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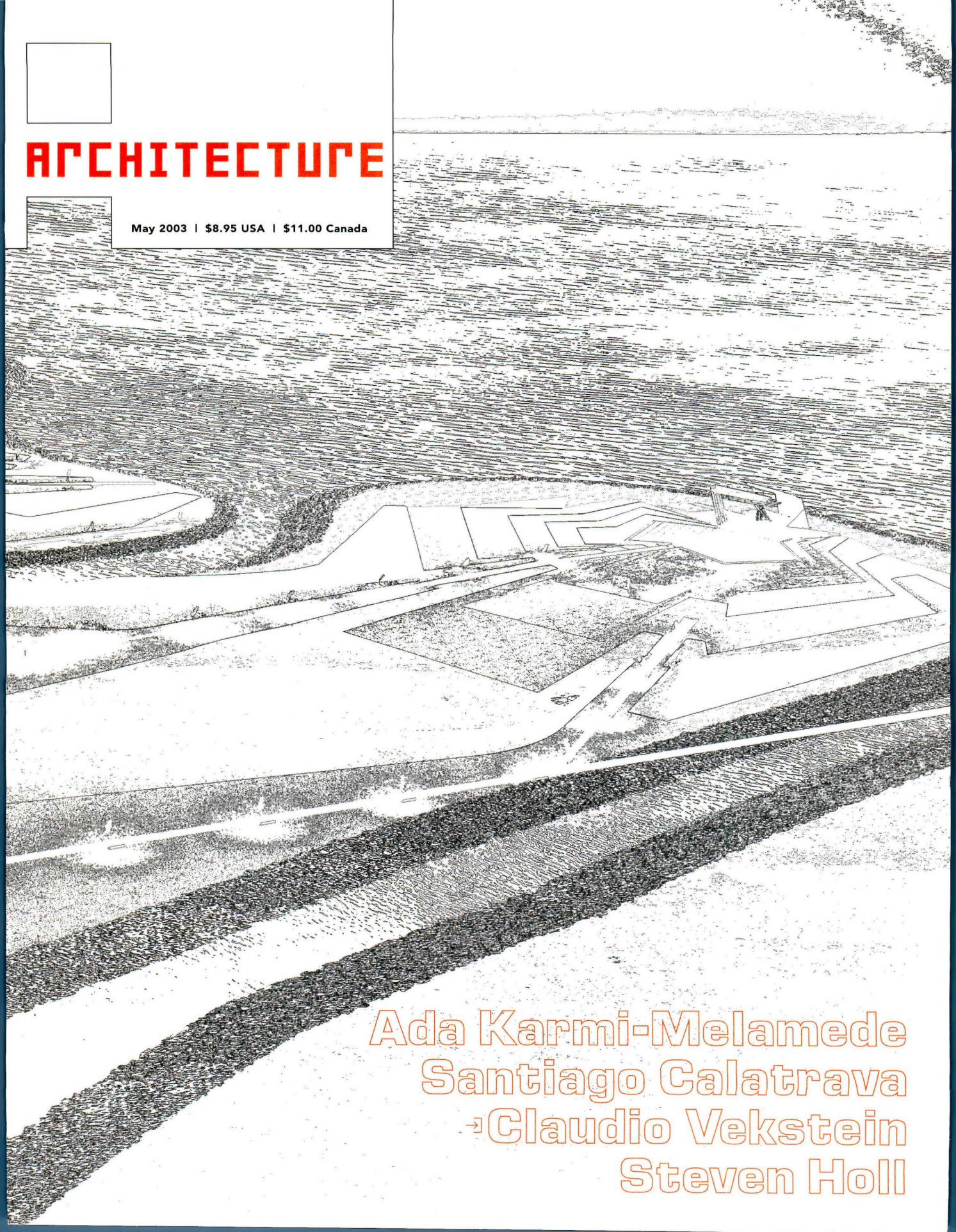

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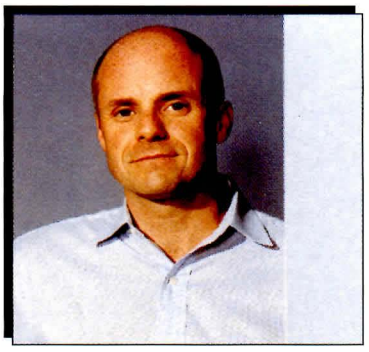


ARCHITECTURE IN PROGRESS

BY C.C. SULLIVAN

Things change. As the profession evolves, so must we. This issue marks a major departure for *Architecture* magazine. You'll notice new ideas from our editorial team: a new format, new departments, and a new look. And you'll detect the imprint of our eminently capable art director, Casey Maher. We think this change is for the better. We hope you'll agree.

Our new, reader-friendly table of contents (pages 8, 9) illuminates the thinking behind our new design. The inspiring and informative content you expect from *Architecture* is now organized into three clearly defined sections—Practice, Design, and Process—which mirror three fundamental aspects of the profession, three pillars of the quest for excellence. The architect's endeavor is equal parts business, art, and science; when an element is neglected, the structure is untenable. Now *Architecture* better supports this architectural triumvirate.

Tying the three sections together is our fundamental belief that great architecture results from a finely honed, well-informed *process*. The product of that effort is the lasting embodiment of the architect's work, but the only way to advance the end-result is to improve the day-to-day workings: interpreting the client's program and goals, critiquing the designer's methods and craft, advancing the builder's technical execution. Refining the overall process, we believe, is the key to your success and professional satisfaction.

Our magazine's goal is to conscientiously and diligently support that effort, to help fortify these pillars for a sturdy, broad foundation. To that end, here's what you'll find in every issue:

Practice. More than just the organization and governance of a studio, Practice is about how architects—and architecture—relate to the big picture: politics, commerce, global affairs, and regulatory and market trends. Successful architects consider their world broadly, discerning market and client solutions through a holistic approach.

Design. Creative inspiration, from the places where the most challenging and exceptional work is taking place: that's what you'll find in Design. By studying key design inputs—historical and regional influences, context and client, materiality and structure, macro trends that transcend time and place, and the creative process that translates construction into built solutions—we'll illuminate today's best thinking and projects. And we'll do so with the same award-winning writing and photography you've come to expect from *Architecture*.

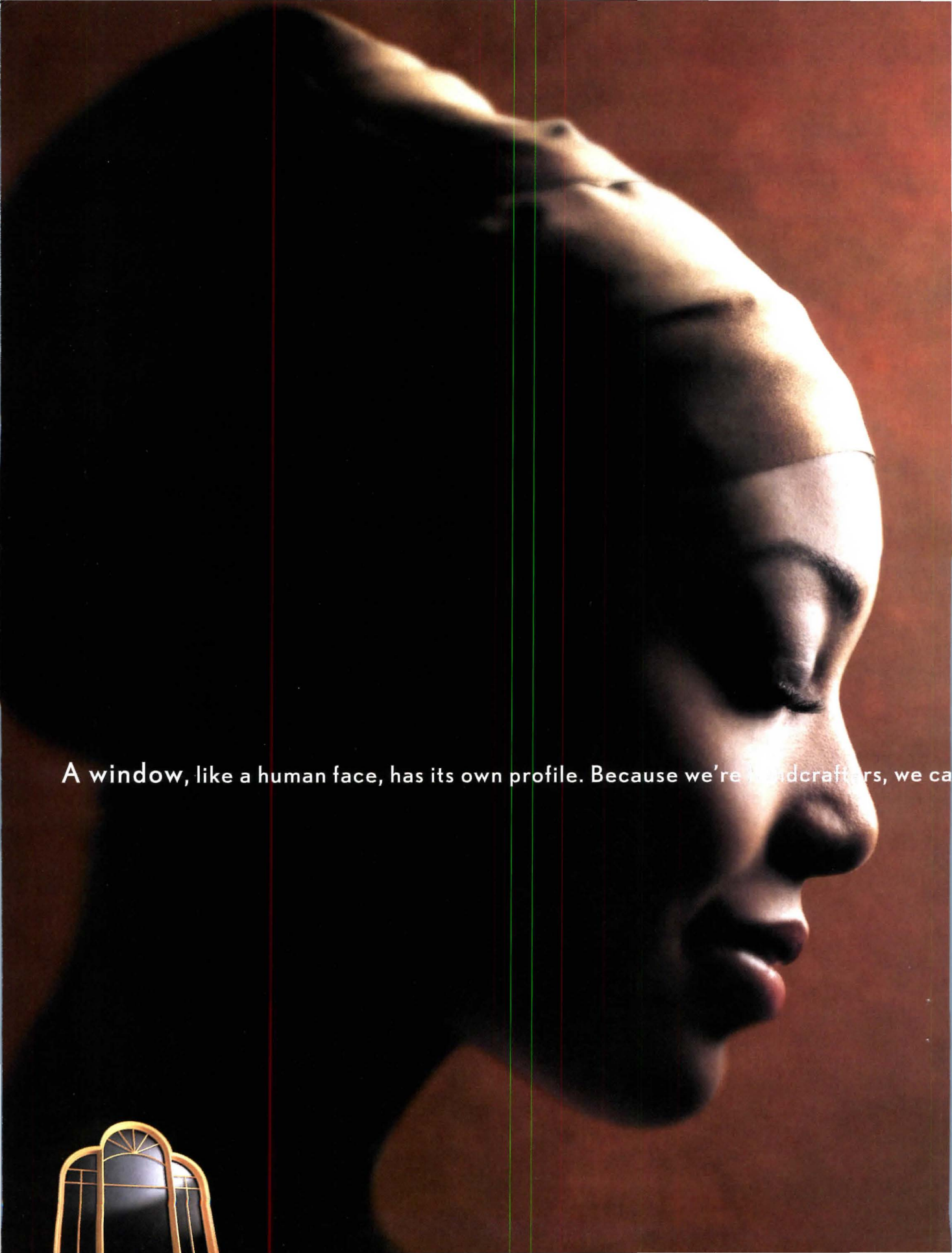
Process. From the first client interaction to the final punch list, the architect makes everything possible. In Process, we'll examine the designer's craft, new methods and materials, computer technologies, fabrication and construction techniques, as well as new products, from structural systems to field-applied finishes.

In addition, we debut two new departments this month. On page 40, our first large-firm roundtable inaugurates **Firm**, a monthly window onto current issues and trends affecting practice management. On page 108, we launch **Tech**, a new department devoted to that place where process meets the digital realm: hardware, software, peripherals, and more. These new departments will serve equally the needs of both solo practitioners and growing firms.

With these improvements and innovations, we present you with a more agile, more accessible *Architecture*. Our aim is quite simple: to help you—and your work, and your profession—grow. Last year, upon joining this 85-year-old journal, I wrote that our editorial mission is to reflect the mindset and discipline of the profession, and to examine and occasionally exalt the best results. A healthy focus on how architects work, buttressed by the three pillars of the discipline, will bring us closer to that goal. And to help us along the way, we welcome your valuable insights, your critique of *our* work, and news on how your design process helps craft buildings and spaces. The better we understand your needs and interests as readers—and as architects—the better this magazine will be.

WANTED: WORLD-CLASS PROCESS Is your design approach unique? Have you found a way to promote technical virtuosity in the field? Is technology advancing your craft—or the other way around? Do you serve a certain type of client better than anyone else? We'd like to hear about it. Please send your "process brief" and supporting documents to my attention at Architecture, 770 Broadway, New York, New York, 10003.

MICHELE ASSELIN


A window, like a human face, has its own profile. Because we're

Cuban Building Blockade

As John Loomis mentions in "City on the Verge" (March 2003, page 41), Eusebio Leal is doing an outstanding job restoring some areas of Old Havana—with the help of European corporations hoping to cash in—but as soon as an area is restored, it becomes a tourist zone devoid of common Cuban citizens. Also, Loomis's advice that the government "provide low-interest loans to homeowners" is absurd. It reminds me of an intellectual architect who joined the "Havana Project" to "save" the city and asked, "Why are the 1950s vintage cars so well maintained, while the buildings are falling apart?" The answer is simple: The cars are owned by somebody; the buildings belong to the state.

J.A. de Plazaola
Winter Park, Florida

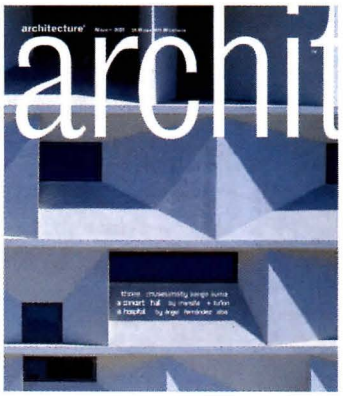
License to Steal

Bay Brown's "Report Card" critique of the AIA's continuing-education program (March 2003, page 49) expresses many of my thoughts. Two years ago, I allowed my AIA membership to lapse because of the conflicts and superficiality of the program, and the institute's paternalistic attitude towards members. The expenses of belonging can no longer be justified. Now, like fingers sticking to a gluey mess, I find I can't record CEUs unless I send money to the AIA!

Erich R. Griebling
Newburyport, Massachusetts

While I agree that the National Council of Architectural Registration Boards (NCARB) and the individual states have not been leaders in continuing education, the AIA system has provided leadership and a system grounded in quality. Your source's experience with product lunches as "tarted-up marketing presentations" is an area that the AIA addresses: If an AIA provider does not adhere to strict guidelines, they are subject to review, censure, and dismissal. Finally, a distinction: Fred Peccini's frustration with the single learning unit for a paint seminar versus his ineligible graduate course points out a misunderstanding of "education" as compared to "continuing education." The AIA system is exclusively concerned with the latter.

Wolf Saar
Seattle



03 | 2003

The unnamed New York City architect quoted in "Report Card" is wrong. NCARB monographs do qualify for Health, Safety, and Welfare credit. As an organization, we promote a single standard for state-mandated continuing education, but individual state legislators do not always accept the "model law," leading to the variations you noted. As a case in point, under New York State law, an architect could receive credit for only one NCARB monograph in the three-year registration period, if they have not submitted any other self-study courses. We know of no other jurisdiction that imposes such a qualification; it may have led to your source's misstatement.

Lenore M. Lucey
Executive Director, NCARB
Washington, D.C.

Neomod Squad

Thank you, Duo Dickinson, for capturing a sentiment secretly shared by many in this profession (March 2003, page 39). Frequently, in the interest of satisfying our own creativity or egos, we fail to take into account the users and general public who have to experience these buildings.

Russell Sanders
North Haven, Connecticut

The New Haven Coliseum is something of a "substantive misfit," additionally fraught with issues of poor construction, though I would not place it in quite the category of Chicago's Cabrini Green. Modernist buildings are under threat in many places; the challenge is to discern those with lasting qualities.

Margaret J. Chambers
New Haven, Connecticut

Eco-Reality

Regarding your sustainability issue (April 2003): The plethora of recent books, events, and products promoting "sustainable design" should more accurately be called "environmentally sensitive" or "environmentally responsive" design. You cannot have sustainable designs with 6.27 billion people on a planet with a carrying capacity of only 500 million—carrying capacity being defined as the number of people the planet can sustain with natural resources regenerated at the same rate as they are consumed.

Rick Box
Port Washington, New York

Memory City

What Studio Daniel Libeskind proposes for the World Trade Center site (April 2003, page 9) is a place that is both part of and independent from the city. But it remains unclear who the client for this giant project is, even though the program is becoming more specifically identified. A proposed land swap would allow the city to develop the site alone and with public disclosure. Meanwhile, however, the Port Authority of New York and New Jersey and the Lower Manhattan Development Corporation are reviewing Libeskind's plan and contract, and it is not clear which entity controls the results.

Because completion of the project will take decades, planning must be flexible enough to accommodate changing ideas about program, aesthetics, technology, and construction. It is essential that the planning concept be clear enough, strong enough, and sufficiently well administered to survive. Will design guidelines be required? If so, who will define and administer them? Design guidelines have proven ineffective unless the architects chosen to implement them are sympathetic to their ideas. Should Libeskind therefore design everything on the site except the memorial? If not, how will architects be chosen? And what is the relationship between his proposal and the initiatives of the developer, Larry Silverstein, who holds a lease on the site together with billions in insurance money? Who is to decide?

The scheme's tiered approach to other elements of the plan—a transit center, a museum, a performing-arts center, and retail and office space—is potent, but all the elements need not be designed by Libeskind, because their convergence around the memorial site and their culmination in the 1,776-foot tower is a design premise strong enough to be understood.

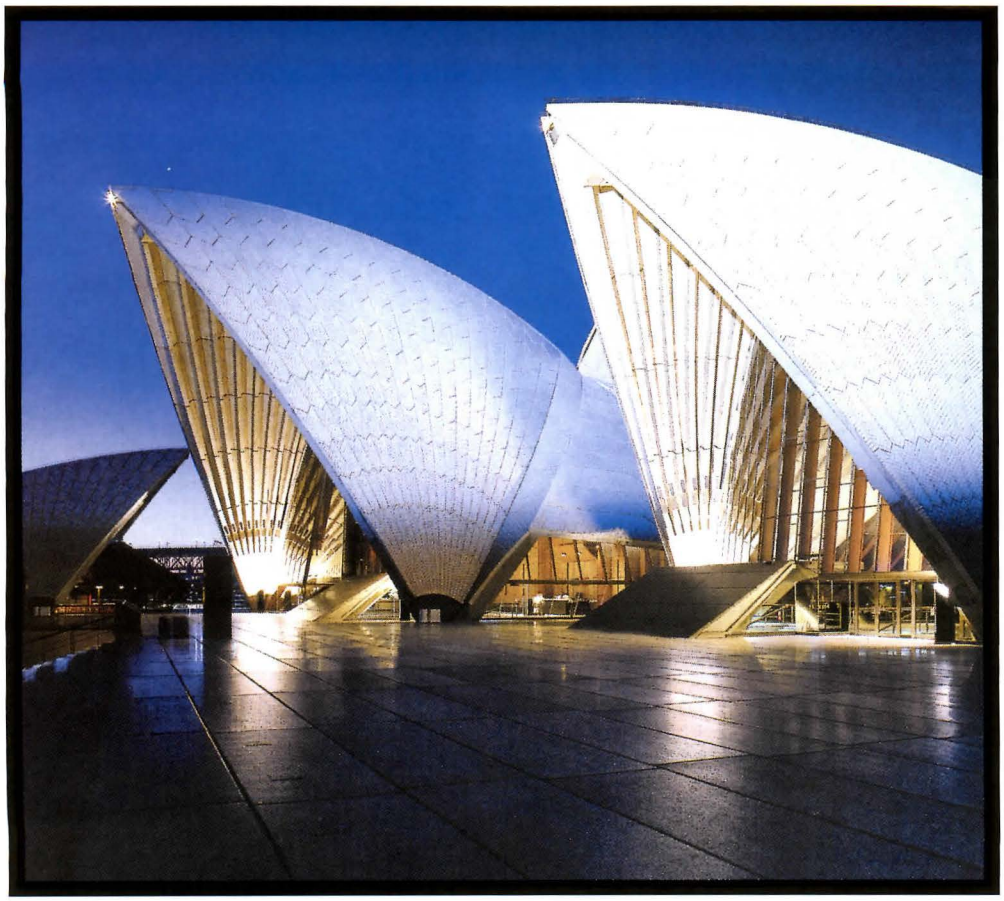
Although the proposal's most remotely timed aspect is a change in the skyline, it remains the most prominent in the public's and the media's consciousness. But the five tall elements of the proposal await the market muscle to put them in place. Even though the separation of these structures in plan permits them to be realized as individual designs, their authors are currently unknown.

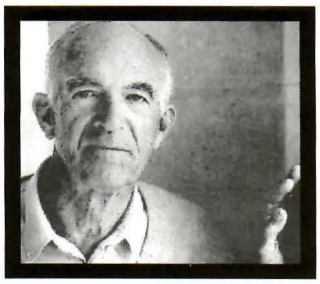
The rhetoric from all the site's stakeholders about what kind of city we want is encouraging, but it is up to the design community to join with other civic watchdogs and insure it gets built that way.

Hugh Hardy
Hardy Holzman Pfeiffer Associates
New York City

CORRECTION

For the article on the Ex Plate Chess House (February 2003, page 30), Ivan Perez-Rossello created the image at the bottom left.





Jørn Utzon (top right) received the coveted Pritzker Prize for his body of work, including the Sydney Opera House (above left), the Fredensborg housing project in Denmark (middle right), and the Kuwait National Assembly (bottom right).

CLOCKWISE FROM LEFT: DAVID MESSENT; COURTESY HYATT FOUNDATION; KELD HELMER-PETERSEN; HANS MUNK HANSEN

JØRN UTZON NAMED 2003 PRITZKER PRIZE LAUREATE

At 85, Danish architect Jørn Utzon has become the 27th recipient of his craft's richest and most respected prize, the Pritzker. To many, the honor seemed long overdue for an architect responsible for one of the twentieth century's most iconic structures and the symbol of a nation, the Sydney Opera House (1957-1973). And in large part, though the award recognizes a body of work, the Opera House formed the backbone of the jury's comments. In Utzon, however, the jury seemed to be honoring not just a collection of works—which Pritzker juror Carlos Jimenez noted were "few and far apart"—but a purity of purpose and the unusual coexistence of humility and exceptional talent.

Utzon yielded a range of diverse projects during his half-century career. "Each startles with its irrepressible creativity," wrote Jimenez—from the Kingo and Fredensborg housing projects and the Kuwait National Assembly to the Opera House and the Bagsvaerd Church with its cloud-inspired ceiling. While arguably a leader of his generation in terms of structural expression, Utzon more importantly offered dynamic architectural responses representative of a context-sensitive approach: The Opera House "seems like a natural growth at the end of the peninsula," described a colleague. The Kingo project (1956-1958), a low-income housing development in Helsingør, Denmark, respects both the land and its inhabitants, providing views and access to sunlight for the 63 houses; Utzon described the arrangement as being "like flowers on the branch of a cherry tree, each turning toward the sun."

In an era that coined the word "starchitect," the recognition of Utzon may help to herald a new period of substance over celebrity. "In the current frenzy of unbound personal expressionism and blind subordination to attention-grabbing techniques," commented Pritzker juror Jorge Silvetti, "his explorations remind us that both 'expression and technique' are servants and secondary to more profound and foundational architectural ideas." Leading an intensely private life, Utzon's approach was never about grabbing attention; indeed, wrote juror Frank Gehry, "He ... did not seek the prize. It sought him."

Though retired to a house he designed on Majorca, Utzon has left his impression on more than Sydney's Bennelong Point: His sons, Jan and Kim, are both architects, with a poignant project in the works—the renovation of the Opera House; his daughter Lin is an artist; and two of his grandchildren hold architecture degrees.

Marking the award's 25th anniversary, the May 20 prize ceremony will be held at the Royal Academy of Fine Arts in Madrid. Jan Utzon will accept the award for his father. **Emilie W. Sommerhoff**

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DANIEL PATRICK MOYNIHAN, 1927 – 2003

When Daniel Patrick Moynihan, the former U.S. senator from New York, died March 26, the country lost a great statesman, and the architectural community lost a great advocate.

More ideas-man than bureaucrat, Moynihan, who served four terms in the senate between 1977 and 2001 and held influential positions with four presidents, was one of the few national political figures to insist publicly and passionately that architecture matters, that cities and public spaces are the lifeblood of this country, and that preservation of historic structures is nothing short of an obligation.

Initiated during his tenure under John F. Kennedy in 1961, his longest-running effort was the revitalization of Pennsylvania Avenue in Washington, D.C., between the Capitol and the White House, an effort that also improved the surrounding neighborhood with a rehabilitated Union Station and the conversion of the Old Pension Building into the National Building Museum. An even farther-reaching initiative was his 1991 sponsorship of the landmark Intermodel Surface Transportation Efficiency Act, which created funding for new highway and transit projects across the country. In his home state, Moynihan influenced the restoration of the U.S. Customs House, the Cooper-Hewitt Museum, and the New York Botanical Garden, and was a staunch proponent of a new Pennsylvania Station; in Buffalo, he helped to save Louis Sullivan's 1895 Guaranty Building.

JIM HARRISON

While his many rallying cries for the betterment of the built environment gained him the AIA's Thomas Jefferson Award for Public Architecture in 1992 and, in 1999, the National Trust for Historic Preservation's highest service award and the Heinz Award in Public Policy—his was often a lone voice among disinterested colleagues. Moynihan's legacy, however, is visible on our streets. **Abby Bussel**

- Of President Bush's recent $75 billion budget request to fund the war in Iraq, $36 million has been earmarked to construct a new embassy in Baghdad. Varying estimates place the eventual cost of rebuilding the country between $30 billion and $100 billion. Initial contracts totaling $600 million to rebuild utilities, roads, and public buildings are already pending, with San Francisco-based engineering-construction firm Bechtel reportedly a lead bidder.

- Architecture for Humanity is seeking volunteers from the design, construction, and engineering industries to donate expertise to help plan emergency shelters and refugee camps along Iraq's borders. For information, e-mail admin@architectureforhumanity.org.

- I.M. Pei received the second annual Henry C. Turner Prize for innovation in construction technology. The prize is sponsored by the National Building Museum in Washington, D.C., and Turner Construction.

continued on page 29

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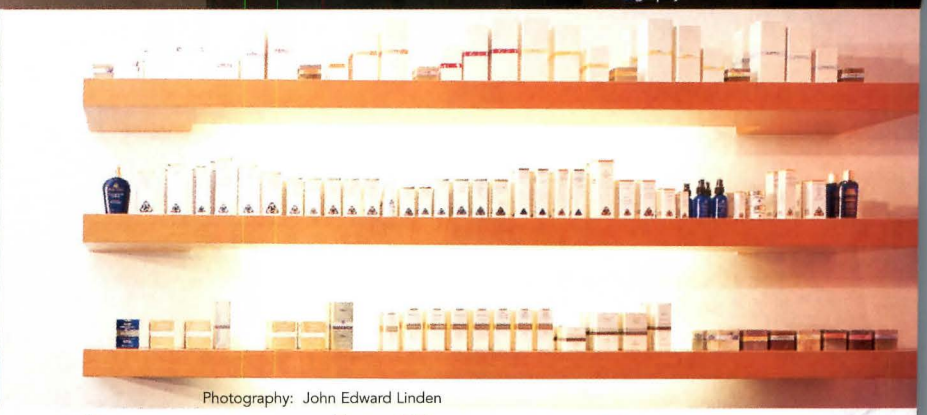

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BRINGING DOWN THE HOUSE

As if there weren't dozens of poor families already competing for every new unit of affordable housing in this country, the Bush administration stands ready to gut the principal mechanism that funds the roughly 115,000 units a year that do get built.

At stake is the viability of the Low Income Housing Tax Credit (LIHTC) under the Bush economic stimulus plan now awaiting final action in Congress. Since the credit's inception as part of the 1986 Tax Reform Act, the federal government has allotted each state a limited number of these credits per capita to award competitively to both nonprofit and for-profit developers of affordable housing. The developers, in turn, sell the credits to corporate investors, who use them as dollar-for-dollar reductions of their tax liabilities.

COURTESY HOUSING ASSISTANCE COUNCIL

The Bush stimulus package does not address the LIHTC directly. Rather, it introduces a dividend tax exemption that eliminates the double taxation on corporate dividends. Given that new tax advantage, corporations would be far less likely to invest in housing tax credits, says Bart Harvey of the Enterprise Foundation, an affordable-housing philanthropy in Columbia, Maryland: "Without this essential tool, there's little you can do to remake communities." (The Historic Preservation Tax Credit [HPTC] works similarly, and consequently, will also be affected.)

A recent study by Ernst & Young calculates that passage of the Bush stimulus plan would cut the production of affordable housing by about 40,000 units each year. "It's going to have a major impact on architects," says Mark Ginsberg of Ginsberg + Curtis Architects, New York City. "If you [design] affordable housing, almost all of it is funded by the LIHTC."

"It could be a disaster throughout the industry," says architect Michael Pyatok of Oakland, California, who works closely with affordable-housing groups. "I don't think Congress is thinking right now."

The House recently passed the stimulus proposal for $700 billion in tax cuts, including the dividend exemption, but moderates in the Senate scaled back the plan to cuts worth $350 billion. The two versions now enter a reconciliation process expected to unfold late this spring. Affordable-housing lobbyists hope that if a plan passes with the dividend tax exemption, they will be able to persuade Congress to treat the LIHTC and HPTC as it does the foreign tax credit. In that case, money invested in housing and preservation credits would be treated as taxes already paid and would count toward dividends that corporations could pass on to shareholders tax-free. "It's a simple fix," Harvey says, "and it would leave the playing field the same as it is now." **Bradford McKee**

Thank You

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HOUSTON: IN THE ZONE?

The anti-zoning stronghold of Houston is toying with a novel idea: new design guidelines that resemble *planning*. Called "area plans," these standards would allow discrete neighborhoods—of more than 50 acres and with existing commercial centers—to craft their own development guidelines to reflect their locality's special features. Subject to public input and city approval, the voluntary plans could affect land uses and densities, building setbacks, parking, and requirements for open space.

The rule was inspired in part by the transit-oriented projects now taking shape on Houston's Main Street (above its underground retail concourses), as well as by a revitalization plan for the adjacent Near Northside neighborhood. What's behind the area-plans idea is a vision of a walkable city with storefront retail, but the proposal is touted as a flexible, self-determining rule. "It doesn't tell you how you use your property," says Houston architect and proponent of the idea, Joe Douglas Webb. "It mitigates its impact on the public realm and your neighbors."

Support for the area-plans proposal seems solid. Even landowner advocates see little in the proposal that offends, though Barry Klein, president of the Houston Property Rights Association, cautions such relaxations "could become new mandates that go off in the wrong direction, in the hands of locals who aren't accountable to voters or property owners."

While a 1993 referendum that would have established Houston's first zoning ordinance was voted down, the apparently wide support for the area plans—and interest from other cities that hope to enact similar statutes—should encourage supporters. **C.C. Sullivan**

- The 2002 GSA Design Awards recently recognized 24 projects representing outstanding public architecture and design. The National Building Museum will showcase the award winners through October 19, 2003.
- The Boston Museum of Science is planning a $135 million expansion. The museum is currently searching for an architect and program planner for the project.
- Three finalists have been named in the contest for the University of Connecticut's new School of Fine Arts: Frank Gehry & Associates, Zaha Hadid Architects, and Mack Scogin/Merrill Elam Architects. An outside panel will rank design concepts in June.
- Edinburgh, Scotland's Princes Street is the object of a $153 million city-directed plan to demolish 13 "ugly" buildings, built during the 1960s and 1970s, and replace them with "better-designed" structures.

continued on page 30

- A competition for the 2008 Olympic Games' main arena in Beijing was won by Switzerland's Herzog de Meuron Architeckten and China Architecture Design Group. Final proposals for the Beijing Shooting Range and the Laoshan Cycling Velodrome, both Olympic venues, must be submitted by May 20.

- Kohn Pedersen Fox won a competition to design the 1 million-square-foot China National Offshore Oil Corporation headquarters in Beijing.

- The Massachusetts Turnpike Authority has selected landscape design teams for the three parks designated as part of Boston's "Big Dig." EDAW of Alexandria, Virginia, and Copley Wolff of Boston will lead design of the Wharf District Park; Wallace Floyd of Boston and Gustafson Partners of Seattle were selected for the North End Parks; and Carol R. Johnson Associates of Boston, Turenscape of Beijing, and Communication Arts of Boulder, Colorado, for the smaller Chinatown Park.

- Turner Corporation forecasted construction costs for the first quarter of 2003 would remain flat with those in the fourth quarter of 2002; this represents a nominal increase over the same quarter last year. Meanwhile, the AIA's March survey of work on the boards showed a stabilization of billings at architecture firms, after seven months of decline.

- The field of architecture suffered the passing of several key figures recently: Landscape architect and master planner of Manhattan's Battery Park City, Robert Hanna, died on March 8 at the age of 67. Gilbert Fein, one of the masters of Miami modernism, also passed away in early March; he was 83.

SPECS REVISED

Specification writers rarely face much controversy, but plans to expand MasterFormat, the handy 16-division classification system for construction documents, have got their collective file drawers in a twist. After four decades of little change, the specifier crowd is bracing for a major overhaul of MasterFormat by its publisher, the Alexandria, Virginia-based Construction Specifications Institute (CSI). Proposed changes, which would take effect in 2004, could triple the number of divisions and add a new top-level hierarchy called the "construction grouping," with such metacategories as "common construction" (for ubiquitous items like concrete) and "facility services" (for M/E/P, communications, and fire safety). While agreeing there is no problem with the old format, CSI hopes the new scheme will better accommodate construction materials and activities for everything from the process industries to road building.

While expected changes only minimally affect architects, specifiers are less than thrilled. Thanks in part to their protests, the original 16 divisions will stay largely intact, although many popular sections are moving: Structural steel, for example, goes to a new division 33. As expected, CSI and the chairman of the MasterFormat expansion, Dennis Hall, have been lightning rods for spec-writer wrath. "Specifiers are used to doing it their way, and this system is pretty well ingrained," says Hall. **C.C. Sullivan**

SUITED FOR AGE

The elderly are an increasingly important demographic, and German consultancy firm Meyer Hentschel doesn't think that many young designers truly understand their needs. To remedy the problem, the company has developed a suit that lets the wearer experience life at 70. Equipped with 13 pounds of weights and needles to simulate heavy, arthritic limbs, padding to stiffen joints, a yellowed vision panel, and muffled acoustics, the suit, dubbed the "Age Explorer," gives designers a taste of life in their later years. The firm claims that the suit has been used in Europe by more than 5,000 business and design professionals. **Julia Mandell**

COURTESY MEYER HENTSCHEL

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60 CertainTeed
61 Eternit
62 GAF
63 James Hardie Building Products
64 Monier Lifetile
65 Tamko Roofing
66 U.S. Intec Inc
67 U.S. Tile
68 Vande Hey- Raleigh Architectural Tile
69 Vermont Structural Slate Inc

Metal Roofing & Wall Panels

70 Alcan Composites
71 Alcoa Building Products
72 American Buildings/AMS
73 Benchmark Architectural Systems
74 Bethlehem Steel Corp
75 Butler Manufacturing
76 Centria
77 Copper Sales
78 Englert
79 Epic Metals
80 Follansbee Steel Corp
81 Fry Reglet Corp
82 Garland Co
83 Integris Metals
84 Kalwall
85 MBCI
86 McElroy Metals
87 Merchan & Evans
88 Metecno-Aluma Shield
89 Metecno-API
90 Metecno-Morin
91 Metl Span
92 Petersen Aluminum Corp
93 Revere Copper Products
94 RHEINZINK America, Inc
95 Varco Pruden

Membrane Roofing

96 Burke Industries
97 Carlisle Syntec Systems
98 DuPont Dow Elastomers
99 Duro-Last
100 Firestone Building Products
101 GenFlex Roofing Systems
102 Johns Manville
103 Sarnafil Roofing
104 Stevens Roofing Systems

EIFS Systems

105 Dryvit Systems
106 Finestone
107 Georgia-Pacific
108 Parex Inc
109 Senergy Inc
110 SonoWall
111 Sto Corporation
112 TEC Specialty Products
113 TEIFS Wall Systems

Metal Doors & Frames

114 Adams Rite Mfg
115 Ceco Door Products
116 Chase Doors
117 Chicago Metallic
118 Cline Aluminum Doors
119 Eckel Industries
120 EFCO
121 Ellison Bronze
122 Essex Industries
123 Forms & Surfaces
124 Hope's Windows
125 I-R Security and Safety
126 Kawneer Company
127 Overhead Door Corporation
128 Peachtree Doors & Windows
129 Premdor
130 Simonton Windows
131 Technical Glass Products
132 Timely
133 Traco
134 Tubelite
135 Wausau Window & Wall Systems
136 YKK AP America

DOORS & WINDOWS

Wood & Plastic Doors & Frames

137 Acorn Window Systems
138 Algoma Hardwoods
139 Alterna
140 Andersen Windows
141 Chase Doors
142 Cline Aluminum Doors
143 Doorcraft
144 Eagle Window & Door
145 Eckel Industries
146 Eggers Industries
147 Graham Architectural Products
148 Hy-Lite
149 IWP
150 Jeld-Wen
151 Kolbe & Kolbe Millwork
152 Marlite
153 Marshfield DoorSystems
154 Masonite
155 Morgan
156 Nord
157 Pella Corporation
158 Pozzi Wood Windows
159 Reilly WoodWorks
160 Rubbair Door
161 Therma-Tru
162 Traco
163 VT Industries

Entrances & Storefronts

164 Acorn Window Systems
165 Ceco Door Products
166 CertainTeed Corporation
167 Cline Aluminum Doors
168 Cornell Iron Works
169 Crittal Windows
170 Dorma Glas
171 EFCO
172 Ellison Bronze
173 Essex Industries
174 Hope's Windows
175 Kalwall
176 Kawneer
177 Major Industries
178 Marshfield Door Systems
179 O'Keefes
180 Pilkington
181 PPG Industries
182 Solutia
183 Technical Glass Products
184 Traco
185 Tubelite
186 Vistawall Architectural Products
187 Visteon
188 Wausau Window & Wall Systems
189 YKK AP America

Metal Windows

190 Crittall Windows Ltd.
191 Custom Window Company
192 EFCO
193 Graham Architectural Products
194 Hope's Windows
195 Kalwall
196 Kawneer
197 Moduline Window Systems
198 Peerless Products
199 Timely Industries
200 Traco
201 Tubelite
202 Wausau Window & Wall Systems
203 YKK AP America

Wood Windows

204 Andersen Windows
205 Caradco
206 Case Window and Door
207 CertainTeed
208 Custom Window Company
209 Eagle Window & Door
210 Hurd Millwork Company
211 Kolbe & Kolbe Millwork
212 Marvin Windows & Doors
213 Megawood
214 Norco
215 PBC Clad
216 Peachtree Doors & Windows
217 Pella Corporation
218 Peter Kohler Windows
219 Pozzi Wood Windows
220 Summit
221 Tischler und Sohn
222 WeatherShield
223 Windsor Windows & Doors
224 Zeluck Incorporated

Skylights

225 Andersen Windows
226 Construction Specialties, C/S Group
227 Duo-Guard Industries
228 Extech
229 Fabric Structures
230 Kalwall
231 Major Industries
232 Miclor
233 Naturalite Skylight Systems
234 Polygal U.S.A.
235 Schott
236 Solatube International
237 Structure Unlimited
238 Suntuf Inc.
239 Traco Skytech Systems
240 Velux-America
241 Vistawall Architectural Products
242 Wasco Products

Hardware

243 Accuride International
244 Adams Rite Mfg
245 Arakawa
246 Construction Specialties- C/S Group
247 Dorma Architectural Hardware
248 Dorma Glas
249 Dor-O-Matic Closers
250 DynaLock Corporation
251 Essex Industries
252 Forms & Surfaces
253 Fusital
254 Hafele America
255 Hewi
256 I-R Security and Safety
257 Jackson Corporation
258 LCN Closers
259 Marlite
260 Nanz Custom Hardware
261 Pemko
262 Rocky Mountain
263 Schlage Lock
264 Sugatsune America
265 Valli & Valli
266 Von Duprin
267 Yale Commercial Locks & Hardware
268 YKK AP America
269 Zero International

Access Door & Panels

270 Acudor Products
271 Cierra Products
272 Karp Associates
273 Milcor Inc
274 Nystrom Products
275 Precision Ladders
276 The Bilco Company

Glass

277 Cesar Color
278 CertainTeed Corporation
279 Joel Berman Glass
280 Leucos USA Inc
281 Madico
282 Meltdown Glass
283 O'Keefes
284 Pilkington
285 PPG Industries
286 Schott
287 Solutia
288 Technical Glass Products
289 Viracon
290 Visteon Corporation

Glazed Curtain Walls

291 Benchmark Architectural Systems
292 EFCO
293 Kalwall
294 Kawneer
295 Major Industries
296 PPG
297 Tubelite
298 Vistawall Architectural Products
299 Wausau Window & Wall Systems
300 Westcrowns

Translucent Wall & Roof Systems

301 Duo-Guard Industries
302 Kalwall
303 Major Industries
304 Suntuf Inc.

FINISHES

Gypsum Board

305 BPB Celotex
306 Collins-Truwood
307 Georgia-Pacific
308 Johns Manville
309 Lafarge Gypsum
310 National Gypsum
311 Temple Inland
312 United States Gypsum
313 W.R. Bonsal Company

Gypsum Fabrications

314 Custom Castings Northeast
315 Formglas
316 Hyde Park Fine Art of Mouldings
317 Monumental Construction & Moulding Co.
318 Pittcon Industries
319 Plastglas, Inc

Ceilings

320 Alpro
321 Altro
322 Armstrong
323 BPB Celotex
324 Ceilings Plus
325 Chicago Metallic
326 Eckel Industries
327 Ecophon Certainteed
328 Epic Metal
329 Fry Reglet
330 Gage Corp
331 Georgia-Pacific
332 Gordon
333 Hunter Douglas Architectural Products
334 Illbruck Architectural Product
335 Johns Manville
336 National Gypsum
337 Novawall Systems
338 Owens Corning
339 Sound Seal
340 USG

The 2nd Annual ACE Awards — Architect's Choice for Excellence

Recognizing Excellence in Products + Manufacturers

ARCHITECTURE

For EACH category, which ONE manufacturer has provided you and your projects with the best value, durability, customer service and design? (Choose ONE MANUFACTURER for EACH CATEGORY)

Ceramic Tile
341 American Marazzi Tile
342 American Olean/ Daltile
343 Ann Sacks
344 Crossville Ceramics
345 Florim, USA
346 Graniti Fiandre
347 Imagine Tile
348 Laufen Int'l

Resilient Flooring
349 Amtico
350 Armstrong
351 Azrock
352 Centiva by International Floors of America
353 Ceres
354 Colbond
355 Congoleum
356 CSSI Resilient Surfacing
357 Domco
358 Endura Flooring
359 Flexco
360 Forbo
361 Johnsonite
362 Kentile
363 Lonseal Flooring
364 Mannington
365 MAPEI
366 Marley-Flexco
367 Maxxon Corp
368 Mondo USA
369 Pacific Polymers International
370 R.C. Musson Rubber Co
371 Roppe
372 Tarkett
373 Toli

Rubber Flooring
374 Azrock
375 Burke Mercer
376 Dodge Regupol
377 Endura
378 Johnsonite
379 Lonseal Flooring
380 Marley Flexco
381 Nora
382 Pawling
383 R.C. Musson
384 R.C.A. Rubber
385 Roppe
386 Tuflex

Laminates, Plastic
387 Abet
388 Formica
389 Georgia-Pacific
390 Nevamar
391 Wilsonart International

Laminate Flooring
392 ABET Laminati
393 Arborite
394 Bruce Commercial
395 Formica Flooring
396 Lamin-Art
397 Mannington Commercial
398 Nevamar
399 Pergo
400 Pionite
401 Wilsonart International

Carpet Tile/Modular
402 Bentley Mills
403 Bonar
404 Collins & Aikman
405 Flexco
406 Interface Flooring Systems
407 Lees
408 Mannington Commercial
409 Miliken Carpet
410 Mohawk Industries
411 Shaw

Carpet Fibers
412 BASF
413 DuPont Antron
414 Monsanto Contract Fibers
415 Wools of New Zealand

Paint/Stains & Finishes
416 Benjamin Moore & Co
417 Carlisle Coatings & Waterproofing
418 Devoe Paint
419 DuPont
420 Duron Paints & Wallcoverings
421 ICI Dulux Paint Centers
422 PPG Paints & Coatings
423 PROSOCO
424 SealMaster
425 Sherwin Willams
426 Valspar

Broadloom
427 Beaulieu
428 Bigelow
429 Blue Ridge
430 Durkan
431 Harbinger
432 J & J Commercial
433 Karastan
434 Lees
435 Mannington
436 Masland
437 Milliken
438 Mohawk
439 Monterey
440 Patcraft
441 Prince St.
442 Shaw

SPECIAL CONSTRUCTION

Air Supported Fabric Structures/Cable Systems
443 Air Structures American Technologies
444 Birdair
445 Cascade Coil Drapery
446 Chemfab Corp
447 Clamshell Buildings
448 DuPont
449 Feeney Wire Rope and Rigging
450 Kalwall
451 Pfeifer Cable Structures
452 Seco South
453 Shade Concepts
454 Sprung Instant Structures
455 Structures Unlimited
456 Sullivan & Brampton

Security Access & Surveillance
457 Ademco
458 Alvarado Manufacturing Co
459 Automatic Control
460 Byan Security
461 Checkpoint Systems, Inc
462 Controlled Access
463 Dynalock Corp
464 Essex Industries, Inc
465 I-R Security and Safety
466 Schlage
467 Sensormatic Corp
468 Siedle Company
469 Von Duprin

MECHANICAL

Plumbing Fixtures
470 Acorn Engineering
471 American Standard
472 Bobrick
473 Bradley Corp
474 Chicago Faucet
475 Curvet USA
476 Duravit
477 Geberit Manufacturing
478 GROHE America
479 Haws Corporation
480 Kohler
481 Kroin
482 Rohl
483 Sloan Flushmate
484 Sloan Valve Company
485 Toto USA

Kitchen & Bath Hardware
486 Bobrick
487 Dornbracht
488 Ginger
489 Hafele America
490 Kohler
491 Kroin
492 Moen
493 Price Pfister
494 Rohl
495 Sloan Valve Company
496 Soho
497 Toto USA
498 Valli & Valli

CONVEYING SYSTEMS

Elevators/Escalators
499 Access Industries
500 Atlantic Lifts
501 Atlas Elevator
502 Concord Elevator
503 Fujitec America
504 Inclinator Company of America
505 Infinite Access
506 KONE
507 National Wheel-O-Vater
508 Otis Elevator
509 Pflow
510 Schindler Elevator
511 Thyssen Dover Elevator
512 ThyssenKrupp Elevator

ELECTRICAL

Lighting
513 Advent
514 Alkco
515 Allscape Lighting
516 ALS-Architectural Lighting Systems
517 Altman Lighting
518 American Glass Light
519 Architectural Area Lighting
520 Ardee
521 Artemide
522 Baldinger
523 Bartco Lighting
524 Bega
525 Birchwood Lighting
526 B-K Lighting
527 Boyd Lighting
528 Bruck Lighting
529 Capri
530 Color Kinetics
531 Columbia Lighting
532 Condaz
533 Cooper Lighting
534 CSI
535 D'ac
536 Davis Muller
537 Dernier & Hamlyn
538 Elite Bohemia
539 Eliptipar
540 ERCO
541 Engineered Lighting Products
542 ESTILUZ, INC
543 Exceline
544 FAD Lighting
545 Flos
546 Focal Point
547 Foscarini
548 Gardco Lighting
549 GE Lighting
550 Hadco
551 Halo
552 Hoffmeister
553 Holophane
554 Hubbell
555 ILEX
556 Insight Lighting
557 Iris
558 Juno
559 Kim Lighting
560 Lam
561 Ledalite
562 Leucos USA
563 Leviton
564 Lightolier
565 Litecontrol
566 Lithonia
567 Lighting Services Inc
568 LUCEPLACE USA, Inc
569 Lucifer Lighting
570 Luminis
571 Lutrex
572 Lutron
573 Luxo Corp. US
574 Luxo Italiana
575 Martin Professional
576 Metalumen
577 Nessen
578 Nora Lighting
579 NouVIR Research
580 O Luce
581 Osram Sylvania
582 Peerless
583 Philips Lighting
584 Prescolite
585 Prisma
586 Prudential Lighting
587 Rudd
588 Selux
589 Sirmos
590 Specialty
591 SPI
592 Spring City Electrical Manufacturing Company
593 Supervision
594 Targetti
595 Tech Lighting
596 The Watt Stopper
597 Unilight
598 Vantage Controls
599 Visa Lighting
600 Winona
601 Zumtobel Staff

FURNISHINGS

Furniture Systems
602 Allsteel
603 American Seating
604 Haworth
605 Herman Miller
606 HON
607 KI
608 Kimball Office
609 Knoll
610 Nova
611 Paoli
612 Steelcase
613 Stone Dimensions
614 Teknion

Seating
615 Allsteel
616 American Seating
617 Haworth
618 Herman Miller
619 HON
620 Humanscale
621 Keilhauer
622 KI
623 Kimball Office
624 Knoll
625 Steelcase
626 Stylex
627 Vitra

Casegoods
628 Allsteel
629 Bernhardt
630 Bretford
631 Hale Manufacturing
632 Harden Contract
633 Haworth
634 Herman Miller
635 HON
636 KI
637 Kimball Office
638 Knoll
639 Meridian
640 Paoli
641 Steelcase

Outdoor Furniture
642 Barlow Tyrie
643 Brown Jordon
644 Earth Care
645 Knoll
646 Landscape Forms
647 Lloyd Flanders
648 McGuire
649 Smith & Hawken
650 Wabash Valley
651 Weatherend
652 Woodard

Solid Surfacing
653 Avonite
654 DuPont Corian
655 Formica
656 Fountainhead
657 Nevamar
658 Swanstone
659 Wilsonart

Wallcoverings
660 Bolta
661 The Designtex Group
662 Eurotex
663 Genon
664 Innovations in Wallcoverings
665 J.M. Lynne
666 Koroseal
667 Lanark
668 Maharam
669 Wolf Gordon

COMPUTER/SOFTWARE

670 @Last Software
671 Autodesk
672 Autodessys
673 Bentley Systems
674 CAD-1
675 Datacad
676 Graphisoft
677 Nemetchek
678 Revit Technology
679 Wind-2 Software

The 2nd Annual ACE Awards — Architect's Choice for Excellence

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ARCHITECTURE

MASONRY

1 2 3 4 5 6 7
8 9 10 11 12 13 14
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DOORS & WINDOWS

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FINISHES

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SPECIAL CONSTRUCTION

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CONVEYING SYSTEMS

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FURNISHINGS

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THERMAL & MOISTURE PROTECTION

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MECHANICAL

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ELECTRICAL

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COMPUTER/SOFTWARE

670 671 672
673 674 675
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679

I would like to vote for the following suppliers who were not listed

1. _____ 3. _____

2. _____ 4. _____

Please check one: ☐ Registered Architect ☐ Other

Name _____ Title _____

Phone _____

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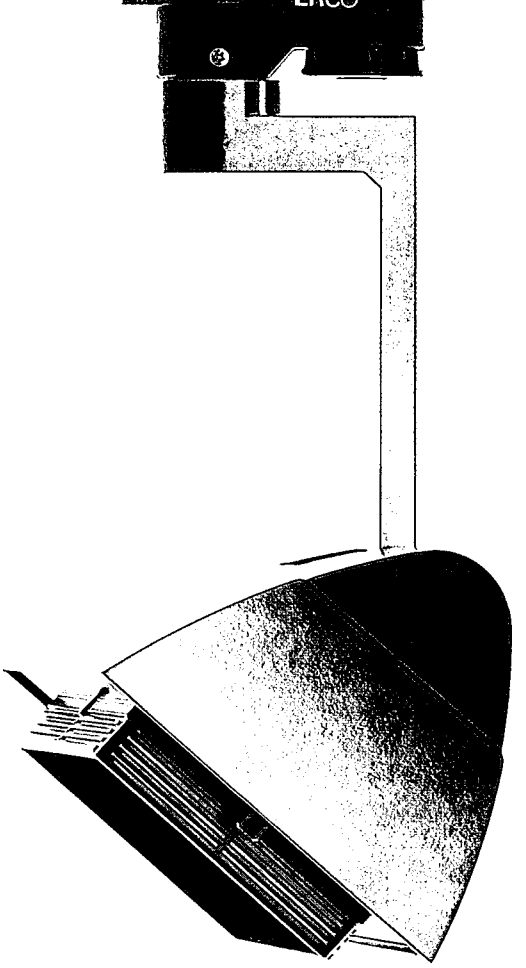
City _____ State _____ Zip _____

Please fax ballot to 646-654-5816 or download ballot at architecturemag.com.

Indoor luminaire: Jilly; Design Knud Holscher



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BARNACLES, KUDZU, AND THE BIG FIRM

Leaders of some of the best-known U.S. firms discuss how architects grow—financially, professionally, and intellectually.

moderated by C.C. Sullivan | illustration by Arthur Mount

Principals of several of the country's leading firms joined Architecture *recently for a wide-ranging discussion of issues impacting the profession. In this first part, the roundtable participants talk about the economy, the problem of celebrity, and how architects can improve the human condition. Watch upcoming issues for a second installment of this discussion.*

ON THE ECONOMY

MARILYN J. TAYLOR: I don't remember a time when budgets hit austerity around the world and across fields at the same time to the extent they have right now. Federal government taps are closed, cities and states are struggling, donations to institutions are down, and with the crisis in corporate confidence, very few business leaders are authorizing more than a feasibility study. It doesn't necessarily challenge our staying in business, but it does challenge our higher aspirations for learning the client's objectives and making extraordinary architecture.

WILLIAM E. VALENTINE: What about thinking of these super-spare times as a good thing? There are very real problems to be solved in the world—healthcare, education, housing—and this pause in the economy gives us a chance to show that architects can really make a difference in basic human needs.

ROBERT L. CIOPPA: Historically, economic pauses have been when the real innovative thinking in architecture has gone on. There isn't the work to do, so to keep your mind active, you work on your own ideas. And that's going to be the next boost, quite frankly. You get the opportunity to refocus on the fundamentals of architecture. And that takes time. So it's a luxury, actually.

RAY C. HOOVER III: And when things ramp back up, the rules inevitably change, so the pause allows us to see where the next changes will take us, and prepare for it.

ROBERT G. PACKARD III: I've been pleasantly surprised about healthcare and research. There's a refreshing desire to have design be a bigger part of what those buildings are about. They're competing for patients and for brainpower: researchers, physicians, nurses.

TAYLOR: The health-science or wellness industry is going to grow by 50 percent, from a trillion to a trillion and a half. And it's not just the lab buildings, it's the spas and the resorts.

SUMAN SORG: Another area that's really growing is the federal security sector.

TAYLOR: China's percentage of GDP is going to triple in the next two decades. There's so much to be done in terms of projects, and maybe we can bring lessons in land consumption and urbanization.

VALENTINE: Last week, a Chinese developer told me that 10 percent of China's population—175 million people—is going to move to urban areas from rural areas. Think of all the roads, hospitals, schools, housing. And then there's the United States, which is not booming but a fairly energetic housing market.

SORG: But there is a cloud on housing, especially low- and moderate-income housing. The current administration is going to cut off the pipeline to the Hope VI projects, which have had a mixed success rate. What's driving some local markets are the first-time homebuyer credits, which are bringing young people into the cities.

J. ROBERT HILLIER: Baby boomers are tired of the bedroom community, and they want to live downtown, where everything is: continuing ed, good restaurants, culture, entertainment, healthcare.

ON CELEBRITY

TIMOTHY P. HARTUNG: One of the key issues we're dealing with is the idea of celebrity, and what an architecture firm has to do to stay relevant and not fall prey to the star system, to allow you to get on lists or get work. So we try to stay specific, stay detailed, and be known as a problem solver, as opposed to being known for a specific style, or flair, or position within the field.

TAYLOR: It's clear that a systematic, continuous effort to get your name in the press is paying off for certain people. And we're all thinking, do we want to be part of this?

VALENTINE: There's a real danger that we would all tilt toward style as opposed to substance.

SORG: I'm not in the same business as Mr. Gehry. I'm in the business of taking our public housing projects and making them beautiful.

HARTUNG: Everything sort of comes back to the role of the architect, and the education of the public as to what an architect can do.

HILLIER: Unless we get to the head of the parade, we are destined to be diminished and commoditized. We give away our ideas at the interview, and then we're priced out of the market by sweatshops that will do the drawings for 10 cents an hour.

TAYLOR: We're the people with the finger in the dike. We've had to work very hard to get clients like Disney to understand that we aren't commodities.

ON BEING BIG

TAYLOR: Through the various ups and downs, we've learned that our best shot at success is cultivating the well-rounded architect. My generation inherited a firm organized by type: You were a designer, a manager, or a technical person. So we've been dismantling the silos and intentionally moving people from office to office.

PACKARD: The challenge in a larger firm is that you're constantly trying to brush off the organizational barnacles from your systems or methodologies so that you can be a design firm. It's so easy to become just a machine, or to worry about things like the insurance plan.

Musing on the future of the profession are, from left to right: Timothy P. Hartung, Robert L. Cioppa, Suman Sorg, Robert G. Packard, Marilyn J. Taylor, J. Robert Hillier, Ray C. Hoover, and William E. Valentine.

SORG: The older I get, the more I want to simplify. When you're younger, you're acquiring those barnacles; when you're older you're shedding them. So design becomes much simpler, and form becomes much simpler.

HARTUNG: A lot of discussion within our firm now is about how we retool ourselves to stay out there on the cutting edge. As you become bigger, your clientele tends to think less that you're the new and young star.

CIOPPA: We're going through a transition now, from the founder to the next generation. The mechanics are amazingly simple, but the physical or psychological change is incredibly difficult. You have to change; you have to grow.

HILLIER: For SOM, the quality of the work has carried them through all their transitions. They're our model, I know that.

ON IMPROVING THE FIRM

TAYLOR: We've had an objective to renew, revitalize, and go on. Some of the celebrity firms don't. They're more than willing to be a one-lifetime trajectory, and the dynamics in those firms are rather different. We work to sustain the firm and not compete with each other internally.

PACKARD: We purposefully have tried to stay noncorporate, and the whole focus is working on projects. That's one of the barnacles to keep getting out of the way.

VALENTINE: We have a saying at HOK, and that is to "cut out the kudzu"—the time spent on organizational things other than our projects: public relations, the rent, managing other people. Kudzu is a vine that grows six feet a day, and it overtakes houses, roads, and trees.

TAYLOR: For many years, our senior partners got together and debated everything, and it was the most ridiculous form of decision making. Then we took the operation of the day-to-day business out of their hands and put it into those of a president, who was not an architect. So the partners—like all the architects, engineers, planners, and interior designers on staff—would be devoted to projects. It's incredibly freeing, removing a set of decisions that entangle you. I love your kudzu reference.

HARTUNG: At our firm, the principal designers are very focused on being more holistic, if you will, rather than just focusing on the problem at hand—whether it's sustainability, new materials, or social issues that one can bring to the table.

HOOVER: The best designs and happiest clients result from a one-on-one relationship with the architect, so the organizational infrastructure must recognize that.

HILLIER: We structured ourselves as 15 studios or practice groups. And while some clients say, "Well, you're the size of an aircraft carrier, can you take care of us?" we say, "No, we're 15 PT boats." And each studio is headed by a top person in that particular market sector or building type.

> **Once you get large at whatever scale, you inherit a tremendous responsibility to the people that work for you.**

SORG: Would any of your firms ever think of becoming smaller or capping your size?

HILLIER: We've pared down to get stronger. We've had some principals say, let's take it down to 200 and freeze it there, but to protect your future and hold onto all the knowledge of the past, you grow.

CIOPPA: Once you get large at whatever scale, you inherit a tremendous responsibility to all the people that work for you—to keep them employed, to keep this operation running. And sometimes it seems as though that becomes the most important thing.

TAYLOR: To work across generations and across geographic locations is a significant investment in time, and you have to believe it's worth it because of the reach and the diversity it gives you. Yet, you can only be

ROBERT L. CIOPPA, FAIA
Principal
Kohn Pedersen Fox
New York City

RAY C. HOOVER III, FAIA
Senior Principal
Thompson, Ventulett, Stainback & Associates
Atlanta

MARILYN J. TAYLOR, FAIA
Chairman
Skidmore, Owings & Merrill
New York City

TIMOTHY P. HARTUNG, FAIA
Partner
Polshek Partnership Architects
New York City

ROBERT G. PACKARD III
Managing Partner
Zimmer Gunsul Frasca Partnership
Portland, Oregon

WILLIAM E. VALENTINE, FAIA
President
Hellmuth, Obata & Kassabaum
San Francisco

J. ROBERT HILLIER, FAIA
Founder and Chairman
The Hillier Group
Princeton, New Jersey

SUMAN SORG, FAIA
Principal
Sorg and Associates
Washington, D.C.

C.C. SULLIVAN
Moderator / Editor-in-Chief
Architecture
New York City

At the Table

The Wideck for the ceiling of the Padre Pio Centre was chosen for both its aesthetic and acoustical properties. We felt the linear design of the Wideck panels helped to carry the eye forward towards the altar, and that the ceiling's geometry ideally complemented the exposed wood and steel roof trusses.

Paul D. Felder, AIA
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ON IMPROVING THE WORLD

VALENTINE: We need to help solve basic human needs, and do it simpler, better, faster, and show that architects can actually make a difference in housing, sustainable communities, sprawl, brownfields. In the United States, we have this fantastic technology for healthcare, and yet people can't afford it? Can't we help by designing more efficient hospitals?

TAYLOR: We have to get engaged in these challenges. Reaspiring to that larger picture is essential if we want to change our self-image and be back on the scene. For example, it costs over $500 a square foot to deliver a school in New York City, and we're helping bring the cost down. The cost of new housing is appalling, too.

HILLIER: We're using public-private partnerships and design-build to deliver much better schools for less money, faster, by getting it out of the public administration. It removes design from the political realm. We don't have to go back to a board that's worried about getting re-elected.

HOOVER: Yet, as the public becomes more involved, it gets easier to justify decisions based upon, "Hey, they've done it before, and there's less risk."

TAYLOR: There's been a shift away from seeking brains and problem-solving skills to seeking the people with the right experience and the gray hair who've done similar projects before. Yet, I know I design better for New York after I spent some time in Shanghai, and I'm probably better at airports after I've worked on a lab building. There's a cross-fertilization.

VALENTINE: For better or for worse, we're faced with this notion that specialization will drive our more complex projects such as airports, hospitals, and sports facilities.

PACKARD: But some of our best buildings were the first time we had ever done that type: our first lab, our first airport. I get frustrated with consultants that specialize in something because it becomes, "This is the way we do it," as opposed to, "Let's explore new ways to do it." For the great firms, it's fresh every time, not just the cookie-cutter approach.

HILLIER: When I started out, it was easier to go in and say, "I don't know how to do this building, so I'm going to explore it deeper with you." Not true anymore. Now, clients are much more risk averse. A lot of clients don't understand what architects do. They think we produce a product, the way a car designer produces a car.

HARTUNG: Pushing the client to be the patron means encouraging them to support an effort to make the world better. In the days of the patrons, that was when we got our great architecture, as opposed to the watered-down client groups that want status quo because it's their fiduciary responsibility.

HILLIER: Even the CEOs. They were the great SOM corporate patrons; now, you're selected by a bunch of facility managers who don't want to explain why this architect over another to the shareholders

> Aspiring to the larger picture is essential if we want to change our self-image and be back on the scene.

HOOVER: You're right. They're more concerned with not making a bad decision as opposed to making the best decision.

HILLIER: The World Trade Center competition, though, has given the public a greater consciousness of architects and what they can do.

TAYLOR: That's a wonderfully optimistic thing to say. More people care about how their cities are shaped and formed than they did before.

HOOVER: I'm hoping that the public at large, as opposed to just enlightened clients, has really started to appreciate the value that design can bring to their everyday lives.

Competing, at a Loss

firm

There's nothing better, and nothing worse, than a good design competition. While conceding that the recent increase in architectural competitions has helped improve the quality and stature of many U.S. projects, the eight architects assembled for *Architecture*'s first large-firm roundtable betrayed a serious concern that competitions are a costly drain on their firms' resources and talent.

"The kind of work we do for competitions, just 10 years ago was called design development; now we call it marketing," says Ray C. Hoover III of Thompson, Ventulett, Stainback. "They can go into something like preliminary construction before you actually secure the commission. There's certainly six digits worth of minimum investment."

Competitions tap into the fundamental psyche of the architect—we love to take on new projects, solve problems, and draw—but they also raise serious questions about business ethics and intellectual property rights. Architects also question their original aim: to promote innovation and excellence in design.

"What can one do in a month to legitimately solve a problem, other than create a pretty picture?" asks Timothy P. Hartung of Polshek Partnership. "That's how these competitions are won. Not because you figured out the circulation, made it cheaper, and researched new materials. You win it with an image that seduces the selection committee."

Yet, while most are not enamored with this now-standard manner of procuring work, they are accepting it as a fact of life, especially as more European firms accustomed to the process and its costs compete for major U.S. commissions. Some U.S. firms have even begun to change their studio structure and consultant relationships to better share the financial and intellectual burdens.

"If you're going to get 15 percent of the fee, Mr. Structural Engineer, you carry 15 percent of the cost," says Marilyn J. Taylor of Skidmore, Owings & Merrill. "You want to be the mechanical engineers? You carry 20 percent of the competition. It spreads the load." C.C. Sullivan

PYRAMID SCHEME

An American university in Cairo helps the city rethink planning conventions. by Bay Brown

Tourists flock to the Great Pyramids of Giza, one of the Seven Wonders of the Ancient World and a marvel of Egyptian artisanry, engineering, and town planning. But they are in for a jolt upon entering present-day Cairo. The city is ringed by half-built apartment blocks that are going up illegally, many without windows or cladding on their rough masonry walls. This is but one result of the city's inability to deal with a burgeoning population; with social services in smaller Egyptian cities substandard, people are migrating to Cairo en masse, choking the capital.

As this world capital bursts at the seams—its current population is more than 16 million—a 45,000-acre city is under construction on its eastern edge. Though it might offer some needed elbow room, "New Cairo's" future is fragile. Urban planning as it's known in the West, does not exist here; in Cairo, communities tend to develop organically. Historically, this may have worked on a small scale, but for this large swath of desert there are significant issues involving economic development, infrastructure, public transportation, and zoning. Nonetheless, Cairo has long been considered the cosmopolitan capital of, not just Egypt, but the entire Middle East. In keeping with that image, the American University in Cairo (AUC), currently located on a dense site in downtown Cairo, is moving to a new $300 million, 7,000-student campus in New Cairo. Designed by an international team of architects, the campus is intended to serve as a new urban design model for this city when completed in 2007.

The American University in Cairo (AUC) has outgrown its downtown site (top). In New Cairo, on the eastern periphery of the city, Norris Strawbridge, principal with Sasaki Associates, shows where the new university campus will be constructed (bottom).

SETTING THE PACE

As an educational institution that promotes international exploration and discourse, it seemed appropriate to the university trustees that their state-of-the-art city within a city be an anchor for New Cairo. With this noble mission, the trustees of the university launched a competition for a new 260-acre school in 1998. Weighing the entries, the jury recommended that the university select a master plan submitted jointly by Boston Design Collaborative of Boston and Carol R. Johnson Associates of Cambridge, Massachusetts, but then also hire a number of architects to design individual buildings. An American firm, Sasaki Associates of Watertown, Massachusetts, and Cairo's Abdel-Halim Community Design Collaborative were chosen as chief architects to design a number of individual buildings, but also to coordinate the overall design along with architect Hussein El-Sharkawy, executive director of the project for AUC. The other firms and projects include: Hardy Holzman Pfeiffer Associates of Los Angeles, for the library; Legoretta + Legoretta of Mexico City, for the campus center, main auditorium, and student housing; and Ellerbe Becket of Washington, D.C., for the athletic facilities. Carol R. Johnson and SITES International, a multidisciplinary firm based in Cairo, were responsible for landscape design and infrastructure development.

BAY BROWN

INCORPORATING HISTORY

The university community didn't want something pharaonic, or overtly Egyptian, but they did want the new campus to refer to the history of the old city. "They had problems with an initial, more modern design. They said, 'Where are all our old arches?' They had an emotional attachment to the old forms," says chief architect Abdel Halim I. Abdel Halim, explaining why the red and white striped archways typical of Islamic architecture were incorporated in the final design of the front entrance. "My intent was to recreate the celebrated process that created the old city," he added. "But we aren't incorporating tradition simply through forms. We're also emulating the process of how spaces work socially."

As a result—much like Old Cairo with its nonaxial expanding and narrowing streets—the campus design is laid out as a series of paths and corridors that open up and then contract, connecting at irregular angles; and, like the city, with its abundance of mosque courtyards, the campus has a series of plazas where a variety of activities take place. The low-rise campus has two main zones—an academic core and a student-life core—each organized around voids in the Middle Eastern tradition.

Formally, the architecture of the campus has a modern aesthetic, with

unornamented surfaces and glass curtain wall on some buildings, while abstracted Middle Eastern traditional forms and ornament can be found elsewhere. The influence of the ubiquitous *mashrabaya*, wooden screens that separate public and private spaces in Egyptian buildings, appears as abstracted wooden forms or as concrete grillwork; towers dot the campus to mark critical urban nodes; and at the athletic facility, a slender tower rises to suggest a modern minaret. Throughout, local materials will be used as much as possible. Sustainability was a critical goal for this desert campus. El-Sharkawy anticipates that the school's energy plan will save them $1 million per year over a traditional system.

COMMUNITY RELATIONS

The AUC campus site is located just south of New Cairo's city center in an area slated for residential and institutional buildings. For El-Sharkawy, who studied architecture at the University of Pennsylvania in the 1970s, the relationship between "town and gown" at AUC is essential to the project's success. His school, he recalls, was accused of expanding into the community, but not doing much for it. With New Cairo—the ultimate tabula rasa—El-Sharkawy feels he has a chance to get the balance right. "This campus will be a model worldwide," he says. "Seldom does one have the opportunity to build a campus from scratch. For me, the vision goes back to Jefferson: The content of the program is more important than the bricks and mortar."

To foster a good relationship between campus and community, the designers planned a public park at the northwestern tip of the school grounds: a theater, art gallery, bookstore, and restaurant will be open to the public as well. In the northeastern quadrant, land is designated for an AUC-sponsored scientific research park. School administrators are hopeful that a similar "smart village" might develop on adjacent land in New Cairo.

NEW CAIRO

Traveling from Cairo proper by car to the AUC site, vast expanses of desert loom as far as the eye can see. There is the occasional water tower or a housing complex under construction, and a surprising abundance of street lights. There is no public transportation as yet;

Legoretta + Legoretta designed the student housing complex at the university using a palette and simple massing influenced by their work in Mexico. Like houses in Old Cairo, these quarters face onto courtyards.

AMERICAN UNIVERSITY IN CAIRO

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a light rail may be built if financing can be had from property developers. Initially, private buses will radiate from Cairo's existing underground metro on the edge of the city.

Maher Stino, an urban planner and principal of SITES International, worries that Egyptian city planning could threaten the success of New Cairo. "Management isn't synchronized. Ministries don't interact. Instead of creating a reasonable number of communities and doing it well, they will do a great number, spreading the money thinly," says Stino. "These communities are not for the poor. Developers sell to the highest bidder." With no local economic base as yet, or a comprehensive public transportation scheme, it seems unlikely that the new city will be able to successfully absorb the estimated 3 million people it is slated to accommodate. Land is being sold speculatively, with sites already purchased for several housing developments, golf clubs, educational institutions, and hotels. Like Cairo proper, New Cairo, still has no urban design guidelines. For Stino, the omissions in planning reflect the lack of a city planning department in Cairo and the lack of

The master plan for New Cairo sites AUC in the middle, just south of the city's center. With little construction as yet underway in the new city, the university is hopeful it can serve as a model for future development.

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public participation. "Regulations are only as good as the public defending them," believes Stino.

SUPER MODEL

Last February, Egypt's first lady—and AUC alumna—Suzanne Mubarak presided at a groundbreaking for the new campus. Later, during a luncheon at the gated and grassy Kattameyya Club, a golf community of McMansions set in the vast desert of unbuilt New Cairo, the AUC design team, consultants for New Cairo, and a number of Egyptian academics had an informal discussion on how best to develop the new city. With planning tenuous, many saw AUC as an entity in a position to set standards and lead the way.

In fact, one New Cairo consultant noted that AUC was held up as a model when the decree was issued to create New Cairo. "AUC should provide incentives to carve out a complete district, create an urban fabric and form; the school should make urban design guidelines for its neighborhood even if it has to pay for it," said Khalid El Adli Imam, a practicing achitect trained in the United States and an architecture professor at Cairo University. "In Egypt, big projects are planned as if they are small apartments. It is not because of a lack of knowledge, but because people are rushing. Projects are expected to go up in six months," El-Sharkawy lamented, adding that he still envisages the project to be "an exemplar for Egypt."

SPRAWL CITY?

While AUC does not feel it is appropriate to fund the creation of urban design guidelines for the new city, the school is making its own guidelines for both the campus and faculty housing available to planners, and likewise intends to participate actively in discussions on the city's planning.

In the end, the critical issue is enforcing and regulating such guidelines once adopted. Further, it is the lack of an economic development plan for this new town, coupled with virtually nonexistent financing for both developers and potential homebuyers, that could ultimately jeopardize the success of the new city. Developers want returns on investments right away, and unlike U.S. development, if the projects are funded by loans they are financed with usurious interest rates. Mortgages are not available here, so only the very rich can afford to buy homes.

While New Cairo was conceived to alleviate mass crowding in the city, it is at risk of becoming a real American town, not one in keeping with the progressive planning formula put forth by AUC's project, but a sprawling sidewalkless suburb.

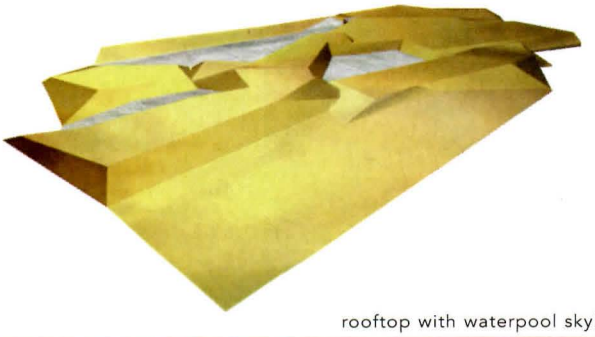
Two years ago, Egypt's new Alexandria Library—designed by competition winner Snøhetta—opened its doors (October 2001, page 73). Next month, the winners of a similarly historic contest will be announced: the competition for the Grand Egyptian Museum, which will house a portion of the pharaonic collections from the centrally located but overstuffed Egyptian Museum in Cairo. The new museum is sited at the base of the Great Pyramids of Giza. While the building will house some physical collections, many artifacts from other locations will be accessible electronically. The comprehensive 300-page competition brief makes information technology a priority, enabling curators to display images of objects in collections abroad or in storage, and allowing for interactive exhibits. Proposals by three U.S. firms who participated in the open competition offer a glimpse of the project's magnitude.

KONYK | GRAND EGYPTIAN MUSEUM COMPETITION | THE PYRAMIDS AT GIZA, CAIRO

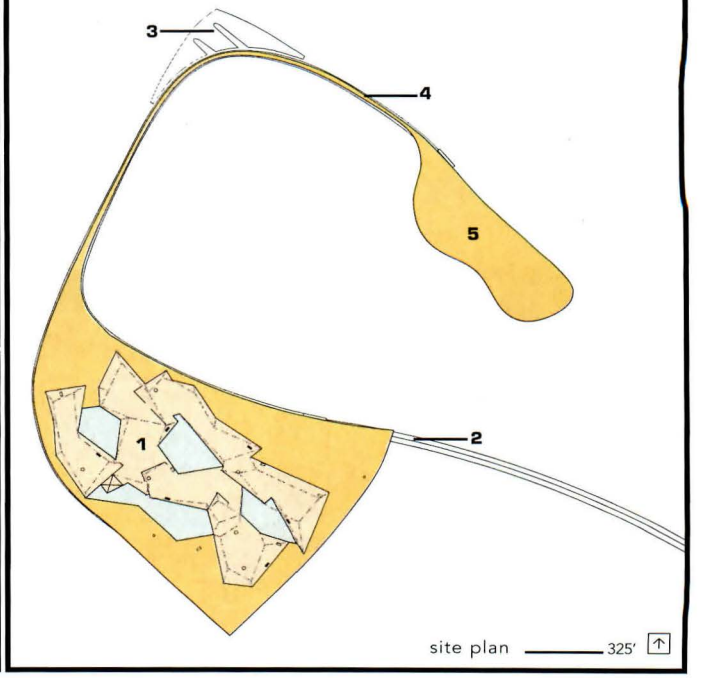
Within a complex that looks like an aggregate of golden pyramids, the New York City-based architecture firm Konyk has created a number of microenvironments in its design for the museum: individual galleries and support spaces; transitional areas; and a constantly changing display of information. All are linked to a vast concourse that organizes the building's circulation. The concourse, which could serve an anticipated 15,000 daily visitors, is a horizontal expanse that acts as a generous lobby and a "middle ground" with ticketing, orientation, refreshments, shopping, rest facilities, and a view of the pyramids and the Nile Valley. From the concourse, one takes a tram or monorail to the pyramids.

The top floor hosts the exhibition spaces, which are covered by a multi-angled rooftop with waterpool skylights. Below the concourse level, on the ground floor, are administration, storage, conservation, research, and meeting areas, as well as a library and a mediatheque. Outside, but shaded by a portion of the concourse above, visitors explore three different park areas. A system of water evaporators under the concourse level creates a respite from the desert heat. **Bay Brown**

1 exhibitions
2 tram to pyramids
3 facilities
4 transit interchange
5 parking



rooftop with waterpool skylights



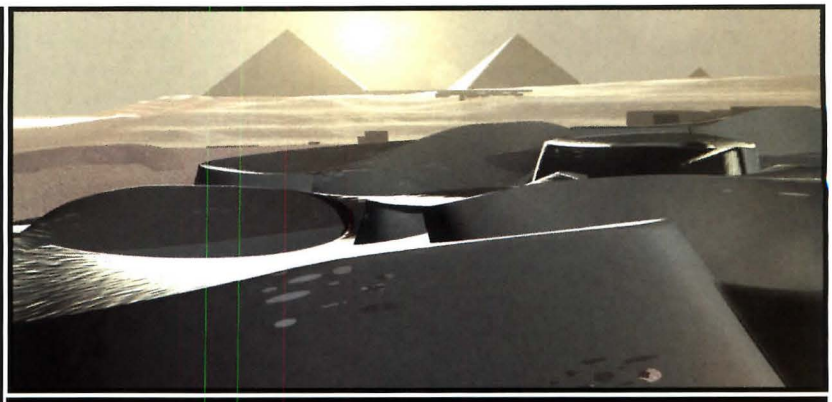
site plan ——— 325'

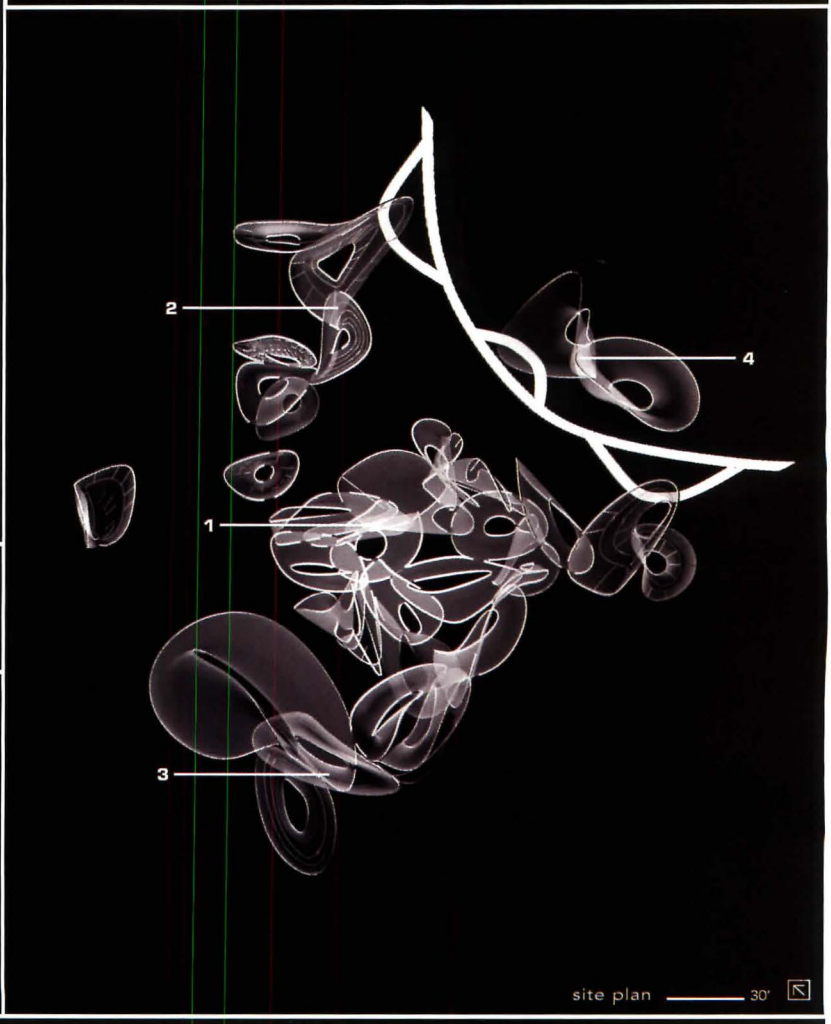
KOLATAN/MACDONALD STUDIO | GRAND EGYPTIAN MUSEUM COMPETITION | THE PYRAMIDS AT GIZA, CAIRO

In elevation, the entry submitted by Kolatan/MacDonald Studio, also from New York City, looks like a group of snakes wriggling in the sand. Throughout the project, the architects sought to connect the concrete-paneled building to its desert landscape. Sand-filled synthetic blankets help stabilize the dunes, while inside sand is hardened to make walls and other surfaces.

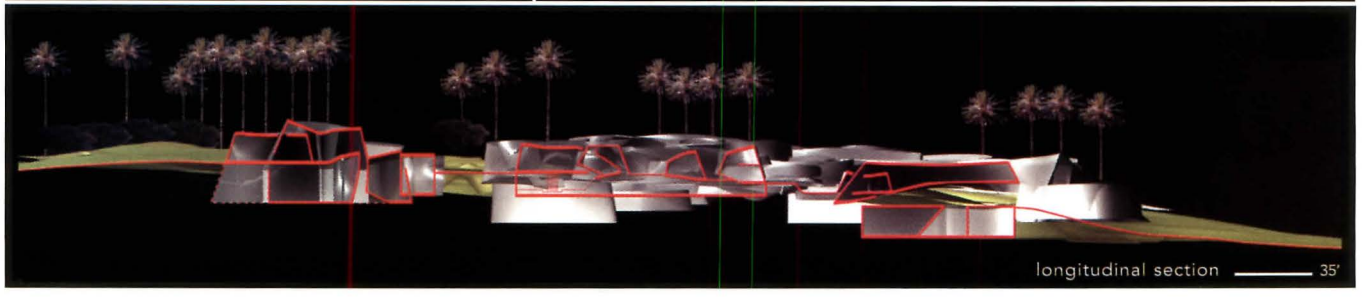
The architects have created five clusters interconnected through four large parks and over 20 small courtyards. The project's core cluster is occupied by a permanent exhibition space with six themes that can be experienced in multiple ways as the viewer manipulates displays with high-tech gadgetry, including 3-D high-definition holograms, virtual-reality goggles, and microchip technology (for tracking individual visitors and customizing the route).

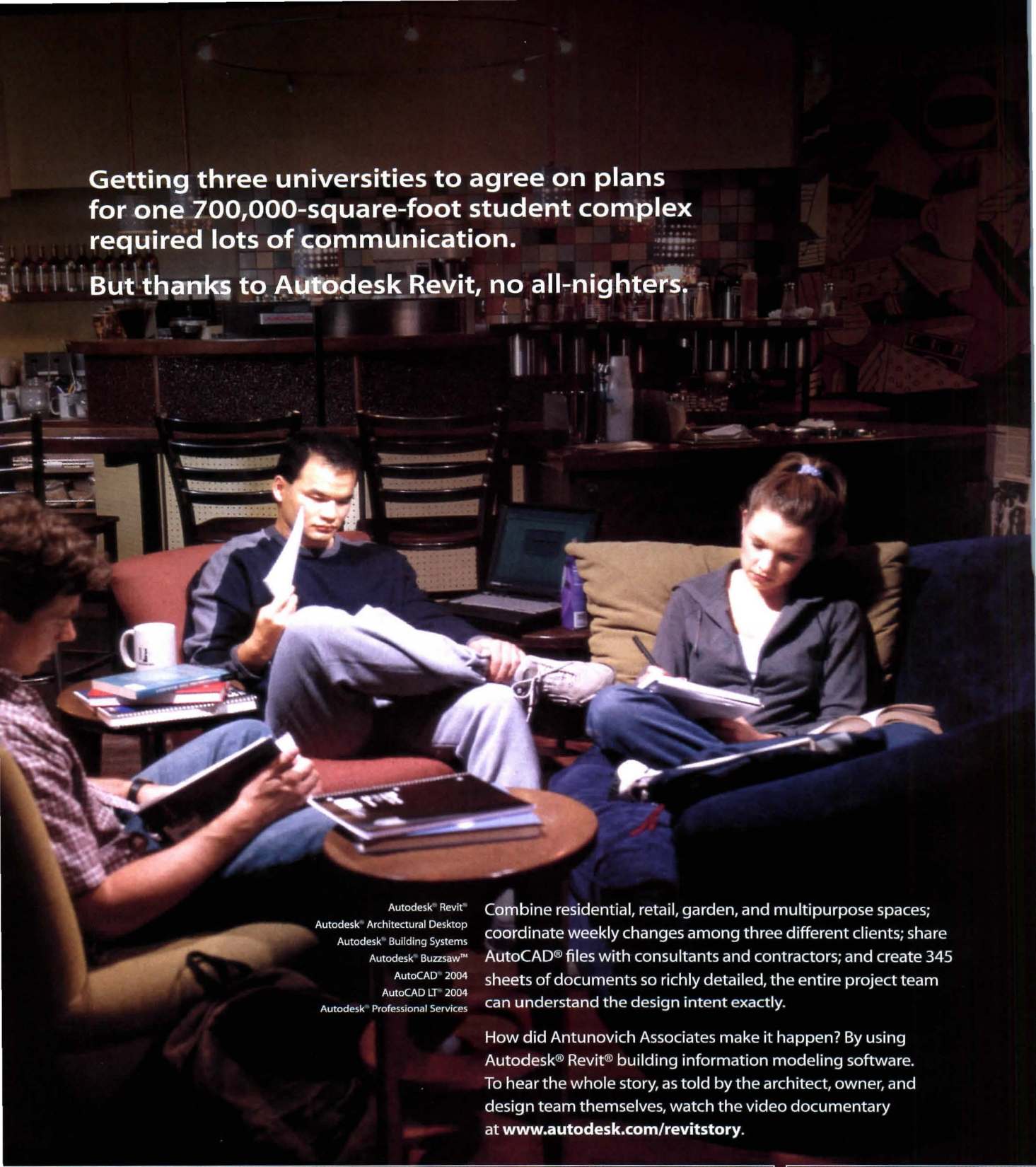
Nonorthogonal walls inside and out, together with a weblike plan, give the effect of galleries sliding into one another. The spatial exchange and constantly changing exhibition displays make the museum fluid and flexible both in appearance and program. Parks extend the building into the land, with outdoor gallery space featuring interactive exhibits such as "Make Your Own Mummy" and "Adopt-a-Dune," the latter intended to teach visitors about sustainability. **Bay Brown**





1 permanent exhibitions
2 conference area and science institute
3 administration
4 temporary exhibitions





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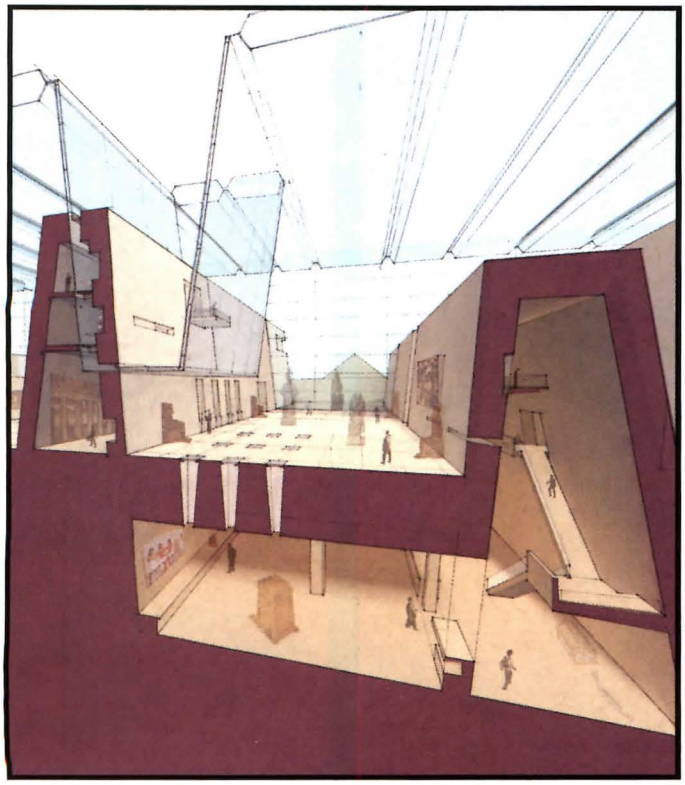
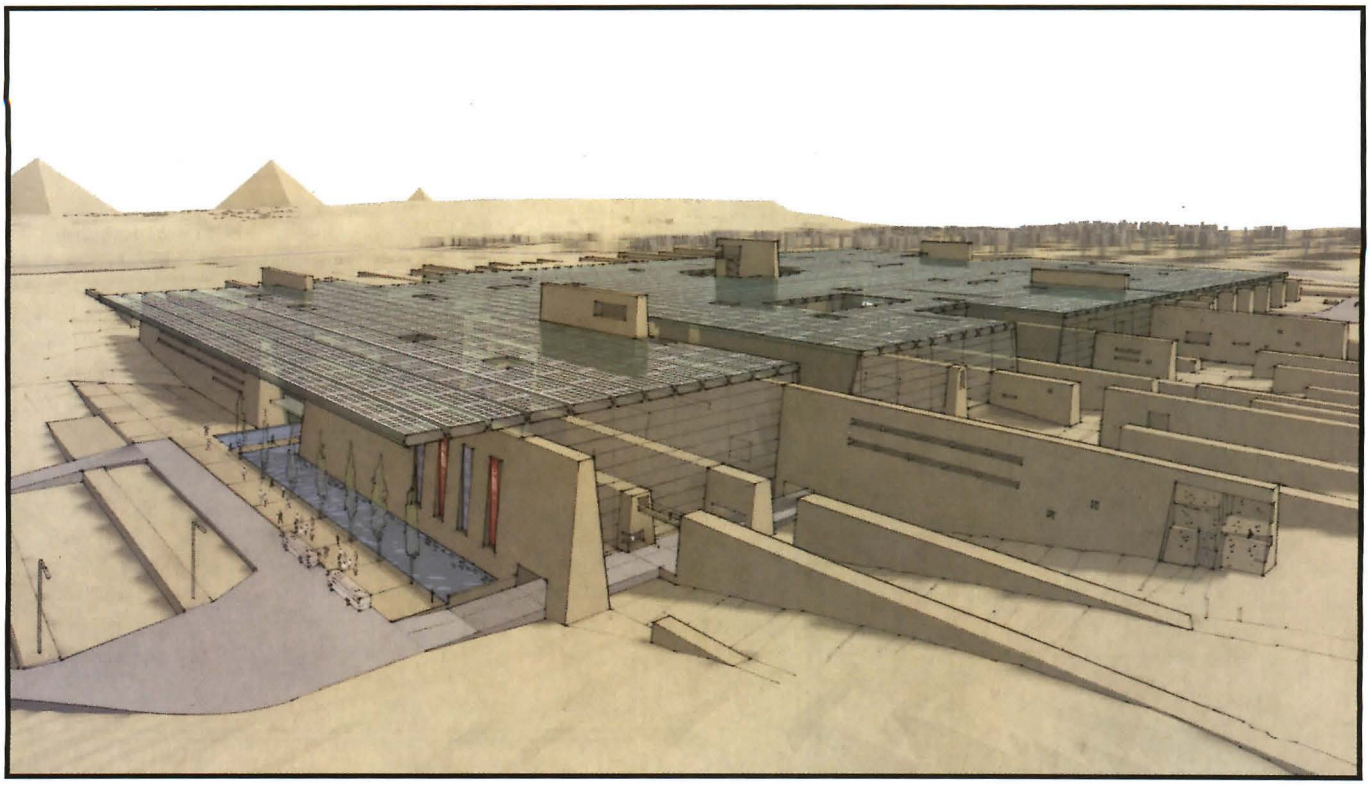


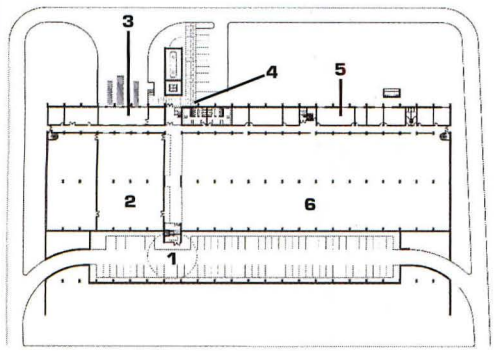
LEWIS.TSURUMAKI.LEWIS | GRAND EGYPTIAN MUSEUM COMPETITION | THE PYRAMIDS AT GIZA, CAIRO

Lewis.Tsurumaki.Lewis, another New York City firm, takes its cue from the brilliant quality of Egyptian light and the site's natural topography. Rows of enormous, hollow stone pylons are covered by a luminous glass roof canopy embedded with photovoltaics to capture energy for the museum.

The pylons vary in height, width, and distance from each other to house a variety of spaces: exhibition galleries, archives, lecture/conference halls, research laboratories, and administrative areas. Cutting through the parallel system of pylons, "Nile Park" serves as the central spine of the museum.

The configuration of the stone pylons and the glass canopy produces galleries that depart from the boxy rooms found in Western museums. The interiors of the pylons provide intimate and enclosed spaces for funerary or domestic artifacts. The broad expanses between the pylons provide a protected space under the sun canopy for sculptures and large-scale works, creating an updated version of a hypostyle hall. **Bay Brown**





ground-floor plan 80'

1 main entrance
2 storage
3 loading
4 visitors entrance
5 service
6 production

KISS + CATHCART ARCHITECTS | HELIODOMI | THESSALONIKI, GREECE

For a manufacturer of amorphous-silicon photovoltaic panels, architects Colin Cathcart and Gregory Kiss have developed a low-environmental-impact building energized by their client's own product. The architects, ranging far from their office in Brooklyn, New York, have produced a double-wedge design that grows skyward directly from its site on the edge of an existing industrial park in Thessaloniki, the second-largest city in Greece. The south-facing wedge sports a roof covered in alternating bands of planted soil and photovoltaic panels (400 kilowatts in all), while the secondary, much narrower wedge marks the main entrance. Some of the translucent solar panels double as skylights, through which daylight filters into the factory's production areas and covered parking lot; the photovoltaics also provide power to the manufacturing process. According to Kiss + Cathcart, who worked on the project with local architect Panos Panetzos, heat gain from the skylights is offset by the high insulation value of the green roof. When completed this fall, the 110,000-square-foot Heliodomi will produce 5 megawatts worth of solar modules every year, which will be sold for use in private residences, commercial buildings, and utilities. A planned second phase of construction will add an additional 5 megawatts of production capacity. **Abby Bussel**

ON SOLID GROUND

CLOCKWISE FROM TOP LEFT: HÉLÈNE BINET, ROLAND HALBE, VINCENT LÓPEZ MUNICIPALITY, PAUL WARCHOL

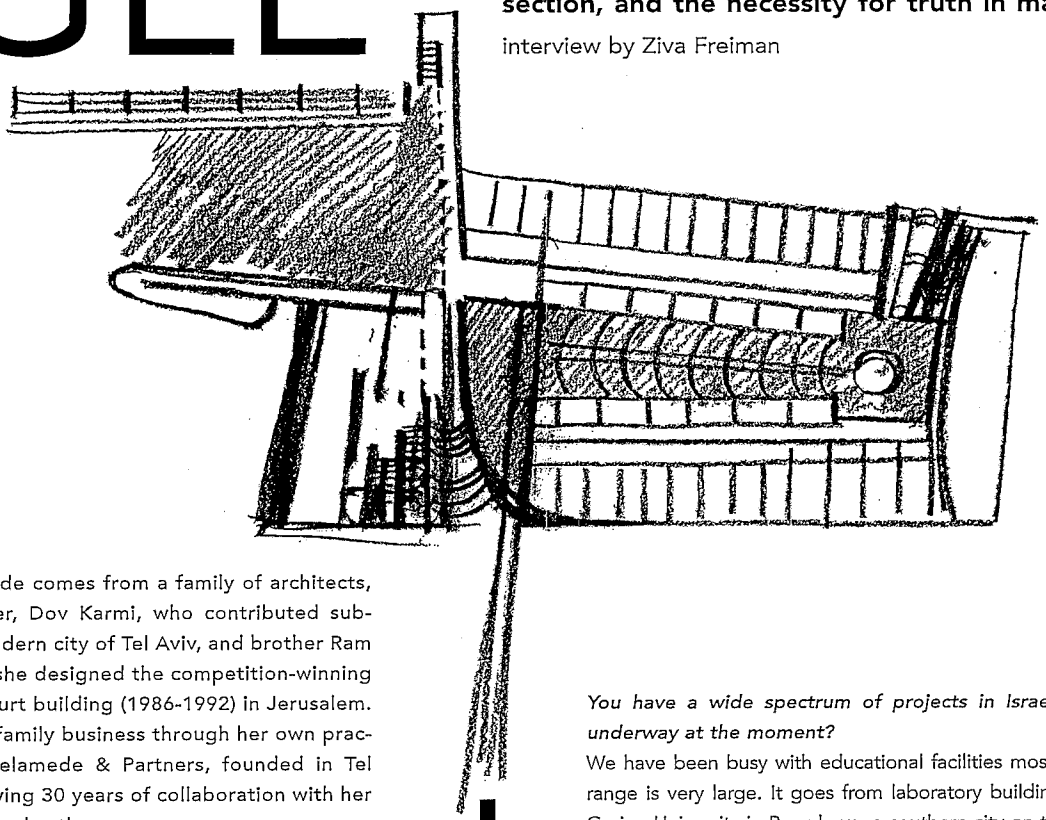
Perhaps it is the ephemeral qualities of contemporary life that make us want to reconnect with the ground beneath our feet. As we search for new ways to make transparent buildings pirouette across city skylines, we also continue to seek ways to anchor architecture to the earth. While our ability to live high in the sky on materials as light as air evolves, we are increasingly looking to burrow into, stretch low-slung over, or echo characteristics of the land. We feel safer between walls that have true depth; we want to see façade meet foundation.

This issue brings together work by architects who mine their sites, even when the ground plane is essentially a flat parcel, as is the case with Ada Karmi-Melamede's house outside Tel Aviv (top left), or sloped, as with her educational buildings on the edge of the Negev in the south of Israel. Santiago Calatrava's winery in Spain (top right) ripples across a Spanish valley, echoing the mountain range behind. Claudio Vekstein's waterfront park in Buenos Aires (bottom right) sits on landfill, its irregular edge reflecting the patterns of the river currents. Steven Holl's design school addition in Minneapolis (bottom left), with its off-axis X-plan, creates four distinct exterior courts. Each architect approaches design through a process motivated by the experiential.

GRAVITATIONAL PULL

Ada Karmi-Melamede talks about making public and private spaces, her construction of plan and section, and the necessity for truth in materials.

interview by Ziva Freiman



Ada Karmi-Melamede comes from a family of architects, including her father, Dov Karmi, who contributed substantially to the modern city of Tel Aviv, and brother Ram Karmi, with whom she designed the competition-winning Israeli Supreme Court building (1986-1992) in Jerusalem. She carries on the family business through her own practice, Ada Karmi-Melamede & Partners, founded in Tel Aviv in 1992, following 30 years of collaboration with her father and, later, her brother.

In Israel, hers is a critical voice in the shaping of the public realm, and she is a self-appointed steward of the country's architectural and cultural history (her exhibition on architecture in Palestine under the British Mandate opens in 2005 at the National Building Museum in Washington, D.C., and the Tel Aviv Museum of Art). A designer-teacher steeped in the traditions of craft and formmaking, she has been a quiet but powerful presence in the United States, too, where she lived during the 1970s and 1980s, designing interiors and conducting land-use and transportation studies, as well as teaching at the Columbia and Yale schools of architecture.

In her deployment of line and circle, her emphasis on sightlines and the body in space, and her explication of in-between spaces, Karmi-Melamede connects the human figure to land and sky, whether at a lab desk or on a terrace. Her use of materials and choreographic sculpting of natural light is more Louis Kahn than Mies van der Rohe, more about solidity than transparency.

Two recent projects, the Gottenstein House (page 70) and the life-sciences buildings at Ben-Gurion University (page 74), express her ideas about making public and private space.

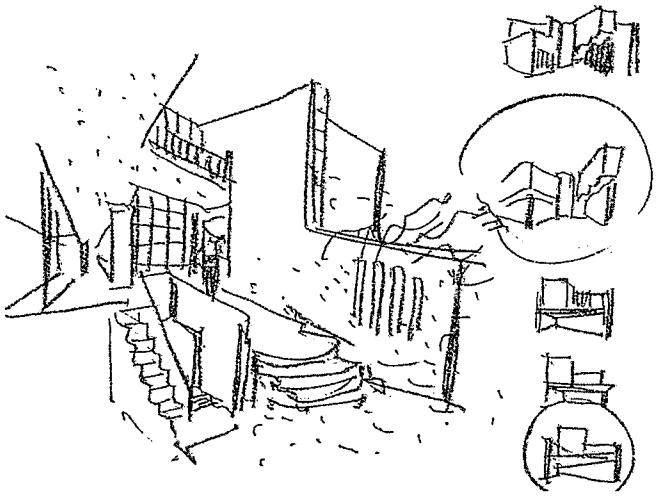
You have a wide spectrum of projects in Israel. What is underway at the moment?

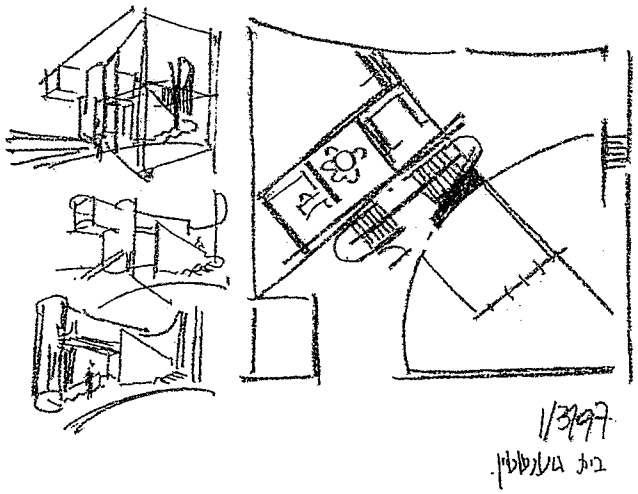
We have been busy with educational facilities mostly, but the range is very large. It goes from laboratory buildings at Ben-Gurion University in Beersheva, a southern city on the edge of the Negev desert, to the schools of business and government in Herzliya, a coastal town just north of Tel Aviv. There are other kinds of institutional work I have been involved in since the Israeli Supreme Court, including a small museum in the north of the country, which is related to the history of a beautiful garden, and a large commercial job, nearly completed, for apartment buildings.

I've always tried to have one private house in the office, because it is the only opportunity one has to meet the real client—in every other case, the user is represented by a committee or by an agent. The houses are developed in the office as if they were product designs. They are detailed excessively and extremely crafted, in spite of the fact that they are not very large. The client's interest is great and a personal relationship is usually created, which is inspiring to both sides.

How do you approach the disparities in scale and purpose in a range like this? How would you characterize your approach to public and private?

I think that in every public building there ought to be a private scale; without a private scale one wouldn't feel at home. I think the reverse is also true for a private house. In a residence, the public spaces are probably the medium by which a house con-





nects itself to the bigger order of things. There is some complexity in the small scale and in the big scale that relates to the fact that the private scale in public places and the public scale in private spaces are equally important. In other words, they might be playing similar roles in different measures, but they are not really that different, as far as I am concerned.

The program for a public building is a very specific document of quantifiable items. Hardly ever do you find any declaration about the quality of the place, what it should be like. Functional rooms end up in finite spaces, they are complete and they don't tend to extend to anything else beyond themselves. One should try to link the physical, constant elements of the building to needs that are more permanent. For instance, we have need for repose, for laughter, for forgetting. These needs have no space-time requirements. But they are usually accommodated in multipurpose rooms and not in single-purpose rooms. Everything that happens in between single-purpose spaces is basically the stuff with which buildings are glued together, and yet public or commercial clients rarely qualify that.

You extend great effort on residual spaces.
Yes, because unless one develops an opinion about them or tries to dream up what they ought to be, there is no way to structure or order the rest of the building. What makes things want to be together is the issue in the end.

The main thing with public spaces is that they are not complete as normal rooms would be; they have some notion of gravity within them, but also some notion of openness. They tend to link to others. If you look at all the lobbies and the gardens in the buildings for the life sciences at Ben-Gurion and how one thing flows into another, you see that most of the public spaces have something that is dynamic in them that wants to link to what is beyond—and something that is very static in them that wants to take root. They are hybrids because they are stable and unstable at the same time.

Circulation is an important aspect of your architecture.
You could say that circulation is an order-giving element in everything I do, because I think that spatial experience has a lot to do with what your eyes see and what your feet experience. Usually the plan deals with the feet, the shortcuts; the section always deals with the long cuts. For all my buildings, the number of sections I draw is many times bigger than the number of plans. The reason is that I'm always trying to elongate the sightlines within the building and maybe to shorten—or fix, if you want—the trail the feet will take.

For example, in a typical office building, your eyes are forced to follow the same route as your feet. Your spatial experience is actually very minimal. But in any building that has a spatial experience greater than a typical corridor of a hospital, the trail of the eyes is a good deal greater than the permissible trail of the feet. The plan is an itinerary for the feet and the section is an itinerary for the eyes, and in conjunction these two make the spatial framework for the building. And they calibrate the extremes of public and private, or between the real and the ideal, which is very important.

Regarding the properties that distinguish public and private: How is this idea of plan and section supported by tectonics and materials?
All of the materials that we have in Israel are basically heavy. We don't have metal or glass. Apart from the fact that these materials are scarce, the need for shade and the need for protection in the very large sense of the word, and the need to tame light because the glare is so incredibly fierce, all of these together make for buildings that are somewhat heavier-looking than buildings in other places. As a result, you cannot think of them other than in terms of what structure can do for you, and what skin can do for you, and how these things relate. We don't deal much in images that don't have a reality. When you create layers—many of the buildings I am working with are extremely layered—you don't create them in order to give an illusion of depth. You create them in order to have depths that are more than skin deep. I think that most buildings have a body. Within the body, there are skins or layers, and between the layers we can bounce light and we can walk. In other words, the cavity is always a place that you can personalize, rather than just think of as unusable space.

I also think—and this is a general comment—that when architecture is confined to visual illusions, people are reduced to being passive observers, rather than active participants; spaces become neutral rather than personal. You'll see that a lot of the details in the life-sciences buildings have to do with the spaces in between. Windows are designed so that people can lean against them, or sit in them, or walk within them. They are usable voids. And they are tactile. If architecture is about touch, then places that are near you are treated differently from spaces that are far away.

On the whole, when architecture loses the dimension of weight, or of depth, or of expansion and compression, it loses the tangible nature of materials. Without weight, formmaking is reduced to a theoretical or scholarly exercise. I have a problem with imitating materials, with defeating the weight of materials, with structure that doesn't touch the ground. I am conservative in this respect.

Ziva Freiman is a principal of Engine Books, an editorial services company, and a former senior editor at *Progressive Architecture*.

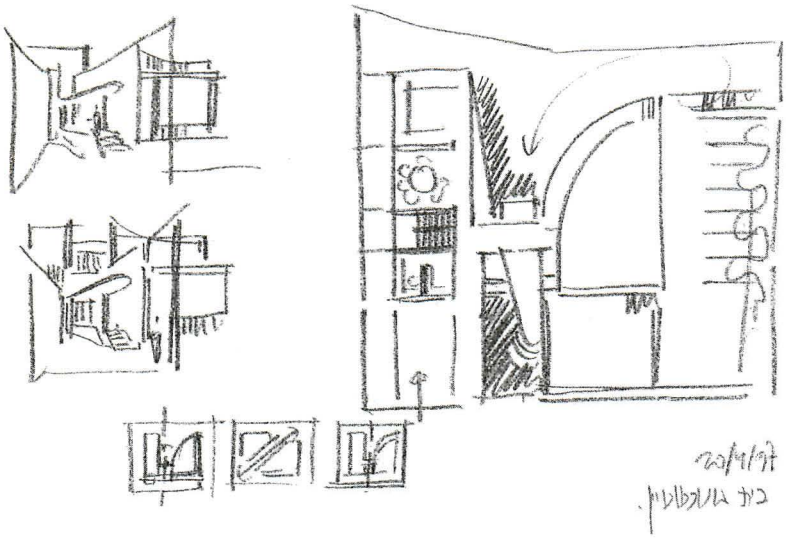
For a private residence in a suburb of Tel Aviv, Ada Karmi-Melamede frames the tight site with a solid wall, as though it were the edge of the house. Interior spaces reach toward this high perimeter wall to "enlarge the perspectives in order to create greater depth and volume." In the gaps between the wall and the house, "roofless rooms" are created.

Inside the three-level 3,500-square-foot residence, three-dimensional, circular movement defines the spatial composition. "The path of one's feet," explains the architect, "and the journey of one's gaze are constantly encouraged to be independent of one another."

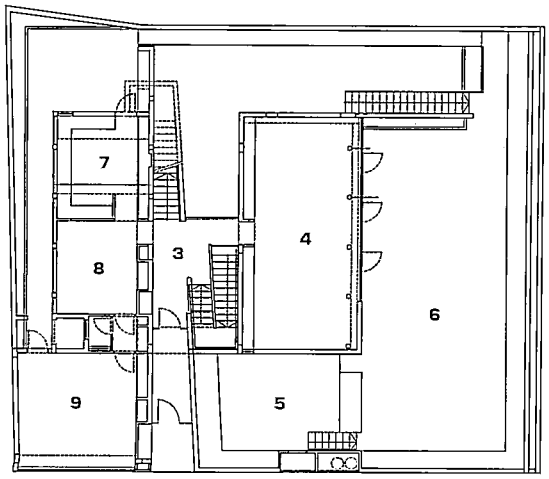
From the entrance, a long diagonal line organizes relationships between programmatic elements within the building envelope. While the house stretches toward the edges of the site, it also stands apart from them. Many section drawings were made to ensure that vertical and horizontal connections were both physical and visual. Set above the sunken, basement-level courtyard, the street-level entrance hall bridges living room and dining area. Natural light is critical to the composition: It shapes space, attracts the eye, and imbues materials and surfaces with warmth and texture.

Details are as extensively developed as plan and section. Rails conform to the hand; risers and treads appear to be carved out of stairway walls. The high degree of articulation extends to the façades as well. The street façade, set back from the perimeter wall, is marked by three long vertical openings, each realized in a geometric composition of glazing and metallic green framing. Vertical louvers that open the east façade to the sky turn on a manually operated series of pivoting components. "Without details," believes Karmi-Melamede, "spaces are mute."

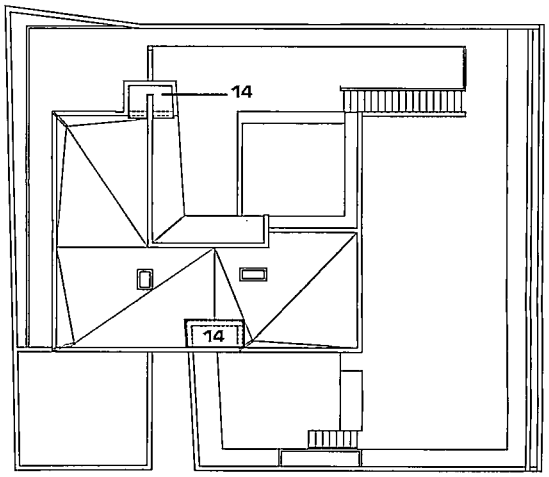
Gottenstein House



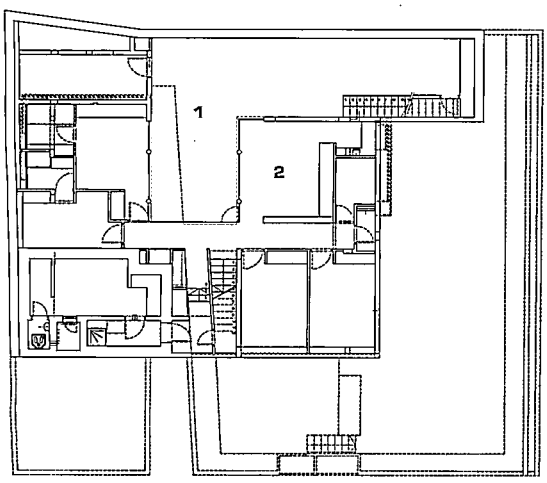
An east-facing, full-height glass wall divides the living room from the ground-level courtyard (facing page); above the glazed wall, a horizontal row of louvers shelters both the master bedroom and the upper court. Three vertical openings—two recessed into the exterior wall, one flush with it—face the street (below); the central opening marks the entrance.



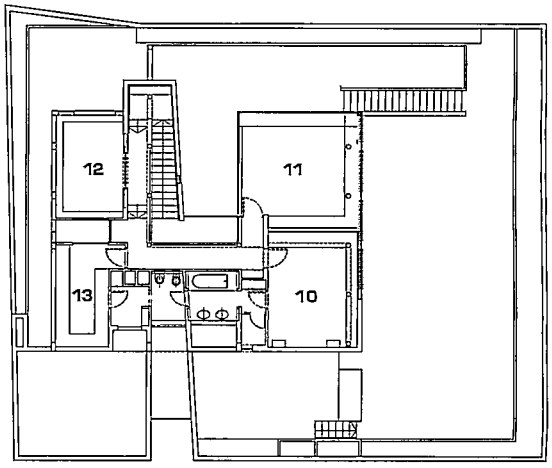
ground-floor plan



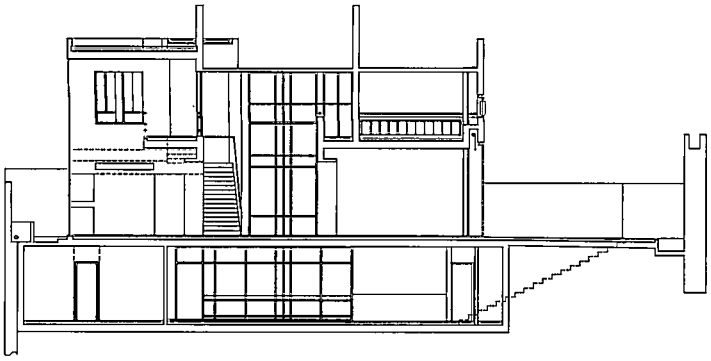
roof plan



basement plan ——— 14′

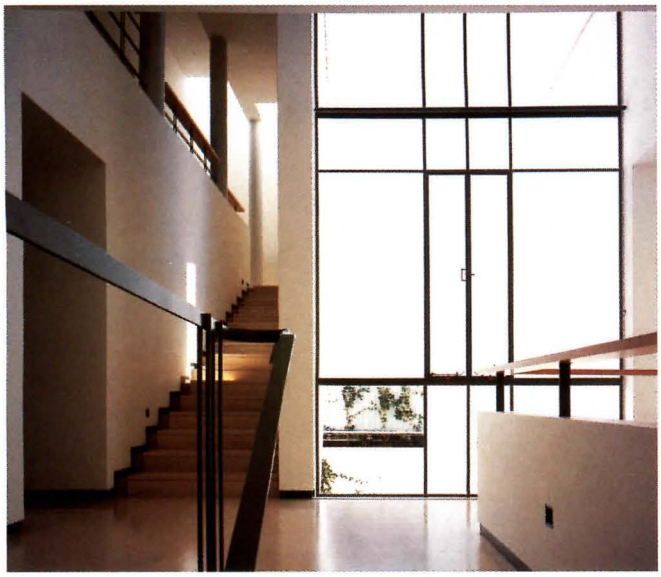


second-floor plan



east-west section ——— 10′

1 lower court
2 family room
3 foyer
4 living room
5 forecourt
6 courtyard
7 kitchen
8 dining room
9 garage
10 master bedroom
11 upper court
12 study
13 walk-in closet
14 skylights



White-painted plaster walls dominate the interior, including the entry hall (bottom left). The blank walls are enlivened by exposed steel structural elements, strategically placed fenestration (top left), slender handrails, and oak finishes. Visual and physical links between internal spaces and between internal and external spaces drive form and circulation, when looking, for example, from the second-floor hallway across the upper court and out through the open louvers of the east façade (top right), or from the living room into the ground-level courtyard (above right).

north-south section —— 10'

Gottenstein House, Ramat Hasharon, Israel
client | Gottenstein family **architect** | Ada Karmi-Melamede & Partners, Architects, Tel Aviv—Ada Karmi-Melamede (designer); Hanan Pomagrin (project architect) **engineers** | Haim & Yechiel Steinberg (structural); Air Condition Engineering (HVAC); J. Lubetzki Consulting Engineer (electrical) **project/construction management** | Jacob Glazer **general contractor** | Assaf Lipman **area** | 3,500 square feet

photographs by Ardon Bar-Hama

As campus architect, Ada Karmi-Melamede has designed the current master plan to expand Ben-Gurion University. Gardens connect older areas to new. On a parcel that slopes in two directions, her life sciences buildings—the first on the east edge of the expanded campus—exploit changes in grade with circulation systems that overlap and extend into the campus.

Three buildings wrap around a central garden: to the north, the Toman Family Department of Life Sciences for graduate students; the Henwood-Oshry Life Sciences Teaching Laboratory Building, with undergraduate facilities, to the west; and, to the south, the de Picciotto Institute of Applied Biosciences for doctoral researchers. Their proximity both allows for shared equipment and supports the formal and informal exchange of ideas. A greeting hall with garden views serves as the heart of activities.

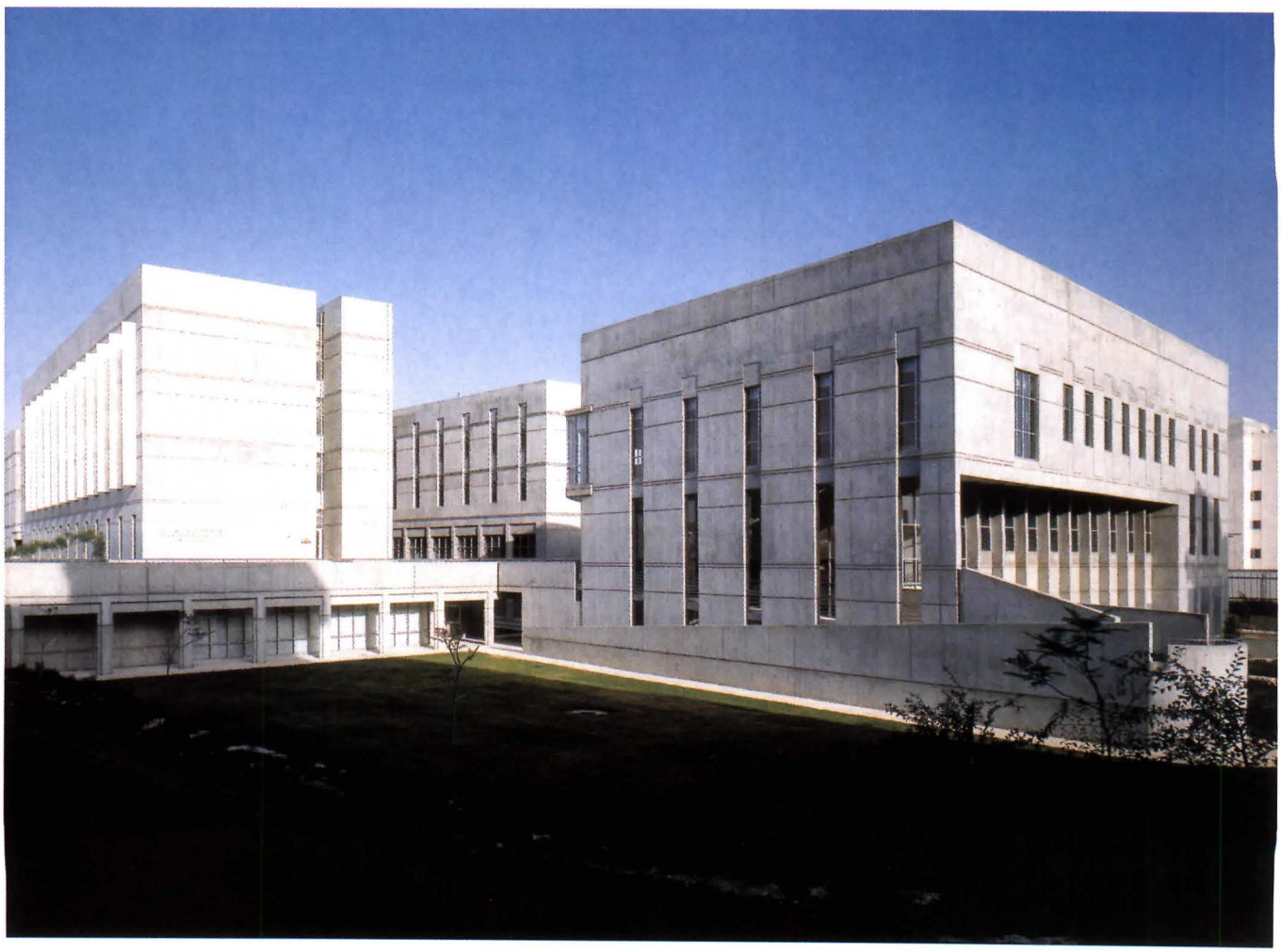
An emphasis on in-between spaces increases the level of interaction within the institutes and beyond: On the macro level, the campus's main north-south axis cuts through the life-sciences precinct; on a more intimate scale, the ramps, bridges, and walkways that link the buildings to each other and the campus initiate interior spatial and circulation sequences.

The concrete exterior walls echo the campus's brutalist heritage, while debunking that movement's reputation for dismal environments. By casting in place and tapping skilled local craftsmen, Karmi-Melamede explores the plasticity of concrete, making it "fully massive in one instance and completely tensile in the next." Other materials broaden the tectonic language and reduce heaviness: Linear glass prisms follow pour-joint reveals at the slab level of each floor; milky glass encloses a rooftop greenhouse, its glazed wall becoming a parapet as it moves west across di Picciotto.

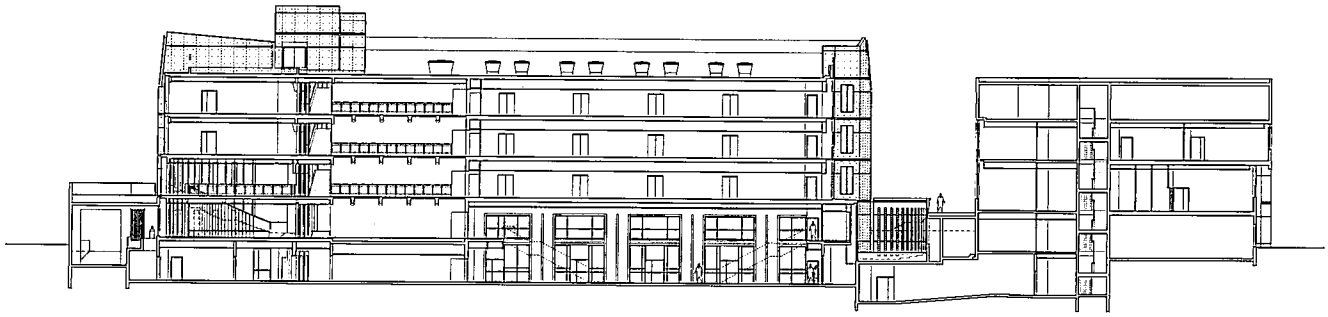
Tactile materials, powerful geometries, interwoven circulation, and shared spaces form, in Karmi-Melamede's words, a "communal architecture" for the life sciences, within which the requirements of technology are balanced with "strong reminders that science is a human endeavor."

Life Sciences Buildings, Ben-Gurion University of the Negev

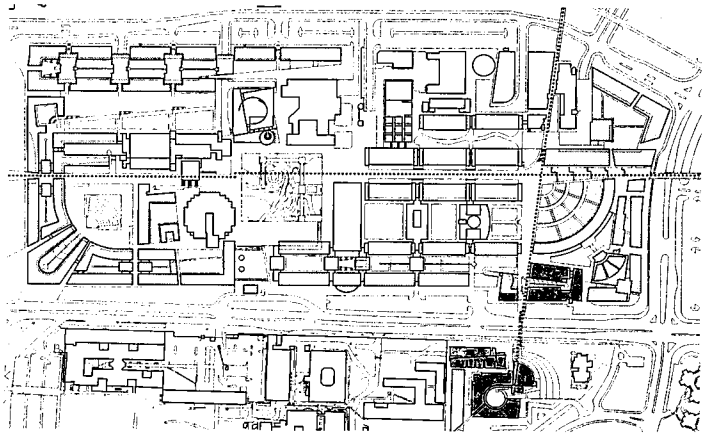
Tightly massed around a central garden, the three buildings sit atop a common basement with shared infrastructure. Flanked by both an open arcade and a gallery, the central, sloping garden (left and above) provides a quiet outdoor room; its axial orientation is echoed in a cascade of water running in a stainless-steel flume. Stainless-steel window constructions project from the concrete walls: on the south façade (facing page, top), "hoods" protect laboratory windows from sun and glare; on the north and east façades, the steel is molded around aluminum curtain-wall assemblies to form "window boxes" (below and facing page, bottom).



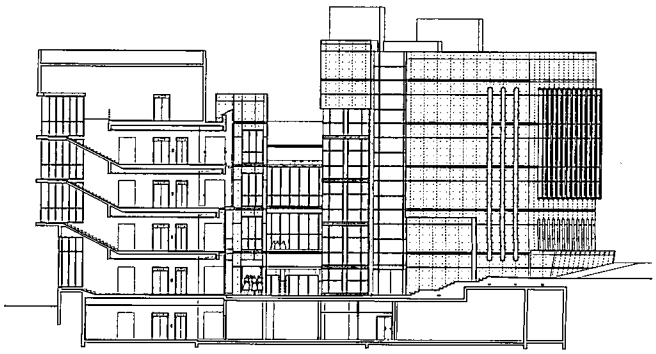
ALL PHOTOS THIS SPREAD: HÉLÈNE BINET



east-west section

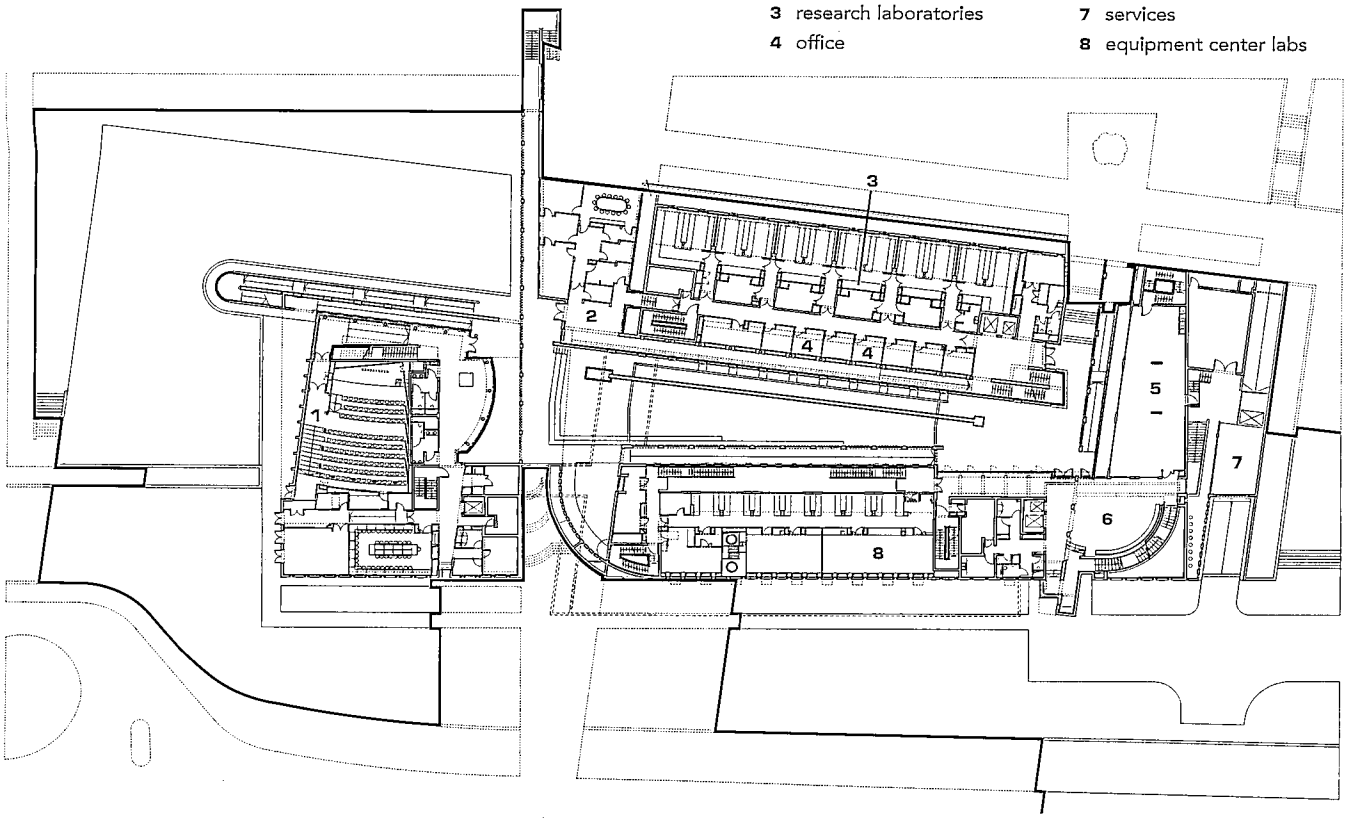


site plan ——— 270′

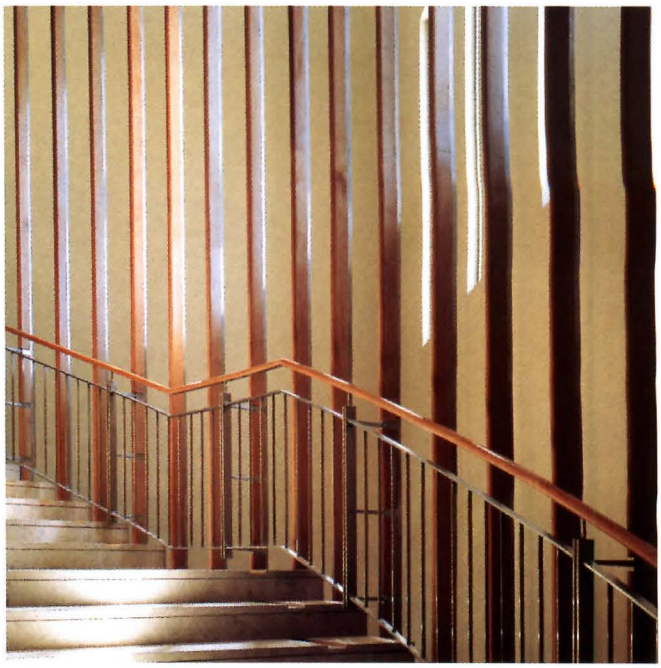


north-south section

1 lecture hall
2 administration
3 research laboratories
4 office
5 future expansion
6 greeting hall
7 services
8 equipment center labs



garden-level plan ——— 40′

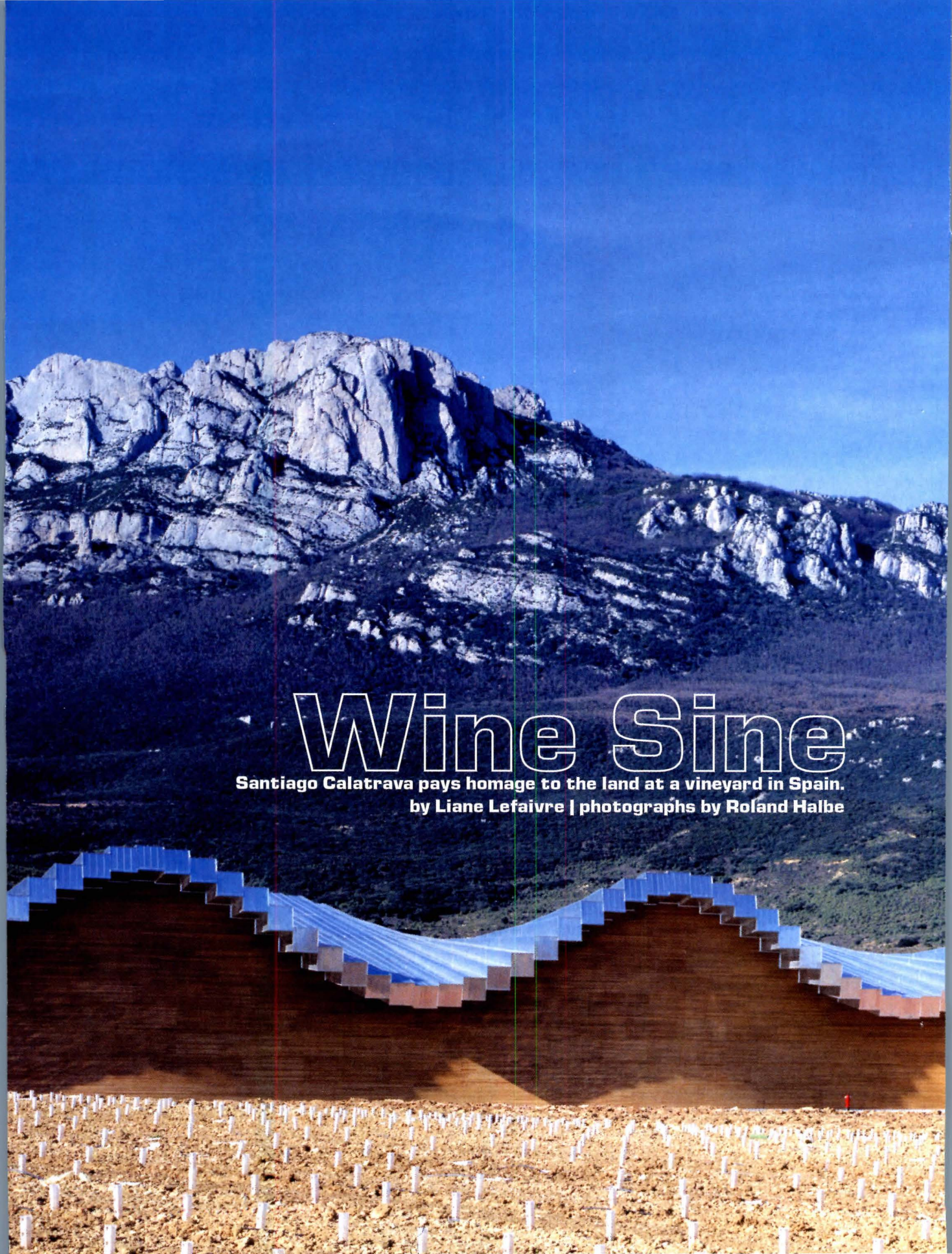


Stacked in the Henwood-Oshry building, east-facing student lounge areas look both across the inner court (top left) and toward a gap in the south edge of the life-sciences precinct (top right). While the exterior concrete walls express the seriousness of scientific pursuits, interior finishes have a warmer palette, especially the public spaces: plaster walls are slightly textured; furnishings and ceilings are beechwood, as in the greeting hall (above left); and three different stones from Israel, Turkey, and Iran cover the floors. Detailing and craftsmanship are rigorous throughout the life sciences buildings. Wood sleeves wrap stainless-steel bars on the staircase (above right) that ascends from the lower to the upper level of the greeting hall.

Life Sciences Buildings, Ben-Gurion University of the Negev, Beersheva, Israel

client | Ben-Gurion University of the Negev—Dr. Avishay Braverman (president); Dr. Israel German (director-general); Pinhas Kedar (deputy director-general for development) **architect** | Ada Karmi-Melamede & Partners, Architects, Tel Aviv, Israel—Ada Karmi-Melamede (designer); David S. Robins (project architect); Ofer Arussi, Yasmin Avissar, Sharon Paz-Gersh, Ifat Finkelman, Dina Shafrir, Haki Zamir (project team) **engineers** | Rotbart-Nissim Structural Design (structural); HRVAC Consulting Engineering (HVAC); J. Brandt (electrical); Environmental Engineering & Technology (civil and sanitary) **consultants** | Israelight and Architectural Lighting Design (lighting); Landmann Aluminum (façade); Yaron-Ari Landscape Design (landscape planning); Sherman-Potash Architects (laboratory planning); Electronic Management Group (security and communications); S. Natanel Engineers & Consultants (safety) **project/construction management** | Hirshberg-Milun Engineers **contractors** | Ashlil Constructing & Investment (general); Mashav (mechanical); Noga (electrical) **area** | 135,000 square feet **cost** | $30 million

PHOTOS: HELENE BINET EXCEPT TOP LEFT, AMIT GERON



Wine Sine

Santiago Calatrava pays homage to the land at a vineyard in Spain.

by Liane Lefaivre | photographs by Roland Halbe

Starkly simple, airy and light, almost wispy, this new warehouse and wine-making facility for the Ysios Winery in north-central Spain is a departure for Santiago Calatrava, showing that he is not only a prodigious engineer of complex megastructures, but also possesses a keen sensitivity to the relationship between building and landscape.

ROLLING WITH THE HILLS

Located in the Rioja winegrowing region of Spain, about an hour south of Bilbao by car, Ysios is one of the first Spanish wineries to actively compete with its French confreres by adopting the idea of the "grand cru," meaning that not one grape ripened outside the domain is allowed to enter this dark, earthy red wine. Calatrava's building is just as deeply rooted in the region. He has situated the winery in such a way that it stands out against the snow-capped, blue sierras of the Pyrenees in the distance, riding like a wave over the site's gently rolling hills. The building is not only striking to look at, but also offers a magnificent view from within. With its grandly swooping roof and gigantic, 33-foot-high curved picture window, the centrally placed wine-tasting hall looks out on the picturesque hilltop village of La Guardia in the distance.

Not surprisingly for a Calatrava building, there is no trace of orthogonality anywhere. Arising from the natural forms of the topography in which it is nested, this is organic architecture at its most dynamic and sensual.

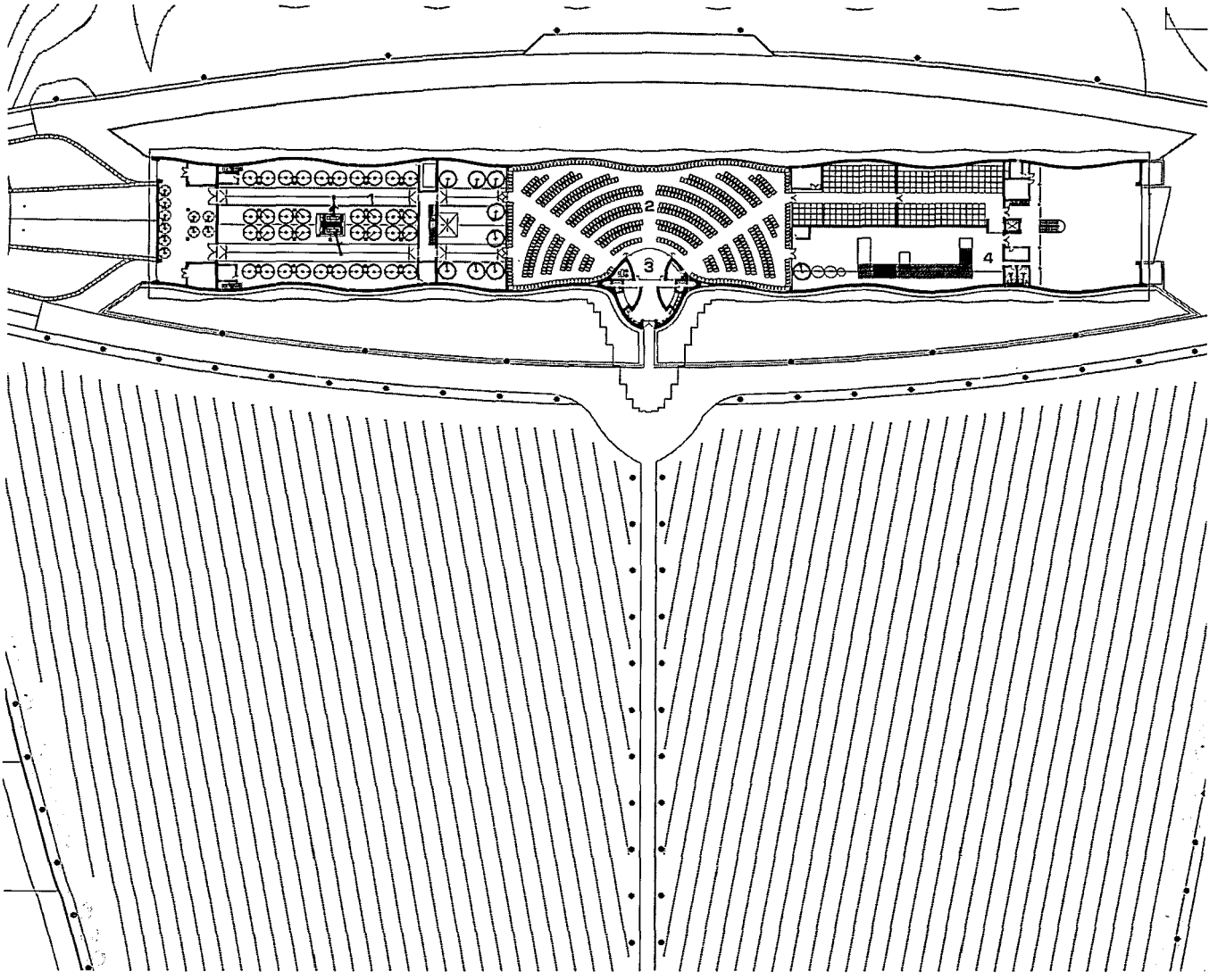
TOASTING GAUDÍ

While echoing the landscape, the gently undulating forms of the building also appear to be influenced by another source: Antoni Gaudí. The winery is distinctly reminiscent of his so-called "small schools" adjacent to the Sagrada Familia in Barcelona. Ysios exploits the remarkably graceful qualities of the sinusoidal line from Gaudí's 1926 prototype in the winery's walls and roof, but it is hardly a carbon copy of the original. Whereas in the Gaudí building, the underlying structure is concealed by a continuous, rippling skin of ceramic tiles, in Ysios it is bared for all to see. With its huge, gleaming, aluminum-clad rolled cypress beams, the structure of the roof is hard to miss. In addition to the masterful plays between structure and aesthetics, this would not be a Calatrava building if it did not contain an element of the surreal. To give the impression of buoyancy, he has encircled the base of the building with a reflective pool of water.

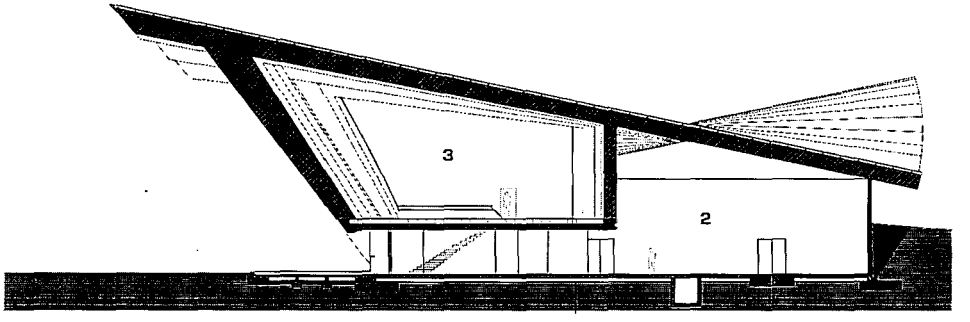
CONSTRUCTING WITH CURVES

As one would expect from Calatrava, the reasoning behind his building's sensually undulating forms runs deeper than visual analogy. They are the result of an extremely rigorous and functional construction logic. The sinusoidal curvature of the walls means that, in spite of their thinness, they are tremendously strong. They have to be: The load they bear is a staggering 2.2 million pounds of grapes, plus no fewer than 36 gigantic stainless-steel tanks big enough to hold 6,600 gallons of wine apiece. (The wine vats sit on the building's second story, while the first floor is used to store bottles and kegs.) Under the building's fluid, rippling curves is an impressively sturdy structure.

More than for its deceptive strength, however, the building is remarkable for the same reasons Gaudí's structures are: By using the simple, nature-based laws of geometry as ordering principles, Calatrava has created a moving, organic architecture that makes sense both structurally and aesthetically in the context of its function and surroundings. ■

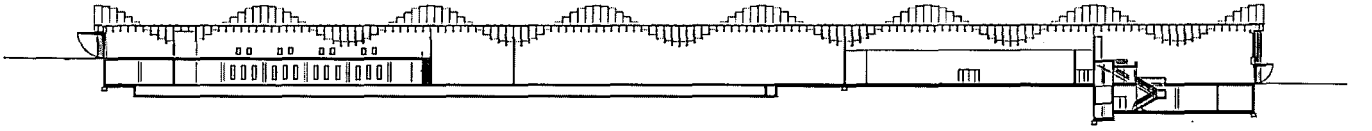


site plan ——— 50′



north-south section ——— 10′

1 wine production facility
2 warehouse
3 visitors area
4 bottling facility



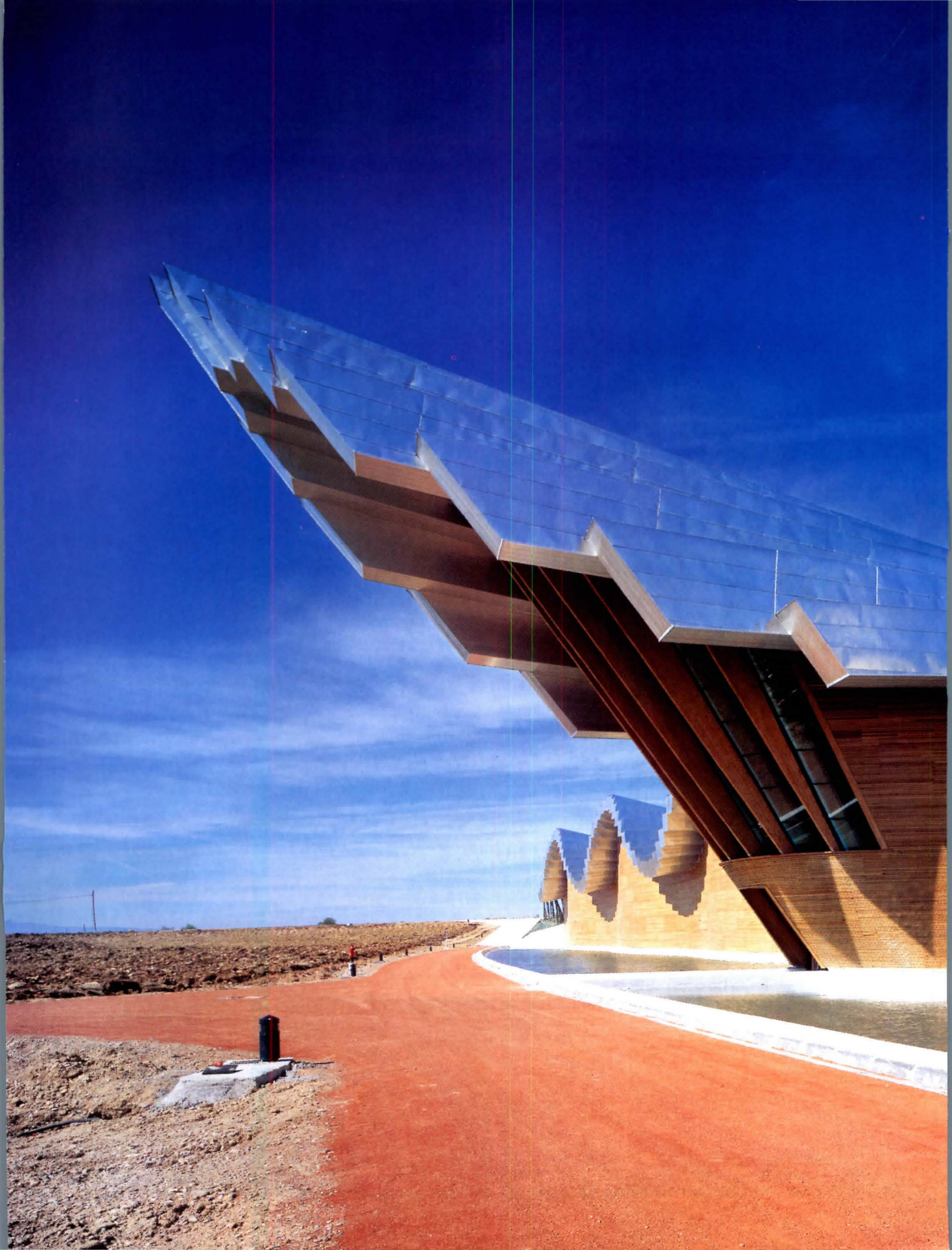
east-west section ——— 35′

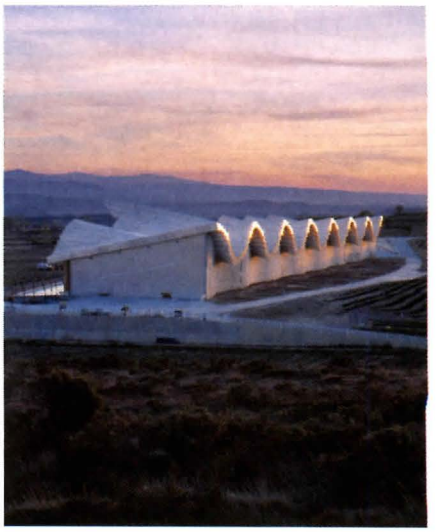
Beneath its roof of rolled cypress beams, the winery's top floor holds 36 stainless-steel tanks, each containing 6,600 gallons of wine.

A Gaudí Legacy

The sinusoidal wave of Calatrava's roof for Ysios seems a direct echo of Antoni Gaudí's school building for his Sagrada Familia Cathedral in Barcelona (left). As with most of Calatrava's designs, early conceptual sketches of this form can be found in his work as a sculptor. A 2002 piece called *Wave* (below), installed at the Meadows Museum at Southern Methodist University in Dallas, foreshadows the roof structure and reflecting pool at the winery; but unlike Ysio's stationary cypress beams, *Wave*'s hollow steel bars are perpetually in motion.

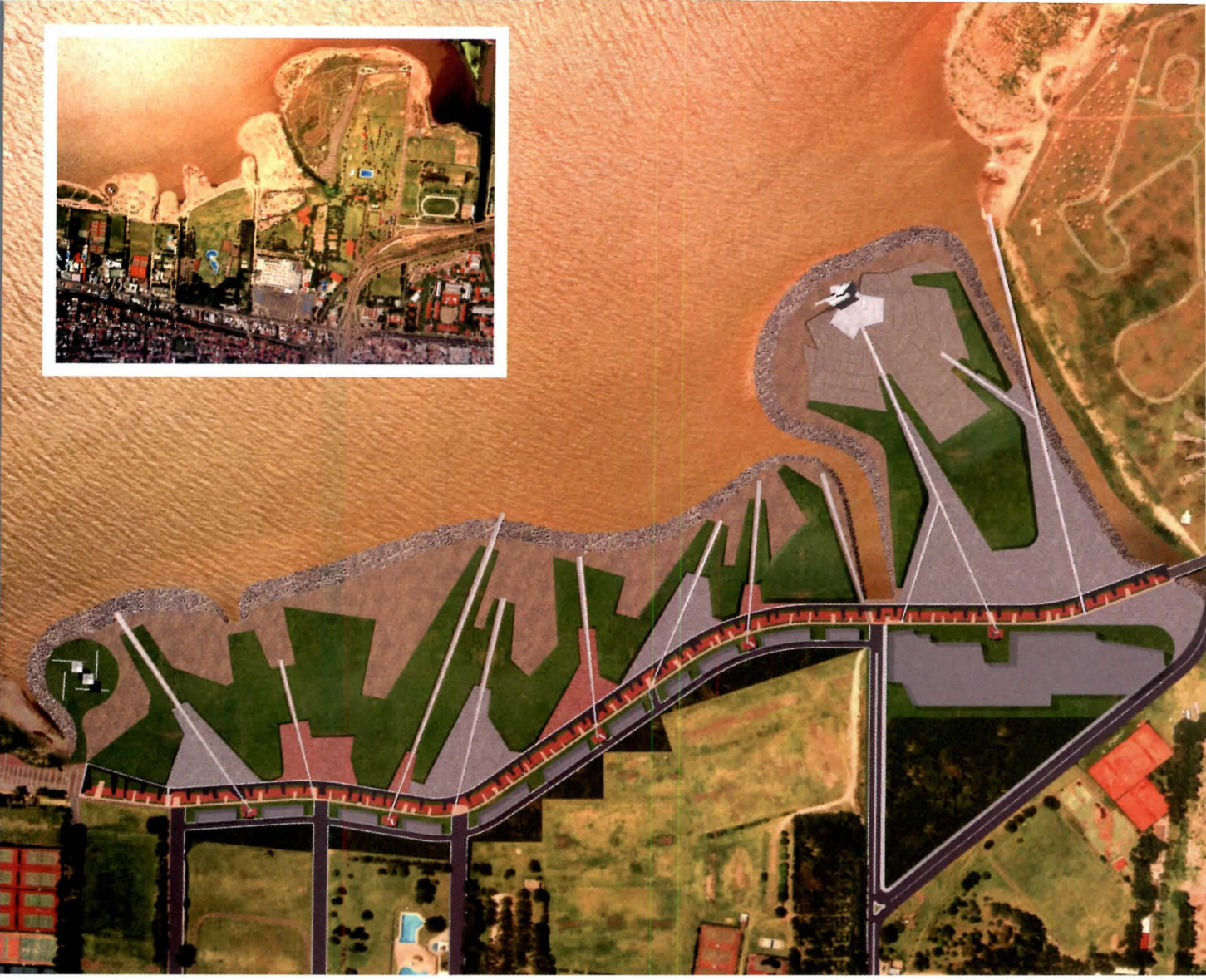
BOTTOM LEFT: COURTESY GAUDÍ CLUB; BOTTOM RIGHT: HILLSMAN JACKSON





Visitors approach the building's south façade (left), surfaced in copper-varnished wood slats; it seems to soar over the reflective moat. The mountain-facing north side of the building (above) is bare concrete.

Ysios Winery, Laguardia, Spain
client | Bodegas Ysios **architect** | Santiago Calatrava, Valencia, Spain **landscape architect** | Santiago Calatrava **engineer** | Santiago Calatrava **interior design** | Santiago Calatrava **general contractor** | Ferrovial Agroman **subcontractors** | Ferrovial Agroman (concrete); Javal (coating wood); Holtza (structural wood) **area** | 86,110 square feet



ONE-MAN PARK

In 1966, the revered Argentine modernist Amancio Williams erected a pavilion honoring his father, the composer Armando Williams, in Buenos Aires. Ten years after the architect's death, this personal tribute led to a much larger project that would impact the city on many levels and symbolically respond to its fraught political past.

After Williams's death, his son, Claudio Williams, and his last disciple, Claudio Vekstein, tirelessly petitioned various municipalities and authorities throughout Buenos Aires for permission to rebuild the pavilion, which had been demolished two months after its completion. In 1999, Vekstein temporarily excavated part of the foundation of the pavilion, as part of a workshop he was leading at the city's Torcuato Di Tella University. Shortly thereafter, the Buenos Aires municipality of Vicente López finally allotted him a plot on which to rebuild the monument, at the edge of the Río de la Plata. The area had once been a popular public beach, but the country's military regime of 1976 to 1983 had shut down all areas for public congregation throughout the city. The river coast had subsequently become the domain of private clubs.

When Vekstein began construction, a city-led initiative to reclaim this stretch of waterfront for the public was already underway. Unable to wrest the coastal lands from the private clubs after so many years of tenancy, the city had decided to extend the riverbank with landfill that would be turned into new park space, and a team of planners was already on the job. Political disagreements, however, brought the project to a halt. At that point, based on the precision and conscientiousness demonstrated in his monument, Vekstein was asked to take over the entire park project.

INTEGRAL LAYERS

Vekstein approached the park with the same respect that he had brought to the Williams monument, honoring the city and its relationship with nature, using simplicity and a holistic approach as his guiding design principles.

First, he halted the landfill operation that was already underway and reconfigured the shape of the new coastline to reflect the patterns of the

INSET: COURTESY VICENTE LÓPEZ MUNICIPALITY; THIS PAGE AND FACING PAGE: ALEJANDRO GOLDEMBERG

ARCHITECT CLAUDIO VEKSTEIN HONORS HIS MENTOR AND ENRICHES HIS CITY WITH A COASTAL PARK IN BUENOS AIRES. BY ANNA HOLTZMAN

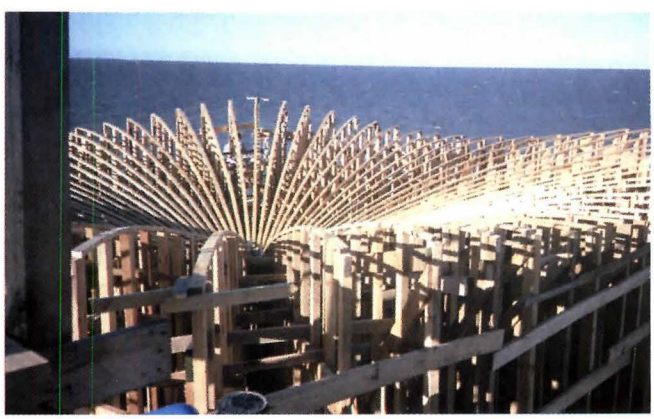
river current. In anticipation of the Sudestada windstorm that sweeps rough waves and mud over the river's border about twice each year, he raised jagged planted terraces above floodwater levels to serve as a breakwater. He pushed circulation and service areas to the park's western, city-facing edge: a single path for cars, cyclists, and pedestrians, with periodic service pavilions to one side and parking inlets to the other. Subsidiary pathways, conceived of as proliferations of the four illuminated paths from the Williams monument, lead from the main artery to the water. These secondary pathways double as drainage canals for the park, while large pipes beneath the landscaped terrain bring water from the city's streets to the river.

Midway through its development, the park received a donation from the Fundación Empresaria de Vicente López, a Buenos Aires charity, for an amphitheater, which was also designed by Vekstein. He sited the Sudestada Amphitheater on a peninsula that bookends the park to the south, while the Williams monument marks the project's northern tip. Beyond both its southern and northern perimeters, the park relates to other city-developed coastal green spaces, all of which are easily accessed from the city center, a 20-minute drive away.

CONTEXTUAL HEALING

The new River Coast Park interacts with the city on many levels. The artificial landscape hugs the natural one, supporting existing ecosystems and integrating them with the urban fabric. The park gives back public space to the city's inhabitants, underlining the end of a harsh political climate; the park fills up with city dwellers over the weekends, and the amphitheater hosts concerts every two weeks. It also adds sorely needed parkland to Vicente López, the least green area in all of Buenos Aires province. And it honors a local cultural figure. All of these aspects—ecological, political, social, and poetic—are seamlessly interwoven, just as the park's programmatic layers are harmoniously interlaced by Vekstein's elegant and purposeful design.

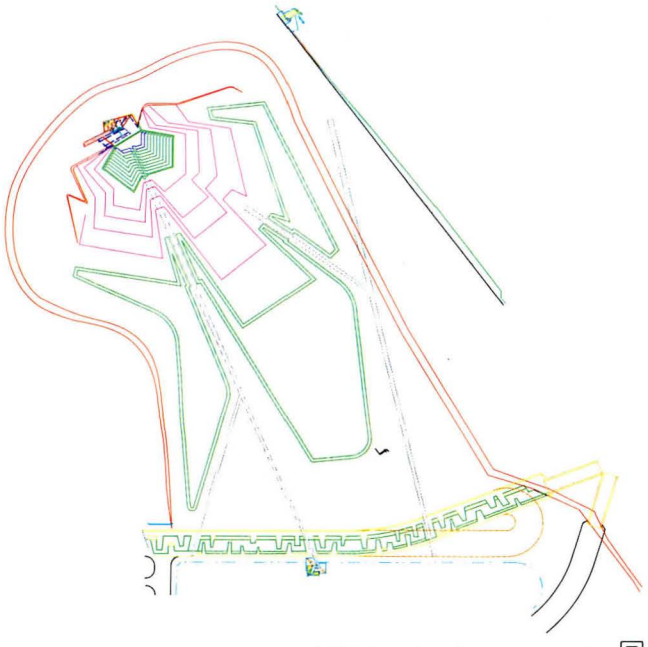
An aerial photo and digital renderings show the park site before and after development (preceding pages). The Amancio Williams monument (above) consists of two identical pillars topped by umbrellalike roofs, a square reflecting pool (below, left), several benches, and four orthogonal illuminated paths. The roofs' self-supporting structure, which was cast on wooden formwork (below, right), is like that of a shell: thinner at the edges and thicker at the middle.



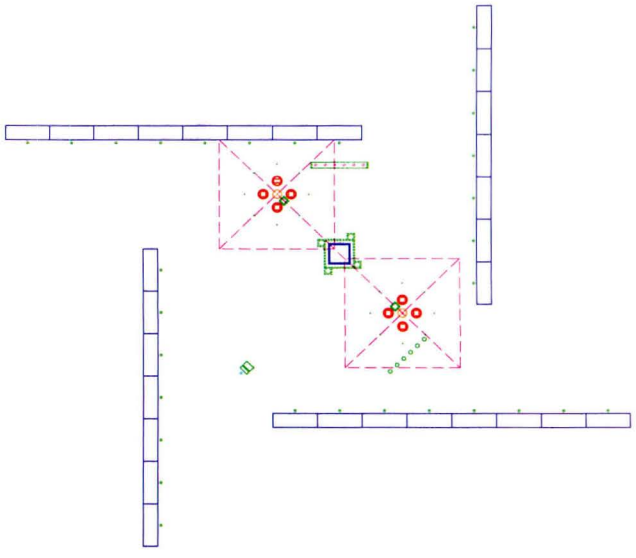
TOP: SERGIO SABAG; BOTTOM, LEFT AND RIGHT: CLAUDIO VEKSTEN

Originally, Vekstein wanted the two handlike halves of the amphitheater (this page) to cantilever without the support of columns; however, this would have necessitated an enormous foundation too expensive for the project's modest budget. Instead, slanted metal supports were inserted beneath the two canopies. The open-minded architect embraced this new gesture, conceiving of the supports as grounding elements of his design.

SERGIO ESMORIS



amphitheater site plan ——— 130′



monument site plan ——— 17′

Amancio Williams Monument, Buenos Aires
client | Vicente López Municipality **architect** | Amancio Williams (original plans); Claudio Vekstein (reconstruction) **engineers** | Georg Ponzelar; Tomás del Carril, Fontán Balestra, Marcelo Rufino (structural) **construction management** | Vicente López Municipality **construction** | SAPIC **area** | 7,800 square feet **cost** | $120,000

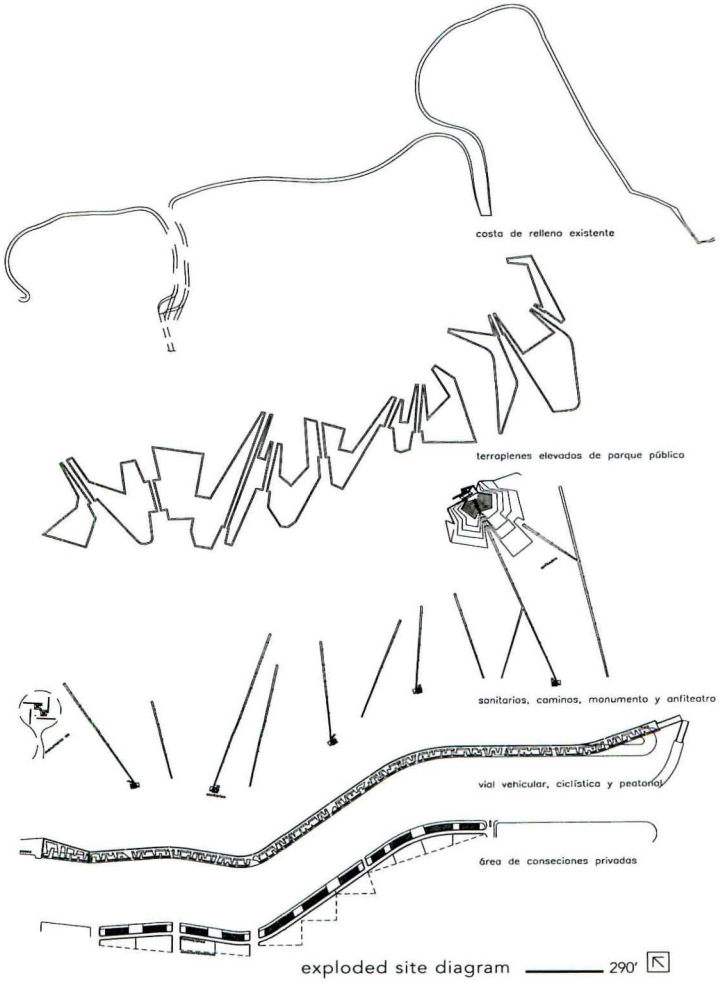
photographs by Sergio Sabag, Claudio Vekstein

River Coast Park, Buenos Aires
client | Vicente López Municipality **architect** | Claudio Vekstein; Luis Etchegorry, Eugenia Frías Moreno, Jonas Norsted, Franco Neira, Alejandro Goldemberg (collaborators) **landscape architect** | Lucía Schiappapietra **construction management** | Vicente López Municipality, Department of Public Works **construction** | Vicente López Municipality **area** | 1.3 million square feet **cost** | $1.2 million

photographs by Sergio Esmoris

Sudestada Amphitheater, Buenos Aires
client | Fundación Empresaria de Vicente López, Vicente López Municipality **architect** | Claudio Vekstein; Luis Etchegorry, Andreas Lengfeld, Eugenia Frías Moreno, Santiago Mendibour, Alejandro Goldemberg (collaborators) **landscape architect** | Lucía Schiappapietra **engineers** | Tomás del Carril, Fontán Balestra, Marcelo Rufino **construction management** | Vicente López Municipality **construction** | SAPIC **area** | 646,000 square feet **cost** | $350,000

photographs by Sergio Esmoris



exploded site diagram ——— 290′

Park visitors sit near one of the service pavilions (above). The melancholy lighting scheme (below), which Vekstein calls "fireflies over the brown river," was designed in remembrance of the 30,000 people who "disappeared" during Argentina's military dictatorship, many of whom were washed away in this river.

SERGIO ESMORIS

lessons in situ

Steven Holl's University of Minnesota design school conveys meaningful messages about form and process. **By John Morris Dixon | Photographs by Paul Warchol**

Steven Holl's approach to design is, as he often says, phenomenological. From the outset, he thinks of a building as it will be experienced. While many of his contemporaries take a conceptual approach, characterized by axonometrics and other line drawings assuming infinite distance, Holl makes watercolor sketches of spaces he is designing, as seen from actual positions under likely lighting. In line with this focus on reality, Holl starts with no a priori concepts. His designs are crafted to fit existing situations and rarely make sense considered out of context. Not surprisingly, he seems to thrive on challenging settings and complex programs.

At the University of Minnesota's College of Architecture and Landscape Architecture (CALA), Holl encountered an ample array of challenges. He had to add to an existing building, deal with users who are design critics by nature, and redesign for a reduced program (see "From O to X," page 93).

Holl's first design for the addition proposed a circular structure with an open central court, juxtaposed to the existing 1960 square donut with its roofed court. When the program was reduced by about half, Holl and his design team considered several possibilities—a partial circle, for instance—before settling on an X-shaped plan.

The specifics of the situation were then allowed to distort the X. The link to the old building had to be at an off-axis location to assure the shortest routes to the existing elevator, so it could serve the addition as well. The angles of the plan were then adjusted so that the ends of wings could terminate campus view corridors and entrances could fit well into campus circulation. Holl sees the final version of the X as two overlapping Ls, which are most apparent in the clerestoried division of the roof, but can be traced on lower floors, as well.

Clad in copper sheet and channel glass, Holl's structure joins the existing school (at right) to form the Ralph Rapson College of Architecture and Landscape Architecture, named for the revered former dean. The canopy marks the new main entrance.

The building's final configuration is, in ways, superior to the first scheme, appealing as the original was. It complements the scale and geometries of other nearby buildings—some of which also break with the campus's rectangular pattern. And it leaves four outdoor areas exposed to passersby, where (if and when money is found) they will see object lessons in landscape design.

Structure Exposed and Refined

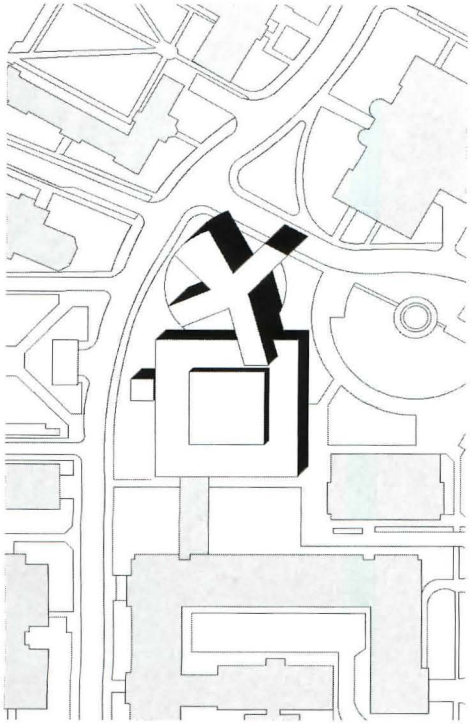
It was agreed at the start that structure would be exposed inside, for both didactic purposes and resistance to anticipated hard use. But this decision did not produce the characteristic snarls of ducts and conduits on the ceilings. Because the branches of the X are narrow enough to be serviced from their perimeters, it was decided to run required services up through hollow exterior walls. Once accepted, the services-in-exterior-walls concept led to an unconventional configuration of the concrete structural frame (see "Behind the Scenes," page 99).

The exposed concrete structural elements establish the no-nonsense interior character, with bare concrete floors, metal mesh balustrades, and partitions clad in undisguised gypsum board. Thin, black-painted steel framing for large areas of glazing—more expensive than bulkier aluminum—repeats an appealing component of the old building.

Ubiquitous hard surfaces make for noisy interior spaces, a source of complaints mainly in the top-floor graduate design studios, where lectures and discussions (part of the studio routine here) can be heard throughout the three-winged space. The graduate students, who have the most drafting-room experience, find other faults with their sprawling domain: Wiring access only at the walls restricts workstation layout; everyone has to enter or leave through the main pin-up area, even for restroom breaks; there are too few view windows and little security for work or possessions (compared to the smaller, lockable studios they were used to).

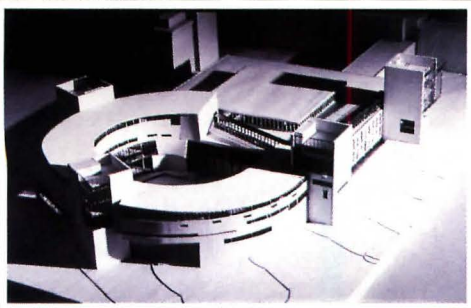
A Contextual Response

For the revised design, Holl originally proposed an exterior wall of concrete block and regional Kasota stone, assuming the university's review board would have a conservative preference for masonry. When this treatment was rejected, Holl—who "doesn't do brick," as CALA dean Thomas Fisher puts it—proposed copper cladding, which was an unexpected hit with university officials (and saved $250,000 as compared to masonry). The thin copper sheet "oil-cans" with temperature changes, but the rigid projecting seams maintain a sense of precision.



site plan ——— 100'

Holl's X-shaped building joins the square existing one where two campus grids intersect at an angle, and at a location exposed to long views. The geometry of the new building resonates with a nearby Richardsonian structure (at left in photo). Since the sidewalls of the wings serve as mechanical chases, only limited windows puncture them up to the top-floor sills, above which broad swaths of glazing are possible.

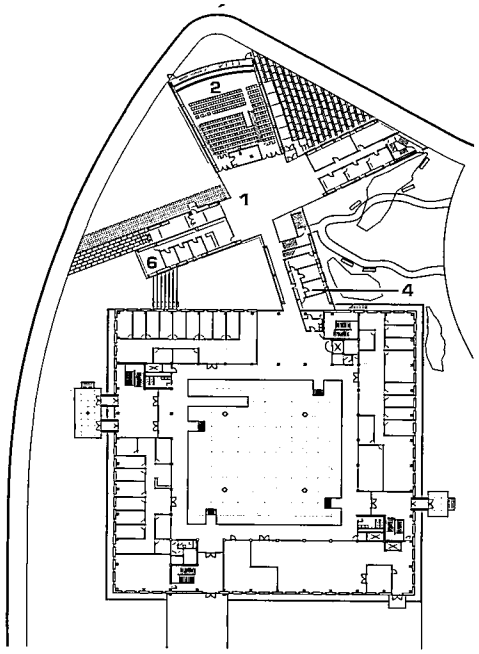


Steven Holl's first, more ambitious design for the College of Architecture and Landscape Architecture at the University of Minnesota won a P/A Award in 1990. The scheme took its cues from the existing 1960 design-school building by Minnesota architects Thorshov & Cerny, with the form of a hollow square around a roofed, clerestoried court. Though strong in concept, the existing structure is almost anonymous in detail, with a brick exterior deferring abjectly to its classical revival neighbors. The first design for the addition joined a circle to the square, with an open court in the center—a way to recognize the college's landscape architecture curriculum. Characteristic of Holl's work, the circle was impure geometrically, responding to the specifics of program and site. A series of new towers attached to the exterior of the old and new buildings were meant to both establish a joint identity and terminate campus view corridors.

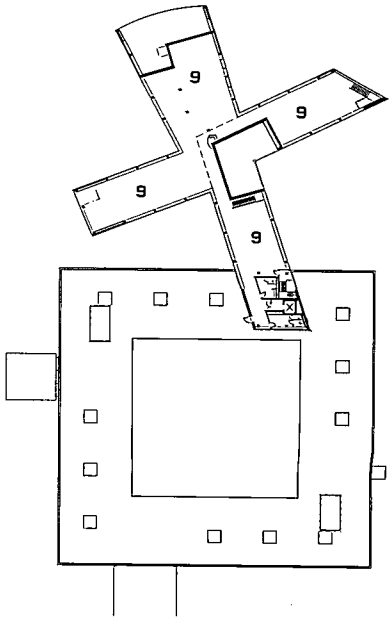
After the design was accepted, the state legislature deferred the project for almost a decade without increasing the budget. When it was revived in the late 1990s, the original allocation intended to yield about 100,000 square feet would pay for only about 50,000.

The X-shaped scheme that Holl and his team developed for the reduced program was in a sense a transformation of the existing square—as the hollow circle had been—in this case turning it inside out, with the enclosure at the center and four open courts around it. Although the final design has no common elements such as the towers relating new to old, it is sensitively compatible in both massing and materials.

O to X:
Evolution of a Scheme

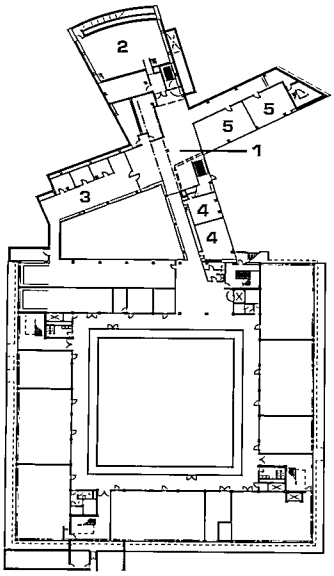


ground-floor plan ——— 50′

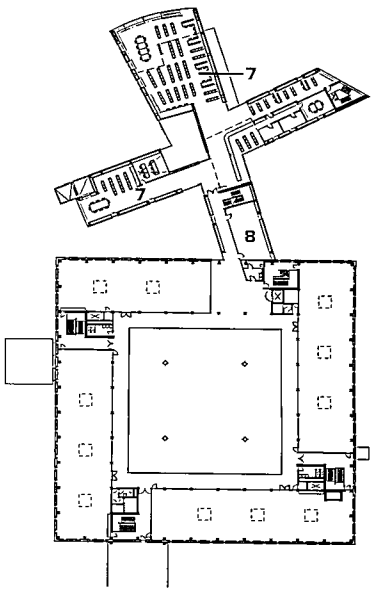


third-floor plan ——— 50′

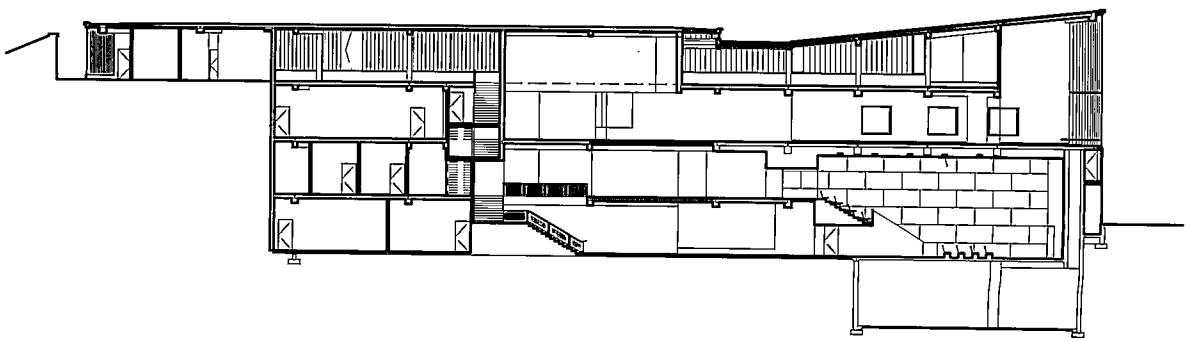
1 lobby
2 auditorium
3 student workspace
4 seminar
5 drawing lab
6 dean's office
7 library
8 research
9 studio



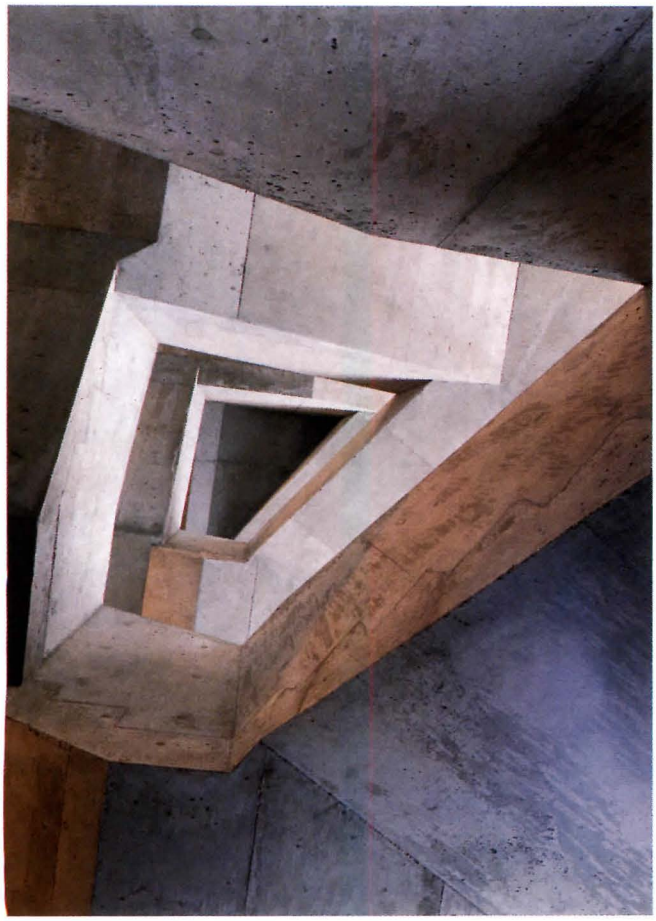
basement plan ——— 50′



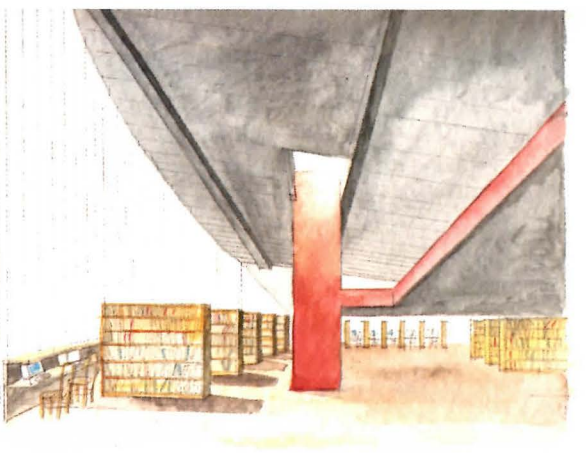
second-floor plan ——— 50′



north-south section ——— 17′



For a school where students are likely to attach their works to any surface, interiors are almost entirely concrete, gypsum board, channel glass, and clear glass. A sculptural concrete stair (facing page, top left and right) fits into an angular space at the end of one wing. The top-floor graduate studios (facing page, bottom) have built-in benches, which appear in many parts of the building, and clerestory lighting. The lobby at the crossing of the X (above) has views into all four courts; open stairs leading both up and down necessitate a large automatic fire door on an L-shaped track. The library on the second floor (below, left) looks similar to an early Holl watercolor study (below, right); stock steel shelving has been used, inexpensively customized with colored Finnish plywood ends.



The channel-glass ends of the school's wings are signature features, even more so after sundown.

The other major envelope material is channel glass, which Holl used prominently on his 1998 Museum of Contemporary Art in Helsinki. With foam insulation between layers of translucent glass, this inexpensive material has good insulating value and transmits diffuse light. While the building is clad in relatively inexpensive materials, Holl called for virtuoso "zero-condition" details (as if materials were simply sliced) at all corners, openings, and joints between materials.

Holl's abiding interest in the play of natural light is apparent, but with none of the schemes he has applied in other projects for screening, bouncing, and tinting daylight. Square, operable windows punctured through the thick walls yield mainly indirect daylight. Whole walls of channel glass produce a diffused glow, which can become distractingly intense, mainly when the sun is low and the trees are bare. (Students have found the glass to be a creative medium, mounting silhouettes against it to present full-scale, after-dark images of dense jungles or wild parties.)

Artificial light sources look deceptively rudimentary. Minimal sheet-metal coves bounce light from upper walls and ceilings. Library table and stack lighting units are ultra simple in appearance, but direct high-efficiency light exactly where needed.

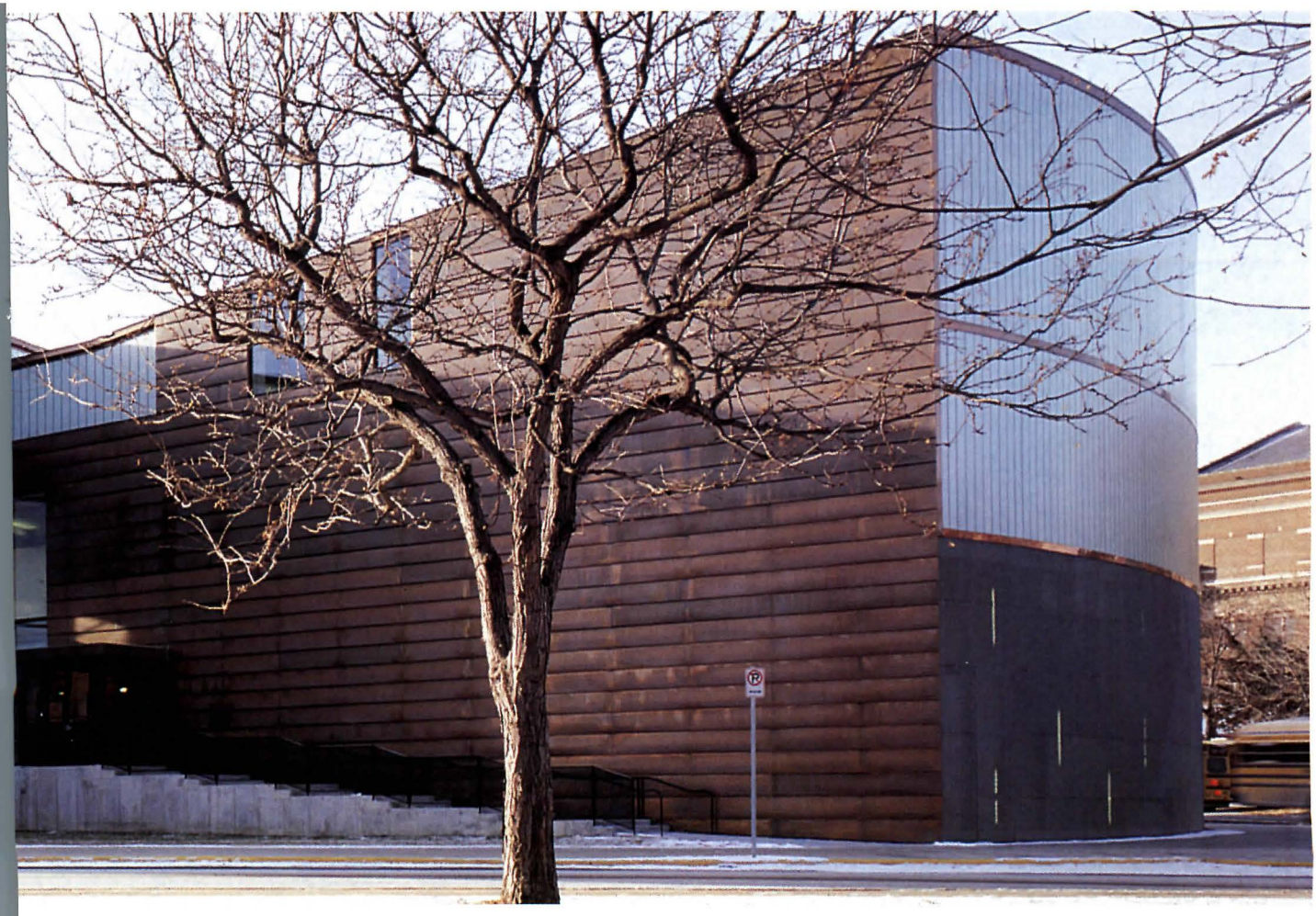
Gardens on the Boards

When Holl came up with his X plan, he assigned a distinctive landscape character to each of the four courts: an ice court to the north, a pool court to the south, yellow plantings to the east, red plantings to the west. But budget constraints have postponed any serious landscaping. The south court lost its pool and now, with a gravel surface, is designated as an area for student constructions, a good use for this pivotal space between the old and new buildings. When more ambitious landscaping is done, the three other courts may reflect the biotas that converge around the Twin Cities: the coniferous forest to the north, the mixed forest to the east, and the prairies.

Rehabilitating the old building was an integral part of the project. All systems were upgraded, but there was little visible alteration, except for removal of the aging suspended ceilings, exposing waffle slabs consistent with the exposed structure in the addition. Acoustically absorptive panels intended for the concrete coffers were eliminated for budget reasons, leaving existing interiors noisier than they were meant to be.

By the time the expanded CALA opened last fall, both the campus and the architect had evolved considerably since the building was first commissioned in 1987. Initially chosen as an emerging architect, Holl has since completed prominent buildings on three continents. And a campus dominated by conservative buildings by local firms has in the interim acquired an art museum by Frank Gehry and an alumni center by Antoine Predock. Holl's building, though reduced quantitatively, has gained in subtlety and refinement—the embodied wisdom of an arduous process—to the great benefit of those who live and learn in it.

John Morris Dixon was the editor-in-chief of *Progressive Architecture* from 1972 to 1996.



College of Architecture and Landscape Architecture, University of Minnesota, Minneapolis

client | University of Minnesota—Linda McCracken Hunt, Donald Hau, Ken Almer (project team) **architect** | Steven Holl Architects, New York City—Steven Holl (principal); Pablo Castro (project architect); Jennifer Lee, Yoh Hanaoka, Steve O'Dell, Gabriela Barman, Sabina Cachero, Andy Lin, Molly Blieden (team) **associate architect / architect of record (addition)** | Vincent James Associates, Minneapolis—Vincent James (principal in charge); Paul Yaggie and Steve Philippi (project architects); Lev Bereznycky, Andrew Dull, Dzenita Hadziomerovic, Matt Hutchinson, Nathan Knutson, Scott Muellner, Donovan Nelson, Taavo Sommer, Jennifer Yoos (team) **architect (renovation)** | Rozeboom Miller Architects, Minneapolis—Steve Miller (principal in charge); Peter Graffunder (project architect); Andrew Kordon (job captain); Mark Kalar, Priah Patel (team) **engineer** | Ellerbe Becket (structural, M/E/P, civil); Guy Nordenson & Associates (structural) **consultants** | L'Observatoire International (lighting); CPMI, PCL Construction Services (cost estimates) **area** | 47,710 square feet (addition); 107,220 (renovation) **cost** | $27.4 million

Specifications

concrete | Knutson Concrete Products (foundation, columns, beams); Molin Concrete Products (precast/prestressed concrete plank) **steel windows and entrances** | Hope's Windows **custom fabricated copper panels** | M.G. McGrath **roofing** | M.G. McGrath (custom flat-lock copper at canopies); Commercial Roofing (4-ply BUR) **channel-glass glazing system** | Pilkington Profilit Glass **insulated glass** | Cardinal Glass **library skylights** | Fisher Skylights **bent glass** | Bent Glass Designs **side coiling doors** | McKeon **finish plywood** | Finland Color Plywood **library millwork** | O'Keefe Architectural Woodwork (fabricator) **acoustic auditorium wall and ceiling panels** | Novawall Systems **aluminum finishes and exterior stainless-steel mesh wall** | CD Systems (fabricator) **tables** | Milder Office **chairs** | Knoll; Fritz Hansen **molded plywood benches** | Seatply Products (fabricator) **solid hardwood corner benches** | Shaw Custom Millwork (fabricator) **lighting** | Bartco Lighting (indirect, wall wash, library task); Litelab (track); Lightron (lower level, seminar rooms); Legion (office wall strip lights); Paramount (exterior and stair surface-mounted fluorescent)

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BEHIND THE SCENES

Steven Holl Architects | University of Minnesota's College of Architecture and Landscape Architecture | Minneapolis

by Emilie W. Sommerhoff

Stalled for nearly 10 years, plans for an addition to the College of Architecture and Landscape Architecture (see "Lessons in Situ," page 90) at the University of Minnesota were revived with a fresh stipulation: Do more with less. And fast. Demanding program requirements on a relatively low budget necessitated a flexible layout. Architect Steven Holl answered this charge with an unusual approach. The services that typically interrupt a building's interior—air ducts, plumbing, sprinklers, power supply, and communications wiring—are instead directed from the basement up through three floors of **hollow exterior walls**; the interior partitions were thereby freed of the usual mechanical and electrical ties, making them movable and reconfigurable. While seemingly a behind-the-scenes solution, this strategy strongly impacted the structural design, as well as the building's interior and exterior aesthetic.

The quest for hollow perimeter walls is evident in the approach to the building's floor system. Holl's X-shaped scheme creates three arms that extend from the original building, each with a slender width—between 30 and 55 feet. To comply with the university's compressed schedule, the design team had proposed a system of **slabs supported on precast concrete planks**, which could be manufactured and cured off site, speeding the on-site process. "You'd think, given that the footprint is so narrow, you would want to span the concrete planks from wall to wall," says Pablo Castro,

In the new architecture school, ductwork is revealed to students and staff in basement offices and classrooms before it disappears into hollow exterior walls. "This coincided happily with the university's desire that the building have a didactic design, that it express how it is put together," says Pablo Castro, project architect.

Holl's project architect, who now has his own firm, Obra Architects. "That would seem the intuitive way of laying out the structure."

To preserve the continuity of the perimeter cavities, however, no beams could interrupt the exterior walls. Instead, the design team supported the building on **transverse beams**, spanning the narrow wings and supported at each end—like a wicket. These "wickets," however, required bracing, which is provided by floors that don't merely rest on the beams, but are integrated with them structurally; the concrete slab on top of the precast planks was actually cast simultaneously with the beams. Supported by these beams, the planks "span the length of the building rather than across it." Castro observes that this solution accented the spatial effect of Holl's cruciform design: "The resulting striation produced by the layout of the 4-foot planks goes with the natural dynamics and proportion of the arm."

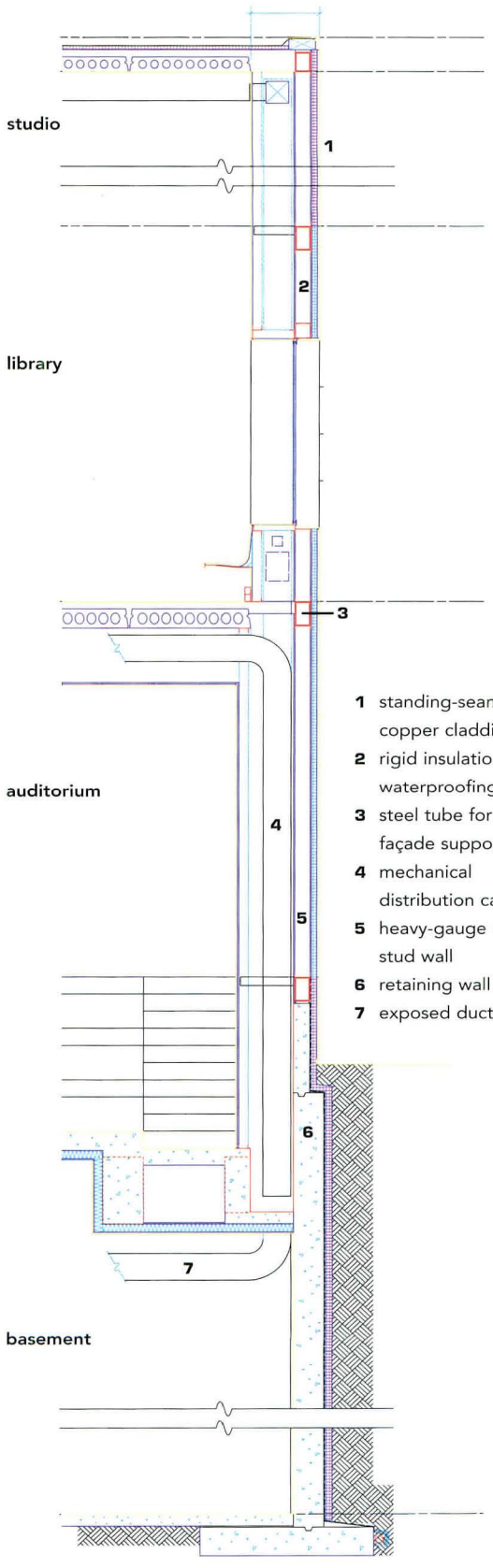
The exterior elevations are expressive of this relationship between mechanical and structural systems as well. The building's **copper façade** is dotted with a series of 4-foot-square cutouts—the maximum size for steel windows that could be specified with one piece of operable glass and no mullions. The ductwork threaded through the walls restricted placement of these windows, explains Castro; he admits it was "quite a feat of coordination." At the sill level on the third floor, where the services in the wall terminate, **horizontal bands of glazing** span the façade.

OLD MEETS NEW

Part of the design challenge was to establish continuity between the original and new buildings. Relegating services to the perimeter enabled a **"thin floor package"** (10 inches in some places), says Castro, which in turn allowed a lofty floor-to-ceiling height of 12 feet. In this respect, the new building echoed the old, with its floor-to-ceiling heights of 11 to 12 feet. The addition also creates a fluid connection with the original building by becoming, in a way, what the first structure is not: The older facility focuses inward on an interior courtyard, while the newer looks outward through four all-glass corners toward individual gardens. Critical to creating this centrifugal orientation, says Castro, was that "no structure obstruct the fluid relationship between the interior and exterior spaces. We wanted to be able to stand in the middle of the space and see out the four windows." To make this possible, the Holl team collaborated with engineering firms Guy Nordenson & Associates and Ellerbe Becket in designing a **two-story-high steel truss** that runs through the building at the third- and fourth-floor level. Though the size of a highway overpass, the truss is totally hidden in the concrete framing.

What is an uninspired segment of most structures—the coarse tangle of mechanical, electrical, and communication systems—becomes a defining element in Holl's building. Though hidden in the hollow of the exterior walls, these systems are integrally related to the building's interior and exterior expression.

FOR PROJECT CREDITS AND SPECIFICATIONS, SEE PAGE 97.



section, west wall of north wing —— 10"

Contrasting with its apartment-style residences, Stark Villa's common areas feature more expensive finish materials and a curved metal roof that recollects the form of early Hollywood studio sheds. Housing wings received more traditional materials, with a simple white stucco finish and built-up roofing enclosing an inexpensive type-V wood frame with seismic reinforcement. Railing elements are simple steel channels with wood caps; the floors of balconies are 2-inch-by-6-inch planks to allow water to drain.

HAPPILY EVER AFTER

SmithGroup | Stark Villa | Woodland Hills, California

by C.C. Sullivan

New ideas in assisted living are rare. When they happen, they usually stem from new approaches to eldercare, or from ways to make "facility operations" more efficient, less costly, and—too often—less spirited. Very rarely do mere circumstances allow new ideas to advance the design of the assisted-living facility (ALF), but such was the case for the Fran and Ray Stark Villa, an ALF that was shaped by the Southern California sun, the lifestyle of the entertainment industry, and the deep pockets of an engaged patron, legendary film producer Ray Stark.

TOM BONNER

Built for retired movie and television workers by the healthcare provider Motion Picture and Television Fund (MPTF) on a plot of land endowed for their care not far from Hollywood, the modern, three-story villa assumes an intellectually active and highly social occupant. While their limited mobility was considered in the design, the residents can still find places to socialize, network, and develop individual projects, whether indoors or outdoors. It's the L.A. entertainment lifestyle—in the slow lane.

To make it work, architects at the San Francisco office of SmithGroup studied a range of indoor and outdoor spaces in plan and elevation and with a series of **50 study models**. After careful consideration, the team dispensed with the traditional styles, double-loaded corridors, and centralized common areas typically found at ALFs. Instead, clean, modern volumes with large windows open onto patios, pavilions, and interpretive gardens, with ample interplay between indoor and outdoor zones. Activity and gathering areas emerge in interstitial spaces, along corridors, and beside gardens and water features.

ROOM TO SOCIALIZE

The plan's single-loaded corridors stretch out the circulation routes, but they also bring more outdoor views. Longer travel paths mean more rest spots are needed, so about 45 percent of the space is given over to common area, as opposed to 30 percent for the typical ALF. Another break from tradition is the dining setup, with facilities found on all three floors and a full kitchen for residents to use.

Along the single-loaded routes are activity areas with specific uses, such as lounges, "family rooms," business centers with computers, and even a radio production area. To make the common-area schemes work, architect and client communicated through **detailed interior elevations**—an approach not unlike the storyboards moviemakers employ—to study travel distances, adjacencies, and the feel of the unusual socializing nodes, as well as color, proportion, and texture.

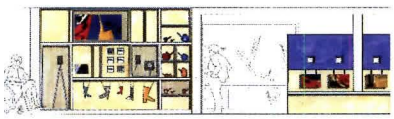
Most of the common areas spill out into lushly landscaped courtyards and plazas that are integrated into the residential and healthcare programs. (A typical ALF is a rectilinear affair built around a courtyard.)

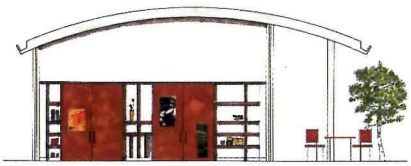
COST-CONSCIOUS LIVING

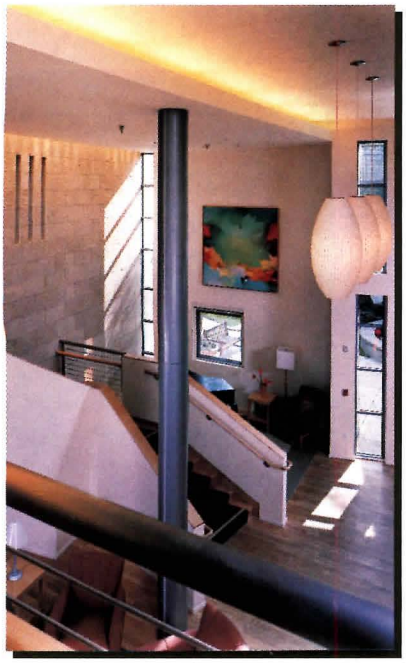
The patron's goal was to maximize the number of living units at the villa, so to stretch the budget—and to keep square footage within the maximum area dictated by a "conditional use permit" for the site—the living quarters got smaller. All units connect to the outdoors, however, with roof terraces, balconies, and courtyard access, in part to replicate the feel of original residential cottages that dot the

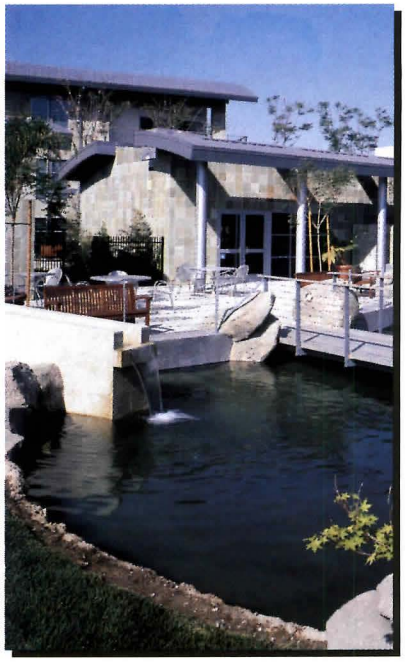
Stark Villa is unlike typical assisted-living facilities in the layout and scope of its common services, which were developed primarily with 50 hand models and detailed elevation renderings. The interiors of common areas, while varied, are simple and unadorned save for built-in benches, shelving, and special nooks like the "memorabilia wall" (below, center), where residents display awards and props in recessed cubicles with display lighting and a clear acrylic front.

Highly social zones include an al fresco dining area and an outdoor "activity pavilions." The pavilions are set along a linear water feature and pathway; within easy reach are benches, potting gardens, a carp-stocked pond, and raised planters for residents that can't bend over comfortably (below, right).





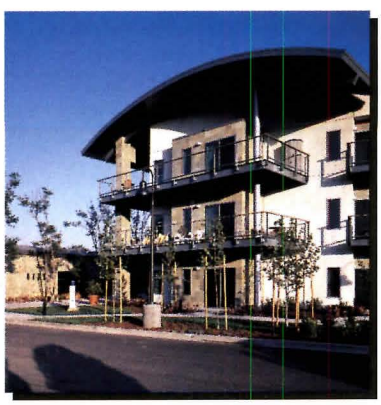




retirement community's property. (The MPTF also offers independent living on the sprawling, 40-acre site.)

Stark Villa is no experiment, but it dares to complement cutting-edge geriatric care (ICU, acute care, outpatient care, and an Alzheimers unit) with a thoughtful program. The innovative concept works not because it is revolutionary, but because the client was ready for new ideas and the architect's process could support them. The resulting architecture connects closely to the psyche of this senior population, but may be translated to eldercare projects elsewhere.

For project credits and specifications, see page 106.



MIDDLE, RIGHT: JOHN EDWARD LINDEN; ALL OTHER PHOTOS: TOM BONNER

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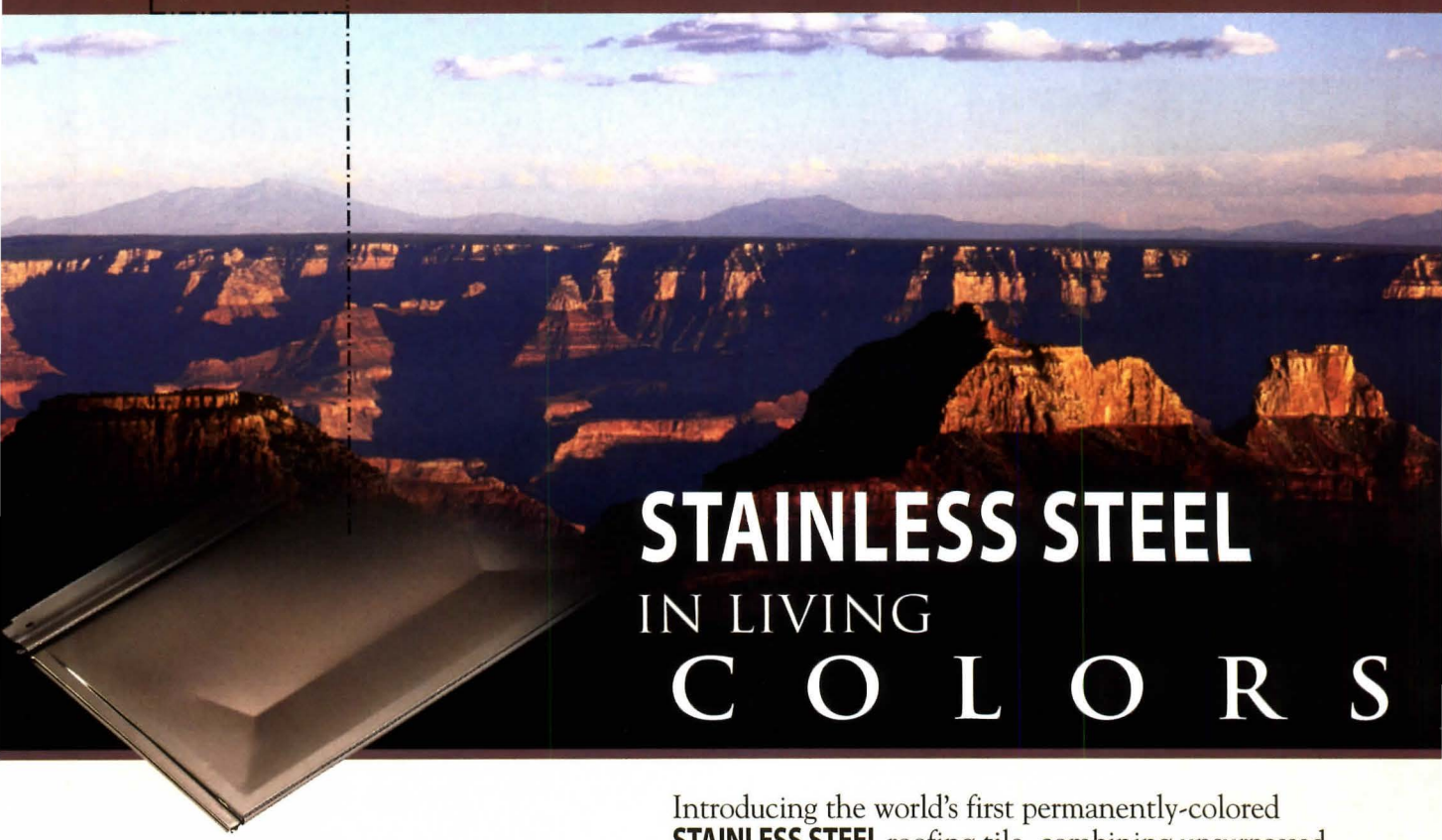

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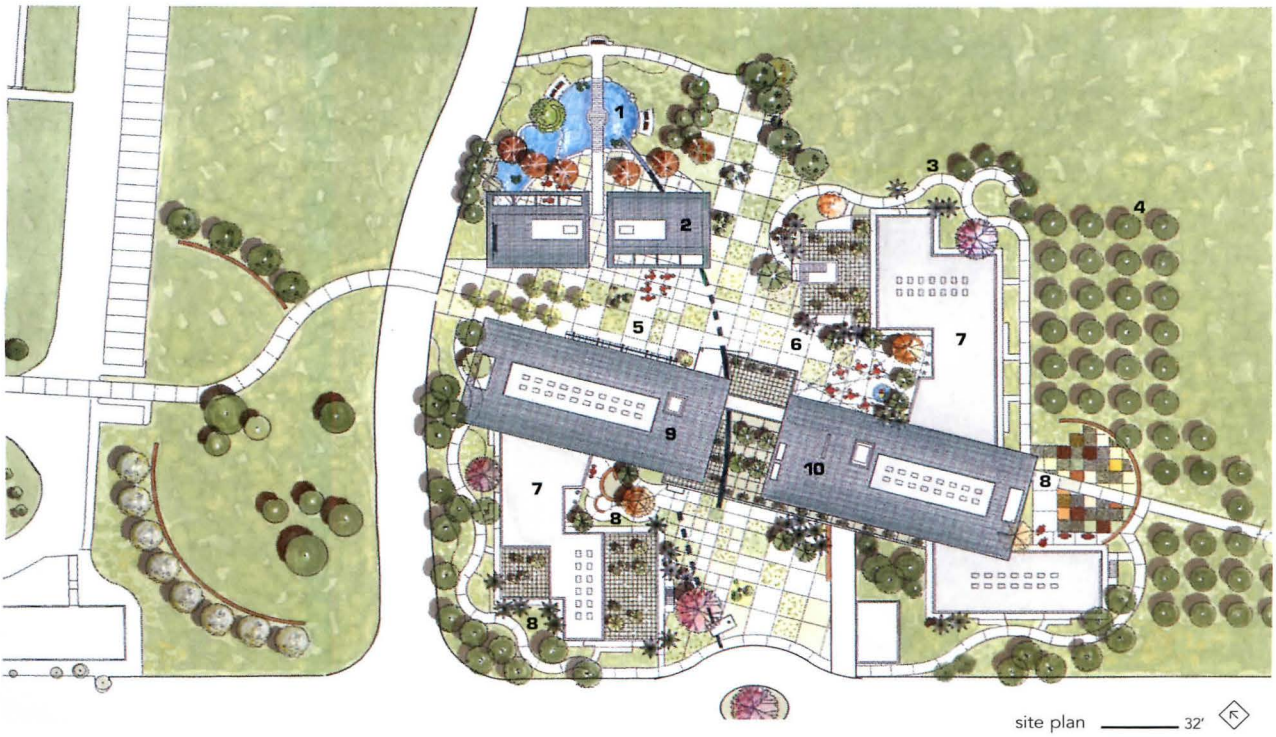


1 carp pond
2 activity pavilion
3 garden walk
4 "butterfly meditation" area
5 activity plaza
6 outdoor dining
7 resident rooms
8 working gardens
9 dining
10 common rooms

Most of the common areas at Stark Villa, an assisted living facility, spill out onto lushly landscaped plazas and courtyards that are integrated into the healthcare and residential programs. Outdoor elements include recreation, dining, and areas for socializing.

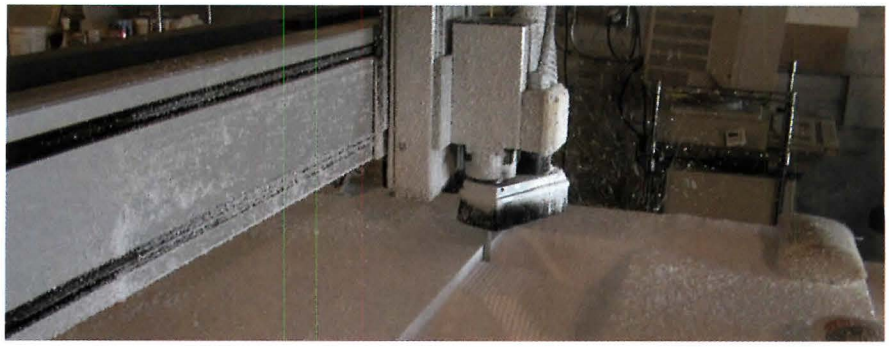
Motion Picture and Television Fund, Fran and Ray Stark Villa, Woodland Hills, California
client | Motion Picture and Television Fund **architect/interior designer** | SmithGroup, San Francisco—William L. Diefenbach (design principal); Joyce Polhamus (project manager); Lise Barriere (project designer); Byron Bronston, Roxanne Malek, Todd Spiegel, Karen Thomas (project team) **engineers** | Taylor & Gaines (structural); Store Matakovich & Wolfberg (M/E/P); RBA Partners (civil) **consultants** | Cini Little (kitchen); Sitescapes (landscape); JS Nolan (lighting) **general contractor** | Millie & Severson **construction manager** | 3D/I International **area** | 63,000 square feet

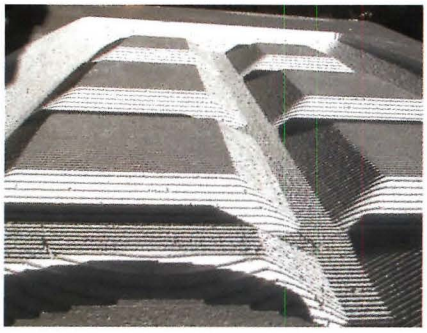
photographs by Tom Bonner and John Edward Linden

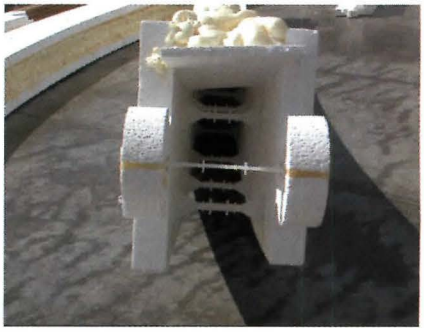
Specifications
stone tiles | Southland Stone **stone wall** | Solnhofen **roof** | Berridge Manufacturing **windows** | U.S. Aluminum **sliding glass doors** | Fleetwood **flooring** | Permagrain **rugs** Masland **carpet** | Invision; Karastan Contract **pendant light fixtures** | Modernica; Sharper Lighting **chairs** | David Edward; Salman **custom desks** | Salman **lounge seating** | HBF **tables** | ERG; HBF **millwork** | Finland Color Plywood **paint** | Benjamin Moore **artisan plaster** | Area Code

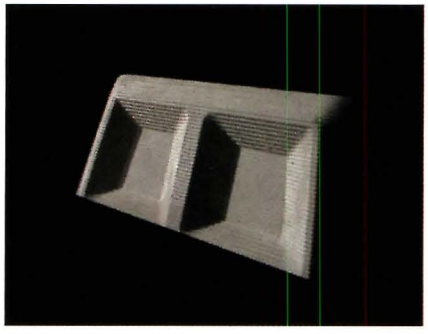
CNC State of Mind

CNC and other manufacturing technologies allow for a smooth transition from 3-D computer modeling to finished product. by Julia Mandell









William Massie used a five-axis machine, with 5-foot-by-10-foot reach, to mill out a foam mold for concrete coffers for his Big Belt House in White Sulfur Spring, Montana. The coffers, which twist to reflect the form they sit in, lessen the load of a curving concrete piece that cantilevers out 4 feet over the front façade. Modeled in Rhinoceros and then milled using a translation software called Mastercam (see sidebar, facing page), the CNC machining allowed for easy production of the curving concrete forms.

Massie poured concrete ribs for his Big Belt House. The form of the house was generated in a Rhinoceros 3-D model and then sliced into sections, which were used for patterns for the ribs. The 3-D patterns were then milled using Mastercam, eliminating any need for construction drawings or additional site measurements. Foam forms similar to insulated concrete forms were carved using the CNC mill, then bound together and poured. Once the concrete had set, the forms were removed, allowing for interior articulation of the ribbed form.

Schools use it. A few idiosyncratic architects use it. And thousands of fabricators and manufacturers have been using it for the better part of a decade. It's rapid prototyping, and it could change architectural practice as we know it. Encompassing a variety of technologies—3-D printing, stereolithography, and computer-numeric-controlled (CNC) milling and laser cutting—rapid prototyping, which has only begun to become part of architectural practice in the last five years, allows 3-D computer models to be efficiently translated into physical form, speeding the production of complex shapes and changing the way architects conceptualize and explore fabrication.

In the basement of the Harvard Graduate School of Design, there is a small, grungy room filled with machines. It is the on-campus teaching center for rapid prototyping. At Harvard, one of an increasing number of architecture schools that have such technology, most of the machines produce physical models on a small scale. CNC technology, though, is widely varied in size and application. CNC-operated millers, routers, laser cutters, and lathes cut and shape materials such as foam, wood, and wax into complex forms by translating computer drawings. There is no need for human intervention between the 3-D architectural model and the final product; CNC software translates computer models from programs like CATIA into computer code that can direct the machine. Quickly and easily, a nonlinear, individualized shape can become material form.

Big Mills, Big Buildings

CNC machines can be as small as Harvard's 12-inch-by-9-inch mill, one of a number of desktop machines used for model making; the cheapest start at approximately $2,000 for this size. Larger machines are costly, noxious, and take up lots of space, handling blocks of material up to 30 feet long. The milling can be done along three, five, or seven axes, allowing the drill bit to carve intricate or curving 3-D forms. Most large-scale milling work is used for molds of various kinds. Car manufacturers use CNC techniques to carve molds for vehicle frames, interior parts, and glass. Architects and artists are now using milled foam molds to curve heated glass or to cast metal or concrete. In some cases, the milled pieces themselves are the end product, coated with fiberglass and painted.

For actual large-scale building production, CNC technology requires a high level of expertise and can cost millions of dollars. Because of these considerations, William Massie, a New York City-based architect who has been working intensively with CNC technology since 1991, doubts that do-it-yourself CNC work will be widely embraced by architects. "What I'm talking about is having a 17,000-square-foot facility to actually build what we design," says Massie.

"That probably won't happen much. But I do believe that as this evolves over the next few years, we will definitely see more architects moving directly from their computer to CNC equipment, as well as laser cutting and plasma cutting. We are seeing it now." Massie has devoted his practice to the possibilities of the technology, designing specifically to explore the implications and limits of CNC.

In order to specify materials and develop a construction strategy using CNC techniques, an architect must be intimately acquainted with the properties and behaviors of materials when used with different CNC machines. "You need the expertise of how and in what way those materials can be cut, and their physical properties," says Massie. "Most architects may know the computing backwards and forwards, it doesn't really matter: A line is a line is a line. But do they know the difference between a line cut in cobalt steel, stainless steel, plywood, or foam?"

Outsourcing Options

Other architects, including the famously technology-savvy Frank Gehry, employ the services of vendors and fabricators that are willing to look at new applications for their machinery and can supply both the machines and the expertise. Manufacturers have only started tailoring their businesses to the needs and working methods of architects in the last five years, as projects have attracted notice and both manufacturers and architects have begun to glimpse the possibilities. C-Tek, an automotive fabricator in Southern California that has worked with numerous architects—including Gehry and Los Angeles-based architect Greg Lynn, another CNC aficionado—is one of the few companies that will consider working on building projects, according to Mike Skura, vice president of C-Tek's recently created architectural division: "Clients have searched up and down to find someone who would even consider doing their project, who would look at it and take it seriously."

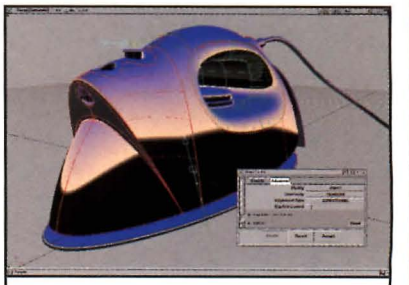
Ultimately, CNC technology allows the architect to become more directly involved with the physical output of design. "As architects, we invest our time, making sure that something is accurate, and then we produce a huge amount of drawings, and give them to someone else who interprets our vision," says Massie. "With CNC, we are compressing the world of design-to-build into one seamless efficiency."

CNC Software
Keep Everything Virtual

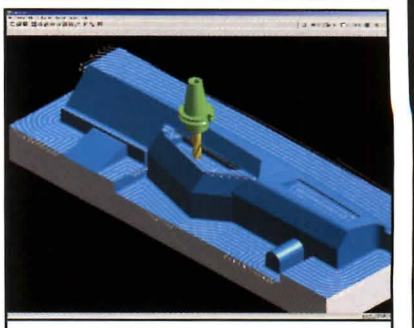
CNC milling machines use software that dictates the movements of a drill bit by translating computer code from 3-D computer models. If a computer model is built with a program that is compatible with milling software, the project can go straight from design development to physical output. One program recently appropriated by architects from the automotive industry is **Alias/Wavefront's StudioTools 10.** StudioTools 10 has both 2-D drawing tools and 3-D modeling and rendering tools, which can be used together. The program also has extensive import and export abilities, supporting DXF, IGES, STEP, ACIS, and other file formats, which means it reads and writes most CAD programs and translates directly to software for generating CNC code.

StudioTools 10 is often used in conjunction with **Surfcam**, a milling software that converts computer models into "G-code," a computer language that translates into moves for the mill. Surfcam writes toolpaths for two-axis through five-axis machines, and the latest upgrade, Surfcam 2003, has "full associativity," meaning that changes to any information in a project—be it geometry, tool, or cut information—will be automatically reflected and updated throughout.

Many architects are beginning to use **Rhinoceros**, a software with attributes similar to those of StudioTools 10 and valued for its sophisticated and accurate 3-D surface-modeling capabilities. For Windows operating systems only, Rhino also has full import and export capabilities, and it translates extremely well into **Mastercam 9.1**, another milling-translation software for two-axis through five-axis milling. Mastercam has associativity for two-axis milling and very flexible machining functions.

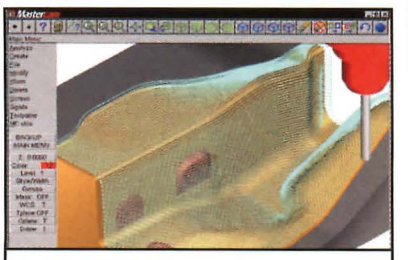


STUDIOTOOLS 10
www.aliaswavefront.com

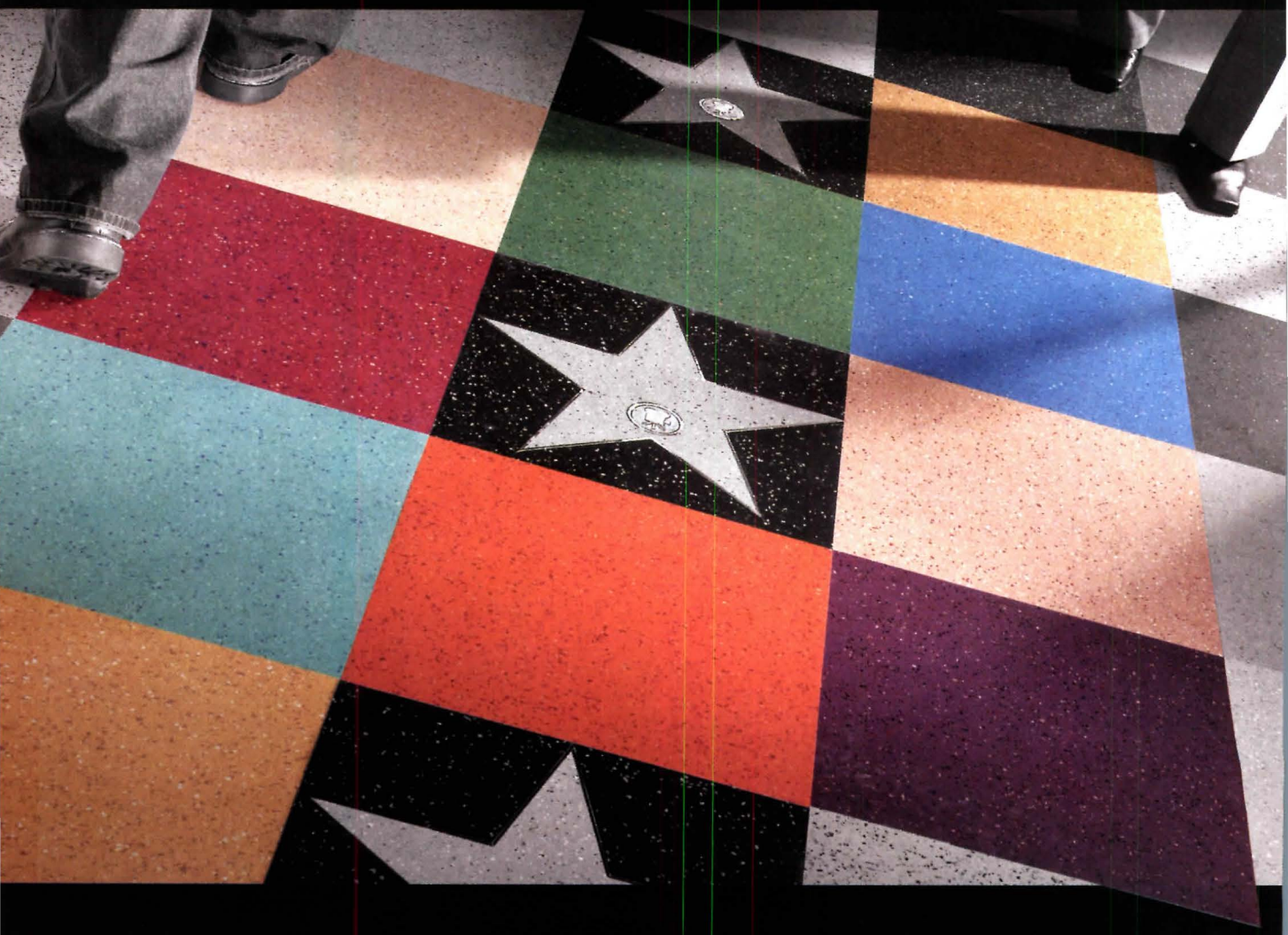


SURFCAM
www.surfware.com

RHINOCEROS
www.rhino3d.com



MASTERCAM
www.mastercam.com



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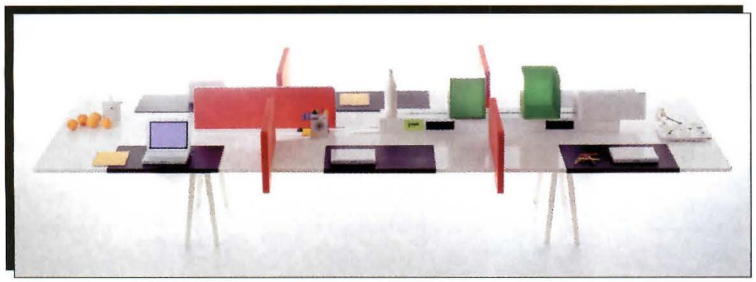
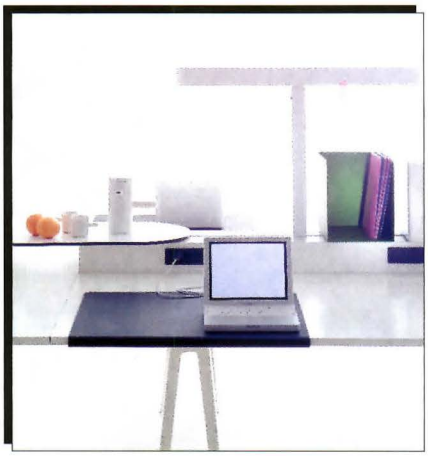
- product: **Joyn**
- manufacturer: **Vitra**
- website: **www.vitra.com**



The young French brothers Ronan and Erwan Bouroullec (26 and 31 respectively) designed the new Joyn office system for Vitra. Having grown up in the age of the Internet, when work at home and on the road became a reality, the brothers have recast the role of the office as only one of several areas for work, a hub for interpersonal communication rather than the place where solitary work is done. The Joyn system is comprised of large tables and organizational tools that allow users to customize their working environment for specific uses.



- product: **Armadi**
- manufacturer: **Lema**
- website: **www.lemamobili.com**

Armadi, a new line of wardrobe systems from the Italian furniture manufacturer Lema, presents a seemingly endless array of possibilities for simple, elegant clothing storage and display, in both commercial and domestic contexts. The Armadi hanging and shelving units are capable of fitting into corners of nonstandard room configurations and under slanted ceilings. The wardrobes virtually fade into the walls into which they are recessed, camouflaged by minimalist lines and muted colors. Systems come with sliding or hinged doors and a variety of finishes, from mirrored to translucent.

- product: **40 Love, Tower**
- manufacturer: **Dune**
- website: **www.dune-ny.com**

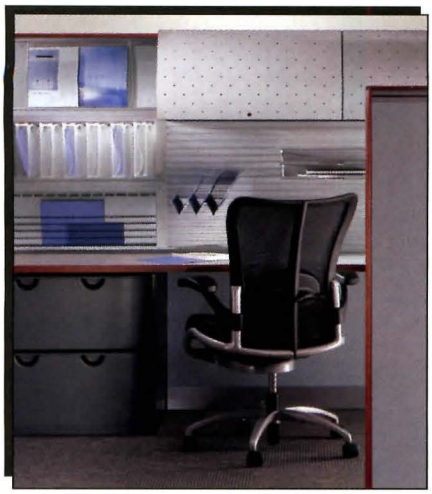
Brooklyn-based furniture manufacturer Dune offers unique pieces from a stable of signature designers. A bent ash plywood stool by Dominic Symons called 40 Love is inspired by the construction of tennis balls, and can also be used as a bench (when lined up) or for storage. Tower, Tom Dixon's backless shelving units, double as room dividers and are available in black high-gloss laminate, brushed-gold metal, and teak veneer.

- product: **Freedom Saddle Seat**
- manufacturer: **Humanscale**
- website: **www.humanscale.com**

The new ergonomic Freedom saddle seat from Humanscale is designer Niels Diffrient's follow-up to his award-winning Freedom chair. The stool is available in a full range of colors and textiles, including two antimicrobial textiles for healthcare and lab environments.

the table, the chair, and the wardrobe

- product: **Xsite**
- manufacturer: **Kimball Office**
- website: **www.kimballoffice.com**



At this year's NeoCon tradeshow, Kimball Office will showcase a new line of office furnishings called Xsite. This flexible system conforms to areas of almost any shape or size, with tiles that fit together seamlessly, a scalable structure that adjusts its width in 3-inch increments, and horizontally supported components that allow easy alterations to work surfaces, storage, and structure.

- product: **Get Set**
- manufacturer: **Allsteel**
- website: **www.allsteeloffice.com**

According to the Employment Policy Foundation, time spent on employee training in the private sector has increased by 25 percent in the last eight years. With its new furniture system, Get Set, Allsteel responds to an increasing demand for flexible employee-training facilities that can be slotted into multifunctional rooms, and easily installed and demounted. The family of furniture includes lightweight and mobile tables, chairs, wall-mounted teaching displays, and accessories.

- product: **Plus**
- manufacturer: **Bretford**
- website: **www.bretford.com**

The Plus collection of tables and seating from Bretford, originally created by Bang Design and Formway Design Studio, is characterized by smooth lines and distinctive curves. Sofas, benches, and chairs combine firm, posture-friendly foam with tailored upholstery and minimal seams to provide a clean look. A variety of sofa lengths can seat from one to three people. Tabletops come in clear and frosted glass, as well as wood.

FOR INFORMATION ON FURNITURE, CIRCLE 147 ON PAGE 137.

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making an entrance

Responding to stricter building codes in coastal communities like those in Florida, window and door manufacturers have spent the last few years developing and enhancing products that boast resistance to impact, high wind speeds, and water penetration. New codes implemented by northern states like New York, however, have recently raised the bar, adding energy efficiency to the checklist. Responding to this, **Marvin** (www.marvin.com) released a new version of StormPlus, adding low-E glazing and reflective coatings to the line's already impact- and wind-resistant construction (center right). Likewise, an expanded selection from **Andersen** (www.andersenwindows.com) of impact-resistant, energy-efficient products—including the Frenchwood gliding patio door—became available this spring.

Patio doors are experiencing more than just a utilitarian makeover. **Weather Shield** (www.weathershield.com) previewed a prototype at the International Builders' Show last January that was downright *glam*. The telescoping patio door offers a six-panel width (19 feet) and heights of up to 8 feet; interiors can quickly be thrown open to exteriors with these dimensions. Crafted from any one of the multiple wood options (cherry, mahogany, maple), the doors cut a stunning figure, open or closed. The company expects the product to be available by the end of the year. Meanwhile, other manufacturers have focused on streamlining door features. **Pella** (www.pella.com) added cordless control to its already-refined glass-enclosed blinds; users raise, lower, open, and close blinds manually with a simple knob (center left), or for hard-to-reach windows, automatically with a remote control. **ODL** (www.odl.com) offers a similar product—integral blinds with a subtle cordless mechanism—but no remote, yet.

While appreciated for their appearance, wood doors have liabilities. Consequently, manufacturers are manipulating a range of materials—with distinct benefits—to create the aesthetic appeal of wood. The Contours exterior steel door from **Jeld-Wen** (www.jeld-wen.com) marries the durability, reduced maintenance, and cost-effectiveness of steel with a profile normally associated with wood doors (far right). Its 24-guage skin surrounds an energy-efficient, high-density polystyrene core. For its Cambridge interior series, Jeld-Wen employs molded wood fiber—again, attempting to recreate the elegant appearance of solid wood.

Proprietary composite materials, like Pella's recently introduced Duracast, promise to raise the bar for strength and durability. According to Pella, Duracast (the material behind the company's Impervia line) is twice as strong as aluminum and nine times stronger than vinyl. Seacoast-worthy, it resists corrosion, moisture, and denting, and is unaffected by extreme temperatures. Pella expects patio doors employing the five-layer fiber-glass composite to be out later this year; Impervia windows are available now.

Doors in commercial applications have no less need for good looks, just a different style. **Marshfield** (www.marshfielddoors.com) offers factory-installed glazing featuring glassmakers like Firelite, Pilkington, and Visual Impact Technologies (far left). With the Expressions del Sol collection, designers can pair tinted, textured, sandblasted, or logo-illustrated glass—as well as more functional solutions like wired, tempered, and fire-rated glass—with several of Marshfield's door lines.

FOR INFORMATION ON DOORS,
CIRCLE 149 ON PAGE 137.

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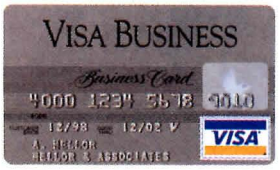
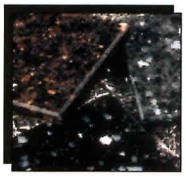


It's everywhere you want to be.

masonry: faking it

- product: **Travertino Navona**
- manufacturer: **Ariostea**
- website: **www.ariostea.it**

Fake stone is in. Several new materials and finishes that replicate the real thing have hit the market recently. On the high end, for example, are Ariostea's "high-tech" marbles and stones—reproductions of actual extract from Italian and Spanish quarries. Travertino Navona, which resembles the stone used for Roman monuments, ranges in color from ivory to hazelnut.



- product: **Metallics**
- manufacturer: **Avonite**
- website: **www.avonite.com**

Metallic and pearlescent effects are now incorporated into Avonite's polyester/acrylic alloys, which look like stone and can be milled with normal woodworking tools. Copper, abalone, and mother-of-pearl flecks go through the material, making it applicable for cladding, moldings, signage, and furniture.

- product: **Liberty Classic Stone**
- manufacturer: **Boral Bricks**
- website: **www.boralbricks.com**

A manufactured, molded stone that installs like brick, Liberty Classic is durable and lightweight (about 18 pounds per square foot, versus 45 pounds for quarried stone). Its 3-inch thickness sets it apart from thin-stone veneers, and its uniform appearance may make it a preferred spec over natural stone.

- product: **Vintage Brick "Whitewash"**
- manufacturer: **Nichiha USA**
- website: **www.n-usa.com**

The Vintage line is a realistic-looking fiber-cement brick profile with sand-textured mortar that is available in a whitewashed version for an unusual, rusticated impression. The maker's Alexandria brick provides a more traditional look and feel; Newport has squared edges and a "new construction" look.

- product: **Bravissimo!**
- manufacturer: **Nevamar**
- website: **www.nevamar.com**

This high-pressure laminate collection includes five granite designs for countertops and other interior applications. Colors range from grays and greens to corals and pinks. Matching beveled edges can be attached without leaving the brown line often associated with laminate edges. A proprietary surface treatment improves the wear resistance of the material as compared to conventional laminates.

- product: **Geologica "NewStone"**
- manufacturer: **GranitiFiandre**
- website: **www.granitifiandre.it**

The high-density faux stones from GranitiFiandre are made of quarried materials processed under high temperatures and pressures. The NewStone line includes Lavagna, a recreation of a lava-based stone found in the Liguria region of Italy, available in 1-foot square tiles and 1-foot-by-2-foot slabs. Other new materials include Estremoz, a knock-off of the well-known Portuguese marble.

FOR INFORMATION ON MASONRY AND STONE, CIRCLE 150 ON PAGE 137.

Armstrong Commercial Ceilings Presents

Addressing Speech Privacy Issues in the Healthcare Environment

A balanced acoustical design solution can help to ensure compliance with new regulations.

he right ceiling can help improve rivacy in healthcare, resulting in better environment for patients, nhanced feelings of confidentiality, nd improved respect and appreciation or patient well-being.

IN RESPONSE TO GROWING CONCERNS ABOUT PRIVACY in healthcare settings, the Department of Health and Human Services (HHS) completed revisions to the Insurance Portability and Accountability Act of 1996 in the summer of 2002, creating the final version of the regulation "Standards for Privacy of Individually Identifiable Health Information." All covered entities are supposed to have been in compliance by April 14, 2003, with the exception of small health plans (defined by the Better Business Bureau as corporations with less than $5 million annually), which have another year to comply.

In a healthcare environment, the regulation states that "incidental uses or disclosures that arise out of authorized activity, that are limited in nature, and that cannot be reasonably prevented do not violate the privacy rule provided that the healthcare entity employs reasonable privacy safeguards to ensure that conversations about a patient are not overheard." The expectation from hospital administrators and facility managers is that architects and designers will be responsible for ensuring HIPAA compliance. The problem, however, is that "reasonable privacy safeguards" has not been clearly defined.

While it's clear that healthcare organizations are not expected to rebuild their facilities at great cost, it's likely that "reasonable

By Irene Korn

Architecture Magazine Continuing Education

To take the quiz and earn 1 AIA/CES Learning Unit (LU) of health, safety, and welfare, go to www.architecturemag.com, click on "Continuing Ed," and proceed to "Addressing Speech Privacy Issues in the Healthcare Environment" or turn to page 120. You must answer 70% of the questions correctly to receive credit for this course.

LEARNING OBJECTIVES

This article covers ways to help ensure speech privacy in a healthcare setting to achieve compliance with the new provisions of the Health Insurance Portability and Accountability Act.

Key points include:

- > Modifications to HIPAA regulations that address speech privacy in healthcare
- > Methods used to measure speech privacy
- > Common problems and solutions for achieving privacy in a healthcare environment
- > Ways to improve privacy by using the ABCs of balanced acoustical design

Addressing Speech Privacy Issues

Design Influences

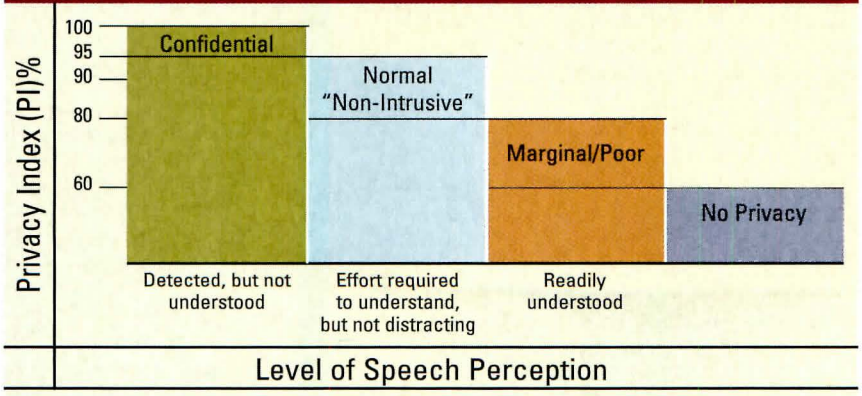
There are seven factors that affect your ability to hear others. Design can influence each of these factors:

> Voice level
> Orientation of talker
> Path of sound
> Distance away
> Barriers—sound blockers like walls
> Absorption/reverberation of space
> Background noise

measures" will be determined by looking at whether or not the healthcare organization could have reasonably implemented solutions to comply with existing standards for speech privacy measurement, balancing the potential effects on patient care and the financial and administrative burden of any safeguards. Some existing standards for speech privacy come from the American National Standards Institute (ANSI), which discusses the method for measuring the intelligibility of speech over communications systems (S.3.2) and from ASTM International. ASTM E1130-02e1 describes a means of measuring speech privacy objectively between locations in open offices; and ASTM E1374-02 discusses the acoustical principles and interactions that affect the acoustical environment and acoustical privacy in the open office.

In addition, the "Privacy Index" (PI) is a term that's used to measure speech intelligibility. PI is a number that determines the combined acoustical performances of ceilings, sound masking (the use of electronically generated background sound of a specified level and frequency content that is introduced into occupied environments to "mask" intrusive noises), and office furniture. PI ranges from 0% all the way up to 100% and can be measured in the waiting room, the exam room, the doctor's office, and throughout the entire medical facility (see "Defining Speech Privacy Levels" below).

DEFINING SPEECH PRIVACY LEVELS



- **Confidential Privacy:** Expected for most private offices. PI: 95%-100%
- **Normal Privacy:** Allows people to think and concentrate without overhearing complete sentences in adjoining spaces and is expected for most open plan spaces. PI: 80%-95%
- **Marginal or No Privacy:** Clear sentence intelligibility is typical; common in many office environments. PI: Below 80%

Closed Plan Applications

A closed plan space includes anything that has four walls and a door and houses one or more people: exam rooms, interview rooms, doctor's private offices, meeting rooms, conference rooms, board rooms, patient rooms, and corridors. In a closed plan space, the goal is a PI of 95% or more. An easy test is that if an unintended listener can overhear and decipher the content of a sentence, the PI is below 95%.

Unfortunately in many offices, the PI is below 95%—not high enough—because of sound being transmitted through both ceilings and walls. PI levels can be raised with a balanced acoustical design consisting of the ABC's:

- Absorb sound with ceilings
- Block sound with walls, ceilings, doors, and partitions
- Cover sound with sound masking

Acoustical ceilings are often the first line of defense in absorbing sound. Porous materials like fiberglass are good sound absorbers, easily allowing sound to penetrate the material, where it is then absorbed. Sound absorption is measured by the NRC (Noise Reduction Coefficient). An NRC of 0.0 means the material will not absorb any sound; an NRC of 1.0 means it will absorb 100% of the sound. A standard acoustical ceiling might have a .55 NRC (meaning it absorbs 55% of the sound), while a high-performance acoustical ceiling may have an NRC of 1.0. The SRA—Speech Range Absorption—is also important, because this measures sound absorption that comes specifically from speech, which can be different from the NRC.

Several options exist to block sound. Effective wall designs and other blockers, such as movable screens, special curtains, and glass partitions, block horizontal sound transmission. To maximize wall or blocker performance, choose a product with an STC (Sound Transmission Class) of 40-45.

Open Plan Applications

Covering or masking sound becomes even more important in an open plan space, a space that houses a large number of people and might be divided by 50"-60" partitions. Open plan layouts include corridors, reception areas, recovery wards, open plan offices, and call centers.

Armstrong

Because modern HVAC systems, including under-floor air delivery systems, are quieter than in the past, a moderate amount of background noise is now required to block conversations from being overheard. Sound masking raises the level of ambient sound at the listener's ear, thus reducing speech intelligibility. It masks over words that are not otherwise absorbed or blocked, can make it more difficult to hear distant conversations, and covers sound that leaks through small openings.

Sound masking systems have undergone some major changes in the past few years, and newer direct systems use one set of speakers to do both masking and paging. Following are some characteristics of traditional masking systems:

- Speakers are hung by chain/wires from the deck in the plenum.
- Sound is typically directed up to the deck, then reflected down through the ceiling plane, losing several decibels of masking sound through the ceiling.
- Masking level, tuning, and speaker location and spacing must be adjusted for acoustical ceiling performance, plenum conflicts, plenum depth, and plenum obstructions that can affect system performance, including hot spots in areas with sound leaks.
- Lower than 25 CAC (Ceiling Attenuation Class) ceiling requires 12' spacing.
- Plenum obstructions can create acoustical shadows that result in lower-than-normal levels in some areas and thus less uniformity.

Newer direct systems have the following characteristics:

- In-ceiling speaker panels lay into the grid and have the appearance of 2' x 2' standard ceiling panels and allow flexibility in layout and configuration.
- Sound is directed downward from the ceiling plane directly into the space below.
- Speakers deliver sound differently from conventional cone-type masking speakers hung in the plenum, providing broader coverage based on distributed mode speaker technology.
- Ceiling speakers have a three-inch profile height.
- The same speakers can also deliver clear, intelligible paging and/or music—eliminating the need for extra systems for those applications.

The Cost of Acoustical Design

Effective acoustical design is relatively low cost in terms of initial installation as well as long-term costs. For example, creating a balanced design with a reliable privacy index of 95%-100% could run $9.50 per square foot when factoring in the cost of an STC 40 wall to the underside of the ceiling, plus better ceiling material, and sound masking. Adding a wall, on the other hand, could cost $12.25 per square foot, including running STC 40 walls to the deck, sealing penetrations, and gasket doors, and would still only result in a PI of 80%-95%.

In addition, acoustical ceilings require little maintenance, and perform and look good in the long term (they absorb sound and don't sag).

In sum, patients will receive the level of speech privacy necessary to feel comfortable in their healthcare environment with a balanced design that includes products to absorb, block, and cover sound.

For More Information

- For background information on acoustics, check the continuing education course "Introduction to Acoustics" at www.armstrong.com
- For the full text of and more information about HIPAA, go to the Web site of the United States Department of Health and Human Services at www.hhs.gov/ocr/hipaa/whatsnew.html
- For more information about measurement standards for speech privacy, see the Web sites of ASTM International (formerly the American Society for Testing and Materials) at www.astm.org and the American National Standards Institute (ANSI) at www.ansi.org

Sound Leaks

To minimize sound transmission through walls, choose a product of 40-45 STC. But beware that sound leaks can occur in numerous ways, inadvertently reducing the actual STC. Sounds can leak through:

> Light fixtures
> Non-baffled return air grills
> Back-to-back electrical boxes
> Wall joints
> Non-gasketed partition and ceiling/floor intersections
> Ineffective door seals
> Ceiling tile and grid installation

Advantages of Ceiling Based Privacy Systems

> Speaker panels lay into the grid
> Different technology provides broader coverage
> No sound loss through ceiling or from plenum conflicts or hot spots from sound leaks
> Paging and masking can occur simultaneously
> Allowance for room-by-room volume adjustment
> Preferred aesthetics by *eliminating unsightly* speakers in the ceiling plane

TEST QUESTIONS

1. When does the regulation "Standards for Privacy of Individually Identifiable Health Information" go into effect?
a. February 1996
b. April 14, 2003 for all healthcare organizations
c. April 14, 2003 with the exception of small health plans
d. Summer 2002

2. An NRC of 1.0 means
a. Material will not absorb any sound
b. Material will absorb 50% of sound
c. Material will absorb 100% of sound
d. Material will absorb 100% of speech

3. Where do sound leaks come from?
a. Non-baffled air return grills
b. Ineffective doors seals
c. Ceiling tile and grid installation
d. All of the above

4. Which of the following is an example of an open plan layout?
a. Exam room
b. Board room
c. Recovery ward
d. Corridor

5. Which is a characteristic of normal privacy?
a. Expected for most private offices
b. PI of 80-95%
c. Clear sentence intelligibility is typical
d. No speech can be heard

6. Where would lack of speech privacy be a concern in a healthcare environment?
a. Exam rooms
b. Call centers
c. Waiting and reception areas
d. All of the above

7. How is sound directed with a newer sound masking system?
a. Sound is directed downward from the ceiling plane directly into the space below
b. Sound is directed up to the deck
c. Sound is reflected down through the ceiling plane
d. Sound bounces off the walls and is reflected horizontally

8. Which of the following is not an advantage of a ceiling based privacy system?
a. Speaker panels lay into the grid
b. No sound loss through ceiling or from plenum conflicts
c. Paging and masking can occur simultaneously
d. Speakers in the ceiling plane deflect sound throughout the room

9. How is a "reasonable privacy safeguard" defined?
a. It meets the existing standards for speech privacy from ASTM International
b. It meets or exceeds ANSI standards
c. The PI is above 50%
d. None of the above

10. What are factors in determining "reasonable privacy safeguards"?
a. The cost of rebuilding or renovating existing structures
b. The administrative burden of any safeguard
c. Whether or not they meet existing standards for speech privacy
d. All of the above

Addressing Speech Privacy Issues in the Healthcare Environment
Successful completion of this test (a score of 70% or higher) will earn 1 AIA/CES LU hour of health, safety, and welfare.

Architecture Magazine makes it easy to register for AIA/CES credit (non-members will receive a certificate of completion).

Go to www.architecturemag.com and click on Continuing Ed to download a PDF of this unit or mark your answers to the test questions at right. Mail or fax the completed form to:

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Material resources used: Article addressing issues concerning health and safety.

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Signature Date

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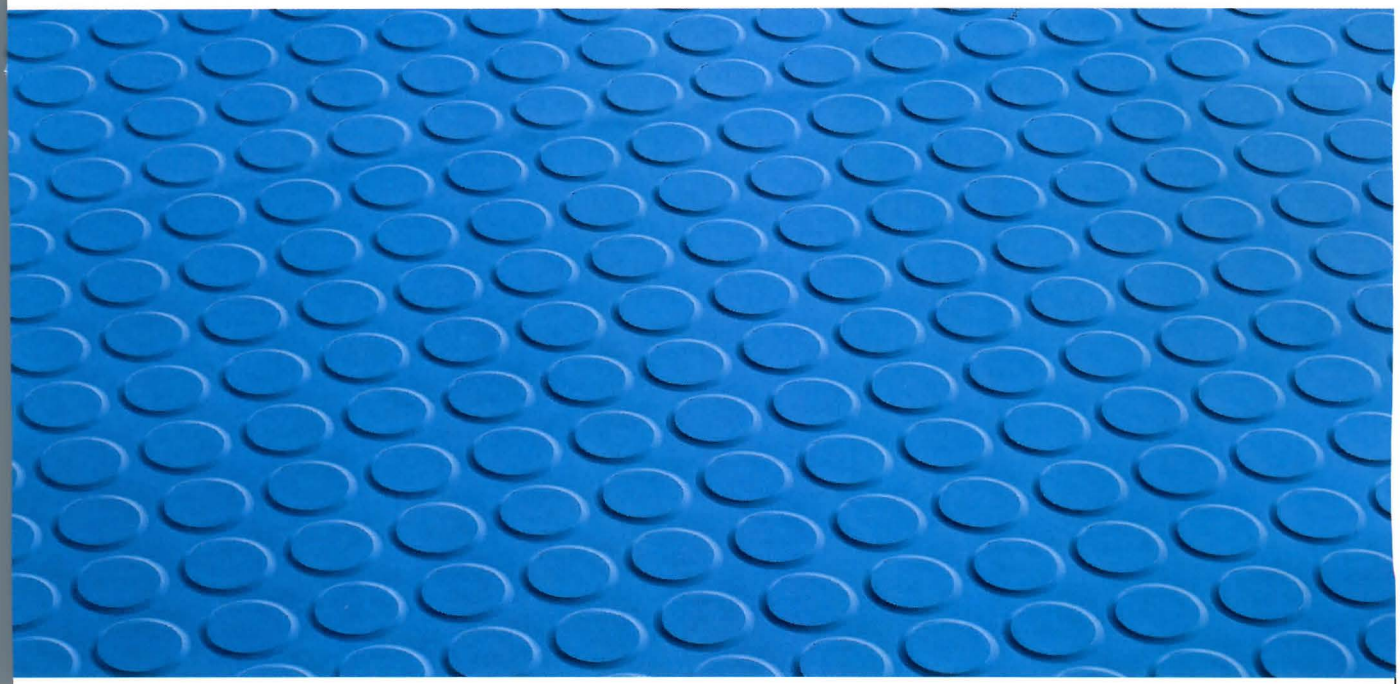
Life Cycle Costing

Controlling total flooring costs means considering all angles.



ubber is an example of a flooring
aterial with a relatively low initial
ost as well as low long-term costs
s a result of its durability, length
f life cycle, minimal maintenance,
nd good wear resistance.

DURING THE DESIGN PHASE OF A BUILDING PROJECT, architects and designers have the potential to specify products that can help clients control costs—not just on the initial project, but also in the long run.

Too often, though, attempts are made to minimize initial building costs, without a thorough exploration of how the materials selected might impact the bottom line of the client through costs of ownership. This is especially unfortunate when inferior materials are selected in a poorly thought-out effort to reduce costs.

Armed with the right information, architects and designers can help clients better understand why it's best to do things right the first time.

Comparing Options and Costs in Commercial Flooring

Today's marketplace offers a wide range of options for flooring—endless colors and patterns, plus a wide range of material types.

Yet each flooring material has different characteristics. So, when examining long-term costs, it is important to consider the many variables that ultimately affect the total cost of ownership. For example, product durability and maintenance expenses are key issues to take a close look at when calculating the total life cycle cost.

LEARNING OBJECTIVES

This article covers Life Cycle Comparison and more accurate budgeting through life cycle analysis of flooring materials.

Key points include:

- Comparison of the performance characteristics of rubber, vinyl, and carpet
- The findings of long-term testing of rubber, vinyl, and carpet as they relate to total cost of ownership
- Whether low initial cost products actually deliver long-term value
- Variables to be considered when making an accurate life cycle cost analysis

Architecture Magazine Continuing Education

To take the quiz and earn 1 AIA/CES Learning Unit (LU), go to www.architecturemag.com, click on "Continuing Ed," and proceed to "Life Cycle Costing" or turn to page 124. You must answer 70% of the questions correctly to receive credit for this course. This course requires online reading in addition to the following article in order to be able to take the quiz. See page 124 for details.

Life Cycle Costing

Discoveries Floor 'Em

The life cycle analysis study that Suzanne Roess Barnes undertook at Florida Hospital produced a range of interesting results. According to Barnes' report, conclusions were drawn on the following issues:

> **Surface Type** - Hard surface floors provided advantages over carpeted floors due to faster cleaning and drying times.

> **Color** - Floors of medium-toned colors did a better job of hiding scuffs and streaks, compared to light or dark colored flooring.

> **Patterns vs. Solids** - Flooring with "visually active patterns" did a better job of hiding dirt, compared to solid colors.

> **Pattern Types** - Flooring composed of organic patterns did a better job of hiding stains, compared to geometric patterns.

> **Laminates vs. Wood** - Flooring of laminate products outperformed wood, and were less expensive to maintain, install, and replace.

> **Real Costs** - Over the life cycle of the flooring, products with lower initial costs did not remain cheaper than products with higher initial costs. In fact, according to Barnes, products with a higher initial cost were the products that proved to be less expensive to own over a 15-year timeline.

Recent industry studies have shed light on the fact that flooring materials with a higher initial cost do not necessarily translate to a higher cost in the long run. In fact, findings show that flooring materials with a higher initial cost basis will perform more cost efficiently over many years. For example, while rubber flooring may have a higher initial cost, the fact is, the cost of maintaining it is lower, and because it is an extremely durable material, it will last a very long time. On the other hand, vinyl composition tile (VCT) and sheet vinyl materials typically have a lower initial cost, yet have more expensive maintenance requirements and are less durable under heavy use.

More specifically, studies have shown rubber to be the most cost-efficient material for commercial flooring because of its durability and low maintenance cost requirements. In long-term life cycle cost analysis studies comparing linoleum, VCT, and carpet, it is rubber flooring that consistently emerges as the low-cost alternative.

A Real-World Investigation

As reported in a leading floor covering trade publication, an independent test of flooring materials' life cycle costing was conducted between 1997 and 1998 by Suzanne Roess Barnes, AIA, CFM, within Florida Hospital where she was acting design director at the time. The test was initiated to challenge the common assumption that lower cost products, such as VCT materials, offer the best value.

Naturally, the larger the scope of the project, the greater the significance of minimizing total costs of ownership throughout the life cycle of the flooring. According to Barnes, because the project involved specifying over 1 million square feet of flooring for the facility, the long-term cost differences could add up to $10 million or more.

The investigation set out to explore whether the use of flooring material with a lower initial cost would really save money for the hospital in the long run.

In the Long Run

Barnes' conclusion was that over the life cycle of the flooring, products with lower initial costs did not remain cheaper than products with higher initial costs. In fact, according to Barnes, products with a higher initial cost were the products that proved to be less expensive to own over a 15-year timeline.

The study's authors determined that for their applications, rubber was the preferred flooring material. Another factor that contributed to the lower cost of rubber flooring throughout the product life cycle includes the fact that rubber has a unique softness. This softness offers beneficial characteristics such as comfort, safety, and sound absorption. Additionally, rubber flooring does not require a rigorous finishing regime, while other hard surface flooring materials do. This again contributes to lower maintenance costs in regard to labor and finishing products.

While other hard surfaces did have their advantages, they also had some unwarranted disadvantages. For example, marble was found to be too porous, terrazzo presented problems with cracking, and ceramic tile products presented safety concerns as their surfaces would be more conducive to slipping and falling.

And finally, the Florida Hospital life cycle cost analysis showed VCT to have the highest cost of ownership. The testing concluded that, ironically, what was presumed to be the least expensive choice of flooring material based on initial cost would have turned out to be the most expensive choice after all aspects of the life cycle were taken into account.

Additional Advantages

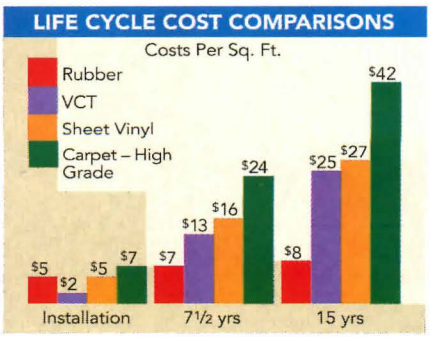
Quality rubber flooring offers many advantages that go beyond lower life cycle costs. Today, rubber flooring is becoming recognized for advantages such as durability, environmental benefits, and ease of installation, plus color and style options.

For example, rubber is a very durable flooring material; it is abrasion resistant, dimensionally stable, and its color is inherent throughout the material. Additionally, modern manufacturing techniques allow rubber flooring to be produced in a wide range of exciting colors, styles, and patterns. When the application calls for flooring that is capable of meeting safety and comfort issues, rubber offers benefits such as slip resistance, fire code compliance, comfort under foot, and sound absorption/sound deadening capabilities.

Today, as more designers, specifiers, and clients are becoming more environmentally conscious, the "green" aspects of rubber offer more benefits. Rubber contains no PVCs, and because of rubber's inherent properties, it can more easily be recycled. Additionally, some manufacturers offer rubber flooring products made from recycled rubber products, such as tires.

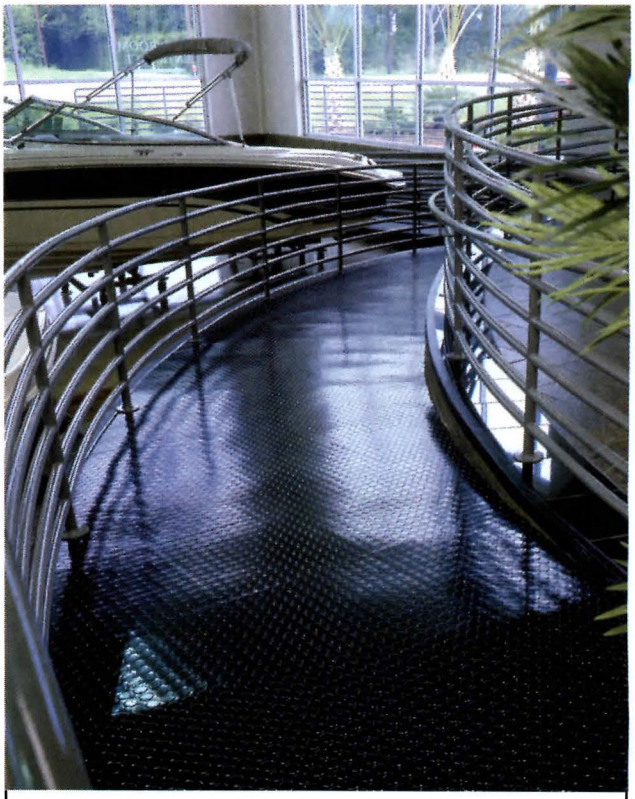
Applying the Lesson

The Barnes study illustrates that, when considering budget issues of a flooring project, all decision makers need to be aware of considerations such as durability, performance, and maintenance before concluding which flooring material options are cheapest initially, and which options will be the cheapest in the long run.



Source: *How to Make Business Decisions for Facility Flooring*, Suzanne R. Barnes, AIA, CFM

Life cycle cost analysis of flooring materials helps architects do more accurate budgeting—clearly demonstrating how "cutting costs" in the short term doesn't always translate into "saving money" in the long run.



Performing Your Own Cost Analysis

While performance, cost, and ease of maintenance are critical factors for most flooring decisions, every situation is different. Here are some additional factors to look at when performing your own cost analysis for flooring decisions:

> **Durability:** What is the expected life of the floor substance? How easy is it to maintain? Is it easy to clean? Will it stand up to its specified usage? Will it maintain its visual appeal over the course of time?

> **Safety and performance:** How does the floor perform in terms of fire and heat protection? Does the floor help reduce sound transmission? Is it moisture and/or slip resistant? Are there any additional safety features inherent in the flooring system? Does it meet or exceed minimal regulated safety requirements?

> **Flexibility:** Is the flooring appropriate for all parts of the building? If not, will it be easy to create a transition between different kinds of flooring?

The following quiz includes questions derived from online material not included in this printed article. You are required to read the additional online material in order to take the quiz and complete this continuing education unit. Please go to www.architecturemag.com, click on "Continuing Ed," and proceed to "Life Cycle Costing" for the additional information.

TEST QUESTIONS

1. What is the best way to help control the long-term total cost of ownership when specifying flooring materials?
a. Always specify the lowest-cost material
b. Always specify the highest-cost material
c. Evaluate all variables that affect the cost of ownership
d. Reduce the overall project budget

2. Which key areas should be considered when budgeting according to life cycle cost analysis?
a. Cost of maintenance materials required for proper floor upkeep
b. Cost of labor/man hours needed to properly maintain the flooring
c. Total expected product life span before flooring replacement becomes necessary
d. All of the above

3. According to the discoveries of the Barnes study at Florida Hospital, what flooring design style did the best job of hiding dirt?
a. Visually active patterns
b. Bright, vivid colors
c. Simple, solid colors
d. Shades of brown

4. According to the study's discoveries, which type of flooring surface offered faster cleaning and drying times?
a. Painted surface floors
b. Carpeted surface floors
c. Hard surface floors
d. All of the above

5. What product characteristic(s) of rubber flooring contribute to its lower long-term cost of ownership?
a. Affordable purchase price
b. Lower maintenance cost requirements
c. Long-lasting durability under heavy use
d. Both b and c above

6. In addition to being easy to keep clean and maintain, what are the other benefits of rubber flooring?
a. Color inherent throughout
b. Abrasion resistance
c. Slip resistance
d. All of the above

7. Which flooring product is recyclable, due to its natural properties?
a. Rubber
b. Vinyl Composition Tile (VCT)
c. Ceramic
d. Laminates

8. Name the inherent benefit(s) of rubber flooring's softness.
a. Abrasion resistance
b. Sound absorption/deadening
c. Comfort underfoot
d. All of the above

9. When it comes to environmental concerns, what benefit(s) do(es) rubber flooring offer?
a. Available in green
b. No PVCs
c. Recyclable
d. Both b and c above

10. According to the Barnes study at Florida Hospital, what flooring material was determined to have the lowest cost of ownership over the product life cycle?
a. Carpet
b. Rubber flooring
c. Vinyl flooring
d. Tile flooring

Life Cycle Costing

Successful completion of this test (a score of 70% or higher) will earn 1 AIA/CES LU hour.

Architecture Magazine makes it easy to register for AIA/CES credit (non-members will receive a certificate of completion).

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	4.	a	b	c	d	9.	a	b	c	d
	5.	a	b	c	d	10.	a	b	c	d

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Material resources used: Magazine article and additional online reading

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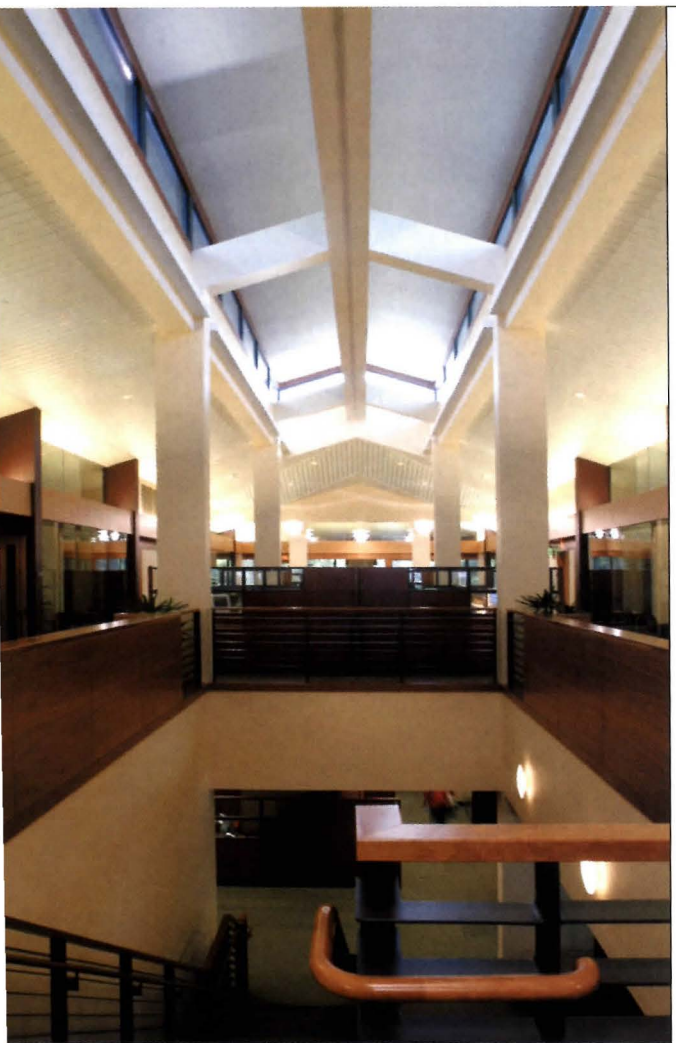
American Institute of Steel Construction (AISC) Presents

Structural Steel Considerations in Obtaining a LEED™ Rating

The use of steel can contribute to sustainable design efforts, *leading* to a higher LEED rating.



eel's recycle content helped The Hewlett Foundation Headquarters ilding, located in Menlo Park, California, to become LEED Certified. oto courtesy of The Hewlett Foundation; photo by Marvin Wax. oject Manager: Bennington/Conover & Associates.

THE NORTH AMERICAN BUILDING INDUSTRY HAS A tremendous impact on our environment, and a focused green design effort can bring benefits to all stakeholders. Sustainable design and construction practices can bring environmental, economic, and social benefits that result from careful consideration of resource use and how the building will affect the environment. Additional benefits could be reduced operational costs, higher facility value, and increased worker productivity.

Fortunately, The U.S. Green Building Council (USGBC) has developed the LEED™ (Leadership in Energy and Environmental Design) Green Building Rating System. This tool provides a framework under which building design and construction decisions can be made and sustainable building projects can be evaluated. LEED has rapidly become a design tool embraced by designers and owners interested in bringing additional value to their projects. This article focuses on the most critical aspects of how the choice of a structural system impacts the LEED rating.

Each structural system has opportunities and constraints when evaluated as a part of an environmental design effort. Market demands for steel production spur a significant amount of recycling, inherently contributing to sustainable design efforts. According to the Steel Recycling Institute, 67 million tons of steel were recycled in the U.S. alone in 2001. Worldwide, 400 million tons of steel were recycled—one and a half times the amount of all other recycled materials combined (including paper, glass, aluminum, and plastic). Approximately 40 million tons (59% of total recycled steel) was derived from construction and demolition waste, and the steel salvage market accounts for an additional 4 million tons per year. Each ton of recycled steel saves 2,500 pounds of iron ore, 1,400 pounds of coal, and 120 pounds of limestone. In addition, recycling requires less energy, creates

LEARNING OBJECTIVES

This article covers how the choice of a structural system impacts a LEED rating, particularly as it relates to the use of steel.

Key points include:

- Basics of the LEED Green Building Rating System
- How Credits are accrued in the structural categories of the LEED Green Building Rating System
- The impact of structural steel on LEED Innovation and Design Process Credits
- How recycling structural steel contributes to green design efforts

chitecture Magazine Continuing Education

take the quiz and earn 1 AIA/CES Learning Unit (LU), go /www.architecturemag.com, click on "Continuing Ed," and ceed to "Structural Steel Considerations in Obtaining a ED Rating" or turn to page 128. You must answer 70% of questions correctly to receive credit for this course. This rse requires online reading in addition to the following arti- in order to be able to take the quiz. See page 128 for details.

LEED™ Ratings

The Unchanging Cost of Steel

Innovations in the production *process* have resulted in a 35% decline in steel material costs between 1983 and 1998. Therefore, even with increased costs in fabrication and construction labor within the same time frame, the net change in the cost of installed structural steel within the 15-year period is 0%. Furthermore, the energy required to produce new steel has decreased 45% over the last 25 years, largely due to improvements in yield. Before, 100 tons of raw material produced 60 tons of steel product, and now, the same 100 tons produces 90 tons of steel product. Lastly, the production of steel structural shapes is completed through a method of continuous casting, whereby materials transform directly from liquid form to near final shape. (Prior to continuous casting, steel was first made into square ingots and then reheated to roll beams, a process that required more energy and significantly more time.) Currently, the relatively low cost for new steel does not favor the salvage and reuse of structural steel members in building projects.

less waste, and releases less pollutants than producing the same amount of steel from virgin materials. Recycling, however, is only one aspect of how structural steel can contribute to green design efforts, and the steel frame is only one component of the overall structural system.

While the LEED rating system is set up to evaluate an entire project in a holistic manner (not simply material selection), as a building material, structural steel can make the largest contribution to a LEED rating in this category. All materials selected for a project are evaluated based upon performance criteria, either by weight or cost, depending on the "Credit" category. The structural system can be a significant portion of the cost or weight of the building materials and contributes to points for almost every Credit in this LEED category.

CREDIT 1. Building Reuse *(2 possible points)*
Building reuse enables development within existing buildings and previously developed areas, maintaining proximity to existing infrastructure and preserving open space.

In the LEED rating system, if 75% of the building structure and shell (excluding windows) is preserved, the project earns 1 point. Structure includes foundations, slabs, and basement walls. If 100% of the building structure and shell is preserved, along with 50% of the walls, floors, and ceilings, the project earns 2 points.

Because the LEED templates consider the volume of materials saved, reusing a steel frame for an entire building can be advantageous. When a building is reused, it often must serve a completely new function, requiring modifications to the structure due to changes in loading conditions and relocated floor openings. Steel structures are more likely to be reused than other structures because they can be easily and cost effectively modified and reinforced, allowing flexibility and adaptability for the building's new use.

CREDIT 2. Construction Waste Recycling
(2 possible points)
Commercial construction generates between 2 and 2.5 pounds of solid waste per square foot. LEED defines construction waste as both demolition waste and waste as a by-product of construction. To achieve this Credit, waste can be diverted by recycling or reusing. Points are awarded for diverting 50% (1 point) or 75% (2 points) of waste as calculated by weight or volume. As mentioned earlier, steel is the most recycled material in the world, ensuring that virtually all steel on a construction site can be recycled or reused.

CREDIT 3. Resource Reuse *(2 possible points)*
LEED awards points for using 5% (1 point) to 10% (2 points) salvaged or refurbished materials (by cost), relative to the total cost of materials for the project. This Credit encourages the use of existing materials, as energy is required to produce new materials, regardless of whether they are extracted from recycled or virgin stock.

While it is possible to return steel to a fabricator at the end of a building's useful life, it is much more common to recycle steel (see "The Unchanging Cost of Steel"). Although uncommon, steel salvage can occur when structures are relocated. One example of complete reuse of a steel system is Beaver Stadium at Penn State University. In this instance, the entire building was relocated from one end of the campus to the other.

CREDIT 4. Recycled Content *(2 possible points)*
The greatest advantage of steel construction is its contribution to recycled content. Steel production can occur through one of two processes. The electric arc furnace (EAF) process uses almost 100% existing steel and almost all structural shapes produced in the U.S. use this method. According to the Steel Recycling Institute, the post-consumer recycled content (steel that has previously been used in another consumer product-automobile, refrigerator, etc.) is 64%, and post-industrial recycled content (steel that is waste/surplus of another industrial production process) is 30%.

CREDIT 5. Local/Regional Materials
(2 possible points)
For the first part of this Credit, LEED requires materials to be manufactured within 500 miles of the project site. Currently, wide flange sizes W14x43 and larger are rolled in four locations in the U.S.: Steel Dynamics in Columbia City, Indiana; TXI Chaparral in Petersburg, Virginia and Midlothian, Texas; and Nucor-Yamato in Blytheville, Arkansas. This includes sizes commonly used in building projects, such as W16x31, W18x35, W21x44, and W24x55. According to the USGBC Technical Advisory Group, the steel mill is defined as the point

where the steel is manufactured; therefore, the mill would need to be within 500 miles of the project site in order to obtain this Credit. The current criterion makes it difficult to achieve this particular Credit for projects located in the western U.S. However, the point of manufacture for steel decking, steel joists, and metal studs is the factory location where steel is formed into its final product shapes. It is much more likely to have this capability within 500 miles of a project site regardless of where the project is located in the U.S.

The second point of this Credit is available for raw materials extracted or harvested within 500 miles of the project site. Since steel mills typically acquire scrap from brokers there is no way to track where the raw material for a particular piece of steel comes from.

LEED Innovation & Design Process

Up to four points can be awarded in this category for strategies that go above and beyond what is required in the 64 core Credits, either by a completely new idea or by greatly exceeding the requirement from an existing LEED Credit. A separate point is available for having a LEED Accredited Professional on the project. While the USGBC does list Credit interpretation rulings for specific requests submitted by registered projects, they have not yet published a list of specific ideas for Innovation & Design Process that have been accepted on certified projects. The following are suggestions that may qualify for innovation points.

1. Structure as finish. It is possible to expose a steel structure and avoid installing finish products such as ceiling tiles or drywall. Any time a product is eliminated, the energy to extract, produce, install, and dispose of that product is saved.

2. Light-weight materials. Steel is naturally light in weight, making it beneficial for girders and can also be used compositely with floor systems to reduce weight of the structural system. Based upon past Credit rulings, in order to achieve this Credit, the project team must clearly describe a conventional building for a baseline and then demonstrate significant savings. The Utah Olympic Oval, for example, uses an innovative cable suspension system to support a very shallow steel truss roof. This design reduces the total arena volume by 2.6 million cubic feet (making it easier to heat and cool) and weighs over 950 tons less than competing solutions.

3. Recyclability. Utilizing a high percentage of steel, such as a steel plate shear wall, maximizes the amount of materials in a building that can be recycled in the future. If the building is dismantled in a later project, the LEED Construction and Demolition Waste Credits could be achieved.

4. Deconstruction. Structural steel can be welded or bolted. If the structure is designed with bolted connections, thus allowing it to be easily disassembled, it is more likely that members can be reused on other projects. Werner Sobek, a recognized German structural engineer, has utilized this philosophy extensively. His residence at Römerstrasse 128 (Stuttgart) is designed so that the entire steel structure can be disassembled and reused.

5. Structure as Plumbing. The Greater London Authority building, designed by architect Foster and Partners, used HSS structural members in the atrium. Hot water runs through the members, creating a giant radiator. This is an example of true integrated design and economy of materials.

An Integrated Design Process

Each structural system brings benefits to different LEED Credits. A clear environmental advantage to either a steel frame or a concrete frame is not apparent in regard to the LEED certification process (a comparison of the two materials can viewed at www.aisc.org/sustainability). LEED is a performance standard, not a prescriptive standard. It does not favor one structural system over another.

As LEED certification becomes more popular among design professionals and building owners, further studies of the relationship between primary structural material and LEED certification will be possible. In the meantime, structural steel remains a strong option, which can bring a variety of advantages to environmental design and a LEED certification effort.

An integrated design process that thoughtfully considers the implications of the structural system on other building systems, and its impact on the environmental design effort, will bring value to the project, the owner, the user and—in a broader sense—to the community.

PROVE IT

LEED requires documentation verifying which steel production process was used for the steel on the project. AISC's website contains a letter from Nucor-Yamato Steel, the largest U.S. structural steel producer, certifying recycled content from their facility. This letter can be accessed at www.aisc.org/sustainability. The requirement for this type of letter to be produced by a fabricator is becoming more common in project specifications when LEED certification for a project is being pursued.

OWP&P Architects performed the research for this article.

Contributors include:
David Eckmann AIA, SE, PE;
Tom Harrison AIA, SE, PE;
Rand Ekman AIA.
Michelle Halle Stern AIA, PE, a consultant to OWP&P, was a significant contributor to this publication.

For the full text of the article prepared by OWP&P, go to www.aisc.org/sustainability. For additional background information, please see www.usgbc.org and www.recycle-steel.org

The following quiz includes questions derived from online material not included in this printed article. You are required to read the additional online material, a full paper prepared by OWP&P Architects on the LEED system and how a structural steel system can contribute to the LEED rating, in order to take the quiz and complete this continuing education unit. The full paper can be accessed at www.aisc.org/sustainability.

TEST QUESTIONS

1. What percentage of total construction waste by weight must be diverted from a landfill to achieve one point in the Construction Waste Recycling Credit?
- a. 25%
- b. 40%
- c. 50%
- d. 75%

2. What is the most current version of LEED?
- a. 1.0
- b. 1.1
- c. 2.0
- d. 2.1

3. Under current LEED Local/Regional Materials Credit can be applied to steel that is:
- a. Purchased from a fabricator less than 500 miles away from the project site
- b. Produced in a mill less than 500 miles away from the project site
- c. Purchased from a fabricator less than 1,000 miles away from the project site
- d. Produced in a mill less than 1,000 miles away from the project site

4. How do you document the recycled content of steel for LEED?
- a. Have the contractor certify the content
- b. Use historic data on the US Green Building Council website
- c. Use a LEED letter template
- d. Show the requirement in the project specifications

5. What is the predominant production method for U.S. structural steel products?
- a. Basic oxygen furnace
- b. Electric arc furnace
- c. Electric oxygen furnace
- d. Ingot casting

6. Which version of LEED can be applied to your project?
- a. The most current version at the time of project completion
- b. The version in place when the project is registered
- c. The version in place at the start of the project
- d. Either the most current version or the version in place when the project was registered

7. Which building type can the LEED rating system not be applied to?
- a. Commercial Office Buildings
- b. Institutional Buildings
- c. Single Family Homes
- d. Industrial Buildings

8. What is the total recycled content of structural steel products produced by the electric arc furnace (EAF) process?
- a. <40%
- b. 40-60%
- c. 70-80%
- d. 90-100%

9. What percentage of LEED certified projects have a steel framing system?
- a. 20%
- b. 40%
- c. 50%
- d. 70%

10. Which structural system has the best environmental performance?
- a. Steel
- b. Concrete
- c. Wood
- d. There is no clear advantage for one structural system or another

Structural Steel Considerations in Obtaining a LEED™ Rating

Successful completion of this test (a score of 70% or higher) will earn 1 AIA/CES LU hour.

Architecture Magazine makes it easy to register for AIA/CES credit (non-members will receive a certificate of completion).

Go to www.architecturemag.com and click on Continuing Ed to download a PDF of this unit or mark your answers to the test questions at right. Mail or fax the completed form to:

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test>									
	1.	a	b	c	d	6.	a	b	c	d
	2.	a	b	c	d	7.	a	b	c	d
	3.	a	b	c	d	8.	a	b	c	d
	4.	a	b	c	d	9.	a	b	c	d
	5.	a	b	c	d	10.	a	b	c	d

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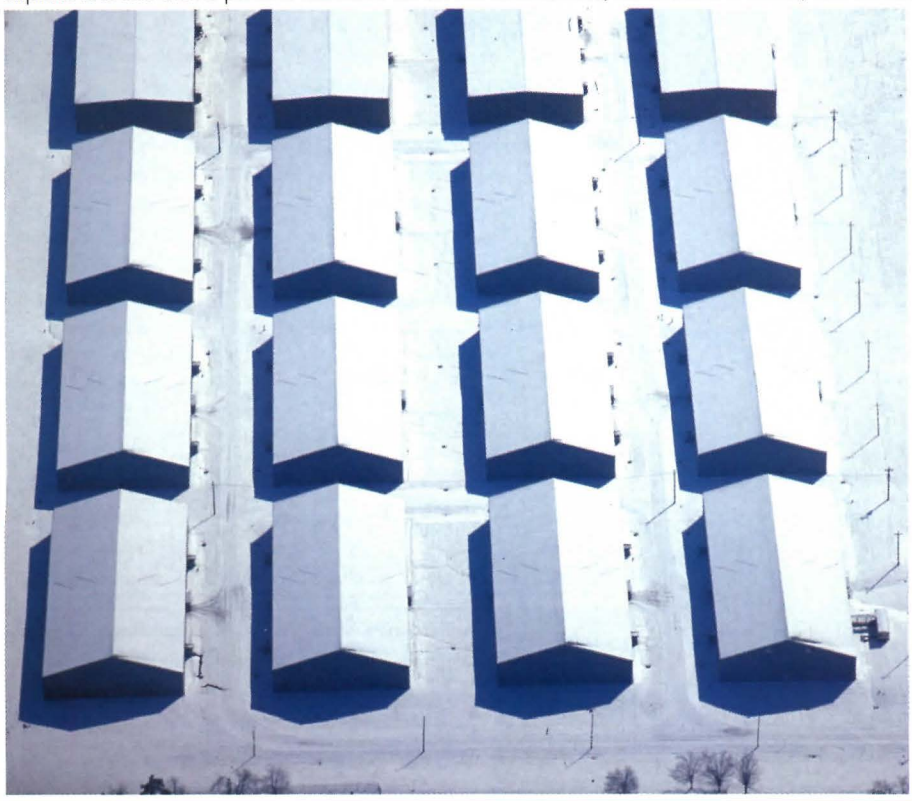
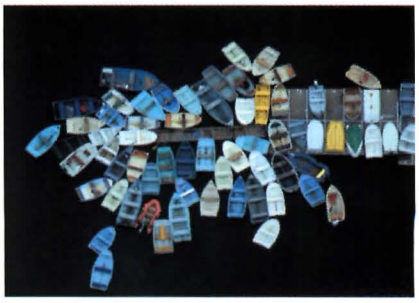
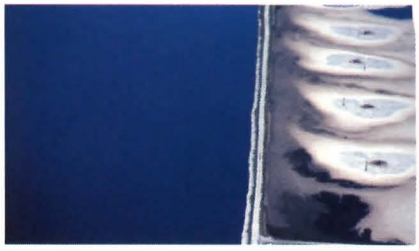
Signature Date

BOOK

Designs on the Land: Exploring America from the Air | Alex MacLean | Thames & Hudson Architect Alex MacLean has been photographing the American landscape from the air for over 30 years. His new book covers widely varied ground, from abandoned airplane lots and theme parks to suburban cul-de-sac communities, warehouses in winter, and crowded docks. **Anna Holtzman**







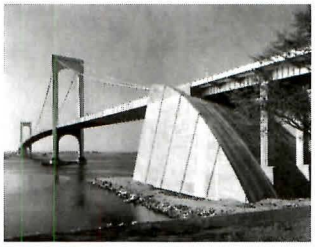
EXHIBITION

Scanning: The Aberrant Architectures of Diller + Scofidio | Whitney Museum of Art | New York City | Through May 25 Architecture needs rabble-rousers. We need alternative thinkers, provocateurs, skeptics, and even cynics. We need them both to rattle the design community and raise eyebrows beyond its borders. So it is encouraging to find the genuine article—Elizabeth Diller and Ricardo Scofidio—given a public platform. The Whitney retrospective is chock full of the duo's greatest hits, including *Tourisms: Suitcase Studies* (1991), its 50 Samsonites packed with bedroom and battlefield ephemera; *The American Lawn: Surface of Everyday Life* (1998), in which stereoscopic images document territorial divides; the prescient *Master/Slave* (1999), its toy robots in a glass vitrine rolling past miniature surveillance cameras and through X-ray machines; and the Blur Building (2002), a now-dismantled cloudy confection on a Swiss lake. While the multimedia displays comment on the social decay spreading across the nation like so much manicured sod, the show's emphasis on the conceptual, over the firm's small but strong body of built work, shores up public perception of the architect as ivory-tower esthete. A glaring for-instance: In *Bad Press*, visitors to the show are greeted by the projection of a giant, rotating shirt. For architects, the place for truly subversive action is out on the street, where Diller and Scofidio, more than 20 years into their partnership, have only begun to blur the line between big ideas and built form. **Abby Bussel**

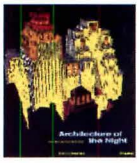
TOP: ALEX MACLEAN; BOTTOM: COURTESY WHITNEY MUSEUM OF AMERICAN ART

EXHIBITION

The Art of Structural Design: A Swiss Legacy | Princeton University Art Museum | Princeton, New Jersey | Through June 15 Aside from being located in New York City, what do the Verrazano, George Washington, Throgs Neck, and Triborough Bridges have in common? They are Swiss-designed; in fact, all are the work of engineer Othmar Ammann, one of the six Swiss structural maestros profiled in *The Art of Structural Design* at the Princeton University Art Museum. A collaboration with the university's engineering department, the show attempts to link engineering with the visual arts. The neatly executed installation includes photographs of bridges, models constructed by Princeton students, a documentary film on the bridges of America, and 3-D mirror-and-photograph displays. The show, however, lacks comparative materials from the visual arts to reinforce the bridge between art and science. **Anna Holtzman**



BOOK



Architecture of the Night: The Illuminated Building | Dietrich Neumann | Prestel A series of essays and photographs edited by architectural historian Dietrich Neumann examines the origins of building illumination, painting a picture of a technology that was initially embraced as the key component in a brave new world of design. **Julia Mandell**

BOOK

Unknown Quantity | Paul Virilio | Thames & Hudson In his exhibition catalog for *Unknown Quantity*, a show he organized at the Fondation Cartier in Paris, the writer and urbanist Paul Virilio takes a cold, hard look at the multitude of accidents and catastrophes that have afflicted us with disconcerting frequency at the start of the twenty-first century. In a series of short writings interspersed with images of a variety of accidents, Virilio posits that it is important to examine accidents, not for their ghoulish appeal, but as reminders that our technological advances have far-reaching and serious side effects. Virilio has a point, but the most compelling argument he presents for looking at these accidents are the surprisingly gorgeous images that accompany his text. An essay by the architect-theorist Lebbeus Woods connects Virilio's theories to architecture, arguing that allowing for chance and accident in the design process, as scientific disciplines like physics and biology do, would more truly reflect our accident-prone world. **Julia Mandell**

FROM TOP TO BOTTOM: COURTESY PRINCETON UNIVERSITY ART MUSEUM; COURTESY PRESTEL; COURTESY THAMES & HUDSON

EXHIBITION

Iñigo Manglano-Ovalle | Palm Beach Institute of Contemporary Art | Palm Beach, Florida | Through June 15 Three video installations by Spanish-born artist Iñigo Manglano-Ovalle explore class, identity, and alienation, juxtaposed with the utopian vision of the International Style, through a variety of mundane scenes staged in well-known buildings by Mies van der Rohe. The film sequences *The Kiss* (1999), *Climate* (2000), and *Alltagszeit* (2001) are sited, respectively, at the Farnsworth House in Plano, Illinois, the twin high-rise apartment buildings on Chicago's Lake Shore Drive, and the Neue Nationalgalerie in Berlin. **Anna Holtzman**

FILM

My Architect | Nathaniel Kahn | www.myarchitectfilm.com At a time when architecture is criticized as either too dry and theoretical or overly obvious and pandering to the public (think of the heated debate over the World Trade Center competition) comes a film about a great architect whose work illicits intense emotion without invoking overwrought symbolism. In *My Architect*, Nathaniel Kahn, the heretofore unacknowledged illegitimate son of Louis Kahn, searches for the spirit of his late father through a series of interwoven interviews. What the filmmaker finds is a man whose life and work deeply affected all those he touched.

Among the more memorable interviewees are Louis Kahn's two mistresses, architect Anne Tyng and landscape architect Harriet Pattison, who experienced rewarding creative collaborations with Kahn, but disappointing personal ones; Edmund Bacon, a former Philadelphia urban planner, for whom the name Kahn still elicits a flurry of self-righteous contempt; and Bangladeshi architect Shamsul Wares, who describes with great emotion Kahn's National Assembly Hall in Dacca, which housed the birth of democracy in his country.

While the documentary itself is overdone at times, with predictable classical music crescendos and overly poignant visual vignettes, it is a testament to the profound affect architecture can have on those who experience it. **Anna Holtzman**

TOP: COURTESY MAK PROTETCH GALLERY; BOTTOM: COURTESY LOUIS KAHN PROJECT

EXHIBITIONS

BOSTON
The Making of a Museum
museum founder Isabella Stewart Gardner as collector, architect, and designer.
ISABELLA STEWART GARDNER MUSEUM
www.gardnermuseum.org
Through August 21

CHICAGO
Garofalo Architects
the first in a series of architect-designed pavilions commissioned by the museum for its front plaza.
MUSEUM OF CONTEMPORARY ART
www.mcachicago.org
May 3-October 31

HOUSTON
American Modern
works from the museum's permanent collection that celebrate American industrial and graphic design of the 1920s and 30s.
MUSEUM OF FINE ARTS
www.mfah.org
Through July 20

HOUSTON
Sanctuaries: John *Hejduk*
paintings and sculptures done by the late architect and teacher in his last years.
MENIL COLLECTION
www.menil.org
May 23-August 31

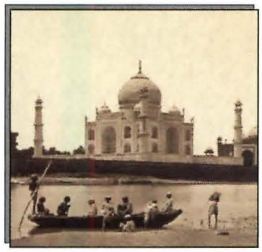
HUMLEBAEK, DENMARK
Renzo Piano
the museum's Architect's Studio series profiles the Italian designer.
LOUISIANA MUSEUM FOR MODERN ART
www.louisiana.dk
May 9-September 14

LOS ANGELES
Outreach
design ideas for a mobile HIV/AIDS clinic for Africa, from an Architecture for Humanity competition.
A+D ARCHITECTURE AND DESIGN MUSEUM
www.aplusd.org
Through May 30

LOS ANGELES
Jungle Island
a site-specific sculpture by artist Yutaka Stone transposes sections of the Los Angeles freeway into a tropical setting.
MOCA
www.moca-la.org
May 4-July 27

MADISON, WISCONSIN
Vienna 1890s-1930s
fine and decorative art from the museum's permanent collection.
ELVEHJEM MUSEUM OF ART
www.lvm.wisc.edu
Through June 29

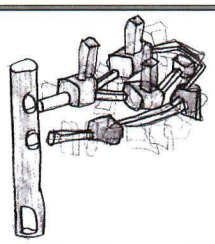
MONTREAL
Traces of India
photography, architecture, and the politics of representation, 1850-1900
CANADIAN CENTRE FOR ARCHITECTURE
www.cca.qc.ca
May 15-September 14



NEW YORK CITY
Paul Sietsema: Empire
an experimental film with architectural constructions and drawings.
WHITNEY MUSEUM OF AMERICAN ART
www.whitney.org
Through June 1

NEW YORK CITY
City of Towers
Alessi 2003 Coffee and Tea Piazza, a new line of teapots and cups designed by contemporary architecture stars.
MAX PROTETCH
www.maxprotetch.com
May 1-June 28

NEW YORK CITY
Blueprints
five proposals by artists and architects to redesign this 20-year-old Tribeca gallery space.
ART IN GENERAL
www.artingeneral.org
Through May 31



RENO, NEVADA
Will Bruder
contemporary work by the Arizona architect, including the just-completed design for this museum.
NEVADA MUSEUM OF ART
www.nevadaart.org
May 24-October 26

VIENNA
Zaha Hadid: Architecture
projects (including her ski jump in Innsbruck, Australia), drawings, and models by one of today's foremost architects.
MAK
www.mak.at
May 7-August 17

WASHINGTON, D.C.
Light Screens
The leaded glass of Frank Lloyd Wright.
SMITHSONIAN AMERICAN ART MUSEUM
www.nmaa.si.edu
Through July 20

EVENTS

ASPEN, COLORADO
Design Takes on Risk
the 53rd International Design Conference in Aspen, Colorado.
BENEDICT MUSIC TENT
www.idca.org
August 20-23

CHICAGO
World's Trade Fair 2003
products and education for interior design and facilities management, sponsored by NeoCon.
MERCHANDISE MART
www.merchandisemart.com/neocon
June 16-18

TRENTON, NEW JERSEY
Sustainability Conference
sponsored by the Northeast Sustainable Energy Association.
WAR MEMORIAL AND MASONIC TEMPLE
www.nesea.org
June 4-7

COMPETITIONS

Waterfront Awards
the 17th annual Waterfront Center international competition for built waterfront projects.
www.waterfrontcenter.org
Deadline June 6

2003 Dinkeloo Fellowship
at the American Academy in Rome, offered to recent design school graduates from the United States, sponsored by the Van Alen Institute.
www.vanalen.org
Deadline June 16

Ecohouse Competition
international student design competition for an ecohouse, sponsored by the Architectural Press.
www.architecturalpress.com
Deadline July 1

Home of the Year
Architecture's second annual home design competition. (See "Call for Entries," page 137.)
www.architecturemag.com
Deadline July 14

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Deadline: July 14, 2003

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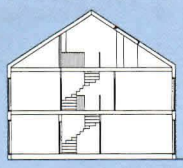

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A five-member jury of distinguished, independent professionals will choose award-winning projects based on:

- overall design excellence
- creativity
- programmatic and site sensitivity
- visual sophistication

Jurors include:

- **David Salmela,** Salmela Architecture & Design, Duluth, Minnesota
- **Carlos Jimenez,** Carlos Jimenez Studio, Houston, Texas
- **Michael Maltzan,** Michael Maltzan Architecture, Los Angeles
- **Gwendolyn Wright,** Columbia University School of Architecture, New York City

Judging will take place in July 2003. Winning entrants will be notified in August 2003 and their projects published in the November 2003 issue of Architecture.

Entrant

Contact Name

Address

Phone Number Fax Number

E-mail Address

Project Location

Client

Client Phone Number

Fee $150 (first entry) $

$100 (subsequent entries) $

Total $

(Make check payable to Architecture.*)*

I certify that the parties credited executed the submitted project and that it meets all eligibility requirements. I understand that *Architecture* may disqualify any entry that fails to meet submission requirements. I grant *Architecture* magazine sole first publication rights to the project. (Signer must be authorized to represent those credited.)

Signature

Name Date

SEND ENTRIES TO: Home of the Year, *Architecture*, 770 Broadway, New York, NY 10003

DRAWING COURTESY MVRDV

Eligibility

1. The contest is open to architects and other design professionals practicing in the United States, Canada, or Mexico for projects completed only in those countries.
2. There is no limit to the number of projects that any firm or individual may enter. HOWEVER, any project that has previously appeared in a national design publication is NOT eligible and will be disqualified if submitted.
3. Employees of VNU Business Publications are not eligible.
4. Architects and designers must be willing and able to certify that any work they submit is their own creation.

Winning Entries

5. An independent panel of judges will award prizes to projects, at their sole discretion, based on: overall design excellence, including creativity, programmatic and site sensitivity, and visual sophistication.
6. Winners of *Architecture*'s Home of the Year awards agree to grant Architecture magazine first publication rights for their winning projects.
7. Winners must also agree to have their projects, names, and portraits published in *Architecture* magazine and in any other media and must secure permission for publication from their clients. Entrants must be willing to provide materials necessary for publication and exhibition of winning projects.

Awards

8. Judging will take place in July 2003. Winning entrants will be notified in August 2003, and their projects will be published in the November 2003 issue of *Architecture*. Winning projects may subsequently travel as a curated exhibition.

Submission Requirements

9. All projects must have been completed since July 2001.
10. All entries must include clear, comprehensive images of both the interior and exterior of the residence and presentation-quality plans and sections (no more than 24 photographic images).
11. All entries must include at least one photographic image documenting the physical context surrounding the project.
12. All entry material must be firmly bound in binders no larger than 17 inches in one dimension only, to a maximum of 11 by 17 inches (9 by 12 inches preferred). Please avoid fragile bindings, sharp metal edges, etc. Slides should be submitted only as supplementary material. Videocassettes, CD-ROMs, models, and any unbound material in boxes, sleeves, etc., will not be considered.
13. Project Facts Page. To ensure clear communication to the jury, the first page of each entry binder must list project facts under the following headings: Location/Context, Site Characteristics, Zoning Constraints, Client/Program, Construction Systems, Sustainable Features (if any), Schedule, and Cost per Square Foot. This information must include square footage, overall cost, and specific construction materials and systems. All project facts should fit on one page.
14. To maintain anonymity in judging, no names of entrants or collaborating parties may appear on any part of the submission except on entry forms. Do not, however, conceal the identity or location of the project.
15. Please do not send original drawings; *Architecture* accepts no liability for submittals.
16. Each submission must be accompanied by a signed entry form and a check covering the entry fee ($150). Reproductions of the form are acceptable. Complete the entire form and put it in an unsealed envelope attached to the binder's back cover.
17. Please enclose one bound set of 8-1/2-by-11-inch photocopies of your entry. The first two pages should be copies of your entry form and the Project Facts Page, in that order. Secure the photocopies inside the back cover of your binder.

Entry Categories

18. Identify each submission on its entry form as one of the following:
A. 1,500 square feet (140 square meters) or smaller
B. 1,500 square feet to 5,000 square feet (465 square meters)
C. Over 5,000 square feet (1,524 square meters)
D. Apartment/condominium (individual residences)

Entry Fees

19. An entry fee must accompany each submission. The fee is $150; each entry after the initial entry is $100.
20. Make check or money order payable to *Architecture*. (Canadian and Mexican entrants must send drafts in U.S. dollars.)
21. Fee must be put in an unsealed envelope with the entry form.

Return of Entries

22. Architecture will return entries ONLY if they are accompanied by a self-addressed, stamped envelope. *Architecture* assumes no liability for loss or damage.

Entry Deadline

23. All entries *must be received by* 5 p.m. EST on July 14, 2003. To ensure timely receipt, *Architecture* recommends using a carrier that guarantees delivery time.

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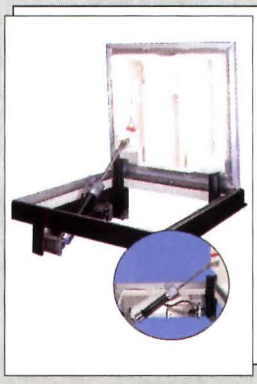

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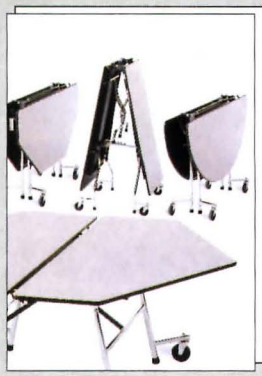

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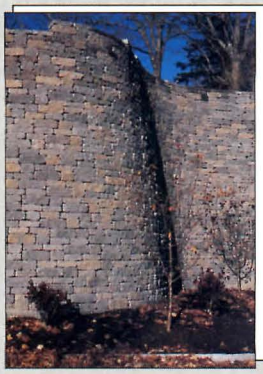

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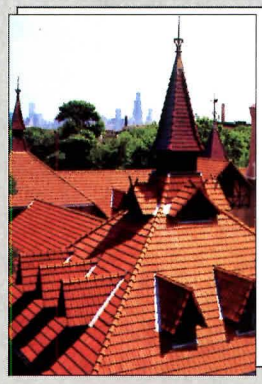

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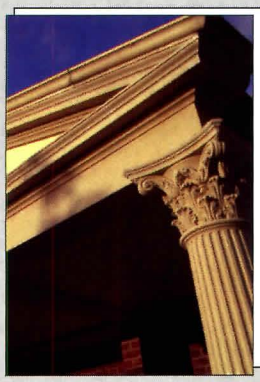

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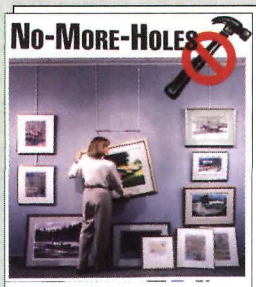

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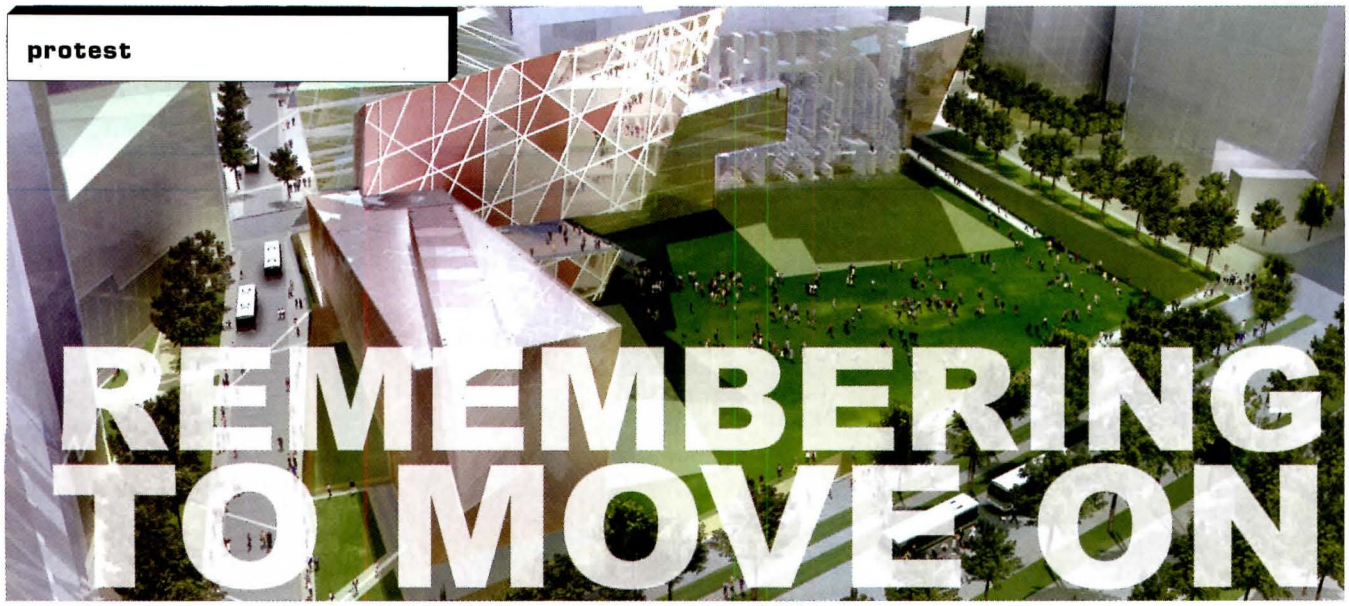

REMEMBERING TO MOVE ON

Daniel Libeskind's challenge at the World Trade Center site is not commemorating tragedy, but re-establishing a vital urbanism. by Deyan Sudjic

Objections to Daniel Libeskind's project for Lower Manhattan from what passes for the architectural establishment are of two kinds: There are those who find the idea of an architectural narrative based on numerology and symbolism, one that can be understood by Oprah Winfrey's audience, as problematically simpleminded. And there are those who believe that turning the heart of a living city into a high-rise Stonehenge, as memorial to the dead, is inappropriate.

The first criticism, with all its implied condescension, is more easily dealt with than the second. Unless architects can make architecture that communicates with a wide public, then architecture is doomed to become a masonic cult, one that only addresses initiates. And for all the sour grapes and sniping, there is no question that Libeskind has skillfully and sensitively reflected and engaged the public's interest in the architecture of the site. He was also the only participant in the Lower Manhattan Development Corporation's competition to drop a professionally neutral tone and use the "I" word: "I went to look at the site ... to feel its power, and to listen to its voices. And this is what I heard, felt, and saw." This was language that grated with some, but this is not just a project for architects.

Learning from Hiroshima

Libeskind's approach, which involves turning the site of the Twin Towers into sacred ground, a mass grave, is harder to defend as the most sympathetic way to respect the dead. It is not, for example, the way that the Japanese chose to rebuild Hiroshima. There, the remains of the so-called "A-Bomb Dome" do provide an emotional reminder of their tragedy, where, every year, children gather to leave folded paper birds in memory of the lost. But the city was also rebuilt with a sense of the future, in the belief that life continues, and that sterilizing the heart of a city might not be the best tribute to the dead.

Ground Zero already looks more like a temporary car park than Armageddon. Its meaning is changing. In five or ten years' time, unless it is a place that people go to meet their accountants, have keys cut, pick up their dry cleaning, and sit on park benches, the whole city will be the poorer for it. The emotional charge will still be there, especially for those who have lost children or partners, but it won't be there all the time. It should be an everyday slice of the city again. And if it is, then that will be a real measure of the success or failure of the plans for its rebuilding. An over-emotional response now will leave the area blighted and, one day, out of place.

⊗ Unless it is a place that people go to meet their accountants, have keys cut, pick up their dry cleaning, and sit on park benches, the whole city will be the poorer for it.

From this perspective, it is clear that the creation of a memorial of more or less power is not the real issue. It's about exploring how to make a city. And not just any city. We have almost talked ourselves into believing that cities should be the fluffy little villagelike backdrops of Frank Capra movies, but Minoru Yamasaki's World Trade Center proved, with unanswerable force, how beautiful and majestic the brutal clarity of logic can be.

Reactivating Urbanism

It is hard then not to conclude that Libeskind has been stronger in his attempts to create a memorial than in his urbanism. The rock walls, the shadow-free precinct, the symbolism of height, all have a power and clarity that, of all the competitors, only Norman Foster matched. But as a piece of urban architecture, Libeskind's approach has been sketchy and diagrammatic. And indeed, it has grown less, rather than more, convincing as it has gone through the iterations of the competition process. Renderings that initially showed a raw and mysterious sense of possibilities now look like a cluster of towers that fights the New York grid, and offers little more than the shape-making novelty of Arquitectonica's new Westin Hotel tower near Times Square.

The troubling issue for Libeskind now is whether he is an architect, in the widest sense, or a practitioner who specializes in commemorating tragedy. After Berlin, he was asked if he could build another Jewish museum. The answer was no: "I can't be a professional Jewish museum builder," he replied. But then he accepted a commission to build one in San Francisco and the Imperial War Museum North in England, in which death and memory are underlying issues.

Rebuilding Ground Zero has been a complex and taxing architectural assignment. Libeskind has commanded attention with his ability to address the concerns of both the public and the architectural world. What is most important now is his ability to use that attention to move his design forward, to deal with urban issues with the same force he has already applied to those of memory.

Deyan Sudjic is the editor of Milan-based *Domus* and architecture critic for the *Observer* of London.

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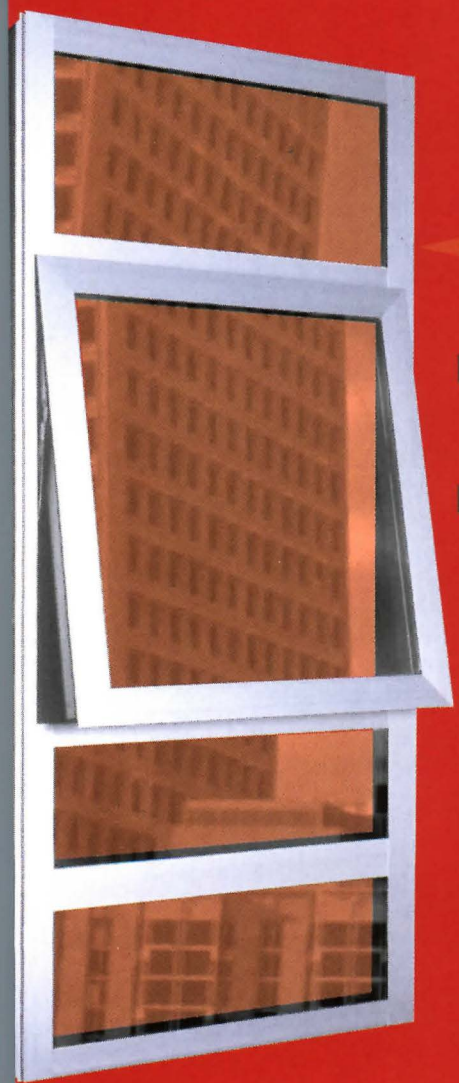

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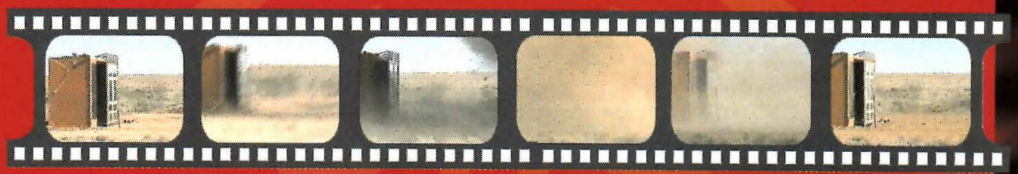

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