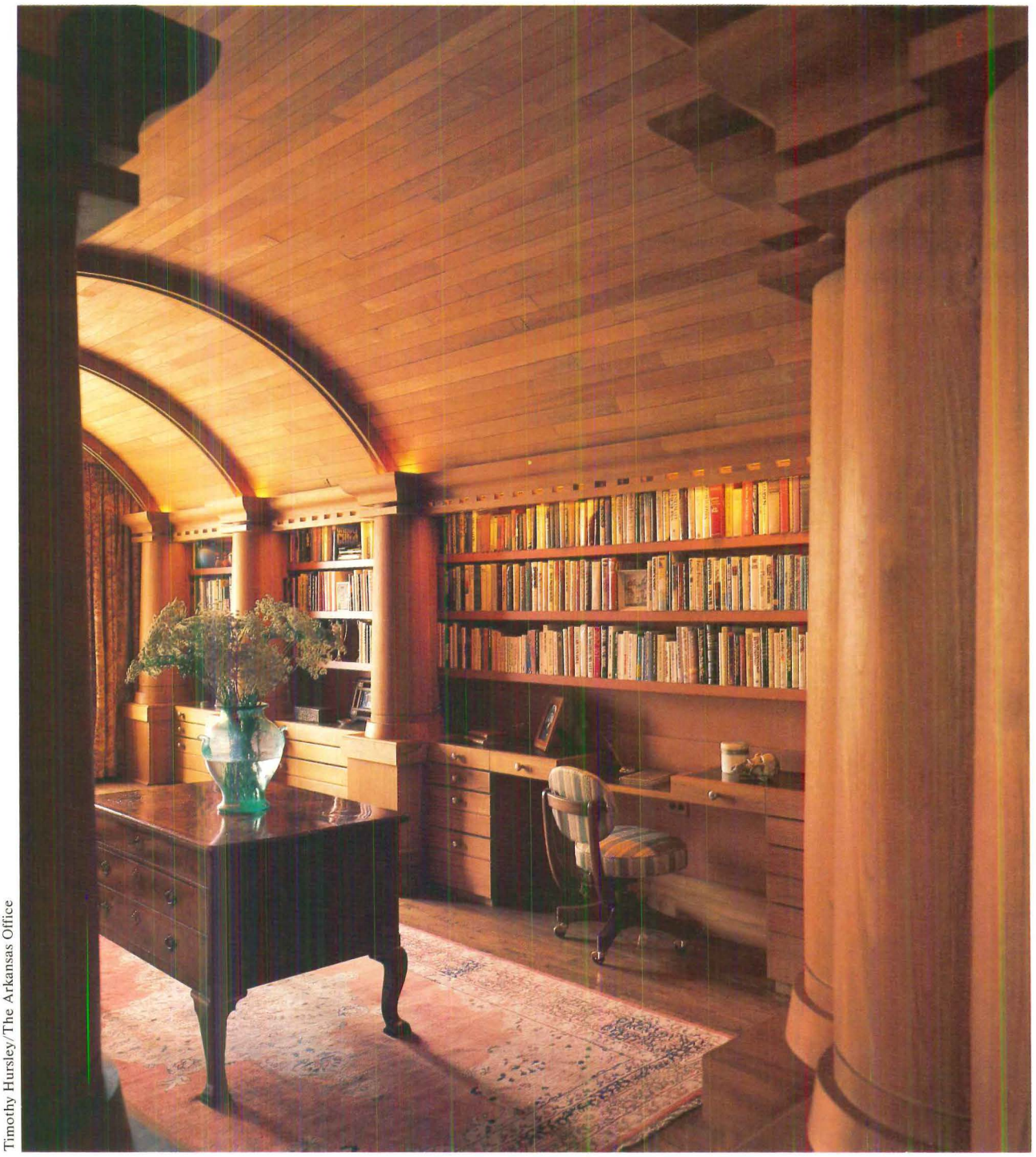
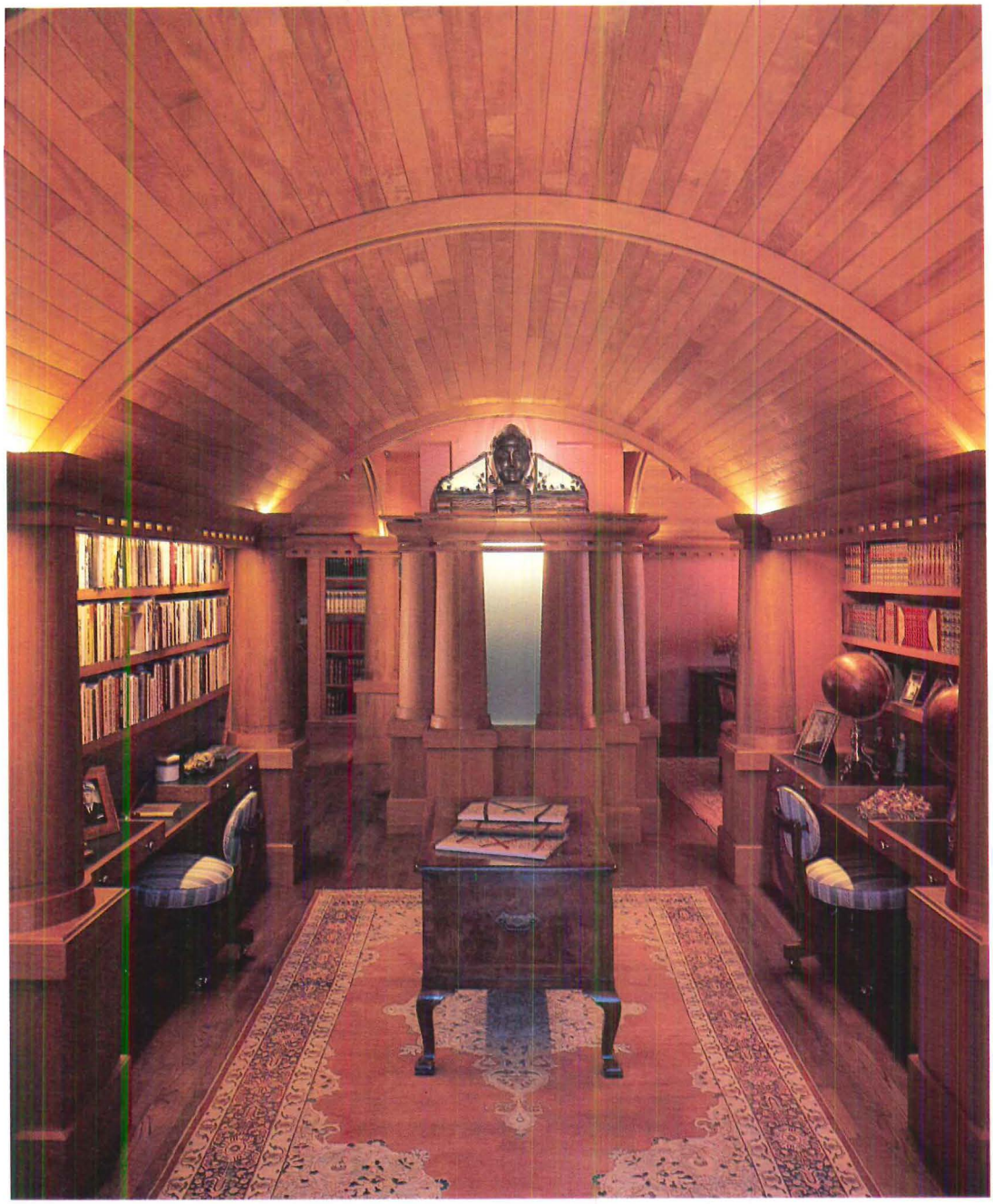
Interiors



Timothy Hursley/The Arkansas Office

With their squat wooden columns and vaulted wood ceilings, these rooms appear, at first glance, more apropos of turn-of-the-century England than New York's trendy upper west side in the 1980s—more likely the setting for a gentlemen's club than living quarters for a successful female writer, for whom they were, in fact, designed. What began as a series of nondescript rooms in a prewar apartment building ended up transformed into a suite resembling a baronial manor.

Responding to the client's wish for a series of dark, cozy rooms, Mark Simon, AIA, of Centerbrook Architects, and his assistant, Leonard Wyeth, AIA, conjured up what Simon prefers to think of as a lost era of English architecture, a style that might have happened but never did. Blessed with a duplex apartment with a sun-filled penthouse for a top floor, the client had the luxury of turning the downstairs rooms—a dining room, foyer, and library/study—into an introverted and intimate setting. Working with generous 10-foot ceiling heights, Simon let his imagination take over, producing a series of teak vaults supported on fat columns with raised bases. Column capitals merge into a frieze containing incandescent lighting; column bases blend into desk tops and storage drawers, producing a strong sense

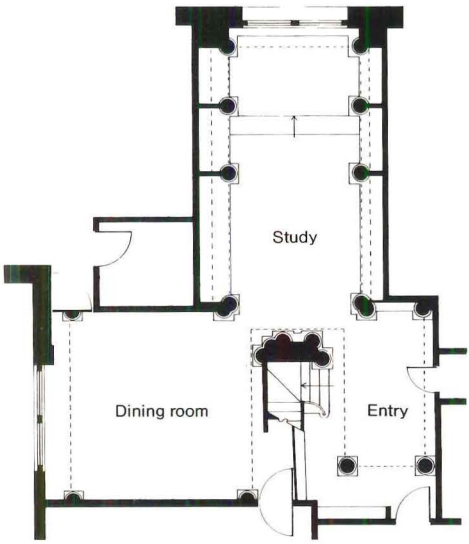


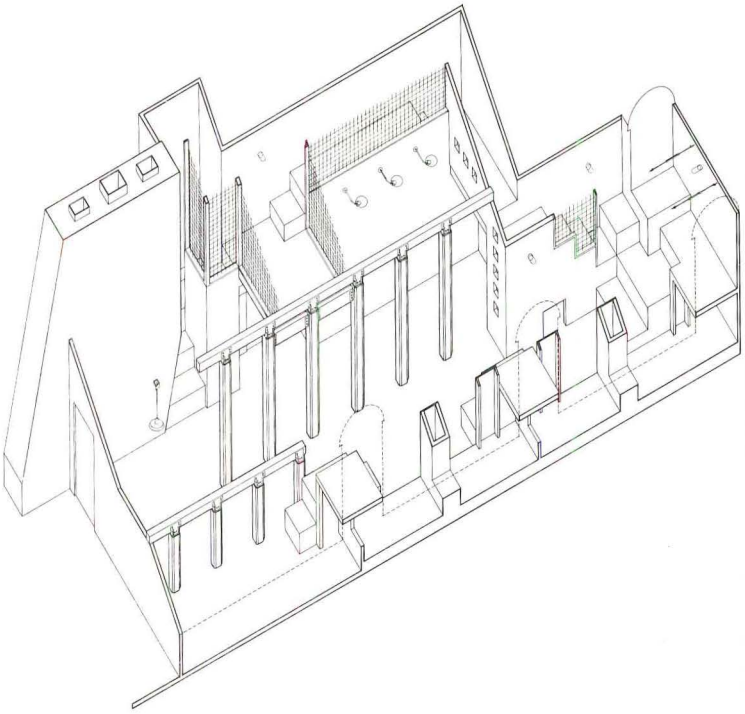
of unity and uniformity among the three types of spaces. Ribs spring from the capitals more as a visual device to add punctuation than for any structural need. Even the wall color, a rosy terra-cotta, was selected not to contrast but to continue the sense of enclosure.

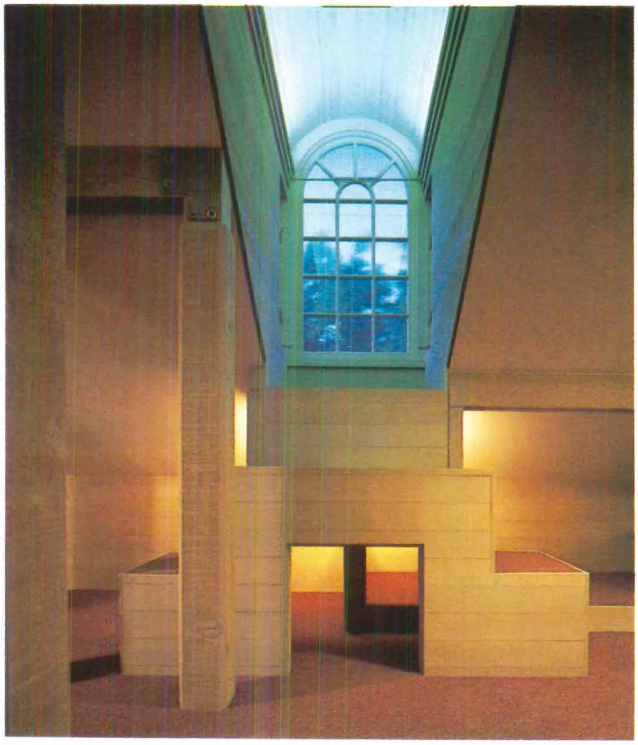
It was a labor-intensive, handcrafted job very much in keeping with the esthetic feel of the interior itself. The construction was done by Breakfast Woodworks, and the client commissioned Joel Schwartz to design and install the wrought iron railings and lighting fixtures, which give visual relief to the teak surfaces.

For Simon, the imaginary period of history this interior represents is part of what he feels is the poetry that is possible in architecture: the visual metaphor that evokes a sense of the familiar without actually borrowing from or literally recreating it. "It's not eclectic," says Simon, "not just a collection of disparate styles. It is more a merging of styles into something new and different, which leaves traces of their origins. It feels familiar, yet it creates something entirely new."

—Sharon Lee Ryde







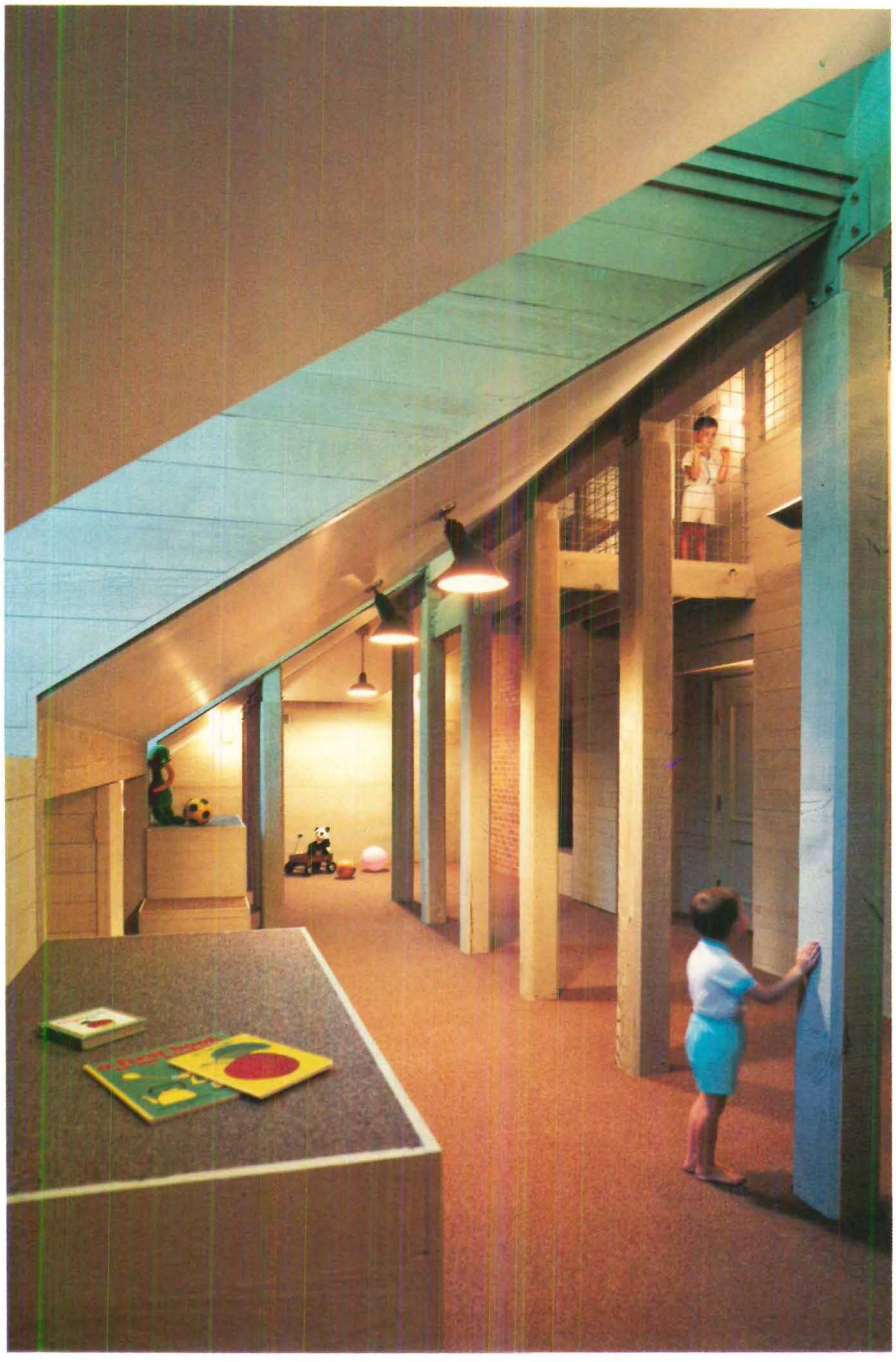
What more could one add to a 9,000-square-foot house that already has six bedrooms, a media room, darkroom, shooting gallery, and three growing boys? A children's room of course, which its architect, Mark Wellen, AIA, describes as "a modest, west-Texas sized space" of almost 1,100 square feet.

Borrowing from unused attic space, Wellen removed the load bearing walls, replacing them with rough-hewn cedar columns, which opened up the space so that its dramatic proportions—a ceiling that rises from 3 feet to 14 feet—could be exploited. He also removed the cross-bracing, adding tie rods instead.

Constructed to resemble as much as possible unfinished attic spaces—"memories of our grandmother's attic," says Wellen—the children's room was intended to be different from any other space in the house: not a playroom as much as a space to play in. As a result, there are no specific furnishings or uses determined; the kids can camp out with friends in sleeping bags as easily as they can read quietly or play hide-and-seek. The room contains all sorts of nooks and crannies, places to climb into or up on. A passage of stairs threads its way up to a second story along the fireplace wall and then back down, weaving a path under the dormers and behind square storage columns. Along the second story, the kids are protected by a grid of horse fencing, the galvanized surface of which is left unfinished. The cedar siding and commercial-grade carpet are kid-proof, as are the industrial lighting fixtures.

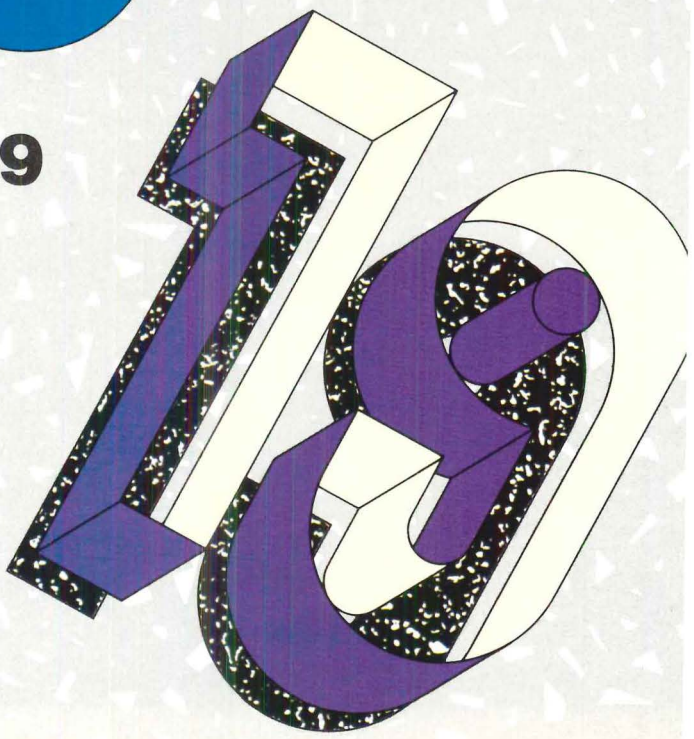
The room was designed to grow with the children for whom it was made. Since it was done deliberately in almost a non-style with nonspecific uses, it can accommodate activities that change as the interests and ages of the children change.

—Sharon Lee Ryder



Photographs ©R. Greg Hursley

NEOCON 19



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Poetic Compositions Of a Venetian Master

Carlo Scarpa: Theory, Design, Projects. Maria Antonietta Crippa, (MIT Press, $50.)

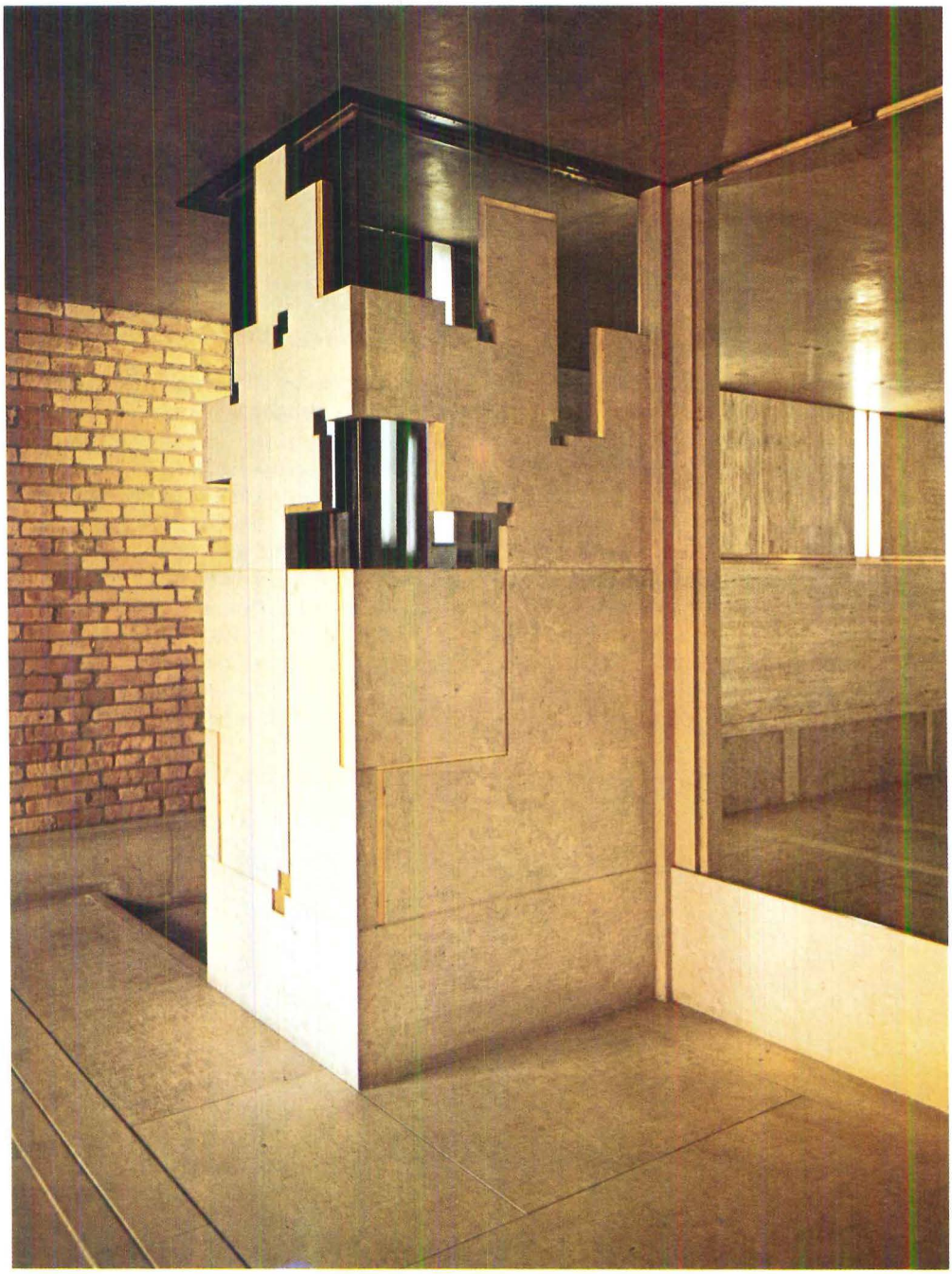
Carlo Scarpa (1906-1978), a Venetian poet of architecture, created his poetry using found fragments of the constructed world. His poetry was brought into being by a growth of a tradition within the trade of modernity. It is a self-explanatory architecture.

Many critics have labeled his architecture as fragmentary, an architecture of parts. The relationship between the part and the whole is indeed the dominant theme of Scarpa's architectural activity. But the result is not an architecture of mere instrumental or symbolic representations. Scarpa's architecture unifies the two kinds of representations in the glorification of the virtual and real joints of a construction, where the power of imagination, *phantasia,* is at the core of the architectural métier.

As a child, Scarpa began his lifelong engagement with architecture, playing marbles on the paving stones under the portico of Palladio's Palazzo Chiericatti in Vicenza. He died in Sendai, Japan, killed by "her." He fell from an upper floor platform while walking backward, a habit developed to focus better on the piece of architecture standing in front of him.

He is probably the most amazing and anomalous figure among the Italian architects who achieved international recognition after World War II. The standard concept of "architect" is completely inadequate to define Scarpa's contribution to architecture. He was, at the same time, an aristocrat of architecture and an active member of an artistic leading edge. He advocated avant-garde revolution, but he was also a traditional craftsman.

The range and the number of designs elaborated by the prolific Venetian master is incredible. He designed sophisticated glassware, precious furniture, beautiful fabrics, wonderful small houses, majestic playhouses, small amazing shops, and large intriguing exhibitions. He designed new edifices re-proposing old building trades in a new form and transformed historical monuments using modern technology, with a historical twist. The basic tool of his architectural production was a proper use of *phantasia,* tangibly expressed in wonderful drawings. Scarpa's drawings do not belong to the current fad of fanciful, publishable presentation or design drawings. They are profoundly introverted graphic thoughts requiring a careful deciphering rather than a simple reading.



Paolo Monti

Above, detail of Scarpa's Quierini-Stampalia Foundation building in Venice, showing screen concealing heating system.

The information available on Scarpa's oeuvre has been quite scarce. Only recently have publications been presenting his architecture to the English speaking world, and as Joseph Rykwert, in his introduction to Maria Antonietta Crippa's *Carlo Scarpa: Theory, Design, Projects,* points out: "As we enter a new period not only in the history of architecture but also in the building industry, his [Scarpa's] work will become increasingly important. He was one of the very few architects in the Western world for whom the link between the designer's conception and the craftsman's executing hand was indissoluble."

In her book, Crippa analyzes Scarpa's architecture from two points of view. In the first part, she describes the intellectual journey of Scarpa as a designer gifted with Byzantine and middle-European sensibility through the trends and tenets of the modern movement. In the second part, Crippa examines the essential features of Scarpa's designs of exhibitions and muse-

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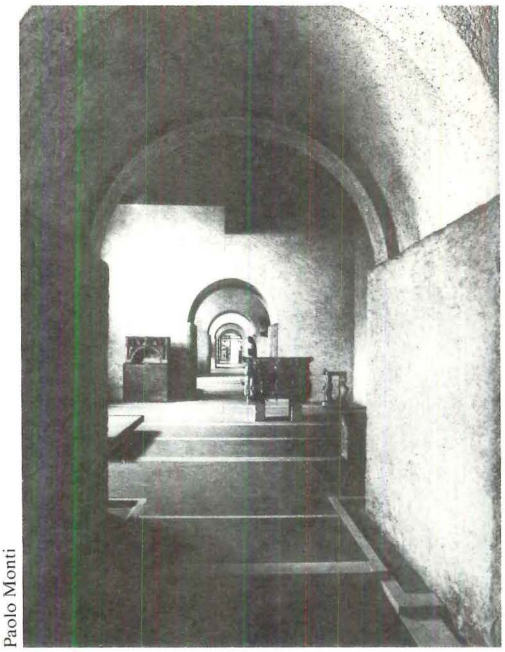
Books *from page 125*

um arrangements, this being an area of design where Scarpa's contribution has been important not only for the specific museographic themes, but also for the development of a new perception of the role of architecture.

Crippa's conclusions are far from positive. She regards Scarpa's architectural features as extremely ambiguous and artificial. She perceives them as similar to the masks in Chinese theater, features that emphasize the artificial nature of the play. Furthermore, Crippa sees Scarpa as not having the intellectual stature, nor the creative power, of Wright or Le Corbusier. From her point of view, Scarpa "was a prisoner of refined taste, cultivated in an atmosphere that owed much to middle-European art nouveau. He was a prisoner of his poetics: he made original compositions from ideas that influenced him, leaving unresolved the dialectic between old and new architecture—a dialectic he never fully explores."

These conclusions are reached after surveying the possible formal and intellectual sources of imitation in Scarpa's architecture. The range of influences singled out by Crippa is correct. Scarpa was indeed interested in the architecture of Aalto, Le Corbusier, Wright, Wagner, Loos, Hoffmann, but he was also interested in the stone of Venice. Scarpa did not go from imitation to invention as in a romantic understanding of design procedures.



Paolo Monti

Left, unfolding ground floor galleries in Scarpa's Castelvecchio Museum, Verona.

He related to architecture as a classical architect. Scarpa never designed, as Crippa is suggesting, in the "manner of" someone else. He simply copied from those modern masters and from the stone of Venice what was necessary for the piece of architecture he was developing at that moment.

In his introduction, Rykwert narrates a meeting he had with Scarpa, back in the '50s, when the Venetian architect told him: "All those Romans may *talk* about Wright, but when they build they imitate Gropius. *I* imitate Wright!" The power of the scholarly memory of Rykwert is well known, but I have the feeling that this time it has failed him a bit. I am quite sure that Scarpa ended his assertion stating, "*I copy* Wright!" since I was present, first as a student and then as an assistant to many of Scarpa's reviews of his students' works. He was always explaining that the work of a master should not be imitated, but simply copied for those parts that are necessary to solve the architectural problem at hand. Copying, from this point of view, is a process of interpretation that involves the figuring out of the relationship between the part and the whole, between the copied fragment and the construction at hand. The métier is in solving the joints between the copied fragment or fragments with the other parts of the architectural whole, which encompasses not only the specific building at hand, but also the past and the future productions of an architect.

Crippa's analysis of the achievements of Scarpa's museographic activity indicates that the great mastery of the Venetian architect is his sensible and at the same time powerful devising of the arrangements of the space and its architectural detailing in relationship to the exhibited pieces. "He willingly used every means, every component of space and design, to open

up the viewer's capacity of interpretation by the maieutic method," she writes. However, although punctual in her criticism, Crippa misses the surrealistic "trait" always developed by Scarpa in his designs. In describing the Castelvecchio Museum, Manfredo Tafuri writes: "There is undeniably something 'surreal' in the apparition of Cangrande to the visitor of Castelvecchio in Verona where [one] reaches it along a catwalk, crossing a sheer drop, or views it from below or from one of the many other angles available. The passage to the other reality is simultaneously mediated by materials and forms. The same thing happens, work by work, with the sculptures installed at the Palazzo Abatellis, the pieces displayed at the Galleria dell' Accademia."

The museum designs of Scarpa are based on the surrealistic understanding of technology. The designs result from the devising of a surrealistic sum of events: the architectural setting for the exhibition of the historical pieces and artifacts. The details of the space and the devices of the exhibitions are playful concretizations of these events in a constructed space that allows a construing. Those designs are "figures" of technology, that is, a coupling of devices and artifacts that, with their presence, make the museums passive time machines on the verge of becoming active ones, in the minds of the visitors.

Scarpa's creative process took place in stages and in his drawings. An appropriate use of representation was at the basis of the professional services of Scarpa. There is no reason for mistaking his graphic elaborations for the pure axiomatical, perfect professional work of skillfully done working drawings. The drawings are too hermetical for one to consider them the highly conventionalized construction drawings necessary on the site for indicating to different building crews how to assemble the parts or accomplish the construction of the building. On one hand, they are rigorous delineations based on an appropriate use of descriptive geometry organized around an almost exclusive use of orthogonal projections, and of extraordinary, almost indecipherable, complexity, due to the presence in the same drawing of various scales, and to a continuous commentary of overlapping thumbnail sketches. They have the same surrealistic meaningful complexity of a paint-

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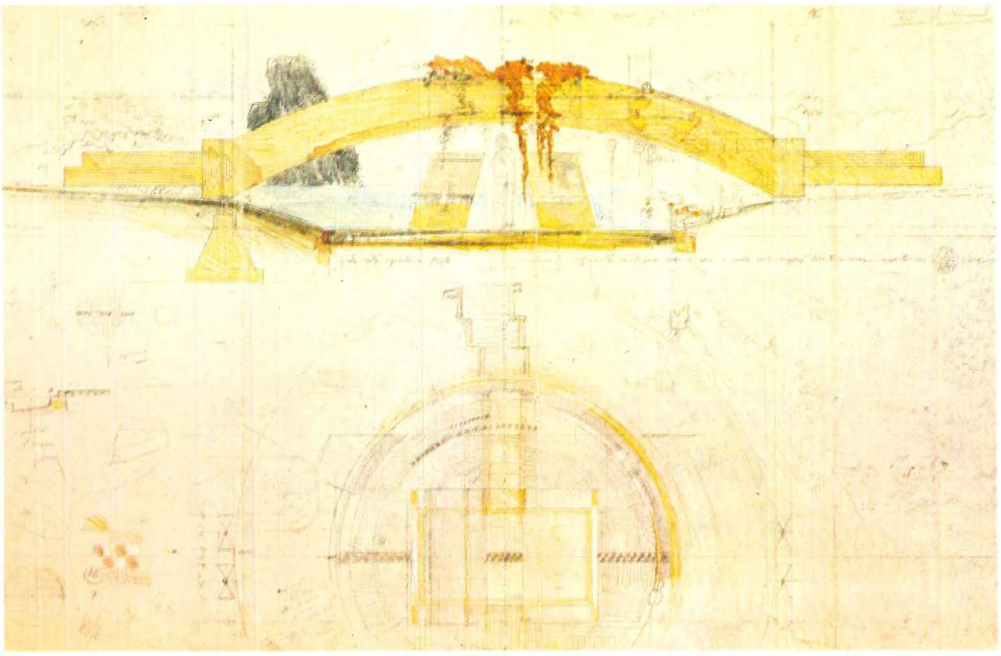


Above, plan and elevation of arched tomb at Brion Cemetery, San Vito d'Altivole.

ing of René Magritte, where objects with different scales of representation are assembled in a very normal looking room. On the other hand, they are indefinite and open to the possibility of multiple interpretations.

Scarpa's elaborated graphic constructions are ways of writing architecture. They are wonderful calligrams of a technological thought, analogical expression of the processes of construction. He worked out his strata of architectural meditations on construction, on pieces of heavy paper through a constant dialogue done with overlays of light pieces of tracing paper, using drafting and colored pencils, diluted inks, and applying the painterly technique of *pentimenti.* They are visual descriptions of processes that are not visible.

I disagree strongly with Crippa when she states that "the design is not always clear." The drawings are a dialogue between, on one hand, a scribed-in matrix—the survey of the site traced in diluted ink, the scoring in hard-lead pencil of the building lineaments.

Finally, I both agree and disagree with Crippa on how one should assimilate the work of the Venetian master in the practice of architecture. She writes: "It is not difficult to recognize the poet in Carlo Scarpa; it is more difficult to capture his originality. Scarpa's architecture is much imitated. . . . It commands public respect and by its imitations maintains a conserving and consolidating function."

I fully agree that it is difficult to capture Scarpa's originality, and imitation does not do it. But I think that the consolidating and conserving function of Scarpa's architecture and its natural belonging to the growth of a new tradition will come about through the copying of its parts. Understood in this way, Scarpa's built poetry will contribute to the shaping of a pleasant, dignifying, and commodious architecture.

—Marco Frascari

Dr. Frascari teaches at Georgia Institute of Technology's college of architecture, where he heads the doctoral program.

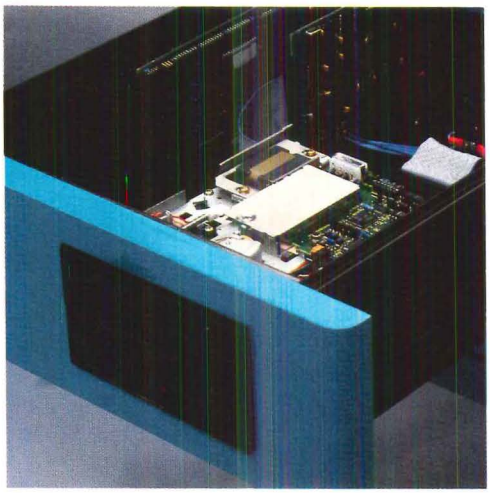
Master Builders: A Guide to Famous American Architects. Diane Maddex, editor. (Preservation Press, $9.95.)

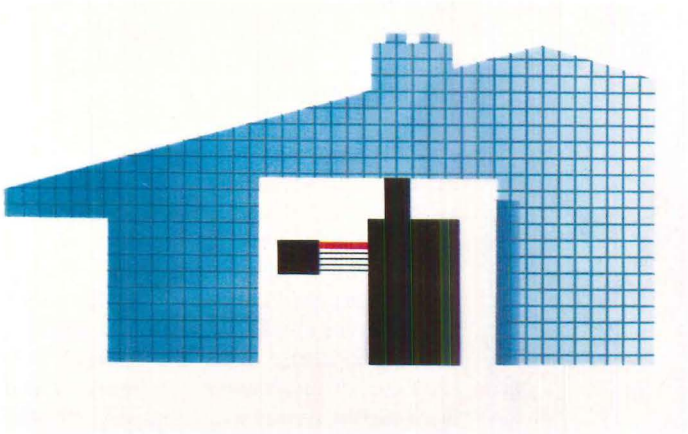
This tall and narrow paperback contains illustrated essays on 40 architects and landscape architects plus a short description of pattern books. Among those discussed is Frank Lloyd Wright, by H. Allen Brooks; I.M. Pei is considered by Peter Blake. Among the other architects are Thomas Jefferson, Richard Morris Hunt, Philip Johnson, and Skidmore, Owings & Merrill. Another section of the book identifies 60 additional architects, and there is a reading list for those who want more in-depth information on these people who have shaped our environment. ☐

PRODUCTS

Computer-Integrated Desk
Haworth's prototype "desk of the future," right, features a modular desk top and an integrated computer system built into the desk. A 14-inch-wide, one-inch-thick electroluminescent flat-panel display provides the visuals for the computer.

The central processing unit (CPU), below, is housed in a six-inch box drawer in the desk, and pops in and out for servicing. Disk storage is offered in the metal top (shown removed), that protects the CPU's interior.
Haworth
Circle 265 on information card

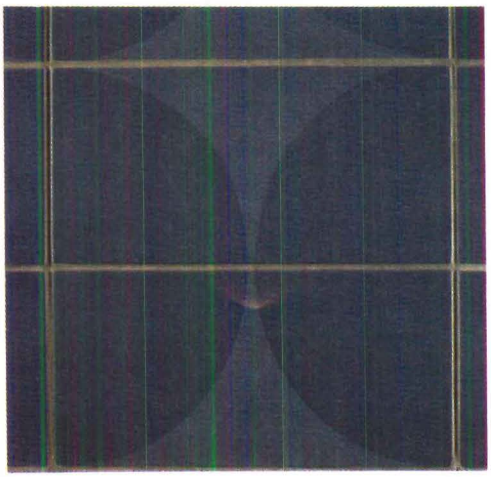




Hard-Wired Thermostats
Hard-wired clock thermostats, left, have their own direct source of power, being designed for installation using a continuous-power wiring technique. Continuous wiring is said to be more reliable than clock (battery-operated) thermostats because the thermostat has been hard-wired directly to the system transformer. Builders do not have to worry about compatibility with heating and cooling equipment, and nuisance call backs are greatly reduced.
Honeywell
Circle 267 on information card

Reflective Masonry Walls
The Reflecto-Lite series of Spectra-Glaze masonry units on glazed block, right, are used to create unusual interior and exterior wall designs. Motifs, logos, advertising messages, or addresses can be worked into the block by a patented mold-and-etch process. The designs react to changing indoor and outdoor lighting so that the images appear mobile, altering their appearance as the light source changes or as the viewer passes by under fixed lighting conditions.
Spectra-Glaze
Circle 254 on information card

—Amy Gray Light



SMART DOORS

Biometric information systems turn unique human physical characteristics into keys. By comparing the characteristic—such as fingerprint, voice pattern, or eye print—with a template of the same characteristic stored in a memory bank, the system identifies a person and grants access. "Eye Dentify" is one such system that combines analysis of the eye's retinal pattern with an identification number (PIN) for access control.

When you place your eye to an aperture, shift your head until you've lined up the dots in the unit, then press the scan button, your eye is scanned and compared with the stored eye "signatures." Upon recognition, the unit automatically releases the security lock, permitting you access. This unit is at the high end of the door security systems at present. Manufacturers such as Eye Dentify Inc. are marketing the system to security-sensitive industries and military installations. (See p.134)

Card-actuated electronic access security systems, although relatively new, are gaining acceptance in more common industries, such as hotels. By replacing the brass room key with a plastic card, hotels are able to provide better security for their transient clientele without unnecessary restrictions. At the same time, they are protecting their own assets.

Introduction of the electronic locks in the late 1970s allowed the hotel desk clerk to use a card-writing device connected to a microcomputer, which put a special magnetic combination on the key card. Each room's door was fitted with a lock equipped with a microprocessor. When the card with the correct code was inserted into the slot in the lock, it was read by a card reader and microprocessor, and the door opened. This was the simplest of card-actuated electronic lock systems.

In the intervening years, electronics manufacturers have refined and expanded the locks' capabilities. Intellis, an electronic lock system from Schlage, produces a keycard with magnetic stripes like those on a credit card. Their hope is that the lodging industry will interface the card-lock with other systems, such as sales and any other credit transactions.

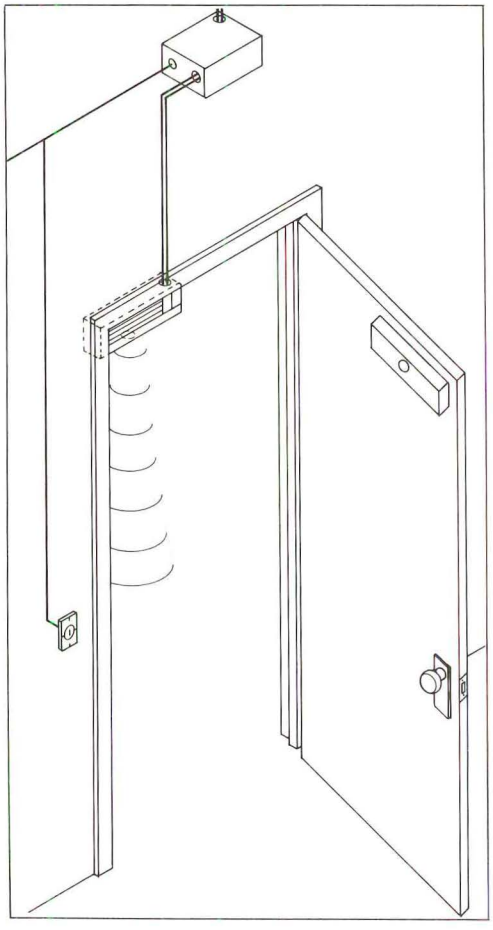
These newer lock systems have a microprocessor that can function like a time clock, allowing entry only at certain times. A key is made to permit access to its holder on a specific day or at specific times, thus limiting access of service and supply personnel to certain hours. The individual units can be linked to a central computer to record when each room is accessed. The central computer can be programmed to record at what time a card is made, for whom, and by whom.

When specifying electronic locking systems, the architect should begin by considering the level of security the client needs, the varieties of access required, and the volume of access required over a given period of time. Since this industry is quickly changing, choose a system that can adapt to the future needs of the client. Electronic lock technology is becoming more sophisticated, and manufacturers often stress the point that "innovations are inevitable, adaptability a must." One method of choosing a system is to look at how versatile it is at present. For instance, is the computer compatible with other computer systems in the facility, and can its functions be expanded or contracted according to client needs?

The speed with which the system can make a keycard can be of great importance to the client. Some manufacturing companies issue cards infrequently and speed isn't a priority, but businesses such as hotels can't keep the customer waiting in the lobby while they make up a keycard. This brings up another important point: who's going to operate the system? The supplier should have an initial training program for the operators; and, just as important, the system should be simple and clear enough for the employees to train new employees. If the employee needs an advanced degree in electronics to operate the system, forget it.

Without interviewing the current users of these security systems, it's hard to determine their track records, so it might be worth the call. Ask the manufacturer for a list of existing projects similar to your client's, and spend some time asking questions. It'll be worth the effort.

Two other factors that should be carefully considered are ease of installation (particularly for a retrofit job) and the manufacturer's service record. In new construction, the electronic locks and doors will be designed to match. In existing construction, the architect will have to do a careful door and hardware survey to determine whether the locks can be installed without extensive patching of existing cylinder or mortise holes, or the complete removal of the door. Also, careful coordination will be required if the normal functioning of the building can't be disrupted. This is particularly important in businesses such as hotels.



Future service of the system is going to be extremely important to your client. Investigate the manufacturer's service record, who does the servicing, where they are located, and how long they've been servicing that type of system. Also check how responsive they are to the client's needs, as well as whether they are up to date on the newest innovations. Again, you may have to contact companies currently using a particular system to find this information.

For traffic to function normally in a building, designated fire doors were often propped open by staff. When a fire occurred, doors that should have been closed weren't, allowing smoke and fire to move at will through the building. For years, the only answer was the self-closing fire door equipped with a fusible link—a small soldered area on the closer that melts at temperatures of 120-160 degrees Fahrenheit, releasing the closer and automatically shutting the door. However, by the time the link gets hot enough to melt, toxic gases and smoke may have spread, causing damage and loss of life. Fusible link door closers are still sold by manufacturers, but they should be considered minimum protection.

Electronic sensing devices and alarm systems have evolved to a level of sophistication and reduced size that allows the architect a wide range of fire safety options. Today's electronic door closers incorporate a range of features, from stand-alone units to elaborate networks linked to a central alarm control panel. The stand-alone units incorporate not only electronic release mechanisms in the door closer assemblies, but also smoke detectors. These units have electromagnetic hold-open devices that allow the door to swing free and close automatically when the detector senses smoke. The stand-alone units are often the preferred choice for single, isolated doors.

Where remote smoke detectors are already in place, the stand-alone units become redundant. The architect's choice then may be a zone system, in which the detector sensing smoke (usually independent of the closer) transmits a signal to a central control panel, causing an annunciator to sound and the fire doors automatically to release and close in the affected zone. These systems are particu

continued on page 13

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Products *from page 132*
larly suitable in hospitals, nursing homes, and hotels.

Whatever system or combination of systems the architect chooses will be partially determined by how many fire doors the codes require and where the doors need to be located. But this approach may answer only the basic questions, and an architect should be familiar with the variety and complexity of these systems. They'll affect the electrical plans, door and hardware schedules, and, of course, price, to name just a few factors. The closer may need to be connected to an alarm that is activated when it senses smoke and releases the door. All closers can be interconnected with remote sensing devices; or some can be interconnected while others are stand-alone units with their own built-in sensing devices.

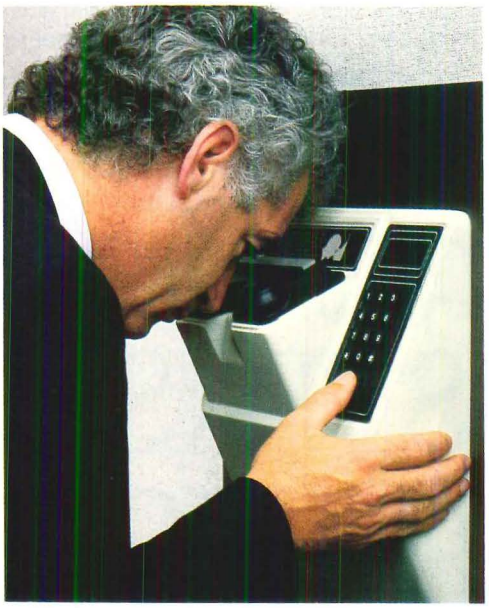
Another option is the level of complexity assigned to a central control panel, what the panel will be required to activate, and in what sequence. In the case of retrofit projects, the architect should take a careful look at the difficulty of providing electricity to the designated doors. This can seriously affect the cost of installation. Even if the architect considers this type of hardware selection the realm of the fire protection engineer, he or she should understand enough of the basics to ascertain that the choice is correct.

Providing a fresh-air corridor in case of fire used to mean placing motorized louvers often where they looked the worst, or, at the very least, installing a louvered door equally as unattractive. As one solution to the problem, LCN has taken the autoequalizer normally used for handicapped-accessible doors (which opens a door slowly, with about 15 lbs. of force, so it won't knock people down, then closes it behind them) and hooked it up to the fan control unit. When the fan at the top of a stairwell, for instance, comes on, the door at the bottom automatically opens, providing the required fresh air. The door control box has been modified to hold the door open as long as necessary.—Timothy B. McDonald

Security System

Programming the Eye Dentify system involves a one-minute retinal eye scan. A low-intensity infrared light source scans the intricate vascular pattern at the back of the eye. The light reflected back from the eye is picked up by a photo sensor, scattered, and measured at 320 points along a 450-degree scan. The waveform defined by these 320 data points is digitized and then sent to a microprocessor, where it is stored as a 40-byte signature template.

During verification, the user keys in his or her personal identification number (PIN), then submits to an eye scan. If the eye and PIN match the computer's template, the system automatically activates release for whichever type of security



mechanism is used, and grants the user access.

The time required for the entire process varies, depending on the number of eye signatures on file and whether or not the system is set up to use PIN verification or recognized mode, which scans all eye signatures on file.

The only other equipment needed is a standard system-compatible RS-232 display terminal. The format for nonvolatile data base storage depends on the number of eye signatures the user anticipates having on file. By interfacing with a separate host computer on a stand-alone or network basis, the system's storage capacity can be expanded to meet any organization's needs.

Suggested uses for the retinal scanning systems include physical access control; time and attendance; government and military; information systems and EDP discrete terminals; facility management/building monitoring; and OEM contracts.
EyeDentify
Circle 241 on information card

Electronic Key System

The Gibraltar 2000 system consists of a desktop size key encoder, a choice of a metal or polycarbonate key, and an electronic mortise lock.

The electronic key encoder creates new coded keys, issues reusable coded and special instruction keys, and stores all available codes. (According to the manufacturer, up to 30 million randomly selected codes can be stored in its nonvolatile memory.) The encoder can generate almost 10,000 installation codes. An emergency programmer housed in the encoder can open any lock in the installation and features its own power supply from which it can recharge a lock that has lost power.

The keys can have any number of doors programmed to accept them. Encoded along their blades by the key encoder, they reputedly cannot be duplicated. To encode a key, the operator inserts it into the electronic key encoder and assigns it an identification level. Coded keys and duplicates may be made ahead of time and stored since they are inoperable until used with the "Learn" key. The "Learn" key prepares the lock to accept the coded key by clearing the lock's memory and instructing it to accept only the next encoded key inserted into it. All keys are able to throw a dead bolt from the outside, and are reusable when recoded.

An installation key is designed to establish a code for installed and retrofitted locks to make the lock "neutral" and to allow the lock to accept the entry code of each key properly introduced to the system. A "Lock Reset" key erases the lock's memory of every code except the installation code. A "Lockout" key temporarily blocks any entry and the "Lockout Reset" key re-activates the lock without losing the lock's memory in the process. A cancel key locks out lost or stolen keys.

The standard mortise lock has a battery powered electronic trim that reads the code from the blade of the system's key. The system is operated by microprocessor battery packs and draws current only during active operation.
Falcon Lock
Circle 242 on information card

Electronic Access System

The Yaletronics 1260 security system provides access to hotel rooms and maintains a record of each time the room has been entered since a guest checked in.

The system includes a computer module, a terminal, a key maker console, a printer, and a portable programmer. A fiber-optic link is used during the programming of the door locks.

The crucial element in the system is a plastic "key" card. The card is personalized with a unique set of computer-punched holes. When a guest checks in, the operator uses the terminal to enter relevant information into the computer and inserts a blank key into the key-maker console. The key maker punch-codes the key automatically, making the key valid for entry to the hotel room. The computer has a built-in program containing millions of code combinations, so a different code—and key—is generated for each guest.

When a guest first inserts the card key into the door lock, the card automatically programs the lock to respond only to its personalized code. The lock contains a microprocessor that is synchronized with the computer. When the card is inserted, the microprocessor analyzes its code. If it's the correct one, the lock is activated and the guest may enter the room. If the lock contains an improper code the lock won't open. The code for the previous key is cancelled the first time the guest inserts his card.

One-time-use cards are employed for room service, maintenance, or any situa

continued on page 13

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MASTER SYSTEMS—Software Programs for Today's Design Professional

Circle 45 on information card

tion for which restricted entry is appropriate. This special function key unlocks a given door and automatically voids itself.

Each transaction is stored on computer diskettes and may be retrieved at any time for review in the form of a printout of recorded entries to a particular room.
Yale Security Group, a division of Scovill
Circle 256 on information card

Automatic Door Operator
The Dura-Glide 2000 microcomputer-controlled sliding door operator is designed to eliminate the need for position switches.

The "Dura-Glide" operator is activated by a sensor positioned over the doorway. The door automatically sets its own open and close limits. A "Pozi-Trac" position controller calculates the door location. In positioning the door, the "Dura-Glide" system allows for outside temperature and wind velocity and adjusts for consistent door speeds. Opening adjustments can be made in increments as small as three inches.

A safety feature is programmed to stop the door when it encounters an obstruction, reopening and then closing it slowly as the system senses for the continued presence of the object. If the obstruction is removed the door closes fully and operation returns to normal speed. In addition, anti-riser wheels help prevent jerking motions.
Stanley Magic-Door
Circle 243 on information card

Intelligent Lock
The INTEL 3940 magnetic lock incorporates a built-in exit control device that monitors the doorknob area and allows the lock to release when a hand is placed on the knob. The user will be unaware that the door is fitted with an electrically controlled lock. The exit detection sensor is designed in a way that false triggering from foreign objects under the door or by mirrors will not open the lock. No wall-mounted auxiliary exit control or field wiring is required.

In an emergency the lock automatically releases but remains latched to prevent smoke, fire, or water migration into the building core, yet allow emergency egress.

Other features of the 3940 are a dovetail mount that allows the lock to slide into place without visible screws, an optional built-in exit sign, a three-tone alarm that sounds off in low to high tones depending on the seriousness of the condition, and tri-color LED color indicators that work in conjunction with the alarm.

The lock complies with NFPA 101 exit section 5-2.1.5.1 retrofit installations and handicapped requirements.
Security Engineering
Circle 244 on information card

Electromagnetic Lock and Floor Closer
Rixson-Firemark's 1500 series electromagnetic locking devices hold doors shut with 1,200 pounds of force but are designed to unlock instantly in the event of a power loss or emergency signal. The locking devices feature built-in protection against spiking and power surges, while a low current draw is said to allow longer wire runs.

The devices are housed in cast-aluminum and have no moving parts. The 1500 series is available with a door position switch, enabling the monitoring of doors from a remote location. The device conforms to NFPA 101 requirements.

Another recently introduced product allows concealed 50 Series floor closers to fit in a concrete slab as shallow as two inches thick. Available for use on single- or double-acting doors and for all types of doors including tempered glass and labeled fire doors, the shallow-depth 50 Series meets the requirements of most existing handicapped codes. All models feature independent latch speed and stroke speed adjustments, with back-check as an option. Existing arms and pivots for handling doors using the floor closer are standard.

The floor closers are field-adjustable for location, 3/16-inch in each direction from the center of the cement case. The closer has a spindle that may be extended in 1/2-inch increments and are field-replaceable. The body of the closer itself can be changed from offset to center-hung by changing the spindle and arm.
Rixson-Firemark
Circle numbers 249 and 250 on information card

Electronic Locking System
Schlage's Intellis electronic locking system for hotels and motels consists of an Apple Macintosh computer with keyboard and mouse, Intellis software, and a key encoder. Optional hardware is also available, based on installation requirements.

Special features of the Intellis system include keycards with standard magnetic stripes that provide security for up to five common guest-access areas (such as pool, sauna, and garage) on one card; "audit trail" reports on room and key use; and billions of codes generated by the system to avoid repeated combination codes. The system is compatible with commercially available property management systems.

In addition to systems for the lodging industry, Schlage will offer future electronic locking systems for universities, hospitals, government and commercial buildings, and houses.
Schlage Lock
Circle 246 on information card

Door Security System
An automatic revolving door fitted with a Control-Flow revolver and activated by a card or badge reader prevents piggybacking—the problem of unauthorized personnel entering a controlled-access building behind an authorized employee.

When activated, the door automatically revolves one-quarter of a turn. If someone attempts to step into the door from the other side while the door is rotating, it will stop, and a voice module will announce, "Wrong way. Please exit." The door then backs up and remains locked in position until the unauthorized pedestrian clears the doorway.

The entrance can be continuously monitored from a remote location, and the date and time of entrance and exit are recorded for all badge numbers.
Horton Automatics
Circle 247 on information card

Electromagnetic Locking Products
The Model 62 Magnalock electromagnetic locking system is comprised of various electronic locking system products, such as battery charging supplies, release buttons and bars for exit, control panels with timing and interlocking functions, key switches, and a high-security keypad. Each component may be specified individually or as an entire system. To enhance the system, optional components may be added per door.

The stainless steel "Magnalock" provides over 1,200 pounds of electromagnetic holding power, has no moving parts and operates on a small battery. The lock is said to provide instant unlocking with no residual magnetism. Installed by four-bolt mounting, the lock can be used even if the door or gate where it is installed is warped or out of alignment. "Magnalock" is capable of withstanding extreme outdoor elements and use, and it is compatible with all electronic systems.
Securitron
Circle 248 on information card

Door Holders and Closers
Several electromagnetic door closer models by Dorma can be used with existing smoke and fire alarm systems. Dorma EMF/FLT closers, suitable for connection to remote smoke detectors as well as other alarm devices, contain a feature whereby interruption of electrical current will cause the closers to shut the door from any angle. The EMR/FLR model electromagnetic door closers has an integral smoke detector and power supply.

EM Series electromagnetic door holders are specifically designed for use on self-closing fire and/or smoke barrier doors. The holders are comprised of a door-mounted contact plate and a floor or wall-mounted electromagnet. The EM Series also interfaces with new or existing fire alarm control systems, area detectors, sprinkler systems, or manual controls. Upon interruption or loss of current the hold function disengages and a separate door closer is programmed to take over and pull the door shut.
Dorma Door Controls
Circle 252 on information card

Electronic Management System

Wes-Tech, a work-surface power and cable management system introduced by Westinghouse, provides a simplified management system for electronic office equipment in the workplace.

Components of the system and a supporting computer furniture line manage power and cable at the base, the work-surface level, and the top of a panel system. Connectors manage large amounts of power wires and communications cable inside the panels.

The basic component to the system is an electrified raceway called Wes-Powr, which provides a six-wire, three-circuit, two-ground capability. The three circuits

use individual electrical lines within the office, and the two-ground system reserves an isolated ground to serve a separate circuit, enabling computers throughout the facility to connect to one power line.

A Communications Pack (Comm-Pak) enhances the raceway system by eliminating cable clutter while networking cable within the raceway. Field-installed kits allow the user to connect telephone, computer, or audiovisual cables directly into raceway outlets. A Data-Trak raceway attaches to the top of the system panels and can contain as many as 30 ⅜-inch data/communication cables at one time. The Data-Trak is designed to eliminate rewiring and cable "fishing" that usually accompanies equipment change, and it further separates telecommunications from electrical wiring.

The latest introduction to the Wes-Tech line is the Power-Pac, a work-surface power and cable management system that doesn't require a dedicated open office panel. Power-Pac manages and conceals cabling through a metal cable trough attached to the rear of the work surface that accepts existing Wes-Powr components and Comm-Pak outlets. The knock-outs line up vertically with knock-out locations in the base runway. Computer, telephone, coaxial, and electrical connections are made within the five-inch-deep (four-inch-wide) channel trough. A trough cover conceals cables and connectors and provides a flush work area that when inverted becomes a pencil tray. A flexible flap on the trough allows access of cables and cords. Covers are provided in 18- and 12-inch increments so that a section of the trough can be accessed without exposing the entire unit.

The Power-Pac cabling module also offers pass-through capability with adjacent work surfaces. The work surface can be panel-hung with cantilever work surfaces or applied to freestanding work surfaces. The cable module can be factory-prepared or field-retrofitted. Standard widths for cantilevered surfaces are three-, four-, five-, and six-foot widths. They come in four standard trim colors. Power-Pac meets all applicable UL and NEC standards and requirements.

Westinghouse Furniture Systems, a division of Westinghouse Electric Corp.
Circle 255 on information card

Office Electrical System

The Power Base electrical system is specifically designed for the microprocessor-based electronic office. The Power Base employs an eight-wire, three-circuit design that provides multiple dedicated and isolated circuits that control electrical "noise" by giving each of the three circuits its own neutral wire, not shared with any other circuit. This eliminates the need for "balancing" circuit loads.

Dispelling ground-generated noise and protecting against power surges are

continued on page 139

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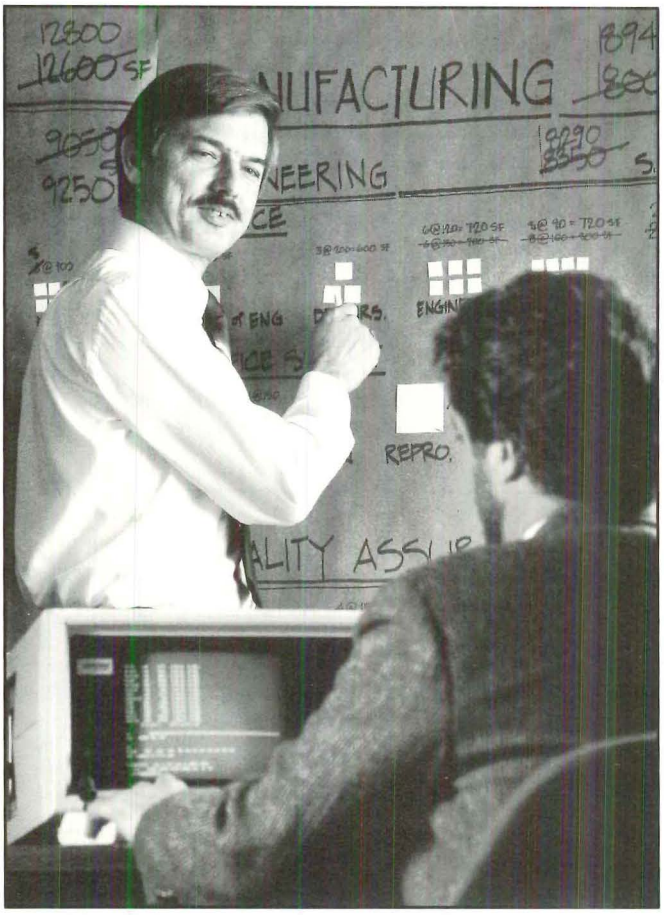

- It's portable—take it right to the client's office and do the analysis on site.
- It's comprehensive—the software can track detailed information and use a combination of forecasting methods.

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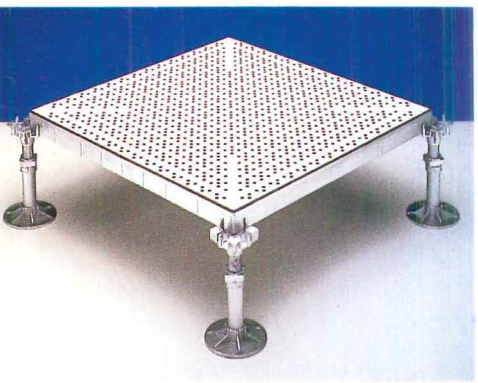
Circle 48 on information card

Products *from page 137*
Achieved through an isolated ground wire that can be assigned to any circuit or combination of circuits.

The Power Base can hook up to all building power source types, and an innovative receptacle design allows for easy, color-coded identification and circuit selection. The three available receptacle types are simplex, duplex, and Isolated Ground Receptacle (IGR).

When factory-equipped with proper local receptacles, the Power Base offers multinational companies the advantage of using only one electrical system worldwide to meet their power requirements.
Haworth
Circle 258 on information card

Access Floor
An aluminum access floor system incorporates a universal pedestal head that



can be installed with or without stringers for maximum flexibility. Aluminum floor components are designed to provide strength, durability, and superior static dissipation. (Static charges tend to bleed through the panel flooring.) The panels, interchangeable with existing aluminum access floor systems, provide laminar airflow through a variety of airflow panels in hi-tech environments.

The 24-inch square panels are rated for 1,000 pounds concentrated load and 850 pounds rolling load per panel. A variety of conductive vinyl tile and high-pressure laminates can be used as floor coverings. The floor system is for use in clean rooms, computer and equipment rooms, and other specialized environments.
Tate Access Floors
Circle 259 on information card

CREDITS

Virginia Steele Scott Gallery, Huntington Museum and Gardens, San Marino, Calif. (February, page 54). *Architect: Warner & Gray, Santa Barbara, Calif.* Design partner: Paul Gray, AIA. Project manager: Jan Hochhauser, AIA. Design development: Jan Hochhauser, AIA, Dennis Woodson, AIA. Landscape architect: Ann Christoph. Consulting mechanical and electrical engineer: Archer Spencer. Structural engineers: Brandow & Johnson Associates. Lighting consultant: Donald Bliss. General contractor: Jones Brothers Construction Corp. Lighting: Edison Price, Columbia. Elevator: Delta. Skylight: Super Sky. Ceiling surfacing: U.S. Gypsum. Wall surfacing: U.S. Gypsum. Roof: Koppers. Atrium columns and cornice: C.K. Varner. Windows: Kawneer. Atrium flooring: Rosa Porrimo, Luna Pearl Granite. Glass: Guardian. Flooring: American Olean. HVAC: Carrier, Dunham Bush, Robert Shaw. Hardware: Baldwin. Paint: Dunn Edwards, Sherwin-Williams.

House near Miami, Fla. (page 66). *Architect: Aragon Associated Architects, Coral Gables, Fla.* John Ames Steffian, AIA, Principal in charge, with Cameron Roberts and Armando Montero. General contractor: Carlos Bilbao. Landscape architect: Henry Clifford. Windows: Superior Window. Paint: M.A. Bruder & Sons, Benjamin Moore. Exterior lights: Lightolier. Carpeting: Miami Rug Company. Tile: Tropical Tile.

Meanwhile Ranch, Student Housing, Tallahassee, Fla. (page 68). *Architect: Johnson Peterson Holliday Architects, Tallahassee, Fla.* Structural and civil engineer: Copeland Consultant Engineers. Mechanical and electrical engineer: Ooten, Lock & Biwer. Landscape architect: Post, Buckley, Schuh & Jernigan. Developer: Archiform. General contractor: Mad Dog Construction Co. Ceiling surfacing: U.S. Gypsum. Doors: Caradco. Floor surfacing:

continued on page 141

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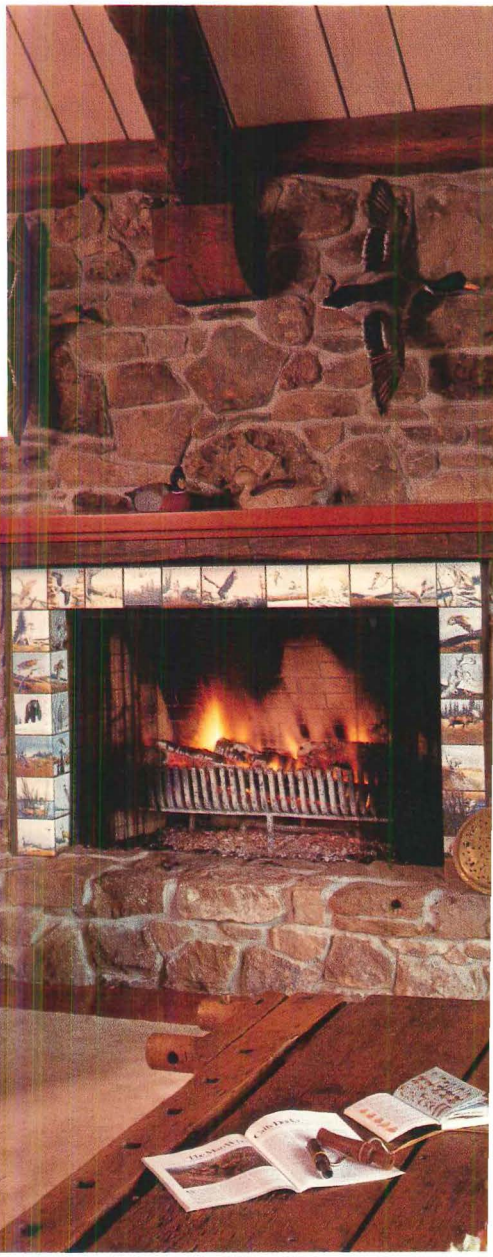

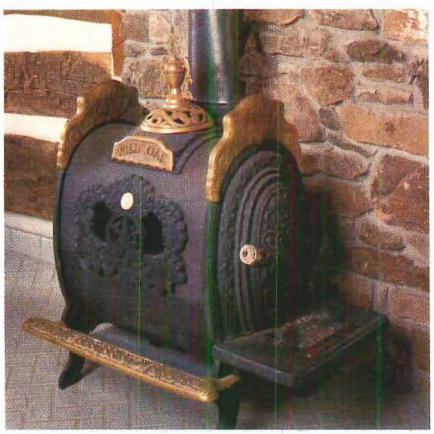

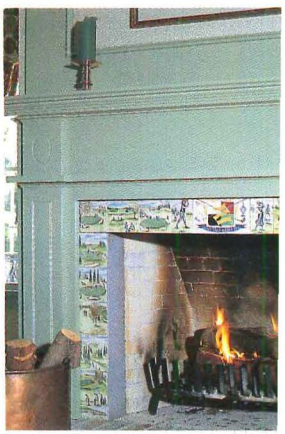

Credits *from page 139*
Armstrong. Pool: Portland Cement. Roofing: Owens-Corning. Paint: Porter. Lighting: Progress. Windows: Built-Best. Hardware: Quickset. Plumbing fixtures: Briggs. Kitchen appliances: General Electric.

Sanibel Cottages, Sanibel Island, Fla. (page 72). *Architect: Architectural Resources Corporation, Ft. Myers, Fla.* Ceiling surfacing system: U.S. Gypsum. Doors: SunDor. Elevators: West Coast Elevator. Environmental control systems: Ruud. Flooring surfacing: Philadelphia Carpets, Florida Tile. Lighting: Lightolier. Roofing: Berridge Manufacturing. Waterproofing and sealants: Tremco. Plumbing fittings and showerheads: American Standard. Saunas, whirlpool, and baths: American Standard. Washroom and bathroom accessories: Nutone. Tubs and lavatories: American Standard. Water closets: American Standard. Kitchen: Ray Routh, Inc. Stairs and treads: Koppers. Wall surfacing: U.S. Gypsum. Skylights: Bristol-Fiberlite. Windows: Harcar. Hardware: LCN, Hager, Falcon. Paint and stain: Premier Coatings, Flex-Bon.

Southeast Bank, Miami (page 78). *Architect: Skidmore, Owings & Merrill, San Francisco.* Design partner: Edward Charles Bassett, FAIA. Managing partner: Robert Armsby, AIA. Interiors project designer: Richard Irving. Interior designer, preliminary phases: Charles Pfister. Project designer, base building: Richard Tobias. Senior interior designer: Claire Kahn. Graphic designer: Debra Nichols. Job captain: Ross Dugan. Project coordinator: Don Giannone. Associate architects: Spillis, Candela & Partners. President: Hilario Candela, AIA. Partner: Julio Grabiel, AIA. Structural engineers: Skidmore, Owings & Merrill/Houston. M.E.P. engineers: I.A. Naman & Associates. Lighting consultant: S. Leonard Auerbach & Associates. Audio visual consultant: Hubert Wilke. Acoustical consultant: Gerami & Associates. Food service consultant: Laschober & Sovich. General contractor: Gust K. Newberg and Dugan & Meyers. Developer: Gerald D. Hines Interests. Millwork and custom furniture: Woodwork Corporation of America. Drywall contractor: M. Ecker & Co. Stone supplier: Thompson Granite & Marble. Stone contractor: Continental Marble. Ornamental metal contractor: Hoffman Metals, Metallic Engineering. Glass contractor: Flamingo Glass. Fabric panels and shading: Kenney Drapery. Electrical contractor: Levitz Electric. Carpet manufacturers: Karastan, Spinning Wheel Rugs, Ruchstuhl, A.G., Patchraft Mills, Collins & Aikman. Carpet installers: Carpet Systems. Interior planting and flowers: Flora Lease, Flower Shop of Miami. A.V. contractor: Ancha Electronics. T.V. equipment contractor: Midwest Communications. Food service contractor: Baring Industries. Check writing accessories: Allen Bank Equipment. Door and storage wall hardware: Tydix, Builders Brass Works. Furniture: Knoll International, G.F. Business Equipment, J.G. Furniture Systems, Jack Lenor Larsen, Howe Furniture. Files: Storwal International. Furniture system: Knoll Zapf. Fabrics: Gretchen Bellinger, Knoll Textiles, Boris Kroll, Jack Lenor Larsen, Living Fabrics, Pindler & Pindler, Randolph & Hein, Isabel Scott, Unika-Vaev, Ward Bennett, Donghia Textiles. Leathers: Brunati, Knoll Textiles, Spinneyback.

Poynter Institute for Media Studies, St. Petersburg, Fla. (page 82). *Architect: Jung/Brannen Associates, Boston.* Structural engineers: Weidlinger Associates. Mechanical and electrical engineer: C. Randolph Wedding & Associates. Acoustical consultant: Cavanaugh Tocci Associates. Contractor: Federal Construction Co. Landscape architect: Phil Graham & Co. Geotechnical consultant: Law Engineering & Testing Co. Tile roofing: Ludowici, Celadon. Skylight: EPI Architectural Systems. Boolards: Kim Lighting. Windows: Vistawall. Exterior doors: Anderson Lumber. Locksets: Russwin. Flooring: Quality Marble. Downlights: Lithonia, Kurt Versen. Wall lights: Koch & Lowy. Paints: Polomyx. Wood trusses: Structural Wood Systems. Reading chairs: Worden. Book and periodical shelving: Anderson Lumber. □

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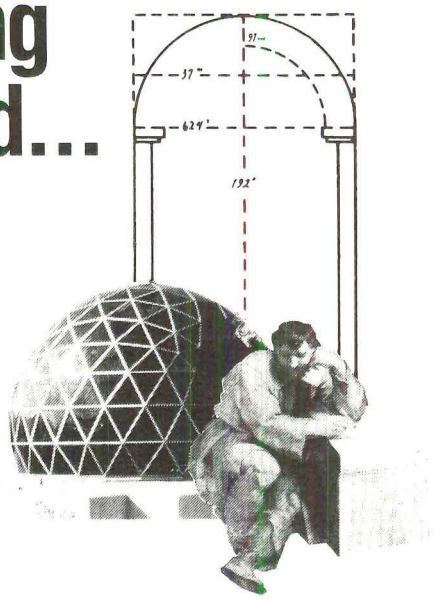

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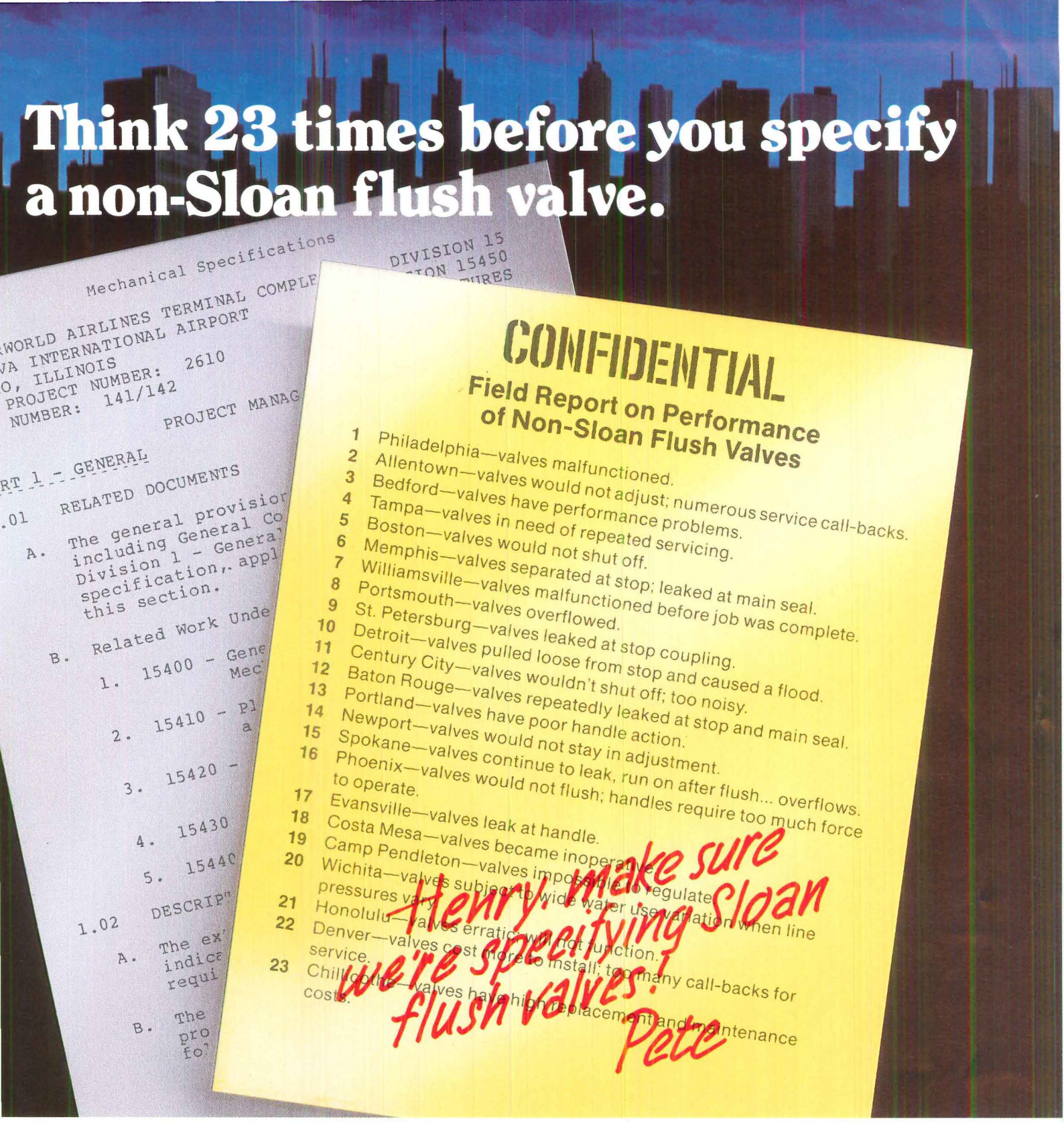
Think 23 times before you specify a non-Sloan flush valve.



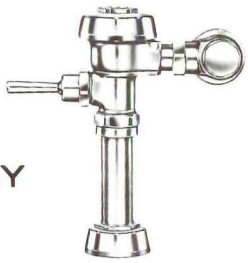
Specifying a non-Sloan flush valve is risky business. And specifiers across the country are discovering why. Look-alike products mean constant call-backs.

To investigate problems. To recommend solutions. To salvage your reputation. And finally, to do what should have been done the first time: specify Sloan.

Because with Sloan flushometers, you automatically get 24-hour peace of mind. Unlike substitute valves, Sloan flushometers are built to last. And last. Without call-backs. Without adjustment problems. And without floods.

In fact, by specifying Sloan flushometers you can eliminate virtually every performance problem common to look-alike products. And that's the major reason why an increasing number of buildings with substitutes are being refitted with Sloan flushometers.

So the next time you're tempted to specify something other than Sloan, think 23 times. Then specify Sloan. The first time.



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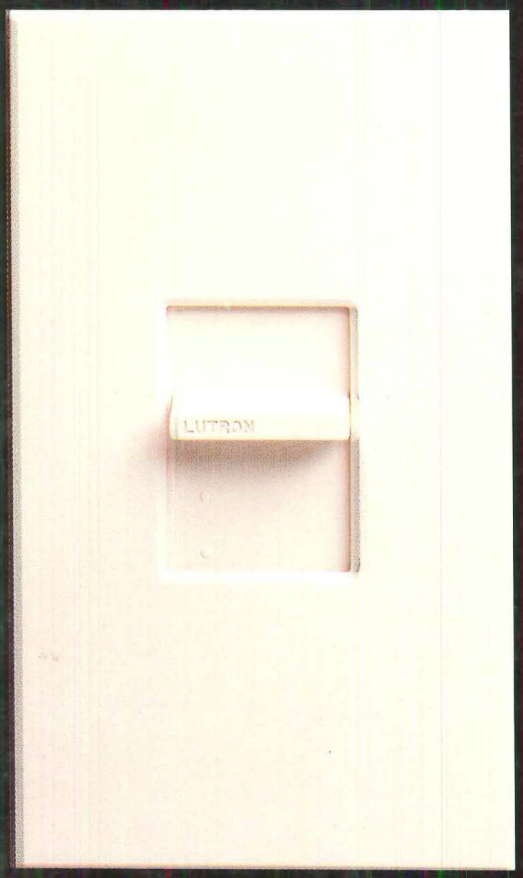

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