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Cover: Pre- and Early History
Museum, Frankfurt, West Germany, by Josef Paul Kleihues.

Photo by Helene Binet
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Circle No. 341
The relationship between those who practice architecture and those who comment upon it is indispensable, though not always a happy bond.

A love/hate relationship exists between the architectural profession and the gatekeepers of its culture—the professors, editors, critics, and curators who analyze the field. This tense marriage, born of mutual dependence, deserves our attention, for it has affected, sometimes adversely, the direction of recent architecture.

An instructive parallel is the bond between artists and museums. In an essay on the subject entitled "The Dead-Letter Office," the critic Hugh Kenner argues that museums, the primary gatekeepers of our artistic culture, kill the "unstructured curiosity" that he sees as the essence of creativity. Museums, he says, enshrine "a structure of cognitions called Art History" in which art, like the undeliverable letters in "a huge Dead-Letter Office," are "no longer to be read... but filed and acknowledged." Kenner goes on to discuss how Modern artists have subverted this system. Some have flooded the museums with art produced solely for exhibition there, resembling "an effort at jamming the postal service by addressing tons of mail to the Dead-Letter Office." Others have created works that defy being enclosed within a museum, such as environmental sculpture or public art. Kenner ends the piece by recommending that most museums be abandoned, their art returned to the places from which it came, and that there be "a last Museum" for the artwork whose main purpose has been to question the value of the museum itself, a "Temple of the End of Art History."

It is worth noting, as an aside, how architects view museums differently. Although many museum designers treat such structures as works of art rather than simply the containers of art (see p. 84), architects have rarely questioned the value of the museum as an institution, attempted its subversion, or called for its abandonment.

It is, of course, much easier to state a radical idea, as Kenner does in his essay, than it is to act upon it. But there is more than expediency behind the architectural community's widespread acceptance of the museum's value. Simply put, the museum curator holds much less power over the making of an architect's reputation than that of an artist, and so the institution is seen as less of a threat and less in need of reform. In our field, the equivalent to museums are the books, magazines, lectures, juries, and temporary exhibits that define, analyze, and transmit the reigning ideas and images of the architecture culture. And here, architects have been every bit as subversive as artists toward their cultural gatekeepers.

Post-Modernism, to borrow from Kenner's analogy, has had the effect of jamming the dead-letter office of architecture. The simplified historical forms, the flattened two-dimensional façades, and the many rich colors of this work seem made for the four-color photography that transmits it onto the printed page, the lecture-hall screen, or the gallery wall. The architecture culture thrives on images and styles, and Post-Modernists give it as much imagery as it can possibly handle.

Likewise, much of the Modern or neo-avant-garde architecture now being done, especially work influenced by phenomenology or deconstruction, seems analogous to art that Kenner mentions as resisting enclosure or categorization. Such architecture defies the photographs and descriptions upon which the architecture culture depends.

Kenner's solution to the love/hate relationship between museums and artists is to abolish the former. No doubt there also are some—perhaps many—who would banish the editors, critics, professors, and curators who steer the culture of architecture. But such proposals falter upon the mistaken idea that creative production can somehow be separated from its analysis or criticism. Such a lobotomy would only kill the patient.

Kenner, however, makes the valuable observation that criticism should not have the upper hand over creativity, as has happened in our own time. It is important to be aware of what the critics and curators say but not to be overly swayed by it or pointedly subversive about it. There is a certain irony in this, coming from the pages of a magazine that, for 70 years, has had its hands on the gates of the architectural culture. Nevertheless, the art and practice of architecture would be better off if there were less concern, all around, about how buildings look in print. Thomas Fisher
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No Degree Needed

I applaud you for your Editorial in the March issue of P/A (p. 9). To exclude individuals from practicing the art of architecture because they can not or will not attend an accredited professional degree program in architecture is elitist in practice if not in intention. One need only look at the work of Tadao Ando (February P/A) to see the virtues of an open profession. Those virtues are worth practicing.

Great works of architecture are not necessarily created by those individuals who attend the most acclaimed university but by those who painstakingly practice their craft.

William C. Petrone, Architect
New York, N.Y.

Super Grand Libraries

I was entertained by your piece on the competition for the Tres Grande Bibliothèque in Paris (P/A, Feb. 1990, p. 123). As the designer for the restoration and modernization of the main buildings of the Library of Congress, the world's by far biggest library (Super Grande Bibliothèque), I was amazed to see such a project treated by the architects as a kind of World's Fair exhibit on the “Information Age.” This was done much better by Charles Eames for IBM at the 1964 Fair in New York. We have traveled down that route before but have come to realize that the combination of scholars, reading areas, and, indeed, books are still the core of a great library. Our new reading rooms and halls of knowledge are being fitted with every kind of multimedia, videodisk, futuristic capability etc., but these spaces will still look like reading areas, scholars' offices and above all an environment almost totally wrapped in books.

Arthur Cotton Moore, FAIA
Arthur Cotton Moore/Associates, P.C.
Washington, D.C.

Chicago Cityfront

Cheryl Kent's review of the Chicago Cityfront Center development (P/A, Feb. 1990, p. 121) states that the quality of design would be improved if the design guidelines had "teeth rather than gums." Her conclusion chooses to ignore both history and the economic realities of the highrise marketplace.

The guidelines do not advocate for better, more humane architecture, but rather for the individual tastes of the guidelines' author. Neither would they have allowed the vast majority of first-rate office and apartment towers that dot the Chicago skyline. These guidelines would have allowed the construction of no 900/910 North Lake Shore Drive (no unsightly curtain walls allowed); no John Hancock (no tripartite expression); and no Promontory Apartments (no exposed concrete allowed).

Ms. Kent decries the "awkwardness of the building (North Pier Tower), whose dull massing is explained by a desire for uniform floors." The original plans for this tower were articulated in both plan and section and would have been constructed but for the fact that the guidelines required the tower to be sheathed. This requirement added literally millions of dollars to the tower's cost and effectively determined the need for uniform floors. Also, by requiring that the sheathing cover the entire tower, less money was available for the materials at the base: the quality of pedestrian environment was, therefore, lessened rather then enhanced by this requirement.

The genius of Chicago architecture has never been driven by design regulation, but rather by the inspired response of the architect/devolver to the constraints of market, structure, and climate. In the interview with Charles Eames published next to Ms. Kent's review, Mr. Eames states that "Design depends largely on constraints . . . the constraints of price, of size, of strength, or balance, of time . . . ." When asked, "Does design obey laws," he answers, "Aren't constraints enough?" In the case of Cityfront Center, constraints would have been much more than enough.

William Worn, Principal
Florian-Wierzchoski
Architecture, P.C.
Chicago

Ando, Art, and Style

Welcome indeed is Mr. Dixon's case study of Tadao Ando's contributions to architecture (P/A, Feb. 1990, p. 84). This primarily for isolating three conceptually-related issues pertaining to the current state of architectural progress: (1) "economic rationalism" (which "recognizes no values except economic ones"); (2) architectural synthesis of the past and present, East and West; and (3) teleological aesthetics (attempting to represent "the true state of nature and man's existence," by combining geometrical simplicity with elemental complexity).

Rejecting economic rationalism and pursuing a historical synthesis, Ando is deliberately engaged in philosophical aesthetics. Mr. Dixon, therefore, has noticed what had to be noticed, namely that Ando's architectural development is intimately related philosophically to "the spiritual role of architecture" and historically to the Japanese tradition. This entails, logically and methodologically, a philosophical grounding as the basis of Art and Style. To cite just a single example, it is easy to see what influence the philosophy and literature of Yasunari Kawabata might have had on Ando.

Philosophical grounding is certainly the fundamental element. It is the necessary condition for raising architecture to the level of art; for enabling consistent application of modalities of design to define categories of composition; and, in turn, for evolving a consistent Style. For the contradiction of this sine qua non condition would involve not only an error, but an actual fallacy of supposing that aesthetic import (in creativity as well as in evaluation) can be reduced without loss of meaning to statements of natural, nonnormative concepts alone.

More broadly, the emphasis on the role of philosophical aesthetics in architecture is the chief value of Mr. Dixon's observations and Ando's contributions. Especially so in the light of present-day fashionable relativism and empiricism— or, in the location of another writer in the same issue of P/A: in present day "incompleteness, fragmentation, and dismemberment."

Indeed, it should be safe to generalize that it is precisely the lack of philosophical grounding that accounts for lack of art in architecture and, consequently, for the lack of recognizably consistent style.

The dogma of empiricism reduces art entirely to a matter of sentiment; economic rationalism ensures its extinction. When these views find their way in architecture (as a matter of convenience or intellectual neglect), all styles come to be regarded as being of "equal value," for the paradoxical reason that value concepts and judgments are thereby effectively expunged. Ando has seen the logical consequences of the putative reduction to sentimental predilections and economic values. Of course, he is quite right. In current architectural literature, serious concern with philosophical aesthetics is rare at best—that is, a concern with consistent analysis of aesthetic concepts and the logic of their application, pari passu with criteria and paradigms. It is not a matter of surprise that without philosophical grounding, as an intellectual and artistic base of operations, there is currently precious little that one would wish to identify as a paradigm of style or art.

Reflection on Mr. Dixon's study and Ando's work unavoidably prompts a question: What, after all, makes an architect—as opposed to a builder, draftsman, or an engineer? What is the distinctive function, not subsumed by another category?
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Circle No. 355

Certainly, the concepts of "architect" and "architecture" are referentially opaque. Yet, paradigmatically, the necessary condition for their correct application is clear: namely, conscious, deliberate, and consistent application of philosophical aesthetics. As Mr. Dixon has noticed, Ando clearly satisfies this condition.

I should add that these reflections are those of a builder. They may be appropriate enough in the light of the frequent insistence on the part of architects "to implement the aesthetic intent of a design." That is never an easy matter, insofar as implementation of "aesthetic intent" is hardly possible in its absence or its Gordian obscurity.

Ando's architecture and Mr. Dixon's study stand in clear relief. Thanks!

Edward Kanoshi, Ph.D.
Owner, Design Construction Co.
Minot, Massachusetts

Casino Particulars
I am the architect of Trump Taj Mahal Casino Resort and also a citizen of Atlantic City. In your March 1990 (p. 117) article concerning casino development in Atlantic City, there were many incorrect facts and misrepresentations concerning the Taj Mahal.

First, the Taj Mahal did not sweep away any historic structures. The majority of land on which it was constructed was cleared during the 1960s as part of an urban renewal project and had lain vacant and weed-strewn for almost 17 years.

Second, the building was not designed by a team of in-house architects but by myself.

Third, the building is not a windowless plinth divorcing itself from the exterior environment. All of the spaces facing the boardwalk have generous windows. These areas include a 340-seat deli, a 115-seat ice cream parlor, a 225-seat buffet, a 300-seat Italian Restaurant, 4 meeting rooms with a total capacity of over 500 seats, the lobby of a 1200-seat theater and 5 large shops. There is also a 350-seat skyway restaurant with over 300 linear feet (the equivalent of two Atlantic City blocks) of floor-to-ceiling windows that offer spectacular views up and down the boardwalk.

Also overlooking the ocean and reinforcing the pedestrian site amenities is a 680' x 40' raised pedestrian plaza reached by three monumental stairways. This is open to the public without entering the building and is decorated with several pieces of outdoor sculpture.

Fourth, the Taj Mahal does not try to keep its clientele from wandering to other facilities. Four enclosed skyway connections are provided for year-round circulation. Two are connected to neighboring casino hotels, one to a future amusement pier and one to a neighboring senior citizens home installed at their request. The building provides 56000 square feet to a view from the boardwalk.

Fifth, your article stated that Atlantic City residents have not benefited from casino employment opportunities. Approximately 50 percent of the working population of the city have jobs in the casino hotel industry.

I disagree with the general tone of the entire article, but I find the author's sloppy research and erroneous facts unforgivable in a professional publication.

Francis Xavier Dumont, AIA
Trump Taj Mahal Associates, L.P.
Absecon, N.J.

[Dumont was consulted in the preparation of this article. His firm's name and its on-site location imply a close, if not "in-house," relationship. The author's critical observations—which were not all limited to the Taj Mahal complex—still stand. – Editor]

U. Va. Correction
The University of Virginia building illustrating the Michael Graves introduction (P/A, March 1990, p. 75) is a classroom and faculty office building, not a law school.

Canadian Leader
Due to erroneous information supplied to P/A, our article listing the New Honorary Fellows of the AIA (P/A, Feb. 1990, p. 21) incorrectly identified Eva Vecsei as president of the Ordre des Architectes du Quebec. The president of the Ordre is Paul-Andre Tetreault.

New Schools Correction
In our article "New York City Schools: Small Is Better" (March P/A, p. 24) architect Hitoshi Amano's first name was spelled incorrectly.
There are two kinds of innovations in the computer business. The ones you just talk about. And the ones you actually use.
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Aldo Rossi Wins Pritzker Prize

Architect Aldo Rossi of Milan has been elected as the 1990 laureate of the Pritzker Architectural Prize. Rossi, 59, was selected from among 500 nominees for the $100,000 prize, which will be awarded on June 16 at the Palazzo Grassi Museum in Venice.

The jury, headed by National Gallery of Art director J. Carter Brown, cited Rossi's ability "to follow the lessons of Classical architecture without copying them" and praised the "universal, haunting quality of his work," which they called "refreshingly simple in appearance but extremely complex in content and meaning."

Rossi, a native of Milan, is a 1959 graduate of Polytechnic University in that city. He has practiced in Milan since then, in addition to teaching, lecturing, and, from 1955 to 1964, serving as editor of Casabella. He began to attract international attention with the publication of his 1966 book The Architecture of the City, which helped to define Post-Modern urbanism with its emphasis on the importance of history and memory in the city. The spare Rationalism of his work — seen in such projects as the 1970 Gallatarase 2 housing in Milan (P/A, Oct. 1980, p. 50), the Municipal Cemetery in Modena, Italy (1971, now in progress), and the elementary school at Fagnano Olana, Italy (P/A, Oct. 1980, p. 60) — has won him acclaim both as an ally of and an alternative to the Post-Modern movement.

Rossi's selection, like that of Frank Gehry last year, comes at a time when the architect has begun to build extensively outside his own region. Since establishing a New York office of his firm, Studio di Architettura, in 1987, Rossi's North American work has included a set of houses in Mount Pocono, Pennsylvania, and the University of Miami School of Architecture, now underway in Coral Gables, Florida (P/A, May 1988, p. 34), in addition to two smaller projects: a festival arch in Galveston, Texas (P/A, April 1990, p. 29) and the temporary Lighthouse Theater in Toronto (P/A, Nov. 1988, p. 23). The New York office is also responsible for the recently opened Il Palazzo Hotel in Fukuoka, Japan (this issue, p. 112).

Mark Alden Branch

Westweek 90: An Agenda Takes Shape

In step with broader social and political trends, rising concern for the environment was evident at the annual Westweek design fair, held in late March at the Pacific Design Center in Los Angeles. And what setting more fitting than L.A. to focus on pollution, overburdened infrastructures, and threatened resources?

These concerns threaded through much of the fair's programmed presentations and panels and surfaced also in "Mondo Materialis," a smashing exhibit containing the works of an international group of 126 designers and architects, which was conceived by Jeff (continued on next page)
Pencil Points
Frank O. Gehry & Associates has been commissioned to design a new University of Minnesota Art Museum in Minneapolis. Construction of the $8 million, 35,000-square-foot museum is scheduled to begin in the summer of 1991, and completion is slated for June 1993.

Bruce Goff’s archive and library—spanning the years from 1919 to 1982—have been given to the Art Institute of Chicago by Shin’enkan, Inc., a private foundation headed by Gehry patron Joe Price. The Goff Archive will be housed—along with the collections of Sullivan, Burnham, and Mies van der Rohe, to name a few—in the Art Institute’s Department of Architecture and the Ryerson and Burnham Libraries.

Ted Williams, Billie Tsien & Associates (see p. 119) in association with Lescher and Mahoney/DLR Group, Phoenix, have been commissioned by the City of Phoenix to design a $23.5 million renovation and expansion of the Phoenix Art Museum and Phoenix Little Theater.

The American Academy in Rome has awarded 1990–91 Rome Prize Fellowships to Jason H. Rames, Cherry Hill, New Jersey, and Christian Zapata, Princeton, New Jersey, for architecture; Steven Brooke, Miami, Florida, and Robert Davis, seaside, Florida, for design arts; and Peter Lindsay Schaudt, Charlotte, North Carolina, for landscape architecture.

The Frank Lloyd Wright Foundation has launched the Frank Lloyd Wright Quarterly, a magazine on current Wright-related restoration projects, publications, exhibitions, tours, and workshops nationwide. For more information contact Friends of Taliesin, Taliesin West, Scottsdale, Arizona 85261.

The Office of Peter Walker and Martha Schwartz, landscape architects (P/A, July 1989, p. 56) has been divided into two offices: Peter Walker & Partners and Schwartz Smith Meyer Landscape Architects. Both firms are located in San Francisco.

From “Mondo Materials” at Westweek: panels by (left to right) Michael McDonough, Bentley LaRosa Salasky, David Hertz.

Westweek

Frey J. Osborne, the director of the Aspen design conference, and co-curated by George Beylerian, under the auspices of the Steelcase Design Partnership. The format for the displays was identical: a panel, roughly 30” x 30”, that was to depict those materials each participant considered key to future work. Yet there was a good deal of diversity among the presentations. While some designers stuck closely to the program with collages of wood, steel, resin, textiles, stone, glass and such, others favored more artistic or politicized approaches. Panels by Michael and Katherine McCoy and Tucker Viermeister and his Smart Design team represented the emerging waste-not-want-not design ethic with reconstituted foam, crushed cans, fragments of paper, plastic, and glass. Architect Michael McDonough’s panel presented the U.S. flag, composed of aluminum cans—a “appropriation art” piece that alluded to recycling, while paying homage to Andy Warhol and Jasper Johns. Those who didn’t make it to Westweek will have other opportunities to view the show, which is slated to tour the country and abroad over the next two years.

Even in the midst of a serious drought, L.A. seemed energized, filled with optimism. Westweek’s theme, entitled “L.A. 20/21: Design. Business. The Next Century,” positioned the sprawling metropolis as a future capital of creativity and Pacific Rim commerce. The atmosphere among manufacturers, however, was less upbeat. Business in the past year has been slow across the board, and the industry has undergone widespread mergers and acquisitions, which left many showgoers confused. The large companies have recently been acquiring smaller manufacturers, or even portions of their product lines, to round out their own offerings. The smaller firms that seem most likely to survive the current shakeout are those who have strong regional markets or specialized “niche” products.

There were relatively few new product launches. Among them, most notable was the Triuna collection from Geiger International, a line of freestanding wood office furniture designed by Manfred Petri that is compact in scale, handsomely proportioned and detailed with subtlety and precision. Knoll won our vote for most original party: The company celebrated the introduction of an impressive fabric collection by Hazel Siegel at Santa Monica’s hangar-like Museum of Flying, where guests in glad rags milled amid wonderful, lovingly maintained vintage planes, and where not a scrap of the feted textiles was in sight.

Ziva Freiman

Canadian Competition Yields Modernist Winner
The Toronto firm of Kuwabara Payne McKenna Blumberg has been named the winner of a national design competition for the Kitchener, Ontario, City Hall and Civic Square. The contest was significant, both for its results and its rarity: The last time an open competition for a public building was held in Canada was in 1983, for the Mississauga City Hall and Civic Square. The winning scheme, by Edward Jones and Michael Kirkland (P/A, Aug. 1987, p. 69), was so widely noticed that Kitchener, a city of 160,000 located 60 miles southwest of Toronto, decided to follow Mississauga’s example.

Youth and Modern Revivalism carried the day, thanks in part to a jury that included architects Alan Colquhoun, Peter Rose, and Richard Henriquez. Of the five shortlisted firms, only one had existed prior to 1987; the principals of KPMB, the winning firm, had all been associates of Barton Myers before he moved his office to Los Angeles three years ago. Bruce Kuwabara, who, with Howard Sutcliffe, headed the winning team, had been involved with Myers’ proposals for Mississauga City Hall, the Phoenix Municipal Government Centre, and the National Gallery, among others. The experience shows.

KPMB designed a low U-shaped wall containing offices to make the edges of the complex square. Clustered within the walls are the three main volumes of the City Hall: a metal-clad council chamber; the Civic Rotunda, a cylindrical, stone-clad assembly room with steel and glass roof; and a ten-story, glass-skinned office building set perpendicular to the plaza. Engaging with the office slab is a transparent tower that serves as both weather beacon and landmark. The massing was meant to emphasize public gathering over civic business. While not radical, the scheme is polished, city-sensitive, and democratic in spirit.

Adele Freedman

The author, a frequent contributor to P/A, is design critic for The Globe and Mail of Toronto.
Conference Surveys Organic Architecture Today

"Organic Pluralism," an international symposium on design, held February 28 to March 3 at the University of Oklahoma in Norman, explored multiple interpretations and transformations in ideas and images. "Architecture is invention; it is innovative. But it is also remembering," said keynote Jay Jones, the 1990 AIA Gold Medalist.

Academic discourse ranged from the Tao in Wright to Heidegger on hermeneutic perception; from Emerson’s transcendental Nature to fractal physics; and from biophoric imitations to the admissions of "an innocent eye": "Not until I left the cornfields did I realize that the so-called avant-garde, the Ivy dancers of stone were hollow . . ." said Cincinnati architect Terry Brown. The fertility and depth of organic scholarship was paralleled by the slide fests of practicing architects, which displayed stunning buildings, from flourishing practices in unexpected places, typically the work of loners and small offices. The sweeping shelters of John Lautner, with their dissolving lines of enclosure; the intricacies of light and space in the work of Kendrick Bangs Kellogg of California; and the shifting crystalline geometrics and restless weightlessness of Bart Prince's houses documented three generations of living and lively organic architects.

Thus the illusions that organic architecture died with Bruce Goff, and that the only academic source of organic ideas was the Great Plains, were again vividly dispelled. Internationally, generations of public buildings in West Germany and a new organic generation in Hungary with the manifesto "Only From Pure Sources" suggested continuous and spontaneous polygeneses. Indeed, the depth of historic work was overshadowed by the vitality of current activity.

Those seeking organic congruence or even a dominant camp were sorely disappointed. Critic David Clarke challenged that organic definitions of site suitability, program responsiveness, and construction integrity were not exclusive, but common to architectural successes since Vitruvius. Scholars and practitioners agreed. The organic difference was not in superficial style but in the authenticity of the process, not in the congruity of appearance but in the primacy of principles, not in the imitation of nature but in the analogy of life. Jeffrey Cook

The author is Regents Professor of Architecture at Arizona State University and an author on organic architecture.

Paper Architects "Build" in New York Gallery

"Paper architects" draw a lot of fire in this country, where confusing one’s ideas to the theoretical realm often seems like a cop-out. But in the restrictive building climate of the Soviet Union (now harpered not by ideology but by construction bureaucracy and a dearth of material choices) works on paper have been the most inspiring output in recent years. The etchings of the best known of the Soviet “paper architects,” Alexander Brodsky and Ilya Utkin, were recently on display at Ronald Feldman Fine Arts in New York.

Brodsky and Utkin, like many of their colleagues, have made a name (and a living) for themselves by winning theoretical competitions in Japan and Europe, addressing programs like “a glass monument to the year 2001.” Their solutions sometimes deal with specific questions of architectural form but more often seem to be commenting on social and philosophical

Hoshino Wedding Chapel by Kendrick Bangs Kellogg.

In a manner similar to their other work, (The egg was also seen at San Diego State University last fall.) The etching on which it is based proposes three such eggs in a sculpture garden they call an “island of stability” for “those who believe in heavy things that are difficult to move.” The piece is as thought-provoking as the rest of their work, and as removed from architectural reality, but, perhaps as they intended, it is far from two-dimensional. Mark Alden Branch

Brodsky & Utkin's "Villa Claustrophobia" (right) and New York installation (far right).

AIA Announces Award Winners

The AIA will confer its Institute Honors on nine people, projects, and institutions at the annual convention in Houston this month. Also announced recently were the winners of the Institute’s Topaz Medallion; Whitney M. Young, Jr. Citation; and Edward C. Kemper Award.

Institute Honors, chosen annually by a special AIA jury, are presented for "significant contributions to the environment and the profession of architecture." This year’s honorees are:

• the 100-year-old Association for the Preservation of Virginia Antiquities;
• Corning, Incorporated, the glass manufacturer, for their commitment to design;
• public artist Jackie Ferrara, New York;
• architectural photographer Timothy Hurst, Little Rock, Arkansas;
• mechanical engineer Marvin Mass of Cosentini Associates, New York;
• artist Mary Miss, New York;
• landscape architect Peter Rolland;
• model builder Joseph Santer of John Burgee Architect, New York;
• the Taos, New Mexico, Pueblo;
• landscape architect Emmet Wemple, Los Angeles.

This year’s Topaz Medallion for Excellence in Architectural Education, awarded jointly by the AIA and the Association of Collegiate Schools of Architecture, goes to Raymond Kappe, FAIA, founder of the Southern California Institute of Architecture (SCICA) in Santa Monica.

Harry G. Robinson, III, AIA, has been awarded the Whitney M. Young, Jr. Citation, named for the late Urban League director who "challenged the architectural profession to assume its responsibility on contemporary social issues." Robinson is dean of the Howard University School of Architecture and Planning in Washington, D.C.

The Kemper Award, which AIA calls its "highest service award," will be presented to Henry W. Schirmer, FAIA, a former AIA treasurer and a "pioneer in compensation management strategies." Schirmer, a Topeka, Kansas architect, is currently publisher of ProFile, the AIA directory.

Also announced recently was the selection of 62 architects for induction into the AIA’s College (continued on next page)
of Fellows. The new fellows are:

- Ned H. Abrams, Sunnyvale, Calif.; Ronald Arthur Alton, Los Angeles; Christopher Arnold, San Mateo, Calif.; Douglas Henry Austin, Del Mar, Calif.; Michael John Bednar, Charlotteville, Va.; Walter Scott Blackburn, Indianapolis;
- Richard H. Bradfield, Atlanta; Adrienne Green Bresnan, New York; Joseph Bresnan, New York; M. J. Brodie, Washington, D.C.; Theodore Butler, Minneapolis; Brent E. Byers, Dallas;
- Clifford Contini, Los Angeles; Christopher Coover, Phoenix, Ariz.; Brent E. Byers, Dallas; Alex Cvijanovic, Waterhouse, Mass.; Norman R. De Haan, Chicago; Panayotis Eric Devaris, Basking Ridge, N.J.;
- Gerald Gurland, West Orange, N.J.; A. Bruce Etherington, Honolulu; Charles Harrison Pawley, Coral Gables, Fla.; Thompson Edward Haan, Chicago; Panayotis Eric Devaris, Basking Ridge, N.J.;
- Mary Elizabeth Olenick Dougherty, Newport Beach, Calif.; William Eng, Champaign, Ill.; A. Bruce Etherington, Honolulu; James R. Foster, San Antonio; Leslie M. Gallery, Philadelphia; Truitt B. Garrison, Houston; Dean W. Graves, Overland Park, Kansas; Robert E. Greger, Pleasant Ridge, Mich.;
- John Only Greer, Bryan, Texas; Gerald S. Hammond, New Orleans, La.; John Only Greer, Bryan, Texas; Gerald S. Hammond, New Orleans, La.;
- Unidentified candidate, San Antonio; Robert C. Gribble, Phoenix, Ariz.; Virginia S. March, West Hartford, Conn.; Kermit James Lee, Jr., Syracuse, N.Y.;
- Marcel Breuer, Eero Saarinen, Ludwig Mies van der Rohe, and a host of others who, like Noyes himself, produced a generation of remarkable and enduring corporate facilities all over the globe.

The company's earlier buildings, intended exclusively for use by IBM itself, are perhaps the most distinguished. They are smaller in scale than the newer projects, and they reflect a concern for the symbolism campus-like sites by which IBM became known. In recent years, though, IBM has ventured into central-city commercial real estate development, with major projects now under way in Washington, Minneapolis, Toronto, and Montreal among other cities. These newer building schemes seem only conventional, not forward-looking. They appear to result from the dictates of the speculative real estate marketplace, not from the vision and drive of a unique, successful business organization that regards excellent design as its watchword.
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Copyrights (continued from page 26)

which would protect only unique or one-of-a-kind buildings.

Saying that this approach would establish an impractical and imprecise standard, the AIA urged that legislation not require judgment of artistic quality or merit in order to grant copyright. Similar objections to H.R. 3991 were voiced by Graves, the Commissioner of Patents and Trademarks, and by the Frank Lloyd Wright Foundation, all of whom supported H.R. 3990.

At least one wrinkle remains. The draft bill places limitations on owners' rights to alter or destroy copyrighted architectural works, reflecting the view that architects, as artists, have a vested interest in the artistic integrity of their work. This might have the effect of requiring that owners retain the original architect (or that they obtain permission from the copyright holder, who may be different) for any significant alterations. This provision appears to have little chance of surviving.

With a few modifications that Congress seems likely to make, according to Albert C. Eisenberg, the AIA's senior director for federal liaison, H.R. 3990 should satisfy a majority of architects' concerns about copyright protection. He is optimistic that the bill would move through Congress this year.

Dallas towers by Fujikawa Johnson.

Towers Suggest Texas Comeback

New downtown skyscrapers in Houston and Dallas have been announced, providing a symbolic end to the building drought throughout Texas that followed the explosive growth and collapse of the oil market in the 1980s.

Lone Star Plaza in Dallas, a pair of 48-story glass-and-granite towers being developed by Metropolitan Harbord Joint Venture, will stand on a site next to Pei Cobb Freed & Partners' new Meyerson Symphony Center (P/A, Nov. 1989, p. 23). Designed by architects Fujikawa Johnson of Chicago, with F & S Partners of Dallas as associated architects, the tower will be the first to rise in Dallas since 1986.

In Houston, oilman/developer George P. Mitchell announced in March that he is seeking to buy and build on the block once owned by Houston's Southwest Bancshares, which in 1982 staged a competition for a new headquarters building on the site. Helmut Jahn of Murphy/Jahn won the competition with a slender obelisk of glass, aluminum, and granite that harkened back—daringly for the time and the corporate context—to 1930s towers such as the Chrysler Building.

By 1983, however, Southwest Bancshares had been forced by bad energy and real estate loans to merge with Mercantile Texas Corporation, which was itself later seized by federal regulators, who turned the site over to the Resolution Trust Corporation, the federal agency charged with auctioning off properties formerly owned by bankrupt Texas banks and thrifts.

A spokesman for Mitchell says that the developer, who was strongly impressed by Jahn's design when he served on Southwest Bancshares' board, will almost certainly build the 1982 tower if he can acquire the site, despite the intervening years and the fact that a remarkably similar Jahn design, One Liberty Place (P/A, March 1990, p. 105), was recently completed in Philadelphia. Joel Warren Barna
New Plaza Near Home of Columbus

Joining the built manifestations of the quincentenary celebration of Christopher Columbus's voyage to America will be a new plaza on the site of Columbus's home in Genoa, Italy. Machado & Silvetti Associates of Boston has won a competition to design the plaza, known as the Piazza Dante.

The winning design takes advantage of a site that lies between the walled medieval city of Genoa and the city's modern commercial center, employing a ramp and stair as connecting elements. The "essential lure" of the plaza, say the architects, is a fountain that originates in the slanting wall at the top of the plaza and ends in a pool below. The use of water and the shiplike design of the granite-and-steel stair are among the plaza's nautical allusions. A broad, low set of steps at the foot of the ramp draws attention to the house of Columbus at one side of the plaza. The $11-million project is scheduled for completion in time for the 1992 quincentenary.
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Calendar

Exhibitions

**Out of Site**
Through May 19

**Louis Sullivan**
Through May 20

**Charles Moore**
Through May 25

**USA/USSR: Urban Projects**
Through May 31

**Désiré Despradelle**
Through June 10

**Kahn’s Museums**
Through June 17

**Emilio Ambasz**
Through July 1

**Ernest Cormier**
Through October 14

**Visionary San Francisco**
June 14–August 26

**Alabama Office/Courthouse**
Registration deadline May 18

**AIA Urban Design**
Entry deadline June 4

**Project Atlas**
Entry deadline June 5

**New York.** Winning projects from “Out of Site”—the Architectural League’s ninth annual competition for architects and designers out of school ten years or less—are exhibited. Urban Center.

**Southampton, New York.** “Louis H. Sullivan: Unison with Nature” focuses on the architect’s masterful synthesis of natural elements with early tenets of 20th-Century Modernism. Original ornament in tin, wood, and iron and reproductions cast from original plaster, limestone, and terra cotta forms are supplemented by drawings and photographs. The Parrish Art Museum.

**Dallas.** Moore’s Post-Modern aesthetic is documented in a show of buildings and projects; a series of temple-like structures, designed by the architect to “illustrate allegorical qualities of architecture,” supplement the exhibition. Contract Design Center.


**Cambridge, Massachusetts.** “From the Ecole to Tech: Désiré Despradelle, His Colleagues and Students” is a presentation of the Beaux-Arts-educated architect’s work including the Beacon of Progress, an unrealized proposal for the world’s tallest building, planned for the Chicago 1893 Columbian Exposition. MIT Museum.

**Fort Worth, Texas.** Louis Kahn’s legacy of influential museum designs is studied through a series of sketches, ground plans, elevations, sections, and presentation drawings. Kimbell Art Museum.

**Chicago.** This traveling exhibition of Ambasz’s architecture and graphic and industrial designs originated at the La Jolla Museum of Contemporary Art, California. The Art Institute of Chicago.

**Montréal.** An exhibition of sketches and drawings analyzes Cormier’s designs for the Université de Montréal in the context of his other works and as an influential force in the design of university architecture both domestically and abroad. Canadian Centre for Architecture.

**San Francisco.** Utopian plans—both built and unrealized—for San Francisco from the turn of the century to the present are supplemented by four commissioned “visionary” plans by teams of architects and writers. Museum of Modern Art.

Competitions

**Mobile.** A one-stage open national competition is being held by the County of Mobile for a combined county courthouse and office building. Contact: Clifton M. Lambert, Mobile County Design Competition, P.O. Box 40471, Mobile, Alabama 36640.

**Washington, D.C.** Submissions for the 1991 Citations for Excellence in Urban Design may include urban design or redevelopment projects, planning or environmental programs, or civic improvements that contribute to the quality of the urban environment and that involve the public in the planning process.” Contact Bruce Kriwsky, AIA, Director Design Programs, 1735 New York Ave., N.W., Washington, D.C. 20006 (202) 626-7452.

**New York.** Twelve “obsolete and abandoned” Atlas missile bases in New York State set the stage for this international competition which asks: “Are... (continued on page 34)
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Calendar (continued from page 33)

The silos monuments to a time we have left behind or will they remain precursors to an empty world? Acceptable entries include: "any proposition and/or ideas in the form of drawings, models, text, concepts, or actions." An exhibition of proposals selected by an international jury will be on view in the fall. Contact Storefront for Art and Architecture, 97 Kenmare Street, New York, New York 10012 (212) 451-5795.

Boston. The American Society of Architectural Perspectivists has invited entries for the fifth annual North American Exhibition of Architectural Delineation to be held November 14–16. The fourth annual Hugh Ferriss Memorial Prize, two best in category, and three jurors' awards will be given. Contact Frank Costantino, ASAP, 320 Newbury Street, Boston, Massachusetts 02115 (617) 846-4766.

Cambridge, Massachusetts. "Double Vision," the fourth annual Society of Environmental Graphic Designer's competition, will use a "double jury process in which work is evaluated separately by designers and representatives from the private sector." Winners from both juries will be presented at the SEGD national conference in Michigan, August 2–5. Contact SEGD, 47 Third Street, Cambridge, Massachusetts 02141 (617) 577-8225.

New York. "Bridging the Gaps: Pedestrian Connections in the City," a competition sponsored by Columbia University School of Architecture and Building Arts Forum/New York, calls for the design of a pedestrian connection between downtown Manhattan's civic and commercial centers. Contact Bridging the Gaps, Columbia University, Graduate School of Architecture, Planning and Preservation, 400 Avery Hall, New York 10027.

Washington. Exterior or interior rehabilitation, sympathetic additions, and bed & breakfast inns are the four categories for nomination in an awards program for restoration of old and historic houses sponsored by the National Trust for Historic Preservation and Historic Preservation magazine. Contact Home Renovation Awards, % Historic Preservation, 400 Avery Hall, New York 10027 (enclose a self-addressed stamped envelope).

Postal Facility Design

Entry deadline July 2

Washington, D.C. The U.S. Postal Service, in cooperation with the Design Arts program of the National Endowment for the Arts, has made a call for projects or programs completed between January 1, 1980 and January 1, 1990 that "reflect outstanding achievement in the design, construction, renovation, or preservation of Postal Service facilities." Contact National Honor Awards, Office of Design and Construction, Facilities Department, U.S. Postal Service, 475 L'Enfant Plaza, S.W., Washington, D.C. 20260-6410 (202) 268-3899.

21st Century Landscapes

Submission deadline July 7

Southern Home Awards

Entry deadline July 31

Washington, D.C. Landscape Architecture magazine has made a call for unbuilt projects - speculative, abandoned, and to-be-built schemes are eligible - in an effort to stress "the need for critical design thinking and exploration in landscape architecture." Anyone may enter. Contact Landscape Architecture, Department UL, 4401 Connecticut Avenue, N.W., Washington, D.C. 20008.

Birmingham, Alabama. Southern Living® magazine has announced a call for entries in its 1991 residential design awards program. Winning entries will be published in the May 1991 issue. Contact Southern Living®, Box 525, Birmingham, Alabama 35201 (800) 366-4712 ext 6539 (enclose a self-addressed stamped envelope).

Conferences

AIA National Convention

May 19–22

Houston. "Pushing the Limits" is the theme for this year's convention held at the George R. Brown Convention Center; technical seminars; a new products, design, and technology exposition, and keynote speeches by James Burke, Joel Garreau, and Michael Rotondi are scheduled. Contact John Gaillard, AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006 (202) 886-7397. (continued on page 36)
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**UIA XVII Congress**  
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**International Tile Expo**  
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**NEOCON® ’90**  
June 12–15

**Lighting World**  
June 14–18

**Third World Housing**  
June 18–29

**CSI Convention**  
June 29–July 1

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**Calendar** (continued from page 34)

New York. The second annual International Contemporary Furniture Fair, at the Jacob Javits Convention Center, will again focus attention on the work of small, independent furniture designers from the United States and abroad. Contact Marianne McNamara, George Little Management, 2 Park Avenue, New York, New York 10016 (212) 686-6070.

Montreal. "Culture and Technologies" is the theme for this meeting of the International Union of Architects. Workshops, an art and architecture film festival, book fair, computer show, and trade exhibition are among the many events planned. Contact Congress Secretariat – UIA XVII, % Société La Clé, 640 Saint-Paul Street West, Suite 102, Montréal, Québec, Canada H3C 1L9 (514) 393-1500.

Anaheim, California. The International Tile Exposition will take place at the Anaheim Convention Center. Contact TSI, 1016 North Clemens Street, Suite 406, Jupiter, Florida 33477 (407) 347-9400.

Atlanta. Computer graphics, computer, construction, and management systems, and reprographics are among the topics to be discussed; an exhibit will be held June 13–15. The conference will be held at the Georgia World Congress Center. Contact Sharon Price, A/E/C SYSTEMS®, P.O. Box 11318, Newington, Conn. 06111 (800) 451-1196.


Chicago. An extensive schedule of keynote sessions and seminars focusing on the expanding global market, receptions, awards presentations, and new product launches are planned at The Merchandise Mart and around the city (see p. 159). Contact Mary C. Tasch, Contract Furnishings, 470 The Merchandise Mart, Chicago 60654 (312) 527-7550.

Chicago. The biannual Lighting World exposition – new product launches and seminars on product, technology, and industry trends – will be held at McCormick Place North. Contact Lighting World, % National Expositions, 15 West 39th Street, New York, New York 10018 (212) 391-9111.

Aspen, Colorado. The 40th International Design Conference will concentrate on the built environment as seen and felt by children: "...we are our children’s past, their heritage, the shapers of their aesthetic values and the designers of the world they inherit." Contact Deborah Murphy, IDCA, P.O. Box 664, Aspen, Colorado 81612 (303) 925-2257.

Cambridge, Massachusetts. An international shelter workshop is divided into two week-long sessions. The first will be on the roles and responsibilities of lenders, governments, and communities in urban planning; technical workshops will be held during the second session. Contact Nabeel Hamdi of lenders, governments, and communities in urban planning; technical workshops will be held during the second session. Contact Nabeel Hamdi, 2 Park Avenue, New York, New York 10016 (212) 686-6070.

Chicagoland. The Construction Specifications Institute’s 34th annual convention and exhibit will offer 39 educational sessions – on topics from construction technology to business administration. Over 1000 booths of nonresidential building products will be on display. Contact CSI, 501 Main Street, Alexandria, Virginia 22314-1791 (703) 684-0500.

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**Notice**

In order to provide timely calendar information to our readers, listings information should be submitted one and one-half months prior to publication (May 15 for the July issue, for example). For possible inclusion, please send relevant information to Abby Bussell, P.A., 600 Summer Street, Stamford, Conn. 06904 or FAX (203) 348-4023.
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The Best Building Material You Can't Yet Buy

Autoclaved Cellular Concrete (ACC) is a precast concrete foam that can be used for building blocks and panels. ACC is not produced or readily available in the United States or Canada but is a major building material throughout most of the world. As North American architects and builders increasingly compete in a global market, the domestic construction industry must consider building materials such as ACC to meet the construction needs of this country.

Indeed, increased attention in the United States is already being focused on ACC. Planning is under way for ACC factories in Florida and New Jersey. Several other entrepreneurs and foreign companies are actively investigating U.S. manufacturing or importation of ACC. A major materials company was close to a commitment to build several ACC production facilities in the U.S. until it redirected its plans last fall. West Virginia University, which has formed an ACC Study Center to act as a clearing-house for information, attracted over 50 interested parties to a national conference on ACC last November. And several demonstration projects have recently been constructed in the U.S. Further laying the groundwork for ACC here has been the evaluation of the material by the Council of American Building Officials and HUD. Other building code approvals are pending.

**Manufacture and Properties**

To produce ACC, a slurry of portland cement, lime, silica sand or fly ash, and water is mixed with a small amount of powdered aluminum and poured into molds. The aluminum reacts chemically to release millions of tiny hydrogen bubbles that expand the concrete to as much as five times its original volume. Within a few hours, the concrete foam cures enough to be stripped from its mold. It is then sliced into blocks or slabs of the required size and steam cured in an autoclave. Because it is fully hydrated, ACC is more dimensionally stable than conventional concrete. In fact, ACC turns to rock, forming microscopic crystals of the mineral toborormorite, a form of calcium silicate hydrate.

What makes ACC attractive as a building material is its unique combination of properties. It is light weight, thermally efficient, fire resistant, durable, and load bearing. ACC is typically produced at densities as low as 35 pounds-per-cubic-foot, less than that of wood. Its myriad small cells result in a thermal conductivity k of about 0.8 Btu/ft²(\(\text{hr}\))/F/in thickness, significantly lower than conventional concrete or masonry; in mild climates, ACC walls or roof decks may require no additional insulation. ACC also is noncombustible; partitions only three inches thick can provide an amazing three hours of fire resistance.

ACC is relatively inexpensive to manufacture and erect, with installed costs estimated to be lower than most comparable building systems. ACC's light weight not only reduces structural dead loads, it can also boost productivity because larger blocks or panels can be lifted and placed without heavy equipment. Although large ACC blocks are fabricated with handles for easy lifting and fast erection, blocks can be used in the same ways as conventional concrete masonry and laid with either thin mortar beds or surface bonded construction techniques. For panels, steel reinforcing is placed in the molds. Panels are factory cut to length and capable of any special edge or surface treatments. They can be used for exterior single wythe walls and cavity walls, fire rated partitions and shaft walls, and roof decks. Compared to other types of walls which must be assembled from many components, prefabricated ACC panels offer structural, insulation, fire protection, and weather resistance all in one piece. ACC also can be easily cut to

(continued on page 44)
In Europe, many parts of structures use ACC.

Technics Topics (continued from page 43)

fit field conditions using conventional hand or power tools. Wiring can be run in ACC without conduit by drilling or routing raceways in the material.

Design opportunities abound with ACC. While the material can be exposed to the weather, it readily accepts a variety of finishes including paint, stucco, synthetic plaster, ceramic tile, and thin brick or stone veneer. Because it can be cut so easily, the material also can be sculpted to form bas relief, ornament, graphics, and other architectural embellishments. Sculpting can be done either in the field on erected walls, or in the factory. Japanese firms, for example, produce ACC panels with a wide range of geometric surface patterns. And the ease with which custom designs can be executed will undoubtedly improve as the designers' CAD system is linked directly to the manufacturers' numerically controlled computer-aided manufacturing system.

ACC shares its ability to be shaped with the plastic foam used in exterior insulation and finish systems (EIFS). However, more elaborate shapes are possible with ACC because it does not need to be wrapped in fabric mesh. ACC is also similar to EIFS in that both are light weight, insulating, and economical. But ACC does not present the fire hazard of plastic foam, has fewer separate components to assemble, and is more durable. ACC is a "structural insulation and finish system."

The Material's Market

ACC was produced as early as the 1920s, but it was after World War II that its use rapidly increased. Commercialized first in Sweden and Germany, it spread to the rest of Europe and then around the world. Today, over 200 plants in at least 35 countries produce more than eight billion cubic feet per year. The only North American plant is in Mexico City, although a plant operated in Montreal during the 1970s and produced several hundred buildings. Buildings built with material from the Mexico City and Montreal plants have held up well and provide evidence of ACC's performance in varied North American climates. Several ACC projects have been constructed recently in this country using imported materials. These include two projects in Florida: an office and factory for a Swedish firm and a housing prototype for a German developer. Another recent project for Consolidation Coal Company used ACC blocks in an underground mine to partition tunnels to create ventilation shafts. A primary advantage of ACC in the mine was that the blocks could be moved into place easily and with minimal risk of back injury.

But if ACC is such an outstanding building material, why isn't it (continued on page 46)
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already widely used in the United States? This question has been asked for so many decades that it has fostered an atmosphere of skepticism which may be ACC's single biggest hurdle to overcome here. The answer sheds light on the marketing and economic forces that shape the palette of materials available to contemporary architects. Complete with autoclaves and the automated equipment to slice the loaf of green concrete into blocks and panels, an ACC factory costs an estimated $10,000,000. Because ACC is bulky to transport, each plant has only a limited market area from which to recover the initial investment. In this country, ACC not only faces an unknown market demand, but solidly entrenchedcompetition from concrete masonry, metal building panels and roof decks, precast concrete, EIFS, gypsum board partitions, and other materials. The missionary work required to gain acceptance for a significantly different building material can take years. These factors exceed the risks most investors are willing to take.

Coming changes in society and construction, however, appear to favor ACC's unique characteristics. For example, the construction industry is facing a growing shortage of skilled labor, which could favor prefabricated and easy-to-install ACC panels over field-fabricated masonry. Throughout most of our young country's history, wood has been the dominant building material, and our primary approach to fire protection has been to separate buildings with open space. As our country matures, however, the greater permanence and fire resistance of ACC may be in greater demand. And the growing desire to compete around the world, plus the cross-fertilization between U.S. designers practicing abroad and foreign developers working in the U.S., will undoubtedly continue to stimulate interest in ACC.

Another reason why ACC is attracting more attention is that it is an environmentally friendly material. ACC is inert and non-toxic. It is produced with environmentally sound, low cost, and readily available raw materials. In fact, by using fly ash, a waste product of coal-fired electrical generators, ACC even mitigates a solid waste disposal problem faced by electrical utilities. Manufacturing requires relatively small amounts of energy and does not release pollutants; scrap can even be ground and put back into the mix. Since it does not burn, ACC does not release toxic particles of combustion nor does it contribute to indoor air pollution problems. On the contrary, ACC allows vapors and concentrations of other gases to diffuse through its cellular structure and has been endorsed by European environmental agencies, including the Federal Association for Healthy Building Products and the International Institute for Healthy Construction. Environmental concerns about plastic foam and fibrous insulation materials are other reasons to consider ACC as an alternative to currently used materials.

As with any unfamiliar building technology, designers and builders will have to learn how to specify and erect ACC. And while ACC is a proven building system, it may have to be modified to accommodate domestic construction practices. For example, windows and wall penetrations must be carefully detailed to avoid the entry of water into the cellular concrete. But other foreign building technologies, such as single-ply roofing and EIFS, have been integrated successfully into domestic construction practice; ACC will eventually find a place here, too. Architects with projects overseas should use the opportunity to gain experience with ACC. It is a building material that you will be hearing more about and should prove to be a welcome addition to the architectural palette.

The author is an architectural consultant specializing in the introduction of new building materials. He has researched ACC in the U.S. and presented his findings at the West Virginia University ACC Conference.

Recommended Reading
YTONG Roof, Floor, Curtain Wall and Partition Autoclaved Lightweight Concrete Panels and Precision Blocks, NER-192, CABO, 1989.

Manufacturer Representatives
Durox, Cecil W. van Veld, 2301 Musgrove Road, Silver Spring, Md. 20904, (301)-384-6531.
Greisel Baustoff GmbH., Franz Greisel, Jr., P.O. Box 690189, Orlando, Fla. 32869-0189, 407-869-5509.
Thermalite Ltd., David Preston, Thermalite House, Station Road, Coleshill, Birmingham B46 1HP, United Kingdom, Phone 0675-62081.
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Technics: Natural Light in Museums: An Asset or a Threat?

Conservation consultant Steven Weintraub and lighting designer Gordon O. Anson question the roles of and relationships between natural and artificial light in museums.

Architects have reintroduced natural light into museums in their search for quality illumination. To what extent has the use of natural light improved the experience of viewing artwork, and to what extent has its presence accelerated the rate of damage to museums' collections?

There are many examples of artworks that have been damaged by daylight, which has more potential for harm than most conventional artificial sources of illumination. The museum designer must know both the dangers inherent in various light sources and the visual advantages of these sources to find a proper balance between aesthetic and conservation concerns. Ultimately, the seemingly opposite requirements of good lighting and conservation must be synthesized to find a solution that satisfies both goals.

Ambient vs. Task Lighting

The obvious function of light within the museum is the illumination of art, referred to as "task lighting." An equally important function of light is its general use within the physical space of a gallery, referred to as "ambient lighting." These two functions, while related, are quite different and need to be discussed separately.

Ambient lighting defines the general experience of light within a gallery, independent of how it affects the specific experience of viewing works of art. Many of the advantages attributed to natural light actually deal with the psychological mood that it conveys within an interior space. The two most frequently cited advantages of natural light are: the experience of not being confined within an enclosed space and the changing quality of natural light over time.

Task lighting deals with illuminating works of art without regard for its effect on the overall physical space. Task lighting can be divided into three critical components in terms of how it affects the visual experience: spatial distribution of the illumination, the intensity of the light source, and the spectral distribution of the light.

Spatial Distribution. Shadows and gloss on a surface are caused by directional sources such as incandescent lamps. Shadows are eliminated under nondirectional diffuse light; this makes surfaces appear flat and matte. In addition, there is a loss in colorfulness as a result of veiling reflections caused by nondirectional...
functions within this space has not for illumination. The side of the "natural light fixture." The contrast in color temperature between the wall softens the awareness of the barrel vault to the warm tone of transition from the cool gray tone of cent spotlights hang from the under­

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sion, the quality of natural light is

sources such as natural or fluorescent light through a diffusing laylight. From a practical standpoint, many naturally lighted galleries use some diffusion to re­duce the high intensity of direct sunlight and to dis­tribute light uniformly around a room. Diffuse laylights also hide duct work, light louvers, and other distracting elements hidden in the ceiling zone. But too often, such diffusion also destroys much of the quality that we associate with natural light. As an alter­native, properly designed reflected light can provide general control and still maintain directionality, although it is difficult to provide acceptable light distribu­tion in all directions at the same time.

Intensity. The human tendency to prefer high light levels must be weighed against conservation concerns favoring lower light levels. In general, conservation specifications call for an average of 20 footcandles (fc) for moderately sensitive materials such as oil paintings and 5 fc for sensitive materials such as textiles and paper. These values, discussed in Garry Thomson’s The Museum Environment, are based on a compromise between long-term preservation needs and the ability to view art comfortably with good color perception. Thomson cites studies showing that these illumination levels are acceptable as long as the objects are exhib­ited under controlled conditions of ambient light and where sufficient time is allowed for the eye to accli­mate at these light levels.

Light Intensity Adaptation. Although the eye is capa­
bility of adapting to different intensities of illumination, adaptation requires time, and this must be considered in the design. The most successful museum spaces allow for a transition from brightly lighted entrances and atriums into illu­more controlled exhibition spaces.

The East Wing of the National Gallery in Washington, D.C., for example, uses a series of galleries with gradu­ally decreasing light levels to achieve a transition from the brightly lighted central core. In other museums, such as the Degas Room in the Metropolitan Museum of Art’s Andre Meyer Galleries, the visitor proceeds directly from a bright zone into a darker, controlled exhibition zone. Here, the change in light levels is abrupt and discomforting. The visitor initially per­ceives these galleries as being dark. Within a few min­utes, however, after the eye has fully adapted, there is sufficient light to view the collection on display. The problem is that the visitor is aware of the large differ­ence in light levels, so the psychological impression of darkness remains.

Even within a room, light adaption must be consid­ered. The eye uses the brightest surface as a reference point. If a luminous ceiling is many times brighter than the surrounding walls, the walls may seem dark, even if they are illuminated at a "high" value of 50 fc. Highly reflective white walls make it difficult for the eye to adjust to the less reflective surface of dark paintings. Reduction in contrast between wall surfaces and paintings reduces the need or time for brightness adaption; maximum visual resolution is achieved when all surfaces have similar reflectance.

One of the ironies of naturally lighted galleries is that many paintings look brighter at night under an artificial light source than during the day when illumi­nated by a combination of natural and artificial sources. For example, a painting lighted during the day at 50 fc may appear dark because the surrounding walls and ceiling are very bright. At night, when il—
luminated at 20 fc by a focused spotlight, the painting appears very bright since it is the most brightly illuminated surface in the room.

The Relationship of Color Temperature to Intensity. In general, people prefer low color temperature, "yellow" lights to a high-color temperature, "blue" lights at low-intensity levels. This is why many people complain about uncomfortably low light levels in painting galleries naturally illuminated at the recommended level of 20 fc. When the same gallery is illuminated at 20 fc with a warm, incandescent lamp, the light level is perceived as being brighter and more comfortable. This relationship of color temperature and light intensity is summarized in the Kruithof curve (see graph). According to Kruithoff's study, at 20 fc the most pleasing illumination is between 2700 and 3800 Kelvin (K). (Ordinary tungsten filament lamps have color temperatures in the range of 2750–2950 K.) If the color temperature of a naturally lighted gallery averages around 6500 K, over 40 fc are required to achieve pleasing illumination of the art. While some specialists have questioned the Kruithof curve, experience suggests that the general correlation of color temperature, intensity, and visual comfort is true at low light levels. Therefore, the question for museum designers is whether or not a painting gallery can be comfortably illuminated exclusively with high-color temperature natural light at the levels specified by conservators. According to Kruithof, the answer is no.

Spectral Distribution. Light sources differ in their characteristic spectral energy distribution. Daylight is rich in blue, but the actual color temperature varies dramatically with the time of day. An incandescent source has little energy at the blue end and a great deal of energy at the red end of the spectrum. Fluorescent lamps vary with the type of tube and tend to give off an uneven color spectrum. As a result, they cannot accurately be characterized by color temperature.

Factors Affecting Visual Perception

Rudolf Arnheim remarked that "color is the most capricious dimension of visual imagery." This is because our perception of color is determined by the interaction of a number of physical, physiological, and psychological factors. With regard to museum lighting, four major factors should be considered: the spectral absorption and reflection characteristics of the object's surface, the spectral distribution of the lamp source, the relative sensitivity of the eye to different parts of the visible spectrum, and the ability to perceive colors and relationships between colors in the same way regardless of the type and color temperature of the illumination source. (This is referred to as "color constancy.")

Color Constancy. Perhaps the most critical argument in favor of natural light in museums is that it is the truest color-rendering source. If the concept of color constancy is correct, then the eye and brain should be able to adapt to different lighting conditions without perceptual differences. The source — whether it is natural, incandescent, or fluorescent light — shouldn't matter. But how true is color constancy?

To understand how color constancy works, it is necessary to consider the three major components of color: hue, saturation, and brightness. Hue refers to what we normally think of as color such as red, green, or blue. Saturation accounts for the amount of gray in the color. Brightness refers to the degree of lightness or darkness of the color. Color constancy deals with both hue and saturation. An obvious case of color constancy is a green leaf. We perceive the green color of the leaf under almost any reasonable spectral source. This is because the brain knows that the leaf should be green and interprets it as green, regardless of whether the illumination source is heavily balanced to red or blue.

The validity of color constancy was evaluated by Roy Berns and Franc Grum of the Munsell Color Science Laboratory, Rochester Institute of Technology; they looked at a variety of pigments under different light sources and found that there were shifts in hue for some pigments. There were also shifts in saturation, with some colors becoming less saturated and other colors becoming more so when the light source was changed from daylight to incandescent or to various types of fluorescent lamps. Dorothea Jameson, a university professor of psychology and visual science at the University of Pennsylvania, in her discussion of Monet's Grainstacks, notes that desaturated colors (color diluted with white) tend to be affected more by color temperature shifts than more saturated or pure colors.

Another important effect on color perception and color constancy is metamerism. This refers to colors (continued from facing page)

Depending on cloud conditions and time of day, there are large variations in the proportion of natural to artificial light. In fact, there are large portions of time when the primary task light comes from the incandescent spots. And yet, there is no appreciable loss in the quality of light. Visitors are still aware of the presence of natural light and the changing quality of light. But the primary experience of natural light is felt within the general space (ambient light) rather than in terms of how it affects the appearance of the paintings (task light).

The National Gallery of Canada by Moshe Safdie & Associates (above, right) uses light wells to bring top light into both gallery floors. Spotlights illuminate the paintings. This lighting scheme gives the impression that the predominant gallery illumination is from daylight. While the ambient light is natural, additional task light is provided by incandescents. The combination of the two makes the visitor largely unaware of the incandescence. As with the Kimbell, there is a pleasant awareness of natural light in all its variations; all paintings are well illuminated, regardless of shifting patterns of exterior light. The peripheral awareness of these changes avoids the "static" quality often associated with artificial sources.

In these museums, the feeling of natural light is preserved while its hazards are minimized.
Grieves Associates' addition to the Brandywine River Museum (above, left) maximizes the role of natural light as the principal task light. The intensity of light is adjusted constantly by solar-activated movable louvers to ensure that the paintings are always illuminated within safe conservation limits. The light is directed to the wall by a second set of louvers, called Goodbar Louvers. In this unique design, individual reflecting louver blades are angled according to computer design to direct the light onto the wall. Most of the light is focused on the center of the wall in the zone of the paintings; above and below the center zone, the light gradually tapers off. This is an interesting effort to maintain the quality of natural light as a task light within tightly controlled distribution patterns and conservation limits. Incandescent spotlights are used only when light falls below a minimum level.

The Tate Gallery's addition, designed by Llewelyn-Davies-Weeks (above, right), has two sets of movable louvers, one for seasonal adjustments and the other for constant adjustment of light intensity. The indirect natural light well runs along the perimeter of the gallery. A central ceiling unit houses fluorescent and incandescent lamps. The purpose of this design is to provide reasonably uniform light on all walls according to conservation standards.

In an effort to maintain constant light intensity on the art, how much of the "quality" of natural light is retained as a task light, and how well do these schemes provide ambient light? That appear to match under one type of illumination and appear quite different under another. Metamerism derives from the different patterns of wavelength absorption and reflection of the pigment or dye. In sum, color constancy is true in a general way, but there are some perceptual shifts in color that do occur with differing sources of illumination. Given the partial truth of color constancy, is natural light really the best source of illumination for viewing works of art? A number of additional factors must also be considered in museum lighting schemes.

The "True Appearance" of a Work of Art

The painting that we see in a museum is different from that completed by the artist. Many pigments and dyes fade over time with exposure to light. Surfaces get dirty or abraded. Poor environmental conditions, improper handling, and overcleaning during earlier centuries of restoration all cause damage. Varnish also can dramatically alter the appearance of a painting. It is likely that the slightest yellow shift of an aging natural varnish has a far greater effect on the overall tonal relationships and general appearance of a painting than of that of different light sources.

Clearly many factors affect our visual perception of a work of art. For example, if an artist painted outdoors, where the color temperature was 10,000 K and the intensity was 1000 fc, what are we achieving by illuminating the painting indoors in a museum at 20 fc, with natural light at 6000 K or with incandescent lamps at 2900 K? Perceived brightness, which is higher with an incandescent lamp than with natural light, may be more important than the spectral differences of the two sources. The point is that it is simplistic to argue that natural light is the truest source because it was what the artist used. There are many factors that affect our perception of a work of art within a museum, and exceptions to the general rule of color constancy are only part of the story.

Nevertheless, the extreme differences in spectral output between incandescent and natural light and the subtle effects that these spectral differences have on color perception of art are issues that need to be understood more fully. A number of museums have successfully reconciled these differences. The subtle manner in which light sources are mixed to reduce obvious differences in color temperature at the Kimbell suggests one creative solution. In another approach, the Frick has used a combination of regular and blue-filtered lamps in its picture-light fixtures. Such approaches help to bridge the gap between very warm and cool light sources. A number of specialists, including Roy Berns and others cited by Feller, have suggested that a color temperature in the 4000 K range might have excellent color rendering properties for museum applications. The possibilities for using color filtration and options for mixed light sources need to be developed.

Given the complex interaction of all these factors on visual perception, what guideline should be used in choosing a proper light source? Because intensity has such an impact on visual comfort, the control of illumination levels should be the starting point of a lighting program for museums. Also, since the control of illumination levels is based on the conservation principle that light damages art, it is necessary to understand how this damage occurs and how to find a balance between the need to illuminate art and the need to preserve it.

Conservation Considerations

Light is a form of radiant energy. When an art object is exposed to light, it absorbs energy that can induce chemical change. For example, pigments and dyes can fade, and paper can discolor and lose physical strength. Changes brought about by light exposure are called photochemical damage. The short wavelength, ultraviolet and blue light is far more energetic and damaging than the long wavelength, red portion of the light spectrum. In 1952, the National Bureau of Standards published a study that estimated the level of damage to low-grade paper generated by the different parts of the light spectrum. On the basis of this study, they assigned a relative "damage factor" to various wavelengths. In general, the study shows that there is an exponential increase in photochemical damage as the wavelength becomes shorter. While the exact relationship changes with the type of material exposed, the concept of damage factor is a useful tool for comparing the harmful effects of different illumination sources.

Correlating the National Bureau of Standards' Damage Factor per wavelength with the spectral output of a particular light source at a standard intensity
lets us compare the relative damage factor of various sources. In 1953, Laurence Harrison carried out an extensive study for the Metropolitan Museum of Art in which he calculated that natural light passing through UV filtering glass is far more harmful than an equivalent amount of incandescent light. C. Kit Cuttle, building on Harrison's work, estimates that UV filtered daylight is three times as damaging as incandescent light at the same illuminance.

Outside the laboratory, it is difficult to estimate the risk for each object. We know that certain dyes, pigments, and support materials are very susceptible to light damage, whereas other materials are less so. This is why paper and textiles are generally considered less light stable than paintings. Contemporary artwork is why paper and textiles are generally considered less light stable than paintings. Contemporary artwork should also be considered extremely susceptible to photochemical damage, since many are made of unstable materials. Large changes in appearance can occur over a short time of exposure, since the initial phase of photochemical damage is most obvious. Ironically, galleries for contemporary art are generally designed to have the highest levels of natural light. Mark Rothko's Harvard Murals were so badly deteriorated by natural light that the Harvard University Art Museums held an exhibition to alert the museum community to the seriousness of photochemical damage.

**Ultraviolet Radiation**

Ultraviolet (UV) radiation comprises the short wavelengths just below the visible portion of the spectrum. Since most glass filters out ultraviolet radiation below 320 nanometers, our basic concern is with the wavelengths between 320 and 400 nanometers. The damage factor of these short wavelengths is very high. Since we do not need ultraviolet radiation to view art, it is important to filter this radiation completely. Incandescent light is not filtered since it has a very small UV component, and many museums use UV filtering sleeves or films to reduce the UV component of fluorescent tubes. Natural light is a special case, since it has an extremely high UV component compared to these other sources. At present, there are a number of UV filtering laminate glasses and sun control films available, although generally, the filtering effectiveness of these materials falls off sharply above 380 nanometers. Because the eye is hardly sensitive to light below 400 nanometers, there is still a significant amount of harmful UV energy in the natural light filtered through these materials, compared to conventional artificial light sources.

**Visible Radiation**

Although ultraviolet radiation is particularly hazardous for works of art, visible light also will cause damage. For this reason, the total amount of visible light must be controlled. Safe standards for museum lighting are usually defined in terms of maximum levels of footcandle exposure. While this method of measurement and specification provides a convenient and easy rule of thumb, it oversimplifies the real problem, which is the cumulative amount of destructive light exposure over a long period of time. Standard conservation recommendations for allowable footcandles are based on the efficient use of light at a given moment in time. Since damage is cumulative, the duration of time must be considered; this is measured as footcandle-hours.

A number of museums have recently adopted lightfootcandle-hours as an illumination criterion. This is based on the finding that an equal amount of damage will occur if an object is exposed to 20 fc of light for 50 hours or to 50 fc for 20 hours; it is an example of the principle of reciprocity. If a painting is subjected to 20 fc of light for an average of 12 hours a day when public hours are limited to 6 hours, it has twice as much exposure as necessary, based on the concepts of efficient use of light and cumulative damage. Artificial sources or naturally lighted galleries with cut-off louvers controls are safer in this context, since it allows the light to be shut out during nonexhibition hours.

**Conclusion**

For many architects and curators, natural light has become an article of faith as the proper source of museum lighting, even though many have not yet fully understand how it functions. Natural light unquestionably has a higher potential for photochemical damage than artificial sources. If we are to justify this higher risk, what are the offsetting benefits?

1. Natural light is important for its psychological value

The Menil Collection in Houston (above left) by Renzo Piano and Richard Fitzgerald uses large fixed louvers or "leaves" to reflect UV filtered natural light into the galleries. No fix light is used. Incandescent lamps are installed on tracks located on the underside of the louvers. Both the primary ambient and task light are from daylight. Since there is no routine method for adjusting the amount of light, overall intensity can be quite high, and there are large variations in light over the course of a day. Based on foot-candle hours of exposure, paintings are rotated off exhibition periodically. Since the louvers are set in a fixed position on a single axis, light is unevenly distributed on walls running at right angles to the louvers.

The Art Institute of Chicago's Rice Building, designed by Hammond, Beeby & Babka (above, right), uses mechanical louvers between the skylit and laylight to control the intensity of natural light. By adjustment to the proper angle, all incoming light can be bounced off the surface of the louver slats to avoid direct sunlight. Natural light enters the gallery through specular diffuse laylights and is the principal ambient light. Incandescent spotlights are suspended below the laylight and are used in conjunction with the manually-adjusted louvers to provide safe conservation conditions based on averaged exposure over time. The variation in natural light on the wall is also controlled within safe limits with the louvers.

Both museums permit variation in light intensity during the day.
The Metropolitan Museum of Art's European Paintings Galleries (above, left) are lighted by a combination of natural, fluorescent, and incandescent light, all located above lightdiffusers that fill most of the ceiling. The gallery in this photograph is located on a north-south axis, so that the west wall receives morning sun, and the east wall afternoon sun. Here, one wall is awash in light, while the other wall appears uncomfortably dark. The dark wall has an average illumination above 25 ft, but looks dark because the opposite wall is three times as bright. The large, luminous ceiling further accentuates this contrast between relative "darkness" and light.

The High Museum by Richard Meier & Partners (above, right) has a naturally lighted atrium surrounded by access ramps and galleries. While most of the galleries are lighted by incandescent spotlights, there is no opportunity for a gradual transition from one light zone to another. The first impression is that the galleries are quite dark. The balcony galleries provide an interesting example of color adaption and constancy. In a view encompassing the gallery and atrium, the balcony space appears very yellow compared to the white light of the naturally lighted atrium. On the balcony gallery facing away from the atrium toward the artificially lighted walls, the eye adapts to the incandescent light, and the walls and art appear properly lighted in white light.

as ambient light. Some of the case studies cited here provide evidence that these psychological needs can be fulfilled without utilizing daylight as a task light.

2. Directionality of light is an important factor that is not considered sufficiently. Highly diffuse light makes a surface appear more matte, dull, and less colorful, compared to a directional source. As an ambient light, diffuse light appears murky, and at low light levels, is associated with the feeling of an overcast day. Natural light requires some diffusion for control; this often compromises its appealing animated quality.

3. Intensity is more important than color temperature for visual comfort. Since it is necessary to control light intensity to protect art, maintaining comfortable viewing conditions under low light, with a low color temperature source, is an important consideration.

4. The successfulness of low level lighting depends in part on the designer's skill in creating brightness adaptation transition zones. The variability of natural light and the frequent use of large bright zones—such as luminous ceilings for natural light sources—complicate the design problem.

5. Color constancy minimizes our awareness of changes in visual perception from light sources with different spectral outputs. We need to understand more about how this mechanism functions in viewing works of art under standard lights. Only then can we optimize the use of spectral sources and improve visual perception by using filters and mixed sources.

It is possible to find a balance between the need to display and preserve works of art. However, the improper use of natural light upsets this balance. While the most effective task light for museums has yet to be defined, many clues are provided by studying successfully lighted museums such as those cited here. The one firm conclusion that we can make at this time is that natural light should not be used as the primary task source for illumination of light-sensitive works of art.

Steven Weintraub and Gordon O. Anson

Steven Weintraub is a conservation consultant specializing in the environmental protection of works of art. He has worked as a conservator at New York's Metropolitan Museum of Art and the Getty Conservation Institute. Gordon O. Anson is the chief lighting designer at the National Gallery in Washington, D.C. He has worked as a lighting consultant for museum projects around the world.

References


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In most jurisdictions the common law requires architects to perform with a degree of care and competence that is consistent with the prevailing standards of the profession in the same geographical area and at the same time. As knowledge progressively increases, the standard by which architects' performance is measured will change. Performance that might have satisfied the prevailing standard in 1960 may be unacceptable in 1990. If architects were to be judged by the prevailing standards of the profession at the time of the claim, rather than at the date of performance, the design professions would be at serious risk.

This role was challenged in a Federal court case (Barnett v. Board of Education of the City of Yonkers, et al.), which involved an asbestos-related death. The American Institute of Architects and The New York State Association of Architects, alarmed by the potentially devastating consequences for the profession if the traditional rule were modified, intervened in the case as a "friend of the court" and filed an amicus brief in support of the architect.

The action was for a wrongful death, where the plaintiff alleged that the deceased was exposed to friable asbestos while a student in high school in Yonkers, New York, between 1967 and 1970. The suit was instituted against the Yonkers school board, who in turn implored the architect who had designed the school in 1959, alleging that he was negligent in specifying asbestos products. The school board asked for indemnification or a contribution from the architect.

The intervention of the American Institute of Architects and The New York State Association of Architects was successful because, on a motion for summary judgment, the cross-claim against the architect was dismissed. In its opinion the court stated:

"Absence an express warranty of specific results, an architect may only be held liable in malpractice for the negligent performance of his professional services. Unlike the Board which had an ongoing responsibility to maintain the school in a safe condition, (the architect's) duty to exercise reasonable care in rendering his services ended in 1959 with the completion of his performance. Thus (the architect's) performance must be examined under the standards of the architectural profession in 1959. Like other professionals, the architect must ply his trade with a degree of care and competence generally expected of a reasonably skilled member of his profession in the same geographical area at the same time. The record lacks any evidence that the use of asbestos in school building construction was inconsistent with the generally accepted practices of the architectural profession through 1959. (The architect) could not reasonably have been expected to know of the deleterious effects of asbestos between 1956 and 1959."

The Yonkers school board had also contended in this case that if the architect was not subject to a claim of negligence, he might be liable to the owner for breach of implied warranty or strict liability. The doctrine of implied warranty suggests that the architect implicitly promised the owner that his design of the project would result in a safe building and that, therefore, he should be required to indemnify the owner of his breach of contract. The doctrine of strict liability suggests that the architect is a guarantor of the safety of the building and that apart from negligence, he is liable to the owner if the building is not in fact safe for its inhabitants. The Federal court, however, rejected this approach stating that, "New York law is crystal clear that in service-oriented contracts, such as agreements to render architectural services, no action in breach of implied warranty or strict product liability will lie independent of a claim for negligent performance of professional services."

The school board also sought to obtain summary judgment against the plaintiff and to dismiss the complaint, contending that when the deceased attended high school, the board had no knowledge, constructive or otherwise, that asbestos created a danger for those who might come into contact with it. The board argued that in the 1950s and 1960s the use of sprayed-on asbestos was prevalent in school buildings, and, therefore, the board could not reasonably have known of the dangers associated with asbestos. The plaintiff on the other hand submitted 14 articles published in newspapers and magazines in the 1960s suggesting there might be a link between asbestos and the development of cancer in individuals exposed to it. The court, in rejecting the school board's motion, pointed out that portions of the school's ceilings had deteriorated to an alarming degree while the deceased was a student and the board knew that portions of those crumbling ceilings contained asbestos.

If the school board appeals the decision of the Federal Trial Court, it may contend that even if the architect had not been negligent when performing his services, he had a duty to advise his client of the dangers of asbestos contained in its building at the time he acquired knowledge of the hazard, even though it was several years after the completion of his performance. Again, if such a rule was proposed, it should concern the architectural profession and call for further intervention by the professional associations.

Norman Coplan

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Eric Teicholz analyzes two different approaches to systems integration.

The most significant disadvantage of the Intergraph approach is cost. It simply takes more resources to develop and support such interfaces in-house. The cost, therefore, of Intergraph software is greater than that of Autodesk. Secondly, the user is locked into Intergraph’s selection of third-party vendors or vendor produced software—even if there is a competing product that might be better. Not having an open architecture as AutoCAD, nor having the user tool kit available to develop such interfaces, makes it more difficult to build bridges to third-party developers.

Conclusion
Intergraph and AutoCAD represent different extremes to the problem of integration. No one approach is either right or wrong. Rather both approaches have strengths and weaknesses.

In the long run, users will probably see Intergraph opening up their software architecture and providing more tools for users to integrate their software line with that of Intergraph. The market is simply too dynamic for one company to embrace all of the niches and new products that users want to access. Users will demand integration tool kits from all vendors so that in-house linkages among various packages can take place.

Autodesk, on the other hand, will probably start to develop closer relationships with some third-party developers or bring additional products in-house to offer vertically-integrated applications solutions.

The author is an architect and the president of Graphic Systems, Inc. in Cambridge, Massachusetts.
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Any program in architectural education must be tempered with enough practical and scientific information to prevent students from mistakenly thinking that buildings stand up on aesthetics alone. Buildings fail or fall down not because they are ugly, but because they don't work technically. Architects get sued for the same reason. Yet this is seldom discussed, if at all, in the typical architectural program. Because of the diverse courses required in the architectural curriculum, there needs to be a vehicle that synthesizes information. The final term thesis project in most architectural schools is intended to do this, but since the emphasis is generally on design or site planning, there is little time or effort available for addressing technical or constructability issues.

Every school of architecture should have a required senior level "summary" course that concentrates on total system performance and presents potential building failures in a manner that pulls together all the isolated aspects of technology presented to the students in their early years. The case study method is an excellent format for this and most effective in holding the students' interest, since it brings the real world into the classroom. The emphasis has to be on the positive aspect of learning from failures so that the student is not discouraged or led to believe that architecture is a high risk profession (even though today, it may very well be). Understanding the ways in which an assembly can fail by mentally pushing its limits teaches valuable lessons. Here is how such a course might be put together.

**Course Organization**

The course should dwell on the many things that can go wrong in buildings with the idea that, in reviewing case studies of failures, successful design will emerge. Case studies should be presented in graphic and pictorial detail (including video).

Cases should be discussed and analyzed in detail, dramatizing the mechanisms of failure so that aberrations from the normal behavior of a building material or assembly are clearly understood. The repair of the particular building problem should also be included in case study review so that the student will have some method for coping with similar situations.

Although the course emphasis should be on the technical aspects of professional practice and building construction, time should be devoted to business and legal matters, including methods of dispute resolution, architectural delivery systems, and their influence on building performance, and the responsibilities of the design professional in mitigating failures.

Course organization, case study development, and lecture presentation should follow the 16-division format of the Construction Specifications Institute (CSI), which allows an orderly discussion of the materials and methods of the entire building process. Using the CSI format also serves to make the students more familiar with this important tool for organizing the tremendous amount of building-related information.

Guest lecturers should be invited to present some case studies, field experiences, or information about special building materials or assemblies. The students could even be required to visit the local courthouse and hear a trial in session. And when possible and appropriate, a couple of field trips to failure sites or to manufacturing facilities should be scheduled. The latter exposure will help the student appreciate the complexity of building material manufacture and application.

**Projects**

Outside projects should be assigned to get the students involved. Here are a couple of ideas:

- **Project 1:** In this project, which should be assigned early in the semester so there is plenty of time to do the research, the student would be required to find a local building with technical problems and present a detailed case study that would delineate the problem, background data, the cause of the failure, implications, the fix, checklist of ways to avoid the problem, lessons to learn, legal case references, and other references.

  Interviews with the owner, architect, engineer, contractor, even the janitor, should be encouraged to get all the details necessary to present a meaningful case study. Photographic and/or sketch documentation should also be required. The format for the presentation should be very specific and follow an outline such as the one above. The idea here should be to keep the study focused, with a consistency of presentation that could make a class publication possible without massive rewriting.

  Case study problems will probably generally come from distress noted in the building envelope because these are easily recognizable, and the students have limited knowledge in which to delve into sophisticated building systems. The students should be encouraged, however, to investigate building environmental failures: heating, cooling, ventilating, lighting, and energy.

- **Project 2:** Selecting material and methods listing under the 16 divisions of the CSI format, the student could write a detailed report of all the things that could go wrong with that particular item, citing a few general examples to illustrate, and developing a checklist of what the design professional must do to prevent the failures from happening. Topics should be coordinated so that the class will cover as full a spectrum as possible. Selected reports could then be reproduced so that each member of the class has a useful "Failure Avoidance" book for their future use and reference.

**Conclusion**

Such a course in "building failures" could be an important addition to an architectural technology curriculum. Giving it a title such as "The Performance of Architectural Systems" should have a positive enough appeal to overcome the objections of conservative academic colleagues; the drama of "failure" would be saved for the classroom. The format of the course should be flexible enough to allow the participation of faculty members who may wish to share some of their own "failure" experiences. But for this to be a successful and meaningful educational activity, it will require the active participation of local practitioners who take seriously their obligation to pass on their knowledge and experiences before they pass away.

Raymond DiPasquale

The author is a Professor of Architecture at Syracuse University which offers a course similar to the one described above. He is a practicing structural consultant in Ithaca, New York and specializes in the investigation of building failures.

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Frank Stasiowski describes five ways to reduce lawsuits through project management.

Management: Reducing Liability

Client: "If you think I'm going to pay an extra 25 percent and delay this project for 6 months just because your subcontractor was stupid enough to drill into the city's water pipes, you're crazy!"

Project Manager: "It wouldn't have happened if your site survey had been accurate."

Client: "The best people in the business conducted that survey. You accepted it."

Project Manager: "Well, it was wrong and you'll have to cover the damages."

Client: "It was your own incompetence that caused the problem. Not only will I not pay one dime, but I'll see you in court, Mister!"

Far-fetched scenario or painful possibility? While we all pay lip service to the liability threat, we still tend to practice denial when assessing our own vulnerability. Lawsuits are what happen to the other guy; we know the quality of our own work, and no one will ever question it. Right?

Wrong. The truth is we live in a litigious society where conflicts are resolved in court, and damage awards can reach staggering figures. According to the U.S. Department of Commerce, one survey showed a jump in lawsuits (in 1988) from 33 to 46 per 100 consulting engineers firms responding. Some of these suits may have been trivial, many may have been groundless, but all had to be defended and settled. Thus, the concomitant rise in insurance premiums: a 25 percent increase in 1988, according to the same survey.

As the likelihood of being sued grows ever greater, it's time to take a hard look at some ways of reducing our own exposure.

One of the best ways to start is through effective project management. Five important elements can be controlled and precisely structured to provide maximum protection — and ultimately, better client relationships. Obviously, management of these key elements will not guarantee total invincibility, but it will substantially lower your risk. The cornerstone upon which the 5 elements rest is one of the most important truisms of liability prevention: happy and informed clients don't sue.

Schedules

There is no excuse for haphazard scheduling in our computer-literate work environment. And because even the best laid plans often go awry, frequently because of unexpected impediments, schedules must be realistic, somewhat flexible, and agreed upon by all parties. Utilizing a task list with milestone target dates, project managers should discuss each aspect of a schedule with the internal project team, external members such as consultants, and the client. This is the framework within which everyone must operate — and cooperate — and the time line has to be mutually acceptable.

Initially, the project manager should prepare a preliminary schedule, which is then submitted to all parties for discussion and revision. People's work habits differ. Their pace differs. Some tasks and assignments are routine, others more difficult and demanding — and more apt to lead to subsequent liability claims. Honesty is essential: Our own eagerness to get the job done by the client's target date may cause us to make claims of speed we can't fulfill. It's important to be clear about potential problems and areas where help may be needed. Graphics should be employed so the schedule is easily understood, and if changes to it must be made, they should be anticipated as much as possible to avoid last-minute surprises. The schedule is a working document, not a frail. From the point of view of everyone involved, great care must be taken to make it do-able.

Budget

A pitfall in budgeting is the very understandable desire to keep a client's costs low and make yourself look good. The budget should never be built around the "best case," because even your reminders that changes might occur will never be remembered by clients. The "best case" scenario becomes their expectation, and anything short of that can be the catalyst for a lawsuit. Remember, clients' precious dollars are being juggled. It is far better to gain clients' grudging agreement to the "worst case" early in the game and end up being a hero if you come in under that.

A preliminary budget, subject to discussion and refinement, should include design costs and construction costs for any items that will be built. There should be a written provision for handling change orders; any contingency that could financially affect the project must be addressed — early! The entire team should review possible changes and what they might mean. Three months down the road, when you discover the product that you had counted on has been recalled, you won't face client wrath and courtroom wrangling.

Clients should be advised to establish a 3 to 5 percent contingency fund to handle change orders during the course of construction. Changes are often inadvertent, subject to the vagaries of the world we live in. The regulatory environment can change. Specific materials may be unavailable. Strikes, weather, natural disasters: All can play havoc with costs. An agreed-upon contingency fund can help soften the blow, and it is something that should be factored in at the very beginning.

List of Assumptions

Every project starts with a list of assumptions, but if they are unstated and interpreted differently by members of the team and the client, trouble is sure to follow. In the example above, the project manager assumed the client's site survey was accurate, and acted based on this assumption. Understandable — but dangerous.

Assumptions must be defined and clarified by the team and the client — and written down. Alternatives must be offered if the assumptions are incorrect. For instance, if this is so, then this is what will happen. But if this is not so, then these are our choices. If the weather holds, then this is our completion date. If the weather does not hold, we may be delayed by four months. After the MGM Grand Hotel fire in Las Vegas, legislation was enacted almost immediately that altered the fire code requirements. Everything already on the drawing boards had to be changed. Although the fault of neither, assumptions by both clients and project managers that plans were up to code were, nevertheless, inaccurate. And no provisions had been made to deal with the new time and cost factors.

An initial brainstorming session should be utilized to put the assumptions on the table; they should include all the client's perceptions and all of yours. More important, "fall-back" positions should be clearly understood if the basic assumptions are challenged or false. Apply your list to both schedule and budget, and you will find your own sense of security enormously enhanced.

Process for Communications

"Communication" is another concept to which we all pay lip service. But how many firms go beyond conceptualization and establish tools and methods by which it will occur? That old saw, "if you can't communicate, the least you can do is shut up," is a rueful reminder that most of us are rather inattentive to this essential process. It is the responsibility of the project manager to take the lead in developing the specific system — and demanding that it be employed. The "how" is not difficult. It starts with keeping good strong minutes every time you sit down with your client — and getting those minutes out on the same day you meet. Names, addresses, phone, and fax numbers should be included. Get every
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(continued from page 65)

single discussion item and fact down, without embellishments. Determine exactly when you will phone your client, when your team will phone you, and when you will phone them. Always be accessible. If that means carrying a beeper or cellular phone, do it. Obviously you don't want to be disturbed while you're enjoying a three-week vacation in Acapulco, but neither do you want your client blaming a mishap on you because your secretary insists that you can't be reached. That's how instant scapegoats are born.

A drawing review schedule (outlining when the client will receive drawings, how long he will have to review them, establishing a change procedure, and posting a client review) must be established. Most firms eliminate the time required to change drawings after reviews. To return to assumptions for a moment, our assumptions about how long it will take an outside agency to review drawings can be somewhat vague. Are we talking about two weeks? Three? Four? Anticipate the possibilities and communicate them to the client. Mutual trust is a strong deterrent to litigation.

Documentation of the Process

It is frightening to consider how many people who have done no wrong are judged guilty simply because they have failed to document the evidence that could have proved their innocence. And when we speak of “evidence,” we're not talking about writing down everything that is discussed during a phone call, at a meeting, or even in casual encounters. Your notes should be dated, signed, and filed. If possible, all parties to the conversation should also initial them. They should be factual — no editorial comments are necessary or desirable. Every memo and letter should be filed, with date of receipt noted. Every e-mail receipt should be kept and identified. List your outgoing calls on the client's behalf and back up the list with long distance phone charges indicating the number called. Every drawing, every contract, every spec must be kept. Remember to back up all information stored in your computers or on discs.

Documenting, of course, has a ripple effect. Even your in-house personnel and financial records, or procedural manuals, may be come evidence in a court case. You should be able to demonstrate a team member's exemplary performance on 100 other projects if his competence is questioned or perhaps produce letters of commendation. You should be able to point to an accounting system with built-in safeguards against abuse. You might be called on to produce training manuals that reinforce your claims or expertise. By themselves, none of these things may prove or disprove your innocence — but they do build a solid foundation, which will cast a very favorable light on your firm.

Generally, our recommendation is to use specification systems that permit your filing to be organized in a standard approach. CSI (Construction Specifications Institute) and Masterspec (The American Institute of Architects specification system) offer two good alternatives to architects and engineers by following a prescribed numerical procedure for filing every document generated by a project. They provide evidence for a legal defense and are a good source of referrals as well. Finally, make sure your client knows what your documentation procedures are. He will applaud your professionalism — and think twice about suing you.

You've heard it said that the best defense is a good offense. To put it another way, if you take the initiative, by effective project management, you will be prepared to counter and defend a lawsuit. But the great likelihood is that once you've taken the steps we've outlined, there will never be a lawsuit. Statistically, the firms with the most effective project management systems (and more and more, those that show increased project profitability) are the ones that have fewer liability claims. In countries such as Japan, where courtesy and respect are national characteristics, malpractice suits are almost nonexistent and lawyers are few and far between. In America, unfortunately, there is almost an implicit adversarial, suspicious relationship among contracting parties. While we may wish it otherwise, we must respond to the phenomenon. Perhaps in doing so we can find our way back to mutual courtesy, respect, and professionalism. Frank A. Stasiowski

The author is an architect and president of Practice Management Associates in Newton, Massachusetts.
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Museums from around the world

and recent work of Western architects in Japan

are among the features in this issue.

Worm's eye axonometric of The Pre- and Early-History Museum in Frankfurt, West Germany, by Josef Kleihues.
Introduction: Museum Form and Function

Debate over the proper role of the museum has had, and continues to have, a considerable effect on museum design.

What does a museum want to be – a container for art or an art object in its own right, a resting place for past work or a gallery for the new, a retreat for quiet contemplation or a destination for the masses? Such questions are central to the design of museums. Yet, they are as unresolved today as they were almost 200 years ago, when the first modern museums were founded.

Early on in the development of the institution, there arose a consensus about the form of the building. Recalling the forms of temples, pantheons, or castles, these early museums were usually straightforward containers of art, composed mainly of rectangular, top-lighted rooms. The sheer number of artworks hung floor to ceiling on the walls of these structures almost forced the architecture to take a back seat.

Behind this consensus about form, however, there raged a debate about the social and artistic role of the museum. Some held these institutions responsible for preserving great works of the past for the contemplation of a knowing elite. Others, mainly artists, wanted to open museums up to contemporary work and to a broader public. The latter, although a minority, were eventually heard, and museums in the 19th Century began to accept, if grudgingly, the work of living artists and the presence of the public.

This truce between the antiquarians and the populists remained intact through the early 20th Century. But the balance shifted as Modernism arose, with its rebellion against the past and its embrace of the proletariat. Institutions such as the Museum of Modern Art were founded to show the work of living artists, and promotional efforts, especially in recent decades, began to draw mass audiences to exhibitions.

This new patron and entertainer role affected the design of museums, requiring more space for changing exhibits and more facilities to handle the crowds. But the Modern movement placed an even greater burden on the museum architect: that of creating buildings that were themselves works of art. The personal invention and iconoclastic vision evident in Modern art was expected of the museum architect, often resulting in highly sculptural buildings such as the Guggenheim, the Whitney, and the National Gallery's East Wing. Ironically, such buildings, although liked by many architects, have not been well received by curators or even by many artists, whose work often looks overwhelmed or cramped there.

Recent years have revived, once again, the debate over the proper form of museums. The work of some architects, such as Frank Gehry (pp. 94–99), Richard Meier (p. 127), Renzo Piano (p. 128), and Klaas Karda (pp. 100–102) has retained the idea of the museum as a work of art, as inhabited sculpture.

Yet other architects, such as Richard Keating (pp. 103–105), Robert Venturi and Denise Scott Brown (p. 126), James Freed (p. 124), and Juan Navarro Baldeweg (pp. 106–107), have returned to the earlier conception of the museum as a more neutral container of art consisting of discrete, axially arranged rooms.

An even older tradition is alluded to in the work of architects such as Josef Kleihues (pp. 84–92) or the group of architects working under Skidmore, Owings & Merrill as MassMOCA (p. 125). Here, art is displayed, as it often was prior to the 18th Century, in structures not originally designed for that purpose.

As we approach the end of the 20th Century, the art and curatorial worlds are no closer to agreement about what a museum should be. As a result, many institutions attempt to offer a little bit of everything: block-buster shows and study centers, older art and the most current work, space for quiet contemplation and mass entertainment.

Architects must functionally accommodate this effort to be all things to all people, although such institutional fence-straddling is a dangerous model for the form of a museum. The best museum architecture, as the work on the following pages shows, is like the best art: strong and unequivocal, bound to attract some and repel others. Thomas Fisher
Modernism Embracing the Gothic

Josef Paul Kleihues, in his first large-scale completed building, renovates and adds to a 15th-Century church to create a new museum in Frankfurt.

Frankfurt-am-Main has acquired yet another piece in its collection of exemplary museums planned during the late 1970s and early 1980s, in a program developed and supported by enlightened local and state governments. The Museum for Pre- and Early History, designed by Josef Paul Kleihues, joins a number of institutions located on various sites in and around central Frankfurt, including Richard Meier’s Museum of Decorative Arts (P/A, June 1985, pp. 81-91); O.M. Ungers’s German Museum of Architecture (P/A, Aug. 1983, p. 97); and, still to come, Gustav Peichl’s addition to the Staedel Museum and Hans Hollein’s Museum of Contemporary Art (P/A, Aug. 1983, pp. 94–95). Kleihues, a German architect, played a most important role as planning director of Berlin’s recent IBA housing exhibition (P/A, Feb. 1986, pp. 93–101) and has taught for several years at New York’s Cooper Union. This winter, his museum designs were the subject of an exhibition at Cooper Union. Among the completed works by Kleihues, in addition to the museum shown here, are the Neu Koeln Hospital in Berlin and museums in four West German cities.

The Museum

The program for the Museum for Pre- and Early History, located in Frankfurt’s historic center, called for the rehabilitation of a Late Gothic Carmelite church and the addition of new wings. Kleihues’s solution, which was selected in an open competition in 1979 and built over the past three years, demonstrates an especially enlightened approach to restoration, neither pedantic nor disrespectful. The interiors of the new and old buildings blend beautifully and show a particularly sensitive response to the exhibits of the Museum, being spare though not stark, and transmitting a sense of spirituality. The new wings, which abut without setback, the transept of the old church and hug, with little relief, the narrow sidestreet along the site, are both daring and surprisingly appropriate from the urban design point of view. The architectural realization, while flawed in some details, engages in a provocative dialogue between Modern and Gothic themes. While Kleihues is known as a Rationalist, this particular design is somewhat more organic in form than his other projects. This is easily explained, says the architect, by the fact that he is a “poetic Rationalist,” meaning that he allows context – culture, local history, program – to play a strong role in each design. In his most recent project, the Contemporary Art Museum in Berlin, the design is tough and rationalistic, as befits the City of Enlightenment. For the Pre- and Early History Museum, Kleihues responded to the Medieval nature of the central Frankfurt site.

Rehabilitation

The church, which serves as principal exhibition hall of the museum, was badly damaged by fire during World War II. Sandstone and stucco were used to repair damaged walls, but the major element requiring reconstruction was the roof over the nave. Rather (continued on page 87)
Excerpt


"A design for a museum is perhaps a special challenge for experimentation, although it still remains a project with very specific requirements. Because of this, I can't understand why some architects tend to think that museum projects open the door to an unlimited 'design exercise.'

"Regardless of the different positions in architectural theory, it isn't the type of a project but the path to its materialization that defines the extent of freedom used in the design process. Freedom in design isn't defined by quantity, but by quality. Who can determine a greater amount of freedom than that taken in the design for the New National Gallery in Berlin by Mies van der Rohe, or for the State Library, also in Berlin by Hans Scharoun?

"I know the ecstasy of creativity quite well, but I also know its dangers. An ecstasy of creating, producing, and consuming obviously exists not only in technology and economy, but also in culture. Recently creativity in architecture shows a type of alienated ecstasy of work that is exhausted in a 'rage of originality' ('Originalitatswuth' - Nietzsche) by an addictive yearning for 'new creations.'

"To discuss further the development of Modernist design, there are rational sources that are of great interest to me: aspects of geometry, the concepts of abstraction, transparency, light space, and time. Geometrical shapes have an unreasonable immaterial typology, as does the perception of time and/or space. It is exactly because of this that mediation of the abstract and material is of great interest; they are applied in design by use of geometrical shapes, elements, and structures, because within this there is a general applicable 'syntax,' which allows for extremely different expressions."
than rebuild the original stone roof, the architect designed ribs that were torch-cut out of large steel sheets, which recall the form of the Gothic attic in a practical yet evocative way. As architect John Hejduk has written in *The Museum Projects* (Rizzoli, 1989) about this roof structure, "One is aware that something profound has occurred. A healing has taken place."

The principal furnishings in the original spaces (and in the new halls as well) are simple glass and aluminum exhibition cases. Here the intention was to be light, spare, and Modern, to give the original architecture the major voice. But these cases are not without distinctive personality, the rows of square vents along their bases being reminiscent of Viennese Secession themes realized in a high-tech mode. While on their own, these cases might be faulted for a certain foppiness, the aluminum torchieres alongside them (Otto Wagner updated, perhaps) offer vertical counterpoints that provide a very fine blend of new and old. The lamps' tall slimness draws the eyes upwards to the holy height of the space, and their flared tops repeat in Modern vocabulary the tree-like form of the Gothic ribs. Two other display elements are used, both low-key high-tech designs - I-beam steel sections as pedestals and Sol Lewitt-like steel cages as display platforms. Floors are of clay tile, providing a visually hushed but not mute surface.

(continued on page 91)
The spirituality imparted by the museum contents, as well as by the Carmelite church, is quietly set off by simple aluminum and glass exhibition cases and torchères.
The following excerpt is from an essay entitled "Josef Paul Kleihues: Architect of The Abandoned Sounds" by John Hejduk, also in *The Museum Projects*.

"Museums are the receptacles of lost sounds. Museums are the sarcophagi of past thoughts and are the covenants with sacred cultures. Museums were meant as havens for the solitary travelers. In their times, they functioned as the guardians to loneliness. They protected the soul. There are few left that do so today, and there are hardly any that are created anew. The Frankfurt Museum of Josef Kleihues is such a place."

"One is struck by the fact that the plan appears (when seen as a vertical section) to be some kind of phantom ship carrying a sacred cargo. And so it does. The plan protects the necessity of the new or of youth taking good care of the old or aged. The new plan of the museum is like a swift computerized low-slung vessel plying the rivers of Germany announcing its intent to protect ancient structures and to celebrate; in this particular case, it carries as its consigned cargo the old structure of the church. In plan the old church's ribbing seems to act as rope nettings supporting the contents of past times, with the addition of new steel cables holding in place the container of long-ago sorrows. A delicate equilibrium is achieved; the voices singing a hymn within the darkened hall produce the necessary volume of air preventing collapse. The funereal husks of the River Nile, the barges of Hamburg, and the death launches of Venice come to mind. The prow of this museum river ship cuts through the water as a surgeon's knife cuts through the skin. The plan must be looked upon as a vertical section, and then we see at the prow the tilted cube observing the progress of the operation. The secular and the sacred are welded together for a brief moment... It is the architect's obligation to see things momentarily this way; his discipline requires this to be so."
New Wings

The new wings, which contain entrance and exhibition space, administration and library, and underground conservation studios, stretch out on either side of the transept to form a high wall along the long edge of the site, with striped sandstone walls sparsely fenestrated towards the street. In contrast to the opacity of their street side, the new wings are largely glazed along the grassy interior of the site. Both opaque and transparent walls express Modern themes that play upon the old church.

Most straightforward and successful are the glass curtain walls that serve to demonstrate how the Modern age has furthered the Gothic search for airiness and demateriality. Piano-curved glass wall and Gothic tracery face each other across a grassy swath. The new sandstone walls along the street are more controversial in the references made by their horizontal banding. To many, the walls insistently recall the Botta-esque bands over-mimicked during the 1980s, a connection that disturbs Kleihues. He designed them in homage to the Mid-19th Century Frankfurt Stock Exchange. That building, now demolished, is considered the masterwork of Friedrich August Stüler, a student of Schinkel, who himself was inspired by the polychromatic walls he observed in Sienna and Tuscany. Even the museum's sandstone itself comes from the same quarry as the old Stock Exchange. The carefully expressed bolts, like those of Otto Wagner's Postsparkasse in Vienna, demonstrate that the stone is a cladding, not a structural element.

Beyond the stylistic controversy, these sandstone walls possess certain flaws in and of themselves. As they turn the corners, their proportions are disturbingly chunky, especially at the entrance end. Furthermore, the red bands have a stridency which may, however, tone down after weathering. The merits of these banded walls lie in the way they pick up the rhythm of the old church's quoins and, most important, the way in which they contrast with the church's gable side, lending a special calm to the original wall.

Inside, the new wings offer prototypical, if unexceptional, Modern spaces, which do a fine job of setting off the church's grand interior - a two-story exhibition/entrance hall to the south of the church transept, bounded on one side by the piano-shaped glass wall, and the long, narrow north wing, which holds the museum's collection of antiquities. The most daring aspect of the design is the use of a long, almost unbroken wall along what is, after all, a narrow sidestreet. It might have been tedious; it might have overwhelmed the street. But, in fact, it adds a sense of veiled mystery to the environment, just as do traditional cloister walls. It heightens the tension of the narrow street in a positive way, increasing its intimacy and underlying its contrast with the more modern, wider, more bustling streets nearby.

Susan Doubilet

The author, a former P/A Senior Editor, is a freelance architectural writer living in New York and New Jersey.
Project: Pre- and Early-history Museum, Frankfurt/Main, West Germany.
Architect: Josef Paul Kleihues, Diilmersen-Rorup, West Germany (Mirko Raum, Thomas Bartels, Joachim Kleine Altekrone, Siobhan Ni Eanaig, Holger Rahmann, Hermann Schmuitzmann, Gunther Sunderhaus, Christoph Wissmann, project team).
Client: City of Frankfurt/Main.
Site: 30,000-sq-ft site in Frankfurt's historic center containing a former Carmelite Church and St. Anne's Chapel.
Program: 40,840-sq-ft museum for prehistoric and ancient artifacts that includes exhibition space, archives and repositories, workshops, laboratories, offices, library, and an auditorium.
Structural system: concrete frame, steel trusses.
Major materials: sandstone, steel, aluminum, glass.
Consultants: J. Rosenboom, structural; Firma Matszik, Firma Brendl, Firma Horvath, mechanical.
General contractor: Frankfurter Aufbau AG.
Costs: 34,000,000 DM ($19,937,600)
Photographs: Peter Seidel except where noted.
Steel Trusses
Pre- and Early-History Museum
Frankfurt, West Germany

The history of architecture offers several examples of traditional forms interpreted in modern materials, from the Greeks to the Gothic Revivalists. Josef Paul Kleihues, with this roof in his Frankfurt museum (facing page, top), has added a new page to the old story. In place of the original stone vaults (facing page, bottom), destroyed by fire during World War II, Kleihues has designed trusses, each of which is made of double 2½-inch-thick steel plates bolted together at open mortise-and-tenon joints (above). The trusses, which were assembled on the ground and lifted into place, are fastened with pin connections to plates bolted to the top and side of the concrete wall cap (left). Curved steel plates brace the tie-beams and curved steel struts stiffen the rafters of the trusses. Lateral bracing between trusses is accomplished with paired steel angles that serve as purlins.
Cranked, Curled, and Cantilevered

At the Vitra Museum in West Germany, Frank O. Gehry turns a white cube into an amalgam of eccentric volumes.

For Rolf Fehlbaum, the link between art, design, and commerce is a crucial one. As president of Vitra International, the Swiss office seating manufacturer, he has not only continued his parents' innovative patronage—through the Vitra Edition, a series of limited-run experimental furniture pieces (P/A, May 1988, pp. 74-81)—he has also promoted new design research through the Vitra Design Museum, completed late last year: the Vitra Design Museum, by Frank O. Gehry & Associates; it houses a collection of over 1200 chairs, many of them landmarks of 20th-century design. The building itself is also a landmark. Not only is it Gehry's first completed project in Europe, but it also marks a new phase in the architect's exploration of building conventions and his propensity to render them in eccentric ways.

This small (8000 square feet on two floors) jewel of a museum is placed in a curiously appropriate setting: the company's manufacturing plant in Weil am Rhein, West Germany, just over the Swiss border from Vitra's home town of Basel. The museum building is meant to be seen as part of an ensemble that includes a 90,000-square-foot factory addition designed by Gehry's office. It is typical of Gehry to want to create a context for the museum: "It's an urban plan," he explains, intended to give a bit more density to the suburban sprawl of the surrounding town.

The Vitra Design Museum is a far cry from "the idea of a little shed"—a private conference center and exhibition space—that Fehlbaum initially considered for what was then a 300-chair collection. Even after Gehry was commissioned to design the museum, the building was always, in Fehlbaum's words, "bigger than the program." But the collection grew by leaps and bounds, enlarged by recently-acquired prototypes from the Eames estate. When Fehlbaum hired Alexander von Vegesack—a respected chair collector in his own right—to be the curator of the museum, the program quickly expanded, to include changing exhibitions, educational programs, publications, and conferences. (The museum does not show any of Vitra's current production, and the chair collection is stored in a separate building.)
The profile of the museum changes dramatically on each side. The southwest side, seen from the factory (above), is the most understated and has a sphinx-like presence; the entrance on the northern corner (facing page) is surmounted by a cantilevered roof.

named the Charles Eames Strasse, on the site of a former fruit orchard. It is basically a series of simple boxes that are energized by the dynamic arrangement of the staircases and skylights that twist and turn around, atop, and through the building. Their forms are similar to the two corner pieces of the factory addition (these also contain stairs and skylights) beyond the museum; from almost any vantage point, people see an ongoing dialogue – Gehry's "urban design" – between the two buildings.

Stylistically, the museum's architecture looks surprisingly like a blend of the International Style and German Expressionism. Its cool white volumes seem to be the product of a 1930s Modernist; at the same time, their muscular appendages look like part of the set for The Cabinet of Dr. Caligari (1921), a German film noted for its contorted set designs. Gehry's work at Vitra has an Expressionist antecedent in Dornach, not far across the Swiss border. The Goetheanum (1924–1964) by Rudolf Steiner has façades that are orthogonal near grade level and then expand into multiple facets at the cornice line, like the Vitra Museum. The buildings of Hans Scharoun offer another precedent (see the sidebar text, facing page). In fact, Gehry feels that the museum and factory addition look "older" than the adjacent factory buildings, which were designed by British architect Nicholas Grimshaw in 1981, in a High Tech mode.

Historical references aside, the museum marks a turning point in Gehry's recent work. After years of breaking buildings into discrete pieces and expressing each one in a different material, this building's parts are finished in one material – smooth white plaster, in deference to local building traditions. Titanium zinc covers surfaces vulnerable to the elements; as Gehry explains, "It follows the logic of the roof." Gehry's claims to conventionality aside, the end result is a most provocative roofscape. "The paradox," he acknowledges, "is that the closer I move back to those conventions, the less building-like the building looks."

The Vitra Design Museum, like Gehry's best buildings, challenges our preconceptions, while providing an interior that is uplifting and illuminating. The spatial passages inside, which are both dynamic and serenely scaled, are the interior complement to the powerful forms on the exterior. The cruciform
skylight, to cite one example, is as powerful outside as it is within the museum. It covers a light well that comes crashing through the museum's barrel-vaulted roof, and is split by the wall that separates a pair of stacked galleries from the double-height front gallery. Openings in this wall afford views across the interior and intensify the play of light, form, and volume, a common theme in Gehry's architecture. The intersections of the building's dynamic "boxes" create some fascinating architectural moments, as in the room at the east corner of the second-floor gallery, or the mysterious, graceful skylighted stair that winds up toward this space. But these formal moves, no matter how assertive, never undermine the simplicity and serenity of the gallery spaces themselves. From his long experience with exhibition design and his widely acclaimed design for the Temporary Contemporary in Los Angeles (P/A, March 1984, pp. 80-85), Gehry's sympathy for the art (or furniture) on display invariably guarantees that it, rather than the architecture, will get top billing.

Even before there was a chair in the place, the Vitra Design Museum was deluged with visitors from all over Europe; by mid-March of this year, 25,000 people had poured in. Its enviable collection and von Vegesack's ambitious education programs give it the potential to become an important study center for 20th-Century design. Moreover, Fehlbaum's choice of Gehry as architect reinforces his reputation for design leadership, something that, like the weather, is often talked about but seldom acted upon.

What remains to be seen is where Gehry will go next in his exploration of architectural conventions. The Vitra museum is, in many ways, the closest of all his buildings to pure sculpture. Throughout his career, he has redefined our notions of what a building should look like, first through his fascination with process and then through his explorations of breaking buildings into pieces. One can't help but suspect that this glacially white, muscular little building is just the tip of an iceberg.

German Expressionism Revisited

Before the Vitra museum was built, it would have been a long shot to compare Frank O. Gehry to Hans Scharoun (1893–1972). Gehry's Los Angeles roots and his ad-hoc design ethic is far removed from the nascent Modernism that surrounded Scharoun in interwar Germany. But the white stucco enclosure of Gehry's new museum bears reference to Scharoun's houses. His cantilevered staircase at the 1927 Weissenhofsiedlung (P/A, Oct. 1988, p. 105) resembles Gehry's spiral stair at Vitra. Likewise, the Museum's over-
Project: Vitra International Furniture Manufacturing Facility & Design Museum, Weil am Rhein, West Germany.

Architects: Frank O. Gehry & Associates, Santa Monica, Calif. (Frank O. Gehry, principal/design; Robert G. Hale, principal/management; C. Gregory Walsh, project designer; Berthold H. Penkues, Liza Hansen, project architects; Edwin Chan, C. J. Bonvara, design team).

Executive architects: Freie Architekten Gunter Pfeifer & Assoziierte Roland Mayer, Lorrach, West Germany (Roland Mayer, project manager; Susanne Schlemoviet, Sabine Holzmann, Kristina Treostic, Bernhard Fluge, Jacek Doiniak, Rafael Novoa, staff).

Client: Vitra International, Rolf Fehlbau, president.

Site: an apple orchard adjacent to the Vitra factory and office complex.

Program: a new entrance road leads to the furniture museum, with exhibit and support spaces. Beyond is a new seating assembly plant, with a factory, offices, and distribution area.

Structural system: precast columns and beams with on-site cast concrete decks and infill masonry; concrete frame construction for factory.

Major materials: cast-in-place and reinforced concrete for museum; stucco finish and titanium zinc roofing.

Mechanical systems: radiant hot water heating; mechanical ventilation.

Consultants: Vitra-Modo Office, interior; Gerschik & Falk, structural.

Costs: not available.

Sunlight floods the gallery through a large cruciform skylight (facing page). The double-height exhibit area (above) is visible from the second floor gallery (below), where curved soffits and beams create striking patterns of channeled daylight.
Architect Klaus Kada has designed a museum for a small Austrian town that explores the use and meaning of glass.

Glass, at least in Modern architecture, has provided the illusion of freedom. It is a material that allows us to dematerialize walls, open up vistas, and break down boundaries between a building’s interior and the outdoors. But glass, at least in museums, also plays a contrary, constraining role. It protects artwork or artifacts from ultraviolet light, insulates them from the environment, and prevents them from being handled by museum visitors. This paradox of glass – the apparent freedom and actual constraint that it provides – is evident in this small museum in Bärnbach, Austria.

Designed by Austrian architect Klaus Kada, the museum was built to demonstrate the manufacture and use of glass. It consists of a triangular entrance hall attached to a four-story concrete-framed exhibition structure that formerly served as the generating plant for the adjacent glass factory. The architect also has added steel-framed exhibition areas to the front and side of the concrete structure and an open-air steel-framed café on its roof.

Glass takes its most liberating form in the museum’s multistory entry hall. The entrance façade, for example, is almost completely transparent, with large
sheets of clear float glass attached to glass mullions by corner plates. (Emphasizing the transparency of that wall is the round metal-clad museum shop that penetrates the glass surface as if it isn’t there.) Further dematerializing the entry enclosure are horizontal glass skylights that run along both sides of the hall’s triangular steel-framed roof, letting in ample daylight and making the roof appear to float. In the new exhibition spaces, glass walls, clerestories, and floors also accentuate the lightness of the structure and the planar quality of its surfaces. In many respects, the building itself is this museum’s best exhibit.

But as it lessens the sense of enclosure, glass also reinforces boundaries throughout the building. Glass railings, doors, and partitions, while providing views into other spaces, effectively route visitors along a path through the museum. Glass cases and shelving further protect the objects on display. Almost everything is visible in this museum, but almost nothing can be touched.

This raises a broader question about the meaning of museums. As many have already noted, the museum has become a kind of secular cathedral in our
Project: Glass Museum, Bärnbach, Austria.
Architect: Kada Group, Leibnitz, Austria (Klaus Kada, Gerhard Mitterberger, Johann Ritterer, Josef Elmer, Günter Gebhardt, Elisabeth Steiner, Dieter Frischinger).
Client: County Government of Styria, Austria.
Site: Glass factory at the edge of the small town of Bärnbach.
Program: Rehabilitation of a former generator plant and addition of a new entrance for use as a glass museum and exhibition space.
Structural system: Existing concrete frame, new steel framing.
Major materials: Glass, custom glass blocks, corrugated metal cladding, stucco.
Consultants: Kada Group, interiors; Manfred Petschnigg, structural; Rudolf Starchel.
Cost: $12,500,000.
Photos: Peter Blundell Jones.

Glass is used throughout the museum to both reveal and protect. A slot of space in the upper exhibition area is emphasized with a glass roof, glass doors, glass display cases, and a partly glass floor (above right). On the second floor of the entry hall, the triangular roof comes to a point over a glass wall (below right). Visitors wind their way through the museum via a number of stairs and ramps to a third floor gallery, from which stairs cascade back to the entrance (plans above).

But as this museum suggests, such institutions also offer a metaphor of modern life, where much is visible or available to us, be it through the glass of a museum case or the glass of a television tube, but where we have no physical connection to what we see and little opportunity to affect or alter it. In one sense, the media have turned us all into museum-goers, examining the world like so many artifacts from behind glass.

The south wall of the museum at Bärnbach seems particularly appropriate in this light. Like a billboard announcing the subject of the museum to the nearby town, this multistory wall has, as its face, large custom-fabricated glass blocks that are bolted to a steel frame attached to an opaque wall. These blocks, about the size of television screens, look like an array of monitors as they glimmer in the sun. But they reveal nothing except our own desire to look in and through them.

Thomas Fisher
P/A Awards Update: A Graceful Takeover

SOM and Lee Askew Nixon Ferguson & Wolfe skillfully blend old with new for a Memphis museum.

When the design for the phased additions to the Memphis Brooks Museum was submitted to the 35th P/A Awards jury, it prompted jury chairman Charles Gwathmey to call it "very strong ... very convincing" (P/A, Jan. 1988, p. 114). True to the submission material, the museum's first phase is now complete, virtually as cited by that jury. Often presentation models mislead an observer because the final materials bear little likeness to the cool white of the model; but Memphis Brooks looks just as correct as the model.

Designed by Richard Keating, then of the Houston office of Skidmore, Owings & Merrill (and until recently in the Los Angeles office, SOM), with Memphis project architects Lee Askew Nixon Ferguson & Wolfe, this all-important phase does all the major work that needed to be accomplished to address several of what Keating saw as "principal considerations." Among the most important was the existing building and its materials and orientation. Another was the decision not to add major amounts of gallery space now, but to set up a structure for the future phases. A third was the need to make a museum function the way it ultimately must to achieve the maximum effectiveness for its purpose and its staff.

An obvious first concern was how to add to an existing 1915 jewel by James Gamble Rogers in Frederick Law Olmsted's Overton Park. It was mandatory, Keating notes, to have "sensitive and considerate materials." But another somewhat unresolved condition existed: The Rogers building faced roughly west, while the major park entrance is about 90 degrees south of that.

Because the first phase was to concentrate on forming a matrix of operation, not gallery space, the major decisions about the entire complex had to be made with this project. The program called for a hub or great space around which museum functions would circulate and an orientation point. The major element chosen by Keating to provide this focus is the circular Great Hall, which took over the role of main entrance; the earlier entrance was retained more as a side door and as the primary access for visiting groups arriving by bus.

Out of deference to the Rogers building, the architects chose to repeat its five-bay articulation in the new facility to the east of the Great Hall drum and to carry...
through the cornice lines and two-story horizontal division. In addition, the cream colored stucco walls of the new respect the similar color in the marble of the existing. Reflecting the skewed axis in the building plan, an angled steel grid frame at the entry serves as a changing format for banners announcing new exhibitions. The second reiteration of that axis is a continuous copper clerestory roof over the angled spine.

Probably the most important accomplishment of the skewed axis is in turning the museum-goer from the main entry onto a perpendicular cross axis directly toward the main galleries. Remodeling of those 1973 galleries and the complete restoration of the 1915 building will complete the phase I expansion. Phase II will add gallery and other spaces on the north and east sides of the building, and phase III will complete the north end of the complex.

Memphis Brooks Museum is a rare combination of strength and gentility. Its bold moves are blended skillfully with its respect for the existing older building. It is a building that is about more than itself; it is about providing a humane environment in which to view art. Jim Murphy
A 19th-Century canal that once powered a flour mill becomes the datum for Juan Navarro Baldegweg's Hydraulics Museum.

River embankments are peculiar structures — bulwarks set beneath city streets, with foundations immersed in water. They define an intermediary layer of space: Their top edge aligns with city sidewalks, and their visual base fluctuates with the river's level.

Juan Navarro Baldegweg, a Madrid architect, sees poetry in these overlooked sites and highlighted their unique qualities in his Hydraulics Museum in Murcia, Spain. It is a rehabilitated mill, joined to a taller, new structure, on the bank of the Segura River. A new rooftop terrace extends a walkway accessible from the city streets; the original facade is syncopated by embrasures, both designed and ad-hoc, that open to the river. Pilasters provide a complementary rhythm across the entire wall; they are interspersed with Baldegweg's windows, aligned with three vertical axes implied by the new construction.

On the riverfront, Baldegweg's new ashlar building looks like a rooftop addition; a side view shows that it is actually a three-story structure set over the mill's canal. Here, it is seen as the museum's primary structure, flanked by an entry plaza and the rooftop terrace, where visitors enter. A sluice in the foreground is a functional centerpiece; it diverts the canal's current to the waterwheels beneath the building.

Visitors descend from the top-level foyer to the lower hall, where millstones whirl and attendants describe the milling process. To provide a gathering space for impromptu talks, Baldegweg lowered a shallow dome at one end of the interior, over three banks of stacked benches. Here, sunlight is filtered through a multistory well, which (in Baldegweg's terms) acts "both as an axis of interruption and of continuity." It cuts across both levels of the library above and creates a vertical axis of light, analogous to the shafts of steel that link the waterwheels and millstones below.

On the riverfront terrace, the perimeter wall bows outward to mark the lightwell's presence; this convex surface is complemented by walls that fold inward at the opposite end of the building. Here, a patio café is accessible through swinging glass panels, centered about an axis leading to the town hall on the opposite bank. With this alignment, Baldegweg builds a metaphorical bridge across the Segura River, a link between Murcia's civic and industrial realms.

Philip Arcidi
Project: Hydraulics Museum, Murcia, Spain.
Architects: Juan Navarro Baldeweg, Madrid (Juan Navarro Baldeweg, principal, José María Menéres Hospital, Lucrecia Emérita Benlliure, Pau Soler Serratosa, Franz Bucher, project team).
Client: City of Murcia.
Site: an abandoned 18th-Century flour mill built on a canal next to the Segura River.
Program: the flat-roofed profile of the original building was restored once subsequent additions were demolished. The rehabilitated mills are flanked by a new, three-story structure containing a conference space, library, and restaurant.
Structural system: poured in place concrete.
Major materials: sandstone for original mill building; stucco infill walls and ashlar masonry for new construction.
Consultant: Julio Martínez Calzón, structural.
Photos: Lluis Casals.
The Occident Expressed

Companion essays examine the export of Western design to Japan from both sides of the exchange.

Drawing on the insights of foreign architects now working there, P/A surveys the causes and consequences of Japan’s receptive mood.

Amid rising concern – if not paranoia – over Japan’s accelerated economic expansion, the industry of architecture stands out as one of the most intriguing anomalies of the day. For while Japan, with great force, ships the fruit of its technology and art across the planet, design is a rare field in which the current of energy is reversed – flowing from West to East.

Even as the Bush administration berates Japan for its reluctance to open home markets to foreign trade, Japan is importing American and European design on an unprecedented scale. While a handful of Japanese architects have commissions in the West, there were, at last count, 230 occidental designers working all over Japan, many of them running three or more concurrent projects and having several others lined up in the wings.

Japan’s cash-rich economy, coupled with inordinately (and some say artificially) high real estate values, is conducive to a booming construction industry. The statistics are surreal. According to the Long-Term Credit Bank of Japan, the 1988 market value of land in Japan was, at $15 trillion, five times that of the total for the United States. Low property taxes on one hand and high capital gains taxes on the other (as much as 90 percent for individuals and 62 percent for corporations) make it more advantageous to build on the land than sell it. (Annual turnover in Tokyo last year was a sluggish 2 percent.) The value of land keeps construction costs viable, and even with the recently wavering yen, renders the fees of foreign architects relatively inexpensive.
"The Japanese companies have understood that architecture is a weapon. For them it is not only a big cultural image, but a parameter of business."

But economics alone do not explain Japan's voracious appetite for Western design. And not any Western design, mind you: Far from an arena for the discovery of new talent, Japan is amassing all forms of celebrity architecture. Why? What do Japanese clients hope to gain?

By all accounts, a distinctive "image" is the sought-after prize: The appearance of worldliness and creativity is synonymous with strength and carries immense weight in Japan. "A password of economically successful Japanese companies is culture, culture, and culture," explains Shiro Kuramata, one of Japan's own global designers. A corporation that displays cultural curiosity, especially through foreign-flavored architecture, will see immediate gains in both prestige and profit.

"The Japanese companies have understood that architecture is a weapon. For them it is not only a big cultural image, but a parameter of business," says Philippe Starck, who has recently completed three restaurant interiors, including "Manin," pictured here, and three full-fledged office buildings in Tokyo, in addition to a collection of furniture for a local manufacturer. And he is already at work on three more buildings in Osaka, Okinawa, and the capital.

The fascination with fashionable Western design can be linked to a certain ennui with fastidious, and often ascetic homegrown architecture. "[Japanese] clients are bored with the standards of Japanese architects," says Nigel Coates, a pioneer of the current wave of Westerners who has been working in Japan since 1985 on projects that have grown in scope from small-scale interiors and furniture design to a series of ever larger buildings, including the hotel conversion in Otaru featured here. Coates refers specifically to the minimalist aesthetic, "harking to zen," (yet enlivened in no small part by Japan's early exposure to Gropius and Le Corbusier in the 1920s), which is practiced by many of Japan's preeminent architects, and which doesn't deliver the shock of the new or the expressiveness that corporate clients desire. "There's no point in employing people like us if they're going to ask for anonymity," adds Coates. "They want surprise; they want dreams; they want 'crazy,'" says Starck. "In Europe, big companies ask for the conventional. In Japan, they want the incredible."

Both Starck and James Wines, the founder of SITE who for the past two years has been working on four projects in Japan including a large mountain resort, attribute the current appetite for Western design to a self-acknowledged inferiority complex on the part of the Japanese. The common perception among Westerners and Japanese alike is that because of their "linear" education, powerful family structure, and rigidly hierarchical society, the Japanese are inherently conformist. And they revere the rebellious, artistic individualism that comes naturally to Europeans and Americans. "It's this fundamental awe they have," says Wines. "They are always asking, 'how do you get your ideas?' The Japanese think that foreigners know more than they do, which is a big mistake, says Starck, who considers Kuramata, Isozaki, and Ando among the best architects alive. The Japanese "don't believe in themselves... they have the real idea of abstraction, of emptiness - but they're afraid to use what they know."

The respect for the foreigners' artistic strengths is attended by a supportiveness that has been long lost in the West, Wines contends. The Japanese have perfected the art of motivating people, giving them the sense that their contribution is crucial. "The spirit of...
The Japanese have perfected the art of motivating people... in stark contrast to the adversarial roles that American clients favor. Teamwork is incredible. You get the feeling everyone is on your side, everyone wants it to be perfect," he says. This ethic is in stark contrast to the adversarial, "cow-the-artist" roles that American clients favor. "American minds have an antagonistic view," Wines says. They're not satisfied unless they've "whittled the architect down in some way." Whereas Japanese clients, while extremely demanding of the architect's time, and strict about quality and budget, will "do almost anything to keep the integrity of the idea." For Wines, it is this conducive environment that is the essence of Japan's strength. "That's what the West has to learn. It is what has been lost to the 'them and us' mentality."

Harsh words. And there's more. Wines sees the ascendance of Western design in Japan happening at a time when the American government is withdrawing its support from the arts, slashing NEA budgets "when, in fact, intuitive creativity is the one salable product America still produces, and should be investing in." While extreme, Wines's accusations are no less than a critique of the current state of the arts in the United States. How many U.S. developers degrade design through penny-wise attrition? And how many architects, for that matter, feel sufficiently empowered by their art — or public patronage — to resist?

Gaetano Pesce, who worked alongside Kuramata, Ettore Sottsass, and Alfredo Arribas on the design of public spaces in Aldo Rossi's recently opened hotel in Fukuoka (pictured in the following pages), has his own theory to explain the explosion of design in Japan. "Whether the Japanese know it or not, they are building the capital of the 21st Century," he says. "Depending on the historical moment, there is a country that is stronger in its economy, evolution, culture,
"The Japanese don't believe in themselves... they have the real idea of abstraction, of emptiness—but they are afraid to use what they know."

that is able to influence everybody. It's an old story, beginning with Egypt, then Greece, Rome, Florence, Venice... the last great culture was transferred at the turn of the century from Paris to New York. New York was the capital of the 20th Century, and American life went everywhere. In the way that America's promise lured immigrants from all over the world, according to Pesce, so Japan's wealth and industry are creating a magnetic energy that will attract creative people from all nations.

Pesce's theory is cogent up to a point. One needs to remember that Japan does not have the resources or space that North America does, and that the Japanese culture's ingrained resistance to foreigners is the opposite to America's constitutionalized welcome.

To gain a broader perspective on current events, it is useful to look back, if only cursorily, at the cyclical history of Japan's encounters with the West. In 1853, Commodore Perry, demanding the institution of trade treaties, and backed by an invincible naval escort, breached Japan's 200-year-long seclusion. Over the next two decades, increasing exposure and feudal Japan's feeling of vulnerability and backwardness in relation to the industrialized West were to topple the Tokugawa shogunate, which had established the country's ironclad insularity, and lead to the restoration of the Meiji emperor in 1868.

By the early 1870s, the Japanese "were caught up in an overwhelming urge to join the march of Western progress," writes H. Paul Varley in Japanese Culture. "This was the beginning of a period... during which the Japanese unabashedly pursued the fruits of Western 'civilization and enlightenment'... [Exposure to the West] became the surest means for advancement." Varley lists extensive cultural changes: Japanese men were encouraged to lop off their topknots in favor of Western haircuts; the government tried to ban or restrict public bathing, tattooing, and the sale of pornography, which it thought the foreigners disapproved of; beef was assimilated into a once-abstemious diet. But one of the "most profound" changes occurred in architecture, through the gradual adoption of Western styles and building materials—particularly in the construction of public and commercial buildings. Japanese domestic architecture, however, proved much more resistant.

Then, in the 1880s, there occurred the first of the conservative swings, back from "the previously uncritical acceptance of everything Western," toward nationalism. This pattern, of enthusiastic embrace of the West followed by a whiplash of nationalism, repeated itself later: During the 1920s and 1930s, Japan again looked West, an orientation that was reflected in continued emulation of Western architectural styles (see Perspectives, p. 122). But with the approach of the China and Pacific wars, the backswing began, and "the emergent military leaders of Japan sought to promote the development of a 'national style' in modern architecture." Post World War II reliance on the West was similarly superseded in the 1960s by a proud and seemingly self-sufficient architecture that prized Japanese aesthetics, albeit recast in Western materials. Now we are witnessing another foray, staged by Japanese every bit as hungry for Western individualism as their 1870s predecessors were, even though, significantly, Japan no longer looks to the West for industrial might but for cultural vitality. Is a backlash to come?

Many would argue that in most areas, Japanese chauvinism—if not outright racism—already holds sway. Journalist James Fallows, who spent the late '80s...
The field of Western architects being considered today is quite narrow because the selection process is channeled through a few producers with their biases.

II Palazzo Hotel, Fukuoka.

The project was a complex collaboration between Japanese and Western designers. The building, with its opaque, monumental front (above, and top right), was designed by Aldo Rossi and Morris Adjmi of Studio di Architettura; Shigeru Uchida, of Studio 80, in his capacity as "art director," enlisted luminaries such as Ettore Sottsass, Gaetano Pesce, Alfredo Arribas, and Shiro Kuramata to design a series of identical-volume bars housed in lower structures flanking the main building. The wall in the ground floor El Dorado restaurant by Rossi repeats the building elevation in miniature (facing page, left). Uchida and Hiroyo Mitubashi of Studio 80 designed the main lobby and ground floor bar, using striking combinations of wood and wood-inlaid terrazzo (facing page, lower right).

in Japan and South East Asia, filed numerous stories in the Atlantic, compiling evidence of Japanese nationalism. In portraying Japan's blithe disregard for Western notions of free trade and fair play, Fallows pointed to a fundamental difference between "us" and "them": Japan's economy, unlike that of the U.S., is structured to favor the producer over the consumer. In a nutshell, Japan's frugal (and indoctrinated) consumers are prepared to buy more expensive, homegrown rice - rather than cheaper imports - for the greater benefit of Japan.

Fallow's insight adds a paradoxical dimension to the present proliferation of consumer-oriented architecture in Japan's major cities: The mushrooming boutiques and clubs, cafes and hotels, point to significant changes in the expectations of no longer frugal Japanese consumers. Moreover, the shift from discipline to indulgence will be accelerated unless Japan can curb spiraling real estate prices, analysts predict, since the unattainability of affordable housing will only create further disincentives for young Japanese to work or save.

Will the onslaught of Western lifestyles have a lasting effect on Japanese culture? Coates contends that Japan has passed the point of no return. Pockets of tradition remain - stronger in rural areas than in the cities - but on the whole he sees Japanese tradition as becoming increasingly "museumified," and cites the Western-style suburban homes that contain just one traditional tatami room. "The modern dimension of life [in Japan] is so unafraid of the future," Coates says, "[Japanese traditions] will become a kitsch version of what they once were." By Pesce's lights, such developments are ultimately for the better. Tradition is not a fixed entity, he maintains, but an evolving by-product of discovery and progress.

Sottsass is more concerned about the consequences for architecture. "I have a problem, how far to consider architecture as a publicity event, and not as a poetic event," he says. "[Thinking about it] I don't sleep at night sometimes." Certainly, not all Western and Western-influenced design being implemented in Japan is of the fleeting and flashy kind so worrisome to Sottsass. Besides the solid contribution of the architects represented here, there are small office buildings and housing by the likes of Steven Holl, Mark Mack, and Morphosis that display a good deal of rigor.

With Japan spread before them like a vast laboratory, Western architects may gain wisdom from their experiments and from the way Japan works - wisdom that will ultimately benefit the West.
Hiroshi Watanabe looks at the effect Western architects are having in Japan.

In the southern city of Fukuoka 63 persons recently took part in a lottery to purchase a tiny four-bedroom apartment designed by Michael Graves priced at 100 million yen (about $700,000); more than 100 competed for a two-bedroom unit. In the mountain resort of Karuizawa, as many as 14 couples are married in a single day in the Christian chapel designed by Kendrick Bangs Kellogg; after each ceremony the bride and groom take a ride on a Venetian gondola to a nearby hotel for the wedding reception.

In Tokyo, a line starts forming by five o’clock for tables at Super Dry Hall, the newest restaurant designed by Philippe Starck; traffic on a nearby bridge slows as drivers stare at the 144-foot-long *flammé d’or*, an improbable free-form sculpture on the roof.

Japan seems aswarm with Western architects these days. Not a week goes by without more news of their activities. Construction is underway on Orchid Court, a 300-unit, 80-billion yen condominium complex in Kobe by Moore Ruble Yudell, as well as on Century Tower, a 20-story office building in Tokyo by Foster Associates. Richard Rogers, Renzo Piano, Zaha Hadid, Peter Eisenman, Hans Hollein, Adele Santos, Rem Koolhaas, and Mark Mack are only some of the other foreign architects involved in projects in Japan.

Western architects, of course, have worked in the country before. The first wave arrived in the Meiji era, when Japan, desperate to gain acceptance by advanced industrialized nations, sought to assume the outward appearance of modernity. British and German architects designed government buildings and the residences of oligarchs. During the Taisho and early Showa eras, architects like Frank Lloyd Wright and Antonin Raymond came and designed houses, villas, clubs, embassies, and hotels for the elite.

The current wave of Western architects, however, is different in that it has been generated, not by the government or an elite, but by developers. True, there are some instances where the national and local governments have stepped in to promote equal opportunities for, if not to directly hire, foreign architects, as with the international competition sponsored by the Tokyo government for a new cultural complex, won by the Argentine-born U.S. architect Rafael Viñoly (P/A, Jan. 1990, p. 27). Another is Artpolis, the international architectural exhibition organized by the Kumamoto prefectural government, which will include a building by Hollein for a social-welfare association and a bridge by Piano. However, by and large, government bureaucracies are too set in their ways to readily accept the notion of hiring Western architects.

The semi-governmental Housing and Urban Development Corporation, for example, okayed the participation of Graves in the design of a housing tower for Yokohama only on the condition that he be a “consultant” for a Japanese architectural firm.
Zibibbo Bar by Ettore Sottsass.

Given that the hotel was erected in what was heretofore a seedy part of the city, known for its "love hotels," Sottsass pursued intimacy in the design of the bar (above, left and right). It is "a small village, with many stairs, and rooms and windows," he explains. The ceiling, too, is a styled allusion to starry nights. Although not directly influenced by Japan, Sottsass acknowledges the location through scale ("the Japanese are small, and so the rooms are small") and through the use of simple materials.

Instead, the force behind the current proliferation of projects by Western architects is a group of innovative developers like Michihiro Kuzuwa, president of JASMAC, which owns and manages the hotel Il Palazzo. The building boom in Japan is creating intense competition among developers, and, simply put, the hiring of Western architects is a strategy for making a project different from the rest.

Architects like Wright and Raymond saw much to admire in traditional Japanese architecture and in their separate ways attempted to reconcile Western and Japanese culture. The architects now at work in Japan are being asked to be themselves. The last thing the clients want from a Western architect today is a contextual solution.

Aldo Rossi’s design for Il Palazzo, for example, was accepted in lieu of an earlier three-story scheme by a Japanese architect that blended into the primarily residential context. Rossi’s hotel is an entirely alien presence, and that was just fine with JASMAC.

A buzzword among developers these days is "value-added." Today’s Japanese, with their diversifying lifestyles and the wherewithal to indulge themselves, are no longer content with functional design. As Kuzuwa has explained, no longer is a hotel just a place to stay overnight or a bar a place to get inebriated. People are looking for ambience and are prepared to pay extra for it. The Western architect or designer is expected to contribute that style, that je ne sais quoi.

Working with a Western architect introduces an element of unpredictability, but then the client is no longer totally inexperienced. Unpredictability has been factored into the developer’s plans. Kuzuwa has been quoted as saying, "A foreign architect is like an unbroken horse. He is highly individualistic and difficult to manage, but once you have [broken him in], he will do extremely good work. A sure hand with the reins is necessary." One detects in his comments a touch of condescension.

There are Japanese clients who understand and are sympathetic to architectural ideas and who personally recruit the Western architect. The head of the group that is developing Century Tower admired Foster’s work and visited the HongkongBank several times before asking the British architect to design the Tokyo project. However, more often it is the so-called "producer" who matches client to architect.

The Japanese producer is a rather ambiguous figure, and it is not always clear to whom he is accountable. At times the producer is a disinterested party, and at other times he is more or less looking after the interests of the architect. He does not bankroll a project. His main role is to serve as a go-between, and once the initial recommendation has been made, he may withdraw. Arata Isozaki, as the producer of Artpolis, and Shigeru Uchida of Studio 80, in his capacity as producer of Il Palazzo, have played limited, though decisive roles. However, there are people like Yasuhiro Hamano who attempt to play a more extended and active role as coordinators.
"A Western architect aiming for a rough, unfinished quality or a slapdash effect may find his Japanese associates making things too perfect."

Maintaining a full-time office in Japan, especially Tokyo, is quite expensive, and establishing a network in a society in which connections play such a large part can be time-consuming. Overcoming the language barrier is a considerable effort in itself. How much easier, argues the producer, to work with someone like himself who knows the ropes.

Hamano's first encounter with a work by Graves was a visit to the latter's Sunar showroom in Los Angeles in 1981. He immediately sought out the architect and eventually promised to find him ten commissions in Japan. That arrangement has led so far to the Fukuoka and Yokohama jobs. Several other projects are in the works. Masaaki Sekiya has played a similar role for Hadid and Rogers.

The producer indeed may have a useful role to play in the current transitional state of affairs, where Japanese clients and Western architects are still developing, through trial and error, a working relationship. Yet the field of Western architects being considered today is quite narrow because the selection process is channeled through a few producers with their biases. Until client and architect outgrow the need for intermediaries, a distortion will remain.

Another important relationship is that between the Western architect and the general contractor. Foster Associates, for example, has teamed with Ohbayashi Corporation, whose architectural division is providing technical assistance on Century Tower, primarily to assure compliance with building laws. The relationship has been a good one, reports General Manager Chikafusa Sato of Ohbayashi, because it is based on mutual respect. Too often, big-name Japanese architects condescend to contractors.

A contractor like Ohbayashi feels comfortable working with an architect with a high-tech approach like Foster. "Foster's standards are not difficult to achieve for Ohbayashi," Sato says. It is architects looking for a low-tech effect who are often the headache.
Japan frequently has been pictured as a country blessed with an enviable combination—a surviving tradition of craftsmanship and cutting-edge technology—that enables it to build just about anything that an architect proposes, but Sato thinks craftsmanlike skills are a thing of the past. He worked on the American Embassy housing in Tokyo designed by Harry Weese and completed in 1983, where Ohbayashi fought a losing battle to change the stucco panels Weese had stipulated on the outside to something more resistant to cracks and less labor-intensive. The housing was eventually built as designed, but it would no longer be possible to construct in Japan, Sato asserts, because there are not enough skilled plasterers available. Likewise, a proposal to construct a large-scale exposed concrete building would be laughed at today because there is a shortage of carpenters for doing formwork.

In addition to such misperceptions, cultural differences are revealed when Western architects work with Japanese collaborators. Japanese architects and contractors have an almost compulsive desire for neatness, and this can affect significantly the image of a building. A Western architect aiming for a rough, unfinished quality or a slapdash effect may find his Japanese associates making things too perfect. Rossi, for example, probably would have been content in II Palazzo with more casual brickwork, with bricks laid starting from one end of a wall without bothering to figure out beforehand, as the Japanese do, an arrangement that is perfectly centered and evenly spaced over an entire façade. Moreover, the Japanese prefer deeply incised joints, which makes each brick read separately. Rossi, in contrast, wanted joints that were flush, and a European workman had to be brought in to show the Japanese bricklayers on II Palazzo the desired detailing, which helps give the two annexes their informal character.

Cultural differences also showed up in the use and detailing of stone in the Fukuoka hotel. The Japanese accept that wood will age and weather, but it seems they are still unprepared, perhaps because of a lack of tradition in masonry construction, to accept the aging and weathering of stone. The Japanese balked at first at Rossi’s idea of using Iranian travertine as an exterior finish. However, they eventually realized that the weathering of stone was viewed as normal and acceptable by European architects.

Expensive stone is normally used only as thin veneer in Japan—a practice also rooted in the Japanese architectural tradition—but Rossi insisted that the columns on the II Palazzo façade be solid travertine. Kuzuwa agreed, even though the columns ended up costing three million yen (about $21,000) apiece. Perhaps the most common complaint among Western architects working in Japan is that the Building Standard Law and other regulations pertaining to building in Japan are too rigid. They are not necessarily more strict than comparable regulations abroad, but such matters as the number of stairways, the widths of corridors, and the maximum distance from point A to exit B are stipulated in too great a detail and leave little room for negotiation with authorities. Japanese architects too have complained about this
Western architects may hold strong views, but they listen to people's suggestions... Established Japanese architects, like doctors and other experts in Japan, don't like to have their views questioned.

inflexibility, but many have grown used to working within the established legal framework. The Western architect, being unconditioned as yet, may be more ready to question the system, and to that extent is more likely to achieve an innovative solution. A special exemption, for example, was sought and obtained from the Minister of Construction for Century Tower, whose 18-story atrium would not otherwise have been allowed under the Building Standard Law.

The use of Western architects in Japan not infrequently represents implicit criticism of Japanese architects. Sekiya insists that Western architects are professionals. They may hold strong views, but they listen to people's suggestions; if an idea is reasonable, they are willing to adopt it. Established Japanese architects, on the other hand, like doctors and other experts in Japan, don't like to have their views questioned.

Sekiya claims, moreover, that Japanese architects are so busy right now that they do not give as much time and energy to individual projects as Western architects are prepared to put in. (Both Rogers and Hadid have been putting a great deal of effort into what might be regarded by their Japanese confreres as small potatoes.)

Japanese architects have responded in various ways to the Western invasion. Some feel that there is too much concern currently for attention-grabbing designs and that developers need to be more discriminating. Others welcome the phenomenon.

The point has been made that like Japanese beef, rice, and citrus, Japanese architects hitherto have benefited from protection. They have been judged according to different, less rigorous criteria than those applied to Western architects. This has permitted a number of Japanese designers — e.g. the late Seiichi Shirai and Togo Murano — to enjoy an inflated domestic reputation. The introduction of the works of Western architects in Japan undoubtedly will have a salutary effect by eliminating this double standard.

Hiroshi Watanabe

Mr. Watanabe is an architectural critic based in Tokyo and the author of a forthcoming book on Japanese architecture.

The Barna Crossing by Alfredo Arribas.

The Barcelona architect was charged with designing the largest public space, a two-tier, aluminum-wrapped 15,000-square-foot complex that contains bars, a private club, disco, and restaurant (above, left and right). The Crossing's overwhelming variety and dynamism was inspired, Arribas says, by the Japanese cultural and architectural environment, "where everything is possible and valid, and where diversity ends up obtaining a certain harmony."
Books

Books of Note

With the oil boom eclipsed, Houstonians are taking stock of what they have built; this guide, with a reflective foreword by Peter Papademetriou, catalogues architectural highlights for the automotive tourist.

Stanley Tigerman: Buildings and Projects 1966–1989, essays by Stanley Tigerman and John Hejduk, Rizzoli, New York, 1990, 288 pp., illus., hardcover $50.00, with a reflective foreword by Peter Papademetriou, catalogues architectural highlights for the automotive tourist.

The Architecture of Exile by Stanley Tigerman, Rizzoli, New York, 1988, 192 pp., illus., $40.00. With impressive scholarship, Tigerman traces architecture’s existential function. Analyzing sacred buildings in the Judeo-Christian tradition, he asks us to respect the sign-making role inherent in architecture.

A companion to the PBS series (Mondays in May at 8 p.m.), Skyscraper documents the people and processes involved in the construction of SOM’s Worldwide Plaza in New York. While the scale of the project precluded an intimate account, Sabbagh offers a compelling portrait of the work.

See Tech Notes (p. 43) for listings of other publications of interest.

Gerald Moorhead, a well-travelled architect, compares the merits of several new guide books for today’s Grand Tour.

Three reprints reorient our perspectives on early Modernism.


The Architecture of the Early XX. Century Selection and commentary by Peter Halko, Rizzoli, New York, 1989, 516 pp., illus., $75.00.

To our benefit, a good number of architectural reprints have arrived on the shelves of bookstores. For students, these are valuable supplements to historical surveys. Architects will find them handy visual references. For all concerned, the reappearance of these books attests to Modern architecture’s maturity; its origins are now distant enough to be reintroduced. Furthermore, in this era of revisionist scholarship, these reprints can uncover connections once obscured; they let us compare what architects said with what they saw and eventually built.

Architects Abroad: Navigating the Sites of Europe

This reviewer, a veteran of numerous architectural pilgrimages, has broken the back of many a travel guide. Experienced with the hassles and adventures of travel abroad, I offer my traveling colleagues a guide that’s more than a simple distinction: Historical guides are not to be confused with travel guidebooks. A historical account documents and analyzes the architecture of a certain place, with citations of important examples. Building on these foundations, a guidebook has a complementary purpose: to tell which buildings exist today and help the traveler to find them. Nothing is more irritating than to be led to a place (sometimes with great difficulty), only to find that one’s trail leads to a dead end.

Even though these objectives ought to be obvious, architectural “guides” are notoriously short on practical advice. Now that we’ve established our criteria for review (sensible ones, I hope you’ll agree), we can gauge the success of three new guidebooks for European travel.

The National Trust Guide is a sumptuous volume, illustrated with gorgeous color photos that help one forget it ever rains in the British Isles. Established in 1895, the Trust owns 500,000 acres of coast and countryside, 200 great houses, and 100 gardens; the guide lists 500 of these properties alphabetically.

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Interview: Tod Williams & Billie Tsien

New York architects Tod Williams and Billie Tsien have had good reason to think about museums lately. Last year they won the competition to design the flagship museum for the proposed L.A. Artspark complex in the San Fernando Valley; more recently, they received a commission to design the new Phoenix Art Museum. And in December, their exhibition “Domestic Arrangements: A Lab Report” opened at the Walker Art Center in Minneapolis as part of its “Architecture Tomorrow” series. The exhibition, a set of prototypical building elements made with experimental materials, is on display at the Federal Reserve branch of the Whitney Museum, a space the architects designed, through May 18. It will also be on display at the Cleveland Center for Contemporary Art (Sep. 8–Nov. 3), the Power Plant in Toronto (Nov. 23–Jan. 20, 1991), and the Wexner Center at Ohio State University, Columbus (March 15, 1991–April 28, 1991). Mark Alden Branch talked to Williams and Tsien about their exhibition and about museums.

P/A: Do you intend to do more work along the lines of the exhibition? Were you just throwing these ideas out for someone to catch or do you intend to investigate them further yourselves?

Tsien: I think we’d like to explore it some more. The rural site [one of three applications the architects developed for the house pieces included in the show] is actually a piece of land that we own and have thought about for a long time. If it were ever possible financially, I would like to continue that as a sort of “case study house” for ourselves.

Williams: I think to some extent we’re posing it as a challenge to ourselves. It shouldn’t just be thrown out there to the winds. We have to really work to pursue it. For example, I’m terrified but interested to follow up on issues of the environment and social responsibility and so on. Certainly this is a serious attempt to move a little bit more in that direction. That’s not to say we’re going to abandon all we’ve done in the past but that one has to have a greater stake or responsibility in [social and environmental issues]. Some ideas we’d like to have picked up commercially. To me, the urgency to follow along those lines isn’t nearly as great as the urgency to follow along lines of experimentation and research. It’s important to me that we not use this installation as a chance to sort of present ourselves as a commodity to be purchased by the public; on the other hand, this kind of research is very expensive. So we have to be careful; we can’t do that much open-ended research. It would drive us to the poorhouse.

P/A: The “commodification” you’re reacting against seems to be implicit in the exhibition series, the presentation of six architects to be digested by the public. Williams: I feel that’s a problem inherent in the idea of the series. Fortunately, even though [our exhibition] has been to some extent a criticism of the series, Mickey [Mildred Friedman, the series’ curator] has been very accepting and appreciative of it. Certainly I think the instinct of the series is to say “These are the architects of tomorrow.” I think that’s a real problem. I have no desire to forecast the tomorrow for other (continued on next page)

Williams: We felt that being charged with the idea of “Architecture Tomorrow” — and not much else — we should think about it in terms of our own tomorrow. One of the things I felt was that our tomorrow should be about things our today is not about, such as low-cost housing and experiments in living. We did not want to go in the direction of displaying work of the past. That seemed both pretentious — because we haven’t built up that much work to show — and philosophically at variance with what we felt should happen in a museum anyway. I strongly believe architects belong in a museum in a retrospective way when their lives are done. Why should we fix our concepts at this point so that they can be presented in a museum setting as artifacts? It’s nearly impossible to resist the issue of commodification and fixing ourselves through this work, but I don’t believe in it.

P/A: So the vagueness, the questions in the exhibit as to what would happen to these ideas was deliberate?

Williams: Totally. We feel it’s very possible that our work is going to develop a style, but we don’t want it to. Style, in my opinion, closes down questions rather than opening them up. So we didn’t intend to have those questions answered. Some of them get answered naturally and many of them remain open.

P/A: So you avoided making a prototype house.

Tsien: We would like to think of the elements as being prototypical but their combination as being specific to whatever site it is. In the work that we do, we always try to see it as a collaboration between the architect, the client, the contractor, and the site. So to think of it as sort of a Levittown house, which could be anywhere, is perhaps so much more about an answer than we’d probably care for it to be.

The “Domestic Arrangements” exhibit (right, as installed at the Whitney) presents prototypical building elements such as expanded foam wall and roof pieces, strengthened with laminated paper tubes. At lower left is a rug — actually the back of a conventional rug — that the architect developed with V’Soske; the rug is tufted in spars to fulfill specific functions (a place to step out of bed, the beginning of a path, etc.).
"I strongly believe that architects belong in a museum in a retrospective way when their lives are done. Why should we fix our concepts at this point so that they can be presented in a museum setting as artifacts?"

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architects. I hope no one forecasts it for me. I think there are too many architects out there forecasting the future for the public. On the other hand, the reality of the series is that it's truly open-ended, and you're given a time and place to make your statement.

P/A: Had you done exhibition design before?
Williams: We've designed exhibits, and we've had our work installed. When we've had our work installed I've always been more interested in making the installation than in the actual presenting of the work because we've had so little opportunity to build.

P/A: Has designing exhibits changed the way you see museum design?
Williams: Yes, and I think will probably change it as we continue along. One thing I realized is that although the curators and director of the Downtown Whitney -- which we designed -- are very happy with that space and think it's a great space to install work, as we encounter it, I tend to believe that it's overly fussy. Although I think we've made a stronger installation there than we did at the Walker, I believe that the Walker is inherently a better place to display work.

This experience has given me a more healthy respect for somewhat neutral exhibit space. If I would imagine the museum of the future, or let's say Phoenix, the near future, I would say that we need to design a good chunk of space that is very flexible, with a more neutral character that comes through in very subtle ways, through such things as light and proportion and movement. On the other hand I think there should be some spaces that are highly specific and which challenge our perceptions of what art is and what its limits are. I think we did a pretty good job along those lines

The architects used Homosote, a fiberboard made from recycled newspaper and paraffin, to make chairs (upper left), and wall/seating units (below). The material has a sensual, suede-like texture. The long, low platform (right) is a combination bed and table, and when tilted upright, a screen. Other experimental elements include a raised floor of forklift pallets made from compressed wood chips and resin.

with the L.A. Artspark Center. It presented some interesting and challenging relationships of the artist to the place where art is displayed and also made a very specific final space. One thing we did in the project is suggest that the artists-in-residence live at the ends of the galleries, so that as museumgoers passed through the space the museum would essentially enter their working area.

P/A: You refer to projects like this exhibition and your newsstand project [a 1988 competition entry] as research. Do you think that architects are trained in school to conduct research of the kind you are doing?
Tsien: I was speaking yesterday to the ACSA about the problems I had with an education that believed that what you were doing was always providing solutions and answers, and that the final drawing and model was a finished solution and not part of something ongoing. In high school, I really loved Chemistry because there was something so neat and precise about how it all fit together. And there was something about architecture school that was a repetition of that experience for me. It all seemed so neat and compartmentalized, and you always ended up with the answer. And I felt very frustrated when I started working and things always went forward, backward, sideways and then forward again and then backward again. There are always loose ends, and the design process always continues. I think that's a problem with architectural education that needs to be addressed.

Williams: We're particularly happy to be teaching at SCI-ARC now; what's good about it is that it is not very much an institution, and there is no prescribed way in which architectural education is pursued.

P/A: Do you think such changes in education might help to stem the tide, wherein architecture is presented and commodified as a product?
Williams: Yes. There's an awful lot out there that's compelling us to operate in ways that are prescribed societally. Certainly we're excited to be presenting our work in a museum. It's a great opportunity. But it's also an important responsibility.
Sally Woodbridge comments on the four plans proposed in the last decade for San Francisco's Mission Bay, two of which won citations in the P/A Awards Program.

Urban Issues: Mission Bay

On January 31, 1989, San Francisco's Mayor Art Agnos announced the fourth master plan in a decade for Mission Bay, a 314.8-acre site south of Market Street that is the last major undeveloped parcel of land in the city. Touted as a "city within a city" in 1981, Mission Bay now has the more acceptable label of a neighborhood, with all the diversity and more of the amenities that have made San Francisco's older neighborhoods cherished places to live. Still, "neighborhood" is a somewhat deceptive name for what is the country's largest mixed-used development - an under-utilized urban area that will be wedded to the downtown through extension of the city street system and public transit.

The four plans reflect the development that was considered feasible and desirable for their times, 1981, 1983, 1987, and 1989. The most striking differences occur between the two plans at the decade's beginning, which maximized development, and the two at its ending, which balanced development with responsibility for the environment and social issues. What helped bring about that change was the reaction of San Franciscans against the "Manhattanization" of their city, and, in 1985, approval of the Downtown Plan with its annual cap on new development. A downturn in the market for office space also helped the political movement for slow growth.

From an urban design perspective, the change in plans reflects the national trend toward reasserting the public interest in open space and transportation linkage. Although all four plans have been water-oriented, the latter two gave the waterfronts increasing emphasis. The new area will have more open spaces that are more varied than other city neighborhoods. As for transportation, an intermodal transit center in the western corner will provide service by MUNI and CalTrain. Those who work in central downtown can walk there in 20 minutes.

One urban form, a large crescent, has been a major feature of each plan. In the 1981 plan by John Carl Warnecke and Associates, the crescent faced downtown; in the 1983 I.M. Pei/WRT plan, it shapes the head of an island. In 1985, following the merger of the real estate divisions of the Southern Pacific and Santa Fe railroads, the project area was expanded to include the railroad land between Third Street and the Bay. As a result, the project gained a second waterfront that the crescent faced in both the 1987 plan by The Mission Bay Planning Team and the 1989 SOM plan. A last refinement occurred in the 1989 plan, when the crescent was moved 200 feet north to give the main axis an unobstructed view of the water.

Other significant urban design changes from the first to the last plans are the result of a shift in character of the project from a city-within-a-city to a neighborhood linked through circulation to the downtown area. The increasing concern for making parks con-

1985 plan: 60 units/acre.

1989 plan: 30-80 units/acre.

venient for everyone has produced a subtle redistribution of open space to provide each phase of development with a park. The two waterfront parks, which total more than two miles, have gained greater definition, and environmental concerns have been more fully addressed, although the issue of whether a wetlands or public playing fields will occupy the 12.5-acre northeast corner of the site has not been resolved.

The four plans also differ in the density of proposed development, which decreased markedly from 1981 to 1987. The Warnecke plan for the Southern Pacific Development Company (an affiliate of the site's owner, Southern Pacific Railroad Co., which had used it for railyards and warehousing since the 19th Century) reflected the boom in downtown highrise development that had yet to be reined in in 1981. The proposed mix of residential, office, and commercial development focused on the China Basin Channel, an industrial waterway that was to be upgraded with a promenade and small-boat marina. The density in all categories was about double that of the succeeding plans. This first scheme clearly envisioned the removal, to a large extent, of the downtown population north of Market Street to Mission Bay.

This plan was revised in 1983 by I.M. Pei & Partners/WKT Assocs (P/A, Jan. 1984, pp. 142-144). The new plan's mesmerizing element was an island set in a canal with a crescent at one end and a prow at the other. The powerful figure-ground relationship of
Japan's appetite for Western architecture, addressed elsewhere in this issue, is hardly unprecedented. The following passages from H. Paul Varley's Japanese Culture (University of Hawaii Press, 1984) reveal how Modernism and American models affected Japanese attitudes and lifestyles.

Excerpt: Points of the Pendulum

Probably the most important issue approached by Japanese architects during the period of World War I and its aftermath was how Japan's traditional tastes in building could be combined with the modern architectural values of the West. Among the most obvious of these traditional tastes were: the natural use of materials, such as unpainted wood and rough, earthen-type walls; the handling of space—essentially by means of thin, adjustable partitioning—to create a sense of continuity or flow... and an emphasis on geometrically arranged straight lines in design, deriving mainly from retention of the ancient post-and-beam style of construction. All of these qualities are perfectly represented in what most flawlessly of traditional Japanese architectural masterpieces, the Tokugawa-period Katsura Detached Palace in Kyoto. Yet the modern Japanese themselves remained almost totally oblivious to Katsura's virtues until prodded into reflecting upon them in the 1930s by an expatriate from Nazi Germany, Bruno Taut.

Shortly after Taut's arrival in Japan in 1933, a Japanese architectural authority noted, "Fifty years ago Europeans came and told us, 'Nikko [site of the elaborately embellished Toshogu Shrine] is the most valuable,' and we thought so too; now Bruno Taut has come and told us, 'It is Ise [site of a spartan wooden shrine that is rebuilt every 20 years] and Katsura which are the most valuable,' and again we believe."

Whereas before World War II the Japanese had been influenced chiefly by European architectural styles, after the war the main foreign influence was, probably unavoidably, American. [While] England, France, and Germany placed great emphasis on city planning in the rebuilding of their wartorn cities, the Japanese— in the absence of significant American interest in it—devoted little attention to overall planning once rebuilding [began] in... the early 1950s.

To the general neglect of housing needs, highest priority in the early part of the postwar building boom in Japan was given—especially in the largest cities— to the construction of office space. Also under American influence, the Japanese sought to equip their new... buildings with the most advanced facilities and amenities, including extensive fluorescent lighting and air conditioning... they tried where possible to use fireproof materials to modify the traditional timberbox character of cities like Tokyo.

The Japanese had always lived in small wooden homes, usually incapable of accommodating more than one or two families. Hence the construction of multistory concrete apartment buildings in the postwar period constituted a truly revolutionary development in living style for many urban dwellers... [who] viewed them as first steps toward... a kind of earthly utopia of informal and leisurely living derived from the model provided by the United States.
Re-evaluation: Space, Time & Architecture

For many decades Space, Time and Architecture was a bible—the book, often the only one. North American architecture students were encouraged to read, or ever did read, on architectural history. Persuasively written, Sigfried Giedion's text was an unquestioned authority that conditioned the way students saw architecture and the structures they built.

The consequences of Giedion's popularity are evident to this day: Countless airports, cafeterias, and concert halls recall the factory interiors Giedion published as precursors of Modern architecture. We are surrounded by block after block of faceless, featureless metal-cage, glass-walled offices. Emulations of housing projects that looked clean and crisp on Space, Time and Architecture's pages are now ruinous horrors, rather than the urban parks he prophesied.

One might have supposed that when these shortcomings became obvious and Modernism's appeal began to wane, Giedion's impact on the North American landscape would decline correspondingly. Not so; it's never been greater, but in ways he didn't anticipate. Every other Post-Modern shopping mall emulates the interior of the Crystal Palace (sometimes elaborated into a weirdly Palladian motif), a legacy of the extensive treatment Giedion gave Robert Paxton's exhibition hall in his book. Every commercial strip sports McDonald's golden arches—a "logo" designed by Charles Fish, who worked for Stanley G. Meston in California. Ray Kroc, the fast-food entrepreneur, had asked for something to give his new chain roadside impact, perhaps something with parabolic arcs. Where would Fish, a 1949 architectural school graduate, look for design ideas? Space, Time and Architecture; by then, there was no other book to consider. He found his inspiration in Figure 110 (first edition, eighth printing) – a construction diagram for Robert Maillart's Cement Hall in the 1929 Swiss National Exhibition. Courtesy of Giedion, we live among golden arches as well as glass cages.

Space, Time and Architecture's magic spell is everywhere. But how was it cast? What made it so compelling? Tom Wolfe attributed the "Bauhaus Blitz" to a cultural inferiority complex: America's simple savages were struck dumb in adoration of The White Gods (actually European émigrés) who brought an architectural order from the heavens. In fact, Americans were quite aware of European Modernism's faults, both practical and theoretical. They overlooked them because they wanted to; this new architecture offered them something they desperately needed.

When Space, Time and Architecture appeared in 1941, America was hardly over the Depression. It had been a painful time, with a psychological crisis more devastating than its economic one. The American system seemed to have failed; our cultural youth, represented by Sullivan and Wright's architecture, no longer seemed so invigorating. Now, science and rationality seemed to offer more hope. Americans always had great respect for mechanics; why not make the visual environment conform to this inspiring force? It seemed a logical step. Furthermore, Giedion showed that it could be linked to the American architectural tradition; he wrote that steel frame construction, pioneered in Chicago, could be culminated by the new architecture emerging in Europe. It offered American corporations new skyscrapers that represented efficiency and power, a welcome image after the damage wrought by the 1929 crisis. Practicality, hope, reality, and idealism—Giedion's Space, Time and Architecture showed how they all coincided in the new architecture. No wonder that architects welcomed this as the bible of a new faith.

Critical consensus greeted the first edition (1941) of Space, Time and Architecture; reviewers as diverse as Kenneth John Conant, Nikolaus Pevsner, John Summerson, and Turpin C. Bannister, who often disagreed on other issues, praised the book. Most found Giedion's didactic conclusions too subjective and his evidence slanted. Giedion's premise that architecture would be humanized by a Modern spirit derived from mechanistic science seemed shaky to most. Yet somehow in the end they all agreed: This was the most wonderful book ever written on architecture, imperative reading for anyone and everyone interested in creating better buildings—or a better world which, Space, Time and Architecture argued, was the same thing.

One solitary reviewer, Karl Oberteuffel, panned the first edition. He foresaw the book's fatal flaw. In Pencil Points, the ancestor of Progressive Architecture (May 1941, pp. 90, 92), he wrote that "proving" the rightness of an art style with parallels from practical science was absurd. Art and science are two different kinds of human activities, Oberteuffel reasoned, and he concluded that Space, Time and Architecture was nonsense.

Giedion believed that heroic architects, such as Le Corbusier, could design in a mode both intuitive and rational and fuse together these dual aspects of our modern sensibility. Today, encircled by mediocre Modern buildings, where neither structural logic nor artistic sensitivity are apparent, Giedion's prophecy remains unfulfilled; perhaps it was too sweeping (and too simple) a demand for contemporary architects. Nevertheless, Space, Time and Architecture deserves our attention and our respect; while it is no longer the ultimate architectural reference, it is the creed of a faith that has since been reformed. Read it, and you'll understand what inspired three generations of architecture students. Alan Gowans

The author has written numerous books on North American architecture, as well as on popular and commercial art.
Architects face new challenges of site and program in museum design.


Just as confronting the reality of the Holocaust has contributed to a rethinking of art, philosophy, and even architecture, the prospect of a Holocaust Museum required—or permitted—a different approach to museum design. James Ingo Freed of Pei Cobb Freed & Partners, however, escalated the Deconstructivist expressions of confusion and uncertainty that have been linked to postwar anguish over the Holocaust, choosing instead a solemn building that somewhat disturbingly echoes the forms and materials of the Nazi concentration camps.

The building functions foremost as a memorial; only 23 percent of its area is actually given over to exhibition space. Because of its prominent site near Washington's Mall, the building has a somewhat Classicist visage; the eight pyramidally topped towers, though, intentionally recall the towers of the concentration camps.

Inside, the plan centers on the three-story Hall of Witness (bottom left), a long, skylighted room whose granite west wall is rent by a large crack. One of the boldest allusions is in the Hall's north wall, where the brick wall, steel strapping, and arched openings are meant to recall death camp ovens. At the west end is a hexagonal volume that houses the Hall of Remembrance and, below, a theater.

Other functions contained in the museum are a library, research facility, and education center. Construction began last year; the building should be complete in 1992.
The large-scale artworks of recent decades have confounded curators who try to make room for them in traditional museum settings. The organizers of the new Massachusetts Museum of Contemporary Art (MASS MoCA) think that a cluster of 28 abandoned mill buildings on a 13-acre site in North Adams offers an unusual opportunity to facilitate the display of contemporary art, revitalizing the community in the process. A team led by Skidmore, Owings & Merrill, New York (see above) was chosen to develop a master plan for the site in 1988.

While one might question the wisdom of locating a major museum so far off the beaten paths of the art world, the strategy of the planners is to try to make the site a destination or arts community all its own. The plan calls for 400,000 square feet of museum space and 100,000 square feet of inns, restaurants, and retail to be inserted in and among the structures so as to "make a trip to MASS MoCA not unlike a trip to Soho or Florence."

The renderings released thus far suggest some of the possibilities of the vast loft spaces. The hand of Venturi can be seen in the supergraphics and in the cascading stairways, the work of Gehry in the sculptural forms (center, far left). Another Venturian touch is seen in a "large-scale sculpture-sign" that will call attention to the site, shown in drawings as a tall triangular smokestack with a cartoon bubble labeled "ART" billowing out of it – perhaps a not-so-subtle allusion to the rise of art as a product that here makes the prospect of a museum as a means of economic recovery viable.

Not all museums have the benefit of a site that makes for easy monumentality; working within a nonhierarchical city grid, Venturi, Scott Brown & Associates have had to squeeze the new home of the Seattle Art Museum onto a half-block site and still give it a public presence and visibility. Their solution employs a curved limestone façade that opens the street corner, incised with giant letters that spell the museum’s name. The opening of the corner also preserves a zoned view corridor to the water from downtown.

The slope of the site is addressed in the creation of two terraced parallel stairs, one indoor and one outdoor, that connect the First Avenue and Second Avenue entrances. At this level, the façade is festooned with colorful pilasters and a band of pink granite arches and pediments.

The first floor, entered off First Avenue, contains the museum store, auditorium, and other auxiliary spaces. Temporary exhibitions are housed in a large neutral gallery on the second floor. Permanent galleries on the third and fourth floors are laid out as a traditional sequence of rooms on one side, as loftlike spaces on the other. The fifth floor houses administrative offices and a library.

Completion of the museum is expected in 1991.

This facility for a new museum in Barcelona's Casa de la Caritat is intended to "create a dialogue between the historic forms of its context and the contemporary art within." The art seems to be winning. Although urbanistically the museum works to define three new outdoor public spaces, the aesthetic is pure Modernism, with characteristic Meier materials such as metal cladding, stucco, and glass block.

The entrance to the museum is off a newly created "podium" (at right in floor plan). The drum-shaped lobby beyond the entrance is intended as a free public space; admission to the museum will be handled from the curving counter that stretches into the museum proper. The exhibition space is essentially a series of open loft spaces with smaller nooks for special pieces. Visitors are encouraged to move from floor to floor via a long ramp that moves along a glass exterior wall and an interior atrium; the ramp will have a glass-block floor. The amorphously shaped, stucco-clad tower (upper right in plan) is meant to hold a special art work; visible from the axis of a busy nearby street, it will also act as a kind of sign announcing the museum's presence from a distance. Auxiliary spaces such as the library, museum store, and offices are housed in a semi-detached structure (bottom of plan); as these spaces are less public, there are shorter floor-to-floor heights (and thus more floors) in this portion. A 1992 completion is anticipated.
While many museum buildings on the boards are employing more formal, traditional parts, Renzo Piano's design for the Newport Harbor Art Museum — the fourth home for this 28-year-old institution — ties together an informal plan by means of a modular 40-foot width and a common section, as Louis I. Kahn did in the Kimbell Museum. The dominant image of the building from the adjacent Pacific Coast Highway will be that of the roof, a "flying carpet" that Piano says will "let in light and air and merge with the surrounding vegetation." Visitors to the museum will traverse the "flying carpet" on their way from the parking lot to an escalator that leads to a courtyard entry sheltered from traffic noise.

Inside, spaces are lined up on an irregular central "pedestrian street" in a way that, rather than segregating the various functions of the museum, seeks to arrange them together for a "synergistic effect." The long, narrow permanent galleries are located near the end of the "street," the temporary gallery near the entrance. Adjacent exterior spaces, some roofed, some not, will house sculpture and gardens.

Although the section of the building displays some exciting potential, it is questionable whether the building's seemingly weak overall image — however intentional — will make an appropriately public statement to auto-bound passersby. For better or worse, the strength of this building is within.

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<th>Material</th>
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1. Woven Upholstery Fabrics
The Gallery Collection, for contract or residential use, includes five designs in 90 colorways woven of 100 percent wool or 100 percent Trevira CS. Bogesunds.
Circle 100 on reader service card

2. Stackable Aluminum Chair
Spanish designer Jorge Pensi’s Toledo Chair has polished cast aluminum back and seat and legs of polished tubular aluminum. A stainless steel-topped Toledo Table is also available. KnollStudio.
Circle 101 on reader service card

3. Carlo Mollino-Inspired Table
Reale is based on a 1946 design by Carlo Mollino; an oak-stained ash base supports a glass or beola stone top. The table is suitable for contract or residential use. ICF.
Circle 102 on reader service card

Architects, designers, contract furniture professionals, and specifiers will convene for a forum of industry issues at NEOCON* 22, June 12–15 at The Merchandise Mart and at other locations in Chicago. The opportunities and complexities of a rapidly-developing global market will be among the themes of this year’s conference and exposition.

A sampling of scheduled events are: “Communicating Ideas Artfully,” cosponsored by The Steelcase Design Partnership and Progressive Architecture and moderated by P/A Executive Editor Thomas Fisher (June 12, 4:00 P.M., Exposition Center/Chicago); “Trading Partners: Opportunities in the European Community,” cosponsored by Contract and The Merchandise Mart and moderated by Contract Editor Sara O. Marberry (June 13, 4:00, Mart Plaza Hotel, 14th Floor Ballroom); “The Export of Western Design to Japan,” cosponsored by Progressive Architecture and The Merchandise Mart and moderated by P/A Senior Editor Ziva Freiman (June 14, 2:00 P.M., Mart Plaza Hotel, 14th Floor Ballroom); and an “International Symposium on Modern Architecture,” moderated by Peter Blake, an architect and Professor of Architecture, Catholic University (June 15, 8:30 A.M., The Chicago Theater).

A small selection of the many exhibitions planned are: “Communicating Ideas Artfully” (The Merchandise Mart, Space #130); “The Socially Responsible Environment – USA-USSR – 1980–1990” (The Merchandise Mart, Space #841); and “Frank Lloyd Wright: Preserving an Architectural Heritage” (Chicago Historical Society).

Products shown here and on the following pages are among those to be presented at NEOCON*.
4. Upholstery Collection
Carnival is part of the Russian Spring collection. It has a multi-colored field of vertical bands and color boxes. Jack Lenor Larsen.
Circle 103 on reader service card

5. Work Table System
Paolo Parigi’s Centina System has a cast aluminum base and is finished with an epoxy anti-scratch paint in anthracite or cast iron color. Palazzetti.
Circle 104 on reader service card

6. Glass Bookcase
The Volgente glass bookcase was designed for Fiam Italia by Massimo Iosa Ghini. Pace.
Circle 105 on reader service card

7. Beech Chair
Adam Tihany’s Biba chair is made of solid beech and steam-bent beech veneers and can be ordered in several finishes with leather, fabric, or customer’s own material. Interna.
Circle 106 on reader service card
(continued on page 144)
8. Contract and Residential Seating
The Aranda collection includes executive, conference, and lounge seating for contract and residential applications. Kron U.S.A.
Circle 107 on reader service card

9. Halogen Table Lamp
Jazz, designed by the Porshe Design Studio for PAF®, has a gliding arm, a luminous electronic dimmer with memory, and a retractable hidden cord. Koch + Lowy.
Circle 108 on reader service card

10. Glass-Topped Tables
Millennium coffee and occasional tables are designed to support a range of square and circular glass tops. Studio Steel.
Circle 109 on reader service card

11. Textiles by Linda Thompson
Chada is one of four fabrics in the Beau Thai collection designed by Linda Thompson. It can be specified in 8 colorways and is 54 inches wide. Pallas Textiles.
Circle 110 on reader service card

12. Office Accessories
Work Flo® is a collection of work tools and accessories on a panel-mounted rail system for use with workstation furniture. It is compatible with all Steelcase/Stow & Davis systems furniture. Details.
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(continued on page 153)
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Circle No. 346
Aluminum and Wood Chair
The Dolphin chair, by Kerr Keller Design, Toronto, has a cast aluminum back leg and maple or cherry wood front leg and frame; it can be upholstered with "environmentally safe foam" in leather or fabric. Ottoman Empire.
Circle 112 on reader service card

Vinyl Floor Tile
Nondirectional, geometrically patterned Step Master Slip-Retardant Tile is a raised, textured-surface vinyl-composition floor tile. Armstrong.
Circle 115 on reader service card

Chair
A new chair and settee are constructed of beech wood and can be ordered in a variety of wood finishes and upholstered in fabric or leather. Brayton International.
Circle 116 on reader service card

Modular Carpet
Marble Walk is part of the Space- scapes of patterned and textured modular carpet collection. Milliken.
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Unglazed Floor Tile
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Coordinated Wool Fabrics
The Basics I Collection of patterned and textured wool and wool-blend fabrics are color coordinated. Scalamandré.
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Faux-Stone Light Fixture
Argo is handcast from white faux-stone. Illumination can be incandescent or fluorescent. Boyd Lighting.
Circle 117 on reader service card

A Smaller Tizio
A new, scaled-down version of Richard Sapper's Tizio table lamp, originally designed in 1972, has been introduced and is called Tizio 35. Artemide.
Circle 118 on reader service card

Stacking Chair
Symphony II is a steel-framed stacking chair for use as pull-up seating in offices, hotels, and restaurants, and as group seating in lecture halls and auditoriums. Charlotte.
Circle 121 on reader service card

Folding Sun Shade
The Solar Pacifica window covering has been reintroduced. It can be ordered in 30-plus solarscreen fabrics and in shades up to 21 inches wide and 21 inches high. It can be operated either with a motor or manually. Castec.
Circle 122 on reader service card

Spiral Stairs Video
An instructional video on monumental and apartment spiral stairs is now available. J. Toce Spiral Stairs International.
Circle 123 on reader service card
(continued on page 154)
Vinyl Exterior System
A new vinyl panel, 45/55 HP®, has a low-gloss finish and a 4½-inch profile and a 1-inch butt edge. Wolverine Technologies.
Circle 124 on reader service card

Window Glass Insulation
Superglass® is a clear, colorless window glass system - with Heat Mirror® - offering “92 percent of the insulation performance of a solid wall.” Southwall Technologies.
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Underfloor Heating System Brochure
A hydronic underfloor heating system called Wirbo-pEX is suitable for residential, commercial, and industrial environments; heat is distributed through ¾-inch tubing. A brochure is available. Wirbo.
Circle 126 on reader service card

Dentil Molding
White PVC trim comes in 12-foot lengths, is paintable, and can be nailed faced. Alcoa.
Circle 127 on reader service card

Club Chair and Ottoman
The Drago Series®, designed by John Hutton, includes a club chair, ottoman, and a sofa. Donghia.
Circle 128 on reader service card

File and Storage Brochure
The 1990 product line of Stackable Storage System® Lateral and Vertical Files, Storage/Multi-Media Cabinets and Pedestals is documented with computer-drawn illustrations and application photographs. Meridian.
Circle 201 on reader service card

Presentation System
Drawings, blueprints, and charts can be displayed on this system, and inverted clips can serve as a rack holder for storing tubes. Viewtrac can be mounted with double-sided tape or panhead screws. Molvan.
Circle 129 on reader service card

Precast Catalog
Uses of precast terrazzo and concrete are illustrated with cut-away drawings in a new catalog. Wausau Tile.
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Pre-Fabricated Bridges
Pre-fabricated steel bridges by Town & Country can support “up to 10,000 pound concentrated loading” on 4-, 6-, 8-, and 10-foot widths and clear spans from 20 to 200 feet. DeBourgh Manufacturing.
Circle 130 on reader service card

Wall Base
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Miller Yee Fong, A.I.A. has designed a collection of benches and accessories handcrafted in the finest teakwood, accented with solid brass rail supports. Please contact your closest representative for more information on Concourse and our entire line of teakwood furniture.
(continued from page 154)

**Insulation Installation Brochure**

A new brochure includes information on cost-effective and energy-saving applications of Styrofoam® brand insulation and offers installation instructions. Dow Chemical Company.

Circle 203 on reader service card

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Circle 132 on reader service card

**Portable Drawing Board**

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Circle 133 on reader service card

**Sheathing**

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Circle 134 on reader service card

**Skylight Literature**

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Circle 204 on reader service card

**PC-Based Dedicated Scanner**

The LDS 4000 PC-based dedicated scanner automatically digitizes documents up to ANSI E/DIN A0 Oversize. Software is included. Houston Instrument.

Circle 136 on reader service card (continued on page 158)

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New York, New York

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This guide is best consulted when one is planning excursions to a particular district. It provides adequate maps, with the locations described in an engaging prose style. When one treks from site to site, it would be wise to carry the National Trust Atlas, a sheet map of all NT properties, and the National Trust Handbook, containing visiting times, fees, facilities, and so forth.

The homebound traveler will enjoy imaginary perambulations about the countryside, reading entry after entry of country houses, woodland vistas, and coastal scenes, each amply laced with cultural history and anecdotes. Good reading, casually or with intent to travel.

"To spare future travelers needless aggravation and to clarify this review of the books at hand, I propose a simple distinction: historical guides are not to be confused with travel guidebooks."

The Ticino Guide, part of a developing series from Princeton Architectural Press, covers the area of the Ticino River basin, from the Swiss canton through upper Lombardy to Milan. Its geographical and chronological range is highly focused; virtually every building listed was built in the past 20 years. This guide is a document of Neo-Rationalism rather than a comprehensive account of the region.

An excellent introduction discusses the Ticino's indigenous architecture and how architects have interpreted this context since the Second World War. About 150 buildings are featured with notes about travel and access to the sites. An extensive bibliography makes this guide a useful reference.

The one failing of this otherwise usable guide is that it contains 30 of the most frustrating maps ever published. They are drastically reduced portions of Noli-esque Touring Club Italiano maps, with sites too small and lines too faint to be of any help. Previous books in this series had legible maps; let's hope future volumes will as well.

Butterworth Architecture press offers architectural history handbooks for London, Rome, Paris, and Venice (with Florence forthcoming); each features 100 buildings arranged chronologically. An essay traces the urban development of each city, supplemented by introductions to different historical epochs. Individual building descriptions are crammed with facts, accompanied by well chosen photos, and numerous plans and drawings. Each book ends with a commentary on a particularly expressive feature of each city: the bridges of Paris, the fountains of Rome, London's signs, and Venetian gondolas.

The Butterworth "guides" are exceptional in their content but, by our earlier qualifications, are better listed as histories; they don't "get you there." Each book has one or two simplistic maps and no information about a building's accessibility. The series is a reissue of a very well-received set published in 1969, with updated bibliographies (most of the new books are foreign) and additional buildings from recent decades. Architect/publisher Renzo Salvadori and his collaborating brother Antonio should have added functional maps to these new editions.

A reviewer's request to Butterworth Architecture: Please understand that few travelers have the leisure to see a hundred buildings. A method of ranking the entries, subjective though it may be, would help visitors decide how to marshal their time.

Readers who cross the Atlantic with these books are advised to pack a Michelin Green Guide or an ACCESS guide as a practical supplement. By consulting both sources, architectural tourists will find their destinations, with a wealth of insider's tips in tow.

Gerald Moorhead

Primary Sources (continued from page 118) /.....

The Palisades

Design Competition, Balboa Park, San Diego, California

The City of San Diego, California invites teams of architects, landscape architects and visual artists to submit design concepts, or examples of their previous work, for consideration by the Jury for the design of a pedestrian plaza and a 1,000 vehicle parking garage in Balboa Park. The estimated construction cost of the new facility is $10.0 million, and is expected to be complete in 1993.

Applications for registration must be postmarked on or before July 6, 1990.

To register to receive the detailed program, registration number and entry form, send $100 US registration fee check or money order made out to the City of San Diego and mail it to the address below.

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Primary Sources (continued from page 169)

Tony Garnier’s project for Une Cité Industrielle (1917), contemporary to the Wasmuth journals, is a hybrid of Classical and Modern concepts, like much of the design of those years. A new reprint with an English text (others were published in French) shows Garnier’s complete drawings for this city of 35,000, produced between 1901 and 1917.

To us, who consider it a prelude to Le Corbusier’s radical urban plans of the 1920s and 1930s, the Cité Industrielle is surprisingly traditional: Housing districts comprise blocks of one and two-story structures, with the density, scale, and street orientation typical of Garnier’s day. While he proposed a new socialist society with rationally delineated zones for industry, a hydroelectric plant, hospitals, and a civic/sports center, it appears that his middle class contemporaries could have been quite comfortable there; the city’s neighborhoods retain the proprieties of any well-to-do suburb.

Garnier specified reinforced concrete construction throughout the city, but most buildings (except the assembly halls) follow pre-Modern spatial conventions. They are solidly enclosed boxes, rectilinear and stoutly proportioned, with Classical cornices and columns. Because we are most familiar with Garnier’s drawings of the Cité Industrielle’s exceptional buildings—the assembly halls and the metallurgical factory—we have often assumed that the industrial aesthetic of the Modern Movement applied to his work. Now, with ready access to his complete urban vision, we can see a more subtly layered modern vision, as utopian as those that followed, but perhaps more humane.

“... man should not be the automatic appendage of the machine, but its creator, its master. Only through mastering the changing needs, will his prospects be free again, free for the mystical secrets within himself.”

Erich Mendelsohn, Russland, Europa, Amerika

Mendelsohn wrote that Europe, the “continent of reason and genius, of science and invention,” could synthesize the best of its Eastern and Western neighbors and erect buildings both technically proficient and architecturally compelling. His prose, like his architecture, is forthright and highly personalized and his poetic voice still clear. To Mendelsohn, the onion domes of Russia and smoke stacks of a Ford plant were equally lyrical, but New York’s Grand Central Station, “gothicly distorted,” was not. With these words, we hear traces of an architectural revolution—one that had yet to surface in the Wasmuth journals, fifteen years earlier.

Philip Arcidi
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Insertions will be accepted no later than the 1st of the month preceding month of publication. Copy to be set due seven days earlier.
What a pleasant surprise to see the renewed attention given to Earth Day. The 20th annual observance of this day on April 26 garnered more media attention than it has since its inception in 1970, back when everyone was waving green-and-white striped flags and talking about "ecology" instead of "the environment." Earth Day had some obscure years in the 1980s, understandable in a time when the Reagan Administration was trying to rescind the Clean Air Act, reasoning that since it was working, it was no longer necessary. But now environmental concerns seem to crop up everywhere, including the architectural world. New York architect William McDonough seems to have talked a Polish-American development team into planting a forest to compensate for the use of resources needed to build a tower he is designing for them in Warsaw. We're seeing articles on the environment—and what we can do about it—in AIA chapter publications around the country, and activist groups are compiling lists of environmentally unsound building products (P/A, March 1990, p. 53).

Even if we are committed to "environmental correctness," the best path to follow is not always clear. Tod Williams and Billie Tsien faced this problem in their prototypical "Domestic Arrangements" exhibit (page 119), which employs polyurethane foam and other better-world-through-chemicals materials. Reassessing the exhibit when it moved to New York, the architects asked "Is it environmentally more satisfactory to use and deplete natural products or to explore new ones (Should we use paper or plastic bags for our groceries)?" As awareness increases, so do conflicting claims of environmental merit, and choosing building materials and methods becomes a bit like planning a breakfast menu. More fiber? No CFCs? Cholesterol level? R-values? It reminds one of our editors of a beach house he used to visit where the hostess was fanatic about two things, conserving water and keeping sand out of the house: The dilemma came when it was time to shower off the sand.

The Oscar-winning film Cinema Paradiso, in which a film director remembers the movie theater of his childhood, has a special resonance for those of us who spent our youth in the dark of a favorite theater; for the small Italian town in the film, the theater was rivaled only by the church in importance (and attendance). For much of the film, the camera is turned on the audience, demonstrating that, in those days, seeing a movie was an act of community and anything but a passive form of recreation. Among our feature articles on restoration in June is a portfolio on fascinating restored theaters that remind us of a time when moviemaking was a more complete spatial, visual, and social occasion. A lot of things have changed since then. It's not just television, which keeps people home at nights; it's not just the economics that gave birth to cell-like multiplex theaters. Those factors are probably irreversible. What we can retrieve from that time is the sense of community, of belonging that the film—though perhaps too romantically—recalls, and it is the desire for such a sense of community that drives the rebuilders of historic districts. In June, we'll consider the successes and shortcomings of these districts, which at their best preserve places where a tangible spirit of community has a fighting chance.

An architect was in our offices recently demonstrating a 3-D CADD program, and those of us on the staff who had yet to be exposed to CADD were suitably impressed. The ease with which CADD allows us to make changes—and see them right away via instantly constructed perspective drawings—is surely going to affect the way we think about design in the future. Just how is another matter. We've heard college professors criticize the widespread use of computers for college writing, saying that while unforgiving typewriters made one think twice about revision and see a composition as a continuous narrative, the ease of revision that computers permit often results in hastily assembled graphs that are evidently the result of cut-and-paste construction. While we were preparing this month's Technics feature on museum lighting (p. 49), conservationist Steve Weintraub told us that his coauthor, Gordon Anson, hit upon the idea 15 or 16 years ago, and that word of mouth has carried the practice around the globe. Meanwhile, Lamar Terry, a lighting designer at New York's Metropolitan Museum, independently arrived at the same idea at the same time. But whenever new ideas emerge, there's controversy: While Anson has been using aluminum flyscreen, it seems that Terry prefers copper.

Much ink has been spilled recently about the poor quality of construction in this country. But few talk about the bright side of this dark problem. The question comes up whenever one deals with preserving older buildings, the subject of several articles in our June issue. While many older buildings are deserving of preservation, not as many are particularly well built. Many are the instances in such structures of untreated wood in contact with the ground, of incompatible metals in contact with each other, and of masonry foundations without waterproofing or dampproof courses. We often pass such "errors" off as ignorance on the part of earlier generations of builders. How many were errors, though, and how many stemmed from an acceptance of building deterioration and an expectation, in a fast-growing nation, that most structures would soon be altered or updated. There is no excuse for shoddy workmanship. But, with rehabilitation and renovation work expected to pull us out of our current construction slump by mid-1990, a little planned obsolescence in our buildings might not be a totally bad thing.

Furthermore...