





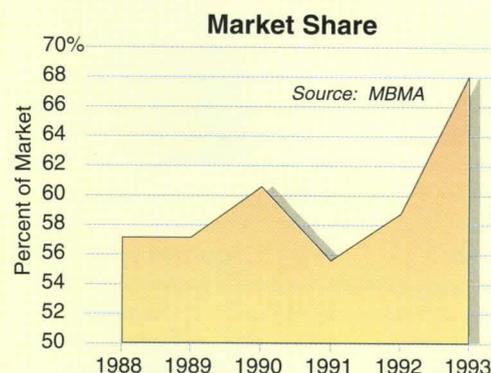
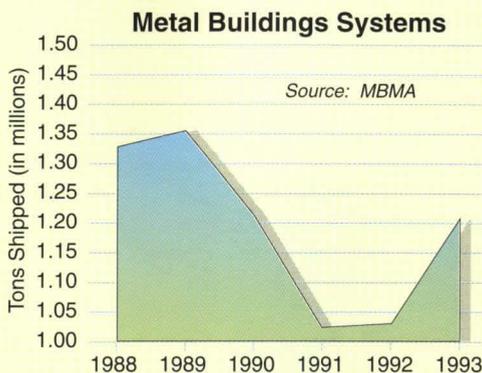
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Indicators

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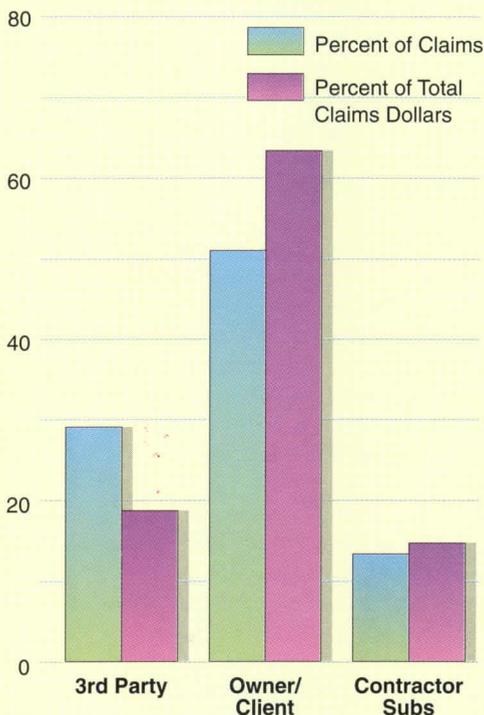
Metal building systems showed a healthy 16 percent rise in 1993 tonnage shipped, according to Metal Building Manufacturers Association data, suggesting a resurgence in at least one segment of the moribund commercial and manufacturing construction area (1992's rise was under one percent). MBMA members primarily construct pre-engineered, steel-framed buildings of one and two stories up to 150,000 sq ft. By MBMA's calculations, metal buildings represent an ever higher percent of this market. ■



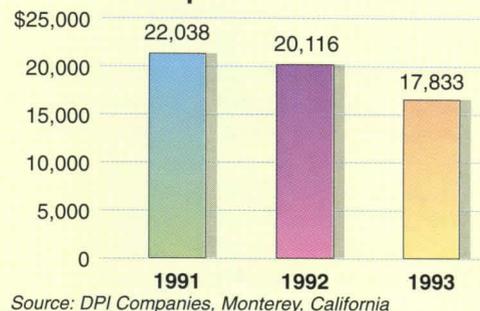
Making clients happy pays

It shouldn't come as a surprise that insurance claims paid against architects go mostly to clients. The percentages shown (1) were derived from closed-claims statistics compiled by the Design Professionals Insurance Company. Preliminary figures suggest, however, that different client types have very different claims records. (DPIC is still verifying how different. Corner-cutting condo developers look risky, for example, all too often leaving buyers holding the bag on construction problems. These owners then sue the architect.) Claims are predominantly filed for economic and property loss; bodily injury is cited somewhat less often. DPIC has also tracked the record of Alternative Dispute Resolution (ADR) to see if it actually improves claims resolution. The percentage of disputing parties using ADR (usually mediation) has risen steadily from just 10 percent in 1991 to nearly 30 percent in 1994. Both legal expenses and the cost of the claim itself have steadily fallen as a result, says DPIC (2, 3). The company is so heartened by this performance that it offers reduced deductibles to those who use ADR. ■

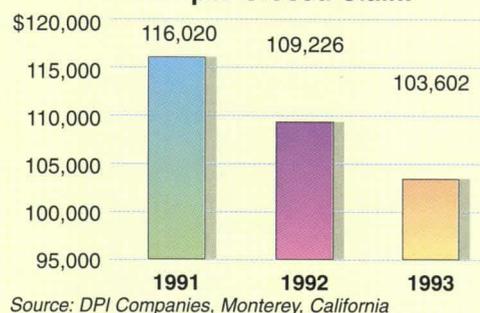
1. Who Sues Architects?
Percent of Claims Count vs. Cost



2. Average Legal Expense per Closed Claim



3. Average Loss per Closed Claim



The Profession This Month

- **Knowing When You've Made It:** New firms have their rewards and their nightmares. When do you keep going—and when do you quit? *Page 20*
- **The Good News and the Bad News:** While quality-based selection is safe (for now), and improved design is a higher priority, low fees and burdensome project-delivery methods make federal government work a mixed blessing. *Page 24*
- **Perfect Plazas:** Our Fundamentals series focuses on detailing and specifying problem-prone pavers and plaza decks. *Page 28*

- **Loose Ends at AEC:** Among news at this year's AEC/Systems computer show was AutoCAD's impending Release 13, which may cause "two years of confusion on standards." *Page 30*
- **The Best of CSI '94:** Snapshot introduction from the most comprehensive building-products show. *Page 38*

Knowing When You've Made It

By Karen Haas Smith

This is what Bill Fanning, an editor of the *Professional Services Management Journal*, (PSMJ) has to say about the new design firms that have sprung up in the last few years. "If this crop were rated like a football or baseball team, I'd say it's not very deep. They don't have the drive. Only the tough will emerge." Fanning is not implying a generation of sub-par performers. He's referring to the fact that the majority of those who have started new firms since 1990 didn't volunteer for entrepreneurship. Laid off as firms downsized, they became self-employed as an alternative to unemployment. There is no accurate count of the new firms out there, but anecdotal evidence suggests that new, small firms always proliferate in a downturn. Do you have to be an adrenaline-pumping, cut-throat competitor to succeed? How do you know when your new small firm has made it?

Many of the self-employed-in-spite-of-themselves contribute to the gloomy statistics about new-firm mortality, but the demise of their practices may simply mean that they found new employment, which they prefer.

You're really in business when . . .

Fred White, editor of *The Zweig Letter*, a management newsletter for design firms, offers the following indicators:

- You hire your first full-time employee, knowing it means you'll make less money yourself over the next few months.
- You borrow money to buy or lease computers, plotters, and other equipment, which will take two or three years to pay off or depreciate.
- You move out of your spare bedroom and sign a lease on some real office space.
- You see yourself starting to make the same business mistakes your former employer did—and resolve to do it right this time.
- You turn down a job offer from an established firm because you don't want to work for someone else again.

"The bottom line," White says, "is you're really in business when you make a commitment to succeed, stop thinking about fallback positions, and decide there's no going back."

Karen Haas Smith of Adelphi, Md., is a writer on architecture and technology.

What does a startup cost?

"You will sink more than a year's salary into the business in the first year," Fanning claims. "In terms of time without pay, equipment, and operating costs, it takes about \$100,000 to start your own firm today, because no firm can function without computers." But that's just a rule of thumb. If you don't have \$100,000 to invest—a not uncommon situation—there are other options.

• Chicago architect Linda Searl borrowed about \$50,000 when she restarted her private practice in 1990 after splitting with a partner. She shares office space, equipment, and administrative staff with another small firm, which happens to be owned by her husband, Joe Valerio. ("Our design approaches are too different to work together.") Linda has four employees and Joe has five; by combining forces, the two firms were able to afford CAD equipment. She expects the debt to be paid down by year five.

• Manuel Fernandez-Casteleiro and Joe Parsons started their New York City partnership in 1990 after working at Ehrenkrantz and Eckstut together and now run a varied practice. After a slow start due to the recession, they say they will have their debt paid off by 1995—after five years in business. That seems about average now.

• Philip Freelon invested \$20,000 in personal savings and \$40,000 of bank financing to start his Raleigh, N.C., practice in 1990. "You've got to figure on at least six months of expenses—including salaries and office overhead—to start, so you can float, unless you already have a project," Freelon says. Within 16 months, the debt was paid. Freelon's firm has grown steadily by concentrating on public-sector work, and he now has 13 employees. He keeps borrowing working capital and now has more than tripled his line of credit. Because he wanted to target larger projects, he rented office space from the beginning but saved money by working out of a room in an engineering firm for the first four months before he leased his own space.

Freelon's previous background—he was a principal and vice president for architecture for O'Brien/Atkins, a 140-person A/E firm in Raleigh, before going out on his own—doubt-

less contributed to this better-than-average track record.

• Big things can grow from small investments. With \$25,000 in cash and \$25,000 of credit-card loans, five Washington, D. C. employees of Interspace, Inc., a major national interior-architecture firm, walked out in 1984 to form their own firm doing similar work. They immediately hired five employees. In 1991 architect Joseph Boggs joined the firm with his staff of 10. A. O. Boggs is now a multi-service interior-architecture, architecture, engineering, and strategic-planning firm with 100 employees and offices in Washington and Raleigh.

If the money commitment really throws you—remember that commitment is the bottom line, not money. James Cutler, a nationally famous residential designer who is currently working on software multibillionaire Bill Gates' residence, started in 1977 in a rented room in the attic of a house in Seattle. "I had a phone, two sawhorses, and a door, and I did doghouses and kitchen remodels," Cutler said. He made it on an unshakable commitment to good design, a determination not to go back, and some lucky breaks. Yes, he started in the pre-computer age—but he also weathered a tough recession in the early 1980s.

Staying afloat

"The most popular misconception is that going into business for yourself is a way for the person who is tired of all that management stuff to get back to practice," says PSMJ's Fanning. "You will actually spend even more time marketing, writing checks, and so forth when you run your own firm."

Almost everyone still gets jobs based on one-on-one relationships. Belmont (Monty) Freeman has been in private practice in New York City since 1986, when he and former partner Max Pizer struck out on their own from Davis Brody and Associates. The new offices he designed for the New York City Opera have received a lot of publicity this year, one of his best projects ever. How did he land the job?

"I was doing work on a co-op apartment years ago, and I met the treasurer of the co-op

New firms have their rewards and their nightmares. How do you know when to keep going—and when to quit?

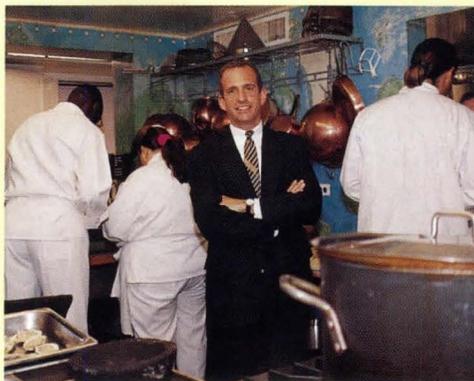
board. Although she was not introduced by her stage name, I was pretty sure she was the mezzo-soprano I'd seen perform just a few weeks before. She was thrilled that I recognized her." Later, the soprano asked Freeman to do some work on her apartment. "It was just adding some French doors and doing a balcony. But we became friends." And thus it was that Freeman was lined up for one of the most artistically satisfying jobs of his life. "That's why I never turn down a bathroom remodel," Freeman says. "You never know where things will lead."

"You call all the people you ever knew," says Larry Lord, who left Heery International with partner Terry Sargent in 1983 and merged with Tony Aeck in 1992 to grow to the 65-person firm of Lord, Aeck and Sargent in Atlanta. Fernandez-Casteleiro and Parsons jettisoned their original marketing plan—targeting second-tier developers and minority set-aside government-contract work—within six weeks. "We quickly learned that the developers we were counting on were disappearing or shrinking (it was 1990), and the government won't give minority certifications to brand-new businesses," Parsons says. "So we concentrated on marketing to people who knew us."

Where things go wrong

Underpricing services and picking the wrong clients are common pitfalls. How does a fledgling practitioner avoid those who select a small or new firm because they perceive they will work cheaper? "Your fees have to at least meet expenses and offer some profit," says consultant Fred Stitt, publisher of *Guidelines* practice aids. "If you lose money or just break even on one job, you'll have to grab another right away. It's a dangerous pattern."

Stitt suggests a two-pronged strategy for avoiding the pricing pitfall. First, publish a pricing range and stick to it. Using services described by AIA documents, "Offer more than one rate: a baseline (the absolute minimum it takes to get a permit), medium, (the average tasks most firms provide), and fully comprehensive (adding those additional services suited to client and project)." Second, educate clients. "Most clients don't have any idea of the complexities involved in design services. Explain that if others are offering



Doing It for Themselves

Firm: Belmont Freeman Architects
New York City

Started: 1986; split with partner 1994

Employees: 3

Projects: Offices for New York City Opera; renovation of James Beard Foundation; lab, dining hall, and auditorium renovation for Columbia Presbyterian hospital; funeral homes.

Why they started: "I had a great job," says Monty Freeman. "But after 10 years at Davis Brody, it seemed time to do something else in my career, or I never would. Max Pizer and I had been at Penn together and had worked on a lot of projects together. We decided we could do it for ourselves."

Finding work: Freeman's and Pizer's background doing laboratories and hospitals for major institutional clients helped develop a medical specialty. Columbia's Medical School and Queens Hospital are now steady clients. "A lot of architects are afraid of medical work," Freeman says. "You have to be real careful, master the codes, and get good consultants, but really it's nothing to shy away from."

How they knew they'd made it:

"Latching onto institutional clients with projects in the \$1- to \$2-million range lifted us from the subsistence level."

Aspirations: "My artistic profile is as high as it's ever been, even though my bank account is empty. I am confident that things are going to be improving dramatically soon."



Splitting Means Starting Over

Firm: Searl and Associates, Architects
Chicago

Started: 1985; split with partner 1990

Employees: 4. "As large as 10 [employees] would be okay, but I wouldn't want to be bigger than that unless I took on another partner," says Linda Searl.

Projects: Residential, including remodels, additions, and a 60-unit cluster-housing project for a Chicago developer.

Why she started: "It had to do with my sense of independence. The only way I'd really be satisfied as an architect was to do my own work. It was such a strong desire that it was worth the risk."

Finding work: "It takes a long time to build a base of clients. I didn't grow up in Chicago, so it was slow. It's funny how you get clients. I had one referral because a woman asked her dentist for an architect, and the dentist had heard about me from another client . . ."

How she knew she'd made it:

"After five years in practice, things were really starting to take off for my former partner and me. We were starting to get repeat business and invitations to submit qualifications."

Aspirations: "I always wanted it to be a very high-quality design and service firm. Right now we do probably about 80 percent residential work. I'd like it to be 50 percent residential and 50 percent other institutional and commercial projects."



Relying on the Public Sector

Firm: The Freelon Group
Research Triangle Park, N. C.

Started: 1990

Employees: 13. Beyond a certain size, “bureaucracy overtakes you,” says Philip Freelon, “and you’re not nimble and responsive anymore: 20 to 30 is the right size. You can do several \$40-million projects at the same time, with 8 to 15 people on a single project. There’s a way to manage growth beyond that by keeping the units smaller—creating branch offices—which also provides opportunity for the sharp entrepreneurial types that you hire.”

Projects: \$20-million high school; a \$10-million middle school is under construction.

Why he started: “I was in a firm that was headed by people who were not good designers. I was brought in to improve design and win awards, but I was not given the opportunity to carry it all the way through. As soon as design wasn’t profitable, they reverted back.” Freelon was prohibited from contacting former clients for three years by a non-compete clause.

Finding work: “From the beginning we’ve relied strongly on public-sector work. I used my contacts in local and state government, and our first contract was the police-department headquarters renovation in Durham, N.C.” Renovations were a mainstay in the early years. “When capital is tight, people make do with existing space.”

Aspirations: “I took a huge pay cut. I put all my savings into this. I’m glad I did. I’m working harder than ever and enjoying it. It’s gratifying to have others risk their careers to join me. I’m very proud of the diversity of our firm. I don’t think that being profitable and doing good design are mutually exclusive.”



When Plan “A” Fails . . .

Firm: Parsons + Fernandez-Casteleiro
New York City

Started: 1990

Employees: One full-time; one part-time

Projects: 20 percent government/municipal (Brooklyn Botanical Garden, a park and theater renovation in New Brunswick, N. J); 25 percent residential (including “affordable” adaptive re-use; 25 percent corporate (addition to a life-insurance company office, renovations for a pharmaceutical company); retail and commercial.

Why they started: “The large firm was complacent, and we were bored. We wanted to create a better quality of design.”

Finding work: The partners dropped their early marketing plan when they found developers shrinking and government clients unresponsive. “For two years we concentrated on marketing to people who knew us. All of a sudden, government officials started to pay attention. Our former associates realized we could give them better service as two individuals rather than employees of a bigger firm.”

How they knew they’d made it: “We started to get repeat clients, which we took as a sign that things were going well. The second breakthrough was when ARCHITECTURAL RECORD and *Interior Design* did articles on our office. We got one job as a direct result of being published, but more importantly, it proved that as a young firm we had arrived.”

Aspirations: “Our goal is to continually expand. To what? We don’t know . . . Larger firms are highly organized but over-emphasize efficiency at the expense of the design process and sacrifice the product. We spend more time up front with the client and provide better design more economically. We have a different kind of salary now, the ability to produce good architecture.”

lower prices, clients will probably get less service.”

Select your clients carefully, even when it seems anyone who calls is a godsend. “Turn down hard-nosed clients,” Stitt advises. “They’ll come in with drawings, bad-mouthing the firm that produced them. They probably didn’t pay the other firm and won’t pay you. Some clients never intend to pay. They’ll sue instead.” Stitt says it’s smart to screen potential clients by calling other firms they have dealt with and checking credit histories. (You’d think competitive instincts would cause firms to be uncooperative. Stitt says most hope you’ll help them in return.) “If someone comes across as a chiseler, they probably are,” Stitt says. “Avoid them like the plague. And if you’re in residential work, stay away from couples with domestic problems. Some people use a construction or remodeling project as a way to mend marital problems. Instead it places more stress on the relationship, and the architect suffers.”

Payment problems are another common, but avoidable pitfall, especially for residential work. “Most new practitioners doing residential work don’t realize that it’s okay to ask to be paid a deposit in advance,” Stitt said. “They can and should be paid up front; around 20 percent is a good ballpark figure for residential work.” Market research helps, too. Stitt advises new practitioners to make the rounds of other architects in their community who offer similar services and seek advice on how to avoid problems.

An additional tactic that works, according to Stitt, is to put clients in touch with effective, economical financing sources, real-estate agents, and materials suppliers.

Linda Searl, the Chicago architect, says she has been lucky about collections. “My first rule is to bill on a regular basis. I bill every month. It keeps people aware that you are noticing if they fall behind.” The one time she did have a problem, Searl went to small-claims court and won. “I paid the lawyer all the money, but the principle was important.”

In short, say veterans, delivering high-quality design is not enough. Recognizing that the process is as important to the client as the

"The bottom line is you're really in business when you make a commitment to succeed, stop thinking about fallback positions, and decide there's no going back."—Fred White, Mark Zweig & Associates

product is the key to avoiding problems and nurturing the kind of relationship that leads to repeat business and referrals. "You make people feel that you're on their team and ready to respond," says Larry Lord. Lord also believes in "ending strong." "We spend a lot of time commissioning the building, making sure the occupants are comfortable and understand how the building was intended to function," Lord says. Julia Rayfield, principal at A. O. Boggs, which serves a largely blue-collar and middle-class residential clientele in Fresno, Calif., says, "We help our clients with issues that come up throughout the life of a building, long after it is constructed: energy conservation, indoor-air quality, documentation, space inventory, charge-back reporting, building surveys This service diversification has been our saving grace."

Design: a service business

Larry Lord's background is strong in innovative services—he was in service development at Heery International. He sees strategic planning as the foundation for a good client relationship and offers a range of other consulting services as well.

"If we can get in and understand what their mission is, we can come up with a way to help them be what they want to become," Lord explains. "We can advise them on where to get other essential services like financial support and real-estate evaluation. Since they will have thoroughly considered the strategic importance of their facilities within their overall mission, it is an easier process to work with them later and to understand the variables that may come up."

"Clients need assessments to help them decide whether and how to renovate buildings," says consultant Frank Stasiowski. "Architects and engineers didn't used to do that sort of thing."

Finding a niche

If you really hate the marketing and management tasks that go along with the typical full-service architectural firm, there are other ways to go independent. Don Anderson developed a technical specialty in energy analysis during his six-year career with the Washington office of Burt Hill Kosar Rittelmann, a

firm that has had long-standing research contracts with the Department of Energy's Office of Buildings. Since 1990, he has had a subcontract doing computer simulations for a DOE contractor.

"I left Burt Hill at a time when administrative and managerial responsibility would have begun to overshadow my ability to do the technical work," Anderson says. "This way, I can escape all the management headaches and still do work I enjoy with teams of people that I like. I've always worked for the government sector. I'm hooked up to a big wagon with lots of money, and I'm a little flea along for the ride."

Leslie Gill and Karen Bausman combine teaching, theoretical architecture, and building design projects in a unique New York City practice they began the year they graduated from college (The Cooper Union, 1982). They vary the mix from year to year according to what comes along. Bausman won the prestigious 1994 Rome Prize in Architecture. Both have won the Cooper Union Citation for Excellence in Architecture.

California architect Mickey Muennig has been doing carefully sited residential projects in Big Sur since 1963. In the last few years he's started to gain widespread recognition. "I always did little houses and didn't make much money until 1989, when I did the Post Ranch in Big Sur, an environmentally sensitive 30-unit inn." The resulting publicity has brought him a series of hotel and residential projects in Fiji, the Virgin Islands, China, and the Canton Islands. A sole proprietor until 1989, he now has two people doing drawings for him. He'd like not to get any bigger. "It's getting a little so I can't keep up with it," Muennig says. Now located in bucolic Bainbridge Island, west of Seattle, Jim Cutler is widely published and has won many awards. His firm could easily grow. "Every time we get bigger than 10 employees, there are more meetings, more money problems, more management. I get stressed. I don't have time to draw." Another reason to stay small? "I have three kids; I want to be a Dad."

Growing pains

As time goes on, some of the reasons that drove a firm's formation don't continue to

apply. "I really didn't want to struggle any more," explains Max Pizer, who was Monty Freeman's partner for eight years. This spring he joined Gensler and Associates as a project manager. "Some people want it more than others. It's not just a dollars and cents thing." Comments Linda Searl: "Splitting a partnership is like getting a divorce. Even if it's a friendly divorce, it's still difficult. You have to decide who is going to take which employees, which clients. Clients see you as a start-up business again." Carol Karasek's New York City firm hit the "glass ceiling" encountered by many woman-owned firms. Though her five-person office did more than two dozen small projects over eight years for a large private client that operates a major medical center, her firm was not considered for work above \$1 million, even though it was qualified and had an enviable track record. "It took us a while to figure out there was a problem," she says. To overcome it, "we just talked. We'd remind the project managers that we were capable of doing the work. You can't use any strategy other than being gracious and reasonable. You can't complain or you're out." The firm continues to work for the same client, and eventually was awarded the larger projects they sought. Karasek credits changes in management, however, more than her firm's powers of persuasion.

How you know you've made it

Fred Stitt: "Most people who get into practice don't really plan it out. Basically, they're drifting. They know it would be silly to do a deck remodel without a plan, but they don't plan their careers. There's a major differentiation between those who plan and those who don't. Without a plan, you'll drift in and out with the tide."

Bill Fanning: "What gives a firm viability and maturity is when they have standards of practice, as opposed to making it up as they go along. That includes systems to do work, a supply of marketing materials, a business plan, knowing whether they are making money or not, and regular paychecks."

Fred White: "You know you've made it when you've hired someone. Until you can sell more work than you can do, you will have a hard time making it as a viable business. Otherwise, you're an architect for hire." ■

THE PROFESSION The Federal Client

Good News and Bad News

By Lynn Nesmith

With scant indications that the commercial construction market will turn around in the near future, architects who used to not bother with the bureaucratic regulations and paperwork of a government contract today find that working for Uncle Sam offers more than economic survival in lean times. Architects' ambivalence about working on government projects stems not just from the paperwork and bureaucracy, but from the cost and complexity of the selection process, the poor compensation such work brings, and the difficulty of actually building high-quality work. There is change afoot in all these areas, but professionals will have to lobby hard to foil the tendency of Congress and bureaucrats to add burdens to the architects' job at the same time they seek to maintain or reduce both fees and construction costs.

Where the jobs are

As a group, the agencies of the federal government form the largest client for design services in the world, annually investing approximately \$42 billion in public projects. One of the most prolific federal clients is the General Services Administration, which sometimes is referred to as the world's largest landlord and oversees a construction budget

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of approximately \$1.2 billion annually. But scores of other agencies direct their own building programs, including such diverse bodies as the United States Postal Service (USPS), the National Park Service, the State Department's Foreign Building Operations, the Federal Bureau of Prisons, the Army Corps of Engineers, the Veterans Administration, the U.S. Fish and Wildlife Service, and the Smithsonian Institution. And working for one public entity can be completely different than working for another. "As a general rule, the smaller the agency, the easier the process," says Colden Florence, of the Washington, D.C., firm Florence Eichbaum Esocoff King, who has done a range of public work for various federal clients over the last 35 years.

Quality-based selection under fire

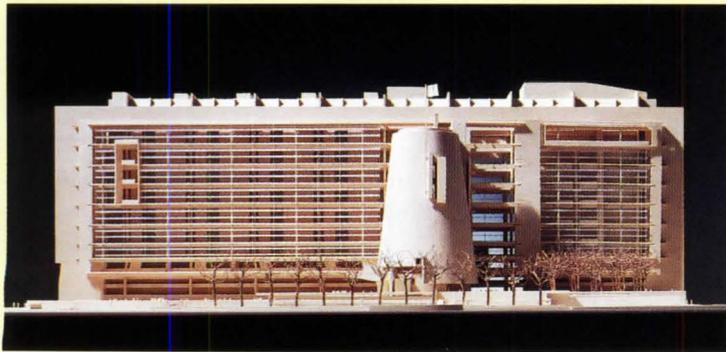
"Public architecture must have a certain character," maintains Chicago architect Margaret McCurry. "People base their attitudes about this country on its buildings. If public buildings are boring or appear just like any other structure, that translates into a lack of respect for the entire governmental process." Judge Douglas P. Woodlock, of Boston, who has been involved in setting building standards for federal courthouses, agrees: "Over the past 35 years we have littered the landscape with poorly designed federal buildings that have deteriorated and are no longer an

effective part of the government's inventory. Intelligent design—cost-effective schemes that provide permanence, clarity of plan, and a sense of dignity—is money well spent." While this no doubt reflects the feelings of many officials and much of the public, it has been extremely difficult to maintain these ideals in the sometimes grueling design and construction process.

In some precincts, the message is getting through. Last year, Vice President Gore's National Performance Review, a comprehensive examination of the workings of the federal government, endorsed selection of architects and engineers on the basis of qualifications and not price. (The report, commonly called "Reinventing Government," made 20 recommendations to simplify procurement of government services.) It called for no revisions to the Brooks Act, a procurement law passed in 1972 that requires federal agencies to use such "quality-based" selection (QBS) of architectural consultants.

Nevertheless, some members of Congress threatened to add amendments to a new federal procurement bill that would allow some federal building projects to be awarded to the low bidder. Intense lobbying by professional engineering groups and the AIA appears to have stopped efforts to erode the Brooks Act for now. "We argued that the

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1

Though several government agencies are reassessing the way design services are sought and used, recently commissioned projects run the design gamut. The Long Island Federal Courthouse, in suburban Islip, N.Y.,

© Dave Desroches



2

shows Richard Meier and Associates' signature style (1). The granite-clad courthouse annex to the James Cleveland Federal Building in Concord, N.H., "calls upon the traditional features of courthouses across the

nation," according to architect Shepley, Bulfinch, Richardson & Abbott (2). New laboratories for the National Oceanic and Atmospheric Administration (3) hug the Rocky Mountain foothills in Boulder, Colo.

While quality-based selection is safe (for now), and improved design is a higher priority, low fees and burdensome project-delivery methods make government work a mixed blessing.

government shouldn't be penny wise and pound foolish," explains AIA Group Vice President for government affairs Robert Peck. Among points Peck and others made: Design fees represent less than one percent of 40-year life cycle costs, yet design decisions can hugely impact lifecycle costs; that price, "when it becomes part of the selection process, becomes the overriding factor," creating disincentives to take the time to design-in higher quality; that the cost of proposal preparation for the government would outweigh savings derived from lower fees, which is why, AIA and ACEC argued, government procurement officers in most agencies favor QBS.

Congress lashes out—at doorknobs

Pressure to keep the cost of buildings down has become especially vocal recently, focusing mostly on GSA's huge courthouse-building program [RECORD, January 1994, page 24]. Critics in Congress have lashed out at showers and kitchenettes for judges. Other "perks" sound lavish but may not be: *Engineering News-Record* quotes Maine Senator William Cohen: "... brass doorknobs, custom lighting, and special carpeting contributed significantly to the cost of the . . . courthouse at Foley Square in New York City."

GSA itself was not happy with the way many of the courthouse projects were turning out.

After a six-month study of nearly 200 federal building projects, called "Time Out and Review," GSA targeted savings of more than \$1.2 billion. Although some trims were identified in projects that were well along in the design stages (with targeted dollar savings to be found through value engineering), the savings were largely achieved by cancelling several projects, and a reduction in square footage for others. In a further move to respond to Congressional criticism, GSA is forming a Courthouse Management Group with the Office of the U.S. Courts to create more standardization in court facilities, and to be sure that what critics might see as unduly luxurious amenities do in fact have a legitimate programmatic purpose.

Time for a raise

Architects' compensation remains at uncompetitive levels, particularly design fees capped at no more than six percent of anticipated construction cost. "The six-percent fee structure is an anachronism," argues Robert Peck of AIA. "It's an artificial cap that's been in place since the 1930s." Though Pei Cobb Freed and Partners has done several prestigious federal projects, James Ingo Freed says, "There are some projects we can't afford to consider." A recent survey found that governments were the least profitable client type [RECORD, March 1994, page 25]. A much larger lobbying effort than has so far

been mounted will be required to improve government compensation in these deficit-obsessed times, observers say.

Taking quality selection one step further

Architect Gary Haney of Skidmore, Owings & Merrill/Washington, like a host of architects working for the federal government, credits Edward Feiner, deputy director of GSA's Office of Design and Construction, for "single-handedly turning around the agency" and raising interest in quality public architecture. Feiner is the driving force behind the new "Design Excellence" selection process at GSA. Introduced in January 1994, it now places less emphasis on the scorecard approach symbolized by the dreaded SF 254/255 forms that firms seeking work have used in the past, and more on three qualitative criteria: the firm's overall design strength (not just "How many of these have you built?"), the philosophy of the lead designer, and the designer's vitae, including recommendations and design awards. The new system should also reduce the cost to compete for work (GSA had found too many large projects were going to too few firms), and open up the selection process to small and medium-sized firms, and minority firms that haven't had a GSA-style track record with which to compete.

Already used for several major public build-

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3

(C. W. Fentress J. H. Bradburn and Associates, architect). Gruen Associates/Zimmer Gunsul Frasca have clad the Ronald Reagan Federal Building and U. S. Courthouse (Santa Ana, Calif.) in travertine (4). The

© Peter Xiques



4

FBI's Washington Metropolitan Field office is the first National Capital Region project to be designed in metric (5). Because it is located in Washington's Judiciary Square, approvals for Skidmore, Owings & Merrill's



5

design must come from the U. S. Commission of Fine Arts, The National Capital Planning Commission, the State Historic Preservation Office, and the President's Advisory Council on Historic Preservation.

"The six-percent fee structure is an anachronism," argues Robert Peck of AIA. Still, observers say that raising the cap will require a much larger lobbying effort than has been mounted so far.

ings, Design Excellence is a two-stage selection process. GSA first invites firms to respond to an RFP with what Feiner calls a "quarter-inch portfolio." "To reduce the cost of getting on the short list," Feiner explains, "we absolutely limit the amount of information architects are allowed to submit in the first round." A modified SF-254/255 form is required, but the revised document is little more than a cover sheet for the portfolio. GSA is sponsoring conferences to explain the new two-stage selection process

An in-house GSA panel, sometimes supplemented by a client representative (such as a judge or clerk for a courthouse), invites three to six firms to continue to phase two. Short-listed firms are given 30 to 45 days to prepare a full 254/255 form describing comprehensive teams, management philosophy, and so on. The final selection is based on interviews. On projects of more than \$25 million, a private architect/advisor serves on the selection panel after the short list has been announced. (Government ethics requirements prohibit the peer advisors from voting.)

The Omaha, Neb., Federal Courthouse was the first project to follow the new procedures. Margaret McCurry, who served as the peer advisor, called the two-day interview process "one of the most enlightening experiences of my professional life," and praised the GSA

architects involved on the panel. Pei Cobb Freed was awarded the commission over a short list that consisted of Philip Johnson, Kevin Roche, John Dinkeloo & Associates; Cesar Pelli Associates; and Ralph Johnson of Perkins & Will.

The design team for a new federal courthouse in Scranton, Pa., was also named under the new process. Daniel Kelley, of MGA Partners in Philadelphia, who made the short list only to lose the final decision to Bohlin Cywinski Jackson of Wilkes-Barre, Pa., said that "we were well served by GSA." Kelley said the panelists had a "mature attitude" and were not "rigorous about style."

For selected projects, there will be a third phase, a limited competition among architects short-listed from RFP responses. This process is being tried on a \$35-million federal courthouse in Beckley, W. Va., for which Shalom Baranes Associates, Spillis Candela/Warevke, Robert A. M. Stern with Einhorn Yaffee Prescott, and Myers Associates are competing. Each team will be compensated \$20,000 to develop design schemes.

The Design Excellence process is still being fine-tuned. McCurry and others involved objected to the fact that the five short-listed teams on the Omaha courthouse project were required to produce design schemes. Feiner

and GSA have agreed not to make schematic designs or uncompensated "partial solutions" a normal basis for selection. But, as one government architect pointed out, "Architects are their own worst enemies when it comes to giving away free designs." Says Feiner, "At first this was perceived as a 'star search.' It's not. It's a talent search that encourages all creative and talented firms to participate." Says Judge Woodlock, "Designers from small firms with special design excellence are realizing that they'll be taken seriously at GSA."

A menu of project-delivery options

Over the long term, GSA and other federal agencies continue to explore the cost and time advantages of alternative project delivery schemes. Most prominent is design/build (more on that below). Within the limits of federal procurement policy, the GSA is increasingly pursuing "partnering" (agreements and procedures intended to reduce grievances and finger-pointing). As conceived now, one partnering session among clients, users, and design team would occur during the design phase, then one prior to construction to include the selected contractor and construction manager. "We'd like to bring in the expertise the contractor can offer earlier in the process," says John Petkewich, acting director of GSA's office of design and construction, "but since so much of our work is done through a bid process we haven't

Tale of Two Projects

Stung by criticism that government-procurement procedures add unnecessary time and cost to a project, agencies have experimented with a variety of procedures to enhance project delivery. Herewith a tale of two purported marriages of market efficiency and higher social purpose, both in Washington:

Thurgood Marshall Judiciary Building

1988: Edward Larrabee Barnes/John M. Y. Lee Architects with developer Boston Properties wins a design/build competition for this office and courthouse building. Attempts to modify the capitals' 80-ft height limit to accommodate the 1-million-sq-ft structure's bulk draw protests. The project is financed under a 30-year lease/purchase

agreement that requires no upfront government funds.

1989: Construction begins to a design that stays below the existing height limit.

1992: The project is dedicated on-time and under budget (opposite right).

Federal Triangle

1987: Congress approves a plan for a lease/purchase design/build project including an International Culture and Trade Center (to promote American products), government offices, and profit-generating retail space, theaters, and a swimming pool, (opposite left). The Pennsylvania Avenue Development Corporation (PADC) expects 1994 opening. One agency estimates at \$362 million, another \$500 million. Critics predict costs as high as \$800 million.

1988: One agency re-estimates the project at \$461 million, then \$500 million.

1989: Pei Cobb Freed and Partners and the Delta Partnership, developers, bid \$738 million and are chosen for the project. The low minority participation is criticized.

1990: Saratoga Development, the low bidder at \$578 million, sues PADC. The government puts the project on hold, now predicting annual losses from the trade center at \$18 to \$24 million. \$82 million is cut from the project and planning resumes.

1992: The Trade Center is dropped to be replaced by government offices.

1993: Press report estimates project at \$791 million. (Official figure remains \$656 million.) Trade Center reinstated.

1994: Trade Center services under study. Saratoga suit dismissed.

figured out a way to do it." GSA will also use value engineering more aggressively to identify savings. But dollar-savings targets assigned to projects will not compromise quality or program, claims Petkewich.

Making design/build work

The Army Corps of Engineers has enthusiastically embraced design/build, completing approximately 30 such projects since 1986. Architects are participating in design/build ventures, but usually by necessity rather than by choice. The complaints are the usual ones—that the concept unfairly shifts responsibilities to the design team and creates a larger divide between designer and user. To develop enough detail to provide a firm bid price, teams may have to do anywhere from 20 to 75 percent of schematic design—usually with strictly limited input from the client. Such submittals are also extremely expensive to prepare, and compensation, when it has been offered, does not come near covering costs. In a recent design/build competition for the Army Corps' Sparkman Center in Alabama, 16 contractor and A/E teams presented very comprehensive design and bid submittals. Daniel Duncan, an architect with the Corps, acknowledges that lessons were learned from the process, and said that in the future the Corps will attempt to "balance the risk of the potential offerers and the government." AIA and ACEC have urged federal

agencies to short-list applicants before a bid is requested, and compensate the finalists.

For the past 10 years, the USPS has also employed design/build for approximately five projects a year, usually mail handling and distribution centers, according to James Binkley, senior architect for major facilities. The USPS has found the single-source, fast-track method of product delivery to be both easier to manage and quicker to build for such fairly standardized structures. Quality-based selection is used for branch post offices, or "customer services centers" as they are now called. Architects have been encouraged to use the USPS's "kit-of-parts,"—standardized program elements that are sized and arranged by the designer to suit the mix of patronage expected at a given site.

Several years ago, GSA jumped on the design/build bandwagon. A controversial design/build competition last year for an Internal Revenue Service building in downtown Detroit pitted 11 bid teams for a \$100-million contract. Participants spent anywhere from \$250,000 to \$500,000 to participate and received no compensation—a huge risk for a small business. Others wouldn't participate, since the lowest cost became the selection priority. Few architects who have participated in GSA design/build competitions support the process. The White

Plains, N.Y., Courthouse competition was "brutal and grueling" says Haney of SOM. "Fortunately, our team prevailed." Nor does GSA's means of doing design/build solve the problem of lack of contact between architects and end users. "The government has to be very careful not to give any competitors an unfair advantage," explains William Pedersen of Kohn Pedersen Fox. "This formality reduces the chance for open discussion during the competition phase."

In spite of these concerns, Kohn Pedersen Fox won one of the largest of GSA's design/build projects, the massive Foley Square Courthouse, nearing completion in lower Manhattan. Using a conventional procedure, KPF is designing the new Portland (Ore.) courthouse in a joint venture with BOOR/A. Pedersen continues to find the "face-to-face dialogue with the judges and clerks" more satisfactory as the firm examines design alternatives.

To improve design/build, GSA, like other agencies, is trying to reduce the amount of information firms would have to provide prior to selection. Though the government's current fixation on delivery is important, says GSA's Feiner, it can't be allowed to detract from the product. "My biggest concern is that public architecture will suffer from not focusing on what the real issues are." ■

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Deterioration and Failures of Exterior Plazas

By Louis F. Estenssoro and W. F. Perenchio
Exterior plazas are among a building's most maintenance-intensive areas. They have to survive severe weather; de-icing salts, cleaning chemicals, and abuse by traffic. For these reasons, they need special attention in their design, construction, material selection, and maintenance. They perform poorly when one or more of these items are disregarded.

This article takes a forensic approach to both on-grade and supported plaza installations—recommendations are put in a context of problems commonly encountered. Plazas built with incomplete and non-complementary specifications and drawings often have flaws. Several organizations offer guidance to specific installation types. ASTM C-666, 672, 67, and 97 specify minimum performance of concrete, brick, structural clay, and natural stone; the AIA's Architectural Graphic Standards and technical notes by the Brick Institute of America and the National Concrete Masonry Association also recommend plaza-design details. However, the designer should use these sources only as guidelines, adapting the details to the specific climate, drainage, and load conditions at the site.

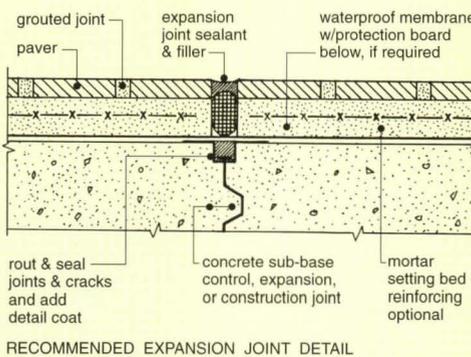
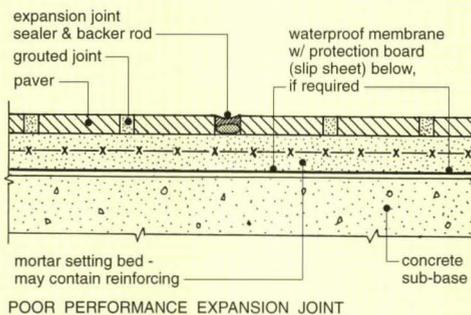
Detail for the intended purpose

Too often, designers fail to understand the function of details. For example, waterproofing details should address moisture infiltration and flow paths: What penetrates into the system must also be able to leave it—rapidly. In one case, a plaza in Illinois developed freeze/thaw problems—deterioration of the paver edges and cracks—because the intakes of the weep holes were placed higher than the lower drainage surface: water ponded instead of draining. The weep tubes installed to deliver water across planter walls were too narrow in diameter to drain the area without gravity to promote water flow. Similar problems develop where area drains are too small to release water that penetrates the plaza paving.

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Expansion and contraction joints are needed throughout all but the smallest plazas, and the type and spacing of these joints will depend on the system. Some manufacturers of mortar setting-bed materials now call for joints at about 15 ft spacings. The authors believe 10 to 12 ft spacings are more desirable. Inadequate expansion joints can lead to localized distress and deterioration. For example:

- **Unbonded systems.** Like those utilizing protected waterproofing membranes (top detail), unbonded systems will have problems when expansion joints in the traffic surface



do not continue into the mortar bed. This joint detail has a weak line where cracking may be controlled; however, the mortar bed may still crack in other locations that will not coincide with the joints. The bottom detail shows an expansion joint with a better performance record. Volume changes of both the mortar bed and the paver units are accommodated at one location because of the complete vertical separation.

- **Filler and sealant materials.** In expansion joints, these must accommodate linear move-

ments across the joints. In a large office-tower plaza, the expansion joints utilized flexible urethane sealant, but the hidden filler was rigid PVC strips. Tiles buckled and debonded along the expansion joints throughout the plaza.

- **Bonded systems.** Here, expansion joints in the plaza must line up with expansion-control and construction joints in the substrate, and the substrate must have an adequate number and spacing of both types of joints.

- **Edging elements.** Fixed edges are typically required around brick/sand plazas on grade to inhibit outward movement of the pavers.

Large units with grouted joints

Large pavers, typically stone and concrete units in the 4-ft range, cannot easily accommodate thermally induced volume changes across grouted joints. Since the grout material and its bond to the pavers are typically the weakest horizontal links in the system, separations (cracks) develop along the joints. Typically, these separations are hairline (0.003 in.) or less in width—but enough to let water seep in.

Moisture penetration due to thermal movement can be avoided by providing sufficient expansion joints, or all joints can be made to be “soft” (sealant) joints. Also, installation can be performed in the coolest possible weather, when joints are widest. Sealant will compress as temperatures rise and not shrink when the weather cools.

Masonry mortar

A downtown brick mall suffered “blow-ups” throughout its exterior plaza as the brick pavers and setting mortar popped up off the mortar subbase like small arched bridges. The mortar in the brick-paver joints had expanded, due to freezing and thawing, extruding the material and creating brick-to-brick contact.

The mortar in this plaza was specified to be type M mortar, like that used in masonry walls. Type M, the highest-strength mortar specified in ASTM C-270, has a minimum average strength requirement of 2500 psi. This mortar is adequate for walls because water runs off and the limited amount of absorbed moisture quickly evaporates, reducing the impact of freeze/thaw cycling.

Care in the selection, specification, and detailing of exterior plaza-deck components, especially pavers and bedding and setting materials, will greatly improve long-term performance.

However, when the same (or lower quality) mortar is used in joints of horizontal masonry surfaces, it fails after a few freeze/thaw cycles. This is because water on the surface does not drain off quickly (compared to vertical surfaces) and, in most cases, de-icing salts are used. More durable mortar is needed under these conditions. The usual requirement for the mortar fraction of concrete under freeze/thaw conditions and where de-icing chemicals will be used is a compressive strength of 4000 psi or higher. And an adequate air-entrainment agent is necessary. The BIA discusses the use of masonry mortars, but we recommend they be used only in a plaza with a pronounced slope, and where de-icers won't be needed.

Dry mixture of cement and sand

Another outdoor pedestrian mall, though constructed with large, "high-strength" concrete pavers in combination with granite flags for crosswalk and sidewalk areas, failed due to freeze/thaw heaving of the mortar bed. Damage first occurred in the crosswalk, where the concrete pavers started to tip and butt together. Eventually, the granite pavers of the sidewalks followed suit.

The specifications had called for a setting-bed material consisting of a dry mixture of one part cement to three parts sand, which was to be screeded but left untamped. The pavers were to be placed and tamped, followed by sweeping of the same cement-sand mixture into the joints. During its short service life, the bedding and joint mortar became wet and some of the cement hydrated. However, since the mixture was not compacted as a premixed mortar would have been, did not contain entrained air, and used a low-strength (1000 psi) cement, the mortar bed was extremely susceptible to freeze/thaw damage which, in turn, resulted in expansion and loss of support to the pavers.

The BIA discusses these dry-mix mortars, but the authors caution against their use where conditions will include freezing weather and de-icing salts. Subsequent testing of the concrete pavers themselves showed that they also would eventually fail due to de-icer scaling and freeze/thaw cycling: they lacked entrained air, which had not been specified.

Loss of support

Easily recognized by visual and elevation surveys, problems in the plaza substrate are typically due to poorly compacted subgrade soils, usually a construction problem, or heavier than anticipated traffic loading, a design problem. However, other subsurface features occasionally have been found to cause similar problems.

Thick sand beds, in the order of 3 to 6 inches, are notoriously troublesome with brick-size pavers, particularly when the joints are not well filled. Current design thinking for these systems calls for a thin sand bed, approximately 1/2- to 1-in. deep. And, when used over a gravel sub-base, a membrane should be specified to avoid sand migration into the large gravel voids below.

Construction deficiencies

• *Slope and drainage of a brick-sand plaza.* A supported brick-and-sand plaza surrounding a major sports stadium failed due to uneven surfaces, efflorescence, and mold and moss formation. The cause: poor drainage. Instead of a free-draining and gap-graded sand, the plaza was set in normal concrete sand. Concrete sands drain poorly because their gradation is intended to minimize voids (which must be filled with cement paste). In addition, the distances to area drains were as much as 30 feet, with slopes of only 1 percent (1/8 in. per ft). All of the plaza's problems stemmed from these tortuous drainage conditions, which trapped infiltrated water for long periods of time. The NCMA, in Tek 115, discusses the use of "well graded" sands, but the authors recommend a gap-graded or very coarse sand instead.

Several methods can achieve well-drained sand systems. To cure the problem plaza, the original concrete pavers were reset in a new bed of gap-graded sand. In addition, the horizontal flow of water was enhanced by geotextile filters placed both above and below insulation board (in this case, load-rated, dimensionally stable expanded polystyrene). Thus, water entering the paver joints must pass through only 1/2 inch of sand before reaching the top geotextile filter. Any water penetrating the butt joints in the insulation board is removed by the lower geotextile filter. During downpours, this

system is expected to fill with water, but it will drain quickly when the rain stops. A similar system, but without insulation, was designed for the repair of the sidewalks and crosswalks of the downtown mall cited above.

• *Bonded setting beds and grouted joints.* A large plaza experienced overall failure of bonded stone pavers due to freeze/thaw cycling. The mortar bed and grouted joints had not been completely filled, creating voids below the stones and in the grouted joints that allowed moisture to penetrate the system. After a few freeze/thaw cycles, the entrapped water froze and expanded, loosening the stones. The requirements of bonded and grouted systems should include fully grouted joints and solid bedding (no compaction voids). Note that the no-void approach can be a problem with large pavers: it takes more care to assure full mortar bedding and complete grout contact with a bigger, heavier unit.

• *Waterproofing membranes.* Most of the problems associated with membrane systems develop at their edges and at penetrations. While a full treatment of this subject is beyond the scope of this article, termination details are difficult to install, require thorough design, and should not be left to the interpretation of the contractor.

Steps

Steps are notorious for their poor performance. Typical substrates are concrete or masonry block, overlaid with a mortar bed on which the step pavers are installed. Stair problems are often due to these factors: Steps usually represent a change or interface between two systems; therefore, expansion joints are typically needed. The steps and their subgrades require individual design and details. A concrete plaza was built with control joints at 4-ft centers, and expansion joints at 20-ft spacings, but its brick steps had no expansion joints: the steps failed.

The dimensions and slopes of some substrates may not be buildable to within the accuracy required of the finished steps. To compensate, the substrate is built intentionally low, and thick mortar beds are used. In one case, this was taken to an extreme, resulting in excessively thick sections of mortar bed, most of which performed poorly. *Continued on page 40*

THE PROFESSION Computers

Loose Ends Left at A/E/C Systems '94

By Steven S. Ross

Software, not hardware, provided the big news at this year's A/E/C Systems show. Prominent in the booths was software to keep better track of huge drawing files and vast amounts of associated data scattered across networks. There were also many new packages for 3D rendering, and new low-priced but feature-laden CAD packages. On the hardware side, prices for large output devices, particularly color inkjets, continued to fall.

The news was not all good, however. Advances of the next six months could make CAD software files less portable—and start a new cycle of vendors jockeying for proprietary positions in the CAD marketplace.

What's going on? In recent years, the struc-

Inexpensive CAD software has also emerged, compatible with industry standards such as the AutoCAD DWG file format. Why pay Autodesk's \$3,750 per seat price when some seats can be set up with \$500 CAD from Xitron or Numera or Autodesk itself?

Again, however, all of this depends on file standardization—or at least compatibility. Although compatibility has been getting better, this may not be the case in the next few years. CAD files are made up of graphical entities—primitive shapes such as arcs and lines. Different packages such as AutoCAD and MicroStation use similar but different entities.

DWG files created by AutoCAD 12, for instance, have 26 entities. Autodesk itself is

This is an important advance, in many ways very exciting. A window vendor, for instance, may create an automated catalog with window entities that cut their own holes in the wall—and sense and warn about which wall materials may be incompatible. A third-party AutoCAD add-on program could add a pipeline or duct entity that behaves like the real thing in many of its calculated properties.

But what happens when AutoCAD reads a DWG file created with the help of such a third-party application, but with the application not present? Experts attending A/E/C revealed an impending anarchy. Technical people close to Autodesk predicted “two years of confusion” on standards.

Autodesk says the entity will appear, but may not be editable. Developers say, in fact, that under such circumstances the entities may only appear as notation boxes or crude approximations. They may or may not translate into groups or polylines even in the export format DXF—it will depend on the third-party developer and its own marketing agenda.

If unadorned AutoCAD handles such files this way, what about competing products, or add-on products for doing 3D? Asked to comment in detail, Autodesk spokesman Andrew Mackles described the situation as “a process in creation, central to our overall strategy of interoperability. The issues are complicated, and there have been some missteps. But long-term, our goal is to get it right—plug and play interoperability. There are several ways to do this; they will come out in phases—over the next few months from Autodesk and third-party vendors.”

Mackles described the situation as mainly up to the third-party vendors, who supply solutions for specific applications, and not Autodesk, creator of the “engine.” At the very least, it may be wise for architects to demand that vendors of any third-party add-on product provide enough information about their file structure for files to be reconstructed if the vendor ceases operation. Mackles said there are no plans for Autodesk to set up a third-party registry for entities. “We should not need it. Plug and play is the aim, over the



Softdesk rendering of “Urban Night” CAD image.

tures of CAD software files have been getting more standardized, allowing more reliable data exchange from one CAD program to another, and between CAD and modeling, rendering, construction and facilities management software.

This has brought ever-increasing success in matching new software tools to architects' drawing style and project type. Rendering and modeling, in particular, depend on mixing and matching software. Some packages are better at pre-design rough models and concept studies. Some are strongest for drafting, and others are strong in rendering. Finally, other packages may be used for manipulating rendered models to animate them, walk through them, or fly around.

adding 22 more for Release 13, scheduled for this fall at the earliest. Under the circumstances, it is amazing that there are so many translators that work, or almost work. Vendors who sell translation programs, for instance, already complain about such user defined entities as custom line types in Intergraph MicroStation CAD software.

For AutoCAD Release 13, Autodesk is going further, however. It is allowing third-party developers to add entities of their own to DWG files created by AutoCAD. In programmer-speak, Autodesk provides an API (applications programming interface) for third-party vendors to do this. There are 2,000 such vendors, Autodesk says, with over 4,000 add-on products.

longer term," he said.

Product vendors—for things like windows or doors or pumps or whatever—will have a vested interest in opening their standards. Some entities will be scoped out by emerging new technology such as Jacobus JSpace (described below). But some flavors of DWG files will be unusable with our current or expected tools.

Softdesk emerged as the largest vendor of AutoCAD add-ons—and as a company that could tackle standardization itself. After raising about \$15 million in a public stock offering early in the year, Softdesk has gone on a buying spree. Among its acquisitions:

- Image Systems Technology, the largest provider of scanning and manipulation software for handling raster images inside AutoCAD. **Circle 300**

- IntelliCADD, the main provider of Autodesk's "Anaheim" data-handling technology (AutoCAD ADE). **Circle 301**

- Worldwide distribution rights for AutoFM, facilities management software. **Circle 302**

Although the Power Macintosh was released only a few months before the show, many vendors showed software rewritten especially for it, or promised PowerMac versions by summer's end. That's hardly surprising; the Power Macintosh offers a three- to 10-fold speed advantage over previous Macintosh models. Among the new software:

- ArchiCAD 4.5 modeling and drafting by Graphisoft. **Circle 303**

- form-z boolean modeling by auto-des-sys. **Circle 304**

- Graphsoft showed MiniCad 5, a Power Macintosh 2D and 3D CAD package with strong database and spreadsheet links. It includes conversion from Claris CAD files. **Circle 305**

- DesignWorkshop by Artifice. **Circle 306**

1. The Apple booth had plenty to show, including the new PowerMac and a NovaJet plotter.
2. Cad Overlay ESP from Softdesk, showing contours being traced.

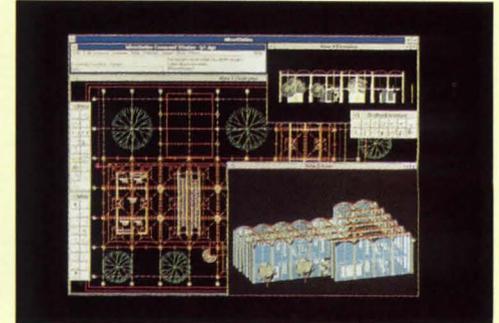


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3. Project Architect showing plan, elevation, and 3D rendered elevation.
4. Softdesk AutoFM facilities management software.



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- Designreality, 3D modeling from Ashlar; the 68030-Macintosh version, originally developed by YONOWAT in France, was shown at the show. A PowerMac version is due in September; the upgrade cost will be only for shipping and handling. **Circle 307**

- Vellum for the Power Macintosh, also from Ashlar; owners of Vellum 2.5 for the 68K Macintosh can upgrade free. **Circle 308**

In contrast, there is still no CAD package written specifically for IBM's OS/2, which has been available in a usable form (with high-resolution graphics drivers) for a year.

Bentley Systems and Intergraph provided more details about the arrangement between them. Bentley is developer of MicroStation, which Intergraph has been selling. Now Bentley (half owned by Intergraph) will take over more of the marketing. Intergraph will probably remain the largest single marketer of MicroStation, however, packaging it with many third-party add-ons and many add-ons of its own. The new arrangement is being phased in this year.

Jacobus Technology, which develops software that works with both AutoCAD and MicroStation, announced a "strategic alliance" with Bentley to develop projects based on its JSpace, a way to link non-CAD data with drawings. JSpace Vantage, for instance, is meant mainly for plant facility reviews. JSpace Vista can evaluate different 3D designs for optimal performance. **Circle 309**

Intergraph showed its relatively inexpensive ANA Tech Eagle 3640 24-bit color scanner.

Intergraph also showed numerous new add-ons including Project Architect for Windows NT, a package for construction documentation, Intergraph FM for facilities management, and Project Layout for Windows NT. **Circle 310**

Bentley showed a pen-computing drawing markup package that can be taken into the field — MicroStation Field; it is perhaps one of the best pen computing applications yet. **Circle 311**

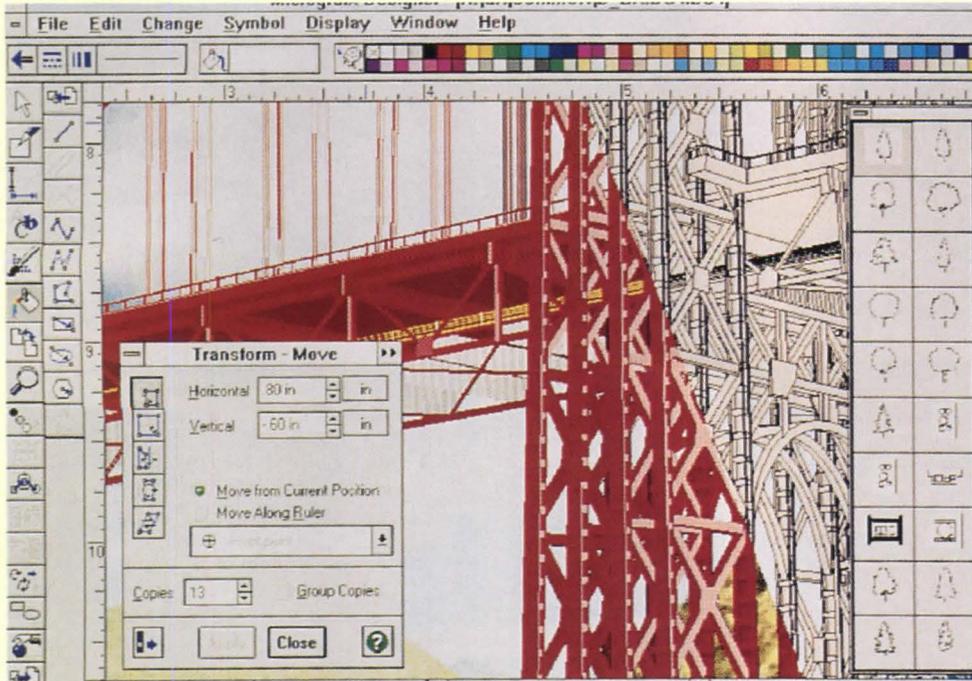
\$500 bargain CAD

A whole new class of super-capable CAD costing \$500 or less was trumpeted at the

5. MicroGrafx Designer 4.1 TE makes it easy to manipulate CAD drawings.

6. Viewbase from Softdesk file management software.

7. Softdesk version of DOE energy consumption modeling.



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show by numerous vendors. Some of the new packages will require careful evaluation, to see if they can handle really big projects—10,000 entities or so. But the features and interfaces looked terrific on the floor. Among the packages:

Ashlar offered Vellum 2D, a \$2,495 package for Windows and the Mac, to Generic CADD users for \$495. File transfer between the two is only possible via DXF, however.

Circle 312

Cadkey, Inc., introduced CADkey 7 at \$495. After September 15, the price is scheduled to go to \$3,495—but recent history suggests that if sales are brisk, the firm may stay with the lower price. DataCAD 5, also from Cadkey, is \$149.95.

Circle 313

Numera, a new company created by former programmers of Generic CADD, demonstrated Visual CADD for Windows, a 2D package that loads and saves all Generic CADD file formats as well as AutoCAD DWG and DXF. Along with the standard Windows interface, it includes a customizable set of keystroke commands. Obviously, users will be able to customize the package to rec-

ognize GenCADD two-letter commands. The price is \$495.

Circle 314

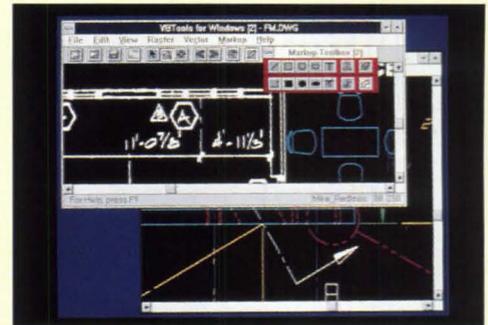
Softsource, a major provider of engines for DWG and DXF translation to and from other CAD formats, said its \$500-range Sausalito CAD package, using AutoCAD file entities for exact translation, would not appear before fourth quarter 1994. It had been announced last fall.

Xitron, another new company, showed XCAD for Windows and Windows XT on a super-fast Digital Alpha AXP running NT. Its surface modeling tools were particularly impressive, but the final product was not quite ready for the show.

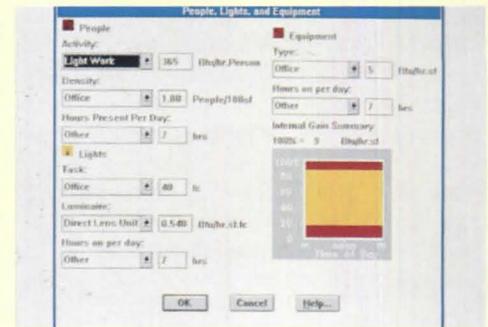
Circle 315

Two providers of "drawing" programs introduced software designed to take CAD files and turn them into artful presentation pieces—much more easily than you could with the CAD program itself.

Micrografx showed Designer 4.1 Technical Edition—similar to Designer 4.0, but with a good set of import and export filters including DXF and IGES. Designer 4.1 TE does



6



7

lack many of the 3D features of Designer 4.0, however.

Circle 316

Caligari showed a true 3D drawing program, trueSpace; its translators do not seem as complete as those for MicroGrafx, but special effects and the ability to fly through a model will make up for it, if your files can be handled.

Circle 317

Synthonics Incorporated showed 3DMaker, a package that can turn a standard 3D CAD drawing into a 3D image (for viewing through glasses with different tints in each eye). The company had previously released 3DeXpres for generating 3D wireframes and DXF data files from pairs of ordinary scanned images or 35 mm slides.

Circle 318

IBM concentrated on displaying its Catia and CADAM software for plant design; there was only a small booth for A&ES, the full-blown architectural CAD software originally developed with Skidmore, Owings & Merrill. Nevertheless, it was showing a fine facilities planning add-on. Circle 319

Accounting and project planning

The big news was Windows. Many of the new packages run under Windows, allowing easier data exchange and easier data input. This makes them more compatible with architectural offices.

Tracking consultant and reimbursable expenses is easier with ACCI's Project Management/Accounting System. Version 10.1 was shown at A/E/C. It prompts for consultant invoice payment when you enter receipts. *Circle 320*

Building Systems Design, Inc., showed The Composer, a package for tracking costs of past projects, applying inflation indices, and special area-specific cost factors. There's a scheduling module as well that imports and formats ComposerR data; this module can send the data on to other scheduling and project management packages. *Circle 321*

Design Cost & Data's Design4/COST version 4 for Windows calculates per-square-foot construction costs based on historical prices. *Circle 322*

Design Data Systems announced a Windows version of its project management software; it had not shipped by show time. It allows good integration with financial functions, including invoicing, budgeting, job costing, and resource planning. *Circle 323*

Kandl Data Products showed AFMAN II for Windows, a cost estimating package aimed at the building renovation and facility management markets. There were already DOS and Sun Solaris versions. *Circle 324*

Research Engineers, Inc., showed AutoProject 2.0, a full-scale project management link that runs on top of AutoCAD. In addition, the firm's CadPlus, tuned specifically for architects, prepares 3D models, elevations, and sections along with complete construction documentation. It sends data easily to AutoProject. *Circle 325*

Sema4 for Windows, from Semaphore links financial management data to FoxPro 2.5 for Windows. The reporting tools are quite flexible. *Circle 326*

Timberline Software showed TimeTrax, a spreadsheet-like timesheet for Windows or OS/2; its ASCII files can be sent to scheduling, forecasting, or accounting programs. *Circle 327*

CAD and modeling tools

Except for the booths displaying scanners, printers, and plotters, this year's A/E/C Systems was almost entirely software, not hardware. Numerous new CAD packages and add-ons for existing packages led the way. Autodesk itself offered an architectural package—AutoCAD, rendering, modeling, and so forth—at discount. *Circle 328*

ART, Inc., announced Release 3.0 of its Chief Architect, a 3D modeling package for Windows, optimized for drawing interiors. The new version adds semi-automatic drawing of complex roofs, exterior elevations, and cross sections. The product was shown, but was not yet shipping. *Circle 329*

BAGH Technologies showed STAR ARCHI, a CAD system tuned for high-end projects. It includes modules for 2D and 3D drawing, terrain modeling, facilities management, and rendering. *Circle 330*

CADworks, Inc., showed Drawbase Release 2.0, a 3D CAD package being positioned as much as a facilities-manager as a CAD tool. It has excellent database "hooks" to query and report facilities data. The 3D images and text can be displayed by floor, building, activity group, and so forth. The 3D display essentially acts as a front end to external databases — even multiple databases — under Windows. *Circle 331*

CADworks also sells Visual Drawbase, for generating photorealistic 3D images from Drawbase 3D models. Use it to attach textures, light sources, and surface characteristics (transparency, reflectivity, and so forth). *Circle 332*

Dacis, for MicroStation, showed its Builder System, with numerous tracking and cost-control modules. *Circle 333*

Eagle Point showed several new add-on programs for AutoCAD including landscape preparation. It also announced support of Hewlett-Packard's UNIX computers with MicroStation. Most of the packages are meant for site work. *Circle 334*

Eclipse Software demonstrated Facade 2.5, a 3D modeler that runs on top of AutoCAD Release 12. *Circle 335*

Expert Graphics showed Kadet-LT, an architectural add-on for AutoCAD LT. It handles layers, dimensioning, and symbols. *Circle 336*

Graphisoft showed Atlantis Render, which it is marketing in the United States. It works directly with ArchiCAD. It also showed ArchiCAD 4.16 with faster rendering under Windows. The upgrade from 4.1 is free. *Circle 337*

KETIV showed an upgrade to its Archt architectural software for AutoCAD 12. It has better reporting requirements and more flexibility for standard features such as doors and windows, and for multistory designs. *Circle 338*

LandCADD International, well-known for its AutoCAD add-ons, introduced a stand-alone program, Site Designer, for the site planning and landscape architecture market. Functions include estimating, irrigation, and basic COGO functions. *Circle 339*

Lightscape Technologies showed fast 3D lighting visualization software for Silicon Graphics workstations. *Circle 340*

People for People showed a new collection of 3D people for use in Autodesk 3D Studio renderings. *Circle 341*

Reflex Systems showed a new modeler for Silicon Graphics computers. The main feature, engineering analysis within the model, will be of particular interest to multidisciplinary firms. *Circle 342*

- 8. *AIA OnLine offers members a package of on-line services, including e-mail.*
- 9. *BAGH's STAR ARCHI integrates .2D/3D modeling and terrain like the city shown. .*
- 10. *Summagraphics color band printer*

- 11. *HP 650C color inkjet plotter with maps.*
- 12. *Photorealistic rendering of an antique steam engine using Selex printer.*

RenderStar Technology showed RenderStar 2 eXtension-24, a stand-alone rendering product for DXF and many other file formats, including AutoCAD, DataCAD (if the drawing has no voids), DesignCAD, CADkey, and others. ARE-24, working inside AutoCAD R12, is also available; it was developed with KETIV.

Circle 343

CyberScope for either AutoCAD or 3D Studio, from Simalabim Systems, allows modeling and stereoscopic viewing of files that start as DWG or DXF.

Circle 344

Softdesk, a year after its takeover of ASG, showed French, Spanish, Portuguese, and Italian versions of Auto-Architect. A German version of this AutoCAD add-on is due soon. A version combining the best features of ASG and Softdesk is due when Autodesk issues Release 13 of AutoCAD.

Circle 345

Spotlight Graphics, Inc., showed its Ray Tracer for MicroStation, version 1.6. The new version is amazingly fast—its Quick Display option for ray-traced views displays images five to eight times faster than previous versions.

Circle 346

Triangle Company showed NovaFill-V for complex edge-to-edge color or grayscale fills inside AutoCAD and plot them on XES/Ver-satec electrostatic plotters. NovaFill 2.5 does the same for inkjets supporting HPGL/2.

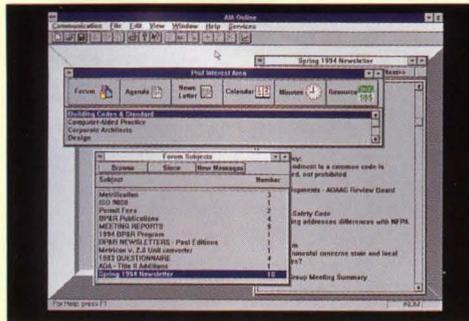
Circle 347

Facilities management

The trend toward blurring the distinction between construction drawings and tenant records continued, with numerous improvements to facilities management packages.

Archibus/FM-FIMS for Windows makes it easy to create client-interactive presentations. It allows links between CAD images, database information and even textual messages. Viewers can click on on-screen buttons or icons to get the information they need.

Circle 348



8



9

BAGH Technologies showed Star Techno, a facilities management package that combines 2D and 3D graphics, scanned images, and database text. It can be linked with Oracle and other database packages.

Circle 349

File conversion

The job may be getting more difficult, but that hasn't kept many vendors from offering new tools for file conversion. In particular, raster-to-vector, AutoCAD DWG, and Intergraph IGES users are benefiting.

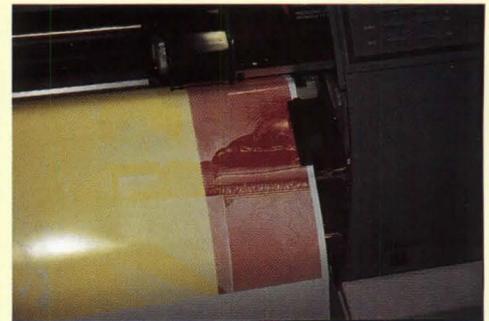
ComNet showed its new Windows 3.1 raster-to-vector scanning package with optical-character recognition for text, VPmaxNT. Circle 350

Decision Graphics (DGI) released CATS 4, an AutoCAD/Intergraph translator for 2D and 3D files. It handles DWG, IGES, and DXF conversions in either direction, and features powerful customization facilities.

Circle 351

GTX showed GTXRaster CAD and RasterCAD Pro for Windows, with great interfaces and excellent AutoCAD compatibility.

Circle 352



10



11

Ideal showed I/Vector, new raster-to-vector conversion software for Windows 3.1, Windows NT, and DOS.

Circle 353

Image Memory Systems showed CsWinNT, software for scanning old drawings and converting them to CAD format, for high-volume applications.

Circle 354

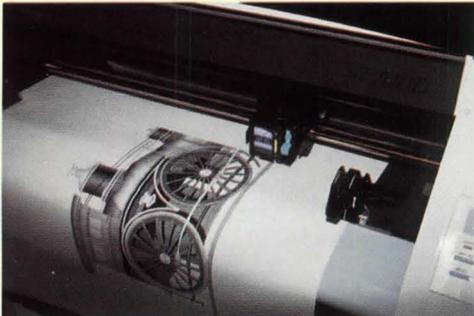
Image Systems showed CAD Overlay ESP 4X, adding three new features to this pioneering package—better raster editing tools, rubber-sheeting to match the raster images to CAD drawings, and plotting of color vector and monochrome raster together.

Circle 355

Kandu showed its new CADMOVER 4 translation software with new modules for 23 CAD and graphics Macintosh-based translations. Circle 356

Tailor Made Software sidesteps file incompatibilities by converting HP-GL and HP-GL/2 files to MicroStation DGN format. Its new HP2Design package runs inside Version 5. Circle 357

13. Artist Graphics 3D fly through utility, showing icon palette in lower right, rendered view in upper right, wireframe underneath. AutoCAD image.



12



13

Vendors are catching up with the ability of CAD software to scatter files all over a network. New file tracking and viewing packages can view main files as well as reference files, track revisions, and even allow markups and comments on segregated layers where they don't affect the drawing itself.

Cimmetry Systems introduced AutoVue and AutoVue Professional, version 12.2 for viewing, markup, file conversion, printing and plotting. AutoVue supports more than 150 graphics, text, and data file formats. Versions are available for DOS, Windows, and Unix. *Circle 358*

CYCO International showed AutoManager Organizer, for tracking and viewing AutoCAD drawings on stand-alone or network systems. It works with AutoCAD DOS or Windows versions. The packaging is as noteworthy as the software — a compact box, only 1.5 inches high and about 4 inches square, it contains two disks, a warranty card, and a 60-page manual. *Circle 359*

Kruse Control from Kruse, Inc., is a high-volume package for organizing, viewing, and printing drawings. It runs under Windows,

showing amazing power for a seemingly simple interface. *Circle 360*

MicroGreen's CECAD turns AutoCAD 3D models into images that can be viewed in "stereo" for true depth perception. *Circle 361*

Salix offered a toolkit for vendors and large companies to handle almost any graphical or data file on Sun systems. Out of the box, it offers impressive functionality, and possibilities for customizing. *Circle 362*

Silanis Technology showed ERA for Windows, a document revision and tracking package that runs with AutoCAD 12 for Windows and allows electronic signoff of revisions. *Circle 363*

File tracking and viewing

Systems personnel at larger offices will particularly appreciate tools from Sirlin Corporation. The Profession version of its CAD++ Engine toolkits support display lists and rendering engines such as HOOPS, and the display of AutoCAD DWG and DXF files. For less sophisticated offices, Sirlin-View 3.0 for Windows (with more speed than previous versions) handles CAD and raster image viewing, and redlining.

SirlinView/PLUS 3.0 for Windows includes query software that searches structures within files. *Circle 364*

Synergis Technologies, Inc., showed its Network Filemanager for Windows and Sun workstations. It includes file viewing, redlining, revision control, plotting, and a flexible underlying database. *Circle 365*

TSA/Advet showed its new Falcon/DMS Windows-interface document management package for AutoCAD, MicroStation and other Windows CAD software. *Circle 366*

On-line services

AIA Online offers business development leads, building product sources, AIA services, e-mail and architect-run forums. AIA members pay phone charges only, no connect fee. *Circle 367*

The American Society of Landscape Archi-

tecs introduced DesigNet, a free system for information exchange and electronic messages. *Circle 368*

Output devices and software

Photorealistic rendering has stimulated the production of photorealistic output—and you no longer need a slide maker to get it. Inkjet and dye sublimation vendors offer shiny coated paper. The results are astounding. The only trap is that each vendor's paper has been matched to its ink; seemingly identical stock will give poor results in incompatible printers and plotters.

CalComp continued to ratchet down prices for electrostatic plotters. Its DrawingMaster 600 and 800 units have higher resolutions (300 by 600 and 400 by 800 dpi respectively), too. These are the first E-size direct-image plotters with resolutions so high. *Circle 369*

Eclipse Software demonstrated Plump 3.1, a new family of print spoolers for DOS and Windows; it features improved network support. *Circle 370*

EnCAD's NovaJet II found some new tricks. Its super-glossy paper provides photo-feel output, amazing for an inkjet. The paper is designed to work with the ink; no other vendor at the show could match the combination, although many promised to do so by year-end. *Circle 371*

Hewlett-Packard showed the Enhanced DesignJet 650C inkjet printer, with more memory and better connectivity. *Circle 372*

Insight Development Corporation's PrintA-Plot Pro turns any printer into a color HPGL/2 plotter. It pops up inside any CAD program, or attaches to AutoCAD via ADL. Its RenderPrint software prints photorealistic 3D images on any printer or HP DesignJet plotter. *Circle 373*

Mutoh introduced a new line of D-size high volume plain-paper plotters, the LD-2000 series, using LED direct-imaging technology for 400 dpi resolution. They can hold two different media rolls and can handle a wide variety of plotter formats. Prices range from under \$20,000 to \$29,000. *Circle 374*
Continued on page 97



200. Cement decking

Flat building sheets, profiled panels, and corrugated cladding form the SupraCem line, which is said to be the only replacement product for asbestos-reinforced cement sheets with similar corrosion- and fire resistance. Supra-Deck profiled decking (shown) is said to offer excellent span and load capacity for low-slope and flat roof-deck applications. Cemfort, Inc., Montreal.



201. Stylish stones

Combining graded stones and a colored cementitious base creates a multi-hued, fractured-stone surface when exposed by sandblasting. Lithotex Colorstone is appropriate for new interior floors or fresh cement and is said to resist wear and abrasions. Available in 16 standard colors or custom combinations. L.M. Scofield Company, Los Angeles.



202. Color option for metal

A deep forest green joins this company's list of 23 available colors for painted steel and aluminum panel, roofing, and column-cover systems. Hartford Green comes in 24- and 26-gauge steel and in .032-, .040-, and .050-gauge aluminum. Complementing copper and stainless-steel metal products also are available in various finishes and colors. Copper Sales, Inc., Minneapolis.



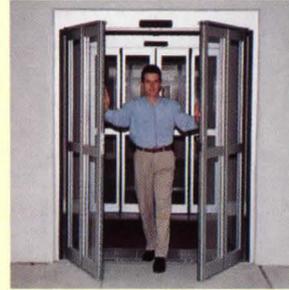
203. Anti-stain latex paint

A new interior latex wall paint claims to have the same washable and durable qualities as glossy enamel wall finishes. The stain-resistant Everclean finish is offered in flat and satin in over 600 colors. Unlike regular flat paints that absorb stains, this is designed to dry with a non-porous film that prevents such absorption. The Sherwin Williams Company, Cleveland.



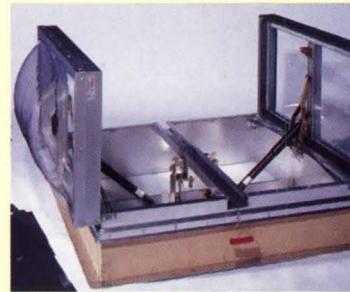
204. Double jointed

The basic element behind this stainless steel railing system is a double baluster. With adjustable handrail segments and standardized components, balustrades adapt to any staircase direction. Panelling choices include lateral or tubular stainless-steel tubing and glass in panels or strips. Fittings are finished in satin, polished, and titanium plate. Partec, Elk Grove Village, Ill.



205. Automatic safety

This new automatic bi-folding door allows a manual push to swing it open during emergencies. Other built-in safety features include a low-energy closing force and a push mechanism that closes the door if it hits an obstruction while opening. Made for small spaces without a lot of room, bi-fold unit can be installed in already existing doorways. Horton Automatics, Corpus Christi, Tx.



206. Translucent fire vent

This new GDSH series neatly serves a dual purpose as a fire vent and a skylight because of its polycarbonate dome, which is said to be nearly indestructible. Options include smoke detector activation, motorized operation, special finishes, custom base flanges for metal-roof installations, and security grilles. FM approved and UL Listed. The Bilco Company, New Haven, Conn.



207. Colored glass

Designers are no longer limited to neutral and gray glass tones with Metallica, a new line of colored architectural glass. The 20 hues include 10 lighter, semi-transparent samples for patterns and graphics and 10 opaque choices for solid surfaces and wall cladding. Each of these can be combined with patterns and textures from the company's original series. Cesar Color, Inc., Burlingame, Cal.

Short takes

•The CSI Show: Too big?

June's 38th annual convention and exhibit of the Construction Specifications Institute was, as usual, a trove of new building products, electronic specification help, and technical seminars: but too much of a good thing?

The numbers of exhibitors—well over 500 manufacturers and 1,000 booths, according to management figures—is far too many to browse in the 12 hours of exhibit-viewing time

(spread over the three days of the show!) permitted. And the traditional Friday/Saturday/Sunday slotting might discourage attendance by local architects and designers unwilling to sacrifice a weekend. Suggestion: maybe fewer exhibits or more time to see them.

This year's educational workshops had (as usual) a high level of usefulness. Topics went from cutting-edge infrared wireless data exchange,

through realistic design and product-selection strategies utilizing non-toxic, recycled materials, to you-are-there demonstrations of a working Alternative Dispute Resolution session. All in all, well worth the trip. Next year: Minneapolis; June 23-25.

March of time

For its 1995 "Cycle Year", the Sweets catalogs will have an entry Division 10 for time capsules. *J.F.B.*

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UNBEATABLE RESILIENCE

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For a seamless appearance, Composition Plus tiles are Micro-Squared[™], an exclusive precision cutting that allows tiles to fit together so perfectly, dirt traps are virtually eliminated!



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Designed to last through and through, the attractive pattern extends through the thickness of the tile. Heavy traffic's no threat to the lasting good looks of Composition Plus[™].

- An improved surface finish makes the tile less porous, easier to care for and stronger against wear and tear.
- Homogenous composition and even distribution of materials make this vinyl composition tile among the most durable on the market.

Fundamentals *continued from page 29*

Material performance

Exterior plazas often fail due to poor material performance, particularly concrete plazas in northern climates. The main causes for these failures are moisture and salt penetration into poorly air-entrained mortar and concrete systems followed by freezing and thawing.

- *Freeze/thaw resistance.* Paver units subjected to northern climates should be tested for freeze/thaw durability before being specified. ASTM C-666 should be followed if only water and ice exposure is contemplated, but ASTM C-672 should be followed if de-icers will be used.

- *Bonded and grouted pavers.* Proper materials must be used in bonded paver systems. Bond development can be a chancy item, particularly if pavers are to be bonded to a mortar setting bed. As discussed earlier, durability can readily be imparted to the mortar by providing an adequate air-void system (using an air-entrainment agent) and a compressive strength of at least 4000 psi. However, bond integrity can be affected if

too much water is added to the mortar for workability, as bleed water will collect at the mortar-paver interface and leave voids that interfere with bond development. This, in turn, promotes freeze/thaw damage.

This problem can be solved by the addition of a suitable latex in the mortar. "Suitable" means a latex based on acrylic or styrene-butadiene. Polyvinyl acetate should *not* be used in such applications. In addition, the proper latex-to-cement ratio (about 15 percent) should be used, and the mortar pot life maintained at about 30 minutes. Latex will greatly reduce bleeding at equal workability and assists in the development of good bond strengths. The same mortar material can be used to fill joints, which should be wide enough to allow proper filling and striking off (about 3/8-in. wide).

- *Stone pavers.* Laboratory tests, like those specified in ASTM C-97, must be conducted to reveal any excessive porosity and absorption characteristics of the particular natural stone selected.

Maintenance

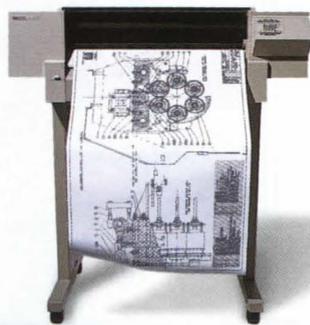
While maintenance is an important topic that can't be fully treated here, the following opinions are offered because many owners and designers have asked about the issue of responsibility.

- Once the plaza is completed, its maintenance should be the responsibility of the owner. This responsibility includes cleaning and preserving the plaza and maintaining the expansion joints. Beyond that, the plaza should function as designed and constructed.

- To properly maintain an exterior plaza, the owner must be aware of both the chemicals that can be safely used to clean and maintain the plaza and the expected performance of the plaza elements. The owner must also realize that some elements, such as sealant joints, if used, require regular inspection and replacement. Guidance in this area must come both from the designer and from the materials suppliers. ■

Plaza-deck materials and waterproofing systems are featured in this month's Product Literature section.

Power.



5 minute plots

Now, with a new low price, the HP DesignJet 200 monochrome inkjet plotter is more affordable than ever.

It's true. For about the price of the average pen plotter, the HP DesignJet 200 gives you crisp, 300-dpi, D-size plots in under five minutes.

Of course, HP's proven inkjet technology means more than just fast plotting. It means no more pen-related problems. No more skipped lines. No more pen clogging. And our smooth, quiet writing

Letters continued from page 4

work as a youth when the only books in the architectural section of our library were on his work. So it came as a great shock to a student entering college to discover how ridiculed and outcast were Wright and his ideas. But the damage had been done, and the words from his "Autobiography" and "A Testament," as well as a book written in 1961 by Finis Farr, captured my imagination and faith. Louis Sullivan's *Kindergarten Chats* confirmed that I was on the right road.

Three years later, still holding onto Wright's concepts of space, light, texture, the horizontal and dotted lines of nature, and the continued study of his life, drawings, and work, I came face to face with architecture for the first time.

At a well known, but relatively small university 18 miles from the Auburn campus, my life changed forever. I discovered Paul Rudolph's Interdenominational Chapel at Tuskegee. Everything I had ever read that architecture was supposed to be was there in brick, mortar, and light.

Much of the genius that is Wright is also Rudolph's. The ability to see so clearly the finished building of considerable spatial and structural complexity at the outset of the drawing process is a gift few ever realize. It is no different than Samuel Barber writing his legendary "Adagio For Strings" in twenty minutes on a train in northern Italy. It suddenly appears on paper as a finished work.

The remaining question, as I see it, is when will Paul Rudolph at long last receive his A.I.A. Gold Medal and be recognized once and for all as America's greatest architectural mind since Wright?

*Preston Phillips
Bridgehampton, N.Y.*

Gehry Center Critiqued

When I look at a publication of a Frank Gehry building, I am moved by two opposite feelings: one of awe, the other akin to pangs of anger and embarrassment. When I look at the American Center [RECORD, MAY 1994, page 86], I am immediately overcome by awe, because it defies traditional understanding of how a building stands up. I am at a loss for issues of gravity and construction.

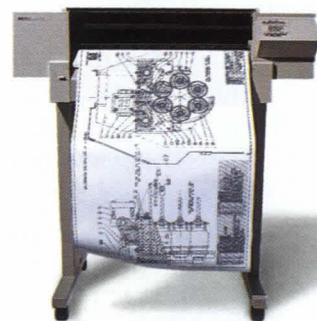
What I see is a grotesque object of unfamiliar assemblage that dislocates me from established norms of reason.

I have worked on many buildings that are infinitely simpler than the one in question. They all embodied enough problems to make any of us want to quit the profession. With this in mind, I reflect on the pictures of the American Center with great admiration and consider them monuments to the human capacity for creativity, resiliency, and diligence.

But after the pictures have become familiar and recede to the back of my mind, I ask myself: Is this the design philosophy we should be promoting in schools and in the profession? In criticizing the American Center, I would like to proceed in the spirit of Thoreau, who prefaced his love for freedom and individuality with primitive notions of economy—economy as a simple departure of acquiring less. In the opening chapter of *Walden*, Thoreau clearly understood the deception of the capitalist system, which lured people into thinking that the acquisition of property and other materialistic

Continued on page 47

To the people.



\$2,995*

system makes the HP DesignJet 200 ideal for any office environment. And with the addition of legs, the DesignJet 200 converts from a desktop to a free-standing plotter.

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*E-size model priced at just \$3,995. Suggested U.S. list prices. Price does not include optional legs and bin. Plot images courtesy of Autodesk, Inc. †In Canada, call 1-800-387-3867, Ext. 7720. ©1994 Hewlett-Packard Company PE12402

EVERY TIME WE'RE INVOLVED IN A PROJECT LIKE THIS, HISTORY ENDS UP

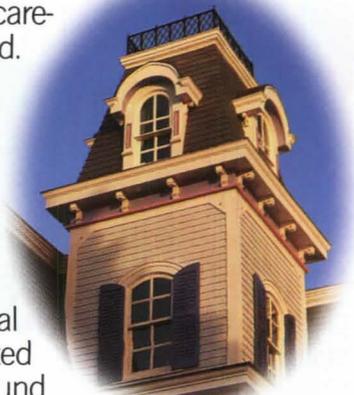
Marvin Windows and Doors has a history of being able to meet the demands of virtually any project. So when architect Barry Svigals of Svigals Associates was asked to restore this grand, old Victorian, he knew just who to call.

"Marvin provides the best of both worlds," states Barry. "A complete line of standard products and options plus unmatched custom capabilities." And as Barry soon learned, both disciplines were essential to this project's success.

Contractor Rob Reutenauer and Marvin's representative began by carefully measuring the existing windows; each of which needed to be replaced. And to match the originals, all 20 of them required authentic divided lites.

What's more, when the contractor requested special, extended sill horns, Marvin provided them factory-installed; an accomplishment that added to the authenticity of the windows while reducing the time it took to install them.

The crowning achievement, however, was the home's cupola. This distinctive, Mansard-roofed feature had been totally destroyed by a hurricane in the early 1900s and never faithfully rebuilt. So the architectural team pored over several old photographs of the home and reconstructed the cupola on paper. From those drawings, Marvin crafted four 2' x 5' round



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top double-hungs that are virtually identical to the 140 year-old originals.

Today, this waterfront residence on Long Island Sound stands as a shining example of a bygone era. A testament to the respect shown for the home's original builder. And further proof that no matter how difficult the demands of the job, Marvin is ready and willing to meet them.

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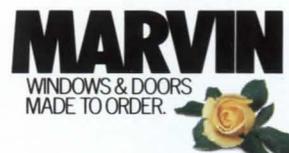
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Company _____

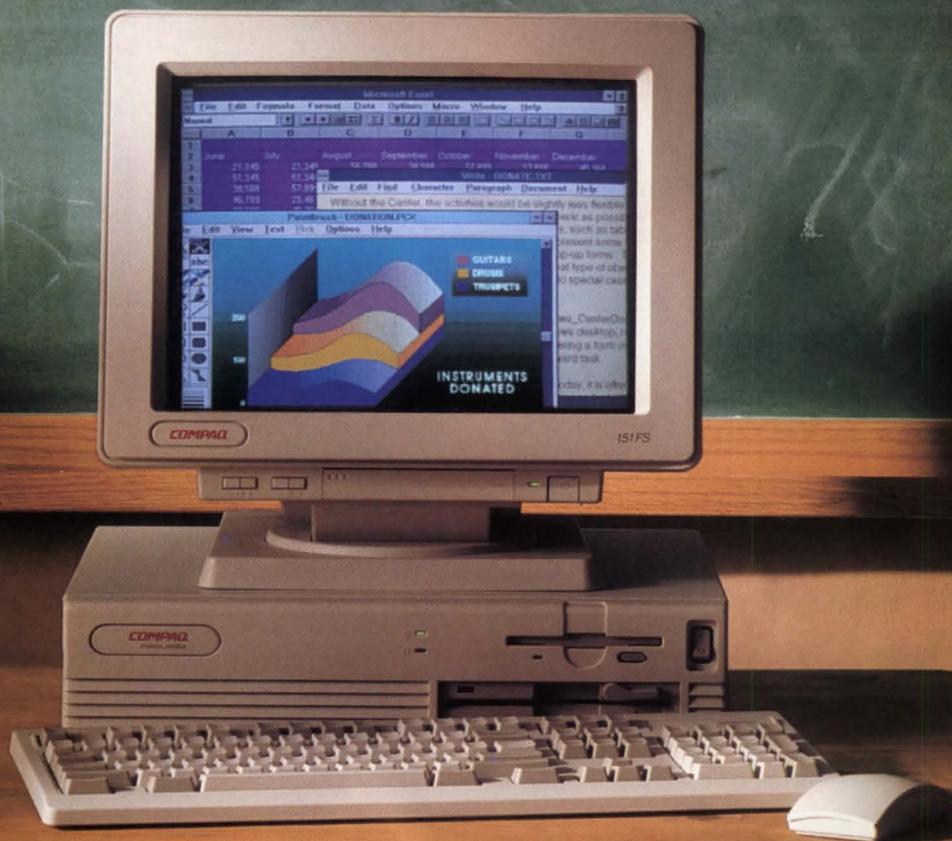
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LESSON TWO.



Letters continued from page 41

commodities were prerequisites to freedom and individuality. His two years at Walden were a way to point out that true independence cannot happen until one has reduced one's web of commitments to a minimum.

It is through his economy of vision that Thoreau becomes most central to the American Center. The issue is not about budgets, nor about esthetic value. I am arguing for economy as a philosophy of design—economy in light of our ability to control the flow of forms and concepts from our imaginations. Could the beauty of the American Center have been achieved with an approach less schizophrenic than the one adopted, eliminating the effort of calculating stone dimensions panel by panel? Our success as architects is measured by our wisdom to know when to stop designing, when to standardize a detail, and when to compromise.

At this point, someone is liable to ask: "Why should Gehry edit his forms when his reputation was built based on doing exactly the opposite?" or "Don't you think Gehry's architecture is a breath of fresh air to all the repetitive stuff we are forced to design on an every day basis?" If we are to give the American Center and its author the title of "An American in Paris," then both should stand as ambassadors not only for freedom and individuality but also for money or lack of it, at least within the realm of the profession. The American Center proceeds in complete indifference to the fact that so many architects are compromising their principles just to make ends meet. In this sense, Gehry arrives in Paris as an escape from America, not unlike Henry James' portrayal of the Pooocks in *The Ambassadors*, who went to Paris to find their identity, only to realize that what they really enjoyed was everything that was not American. Both Gehry and the Pooocks have a strong, albeit latent, appetite for aristocratic lifestyles and aristocratic intellectual power of persuasion, which are absent in a democracy.

If the American Center had been designed in America, then the building would have adopted a different language, and the "balerina tutu" would probably have been lowered to flaunt less of its extravagant underside.

Gehry has reached the level of star status; a well sought-after architect. He has earned a privilege that few architects have achieved, and as such, holds the key to pushing design

in creative esthetics, as well as better living. The American Center has a responsibility not only to its immediate surrounding but to the context of the crisis of the times. There was tremendous poetry of economy that Gehry touched on when he first inserted the chain link fence in his house. It was a symbol of struggle and victory simultaneously; an act that has been lost in the rush of reputation and ego, yet one desperately needed back in our approach to design today.

Ayad Rahmani
Spokane, Washington

Calendar continued from page 4

- Entries are being accepted for the 1995 Presidential Design Awards. Current and former government employees and nonprofit organizations who have designed for the federal government are eligible. Contact Thomas Grooms at 202/682-5437.
- The American Academy in Rome announces its 99th fellowship competition. Winners receive a stipend, travel funds, room and board, and a study or studio space in Rome. The fellowships range from six months to two years. Call 212/751-7200. ■

6

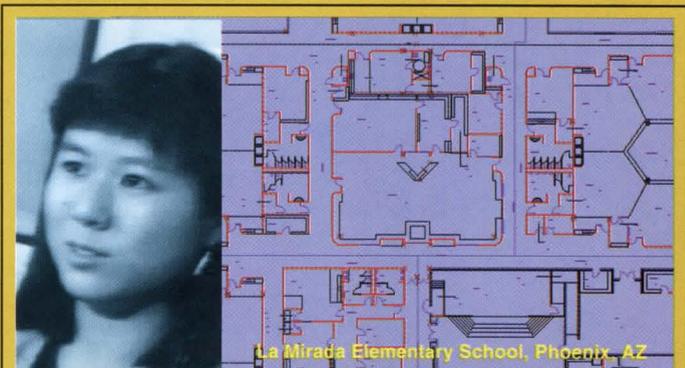
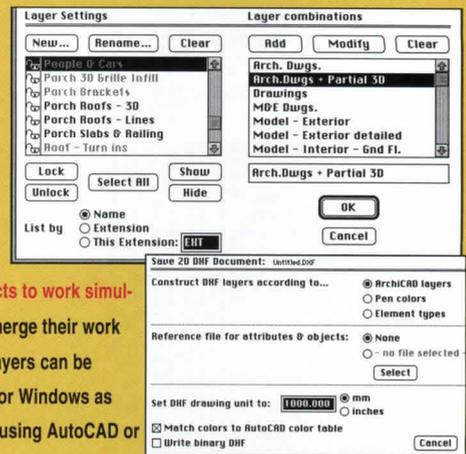
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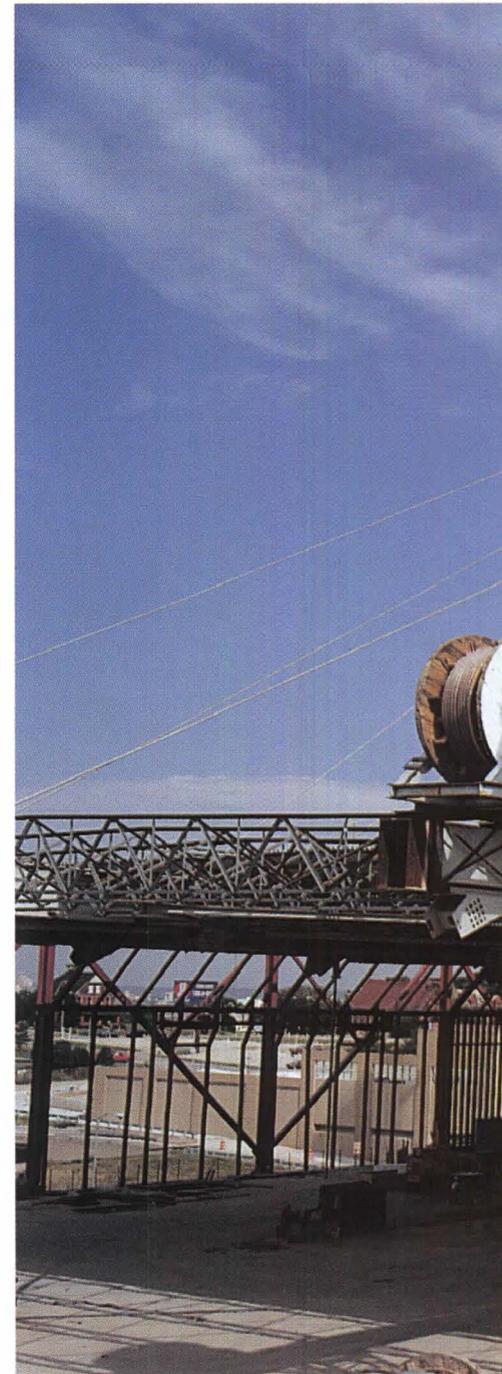
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Building Types Study 718/Recreation

Anyone who wants to paint an up-to-date picture of recreation must do so with a broad brush. The current craze for incorporating an Entertainment Quotient in every conceivable activity has (no surprise) enlisted a corresponding effort from those who design the buildings that host those activities. Thus the training center for the Spanish gymnastics team goes far beyond the familiar dark, slightly dank venue, through Enric Miralles's acrobatic, free-wheeling structure (page 52). An aquatics center (what used to be called the town pool) in rural Missouri turns the few elements called for by the program into a colorful and amusing ensemble of water-linked motifs (page 58). In a fitness center (also containing a pool) in the Bronx, architect Viñoly, like Miralles in Spain, expresses the idea of physical action through the metaphor of soaring structure (page 74). On the travel-for-leisure front, Arquitectonica transformed the hospitality industry's basic stock-in-trade of bed and breakfast into a kaleidoscope of color and form in Disney's All Star Resorts in Florida (page 64). ShowScan Theater near Los Angeles, designed by Ellerbe Becket, offers the desired experience to a public thirsty for the ultimate fakery of virtual reality (page 62). And, not to be outdone, the experience of shopping has to be made entertaining by retail developers laboring to extract dollars from a jaded public (page 82). Finally, as an exception that proves most rules, the city of Atlanta, striving to complete its facilities for the 1996 Olympic Games, struggles through sober, plodding exertion to at least get the buildings up, never mind fun and innovation (page 70). *S.A.K.*

*Manufacturers' Sources
listed on page 95*

Formal Gymnastics



*An exuberant structure by a
rising young Barcelona architect
makes a case for expressive excess.*

*National Gymnastics Center
Alicante, Spain
Enric Miralles, Architect, with
Carme Pinós, Architect*



The National Gymnastics Center, home of Spain's national gymnastics teams, is the most important work to date by Enric Miralles, the 38-year-old rebel of Barcelona architecture. In a city dominated by the modern minimalism of Esteve Bonell, the teams of Albert Viaplana and Helio Piñón, Jordi Garcés and Enric Sòria, and others (see RECORD, August 1992, pages 98-113), Miralles makes the case for maximalism, for an architecture at the outer limits of expression. The Alicante building is a sprawling assembly, haphazardly overhanging itself as it rises with out-thrusting concrete bleachers and ramps, angled walls, over-extended trusses, leaning cable masts, and cantilevered canopies spilling in various directions.

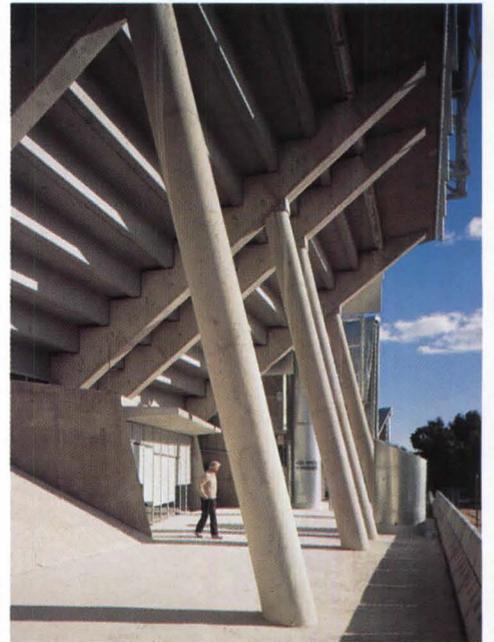
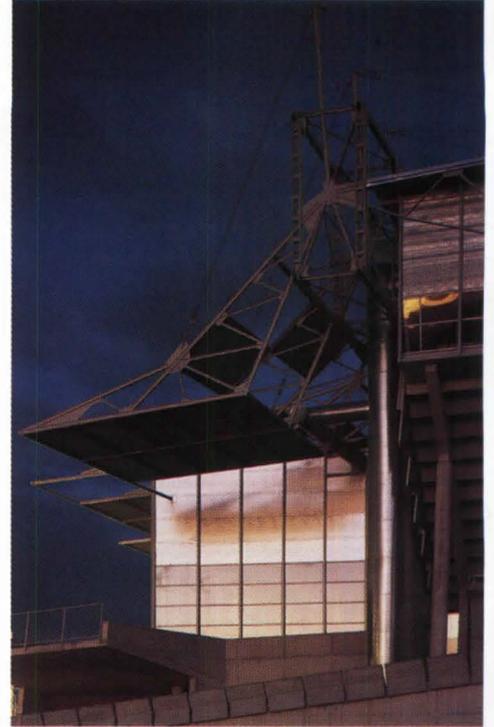
The building's basic shape is a T, the 50-foot high stadium with grandstands and competition floor at its head and a large training hall for rhythmic exercises in its stem. The principal spaces are spanned by three large metal trusses, roughly parallel but gradually spreading like a trident to reconcile the wide stadium and narrow training hall. The joint between the two spaces produces a secondary axis, where the public circulation occupies a maze of stairs, ramps and balconies overlooking both. This axis extends in one direction in the form of a large canopy over the public entrance, and in the other with a lower roof of cascading folded planes over a smaller training hall for parallel bars and other floor equipment.

Miralles placed spectator areas at the building's mid-height, reserving the ground floor for athletes. As in Le Corbusier's Carpenter Center for the Visual Arts at Harvard, the public passes through the building on an elevated plane. The entry is an inclined, enclosed drawbridge, which climbs from the street to a curved sloping ramp inside the building that distributes spectators to their seats. Finally, a glass block tower connects the various levels, housing dressing rooms on its lower floors and public restrooms above, and serving as a daylight lens for the large training hall.

The 1993 World Gymnastics Championships held here forced a challenging deadline on the builders. To speed construction, Miralles treated the design as a "problem of assembly," using prefabricated elements and limiting the use of poured concrete and secondary finishes. The roof was erected in a month and a half, and the entire facility completed in roughly nine months, at a cost of about \$9.5 million. Most of the prefab elements were custom-designed, bears little resemblance to industrialized repetition. At the roof, the non-parallel trusses and their discontinuity with the walls assure that scarcely a single condition of the structure or its enclosure is repeated. Miralles's goal is not to discipline forms and materials, but to unleash the expressive resources hidden inside them, reviving romantic notions of the artist as a liberating force. *David Cohn*



© Duccio Malagamba photos



The roof trusses are composed of rectangular members, T profiles, tension cables, and other shapes; the central truss lifts in a graceful arch to span the stadium (opposite top). The public enters via raised concrete ramps on the north elevation (opposite right); the south is dominated by the screened glass wall of the dressing room and bath tower (opposite left). The stadium bleachers project on tilted pillars over the emergency exits of the west facade, which is seen from the vehicular approach to the facility (above).





In plan, stadium and training hall are separated by the elevated public access and circulation. The interiors are roughly finished in concrete and steel. Openings in concrete are filled with low-fired clay units or panels of hollow bricks, set with the hollow face exposed to form perforated screens. Metal framing is filled with glass, corrugated metal, or suspended canvas sun screens. All partitions are glass block, even the toilet stalls and showers. The stadium (top) is daylit from all sides; beyond at right, the small training hall containing floor

equipment is seen. The large training hall is serenely grand (bottom) with trios of angled metal columns gracefully intertwined. It is overlooked by the balconies of the public circulation areas (above right) and by the tower housing dressing areas and restrooms (facing page). Miralles's decision to rescue these areas from their usual dank internment under the grandstands and locate them in a tower of light is his most radical gesture.



Credits

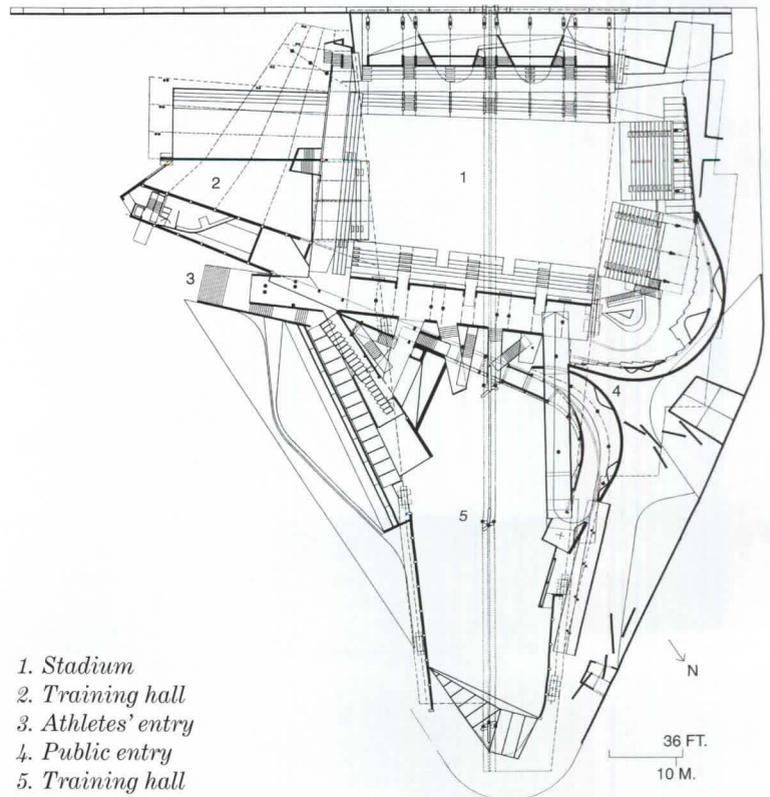
*National Gymnastics Center
Alicante, Spain*

Owner: Department of Culture, Valencian

Architect: Enric Miralles, Architect—
Enric Miralles, Carme Pinós, design; Enric
Miralles, Josep Mias, execution

Engineer: A. Obiols, I. Moya, J. Carrasco,
BOMA (structural); A. Salazar (mechanical)

Contractor: Cubiertos, Mzov



1. Stadium
2. Training hall
3. Athletes' entry
4. Public entry
5. Training hall



Catching the Wave

*Maryville Aquatic Center
Maryville, Missouri
Shaughnessy Fickle and Scott,
Architects*



With the possible exception of an ice-cold pop, there isn't much in northwestern Missouri that can break the heat of a summer afternoon like a dip in the old swimming hole. But Maryville's old pool had outlived its design life, and was losing money. Maryville Parks and Recreation Department director Rod Auxier says, "We wanted to build something really nice, that would be a destination for other communities around us." But money doesn't grow on trees in farming towns like Maryville, whose population is just under 11,000. Getting the community to pass general obligation bonds to fund the project meant the recreation department "talked to every community group that would listen," says Auxier. "We showed them what other cities had done, and slides of Shaughnessy Fickle and Scott's renderings of what we could do. Lots of people said it could never happen here. But the bonds passed."

Shaughnessy Fickle and Scott's design forces disparate, but program-responsive elements together in a colorful and amusing way that draws upon a variety of water-related elements. "When we interviewed for the job," says Mike Shaughnessy, "we talked about the design opportunities, and they were already looking for something with a little more of an entertainment-feel to it, something special. That enabled us to create some atmosphere, an exciting place to come to for the day."

To create a complex that would be entertaining, the architects rejected the idea of attempting to unify the very different types of spaces required by the program, instead allowing their differences to dominate. "The idea was putting together a combination of separate building forms," continues Shaughnessy. "There is the function of the filter house, the concession stand, shower rooms, and some offices. We thought we would let each one perform its own function, and responded to each function in its own way."

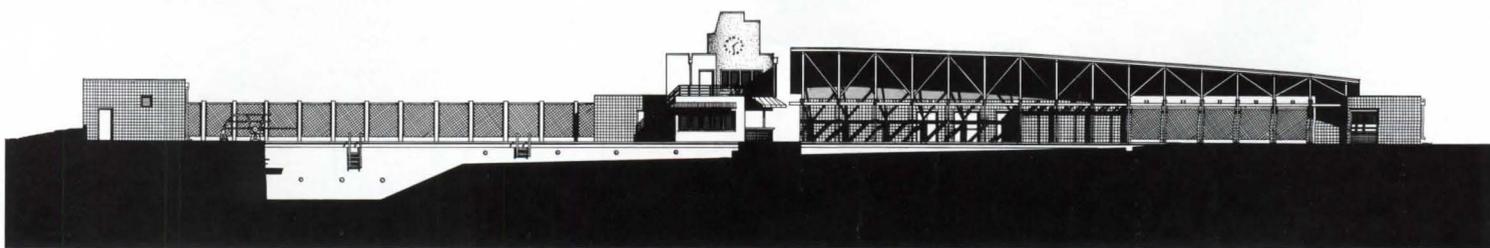
The aquatics center's most dominant element is the wave-like canopy that covers the locker rooms and a dining area, also referred to by locals as "the belly of the whale." "Actually, we thought of it more as a wing-form," says Shaughnessy, referring to the way the form directs prevailing southernly winds into the bathhouse. "We wanted to set up this large, curved form that would tie these areas together, high at the bath houses, and lower at the dining area where the scale is smaller. We also liked the effect of the water reflecting ripples of light onto the underside of the canopy." The canopy is anchored by the building where the ticketing area, offices, and storage are located. This structure draws upon several formal puns: semi-cylindrical grain silo-forms intersect a Mediterranean-villa-like lifeguard tower, whose balcony is guarded by a classic ship's rail. A huge clock counts off the summer's best hours all too quickly. Evidently, Maryville's aquatic center has been just the tonic for the long, hot Missouri summer. The parks department expects over 60,000 visitors this year, a third of them out-of-towners. Best of all, the cool pool turns a profit. *Charles Linn*

© Douglas Kahn photos



From the outside, the Maryville Aquatic Center seems charmingly agrarian, with its sloping metal canopy and a semi-cylindrical lifeguard tower that recalls the concrete grain silos

that dot the Midwest (one of Maryville's two grain elevators can be seen in the far left side of the top photo). At poolside, allusions to oceanliners, waves and whales can be found.





Grasping visual puns that draw upon agricultural structures, beach houses, and fountains that look like spouting whales (left and opposite), Shaughnessy Fickel and Scott's design for the Maryville Aquatic Center has entertainment value in and of itself, satisfying the client's desire that the pool be a regional destination point. The classic poolside clock reminds swimmers the summer won't last forever.

Credits

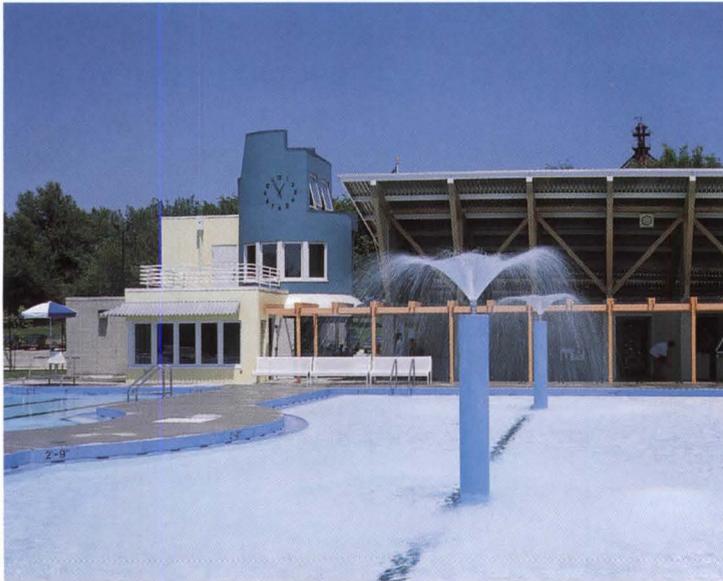
Maryville Aquatic Center
Owner: City of Maryville, Missouri, Parks and Recreation Department

Architect: Shaughnessy Fickel and Scott Architects—Michael T. Fickle, principal-in-charge; C. Michael Shaughnessy, director of design; Kerry Newman, Bruce Johnson, project team

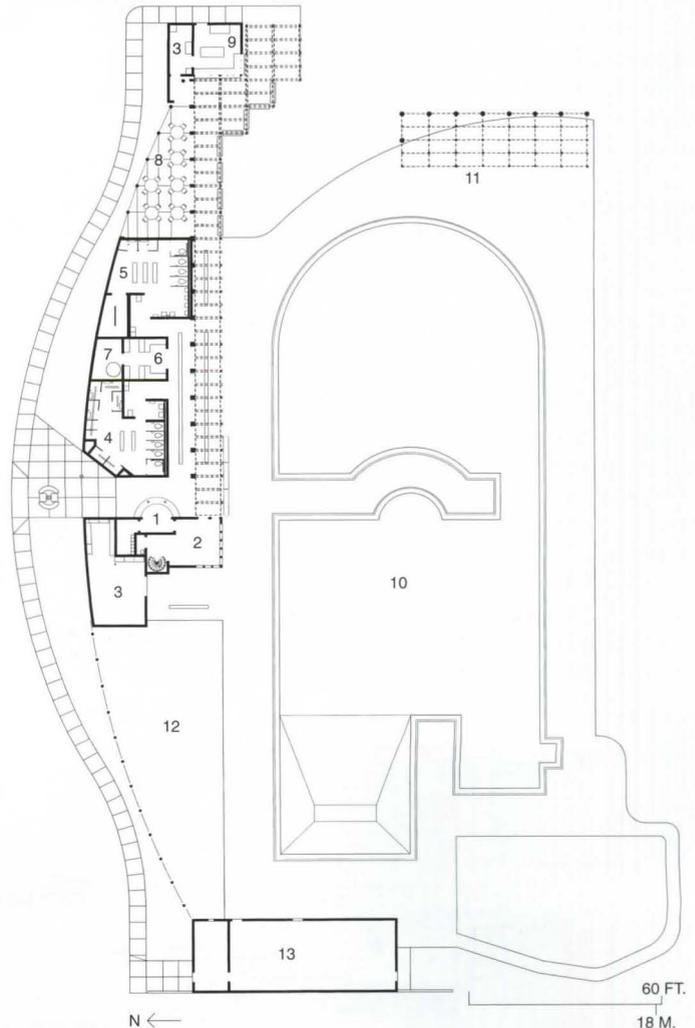
Engineer: Larkin Associates (pool, mechanical, electrical)

Landscape Architect: Jeffrey L. Bruce & Company

General Contractor: Lawhon Construction Company



- | | | |
|-------------------|----------------|---------------------|
| 1. Tickets | 6. Basket room | 11. Shade structure |
| 2. Office | 7. Mechanical | 12. Sunbathing area |
| 3. Storage | 8. Dining area | 13. Filter house |
| 4. Women's shower | 9. Concessions | |
| 5. Men's shower | 10. Pool | |





Virtually Thrilling

The client claims to pack more thrills than a 10-acre amusement park into a single theater.



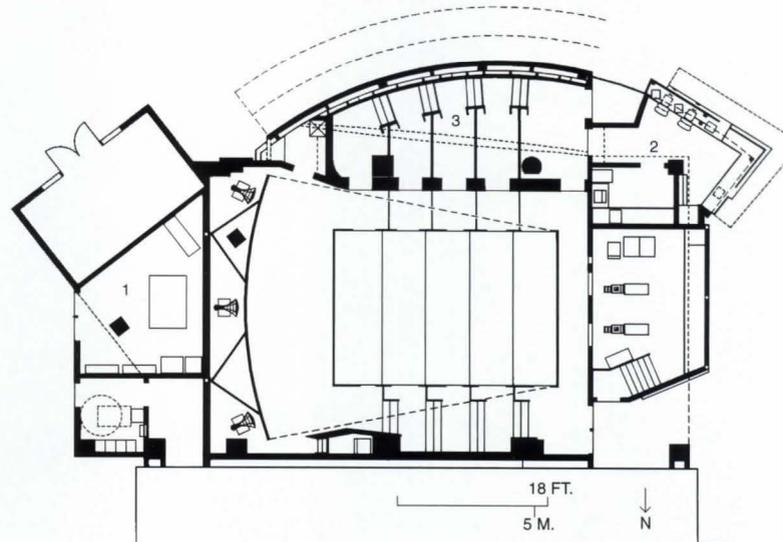
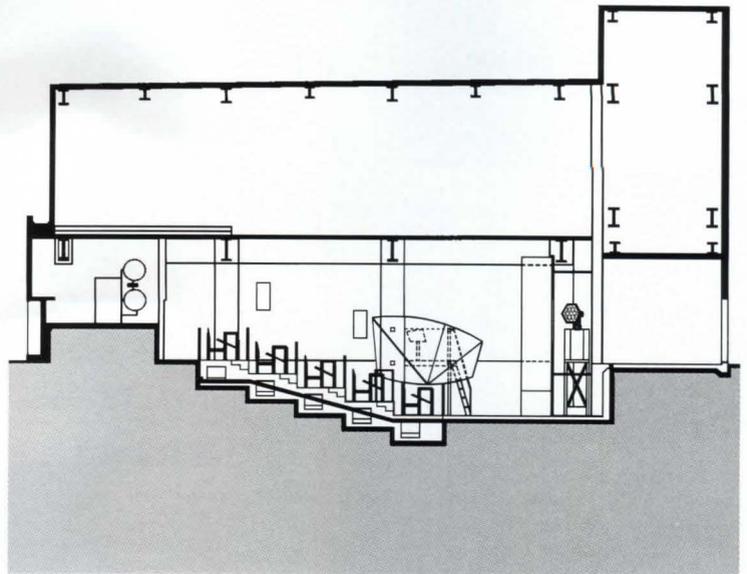
Adrian Velicescu photos

Human love for fiction, notes editor Stephen Kliment [RECORD, July 1994, page 9], often makes fiction seem more real than the real thing. As if to prove his point, the Showscan Corporation has created a series of five-minute, eye-popping, stomach-grabbing “rides” through such locales as Devil’s Mine and a cosmic pinball machine. Such effects leap out from 70-mm images projected at 60 frames per second onto an enfolding 50-ft-wide screen and are enhanced by Dolby, five-channel sound and hydraulic audience seats that move in sync with the jolting motions depicted.

To create a very real environment for this make-believe, Showscan asked architects Ellerbe Becket to work in and around a featureless concrete and steel box anchoring a newly simulated “typical” Holly-

wood street containing real stores and restaurants, itself an exercise in virtual reality. The client anticipates taking the elements of the architects’ design worldwide; this would be a prototype. Besides involving themselves in the theatrical mechanics inside, the architects added onto the basic box in ways that would remove viewers from reality in three stages. On the exterior, slowly dissolving images projected onto a folded fiberglass screen hint at the surreal experiences waiting inside. This is mounted on a curved addition containing a holding space for waiting spectators (photo opposite bottom), where a disorienting environment further removes them from reality. On signal, they move through the doors and across rows of 50 robot-like seats while previous viewers file up stairs on the opposite side. Costs for the 4,000-square-foot theater were \$3 million. *Charles K. Hoyt*

CineMania Theater
Universal City, California
Ellerbe Becket, Architects



Credits

CineMania Theatre

City Walk, Universal City, California

Owner: Showscan Corporation—Roy Guimaraes, representative

Building Owner: MCA Corporation—Jim Nelson, director of planning and development; Debra Merrill, project manager

Architect: Ellerbe Becket, Inc.—Tom Goffigon, project manager;

Katherine Demetriou, designer; John Frane, Jon Pugh, Matt Ralsten, David Woo, Mehrdad Yazdani, Terence Young, project team

Construction Administrators: David Hullinger; Matt Ralsten

Engineers: Brian L. Cochran Associates (structural); Harold T. Kushner and Associates, (mechanical); Lucci Associates (electrical)

General Contractors: Cal-Pac Construction, Inc.

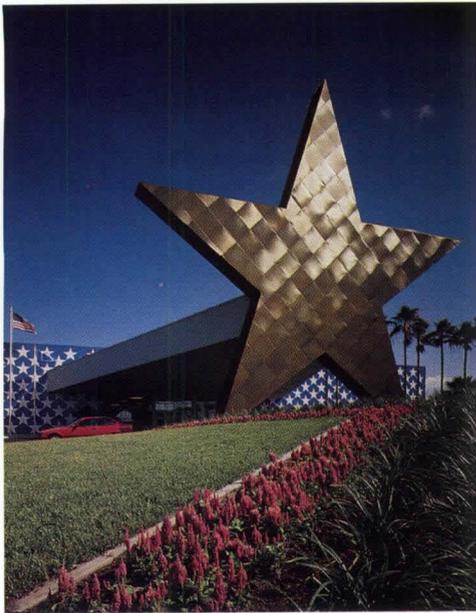


The architects' additions onto an existing building include utility spaces (1), a ticket office-souvenir shop (2), and a pre-show lobby enclosed by fluid floating surfaces (3 and center photo this page), described by project manager Tom Goffigon as a box within a box. The curved blue wall of the outer concrete-block box is sheathed in a stucco containing marble dust for a glittering effect.

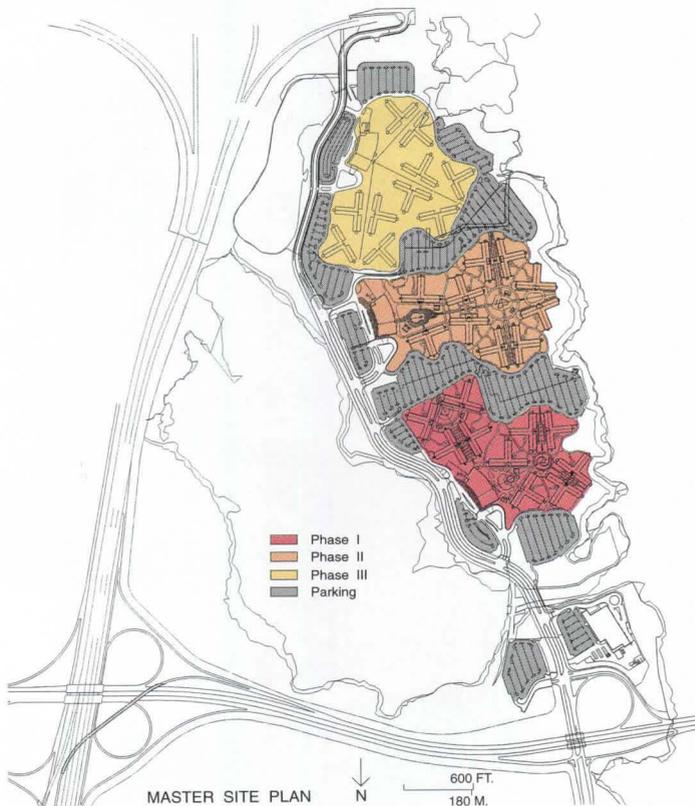
Five-Star Motel

*Disney's All-Star Resorts
Lake Buena Vista, Florida
Arquitectonica and
HKS, Inc., Architects*





A giant star identifies the entrance of the resort and its porte cochère (above). One-story-tall letters on the northeast side of the commercial building line an arcade used as a waiting area for buses (bottom right). The main pool for Phase I assumes the beach motif of the adjacent Surf Inn (opposite). The All-Star Sports Resort, which is Phase I, has 1,920 guest rooms in 10 buildings. Phase II, now under construction, will use the same plans, but takes music as its theme.



Priced as economy-class digs on the wooded fringes of Walt Disney World, the new All-Star Resorts are a series of glorified motels dressed up in full pop-culture regalia. Eschewing subtlety and nuance for zip and pizzazz, the architects have created a live-in playground where exterior stairs pose as three-story megaphones and parapets dance like brightly colored waves. Like everything else in the Disney universe, the All-Star Resorts are aggressively themed: Phase I is sports, and Phase II will be music. Each phase includes five pairs of three-story residential buildings, a couple of themed swimming pools, and a one-story commercial building with registration lobby, stores, food court, and video arcade. With its relentless attack on the senses, this is an architecture of instant gratification.

The challenge for the architects at Miami-based Arquitectonica and Dallas-based HKS, Inc. was to work within a tight budget and short construction schedule without giving the project the appearance of "Disney Lite." The first thing they did was design simple concrete-slab buildings following the classic model of motel planning, using exterior balconies instead of interior hallways. By keeping the structures simple, repeating the same plan for each residential building, and using inexpensive materials, the architects were able to lavish attention on the exteriors where fiberglass, perforated-metal sheeting, and foam board are shaped into a myriad of decorative forms.

"What we did was create three-dimensional collages," explains Bernardo Fort-Brescia, an Arquitectonica principal. The major elements in these collages are the buildings' parapets, balcony railings, and exterior stairs. By attaching oversized baseball bats, basketball hoops, surf boards, and team banners to the railings; sculpting the parapets into waves, stars, and letters; and using giant football helmets, referee whistles, and megaphones as pop icons, the designers create the illusion of complexity and animation. As Arquitectonica does in many of its projects, it plays here with changing scales, strong colors, and the element of surprise.

Each phase of the resort is laid out as a sequence of paired motels in which the spaces between the buildings are important elements in the full experience. By splaying some buildings away from each other and aligning others in parallel rows, the architects created a variety of outdoor rooms that double as basketball courts or mock gridirons or swimming areas. After checking in at the commercial building and parking near their motel, guests can walk along meandering paths that cut between clusters of cypress trees and lead from one sport or musical genre to another. "The outdoor spaces, the landscaping, holds everything together," says Fred Roberts, the HKS principal in charge of the project. "From a distance, you see a skyline of unusual objects," explains Fort-Brescia. "With its contrasting scales, colors, and materials, it's like a real city." *Clifford A. Pearson*



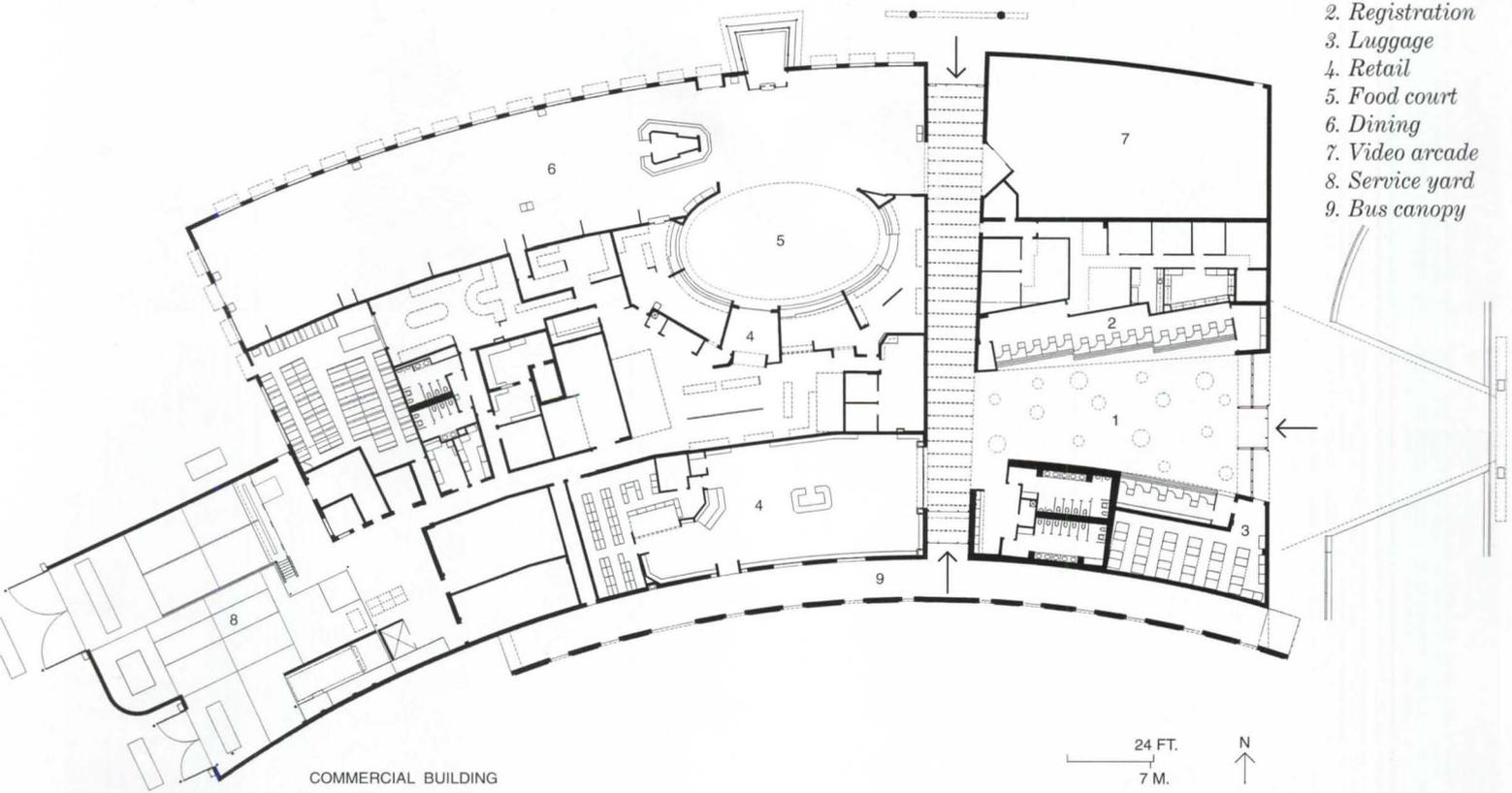




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Although identical in design, the two buildings forming the Hoops Hotel (previous pages, 1 and 4) are painted different colors for variety. At the Surf Inn (previous pages, 3) surf boards are made of fiberglass and sharks fins are concrete sprayed on metal mesh. The commercial building (previous pages, 2) looks onto the main pool. The check-in lobby (above left) and dining area (above

right) in the commercial building use the same bold graphics found elsewhere. A perforated-aluminum-and-steel-frame megaphone envelopes a stair at the Hoops Hotel (opposite).

Credits

Disney's All-Star Resorts
 Lake Buena Vista, Florida
Owner: Disney Development Company
Design Architect: Arquitect-

tonica—Bernardo Fort-Brescia, Laurinda Spear, principals; Sergio Bakas, project manager; Carlos Touzet, project architect; Rafael Torrens, Eduardo Llano, Jenifer Briley, Suchi Reddy, Dennis Witnauer, Michael Dax, design team

Architect of Record: HKS, Inc.—Fred Roberts, principal; Rob Warrick, project designer; Kirby Chadwell, project architect for buildings; Brad Schrader,

project architect for icons
Engineers: O.E. Olsen and Associates (structural); H.C. Yu and Associates (mechanical/electrical/plumbing); Ivey Harris and Walls (civil)
Consultants: Edward D. Stone, Jr. and Associates (landscape design); Herbert-Halback, Inc. (landscape architect); Design Continuum (interiors); Communication Arts Inc. (graphics); Grenald Associates (lighting)



Lost Opportunity in Atlanta?

Four years after upstaging Athens, Greece, to win the 1996 Olympic Summer Games, and two years before lighting the torch, Atlanta's effort for this Centennial of the modern games is now largely programmed and designed. For all the hype that landed the games, for all the excitement sure to build as the games approach, a sober reckoning is evident in the level tones of design-conscious observers when they size up the prospects for 1996.

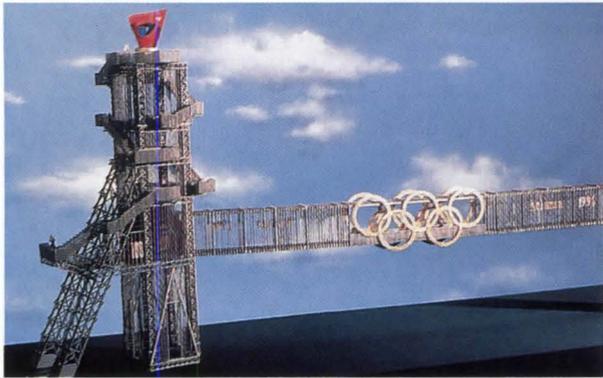
Two years from the opening ceremonies, there is little evidence of the upcoming to-do beyond banners tacked over the baggage-claim exits at Hartsfield International Airport. While crews build a few new dormitories to bring Georgia Tech's on-campus accommodations up to Olympic Village size, construction scarcely has begun on sports venues other than the main Olympic Stadium.

One conclusion seems clear: Atlanta is no Barcelona. Observers within and without the Games acknowledge the marked difference between this event—occurring in America's long overlooked and most self-conscious territory, the South—and the 1992 Games on the design-obsessed Spanish coast, which was an \$8-billion, central-government-sponsored adventure in urban placemaking [RECORD, August 1992, pages 98-113]. Atlanta's vision is not nearly so grand; its pockets (local ones, primarily) not nearly so deep: investment in public and private construction projects will run well under \$1 billion, perhaps only \$700 million. Atlanta surely will be taxed by an Olympic-scale event, but boosters are convinced that its huge airport, its still-shiny rail rapid-transit system, its crisscrossing interstate highways, its brand-new sports dome, and a huge convention complex are geared for the crowds.

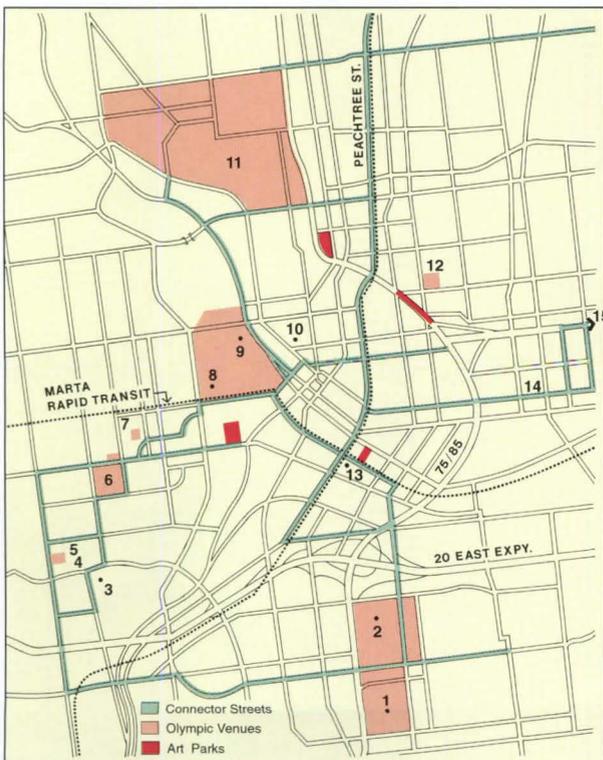
A bare-bones Olympics

Design seems only incidentally to have entered the Olympic equation in Atlanta. The city is counting on Southern hospitality and a can-do spirit to enchant the crowds. After all, winning the modern games' centennial event over no less a competitor than Athens (Greece, not Georgia), amazed even this characteristically brash city. (The organizers' \$7-million promotion didn't hurt either.) "Architecture has almost been an Olympic event in the past, but it's not here," says David Hamilton, a local architect who helped organize urban-design activities around the games. There has been almost an aversion to exploiting design as a solution to issues attending the Games. "We didn't ask anybody to make an architectural statement," says Wilford Ray, director of construction technical services. "We didn't expect anybody to have the time or the budget to do much more than design a good quality, functional building." Adds Catherine Fox, art and architecture critic for the *Atlanta Journal/Constitution*: "High design, bringing in internationally renowned architects, never was a goal. Atlanta does not have that kind of design tradition. I infer that those in charge equate high design with more costly design. It's consistent with the general public's lack of understanding of the value of good architecture."

Ken Friedlein was formerly press secretary to Senator Terry Sanford and an executive national editor of the Charlotte Observer. He studies architecture at North Carolina State University.



While planning proceeds apace on Olympic venues (torch by Siah Armajani, above), Atlanta's commitment to civic and public projects related to the Olympics (below) lags expectations.



- | | |
|----------------------------------|---|
| 1. Olympic Stadium | 10. Centennial Park site |
| 2. Atlanta Fulton County Stadium | 11. Olympic Village/Georgia Institute of Technology |
| 3. Spelman College | 12. Atlanta Civic Center |
| 4. Atlantic University | 13. Underground Atlanta |
| 5. Morehouse College | 14. Martin Luther King, Jr. Historical Site |
| 6. Atlanta University | 15. Jimmy Carter Museum and Library |
| 7. Morris Brown College | |
| 8. Georgia Dome | |
| 9. World Congress Center | |

Will Atlanta's 1996 Olympic effort founder on its lack of commitment to public amenities and urban revitalization? By Ken Friedlein

Contrast Atlanta's attitude with Barcelona, which managed to construct a living catalog of works by local professionals while also making room for Santiago Calatrava, Arata Isozaki, Frank Gehry and Alvaro Siza. The 1996 effort plainly lacks the breadth and force so apparent in Barcelona, where the will and the way were provided by Mayor Pasqual Maragall's drive to use the international spotlight as an occasion to build on a rich architectural history. Where Maragall, an urban economist, had the weight of the nation's socialist government behind him, Atlanta's bid for the games was a private venture, one attended by nearly obsessive concern for avoiding a public bailout. The noise subsequently drowned discussion of how public money might wisely be raised and invested to create lasting benefits from the games.

What will visitors find?

Instead, Atlanta hopes to win over visitors and athletes with a decidedly people-oriented focus. Andrew Young, the 1960s civil rights leader who subsequently was the city's mayor, a U. S. congressman, and the nation's U.N. ambassador, joined with real-estate lawyer William Payne, a former college football star, to portray Atlanta as the embodiment of multicultural Olympic spirit in the heart of the racially notorious American South.

There are, however, larger issues that Atlanta has only peripherally addressed, but which may prove crucial to the impression of the host city that spectators and the billions of television viewers will take away. Many of the venues are centrally located (map opposite), but most of the visitors are expected to be spread out over the 22-county metro area. (Downtown will largely become an enclave of officials and the international press.) If the intention is for local people to charm visitors, there seems scant opportunity to do so. Atlanta's visitor facilities focus on business conventioning rather than tourism. It does have such attractions as the Martin Luther King Center and Underground Atlanta, but its urban center is largely empty at night, with massive convention-center blocks, blank-walled warehouses, declining low-income housing projects, and a sea of dispiriting surface parking. The entire city, in fact, has little tradition of civic or public space. Thus, venues such as Georgia Tech and the Atlanta University, Morehouse College, Morris Brown College, and Spelman College complex typically also lack public gathering spaces and don't have natural urban links.

Indeed, the city has hardly focused on the Games as an opportunity to take on larger urban challenges. And, critics have argued, the logistical needs of the events are running roughshod over the needs of the venues' neighborhoods—many populated by largely poor, mostly African-American residents. The sponsoring Atlanta Committee for the Olympic Games (ACOG) argues that it has its hands full readying facilities, and that it has done its part by steering work on the sports venues to local designers, especially to minority-owned firms. Indeed, the commitment to minority enterprises is unique in its ambition (page 73). Many of the firms, however, are not nationally known, and if the designs are seen as only adequate, the firms' reputations will not be enhanced. (Atlanta's bleakly efficient airport is a case in point.) Organizers report the projects are on schedule and meet the revised

budget, which no longer projects the Games as a net revenue-raiser. Through it all, emphasis is on practical solutions and economical materials and finishes. "I went to Barcelona and saw . . . and I knew we wouldn't be able to do what they had done," says Ray, the construction services director. "We were only going to be able to spend the money we were going to take in."

The uphill battle for a larger civic vision

There was some early recognition that the Olympics should mean more than just getting a village together and creating athletic venues. But convincing the city to act on ideas has been another story. "The question is how do we leverage this opportunity to make some long-term improvements," says H. Randal Roark, a Georgia Tech architecture professor on half-time leave to serve as director of planning and design for the Corporation for Olympic Development in Atlanta (CODA). A small, city-created agency, CODA works out of borrowed offices to raise money and execute public-space projects, focusing especially on low-income areas near key Olympic sites.

The American Institute of Architects dispatched a Regional/Urban Design Assistance Team (R/UDAT) to Atlanta in 1992. The Architectural Society of Atlanta has pursued an ambitious program of Olympic projects, including an urban design charrette last October and an international competition on public space this spring. Results have been fragmentary. CODA, guided by the R/UDAT study, identified more than \$200 million in Olympics-related neighborhood, pedestrian corridor, and public-art projects. As a result, some efforts have now been made to target neighborhoods around the venues for these kinds of urban improvements. The urban design charrette last fall focused on the bleak quarter that separates downtown hotels from the megacenters of the Omni sports arena, the Georgia Dome, and the World Congress Center. "Our proposal was that it become the Greenwich Village of Atlanta—dense, mixed-use, green, pedestrian, with lots of 24-hour activity," says New York architect and educator Michael Sorkin, who led one of the design teams. But the raw proposals were unsatisfactory to a city eager for ready-to-build solutions.

Still, the charrette seemed to stir the Olympics committee. In one of his few non-athletic initiatives, ACOG president Payne proposed a 72-acre festival gathering place for "Atlantans and Georgians to meet the world" just a few weeks after the competition. He called it a "doable concept" if government and civic leaders would follow up. "I've got to get back to putting on the Games," he added. That was November 1993. Georgia officials are backing the idea, and it appears the state will acquire the parcels and clear the land. A commitment as to final site, size, and funding may be made after this story goes to press. At that time, officials may offer a request for proposals to designers. After the games, the area may be redeveloped—no one seems certain to what end.

Most recently, the design competition sponsored by the Architecture Society and CODA solicited public-use installations near various Olympic venues (next page). Rather than inspiring officials, it seemed mainly to stir up their anxieties about getting ready. "People wanted cookbook solutions. What they got was a lot of analysis," says David

Hamilton. Roark believes, at best, one of the design ideas—a very kinetic folk art park where two overpasses bridge an expressway—might be pursued.

There is ill-concealed disappointment among activists. “These weren’t just decorative, pretty little schemes,” says Sorkin, who also served on the competition jury. “We wanted points of departure that addressed the social and environmental needs raised by the Olympics in particular and, more generally, by the condition of public space in Atlanta and the nation.” The idea of a job-training facility across from the Olympic Village, he argues, is not so far-fetched.

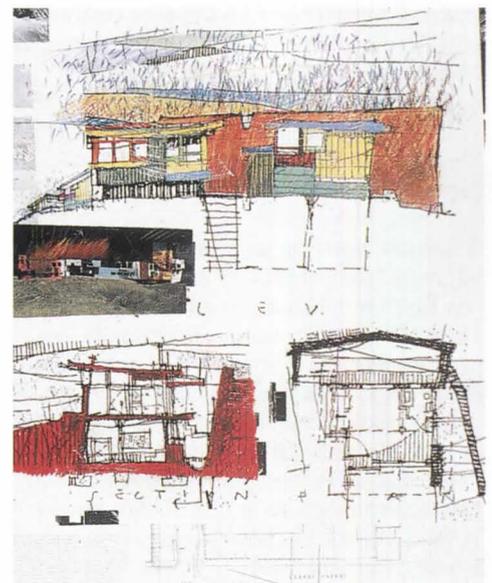
“Outside the Olympics fence” urban improvements

Meanwhile, Atlanta is destined for some improvement projects associated with the Olympics, from myriad sources. Complaints raised by residents of run-down neighborhoods near Olympic venues drew attention, and the Department of Housing and Urban Development early on committed \$38 million to redevelop Techwood Homes, the nation’s first federal public-housing project, located by the Olympic Village at Georgia Tech. The Summerhill community next to the Olympic Stadium is slated to get 200 new housing units. Surface transportation funds from the Department of Transportation will help finance streetscape improvements along “promenades” linking key Olympic sites with adjacent neighborhoods, college campuses, and downtown hotels. “We’re so impoverished in public space,” says Roark, “that a lot of the work is basic infrastructure stuff like new sidewalks, street trees, street lights and furniture, and public restrooms, and other basic amenities that assure comfort and security.” About half the promenades are funded and will be ready in time for the Games, reports Roark. If the Games’ momentum does not dissipate, the rest of the promenades will likely get completed as well. Atlanta itself scheduled a bond referendum that included \$10 million for Olympic projects. The city also is seeking public-art funding from the National Endowment for the Arts. Even ACOG, the sporting organization, is getting into the act, supporting construction of homes on a neglected street near Olympic Stadium. The result? “You’ll see an impact in the city,” says Roark, who then adds, “but we’ll all be disappointed we didn’t do more.”

While outsiders widely praise the organizing committee’s success and easily understand the focus, there is regret that the go-get-’em spirit that won the games hasn’t flowed into broader concerns. “If somehow that spirit could be brought to bear on urban-design issues, it would be wonderful,” says Sorkin. “But it’s probably too late to hook it to the Olympics. They’ve blown an opportunity to think in a really comprehensive way about the city, and Atlanta badly needs it.”

The failure to go beyond narrowly focused functional design solutions is not purely a local one. It testifies to the low priority given design as both a problem-solving endeavor and one that contributes to a city’s pride and the welcome it offers visitors. While events like R/UDATs have long been seen as a means to educate citizens on the value of design, perhaps they’re no longer enough. One local observer laments that Atlanta’s effort, like the Los Angeles games in 1984, became so focused on the resources of a single city. Elsewhere in the world, an Olympics is a national event. “Here was the single best example of an opportunity to bring attention to urban issues—which is what we know architecture of the next century is all about,” he said. “It was the opportunity of a lifetime to do something in relation to the whole United States, not just Atlanta.” And the reputation of urban America—(especially abroad) as crumbling, ridden with poverty and crime—needs plenty of repair. ■

© Top and bottom courtesy COPA



A design competition sponsored by the Architecture Society of Atlanta and CODA solicited public-use installations on four leftover sites adjacent to various Olympic venues. Top and middle: “A Place for the People,” by Robert D. Clements, Roberta Unger, Tony Loadholt, Chito LaPena, and Kenneth Beal of the School of Art at the University of Georgia. Above: “Homeless Shelter,” by Brian Wurst of Audubon, N. J. The event, juried in May, attracted 700 entries from 48 states and 24 countries. CODA had agreed to contract the winners and pursue funding. Whether anything gets built is an open question, given the shortage of time, the scarcity of money, and the apparent impracticality of the underdeveloped ideas such an open-ended competition typically attracts.

Two Years and Counting: Progress on the Venues

"Atlanta is on time," announced International Olympic Committee president Juan Antonio Samaranch during a May visit to the city preparing to host the 1996 games. A venue-specific facilities master plan was completed in March 1992 by Sizemore Floyd Ingram, a joint venture of two local firms. The Atlanta Committee for the Olympic Games (ACOG) has awarded design contracts for all new sporting venues to be built in the metro area. Comments architect William J. Stanley III, whose firm won two contracts: "Some of the venues look quite exciting. I think each responds to its site and the peculiarities of its program. But more importantly, they respond to the really strict needs ACOG has placed on each of the venues. Since the notion is that these games must be at the very least break-even, the venues cannot come in over budget." Organizers take pride in the high percentage of design teams that are Disadvantaged Business Enterprises (DBEs), or are joint ventures involving DBEs, and that most of the firms are local. The field hockey center (1) was designed by a joint venture of Turner Associates, a minority-owned architectural firm based in Atlanta, with HNTB Sports Architecture Group of Kansas City. The tennis center (2) is being designed by a joint venture of four Atlanta firms: R.L. Brown and Associates, which is minority-owned; Nichols Carter Grant Architects; Rosser Fabrap International; and Tunnel-Spangler & Associates. The rowing, canoeing, and kayaking venue (3) is under design by an Atlanta joint venture of Armour, Cape & Pond and B&E Jackson, a minority-owned firm. A joint venture of two Atlanta DBEs designed the aquatic center (4): Stanley Love-Stanley; and Smallwood, Reynolds, Stewart, Stewart and Associates. The 85,000-seat Olympic Stadium (5) was designed by a joint venture comprising Atlanta's Heery International; Rosser Fabrap International; Williams-Russell and Johnson, a DBE engineering firm; and Ellerbe Becket, whose sports-facility practice is headquartered in Kansas City. Four more new ACOG-financed venues are on the boards, and three existing arenas are slated for adaptation. The state university system is creating an Olympic village, while other authorities in Georgia and Tennessee build a softball park, yachting marina, and whitewater kayaking course. *Katie Black, Atlanta*

Firms owned by minorities and women have won handsome shares of Olympics design work: 80 percent for the field hockey center; 25 percent for the Olympic stadium, 45 percent for the aquatic center; 90 percent for a basketball arena.



1



2



3



4



5

Photos this page courtesy ACOG

Stretched to the Limit

*Rafael Viñoly flexes his structural
muscles at a new gymnasium for
Lehman College.*



*The Apex—Herbert H. Lehman
Physical Education Facility
Lehman College
The Bronx, New York
Rafael Viñoly Architects*



The students of Lehman College, part of the City University of New York, held a competition to name their new gymnasium and the winning entry was “The Apex.” Rafael Viñoly Architects, designers of the building, couldn’t agree more. In addition to marking the culmination of a five-year effort to improve the College’s physical-education facilities, previously housed in a Neo-Gothic structure in the center of a motley campus that includes buildings by Marcel Breuer and Harrison and Abramovitz, the \$40-million gym also provides an appropriately grand conclusion to the tree-lined College Walk, which bisects the 30-acre school. Initially asked to pack the 165,000-square-foot facility into a smaller site at the northeast corner of campus, the architects pointed to an adjacent vacant lot and argued for a longer, low-slung structure that would also give built form to the north perimeter, where the College and the Bronx meet.

Not only does the 608-foot-long structure define the border between town and gown, it also creates a focused, and easy-to-supervise, point of entry: a courtyard covered by a bridge-like trophy gallery links two uneven wings and incorporates a campus security office where College Walk and the building intersect. Aware that these days an up-to-date gym is as much of a draw to prospective students as a well-stocked library, Viñoly and his team set out to create a memorable sign of athletic prowess.

Viñoly calls the carved out plaza the “mouth piece.” It juts out toward the College green. Like a section through the building, this open jaw reveals the structural system: exposed steel trusses atop reinforced-concrete foundations. The architects used painted metal panels as infill between windows and precast concrete walls. Projecting an overall image of tensile strength is the stainless-steel-clad roof that steps down toward the central campus, creating clerestory windows, which admit light into interior spaces. Says Viñoly of the building’s hill-like profile: “It’s more like geography than architecture.” Explains project architect Jay Bargmann of the seemingly flashy choice of material: “An initial scheme with a painted steel roof came in under budget, so we were able to use the mill-finished stainless.”

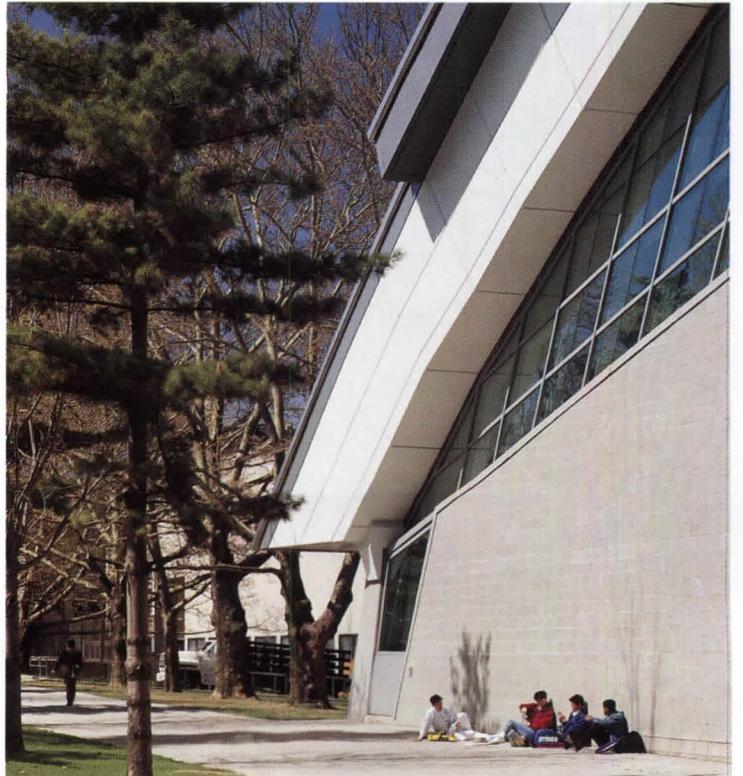
Access to gym facilities is via a main entrance located in the covered courtyard. Opposite, a monumental exterior stair leads directly to second-floor offices and classrooms and doubles as outdoor bleachers in good weather (previous pages). Connected below grade by locker rooms, one wing contains an Olympic-size swimming pool and an all-purpose gym with a mezzanine running track, while the other wing houses the main gym with NCAA regulation-approved basketball and tennis courts and moveable bleachers. Says Bargmann: “Once we figured out that we could fit all three of the main spaces in a row on either side of College Walk, we knew we could make this scheme work.” The architects took advantage of a natural depression in grade, placing the outdoor tennis courts behind the swimming pool, sheltering them from wind and reducing their prominence on campus. Arranged off the main corridor are aerobics, dance, gymnastics, and weight-training rooms with views of the street.

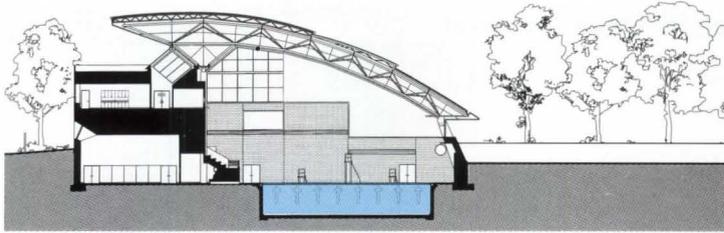
Although the gym has become a focal point of activity on campus, it is also a vital member of the community. Facilities are used by the public on a regular basis and for special events, including the New York City Special Olympics for the disabled. Viñoly is also proud of a different kind of accessibility. The architect, whose active international practice keeps him shuttling between offices in New York City and Tokyo, says, “One thing I’m particularly happy about is that you can see it from an airplane.” *Karen D. Stein*



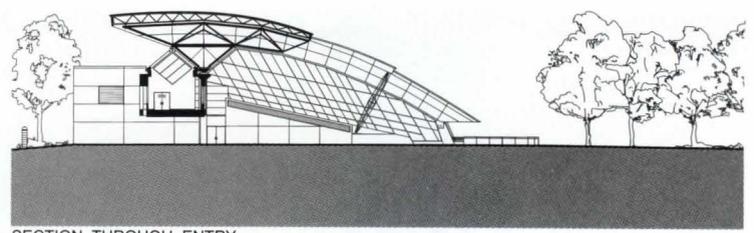
The Lehman College gym gives built form to the edge of the campus, making a transition between playing fields to the north and an assortment of College buildings arrayed along the central tree-lined axis of College Walk to the south (aerial photograph above). Subway tracks and major traffic arteries flank the east and west sides of the campus. Along the streetfront (top), the 608-foot-long precast concrete facade acts as a barrier, focusing entry through a partially covered courtyard, which is monitored by a security station tucked inside the gym. Acting as a fifth wall, the stainless-steel roof steps down toward the campus green, cantilevering over the structure to screen the pool and gym areas from direct sunlight and creating shaded outdoor seating areas with views into interior spaces (opposite). Artist Jackie Ferrara’s concrete-block pergola reinforces the path through the building.



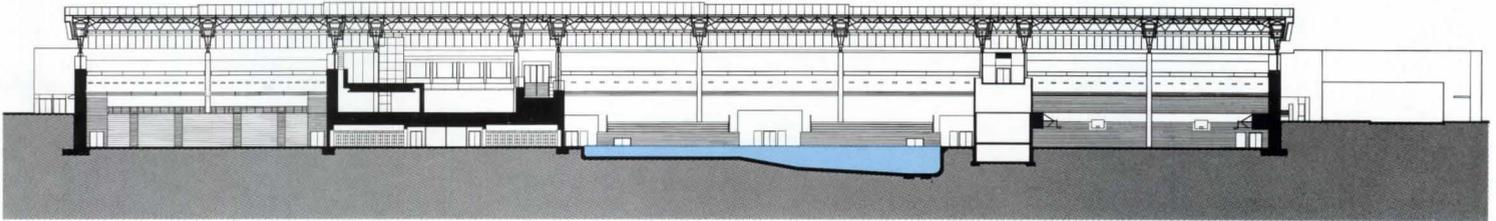




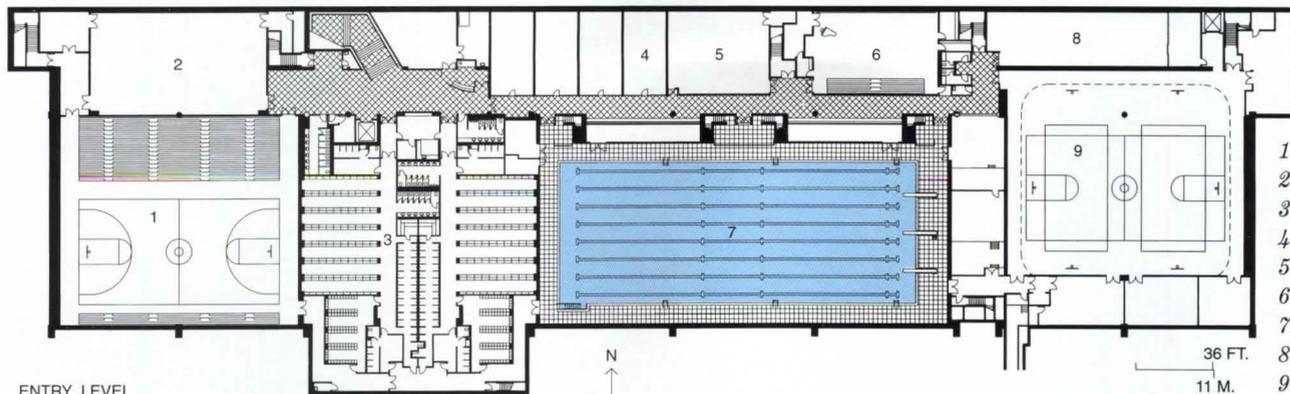
SECTION THROUGH POOL



SECTION THROUGH ENTRY



LONGITUDINAL SECTION



ENTRY LEVEL

1. Main gym
2. Gymnastics
3. Locker room
4. Racquetball
5. Aerobics
6. Ballet
7. Pool
8. Fitness
9. Auxiliary gym

Up Close

Building a gateway. Perpendicular to the Lehman gym, the original site intended for the structure was a smaller parcel at the northeast corner of the campus, which, according to project architect Jay Bargmann, “would have forced a high-rise solution.” After helping to establish the College’s program, the architects were able to convince the powers-that-be to appropriate an adjacent parcel along the northern edge of the campus, permitting a longer, low-slung structure, while maintaining a row of mature Linden trees to the north and a prominent campus green used for commencement exercises to the south. The architects shoehorned an NCAA-approved gym on one side of College Walk and an Olympic-sized swimming pool and an auxiliary gym on the other (plan above), reinforcing the central pedestrian artery of the campus, which is also lined with trees. Although the barrack-like nursing school still occupies the west corner, a disappointment to Rafael Viñoly, who says “we misread the intention to [immediately] condemn it,” from the street it’s obscured by the gym.

Steel-reinforced concrete foundations support a superstructure of exposed steel trusses spanning 101 feet. (The trusses were assembled on the ground and then hoisted into place.) The stainless-steel cladding glimmers in the sunlight and virtually disappears into gray skies, a changeable fifth face for the building. On the south side, the roof extends 10 feet over the structure, softening the effects of direct sunlight on the swimming pool and two gyms located one floor below grade (sections top). The cantilever also creates a covered seating area overlooking the College green. Clerestories in the roof provide additional daylight. On the second floor, a top-lit hallway is flanked by rows of offices and classrooms (section middle); offices overlook recreation areas and have distant views of playing fields. Spanning College Walk is the trophy room (opening spread), still vacant, which will also be used for special events.

Because of ADA requirements, all Lehman gym levels are accessible by elevator, and the swimming pool has both an access ramp and a submersible lift. The outdoor tennis courts, located to the south of the building in a depression that predates the Viñoly design, are also accessible by ramp. For high-pressure steam and chilled water, the facility is connected by an underground utility link to the campus central plant. To prevent the smell of chlorine from filtering beyond the swimming pool, the architects subtly depressurized the pool area so that more air is exhausted outdoors than supplied.



A moveable bulkhead can separate the Olympic-size competition pool into two training/recreation pools (top). Direct south light is screened by a 10-foot overhang and windows overlooking the entry courtyard admit western light. Although the architects originally designed the roof to be retractable, that feature was cut from the final \$40-million scheme. The NCAA-approved gym occupies the west side of the asymmetrical bar (opposite top), while the pool and the auxiliary gym with a mezzanine running track (left and opposite bottom) are paired on the longer east side. Quartz halogen uplights are used throughout the main spaces.





Credits

The Apex—Herbert H. Lehman Physical Education Facility; The Bronx, New York
Owner: Dormitory Authority of the State of New York

Architect: Rafael Viñoly Architects—
 Rafael Viñoly, Jay Bargmann, Jackie Welsh,
 Donna Wax, Dennis Austin, project team

Engineers: Severud Associates
 (structural); Syska & Hennessy
 (mechanical/ electrical/lighting)

Consultants: Counsilman/Hunsaker &
 Associates, Recreation Design & Construc-
 tion (pool); Shen Milsom & Wilke (acoustic);
 Robert Schwartz and Associates (specifica-
 tions); Mueser Rutledge Consulting
 Engineers (foundation); Rolland/Towers
 (landscape)

Construction Manager: Lehrer McGovern
 Bovis

Entertainment Drives Retail

By Donald Shillingburg

On March 28, 1994, a number of retailers announced the opening of new retail outlets in upstate New York, Ohio, and New Hampshire, but observers were hard-pressed to find the new stores. Shunning normal locations at the local mall or downtown, Spiegel, Inc. and seven other catalog companies have joined forces with Time-Warner to open up shop-on-cable-TV. Catalog 1, as the new network is called, has joined other networks like Home Shopping Club and QVC in hawking wares directly into their customers' homes. The network, which will offer products from Crate & Barrel, Nature Co., Neiman Marcus, Spiegel, The Sharper Image, and Williams-Sonoma, is expected to go national if the test succeeds.

The past 10 years have seen a burgeoning of new retail forms in unexpected places. Warehouse stores have popped up alongside highways and around traditional malls throughout the country. Urban Malls and themed "Festival Marketplaces," first invented in the late 1970s, have expanded and taken root in urban areas and historic buildings long ignored. Outlet Malls offer reduced prices on brand-name products to the thousands who often travel several hours in order to reach them. Most industry observers agree that during the past 10 years, retail has undergone a fundamental change.

Up until recently, the shopping mall dominated the retail market comfortably. Removed from urban ills, the shopping mall offered a private, automobile-oriented environment that alleviated the congestion of shopping in the town center, made it both safer and, with the enclosure of malls, comfortable through even the harshest of weather. By offering many of the commercial advantages of the city without all the headaches of getting there, the mall slowly bled the city dry of its retail commerce.

Developers soon realized that the mall could be a place of leisure as well; Victor Gruen, an early shopping mall designer, often recounted a Sunday visit he made to a shopping center with a number of department-store executives: they arrived to find the closed center filled with people who were window shopping. For middle-class Americans

Donald Shillingburg is an architectural historian on the staff of a New York-based architect.

Store construction has in the past five years outstripped shopping mall construction (see chart). Shopping malls have reached saturation, and few new sites will be built. Main activity will come from the superstore, warehouse stores, power centers, and mall renovation will seek to attract more visitors. New mall-like venues are emerging using drama and entertainment to pull in customers.



with more time on their hands and more money in their wallets, shopping became a major leisure activity.

By 1980, after almost two and a half decades of constant building, the landscape became saturated with shopping malls. In order to continue building retail facilities, developers spawned new strategies for creating retail centers that would continue the success of the mall. Obeying Reilly's Law of Mall Attraction, they discovered that all other things being equal, Americans will go to the bigger of two malls if only for the marvel of size. Super-regional centers, including up to 200 stores and four or more anchors, could draw customers away in already heavily saturated areas. The "festival marketplace," first constructed in San Francisco and Boston, proved that anchors weren't necessary to draw huge crowds. Instead, developers mixed together high densities of restaurants and whimsical shops with refurbished historical buildings to create a new kind of urban place. The festival marketplace has the patina of the city's history, but is managed like a mall.

Electronic shopping vs. mall visit

Electronic home shopping has offered a venue for impulse shopping that is both cheaper and more convenient than a mall visit. A consumer can shop for goods while he or she is cooking dinner, doing chores, or working—one only needs a few seconds and a credit card in order to snatch up an attractive bauble. Since electronic home shopping is a relatively new player, it has not yet made a significant dent in the retail economy. Most people still associate the idea of electronic home-shopping with the image of cubic zirconia jewelry slowly rotating before an iridescent blue background. But electronic home-shopping businesses recorded \$3 billion in sales last year. Although that is still only a drop in the \$585-billion retail bucket, analysts anticipate significant growth over the next few years: last month Daniel J. Sweeney, vice chairman of a retail consulting division of Price Waterhouse, predicted that by the year 2000 video shopping would make for a \$58-billion industry, or some 10 percent of all retail sales.

Industry observers expect that production values, quality of merchandise, and product range of home-shopping services will increase, especially as more ventures are launched. Home Shopping, in an effort to compete with entertainment television, is increasingly mixing entertainment with shopping. Already, QVC has celebrities pitching their

Kings Crossing Town Center Kingswood, Texas

This community shopping center by architects Palmer Brook Schooley serves a post-war suburban development near Houston. The design is a modern reinterpretation of the traditional main streets and court-house squares that remain throughout Texas. False fronts and covered sidewalks face the street.

Facing competition from video shopping and the entertainment craze, developers and their architects invent novel ways to lure jaded customers.

favorite items: Joan Rivers hosts *Can We Shop*, a home-shopping talk show; and Infomercial product-hawkers like Tony Robbins and Susan Powter have climbed the celebrity ladder to national fame. Eugene Christiansen, of Christiansen and Cummings, a New York retail analysis firm, expects an increasing confluence between consumption and entertainment. "Entertainment has become almost fully integrated into all aspects of our lives," he observes. "There is hardly a minute when you're awake that you're not being touched by some form of entertainment. People have come to expect to be entertained. In the minds of American consumers, the pursuit of happiness has developed into the right of entertainment."

Not all is whimsy

But not all shopping is whimsy. Developers have also been quick to build new stores where the value-oriented consumer can find necessities. Superstores, also known as warehouse stores, discount stores, or "category-killers," because of their success at eliminating competition, offer a simple formula for retail success. Eschewing all retail pomp and circumstance, they display a gigantic selection of goods within a certain category and offer them at a lower price. A mixture of volume, cheap land rents, and efficient storage and distribution methods help these retailers to keep overhead to a bare minimum.

For instance, Home Depot, a home-improvement retailer, easily eclipses even the largest local competition because it can simply out-stock them. Even earlier home-improvement supermarkets equipped for a smaller-scale era can't compete. "First you go to the hardware store and they don't have it, then you go to Channel or Rickel's and they don't have it, and then you go to Home Depot where they have it in four varieties. After a while, you don't bother going anywhere else," a Home Depot customer remarked.

It would seem that there is little role for innovative design here, but some architects have begun to tackle the problem. Kevin Daly of Daly, Genick of Santa Monica, California, has proposed a new system for organizing the Millwork area (the department which displays and sells manufactured windows, doors, etc.) at California-based Home Base Warehouse (see next pages).

With such tough competitors on the market, it isn't surprising that

shopping-mall developers are nervous. For many people, traditional shopping malls are losing their luster. "The mall in Maine and the mall in Texas look the same," explains Toni Alexander, president of Intercommunications, Inc., "They're just uninspiring boxes." Malls have always succeeded despite their homogeneity: the glamour and excitement of acquisition was enough. But a recent *New York Times* article noted that malls do 70 to 80 percent of their business around the year-end holiday season, whereas superstores and home shopping sales are spread throughout the year. Already, some developers have seen the future of shopping malls, and it is the strip. Seven Corners Center in Washington, D.C. has been converted from a covered mall back into the outdoor strip. Shopper's World in Framingham, Massachusetts, the country's second-oldest regional shopping center (opened in 1951), is due to be replaced by a strip mall.

Enter: "entertainment"

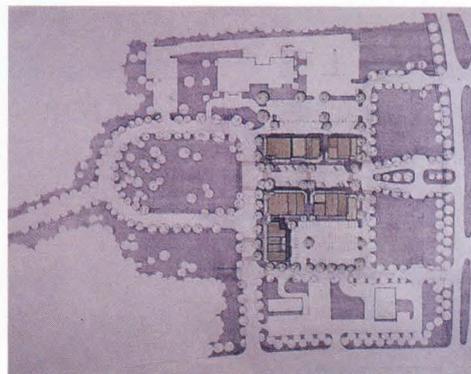
Methods of integrating "entertainment" into retail range from simple gimmicks to gigantic themed environments. Music stores like Tower Records and HMV Record Stores are offering music samples. Listening stations set up throughout the store allow the customer to come in, browse, and listen to the newest CD's. Many retailers have video monitors that play tape loops very similar to television advertisements. Usually strategically located to draw the customer through the store, they act as magnets.

In perhaps one of the most fascinating combinations of retail, entertainment, and merchandising, major entertainment companies like Disney, Sony, and Time-Warner have opened up retail stores where they sell a wide range of brand-related paraphernalia. Non-entertainment companies like Nike have also opened up stores which, although they are expected to succeed commercially, serve more as dramatic brand advertisements. By mixing merchandise with an entertaining experience, the companies are able to make a much stronger advertising impression on the customer. Although you may buy nothing in the store, you are more likely to buy that brand elsewhere.

Although shopping malls have always had restaurants, they were not intended to be draws in and of themselves. They functioned much like the old Woolworth's lunch counter. Within the past 10 years, however, malls have been adding food courts and restaurants because they



© Gerald Moorehead photo



have realized that they act as small magnets. Some malls have upgraded amenities available to visitors. Malls like Tysons Corner outside of Washington, D.C. offer Concierge desks and stroller rentals.

In expanding the entertainment role of the entire mall, movie theaters have also become a staple. Now most theaters offer at least three screens, and gigantic 10- to 15- theater complexes are increasingly common. With creative scheduling, a "Movie-plex" can easily offer up to 20 movies at once. Developers are discovering that these theaters can act as significant anchors.

The Mega-mall is the logical extension of this broadening of the mall's character. Based on the philosophy that a critical mass of retail, entertainment, and food will attract people from all over the world, developers put together the Mall of America in Minneapolis.

For the designers of the Mall of America, the esthetics of the mall were not as interesting as the multitude of activities. "We wanted to create an environment which was familiar to people," explained Joe Talentino, who oversaw design and construction of the center for Melvin Simon Associates. "We didn't want to make any radical design statement, because we thought that the synergy of the mixed uses would bring people in, not the architecture." Joe Talentino and his Mall of America partner, Bob Horn, have struck out on their own to develop Heartland America, an entertainment and shopping complex outside Branson, Missouri, which will offer a mix of country music and retail shopping.

Other developers have taken the mall space itself and fashioned it into an object of entertainment. Throughout the century, themed attractions have become increasingly popular. One need only consider the popularity of Disneyland, opened in 1955, and its successors to understand the power of a contrived fantasy experience. The fantasy experience has always been a retail experience as well. Throughout the park, souvenirs are constantly offered for sale—almost as momentos of your fantasy souvenir-shopping experience. In Disney's case, though, there are gates at the edge of the park where one has to return to the real world—the borders between fantasy and reality remain in place. But in 1990, Steve Wynn finally brought the fantasy out of the park and into the city with his Mirage Casino Hotel in Las Vegas. With a volcano that erupts every evening, the Mirage presents guests with a fully simulated indoor tropical oasis. Running consistently throughout the hotel, the casino requires a full-time staff of 60 gardeners to maintain the effect. Four fully themed hotels have been opened since, including Luxor, Excelsior, the MGM Grand, and Trea-

sure Island, while older casinos have refurbished and "re-themed" themselves in order to compete. Julie Brinkerhof, the landscape architect who helped design the Mirage and Treasure Island, explains, "People want to experience exciting things without the fear of being hurt. They like to get lost safely."

Gods that talk

Sheldon Gordon, a shopping mall developer, was quick to move the idea into retail. He brought Melvin Simon on board and convinced Henry Gluck of Caesar's Palace that a shopping venue should be added onto the casino. The Forum Shops, fully clothed in an imitated Roman architecture, were opened in 1992. In addition to faux-marble-coated interiors, amenities include a fountain with animatronic gods that speak to passers-by, and an illusionistic ceiling that runs from day to night within every half hour. For Terry Dougall, who designed the interior, the space needed to be theatrical enough to compete with fantasies on film. "Everything we do is theater—good theater has an appeal far stronger than other types of design: it allows us to escape from our responsibilities as adults and find ourselves in a fantasy world." (See following pages.)

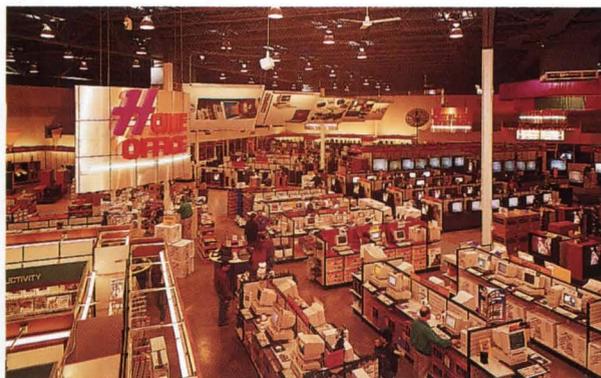
By keeping people in a state of wonder, the Forum Shops have become a smashing commercial success—precisely because of the space. "It's like nothing else you've ever seen before. It's beyond description," explains Mark Schoifet of the International Council of Shopping Centers. "People are drawn to it. They can't believe their eyes." And such amazement doesn't keep people from opening their wallets; Forum Shops sold an average of \$900 of merchandise per square foot last year, a number almost unheard of in North America, where \$400 to 500 per square foot is considered an outstanding performance.

Meanwhile, developers in Los Angeles have chosen a different object of fantasy—the City of Angels itself. In 1993, MCA opened Universal CityWalk—a three-block long mall that extends from the gates of the Universal Studios Tour and Theme park to an 18-screen Cineplex Odeon. As one winds along the 1,500 feet from one end to the next, many of the familiar mall stores, such as Sam Goody and the Nature Company, are in evidence. Like other malls, CityWalk has included space for community amenities like a UCLA extension and the Museum of Neon Art. But this is far from the typical mall—the architecture of the space isn't rendered in the stumbling, hushed tones of the typical mall interior. This is organized chaos—almost a visual riot crowding in.

The architecture of CityWalk seems so familiar that visitors (and

Incredible Universe Miami, Florida

The interior of this electronics superstore, designed by Charles Hodges & Associates, is filled with a huge variety of mostly expensive electronics equipment, displayed in a no-frills manner that connotes value but without the bare concrete floors and steel shelves that might detract from the idea of product quality.



Incredible Universe photo

Project for Home Base Warehouse San Diego and Orange Counties, California

Architects Daly, Genik have proposed to Home Base, a chain of home improvement warehouses, a new generation of special-order areas called InfoMedia Centers. Translucent polycarbonate sheets (model photo, right) make up a cheap and flexible system that allows store managers to

architecture critics) are tempted to pick out familiar Los Angeles neighborhoods—Venice, Santa Monica, Hollywood Boulevard. But the architects didn't intend to imitate any specific streets or buildings. "We went through Los Angeles and looked at vernacular store fronts," explains Richard Orne, the project architect with The Jerde Partnership. "We looked at the Los Angeles streets—which are too wide and spatially incoherent. We designed store fronts with the great L.A. vernacular architecture in our heads, made it one and half times bigger, exaggerated it, and put it in a pedestrian environment so people could enjoy it." (See following pages.)

Cheap urbanism?

Which is exactly what has critics up in arms. They have accused The Jerde Partnership of trying to create a sort of cheap, plastic urbanism. Of course, MCA executives were quick to claim they had made a "safe" L.A.—a particularly volatile claim considering the barely healed scar of the 1992 riots where fires and looting were widespread. Further furor erupted when MCA executives delayed the opening of the movie "Poetic Justice" because they feared violence. Immediately people began to pose the question: Is the mall a public space? Because of the rising fear of crime and the decline of cities, truly public space—non-exclusive, democratic, "free" space—is becoming rarer and rarer. Critics are concerned that their visions of a "private" urbanism threatens the diversity of urban life.

Jon Jerde, the force behind The Jerde Partnership, is acutely aware of this problem. He is fascinated by resurrecting the town center as a communal space. "Because the mall focuses on only one part of the communal experience—commerce—it cannot begin to approach the vibrancy of the town center. Communal space integrates several parallel functions—socializing, commerce, civic activities, and a sense of collective identity." In designing his shopping malls, Jerde wants to create spaces that can foster those activities. He hopes people will come to his malls just to enjoy them. To do that, you need more variety—"I keep trying to enrich the menu, adding churches, libraries, museums, houses." CityWalk as it stands now is only a piece of a larger whole—a complex of businesses, entertainment, offices, and production studios that is in development. The existing mall is merely a stepping stone towards a larger idea.

The themed space, as at the Forum Shops, is a spectacle to behold, but how much spectacle can we sustain? Will the local shopping mall be fully made over into a themed village? The science of mall demographics suggests that they will remain rare—usually in places where they can attract large amounts of occasional visitors. CityWalk, which straddles the fence between themed entertainment mall and city

street, offers a more comfortable model. Many developers have begun to see the vitality of the urban street as profitable. They are commissioning unique designs with varied storefronts that relate to the local architecture. Palmer Brook Schooley's Kings Crossing Town Center outside Houston evokes the Old West with its varied store-fronts (see previous pages).

Real communal space is critical

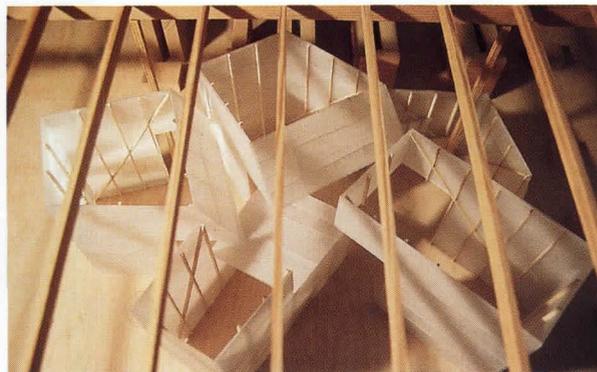
By mixing uses, creating architectural variety and dissonance, these shopping centers look more like the city. The facades cover up rather conventional big boxes; it is the space between them that has changed. Although developments in electronic media have diminished its importance, a physically real communal space remains vital to any community. The mall offers an opportunity for people to be around other people, to bump into friends, and meet strangers. It is a place to watch others and be on display. Because there are few other outlets in the suburbs, the mall's metaphor of urban street has become altogether too compelling; many now think of the mall as if it were a public space.

Many communities have demanded that the mall offer more public amenities. Municipalities usually negotiate a tax break for donated space in shopping centers, thereby opening up new spaces. The Mall of America in Minneapolis, for instance, has opened up a school which offers high-school classes and college-extension classrooms. Cambridge-side Galleria outside of Boston and the Edgemar mall in Santa Monica, California, include museums intended to attract visitors to the mall as well as to expand its cultural reach.

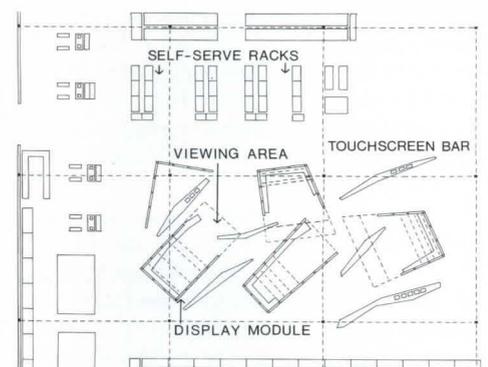
But the Rouse Company and other developers have taken this a step further. The mall at Plymouth Meeting, Pennsylvania, includes a church which caters to the culture of the mall. Rouse's marketing strategy targets the family. So far it has had a significant amount of success: while visitors to most malls visit once every two weeks, visitors to the mall at Plymouth Meeting go to the mall an average of once a week.

Thirty years after Gruen offered Southdale, the first enclosed shopping mall, as a utopia, it remains an ersatz urban solution. As a safe, clean, and culturally sanitized space, it is nothing but a hollow city. But the mall can no longer survive as a manically controlled setting—that much is certain. Changing economic tides may help to create a more diverse space, both from the viewpoints of program and design. But developers and their architects must use caution—genuine urbanism cannot be packaged and sold by the fantasy industry. It must be grown carefully and from the ground up. ■

constantly update displays. Contained in the scheme is a computer information system to orient customers overwhelmed by the sheer mass of merchandise. Individual viewing rooms are linked through "video-bars," long banks of touch-screen monitors which become shoppers' guides. The InfoMedia Center is an interactive lab where the public can tinker with products and services.



© Daly, Genik photo



Sense of Place, Hollywood Style

Universal CityWalk, Los Angeles, California

The Jerde Partnership, Architect

Every year, thousands of tourists come to Universal Studios for the famous Studio Tour. From all over the country and the world (15-25,000 visitors daily), they come to see a “behind the scenes” vision of the two-dimensional world of film and television.

Beyond the gates, executives have begun to build a complex called Universal City intended to house a shopping mall, movie theaters, production studios, and executive offices. The first phase of this project is CityWalk, a 1,500-foot-long retail shopping street that forms the spine of the project, connecting the entrance of the Universal Studios Theme Park with an 18-screen Cineplex Odeon and the Universal Amphitheater, an outdoor concert venue. Most tourists use CityWalk as a sort of staging area as they wander from the parking garage to the theme park. Residents of Los Angeles also come to use the theater, shop, or stroll down the pathway, typically from 5 o’clock to about 11, at which time teen-age groups take over until about 2 in the morning.

For Jon Jerde of the Jerde Partnership, the important part of designing CityWalk was the space inside. “It is like designing experience,” he explains. “People enjoy the changing spaces, the strong geometric qualities—it is a sequential plan of orchestrated events.” Unlike most malls, the architecture is not a solid scheme of hovering masses, but resembles an urban chaos. The pathway widens, then contracts, and explodes into a gigantic open space before narrowing again. Like a traditional street, the mall appears to be hemmed in by a series of individual adjoining buildings. “It is a sort of graphic interpretation of Los Angeles roadside architecture,” explains Richard Orne, the project architect. Although the facades are a reflection of Los Angeles vernacular buildings, in this world of film they are larger than life—one and a half times, in fact. In an added attempt to produce an aura of realism, candy wrappers were embedded into the floor tiles.

The interior is simply a layer that hides many large boxes. CityWalk was made up of 12 buildings, some new and some already existing. In order to come up with this more urban image, The Jerde Partnership used a process they refer to as “co-creativity.” Many design-

ers combine their individual visions—not under the control of a single grand idea, but as a series of juxtaposed ideas. “It’s rather like choral singing,” Jerde explains, “there is a director, but each voice has a different tenor and flavor.” At various stages of the project, they tried to involve other architects, not always successfully. Jerde left open spaces for each of these buildings, and as each deal fell through, they filled the space with one of their own buildings. But shadows and remnants of the unbuilt designs remain—the uncovered geodesic dome at the central court, for example, was part of a S.I.T.E. design for a “Landscape Oasis” that was never realized.

Jerde realized, however, that it could add voices by letting each store design its own front. It created a series of guidelines within which the store designers could work. “It was hard,” recounts Orne, “because we didn’t have too much esthetic control over many of the store designs.” As a result, the space is filled with disparate images. There is a restaurant complete with a beach and an Aldo Rossi-esque lighthouse. A frozen yogurt store called Hollywood Freeze has an upside-down car as an awning.

In short, The Jerde Partnership’s hands-off method is more akin to urban planning than shopping mall design. The hope is that after 10 years, the architecture of the mall will have changed: successive tenants will have left their mark. Instead of the eternal newness of most malls, this one is supposed to age, to undergo the “patina of history.”
D. S.

Credits

Universal CityWalk

Los Angeles, California

Owner: MCA Development Co.

Executive Architect: Daniel, Mann Johnson and Mendenhall

Design Architect: The Jerde Partnership, Inc.—Jon Jerde, principal/design; Bob Woelffer, principal/management; Richard Orne, associate-in-charge/design

Consultants: Ernest L. Wemple & Associates (landscape architecture); Imero Fiorentino Associates (lighting); Olio (environmental graphics)

General Contractor: Ray Wilson Co.

©Weldon Brewster photos



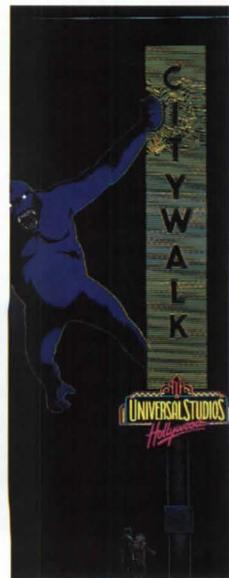
1



2



3



4

A pedestrian bridge spans the main walkway (1) as part of several levels of circulation. The entrance (2) comes with futuristic spires. Neon signs by Olivo (3,

4) extend the cinematic character of Universal Studios through CityWalk. The palm-filled central court (5) is covered by a geodesic dome. Using neon signs

and individual lighting, each store makes its own statement. The west walk district (6) and the central court (7) are transformed at night.

©Weldon Brewster photos



5



©Stephen Simpson

6



7

©Stephen Simpson

Roman Carnival

*The Forum Shops, Las Vegas, Nevada
Dougall Design Associates, Inc.*

On the approach to Caesar's Palace, visitors are given a choice between the casino entrance and the entrance to the Forum Shops. Most choose the casino. Perhaps they think, "I came to Las Vegas to gamble. I can shop at home whenever I want." But that doesn't last. When they enter the lobby of the casino, they are immediately given the chance to go shopping again. Looking through a two-story triumphal arch towards a fountain adorned with Roman architecture and statuary, they find a world they never could have imagined. Nothing is immediately familiar. The Roman motif is heavy: the fronts of the stores—over 70 specialty retailers and upscale restaurateurs—are adorned with temple-fronts and classical columns, as if summoned from Herculaneum. Fountains are adorned with marble statues and the sky is a brilliant blue with swirling clouds.

Within 20 minutes, however, the sky has turned pink and the sun sets brilliantly, pulling a slew of stars in behind it. A statue of Bacchus sits atop a fountain in a grand pose; suddenly he moves and greets you.

"This isn't great architecture," explains Terry Dougall, its designer, "It's great theater." Indeed, many of the effects were created by technologies developed for the film industry. Although the painting technique used on the ceiling dates back to the Renaissance, it was imported from Hollywood movie-making. Using computer-controlled lights, it goes through a cycle of dawn to dusk to dawn again in less than an hour. The talking statues were made with animatronics, the same technology that powers many Disneyland features. *D. S.*

Credits

*The Forum Shops
Las Vegas, Nevada*

Joint Developers: *Melvin Simon & Associates, Inc. and The Gordon Company*

Architect: *Dougall Design Associates, Inc.*

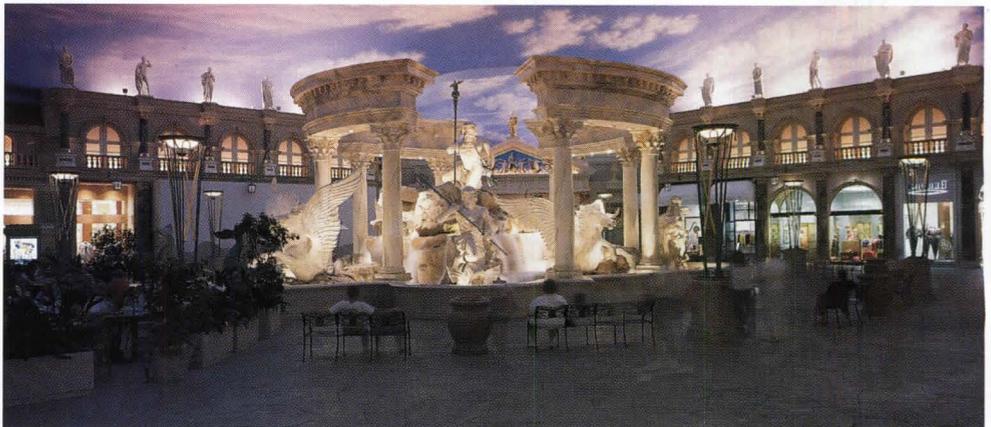
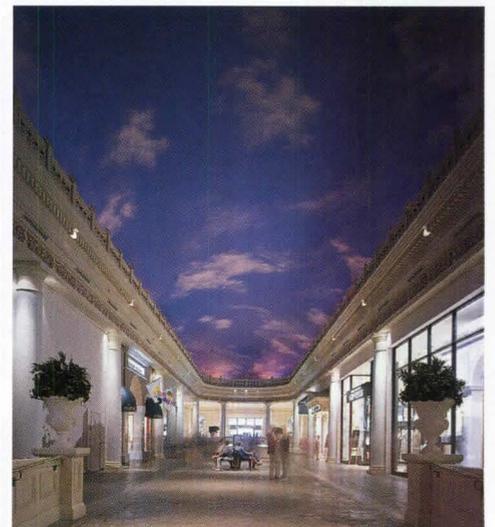
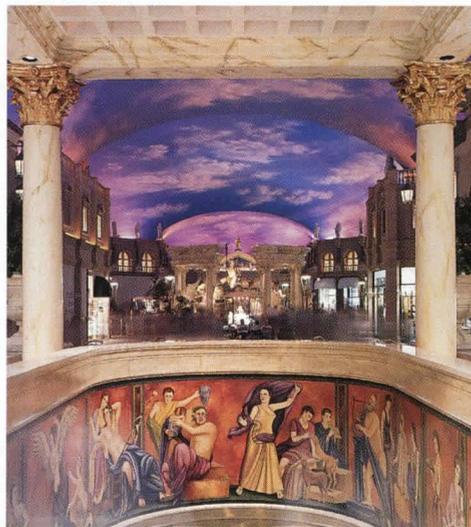
Consultants: *Imero Fiorentino Associates (lighting); Creative Presentations, Inc. (animatronic character movement); Lasermedia (fountain laser show); Sky Art (painted sky feature)*

Contractor: *Marnell Corrao Associates*

The store fronts mimic archeological reconstructions of ancient Roman towns (1). From the escalator, shoppers can see the "Fountain of the Gods" in

the distance (2, 4). The constantly changing sky of the Forum Shops creates an aura of excitement (3).

©Eric Fisse photos



Shoe Style

Nike Town, Orange County, California

Nike Image Design Group; Carmen Nordsten Igonda



Life-size statues of Bo Jackson and PattieSue Plumer immediately suggest that this is no ordinary shoe store. The floor is a concrete sidewalk complete with manhole covers and the central space, known as the town square, is several stories high. In plain sight are Nike graphics, video monitors, and displays of sports memorabilia. The walls advance and recede, allowing glimpses of rooms beyond that coyly draw the customer into the store. With stairways, escalators and walkways scattered throughout the space, the store is certainly about walking, running, and getting from one place to the next. But where are the shoes?

Arrayed around the town square are 13 distinct pavilions, each of which offers a specific group of shoes and merchandise according to a theme—basketball, golf, watersports, etc. The theme is carried through the displays, benches, and especially the floors. Scott Fedje, a senior project designer for Nike, described the design strategy: “We were looking for other ways of characterizing the spaces and we thought it would be a great idea to make a space where the customer could test-drive the shoe.” The golf pavilion includes astroturf and a sand trap. The basketball pavilion has hardwood floors, the sound of squeaking sneakers, and a backboard. Going a step further, the outdoor shoes section, with a stone floor, is kept 15 degrees cooler than the rest of the store in order to evoke the outdoors. One has no doubt that the designers would have included the smell of mountain air. *D.S.*

Credits

Project: Nike Town

Orange County, California

Owner: Nike Inc.

Architect: Nike Image Design Group—John Farnum, creative director; Scott David Fedje, senior project designer; Richard Elder, senior display designer; Allan Colvin, senior graphic designer; Rebecca Kotch, senior visual merchandiser

Architect of Record: Carmen Nordsten Igonda

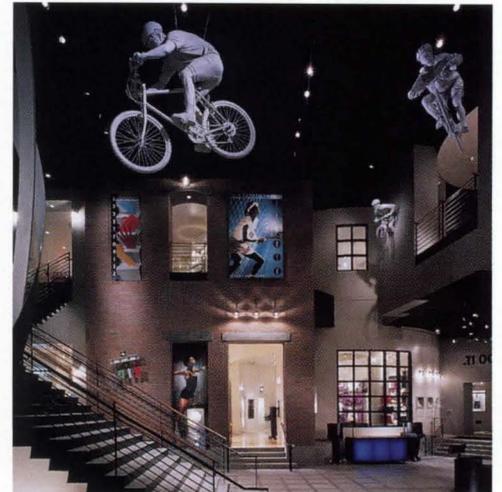
General Contractor: Birtcher Construction, Ltd.



1



2



3

The domed exterior encloses a central space (1) whose pathways lure the shopper to all levels. From this space visitors get a glimpse of each pavilion (2). Statues of bicyclists descend from the rafters past pavilions with storefronts in the “town square” (3).

© Steve Hall/Hedrich Blessing photos



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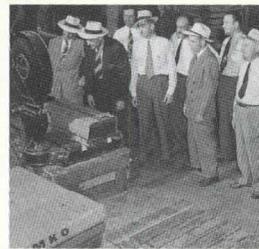
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Manufacturer Sources

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

Pages 58-61

Maryville Aquatic Center
Shaughnessy Fickle and Scott, Architects
Laminated-wood beams: Timberweld. Ground-face masonry: Trenwyth Industries, Inc. (Trendstone). Exterior insulation and finish system: Dryvit Systems, Inc. Modified-bitumen roofing: TAMKO Roofing Products. Wood-frame casement and awning windows: Pella. Aluminum roof: Reynolds Metals Co. Honeycomb metal doors (concession stand): A. Zahner Sheet Metal. Poolside benches, dining tables, and chairs: GameTime, Inc. Water slide: White Water. Clock: Electric Time Co. Interior paints: Sherwin Williams. Pool coating and paint on cedar trellis: Tenemec. Water features: custom by Larkin and Associates.

Pages 62-63

CineMania Theatre
Ellerbe Becket, Inc., Architect
Backlit fiberglass panels: Moonlight Molds. Fixed molded-plastic auditorium seating: Intamin (Germany). Special cove lighting: Architectural Cathode Lighting. Etched glass: Trident Glass. Venetian plaster: Ora B. Hopper & Son, Inc.

Pages 64-69

Disney's All-Star Resorts
Arquitectonica and HKS, Inc., Architects
Built-up roofing: Schuller Roofing Systems (Manville). Fiberglass "icons": Molded Fiber Glass-Union City. Fire-resistant resin: Ashland Chemical (Hetron 92FR). Aluminium-panel "icons": Alliance America, fabricated by A. Zahner Sheet Metal. EIFS cladding: Dryvit Systems. Molded-polycarbonate signage: General Electric Plastics, Sheet Plastic Div. (Lexan); fabricated by Heath and Co. (Tampa). Special lighting: Fiberstars; Indy Lighting; Mapo. Storefronts: Wausau Windows; Kawneer Co., Inc. Glazing: PPG Industries, Glass Group; Guardian Industries Corp. Interior partitions (steel studs; drywall): USG Corp. Paints: PPG Architectural Finishes; Pratt & Lambert. Special textures: Ultracrete; Duraplex; Texcoat. Poolside lounges: Allibert. Umbrellas: American Holzkraft. Pole and bollard lighting: Sterner Infranor. Concrete colorant, pool decks and pathways: L. M. Scofield (Mesa Beige). Pendants (food court): Holophane. Sconces: Abolite. Chairs: Fixtures Furniture.

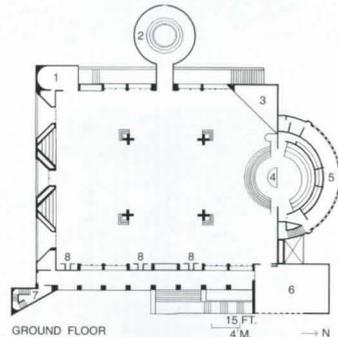
Pages 74-81

The Apex: Herbert H. Lehman Physical Education Facility, Lehman College
Rafael Vinoly Architects, PC
Ground-face block; masonry sealant: Trenwyth Industries, Inc. (Trendstone). Precast-concrete infill panels: Beer Precast Concrete. Wide-span arched trusses: Cannon Construction Co. Stainless-steel roofing: Overly Mfg. Co. Movable bleachers: The Folding Bleacher Co. Exterior uplights:

Custom Illumination Concepts & Engineering. Entrances: Blumcraft. Metal cladding panels: Pohl. Gym floor and running-track surface: Martin Surfacing Co. Glazing: Libbey-Owens-Ford Co. Sealants: Dow Corning. Curtain-wall and storefronts: Kawneer Co., Inc.; Blumcraft. HVAC ducts: Custom by Triangle Sheet Metal. Pool tile: Dal-Tile Corp. Elevators: Dover.

Corrections

- Masoud Sodaify of KDG of LA was the project designer and the artist who did the rendering of the Cecil L. Murray Education Center, Los Angeles, by KDG Architecture and Planning [RECORD, Design News, January 1994, pg. 12].
- Massimo Vignelli designed the Knoll seating shown in the June 1994 issue [RECORD, pg. 145].



1. Baptistry
2. Veneration Chapel
3. Chorus
4. Altar
5. Sacristy
6. Daily Mass Chapel
7. Bell Tower
8. Confessional

• The legend below the drawing of the Managua Cathedral was incorrect [RECORD, July 1994, p.75]. Above is the correct drawing and legend.

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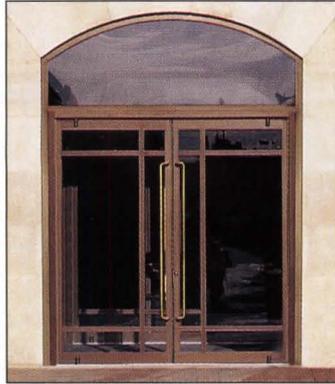
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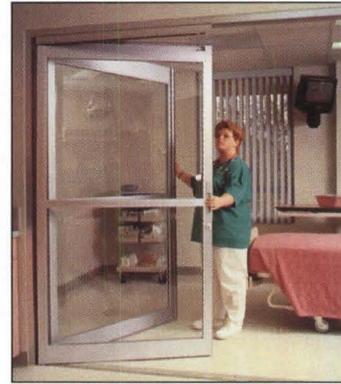
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ROTOSWING DIVISION

A/E/C Systems Report

Continued from page 37

Océ-Bruning released new large-format scanners and copiers with easy-to-use software and easy networking. The Océ 7700 is "the missing link" for a high-volume multi-function plotting and copying system that includes equipment for registration, imaging, reproduction, and archiving.

Circle 375

Principium, Inc., showed new plotter drivers for AutoCAD; it can enhance output to inkjets and electrostatic plotters, even making images appear "hand sketched."

Circle 376

QMS announced a 600 dpi color laser printer, the first available for a desktop. The price is about \$11,000 fully configured. QMS also showed CrownNet, new network interfaces for its printers.

Circle 377

Pacific Data cut the price of its C-size bubble-jet ProTracer II printer/plotter to \$999. It also offered multi-protocol network links.

Circle 378

Selex showed E- and D-size bubblejet plotters with compact design and flexible interface.

Circle 379

Summagraphics offered its first large-format inkjet plotters, and a fabulous large-format wax transfer system, SummaChrome, for images up to 24 by 40 inches. The narrow print head makes multiple passes over the wide sheet to keep costs down.

Circle 380

American Video Training showed six VHS tapes and printed lessons for AutoCAD LT and AutoCAD Release 12 for Windows. At a reasonable pace (accounting for interruptions and breaks), it would take about a week to complete the lessons — even if you are not familiar with Windows beforehand.

Circle 381

Artist Graphics showed a new version, 1.2 of its 3D RealTime imaging package for use with GPX-based graphics controllers. Full-screen Windows rendering inside AutoCAD was extremely fast.

Circle 382

Mitsubishi Electronics America showed its new Diamond Control for Windows, on-screen setup software for choosing display

and power-saving options. Circle 383

Panacea is offering a free DOS display list driver for AutoCAD, for hefty speed increases in pans and zooms. It has offered free Windows drivers in the past; you now get 40 minutes a day of use. Functionality is excellent—and the upgraded versions are available by calling Panacea and getting a code to "unlock" the full versions.

Circle 384

Matrox introduced its 64-bit graphics accel-

erator card, the MGA Impression Plus, with resolution to 1600 by 1200 pixels and 24-bit acceleration to 1280 by 1024 pixels. Its AutoCAD and Micro-Station viewers are fast and flexible.

Circle 385

Vidar Systems showed the TruScan CS400 Color Selecting Scanner, for 24-bit output at 400 dpi, on documents up to 36 inches wide.

Circle 386

WHAT HAPPENS WHEN YOUR CLIENT'S FIRE DOOR DOESN'T WORK?



Ask insurers and fire inspectors what they find when they drop test rolling fire doors in commercial buildings. Up to 20% fail.

But now, an informed specification can correct this problem and help your client reduce exposure to future liability.



Why fire doors fail Heat-sensitive release devices have been painted over. Guides and coiling mechanisms have been damaged in collisions. Openings are obstructed. If a building owner doesn't test for these problems, he doesn't find them. Yet many owners don't test, even though an inoperable fire door can cost part of a building... or a life.



What the NFPA says The National Fire Protection Association in document NFPA 80 clearly states that all horizontal or vertical sliding and rolling fire doors shall be inspected and tested annually to check for proper operation and full closure.



The Cornell solution The new M100 fire door works the way no fire door has ever worked before. Advanced integral design sets new standards for reliability and superior in-use performance. Testing and resetting is done at the touch of a button.

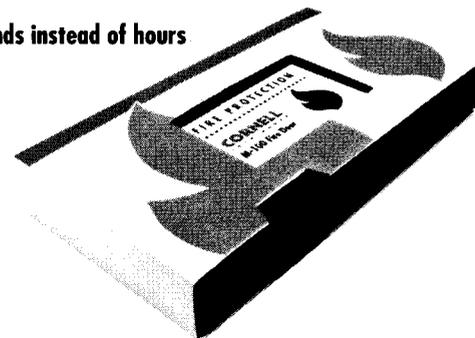
- Proven reliability – 500 automatic closings & 50,000 open/close cycles
- Slow closing action
- Ideal for concealed applications
- Safe to test
- Quick to test – testing takes seconds instead of hours

To receive a video demo showing the M100 in operation, and for literature and full specifications, call, write or fax.

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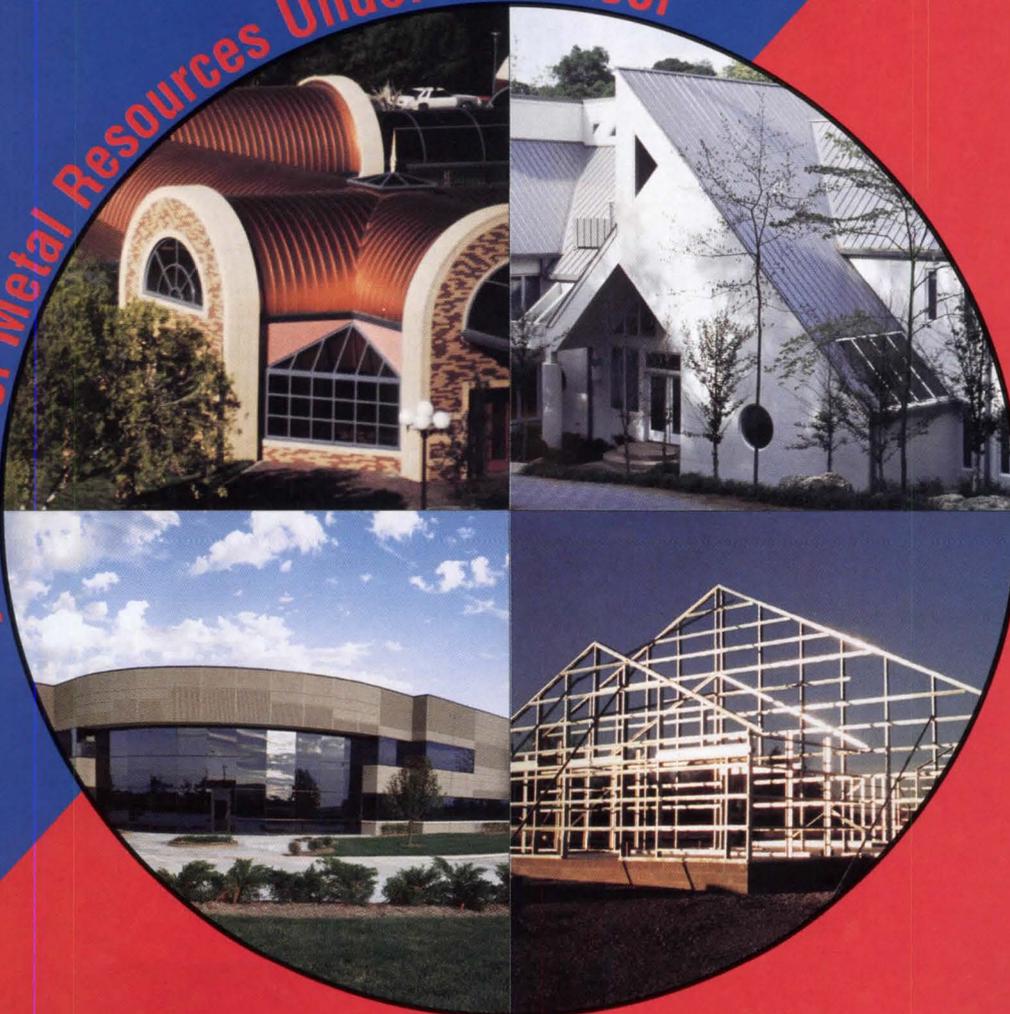
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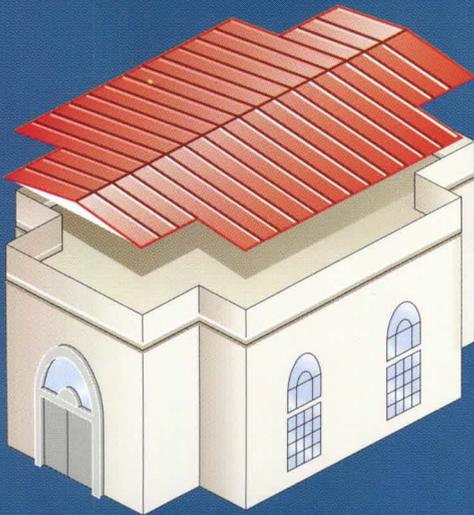
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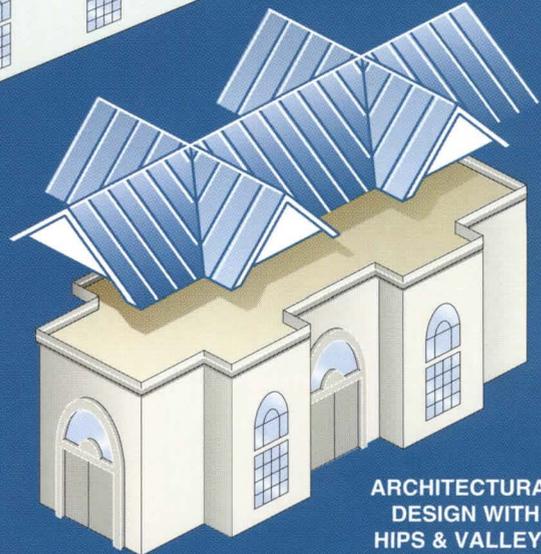
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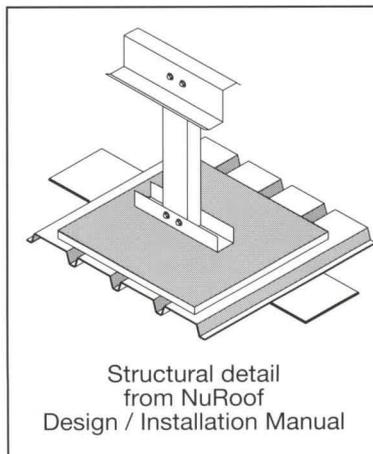
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Structural detail
from NuRoof
Design / Installation Manual

Manual details column spacing, strapping and bracing requirements, framing for endwalls, hips and valleys, eaves and rakes - for both perpendicular and parallel existing structurals.

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