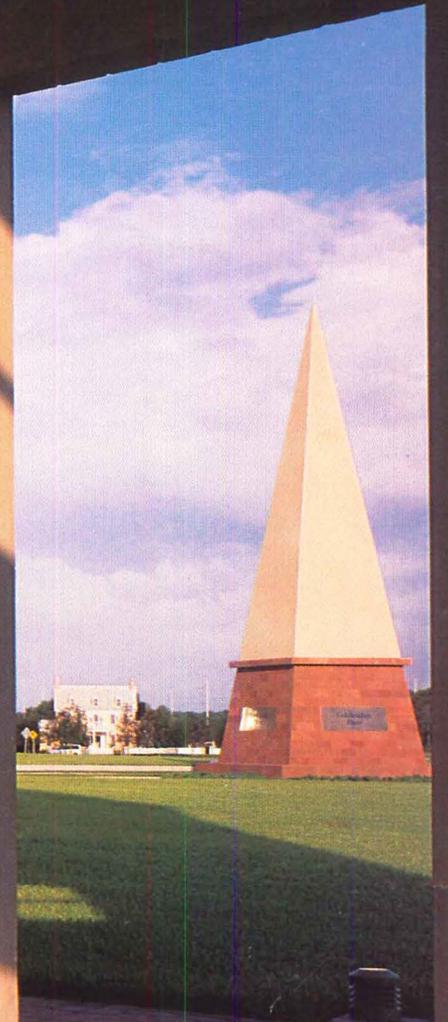
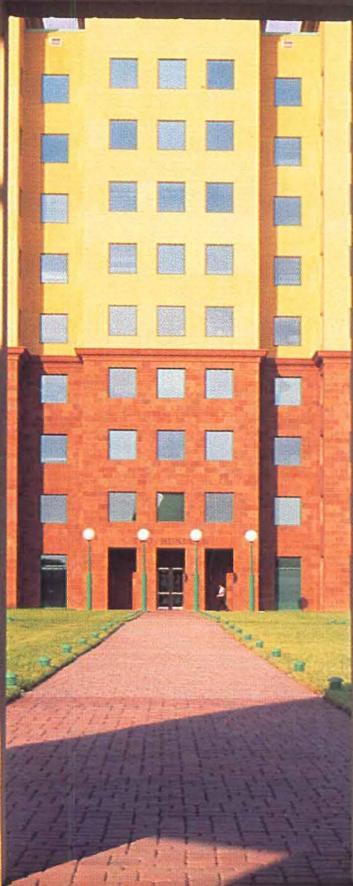


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Paul Andreu builds on a 30-year experience (page 76).

### Next month

Building Types Study 734 features renovation, with special focus on adaptive reuse. Projects include recycled factories, an auto body shop, office building, warehouse, bank, school, theater, inner city townhouse, transoceanic liner, and a Civil War memorial.

### In the Profession

- Services-driven firms
- Indoor-air quality update
- Technology: Retrofitting a cable-supported roof.

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RECORD's quarterly LIGHTING supplement

Cover: Celebration Place  
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Smallwood, Reynolds, Steward,  
Stewart & Associates, Associate  
Architect

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**Ulm umbrage**

Having visited Ulm, Germany, I feel Richard Meier's Stadthaus [RECORD, October 1995, pages 90-99] is totally inappropriate for the space.

*John L. Luttig  
Overland Park, Kansas*

As a long-time admirer of Richard Meier's work, I read Tracy Metz's piece on his new Stadthaus in Ulm, Germany, first. I differ with her view: it is a shame not enough signatures were obtained by opponents of this project to protect this fragile urban environment.

My first encounter with this urban space and the magnificent cathedral of Ulm was in 1971. I have revisited it several times and admired the restraint of all previous architects at protecting this important vantage point from which to view the cathedral. Now that Mr. Meier's "kit of parts" approach to architecture is complete, it is clear that the City of Ulm has been the victim of an expensive "shell game."

Mind you, I have no quarrel with Mr. Meier's dedication to a singular thought, and it is clear to anyone who has experienced his work they are architectural sculptures. Too powerful in fact to properly display any art one might hope to honor. My dissatisfaction lies in the imposition of this work on the serenity of the city square, and the aggressive competition it provides to the uplifting power of the Ulm Cathedral. Mr. Meier may well be an architectural icon, but he is certainly not an urban planner.

The architect's desire to find a site on which to build another architectural "jewel" has blinded him to the real issue at hand, an issue the city has struggled with for more than 100 years. This is

yet another example of architectural salesmanship at its highest level. I am sure if Mr. Meier were a "tin man," the entire city square would be sheathed in white aluminum siding.

Perhaps the city fathers of Ulm will one day find the courage to correct this mistake, and once again return the site to cobblestones. Until then, one can never again fully appreciate the Ulm cathedral or photograph it without carefully framing to block out this white elephant.

I hope the city fathers of Paris have no intentions to yield a building pad on the plaza in front of Notre Dame for such a project.  
*Robert H. Kastens  
Director of Architecture and Planning  
The Benham Group, Inc.  
Oklahoma City*

**Too Many Architects?**

The article, "Are There Too Many Architects?" by R. Gregory Turner [RECORD, October 1995, pages 42-45] is one of the most refreshing and on-target treatises on this topic I have seen in any publication. Turner's analyses are thorough and compelling, and his suggested solutions sensible.

I have one complementary proposal to add to the thrust of Turner's arguments. That is to tighten up the focus of entrance requirements for admission to architectural schools. It is my perception from interviewing fresh graduates over the 25 years of my practice that too many are admitted to architecture schools, and *allowed to graduate*, who should never have been allowed in the first place. And numbers seem to have increased over the years. To address this, not long ago I drafted a list of personality and character traits which should  
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**Through January 14**

"Claes Oldenburg: An Anthology," a showing of 200 drawings, collages, and sculptures at the Guggenheim, New York City.

**Through January 14**

"Architects of Image: Photography in the Heroic Age of Construction;" Canadian Center for Architecture, Montreal; 514/939-7000; fax 514/939-7020. Boston; fax 617/951-0845.

**Through January 19**

Entries of the finalists in the Williamsburg Design Competitions are on display in Building C at the James City County Government Complex in Williamsburg, Virginia. 804/253-6671

**January 20-February 4**

"Domes: Constructing and Decorating an American Symbol" at the National Building Museum in Washington, D. C. January 20, 21, 27, 28 and February 3 and 4. 202/272-2448.

**Through January 21**

"Paolo Soleri: 25 Years at Arcosanti" at the Chicago Athenaeum. A celebration of the Italian-American architect and his Utopian city under construction in the Arizona desert. 312/251-0175.

**Through January 21**

"Film Architecture: Set Designs from METROPOLIS to BLADE RUNNER" at the David Winton Bell Gallery at Brown University, Providence. 401/863-2476.

**January 25-April 19**

"Six Bridges: The Making of the New York Megalopolis" at the PaineWebber Art Gallery, 1285 Avenue of the Americas (51st Street), New York City. An exhibition of the six bridges designed by Othmar H. Ammann. 212/713-2885.

**February 3**

"Surrealist Vision and Technique: Drawings and Collages from the Pompidou Center and the Picasso Museum, Paris" is a  
*continued on page 103*



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Hardy Holzman Pfeiffer takes an old theater to a new audience (page 66).

### Next month

Mexico City's National Center of the Arts, whose architects include Ricardo Legorreta and Enrique Norten, is featured. Other features include a small chapel by The Auburn Rural Studio, a students' residence at Cambridge University by MacCormac Jamieson Prichard, and a child-care center in Burbank, California, by Mark Rios.

Building Types Study 735 takes up judiciary and correctional facilities.

### In the Profession

- Practice: family-leave policies
- Negotiating building security, including the competition for the new U.S. Embassy in Berlin
- Computer software reviews
- Indicators

Cover:  
*Mark Taper Center/Inner-City Arts*  
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 ©Erich Koyama photo

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**SUPPLEMENT ON LIGHTING INCLUDED WITH THIS ISSUE** (U.S. and Canadian copies only)

### Minorities in Architecture

With reference to your important editorial in the December 1995 RECORD, page 9, I have a few comments.

Really, there's no such thing as a good "minority" architect, only a good architect, when freed from a "double standard" assessment and cooperated with in the marketplace of today by his peers—by "non-minorities," as Fred Friendly of Columbia might say.

Status and independence come from within, and the "miracle" is that a Paul Williams, a minority of the past in much tougher times, can still be replicated to various degrees today by current, really qualified architects and can be welcomed in architects' subtle "artsy" clubs.

Also, women's issues and the "disabled" are different, as G. Gilder's *Sexual Suicide* brought out some years ago. People are people, and, yes, the future is important. And so is "modest work" done well, as well as large "creative" assignments, honestly shared.

Sydney L. McGrath, P.E.  
"Minority" Structural and Civil Engineer  
Poughkeepsie, New York

Regarding Mubarak Dahir's article on affirmative action [July 1995, pages 32-33], I was pleased to see RECORD dedicate two pages to the article. That demonstrated a major editorial commitment. There were some interesting statistics and some good questions and comments. However, the author didn't seem to establish a point of view or perspective, nor did he attempt to analyze the information he had gathered.

The statistics of 100,000 architects in the country and only

1,064 African-American architects, when seen in isolation from figures for the population as a whole, are misleading. I think the article should have pointed out that appreciable increases did not begin until the 1970s when the Civil Rights Movement changed the conscience of the nation. The increase in the number of African-American architects has occurred in just a 20-year period—a pattern of growth for minorities and women which is also reflected in professions such as teaching, law, medicine, and engineering.

For example, in the 1960s there were fewer than 15 African-American architects in Philadelphia. Today there are approximately 100. From my perspective, the section of the article that discussed the importance of increased visibility was perhaps the best. The article mentioned that the AIA's Second Annual National Diversity Conference was to be held in San Francisco, August 11-13, with the theme "Building Bridges-Diversity Connections." San Francisco could have been emphasized more as an example where positive steps are under way. The AIA chapter there is both diverse in terms of the people who practice there and the kinds of architecture they practice. The architecture community there has a long history of activism as well.

Michael Willis, president of AIA San Francisco, is an African-American and a principal of Willis & Associates. He has been working in his practice to raise visibility so people can see this diversity. One of his goals at chapter conferences is that attendees learn from the San Francisco professional climate and experience. The voluntary diversity that has developed in  
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### March 1-31

Atelier Forum Ltd. "New York Avenue: Ideas Wanted" exhibition of work by architects and designers of proposals for the New York Avenue corridor will be on display. Call 202/945-6532 for Washington, D.C., location.

### March 7-8

Design-Build America Conference, Hyatt Regency, Chicago. Call 617/965-0055; fax 965-5152 for details.

### March 12-16

"Making Cities Livable Conference," Carmel, Calif. Fax 408/624-5126 to request more information.

### March 13-15

WestWeek 96, Pacific Design Center, Los Angeles. Call 800/421-9537 or fax 310/475-6881 for details.

### March 15-May 2

"Civic Lessons: Recent New York Public Architecture" exhibition will display 69 projects initiated by 23 agencies at The Rotunda, Alexander Hamilton Custom House, Bowling Green, Manhattan. Sponsored by the New York Chapter/AIA and the New York Foundation for Architecture. A day-long symposium on April 18 is also scheduled. Call 212/663-0023 or fax 696-5022 for more details.

### Through March 22

The paintings of Lida Stifel, whose work incorporates fragments of architectural plans, is on display at the AIA Library and Archives, 1735 New York Ave., Washington, D.C., from 9 am to 5 pm. Call 202/626-7300, fax 626-7421 to request more information.

### April 10-12

Conference on Urban Infrastructure for the 21st Century, Los Angeles Convention Center, includes a Green Business Conference and Trade Show on April 12 and a Conference on Alternative Transportation April 10-12.  
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Samuel Mockbee's Auburn Rural Studio takes architectural study to a small community (page 74).

**Next month**

1996 RECORD HOUSES includes projects by Mark Mack, Miller/Hull, Carlos Jimenez and Rob Quigley.

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**Housing Tax Credits Criticized**

In your editorial [RECORD, January 1996, p.7], you conveniently sidestepped any presentation of the substantial flaws of the program, which fall into two main categories: financial and architectural...

Financially, the program is quintessentially Reaganesque. It is costly and delivers little on the dollar to the poor for whom the credit was intended when the passive-loss allowances were discontinued in the 1986 Tax Reform Act.

As much as 50 cents on every dollar goes to overhead in the form of expensive syndication fees to accountants and attorneys. What finally reaches the project in capital form is meager at best. To overlook these failings because no other viable form of financing exists is a reason to establish a better form of financing, not to keep a dubious program alive.

Furthermore, you neglected to discuss the arguments of HUD Assistant Secretary Michael Stegman who, since the days when he was chairman of the Department of Planning at the University of North Carolina, has presented compelling evidence illustrating the costly effects of "layered financing" which accompany virtually all tax credit deals...

You fail to even mention the really sorry part of the tax credit, which is decidedly architectural...

Projects are awarded financing on a competitive basis and the most competitive projects are the ones that concentrate lots of poor people in one place. Invariably this leads to project development where the architec-

ture is once again asked to compensate for poverty, a completely unwinnable, though commendable, proposition.

Only in California, where housing costs are astronomical, does the credit, in effect, enable rental housing to be produced for the working poor and moderate-income wage earners outpriced in the market. Elsewhere, tax-credit projects have an incredible tendency to serve only low-income people who in less expensive markets tend not to be the working poor around whom a sustainable community can be envisaged...

The argument Al Eisenberg and others should be making instead is not to preserve the tax credit because it's "virtually the only game in town," but to modify it so that people of varying incomes can find rental housing in close proximity to those of different incomes, and, when possible, in the same project...

*Charles Buki  
Loeb Fellow  
Harvard University  
Cambridge, Mass.*

**Washington Monuments: Battles Over the Mall**

There have been a number of articles (just over 400 to date) written about the Korean War Veterans Memorial in Washington, D.C., since its dedication last July. The public and the military press have been very generous in their praise. For the most part, however, the architectural press has taken a more critical view, spawning several articles similar to Roger Lewis's piece in your last issue [RECORD, January 1996, pages 17, 19 & 21].

Lewis's article is a very articulate commentary on the problem. The National Park Service is very *continued on page 109*

**March 1-31**

Atelier Forum Ltd. "New York Avenue: Ideas Wanted" exhibition of work by architects and designers of proposals for the New York Avenue corridor will be on display. Call 202/945-6532 for Washington, D.C., location.

**March 17-19**

Restoration 96, Baltimore Convention Center, Baltimore, MD. An exhibition and conference for those interested in traditional and historical building techniques and products. Call 508/664-8066.

**March 15-May 2**

"Civic Lessons: Recent New York Public Architecture" exhibition will display 69 projects initiated by 23 agencies at The Rotunda, Alexander Hamilton Custom House, Bowling Green, Manhattan. Sponsored by the New York Chapter/AIA and the New York Foundation for Architecture. A day-long symposium on April 18 is also scheduled. Call 212/663-0023 or fax 696-5022 for more details.

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**April 7-21**

"Spring School of Mediterranean Architecture: Multi-Cultural Responses to Time, Place Climate," Foundation for International Studies, University of Malta. AIA members may accrue 130 CES Learning Units for this program (AIA/CES No. F123). Contact: Jean Lillick, Tel 356/234121; Fax:356/230538; e-mail: jkil@unimt.mt.

**April 10-12**

Conference on Urban Infrastructure for the 21st Century, Los Angeles Convention Center, includes a Green Business *continued on page 109*

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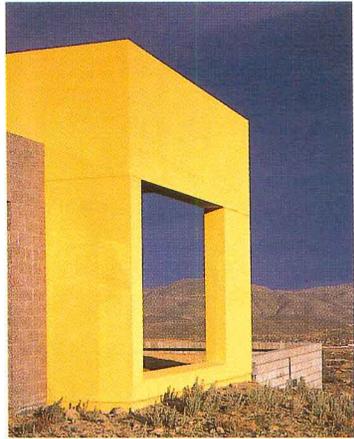
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Mark Mack builds a big house in "the biggest little city in the world" (page 72).

**Next month**

Architects' emerging challenges as exemplified by buildings by Tsao & McKown, Rob Wellington Quigley, William Rawn, and STUDIOS Architecture.

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(Continuing education credits)
- Structural wood
- On-line services update
- Indicators

RECORD LIGHTING Supplement  
LightFair issue

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Burnette Studio/House  
Sunnyslope, Arizona  
Wendell Burnette Architect  
©Bill Timmerman photo

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**For Good Modest Projects**

I don't believe most architects do ignore what you call modest commissions [RECORD, February 1996, page 9]. In fact, most enthusiastically undertake them. Most would try to do a "good design" and some would even succeed, possibly getting their project published in RECORD.

There is both personal and professional impetus for us to design good modest projects. While the users appreciate the positive qualities, they don't seem able to translate that into understanding design. Perhaps, too few have been exposed to good buildings.

Most of our clients for modest commissions do not read architectural magazines. Those interested may read "Arts and Leisure" in *The New York Times* and be exposed to a limited, if sophisticated, discussion with stingy graphics. Such articles rarely deal with the basic issues addressed in your editorial.

"The chance to enhance the image of the profession" implies the opportunity exists. If the popular media gave the same kind of exposure to architecture as it does to film, theater, dance, and the visual arts, that opportunity would increase. If the client—the public—learned what good architecture can do for their neighborhoods, there would be more of it.

Our profession doesn't lack for talent, but rather for demand. If the demand were there, budgets would be better, administrators would be more design conscious, the small-scaled built environment would be better, and I probably would not have had the time to write this letter.

Warren W. Gran  
Gran Sultan & Associates  
New York City

**A Construction information Group Special Event**  
**June 17-20**

"Construction Technology 96." Conference sponsored by the Construction Information Group of The McGraw-Hill Companies including the Sweet's Group, ARCHITECTURAL RECORD, Engineering News-Record, F. W. Dodge, and the Construction News Publishing Network. Anaheim Convention Center, Anaheim, Calif. The event is part of A/E/C Systems 96. Contact Sharon Price, 800/451-1196 or 610/458-7070; fax 610/458-7171.

**Through May 2**

"Civic Lessons: Recent New York Public Architecture." Exhibition of 69 projects initiated by 23 city agencies. Alexander Hamilton Customs House, New York City. Sponsored by the New York Chapter/AIA and the New York Foundation for Architecture. A day-long symposium on April 18 is also scheduled. Contact NYFA: 212/663-0023 or fax: 212/696-5022.

**Through May 5**

Exhibition: "Contemporary British Architects." Sponsored by the Department of Architecture, The Art Institute of Chicago. Contact the Institute at 312/443-3600; fax 312/443-0849.

**April 4-August 31**

Exhibition: "The Architecture of Bruce Goff, 1904-1982." Sponsored by the American Architectural Foundation. The Octagon, Washington, D. C. Contact: 202/879-7766.

**April 8-June 1**

Workshop series in building-preservation skills. Subjects include available materials, preparing historically accurate paints, and maintenance philosophies. Sponsored by the Preservation Institute in cooperation with the Division of Architecture, Norwich University, Ver. Contact the Institute: 802/674-6752 or fax 802/674-6179.

**April 13-17**

American Planning Association National Conference includes 225 sessions, 40 mobile workshops, and tours of Disney World. Orlando, Fla. Contact APA: 312/431-9100; fax: 312/786-6702.

**April 13-18**

"Solar 96." Includes the 25th American Solar Energy Society Annual Conference and the 21st National Passive Solar Conference. Sponsored by the U.S. Department of Energy. Grove Park Inn, Asheville, N.C. Contact: ASES, 303/443-3130; fax 303/443-3212.

**May 3-5**

Kitchen/Bath Industry Show. Georgia Congress Center, Atlanta. Contact the National Kitchen & Bath Association: 908/852-0033; fax 908/852-1695.

**May 3-11**

The New York Metro Chapter of the American Society of Interior Designers presents "New York Interior Design Week '96," a week of seminars, tours, and exhibits. An interior design showcase at the Ansonia Condominium will be featured. Call 1/800-388-4411 for information.

**May 8**

A workshop entitled "Blurring the Lines" will be presented at the Boston Architectural Center. The event will feature an exhibit of 3D environmental graphics, print graphics, and an interactive kiosk that will all be on display through the end of May. Contact Jodi Singer: 617/497-6605.

**May 16-September 13**

"Ingenious Solutions—Process and Design in Residential Architecture." Exhibit explores Chicago architects' innovative answers to concerns for security, economy, and context. Jointly sponsored by the Chicago Architecture Foundation and the Chicago Chapter/AIA: 312/670-7770 or fax 312/670-2422.

**May 30**

"Why Teach Architecture?"

Panel discussion on the place of architecture in elementary- and secondary-school curriculums. New York Chapter/AIA, New York City. Call 212/683-0023.

**June 5-9**

International Design Conference in Aspen. The 46th conference's theme is "GESTALT: Visions of German Design." Conference chairman is Herbert Schultes, head of design, Siemens AG, Munich. Contact IDCA: 970/925-2257 or fax 970/925-8495.

**June 6-September 3**

A special exhibition at the Museum of Modern Art in New York will celebrate the occasion of the 90th birthday of Philip Johnson, and his role as a curator and donor to the museum. Contact the Museum of Modern Art, 212/708-9400.

**June 24-25**

"Green Building Materials '96," a conference for architects, specifiers, builders, and manufacturers, Radisson Hotel, Gainesville, Fla. The program will explore important issues these professionals have concerning the specification and manufacture of so-called "green" building materials. For program information contact Dr. Charles Kibert at 904/392-7502; fax 904/392-9606.

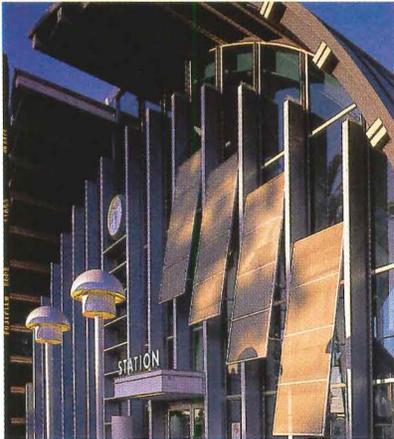
**June 28-30**

The Construction Specifications Institute's 40th annual convention and exhibit, Denver. A "Roofing warranties, maintenance and lifecycles" symposium will be held in conjunction with the convention. Contact Lisa Derby at 800/689-2900, ext. 772.

**Competitions**

•The Glenwood Competition. Design for new Village Hall offers four prizes totaling \$22,500. Jury: Ralph Johnson, Milo Thompson, community leaders. Contact Design Competition Services, Inc.: 414/963-0863. Deadline for registration is April 30. ■

©Richard Barnes



Rob Quigley builds a landmark for a San Diego beach community (page 96).

• **Defensive Glazing 34**

Eligible for AIA continuing education credits (for instructions, see page 135).

• **Architectural Education's Future: Carnegie Report Preview 18**

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- ◆ *Computer Delineation Awards*
- ◆ *Mid-year Outlook*

Cover:  
*Suntec City, Singapore*  
*Tsao & McKown, Architect*  
*DP Architects, Architect of Record*  
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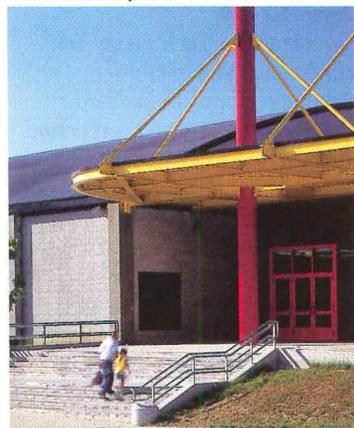
**SUPPLEMENT ON LIGHTING INCLUDED WITH THIS ISSUE** (U.S. and Canadian copies only)

"Is that the company that made the boomerang laminate?"

Atlanta architect at Marlite Focus Group



©Chuck Choi photo



Leers Weinzapfel Associates' youth center brings an end to gang turf wars (page 88).

**Continuing Education**

Eligible for AIA/ARCHITECTURAL RECORD Continuing Education learning credits this month is a series of four articles that deal with community buildings, their creation, financing, and impact. See page 65 for learning credit instructions.

**Next month**

**Building Types Study 739:**  
*Facilities for Higher Education*

**In The Profession**  
♦ *International Practice*

**4th Annual Pacific Rim Section**

Cover:  
*Irvington Community Center*  
*Fremont, California*  
*ELS/Elbasani & Logan Architects*  
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 This logo indicates that the story is eligible for AIA/ARCHITECTURAL RECORD continuing education credits. Turn to page 65 for instructions.

**Continuing education credits**

Please accept my appreciation and thanks for your new feature giving architects the opportunity to earn continuing education points, and especially for your reasons for doing this, as expressed in your editorial [ARCHITECTURAL RECORD, April 1996, page 9]. This so-called continuing education business has imposed an unwonted and unnecessary burden upon all architects, but mostly upon those who do not practice but must be registered in order to legally call themselves architects.

Anything that can be done to ease this problem is most welcome. While it might be said that the idea behind this program is well-intentioned (remember the paving material of the road to Hell!), it has been applied with all the finesse of a berserk bulldozer. If one of the purposes of the program is to bring respect to architects in the eyes of the public, it shows very little respect for those same architects. They are told, by suggestion, that they who have been working and/or practicing for years are now too dumb, ignorant, and uninformed to continue as architects unless they earn some arbitrary number of "points." To enforce the program, it holds in ransom the very license(s) under which we have been successfully practicing! Your attempt to ease this burden is most welcome.

George S. Stuart  
Consulting Architect  
Atlanta, Georgia

**AIA/RECORD affiliation**

I was greatly disheartened when I learned that ARCHITECTURAL RECORD had entered into an agreement with the AIA as their official publication. I have been a reader and subscriber for over 30 years and looked to your publica-

tion as an impartial observer of the architectural scene. Prior to this announcement, the unique editorial role of the RECORD as an independent—and impartial—observer and reporter of the profession of architecture was appreciated and respected as evidence of true journalism. Most AIA publications I have read do not give any recognition to alternate design organizations, or to opinions and projects of unaffiliated architects, and I am afraid that this bias will replace the journalistic freedom that the RECORD now enjoys.

Roger A. Weaver  
Architect  
Harmony, Pennsylvania

*You need have no fear that the alliance between the American Institute of Architects and The McGraw-Hill Companies' Construction Information Group, to which ARCHITECTURAL RECORD belongs, will jeopardize RECORD's role as an independent and impartial publication. We have always, and will continue to, select projects for the magazine based strictly on the significance of the building, not on the professional affiliation of the architect. Many of our subscribers, indeed, belong to no professional society, and their activities too will continue to be welcome in our pages.—Editor*

**Welcome back**

Twenty years ago I stopped reading the architectural publications, with the exception of CSI's *Specifier* and *Architecture*, the latter only because it was included with my AIA membership. Recently I was reintroduced to ARCHITECTURAL RECORD, and was extremely pleased with your magazine—both in terms of content and format. I felt that you had finally found the way to serve the architectural community.

Then I learned that RECORD was soon to become the official magazine of the AIA. "Wonderful," I thought; "good move!" Then you top that by offering in your RECORD HOUSES issue AIA/CES Learning Units, and commit to even greater advances.

Congratulations. Architects at last have a professional publication they can be proud of, and that meets professional needs. Keep up the good work.

Ronald P. Gothberg  
Architect  
Sacramento, California

**Record Houses 1996**

I found the selection of the Lott House and Guest House by Karen Stein [RECORD, April 1996] to be an inspiration and educational. First I was inspired by the fact that a truly mediocre design could be a winner. Next year I will send my latest suburban embarrassment. Second, I now know I shall no longer have to sit in my back yard, but instead can "repose" on my "miniature grassy mall."

Jon Bloss Blehar  
Architect  
West Palm Beach, Florida

Congratulations. The Record Houses are the best-designed houses shown in RECORD HOUSES in the last 25 years (Jimenez in Houston and Gluckman, Nova Scotia excepted in the above opinion). Architects are now designing and creating livable spaces once again, the kitchen/bath article included. Hooray—Postmodernism is dead!

William Krisel  
Architect  
Los Angeles, California

**A Construction Information Group Special Event****June 17-20**

Construction Technology '96, conference and exhibition, Anaheim Convention Center. Sponsored by The Construction Information Group of The McGraw-Hill Companies (which includes RECORD, ENR, Sweet's Group, and F.W. Dodge), the event will be held in conjunction with A/E/C Systems '96. Call 800/451-1196 or fax 601/458-7171.

**June 13-14**

National Housing Conference, The Sphinx Club, Washington, D.C. Fax 202/393-5656.

**Through June 29**

"23 Skidoo: The Flatiron Building," an exhibition featuring over 20 artists' works of the landmark, at the Michael Ingbar Gallery, 568 Broadway, New York City; 212/334-1100.

**June 24-25**

"Green Building Materials '96" conference, Radisson Hotel, Gainesville, Fla. Contact Dr. Charles Kibert, 904/392-7502; fax 904/392-9606.

**June 28-30**

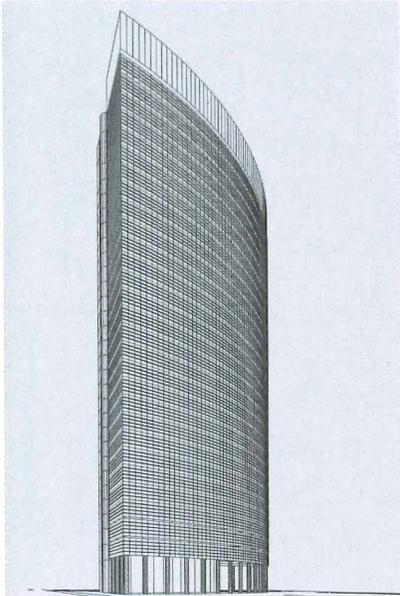
The Construction Specifications Institute annual convention and exhibit, Denver. Call 800/689-2900, ext. 772 for information.

**Through September 13**

"Ingenious Solutions—Process and Design in Residential Architecture." Exhibit explores Chicago architects' innovative answers to concerns for security, economy, and context. Jointly sponsored by the Chicago Architecture Foundation and the Chicago Chapter/AIA: 312/670-7770 or fax 312/670-2422.

**Competitions**

The Urban Studies and Architecture Institute is calling for entries to design a public space in Verona, Italy—the Lapidarium Museum and Garden. Entries are due July 15. Registration fee: \$150. Call 800/624-9850 or fax 201/596-3288 for details. ■



NTT Head Office Building in Tokyo, designed by Cesar Pelli & Associates and Yamashita Sekkei, is featured in RECORD's fourth annual Pacific Rim Section (page PR28).

**Continuing Education**  
 This month, two articles in the Pacific Rim Section (page PR28 and PR34) are eligible for AIA/ARCHITECTURAL RECORD Continuing Education learning credits. See page 65 for learning-credit instructions.

Cover:  
 Memorial Hall  
 Harvard University  
 Cambridge, Massachusetts  
 Venturi, Scott Brown and Associates,  
 Architects  
 Brunner/Cott & Associates  
 Robert G. Neiley, Associated Architects  
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**BUILDING TYPES STUDY 739/Academic Buildings**

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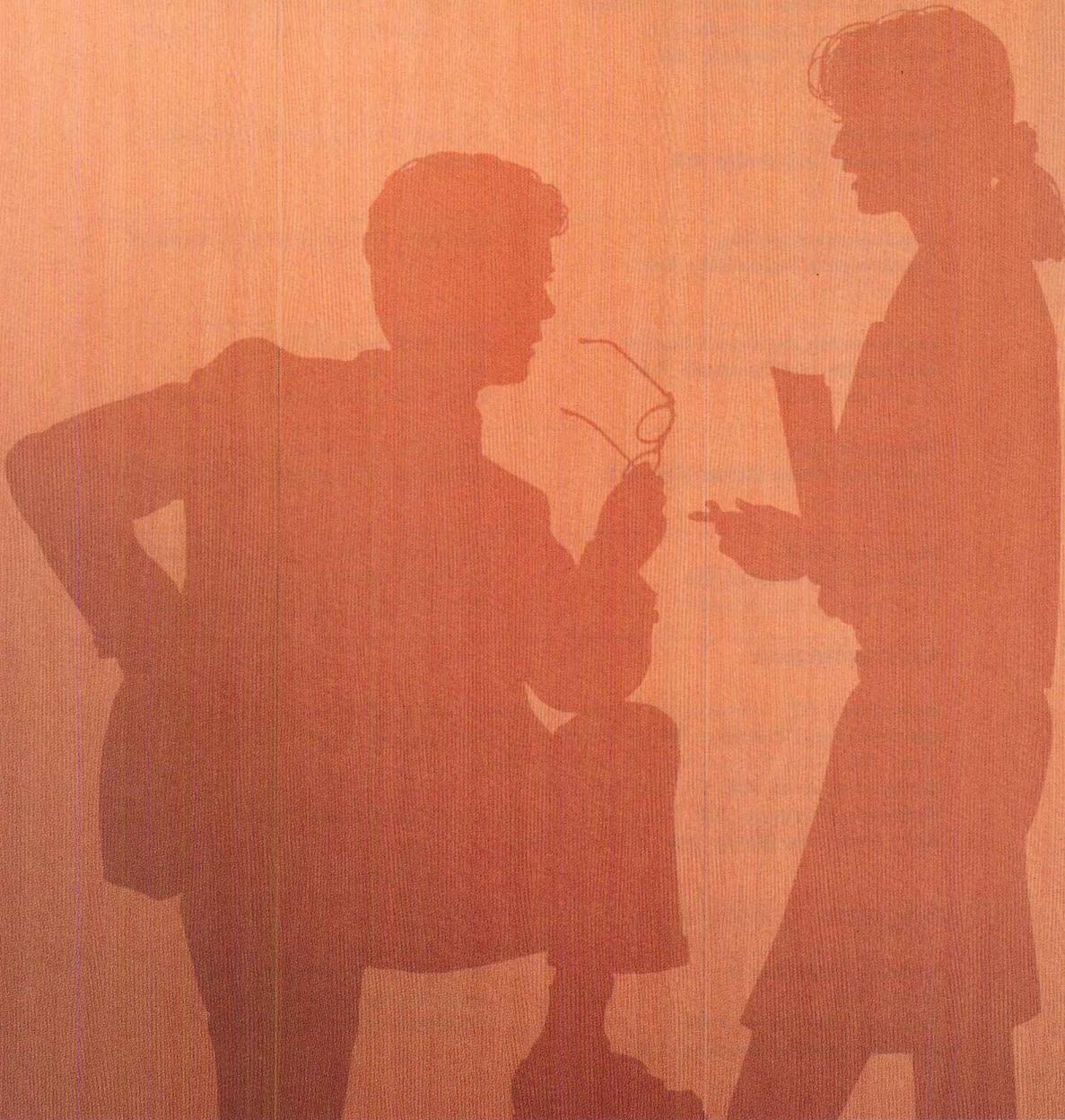
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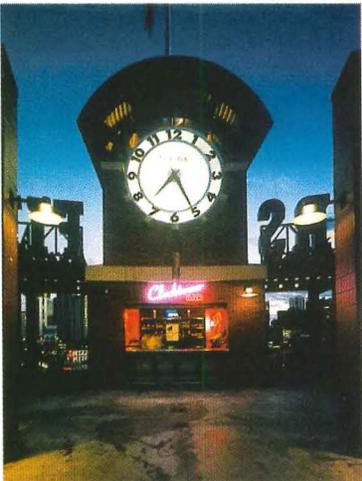
**4th Annual Pacific Rim Section, after page 108**

AIA/ ARCHITECTURAL RECORD Continuing Education Self Report Form, page 167

"We want something more celebrated than  
the typical 2 or 3 inch scored panel"

Chicago architect at Marlite Focus Group





© Thorney Lieberman

Dusk in Denver. The clock at Coors Field greets baseball fans at the stadium's main entrance. See RECORD's Building Types Study on sports facilities, page 110.

**Readers' Choice Awards**

Your opportunity to identify the manufacturers who provide excellence in building components and service support (page 63).

**Continuing Education**

This month, "Overcoming Pitfalls in Product Literature" (page 50) is eligible for AIA/ARCHITECTURAL RECORD Continuing Education learning credits. See page 107 for instructions.

Cover:  
 Museum of Contemporary Art  
 Chicago, Illinois  
 Josef P. Kleihues, Inc., Architect  
 A. Epstein and Sons, International,  
 Associate Architect  
 ©Steve Hall/Hedrich Blessing photo

**Introduction 79**

Three museums—one on a hill, one by the sea, one downtown—that are as different as their settings and their architects.

**Museum of Contemporary Art 80**  
 Chicago, Illinois

A Classically-planned building in Modernist dress.

*Josef P. Kleihues, Inc., Architect*  
*A. Epstein and Sons, International,*  
*Associate Architect*

**Museum of Contemporary Art, San Diego 88**  
 La Jolla, California

Once again, new life for a beloved 1916 Irving Gill house.

*Venturi, Scott Brown & Associates, Architect*

**Skirball Cultural Center 94**  
 Los Angeles, California

A museum of Judaica gets its first real home.

*Moshe Safdie and Associates, Architect*  
*Albert C. Martin and Associates,*  
*Associate Architect*

**Sto Regional Depot 102**  
 Hamburg, Germany

A building for selling products, made from the products it sells.

*Michael Wilford and Partners, Architect*

**BUILDING TYPES STUDY 740/Sports Facilities**

**Essay 108**

For most architects, the design action is on the sidelines.

*HOK Sport, Architect*

**Coors Field 110**  
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**SUPPLEMENT ON LIGHTING INCLUDED WITH THIS ISSUE** (U.S. and Canadian copies only)

**Are HOUSES code-compliant?**

I read someplace that in an effort to reduce the prevalent practice of using student/slave/"volunteer" labor in architectural offices, prize-winning firms were to certify they used only paid employees in the production of these winning projects.

Could this notion be extended to include confirmation that honors only be awarded to projects that meet current building codes? I realize that approach would have made the 1996 RECORD HOUSES issue rather sparse. My own tally from that issue, simply from cursory visual inspection of the photographs in the magazine: No handrails (2); inadequate guardrails (4); no guardrails at all (3); guardrails too short (1). That makes 10 violations in eight houses, and I was only looking at stairs! Is there some arrangement by which RECORD HOUSES are exempt from building codes under which the rest of us must practice?

*Tom Hardy*

*Page & Turnbull, Inc.*  
*San Francisco, California*

*RECORD presumes that houses completed and occupied by their owners are deemed by the entrant, the owner, and local officials as meeting local codes. We do not seek certification of compliance, however. Local codes, especially as they apply to private residences, vary widely.*  
—Editor

**Skyroof, not glass**

Re your coverage of the City of Tempe Police Substation [RECORD, June 1996, pages 96-101], the "glass" material is really a carefully prescribed version of Kalwall.

*Bruce M. Keller, Vice President*  
*Kalwall Corporation*  
*Manchester, New Hampshire*

**September 25-29**

"Frank Lloyd Wright's Influence on Architecture in the Northwest," to be held in Seattle, will feature authorities on FLW; comments from architects such as Frank Gehry; and tours of houses not usually open to the public. Sponsored by the FLW Building Conservancy. Call 312/663-1786, fax 312/663-1683 for details.

**September 28-30**

The Door and Hardware Institute's convention and exposition. Cincinnati. Call 703/222-2010 or fax 703/222-2410 for details.

**October 2**

American Friends of the Georgian Group will tour early private homes in New York State's Hudson Valley. Call 212/861-3990 for information.

**October 16-20**

Three exhibits and conferences, "Restoration/Chicago," the National Trust for Historic Preservation, and the Fall Antiques Show will run in conjunction at two Chicago locations: the Navy Pier and an adjacent exhibit hall for the Restoration and Antiques events, the Palmer House Hotel for the National Trust Conference. Call 508/664-8066, fax 508/664-5822 for further information.

**November 2-3**

The Institute for the Study of Classical Architecture and *Traditional Building* magazine are holding a seminar on "Classical New York, Classical America." On the first day, prominent professionals and educators will talk about subjects ranging from "Townhouse Design in New York (Mark Hewitt) to "The Archeology of New York" (Celia Bergoff, New York University) to "The Clubs of New York" (Gary Brewer, Robert A. M. Stern Architects). These lectures will be in the Tishman Auditorium, Vanderbilt Hall, NYU School of

Law. On the second day, hands-on workshops, demonstrations, and walking tours will cover the Great Interiors of New York (tour), the Clubs of New York (tour). Drawing Classical Ornament (workshop), and the Classical Order of Architecture (workshop), among other topics. That day's activities take place at the Real Estate Institute at NYU's 11 West 42nd St. location. Registration is \$95 per day, or \$195 for both days. Call Judith Lief at 718/636-0788 for more information, or fax her at 718/636-0750.

**November 7-9**

Interplan '96 will hold its (formerly Designers Saturday) show at the New York Coliseum, with seminars and an interior-design and planning exposition. The A&D building also plans to expand exhibitor space at its West 58th St. location. Call 800/950-1314, ext. 2611 for more information.

**November 13-15**

"Architecture and Urbanism at the Turn of the Third Millennium" conference will be held at Sava Centar in Belgrade, Yugoslavia, presenting symposia on Society in Transition, Sustainable Development, Migrations, Architecture in Context, New Technologies, and Education. For details, fax Arkitonski Fakultet at 381-11-3224-122.

**Through January 19, 1997**

"Three Buildings by Frank Lloyd Wright: American Spirit Alive in Japan" traces the history of the only three non-U.S. buildings Wright designed and built: the Imperial Hotel, Yamamura House, and Jiyu Gakuen Myonichikan School. Through photos, drawings, models, and correspondence, the exhibition explores the context for each building. At the National Building Museum, Washington, D.C., 202/272-2448, fax 202/272-2564. ■

**Competitions**

◆ "Unbuilt Architecture" competition submissions are due Sept. 26. Entry fee is \$50 for each submission. Call Boston Society of Architects, 617/951-1433 ext. 232, for details.

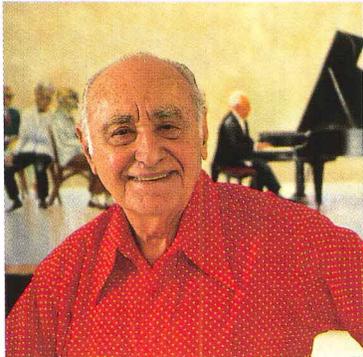
◆ A competition to design Greenport (Long Island, N.Y.) Waterfront Park and Harbor Walk offers up to \$20,000 plus a commission to further develop the winning design. Registration closes Oct. 4; submissions must be postmarked by Nov. 8. Call 516/477-3000, fax 516/477-2488 for more information.

◆ Society of American Registered Architects (SARA) invites architecture students to submit work done in conjunction with a school or independently. Entrants must register by Oct. 6, and submit projects by Oct. 13. Call 708/932-4622 for details.

◆ Shinkenchiku Residential Design Competition entries, which will be judged by Jean Nouvel, are due Oct. 18. Contact Shinkenchiku-sha Co., Ltd., 31-2 Yushima 2-chome, Bunkyo-ku, Tokyo 113, Japan.

◆ Women in Architecture on AIA chapter committees throughout Virginia are sponsoring a postcard-design nationwide competition, created to publicize the role of women in a non-traditional field. Entries can come from men and women both in and out of the profession. Fee for submissions is \$10, due Oct. 18. Postcards must be 4 in. by 6.5 in.. Individual or team submissions are accepted. Call 703/549-4856 for details.

◆ Competition packets for the 1996 Paris Prize in Public Architecture are available this month, and will explain the theme of this year's project: Real Downtown/Virtual Downtown, focusing on lower Manhattan. Call 212/724-7000, fax 212/366-5836 (the Van Alen Institute) for details. ■



© Scott Frances/Esto Photographics

Morris Lapidus is cool again. You may not like his style, but his influence cannot be denied. Read the interview with this American icon on page 92.

**Continuing Education**  
 This month, "Quiet Progress in Managing Environmental Toxins" (page 48) is eligible for AIA/ARCHITECTURAL RECORD Continuing Education learning credits. See page 133 for instructions.

Cover:  
 Don and Sylvia Shaw Salon & Spa  
 Dunwoody, Georgia  
 Scogin Elam & Bray, Architects  
 © Timothy Hursley photo

**BUILDING TYPES STUDY 741 / Record Interiors**

**Introduction 71**

A lesson about conviction and design.

**f/X Networks Corporate Headquarters 72**

Los Angeles, California

"It's about communication, not cubicles," says a company executive, explaining the wide open spaces at the cable network's new offices.

*Fernau & Hartman Architects*

**Clark Atlanta University Art Gallery 78**

Atlanta, Georgia

Two projects, two visions—one stimulates the mind, the other, the body.

**Don and Sylvia Shaw Salon & Spa 81**

Dunwoody, Georgia

*Scogin Elam & Bray, Architects*

**The Science, Industry and Business Library**

**The New York Public Library 84**

New York City

The library of the future in a department store of the past. A bold approach that could become a model for other outmoded downtown structures.

*Gwathmey Siegel & Associates Architects*

**Lapidus Laughs Last 92**

His career began in the 1920s (at \$3 an hour) and never ended. An exclusive interview, plus a fresh look at his classic Miami Beach interiors.

**UWest 98**

Morton Grove, Illinois

The "worst building" U.S. Robotics ever decided to rehabilitate.

*Valerio Dewalt Train Associates*

**Bus Wellness Center 102**

Santa Monica, California

An abandoned bus station full of hidden 1950s' character (and strong enough to meet seismic codes) is reborn as a wellness center.

*Steven Ehrlich Architects*

**Bathroom Addition to House 104**

Toronto, Ontario

A Zen-like space in the place you might least expect it.

*Shim-Sutcliffe, Architect*

**THE PROFESSION**

**Indicators 39** Construction volume, liability risk

**Firms 40** Two Paths to Competitive Success

**Fundamentals 48** Quiet Progress in Managing Environmental Toxins

**Computer Reviews 55** A Data Gateway for AutoCAD; A/E/C Systems Report Part II

**New Products/Briefs 60** Interior Options—Wood, Laminate, and Carpet

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© Peter Aaron / Esto photo

The formidable new U.S. Embassy in Lima, Peru.

**Continuing Education**

This month, "Merging Virtual Technologies Change the Rules of Collaboration" (page 46) is eligible for AIA/ARCHITECTURAL RECORD Continuing Education learning credits. See page 133 for instructions.

**Washington State History Museum 70**  
*Tacoma, Washington*

A collaboration between a famous firm in Texas and local architects, the museum is helping revitalize downtown Tacoma.  
*Moore/Andersson Architects*

**United States Embassy Chancery Building 78**  
*Lima, Peru*

Longer than a football field and built like a bunker, Lima's embassy is a prime example of the changing U.S. attitude toward foreign service buildings.  
*Arquitectonica, Architect*

**Tokyo Church of Christ 88**  
*Tokyo, Japan*

The site, a small plot near a major thoroughfare, made designing this reverential building a challenge.  
*Maki and Associates, Architect*

**Exxon Service Station 94**  
*Lake Buena Vista, Florida*

Working within restrictions imposed by the Disney Development Corporation and Exxon, the architects develop a service station like no other.  
*Hardy Holzman Pfeiffer Associates, Architect*  
*Orlando Alonso Architects, Architect of Record*

**BUILDING TYPES STUDY 742/Hotels**

**"Hotels are Back, But..." 98**

According to F.W. Dodge, hotels are the fastest growing construction category in the U.S. So where's the work for architects?

**Hyatt Regency Hotel 99**  
*Fukuoka, Japan*

*Michael Graves, Architect*  
*Fukuoka Jisho Company, Maeda Corp., Associate Architects*

**Costa Rica Marriott 102**  
*San Jose, Costa Rica*

*Zürcher Architectos,*  
*Spillis Candela & Partners, Associated Architects*

**Hotel Mansfield 106**  
*New York City*

*Pasanella + Klein/Stolzman + Berg, Architects*

**Hotel explorá 108**  
*Patagonia, Chile*

*Germán del Sol & José Cruz O. Architectos*

**THE PROFESSION**

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- Earthquake-Resistant Design 36** A Shakeup in Seismic Assumptions
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Cover:  
*Washington State History Museum*  
*Tacoma, Washington*  
*Moore/Andersson Architects*  
© Timothy Hursley photo

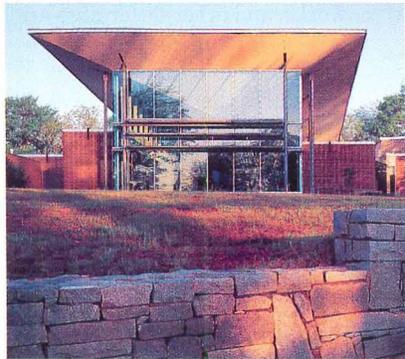
1. New expanded multiline text object has automatic word wrap and flexible text alignment.
2. Easy to change the style attributes of individual text characters such as color, height, obliquing angle.
3. New text style dialog (DDSTYLE) gives more access to create, edit, and set text styles.
4. Easier to underline and overscore text.
5. Easier to edit text with integrated, dialog-based text editor.
6. Cut, copy and paste in the MTEXT editor.
7. Object grips can be used to modify the width of paragraphs.
8. AutoCAD text now supports True-Type and PostScript® Type 1 fonts.
9. Spell Checker includes standard and custom dictionaries.
22. You can suppress the first or second dimension line.
23. Baseline and Continue dimensioning have been streamlined.
24. Baseline and Continue dimensioning work on angular dimensions.
25. DDIM dialog box allows preview prior to input and improves access to properties.
26. Dimensioning better follows industry and international standards, including ANSI, ISO, and JIS.
27. Dimension styles are more flexible and easier to create.
28. Override feature allows you to change properties on a per-dimension basis.
29. Geometric tolerancing creates and edits tolerance control frames automatically.
43. The ability to create and use custom linetypes with text and shapes.
44. Assign linetype scale factors per object (versus per drawing).
45. ISO Compliance of linetypes.
46. DDMODIFY has been dramatically improved.
47. Direct Distance Entry eliminates laborious coordinate keyboard entry; allows you to move the mouse in desired direction and enter a single distance value.
48. Object snap now snaps to extended intersections.
49. Running object snap dialog box is now transparent.
50. New Apparent Intersection snaps to display intersections regardless of the object's UCS.
63. Boundary edges don't need to physically cross the objects you wish to Extend.
64. Grab all visible objects as boundary edges by hitting enter at the first EXTEND prompt.
65. Lengthen or shorten a line or arc to a specific length with the new LENGTHEN command.
66. New overlay option in the Xref command avoids circular references.
67. The Xref command now searches the AutoCAD path to find referenced drawings.
68. Purge your drawing at any time.
69. Easy to create construction lines that extend infinitely in both directions (XLINE).
70. Easy to create construction lines that extend infinitely in one direction (RAY).
85. Solid profiling commands allow you to convert 3D to 2D (SOLPROF/SOLDRAW/SOLVE).
86. Create regions.
87. Extrude along a path command.
88. Determine mass properties of a model.
89. Fillet and chamfer solid modeling.
90. Faster solid modeling processor and smaller model sizes than AME®.
91. Control the display of tessellation lines (isolines).
92. Import and export ACIS models.
93. Translate AME models to R13 solids.
94. Rendering is faster and more realistic.
95. New colored spotlighting.
96. Phong shading supports highlights from colored light source.
97. Material Library and Material Editor included.

## For all those who have "Can AutoCAD Release 13 really make a difference?"

10. Easily import a TXT file.
11. Create stacked fractions for better readability.
12. Single-line MTEXT editor for DOS users.
13. Map slower fonts to faster ones (FONTMAP).
14. Fill in text fonts (TEXTFILL).
15. Font Substitution during file open simplifies drawing transfer and font changes (FONTALT).
16. Move, rotate, erase, copy, mirror, stretch, or scale each text object.
17. Automatically stack fractions in dimensions.
18. Inferred linear dimensioning automatically distinguishes between horizontal and vertical dimensions and repositions text.
19. Creating dimensions requires fewer steps.
20. Dimension Style Families allow you to define dimension type differences within one dimension style.
21. Continued dimensioning works on ordinate dimensions.
30. Easier to modify dimensions.
31. Dimensioning has its own units settings.
32. Create splined leader lines.
33. Create multiple lines of text in leaders.
34. Automatic island detection finds a complete boundary with one pick.
35. Associative hatching automatically updates hatch to modified boundaries.
36. The restructured BHatch dialog box is simpler and faster to use.
37. Drive the BHATCH command from the command prompt if desired to run scripts.
38. Create a hatch boundary manually on the fly.
39. Easily edit hatch properties without redrafting the hatch.
40. New ISO compliant hatch patterns included.
41. Load linetypes from within the Layer dialog box.
42. Visual representation of linetypes for selection before loading.
51. New FROM object snap can reference a point from within a command.
52. Object Cycling insures that you select the correct object every time.
53. Improved Fillet command can be used to cap parallel lines.
54. Fillet between a line and a polyline.
55. Fillet without trimming the existing geometry.
56. Fillet that doesn't cancel when you miss the object.
57. Chamfer by length and angle.
58. Chamfer without trimming the existing geometry.
59. UCS restrictions are gone for fillet and chamfer commands.
60. Trim using cutting edges that don't physically cross the objects to trim (implied edge).
61. Cutting edges don't need to be on the same UCS as the objects you're trimming.
62. Grab all visible objects as cutting edges by hitting enter at the first TRIM prompt (two less steps).
71. Group objects together by name with object grouping (GROUP).
72. Draw multiple parallel lines using a variety of linetypes and colors (MLINE).
73. Intersection clean-up for multiple parallel lines simplifies wall creation.
74. Save multiple MLINE styles for quick access.
75. Fill in parallel lines with a different color (MLINE).
76. True geometric Ellipses.
77. Snap to the center or quadrants of an ellipse.
78. Create elliptical arcs.
79. Create NURB splines.
80. Specific editing commands for greater control of new splines.
81. Explode blocks with varying X and Y scale factors.
82. Solid modeling included in base AutoCAD.
83. Create ACIS solids with solid primitives.
84. Perform Boolean operations on solids and regions (union, intersect, subtract).
98. Assign materials for solids by layer.
99. Import and export 3D models.
100. Render to file with interactive options; supports over a dozen new file formats.
101. Windows standard toolbar.
102. Standard Toolbar contains icons for high-usage drawing management and drawing editor navigation functions.
103. Easy to create and name custom toolbars.
104. Toolbars can float or be docked.
105. Object Properties Tool offers quick access to layer color and linetype functions.
106. Easy to understand drawing with tool tips.
107. Drag and drop tool editing.
108. Preview drawings before opening to speed up identification and avoid opening the wrong file.
109. See a visual representation of WBLOCKS before inserting them.



FOR A FREE "GUIDE TO UPGRADING" AND DEMO CD, CALL 1-800-964-6432 AND ASK FOR DEMOPAK R13



© Gary Knight

The H. J. C. Bowden Center for Seniors outside of Atlanta.

**Continuing Education**

This month, "Is There a Quiet Place in the Alternative Office" (page 54) is eligible for AIA/ARCHITECTURAL RECORD Continuing Education learning credits. See page 133 for instructions.

Cover:  
 Neue Messe Leipzig  
 Leipzig, Germany  
 von Gerkan, Marg and Partner, Architect  
 © Busam + Richter/Architekturphoto

**LIGHTING SUPPLEMENT INCLUDED WITH THIS ISSUE**  
 (U.S. and Canadian copies only)

**The Boldness Gap: Why America Is Falling Behind Other Countries 76**

Opinion by Pulitzer Prize winning critic Robert Campbell.

**Neue Messe Leipzig 80**  
 Leipzig, Germany

This huge crystal palace of a convention center was deemed crucial to Leipzig's renewal as a post-Communist city—both as a place to do business in a newly unified Germany, and as a symbol of things to come.  
 von Gerkan, Marg and Partner, Architect

**Olympic College Shelton 90**  
 Shelton, Washington

A satellite "community" college is built from local donations of money, materials, and services, offering an unusual challenge for its architects.  
 The Miller/Hull Partnership, Architect

**Eric P. Newman Education Center 94**  
 St. Louis, Missouri

The client, a university medical center, asks for a meeting place *without* a strong architectural presence.  
 Cannon, Architect

**BUILDING TYPES STUDY 743**  
**Special Users**

Special users want functional buildings that have their own presence, but do not set them apart from the rest of society.

**H.J.C. Bowden Center for Seniors 98**  
 East Point, Georgia

Stanley Beaman & Sears, Architecture

**Northeast Valley Multipurpose Senior Center 102**  
 Pacoima, California

R.L. Binder Architecture & Planning

**Kellogg Conference Center Gallaudet University 106**  
 Washington, D.C.

Einhorn Yaffee Prescott, Architecture and Engineering

**Christopher Place 108**  
 London

Troughton McAslan, Architect

**The Training Resource and Assistive Technology Center 110**  
 University of New Orleans

Errol Barron/Michael Toups Architects

**Union Rescue Mission 112**  
 Los Angeles, California

Nadel Architects

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## Calendar

### November 14-17

The Ninth Symposium on Healthcare Design will be held at the Boston Marriott Copley Place Hotel. For details, call 510/370-0345 or fax 510/228-4018.

### November 14-17

The International Excellence in Building Conference and Exposition for construction-industry professionals will be held in Minneapolis. For details, call the Energy Efficient Building Association at 612/851-9940 or fax 612/851-9507.

### November 15-February 23

"An American Embassy in Berlin" examines the recent competition for the American Embassy in the German capital. Models and drawings by all semi-finalists as well as the winner, Moore Ruble Yudell and Gruen Associates, will be shown at the National Building Museum, Washington, D.C. Call 202/272-2448 or fax 202/272-2564.

### November 19-21

Build Boston, the annual trade show and convention for the building industry in the Northeast, will be held at Boston's World Trade Center, with over 250 exhibits by suppliers of products and services and 180 workshops. Call 800/544-1898 for information or to obtain a workshop brochure.

### November 22-January 12

"The Architecture of Santiago Calatrava" moves into the Milwaukee Art Museum (MAM) with an exhibition that will include models, drawings, and photos of the Spanish-born architect and engineer's major works. Calatrava's first completed project in the U.S., scheduled to open in 2000, is an expansion of MAM. Call 414/224-3240.

### Through November 30

Buildings by Julie Eizenberg of Koning Eizenberg are being shown at 3A Garage Architecture in conjunction with the San

Francisco AIA and San Francisco Museum of Modern Art. The exhibit shows her latest works and includes projects that demonstrate the designer's interest in bringing character to low- and moderate-income housing. Call 415/543-3347 for information.

### Through December 6

The Center for Critical Architecture/Art and Architecture Exhibition Series is showing 14 of the projects that won *Progressive Architecture's* 43rd Annual Awards (but were never published in *P/A* due to the magazine's sale and subsequent demise). The show is at the California College of Arts and Crafts, San Francisco campus, in the main gallery. Call Sarah Herda at 415/546-7033 or 415/703-9568.

### Through December 8

"Breuer's Whitney," an exhibit at the Whitney Museum of American Art, New York City, takes a critical look at the design, reception, and continuing legacy of architect Marcel Breuer's 30-year-old building of "upside-down ziggurat of cantilevered 'setouts' and trapezoidal bay windows" on Madison Avenue that became an instant landmark. Call 212/570-3633 or fax 212/570-1807 for details.

### Through December 15

The drawings of Louis Kahn are on exhibit at the Jewish Museum, New York City, and include architectural drawings and models surveying Kahn's synagogue projects. Call 212/423-3271 or fax 212/423-3232 for details.

### Through January 5, 1997

Vernacular Architecture in American Folk Art is the subject of an exhibit at the Museum of Folk Art in New York City. Curator Stacy Hollander has selected some 100 paintings,

sculptures, furnishings, needleworks, and other decorative-art objects from public and private collections to document the structures that shaped the early American built environment. Call 212/977-7170 or fax 212/977-8134 for more information.

### Through January 19, 1997

"Three Buildings by Frank Lloyd Wright: American Spirit Alive in Japan" traces the history of the only three non-U.S. buildings Wright designed and built: the Imperial Hotel, Yamamura House, and Jiyu Gakuen Myonichikan School. At the National Building Museum, Washington, D.C., 202/272-2448, or fax 202/272-2564.

### January 22-26, 1997

The National Association of Home Builders Convention in Houston will include an AIA Housing PIA (Professional Interest Area) slide presentation of the top 25 architect-designed and developer-built residential units, and three sessions of plan-review workshops targeted toward builders to help them work more effectively with architects. Call 800/368-5242 for information.

### Through February 16, 1997

An exhibition at New York City's Metropolitan Museum of Art surveys the career of Charles Rennie Mackintosh, with 250 works that include photos and drawings of his buildings, furniture, textiles, and the reassembled Ladies' Luncheon Room from Miss Cranston's Ingram Street Tea Rooms.

### March 6-8, 1997

Six PIAs (Professional Interest Areas) and the AIA risk-management committee is cosponsoring a conference, The Client Connection, at the Westin Tabor Center in Denver. Endorsed by the AIA Denver, AIA Colorado, and the AIA  
*Continued on page 121*

© Timothy Hursley



Miller SQA's "street" unites assembly and office areas.

**Continuing Education**

This month, the Building Types Study, pages 23-49, is eligible for AIA/ARCHITECTURAL RECORD Continuing Education learning credits. See page 165 for instructions.

Cover:  
Northern Telecom, Mission Park  
Santa Clara, California  
Studios Architecture, Architect  
© Michael O'Callahan photo

**BUILDING TYPES STUDY 744 / Knowledge-Based Production Facilities**

**Manufacturing Collaboration 23**

Integrating production areas and management offices at industrial facilities is today's urgent priority, and architects have a vital role to play.

**Miller SQA 26**  
*Holland, Michigan*

The architect was challenged to design an environmentally sustainable facility for a furniture company that values design and promotes an egalitarian philosophy.  
*William McDonough + Partners, Architect*  
*Verburg & Associates, Architect of Record*

**3COM Building 500 34**  
*Santa Clara, California*

People-oriented "clip-ons" break down the scale of this manufacturing box.  
*Studios Architecture, Architect*

**Northern Telecom, Mission Park 40**  
*Santa Clara, California*

The architect integrated three outdated building elements with a serpentine corridor.  
*Studios Architecture, Architect*

**Prince Street 44**  
*Cartersville, Georgia*

A new headquarters is designed to mirror the carpet company's commitment to change.  
*Thompson, Ventulett, Stainback & Associates, Architect*

**RESEARCH LABORATORY TRENDS 50**

As technology changes and R&D dollars shrink, new strategies are emerging for lab designs.

**PRODUCT REPORTS 1996**

Presenting the outstanding building material introductions of the year for architects, interior designers, and specifiers.

**Introduction 63**

How a peer review panel of design professionals and RECORD editors made the production selections. Plus the five "most innovative" products of the year.

**Readers' Choice Awards 66**

The winners of our first-ever product preference awards based on reader ballots.

**The Products 72**

The selections of our panel in 12 categories: design-office equipment, landscape accessories, materials, thermal and moisture, doors and hardware, glazing systems, finishes, specialties and equipment, furnishings, special construction and conveying systems, mechanical, and lighting.

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## Letters

### The Boldness Gap

Robert Campbell's article [*Why American Architecture Has Lost its Boldness*, pages 76-79] in your November issue is the stuff that our journals should provide: less of the glitzy and arcane reviews of recent febrile efforts at making architecture and more of a forum of ideas and criticism. Lack of boldness is due to characteristic American values, notably our rooted anti-intellectualism and an ingrained pragmatism; grand projects are only achievable if they can be quantified and/or measured in dollars. Vision and practicality in our society is inseparable.

The ability of Moneo and others to realize great projects at a relatively early age is due to a European culture not rooted in practicality alone; it is a culture that also accepts the intangible rewards of public civility, abetted by governments that implement grand public projects.

Post Modernism could only have found fertile ground in America; it was, after all, a pragmatic response to everyday issues of expediency, economy, and pandering to popular taste. We Americans are only inspired by great public issues and our best architecture is a response to demanding times. Witness the rebuilding of Chicago twice, first after the great fire in 1871 and second after World War II. Without a passionate cause our architecture becomes self-indulgent and moribund.

Gertrude Stein claimed that America was the oldest country, that America was the first truly industrial nation; other countries would only repeat our mistakes at later dates. Egalitarianism and consumerism are now expanding worldwide and

America's lack of boldness may soon be found elsewhere. In this context, what Robert Campbell sees in the work of Moneo and others is akin more to our past and not a preferred future.  
*James A. Gresham, FAIA  
Tucson, Arizona*

What a splendid article. Robert Campbell makes excellent points. As a newcomer to American architectural education arriving from practice with Arups in London, I have a great deal of sympathy with such views. At Michigan, we are making a few moves in our curriculum and also in links with practice publications. It would be good to have an opportunity to talk with Mr. Campbell.

*Brian Carter  
Chair, Architecture  
The University of Michigan  
Ann Arbor*

As usual, RECORD has done a fine job of providing a forum for ideas in its November issue. Robert Campbell's musings on the wimping-out of American architecture have real validity when it comes to 2-D appeal (or lack of same) in magazines.

But what are the hidden costs of "cheap-thrills" architecture? In looking at the Leipzig Glass Hall [pages 80-89], there are stark realities present. Umteen gazillion perforations of a roof to facilitate sexy structural expression look really neat. But when there are pseudo-techo sketches depicting the project's environmental "sensitivity," there is a classic case of rationalizing the indefensible. It is very easy to throw stones at this glass house—for heat loss, visual distraction in an exhibit space, unlimited maintenance costs for an uncovered-steel structure.

*Continued on page 144*

## Calendar

### Through December 15

The drawings of Louis Kahn are on exhibit at the Jewish Museum, New York City, and include architectural drawings and models surveying Kahn's synagogue projects. Call 212/423-3271 or fax 212/423-3232.

### Through January 5

Vernacular Architecture in American Folk Art is the subject of an exhibit at the Museum of Folk Art in New York City. Curator Stacy Hollander has selected some 100 paintings, sculptures, furnishings, needle-works, and other decorative-art objects from public and private collections to document the structures that shaped the early American built environment. Call 212/977-7170 or fax 212/977-8134 for more information.

### Through January 12

"The Architecture of Santiago Calatrava" moves into the Milwaukee Art Museum (MAM) with an exhibition that will include models, drawings, and photos of the Spanish-born architect and engineer's major works. Calatrava's first completed project in the U.S., scheduled to open in 2000, is an expansion of MAM. Call 414/224-3240.

### January 19

"Three Buildings by Frank Lloyd Wright: American Spirit Alive in Japan" traces the history of the only three non-U.S. buildings Wright designed and built: the Imperial Hotel, Yamamura House, and Jiyu Gakuen Myonichikan School. At the National Building Museum, Washington, D.C. Call 202/272-2448 or fax 202/272-2564.

### January 22-26

The National Association of Home Builders Convention in Houston will include an AIA Housing PIA (Professional Interest Area) slide presentation of the top 25 architect-designed  
*Continued on page 143*

# Bloody Sunset: Housing Tax Credits Head for Oblivion, Unless—

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One of the more bizarre dramas to hit the political scene in years is playing itself out at this writing in Washington, D.C. Chairman Bill Archer of the House Ways and Means Committee, miffed at a proposal by Democrats in the last Congress to give permanent status to the Low Income Housing Tax Credit (LIHTC) program—it's a part of the 1986 Tax Reform Act—but to deny it to a parallel R&D program, persuaded both the House and a joint Senate-House conference committee to sunset the program after 1997. Sunsetting is a term that has emerged in recent years to ensure that programs no longer deemed viable are ended. Currently the LIHTC program is subject to year-to-year funding, an inefficient process that defies long-term planning.

In this case, there's a tragedy in the making. LIHTC is the only existing housing support program to have made a dent in the dire shortage of housing for low-income families. Producing over 100,000 units a year, it is the largest driver of new and renovated low- and moderate-income housing in the nation, pouring some \$320 million a year into state-administered programs. It provides 20 per cent of all multi-family housing, revitalizes communities by involving them in the planning process, creates opportunities for architects, provides construction jobs, and generates new businesses in the community. And it's virtually the only game in town. (See this month's Building Types Study on affordable housing, beginning on page 86).

It works like this. To build housing at below-market cost, developers need to borrow capital at an affordable rate. Investors provide the capital, receive tax credits under the program for 10 years on any profits they make, and write-offs for passive real estate losses for another five, promising them a tidy return over the 15 years, after which they can sell the housing. The reduced costs are passed on to the tenant families in the form of lower rents.

The idea of a housing safety net provided by government has gone though a range of scenarios since it was launched in the 1930s, tacking past the tricky political shoals pitting social sensitivity against rugged self-reliance, homeownership against rent support, project-based support against tenant-based support. The scenario for the 1990s is the tax-credit that motivates investors to help provide housing at affordable rents.

Architects have both a business interest and a social interest in preserving the program. Without getting into the recondite byways of federal legislation, the bottom line is that the program, to receive funds, needs to get into an approved "reconciliation bill," an instrument that matches expenditures and tax provisions against budgets. That's the challenge now on the table. Both political parties by and large agree that it's the most efficient, productive program at work. Everyone gains—the community, the family, the investor, and the construction industry.

As AIA's director of federal legislative affairs, Al Eisenberg, told RECORD, "There's no reason for this program to be in jeopardy." Let's keep it alive.  
*Stephen A. Kliment*

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## News

### Briefs

#### Holl turns green in Virginia

Steven Holl Architects will design an 11,000-sq-ft classroom and studio addition to the University of Virginia's Campbell Hall school of architecture. The project is to be a model of environmentally sustainable building.

#### Awards

The Urban Land Institute announced its 1995 awards for outstanding real-estate development projects, which include 640 Memorial Drive, Cambridge, Mass., Tsoi/Kobus & Associates; Broadway Plaza, Walnut Creek, Calif., Field Paoli; Disneyland Park, Anaheim, Calif., Disney Development Co.; Irvine Spectrum, Orange County, Calif., SOM, Langdon Wilson and PBR, land planners; Little Nell Hotel/Aspen Mountain Base Area Development, Aspen, Colo., Design Workshop; Monterey Bay Aquarium, Monterey, Calif., Esherick Homsey Dodge & Davis; Pelican Bay, Naples, Fla., Charles Turner and John Simonds, land planners; Riverbank State Park, New York City, Richard Dattner; Strathern Park Apartments, Sun Valley, Calif., Withee Malcolm Partnership.

#### Architecture as remedy

A competition for housing in North Philadelphia tries to heal a destitute neighborhood with good architecture. Sponsored by the Foundation for Architecture, the Francisville Housing competition challenged local architects to come up with humane solutions for a site that the Philadelphia Housing Authority plans to use for subsidized housing. A first prize of \$5,000 went to Cassway Albert, Ltd. for a proposal that included housing units in an L-shape around communal gardens. Second prize went to Mike Rosen and Associates and merit awards to Dan Peter Kopple & Associates, Joseph A. Serratore Architect & Associates, and Design Management Solutions Unlimited.

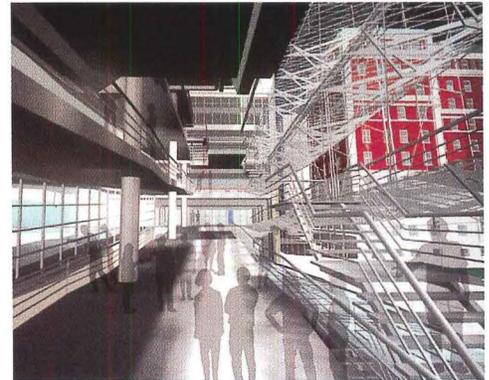
#### Koolhaas teams up

Rem Koolhaas's Rotterdam-based Office for Metropolitan Architecture has joined forces with Dutch firm De Weger Architects and Consulting Engineers. The firms will share offices but maintain their autonomy.

## New York City

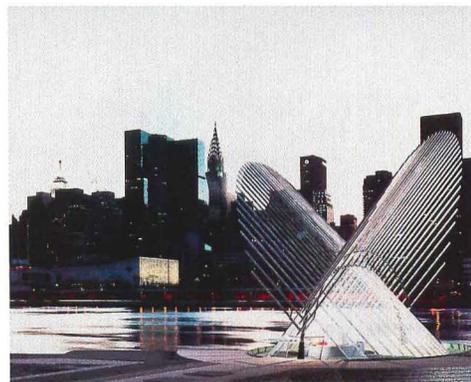
### Tschumi Abstracts McKim, Mead, & White's Plan for Columbia University

Bernard Tschumi, who as an architect is best known for his Parc de la Villette follies in Paris, has resurrected a circa 1870s McKim, Mead, & White campus plan for Columbia University in his design of the school's new student center. Tschumi, dean of the University's graduate school of architecture, has teamed up with Gruzen Samton to produce Lerner Hall, which adheres to the original plan with three distinct volumes. Scheduled to open in 1999, it will contain an auditorium, movie theater, radio station, and student clubs and mailboxes. *Nicolai Ouroussoff*



## New York City

### A Bird-like Structure Rises From the Ruins



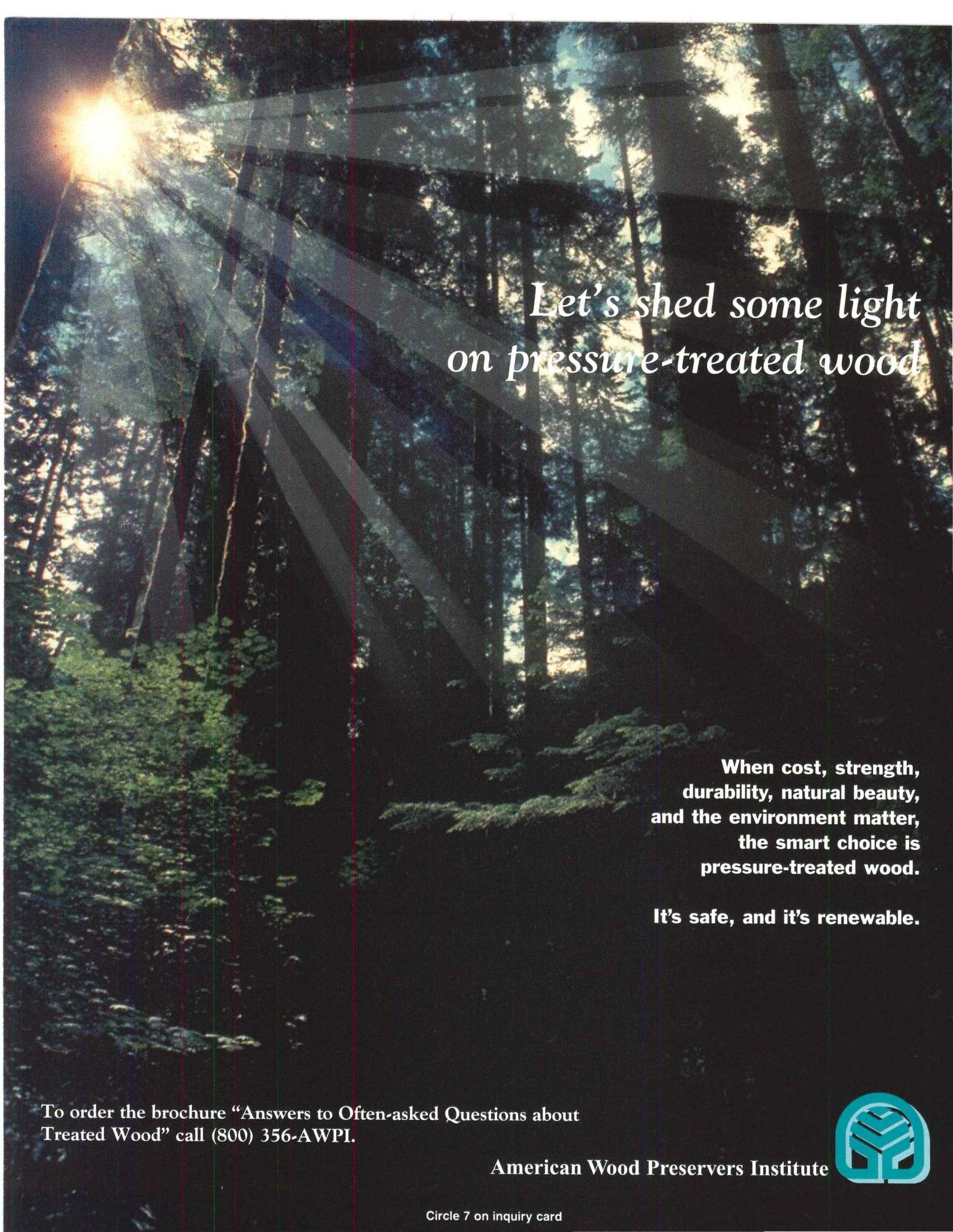
Santiago Calatrava's design for a restaurant pavilion on the southern tip of Roosevelt Island is the latest tentative step in the rehabilitation of Southpoint: the old island asylum, called the Octagon, has been stabilized and plans are afoot to build Louis Kahn's proposed memorial park. Calatrava's design takes the form of a glass and steel cocoon. A moving "brise soleil" roof encloses the structure at night like two giant wings and playfully manipulates light and shadow. A stone base is made up of ruins from a hospital previously on the site. *N.O.*

## San Diego

### Doctor Challenges Architects

A dire picture of American medicine was painted by Patch Adams, M.D., in his keynote address to the 8th Symposium on Healthcare Design, sponsored by The Center for Health Design, founded and headed by architect Wayne Ruga. Adams cited high cost and

dehumanization as crucial areas where architects must work to make a difference. Berkeley professor Clare Cooper Marcus and landscape designer Marni Barnes launched their long-awaited report, *Gardens in Healthcare Facilities*. The report cites growing evidence that gardens have a major therapeutic impact on the healing process as an extension of traditional healthcare therapies. For copies, priced at \$27, call The Center at 510/370-0345. *S.A.K.*



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## Institute for the American Urban Landscape Re-maps St. Paul

"Our infrastructure is our new social covenant," says urban designer Bill Morrish. After years of mapping his home territory of Minneapolis-St. Paul, he is proving his point with an ambitious plan for the revitalization of St. Paul. The Institute for the American Urban Landscape, directed by Morrish and his wife, Catherine Brown, at the School of Architecture of the University of Minnesota, has created a blueprint for the city that will use its natural location to attract new businesses, industry, culture, and inhabitants. Now, with the help of Toronto-based planner Ken Greenberg, the city is implementing many of the Institute's plans. "Every city needs a sense of a whole, how things connect to create a community," says Mayor Ken Coleman, "and Catherine and Bill have provided that."

Morrish and Brown start their investigations with the land itself. Specifically, the focus on watersheds, not only because they believe development patterns follow the rivers, knotting together around crossings, portages, or ports, but also because the flow of water maps aspects of the geography that otherwise might not be noticed. In the Minneapolis-St. Paul area, the city established itself at the last navigable point of the Mississippi. Neighborhoods developed first on bluffs, and then by tracing the alluvial fans of creeks draining into the river. The flood plains were taken over by industry, and cuts in the bluffs became corridors for trains and, later, cars and trucks.

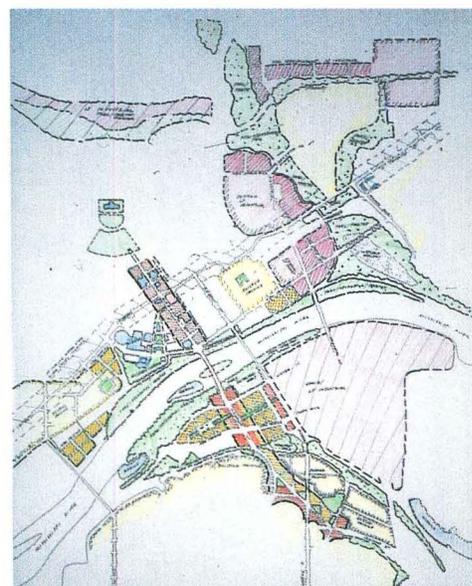
The first task of any urban design, Brown and Morrish point out, is to rediscover and re-use these patterns on an urban scale. Thus as the "industrial glacier" that traced the flood plains created by the real glaciers recedes, they want to turn the resulting flat plains into combinations of "clean" industrial parks and green zones, allowing the natural hydrology of the area to shape the development. The natural routes along the bluffs, which birds trace in their flight pattern overhead, were already converted into a system of parkways according to a 1917 plan by William Bennett, and Brown and Morrish want to finish its missing links.

The problem for downtown St. Paul is its immediate relation to the river. As in many

other cities, highway development in the 1960s cut off the city from its shore. Thus, cars replaced boats along the river corridor, and tiered parking garages badly mimicked the bluffs. To Greenberg, this situation becomes an excuse for an "urban terrace" such as the ones in Quebec City or Brooklyn Heights. In the future, landscaped stairs and escalators will connect a series of new cultural institutions, such as a Science Museum currently under construction, to a river front where a \$500-million flood-control project has created new walkways and park areas. He then envisions retractable canopies over these public spaces to replace the ubiquitous and isolating skywalk system. A renovation of Wabasha Avenue, currently underway, will link the State Capitol through downtown to a thriving Hispanic community on the opposite bank of the river. "What we do is to connect buildings. Instead of the cult of the isolated project, we link neighborhoods," Greenberg explains.

Though some of these projects resemble traditional urban-planning solutions, Brown and Morrish point out that they are part of a larger reading of the region. They think it is not just a question of revitalizing downtown or creating parks, but of figuring out what to do with the "mushy context" of the concentric rings of suburbs the city is producing out in the prairie. In the Institute's newsletter and the group's consulting work, they have proposed ways that all of these communities could be linked both to one another and to the natural terrain to foster a sense of reality. "The first thing you need," says Morrish, "is a common language. It's not as much about land use as it is about reading the land." By focusing on "topography, not typology," they hope to "inflect social and geographic systems to make them work better together."

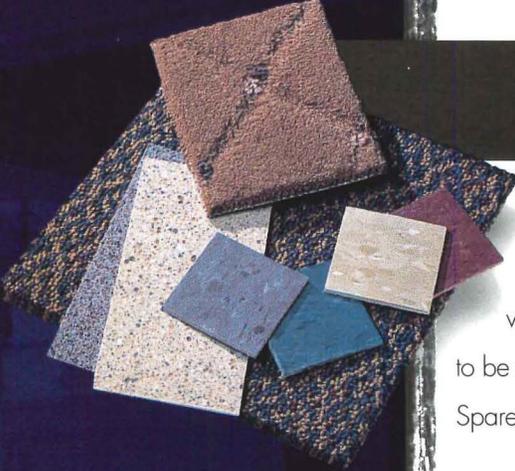
In St. Paul, this means creating maps of the city that have made it legible to the various neighborhoods and pressure groups that shape the political landscape. "The main thing they have achieved," says Patrick Seeb, executive director of the non-profit St. Paul Riverfront Corporation, "is to let people see the vitality of St. Paul. Their maps act as catalysts that bring people 'around the table' who weren't there." The result is a plan of



*St. Paul's central Mississippi River valley (top) and proposed land uses (below). Light pink is existing offices/light industry; dark pink new offices/light industry; dark blue is public institutions; red is mixed use (retail, offices with housing above); light yellow is existing housing; dark yellow is new housing; green is existing and new parks.*

connections rather than isolated development schemes.

"They lay out the environment," says Mayor Coleman, "and then we can market that." St. Paul, he hopes, will emerge out of Minneapolis' shadow to become a "big small town" embedded in a network of small towns connected by the river and its watershed. Out of that fertile plain will come rational development and a better place to live. As the Mayor puts it: "Cities are places people have in common." *Aaron Betsky*



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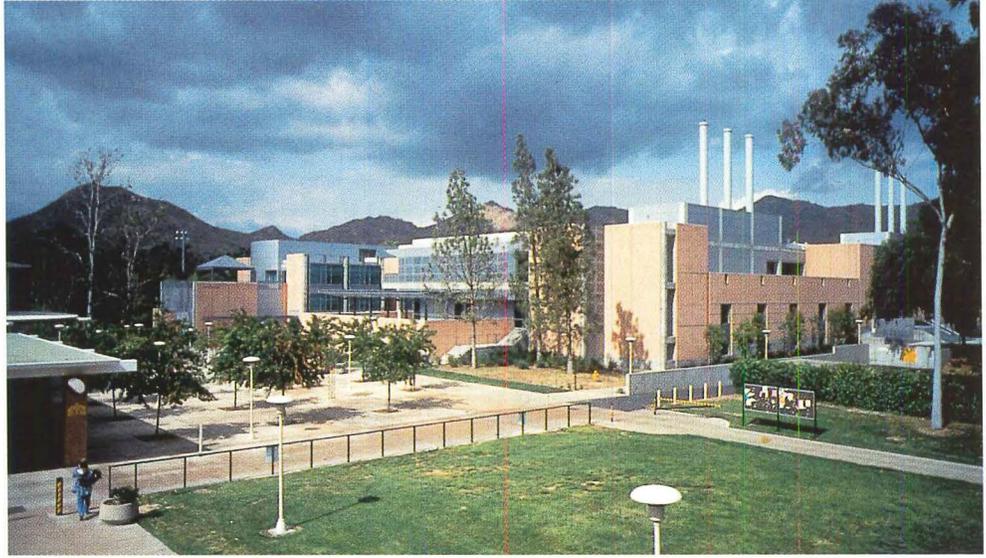
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# AIA Honor Awards Are Given To 27 Projects

The American Institute of Architects has announced its 1996 honor awards. *In architecture:* Murray Theater, Highland Park, Ill., Skidmore, Owings & Merrill; The Banner Building, Seattle, Weinstein Copeland Architects; Perry Community Education Village, Perry, Ohio, Perkins & Will; Center for the Visual Arts, Toledo, Frank O. Gehry & Associates; Engineering Science Building, Unit 1 UC/Riverside, Anshen + Allen (1); Warner Brothers Children's Center, Burbank, Calif., Rios Associates; 31st Street House, Santa Monica, Calif., Koning Eizenberg Architecture; Weekend Residence, Catocin Mountains, Md., Bohlin Cywinski Jackson; Entrance Pavilion, Penn Station, New York City, R.M. Kliment & Frances Halsband Architects; Michigan State Capitol, Lansing, Mich., Richard C. Frank; Joslin Diabetes Center, Boston, Ellenzweig Associates (3); Munich Order Center, Murphy/Jahn; Buckingham Memorial Foundation, Chicago, Harry Weese Associates; KUDAMM 70, Berlin, Murphy/Jahn (2). *In interiors:* Showroom/studio, Guilford of Maine, Webster, Mass., Robert Luchetti Associates (4); Gardner Residence, Chicago, Valerio Dewalt Train Associates; Lighthouse Headquarters, New York City, Mitchell/Giurgola; Christina Dev't Center, Malibu, Calif., Kanner Architects; David Saul Smith Union, Bowdoin College, Brunswick, Maine, Hardy Holzman Pfeiffer Associates; New Library, Baruch College, New York City, Davis, Brody & Associates. *In urban design:* The Belvedere/Battery Park City, Mitchell/Giurgola; The Ninth Square, New Haven, Conn., Herbert S. Newman & Partners; Mainstreet Alaska, Soldotna, Alaska, M Mense Architects; New York State Canal Recreationway, Beyer Blinder Belle; Congress Viaduct/Plaza, Chicago, DLK Architecture; Cleveland Gateway district, Cleveland, Sasaki Associates (5); West Main Street Corridor, Charlottesville, Va., William Rawn Associates.

The AIA board elected not to award a 1996 Gold Medal, due to a lack of a three-fourth's majority. John L. Wilson won the Whitney M. Young Jr. Citation, and Sylvester Damianos, vice chairman of The American Architectural Foundation's Board of Regents, won the Edward C. Kemper Award. SOM won the Firm of the Year award for the second time. ■



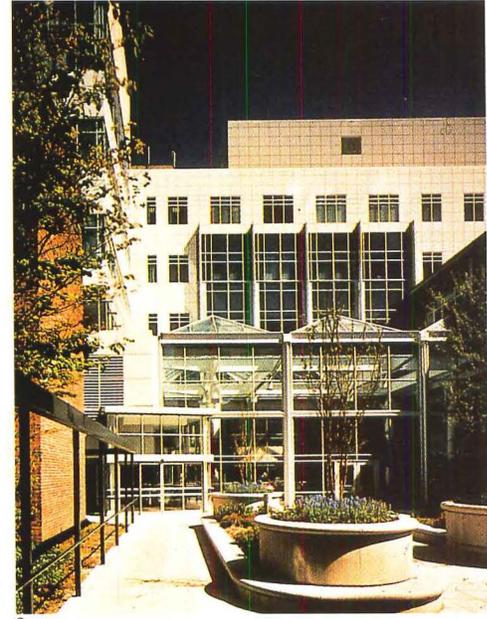
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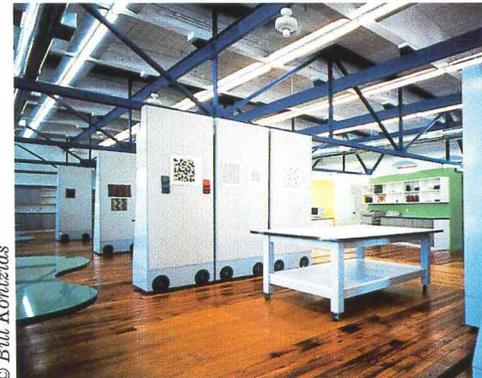
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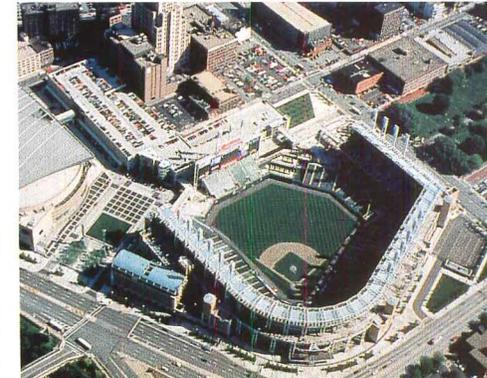
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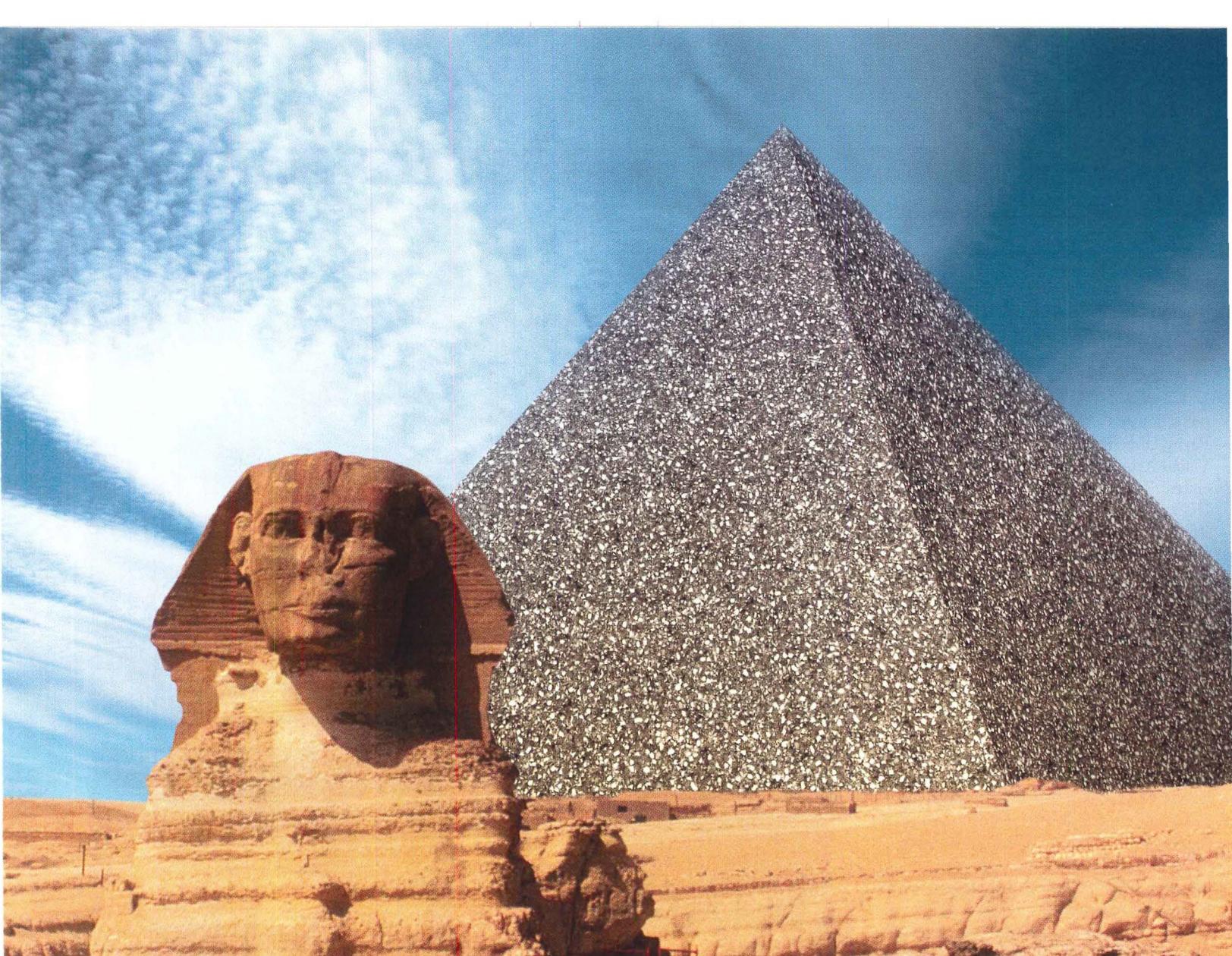
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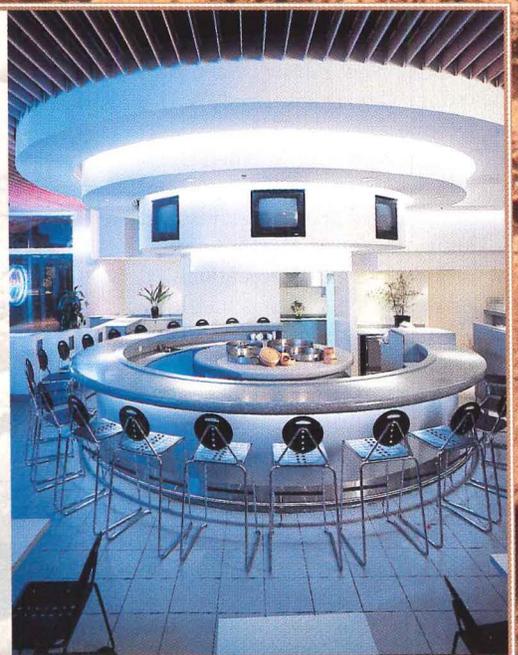
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# Washington Monuments: Battles Over the Mall

*A frenzy of monument building is sweeping through the nation's capital. Roger Lewis takes stock of the latest additions and what's to come.*

©Carol Highsmith/KWVM Productions



By Roger K. Lewis

Last July, on a hot, humid day in Washington, D.C., the Korean War Veterans Memorial (photos above) was dedicated. Over six years had elapsed since the spring 1989 national design competition was won by a team of architects and landscape architects based at Pennsylvania State University.

That team proposed building a metaphoric landscape of expansive triangular plazas, groves of plane trees with canopies pruned into distorted shapes, and a flag. Perhaps most important to the memorial imagery of this strongly geometrical landscape, occupying the southwest corner of the Mall opposite the Vietnam Veterans Memorial, would be a column of 38 American soldiers frozen in a moment of convergence on their single destination, the flag. It was a memorial design intended to be at once representational and symbolic, a commentary on both the costly horror of war and the honor of combatants who, when called, serve their nation dutifully and unselfishly to wage war.

After receiving their prize money, the winning designers—Burns Lucas, León, Lucas, Pennypacker Oberholtzer (referred to as BL3PO, then BL3 when Pennypacker Oberholtzer dropped out)—were paired up as “design consultants” with Cooper-Lecky

*Roger K. Lewis, a practicing architect, writes for The Washington Post and teaches architecture at the University of Maryland.*

Architects, the Washington firm designated as architect-of-record. Cooper-Lecky, having worked previously with Maya Lin in executing the Vietnam Veterans Memorial, had the technical expertise and procedural experience needed to carry out the project.

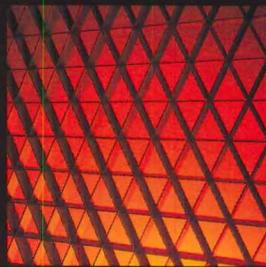
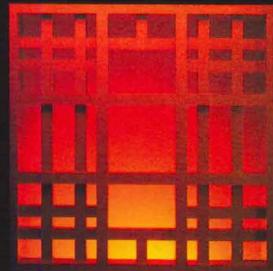
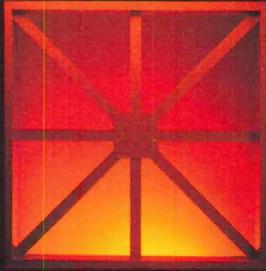
But conflicts soon arose between the two design groups as substantial changes were suggested by the Korean War Veterans Memorial Advisory Board, numerous federal agencies with jurisdiction over the site, and Cooper-Lecky. The changes sought to reduce the size and cost of the memorial, simplify its overall composition, and improve circulation around and through it. BL3 resisted many of the proposed modifications, claiming that the integrity of their original design was being violated, that their concept was being unreasonably compromised and watered down. Further, they felt themselves being increasingly excluded from the design process.

The impasse led to BL3's complete withdrawal and subsequently to litigation in federal court, which proved ultimately unsuccessful since the terms of the competition guaranteed neither the faithful implementation of the winning design nor the winners' participation in the post-competition design process. Having become the sole architect, Cooper-Lecky then spent three years working through multiple design variations. After many meetings and trips back to the drawing board, they finally obtained approval of what has now been built and dedicated.

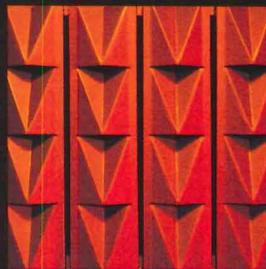
Remnants of the competition-winning design can be found in the final ensemble created by Cooper-Lecky, sculptor Frank C. Gaylord II, and muralist Louis Nelson: the soldiers, reduced in number from 38 to 19, are still marching toward a common objective, the flag; the “field of service” occupied by the soldiers is triangular, reminiscent of the competition-winning scheme's geometry; a grove of trees—lindens, not plane trees—is an integral part of the ensemble, although its formal disposition is different. Not derived from the competition-winning design is a 164-foot-long wall of polished black granite—can anyone doubt its source of inspiration?—etched with the faces of support troops and terminating in an elevated circular pool at the eastern vertex of the triangular field.

### **Metal soldiers in a Platonic landscape**

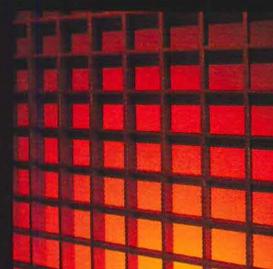
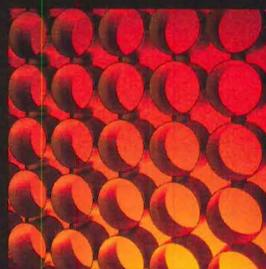
As shaped by Cooper-Lecky, the premiated design evolved into a memorial smaller in size and more accessible to visitors both physically and symbolically. Like the original BL3 design, the immaculately detailed memorial's most arresting architectural quality results from compositional tension: the larger-than-life, gun-metal-gray soldiers in motion, molded softly and imprecisely of stainless steel, looking anxious, weary, determined; and a highly abstracted, almost Platonic landscape crafted of hard-edged, machined slabs of granite—long rectangular wall, linear plinths, a circular pool, furrows in the triangular field defined by parallel strips of polished stone separating rows of juniper. *(Continued)*



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The Korean War Veterans Memorial has been enthusiastically welcomed and generally praised by the public, both for its design and its craftsmanship. But this writer cannot look at it without thinking that something went awry, that both the design process and final product were flawed.

**Cleansing a project's design history**

As I walked around the memorial, its debt to its precursor was unmistakable. I kept recalling the BL3 scheme, as if I were looking not at an original work of design, but rather at a radically remodeled version of a work by someone else, a work beaten into acceptable shape by its architect and by the several official bodies with absolute dominion over this landscape—the Korean War Memorial Advisory Board, the American Battle Monuments Commission, the National Capital Memorial Commission, the National Park Service, and the Commission of Fine Arts.

And how thoroughly the memorial's design history had been cleansed, there being little official mention of the design competition, the conceptual starting point for the design, and little credit given to BL3 for its contribution of the germinal ideas.

Few who see the memorial will care that its creation was plagued by years of controversy and compromise. Visitors will like its relatively small scale and its unambiguous figurative and representational messages. They will not pose questions: Why so many soldiers? (Nineteen is half of 38, a dubiously meaningful reference to the parallel dividing North and South Korea.) Why the number of disparate elements? Why the wall lamely echoing the Vietnam Veterans Memorial? Why, next to the flag toward which the soldiers are struggling, a round pool into which the end of the etched wall plunges? Why isn't the flag plaza less encumbered, surrounded instead by open space no less capable of evoking contemplation than a pool of water?

To put the Korean War Veterans Memorial in perspective, let's consider the painful evolution of another project—the FDR Memorial. Four decades after Congress set up the Franklin Delano Roosevelt Memorial Commission, construction finally began in 1994 in West Potomac Park, near the Tidal Basin.

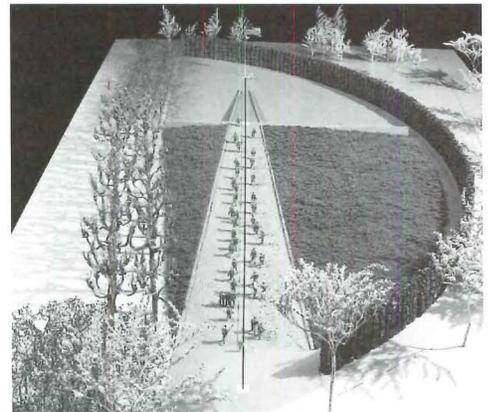
A detailed chronology of this design saga requires several pages, but highlights include: a 1960 design competition won by Pedersen & Tilney; years of design revisions with several cycles of approval and rejection between 1961 and 1965; selection of Marcel Breuer to develop a new design, accepted by the FDR Memorial Commission but rejected in 1967 by the Commission of Fine Arts; dormancy during the Vietnam War; selection in 1974 of landscape architect Lawrence Halprin to design the memorial as part of a 27-acre park, with the design—including sculptures—developed and approved between 1975 and 1978; design modified to significantly reduce costs, approved in 1979; in 1981, resolutions introduced in Congress authorizing construction of the memorial; further design by Halprin to obtain detailed cost estimates in 1984, after which the project again lay dormant until 1988, when Rep. Claude Pepper, the new Memorial Commission chairman, reactivated the project; still more design changes approved in 1990; at last, a 1991 groundbreaking ceremony, followed by a \$10-million capital campaign to augment the \$42 million in funds provided by Congress, with construction finally starting in 1994.

**A monument to overdesign**

The ultimate FDR Memorial irony is that Roosevelt himself asked that no such memorial be built, a reflection of his discomfort with idolization and his concerns that grandiose memorials can exaggerate, obscure, or oversimplify history. Unfortunately, his wishes were ignored, and his reasoning may be vindicated. The FDR Memorial, costing over \$50 million, is a monument to overdesign, a landscape predicated on the notion that bigger must be better.

The memorial expropriates far too much public land—nearly eight acres of West Potomac Park. Entailing an 800-ft-long procession through four outdoor garden rooms, it is replete with landscaping and meandering rectilinear walls, numerous water features, sculptures by a half dozen artists, and extensive narrative inscriptions and quotations. It's not that a garden couldn't be an appropriate memorial, nor that pieces of Halprin's design aren't attractive. But the size of this sprawling, historically didactic ensemble is excessive, notwithstanding the *(Continued)*

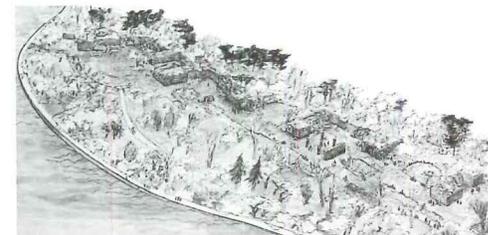
*The competition-winning design for the Korean War Veterans Memorial by BL3 (1), the Women in Military Service for America Memorial by Weiss/Manfredi (2) and Lawrence Halprin's FDR Memorial (3, 4).*



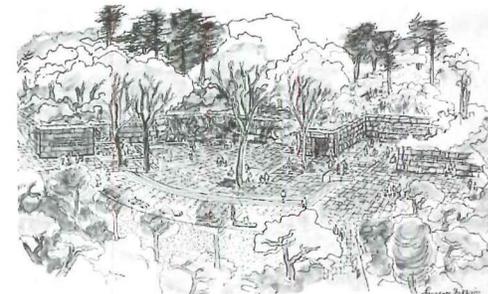
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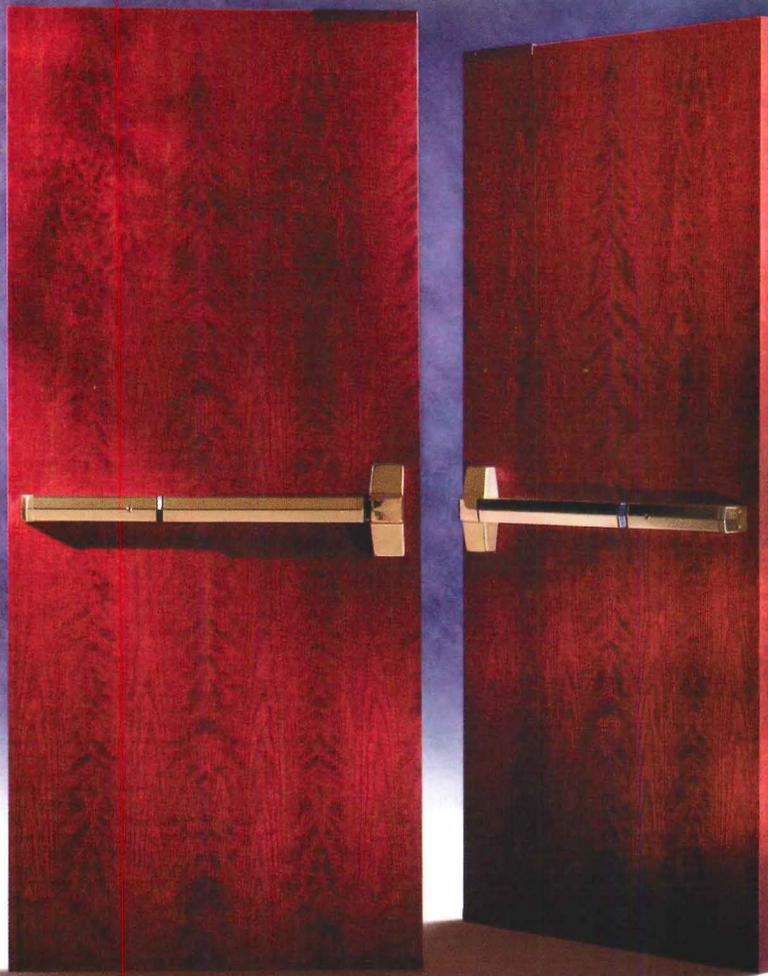
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| 2. Vietnam War Memorial | 5. Black Revolutionary War Patriots Mem. (approved) |  | 8. Washington Monument            |
| 3. Korean War Memorial  |   |  |                                   |

significance of FDR's presidency encompassing the Depression and World War II.

Commemorating this president and those dozen years could be accomplished more forcefully and succinctly, in keeping with FDR's wishes, were the memorial's physical form and energy more concentrated in the Mall landscape.

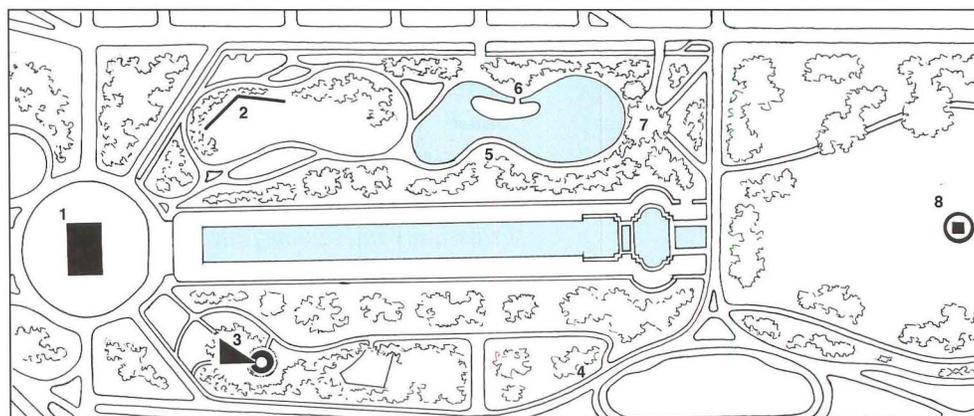
Further, looking into the future with a perspective that spans centuries instead of decades of history, and considering the finiteness of the Mall, it seems questionable to dedicate so much of that precious landscape to one individual and only 12 years of 20th-century history. How and where will we commemorate the important individuals and events of the 21st, 24th, or 30th century?

More memorials are already in the pipeline, among them the Women in Military Service to America Memorial, for which ground has been broken, an Air Force memorial, a World War II memorial, and a memorial to Dr. Martin Luther King, Jr. Countless others have been proposed, abandoned, or built elsewhere. Can anyone doubt that countless more will be proposed in the future?

### Bureaucracy and democracy in action

Why has creating a memorial in Washington become so arduous and contentious? And how can designers preserve the integrity of their original designs, given so complex a process?

Building memorials in Washington is, in fact, symptomatic of what happens today in state, county, and municipal jurisdictions throughout the United States. As architects know all too well, constructing anything in the public domain, be it a memorial or a library or a bus depot, involves more "cooks in the kitchen" than ever before—more governmental and citizen review agencies, more public hearings, more permits, and more contradictory opinions about design. Consequently, the implementation process has become more time-consuming, more expensive, and more likely to yield unfortunate design compromises. This is bureaucracy and democracy in action, the result of a process involving a diverse citizenry armed with diverse points of view. How much easier was the architect's monument-building task in previous centuries



when only a single patron had to be courted and satisfied.

Further worsening matters, political correctness can enter the design process, often conflicting directly with esthetic aspirations. Memorial commissioners and other review officials are especially sensitive about memorial constituents—such as veterans and their families—and how the public in general might interpret a memorial's design.

Both explicit and implicit symbolism in commemorative structures imbue them with great meaning. Yet since people readily "deconstruct" and find unintended symbolism in works of art, a design with potentially controversial overtones inevitably is challenged. Maya Lin's Vietnam Veterans Memorial—its black-granite walls descending below grade and, to some, suggesting condemnation rather than commemoration—epitomizes a structure inviting negative interpretations. Amazingly, Lin's design changed little from design-competition concept to realization—a tribute to her remarkable tenacity.

Design competitions are a favorite and seemingly appropriate strategy for designing memorials, but they pose problems. Improperly managed, or without a well-written program and insightful jury, they rarely succeed. And timing is always problematic. Memorial sponsors want a design concept early on to catalyze fund raising. But because construction cannot begin without funds and design approvals in place, years can elapse between the conclusion of a design competition and the beginning of construction. As the FDR Memorial illustrates, much can happen

during this interval to affect the design: costs rise, esthetic values shift, public perceptions change. A trendy, winning design may have a short shelf life. What was embraced one year might be rejected a few years later.

### Jockeying for position on the Mall

One final question is worth asking. Why has memorial fever seemed to intensify during the closing decades of the 20th century? [See RECORD, October 1995, page 9.] This is a question that clearly preoccupied members of Congress in 1986 when they adopted stricter memorial building criteria. There seems to be rising group consciousness among Americans about their group's special history, their unique experiences and struggles both in war and peace. Moreover, the number of distinct "groups" lobbying for memorial sites is likewise rising. Perhaps it's the approach of a new millennium. Yet this is not really a new phenomenon—memorial building frenzies have followed all major wars, going back to the American Revolution.

America's capital with its extraordinary public landscape will always be the preferred setting for national memorials. But because the Mall is limited in size and, in its present form, less than 100 years old, one can visualize it becoming cluttered with memorials during the next century. What then would remain for the centuries to follow?

Americans must identify and embrace sites in other locales for commemorative structures. Otherwise, an excess of memorials built on or around the Mall will detract from and devalue those that are most sacred, the few that truly deserve to occupy the pantheon. ■

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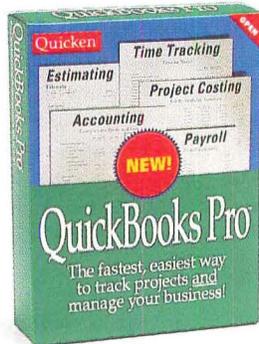
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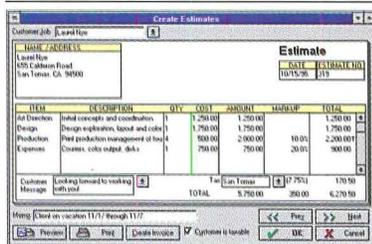
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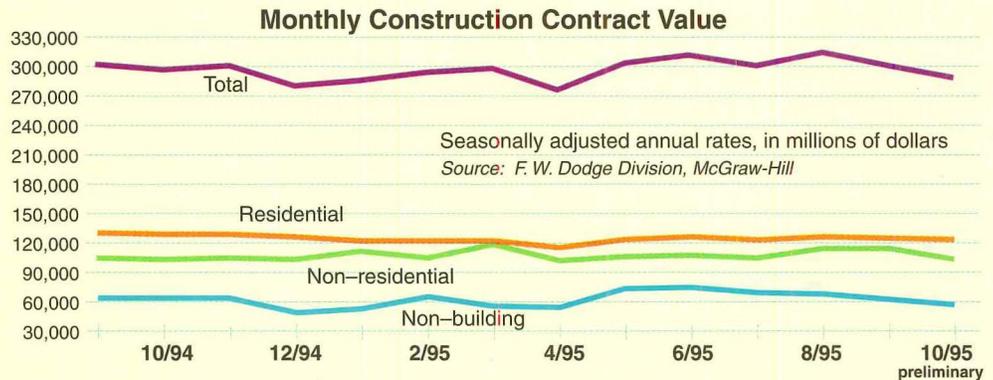
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## Indicators

### Weakening construction in late 1995

Improvement in multi-family housing was not enough to offset overall construction-volume declines in recent months. Retail and warehouse sectors have slackened, reflecting slower sales, but offices—a recent source of growth—also slipped 10 percent last month. Declining contracting for schools, hospitals, and detention facilities caused the institutional sector to fall back 14 percent. In 1996, an interest-rate cut might boost single-family volume. Federal budget decisions will most affect volatile non-building construction. ■

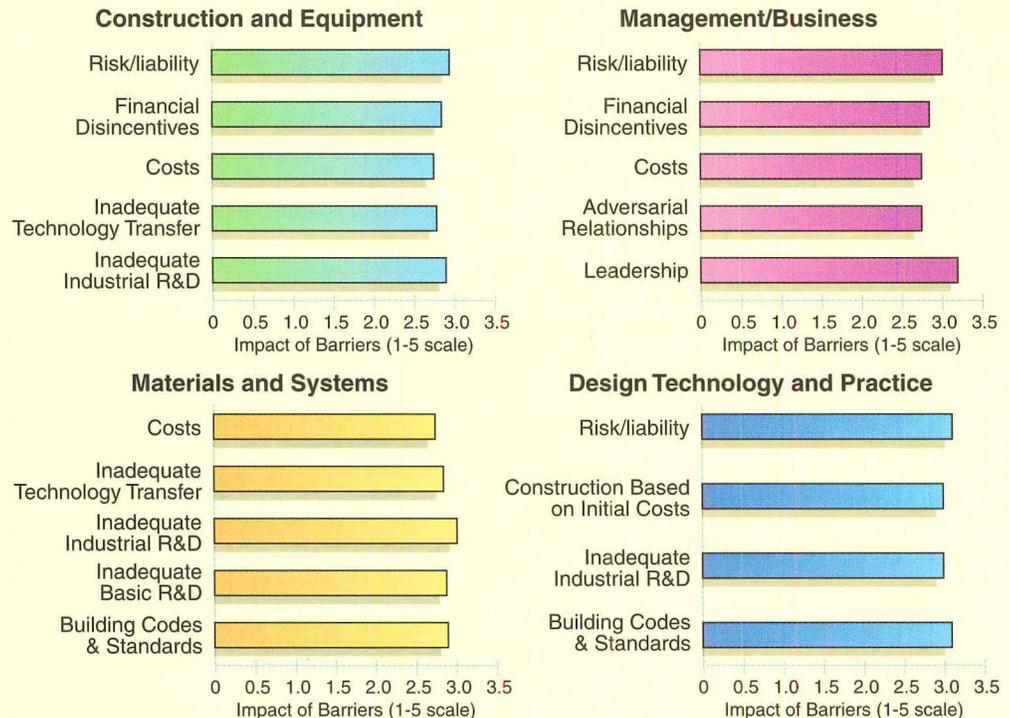


### Needed: Lower risks, more R&D

A survey of construction-industry professionals from more than 20 countries revealed a number of trends that bar innovation in construction. Recurring items are risk/liability and R&D-related concerns, including problems with technology transfer. The pressures of project construction time were seen as important. Leadership was flagged in the management area. Respondents were particularly concerned about project delivery.

Building codes and standards were thought impediments to improving materials and systems and design technology. Respondents were also asked about public-policy barriers. They cited environmental regulations, lack of leadership, and adversarial relationships as chief barriers. Trends respondents thought important, though not necessarily barriers, include computers, globalization, and environmental consciousness. Findings form the basis for a symposium, "Engineering and Construction for Sustainable Development in the 21st Century," Washington, D.C., February 4-8. Information: 202/842-0555; 202/789-2943 (fax). ■

### Barriers to Construction Innovation



Source: Civil Engineering Research Foundation

## Short Takes

• **Fee incentives for green design:** If design team and client sign on to a rigorous design and review process, the Green Design Services division of the Rocky Mountain Institute will help defray—through grants of up to \$20,000 and other support—the extra effort needed to design highly energy-efficient projects. RMI is seeking four yet-to-be-designed real-estate projects (minimum 50,000 sq ft) to show how more intense design analysis will pay huge dividends to owners and the environment. Information: Gunnar Hubbard, 970/927-4510 (fax), ghubbard@rmi.org (e-mail).

• **GreenClips:** An on-line summary of current articles on sustainable design, the service helps readers keep up. It's free and covers 60 publications, from newsletters to major newspapers. You need America Online: 415/928-7941, greenclips@aol.com

• **PB pipe settlement:** Hoechst Celanese Corp. and Shell Oil Co. agreed in November to create a \$950-million fund to settle claims arising from polybutylene pipe installed in millions of homes into the 80's. The piping proved intolerant to chlorine in water. ■

## The Market's Buying Green

By Elena Marcheso Moreno

Building green is becoming big business, particularly for the housing industry where individual homeowners have the opportunity to make choices. Given the vast size of the residential-building market, the potential is staggering. In one year the energy demands of a single home release tons of CO<sub>2</sub> into the atmosphere, according to Elena Cotton Westbrook, an environmental consultant in Garland, Tex. "When you consider the capital resources, transportation, delivery, and related systems required to produce this much energy, you can see that reducing home-energy needs will create significant environmental benefits across the spectrum," says Westbrook, who, along with her mechanical-engineer husband, Paul Westbrook, is building an eco-house.

*Elena Marcheso Moreno, based in McLean, Va., writes on architecture and architectural technology.*

Energy is just one element of ecologically sensitive design, but builders and architects across the nation are jumping onto the bandwagon. For the most part, these houses offer real improvement over conventionally designed and built houses. Besides using less energy, they incorporate recycled or re-used materials, and if not bow, at least nod to the native landscape. It's important that significant segments of the housing industry are promoting the premise that a sustainable society is not only possible, but necessary. And most Americans are willing to wear the green hat of an environmentalist if they feel they can afford it.

But it's not all about making the earth a better place. The indoor-air-quality problems of existing construction practice are also driving the eco-home movement. As synthetic furnishings, fabrics, chemicals, finishes, and materials have become more prevalent, toxic outgassing of common building materials has

taken on a higher profile, exacerbated by energy-conserving tight construction when provision of fresh air isn't handled properly.

### Models of sustainability

Sponsored by the government agencies, local non-profit groups, manufacturers, and utilities, a number of sustainable-housing demonstration projects are appearing around the country.

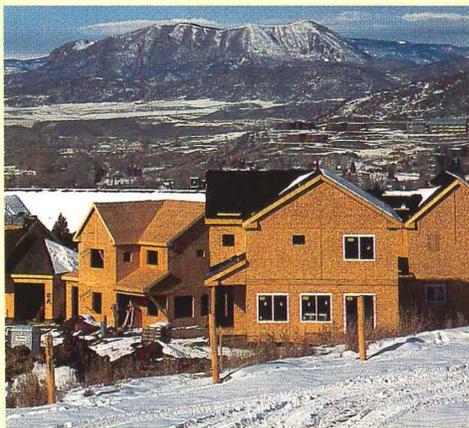
Every Canadian province has participated in the Advanced House program being conducted in Canada by CANMET, the research and development arm of Energy, Mines and Resources Canada. With 10 houses built to suit various climates, the program has been recognized for its use of recycled products, energy efficiency, and appeal to the mass suburban market. One house is noteworthy for its treatment of construction site waste. Enermodal Engineering Ltd., Ontario, incorporated such shop-made components as

### It looks like home

The Tamarack Point subdivision, near Colorado Springs, is similar to many green building programs in that it incorporates many alternative products (engineered wood, recycled-plastic carpet) while sticking close to what competitors offer in terms of design and price (1, 2 right). The models are built by Habitat Design and Construction.

Indoor-air-quality issues merited special attention in a Minnesota house for a client with chemical sensitivities, designed by LBH Engineers and Architects (3, 4). After the firm researched products, "the client actually took materials to the doctor and tested each one," says Rick Carter of LBH. "Sometimes we had to construct a sample because it contained a composite material, or something had to be painted and tested."

Tile was used instead of carpet; the detached garage minimizes infiltration of carbon-monoxide; slab-on-grade construction avoided mold-growth from a basement. The architects even provided doors with large glass areas because the client is sensitive to softwoods.



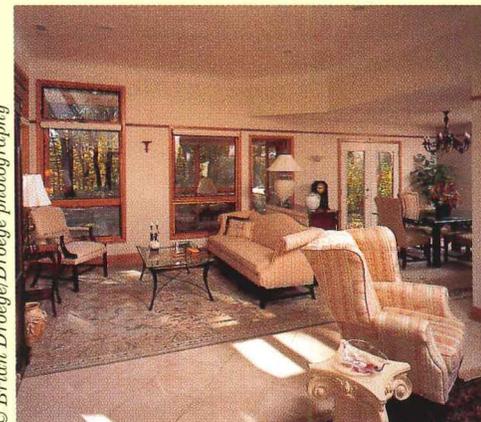
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*Environmental Home Programs showcasing energy-efficiency and ecological-design strategies are sprouting all over the country. Their success certifies green design's market appeal.*

precut roof trusses, floor joists, and I-joists for wall studs into the house it designed and built. Many waste products—particularly plastic—were sold to a recycler. Steve Carpenter of Enermodal says construction generated only a trash can full of debris.

The Center for Resourceful Building Technology (CRBT) in Missoula, Mont., has completed its second eco-house, a tiny (965-sq-ft) urban-infill project. This Timber Tech project was designed to be replicated. "We chose resource-efficient and recycled materials that are currently available to show builders and homeowners that they can improve the resource efficiency of their construction right now," says Tracy Mumma, CRBT Research Director. Inspired by an earlier CRBT project, architect Kate S. Warner has completed "a traditional New England house" in Martha's Vineyard, Mass., using alternate materials and energy-efficient construction (below).

**The house is not a solar collector**

What does it mean to build a green house? First and foremost it means providing more energy-efficiency. How much more depends on the builder and the client.

Nearly all architects and builders legitimately involved in the eco-house movement create energy-conserving homes. It is no longer difficult or risky. People want homes that use less energy and cost less to operate. Builders have the technology readily available—technology that has been around since the 1970s and 1980s when passive solar was aggressively promoted, only to be pushed aside by the public for its unconventional and often unappealing designs.

But passive-solar strategies and their attendant energy-conservation measures are in fact major components of any house that purports to be environmentally sensitive. Careful attention to building orientation,

direct heat gain, daylighting, shading, and well-insulated construction all contribute to low energy consumption. The difference now is that most designers create houses that look like houses, not like the result of an aerospace experiment gone wrong.

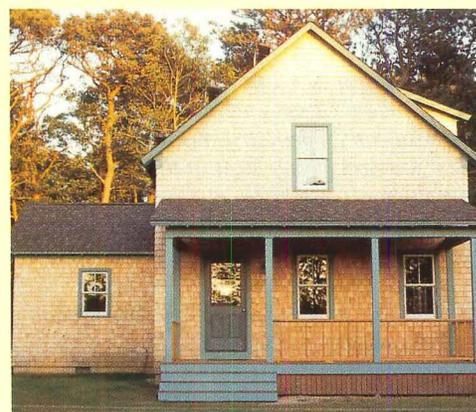
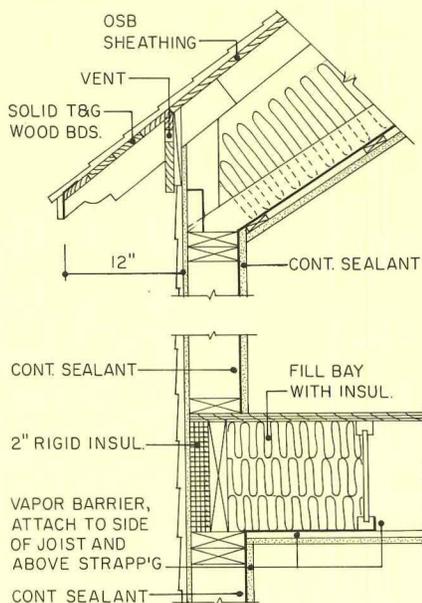
The problems that plagued early passive-solar homes—lack of fresh air and outgassing of materials—are being conquered in today's green buildings through the use of forced fresh-air ventilation (with heat exchangers, where warranted) and other measures that precondition outside air.

**The house of green components**

While low energy use is a critical factor, it alone does not make a house green. Products and materials that create less environmental impact are also called for. Everything from the use of site-lumber scrap to shredded-plastic Coke bottles are appearing in the eco-house.

**Affordable regional style**

Dallas builder Barbara Harwood of BBH Enterprises markets "affordable" eco homes. *Esperanza del Sol* (bottom) comprises two rows of six 1,270-sq-ft houses clustered around a shared green space. Each three-bedroom, two-bath house is insulated (with cellulose) far in excess of Dallas' standard practice. Lumber use was minimized by framing 24-in. o.c. with 2 by 6 studs. Natural ventilation, roof overhangs, and daylighting all contribute to Harwood's confidence that her \$79,000 homes won't cost more than \$300 a year to heat and cool. She even offers to guarantee it. Architect Kate Warner's educational efforts around ReCraft East (right) focus on the numerous alternative products this traditional-looking house contains—from fly ash in the concrete to salvaged-wood flooring, and beer-barrel stave cabinets.



© Barbara Harwood

© Betsy Corsiglia top and bottom

Not all products are equally green. "The way we look at it, every environmental product and every eco-house advertised is a different shade of green," says architect Greg Franta, of ENSAR Group, Boulder, Colo. A long-time researcher into energy conservation and environmental issues related to buildings, Franta regularly designs green buildings. Even with his expertise, it isn't always easy to decide if one product is better than another. Franta, like many environmental advocates, advises a "cradle to cradle" analysis of products that considers the acquisition of the raw materials; the processing and manufacturing process; the packaging and distribution impacts; the installation, use and maintenance issues; and the potential for disposal, reuse, or recycling.

Unfortunately, this is still not an easy task. Though numerous voluntary and local certification programs exist, there is yet no widely accepted certification system, database, or

standard for what makes products green [RECORD, October 1991, pages 36-39], though the Home Energy Rating Systems Council is working on voluntary efficiency guidelines (202/638-3700). Like Franta, Mike Nicklas of Innovative Design, Raleigh, N.C., is an architect who has devoted his practice to designing energy-conserving buildings. He hired an engineer to spend two years in his office researching various building products and materials and rate them in terms of their effect on the environment.

"The problem with our list is that it tends to be subjective," Nicklas says. "We try to get a good picture of the total embodied energy in a new or recycled green product. We weigh the cost compared to other options. But, ultimately, the decision to use a product or not rests with the client." While the price of a few green products is actually lower than conventional ones, others demand a premium, and others become more affordable as the

demand for them increases, explains Nicklas. In designing a demonstration house for Arizona Public Utilities, Jones Studios weighed "the quality of support by the company—the product most likely to be readily available in the future and have strong backing from a stable company."

### Widely used green products

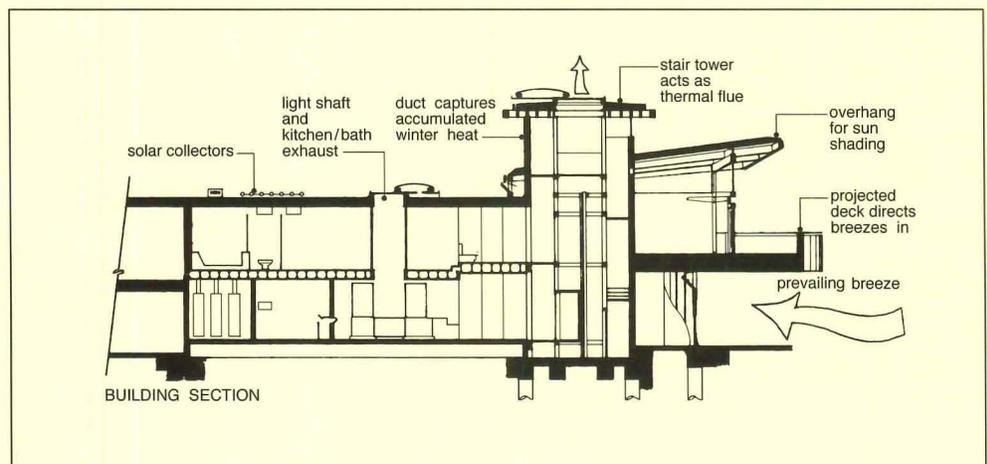
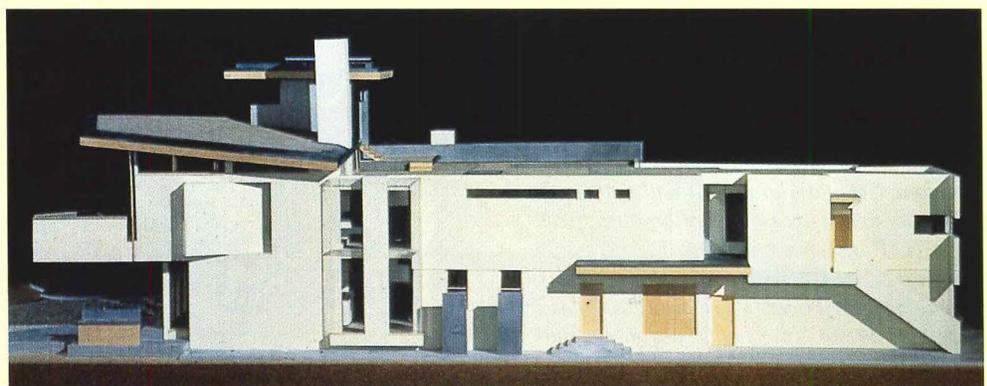
- **Framing:** Eco-houses are moving the home-building industry quickly away from conventional timber (much of it from endangered old-growth forests) to a variety of framing and panel products that use more abundant wood species and incorporate material that was once scrap. Some designers are choosing light-gauge steel framing, which can incorporate considerable recycled content. Both have their pluses and minuses [RECORD, September 1995, pages 36-41].

- **Insulation:** One of the most successful products is 100-percent recycled-newspaper

### Form follows fresh air

David Hertz, of Syndesis, Santa Monica, Calif., not only developed Syndecrete (a cement-based compound that uses recycled materials as its primary ingredients), he'll use it for various surfaces at the Lehrer house (right). The house also incorporates numerous other environmentally preferable alternative products—from recycled rigid-board insulation to nails with recycled content. Since carpet is avoided, an efficient radiant-heating system is installed in the floors. Low-flow and water-conserving plumbing fixtures are specified.

He uses architectural form to focus prevailing breezes. A tower-like element draws hot air up, exhausting it in the summer and recycling it (through a heat-recovery unit) in the winter. The hvac has an advanced control system that allows more effective zoning of heating and cooling throughout the house.



cellulose insulation. Ground into a paste-like pulp, the cellulose is blown into walls and ceiling spaces. Its manufacture is relatively benign. Indeed, even the ink gets recycled, points out environmental and construction technology consultant David Johnston of What's Working, Boulder, Colo.

Expanded-polystyrene rigid-foam insulation gets high marks from green builders and designers because it doesn't involve ozone-depleting CFCs or even the far superior but still ozone-depleting HCFC blowing agent. [For more on insulation, see RECORD, April 1994, pages 34-35].

• *Finishes:* Recycled plastic bags and hardwood fibers collected from furniture waste and chopped-up building pallets are combined in an environmentally friendly decking material, says Johnston. In addition to being resource efficient, it can be softened and reformed. It will outlast lumber used in the

same application by a few decades. Carpeting made from recycled PET plastic—the type used for water, soda, and ketchup bottles—has also met with industry-wide approval. More than 100-million yards have been laid in buildings to date, says Johnston. “It is more stain-resistant than nylon and wears better.”

Perhaps the most readily embraced green building product in housing has been low-VOC paints. When first introduced, low-VOC paints cost upwards of \$30 per gallon. But once competition entered the market, prices were driven down. It is selling in some states for about \$17 per gal. to the trade. New no-VOC paints are just entering the market.

Alternative products are being investigated or developed by manufacturers of almost every type of building material and finish. One of the most encouraging aspects of the push toward greener buildings is that a number of architects are experimenting with

materials development. David Hertz of Synthesis, Santa Monica, Calif., developed Syndecrete, a cement-based compound that uses recycled materials as its primary ingredients (opposite).

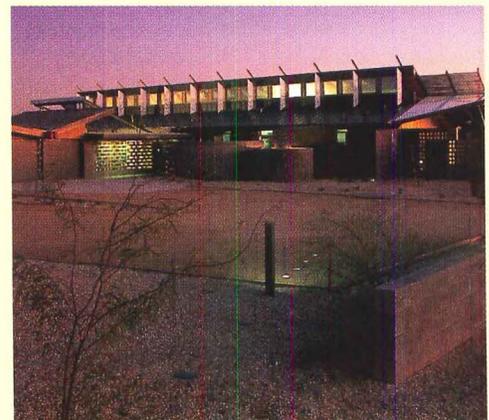
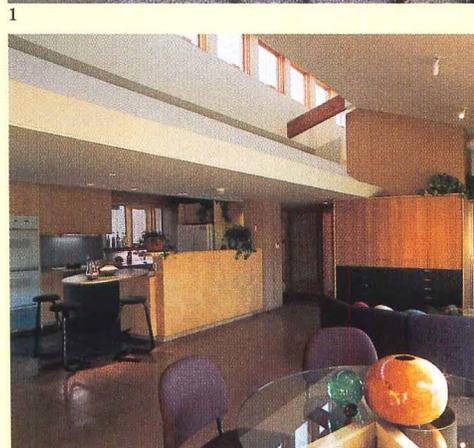
Despite the availability of increasingly reliable green products, Johnston says that there's too much broad-brushed, marketing-driven green-washing by too many in the homebuilding industry. “A lot of builders will put up a house with only one-half air change per hour, bad or non-existent energy conservation, and materials that outgas toxins, yet incorporate low-VOC paint and feel justified in calling it environmentally responsive or green. The problem for the whole industry is that home buyers often don't know what it is they don't know.”

In response, Johnston worked with the Colorado Home Builders Association to establish the “Green Builders Certification”

### Considering climate and landscape

*The showcase house Jones Studio designed for Arizona Public Service (an electrical utility) goes well beyond those eco-homes that merely substitute products within a conventional envelope. It's oriented so that thick masonry walls will absorb Phoenix's fierce direct thermal gain. (They are insulated with polyurethane foamed without CFCs.) Expressive overhangs catch breezes and shade the interior from direct sun, while permitting useful daylight (kitchen and “great” room with den beyond—2).*

*Through such techniques, reliance on energy from fossil fuels is reduced far beyond the norm. The building envelope saves 30 percent of the energy used in a typical new energy-efficient house, and is insulated far in excess of standard practice. The number of windows on east-west exposures was minimized to enhance energy efficiency; north- and south-facing windows are grouped to provide plenty of daylight and views. Ecological strategies extend to the outside. Natural desert plants were used to reduce landscape water needs, and subsurface irrigation reduces loss of water by evaporation. Rain-water combined with household gray water is collected for all landscape watering.*



© Scott Zimmerman, photos this page

program—one of a number of local certification programs that have recently developed.

### IAQ vs energy efficiency

If we learned nothing else from earlier waves of environmental and energy-conserving design, it's that an approach that simply layers green concepts or energy conservation onto conventional techniques can have unintended consequences. The tightness of construction brought on by 70's energy conservation is in part blamed for the indoor-air quality problems of the 80's. Turning from wood studs to metal, warns Jim White of the Canada Mortgage and Housing Corporation, Ottawa, can cause mold growth, for example. Writing in *Environmental Building News*, he claims the thermal bridge created by a steel stud not fully enclosed by insulation can create cold spots where high humidity from kitchens or bathrooms can condense, encouraging mold growth within just a few months. In hot and humid regions, mold grows within

improperly designed walls when air-conditioned rooms draw in outside air and airborne moisture condenses within the wall.

With most Americans spending up to 90 percent of their day inside their homes or work places, a focus of eco-home design has become the condition of the indoor environment. Rick Carter, of LBH Engineers and Architects, Minneapolis, designed an eco-house for a client with multiple chemical sensitivities. Although it had to be tailored to the specific clients' sensitivities (page 014a), many of the strategies are finding their way into the broader market.

Carter also designed the Minneapolis American Lung Association's Health House, which is concerned with the increasing prevalence of asthma, which it links to indoor-air quality. To eliminate pollutants, LBH minimized materials that offgas toxics, including paint and carpet. It isolates pollution sources by,

for example, separating the garage from the house and wrapping medium-density fiberboard in cabinets with plastic laminate. The house is mechanically ventilated using 100-percent outside air (heat exchangers capture heat and cooling from waste air). Still, it suffers from its location amidst a suburban development. Original landscape plans called for native plantings, but lost out to the developer's standard sod and imported trees.

### Looking at the bigger picture

The limitations that Carter's site imposed are typical of the problems many programs suffer—the inability to look at issues at a scale larger than a single house. Yet a more holistic strategy, taking on site and community-planning issues, is key to environmental sustainability.

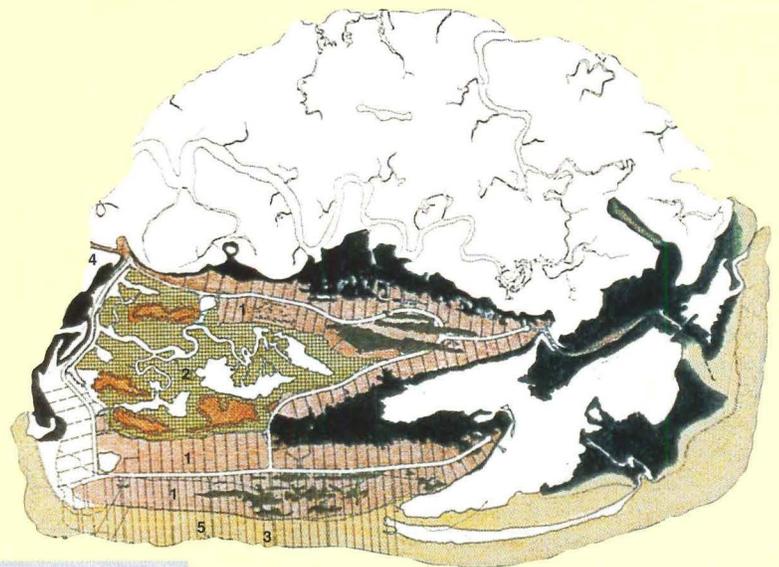
One project that takes a broader view is the Arizona Public Service Company Environmental Showcase Home in Phoenix, which

### An environmental island

*Charged with minimizing environmental impact at DeWees Island, S.C., Burt Hill Kosar Rittelmann limited development to 150 homes (right) and banished petroleum-fueled cars in favor of electric golf carts (no golf course is allowed, though). Sand paths replace roads.*

*All house designs must be approved by an architectural review board, which encourages regional architectural devices such as wide overhangs and wrap-around porches. Structures are mounted on pilings, reducing impact on flora and fauna, and permitting hurricane-driven storm surges to pass harmlessly underneath. Only five percent of the island can be built upon, and housing must be clustered in the maritime forest on the southwest corner of the island (lower left in plan).*

*Conservation of water is encouraged, fertilizers discouraged, and use of recycled building products required. The Reeves residence, a house that meets all of these criteria, was recently completed by North Carolina architect Design Harmony (opposite left).*



1. Buildable lots
2. Wildlife management area
3. Beach conservation zone
4. Dock
5. Boardwalk and dune crossing

was co-sponsored by EPA, Arizona Department of Environmental Quality, and the Home Builders Association of Central Arizona. Designed by Phoenix architect Jones Studio, the project uses eco components like engineered wood and metal studs (on interior walls). But it also uses shading and orientation, daylighting and landscape concepts (previous pages).

### From site planning to town planning

Some communities are giving environmental mitigation high priority, attempting to counteract the effects of suburban life built around the use of the automobile. "Pedestrian pocket" and other traditional-development strategies that emphasize transit use are already well known. Florida now encourages compact development to reduce impacts on the state's endangered Everglades. Burt Hill Kosar Rittelmann architects, Washington D.C., have gone so far as to banish the auto in the master plan the firm developed for

DeWees Island, S.C., a private, oceanfront retreat dedicated to environmental preservation (below and opposite).

Many Americans seek a rural lifestyle, but the typical large-lot zoning in resort and exurban areas encourages polluting car trips and fragments the natural landscape. Environmental advocates say such broken-up natural areas are less ecologically viable and more vulnerable to pests.

Loudon County, Va., decided to follow the advice of architect and planner Richard Calderon, Leesburg, Va., to help preserve the rural quality of its community. As an alternative to its three-acre lot zoning, the county has approved a plan that allows hamlet developments. Houses in these hamlets can be closely clustered on less than 20 percent of the site, leaving the rest of the land in its natural state. They also encourage a more neighborly form of country living. So encour-

aging is Loudon County's environmental policy, that several developers are constructing eco-villages. Franta of ENSAR is designing one hamlet of environmentally oriented houses; Bethesda, Md.-based Hillier Reed and Neal Payton, Washington, D.C., are doing another (below) that includes narrower-than-standard streets to slow traffic.

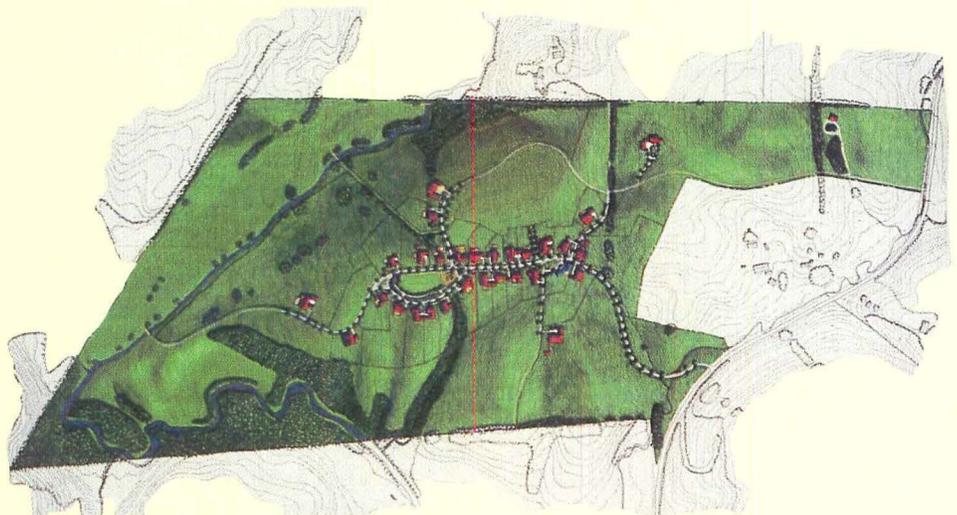
Defining and assessing the environmental considerations that make a house green remain complex. The key, say Alex Wilson and Nadav Malin, editors of *Environmental Building News*, is to set priorities (RR1, Box 161, Brattleboro, VT 05301, 802/257-7300). Their October 1995 issue offers a checklist far less formidable for the smaller firm than the bible of sustainability, AIA's *Environmental Resource Guide* (now published and updated by John Wiley & Sons, Inc., 800/225-5945). See Manufacturers Resources in this issue for additional information about the projects mentioned in this story. ■



### An environmental hamlet

*Sunnyslope, in Loudon County, Va., is a "hamlet" plan posed as an alternative to the kind of large-lot development that encourages traffic problems in rural and exurban areas. Bill Reed of Hillier Reed, Bethesda, Md., and Neal Payton, Washington, D.C., have clustered 30 homes (which follow their own environmental guidelines), leaving much of the site's 150 acres unencumbered.*

*Following traditional neighborhood development precedents, the hamlet's streets are designed more like country lanes. A community building and a town green offer a civic focus.*



# Can Architecture and Politics Mix?

*As government building programs shrink, it's worth considering how architects can better use the political process—and what the process says about architects and their place in the community.*

It's an election year. While these four words rightly evoke groans from those not addicted to the endless campaigning and information-free discourse endemic to political life today, there's no better time to consider the role architects can, do, and should play in the political process. Further, this political season begins just one year after a cadre of candidates was chosen in states and Congress pledged to move political power to the states.

Most of the attention-getting debate this year has been at the national level, as the budget, regulations, and such massive programs as Medicare and welfare have come under intense scrutiny. And the big Capitol Hill battles have pushed aside for now issues that most affect building design (tort reform, qualifications-based selection). Bricks-and-mortar building programs have been substantially cut, however [RECORD, November 1995, page 33]. Even if, as many in the new Congress advocate, programs are eliminated and others largely shift to states, government still significantly determines the circumstances under which buildings are designed and built. Can design professionals better use the political process to realize their goals? Perhaps more fundamentally, is the shift from national to local and the move to greater privatization good for architects?

"Architects' interests don't really fall along party lines," observes Nancy Somerville, vice president, state and local government affairs at the AIA. "What does follow party lines is the anti-regulatory environment and the pro-business environment. These agendas mean there's a greater likelihood of tort reform but, on the other hand, a resistance to uniform building codes and more efforts to consolidate or defund agencies like state licensing boards." Although much of the political drama is in Washington, D.C., "Most legislation where rubber hits the road in terms of architects' income," Somerville says, "takes place at the state level."

**Agenda:** *Our continuing series on stretching the boundaries of what architects do takes a strategic look at the opportunities and barriers in the political arena. Recent installments have considered supply of and demand for services (10/1995), design for corporate restructuring (9/1995), and aging office buildings (2/1995).*

## What government is doing to design

Somerville and Daniel Gross, AIA program director, state and local government affairs, outline these key challenges:

- *Procurement:* As many as 14 states will face challenges to qualifications-based consultant selection criteria. Also, although AIA policy accepts design/build for appropriate projects, AIA is challenging design/build procurement when it is cost-driven, not qualifications-driven, and when a high level of uncompensated work is required for selection. Some states, "unhappy with the level of litigation on projects," but also "not managing the process well," says Somerville, see alternate-delivery methods as a panacea.

- *Professional licensing:* The deregulatory mood, says Somerville, has spurred a "large-

*The definition of architectural practice and engineering's overlap "top the list of licensing-law concerns"—Nancy Somerville*

scale attack on the regulation of professions." She says critics claim "that most state licensing exists for protection of the regulated and not the good of society." Though she feels that architects will have to fight battles on this front (10 states face "sunset" of licensing laws in 1996), she doesn't see the licensing of architects as threatened. Indeed, 12 states may add a licensing category—through certification or title laws for interior designers.

The definition of architectural practice (where, typically, engineers seek authority to design a wider range of building types) and the overlap of engineering with architecture "top the list of licensing-law concerns" in the states, says Somerville [RECORD, July 1995, page 27].

- *Liability and tort reform:* Professionals are seeking "certificate of merit" legislation in

many states, which would require early independent examination of whether suits against architects (among others) have merit. Some states have exposed architects and engineers to liability for third-party suits. This permits injured workers—prevented from suing contractors by workers' compensation statutes—to seek recompense from the design team. Other states have relieved architects from such liability. Tort reforms sought by A/E's include caps on punitive damages and on joint-and-several liability. The latter can make the "deep pockets" architect (or the firm's insurer) liable for damages far in excess of proven culpability.

## Selling architecture on Capitol Hill

In Washington, the budget-cutting vogue brings bad news for architects, especially for firms that have been doing big GSA courthouse and office-building projects. It's not only GSA budgets that have been cut, though. Assisted-housing programs at HUD, embassies, R&D (which supports much campus research-lab construction), transit and passenger rail, and Veterans Administration hospitals have all been slashed. Of those categories where spending is rising, only slightly higher funds for airports and dollars for military-housing improvements are likely to directly benefit architects.

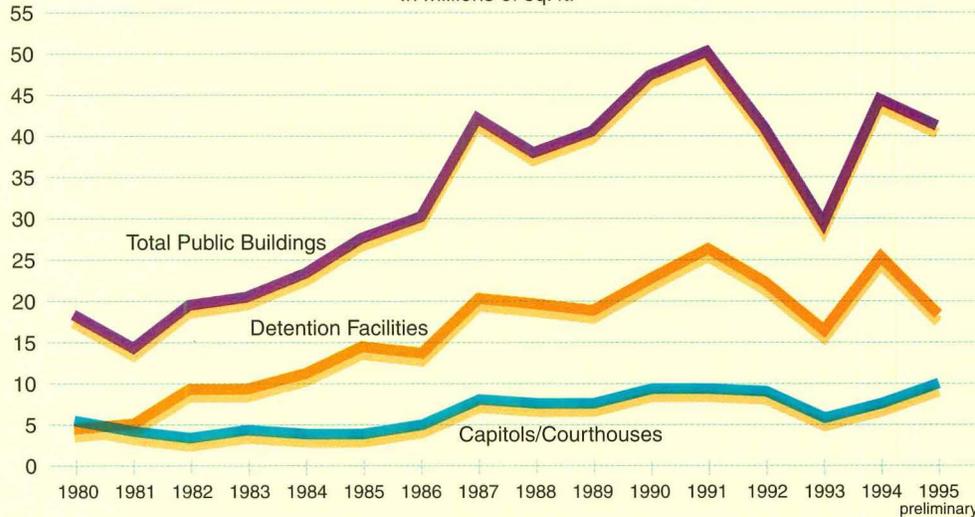
Should architects storm Congress' ramparts? It's not AIA's style. "We play with the deck we're dealt," says Al Eisenberg, director, federal legislative affairs at AIA. Don't mount a monumental (and probably losing) battle to restore cuts in building programs, he says. "Congress believes that the tax code is the way to get things done rather than categorical grants or block grants. If the arena to play in is the tax code, we'll play in that arena." Thus AIA is vigorously defending the Low Income Housing Tax Credit and tax credits for historic preservation (both of which will likely remain intact), and promoting the Commercial Revitalization Tax Act targeted at distressed urban areas and supporting a tax credit for those who restore historic homes (both an uphill fight).

## Clout through community design

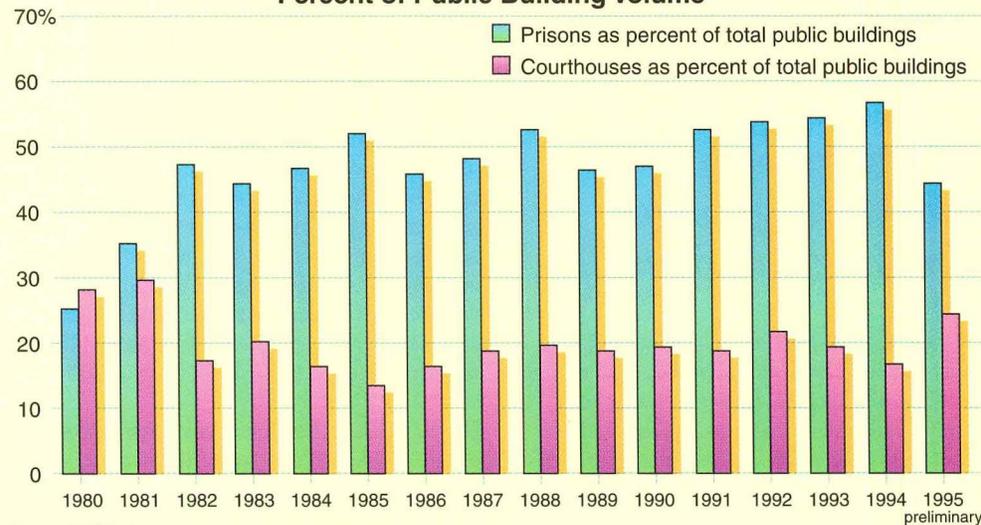
Architects have influence in Congress, claims Eisenberg, because they help to make "livable communities." That architects are

## Selected Volume of Public Buildings

In millions of sq. ft.



## Percent of Public Building Volume



Source: F.W. Dodge

### Government's changing priorities:

Detention facilities—increasingly built using stock plans or design/build procurement that emphasizes delivery over design—may be this era's emblematic—and publicly invisible—building type. At the same time the supposed lavishness of pub-

licly welcoming courthouses—an important building type for architects—are an easy target for headline-seeking politicians. Also, if federal cuts create new burdens for states and cities, locally funded schools and libraries, which have been consistently strong types recently, could be hit.

able to facilitate public participation as well as build projects that tangibly benefit towns and cities is crucial, because “all kinds of legislation flows to communities.” He cites, for example, “the transportation enhancements” set-aside from the surface transportation program—part of what is popularly known as ISTEA [RECORD, June 1994, pages 86-89].

The community-oriented focus is also seen as critical by Harvey Gantt, of Gantt Huberman architects in Charlotte, N.C. Gantt, perhaps America's most prominent architect-politician says architects have much to offer, especially locally: “Architects have an ability to visualize; they can understand the physical impact of social decisions. When I served on the city council and as mayor of Charlotte, I thought I could visualize impact of a highway more readily than a colleague who is a sales person or a lawyer.” (Gantt has also served as Charlotte's mayor pro-tem.)

That architects can create a new vision for communities is also key to what Eisenberg says are the excellent prospects for one little-publicized legislative initiative. The work of architects, planners, engineers, and landscape architects in Hurricane Andrew, in Florida; the giant 1993 floods in the Midwest; and the recent earthquakes and wildfires in California has convinced many in Congress that disaster-mitigation planning is critical in avoiding gigantic losses [RECORD, June 1994, pages 38-41]. In return for offering government backing to a federally chartered private insurance corporation, at-risk states will have to make comprehensive disaster-mitigation plans and put in place new or upgraded zoning and codes. Both the planning process and the construction upgrading involved should generate substantial work for architects. That the bill has 220 House co-sponsors is important, says Eisenberg, because “this is a Congress that is not about telling states what to do.”

### Architect as local peace-maker

Many architects see expanded opportunities if the shift to local government and privatization continues. They agree with proponents of small government that the lower taxes permitted by less government translate into more money deployed more efficiently by the private sector. Indeed, there has been a long-

term shift of U.S. architects' clients from government (still the dominant patron in much of Europe) to the private sector.

Removing federal-government regulatory burdens may not change the life of the average architect much, though. Architects frequently complain that the thicket of *local* regulations, design-review, and community-review boards through which even private-sector projects must pass too often saps innovation—let alone excellence. Clients also often see such activities as incidental and expensive barriers to the main event—designing buildings.

Dealing with community needs shouldn't be incidental, argues Dana Cuff, associate professor at UCLA's Department of Architecture and Planning. She's made a study of what she calls "contentious development," and observes that inevitably "architecture ends up in the political realm, when you talk about how architecture adds up to a city." Many architects can bring highly developed design, graphics, and communication skills to bear in community planning and design—skills developers, planners, and real-estate professionals often lack.

Cuff looked at Riverside South, a gigantic urban development in New York City first proposed by developer Donald Trump as Television City—a series of dizzyingly huge towers that attracted fierce community opposition. Architects, some of them working pro bono, collaborated with opponents, and, ultimately, Trump's team. The scheme approved was smaller, and vastly more public-oriented. And Trump learned that a less adversarial approach can work.

"You can say New York is much better off in terms of quality of life for having had this be a 10-year, political, drawn-out process," observes Cuff. "No developer would ever do this if not pressured to." While joining the opposition may not win plaudits from potential clients, Cuff feels architects' validity within the community is too often threatened because "people feel let down by architects and developers." She sees great opportunity for architects able to help owners steer projects through difficult community-review procedures (though getting paid for the

effort involved remains a hurdle). She argues, "Architects are the kind of professionals that can work through—competently and with a vision—complex problems that have both physical and political dimensions."

### **City builders vs privatized packagers**

The tensions that arise from the level of community consultation required in many jurisdictions reflect themes in larger political debates. When advocates for small-government gained momentum in the 1980s, for example, they claimed that too many architects clung to an outmoded big-government role as community master builder imposing a personal-taste agenda on the public. Then, as architects moved away from urban design

*AIA's Eisenberg fears a "rush to the bottom" that makes it increasingly difficult "to make people understand what architecture does."*

and low-income housing to lushly funded museum projects and glitzy edge-city mega-developments, community advocates said that the most prominent practitioners had abdicated their professional authority, and deserved to be considered mere packagers and stylists, pandering to the egos of developers and companies at the public's expense.

This quandary for architects isn't going away; indeed, such arguments may become more polarized, and architects may find it more difficult to have a broad role in shaping communities while still realizing the needs and aspirations of those paying the bills. Consider two scenarios: if government is merely localized, rather than privatized on a large scale, architects can continue to help government agencies create genuinely public places. But when government is privatized, then private entities, however public-spirited, become the clients, making the relationship between the architect and the public one

more step removed. When an architect works for a developer hired to build public schools, for example, the developer sets the priorities the architect must address rather than an agency or the community. While a privatized entity can offer much more efficient management and procurement, it may not feel charged to do what government might do, such as look to locate a public facility in a neighborhood where it can catalyze other development.

### **Can architecture survive expediency?**

It is also worth considering whether the extent to which government uses architecture reflects on the profession. In FDR's era, for example, architects were involved in work ranging from public hospitals to park structures to bridges—even the great Hoover Dam. Though public works from that era remain widely admired, today's no-frills approach has made the multi-lane freeway running in a trench of precast-concrete sound barriers the primary experience of the public realm. One could argue that the sorry nature of much public work today reflects people's attitude toward government, not architecture. But we shouldn't dismiss a more pessimistic conclusion—that people no longer see design as a means of representing their community's or their nation's aspirations. Do we need government architecture (which is supposed to represent us all) to help validate the profession in the eyes of the public?

Gantt, on the other hand, says the perception of public design "goes up and down with the community. Architects should be focused on quality of life," he continues. "We can influence what we're surrounded by: how you reinforce neighborhoods, how you keep downtowns from being ghost towns after dark." The more the public recognizes architects' positive contribution to "what it takes to produce that intangible—a city that feels good to people," he says, the more the community will ask architects to do.

Gantt urges architects to testify in front of planning committees, to be involved in charettes or with community groups. "When I sat on major decisions on how Charlotte's downtown was going to develop or major infrastructure developments, developers, bankers, and other people would be there,

## Architecture in the Political Arena

### Practice Issues

Issue	Explanation	Outlook	
Procurement	Qualifications-based selection	Challenges in 14 states	Protected for now at federal level; mixed outlook in states
	Alternative project delivery	Use of construction managers or design/builders in lieu of architects	States that have tried increasingly recognize as not a panacea
	Stock school plans	Save money by reducing fees	Several states looking at
Professional licensing	Licensing laws	10 states face sunset of licensing laws; challenged as protecting jobs not society	Serious threat to licensure not expected
	Definition of practice	Permit engineers to design wider range of building types or overlap of engineering and architecture	"Tops the list of licensing-law concerns," according to AIA
	Interior designers	Certification and title laws	Not the hot-button issue it once was
Liability and tort reform	Certificates of merit	Reduce frivolous suits by early determination of merit	Tort reform delayed at federal level; outlook improved in states
	Joint-and-several liability	Injured party allowed to seek damages from "deep pockets" architect (or firm's insurer) far in excess of proven culpability	Elimination is high priority
	Third-party suits	Injured worker—prevented from suing contractor—sues design firm	Mixed; some states have amended workers compensation laws to eliminate; others have widened liability of architects
	Punitive damage caps	Reduces architect liability	Same as other tort reforms

### The Work Architects Do

Issue	Explanation	Outlook	
Building programs	Direct government grants for construction	Poor outlook at federal level; better outlook at state level for popular types like detention, schools, libraries	
Historic preservation	Regulations	Targeted as excessive or unconstitutional uncompensated "takings" by government	Significant short-term threat, but public support for preservation remains strong
	Tax credit	Move to restore passive-loss element of, which would increase value; possible loosening of requirements	Passive-loss could founder on budget-balancing needs; agency cuts could permit sub par restorations
	Heritage areas	Congress rationalizing the definition of broad regions of historic significance	Improving; seen as low-cost economic-revitalization tool
Community revitalization tax credit	New tax credit would encourage business expansion in distressed neighborhoods	Has yet to build momentum	
Housing	Low-income housing tax credit	Supports 40 percent of multi-family building; only significant, viable assisted-housing program	Opponents want to eliminate to help balance budget. Appears to have survived in '96 budget
ADA	Some complaints that disability requirements too onerous	Changes in law are highly unlikely	
Disaster mitigation	Pre- and post-disaster planning involves architects in avoiding disasters' worst consequences	Pushed by insurers as money-saving, prospects are rapidly improving	

but no architects were there talking about appropriateness. Architects are not even thought about in that light." In public debates, Gantt says, "No one thinks twice about an up-and-coming lawyer appointed to some board. An architect is a rarity, though, and there's no reason for that. It's great to be thought a nice guy who builds buildings, but in order to get clout one has to get one's hands quote dirty in the arena of politics."

The defensive nature of many of the battles architects fight—fee bidding; the clients, engineers, and builders that think architectural design is at best an add-on—may be inevitable in an ever-more competitive age, or it may be evidence of a continued devaluation in status. Certainly in today's political environment, where first cost is the chief value, architecture is targeted. AIA's Eisenberg, like most architects, argues for the community values that are represented through a selection process that focuses on design excellence and by construction that uses stone or wood rather than drywall and carpet in an important public place like a courthouse. In pandering to those who claim all government spending is waste, however, politicians regularly pick on the "lavishness" of materials that are completely justifiable in life-cycle or other terms. In such an atmosphere, only timid design makes it through.

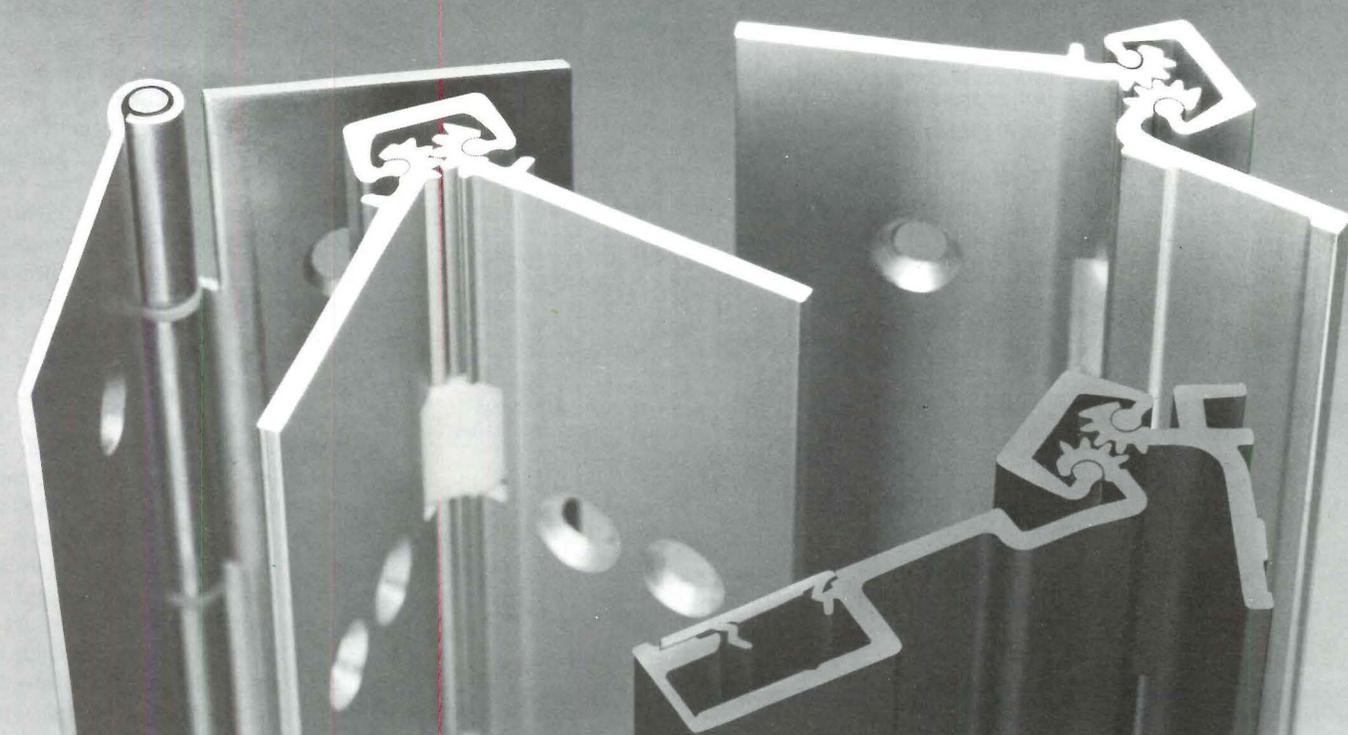
Eisenberg, for one, sees the "devolution" of national standards and programs as "a rush to the bottom," where local expediency precludes solutions to national problems. He sees it increasingly difficult "to make people understand what architecture does."

Gantt says the purely cost-driven approach can be defused: "I think architects in places of prominence can make some solid arguments about the appropriateness of architecture and its impact on our lives. And they can win an argument on that level if costs and taxes are not the overriding concern in the community." By being consistently involved in issues of interest to the community, architects "will have an audience who will listen," Gantt says, when they try to make a case for a genuinely civic architecture over a purely low-cost one. Gantt is making his own case by running for the U.S. Senate in 1996. *James S. Russell*

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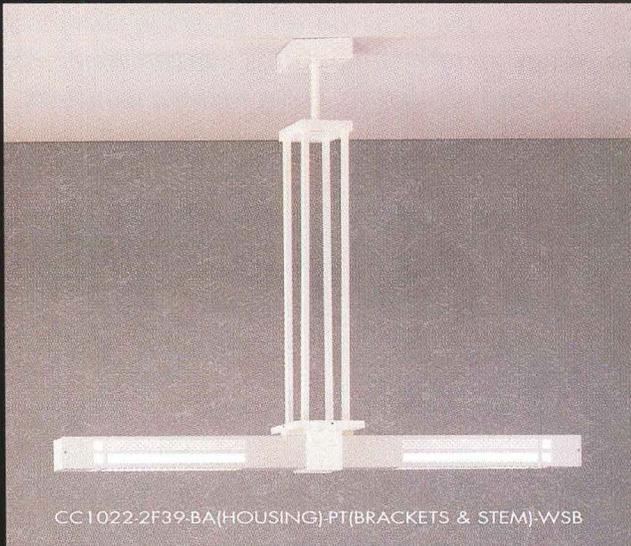
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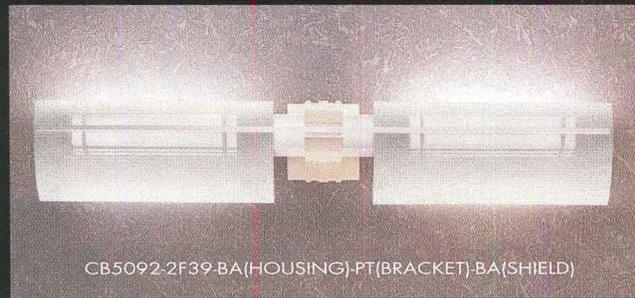
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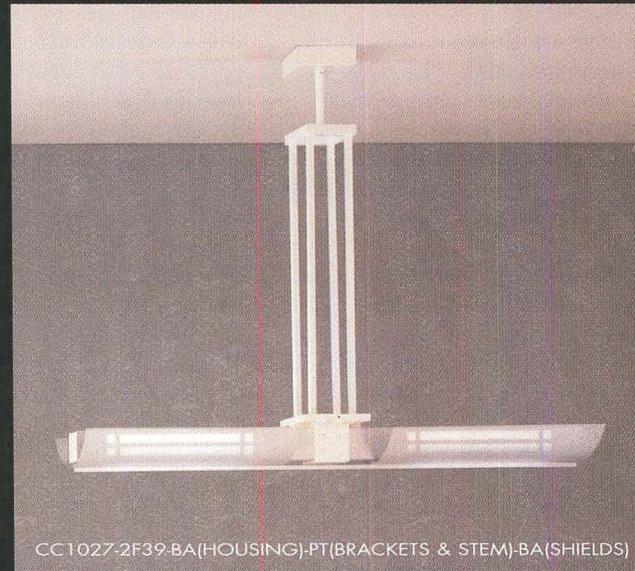
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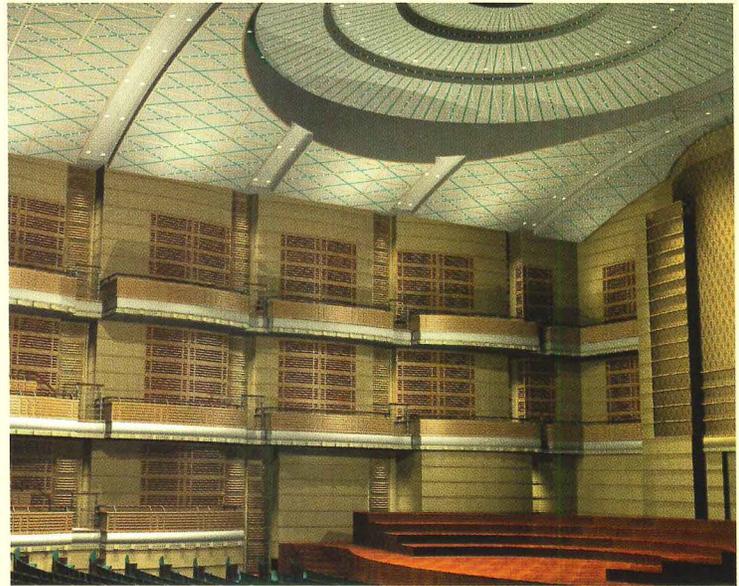
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## CAD Presentations Get Real

*Architects are increasingly turning computer savvy to imaging, offering options conventional renderers can't—and stretching computing's frontiers.*



1



2

*By Ralph Grabowski*

For the architect who does not have the time or the skill, there have always been delineators and modelmakers to prepare hand-drawn illustrations and presentation models. Now, delineators have gone digital: they render 3D CAD instead of illustrations; make animations instead of scale models.

Very often, it is the client who wants the rendering rather than the architect. It is traditional for the client to pay for these as marketing tools—to get governmental approvals, pre-lease the building, impress potential investors. Most imaging firms concentrate on high-quality renderings, since they have found these are the best way to get the design idea across to the client.

While an animation is impressive, it tends to skip over details; plus, the camera paths can be like a roller-coaster ride. Ayres Group, San Diego, a firm specializing in animations, finds itself increasingly sought after by international clients, according to Molly Scanlon, director, client services. In deciding whether to commission an animation, she says, “you

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need to define a purpose and an audience.”

One area Ayres and others concentrate on is presenting the impact of new development. Besides describing the appearance of the design, computer images or animations can readily show building heights and sight lines, view corridors, and other designed responses to zoning and planning issues.

Some firms specialize in producing multimedia presentations. They package sound, text, and images on the computer with Microsoft PowerPoint or Astound presentation software. A speaker can show the images at meetings using a notebook computer and LCD display panel (which transforms the computer image into one that can be projected on a screen). Ayres Group's Scanlon says “During construction, we'll run our animations as an information kiosk, instead of a ‘pardon our dust’ sign, to explain to visitors why they're being inconvenienced.” Other firms offer project-archiving services. They scan as-built paper drawings for storage on CD-ROM or tape (for easy retrieval or conversion to CAD files), and make a film or video record of built projects.

### Raw materials

Imaging services can start with hand-drawn sketches, design drawings, and CAD files—whether 2D or 3D. To make the drawing or

rendering, the service must make a 3D CAD drawing of your project. Obviously, the less work the service has to do, the less it costs, so it's to your benefit to provide the project in electronic form. Among CAD files, the most common format is AutoCAD DWG or DXF. You deliver the files on 3 1/2-in. diskette, upload to a bulletin-board system, or e-mail the file directly through the Internet or through an on-line service like CompuServe.

### The right viewpoint

Once the 3D model is constructed, other 3D data might be added, such as digital terrain modeling (DTM)—the computer term for the site profile. You can examine the model on-screen while an operator changes the angle, viewpoint, and distance until you agree on the desired point of view. The service will ask you for the colors and materials intended for the project. It typically has a large selection of already-digitized materials. Many are available commercially as “clip-art libraries” on CD-ROMs, such as surface textures for granite, marble, masonry, tile, and carpet.

These items can be copied from the source and pasted into the rendering. Items such as trees, seating, trash containers, automobiles, and people, can also be added from standard clip-art libraries. If need be, a texture can be created from scratch in three ways. Flat

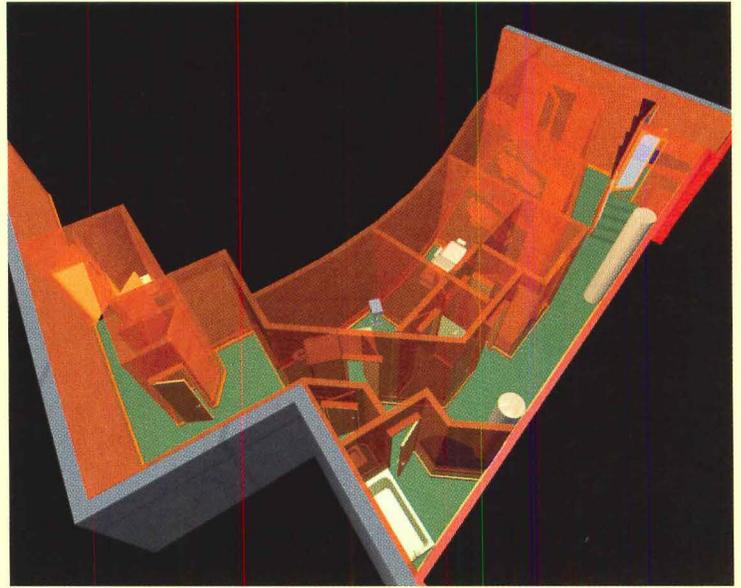
*Simulacra used film-effects tools in visualizations for the Cine-Mania Theater (1, opposite and RECORD, August 1994, pages 62-63) for architect Ellerbe Becket,*

*and the City Center Concert Hall in Kuala Lumpur (2) for Cesar Pelli and Associates. The firm has gone Hollywood, adding its architectural expertise to*

*Batman Forever (3). Jenkins Associates modeled a small spa (4). Some surfaces can be made transparent so clients can see inside.*



3



4

samples, such as tiles and wallpaper, are digitized using a high-resolution, full-color, flatbed scanner. For materials that can't be scanned, such as bricks, you can photograph a sample, and use the Kodak PhotoCD process to create an electronic image. As a last (labor-intensive) resort, the service can create a surface texture by using a computer "paint" program. Whether scanned or photographed, the digital images become "texture maps" applied to the surface areas of the 3D drawing.

Since many digital-image firm principals are architects, they can produce credible surface colors and textures, even if the design is at an early stage and materials selection isn't final. Being digital, it's easy to change the color and texture at a later stage in the project. For animations, the client, architect, and imaging firm agree on the camera path through the project.

With the model's 3D viewpoints established, the file is exported to a rendering program like Autodesk's 3D Studio. Here, the texture maps are applied, the lighting parameters are defined, and the rendering takes place. The time it takes to render depends on the quality of rendering, the complexity of the model, and the speed of the computer. An anti-aliased Phong rendering (which includes

textures, shadows, and lighting effects) may take a few minutes. A four- to five-minute animation can take more than two days to render on Ayres Group's 25 machines.

After the imaging firm applies the texture maps, the client and architect are invited to approve the placement. It is at this point that you may decide the colors or materials are not what was intended. Richard Buday, of Archimage, Houston, tells the story of a designer client sitting in his office with paint chips and swatches of vinyl and carpet. After the operator rendered the image as directed, the designer exclaimed, "No, no, the colors need to be darker here and lighter there." Working together, they changed the materials and re-rendered the scene until she was pleased. The designer returned to her office to find materials matching the screen colors.

While one can see the scale and relative amount of colors and textures in such a rendering, the subtleties of color in the real world are not accurately interpreted by the computer screen. The color you perceive is altered by many environmental factors—time of day, weather, reflections from moving objects, and the mix of light sources—that are hard to simulate. Also, if the image is printed, the deviations from screen color can be dramatic, unless screen and printer are

carefully calibrated. The efforts in the field of CAD and illumination have resulted in rendering packages now capable of shadows, reflections, and accurate rendering of the amount and color of light. Still, research has yet to give us tools to present colors accurately on the screen and then output them identically on any color printer.

#### The output

The output from the computer is generally a high-resolution, true color, Targa or TIF file. The "high resolution" is on the order of 2,048 by 1,526 pixels, which is four times the resolution of a typical computer screen. "True color" means the monitor is set to show up to 16.7 million colors or 24-bit color depth. Such high resolution and color depth means that the size of files is very large, on the order of 74MB uncompressed. Compression techniques can reduce files to 4MB—still too large to fit on a standard diskette. For this reason, you'll need to deliver files on a Bernoulli disk or other large-capacity medium.

To get hard copy of the image, you normally work with yet another outside agency. Reprographics firms can produce slides (using a digital film recorder), 8 1/2 by 11 prints (using a digital printer), and 24- by 36-in. posters (using a color inkjet plotter). Digital repro-

## Computer Imaging Firms

*Using one computer model Jenkins Associates is able to produce numerous views of a new town plan, called Angus Glen Village, slated for*

*Markham, Ontario (5, 6). The different views allow potential buyers to understand how the streets and public spaces create a sense of place.*



5



6

graphics firms are so common in all large cities that they often offer incentives for the first-time customer.

### Computer-imaging advantages

Imaging firms say a single computer rendering has no cost or time benefit over a single illustration created by hand. It probably takes just as long and costs as much or more. The savings come when you make additional scenes from the same model or make changes. After creating one “database” (the 3D CAD model), it’s easy to create multiple views. Once the lighting is set and textures applied, it’s also easy to generate additional scenes from other viewpoints. For traditional hand-drawn renderings, the illustrator starts from scratch for every view.

### What technology can’t do

David Burch, of Jenkins & Associates, an architectural firm in Calgary, Alberta, points out an inconvenient aspect of computer imaging: the 3D model must be complete. Otherwise surfaces don’t meet and shadows fall incorrectly. In a hand drawing, you can always place a tree or other visual subterfuge to obscure the not-yet-designed elements.

The imaging firms consulted agreed that computers also cannot match the feel and detail of a hand-made rendering. While it is

easy for an artist to paint individual leaves on a tree, the memory needed for a computer to draw every part of a tree is tremendous. The file size become unmanageable and rendering time excessive. Instead, the firms try to do 90 percent of the work in the 3D model. Then they soften the hard lines and slick surfaces using touch-up applications like Adobe PhotoShop and Fractal Design Corp.’s Fractal Design Painter.

Burch warns that clients may see more in the hard lines and fully developed models than is actually there. They perceive an early study as a design cast in stone. Jenkins uses several techniques to make the computer image seem more tentative: He adds a pastel wash to the background instead of dropping in a photorealistic one; he makes the walls transparent so the client can see into the building. And some programs permit the application of the electronic equivalent of “brush strokes” to make the computer image look more like a watercolor. (Burch estimates 10 percent of his time is spent in PhotoShop.)

Similarly, computer animations, once the image sequence has been recorded, don’t permit other viewpoints—at least until virtual reality becomes practical. Still, animation lets people see the project from a realistic viewpoint, rather than the helicopter

viewpoint of physical models. You can choose the way you view a physical model, but they’re fragile and hard to move around. For very large projects, such as the vast new cities being built in China and Thailand, animation becomes the only practical method for understanding the proposed site.

### Computer imaging’s cutting edge

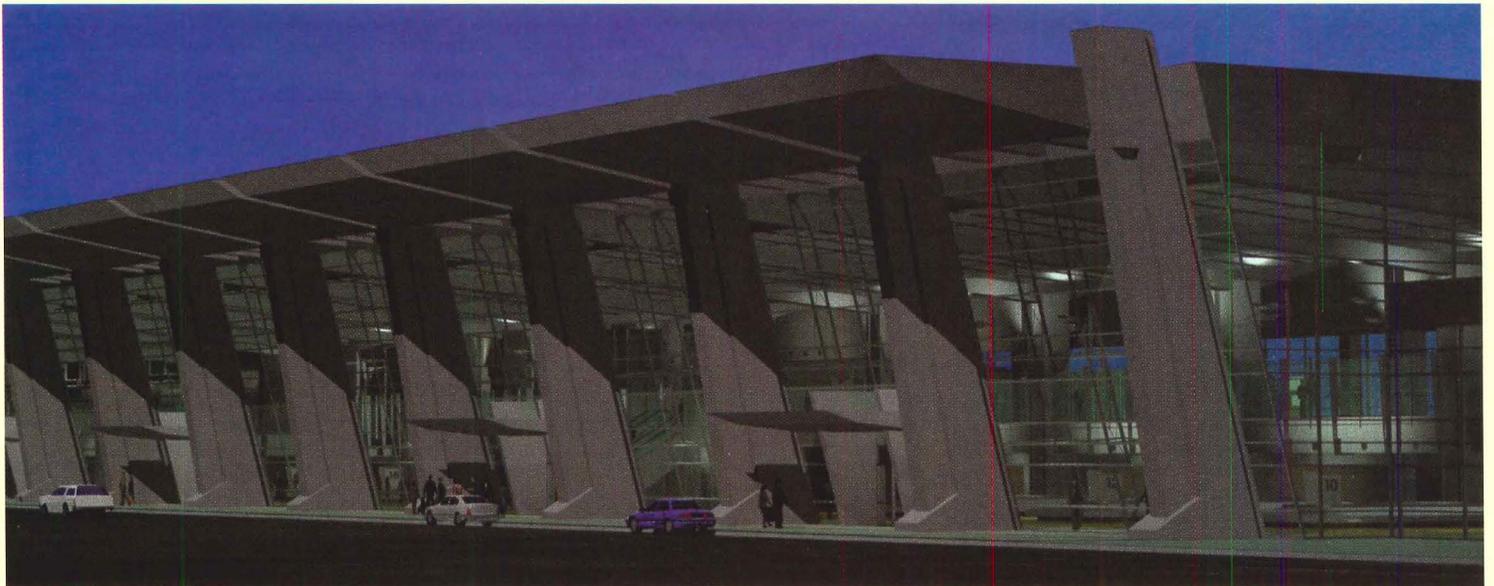
There’s a consensus that virtual reality is still not worth pursuing at present. The head-mounted display, data glove, and body suit environment, while immersive, provide a rather crude image—even now, seven years after work began on the technology. Robert Jacobson, of Worldesign, Inc., Seattle, builds virtual rooms by making spaces of projection screens that allow you to be surrounded by a virtual scene. “Ours is low resolution, but you move through at a natural pace. Others are high resolution, but slower,” he says, adding that faster machines available as early as next year will make a significant difference. The University of New Lisbon, in Portugal, he says, is pioneering uses of 3D modeling for geographical information systems (GIS), which could have broad application in design and planning.

Increasingly, you can choose the direction you’ll move through a scene, like the popular computer game, *Myst*. Apple Computer’s

For Gensler and Associates' Los Angeles office, Ayres Group produced an animation of an expansion of San Diego's Lindbergh Field (7). The animation

explains design concepts and provides a tour of the entire project. Scenes include meticulously detailed images such as the one below that feature

complex lighting effects and the ability to see inside.



QuicktimeVR lets the viewer move 360 deg. around a single viewpoint (<http://www.apple.com>). "We're moving into interactive, full-immersion spaces and full-motion," says Lance Hammer, whose firm, Simulacra, West Hollywood, Calif., uses powerful Silicon Graphics Workstations to run high-end programs like Alias Power animator and Pixar Renderman (the product behind the film *Toy Story*). "Pure interactivity is coming very quickly." Hammer's firm, which began using computer visualization in architecture, moved away from buildings to movies and advertising, but now finds itself returning to buildings—with a twist. A project for Dreamworks—still mostly under wraps—envisions a "real" architectural threshold to a virtual, but architectural space. Hammer's firm is designing both.

The purchase by Microsoft of the French workstation package Softimage, he says, may soon bring extremely fast tools to desktop computers. Silicon Graphics competes, he says, "by releasing something really incredible every year."

The Internet's World Wide Web is already being used as an advertising medium and an e-mail link. Publishers Depot at <http://www.publishersdepot.com> offers stock photos, maps, audio clips, video footage,

fonts, and works of art for browsing and purchase. Virtual-reality modeling language (VRML) offers even greater on-line potential. Using simple viewer software (usually offered free), you can move around a 3D object posted on the Web. Elements of the scene need not be located all on the same Internet site, which could mean that the model could be worked on and viewed by numerous parties working independently.

Today, the Internet's bandwidth is too low for this kind of interactivity. (Though Caligari offers "3D home worlds" at <http://www.caligari.com/>.) By the end of the decade, such collaboration should be more mainstream. One ambitious project is VirtualSOMA, an attempt to model part of downtown San Francisco south of Market Street using VRML at <http://project9/soma.html>. By using a VRML viewer, such as InterVista's WorldView, you walk through and fly around the district.

#### **What should computer imaging cost?**

No conventions appear to exist for pricing. A Canadian imaging firm drew up a proposed shopping mall in 3D CAD, then created a half-dozen high-resolution renderings for a total of CDN\$8,000. A San Francisco firm charges \$85 per hour for 3D CAD modeling and rendering. Photo compositing is more complex than straight rendering: the comput-

er model is pasted into a photograph of the location. A recent project was priced at \$3,800 for the first photo composition and \$1,100 for each additional composed viewpoint. Ayres Group charges as little as \$5,000 for a simple animation. Complex jobs run up to \$100,000.

But don't expect a happy ending to this story. The outsourcing of digital architectural illustrations is not a booming business. Aside from Ayres Group, the firms surveyed were unanimous in stating that there isn't enough business in architecture to make computer imaging full-time work. The principal of one firm told me, "We are not actively marketing to architects, although we have done work for architects when they find us and we are happy to do it."

To find the happy ending, these firms look elsewhere. Archimage markets to producers, directors, and ad agencies. Simulacra did computer-generated architectural backgrounds for *Batman Forever* (previous pages); the project was so demanding, the hardware required a movie-studio budget, and Alias had to write custom software. Creative Communications takes their experience in architecture and applies it to visualizations for non-architectural clients, such as government agencies and developers. ■

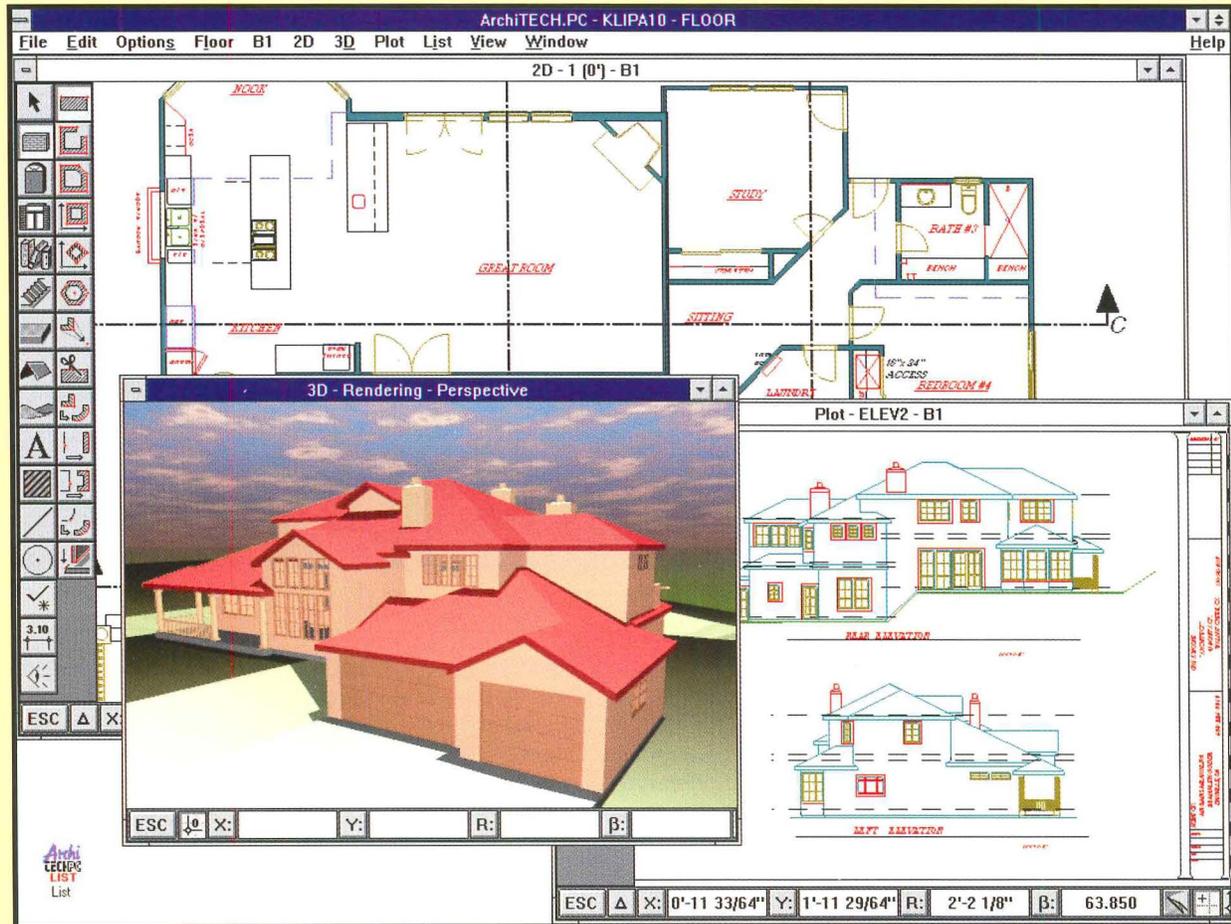
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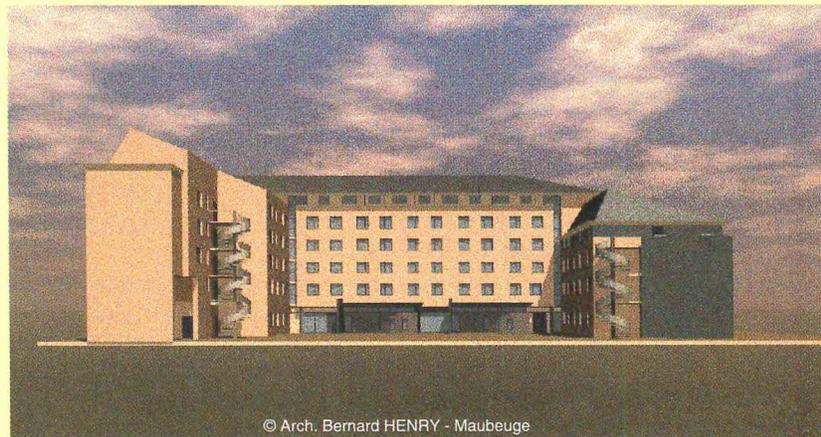
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## Standard Data Gets Data Standards

By Steven S. Ross

As we've been saying for some time, the full promise of computers in architectural practice can only be fulfilled if a wide range of manufacturer and price information is computerized in a standard format. Once that happens, data can be more easily exchanged among various sectors of the construction industry.

The two biggest questions about that computerization—who will handle the job of computerization, and how will it be standardized—were answered in part over the past two months.

Autodesk, the people who bring you AutoCAD, have been near the center of all of

*“Ultimately [The Industry Alliance for Interoperability] will mean that “objects” could work with both major families of CAD software—AutoCAD and MicroStation.”*

developing the standards. With the help of several major information providers—including the Sweet's Group at the McGraw-Hill Companies—Autodesk will be publishing a “Design and Construction Library” of “intelligent” digital data.

Sweet's has been putting vendor material on CD-ROM for some time. In fact, it announced a service to prepare such material for vendors this past June. Autodesk's Data Publishing group started its Mechanical Library last March. That effort was, in many ways, the first example of intelligent digital content for design professionals.

But the architectural world poses far more problems than mechanical engineering—more products by smaller vendors, combined in more ways and under more varied conditions. Thus, Autodesk is cooperating with a range of data publishers that have construction-industry experience.

Sweet's is producing a CD-ROM series for Autodesk's Data Publishing Group that will contain data on building products and equipment, in pre-formatted, dimensioned CAD

files. Sweet's research shows that about a third of all drafting time is spent re-drawing building components and products that have already been selected and specified.

Sweet's has long required that manufacturers put their materials into a standard print format for inclusion in its catalogs. But doing the same for computer formats requires even more cooperation from vendors. The vendors certainly can distribute independently of Sweet's, and many do. But if they don't comply with the Sweet's standards for their details, they may be shut out of many designers' decisions.

R.S. Means, a subsidiary of Southam Construction Information Network, will produce

CD-ROMs that link to AutoCAD, providing what could become the standard way to link objects (doors, windows, wall materials, and so forth) in a drawing with cost data. Again, the potential for increased accuracy and decreased time spent is high. James D'Arezzo, vice president of Autodesk's Data Management Group, estimates, “AEC professionals spend as much as 25 percent of each day documenting design decisions and change orders.” Being able to update costs—if not all costs—instantaneously as changes are contemplated modifies the way design professionals approach the whole process.

Another Southam affiliate, MSA (Manufacturers' Survey Associates, Inc.) is also joining up to produce hvac, plumbing, and electrical-design data for CD-ROM. So is a more traditional publisher, John Wiley & Sons.

Thus, makers of building products and traditional data publishers, rather than software companies, will put all of this in computer form. But the traditional publishers and the product vendors must cooperate with software companies. Otherwise, everything won't work together.

*To realize the full promise of computers in architectural practice, a wide range of manufacturer and price information is finally being computerized in a standard way.*

But will it all work together anyway? And what information should sellers of building products include in their computer files? That has also been answered, in large part by the industry push to standardize computer “objects.”

The Industry Alliance for Interoperability is trying to standardize what information, exactly, a standard object will contain at a minimum—the so-called “industry foundation classes” for such objects as doors and windows. Such information could include materials, colors, weight, and fire ratings as well as dimensions [RECORD, August 1995, pages 32-34]. Autodesk's largest competitor, MicroStation's Bentley, joined the alliance last October. IAI was originally championed by Autodesk, but is now an independent organization.

With Bentley joining the alliance, it will ultimately mean that “objects” could work with both major families of CAD software—AutoCAD and MicroStation. We say “could” because many vendors of add-on software have yet to sign on. Many have, and Bentley's action, along with various data publishers' willingness to bring product manufacturers along, should accelerate the trend. It should also bring many other CAD vendors into the fold.

All this won't happen overnight, of course. In fact, release of the first batch of “foundation classes” was supposed to take place last fall. It is imminent as we go to press. And, although publishers' automated “intelligent” catalogs are released this year, it will be some time before they will be fully compliant with object classes (there won't even be standards for many products this year) and before CAD software will fully interact with the objects.

But the road ahead now looks rather clear—and wide. ■

## Cheap Tools

Here are three graphics packages that won't break the bank, but may make your office more efficient—and your life easier as well.

### Visio Technical 4.0

**Vendor:** Visio Corporation, 520 Pike St., Suite 1800, Seattle, WA 98101, 206/521-4500, fax 206/521-4501, CompuServe GO VISIO, Microsoft Network Visio Forum, <http://www.visio.com>.

**Equipment required:** Computer capable of running Windows 3.1, Windows NT 3.51 or higher, or Windows 95. Full installation takes 30 MB of disk space.

**Cost:** \$249 (street price closer to \$150).

Imagine "drawing" by dragging pre-defined shapes onto the page and connecting them. That's what Visio is all about. When it first appeared in 1992, Visio was aimed more at simple but annoying jobs such as drawing organization charts. With Technical Version 4.0, it becomes a full-featured tool, particularly useful for facilities management, landscaping, HVAC, and other tasks that require repetitive drafting work.

Each shape (Visio 4.0 comes with about 2,000 of them) has data behind it—data that governs its behavior. You can create an unlimited number of new shapes as well, either

from scratch, by modifying old shapes, or by importing drawings or symbols into Visio. AutoCAD symbol libraries can become libraries of Visio shapes.

The data is in what Visio calls a Shape Sheet—there's one for each shape. It can contain formulas to govern the behavior of shapes as you scale them. Thus, you can set up a desk to stretch without getting wider, or a table to get larger without enlarging the associated chairs.

As you might expect, there's full import and export of AutoCAD DXF and DWG (binary) files, as well as IGES and Illustrator. There's import of CorelDraw, Micrografx DRW, and many standard formats such as TIF and PCX. But Visio throws in some tricks as well. You can, for instance, assign the same object to more than one layer in Visio. You can also use a Visio drawing on top of an AutoCAD drawing—for redlining or perhaps to add furniture to an office plan.

By the way, Visio used to call itself Shape-ware—same company, new name.

**Manuals:** On-line for using Visio itself. Printed 420-page manual for developing your

own solutions—by creating new shapes and so forth.

**Ease of use:** Trivial to draw with; creating something as sophisticated as a facilities-management layout requires lots of work. Wide choice of interfaces—you can make it look like Microsoft Office, Novell PerfectOffice, or Lotus SmartSuite.

**Error-trapping:** Excellent.

**101 on Reader Service Card**

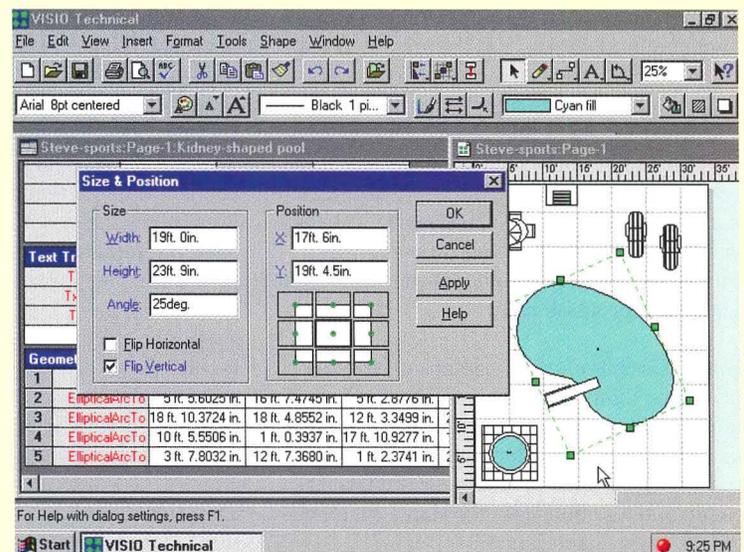
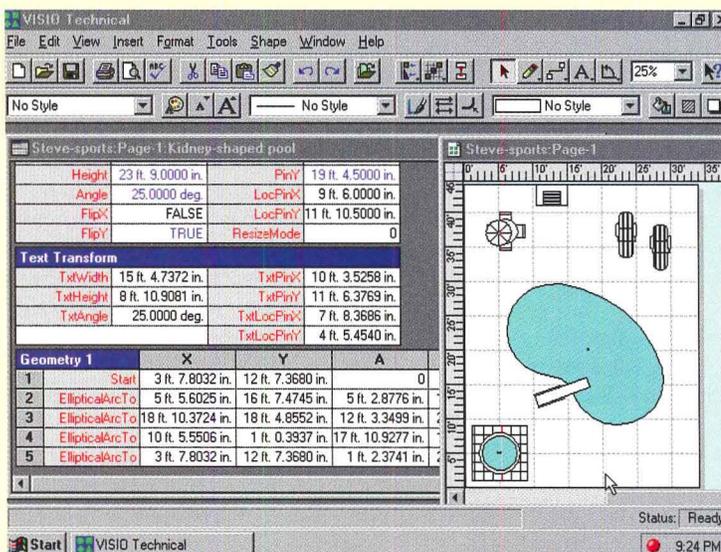
### XCAD 3.0

**Vendor:** Xitron Software Corporation, 1500 Chiquita Center, 250 East Fifth St., Cincinnati, OH 45202. 513/762-7638, fax 513/662-3440, 800/817-8172.

**Equipment required:** Computer capable of running Windows NT or Windows 3.1/3.11. A fully tested 32-bit Windows 95 version should be available by the time this review appears. Pentium processor strongly recommended.

**Price:** \$495; street price about \$420.

Looking for an easy-to-use 3D CAD program with good AutoCAD compatibility? XCAD may be for you. Its major weakness as a 3D sketch tool is that it lacks boolean capability—



**Visio Technical 4.0:** Note the kidney-shaped swimming pool and the underlying "shapesheet." Changing the sheet changes the

image and vice-versa. On-line help is context-sensitive and well written. You can vary the placement of the windows on the

screen as well. The icons in this case are in the same style as Microsoft Office.

you can't use one shape to add to or hollow out another. There's no binary (DWG) import or export in the version we reviewed, but DWG, DXG, and IGES exchange is in the 32-bit version. Many of our users found it a delight to draw with anyway, on fast computers.

You get continuous shading with multiple light sources (LightWorks was added this fall), up to eight viewports (windows) on screen at once, and a command emulator that makes it similar to AutoCAD, MicroStation, or Generic CADD.

XCAD is also being marketed as the drawing engine in others' specialized disk packages. It supports referenced drawings and has good surface-modeling tools (most of the NURBS set). There's a macro-language and a development kit available that can be used to add functionality to XCAD.

**Manuals:** Separate paperbacks for getting started, tutorial, and a detailed user guide/command reference.

**Ease of use:** Excellent 3D interface; slow on an older non-Pentium machine.

**Error-trapping:** Unlimited undo function. You can password-protect a drawing on top of any network administrative scheme; if you

lose the password, there's no "back door" to get back your work.

**102 on Reader Service Card**

## Planix 3D Exterior Designer 1.0

**Equipment required:** Any computer that can run any version of Windows 3.1 or higher. Must have separate math coprocessor if CPU is 386 or 486SX. Display capable of at least 256 colors strongly recommended.

**Vendor:** Softdesk Retail Products, 10725 Ambassador Drive, Kansas City, MO 64153.

**Price:** Street price roughly \$50.

Here's a great (and cheap) tool for "brick and stick" designers to lay out a home, landscape it, and play around with its exterior finish. Actually, it's meant for amateurs—non-architects—but you don't have to tell anyone.

The interface is ingenious. For instance, you lay out your building in plan by adjusting an existing footprint (there are many to choose from) by pulling on its "handles." Each story, and the roof, can have a different footprint to allow overhangs and setbacks.

As you work on each item—plan, elevation, landscaping, roof—placing trim and windows or doors and so forth, Planix automatically groups things into layers for you. The package comes with plenty of symbols—trees and windows, for instance—and allows you to create or add more. When you want to visualize the results, click on "render" to get an image.

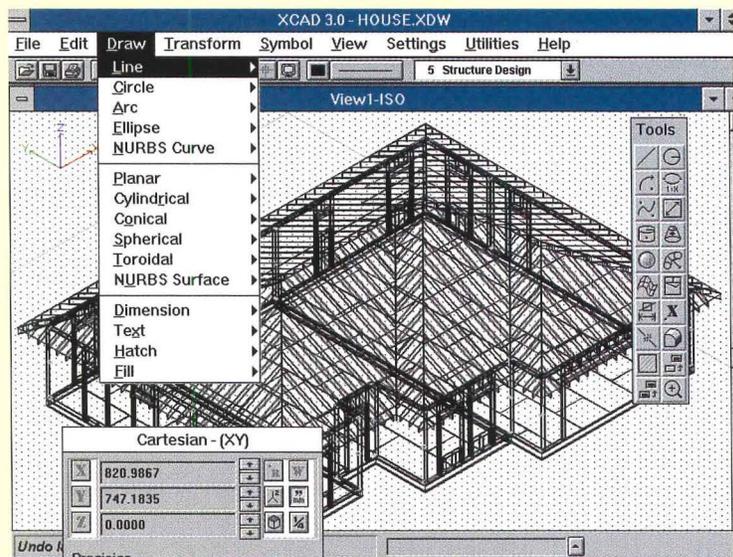
The underlying software engine is Drafix, one of the first and best Windows-based CAD packages. (Softdesk's retail division was Foresight, Drafix's developer.) But you can't directly save into an AutoCAD- or MicroStation-compatible file format. Files can be saved as bitmaps, or for Planix Home 3D (it does the interiors). That's the only real drawback.

**Manuals:** Straightforward 55-page reference and tutorial.

**Ease of use:** Trivial. Fun. You won't break the training budget on this one.

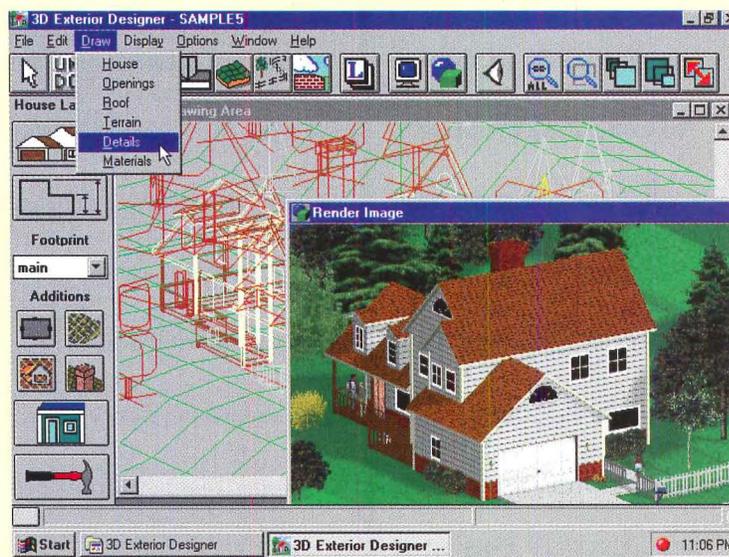
**Error-trapping:** You can place the wrong thing in the wrong place, but fixing it is a snap. You can also place a misleading filename extension on a filename.

**103 on Reader Service Card**



**XCAD 3.0:** There's a full range of 3D as well as 2D drawing, dimensioning, and shading tools. You can use the "Carte-

sian" window to change the view-point or to bring a 2D plane into the same orientation as the screen for easy editing.



**Planix 3D Exterior: Designer 1.0** Wireframe and rendered version of house.

# house beautiful

# Architecture Award

In celebration of its 100th anniversary in 1996, House Beautiful magazine announces a Centennial Award to recognize outstanding residential architecture in the United States. The winning entry will be selected by a jury on the basis of design excellence, creativity, appropriateness, and quality. The winning design will be featured in the centennial issue of House Beautiful. An award of \$20,000 will be presented to the architect of the project.

## JUDGING

The jury will meet in May 1996 and a formal public announcement of the winner will be made prior to the publication of the award-winning project in House Beautiful. The cash award will be part of a presentation ceremony in the fall of 1996.

## JURY

Walter Chatham *President of the Architectural League of New York, Principal, Walter Chatham & Associates* Deborah Dietsch *Editor in Chief, Architecture magazine* Frances Halsband *Partner, R.M. Kliment & Frances Halsband Architects* Donlyn Lyndon *Architect, Writer, and Professor, University of California, Berkeley* Terence Riley *Chief Curator, Architecture and Design, Museum of Modern Art* Louis Oliver Gropp *Editor in Chief, House Beautiful*

## DEADLINE

## AND RULES

Entries must be postmarked by April 30, 1996. If delivered, entries must arrive at House Beautiful at the street address below no later than 5 P.M. that day. Address entries to: Centennial Award, House Beautiful, 1700 Broadway, 29th floor, New York, N.Y. 10019. House Beautiful is not responsible for late, lost, or misdirected mail. Entry fee is subject to state regulations and prohibitions. All taxes related to cash awards are the responsibility of the winner.

## ELIGIBILITY REQUIREMENTS

- Unpublished residential projects completed in the United States during the two years prior to the entry deadline are eligible.
- Projects may include renovations, reused spaces, apartments and houses, as long as major living spaces are involved.
- All work must be completed and occupied by the residents by the date of submission.
- The designer's and the client's written approval and permission to photograph the residence must accompany each submission. The designer and the client may be the same person.
- The design work must have been performed by professionals with active practices. The practices need not be located in the United States.
- Any entrant who has a current professional connection to one of the jurors is ineligible.
- The jury's decision is contingent upon eligibility being established. House Beautiful reserves the sole right to determine a project's eligibility.

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<sup>1</sup> An independent test performed by Robert Martin of Value Engineering Associates comparing PowerArchitect and AutoCAD Release 13 to generate the same typical commercial architectural drawing. The same method of construction was used for both, as if the operator were at the same level of proficiency in both packages.

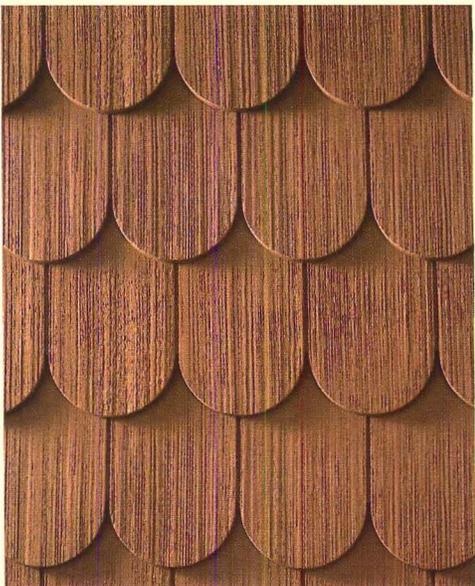
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## On the Outside

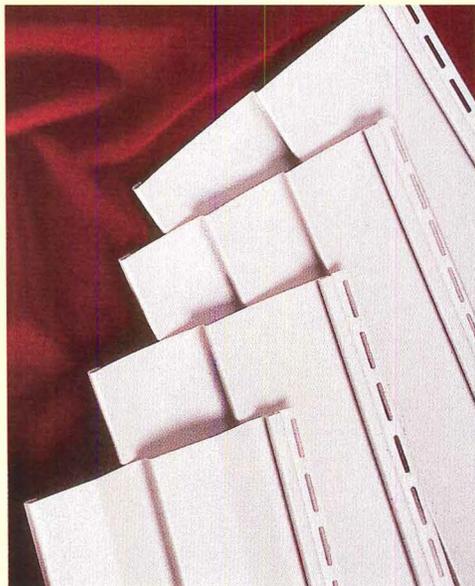
*Clapboard and shingles clad many homes in America. Both plastic and natural-wood products can offer excellent appearance and long-term performance if properly selected and installed.*



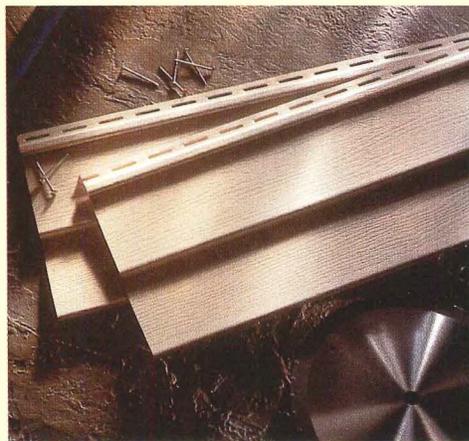
104



106



105



107



108

According to the Vinyl Siding Institute, a division of the Society of the Plastics Industry, vinyl is now the most popular siding choice for residential exteriors, including multifamily projects and condominiums. By 1993, PVC had 44 percent of this market, compared to 39 percent for wood, 14 percent for masonry, and 3 percent for "other." Today's plastic with UV inhibitors represents more sophisticated chemistry than earlier pretty-much-just-white siding. Achieving UV stabilization has expanded the palette to include deep tones and authentic historic colors; elements such as door lintels and dentil moldings enable the designer to create a detailed facade using vinyl accessories.

### Correct installation is key

Rigid PVC siding must conform to the dimensional and other characteristics required by ASTM 3679; color change over the life of the siding should be within this standard's color-hold guidelines.

The main concern of a vinyl-siding installation should be to fasten the panels as described in *Rigid Vinyl Siding—Application Instructions*: nails must be spaced correctly and centered in the slots; nailheads must not embed and restrict the thermal movement of the panel, anticipated to be about 1/4-in. over a 12-ft length. Siding must be able to expand and contract or it will buckle. Siding distortion from improper nailing is the most common complaint brought to the Institute, says Rich Gottwald, technical director.

Over and above the dimensional and color-retention standards compelled by ASTM D-3679, there is a wide number of surface grain pattern and gloss options, panel profiles, and coordinating accessories for the architect to choose from. We show five new product lines here.

**104. Half-round shingles.** A new pattern in this maker's Cedar Impressions line, half-round shingles are made in molds cast directly from hand-cut cedar pieces. While made of polypropylene to better mimic the texture of the wood original, the shingles come in seven colors designed to work with vinyl siding products and trims. Shingles are furnished as a 34-in. double-course panel with interlocking

104. Cedar Impressions shingles; Certain Teed Corporation

105. Satin Ensemble siding, Heartland Building Products

106. Woodgrained Waterford vinyl, ABTco., Inc., Siding Division

107. Transitions vinyl, Owens-Corning Corp.

108. American Legend, Wolverine Technologies.

side tabs said to provide a seamless appearance when installed; these and others of this maker's siding products have been successfully wind-tested at 180 mph. 800/233-8990. CertainTeed Corp., Siding Division, Vinyl Building Products Group, Valley Forge, Pa.

**105. Long-lasting colors.** Heartland guarantees its Satin Ensemble vinyl siding to exhibit color retention well above ASTM requirements. Available in nine colors ranging from white and pastels to darker clay, sage, and gray tones, siding comes in the four profiles shown: double 4-in., double 5-in., double 4-in. Dutch lap, and a triple 3-in. exposure. An architectural specification binder and color fandecks sample siding, soffit, trim, and Sherwin-Williams paint colors designed to work together. 800/328-7864. Heartland Building Products, Booneville, Miss.

**106. Realistic texture.** Waterford, a new siding produced by a recently acquired Canadian subsidiary of ABT Building Products, incorporates a fairly subtle woodgrain embossing. Siding comes in 10 colors with matching accessories, facings, and shutters. Profiles include double 4- and 5-in. and a double-4-in. Dutchlap. 800/265-9829. ABTco., Inc., Siding Division, Roaring River, N.C.

**107. Bigger product mix.** Expanding its range of product for the residential/multifamily market, Owens-Corning offers Transitions vinyl siding, with a smooth-grained surface said to resemble painted wood. The product comes in eight colors and three styles, including the double 4-inch lap shown. 800/GET-PINK. Owens-Corning, Toledo, Ohio.

**108. Positive lock.** Wolverine's new siding, American Legend, has a 90-deg face, and more-secure edge design that snaps panels together horizontally. This increased stiffness helps keep siding straight during installation. The vinyl's surface is described as a "soft" woodgrain, available in nine colors; "Cream" is shown on the house. An *Exterior Design System* for architects illustrates coordinating siding, trim, and accessories; an *Idea Book* includes before-and-after photos to demonstrate how siding can be "historically correct." 800/452-2152. Wolverine Technologies, Livonia, Mich. ■

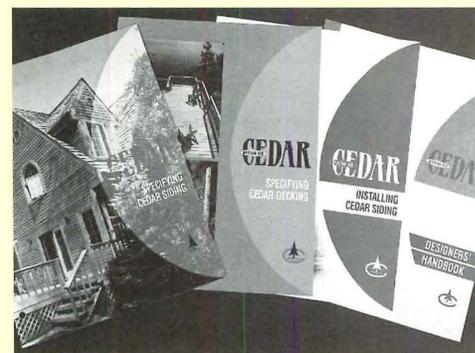
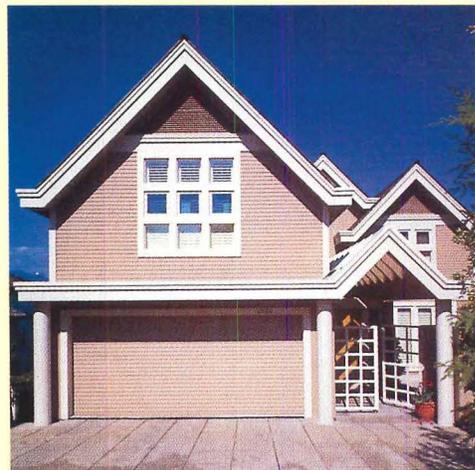
## Specifications Revised for Red-Cedar Sidings

Siding made of western red-cedar lumber is a premium architectural product. Correctly selected, installed, and finished, there is no reason cedar siding should not remain weatherproof and attractive for decades. And its physical characteristics permit a range of versatile architectural applications not possible with other materials. For example, architect Paul Grant was able to apply bevel-edge cedar siding to garage doors, to tie them into the house itself (top, right).

To make sure that cedar achieves its full potential, an industry group (whose members are the major sources of red-cedar lumber in the U.S. and Canada) has published new guidelines for architects, trying to take some of the mystery out of using cedar as an exterior siding and to reflect current thinking on appropriate wood grades, attachment methods, and finishing options (bottom, right).

**Specification.** It's important to be able to evaluate different cedar sidings accurately, to select the most appropriate and economical grade for the esthetic desired: will the siding have a clear, natural finish, weathering over time? Will it be painted or stained? The Association's Specification Guide includes good color photos that provide a realistic look at the different grades of cedar and demonstrate their relative differences. Tables for each siding type—bevel, patterned tongue and groove and lap siding, and vertically oriented board-and-batten—list the information needed to insure that the wood specified matches the intended end use. Criteria:

- *Pattern.* For example, plain bevel, rabbeted bevel, or wavy edge bevel.
- *Nominal size.* Thickness and Width.
- *Quantities.* Coverage tables translate different exposures into a surface measure for calculating linear feet needed.
- *Grade.* For bevel siding, these would include Clear Vertical-Grain Heartwood, A Clear, Rustic, B Clear, Select Knotty, and Quality Knotty.
- *Grading agency paragraph.* The appropriate rule to reference each siding.
- *Surface to be exposed.* Designation of either smooth face or sawn should anticipate the finish to be applied: paint on smooth, clear or



opaque stain on rough-sawn surfaces.

- *Moisture content.* Kiln-dried or green.

**Installation.** The two most-common mistakes in putting up siding are not nailing to a sufficient base—fasteners must penetrate into a solid-wood stud—and using the wrong nail. Choose hot-dipped galvanized, aluminum, or stainless-steel nails only; stainless-steel is the best choice, especially if the siding is to be finished with transparent or semi-transparent stain. Make sure that the nail length accounts for sheathing thickness.

**Finishing.** The Association strongly recommends back priming all siding, and feels that the performance and appearance expectations architects have of cedar are better met with a coating appropriate to the look desired, whether paint, semi- or opaque stain, or a clear or weathering finish. 604/684-0266. Western Red Cedar Lumber Association, Vancouver, British Columbia. *Circle 109* ■



### 110. Compliant signage

Made of zinc- or magnesium-based metals for interior applications, new SignEtch plaques can convey wayfinding directions in tactile and Braille lettering with good depth and definition. Signs are finished with an acrylic urethane available in standard and custom colors and natural metal tones; unetched surface areas have a brushed texture. 800/ASI-SPEC. ASI Sign Systems, Inc., Dallas.



### 114. Not just for health care

The Nightingale Product Design Award this year went to the Super-Sling elastomeric-fabric technology incorporated in the "De-Stressor" chair. Developed with Milliken and Hoechst-Celaneso, the material provides even support, looks like regular upholstery, is sponge-wipeable, stain- and disinfectant resistant, and won't abrade skin. 213/752-0101. ADD Specialized Seating, Los Angeles.



### 111. OSB spec guide

A free two-diskette Windows-based tutorial, SpecRite helps architects, builders, and building officials specify structural panels made of oriented-strand board, illustrating such code-approved OSB applications as wall and roof sheathing, subfloors, structural insulated panels, and I-joists. Text can be exported to construction documents. 218/829-3055. Structural Board Association, Willowdale, Ont.



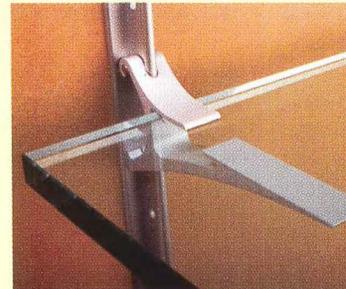
### 115. Engineered woodgrain

A multilaminar wood veneer for use on walls, doors, furniture, and cabinetry, Ligna postformable laminate mimics exotic woods and burls but is made from plantation-grown trees. Metallic patterns, pictured, have "gold" veins in cathedral-grained oak; finish options include polyurethane, natural, and melamine. Zip-Chip samples available. 800/FORMICA. Formica Corp., Cincinnati.



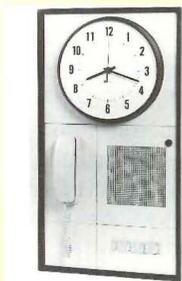
### 112. Flexible-rail lighting

Sirius is a versatile low-voltage system for task, accent, and decorative lighting. Connectors let bendable-track segments turn corners or radiate outward from a central hub; stems and cables permit vertical or horizontal mounting. Fixtures made of polished chrome or gold-plated metal hold frosted-glass cones, cylinders, and accent discs. 708/559-5500. Con-Tech Lighting, Northbrook, Ill.



### 116. Shelving system

Ellen's Brackets, a system of anodized-aluminum shelf holders and track designed by M. Ali Tayar, allows flexible placement of wood, glass, or plexiglass shelves. The simple, cantilevered brackets come in two sizes, for shelves 3/4 and 3/8-in. thick and 10-in. deep. Tracks permit 1 1/2-in. vertical adjustment of each shelf. 212/989-4959. Parallel Design Partnership Ltd., New York City.



### 113. Classroom communication

A compact enclosure that fits into a space one block wide by three blocks high, the 2333 classroom panel combines clock, intercom speaker, telephone, modular jacks, and lighting controls in a single, easy-to-install unit. Components—clock, phone—are modular and wired separately. Mounting hardware is concealed, and the panel door locks. 508/632-2500. Simplex, Gardner, Mass.



### 117. Vented curtainwall

A new operable-vent configuration for this maker's CW-250 curtain wall is identical in outward appearance to fixed glazing, blending into the surrounding transoms. Vent sections are available with shallow and deep mullions, and come in a top-hinged/project-out style that accepts 1-in. insulating glass. A single-lever, multi-point lock may be specified. Vistawall Architectural Projects, Terrell, Tex.

## Short Takes

### Tender offers.

- The Sherwin-Williams Co., Cleveland, is acquiring Pratt & Lambert United, Inc., of Buffalo, a paint brand started in 1849. The \$35/share tender represents a \$400-million purchase.
- GAF Corporation, Wayne, N.J., will buy all outstanding shares of U.S. Intec, a manufacturer of bituminous roofing based in Port Arthur, Tex.
- Kohler Co., Wisconsin, has purchased Robern, Inc., a maker of upscale bath cabinets, mirrors, and vanity lighting in Bensalem, Pa.

**Blast.** To promote the advantages of specifying glass with a plastic interlayer, the Laminated Glass Association has established a web site, accessible at <http://lgic.glass-info.com>. Video clips of a recent test bombing will be used to demonstrate the security benefits claimed. An e-mail address, [lgic@glass-info.com](mailto:lgic@glass-info.com), is available for project-specific queries.

**Not a whiff.** The American Plywood Association (recently renamed as *APA-The Engineered Wood Associ-*

*ation*) has published a report that highlights the difference in offgassing potential between the waterproof, phenol-formaldehyde adhesives used in such wood-panel products as oriented-strand board, softwood plywoods, and structural composite panels, and the urea-formaldehyde adhesives sometimes associated with poor indoor-air quality. Copies of the report, SPE-104b, are free from the Association, PO Box 11700, Tacoma, Wash.; 206/565-6600, x186. ■

Trying, as correspondent Beth Dunlop reports, to turn “fiction into fact,” the Walt Disney Company has embarked on an ambitious program to invent a town that resembles one of its own moving-picture fantasies of American small-town life—Norman Rockwell writ large. Located near Orlando, Florida, and that ultimate destination spot, Walt Disney World, the feel-good-named town of Celebration is literally on the rise, with a master plan by Robert A.M. Stern Architects and Cooper Robertson & Partners and major downtown buildings by an all star-cast of architects: a Whitman’s Sampler of design (pages 64-69). The first completed project in Celebration is an office complex by Aldo Rossi of Italy, his first building in the U.S. (pages 56-63).

While the impressive array of planners and architects has tackled issues of modest-price housing in Celebration, this month’s Building Types Study (Number 733) on affordable housing presents an even tougher reality, where amenity, cost-efficiency, and design sensitivity are in a constant three-way tug-of-war (pages 86-95).

Sensitivity to an existing and beloved historical context—one that, as Aaron Betsky writes, is “an inspired merger of monastery and Mission Style”—is a recurring theme on the growing campus of Stanford University and one that San Francisco firm Tanner Leddy Maytum Stacy managed to address while producing a truly Modern addition to the school’s engineering department (pages 70-75), also paving the way for Norman Foster’s competition win of a medical building last month. The evolution of a different kind of campus has been the long-time preoccupation of French architect Paul Andreu, who for 30 years has helped guide the development and expansion of the Charles de Gaulle airport outside Paris (pages 76-85). His goal has been to avoid what he calls “the tendency in Modern architecture for a building to have just one unifying concept.” *Karen D. Stein*

*Manufacturers’ Sources  
listed on page 96*

# Place Making



*Aldo Rossi gives monumental presence to Disney's development company, creator of the new Florida town of Celebration.*

*Celebration Place  
Celebration, Florida  
Aldo Rossi/Studio di Architettura, Architect  
Smallwood, Reynolds, Steward, Stewart &  
Associates, Associate Architect*



Central Florida's flat sawgrass-rimmed landscape in no way suggests the Italian town of Pisa, except to the mind of Aldo Rossi, whose leap of imagination has linked them in spirit, giving this instant town an instant landmark. The plan of Rossi's office complex, the first project to be built in the Walt Disney Company-sponsored new town of Celebration, was inspired by Pisa's main square, the *Piazza dei Miracoli* or "square of miracles," a green lawn punctuated by a sculptural mix of buildings. Rossi says the reference makes a connection between his project and "a sense of the infinite within history and nature." While only the first phase of Rossi's scheme is now complete—two contiguous buildings and a garden pavilion that temporarily occupies the site of a proposed third office block—already there's a *there* in a place that Rossi's American partner Morris Adjmi aptly calls "the middle of nowhere."

Rossi, author of the famed *The Architecture of the City*, has succeeded in injecting an urbane presence into the sprawl of highways and strip-shopping malls that surround Celebration, a satellite of Orlando and that ultimate destination, Walt Disney World. While Rossi's reputation as an ivory-tower academic might seem at odds with profit-driven Disney, his architecture proves that theorist and practitioner can co-exist. Rossi's simple but powerful forms are an artful combination of lucid and familiar shapes, are easy to build, and, given the correct choice of materials, inexpensive. (Rossi's popularity among practitioners and students of architecture in this country would suggest that his first project in the United States would be an academic institution. The economy said otherwise: Rossi's 1986 design of the School of Architecture at the University of Miami remains unbuilt for lack of funding.)

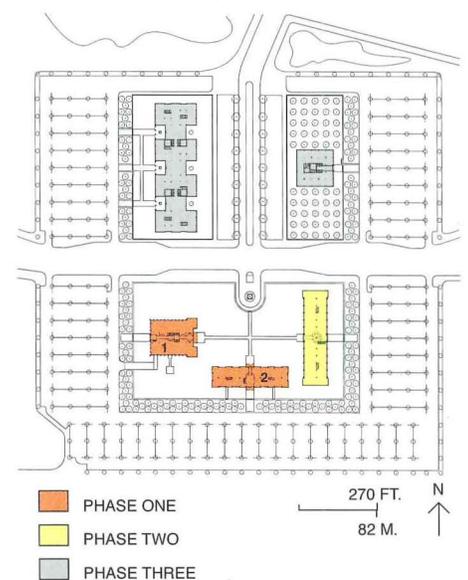
For many architects who seek to work at a scale equal to their ambitious vision, Disney, with its deep pockets and the rare inclination to invest in architecture, has become an accepted, if not coveted client. Nonetheless, Rossi's first collaboration with the company, a competition entry for the first phase of the Euro Disney amusement park and resort in 1988, did not yield built results. Rossi's interest in American vernacular styles seemed to dovetail nicely with the company's mandate for themed entertainment. During design development of the Hotel New Orleans, however, Rossi balked at a process that ranked the architect somewhere amidst consultants and efficiency experts. The parting was amicable. Three years later, an office building, with its more obvious program requirements and straightforward floorplates, reunited client and architect in their traditional roles.

Though Rossi was unaware of the specific plans for Celebration as his project began [see the article that follows for an overview of Celebration], his complex, located just south of a highway, has proved to be an effective billboard of sorts for the town that is sprouting up just beyond the confines of his 30-acre site. The two buildings, with their giant-scale column grids and hefty cornice lines, convey a seriousness of purpose ideally suited to a \$2.5-billion development that Disney hopes will serve as a model for future new towns. The buildings are also an apt symbol for a principal tenant, the Disney Development Company, which, led by its president Peter Rummell and chief architect Wing Chao, has invested millions on famous and not-so-famous architects and continues to commission projects at a prodigious rate, banking on architecture as a sellable attraction. For Rossi the commission has a more poetic connotation: "I've come to understand the vastness of America." *Karen D. Stein*

## Up Close

*Planning for the future.* Aldo Rossi's master plan for the Celebration Place office complex (drawing below) calls for replacing the demountable garden pavilion or "folly" (at left in photo opposite bottom) with a bar-like building that completes the U-shaped ring of the first phase. Eventually, two structures will be added across the street—a total of five buildings on a grassy plain criss-crossed by pedestrian walkways and surrounded by parking lots. Rossi and the New York City outpost of his Milan-based Studio di Architettura studied several planning and massing scenarios, including a scheme to locate the office blocks atop a shared parking base, an approach that would have enhanced the monumentality of the complex.

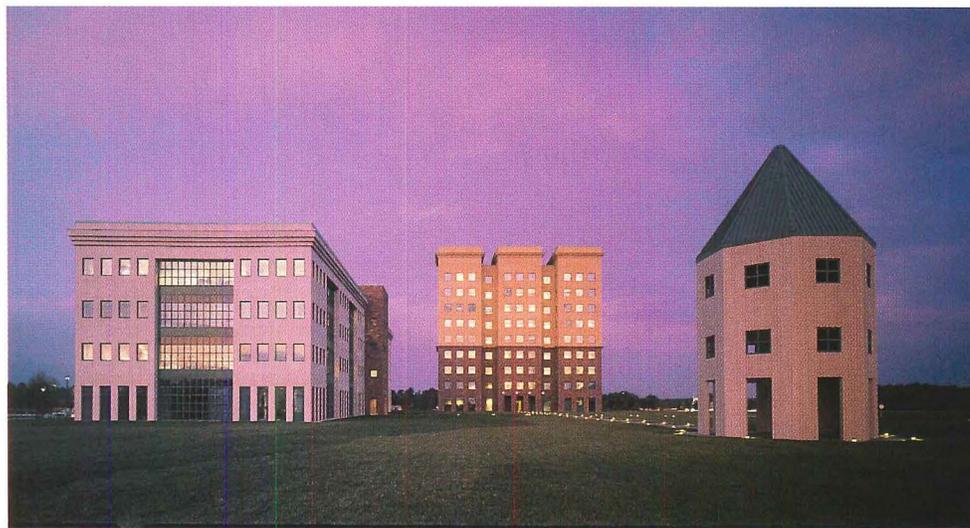
While Rossi favored the plinth in other projects he was developing at the time—the Hotel Il Palazzo in Fukuoka, Japan [RECORD, May 1990, pages 70-78], and the still unbuilt School of Architecture at the University of Miami—the cost of subterranean construction was out of line with the modest Disney budget. (The two completed buildings came in at \$65 per square foot for the shells and lobbies. Associate architect Smallwood, Reynolds, Stewart, Stewart & Associates did the interiors.) Other proposals discarded after closer scrutiny, reports Rossi's partner Morris Adjmi, include adding a road on axis into the courtyard. "Too rigid," says Adjmi.



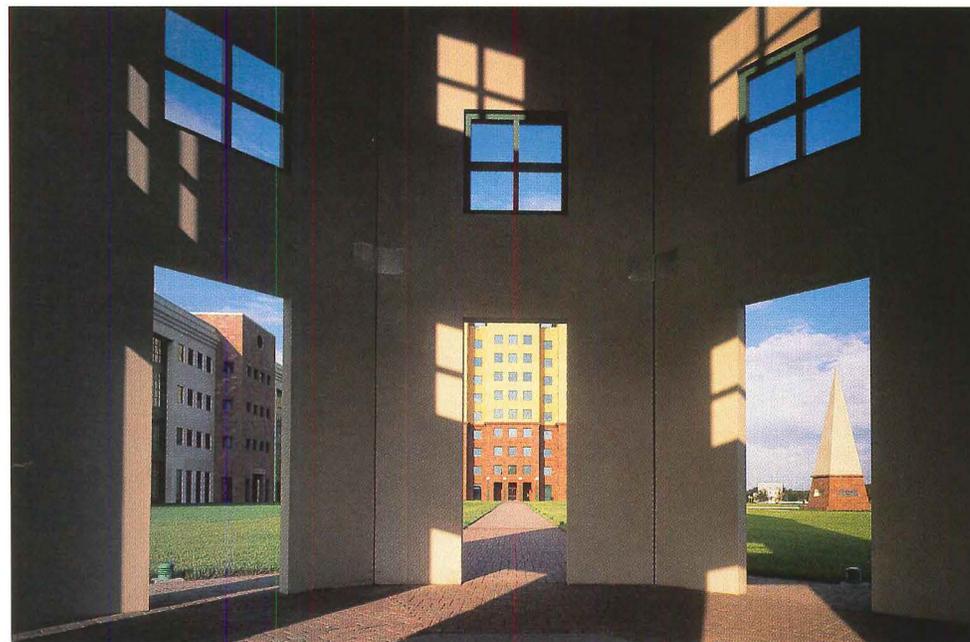




The complex occupies a 30-acre parcel south of highway 192 leading to Orlando and consists of the 180,000-square-foot 200 Celebration Place (opposite, top left, and center of middle photo), used as headquarters for the Disney Development Company (DDC), and the 60,000-square-foot 210 Celebration Place (at left in middle photo), which combines Disney offices with leasable space. A garden pavilion (bottom left), sits on the site of a future office block.



Building materials for the DDC headquarters include white-painted precast concrete columns that frame a curtain-wall and a frontispiece of yellow-tinted precast concrete panels atop a base of ruddy Colorado sandstone. The second building is a combination of precast concrete panels, an aluminum curtain wall, and sandstone accents. Osceola County code required protection against excessive heat gain and glare; a green-tinted glass with a reflective coating was used.



The aluminum roof of the three-story pre-cast concrete panel garden "folly," as the architects call it, was built in sections so the entire structure could be dismantled and moved to another location when the second phase of construction begins.





Each lobby has a central gathering place that leads via elevators to straightforward floorplates of offices and support spaces. Lobby finishes include Venetian tinted stucco, marble floors, cherry panels, and stainless steel.

**Credits**

*Celebration Place*

*Celebration, Florida*

**Owner:** *Disney Development Company*

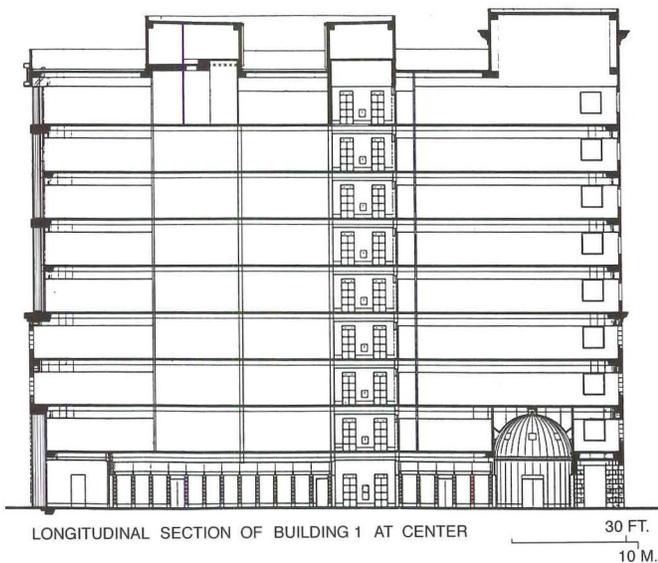
**Architect:** *Aldo Rossi/Studio di Architettura—Aldo Rossi, Morris Adjmi, partners-in-charge; Wesley Wolfe, Erin Shilliday, project architects; David Kang, Jan Greben, Joshua Davis, project team*

**Associate Architect/Interior Designer:** *Smallwood, Reynolds, Stewart, Stewart & Associates—Michael Benning, principal-in-charge; William Shulman, Gerald Richrath, project architects; Wendy Mansfield, project manager/interiors; Jack Pruitt project designer/interiors*

**Engineers:** *Walter P. Moore & Associates (structural); Brady & Angun (mechanical); Dyer, Riddle, Mills & Precourt (civil)*

**Consultants:** *Canin Associates (landscape); Robert J. Laughlin & Associates (lighting)*

**General Contractor:** *Beers Construction Co.*





# Designs on the Future

On the sunny Saturday last November, a crowd gathered under a vast tent for an afternoon's entertainment. It wasn't a circus or a concert, but a lottery drawing to determine who would be eligible to buy into the Walt Disney Company's new town, Celebration. Among the hopefuls, interestingly enough, were several top officials of the Disney Development Corporation (DDC). They had to take their chances just like everyone else; more than 3,500 potential home-buyers were vying for one of Celebration's first 300 houses or apartments.

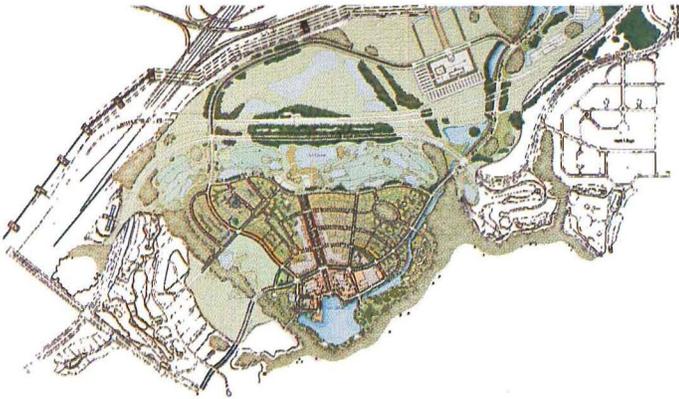
Neo-traditional towns have been an important area of design and inquiry among architects for the last decade. The first of these—notably, Seaside, Florida; Kentlands, Maryland; and Laguna West, California—have garnered their share of critical and popular admiration. Now Disney is building one of its own. Despite its somewhat frivolous-sounding name, Celebration is a serious effort to grapple with ideas about the nature and future of neighborhood, community, and town planning; and it is also an effort to show that new development can be accountable to environmental and ecological concerns. It is to be, in the words of DDC vice president for community development, Don Killoren, “sustainable and holistic.”

Celebration reflects its creators' aspirations. Disney CEO Michael Eisner hopes that it will provide a “prototype for the millennium” by offering quality of life and intellectual content in addition to practical conveniences. Eisner pins great hopes on the school—a public experimental kindergarten through twelfth-grade institution that incorporates a teacher-training academy—as a way to set the town apart. For his part, DDC president Peter Rummell wants Celebration to change the perception of the company as a pure entertainment conglomerate: “It's going to be a place that deals with real-world issues and real-world problems, but deals with them in a relevant way.”

## A place called Celebration

Celebration sits just outside of the sprawling acreage known as Walt Disney World, near Orlando, Florida. Before embarking on this project, DDC got the site formally removed from the Reedy Creek Improvement District (which provides everything ranging from electric power to police protection to the Magic Kingdom, Epcot, MGM Studios, the water attractions, the offices, the shopping complexes, and the hotels). Celebration isn't part of that Disney domain; instead, it is in Osceola County, which will provide public services from sewers to schools. To build the town, Disney received the most comprehensive development permit the state of Florida had ever issued, says Tom Lewis, DDC's vice president for development.

Eventually, the town will have 8,000 houses compactly arranged around a “downtown” and more expected Florida-style amenities, such as a golf course and tennis courts; Disney is spending approximately \$100 million on infrastructure and development. Celebration encompasses just about 10,000 acres, but of that only half is buildable. The rest is protected wetlands, and home to numerous protected animal and plant species. The town will have eight miles of trails for hiking or biking, a model school with the latest in educational equipment, and a “health campus” that is both fitness center and hospital. It already has its own zip code, Celebration, Florida, 34747.



© Smith Aerial Photography

A recent aerial photograph (above) shows downtown Celebration under construction. The new town is located near Walt Disney World and much of the surrounding area has already been developed. Celebration, however, includes protected wetlands, which will give the town a permanent greenbelt (see master plan top). Distinctive natural characteristics such as water and trees define neighborhoods. The health campus is located at the top, north edge of town; Aldo Rossi's office complex is to the northeast.

All images in this article ©The Walt Disney Company

*"The combination of celebrated architects with the less well-known (and the corresponding combination of instant landmarks with modest vernacular buildings) makes [Disney's new] town kind of a Columbus, Indiana, meets Columbus, Georgia," writes Beth Dunlop.*

### **In the role of master-planners**

Celebration's chief architects are Robert A.M. Stern and Jaquelin Robertson, who not only created the town plan, but are also carefully nurturing it into being. The plan itself is derived from a number of small-town sources, but it is also adapted to its boggy tropical terrain. It springs, too, from a number of philosophical and pragmatic ideas about American town planning, from the sequence of spaces to the role of the backyard. Stern, who, not incidentally, is also a member of the company's board of directors, and Robertson are shepherding this town into being with such thoroughness that they have even had a hand in the design of the light fixtures and street signs to be sure they "say Celebration," at least symbolically.

Their design for Celebration is not, its authors say, "ideological," but rather based on the idea that the best American towns are also, in Robertson's words, "places people love to go to." Of course, Walt Disney World is the most-visited place in the known universe, so Celebration has a head start. To begin with, 27,000 visitors stopped in at the cleverly designed information center (by the graphics and design firm, Pentagram) within the first three months it was open.

### **Crossbreeding, Celebration-style**

The town will have compact neighborhoods and house designs drawn from a host of recast historicist Southern regional styles. Robertson terms this "the crossbreeding of architecture styles in America." Modernism is noticeably absent; Stern and Robertson believe that American small towns lost their vitality after World War II. Maintains Robertson: "Celebration is really a kind of a testimony to that crossbreeding and our kind of editing and selection of those town settings that we thought were most successful and most emblematic."

Celebration also boasts an exclusive, marquee-level cast of architects. The plan from Stern and Robertson had early contributions by Duany and Plater-Zyberk Architects, and Gwathmey Siegel and Associates. The town hall was designed by Philip Johnson. Next door will be a post office by Michael Graves. Robert Venturi and Denise Scott Brown are designing the bank; Cesar Pelli & Associates, the cinema, and Graham Gund, a hotel. William Rawn has designed Celebration's model school. The late Charles Moore designed the town's "preview center," and it is to be built posthumously. Robertson's firm, Cooper Robertson & Partners, is designing the town's golf clubhouse.

Celebration's only completed structures—an office complex to house DDC, among other tenants—were designed by Aldo Rossi [see previous article]. Adjacent to the Rossi complex will be the health campus, which Stern is designing. Stern and Robertson have each developed a number of other town buildings, but the houses themselves will be done by many regional architects, among them Derrick Smith and Lidia Abella of Miami; McCall and Turner of Moultrie, Ga.; John Robbins of Oxford, Miss.; Al Jones of Baton Rouge; Historic Concepts, Inc. of Peachtree City, Ga.; and UDA of Pittsburgh. The combination of celebrated architects with the less well-known (and the corresponding combination of instant landmarks with modest vernacular buildings) makes the town itself kind of a Columbus, Indiana, meets Columbus, Georgia.

## **The Masterplan**

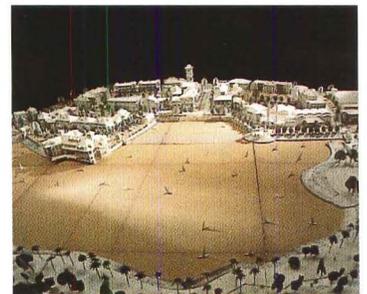
Celebration's town plan is both defined and circumscribed by natural conditions. Roughly half of its 10,000 acres is protected wetlands, which creates a greenbelt and allows for uninterrupted vistas through the trees.

The plan focuses on a new lake, part of a system of canals and waterways that provides for storm-water runoff and gives the town a visual focal point. The town center nests along the lake-front, and the residential neighborhoods fan out from there. In Celebration's first phase of construction, everyone will be within walking distance of the shops and restaurants.

A strongly hierarchical road system gives further definition: broad boulevards; narrower, winding roads; straight streets; back alleys; pedestrian walkways; and bicycle paths. At the periphery is Golfpark Drive, with houses on one side and rolling greens on the other—a device both esthetic and democratic in intent. Leaving the golf course accessible gives Celebration a strongly defined open space so everyone—not just a privileged few who can afford adjacent houses—gets the view. Another

bold gesture in the plan is the broad boulevard that cuts a swath through Celebration and is intended as the town's promenade. It is Water Street, a reference to the stream that will run through its median strip. (Celebration had to take street names that were not already in use in Osceola County, which was no small task in the generally cutesy world that is Orlando and its vicinity. Most were already in use, leaving the rather old-fashioned Sycamore, Honeysuckle, Elderberry, and Mulberry.)

Each residential neighborhood focuses on a special spatial feature: a circle, a square, a protected strand of trees, or the waterway. These features, in turn, give shape and character to their neighborhoods and, say the architects, definition and subtlety to the plan.



Instant landmarks in Celebration's downtown include (from top to bottom): the town hall by Philip Johnson (1); the post office by Michael Graves (2); and the bank by Venturi, Scott Brown & Associates (3). The buildings are under construction.



1



2



3

### Celebration celebrates what its architects know best

From the beginning, Stern and Robertson were mindful of the admonition that architects, like writers, are at their best when their work is based on what they know. Both Stern and Robertson, as New Yorkers, also have weekend homes in the Long Island beach town of Easthampton, a place that they both admire greatly. "Easthampton seemed to Robert and me to have almost all of the touchstones of early American urbanism in its earliest phases and yet every practical issue was addressed in the plan," said Robertson, convenience of observation notwithstanding.

Disney's in-house architects, as well as Ray Gindroz from UDA and Stern and Robertson, in fact did visit numerous early American towns, many of them in the South, as part of the extensive research done for Celebration over the past decade. One young DDC employee—armed with a recent master's in architecture and a camera—was sent off to photograph every appealing building or public space he could find in historic towns in the Southeast.

Still, unlike early American town builders, Disney had a host of regulatory issues as well as environmental and ecological considerations to grapple with, from the preservation of wetlands that are home to such threatened or endangered species as the American bald eagle and the Florida gopher tortoise to the saving of what Stern termed the "significant trees" on the site. The saved trees gave the plan additional shape. In one spot, houses circle a cluster of trees left in place as a natural landmark. Each of Celebration's neighborhoods, in fact, revolves around what Stern terms a "significant public space."

### Charming and car-friendly

Some of those public spaces—in the downtown, for example—are fully hospitable to cars. Unlike many quaint 19th-century towns with narrow, cobbled roads, Celebration's streets are engineered to accommodate automobiles. Its neighborhoods are precisely arranged to offer walking distances (between homes and shops, homes and school), a recognition of a late 20th-century suburban culture in which people drive to the health club to walk on a treadmill or take the elevator up to climb on the stair master. "While we're all interested in traditional towns," says Stern, "this is a representation of that search to recapture the traditional town. We are all very mindful that this is being built at the end of the 20th century, so the town is traditional in spirit but modern in terms of what we know about how people live."

Thus, though outwardly Celebration will rely on a host of architectural and symbolic gestures to the past, signs of being high-tech, in fact, abound. Each of its eventual 8,000 houses will be linked to the outside world (town hall, hospital, school) by an advanced fiber-optic system. The school (run jointly by Osceola County and Stetson University) is to get an infusion of the latest equipment and technology from Disney.

The plan places special emphasis on returning streets and sidewalks to the public realm. The main street, called Water Street (Osceola County already had a "Main Street" and Celebration couldn't reuse the name), is conceived as a broad, tree-lined boulevard, "the town stroll." The peripheral road, called Golfpark Drive, has houses only on

one side as in Easthampton, and the golf course is entirely visible from the road—making it public green space, at least visually. Special attention was paid to the design of the 15-foot-wide sidewalks, which Stern calls “the principle component of the public realm.” Stern and Robertson were adamant about the inclusion of alleys for a host of architectural and sociological reasons. Robertson likes to think of many of the town’s elements—the golf course with no houses fronting on it or the alleys—as “radical old notions” of town planning.

The downtown is conceived as an old-fashioned town center, with a combination of commercial, office, and residential space. The town hall, post office, bank, and preview center are all intended as civic standouts, buildings that will be recognized by and, it is hoped, for their architecture. Stern and Robertson are providing the fabric around the landmarks: they essentially divvied up the rest of the downtown buildings half-and-half, and they are cloaked in the hybrid American style that conjures up lots of non-specific memories. “We predicated our design on the notion that American towns had a life before the 1940s, basically, up until World War II, so the buildings take their inspiration up to the 1940s,” says Stern.

### Designing by the book

The architects and builders of Celebration’s houses must work within the guidelines of a hefty and handsome “pattern book,” based on similar books published in the early part of this century. Pittsburgh architect Ray Gindroz, of the firm Urban Design Associates, is its author. It delineates the basic elements of “the Celebration house”—front facade, back yard, side wings, porches—and outlines the six architectural styles and possible configurations allowed in the town’s first phase. The styles are defined as Classical, Victorian, Colonial Revival, Coastal, Mediterranean, and French. The pattern book is a kit of parts in a way, with numerous potential combinations of roof profiles, finish materials, windows, and ornament. “Instead of telling people what they shouldn’t do, we are telling people what they can do,” said Gindroz.

Some buyers at Celebration may bring in his their own architects, while others will choose from those offered by the developers. Everybody, though, must respect such rules as the height of the cornice line (“absolutely critical in creating the quality of the public space,” claims Gindroz) and the placement of fences and hedges along the street. Although, Celebration is a town in name, it will not immediately be self-governed (Disney will own most of the public space and all of the commercial buildings); thus, strict controls can be kept over paint colors, renovations, and even the placement of screened porches and pool enclosures.

### A highway runs through it

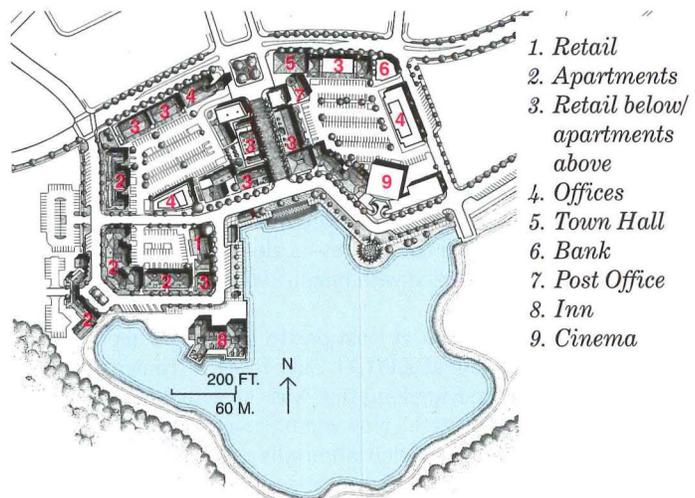
Its site has a certain high visibility. It is just off Highway 192, the southerly approach to Walt Disney World and a road lined with every imaginable (and some likely beyond easy imagining) fast-food restaurant, motel chain, souvenir shop, themed shopping center, and family entertainment offering. Stern calls it “the sleaze road of all times.” Rossi’s rather sophisticated office complex sits along Highway 192, as will Stern’s hospital. After DDC had designated this off-site site for

## Downtown Celebration

Downtown Celebration is intended as a place to live, work, shop, eat, and play. It is also conceived as an ode to late 20th-century architecture: its primary buildings have been designed by architects who achieved fame in the 1970s and 80’s. It includes a town hall by Philip Johnson, a post office by Michael Graves, a bank by Robert Venturi and Denise Scott Brown, a cinema by Cesar Pelli, and a “preview center” by the late Charles Moore. Most of the other downtown buildings are by the firms of Celebration’s chief planners

Robert A.M. Stern and Jaquelin Robertson. An inn, not in the first phase, is by Graham Gund.

The all-star lineup was the brainchild of Disney’s chief architect Wing Chao. He told Disney CEO Michael Eisner and DDC president Peter Rummell that since the town would be in the spotlight “we needed an all-star team for our first line-up, if you’ll forgive the football analogy.” Eisner says he “loved the idea of having us challenged by others on the outside and being pushed to excellence”



Celebration, the Florida Department of Transportation decided it needed to run a connector road through it, which will separate the town from the office complex and hospital. The addition of this road makes Celebration at once more accessible to the outside world and less so, in that it will be difficult to go on foot to and from the adjacent health facilities and office buildings. The new road is, at best, a mixed blessing and one that gives Celebration a full-fledged late 20th-century pedigree, the new town by the expressway.

### Model town or company town?

And unlike many new housing developments, Celebration is not a gated community, nor is it oppressively expensive. "Our emphasis," says Killoren, "is on diversity. We don't have distinctions between the haves and have-nots here." Indeed, at Celebration, the top-end lots (called "estate" lots) are a stone's throw from the townhouses, which will sell for prices ranging upwards of \$120,000, and rental apartments downtown. Still, a criticism leveled by some is that even at that lowest price range, Celebration-living is out of reach for many of Disney's low-end employees. "It is not a cure-all," says Eisner. "It's a way of trying to make a town."

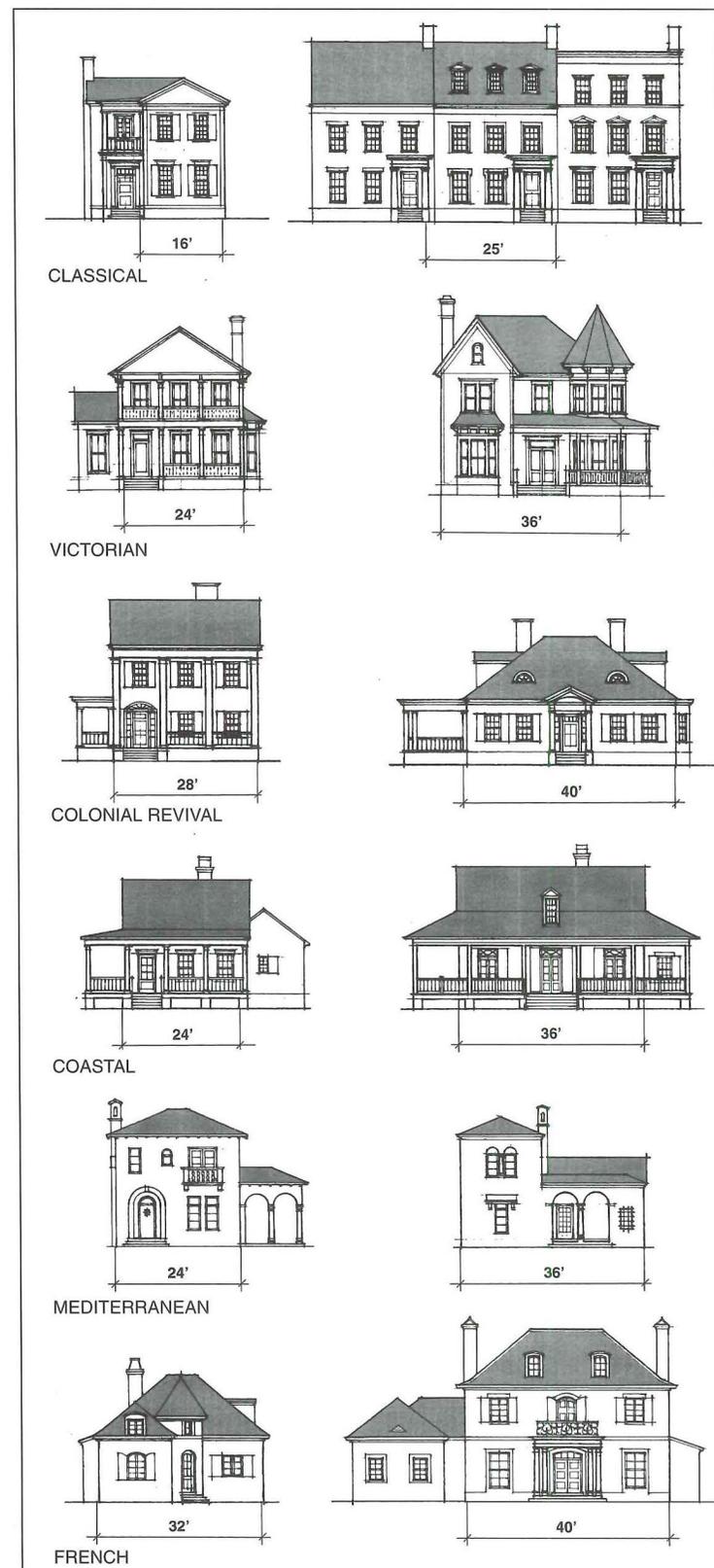
Disney, for its part, is adamant about not letting this be a company town. The philosophical emphasis on diversity means more than just economic or ethnic diversity, which is why employees had to take their chances in the lottery just like everybody else (a father of three, DDC's Killoren, for example, drew number 97 in the estate lots lottery; another top DDC executive wanted a cottage lot and most likely won't get it on the first round).

### The future resembles the past

All of Disney's theme-park environments—from the various "lands" and rides to the hotels—are somehow idealized. When Walt Disney designed the first Main Street for Disneyland in 1955, he said he was basing it on his hometown of Marcelline, Missouri, but Disney was idealizing the turn-of-the-century American small town main street, turning fact into fiction. A decade later, in the mid-1960s when Walt Disney was buying up Central Florida swampland for his second theme park venture, his interests had jumped from past to future. His goal was a futuristic model community he called EPCOT (originally, EPCOT was an acronym for Experimental Prototype Community of Tomorrow). Thus, while others were drawing up Main Street and Cinderella's castle, he was thinking bigger thoughts about finding a solution to urban chaos. He envisioned EPCOT sitting under a bubble of glass, with high-speed monorails zipping residents of this high-tech town from home to work and back again—a sleek and hermetic world of the future. Disney's idea died with him in 1966.

But now we know the future is, at least partly, in the past and it's to be found at Celebration, not at EPCOT. Says Stern: "Ironically, it is Main Street [in the Magic Kingdom] that was the actual genius of American urbanism recaptured." Now Main Street, Disney-style, moves into the mainstream in Celebration where, perhaps, the process will be reversed, and the fiction and fantasy of small-town life will be turned back into fact. *Beth Dunlop*

Six styles of houses (below) and four lot sizes (below opposite) have been pre-approved for the residential neighborhoods. The variations of each style are reviewed in a pattern book prepared by "Master Code Consultant" UDA Architects, a Pittsburgh firm.





## Residential Neighborhoods

Celebration's residential structures are governed by a hefty, 74-page, portfolio-size "pattern book," based on similar guidelines published early in the century. The book is largely the work of Ray Gindroz of the Pittsburgh firm, Urban Design Associates, in association with Disney Development Corporation, Robert A.M. Stern Architects, and Cooper Robertson & Partners.

The pattern book is not simply a blueprint. It sets forth the philosophical, historical, and architectural premises that inspired Celebration and establishes some basic principles and definitions to guide all development.

A number of elements of the town are strictly controlled, among them the building massing, the placement of side wings and porches, the height of the cornice line. The urbanism of Celebration depends on the relationship of house and yard (bounded by a fence or hedge) to the sidewalk. The pattern book prescribes this relationship to create a clear distinction between the private, domestic realm of the house and the public realm of streets, sidewalks, and squares.

Celebration will have six accepted building styles—Classical, Victorian, Colonial Revival, Coastal (a melding of French Colonial and "low country" architectural traditions), Mediterranean, and French. The styles are drawn from Southern domestic and vernacular archi-

ture, and are the result of studying such towns as Charleston, Beaufort, and Mount Pleasant, S.C. Early buyers seemed to favor the Coastal house, with its wraparound porches, and the somewhat grander Classical models.

Celebration's houses will not necessarily be true styles, letter-perfect in their authenticity. Rather, they will be composites of those typically found in small-town neighborhoods that have evolved over the years, though the pattern book carefully lays out mandatory "key elements" and appropriate detailing for each style. Within this are endless combinations of windows and doors, porches, and loggias.

To add to the mix, there are four basic sizes of Celebration lots: "estate" (though presiding over lots typically 90 by 130 feet and not, as the name suggests, vast rolling acreage), "village" (to accommodate a regular house), "cottage" (for a slightly smaller "empty nest" or "starter" house) and "townhouse."

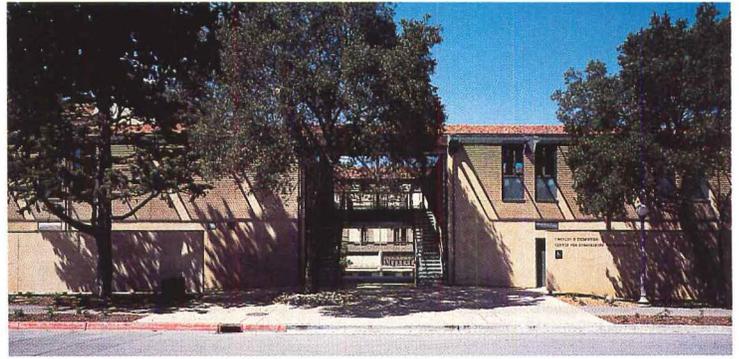
The pattern book also spells out acceptable materials, which intentionally differ somewhat among the styles to provide texture to each neighborhood. There is also a palette of approved Celebration paint colors and a guide to preferred plants and trees. All of this is aimed at achieving the tricky balance of making Celebration seem at once coherent and diverse, as if the town simply grew all on its own.

# Stanford's New Style

*Charles B. Thornton Center for  
Engineering Management  
Stanford University  
Palo Alto, California  
Tanner Leddy Maytum Stacy,  
Architects*



Stucco walls and red-tile roofs, arches and colonnades, courtyards filled with live oak trees: that's the idiom of Stanford University. Ever since it was founded by Leland Stanford in 1885, and laid out by Frederick Law Olmsted with buildings by Shepley, Rutan & Coolidge in an inspired merger of monastery and Mission style, architects have been trying to figure out how to adapt the imagery of one of the country's most prestigious academic institutions to changing uses, technologies, and perceptions. Now a new slate of buildings is modernizing the vocabulary with some unexpected materials. Under the direction of Campus Architect David Neuman, who previously turned the University of California at Irvine into an architectural showpiece, Stanford has hired the likes of Robert A.M. Stern, Antoine Predock, Ricardo Legoretta, and Henry Cobb of Pei, Cobb, Freed & Partners to expand its architectural vision. The harbinger of this wave is a simple shed designed by Bill Leddy of the San Francisco firm, Tanner Leddy Maytum Stacy.



The Charles B. Thornton Center for Engineering Management is a 12,000-square-foot addition to the 1977 Frederick Emmons Termon Engineering Building. Designed by Harry Weese, this much beloved (by its inhabitants) essay in "engineers' esthetic" itself tried to update the vocabulary of the campus with clearly expressed concrete trays framing a skin that appears to be almost wholly made up of wood shutters. To fit into the campus, Weese sunk the large building two floors into the ground, creating a light well of the garden in the rear. Leddy's challenge was to add room for Stanford's innovative design program, which is a joint venture between the art, engineering, and business schools.

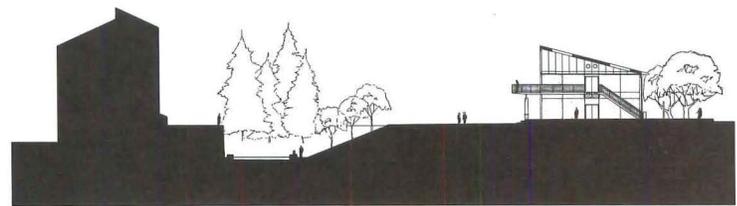


The site defined the building. "We soon realized that it was more about the space between the two buildings than about the envelope," recalls Leddy. This fit Neuman's philosophy, since he believes that the landscape is almost as important as the buildings themselves. "It's what our alumni remember, it's what sets the character of the campus." Leddy placed the building—two state-of-the-art "case study" classrooms outfitted "almost like broadcast studios" and two loft-like design studios—in a rectangular volume packed between an access road to the west and a grove of oak trees to the east. To the south, the Thornton Center presents a simple, low facade, "setting the stage for the development of the campus across the street," as Neuman puts it. The building rises up on the north side both to catch light for the studios and to answer the scale of the Terman Building. Working with landscape architect Peter Walker, Leddy then reconfigured the sunken courtyard into an open, sloping outdoor room.



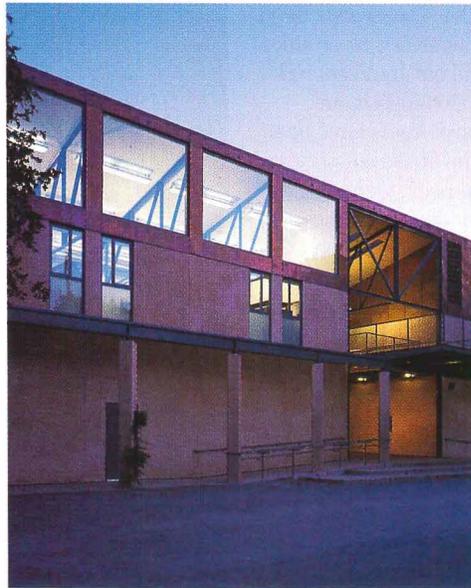
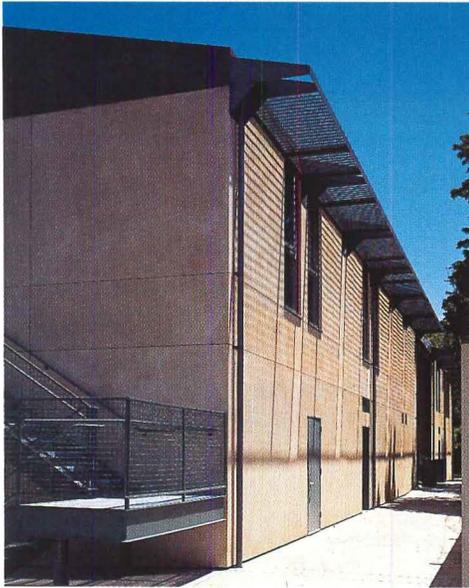
The Thornton Center's main feature is its central gateway. This is an updated version of the rhythm of great arches that march through the campus, and that had already found a more rectilinear expression in the Terman Building. The portal is not just an expressive framing device: by using it for external circulation, Leddy avoided the need for interior corridors. The steel trusses that frame the stairs provide lateral seismic bracing. "This is what I think of as the strength of Tanner Leddy Maytum Stacy's work," says Neuman. "They give you an artistic expression of structural elements that allow for a simplicity of use, and that makes the building easy to understand at every level." Carried out in an "updated version of the Stanford vocabulary," as he puts it, the Thornton Center is a steel, stucco, concrete, and copper emblem of the architectural craft, and a clear representation of the reality of site, function, and the aspirations of the client.

Aaron Betsky



TRANSVERSE SECTION 40 FT.  
12 M

*Making the most of a modest site, the Thornton Building presents a low profile to the street (top and section), then opens up to a larger statement with a grand portal (middle and bottom) that acts as an entry to the northern edge of the Stanford campus.*

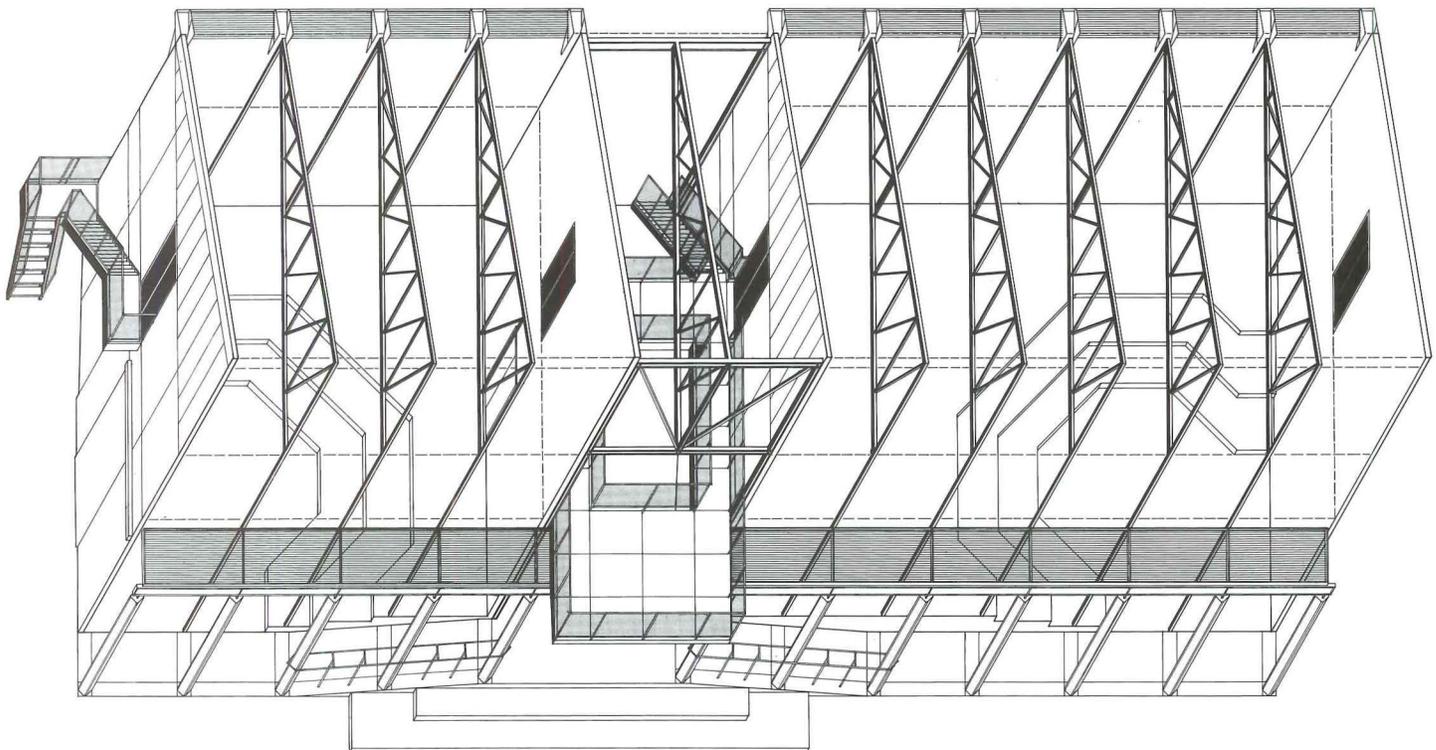


*Though a red tile roof, mandated by the University, caps the composition, the visible portion of the Thornton Center is stucco and copper. The “piano nobile” of the studios uses copper to visually bridge the yellowish color of the stucco to the building’s gray-painted exposed steel framing. Steel-cased windows frame the structural grid, emphasizing the building’s rhythm. Although the building is a true shed-form, this is only apparent on the east and west facades—otherwise it appears to have an extremely strong orthogonal massing.*

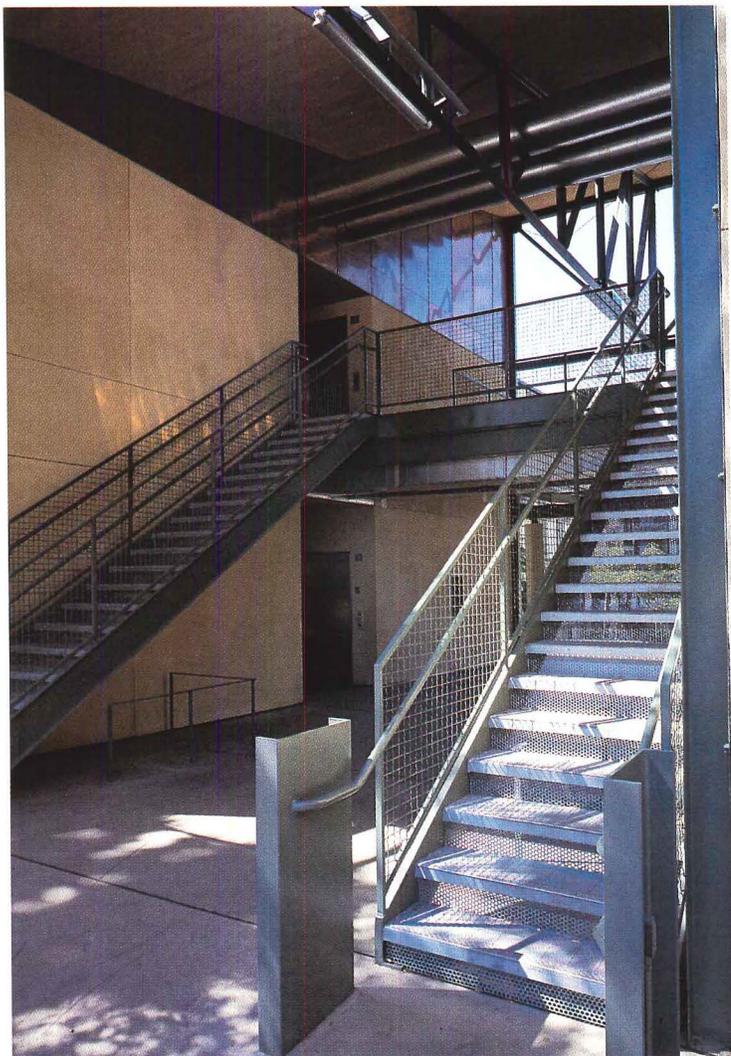
**Up Close**

*Structural definition.* The Thornton Center is essentially a rectangular box whose interior spaces are defined by a row of steel trusses. The shape of these members creates a sloped roof that echoes the Stanford vocabulary, and is a form also typically used in industrial buildings to create daylight monitors. Here the second-floor classrooms are opened up to the north light. Lateral seismic

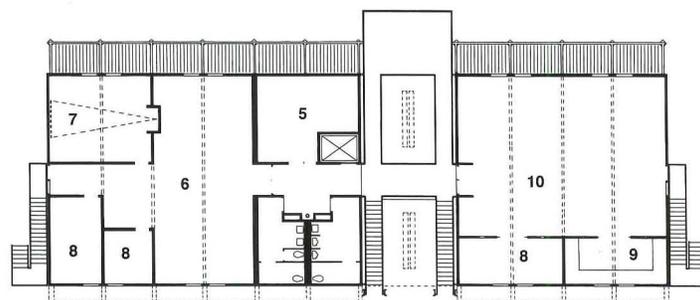
bracing is provided at the slightly off-center center portal, in the form of a Pratt truss. The end facades are frank expressions of this structural and functional arrangement. The only additions involve the site. These include screen walls, the portico—whose poured-in-place columns echo the Terman Building—and the slightly whimsical extension of the stair landing into a “Pope’s balcony.”



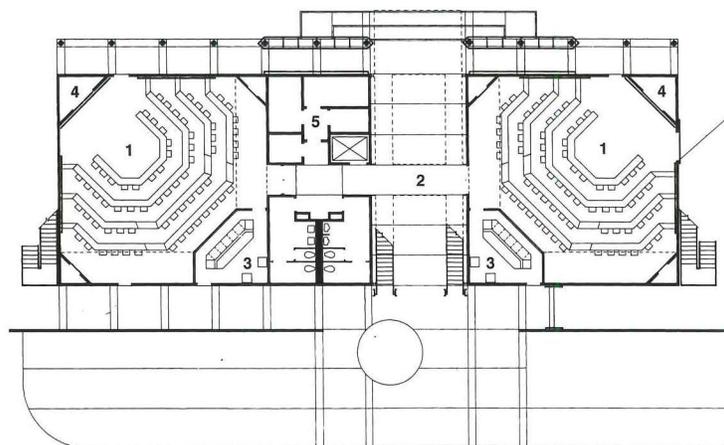




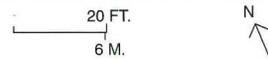
- |               |                    |
|---------------|--------------------|
| 1. Classroom  | 6. Computer lab    |
| 2. Portal     | 7. Conference room |
| 3. A/V booth  | 8. Office          |
| 4. Storage    | 9. Shop            |
| 5. Mechanical | 10. Products lab   |



SECOND FLOOR



FIRST FLOOR



Two views of the building's roof structure (above left and opposite) are exposed in the portal between the west and east sides of the building. Octagonal classrooms (plan above) are isolated, while the light-filled studios above (below left) open up to the campus and skies. Leddy's updating of campus building traditions continues here through his use of cornices as computer-cable raceways. Partitions in the west classroom (not shown) are his only regret.

**Credits**

Charles B. Thornton Center for Engineering Management  
Stanford University  
Palo Alto, California

**Architect:** Tanner Leddy  
Maytum Stacy Architects—  
William Leddy, Marsha  
Maytum, partners-in-charge

**Consultants:** Steven Tipping &  
Associates (structural); MCT  
Engineers (MEP); GL&A  
Engineers (civil); Peter Walker/  
William Johnson & Partners  
(landscape); Charles Salter &  
Associates (acoustical, A/V);  
Architectural Lighting Design  
(lighting)

**General Contractor:** N.L.  
Barnes Construction Company



# The Crossroads of France



*The Exchange Module is the heart  
of one of the most sophisticated  
transportation hubs in the world.*

*Exchange Module  
Charles de Gaulle Airport  
Roissy-en-France  
Paul Andreu and Jean-Marie Dulkilleul  
Architects  
Peter Rice, Engineer*



**T**he intersection of a high-speed rail line, airport, and urban transit system occurs at the new Exchange Module at France's Charles de Gaulle Airport. Opened in 1994, the module serves the recently built perimeter TGV (*trains à grande vitesse*) line skirting eastern Paris. Built to circumvent lengthy connections from one inner-city station to another, the new line, and its airport link, renew Paris's competitive edge as an international transportation center.

The exchange module is really two projects in one—a train station, plus the multi-level pedestrianway—and is the latest but certainly not the last element in French architect Paul Andreu's collaboration with the Aéroports de Paris. Andreu has designed the entire Charles de Gaulle Airport, and his new project creates a point of relief in its masterplan. The module uses dramatic structural design to create unencumbered circulation and, although monumental, there is a quality of light and weightlessness about it that contrasts with the density of its concrete neighbors.

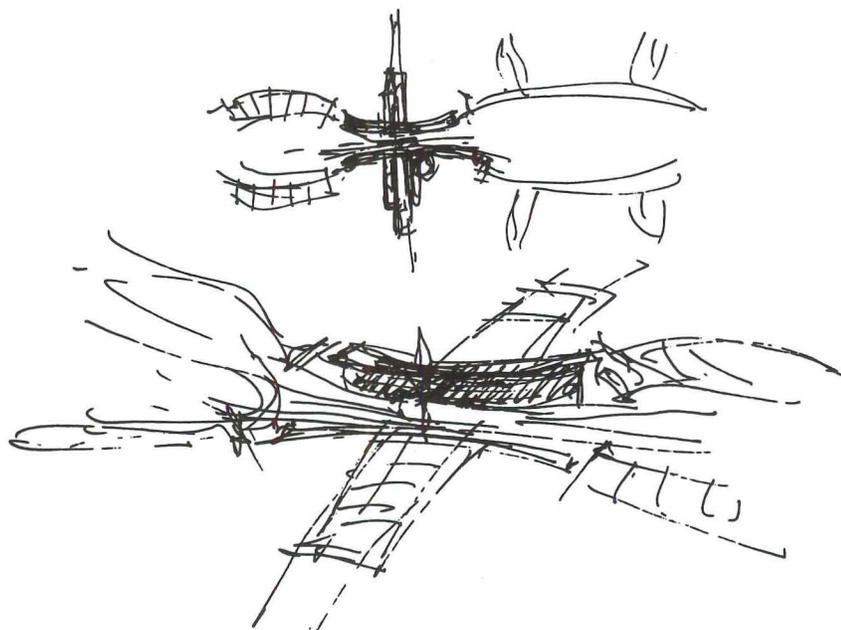
For this latest project, Andreu renewed his collaboration with the engineer Peter Rice (who died in 1992), and Rice's Paris office, RFR. Through shared discussions, Andreu and Rice conceived of a space that would stay away "from the simplistic idea," or as Andreu explains, "the tendency in modern architecture for a building to have just one unifying concept." Instead, the elliptical 260-room hotel extends the existing poured-concrete architectural language of Terminal 2—the transparency of the hotel's atrium becomes a skylight for the exchange terminal—and is an elegant counterpoint for the transparency of the train station. The linkage was simplified by the design of the air terminal itself. In plan, Terminal 2 resembles an elongated figure-eight. In choosing the narrow juncture between existing segments and the future loop of Terminal 3, Andreu underlaid the perpendicular axis of the 1,600-foot-long train station.

The winged glass roofs of the train platforms are, from every angle, the focus of the project. Andreu wanted the roof to appear to float, and he wanted users to be able to see out and be bathed in light. RFR developed a cantilevered tubular-support structure, which is quite dense. The visual complexity is diminished by the design of distinct, readable layers. "It was part of Rice's concept," explains RFR project director Hugh Dutton, "to establish a hierarchy, with each element

*Continued on page 84*

### Up Close

*Andreu the master builder.* For French architect Paul Andreu, the evolution of Charles de Gaulle airport has been a 30-year preoccupation. As a young engineering graduate still working on his architecture degree in the 1960s, Andreu took a job with the Aéroports de Paris (ADP) working on the masterplan of the new airport. By the time he was 29 and an architect, he was designing the airport's first terminal. It was a chance he got through luck, long hours and, he admits, by being a little competitive. The design, a segmented circle where passengers move through suspended transport tubes, became a symbol of late-Modern architecture. Coming from nowhere at a time when few French architects were interested in airport design, Andreu found himself in the spotlight, but also on the defensive: reviewers at the time were unsure whether this was architecture or engineering. Isolated by the debate, Andreu opted to stay on with ADP. Now that airport commissions are prized by the world's top architects, Andreu's positions with ADP is enviable. His career in transportation design has not only developed internationally, but with the completion of the Grande Arche at La Défense (after the death of Johann Otto van Spreckelsen), one of Paris's *grands projets*, and his museum in Osaka, Japan, Andreu is finding a new audience for his architecture.

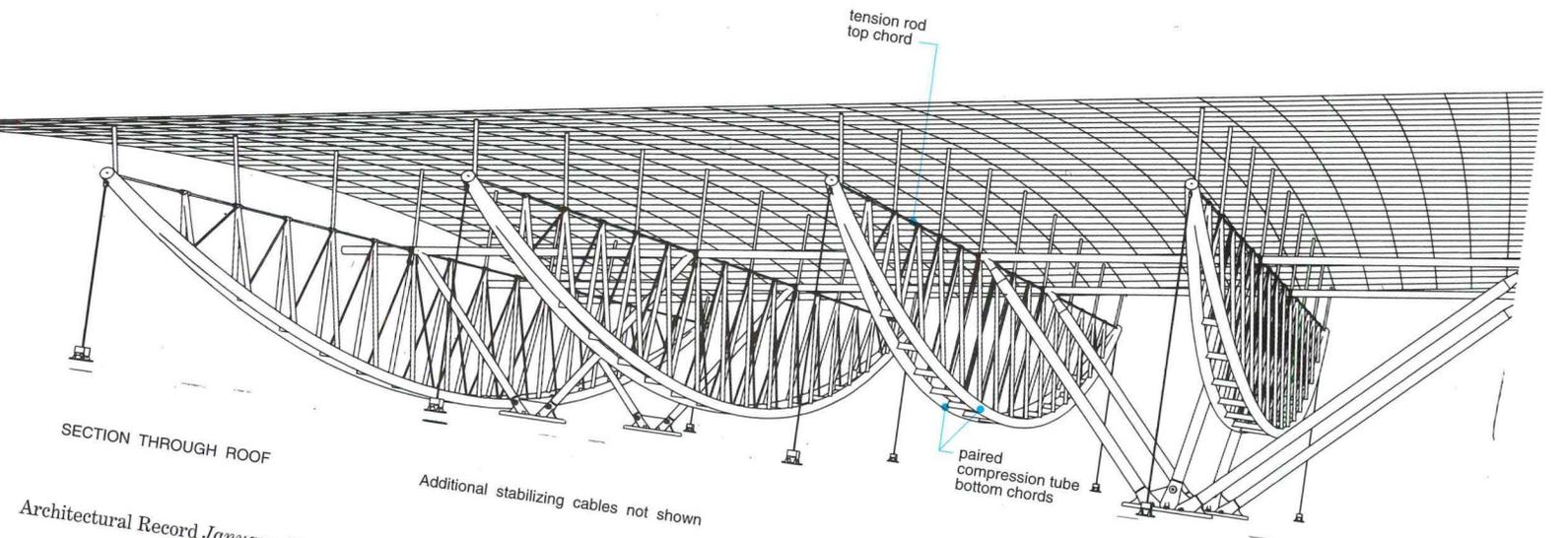
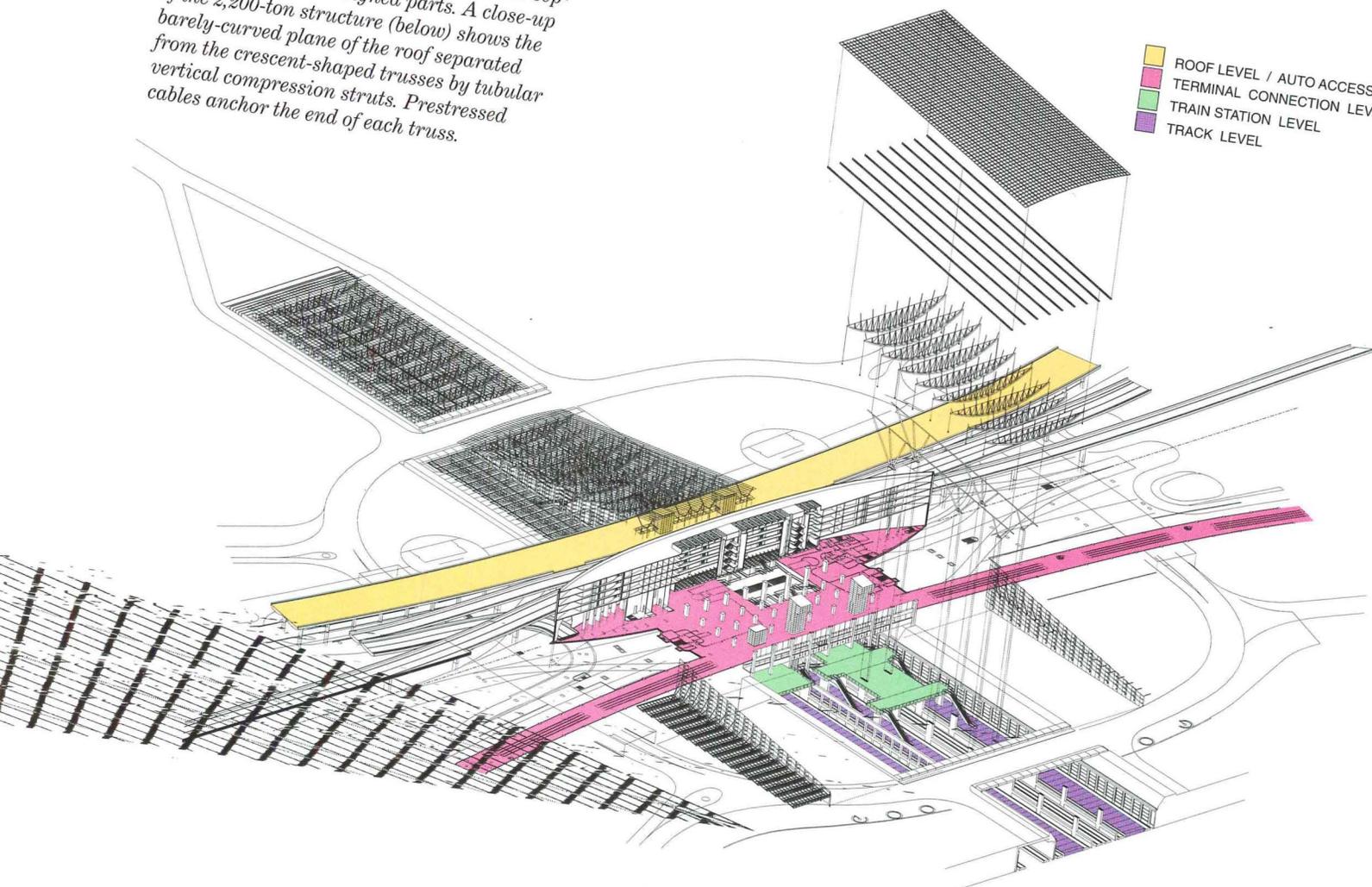




### Circulation and structure

The complexity of the exchange terminal and train station was simplified by analyzing each piece separately. The linear train lines, the lobby of the hotel, the inter-terminal transport, the pedestrian concourses, and the parallel access roads are visually distinct. Each element, like the glazed steel roof of the train station, can be further divided into separate and simply designed parts. A close-up of the 2,200-ton structure (below) shows the barely-curved plane of the roof separated from the crescent-shaped trusses by tubular vertical compression struts. Prestressed cables anchor the end of each truss.

- ROOF LEVEL / AUTO ACCESS
- TERMINAL CONNECTION LEVEL
- TRAIN STATION LEVEL
- TRACK LEVEL



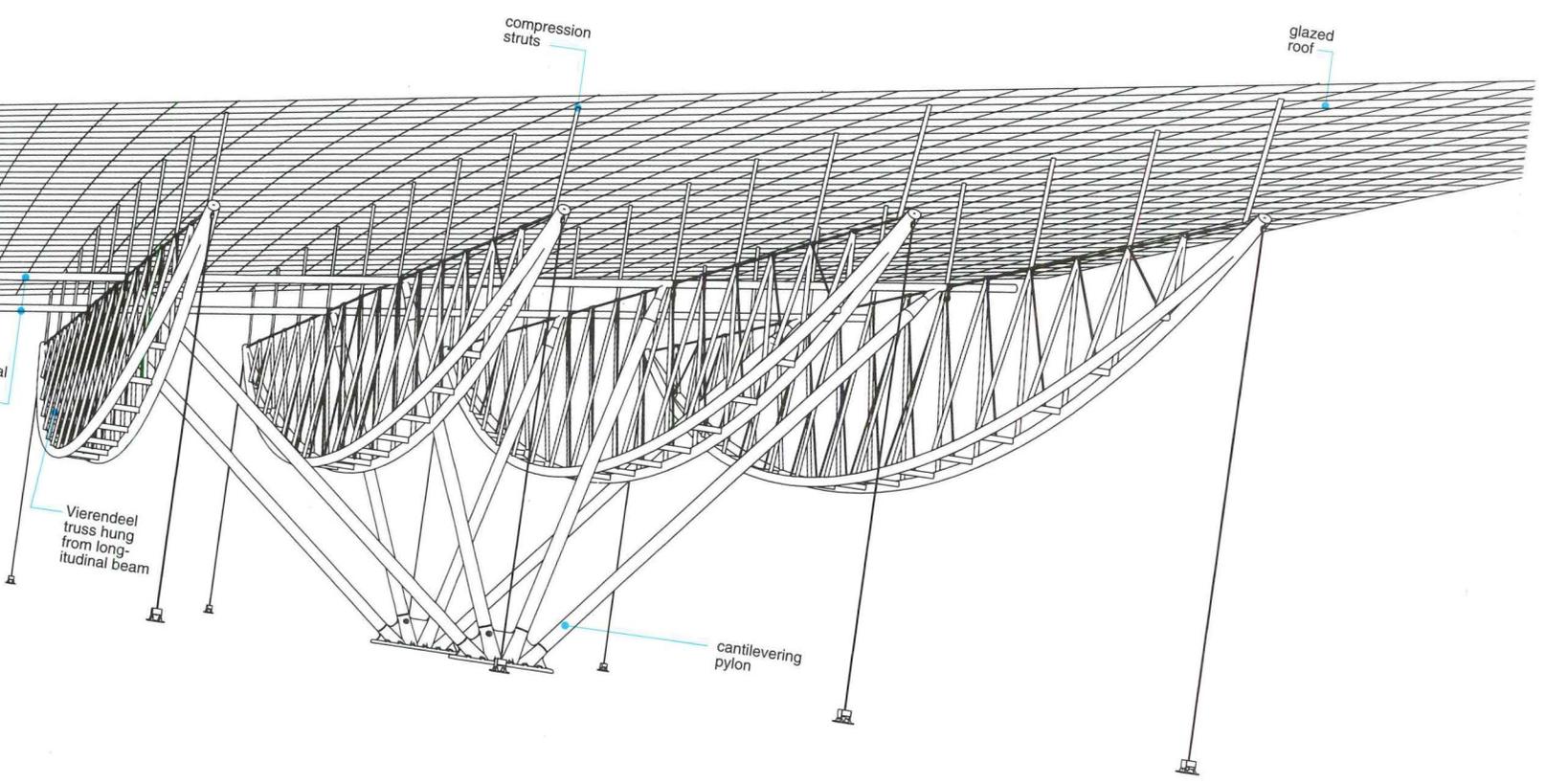
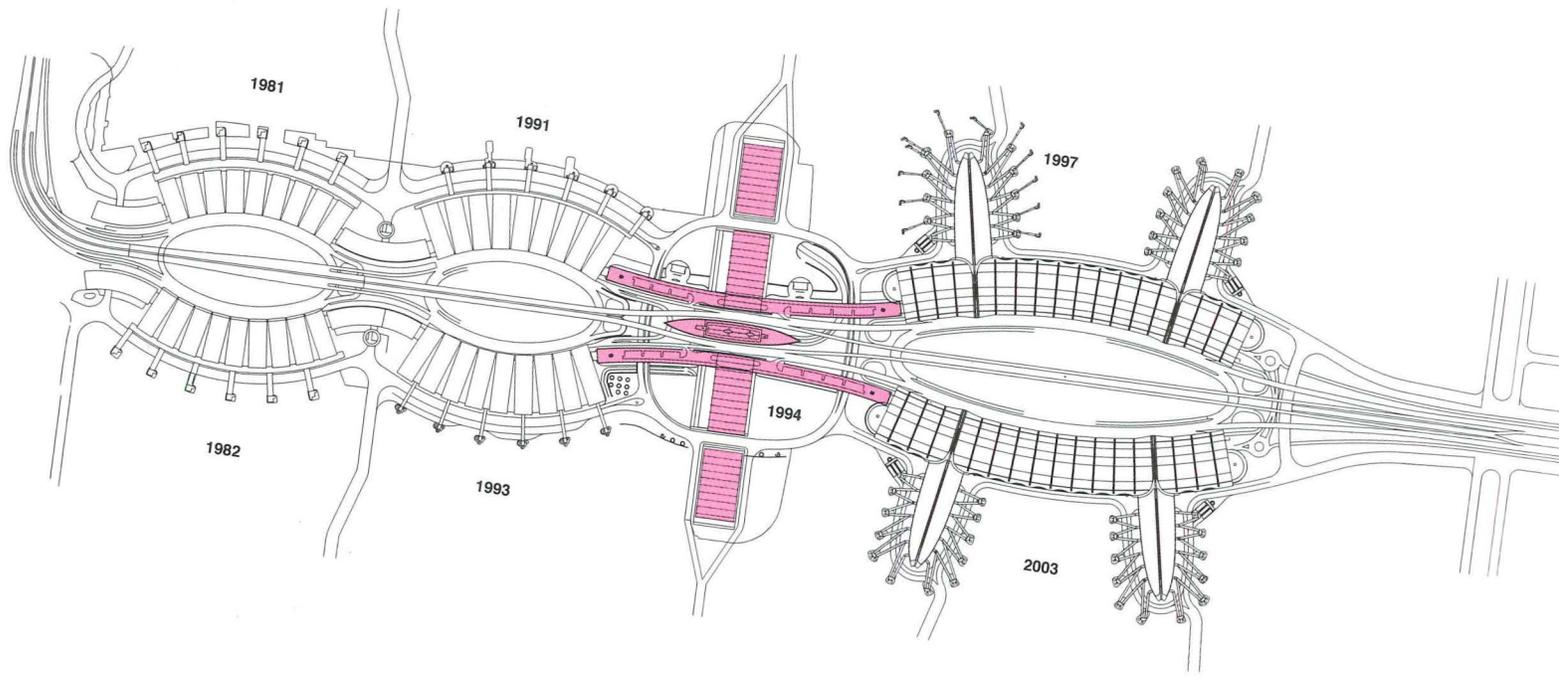
SECTION THROUGH ROOF

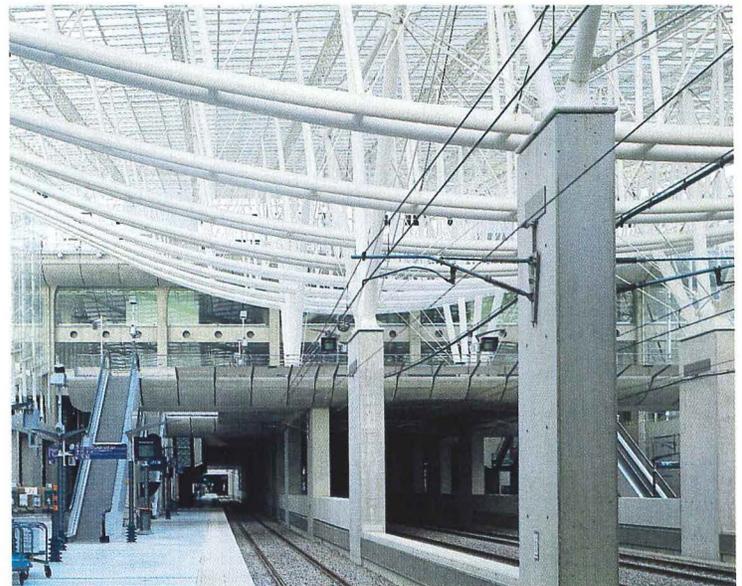
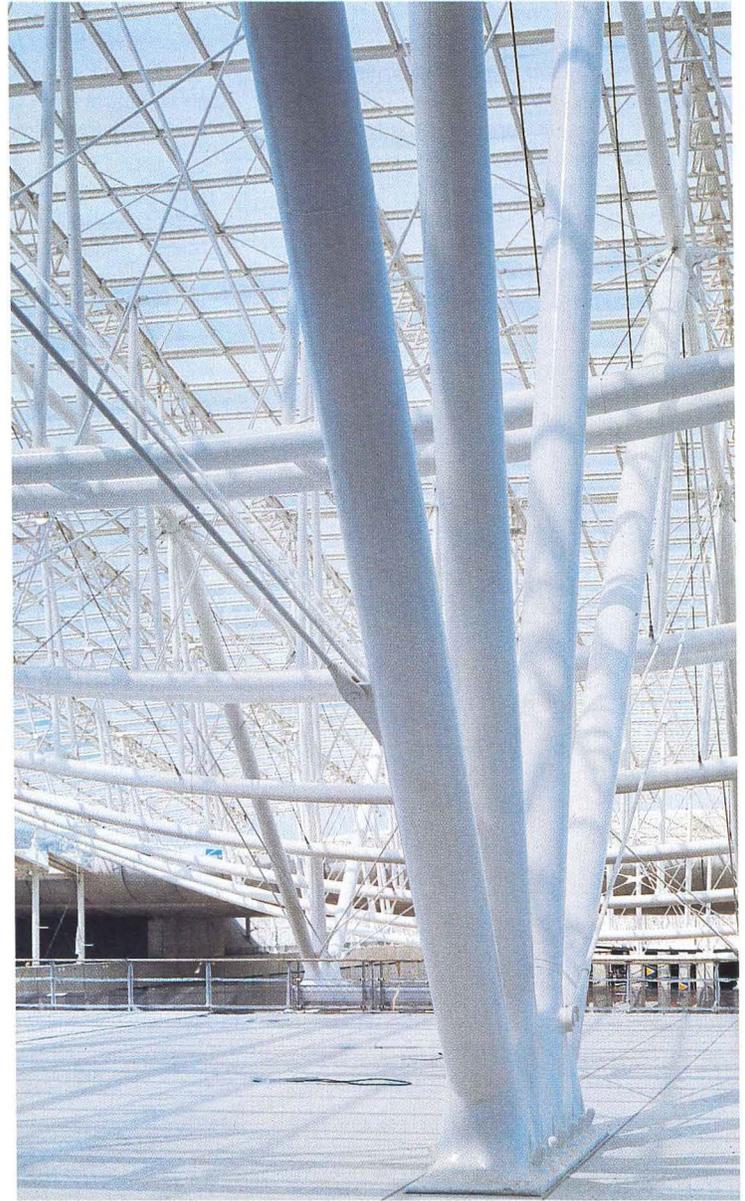
Additional stabilizing cables not shown

### A changing master plan

Charged with the master planning of the entire airport, as well as the architecture of its main buildings, Andreu was able to introduce an architecture for the train station that counterpoints the existing parts of Terminal 2 and Terminal 3 (currently under construction). The architecture of the terminals has evolved over time, changing from a one-story plan to a two-story plan for the latest terminal which will handle more

traffic. In addition to the central passenger drop-off road, automated shuttle cars will take voyagers from the exchange terminal to the most distant Terminal 1.





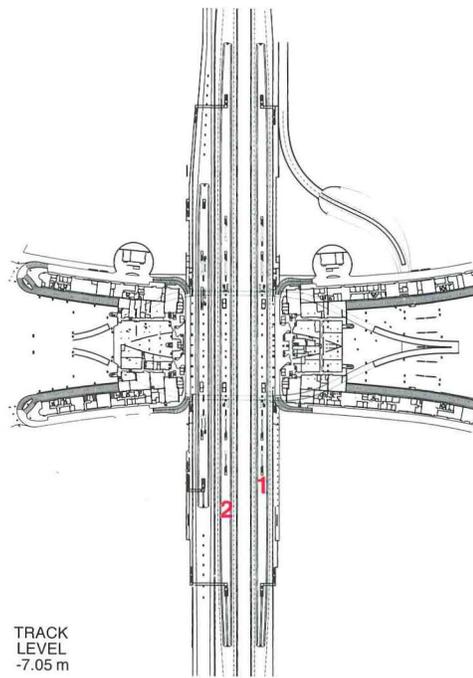
Two rows of spoke-like pylons support the train-station roof (top opposite), one on each side of the crescent-shaped trusses so that their identity is distinct. Each pylon base rests on a pin-joint covered by a steel casting that allows movement while guaranteeing constant compression.

By using fritted glass for the roof, light is diffused, and the sensation of looking into a dark structural underbelly is avoided.

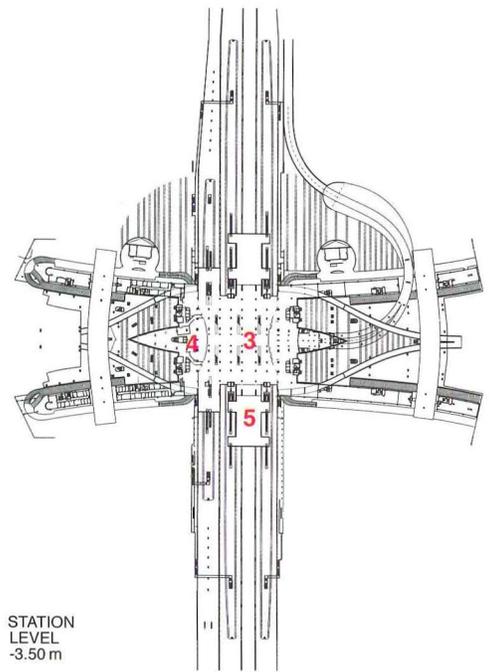
The non-loadbearing walls, separated from the roof by a four-foot air space (bottom left opposite), are transparent, allowing a view of airplanes. The facade system keeps the glass surface free from mullions by using drilled-through fittings on branch-like arms attached to vertical masts.

Plans show the intersection between the train lines and air terminals, the genesis of the Exchange Module. Moving up from the train platforms to the intermediate lobby, then up to level two, the traveler arrives at the main waiting area, shops, and ticketing.

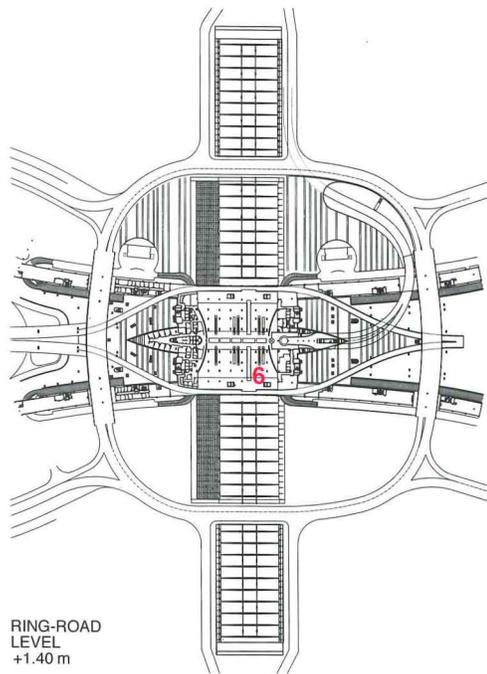
At the upper level, four moving sidewalks take passengers to the adjacent air terminals. Prow-shaped walls support the hotel located above.



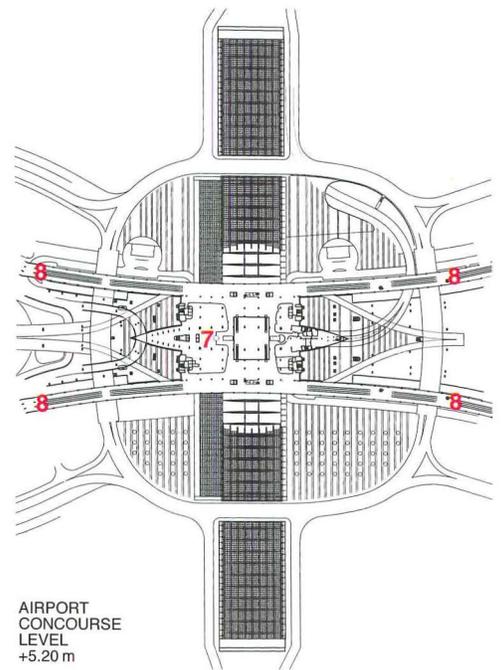
TRACK LEVEL  
-7.05 m



STATION LEVEL  
-3.50 m



RING-ROAD LEVEL  
+1.40 m



AIRPORT CONCOURSE LEVEL  
+5.20 m

1. TGV trains
2. Commuter-rail tracks
3. Rail concourse
4. Ticketing
5. Waiting
6. Transport to terminals
7. Hotel lobby
8. Concourse to terminals

*Continued from page 78*

having its own identity." The sweep of the roof unifies the complex human movements within. Passengers transfer from commuter-rail lines to plane, plane to train, or even Terminal 2 to Terminal 3. Each transport system occupies its own level, and the openness of the scheme gives passengers a clear idea of where they are and where they need to go. Its architecture, punctuated by escalators, seating, and banks of monitors, is almost a blank slate. The eye is not drawn to the open interior space, but outward, either to the animated roof of the train station, or the airplanes on the tarmac. The fact that the glass train-station roofs slope up toward the hotel above allows a protected inside-outside view. Daylight enters from the north and south and, and at night, light levels are kept below the glare threshold so often exceeded in transportation centers.

The openness of the project helps alleviate stress by constantly re-orienting passengers as they move through the Module. Andreu is against all that clutters transportation spaces: advertising, piped-in music; anything that can be referred to as animation. Fortunately, he has included a café and newspaper stand along with the train ticketing counter on Level 2, since the TGV passes infrequently. In terms of train traffic, the suburban train into Paris, whose four lines parallel the TGV, is more important. Still, Andreu has preserved a sense of calm that almost allows this 216,000-square-foot building to seem intimate. *Claire Downey*



© G. Halary this photo

*Several modes of transport, each with its own distinct path (bottom left), occupies their own level without intersecting the others. Twin concrete overpasses (above opposite) allow passenger drop-off at either side of the boat-shaped hotel. Roads connect the air terminal and parking, while within the exchange module (below opposite) travelers use escalators to descend to their trains.*

#### **Credits**

*Exchange Module  
Charles de Gaulle Airport  
Roissy-en-France*

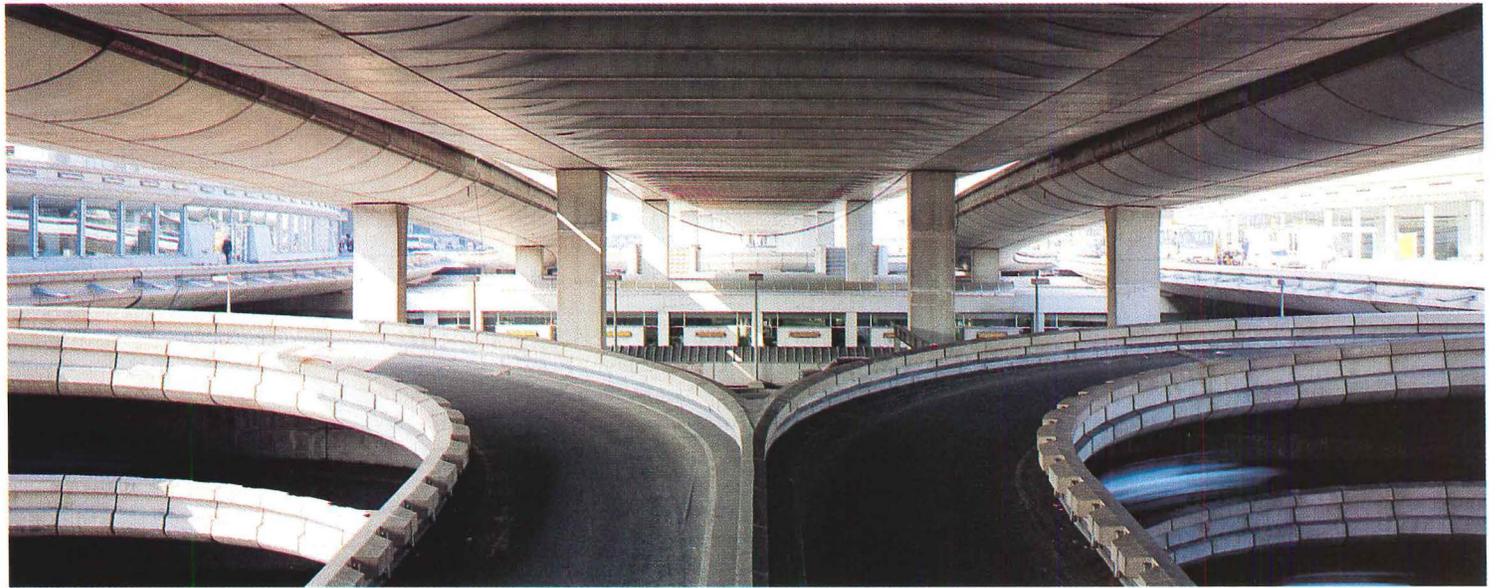
**Owner:** *Aéroports de Paris;  
SNCF*

**Architect:** *Paul Andreu; Jean-  
Marie Duthilleul*

#### **Architecture and Construction Management:** *Dimitri*

*Georgandélis, project manager;  
Michel Vermeulen, deputy  
project manager; Anne Brison,  
architect (Aéroports de Paris);  
Daniel Claris, project manager;  
Joël Nissou, Sylvie Guillaume,  
Jean-Louis Salama, architects;  
Jacques Courvoisier, project  
manager (SNCF)*

**Engineers:** *RFR—Peter Rice,  
partner-in-charge; Hugh Dutton,  
architect, project manager;  
Claire Mazelet, Henry Bardsley,  
Kate Purver; Guy Deshayes,  
engineers; Alexander Autin,  
David Holford, architects*



# Making Affordable Projects Work

By H. Jane Lehman

**M**oney matters, it goes without saying. But the notable lack of it within the affordable housing realm drives nearly every step of the design process. For architects working on affordable housing projects, the challenge, in a nutshell, is: How do you create tight but livable spaces for little money on problem-laden sites for diverse groups of residents? The answer: Carefully, sensitively, and with respect for the particular needs of the people who will be living there.

The faithfulness of the architectural profession to these principles falls to either extreme, says Bill Witte, a partner with The Related Companies of California, an Irvine-based development company that specializes in low-income housing. Much of the public housing built in America during the post-war era failed to provide safe, attractive, or appropriately scaled places to live. While design was hardly the only cause of these problems, the architects involved in these projects and the profession as a whole earned a reputation for being removed from the concerns of the people they were designing for.

Today, more architects recognize the need to listen to clients and end users. "Cost-efficiency is very important, particularly when there are limits on rent," says Witte in explaining a key issue for the organizations that build affordable housing. "But so is sensitivity to the needs of the people who will live there," he adds. "Do architects get it? Some do, some don't."

## Tax-credit tangle

Clients ready to start affordable projects often fight long and hard for funds with which to proceed. Some patch together state and local funds, but most rely on the federal low-income housing tax credit. With the demise of the federally funded low-income housing production programs some 15 years ago, tax-credit financing (begun in 1986) is about the only thing that has sustained this market. The National Association of Home Builders estimates that in recent years the credit has enabled the annual construction of 30,000 to 80,000 new low-income rental units and the rehabilitation of about 60,000 existing affordable apartments (graph below shows new construction using the credit).

*H. Jane Lehman is a Washington, D.C.-based journalist who specializes in covering real-estate and housing issues.*

*The federal low-income housing tax credit has played an important role in financing affordable housing over the last decade (chart right). Its fate is now being debated in Congress.*

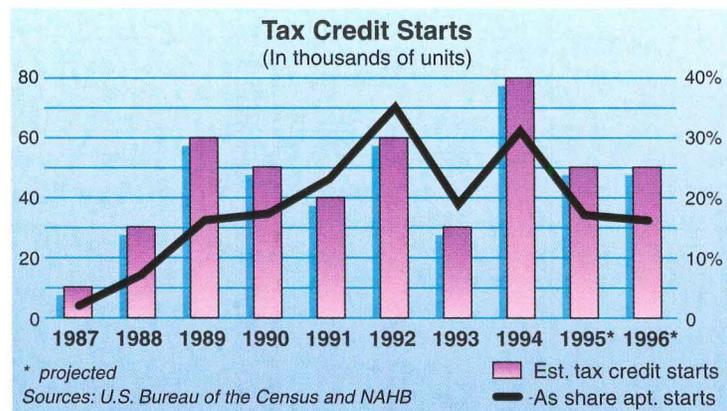
The program works this way: Each state, based on a per capita formula, gets a piece of an approximately \$2.2-billion annual pie. Apartment developers submit proposals, including pre-schematics and site pro-formas, in an effort to win a credit allocation from a state housing finance agency. Apartment rents must be affordable to households earning no more than 60 percent of the area's median income. In this case, affordable means a family spends no more than a third of its household budget to cover the rent. In the Los Angeles area, that translates to around \$6,000 to \$9,000 a year for shelter, reports Witte, whose company has 10 tax-credit projects underway in California.

Developers who succeed in procuring credits from the state then sell them, often in conjunction with a syndicator, to investors who pay a lump sum for the credits. The credits are used by investors for dollar-for-dollar write-offs against tax liabilities. With the investors' cash as an equity stake, developers do not need to borrow as much money to finance the projects, thereby lowering the rents they need to charge.

## Credits' fate is in doubt—again

Although the system is working well, there is a fly in the ointment. The program's permanent status is in doubt—again. Two years ago, Congress—then controlled by the Democrats—voted to end the uncertainty associated with year-by-year renewal of the credit by embedding it permanently in the tax code. This fall, the Republican-led Congress agreed to revoke the tax credit's permanent status as of December 31, 1997. If that happens, the program's supporters say, the tax credit will not fare well at a time when federal spending is shrinking. "Sunsetting the tax credit is tantamount to killing it," states John McEvoy, executive director of the National Council of State Housing Agencies. The program's best hope is a Presidential veto with instructions to Congress to return with a new budget reconciliation bill that, among other things, preserves the credit's permanent status, explains Andre Shashaty, the publisher of a San Francisco-based magazine devoted to affordable housing finance. That, he says, would insulate it from the knock-down, drag-out federal budget fights expected in the coming years.

In terms of design, taking a one-size-fits-all approach to affordable housing is destined to fail, given the diversity of the intended occupants. Residents may be single mothers, two parents with lots of kids,



## *Tax credits, planning ingenuity, and sensitivity to the needs of residents can create attractive places for low-income people.*

inter-generational households, senior citizens, the disabled, or new immigrants. This may mean including in the program special support features, such as open space, playgrounds, athletic fields, child-care operations, job-training facilities, stores, or social-services offices. Or it may mean recognizing that the needs of any one group may be foreign to the architect's own experience, says Michael Pyatok, head of Oakland-based Pyatok Associates, which designs about 400 units of low-income housing a year on the West Coast.

### **Involving users in the design process**

"With over 20 applicants for every affordable apartment, architects can design just about anything and because the rent is cheap and the building is new, it will be rented," states Pyatok. "Consequently, architects have felt free to design for their peers and their ideology, but invariably we have torn those things down." Pyatok addresses the problem by including in the design process the neighborhood from which the tenants are likely to come. Recently, the architects met every two weeks with community members living near the site proposed for a project in San Jose. At the sessions, five groups of 10 Latinos worked with modeling kits to explore apartment and site possibilities. After showing seven historical design directions, as well as their contemporary interpretations, Pyatok was surprised when all of the groups, working independently, not only settled on the same category but picked the same two images out of the four offered. The winner? "They loved the vibrancy of the Crafts style."

A different tack was taken by Solomon Architecture & Urban Design in shaping the Vest Pocket Community in Fairfax, California, a project with 19 units of rental housing shared by roommates and designed to look like single-family houses. The non-profit developer, Innovative Housing of San Rafael, matches up roommates, deliberately bringing together the disabled, seniors, and single mothers. Besides the usual challenges of affordable housing design, privacy was an especially important issue here because non-related people would be living together, says architect Daniel Solomon.

By definition, low-income housing is smaller and denser than market-rate developments. The trick is to accomplish the economic trade-offs while avoiding the "danger of making these places unworkable," explains Avi Friedman, director of the Affordable Housing Program

at the school of architecture at McGill University in Montreal. The program doesn't just examine issues of affordable housing, it actually develops new prototypes as well. The 14-foot-wide and 36-foot-deep GrowHomes it pioneered cost \$60,000.

Part of the secret to designing affordable housing is creating efficient floor plans. "I have just gotten good at putting units together so there is no wasted space," says Solomon. Other critical ingredients are good access to daylight and views, says Joan Goody of Goody Clancy & Associates in Boston, a 50-person firm that has designed such award-winning housing projects as the 1988 Tent City and Langham Court [RECORD, July 1992, pages 92-97]. Goody is adept at carving four bedrooms out of the same space devoted to two in market-rate projects.

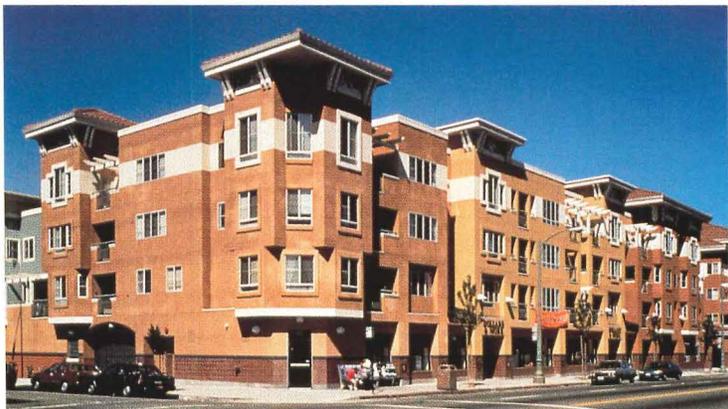
Nonetheless, architects should no more skimp on design details of housing for poor people than they should when designing for more affluent people. "Affordable housing does not cost any less to build," asserts Goody, "and it is a myth to think that it can." Many of Goody's projects, including Langham Court, mix low-, moderate-, and upper-income residents together without making quality distinctions among the units. "It is not normal for people to live segregated by income." A well-built project that fits into its surrounding neighborhood can help counter the knee-jerk response by many groups to resist the placement of affordable housing in their communities. Such a project "becomes a billboard for the next project you may want to do," says Pyatok. "It dispels doubts that other communities might have."

### **Responding to site and context**

Low-income housing suffers from a poor reputation generally, driven largely by deeply flawed site designs from the past, which set the stage for crime and vandalism, says Solomon. The wholesale leveling of existing neighborhoods in the 1950s and 1960s in the name of urban renewal "destroyed the town fabric and stigmatized the poor," says Solomon.

Lost in the razing, explains Pyatok, was the old urban morphology of the American town that included rowhouses with front porches and backyards, the celebration of corner homes, the street grid, residential alleys, courtyards, and storefronts. Bringing that all back, he says, will let "people get to know each other again." ■

*Hismen Hin-Nu (left) is a 92-unit, multi-ethnic project in San Francisco designed by Pyatok Associates and The Ratcliff Architects with townhouses and flats above shops.*



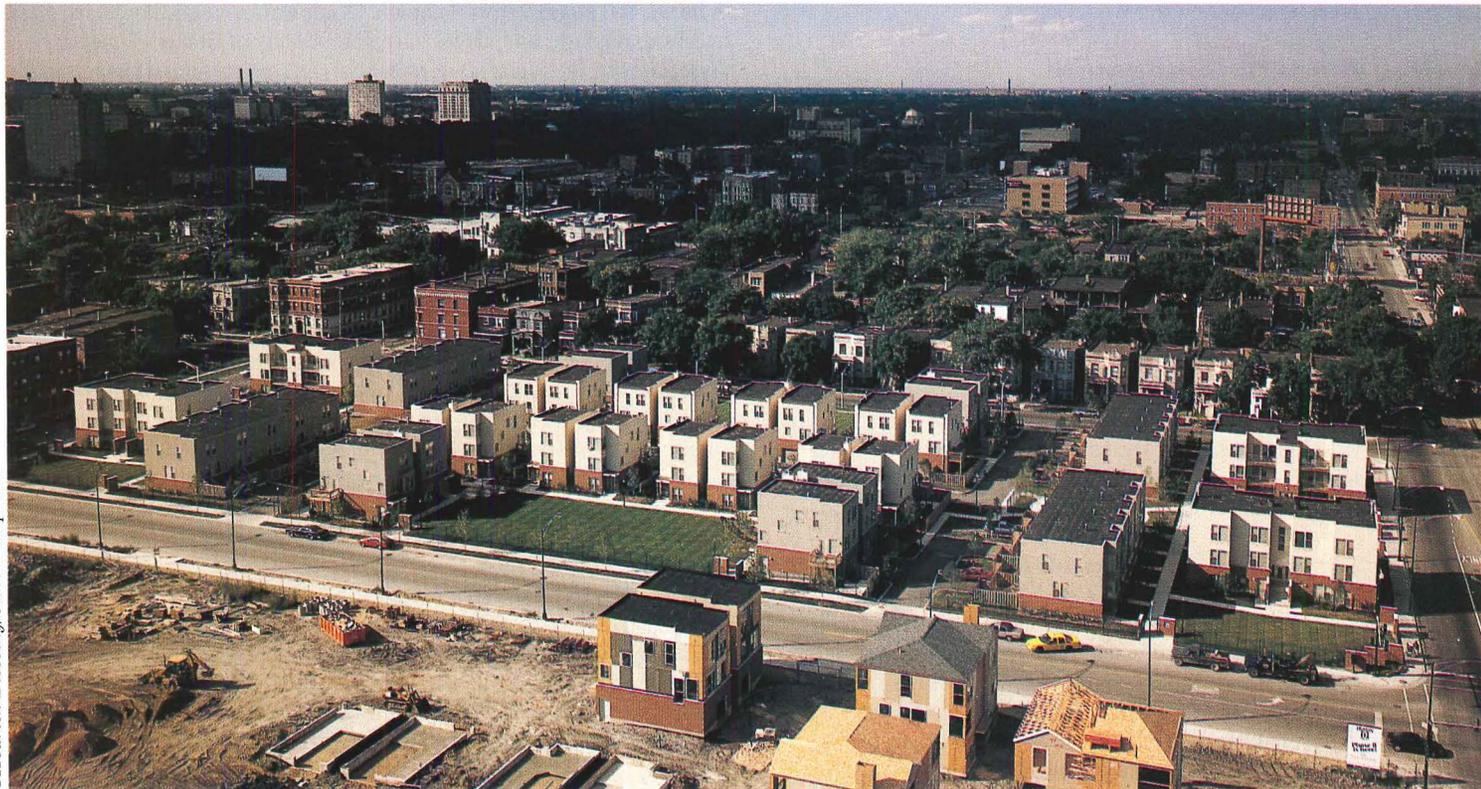
©Michael Pyatok

# Homan Square

Chicago  
*Nagle Hartray Danker Kagan McKay*  
 Architects/Planners

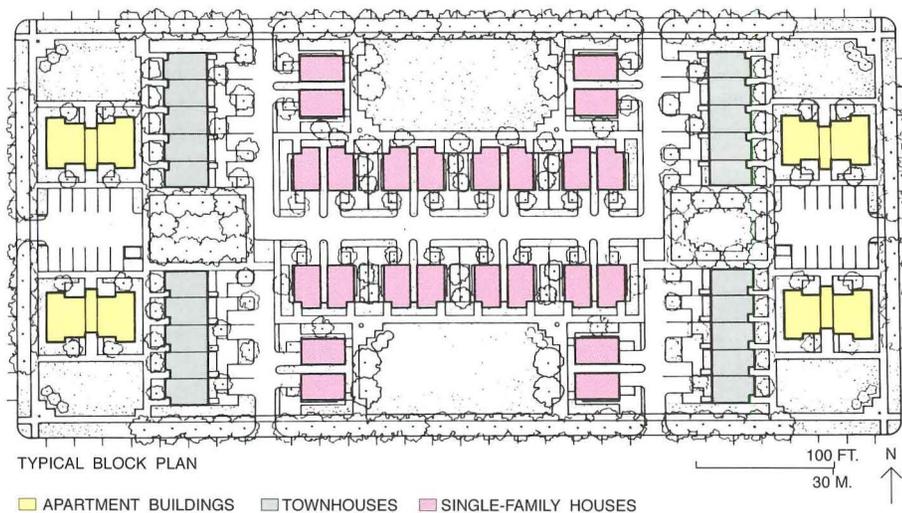
Located on the former site of Sears Roebuck & Co.'s world headquarters in west Chicago, Homan Square is an ambitious development that aims to revive a decaying neighborhood. Until the early 1970s when Sears moved to its world's-tallest tower in downtown Chicago, the 55-acre site was the heart of its global operations and included a 4-million-sq-ft warehouse, office buildings, and giant parking lots.

Sears' move downtown, combined with racial unrest in 1968, triggered a downward spiral of decay and disinvestment that left the North Lawndale area an urban basket case. Now Homan Square is reversing that trend, bringing new subsidized and market-rate housing, and some commercial development, back to the neighborhood. A joint-venture of Sears and The Shaw Company, a respected local



© Hedrich-Blessing/Steve Hall photos

*The first phase of Homan Square was completed last year and includes a complete block of 24 single-family homes, 20 townhouses, and 24 apartments in four buildings (above and site plan right). Single-family houses (opposite top and bottom left) were originally planned as duplexes, but were separated when focus groups expressed the desire for detached units. A 1905 brick tower from the original Sears complex is now a Homan landmark and may become a community center (opposite top). The design of the townhouses emphasizes simple open spaces such as the living/dining room (opposite bottom right).*

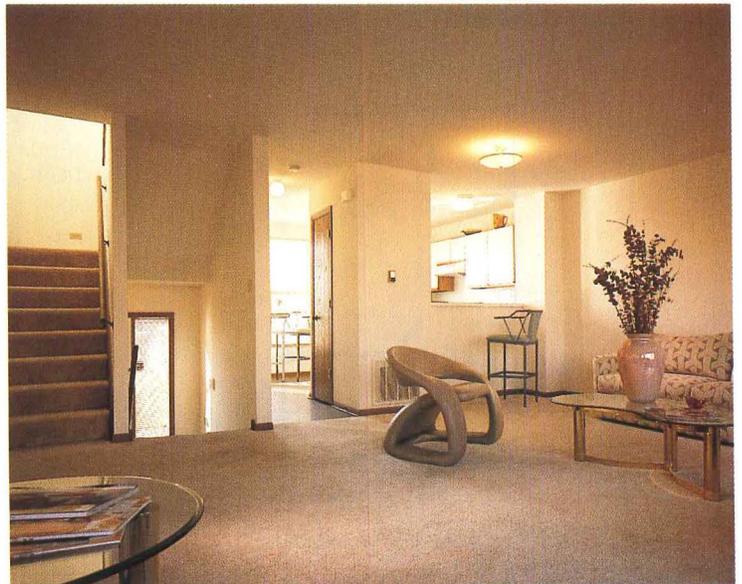


developer, Homan Square will eventually encompass 600 new units of rental and for-sale housing, as well as the redevelopment of existing office space for private businesses and the possible conversion of a 1905 brick tower into a community center. Thanks to Sears' donation of the land and its \$13,000 subsidy for each for-sale unit in the first two phases, the project is providing housing for low-income families.

Additional subsidies of \$20,000 per unit from the city's New Homes for Chicago program and housing tax credits are keeping most of the units here within the reach of families earning less than 80 percent of the local median income. As masterplanned by Nagle Hartray Danker Kagan McKay Architect/Planners, Homan Square is a series of mixed-income blocks that fit into the city's existing

street grid while varying enough from the usual formula to establish its own identity. "The idea was to develop a site plan that would work with the scale of the existing neighborhood, while creating defensible open spaces in each block," says partner-in-charge Dirk Danker. Instead of lining up all the housing along the street, as is typical in Chicago, the architects carved out small green spaces at the

four corners and two larger open spaces in the middle of each block. To make sure these open spaces are safe places for residents, the masterplan organizes housing units so they face the outdoor spaces. By lining the open areas with front doors, the plan makes sure the residents take possession of the communal spaces. Although most homes are serviced from the back by alleys, the amount of space devoted to



these internal roads is kept to a minimum and backyards are fenced off so that each family controls this space. Homan Square includes three types of housing—detached single-family homes, townhouses, and apartments—and each block includes all three. By integrating all three in each block, the developers made sure there would be a mix of income groups and family types in each phase of the

project. “We wanted to mix it up as much as possible,” says Danker. Three-story apartment buildings with six units each anchor the four corners of the block, while 24 single-family homes wrap around the two lawns in the middle of the block. In between are four rows of townhouses, five units to a row. The result is 68 units to the block. The three-bedroom single-family houses range in size from

1,590 to 1,670 square feet and in price from \$92,000 to \$97,000. In the project’s first phase (one block), which was completed and fully occupied in the second half of 1995, rents ranged from \$385 a month for 850-sq-ft apartments to \$490 for 1,160-sq-ft townhouses. Some of the units have half-sunken basements and all are simple wood-frame structures with wood trusses and clad with brick at the base and stucco and

EIFS above. By using masonry only at the base, stacking plumbing, and using efficient floor plans that almost eliminate corridors, the architects were able to keep construction costs down to about \$70 a square foot. Corner windows and open living spaces make these units feel larger than they are. A second block is under construction and will be ready this spring. Phase 2 is already sold out. A third phase with 16



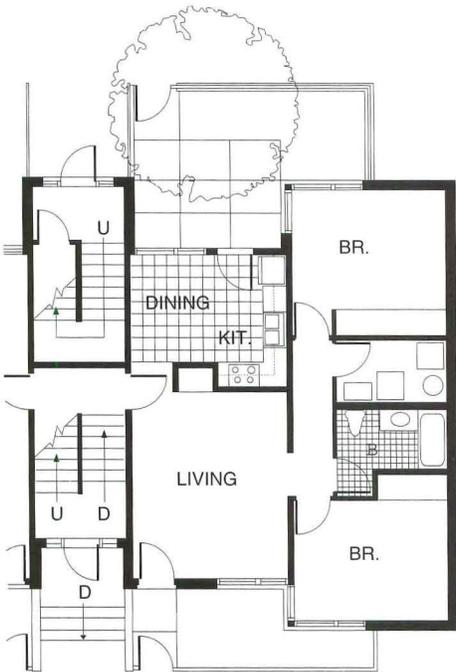
market-rate homes is being designed by Schroeder Murchie Laya Associates. "Our hope is to establish a neighborhood that's good, a place where people want to live," says design principal James Nagle. The plan seems to be working. In fact, the project is encouraging residents of adjacent blocks to upgrade their homes. *Clifford A. Pearson*

**Credits**  
*Homan Square*  
*Chicago*  
**Owner:** *The Shaw Company*  
**Architect:** *Nagle Hartray Danker Kagan McKay Architects/Planners—James L. Nagle, design principal; Dirk W. Danker, partner-in-charge; Robert J. Neylan, project manager*  
**Engineers:** *Beer, Gorski, Graff (structural); Bollinger Lach &*

*Associates (civil); Creative Systems (mechanical)*  
**Landscape Architect:** *Lannert Group*  
**General Contractor:** *Shaw Homes—Frank Martin, president*



SECOND AND THIRD FLOOR



GROUND FLOOR (APARTMENT) 10FT. 3M

Although simple in plan, all of the for-sale and rental units at Homan Square have some kind of outdoor space that is their own—whether a small private yard or a balcony (plans opposite and left). Apartments are all 850-sq-ft flats that share the same plan (this page). Because the three-story apartment buildings have just two units per floor, each apartment gets three exposures and cross ventilation. Townhouses (plans, opposite top) are 1,160 square feet and include half-sunken basements that can be finished by residents later on. The living space of the townhouses is kept open to make the unit feel bigger. Single-family houses come in two sizes: 1,590 square feet (plans, opposite bottom) and 1,670 square feet.

## SRO Residence

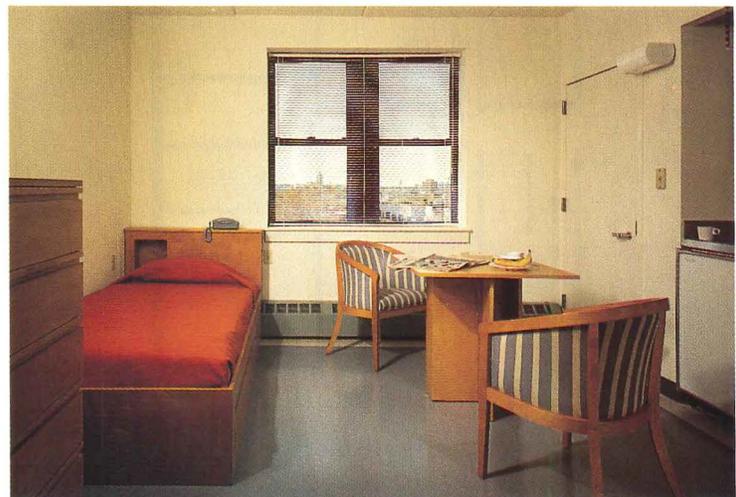
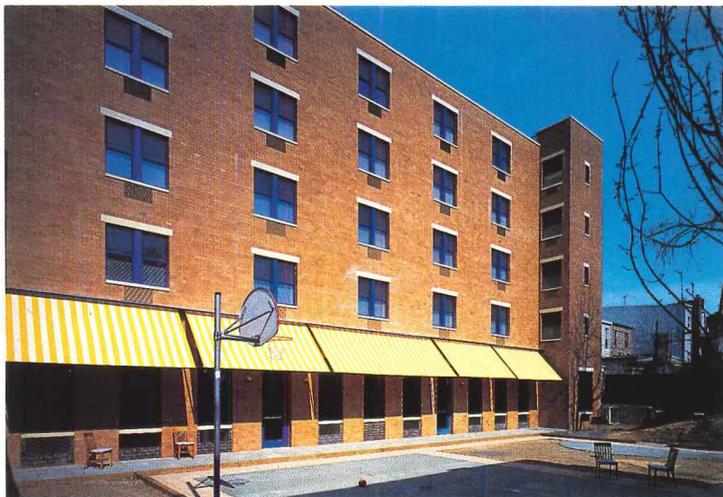
Brooklyn, New York  
Architrope, Architect

When the New York State Office of Mental Health started a new program of “service-enriched” single-room-occupancy (SRO) housing in 1992, architect Jonathan Kirschenfeld convinced the agency that new construction would be more practical than renovating old buildings. Because the program called for buildings with 44 efficiency apartments, four married-couples apartments, and such

“enriched” services as counseling, medication-management, and shared dining, Kirschenfeld argued it would be difficult to fit all that into an existing building shell. With each 240-sq-ft apartment having its own full bathroom and kitchenette, the plumbing requirements alone would have made converting an old structure a nightmare, says the architect. Flexibility was also a priority, since the buildings



©Paul Warchol photos



would house special populations ranging from the mentally ill to drug abusers. Three years later, the state agency was eliminated by a new Republican governor, but a prototype SRO, designed by Kirschenfeld's firm Architrope and run by a non-profit organization called Services for the Underserved, opened in Brooklyn. The five-story, 24,200-sq-ft building was finished on time for \$2.83 million (\$117 a

square foot). Using a simple bearing-block-and-concrete-plank structure and an efficient double-loaded corridor plan for the apartment floors, the architect was able to lavish attention on a few important features—such as a finely detailed brick facade with 8-inch reveals around all openings. The result is a building that projects a sense of depth and solidity. Inside, the first floor is devoted to public

spaces that benefit greatly from 11-foot ceilings, wood wainscoting, and furniture designed by the architect. By providing an attractive lounge and dining room overlooking a rear yard, the building encourages residents to practice their social skills, while allowing them to retreat to their own rooms. In the apartments, 8-foot-6-inch ceilings give some lift to the small units. C.A.P.

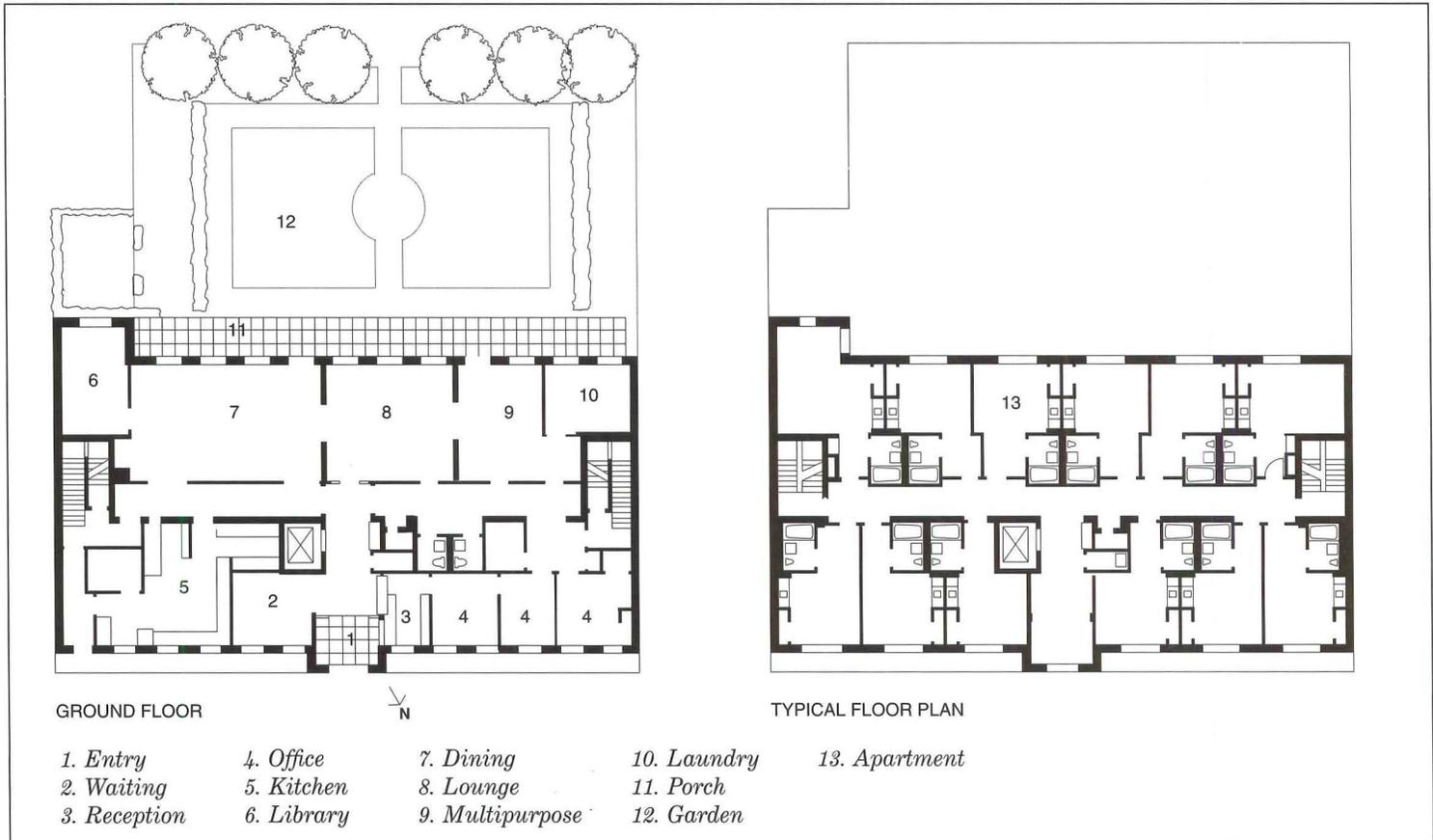
**Credits**

**Client:** N.Y.S. Office of Mental Health/Services for the Underserved, Inc.

**Architect:** Architrope—Jonathan Kirschenfeld, partner-in-charge; Andrew Bartle, David Hess, design team

**Engineers:** Reynaldo Prego (M/E/P); Robert Silman Associates (structural)

**General Contractor:** Galaxy/Wolmar Construction



*Serving mentally ill veterans who pay rent with their Veterans Administration checks, the new SRO looks like an apartment building, not an institution. A rear yard has a basketball court and an awning-covered transition space between outdoors and in (opposite bottom left). Each 240-sq-ft unit (opposite bottom right) has a kitchenette, built-in closets, and a bed with storage below. A communal dining room (left) is on the ground floor and overlooks the backyard.*

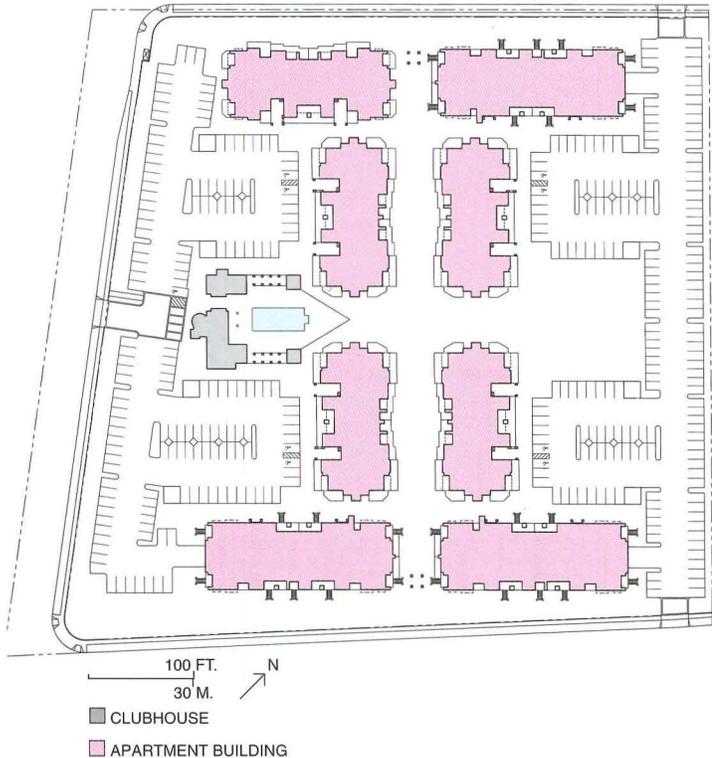
# Los Esteros Apartments

San Jose, California

Fisher-Friedman Associates, Architect

Built by a local non-profit organization, First San Jose Housing, Los Esteros Apartments brings the best ideas of market-rate development to the affordable end of the housing spectrum. In fact, according to Rodney Friedman, the partner-in-charge of design, the eight apartment buildings here are better built and have better finishes than most market-rate projects. How is this possible? By eliminating a

private developer's overhead and profit margin, by getting the city of San Jose to supply some of the up-front equity to reduce the construction mortgage, and by using low-income housing tax credits, First San Jose Housing was able to apply more money to the buildings themselves. "It was great working with First San Jose," says Friedman. "Their only goal was to build the best project, not to make money."



©Charles W. Callister, Jr., photos



ONE BEDROOM UNIT



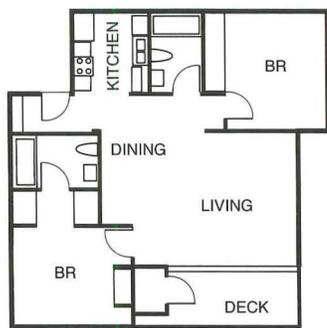
TWO BEDROOM UNIT

Designed to create a sense of community, the project includes a 3,000-square-foot clubhouse with swimming pool, a playground for tots, and communal green areas. In addition, some of the apartment buildings have front stoops for socializing and all look onto a central allée landscaped with palm trees. All of the residential buildings are four-story wood-frame structures. Five are built on concrete slabs, while three are

built over a single level of half-sunken parking. Occupying a 7.7-acre site in a suburban part of a redevelopment district, the project includes 246 apartments: 12 one-bedroom units of 600 square feet, 150 two-bedroom units of about 850 square feet, and 84 three-bedroom units ranging from 1,104 to 1,400 square feet. In addition to the communal outdoor areas, the project provides a private

outdoor space for every apartment—either a patio or a terrace. Top-floor apartments have extra-height living rooms, some with 14-foot ceilings. To break down the scale of each building and give it the look of a series of smaller attached structures, the architects used a variety of exterior materials (horizontal wood siding, cedar shingles, painted wood railings) and colors. C.A.P.

**Architect:** Fisher-Friedman Associates—Rodney F. Friedman, partner-in-charge-of-design; Mark B. Stepan, project architect  
**Engineers:** Sandis & Associates (civil); DASSE Design (structural); Design Engineering Services (mechanical)  
**Landscape Architect:** Cottong & Taniguchi  
**General Contractor:** Dow Builders



TWO BEDROOM UNIT



THREE BEDROOM UNIT

10 FT.  
3 M.

Located in the Rincon de los Esteros Redevelopment district, this 246-unit project is organized around two main axes—a central allée (above) and a recreation strip anchored at one end by the clubhouse and pool (opposite top). Buildings erected over a half-sunken level of parking have stoops leading to first-floor apartments (opposite bottom). Units range from 600 to 1,400 square feet (plans left).

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## Manufacturers Sources

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

### Pages 56-63

#### Celebration Place

Aldo Rossi/Studio Di Architettura, Architect  
Smallwood, Reynolds, Steward, Stewart & Associates, Associate Architect

Aluminum curtain wall and windows; stainless-steel and aluminum entrances: custom, fabricated by Tri-State Glass. Precast panels: Cast Crete-Kissimmee. Green-tinted and reflective glazing: Viracon, Inc. Built-up roofing: Schuller International, Inc. (Manville). Red Sandstone cladding: Stonecraft (Colorado). Lobby flooring: Gray Bardiglietto and Alabama White marble. Downlighting (lobbies): Omega. Wall-wash fixtures at reception: Juno Lighting. Cherrywood paneling: Specialty Millwork, Inc. (reception areas); The Wood Company (first-floor corridors). Solid-color paints: Sherwin-Williams, Stores Group. Multicolor coatings: California Products Corp. (AquaFleck). Circular railings: Fabricated by M&J Materials. Elevators: Fujitec. Pole-top globe-shaped luminaires: Sterner Lighting Systems, Inc. (custom design).

### Pages 70-75

Charles B. Thornton Center for Engineering Management, Stanford University  
Tanner Leddy Maytum Stacy, Architects.

Integrally-colored stucco: King. Aluminum-framed windows: Kawneer Co., Inc. Tinted glazing: PPG Industries, Inc., Glass Group. Straight-barrel clay roof tile: U.S. Tile Co. Gray coating on structural steel: Themec. Interior paints: Fuller Paint Co. Ceilings: USG Interiors, Inc. Classroom seating: Kreuger International. Elevators: Dover.

### Pages 88-91

#### Homan Square

Nagle Hartray Danker Kagan McKay, Architects/Planners

EIFS: Sto Corp. Wood trusses: Walnut Custom Homes. Brick: Homan Masonry. Vinyl windows: Lakeview Windows. Exterior doors; Pease Doors. Wood doors: Morgan. Locksets: Schlage Lock Co. Countertops: Formica Corp. Resilient flooring: Armstrong World Industries.

### Pages 92-93

SRO Residence, Brooklyn, New York  
Architrope, Architect

Precast concrete: Spancrete Northeast, Inc. Iron-spot brick: Endicott Clay Products. Builtup roofing: Schuller International (Manville). Steel-frame labeled windows: Optimum Window Mfg. Co. Aluminum windows: Mannix. Entrances: Ellison Bronze. Locksets and exit devices: Arrow Lock Mfg. Closers and operators: LCN. Texture paints: Sherwin-Williams, Stores Group. Laminate surfaces: Abet, Inc. (Abet Laminati). Resilient flooring: Azrock Industries. Vinyl wallcovering (dining): Wolf-Gordon. Exterior fixtures: Trimblehouse.

### Pages 94-95

#### Los Esteros Apartments

Fisher-Friedman Associates, Architect  
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Essays, images, discussions, and extracts have been published by: Peter Rowe, Thomas Fisher, Jorge Silvetti, Rem Koolhaas, K. Michael Hays, George Baird, Peter Eisenman, Mohsen Mostafavi, Michael Graves, I. M. Pei, Philip Johnson, Peter Davey, Leo Marx, Richard Sennett, Alex Krieger, Eduard Sekler, Martha Schwartz, David Harvey, John Stilgoe, Henry Cobb, Nathan Glazer, Laurie Olin, Denise Scott Brown, Robert Campbell, Moshe Safdie, and many more.

Subscriptions are available for \$25 per year: GSD NEWS, Harvard GSD, 48 Quincy Street, Cambridge, MA 02138; tel. 617-496-8728; fax 617-495-9567. Back issues (call for a fax of contents) cost \$10 each.

This large tabloid-format magazine is published in September, February and June of each year. Issues average sixty-four pages in length (with little or no advertising) and three images per page.

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### Product Literature



#### 118. Document management

A free Guided Tour demo disk explains how a Virtual Printroom system moves critical documents throughout an engineering or design practice, using electronic digital masters created from any paper, aperture card, or CAD source. 703/787-2111. Xerox Engineering Systems, Herndon, Va.



#### 119. Brick selection help

A new architectural support system, Bricklink offers both design-idea and technical guidebooks, a color palette selection chart, a slipcased binder, and six different portfolios holding brick samples. Also available in 1996, a Chip Express will deliver free specification samples of any five bricks within 24 hours. 800/5-BORAL-5. Boral Bricks, Inc., Augusta, Ga.



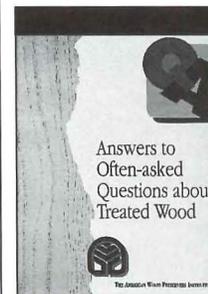
#### 120. Global art on CD-ROM

ArtistAvenue is an electronic directory sourcing original paintings and artwork for corporate and private art consultants, architects, and interior designers. The disk allows access to over 800 images and information on 130 artists world wide, cross-indexed by artist name, media, price, subject, and style. Cost \$24.95. 303/292-2230. K Street Systems, Denver.



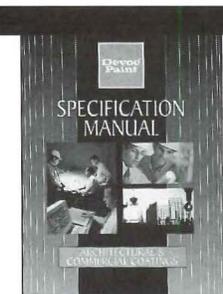
#### 121. Artist/artisan sourcebook

An Architect's Edition showcases the work of 235 artists specializing in commissioned, site-specific art, illustrating work in ceramics, mosaics, and wall reliefs; stained glass and wrought metal; sculpture; and public art. Architectural restoration, a new section, lists over 100 active firms. 800/969-1556; free to qualified professionals. The Guild, Madison, Wis.



#### 122. Longer-lasting wood

A design and technical manual explains how treating wood with preservatives extends the service life of structural members exposed to weather and decay and conserves timber resources. Gives environmental data for both preservative treatments and rot-resistant wood products. 703/893-4005. American Wood Preservers Institute, Vienna, Va.



#### 123. Stains and coatings

A 24-page catalog lists product specifications for coatings for various surfaces and environments common in commercial and residential applications, including interior and exterior paints, primers, wood stains, clear sealers, and finishes. Includes appropriate VOC data. 502/897-9861. Devco & Reynolds Co., Louisville, Ky.

For more information, circle item numbers on Reader Service Card.

**Product Literature**



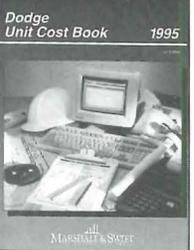
**124. Reducing lead hazards**

Preservation Brief 37 describes how to abate lead-paint hazards in historic housing in economical ways that retain the original characteristics of the architectural elements. Case-study projects shown include a Boston row house successfully adapted for low-income housing. Small charge. 202/783-3238. National Park Service, Washington, D.C.



**125. Intumescent door seals**

A proprietary specification for Section 08720 in CSI SpecText format, Zero's *Fire and Smoke Door Seals* on disk (Macintosh and Windows) includes reference standards, building codes, definitions, installation and maintenance recommendations, and typical details. Fax letterhead requests to 718/292-2243. Zero International, Bronx, N.Y.



**126. Unit-cost data**

New Dodge books have local multipliers for over 825 geographic regions throughout the U.S. and Canada, letting local users estimate construction projects, establish preliminary budgets, or check estimates. A Metric version meets federal requirements for metric bids. Also available: current-cost software. 800/421-8042. Marshall & Swift, Los Angeles.



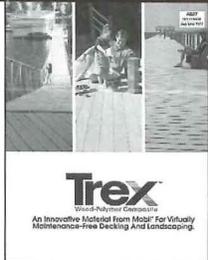
**127. Reinforced-concrete design**

A 14-minute video, *Building Design Concepts, An Architectural Perspective*, takes a step-by-step approach to discussing all the major factors considered when selecting a structural system for all building types, both low- and high-rise. Other design aids highlight prominent built projects. 708/517-1200. Concrete Reinforcing Steel Institute, Schaumburg, Ill.



**128. Proper flooring removal**

A 36-page booklet, *Recommended Work Practices for the Removal of Resilient Floor Coverings*, describes techniques that insure compliance with OSHA's new permissible exposure limit for asbestos, when followed by trained personnel. 301/340-8580. Resilient Floor Covering Institute, Rockville, Md.



**129. Wood-polymer lumber**

A catalog describes Trex, made from reclaimed plastic and waste wood, marketed for use in decking in marine, commercial, and residential applications. The material is listed by BOCA for such use, the first plastic or wood/plastic lumber to be accepted. 800/BUY-TREX. Mobil Chemical Co., Norwalk, Ct. ■

For more information, circle item numbers on Reader Service Card.

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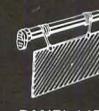
POP-UP BAR



POP-UP COMPUTER



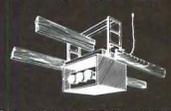
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## Manufacturer Sources *continued*

### Additional Information

*For those wanting further information on the Environmental Home discussed on pages 24-29 and similar programs, these organizations will provide lists of environmentally oriented sources.*

- Waterloo Region Green Home  
Waterloo, Ontario, Canada  
519/576-0306
- Timber-Tech house  
Center for Resourceful Building Technology  
P.O. Box 100  
Missoula, MT 59806  
406/549-7678  
[CRBT also offers a *Guide to Resource-Efficient Building Elements*]
- ReCraft East  
Kate S. Warner, Architect  
P.O. Box 172  
West Tisbury, MA 02575
- Environmental Showcase Home  
Arizona Public Service Company  
Box 53999, mail station 8510  
Phoenix, AZ 85072-3999  
602/250-2277
- The Harris Directory: Recycled Content Building Materials (diskette)  
The Stafford Architects  
1916 Pike Place, # 705  
Seattle, WA 98101  
206/682-4042
- National Recycling Coalition, Inc.  
*Building for Tomorrow* guidebook  
1727 King St., Suite 105  
Alexandria, VA 22314-2720  
703/683-9025  
Fax: 703/683-9026

### Multiple Chemical Sensitivities Homes

*Information about both the Health House sponsored by the American Lung Association and the Multiple Chemical Sensitivities House designed for a private client can be obtained by contacting the architect:*

- Rick Carter  
LHB Engineers & Architects  
250 Third Ave., North; Suite 450  
Minneapolis, MN 55401  
612/388-2088

Consider also, *Your Natural Home: The Complete Sourcebook and Design Manual for Creating a Healthy, Beautiful, and Environmentally Sensitive House*, by Janet Marinelli and Paul Bierman-Lytle. Boston: Little, Brown and Company, 256 pages, \$21.95. ■

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**Judging:** Entries will be judged on originality, clarity, elegance, and the extent to which the computer's unique abilities are used. The 1996 jury includes Tucker Viemeister, vice president product design at Smart Design, Inc.; Deborah Berke, a New York City-based architect; and another judge to be named.

**Prizes:** Luna Imaging, Inc., Venice, Calif. (<http://www.luna-imaging.com>), offers this year's prizes. *First Prize: Frank Lloyd Wright: Presentation Drawings*, an award-winning CD-ROM collection of nearly 5,000 drawings of more than 860 projects spanning Wright's career. Value: \$1,500. Two second prizes will be awarded, *Houses of Frank Lloyd Wright*, a CD-

ROM containing more than 1,000 drawings and photographs. Value: \$199. Winning entries will be published in the June 1996 issue of ARCHITECTURAL RECORD and exhibited at the A/E/C/SYSTEMS '96 computer exposition.

**Rules:** Projects delineated can be real, potential, or speculative, but they must not have been previously published in a design or computer journal as either editorial or advertising. Images prepared solely for promotional use by manufacturers are also ineligible. An entry may be created on any platform, using any hardware or software. Submit hard-copy (maximum size 11 in. by 17 in.), 35mm slides, or VHS cassette (the latter only for animations). Submit single images, except where a suite of images is essential to describe the concept. Entries must be received by Wednesday, March 13, 1996. Entries remain property of owner, but may be republished in print and electronically. Entries accompanied by a stamped, self-addressed envelope will be returned. Queries: 212/512-4256 (fax); [jarussel@mcgraw-hill.com](mailto:jarussel@mcgraw-hill.com) (e-mail).

**There is no entry fee, but information below is required for projects to be judged**

Entrant's Name	Project Name	Client	
Company	Street	City	State Zip
Phone Number	Fax Number	Name of any firms providing imaging or output services	
Please tell us the hardware, software, and output devices you used. List by company and brand name (i.e., Autodesk AutoCAD 12, Apple Power Macintosh 6100)		Names of collaborators (firms or individuals) who should be credited	
Software 1	Software 2	Software 3	Software 4
Hardware 1	Hardware 2	Hardware 3	Hardware 4
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Submissions should be mailed to:

James S. Russell **COMPUTER DELINEATION AWARD** ARCHITECTURAL RECORD, 1221 Avenue of the Americas, New York, NY 10020

**Letters** continued from page 4

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tural schools, then the number of admissions and graduates would automatically be limited to the level the profession can absorb, and the quality of those graduating would be raised dramatically.

*Frank Orr*

*Orr/Houk & Associates Architects  
Nashville*

**Rediscovering Scharoun**

Having spent time in Berlin recently working on Friedrichstrasse and as a juror for the competition surrounding the Lehrter Bahnhof, I just want to point out that the piece "Berlin Struggles to Remake Itself" [RECORD, October 1995, pages 29-112] very accurately mirrors the conversations and debates I was involved in. I found only one point missing...and it's one that surprised me when I was there: namely, that Hans Scharoun occupies the towering high ground for the more romantic (and deeply German) modernist faction of the profession. His buildings continue to represent liberation from both the rigid traditionalists and the chilly modernists who dominate the debate. He seems to be free from political content and from historic pathologies. Worth thinking about.

I also did see Kollhoff's plan and model for Alexanderplatz. While it may look like Battery Park City, the similarity is superficial. What defines Battery Park City is the setting of river, parks and streets, where commercial buildings sit comfortably in a benign environment. Kollhoff's composition merely underscores the oppression of the site and heaviness of the density.

*Alexander Cooper*

*Cooper, Robertson & Partners  
New York City*

**Corrections**

• A sketch from the archives of The Architects Collaborative, identified as the work of Walter Gropius [RECORD, September 1995, page 19], was actually the work of John C. Harkness. Harkness and Gropius worked together as partners-in-charge on the design of the American Association for the Advancement of Science Building.

• The credits for the Columbus Regional Hospital [RECORD, November 1995, pages 100-103], should have included Walter P. Moore and Associates as structural engineer, not P.S.S. Partnership. In addition, John  
*continued on page 103*

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**Calendar** *continued from page 4*

exhibition to be shown at the Michael C. Carlos Museum at Emory University in Atlanta. 404/727-4282.

**February 4-8**

The Civil Engineering Research Foundation (CERF) will hold a symposium in Washington, D. C. titled "Engineering and Construction for Sustainable Development in the 21st Century." Limited to 600 participants. For Registration information, fax CERF Exhibit Manager, 703/524-4672.

**February 8-June 13**

"Masters of Architecture" lecture series presented by the AIA/Los Angeles and the Los Angeles County Museum of Art comprises: February 8-Thom Mayne  
March 28-Panos Koulermos  
April 11-Pierre Koenig  
May 16-Peter Eisenman  
June 13-John M. Johansen.  
Call 310/821-0911 for information.

**February 18-April 8**

"Collegiate Challenge: Spring Break 1996" is an event coordinated by the Campus Chapters department of Habitat for Humanity International. It offers construction participation opportunities to students at HFHI affiliates around the U.S. 912/924-6935 or fax 912/924-6541.

**Competitions**

• Entries for the Hugh Ferriss memorial prize must be received by January 12. Call American Society of Architectural Perspectives at 617/951-1433 ext. 225 for entry form.

• Entry deadline to the Chicago Athenaeum's "Midwest Villa" competition is January 15, 1996. Call 312/251-0175 for details.

• Competition for the design of the Kansai-kan library has a registration deadline of January 16, 1996. Address inquiries to: Kansai-kan of the National Diet Library Design Competition Office  
Government Buildings Dept.  
Minister's Secretariat  
Ministry of Construction  
Central Government Bldg. No. 3  
2-1-3 Kasumigaseki  
Chiyoda-ku  
Tokyo 100, Japan

• Entries to the Benedictus Award competition for architectural projects using laminated glass are due March 1, 1996. Call 202/393-5247 for information.

• Entries to the Young Architects Competition are due February 12, 1996. This year's theme is "form." Call 212/753-1722 for information.

• Entries to the Bucharest Town Planning Competition are due March 20, 1996. Deadline for inquiries is January 31, 1996 by fax to Romania (40.1) 312 09 56.

**Corrections** *continued from page 102*

Crane was principal-in-charge at Falick/Klein Partnership; Cynthia Watson, FKP, was medical designer and project manager.

• The LAC+USC Medical Center project appeared in the article "Are Big Hospitals Dinosaurs?" [RECORD, November 1995, page 98]. Lee Burkhardt, Liu (LBL) was given sole credit for the design of the \$1.2-billion replacement hospital for the Los Angeles County-University of Southern California Medical Center. In fact, HOK and LBL are joint venture partners in the planning and design of the project. ■

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**STYLE,**  
*it makes up in*  
**BRUTE**  
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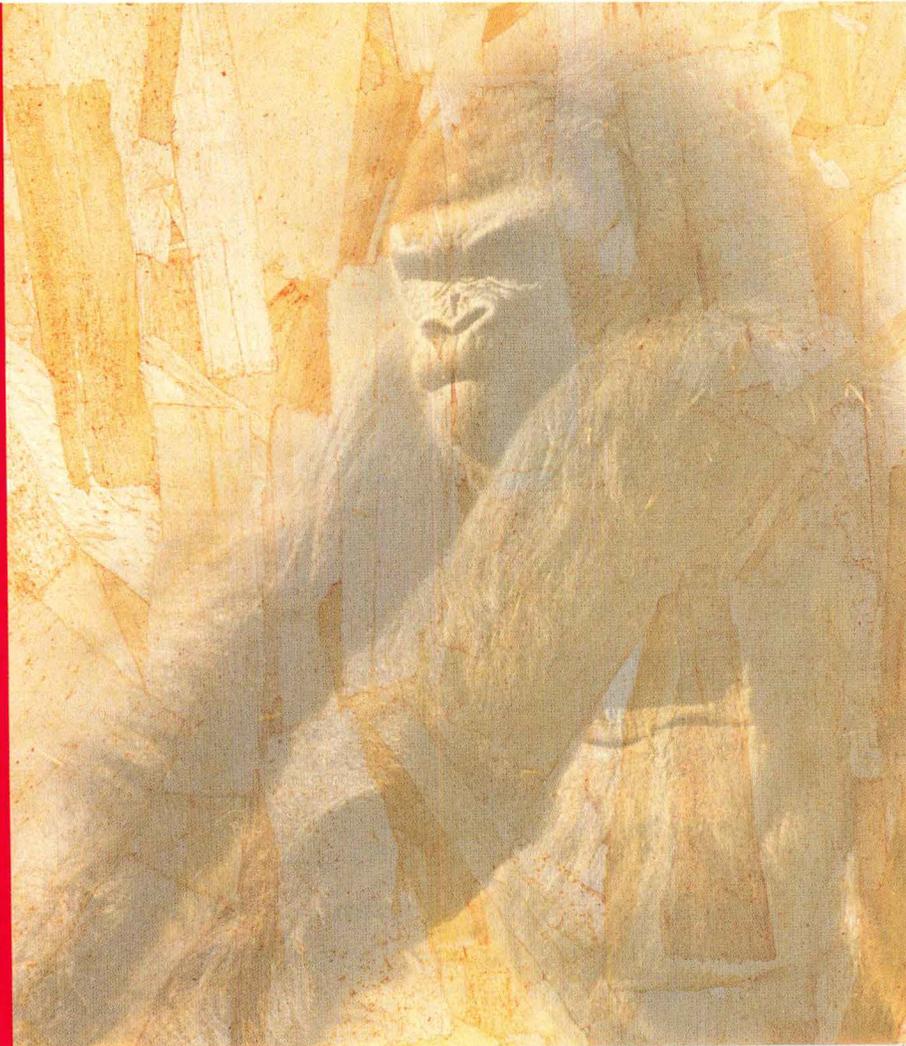
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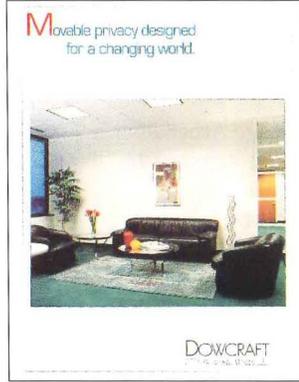


Heat-N-Glo Fireplace Products has taken its direct-vent technology and incorporated it into a new high performance fireplace. Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) and has a AFUE (Annual Fuel Utilization Efficiency) rating of 63%. Also, the 6000 Supreme is standard with a variable regulator to adjust the flame and BTU input with the turn of a dial. Heat-N-Glo, 6665 West Hwy 13, Savage, MN 55378, 1-800-669-HEAT.

### Heat-N-Glo

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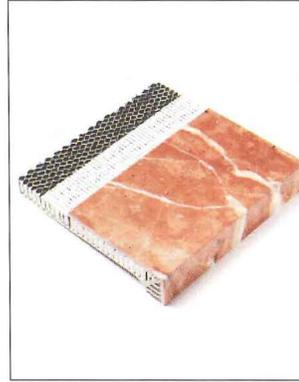


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## TOTAL DOOR® SYSTEMS by OPENINGS®

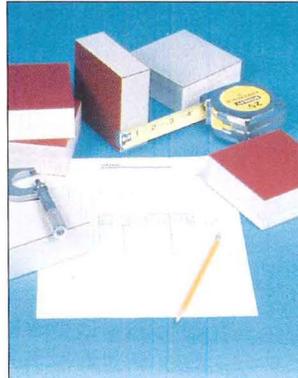


The TOTAL DOOR® SYSTEM is an architect-designed integrated door assembly. It includes prefinished door panels and all hardware. Fire rated pairs do not require coordinators, vertical rods, astragals, flush bolts or floor strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics. OPENINGS, 40 West Howard, Pontiac, MI 48342, 1-800-852-6660.

### OPENINGS.

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## Atlas Fire Rated Counter Tops



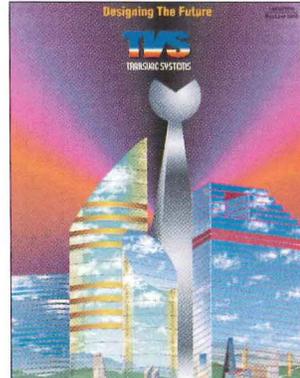
Atlas Door Corporation's complete line of fire rated countertops offers an integrated fire rating of 1/3, 3/4 and 1-1/2 hours on both countertop and vertical rolling steel fire door/shutters. Custom options, including various sizes, shapes, laminates, and materials are available to meet virtually any field combination or design.

Call 800-959-9559.

### Atlas Door Corporation

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## Automated Vacuum Transport Systems



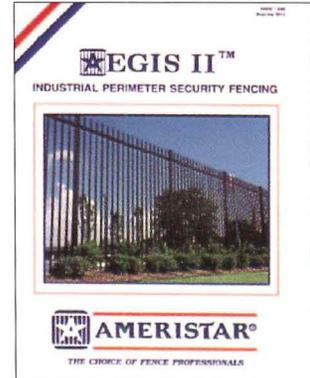
Waste and/or soiled Linen

- Perfect for large hospitals and similar buildings that serve thousands of people
- Improve the building environment, management, and maintenance
- Full-vacuum and gravity/vacuum technology
- Custom design each system to building specifications

### Transvac System, Inc.

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## EGIS II™

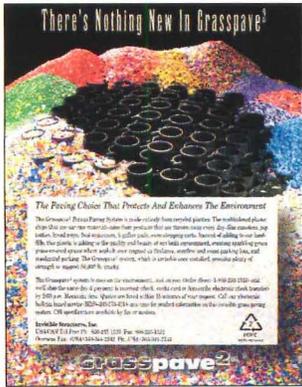


Aegis ornamental fence systems feature strong Forerunner™ rails, internal retaining rods, & specially designed panel brackets. Aegis II industrial ornamental fence offers the strongest security ornamental fence available in today's market. Aegis holds the distinction of having its fence systems specified by more architects & builders than any other in the market. Both industrial & residential brochures are available upon request & include data on structure, design, & options available. Panel design is a component system for easy shipping. For additional information & a free 8-page brochure, call (800) 321-8724. P.O. Box 581000, Tulsa, OK 74158-1000. Fax# (918) 835-0899

### AMERISTAR®

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### Pave with Grasspave<sup>2</sup>

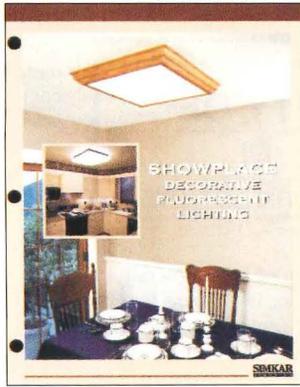


Grasspave<sup>2</sup> invisible porous pavers are made entirely from recycled plastics, saving truckload volumes of plastic articles from landfills, and creating sparkling green and real grass-covered spaces where asphalt once reigned - in firelanes, overflow and event parking lots, and residential drives and parking.

#### Invisible Structures, Inc.

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### SIMKAR Lighting

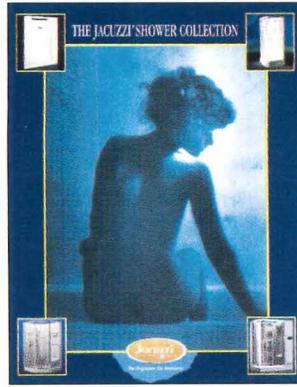


Simkar announces the "SHOWPLACE" decorative Fluorescent Lighting Catalog. Select from the industries largest selection of decorative fluorescent with your choice of T12 or T8 models. The 40 page color catalog pictures each family and lists all ordering information. Shipping products Worldwide. 601 E. Cayuga St., Phila., PA 19120-4691. (215) 831-7700 fax 7703.

#### SIMKAR

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### Shower Collection



JACUZZI WHIRLPOOL BATH - presents The Jacuzzi® Shower Collection featuring the Custom Shower System and The J-Dream™ Family. This full-color brochure showcases the company's wide array of innovative shower designs and steam bath options. For more information please call 1-800-678-6889. Brochure free of charge.

#### Jacuzzi Whirlpool Bath

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### Concrete Waterproofing by Crystallization



Applied as a slurry coating, Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that 'plugs' the pores of the structure preventing water seepage. Xypex is ideal for use on the 'inside' of wet underground structures.

#### Xypex Chemical Co.

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### Introducing the New Alpha Collection



With 24 patterns to choose from, ranging from the most basic vandal resistant **TEXTURES** (shown above), to innovative **STANDARDS** and our new **ULTRA Series**. All patterns come in standard sheet sizes with border to border decorations, using distinctive finishes on a variety of metal surfaces for elevator doors and interiors, wall panels, column covers, and trim. Call (800) 537-1127 / Fax: (305) 696-4064

#### Surface Design + Technology

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### Door and Wall Protection Systems



IPC - Institutional Products Corporation is a manufacturer of high impact door, corner and wall protection systems. Our catalog illustrates a product line that includes Handrails, Corner Guards, Wall Guards, Kickplates and Wallcovering. Our durable vinyl products, offered in 50 designer colors, provide an attractive way to protect interior finishes from damage.

#### Institutional Prods. Corp.

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### Rinnai Universal Gas Furnace

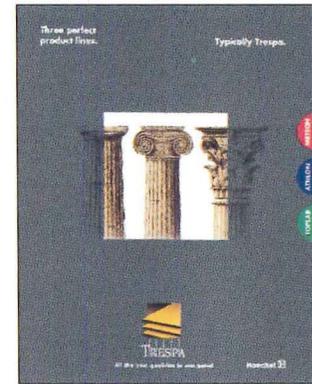


Rinnai's EnergySaver 431 direct-vent gas-fired universal furnace combines contemporary styling with exceptional energy efficiency. Features include cool-to-the-touch cabinetry, quiet operation, child safety lock, electronic ignition, no open flame, Natural or LP gas, convenient controls and displays, built-in thermostat, humidifier and memory to remember the temperature setting, and a 5 year limited warranty. EnergySaver model 556 includes all he same features and 16,700 BTU's as model 431, plus it includes a dual timer set back and a remote control. Rinnai America, 1662 Lukken Industrial Drive West, LaGrange, GA 30240, (8090) 621-9419

#### Rinnai America

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### Trespa® Solid Composite Panels Three Product Lines



Toplab® chemically resistant laboratory grade panels for benchtops, work surfaces, shelves. Athlon® sanitary grades for toilet partitions, lockers, vanities. Meteon® UV colorfast grade for exterior cladding, soffits, fascias, balcony panels. All grades are durable, available in colors, and proven performers in these applications. 1-800-4-TRESPA.

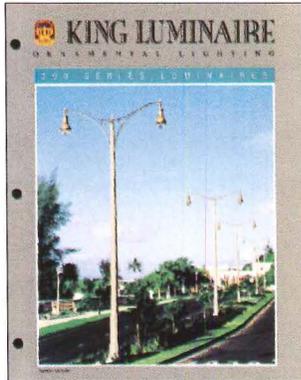
#### Hoecht Celanese Corp.

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# Classified Advertising

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**King Luminaire Co., Inc.**

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**CHADSWORTH'S 1.800.COLUMNNS** chosen #1 by *Professional Builder* readers. Wood, Fiberglass, Stone, Polyester, E.P.S., Marble. Interior, Exterior. All sizes. Round, square, octagonal with plain or fluted shafts. Job site delivery. Worldwide shipping. Competitive prices. Largest selection anywhere. All this and one easy number to remember... 1.800.COLUMNNS. 1.800.265.8667. Free brochure.

**Chadsworth Columns**

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## FACULTY POSITIONS VACANT

### UNIVERSITY OF M I A M I SCHOOL OF ARCHITECTURE

The School of Architecture of the University of Miami seeks applicants for two tenure track faculty appointments to offer undergraduate and graduate level instruction in architectural design plus courses in a specialty such as theory, sustainability, or technology. One of these positions is primarily in the area of technology. These full time positions include responsibilities for teaching, scholarship, administration and service. Candidates should have a terminal degree in their field, previous teaching experience, and creative work in design, scholarship, practice or a combination thereof which demonstrates promise of significant achievement. Candidates should send a letter of interest and curriculum vita to: Jorge Hernandez, Chair, Faculty search Committee, University of Miami, School of Architecture, P.O. Box 249178, Coral Gables, Florida 33124-5010. Review of the applications will begin on **December 1st**. *The University of Miami is an EO/AA employer.*

### The University of Minnesota

invites applications and nominations for the full-time position of Dean of the College of Architecture and Landscape Architecture. For complete information, including a description, qualifications and selection criteria, please call (612)625-5790. Deadline for application and receipt of all materials is February 15, 1996. The University of Minnesota is an equal opportunity educator and employer.

## POSITIONS VACANT

**Architect - Research, plan, and design** building projects. Develop scale drawings and models using freehand sketching and airbrush rendering. Monitor projects on-site for compliance with plans. Prepare manuals, reports, and studies regarding projects. Must have one year of experience with AUTO-CAD and three dimensional architectural design software. Bachelor's degree in architectural design or equivalent with 5 yrs. experience. Mon.-Fri. 8 a.m. to 5 p.m. (40+ hrs./wk) \$27,930.00. Must have proof of legal authority to work permanently in the U.S. Send resumes to: Illinois Department Of Employment Security, 401 South Street - 3 South, Chicago, Illinois 60605, Attention: Leila Jackson, Reference #V-IL 13163-J. No Calls. An Employer Paid Ad - Send 2 Copies Of Resume.

**Research Associate for firm in NE Ohio.** Conduct urban design research and participate in the development of energy conservation programs

for university buildings. Includes: examining energy use at a building scale with the ultimate aim of understanding and controlling its use at a larger, community level; analyzing present energy use of selected buildings; developing and implementing a process of analytical modeling; creating a methodology using computer models that perform hour-by-hour dynamic thermal and electrical modeling of a building that considers occupancy patterns, surrounding structures, local weather data, and utility rate structures; evaluating conservation of a control, mechanical, and architectural nature; analyzing and modeling systematic interactions of energy conservation measures; and making recommendations for better energy efficiency based on research. Must have M. Arch in Architecture. Academic program must have included one course each in the following areas: Building Energy Use Analysis, Urban Design, Daylighting, and Building Construction and Materials. Must be conversant with computer applications in architecture - particularly including 3D modeling and such software as Upfront, AutoCad, and DOE2 as evidenced by academic letter(s) of reference or employer testimonial(s). Must have three years in job described or three years experience as an architect. Experience must have included architectural research and computer-simulated thermal models of building behavior. Experience may be gained before, during, or after degree. 40hrs/wk, 8:00 am-5:00pm, \$27,000/yr. Must have proof of legal authority to work indefinitely in U.S. Send resume, cover letter, & course transcript in duplicate (no calls) to J. Davies, Ref# 1496, Ohio Bureau of Employment Services, PO Box 1618, Columbus, OH 43216.

## POSITIONS WANTED

**Latin American architect, 20 yrs. experience** in both Architectural & Engineering outstanding Firms in Uruguay and Brazil, projects and construction, (estimating costs, times, on site observations, contracts, coordination, etc.) Housing Programs, low cost projects. Metric System experience & three languages speaking and writing. Salary minimum commensurate until experience is acquired. Any place of US or Canada, either Architecture or Engineering Firm. Contact Gabriel Catz, Juan M. Perez 2917/403, Montevideo, Uruguay (11300), fax: 00(598)(2)684244 or phone: 00(598)(2)704459.

## BUSINESS OPPORTUNITIES

**Interested in buying and Established Architectural Firm** with a narrow focus. Grossing 300K to 700K per Yr. Location preference: 1. Dallas/FT. Worth, 2. Austin, 3. Houston, 4. Minneapolis/ST Paul. Will consider all proposals P.O. Box 452812, Garland, TX 75045, TX 75045-2812.

**Wanted: Christians promoting a Gospel Style of** architectural, urban and interior designs. Let's team up. Write to Hotma Oppusunggu, 7 Billings Avenue, Toronto, Canada M4L 2S1.

### Computer Software KNOW-HOW

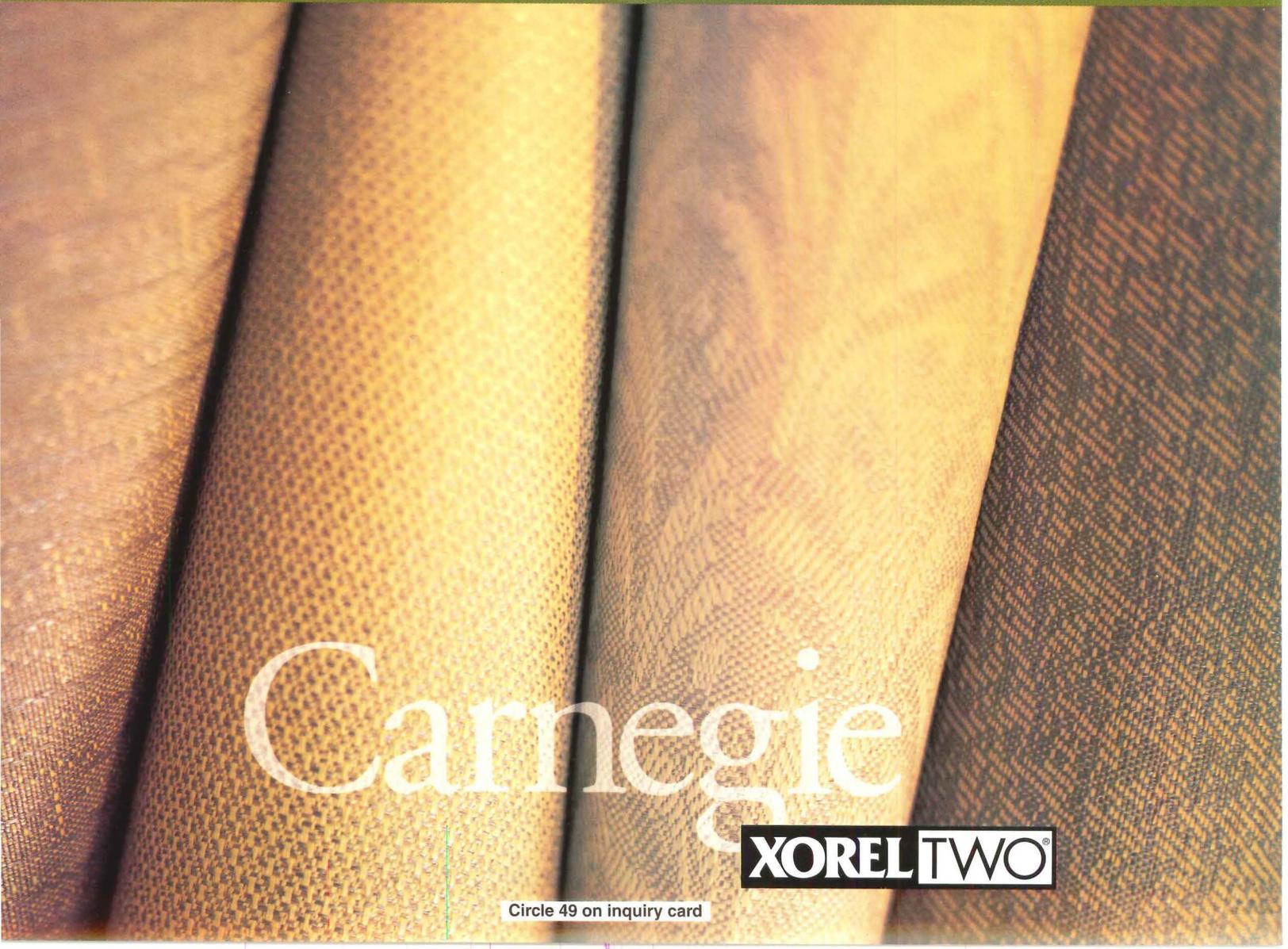
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