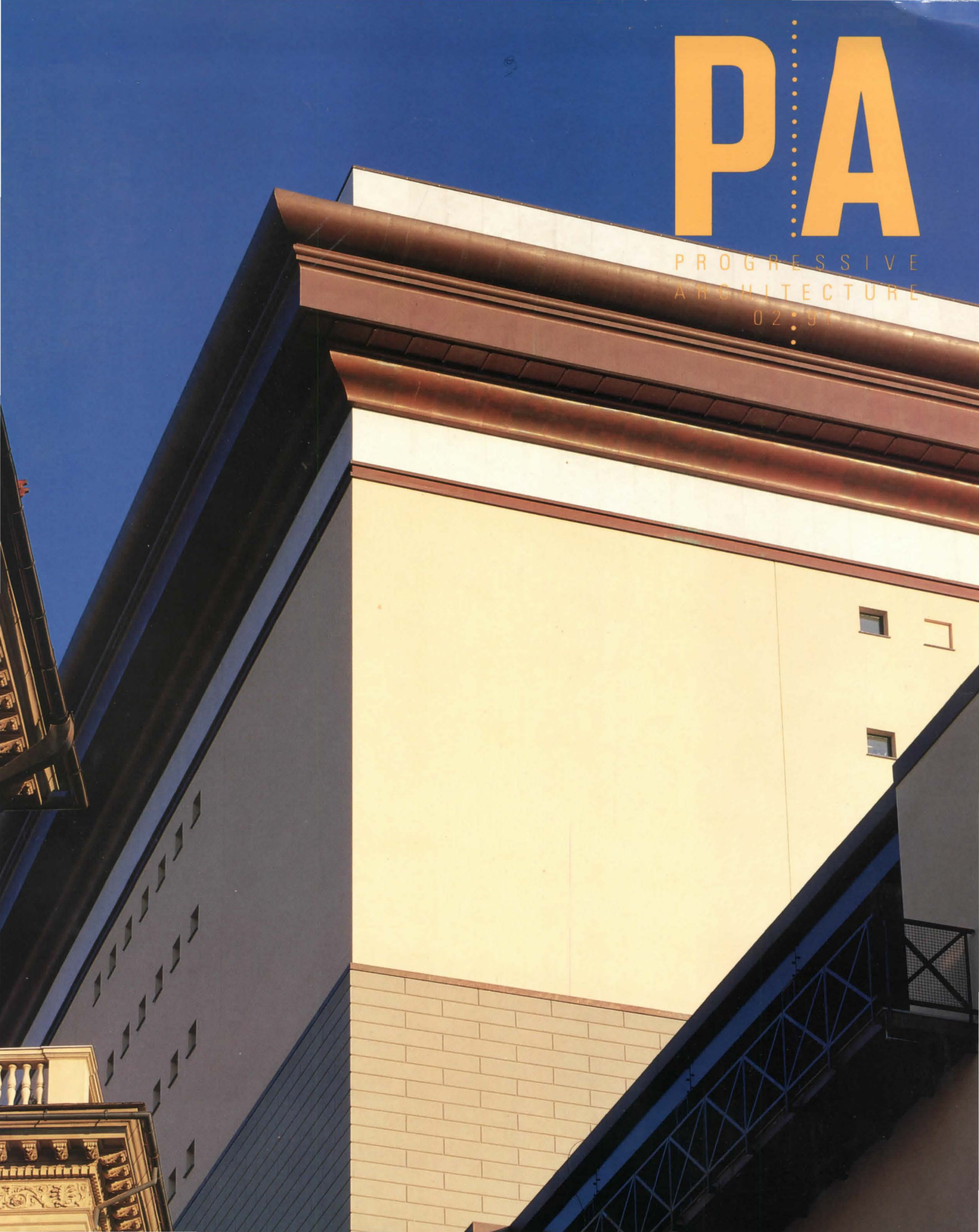

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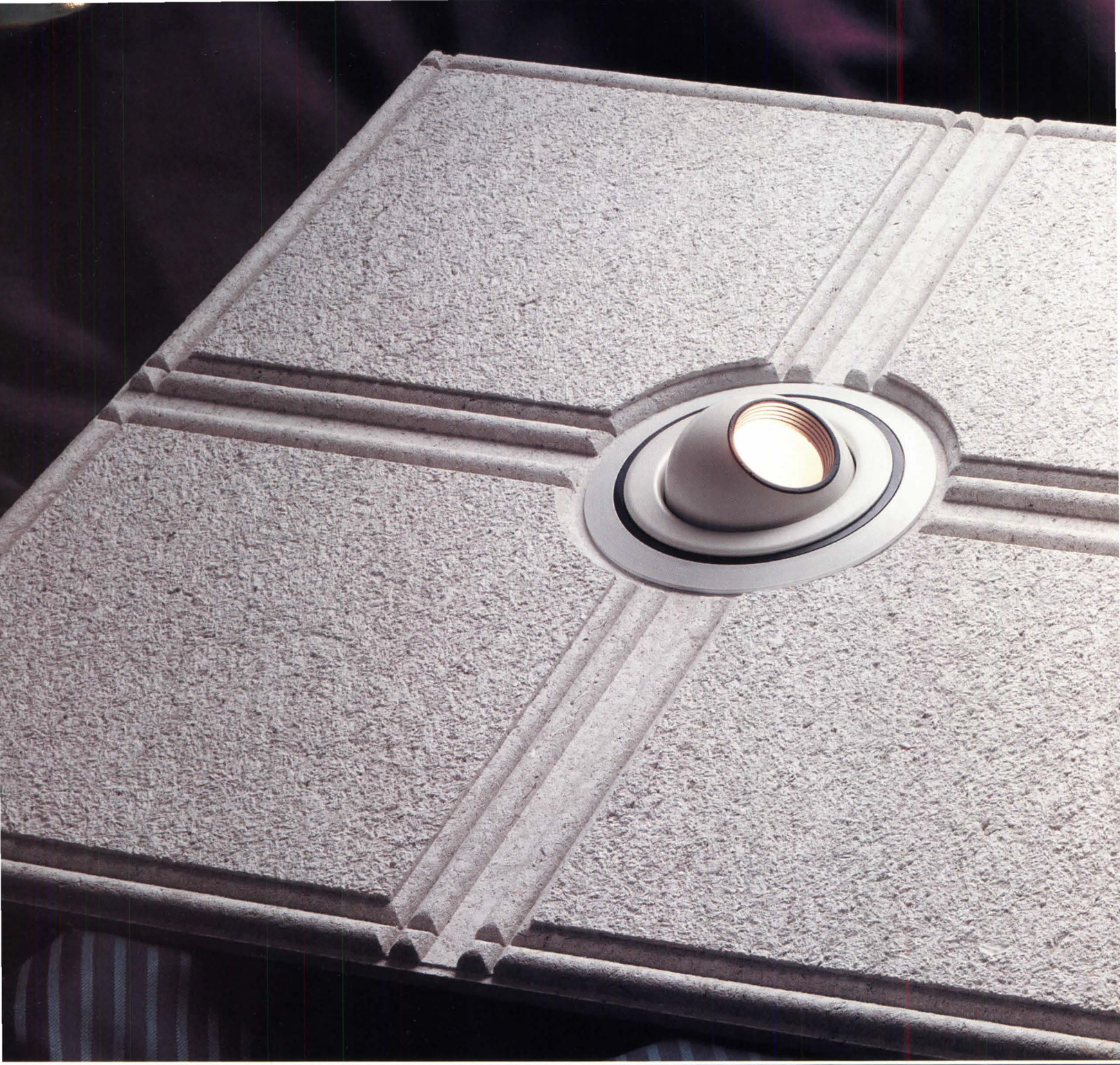

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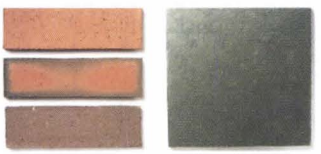

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Cover: *Carlo Felice Theater, Genoa, by Aldo Rossi and Ignazio Gardella (p. 52). Photo by Gabriele Basilico.*

Progressive Architecture February 1991

P/A

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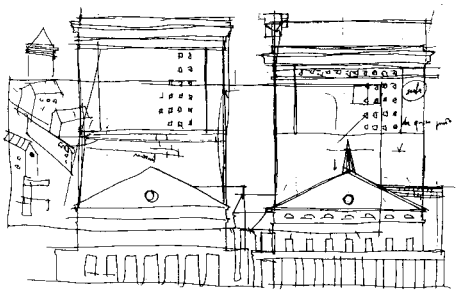

Carlo Felice Theater, p. 52

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Editorial
Medalist Moore

An AIA Gold Medal to Charles Moore recognizes a way of thinking that could help connect the values of architects to the wants of the real world.

In bestowing the Gold Medal on Charles Moore (News Report, page 19), the AIA is finally recognizing one of the insurgents of the 1960s who challenged the dogma of Modernism. Moore has never seemed to be as opposed to Modernism as he has been to dogmatism itself; he has been a connoisseur of the built world, who has advocated an inclusive, user-conscious, non-heroic view of the architect's role.

In the design revolution of the 1960s, Moore played a very different part from Robert Venturi, who must be counted the father of Post-Modernism (and has not yet received an AIA Gold Medal). While Venturi confronted Modernist dogma with a "gentle manifesto" that propounded a full-blown alternative, Moore took a live-and-let-live attitude, undermining the Modernist belief system with various articles and modest, reflective books, and with his design activity as a collaborator, rather than a self-sufficient creator.

While departing from prevailing design attitudes, Moore was also deviating from conventional ideas of architectural practice. For most of his professional years, he has been a principal in more than one firm at a time, simultaneously leading firms in California and Connecticut, then in California and Texas – meanwhile consulting with former partners and forming joint ventures with outside firms (summarized in P/A, Oct. 1987, pp. 84–87). And his fluid firm affiliations have been intertwined with his academic appointments: a deanship, a chairmanship, and three major professorships at five widely scattered universities. His books, too, are collaborations, with different sets of coauthors each time.

In the 1960s, Charles Moore was even active as an architectural journalist. When I was on the staff of *Architectural Forum* in the late 1960s, Moore would write on West Coast architecture; when he came to the magazine's offices, he would disconcert staff editors by turning out in one day an article that would have taken any of us at least a week. And his articles were concise, critical, and well crafted.

Seeing himself as just one collaborator in the design process, Moore has been willing to involve building users in organized participatory processes. At the 1984 AIA Convention, where he accepted an Honor Award for St. Matthew's Church in Pacific Palisades, California, he gave an insightful and amusing account of design process, with slides of church members arranging miniature pews. He spoke of the unresolved dispute over whether to have a figure of Christ on the cross above the altar; the designers' solution had been a removable figure, which, Moore wryly observed, was then languishing in a closet.

In Moore's own professional life, as in his writings and teaching, as much importance is placed on awareness of the world around us as on personal creativity. Invited to speak at a P/A Awards presentation back in 1973, Moore made a deep impression on me by speaking of "vulnerability" as a virtue; like my contemporaries, I had been conditioned to think that we should be impervious when "buffeted by the world," and here was Moore saying it was okay to be responsive. In his typical fashion, he allowed that "there are good guys on both sides" of the vulnerability test.

Wit is a key component of Moore's design and of his personality; just as his conversation is studded with knowing humor, his design involves sly quotations, scale shifts, details out of context, and other witty devices, generally accessible to a wide public.

When an architect is committed to vulnerability and to collaboration, his work obviously will not show the kind of single-minded consistency we have gotten from more heroic creators. Among Moore's prodigious 180 completed commissions, many works have a somewhat experimental, let's-try-this quality; collaborators' compromises and cross-purposes are often evident in the product. In his best collaborations, however, clear over-arching intentions and scrupulous control of details have generated some of the finest American architecture of the past 30 years. The Sea Ranch condominiums (P/A, May 1966, pp. 132–137) by Moore Lyndon Turnbull Whitaker – which are coincidentally winning a 25-Year Award from AIA this year – are masterpieces of understatement and control. Kresge College at the University of California, Santa Cruz (P/A, May 1974, pp. 76–83) by Charles Moore and William Turnbull, is a brilliant object lesson in sequential experience and multiple allusions. (These two are among several Moore projects that have won P/A Awards recognition.)

AIA's medal for Moore affirms that vulnerability and willingness to collaborate – even opening the process to users – are not obstacles to great accomplishment and high recognition. It also affirms that multiple allusions and wit in architecture are honorable devices for engaging the public.

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Views

Minority Recognition

When confronted with the implication of your editorial in the December issue of P/A (p. 7) entitled "Recognition for Minority Architects," one is forced to wonder whether you really mean well but just did not think about what you were saying or if you were expressing your sincere beliefs regarding the abilities of "Minority Architects." You seem to suggest, as do all those who condemn affirmative action, that if you simply judge individuals according to who has the most ability, then only white architects (or those of any other profession or occupation) will be selected, that some "special effort" is needed to find African-Americans who qualify.

No special effort is needed, just evenhandedness and perhaps a new perspective. What you may feel is very fair and reasonable when activities are confined to your own sheltered world may indeed be terribly unjust when all factors are considered. You say that the entrants of your P/A Awards program are "cloaked in anonymity," that when you assembled your July issue on Young Architects you "did not conceal identities, but requested their photos only after selections were made." No such cloak of anonymity exists. In many cases the type or location of a project gives some hint as to the ethnicity of the designer. The school a person attended or the firm he or she works for, among other things, are more than enough information for the discriminating judges of some "contests."

The "Minority Architect" is forced to play by the rules of a callous group that is comfortable in command and has every intention of staying. To say the least, your commentary does nothing to improve the credibility of African-American architects. Your publication, as well as others, is itself detrimental to the profession in this regard. You tend to foster a sort of mutual admiration society among white architects that creates one more huge obstacle that must be overcome in an already tough business.

Your seemingly innocent little editorial reeks of condescension and patronization. These are the types of presumptuous attitudes that have to be dealt with in this society today; the idea that whites are better and therefore must be charitable to our lesser brethren. People who submit to this thesis are a bigger hindrance and do more harm than a blatant racist. You speak and act as though you mean well, yet, your very words and deeds cause problems that I am certain you do not even realize.

Just as surely as the Berlin Wall has been torn down and apartheid is being abolished, this society will come to realize that its ignored peoples will not just whittle away into some pitiful condition. These voices will be heard and their talents recognized. Maybe not now, but certainly in the coming years.

Timothy L. Millner
Philadelphia

[It is hard to argue with such eloquence. A crucial flaw here, however, is the writer's assumption that P/A editors were judging "ability," which we believe all groups have equally. We were, necessarily, looking at evidence of accomplishments, which are heavily conditioned by environment and opportunity. And it is ironic that blacks can advocate "special efforts," but when whites do it, it is perceived as patronizing. – Editor]

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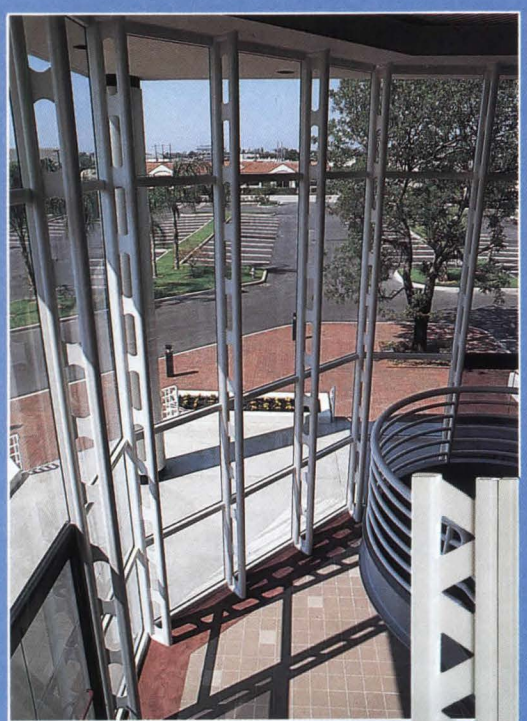

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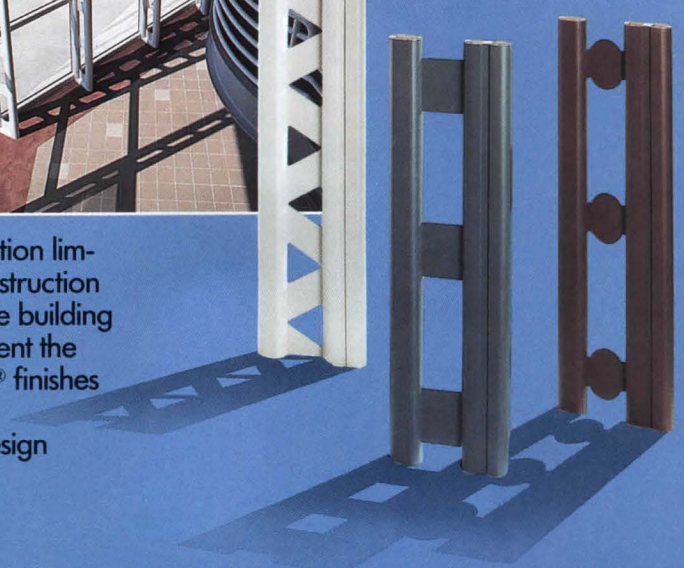

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The Advantages of Thermal Mass

The ability of certain types of building materials to store energy has been used for thousands of years. Since primitive times man has built homes to take advantage of thermal mass. In North America some of the finest examples come from Indians of the southwest who created adobe dwellings that evened out the daily temperature swings to remain comfortable all day. Early pioneers built homes with massive masonry fireplaces using interior mass to work on the same principle.

Somewhere along the line our building technology neglected the advantages of thermal mass. Perhaps, in the rush to embrace insulation as the main factor in determining energy efficiency, we forgot what our forefathers practiced. The simplified techniques for calculating thermal resistance ignored the effects of thermal mass. Now that has changed. With the new ASHRAE Standard 90.1 designers and engineers can incorporate the benefits of thermal mass in walls constructed with almost any building material.

The old way of calculating the thermal properties of concrete masonry walls was to assign a U or R value to each of the parts, then combine them. This provided an estimate of the insulating value, or the rate at which heat passes through the building envelope. The higher the R-value, the greater the insulating power.

Now, thanks to ASHRAE 90.1, we can incorporate easily the advantage of concrete masonry to store and release valuable energy back into the living or work space. We can now practice what our forefathers taught us—that thermal mass provides a valuable function.

Let's look at the thermal performance of several common masonry wall sections and their performance in several areas of the country. Because concrete masonry delays the impact of outdoor temperature swings on indoor comfort, the effects of thermal mass vary with the climate. All calculations are based on the new ASHRAE/IES Standard 90.1—1989, "Energy Efficient Design of New Buildings, Except New Low Rise Residential Buildings."

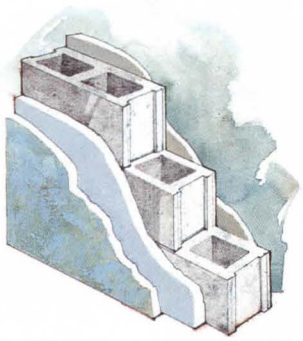
Using the provisions of ASHRAE/IES 90.1-1989, it can be demonstrated that concrete masonry walls with comparatively low insulation levels perform about the same as heavily insulated frame walls. The tables here illustrate the level of insulation required in the frame wall systems to match the thermal performance of the concrete masonry wall shown on the left.

For example, in Chicago a frame wall must be insulated to R20 in order to match the performance of a 12″ lightweight concrete masonry wall insulated to R11.5. In some climates, R-Values of up to 50 may be required to meet the thermal performance of masonry walls.

Typical Wall Section

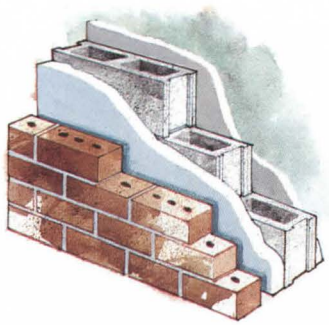
1/2″ gypsum board
8″ CMU*
1″ Rigid board insulation
(R-5 per inch)
3/4″ stucco

R-value with
lightweight CMU = 8.2
R-value with
normal weight CMU = 7.7



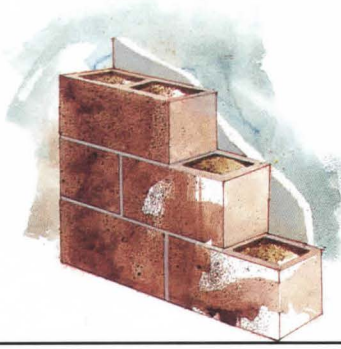
1/2″ gypsum board
6″ CMU*
1½″ Rigid board insulation
(R-5 per inch)
1″ cavity
4″ brick

R-value with
lightweight CMU = 11.7
R-value with
normal weight CMU = 11.3



1/2″ gypsum board
12″ split-faced CMU*
cores filled with granular
loose-fill insulation
(conductivity: k = 0.319
Btu. • in/sq. ft. • hr. • °F)

R-value with
lightweight CMU = 11.5
R-value with
normal weight CMU = 6.6



Frame Wall R-Values Required to Achieve Performance Equal to Concrete Masonry

Lightweight CMU* R-Value	Frame Wall R-Value Required	City	Normal Weight CMU* R-Value	Frame Wall R-Value Required
8.2	16.1	St. Louis , MO	7.7	16.4
8.2	16.4	Denver, CO	7.7	16.4
8.2	12.5	Chicago, IL	7.7	12.2
8.2	16.4	Washington, D.C.	7.7	16.7
8.2	16.1	New York, NY	7.7	15.4
8.2	50.0	Houston, TX	7.7	50.0

Lightweight CMU* R-Value	Frame Wall R-Value Required	City	Normal Weight CMU* R-Value	Frame Wall R-Value Required
11.7	43.5	St. Louis , MO	11.3	41.7
11.7	41.7	Denver, CO	11.3	40.0
11.7	24.4	Chicago, IL	11.3	23.3
11.7	47.6	Washington, D.C.	11.3	47.6
11.7	33.3	New York, NY	11.3	32.3
11.7	50.0	Houston, TX	11.3	50.0

Lightweight CMU* R-Value	Frame Wall R-Value Required	City	Normal Weight CMU* R-Value	Frame Wall R-Value Required
11.5	28.6	St. Louis , MO	6.6	12.5
11.5	27.0	Denver, CO	6.6	12.0
11.5	20.0	Chicago, IL	6.6	10.0
11.5	30.3	Washington, D.C.	6.6	12.8
11.5	25.0	New York, NY	6.6	11.1
11.5	50.0	Houston, TX	6.6	50.0

*CMU is Concrete Masonry Unit; Lightweight is 95 pcf concrete; Normal Weight is 135 pcf concrete

These examples were generated using the ASHRAE/IES 90.1-1989 program "ENVSTD", assuming a two story, 54,000 sq. ft. office building with double glazing, accounting for 20% of the wall area. Results will differ with various building designs.

Today's concrete masonry units come in hundreds of sizes, shapes and weights, each with different performance and thermal mass properties.

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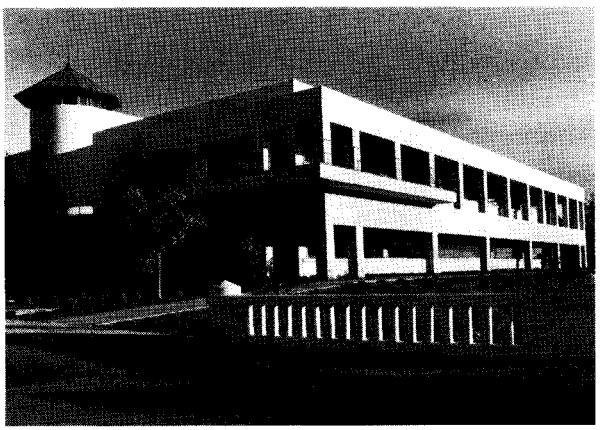

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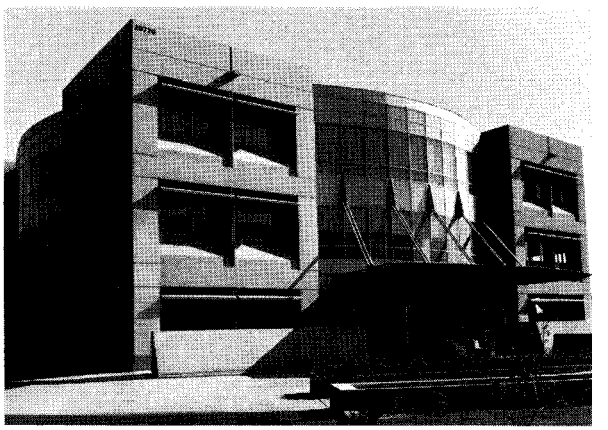

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Beverly Hills, California, Civic Center by Charles Moore and Urban Innovations Group.

AIA Honors Moore, Sea Ranch

On February 6, Charles Moore will become the 49th recipient of the AIA Gold Medal, the Institute's highest honor, at the second annual Accent on Architecture gala. At the same event, Moore's seminal Sea Ranch, California, condominiums will be honored with the AIA's 25-Year Award.

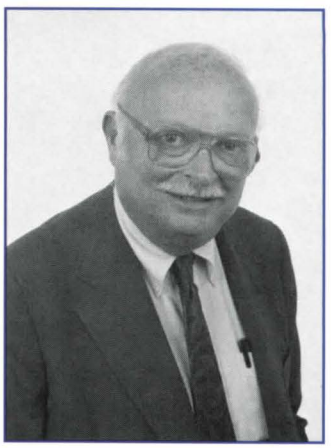
In announcing the Gold Medal, the AIA commended Moore's "unfailing pursuit of design excellence, education, and professionalism." Attesting to Moore's design success are four AIA Honor Awards: Sea Ranch Condominiums, 1967 (P/A, March 1967, p. 156); St. Matthew's Church in Pacific Palisades, California, 1984; Hood Museum of Art, Dartmouth College, Hanover, New Hampshire, 1987; and the Tegel Harbor Housing in Berlin, 1988 (P/A, Oct. 1987, p. 72). Many of Moore's works have also been honored in the P/A Awards program. Most recently, *Time* magazine named the Beverly Hills Civic Center (P/A, Oct. 1987, p. 80) one of the top ten designs of 1990. Most of his work was carried out by the various firms of which he has been a principal or consultant (see below) and some in collaboration with outside firms.

Moore has taught almost continuously for the last 40 years, swinging like a pendulum between west and east. From the University of Utah, where he began teaching in 1950, he went to Princeton to earn the country's first Ph.D. in Architecture in 1957 and taught there from 1957 to 1959. From 1962 to 1965, he chaired the Department of Architecture at Berkeley, then crossed the country again in 1965 to be Chairman and then Dean until 1971 of Yale's School of Architecture. In 1978 he became Program Head of the School of Architecture at UCLA, and in 1985, he assumed the O'Neil Ford Centennial Chair in Architecture at the University of Texas in Austin, where he remains today. Never a loner, Moore has modeled his practice on the group dynamic of the studio and has increased public awareness of architecture through community design workshops and his many writings. "Places," he says, "are receptacles of human energy. If they receive enough they repay it in satisfaction to the people who inhabit them. Enough means everyone's – users' and owners', as well as architects'."

Today Moore is a consultant to the Urban Innovations Group in Los Angeles and to Centerbrook Architects in Essex, Connecticut. He is a partner in the Los Angeles firm of Moore Ruble Yudell, and the Principal in the Charles W. Moore Studio in Austin, Texas. Moore and his many firms were profiled in P/A in October 1987.

The honored Sea Ranch condominiums, by Moore's former firm, Moore, Lyndon, Turnbull, & Whitaker, are a group of vacation homes on a dramatic coastal site north of San Francisco. The acclaimed site plan, by Lawrence Halprin & Associates, called for environmentally sensitive development; MLTW responded by clustering the units around a wind-protected courtyard. The units themselves are 24-foot-square open plans with aedicular enclosures inside them. Their shed roofs and rough wood siding, derived from industrial vernacular sources, are powerful images that were widely copied in subsequent years.

Sally Woodbridge, Mark Alden Branch ■



Charles Moore.

Michael Moran

Also announced by the AIA: This year's Honor Awards *include three projects* at Seaside, Florida. See page 22. (Above: Chatham House at Seaside.)

Pencil Points

Steven K. Peterson, Peterson Littenberg Architects, New York, has won an international competition sponsored by the City of Montreal and 20 private Canadian real estate companies for the design of a new district in Downtown Montreal. The plan for "La Cité Internationale de Montréal" proposes eight million square feet of office and retail space, a headquarters for United Nations agencies, and a conference center.

I.M. Pei has retired from Pei Cobb Freed & Partners. Pei will continue to practice architecture in association with the firm and will maintain an office there.

Architecture critic Ada Louise Huxtable has been elected to the 50-member American Academy of Arts and Letters. "Our awareness of the environment and its history" read the Academy's citation, "is sharper and more enlightened because of her contribution and utterly lay-it-on-the-line perceptions."

Architects with major art troves, according to *Art News* magazine's "World's Top 200 Art Collectors" (Jan. 1991 issue) include Barry Berkus of Santa Barbara, California, Graham Gund of Boston, Philip Johnson of New York, and apprentice architect François de Menil of New York.

Among *Time* magazine's "Best Of" picks for design in 1990 (Dec. 31, 1990 issue) were: Charles Moore's Beverly Hills Civic Center; Beyer Blinder Belle's restoration of Ellis Island in New York (P/A, Nov. 1990, p. 23); Frank Israel's Bright & Associates headquarters in Venice, California (P/A, Sept. 1990, p. 96); Cesar Pelli's Carnegie Hall Tower in New York; and Richard Conway Meyer's St. Andrew's School Boathouse in Delaware.

AIDS Life Center in San Francisco

The 13,000 quilts of the Names Project, one of the most potent memorials to victims of AIDS, will soon have a permanent home. A national competition has yielded a design for the AIDS Life Center in San Francisco's Castro district. Designed by Yo-ichiro Hakomori, an architect from Los Angeles, with Robinson Mills & Williams as the architects of record, this building will house more than archives: A support network of AIDS services for San Franciscans will be headquartered in the building. Trinity United Methodist Church, which provided the land and funds (worth more than $1 million) for the Life Center, will have a sanctuary on the top floor, where it can continue its socially active ministry.

Yo-ichiro Hakomori

Winning AIDS Life Center design by Yo-ichiro Hakomori.

Hakomori sees the Life Center as a secular analog to the Mission-style church that once housed the parish. His five-story, 30,000-sq-ft building will be a place of refuge, with tripartite façades that distinguish its three occupants, while lending a relatively serene image to the visually chaotic neighborhood.

The finalists in the design competition for this complex, selected from 125 entries last June by San Francisco architects Mark Mack, William Turnbull, Jr., P/A correspondent Sally Woodbridge, and Steve Oliver, a Berkeley developer and contractor, showed a range of partis: Reinaldo Borges, an architectural designer in Boca Raton, Florida, won second place for a building of freely configured townhouses. Third prize went to Arnold Lee and Mark Sardegna, two architecture students interning in Baltimore, for a straightforwardly Modern scheme with object-buildings flanking a plaza. Paul William Crowther and Di-Napoli Architects of Berkeley each won honorable mention for designs with multistory spaces embedded in a perimeter of smaller rooms.

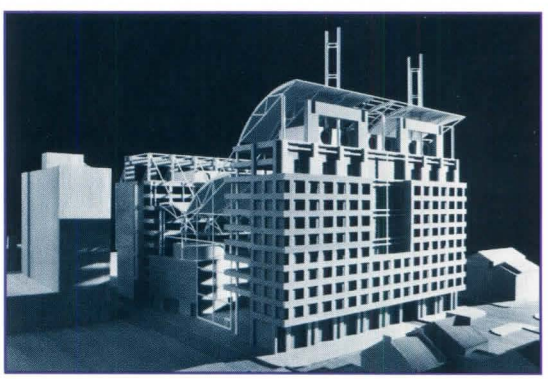
A capital fund drive for the Life Center is under way. Jonathan Pearlman, a San Francisco architect who conceived and directs the project, is encouraged by an unusually strong response from corporations, foundations, and individuals for the $6-million project, which should be built within two years. **Philip Arcidi** ■

Texans Win Mobile County/City Competition

The team of Harry Golemon and Mario Bolullo of Houston, with Frederick C. Woods of Mobile, Alabama, has won the design competition for the Mobile County/City Building. A seven-member jury chose the design last fall from among 195 submissions to the one-stage competition.

The winning scheme divides the facility's two main functions – a courthouse and county/city administrative offices – into two distinct buildings linked by an enclosed atrium. Public functions such as jury assembly, council chamber, day care, and a cafeteria are accessible from the atrium. The jurors praised the scheme's "conceptual simplicity" and its attention to security.

Also cited by the jury were Marvin Housworth, Atlanta, second prize; and David C.S. Polk and Linda A. O'Gwynn, Philadelphia, third prize. ■

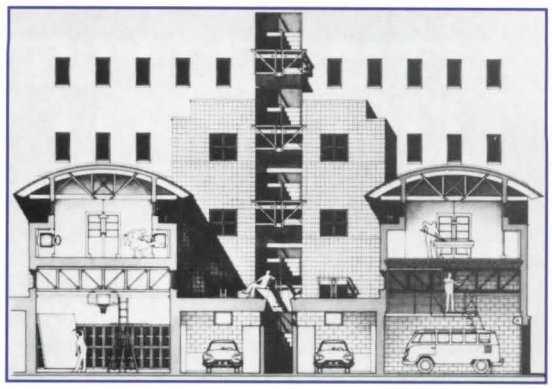


Mobile County/City competition winner by Golemon and Bolullo.

Housing in the South Bronx

We don't have to go to Central America or Western Africa to see the Third World; we have only to travel to our own inner-city ghettos, where the poverty is no less extreme. What this means in terms of housing is a question admirably addressed in a recent exhibition at The Bronx Museum of the Arts. Sponsor of a nationwide competition for affordable housing on a site in the South Bronx, the museum displayed 50 of the 120 schemes entered. These ranged from grids of rowhouses to towers on pilotis to deconstructed bars hovering above rooftops. While most of the projects created coherent public space and reasonable unit plans, too many used middle-class housing as their model. This may be what many South Bronx residents aspire to, but it is not what most can afford. As entrant M. Jane Pereau of Texas A&M noted, in a community where the median income is $7,500 there is "no way" that such housing is affordable given the current level of government support.

A few schemes recognized this problem. The first place winners, Christopher and Timothy Morris of Armonk, New York, designed loft-like spaces in which income-producing activities could take place. Another direction was taken by Richard Stokes of Philadelphia, who called for the erection of a building-products factory on the site, where residents could learn marketable skills as they made the components of their own housing. M. Jane Pereau borrowed ideas developed for housing in Third World countries, providing utility cores and frames within which people would build their own shelter, while Jeffery Miles of New Haven, Connecticut, took a Thoreauvian approach, suggesting with obvious sarcasm that people be given dome tents, chainlink fences, and padlocks, for a total unit cost of $1,635.89. Perhaps the most telling scheme offered no physical solution at all. Entitled "Read My Lips," the submission of Stephen Tilly of Dobbs Ferry, New York, argues that the lack of affordable housing in the South Bronx is not an architectural problem, but a matter of public policy: the high cost of money, inadequate government aid, too few job opportunities.



First place winner from South Bronx competition.

This exhibit showed the best intentions of architects and designers. But as long as we have presidents who believe, as Ronald Reagan suggests in his new autobiography, that it is acceptable for our government to subsidize Third World countries but not our own poor population, we will continue to have a housing crisis in places such as the South Bronx. **Thomas Fisher** ■

"Salon International de l'Architecture" in Paris

The third International Architecture salon was held in Paris at the Grande Halle de la Villette, October 26–November 4, 1990. The vast 19th-Century iron and glass market structure was an appropriate setting because the salon creates a professional marketplace for architecture in all its phases. This year there were 500 "stands", mostly French and Italian, but also German, Belgian, Spanish, British, Irish, Brazilian, and – in a few instances – American.

The show reflected the tremendous possibilities for cross-fertilization among all aspects of the architectural process: Exhibitors and attendees included producers of specialized materials, contractors, engineers, major builder-conglomerates, architecture offices, students, schools, professional magazines, and clients, both private and public. Clients can go shopping for architects and builders and students can shop for architecture schools.

The Italian presence was especially strong this year, and was impressive for its scope as well as its design strength in the broad gamut of activities related to building. The Torino Polytechnic School, for example, showed impressive design capabilities ranging from industrial design to large-scale urban planning.

The show's internationality of vision was expressed in the Eurodom Project for Moscow by Studio 65 of Torino for the Soviet-Italian Cultural Association. Another example was a room devoted to a pilot urban planning project for a whole section of Shanghai, produced by French Government planners.

The active role of large construction companies in the future of architecture was shown by the conglomerate COGEDIM's display of work by young (under 40) European architects. They also showed their "Prix Cogedim 1990", a competition for a project to be built in Paris as a "First Work" by a young (20–35) French architect. The idea of major construction players searching for young architects was taken up by other Europeans too, including the Italian ITALSTAT gruppo iri.

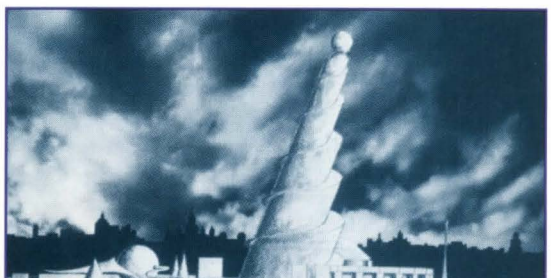


Photo: Franco Audrito

Eurodom project by Studio 65, seen at Paris salon.

The only Americans to use this innovative marketing showcase were Kohn Pedersen Fox Associates, New York, who showed their international buildings, and the Arizona State University School of Architecture. Richard Meier was represented as one of the ten finalists in the huge urban planning competition for Aix-en-Provence, "Sextius-Mirabeau." Frank Gehry withdrew his "American Center in Paris" stand at the last minute, but he is in the catalog.

The Architecture salon is now the analogue to the huge, prestigious International Contemporary Art Fair (FIAC) held each fall since 1974 at the Grand Palais in Paris, where 24 American galleries participated in 1990. In 1991 the Architecture salon will be held in Milan and in 1992 in Paris. **Barbara Shortt** ■

The author is a New York architect who writes frequently on French architecture.

Washington Report

Even if Washington does face proposals for too many new memorials in the federal core, as some people here believe, recent developments suggest that the most prominent of the pending projects won't quickly or easily be built.

A perplexing set of issues has been joined in a federal lawsuit over the memorial to veterans of the Korean conflict. The original design, for a site near the Lincoln Memorial, resulted from a competition won by a team of architects and landscape architects who are members of the faculty at Pennsylvania State University (P/A, August 1989, p. 22). Details of their design were to have been worked out by the sponsoring organization, several federal authorities, and a local architectural firm.

But early this winter the competition winners filed suit in federal court, alleging that four entities undermined implementation of the winning scheme. The suit seeks an injunction against further work on the "altered" memorial design and more than $500,000 in damages.

The suit named the Korean War Memorial Advisory Board, the Army Corps of Engineers, and the American Battle Monuments Commission as defendants. Also named were Cooper-Lecky Architects, who implemented the design for the Vietnam memorial and were retained by the Corps of Engineers to do the same for the Korean project.

A revised scheme shown early this year, while containing the same essential program elements as the original, is clearly a different design. The Pennsylvania team alleges that the revisions alter not just the letter but also the spirit of their design – in part, they say, by making combat seem glamorous when they intended an expression of movement between domains of peace and war.

Several sculptural figures in a planned column of 38 soldiers were given poses suggesting active combat; the original design suggested troops in a slow, almost dazed walk. Whatever one thought of the original, the altered poses constitute a major change and can readily be

(continued on next page)

Washington Report

(continued from previous page)

judged as misguided, at least given the philosophical aims espoused by the winning team.

Other changes, while also significant, are more debatable. The winning design placed the soldier statues behind an arc of dense, 14-foot-high trees, creating a room-like space that seemed all wrong for the Mall site. The revised scheme, to its credit, eliminates this feature and resolves circulation problems. But it also changes the memorial's axis, raising new issues that call for study.

Beyond engendering needed debate on the merits or shortcomings of the original Korean memorial design and proposed changes, the stir raises questions likely to surface with other memorial projects, particularly those selected through competition. Should a client have authority to request and approve changes to artistic or architectural works? Must public agencies accept, with little or no alteration, design proposals as chosen by juries that are more or less unrepresentative of public tastes?

With acumen that has come to seem uncharacteristic, Congress established arduous public review and approvals processes in the Commemorative Works Act of 1986. This includes approval by, among others, the Commission on Fine Arts, whose pending decision on the Korean memorial may well reject details of both schemes.

While nobody here accepts the proposition that jury-selected designs for federal memorials are absolute or inviolable, there is concern that guidelines are indistinct. Some veterans of Washington's design review corps now say that open design competitions are inappropriate for public memorial projects, urging invited competitions and direct commissions instead.

A court ruling on the Korean memorial lawsuit, should it come to that, might shed light on what to do about competition designs that need refinement or even significant change. Until new law or practice emerges, however, the federal review bodies have a chance to render careful, definitive judgment on important design issues for the federal core. **Thomas Vonier** ■

Floridian Slant in AIA Honor Awards

Seaside, Florida, the 80-acre resort town and rising architecture mecca, was the most honored locale in this year's AIA Honor Awards, which were to be announced at the second annual Accent on Architecture gala this month. Three projects at Seaside – and two others in Florida – were among the 19 winners chosen by a jury chaired by Robert Venturi (and including Elizabeth Plater-Zyberk, one of Seaside's designers).

Apart from the Seaside sweep, the jury's selections included a wide range of styles and building types, as is common in this awards program. In his jury chairman's statement, Venturi said he believed the choices "reflect the particular spirit of our time, its range, and its quality."

Jurors, besides Venturi and Plater-Zyberk, were Charles M. Davis, San Francisco; Michael Graves, Princeton, New Jersey; critic David Dillon of the Dallas Morning News; Robert H. Timme of Taft Architects, Houston; landscape architect Michael Van Valkenburgh, Cambridge, Massachusetts; associate AIA member R. Brandon Sprague, Champaign, Illinois; and student member Frank A. Massaro, Jr., Columbus, Ohio.

Steven Brooke

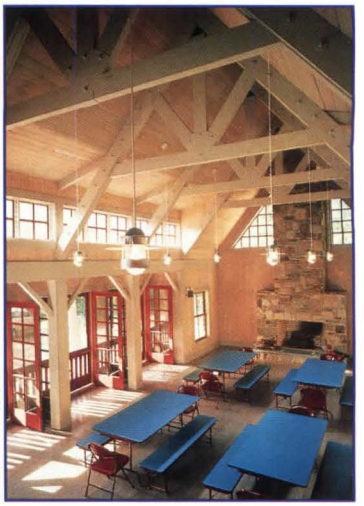
Seaside honeymoon cottages by Scott Merrill.

Barry Rustin

Glendale Heights Post Office by Ross Barney & Jankowski.

The winning projects are, in alphabetical order by architect:

- Chatham House, Seaside, Florida, by Walter Chatham Associates, New York;
- a private residence in East Hampton, New York, by Cooper Robertson & Partners, New York;
- Koizumi Sangyo Building, Tokyo, by Eisenman Architects, New York (P/A, Oct. 1989, p. 91);
- Herman Miller Western Regional Facility, Rocklin, California, by Frank O. Gehry & Associates (P/A, July 1989, p. 58);
- 360 Newbury Street, Boston, by Frank O. Gehry & Associates, Santa Monica, California (P/A, Feb. 1989, p. 68);



Tom Bernard Photographer

Camp Tweedale by Susan Maxman Architect.

- Rice Building, Art Institute of Chicago, by Hammond Beeby Babka, Chicago (P/A, Nov. 1988, p. 73);
- Mendelsohn House, San Francisco, by Robert Herman Associates, San Francisco;
- Dreamland Heights Building, Seaside, Florida, by Steven Holl Architect, New York (P/A, Aug. 1989, p. 59);
- Camp Tweedale, Lower Oxford Township, Pennsylvania, by Susan Maxman Architect, Philadelphia;
- Honeymoon Cottages, Seaside, Florida, by Scott Merrill Architect, Vero Beach, Florida;
- Caribbean Marketplace, Miami, Florida, by Charles Harrison Pawley Architects, Coral Gables, Florida;
- Meyerson Symphony Center, Dallas, by Pei Cobb Freed & Partners, New York (P/A, Nov. 1989, p. 23);
- Sculpture Studio, Baltimore, by RTKL, Baltimore (P/A, Oct. 1990, p. 22);
- Charleston Cottages, Charleston, South Carolina, by Christopher A. Rose, Charleston, South Carolina;
- Glendale Heights Post Office, Glendale Heights, Illinois, by Ross Barney & Jankowski, Chicago;
- Hotel Il Palazzo, Fukuoka, Japan, by Aldo Rossi with Morris Adjmi (P/A, May 1990, p. 112);
- The Royalton Hotel, New York, by Phillipe Starck, Paris, and Gruzen Samton Steinglass, New York;
- Courtyard Houses at Wood Duck Island, Vero Beach, Florida, by Robert A.M. Stern Architects, New York;
- Fukuoka Mixed-Use Building, Fukuoka, Japan, by Tigerman McCurry, Chicago (P/A, Oct. 1989, p. 40).

The plan of Seaside was the winner of a P/A Citation for urban design and planning (P/A, Jan. 1984, p. 138); the results of its architectural guidelines have been discussed in articles as well as in a general critique (P/A, July 1985, p. 111). ■

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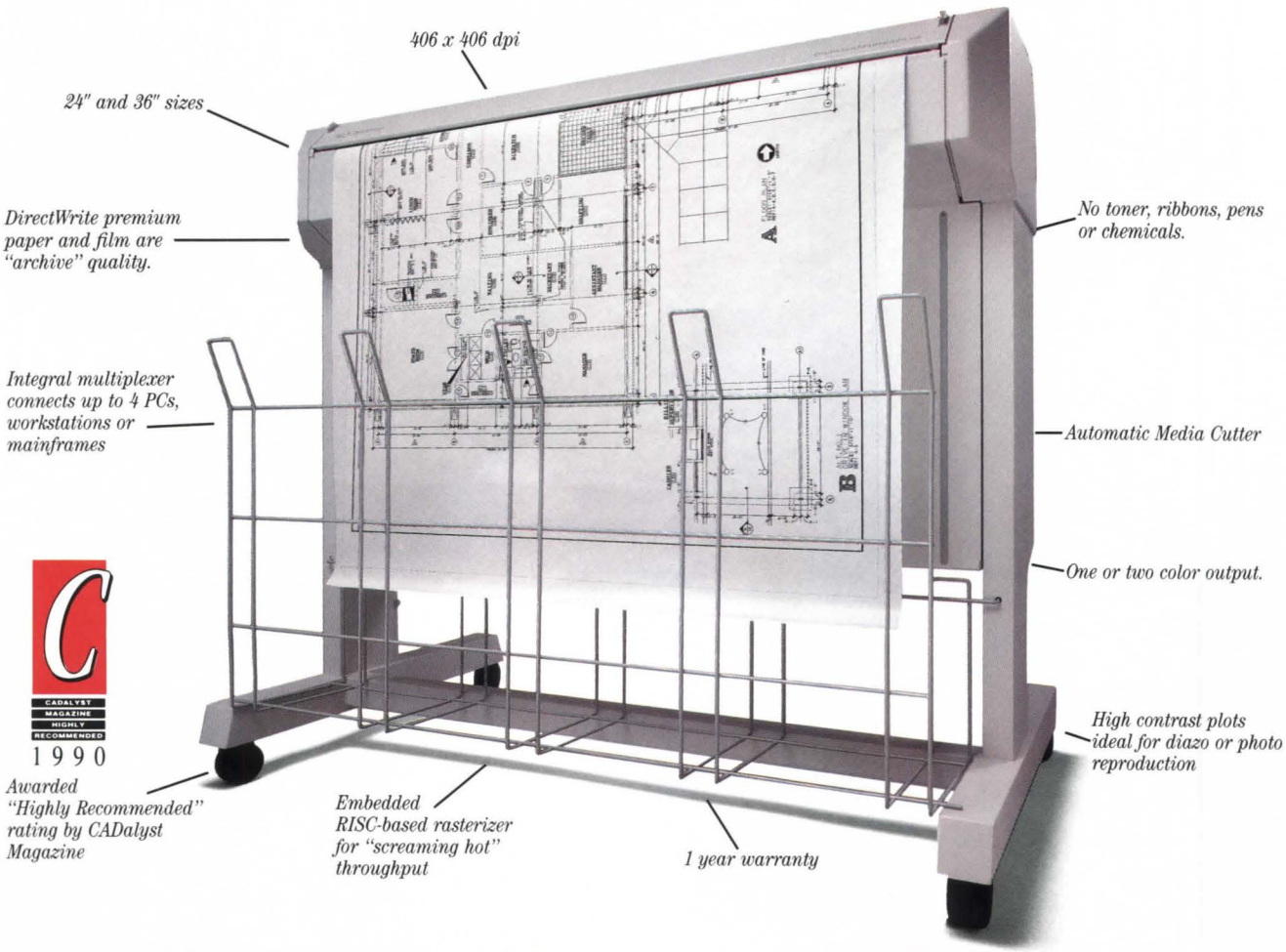

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Calendar

Exhibitions

Architects' Art
Through March 10

Santa Monica, California. This annual exhibition includes six "gallery-scale environments which reflect theoretical and conceptual considerations about furniture and present new and fully realized designs of practical, everyday objects." Lars Lerup, Hodgetts & Fung, and Lorcan O'Herlihy are among the participants. Gallery of Functional Art.

Tourisms: suitCase Studies
Through March 17

Minneapolis. The fifth "Architecture Tomorrow" exhibition, like its predecessors, loosely interprets the program's name: New York architectural designers Elizabeth Diller and Ricardo Scofidio analyze touristic travel in the U.S. via 50 television sets projecting images of sites from each of the 50 states. The exhibition will travel. Walker Art Center.

Architectural Toys
Through March 31

Montreal. "Buildings in Boxes: Architectural Toys from the CCA" takes a look at the profession's fascination with the toy as representative of the real world; a 19th-Century wooden German village, Lincoln Logs, and a variety of American construction toys dating from the 1920s to the 1950s are among the objects exhibited. Canadian Centre for Architecture.

The Grand Louvre
February 6-May 21

Washington, D.C. The Louvre's architectural and socio-historic significance will be explored from its origins as a fortified castle through the most recent additions. Organized by the American Architectural Foundation, the exhibition will be among the highlights of this year's Accent on Architecture celebration. The Octagon.

Frank Lloyd Wright
February 9-April 14

Philadelphia. The Domino's Pizza-sponsored "Frank Lloyd Wright: Preserving an Architectural Heritage" exhibition continues to travel the U.S.; furniture, textiles, lighting, windows, and other Wright-designed objects will be on view. Academy of the Fine Arts.

20th-Century Decorative Arts
February 26-April 27

New York. "Design 1935–1965: What Modern Was" is an exhibition of furniture , textiles, glass, ceramics, jewelry, metalware, and graphics by George Nelson, Alexander Calder, Alvar Aalto, Ettore Sottsass, Henry Bertoia, Arne Jacobson, Herbert Bayer, Alvin Lustig and others. IBM Gallery.

Competitions

Perth City Foreshore
Registration deadline February 22, entry deadline May 31

Perth, Australia. The state government of Western Australia and the City of Perth have announced an ideas competition for a design that would link the city's center with its river; a foreshore currently separates the two. Architects, urban designers, landscape architects, planners, and engineers are eligible. Contact The Executive Offices, Perth City Foreshore Project Team, Department of Planning and Urban Development, Albert Facey House, 469 Wellington Street, Perth 6000 Western Australia (09) 264 7777 or FAX (09) 321 1617.

P/A Affordable Housing Initiative
Submission deadline March 29

Stamford, Connecticut. In collaboration with Bank One of Cleveland, and Penton Publishing Company, P/A is sponsoring a design competition and building program for a structure for a moderate income family to be

(continued on page 26)

Calendar *(continued from page 25)*

sited in the Ohio City section of Cleveland. (See January P/A, p. 51, for program information and entry forms.)

John Dinkeloo Fellowships
Application deadline May 1

New York. Three 1991 Traveling Fellowships in Architectural Design and Technology are being sponsored by the National Institute for Architectural Education, John Dinkeloo Bequests/American Academy in Rome. Any U.S. citizen who has or anticipates receiving a first professional degree in architecture between June 1988 and June 1991 is eligible. Contact NIAE, 30 West 22nd Street, New York 10010 (212) 924-7000 or FAX (212) 366-5836.

William Van Alen Fellowships
Submission deadline May 10

New York. The topic of the 1991 William Van Alen Fellowships for travel and/or study abroad is East Meets West, an Institute of Anthropolgy in Istanbul. Architecture and engineering students, full or part-time, working toward a professional degree may enter. The project may be completed during any eight-week period until May 10; dates must be filed with the National Institute For Architectural Education. NIAE, 30 West 22nd Street, New York 10010 (212) 924-7000 or FAX (212) 366-5836.

Santa Clarita City Center
Submission deadline May 17

Santa Clarita, California. The City of Santa Clarita has announced an open two-stage design competition for a city center masterplan; a new city hall will be the first building designed. The competition program is scheduled for distribution March 1. Contact William H. Liskamm, competition advisor, City Hall, 23920 Valencia Boulevard, Suite 300, Santa Clarita 91355 (805) 259-2489.

Conferences

Livable Cities
February 26-March 2

San Francisco. City officials, architects, landscape architects, planners, urban geographers, social scientists, and others will gather for the ninth International Making Cities Livable Conference. A call for papers has been announced for the tenth international conference scheduled for July 2–6 in Venice, Italy; proposals are due March 20. Contact Suzanne H. Crowhurst Lennard, Director, IMCL Conferences, P.O. Box 7586, Carmel, California 93921 (408) 626-9080 or FAX (408) 624-5126.

Lightfair
March 5–7

Chicago. This lighting exposition and conference is sponsored by IESNA and IALD. Chicago's Expocenter is the show's venue. Contact Lynne Weller, 240 Peachtree Street, N.W., Suite 2200, Atlanta, Georgia 30303 (404) 220-2115.

Monterey Design Conference
March 15–17

Monterey, California. The 10th Monterey Design Conference, "Will The Real California Architecture Please Stand Up?" sponsored by the California Council AIA, will be held at Asilomar Conference Center. A variety of events are scheduled. Contact Janet Miller or Julie Kniseley, CCAIA, 1303 J Street, Suite 200, Sacramento, California 95814 (916) 448-9082.

AEC Expo West 91
March 19–21

San Francisco. This conference and trade show will include instruction on integration and management topics; hardware, software, integrated systems, and services will be displayed. Contact Expoconsul International, 3 Independence Way, Princeton, New Jersey 08540 (609) 987-9400 or FAX (609) 987-9490.

WestWeek 91
March 20–22

Los Angeles. "Explorations: Commerce, Culture & Design in the International Marketplace" is the theme of the 16th annual contract furniture trade show and symposium held at the Pacific Design Center (see p. 101). Contact PDC, 8687 Melrose Avenue, Los Angeles 90069 (213) 657-0800 or FAX (213) 652-8576. ■

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Technics: Slabs for All Seasons

Frost-protected slabs offer an affordable alternative for northern regions,

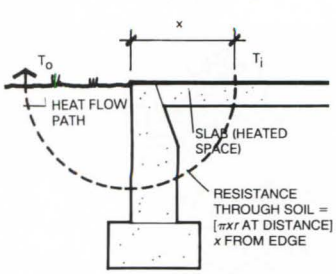
while recent DOE studies recommend cost-effective slab insulations for all climates.

Theory of Optimal Insulation for Heating Conditions

Although the thermal behavior of slab floors is very complex throughout the year, their behavior under winter conditions – and the suitability of different insulation placements – can be explained for design purposes by the theory of two-dimensional, steady-state heat conduction. If we consider a very wide, heated slab with its top surface flush with the exterior grade, and assume that the thermal conductivity of the slab and frost wall are about the same as the soil (a reasonable approximation), then heat from the slab will flow to the exterior grade along circular paths centered on the slab edge. The rate of heat loss is greatest at the edge, and diminishes with distance from it by the relation,

$$Q_x = (T_i - T_o)/\pi x r,$$

where Q_x is the heat loss rate at location x in Btu/(ft^2)hr, T_i and



T_o are the indoor and outdoor temperatures (F), x is the distance of recommendations (1) shows that a one- or two-inch thickness of rigid foam in a four-foot width, regardless of orientation, is cost-optimal over a 30-year life cycle throughout much of the northern U.S. Interior installations are almost always more cost-effective than exterior installations, provided there is a thermal break at the slab edge. Although marginally less energy efficient, interior installations do not require protection from ultraviolet radiation and physical damage, and this cost saving favors an inside location in the economic analysis. Exterior insulation is easily damaged during construction, and for this and aesthetic reasons, many builders and designers insulate only the below-grade section of the wall, preferring to expose the structural concrete or masonry. Because most of the heat escapes above grade, this is an enormously wasteful practice; it is much better to move the insulation to the inside surface of the wall if an exposed structure is desired. The computer simulations on which the DOE recommendations are based assume an R-5 thermal break between the slab edge and frost wall for all under-slab and interior wall installations. The same simulations show that an uninsulated slab edge joint reduces energy savings by 40 percent under many normal conditions.

The next product of DOE's foundation program will be the *Builder's Foundation Handbook*, due in early 1991. It introduces a worksheet method for figuring the optimal insulation for slabs, crawl spaces, and basements for any set of heating degree-days and cooling degree-hours (base 74 F). The worksheet method is a little like filling out income tax forms by entering data in the blanks from a set of look-up tables. Cost effectiveness can be calculated on the basis of the second-year cash flow or a 20- or 30-year life cycle analysis.

In the post-war housing boom of the late 1940s and early 1950s, production builders like William Levitt met the market volume and demand for inexpensive single family houses in part by eliminating basements. Slab floors were not widely used for houses in northern regions before World War II, and researchers at the National Bureau of Standards and the Small Homes Council responded with experimental studies of thermal performance using different amounts of insulation installed in various configurations. These have evolved into standards that are largely still with us, 45 years later, for commercial as well as for residential construction.

Things are beginning to change, however, thanks to continuing efforts sponsored by the Department of Energy DOE) and the Society for the Plastics Industry (SPI). Committees responsible for the *Model Energy Code* and ASHRAE Standard 90.2, *Energy Efficient Design of New Low-Rise Residential Buildings*, are considering the insulation levels recommended by the DOE work, while SPI will soon lead the U.S. into a new technology that much of the rest of the developed world already knows – frost protection of foundations using insulation. This could change the way architects and builders think about foundations for northern climates. Frost-protected slabs are being investigated by the National Association of Home Builders (NAHB) for their cost saving potential. The idea is suitable for all types of construction using strip footings, and offers cost advantages for shopping centers, warehouses, light manufacturing, and other building types where basements are not ordinarily required or desirable.

Cost-effective Insulation

Levels of foundation insulation unheard of in the past are becoming cost-effective as fuel prices rise. The most recent and thoroughly studied set

1 *The cost-optimal insulation varies with fuel cost, building type, HVAC system, climate, soil thermal properties, length of analysis period, slab edge detail, installed cost of insulation, and other factors. These values are for a ranch house with 8" of foundation wall above grade.*

Example: *You're designing a house in central Michigan (7000 HDD), to be heated with oil at an average future price (you guess) of $1.00 per gallon. Interpolating between Chicago (6177) and Minneapolis (8007), and between $0.79 and $1.19, you reason that the optimal insulation is 4' at R-7.5. This could be 1 ½" or a stepped configuration, like that shown in figure 6.*

2,3 *Insulation performance can be compared to that of the uninsulated slab. Adding R-2.5 to the outside exposed edge (Case A) cuts the winter design heat loss rate for the slab in Albany, Georgia by 31%, or 20/29 of the uninsulated value, and the heating load by 17.5%.*

In Albany, an uninsulated slab accounts for 10,794 kBtu of the annual heating load of 23,491 kBtu, or 46%. The annual cooling load is 30,331 kBtu for the superstructure alone and 24,688 kBtu with an uninsulated slab. In effect, the slab provides 5643 kBtu cooling that reduces the house cooling load by 23%.

Region	HDD	FDD	Air Temperature (Annual Average)	Insulation Recommendation by Fuel Cost[1] Low	Medium	High
Bismarck, ND	9075	2416	41.3	R-5, 4'	R-5, 4'	R-10, 4'
Minneapolis, MN	8007	1862	44.7	R-5, 2'	R-5, 4'	R-10, 4'
Chicago	6177	942	50.6	R-5, 2'	R-5, 4'	R-10, 4'
Denve	6014	514	50.3	R-5, 2'	R-5, 4'	R- 5, 4'
Boston	5593	436	51.5	R-5, 2'	R-5, 4'	R- 5, 4'
Seattle	5121	39	51.4	R-5, 2'	R-5, 4'	R- 5, 4'
Kansas City	4812	501	56.3	R-5, 2'	R-5, 2'	R- 5, 4'
Washington, D.C.	4122	354	57.5	R-5, 2'	R-5, 2'	R- 5, 4'
Atlanta	3021	69	61.2	R-5, 2'	R-5, 2'	R- 5, 2'
Fort Worth	2407	36	66.0	R-5, 2'	R-5, 2'	R- 5, 2'
Los Angeles	1595	0	62.6	0	0	0
Phoenix	1442	0	71.2	R-5, 2'	R-5, 2'	R- 5, 2'
Miami	199	0	75.6	0	0	0
Equivalent fuel costs, heating[2]:				Low	Medium	High
Fuel oil, per gallon				52.7¢	79.1¢	$1.19
Natural gas, per therm				37.4¢	56.1¢	84.2¢
Propane, per gallon				34.4¢	51.6¢	77.5¢
Electricity, per kWh				1.9¢	2.8¢	4.2¢
Cooling cost, electricity, per kWh				5.1¢	7.6¢	11.4¢

[1] Thermal performance varies little with position inside or outside the frost wall, or vertical or horizontal placement, provided that all inside installations have at least an R-5 thermal break at the slab edge.
[2] Equivalent energy fuel costs take into account typical efficiencies of residential mechanical systems for each fuel type. For example, electricity at 4.2¢ kWh competes with fuel oil at a cost of $1.19 per gallon for Btu's delivered to the occupied space.
Source: this is a simplified interpretation of more complete information in the *Building Foundation Design Handbook*, prepared for the U.S. Department of Energy by the University of Minnesota.

1 COST OPTIMAL SLAB INSULATION RECOMMENDATIONS FOR HOUSES, 30 YEAR LIFE CYCLE

Case	R-Value	Edge R[1]	Design Heat Loss (Btu/(ft)hr)[2] Atlanta	Albany	Annual Whole House Load (kBtu), Albany[3] Heating	Cooling
Uninsulated	(0)	(0)	33	29	23,491	24,688
A	2.5	(2.5)	23	20	19,375	24,401
	5	(5)	21	18	18,740	24,412
B	2.5	(2.5)	20	18	17,702	24,027
	5	(5)	18	14	16,412	23,930
	10	(10)	15	12	15,345	23,849
C	2.5	0	28	26	21,699	24,345
	2.5	2.5	21	19	18,339	24,252
	5	2.5	20	18	18,049	24,215
	10	2.5	20	17	17,818	24,187
D	2.5	0	29	26	22,181	24,678
	2.5	2.5	21	19	18,582	24,364
	5	2.5	21	17	18,260	24,368
	10	2.5	20	17	17,971	24,226
E	2.5	2.5	20	17	18,133	24,441
	5	2.5	19	16	17,785	24,327
	10	2.5	17	15	17,370	24,345

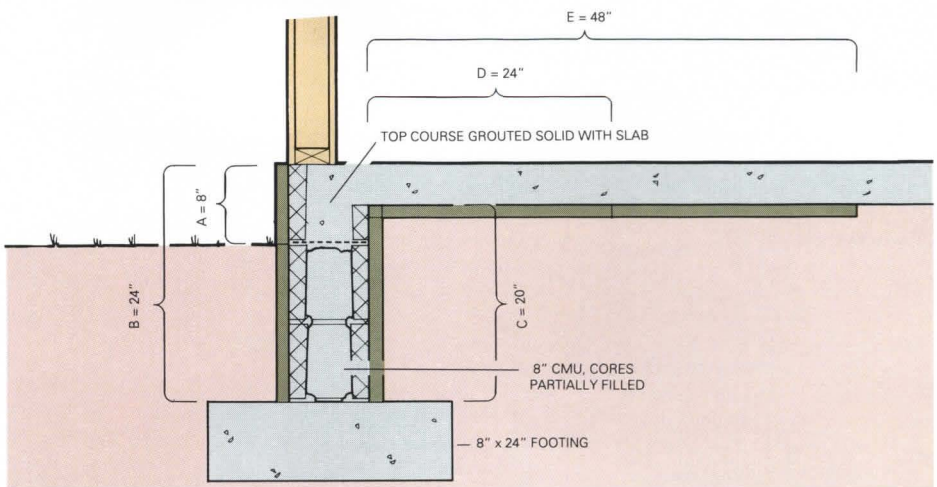
[1] Same as case A.
[2] Design heat loss rate is for sizing mechanical system and is expressed per lineal foot; 68 F indoor setpoint for both locations; 22 F outdoor design temperature for Atlanta (3021 HDD, annual average air temperature of 61F); 29 F outdoor design temperature for Albany (2062 HDD, annual average air temperature of 66 F).
[3] Ranch house of 1800 ft², 33.4' x 53.6', R-12 walls, R-20 attic.
Source: "Slab-on-Grade Thermal Loss in Hot Climates," J.P. Cleaveland and J.M. Akridge, ASHRAE *Transactions*, Vol. 96, Part I, 1990.

2 COMPARISON OF SLAB INSULATION PERFORMANCE FOR HOUSES IN GEORGIA

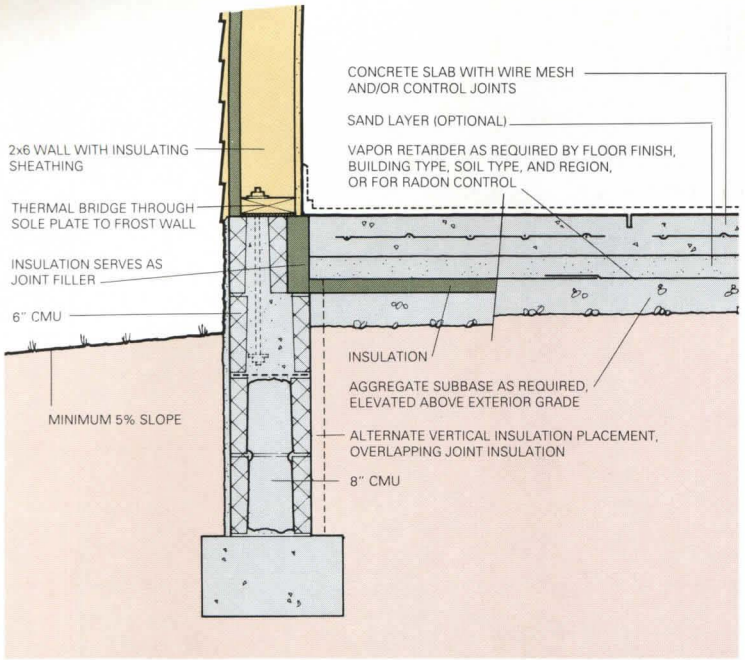
Efficiency is in the Details

Many designers, builders, and agencies question the value of and usual practices for insulating slabs in southern regions. Professors John Cleaveland and James Akridge of Georgia Tech's College of Architecture analyzed a variety of different insulation levels and configurations (2,3) for a typical 1800-square-foot ranch house in Albany (2062 Heating Degree Days, annual average air temperature of 66 F) and Atlanta (3021 HDD, annual average air temperature of 61 F), Georgia. While they did not determine the most cost-effective installations, their computer simulations of heat losses and gains lead to some clear conclusions about monolithic slab insulation practices:

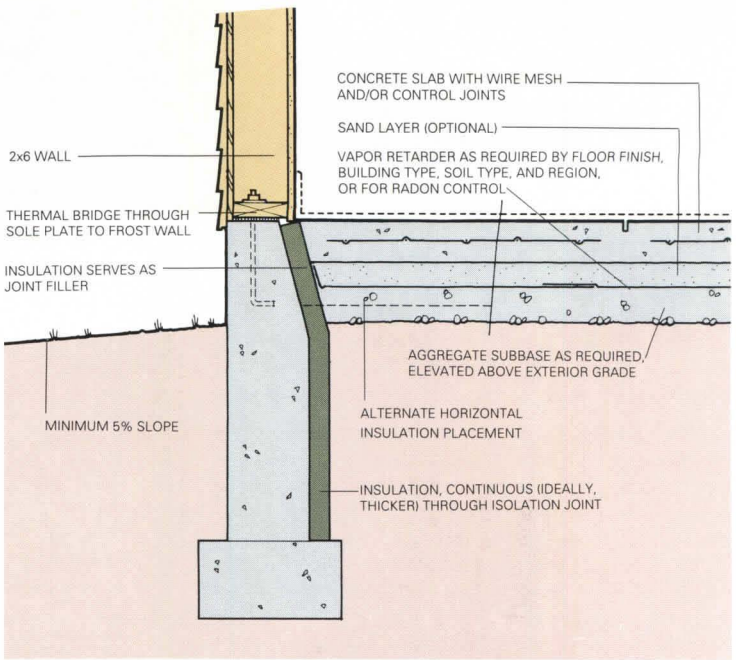
- Insulation is as important to cooling performance as it is to heating performance, and installation configuration is important to the balance of heating vs. cooling season benefits.
- The slab edge accounts for a large part of the perimeter heat loss of monolithic slabs; insulation installed under the slab or at the inside face of the frost wall is largely ineffective, if the exterior slab edge is not insulated.
- Even a small thickness (R-2.5) of insulation produces significant savings, while additional increments have diminishing benefit.
- The need for slab insulation does not depend on climate conditions found in Georgia. Insulation is only slightly less effective in locations with 2000 HDD than those with 3000 HDD.
- The appropriate use of insulation with monolithic slab floors can produce substantial energy savings that on an annual basis are equal to or greater than most above-grade conservation measures in current house construction.
- The design heat-loss factors computed for slab edges are significantly less than those published in the 1985 ASHRAE *Fundamentals Handbook* for similar conditions.



3 INSULATION CONFIGURATIONS STUDIED BY CLEAVELAND AND AKRIDGE (2)



4 *Up to 2" of insulation can be accommodated at the slab edge (as isolation joint filler) by capping off an 8" CMU frost wall with a 6" course, and projecting a 2 × 6 wall over the joint.*

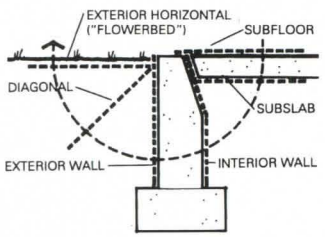


5 *Battering the frost wall conceals up to 2" of insulation under a 2 × 6 wall. The batter adds to the cost of formwork, but saves the expense of a protection coat on insulation placed at the exterior.*

Theory of Optimal Insulation for Heating Conditions *cont.*

tance from the edge (feet), and r is the soil thermal resistivity (R-value per foot thickness).

For maximum efficiency, the insulation should be installed perpendicular to the heat flow path. Vertical and horizontal installations are equally good, as long as the short heat flow paths at the edge are interrupted. Diagonal placements (radiating from the slab edge) are good in theory, but have no advantage and are difficult to install.



For drainage, protection from rain splash, and termite inspection, the wall plate and slab should be raised above grade. This creates a direct route for heat flow to the outdoors through the slab edge, while it still follows roughly circular flow paths through the soil. This means that the insulation location – all other things being equal – is important only inasmuch as it prevents thermal bridges at the slab edge. Computer simulations of edge details confirm this.

According to the Swedish researchers Johan Claesson and Bengt Eftring, the R-value of insulation at distance x from the edge should be proportional to the rate of heat loss passing through that point in the uninsulated case; this gives the most efficient distribution of insulation, and it equalizes surface temperature over both the plane of the insulation and the floor slab. It also makes sense intuitively: More insulation should be used where the floor is coldest – at the perimeter. The heat loss through any point on an optimally-insulated floor at a distance of x from the edge is,

$$Q_x = (T_i - T_o)/(R_x + \pi x r),$$

where R_x is the R-value of insulation to add at a distance of x from the edge. The optimal value R_x is found by rearranging and substituting some design heat loss rate for Q_x:

$$R_x = (T_i - T_o)/Q_x - \pi x r.$$

Soil thermal resistivity r varies with soil type and moisture content, but 1.3 ft(hr)F/Btu is typical. This suggests that the R-value of insulation should taper linearly by a factor of πr, or about R-4 per foot, from a design value of $(T_i - T_o)/Q_x$ from the edge. This can be approximated by "stairstepping" insulation boards in 1" increments every 12" for expanded bead polystyrene, or every 15" for extruded polystyrene.

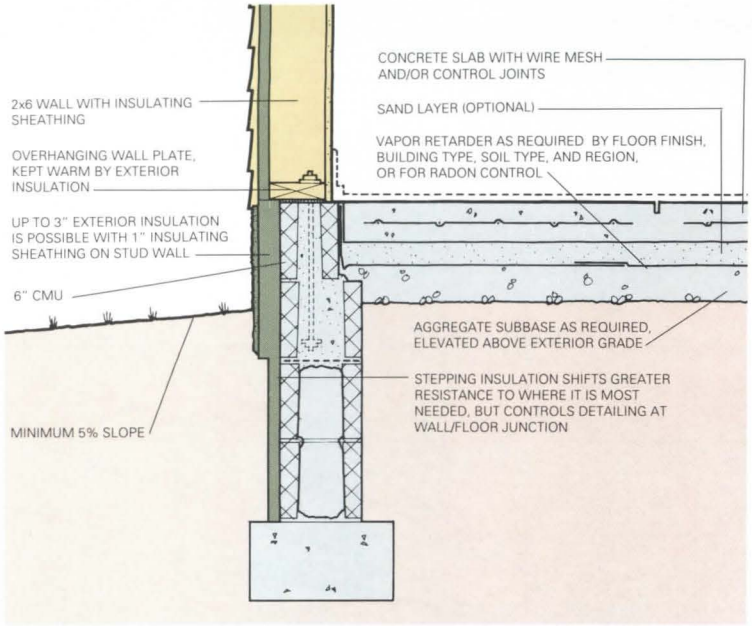
The foregoing assumes a floor that is very (semi-infinitely)

Slab details appearing in *Graphic Standards* and other sources typically apply to southern regions and do not address the northern problem of accommodating two or more inches of insulation at either the inside or outside of the frost wall. While it is easy to lay thick insulations under the slab or to stand it up at the inside face of the frost wall, extending this thickness through the slab edge joint is a different matter. Overhanging 2 × 6 studs beyond the exterior face of the frost wall or over the slab edge isolation joint can solve some of the problems (4–7). Battering the top of the wall back (6) is an old idea that still makes sense, although it adds to the cost of formwork.

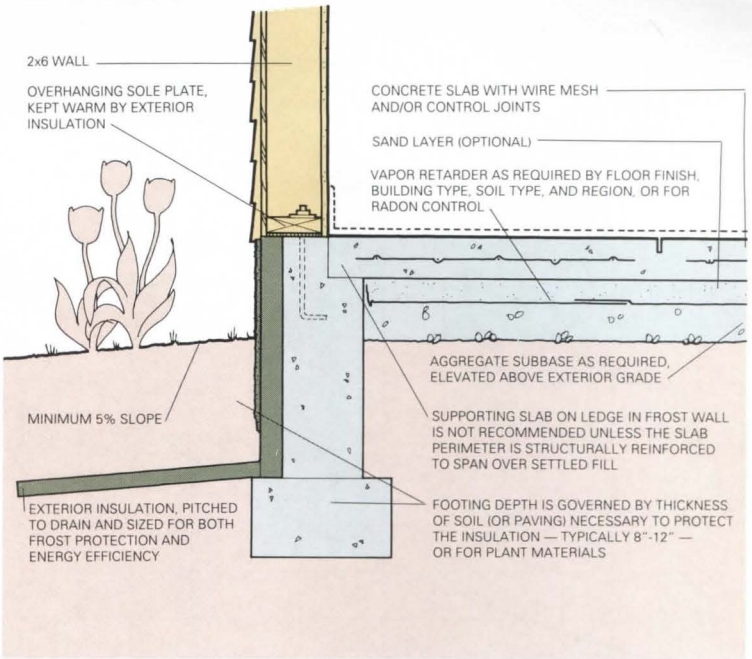
As discussed in the sidebar, the position of the insulation does not significantly affect thermal performance in heating-dominated regions, except for monolithic slabs and other designs where thermal bridges compromise the overall continuity of the insulation blanket. When the insulation is placed inside the frost wall, the superstructure wall bears on a cold foundation. This reduces the indoor wall-surface temperature near the floor, thereby increasing heat losses through the wall plate (not accounted for in the DOE studies) and increasing the potential for condensation at the base of the superstructure wall.

Detailing Controversies

Two particular issues generated much debate and little consensus during preparation and industry review of the DOE handbooks. The American Concrete Institute (ACI), in its publication 332R-84, *Residential Concrete*, recommends against ledge support (bearing on the frost wall, as shown in 7) of slabs "with or without insulation or isolation joint." ACI recommends that the slab float free of the foundation with an isolation joint at the slab edge, so that settling or heaving of either the wall or floor is independent of the other. House build-



6 *Up to 3" of insulation can be placed at the exterior if the wall has insulating sheathing. This stepped installation of two 1"-layers is equivalent to uniform 1 1/2" – and theoretically more efficient.*



7 *Supporting the slab on the wall is recommended against by ACI, but is common house building practice. "Flowerbed insulation" protects shallow footings from frost – and should produce earlier blooms.*

ers argue that ledge support and lack of isolation joints are commonplace, and that the ACI recommendations are unnecessarily conservative. Loads and acceptable construction tolerances for speculative houses are very different from those for commercial, custom residential, and industrial applications, however, as shown by extensive discussion on specifying floor flatness in ACI's SCM 11, *Design and Construction of Concrete Slabs-on-Grade*. Local soil type, client needs, and construction (especially compaction and preparation of the subgrade) practices all need to be considered in detailing the slab edge. Insulation is a suitable isolation joint material.

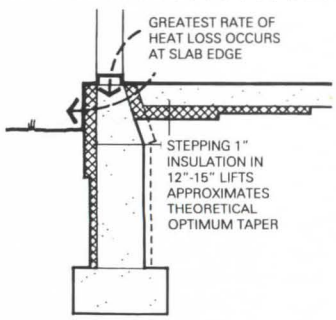
The other subject of debate concerns the value of a sand bed or other granular, compactible fill on top of the vapor retarder. Advocates argue – and ACI and Portland Cement Association publications state – that the sand bed allows excess water to drain from the bottom of the wet concrete and, by preventing puddling within the setting slab, improves curing conditions. This is supposed to reduce shrinkage cracking and curling of the slab edges. They also argue that the sand bed protects the vapor retarder from damage during the concrete pour. Support for the sand bed comes from an understanding of how concrete cures and from field experience. Opponents argue that there is no body of research to support the argument for the sand bed (nor is there any to oppose it) and that it unnecessarily drives up the cost of construction.

Use of the sand bed is ultimately a matter of judgment. "Forgiving" floorcoverings like carpet or parquet may not demand whatever extra benefit the sand bed offers. A very low slump mix may reduce shrinkage cracking within acceptable limits when poured directly on the vapor retarder; and care in layout and striking of control joints may satisfactorily accommodate shrinkage.

Frost-protected Slabs

According to the National Association of Home Builders' introduction to their translation of the Norwegian design guide, *Frost-Protected Shallow Foundations,* it was Levitt's use of slab foundations that inspired Norwegian investigations into how to build basementless houses without frost walls. The Norwegians first experimented with shallow foundations in 1955, and in 1969, the first major housing subdivision to use frost-protected design broke ground near Oslo. The Swedish building code approved frost-protected slabs with foundations extending only 14 inches below grade in 1967, and the practice is now commonplace throughout Sweden, Finland, and Norway. The NAHB reports that, for more than ten years, between 70 and 90 percent of all houses built in Scandinavia – more than 1,000,000 units – have been built on shallow foundations.

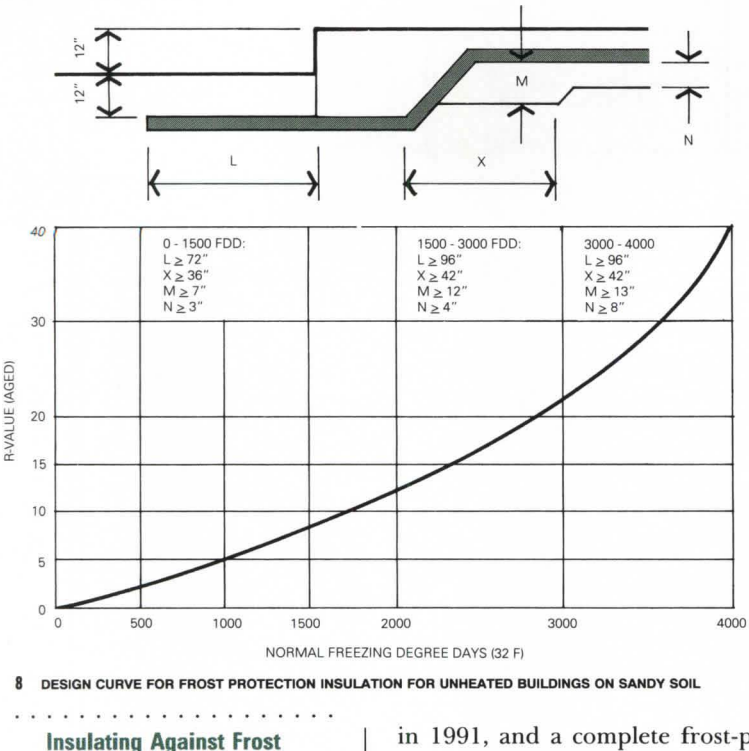
Canadians, who closely follow Scandinavian building technology, began researching the idea in the 1960s. Researchers Eli Robinsky and Keith Bespflug published a design method in 1973 that is often used for warehouses and industrial buildings. Presumably, the Canadian home building industry has been aware of the Robinsky and Bespflug method (frost-protected slabs are often used for garages and other unheated appurtenances), but Canadian home buyers are attached to their basements. The same could be said of Northerners in the U.S., but as the National Association of Home Builders searches for ways to increase the affordability of houses, they have singled out slab floors as one of the most promising cost-saving opportunities. With this in mind, and with the support of the Society of the Plastics Industry, NAHB has translated Norwegian design criteria, in preparation for developing a new procedure appropriate to the U.S. climate. The first results of this new work should appear sometime



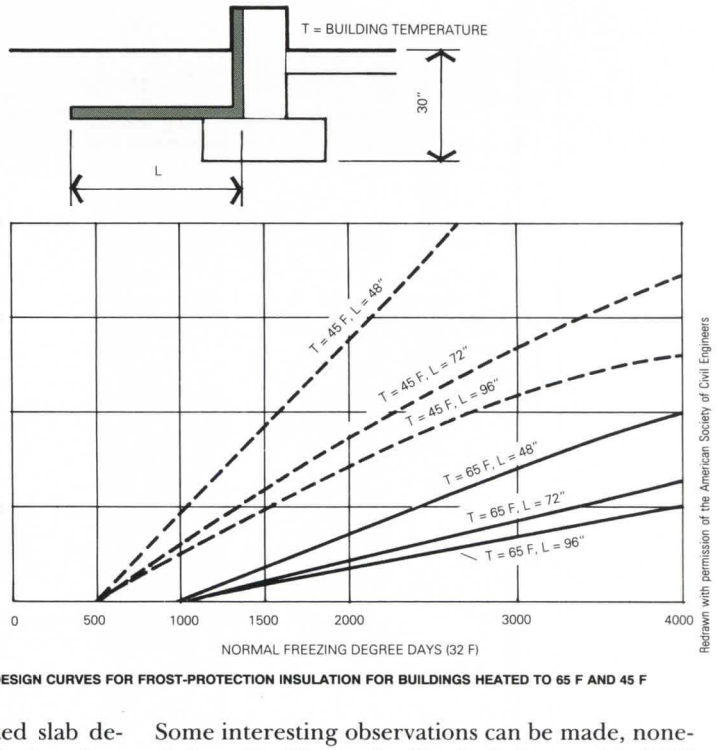
wide. For a narrow floor, as in a house, the optimal taper isn't linear: The optimal R-value at x must also take into account the width – in terms of the half-width, W (in feet):

$$R_x = (T_i - T_o)/Q_x - Wr[1 - (W - x)^2/W^2]^{0.5}$$

If the cost of installed rigid foam insulation were the same as the above-grade wall insulation, then Q_x would be the same as the wall, and R_x at the edge (where $x = 0$) would be the same as the superstructure wall R-value. Because the installed cost of foam board is more than that of batts in walls, the cost-effective slab edge insulation R_0 is less than the wall insulation. How much more effective is a tapered installation than the same amount applied uniformly? No one in the U.S. has studied this, but the point is clear: The slab edge above grade demands more attention than the subgrade portions of the foundation. Optimization is in the details.



8 DESIGN CURVE FOR FROST PROTECTION INSULATION FOR UNHEATED BUILDINGS ON SANDY SOIL



9 DESIGN CURVES FOR FROST-PROTECTION INSULATION FOR BUILDINGS HEATED TO 65 F AND 45 F

Insulating Against Frost

Frost heaving occurs only when soil temperature falls below freezing and there is sufficient moisture in the soil so that the expansion of freezing water cannot be accommodated within the void space between soil particles. Most frost prevention measures either remove water from the soil or locate footings below the depth of natural frost penetration. Insulation materials offer another approach – thermal control.

At a depth of 20–30 feet below grade, the ground temperature is constant and roughly equal to the average annual air temperature. Laying a theoretically perfect insulation (one that no heat passes through) on the surface would isolate the underlying soil from all daily and seasonal effects. If the insulation area were large enough, the "protected" soil under the insulation would take on the deep ground temperature.

This idea has been used for over two decades in designing roads and airfields in northern regions. The same idea can be applied to floors of garages, warehouses, and other unheated buildings by installing a uniform thickness of insulation under the slab. This must extend beyond the slab perimeter to prevent frost penetration under the edges. A "perfect" insulation isn't required; its purpose is to keep the soil from freezing, not in 1991, and a complete frost-protected slab design handbook is a more distant and final goal.

Method of Robinsky and Bespflug

The basic idea of a frost-protected slab is to place the perimeter insulation in such a way to heat the ground under the footings. Eli Robinsky and Keith Bespflug, both civil engineers, devised a set of six graphs for sizing insulation skirts. One pair for two different soil types applies to unheated buildings, and two pairs for two different footing configurations apply to heated buildings. Graphs for the more frost-sensitive soils are reproduced here (8,9). Robinsky and Bespflug assumed a deep ground temperature of 37 F in developing the graphs. This means that the results are increasingly conservative as the method is applied in warmer regions. Few areas in the contiguous United States have deep ground temperatures lower than 45 F.

The method gives insulation R-value as a function of local normal freezing degree days (FDD). Although the authors don't suggest a safety factor, some engineers like to use a "design freezing degree day" value that is 30 percent higher than the long-term normal. The authors state that narrower footings are less vulnerable to freezing than the wide ones used in the analysis, and they recommend increasing the thickness of the required insulation by 50 percent in the vicinity of the corners, for a distance from the corner equal to the width of the skirt. Elevating the slab above exterior grade level deprives the footing of some heat from the slab; although Robinsky and Bespflug don't provide guidance, this could be compensated for by increasing the thickness of the insulation on the stem wall.

The chief disadvantage of the Robinsky and Bespflug method is that the freezing index for most regions of the U.S. falls below the curve. Some interesting observations can be made, nonetheless. In Bismarck, North Dakota, with 2416 freezing degree days, the method requires R-5 insulation in a 4-foot width, or about R-3.5 in a 6-foot width. The cost-effective insulation (1) for Bismarck at the "high" fuel cost is R-10. For Minneapolis, the frost-free recommendation is about R-3.5 at 4 feet, while the cost-effective insulation is R-10 at 4 feet. These values are appropriate only for buildings maintained at 65 F throughout the winter.

While the Robinsky and Bespflug method doesn't determine what the least amount of frost-protection insulation may be for the U.S., it does suggest that this requirement is not greatly in excess of – and may be less than – the most cost-effective amount for residential construction. Given the same insulation requirement, the direct benefit of a frost-protected slab is the saving in excavation and labor, and cost of the depth of frost wall material.

There isn't much literature describing the performance of Canadian frost-protected footings. Engineer David Greeley recently reported on soil temperatures surrounding the foundation of a 26-unit senior citizens' apartment complex in Pefferlaw, Ontario (about 56 miles northeast of Toronto, 8341 HDD, estimated frost depth of 4 feet). The project's spread footings were insulated with a 4-foot-wide skirt of extruded polystyrene, 3 inches thick (R-15). The insulation was installed horizontally, covered with a polyethylene sheet, ¼-inch fiberglass protection board, and about 11 inches of earth. The full thickness of insulation was applied to the stem wall to a height of 6 inches above grade. The foundation system was figured as saving almost $220,000 over the next best alternative.

The January monthly average temperature for both 1987 and 1988 in Pefferlaw was about 18 F. Thermocouples were installed at numerous loca-

David Greeley

10 *Ground water 20" below the surface and extremely frost-susceptible soil made this shallow foundation for an apartment complex in Pefferlaw, Ontario (1320 FDD) an ideal solution. Note the widening of the insulation skirt at the corner.*

tions around the footings, both above and below the insulation. The soil above the insulation remained frozen throughout much of the winter, and was recorded as low as 10 F. Soil temperatures at the outside bottom of the footings, however, never dropped below the mid-40s.

Norwegian Building Research Institute Approach

Like the Canadian method, Norwegian design criteria apply to climatic conditions exceeding all but the most extreme in the contiguous U.S. Norwegian codes accept insulation on either the inside or the outside of a stem wall or grade beam, or at the exterior of a thickened-edge slab (11–12). The Norwegian Building Research Institute describes exterior insulation as most effective for slab thermal comfort and frost protection. It states that inside insulation is the usual practice, however, because it requires no special protection from ultraviolet light and physical damage. The vertical and horizontal skirt insulations are sized in relation to a 100-year-design frost index.

Although the Norwegians use a much more conservative freezing index than Robinsky and Bespflug, many of the other design criteria seem to be either less conservative or too difficult to compare. The NAHB reports, for example, that most climates within Norway require the horizontal skirt only at corners, and that most frost-protected slabs are insulated underneath, across their full width. This subslab insulation decreases in thickness with distance from the perimeter. While this follows the concept of optimally insulating against heat loss, it also reduces the heat loss rate where it is most needed in order to warm the footing. According to the NAHB report, "insulation is used under perhaps 40 percent of shallow foundation walls," and this is mostly extruded polystyrene. The Norwegian design procedure is described in full in the NAHB translation.

Conclusion

Swedes, Norwegians, and Finns have largely forgone basements in new house construction, in favor of more economical, frost-protected, slab-on-grade construction. Canadians haven't abandoned their house basements, but they first used frost-protected footings for non-residential slab construction over 20 years ago. As the U.S. explores ways of reducing construction costs, frost-protected slabs (and crawl spaces) deserve the attention of designers, engineers, and code-writing agencies.

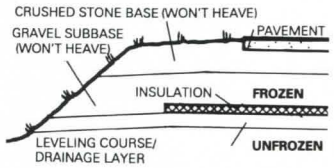
While the heating energy performance of frost-protected slabs has yet to be studied in detail by U.S. researchers, the amount of insulation required for frost protection appears to be reasonable in terms of cost-effective energy performance alone (over a thirty-year life cycle for houses). If subsequent research bears this out, then the excavation, material, and labor savings of shallow footings will be a bonus for insulating well.

The National Association of Home Builders and the Society of the Plastics Industry are working toward a frost-protected foundation design manual, complete with standard details for house construction, but this last phase of work hasn't yet begun. In the meantime, the method of Robinsky and Bespflug offers a valuable interim guide. Its major shortcoming is that its conservative standards, when applied in the contiguous 48 states, lead to overdesign that fails to capture the full economy of the technique: Not only does the method become more conservative when applied in regions of higher deep ground temperature, but an artificially high freezing index must be selected for most locations just to find a value on the curves. The insulation recommendations given here for cost-effectiveness (1), on the other hand, can be used immediately by anyone who wants to guess at long-term fuel costs.

8 *Frost protection insulation thickness for unheated structures depends on climate alone. Wall loads bear on the insulation through the slab, so a "highway grade" (40–120 psi) extruded polystyrene board is usually used.*

9 *Frost protection insulation thickness for heated buildings depends on indoor temperature, climate, and insulation width. Raising the slab above grade requires thickening the wall insulation (related to elevation) to compensate for diversion of heat from the footing.*

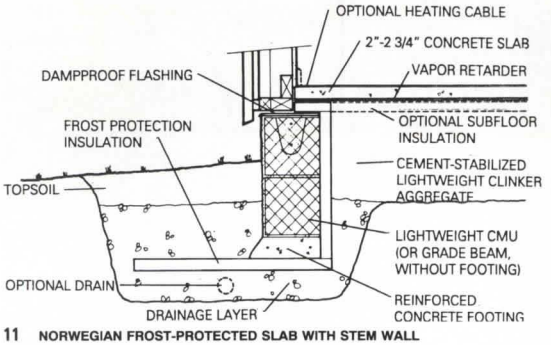
to maintain the annual average temperature. The necessary R-value depends on the deep ground temperature, the local freezing index (cumulative annual degree days below 32 F), and soil type.



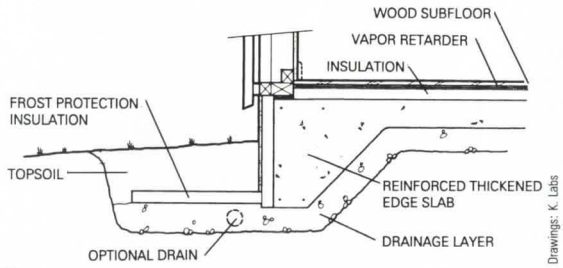
In principle, thicker insulations are required with higher freezing indices (more severe winters), lower deep ground temperatures (approaching 32 F), and soils with a high "conductive capacity" $(\rho ck)^{0.5}$, where ρc is the heat capacity and k is the thermal conductivity. Sandy and gravelly, relatively dry soils freeze sooner and deeper than wet, clayey soils, but coarse-grained soils don't generally heave when the moisture within them freezes. Fine-grained soils can heave, and are described as "frost-susceptible." Installing a gravel drainage layer beneath the insulation allows some freezing to occur under it without danger of heaving, and this requires less insulation. Frederick Crory of the Army Cold Regions Research Laboratory has suggested putting a gravel drainage layer on top of the insulation; while the gravel temperature would drop below

11, 12 *These typical Scandinavian house details are explained more fully in the NAHB's* Frost-Protected Shallow Foundations. *Departures from U.S. practice include use of lightweight concrete masonry and 2–2 ½" concrete slabs. Crushed stone fill is used for drainage and load distribution, in lieu of footings. The NAHB states that "insulation is used under perhaps 40% of shallow foundation walls."*

13 *The Alaska Craftsman Home Program built this demonstration house with a frost-protected crawl space in Wasilla (near Anchorage, 2520 FDD, 10,800 HDD) last summer. The footings bear on 12" of crushed stone on top of 4" of 25 psi extruded polystyrene. The diagonal skirt flares out and meets the underlying insulation to envelop the entire foundation.*



11 NORWEGIAN FROST-PROTECTED SLAB WITH STEM WALL



Drawings: K. Labs

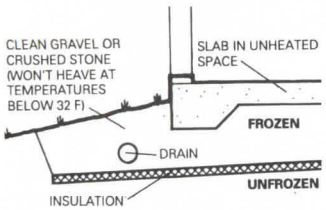
12 NORWEGIAN FROST-PROTECTED THICKENED EDGE SLAB

Alaska Craftsman Home Program

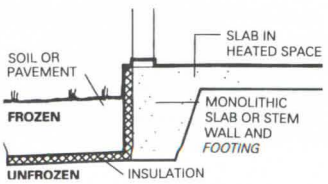
13

Insulating Against Frost *cont.*

freezing, there wouldn't be enough moisture to heave.



Heated buildings don't need to rely on the deep earth to keep the soil under the insulation from freezing. Exterior insulation skirts "trap" heat lost from the slab perimeter. The required insulation thickness depends on the freezing index, soil type, building maintenance temperature, slab edge detail (a poorly insulated edge deprives the foundation of some heat lost directly to the outdoor air), and deep ground temperature. Many different configurations and combinations of insulation thickness and width can be used. Theory suggests (preceding sidebar) that – for maximum efficiency – the insulation thickness could decrease with distance from the footing, but this has not been analyzed.



Perhaps there's some irony that slab foundations, popularized by William Levitt's generation 40 years ago, may find their way back to the U.S. by way of Scandinavia. A larger irony is that they learned from Levitt's generation at the beginning, while it has taken us more than two decades to catch on to their advances. **Kenneth Labs** ■

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Technics Topics

William Thompson explains new computer techniques for making photorealistic presentations.

When John Burgee Architects with Philip Johnson designed a new science and engineering library for the Ohio State University, the campus architects were faced with the problem of forging a consensus for the proposed structure among university faculty and staff. They would want to know how the new library would alter campus spaces, but they had no experience in visualizing a project from plans and elevations. By taking advantage of hardware and software purchased for visual research at Ohio State's school of architecture, the campus architects found a way to communicate with their constituency through the technology of computer imaging.

1

2

Photos: Ohio State University

Proposal for the Ohio State University Engineering School library: A video image of the site was imported using a video camera attached to a Compaq 386 PC with a TARGA 16 imaging board and enhanced using AT&T's RIO imaging software (1). AutoCAD was used to make a 3D wireframe model of the new building shown at left. The architects used the TIPS application by Truevision to "clone" materials from the old building to render in CAD (2).

Computer imaging is now gaining a toehold among architects; within a very few years, it may become an indispensible tool of practice, for purposes ranging from design development to marketing. The personal computers and CAD software already used by many architectural offices provide a head start toward imaging capabilities. At the heart of image processing is software that allows a digitized photograph to be manipulated by an electronic "paint" operation. Gray granite can be changed to pink, foreground objects removed, or entire floors deleted from photographs of existing buildings. Even more important for designers, a CAD wireframe or solid model can be imported into the site photograph and rendered to create a highly convincing simulation of a proposed building design. In this respect, computer imaging resembles the presentation technique of stripping photographs of architectural models into site photos; yet the truly revolutionary aspect of CAD-based computer imaging is that the CAD image can be rendered with "real" brick, glass, and concrete "cloned" from existing buildings in the digitized site photograph. This is made possible by the software's ability to cut and paste sections of the image. Textures, materials, and design elements can also be imported from photographs in architectural magazines, catalogs, and other sources. The result can be virtually indistinguishable from built reality and is far

(continued on page 41)

Tech Notes

The *Third International Symposium on Roofing Technology* will be held April 17–19 in Montreal by the National Institute of Standards and Technology, The National Roofing Contractors Association, the National Research Council Canada, and others. NRCA, Chicago (708) 299-9070.

***Masonry: Components to Assemblages,* STP 1063, contains 28 papers from an ASTM symposium. Topics include mortars and grouts, stone slabs, seismic performance, water leakage, lab testing, and field investigation. ASTM, Philadelphia (215) 299-5585, 433 pp., $42.00.**

***The Pantone Book of Color* by L. Eiseman and L. Herbert names 1024 color chips in six languages. Color dictionaries are rare, and this one is being marketed to your clients. Abrams, Inc. New York (212) 206-7715, ext 482, 160 pp., $27.50.**

The Flat Glass Marketing Association's *Glazing Manual* discusses glass types, wind loading, energy and acoustical performance, shims, gaskets, and glazing methods. FGMA, Topeka, KS (913) 266-7013, 78 pp., $22.25.

The *Advanced Residential Construction Conference* will be held in Springfield, MA, on March 1–3, by the Northeast Sustainable Energy Association. Topics will include energy, moisture, indoor air quality, and environmentally responsible development. NESEA, Greenfield, MA (413) 774-6051.


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Photos: Harlan Hambright

Addition to the Georgetown Inn, Washington, D.C. (3,4): Computer renderer Harlan Hambright scanned a photo of the existing inn with a Sharp JX450 color scanner, and used Letraset's Color Studio on a Macintosh system to "clone" existing materials onto a wireframe model created in MacPerspective.

(continued from page 39)

quicker (and cheaper) than building a model.

Creating the Background

The first step in creating a simulation is importing the site photo into the computer and converting it to a digital format that will allow it to be manipulated. The most inexpensive inputting method is to videotape the site and input the video images via an ordinary VCR linked to the computer through an integrated circuitry card called an imaging board.

Far better resolution is available from slides or prints of the site. Inputting these requires digital scanners such as those manufactured by Apple, Hewlett-Packard, and Howtek for photographic prints, and transparency scanners like those available from Truvel, Nikon, Howtek, and Barneyscan for color slides. Scanners vary as to resolution and color capability. Image quality of color scanners is related to the number of colors the scanner can produce, which, in turn, depends on its number of bits; 24-bit scanners are capable of interpreting 16.7 million colors, producing what is considered "true" color. Ohio State has recently purchased a 24-bit scanner because "resolution is the key to presentation," as Ohio State architect Barbara Koelbl puts it.

Adding CAD Images

For Harlan Hambright, of St. Simons Island, Georgia, a 24-bit color scanner was crucial to his rendering of the Georgetown Inn addition in Washington, D.C. Hambright, one of a handful of architectural professionals who provide computer imaging services to other architects and developers, uses a Macintosh-based system to create presentations for clients and review boards.

The Georgetown Inn addition began with Hambright's photographing the site and scanning a print into his system. Then, using the site coordinates as a guide, Hambright created a three-dimensional wireframe of the proposed addition in MacPerspective. He then saved an appropriate perspective of the wireframe as a PICT file, which enabled him to import it as a 2D image into the digitized site photograph. A paint program helped him to copy or "clone" actual bricks, dormers, and other elements from the existing inn to the façade of the wireframe addition. The addition is not parallel to the existing inn for reasons of the Georgetown street layout, but the software allowed Hambright to skew and rescale the bricks and dormers into proper perspective. During the paint operation, foreground elements such as the street sign had to be protected with a mask layer. Shadows were applied by eye. Elapsed time for the operation: seven hours.

Once the rendering is finished, it must be output as a slide, negative, or paper copy. The most inexpensive option, and one that yields perfectly satisfactory results, is to photograph the image directly from the screen using a tripod-mounted 35mm camera (P/A, Nov. 90, p. 130). Slightly better resolution can be obtained using a film recorder such as the AGFA SlideWriter used by Hambright, which produces either slides or negatives. Color printers will produce paper copies.

Originally, the Georgetown Inn addition had one more floor than the version shown here, which the local review board rejected as being out of scale with adjacent residences. Hambright quickly trimmed a floor from the computerized image and the project was resubmitted successfully.

Such episodes illustrate the relevance of computer imaging to zoning commissions, review boards, architects' clients, and other non-designers who are unaccustomed to reading plans and are wary of the artistic license inherent in hand renderings. The verisimilitude of the the computer image can become a factor in building consensus; even if not all viewers like what they see, the realistic computer image communicates the same concept to everyone, so that the discussion can be focused.

Necessary skills

The learning curve for computer rendering varies according to the level of skill desired. Barbara Koelbl was able to render a simple building addition project after only a few hours' practice; Hambright, who already had years of experience stripping models into photographs, practiced for three to four months before he felt comfortable charging $100/hour for imaging services. Koelbl stresses that electronic rendering is essentially manual and that doing it draws on the rendering skills and knowledge of perspective and scale in which architects are already schooled.

"One reason some architects have been slow to pick up on CAD," says Hambright, "is that the end product of a CAD-generated project often looks like a student's first- or second-year design studio presentation." Video imaging, as a complement to CAD, has the potential to change that. While no one claims that computer imaging will entirely supplant model building and hand rendering, it certainly offers the capability of creating project simulations of extraordinary accuracy and persuasiveness.

William Thompson ■

The author is a senior editor at Landscape Architecture *magazine.*

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Practice

C. Jaye Berger describes the issues that must be resolved when a joint venture is formed.

Law: Joint Ventures

Joint ventures are a popular form of doing business and seem to be increasing in popularity. They are generally formed when a firm is doing business in a state or locale other than its home base, when a small firm needs a larger firm to tackle a big project, or when a "majority" firm joins forces with a minority-owned firm on a public project.

Essentially the two firms come together to form an entity like a partnership, but only for purposes of working on one project. It is often run by an executive committee like a Board of Directors, and has its own name and includes the words "joint venture."

The parties must negotiate all the terms of the joint venture. They are not usually 50/50 arrangements, but can be. Sometimes the percentages are dictated by the governmental agencies for the project; other times they are based on each party's contributions or bargaining strength. If a prominent architectural firm joint ventures with a small, local firm, the percentages will be tipped in favor of the larger office.

The two firms must decide how many employees from each will work for the joint venture. They must also agree on a principal-in-charge (so that they have a representative who can answer questions) and on how the profits and losses will be shared.

The financial aspects require careful planning, especially for banking. The joint venture will have at least one bank account, separate from each firm's other accounts. Two signatures should be required for checks, one representative from each firm, and separate books and records should be kept and be available for review by either firm.

The joint venture will last for a designated period of time, usually until the project is complete, 120 days from final payment, or for the period of the longest applicable statute of limitations.

Each firm can be legally liable for the other's mistakes; there is joint and several liability. However, certain changes can be negotiated such as liability up to certain percentages or indemnification, depending on whether state law allows it.

As with any contract, the parties should consider in advance how they will handle disputes. Since the issues can be complex and costly to litigate, I often recommend arbitration. Generally disputes can be resolved quickly and less expensively than in the courts. However, certain tools such as injunctions are available only through the courts.

The importance of contracts detailing the agreement cannot be over-emphasized. To avoid future problems, many issues need to be negotiated, resolved, and drafted into legal language before work begins. All too often joint ventures wind up having complex disputes and few dollars left to litigate them.

C. Jaye Berger ■

The author is the founder of Law Offices C. Jaye Berger and is a New York City attorney specializing in building construction, real estate, and environmental law. She is currently writing a book about hazardous substances in buildings.

Managements: Financial Indicators

Effective firm management requires timely accrual-basis financial statements that show the performance of the firm and these require analysis. There are several methods of analysis, such as 1) looking at variances of absolute numbers (Did we earn more than or less than we projected for the period?); 2) looking at relative values or relationships between numbers (So we earned more revenue and profit, but did we perform as well as we should have with the added volume?); 3) looking at the movement or trends of the numbers over time (We have been under our targeted revenues for three of the last four periods; however, we are still all right on a cumulative basis for the ten months of the year).

As the economics of practice begin to get tougher once again, dependable statements and accurate performance assessments become essential. Ratios or relative values (number 2 above) are often more meaningful than absolute values in explaining what is going on in the firm. A firm has to meet a targeted volume to keep staff gainfully employed, but given that volume, what is happening internally?

Two of the most important ratios to monitor this are the chargeability of staff and the net multiplier (also called the effective multiplier). A firm cannot hope to perform its services (and request payment from the client) if it does not apply its staff to project work,

(continued on page 45)

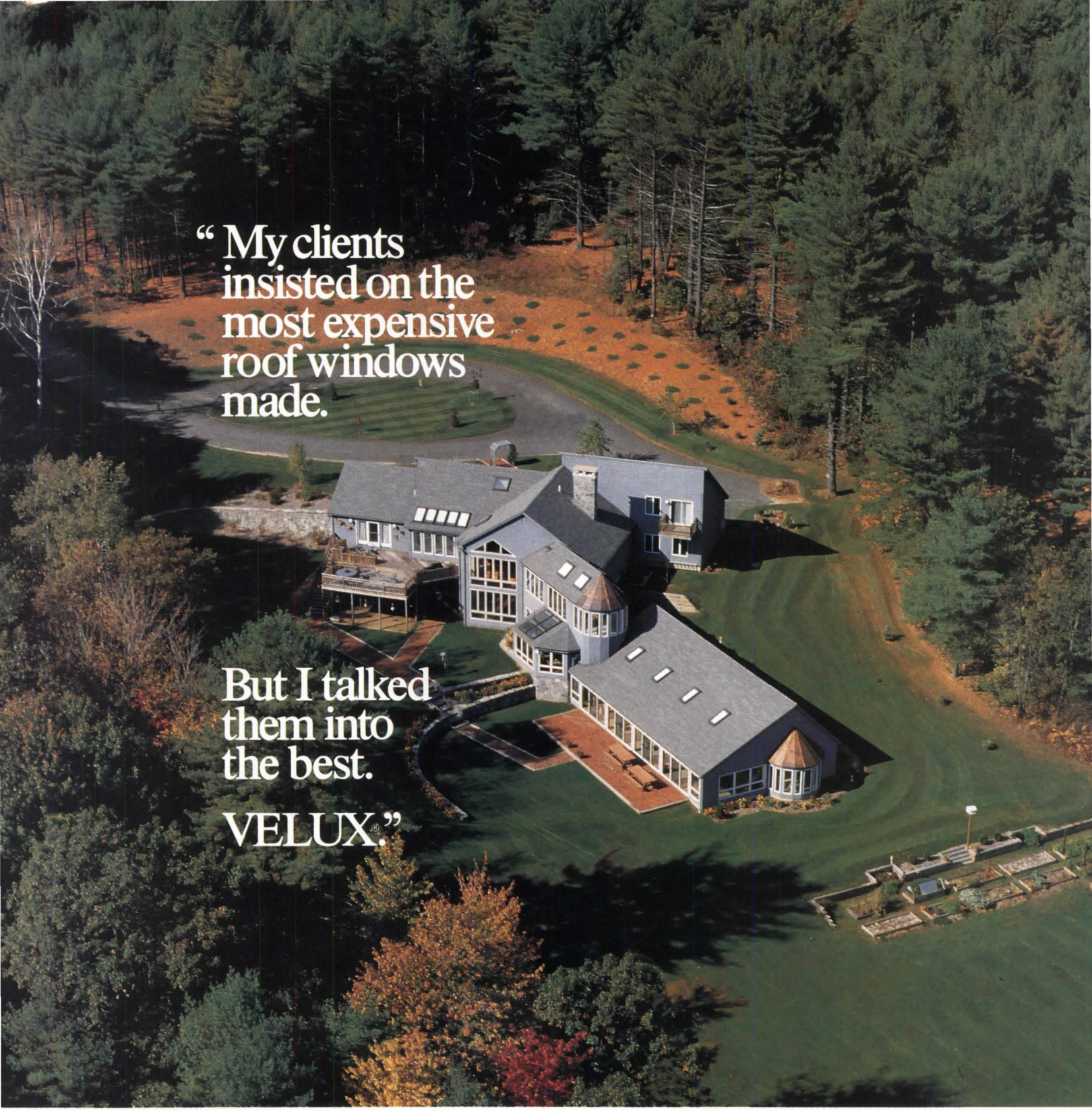
Practice Points

An increased demand for architectural and engineering services has been included in the 1991 budgets of various federal agencies. The American Consulting Engineers Council reports that the Navy Facilities Command, the National Parks Service, and the General Services Administration are among agencies with increased capital budgets. Call (202) 347-7474 for information about the Council's newsletter.

The AIA will begin publishing the Environmental Resource Guide Newsletter this month. Subjects covered will be environmental materials analysis, regulation updates, trends, and features on architecture. One-year subscriptions for AIA members will cost $50. Call (202) 622-7463.

Creating an office database to keep track of work done on past projects can save research time on future projects. *The Guidelines Newsletter* suggests keeping three databases: office management, technical, and a design and planning file that tracks design solutions for specific pieces of buildings. Contact the newsletter at (800) 634-7779.

Growth is expected in the development of resort hotels and master-planned resort and residential communities – throughout the 1990s. The *Real Estate Newsline* ((213) 277-0880) reports that this is a result of the increasing popularity in Europe and in Japan of international travel.



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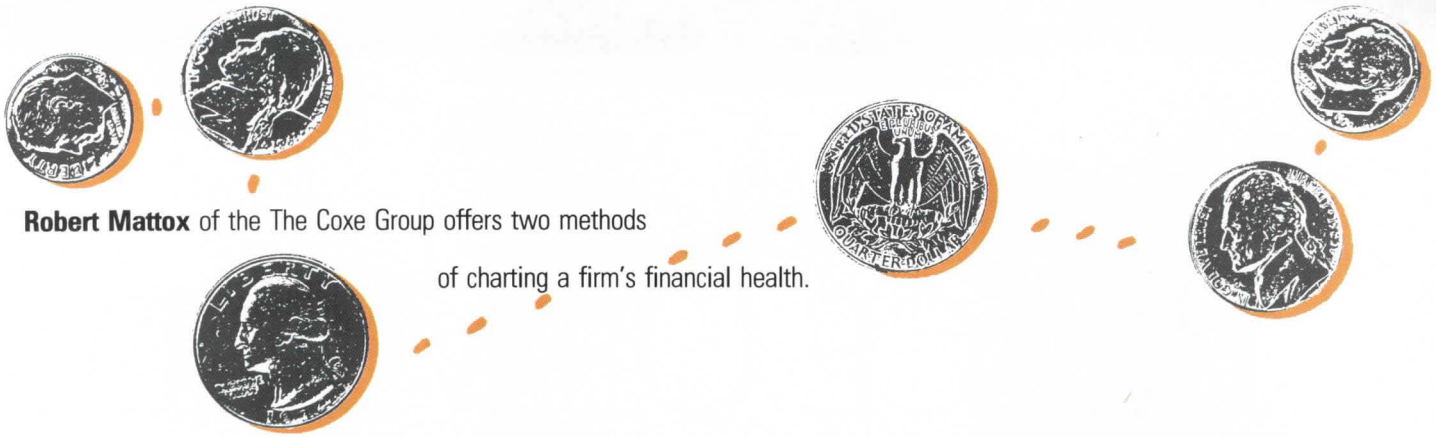

Robert Mattox of the The Coxe Group offers two methods of charting a firm's financial health.

(continued from page 43)

and one of the most commonly used measures of this is chageability of utilization of staff. Chargeability can be developed in two ways with many variations. Fundamentally, it is the ratio of time or cost charged to projects relative to the total time or cost charged to all firm activities. The variations arise from different views as to what time or cost is included in each of the components. Time charged can be by all staff or just "technical" staff; total time can be based on standard working hours, all time including overtime, hours less benefit time, etc. The simplest measure is project-charged time of all staff related to the total time charged by all the firm's staff. The ratio based on time (time chargeability) is interesting and helpful from a staff scheduling viewpoint; however, the ratio based on cost (payroll chargeability) is more meaningful for financial analysis: How much of total payroll is going into projects (whether or not it is ultimately generating revenue being billed)?

Historically, about 64 to 67 percent of total staff hours have been charged to projects in firms that have been profitable. That range has not varied much over many years, despite changes in fee structure, overhead costs, and the introduction of CAD. The payroll chargeable ratio based on cost will typically be one or two points less than the ratio based on hours because the cost of principals and other managers is greater and they typically charge more hours to management and business development and have a lower personal involvement in projects.

Once time is charged to projects, the second most important factor is the net (or effective) multiplier, which indicates how much revenue is being generated per dollar of project labor cost (i.e., net revenue earned divided by project labor). For example, if $300,000 in net revenues is earned (not necessarily billed) from a firm's labor cost of $100,000, the net or effective multiplier is $3.00–$3.00 for each $1.00 spent in labor on the project. These multipliers must be sufficient to pay for labor and overhead and to provide profit.

Confusion can arise when a firm's chargeability and net multiplier vary period-to-period, sometimes in the same direction, sometimes in opposite directions. There is a relationship that combines the effect of the chargeability and net multiplier ratios in a way that can be useful. We will call this the efficiency multiple. We define it as:

$$\text{net revenue efficiency multiple} = \frac{\text{total staff}}{\text{labor cost}}$$

There are a couple of significant reasons for using this ratio. It reflects the efforts for the total staff in producing the firm's work. After all, the firm really is a complete team and is only effective as a result of everyone's efforts, including "nonchargeable" time for management, business development, accounting, etc. These hours may not be chargeable, but all hours must be productive towards acquiring work and making a profit on that work. The chargeable time would not produce volume and profit without the supporting services of other staff.

This ratio generally is more constant, and variations can be explained in terms of chargeability and net multipliers. It can be viewed as the combination of these two other ratios:

$$\text{efficiency multiple} = \text{net multiplier} \times \text{chargeability ratio}$$

$$\frac{\text{net revenue}}{\text{total staff labor cost}} = \frac{\text{net revenue}}{\text{project labor cost}} \times \frac{\text{project labor cost}}{\text{total staff labor cost}}$$

Simple math shows that in the formula above, the project labor cost in the net multiplier and in the chargeability ratio can cancel each other, and the result is net revenue divided by total staff labor cost. This efficiency multiple explains why one firm with low chargeability and high multipliers can be as profitable as a firm with high chargeability but lower multipliers. These differences often reflect the type of work the firm does or its management style: One firm may have larger support staffs and more automation that does not get charged to projects; the result may be that the "chargeability" of staff is low, but the work is performed and revenues earned at seemingly higher rates.

By way of illustration, assume a firm's annual budget establishes these relative values:

Net Revenue	$3.13
Project Labor Cost	1.00
Overhead Ratio	1.50
Profit	.63
Payroll Chargeability	.65
Net Multiplier	3.13

The efficiency multiple = net multiplier (3.13) × payroll chargeability (.65) = 2.035. During the year, this level of profitability can be achieved within a range. In this illustration, to maintain the same efficiency ratio for the total firm, a firm must increase the net multiplier by about .05 for every drop in chargeability of 1 point.

A firm should establish, as part of its annual budgeting process, the calculated net multiplier and chargeability ratio. Add to those factors the efficiency multiple and monitor the three factors together (among others) for each accounting period and for the year to date cumulatively. It will provide added insight to your operations. **Robert Mattox** ■

The author is with The Coxe Group, a design management consulting firm headquartered in Philadelphia.

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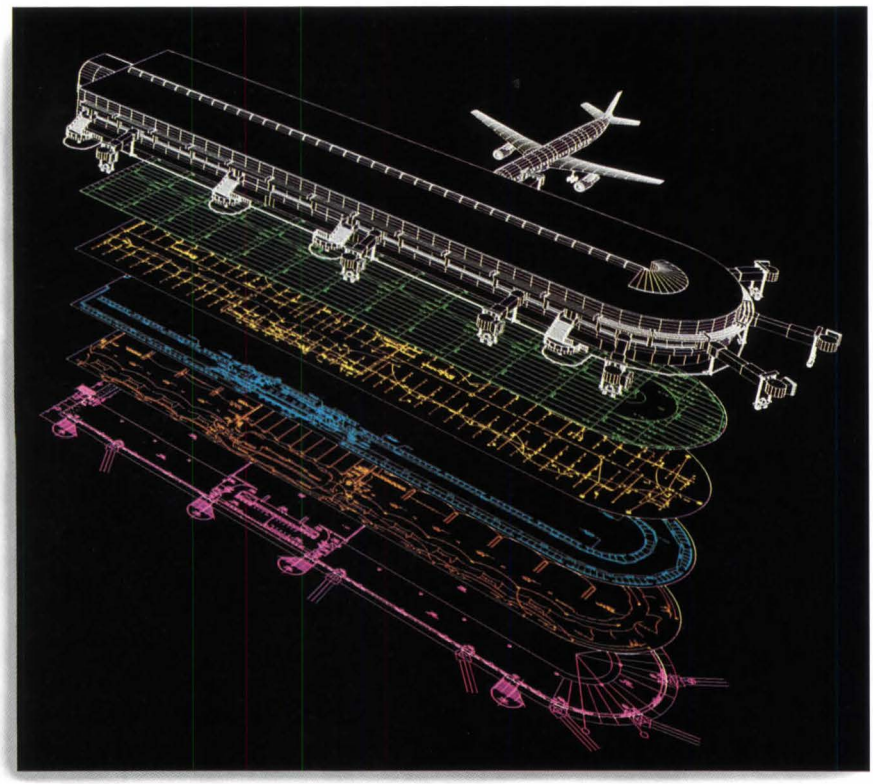

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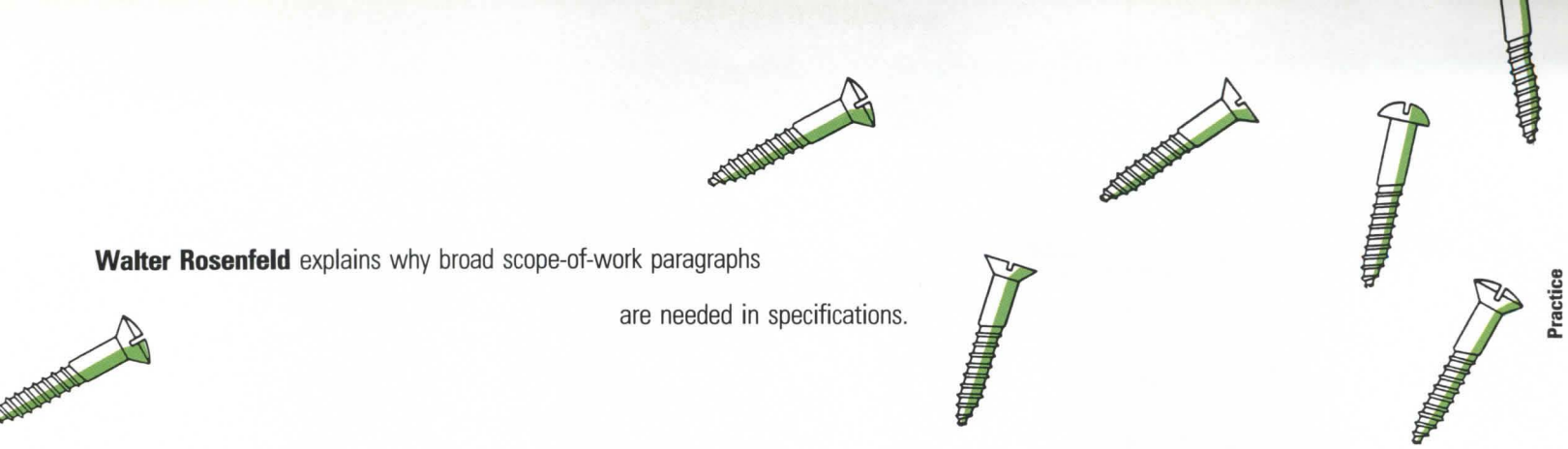

Walter Rosenfeld explains why broad scope-of-work paragraphs are needed in specifications.

Specifications: Killer Clauses

Though architects and specifiers may not like it, specifications for bidding and construction under lump-sum contracts need to define the scope of work as well as to describe materials and procedures required to build a particular building.

True, Part 1 of each specification section may have a scope paragraph for that purpose as well as a paragraph covering related work specified elsewhere, each of which lists things to be done or not to be done by the trade to which that section is addressed. But, in putting on paper the hundreds of products, processes, and materials required to build the project, specifiers, architects, and owners worry that something will be left out, that some item needed will fall between trade responsibilities, that some essential element won't be "owned" because it hasn't been specially mentioned. Not all such items surface during specification preparation or even during the bidding period, and contractors do take advantage of such omissions to earn extra money after work is under way.

As a consequence, clever specifiers have developed inclusive "catch-all" paragraphs for many trades who habitually claim that necessary parts are missing, unidentified, unknown, or undecided, and must be paid for separately since they were not included in the bid. Contractors call such paragraphs "killer clauses" and often consider them unfair and unreasonable – signs of the architect's vagueness, lack of thoroughness, or indecision. That's understandable from their cost-conscious point of view, but from a more objective viewpoint, the intent or inclusion clauses may not be unreasonable at all.

Example: A door shown on several drawings is inadvertently omitted from the door schedule (or from the hardware schedule). It would be difficult for the contractor to argue that the door was not intended to be included in the contract. But what about the finish hardware for it? After a few unexpected claims for hardware extras, specifiers tend to insert something like this in their hardware sections (08710): "The hardware supplier shall furnish all finish hardware required for the Work and not furnished under another section. Where specific hardware is not indicated, provide the same hardware required for similar doors elsewhere in the building." With that backup, the question later on is not "Do we own any hardware for this door?" but rather "How much extra will the revised (correct) hardware cost?" It's usually much less than an entire hardware set.

Painting (09900) presents similar problems, particularly in remodeling where some areas are partly disturbed or rebuilt under the contract. It's usually the intent to paint everything, whether scheduled or not, and not to argue about each surface of each room. (After all, what users see most after completion is the paint on the surface). A typical clause might be: "Paint all surfaces to remain exposed in the finished work whether specifically indicated or not, except shop- and factory-finished items and those specially indicated not to be painted. No new surface shall have less than one prime coat and two finish coats: No existing surface shall have less than one finish coat applied under this Section."

For Miscellaneous Metal Work (05500): "All light iron and miscellaneous metal work not specified under another section but required for the work shall be provided under this section whether or not specifically referred to herein." Rough Carpentry (06100), Building Insulation (07200), and other sections present similar situations for which similar responses have evolved.

Killer clauses generally cover miscellaneous and often minor items where the level of detail or the difficulty of itemization might eventually lead to controversy and dispute in the field. It's not unreasonable for either the architect or the contractor to assume that the owner wants to buy the whole building for the contract price without paying extra for parts ordinarily provided and essential for completeness, and it's not unreasonable to ask bidders who have intensive experience in building construction to accept responsibility for including all the required work of their trades, as long as the intent is clear and omissions do not give an advantage to less conscientious bidders.

No artchitect or specifier can realistically claim to produce perfect work, and contract documents are rarely without some omission, discrepancy, or other flaw (alas), though perfection is certainly the goal. In the real world, stated intentions do count, even with contractors who claim to have bid only on "plans and specs." Clearly the architect doesn't want to hear contractor complaints at job progress meetings such as "How should I know the masonry openings were supposed to have lintels?" or "Are you telling me I have to paint the ceilings too?" charming though they may be in their feigned naïveté. Killer clauses are simply the specifier's way of trying to deal in advance with a contractor's inveterate tendency to search for loopholes (extras) in the specifications, a tendency which can easily lead to adversarial relationships during construction administration.

Until there is enough time and money for every bolt, clip angle, and bit of blocking on a building to be fully drawn and noted, there will always be a need for specification language which defines the scope of a section's work to include all the necessary parts. And until cost-plus contracts are the only kind being entered into (and maybe not even then) will contractors want to get every possible extra out of the job. That's how long "killer clauses" will be needed and will continue to appear in contract documents.

Walter Rosenfeld ■

The author is a consulting architect in Newton, Mass.

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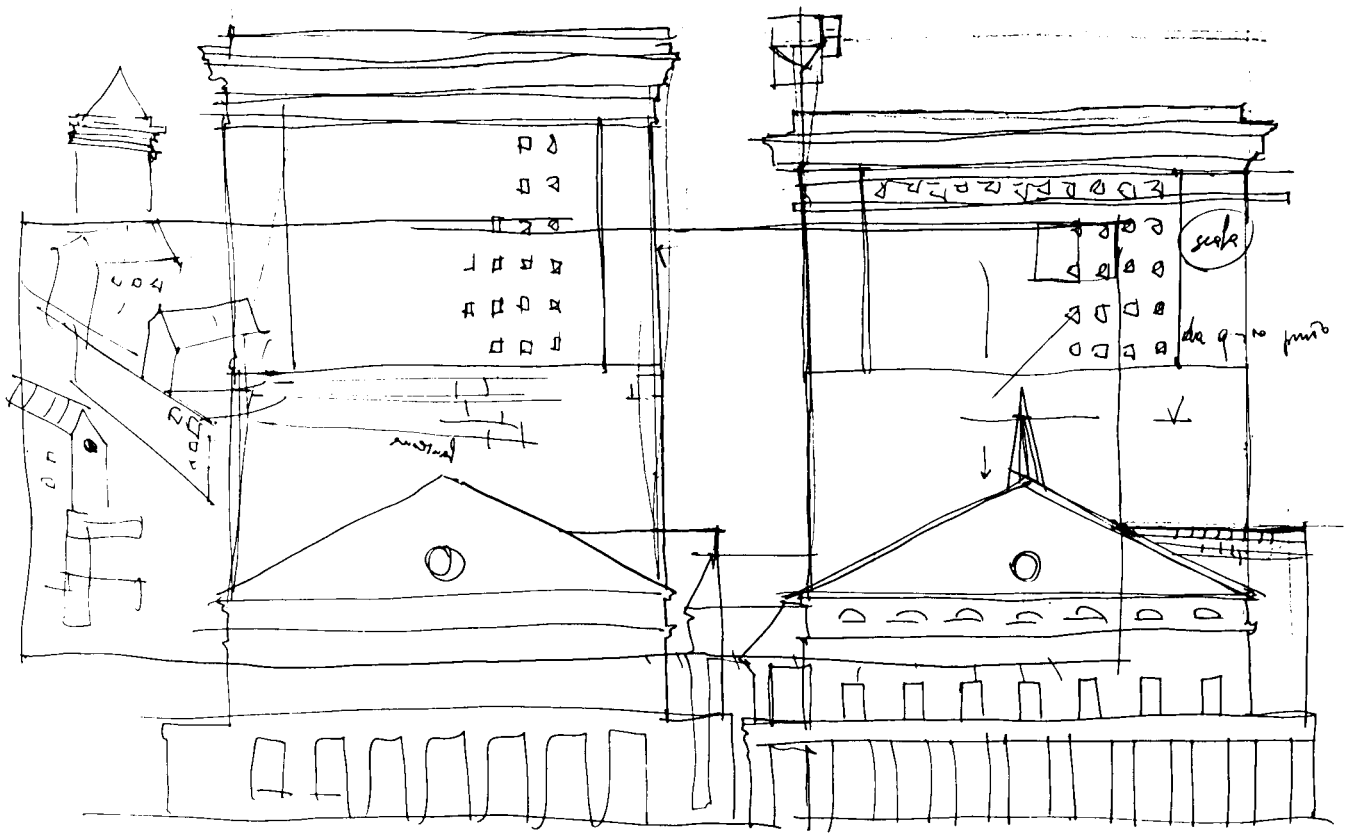
This month's design features comprise diverse projects by Aldo Rossi in Italy,

Tadao Ando and Zaha Hadid in Japan,

and Barton Phelps and John Blatteau in the U.S.



Aldo Rossi's design studies for the Carlo Felice Theater in Genoa.

The Architect of the City

The Carlo Felice Theater and San Cataldo Cemetery by Aldo Rossi

render humanism in built form.

In the following pages two major works by Aldo Rossi – a newly rebuilt opera house for Genoa and the expansion of the cemetery at Modena – are shown side by side, though in reality they span two decades of the architect's progress. Both are resolutely urban responses to the spirit and body of each place. But this is to be expected: The city has always been Rossi's passion and discipline, his school and wellspring of architecture. It isn't often that one can see in contemporary work the traces of 25 years of rather consistent pursuits. Nowadays, we are accustomed to much flightier architecture. Rossi's position, as it has evolved since the publication in 1966 of his seminal treatise, *The Architecture of the City*, is especially interesting in the way it reflects on the conundrums bedeviling American architecture at present.

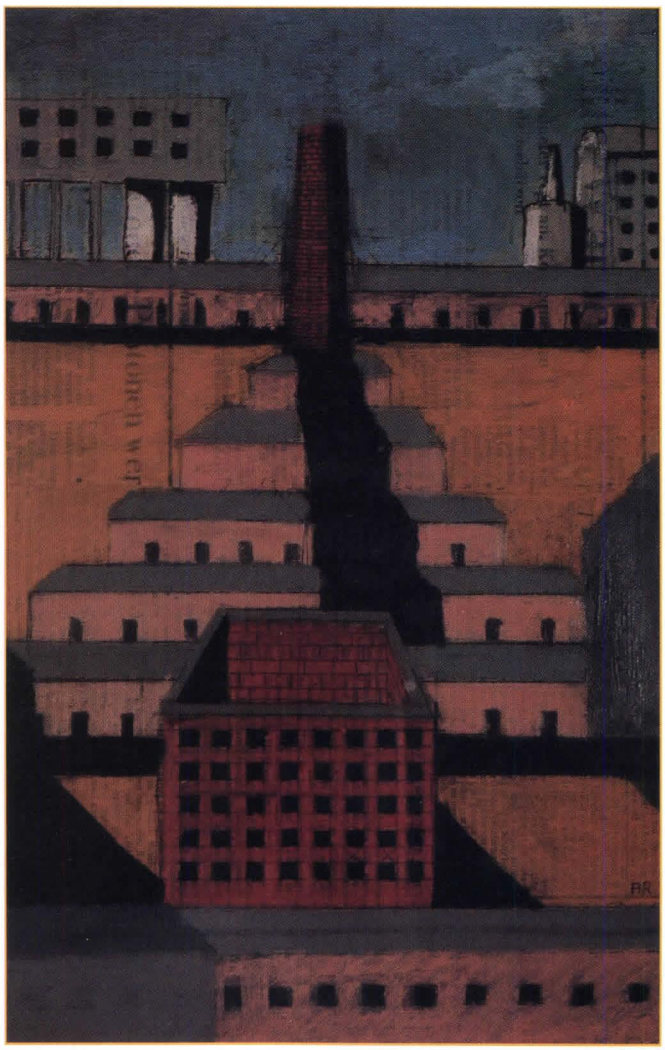
For example, juxtaposing Rossi's Rationalist premises (however colored by instinct and association) to the iconoclastic tenets of Deconstructivism (however fragmentary) lays bare a fundamental ideological choice every architect must now make, whether consciously or by default: to view oneself as part of a continuous collective culture – or to deny it. "I am unquestionably deformed by relationships with everything that surrounds me," wrote Rossi in *An Analogical Architecture* of 1976, borrowing Walter Benjamin's phrase to describe the thought central to his work.

No strain of Deconstructivism has yet proposed a substantive urban strategy, the buildings of this vanguard being so utterly preoccupied with themselves – the very opposite of Rossi's distilled "inventory" of familiar building types, and his effective use of "background" buildings *en masse*.

Such a comparison raises, willy-nilly, the dilemma of artistic invention. In an essay written in 1972 addressing the problem of building in historic centers, Rossi was unequivocal: "Invention, if disconnected from [the] growth of architecture upon itself, is always sterile, abstract, insubstantial." And while Rossi's disciplined approach to creating form is not without its intuitive, emotive side, even his original expression is never inventive for its own sake. Instead, it plays on recurrent themes that are rooted in common ground and shared history. This is an artistic stance that values communication; in this it is closer to Classical traditions of art than it is to contemporary movements, which prize the artist's prerogative to be ambivalent, abstruse, even arbitrary.

Rossi's pursuit of comprehensibility is particularly relevant in light of the globalization of Western architecture in recent years. In Rossi's design, the "universal" type is necessarily modified by regional characteristics. So while certain material and proportional attributes of the architecture carry civic or domestic connotations that are globally received, other aspects, responsive to local custom, indigenous materials, and peculiarities of the climate and geography, make it the product of a particular time and place. Rossi's method to attain this balance is more interpretive than derivative: Through juxtaposition to other elements or conscious variance with tradition, the meaning of the "archetypal objects" is changed. More often than not, the familiar forms are loaded with the architect's own social commentary.

By contrast to the latter-day dismantling of any semblance of collectivity, Rossi's opera house and cemetery strive to heal the broken body, restore the institution, reconstitute the public place. Surely such architecture must be understood as an act of faith. **Ziva Freiman** ■



Rossi's drawing of the San Cataldo cemetery expansion, above. The rebuilt Carlo Felice Theater, right, with Barabino's 19th-Century pronaos in the foreground.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The Opera House forms one side of Piazza Ferrari, with the restored Accademia in the foreground (1). The pronaos (2, center), and masonry portico (3, lower right) are the only surviving elements of the 1828 opera building. The portion of the theater wrapped by the portico was accurately reconstructed from drawings by Barabino. Bronze beading at the top of the new tower's rusticated plaster base (4) marks the height of Barabino's tower.

Teatro Carlo Felice

The reconstruction of Genoa's opera house can be seen as a crucible in which the architect's convictions were tested. For Aldo Rossi, it is a building that caps 30 years of architectural, urban, and humanitarian thought.

The historic theater had lain in ruins for almost 40 years when the city resolved – after decades of squabbling and two thwarted schemes – to rebuild it. In 1981 the engineering firm of Mario Valle won a design competition with a scheme by architects Ignazio Gardella and Aldo Rossi. Powerful cultural, geographic, and urban determinants (those conditions that for Rossi have always constituted "the study area") created a complex juncture at which to build.

The original opera house, completed by Carlo Barabino in 1828, defined one edge of Genoa's Piazza Ferrari. Between 1942 and 1944, the theater was bombed several times. By war's end, its wooden parts had burned, its metal members collapsed. Only portions of the masonry walls survived, as did Barabino's Neoclassical pronaos and stone portico, the only original elements to be incorporated into the new building that now occupies the site.

Gardella and Rossi elected to preserve the old building's footprint and to recreate faithfully the portion of the 19th-century theater to which the pronaos and portico had been attached. More significantly, the architects pierced the ground floor with a broad public passage through the building, which connects Piazza Ferrari to the Galleria Mazzini, Genoa's smaller, poorer version of the grand Galleria in Milan.

The public thoroughfare had appeared in two earlier failed schemes to rebuild the theater. The first, a 1949 competition-winning design by Paolo Chessa, was slowly strangled by red tape and dropped in 1959, when the exasperated Chessa lost a suit against the city. In the early 1960s, Carlo Scarpa was brought in, without competition, to design the second scheme. His design, presented in 1968, was also stalled interminably and laid to rest upon Scarpa's death in 1978.

In the scheme by Gardella and Rossi, the main auditorium stretches out above the public passage. Tiered foyers leading to it are pierced by a conical lantern, which, like an inverted lighthouse, sends daylight down to the "street." Above his opera stage, Barabino had incorporated a flytower – a functional and typological innovation that allowed stage scenery to be raised instead of folded. A new

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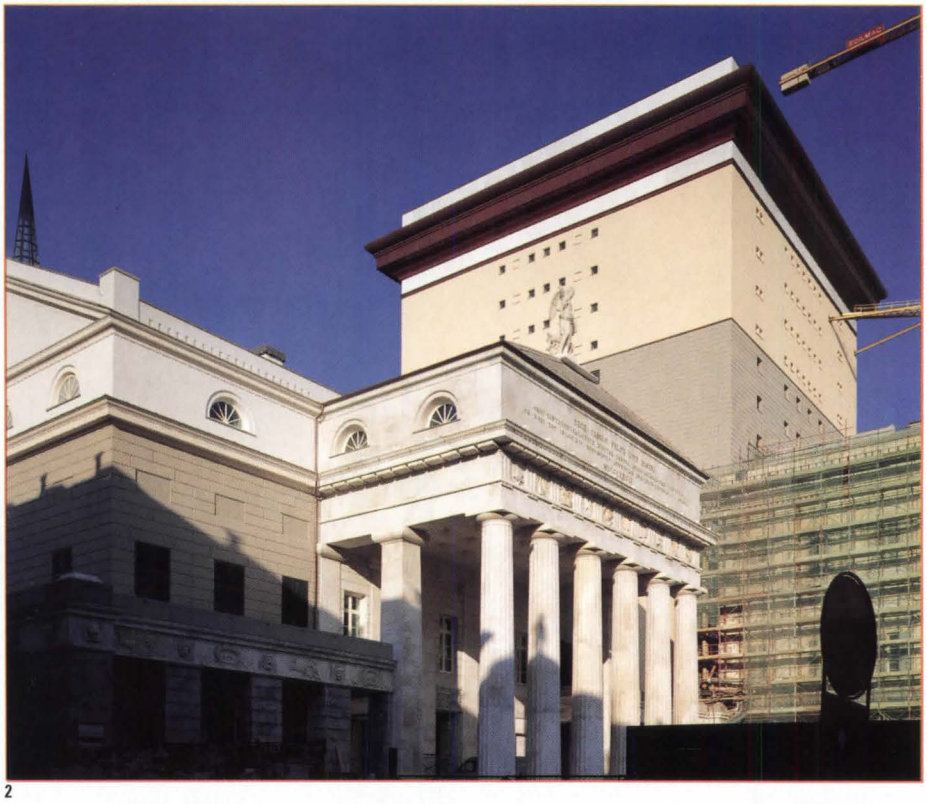

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Photos: Gabriele Basilico

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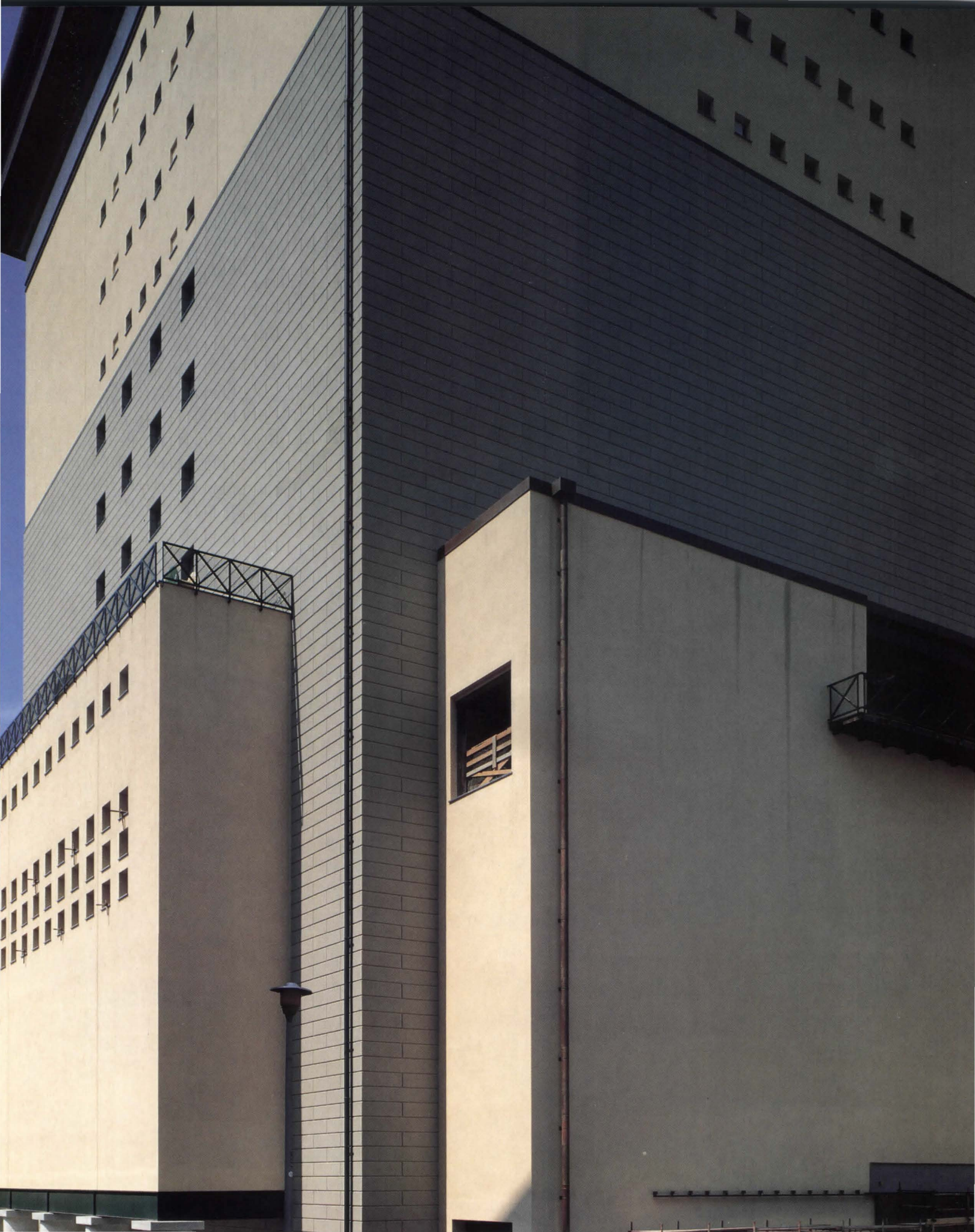

Technical Aspects of the Opera House

The Carlo Felice theater is a giant opera-producing machine that embodies the state of the art in Europe today. A theatrical engineering firm, called in to design the technical aspects of acoustics, lighting, broadcast, and production, built an immense 1:10 model of the theater at the firm's Bavarian headquarters to test diverse light and sound conditions.

The fenestrated side "façades" of the auditorium are clad with Bardiglio marble; the floors are of African wood, the balconies of pear wood. The stone was installed according to high-frequency sound reflection values of various surfaces tested in the model. Thus, the side walls of the auditorium feature alternating vertical bands of cladding that differ in: the weight and thickness of the stone slabs; the distance established between marble elements and solid wall; the thickness of insulation material in that space; and in a layer of plaster on the structural wall, which is present in some areas and absent in others. The cladding of the proscenium wall is further differentiated with wider spacing of slabs. The high acoustic absorption of the interior windows prevents sound from bouncing between the long walls. On the outer side of the auditorium shell these openings are shielded by insulated wood shutters.

The ceiling consists of 1″–1.5″ thick plaster. In the cavity above it is a metal grate floor that provides access for the lighting technicians. Scaffolds to support fixtures are located at three different "latitudes," governing the angle of light beams trained on the stage through trap doors in the ceiling. A fourth lighting station is located at the rear of the auditorium.

Beyond the primary stage is a second stage of equivalent area. These can switch positions: the rear stage can be advanced on tracks, while the front stage descends on hydraulic supports to vast production volumes underlying the tower. "In three days you could stage three different operas," Rossi explains. "This is abstract, because I am sure they never will."

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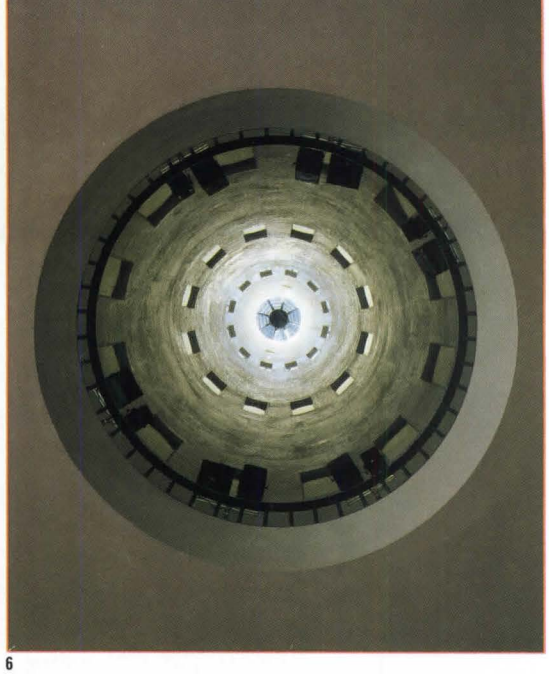

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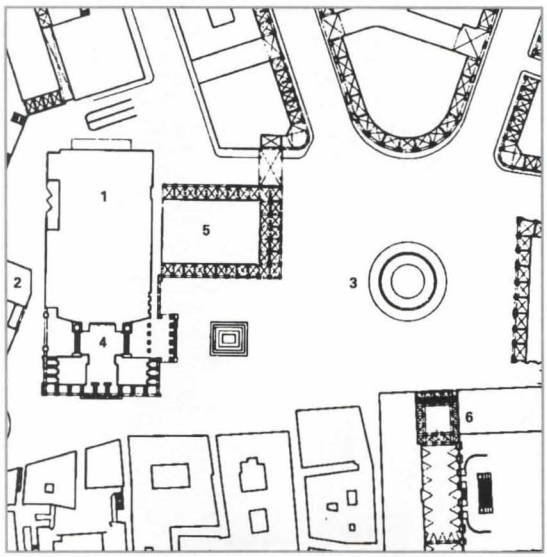
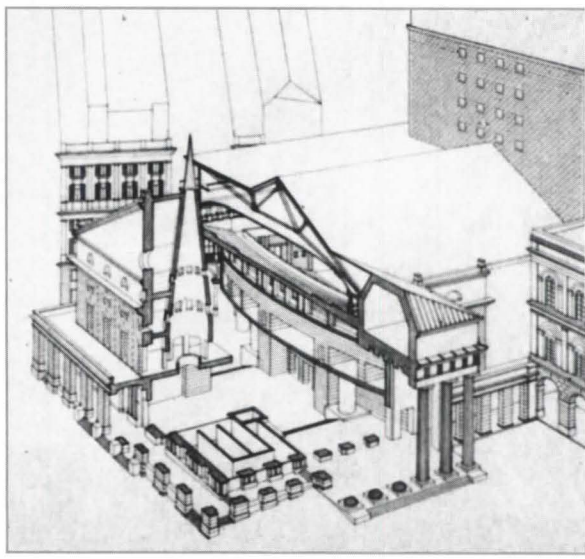
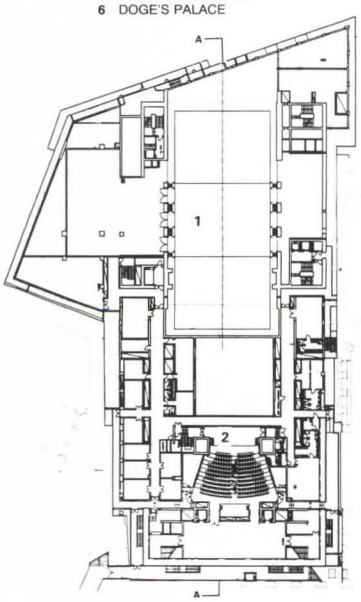


SITE PLAN
1 CARLO FELICE THEATER
2 GALLERIA MAZZINI
3 PIAZZA FERRARI
4 PUBLIC PASSAGE
5 ACCADEMIA PALACE
6 DOGE'S PALACE

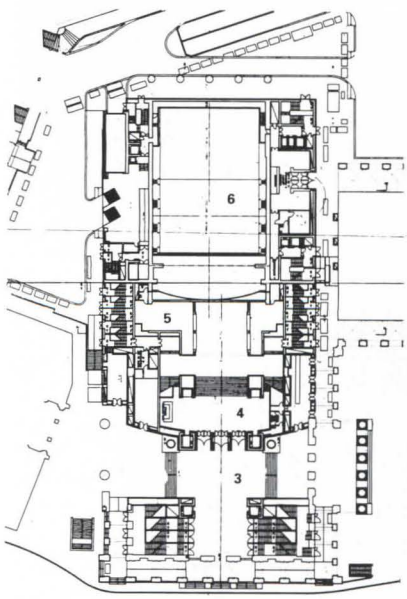
N 100'/30m



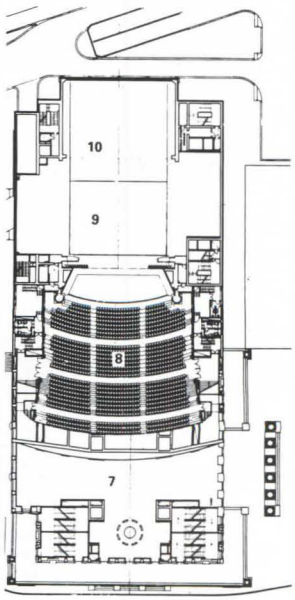
CUTAWAY AXONOMETRIC



UNDERGROUND FLOOR PLAN



GROUND FLOOR PLAN



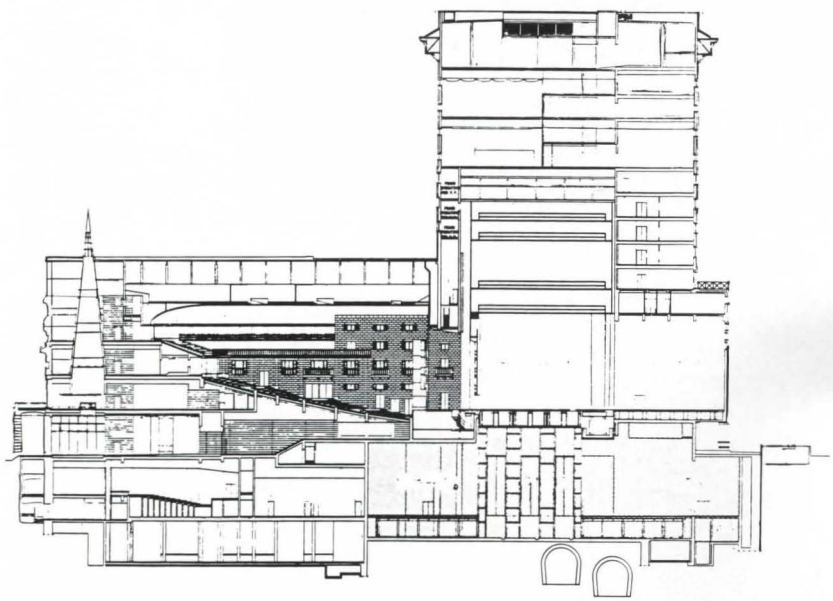
FIRST FOYER LEVEL PLAN

7

8

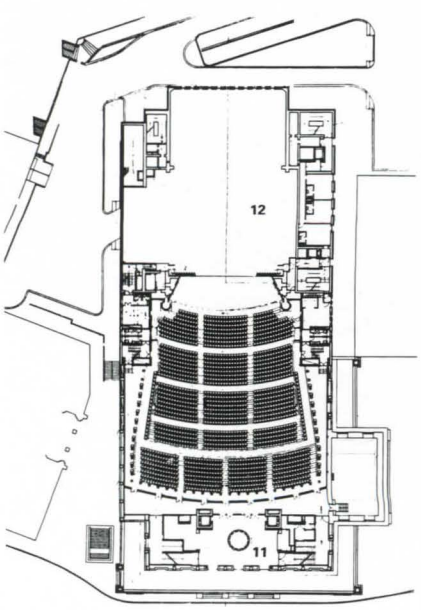
Photos: Gabriele Basilico

A public passage through the ground floor of the theater connects Piazza Ferrari to Galleria Mazzini. The portal (5) facing the galleria is framed by marble columns and a painted steel beam, abstracted from the 1828 portico (3). The walls of the public "street" are clad with Cardozo marble, the floors with Carrara. Passersby can pause directly under the conic "lighthouse" lantern and look up through its clear floorlight (6). The lantern structure as it appears on first foyer level (7), provides access to a small railed gallery that circles the floorlight. On the second foyer level the shaft of the lantern (8) admits light through unglazed openings.

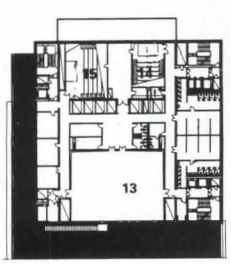


SECTION AA

40'/12m



SECOND FOYER LEVEL PLAN N 40'/12m



FLYTOWER FLOOR PLAN

1 PRODUCTION
2 SMALL AUDITORIUM
3 PUBLIC PASSAGE
4 THEATER ENTRANCE
5 COAT CHECK
6 VOID OVER PRODUCTION
7 FIRST FOYER
8 AUDITORIUM
9 FRONT STAGE
10 REAR STAGE
11 SECOND FOYER
12 VOID OVER STAGES
13 ORCHESTRA REHEARSAL

flytower now stands where Barabino's once did, the top of its rusticated base recording the height of the original tower. The void above the stage is wrapped and capped with diverse rehearsal spaces, services, and offices, in addition to a vast mechanical plant.

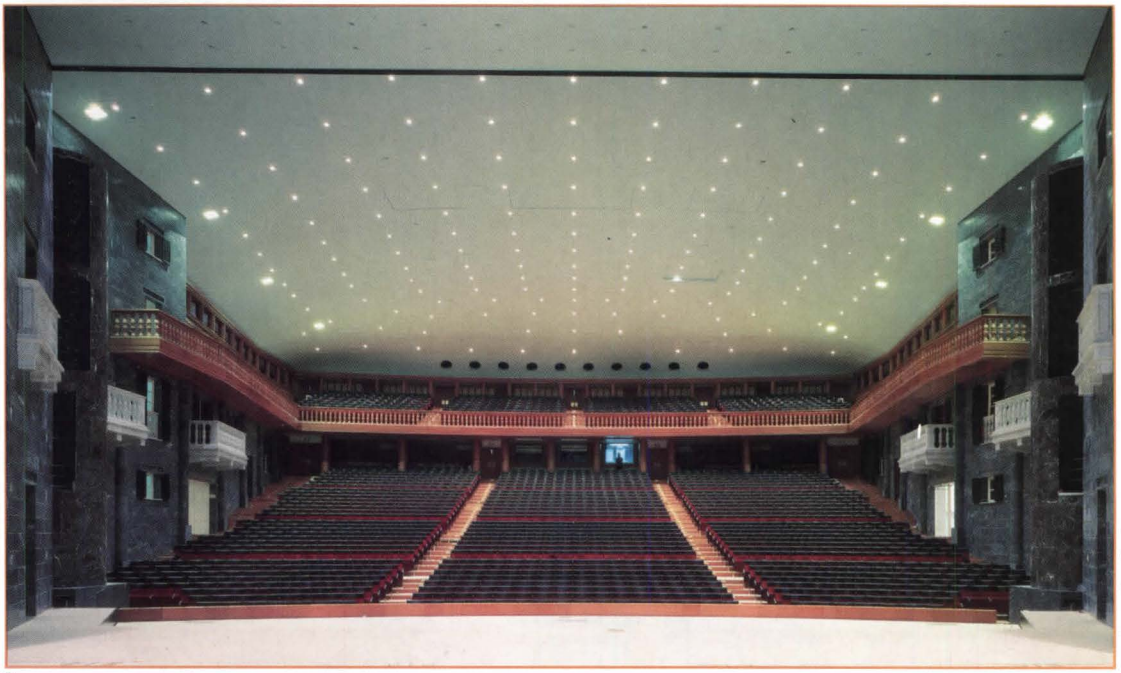
Applying Rossi's terms, opera itself can be considered the musical equivalent of the city. Like the city, it is the aggregate product of continuous collective effort; like architecture too, it "is formed by all its history," reflecting myriad facets of ritual, social mores, and politics. Ultimately, opera can be seen in the way Rossi views the city – as "a human thing *par excellence*."

Of course, the opera house type has always embraced urban imagery. And while the arena of the new theater breaks with the archetypal *ferro di cavallo*, or tiered horseshoe plan, the streetscapes of the auditorium interior continue tradition. "The most important idea was to repeat a piazza of Genova," Rossi explains. "To have an interior exterior. It was an idea of Palladio's, [in the] Teatro Olimpico." As Leslie Orrey explains in his history of opera, Palladio's perspectival urban *scena* became a staple of 18th-century court opera. "The elaborate stage sets devised by the Bibienas, Juvarras, and Galliaris simply continued [the opera palaces'] splendid architecture on stage," Orrey notes. "The setting was in reality the entire theater; emperor, prince, king, or duke, with their courtiers. . . were an essential part of the show."

By contrast, in the new auditorium prosaic dwellings are celebrated – not the gilded halls of power; supplanting the opulent chandelier of old is a gently vaulted plaster ceiling, intended "to have the effect of a sky, with small stars." What could be more egalitarian? Abstracted from what Rossi calls "something between memory and inventory," these and other aspects of the building are unquestionably molded by a social conscience. As Gardella, Rossi's lifelong friend and mentor once put it, "Memory is, and must be, an act of criticism." **Ziva Freiman** ■

Project: *Carlo Felice Theater, Genova.*
Architects: *Ignazio Gardella, Aldo Rossi, principal architects; Mario Valle Engineering S.P.A., developer; Eugenio Vugi, Michele Pisano, Angela Malaponti, Giuseppe Bigatello, Hassan Khazali, Fabio Reinhart, Morris Adjmi, design team. Angelo Sibilla, Franco Traversa, engineers, construction documents.*
Client: *Comune di Genova.*
Site: *Piazza Ferrari, in the same location as the original opera house of 1828, which was bombed in World War II. The flytower is situated above active railway tunnels.*
Program: *17,200-sq-ft opera auditorium with 2000 seats; small hall with 200 seats; 16,000-sq-ft lobby and foyers; 6200-sq-ft main stage; 4,000-sq-ft rear stage; 19,000-sq-ft understage working area for four discrete production sets; 13,000-sq-ft rehearsal spaces for ballet, chorus, orchestra, and singers; over 15,000 square feet for offices, kitchen, cafeteria, dressing rooms, and storage; 41,000-sq-ft total HVAC plant.*
Structural system: *Concrete, except for auditorium roof and three top floors of flytower, which have horizontal steel frames. Tower foundation, 4-ft-diameter piles.*
Major materials: *Exterior, various kinds of plaster, Ardesia slate roof, copper cornice, marble bands on tower; Interior, white and gray Carrara marble lobby and entrance floors, Cardozo marble wall cladding. Auditorium, African wood floor, Bordiglio marble walls, pearwood balusters, plaster ceiling.*
Consultants: *Mario Valle Engineering S.P.A, (engineers Luciano Mascia, Donatella Mascia, Massimo Gazzo) construction; engineers Carlo Cestelli Guidi, Mario Fernando Guiducci, structural and geotechnical; Bruno Limoncelli, geological study; Ezio Frigerio, Giuseppe Asnicar, stage and theater services; Jose Bernhart, Muller B.B.M Gmbh, acoustics; Studio Rudolf Biste and Kurt Gerling, stage electrical and lighting; Luigi Amman, electrical engineering; Elettronica San Giorgio Elsag S.P.A., Esacontrol S.P.A., automation systems; Emmina de Negri, historical research; Silvano Larini, urban feasibility; Ivana Invernizzi, Daniele Nava, custom furnishings.*
General Contractor: *Mario Valle S.P.A., Arenzano, Genova.*
Costs: *L.126,000,000,000 (approx. $115 million).*

The main stage beneath the flytower void (10) can be lowered to allow a contiguous rear stage to come forward. The rotating stages are separated by a steel firecurtain. The auditorium's longitudinal sides (11) and proscenium arch wall (12) are articulate façades designed to evoke a typical Genovese piazza. The masonry walls are made of Bordiglio marble with pearwood and white marble balconies. The vaulted plaster ceiling (equipped with stagelighting trap doors) was conceived as a "sky" with constellations of recessed lights (9). Oculi in the rear of the hall accommodate stagelights.



Marco Buzzoni, Mauro Davoli

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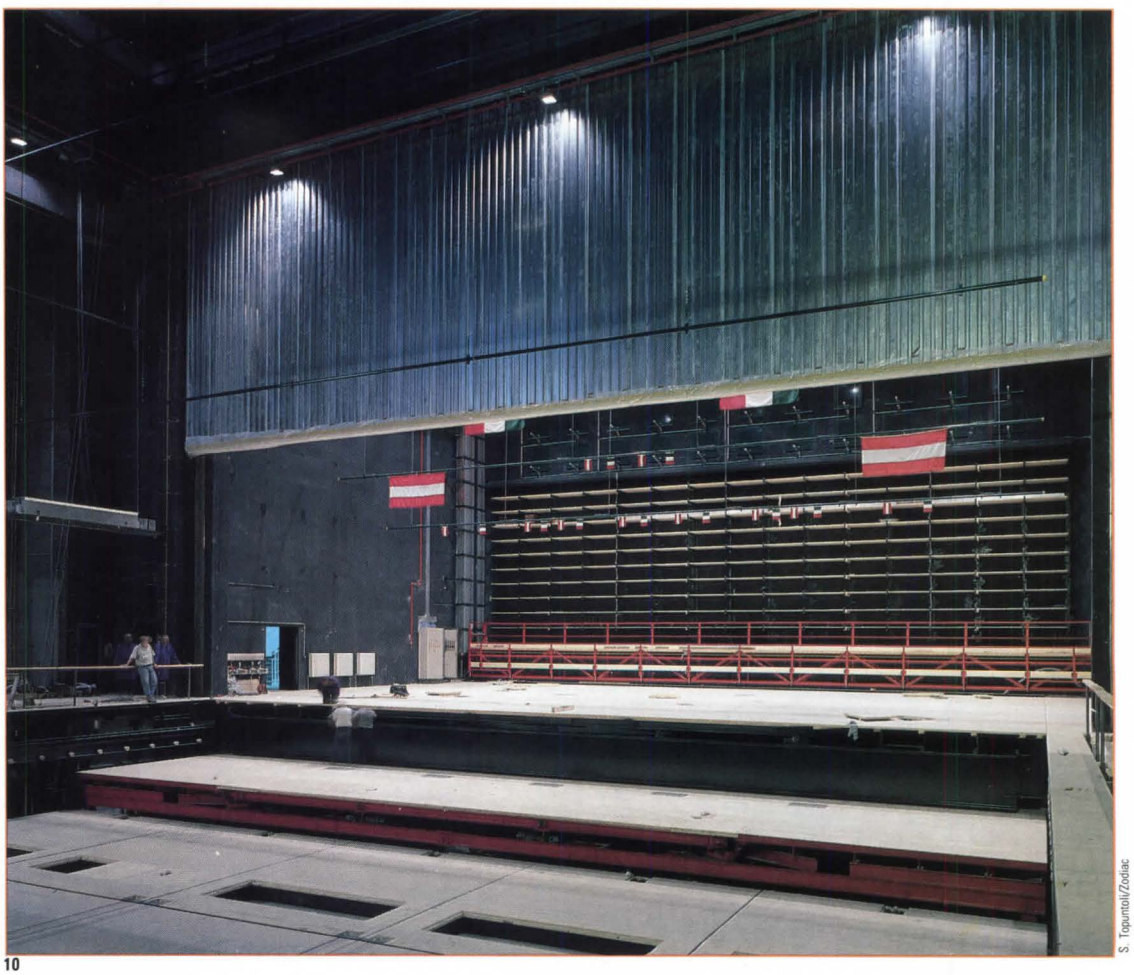

S. Topuntoli/Zodiac

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11, 12

The seam between the old and new cemeteries is marked by a raised ossuary (1) that runs the full width of the site above a vast concrete colonnade (4). It is linked by bridges to a parallel, wall-like ossuary (2, left). The unadorned concrete, plaster, and steel of these structures stands in stark contrast to the profuse interiors (3) with their marble tomb covers, myriad bronze fixtures, and riotous color.

San Cataldo Cemetery

When Aldo Rossi's project for the expansion of Modena's 19th-century cemetery was unveiled in 1971, it had enormous impact on architects in every walk of the profession. To impassioned students, practitioners, and theoreticians alike, Rossi's cemetery manifested a metaphor of the city and a milestone of urbanism. In this project, Rossi seemed to blur the boundary between urban design and architecture: As a whole, the scheme attempted to synthesize the spatial experience of a city with the affective quality of individual buildings – even as it depicted a surreally clear hierarchy between "background" element and monument.

More than that, the evocative drawings of the competition-winning design posited a landscape populated with quintessential 20th-Century types – loaded forms that did not need to rely on iconography of previous eras for their gravity or commemorative value. "The cemetery, an architectural place, just like other public places, is capable of creating the collective will and memory of the city," Rossi wrote in 1976, when the first components of his "city of the dead" were completed.

Designed with Gianni Braghieri, the expansion is a work in progress, slated to fill a large tract of land on axis with the vast walled compound of Costa's Neoclassical cemetery. The entrance is marked by a long ossuary, running parallel to the old cemetery boundary and raised on an open colonnade. Beyond this "bar", the site plan describes two concentric U-shaped walls composed of linear ossuaries. The inner "wall" frames rows of smaller ossuaries, which, growing shorter and taller along a spine, create a pyramidal comb in both plan and section. At the base of the triangle stands the red, roofless cube of the columbarium; at its tip, a tall conical stack rises above a common grave.

Initially, Rossi had envisioned the open ground in the new compound studded with tombs, as in the great quadrangle of the old cemetery. But "people don't like anymore to be in the earth," he says. It is largely a question of caste: Traditionally, as in Costa's cemetery, the rich reposed in ossuaries, while the poor returned to dust.

At this point, approximately one-third of the new cemetery has been built, including the colonnaded ossuary at the entrance, two L-shaped portions of the wall ossuaries, and the columbarium. Construction has halted; the site is clean of equipment and debris. Modena's municipality is building the expansion in phases determined by annual mortality rates, Rossi explains wryly. "We told

1

Courtesy of Studio di Architectura

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Interview

P/A editors John Morris Dixon and Ziva Freiman visited Aldo Rossi and Morris Adjmi at the Studio di Architettura in New York. Excerpts from their conversation follow:

Ziva Freiman: Now that the theater is complete and a critical mass of the cemetery has been built, how would you position them in your oeuvre?
Aldo Rossi: [The theater in] Genova was built almost 20 years after Modena, the cemetery. But I have not changed my visions of architecture, they are the same. I think Genova and Modena are very close from one point of view, [that] of the urban architecture. When I began Modena, it was very important for me to create the city of the dead, like a part of the city, not something unrelated. In Genova it is the same. The first question was to preserve the old theater of Barabino and to create an urban space, not a monument.
John Morris Dixon: And you let the urban space go through the building with a public passage.
Rossi: The public passage for me is very important. The *lanterna* is like a lighthouse, it gives light to the piazza [on the ground floor of the theater]. A continuity [is established by] this piazza between Galleria Mazzini, Barabino, Piazza Ferrari, Monumento Garibaldi, Accademia. . .
Freiman: You have often talked about the distillation of urban types, such as you can see in Modena and, to an extent, also in the theater. Do you think of these as universal? Something an architect can do anywhere?
Rossi: This is a problem that for me, now, is very topical. Many people ask me how it is possible to build in Japan, how it is possible to build in America. But I think that there is a dialectic between your idea, your architecture, and the new situation where you work. There is a beautiful example in the Dutch and English architecture in the United States, in New England especially. Or in the Spanish architecture in South America and California: really it is the same Spanish architecture, and really something different. It is

A view of the cemetery elements built so far (5), with the vacant portion of the site in the foreground.

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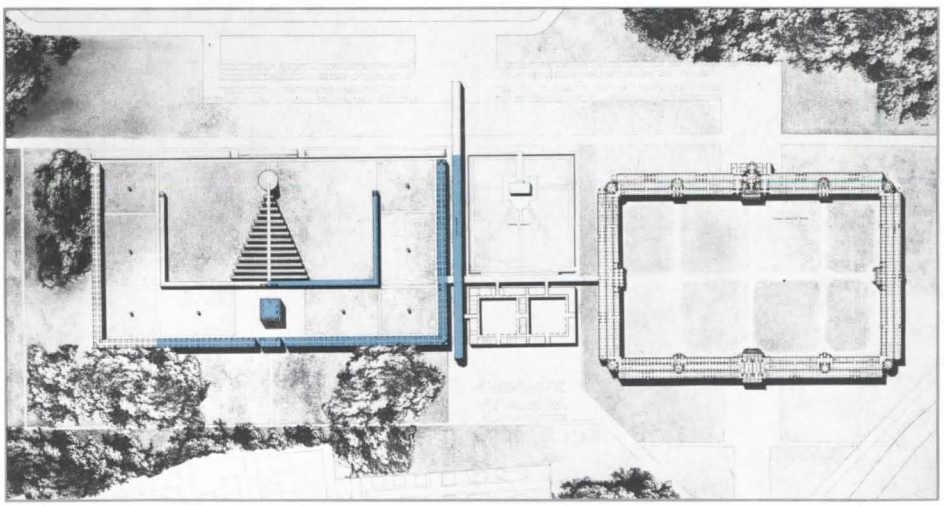
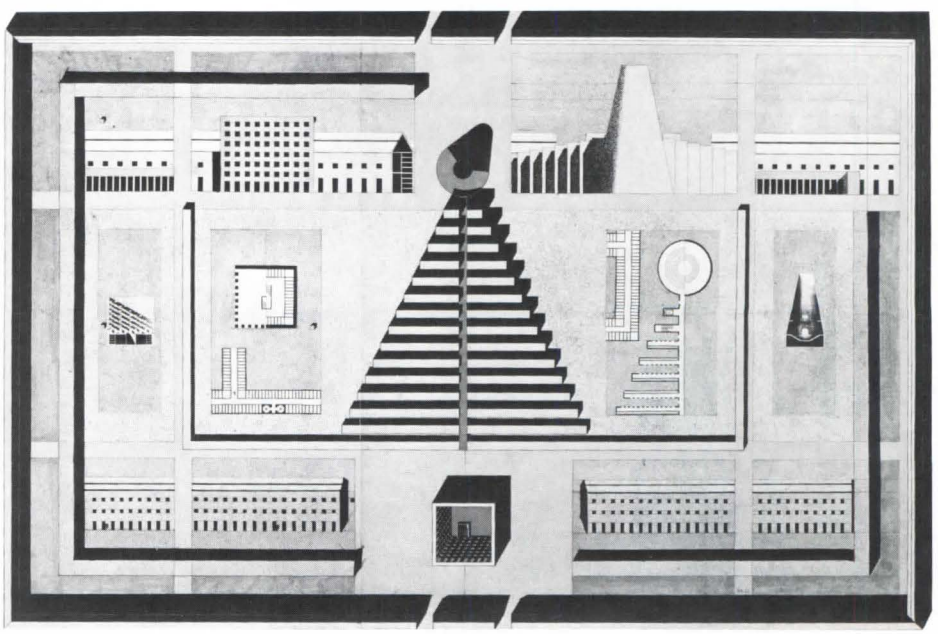
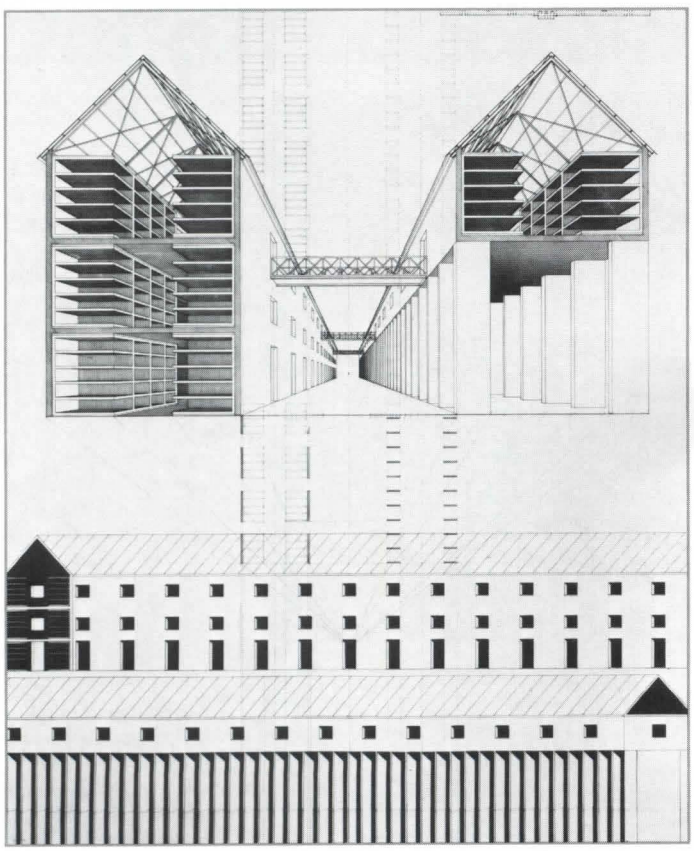


SITE PLAN (TINTED PORTIONS ARE BUILT)

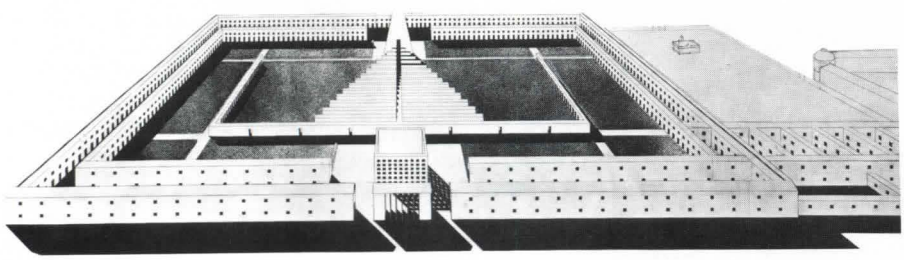
100'/30m



COMPOSITE DRAWING FOR DESIGN COMPETITION



PERSPECTIVAL SECTION, ELEVATIONS OF OSSUARIES



PERSPECTIVE OF INITIAL SCHEME

them we hope for a revolution to finish it."

By now, enough of the project exists to make palpable its sense as a whole: It is about the relationship between buildings, rather than individual structures (which are built simply of humble materials). The spaces between the objects are crucial to the experience; so, ironically, is movement. Rossi's is an architecture for the living, of vistas, vantage points, and framed perspectives. Surely it is one of the architect's most painterly works.

The view down the long colonnade of the raised ossuary is a moving sight: Slender fins of concrete recede like an infinite series of wings. Evocative of the renowned ground-floor colonnade of Rossi's Gallaratese housing in Milan, this gallery has the same "haunted" quality, so called and best described by Vincent Scully. "Rossi makes. . . stages for humanity," he wrote. "Action is imminent." Architecture like this requires the human figure to be complete.

By contrast to the ossuaries, the sanguine columbarium is quite monumental. But Rossi's masterful downscaling of the arcade at its base tends to increase, rather than dwarf, the individual's sense of stature. The conical tower above the common grave, as yet unbuilt, may well be more imposing. Rossi has cited the factory stack as the inspiration for this recurrent element in his work. Here it can be construed quite literally in a political light: the specter of industry rising over the disenfranchised. But beyond that, perhaps unwittingly, like a crematorium chimney it recalls Europe's death factories of 50 years ago, and the mass graves of those humanity had abandoned.

Such dark associations well up from the drawings. Yet it is a curious quality of Rossi's architecture that in actuality its somberness more often translates into a kind of peace. The haunting forms are transmuted through innocence.

Ziva Freiman ■

Interview *continued*

very different from the International Style's meaning of building all in glass. Now I think there is the possibility to create a universal architecture but with many differences. We work in Japan, and this problem is very much alive. For example, I try to make these [projects have something] Japanese, because I like it, and they like to have an Italian architect. . . For me, there is in Fukuoka [*site of Rossi's recently completed Il Palazzo Hotel, P/A May 90, p. 112*] something of the Eastern world. For them, it's very Western.

Dixon: Do you particularly admire any of the Japanese traditional buildings?

Morris Adjmi: The Ise shrine.

Rossi: *Si,* the Ise shrine.

Adjmi: He's fascinated by the fact that they keep rebuilding the shrine, and it is the same. . .

Freiman: They tear it down and rebuild it every 20 years. . .

Adjmi: It's brand new, but it's really ages old.

Dixon: It's also a very severe traditional form. . .

Rossi: Yes, very severe.

Adjmi: The fact that you can't ever see it is also interesting.

Dixon: It's a wonderful mystique.

Rossi: Exactly. The [shrine's alternating building sites] are very close. After 20 years they begin to demolish one and to build the other. And they use just one piece of wood from the old shrine for the new shrine.

Adjmi: So there is a continuity. . .

Dixon: Like DNA.

Rossi: [*laughing*] Yah!

Freiman: So, in these types, or forms, there are some truths that are held by everyone?

Rossi: Ah, yes. . . Of course.

Freiman: It's a loaded question, because the Western cities are changing, the population is no longer homogeneous. What in this city is perceived as a monument? Are there constants that make a monument for anyone from any culture, or not?

Rossi: Now you are speaking about the new city made from many [different groups]. New York is a typical example. All the city is a monument of itself.

Adjmi: Rome was the same at the height of the Roman Empire.

Rossi: The first Roma was like a small Greek city. The later Roma is no more Western, no more Eastern – it is Roma.

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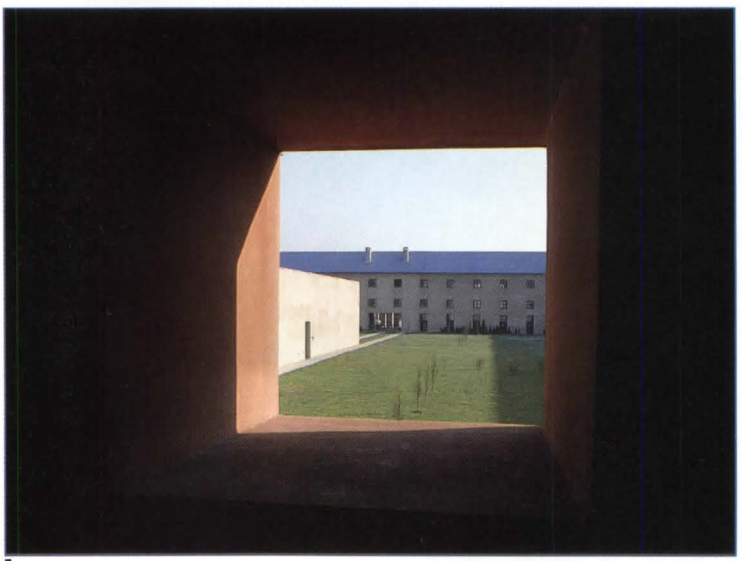

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The flat plaster surfaces of the ossuaries and columbarium enhance the abstraction of the architecture. The red cube of the columbarium (6) dominates the site. Its punched openings artfully frame vistas of other cemetery buildings (7). The roofless interior (9) holds a gridwork of niches where ashes are placed. Metal grate stairs and galleries, supported on slender steel columns, surround the paved inner court. In line with the columbarium, a tiered bridge structure (8) links two linear ossuaries that form the long cemetery wall bordering the town.

Project: *San Cataldo Cemetery, Modena.*

Architects: *Aldo Rossi, assisted by Gianni Braghieri.*

Client: *Comune di Modena.*

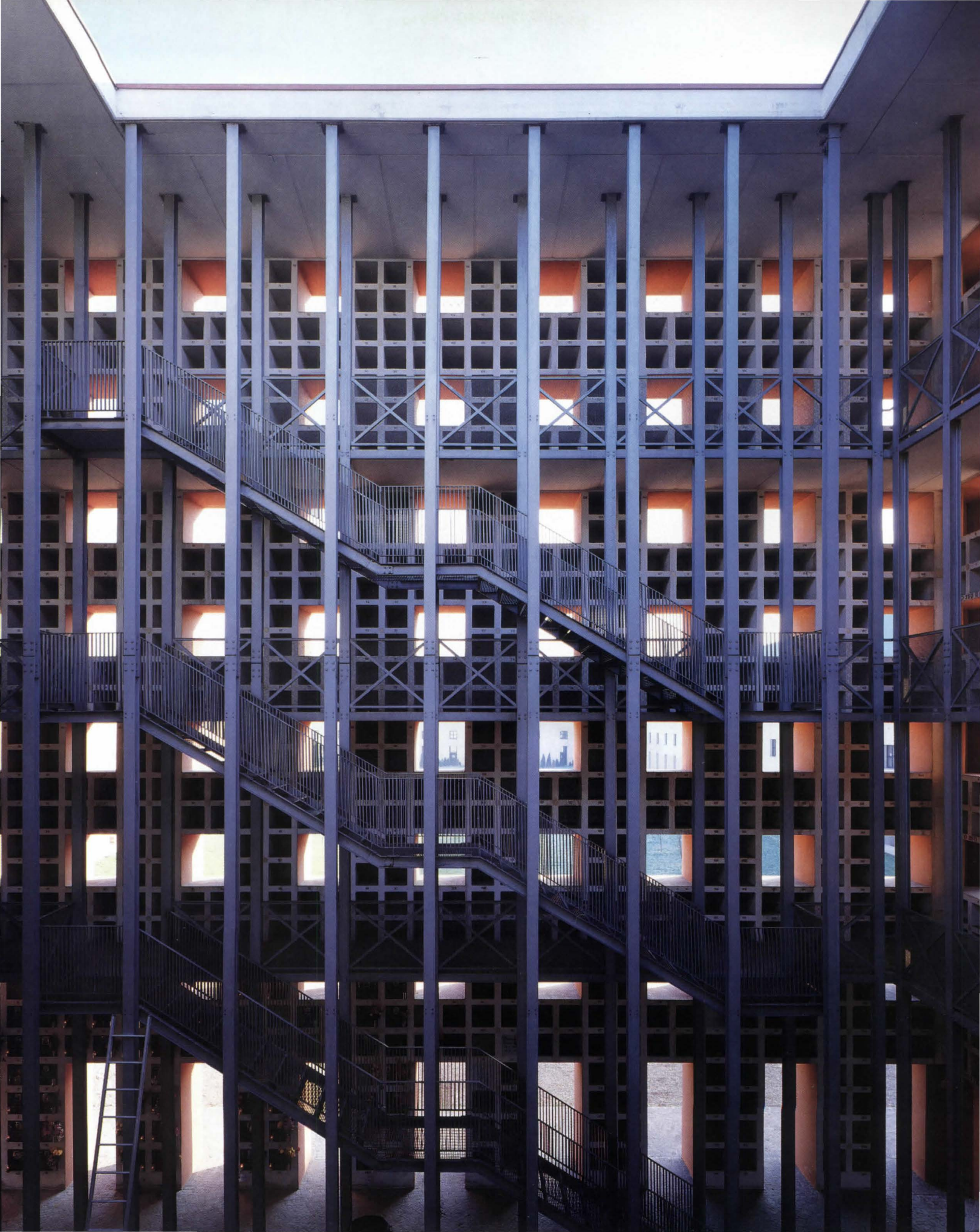
Site: *A rectangular compound occupying approximately 3.5 acres adjacent to Costa's Neoclassical cemetery of 1858. When completed, the long dimension of the compound will extend 544 ft, and the short dimension 288 ft.*

Program: *Expansion of old cemetery.*

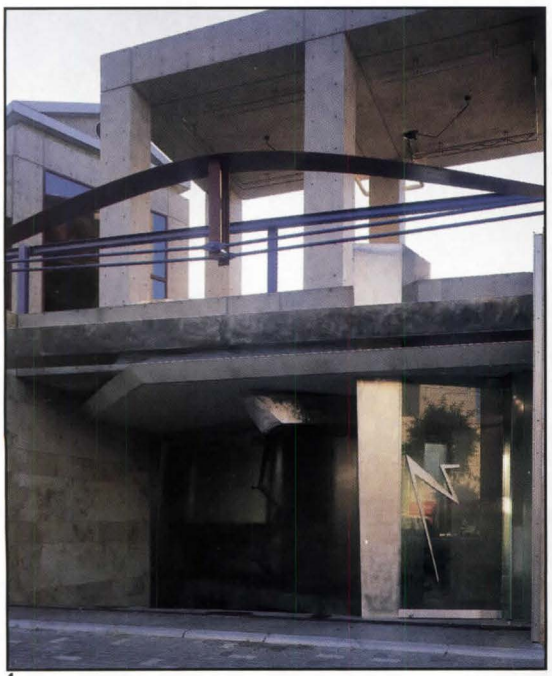
Structural system: *Concrete frame, steel trusses and roofs. Steel columns, metal grate galleries and stairs in columbarium interior.*

Major materials: *Concrete, plaster, steel, Porfido paving stone.*

Photos: *Mario Carrieri, except as noted.*



Fire and Ice



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A restaurant by Zaha Hadid, her largest built work to date, proves the architect capable of realizing her vision.

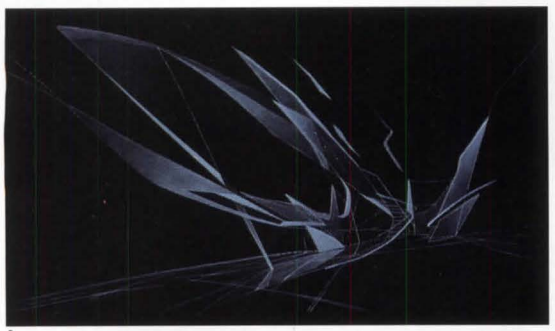
The restaurant is entered at the narrow end of a trapezoidal, concrete-framed building (1). A steel-framed truss, a translucent glass wall, and a glass door with a zigzag handle announce the entry's location. Inside, there is an elevated walkway that leads to a stair up to the second-floor bar (2). The floor of the walkway is polished stainless steel, as is the framework supporting the glass divider screening the recessed dining room. The center of the dining room features a low stainless steel wall that supports a table made up of various sheets of glass placed on an adjustable steel frame (3). Reinforcing the pointed shape of the table top are zigzag slits in the ceiling, containing recessed lighting, and the pointed legs of the chairs, designed by Hadid for this space.

Seven years after winning the international competition for the Peak in Hong Kong, London-based architect Zaha Hadid has at last completed a project in Asia. Though modest in scale compared to that aborted scheme, the Moonsoon Restaurant in Sapporo, Japan, is nevertheless her biggest realized work to date and will help lay to rest a reputation as an untried creator of visionary architecture.

Picking up where Suprematism left off, Hadid developed through elaborate graphic presentations an aesthetic of dematerialized elements deployed in a seemingly random fashion over the landscape. Tilted lines and planes intersected and seemed ready to shoot right off the edge of drawings, yet these fragments were somehow stayed by the buoyancy of a soupy ether.

The question naturally was how Hadid was going to achieve this aesthetic in the real world, where earthbound architects cannot will a condition of zero gravity. In a 1983 conversation with Alvin Boyarsky, she said somewhat wistfully, "I can actually now believe that buildings can float. I know they don't but I almost believe it – except when I see my engineer of course."

The Japanese client who commissioned Hadid was Michihiro Kuzuwa of JASMAC, the developer for whom Aldo Rossi did the Il Palazzo Hotel on the southern island of Kyushu. Hadid's project is at the opposite end of the archipelago, in the biggest city on the island of Hokkaido. She was asked to design a restaurant that would serve Italian food in a riverside building at the edge of Susukino, a district chock-a-block with places of entertainment. On the opposite bank stands an



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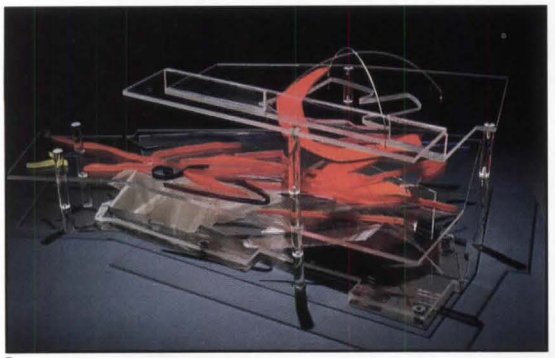

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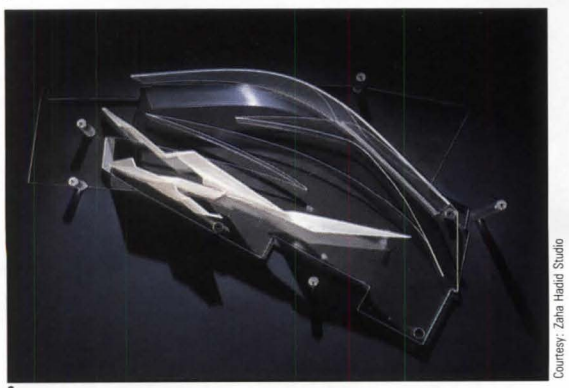

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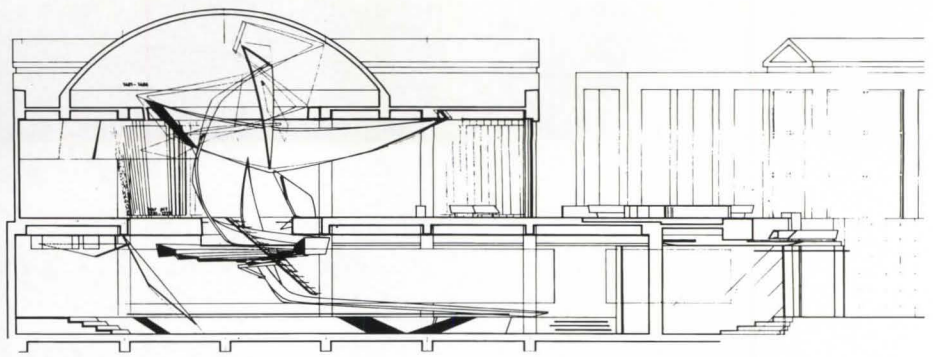
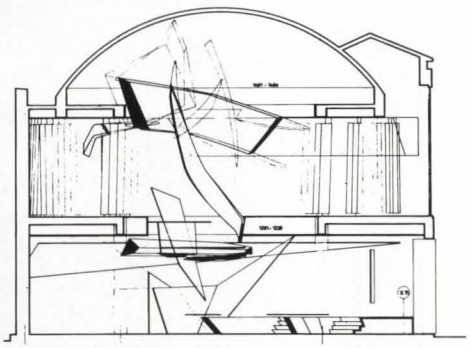
Courtesy: Zaha Hadid Studio

Zaha Hadid is known largely on the basis of her drawings and models, such as the series of studies that she did during the design of this restaurant (4–6). While those images appear abstract, the built project is quite similar to them in form and spirit, with dynamic shapes that suggest movement and infinite space. Interpreted more literally, the splintered shapes that Hadid favors also recall those of cracked ice or tongues of flame. Those images, in turn, served as the metaphor for this restaurant, with the "cool" dining room representing ice and the "hot" bar representing fire.

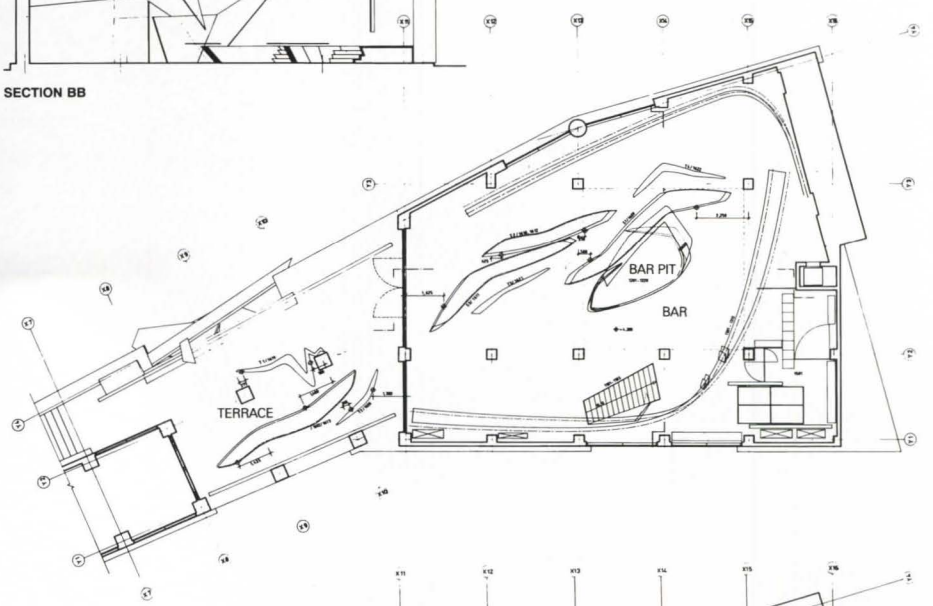


SECTION AA

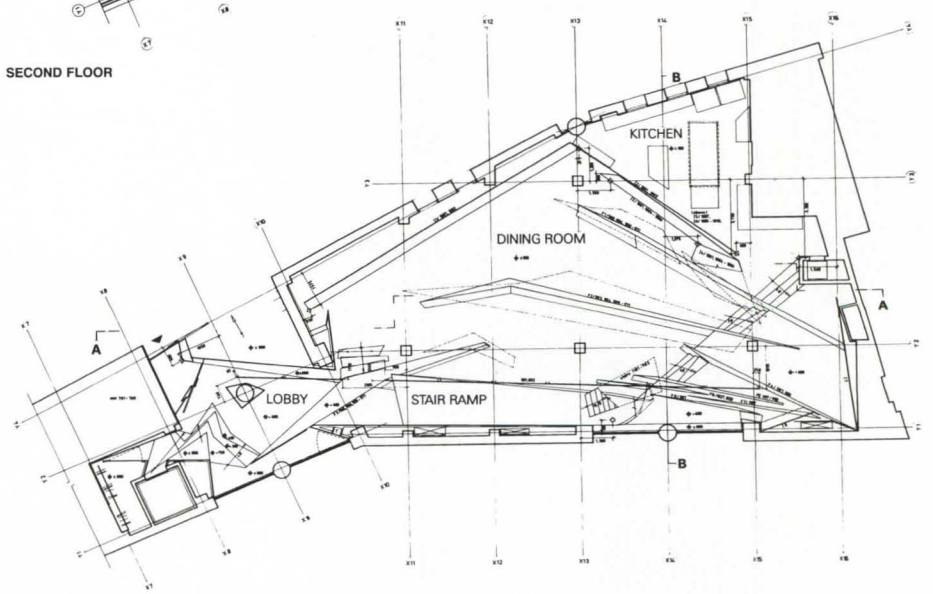
10'/3m



SECTION BB



SECOND FLOOR



FIRST FLOOR

N

20'/6m

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Two sides of the dining room are clad in panels of crushed glass in a stainless steel frame, which partly hide the kitchen and diffuse the light from the narrow windows (7). Above the center table in the dining room is a sculpture/light well, made of a fiber-reinforced resin and formed into a coiled shape which unfurls up into the dome above the second-floor bar. Access to the dining room from the entry is via cast-glass steps, supported by steel struts (8).

earlier JASMAC project called "Noah's Ark," designed by Nigel Coates.

Hadid was given two floors in a portion of the building that is trapezoidal in plan. She has chosen to contrast the two floors and has made "ice" the theme of the first-floor dining space and "fire" that of the second-floor bar. These might also be interpreted as heaven and hell turned upside down.

The first floor is essentially a monochromatic world. One descends on extruded slabs of unpolished optical glass into a triangular dining area defined on two sides by rectangular panels of crushed glass and an arrangement of irregularly cut panes screening off the kitchen. The space is built around a long glass table that comes to an intimidatingly sharp point. The table is made up of separate panes of glass resting on vertical adjusting knobs screwed into horizontal steel bars. These bars in turn are supported by an inclined stainless steel wall. Optical fibers have been installed where this stainless steel wall meets the terrazzo floor to create a (dotted) line of light that articulates the joint. Hadid apparently was taken by the custom in many Japanese drinking establishments of sitting at long, low tables, and the glass table is a response to the Japanese practice.

Hadid is mindful of very slight textures and irregularities in these materials. The stainless steel panels have been brushed, the optical glass slabs retain the wavy pattern resulting from the extrusion process. In the very restrained atmosphere of the first floor, these subtleties carry weight.

If the two floors do represent heaven and hell, then a fiberglass

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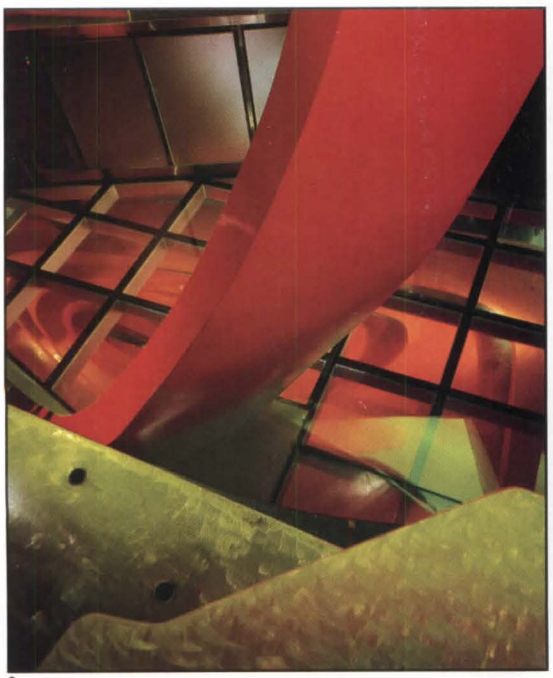

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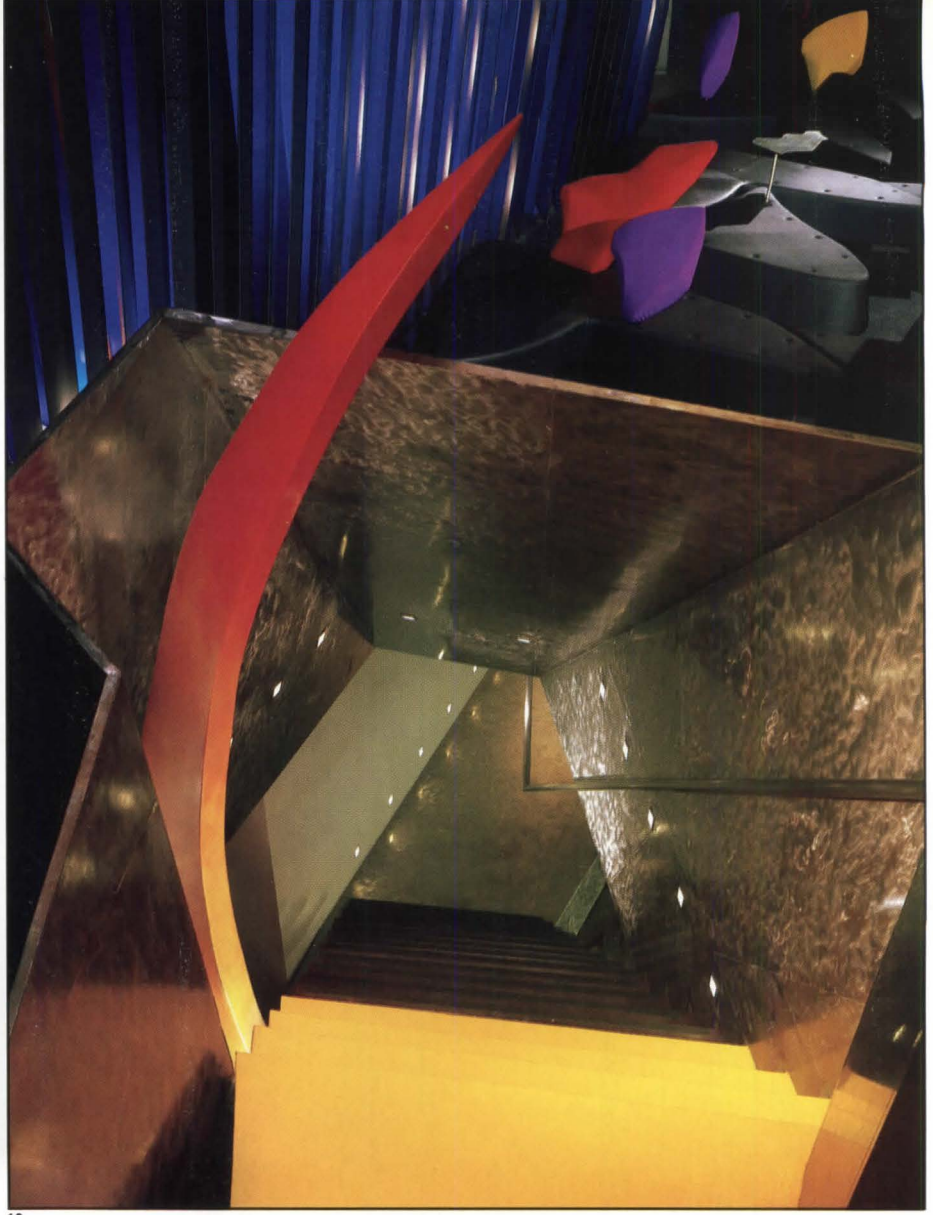

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The second-floor bar, accessible from a stainless steel stair (10), features brightly colored accents within a dark enclosure. The floor and columns are covered in black terrazzo, and the undulating sofas, custom designed by Hadid, are covered in black vinyl with some brightly colored, flamelike backrests (11). Those backrests, along with the undulating stainless steel tables, can be relocated by inserting their support rods into the holes at the edge of each sofa. At the center of this floor stands a recessed bar pit with a glass floor, through which the dining room is visible (9). The coiled gray-colored sculpture in the dining room, uncoils around the bar pit and turns a fiery orange and yellow as it climbs to the edge-lighted dome.

Project: *Moonsoon Restaurant, Sapporo, Japan.*
Design team: *Zaha Hadid with Bill Goodwin, Shin Egashira, Ed Gaskin, Edgar Gonzales, Kar Hwa Ho, Brian Langlands, Urit Luden, Yuko Moriyama*
Client: *JASMAC*
Site: *Two floors within the narrow end of a trapezoidal concrete-framed building.*
Program: *Dining room and bar with adjoining kitchen space.*
Major materials: *Stainless steel, float glass, crushed glass, cast glass, terrazzo, fiber-reinforced resin, vinyl.*
Consultants: *Michael Wolfson, upstairs seating and objects; Satoshi Ohashi, quality control.*
Models: *Dan Chadwick*
Photos: *Paul Warchol, except as noted.*

The author, an architect and critic, is P/A's correspondent in Japan.

sculptural object – dubbed the Orange Peel – that joins these two cosmic planes is a sort of *axis mundi*. It begins on the ceiling over the dining area as a tightly wound coil and penetrates the second floor, where it defines a sunken bar pit, and, unraveling, disappears into a dome. The Orange Peel changes from carmine to yellow in its final stretch. Interestingly, the Japanese contractor made too neat a job of this transition in color, and the London office sent a person to touch this up roughly with paint and brush.

The second floor is everything the first is not. Irregularly shaped sectional sofas (of which there are basically three types), covered with vinyl, form little islands around the bar pit. From these rise free-form back rests in bold colors like little tongues of flame. These back rests and the cocktail tables of galvanized steel can be removed and shifted to different locations. The second floor is an environment of freedom as opposed to the controlled environment on the floor below.

Effort has been made to make the structural supports behind and under all the "floating" elements in the restaurant as unobstrusive as possible. Where they are visible, they do not reveal the kind of logic that rules the floating elements; each structural situation has been dealt with in a more or less ad hoc way. At the scale of this project, this matters very little, but how will such an approach affect larger works? We will find out soon. Hadid has two buildings in Japan and one in Switzerland on which construction is expected to begin this year. The Moonsoon Restaurant has whetted our appetites for the main course to come. **Hiroshi Watanabe** ■

Scholarly Wall

A unique library in Los Angeles gains new support facilities by architects Barton Phelps & Associates

He may have been a philanthropist, but William Andrews Clark, Jr., probably could not have foreseen the future of the gift of his house and private library to UCLA in 1934. The library and its grounds have seen many changes over the years. In 1921, there were ten other houses and assorted outbuildings on this block of L.A.'s once affluent West Adams neighborhood. But one by one, Clark bought up the nearby houses and removed them, creating an ever larger estate around his house, observatory, and servants' quarters.

In 1926, he commissioned Robert Farquhar to design a delightful English Baroque Revival library pavilion in his backyard. By the time he willed the property to UCLA, Clark had cleared the block around him, shifted his servants' quarters to the corner of the block, and had built a continuous wall around the entire property. When he turned it over to the university, he included a ban on any building within 100 feet of the library, in which he had accumulated one of the finest collections of rare books in the country, mostly English literature. With this legacy as a beginning, UCLA began to transform a private library into the Center for 17th- and 18th-Century Studies. Together with the endowment left by Clark as part of his gift, subsequent additional funding by the J. Paul Getty Trust and the Ahmanson Foundation is providing The Center with momentum.

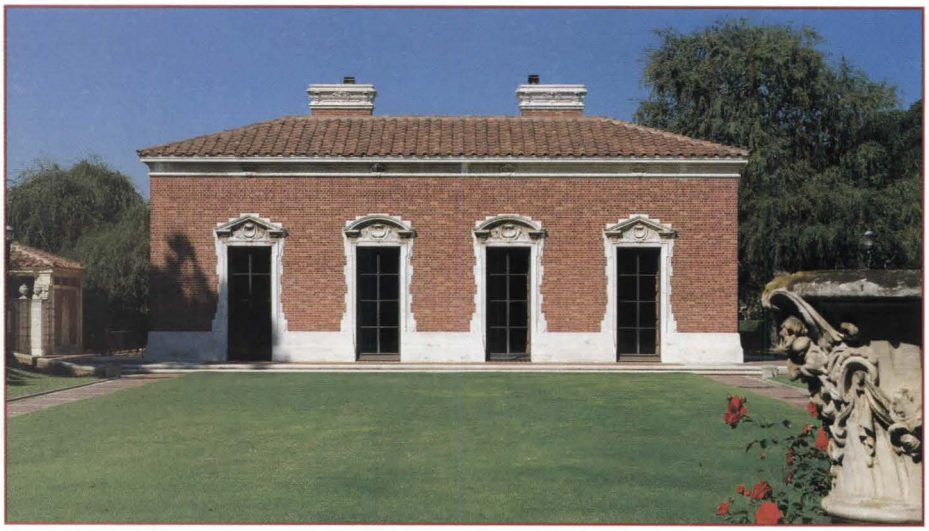
Two later alterations on the grounds, the removal of the observatory in 1954 and the house in 1971, left the library isolated in an unrealized landscape. Architects Barton Phelps & Associates proposed a master plan that is based on the notion of a "thickened wall," which could be extended along the perimeter of the block, preserving the sanctity of the library. The first segment of this multi-use "wall" is a support facility comprising quarters for visiting scholars, conference room/commons, dining room/kitchen, publications offices, book storage, and three exterior courtyards.

Arranged in a row of 20-foot-wide modules, the facilities can be read as one unit or four components; the brick color is meant to relate more to that of the perimeter wall than to the multicolored library masonry. Because of its linear nature, the "wall" leaves abundant space for a sunken court, part of the master plan that ties into the existing below-grade expansion of the library; and it gives the site a sense of *enclosure*.

Because of a stringent budget, the architects chose 8-inch structural brick walls with precast concrete elements and steel windows. Black steel columns with a cantilevered steel pergola will, when covered with vines, shade the openings in the wall. Stucco and glass end walls on the units enclose the courtyards, expressing the infill between the brick walls.

On the interior, the spaces are clear and direct. The single-wythe brick wall is exposed with the rough side in, the floors are carpeted or stained concrete, and the furniture is of cherry, and is as straightforward as the building. For the conference room/commons, the architects designed what they call a "minimalist version of a 17th-Century baronial hall," with its prominent fireplace of refractory brick and its coffered ceiling of oriented strand board.

Instead of indulging in architectural pyrotech-



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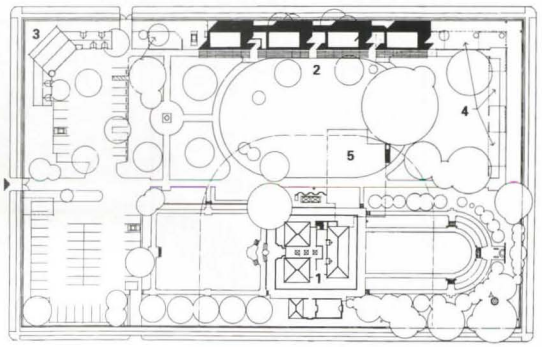


SITE PLAN

N ↑ 100'/30m

An appropriately respectful "thickened wall," the North Range modules form a sense of enclosure for the space (3) but keep well clear of the library (1). Care was exercised in preserving existing trees on the property. On closer look (2), the side walls of single-wythe structural brick are clearly delineated by the stucco end fill panels that frame the courtyards and their entrance gates. The module containing the conference/commons space (center) has much more glazing than units on either side.

SITE PLAN (see above left)

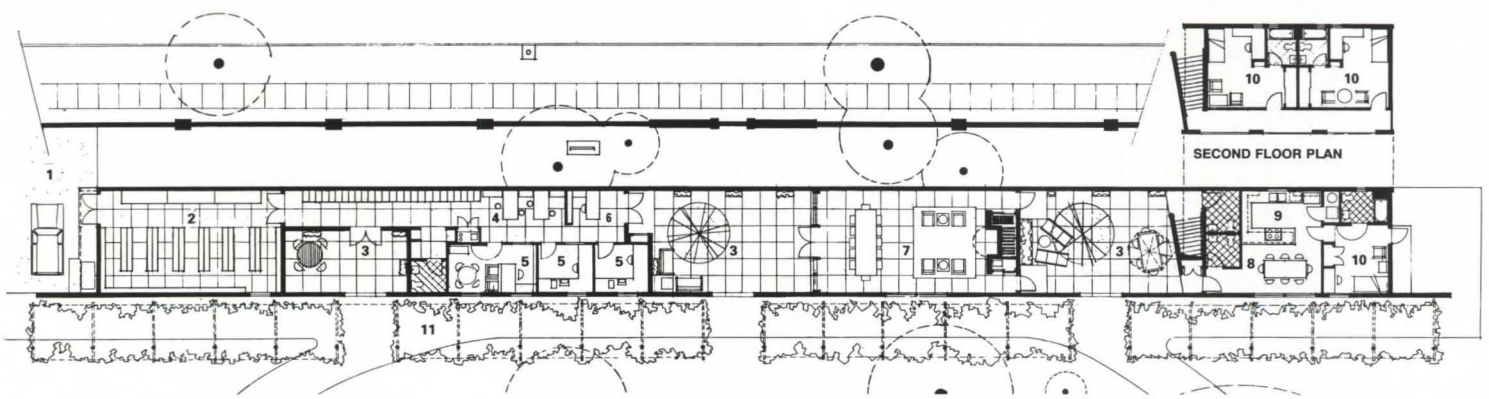
1 LIBRARY
2 NORTH RANGE
3 GATEHOUSE
4 FUTURE ADDITIONS
5 EXISTING UNDERGROUND ADDITION

FIRST FLOOR, SECOND FLOOR (see right)

1 LOADING AREA
2 PUBLICATIONS STORAGE
3 COURTYARD
4 PUBLICATIONS WORK AREA
5 OFFICES
6 RECEPTION AND SALES
7 CONFERENCE/COMMONS
8 DINING ROOM
9 KITCHEN
10 APARTMENT
11 PERGOLA

2

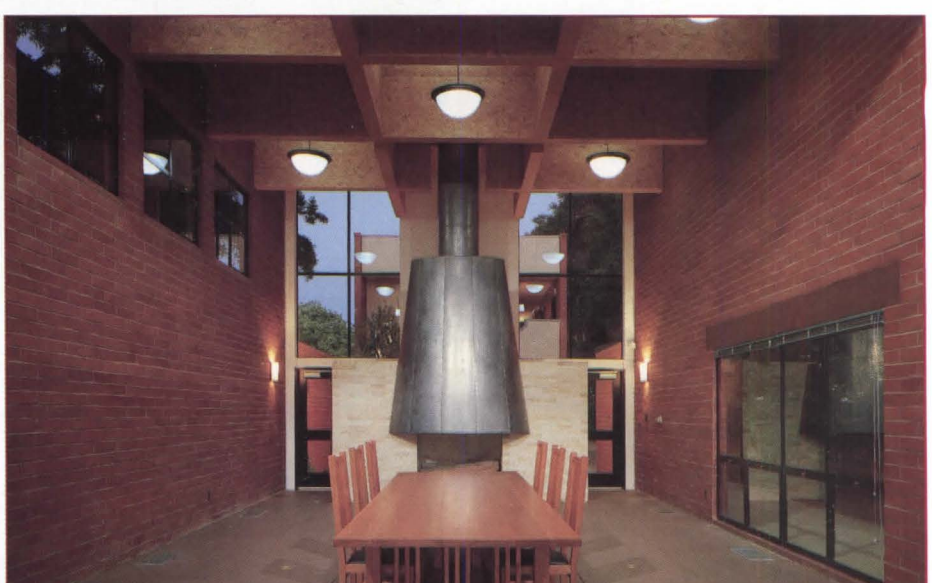
3



FIRST FLOOR PLAN

N ↑ 20'/6m

Project: *The North Range, William Andrews Clark Memorial Library, U.C.L.A. Los Angeles*
Architects: *Barton Phelps & Associates, Los Angeles (Barton Phelps, principal; Don Aitken, project architect; Donald Davis, Richard Destin, David Guthrie, David Haggerty, Paul Jamtgaard, Susan Lindsey, Keith Moskow, Shirley Moy, Andre Pierce, and Lester Tobias, project team).*
Client: *University of California, Los Angeles; Charles W. Oakley, Campus Architect, Capital Programs, UCLA.*
Site: *Walled city block of 5 acres in the largely residential West Adams neighborhood, with a Beaux-Arts private library (Robert Farquhar, 1926) and a service building of the former residence (1906) with gardens (Ralph Cornell, 1926).*
Program: *Support facilities for the recently begun Center for 17th- and 18th-Century Studies, to include publications offices and storage, conference/common area, kitchen/dining area, 3 fellows quarters and 3 courtyards. Total area is 5800 square feet, including 1500 square feet of walled courtyards.*
Structural system: *Perimeter concrete footings and grade beams, slabs on compacted fill, 8" structural brick bearing walls (at sides, full grouted, tall/slender technique), steel columns and beams, and wood stud framing at end walls, wood joist floors and roofs.*
Major materials: *4" × 8" × 16" structural brick, cement plaster, stained concrete floors, mineral batt and rigid urethane insulation, gypsum wall board, steel windows, lead-coated copper sheet metal, refractory brick at fireplace, oriented strand board ceiling, and aggregate-coated composition decking (See Building Materials, p. 116).*
Mechanical system: *Gas-fired forced air units with heat pump cooling.*
Consultants: *Melvyn Green & Associates, structural; M.B. & A., mechanical; Athans Enterprises, electrical; S.W. Group, civil; William Mullen, costing; Robert M. Fletcher, landscape; Audrey Alberts, interiors.*
General contractor: *California I.B.A., Inc.*
Costs: *$1 million;$198 per sq ft (courtyards at 1/2, pergola and planting not included; sitework, interior finishes and built-in furnishings/appliances included).*
Photos: *Tom Bonner.*



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nics, the architects had the clear vision that simplicity was what was called for. The North Range is simple in form, yet so carefully thought out that nothing seems out of place or extraneous. But probably the biggest contribution of this scheme is its respect for the museum and its setting. By creating the first elements of the "wall," the architects have set a pattern of circumspection that should guide any future construction. They have also executed the actual buildings in a no-nonsense, pristine manner, showing admirable restraint in expression and detailing. There can be no question that this is the correct solution to meet this challenge, in this place. **Jim Murphy** ■

In the stately conference/commons area (4), the metal-hooded fireplace is flanked by refractory brick, and the coffered ceiling is of oriented strand board. Both end walls define courtyards, and are as fully glazed as possible. As in the commons, the furnishings in the dining room (5) are attractively spare. All of these south-facing rooms have ample views back toward the Clark Library, vistas that will be framed by vines that are growing on the wires of the cantilevered steel pergola (6).

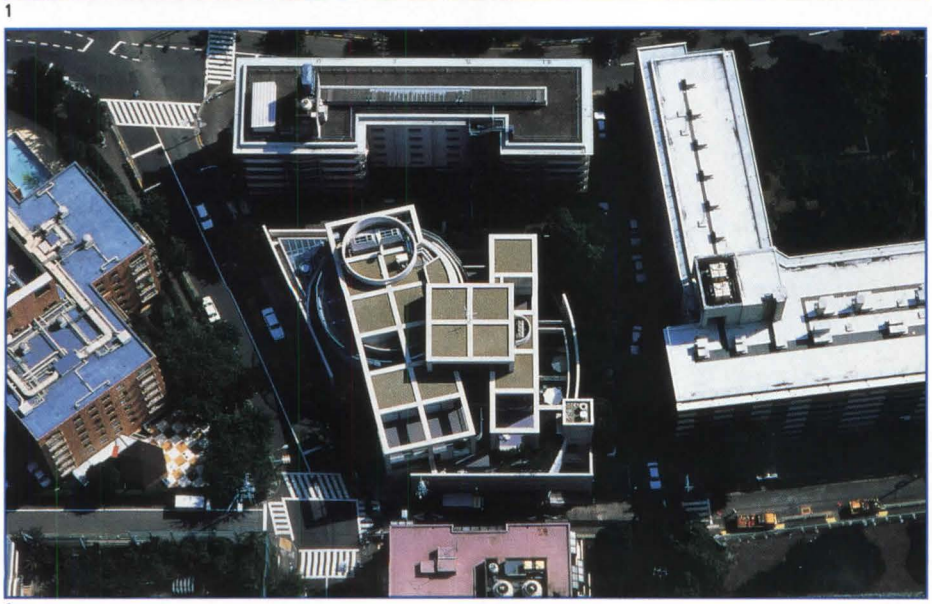
Urban Inlay

For a structure housing a collection of luxury facilities,

inserted among disparate neighbors,

Tadao Ando has crafted a three-dimensional puzzle.

1



2

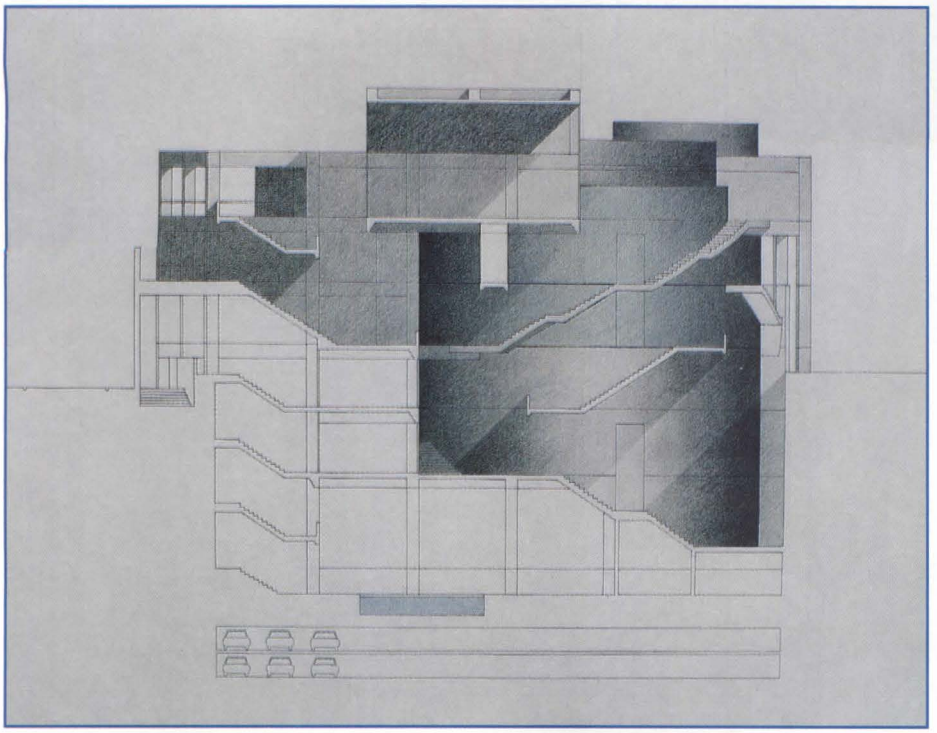
In its up-market, mixed-use program concept, Collezione is typical of Tokyo's burgeoning development. As a work of Tadao Ando and his associates, it interprets the urban forces behind it with unique elegance and clarity.

Replacing a long-surviving private residence in Tokyo's affluent, medium-density Minami Aoyama district, the new structure had to include two generous residential units for the family of the original owner. And, given the relationship of allowable above-ground envelope to soaring land value here, the new building had to generate as much usable volume below ground as above.

At the very bottom of the complex is a parking garage for 44 cars. The next two subterranean levels house a fitness club, made attractive by strategic shafts of natural light and cascades of greenery reaching the second basement level. On the street level and second floor are an assortment of stylish shops (among them Krizia and Gianni Versace), plus a restaurant. The layer above these is devoted to an "event hall", and topping the whole is a two-story-high showroom for Cassina furniture. Sharing parts of the third and fourth floors are the two residential units, generously glazed and terraced duplexes reached through their own side-street entrance and elevator core.

Ando's approach to this collection of interwoven volumes is a more complex version of his

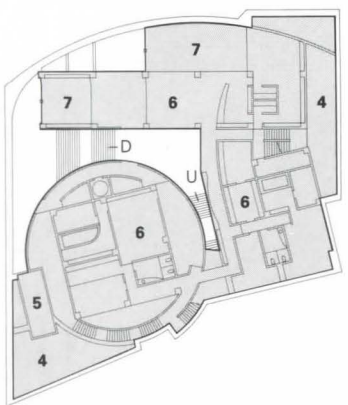
The main entrance to Collezione (1) is signaled from either way along the bending avenue (left side in aerial view, 2) by the cylinder projecting through its rectangular block. A tall portal through an angled screen wall both emphasizes the entry and sets up an interior/exterior ambiguity that pervades the whole aggregation of building forms. Just inside this portal (3) stairs draw visitors up around the cylinder.



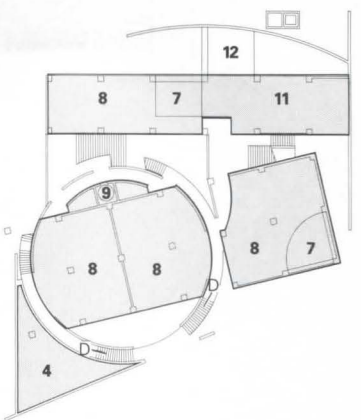
SECTION LOOKING NORTHEAST

Voids between the various parts of Collezione accommodate complex arrangements of stairs (4) and allow light and greenery down to the second basement level of the fitness club's swimming pool (5). On the fourth level, the Cassina showroom extends out onto a roof terrace on top of the main cylinder, affording views along the avenue and displaying Wright-designed outdoor furniture (6).

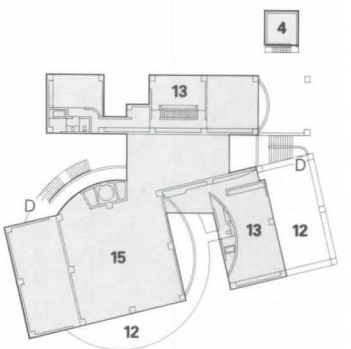
1 SWIMMING POOL
2 GYM
3 LOUNGE
4 MECHANICAL
5 CAR ELEVATOR
6 ATHLETIC CLUB
7 OPEN TO BELOW
8 SHOP
9 ELEVATOR/SERVICE CORE
10 RESIDENTS' ELEVATOR
11 RESTAURANT
12 TERRACE
13 DUPLEX APARTMENT
14 EVENT HALL
15 FURNITURE SHOW ROOM



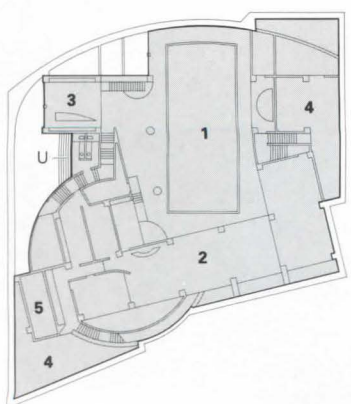
FIRST BASEMENT PLAN



SECOND FLOOR PLAN



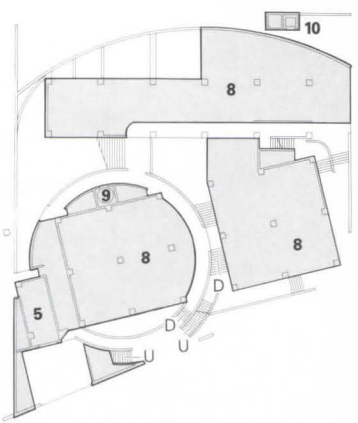
FOURTH FLOOR PLAN



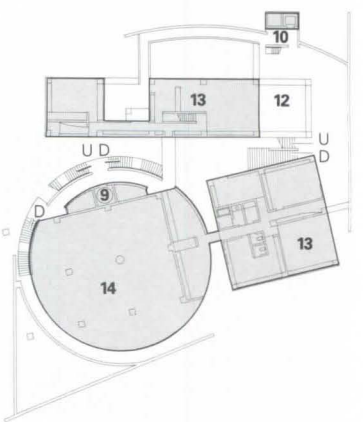
SECOND BASEMENT PLAN

N

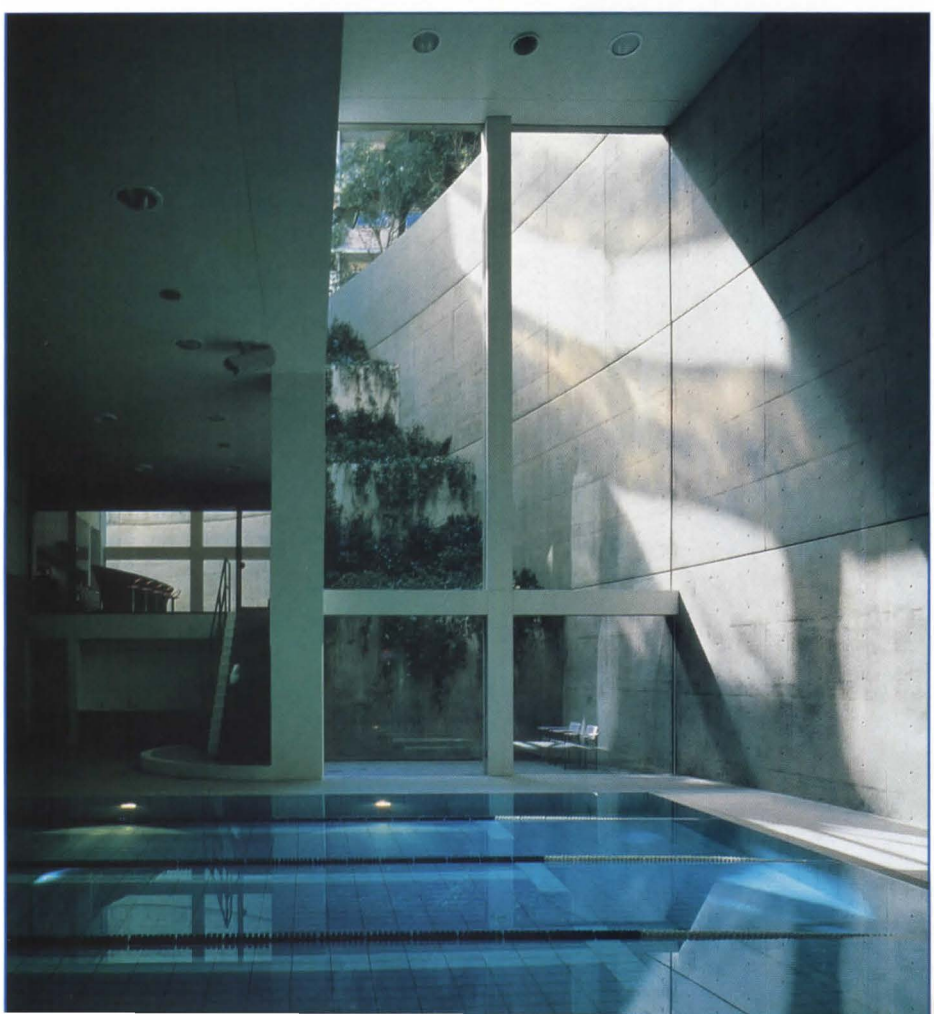
40'/12m



FIRST FLOOR PLAN



THIRD FLOOR PLAN



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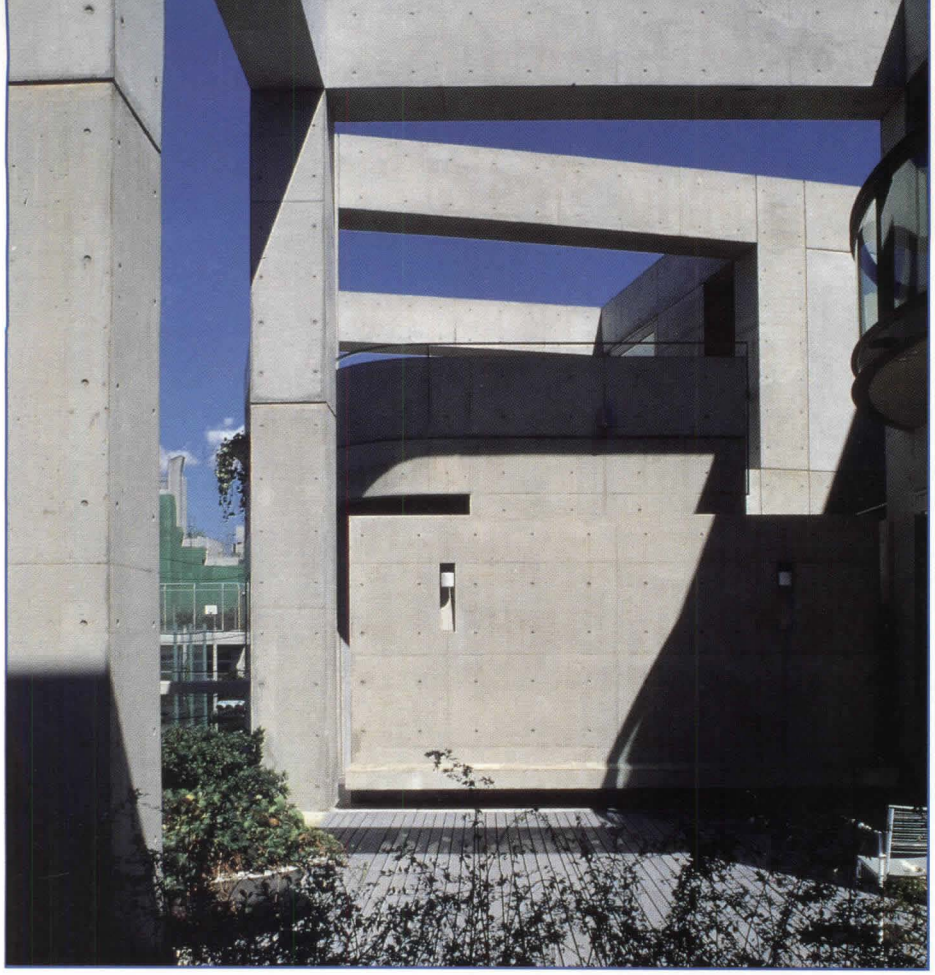
slightly earlier commercial complexes in and near Osaka (P/A, Feb. 1990, pp. 84–97). Here he sets up two 6.15m grids, at a 13.5-degree angle to each other, then generates two concentric cylinders around one gridded arm. Dramatic and geometrically baffling light shafts and stairwells fill the gaps between the two angled grids and the voids that develop around the cylindrical walls. (At the back of the building, out of the public circulation paths, further open volumes occur between a gridded wing and the curved rear wall of the complex).

In contrast to Ando's earlier retail complexes, such as Galleria [akka] in Osaka, Collezione reveals much of its spatial complexity in its street front, where a broad cylindrical surface breaks through the main rectangular block, spinning off tangentially what appears to be a concrete screen wall with a two-story portal to mark the main entrance. This time the virtuoso spatial maneuvers and details are evident right out front. Inside the public passages and light courts, of course, there are still new surprises in the way of complex indoor/outdoor, concave/convex, light/shadow relationships that make Ando's buildings so rewarding to experience.

True to its name – the Italian word for "collection" – Collezione has the quality as one moves through it of a small aggregation of buildings, an urban fragment with rich spaces and clean surfaces. In a city increasingly dominated by assertive, mutually unsympathetic structures, this project provides an example of complex harmony.

John Morris Dixon ■

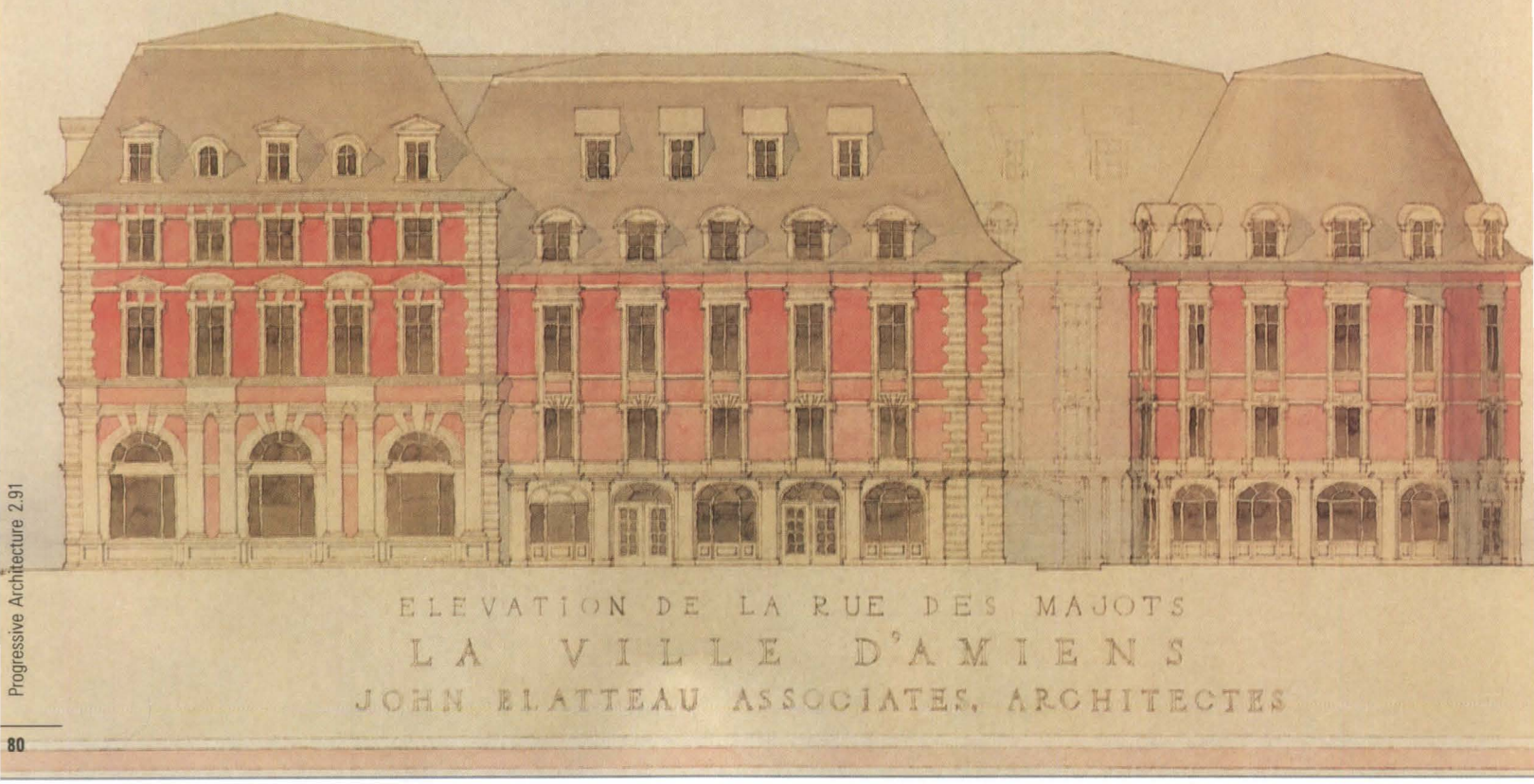


On the upper levels of Collezione, elegant duplex apartments for the family whose house previously occupied this site have airy decks and gardens (7) framed by Ando's concrete structure; the residents' favorite cherry and plum trees had to be saved and replanted on these terraces. Extending one floor higher is the two-story Cassina furniture showroom (8), designed by Mario Bellini, whose mezzanine forms the square capstone joining Collezione's diverse forms (9). Bellini's red interior walls vary the usual neutral Ando palette, and Ando himself augments his usual concrete and glass surfaces with sleek aluminum panels cladding the cylindrical volume.

Project: *Collezione, Minami Aoyama, Tokyo.*
Architect: *Tadao Ando, Tadao Ando Architect & Associates, Osaka.*
Client: *Fuji Project Co.*
Site: *1683.5 sq m (18,122 sq ft), nearly flat, fronting on avenue to north.*
Program: *parking (44 cars), athletic club, shops, restaurant, event hall, furniture showroom, apartments. Total: 5710 sq m (61,460 sq ft).*
Structural system: *steel reinforced concrete.*
Major materials: *exposed concrete (cast-in-place and precast), aluminum exterior wall panels, glass, ceramic tile floors and paving.*
Mechanical systems: *heat pump, gas-absorption refrigeration.*
Consultants: *Mario Bellini Associates for Cassina interiors (others by architects); Ascoral Engineering Associates, structural.*
General contractor: *Ohbayashi Corp.*
Costs: *not available.*
Photos: *Mitsuo Matsuoka.*

The Classical Critique

Recent work by John Blatteau Architects offers insight into Classical architecture as a critique of current practice.



1

It is too easy to dismiss Classical architecture as irrelevant to our time. Obviously we no longer build temples to Zeus or see Classical ornament as a reminder of military victories or ancient myths. But the ready dismissal of this architecture, heard frequently in the schools and on the lecture circuit, ignores Classicism's other, more radical role: as a way of criticizing and reforming contemporary practice. In the Renaissance, for example, Classical architecture served notice on hidebound Medieval builders, and in the second half of the 19th Century, Beaux-Arts Classicism did the same in this country for journeymen architects whose piecemeal education and eclectic methods were reflected in their work.

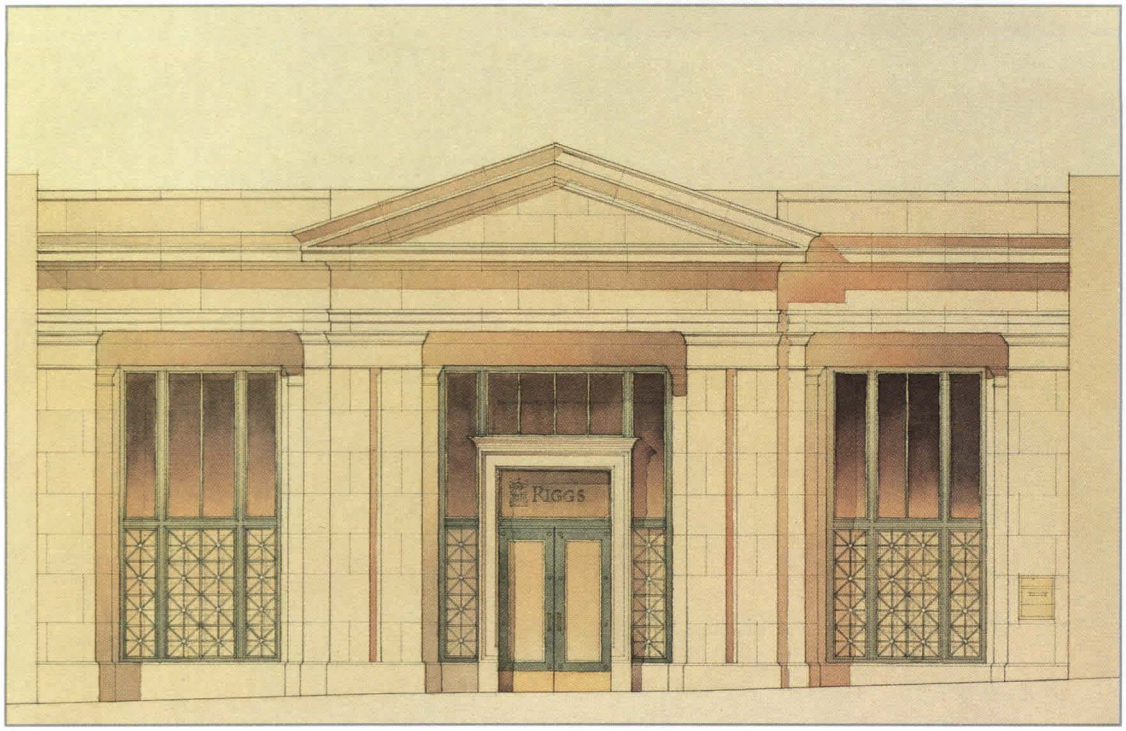
Classical architecture can be seen playing a similar critical role today. In this age of shoddy construction, aesthetic pluralism, and public cynicism, the traditional Classicism of an architect such as John Blatteau serves as a reminder of very different values that both Classicists and Modernists shared in the early 20th Century.

It may sound odd to suggest that late Classical architecture and the early Modern movement had values in common, given the very different appearance of the buildings each produced. But a conversation with Blatteau quickly reveals a sensibility quite similar to that of early Modernists such as Mies, and quite distinct from that of Late Modernists or even Post-Modern "ironic" Classicists, whose work shares a superficial likeness to Blatteau's.

He readily expresses admiration for what the early Modernists achieved. "There was some spectacular early Modern architecture," says Blatteau, "that was technically advanced and experimental." And he views the Modern Movement's rebellion against Classicism earlier in this century as "well intentioned. Theirs was the logical reaction to Classical architects," he adds, "who had become complacent – an old boy network that expected appreciation." What emerges from such a conversation is the sense that, contrary to the claims of many history books, traditional Classicism and early Modernism had much in common, perhaps more than either one has with today's architecture.

The Sense of Craft

One area of overlap between the two was the sense of building as craft. "Early Modern architecture," observes Blatteau, "came out of a craft tradition," and its practitioners, people such as Mies and Wagner, "were not afraid to use gold leaf or mosaic." That sense of craft declined, suggests Blatteau, with the "second generation of Modernists, who in throwing out the Beaux-Arts system also threw



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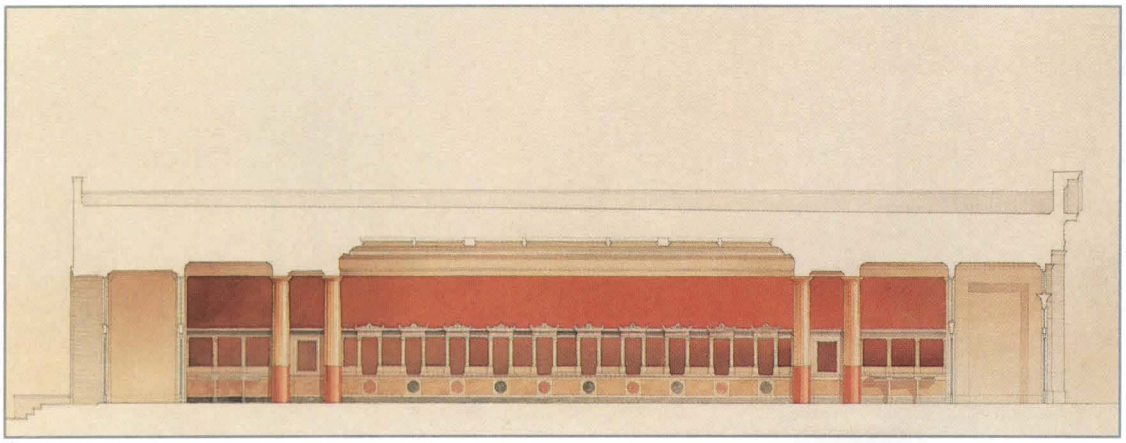


3

John Blatteau Associates was one of twelve firms invited by the city of Amiens, France, and its urban designer, Rob Krier, to design new infill buildings for parts of the city still vacant from World War II bombing. Blatteau has designed a hotel and commercial complex (1) recalling the 17th-Century Classicism found in Picardy, the region around Amiens.

A branch of the Riggs Bank, nearing completion in Northwest Washington, D.C. (2,3), has a limestone façade in a severe Tuscan style. Inside, there is a central banking hall that runs the length of the building, with temple-fronted tellers' cages on one side and bank offices on the other.

out its resources," including the accumulated wisdom about how to use materials and put buildings together. Beset as we are today by poor detailing, cheap materials, and conspicuous building failures, such an argument is compelling.

The counter-argument, of course, is that the economics of building have changed and that many clients will no longer pay for the solid construction and rich materials of the past. Blatteau disagrees. "Our work for Riggs Bank was done for a range of budgets," he points out. "The Riggs lobby was expensive; other spaces, such as the offices, were much less so. And even the lobby was no more expensive than a high-quality Modern lobby." Part of the problem, he adds, is "that people think we can't build like this anymore. We can." And clients will pay for it, he says, if they think they are "getting something of value for their money."

It is not a matter of no longer finding contractors with the skills to do such work. Blatteau claims that he has always been able to locate people able to handle the Classical details in his buildings. If anything, he suggests, it is architects who have become de-skilled. "There is very little understanding in the schools about this kind of work," says Blatteau. "Students often don't realize how much they don't know."

The Pursuit of Visual Subtleties

This raises a second trait that Modern architecture shared with Classicism: an intense preoccupation with visual subtleties. Blatteau can go on for hours talking about how Renaissance architects addressed the problem of making corners in buildings without distorting the Classical orders or about how a Classical structure such as the Philadelphia Museum of Art has exterior walls that subtly curve or bow to correct for visual distortion. Such a conversation brings to mind similar obsessions of some early Modernists: Mies's endless studies of how the skin and the structure of his buildings met at the corners or Le Corbusier's careful adjustment of proportions and rhythms to order his façades visually.

Such subtleties are still found in some of today's architecture, but in general our preoccupations seem to have changed. Among Neo-Avant-Garde architects, for example, the subtleties are more literary or philosophical than purely visual. Such architects, says Blatteau, "trust the head over the eye, losing sight of what architects are supposed to do: make beautiful buildings." Among Post-Modernists, the subtleties tend to be those of creating and exploring personal styles rather than refining a received tradition. "The signature of Post-Modernists," argues Blatteau, "is often bigger than

Within a nondescript office building in downtown Washington stands the Lincoln branch of the Riggs Bank (4), which features a semicircular teller's counter with a glazed columnar screen and a cove ceiling. The entrance vestibules are framed by a Corinthian order carved in wood.

Blatteau's office has completed two restorations for the Riggs Bank. The upper detail (5) shows the capital and entablature from the Farmers and Mechanics Branch in Georgetown, designed by Marsh & Peter, Architects and completed in 1921. The lower detail (6) is from the Riggs Bank's main office in Washington, D.C., designed by York & Sawyer in 1902. Both projects involved the extensive recreation of lost ornament and the integration of new mechanical and electrical systems.

A corner of the new lobby for the Riggs Bank's headquarters in Washington, D.C. (7) reveals the extent of the craftsmanship still possible today. The walls of the lobby are clad in French limestone set in a soft lime mortar. The Ionic columns have shafts of Italian marble, limestone bases, and plaster capitals. The lobby also features bronze doors and custom lighting fixtures.

photos: Matt Wargo

4

their canvas. To differentiate themselves from the crowd, they seem to feel a need to make a huge mark with each building." Blatteau contrasts this with Classicists, as well as with early Modernists such as Mies, "who were not so obsessed with being original."

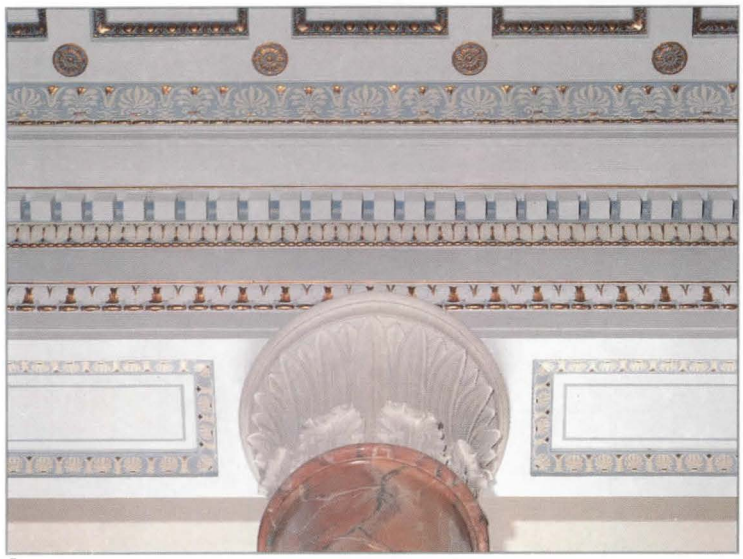
The Belief in the Public Good

This leads to a third sensibility shared by many Classicists and early Modernists: a belief in the public good and a sense of responsibility for improving its welfare. As Blatteau puts it, the architect must be "the social conscience of public institutions," using "private funds for the public good." Echoing the sentiments of many early Modernists, Blatteau sees architects' primary responsibility as ennobling or empowering people, rich and poor alike, by giving them "dignified settings, and the sense of being part of a larger institution or community."

Obviously the style of architecture Blatteau uses to achieve this differs dramatically from that of the early Modernists, and many critics argue that that makes all the difference. Some see in Classical architecture the representation of authoritarian social and political ideas, and they suggest that it is somehow tainted by being the architecture of choice for the likes of Hitler and Stalin. Others see Classical architecture as being inherently repressive because of its identity with the Western tradition, which has increasingly come under fire because of its suppression of women, minorities, and non-Western cultures in general.

While that criticism has been widely influential, it confuses means and ends, shooting the messenger because of the message. Classical architecture is a language, parallel to, say, German and Russian. The latter were also used by Hitler and Stalin, are closely identified with the Western tradition, and are no doubt full of words that betray biases toward women or foreign cultures. Because of that, those languages probably demand some modification, but who would seriously propose their abolition? In the same vein, Classical architecture, says Blatteau, "needs to be debated, not censured."

At the heart of such a debate is the question of how we think about "the public." Is it an identifiable entity with a common set of values or an almost infinite number of factions and competing interests that barely coexist? This is an important question for architecture because "the public" is the primary "audience" of this art. The answer suggested by Classicism is that, despite its many internal divisions, there is an identifiable "public"; the alternative,



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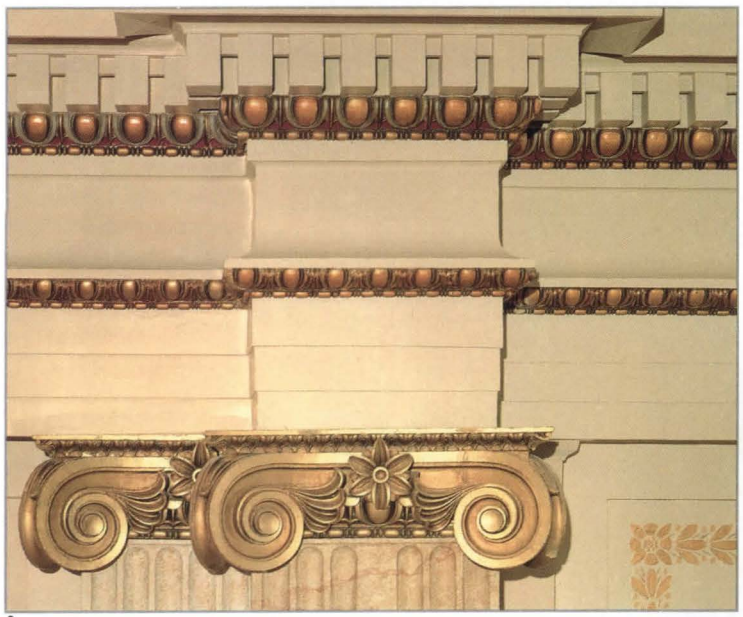

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7

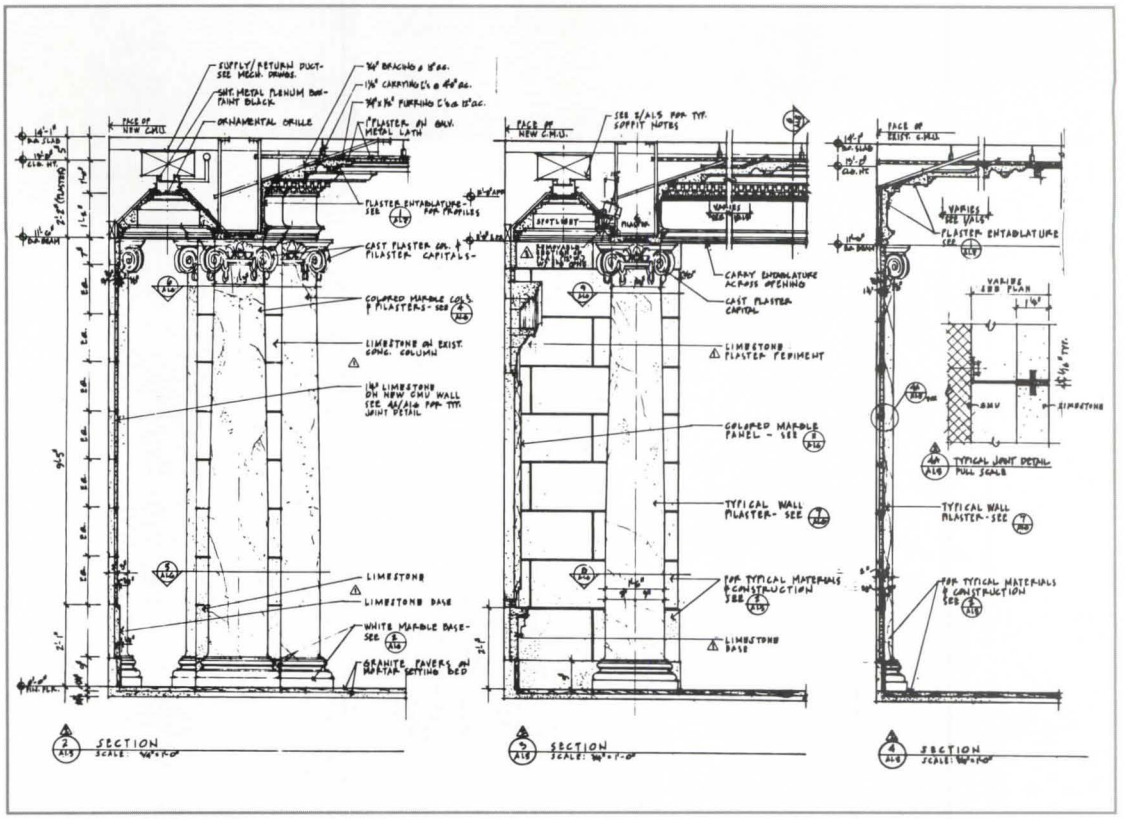
argues Blatteau, is fatal to architecture. "Architecture becomes just a series of private jokes."

The Classical Critique

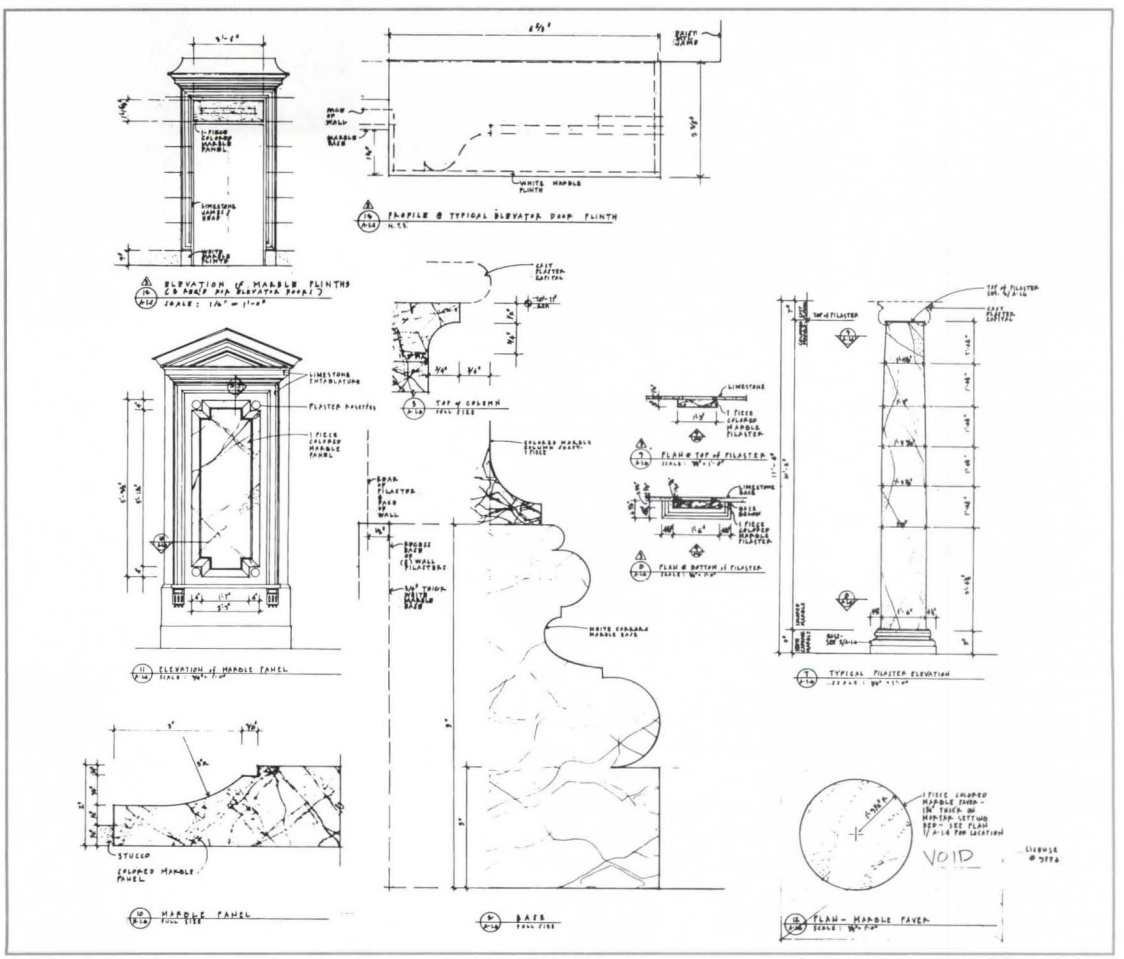
The questions that Classicism raises about the possibilities of craft or the relationship of personal freedom and public responsibility are central to the current architectural debate. Classicism may not have all – or even most – of the answers to those questions. But in raising the issues, it offers some needed critical perspective in these confusing times.

An example of what happens when there is a lack of such perspective is the association of Classicism and conservatism. Classical architecture, over the centuries, has represented progressive change far more often than it has the conservative status quo. The echo of early Modernist ideals in it today only lends further evidence of that liberal interpretation. "The climate in architecture now," says Blatteau, "is similar to that surrounding Mies and many of the other early Modernists. It is a time to rethink elementary ideas and to return to first principles." **Thomas Fisher** ■

Selected Detail



PILASTER DETAILS



COLUMN/PANEL DETAILS

Column and Panel Details
Riggs Bank lobby
Washington, D.C.

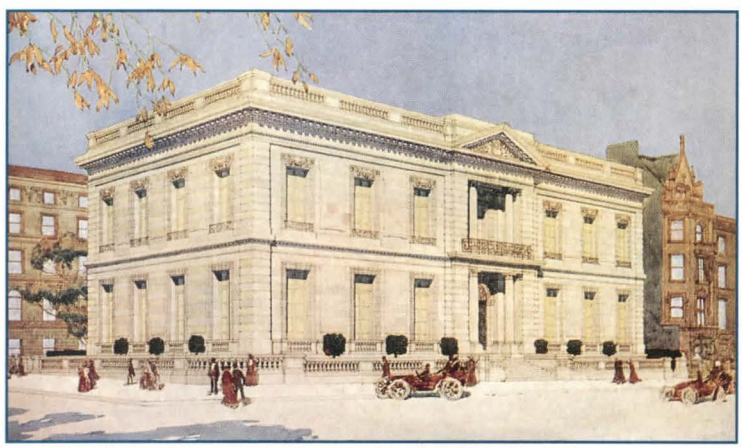
These details from the drawings prepared by John Blatteau Associates for the Riggs Bank lobby reveal the firm's attention to craft and visual subtlety. The sense of craft is most apparent in the plaster entablatures and the ceiling, which are hung from the slab above by a series of angles and channels (above right). "The more industrialized the process" says Blatteau, "the more difficult it is to control. Plaster and wood are the easiest." For ornamental metal or carved stone, Blatteau's office often has plaster models prepared as guides for that work. The limestone and marble wall panels (below right) are accompanied by full-size molding profiles to ensure accuracy in the shaping of materials that are less forgiving than plaster. Subtleties such as the entasis of the pilasters also require added dimensioning at regular intervals up the shafts. However, there is relatively little detailing on these drawings, considering the richness of the result, a testament to the continuing ability of craftspeople to produce Classical ornament.

Perspectives

Michael Adams relates the many obstacles and few opportunities encountered by black American architects practicing in the late 19th and early 20th Centuries.

A Legacy of Shadows

Despite over 200 years of involvement in the building of America, the historical contributions of black designers remain obscure. Those contributions are exemplified by the work of pioneers such as Joseph Francis Mangin, the principal designer of New York's City Hall, and Benjamin Banneker, who assisted Pierre Charles L'Enfant in the planning of Washington D.C. In part, the invisibility of such figures is attributed to the small numbers of blacks who have chosen architecture as a career. Less than one percent of the AIA's membership, for example, is black. There also persists the problem of ready access to the "old boy network," which tends to exclude both women and minorities, particularly black men, from the pinnacles of American architectural practice. Even in so cosmopolitan a center as Manhattan, only three buildings below 96th Street – below Harlem – have been substantiated as having been designed by blacks between 1950 and 1990.



The James B. Duke House in New York, designed by Julian Francis Abele while in Horace Trumbauer's office.

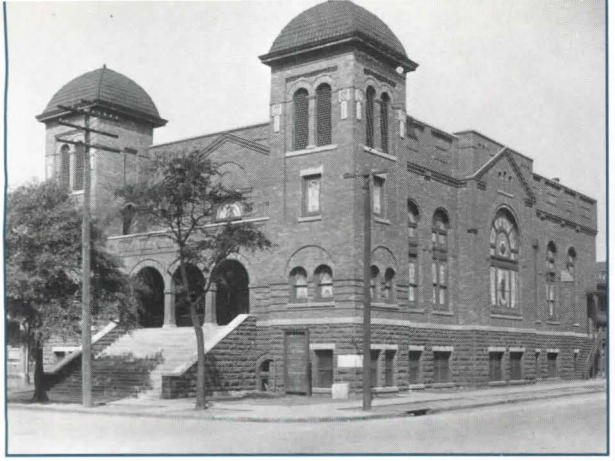
In view of such circumstances, it comes as no surprise that black architects, not unlike other black professionals, continue to be haunted by the question: "Am I good enough?" As the following examples show, black architects are no less capable than their white colleagues. However, few black designers have achieved the success of the best white firms. As the rise of black American architects in the 19th and early 20th Centuries shows, they lacked not ability, but the opportunity.

In 1868 the Freedman's Bureau founded the Hampton Institute in Tidewater, Virginia. Their goal was to select men and women "who should go out and teach and lead their people"; for the white benefactors of schools like Hampton, Fiske, Howard, and Tuskegee, this meant an emphasis on vocational training, to produce skilled laborers. They believed that "work makes free." Mindful of this, the black administrators of these schools pragmatically set up curricula that stressed the "practical" at the expense of disciplines like architecture. Far more than whites, men like Booker T. Washington limited black aspiration even as they professed to enlighten and uplift.

Nevertheless, a few determined individuals were attracted to architecture. Unknowingly, they were to establish a chain of practice that still exists. William A. Rayfield, with a talent for drawing and sums, worked as a laborer to pay a white firm in Birmingham, Alabama, to train him as an apprentice. In the 1890s he taught at Tuskegee Institute, which eventually began an architecture program. Like R.R. Taylor before him and subsequent heads of the architecture department, Rayfield was able to design several of the school's buildings. However, even though he was provided with accommodations and a yearly salary of $400, Rayfield left Tuskegee when unable to secure a $60 raise. In Birmingham he embarked on a successful career in the only field then open to black practitioners: designing churches. Between 1910 and 1914 he developed a considerable reputation among black congregations in the South, owing, in part, to a promotional booklet that he put out. Today, his monument is the 16th Street Baptist Church in Birmingham, which figured so prominently in the Civil Rights Movement of the 1960s.

While at Tuskegee, Rayfield taught John A. Lankford (1876–1946) who, in turn, was an instructor in architecture at a series of black colleges, the designer of scores of churches, and a force in the creation of the architecture school at Howard University in the 1920s. Lankford and Rayfield both had their work published in the early 20th Century in black journals like *The Crisis* and *Opportunity*.

Another black architect worth noting is George Washington Foster, Jr. (1866–1923). Born in Newark, New Jersey, Foster was the son of a carriage stripper. His family moved to New York when he was four. Following study at the Cooper Union in 1888–1889, Foster was a draftsman in the office of Henry J. Hardenberg



Birmingham Public Library

Westchester County Historical Society

The 16th Street Baptist Church in Birmingham, Alabama, by William A. Rayfield (above left) was the site of key events in the early Civil Rights Movement. Villa Lewaro (above right) in Irvington, N.Y., was designed in 1917 by Vertner Woodson Tandy for an inventor of hair preparations, Madame Walker.

and is believed to have worked for Daniel Burnham's firm in 1903 on the Flatiron Building. Through membership in the "colored branch" of the Elks, Foster met a fellow architect in 1908, Vertner Tandy, who was 20 years his junior.

The first black registered as an architect in New York State, Vertner Woodson Tandy (1885–1949) was born in Lexington, Kentucky, where his father was a builder. Yet another alumnus of Tuskegee, Tandy was also the first black graduate of the architecture school at Cornell University, in 1907. While there, feeling the isolation and knowing the occasional assaults and insults suffered by fellow black students, Tandy helped establish the black Alpha Phi Alpha fraternity.

The partnership of Tandy and Foster acknowledged the high position Tandy enjoyed in the black community as a founder of this influential organization and also as holder of an all-important New York State license. Foster, for his part, had been the first black licensed to practice architecture in New Jersey, in 1902. Their firm's best-known works include the Neo-Gothic St. Philip's Espicopal Church (1911) and its Queen Anne-style parish house (1910) in New York. Beyond these, Tandy's and Foster's most ambitious collaboration was the Harlem townhouse of the hair-preparation millionaire, Madame C.J. Walker. Incorporating a beauty school and a salon on the ground floor, the Adam-style house was a competent if somewhat awkwardly proportioned design.

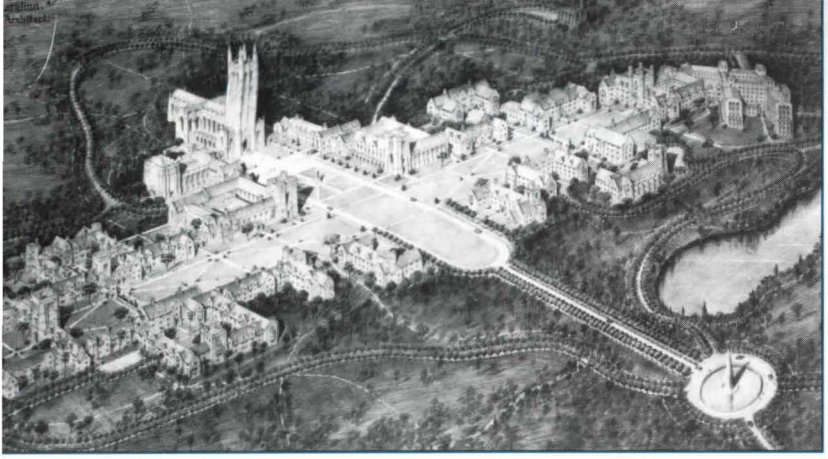
Around 1915 the partnership was dissolved. Tandy went on to design Madame Walker's Irvington, New York, country residence, the Villa Lewaro, set on four acres above the Hudson River in 1917. He later produced the headquarters for the Harlem Elks Lodge, which, like the Walker townhouse, was Adamesque in style. The lodge is Tandy's greatest extant work. The Ivey Delph Apartments, completed in 1949 just after Vertner Tandy's death, are Moderne in style and less characteristic of his work.

Foster lived the last 20 years of his life in a house he designed at 120 Colony Avenue in Park Ridge, New Jersey. His masterwork from that period of his life was the Mother AME Zion Church in Harlem. Located at 140–144 West 137th Street, the massive Neo-Gothic structure, with its random ashlar walls, was completed in 1925, two years after Foster's death.

Such prestigious projects were not typical of Tandy and Foster commissions. At ninety, the late dean of New York's black practitioners, John Lewis Wilson (1898–1989) remembered the Great Depression when, fresh out of architecture school, he worked for Vertner Tandy. "I worked for nothing but the experience and a few dollars a week to buy lunch and carfare. There was, I recall, a Spanish or rather an Italian Renaissance-style church I worked on that was built at 134th Street. Mostly though, we worked on brownstone conversions. We made apartments or rooming houses with stores or churches on the ground floors."

"Black architects are no less capable than their white colleagues. However, few black designers have achieved the success of the best white firms."

Born in Mississippi, John Lewis Wilson was a member of one of the state's most distinguished black families. At the time of his birth, his family on both sides boasted two generations of educators and clergymen. His father was a minister famed for his eloquent oratory. Equally renowned was his father's advocacy of liberal arts education for blacks, in opposition to men like Booker T. Washington. When William Rayfield came to plan a church for his father, young John Lewis Wilson saw the heretofore unimagined prospect of a black who, not a preacher or a teacher, was still able to earn his keep through knowledge and expertise. Wilson characterized this potential opportunity as a means of "making a living without getting my hands dirty." By this, he referred to the reality of blacks in his generation, trained as doctors and lawyers who, nonetheless, were forced to work as common laborers to survive. The example of Rayfield gave Wilson the determination to study architecture. Graduating from Dillard University in New Orleans in 1919, he briefly taught mathematics and coached football at a small black college in Arkansas. In 1923, Wilson was the first black student to enroll in Columbia University's architecture school, although because he had to work, he was unable to graduate until 1928. Initially, Wilson sought employment, secure in the value of his degree, with established white architects. Andrew J. Thomas, the successful developer of innovative housing projects such as the Dunbar Cooperative Apartments in Harlem (1928), said that he "would like to hire Mr. Wilson, but the other draftsmen would be against it. Now, if [he] were a graduate of the Beaux-Arts and had won the Prix de Rome, well then we could afford to ignore objections."



(Left) Duke University Archives/(Right) Julius Shulman

Julian Francis Abele designed much of the Duke University campus (above left) while working as the chief designer in Horace Trumbauer's office. Paul Revere Williams designed the Palm Springs Tennis Club (above right) as well as many houses for movie stars.

In response to the Harlem Riots of 1935, the Harlem River Houses were planned as one of the first federally subsidized housing projects in the country. After protests from the black community, Wilson was appointed as the one black in a team of seven architects headed by Archibald Manning Brown. "Mr. Tandy," said Wilson, "never forgave me for having been accepted for the Harlem River Houses. He had a consolation prize, though, in the 1940s, when he was part of the group of architects headed up by Skidmore Owings & Merrill that designed the Abraham Lincoln Houses."

Two of the more accomplished black American practitioners were Julian Francis Abele (1881–1950) and Paul Revere Williams (1894–1980). Each utilized historical precedents in his designs, but in a markedly different manner. Through talent and prodigious work, they overcame intense prejudice and attained a level of recognition rare for blacks of their time.

Julian Abele, a product of comparative privilege, was the quintessential representative of his era's black elite. His designs combined the sensual, intuitive artistry of a Stanford White with the clarity and refinement of a John Russell Pope. An example of this felicitous ability is the Fifth Avenue residence he designed for James B. Duke, now the Institute of Fine Arts at New York University. Graduating from the University of Pennsylvania in 1902, Abele was brought to the attention of Philadelphia's famed architect Horace Trumbauer. Trumbauer made it possible for Abele to study at the Ecole des Beaux-Arts. Thus began a special, somewhat paternal relationship that lasted the rest of their lives. Said to have graduated in 1906, Abele spent 31 years in Trumbauer's office. He became Trumbauer's chief designer, and historians readily credit Abele with much of the office's most notable work. Harvard's Widener Library, the Duke University campus, the Philadelphia Museum of Art, and the majority of the office's large houses have been attributed to Julian Abele. Eventually, Abele established a practice of his own, becoming a member of the American Institute of Architects in 1941.

The life of Paul Revere Williams, who was orphaned at the age of three, reads like a Horatio Alger story. His teacher at Los Angeles Polytechnic High School discouraged his pursuit of architecture. Disregarding this, Williams worked his way through the University of Southern California. Following two years of study at the Beaux-Arts Institute in New York, he returned to Los Angeles and was registered as an architect in 1915, although it was not until 1923 that he was able to open his own office. Williams' ultimate success rested on his ability to achieve high quality design economically, distilling historical ornament to create a stylized architecture that suggested rather than imitated the past.

"Blacks in his generation, trained as doctors and lawyers . . . nonetheless were forced to work as common laborers to survive."

In 1926, Paul Revere Williams became the first black member of the American Institute of Architects. Shortly thereafter, President Calvin Coolidge appointed him to the National Monument Commission. These honors were just two among a host of awards, prizes, and honorary degrees bestowed upon him during his prolific career. Today, Williams is best remembered as the architect for movie stars such as Cary Grant, Frank Sinatra, Bojangles Robinson, Betty Grable, Barbara Stanwyck, Bert Lahr, and William Holden. Their houses were icons of Hollywood glamour, and have influenced American suburban architecture. However, like most West Coast architects patronized by "stars" during Hollywood's golden age, Williams produced work that, while beautifully planned and fenestrated, appropriated period detailing seemingly at random. Williams also published two books, *Small Homes of Tomorrow* (1945) and *New Homes for Today* (1946). Through these books he provided lessons in good design for people of modest means, extending himself, unlike Abele, beyond clients of wealth and power.

A study of Abele and Williams is important for two reasons: It reveals the contribution of blacks to the architecture of the early 20th Century, and it enlarges our appreciation of the period's eclecticism as a style that represented the efforts and values of a broad cross-section of Americans. Interviewing Julian Abele, the historian Wayne Andrews was told, "The lines are all Mr. Trumbauer's, but the shadows are all mine." Today, despite heightened interest, the contribution of blacks to American architecture remains, as it were, a legacy of shadows. **Michael Adams** ■

The author is a Harlem-based architectural historian and President of the Upper Manhattan Society for Progress through Preservation.

Leon Whiteson ponders L.A. architecture as it reflects the American sense of collectivity – or lack thereof.

Essay: Confusion Made Visible

It's an often repeated maxim that the architecture created by any culture reflects its real values, virtues, and vices. This implies that the disposition of bricks and mortar reveals how a society, acting collectively, actually sees itself and apportions its resources, whatever the popular or official humbug about its aspirations.

A first-time visitor to Los Angeles using this architectural yardstick would quickly grasp the city's real character and priorities. At the broadest level, he or she would soon discern a huge imbalance between the public and private realms. While its public buildings, both civic and commercial, range from the mediocre to the trashy, L.A.'s range of private houses shows astonishing vitality. Compare, for example, the Playboy Mansion in Holmby Hills with City Hall. *Playboy* magazine founder Hugh Hefner owns six acres that comprise a superb private domain, complete with a zoo, sunken grottoes, and a small, lush forest; parrots perched in the redwoods share the grounds with a monster satellite dish. And the Mansion is far from unique as a private estate in the midst of the metropolis.

City Hall, which claims to be Los Angeles' grandest public building, may appear as an impressive obelisk from a distance, but close up it's a confusion. The tower's grand main entry on Spring Street is seldom used by the public, and serves mainly as a backdrop for film and TV sequences. Inside, the building is dark, baffling, and mean, stuffed with hidden offices not easily accessible to the public that the municipal bureaucrats are supposed to serve.

Out in the streets the poverty of the city's public architecture is clear to read. Even grand boulevards like Wilshire, L.A.'s main east-west artery, are shabby by comparison with the residential avenues that flank them. And the almost total absence of public parks and plazas, compared with the abundance of private gardens, emphasizes the imbalance. In Los Angeles, then, the architecture reveals that the collective social realm is weak. It's clearly a city where people expect to make their own heaven or hell, and care little about the metropolis at large, except when it encroaches on their privacy or freedom.

Los Angeles is an extreme example of a deep American distrust of the public arena. Things may seem different in Manhattan, at the other end of the continent, with its spectrum of urban development – but are they? Having to live closer together in New York City makes people aware of the tensions between various races and differing economic classes more immediately and intensely. Forced proximity does not create a common ground; it serves only to increase the inherent American fear of "the street."

"Los Angeles is an extreme example of a deep American distrust of the public arena"

Television is America's only true collectivity. Filtered through the neutrality of the electronic screen, J.R. Ewing and the fictitious Cosby family are more real to us than most of our neighbors, and a lot safer to know.

This electronic culture has an impact on our architecture. A whole new genre of buildings that derives its imagery from film and TV is emerging in our towns and cities, mostly in theme parks, shopping malls and "festival marketplaces." Recently we've seen a corporate headquarters in Burbank with a roof supported by oversized figures of the Seven Dwarfs, and a fake-historical, vaguely Roman street in Beverly Hills that has the feeling of a permanent walk-through movie set.

While the media beam out waves of contrived imagery, the cultural collectivity emits very weak signals. In a social vacuum the hyperactive organs of the Information Age generate an ambiance long on stimulation and short on reassurance. Fragmented and ghettoized, U.S. society lacks any sort of consensus or sense of cohesion.

"If the society that architecture makes visible has little or no clue of its collective identity, the designer in search of authenticity is thrust into an exploration of his own values as the only honest response."

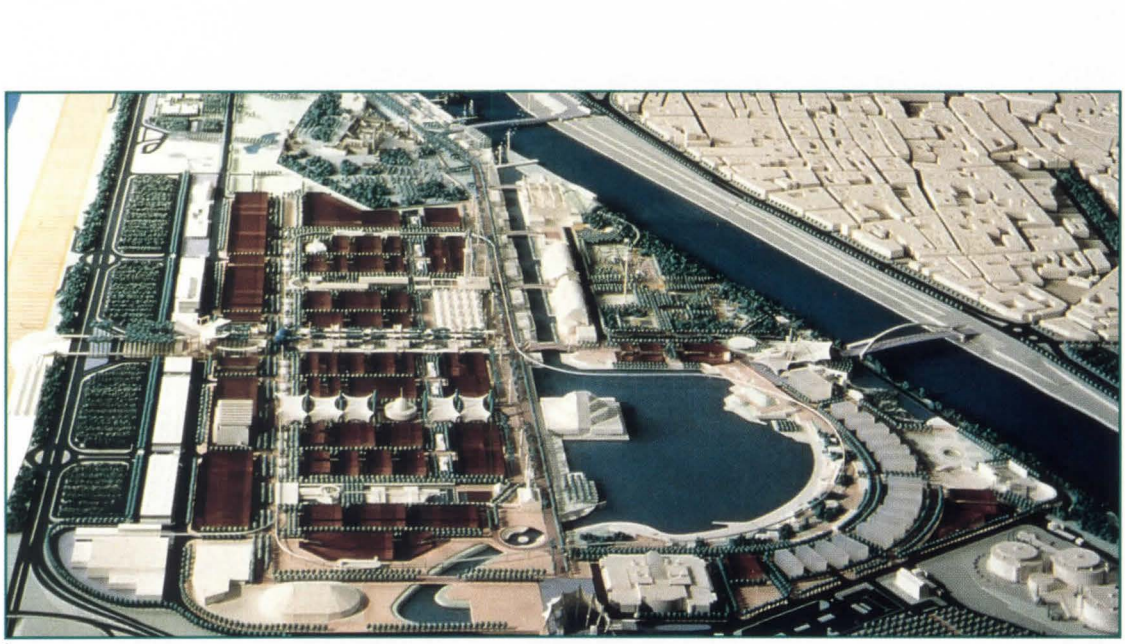
In the midst of all this cultural confusion and social incoherence sits the designer at his drafting table. If he is open to the conflicting signals that bombard his mind, he faces a formidable challenge: How to mirror a society that seems to have little notion of where it will be tomorrow, or maybe the same afternoon? How to make visible a culture that lacks any real common ground, and often seems utterly insincere in its intentions? How may one brain, one heart, recharge all this with a fresh spirit that's somehow true?

Responding to the pressures of the marketplace, many designers fall back on the fashions of the moment, others on abstract intellectual constructs that may or may not jibe with realities. Some look to the art world for cultural cues, others find validity in regional, historicist, and social nostalgias. And a growing number of architects

(continued on page 119)

Projects: Seville's Expo '92 – Modernism on Stage

Straightforward in design and in spirit, the international pavilions at Seville bespeak the optimistic agenda of the World's Fair.

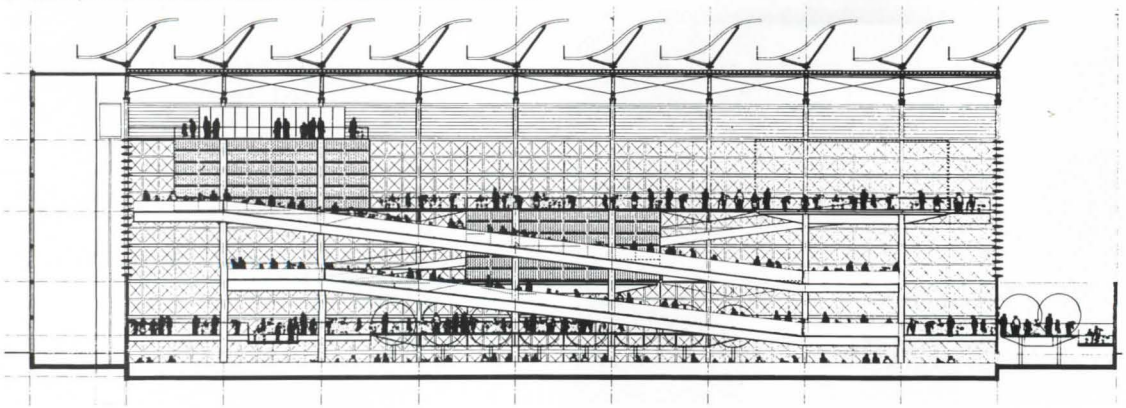


Universal Exhibition Seville 1992

1 MODEL, EXPO '92, SEVILLE

Michael Dyer

2 MODEL, UNITED KINGDOM PAVILION BY NICHOLAS GRIMSHAW & PARTNERS



NORTH-SOUTH SECTION

20'/6m

In the realm of architecture, a World's Fair is like a theatrical review of tableau-like pavilions, each a tribute to our technology-driven culture. The fair is architectural stagecraft, promoted for a mass market of tourists. Few architectural ventures attract a clientele as broad and as favorably predisposed to experimentation: Glittering mechanisms and eccentric silhouettes are tailored for popular appeal. Profound concepts must be attractively packaged; this is a stage for high-impact buildings.

When Expo '92 (1) premieres in Seville, Spain, on April 20, Modernism will get top billing, and understandably so; it's the architectural mode that has been best-suited to the World's Fair agenda. Some pavilions of past fairs have even entered popular culture's hall of fame: Harrison & Fouilhoux's Trylon and Perisphere of New York's 1939 Fair, and Buckminster Fuller's spherical United States Pavilion at Montreal in 1967, to cite two examples, have each become icons of their epochs.

The architects commissioned for Seville's fair (the first universal exposition since Osaka's in 1970) seem to concur that straightforward Modernism would be more resonant with the public than Post Modernism or Deconstructivism, the avant-garde movements of the intervening decades. This is not to say that Seville's fair will be simply a rerun: High Tech, the Modern Movement's godchild, will be a new (and lively) presence on the scene. It's also a convenient mode for sponsors to affirm their faith in progress and foster good will among the millions visiting the fair.

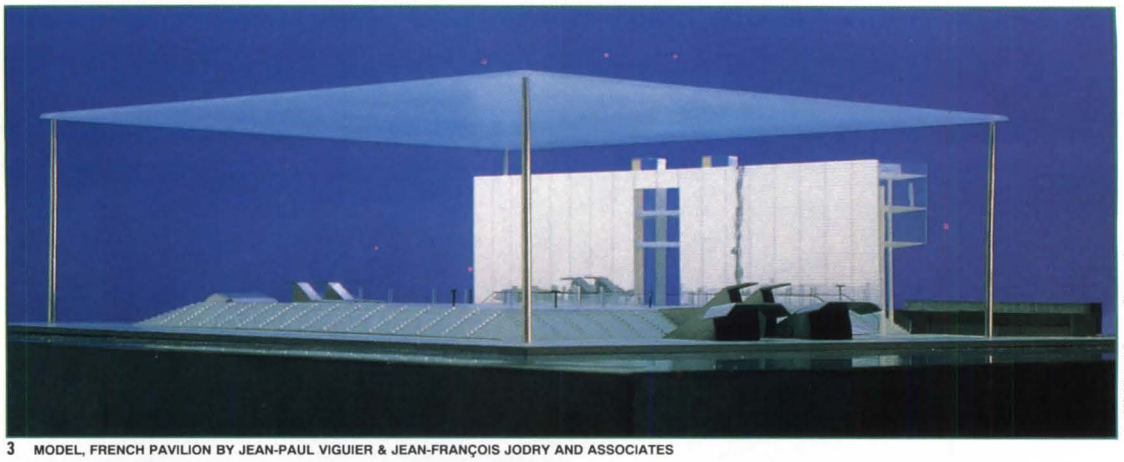
Nicholas Grimshaw, a British exponent of High Tech, turned Seville's triple-digit afternoon temperatures to advantage.

Given his premise – that a glass box provides a gesture of welcome for the United Kingdom's pavilion (2) – the mechanical trappings he overlaid are essential climatic responses. While critics may argue that the glass box is out of place in Spain, it would be unfair to dismiss this elegant structure as a misplaced building: Its mechanical systems substantiate Grimshaw's High-Tech aspirations. Solar collectors on the roof will provide electricity to pump water for a cascade into an interior pool. Louvers on the north and south walls will deflect the sun's rays, and the western wall will be a massive structure of sand-filled cells to absorb the heat of the afternoon sun.

Going a step beyond the transparent façade, Jean-Paul Viguier and Jean-François Jodry dematerialized the walls of the French Pavilion (3, 4): The main space will be a glass-paved podium sheltered by a broad blue roof and open on three sides. The architects' motives were both climatic and ideological: The freely accessible square is a shaded respite and a metaphor for the egalitarian ideals that spread from France to the New World. Neo-Classical in inspiration, this pavilion evokes Boullée's visionary designs: It is likely to impress, and perhaps inadvertantly, overwhelm visitors; a few human-scale references might be in order.

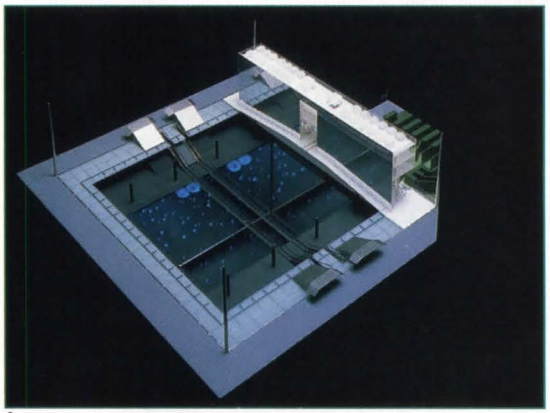
Science and culture, which Viguier considers essential complements of modern society, are the themes of the pavilion's paired exhibit areas: Its Protocol Building, whose mirrored façade will overlook the plaza, will house displays on art and history. Below the glass pavers of the plaza, moving sidewalks will lead visitors through an experimental theater-in-the-round with mirrored walls that reflect an infinite array of images.

The United States Pavilion (5, 6) by Barton Myers Associates is a modest work of architecture – not in size, but in its measure of creativity. Devices typical of many pavilions, from water walls and moving sidewalks to vast awnings recur here without benefit of a strong design parti. Instead, one finds a series of windowless boxes arranged around three outdoor spaces in a manner better suited



© 1990 Michael Denance Photograph

3 MODEL, FRENCH PAVILION BY JEAN-PAUL VIGUIER & JEAN-FRANÇOIS JODRY AND ASSOCIATES



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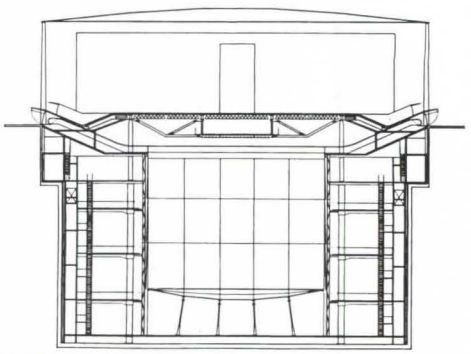
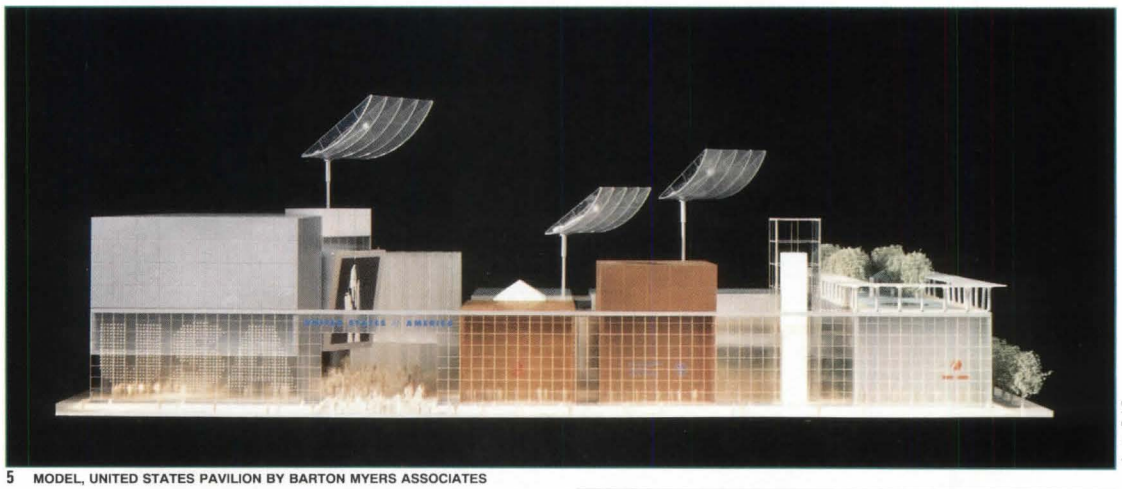
4 MODEL SHOWING EXPERIMENTAL CINEMA



SECTION THROUGH EXPERIMENTAL CINEMA 40'/12m

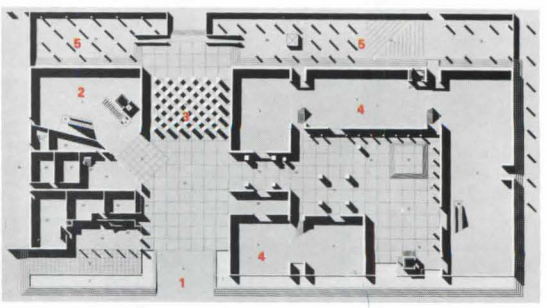


Anette Del Zoppo

5 MODEL, UNITED STATES PAVILION BY BARTON MYERS ASSOCIATES

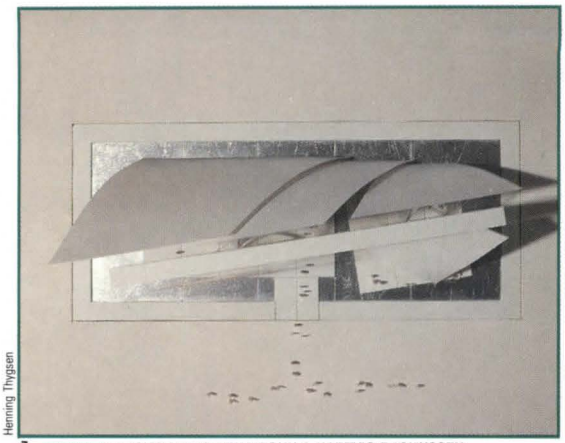
Anette Del Zoppo

6 PAVILION



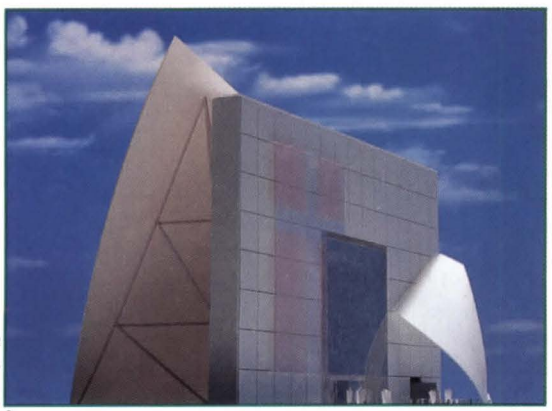
1 ENTRY BRIDGE
2 ORIENTATION FOR WALK-THROUGH THEATER ABOVE
3 COOLING TOWERS
4 ENCLOSED EXHIBIT AREAS
5 OPEN AIR EXHIBIT AREAS

FIRST FLOOR PLAN N 100'/30m



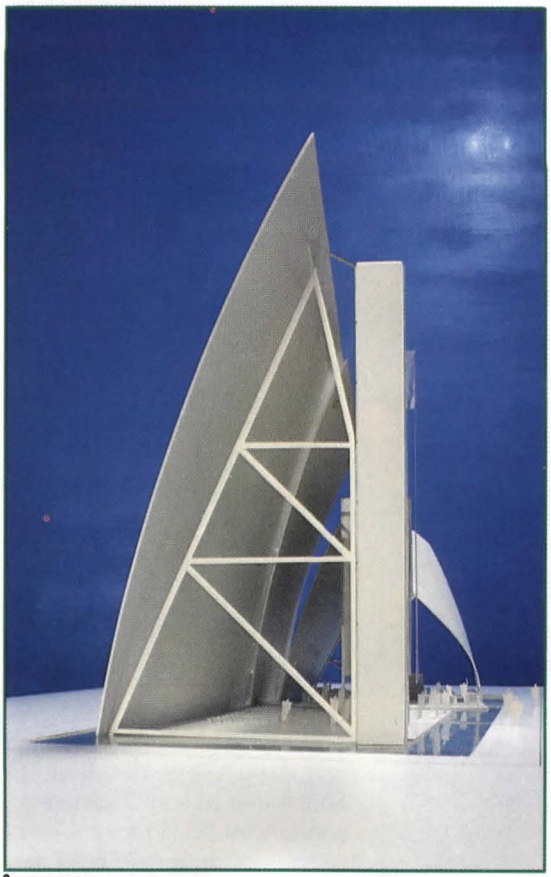
Henning Thygsen

7 MODEL, DANISH PAVILION BY KROHN & HARTVIG RASMUSSEN



Henning Thygsen

8 PAVILION



Henning Thygsen

9 PAVILION

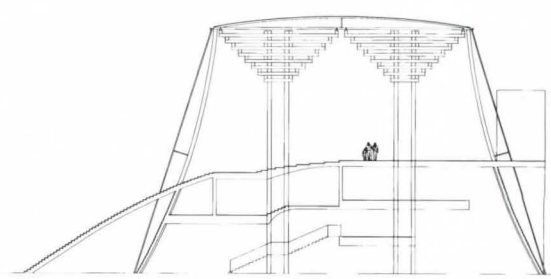
Tadao Ando

10 MODEL, JAPANESE PAVILION BY TADAO ANDO

SKETCH BY ANDO

Tadao Ando

11 JAPANESE PAVILION



SECTION

40'/12m

for an office park than the American world's fair pavilion. A bit more exuberance and a more rigorous plan would have been welcome.

The *Danish Pavilion* (7–9) by Krohn & Hartvig Rasmussen Architects will be a minimalist sculpture that doubles as a building. A wall of arced sails, built of plywood, will furnish a powerful image evocative of Columbus's ships as well as the Sydney Opera House. The curved profile has spatial dividends, too: it defines a soaring exhibit space within, comparable to a church nave or an airship hangar. The concave walls (which serve as movie screens) will be supported by trusses that lean toward an 8-story building for secondary exhibits and functions. Like some work by Saarinen, Utzon, and other midcentury Modernists, the Danish Pavilion's initial impact is purely formal: Here, the steel structure seems to have followed, but not coincided with, the genesis of the architectural object. Unlike their High-Tech counterparts, Krohn & Hartvig Rasmussen give priority to the spatial enclosure instead of to the structure; they offer no sign of how the frame in the multistory building supports the tilted trusses.

Tadao Ando's Japanese pavilion (10, 11), like an ancient wooden temple, will be a retreat from the mundane to the world of the imagination. While Ando's reputation is predicated on his intuitive control of light and space with concrete (pp. 74–79 and P/A, Feb. 1990, pp. 83–97.) he seems equally talented in wood construction. Judging from Ando's drawings and model, this pavilion will be more lyrical and figurative than his work in poured concrete. A monumental arched bridge, modeled on the *taikobashi* that traditionally marked a transition from this world to the next, will lead visitors to the uppermost of four exhibit levels. Translucent Teflon roof panels will filter light above ten clustered columns, each crowned by an enormous trabeated capital. Like the concave walls that are braced by tensile rods, the overscaled capitals keep the simple building from becoming a simplistic one; it is held taut by Ando's subtle distortions of tradition.

Philip Arcidi ■

Books: Twentieth-Century Houses, Nineteenth-Century Households

Karen A. Franck discusses the Weissenhofsiedlung and Case Study Houses, and finds that traditional notions of the household survived in these ostensibly radical programs.

"How to live?" Poster for Werkbund Exhibition, Stuttgart. The Museum of Modern Art, New York.

The Weissenhofsiedlung: Experimental Housing Built for the Deutscher Werkbund, Stuttgart, 1927 *by Karin Kirsch, Rizzoli, New York, 1989, 224 pp., illus., $50.*

Blueprints for Modern Living: History and Legacy of the Case Study Houses *edited by Howard Singerman, The Museum of Contemporary Art, Los Angeles, and MIT Press, Cambridge, Mass., 1989, 256 pp., illus., $50, paper.*

The 1927 Weissenhofsiedlung in Stuttgart and the Los Angeles Case Study House program that began in 1945 addressed the same provocative goal: to design houses and apartments that would promote a new way of living. Today, we can assess these initiatives with an excellent pair of monographs that are extensively documented and illustrated. Karin Kirsch's *Weissenhofsiedlung* and Howard Singerman's *Blueprints for Modern Living* present a clear picture of what the designers of these Modern houses changed and what they did not. Architects in both programs created domestic spaces that were dramatically different from their 19th-Century predecessors. They designed for a more informal and simpler way of life but sustained the 19th-Century ideal of home and household. Six projects commissioned in 1984 as a sequel to the Case Study program and presented in Singerman's book show that the 19th-Century ideal is no longer as powerful; architects have begun to design for a greater diversity of needs.

To make daily life simpler and more informal, houses in both of the earlier programs linked areas for living, cooking, and dining. Spaces were sparsely furnished with streamlined items; indoors and outside were closely connected. Designers in both Stuttgart and Los Angeles worked against the aesthetic of the Victorian household and its prim concern with formality. They also changed the exterior of the house: It became a flat-roofed cube with open spaces inside. By adapting the Modern Movement's concepts, architects created radically new spatial experiences.

Daily life was to be easier and more flexible. The absence of elaborate furnishings and the efficient design of kitchens would ease housekeeping chores. Movable partitions enabled residents to rearrange the interior and try alternative uses of the same space. Life at home in the Case Study houses would be more fun: Swimming pools, hobby rooms, and large living rooms were designated for leisure-time use by family and guests.

Both programs aspired to change people's way of living by changing the form of the house. Paradoxically, their vision of the model household was traditional: While the Weissenhofsiedlung vilified the Victorian parlor (see the x-marked poster on this page), the structure of the 19th-Century household endured. The intended occupants in both exhibits were almost exclusively couples with children, with an occasional childless couple and a small number of single people living alone. Other household types, such as extended families or a cooperative of single people, were not explored even though housing for single persons was being built in Europe at the time of the Stuttgart exhibit.

The relationships between occupants were to be traditional. Each woman was still solely responsible for chores performed individually in her own home. Reducing the burden of housework was a stated objective of several of the Weissenhofsied-

(continued on page 118)

Books of Note

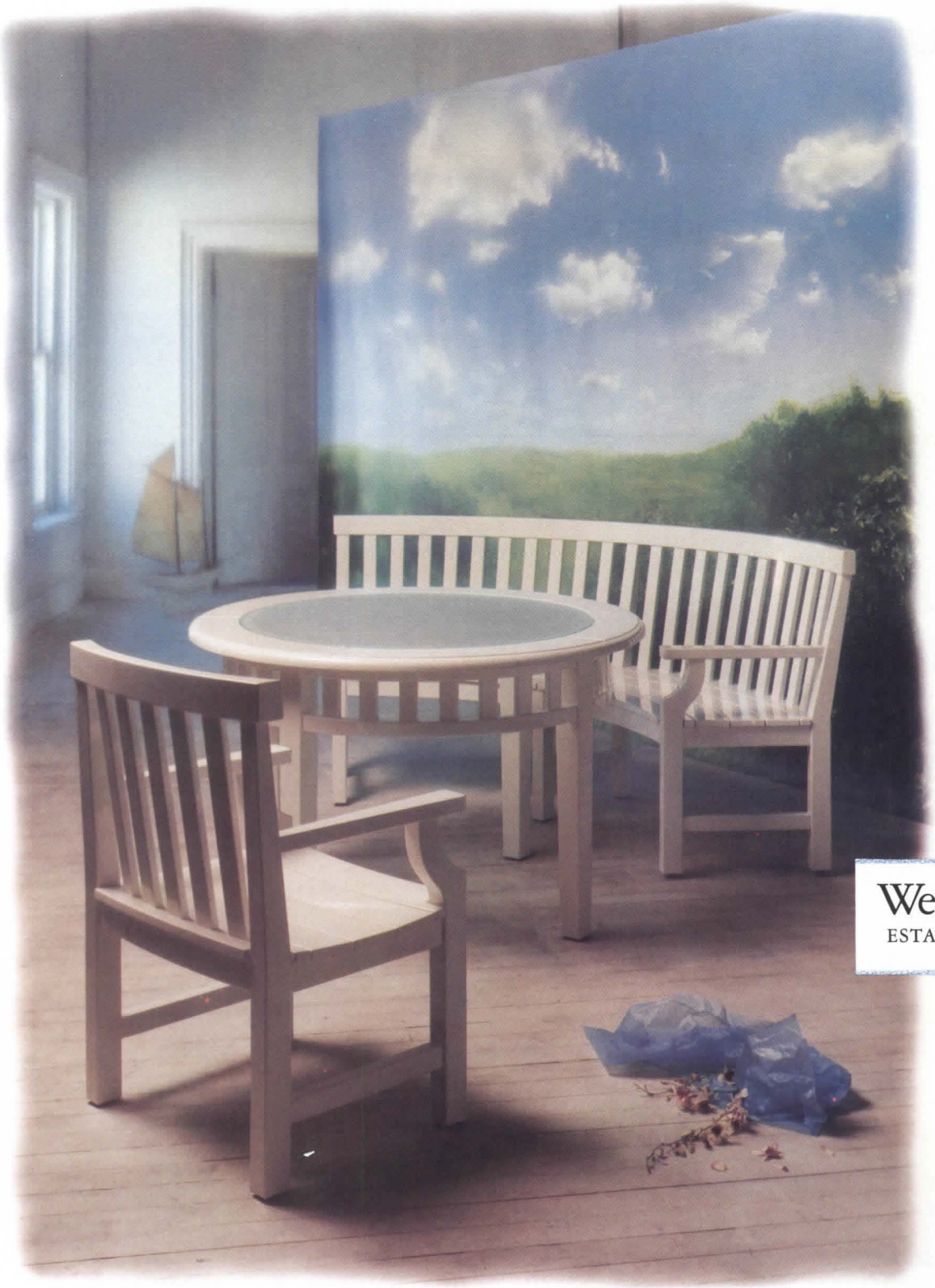
Architectural Terra Cotta of Gladding, McBean *by Gary F. Kurutz, Windgate Press, Sausalito, 1989, 144 pp., illus., $45.00, cloth.*
In operation since 1890, this West Coast producer of decorative terra cotta – for years the only U.S. source – maintained a detailed photographic archive, part of which is skillfully reproduced here.

Louis H. Sullivan: A System of Architectural Ornament *with an essay by Lauren S. Weingarden, Rizzoli, New York, 1990, 160 pp., illus., $200.00 cloth.*
This elegant tome holds Sullivan's original poetic manuscript (in facsimile form) and drawings created for his last, manifesto-like work: *A System of Architectural Ornament According with a Philosophy of Man's Powers.*

Cities of Childhood: Italian Colonie of the 1930s *edited by Stefano de Martino and Alex Wall, Princeton Architectural Press, New York, Architectural Association, London, 1990, 88 pp., illus., $34.95 paper.*
The Rationalist-cum-Fascist architecture of Italian children's summer camps of the 1930s has an eerily benign beauty given its political origin and "educational" function.

New French Architecture *by Wojciech Lesnikowski, Rizzoli, New York, 1990, 224 pp., illus., $50.00 cloth, $35.50 paper.*
An introductory essay by the author lucidly positions 12 latter-day Modern architects within the historic context of French architecture.

The Weatherend Story.



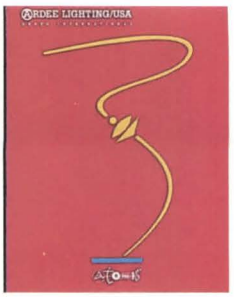
Imagine
a time long ago
and a place
not so far away
an estate in Maine
called Weatherend.
This place had
rooms and gardens
with furniture
tables benches chairs
whose sinuous curves
mirrored the lines
of the sea. That was
long ago but listen
to the story of
Weatherend today
a story of artisans and
time-honored
boatbuilding techniques
and furniture as durable
as it is beautiful.

Weatherend®
ESTATE FURNITURE

We've told our story
now you tell yours and
tell it with Weatherend
furniture to create
an interior or landscape
destined to become a
legend in its own time.

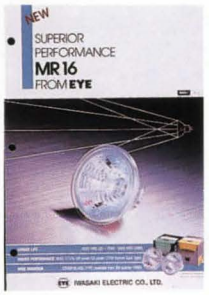
Tell your own story.

Lighting Products Literature Digest



The Atomis Suburb is a contemporary, free form low voltage (12v) track lighting system supported by a pendant rod or cable suspension. This flexible track can be bent or twisted into any shape. Power can be supplied by an integral transformer unit directly attached to the track or from a remote location.
Ardee Lighting/USA. Circle No. 345.

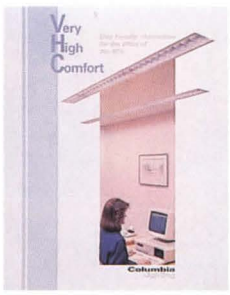
This 24-page color brochure features step-by-step design procedures and application techniques for grade-mounted landscape lighting. Also included is photometric data, product selection guide, color rendition information, and glossary of landscape lighting terminology.
Bronzelite. Circle No. 346.



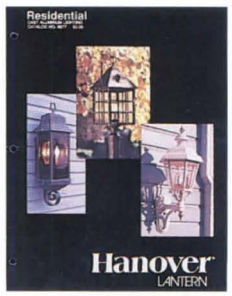
The most complete range of MR-16's available from any manufacturer. We offer 20, 35, 42, 50, 65, and 75 watts in a variety of beam spreads in both lensed and open units. All our lamps from 35 watts through 75 watts are rated at 4000 hours of life with the lensed unit providing increased lumen levels over the open unit.
C.E.W. Lighting. Circle No. 347.

The "TASKMASTERS" Collection is the most comprehensive source of tasklighting for desk top and open-planned office environments. Space-saving models allow for attachment to office screens. Other mountings include "bolt-thru," clamp, or weight lamps and are available in 20 colors.
C.L.S. Contract Lighting. Circle No. 373

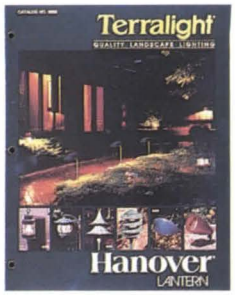
In his quest to unify art, design, and architecture, designer Sergio Orozco created a family of low-voltage lumineres. Comprising wall sconces, pendants, and chandeliers: each related and interchangeable through the use of glass and metal shades. Multiples 948™ allows the designer over 948 possible lighting combinations. Made in the U.S.A. **CSL Lighting, Inc.** Circle No. 350.



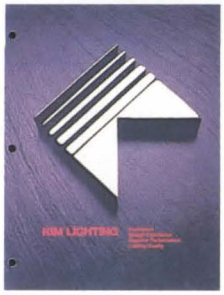
The VHC, by Columbia Lighting, is the first luminaire that addresses the full range of lighting requirements for today's electronic office. The VHC provides complete control over reflected glare with wall washing capabilities, architectural flexibility, and excellent light utilization with good energy efficiency. **Columbia Lighting,** Circle No. 348.



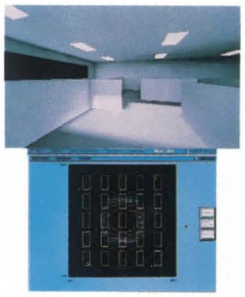
Hanover Lantern offers one of the most comprehensive selections of quality crafted heavy duty cast aluminum lighting fixtures in the industry today. Designs to complement virtually any architectural theme are offered in an array of mounting configurations; the complete line of accessories, poles, and mailbox holders are included in this catalog. **Hanover Lantern.** Circle No. 349.



A unique collection of quality crafted cast aluminum garden, pool, and patio lighting fixtures designed to enhance virtually any landscape theme. Mounting accessories and photometric data are also shown in the catalog. **Hanover Lantern.** Circle No. 351.



Kim Lighting, long recognized as the innovator and leader in outdoor lighting fixtures, continues the tradition with their Site Lightforms and Site Wallforms series of products. The 16-page brochure details product features, specifications, photometric data, and installation procedures. The products are available in lower-wattage HID, fluorescent, and incandescent sources. **Kim Lighting.** Circle No. 352.



Lumen-Micro 5.0 is a graphics-oriented, PC-based, indoor lighting design and analysis program. Automatic luminaire layout, full electric lighting and daylighting analysis, plus high resolution perspective renderings, are key features. Output to a DXF file provides compatability with popular CAD packages.
Lighting Technologies Inc. Circle No. 353.

Wall/Slot®-2000, the first true concealed source wall/slot system that eliminates socket shadows, delivers an even gradient of light on the wall with no visible source or fixture. Architecturally, the slot is clean and free of the "trappings of technology." The new generation of Wall/Slot — from the company that brought you the first Wall/Slot system in 1963.
Litecontrol. Circle No. 354.

LiteTouch 2000 is an innovative, microprocessor-based control system capable of multi-point switching and dimming for various lamp and load types. The system includes advanced features such as masters and scene presets, telephone interface, a built-in time clock and will interface with security systems, photo cells, motion sensors, etc. **LiteTouch, Inc.** Circle No. 355.

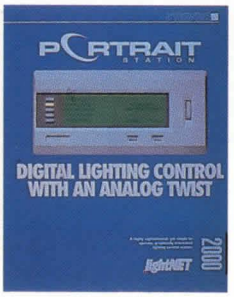
Pre-anodized aluminum is ready to be fabricated. We offer a wide range of lighting finishes including Alcoa Coilzak, EverBrite, and PureBrite, as well as custom finishes. This brochure lists product specifications and applications, and describes benefits: highly reflective, low-dust attraction, durable, non-fading, non-flammable, and will not emit toxic gases.
Lorin Industries. Circle No. 356.

Introducing a series of recessed low wattage metal halide fixtures utilizing the medium base E17 coated lamps that are available in many wattages. When these compact metal halide sources are used with our fixture designs, lower ceiling areas can be efficiently and effectively illuminated in the warmth and incandescent-like color offered by these low wattage HID sources.
NL Corporation. Circle No. 357.

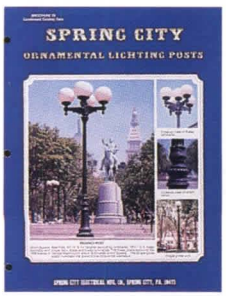
NeoLux Direct/Indirect. NeoLux© can be used effectively on ceilings as low as 8′6″ overall. Ideal for office, classrooms, and open spaces using VDTs. The light distribution is widespread, the ceiling luminance ratio meets IES levels. Fixture efficiency is 83 percent, available for one, two, or three lamps. **Neoray Lighting.** Circle No. 358.

SILVERBEAM architectural searchlights are available in 1000–7000 watts and are designed for full-time outdoor operation. A programmable revolver base directs the sweep and speed of the beam. A specially designed rhodium-plated, electro-formed reflector is used to produce maximum peak beam power from the xenon lamp.
Phoebus Manufacturing. Circle No. 359.

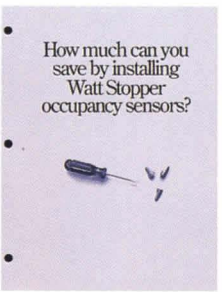
Roberts Step-Lite Systems are patented lighting systems designed to provide an aesthetic solution to the problem of lighting interior and exterior steps, handrails, and cove molding. Easily installed in concrete, brick, or hardwood surfaces, the systems are commonly used for both commercial and residential applications.
Roberts Step-Lite Systems. Circle No. 360.



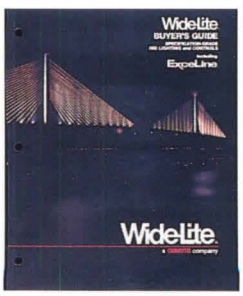
Sterner Lighting Systems introduces PORTRAIT STATION, a break-through product in architectural lighting control. Featuring advanced display technology, it shows panel information in both graphic and alphanumeric formats. The multi-functional control wheel is used for a wide variety of operations, including channel and master level settings.
Sterner Lighting Systems Inc. Circle No. 361



This six-page, full-color brochure illustrates and describes the line of beautiful, cast iron lighting posts from SPRING CITY ELECTRICAL MFG., CO., Spring City, Pennsylvania, the leader in ornamental lighting posts.
Spring City Electrical. Circle No. 362.



ENERGY SAVING LIGHTING CONTROLS. The Watt Stopper manufactures a complete line of energy saving lighting and HVAC control occupancy sensors. Included in the product line are Automatic Light Switches that simply replace existing light switches, ceiling-mounted infrared and ultrasonic occupancy sensors.
The Watt Stopper. Circle No. 363.



For 35 years, Wide-Lite® has been the leader in high performance HID Lighting Systems and Controls. This 230-page product catalog details the hundreds of quality products manufactured by Wide-Lite®. Complete product specifications and ordering information are included. All products offered in this catalog are covered by Wide-Lite's® published limited 5 year warranty. **Wide-Lite®.** Circle No. 364.

Xenotech is a manufacturer of high-intensity Xenon lighting. These lights are used in motion picture and television productions, stage, special event, commercial, outdoor advertising, and are now being used in outdoor architectural lighting. Available in manual or completely automated configurations. Wattages of 1K, 2K, 4K, and 7K. . . with a peak beam candlepower up to almost one billion! **Xenotech.** Circle No. 365.

Sports/Convention: SkyDome

Re·li·abil·i·ty \ri-,li-e-'bil-et-e \ *n.*

2: The extent to which a test, or measuring procedure yields the same results on repeated trials.

We know our specifiers expect *reliability* not *liability.*

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PA2/91

Name: _____

Company: _____

Title: _____

☐ Architect (in firm) ☐ Project Manager ☐ Spec-writer ☐ Engineer(ing) Firm ☐ Roofing Consultant

Address (we need street address to ship UPS) _____

City _____ State _____ Zip _____

Phone (_____) _____

☐ Yes, please have a Sarnafil rep. call on me **IMMEDIATELY** for a roofing spec., that we are working on.

☐ Yes, I would like to view **Sarnafil's Video** on questions specifiers and owners should ask when specifying the next roofing project.

☐ Yes, I would be interested in **Sarnafil Computerized Details and Specifications on floppy disk.**

☐ No, We have no immediate need, but please arrange to have **"specification" information** forwarded to us.

When Baltimore decided to replace the windows in its 120 year-old City Hall, Baltimore talked to all of the major window companies.

Then Baltimore chose Marvin.

Baltimore chose Marvin because no one had more experience at making windows to order. Because no one was better-equipped to actually make all of the different shapes and sizes. Because no one else could incorporate more maintenance and energy-efficiency features into such historically accurate replicas.

And because we make windows to order, we could apply more know-how and technical support to the job. We could deliver on a schedule and in an order that let the contractor do his job quickly and cost-efficiently.

No other window company could have handled this job as well as we did. The proof is right there at Baltimore City Hall.

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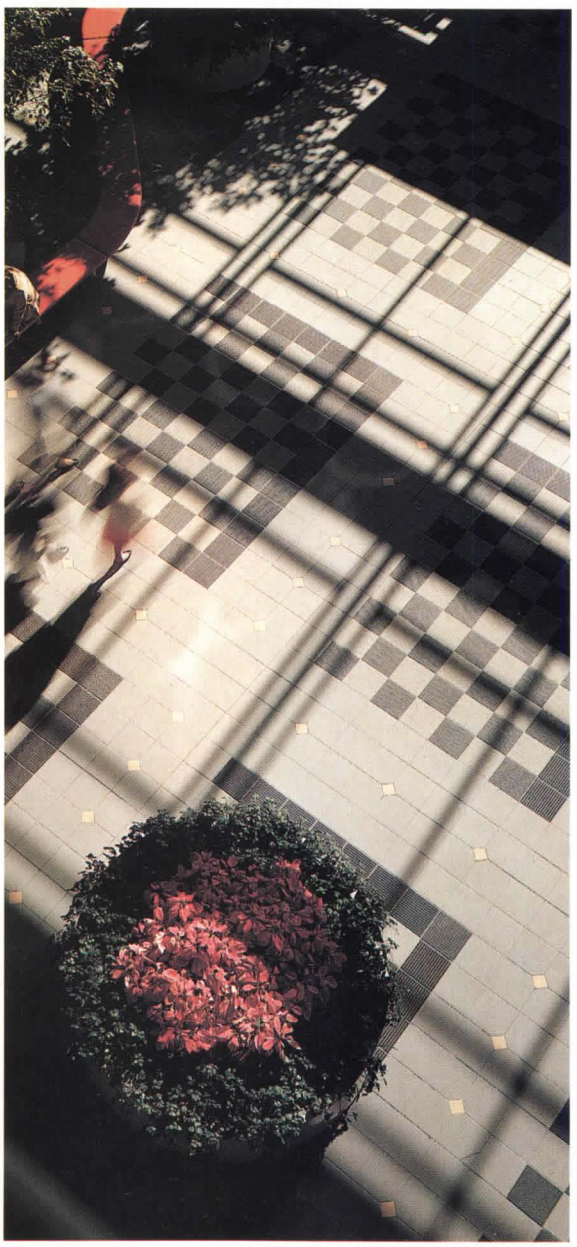

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■ ATLANTA, Georgia
C & S SOUTHSIDE CENTER
Architects:
THOMPSON VENTULETT STAINBACK & Ass., Atlanta

Circle **No. 322**

GRANITIFIANDRE

New Products and Literature

1

1 New Sofa
"Helix" is a new sofa designed by Daniela Puppa and Franco Raggi. Sofa arms can be upholstered in material different from seat and back, and a chaise is also available. Ligne Roset.
Circle 100 on reader service card

2

2 Cotton Chenille Tapestry
"Baymont" is an architecturally-inspired tapestry fabric of 68 percent cotton, 27 percent polyester, and 5 percent rayon treated with Du Pont Teflon. It is 54 inches wide with a pattern repeat of 36½ inches. Pindler & Pindler.
Circle 101 on reader service card

3 Ward Bennett Collection
The "Bridge Chair" – part of a new 17-piece furniture collection designed by Ward Bennett – has a solid wood frame and leather upholstery. It is 29 inches high, 34½ inches wide, and 26 inches deep; a sofa version is available. Geiger.
Circle 102 on reader service card

3

Preview: WestWeek 91

"Explorations: Commerce, Culture & Design in the International Marketplace" is the theme of the 16th annual WestWeek design symposium and trade show. The event, held at the Pacific Design Center in Los Angeles, is scheduled for March 20–22.

Among the nine symposiums scheduled are: "Los Angeles: The New Aesthetic Goes Global" moderated by Lois Lambert, owner/director, The Gallery of Functional Art (March 20, 9:30–11:00 a.m., Center Green Theater); "Metaphors, An International Zeitgeist" with panelists Richard Meier, Aldo Rossi, and Robert Venturi (March 20, 2:30–4:00 p.m., Center Green Theater); and "Designing Today for Tomorrow's Environment" moderated by David R. Brown, president, Art Center College of Design (March 22, 9:30–11:00 a.m., Center Green Theater).

Among eight exhibitions planned are: "Three Architectural Follies by Meier, Rossi, and Venturi" presented by DesignTex and Steelcase (Murray Feldman Gallery, PDC Plaza), "The Idea, The Process, The Learning, The Result" presented by Steelcase Design Partnership and Brayton International (Murray Feldman Gallery); "International Influence in Contract Textiles" sponsored by the Association for Contract Textiles (Center Green Rotunda, Floors 1–3); and "Art Furniture: Creative Explorations vs. Mundane Expectations" sponsored by The Gallery of Functional Art (Center Green, Floor 2). ■

4 Articulating Stack Chair
A new articulating stack chair, designed by architect and sculptor Charles Perry, has a steel frame and polypropylene seat and backrest. An occupant's weight flexing the frame regulates the backrest tilt angle. KI.
Circle 103 on reader service card


4

5 Faux Metal Wallcoverings
The "Vario Foils Collection" of wallcoverings includes four patterns: "Ingot," "Pailette," "Metallica," and "Alloy." All are handpainted on paper with the exception of "Alloy" which is machine painted. Scalamandré.
Circle 104 on reader service card


5

6 Freestanding Desk System
Introduced to the European market in 1988, the "Ellipse" office system is now available in the U.S. Conference tables, pedestals, storage cabinets, screens, vertical wire and cable management, and horizontal power beams are among its features. Steelcase.
Circle 105 on reader service card


6

7 Lounge Chair
A lounge chair with wood cantilevered arms and accessory table is one of several chair and sofa options in the "Douglas Ball Lounge Seating Collection". Leather, fabric, vinyl, COM or COL may be specified. Atelier International.
Circle 106 on reader service card

8 Floral Wool Jacquard
"Florian" is a jacquard of 100 percent wool available in 11 colorways designed by Linda Thompson. Pallas Textiles.
Circle 107 on reader service card


7


8

Customers worldwide have turned Du Pont discoveries into something special.

The National Medal of Technology

Pioneering work in polymers recently earned Du Pont the top U.S. honor for technology.

The National Medal of Technology cites Du Pont materials that make a difference. Polymers that help people innovate, manufacture, bring quality and performance to so many of today's products.

We share this medal with customers worldwide. Your vision, ideas, and products for better living continue to drive us.

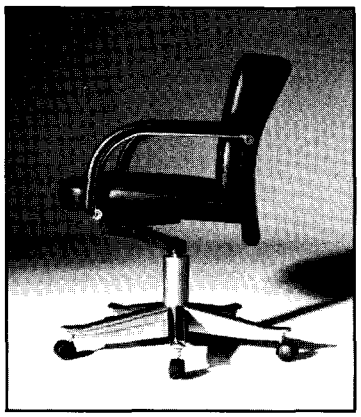
Once again, working with you has turned into something special. We thank you.

Du Pont polymers include TEFLON® and TEFZEL® fluoropolymers/engineering plastics such as DELRIN® acetal, RYNITE® thermoplastic polyester, and ZYTEL® nylon resins/NEOPRENE and HYPALON® synthetic rubbers/HYTREL® and other thermoplastic elastomers/MYLAR® and KAPTON® films/KEVLAR® and NOMEX® aramid fibers/ VITON® fluoroelastomers/KALREZ® perfluoro-elastomer parts/VESPEL® polyimide parts/acrylics/ and ethylene copolymers.

DU PONT

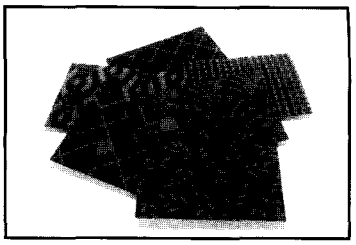
Polymers

Circle **No. 336** on Reader Service Card

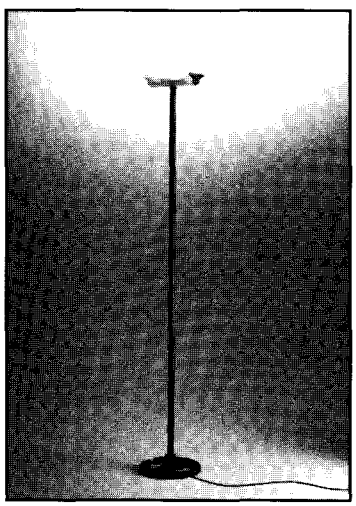


Executive Chairs
"Cavaliere," designed by Gianfranco Frattini, is available in leather-covered high- and low-back models. The cast aluminum base and arms may be finished in black, metallic gray, or polished aluminum. Kron U.S.A.
Circle 108 on reader service card

Cotton Tapestry
"Foliage," a tightly woven cotton tapestry with a leaf motif, is one of the textiles in the color-coordinated groupings of the "Liz Jordan-Hill/Roma Collection." Architex®.
Circle 109 on reader service card



New Carpet Collection
The "Firenze Premiere Collection" of Velv-A-Weve cut and loop pile patterns with leaf and geometric motifs – on striped, checked, and grid backgrounds – are 100 percent Du Pont Antron® nylon. Bentley Mills.
Circle 110 on reader service card



Halogen Floor Lamp
A torchère floor lamp called the "Daisy Floor" takes a 300-watt halogen bulb. Koch+Lowy/PAF.
Circle 111 on reader service card

Office Workstation System
The "Equation System" has several new features: connector system for lay-in vertical cable management, compartmentalized raceway, acoustic and light seal, and arched countertop supports. Westinghouse.
Circle 112 on reader service card
(continued on page 106)

QuarryCast®

OTHER COLORS AVAILABLE

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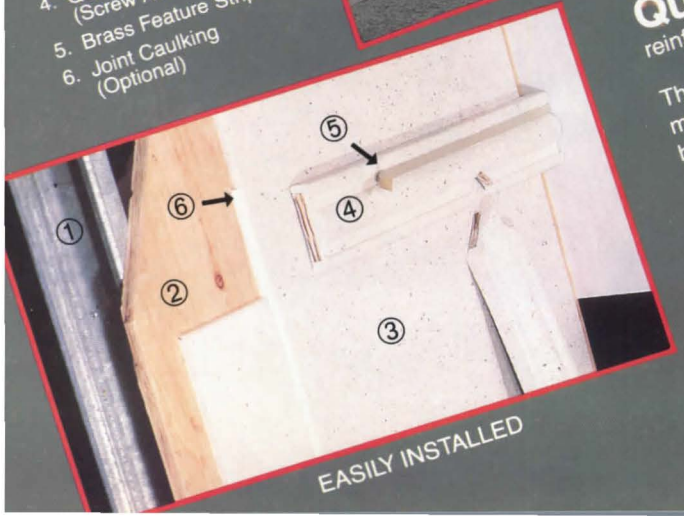
2. Plywood or Drywall
3. QuarryCast* "Veneer" (Adhered)
4. QuarryCast* "Molding" (Screw Attached)
5. Brass Feature Strip
6. Joint Caulking (Optional)



EASILY INSTALLED

QuarryCast® is a "Molded Stone" manufactured with glassfiber reinforced inorganic minerals.

The 5/16" thick standard "Veneer" panels (16" & 24" x 48" long) are manufactured in 4 popular colors. Colored throughout, they can be field cut by carpenters (with regular tools) to suit site conditions and being lightweight can be adhered to almost any type of substrate.

As part of the complete wall system, we supply corners, baseboards, moldings lightsconces, etc. for sizeable projects a variety of interior elements can be custom made in special colors.

QuarryCast* is dimensionally stable with a flame spread rating of "0", but is not suitable for exterior applications or floors.

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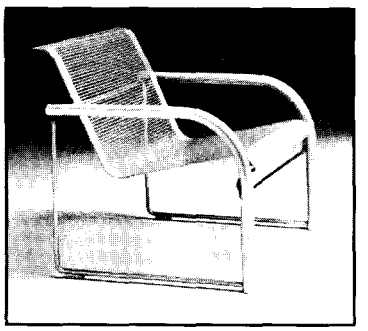
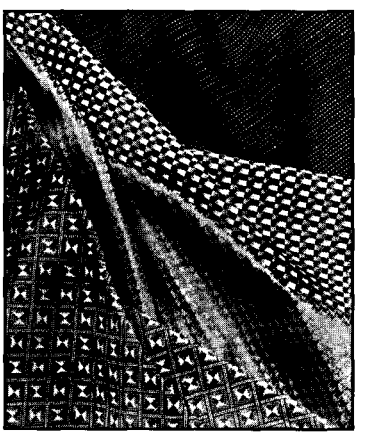
Circle **No. 341**

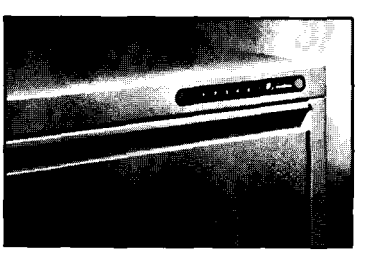
(continued from page 104)



Steel Chair
The "RS48 Steel Grid Chair" was designed by Richard Schultz and is 26 inches wide, 29 inches deep, 26½ inches high. Nienkämper.
Circle 113 on reader service card

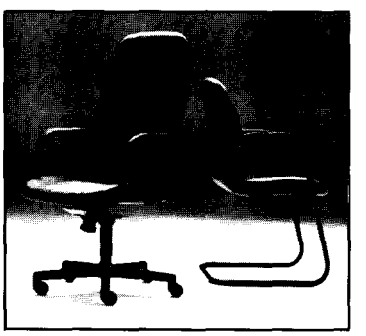


Woven Fabrics
Four new woven fabrics –"Stella," "Emilio," "Stare," and "Intervale" – have been added to the Color Gallery Collection. Stroheim & Romann.
Circle 114 on reader service card

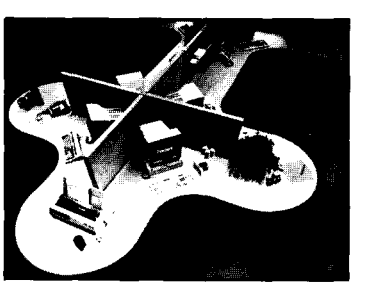


Electronic Locking File System
An electronic lock/interlock keypad with soft-touch buttons and LED indicator light is now available on "Stackable Storage System" files. The system can be programmed to open individual drawers. Meridian.
Circle 115 on reader service card

Modular Office Systems
The "Axiom" line includes drawer pedestals, cabinets, bookcases, filing cabinets, and conference tables. Task and mini track lighting, power sleeves, keyboard drawers and shelves, and computer paper slots are among accessories available. Executive Office Concepts.
Circle 116 on reader service card



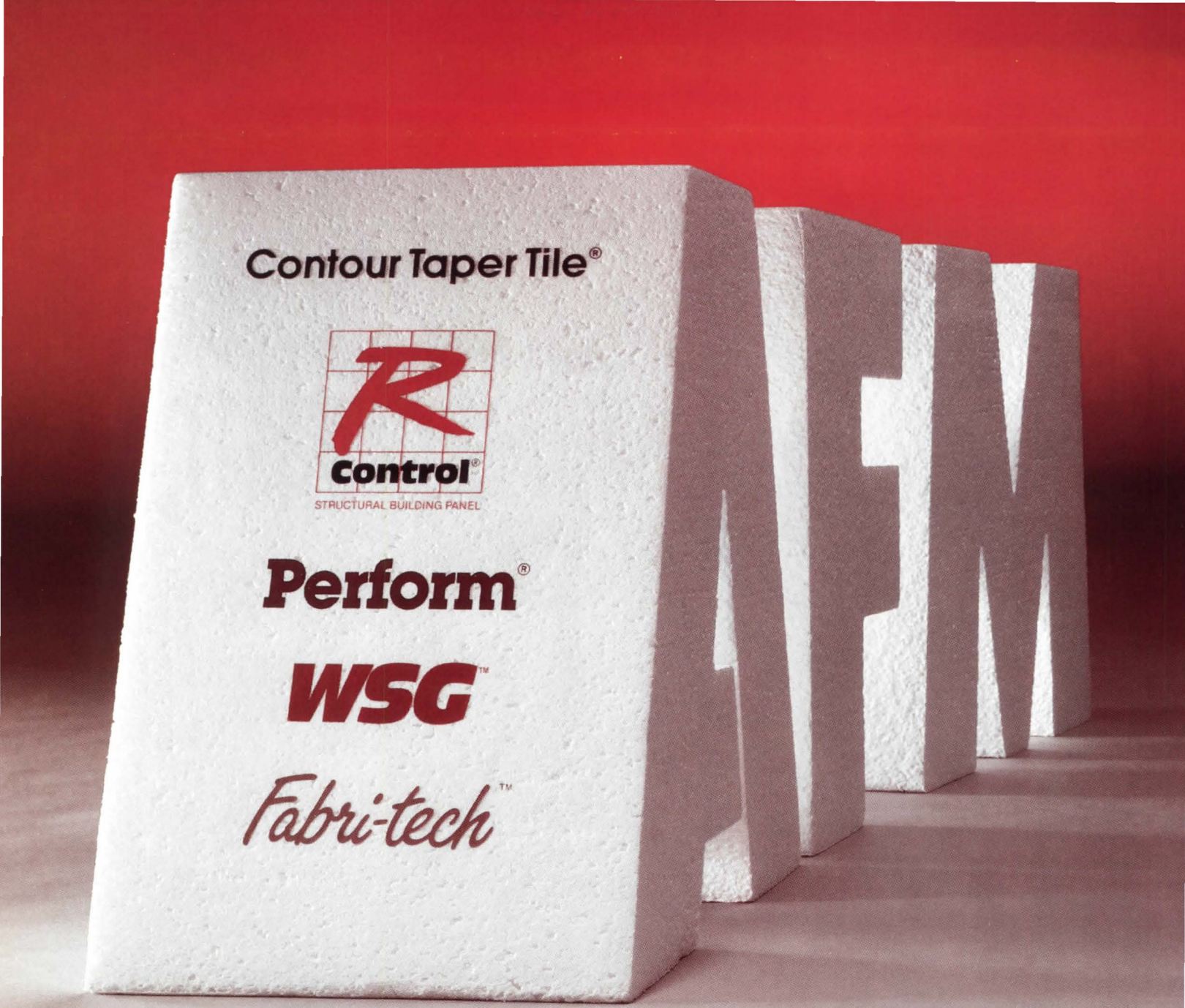
Office Chairs
The "Opta" line of seating – in high-back, mid-back, conference/guest, and stool versions – has forward and reclining lock positions, knee tilt control, and a die-cast aluminum base. Curtis.
Circle 117 on reader service card



Continuous Worksurfaces
Rectangular, corner, piano, and adjoining worksurfaces are each available in a variety of dimensions. The laminated particle board tops are strengthened with a 16-gauge steel stiffener. Harpers.
Circle 118 on reader service card

New Rug
A new rug called "Variant," designed by Sherri Futter, has a red, gray, purple, and orange triangular pattern. It is six feet wide and nine feet long. Decorative Carpets.
Circle 119 on reader service card

(continued on page 109)



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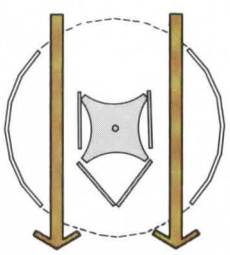
Normal stopped position shown. During rotation, wings are always in contact with the enclosure.



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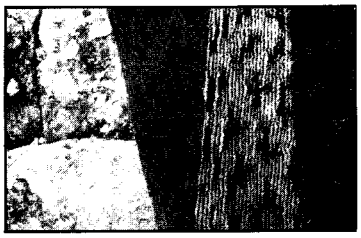
(continued from page 106)



Nylon Carpet
"Topanga," from Suncraft Mills, is 100 percent Du Pont Antron® nylon; it is available in 18 colorways. Du Pont.
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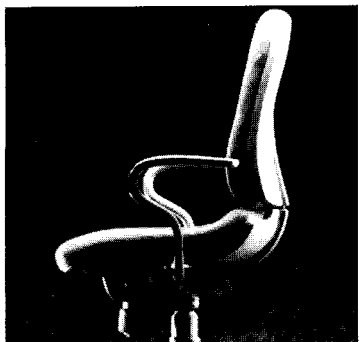
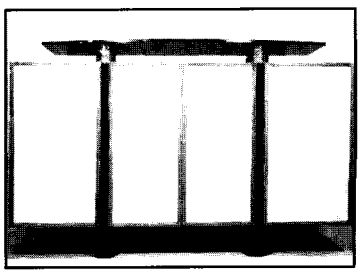


Office Seating Line
"Flexis," designed by Jonathan Ginat, is available in executive, managerial, task, guest, and stool models, five frame colors, and a range of upholstery. United Chair.
Circle 121 on reader service card



Mahogany Cabinet
The "High Cabinet" is one of four new pieces added to the CuBa Collection. Cherry wood legs support a mahogany frame and polished and brushed parchment doors. This piece measures 84″ × 25″ × 56″. Dakota Jackson.
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Utility Cart
A conference room utility cart has a non-skid laminate top and casters and is available in four styles – radius, bevel, reeded, and traditional. It is 32 inches wide, 18 inches deep, and 35 inches high. Nucraft.
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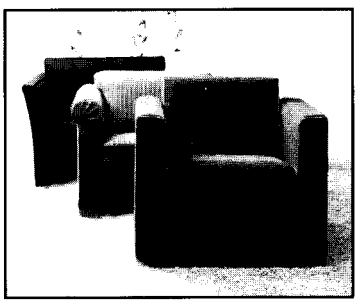

New Lounge Series
"Terrace," "Crescent," and "Vista" are each available in one-, two-, and three-seat models and are scaled for use in private offices or as reception seating. Kimball®.
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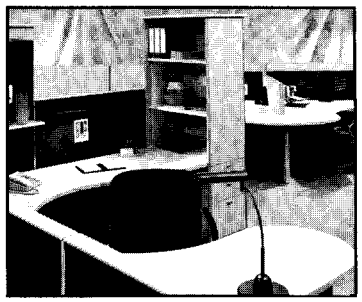
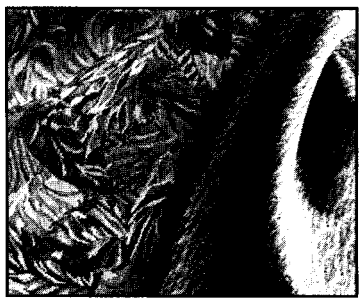


Workstation Enhancements
Newly shaped work surfaces, corner canopies, overhead lights, work surface mini shelves, free-standing support elements, free-standing task lights, multi-purpose bins, under-shelf paper management are among new features in the "PLACES" office furniture system. Haworth.
Circle 124 on reader service card

Executive Office Fabric
The "Kensington Collection" includes four patterns available in 44 colorways in a cotton, wool, and nylon construction. Maharam/Vertical Surfaces.
Circle 125 on reader service card

Conference Tables
A new line of conference tables may be specified in starburst radius, traditional radius, bull-nose radius, curvilineal and waterfall lineal shapes. Nevers Industries.
Circle 126 on reader service card



Tapestry Collection
Two new cotton/rayon tapestries, available in 16 colorways, were inspired by Frank Lloyd Wright's Winslow and Fallingwater houses. Arc-Com.
Circle 127 on reader service card

(continued on next page)

(continued from previous page)

Indoor Cafe Tables

"Cafe Site" tabletops are constructed of high-pressure laminate composite and are available in round, square, and rectangular shapes with contrasting black edging. Metal or concrete pedestals may be specified. Forms+Surfaces.

Circle 128 on reader service card

Upholstered Guest Chair

"Déjà" is an upholstered guest chair designed by Lisa Smith and Laurence Chororos. Applicable for commercial and institutional use, the chair can be specified in standard fabrics or COM. Stow & Davis.

Circle 129 on reader service card

Glazed Workstation Panel

A new half-high glazed panel may be specified for the "Tempo™ 300 Series" panel system. The bottom half of the panel is a 3½-inch upholstered section and the top is glass; the entire unit is surrounded by an aluminum frame. Shaw/Walker.

Circle 130 on reader service card

Seating Series

"System 27," designed by Simon Desanta, includes: an office chair (with a five-star base, swivel tilt or swivel-only control, mechanical or pneumatic height adjustment, tilt tension adjustment, a polypropylene outer shell, and other options); and a sled-base side chair (with a polypropylene outer shell, arm or armless). Comforto, A Haworth Company.

Circle 131 on reader service card

Swivel Office Seating

The "Berkeley Collection" by Brian Kane is a line of seven swivel chairs that increase in scale and detail from administrative to high-back executive versions. All have knee-tilt control and a five-prong base. Metropolitan Furniture.

Circle 132 on reader service card

Modular Conference Table

The "Entropy Tablesystem" has half-circle, quarter-circle, square, and rectangular tabletop components which can be configured into U, H, oval, round, and racetrack shapes. It may be specified in five standard woods and 20 finishes. Lunstead, A Haworth Company.

Circle 133 on reader service card

(continued on page 112)

FOUR ON THE FLOOR AND MORE...

The Headless Poke-Thru Doubles Its Capacity.

In 1985, Raceway delighted architects, designers and owners by decapitating the electrical outlet "doghouse". The first full capacity Flush Poke-Thru was born.

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Now we've doubled the capacity to four power outlets ... in the same space. In addition, there are two individual low tension openings for telephone, data communications, etc. So now, even the busiest workstations can enjoy the clean, unobtrusive esthetics of the Raceway Flush Poke-Thru.

No quality has been compromised. The receptacles are of thermoset plastic with a sturdy polycarbonate slide cover. Color-coordination choices are available in the carpet flanges.

The "Quad" Flush Poke-Thru is pre-wired and can easily be replaced in the field. All four receptacles are on a single circuit. UL classified and listed for 2 hours.

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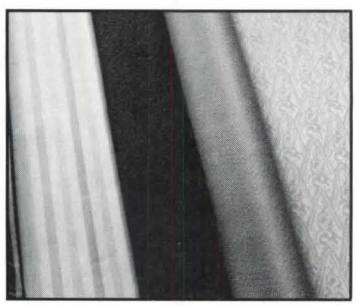
(continued from page 110)

Seating and Table Collection
A chair and settee lounge group, flared-arm guest chairs in two sizes, and occasional tables comprise the "Schacht Collection Dendhur™ Group," designed by William Schacht. Mueller, A Haworth Company.
Circle 134 on reader service card



Textile Collection
The "Pullman Collection," designed by Susan Lyons, includes five patterns—"Anatolia," "Moet," "Passport," "Venezia,' and "Portmanteau"—and is produced primarily from worsted wool and silk. DesignTex.
Circle 135 on reader service card

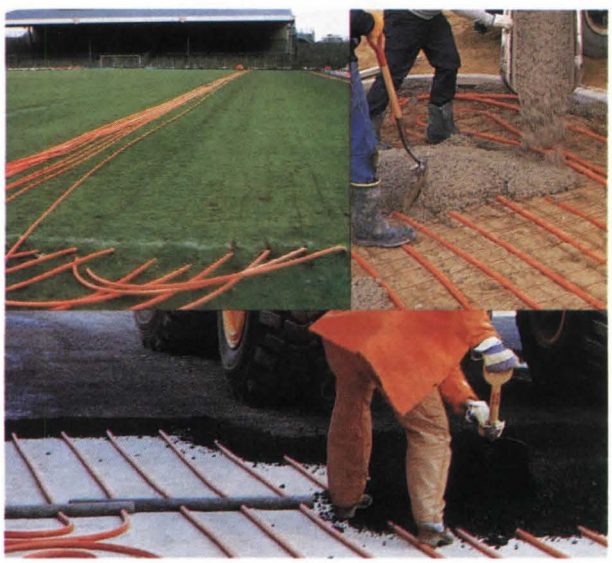
(continued on page 116)

When It Stays Warm, All Your Problems Meltaway®

Come winter, Nature turns a cold shoulder. And life gets much more exciting. There's the prospect of snow, wind and freezing rain. The tension of watching frost and cold turn normally smooth, dry surfaces rock-hard and slippery. But winter doesn't have to be that exciting. Not when the ground underfoot is equipped with a Meltaway radiant hydronic heating system by Wirsbo. Meltaway systems are custom-designed to eliminate snow, ice and frost on natural and man-made surfaces — from athletic fields and parking ramps to streets, sidewalks and commercial areas.

The benefits reach far beyond convenience. In streets and sidewalks, Meltaway eliminates not only snow, but the costs and hassles of snow removal: plowing, sanding, spreading corrosive chemicals, repairing surfaces, maintaining equipment. It also helps reduce litigation from accidents caused by unsafe conditions.

In parking facilities, Meltaway keeps driving surfaces free of snow and ice all winter long. In sports fields and racetracks, Meltaway assures optimum competitive conditions year-'round. In airplane hangars and taxiways, Meltaway provides sure footing for both people and planes.



Installs quickly and easily under concrete and asphalt, or in existing turf.

Meltaway systems use Wirsbo's unique crosslinked polyethylene tubing, a thermoplastic that provides decades of reliable, trouble-free operation. A Meltaway installation can be powered at a fraction of the cost of conventional electric ground-heating systems — and without the need for cable replacement or expensive maintenance. Operators who have switched from electric systems are documenting savings of 40 to 60 percent.

At Wirsbo, we have more than twenty-five years of experience in designing hydronic underground heating systems. Call us. We'll be happy to take a little of the excitement out of your life.

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Integrity. The step detail and the arc top contribute to its aesthetic appeal. Function is served with storage flexibility to meet the demand.

Integrity. A sound, unimpaired or perfect condition. Integrity. It brings a fresh new meaning to the word. From Kimball.

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(continued from page 112)

Computer Products: Hardware

Pencil Plotter
The Mutoh Pen/Pencil plotter uses standard 0.3 and 0.5mm leads that automatically reload when necessary for fast and unsupervised plotting. Mutoh.
Circle 136 on reader service card

Color Plotting
The ColorStation plotter has 256 colors for line drawings and 16 million colors for rendering. The plotter works with PC, Sun, and Macintosh platforms. Raster Graphics.
Circle 137 on reader service card

Data Wire Management
NEVADA WESTERN® 110 Patch Panels simplifies data wire connections with its modular design. Thomas & Betts.
Circle 138 on reader service card

Plotter Supplies
A catalog lists plotter pens, ink, and media for Bruning, Calcomp, Hewlett-Packard, and Houston Instrument plotters. Graphic Controls.
Circle 139 on reader service card

Portable Tablet
The 20″ x 24″ GridMaster tablet weights 16 ounces and is only ½″ thick so that it can be used on virtually any flat surface or rolled for storage. Numonics.
Circle 140 on reader service card

Digitizer Brochure
A new four-color brochure highlights a full line of digitizers, pointing devices, and software. Kurta.
Circle 141 on reader service card

Solid-State Disk Drive
The SiliconDisk Plus is a high-speed semiconductor product that emulates conventional disk drives and adds multi-processor capabilities to high memory applications for Macintosh or PC systems. Atto.
Circle 142 on reader service card

Dual Screen AutoCAD
Dual GT Plus Software with an ARTIST Graphics controller package allows AutoCAD operators to work with two full-function monitors simultaneously. ARTIST Graphics.
Circle 143 on reader service card

Accelerator
The ATI 8514/Ultra accelerator board can speed CAD applications by as much as ten times and provides flicker-free high resolution graphics. ATI.
Circle 144 on reader service card

Technics-Related Products: Foundations

Waterproofing
A unique cementitious waterproofing process available in gray or white can be brushed or sprayed on from either the inside or the outside of the foundation wall. Tamms.
Circle 145 on reader service card

Foundation System
Fast Form is a polystyrene form used for the on-site pouring of concrete walls or slabs. The form stays in place permanently to create a high insulation value. Installation procedures and details are described in a new brochure. Branch River Foam Plastics.
Circle 151 on reader service card

Insulation Brochure
A new Perform© brochure describes a variety of uses for this EPS Insulation System including Perimeter/Underslab, Cavity Plank, and Block Fill. Perform EPS products are CFC-, HCFC-, and formaldehyde-free. AFM.
Circle 147 on reader service card

Waterproofing System
The Miradri™ waterproofing system specifically designed for below-grade applications includes a high-strength membrane, wall primer, sealant, and a liquid membrane for hard-to-reach places. Mirifi.
Circle 148 on reader service card

Foam Brochure
A brochure decribes the full line of extruded polystyrene products available for commercial and residential use. Amoco.
Circle 149 on reader service card

Insulation Details
A brochure provides interior and exterior application details for rigid polystyrene insulation used with masonry, rain screen, foundation, and wood/metal frame walls. Celfortec.
Circle 150 on reader service card

Rigid Insulation
Foamular polystyrene insulation, extruded into rigid panels, develops a uniform surface and core that provides high insulating values and moisture resistance. UC Industries.
Circle 146 on reader service card

Drainage Matting
Enkadrain subsurface drainage matting dissipates water from soil through its composite nonwoven geotextile structure and collects the water on a nylon core that drains to a discharge system. Akzo.
Circle 152 on reader service card

Building Materials

North Range, Clark Library, Los Angeles (p. 70). *Architects: Barton Phelps & Associates, Los Angeles, California.* Brick: Davidson Brick Company. Steel frame windows: Torrance Steel Window Company. Hollow metal doors: Los Angeles Fire Door Company. Solid core wood doors: T.M. Cobb. Bituminous membrane roof/fiberglass base/aggregate topping and rigid insulation: Manville. Butt and pivot hinges: McKinney. Mortised locksets: Schlage. Surface mounted door closers: L.C.N. Astrigals, thresholds, shoes and weatherstripping: Ultra. Range hood: Bason. Compact refrigerator: Acme. Range, dishwasher, refrigerator and washer/dryer: Whirlpool. Fire pull stations and bells: Edwards. Motion detectors: API. Aggregate-coated composition decking: Dex-O-Tex. Exterior pole-mounted lighting: BEGA, Forms + Surfaces. Exterior wall incandescent fixtures: Hubbell. Ceiling-hung fluorescent fixtures: Prudential, Lithonia, SPI. Surface-mounted wall and ceiling fixtures: Halo, Ron Rezek. Tubs, lavatories, bath/shower and lavatory fittings, and water closets: American Standard. Kitchen faucet: Delta. Stainless steel bathroom accessories: Bobrick. Heat pumps and fan coil blowers: Lennox. Conference, dining and end tables and conference chairs: Thomas Moser. Brushed aluminum mini-blinds: Bali Classic by Carey McFall Corporation. Motorized projector screen: Stewart Filmscreen Corporation.

Books *(continued from page 92)*

lung architects; this led to carefully designed kitchens, but not to kitchenless houses or collective housekeeping services. A few houses were intended for professional women but (according to the program established by Mies van der Rohe) they were single, suggesting that they would or could not be married, another 19th-Century assumption. In most of the Case Study examples a woman might be a married professional but she was still responsible for all housework, and her career was considered secondary to her husband's.

All the houses that were built (even the multifamily housing in the Weissenhofsiedlung) emphasized the primacy and the privacy of the individual household, another Victorian ideal. No shared amenities, spaces, or services were to intrude on the sanctity of the home. Family togetherness, another Victorian preference, was often fostered by the generous leisure spaces of the Case Study Houses, but neighborhood togetherness was ignored.

The contemporary Case Study schemes commissioned by the Los Angeles Museum of Contemporary Art in 1984 stand in sharp contrast to the earlier vision of the Modern house and its displaced old-fashioned household. The multifamily projects from 1984 that were not exclusively for the elderly accommodated a wide range of household types: single and two-parent households, extended families, and autonomous individuals living together. These houses offered an array of very different floor plans, some with dual entries, in response to the needs of today's diverse households. By 1984, the neighborhood, not the individual household, became the primary reference. Adèle Santos wrote of her design, "Our prototype is the collective environment that supports the residential life of a group of families – an extended family sharing outdoor 'rooms' and common facilities." The goal of the sequel to the Case Study House program was to accommodate changes in people's ways of living that have already taken place, not to foster future changes. These contemporary designers did not explore a new aesthetic or redefine the nature of domestic space. Instead they made subtle shifts in unit plans; some provided efficiency apartments that could be added to or subtracted from one's own unit.

Today there is no single aesthetic and no single generalized way of life that architects and others might wish to reject. Even if they want to rally behind a mission in residential design, there is no image to mark with a red X like that of the Stuttgart poster. This has advantages and disadvantages. Absent is a leading source of inspiration for creating a new architecture comparable to the Modern Movement. Viewers and occupants of today's new housing do not experience the excitement described by Mumford 50 years ago. However, if more architects explore the diverse needs of contemporary households and consider their implications for the design of dwellings and communities, many of us will experience another kind of exhilaration – that of living in places planned for today's households, not for those of a previous era.

Designing for new ways of living can still be a provocative venture. We need to study the daily activities, relationships, and desires of contemporary households and to treat what we learn not as a burden or a constraint, but as a source of creativity. Breaking free of the Victorian ideal of household can be as exhilarating and inspiring as breaking free of the Victorian ideal of house.

Karen A. Franck ■

The author is an Associate Professor in the School of Architecture at New Jersey Institute of Technology. She co-edited New Households, New Housing *with Sherry Ahrentzen (VNR, 1989).*

(continued from page 88)

feel that splintered structures should unflinchingly reflect society's cracked mirror.

For some concerned designers, however, the only authentic recourse seems to involve digging into one's individual sensibility. "When I'm face to face with a design problem I have to find the cues in myself," says Frank Gehry. "Somehow, somewhere, there's a true response to each challenge, which may be buried very deep." Michael Rotondi, dean of the Southern California Institute of Architecture and a principal of Morphosis, says, "Everything out there, from rock-'n'-roll to real estate to revolution, makes an indivisible continuum, in which I must search for real clues."

"It's clearly a city where people expect to make their own heaven or hell, and care little about the metropolis at large, except when it encroaches on their privacy or freedom."

Gehry's and Rotondi's remarks touch the heart of the matter. If the society that architecture makes visible has little or no idea of its collective identity, the designer in search of authenticity is thrust into an exploration of his own values as the only honest response.

This is a lonely situation. Its deepest isolation is felt at the moment the designer changes pace from the comforting rhythms of problem-solving to the riskier metaphysical stride of deciding what a building should look like. Many designers slide over this crucial pace change without recognizing its significance. That does not matter, so long as the architect has the talent and the energy to reimagine all the input he receives and give it back to us freshly minted and charged with the shock of recognition. That recognition, which makes us visible to ourselves as social beings, is the essence of architecture.

But when society is a blur seen through heavy static, architecture stutters. Today it might be more appropriate to amend the old saw to "Architecture is confusion made visible." **Leon Whiteson** ■

The author writes about architecture for the Los Angeles Times.

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Situations Open

The College of Architecture announces a new position in Design and Theory of Architectural Technology at rank of Assistant or Associate Professor. The person will teach studio and seminar on the subject of architectural theory as it relates to technology in both the undergraduate and the new graduate research programs. The successful applicant must be able to connect the subject area with design and pursue research in architectural technology theory. Applicant should have professional and teaching experience. Knowledge and experience in computer applications are highly desirable.

Also, a new First-Second year Assistant/Associate Professor new position in architectural design is announced. The position calls for Foundation Program (Years 1 and 2) teaching in design studio and seminar. Experience and knowledge in computer applications are highly desirable. It may be tenure track or visiting 2-year appointment. Terminal, professional degree in Architecture or the equivalent is required. Preference is given to applicants with teaching and professional experience.

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Please send letter of application, vita, statement of philosophy regarding education in general and architectural education specifically, along with three references to **Robert E. Schmidt, Chair, Department of Architecture, Vermont College of Norwich University, Montpelier, VT 05602.** Review of applications will begin March 15, 1991. EOE, women and minorities encouraged to apply.

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Applications received before March 1 are assured full consideration.

Send nomination, or application letter and resume with three recent references (including phone numbers) to:

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The Department of Architecture invites applications from candidates for a full-time, temporary or tenure-track position in its architecture program effective August 1991. Candidates with strong design abilities must be able to assume responsibility for an undergraduate architectural studio, and teach lecture courses in at least one of the following areas: structural systems (either statics and strength of materials or structural design of steel, wood, and concrete); or visual communications (drawing, photography, video, color media, or computer applications). CAD skills desired. Minimum Qualification: Masters degree or equivalent. Preferred Qualifications: Registration (license to practice architecture); experience in teaching and/or professional practice; recognized achievement in research, scholarship, or creative practice. Rank and salary are dependent upon qualifications. Applicants should send letters of interest, resume, original transcripts, and four references to: **Marvin E. Rosenman, Chairperson, Department of Architecture, College of Architecture and Planning, Ball State University, Muncie, IN 47306-0305; tel: 317-285-1900; FAX: 317-285-3726.** Review of applications will begin March 11, 1991, and continue until the position is filled. Women, minorities, handicapped, and Vietnam veterans are encouraged to apply.

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Designing Spiral Stairs

The design of a spiral staircase requires careful attention to the measurement of its parts. The first 9-½ minute segment of this video illustrates design considerations—and possible problems—for center pole, double helix, and winder stairs with computer-generated images. Useful formulas for calculating the rise, run, and tread angle are provided. The second half of the video includes visits to the Toce stair factory for a company history, to the sites of completed Toce stairs, and back to the Toce workshop where the construction of custom staircases is shown. There is a $20 charge for cassettes not returned in 45 working days.
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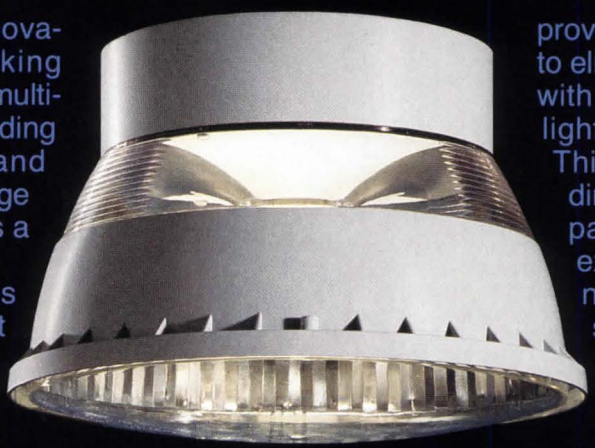

providing ceiling illumination to eliminate the "cave effect", with the additional bounce-light softening shadows. Third, the PGL is a semi-direct luminaire toward the parking stalls, providing extra fill-light where it is needed for safety and security. The PGL is a design statement that says parking garages are more than just utilitarian structures.

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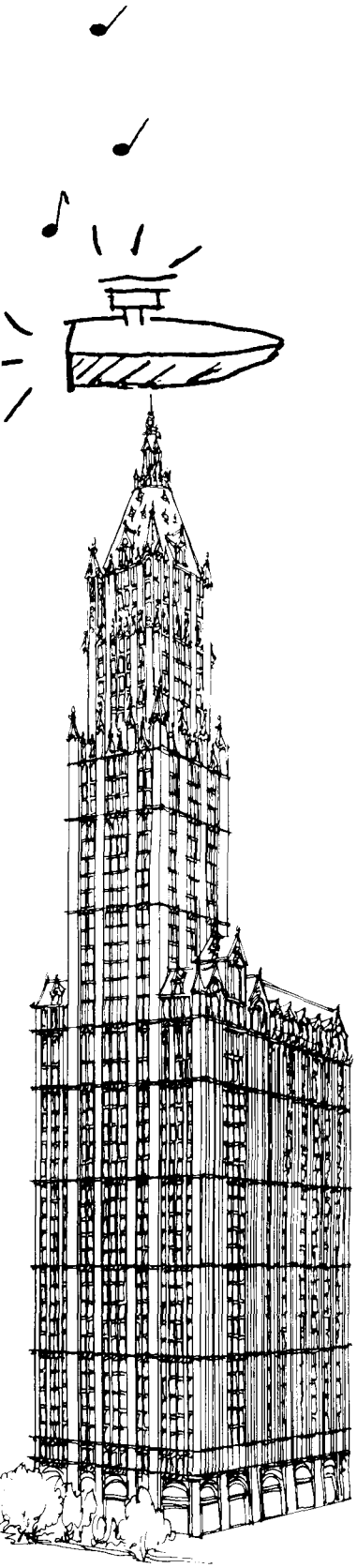

Environmentally "sound" proposal: "One Kazoo Plaza."

Next month, P/A will devote its feature pages to a look at architects and the environment. The issue will include profiles of architects from around the country who have sought to find more environmentally conscious ways to build; in addition, we will discuss environmentally sound products and building methods.

But there's one environmental pitfall we might never have considered had it not been for the unfortunate experience of Murphy/Jahn in New York. The firm's Cityspire, a 72-story tower on 56th Street, first ran afoul of city regulations in 1987, when inspectors discovered it was 11 feet higher than zoning restrictions allowed. After a number of solutions were discussed, including the removal of the tower's signature dome, the developer was allowed to pay his debt to society by providing dance-rehearsal space in the building's lower floors.

Now, according to the *New York Times*, the building has been cited for whistling. It seems that when wind blows through the louvered dome, it makes a sound that the *Times* likened to "blowing across the neck of a soda bottle." The city has received complaints from all over Midtown Manhattan, and, in addition to fixing the problem, the owners face an $880 fine under the city's noise-control ordinance.

Too bad New York sees this as an environmental problem. In a less restrictive era, we might look forward to developers' plans for "The Wind Chime Centre" or "One Kazoo Plaza."

. . .

Our feature on architect John Blatteau (this issue, page 80) reminded one P/A editor of the common view that Classical architecture is nostalgic. Speaking from experience, he feels that it is really more idealistic:

"I first learned about Classical architecture literally at my grandfather's knee. An architect trained in the Beaux-Arts method, he bought me a set of drafting tools one Friday afternoon when I was 12, and spent the rest of the weekend showing me the basics of architectural drawing and perspective rendering. He left with me renderings of Colonial houses and Georgian churches that he had designed over the years. As I look back at those drawings now, I am struck not so much by the style of the buildings as by the character of their surroundings: manicured lawns, perfectly shaped trees, passers-by leisurely strolling about. Such settings were an idealization of reality. My grandfather's renderings, like the Classical buildings they depicted, offered a vision not so much of how the world once was, but how it should be. One can argue about the validity of that vision, but you can't deny its power. It got one 12-year-old forever hooked on architecture."

. . .

Talk of an economic downturn – or recession, or depression – seems to pervade every meeting of two or more architectural types these days, but for all you architects with some discretionary income to toss around, we have some books that may interest you. Art and architecture books (at least the hefty kind that most of us put on our coffee table, and Robert A.M. Stern uses for his firm brochure) have always been pricey, but lately there seems to be an intense competition among publishers to see who can produce the most expensive art book. We thought that Rizzoli's $200 price tag for a volume of Sullivan drawings (see Books of Note, page 92) was a bit steep, until we read that one of 160 copies of *Canal Street*, offered by the Whitney Museum, costs $900. Apparently, we're to consider the book a work of art guaranteed to appreciate; with text by Ian Frazier and woodcuts and drawings by Saul Steinberg, it may even be a bargain. It's priced like publishers' overstock, though, compared to *Parables and Pieces*, which teams stories by Franz Kafka and photographs by Judith Turner. If you have $4500 to spare, it might not be too late to claim one of 50 copies offered by Vincent Fitz Gerald & Co. **And if you get one, let us know how it is. In a rather humbling development, we were denied a free review copy.** ■

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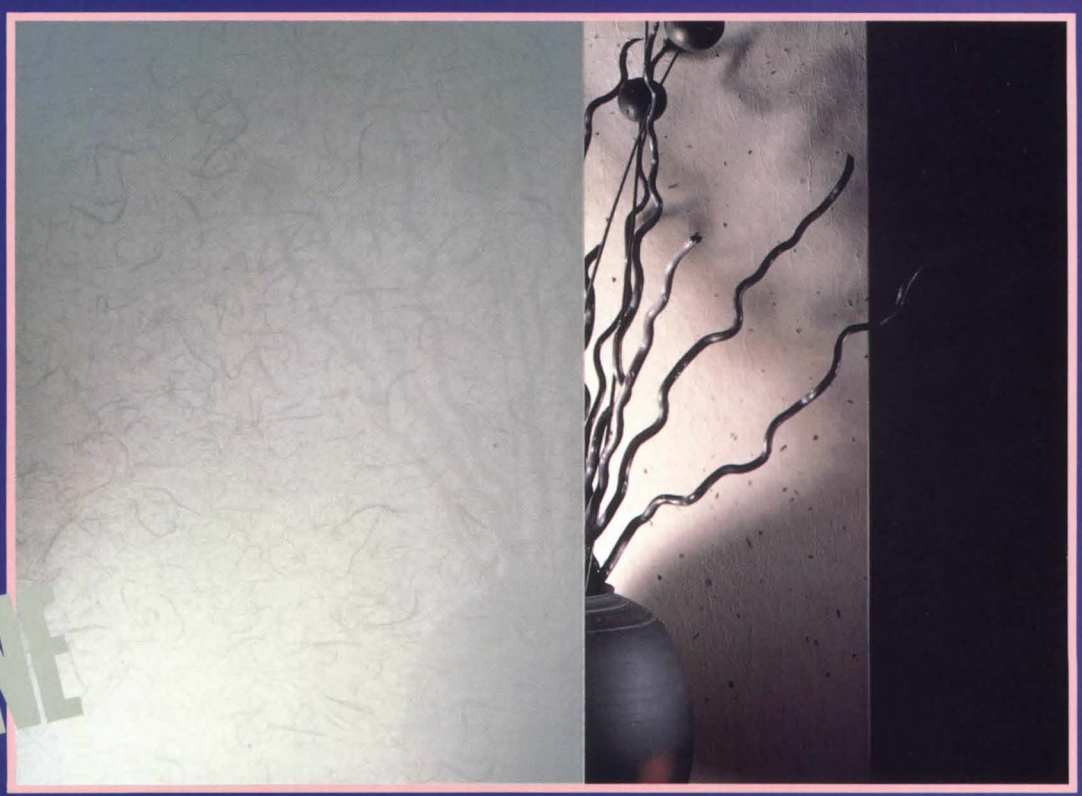

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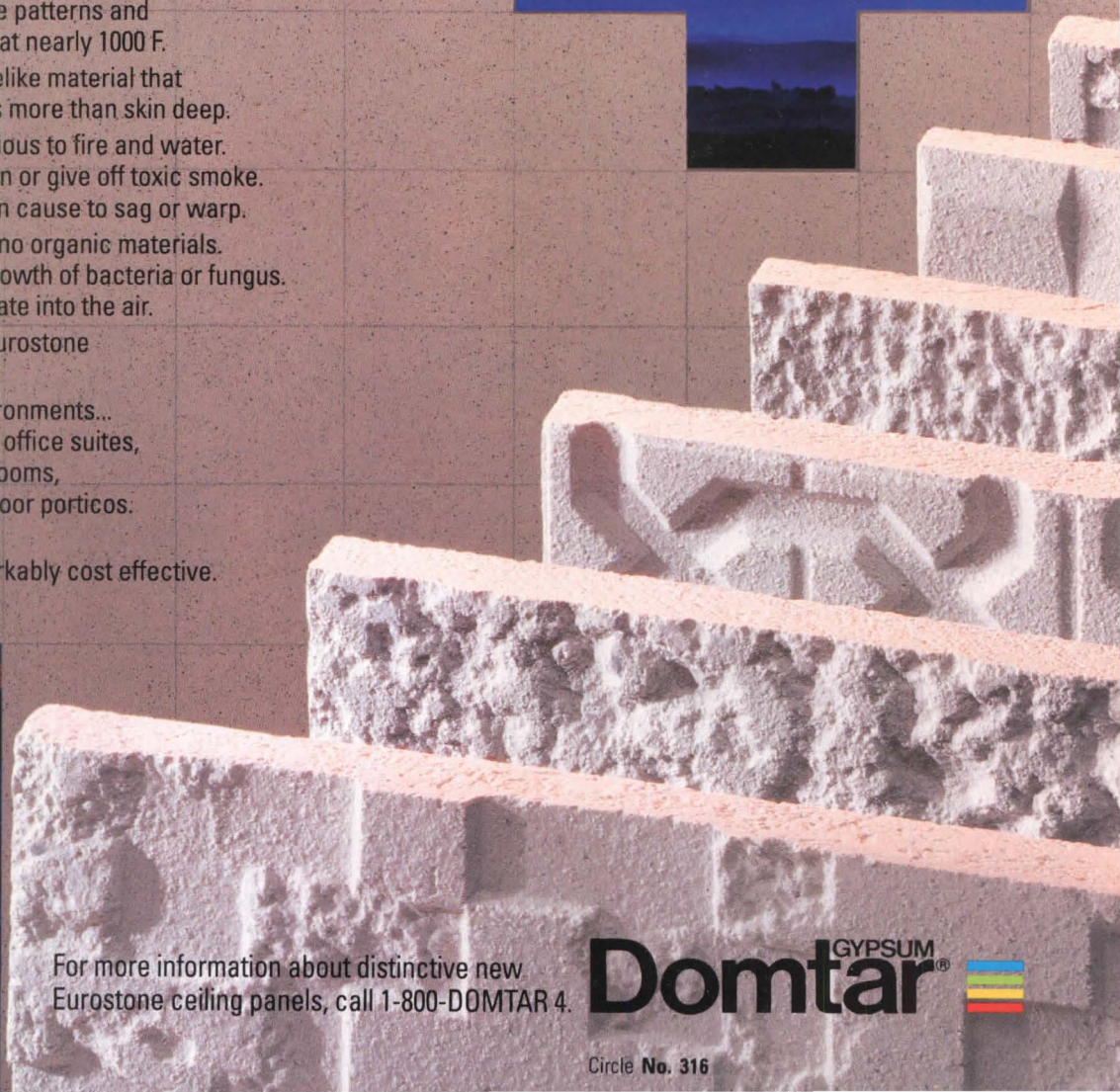

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