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Progressive Architecture March 1992



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Editorial Minority Architects Update

The past year has seen promising efforts to examine the situation of minority architects – and to take some action – but much more remains to be done.

> The positive news about minority architects is that their numbers seem to have grown somewhat in 1991, in comparison to the profession as a whole. The latest AIA membership data, for instance, show the minority portion of the regular membership increasing about 13 percent during 1991, while regular membership as a whole was declining almost 2 percent. The less encouraging news is that, even with this increase, minority members still account for only about 7 percent of regular membership (but 14 percent of associate members, the architects-to-be). As in the past, African Americans are most conspicuously under-represented, with not quite 1 percent of regular membership, and Hispanics account for less than 2 percent; the almost 4 percent representation of Asian Americans is more reasonable.

> The AIA's Minority Resources Committee and the independent National Organization of Minority Architects (NOMA) are pooling their meager resources in programs with much emphasis on recruiting students. A new jointly sponsored speakers bureau will improve outreach to young people and the public generally; a video now in planning can greatly enhance public awareness. NOMA is getting corporate contributions toward its conventions, both for programs and for students' travel expenses. One area that needs work, says NOMA vice president Robert Easter, is keeping minority architecture graduates from giving up on architecture during their apprenticeship.

> Meanwhile, the AIA College of Fellows Task Force on African Americans has helped launch a scholarship program sponsored jointly by AIA and the Phelps Stokes Fund, aimed at developing African American educators for schools of architecture. So far, the program is supporting two recent graduates of Hampton Institute in a doctoral program at Carnegie Mellon University (with tuition assistance from the host school), and other schools are soon to participate.

At the University of Cincinnati, the Center for the Study of the Practice of Architecture has recently published a directory of African American Architects listing 877 registered individuals; their research indicates reliably that about 95 percent of such architects are included, and readers are urged to help identify the rest. (To obtain the directory, send a \$6.00 check made out to CSPA, DAAP ML 016, University of Cincinnati, Cincinnati OH 45221.) The national magazines have been giving increased attention to the particular problems of minorities (P/A's contributions: Editorial: Recognition of Minority Architects, Dec. 1990, p. 7; Perspectives: A Legacy of Shadows, Feb. 1991, p. 85; Minorities in Practice, June 1991, p. 59.) In efforts to show more minority work in the design feature pages, the idea of set-aside features (best buildings by African Americans, etc.) has at least as many opponents as supporters among minority professionals. A sounder course now is for architectural editors and writers – local or national – to scout diligently for outstanding minority work, giving due credit to its social contribution.

In the past year, at least two African Americans have won first place in national design competitions – albeit not for actual buildings: Felecia Davis, with Marti Cowan, won the national competition for a Choragic Monument of today (P/A, March 1991, p. 23) and Philip Freelon won a competition for design with glass sponsored by PPG (this issue, p. 26). Winning competitions is the most convincing affirmation of design strength, and sponsors should make every effort to encourage minority participation.

A pioneering book has now appeared to inform the interested public about the most accomplished of today's African American architects. Initiated and edited by the young New York architect Jack Travis, and published by Princeton Architectural Press, *African American Architects in Current Practice* combines profiles of 24 outstanding firms with essays by several key observers – black and white.

Travis's book reconfirms the general wisdom that minority-owned firms have been relying heavily on commissions in the public sector. While the public area is relatively recession-resistant, the position of minority firms in it is threatened both by court challenges of set-aside policies and by the increased competition of majority-owned firms that are now more eager for public work.

The current crunch only emphasizes the vulnerability of architects generally (See "Architects and Power", P/A, Feb. issue, p. 47). As architect/educator Sharon Sutton asked at Yale's recent symposium on People of Color in Architecture (January P/A, p. 22), "Why encourage women and minorities to take a first-row seat on the Titanic?" We must make sure the profession remains afloat, even as we make certain that women and men from all racial and ethnic groups are welcome aboard.

John Marie &

P/A Plans: Schools

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Editorial

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Circle No. 339

Views

P/A Awards: Californication

The 39th Annual P/A Awards (Jan. 1992) were californicated. Particularly, the architectural awards valorized novelty for novelty's sake; in Wolf Prix's own provocateur terms, "I've never seen anything like this before, which is one reason why we should support it." Is this a valid criterion for judging architecture? Is a sculptural bravado enough?

Architecture offers to us much more than such cheap thrills. By way of contrast, I recall last year's P/A award, the Slow House by Diller & Scofidio, which for all of its novel form-making intensified a physical place through the architects' willingness to pay close attention to it. Douglas Darden Special Lecturer in Architecture University of Colorado Boulder, Colorado

Equality in Cartoons

It is always tricky to try to explain or analyse humour, but could I nevertheless reply to Julia Thomas's letter (Jan. 1992, p. 9) about my cartoon? I have for many years employed the little bearded, bow-tied figure to signify the architect in the UK. Most male architects realise this is a joke and are not offended by the stereotype. The "wife and modernist principles to support" line is a reference to an old cartoon cliché ("wife and six kids to support"), possibly dating back to the Great Depression.

I do have female architect characters (bottom of page) but in our traditionally male dominated profession no recognisable woman architect stereotype, for good or bad, is available to use in general situations. Ms. Thomas may have a point though. In the same issue of P/A apart from the cartoon, I counted 14 male images of architects or designers and 2 male construction workers as opposed to 3 women, one (possibly) an architect, one a secretary and one an insurance company employee. I certainly agree that women should be enfranchised so that cartoonists can satirise them on an equal basis with men. Louis Hellman Architect, Designer, Illustrator London

Tile Flooring Guidlines

It is my opinion that the authors of your December 1991 Diagnostic Clinic, (p. 41) entitled "Ceramic Tile Subflooring" failed to emphasize the improper installation of the cementitious backer units (CBU) as the cause of this "botched" ceramic tile job. The following items are not made known to the readers and are all critical to this failure diagnosis:

- Was the floor structure capable of limiting a live/dead load deflection of 1/360 of the span (e.g., joist size and spacing)?
 - Was a proper nail used on the



Cartoon by Louis Hellman.



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- CBU to ensure a minimum penetration/engagement of ³/₄ inch?
- Were the CBU joints offset/ staggered from the plywood joints?
- Was a layer of mortar applied as a support/bond coat beneath the CBU?
- Was the tile setting mortar (e.g., organic adhesive, dryset, latex portland cement)?
- What was the size of the tile?
- Were the expansion joints pro-
- perly designed and functional? What little is made known in the

article tells me the job was doomed to fail:

- improper spacing of the nails in the CBU
- improper joint treatment of the CBU (lack of filling and taping)

The guidelines for this type of installation have been available for many years in the TCA Handbook for Ceramic Tile Installation and from CBU manufacturers. An ANSI specification (Al08.ll) for the interior installation of CBUs was developed through several years of committee/industry work and published in 1990. That specification presents minimal installation requirements of the CBU and should have been used as the foundation in this failure analysis.

The authors' numeric analysis may be legitimate but not the cause of this failure. I strongly believe that had this ceramic tile installation been done per industry specifications, this failure would not have occurred. *Kenneth R. Erikson Engineer, Technical Services Tile Council of America, Inc.*



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Authors Seymour Hook and Gail Hook respond: What was printed was not a complete report of the investigation. The floor structure was checked, and it did meet the limiting deflection of 1/360 of the span. Specified nailing was used. Based on the three openings we made in cracked areas, two indicated staggered joints, the third showed the joints to coincide. The CBU was glued to the plywood. A latex mortar was used to set the 9-inch-square tile. Expansion was allowed for at the interfaces of the wall and floor around the room. In the first paragraph of the article we specified that failure to consider all aspects and details as outlined by the Tile Council of America can result in problems with ceramic tile floors. The analysis was performed to back up the contention that improper spacing of the nails and improper joint treatment were the causes of the cracking. The article does emphasize that improper installation of the CBU was the basic cause of the cracking.

Awards Jury Fairness

P/A has been reminded that P/A Award Winner Michael Bell (Jan. issue, p. 51) had been an employee of juror Stanley Saitowitz and a student at Berkeley, where Saitowitz teaches - as spelled out in P/A's earlier issue on Young Architects (July 1990, p. 86). Recognizing the entry - though names had been removed - Saitowitz abstained from voting on this entry, as P/A's rules stipulate. His opinion, however, appears in the jury discussion. P/A will review its procedures in such cases.

Library Credits

Architects for the New York Public Library's new branch to be located in the former B. Altman department store (Jan. 1992, p. 22) are Gwathmey Siegel & Associates. For the New York Resource Center, to occupy other parts of the building, the following firms are involved: Hardy Holzman Pfeiffer Associates, exterior restoration; Donovan & Green, interiors and layout; Emery Roth & Sons, architects of record for the interiors.

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Views

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At right, from Octagon show, 1792 White House competition entry by James Diamond. At far right, Barbara Bush and Gold Medalist Benjamin Thompson address Accent gala.

Accent III Fetes Thompson, White House Marking its third year as the AIA Event-of-the-Year, Accent on Architecture 1992 was held on January 22 at the John F. Kennedy Center for the Performing Arts in Washington. Jointly organized by the AIA and the American Architectural Foundation (AAF), the gala was opened with thoughtful welcoming remarks by AAF Board of Regents chairman and former AIA President Sylvester Damianos, and by newly installed AIA President W. Cecil Steward. Filling the Master of Ceremonies role effectively was actor E.G. Marshall, who guided the event through some distinctly divergent passages. The evening's central theme was a tribute to the White House on the 200th anniversary of its construction.

On several occasions between program segments a group of Philadelphia actors, The Royal Pickwickians, portrayed Presidents and White House architect James Hoban, some sketches having more to do with the actual dwelling than others. Following last year's pattern, President Bush was unable to accept his invitation, and this time was admirably represented by Barbara Bush. Acknowledging the special tribute to the White House, the First Lady noted, with gratitude, the AIA stewardship of it. She conveyed the President's regrets at not being able to attend, saying that since his incident at dinner in Japan, she didn't "take him out at night much anymore."

Mrs. Bush also paid tribute to Benjamin Thompson and his contributions to American cities and people before presenting him with the AIA Gold Medal (P/A, Jan. 1992, p. 21). Thompson said that his goal has been to introduce joy into architecture. He said the award should be shared with his clients, and with his wife and co-worker of many years, Jane Thompson. Commenting that he often felt he was "more an attitude than an architect," he urged architects to say no to commissions if they considered projects to be wrong.

Louis I. Kahn's Salk Institute in La Jolla, California, received the AIA 25-Year Award, and Dr. Jonas Salk marked the occasion with a stirring address – the highlight of the evening – in which he urged the strengthening of the relationship between art and science. Noting the human capability to act as pathogens in terms of global concerns, he encouraged the audience to exercise responsibility for some of earth's dilemmas, and to ask: "Are we being good ancestors?"

Following presentations of the other AIA awards (P/A, Feb. 1992, p. 20) and sandwiched between other Royal Pickwickian episodes, Luci Baines Johnson shared a number of her memories of life in the White House, essentially concluding the celebration. An exhibition entitled "The White House 1792–1992: Image in Architecture" opened at the Octagon the day of the gala. The first museum exhibition ever to trace the history of the White House, this selection of over 200 drawings, photographs, and artifacts traces the history of the building from its conception through its many alterations. Curated by Betty C. Monkman of the White House, the extensive show will remain on view there until April 12.

Major sponsors of the gala and the exhibition were MBNA America Bank, N.A., McGraw-Hill, Amway Corporation, and Herman Miller Inc. Among other benefactors were AUTODESK, Inc., CNA Insurance Companies, Victor O. Schinnerer and Co., Inc., The Children's Television Workshop, Time Warner Inc., and a number of other patrons. Jim Murphy

Frank Gehry weaves a new collection of bentwood furniture, New Products and Literature (page 116).

News Report



In Projects (page 105), the airport as a flight of fantasy. (Above: Kansai Airport, Osaka, by Renzo Piano Building Workshop.)

Pencil Points

The Americans with Disabilities Act went into effect January 26 (P/A, Oct. 1990, p. 23; Oct. 1991, p. 7). The next day, advocates for disability rights filed a complaint with the Department of Justice against the **Empire State Building. The** building's observation deck. they claim, is inaccessible to wheelchair-bound visitors and violates a provision of the act requiring owners or operators of "public accommodation" to remove barriers if modifications are "readily achievable." The complaint may force the courts to decide just what "readily achievable" might mean.

Last December, the AIA board of directors amended the code of ethics' antidiscrimination section (Rule 2.501) to include sexual orientation; actionable complaints can now be filed against member employers. The AIA has acknowledged that the scope of the clause has yet to be determined.

The Cranbrook Educational Community has announced an ambitious expansion plan for its campus in Bloomfield Hills, Michigan. The board of governors scheme to renovate and expand the existing Eliel Saarinen-designed campus includes projects by: Peter Rose, Tod Williams & Billie Tsien, Steven Holl, Rafael Moneo, and others.

The 1992 Wolf Prize in the Arts will be shared by Frank O. Gehry of Santa Monica; Jørn Utzon of Copenhagen; and Sir Denys Lasdun of London. The architects, who will share the \$100,000 prize, were honored for architecture with "... qualities that enhance use, transform construction, and liberate the mind." The Wolf Foundation was established in 1975 in Israel to "promote science and art for the benefit of mankind." Art and Comfort in Seattle AIDS Care Facility

Bailey-Boushay House, believed by its architects and nonprofit developers to be the first residential care facility designed and built specifically for AIDS victims in the nation, was dedicated recently in Seattle.

Since knowledge of the multiple impacts of AIDS is rudimentary, many design decisions were based on "guesswork," say the designers, Bumgardner Architects of Seattle. But those decisions were also infused with empathy for the 35 patients who will occupy the top two floors of the 34,000square-foot building. The ground floor provides offices, outpatient care rooms for another 35 patients, and a retail buffer along the street.

Each resident will have a private room with its own toilet, temperature control, lights on dimmers, and operable, residentially scaled windows. The Bumgardner firm, discovering that most



Entry portal by artist Linda Beaumont.

"Stay Put," Architects Say: It's Bad Everywhere

There's no denying that 1991 was a bad year for architects: according to the U.S. Department of Commerce, total construction in the United States fell 9.3 percent for the year, reaching its lowest point in 47 years. Architectural employment, as reported by the Bureau of Labor Statistics, has declined by more than 20 percent nationwide since 1989. In a survey of AIA chapters in all 50 states conducted by the Boston Society of Architects (BSA) last November, only 10 of 48 respondents described their local building economies as "O.K."; the rest said theirs were worse than that. In January, P/A talked to architects and officials around the country and found more of the same in the profession's short-term future.

Employment statistics alone do not tell the story of vast underemployment among architects: reduced wages, benefits, work weeks, and staffs have affected a majority of firms in recent months. A



In Seattle, first AIDS facility built from the ground up.

healthcare furniture was attuned to the tastes of the elderly, designed custom furniture, using light woods and colorful fabrics, for what is expected to be a relatively, and tragically, young population.

Each of the residential floors ends in a glazed solarium. On the second floor is a large greenhouse that will be used for horticultural therapy and recreation. The greenhouse opens onto a generous terrace; there is another terrace below and a private courtyard at ground level.

Art permeates the building. Entry from the parking area is through a delightful mosaic portal by artist Linda Beaumont, who also embellished a load-bearing column in the lobby to incorporate lines of poetry related to AIDS and the names of donors to the facility.

Patient rooms and corridors have wall niches that house the work of another 22 local artists; recessed panels bear sculpture, carvings, and miscellaneous designs and objects. Patients will be encouraged to modify the niches to increase their rooms' sense of individuality.

In all, the architects have achieved their basic goals of satisfying complex healthcare requirements in an atmosphere "as comfortable and gracious as a small hotel." **Donald Canty**

survey of large firms (those with 41 or more employees) in California, by Management Design, a San Francisco consulting firm, found that twothirds of the firms surveyed had decreased in size by an average of 20.4 percent between the end of June, 1991, and January, 1992. (Several firms no longer qualified as large.) Half of the firms responded that they plan no more layoffs in the next six months, but almost a quarter predicted that there would be further cuts.

While the economy on the whole is poor, there seem to be a few resilient firms that are thriving on either foreign or institutional work. In Chicago, notable exceptions to the rule are Murphy/Jahn, which has been cultivating work in Germany for more than a decade, and the seven-person firm of Peter Landon Architects, which has been involved in local public and private housing work. When Landon wanted to hire someone recently, he did so quietly because he did not want to be inundated

lews Report

with résumés. "I have a six-inch-high stack of résumés; when someone gets the idea you are doing well, everyone wants a job."

Commercial work in southern California is virtually at a standstill, and firms that don't have Asian or Australian work are competing for publicly funded projects. The Los Angeles Times reported a scrap among architects over bids for a \$2.1-billion public hospital building program, even though Los Angeles county voters are unlikely to pass bond issues for the projects. Architects are accusing the health officials and each other of unsavory tactics, such as listing unaffiliated minorities as part of their own project teams. One architect was quoted as saying, "It was one of the worst shows of professionals... I've ever seen."

"Architects in Boston have reached the seventh stage of grief – acceptance," according to BSA director Richard Fitzgerald. In Boston, as in Philadelphia, a local recession preceded the national downturn, leaving the building economy stagnant for two years. Fitzgerald, who recalls that architectural unemployment in Boston reached a peak of 25 percent in Boston about a year ago, says they believe that the city's building economy will never see the kind of growth it experienced in the 1980s.

The markets in the states of Texas and Washington were expanding in 1990, but offer only spotty work for architects today. Large firms in both states have recently had layoffs. Likewise, Washington, D.C., whose Federal market leads some to consider it recession-proof, has witnessed the out-migration of architects who had come from other parts of the country during the 1980s, seeking work fueled by a wave of speculative building. Firms with the most experience in government appear to be holding steady.

Fourth Havana Bienal Explores Architecture

Architecture made its debut on the periphery of the third Bienal of Havana in 1989. In the 1991 Bienal, which ran from November 5 to December 31, it played a central part. Activities included myriad workshops, lectures, symposia, and over 20 exhibits, 7 of which were architecture-related. With the approach of 1992 and the 500th anniversary of Columbus's landing, this year's themes focused on the legacy of colonialism and the na-



Restored Santa Clara convent, Bienal exhibit site.

Are there any bright spots? Portland, Oregon, is reportedly doing fine, but local firms resent that commissions are going to out-of-state architects. According to the BSA survey, only the Minnesota and Northern Virginia AIA chapters thought they might have some work for architects from other states. The word from everywhere else is "stay put" and wait it out. Julie M. Trelstad



Architectural Employment 1979-1991



ture of Latin American cultural identities.

Havana served as a fitting backdrop for this event. Restoration activity, which commenced in 1981 with UNESCO's official designation of the historic center as part of the International Cultural Patrimony, has restored the city's monumental core and is moving to steadily consolidate its historic fabric. The restored Santa Clara convent, now the National Center for Conservation and Restoration, was the site of one the exhibits of architecture, a broad survey of contemporary works from all over Latin America.

Other events included an exhibit of recent Cuban architecture, sponsored by the National Union of Architects & Construction Engineers, and exhibits of the previous generation's great architects: Carlos Raul Villavueva of Venezuela, Joao Baptista Artigas of Brazil, Luis Barragán of Mexico, and Walter Bétancourt, the late Cuban architect of North American birth. Bétancourt's tropical brand of organic architecture, indebted to both Antonio Gaudí and Frank Lloyd Wright, has only just begun to be given recognition. A separate (continued on next page)

IFRAA Awards for Religious

Buildings

The Interfaith Forum on Religious Art and Architecture (IFRAA) has recognized 14 projects from among 165 entries in its annual international awards competition. Jurors were retired minister Dr. David Read, New York, and New York architects Alfredo DeVido and Giorgio Cavaglieri.

Honor Awards for new construction:

- Christ Church, Lake Forest, Illinois, by Hammel Green & Abrahamson, Minneapolis (P/A, Dec. 1990, p. 82).
- T.E.K. Mosque, Ankara, Turkey, by Cumhur Keskinok, Ankara, Turkey.
- Jewish Religious Center, Williams College, Williamstown, Masschusetts, by Herbert S. Newman & Partners, New Haven, Connecticut.



Jewish Religious Center.

Citations for new construction:

- St. Magnus Church, Lillestrom, Norway, by Lund & Slaatto Arkitekter, Oslo.
- Catholic church, Paks, Hungary, by Makona, Budapest.



Catholic Church, Paks, Hungary.

 Marilyn Moyer Meditation Chapel, Portland, Oregon, by Thompson Vaivoda & Associates, Portland.

(continued on next page)

Progressive Architecture 3.92

IFRAA Awards

(continued from previous page)

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Honor Awards for renovations/ additions:

- addition, Christ Church Cathedral, Houston, by Ray Bailey Architects, Houston.
- bell tower, Christ Lutheran Church, Baltimore, by Beard Warwick Cornell Associates, Washington, D.C.
- addition, Chapel of St. Andrew, Pembroke, Malta, by Richard England, St. Julians, Malta.
- St. Mary's Chapel renovation, St. Paul Seminary, St. Paul, Minnesota, by Rafferty Rafferty Tollefson Architects, St. Paul, Minnesota.

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Vews Report

Renovated St. Mary's Chapel.

Honor Award for restoration:
St. Clement's Church, Chicago, by Holabird & Root, Chicago.



Restored St. Clement's Church.

Citation for restoration:

- Church of the Covenant, Boston, by Ann Beha Associates, Boston.
- Honor Award for interiors:
 Cathedral Church of St. Paul, Boston, by Crissman & Solomon, Watertown, Massachusetts.
- Special citation for excellence:
 Baptistry restoration, Reggio Emilia, Italy, by Gianfranco Varini, Reggio Emilia.

Havana (continued from previous page)

exhibit of paper architecture sponsored by the Sección de Arquitectura Los Hermanos Saiz, a group representing the new generation of Cuban architects, added a polemical edge to the debate on cultural identity, offering works that were both commentary on and critique of architectural practice in Cuba.

The Bienal served as a platform for debate on current Cuban architectural practice, which is at a critical vertex. The failure of the technocratic, Soviet-style prefabricated building programs has left the Ministry of Construction, which oversees most building activities, subject to criticism. Architecture, previously subservient to engineering both in practice and education, is asserting its autonomy through organizations such as the Hermanos Saiz, The Group for the Comprehensive Development of the Capitol, as well as critical



Forestry Center at Guisa by Walter Bétancourt.

faculty of the School of Architecture of José Echevarría Polytechnic. The Bienal demonstrated that the cultural value of architecture cannot be excluded from its social value. John Loomis

The author is an assistant professor of architecture at City College of New York and an associate of KCA Architects.

New Home for a Timely House

R. Buckminster Fuller's 1946 Dymaxion House addressed two needs that sound familiar today: inexpensive housing and peacetime work for the defense industry. Now, the family of William L. Graham has donated the only existing prototype of the house, which served for almost 20 years as the Grahams' family home in Wichita, Kansas, to the



1945 photo of Dymaxion House.

Disney Chooses Anaheim for New L.A. Park

The Walt Disney Company cut a Gordian knot of its own making in December by choosing Anaheim, California, over nearby Long Beach to be the site of the company's new \$3-billion West Coast theme park. Company officials emphasize, however, that the final decision to build the 470-acre Westcot Center hinges on approval by the local government.

The focus of Westcot is to be "our humanity, our history, our planet, our universe," according to Disney literature. The golden sphere of Spacestation Earth is to be the visual centerpiece of the new park, while World Showcase is to contain educational pavilions about "foreign lands." Other parts of Westcot are to be devoted to exhibits on the human body, the environment, and the future.

Westcot is to be one of five components of a reconfigured Disneyland Resort, consisting of the original Disneyland; a resort hotel district with a Henry Ford Museum & Greenfield Village in Dearborn, Michigan. The house will be disassembled for the move to Dearborn; museum officials will work with the Buckminster Fuller Institute in Los Angeles on the restoration and display of the house.

Fuller developed the idea for the 1075-squarefoot house, a circular aluminum structure weighing only three tons, in 1927, but a suitably strong aluminum alloy was not developed (by the aviation industry) until World War II. The Beech Aircraft Company of Wichita produced two protoypes (the second was purchased by Graham but not assembled), which spurred expressions of interest from 30,000 potential buyers, but Fuller was never able to secure financing to mass-produce the houses.

Museum and institute officials have not ruled out sending the house on tour, though its advanced age makes traveling unlikely. One of the house's advantages was its portability; it could be shipped by air in packaging that occupied less than 300 cubic feet. Mark Alden Branch

renovated Disneyland Hotel and three new theme hostelries; a centralized Disneyland Plaza connecting the old and the new theme parks; and Disney Center, a commercial area for shopping and strolling oriented around a six-acre lake.

Disney's decision to build in Anaheim coincided with a decision to kill the company's rival proposal for Long Beach, effectively ending the contest for the company's so-called "second gate" in Southern California. In 1990, Disney made an unusual move by proposing parks in both cities, while hinting strongly that only one would be built. Some observers criticized Disney for what they described as an attempt to make cities compete for a lucrative theme park with subsidies. The possibilities of revenue look tempting for a host city: the new theme park could generate \$2.4 billion annually in the five-county region of greater Los Angeles, and promises \$45 million yearly in new taxes and fees (continued on page 26)

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Luncheon Honors P/A Award Winners



A's Philip Arcidi (left) with search winner Mario L. Sanchez.



/A's Jim Murphy (left) with Archictural Design winner Eric Moss.



Iark Alden Branch of P/A (left) with Irban Design award winners Robert Iangurian and Mary-Ann Ray.

Amid economic gloom and anceled holiday parties, the nnual P/A Awards luncheon on anuary 8 was a rare happy ocasion for many who attended. Tome 300 architects, journalists, and allied professionals attended he luncheon at New York's Plaza Hotel, where the winners of the 39th Annual P/A Awards P/A, Jan. 1992, pp. 43–101) were announced publicly for the irst time.

The 22 winners, chosen by a ury of professionals from among 762 entries in architecnaral design, urban design, and research, were presented with their award certificates at the uncheon.

Disney (continued from page 24)

to the city of Anaheim alone, according to Kotin, Regan & Mouchly, a Los Angeles consulting firm.

Environmental concerns, rather than subsidies, seem to have forced the decision for Anaheim. The Long Beach proposal was a particularly ambitious and intriguing piece of planning: to be located in the city's downtown area, the Disney Sea proposal (earlier known as Port Disney) called for about 200 acres of landfill to extend into the,Long Beach harbor. The scheme called for theme attractions, 50,000 square feet of retail space, and 4000 hotel rooms.

Not surprisingly, environmental concerns presented the biggest challenge to Port Disney; beyond the staggering cost of the proposed dredgeand-fill work (upwards of \$1 million an acre), the issue of landfill raised a host of issues, including a provision of the California Coastal Act banning the use of landfill for recreational purposes. Last year, Disney lobbied for a bill that would amend the coastal act to permit construction of the Long Beach site. This move angered some environmentalists who interpreted Disney's actions as threatening the integrity of a law that has so far held up against myriad development pressures. The bill died in committee.

Disney officials said the timing of the announcement reflected a commitment to reach a decision on the new Southern California theme park by the

PPG Honors Glass Designs

Winners have been announced in the Starphire Glass Design competition, sponsored by the PPG Industries Glass Group. The challenge was to investigate furniture uses for their new glass, a product with refined clarity. Winning the grand prize of \$4000 was architect Philip J. Freelon of The Freelon Group, Research Triangle Park, North Carolina. Based on a metaphor of a tree, his design is for an etched glass table top mounted on two grids of cylinders branching out from closely



Philip J. Freelon's winning entry for PPG competition.



Disney plan for expanding its Anaheim kingdom.

end of 1991. "We thought it was essential to have clarity about what we were going to do," said Disney vice-president David Malmouth, adding that Disney "picked the project which had the higher likelihood of being built and being successful by the end of the decade." Morris Newman

packed columns of 64 tubes each. At the 128 support points, the larger grid is punctuated by polished black granite inserts and fasteners. The result is a richly diffused image of structure below the etched glazing.

Four category winners, awarded \$1000 each, were also chosen. In the contract category, the winner was Donald Bustraan of Studio Details, Winston-Salem, North Carolina, for a bent-glass desk; in the dining room/bedroom category, Noah Brauner of Furniture Design/Development, Rutherford, New Jersey, won for the concept of a table that changes colors. Winners in the residential accents/occasional category were Steve Ditch of Ditch Materials Inc., New York, for a cabinet design with decorated glass plates and doors, and John R. Seitz of Seitz Studio Design, Harmony, Pennsylvania, for a sculpture entitled "Fissured Square."

Jurors were Judith Cushman of Accessories/ Today and Furniture/Today; James Gabbert of Gabberts Furniture and Design Studio, Edina, Minnesota; Linda Higgins, ASID, of One Design Center, Inc., Greensboro, North Carolina; Haig Khachatoorian of North Carolina State University; James A. Murphy, FAIA, of P/A; G. Jason Kontos of Country Living; Denise Osborne, IDS, of Accessory Design Service, Greensboro; John Summey of Catawba Valley Community College, Hickory, North Carolina; and George Swenson of Schauer & Schumacher, Green Bay, Wisconsin.

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William Turnbull, Jr. Through March 28

1960s, 1970s Lighting Through March 29

Architects' Art Through March 30

Stanley Saitowitz March 9-April 10

New York's City Hall March 11-June 28

Visionary Architecture March 13-April 18

Graz School Architect March 21-April 25

Burnham Prize 1992 Registration deadline March 27, submission deadline April 24

Design for the Elderly Entry deadline April 15 Exhibitions

Cincinnati. Models, drawings, and photographs included in "William Turnbull, Jr.: A Regional Perspective" chronicle the San Francisco architect's 30-year career. Contemporary Arts Center.

New York. "Lighting from the Sixties and Seventies" focuses on designs that challenged "the prevailing functionalism of the Modern Movement ... with myriad and new materials to create more sculptural, sensual forms." Museum of Modern Art.

Santa Monica. The fourth annual exhibition of furniture and objects created by architects acknowledges a movement within the profession "toward a reduced scale of work...to make architecture more accessible through a wider range of exposure." Gallery of Functional Art.

Cambridge, Massachusetts. "Geological Architecture: The Work of Stanley Saitowitz" (P/A. Aug. 1991, p. 26) is a traveling exhibition designed by the architect. Gund Hall Gallery, Harvard University.

New York. "Building City Hall: Competition, Construction, Contest" documents the process through which the 180-year-old City Hall was designed and executed by John McComb, Jr., and Joseph-François Mangin (1803-1812). New-York Historical Society.

Chicago. "Douglas Darden: Imaginary Structures" and "Brodsky & Utkin: Etchings and Projects" pair Western and Eastern visions of architecture, each traveling quite beyond the realm of brick and stone. Gwenda Jay Gallery.

New York. Works by architect Gunther Domenig, a representative of the Graz School of Architecture in Austria, demonstrate his expressionist style and his "extremely emotional" design solutions. Storefront for Art & Architecture.

Competitions

Chicago. "Chicago - Terra Incognita" is the theme of the Burnham Prize 1992, jointly sponsored by the Chicago Institute for Architecture and Urbanism and the Chicago Architectural Club. Entrants must reside within 90 miles of Chicago. Contact The Chicago Institute for Architecture and Urbanism, 1365 N. Astor St., Chicago, IL 60610 (enclose an 11 x 18 SASE).

Copenhagen, Denmark. "Age: No Problem" is the theme of an international design competition sponsored by the Danish National Agency of Industry and the Danish Design Center. Proposals such as hand tools, seating, easy-to-open windows - should address the needs of aging citizens and recognize commonplace stigmas. Contact the Industrial Design Society of America, 1142 E. Walker Rd., Great Falls, VA 22066 (703) 759-0100 or Danish Design Center, H.C. Andersen Blvd., 18, DK-1553 Copenhagen V, Denmark or FAX 45-33-32-00-48.

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• • • • • • • • • • • • • • •	Carlendar (continued from page 29)
	conterences
The Changing Contemporary City March 14	Houston. "The City Imagined" is the title of the first Paul Kennon Memorial Symposium, sponsored by Rice University School of Architecture. An impres- sive group of practitioners, academics, and critics will participate. A symposium will be held biennial- ly in honor of Paul Kennon, who died in January 1990 during his tenure as the school's dean. Contact Rice University School of Architecture, P.O. Box 1892, Houston, TX 77251 (713) 285-5202 or FAX (713) 285-5277.
WestWeek 92 March 18–20	Los Angeles. "Counterforce/Counterbalance: Emerging Attitudes and Aesthetics in a Changing World" is the theme of the 17th annual WestWeek contract furniture market (P/A, Feb. 1992, p. 131). Contact Pacific Design Center, 8687 Melrose Avenue, Los Angeles, CA 90069 (310) 657-0800 or FAX (310) 652-8576.
SAH Annual Meeting April 1–5	Albuquerque. The Society of Architectural Historians will hold its annual meeting at the Doubletree Hotel in Albuquerque. Contact SAH, 1232 Pine Street, Philadelphia, PA 19107-5944.
Teaching Beginning Design Students April 3–5	Seaside, Florida. Practitioners and academics are invited to attend the ninth annual conference on the beginning design student. The Department of Architecture at Auburn University is the host of this year's event. Contact Beginning Design Conference, Department of Architecture, 104 Dudley Hall, Auburn University, AL 36849 (205) 844-4516.
Building Safety April 8–10	Atlanta. The purpose of this workshop is threefold: to provide an overview of extant research-based knowledge relating to design, construction, and maintenance; to discuss research needs and barri- ers "that limit building safety research activity"; and to examine the reasons for "inadequate transfer of research findings into practice and into code stan- dards." Contact Dr. John Templer, Educational Conference on Building Safety, College of Architecture, Georgia Institute of Technology, Atlanta, GA 30332-0155 (404) 894-2547.
Milan Furniture Fair April 10–15	Milan, Italy. The Salone del Mobile Italiano/ Euroluce will again be the site for an international presentation of furniture and lighting introduc- tions. Contact Cosmit, tel. 2/48008761 or FAX 2/4813580.
Environment Expo 92 April 23–26	Minneapolis. Environment Expo 92 will include ten areas of "environment-healthy" products, services, and technologies. Areas most relevant to architects are: recycled products; landscaping, grounds; site testing, remediation; water quality; energy-use; renewable energy; and indoor environments. Contact Environment Expo Council, 1313 Fifth St., S.E., Suite 325B, Minneapolis, MN 55414 (612) 379-3889.
Specifix 4 April 29–30	Washington, D.C. Specifix 4 is an annual design symposium for architects, interior designers, and facility managers who specialize in commercial projects. Contact Washington Design Center, 300 D St., S.W., Washington, D.C. 20024 (202) 554-5053.
Notice	We strongly encourage readers to contact exhibi- tion venues and competition and conference spon- sors to confirm dates, request competition briefs, etc. To provide timely Calendar listings, we need information one and one-half months prior to pub- lication (March 15 for the May issue, for example).

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Technics Envelope Design Guidelines for Federal Office Buildings

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Dr. Andrew Persily of the National Institute of Standards and Technology

presents excerpts from a new General Services Administration manual for architects.

Office building envelopes are generally successful in meeting structural, aesthetic, and thermal requirements. However, shortcomings in thermal performance do occur and affect energy consumption, the durability of envelope materials, thermal comfort, and indoor air quality. One study of eight Federal office buildings specifically designed to meet energy performance standards employed thermal envelope diagnostic techniques to identify specific thermal envelope defects and to quantify their impact on thermal performance.1 These defects included missing and misinstalled insulation, thermal bridges, and inadequate air barrier systems or no air barrier at all. Such defects are caused by designs that do not adequately account for heat, air, and moisture transmission, are difficult to construct, do not have sufficient durability to perform for a reasonable length of time, or cannot withstand wind pressures or differential movements of adjoining elements. Other thermal defects are caused by poor construction technique.

Despite the existence of thermal envelope defects, information is available to design and construct envelopes with good thermal integrity. In order to bridge the gap between available knowledge and current practice, the Building and Fire Research Laboratory of the National Institute of Standards and Technology (NIST) has developed thermal envelope design guidelines for Federal office buildings for the General Services Administration (GSA). The goal of this project is to present information on thermal envelope design and performance from the research, design, and construction communities in a form that will be useful to and used by design professionals. These guidelines will be used by GSA in future projects to ensure improved thermal envelope performance, serving as a contractually referenceable document that can be used to augment GSA's criteria references.

The guidelines are not intended to direct the designer to choose a particular design or system, but rather to provide information on achieving good thermal performance for the design they have already chosen. The guidelines will provide the designer who has already made decisions on insulation levels, construction materials, and glazing areas with information to make the envelope perform as intended through an emphasis on design details that avoid thermal defects. Much of the material in the guidelines is in the form of generic details for specific systems, with discussion of common ther-



1 UNACCEPTABLE AND ACCEPTABLE ROOF EDGE DETAILS

mal defects and alternative details that have been shown to correct them (1). The sources of most of the alternative details are cited, and all of them were critiqued during the review process.

The guidelines have been developed from published literature, voluntary contributions from the building community, a review conducted by a project committee of the Building Thermal Envelope Coordinating Council (BTECC) of the National Institute of Building Sciences (NIBS), and a group of technical consultants to NIBS. The literature review included research on thermal envelope performance, case studies of envelope defects, envelope designs intended to avoid such defects, and general design priciples for ensuring good envelope performance.² The BTECC/NIBS project committee - consisting of about 100 people from the design, manufacturing, and construction industries, academia, and research organizations - was established to solicit voluntary contributions from industry and research organizations and to review the guidelines. NIST also contracted with several building envelope design experts to prepare material for the guidelines. The discussions that follow are excerpted from different sections of the guidelines to give a representative sampling of their contents.

Copies of Envelope Design Guidelines for Federal Office Buildings: Thermal Integrity and Airtightness will be distributed by the National Technical Information Service (703) 487-4650. See page 45 for the table of contents of the guidelines.

Rain Penetration Control

There are four forces that move water through walls: 1 gravity, 2 capillary action, 3 kinetic energy, and 4 air pressure differences.¹³ Gravity will move water through any opening or along any element, such as a brick tie, that slopes downward. Capillary action draws water into small cracks and pores in building materials and can account for the leakage of large amounts of water, particularly in masonry construction. Kinetic energy refers to water leakage into and through walls due to the force of wind-driven raindrops impinging on openings in the wall. Water will also penetrate a wall when their is an air pressure difference between the wetted side of the wall and the opposite side.

There are two basic

approaches to controlling rain penetration - eliminating the openings and controlling the forces acting across these openings. Both approaches are used in different systems, but before considering either approach it is important to stress the control of rain water that flows down the façade of a building. Even the best designed and most carefully constructed system will have trouble preventing water leakage if the façade is constantly exposed to a stream of rain water runoff. In order to keep rain water off the face of the building, the façade must have properly designed drips at copings, ledges, sills, balconies, window and door heads, and other facade features. The design of drips is covered in many construction guides including Architectural Precast Concrete from PCI.⁵ Canadian researchers Robinson and Baker¹⁴ also present a thorough discussion of wind-driven rain and the control of runoff.

The control of rain penetration by plugging the holes on the façade is sometimes referred to as the *face-seal* approach. This involves the use of various sealants at panel joints and other interfaces. The problem with this technique is that the sealant is exposed to severe conditions of sunlight and ultraviolet radiation, temperature cycling, water exposure, and the differential movement of façade components. These conditions place (continued on next page)



2 PRESSURE-EQUALIZED RAIN SCREEN WALL



3 BRICK VENEER/STEEL STUD BACKUP WALL



4 BRICK VENEER/CONCRETE MASONRY BACKUP WALL

Pressure-Equalized Rain Screen

The pressure-equalized rain screen approach can be applied to the whole wall systems by incorporating a cavity behind the facade (2). Vents in the façade equalize the cavity pressure to the outdoor pressure, decreasing the pressure-driven rain penetration into the cavity. These vents must be designed to prevent rain penetration due to gravity, capillary action, and kinetic energy. The air barrier within the backup system, capable of withstanding the pressure due to wind loads, is absolutely essential to achieving pressure equalization. Ideally this air barrier is located behind the insulation, protecting the air barrier and associated seals from outdoor temperature swings. The cavity must be well drained to the outside in order to remove any water that does penetrate. This is essentially the approach being used in a brick veneer wall when a true air barrier is incorporated into the backup wall.

While the pressure-equalized rain screen approach appears to be simple, its application requires careful design and consideration of several important issues.³ When applying this approach in large buildings, one must partition the pressureequalization cavity over the façade of the building to prevent water transport horizontally and vertically within the cavity. This is because the exterior air pressures on the façade of the building vary significantly, with larger variations in tall and wider buildings. Also, projecting elements such as mullions and column covers may have air pressure differences across them. The design of these systems sometimes suffer from a lack of recognition of the need for a continuous and structurally adequate air barrier system. The design and installation of adequate flashing within the cavity is essential to remove any water that does penetrate the façade.

Brick Veneer

Given that even the best brick veneer will leak water, a drained cavity wall approach is necessary in these systems. This is commonly built with a steel stud backup wall (3). As with all wall systems, water is kept off the façade with well designed drips at copings, sills, and elsewhere. Water that does penetrate the veneer is directed back outside by properly designed and installed flashing at all required locations. A continuous air barrier is installed behind the cavity insulation to control air leakage and to make pressure equalization of the cavity possible. The pressures acting on the exterior of the façade and within the cavity are equalized through vents in the veneer at weepholes. The critical elements to achieving pressure equalization in this system are a continuous and tight air barrier, adequate flashing and weepholes, a wide enough cavity, and keeping the cavity and weepholes clear of mortar droppings. Brick veneer walls are also commonly built with masonry backup (4). This approach and the critical design elements are similar to the steel stud backup system.

Precast Concrete Panels

Because uncracked precast concrete panels are watertight, the design and construction of the panel

joints are critical to the control of rain penetration in these walls. The design of panel joints can employ one-stage, two-stage, and pressure-equalized designs. In the so-called face-seal approach (5a), a single line of defense is employed against both rain penetration and air leakage.⁴ Although this approach has low first costs, the sealant is fully exposed to the degrading effects of sunlight, ultraviolet radiation, water, and temperature cycling. Over time, the performance of these sealants will decrease, increasing maintenance costs.

In a two-stage joint (5b), the outer rain seal serves to control water leakage due to kinetic energy. Any rainwater that does penetrate the rain barrier drains to the outside. The inner air seal is in a less severe environment, being protected from water and ultraviolet radiation, easing the material requirements on the sealant.⁴

A two-stage joint can be designed as a pressureequalized rain screen joint (5c) to further improve performance.⁵ In this approach, vents are purposely provided in the rain seal to achieve pressure equalization in a chamber between the rain and air seals. The joints are sloped downward to control gravity driven leakage and are wide enough to control capillary action. The joints are also equipped with baffles to control water leakage from kinetic energy.

The pressure-equalized rain screen approach can also be applied to whole wall systems by incorporating a cavity behind the façade (6). The panel joints are opened to pressurize the cavity and are sloped downward to control gravity-driven rain penetration. The cavity is equipped with flashing at appropriate locations to provide drainage. An air barrier is installed behind the insulation, with the airtightness of this element being critical to the performance of the system.⁴



5a PRECAST WALL PANEL WITH ONE-STAGE JOINTS

AIR SEAL WATER SEAL WATER SEAL

5b PRECAST WALL PANEL WITH TWO-STAGE JOINTS



5c TWO-STAGE PRESSURE-EQUALIZED JOINTS







(continued from previous page) very severe material requirements on the sealant and the technique of the sealant installer. For these reasons it is very difficult some would say impossible - to achieve long-term success with the face-seal approach without significant maintenance efforts. Any gaps or holes that arise over time, or occur at the time of installation, will leak water since no effort is made to control the forces transporting water across the façade. The first costs may be lower than in other approaches, but the costs to maintain performance can be high.

Controlling the forces that cause rain penetration involves designing and constructing joints and other envelope elements to deal with each of the four mechanisms referred to above.13 Gravity is controlled by sloping all openings to the outside so that water runs out of instead of into the envelope. This is essentially the approach taken with flashing and weepholes in masonry construction and the use of sloping joint designs in precast concrete panels. Capillary action is generally more of a problem in masonry systems than in other systems and can be controlled by obtaining a good bond at the unit-mortar interface. To control capillary action, intentional openings should be wide, at least 10 mm (3/,"). Rain penetration due to kinetic energy can be controlled by shielding openings with cover battens, splines, and internal baffles. Air pressures across the envelope can be controlled by designing openings into the facade such that the cavity behind the facade is equalized to the outside surface pressure. The so-called pressure-equalized rain screen approach has been advocated for many years¹⁵ and is used in different forms in many wall systems.

There are essentially three approaches to water leakage control – face-seal, two-stage seal, and the pressure-equalized rain screen. The first two approaches attempt to seal the façade to rain penetration and air leakage, while the third approach attempts to control the forces of rain penetration, including the elimination of air pressure differences across the joint.

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8 COMPONENTS OF EIF SYSTEM CONSTRUCTION



9a,9b JOINTS IN EIF SYSTEM



10a, 10b THERMAL DEFECT IN EIF SYSTEM AT PARAPET

Curtain Wall Mullions

Pressure equalization is also applicable to mullions in glass and metal curtain walls and other panel systems (7).⁶ As in all pressure equalized systems, the inner air seal is critical to performance.

Exterior Insulation Finish Systems (EIFS)

EIF systems employ the face-seal approach to leakage control in which the exterior face of the envelope is sealed to prevent both air leakage and rain penetration (8). Moisture tightness is very important for EIF systems to prevent the degradation of system components and to protect the wall's integrity. Water may enter the system at leaks in panel joints, at locations where delamination has occurred, and at voids in the finish coat when exposed to moisture for extended periods of time. The latter problem can occur at joints that do not drain well or at other façade articulations. It is important to design roof edges, window sills and other articulations to shed water away from the building, rather than continuously testing the watertightness of the building skin. The control of water vapor diffusion requires a vapor retarder, specifically designed for the climate and the wall insulation level. In cold climates, this vapor retarder must be placed inside of the insulation and must have a water vapor permeance sufficiently below that of the exterior finish. In hot climates the exterior finish can serve as vapor retarder, providing it has a sufficiently low permeance. However, it is crucial that the face sealing is continuous and durable to prevent hot, humid air from migrating into the envelope and condensing on cold elements. It is also important in hot climates that extreme care be exercised if a highly vapor impermeable interior finish (vinyl wallcovering, for example) is used, as it may be less permeable than the outer face, resulting in condensation behind the interior finish. If such an interior finish is employed or anticipated, another vapor retarder may be needed within the envelope. This additional vapor retarder should be installed outside of an additional layer of insulation.

Sealant Failure Due to Delamination. It is common practice to install sealants in panel joints for air and water tightness, with the sealant applied to the finish coat. However, when the finish coat is exposed to water for an extended length of time, it will soften. The potential then exists for delamination, in which the finish coat pulls away from the system (9a). Such delamination breaks the air and water seal at the joint. Rather than sealing to the finish coat, investigators Williams and Williams suggest stopping the finish coat at the panel edge, wrapping the base coat and reinforcing mesh around the insulation board, and applying the sealant to the base coat.7 It is also recommended that low modulus sealants be employed since they will apply less stress to the base coat bond.

Thermal Bridges at Joint. Because the wall insulation is outside of the structural frame, EIF systems have the potential of reducing thermal bridging of the building envelope. However, the insulation system continuity can break down at uninsulated pan-

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el joints. This can easily be remedied with the addition of insulation behind the panel seal (9b).

Roof Parapets. Roof parapets are commonly designed with inherent thermal defects that can easily be avoided. In a typical unacceptable case (10a), insulation is installed between the studs up to the roof insulation, but the thermal bridging caused by the studs increases heat transfer and cools the studs below the roof deck. In addition to the energy loss, in heating climates this situation can damage the drywall due to the condensation that forms on the cold studs. Also, the discontinuity in the air barrier at the roof line will allow airflow from the building interior up the stud space and out the top of the parapet, further aggravating the energy loss and the potential for condensation. In the alternate detail (10b), rigid insulation is added to the roof side and top of the parapet. The base flashing is used as an air barrier and must be capable of withstanding the high wind pressures at the top of the parapet. This air barrier is sealed to the EIFS on the outer façade, run under the metal cap flashing, and sealed to the roof membrane.

Roof Wall Intersections

The intersection of the roof and the wall is a common site for discontinuities in the thermal insulation and air barrier systems. The key issue for controlling air leakage is sealing the wall air barrier to the roofing membrane, and doing so in a manner that will accommodate the differential movement that generally occurs at this junction. To control condensation at this junction, the vapor retarder needs to be kept warm by a continuous layer of thermal insulation. Continuity of the thermal insulation system also serves to control heat loss at this location.

Air Leakage at Roof Edge. The first two examples (11a and 11b) are roof/wall intersections in masonry wall systems, although they relate to issues in other wall systems as well. These details concentrate on air sealing issues and do not include thermal insulation. The first example (11a) shows a wall/roof connection consisting of metal edging extending from outside of the masonry wall over wood plates and attached to the roof membrane. Air leaks under the metal edging and between the wood plates, and can then flow under the roof membrane and into the roof insulation and the building interior.⁸ The fixed detail employs a vinyl membrane on the inside of the metal edging that is sealed to the roof membrane and the outside of the masonry wall. The sealant between the metal cap and the masonry wall must be able to accommodate differential movement at this location.8

Air Leakage at Roof Overhangs. Air leakage also occurs in common construction of steel roof decks with overhangs (12a). Air leaks into the overhang through the bottom and outer edge. This air then passes over the top of the outside wall and into the roof insulation. Air is also able to move past the building wall above the deck since the deck flutes may at best be only loosely stuffed with glass fiber insulation, which is not an adequate air seal. The suggested fix (12b) is to provide seals where the



11a, 11b AIR LEAKAGE AT ROOF EDGE



12a, 12b AIR LEAKAGE AT ROOF OVERHANG



13 MASONRY WALL/ROOF EDGE WITH STEEL FRAME





15a, 15b HEAVY STRUCTURAL SUPPORT



16a, 16b LIGHT STRUCTURAL SUPPORT



17a, 17b ROOF EXPANSION JOINT

roof deck passes over the top of the outside wall, in this case using foam insulation. This foam insulation seal should be in the same plane as the wall insulation. The top of the deck ribs should also be filled or sheathed to provide a flush surface for cementing the roof insulation.⁸

Masonry Wall/Roof Edge with Steel Frame. In this case (13),⁹ the steel beam is in the plane of the masonry backup. A gap is provided between the top of the backup and the spandrel beam so that the beam can deflect freely without transferring any loads to the wall. The steel beam is faced with dry-wall and a continuous strip of a flexible membrane is installed along the edge of the deck, sealing the drywall to the roof vapor retarder. Another strip of membrane is installed over the drywall and seals the gap at the top of the backup wall.

Metal Stud Wall/Roof Edge with Steel Frame. In this case (14), the exterior gypsum sheathing serves as the air barrier, running past the spandrel beam. Flexible membranes are used to seal the air barrier at the top of the stud wall. The wall air barrier is sealed to the roof membrane to prevent air leakage. Shortened studs are used to allow deflection of the spandrel beam.¹⁰

Roof Penetrations

The continuity of the roof vapor retarder, thermal insulation, and roofing membrane are inevitably violated by various penetrations including equipment supports and drains. These penetrations can be the sites of both air and water leakage leading to a variety of problems, including thermal bridging, air leakage, condensation, and wetted insulation. Penetrations need to be carefully designed and constructed with proper flashing, seals, and thermal insulation. Flashing and sealant details for a variety of penetrations are contained in the NRCA manual.¹¹ The examples below address primarily the continuity of the thermal insulation system.

The ORNL *Catalog of Thermal Bridges*¹² identifies three common penetration designs that lead to thermal bridging and contains improved alternate design details. The first thermal bridge is at the penetration of the roof by a steel railing, which interrupts the thermal insulation, leading to increased heat loss and potential for condensation. The alternate design employs a glass fiber for steel in the railing and its connections to the deck.

The second common faulty design is an equipment support consisting of a column that extends through the insulated roof deck (15a). In the alternative design (15b), insulation is attached to the outside of the columns to reduce the heat transfer and decrease the condensation potential.

A faulty design for supporting light equipment uses a steel plate mounted on a steel pipe (16a). This acts as a thermal bridge and increases the condensation potential. In the alternative design (16b), the outside of the pipe is insulated to reduce the heat transfer.

Another thermal bridge commonly occurs at roof expansion joints (17a). In the base case, the concrete block curbs on either side of the joint are

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"The guidelines are not intended to direct the designer to choose a particular design or system, but rather to provide information on achieving good thermal performance for the design they have already chosen."

uninsulated. This is also a common situation in parapets, mechanical equipment curbs, and various other roof penetrations. In the alternate detail (17b), insulation is installed completely around the curbs, eliminating the thermal bridging except at the required fasteners.

Conclusion

The foregoing discussions and details represent the spirit and the approach of the new GSA building envelope design guidelines. The guidelines are founded on the literature of building science and diagnoses of common defects in envelope detailing, particularly as regards air barriers, vapor retarders, and insulation. All of these are cited in the manual, a sampling of which - corresponding to the excerpts presented here - are listed below. The guidelines themselves have been reviewed by an extensive group of individuals representing owners, code officials, designers, engineers, building failures investigators, researchers, maufacturers, trade association technical staff, utility companies, and many others. In addition to their intended end use by GSA and the architects it hires, the guidelines should be of educational value to all practicing professionals. Andrew K. Persily, Ph.D.

The author is a mechanical engineer with the Building and Fire Research Laboratory of the National Institute of Standards and Technology in Gaithersburg, Maryland. His research interests have focused on building air infiltration measurement and control, ventilation, and indoor air quality.

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Contents of the Guidelines

The guidelines are organized in several sections. The principles section provides background information on thermal envelope performance. The design section specifically addresses design features essential to thermal envelope integrity. The section on systems describes a variety of constructions and contains examples of poor designs with inherent thermal defects. The contents are as follows:

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1.1 Description of Guidelines 1.2 Background

- 2.0 Basics
 - 2.1 Building Envelope
 - Performance
 - 2.2 Thermal Envelope Performance
 - 2.3 Thermal Envelope Defects
 - 2.4 Design and Construction
- Process
- 3.0 Design
 - 3.1 Air Barriers
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 - 3.4 Rain Penetration Control
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 - 4.1 Glass and Metal Curtain Walls
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Technics Topics Custom Lighting Fixture Design

Harvey Bryan explains what a designer needs to know about the design and fabrication of custom lighting fixtures.

Tech Notes

"Life Cycle Costing" and "Building Energy Analysis" are workshops to be held March 30 -April 1 in St. Louis, and April 1 -3 in Kansas City by the U.S. **Department of Energy and the National Institute of Standards** and Technology through the University of Missouri Extension. Call Wanda Eubank, Columbia campus (314) 882-3239, \$275.

Stone Flooring (09600) and Firestopping (07270) are new Spec-**GUIDES** providing background information, references, resources, definitions, selection criteria, and considerations for design and specs. Construction **Specification Institute, Alexan**dria, Virginia (703) 684-0300, 34 pp. and 25 pp., respectively.

The Building Research Journal is a new, peer-reviewed, semiannual publication of the Small

Homes Council/Building **Research Council of the** University of Illinois. The first issue contains papers on residential construction firms, innovative building systems, historic preservation, masonry productivity, mat foundations in Alabama clays, and indoor air quality. SHC-BRC, Champaign, Illinois (217) 333-1801, \$30 per year.

The Wood Reference Handbook contains chapters on wood properties, structural members, sheathing, decking, connections, structural systems, exterior and interior products, finishes, and design for fire safety. **Canadian Wood Council, Seattle,** Washington (800) 531-3122. 560 pp., \$80.

In a highly competitive environment, designers are often required to go beyond simply specifying a standard lighting fixture out of a manufacturer's catalog. The uniqueness of today's buildings is demanding that architects and/or lighting designers prepare lighting packages that will increasingly include custom-designed fixtures.

Background

The first sixty years of electric lighting were dominated by point source lamps such as the pearshaped incandescent (also referred to as the "A") bulb. The majority of fixtures that emerged during this period were either reminiscent of the gaslight fixtures they replaced or were suspended incandescents surrounded by diffusing globes. There was considerable interest in attempts to develop lamps other than the "A" bulb. Developments in the area of tubular incandescent and neon allowed designers to produce some extremely innovative lighting solutions. However, the limitations of the "A" bulb resulted in few fixtures' being both efficient distributors of light and attractive objects.

The next forty years produced tremendous advances in electric lighting with the introduction of the gaseous discharge lamp. The fluorescent, which increased efficiency by a factor of three and and lamp life by a factor of ten, quickly supplanted the incandescent in almost all applications except residential. The linear fluorescent tube generated considerable excitement within the design community that resulted in a number of handsomely designed fixtures. But fluorescent lighting design quickly became



The innovative tubular incandescent fixture was designed for the Bauhaus by Max Krajewski and fabricated in its metal shop in Dessau (1926).

standardized; by the mid-1950s questionable criteria, such as a three-fold increase in lighting levels, and concepts such as "Brightness Engineering" resulted in overly lighted and often monotonous designs. Attempts during the late 1960s to alter lighting practice did deemphasize the quantitative approach. However, it was not until the energy crisis that the industry acknowledged the need for change.

Today the lighting industry is at the forefront of innovation. Over the last decade, lamp manufacturers have introduced an impressive array of new products including low-voltage halogens, compact fluorescents, and colorimproved low-wattage high intensity discharge (HID) lamps. These new products, which allow greater design flexibility, have created a renewed atmosphere of collaboration between the designer and the fixture manufacturer.

The Design Process

Successful design and installation of custom fixtures depend on a clear definition of the lighting problem and good communication between the designer and the manufacturer. During the process of definition one should also undertake an extensive survey of manufacturers' catalogs to learn about existing products and to identify manufacturers that produce a fixture similar to the proposed custom design. The latter is particularly important, since many so-called custom fixtures are not unique designs but are modifications of existing fixtures. For example, a rectangular fixture looks very different from a cylindrical one to a designer, but if its lamps, reflectors, and ballasts are the same, the two fixtures are nearly identical products to a manufacturer.

Most jurisdictions require all electrical equipment to be labeled by a testing laboratory, such as Underwriters Laboratories (UL), that views fixture design much as manufactur-

ers do. To UL the use of approved or "listed" components and materials is much more important than the fixture's appearance. Thus, to avoid the lengthy and expensive testing and labeling process that UL requires, a designer desiring a custom fixture might want to work with a manufacturer in modifying one of its labeled products.

The designer should also seek a manufacturer who recognizes the need for custom design support and has a proven track record. Contrary to their practice in recent years, most manufacturers are now willing to provide support for custom products. Providing such services helps them develop new products, and in today's extremely competitive market, products with a high design content are successful. While some manufacturers may require a minimum fixture order before they will involve themselves with a custom fixture, most look at factors such as the designer's reputation and/or their prior experience with the designer, the type of lighting problem being addressed, and, increasingly, how the specifications and bidding are to be handled. A manufacturer will provide considerable support if it can be designated as the sole-source supplier. This is not to say that manufacturers will not involve themselves in other arrangements, but they may seek compensation for the services they perform if they cannot be guaranteed the job. It is also critical that the manufacturer be familiar with the local electrical codes and union regulations. These issues may necessitate fabrication of the fixture in a union shop.

The first step in design is for the designer and the manufacturer's technical staff to establish fixture criteria. Some of the items that must be considered are: identification of the light source; ballast and voltage requirements; housing design; shape and finish; mounting requirements; special installation requirements; and options such as emergency battery packs, fuses, radio frequency interference filters, etc. While this list is by no means exhaustive, it is important to articulate the critical requirements, since items missed cannot be considered in subsequent phases without costly redesign.

Once the criteria have been accepted the designer should begin developing the design, which should be periodically reviewed by the technical staff. The manufacturer's initial reviews will most likely be based on the staff's experience with a similar fixture; as the design evolves these reviews should become increasingly technical, concluding with a detailed computer simulation of the fixture's photometric performance. During this phase a full-scale model should also be produced. A model, built of foam core or the actual material will be extremely helpful to the designer in determining final appearance, and to the manufacturer in discerning how the fixture can best be built. At the conclusion of this phase it is important that all parties acknowledge that the proposed fixture has met the criteria by signing off on the design. In addition, the manufacturer needs to supply the designer with a submittal drawing, listing product specifications and mounting information as well as identifying any remaining questions.

The designer's role during fixture fabrication is usually limited to reviewing and approving a prototype. Such a review might require building a mock-up or installing a prototype in a space with similar characteristics. Upon completion of fabrication the manufacturer helps to ensure trouble-free installation with secure packaging and shipping, and the provision of installation and maintenance instructions.

Recent Advances

Until recently, designers have not involved themselves as much as they would have liked in custom fixture design because they were not able to convince their clients that the additional design effort was worth the cost. However, recent advances in computer technology are making significant inroads in compress-

ing design time as well as in reducing manufacturing cost. On the design side this involves the introduction of software that can perform detailed fixture analysis, particularly photometric analysis. Before such tools were available a designer would have had a prototype built, photometrically tested, and would have had to wait to days before the results were complete. Today, once the description of the lamp, reflector, louver, or lens is entered into the program, it takes only a few minutes to generate several photometric profiles of the fixture.

Advances in manufacturing include the use of computernumerical-control (CNC) machinery. Such equipment has the ability to process design information from a CAD program into a series of automated machine operations. Fixture manufacturers have found that the operations involved in the making of a lighting fixture (i.e., cutting, punching, welding of thin-gauge sheet metal) are particularly suited to the use of CNC machinery. Several manufacturers have taken the next step by making this equipment available for the fabrication of custom fixtures. This has eliminated a major element in the cost of a custom fixture, i.e., the expensive set-up time that was required before a machine could accept a new operation.

The flexibility that CNC machinery creates is beginning to blur the distinction between custom and standardized products. If this technology can truly reduce the cost of custom fixtures, it will not only create an interest in fixture design that has not been seen since the early days of electric lighting, but it will also become a model of how custom design can be extended into other areas of the building industry. **Harvey Bryan**

The author is an architect, researcher, and frequent contributor to P/A in the area of building technology. He is an associate professor at Harvard's Graduate School of Design, where he teaches a course on lighting.

[See Technics Related Products, page 120, for another case study of a custom design].



Z LIGHT, an 18W compact fluorescent sconce, stainless steel with satin opal glass, was designed by Kennedy Violich Architects for Ainsley's Architectural Series (1987).

Case Study: Kennedy Violich Architects

The new collaboration between designers and manufacturers is typified by the Boston firm Kennedy Violich Architects, who were asked to design a line of lighting fixtures in 1987 for Ainsley, a New York fixture fabricator. After careful analysis of Ainsley's existing product line and manufacturing methods. Kennedy Violich proposed a series of seven lines of lighting constructed from a set of interchangeable parts that redefined the traditional fixture elements of base, body, and shade. Traditional "architectural" materials such as stainless steel, polished stone, and acid-etched glass were juxtaposed with industrial materials such as steel tubing, perforated metals, and exposed electrical conduit and mechanical fasteners. Kennedy Violich found that the fabrication and testing of prototypes were critical in fixture design, or as Frano Violich stated, "a lighting fixture cannot be made on the drawing board; it must be constructed as soon as it has been conceived, then tested, altered, and refined." The fixtures that resulted convey a sense of experimentation that comes from the designer's esperience with materials and understanding of the manufacturing process.





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Practice

Robert Gutman suggests ways in which design values

can be integrated into the management of a firm.

Management: Emphasizing Design Values

Design quality remains at the heart of architectural practice, and design excellence is how the performance of a firm is ultimately judged. But in most architectural firms today the amount of attention practitioners give to design is diminishing. This stems from the growing influence of marketing and management in firms - the many financial and production questions that have to be considered in getting a job and executing it successfully.

Even though all the other activities that go into the modern building process are essential and must be handled expertly, only design can integrate a project. The divorce of architects from design appears to be especially noticeable in large firms. This is true at all levels. At the top, typically there are a few specialized design partners, but most of the other principals concentrate fully on the management and technical sides of the practice. Lower in the hierarchy of many large firms, down to the very bottom, work is equally specialized, but more confined. No wonder so many architects prefer working in smaller firms, where project responsibilities more often overlap.

What can be done to make design more central to the life of the firm? Some simple innovations might make a difference:

1 Rotate work assignments to include a closer involvement of more people in design.

An architectural staff today must possess specialized expertise because of the great complexity of contemporary building production. But after a point, specialization yields diminishing returns. It discourages innovation and thus reduces the morale and productivity of personnel.

A regular system of job rotation tends to be resisted by project captains. Also, not all staff can be expected to have the necessary design skills. Nevertheless, it is useful for the majority of staff in an architectural office to have a feel for the critical significance of design. The firm can classify jobs in terms of their bearing on design questions and then periodically rotate junior staff, as well as associates, to the jobs most closely related to design.

2 Sponsor regular design review sessions to which staff from other departments are encouraged to attend.

Design reviews are commonplace in many practices, but very often participation is restricted. In some firms, reviews are open only to the project team. In firms organized on departmental lines, the design staff may not invite other departments to its sessions. In some of these firms, partners have deftly intervened, leading to better work.

3 Organize the firm so that design partners have the appropriate power and influence.

If design considerations are to have weight, the designers require a considerable degree of autonomy. There is a range of methods for achieving this goal. The design partners, or partner, can be assigned the major voting control in the practice, or the firm can replace a departmental organization with "studios" in which the same individuals work together regularly on a range of projects. I have also seen an unusually perceptive managing

partner let design values govern a firm, recognizing that unless such values remained paramount, the firm would not maintain its reputation and market share.

4 Draw on the academic design culture by holding in-house seminars on design issues.

A condition that has exacerbated the divorce of design from practice is the development of an independent base for design ideas in the schools and in the media. Many practitioners resent the architects who have developed their careers by appealing to these audiences. The resentment may be understandable, but it is foolish for any architectural practice to ignore the influence of the academic culture. The ideas are very appealing to younger architects, and the failure of practitioners and firms to accommodate themselves to this new force has, in turn, become a factor in making many younger professionals dissatisfied with their work settings.

Large firms spend as much as two to three percent of their gross revenues on the continuing professional education of staff. Most of this expenditure goes for further training in the technical aspects of production and management. It would be easy to extend the programs to cover continuing education in design, design theory, and criticism. Indeed, my experience in recent years has persuaded me that continuing education of this kind may be the most effective way to integrate design values into modern architectural practice. **Robert Gutman**

The author is on the faculty of the School of Architecture at Princeton University.

Practice Management Marketing Law Computers

Practice Points

New copyright laws make it possible to protect both drawings and designs. The Guidelines Letter suggests that architects include a clear copyright notice with all proposals to provide legal recourse if designs are illicitly copied. Write for circular 41 and Info Packet 115, U.S. Copyright Office, Library of Congress, Washington, D.C. 20559.

What kinds of residential and commercial designs will best preserve urban wildlife and open space? A newsletter from the **American Planning Association** (APA), "Environment & Development" addresses new environmental policies and their effect on design and development. Annual subscriptions cost \$50: write Ken East, c/o APA, 1313 E. 60th Street, Chicago, IL 60637.

Have you designed a healthcare or educational institution recently? The University of Cincinnati is currently interviewing architects, designers, and facilities managers to compile an interactive database of effective design solutions. **Contact Wolfgang Preiser,** School of Architecture, Cincinnati, OH 45221-0016.

How does the Fair Housing Amendments Act affect the design of housing? A free illustrated booklet from the Eastern Paralyzed Veterans Association, "Adapt to a Better Design," provides a summary of the Act and suggests a design approach to the new guidelines; call (718) 803-3782 or (800) 444-0120.

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Practice



Axel F. Bang describes how a firm can develop a marketing plan

and then follow through on its goals.

Marketing: Writing and Implementing a Plan

Marketing brings to an architectural firm's strategic planning an emphasis on the client's needs – how to design, communicate, price, and deliver services from the client's point of view. This article will review fundamentals of the marketing planning process and highlight a few strategies firms might use to "get in the door" for new commissions.

The Marketing Plan

A marketing "audit" provides a beneficial snapshot of the firm as it exists today. This is done using a survey that objectively probes the thinking of the partners, associates, and clients about important questions such as: What are the firm's strengths and weaknesses? What are the opportunities and threats it faces?

Concise answers to these questions in a written summary ensure a common framework for fashioning a marketing plan. A bare-bones marketing plan should contain the following:

• Economic assessment. A synopsis of government, trade, and media reports on the economy and industry trends, as well as information on the same subject directly gathered from clients.

• Target audiences. A list of the specific market sectors a firm is best suited to work with, segmented by size and location: "Catholic life-care communities with more than 40 residents planned in Maryland, and Virginia."

• Objectives and goals. Objectives can be broad: "Increase awareness of our award-winning design." Goals should be narrower: "Attain two pharmaceutical company projects involving downsized corporate headquarters in New York."

• Work plan. Assigns specific people to attain the goals: "John T. to get recent restoration project of Woolworth Building published."

• Budget. Each goal and strategy must have an estimated budget. If a certain strategy is not affordable, find a new strategy; don't throw out the goal.

• Feedback. It can be quantitative: a periodic measurement of revenues or articles published to increase awareness. It can also be qualitative: asking new clients about the firm's responsiveness to change orders.

Implementing the Plan

Successfully implementing a marketing plan depends on the individual style and resources of the firm. New ways to expand services to existing clients should always be explored first. To "get in the door" of potential new clients, however, requires a variety of strategies and tools: · Socializing with a purpose. The partners and associates of some architectural firms are adept at turning social contacts into professional contracts. To do so, they belong to social clubs, sit on the boards of cultural institutions or corporations, join professional and trade associations, or stay in touch with university alumni. This strategy remains a preferred way to get referrals, but most firms need additional strategies.

• Direct mail. This strategy takes time to implement because new clients in new sectors have to be very carefully wooed. For example: after I winnowed a retail list to about 200 names, made four or five phone calls and sent letters and brochures to each decision maker, and attended 12 qualifying meetings in a year's time, one of the architectural firms with which I worked almost tossed out the plan – and me. But then we got a project, then several more. Patience, persistence, and enthusiasm paid off.

· Publicity. Aim at decision makers. Publicity gives third-party endorsement to an architectural firm's capabilities and is especially effective if placed in publications read by the decision makers for the types of projects a firm desires. A sizable commission for a project in the Pacific was awarded to a firm I worked with. We developed three story ideas, then called several dozen trade and general interest publications to solicit the editors' interest and point of view. The narrative was rewritten to fit the topic needs of each magazine. The results: a national engineering publication wrote a story about the project's earthquake-proofing; a national landscaping magazine wrote a story about the project's sensitive integration of native artifacts into a sculpture garden; a college alumni magazine wrote a story about the project's design partner; a weekly newspaper in the neighborhood of one of the partners wrote a story on the project; the AIA local chapter included the project in a publication on local architects abroad. The publicity reached a diverse group of influential audiences, and the reprints were used for direct mail to additional prospective clients. Differentiating your firm. There are many ways for a firm to differentiate itself - for design, for expertise in a specialty, or for efficiency in cost. A firm can also

provide "value added" services

tailored to meet the changing



needs of clients. Such services might be workshops on new technologies or a newsletter on important issues. To be successful, these "value added" services should constantly seek input from the field. Before a workshop agenda is completed, ask several existing and potential clients about their specific needs, then tailor the workshop to those needs. When producing a newsletter, solicit advice from readers about the specific topics they want to pursue. Seeking the client's point of view shows concern and provides a constant monitor of a service's relevance to a specific target audience.

• The lowly worksheet. A direct mail list, if computerized, can be coded to remind you to follow up with a lead on certain dates. A marketing log sheet can also record the specifics of each conversation with a prospect so that when you speak again, two months later, your thoughts will be impressively clear and fresh. A questionnaire can be used, as well, to call "lost clients" to find out why another firm was selected and to correct perceived flaws in presentations, proposal writing, pricing, services, design capabilities, or personnel.

A marketing plan will not eliminate risk in troubled times, but it will help a firm understand the risks it takes by focusing on the client's point of view. The process involves an audit, a plan, and implementation strategies that emphasize consistency, perseverance, feedback, and the flexibility to reshape services to meet clients' ever-changing needs. **Axel F. Bang**

The author is a marketing and public relations consultant in New York.

IF YOU THINK THE COST OF A COPPER ROOF IS SKY-HIGH, THINK AGAIN.

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<u>The myth</u>: although more elegant and functionally superior to steel, copper roofing is too expensive. <u>The reality</u>: the installed cost of a properly designed copper roof may be only 12–18% more than a painted steel roof.

Keeping costs down is a matter of design and installation. The Copper Development Associations (CDAs) in the United States and Canada can help you with both.

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For information on any aspect of architectural copper, call 1-800-CDA-DATA. Or write: Copper Development Association Inc., Box 1840, Greenwich, CT 06836-1840. In Canada, call (416) 421-0788. Or write: Canadian Copper & Brass Development Association, 10 Gateway Boulevard, Suite 375, Don Mills, Ontario M3C 3A1.



IBM Tower, Atlanta, GA Architect: John Burgee & Associates, New York, NY Roofing Contractor: Armetco Systems Inc., Irving, TX

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C. Jave Berger discusses the case law and pending

legislation related to indoor air pollution.



Law: Sick Building Syndrome

Indoor air pollution results from the presence of what are statutorily defined as "hazardous substances" or from the accumulation of unacceptable levels of various pollutants such as gases, vapors, radon, and bacteria because of inadequate ventilation or poorly maintained HVAC systems. Such pollution can also be generated by paint, tobacco smoke, asbestos fireproofing, formaldehyde insulation, fiberglass duct linings, PCBs from electrical transformers, carpet adhesives, and plasticizers in rugs. Furnishings also may "act as a wick, absorbing toxics" from other sources.

When the building occupants become ill with eye irritation, nausea and headaches, heart problems, or cancer, it is called "sick building syndrome" and provides a basis for litigation against building owners, managers, contractors, architects, HVAC installers, manufacturers, and others who have worked on the building. Certain substances are clearly toxic and have been acknowledged as such in federal, state, and local legislation. Others, such as tobacco smoke, are arguably so and have been regulated only at the local level in some areas. Asbestos, in particular, is a hazardous substance that has received a tremendous amount of attention and will continue to in the future.

Case Law

Surprisingly, only one sick building case has come to a jury trial so far, and it may have tremendous implications for the architectural and engineering communities. This one case occurred last fall in Southern California (Call v. Prudential, No. SWC 90913, Calif. Super. Ct.) and was settled one month into the trial, with the dollar amount kept secret by a confidentiality agreement. Such agreements – increasingly popular – make dissemination of information about this type of case difficult.

The most interesting aspect of the case is the suggestion that strict liability law could prevail in similar cases. The judge ruled that if the jury were to find the HVAC system in the building to be defective, then the designer and contractor of the building could be subject to liability under a strict liability theory of law. Presumably, anyone in the chain of people who designed, manufactured, and installed the HVAC system or its components, including architects, could be liable.

The case arose in 1985 when contractors were renovating the interior of one of the suites in the office building. The plaintiffs were two firms and their employees who occupied one half of the floor and shared the HVAC system. After work began, employees experienced dizziness, nausea, nosebleeds, headaches, disorientation, and respiratory problems, allegedly because toxic fumes were drifting to their side of the floor from new carpets, furniture, and paint on the other side. The problem was allegedly intensified because of leaks in the HVAC ducts. The corporations alleged that they suffered losses because of business interruptions and lack of productivity.

One solution might have been to pump fresh air in to flush out the contaminants, but the building's outside dampers were not big enough to circulate 100 percent fresh air. The HVAC system was capped so that only 10 percent outside air could be brought in. As with many such cases, the problems may have been caused by a combination of elements: tight construction of the building shell; inadequate HVAC system; untrained building managers; and the use of synthetic materials and furnishings containing volatile organic compounds.

The sick building cases are of considerable concern to the construction and design industries, because everyone involved with the building can become a party to the lawsuit and it may be brought years after the building is constructed. Indemnification clauses in contracts and insurance coverage should all be carefully reviewed before a new project is started, since they can be invoked years later.

Most sick building cases have their origin in either badly designed or badly maintained HVAC systems. Since so many people contribute to the work done on HVAC systems, there are many possible defendants in such lawsuits: designers and consultants may be liable for HVAC designs; interior designers conceivably may be sued for floor plans which do not take into account the combination of air supply and smoking areas.

Proposed Legislation

Despite all the controversy about indoor air pollution, it still remains a very unregulated area. There are no real governmental standards for conduct. However, it should be noted that certain situations may be violations of current building codes and can be handled through those agencies.

ASHRAE has issued a new

Standard 62-1989 in which it recommends that HVAC systems be designed to deliver at least 15 cubic feet per minute per person of outdoor air in mechanically ventilated buildings. The standard applies to hotel lobbies and certain retail shops. Higher minimum rates are recommended for most buildings, such as 20 cfm/p for office buildings. Although this standard is not a legal requirement, it is widely adhered to at present and may be adopted for national model and local building codes.

Currently, two indoor air quality bills have been proposed that would require any public or commercial building receiving a permit for construction or for significant renovation to have an HVAC system designed to provide a minimum of 20 cubic feet per minute of outdoor air per occupant to all occupied space and at least three times more where smoking is permitted. Exhaust air from a smoking area cannot be recycled.

This rapidly growing area of the law is fraught with tremendous potential for liability; everyone in the chain of people involved with the building may be included in a lawsuit. Everyone in this chain, accordingly, should write contracts to minimize liability or seek indemnification from others in the chain. And those affected by the air quality in buildings should be aware of the law in this area so that they too can be protected. **C. Jaye Berger**

The author is an attorney in New York City who specializes in building construction, real estate and environmental law. Ms. Berger has published a book about hazardous substances in buildings. Copyright 1992, C. Jaye Berger. All rights reserved. ractice

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Progressive Architecture 3.92

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Architect Kent Larson describes how UNIX-based systems

will bring high-quality graphics to architects' offices.



Computers: UNIX for Architects

Why do architects continue to create banal computer images when the motion picture industry creates realistic computer-generated fantasy worlds? The answer is money. George Lucas's Industrial Light and Magic spent millions of dollars on computer equipment alone to create the special effects for Terminator 2. but most architects have settled for relatively primitive and inexpensive 3D tools of PC and Macintosh systems. UNIX-based animation systems have cost from \$40,000 to over \$200,000 per station, but this is changing dramatically.

The two leaders of the UNIX workstation market, SUN Microsystems and Silicon Graphics, have introduced entrylevel color workstations that are competitive with high-end personal computers. Sophisticated UNIX-based architectural software is now priced to compete with the industry leader, AutoCAD, and affordable versions of the commercial rendering technologies will soon be available to architects. The advantages of these UNIX-based systems include: the ability to process high-quality 3D graphics at tolerable speeds, the ability to do many tasks simultaneously, improved support and reliability, and access to the best 3D software available. UNIX systems offer advanced networking capabilities, and can be added to existing networks of PCs and Macintoshes. The new systems also have the ability to run the power-hogging "MAC-like" user interfaces with menus and icons that make complex software more intuitive to non-computer

experts without sacrificing speed. A recent survey of CAD/CAM retailers predicts that over the next few years the use of Macintoshes for CAD will remain negligible, the use of DOS products will decrease sharply, and the use of UNIX products will double. If architects plan to take advantage of the potential of graphics computers in the future, they should consider the fully integrated, state-of-the-art drafting, modeling, visualization, and presentation tools available on UNIX workstations.

We can begin to imagine the kind of systems that architects will one day use by looking at high-end graphics systems. The following features exist in bits and pieces in UNIX-based CAD and commercial rendering systems, but have not been integrated into a single system.

Photorealistic rendering capabilities. Most CAD programs can produce shaded drawings using only 256 colors (called "limited color" or 8-bit color). Architects should have access to the 16.8 million colors of the "true color" (24-bit) commercial renderers, which can rival the quality of photographs.

Material synthesizers. Materials can be simulated much as musical synthesizers recreate sound. Users should be able to select a category of material (metal, wood, glass), and interactively control color, patterns, texture, grain, reflectivity, transparency, etc. Accurately simulated materials descriptions can be purchased, or firms could scan actual material samples and apply them to renderings.

Interactive renderings. Systems can quickly and interactively change materials and lighting after a rendering is completed, allowing the designer to experiment with alternative finishes without re-raytracing the image, which can take hours if the model is complex.

Lighting simulation. Lighting can be accurately simulated using the photometrics of fixtures being considered for a design. The effects of natural lighting can also be generated given the orientation, location, and time of the study.

Appropriate menus and icons. Systems are being tailored to the way architects (not programmers and "CAD Operators") think. This allows new and part-time users to have access to the tools they need, quickly and intuitively, without learning commands, even for the most sophisticated UNIX systems.

Improved visualization techniques/virtual reality. Viewing a computer model should approach the quality of perception of viewing a physical model. At the very least, a user should be able to move within a complex shaded model without waiting for each view to be generated (this is mostly a function of the capability of the workstation).

Better modeling tools for architects. The commercial animators have impressive modelers for complex curves and natural forms, but they lack basic tools for building architectural forms. CAD programs are improving in this area.

The design process is not linear, and architects cannot efficiently use incompatible software for each stage of the design process. Software will be "intelligent" enough that the deletion of a window in a three-dimensional model, for example, will be reflected automatically in the plans, elevations, and schedules. Furthermore, information and intelligence will be preserved as the project cycles through different drafting, modeling, and rendering applications.

The software companies most likely to bring together all of the best 2D and 3D tools for architects are, not unexpectedly, the same companies who have been writing commercial software for UNIX workstations: Alias Sonata, Sigma Design, IBM AES, and Intergraph. Autodesk, which has traditionally provided software on PCs, now offers a UNIX product. Pixar's Renderman is a unique product that runs in conjunction with other software packages. (See Computer Products, page 125, for more information on specific products).

There are three modeling, rendering, and animation systems used for most of the computerized special effects we see in film, TV, and advertisements: Alias Research, Wavefront Technologies, and Thompson Digital Images (TDI). But affordable pieces of this technology will soon be available for architects.

For centuries, architects have used drawings and models as their primary design tools. This new generation of 3D computer graphic technology is a powerful new tool that we are just beginning to learn how to use. It may well have profound effects on the process of creating, visualizing, and presenting architectural design. **Kent Larson**

The author is a partner with Peter L. Gluck & Partners, architects in New York. 59

Practice

<u>NEW!...THE MOST POWERFUL...MOST ACCURATE CLUB IN GOLF!</u> The CONTROLLER® HITS 30-50 YARDS LONGER, AUTOMATICALLY CORRECTS HOOKS AND SLICES ...MUST CUT STROKES — OR MONEY BACK!

Put your #3, #4 and #5 woods in the cellar. Tests show our new Controller driving iron can outhit all three by 30 to 50 yards.

And that's only half the story. The Controller automatically corrects hooks and slices! The club is so powerful, so accurate, we unconditionally guarantee it will cut 5 to 10 strokes off your score — or you owe us nothing! In fact, to prove it we'll send you one risk-free.

Test it against your #3 wood. If it doesn't give you 30 more yards (if you are a fairly good golfer), send the club back for a refund.

But it will give you 30 more yards! In fact, the Controller is so powerful many golfers use it off the tee, especially on narrow fairways.

Here is the Controller's exact distance advantage as compiled by some low-80's golfers.

CONTROLLER®	220 yards
#3 Wood	190 yards
#4 Wood	180 yards
#5 Wood	170 yards

Now test the Controller's accuracy against your 3-iron. Purposely hit a shot off the *toe* of each club and watch what happens. Your 3-iron will *hook* the ball violently—the Controller will keep it down the middle! The same is true with *heel* shots. Your 3-iron will *slice* the ball violently—the Controller will automatically keep it on course!

THE GREATEST STROKE-CUTTER IN GOLF

These scientific breakthroughs make the Controller driving iron the most powerful strokecutter in golf. We believe the club will transform the game. First of all, it obsoletes fairway woods! The Controller not only hits 30 to 50 yards farther than fairway woods, it automatically corrects hooks and slices! Here's how it works.

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Roger Pickar is the founder and president of Market Research Services, a market analysis firm that specializes in the needs of design firms. Pickar will be regularly sharing his knowledge of various market segments as part of our P/A Prospects series.

We asked Peter Morris Dixon of Design Link, New York, to query Pickar about the healthcare industry, an important market because, as Pickar points out, 40 percent of the firms in the ProFile list "Medical" among their specialties. They discussed first the healthcare market in broad terms, then how to commission and use a market analysis survey,

and finally how to talk to and win work from individual clients. Throughout, Pickar stressed the importance of tailoring a firm's services – which he feels cannot be limited to design services – to the needs of the marketplace.

P/A: Are there any broad changes in the healthcare industry which will affect its needs for design services over the coming years?

Pickar: The simplest answer I can give you is that we don't know most of what's going to be happening in the next five to ten years. There are simply too many unknowns. I'll throw out a few examples to illustrate the kinds of issues that all architects who want to be involved in healthcare design will need to keep in mind.

For example, the healthcare industry

today cannot address properly the large number of people – 30 percent of the total population – who are uninsured. But what will happen if some sort of national health insurance is introduced? One has only to look at the recent election in Pennsylvania to see that this is no longer far-fetched. Another issue is AIDS. Many urban hospitals are already being strained beyond the breaking point. If and when a cure appears, will it require a hospital stay? How will hospitals continue to afford the very expensive state-of-the-art equipment that doctors insist on specifying? How far will the inroads of non-invasive technologies extend? These technologies require quite different facilities. Will some sort of limit be set on malpractice liability? Medicare and Medicaid reimbursement are certain to decline while healthcare costs continue to increase. How this will be resolved is anybody's guess. So all we can really say for sure is that the next ten years will be chaotic.

All of these issues are basically economic issues, of course. Healthcare providers will need to figure out how to provide the best services for the least cost under rapidly changing conditions. They will be looking to their architects to give them maximum value for their planning and construction dollar and to make the most of their existing facilities. So I suppose the overarching trend that I would like to bring to the attention of all architects is that, in order to be successful in this market, they will need to think in terms of economics from the

In this first of a series of market overviews, Roger Pickar of Market Research Services discusses how architects can serve the healthcare industry.

Prospects

providers' perspective.

P/A: Are there any trends that can be discerned?

Pickar: Yes, there certainly are, and they will have definite implications for architects who are looking to do business with healthcare providers. For one

thing, there will be a lot of consolidation or "clustering." By clustering I mean providers grouping together to share a pool of people and to save money on procurement, training, and the like, including in many instances the procurement of design services.

The high costs of hospitalization are also encouraging the use of

"wellness" centers. The economic fact behind this movement is that prevention and wellness have grown economic roots as they have become actuarially sound and the insurers have seen the financial advantages of covering their services. One of the motivating forces behind this trend is the growing influence of HMOs (health maintenance organizations) and PPOs (preferred provider organizations).

Certainly, these centers, with their small budgets and most of the expense concentrated on equipment, present a very different chal-

lenge to the designer from a typical hospital facility. This is true of many types of less high-tech facilities, such as nursing homes or recuperative centers. One hos-

pice, for example, looked for a firm with more senior resort experience than hospital experience.

Another trend is specialization, motivated obviously by economies of scale. There are now approximately 68 specialties in medical facilities, and it makes sense to operate many of these independently, especially if they require specialized equipment or ambiance. This kind of provider generally looks for experience in its particular field when it looks for design firms.

P/A: What kinds of special design expertise will be most valuable for architects and firms who want to succeed in the healthcare market?

Pickar: Healthcare providers today are very, very concerned about cost containment across the board, and physical plant and the design of new or rehabilitated facilities are receiving particularly close scrutiny in this regard. This is true to such an extent that I would recommend that architects stop thinking "projects" – in fact they should stop thinking "design" – and start thinking in a very financially-oriented way. This mental exercise could be critical to their health.

Clients in the healthcare industry need a much broader range of non-design services, and the firms that will succeed will be the ones who can offer these services. Architects will have to become more sophisticated about cost estimating and cost containment, about the economics of running a healthcare institution, about financing; this



The most important characteristics healthcare clients look for when working with design professionals.

on

"Architects who want to succeed will have to start thinking in these enterprising ways. Rather than pushing architectural design services, they need to sell themselves as adaptation economists or cost containment specialists."

kind of knowledge will open the doors. Healthcare providers are looking for firms who can provide them with equipment planning, with energy audits, with five-year plans. Total quality management has become an important asset; in fact, 15 percent of clients in the healthcare industry ask for total quality management now, and look for written quality management plans from their design firms. Almost no one asked for this two or three years ago. The firms which are fluent in these services are doing very well today. The marketing of these nondesign services is the leading edge, which gets them in the door with a client, and the architectural design follows.

Architects who want to succeed will have to start thinking in these enterprising ways. Rather than pushing architectural design services, they need to sell themselves as adaptation economists or cost containment specialists. A feasibility study for a closed facility is a good way for a firm to create a project for itself – you tell a healthcare institution how they can profitably re-use an outdated building.

Architects need to sell value, not hours. As a given, architects must know how to get certificates of need, how to understand all relevant regulations, how to understand the financial implications of the

institution's marketing surveys.... In other words, architects must be less project-oriented, and must strive to provide high-end, non-design, relationship-building services.

P/A: How should an architecture firm identify and assess the market, and how can they then find specific clients who will need their services?

Pickar: The way to start is with a market analysis. It is best to have an experienced outside group if it is the first time a firm is doing such an analysis. This shouldn't be seen as a way to locate potential clients, which may be a by-product; architects need to look at it as they focus on the services they will offer in response to changes in the marketplace. I also strongly recommend annual third-party image surveys which analyze how a firm is servicing its current clients. The results of this kind of survey, taken to heart, will bring about a quantum improvement in a firm's ability to keep its clients coming back.

In terms of identifying the marketplace that will offer the best opportunities, I recommend

staying in the geographic area of the firm – and staying where the big guys aren't, because the big firms can offer the up-front feasibility and financial services I talked about as loss leaders. I recommend continually stretching a firm's geographical reach in a specialty. Even if a firm develops a specialty, such as women's clinics, which is perceived as nontechnical, there is a marketing edge, and these specialists should travel.

All architects interested in healthcare work should go to hospital and other trade-related association meetings. In fact, any architect interested in this business who doesn't belong to his state hospital association is crazy.

P/A: What does an architect do with a likely prospect turned up by the market analysis?

Pickar: The next step is to use this market analysis to create a marketing strategy and then begin researching. Call the facilities manager or the like. If you aren't sure who the decision makers are, call the hospital administrator's secretary; he or she will know. Find out the

decision makers' titles and what their responsibilities are. This is important, because the broader their responsibilities, the more you can help them.

When you call, probe, ask questions, and share helpful information. Don't sell. Tell the decision makers you need five minutes – that you have six or seven questions. Always have your questions ready in advance, and always make them open-ended and not self-serving. For example, instead of asking, "Do you have any projects?" ask, "What concerns you most about

your physical plant?" and see where they go with it. If they have a need you could solve, share some information with them on how you could address this concern. Concentrate on their needs, on how

they can help themselves, rather than on how you have helped others. Drop bits of information that indicate expertise and caring, about eco-

> nomics or regulations. Make them see that meeting you would be valuable. Ask for an interview only if they have a need, and sell only what you're best at. And don't forget to ask, "Who else do you think I should talk with?"

> One more thing about research calls: the person who makes the calls should be someone who loves to market. If the principals don't like to market, keep them out of it. It's better to have a 30-year-old architect who loves to market do it, and that person will quickly become better at it.

P/A: Do you recommend particular interview strategies?

Pickar: I recommend in the course of the presentation a strategy of setting up expectations that the competing firms won't be able to meet. Of course, with this strategy, it is an advantage to go first. The other point I stress about interviews is that a firm must address the key concerns of

each member of the selection group. Ask each person. I tell firms to have a lot of tricks, but not to use them until someone asks for them. Then you pray.

Roger Pickar is President of Market Research Services, Longwood, Florida. The firm conducts market, client, and image analyses for architects, engineers, landscape architects, and others. He has written Marketing Design Services in the '90's (AIA Press, 1991) and other books.



Healthcare clients anticipating physical plant development.

Skills that healthcare clients say

46%

45%

45%

43%

41%

40%

40%

36%

35%

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Three headquarters buildings reveal

varying approaches to defining a corporate image.



Sketch of Chiat/Day/Mojo headquarters by Frank Gehry.

The phrase "corporate image" brings to mind gray flannel suits and glass boxes. But the three corporate headquarters in this issue use architecture to develop more sophisticated images.

The headquarters for advertising agency Chiat/Day/Mojo by Frank O. Gehry & Associates advertises the creative resources for sale inside.

Odile Decq and Benoît Cornette's buildings for Banque Populaire in Rennes, France, display the client's optimistic view of technology.

Kohn Pedersen Fox's Peterborough Court in London, the British headquarters for Goldman Sachs, attempts to fit in quietly, mitigating its impact on a city that has been significantly changed by its 1980s financial boom.

Also in this issue: an Emerging Talent portfolio on Massachusetts architect Jonathan Levi, an Inquiry on hospitals, and three airport designs in Projects.

A Venice Collaboration

No ordinary team, a high-profile ad agency client

and highly respected artists join forces

with Frank O. Gehry & Associates

on an unusual office building.

340

Where else can you find a pair of four-story binoculars but in inimitable Venice, California's renowned place-like-no-other? And who else would team up with Frank Gehry and Claes Oldenburg/Coosje van Bruggen but an agency known for excellence in advertising? Jay Chiat, CEO of the highly regarded Chiat/Day/Mojo had decided to move its West Coast corporate headquarters from downtown Los Angeles to Venice, in order to enliven his staff's aesthetic exposure. Venice is

nothing if not creative; just visit the boardwalk on any given day.

Frank Gehry and colleague Greg Walsh just happened to have a piece of Venice land that needed developing. But, according to Gehry, "Greg and I aren't developers, so we didn't know what we were doing; we ended up with this piece of land because I had bought it with [somebody else], and he wanted out. We traded him some art for the land and bought him out, because we would do more with it than with the art. All we know how to do is apply for approvals, so we did that; we got approval to build a building on the site, which was a big thing. We were just going to sell it, but then Jay Chiat came along, bought it and its approvals, and asked me to design the building."

Problems were hidden in the site, however, in

On the Main Street frontage, the façade (1) comprises three ele-

ments from left to right: the north or "boat" wing, the binoculars, and the south or "trees" wing. The "boat" features a separate metal screen wall; the south wing is clad in untreated copper. N++ 100%30m 1 1 1

ADJACENT

REAR AUTO ENTRANCE

-

Q

FRONT AUTO ENTRANCE

HAMPTON DRIVE

MAIN STREET

ALLEY

"GAS COMPANY"

BUILDING

HHHH



68

SITE PLAN



Evolving from sketches like the







FIRST FLOOR PLAN

SECOND FLOOR PLAN





the form of coal-tar-polluted soil, residue of a former gas works that had operated there in the past. Initially thought to be far more toxic than it was, the soil would have to be hauled to a distant place for disposal. When the toxicity was determined to be less severe, a dumping site closer to Venice was allowed. Less dangerous though it was, the soil still caused Gehry concern, since he remembers his own physical discomfort when in the presence of its emissions. To their distinct credit, the former owners agreed to cover the cost of removal operations. All of this took time, time the agency didn't have - their lease expiration was due, they had to move, and some employees had already moved west in anticipation - so Gehry was asked to design a temporary headquarters. This he did, in a leased warehouse across the street from the troubled site, within 90 days' time (page 140).

Following the remedial site work, construction began on the permanent building. Height regulations made it economically necessary for the footprint of the new building to fill the site to the property lines, and this meant either an L-shaped building or several pieces. Gehry chose the latter, in keeping with his predilection for compositions of disparate pieces. He comments, "Especially on a street in Venice, where there is no context, I was trying to start a street standard, something that I hoped would set a scale; I knew some of the buildings that were being planned were sort of faceless and endless, with no relief. I was trying to create a sense of streetscape, hoping other people would do the same." Having elected to make the facility out of three pieces, the architects made the





The main conference room (5), which is off the connector wing behind the binoculars, has views of Main Street through them. From the ceiling hangs a piece by Gehry, made of basket-weave wood strips in a manner similar to the new line of furniture he and Knoll have been developing (see p. 116). A separate curved metal screen wall on the "boat" wing (6) forms a sunscreen on the west side, and incorporates balconies and stairs (7) for optional interfloor access.

center piece, at the corner of the two legs of the "L," the entry segment. The north wing became known as the "boat," and the long south wing, at least the west end of it, was dubbed the "trees," both for fairly obvious reasons. The back end of the south wing came to be known as the "box."

After spending some time refining the "boat," and the "trees," Gehry admits that the crucial entry was undefined at the time of an interim meeting with Jay Chiat. When Chiat asked him about the center segment, he had to admit that it wasn't yet solved. Chiat, described respectfully by Gehry as demanding at times, wouldn't let go of the entrance problem. When pushed, Gehry looked around for an object to place on the model to indicate some direction. Previous to this, there had been discussions of having artists involved in the building. An earlier endeavor for Venice (Italy) by Claes Oldenburg had produced a maquette of a pair of binoculars, which Gehry happened to have in his office. Not intending to propose that exact thing, he placed it on the model as an example. It was even the right scale. Chiat liked it. Gehry wasn't at all sure that Oldenburg would go along with the idea, but he asked anyway, while pointing out that the design needn't be the binoculars. Oldenburg was not opposed to the possibility, and he and Coosje van Bruggen visited Gehry and Venice, and agreed to do the binoculars.

Both the screen wall of the "boat" and the "trees" of the south wing act as sunshading devices, but there the commonality ends. (Gehry admits that the binoculars alone do not provide adequate shading for the main conference room

behind them.) Balconies and linking stairs behind the "boat" screen wall allow access between floors in most California weather, and this is seen as a way to give the essentially cut-off wing more of a connection to the other wing and the ground. Gehry likens the abstraction of the "trees" to the timber columns he used at Rebecca's restaurant (P/A, October 1986, p. 85) and there is obvious precedent, as well, at the top of 360 Newbury Street in Boston, done by Gehry and Schwartz/ Silver (P/A, February 1989, p. 68). The cladding of the steel tube "trees" and the façade plates on the Main Street end of the south wing are of copper that is being left to weather naturally, giving the current but temporary look of rusting steel. Gehry does not favor artificially aging the metal; he says it looks like "makeup." He estimates it may take 10 years for the copper to attain a green patina. Combined with the binoculars, the three elements on Main Street do achieve the desired degree of disparity.

As for the binoculars, Gehry says that Oldenburg/van Bruggen did a considerable amount of refinement on the original design, making it "... much more finely detailed, more sensuous." The structure of the binoculars is of steel tubing clad in three coats of portland cement with reinforcing mesh and acrylic admixtures, painted in elastomeric paint. Both of its barrels, off the secondfloor main conference room, contain a small conference room, each capped with a skylight oculus. Gehry notes, "One of the hardest parts was figuring out how to use those spaces; but I don't know how, or if, they are using them." All told, there are


Project: Chiat/Day/Mojo Offices, Venice, California.

Architects: Frank O. Gehry & Associates, Santa Monica (Frank O. Gehry, principal/design; David Denton, principal/management; C. Gregory Walsh, project designer; Craig Webb and Clive Wilkinson, project architects; Victoria Jenkins, Alex Meconi, Robert Hale, Perry Blake, Alan Au, Anne Greenwald, Gerhard Auernhammer, and Thomas Duley, project team).

Associated Architects: Leidenfrost/ Horowitz & Associates, Glendale. Sculpture: Claes Oldenburg and Coosje van Bruggen. Client: Chiat/Day/Mojo. Site: ap-

proximately 40,000 square feet, flat, fronting on Main Street.

Program: open offices for approximately 165 people, with furnished interiors for one and one-half of the floors; conference rooms (2 large, 5 medium, and 7 small), a total of 77,719 square feet (excluding parking); and three levels of underground parking for 300 cars (101,307 gross square feet).

Structural system: reinforced cast-inplace concrete, except steel frame for "trees," binoculars, and "boat wing." Major materials: (exterior) copper panels, smooth coat plaster with elastomeric paint, painted galvanized sheet metal panels; brick masonry, portland cement plaster with acrylic finish; (interior) vertical grain Douglas fir veneer, Douglas fir plywood, copper panels, granite, tree trunks, brick, wallpaper, Minnesota Stone, and carpet (see Building Materials, p. 134).

Mechanical system: electric heating coil with single-duct VAV terminal box, perimeter heating; single-zone VAV rooftop package air-conditioning unit including economizer with 100 percent outside air capability. Consultants: Wong, Hobach & Lau. structural; Kim, Casey & Harase, Inc., mechanical; Rogoway/Borkovetz Associates, civil; International Parking Design, parking; Cibola, audio-visual; Teubner & Brown, project management consultant. **Construction managers:** Lehrer McGovern Bovis. Costs: \$14.75 million (including tenant improvements).

Photos: Grant Mudford.

From the upper level (8) the main circulation paths overlook work spaces below, and a convenience stair clad in copper (center) connects the two. Skylighted doubleheight work areas (9) feature tall uplight towers and the typical plywood workstations.



14 conference spaces in the facility, 2 large, 5 medium-sized, 7 small, to handle almost any size meeting – a necessary part of agency life.

For the rest of the interiors, the charge was to create equal working areas for all members of the organization, in an open office layout. Building height regulations also controlled vertical floor-tofloor dimensions. In order to get three working floors in within the Coastal Commission's 30-foot height limit, floor-to-floor heights could be only 10 feet. This constraint dictated a flat plate concrete construction and made coordination with mechanical and electrical trades critical. Exposed concrete was accepted as the ceiling surface in many areas. Therefore, the sense of scale was made to feel more generous by the introduction of light wells and skylighted double-height work areas on the windowless north and south sides of central work and conference spaces in the south wing. (These areas are windowless because of an adjoining building on the south and the proximity of property lines on the north.)

The plywood work stations, two-story uplight sconces, and cabinets are very clean and simple – both in massing and detail – almost Spartan; custom millwork abounds, but it is low key and utilitarian. At the base of the tall sconce structures, cabinets form an inverted "T" for various storage functions; the body of the sconces also functions as storage shelving at the lower levels, and houses assorted wallwasher and incandescent fixtures above.

Douglas fir paneling lines the main reception area as well as other circulation areas like the brick connector link behind the binoculars. The secondfloor reception area walls, ceiling, and soffits are accented with cladding of a variety of different wallpapers. The enclosure for the convenience stair in the south wing is of shiny copper and is lined with Douglas fir.

The main spaces, as Gehry remarks, are delightful to be in, yet they elude attempts to capture their aura in photographs. Amenities like views between floors and the light quality introduced by the skylights are hard images to capture in any satisfactory way. But Gehry is pleased that the interiors feel better than their images.

While this is a building for a very savvy client, in an area with a population ranging from sophisticate to beach bum, the facility has had to walk the line a bit. While it is anything but a shy presence on Main Street, it is definitely not the architect's most extroverted work. But for an agency that prides itself on the quality of the images it creates for others, aggressive overstatement would probably be inappropriate. Gehry and Chiat have come to a solution that seems to suit, emerging with mutual respect and a quality environment for creativity. Jim Murphy



Emerging Talent: Jonathan Levi

Two projects by the Brookline, Massachusetts, architect

display invention in siting and detail.

Jonathan Levi's work might not seem groundbreaking at first glance. His palette is conventional wood construction, and the two commissions shown here address conventional parts of our landscape: the exurban tract development and the suburban condominium complex. But Levi, who teaches at the Harvard Graduate School of Design and practices in Brookline, Massachusetts, has approached both his palette and his programs with a questioning eye and inventive ideas.

Trained at the Yale School of Architecture, Levi worked for Hammond Beeby & Babka in Chicago for three years before returning to his native Boston. Although he uses familiar New England forms in his residential work, he took with him little of Thomas Beeby's interest in applied ornament. "Architecture too often defines itself by increased superficial labor," Levi says, preferring in his own work to lavish attention on subtle details that dignify simple construction.



A case in point is his treatment of wood cladding. Levi, who says he "hates clapboard," details his cedar-board walls with mitered corners or with quarter-round corner moldings. His goal is to emphasize the volume of his buildings, not the planar qualities of the walls; he feels that that effect is spoiled by the protruding trim piece that clapboard requires. He also designs his concrete foundations to extend slightly beyond the wall, so that the buildings are "firmly rooted to the land."

The two projects shown on these pages demonstrate the suitability of Levi's approach to two programs that do not often enough receive the attention of good architects. They also display his novel approach to siting under difficult circumstances. At Auburn Court in Newton, Massachusetts, Levi arranged condominium units to avoid the impersonal appearance of repetition - although the plans of the units are based on repeated modules. By varying the configuration of modules and placing entrances on different facades, he gave each unit an individual character. For Skyline Road, a 16-lot tract development in Sutton, Massachusetts, he aimed to solve a nearly opposite problem: that of the lonely tract house and its lack of dialogue with its neighbors. There, his plan called for grouping pairs of houses and their detached garages along lot lines to suggest a kind of village.

Levi's current work includes some large custom houses and his own house, a six-level, towerlike structure under construction in Brookline. For these projects, he is making further refinements to his vocabulary. To free his façades from showing nails, the cedar boards he has been using are to be supplanted by 16-inch-wide plywood boards with hidden fasteners, which are being made in lengths of up to 40 feet by a Washington company. He has also set up a shop to build custom wood-and-steel windows for his own house and for another commission. Levi's ongoing design evolution is a slow and deliberate process, one that will continue to reward close inspection. Mark Alden Branch

i's Skyline Road houses (1) use emon materials to tie together ses and garages on bare, ³/4e lots. In his Auburn Court dominiums (2, seen from the t), he disguises the repetitives of the units with trellises, bay dows, and rotations in plan. to connecting pieces (right in to, with birdhouse/cupola) e slightly different window and her details.



Auburn Court, Newton, Massachusetts

The site for this six-unit condominium project is a 24,000square-foot lot occupied by a former church rectory. The lot is part of an area that became unattractive for single-family houses in this former railroad suburb after the Massachusetts Turnpike was built on the rail right-of way half a block away.

Levi's charge was to turn the existing rectory, an Italianate structure from the 1830s, into two condominium units, and to build four more on the site. He sited the new units around a courtyard, allowing the complex to turn its back on the turnpike noise. But instead of turning all the unit entrances to face the courtyard, he distributed them on different façades, so that each entry is "uniquely associated with a particular feature of the building." The units thus retain their own identities, claiming for themselves different areas of the small site.

The experiential variety in the small complex belies the

Emerging Talent: Jonathan Levi

structural and plan repetition among the units. The plan of each is a 20' x 30' rectangle divided into two modules and reattached in different ways. One module contains the living room below and the master bedroom above; the other contains the kitchen, dining room, stairs, bathroom, and second bedroom. While the latter module has conventional joists between floors, Levi used an exposed beam and decking system for the living room/master bedroom module, where concealed plumbing and wiring were not required. In the two three-bedroom units, the extra bedroom is accounted for by using the second floor of the arched "connector" pieces that occur at the entrances to the complex.

Levi chose not to use the vocabulary of the rectory on the new construction, fearing that more of the same would look too "institutional." Instead, his simply detailed elevations, subtly finished with a bleaching stain, defer to the more ornate rectory; the only specific link to the old is the pale yellow trim color around the windows.











SITE PLAN/FIRST FLOOR PLAN

Auburn Court is built around a former church rectory (3, upper right in plan). The board siding (4) suggests cut stone, part of Levi's effort to emphasize volumetric qualities over planar ones. Foundations project slightly from the building wall (5) and are treated with a chemical to expose the aggregate. Living rooms (6) have fireplaces with tile panels; wood floors (7) were sealed before staining.

Project: Auburn Court, Newton, Massachusetts.

Architect: Jonathan Levi Architect, Brookline, Massachusetts.

(T. McNicholas, A. Anmahian, staff). Client: Newton Equity Partners, Inc., Cambridge, Massachusetts. Site: 24,500-sq-ft corner parcel with existing church rectory building in single- and two-family suburban neighborhood.





SECOND FLOOR PLAN

Program: conversion of rectory to two condominium apartments (one two-bedroom and one three-bedroom) with new construction of four additional units (two two-bedroom and two threebedroom).

Structural system: reinforced cast-inplace concrete foundation, light wood frame.

Major materials: cedar board siding, asphalt shingle roof, wood windows, drywall, hardwood and carpet flooring (see Building Materials, p. 134).

Mechanical system: gas-fired forced hot water fin-tube baseboard heat. Consultant: Kurt Benedict Associates, structural.

General contractor: Robert Curran and Russell Fitzgerald Contractors. Costs: approximately \$78 per sq ft for new construction, \$25 per sq ft for renovation.

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Emerging Talent: Jonathan Levi

Skyline Road Housing Sutton, Massachusetts

.

Jonathan Levi entered a territory that rarely sees an architect - tract housing - when he was commissioned to design houses for a 16-lot development in Sutton, Massachusetts. Unlike much of the wooded surrounding area, the site is cleared meadowland, a place that "needed architecture to make it special," Levi says. In developing a site plan (with existing lot lines as a given), Levi grouped pairs of houses and their detached garages along side-lot lines. His hope was to "populate the site with constellations of buildings." The site plan also called for houses on corner lots to gesture to the corner, and for gablefronted houses to terminate street axes. Only 8 of the 16 houses were built according to his plan. Other lots were sold off and developed with more conventional tract housing, making the potential success of Levi's plan impossible to evaluate.

The Levi houses that were built, however, reflect many of

the ideas informing his present

Progressive Architecture 3.92

Emerging Talent: Jonathan Levi

work. Most of the houses are clad in the 8"-wide cedar board that Levi also used on the Auburn Court project, and all have a common neutral bleaching stain. Four plans - the absolute minimum to insure variety, Levi says - were developed. He designed the 1700-square-foot center-hall Colonial - a must in this market - with discrete rooms, hoping to thus give the house a "narrative bigness." The second type, a rectangular block with an L-shaped continuous living space, was given an attached entry vestibule and a gabled façade. Here Levi flirted with allusion to Greek Revival houses, making flush pilasters by running bands of his cedar board siding vertically. The third type, a four-square block, has a hipped roof that requires no ties, thus allowing flexible "universal space" upstairs. The final type is a three-story plan with more irregular massing. Its verticality cut down on roofing and foundation expenses, making the cost of this 2100-square-foot house almost the same as the smaller Colonial.





LIVING DINING FAMILY

KITCHEN LIVING/DINING FAMILY/DINING

FIRST FLOOR PLAN, HOUSE IN PHOTO 9





FIRST FLOOR PLAN, HOUSE IN PHOTO 10

FIRST FLOOR PLAN, HOUSE IN PHOTO 8

10%3m

LOWER LEVEL PLAN, HOUSE IN PHOTO 11



SITE PLAN

N↑ ++++++ 100%30m







The site plan for Skyline Road (left) called for an undulating band of tall native grass along the street, but no deed restrictions enforced this idea. The four house types (8–11) are reversed in plan and turned at different angles to ensure variety. The three-level house (11) has its living areas on the bottom level. **Project:** Skyline Road Houses, Sutton, Massachusetts.

Architect: Jonathan Levi Architect, Brookline, Massachusetts (A. Anmahian, T. Love, staff). Client: Richard Simeone, Natick, Massachusetts.

Site: 16 contiguous $\frac{3}{4}$ -acre lots on an open meadow.

11 Program: siting of 16 speculative houses (of which eight were built)and design of four 3-bedroom house types ranging from 1600 to 2100 sq ft. Structural system: cast-in-place concrete foundations, light wood frame. Major materials: cedar board and cedar beveled siding, asphalt shingle roof, wood windows, veneer plaster over gypsum board, exposed wood decking, hardwood and carpet flooring (see Building Materials, p. 134).

Mechanical system: oil-fired forced hot water fin-tube baseboard heat. Consultant: Kurt Benedict Associates, structural.

General contractor: Franz Farrugia Builder (for Simeone Development, Inc.).

Costs: approximately \$62 per sq ft.

Wojciech Lesnikowski argues for

the structuralist ideas implicit in a headquarters complex for a French bank by Odile Decq and Benoît Cornette.

Bank Machines

The office and checks-processing facility (1) consists of two sections, one of which has a long south-facing glass wall. This 393-foot-long wall, designed in collaboration with the English engineer, Peter Rice, has butt glazing attached by suction cups to horizontal stainless steel bracing rods. Those rods, in turn, are pinned to a steel structure off of which hang rows of horizontal blinds that shade the glass (2). Part of the space behind the glass wall is devoted to office functions, but almost half of it is given over to a lobby that is defined by an aluminum-clad wall that curves in and back out of the building. A smaller office block to the rear features a fire stair set within a wedgeshaped steel frame (3). **O**dile Decq and Benoît Cornette, among other young French architects, have executed an impressive array of buildings that reaffirm the formgiving power of structuralist ideas. Theirs is an architecture of clear tectonic relationships and elegant technology. And it stands in stark contrast to much of the architecture promulgated today in the U.S., where the means of building no longer serve as a source of inspiration as they did for the great works of Modernism.

Decq and Cornette have designed two new buildings for the Banque Populaire de l'Ouest et d'Armorique in the suburbs of Rennes, a town in Brittany that has become a center of France's high-tech vanguard. Selected through a competition, the pair of buildings – one an administrative and checks-processing facility and the other, a social center for the bank's staff – make lyrical references to machine technology and are executed with refined detailing. They are, at once, evocative and structurally explicit.

The work, however, is anything but laborious; it goes far beyond technical proficiency and is as good as any of the high-tech architecture built in Europe over the past decade – a delight for the eye



as well as the mind. Ultimately, it follows the most difficult credo of architectural quality: its power rests not just with its material qualities – its mass, volume, and enclosure – but with the immaterial, the inspired use of light for which French architecture is historically famous.

Although these two buildings have conceptual and visual traits that can be traced to Deconstructionism, Decq and Cornette deny any philosophical connections with it; Deconstruction theory, which originated to a large degree in France, has had relatively little impact on French architectural practice. Decq and Cornette, like many other French architects, consider it to be too negative in nature, too nihilistic in inspiration, and above all non-architectonic. Rather than attempting to disconnect and pose contradictions, most French architects are trying to connect and harmonize, an agenda in tune with the West's creative tradition through the centuries.

Nevertheless, these buildings exude the dynamism we expect of Modern work, substantiated by a holistic approach to form, space, and structure. Decq and Cornette's efforts were boosted by a (continued on page 84)





Prouvé's Influence

The shadow of Jean Prouvé the inventor and metalworker whose shop in Nancy, France, turned out numerous prefabricated architectural components from the 1920s to the 1970s looms large in the work of Odile Decq and Benoît Cornette. That is apparent in the forms that Decq and Cornette use: the streamlined shapes drawn from ships and airplanes, the exploitation of materials such as steel and aluminum to minimize the dimension and weight of components, the conception of the building as a machine responding to climatic conditions as well as user needs. Prouvé's interest in social issues, particularly housing and low-cost public structures, also is apparent in this project, with its extensive social center for the use of employees.



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Banque Populaire de l'Ouest et d'Armorique

Prouvé design of an aluminum and steel prototype of a tropical house.

The influence of Prouvé extends even further, however, to the organization of the building process and the role of the architect in it. Prouvé was an outspoken opponent of the fragmentation of the building process, with architects, engineers, contractors, and manufacturers placed in adversarial relationships. He saw this leading to design compromises, poor quality construction, and the technical backwardness of the building industry. Prouvé liked to quote a representative of the aircraft industry, who observed that "if airplanes were produced in this way, they would not fly." Decq and Cornette likewise, have sought to overcome adversarial relationships in this project. They worked closely with the English engineer, Peter Rice, on the design, detailing, and fabrication of the brise-soleil. And they worked with manufacturers of components such as elevators and stairs to find solutions that were efficient in the use of materials and elegant in form.





The two buildings designed by Odile Decq and Benoît Cornette the office building and the social center - stand on an open suburban site and face each other across a lawn (4). An earlier computer center stands next to them (site plan left). The extent to which these two new buildings create their own context, almost in defiance of their bland surroundings, is apparent in the lobby of the office building, where the brisesoleil creates an intricate play of light and shadow on the curved aluminum wall (5).



FIRST FLOOR PLAN, OFFICE BUILDING

NKH 20%6 4





SECOND FLOOR

20%m 5





Progressive Architecture 3.92

84

The social center for the staff of the bank contains a restaurant, meeting rooms, and an office for support staff. Unlike the office building, with its delicate glassy quality, this building is more solid and sculptural, with streamlined roof forms and aluminum cladding (6). Inside, connecting the restaurant to the office wing is a glazed "spine" into which steel columns and their arched bracing intrude, emphasizing once again the machine-like character of the whole complex (7).

(continued from page 81)

client who shared their faith in Modernism. The bank management thought that connotations of optimism, energy, and enterprise should mark the bank's image; they also had the foresight to look beyond the bottom line of the budget, a worthy model for commercial clients in America.

In France, as in the U.S., most new construction takes place in the suburbs, on sites without inspiring qualities or architectural context. This project was no different. The two new structures stand on an open suburban site, adjacent to a nondescript, ten-year-old office building, devoid of any architectural cues worth following. Thus, as isolated artifacts, centered on themselves, the new buildings create their own site, forming an internal logic in an otherwise banal context. They are dynamic objects recalling ships, airplanes, and machines.

The social center, for example, has broad projecting roofs with parts that resemble components of an aircraft wing – a motif popular among high-tech French architects. Inside the social center's gallery, the exposed structure recalls the interior of a submarine or a tanker. At the same time, the cube of the office component in this building is set askew from the longer volume that houses the restaurant and meeting places, and is joined to it by a spine-like circulation gallery. Aluminum cladding throughout the composite structure completes the high-tech image.

The facing Administrative Center, in contrast, consists of two parallel volumes: a long one that terminates in a pointed, bow-like shape and a shorter one whose fire stairs act as free-standing sculpture. A glass-walled common area, a figurative bridge, links the two. The longer structure has two exceptional features: a long arcade whose glazed wall is shaded by an elegantly detailed *brise-soleil* and a concave mirrored wall that defines the interior of the entry hall.

The quality of the light in that hall is extraordinary – luminous, reflective, and filtered by the glass so that it seems to change with the course of the sun. The *brise-soleil*, in turn, animates the reflective surface of the concave wall with patterns of light and shadow. The space is a kind of cathedral of light. The construction of the translucent wall is impressively detailed: the glass surface, suspended from the cantilevered roof beams, is stabilized by suction cups attached to the struc-





ture of the *brise-soleil*. The roof, glass curtain wall, and *brise-soleil* form a tight structural system, effected by extraordinarily precise engineering and assembly. In both buildings, glass and metal prevail among the expressed structural components, integrated in a harmony of form, material, and technology that is all too rare in commercial commissions. Most of the structural components have also been customized, a practice still common in current French architecture.

This project proves that buildings of a not very prestigious or symbolic nature can be designed and executed as precisely as the equipment they house, with technology playing much more than a secondary role in the development of their form. It also proves that the competition system established in France a decade ago can yield impressive results, and shows the degree to which French clients are allowing architects to exercise their ideas in a remarkably free manner. The Banque Populaire by Odile Decq and Benoît Cornette, in short, represents a highly enviable standard of architectural performance. **Wojciech Lesnikowski**

The author is the Hatch Distinguished Professor of Architecture at the University of Kansas and a contributor to P/A. **Project:** Banque Populaire de l'Ouest et d'Armorique, Rennes, France.

Architects: Odile Decq and Benoît Cornette, Paris (Odile Decq, Benoît Cornette, Paris (Odile Decq, Benoît Cornette, François Guillaume, Maxime Fellion, Anne Kernevez, Mandana Nahid, project team; François Girardin, modelmaker). Client: Banque Populaire de l'Ouest et d'Armorique (Pierre Leseur, president; Laurent Bihan, director general; Marie-Annick Monnier, director of general services; Bruno Philip, project co-ordinator). Site: open suburban site with an existing bank building on the property.

Program: administrative center, with offices, laboratories, and checks-processing and credit card facilities; social center with staff restaurant, training center, and support offices; 300-car parking lot.

Structural system: steel framing. Major materials: aluminum panels, stainless steel cable supports, suspended glazing, tile, concrete. **Consultants:** Terrell Rooke Associes (structural), R.F.R. (structural and glazing, south wall), CIEC (mechanical, construction management), Socotec Rennes (building control). **Costs:** not available. **Photos:** S. Couturier/Archipress, except as noted.

P/A Inquiry: Hospitals Made Simple

The humane hospital presents its complexities modestly. Straightforward plans,

like the nine in the following portfolio, are fundamental to a healthy patient environment.

Illness is an unlikely, yet familiar, stimulus for metaphor: according to Susan Sontag, we wrap it in poetic interpretation, at the patient's expense. She argues that illness is an issue of physiology, not poetry; one's physical trauma and our culture's reckoning with disease have little to do with each other. Nevertheless society envelopes sickness with military analogies, as cited in *Illness as Metaphor:* "cancer cells do not simply multiply; they are 'invasive'... patients are 'bombarded' with toxic rays... there is everything but the body count."

The same syndrome could easily apply to the design of hospitals, with their armature of scientific prowess; we go to the hospital in the hope that technology will vanquish disease. But the hospital would be merely a processing plant for bodily ailments if its essence were medical machinery. Fortunately, architects and hospital professionals alike recognize that patients' emotional needs are as strong as their physiological ones, and consider both integral to the healing process.

It might be illuminating to follow Sontag's example – to discard the metaphors we attach to healthcare – and to reposition issues of medical technology behind the patients' viewpoint. Creating an environment where their stress gives way to security is primary; technical support is a means to restore health, not the source of a humane environment. From this perspective, the architect's task is twofold: to synthesize program, structure, and services into a smoothly functioning hospital, and to mold an environment that appears to be simpler than it actually is. Sontag writes that we should de-amplify illness. In their own way, hospital architects do the same: they make the whole look like *less* than the sum of its parts.

Architects experienced in the field often explain their work along these lines. Philip Monteleoni, an associate partner at Skidmore, Owings & Merrill, describes the parallel circulation routes of a large hospital as a key to understanding its nature. They segregate the diverse users of the building – staff, visitors, and patients – until the "medical moment" of their appointed convergence. Loading a common elevator with dirty laundry, patients on stretchers, and visitors is uncomfortable, not to mention unhealthy. For pragmatic and psychological reasons, patients ought not see all that the hospital comprises. New York's Bellevue Hospital, with a staff of 5000, is designed so that a patient never realizes how large the institution is, lest he or she feel like a mere statistic. Robert Douglass, formerly a consultant for healthcare architecture, says that as the size of the hospital increases, so should the simplicity of its circulation. He recommends a concourse that collects public traffic into a spine, unentangled by service routes. It simplifies wayfinding with a grandly scaled space, a rarity in today's hospitals.

The potential for great hospital architecture is rich, yet underdeveloped: the program links technology with life and death issues, the demand for new construction continues to grow steadily, and the institution has social stature. But far too many hospitals look as anemic as speculative office buildings, assemblages with labyrinthine interiors. No doubt, today's medical technology prescribes many of the planning moves in spaces for diagnostics, surgery, and trauma centers; little opportunity is allowed for architectural invention in spaces for critical care. But among well-designed hospitals, including the nine in this article, architectural rigor renders the complex simple. In the accompanying projects, we focus on the layout of nursing units, where the architect's intervention in the hospital is clearest.

Balancing Costs and Technology

As medical technology has advanced, so have its costs, with dismaying speed: we're often more ambitious than we can afford to be. Everyone continues to demand state-of-the-art health care, driven by the belief that health is too sacred to compromise. But as we develop the most advanced technology, we then struggle to find ways to pay for it. Now many ask if medicine has become too sophisticated to be affordable.

Funds for construction are a modest component of the healthcare budget, typically 8% to 12%. But borrowing the tens or hundreds of millions of dollars for building is a challenge;



SOUTH VALLEY HOSPITAL AS SEEN FROM NORTH



many hospitals have cash flow problems. Once a building campaign is under way, the requisite diagnostic technology and support services easily drive costs to hundreds of dollars per square foot (to even \$1000 in New York City). Emilio Pucillo, a Director of Engineering Services for the U.S. Public Health Service, says the money squeeze has weakened the architect's role in healthcare. Today there's barely any margin for architectural dividends, and no tolerance for budget overruns.

According to Marlene Berkoff, a principal at Kaplan McLaughlin Diaz, fiscal pressures have

One Bay Built; Two to Come

South Valley Hospital, Gilroy, California Architects: Anderson DeBartolo Pan, Tuscon, Arizona

"Hospitals are less site-specific than schools," according to Richard Anderson; the 100-bed hospital his firm designed for a town south of San Jose lends itself to most any flat California site. Because hospital planning is driven largely by technology and program, its governing issues are transferable: this community hospital (privately owned by a not-for-profit firm) illustrates some of the general issues of the building type.

Circulation flows more smoothly horizontally than vertically. Accordingly, this two-floor hospital is designed to grow broader rather than taller in two phases, eventually to accommodate 300 inpatients. An east-west visitor concourse is the armature for expansion, a spine that can accept new services with minimal impingements on established departments. The concourse is paralleled by a second hallway for staff and patients, with access to diagnostic, emergency, and critical care services. (Here there's little need to separate staff and patient circulation.) While the compact parti is clear, budget limitations eliminated an elevator bay for inpatients; they share the public elevator, a planning compromise.

The triangular nursing bay is common to hospitals of all sizes. It creates a circulation loop, like a racetrack plan, with better visibility from the nurses' stations in the center. Triangular bays are efficient: they maximize the ratio of periphery to core space, and (as the master plan indicates) can serve as peninsulas emanating from the more massive hospital. 87

nquiry: Hospitals



A Triangular Stencil

Veterans Affairs Medical Center, Houston, Texas Joint Venture Architects: 3D/International, Houston, and Stone Marraccini Patterson, San Francisco.

Veterans' hospitals are the General Motors of healthcare each serves an exceptional range of health problems. In Houston, this new 1,047-bed center provides veterans a nursing home, a psychiatric hospital, a spinal cord injury unit, dental service, and drug & alcohol centers, as well as the standard services of a tertiary care hospital. Patients often stay here for a month, with ailments both psychological and physical. Planners from Veterans Affairs and the architects concurred that a single building would serve them best; at 1.5 million square feet, it is one of the nation's largest, organized with triangular modules generated by the nursing bays. Each HVAC tower on the periphery is dedicated to a triangle of stacked floors.

Several patient groups had to be kept separate: psychiatric care, spinal cord injuries, and the nursing home each has its own entrance, as if they were autonomous entities. In general, though, the program is consolidated. Ambulatory and inpatient care for each service share the same floor to minimize the vertical travel for the staff. The consistent façade treatment is intended to accommodate changes in the program: the white bands screen interstitial floors (now rare in new hospitals) and the windows can be refitted with spandrel glass. The size and seriality of the hospital make it an imposing presence; time will tell if patients concur with the architects, and consider it a serene one, as well.



VETERANS' AFFAIRS MEDICAL CENTER, NORTH SIDE WITH MAIN ENTRANCE



SURGICAL SERVICE PLAN, FIFTH FLOOR

eroded the trust between architects and their hospital clients. "If you aren't paid a decent fee, you can't perform well," she notes. Often, hospitals don't allow architects the leeway to act intelligently. But architects are culpable, too: in the competition for a commission, some are prompted by the client to give cost estimates prematurely. The client often seizes on the lowest quote and assumes that every other estimate, no matter how much more thorough, should be equally low. Some architects are too timid to speak up for themselves: Berkoff notes that colleagues who

NURSING STATION PATIENT ALCOVE

CLINICAL OFFICES

N V 1 40'/12m

MECHANICAL

RECOVERY

88

nquiry: Hospitals



HOSPITAL IN MORA D'EBRE, EMERGENCY ENTRY WITH FRONT FACADE TO RIGHT

AERIAL VIEW SHOWING PATIENT COURTYARDS ON LEFT. TO REAR OF MULTISTORY CLINICAL BLOCK



A Hidden Row of Courtyards

Hospital, Móra d'Ebre, Tarragona, Spain Architects: José Antonio Martínez-Lapeña/Elías Torres Tur, Barcelona

At once efficient and lyrical, this hospital has a civic stature exceptional among contemporary hospitals. One of the largest buildings in a small town, it has a three-floor front that evokes the gentle Modernism of Aalto's Paimio Sanatorium. This public hospital is a hybrid building: the institutional front is complemented by a single floor of nursing units arrayed in courtyards next to an orchard.

The 100-bed inpatient sector, enclosed in unpainted brick, is oriented away from the activity in the white-brick portion of the hospital. The cellular structure of the patient rooms (each is private) creates an oasis for each of the divisions of inpatient care, from obstetrics to traumatic injuries.

Dual circulation systems separate outpatient, surgical, and staff traffic from the visitors' route to the patient rooms. A common entrance opens to a first-floor lobby, with public elevators; most guests walk to the five stairways that lead to the nursing units, up one flight. Outpatients and staff use hallways aligned on the long axis, parallel to six narrow light courts. Shaded by open shed roofs, these buffer the inpatient zone and promote natural ventilation. The long axis has stacked drop-off stations on the east side: ambulances bring patients to the emergency room on the second floor, above the delivery bay for the kitchen. Downstairs services and upstairs patient care both flow from east to west, where a small chapel flanks the hospital.

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can't convince a hospital that their demands and budgets are unrealistic put themselves at risk. The architect may execute a poorly resolved program or be forced to make changes that increase the

NAH

40/12m

SECOND FLOOR PLAN

FIRST FLOOR PLAN

budget for all the wrong reasons. Given the leeway to think expansively, architects can design spaces that yield tangible dividends. Herbert McLaughlin of Kaplan McLaughlin Diaz says that plan innovations can diminish operating costs, the bulk of a hospital's budget. Eberhard Zeidler's Mackenzie Health Services Centre in Edmonton, Canada, known for its vast



Therapeutic Street

Whitby Psychiatric Hospital, Toronto

Joint Venture Architects: Moffat Kinoshita Associates, Toronto; Crang and Boake, Toronto; Cannon Partnership, Boston

The proper balance of privacy and visibility is pivotal in psychiatric healthcare design. Patients ask for a setting that instills a sense of self-control and dignity, essential to restoring their mental well-being. Nevertheless, they must be monitored for their own safety. Barriers are essential; the challenge - carefully studied at Whitby Hospital - is to make them discreet. A replacement facility in design development, Whitby will be a hybrid hospital that joins 14 dwellings (for a total of 325 patients) to seven clinical support buildings; a 1300foot long enclosed walkway

seams them together. The parti's clarity will benefit staff and patients alike. Whitby's employees will no longer be dispersed in scattered buildings, and patients will have a safe, warm common area beyond their bedrooms, a threshold to the outside world. The dwelling units' domestic scale and imagery downplay institutional connotations, without pretenses of creating a village. Patients say that their own problems are too demanding to make a fullfledged community feasible; it would confront them with many others' problems, a prospect they find daunting.

At Whitby, an architecture predicated on observation, which was paramount in the insane asylum (its precursor), is replaced by a less hierarchical parti. Nor is it a hospital driven by technology; this is a place of refuge, buttressed by clinical support.



PROPOSED WHITBY PSYCHIATRIC HOSPITAL, FOREGROUND; EXISTING HOSPITAL BUILDINGS TO REAR



PARTIAL ENTRY (SECOND) FLOOR PLAN



PATIENT CARE UNIT ISOMETRIC

atriums, has proven more economical than its conventional counterparts. The Centre's impressive interior (comparable to shopping malls by the same firm) is a respite from Edmonton's dark winters; inpatients here request fewer analgesics than is the norm. Bruce Arneill, Chairman of the

AIA Committee on Health, observes that many hospitals overlook the strategic benefits of a master plan until they consult architects. Likewise, Berkoff considers programming the most undervalued phase of the design process: after scrutinizing functional relationships in the hospital, archi-



AERIAL VIEW OF NEW HOSPITAL; EXISTING BUILDINGS TO UPPER LEFT



SECTIONAL PERSPECTIVE THROUGH TOP FLOOR PATIENT WARD; SERVICE SPINE ABOVE

DINING POWER PLANT PATHOLOGY INTENSIVE CARE SURGERY ELEVATORS

JEE> Ģ ٦Г J H 17 Π TIT 8 H F7 J 100'/30m SECOND FLOOR PLAN 1 1 1

KITCHEN ACUTE PATIENT CARE WARD

tects can cut to core issues and make better provisions for future expansion.

The Design Prognosis

Technology, not architects, directs the course of hospital trends. Innovations in diagnostic equipment and noninvasive surgery, coupled with insurers' cost-control initiatives, render outpatient care the frontier of growth: suburban hospitals have a three to one ratio of ambulatory to inpatients. But sophisticated technology will not remedy inequities in the delivery of healthcare. In



Radial Wards

St. Mary's Hospital, Newport, Isle of Wight, England Architects: Ahrends Burton & Koralek, London

An offspring of the 1973 energy crisis, St. Mary's is designed to cut in half the energy budget of a 200-bed hospital. Built as a major expansion, it comprises an arc of cruciform buildings, each a "template" developed by the British Department of Health. A curved corridor links the new entrance with the spine of the existing building; from this angled "street" the templates fan open to the best views.

The cruciform plan of each template accommodates a variety of clinical and inpatient plans, a strategy that contrasts with the American preference for separate triangular nursing units. (Likewise, six-bed wards are popular in England, but rare here.) The templates, narrow enough for natural ventilation, enclose courtyards that are warmed by the sun's reflection on the steel cladding. HVAC spines follow the long axis of each template, sometimes within interstitial floors, and beneath the roof ridge in each of the skylighted wards. The power plant has a sophisticated heat recovery system. While it is the least visible aspect of the hospital, it yields the greatest energy savings, and could be readily applied to hospitals on cramped urban sites.

The composite massing and thoughtful landscaping (the site has a lake) render St. Mary's a popular hospital, well-liked by the community it serves. Its success is also due to the simple parti; seldom does the massing reinforce the plan so clearly. . Inquiry: Hospitals



The Atrium: More than a Lobby

Hospital for Sick Children, Toronto, Canada Architects: Zeidler Roberts Partnership, Toronto

There's little need to justify the appeal of the atrium planned for this regional hospital. Its functional dividends, however, are equally important: the atrium is both a meeting hall and a strategy for wayfinding. The first encounter for the acutely ill children referred here will be positive - the hospital will be open to them, rather than a forbidding maze of windowless corridors. Parents, often under more stress than their children, will likewise find the clarity of the atrium soothing. A central bank of elevators will bring them to stacked bridges that bisect the eight-story space and lead to the corner nursing stations and playrooms.

All of the 584 patient rooms will be single-occupancy. Because ten-day stays are typical here, private rooms will cost less than moving children five or six times as their condition changes. Each room will accommodate a parent who stays overnight; the beds are positioned for good visibility from the hallway and good sightlines to the window. The atrium offers a second "exterior"; according to Zeidler, patients find its views as desirable as those outdoors.

Patients and staff will use two elevator banks on opposite sides of the atrium; they provide inhouse access to emergency admissions, surgery, intensive care, and laboratories, all on the first three floors. The top five floors of patient rooms best illustrate the *parti*: four corridors extend from a square courtyard, whose corners serve as entry points for each ward.



HOSPITAL FOR SICK CHILDREN, MODEL



urban hospitals, where underinsured patients arrive only when their health problems become acute, the ratio of ambulatory to inpatients is often reversed; trauma centers are especially overloaded. Ironically, hospitals with a better balance of insured patients are often in competition for the same clientele, and may provide their community with more advanced machinery than it needs. Good healthcare should not be prey to marketing strategies; better coordination among hospitals is becoming imperative.

There are dividends in today's competitive hos-



COMPUTER GENERATED PERSPECTIVE WITH NEW HELIPORT



ST. LUKE'S DIAGNOSTIC TOWER; COMPUTER GENERATED VIEW FROM NORTH



4 LABOR/DELIVERY ROOM 5 WORKROOM 6 DELIVERY/OPERATING ROOM 7 SUPPORT

VISITORS LOBBY NURSING STATION

ELEVATORS

3

OBSTETRICS SERVICE, 6TH FLOOR PLAN

N ← - 20'/6m

pital marketplace. Hospitals recognize that good design attracts patients. Arneill says that hospitals promote responsive service as earnestly as their more commercial counterparts. Accustomed to the conveniences of fast food and shopping malls, Americans also expect amenities in hospitals: easy parking, attractive reception areas, good views from patient care rooms, and nursing units where the staff is visibly present.

For many, amenities are a distant second to receiving decent healthcare: Herbert Fein, an architect at Bellevue, says that in the hospital's com-



Slicing the Square

Diagnostic Tower Addition, St. Luke's Methodist Hospital, Cedar Rapids, Iowa Architects: Ellerbe Becket, Minneapolis

An annex to a 625-foot-long building, this four-floor extension of a two-floor base will be a frontispiece for St. Luke's hospital. Prompted by the client to create a signature building, Ellerbe Becket stacked the hospital's services which combine state-of-the-art technology and strong marketing power – intensive and cardiac care, physical rehabilitation, diagnostics, and obstretics – within animated façades that complement those of the existing structure.

While the client's encouragement was auspicious, the floor plate of the existing base was not; its square proportions yield an exceptionally large core with plenty of support space, but without direct sunlight. Ellerbe Becket arranged staff and visitor spaces in the core with cranks in the orthogonal plan that high-

The hospital's emphasis on service is best illustrated in the obstetrics floor plan: mothers in labor (as well as the fathers-tobe) are admitted to private rooms more domestic than institutional in design. Each has a workroom with a cart of instruments to be wheeled in when childbirth is imminent; there are delivery rooms for Caesarean sections. A "baby warmer" for the newborn is likewise brought into the room at the appointed time (use of the common nursery is optional). The west wall, cantilevered to correct problems with the column grid, makes the upper southwest faeade convex. It is one of the circumstantial events that generate an exceptionally animated exterior.

light the visitors' route.

Inquiry: Hospitals

Linear Nursing Unit

Cardiac Patient Tower, St. Luke's Medical Center, Milwaukee, Wisconsin Architects: Bobrow/Thomas & Associates, Los Angeles

Decentralized nursing units are the next frontier in hospital planning, according to Michael Bobrow and Julia Thomas. The two 48-patient units they are designing for a 14-floor tower reflect diverse hospital trends – computerized workstations with paperless patient records, crosstraining for nurses to enhance bedside care, and the growing sophistication (and shrinking size) of diagnostic and imaging instruments.

This equipment, commonly banked in a single hospital location, will be replicated for each floor; savings in labor and time will more than compensate for the capital expense. Technicians will circulate among several floors to operate the equipment, allowing a smaller number of nurses to focus on bedside care. No longer anchored to a single workstation, they will have access to computerized records from any of the desks that flank the single patient rooms. As the patients' condition fluctuates, so can the number of nurses, from one on the floor at night to one per intensive care patient.

Bobrow and Thomas observed that the support cores of triangular and rectangular "racetrack" nursing units become unwieldy when the number of patient rooms expands; their geometry inhibits changes in program. The linear plans illustrated here are more flexible and more readily expandable on their long axis. The units will comprise a sliver tower adjacent to a new lobby/galleria, part of a multiphase expansion campaign at St. Luke's.



CARDIAC PATIENT TOWER AND LOBBY/GALLERIA WITH NEW OUTPATIENT SERVICES, ISOMETRIC PERSPECTIVE



- 1 LOBBY/GALLERIA & OUTPATIENT CARE 2 CARDIAC PATIENT TOWER 3 EXISTING HOSPITAL
- 4 PARKING







munity, AIDS and tuberculosis are epidemic. Every uninsured patient in an emergency room is subsidized by others with insurance – a balance dangerously out of kilter in many cities. Rural medical care is becoming more tenuous: few physicians are willing to practice far from cities, and country hospitals



LINEAR NURSING UNIT COMPOSITE FLOOR PLAN: SCHEME A (ABOVE); SCHEME B (BELOW)

risk insolvency. Speaking for many, Berkoff finds the inequities in our access to healthcare "a disgrace.... If we mandate a minimum standard for education – a prerequisite for making contributions to society – shouldn't we have comparable guaranties for healthcare?" **Philip Arcidi**

Progressive Architecture 3.92



MILSTEIN HOSPITAL; HUDSON RIVER FAÇADE



TYPICAL PATIENT CARE FLOOR PLAN

N ~ - - - - 40'/12m



L-Shaped Nursing Unit

Milstein Hospital Building, Columbia-Presbyterian Medical Center, New York Architects: Skidmore, Owings & Merrill, New York

Inside and out, the Milstein Hospital Building carries its hefty proportions gracefully: the Hudson River façade and the plan make this massive building easy to understand. When visitors negotiate the inpatient floors, they say that the 745-bed hospital seems smaller than it is, a dividend of the outdoor views and nursing stations that modulate the straightforward plan.

The benefits for the staff are at least as important: their hospital is the first to have the L-plan nursing unit pioneered by Skidmore, Owings & Merrill. It provides more support space than the triangular and racetrack plans that are the norm, and accommodates a layered circulation plan that distinguishes patient, visitor, and staff traffic. In each 36-bed nursing unit, a pair of transverse corridors intersect near the nurse's station, where visitors can be intercepted and some patient rooms can be closely watched. Support spaces for tandem L-plan units fill the widest part of the plan. Four units bracket a central "knuckle" with twin bays; it houses three banks of dedicated elevators.

If the Milstein hospital had triangular nursing units, it would be a composite structure, with a tower on a broad pedestal for surgery and diagnostics. Instead, the quad of L-plan floors, stacked in a pair of bookend towers, forms a building that rises sheer from the ground up. It is broader than it seems, and easily accommodates surgical and diagnostic programs on the lower levels. 95

Inquiry: Hospitals

(In)visible Giant

Kohn Pedersen Fox Associates plays a sophisticated game

of hide-and-seek with an investment bank's

new headquarters in Post-Boom London.

At every instant, there is more than the eye can see, more than the ear can hear, a setting or a view waiting to be explored. Nothing is experienced by itself, but always in relation to its surroundings, the sequences of events leading up to it, the memory of past experiences. –Kevin Lynch, *The Image of the City*

The sensory perception of the city described by Lynch is an ode to the urban dweller, worker, and visitor. It is also – though often overlooked or purposefully dismissed – a perspective from which to conceive the shaping of our cities.

Long known for its artful contextualization of large-scale buildings in urban centers, Kohn Pedersen Fox Associates has simultaneously embraced London's street imagery and expanded its riches with Peterborough Court, Goldman Sachs's new headquarters. Set deep within the complex matrix of the City of London, where economic interests have recently done battle with the city's historic fabric (see Martin Pawley's essay, p. 103), Peterborough Court mirrors its environment through a series of dichotomies: the building is at once massive and innocuous, Modern and Classical, an object and an assemblage, exceedingly public and vehemently private.

While the heyday of London's Big Boom architecture was still on the rise when the project was initiated in 1987, its development and realization teetered on the precipice of the Boom gone bust. Stringent building and planning regulations – enforced through an elaborate and rather subjective system – were unofficially downgraded to guidelines during the 1980s, allowing large-scale structures to mark the cityscape. Though Peterborough Court benefited from loosened reins, it is to KPF's credit that the building respects its context to a degree rarely attained by other Boom projects.

KPF's challenge was to fit 450,000 square feet of office and trading space onto a small piece of land amid small-scale structures and irregular street configurations. Located in the heart of Fleet Street, previously the hub of London's newspaper (continued on page 100)

Peterborough Court hovers ambiguously behind Fleet Street (1); the building's massing is more clear when seen from above (2). The front elevation (3) has the greatest impact when viewed from a reestablished courtyard behind Fleet Street.











SITE PLAN

N ↑ ↓ 401/12m





PUBLIC SPACES





SECTION A-A

1 20%6m







N ↑ - - - - - - - - - - - - - - - - 100%30m



TYPICAL DEALING FLOOR



TYPICAL OFFICE FLOOR

GROUND FLOOR PLAN

100

KPF's "superimposition" of elements has produced a processional journey from street to elevator lobby. A gallery (7), lined with woodclad bays (8) and wrapped around the courtyard, deposits visitors at a semicircular reception area (10) or leads them to a cylindrical volume at the gallery's apex. Doors on the curved wall of the reception area lead to catering and postal facilities. Here, cast glass panels, designed by artist Chris Cosmos and KPF's Craig Nealy, pay homage to the building's roofscape. A reception desk table demonstrates KPF's attention to detail (11). The raised elevator lobby (9) is the final gesture in the lobby procession.

(continued from page 96)

publishing industry, the site included two landmarked street wall structures, the Daily Telegraph building and Mersey House, and the footprint of the demolished newspaper printing plant. To soften the blow, the KPF design team chose "to fragment the building" so that it was "never experienced as a whole," says William Pedersen.

While previous KPF commissions have employed Classical partis, Peterborough Court marks a turning point for the firm. It is a Modernist exploration of space and form; the parti is dictated by the rotation of two axes against one another. In plan, the building appears to have been twisted and turned into the site using a skillfully deployed shoe-horn. Project designer Craig Nealy explains the firm's decision to extract the "picturesque" qualities of Modernism, citing both its "allowance of freer formal movements" and "the superimposition of elements." KPF has not, however, entirely abandoned Classicism. Instead, the firm has enlisted an amalgam of stylistic tenets: close inspection reveals much symmetry - apparent in the patterned bays of lobby walls, for example - layered into the larger granite and steel and glass curtain wall structure.

Though Peterborough Court has appropriated a significant segment of the Thames skyline, its Fleet Street persona is barely perceptible, but for a sliver structure brought to the street wall. The building's dual personality is a result of site restrictions and the client's desire to have prestigious headquarters, while maintaining privacy. An L-shaped ground-floor "gallery" (defined by the reestablishment of a courtyard called Peterborough Court between the Daily Telegraph's rear elevation and the front elevation of the investment bank) is the main link to reception and elevators. The lush wood finishes and custom-designed lighting fixtures in the gallery, reception, and elevator lobby form a continuum with the exterior detailing. Here, rectilinear and cylindrical volumes work as transitional spaces, reflecting the pedestrian experience of Fleet Street - at once soothing and dynamic.

Perhaps buildings of this size should never be imposed upon a medievally scaled city, but Peterborough Court makes a solid case for contextual sensitivity. KPF's compression of space and its skillful use of setbacks encapsulates the rhythm of the cityscape. **Abby Bussel**



Project: Peterborough Court, London, England. Architects: Kohn Pedersen Fox Associates, New York (A. Eugene Kohn, partner in charge; William E. Pedersen, partner in charge of design; Lee Polisano, partner, project architect; James E. Outen, associate partner, project manager; Craig Benton Nealy, associate partner, project designer; Peter Tao, job captain).

Consulting Architects: EPR Architects (Stuart Louther, project

architect). Client: Goldman Sachs

International. Site: mid-block site behind (and including) two landmarked buildings on Fleet Street in the City of London.

Program: 450,000-square-feet, housing trading rooms, offices, computer rooms, corporate dining rooms, a cafeteria, and a gymnasium for 2000 employees.

Structural system: bored secant piles, fabricated and rolled-steel sections, concrete fill on metal deck with shear studs; cast-in-place concrete shear walls in core and stair towers. Major materials: panelized, thermalfinished Striegauer granite walls with insulating glass windows and thermal insulation; glass and stainless steel curtain wall.

Mechanical system: central chilled water distribution with on-floor chilled water air handling units, and perimeter fan-powered VAV boxes with hot water heating coils; 1500 KVA emergency generators; central mechanical smoke exhaust; ultraviolet radiation fueled water filters on all cooling tower systems. Consultants: Gensler & Associates, interiors; Ove Arup & Partners, structural; Trench Farrow & Partners, Emmer Hass Pfenninger, Gardiner & Theobald; Drucklufttechnik Rudolph & Fuchs GmBH, exterior walls.

General contractor: Taylor Woodrow Management Contracting, Ltd. Cost: withheld. Photos: Dennis Gilbert.

The cylindrical volume (12) is one of the most dynamic "fragments" in KPF's "assemblage" at Peterborough Court.



Progressive Architecture 3.92

Goldman Sachs Headquarters

British critic Martin Pawley explains

how London's building boom flourished through the mid-1980s and faded with decidedly

less fanfare as the decade ended.

Essay: Peterborough Court and Siblings

On the morning of July 31, 1985, Prime Minister Margaret Thatcher donned a hard hat, gave a speech, and mounted a mechanical digger to shift a bucket of rubble in the forecourt of London's Liverpool Street railway station. The occasion was the ground-breaking ceremony for 1.4 million square feet of offices at Broadgate, the first truly massive financial services development of the 1980s. In her speech Thatcher told her audience: "You have much to achieve in this great development, but you must always remember that it will be placed amidst the City architecture of Christopher Wren, Robert Adam and Inigo Jones."

When it was opened in 1991, Broadgate – having swelled to 4 million square feet with the addition of vast Late Empire structures by Skidmore, Owings & Merrill (2) in an attempt to live up to Thatcher's injunction – had made and lost a fortune. Its developers were propped up by the Reichmann Brothers, masters of Broadgate's spiritual successor, the 10-millionsquare-foot, "alternative financial city" of Canary Wharf. There, one building – Cesar Pelli's 50story One Canada Square (5) – boasts as much floor space as the 1.4 million originally conceived for Broadgate.

If Broadgate and Canary Wharf are the Alpha and Omega of the City of London property boom, there are one hundred new developments in between them (1), all outrageously large in relation to the traditional grain of the City, and a good many of them mothballed or unrented today. Starting with a whisper in 1984 and reaching a crescendo in the "Golden Year" between the deregulation of financial services and the stock market crash of 1987, the boosters of the City of London and the megalomania of the financial services industry combined to create an unprecedented delusion of grandeur.

The City of London conservation development plan was the first casualty. Bankers and property developers with the ear of the Thatcher government soon put a stop to it. London can join New York and Tokyo as one of the world's most important financial centers, they said, but only if it is entirely rebuilt with huge electronic superbanks and securities dealing rooms. It was a pistol held to the head of the City of London.

Confronted with the loss of its tax base through



big developments in neighboring boroughs (the monster, 450,000-square-foot "riverside palace" (3) by Terry Farrell over Charing Cross station in Westminster or the 10-million-square-foot Kuwaitifinanced London Bridge City development in Lambeth (P/A, June 1990, p. 23) and the threat of Canary Wharf – a development unrestricted by planning controls or taxes – the City administration saw where its duty lay.

The Thatcher government helped the City to encourage development. In 1986, it broke up the two-tier system of London government, abolishing the Greater London Council, a planning body with power over all the London boroughs. But the City had already broken the log jam in the same year by announcing permission for a Terry Farrell-designed 400,000-square-foot air rights development over London Wall (4).

Together, these measures cleared the bureaucratic jungle for a potential 100-million-squarefeet of new office space in the City. The only Conservationist restraint was a dogged struggle to keep the new offices as invisible as possible. Conservation-driven planning led to the interior of the old Billingsgate Fish Market being converted by Richard Rogers into what is still the largest dealing floor in the City and to Saint Martin's le Grand being reconverted by Fitzroy Robinson from a post office into a virtual "stealth bomber" of a bank, with 800,000 square feet of high-tech banking floor space on ten floors - half of them behind original five-story Victorian street façades. Invisible buildings like these outnumber their more prominent brethren everywhere in the City and it is into their context that KPF's Peterborough Court fits so dutifully.

Today, with an estimated ten years' absorption of prime office space vacant in the City and the West End, the invisibility of so much 1980s building is serving an ironic and unanticipated purpose: it conceals the collapse of London's financial services industry with the same adroitness as it once concealed the impact of its new "hot money" architecture. And at Peterborough Court there is a final irony: the building was opened on June 6, 1991, by Margaret Thatcher, but by then she had ceased to be Prime Minister and had already announced her retirement from political life. Martin Pawley

The author is an architectural critic living in London; he is currently Editor of World Architecture magazine.









Progressive Architecture 3.92

ssay

Selected Detail

Selected Detail

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- STEEL BEAM WITH FIREPROOFING CONCRETE ON METAL DECK 2
- CAST-IN-PLACE CHANNEL SMOKE AND FIRE STOP SINGLE DEAD LOAD ANCHOR WITH 5
- 6
- ADJACENT WIND LOAD ANCHORS SEALED INSULATING PANEL WITH EXTERIOR STAINLESS STEEL PAN AND INTERIOR GALVANIZED STEEL PAN VORK-STEL TUBE RAISED FLOOR ONE-AND-ONE-HALF-INCH-THICK STRIEGAUER
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- ORE-HAUL-INCH-IHICK STHIEGAUER GRANITE WITH THERMAL FINISH SUPALUX-5 (INTERIOR FIRE PROTECTION) EXTRUDED ALUMINUM PANEL HEAD STACK JOINT (ACCOMMODATES DIFFERENTIAL 11 12
- MOVEMENT) EXTRUDED ALUMINUM ARCHITECTURAL 13
- FEATURE
- PANE/WINDOW SEAL HORIZONTAL INTERMEDIATE MULLION SUSPENDED ACOUSTICAL CEILING 14 15
- 16
- 17 18
- SUSPENDED ACJUSTICAL CELLING POCKET FOR WINDOW BLINDS INSULATED SHADOW BOX WITH CERANIC FRIT ON THE NUMBER FOUR SURFACE PANEL/WINDOW HEAD WITH COPING THREE-MILLIMETER ALLMINUM FASCIA WITH SOUND DEAFENING CAST-IN-PLACE CONCRETE PARAPET INVERTED WATERDROCEINC 19
- 20
- 21
- 22
- 24
- CAST-IN-PLACE CONCRETE PARAPET INVERTED WATERPROOFING PRECAST CONCRETE PAVERS WATERPROOFING, COUNTER FLASHING, COPING INTERFERENCE ALUMINUM COPING AND REDUNDANT WATERPROOFING, INSULATION, AND DEAD LOAD ANCHOR ALUMINUM PIPE RAL 25
- ALUMINUM PIPE RAIL OPEN STONE JOINT WITH STAINLESS STEEL ANCHOR
 - 1 1%3m



Curtain Wall Peterborough Court London, England

In the panelized wall system designed by Rudolph & Fuchs, Germany, for KPF, granite slabs attached to the panels have open joints and an air space behind, forming a type of rainscreen. The air and water barrier occurs at the stainless steel pans behind the granite. To protect against air and water infiltration, the curtain wall is pressure-equalized, including joints, glazing seals, spandrels, and the stainless steel pans; EPDM gaskets at the panel's horizontal and vertical joints also provide a positive seal. The gaskets also allow the joints to accommodate the thermal movement, differential movement among floors, as well as other vertical, horizontal, and lateral movements. Reflective and clear insulating glass and insulation within each panel help control interior heat gain and loss. The panels are framed internally with galvanized steel tubes with a single dead load anchor attached to a horizontal yoke member between the tubes at the panels's center of gravity. The single anchor allows the panels to remain vertical in spite of interstory differential movement. One-and-one-half-inch-thick granite slabs are fixed top and bottom by stainless steel pins attached to the panels's internal frame. The aluminum extrusions that frame the majority of the panels are also attached to steel tubes.

Projects Flights of Fantasy



SHOWING TERMINAL FLANKED BY PARKING GARAGES AND TERMINATED BY A HOTEL AND OFFICE BUILDINGS.



CUTAWAY PERSPECTIVE VIEW OF FABRIC-ROOFED ATRIUM SPACE ABOVE AN ELECTRIC TRAIN LINE CONNECTING THE SATELLITE CONCOURSES.



SECTION THROUGH TERMINAL SHOWING THE CENTRAL ATRIUM FLANKED BY CHECK-IN AND BAGGAGE CLAIM, DEPARTURE AND ARRIVAL ROADWAYS, AND PARKING STRUCTURES.

100%30m

Three new airport terminals explore the expressionistic potential of this building type.

Airports are places of fantasy as much as travel, where we can imagine flying to some far-off land as we board the plane to Peoria. This fantastic aspect of flight, however, is usually suppressed in the design of airports. Most terminals attempt some form of behavior modification, uplifting us with large, light-filled spaces or calming us with soft lighting and quiet acoustics. A few recent terminals, however, have taken a decidedly Freudian turn, with animal-like forms, wave-like shapes, or broad tented expanses that are the very stuff of our collective subconscious.

Denver International Airport

The most restrained is the new terminal for the Denver International Airport, designed by C.W. Fentress J.H. Bradburn & Associates. The 1,450,000square-foot, six-level building features a vast fabric roof, 120 feet high, that spans a central 900-foot-long atrium. Below this space runs an automated train that will take passengers to a series of satellite concourses, and at one end of the space stands a cluster of hotel and office buildings.

The peaked fabric roof makes obvious reference to the profile of the nearby Rocky Mountains, and clearly recalls the world's other great tented airport: the Haj Terminal in Jeddah, Saudi Arabia. But other more exotic associations also come to mind: the connection of tents with nomadic

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Projects

travel, Arabian nights, magic carpet rides. At night, the tent will glow on its semi-arid plain, like some great bazaar.

That is an altogether appropriate image for a building type that increasingly serves as a kind of market and meeting place. (The social and economic segregation of locating such a marketplace far from the city center is another matter.) But the architects could have been more venturesome here. The fabric roof, for example, mimics the repetitive arches of masonry vaulting, shying away from the more irregular, sinuous forms possible with that technology. Also, the fixed structures, such as the hotel and office buildings, seem somewhat banal. The fantastic and the exotic potential of such an airport has, in short, been tempered perhaps too much by a conflicting desire for calmness and reassurance.

Less restrained are two new terminals, one at the Roissy Airport in Paris and the other at the new Kansai Airport in Osaka, Japan. Paul Andreu of Aéroports de Paris designed the first and developed the program and overall organization for the second, which was won in an international competition by Renzo Piano Building Workshop (P/A, Mar. 1989, p. 33), now working on design development with Ove Arup & Partners, Aéroports de Paris, Nikken Sekkei, and Japan Airport Consultants.

Roissy Airport

As in the design of the first two phases of the Roissy airport, Andreu has looked to patterns of natural growth and change spiral forms, fractal geometry, chaotic systems - to guide his design of the third phase. The project consists of two curving terminals that embrace spiraling roadways and ramps leading to a central parking lot. Ticketing and baggage areas are housed within segmented concrete shells, whose curved sections and rounded openings make the two buildings look like giant mollusks. Protruding from these shells, like tentacles, are four tapered concourses encased within curved glass and steel frames. Adjacent to the terminal will be a station for the new TGV train connecting the airport to Paris and other cities. Andreu likens the terminal,



PARTIAL MODEL OF BOIL NG SHELL-LIKE TERMINAL AND CURVED GLASS-AND-STEEL CONCOURSE WITH SPLIT-LEVEL JETWAYS.



OVERHEAD VIEW OF MODEL WITH ROISSY II ON THE LEFT, ROISSY III ON THE RIGHT, AND TGV STATION BETWEEN THEM.



200%60m

PARTIAL PLAN OF LOWER AND UPPER FLOORS AT ROISSY III SHOWING DEPARTURE AND ARRIVAL FUNCTIONS.


AFRIAL VIEW OF KANSAL AIRPORT SHOWING CENTRAL TERMINAL, TRAIN STATION, AND PARKING, WITH FLANKING CONCOURSES.



"CANYON" AT DEPARTURES LEVEL



"CANYON" AT ARRIVALS LEVEL



N UNDER CURVING ROOF

RETAIL LEVEL OVERLOOKING TARMAC

not to cretaceous creatures, but to the fractal geometries of nature, where similar branching systems occur at all scales, from the largest land masses to the smallest microbes. He conceived of the airport as a leaf on the branching transportation network of Paris, and of the ticketing halls, concourses, and split-level jetways as veins and capillaries - all of which have a similar geometrical structure. As in nature, fractal geometry becomes, here, a way of handling complexity and accommodating growth in the most compact form.

Kansai Airport

If natural geometries influenced the design of Roissy III, the physical structures of nature are recalled in the Kansai airport. With a length of 1.7 km (1.05 miles), it is the longest terminal in the world, and it stands, like some imaginary kingdom, on a 511-hectare (1,262.6-acre) artificial island far out in the bay of Osaka, Japan. The architecture of the terminal enhances that sense of fantasy. It features a large, undulating roof that curves up from the tarmac and crests above the multilevel roadways and train station, like some enormous tidal wave.

Inside the terminal, the connection between the building's structure and the skeletal structure of animals becomes more apparent. Passengers move, like Jonah in the whale, within a glass and stainless steel shell supported by a rib cage of curved steel trusses and fingerlike struts. This curved shell has several functions: it is lightweight, has seismic stability, and serves as giant air diffuser. It also effortlessly wraps the four floors of retail space and domestic and international arrivals and departures, all of which are connected via a series of bridges and escalators crossing a fourstory-high "canyon" near the front of the terminal. Long, tapered concourses, curved in section, extend from both sides of the central terminal, like the wings of a bird. An electric train eases access to the 40 gates.

These three airports may not mark a revolution in the design of such facilities. But they show some promising directions in a building type that, for too long, has not lived up to its expressive potential. **Thomas Fisher**

The Symptoms of Malaise

I usually look forward to the January issue of P/A. While I don't always like what it brings, it has never failed to provoke me with the way it stakes out a field of polemic explorations that will serve to reaffirm or modify one's beliefs. In spite of the cries of protest one hears almost every year, the P/A Awards program continues to provide strong impetus for experimental work. In looking at the past decades' awards, one cannot fail to notice the accuracy with which it has anticipated "the shape of things to come."

If I feel compelled to start by lauding P/A for its efforts and success, it is precisely because this year my sense of discomfort at the outcome of the recent Awards program in the architecture category has not abated since October, when I was a member of the jury (in the

"...we are becoming more and more like alchemists or magicians – every project becoming a private and arcane search for a secret formula for bliss, or a 'voodoo' act of magic empowerment."

urban design category). And while my first reaction was to blame the method of voting, it occurs to me now that the awards are, as usual, a reflection of a state of architecture and that this must be what bothers me so much today. Unlike other awards issues, where the "reflected" state of architecture was a reality that forced me to critically reconsider my views, this time I think we need to critically reconsider the state of architecture as reflected through the P/A Awards.

It seems to me that the architectural design awards focused mostly on "inventiveness" and "creativity" in architectural vocabulary as the qualities to be acknowledged, (and to be sure, there are some projects that in that respect are quite extraordinary) at the expense of an entire range of other concerns, a certain depth and breadth of engagement required in any real project.

If these awards truly represent the state of architecture today it would mean that we have regressed more than 20 years to a period characterized by a lack of social commitment, overconcern with personal expression, disregard for culture as a whole, absolute ignorance

"The city still exists and buildings establish relationships with it, and architects have no choice but to make those relationships positive."

of architecture's relationships to the city or other contexts, and a pathetic confusion about its own specific artistic nature as different from that of other arts. I do not believe that is the case. History does not repeat itself. The innocence so typical of the weakened architectural avant-gardes of the Post-War era has forever been lost, and any nostalgic retaking of such stands appears cynical at best, nihilist at worst. If not all the premiated projects respond to this profile, the majority seem to do so, and they represent a current widespread "malaise" in architecture which is what truly preoccupies me.

What an extraordinary reversal has taken place in architectural thinking in the last two decades! The critique of the 1970s provided intellectually profound and novel tools that helped dismantle the worn-out Modernism of the Post-War period, opening up a rich field of explorations. That attempt to reformulate the cultural and political role of architectural language in positive social terms has now been abandoned. The reversal, I assume, is a misguided reaction to the excesses of style produced by the mechanisms of advanced capitalism, and by architecture's perennial envy of other visual arts' abilities to communicate messages more quickly and effectively than the medium of building allows.

Paradoxically, the critical approach begun more than 20 years ago seems to have produced the current proliferation of "critical theories" which are intensely concerned with issues of ideology, power, and politics, but which yield its contrary: a self-indulgent architecture of misplaced "artistic" concerns, by now completely oblivious of its potential to transform the environments in which we live. By attempting to represent in drawings, models, and even buildings, what "freedom," "liberation," or "power" may "look like," we are becoming more and more like alchemists or magicians – every project becoming a private and arcane search for a secret formula for bliss, or a "voodoo" act of magic empowerment. If this time P/A is indeed anticipating "the shape of things to come," what a sad display of private dreams society may be forced to confront in an already difficult world. Worse yet, what a sad way to disengage ourselves from processes of power and to abandon our roles in the battle for responsible cultural representation.

There is an urgent need to promote explorations that will help redirect architecture onto a more "real" path, without discarding what has been gained in the last two decades. The city still exists and buildings establish relationships with it, and architects have no choice but to make those relationships positive. Local cultures demand to be heard and represented in architecture, not supplanted by individual

"The cultural task is to 'reposition' architecture in its relationship to the institutions of Power and Art, with which it now maintains lamentable rapports of ignorance and subservience."

dreams (or nightmares) of "critical" or "disobedient" buildings. Architects cannot afford to be nihilistic; they must build with the resources and for the needs of others. Change in society, through architecture, happens with the transformation of conventions, and not by "insolent" denials of them.

This redirection must be pointed out primarily by institutions such as P/A and Academia, the milieus that naturally allow reflection and speculation. The concern with language and vocabulary continues to be essential in architecture, and ought to be reproposed as a research that would allow for a positive cultural and social engagement. The cultural task is to "reposition" architecture in its relationship to the institutions of Power and Art, with which it now maintains lamentable rapports of ignorance and subservience, and which in turn produce the current retreats into nihilism and artistic delusion.

How the institution of architecture chooses to represent itself may ultimately be unimportant for a world already quite indifferent to architecture. But I still hold hopes for architecture's best artistic and social promises, and believe that trying to make such choices is a political act in itself. **Jorge Silvetti**

The author is a professor at Harvard and a principal of Machado & Silvetti Associates, a Boston architecture and urban design firm.

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Perspectives

A Mouse, an Ass, and the 39th Annual P/A Awards Jury

A mouse and an ass were returning from a long journey of varied and conflicting experiences. Unfortunately, they were undecided as to where they should return. They were at a crossroads ... and they were lost.

The mouse felt they should return home so that they could orient themselves. But the mouse was an old mouse and had lived in many places. He had lived in a field ... and later in a factory. He had lived in a barn ... and later in a belfry. So he decided to sit a while on the edge of the road and try to recall which of his many residences best constituted "home." His recollections were rich in description, enticing in their invention...but quite without purpose in the eyes of the ass.

On the contrary, the ass felt the crossroads offered the opportunity for a future. Stubborn and opinionated, he knew that one road led to a town where asses ruled. However, he was also indecisive. He began to explore each road with purpose and a program, but once out of sight of the mouse, he would return to the crossroads, reorient, replenish, and restart.

Today, the mouse and the ass can be seen at the corner of I-5 and the Via Appia... the former still talking to himself, the latter still wandering to and fro.

On rare occasions, a change in architectural style and philosophy has reflected and influenced a corollary change in society. The development of both Modern and Renaissance architectures made such contributions. More frequently, shifts in design loosely parallel social changes. And sometimes, shifts in design style have occurred only as a consequence of boredom and self-indulgence on the part of the designers. Today, at best, we find ourselves flirting with the second category. More likely, we are mired in the third, struggling for a significant role. Perhaps it is the context provided today by society, clients, and project opportunities. Perhaps it is a failure to consolidate and exploit the range of design responsibilities we have assumed during the past two decades.

For example: in 1969, adoption of the National Environmental Protection Act institutionalized a national commitment to a more catholic and gregarious process for designing our built environment an imperative repeated in various forms throughout the world. And the world turned first to architects, not to engineers, attorneys, or

"We seem preoccupied with talking to ourselves. Perhaps we should ask someone else, 'What's the point?"

scientists, for design direction in the urban environment. However, architects rarely became the stewards of that commitment. Thus they squandered a major opportunity to demonstrate the potential of a designed environment to interpret and reconcile the physical and metaphysical contexts of a society.

In the mid 1960s and early 1970s, exploration of an architecture less strident and more inclusive than Modern architecture was initiated. It promised to be an architecture accessible to all and inviting to many. It was introduced with sufficient humor to avoid the polemics of exclusivity. And the culture responded with anticipation as it looked to architects for vision and precedent. Once architects had the stage, insight was replaced by introspection, rigor was supplanted by facility, the past was resurrected by parody ... and both the authors and nonreaders of Post-Modernism were offended.

Are we at a crossroads and just trying to find our way home? Or are we at a crossroads and casting about for a future? In any case, we seem preoccupied with talking to ourselves. Perhaps we should ask someone else, "What's the point?" Better yet, we should figure it out for ourselves, and just do it.

It was a privilege to serve recently on the P/A Awards Jury. It was an opportunity to view the immediate aspirations of the profession, not yesterday's and not tomorrow's. The quality of most submissions was high. In my opinion, their substance and significance was less so. Either the presented context of the problem was so narrow as to limit the value of an artful solution, or so broad and burdensome as to limit the art of the solution.

The published comments of the jury and observations of the editors represent well the debates of the jury. But the debates remain unresolved and I am concerned that we must still establish "what's the point?" The "point" need not be singular, but the ethic that directs our behavior and production should be. I offer the following personal observations of our jury deliberations as illustration.

I am trying to reconcile Wolf Prix's concept for a "disobedient architecture" with my admonishment that design for an urban environment should encourage and reflect constructive behavior. If ours is an art to be practiced for the benefit of others and not for our own entertainment, then the challenge is not to be different, but to be better. To pursue the former is to walk in the wilderness of impotent ideas, some discarded and forgotten, others never to be discovered.

I have also considered Steven Holl's observation that American architects receive too little respect and understanding from their native culture, and he may be correct. Yet I fear that the inclination to

"If ours is an art to be practiced for the benefit of others and not for our own entertainment, then the challenge is not to be different, but to be better."

understand and respect an art that is exclusive and indulgent will be limited. Therefore, I believe it unfortunate that several of the projects we selected, though conceived with intellect, are more esoteric than fundamental in their service of that culture.

I am disturbed that while we found the best urban design projects consistent with well established ideals, they appeared weary from the negotiations that assured their feasibility. On the other hand, the freshest individual designs seemed to pursue their virtue in a context of isolation. How will we build good cities with a framework lacking inspiration and composed with self-centered buildings?

Although the Awards program provides Progressive Architecture with access to many projects of emerging value, it also allows the jurors to represent P/A in a most conspicuous and unpredictable manner. I hope that this year, as in others, the consequence has justified the risk.

More important, I hope that P/A uses the opportunity provided by this year's Awards program to explore the substance of an ethic that can direct architecture in the next century. While others may be preoccupied with chronicling the vacillations of a profession at its crossroads, it would be constructive for P/A to explore the value of a trip, and the virtue of the events along the most promising roadways. **Gregory S. Baldwin**

The author is a design partner in the Zimmer Gunsul Frasca Partnership of Portland, Oregon.

Gallery: The paintings and sketches of Louis I. Kahn



Transparency, No. 2, 1948-50. Pen and ink on paper, 11 1/3 x 15 3/5 in.

Hilly Street, Italy 1928–29. Graphite on paper, size not available. Present whereabouts unknown.



Interior of Palazzo Bargello, Florence, Italy 1929. Graphite on paper, $12 \frac{1}{3} \times 8 \frac{3}{5}$ in. Collection of Sue Ann Kahn.



From The Paintings and Sketches of Louis I. Kahn, by Jan Hochstim. Rizzoli, New York, 1991, 336 pp. \$85.



Study for a Mural Based on Egyptian Motifs, No. 3, 1951–53. Ink on paper, 11 ⁴/₅ x 15 ⁴/₅ in. Collection of Sue Ann Kahn.



Acropolis from the Olympicion, Athens, Greece 1951. Pastel and charcoal pencil on paper, $10^{9}/_{10} \times 13^{4}/_{5}$ in. Collection of Sue Ann Kahn.

Baptistery of San Giovanni, Siena, Italy 1951. Pastel on paper, 11 3/4 x 15 in. Collection of Sue Ann Kahn.



Critique: On the Edge of the Millennium

Edwin Abbott's 1884 account of a land of two dimensions, *Flatland*, includes a section in which the narrator, a square, has his first encounter with a sphere. The sphere, of course, inhabits Spaceland – a three dimensional world inconceivable to the square. In his frustration the square exclaims, "Why will you refuse to listen to reason? I had hoped to find in you – as being a man of sense and an accomplished mathematician – a fit apostle for the Gospel of the Three Dimensions, which I am allowed to preach once only in a thousand years: but now I know not how to convince you. Stay, I have it. Deeds, and not words shall proclaim the truth."

The Cooper-Hewitt's four-day symposium, held in New York in January and entitled "The Edge of the Millennium," focused on the shifting role of design in the close of the 20th Century. Organized by the museum's Head of Education, Susan Yelavich, 36 presentations encompassing urban, product, and graphic design left me feeling that somehow we are all squares living in Flatland, struggling to comprehend the sphere standing right next to us.

Intellectual high-rollers from practice, press, industry, and university grappled with the riddle-like subject. It was commonly acknowledged that changes in the hardware and software of our lives, the pervasiveness of massmedia and myriad changes to the earth and its population make it imperative to reassess the role of design.

In redefining that role, a "mitotic" division between two camps emerged. The first included those who defend and operate within the traditional lated about the future of culture. With Wayne's World precocity, sci-fi author Bruce Sterling did a dazzling multimedia future-rap to straightman prompts from Tucker Viemeister of Smart Design. Topics for the session were literally drawn from a hat, and included questions like, "Who's planning the future?" and "What's the difference between good and evil? How much design is possible?"

"There's a desperate vacuum out there, there's no vision thing in the Nineties," Sterling intoned in one of his monologues. "Without vision people perish." And, later, "The idea that good design is going to change society all by itself, rather than tackling large problems in large ways, is something of a copout. It reminds me of a button that says, 'It



may look like I'm doing nothing, but on a cellular level I'm really very busy."

In an earlier spectacle, M&Co. chief Tibor Kalman and critic Karrie Jacobs called for a moratorium on design as we know it, because, as they suggested with some wit, design may once have been the perfect balance of commerce and culture, but the designer has now been relegated to a narrow, shallow specialty.

Kalman and Jacobs listed five grim realities: "1) 6019 people were wounded or killed by gunfire in New York last year, 130 of them children; 2) The number of welfare recipients increased more in the past two years than in the previous 16; 3) One out of every 53 New Yorkers is infected with HIV; 4) Each day, some 137 species become extinct, due mainly to rain forest destruction; 5) Paper coffee filters are often a hassle to pull apart." Pause. "Which of these is a designsized problem?" they asked.

The irrelevance of coffee-filter separation amid strife and sickness vividly

framework of design as function, as service, as packaging of a client's message; this "old guard" represented those architects and designers who view themselves primarily as form-givers in an established chain of command. The second group comprised a "new guard," which sees the designer as interpreter, teacher, advocate of his or her own vision.

"Thirty-six presentations...left me feeling that somehow we are all squares living in Flatland, struggling to comprehend the sphere standing right next to us."

Within this ethic, notions of universality have given way to a personal re-inhabiting of the design process. In other words, you're "it" and every move counts. Every form or action carries meaning, and designers had best be aware of their communicative (and political) potential. Design need not valorize, sanitize, or even organize the subject matter. It is, rather, an expression in itself, simultaneous with the message of the piece.

Image-makers and brokers, critics, and cyberpunk prophets specu-

illustrates the trivialization of design. But if this performance seemed dark in tone, purging us of any lingering delusions of heroism, its outcome may well be positive if it spurs a reassessment of our aspirations as designers.

It was hard to see any validity in architect Andrea Branzi's description of a "Second Modernity." He outlined an ecology of the artificial – referred to in his writings as "a sweet new style" – which views design and architecture as benign tools of management, mediators between technological and humanistic culture. Branzi's (hardly new) position was refuted by New York architect Michael McDonough, who pointed out that in America at the end of the century, we don't trust experts anymore and are skeptical about the benign management of technology. "Vietnam was managed by experts...so was Three Mile Island, the accident the nuclear power industry said could never happen; so was the Exxon Valdez, a state-of-the-art supertanker in calm waters. *What could go wrong*?" McDonough went on to argue that "reform" has so often only meant more of the same, and that elitist prescriptions for how the rest of us should live are, despite the polite packaging, just business as usual.

The need to embrace complexity, simultaneity, and individual interpretation were emphasized in several other presentations – for instance, that of Cranbrook's Michael McCoy, who depicted design's potential to embody myth using 15 minutes of cult film footage followed by Cranbrook projects. "Experimental design hypothesizes new ways – as well as criticizing existing ways – of doing things," McCoy suggested. His proof? The object culture of cyberpunks, Madonna, homeboys, extreme sportsmen, urban cowboys, and road warriors.

In one of the most incisive presentations, Lorraine Wild, Director of Graphic Design at California Institute of the Arts, described the pervasive "unsettledness" of design, which she attributes to our complex, postmodern present of "co-existence, synthesis, schizophrenia, and

"[Designers] are in danger of becoming like lcarus, with wax wings melting in the hard light of day....Yet we cannot continue to take refuge in the false safety of a preciously small design and architecture ghetto."

change." The relation of ideals to practice shifts every day, she posited, and pointed to a "loss of consensus as to what constitutes design. What has also been lost is the ability to lean on the principles of Modernism to regain that consen-

sus." In this "new and disturbing" context, Wild concluded, "What is most crucial are the values that we bring to our work." Wild quoted one of her students, Ann Burdick, who aptly characterized the dilemma many designers face: "To…create alternative professional definitions, to sow new ground…design must gain a new perspective from outside both its

canons and history...[but] if we throw aside traditional precepts of 'good design' on the basis of their complicity in exploitation and indoctrination...what will become the qualifiers for evaluating design? If we accept that concepts of value are arbitrary and, like



in isolation from the economic and technological mainstream, design has fostered a culture of autonomy and an overweening sense of selfrighteousness which is guaranteed to perpetuate its isolation and its impotence to influence events."

"[The old guard's] notions of universality have given way to a personal re-inhabiting of the design process. In other words, you're 'it' and every move counts."

While the strength of this conference lay in the diversity of rhetorics it presented, the audience might have benefited from more

comparison and contrast between the speakers' positions, as well as a bit more opportunity for debate among them. After all, not every conference includes vision-heavies from academia, poets, and philosophers within the same framework as practitioners and corporate bigwigs. In four days of lectures there were only rare opportunities for any friction among such diverse thinkers. I would have liked to see their paradigms collide in real time, and not just in my muddled notes.

Wondering if the conference's profusion of challenges could lead to poetry, I was reminded

of a favorite painting, the *Fall of Icarus*, by Pieter Brueghel. The great designer Icarus, whose wax wings fail him, plummets into the sea, unnoticed by a ploughman, a fisherman, and a passing merchant ship. We are in danger of becoming like Icarus, with wax wings melting in the hard light of day. If we fail like Icarus, the world will pay scant

attention, absorbed as it is by the great events of the age. Yet we cannot continue to take refuge in the false safety of a preciously small design and architecture ghetto.

I am very much in favor of design that takes risks, but our sensitivity to the environment must



Illustrations from Edwin Abbott's Flatland.

signs, gain meaning only in a cultural context, and that that context is revealed as faulty and incomplete...what framework restructures our notions of good, bad, and ugly? What is worth keeping? Appropriateness?"

The only speaker to attempt to bridge between the old and new guards was John Thackara, author, and director of Design Analysis International, a London- and Tokyo-based consultancy that endeavors to cross-pollinate among design, industry, capital, and education – fields necessary to one another, yet somehow detached. Thackara calls this match-making process "knowledge engineering."

About the current crisis in design, Thackara postulated that "Fifty years ago, a critical posture of enlightenment on the part of design was part and parcel of a dynamic engagement with Modernism in what was then a socially and politically progressive project. But after long years now be particularly acute, our inventiveness tempered with moderation. Rapper KRS-One has got it down:

Forward forever Backwards never Prepare for whatever Always stay clever In any endeavor Intelligence is better Be on guard for false prophets in leather. Lisa Krohn

The author, an industrial designer and principal of Krohn Design in New York, is currently teaching at Art Center College of Design in Pasadena, California.

Books

To the Manor Reborn

John Massengale traces the ties between social and architectural stature,

as implied by two books on American country houses.

Books of Note

The Wright Space: Pattern & Meaning in Frank Lloyd Wright's Houses by Grant Hildebrand, University of Washington Press, Seattle, 1991, 192 pp., \$55 cloth, \$29.95 paper.

The appeal of Wright's houses, argues the author, is their intuitively conceived spatial "patterns." Hildebrand bases his analysis on the English geographer Jay Appleton's theory of "prospect" and "refuge" in landscape design, and on other theories of complexity and order.

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The Campus as a Work of Art by Thomas A. Gaines, Praeger Publishers, New York, 1991, 184 pp., \$45. Gaines's qualitative analysis of

campuses in the United States is based on the premise that campus design is an art form; he evaluates it as such.

Victor Horta by Franco Borsi and Paolo Portoghesi, Rizzoli, New York, 1991, 414 pp., \$85. Belgian architect Victor Horta (1861–1947) was one of Art Nouveau's pioneers; this hefty book focuses on his work's sensuous beauty.

Design Juries on Trial by Kathryn H. Anthony, Van Nostrand Reinhold, New York, 1991, 257 pp., \$34.95 paper. This thoughtfully prepared text on the pros and cons of jury reviews (at the academy and in the office) is supplemented with a historic overview and suggestions for jurors and for those being judged.



The Architect & the American Country House, 1890–1940 by Mark Alan Hewitt, Yale University Press, New Haven, 1990, 312 pp., \$55.

The American Country House by Roger W. Moss, Henry Holt, New York, 1990, 243 pp., \$39.95.

The comprehensive study of American architectural history was still in its adolescence when Modernism triumphed over traditionalism in the 1930s and 1940s. As a result, many traditional American building types never received the attention they deserved. Some of that neglect was remedied in the 1980s, but the American country house was notably absent in studies of this decade. The pair of books reviewed here is an excellent start in redressing the balance.

Roger W. Moss's *The American Country House* is the more general of the two. Written for a popular audience, it is an excellent overview of the topic. Very easy to read – perhaps half the book is given over to well chosen photographs and their captions – *The American Country House* is valuable for the cognoscenti as well. The text covers the field's basic points in a thorough fashion that inspires further thought. Moss enfolds enough insights to make the fast read valuable for almost anyone interested in the topic. Similarly, even the most devoted fan of the American country house will find a few of the photographs worth the price of the book.

Moss begins by pointing out that the words "country house" usually evoke an image of the English country house, an animal altogether different from its American counterpart. For starters, the English country house is irrevocably linked with the history of landed English aristocrats and gentry who derived their wealth and political power from country seats. A few of the early American land grants and patents in the Northern colonies, Southern plantations that thrived because of slavery, and perhaps a handful of the vast Western ranches approximated the historical position of the English country house. Nevertheless, these houses rarely had extended lives as family seats with power, nor did their influence match that of the English estates. Much more typical in America was the seasonal house built in the country with money made in the city.

Moreover, the English country house provokes a particularly cogent image – "a mix of field dogs and Wellington boots, a garden containing phlox and old roses, and slipcovers over inherited furniture," as Moss put it. It's an image that, no matter how hard Ralph Lauren tries to convince us otherwise, is missing in the much more diverse houses of America. Tara and San Simeon have little in common, other than their appeal in Hollywood. But Moss covers them both, along with many others.

Mark Alan Hewitt's The Architect and the American Country House, 1890–1940 is, as the title suggests, less general than Moss's book. Although broad in scope, Hewitt's is not superficial; it is a magnum opus with exhaustive background information, details and sources. He has done a tremendous amount of research, and it shows. This is a groundbreaking work, whose bibliography and notes alone make it mandatory reading for all serious scholars of American architectural history.

At the same time, the book has the lush appearance common to the best coffee-table books, with an extensive mix of period illustrations and beautiful new color photographs by Richard Cheek. But Hewitt's bias as an architect comes through in the great number of plans, a feature usually missing in such lavishly illustrated works.

Hewitt begins his book in the 1890s with the massive Loire Valley château that Richard Morris Hunt designed for a site in Asheville, North Carolina, assembled by George Washington Vanderbilt. The rest of the text is primarily devoted to later mansions built by rich industrialists and financiers of the late 19th and early 20th Centuries.

None of the houses fits the English, or Moss's, definition of a country house. Many are in locations like Newport and Palm Beach, where large mansions were planned for suburban lots. This pattern promoted social life instead of country life. Hewitt also illustrates the "trickle-down" of the type into real suburbs of the richer cities.

The text of The Architect and the American Country (continued on page 136)



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56 Appaloosa Spiral Pattern

Summitville's Strata Tile is available in three color variations and three sizes that can create a variety of different patterns. Trim units also available.



New Products and Literature



Frank Gehry bends and weaves a new collection for The Knoll Group.

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The opportunity for an architect to explore the structural integrity of a single material with full support from a major manufacturer is a milestone in the recent history of the furniture industry. Frank Gehry's collection of bentwood furniture for Knoll-Studio, to be introduced at this month's Westweek, is an evolutionary addition to a design legacy. His idea was not simply to find a better bend, but to weave structure using the thinnest, lightest strips of wood possible. Gehry's collection "doesn't scream one theoretical or aesthetic approach. It's a material-driven design," says Andrew Cogan, a Knoll vice president.

Gehry, with project designer Daniel Sachs and project technician Tom MacMichael, undertook a two-and-one-half year trial-and-error process in a workshop provided by Knoll next to Gehry's Santa Monica office. After much experimentation and 115 prototypes – involving various weaving and bending techniques and wood veneers of various widths and thicknesses – Gehry's idea came to fruition. His playfully animated collection is functional, comfortable, and, according to Knoll "economical to produce."

In three factories, individual strips (seven layers of $1/_{32}$ -inch maple harvested from domestically

grown, sustainable sources) are produced using a hydraulic clamp system; a machine called "Mr. Fingers" trims the laminated strips to their two-inch specification; and they are hand-assembled on Knoll-designed jigs using an "advanced glue" (its elastic property enhances movement and springiness). Each completed piece is dipped in a waterbased finish and spun dry.

"Phase One has compromises in it – chairs are eight pounds instead of six – but we have a language going" says Gehry. If it does succeed, phase two will include sofas, desks, lamps, and other pieces. But more rides on the success of Gehry's collection: if the American furniture industry is to be rejuvenated, manufacturers must be willing to enfranchise independent designers. This strategy – recalling that of mid-Century producers such as Hans and Florence Knoll – may be its best hope. **Abby Bussel**

Power Play Lounge Chair and Offside Ottoman, High Sticking Side Chair, Hat Trick Side Chair, Face Off Table, and Cross Check Lounge Chair (1) comprise the collection. Cross Check under pressure in the workshop (2), from the back (3), and tossing a shadow from above (4). Circle 100 on reader service card

Jay Ahrend

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117

Jay Ahrend



Ahrend 1 VBL 4



24 7/8"

SKETCHES

(continued from page 117)

New Products and Literature

New Wood Flush Doors Industry

Architectural Wood Flush Doors.

NWWDA I.S. 1-A is a new in-

the National Wood Window

dustrial standard published by

and Door Association. It offers

signed specifically for the archi-

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Kitchen Catalog

This large format full-color catalog illustrates an extensive collection of upscale kitchen systems. The "Kitchen Work Bench" (above) is a stainless steel food preparation countertop supported on a metal frame. bulthaup USA. *Circle 200 on reader service card*

Custom Railings

Stainless steel or brass railings are in a variety of standard styles and may be custom designed. Satin, buff, and mirror finishes are available. KDI Paragon.

Circle 103 on reader service card

(continued on page 120)

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Technics-Related Products

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120







Steps in custom fixture design: the lighting consultant provided sections through proposed sconce, showing two 13W compact fluorescent lamps oriented perpendicular to the wall for better indirect distribution (1). Computerized photometric analysis by Litecontrol determines the overall performance of the lamps (2). A CNC machine is used to fabricate the housing for the sconce (3). A prototype of the proposed sconce is tested in the manufacturer's corridor (4).

Litecontrol Circle 104 on reader service card

Maye

Press any key to continue

Custom Fabrication

Items in this section complement the Technics article on custom lighting fixture design (p. 48).

For the lighting of Harvard's Morgan Hall, Moshe Safdie & Associates, with lighting consultant Lam Partners, Inc., wanted to provide indirect compact fluorescent sconces to light corridors surrounding a four-story atrium. The preferred solution provided adequate corridor lighting parallel to the walls, a soft glow when viewed from below, and complete baffling of the fixtures from the upper levels. Unable to find a fixture that met their criteria, the design team pursued various custom lamp and reflector alternatives until a satisfactory solution emerged.

The final design used two 13-watt Quad lamps oriented perpendicular to the wall and centered six inches apart. Each lamp has a shallow reflector with mirrored sides for maximum sideways distribution of the light. The short length of the lamps (about four inches) and their shallow reflectors allowed for a scooped section that would not protrude very far into the corridor. They approached a manufacturer that produced compact fluorescent sconces, eliminating the need for UL testing. Litecontrol Corporation undertook a computerized photometric analysis to determine overall performance that required minor repositioning of the lamps. They also made CNC machinery available that allowed a prototype to be completed in a relatively short time. Harvey Bryan (continued on page 122)

nterior Architects, Inc. San Francisco, California



HOW CETRA HELPED SECURITY PACIFIC MAKE THE CORRECT CHANGE.

When it was time to select the furniture for

Security Pacific National Bank in San

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well with the overall form and light of the building. And of course, a system that would complement the individual space it occupied. The designer chose the Cetra System. Sectional glass panels helped create the desired architectural effect. And Cetra's diverse laminates, finishes and fabrics fulfilled the necessities of both the designer and the bank by combining functional design with a refined sense of style. The Cetra System. Bank on it.

CETRA GOES EVERYWHERE

(continued from page 120)

Fechnics-Related Products

Custom Fabrication

oustoin rabitcation

See Lighting Manufacturers Directory, P/A, Nov. 1990, pages 136 and 138, for a list of lighting manufacturers.





Lighting Software

"Lumen-Micro" Version 5 allows a designer to input design criteria such as room dimensions, surface reflectances, and desired fixture types. The software can recommend horizontal illuminance and can automatically generate a luminaire layout. A rendering of the proposed lighting can consider daylighting, furniture and partitions, and accent lighting. An "electronic catalog," maintained by the user, contains a database of fixtures with photometric reports, candela distributions, and video images and produces a list of fixtures that best suit the requirements of a particular job. "Lumen-Micro" runs on DOS computers and is compatible with AutoCAD. Lighting Technologies Inc. Circle 105 on reader service card



Lighting Resource Catalog

The "Lighting Source" catalog lists publications on lighting topics including the *IES Lighting Ready Reference* and videotapes on Lamps and Luminaires. Subjects covered include: introductory lighting, energy management, lighting measurement, and standards. Some out-of-print books are also available. Illuminating Engineering Society. *Circle 201 on reader service card*



Custom Fixtures

The "Designers Selection" collection of custom lighting allows architects to design a fixture to meet the specific needs of a project. Fixtures are available in a wide range of styles. Shown here is an incandescent fixture designed for the Essex House in New York. Baldinger. *Circle 106 on reader service card*

(continued on page 125)



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Computer Products

Items in this section complement the Practice article

by Kent Larson on UNIX-based systems.











Sonata was developed specifically for architects to take advantage of the 3D graphics library of Silicon Graphics, which gives it the capability of generating fast, "true color" images. Sonata offers intelligent links among building elements so that changes in the model will be automatically reflected in drawings and schedules. Alias.

Circle 107 on reader service card

2 ARRIS

ARRIS is also designed specifically for architects and their consultants, and is available on multiple UNIX platforms and PCs running a form of UNIX. Arris allows a user to choose among different renderers from a menu, including ARITEK's enhanced renderer, Pixar's Renderman, and Wavefront's Personal Visualizer. Sigma Design. Circle 108 on reader service card

3 ModelView

ModelView, which runs on Intergraph UNIX workstations and other Microstation platforms includes "Pixie," an interactive program that allows users to assign new material properties to objects without rerendering. A PC version of ModelView is being released this month. Intergraph. Circle 109 on reader service card

4 Renderman

Traditionally used to create high-quality 3D animations in broadcasting, Renderman is available as an add-on photorealistic renderer with a variety of CAD packages, including those from Autodesk, CADKEY, Evolution Computing, and Truevision. MacRenderman and Showplace are available for Macintosh users. Pixar. Circle 110 on reader service card

(continued on page 126)

(continued from page 125)

UNIX Software



Visualizing Software

"Wavefront Advanced Visualizer" software runs on selected graphics workstations including Apollo, Digital, Hewlett-Packard, Silicon Graphics, and Sun MicroSystems. Features include photorealistic rendering, complex geometrical editing, animation, 32-bit accuracy, and output to video or film. This software is available at many service bureaus. Wavefront Technologies. *Circle 112 on reader service card*

Interactive Renderer

TDI Explore software runs on SGI workstations and TDImage on the IBM RS6000. Twenty separate modules are available including modeling, rendering, animation, and "Interactive Photorealistic Rendering" (IPR), which permits instant changes in lighting, color, shading and texture. Thompson Digital Image (TDI). *Circle 113 on reader service card*

Building Materials

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

Project: Chiat/Day/Mojo Offices, Venice, California (p. 66). Architects: Frank O. Gehry & Associates, Santa Monica. Portland cement w/reinforcing mesh and acrylic admixtures and elastomeric

paint (binoculars): Thoro Systems. Velour finish and wire cut brick (entry, and exterior paving): Higgins Brick Company. Portland cement with "BTSB" acrylic finish (office "box"): STO. Vertical grain Douglas fir veneer plywood (reception, convenience stair), copper flat seam panels (convenience stair), MDO plywood panels w/semi-transparent finish (toilet rooms), solid stock Douglas fir windows (interior), industrial sliding doors (interior), rotary cut Douglas fir plywood (fixed open office partitions), cabinets, tables, and plywood with plastic laminate (desks): ISEC. Plastic laminate: Wilsonart. Files: Harper. Eames tables, "Equa" task and sled chairs and Eames bucket chairs: Herman Miller. Bellini sofas: AI. "Figura" task chairs and "Onda" sled chairs: Vitra. Motorized conference room rolldown shades: MechoShade. Wireless conference room AV (continued on page 134)



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AES is an architecture-specific application for use on IBM UNIX workstations and IBM PS2 computers. Developed by SOM in the 1970s, the current product has a "limited color" (8 bit) renderer. AES has a translator to directly access the photorealistic capabilities of the TDI system. IBM.

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Designer Bran Ferren on Relevant Technology

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Designer William Stumpf on Design Responsibilities

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VISA

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track: McKinney Stanley. Locksets: Schlage. Door closers: LCN. Panic exits: Von Duprin. Catering kitchen refrigerators: Traulsen. Other refrigerators: Sub-Zero. Catering hot-box: Hobart. Stoves: KitchenAid. Ice maker: Scotsman. Intrusion alarm: Sentrol. Closed circuit TV: Sanyo. Card access: Northern Computer. Elevator recall alarm/smoke detectors: Simplex. Exterior wall-mounted incandescent lighting: BEGA. Exterior recessed metal halide downlights: Staff. Interior metal halide uplights: SPI Lighting. Interior fluorescent fixtures and recessed halogen wallwashers: CSL Lighting. Main switch electrical service, 277/480V, transformers for receptacles, 120V, and panel boards: Westinghouse. Power and signal cable trays: P-W Industries. Water closets: Kohler. Toilet stalls: Mills. Washroom/ bathroom accessories: Bobrick. Kitchen sinks: Elkay. Electrical heating coil, VAV terminal box: Environmental Technologies. Single-zone VAV rooftop AC unit: Mammoth Company.

Project: Skyline Road Houses, Sutton, Massachusetts (p. 78). Archi-

tect: Jonathan Levi Architect, Brookline, Massachusetts. Foundation surface-set retardant: Preco Industries. Wood windows: Wes-Pine. Doors: Brockway Smith. Asphalt shingles: Bird. Bleaching stain: Cabot. Locksets: Dexter.

Project: Auburn Court, Newton,

Massachusetts (p. 76). Architect: Jonathan Levi Architect, Brookline, Massachusetts. Foundation surface-set retardant: Preco Industries. Cedar board siding: Bear Creek Lumber, Winthrop, Washington. Gypsum board: Gold-Bond. Tile: American Olean. Wood windows: Marvin. Entry and interior doors: Brockway Smith. Glass terrace doors: Atrium. Asphalt shingles: Bird. Bleaching stain: Cabot. Locksets: Dexter. Cabinets: Kaskia. Laminate: WilsonArt. Exterior lighting: Lightolier. Plumbing fixtures: Kohler. Plumbing fittings: Delta.

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red wood

Books (continued from page 114)

House shows that Hewitt is one of those rare architects who can write. Moreover, it is clear that he has read his material. Until now there has been no good overview of the country mansions of this period, so over the years many of the topic's primary sources became relatively unknown. And, as scholars know, there was never a good index of the architectural magazines of the period. Consequently, the majority of the articles gleaned for Hewitt's book were lost to all but those who took the time to go into library stacks and leaf through tens of thousands of pages. It is obvious that Hewitt made extensive use of seminars he led at Rice. Columbia, and the University of Pennsylvania to have his students do just that. Which means that the rest of us won't have to.

Most of this material has made it into the text as well as the notes; this is both good and bad. When new topics arise in the text, we often hear a riffle of note cards before we are plunged into occasionally lengthy summaries of very basic information. Sometimes these passages are only tangentially related to the thesis of the book. There may indeed be readers who know nothing about Hewitt's topic, but are so passionately interested that they will read everything about the subject and its background. But most of us, I suspect, will do a bit of skimming. Moreover, one sometimes senses that the massive amount of information passed along was not as well digested as it could have been.

My own pet peeve in this area arises in Hewitt's extensive social history. No doubt, this account deserves prominence in a text about country houses, and he usually provides insightful commentary that balances and broadens the text. But he occasionally repeats much of the social propaganda of the time in an uncritical manner, without letting us know when we are following social history written by flattering architectural periodicals - in other words, a social account of those with the money and the inclination to hire the most expensive architects. Hewitt's text does not make it clear that these sources are not a true social history of the period.

We have just been through a decade in which Donald Trump convinced several magazines to proclaim him and his wife America's royal couple because they claimed more glossy covers and television sound bites than any other couple in the 1980s. The sheer number of references Hewitt makes to American "aristocrats" and "patricians" and America's "finest" and "oldest" families therefore grates, especially when it becomes obvious that these accolades repeat the sentiments of old issues of American Architect and Architectural Record; such phrases often meant little more than "lots of money." In hindsight, we also see that rich patrons with the "bad taste" not to hire the most fashionable architects were ignored. Bostonians, for example, continued to build Shingle Style country houses all over the Northeast until well into the 20th Century, but they were rarely published by the architectural press after the 1890s. They're not in The Architect and the American Country House either.

These are quibbles. It should be said that historians who break as much new ground as Hewitt must be granted a few allowances. This book is now the standard work on the American country and suburban mansion from the end of the Shingle Style to the beginning of Modernism, and all succeeding studies will follow in its wake. For a more general, and perhaps more balanced, look at the entire history of the American country house, Moss's book is a valuable complement to Hewitt's.

John Montague Massengale

The author is an architect and town planner in New York City and Bedford, New York. Co-author with Robert A. M. Stern of New York 1900 and The Anglo-American Suburb, he was Town Architect of Seaside, Florida, in 1986.

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Furthermore...



Temporary? Gehry's cardboard conference room for Chiat/Day/Mojo.

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When ad agency Chiat/Day/ Mojo moved into temporary space across the street from the construction site of their new building (page 66), they entered a landscape of incidents, a collection of divergent environments scattered throughout the warehouse space. Possibly the finest of these "events" is the cavelike conference room (above), a cardboard cocoon wrapping inhabitants in a fuzzy warmth.

Though the space was intended to be temporary, Gehry's temporary works have a way of hanging on: the Temporary Contemporary (P/A, Mar. 1984, p. 80), built to house L.A.'s Museum of Contemporary Art while its Isozaki building was under way, is still in use, eight years later.

More on the Millennium

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A new series launched this month in Perspectives (page 108) intends to examine critically whether there can emerge an architectural agenda for the 1990s, and if so, what its collective values may be. Finding such values is not easy, as Ziva Freiman, senior editor in charge of Perspectives, discovered when she attended the Cooper-Hewitt's "Edge of the Millennium" symposium (page 112). She found there a dearth of direction in the doings devoted to architecture and urbanism. Unlike the more energetic offerings from the graphic and product design disciplines, many of the architectural presentations were telling in their obliqueness and fatigue.

For instance, the first half of a daylong program entitled "The City: Spirit and Form" offered Rosemarie Haag Bletter's survey of past Utopian visions, two philosophers rhapsodizing on obscure - if seductive - aspects of John Hejduk's unbuilt work, and Hejduk himself delivering a lyrical reminiscence of his childhood in the Bronx. Alan Balfour, the Architectural Association's eloquent chairman-designate, was the only speaker all morning to look forward, and that with apocalyptic foreboding. To advance a more constructive vision, readers are invited to contribute to the series in Perspectives.

Criticism, Denver-Style

Denver's Urban Design Forum was hoping to "increase public awareness of urban art and architecture" when it announced its Urban Follies competition for the city's 16th Street Mall last year. The \$10,000 first-place design, by architect Eric J. Morris, certainly fills that bill.

Morris's entry (below), entitled "Splat," gives the general public a strong – albeit belated – voice in matters of civic architecture. A voting booth tallies citizens' votes on the recently completed "building of the week"; if the nays win out, a surplus Patriot missile is launched, carrying a payload of red paint (splat!) for the unfortunate building.

Jurors, including Michael Graves and landscape designer Martha Schwartz, favored "Splat" over less conceptual entries, saying that it "touches on powerlessness and decision making." Too bad there's no Splat-like mechanism currently in place to see if Denverites agree.



Morris's folly hits Denver with a "splat."

P/A in April...

Next month, P/A will

announce another major competition dealing with the economic and social problems facing our country. With your participation, we expect this competition to help bring the social concerns of our profession to the attention of the public. Also in April:

...the Georgia Institute of Technology Manufacturing Research Center by Lord, Aeck & Sargent, a winner in the 1989 P/A Awards program.

...a house in suburban Paris by Rem Koolhaas's Office of Metropolitan Architecture.

...a timber house in the Adirondacks by Bohlin Cywinski Jackson.

...a weekend house in Virginia by Jerry Wells.

Technics will include articles on new tile technologies and newly required metric dimensions on federal projects. A Technics Focus on glass and glazing will discuss fire-resistance, wind damage, and "cool daylight" glazing.