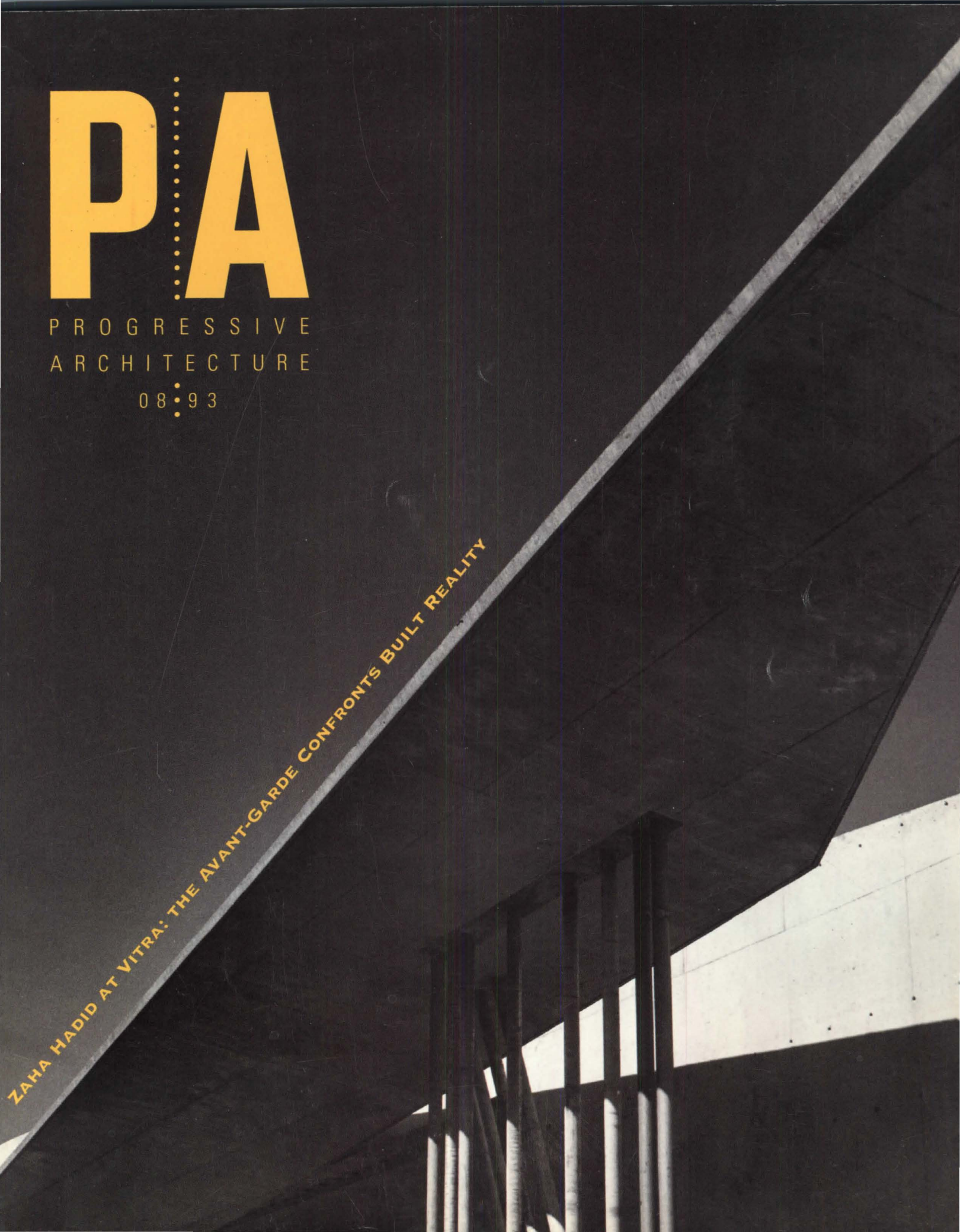
# PA

PROGRESSIVE ARCHITECTURE

08:93



ZAHA HADID AT VITRA: THE AVANT-GARDE CONFRONTS BUILT REALITY

# ANDRÉE PUTMAN

*Andrée Putman, ASID, interior designer*
*and founder of Ecart, a Paris-based architecture and design firm.*
*Putman strongly adheres to following her own beliefs.*

## THE POWER OF DIFFERENCE.

**"I believe in freedom. We should all have the strength and authority to think for ourselves, to turn against what is expected. To pick up something in the dust or in the worst condition. Maybe it's not miraculous for everyone, but certainly for you this object has immense charm. "I like mixing things. Adding things that were never together before. Mixing rich materials with poor. Mixing something remarkably funny with a sad, boring material. There is always balance, which is full of contradiction. But after all, life is full of contradiction. "Carpet is like the sand in the desert. It brings something very sensual that is not only visual. It has to do with sound. And the charm of walking barefoot. In so many places there's no other solution."**

**Innovators like Andrée Putman challenge us at DuPont to continue leading the way with ANTRON® nylon. The carpet fiber top professionals specify most.**

**For more information about Ecart design, call 1-800-4-DUPONT.**

**DU PONT ANTRON THERE IS NO EQUAL**

DU PONT ANTRON® NYLON

DUPONT

Circle **No. 317** on Reader Service Card

# ANDERSEN HELPS A PAIR OF ARCHITECT

"To honor the past, we used a gable-ended pitched roof design for this city hall," said architect John Weidt. "For the days ahead, a contemporary entry/wing was defined using a crisp, clean curtain wall design."

And fenestration? They used the Andersen CADD-I® software program to explore options. "Andersen® windows were the logical choice," said architect Jon Thorstenson. "Their wood interiors were historically correct and you don't have to maintain their vinyl exteriors."

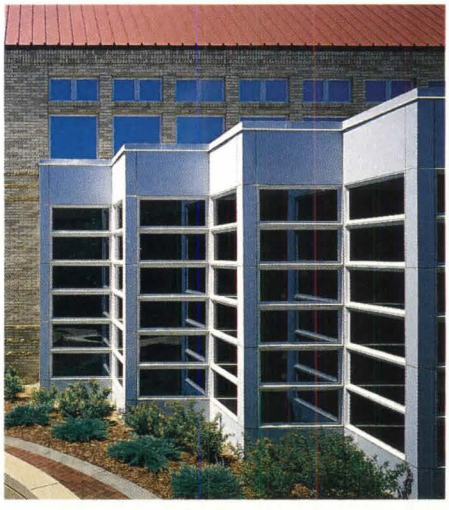
Andersen® wood. Perma-Shield® vinyl. Andersen software. Solutions for architects who have to be in two times at one place.

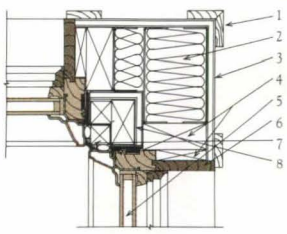
For the name of your Andersen representative, call 1-800-426-7691. Or write Andersen Commercial Group,℠ Box 12, Bayport, MN 55003.

CHASKA CITY HALL. CHASKA, MINNESOTA.

DESIGN ARCHITECT: JOHN WEIDT. THE WEIDT GROUP. CHASKA, MN.

PROJECT ARCHITECT: JON THORSTENSON. HICKEY, THORSTENSON, GROVER, LTD. EDINA, MN.



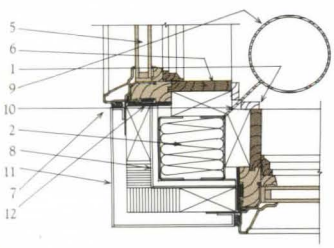



INSIDE CORNER DETAIL

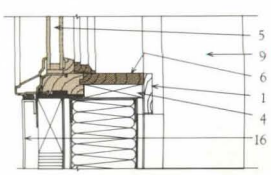
STANDARD

OPTIONAL

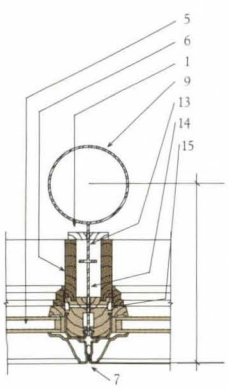
# APTURE TWO DIFFERENT ERAS.


OUTSIDE CORNER DETAIL

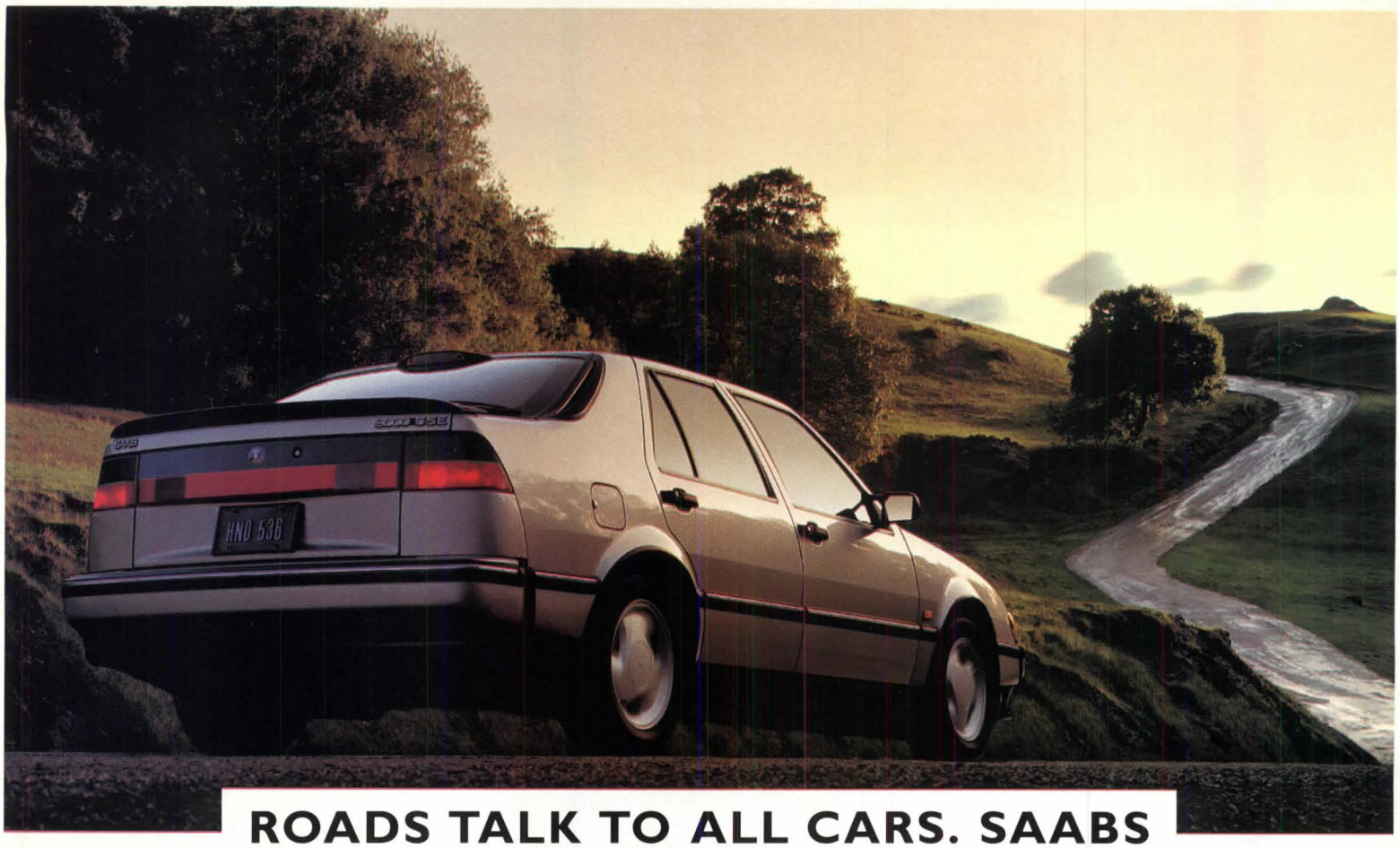



SILL DETAIL




TYPICAL MULLION DETAIL

1. WOOD TRIM
2. METAL STUDS/BLANKET INSULATION
3. GYP BOARD
4. WOOD BLOCKING
5. ANDERSEN® FLEXIFRAME® UNIT
6. ANDERSEN® EXTENSION JAMBS
7. SEALANT/JOINT BACKING
8. SHEATHING
9. 5" PNTD STEEL COLUMN
10. STEEL PLATE WELDED TO METAL STUDS
11. METAL PANEL
12. INSULATION TYPICAL
13. STEEL PLATE W/'T' WELDED TO COLUMN
14. STEEL PLATE W/SLOTTED HOLES WELDED TO 'T'
15. THROUGH BOLT
16. METAL PANEL/METAL STUD WALL



# ROADS TALK TO ALL CARS. SAABS JUST LISTEN BETTER.

Roads speak a language of infinite subtlety. And few cars understand the dialects of curves, hills and asphalt better than the Saab 9000 CSE.

From the performance of its low-profile tires to the spring tension in its driver's seat, the 9000 CSE has been carefully tuned to connect, rather than separate, the driver and the road.

The chassis, for example, is 25% more rigid than ever before. An improvement that gives you a tactile sense of the car's progress through a tight turn.

And while you're in touch with the road, the Saab Traction Control System* monitors it for slippery conditions. The instant the drive wheels begin to spin, computers make split-second power adjustments to each wheel. So you get traction comparable to that of many four-wheel-drive cars.

Of course, you'd expect a car preoccupied with holding the road to come with anti-lock brakes and nimble rack and pinion steering. The 9000 CSE does not disappoint.

But since it is a Saab, the 9000 CSE doesn't just listen to roads, it also speaks to the needs of drivers. Which is why it has one of the roomiest interiors of any imported sedan. And more safety features than any preceding 9000-Series Saab; cars routinely ranked among the safest in their class.**

To experience the sports sedan that offers not just higher horsepower, but a heightened awareness of the road, ask your Saab dealer for a 9000 CSE test drive. Or, for more information, call 1-800-582-SAAB.

SAAB SCANIA SAAB

*WITH AVAILABLE 2.3-LITER TURBOCHARGED ENGINE. **BASED UPON STUDIES OF INSURANCE INJURY CLAIMS CONDUCTED BY THE HIGHWAY LOSS DATA INSTITUTE. 

Circle **No. 321** on Reader Service Card

Cover: *Vitra Fire Station by Zaha Hadid, under construction. Photo by Hélène Binet. Cover design by Derek Bacchus.*


# Progressive Architecture August 1993

P/A




## Design

Editor in charge: Mark Alden Branch



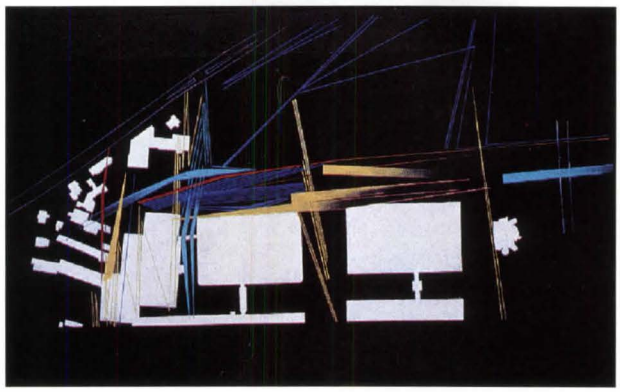


*Illustration of site strategy, Vitra Fire Station, by Zaha Hadid.*

## Technics



## Practice



## P/A Annual Awards Program



## Departments






**Penton Publishing** P/A Progressive Architecture (ISSN 0033-0752) is published monthly, except semimonthly in November, by Reinhold Publishing, A Division of Penton Publishing, 1100 Superior Ave., Cleveland, OH 44114-2543. Philip H. Hubbard, Jr., President; Robert J. Osborn, Vice President. Penton Publishing: Sal F. Marino, Chairman and CEO; Daniel J. Ramella, President and COO; Philip H. Hubbard, Jr., President, Eastern Operations Group.
**Executive and Editorial Offices, 600 Summer St., P.O. Box 1361, Stamford, CT 06904. Phone (203) 348-7531. FAX (203) 348-4023.**

## Pity the poor pedestal. . .

... so deserving, yet relegated to play the supporting role of faithful hero and selfless sidekick to monuments and mementi mori beyond count. It hardly seems fair.

Even by those who ought to know better, pedestals are often taken for granite (sorry). Mere footstools for the fabulous, ottomans for emperors, permanent soap boxes for once-windy orators, they are simply there. Like the best butlers in English novels, pedestals do their essential work without attracting attention to themselves, and thus their virtue is often measured by their invisibility.

But at Forms + Surfaces, the pedestrian pedestal is never a given. Witness four new variations of this oft-underwhelming theme, and rest assured . . .

*. . . there is poetry to be found in unexpected places.*

**FORMS+SURFACES**

800.451.0410 Fax 805.684.8620

Circle No. **330**

# Editorial | The Avant-Garde, Past and Future

**The architectural avant-garde has traditionally pursued aesthetic experimentation, but in this rapidly changing world, that may become irrelevant.**

It has taken Zaha Hadid almost ten years since she won the Hong Kong Peak competition (P/A, Oct. 1984, p. 98) to complete her first building (p. 48). Her work, with its overlapping bars and jagged elements, has changed little over the course of that decade, yet the architectural climate has changed dramatically. So, the occasion of publishing her first building gives us cause to ask where the cutting edge in architecture was ten years ago and where it now seems to be going.

Up to the 1970s, the architectural avant-garde largely upheld the abstract language of Modernism and the formal interests of architects such as Le Corbusier and Terragni. But by the mid-1970s, as a large segment of the architectural community was rediscovering history and embracing a more figural and familiar vocabulary, the avant-garde took a decided turn. Drawing on French critical theory, it began to use architecture to challenge our assumptions about order, logic, and rationality, producing work that had a fragmented, dynamic, lighter-than-air quality. Hadid was certainly a part of that movement, although its main champions were architects such as Peter Eisenman and Bernard Tschumi.

At the time, this battle between the new historicists and the new avant-garde elicited various reactions. Some people seemed to find it exciting, others infuriating, and many more simply baffling. Nevertheless, it made good copy and the architectural press gave it ample coverage, perhaps too much.

In hindsight, however, it is hard to be so sanguine about those style wars. It now seems that, as we debated the merits of pediments and Post-Structuralism, the context in which architecture was being practiced had gone awry. There was the false prosperity of skewed tax policies and easy savings-and-loan money, which pushed the supply of commercial construction far beyond the market demand. At the same time, while most firms were busy, the position of the architect was becoming more marginal. Other disciplines, notably construction management, were insinuating themselves into the building process, and many architects were finding themselves relegated to the very end of the decision-making process, when all of the important issues had been resolved. Meanwhile, matters that had been traditionally a concern of architects were going largely unattended: more and more people were ill-housed, cities were falling apart, suburbia was continuing to sprawl, and the natural environment was showing signs of terminal stress.

One of the key concepts of critical theory is how we use language to suppress things we don't want to discuss. Looking back on the 1980s, one has to wonder whether we – the architectural press and certain sectors of the architectural community – were, perhaps unwittingly, doing just that: endlessly debating questions of language and form while suppressing any discussion about the larger social, political, and economic context of architecture.

In the last couple of years, the tendency to suppress such issues seems to have declined. Without abandoning questions of form and meaning, the architectural profession appears willing, as never before, to become actively involved in helping find solutions to the country's problems. The recent AIA convention's focus on one such problem – sustainable community design – was an encouraging sign of this (see p. 23). So too was the activism of many of the young architects featured in our July issue and the evident desire among students in schools around the country to become socially more engaged.

In this new architectural climate, the avant-garde of ten years ago no longer seems to be out in front. That doesn't mean that avant-garde work is without interest or merit. Hadid's building in this issue, for example, has a remarkably animated, sculptural quality, and the control of its minimalist detail is impressive. But it also seems somehow old-fashioned. Bold, iconoclastic form-making, in and of itself, no longer seems very daring.

Perhaps the time has come for the architectural avant-garde to rediscover its own past. Originally a military term, *avant-garde* was first used in 19th-Century France to characterize socialism and other progressive political movements. That social agenda remained a part of the early Modern avant-garde in architecture. But over the course of the 20th Century, the avant-garde's social bias was lost and the term has come to refer almost exclusively to work that is aesthetically experimental.

If the architectural avant-garde is to have a future, it must find a way to join that divided legacy, to become as daring in the social and political arena as it has been in aesthetics. Some in the avant-garde, including Hadid, seem to recognize that, although there has been more talk than action. Depending upon how this situation plays out, the 1990s may mark the beginning of a new, more relevant avant-garde or it may signal its end. Those who were at the front lines may simply get left behind.

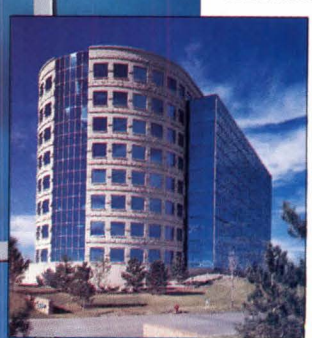
**Thomas Fisher** ■

# Performance That Dominates The Skyline.

Now there is a glass of such striking beauty that it draws the eye like a magnet. A glass whose unique aquamarine color transforms buildings glazed with it from mere architectural objects into performances of visual artistry. *Azurlite*® glass from PPG.

But while *Azurlite* glass is perhaps the most beautiful float glass available for architectural glazing, its stunning visual performance is only half of its story. *Azurlite* glass is also a solar control glass of unsurpassed performance.

With a full 71% light transmission in 6 mm thickness, spectrally selective *Azurlite* glass allows designers to realize all the openness, aesthetics, and efficiencies of daylighting. Yet its outstanding 0.58 shading coefficient provides solar heat gain management that delivers coolness and comfort. An unmatched performance ratio of 0.71/0.58=1.22.



See for yourself how the performance of *Azurlite* glass can help your designs dominate the skyline. Contact your glass supplier or glazing contractor. Or call **1-800-2-GET-PPG** for more information and a free sample.

PPG

*Azurlite* is a registered trademark of PPG Industries, Inc.

AZURLITE
Glass by PPG Industries

Circle **No. 320**

### Foreign Study

I am writing to you in response to "The Roads to Rome" (P/A, June 1993, p. 128) which I read in this month's P/A. It is encouraging to have "P/A Perspectives" report on foreign study programs in architecture, with emphasis on the growth of credited programs, the enormous benefits of abroad studies for architects, and the financial pressures on students and institutions to sustain such opportunities.

I initiated abroad studies in Italy for the Department of Architecture at Ohio State in 1985, and I have coordinated the program since. We were able to expand a summer study tour into an academic quarter studio last spring because we received the full amount of student tuitions from the university toward program funding.

Your article mentioned variations in Italy course curricula and program structures. I would add to the list of differences the collaboration with Italian scholars, architects, students, and design faculty, which I believe is a most significant program qualifier. Did your research reveal any North American programs abroad that "... do as the Romans."? That is, did you discover schools that maximize the architectural setting abroad by embracing issues of history, culture, urbanism, or pedagogy as they differ from home campuses as fundamental to course curricula? My interaction in Rome over the past ten years with colleagues and students in Italy from Iowa State, Pratt, Waterloo, USC, Notre Dame, Clemson, NJIT, NYU, Cornell, and Penn State has proved useful to OSU's program. I am most certain of one thing: that we all benefit from interaction, for which we need an improved forum, in Rome and at home. Can P/A be of further assistance toward academic initiatives for North American architecture schools abroad?

Two corrections: Ohio State rented space during the 1992–1993 academic year from Penn State in the Palazzo Doria-Pamphili in Rome, not from the University of Washington. Penn State has an extended agreement with the family who owns the palace. Their abroad program moved from Florence to Rome when Peter Magyar took over as Head at Penn State.

In the interest that "Special Programs" will not disappear completely in the next round of budget cuts, I look forward to your next report.

*Kay Bea Jones, Associate Professor*
*Ohio State University, Columbus*

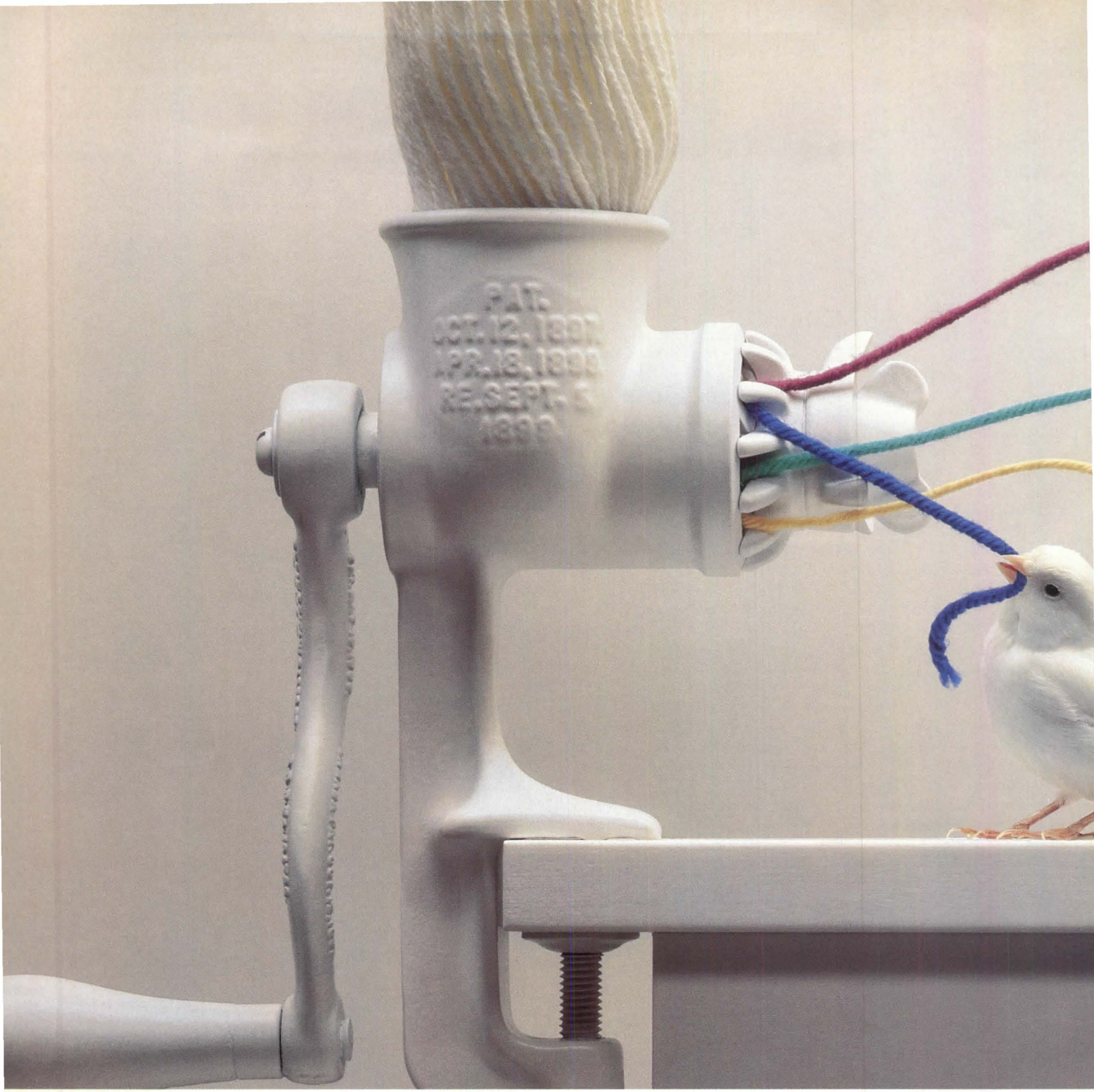
### Corrections

The corporation responsible for the Riverside South development (P/A, June, pp. 118–123) is the Riverside South Planning Corporation, (not the Riverside South Development Corporation).

The project architects for the Fisher's Island and the Far Hills pool houses by Ford Farwell Mills and Gatsch Architects of Princeton, New Jersey (P/A, June, pp. 129–131) were, respectively, Gonzalo Rizo-Patron and Michael Schnoering.

Richard Neal Lishner (P/A, July, p. 84) received his B.A. in 1977 and his M.Arch. in 1987.

Jane Harding Housden and Wesley Van Kirk Robbins of The End (July, p. 114) are located in Culver City, California.



**COLORFUL NEW SPECIES.**

Feed your imagination with dozens of colorful new laminates from Nevamar: Exciting solids. Subtle patterns. Popular Matrix. Unique Hallmark. And much, much more in one of the largest line additions in our history. Of course, almost all feature our exclusive ARP SURFACE® to keep them looking new longer.

Let us fly them over to you. For samples, call 1-800-638-4380. Nevamar Division, International Paper, 8339 Telegraph Road, Odenton, Maryland 21113-1397.

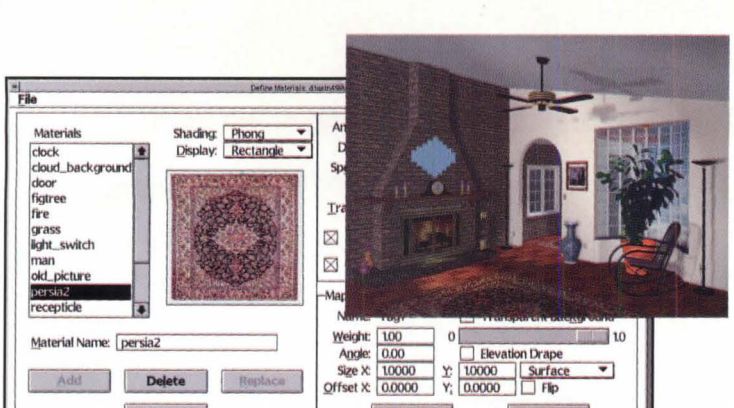

NEVAMAR®
DECORATIVE SURFACES

INTERNATIONAL PAPER

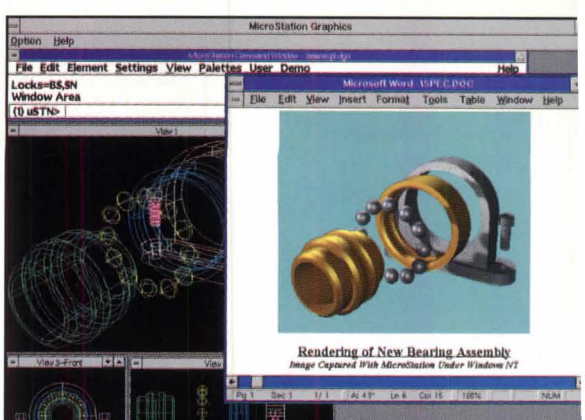
NEVAMAR DIVISION
8339 TELEGRAPH ROAD
ODENTON MD 21113-1397

**Compatible items in Nevamar® laminates, Fountainhead solid surfacing and Vitricor® are all available from Nevamar to simplify your material search.**

Circle **No. 322**




*Rendering.* *Visualization and flythroughs – at your fingertips! MicroStation offers photo-realistic rendering to every designer, right in the software. It's easy to make your image reflect your imagination.*



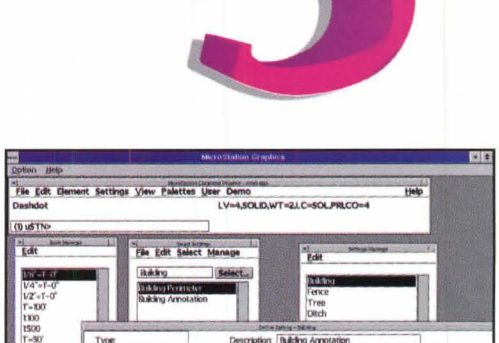

*Windows.* *It walks and talks Windows. Behind MicroStatio lies the user-responsive programming you look for in good Windo software. Version 5 gives you the ultimate in integration of CAD, engineering, and business applications.*

# MORE POWER TO YOU.


*Modeling.* *Model any surface you can imagine in MicroStation. NURBS surface modeling combined with 3D Boolean operations gives you astounding flexibility in creating and modifying freeform models.*

*Read & write AutoCAD .dwg*

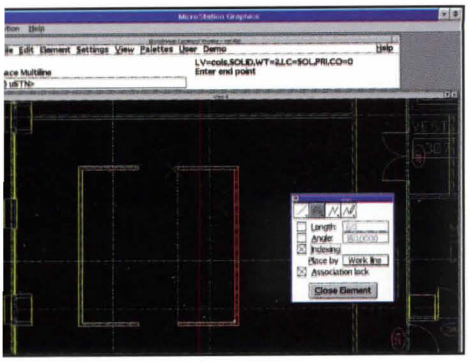

*Drafting.* *MicroStation gives you first-rate drafting po – without the limitations of old technology. Enjoy the advanta of contemporary features like a ciative patterning/hatching, pl preview, standard text editing fonts, and context-sensitive Hypertext help.*




*Workspaces.* *Choose the design environment that matches your profession or your CAD expertise – even AutoCAD. Complete with custom interfaces, drafting styles, and design environment management. CAD has never been so streamlined!*



Circle **No. 333**



*Usability.* *What does computer-aided drafting have to do with the way you think? Everything. MicroStation software works for you. It understands the drafting process so well that it infers what you'll do next.*


*Power.* *Take your pick of popular environments: DOS, Mac, Windows, Windows NT, or UNIX. Have a look at MicroStation on Intergraph's Technical Desktop Series personal workstations.*

*Graphical User Interface.* MicroStation's easy-to-use interface includes pull-down menus, dialog boxes, tear-off tool palettes, and tool settings window. Choose your interface – Windows or Motif – on any platform. *Transparent Modeless Operation.* The software supports the way you naturally work, maintaining command execution while you fine tune: change element attributes or command parameters, manipulate views, change the dimensioning system, and more. *Powerful View Manipulation.* MicroStation supports up to eight active views that can be moved, sized, and overlapped to fit your design. Zoom and area at any scale. Move around your design fast with built-in dynamic panning. *Workspace Editor.* Tailor pull-down menus, dialog boxes, and tool palettes – even disable commands – with a graphically oriented toolset for customizing your chosen interface. *Text Capabilities.* A convenient text editor lets you easily edit single-line or paragraph text. Choose from TrueType, PostScript, AutoCAD SHX, and MicroStation fonts. ASCII text files can be imported and exported. *Multiple Undo/Redo Commands.* Undo mistakes and perform "what-if" designs in a flash with unlimited undo and redo. *Plotting.* Plot raster and vector information by view or defined areas, at any scale. Visually preview the plot before plotting, saving time and materials. *Online HELP.* MicroStation's HELP remains active, tracking the command you're currently using, so there's no searching through manuals for assistance. *Associative Patterning and Hatching.* Associate patterning with graphics. Change graphics and the patterning updates. Flood-fill hatching/patterning intelligently fills an area, detecting boundaries and holes with a single pick. *Associative Dimensioning.* Dimensions are associated with the geometry, not with a point in space, so that when you change the geometry, the dimensions automatically update. *Custom Line Styles.* Create space-saving custom line styles and place railroad tracks, trees, isobars – anything – just as you would place a line. *lti-lines.* Define line string elements comprising up to 16 parallel lines of varying symbology and store them in a style library for Architects can use multi-lines for fast and easy placement and intersection cleanup of walls and partitions. *2D Boolean s.* Quickly modify, measure, and hatch multiple 2D shapes with integrated Boolean operations. *Mass Properties.* Calculate area and f your model: surface area, volume, mass, centroid, moments and products of inertia, principal moments and directions, and radii of gyration. Define relationships among graphic entities with intuitive drawing modes such as tangent, parallel, perpendicular, midpoint, intersection, and end-*ion-driven Symbols.* Based on established relationships, you can assign variables to dimensioned graphics and save the graphics as cells placement. Changes in dimensions automatically drive changes to graphics. Dimension-driven design saves valuable time in the design of families of *mbol Libraries.* Designs and complex elements can be saved to a library to be recalled later via MicroStation's convenient Cell Browser. Cells

# MicroStation Version 5 puts you in charge.

Call 800-345-4856 for a free brochure on MicroStation Version 5 and the name of an Intergraph representative in your area.

MicroStation

INTERGRAPH

*Solutions for the Technical Desktop™*

# IN THIS CASE, THE BEST WINDOWS ON EARTH ARE ALSO THE BEST

When Tom Wuelpern of Rammed Earth Solar Homes, Inc. began planning the Meyer Street Project, one goal was uppermost in his mind. Tom wanted the new buildings to blend seamlessly with those in the adjacent Barrio Libre National Historic District; an area that was once the heart of Tucson, Arizona's Hispanic community. Tom and his partners were immediately drawn to Marvin Windows and Doors, given Marvin's reputation for historical replications.

From the outset, they knew that getting the right windows and doors would require some tough demands. But as the project progressed, they learned a few things about their supplier.

They learned that Marvin could provide virtually any shape or size jamb extension – even those for adobe walls up to 26" thick. And Marvin could save them time and money by factory-mulling all the assemblies and by factory-installing the special casings and crown molding Tom requested.

And, they learned Marvin could provide a Southern Low E glass coating specially formulated for the hot, desert climate. Plus, the coating was virtually invisible, so energy costs could be reduced without sacrificing aesthetics.

Above all, the people at Rammed Earth learned of Marvin's willingness to tailor its products to their

# VINDOWS IN EARTH.

demands. And they saw firsthand how committed Marvin was to staying personally involved in the project.

Today, the successful development of the Meyer Street Project continues. And the Arizona State Historic Preservation Office is so impressed, it has formally petitioned the National Parks Service to include Meyer Street and the surrounding neighborhood in the Barrio Libre Historic District.

MAKE US YOUR FIRST CALL, NOT YOUR LAST RESORT.

If there's a look you're trying to achieve or a window problem you can't solve, call the one company you know will have the right solution. Call Marvin Windows and Doors at **1-800-346-5128** (1-800-263-6161 in Canada). Or mail the coupon for a free catalog featuring the entire line of made-to-order Marvin windows and doors.

Circle **No. 316** on Reader Service Card

Send to:
Marvin Windows and Doors
Warroad, MN 56763

Name

Company

Address

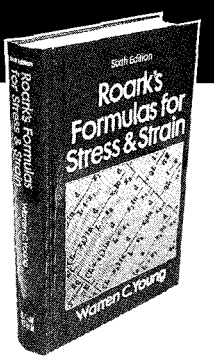
City State

Zip ( ) Phone

1509308A

MARVIN
WINDOWS & DOORS
MADE TO ORDER.

# STRESS ANALYSIS ON YOUR PC USING ROARK & YOUNG'S BOOK "FORMULAS FOR STRESS & STRAIN"




Since 1938 Roark's *Formulas for Stress & Strain* has maintained its position as one of the most widely used engineering reference works in the world. Now 37 tables, over 1400 cases and more than 5000 formulas from the new 6th Edition of this book are combined for the first time with the power of TK Solver software

The program covers the entire 6th Edition of the book • Provides stress and strain solutions for beams, plates, columns, and pressure vessels • Handles superposition of loads • A set of unit conversions and an expandable materials library are included • Program menuing system helps you select the particular chapter, table and case from the book • Results include plots of cross-section (to scale) bending moment, shear, stress, slope and deflection • Outputs to screen, printer or plotter.

**Most importantly** — you can solve problems forward or backward. For example: if the calculated deflection of a plate is too great, specify the maximum deflection you can tolerate. Then let the dimension of plate thickness become the unknown, and solve again. This backsolving feature is a designer's dream.

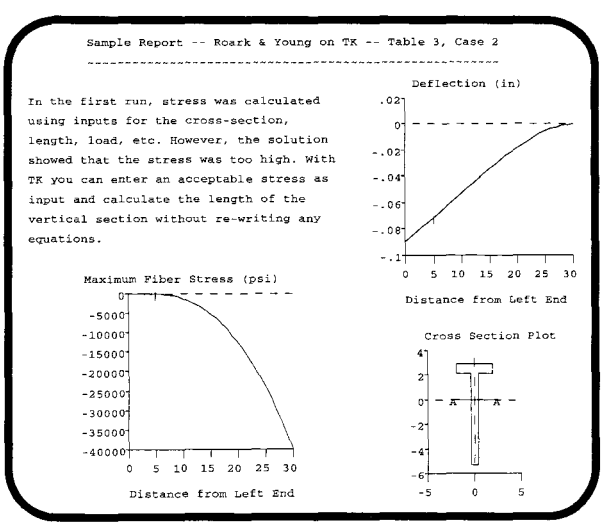
## ROARK & YOUNG ON TK . . . . . $1190

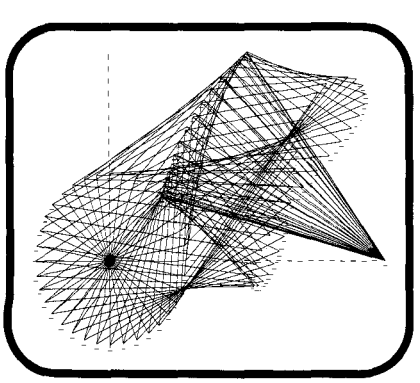
(For the IBM PC family or compatibles, 286 PC/MS Dos 3.2 or greater, 1 meg RAM)

(NOTE! The $1190 price includes TK Solver software (below) and a copy of the new 6th Edition.)

## TK Solver 2.0 software . . . $595

Solve dozens of linear, non-linear or differential equations simultaneously • backsolving lets you do "What-if" analysis • iterative solving • list solving • automatic plotting • automatic unit conversion • differentiation and integration • over 100 built-in functions and library routines • math co-processor support • presentation view lets you generate WYSIWYG reports • MathLook feature displays equations in near mathematical notation • keystroke macros with samples • link to many symbolic math packages.



**Complete computerized TK Solver 2.0 application modules are available for these useful handbooks:**

Blevin's *Formulas for Natural Frequency and Mode Shape,*

Incropera & De Witt's *Fundamentals of Heat and Mass Transfer,*

Tyler Hicks' *Standard Handbook of Engineering Calculations.*

**SATISFACTION GUARANTEED**

Use these programs on your PC. If they don't perform as described, just return the packages within 30 days for full credit or refund.

**PENTON EDUCATION DIVISION**
1100 Superior Avenue
Cleveland, Ohio 44114

Toll-free 800-321-7003 (in Ohio 216/696-7000)
FAX 216-696-4369

# Exclusively NEOPARIÉS

## ARCHITECTURAL PANELS

**Crystallized glass . . . the exciting wall cladding alternative.**

- **Harder and much lighter than natural stone**
- **Acid and alkaline resistance superior to granite and marble**
- **Zero water absorption; graffiti and stains simply wipe off**
- **Available in a palette of soft, translucent, elegant shades, flat panels, curved panels and corner pieces.**
- **Simple, precise, reliable installation.**

**Only your imagination can do more.**

N.E.G. America

# **NEOPARIÉS:** A Triumph Of Modern Glass Technology

*This unique architectural panel provides an elegant appearance, similar to marble and granite, but softer, more lustrous. Produced by a special crystallization process NEOPARIÉS refracts and reflects light delicately, to create a softer surface texture. Its beauty is undeniable, but NEOPARIÉS also provides physical properties unequaled by any other building material:*

- NEOPARIÉS is virtually impermeable. Moisture absorption, as a design consideration, has been eliminated. The material is impervious to freeze-thaw damage. All contaminants are easily removed during regular building maintenance.
- NEOPARIÉS is significantly more resistant to acids, alkalis, oils and other environmental pollutants than either marble or granite. Unlike stone, NEOPARIÉS' surface and physical properties are not degraded by exposure to environmental pollutants, including acid rain.

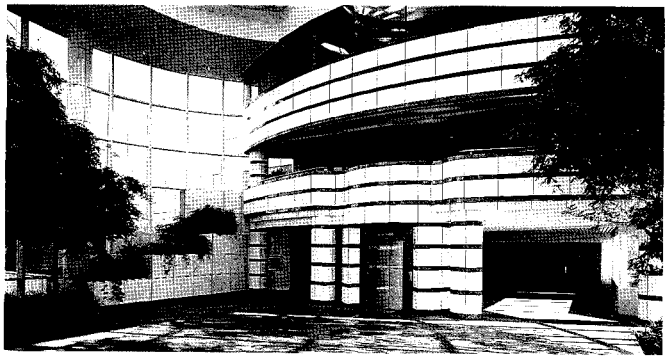
STRENGTH TO WEIGHT

NEOPARIÉS' bending strength is approximately three times greater than that of common dimensional stone. As a result, NEOPARIÉS can be fabricated to a thickness typically 30-50% thinner than marble, granite and other natural stones. Thus weight, imposed upon a given structure, will be reduced by comparable percentages. NEOPARIÉS is not subject to the microscopic fissures and fracture patterns commonly resulting from the quarrying of stone.

- NEOPARIÉS is unlike any other wall cladding. Only a physical sample can fully reveal the deep, subtle pattern beneath the surface shading of the crystal.
- NEOPARIÉS standard thickness is 5/8" (15mm). Thicker panels can be produced. Panels are available in standard sizes, to reduce material costs. However, smaller panels may be fabricated to custom dimensions. Curved panels are available in a wide range of sizes, in both convex and concave configurations.
- NEOPARIÉS is superior to natural stone in certain respects. It is stronger, harder and is impervious to water absorption. Its characteristics are consistent, unlike those of stone.
- NEOPARIÉS utilizes stainless steel hardware installation methods similiar to that of dimensional stone.

NEOPARIÉS

Elegant...infinitely versatile... incredibly durable.
Since its introduction in 1974, NEOPARIÉS has been widely accepted as both interior and exterior wall cladding for major buildings and public works projects throughout the world. The performance of NEOPARIÉS in the field has exceeded expectations.



NeoClad and NEOPARIÉS are trademarked products of Nippon Electric Glass Co., Ltd.

**NEOPARIÉS PANEL SIZES**

| TYPE | SIZE (standard) |
|---|---|
| **Flat** | 900 X 900 mm<br>$35^{7}/_{16}$" X $35^{7}/_{16}$" |
| | 900 X 1200 mm<br>$35^{7}/_{16}$" X $47^{1}/_{4}$" |
| | 900 X 1800 mm† <br>$35^{7}/_{16}$" X $70^{7}/_{8}$" |
| **Curved** | max. $35^{7}/_{16}$" x $47^{1}/_{4}$" (either dimension can be arc of panel) |
| **Round Corner Piece** | 3.94" R x 90° arc X $47^{1}/_{4}$" long<br>5.91" R x 90° arc X $47^{1}/_{4}$" long |

**NEOPARIÉS PROPERTIES**

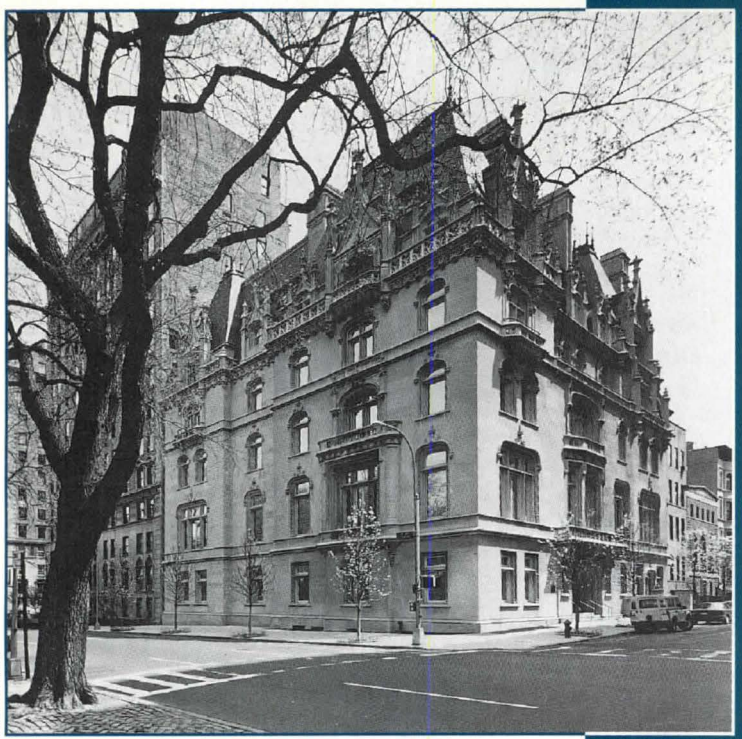
| | |
|---|---|
| *Specific Gravity* $(lbs/in^3) \times 10^{-2}$ | |
| NEOPARIÉS | 9.75 |
| MARBLE* | 9.75 |
| GRANITE* | 9.75 |
| *Flexural Strength*** $(lbs/in^2)$ | |
| NEOPARIÉS | 6600 |
| MARBLE* | 1900 |
| GRANITE* | 2150 |
| *Young's Modulus* $(lbs/in^2) \times 10^6$ | |
| NEOPARIÉS | 12.6 |
| MARBLE* | 4.0-11.9 |
| GRANITE* | 6.1-8.7 |
| *Mohs Hardness* | |
| NEOPARIÉS | 6.5 |
| MARBLE* | 3-5 |
| GRANITE* | 3-7 |
| *Coefficient of Thermal Expansion* $(x10^{-6}\ in/in/^{\circ}F)$ | |
| NEOPARIÉS | 3.44 |
| MARBLE * | 4.44-14.4 |
| GRANITE * | 2.78-8.33 |
| *Water Absorption Rate (%)* | |
| NEOPARIÉS | 0.00 |
| MARBLE * | 0.5-3.0 |
| GRANITE * | 0.05-1.5 |

† Check color availability

* Values are average of various stones tested by an independent laboratory. It is not our intention to imply that these are design values.

** Tested in accordance with ASTM C-880 for "dry" conditioning.

**N.E.G. America, Inc. 650 East Devon, Suite 110, Itasca, IL, 60143 1-800-733-9559**



Peter Aaron/Esto

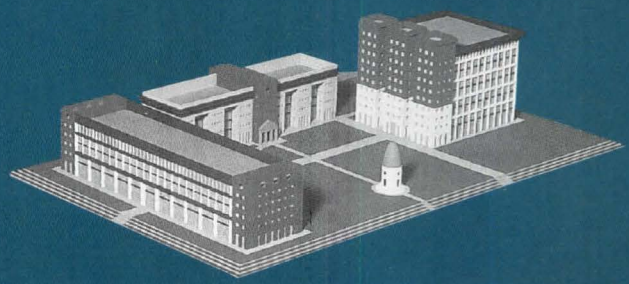
*Jewish Museum, with lookalike addition at left.*

### Roche Inflates a Mansion for the Jewish Museum

It is all too characteristic of our times to do the improbable with great skill. And what could be more improbable than the much honored Modernist Kevin Roche expanding a French-château-style mansion by replicating and reshuffling its bookish details to cover all the new needs? That is just what he has done in adding 30,000 square feet to the existing 52,000 of New York's Jewish Museum.

Established in 1904, the Jewish Museum acquired its Fifth Avenue home in 1944, when the widow of Felix Warburg donated the family's mansion, a 1908 work of architect C.P.H. Gilbert. There was never anything particularly Jewish about the place; it was just a middling example of the lavish mansions wealthy families were then erecting along "The Avenue." An undistinguished Modern addition of 1963 had given the Jewish Museum a new Fifth Avenue entrance and a starkly functionalist auditorium.

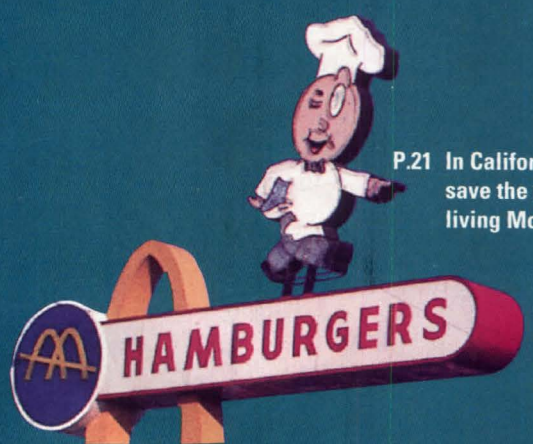
The task of Kevin Roche John Dinkeloo & Associates, under Roche's direction, was roughly to double exhibition space and enlarge offices and education facilities, all on the same site. The museum's director, Joan Rosenbaum, is happy with what Roche has done, and it is clear why. The structure that had represented the museum for decades has been expanded while keeping its image. Its entrance has been restored to its original sidestreet location (no more blocked "front door"), where it leads to a convincing period lobby (actually much expanded by eliminating the original code-defying grand stair). Relatively anonymous gallery spaces on the third and fourth floors house a thematically arranged exhibit on 4,000 years of Jewish history, organized by Ralph Appel-



M. Adolman

**P.26 In Projects, Aldo Rossi designs for Disney (above), and Norman Foster comes quietly to America.**

# 8.93 News Report




Alan Hess

**P.21 In California, a battle to save the nation's oldest living McDonald's.**

**P.23 A green convention: reports on the AIA/UIA gathering in Chicago and concurrent exhibits. (Right: Ferriss rendering of the Merchandise Mart from Art Institute show.)**

Courtesy: The Art Institute of Chicago

## Pencil Points

**Steven Holl Architects, New York, has won the competition for the Museum of Contemporary Art in Helsinki. Holl's design was one of four invited entries. Second prizes were awarded to Kazuo Shinohara of Japan, who was also invited, and Vesa Helminen of Finland.**

**The Royal Institute of British Architects has awarded its 1993 Gold Medal to Giancarlo di Carlo. The RIBA cited the Italian architect for his "masterly conceived and executed buildings and urban settings ... nourished by an absolute commitment to society and democracy."**

**In other awards news from Britain, the Cambridge Crystallographic Data Centre at Cambridge University, designed by Professor Erik Christian Sorensen with Olga Kennard, has received the annual Royal Fine Art Commission/*Sunday Times* Building of the Year Award.**

**AIA Gold-Medalist Philip Johnson, in a June *Vanity Fair* profile, acknowledged that he is gay and was, in the 1930s, a Nazi sympathizer. With a biography by Franz Schulze forthcoming, Johnson's confirmation of the long-time speculation about his private life is well-timed.**

**The Mission Inn (P/A, Oct. 1991, p. 82), an extravagant conglomeration of Mission, Gothic, and Asian styles in Riverside, California, officially reopened this spring. The 240-room resort hotel is being run by the operators of the Bel-Air Hotel in Los Angeles.**

**The National Trust for Historic Preservation has announced the publication of *Landmark Yellow Pages, Second Edition.* In addition to topics such as advocacy, education, employment programs, funding, and historic sites, the second edition includes a listing of products and services available nationwide. Contact Preservation Press, (202) 673-4058 or (800) 766-6847. Cost: $19.95.**

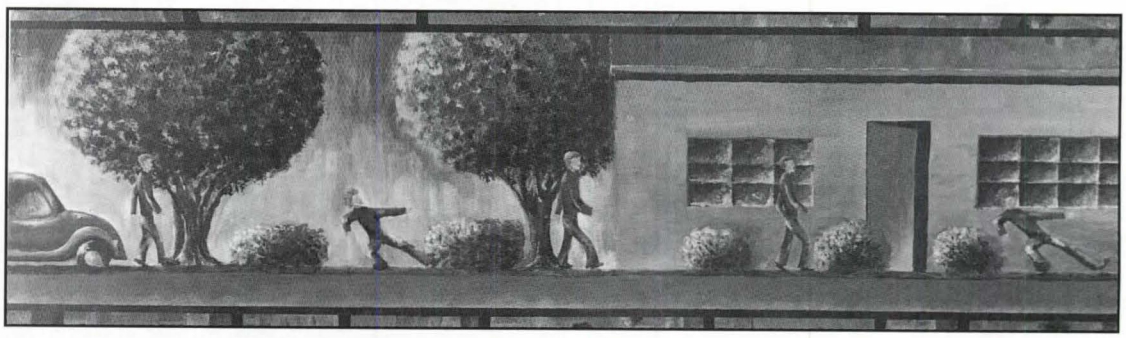
baum Associates as the typical labyrinth of display cases and freestanding objects, so that architecture hardly matters. The grander rooms of the first two floors, with their opulent detail, are assigned to temporary exhibits of art and/or artifacts, using movable panels as needed to mask obtrusive fireplaces or windows. In the basement is a café, under a false vaulted ceiling, with a pleasant Central European Secessionist quality.

The extension and manipulation of the house's original stylistic fabric is easily understandable until one reaches the auditorium, which is actually the 1963 room adorned with various new pilasters and pendentives; stained-glass windows and skylights from the destroyed stairwell have also been installed here, with backlighting. As a setting for lectures, ceremonies, and dinners, the room was thought to require a visual character consistent with the other major spaces. But these applied elements do not relate convincingly to the proportions of this 232-seat room, or to its vast flat, downlight-spotted ceiling. But then, no amount of skill at disposing the period elements could make this assignment work.

The success or failure of the building's new exterior is harder to assess. In doubling the width of the Fifth Avenue façade, the architects have made wise choices of elements from the old building to replicate, and the detailing of the limestone walls (carried out with artisans from Cathedral Stoneworks) appears impeccable. One is tempted to accept Roche's rationale that this is the way C.P.H. Gilbert himself would have expanded the mansion. But Gilbert, although less honored in his time than Roche is in ours, might have been able to introduce at least some distinctive motifs in the extension. He would have recognized the repetition of the same devices over another 50 feet of frontage to be, at best, an uninspired expedient. **John Morris Dixon** ■

Peter Aaron/Esto

*Historicized Jewish Museum auditorium.*



*James Scott O'Brien's "human fence," one of six winners in Village Green competition.*

### Provocative Competition Considers the Fence

A design competition in Los Angeles for a fence to surround a well-known housing development served as the backdrop for a provocative discussion of the role of barriers and security in contemporary city life. In the end, however, the judges skirted the hard issues by opting for whimsical projects that favored celebration above security.

Organizers announced five winners in May for "The Fence," a $10,000 design competition for a fence to to surround the Village Green housing development in Los Angeles. The fence project is the brainchild of architects Wesley Robbins and Jane Housden (P/A, July 1993, p. 114), who organized the project almost singlehandedly. The competition was not endorsed by the association of Village Green residents, some of whom were reportedly annoyed by the young architects' presumption.

Designed in 1940 by the late Robert Alexander, the 600-unit, 8-acre Village Green (originally called Baldwin Hills Vilage) embodies the planning ideals of Clarence Stein, with broad open lawns and tree groves dotted with small, dense clusters of low-rise housing. Cars are confined to the periphery of the site, making the Village Green a unique pedestrian-oriented community within Los Angeles. The surrounding city, however, has deteriorated, and crime and security concerns are on the rise. While some Village Green residents have debated the need for a fence, they have not reached a consensus.

Robbins and Housden's competition program emphasized the site's need for security, identity, and enhancement, but the seven-person jury of architects and landscape designers settled on six proposals, most of which seemed to subvert the demand for security. James Scott O'Brien of Atlanta proposed a "human fence" of Village Green residents and nonresidents alike, dressed in 1970s costumes and moving together in choreographed steps. Kerry Nagata and Robert Pashuk of Calgary, Alberta, called for peripheral watchtowers that could double as movie screens at night. Udo Greinacher, an instructor at Berkeley, proposed a yellow wall of fog, produced by misting machines

and fluorescent lamps. Irvin Glassman and Plato Marinakos, Jr., both of New York, proposed a jointed fence that could double as a planter.

Aaron Paul Davies, an instructor at the University of East London, England, borrowed a landscape strategy from rural England: a continuous "haha," or trench. Paul Backewich and Kevin Sugden, with Ken Coit and Neil Campbell, all of Waterloo, Ontario, proposed a protective barrier of six-story residential buildings.

Several other participants proposed "no fence," and at least one competitor criticized the entire notion of gated communities and "putting up bars" instead of solving the social ills that promote crime. Robbins dismissed such entries as "trivial."

**Morris Newman** ■

### Oldest McDonald's Slated to Close

The arches are yellow, the walls red and white stripes, the neon flashing pink and green: McDonald's original prototype stand is among America's most recognizable architectural icons, but the last original McDonald's still selling burgers may soon shut down.

The oldest McDonald's stand in the country celebrates its 40th anniversary on August 18 in Downey, California, halfway between Los Angeles and Disneyland. Soon thereafter, McDonald's Corporation plans to close it because its profits cannot match those of a newer, larger McDonald's unit.

Fighting to save the landmark stand are the Downey City Council and the Los Angeles Conservancy, a preservation group. A rally on June 13 attracted several hundred supporters, who argued that the international publicity value of the last remaining original arches – engraved in the memories of most baby boomers – far outweighs any reduced volume in hamburgers sold.

Never enclosed, never mansarded, never altered for drive-through service, the Downey stand is in almost pristine condition. In 1984, it qualified for the National Register of Historic Places. The car culture's high-tech optimism can still be read in its gleaming tile walls, stainless steel mullions, dynamic parabolic arches, and jutting wedge-shaped roof.

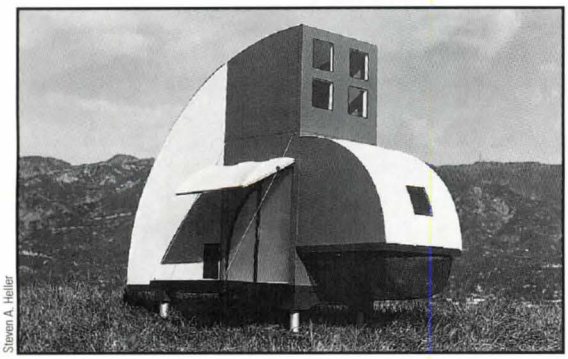
The McDonald brothers opened their first self-service restaurant in an octagonal shed in 1948 in San Bernardino, 50 miles from Downey. When the brothers hired local architect Stanley Meston in 1952 to design a prototype for a franchise operation, the golden arches were born. The first golden-arched unit opened in June 1953 in Phoenix; it was demolished around 1980. The second opened two months later in Downey, and has been serving burgers, fries, and shakes ever since.


Alan Hess

*Embattled McDonald's, with original "Sir Speedy" sign (left).*

McDonald's Corporation downplays its links to Downey, claiming the stand has nothing to do with Corporation founder Ray Kroc. But Kroc learned how to run a McDonald's at this stand and visited it often before he opened his first franchise in Des Plaines, Illinois, in 1955. McDonald's Corporation reconstructed that stand seven years ago as a Ray Kroc Museum that sells no food. **Alan Hess** ■

*The author is an architect and a critic for the San Jose* Mercury News.



Steven A. Heller

*Shelter devised by Art Center College students.*

### Temporary Shelter for Victims of Natural Disasters

The makeshift character of the shelters that house the victims of natural disasters belie the highly sophisticated technology used to predict Mother Nature's explosive temper. The tents and school gymnasiums commonly adapted for emergency relief exaggerate the loss of privacy and property suffered during a Hurricane Andrew or a Loma Prieta earthquake. In an effort to redress the balance, a group of industrial design students at the Art Center College of Design in Pasadena, California, have produced a prototype for a mass-produced, single-family temporary shelter.

The shelter was designed in Steve Diskin's "Project X: The Design and Technology of Habitat" studio, a new course that explores the potential for a more potent alliance between architecture and industrial design. Incorporating the principles of drawbridge design, the individual shelters fold in on themselves, and can easily be transported in standard shipping crates. Diskin says that they can be erected in about 30 minutes.

The yellow- and gray-painted steel and fabric units were designed to be clustered in groups or placed singly on the property of damaged homes; they can

*(continued on next page)*

### European Report

**In a Paris meeting slated to be nationally televised this fall, mayors from more than a dozen French cities and CEOs from the country's largest public and private companies met early this summer to consider the future of cities.**

**Because it followed violent clashes this spring between riot police and youth gangs in several major French cities, the gathering might have been expected to address mounting ills facing France's grim concrete cités, those vast public housing zones surrounding Lille, Marseille, Lyon, and Paris: drugs, poverty, unemployment, crime, and angry, violent youth gangs.**

**After all, when a group of American urban experts warned late last year that some French cities faced futures along the lines of Watts, Cabrini-Green, and Bedford-Stuyvesant, their report received widespread, alarmed attention in official circles.**

**But most of the lavish program's agenda was taken up with stale or naïve visions of technically derived urban utopias reminiscent of those promised during the 1930s. One program circular actually read, "Imagine: Cities without traffic jams! Thanks to new rail-guided speedways, drivers will be able to sit back and enjoy the ride as 'smart' traffic systems take over!"**

**There was worse. An official from the national electrical utility described how youths in disadvantaged urban areas of northern France were being trained to read household electrical meters and then offered half-time jobs at minimum wages; moments later, one of his colleagues from the utility's research department described how a revolutionary new personal data card would soon eliminate the need for all metering.**

**"The technical means required to solve our urban problems are firmly in hand,"**

*(continued on next page)*

**European Report**
*(continued from previous page)*

said one *urbaniste*, who showed slides of battery-powered cars. A sociologist discussed results of a broad, scientific survey of adolescents from poorer urban districts. Most said they liked the places in which they lived "pretty well," but wished for more shops and better street life. None mentioned traffic congestion.

A handful of mayors, activists, and journalists – and a few of the hundreds of urban teenagers bused to Paris for the occasion – heatedly took issue with presentations that ignored social problems.

"One can only build so many youth centers, sports complexes and cafés," said one angry mayor. "Now we need real jobs, places in society for people who feel they have no stake."

A difficult realization seems only now to be dawning, slowly, on a people to whom American cities have seemed remote places of alienation, race-hate, deterioration, and fear: such problems now exist – big-time – at home.

If most of France's urban strife occurs in or near places where the population has African roots and if such groups are often identified by French-French as a source of the problems, it must also be said that Arabs, black Africans, and islanders (many of whom are French citizens) also feel threatened by crime, by unemployment, and by a hardening anti-immigrant climate.

While many youths at the meeting were of non-French ethnicity, there was abundant evidence of home-grown frustration and discontent. One French high school student seemed to sum up the feelings of many: "Excuse me, but all this talk about new urban technology misses the point. The state of our cities reflects a society in serious trouble that some of this hardware helped to create! It can never solve it." **Thomas Vonier** ■

**Shelter** *(continued from previous page)*

shelter up to six people. A basic kitchen (with burners and bottled water), a heating unit, storage space, bedding, rain gear, and cleaning products are provided. (Toilets were intentionally omitted from the design under the assumption that communal facilities would be provided.) A fabric mesh pouch, suspended from the structure's underbelly, is a low-tech dryer for water-damaged belongings. A paint kit, for occupants to paint a house number or in some way personalize their temporary home, is also included.

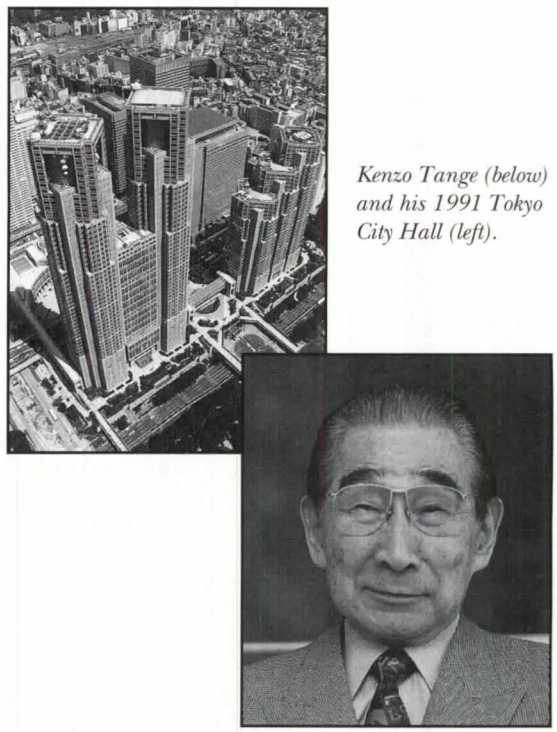
The recent frequency of earthquakes, hurricanes, snow storms, and floods make the temporary shelter a timely proposal. If Diskin and his students continue to develop and refine the design, emergency relief agencies would do well to consider placing an order. **Abby Bussel** ■

### Tange Wins Praemium Imperiale

Veteran Japanese Modernist Kenzo Tange is one of five winners of the $138,000 Praemium Imperiale, an international prize sponsored by the Japan Art Association. The Praemium Imperiale was created five years ago to honor lifetime achievement in categories not included among the Nobel Prizes: architecture, sculpture, painting, music, and theater/film.

Tange, 79, has designed works in over 20 countries, but he is best known for such works as the 1964 Olympic Complex in Tokyo and his 1960 plan for the city, which called for extending a series of megastructures over Tokyo Bay. More recently, he won the 1986 competition for the Tokyo City Hall, which was completed in 1991. What's more, he had designed the previous city hall, also a competition-winner, completed in 1957. Among his many honors are Gold Medals from the AIA and RIBA and the 1987 Pritzker Architectural Prize.

Other winners of this year's prizes are American painter Jasper Johns, Swiss sculptor Max Bill, French choreographer Maurice Béjart, and Russian-born American conductor Mstislav Rostropovich. Previous architecture winners were I.M. Pei, James Stirling, Gae Aulenti, and Frank O. Gehry. ■



*Kenzo Tange (below) and his 1991 Tokyo City Hall (left).*

### Symposium Promotes Neotraditional Suburbs

At a recent symposium titled "Rethinking the Suburbs," everyone there – architects, planners, developers, and government officials – agreed that the best alternative to today's traffic-choked, land-devouring suburbs is a return to compact, mixed-use neighborhoods whose design makes walking to stores, transit stations, schools, and playgrounds not only possible but pleasant.

As Andres Duany, the designer of Seaside, Florida, told the symposium, held in June at Baltimore's Maryland Institute College of Art, the postwar suburb "requires a nation of enormous wealth to support it. The neotraditional model was the one we developed when we were poor and smart." He stressed not its style but its ability to address social, ecological, and economic problems.

Traffic engineers are among the more serious obstacles to neotraditional development, said Chester Chellman, himself an engineer and author of New Town Ordinances and Codes. Because they claim to have the solutions to gridlock, traffic engineers have enormous power, Chessman noted, but they only worsen congestion by funneling all traffic onto a single collector, and their ever-widening roadways only encourage further scattershot development.

In order to bypass the ordinances that make it easier to plan badly than to plan well, Duany recommended that neotraditional planners simply establish a parallel code and bureaucracy. Others, more predictably, recommended that regulations be changed and their number reduced, which is apparently beginning to happen.

But what about the American dream of a free-standing house on the largest possible lot? Gary Blucher, president of the Home Builders Association of Maryland, suggested that home buyers could be convinced to accept a smaller lot in exchange for community. "In our sprawling suburbs, 'smaller' just means 'less,' " he said, adding that politicians need to educate the public about what they could have.

The same goes for developers. Most builders don't know what neotraditional development is and fear it will damage their bottom line, attested Maryland developer Steven S. Koren. In fact, studies show that developments designed on traditional models not only sell faster than sprawl but are less costly to build. **Andrea Oppenheimer Dean** ■

*The author, a former Executive Editor of* Architecture *magazine, is Editor-at-Large of* Historic Preservation.

Chicago Tribune

# AIA Convention

*Architects parade through Chicago (left to right): Olefumi Majekodunmi, Susan Maxman, UIA Gold Medalist Fumihiko Maki.*

### "Happy Talk" at Green AIA Convention

No one can say that this year's AIA Convention in Chicago was not – to borrow a term from political campaigns – "on message." Every general session of the 6,500-architect convention, which coincided with the triennial Assembly of the International Union of Architects (UIA) from June 17 to June 21, centered on the environmental theme to which AIA President Susan Maxman has devoted her term in office. The presence of the UIA helped give the convention – which was kicked off by a Thursday morning parade of architects through the heart of the city – an air of global purpose.

The substantive results of the convention, though, were hard to find. Something called a "Declaration of Interdependence," in which architects vowed to "place environmental and social sustainability at the core of our practices," was drafted and signed by the attendees, but its tenets – and its implications in terms of accountability – were vague. A series of brainstorming sessions devised by Australian motivator Peter Ellyard (who twice sang a chorus of the song "Happy Talk" and tried, mostly in vain, to get the convention to sing along) seemed to be designed for the edification of participants, not for the development of new ideas. (A group discussing healthy buildings devoted its attention to redoing the unpopular convention site, McCormick Place.) And it is significant to note that for all the attention devoted to the environmental theme, the official AIA business sessions did not even address the issue.

All this is not to say that the convention program, "Designing for a Sustainable Future," was not worthwhile. The general sessions, led by Maxman and UIA President Olefumi Majekodunmi of Nigeria, were effective rallies for environmental consciousness. Jaime Lerner, an architect and former mayor of the Brazilian city of Curitiba, stole the show with an address describing the changes he effected in his city, from highly efficient bus service to recycling. His combination of broad vision with pragmatism – he encouraged those who are overwhelmed by complex environmental issues simply to "use less your car and separate your garbage" – was encouraging and well received.

Also speaking to the general sessions were urban designer Peter Calthorpe, who described his own work in transit-oriented communities, and the Aga Khan, who stressed the capacity of the world's architects to help in less developed places, where "the greatest risks to the world's ecology and to human opportunity reside." He asked the profession to "guide by example and precept ... the millions who build without architects each year."

By Sunday, it had begun to appear that Maxman and the Institute were preaching to the converted; the environmental message was being trumpeted without question. But in that day's session, some skepticism was introduced in a panel discussion including architects Helmut Jahn, William McDonough, Richard Rogers, Jean Nouvel, and Aydan Erim of Turkey. The conversation was domi-

*(continued on next page)*

### AIA Convention Notes

**New York architect Jack Travis bowed out of a panel he had assembled on "Architects and Social Responsibility" for a reason that was relevant to the proceedings. Travis, author of *African-American Architects in Current Practice*, has resigned from the AIA to protest what he considers to be the Institute's inaction on matters of diversity in the profession. Travis later said the AIA Board's decision to meet in Colorado, despite the state's passage of the anti-homosexual Amendment Two last year, was the last straw.**

**Also critical of the Colorado meeting was David Castro-Blanco, president of the New York City chapter and winner of this year's Whitney Young, Jr., citation for social activism. Castro-Blanco, in accepting the citation, called for support of the Colorado boycott.**

**Housing and Urban Development Secretary Henry Cisneros, a surprise guest speaker who sounded as if he were still running for office, may one day regret having made such warm overtures to the AIA. The convention passed a resolution calling on "50,000 individual members to write [to him] with their personal concerns, thoughts, and ideas."**

**Where Gold Medalists are concerned, the AIA prefers "either-or" to "both-and." Two resolutions from the convention floor – neither of which were approved – sought to amend Institute rules so that the AIA Gold Medal could go to a pair or a team as well as to an individual. The effort appeared specifically geared to permit joint recognition of Robert Venturi and Denise Scott Brown.**

**Amid all the convention's sober, earnest talk about responsibility, *the Los Angeles* chapter's film advertising next year's convention there was a refreshing few minutes of West Coast hedo-**

*(continued on next page)*

**AIA Convention Notes**
*(continued from previous page)*

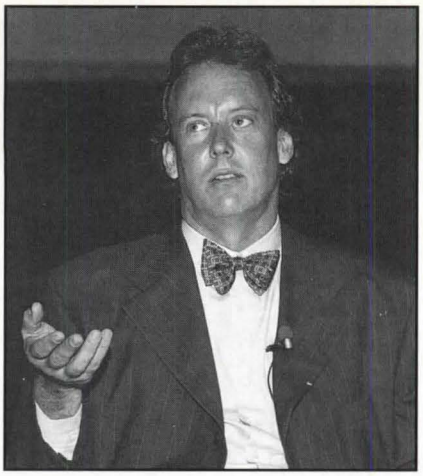
**nism. Promoting the theme "Living on the Edge," the flashy film featured energetic pop music and clips of Frank Gehry, Craig Hodgetts, Ming Fung, and others talking about L.A. into a jittery, wandering camera.**

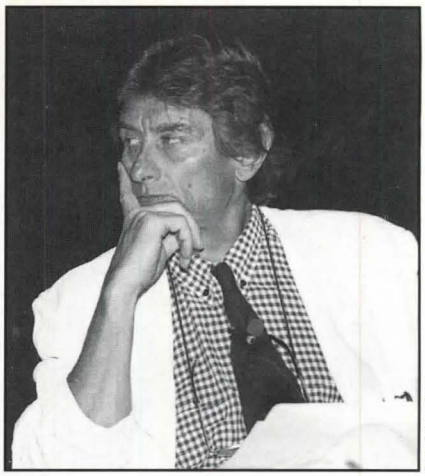
**While Sunday's panel discussion on "Architecture for the 21st Century" may have been the weekend's most contentious event, the panelists demonstrated solidarity when an audience member questioned the sustainability of tall buildings. Helmut Jahn (One Liberty Place), Jean Nouvel (the 1,300-foot Tower at La Défense), Richard Rogers (Lloyd's of London), and William McDonough (Warsaw Trade Center) all agreed that it would be ill-advised to rule out tall buildings entirely.**

**In Thursday's World Congress Overture ceremony at the Chicago Theater, UIA Gold Medalist Fumihiko Maki faced a public speaker's nightmare when his slides began scorching to black as he spoke. But Maki took it with total aplomb, merely talking a bit faster to get his points across before the images disappeared.**

**AIA President Susan Maxman, faced with a skeptical question in a press briefing about whether architects have any power to effect the environmental changes discussed at the convention, was upbeat, offering signs that architects are beginning to wield some influence. But when asked why the convention had only tiny recycling bins (which were nowhere near the food service areas), she explained that "it's difficult for us to be sure the catering is sustainable."**




Oscar & Associates


Oscar & Associates

*William McDonough (far left) and Helmut Jahn (left) square off in panel discussion.*

**Convention** *(continued from previous page)*
nated by McDonough, who spoke in smooth soundbites about "fundamental change in the way we work," and Jahn, who cautioned against "overreaction" to green concerns, while acknowledging that he pays attention to them. When Jahn charged that "the architect is trying to be the saint who saves the world," McDonough countered by saying that architects must accept the "fundamental revelation that you're going to have to do it yourself." Judging from questions and applause, the audience preferred the McDonough world view (at least in theory).

In addition to the general sessions, the convention offered the usual array of seminars, panels, and consultations. Peter Eisenman and Rafael Viñoly squared off over "Alternative Forms of Critical Practice," with Viñoly criticizing Eisenman's rarefied sources of inspiration. A panel of Chicagoans including Thomas Beeby, tapped to talk about "Architecture and Politics," concluded that the city has its lack of planning to thank for its architectural gems. And partners in this year's AIA Firm Award winner, Cambridge Seven Associates, spoke about their work in a seminar.

Traffic was reportedly better than average at the annual AIA Expo, which featured over 350 exhibitors of products and services. The presence of 2,000 foreign architects for the UIA Assembly may have accounted for the increased activity.

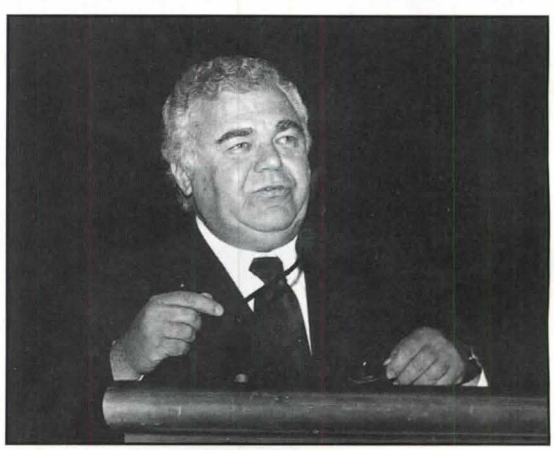
In the AIA business sessions, "states rights" issues arose several times, most notably in a defeated resolution that sought to restrict national AIA's ability to formulate policy on state matters. Several state chapters sponsored the resolution as a response to the AIA's accord with the American Society of Interior Designers on licensing, an accord they view as undermining their ability to lobby against state licensing laws. A resolution calling for study in the area of reciprocal licensing was passed, reflecting pressure to ease practice restrictions across state lines.

Only one of five available national AIA offices was contested: Chester A. Widom of Santa Monica, California, defeated Raymond G. Post of Baton Rouge, Louisiana, for first vice-president/president-elect. Elected as vice-presidents were Raj Barr-Kumar, Washington, D.C.; Walter Scott Blackburn, Indianapolis, and Michael J. Stransky, Salt Lake City. Lawrence P. Segrue of Visalia, California, was elected treasurer.

Outside the convention proper, Chicago offered an exciting and sometimes bizarre setting for attendees. The Host Chapter Party was moved indoors to the Merchandise Mart at the last minute because of stormy weather; later in the evening, things cleared up enough for a fireworks display over the Chicago River, with fine pyrotechnics reflected in some of the best recent office towers. A remarkable array of exhibitions was displayed around town (see article below), and tours mined the city's rich architectural treasures. Additional local color was provided by two days' worth of Grateful Dead concerts at Soldier Field and the street-filling celebration of the Chicago Bulls NBA Championship win Sunday night.

In sum, the convention managed at least to hammer out – for architects and, to some small extent, for the general public – an idea about where architects think we should go in regard to sustainable communities, healthy buildings, and energy-efficiency. But architects have never had a shortage of vision, and there isn't even a shortage of the technology to achieve a vision of sustainability. What is needed – and what the convention failed to address – are ways to work this vision through our political and social systems. **Mark Alden Branch** ■

*(Additional reporting by John Morris Dixon, Thomas Vonier)*


Oscar & Associates

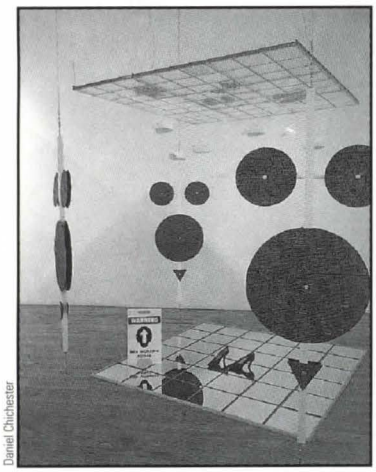
*Architect/politician Jaime Lerner addresses the convention.*

### Convention Inspires Wealth of Exhibits

While the city of Chicago provided an enormous open-air architecture museum for the convention's national and international guests, a number of exhibitions on architectural subjects were also mounted for the convention.

To be sure, the most talked-about show was the Chicago Art Institute's compendious survey exhibition, "Chicago Architecture and Design, 1923–1993: Reconfiguration of an American Metropolis." Organized by John Zukowsky of the Art Institute and running through August 29, the show is a sequel to a 1987 exhibition that covered the years 1872 to 1922. This exhibition is divided into eight alleylike sections – each designed by a different Chicago architect selected by Stanley Tigerman – that highlight different building types or infrastructure themes.

The exhibition's goal – epitomized by a repeating tape loop of often grating urban noises – is to look at Chicago's built world in a realistic, non-curatorial way, warts and all. But the sheer size of the exhibit, and the lack of critical context, makes for an overwhelming jumble that is surely indecipherable to non-cognoscenti. What's more, for all its ecumenical nature, the selection of works smacks of architectural politics, and the show is short on work by African-American and women architects.



Daniel Chichester

*"The Glass Block-Ceiling" from CARY show (left). Sullivan's 1893 Transportation Building, from "Constructing the Fair" (below right). Amsterdam housing by Lucien LaFour from "Design Diaspora" (bottom right).*

As if to fill that gap, exhibitions elsewhere dealt specifically with members of those groups. "Design Diaspora: Black Architects and International Architecture, 1970–1990," at 333 W. Wacker Drive through August 20, was a first: a juried selection of work by African-American architects juxtaposed with work by Africans in Europe and in Africa itself. Consisting mainly of framed photographs and designed to travel extensively, the show is impressive mainly for the diversity of accomplishment it reveals. "Design Diaspora" was organized by Carolyn Armenta Davis for the Chicago Atheneum.

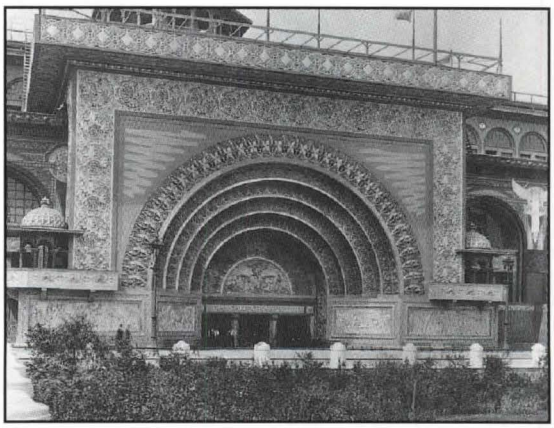
A show at the Randolph Street Gallery titled "More Than the Sum of Our Body Parts" focused not on work by women architects but on promoting awareness of the status of women in the profession. Organized by a group called Chicks in Architecture Refuse to Yield (CARY), the show included eight multimedia vignettes (among them "The Glass Block Ceiling" and "The Great Man Myth – Just How Big Is It?") each potently conveying the grim statistics of inequity with a sly intelligence that clearly showed what the patriarchy is missing.

Van Inwegen

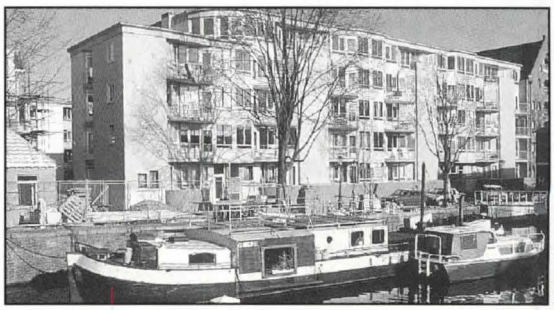
*One of eight "alleys" in Art Institute's Chicago show.*

Back at the Art Institute, two less ambitious shows proved enlightening. "Constructing the Fair," a collection of platinum photographs of the 1893 World's Columbian Exposition, offered remarkable images of the completed fair (an event that was invoked frequently during the convention, usually to assert that this year's events are of equal importance) as well as telling construction photographs that betrayed the lath-and-plaster reality behind it. "The Moscow Avant-Garde in Architecture: 1955–1991" presented a rare glimpse into the architecture of the former Soviet Union, highlighting ten architects who have struggled – with mixed success – to create compelling architecture in a climate that until recently viewed artistic architectural aims with suspicion. ■

*(Reported by Mark Alden Branch, Abby Bussel, John Morris Dixon, and Cheryl Kent)*



C.D. Arnold



Chicago Atheneum

### AIA/UIA Sustainability Competition Winners

**In a competition linked to the AIA and UIA conventions, nine architects or teams worldwide were awarded $3,000 each for "sustainable community solutions." Winners were selected from 406 entries from 50 countries. In addition to the nine professional awards, citations were also given to seven professional projects, and eight student winners were chosen. Professional winners are:**

- **Khetkhun Yodpring, Viboon Chitiratanatri, Supat Mahasittiwat, Thitipan Piamsai, and Poomcha Chanmeka, Bangkok;**
- **Thomas G. Bender, Nehalem, Oregon;**
- **Zhao Jing, Xia Yun, Zhang Jin-Xue, and Zhang Sizan, Xi-an City, China;**
- **Vikram Bhatt, Jesus Navarrete, Minhui Sun, Wei Du, Andre Casault, Jin Zhang, Qin Zhou, Qin Huang, Guohu Fu, and Wenyan Wang, Montreal;**
- **Mike Pease, Eugene, Oregon;**
- **Polly Cooper, Ken Haggard, Jora Clokey, Marilyn Farmer, Jake Feldman, Henry Hammer, Brian Kesner, Margot McDonald, Dan Panetta, Jennifer Rennick, Randy Reynoso, and William Wipple, all of California;**
- **Mabarak Tung and Abdelmohsen Farahat, Jeddah, Saudi Arabia;**
- **Vladimir Macura, Jasminka Cveaic, Aleksandra Mirtovic, and Zoran Mujbegovic, Belgrade, Yugoslavia;**
- **Richard Burton, Frei Otto, Buro Happold, and John Makepeace, London.**

**Top student winners were:**

- **Chan Elmas, Portland, Oregon, who won the $7,000 UNESCO Award;**
- **Sawangrat Somkitsiri, Sirinat Bhromnarurith, Somkiet Songpetmonkol, Thida Thongthai, Surashai Yeamsiri, and Lert Ngamkajornivat, Bangkok, who won the $5,000 award *from the* Japan Institute of Architects.** ■

# Projects

### Rossi for Disney, via Pisa

The main square in the Italian city of Pisa, with its "deceptively casual arrangement of its four principal structures," is the unlikely source of inspiration for a set of Disney Development Company office buildings in Disney's new town of Celebration, Florida. Aldo Rossi and his New York associate Morris Adjmi arranged three office buildings and a bullet-shaped folly around an elevated, grass-covered piazza. The buildings are to be unified by common exterior materials: red limestone and green metal mullions.

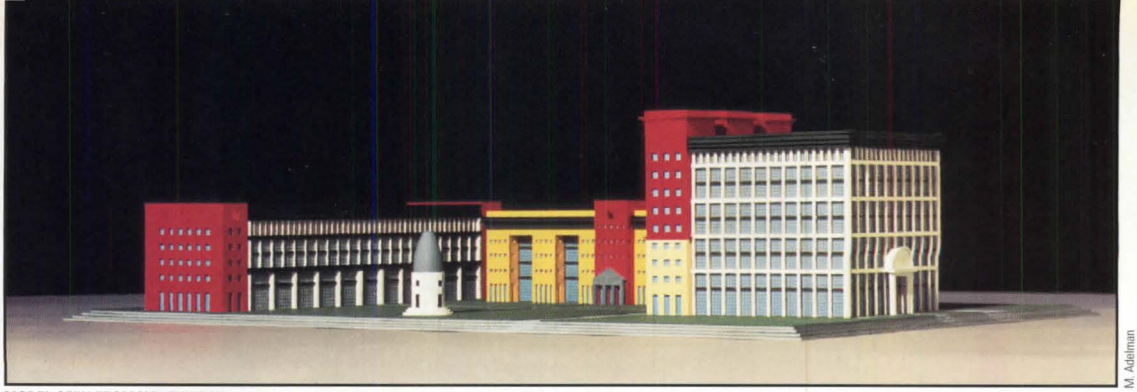
The first two buildings, a nine-story structure with three towers engaged to its façade and a four-story building with a central entry tower, are scheduled to begin construction this fall. The buildings will house Disney Development offices and speculative office space.

### Foster Comes to America

If you were expecting Sir Norman Foster's first American work to be a flamboyant High-Tech extravaganza along the lines of the HongKong Bank, you're bound to be disappointed by Foster's addition to the Joslyn Art Museum in Omaha. The project, which broke ground in June, is a sober, windowless box, notable more for subtle organizational improvements than for structural heroics.

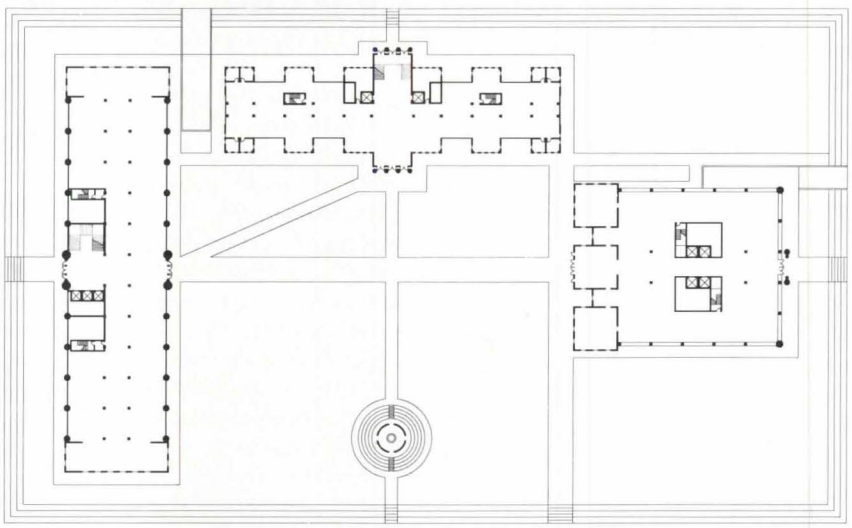
Foster's two-level design adds 52,000 square feet to the museum, with new skylighted, vaulted galleries on the upper level and support spaces below. The old and new are joined by a 30-foot-wide, glass-roofed atrium that runs the length of the buildings. A concurrent reorganization of the site will reemphasize the museum's main entrance by moving a parking lot.

The new building will be clad in the same pink marble as the existing museum. Completion is scheduled for late 1994. ■



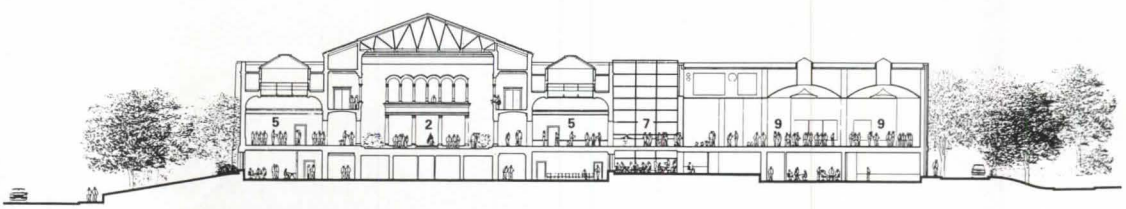
M. Adelman

MODEL SEEN FROM NORTHWEST



FIRST FLOOR PLAN

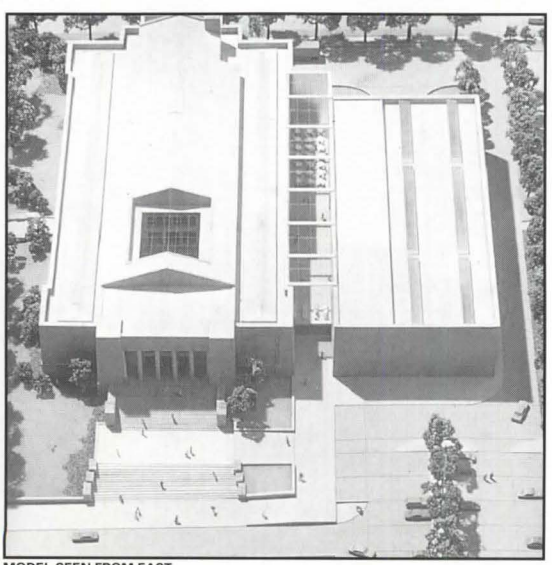
N 100'/30m



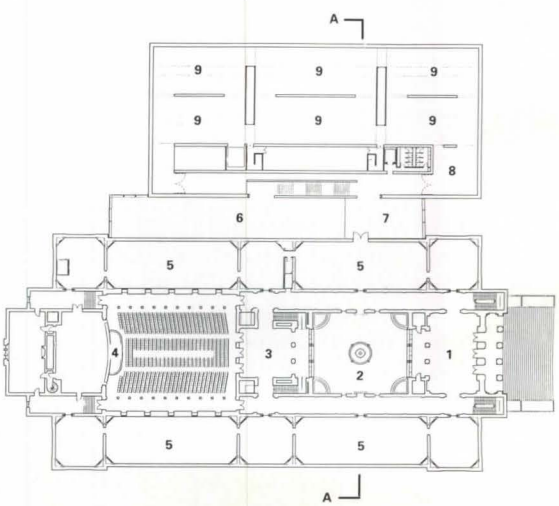

SECTION A-A

40'/12m

1 LOBBY
2 FOUNTAIN COURT
3 CONCERT HALL FOYER
4 CONCERT HALL
5 EXISTING GALLERIES
6 ATRIUM
7 BRIDGE
8 ORIENTATION
9 NEW GALLERIES



MODEL SEEN FROM EAST




MAIN FLOOR PLAN (ADDITION AT TOP) N 100'/30m

I N T R O D U C I N G

FM APPROVED

# TITE-LOC COPING

## Whatever the weather, this coping stays put.

Ideally suited for use on industrial plants, schools, hospitals and other types of commercial construction, the Petersen TITE-LOC Coping System features a built-in sealing mechanism incorporated into the splice plate. This proprietary feature serves to add rigidity and insure a weathertight joint.

And now TITE-LOC Coping is available with a reinforced hold down cleat that has been Factory Mutual tested to meet the rigid requirements of the FM I-90 test for wind uplift. Specify TITE-LOC Coping and you can rest assured... whatever the weather, this coping stays put!

### Features

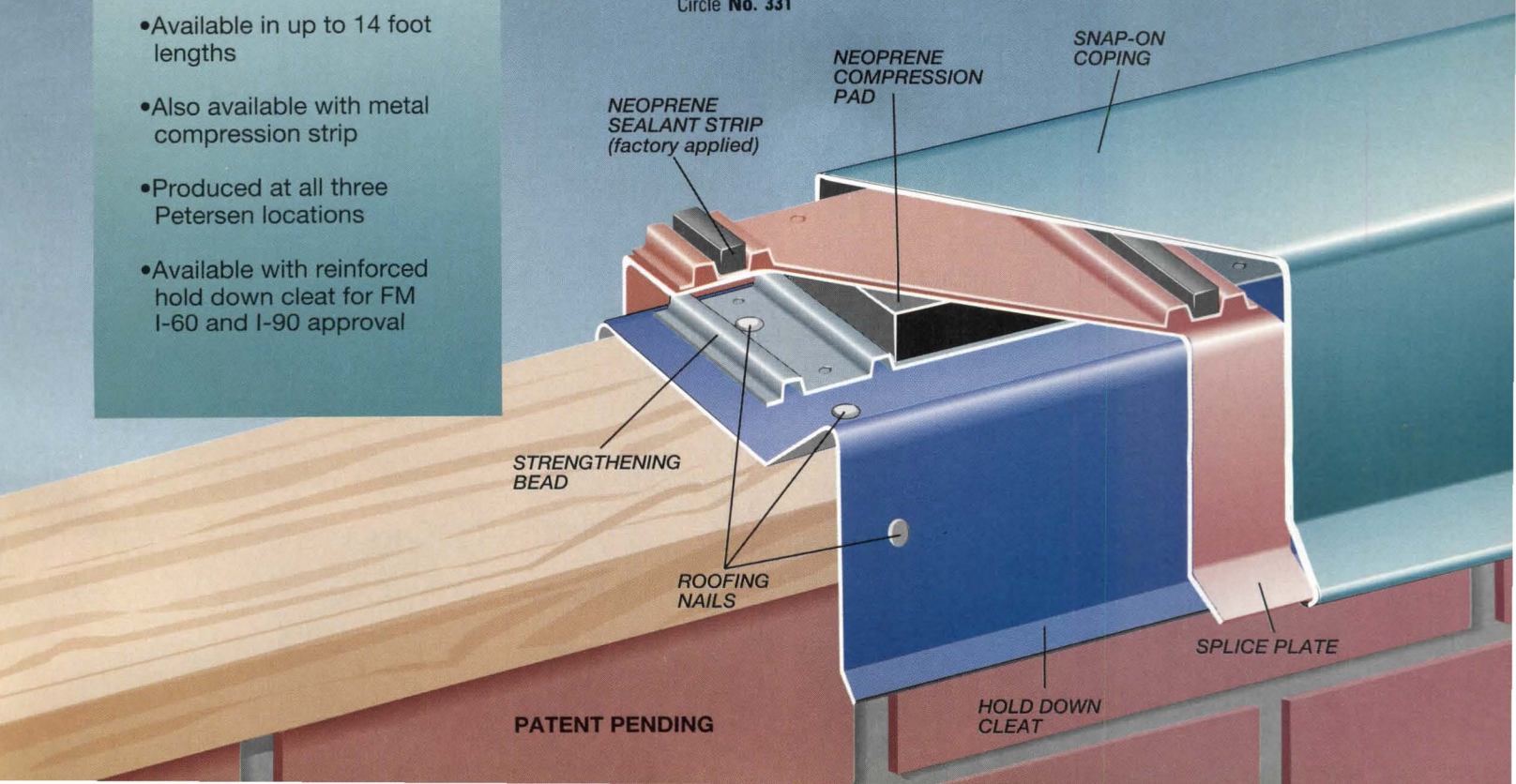
- Innovative new gutter splice plate
- Available in .040 - .125 aluminum and 24 ga. steel
- Finishes include Kynar 500,® anodized coatings and a wide variety of custom post-finished options
- Available in up to 14 foot lengths
- Also available with metal compression strip
- Produced at all three Petersen locations
- Available with reinforced hold down cleat for FM I-60 and I-90 approval

PAC Petersen Aluminum Corporation


**4295 Hayes Avenue**
**Tyler, TX 75707**
**FAX: 1-903-581-8592**
**1-800-441-8661**

**Other Plant Locations:**
**Annapolis Junction, MD: 1-800-344-1400**
**Elk Grove Village, IL: 1-800-PAC-CLAD**


Circle **No. 331**




**PATENT PENDING**

# TURN ORDINARY WALLS INTO GRANSTONE® WALLS. FROM THORO.


Now concrete, masonry, EIFS, and scratch-and-brown walls, either exterior or interior, can have the look of solid granite at a fraction of the cost. It's easy with Thoro's **Granstone® Finish System**. This architectural finish system can be applied quickly to create the appearance of natural stone. It is available in 12 standard colors and allows the ultimate in design flexibility.

Use Granstone to rejuvenate an entire exterior, or just to accent architectural details. A Granstone finish resists mildew, fungus, freeze-thaw cycles, wind-driven rain and airborne pollutants. It is eligible for Thoro's limited material and labor warranty.

Find out how you can turn ordinary walls into Granstone walls. Call **(800) 327-1570**. In Florida call **(305) 597-8100** or write to:

Thoro System Products,
7800 N.W. 38th Street,
Miami, Florida 33166.


THORO SYSTEM PRODUCTS

*See Us In Sweet's Catalog.*

Circle **No. 314** on Reader Service Card

# Calendar

## Exhibitions

**P/A's New Public Realm**
Through September 1

**Detroit.** This traveling exhibition of visionary public works proposals submitted to P/A's ideas competition (P/A, Oct. 1992, p. 73) is supplemented by photos of neglected spaces, substandard housing, and decrepit infrastructure. Host for this showing is the Detroit chapter of ADPSR. For more information, check local listings.

**Early Bentwood Furniture**
Through September 6

**Chicago.** "Against the Grain: Bentwood Furniture from the Collection of Fern and Manfred Steinfeld" includes 74 pieces by Michael Thonet and other 19th-Century designers and manufacturers. Art Institute.

**Urban Outhouses**
Through September 10

**New York.** Eleven entries are on view from the Urban Outhouse Design Competition, sponsored by the Vermont Structural Slate Company. Municipal Art Society.

**In Alphabetical Order**
Through September 12

**New York.** "Collecting A to Z" looks at design in alphabetical order. For example, "A is for Architecture" (three studies for Eurodisney by Aldo Rossi) and "U is for Universal Design" (kitchen tools by Smart Design of New York). Cooper-Hewitt.

**Historic American Furniture**
August 8–October 3

**Memphis.** Work by craftspeople from around the country demonstrates the rich history of furniture design in "So Proudly We Hail: American Furniture 1680–1850." Memphis Brooks Museum of Art.

## Competitions

**AIA Awards**
Dates vary

**Washington, D.C.** Entries to the AIA's 1994 Honor Awards for Urban Design must be postmarked by October 4 and submitted by November 1. Fellowship nominations must be postmarked by October 8 and submitted by November 8. Contact AIA, 1735 New York Ave., Washington, DC 20006-5292 (202) 626-7300.

**Carpet Awards**
Submission deadline
August 31

**Atlanta.** Monsanto Contract Fibers' annual awards program honors outstanding contract interior design using carpet made with Ultron nylon fibers. Projects entered in the 1993 edition of the "DOC" Awards must have been completed after January 1990. Contact 1993 "DOC" Awards, Monsanto Contract Fibers, 320 Interstate N. Parkway, Atlanta, GA 30339 (800) 543-5377.

**Film Competition**
Entry deadline August 31

**San Francisco.** Films and videos about architecture, urbanism, landscape architecture, and design, completed after June 30, 1991, may be entered in the competition section of the first International Festival of Film+Architecture, known as film+arc. The festival will be held in Graz, Austria in December. Contact EBS Productions (415) 495-2327 or FAX (415) 495-2381.

**P/A Awards**
Entry deadline September 10

**Stamford, Connecticut.** The 41st annual P/A Awards (see p. 91) recognizes projects scheduled for completion after January 1, 1994. Winning entries will be featured in the January 1994 issue. Contact Awards Editors, 600 Summer St., Box 1361, Stamford, CT 06901 (203) 348-7531 or FAX (203) 348-4023.

**Planning Awards**
Entry deadline September 22

**Washington, D.C.** The American Planning Association (APA) has announced its 1994 National Planning Awards program. "Planning for Economic Development" is the theme of the Current Topic Award; 17 other awards are also offered. Contact APA, 1994 Awards Program, 1776 Massachusetts Ave., NW, Washington, DC 20036 (202) 872-0611.

*(continued on page 30)*

## Calendar *(continued from page 29)*

**NOMA Design Awards**
Submission deadline
September 29

**Richmond, Virginia.** The National Organization of Minority Architects (NOMA) has announced its 1993 Design Awards program. Built and unbuilt projects designed after January 1, 1986, may be entered by NOMA members. A student competition for "architecture/urban design ideas and visions" has also been announced. Contact Cynthia Coe, NOMA, 101 W. Broad St., Ste. 101B, Richmond, VA 23220 (804) 788-0338.

**Shinkenchiku Residential Design Competition**
Submission deadline
September 30

**Tokyo.** Renzo Piano is the judge of the 1993 Shinkenchiku Residential Design Competition. His program theme is "Basic Shelter and Your Local Memory, for Living." Questions will not be answered by the sponsor, but it is suggested that potential entrants request the competition regulations. Contact Entries Committee, Shinkenchiku Residential Design Competition 1993, Shinkenchiku-sha Co., Ltd., 31-2, Yushima 2-chome, Bunkyo-ku, Tokyo 113, Japan.

**Wood Council Design Awards**
Entry deadline October 8

**Washington, D.C.** The American Wood Council is now accepting entries for its 13th annual Wood Design Award Program. New and remodeled residential and nonresidential projects completed since January 1990 may be entered. Contact American Wood Council, 1250 Connecticut Ave., NW, Washington, DC 20036 (202) 463-2760 or FAX (202) 463-2791.

**Urban Sounds**
Registration deadline
October 12,
Entry deadline
October 29

**Tokyo.** The theme of the Fifth Takiron International Design Competition is "Sound Corridor for the City." The sponsor asks entrants to think about "the composition of the city from the standpoint of sound, to see what kind of roles sound could play in defining the spatial and functional articulation of the city." Contact Shinkenchiku-sha Co., Ltd., Takiron Design Competition, 2-31-2 Yushima, Bunkyo-ku, Tokyo, Japan 113 tel. 81 3-3811-7101.

**Ideas for Berlin**
Application deadline
October 22

**Berlin.** The Federal Republic of Germany and Land Berlin have announced the Spreeinsel International Urban Design Competition for Ideas for government facilities in the historic center of Berlin. Registered architects or a team of architects that includes a registered architect may submit an application in the competition's first stage. A jury will invite approximately 50 applicants to enter the second stage; thereafter, the proposals will be anonymous. Contact Arbeitsgemeinschaft Wettbewerb Spreeinsel, Breite Strasse 1, D-10178 Berlin-Mitte tel. 49 30/2038-2006 or FAX 49 30/2038-2007.

## Conferences

**Preservation Technology**
September 29–October 2

**Ottawa, Canada.** The Association for Preservation Technology's 25th anniversary conference, "APT XXV CAN – Adapting in a Changing World," will bring together architects, engineers, conservators, historians, craftspeople, preservationists, and other professionals. Contact Robert Hunter, APT CAN Conference chair (819) 997-6974 or FAX (819) 953-4909.

**Historic Preservation**
September 29–October 3

**St. Louis.** "The Challenge of Livable Communities" is the theme of the 47th National Preservation Conference. Contact the National Trust for Historic Preservation, 1785 Massachusetts Ave., Washington, DC 20036 (800) 937-6847.

**Re-Shaping Our Cities**
September 30–October 2

**Seattle.** Keynote speakers at the "Urban Design: Re-Shaping Our Cities" conference include Jaime Lerner, the former mayor of Curitiba, Brazil; Norm Rice, the mayor of Seattle, and Richard Sennett, a sociologist. Themes include "The Ecological Ethic;" Capitalizing on Human Diversity;" "Optimizing Existing Infrastructure;" and "New Means of Implementation." Contact Columbia Resource Group, 101 Stewart St., Ste. 830, Seattle, WA 98101 (800) 657-1113 or (206) 441-6448 or FAX (206) 441-6369. ■

# INHERENT QUALITY

## High I.Q. for TCS

TCS,® terne-coated stainless steel, has graduated Summa Cum Laude as a superbly functional roofing material for educational buildings.

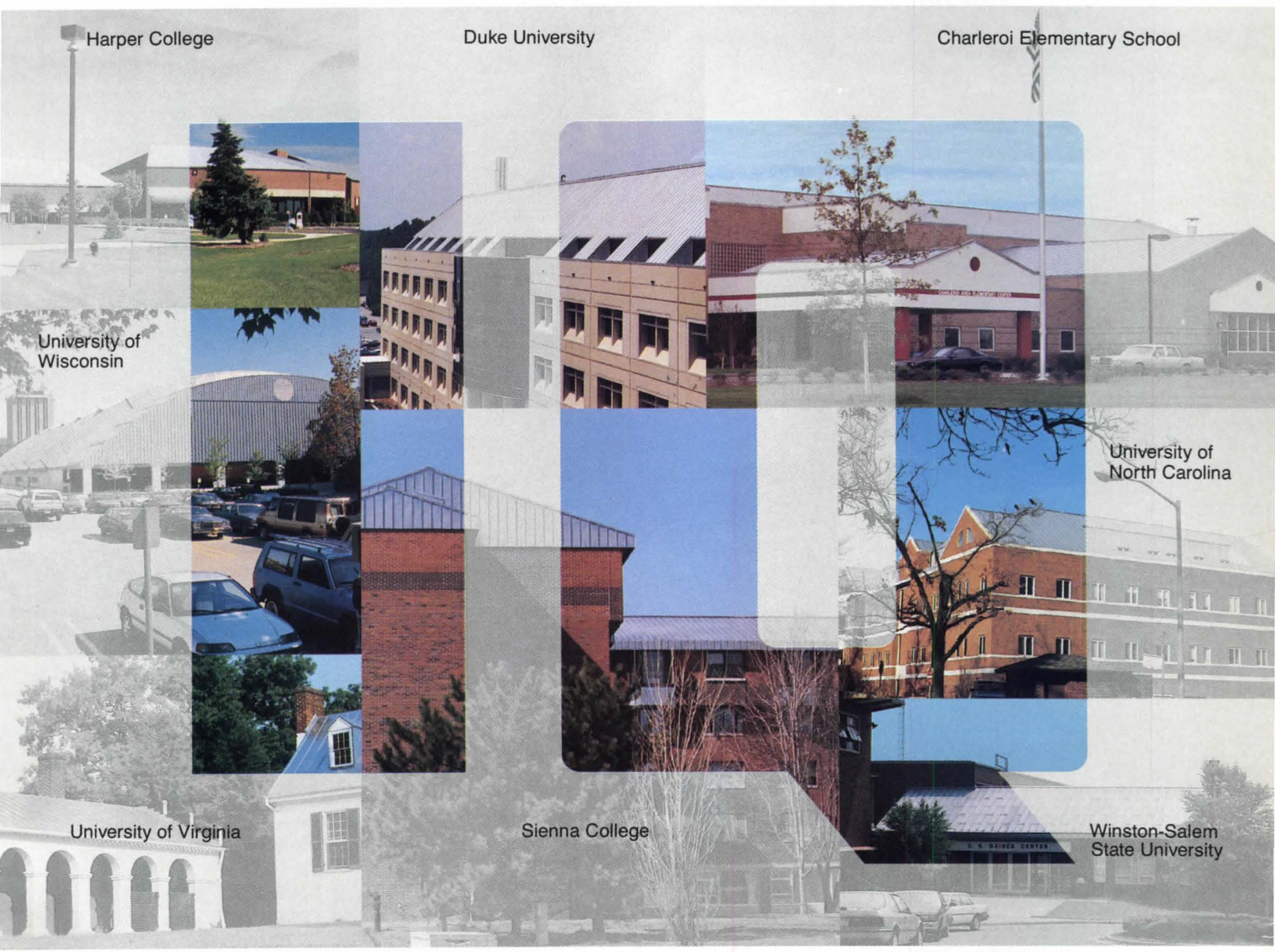
TCS has received an "A+" in the following subjects:

- Corrosion Resistance
- Freedom from Maintenance
- Life Cycle Cost Effectiveness
- Design Freedom
- Architectural Expression
- Predictable Performance

And because TCS weathers naturally to an attractive gray color, painting is eliminated and maintenance costs are reduced—allowing the school to budget money for the more important educational areas.

Follansbee is proud of TCS' performance in the educational field and would like to send you a substantiating transcript on this outstanding metal roof product.

Call us toll-free 800-624-6906.




CALL US TOLL-FREE • 800-624-6906

**FOLLANSBEE**

FOLLANSBEE STEEL • FOLLANSBEE, WV 26037
FAX (304) 527-1269

Circle **No. 326**

# A big leap for low-priced laser printers.

Your time has come. Now you can make the leap to laser printing for just $849. Introducing the new HP LaserJet 4L printer.

Any way you look at it, the LaserJet 4L goes way beyond the competition. With exceptional print-quality. Outstanding features like 26 scalable typefaces. And a full megabyte of memory, twice as much as most laser printers. In fact, HP's revolutionary Memory Enhancement technology makes our one megabyte perform like two.

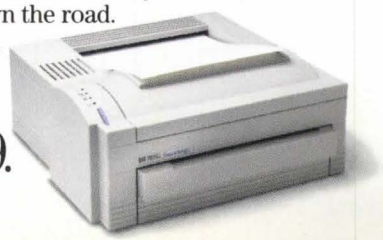
Our printer's one-button control panel couldn't be simpler to use. The on-screen software makes it easy to manage many printer functions from your PC. And if you ever need help, HP support is just a phone call away.

The value of the HP LaserJet 4L does not stop with just the price. Our unique Economode feature will save you toner. The new power-saving design saves electricity. Four-page-per-minute speed saves time. And built-in HP reliability saves you trouble down the road.

To see our new printer in action, drop by any authorized HP dealer or look in the *Computers—Dealers* section of your Yellow Pages. It could help your business take off.

**If it isn't a LaserJet, it's only a laser printer.**

HEWLETT PACKARD



## The new HP LaserJet 4L. Just $849.

Suggested U.S. list price. ©1993 Hewlett-Packard Company PE12358

Architect **Richard Keleher** of Wallace, Floyd, Associates discusses the principles of rain screen design and how they are used on a current project.

**Abstract**

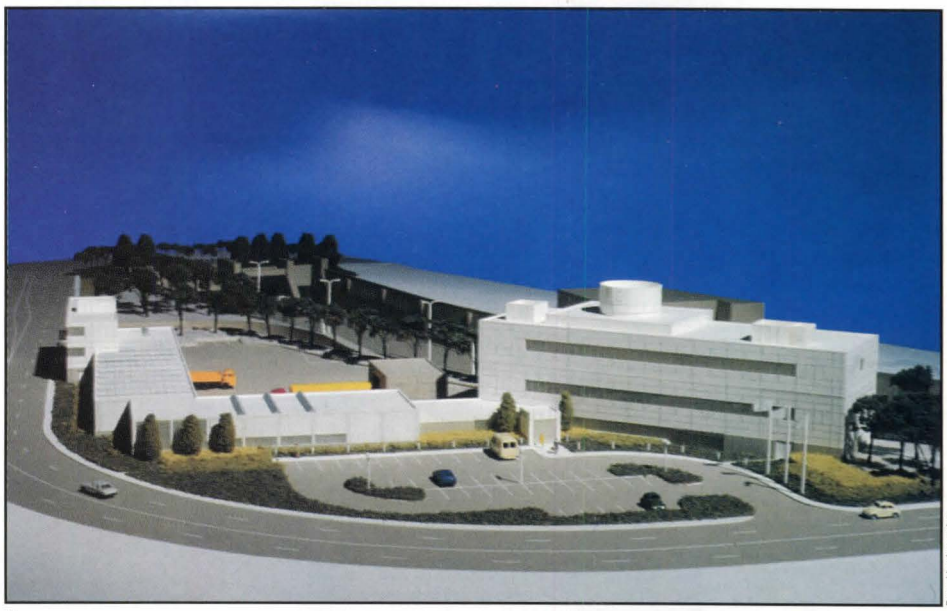
**The design of exterior walls has traditionally been based on the concept of the building's skin acting as a single layer to keep out the rain as well as to retain conditioned air and to resist the forces of wind and air pressure. Such skins are vulnerable to leaks. Rain screen cladding uses principles of controlled water leakage and equalized air pressure to repel rain from the wall cavity. There are two rain screen types, suitable for specific installations: drained/back ventilated and pressure-equalized/compartmented. The Boston Central Artery/Tunnel project, now under construction, employs several rain screen principles discussed in this article.**

The traditional choices for wall cladding are cavity walls with either concrete masonry unit or metal stud backup; or panels, which are usually made of precast concrete or metal units and typically use a face seal at the joints. These cladding systems have a weakness: they rely entirely on a single barrier to shed water. On site it can be very difficult to ensure that every last corner and crevice is sealed. *Nearly* weathertight seals create low pressure in the void behind joints, and that low pressure often sucks water through nearly sealed joints in much greater quantities than can get in through open joints.

Among the factors threatening familiar organic sealants such as polyurethanes are common atmospheric pollutants, ozone, sunlight, ultraviolet radiation, rain, snow, temperature extremes, and differential thermal movement of the cladding. Even silicone sealants, which are known to be more resistant to these factors, can be relied on to last only 20 years, even if perfectly installed. Once interruptions in the sealant occur, either at the time of installation or later, as a result of adhesion or other failure, further degradation is accelerated because water is acting on the joints from within the wall cavity as well as from without.

Recognizing these problems, prudent designers often detail sealed joint cladding systems with a backup gutter system, which must itself be flashed, sealed, and provided with drainage holes or tubes. Many of the worries about quality control that pertain to sealed joints apply to these backup systems.

In contrast to sealed systems, rain screen systems do not employ sealants at the vulnerable exterior of the wall system, and in their pure pressure-equalized form they do not require interior guttering, since little water penetrates the outer wall.



Peter Vanderwarker

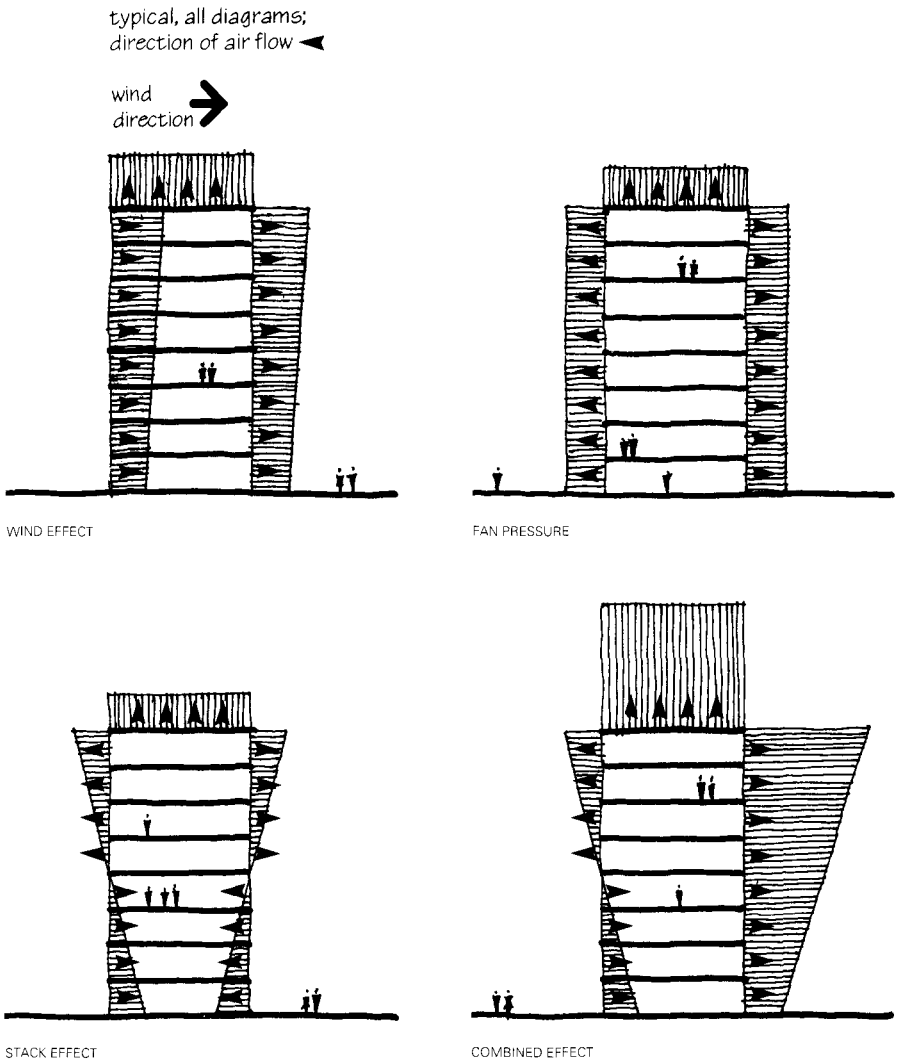
**1** CENTRAL ARTERY/TUNNEL PROJECT OPERATIONS CONTROL CENTER, COMPRISED OF ADMINISTRATION BUILDING, MAINTENANCE FACILITY, AND EMERGENCY RESPONSE STATION

### Rain Screen Types

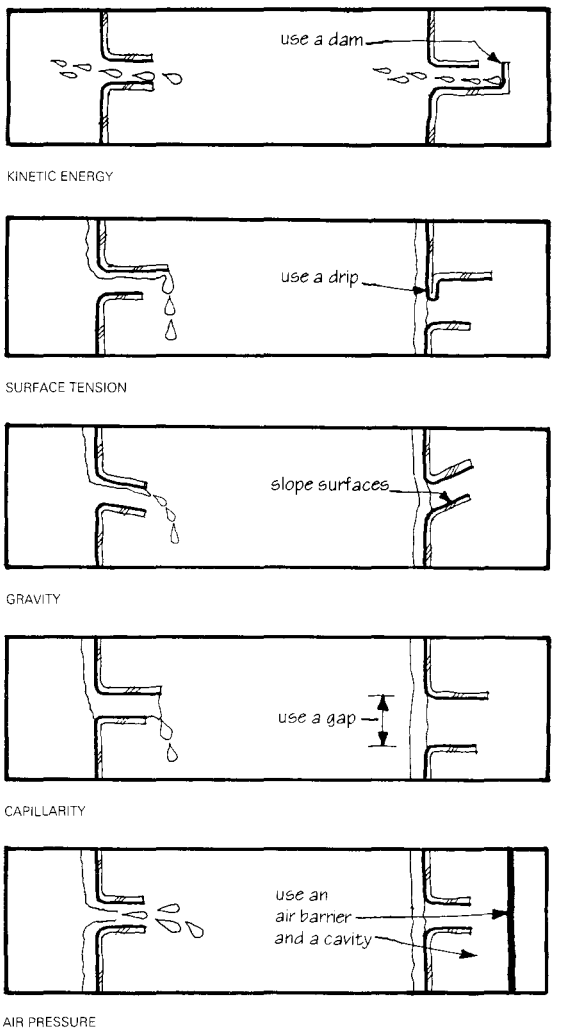
There are generally two types of rain screens: drained/back-ventilated, and pressure-equalized/compartmented. Anderson and Gill[1] describe drained/back ventilated rain screens (4) as a series of sheets, panels, or planks fixed to vertical support rails. The joints are designed to provide protection against the kinetic energy of wind-driven rain. This is achieved by incorporating baffles or by stringently controlling the width of narrow open joints. Such joints obstruct the passage of wind-driven droplets of rainwater, but they do not prevent leakage resulting from gravity and wind-induced air pressure differentials. Thus relatively large quantities of rainwater penetrate the joints and run down the reverse, hidden face of the cladding assembly.

According to Anderson and Gill, the main point about the drained/back-ventilated approach is that claddings are allowed to leak, and no deliberate attempt is made to minimize the effects of wind by pressure-equalization. Instead, the cavity behind the cladding is drained, and positive back-ventilation is used to promote the rapid evaporation of any rainwater deposited on the inner leaf.

It should be noted that drained/back-ventilated walls require a water barrier at the back of the cavity. The cavity should be carefully and completely flashed and the run-off water brought to the outside




**2** CONSTITUENTS OF AIR PRESSURES ON THE BUILDING ENVELOPE




**3** FORCES THAT CAUSE WATER PENETRATION



frequently. The brick cavity wall, as promoted by the Brick Institute of America and as used extensively in current building projects, is a simplified variant of this type of rain screen wall.

Pressure-equalized/compartmented rain screens (5) are similar in design to the drained/back-ventilated wall, but go one step further by also controlling the most significant force (2) that causes water penetration – air pressure differentials – by the introduction of a pressure-equalization chamber.

A pressure-equalization (PE) chamber in the cavity or at the joint nullifies the external force of wind-driven rain. A critical component of the PE chamber is an impermeable air barrier that will effectively seal the inner leaf of the wall so that pressure leakage will not compromise the positive pressure built up in the cavity.

Dale Kerr[2] describes pressure equalization as a pressure difference created across the walls when wind is present, forcing water on the surface to penetrate any openings through it. The outer layer, or cladding, of a rain screen wall is vented to allow air to flow through it into the cavity. Thus the air pressure in the cavity increases until it equals the applied wind pressure. Kerr describes this phenomenon as pressure equalization. She observes that rain penetration through the cladding is markedly reduced as the force of the wind on the cladding – which would drive the rain into the cavity – is reduced. The wind pressure will be exerted on the air barrier, but since water should not reach the air barrier, rain penetration should not occur.

### Rapid Pressure-Equalization

It is important that PE be rapid, since for as long as there is a pressure differential to carry water across the joint, water can be carried into the cavity, or PE chamber. In order to enable the pressurization to be rapid, four factors must be taken into consideration:

1. The walls of the cavity should be as tight and rigid as practical to avoid the "pumping" action which can draw water into the cavity during wind gusts and eddies that can occur when the walls of the cavity are not airtight and rigid.

2. The tendency of the air to migrate around the building to areas of lower pressure requires that cavity closures be used to compartmentalize the cavity. The compartment seals must be designed for at least the full wind load. This is especially important

with tall and wide buildings. Also, projecting elements, such as column covers, may have pressure differentials acting across them.

3. The volume of the cavity should not be too large (a few inches deep is sufficient).

4. The ratios between the venting area, the volume of the cavity, and the leakage of the air barrier are of critical importance.

Conventional systems' weep holes are not sufficient in most cases to create PE, since it must occur within a fraction of a second. An eddy moving alongside a building can create sudden positive or negative pressure. When only a few small weep holes are used in an attempt to achieve PE, the water in the eddy actually gets sucked into the cavity. Graphs of year-long tests of two buildings (6a, 6b) show the dramatic difference that a properly designed pressure-equalized rain screen can make.[3]

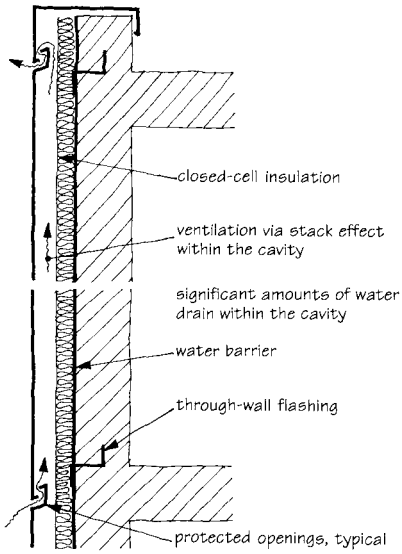
### Rules of Thumb

As noted earlier, flexible cavity walls and gusting winds can cause "pumping" of water into the cavity and consequent leakage. Four factors should be considered when determining the appropriate parameters for design: flexible and rigid PE chambers, and steady and gusting winds. The rules of thumb offered below are intended to give architects only a rough idea as to the magnitude of some of the elements of the design.

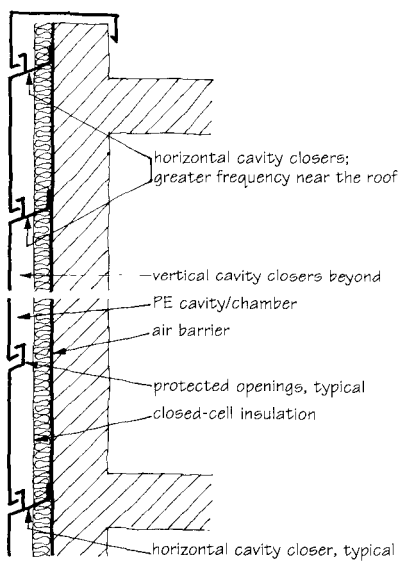
*Effects of air barrier quality.* The venting area must be properly proportioned to achieve a balanced ratio of cavity size to perimeter outer panel venting, (when the air barrier either is applied to a rigid material such as masonry or is itself a rigid material such as cast-in-place concrete) a rough rule of themb can be suggested: the leakage of the air barrier should not exceed 0.06 liters per square meter per second ($L/m^2/sec.$). However, when the air barrier or the PE chamber walls consist of relatively flexible materials, such as tight steel liners or curtain walls, a careful evaluation of the inner-wall airtightness and computer models should be used to determine the venting area and the allowable leakage of the air barrier.

*Rigid barriers and steady winds.* When the air barrier is rigid and tight ($0.06\ L/m^2/sec.$) the wind load is taken by the liner component of the exterior wall system. Theoretically, a perfect air barrier would take all of the wind load off the rainscreen through pressure equalization. In practice, a more conservative approach should be taken; a well-designed air barrier will be assumed by designers to experience no more than 50 percent of the total steady wind pressure. When the air barrier is rigid under steady-state conditions the pressure drop across the outer cladding is proportional to the area of leakage of the air barrier divided by the area of the venting gap in the outer cladding (rain screen). Also when the air barrier is rigid under steady-state conditions the load on the barrier is inversely proportional to the area of leakage of the air barrier divided by the area of the venting gap in the outer cladding.

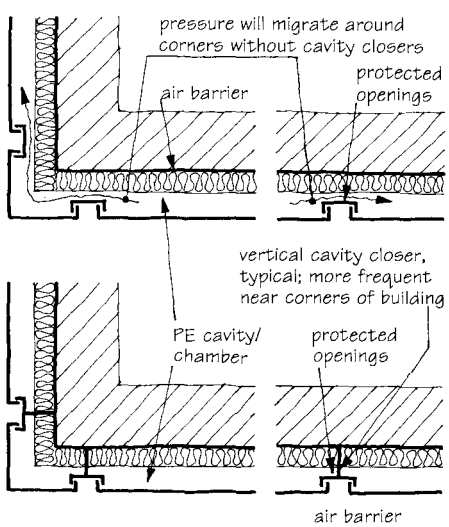
*Limitations on vent area and volume of the PE chamber.* Rough rules of thumb can be offered for buildings which are not subject to gusting winds. For rain screen



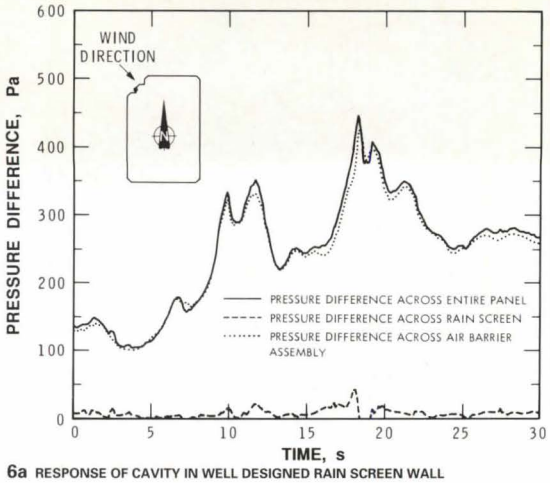

**4** DRAINED/BACK-VENTILATED WALL SECTION



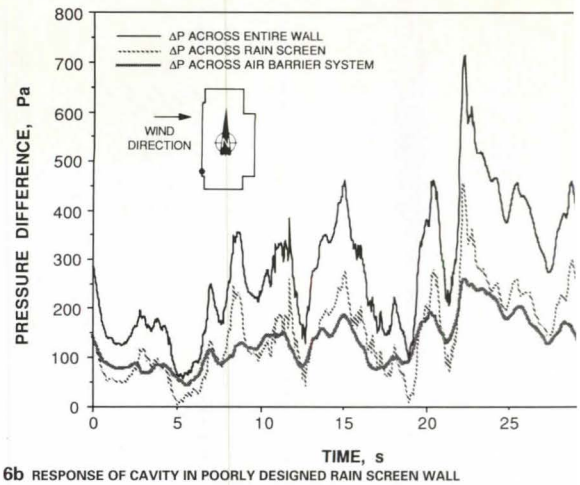

**5a** PRESSURE-EQUALIZED WALL SECTION




**5b** PRESSURE-EQUALIZED WALL PLANS




**6a** RESPONSE OF CAVITY IN WELL DESIGNED RAIN SCREEN WALL




**6b** RESPONSE OF CAVITY IN POORLY DESIGNED RAIN SCREEN WALL

### Water Penetration Forces

**Forces that cause water penetration (3) can be mitigated through proper design:**

- ***Kinetic Energy.*** **Wind-driven rain, sleet, or snow. Incorporate a dam, baffle, or labyrinth in the joint design.**
- ***Surface Tension.*** **The tendency of water to run across the underside of horizontal surfaces. Incorporate a drip.**
- ***Gravity.*** **Avoid inward sloped surfaces on the cladding and control water that enters the cavity by draining it to the outside.**
- ***Capillarity.*** **The tendency of water to be drawn into narrow passages bound by wetable surfaces. Incorporate a discontinuity behind the cladding, such as a cavity. Openings should be at least $^3/_8$-inch-wide to create a capillary break.**
- ***Air Pressure Differentials.*** **Anderson and Gill note that if the air pressure on the outer face of a wall or wall cladding is greater than that acting on its reverse face, rainwater will be forced inwards through unprotected openings or through joint seal imperfections in the soaked outer face. If the air pressures on either side of the openings and joint seal imperfections can be equalized, water will not be forced inwards by this means alone. The ideal condition would be to devise a system such that the interior cavity would at all times have a higher air pressure than the outside envelope pressure.**

walls with rigid air barriers and PE chamber walls, the ventilation of the outer cladding should be a minimum of 10 times the leakage of the air barrier, and the volume of the PE chamber should not exceed 100 times the ventilation area of the outer cladding to allow rapid pressure equalization.

*Gusting winds.* Under gusting wind conditions, the stiffness of the air barrier, the cladding system, and the cavity closures (which all together create the PE chamber) and the ratio between the area of the venting gap in the outer cladding and the cavity volume are directly related to the performance of the wall. This relationship is complex, as has been demonstrated in controlled full-scale tests, and can be simulated only by using a computerized mathematical model.

### Rain Screens in Practice

Boston's Central Artery/Tunnel project, now under construction and for which we are coordinating architectural consultants, has several buildings that employ rain screen cladding systems. In making recommendations to the Massachusetts Highway Department and the Federal Highway Administration, we reviewed all of the cladding systems commonly used in the Boston area and concluded that the most appropriate system would be the one that is the most maintenance-free and durable. Thus we recommended a combination of cladding types that would be most appropriate for the project's most significant buildings.

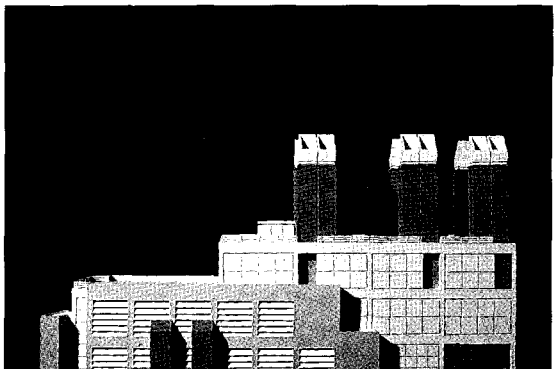
The tunnel ventilation buildings, the highway administration building (1), and the toll plaza building will be clad in pressure-equalized flat metal panel systems (except where the urban context dictates the use of another material such as brick masonry). The use of rain screen cladding systems was chosen for the more prominent buildings because of uncertain funding for maintenance of public projects.

The maintenance buildings will be clad in corrugated metal suitable for their function. These buildings do not require the quality or the durability of the other more prominent buildings, and therefore the rain screen principle is not utilized in their design. They will employ gaskets at their most common joints, thereby avoiding some of the problems associated with the use of sealants.

Details (8) are included to give an example of the adaptation of rain screen cladding to this project. The panels have been designed with joints that have a dam to resist kinetic energy, a drip to resist surface tension, slopes to control gravity, gaps to break capillarity, and a cavity behind the panels to act as the PE chamber. Note that the air and vapor barriers are together to avoid potential problems of vapor entrapment between them, a serious concern in the New England climate. The insulation is in intimate contact with the air barrier to prevent heat loss and is outboard of the vapor barrier to prevent condensation within the insulation. The structure of the wall and the air barrier is protected from ultraviolet light and the weather by the insulation and the rain screen, and any condensation or entry of snow will occur outside of the air barrier, which has been specified as a waterproofing type of material and will therefore carry any accumulation of water in the cavity to the outside. The insulation has been specified as a closed-cell type, so that it will not be affected by any moisture in the cavity.

Four ventilation buildings utilize rain screen metal panel cladding systems. Of particular note, Vent Building No. 5 (7) employs both types of rain screens. The metal panels will be a pressure-equalized rain screen. The brick veneer is proposed as a back-ventilated rain screen. It has open head joints eight inches on center for two courses at the bottom with a fully-reticulated open-cell filter foam with ten cells per inch as a weep baffle, and a continuous ventilation slot at the top of the wall protected by flashing, all to promote back-ventilation. This building therefore will utilize both types of rain screens. **Richard Keleher, AIA** ■

*The author is a senior architect with Wallace, Floyd, Associates in Boston, and is technical researcher and the quality reviewer for the Chief Architect on the Central Artery/Tunnel Project. The section on Rules of Thumb was prepared with the assistance of Michael Sommerstein, P.E., Engineering Manager, VicWest Steel, Oakville, Ontario.*



Andy Ryan

7 VENTILATION BUILDING NO. 5


### Acknowledgments

Wallace, Floyd, Associates is the coordinating architectural subconsultant to Bechtel/Parsons Brinckerhoff, Inc., Management Consultant to the Massachusetts Highway Department on the Central Artery/Tunnel Project. Stull and Lee, Inc. is collaborating with Wallace, Floyd, Associates on some of the buildings discussed in this article.


### References


1. *Rainscreen Cladding,* J.M. Anderson and J.R. Gill, Butterworth Publishers, Stoneham, Massachusetts (800) 366-2665, 1988.

2. The Rain Screen Wall," Dale D. Kerr, P/A, August 1990, pp. 47–52.

3. "Field Testing of Pressure-Equalized Rain Screen Walls," Brown, Rousseau, and Dalgliesh, in "Exterior Wall Systems," edited by Barry Donaldson, American Society for Testing and Materials, publication STP 1034, Philadelphia (215) 299-5585, 1991.


### Recommended Reading

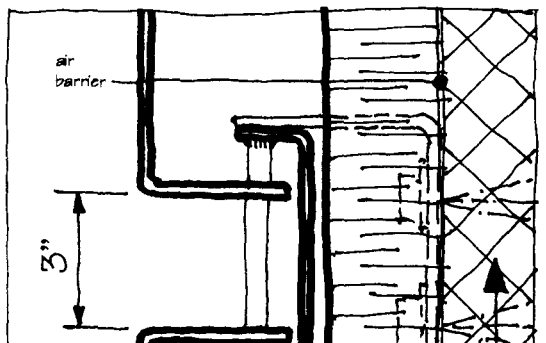

Air Barriers, TEK-AID Digest 07195 Construction Specifications Canada, Toronto: (416) 777-2198, 1990, 52 pp.

"Air and Vapor Barriers", R.L. Quirouette, P/A, September, 1991, pp. 45–51.

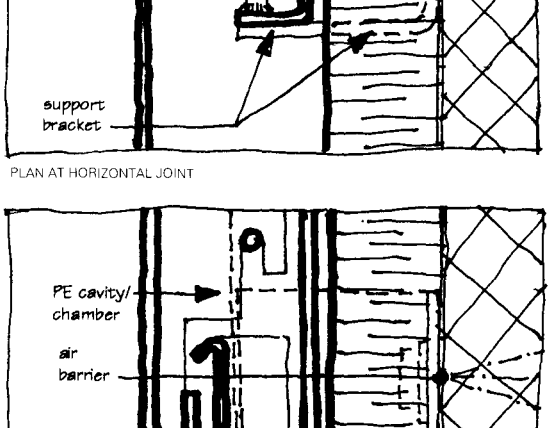
"Rain Penetration and its Control," G.K. Garden, *Canadian Building Digest 40,* National Research Council Canada, Ottawa (613) 993-2463, 1963, 4 pp.

"The Rainscreen Principle and Pressure-Equalized Wall Design," Volume 2, *Aluminum Curtain Wall Design Guide Manual,* American Architectural Manufacturer's Association, Palatine, Illinois (708) 202-1350, 1979, pp. 22–31.

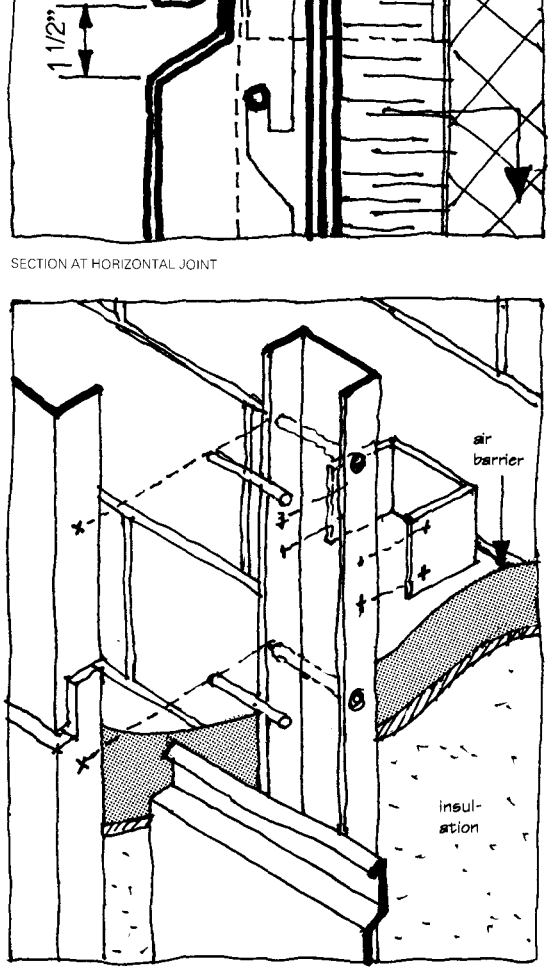
*What You Ought to Know About Air Barriers and Vapor Retarders,* Paul Shipp and Maurice J. Marchello, pamphlet, U.S. Gypsum Company, Tarrytown, NY (312) 606-5845, 1989.


PLAN AT HORIZONTAL JOINT

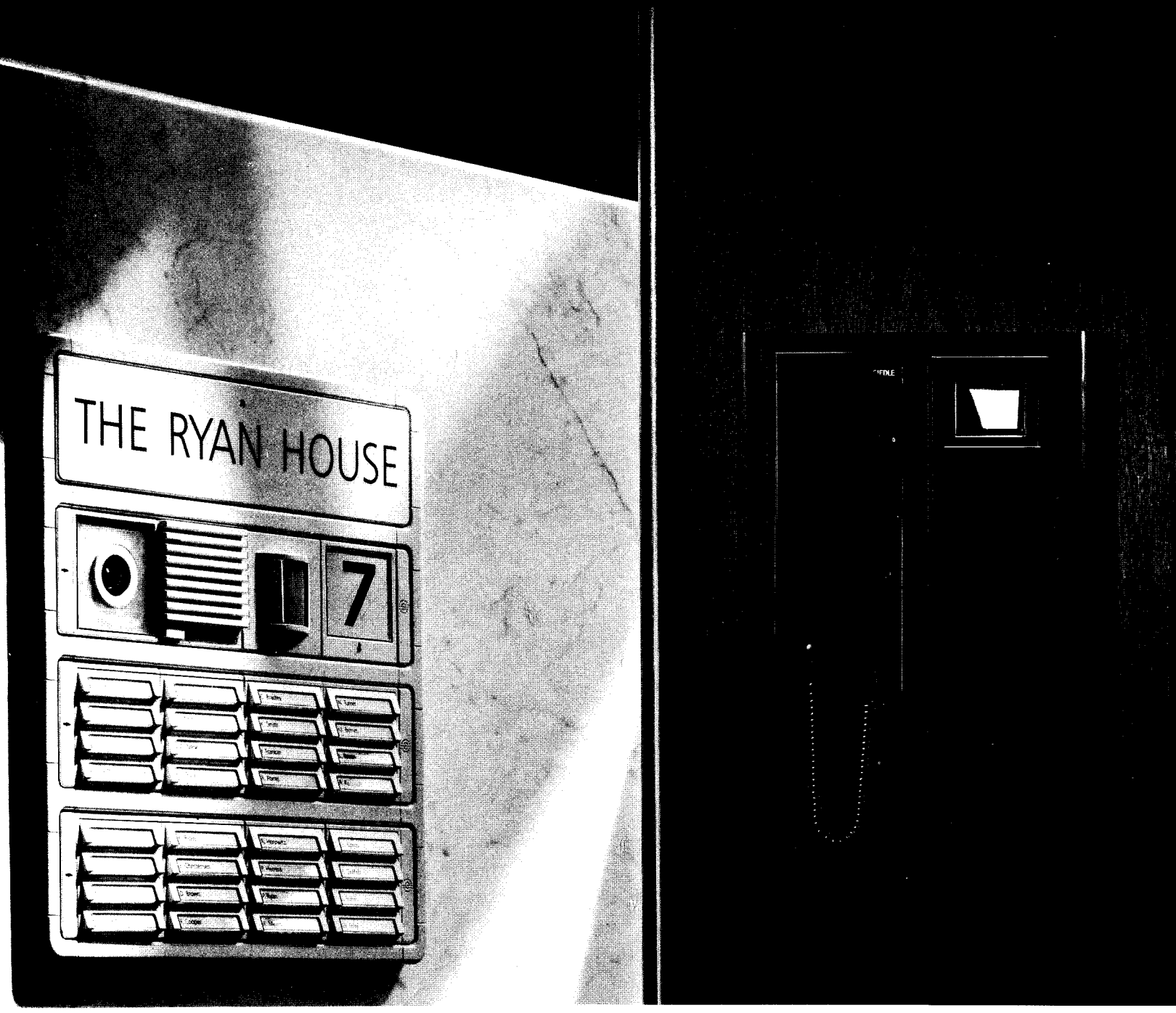



SECTION AT HORIZONTAL JOINT




ISOMETRIC OF VERTICAL AND HORIZONTAL JOINTS

8 CENTRAL ARTERY/TUNNEL VENTILATION BUILDING DETAILS




# Outdoor - Indoor

Lifestyles differ both privately and professionally. The award winning design of Siedle Communication Systems incorporates unique function modules that offer unlimited function options to meet your clients individual needs.

Outdoor the Vario system can be designed for flush or surface mounting or for integration into a pedestal.
Indoor you have the choice of individual styling including table-top or flush or surface wall mounted.

Siedle modularity provides the flexibility to design communication systems around the individual clients lifestyle and needs.
Styling as desired - functionality as planned.

Coupon
Send to: Siedle Communication Systems of America, Inc, 750 Parkway, Broomall, PA 19008

Please send me further information on Siedle communication systems

PA/8/93

Name _____

_____

Address _____

_____

Circle **No. 312** on Reader Service Card

**Intelligent internal communication Systems** SSS SIEDLE

# Practice

**Kristof Jacunski** explains why 3D CAD technology and urban design are especially suited to each other.

## Practice Points

**A two-day symposium entitled "Critical Issues in Design Liability: Emerging Risks and Liabilities in the Shop Drawing and Submittal Process" will be held September 30–October 1 in Atlanta. The symposium, focusing on the proper allocation and exercise of design responsibility in this process, is being presented by the Georgia Institute of Technology and several other cross-disciplinary bodies. The cost of attendance is $450. For information, telephone (404) 894-2547.**

**The *A/E Marketing Journal* reports that significant construction will take place in Australia over the next few years. More information may be obtained by purchasing a publication entitled *Major Building Projects* from Burwood Publishing, telephone 011-61-3-819-9463.**

**The AIA has announced that it is making all its standard form contracts available on computer. AIA*EDS* software works on PC compatibles equipped with Windows 3.1, Lotus 2.3, and Excel 4.0. The software is available for an annual licensing fee. For information, telephone 1-800-365-ARCH.**

**Design professionals working for an incorporated firm may become individual parties to arbitration under AIA standard agreements. The Appellate Division of the New York State Supreme Court has ordered a hearing to determine which affiliates, shareholders, and employees of a large firm will have to submit to arbitration with the Manhattan developer who is suing over a host of alleged improprieties related to the design of an office tower in the mid-1980s.**

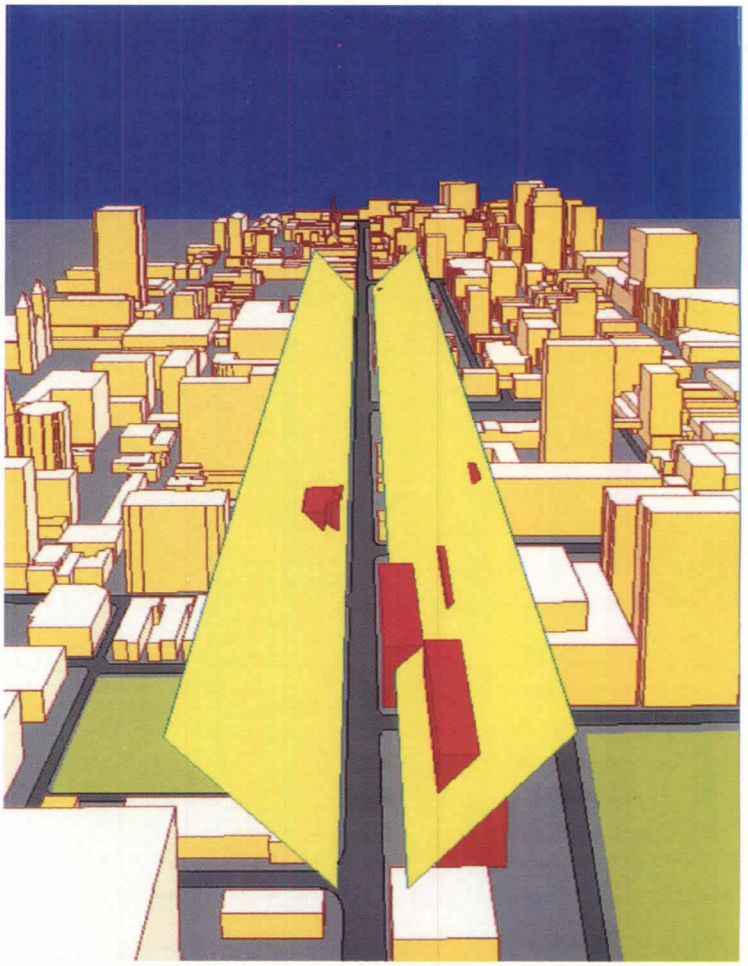
## Computers: 3D CAD for Urban Design

Computer technology continues to provide new tools that allow architects and urban designers to process and evaluate large amounts of information. The ability of computers to manipulate data rapidly is particularly useful for reviewing "what if?" scenarios. Thus, urban design has become a natural area for computer applications.

The City of Toronto Planning and Development Department has been experimenting with computer use since the mid-1980s. The Architecture and Urban Design Division employs MicroStation on both Intergraph and Macintosh platforms, and Architrion on the Macintosh platform. Designers are equipped with Architrion, while dedicated operators use MicroStation to compile databases of existing conditions in the city.

Between 1989 and 1990, the MicroStation operators concentrated on creating a three-dimensional model of the city core. Now that this model has been completed, designers translate relevant portions of it into Architrion as a base for testing urban design policy, carrying out the development reviewing process, modeling and comparing density allocations, testing built form envelopes for specific sites, modeling and testing open spaces and view corridors, and testing sun access for streets and open spaces.

When a designer is testing a proposed development against an existing regulatory framework, 2D site information is imported from MicroStation; then both the regulatory envelope and the proposed development are modeled in Architrion. By combining the two models, the designer can easily identify overbuilt elements, and with Architrion 2D, calculate their area.

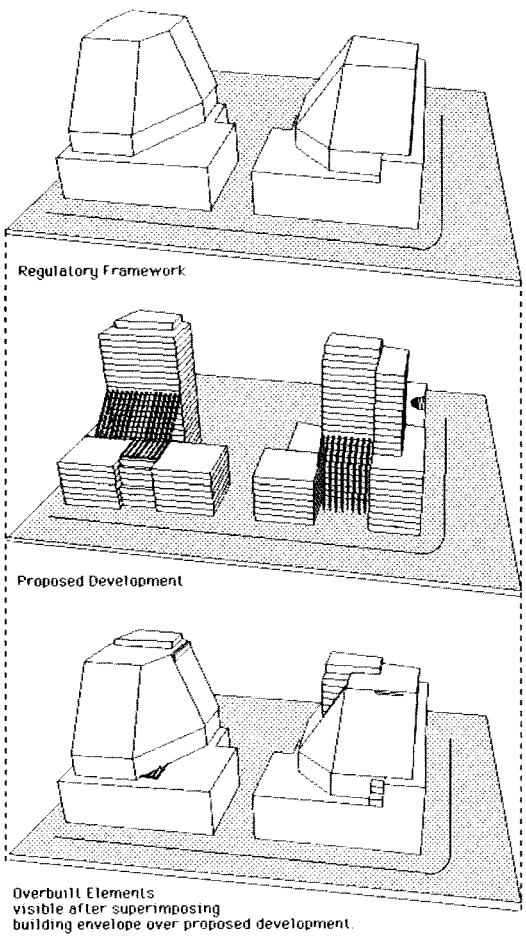


TESTING THE APPROPRIATENESS OF PROPOSED SUN ACCESS PLANES AGAINST EXISTING CONDITIONS ON A CITY STREET

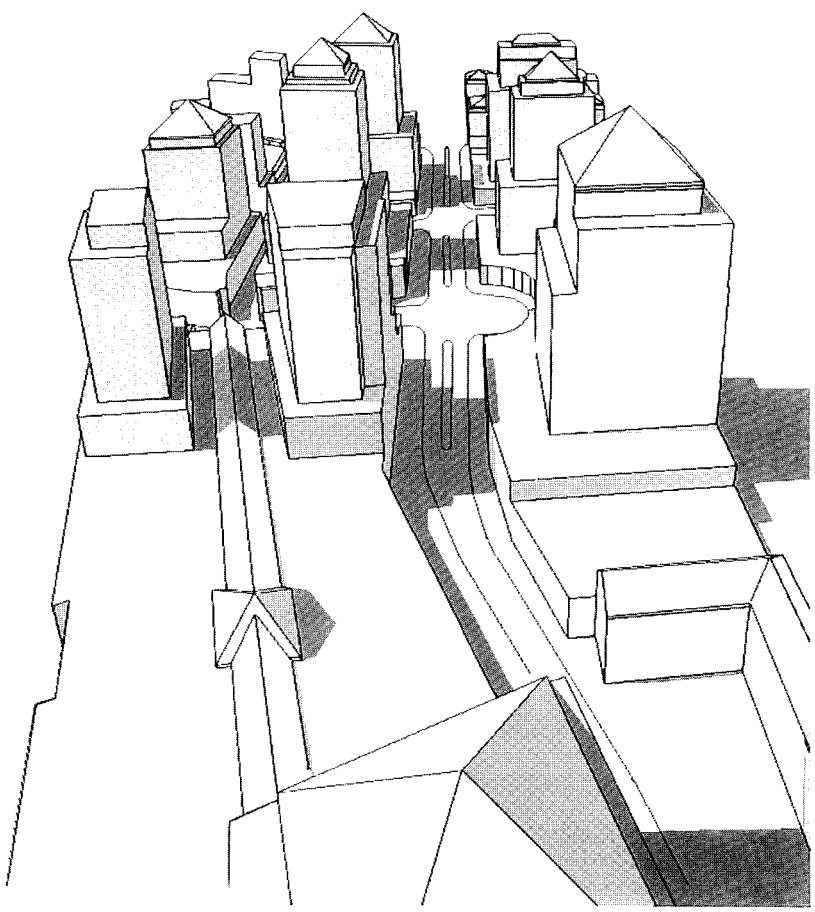
Designers can also test the shadow-casting impact of a given proposal by translating portions of the 3D city model into Architrion, and inserting proposed massing models. Architrion has a built-in shadow casting feature that allows the user to set the time, date, and location.

By contrast, the appropriateness of proposed height limits or solar access planes can be tested by importing the city model and inserting the proposed planes to see which existing or future buildings contravene them, and how severe and how frequent these contraventions are.

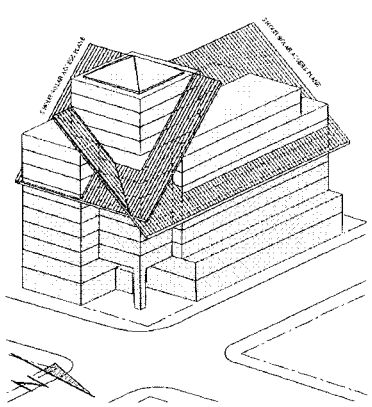
The Division has created its own computer library of building types, based largely on existing buildings in the Toronto area. During the development review process or policy analysis work, a model of an existing building can be transferred from the library to a site under consideration to test




MERGING MODELS OF THE EXISTING REGULATORY FRAMEWORK AND A PROPOSED MODEL TO IDENTIFY POINTS OF CONFLICT



TESTING A PROPOSED LARGE-SCALE URBAN DEVELOPMENT FOR IMPACTS ON VIEWS, SUN ACCESS, STREETSCAPES, AND SPATIAL RELATIONSHIPS



TESTING A PROPOSED BUILDING AGAINST THE CITY'S SUN ACCESS RECOMMENDATIONS

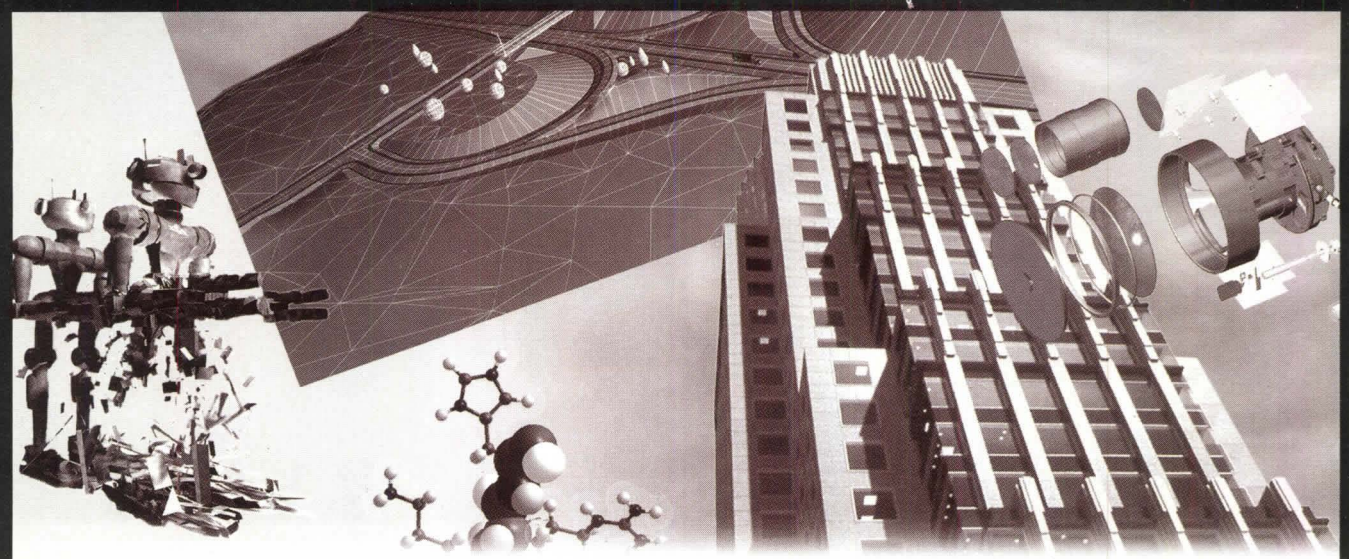
possible implications on the urban environment.

We have also used Adobe PhotoShop to montage massing models with scanned photographs to test developments for their impact on view corridors.

We have found that the simple and accessible form-making functions available on our computer system have become an important and irreplaceable tool for our staff, mainly because they allow designers to be more creative and productive. Rendered perspectives and montages have been effective visual representation tools for the public consultation process. From the designers' point of view, the biggest advantage of this computer technology is that it enables them to see and test a designed object in context – almost as if it were already built.

**Kristof Jacunski** ■

*The author prepared this article on behalf of the City of Toronto Planning and Development Department (Robert E. Millward, Commissioner), where he is an urban designer.*



# Autodesk University Presents Higher Education for Serious Autodesk Users.

Introducing Autodesk University, the premier event for users of Autodesk software including AutoCAD, 3D Studio and Generic CADD. Produced by Autodesk and Miller Freeman (the publishers of CADENCE magazine), AU will feature technical instruction from the best independent instructors as well as Autodesk's own technical gurus. You'll get exactly the application specific information and training you need – and you'll get it all in 5 days.

## { *A Conference Within a Conference* }

Autodesk University will be held in conjunction with the North American AutoCAD Users Group Annual Conference, providing you with an excellent opportunity to network with thousands of the best and brightest AutoCAD professionals in one place at one time.

4th Annual NAAUG Meeting

Circle **No. 311**

## { *What's Your Major?* }

Autodesk University's technical program will feature 10 concurrent tracks: A/E/C, Mechanical, Multimedia, Generic CADD, AutoCAD, Scientific Modeling, Continuing Education, Developers, CAD System Management and GIS – over 150 classes so you can customize a program that's right for you.

## { *Put Your Skills to the Test* }

Virtually every major AutoCAD developer and manufacturer will be displaying their wares at the AU products Exhibition. Don't miss any of it!

*Phone us at (415) 905-2354, or fax us at (415) 905-2220 today for more information!*


AUTODESK UNIVERSITY
Conference & Exhibition

**YES!** Send me a FREE Course Catalog. I'm interested in ❑ Attending ❑ Exhibiting

NAME _____ ADDRESS _____

TITLE _____ CITY _____ STATE _____ ZIP _____

COMPANY _____ PHONE _____ FAX _____ PAA

**AUTODESK UNIVERSITY** PHONE (415) 905-2354 • FAX (415) 905-2220 • P.O. Box 7843, San Francisco, CA 94120-7843

# EIFS

Exterior Insulation and Finish Systems

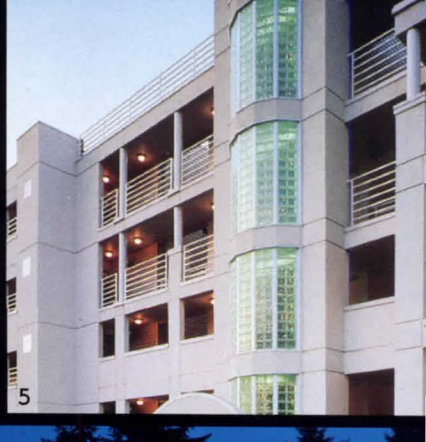
## THE BRIDGE BETWEEN DESIGN FLEXIBILITY AND *Prestigious* AFFORDABLE CONSTRUCTION


1

2

3


4


5

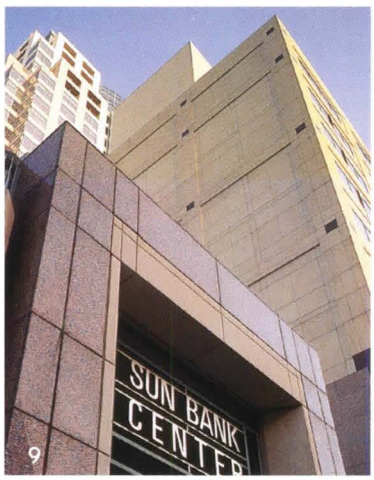

6


7

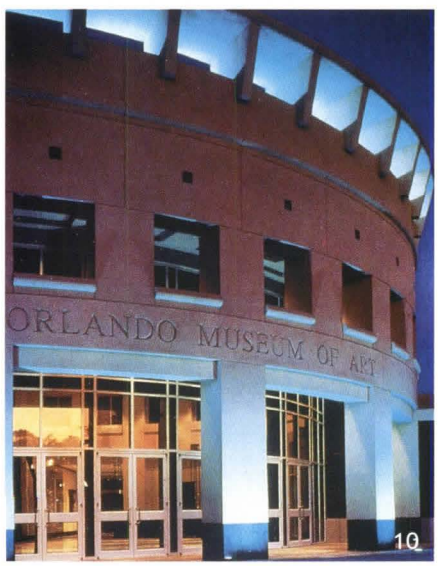
# EIFS


8

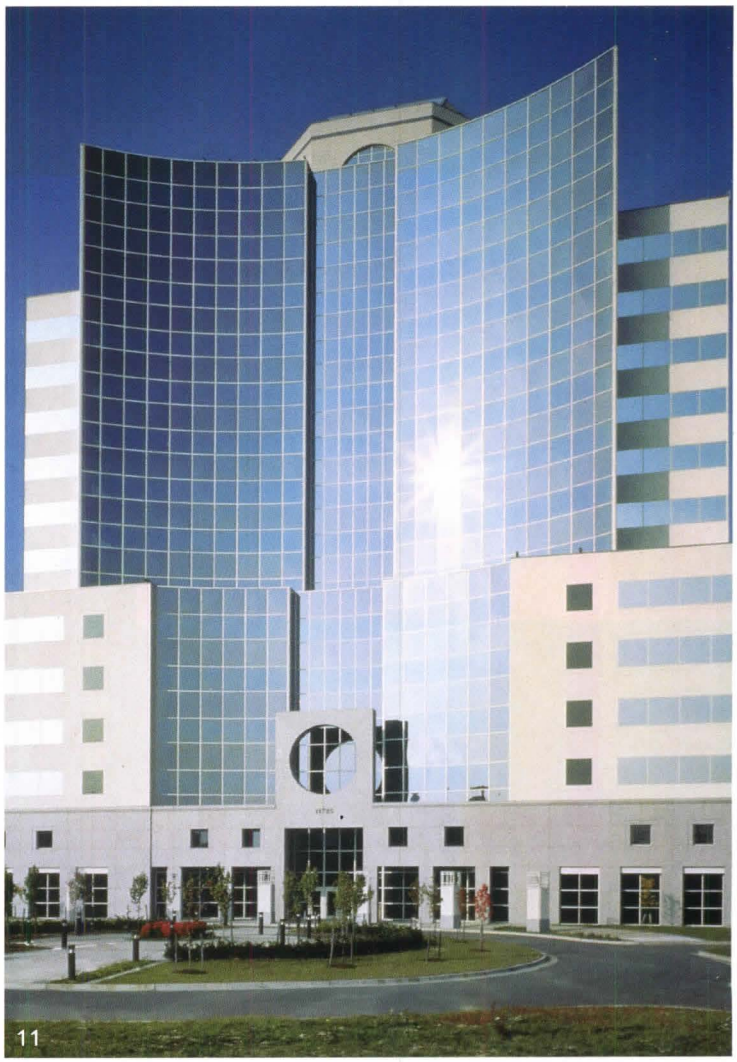
COVER:
1) Herberger Theater Center
Howard Needles Tammen &
Bergendoff, Phoenix, AZ
2) Blockbuster Video
Williams Trebilcock Whitehead,
Lanham, MD
3) Sears
Leidenfrost/Horowitz, Glendale, CA
4) Lenox Gables
Niles Bolton, Atlanta, GA
5) Citiscape Condos
Driscoll Architects, Seattle, WA
6) Citrus Bowl
C-T-Shu & Associates, Orlando, FL
©Phil. Spears
7) Tom Braaten residence
Rich Walton & Associates,
Portland, OR



9



10


11

AS SHOWN ABOVE:
8) Valley International Airport • Bovay-McGinty, Inc., Houston, TX
9) Sun Bank • S.O.M. Architects, Washington, D.C. ©Phil. Spears
10) Orlando Museum of Art • Morris Architects, Orlando, FL
11) Calverton Five • Walton, Madden, Cooper, Landover, MD
12) Embassy Suites Hotel • Doug Comstock, Colorado Springs, CO
13) Westside Elementary School • Dekker, Perrich & Associates, Albuquerque, NM

12

13

## Design Flexibility

EIFS...Exterior Insulation and Finish Systems offer design opportunities limited only by the imagination. They allow the utilization of otherwise costly creative accents such as pediments, keystones, quoins, spandrels and reveals. The affordable design versatility achieved with EIFS is further enhanced by innumerable color and texture options and the ease with which the system functions in harmony with a wide spectrum of other building materials.

## Insulation Qualities

EIFS eliminates thermal bridges and brings insulation to the outside of the building literally "wrapping it" to protect against the elements. Decades later, an EIFS building continues to provide heating and cooling savings to the building owner.

## Field Applied or Panelized

The decision for field application or panelization will be determined by the size of the project, prevailing weather conditions and the urgency to close-in the building. Be assured, however, EIF systems, field applied or panelized, are "builder friendly." They install quickly easily providing additional savings.

## Renovation or Retrofit

EIFS can revitalize a building at a most reasonable investment cost. Whether restoring a building to its former state or creating an updated contemporary look, EIFS offer the opportunity to meet the owner's requirements with almost no disruptions of ongoing business activities.

## Durability

EIFS arrived on the North American continent from Europe in 1969. Today, there are thousands of structures that have been successfully designed with EIFS, both new and retrofit. These systems continue to grow in popularity because they are durable and provide cost-effective solutions to creative design challenges.

For more information on how to put quality assurance into your EIFS specification, look to the firms that display this logo.

**EIFS Industry Members Association**

*The Symbol of Quality and Dependability*

*When you specify an EIFS or you want to know more about Exterior Insulation and Finish Systems, first look for the EIMA logo.*

*It's your assurance of the highest professional standards of product and service.*

The manufacturers listed are the foundation of the EIFS Industry Members Association. But, as our name implies, the membership includes a much broader base. There are applicator/ contractors who are dedicated to quality workmanship, distributors who provide technical expertise and dependable service as well as suppliers whose products meet the association's high standards. Industry consultants and regional trade associations complete our membership.

The membership is dedicated to building and maintaining quality and product dependability. At the same time, we foster state-of-the-art training standards and procedures as well as provide educational tools to improve the capabilities and performance of applicator/contractors.

We are EIMA! We represent an industry which today generates approximately 200,000,000 feet of wall surface annually. We consider this an important and meaningful trust. Our mission is to make the EIFS industry even more responsive to the needs of designers and building owners in the next century.

***For information about EIFS construction or our association, contact***
***EIFS Industry Members Association***
***2759 State Road 580, Suite 112***
***Clearwater, Florida 34621-3350***
***Phone 813-726-6477 FAX 813-726-8180***

***Dryvit Systems, Inc.***
***FINESTONE***
***Parex, Incorporated***
***Pleko Products, Inc.***
***Senergy Inc.***
***Sto Corp.***
***Thoro System Products***


N. Manatee Health Center • Jerry N. Zoller, Bradenton, FL

This insert is designed so it will easily pull out for reference and filing.

**EIFS Industry Members Association**


Printed in U.S.A. 5-93

# P/A

This month, P/A presents the first completed building by Zaha Hadid, the Vitra Fire Station, with a companion article on Vitra's campus in Weil am Rhein, Germany.

Also featured: the Salem Witch Trials Memorial, an article on CAD and photogrammetry in restoration, and a Critique of the restored Union Station in Washington, D.C.

Hélène Binet

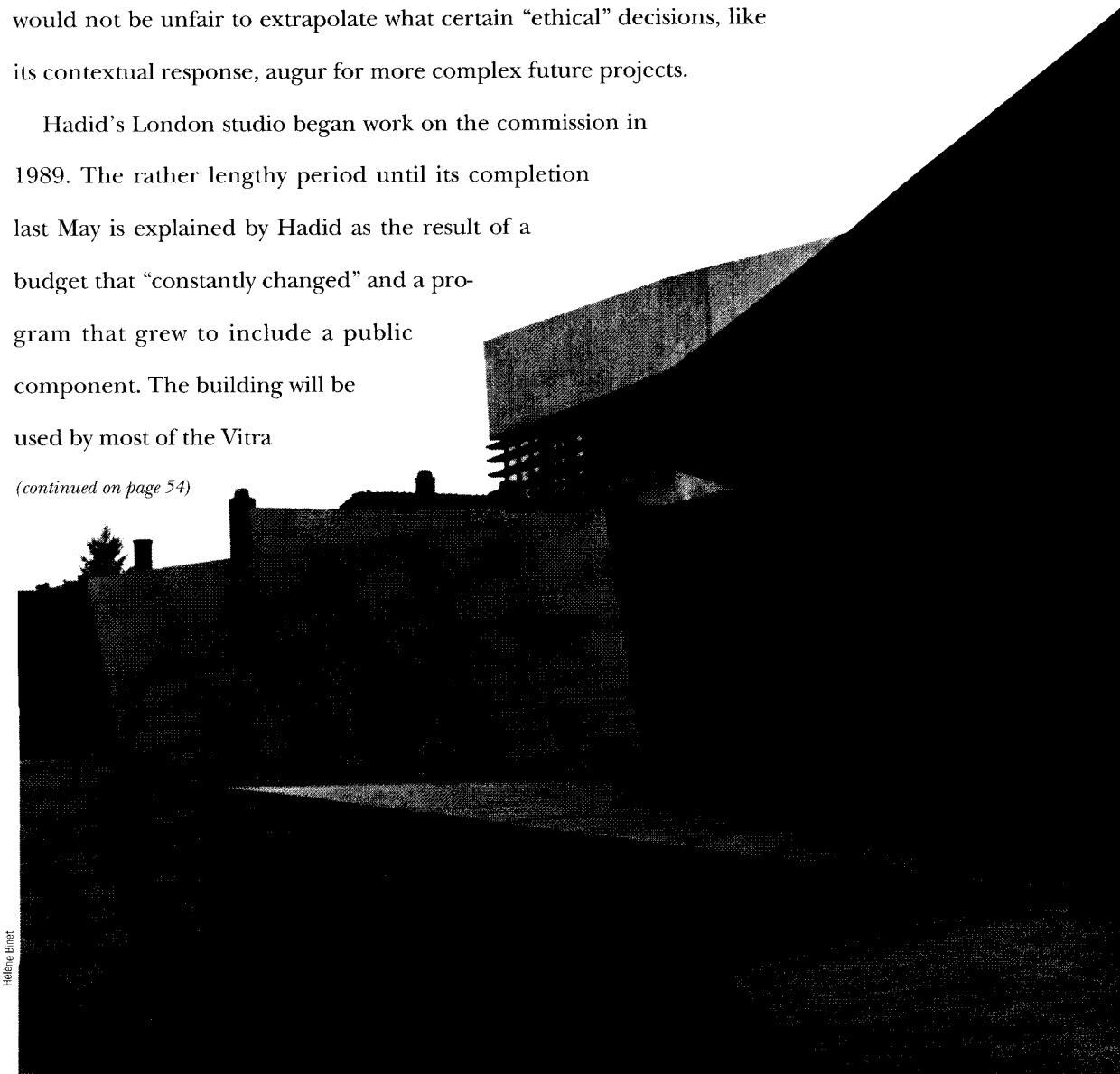
# The Concrete Evidence

With the realization of the Vitra Fire Station in Weil am Rhein, Zaha Hadid's architecture can finally be judged in the round.

Propelled by her drawings, Zaha Hadid's fame presents no small liability: some critics, with axes to grind, will not resist the temptation to judge her capabilities solely on the evidence of her first stand-alone building. Such judgment would be premature, given the fire station's limited scale, relatively simple program, and highly controlled setting. However, the building may be evaluated on its structural, spatial, and experiential merits, and it would not be unfair to extrapolate what certain "ethical" decisions, like its contextual response, augur for more complex future projects.

Hadid's London studio began work on the commission in 1989. The rather lengthy period until its completion last May is explained by Hadid as the result of a budget that "constantly changed" and a program that grew to include a public component. The building will be used by most of the Vitra

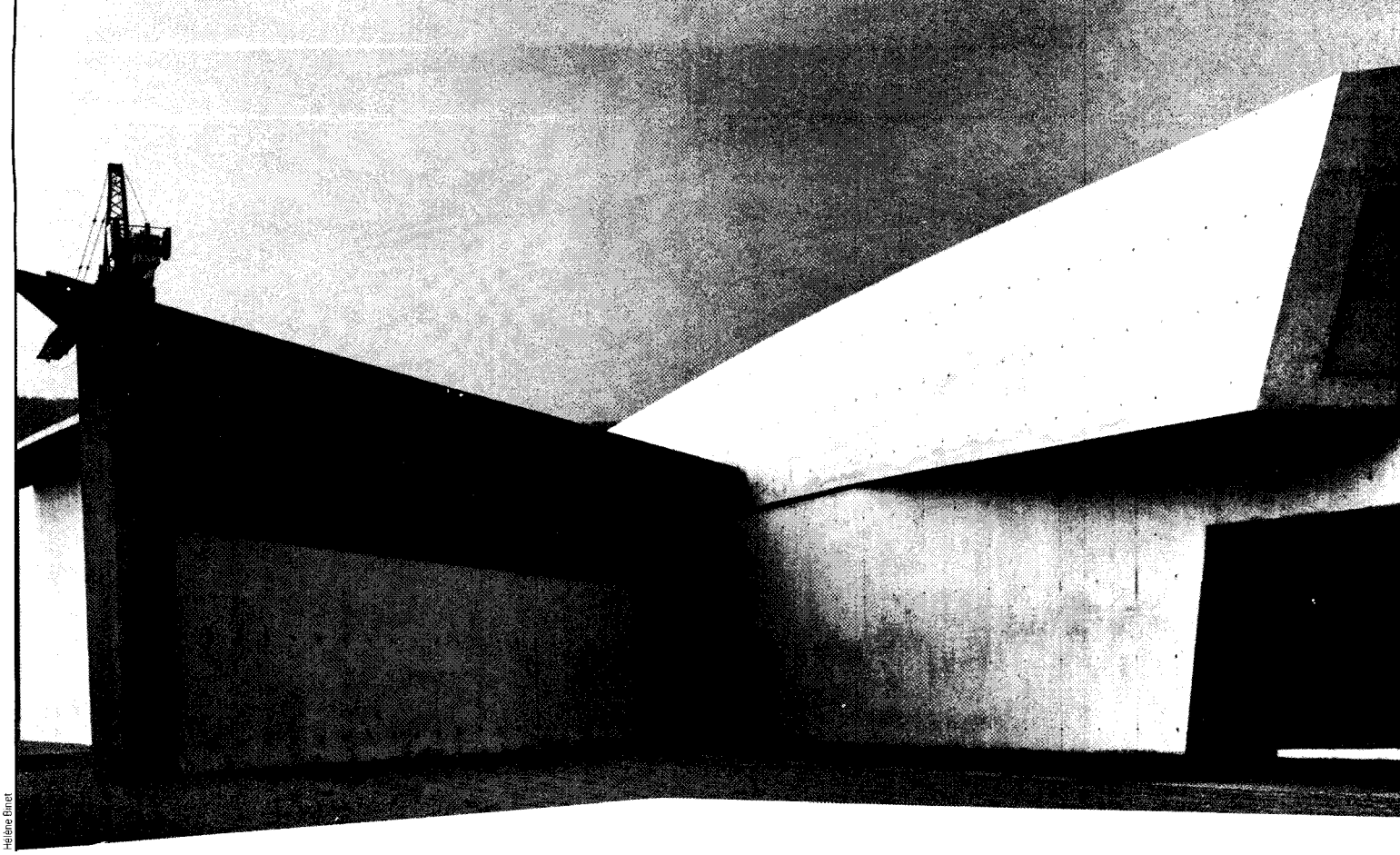
*(continued on page 54)*



Hélène Binet

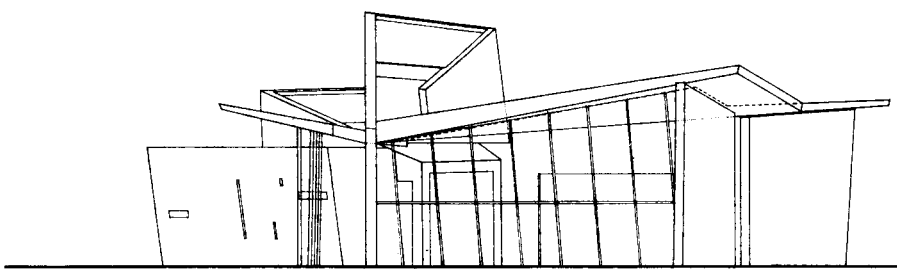
*The planes of the entrance façade, right, are inflected to close the perspective from the factory gate up the main street of the compound. A spearlike canopy, supported by a bundle of slender struts, marks the entrance at midpoint. The fire station's dramatic nighttime appearance (top right) is created by lighting fixtures embedded in the edge of the canopy and by recessed lighting along the base of the building.*

Richard Bryant



Hélène Binet

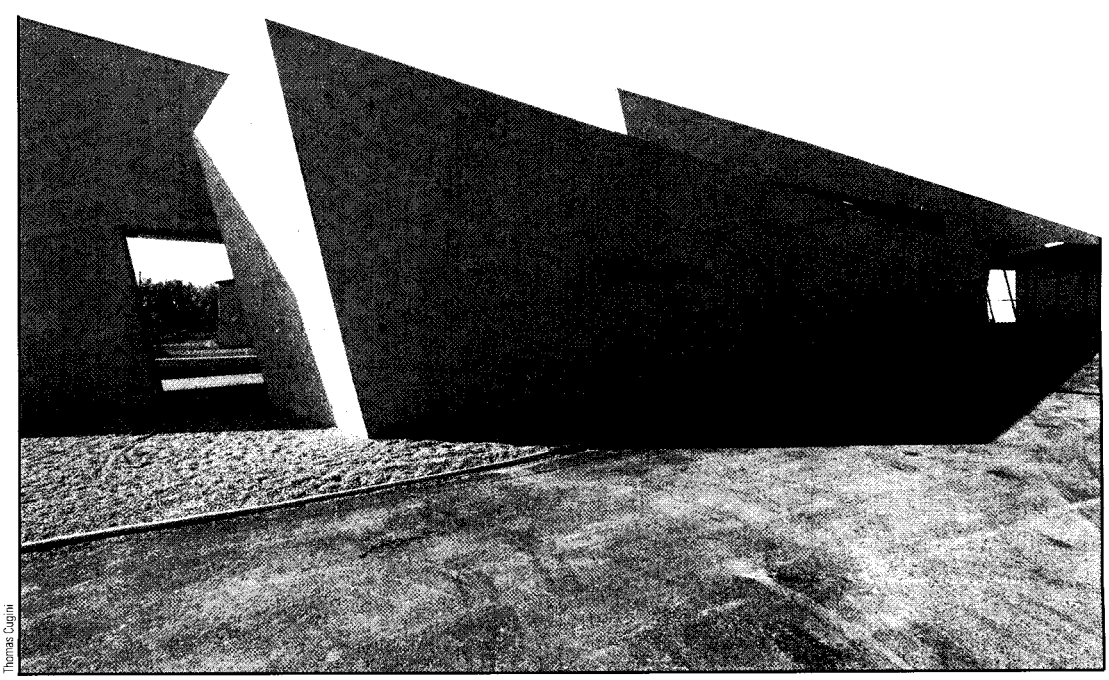
1



EAST ELEVATION

20 /6m

*For all the perplexities of Hadid's trademark paintings, and the no less intriguing visual effects of her realized building, the fire station is actually a surprisingly simple composition of five parts: at the east end of the site stands a large shed for fire engines, with expansive rolling doors of brushed aluminum and an angled concrete roof; to the west, beyond the shed and entrance canopy, three beamlike masses create a sweep of some 140 feet. One of the two ground-floor "beams," lining the street, houses changing areas and a small first-aid room; the second attenuated volume holds a strip-windowed fitness room overlooking a small landscaped court on the rear side of the building (1). The east façade of the great shed is glazed with a tilted-frame window wall (see elevation). At the other extremity, the hurtling contours of the bars are brought to a halt by forward-leaning concrete end walls (2).*



Thomas Cugini

2

**"There is the rule of the hand – I can't negate that –**

**but not a hand without a brain."** Zaha Hadid

Paul warchol

3

Paul warchol

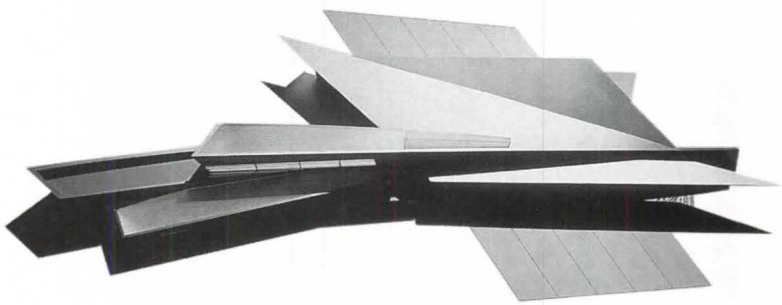
4

*At the line where the ground-floor building bars converge (3), a sliding glass door was installed to facilitate maintenance of the acute exterior corner space. The third linear mass rides above the ground-floor bars and houses an intimately scaled, louver-windowed club room that opens onto a roof terrace (above, right). The foyer (4) forms the "knuckle" between the shed and the elongated wings; its transparent east wall affords views from one end of the building to the other. Just above the front door, the primary structural beam supporting the shed roof crosses over the void and is integrated into the reinforced walls of the long boxes.*

5



**"The fire station commands a public route through the compound: I wanted to carve a permanent void in this place, which becomes a civic space for the factory."** Zaha Hadid



VIEW OF MODEL FROM SOUTH

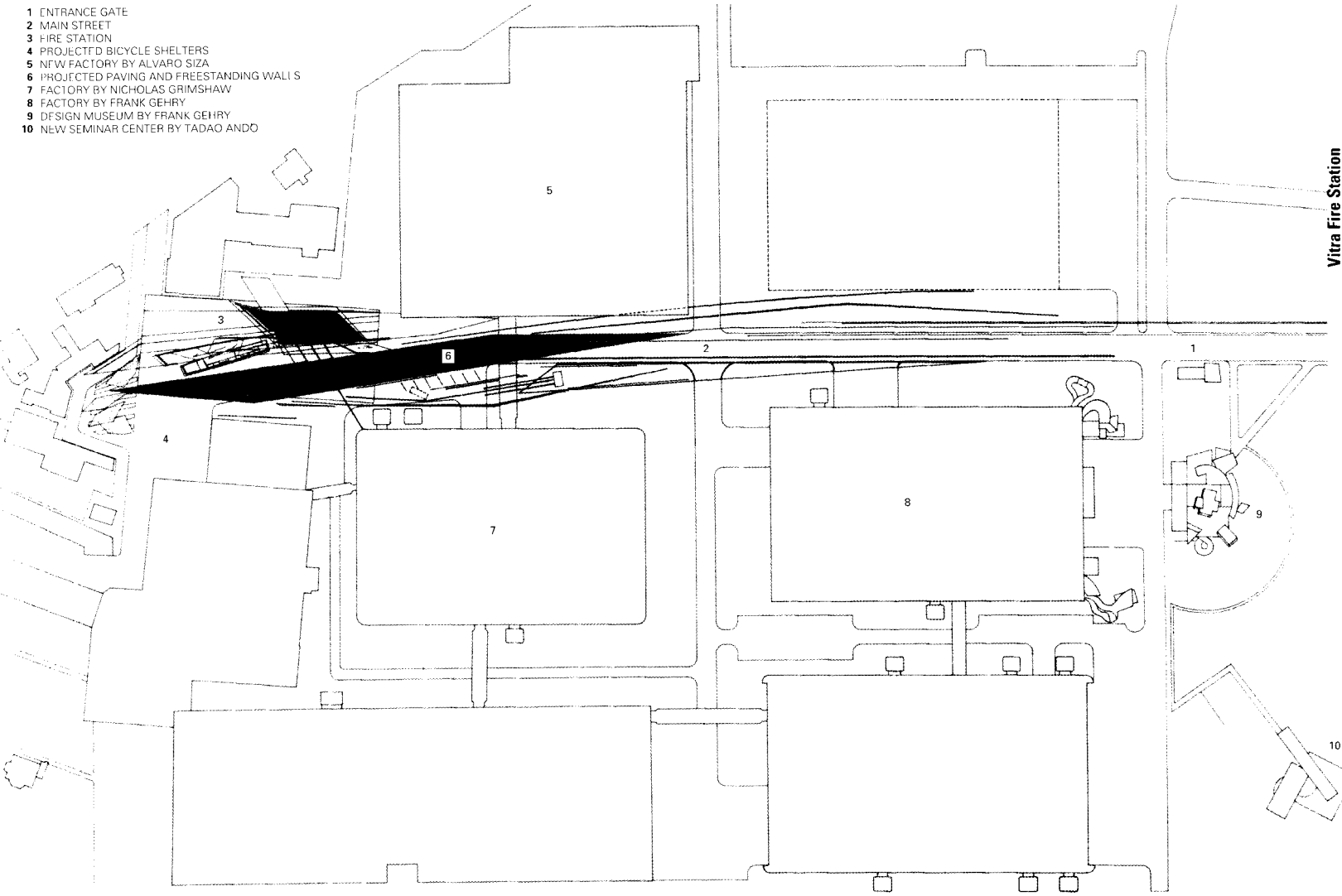
### Urbanistic Considerations

One doesn't expect to hear much about urban design from an architect lumped (albeit carelessly) with the Deconstructivist school. But in ways more true to Zaha Hadid's Constructivist roots, urbanistic considerations had substantial influence on the fire station's design.

Sited at the far end of the main street through the manufacturing compound, the linear building bends in response to sightlines from the entrance gate, its geometry guided by Hadid's desire to strengthen this "urban corridor" by having it culminate in the building. Projected bicycle canopies beyond the fire station, combined with paving patterns in its foreground, are planned to further define the public "node" surrounding the structure.

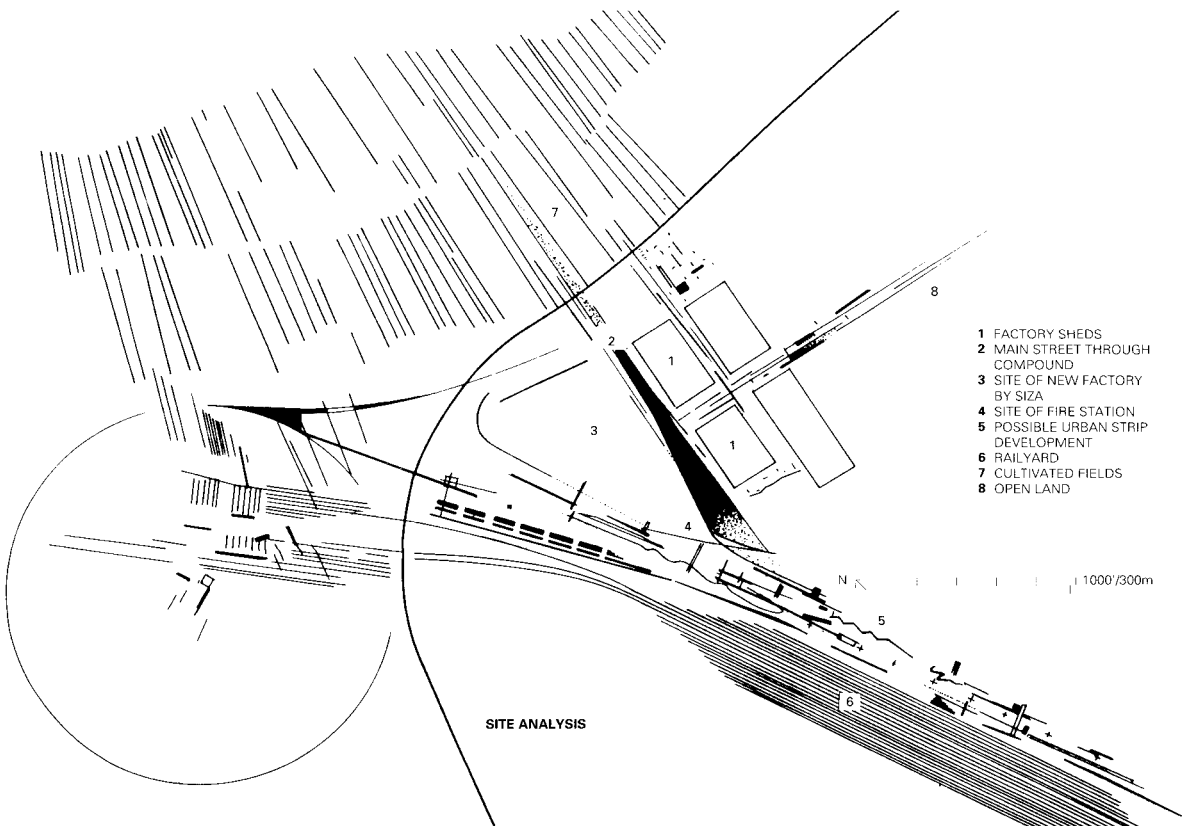
These considerations were broadened in April 1991, when local authorities, in conjunction with Vitra director Rolf Fehlbaum, held a three-day planning workshop with the participation of Frank Gehry, Zaha Hadid, Alessandro Mendini, the mayor, German architects, and planners. Five teams analyzed the city of Weil and came up with diverse "visions" for its future growth and for possible relationships between industry and the other components of the urban fabric.

1 ENTRANCE GATE
2 MAIN STREET
3 FIRE STATION
4 PROJECTED BICYCLE SHELTERS
5 NEW FACTORY BY ALVARO SIZA
6 PROJECTED PAVING AND FREESTANDING WALLS
7 FACTORY BY NICHOLAS GRIMSHAW
8 FACTORY BY FRANK GEHRY
9 DESIGN MUSEUM BY FRANK GEHRY
10 NEW SEMINAR CENTER BY TADAO ANDO




**SITE PLAN**

N 200'/60m




1 FACTORY SHEDS
2 MAIN STREET THROUGH COMPOUND
3 SITE OF NEW FACTORY BY SIZA
4 SITE OF FIRE STATION
5 POSSIBLE URBAN STRIP DEVELOPMENT
6 RAILYARD
7 CULTIVATED FIELDS
8 OPEN LAND

N 1000'/300m

**SITE ANALYSIS**

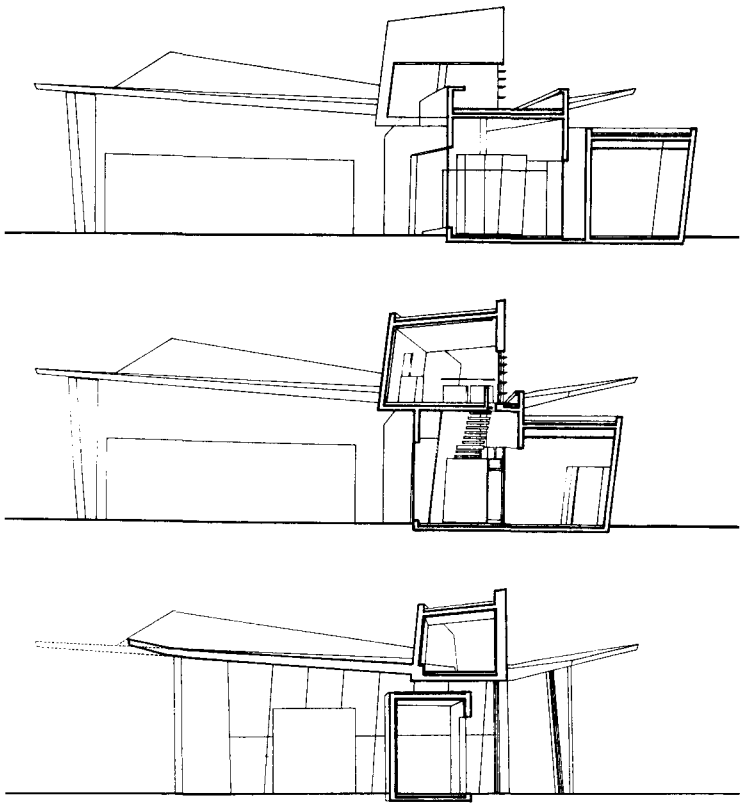
*Vitra's complex occupies the north apex of a larger triangle that is the city of Weil (see site analysis, left). The south edge of the factory compound is bordered by open land, which may be gradually infiltrated by garden-city fabric already established farther south. To the west is an implacable edge formed by an elevated highway and a wide bed of railways, including a large turning loop, now unused. On raised land overlooking the rails, Hadid's Weil Workshop team foresaw the development of a vital, mixed-use urban strip. The east side of the triangle, from which one enters the Vitra complex, faces a farmed hillside. The perpendicular pattern of the fields is continued in the factory's main and secondary streets. Likewise, the directional lines suggested by agriculture and infrastructure are echoed in the fire station's contours.*

(continued from page 48)

employees, who make up the rotating teams of firefighters. In addition, the club room and engine shed may on occasion be used for gatherings.

The main design issues cited by the architect had to do with responding to a context where industrial and natural landscapes meet, and with using a small building on the edge of the factory complex to alleviate the monotony of the manufacturing sheds. "We took it upon ourselves to look at the whole site, starting with a critique of the factory, and including very detailed, complex studies for the landscape," Hadid explains.

Close scrutiny reveals the building is indeed finely tuned. It manages to preserve many qualities of Hadid's painted visions while remaining down-to-earth. The gravity-defying momentum associated with the famous renderings of the competition-winning Hong Kong Peak project (P/A Oct. 1984, p. 98), which essentially launched Hadid into the sphere of celebrity, is evoked here by the headlong tilt and sweep of the building's geometry: orthogonality is scarce, supplanted by canted end walls, slanted door and window frames, and perspective-lengthening curves. For the most part, the forms are boxy, although they converge at extremely acute angles. (Steel wedges were attached to the formwork to achieve the line-thin sharpness where portions of the building shear away from one another.) The entrance canopy and one sharp corner of the engine shed are the only solid reminders of the razor-edged aesthetic one wag laughingly referred to as "Sado Modernism."




CROSS SECTIONS

Oddly enough, the ostensibly dynamic building, executed as it is with great precision, inspires rather restful contemplation. The voids opened between various elements yield surprising views as one moves around the structure – glimpses that tantalize without surrendering much of the building's mystique. Its grace in almost every part is itself a reason to look forward with anticipation to Hadid's further construction: the lavish expanses of glass, slipped into the concrete with virtually no intermediary, and the overall impression of unfettered transparency give the structure a luscious, limpid quality. Its abstraction of detail and hedonistic form allow the building to enlarge itself in one's imagination; thus embellished, it approaches the fantasy of immaculate, dematerialized modernity.

Yet these qualities, though numerous, are overshadowed by the disappointment of the spaces: sacrificed, possibly, to Hadid's overriding graphic sensibility, these are corridorlike, largely undifferentiated in section, and hurried to an arbitrary conclusion. Nowhere does the space flare out or soar, as the thrust of the building's geometry would suggest: arrival at the upper-floor club room, for instance, delivers no sense of climax. Three or four feet more to the width of the room would not have diminished its pleasant intimacy, but would have allowed a spatial culmination to mounting expectations.

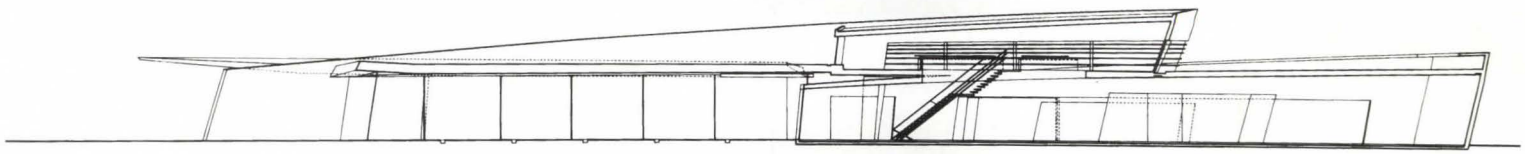
As a public piece, the fire station proves very effective at enhancing the "urban space" around it, primarily through its felicitous conclusion of the main axis through the compound (see p. 52). The back yard is less successful. In this regard, too, it is a pity that the club room does not slip far enough over the edge of the ground-floor gym; if it had, the overhang might have created a more hospitable, shaded exterior space along one side of the recreational court.

The only place the building makes an unforgivable sacrifice to artiness is in the bathrooms: sightlines allowed into the men's changing room by the positioning of the locker cabinets, and translucent glass doors to all the toilet stalls unnecessarily compromise privacy, amounting to what P/A editor Thomas Fisher regarded as "a sneering at bourgeois sensibilities." Hadid claims, somewhat disingenuously, that Vitra management put no premium on privacy, and that in an emergency, the men and women firefighters will have no time for prudish inhibitions.

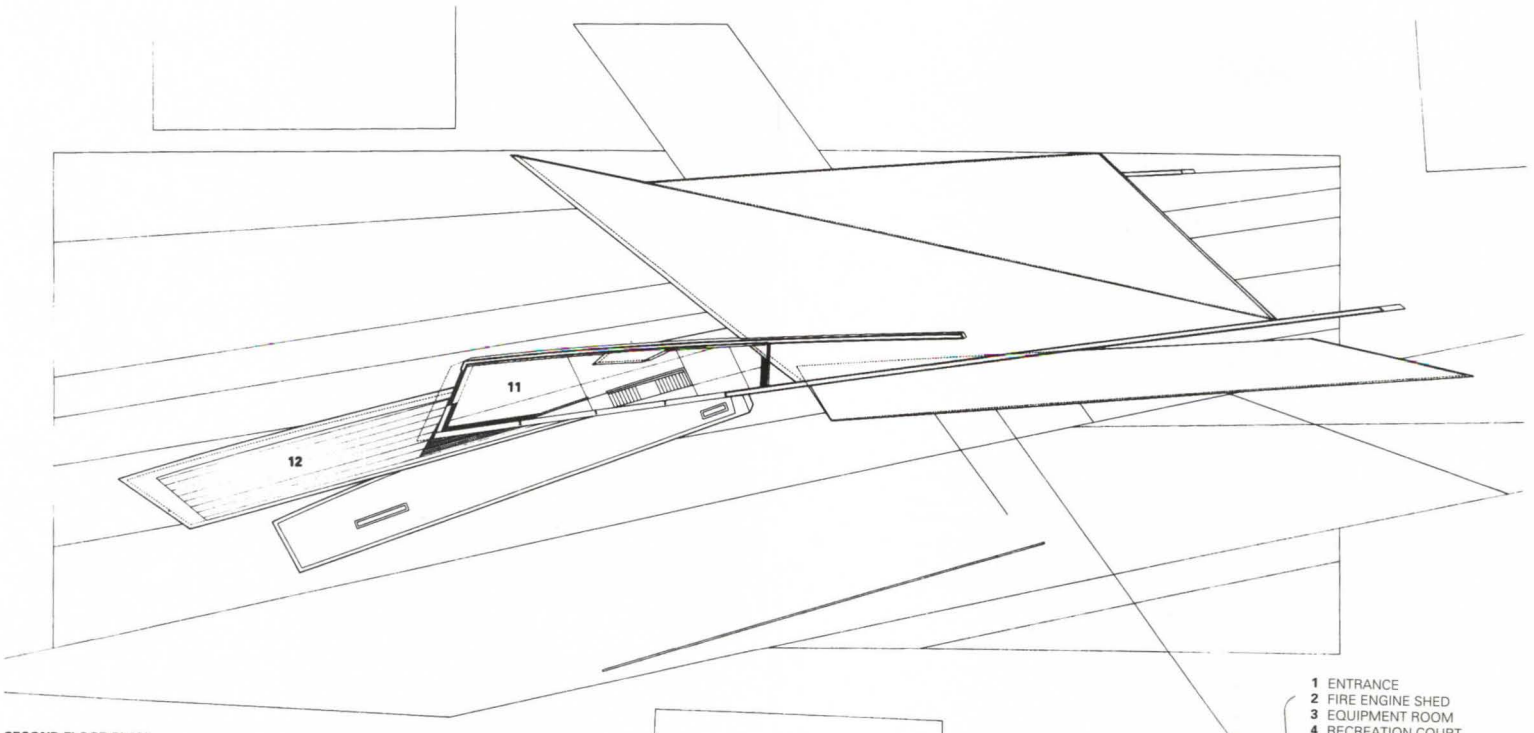
As a matter of principle, some would quibble with the time and effort lavished on such a small, and literally peripheral building. To me this is misplaced piety. What's the point of questioning the priority given a commission that in no way affects the public purse, especially when in many more prominent sites entrepreneurs are hardly held accountable for their impact on the public domain? Furthermore, the great care taken in the construction has meaning beyond the limited scope of the fire station per se. As the degradation of "value engineering" increases in this country, we should not forget that the craft of a building is a repository of culture no less valuable than that of a sonnet or a symphony.

It could be argued on the evidence of the fire station that Zaha Hadid has been somewhat miscast as a Deconstructivist, although her ethic is paradoxically split. In private as well as public conversations, her interest in urbanism and this century's "experiment in housing" come to the fore. In these respects, her concerns lie closer to the socially oriented agendas of the Constructivist and early Modern avant-gardes. Yet the building's narcissism harks to the aesthetic emphasis of the latterday avant-garde. Hadid readily acknowledges that the fire station's formal extravagance isn't a paradigm to be widely emulated: like the bulk of Deconstructivist work, this building relies on the accommodating backdrop of more retiring buildings, just as its unruliness can only survive in an ordered society where such artistic liberties are well protected.

The conscientious inflection of the fire station to the street suggests that Hadid's urbanistic agenda is genuine, and it is likely she might be similarly responsive in the future. If carried forward, her project for a 350,000-square-foot mixed-use complex on the Düsseldorf waterfront will put this assumption to the test. **Ziva Freiman** ■

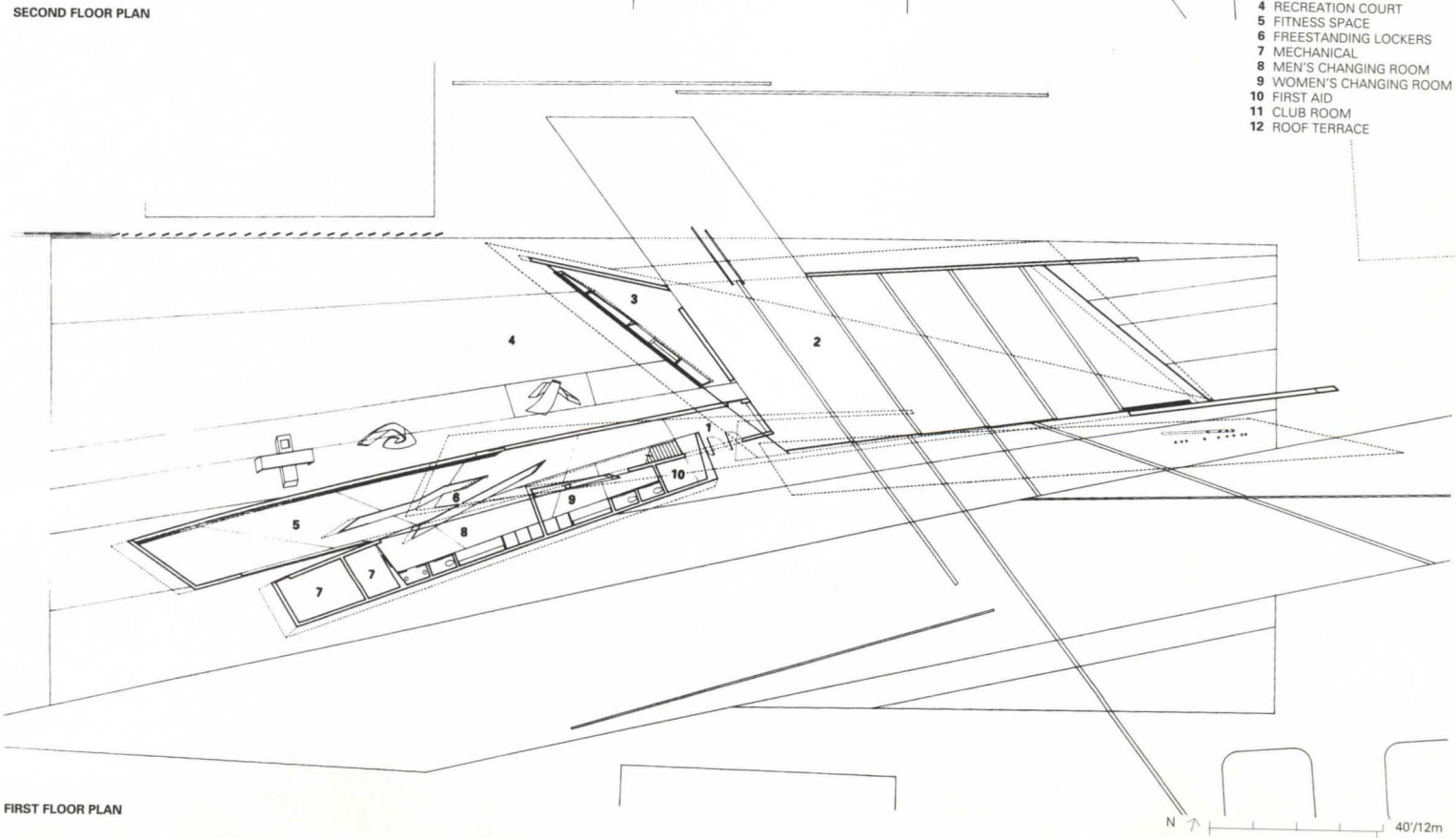


LONGITUDINAL SECTION




SECOND FLOOR PLAN

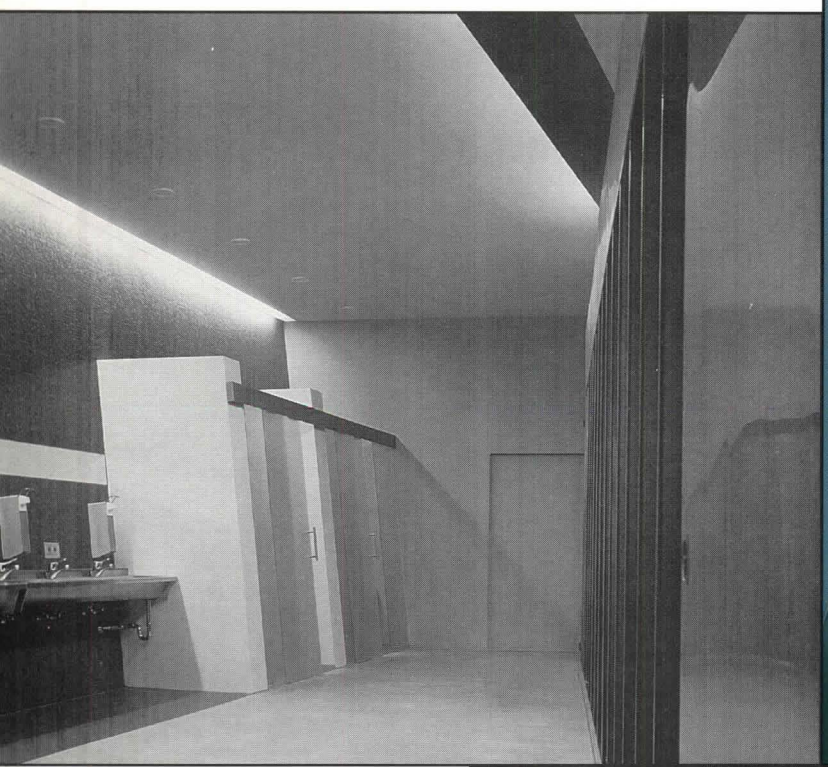
1 ENTRANCE
2 FIRE ENGINE SHED
3 EQUIPMENT ROOM
4 RECREATION COURT
5 FITNESS SPACE
6 FREESTANDING LOCKERS
7 MECHANICAL
8 MEN'S CHANGING ROOM
9 WOMEN'S CHANGING ROOM
10 FIRST AID
11 CLUB ROOM
12 ROOF TERRACE




FIRST FLOOR PLAN

**"Certain moments, no matter how much you draw, are unpredictable. The scale of the building was a nice surprise in relation to the scale of the factory. And the transparency between the spaces, the way you can almost see everything at the same time, is very exciting."**

**Zaha Hadid**



6

Paul warchol

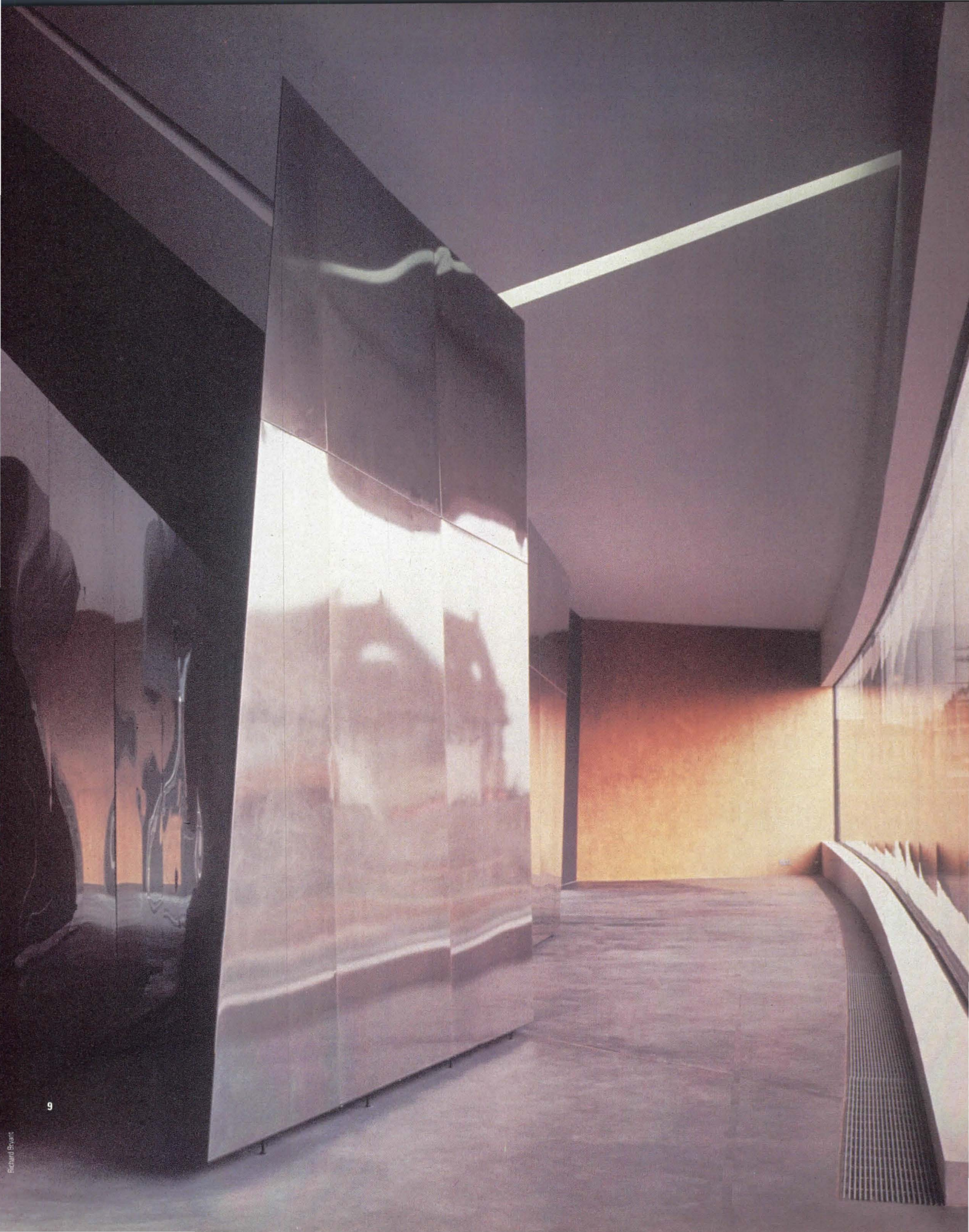
7



*The 95-foot-long curved strip window in the fitness space (9) is formed by a fluid catenary of butt-glazed panes, slipped on top and bottom into slender U-channels of steel. A fissure carved out of the ceiling houses recessed lights, its angle tracing the footprint of the upper-floor structure. At the foot of the cantilevered precast stairs (7), a subtle shift in the color of the pigmented screed floor marks the penetration lines between the splayed ground-floor wings. The transparent east wall of the foyer was initially going to be translucent, but Hadid changed that when, on visits to the construction site, she discovered the rewards of unobstructed views (8). Less desirable sightlines are afforded by undulating, varnished steel lockers placed between the fitness space and the bathrooms (6), which shield the latter only after a fashion.*

Photo, right, and above left: Richard Bryant

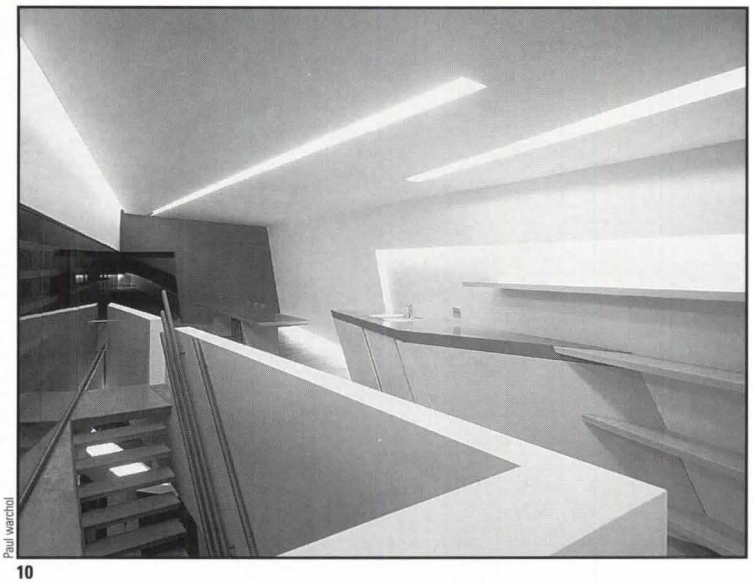
8





Richard Bryant

**"We imposed on ourselves many constraints to make a building that had to be very precise. Concrete lent itself to this kind of work: it has a strange quality of being heavy, but also very light. I did not want it to be clad or rendered, but to build the basic elements in the purest way."** Zaha Hadid

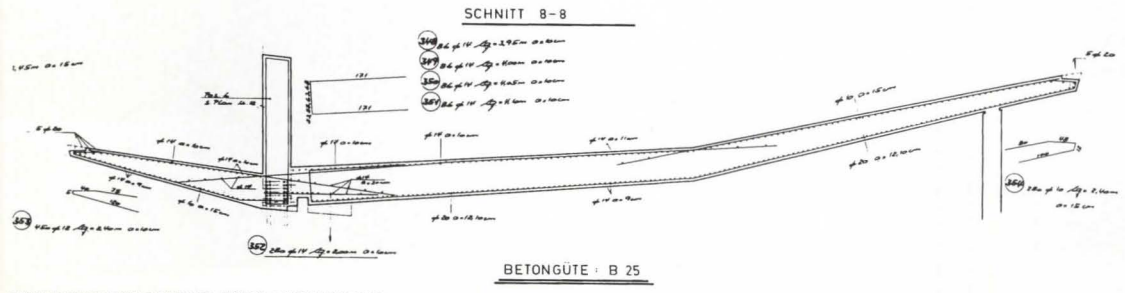


Paul warchol

10

Hélène Binet

11

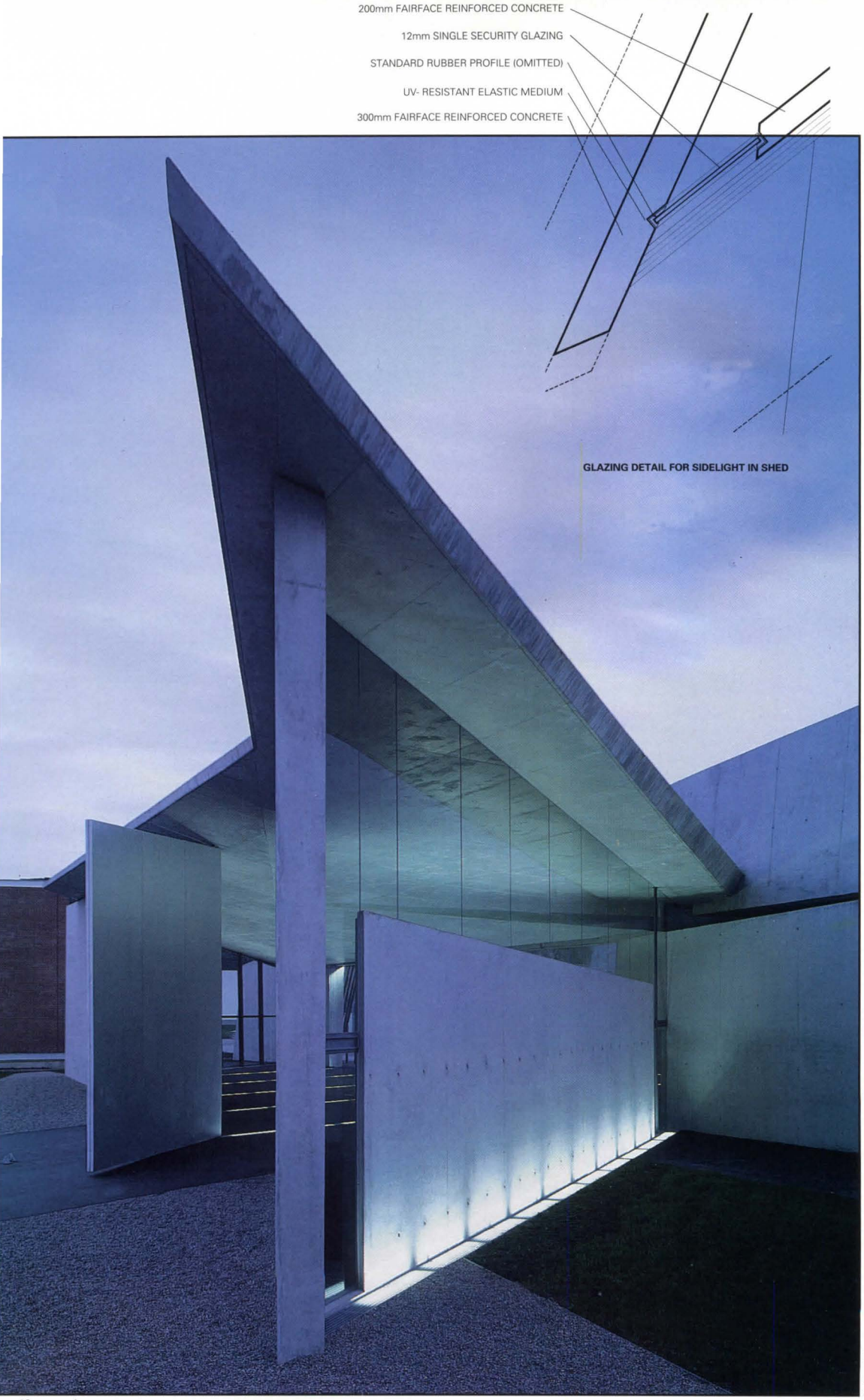



REINFORCEMENT DIAGRAM FOR SHED'S CONCRETE ROOF

## On the Construction

*Generally sound decisions on method and details of construction enhance the fire station's sensuous forms. Highly particularized structural solutions in various parts of the building are characteristic: capitalizing on the load-bearing capacity of cast-in-place concrete, substantially reinforced walls, slabs, and beams are orchestrated to allow roof spans in excess of 85 feet and unencumbered window spans of comparable length. The chief structural beam supporting the shed roof (11) runs along the south shed wall, spanning its wide doors to rest on the thickened east wall of the bathroom bar. In the construction photo, vertical rebars delineate the course of this beam, while the horizontal weave of steel reflects the angled planes of the slab and canopy on either side of it (see reinforcement section, bottom left). The long box housing the upper-floor club room is supported in different ways depending on location: its north side rests in part on the shed's roof slab and in part on the shear wall that anchors the cant of the gym's west end. The club's south wall is louvered with custom-fabricated hollow aluminum members. Steel columns inserted in this opening transfer loads variously to the reinforced slab and to a pair of columns, one incorporated into a ground-floor partition, the other sunk through one of the locker cabinets.*

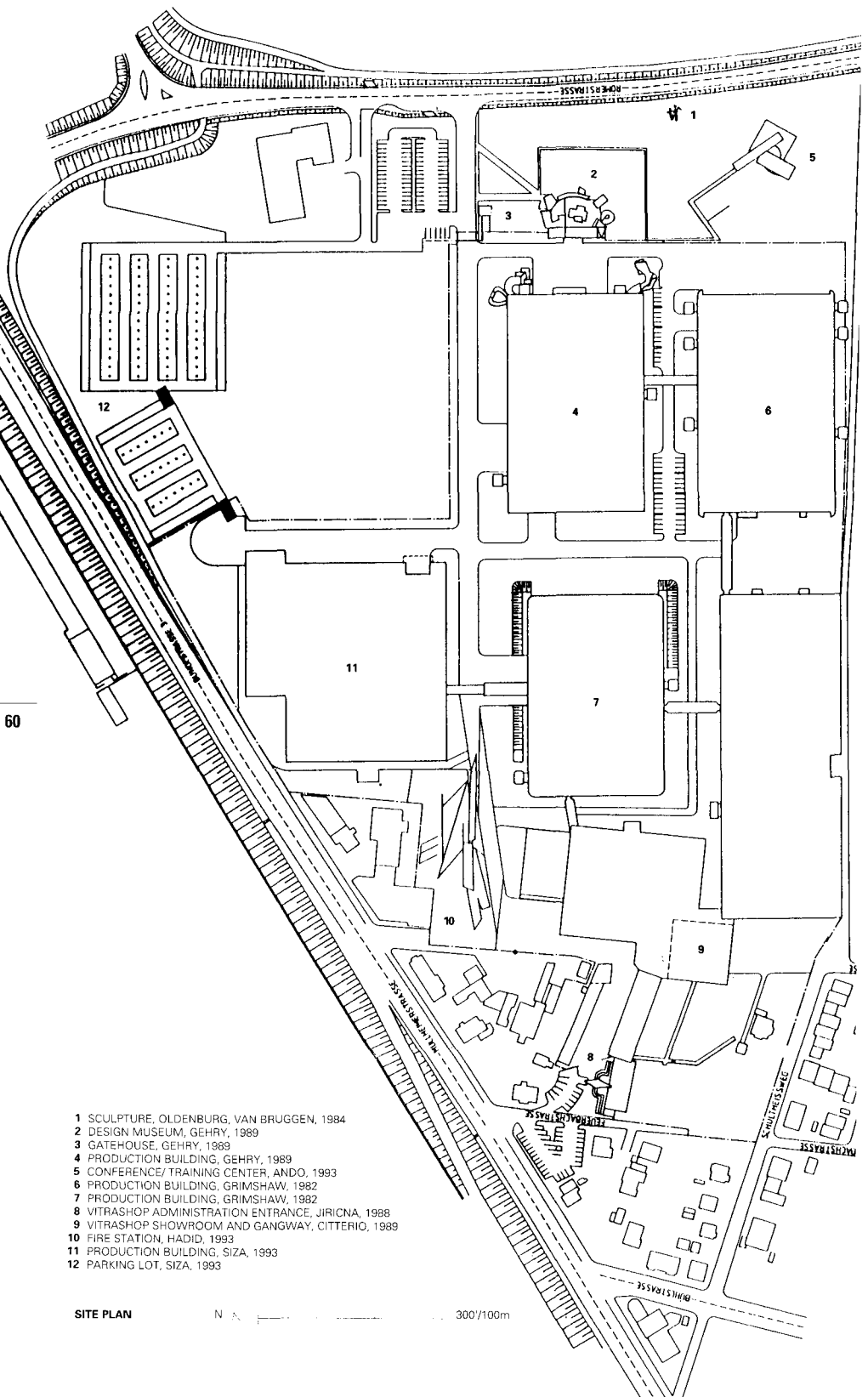
*The flowing quality of the spaces, engendered by free spans and long views, is further enhanced by elegantly minimal glazing details. Not needing to be airtight, the shed's glass clerestory and sidelights (12) are slipped into concrete grooves, with the merest of rubber profiles or silicon strips to steady the panes. One of the rubber profiles shown in the detail drawing (facing page) was omitted, with fatal consequences for bugs now trapped under the glass. Details typical of the recessed lighting can be seen in the club room (10), where six-inch-wide grooves in the plasterboard ceiling are profiled with C-channels on one side to house fluorescent tubes.*




Paul warchol

**Project:** *Fire Station, Vitra factory compound, Weil am Rhein, Germany.*
**Architects:** *Zaha M. Hadid, London (Zaha Hadid, architect; Patrik Schumacher, project architect; Simon Koumjian, Edgar Gonzales, Kar-Hwa Ho, Voon Yee-Wong, Craig Kiner, Cristina Verissimo, Maria Rossi, Nicola Cousins, David Gomersall, Olaf Weishaupt, design team; Patrik Schumacher and Signy Svalastoga, detail design; Daniel Chadwick, Tim Price, models).*
**Associate architects:** *GPF & Assoziierte, Freie Architekten BDA, Germany (Roland Mayer, principal for project management, construction drawings, and building supervision; Jürgen Roth, Shahriar Eetezadi, Eva Weber, Wolfgang Mehnert, team.)*
**Client:** *Vitra International AG (Rolf Fehlbaum, Dr. Phil., director).*
**Site:** *40-acre manufacturing complex with auxiliary buildings for administration, employee facilities, a conference center, and a design museum. The fire station is located on the northwest boundary of the fenced factory compound, at the far end of the main street leading from the entrance gate.*
**Program:** *garage for five fire engines plus equipment, 4,710 sq ft; changing areas with sanitary facilities for 35 firefighters, including first aid and technical rooms, 1,460 sq ft; entrance foyer and fitness space, 1,720 sq ft; club room, 1,160 sq ft; total gross area approximately 9,050 sq ft.*
**Structural system:** *reinforced concrete walls on strip foundations, reinforced concrete beams and roof slabs.*
**Major materials:** *fairface concrete finish for exteriors and garage interior, painted plasterboard for other interiors; colored screed with mica for interior floors; sanded aluminum garage doors; mullion-free single glazing throughout the building, with the exception of large framed-glass east wall of garage; precast concrete steps for cantilevered stairs; clear varnished steel lockers.*
**Mechanical system:** *floor heating, supplied from oil boiler of factory across the street.*
**Consultants:** *Gerhard Schmidt, structural; Ove Arup & Partners, advising structural engineers.*
**Costs:** *total building cost DM 2,600,000 (approximately $1,560,000).*

# The Vitra Campus: A furniture company enlists star architects in its efforts to create a harmonious factory complex.



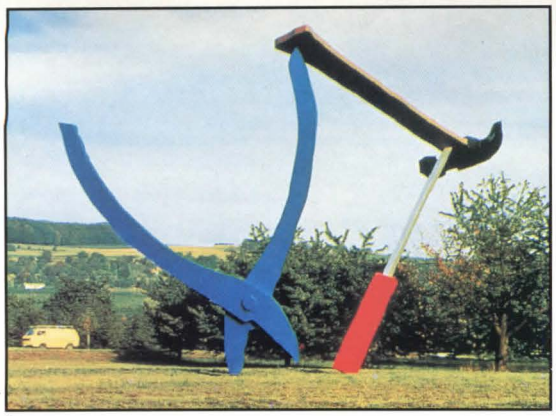

Vitra President Rolf Fehlbaum wants to make sure the compound he is building is "not an architectural zoo." He is well aware that assigning each new project to a different internationally known designer could yield a zoo, while drawing favorable attention to a company already noted for the design quality of its furniture (P/A, May 1988, p. 74). He stresses that the architects entrusted with parts of Vitra's factory complex must be committed to "the overall picture," and he hopes the outcome will show how distinguished buildings can contribute to a larger whole.

Vitra's international search for exceptional architecture dates back to 1981, when a fire devastated half of their previous facilities. In the aftermath, the company brought in Nicholas Grimshaw of London, whose industrial buildings elsewhere they admired, and whose construction systems made it possible to resume production within six months. In connection with his factory designs, Grimshaw prepared a general plan for the site, proposing aesthetically consistent buildings, whose high-tech mode corresponded to Vitra's corporate image.

In 1984 discussions with Frank Gehry led to the idea of bringing in different architects for each new project. Gehry first arrived at Weil to advise his friends and sometime collaborators Claes Oldenburg and Coosje van Bruggen about the placement of their sculpture on the Vitra grounds, then began to discuss the housing of the remarkable collection of modern furniture that Vitra had been assembling in the early 1980s. In 1986, it was decided to build a furniture museum in connection with the construction of a new factory structure, plus a gatehouse for the entire complex, and Gehry was the choice to design them (P/A, May 1990, p. 94).

Since then, each new construction project has been awarded to a different architect whose work seems particularly suited to that job, while representing the cutting-edge Modernism the company embodies in its products. In Vitra's official explanation, Gehry represents "exhilaration and openness," Hadid "speed and dynamics," Tadao Ando "strictness and clarity," and Alvaro Siza "tranquillity and restraint." While such systematic characterizations could probably come only from a Swiss-German organization, they admittedly fit their assigned architects remarkably well. (Gehry is also designing the company's office building in Basel; he would not be considered eligible for another commission on this factory site.)

*(continued on page 62)*

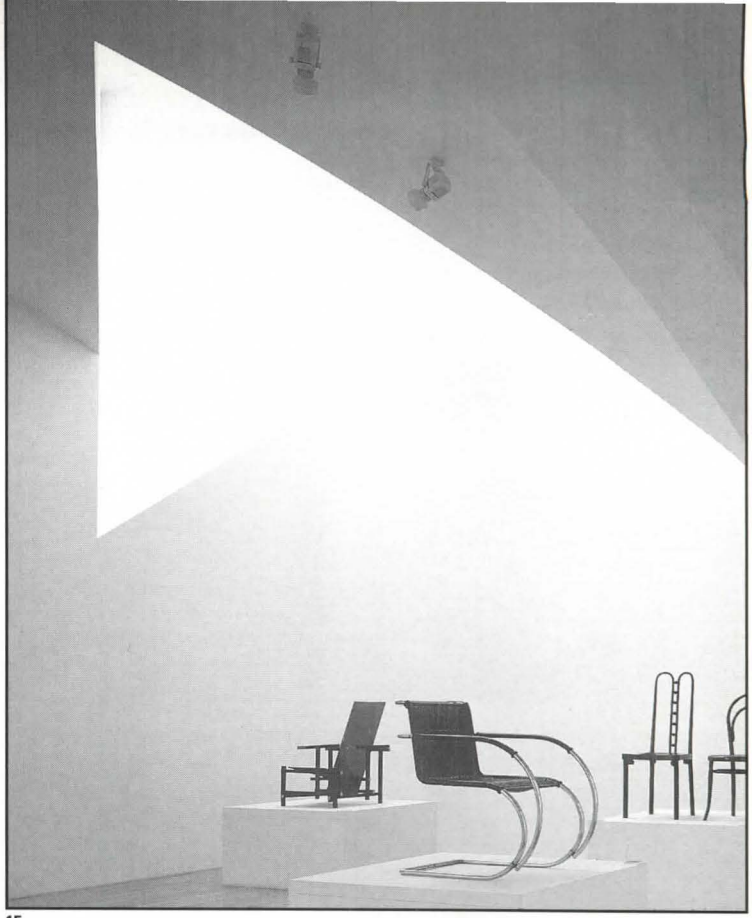


Tanja Fritschi

13

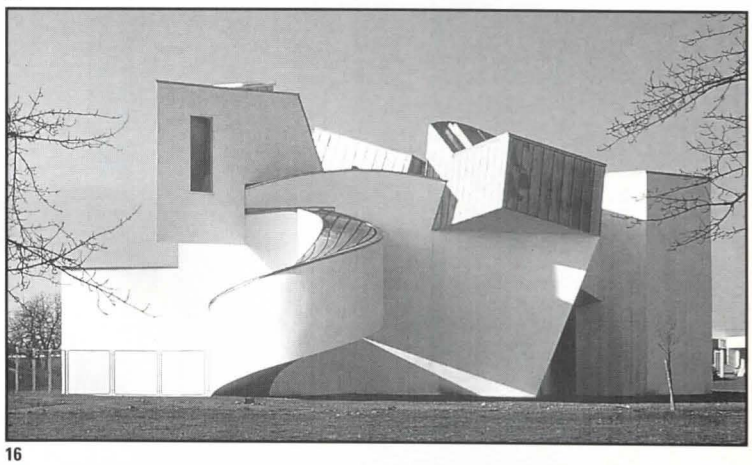
Paul Warchol

14



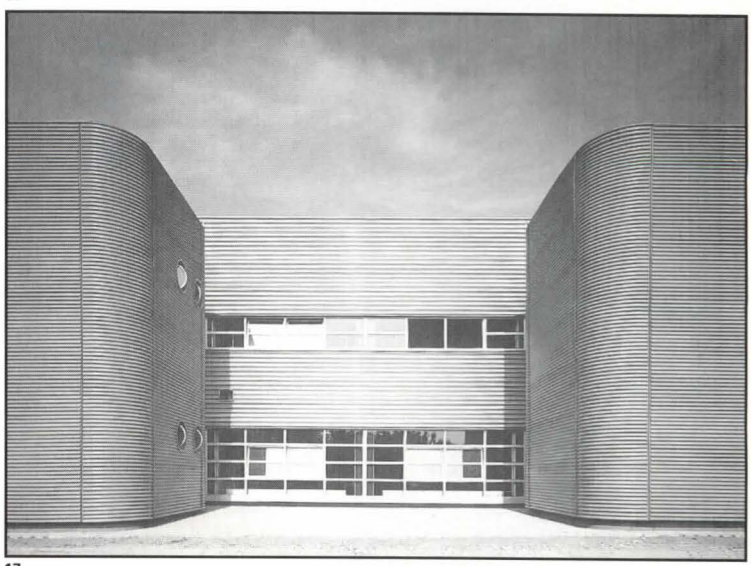
Tanja Fritschi

15



Tanja Fritschi

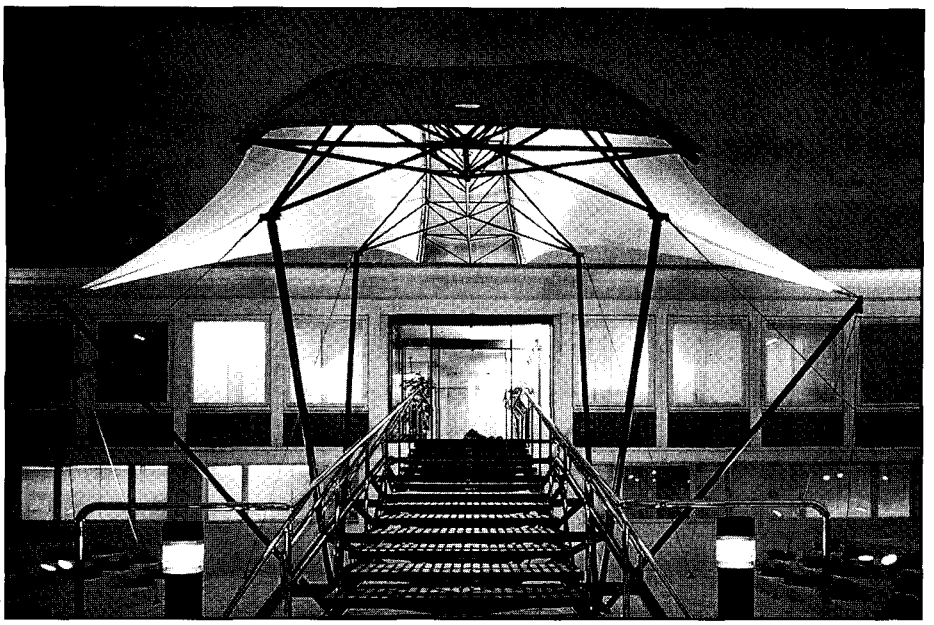
16



Tanja Fritschi

17

*"Balancing Tools" by Claes Oldenburg and Coosje van Bruggen (13) teeters near the entrance to Vitra's complex. An aerial view (14) shows Hadid's fire station straddling an axis that runs from Gehry's gatehouse and factory (background) past a factory by Siza nearing completion (left) and an older one by Grimshaw (right and photo 17). Gehry's cluster of three structures, completed in 1989, includes the Vitra Design Museum (15, 16).*

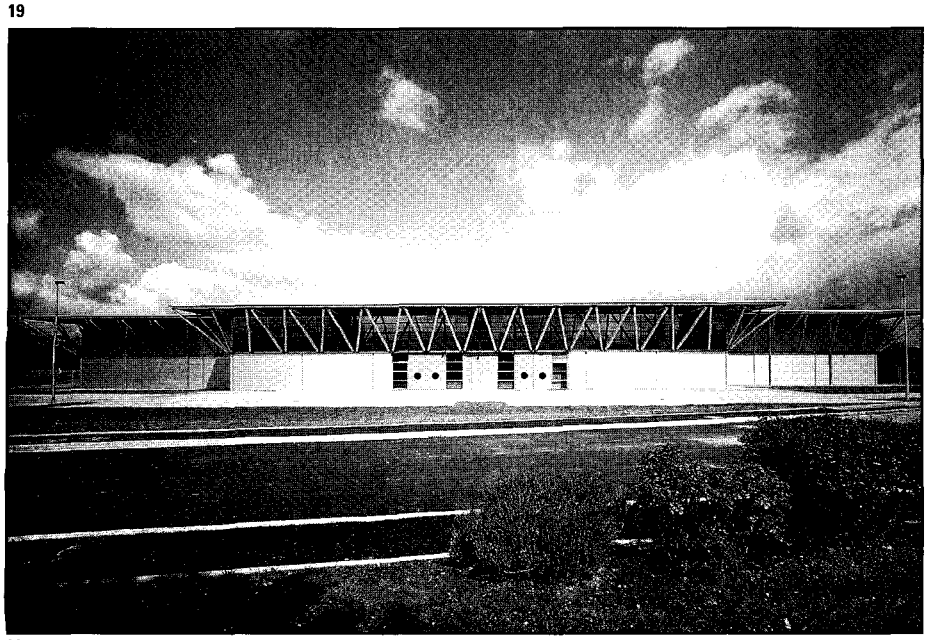


Tanja Fritschi

18

Tanja Fritschi

19



Andreas Suetterlin

20

*Among the structures at the south end of the complex assigned to their affiliate, Vitrashop, the company commissioned such amenities as an office entrance (18) by London architect Eva Jiricna and an elevated walk (19) by Antonio Citterio of Milan, which leads to the Vitrashop showroom he designed. In 1992, Citterio completed a Vitra factory (20) on a separate site at Neuenberg, north of Weil.*

*(continued from page 60)*

In choosing architects, Fehlbaum gives preferences to architects who have not previously built in Europe, or at least not within hundreds of miles. For Gehry this was his first European commission. For Tadao Ando, too, the conference and training center here is a first, if you don't count the temporary pavilion at Expo '92 in Seville, commissioned by the Japanese government. Hadid had not built a freestanding structure anywhere, and the closest Siza building is in Berlin. One qualification is that the architect for each new structure must be acceptable to those whose preceding buildings it will join.

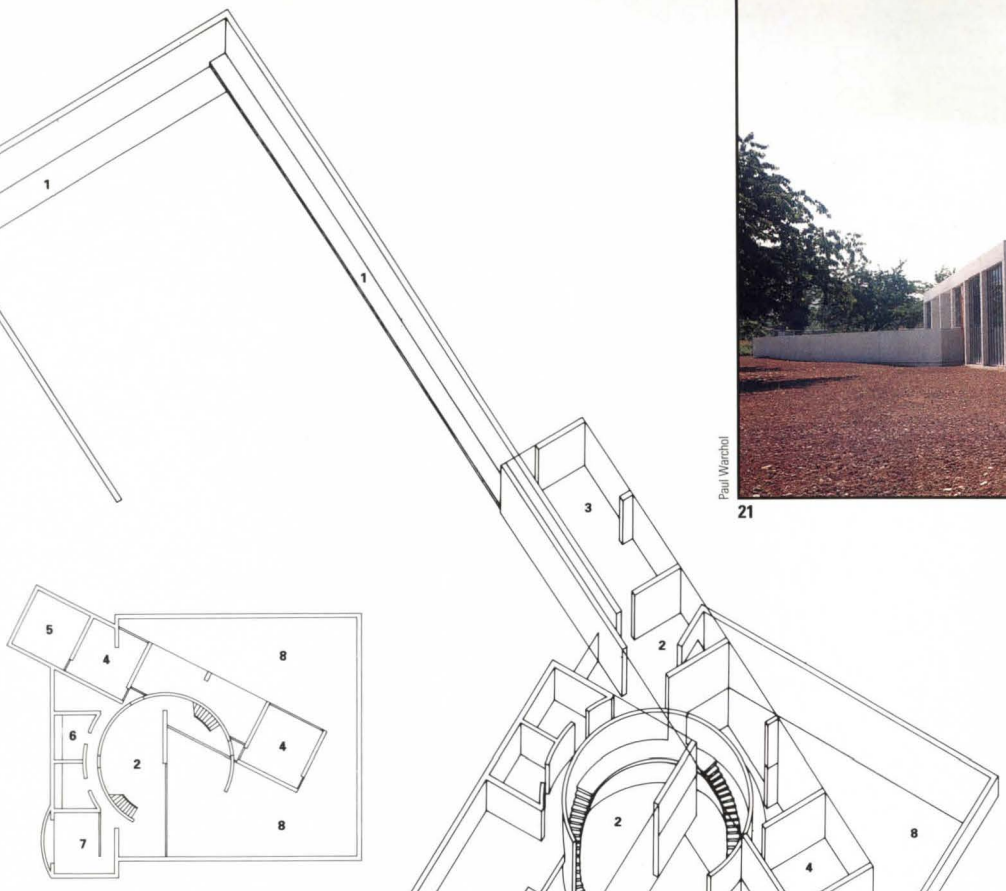
A plan of the Vitra site makes it immediately clear that the complex is dominated volumetrically by the vast factory structures, with their relatively neutral envelopes. The auxiliary structures that Vitra has recently been building make their presence felt not only by being much more assertive in form, but by being accessible to the public. For three years, the Vitra furniture museum has made the company's presence felt in the rather undistinguished suburb of Weil am Rhein. With its exceptional permanent collection of Modern furniture and its changing design shows, its lectures, films, and design library, the museum has been drawing some 45,000 visitors per year to a site known previously only to those who worked there. The building has also been made available to local groups for receptions. An extension of this civic role is projected for the conference center by Tadao Ando, soon to be completed. While serving Vitra's own need for meeting spaces, it too will be available much of the time for use by others. In conjunction with the museum, it can provide a uniquely appealing setting for small conferences. Even the fire station is adaptable to meetings of outside groups.

Vitra's design consciousness and enhanced presence in Weil am Rhein have caused the town itself to consider its architecture and urban design more seriously. A design workshop held in 1991 under joint town-company auspices examined the place of this factory complex in the town, as well as the town's development possibilities. Frank Gehry proposed returning the river Rhine to Weil through canals, and Zaha Hadid presented research on Weil's traffic conditions; other architects working with Vitra participated, as did students and faculty from the University of Karlsruhe. Vitra's involvement with its town is further demonstration of its belief that design "can be decisive in an increasingly complex environment." **John Morris Dixon** ■

Paul Warchol

21

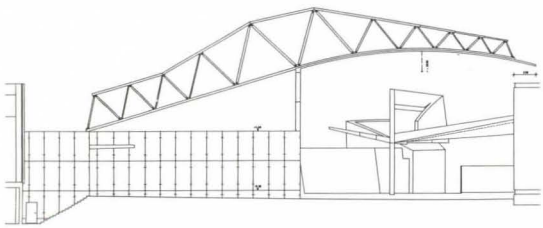
*Joining the Gehry gatehouse and museum in Vitra's front yard is the nearly completed conference and training center (21) by Tadao Ando Architect & Associates of Osaka. A walk following an L-shaped course along a wall will lend the passage to this retreat an illusion of greater distance. Inside, the visitor will find a circular stairwell overlooking a sunken court. Ando's minimal concrete and glass detailing will add to the sense of repose and detachment. Under construction simultaneously is a Vitrashop factory building (drawings below) by Alvaro Siza of Porto, Portugal. Siza's envelope of rough-faced brick walls above a stone base, meant to evoke ancient construction, is wrapped around the functionalist concrete factory framing. To provide protected passage to one of the Grimshaw factories, Siza has designed a cantilevered steel truss, supporting a canopy that will be lowered on cables in bad weather to assure rain protection, raised in fair weather to clear the axial view toward Hadid's building.*



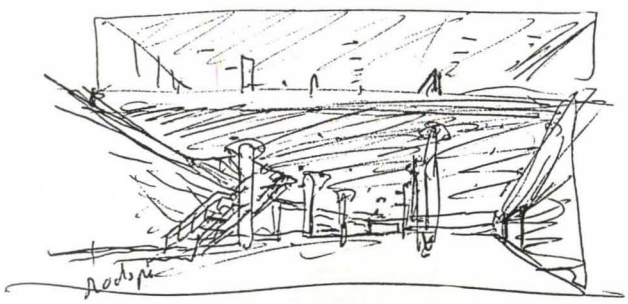

LOWER FLOOR PLAN N 20'/6m

1 ENTRY WALK
2 LOBBY
3 MEETING ROOM
4 SEMINAR ROOM
5 MECHANICAL
6 KITCHEN
7 LIBRARY
8 COURT

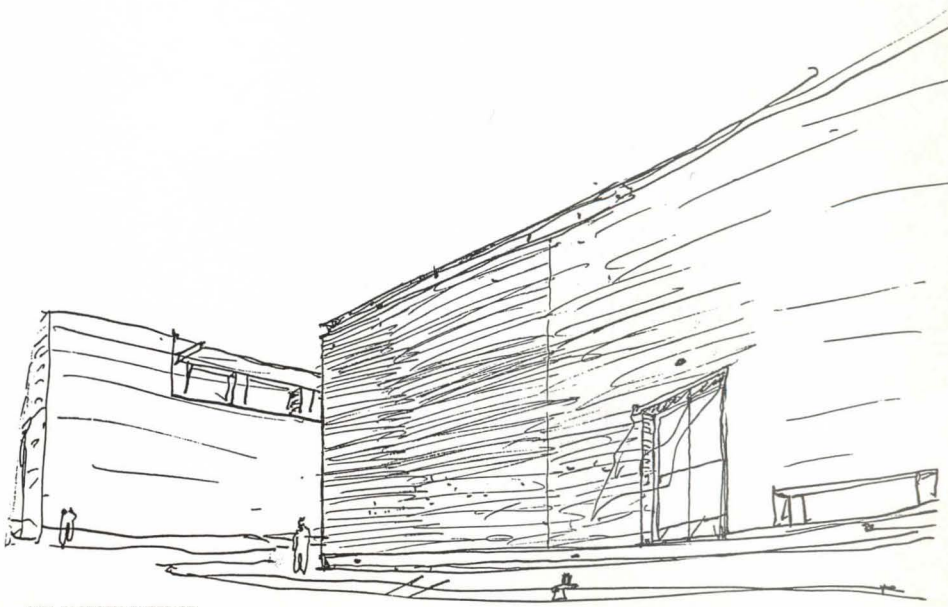
TRAINING CENTER AXONOMETRIC



ELEVATION OF SIZA CANOPY



SIZA FACTORY: INTERIOR



SIZA FACTORY: EXTERIOR

Architect **Carl Stein** describes his firm's use of computers and photogrammetry to design and manage a complex restoration project.

Andy Golday/The Stein Partnership



*Shepard Hall (above) at City College of New York is being restored with the aid of detailed computer drawings, such as the one on the facing page for the building's bell tower, which is the closest of the towers in the photo.*

**Abstract**

**The author observes that, since the mid-1960s, architects have seen a steady trend away from their control of the details of construction – a result in large part of construction complexity and professional liability as well as the limitations imposed by shrinking fees. Over the past several years, however, developments in CAD have provided an avenue for reestablishing a connection between design and construction. Stein's restoration of the exterior of Shepard Hall at the City College of New York is an example of this process in practice. The architects created highly detailed CAD drawings electronically cross-referenced to material information to help contractors estimate accurately job complexity and costs. The drawings also became a basis for shop drawings and manufacturing specifications. Photogrammetry allowed working drawings to be generated directly from existing conditions, eschewing the need for measured drawings from field measurements.**

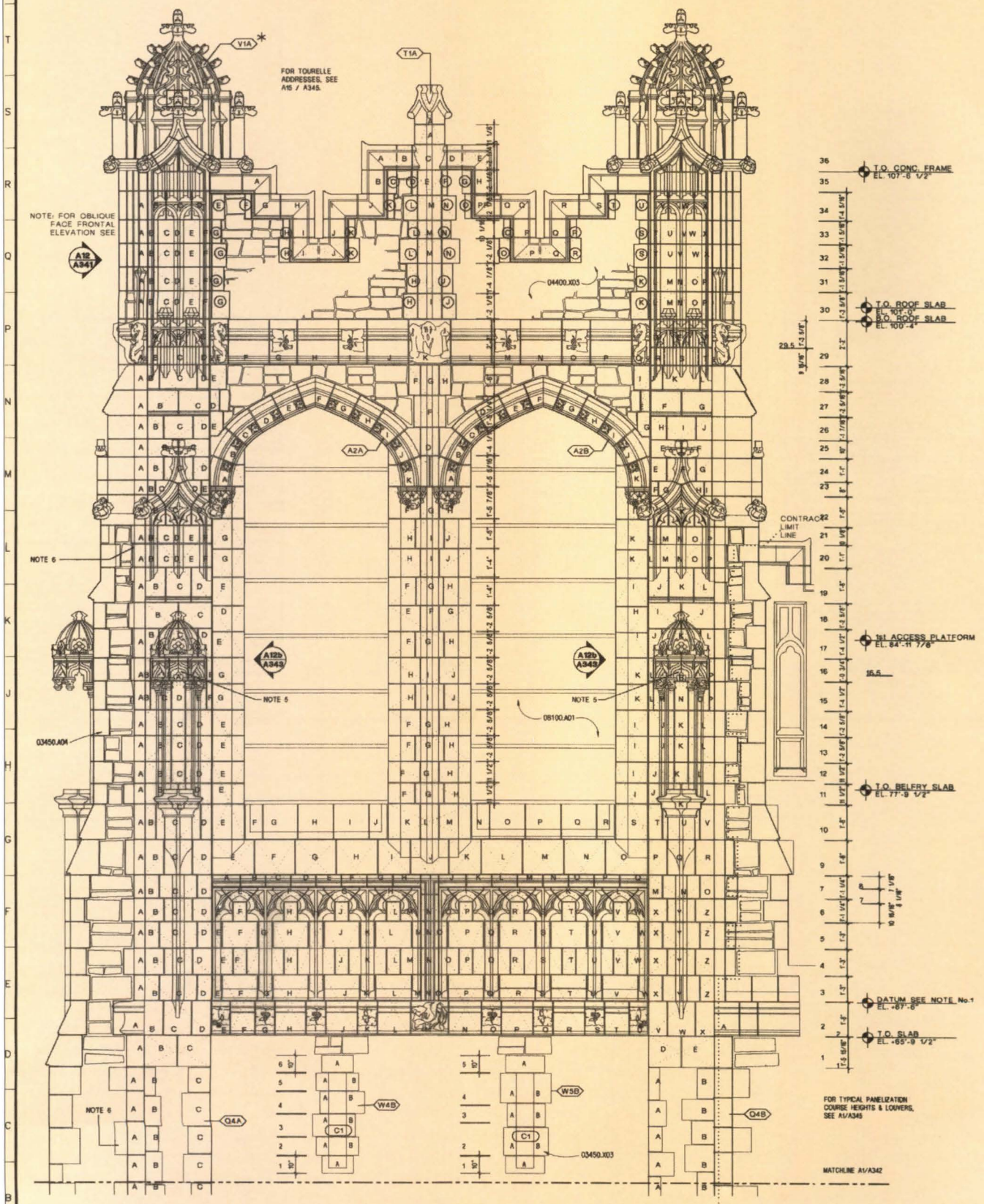
Our work at Shepard Hall at City College of New York would at first seem to be conventional restoration. But in many parts of the building deterioration had progressed to the point where total replacement of materials and new structure was required. Further, the original architect's use of structure and materials led to many of the subsequent failures in the building's cladding (see sidebar page 68); so, in rebuilding, a completely new strategy was required.

Shepard Hall, designed by George Post and completed in 1907, has a floor area of 236,000 square feet and a maximum height above grade of 167 feet. Many of the interior spaces have high ceilings, the Great Hall's being 64 feet above the floor, so the volume is even greater than the floor area would initially suggest. The structural shell of the building was conceived as a composite of load-bearing stone, load-bearing glazed terra cotta, and steel. A Gothic Revival building in the English Collegiate style, it was the first significant building erected for public higher education in New York. It has both architectural and historic importance. However, by the mid-1930s major failures in the building shell had already begun to appear. The design did not account for overall building movement or for differences in the behavior of the various materials. The original architects had also seriously overestimated the load-bearing capacity of the terra cotta. By 1986, when we first became involved with Shepard Hall, more than a third of the original 72,000 terra cotta units had already failed and had been replaced by brick and stucco, and half of the remaining units showed serious distress.

### Phase I

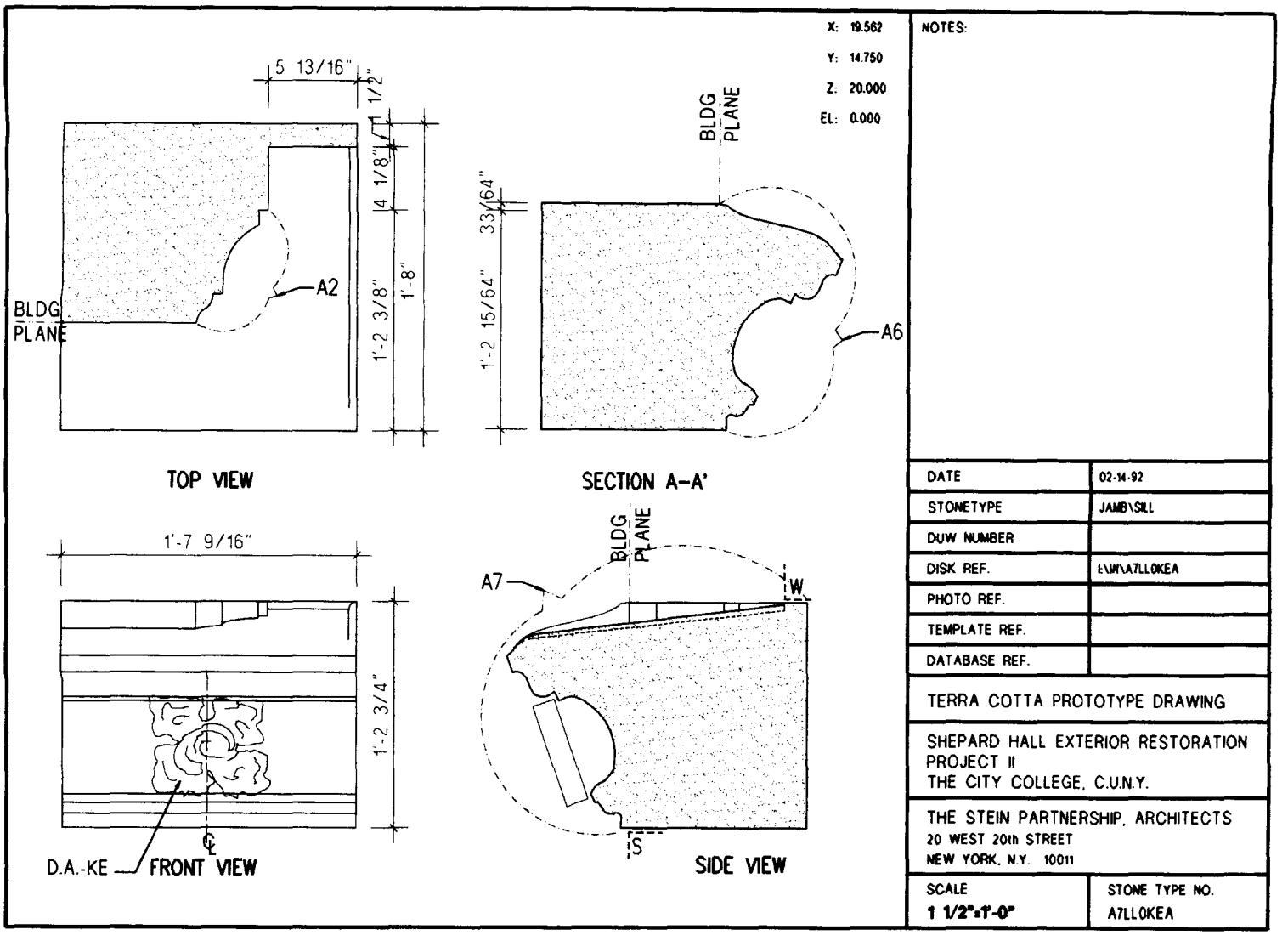
In the first phase of construction, two areas of Shepard Hall containing about 20 percent of the terra cotta were completely rebuilt. This included the upper 65 feet of the main tower and the clerestory of the Great Hall. Both of these areas had been found to be in imminent danger of collapse. The construction was to be publicly bid under a fixed price contract; therefore, comprehensive and explicit contract documents were an absolute requirement.

At the time (1986), CAD was considered but found to be limiting, so the Phase I working drawings were developed by hand. The design approach required the establishment of precise reference planes within the building from which each replacement unit was dimensioned. It also required drawing each unit and assigning to each an alphanumeric "address." These steps permitted the design of new primary structure, support systems




A1 | BAY K2 (UPPER) ELEVATION

1/2"=1'-0"

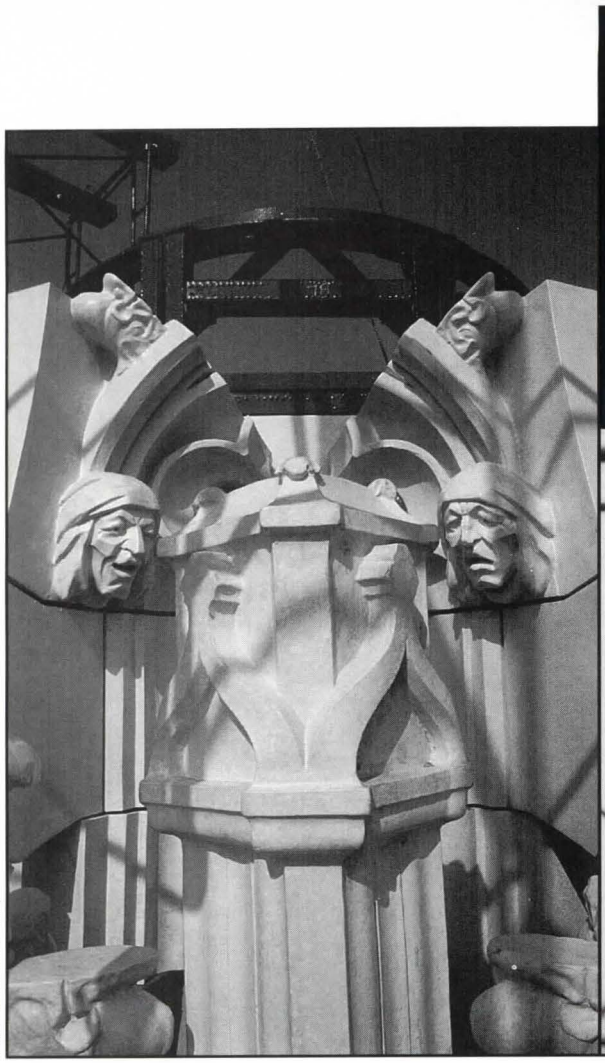


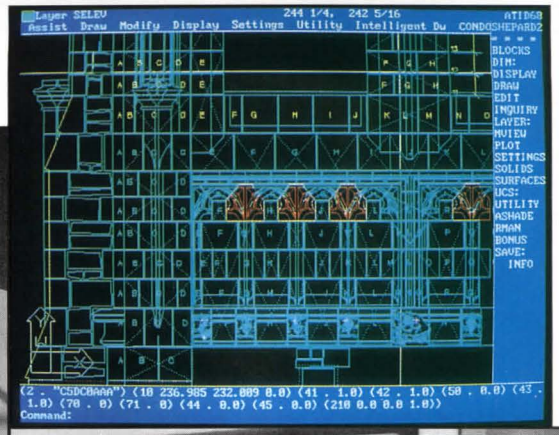

for the replacement units, and detailed attachment of each unit. The level of specificity in the documents was extremely high. Every nut, bolt, and washer, every clip angle, adjustable channel, and grommet was shown. A separate set of elevations was prepared in which the façades were shown with the cladding removed. This delineated and dimensioned the entire supporting subframe system including each point of interconnection with the replacement units.

Although drawing this level of detail was time-consuming, it was essential to the solution, and by careful organization we were able to work within a conventional percentage fee. Furthermore, it saved us time (and the client money) during construction, reducing the number of contractor queries as the job progressed. For example, when the project was submitted to the New York City Landmarks Preservation Commission, we were cautioned to allow for construction change orders in the range of 50 percent of the bid price. The work was completed with construction change orders totaling only 1.6 percent of the bid price. The structural and weatherproofing work was completed on schedule. The final decorative cladding units were installed several months late; however, this was based on a very tight schedule considering that about 12,000 terra cotta units, many of which were highly ornate, were being replaced.

### Phase II

In 1991, we were commissioned to complete design and contract documents for the remainder of the Shepard Hall façades. Phase II is broken into five contract packages, the first of which is now out to bid. The entire Phase II work encompasses replacement of approximately 55,000 terra cotta units and, in many areas, the creation of new underlying structure. Again, CAD and related computer-based tools were considered. This time we elected to computerize the process, making use of several significant advances in both equipment and software. Relatively fast microcomputers had become widely available and affordable. All of the Shepard Hall design and documentation was performed on 486/33 machines. Using these machines, we were able to work on highly complex, information-laden drawings with minimal lag time between information entry and screen response. Fast, in-house plotting became affordable with low-






Andy Goldsmith/The Stein Partnership

Andy Goldsmith/The Stein Partnership

*A sheet for stonetype drawings (facing page), one of over 900 in Phase II. New replacement units (far left) have new steel structure behind. Note that in the decorative "head" units (below) their independent structural support permits the open joints, which are later filled with a flexible sealant. All locations of any of the stonetypes can be highlighted on the computer screen (left).*

er priced electrostatic plotters. The ability to run interim plots, which were used almost as "yellow trace" sketches, allowed us to "think with our pencils" while developing details with the required dimensional accuracy.

For a project of Shepard's complexity, requirements for data capacity – RAM, hard drive, and back-up – could not have been managed by the microcomputers of the late 1980s. The ease of interconnecting CAD and database programs greatly reduced the time required for the manual counting and analysis of building components, leaving us more time to develop, refine, and document specific details.

Phase II of design for the Shepard Hall reconstruction was particularly interesting as a case study in computer applications. In Phase I we had created a detailed set of construction documents that effectively controlled construction change orders while producing a skin of great richness, so the question became whether we could use computers to support and enhance an established architectural process without allowing computers, however powerful, to direct design. Although the Phase II design was a direct extension of the Phase I work, the means of gathering and recording data differed significantly. In Phase I, overall building profiles were measured by hand at each point where the profile changed. In some areas, this required a horizontal cut every 12 inches in elevation to show the changes in profile. These profiles were then subdivided into separate terra cotta pieces. In Phase II, using a combination of computer-rectified photogrammetry and conventional techniques, the dimensions and profile of each terra cotta unit were taken separately.

Because of the dimensional instability of terra cotta during production, many of the units that were supposed to be identical varied by as much as several inches. The replacement units, which were made of glass-fiber-reinforced concrete, were accurate to within 1/8 inch. In order to take advantage of this degree of control for each distinct shape (which might be repeated 30 or more times) an "idealized" set of dimensions was established that allowed any unit of that particular shape to be used in any of its intended applications. Thus the benefits of mass production, which had been one of terra cotta's major appeals, were more fully realized in the reconstruction.

### Stonetype Attributes

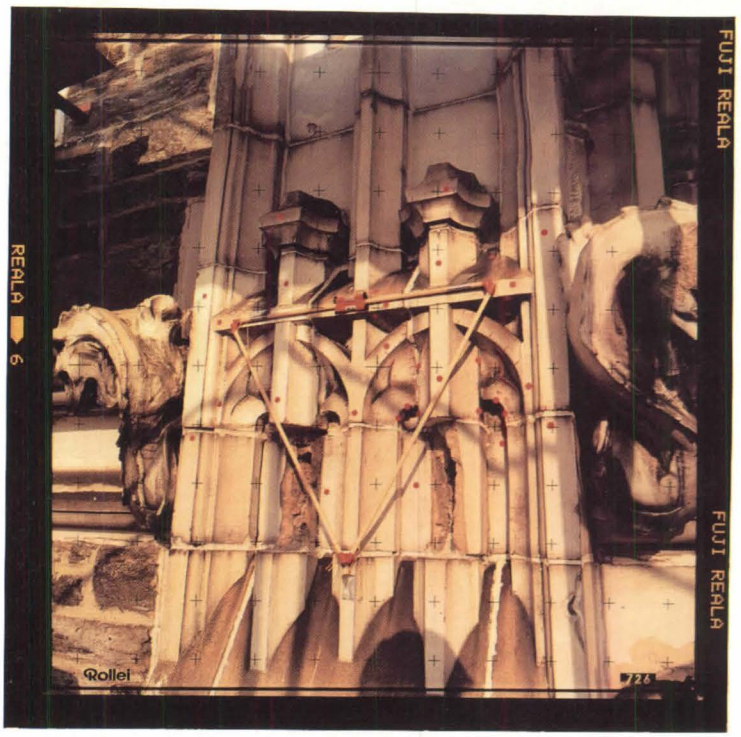
**The stonetype designation contains information on six attributes: profile (selected from over 340 shapes measured in the field); primary characteristics (straight extrusion, extrusion curving in frontal plane, extrusion curving out of frontal plane, etc.); secondary characteristics having to do with fabrication (360-degree finish, elongated profile, etc.); variations of mold (special openings for blind attachment or ganged units to create a single replacement); decorative attachment (selected from more than 300 sculptural forms applied to otherwise simple geometric shapes); casting variations (units that can be cast from blocked-down molds made for similar but larger units).**

### Extant Conditions and Rectification

As originally designed, the exterior walls of Shepard Hall were predominantly load-bearing masonry of stone and terra cotta, with some areas having a partial steel frame and others having a composite system of stone, terra cotta, and steel. Structurally, the terra cotta was used interchangeably with the stone. The severe deterioration that began to appear within 25 years of the building's completion resulted from a combination of factors, including unrelieved overall building movement, differential thermal movement of materials in composite systems, failure of terra cotta in compression and in freeze/thaw cycling, and lack of proper maintenance.

The reconstruction is based on rebuilding the structure and, in most cases the weatherproofing, separately from the decorative cladding, and supporting each cladding unit independently on the new structure. This approach offers a number of advantages. The structural and weather integrity can be achieved without waiting for the fabrication of the replacement units for the terra cotta. This eliminates much of the scheduling pressure that might otherwise rush a process that requires careful and often time-consuming fabrication and placement. Supporting each unit separately allows the use of soft joints throughout rather than mortar. These permit 1/8 inch of movement at each unit in both directions, function as expansion joints, and prevent the development of cumulative loads in the cladding, one of the major causes of the original failure. The mounting system, using adjustable channel tracks, slotted clip angles, and shims accommodates complete three-dimensional adjustment. Independent mounting of the replacement cladding units aids long-term maintenance programs by permitting individual pieces to be removed and replaced without affecting the structure or adjacent units. ■

*A set of three photogrammetry images allows the creation of drawings of extant conditions, this one from the bell tower (see drawing on page 65). The triangular target provides a known reference dimension that allows the photographs to be scaled during digitizing. The orange dots on the façade provide easily digitized points to create a framework in which the entire elevation drawing is generated.*




Individual drawings were prepared for each of the idealized shapes. These units were then pieced together to create building elevations. The overall dimensions of the resulting assemblies were rechecked against control points measured on the building to ensure that each string of units would fit precisely where it was supposed to.

Each original terra cotta unit was given a unique address and each distinct shape was given a "stonetype" designation consisting of eight letters and numbers. The designation defines six attributes of each unit regarding profile, primary and secondary characteristics, mold variations, decorative attachment, and casting variations. We created a database containing each address with its associated stonetype. The replacement units can be counted and sorted by address, stonetype, or by any of the six stonetype attributes. The primary drawings, the stonetype drawings, and the database are all interactively connected. This permits, for example, pointing to a unit on the screen and automatically getting information on the stonetype shape and the number of times that particular shape is used on the entire project. By highlighting on the screen, each location in which the particular shape is used can be shown graphically. This is particularly useful considering the number of replacement units involved: with design of four of the five contract packages for Phase II now complete, the unit count stands at 41,413.

The use of CAD also offered the possibility of a revised format for the design and contract documents, which linked the work of our office more directly to the fabrication and construction processes. The set consists of conventional drawings, specifications, stonetype drawings (one for each shape), and the database. The contract set is hard copy but the contractor will have access to all of the magnetic data, which can serve as the basis for the preparation of shop drawings and schedules. The stonetype drawings will eliminate the need for preparing base drawings and dimensions for the replacement unit shop drawings. The database provides the contractor with a piece-by-piece description of the job in a format that allows him or her to automate counting the pieces according to attributes that relate to construction complexity and materials needed.

For us, CAD-prepared shop drawings based on our stonetype drawings and dimensions can be checked on the screen against our originals, significantly easing this task while ensuring greater accuracy. They should also yield a finished product that closely matches our design intentions. Minimizing drawing and checking time is important, given the fact that there were 942 shop drawings for the replacement units and their mountings in Phase I alone. An added benefit for the contractor is the possibility of utilizing the CAD files in a computer-aided manufacturing (CAD/CAM) operation in which full-size templates or possibly face patterns for the molds themselves could be manufactured directly from the CAD files produced by the architect.

Although most of the stonetypes are based on direct field measurements of terra cotta units, access to some portions of the building was extremely difficult. In these areas, computer-rectified photogrammetry (CRP) dramatically reduced the time required to record and measure existing units. CRP documentation utilizes three photographs taken with a camera fitted with a precisely calibrated grid. By correlating the relationship of several points on a surface of the building with the grid for each of the three views, the relationship between the film plane and the building can be established. From this point, an elevation can be



constructed. This is the exact reverse of the generation of perspectives from a series of orthogonal drawings. Points from the photographs are entered manually using a digitizer with highly magnified cross-hairs. The rectification is then performed by a computer. In order to establish true dimensions as well as to ensure three clearly defined points in the building plane, we built a triangular reference target with precisely marked dimensions. In every case where we have used CRP, we have taken hand-done field measurements for verification. With the target, and using 2 1/4-inch-square photographs, our accuracy has typically been within 1/10 inch, with no variation greater than 1/4 inch. These larger errors have occurred when we have recorded a large area of the building with a single set of photographs.

### Broader Architectural Implications

Most of our work at Shepard Hall is, in spite of appearances, new construction. Although the forms, the decoration, and the sculpture have been directly reproduced where they are extant, and recreated from fragments and old photographs where they have been lost, the structure, the cladding system, and the cladding material have been redesigned to compensate for the deficiencies in the original design. The development of the solutions has involved a fine-grained attention to detail and dimension. This has resulted in a carefully controlled building fabric made up of thousands of different-shaped pieces.

The degree to which this work has been achieved and the levels of accuracy and detail that are now practical have been greatly enhanced by the use of computer-based tools. The use of computers has also brought the activities of the architect and the manufacturer and contractor much closer together. Through CAD/CAM processes, our "drawings" can directly control the machines that will produce the components for our buildings. The work at Shepard Hall has demonstrated that these components can be created with tremendous variety and can still be precisely controlled, thus expanding the possibilities for three-dimensional richness in new work as well as simplifying restoration and reconstruction projects. **Carl Stein, FAIA** ■

*The author is a partner of The Stein Partnership in New York.*

**Project:** *Shepard Hall Exterior Restoration Reconstruction, City College of New York.*
**Clients:** *City University of New York, Dormitory Authority of New York State.*
**Architects:** *The Stein Partnership, New York (Carl Stein, FAIA, partner-in-charge; Richard G. Stein, FAIA, consulting partner; Christopher Tavener, AIA, associate-in-charge; Steven Landau, AIA, project architect; Pilar Alamo, Mike Annecchini, Susanna Antico, Rebecca Armstrong, Erica Belsey, Nathalie Bely, Jolene Cruhlac, Tim Dill, Shawn Emory, Ahmet Erman, Madeline Fan, Andy Golba, Jim Harwood, Emily Horowitz, Jeff Joslin, John Kennedy, Ray Kinoshita, Ellen Leach, Margaret Lew, Pam Liwonchuk, Liz Macaulay, Marel Malaret, Renita Malone, Ann Marshall, Megan Moynihan, Jennifer Nadler, Kelsey Nieves, Elizabeth Padilla, Umberto Pelligrini-Bettoli, Frederique Ponge, Shira Rosan, Millie Santiago, Vicki Siegal, Nancy Stein, Sui Ling Tsang, Phil Turolla, T. Michael White, Deborah Wilen, project team).*
**Consultants:** *The Office of Ewell W. Finley, P.C., structural (Phase I); Robert Silman Associates, P.C., structural (Phase II); John L. Altieri, P.E., mechanical/electrical; Nissim Zelouf, cost.*
**Construction Managers:** *Walsh Construction Co.*
**Contractors:** *NAB Construction Corp. (Phase I); NAB Construction Corp./Design-Cast Stone Systems Inc., replacement unit fabricator (Phase I).*

# Crucible of Stone

A memorial to the victims of the Salem witch trials deftly employs old symbols to remind us of a present danger.

Giving architectural form to concepts such as "injustice" and "persecution" is a formidable task. Doing so in a serenely subtle way is an even greater challenge. But the Salem Witch Trials Tercentenary Memorial is appropriate in both its symbolism and simplicity for the heinous crime it marks and for its location in a 17th-Century cemetery. Its design also suits our current predilection for memorials that are more eloquent in their minimalism than the graphic monuments predating the Vietnam Memorial in Washington.


*One of 20 benches (above) inscribed with a victim's name and method and date of execution projects from the memorial's walls. Old tombstones nearby (facing page), represent silent witnesses.*

Architect James Cutler and artist Maggie Smith collaborated on the design, selected from 242 entrants in an international competition sponsored by the city of Salem. The jury praised the winning design's seamless union of art and architecture. Smith's research into the history of the trials melds with Cutler's form for the memorial, which bears the names of the 20 people executed as witches and their words protesting their innocence. The names are inscribed on stone benches that project from a granite wall bounding a 5,000-square-foot plot of land.

Architect and artist, both of Bainbridge Island, Washington, had wanted for a number of years to work together on a project. Smith came upon a notice for the competition and, having ancestors from Plymouth, Massachusetts, felt a personal appeal in the subject matter. Cutler was equally drawn to the theme because of a childhood experience. At the height of the McCarthy hearings in the 1950s, Cutler was accompanying his father on some downtown errands when they met an acquaintance. His dad mentioned that he had to hurry to a meeting, at which point young Cutler added, "one of those Communist meetings." Horrified, his father demanded to know what possessed him to say such a thing. Cutler recounted an uncle's comment about Communists in his dad's family. In response, his father sent Cutler with his uncle to see *The Crucible*, Arthur Miller's play about the Salem witch trials – a thinly-veiled condemnation of McCarthyism.

When Maggie Smith asked Cutler to collaborate on the memorial design, it was as if the project had been made for him. And when Arthur Miller unveiled Cutler's and Smith's design at a ceremony in Salem, the architect felt as though a circle in his life had closed.

"We wanted to personalize the injustice of the trials," says Smith of their decision to include the names of the 14 women and 6 men who were executed in 1692. "These people never had grave markers, and we wanted them remembered by name." In fact, for the descendants of those executed, some of whom still live in Salem, the memorial is a place where they can go in remembrance of their relatives.

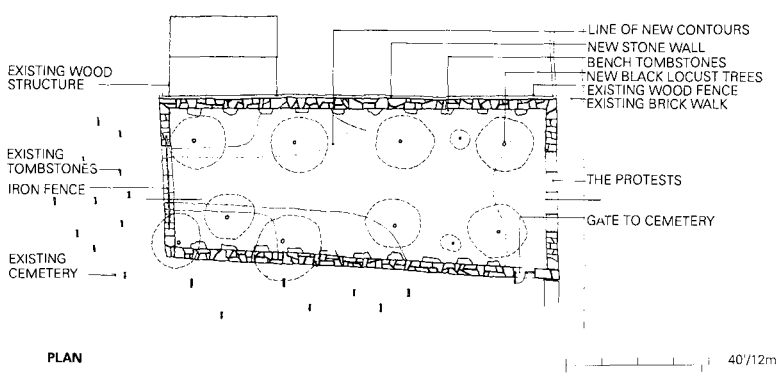
The cemetery site of the memorial also personalizes the incident. Here is the grave of John Hathorne, magistrate of the trials, just outside the memorial's walls. Cutler conceived of the surrounding gravestones as witnesses, like those who stood silent while neighbors were persecuted.

One enters the memorial from the northeast end, crossing a granite threshold inscribed with the protestations of the accused. These words, taken from the records of the preliminary hearing, disappear under the granite walls, whose weight bears down to crush them. Granite is a natural and ideal choice as it is a common material for old walls throughout New England. This sense of antiquity is reinforced by the rough, weathered stone obtained from an abandoned New Hampshire quarry. The pieces were set in place with crowbars and hammers, and Cutler and Smith urged the masons to make the wall irregular with lots of chinking, "as a farmer would build it," says Cutler.

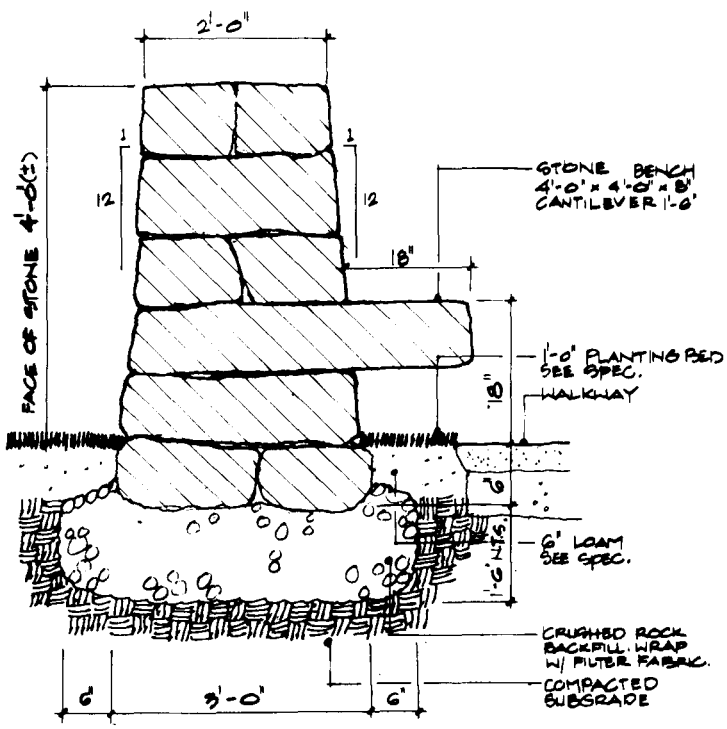
In the landscaping the designers expanded upon the symbolism of the stone walls. The grass is an old mix, with less turf grass such as Kentucky blue. Cutler and Smith envision it eventually speckled with wildflowers, "overgrown and a bit crude," notes the architect. Along the walls beneath the benches is periwinkle, "a plant traditionally used as garlands for condemned people" since the time of the Romans, observes Smith. The black locusts are symbolic of the trees that, legend has it, were used to hang the condemned and were planted on top of their mass grave. Last to gain its leaves and first to lose them, the black locust has thorns, and grows tall and crooked with age.

Much of the ancient symbolism may be lost on many of those who view the memorial. On the day of my visit people strolled quietly around the plot, stopping at each bench to read the names, or sat in contemplation. But the memorial's larger message – that injustice and the persecution of innocent people is ever possible when others silently stand by – is clear. This monument to events 300 years ago is as relevant as today's headlines. **Michael J. Crosbie** ■






PLAN




STONEWALL SECTION


*The memorial's threshold (top and in foreground above) is inscribed with protestations of innocence from the accused, taken from the court records. Just beyond the walls (facing page) lie some of the hearing's officials in Salem's oldest cemetery.*

**Project:** *Salem Witch Trials Tercentenary Memorial, Salem, Massachusetts.*
**Designers:** *James Cutler, James Cutler Architects, and Maggie Smith, Visual Artist; Bruce Anderson, David Cinamon (project team).*
**Client:** *City of Salem.*
**Site:** *5,000-square-foot plot adjacent to the Charter Street Cemetery, Salem.*
**Program:** *A permanent memorial to the victims of the Salem witch trials, open at all times of day and night and in all seasons, accessible to the disabled, constructed of durable materials.*
**Consultants:** *Craig Halvorson and Cynthia Smith of the Halvorson Company, Boston, landscape architects.*
**General contractor:** *Hayden Hillsgrove Stone Masonry.*
**Cost:** *$100,000.*
**Photos:** *Steve Rosenthal.*

CRITIQUE

# MALL ON THE MOVE

## THE RENOVATION OF UNION STATION, WASHINGTON, D.C.

*David Gruber*

It is one thing to adapt a fairly nondescript building to viable modern uses; it is another to take on a building steeped in both architectural and national history. The latter project requires a program that makes sense of the existing physical reality – one that gives the building's inhabitants the sense that they are part of a historical continuum. The development of such a program is made more complicated when a building has been designed for a very specific use. Union Station in Washington, D.C., is a case in point.

Daniel Burnham's station was built in 1907 by the Pennsylvania Railroad, replacing the previous terminal in the middle of The Mall. The building is unique among Washington's public monumental buildings in having been built not as a celebration of national pride, but rather for the glorification and use of what was then the nation's most important industry.

**"While railway stations have always contained retail space, in this instance the primacy of the functions has been reversed."**

Within that industry the Pennsylvania was the acme of all railroads and the largest corporation in America, controlling the routes from Washington to New York and from Philadelphia to Chicago. When Union Station was completed it was the largest passenger terminal in the world, eclipsed only by Charles F. McKim's 1911 Pennsylvania Station in New York.

The rise of air travel and the building of the interstate highway system had dire consequences for rail traffic. By the late 1960s the Pennsylvania, like most of the railroads, wanted to get out of the money-losing passenger business altogether. Though introduction of the fast "Metroliner" trains had the eventual effect of rejuvenating passenger traffic along the rail corridor, it came too late to save the Pennsylvania. By 1974 its successor, the Penn Central, had gone bankrupt, forcing the Federal government to create Amtrak and take over passenger rail service.

As a result of the decline and rebirth of passenger rail traffic, Union Station has been reincarnated twice in the last 20 years. First, in 1977 it became the "National Visitors' Center." Architect Aram Mardirosian filled the building with exhibits on the city and the country, including a 120-foot by 50-foot hole that was cut in the middle of the floor of the old main waiting room for audiovisual presentations (see P/A, Nov. 1977, pp. 58–61). The train station was moved to a nondescript building at the rear of the old terminal.

The Visitors' Center survived only three years, when large portions of the ceiling collapsed during the installation of a new roof. In a move characteristic of the Reagan era, it was decided in 1981 to redevelop the building as private retail space with the train functions reincorporated. With Harry Weese & Associates responsible for restoration, and Benjamin Thompson & Associates (BTA) architect for retail space, the station reopened in 1988.

Most of us who remember the Visitors' Center would say that it failed the test of a successful adaptation of a historic building. The program was not only inadequate to generate sufficient activity in the building, it was also at odds with the architecture. Giant rooms do not make good galleries for small-scale exhibits.

By contrast, the Weese/BTA adaptation is much more successful. Weese's meticulous restoration is holding up superbly after five years. BTA's reprogramming is also generally well regarded. Although some spaces are more awkward than if they had been purpose-built, and although the architecture has been significantly changed by the addition of a mezzanine in the concourse, the new functions generally fit well with the original architecture of the building.

Which is not to say that the ambiance of the original station has been recreated. While railway stations have always contained retail space, in this instance the primacy of the functions has been reversed. This has become a retail mall that happens also to house a train station. The only public Amtrak function that resides in Burnham's building is the ticketing area, not in its original location, but rather at the rear of the concourse.

Burnham's original plan had a biaxial logic. The short axis bisects the building in line with the Capitol dome. On the transverse axis of the head house, ticketing and the main restaurant were to the west and east respectively of the main waiting room. Under the current scheme, the east and west halls are given to retail space, while the waiting room houses a café, and restaurants on what were the walkways between upper-floor railway office areas.

**"The effect of having gallery-type shops in the hall makes it feel like part of a department store."**

The west hall, with its translucent barrel-vaulted ceiling, is the most pleasant retail area in the building. The space feels quite open, being separated from the larger main hall by only a screen of columns. However, because it was originally a ticketing area, the circulation space seems over-generous for the small boutiques. This has been dealt with by filling in the center of the corridor with benches, trees, signage, and displays.

The main hall is the show- case for Weese's restoration. Burnham based this design on the Diocletian Baths, though on a much larger scale. Gold leaf has been reapplied to the octagonal ceiling coffers, and the original red and white marble floor pattern has been recreated. BTA has marked the space with a central kiosk (containing food service and an arrivals and departures board) and two fountains. The tables, chairs, and plants scattered about for the café, probably flatter the hall more than the original rows of mahogany benches, though the sense of anticipation generated by a waiting room is sacrificed.

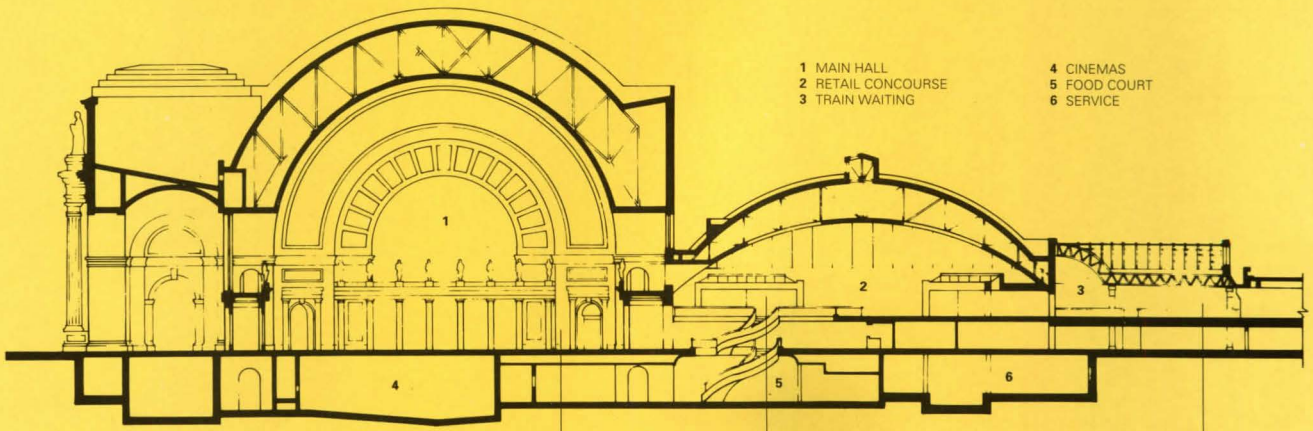
Sitting in the mezzanine level restaurants provides a different experience. From this vantage point, the swirling of crowds in the main hall brings to mind the Grand Central Station waltzing scene from *The Fisher King*.

In the east hall, Weese has restored the scagliola (faux marble) columns and oil-on-canvas stencil murals. BTA has filled the space with kiosk-type shops constructed of wood and glass. Perhaps because this was originally the restaurant, and was visually separate from the main hall, the east hall seems to generate the least foot traffic of any retail space in the station.

On the most recent day I was there two of the east hall shops were vacant. The room may suffer from a confusion in its form. The

*The main hall is marked by a kiosk containing a café, a tobacconist, and an arrivals and departures board. Since the opening, additional tables and chairs have been added in the front corners of the room.*

MAIN HALL




SECTION THROUGH CENTER

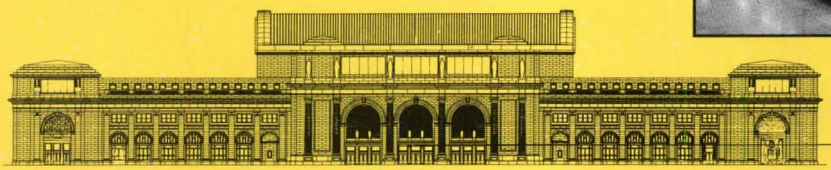
*The main hall is the dominant feature of the building, with its 96-foot-high, barrel-vaulted ceiling, while the retail concourse is the main shopping area. The actual train station is a relatively small part of the building.*

RETAIL CONCOURSE

*The mezzanine and Metro levels are reached by a grand staircase in the center of the concourse. Metal railings have been designed to give a contemporary feel to the additions, without conflicting with the original architecture.*

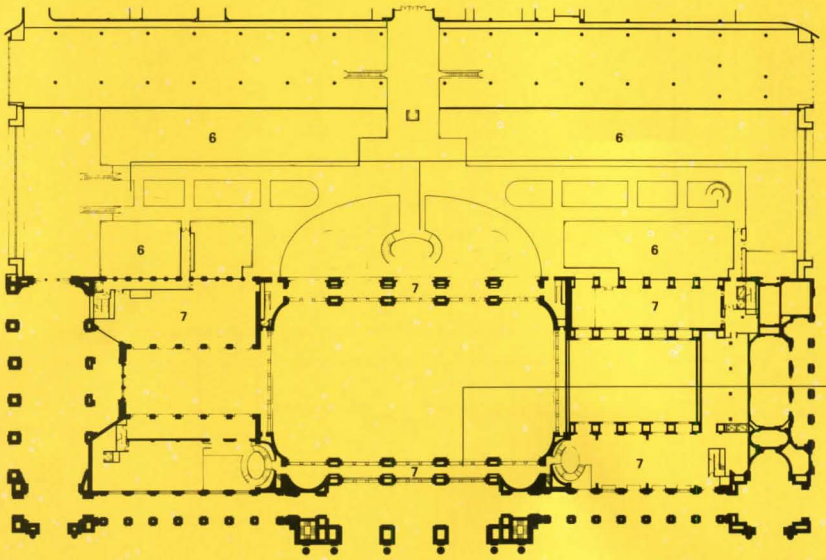
EAST HALL

*The insertion of kiosk-type shops makes for a somewhat timid intervention in the east hall. Restoration of the faux marble and stenciled oil-on-canvas murals are the high point of the room.*



ELEVATION OF MAIN FAÇADE

*Burnham's façade is dominated by the center triumphal arch with its 50-foot arches.*

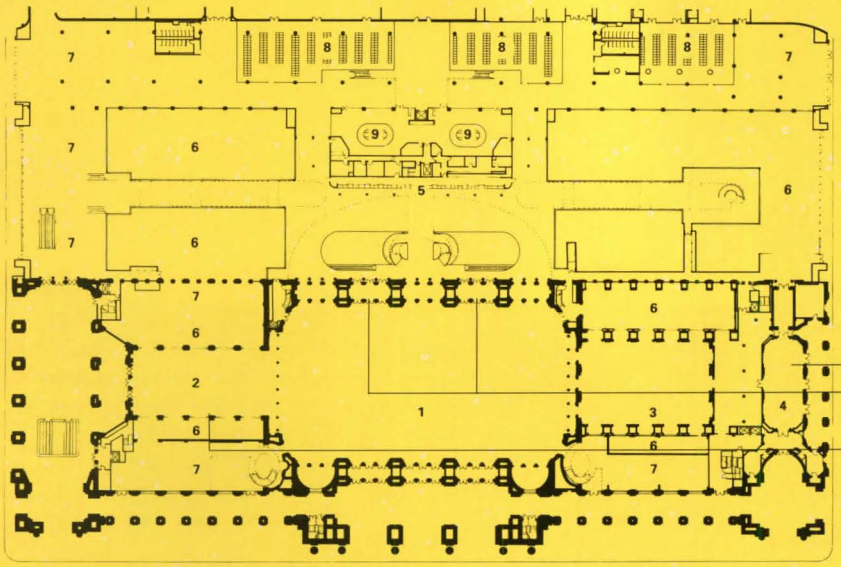


MEZZANINE LEVEL PLAN

*The layout of the retail mezzanine addresses both those entering from Columbus Circle, and those arriving from the Metrorail station at the west end of the building.*

*Mezzanine-level restaurants extend onto the walkways overlooking the main hall.*

1 MAIN HALL
2 WEST HALL
3 EAST HALL
4 PRESIDENTIAL SUITE
5 AMTRAK CENTER
6 RETAIL
7 RESTAURANT
8 WAITING AREA
9 BAGGAGE CAROUSEL



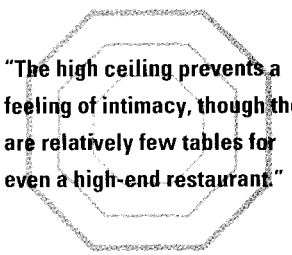
MAIN LEVEL PLAN

N ↑ 100'/30m

*The Presidential suite – now a high-end restaurant – is remote from the rest of the building.*
*Two of the five vestibules between the main hall and the concourse contain shops.*
*The west hall corridor space is rather wide for its purpose.*

effect of having gallery-type shops in this hall makes it feel like part of a department store. Though BTA has maximized space in the building by placing the food court on the Metro (subway) level (basement space is generally unrentable for shops), the cast hall would have been esthetically better suited to that use.

The former Presidential waiting room has become a high-end restaurant. The actual establishment has changed a few times since renovation, which may be because the space is not directly accessible from the rest of the building. As President James Garfield had been assassinated in




the previous station, the rooms were planned to separate Presidents and visiting dignitaries from the general public.

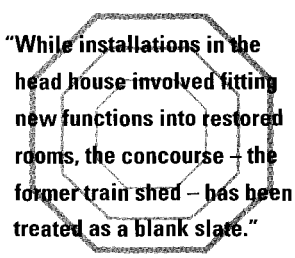
Both the dining room and its waiting room are notable for the painted wall finishes – simulated matched wood veneer in the waiting room, and simulated leather paneling in the dining room. I found the dining room oddly proportioned for its purpose. The high ceiling prevents a feeling of intimacy, though there are relatively few tables for even a high-end restaurant.

While installations in the head house involved fitting new functions into restored rooms, the concourse – the former train shed – has been treated as a blank slate. The original shed was enclosed in the early 1970s, and amputated from its original 760-foot length to make way for the ramps to the parking garage at the rear of the station. To adapt the space to commercial purposes, BTA has inserted a mezzanine, which improves what was previously an overscaled room by providing a counterpoint to the soaring ceilings of the west and main halls. The placement of stairs and escalators is particularly masterful in addressing the axis towards the Capitol, while also addressing those who arrive by the Metrorail station beneath the west carriage porch.

In physical form the concourse is a fairly straightforward shopping mall, though it lacks the traditional department store "anchor." BTA did not serve as architect for all the stores, but rather created a set of design guidelines that ensure both continuity and modesty. Each store is required to have an 80 percent transparent front and is otherwise framed in wood. The Amtrak ticketing counter at the center of the main level, in the airline style, is paneled in matching wood veneer.

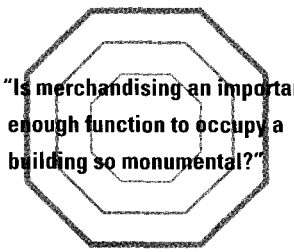
The Metro level is found space, having been initially for utility and storage. The finishes are all new, as are the gently vaulted ceilings. The food court's colorful ceramic-tiled walls make this a bright enough space though there is no doubt that one is in the basement. The multiplex movie theaters are distinguished only by extravagant marquees.

Weese's actual train station area at the rear of the building is also done in the airline style, complete with baggage carousels (which I have never seen in use). Waiting areas attached to "gates" are arranged in line along a corridor that extends the length of the building. The ceiling trusses are exposed, and the corridor is




set off by its quarter-circle ceiling shape, but overall the space seems underdetailed. Replicas of Burnham's cast-iron track gates at the entrances to the waiting areas are a nice touch, but one that I suspect goes unnoticed by the majority of passengers.

The corridor that connects the waiting areas seems too narrow for the number of people who use it, and in the gate areas line-ups for embarkation can become serpentine. The airline style plan is not ideal for train service. Because most trips taken from Union Station are shorter




than four hours, most passengers carry all their luggage. It would therefore seem to be preferable to have wide portals and to keep both walking distances and changes of direction to a minimum, neither of which has been done here.

A judgment of how well this building functions as a railway station depends largely on one's method of arrival. Arriving by taxi, I found it a very long walk from the entrance to the actual train platform, while the walk from the Metrorail station is relatively short. Along the Capitol axis one must also negotiate the obstacles of the main hall kiosk, the shops that inhabit two of the five vestibules between the main hall and the concourse and the ticketing counter, before reaching the waiting area.

One of the promises of Union Station when it opened in 1988 was that it would stimulate development at what has been the eastern fringe of downtown Washington. This eventuality has so far failed to materialize. I am told by a friend who works for a member of Congress that neither Capitol Hill residents nor staffers frequent the station regularly, preferring instead to shop and eat along Pennsylvania Avenue. This may in part be due to the mild "festival marketplace" feel of the place, which seems mainly to draw tourists. Washingtonians go to great lengths to segregate themselves from the tourist hoards.

The tourists do come – weekends and weekdays. Union Station is no longer a white elephant. Yet, is merchandising an important enough function to occupy a building so monumental? The station's grand triumphal arch and axial relationship to the Capitol building were a deliberate assertion of power by the original tenant. Today, the current occupants are left with the same symbolism. Given the nature of post-industrial economies, that assertion is perhaps appropriate. There will probably never again be a single company with the audacity to build in so grand a manner.

It is difficult now to imagine the power and influence the railroads once commanded in this country. Consider, for example, Alexander J. Cassatt, turn-of-the-century president of the Pennsylvania Railroad (and brother of the Impressionist painter). A denizen of Upton, one of Philadelphia's Main Line suburbs, once marched into Cassatt's office, irate that when he had taken his weekend guests to the Upton station, the next train failed to stop. Cassatt smiled and assured the irate patrician that never again would a train pass his station without stopping. Once the fellow had left, Cassatt ordered the Upton station demolished.

**Project:** *Union Station, Washington, DC.*
**Restoration and Amtrak Architect:** *Harry Weese & Associates, Chicago and Washington, DC.*
**Retail Space Architect:** *Benjamin Thompson & Associates, Boston.*
**Consulting Architect:** *Fry & Welch Associates, Washington, DC.*
**Structural Engineer:** *Tippetts-Abbett-McCarthy-Stratton, Washington, DC.*
**Mechanical Engineer:** *John J. Christie & Associates, Washington, DC.*
**Electrical Engineer:** *H.C. Yu & Associates, Richmond, VA.*
**Photos:** *Carol M. Highsmith.*

Photographer **Margaret Morton** chronicles the tenacious architecture of Manhattan's homeless.

The makeshift dwellings that the dispossessed of New York construct for themselves go far beyond the need for mere shelter. Since 1989, I have photographed these dwellings in vacant lots and public parks, under bridges and highway ramps. I was concerned that an important record of the homeless crisis would be lost as the dwellings were periodically demolished.

Sometimes reminiscent of the 1930s Hoovervilles in their semipermanence and density, the structures created in these "settlements" have ranged from over 100 dwellings in Tompkins Square Park, which became a national symbol for the plight of the homeless, to a decorated crate hidden inside the entrance to an abandoned tunnel. One of the environments has existed underground for over 19 years; another survived along the street for only a few hours. The makeshift homes, primarily created from consumer detritus reconstituted as building materials, give evidence of the profound need to adorn, collect, and create – to give personal meaning to a private space – even in the most desperate of circumstances.

Many of the homeless people state that they prefer building their own houses to staying in the city's shelter system. Although makeshift plastic tents and plywood shanties are certainly not acceptable housing alternatives, it is my hope that an analysis of the particulars that transform a cardboard box into a home will provide useful insights for the development of more appropriate solutions. **Margaret Morton** ■

*The author, a professor at The Cooper Union School of Art, is coauthor with Diana Balmori of* Transitory Gardens, Uprooted Lives *(Yale University Press, fall release).*

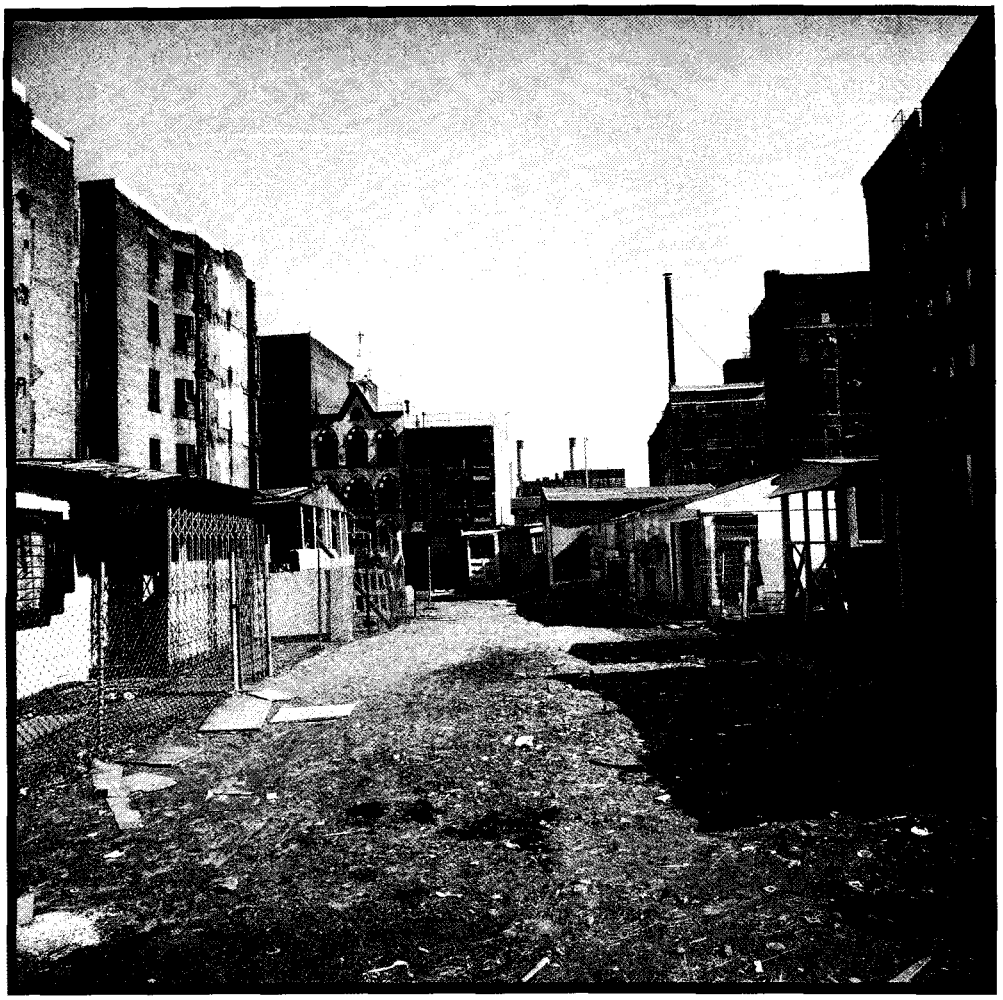
"I built this house in one day and then I kind of reinforced it a little bit. Made sure it doesn't leak. The location is not soundproof so you can hear the birds tweetin' and the ducks quackin'." **Thomas Davis**

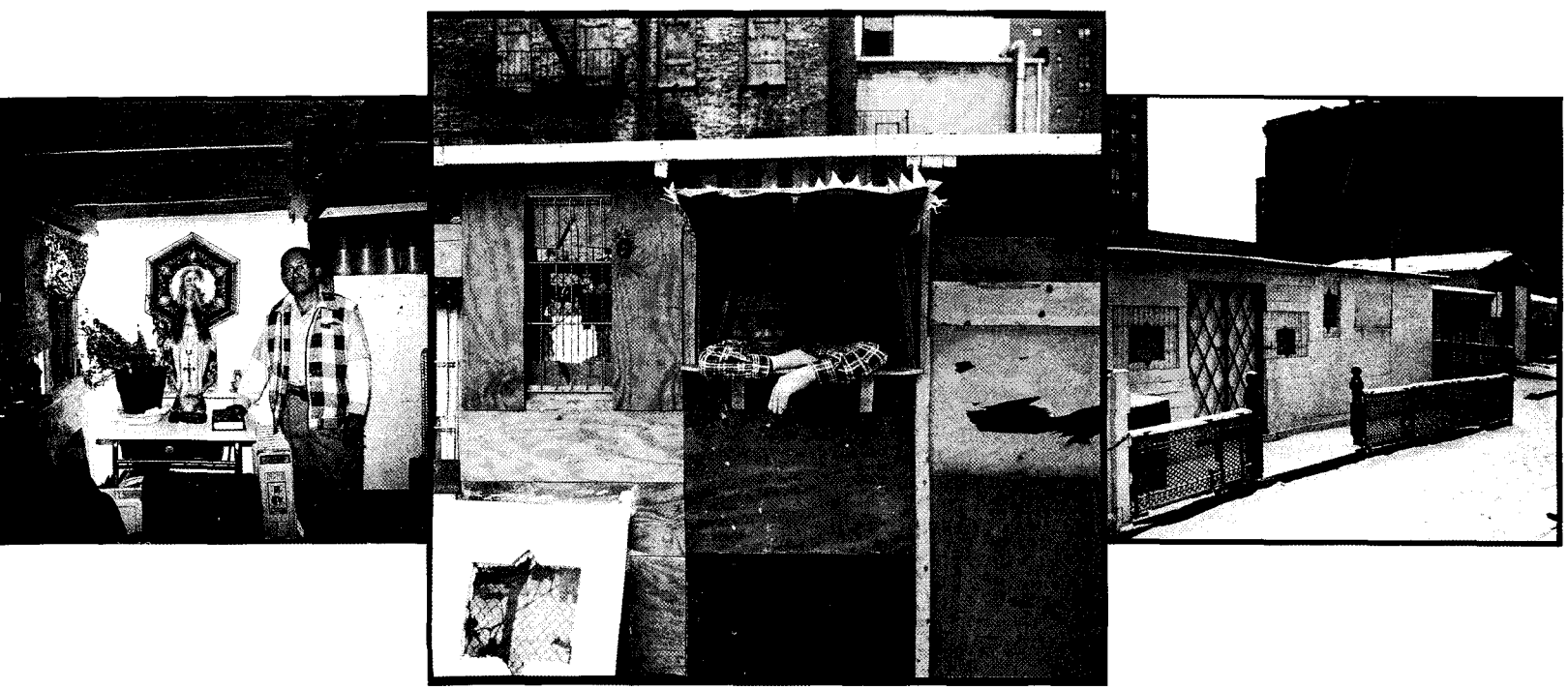
*Curtis Cuffie's mobile home (top left) has been photographed in many locations throughout the Lower East Side. Yi Poi Lee's house (bottom left), Chinatown, February 1991. Handwritten messages proclaim: "Mr. Lee the Great Inventor." "You won't find one nail ... holding that place together," says a neighbor. "It's held together with knots." Lee died when an arsonist set fire to his house on May 29, 1992. Above, Thomas Davis' house, East River, February 1993.*


"When I came here, I started like a poor person. Now I feel better. I built this house myself. I figure this is my breakthrough to stay here, but sooner or later they're going to chop the houses down. Will they put something here for the people working hard? They suffered making the houses here, you know."
**Hector Amezquita**


"I'm no architect. God is the architect. He is the best architect in town. When I took over there was nothing, only this room. I had so many leaks and the ceiling was too low. I had to push it up two inches. Then I got tired; I got sick. I had to stop everything. The kitchen is still unfinished, I have to finish the kitchen soon as the weather gets a little warmer - if I am still alive." **Pepe Otero**

*The quotes are excerpted from Morton's forthcoming book,* The Architecture of Despair. *Her photographs are on view at the Lowinsky Gallery in New York through September 4.*





*Facing page, Hector Amezquita's house, Bushville, Lower East Side, June (top) and November 1991 (bottom). Main path through Bushville, (top), March 1993. Pepe Otero's house, Bushville; under construction, September 1991 (above center); expanded, with fence constructed from plastic bread trays, February 1992, (above right); interior, October 1992, (above left).*

# Perspectives: Why Boycott Colorado?

How architects can respond to Colorado's Amendment 2, a threat to the Constitution, as well as to gays and lesbians.

Colorado dismayed many of us last November. By passing Amendment 2, which legalizes discrimination against gays and lesbians, the state stripped the gay community of the civil rights guaranteed to everyone else. Packaged by factions from the religious right, Amendment 2 is a hostile initiative, premised on the fallacy that the gay community seeks special legal stature. In fact, Colorado never offered statewide protection against discrimination to gays and lesbians at all; until November their rights were ambiguous; since then they have been annulled.

With Amendment 2 in place (a court has enjoined enforcement, but the Amendment remains in the state constitution), gays and lesbians do indeed get "special treatment," but it's far from benign: since November, bias-crime complaints at the Gay and Lesbian Community Center of Colorado have escalated 275 per cent. Physical abuse is not the only problem that gay people could encounter in Colorado. Were P/A's office in Denver, my publisher could fire an employee simply because of sexual orientation. Under Amendment 2, the state would support such an action, based simply on who employees are, not on what they do.

Why should you be asked to support a boycott of Colorado? Why should straight readers – however empathetic to the situation of gays and lesbians – boycott to protect minority rights in a state they may hardly know? You might also ask if it matters whether we purchase building materials from Colorado or travel there for conventions or vacations. Yes, it does. When out-of-state dollars come into Colorado, Amendment 2's backers see it as tacit approval of their agenda. And their success in Colorado is fuel for their allies who are geared to push similar referendums in eight other states. Unless we censure Colorado (nothing would be more effective than an economic boycott) civil rights may soon be hemorrhaging around the country.

The AIA's response has been disappointing. Even though they oppose Amendment 2, the AIA Board of Directors declined entreaties to move their meeting out of Denver this fall. Susan Maxman, the President of the AIA, described it as an organization driven by consensus, one that cannot disregard the anti-boycott stance of its members from Colorado.

This summer's International Design Conference in Aspen (IDCA) turned out to be another cop-out. Months ago, a contingent of architects, designers, and editors (including this one) met the IDCA directors and advised them to stay away from Aspen. We reasoned that their absence would speak louder than their presence. The directors, fearing that a boycott would offend their Aspen volunteers and doom the chances of convening there again, went ahead with the conference. While they hosted gay-sensitive events, their message was circumscribed: it started and stopped with those already against Amendment 2. Had they suspended the conference, everyone in the design community would have taken note. Like the AIA, the Aspen Conference underestimates the national scope of their actions. A boycott of Colorado is more than a rebuff of its Amendment 2 vote; it asserts that civil rights aren't discretionary. This is a preventive measure against a virus of discrimination.

A boycott is an unwieldy instrument. In fact, I opposed using it a few months ago: here at P/A we debated whether our traveling exhibit, The New Public Realm, should go to Denver according to a schedule set last summer. (The exhibit follows our design competition, the cover topic in last October's P/A.) Like most of my colleagues, I favored sending the exhibit to Colorado, at the request of our Denver cosponsors, the local chapter of Architects, Designers, and Planners for Social Responsibility. We reasoned that it wouldn't bring any money into Colorado, but could be a forum that presents architects as protectors of civil rights (see P/A, April 1993, p. 22).

> "A boycott of Colorado is more than a rebuff of its Amendment 2 vote; it asserts that civil rights aren't discretionary."

Since then, I've recognized that we can't rely on enlightenment to rescind Amendment 2. It's true that dialogue can bring opponents to your side – that's how civil rights advocates desegregated the South. And if the West had boycotted the Soviet Bloc during the Cold War, the Reds there might still be in power, like Castro in Cuba. But Colorado is no place to rely on good works to compel antagonists to adopt our convictions. The Amendment was a hateful move, not merely an uninformed one. It calls for an ultimatum.

A boycott by the AIA could be as instructive to architects as it would be to the public, an affirmation that we are the caretakers of the public realm. The city, whose fabric is the product of our designs, is the emblem of our heterogeneous society. It is a structure that renders our shared culture – our commonwealth – visible. Amendment 2's promoters flout the fundamental purpose of the city: instead of accommodating its diversity, they want to subordinate one of its minorities, to alienate those unlike themselves. Their agenda contravenes our aspirations as architects. After all, we are trained to provide a place for everyone. We're responsible to design spaces for all, educated to be sensitive to needs as diverse as our population. Once you see our profession in this light, you might consider fighting discrimination a counterpart to designing buildings and cities. Shouldn't we pursue both aspirations? **Philip Arcidi** ■

*On July 19, the Colorado Supreme Court upheld the injunction against Amendment 2. While this is heartening news, the Amendment which is the impetus for the boycott has not been overturned.*

Presenting available research related to childcare center design, design tools for energy conservation, and analysis of energy consumption in housing.

**Editor's Note**

P/A has long recognized, primarily through its award for architectural research in its annual awards program, that this work is critical in moving the discipline of architecture forward. To further support such research and to alert architects who might benefit from it, we asked the AIA/ACSA Council on Architectural Research to recommend projects worthy of publication. The purpose of the council is to serve as a link between architecture schools, where research activity occurs, and the profession, which can utilize the results of this research in practice. The response of the council and its cooperation with P/A has been enthusiastic, and we present this first installment of a regular series on architectural research.
**Michael J. Crosbie**

**The Architecture of Childcare Centers: Theory, Research, and Design Applications**

Gary T. Moore, University of Wisconsin-Milwaukee, and Gary T. Moore & Associates

The unprecedented demand for childcare throughout the world, coupled with increased funding for childcare services and facilities in the U.S., especially by corporate sponsors, presents a major challenge for researchers and designers of children's environments. The goals of this research and development program have been to evaluate a wide range of public and private childcare centers around the U.S. and abroad through post-occupancy evaluations (POEs); to investigate empirically, rigorously, and quantitatively in depth several key design qualities for their impact on social and cognitive development in childcare centers; to translate the results into usable design guidelines; and to see the results applied in practice.

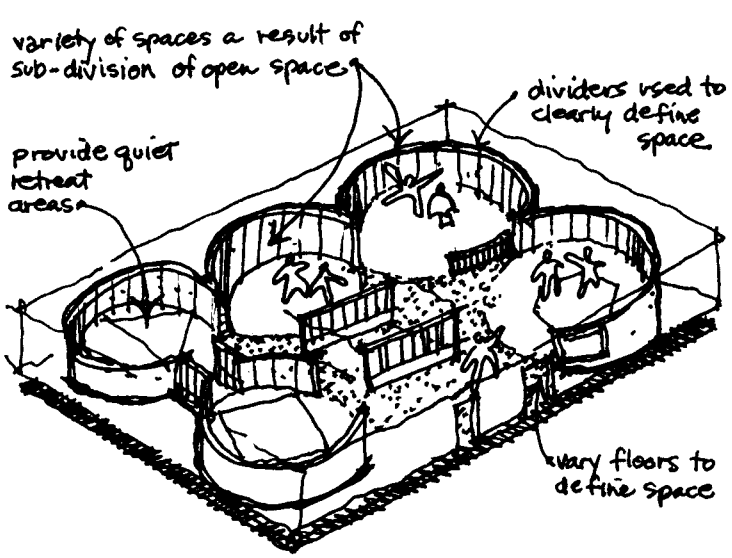
No comprehensive source of up-to-date information existed on the design of childcare centers when we began our research. The original POE research was done from 1978 to 1981 and received a P/A citation in 1979 and an award for applied research in 1980. The more rigorous empirical research was completed in 1982. The design guidelines were done first for the U.S. Army Corps of Engineers, and were published in 1981 and 1986. Through my professional office I have had the opportunity to apply and test many of the most important design concepts in a variety of childcare facilities, most recently as chief child development facility design consultant to Shaughnessy Fickel and Scott, Architects, on the St. Joseph Health Center, a $2.4-million, 20,800-square-foot Child Development Center for 197 children associated with a major metropolitan hospital in Kansas City. This demonstration project, where many of the design concepts have been applied, was opened last October.

As described in the report, ten design principles based on empirical research on the relation between child development and the built environment are absolutely critical for the success of any childcare center: residential scale; village or campus plans comprised of identifiable "houses"; a building core of shared uses with open and accessible administration spaces; semi-enclosed/semi-open activity centers; "home bases" for 12 to 16 where children start and end their day; pockets of primary developmentally oriented activities surrounding the home base; separation of noisy/quiet, clean/messy, active/creative activity pockets; clear, safe circulation paths; indoor/outdoor connections; and developmentally appropriate play yards.

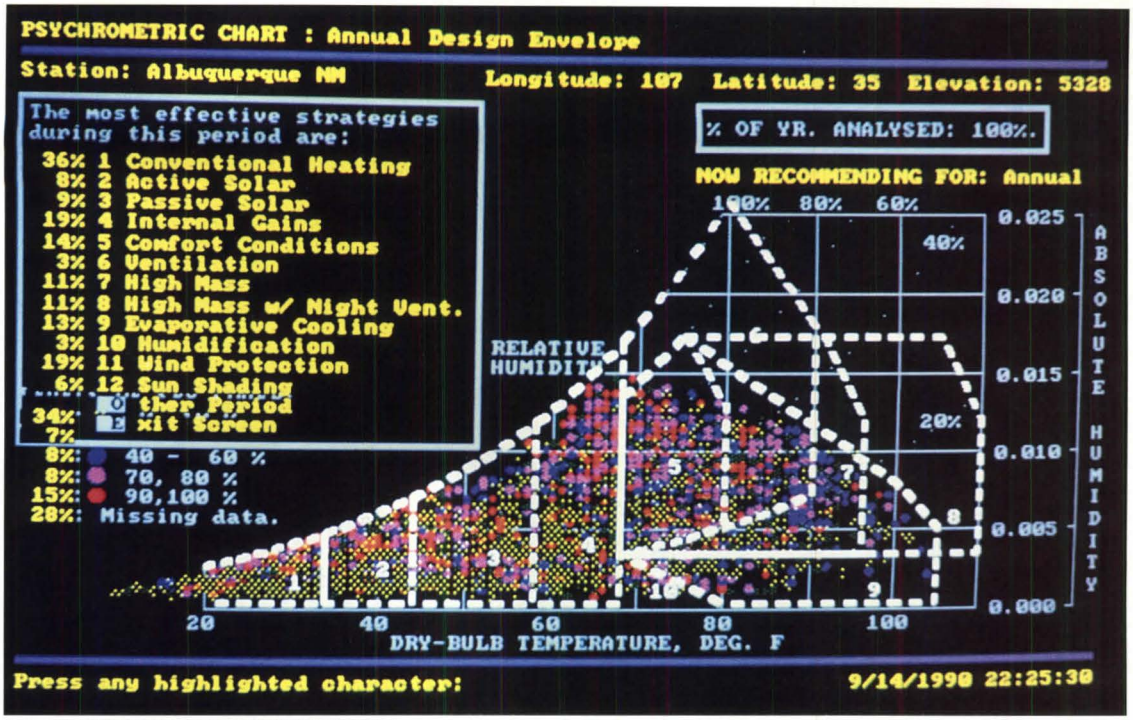
The subdisciplines involved in the research have been environmental psychology and developmental psychology. Funding was provided by the U.S. Army Corps of Engineers, and subsequently by the General Services Administration through HDR Architects and Engineers in Dallas, the NEA, the Graham Foundation, and the St. Joseph Health Care Center in Kansas.

We believe the design guidelines and the whole process of their development, testing, and use illustrate a holistic approach to research and design. Over the course of this program we have been able to conduct POEs, translate the results into architectural programs, conduct rigorous empirical quantitative research (published in leading scientific journals), translate the results into a series of widely used design guidelines, and see the results adopted in practice.
**Gary T. Moore** ■

*For more information, contact Gary T. Moore, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, 53201-0413; (414) 229-5940; Fax: (414) 229-6976.*




MODIFIED OPEN SPACE




DATA DISPLAYED FROM CLIMATE CONSULTANT PROGRAM

**Tools for Designing Climate-Responsive Buildings.**
Murray Milne, UCLA Graduate School of Architecture and Urban Planning.

At UCLA our research has focused on the development of computer-based energy conserving design tools that integrate seamlessly into the architectural design process. Our goal is to help architects (especially young practitioners) and students to design better energy-efficient buildings.

The term Computer Aided Design (CAD) for many people means a computerized design or drafting system that results in two- or three-dimensional drawings of a building. But many other issues bear on the final form of the building, issues that cannot be initially represented in a drawing. These issues include thermal performance, lighting, economics, behavioral factors, acoustics, structural safety, etc. Architects need a kit of computer-based design tools to allow them to address these incredibly complex issues.

A "design tool" might be defined as something that helps an architect make a better design decision. But our development of design tools also has a hidden agenda; the tools leave the architect with a better understanding of the underlying issues involved. In other words, they teach.

Hundreds of copies of the UCLA design tools have been distributed, and they have been used in about a third of all the schools of architecture in North America. They are all "shareware," which means that anyone is welcome to make a copy and share it with others.

*SOLAR-2.* One of the first design tools we developed allows an architect to design a window and add an overhang and/or fins, then see the sunlight penetration patterns plotted out through the room for each hour of each month. SOLAR-2 can also plot an axonometric view to help the designer conceptualize the sun's movements relative to the building. SOLAR-2 can print out tables of the percentage of the window in full sun and the direct solar radiation load.

*SOLAR-5.* The most complex of our design tools, SOLAR-5 has been in development since 1978 and now contains dozens of unique features that make it both powerful and user friendly. One of the unique features of this program is that it can create a climatologically appropriate basecase with just four pieces of information: building type, climate station, square footage, and number of stories. The architect uses this basecase to compare the performance of all subsequent buildings to see if the design is evolving in the right direction. SOLAR-5 displays thermal information as a three-dimensional picture showing each hour of each month.

*OPAQUE.* This design tool allows the architect to design an opaque wall or roof section in any material, painted any color, for any orientation at any latitude. It then displays a series of plots of hour-by-hour performance for any month according to criteria such as heat gain and loss, surface temperature, or solar radiation incident on the surface. The architect can immediately see how something as apparently insignificant as changing the color has a huge impact on surface temperature, which in turn directly affects heat gain.

*DAYLIT.* This program permits the designer to model the light admitted by any combination of up to four different skylights or windows. The light can then be modulated with the addition of fins, overhangs, lightshelves, or reflecting sills. The room illumination can be plotted on the centerline of the window, on a room section, including up to three zones of manual or photocell-controlled lighting. It also plots thermal loads.

*CLIMATE CONSULTANT.* Weather data for each hour in a typical meteorological year are now available for hundreds of stations. This program reads the data, statistically analyzes them, and plots them out in various graphic forms (example above). The objective is to make the details of the climate more comprehensible to visually oriented architects. CLIMATE CONSULTANT can also aggregate and plot other kinds of data including sunshine percentage, inches of precipitation, wind velocities, or the number of clear, partly cloudy, and cloudy days.

*RATES.* This program contains over 170 residential and commercial electric rates from California's eight major utilities. Given a value for kilowatts per hour (KWHR) it generates three-dimensional plots to show ratepayers a detailed picture of energy costs. **Murray Milne** ■

*For more information contact: Murray Milne, Graduate School of Architecture and Urban Planning, University of California, Los Angeles, California, 90024-1467; Fax: 213 206-5566.*

**Development and Implementation of a Home Energy Rating System (HERS) for the State of Illinois.**

Rose Geier-Wilson, Building Research Council/Small Homes Council, University of Illinois at Urbana-Champaign

This research program involves the design and development of a Home Energy Rating System (HERS) funded by the Department of Energy & Natural Resources of the State of Illinois. Phase I involved evaluation of computerized and manual analytical tools for the study of the energy efficiency of single- and multi-family structures and a survey of existing programs throughout the country, completed Fall 1991. Phase II consisted of a pilot study in the east-central portion of the state, completed Fall 1992. Phase III consists of development of a multistep plan for statewide implementation, which began last January.

Research was undertaken because a definitive method for determining the energy efficiency of the structures being built within the state did not exist. There are more single-family residences in the state than any other building type, and they account for the majority of energy usage. As the state has not enacted a statewide building code or energy code, there are no guarantees of low energy consumption for the consumer. A voluntary, uniform, and easily understood method was needed to allow for information transfer to all parties involved in design/construction and occupancy. End users were perceived as having the power to influence material and method specification if they could be educated about the potential savings (monetary and energy) that could be realized.

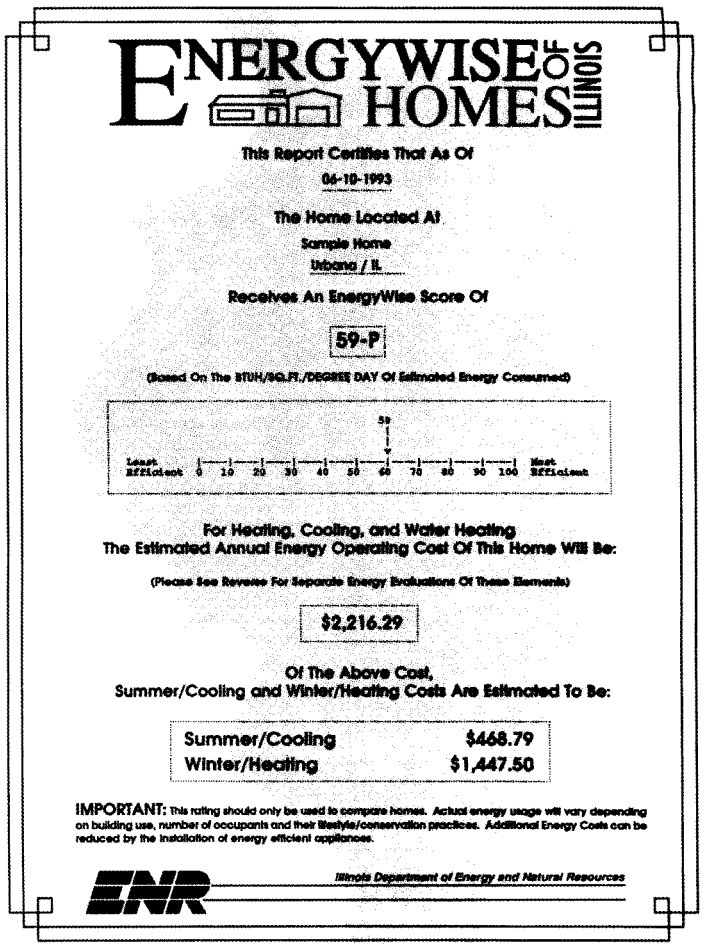
The system had to be multifaceted, easily understood by consumers with different educational/experience levels, and contain technical data that could be made available to a designer. Twin goals of energy conservation through increased efficiency and housing affordability through reduced operating costs were envisioned. Ties to existing national programs that offer Energy-Efficient Mortgages (which reward buyers of energy efficient homes with an increased debt-to-income ratio), were sought to increase the number of qualified home buyers.

This program has been designed to provide documentation of expected energy usage. The cost information (example above) is presented in both BTUs (load and consumption) and in annual dollars to operate. The program rates residential structures, multi-family and single-family (attached and detached), on a scale from 0 to 100, correlated to the energy consumption in BTUs of the structure per square foot of floor area as normalized for the degree days typically found within one of five zones within the state. The program is fuel neutral. A computerized rating tool (REM RATE from Architectural Energy Corporation, Boulder, Colorado) was chosen following a review of those commercially available. The tool is used in conjunction with the specific protocols and procedures developed to ensure accuracy and provide for quality control.

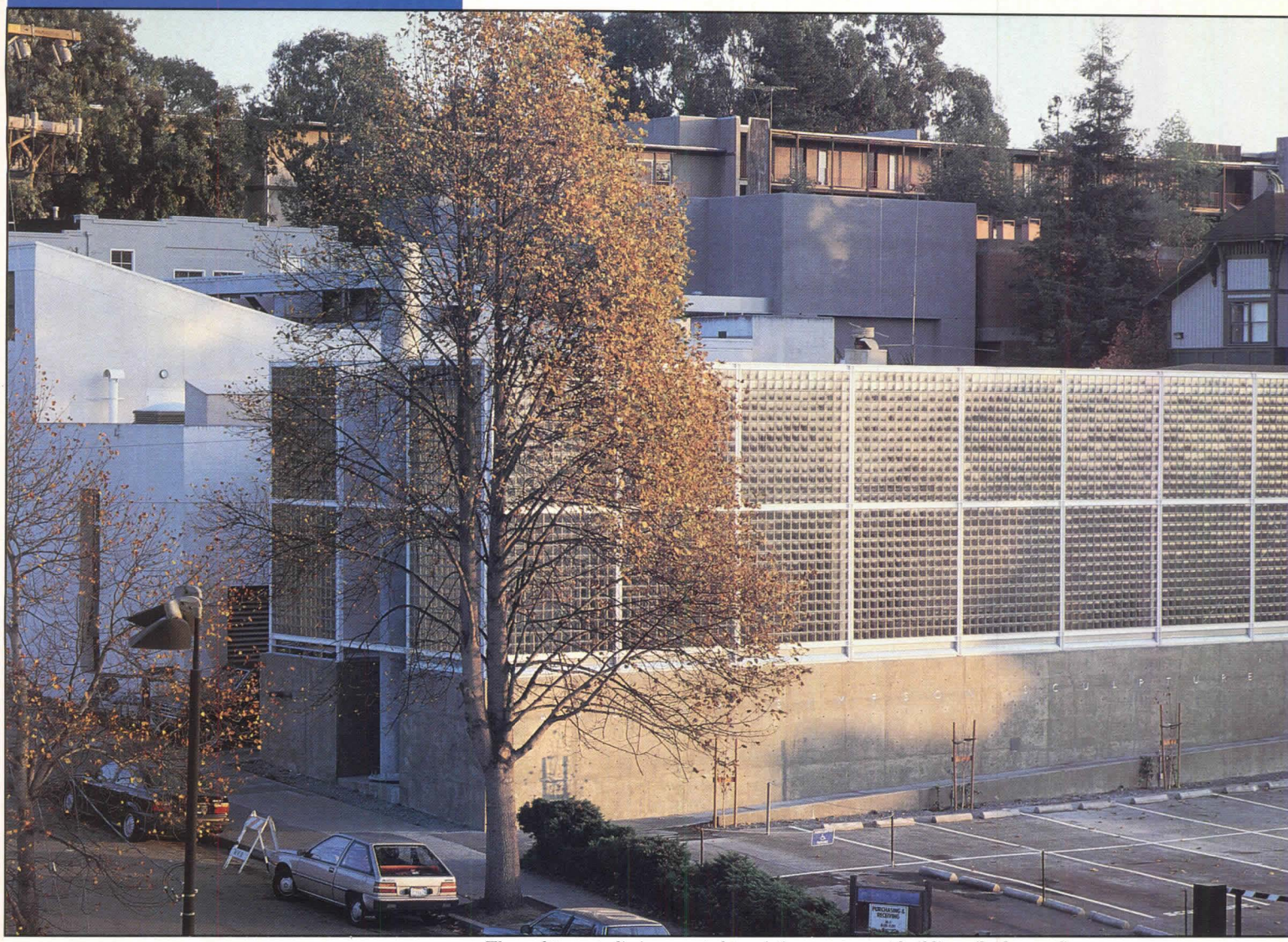
Beneficiaries of the program include architects, builders, homeowners, and home buyers. Ratings can be obtained for either existing or to-be-built homes (preliminary estimates can be made from plans and specifications), and recommendations for energy improvements are available. Designers may use the tool to check efficiency levels and projected operating costs prior to construction. Contractors and real estate agents may use it as a marketing tool; consumers can use it as a buying guide. Groups that administer weatherization programs use the rating system to determine priorities for retrofit applications.

The University of Illinois, as a repository for the data gathered under the program, will begin to assemble a data base of information on the energy-efficiency levels of new and existing single- and multi-family homes. Conclusions may be drawn on construction techniques and procedures that occur in a nonregulated state. Significant impact of design trends can be monitored and statewide energy usage tracked. **Rose Geier-Wilson** ■

*For more information contact Rose Geier-Wilson, Small Homes Council/Building Research Council, University of Illinois at Urbana-Champaign, One East St. Mary's Road, Champaign, Illinois, 61820; 217 333-1801; Fax: 217 244-2204.*




INFORMATION SHEET FOR HERS PROGRAM

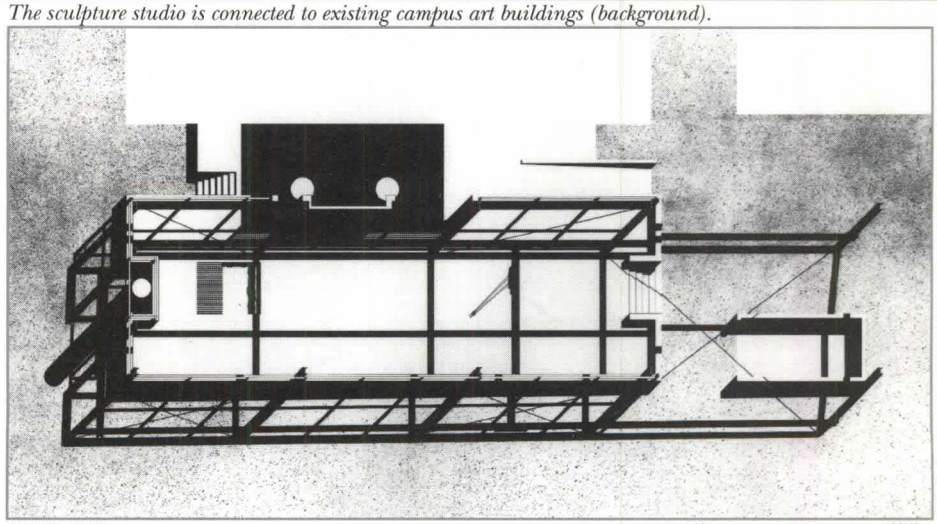


Photos: Alan Weintraub

*The sculpture studio is connected to existing campus art buildings (background).*

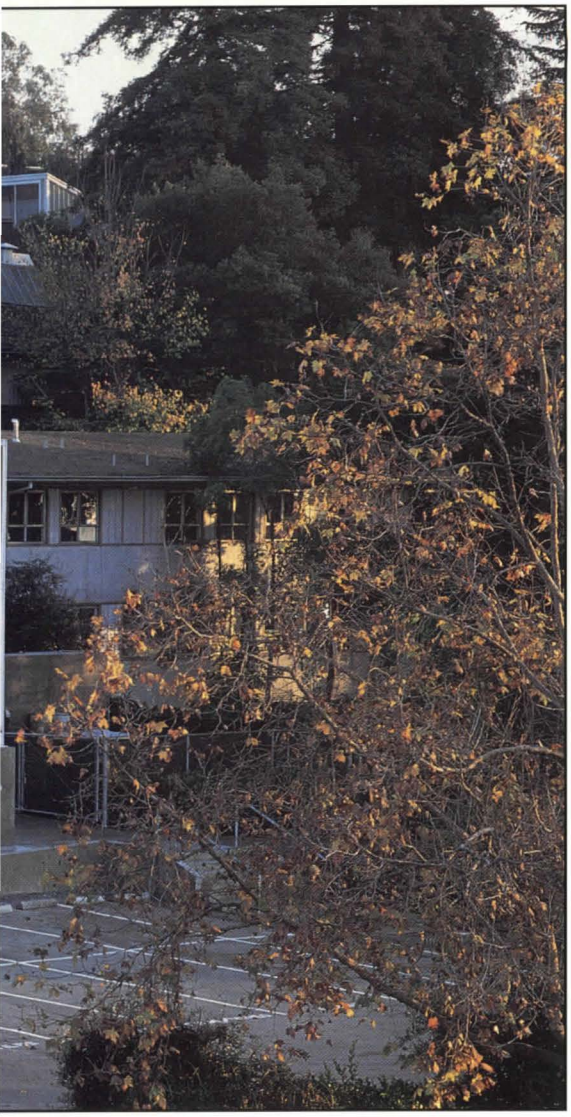
## BARCLAY SIMPSON SCULPTURE STUDIO

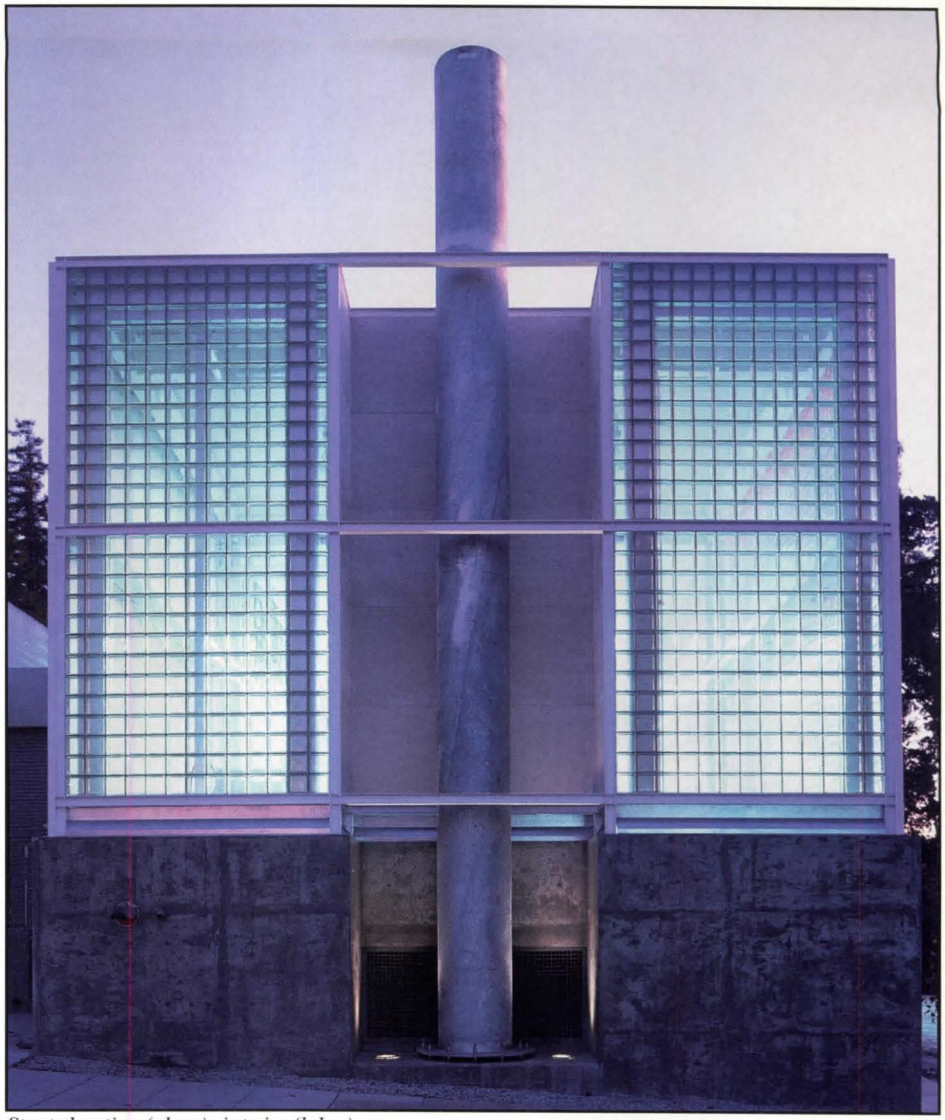
There are no superfluous details in the Barclay Simpson Sculpture Studio, Jim Jennings's 2,400-square-foot addition to an existing metal foundry and glassblowing workshop on the campus of the California College of Arts & Crafts in San Francisco. A simple, Miesian box, it reflects a desire to go back to the basics of light, air, and space. The glass-block-and-steel walls and cast-in-place concrete base clearly address the building's purpose. The college wanted a space where students from the sculpture and glass departments could interact; it is a forum, says Jennings, "for the cross-fertilization of ideas." The open plan interior is flexible, allowing students to experiment freely with the materials they have chosen to study. A P/A Awards citation winner (P/A, Jan. 1991, p. 116), the addition is still without its main piece of equipment, a furnace (fundraising efforts are under way), and is currently used only as a studio. A rolling gantry crane, originally on tracks that extended beyond the building envelope, was limited to the interior as exterior spaces were reallocated for other purposes. **Abby Bussel** ■



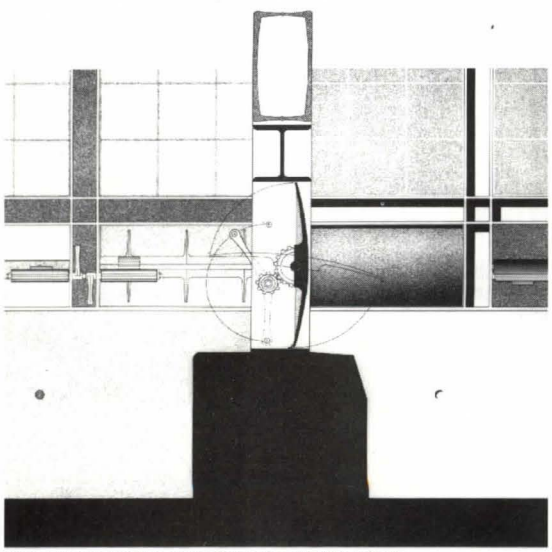
**SHADOW PLAN**

N 20'/6m

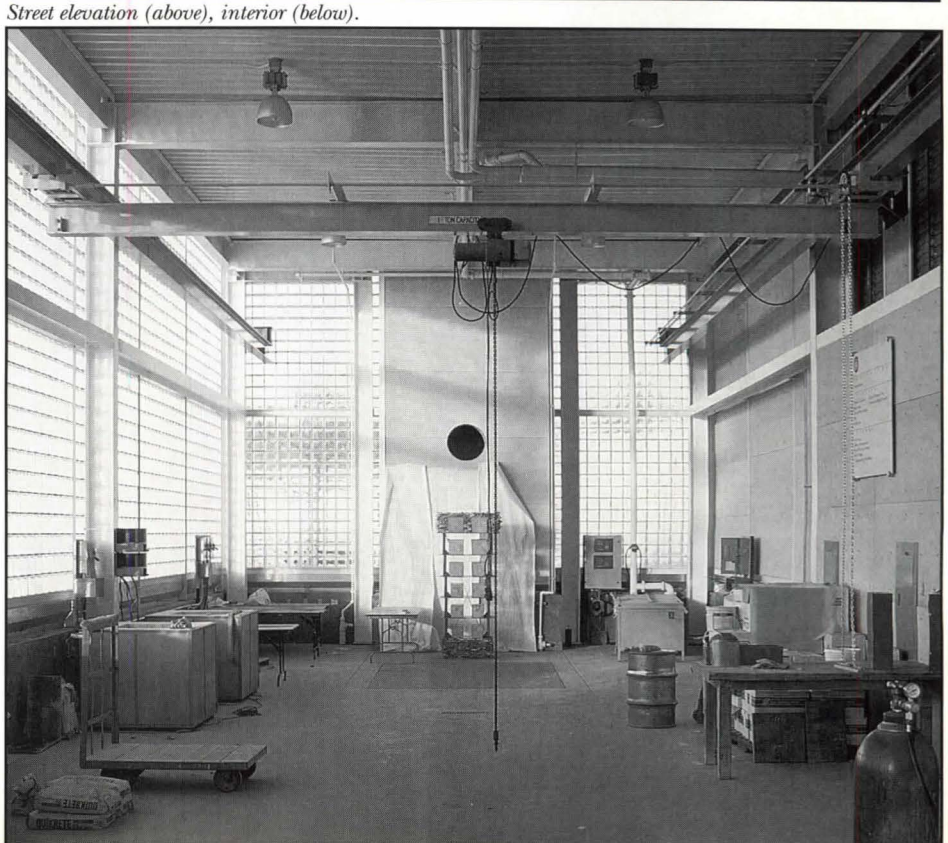


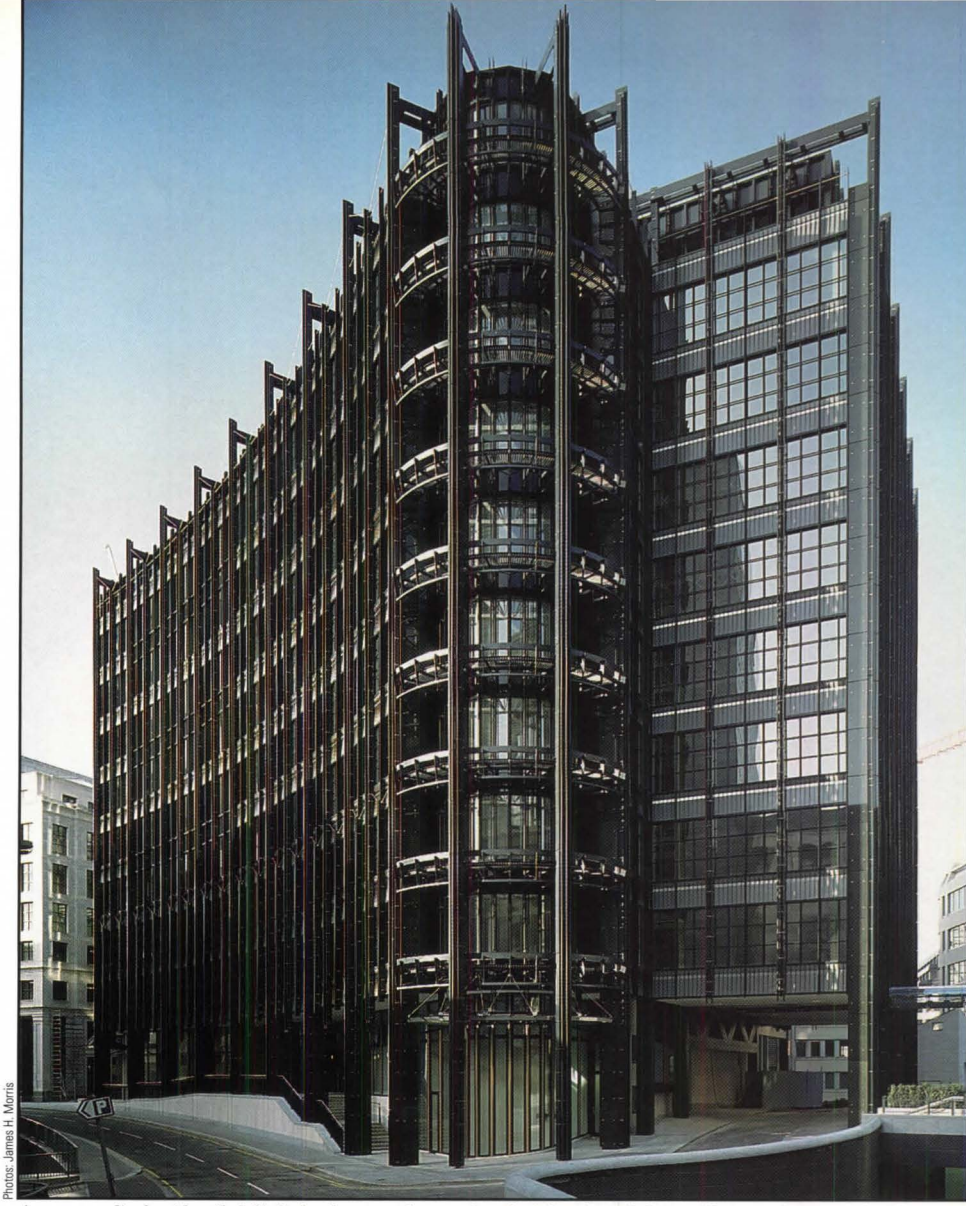


*Street elevation (above), interior (below).*



DETAIL: VENTILATION FLAP AT BASE OF GLASS BLOCK WALL





Photos: James H. Morris

*A corner cylinder (detail, left) links the curved street façade (above) and the rectilinear volume on the plaza.*

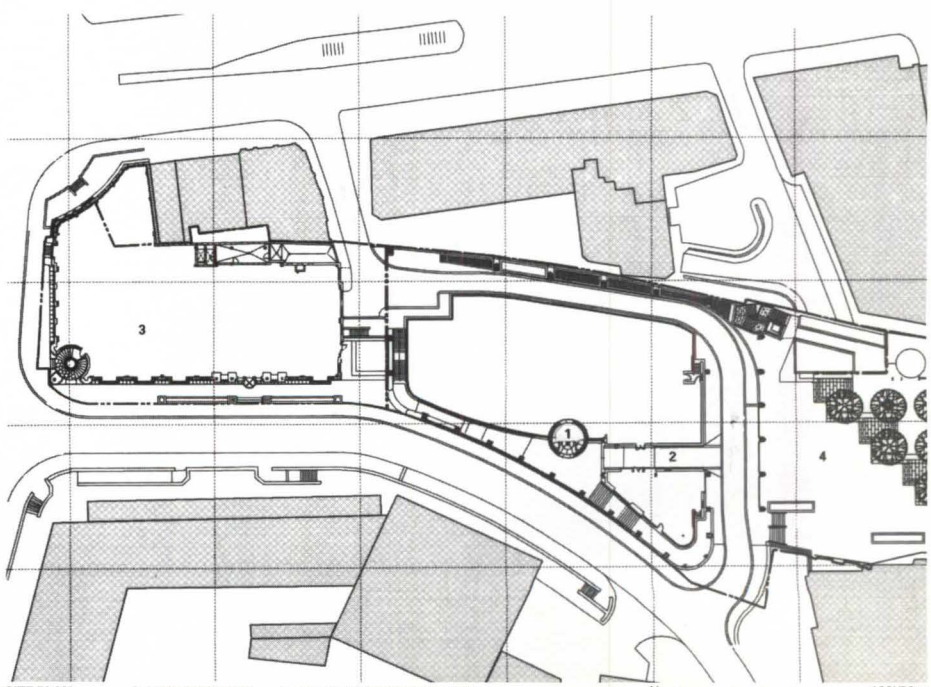


## 10 LUDGATE

When the light is right, the curved façade of this London office building looks like a corrugated plane, its folds highlighted by slivers of light. Each marks an edge of the granite-clad columns attached to the façade. Here, Adrian Smith of Skidmore, Owings & Merrill's Chicago office gives the firm's trademark rationalism a more rhetorical turn: the 50-mm granite "fins," hung from the columns by stainless steel pins, make the slender steel structure seem even more attenuated.

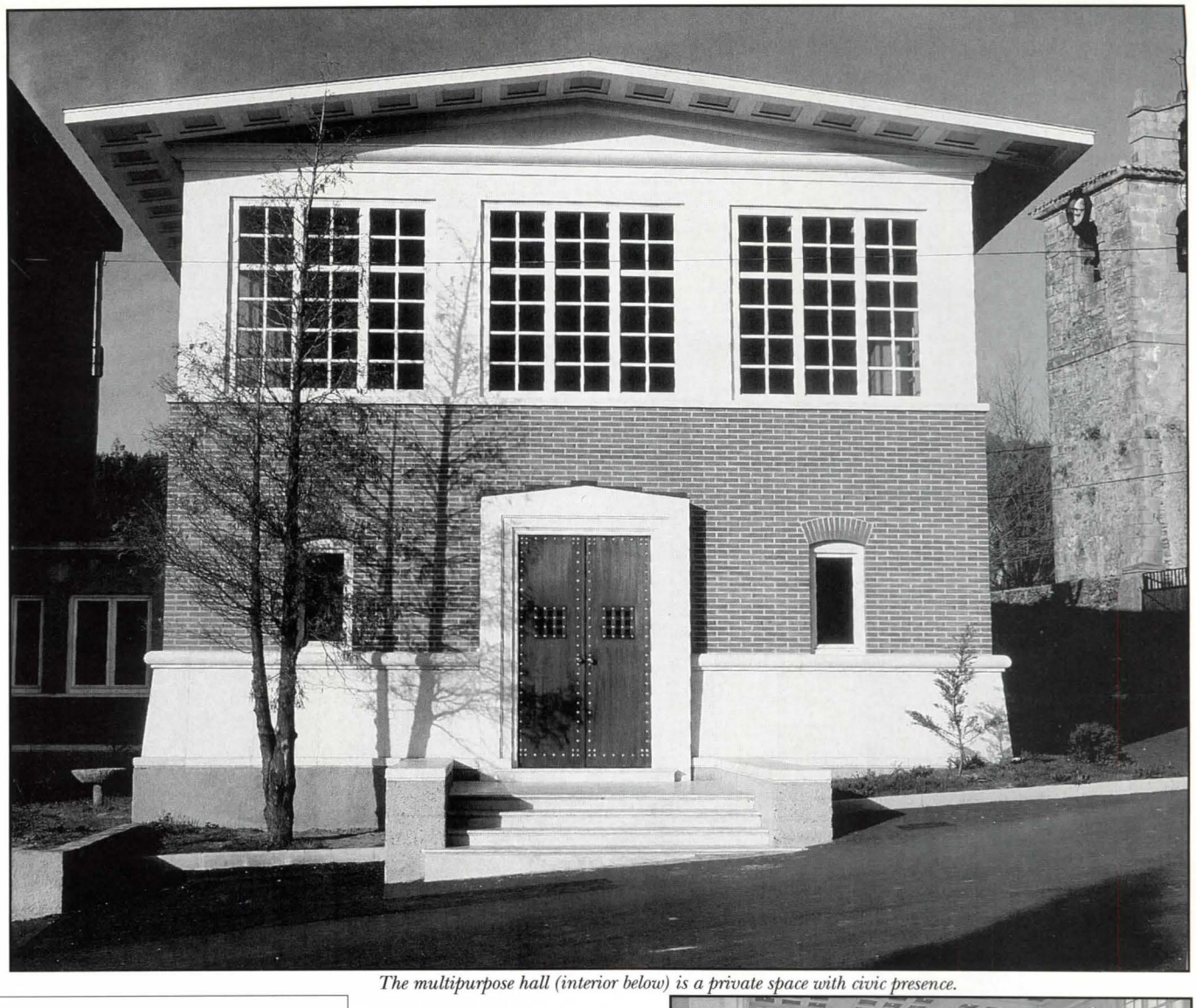
London's planning officials mandated that the building be stone; Smith wanted it to be a courteous addition to its neighbors, one traditional, the other steel and glass. Here, the tripartite composition of base, shaft, and capital once typical of urban buildings returns in a graceful Modern design.

The main façade screens the irregularities of the plan. Neither of the glazed corners has the doorways one would expect to find there; the lobby entrance is embedded behind the colonnade. The building is insistently Modern, but it defers to London's conventions for marking a corner, no matter how unconventional the site may be. **Philip Arcidi** ■




**SITE PLAN**

**1** MAIN ENTRANCE
**2** PASSAGE
**3** ADJACENT OFFICE BUILDING BY SOM (NOT IN PHOTO)
**4** PLAZA

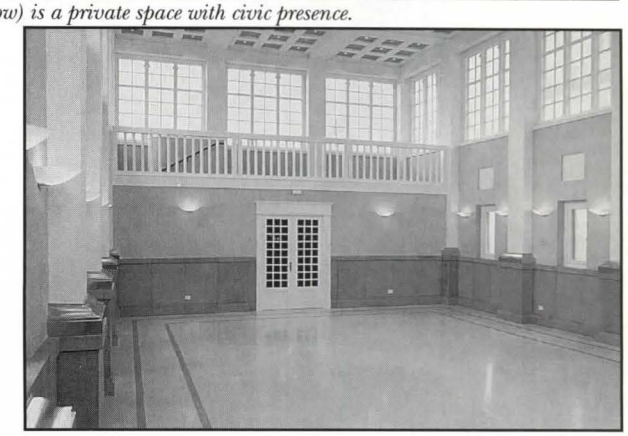


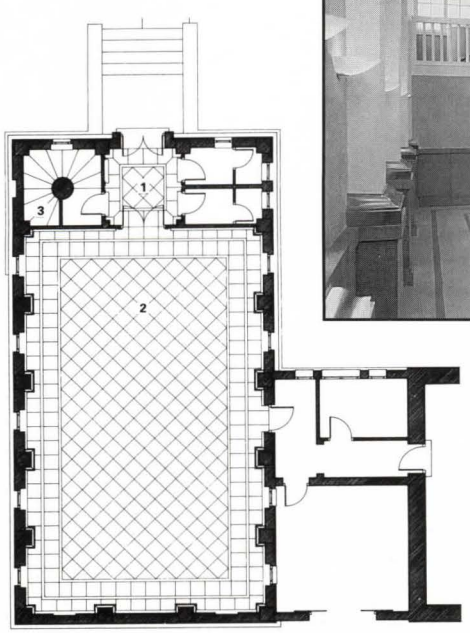
*The multipurpose hall (interior below) is a private space with civic presence.*

## SAGRADA FAMILIA SCHOOL

Javier Cenicacelaya and Iñigo Saloña, a pair of architects in Bilbao, Spain, had no preconceptions that this multipurpose hall for a school in nearby Derio would be Classical. They started with a Modern design, but turned from its industrial overtones to a more subtle rationalism with traces of Swedish Classicist Sigurd Lewerentz. The traditional syntax gives the school a dignified, institutional profile that affords great privacy.

The façades don't fully reveal the way the hall is built: the brick screens a cavity wall and the piers above extend to the floor slab. A dishonest façade? Not if you agree with Cenicacelaya that architecture is an art of "showing the advantages of the structure, and not just the structure itself." The true height of the reinforced concrete columns is revealed inside. Here, the coffers of the ceiling, like those of the eaves, are structural as well as ornamental: they reduce the weight of the concrete slabs. Built for $200,000, this hall proves that the Classical syntax can be as utilitarian as the Modern: each element speaks about construction. **Philip Arcidi** ■






FLOOR PLAN

**1** ENTRANCE
**2** HALL
**3** STAIRS TO BALCONY

# Books | When Theory Meets Architecture ...

*Semiotext(e)/Architecture* pairs avant-garde theory with esoteric design.

A review by **Joel Sanders** assesses the risks and dividends of their relationship.

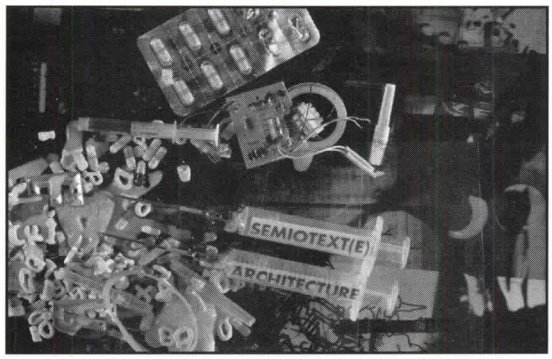
**Books of Note**

**John Nash: A complete catalogue, 1752–1835 *by Michael Mansbridge, Rizzoli, New York, 1991, 336 pp., $75.***
**An introduction by the late critic John Summerson offers a concise overview of one of England's most inventive Neo-Classicists. Renderings, drawings, and Mansbridge's photographs extensively document Nash's work.**

**The Architecture of Malaysia by Ken Yeang, *Pepin Press, Amsterdam, 1992, 352 pp., $60.***
**This historic survey is a fine introduction to the architecture, politics, and culture of this 36-year-old nation. Rural housing, elaborate mosques, and skyscrapers are documented.**

**Casa Malaparte *by Marida Talamona, Princeton Architectural Press, New York, 1990, 163 pp., $14.95 paper.***
**The authorship of the 1941 Casa Malaparte, a dramatic villa on the island of Capri, is the subject of an intriguing investigation by Talamona. Was it designed by its owner, Italian writer and political chameleon Curzio Malaparte, or by the architect of record, Adalberto Libera?**

**Seventeenth-Century Roman Palaces: Use and the Art of the Plan *by Patricia Waddy, Architectural History Foundation, New York, and MIT, Cambridge, Massachusetts, 1990, 456 pp., $47.50.***
**A social and architectural history, the book begins with an architectural "Anatomy of the Palace" and concludes with a revealing evaluation of the way Romans lived in their palaces.**




Semiotext(e)/Architecture, *a special issue of* Semiotext(e), *edited by Hraztan Zeitlian, Columbia University, New York, 1992, 160 pp., $15, paper.*

From Peter Eisenman to Bernard Tschumi, Daniel Libeskind to Rem Koolhaas, some of the most provocative architecture today is being produced under the influence of contemporary theory. This situation has encouraged academics and professionals alike to consider the complex relationship between theory and practice. Can architectural form be generated by pursuing the consequences of theoretical precepts? Can writing be considered a form of architectural production? *Semiotext(e)/Architecture*, a special issue of the literary journal, *Semiotext(e)* (published by Columbia University's French Department) takes this issue one step further; it sets out to eliminate entirely the distinctions between theory and practice.

The editor, Hraztan Zeitlian, attempted to blur the boundary between theoretical writing and design. He brought together a new generation of theorists, including Robert Somol, Catherine Ingraham, and Arthur Krocker, and architects such as Diller + Scofidio, Neil Denari, and the firm Morphosis, and asked all the participants both to write and to design their own pages. It was an ambitious proposition; the results are uneven.

In some cases, the editor's mandate produced provocative effects: architects Jesse Reiser and Stan Allen each constructed projects with text. Reiser uses arrows to visually link splintered fragments of text with footnotes, creating a meandering horizontal band across the space of his pages. In "The Architecture of Shadows," Allen blurs the distinction between text, diagrams, and architectural drawings, underscoring their status as visual artifacts and transmitters of information. Lebbeus Woods's dense drawings, built up out of cross-hatched lines, resemble the agitated markings of the indecipherable, often crossed-out texts he places next to them.

The architects composed their pages independently; the theorists in *Semiotext(e)/Architecture* were usually paired with a designer. In general, the results are unfortunate, rendering the text often impossible to read. The book's poor reproduction quality does little to help the often overwrought and confusing graphics – so many fonts are used, often in the same project, that the book could double as a print style sample sheet. Most important, the graphics work at cross purposes with the text, trivializing rather than reinforcing content; graphic complexity acts as a superficial and literal visual analog for sophisticated theoretical concepts concerning the problematic nature of reading, writing, and contemporary culture itself.

What is perhaps most disturbing about the book's aggressive graphic design is the way it unifies and masks the significant differences between theory and practice. But with patience, one can discern two tendencies.

Many of the architects featured in this book represent the first tendency. They use ideas, often originating in the early writings of Jacques Derrida, to rethink their discipline and discover alternative strategies of making architecture. Some employ Deconstruction's critique of rationalism to explore alternative forms of order. Many reject architecture's traditional reliance on orthogonal geometries to create hierarchical and closed "totalizing systems." Morphosis, for example, presents urban design proposals for Berlin, Paris, and Vienna, as "fragments of a found organization to generate a new order open to the future." They deferred from imposing an abstract and absolute order on the city.

Many architects manipulate their medium of design – architecture – as if it were a language or text. They explore the implications of Deconstruction's critique of the "sign" for architecture, and consider the relationship between form, the signifier, and its content, the signified, arbitrary. Consequently, much of the work in *Semiotext(e)/Architecture* disavows program and function as inevitable generators of form. Instead, form becomes an independent language subject to multiple, open-ended interpretations.

In general, the architects we find in this book are interested in open-endedness, fragmentation, and ephemerality – qualities *(continued on page 99)*

# 41st Annual P/A Awards

**Progressive Architecture announces its 41st annual P/A Awards program.**

**The purpose of this awards competition is to encourage outstanding work in architecture and urban design before it is executed.**

**Awards and citations will be designated by a jury of distinguished, independent professionals, basing their decisions on the overall excellence and innovation.**

**In an effort to address the broader concerns of the profession, P/A is encouraging the 41st P/A jury to take into account various considerations in addition to qualities of form: response to program and context, management of the design and construction process, technical solutions and details, social and economic contributions. Potential entrants are urged to interpret the call for "outstanding work" as broadly as possible, consistent with the awards program's limitation to specific projects that have been accepted for execution.**

The judging will take place in October 1993, and winners will be notified, confidentially, by October 31. Public announcement of the winners will be made in January 1994, and winning entries will be featured in the January issue of P/A. Clients, as well as professionals responsible, will be recognized. P/A will distribute information on winning entries to national, local, and specialized media.

**Jury**

**Andres Duany**, AIA, Town Planner
Andres Duany & Elizabeth Plater-Zyberk, Architects
Miami, Florida

**Christine Killory**, RIBA, Assoc. AIA
Principal, Davids Killory,
San Diego, California
Lecturer, School of Architecture,
University of California, San Diego

**M. David Lee**, FAIA
Partner, Stull & Lee,
Architects and Planners,
Boston, Massachusetts
Adjunct Professor, Harvard
Graduate School of Design

**Mary McLeod**
Associate Professor of Architecture,
Graduate School of Architecture,
Planning and Preservation,
Columbia University,
New York, New York

**William J. Mitchell**, FRAIA
Dean, School of Architecture and Planning, and Professor of Architecture and Media Arts and Sciences,
MIT, Cambridge, Massachusetts

**Dr. Sharon E. Sutton**, AIA
Associate Professor of Architecture and Regional Planning,
University of Michigan,
Ann Arbor, Michigan

**Rafael Viñoly**, FAIA
Rafael Viñoly Architects
New York, New York

**New Rules This Year:**

The competition is open to firms in Mexico, as well as the U.S. and Canada.

Entries are limited to the categories of architectural design and urban design.

P/A encourages submission of research reports supporting specific projects and intends to inaugurate a series of features on generic research.

Entrants are urged to include information on the design process.

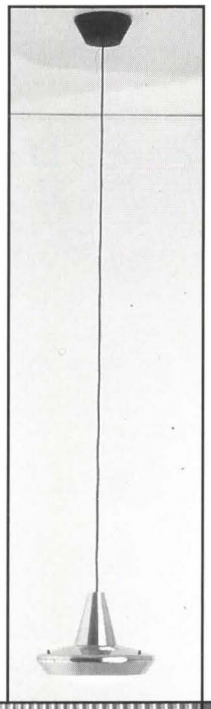
**For Information and Entry Forms**

see June P/A, page 83, or July P/A, page 15 – or call P/A Awards Editor at 203-348-7531. Fax requests to 203-348-4023.

**Deadline for Submissions: September 10, 1993**

# New Products and Literature

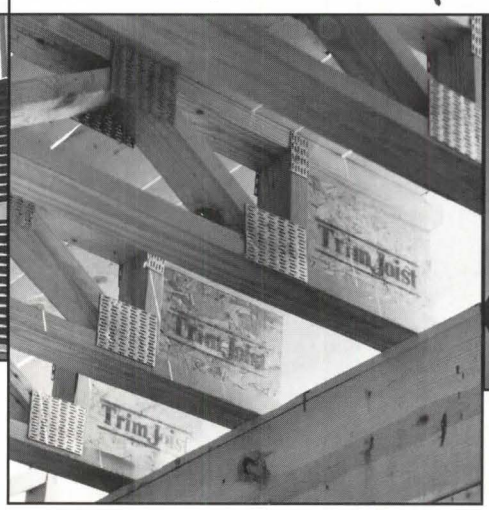




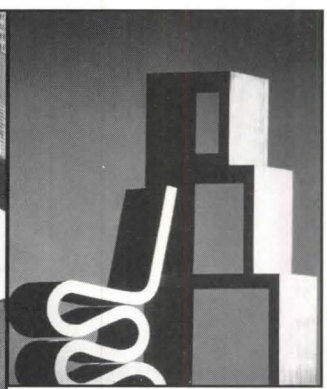
**Ceiling-Mounted Fixture**
The cast-aluminum and molded-glass "Ursa Major" ceiling-mounted light fixture (right) was designed by Vico Magistretti for Nemo of Italy; it has a maximum suspension of 88 inches. The 10-inch-wide body is available in gray, red, blue, or polished aluminum. It houses an incandescent or a compact fluorescent lamp. IL USA.
*Circle 100 on reader service card*

**Laser Cut Chair, Table**
The "Puzzle" armchair and "Tripod" side table (left), designed by David Kawecki, are constructed from laser-cut, dyed, and lacquered birch-ply parts. The furniture, shipped flat, is assembled with a interlocking slot and tab system. The chair is 32 1/2 inches high, 29 1/2 inches wide, and 24 inches deep; the table is 24 inches high and 20 inches in diameter. 3D:Interiors.
*Circle 101 on reader service card*

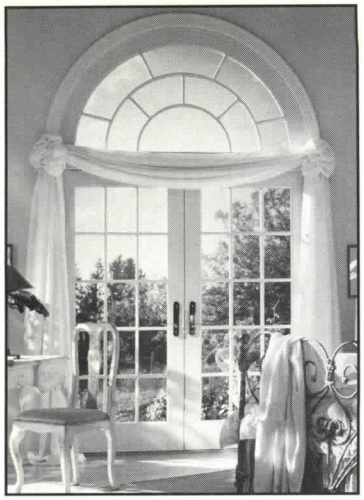
**Metal Panels**
The "T-series" metal roofing and wall panel line (above) includes more than a dozen exposed fastener profiles in depths ranging from 3/8 inch to 1 3/4 inches, coverage widths from 32 inches to 44 inches, and a range of ribbed configurations from 40 inches on-center to 9 inches on-center. Custom modifications can be made. The panels can be specified in steel or aluminum and in a choice of paint systems. N.A.T. Industries.
*Circle 102 on reader service card*



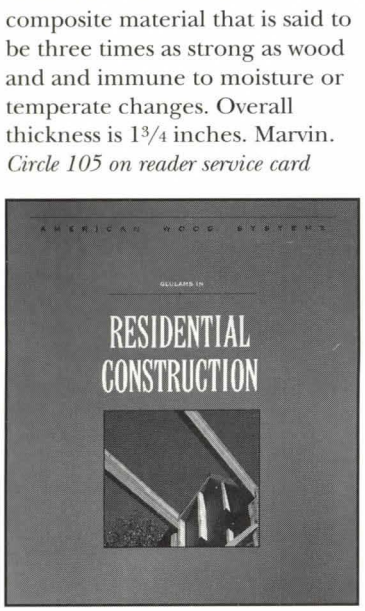

**Trimmable Floor Joist**
"TrimJoist"™ (above) is a new engineered floor joist that can be trimmed on-site. The primary motivation behind its design was adaptability. The joist is manufactured with plantation-grown trees in lengths ranging from 4 to 30 feet; it has a one-foot trimming section, formed by high-strength structural adhesives, on each end. Its open-web construction allows access to and installation of ductwork, wiring, PVC components, and plumbing. Rebel Building Components.
*Circle 103 on reader service card*



**Gehry's Easy Edges Reissued**
Frank Gehry's "Easy Edges" collection (above) of cardboard furniture, introduced in 1972, has been reissued. There are two side chairs, a set of three nesting/stacking tables, and a dining table; the "Little Beaver" easy chair has also been revived. Vitra.
*Circle 104 on reader service card*



**"Warp-Free" French Door**
The "Ultimate French Door," with a fiber-reinforced core, is billed as the industry's first warp-free wood French Door, the first hinged French Door to meet and exceed NWWDA Grade 60 Heavy Commercial performance standards, and the first to be hinged in a variety of configurations. The core is made of a composite material that is said to be three times as strong as wood and and immune to moisture or temperate changes. Overall thickness is 1¾ inches. Marvin.
*Circle 105 on reader service card*




**Residential Glulams Brochure**
*Glulams in Residential Construction,* from American Wood Systems (a related corporation of the American Plywood Association) includes product descriptions, applications, and a conversion table for substituting APA-EWS-trademarked glulam beams for solid-sawn beams. Contact AWS, Form EWS S480, PO Box 11700, Tacoma, WA 98411-0700 (206) 565-6600 ext. 189. Cost: $2.

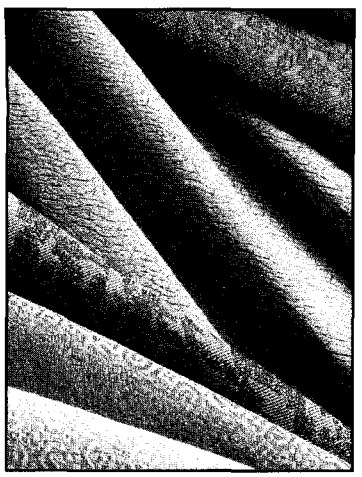
**Lamp Catalog**
The 21st edition of the *Spectrum 9200 Lamp Catalog* provides detailed information on all GE Lighting products including incandescent, halogen, high-intensity discharge, fluorescent, compact fluorescent, and stage and studio lamps. Shape, size, rated average-life hours, and other information is provided for each.
GE Lighting.
*Circle 200 on reader service card*

**Office Systems Brochure**
*For the Many Ways You Work* is a new brochure that includes descriptions and color photographs of the company's three office systems product lines – "Rectilinear," "Shapes," and "Cluster." The brochure also provides information about some new products including the "Midline Electrical System."
Panel Concepts®.
*Circle 201 on reader service card*

**Greek Marble Source Book**
The Greek Trade Commission, in conjunction with the Hellenic Export Promotion Organization, has published a 24-page directory of companies that inventory and market Greek marble in the U.S. It includes an address, a phone number, and a FAX number for each company.
Greek Trade Commission.
*Circle 202 on reader service card*
*(continued on next page)*

## New Products and Literature

*(continued from previous page)*



### New Upholstery Collection

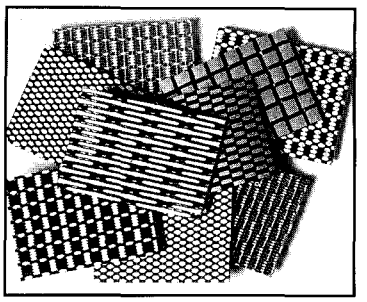
"Legends," a new collection of upholstery fabrics, includes three designs ("Spellbound," "Muse," and "Chimera") in 38 colorways. They are woven in predominantly tapestry constructions of cotton and polyester with some wool.
Maharam.
*Circle 106 on reader service card*

### Cedar Panel Roof System

The "Cedar Panel Roof System" is a 40-inch-long panel of number-one-grade cedar shakes or shingles backed with ASTM type-30 roofing felt designed for steep roofing and mansards. The shakes are joined together with wood strips that are attached with staples and water-resistant adhesive. Split shake, tapersawn shakes, and shingle styles are available. Shakertown.
*Circle 107 on reader service card*

### Retrofit Roof Drain

The "RetroDrain"®, for roof drain replacement, is available in three models: "PC/PET Retro Drain," "SuperDome Retro Drain," and "US RetroDrain." All incorporate patented "U-Flow Seal" technology to ensure a positive connection with the existing drain pipe. The drains are available in sizes to fit 3-, 4-, 5-, or 6-inch existing pipes.
U-Flow Roof Drain Systems.
*Circle 108 on reader service card*



### Architectural Mesh

Architectural mesh, available in stainless steel, brass, and copper, is designed to be scratch-, dent-, and corrosion-resistant.
Cambridge.
*Circle 109 on reader service card*

### Patterned Metal Sheets

Pattern-polished metal sheets, traditionally produced by metal workers in a process known as swirling or engine turning, are now available in aluminum, stainless steel, brass, and copper. Circle sizes of one to three inches in diameter and sheet thicknesses of .025- to .250-inch are available. The sheets are 48" x 96". FPM.
*Circle 110 on reader service card*

### "THICKSET"™ Glass Block

The "PC GlassBlock"® "VUE"® product's pattern line has been extended to include an eight-inch version of the "THICKSET"™ series. The block is 8" x 8" x 3⅞" with a ¾"-thick transparent face. It has an extended 90-minute fire rating when tested in accordance with the UL® 9-Fire Test of Window Assemblies and, used in a mortared assembly, the new block has a Sound Transmission Class of 50.
Pittsburgh Corning.
*Circle 111 on reader service card*

# Your landmarks deserve General Shale Brick.

When the project's special, there's no room for the ordinary. That's why architects count on General Shale Brick for an exceptional line of more than 250 beautiful brick, a variety of custom products, and professional technical support. Why trust your career landmarks to anything less?

Please send me more information.

Name: _____

Title: _____

Business: _____

Address: _____

City: _____ State: _____ Zip: _____

Business phone: _____

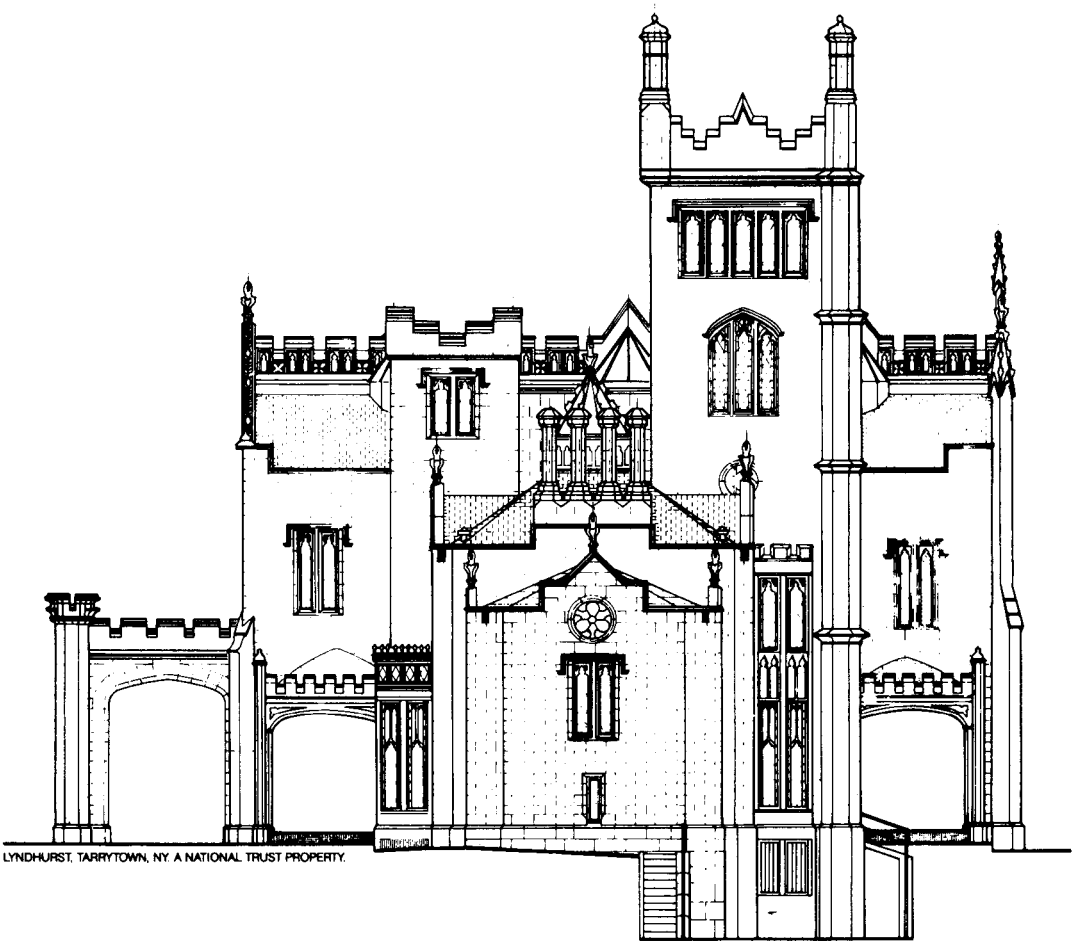
GENERAL SHALE BRICK

A MARLEY COMPANY

Mail to: General Shale Brick, P.O. Box 3547, Johnson City, TN 37602

Circle No. 30

# PRESERVATION PLAN ON IT



LYNDHURST, TARRYTOWN, NY. A NATIONAL TRUST PROPERTY.

Planning on restoring a house, saving a landmark, reviving your neighborhood?

No matter what your plans, gain a wealth of experience and help preserve our historic and architectural heritage. Join the National Trust for Historic Preservation and support preservation efforts in your community.

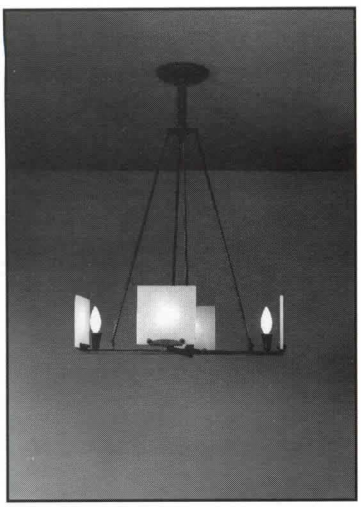
Make preservation a blueprint for the future.

*Write:*

**National Trust for Historic Preservation**
**Department PA**
**1785 Massachusetts Ave., N.W.**
**Washington, D.C. 20036**

**Delayed Egress Locking System**
The new "Exit Check" delayed egress locking system, designed to meet NFPA Life Safety Code 101, is a self-contained system providing multilanguage, 85db verbal exiting instructions. Verbal as well as visual instructions (via a digital countdown display) communicate the time frame for egress delay (15 to 30 seconds). It is suitable for airports, hospitals, and many other institutional and commercial applications. Additional security and monitoring options are available. Security Door Controls.
*Circle 112 on reader service card*

**Precast Concrete Paver Catalog**
Terra-Paving™ Products & Applications catalog describes the "Terra-System One" of precast concrete pavers for roof and deck plazas. The pavers are available in custom or stock colors, surfaces, and sizes. Terra-Paving Division, Wausau Tile.
*Circle 203 on reader service card*



**Ceiling Pendants by Graves**
"Lante" is one of two new ceiling pendants added to the "Villa Collection." It was designed by Michael Graves and inspired by the light fixtures in the Villa Kerylos in Beaulieu-Sur-Mer, France. The "Lante" is 24 inches in diameter and 34 inches high; its diffuser is of frosted clear glass or onyx. Baldinger.
*Circle 113 on reader service card*

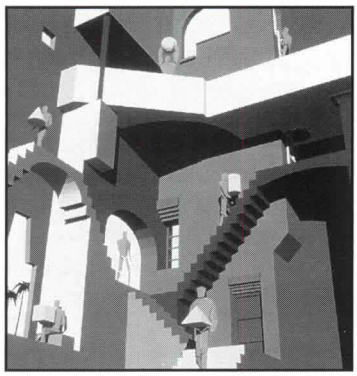
**Glulam Applications Brochure**
A new, 16-page brochure covering glulam applications for residential, commercial, religious, institutional, and bridge projects has been published by the American Institute of Timber Construction. Typical connection details, conversion tables (with glulam load equivalents to steel, LVL, and solid-sawn wood beams), and an architectural specification guide are included. AITC.
*Circle 204 on reader service card*

**Structural Panels Brochure**
This new brochure describes light commercial applications, recommendations, and testing data for "R-Control Structural Building Panels." The one-piece structural system for exterior walls, ceilings, and roofs is compatible with conventional wood framing and may be used for load-bearing walls up to three stories. Panel thicknesses and R-Values are included. AFM.
*Circle 205 on reader service card*

**New Ceramic Tile Collection**
The "Stone 20" collection of frost-resistant ceramic tiles comes in several patterns and subdued, natural shades of color. The 13¼-inch-square tiles can be used on floors and walls. Iris Ceramica.
*Circle 114 on reader service card*

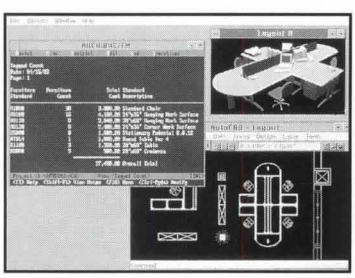
**Matte-Finished Tiles**
"Paleo," a 12-inch-square glazed ceramic tile, is designed to look like natural stone and is available in five colors: off-white, beige, green-gray, terra cotta, and gray. It is suitable for residential and light-to-medium traffic commercial applications. TileCera.
*Circle 115 on reader service card*
*(continued on page 97)*

# Computer Products



### upFRONT

Alias Research's front-end 3D design application for the Macintosh has been updated with the release of version 2.0. The new version supports Apple's QuickTime animation capabilities. New features include translucent surfaces, a space navigation toolbox, and 2D drawing tools for detailing model surfaces. DXF and TIFF input and output are now supported. The company claims the product is now the lowest priced 3D solution for the Macintosh. Alias Research.
*Circle 116 on reader service card.*



### ARCHIBUS/FM

This AutoCAD compatible facilities management application has been updated with the release of version 6.1. With the new version and AutoCAD Release 12, the facility manager can now see both drawings and corresponding databases open in separate windows on the same screen. The vendor claims version 6.1 to be easier to use, more flexible, and substantially faster than the previous one. ARCHIBUS.
*Circle 117 on reader service card.*

### IS/ONE Digitizer Tablet

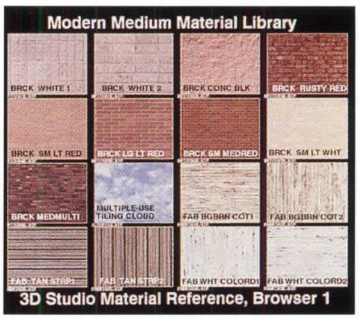
This line of digitizer tablets operates on any PC platform, including Macintosh and Sun. The 12" x 12" and 12" x 17" tablets support both cordless and conventional pens and cursors, and include function keys for programming the tablet to meet special application requirements. Digitizing and mouse modes interface without reconfiguring. Mutoh.
*Circle 118 on reader service card.*

### Advanced Rendering Extension (ARE-24)

This rendering and animation software for use inside AutoCAD Release 12 is designed to create quick high-quality images of 3D AutoCAD designs. The program includes effects such as transparency, multiple shadows, fog, and colored point, spot, and linear light sources. The user is provided settings for foreground/background images, shadow, and smoothing options to control image quality.
KETIV Technologies.
*Circle 119 on reader service card.*

### OverDrive Processor

Owners of Intel486 SX- and DX-based PCs may want to invest in the company's new OverDrive processor, a replacement chip that raises the system to the same performance level as the leading Intel486 DX2 microprocessor. The OverDrive processor is claimed to accelerate AutoCAD by up to 70 percent. Intel.
*Circle 120 on reader service card.*




### Modern Medium Material Library

This CD-ROM library contains material textures for bricks, woodgrains, marbles, stone, tiles, fabrics, wallpapers, water surfaces, flower fields, grass fields, plants, trees, people, skies, etc. The included textures can be imported into 3D Studio, RenderStar, or ARE-24. The texture materials have been edited in such a way that they will tile seamlessly when repeated across a 3D surface. Modern Medium.
*Circle 121 on reader service card.*

### RxEDM for Windows

RxEDM is a modular document management system. The Microsoft Windows 3.1 version integrates fast document/drawing retrieval and workflow distribution through a database linked to a multiple-format viewing and redlining tool. Users have full raster and vector editing and conversion capabilities, as well as the ability to add links to CAD or scanned drawings.
Expert Graphics.
*Circle 122 on reader service card.*

### CADVANCE 6.0

The new version of this Windows CAD package features .DWG format file translation, and .DBF format database interfacing. CADVANCE supports TrueType fonts, and object linking and embedding (OLE) through Windows. The vendor claims faster operation of commonly used functions.
ISICAD.
*Circle 123 on reader service card.*

### Primavera Project Planner

A Microsoft Windows version of this high-end project management and scheduling software has been announced. The program supports multiuser operations on the project database with record locking that permits simultaneous planning, analysis, updating, reporting, and graphics. The DOS and Windows versions are interoperable.
Primavera Systems.
*Circle 124 on reader service card.*

### Generic CADD

Release 6.1 of Autodesk's low-end CAD program includes the capability to write files in the AutoCAD .DWG format. This, along with a new AutoCAD-style on-screen menu option and on-line command cross-reference, is intended to create 2D compatibility between Generic CADD and AutoCAD. Over 500 predrawn symbols are included, and two architectural symbol libraries are also available.
Autodesk Retail Products.
*Circle 125 on reader service card.*

### Solaris for Intel

Solaris is a multiplatform operating system which runs on RISC, CISC, and SPARC workstations, and now on Intel386 and Intel486 PCs. The advantage of the system is that it contains high-end computing features – built-in networking, multiprocessing, system and network administration, and security. At the same time, DOS and Windows applications can be run on the system by emulation. SunSoft.
*Circle 126 on reader service card.*

*(continued from page 95)*

### Modified Bitumen Roofing Brochure

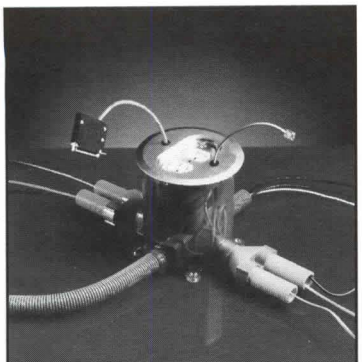
This 24-page brochure, new for 1993, includes information about a full line of roofing systems. Specifications, details, product information chart, slope requirement chart, fastening chart, and other information is provided. Siplast.

*Circle 206 on reader service card*

### Prefabricated Coping System

The "SecurEdge Coping System" is a prefabricated system. The formed coping snaps onto the stationary 20-gauge galvanized steel anchor cleat, allowing free expansion and contraction. It is available in 11 sizes (from 6- to 16-inch lengths), 18 Kynar® colors, and in custom metals (stainless steel or copper). It is designed to be corrosion-resistant. Carlisle.

*Circle 127 on reader service card*



### Floor Box with Multiservice Divider

Wiring for power, communications, and data services can be segregated within one floor box unit with an optional multiservice divider kit. This round, nonmetallic floor box is UL-listed for wood- and metal- frame construction. A new brass-plated cover is also available. Carlon.

*Circle 128 on reader service card*

### New Roof Vents

The new "BREEZE LINE™ Roof Vent RT" series is constructed of polypropylene components with an angled profile designed to deflect water. It is available in two sizes, 18" x 17" x 4½", and 20½" x 19½" x 5"; colors are brown, black, gray, and white. Leslie-Locke.

*Circle 129 on reader service card*

### High-Strength Tile Systems

This brochure covers a wide range of complete ceramic tile, stone, and marble installation systems for interior and exterior applications. The systems include grouting, waterproofing, exterior veneer, sound control, and other installation components. Each system description includes specifications, physical properties, and cutaway renderings. Laticrete International.

*Circle 130 on reader service card*

### Polychromatic Tiles

"Blue Bay" has been added to the "Pietre Preziose" collection. The tile has varied coloration and marble-like veins and is chemical-resistant. Available in polished and natural versions, the tiles are available in 12-inch squares. Granitifiandre.

*Circle 131 on reader service card*

### New Sidewall Batts

"High-Performance Sidewall Batts," designed to be used in place of R-11 batts, provide "up to 36 percent increase in insulation value" for increased flexibility in window dimensions. CertainTeed.

*Circle 132 on reader service card*

# DESIGN COMPETITION

The University of Maryland at College Park plans to build a 283,000 gross square foot performing arts center, estimated at a construction cost of $69 million. The center will house music, theater and dance education programs and a performing arts library.

The University is soliciting a single page letter of interest from qualified architects by September 20, 1993. All interested firms must submit Statements of Qualifications in early October. Selected architects will be invited for interview. At the end of October, the University will select the final design competitors who will submit entries in January for review by a jury. The winner will be announced in February. Final competitors will receive compensation.

Send the letter of interest to William Davis, Maryland Department of General Services, 300 West Preston Street, Room 403, Baltimore, Maryland, 21201 (410-225-4296)

## MARYLAND CENTER FOR PERFORMING ARTS

UNIVERSITY OF MARYLAND AT COLLEGE PARK

Circle **No. 328** on Reader Service Card

# Progressive Architecture

**Don't Miss Out!**

**Vintage Editions**

**of P/A Available.**

| | |
|---|---|
| 1960-1969 | $25 |
| 1970-1979 | $17.50 |
| 1980-1989 | $10 |
| 1990-present | $7.50 |

We have limited stock on a variety of issues from the 1960s to the present. Here's a good opportunity to procure those issues presently missing from your collection.

Phone or Fax your requests to be sure of availability. All orders *must* be prepaid and sent to street address—no P.O. Boxes. Major credit cards accepted, as well as checks and money orders.

Progressive Architecture
Dennis Lawrence
Back Issues
P.O. Box 1361
Stamford, CT 06904
Phone: (203) 348-7531
Fax: (203) 348-4023

# NOMA

## DESIGN AWARDS AND STUDENT COMPETITION

## CALL FOR ENTRIES

The National Organization of Minority Architects has announced its annual Design Awards competition open to NOMA member registered architects. A simultaneous "architectural/urban design ideas and visions" competition is open to student members of NOMA.

Registered architects may submit either built works completed after January 1, 1986, or work that will not be built, with drawings prepared after January 1, 1986.

In the student program, the open nature of the call for submissions is intended to include work previously completed in design studios; entrants must be attending accredited schools of architecture and have faculty sponsors.

The jury for both competitions will be chaired by architect Max Bond, NOMA, FAIA, of New York and will include architect Wendell Campbell, NOMA, FAIA, of Chicago, Michaele Pride-Wells, and editors John Morris Dixon, FAIA, of P/A, Deborah Dietsch of Architecture, and Stephen Kliment, FAIA, of Architectural Record.

Deadline for submissions is September 29.

For details and entry forms, contact Ms. Cynthia Coe, National Organization of Minority Architects, 101 West Broad Street, Suite 101-B, Richmond, Virginia 23220, or telephone Ms. Coe at (804) 788-0338.

(continued from page 90)

reflecting the imprint of early Post-Structuralist theory as well as embodying the overall characteristics of Post-Modern life itself. While sensitive to these same attributes of contemporary reality, the theorists represented in *Semiotext(e)/Architecture* manifest an alternative tendency, driven by a different set of issues. Their writing reflects a recent shift in critical theory towards the examination of more specific social and political concerns.

These theorists place Deconstructive techniques and strategies at the service of cultural critique. However, their difference in approach is evident in their interpretation of the "sign." As Post-Structuralists, they recognize that the relationship between sign and signifier, form and meaning, is never identical, transparent, or inevitable. However, unlike both the early Deconstructionists and the architects they have influenced, these critics do not emphasize the arbitrary, open-ended status of language. Rather, they are interested in the way all cultural discourse, (aspects of culture) including architecture, is historically "constructed" to transmit and perpetuate dominant cultural values and ideologies. Often, this process is not overt and intentional, but implicit and repressed. Using this assumption, the critics in *Semiotext(e)/Architecture* investigate the spatial implication of such contemporary social and political issues as war, gender, tourism, film, and the media. For example, in "War Game as Video," James Derderian contends that the Gulf War was "simulation"; as if it were a video game, the conflict was dematerialized, enacted not in the real space of the battlefield but on the compressed site of the TV screen.

If Derderian shows how something not normally considered to be architecture – television – constitutes a "site," Tom Keenan shows how an architectural element we take for granted – the window – has ideological and political ramifications.

Keenan builds his argument around a discussion of the Garcia Residence by John Lautner as depicted in a scene from the movie *Lethal Weapon 2*. Mel Gibson hangs precariously from the the house, itself precariously perched on a hillside and constructed of nothing more than a giant plate glass window resembling a human eye. For Keenan, the individual's position in relation to the glass defines one's "variable status as a public or private individual." Keenan is interested in the way the window lets light in while permitting one to look out. Keenan argues that the limited aperture of the traditional window provides the individual a secure interior from which to understand the world. Today, the intrusive light from the large window and the television screen blinds the viewer and threatens his or her relationship with the outside world.

Felix Guattari, the renowned yet sometimes impenetrable French critic, says that the problem of the future is our urbanity – the archipelago of decentralized cities that defines and shapes psyches, the global economy, and ultimately, the future of culture. He dares architects to use new communication technologies – videophones, databanks, and cable teledistribution – as well as nonpolluting means of transport to produce a radically new urban architecture.

Three architects in the volume contribute projects, closer in spirit to the theorists, that examine architecture's direct relationship with the forces that produce contemporary culture. As if responding to Guattari's challenge, projects by Asymptote (Lise Ann Couture and Hani Rashid) and Neil Denari consider how new technologies such as the computer and virtual reality inspire alternative ways of conceptualizing form and space. Neil Denari rethinks the form and program of the library; his technomorphic hybrid building incorporates advanced computer technology with places of public assembly, an auditorium, and classrooms. Asymptote produces spectral prismatic forms spliced together like cinematic frames. Composed of delicate lines, shadow and light, the haunting images translate the ephemeral nature of information technology into an architecture of translucency and light.

Suitcase Studies, Diller + Scofidio's installation at the Walker Art Museum (P/A, March 1991, p. 21), probes architecture's part in our presumptions about tourism. The "authentic experience" – unmediated access to an original site or artifact – is actually mediated and framed by the tourist industry and the "authenticating agent" of the camera. Diller + Scofidio use Samsonite suitcases which double as the domestic space of the traveler and as the museum vitrine.

Contrary to the editorial claims of *Semiotext(e)/Architecture*, forging a link between theory and practice is not a question of transforming critics into designers and vice versa but rather of interdisciplinary cross-fertilization. *Semiotext(e)/Architecture* succeeds when it allows its contributors to do what they do best: drawing from ideas derived from related fields, they use their media – writing and design – to rethink, extend, and redefine the boundaries that separate them.

However, the volume's real interest lies in the way it undermines its initial premise: rather than blur the distinction between theory and design, it instead reveals the considerable gap between them. It is perhaps ironic that theory, reputed to be abstract and aloof, increasingly confronts social and political reality. On the other hand, architecture, a discipline inevitably contaminated by material and social considerations, has, as is evident in many of the projects published here, become more dematerialized and abstract.

Judging from the experience of the past 20 years, these differences might be attributed to a typical time lag between theory and practice. Structuralist theory, produced during the 1960s, did not find its way into architecture until the 1970s; likewise Post-Structuralism, which emerged in the early 1970s, did not have an impact on architecture until the late 1980s. *Semiotext(e)/Architecture* indicates that architecture is now ready to move beyond the concerns of early Deconstruction toward many of the issues – gender, race, the media and popular culture – emerging out of contemporary theory.

This is not to suggest that architecture should follow the lead of theory. The relationship between theory and practice is difficult, often treacherous; certain theoretical issues do not necessarily have spatial implications, and do not lend themselves to architectural exploration. Moreover, the relationship between theory and design is never linear and direct, but is a complex and complicated exchange – a question not of translation but of transformation and reinterpretation. One of the pitfalls of architecture inspired by theory is that it can sometimes become merely an illustration of a text.

The future of interdisciplinary cross-fertilization holds promise: we might avoid the pitfalls that stymie us today. *Semiotext(e)/Architecture* attempts to illustrate (even if it doesn't always succeed) that many critical theorists are now trespassing into an area that was once architecture's exclusive domain – space, examining its political and ideological consequences. As a result, critical theory can shed new light on issues which already belong to the discipline of architecture. Theory can help us examine architecture's inevitable complicity in the creation of politics, culture and ideology. **Joel Sanders** ■

*The author, an architect in New York, is an assistant professor of architecture at Princeton University.*

Dissenting Note: While the reviewer presents an admirably fair-minded review of this publication, some of us on P/A's editorial and art staff have less patience with graphic treatments that, with few exceptions, defy reading. –Editor

# P/A Classified

## CATALOGS

**ALESSI**

The exclusive Coffee Table Edition of the official 1993 ALESSI products and replacement parts catalogue. Featuring new designs by Michael Graves and Philippe Starck, with 50% to 60% discounts reflected when valid. Also, The Official History of ALESSI, with biographies of the designers.
To order send $10.00 for each to:
Ceci,82 Cushing St.,Cambridge, Mass. 02138

## ARCHITECTURAL GLASS

**ARCHITECTURAL GLASS**

Rice Paper Laminates, Textured Carving, Brushed Acid Etch, Steel Fabrication 22 yrs. exp. MFA U. of PA. See PA 12/91 pgs. 75-78. Degnan/Laurie Inc. 29-14 40th Ave, L.I.C., NY 11101. (718) 937-8510, or studio (401) 423-3992 (Fax 718-361-0651) Extensive Resume

## SITUATIONS OPEN

### ACADEMIC POSITION
**LANDSCAPE ARCHITECTURE**

One faculty position in Landscape Architecture, beginning July 1, 1994, is available for a person qualified to offer graduate-level design studio instruction in a landscape architecture design studio at the project scale, as well as in drawing, visual studies, plants and planting design, or design theory. We are particularly interested in candidates with experience teaching basic design and with demonstrated abilities in design. This full-time position may be filled at the Assistant or Associate Professor level, depending on qualifications, for a fixed initial term, normally of three years, with responsibilities for teaching, scholarship and administration. Candidates should have teaching experience and their creative work in design, scholarship or professional practice, or a combination thereof, should demonstrate creative achievement in the field.

Applications are invited before 1 December 1993 on forms available from: **Harvard University Graduate School of Design, Office of Faculty Planning and Human Resources, 48 Quincy Street, S203, Cambridge, MA 02138, Attn: Search Committee; FAX (617) 496-5310.** Applicants should not send portfolios or dossiers with their applications. Harvard University is an Equal Opportunity/Affirmative Action employer.

HARVARD UNIVERSITY
Graduate School of Design

## SITUATIONS OPEN

**Director of Healthcare Architecture**

Midtown Manhattan architecture/planning firm seeks Director of Healthcare Architecture. Responsibilities include marketing, design, production and financial management. Seeking individual with a minimum of 10 years project management experience and knowledge of NY/NJ/East Coast healthcare market. For confidential consideration forward resume detailing experience, professional registration, references, salary history to:

CA 4790/PA
P.O. Box 6192
Cleveland, OH 44101

## CLASSIFIED ORDER FORM

**BILL TO:**

NAME:

COMPANY:

ADDRESS:

PHONE:

FAX:

SIZE OF AD: _____

MONTH OF ISSUE: _____

SIGNATURE:

**AD COPY:** Maximum 35 words per inch. Type your ad copy on company letter head, include special instructions. Mail or fax with order form.

**Progressive Architecture Classified Advertising**
Attn: Lynne McLaughlin
1100 Superior Avenue
Cleveland, Ohio 44114
(216) 696-7000 ext. 2524
FAX: 696-8207

*Person Classifieds*

**TAKE NOTE!!!**
This could be your ad!
Recruit talent, sell, buy or trade.
Contact Lynne McLaughlin (216) 696-7000, ext. 2524 or FAX (216) 696-8207

# REPRINTS

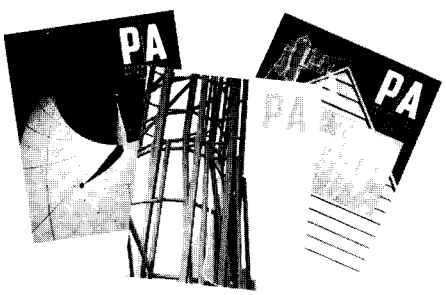
## You have a year . . .

from the date of this issue in which to order reprints of P/A articles.

Reprints are a dynamic marketing device to promote the accomplishments of your design firm.

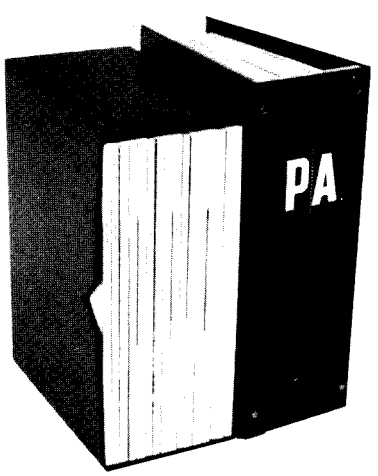
We will print these promotional materials on top quality coated bond paper with P/A's prestigious logo on the cover page.

We can print brochures in black and white or handsome four color. The minimum order is 1,000 copies.




For additional information, reprint costs, or assistance with layout call:

Gerry Katz
(203) 348-7531.




## Now—Two Ways To Save and Organize Your Copies of P/A.

Protect your P/A issues from soil and damage. Choose either the attractive library case or the all new binder. Both are custom-designed in blue simulated leather with the magazine's logo handsomely embossed in white.

Jesse Jones Box Corporation
499 East Erie Avenue, Dept. P/A
Philadelphia, Pa. 19134

My check or money order for $_____ is enclosed.
P/A Cases: ___1 for $7.95 ___ 3 for $21.95 ___ 6 for $39.95
P/A Binders: ___1 for $9.95 ___ 3 for $27.95 ___ 6 for $52.95
Check here for size: Before July 1990, 5 1/8" × 12 3/4" _____.
After July 1990, 5 1/8" × 11 1/2" _____.

Name _____

Company _____

Street _____

City _____ State _____ Zip _____

Check must accompany order. Call 800-825-6690 for credit card orders. Add $1.00 per item for postage and handling. ($2.50 per item outside U.S.A.) PA residents add 6% sales tax.

Allow 4-6 weeks delivery.

# P/A ADVERTISERS' INDEX AUGUST 1993



*Note: R or W after numbers denotes material that appears in Regional editions only. S denotes page location in supplement.*

## Advertising Sales Offices


**Stamford, Connecticut 06904:**
*600 Summer Street, P.O. Box 1361*
*203-348-7531* *Fax 203 348 4023*
Robert J. Osborn
*Vice President and Group Publisher*
Gloria Adams
*Vice President and Associate Publisher*
Paul McKenna
*Assistant to the Publisher*
Thomas K. Healy
*District Manager*

**European Operations:**
John Allen, *General Manager*
*Penton Publishing*
*36 The Green, South Bar*
*Banbury, Oxford*
*England OX169AE*
*Telephone:44(0) 295-271003*
*Fax: 44-(0) 295-272801*

**Atlanta, Georgia 30326:**
*3400 Peachtree Road, NE-Suite 811*
*Lennox Tower*
*404-237-5528* *Fax 404 237 1372*
Harmon L. Proctor, *Regional Vice President*
Ronald L. Miller, *District Manager*

**Boston, Massachusetts:**
*600 Summer Street, P.O. Box 1361*
*Stamford, CT 06904* *203-348-7531*
Thomas K. Healy, *District Manager*

**Chicago, Illinois 60601:**
*Two Prudential Plaza*
*180 N. Stetson Avenue*
*312-861-0880* *Fax 312 861 0874*
Brian Keenan, *District Manager*

**Cleveland, Ohio 44114-2543:**
*1100 Superior Ave.*
*216-696-7000* *Fax 216 696 1267*
John F. Kelly, *Western Sales Manager*

**Dallas, Texas:**
*3400 Peachtree Road NE–Suite 811*
*Lennox Tower*
*404-237-5528* *Fax 404 237-1372*
Ron Miller, *District Manager*

**Denver, Colorado 80224:**
*3215 South Newport Street*
*303-753-1901* *Fax 303 753-1902*
Albert Ross, *District Manager*

**Los Angeles, California:**
*840 Hinckley Rd, Suite 233*
*Burlingame, CA 94010*
*415-692-1381* *Fax 415-692-7406*
Larry Marechal, *District Manager*

**New York, New York:**
*600 Summer Street*
*P.O. Box 1361*
*Stamford, CT 06904*
*203-348-7531* *Fax 203-348-4023*
Thomas K. Healy, *District Manager*

**Philadelphia, Pennsylvania:**
*485 Devon Park Dr., Suite 107*
*Wayne, PA 19087*
*215-995-0202* *Fax 215-995-0208*
Neil Kelly, *District Manager*

**San Francisco, California:**
*840 Hinckley Road, Suite 233*
*Burlingame, CA 94010*
*415-692-1381* *Fax 415 692-7406*
Larry Marechal, *District Manager*

**Belgium & Holland:**
*S.I.P.A.S.*
*Rechtestraat 58*
*1483 BeDeRyp, Holland*
*Telephone: 02997-1303*
*Fax: 02997-1500*
Peter Sanders, *Manager*

**Germany:**
*INTERMEDIA Partners GmbH (IMP)*
*Deutschez Ring 40*
*42327 Wuppertal, Germany*
*Telephone: 49-0202-711-091/092*
*Fax 49-0202-712-431*
Friedrich K. Anacker, *Managing Director*

**Hong Kong, China:**
*China Consultants International (H.K. Ltd.)*
*Suite 905 Guardian House*
*32 OI Kwan Road, Happy Valley*
*Hong Kong, China*
*Telephone: 5-833-2181*
*Fax: 852-5-834-5620*
Tom Gorman, *President*

**Israel:**
*Elan Marketing Group*
*22 Daphna Street*
*Tel Aviv, ISRAEL*
*Telephone: 972-3-6952967*
*Fax: 972-3-268020*
Igal Elan, *General Manager*

**Italy:**
*Publizeta*
*Via Corticella, 216/6*
*40128 Bologna*
*Telephone: 051/320309-325452*
*Fax: 051-320309*
Roberto Zucchini

**Paris, France:**
*Defense & Communication*
*10, Rue St. Jean*
*75017 Paris, France*
*Telephone: 33-1-42940244*
*Fax: 33-1-43872729*
Fabio Lancellotti
Emmanual Archambeauld

**Singapore:**
*Bell Associates Agency*
*7500 A Beach Road*
*#06-322 The Plaza*
*Singapore 0719*
*Telephone: 299-0413*
*Fax: 011-65-758-7850*
*011-65-296-6629*
*Mike Seah, Manager*

**Spain & Portugal:**
*Publ Schmitt SL*
*c/o General Yague 8, Apt. 4C*
*28036 Madrid, Spain*
*Telephone: 011 34-1-555-4208*
*Fax: 011 34-1-555-1450*
*Francoise Schmitt, Manager*

**Taipei, Taiwan, R.O.C.:**
*United Design & Publications, Inc.*
*No. 311, Nanking E. Rd.,*
*Sec 3, 8th Floor,*
*Telephone: 011-886-2-7184407*
*Fax 011-886-2-7125591*
Daniel Cheng, *Vice President*
Ken Kieke, *Managing Editor*

**Tokyo, Japan 101:**
*Bancho Media Service*
*Dai-Ichi Nisawa Bldg 5th Floor*
*3-1 Kanda Tacho 2-chome*
*Chiyoda-ku*
*Telephone: 011-81+3+3252+2721*
*Telex: J-25472*
*Fax: 011-81+3+3252+2780*
Isao Murakoshi, *President*

**United Kingdom, Ireland & Scandinavia:**
*I.M.P. Hartswood Media*
*Portfolio Business Centre*
*161-165 Greenwich High Road*
*London SE10 8JA*
*Telephone: 081-293-0380*
*Fax: 081-858-9584*
Paul Barrett, *Manager*



Subscription information: Send all subscription orders, payments and changes of address to Penton Publishing, Subscription Lockbox, P.O. Box 96732, Chicago, IL 60693. When filing change of address, give former as well as new address and zip codes, and include recent address label if possible. Allow two months for change. Publisher reserves right to refuse unqualified subscriptions. Professionals include architectural and architectural-engineering firm personnel and architects, designers, drafters employed in allied fields. Subscription rates for U.S. professionals are $48 for 1 year ($65 in Canada, $130 for foreign); $90 for 2 years ($125 in Canada, $255 for foreign); U.S student subscription for 1 year is $48. Single copies are $7.50 in the U.S., $8 in Canada, and $12 for foreign except Information Sources issue and two issues of P/A Plans, $10 in U.S., $12 for Canada, and $20 for foreign Fed ID #36-2875386. GST #R126431964. Permission to photocopy is granted for users registered with the Copyright Clearance Center Inc. (CCC) to photocopy any article, with the exception of those for which separate copyright ownership is indicated on the first page of article, provided that the base fee of $1 per copy of the article plus $0.50 per page is paid directly to CCC, 27 Congress St., Salem, MA 01970. (Code No. 0033-0752/93 $1.00 + .50) Written permission must be obtained for other copying; contact Agi Muller at P/A, 600 Summer Street, Stamford, Ct. 06904, (203) 348-7531. Indexed in ArchiText Construction Index, Art Index, Architectural Index, Engineering Index. Second class postage paid at Cleveland, Ohio, and additional mailing offices. Editeur Responsable (Belgique), Christian Desmet, Vuurgatstraat 92, 3090 Overijse, Beligique. Volume LXXIV, No. 8. Printed in U.S.A.



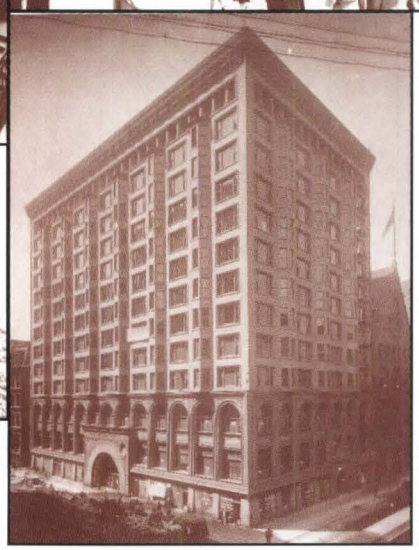
POSTMASTER: Send address changes to PROGRESSIVE ARCHITECTURE, 1100 Superior Avenue, Cleveland OH 44114-2543.

# Furthermore . . .

The New-York Historical Society

San Francisco History Room, San Francisco Public Library

J. Serratore



The Art Institute of Chicago

**The Dear Departed** *We uncovered some deeply held passions with our April Question of the Month, "What departed building do you miss the most?" Two New Yorkers, Erin A. Zeno and David Morton (P/A's former Executive Editor), nominated McKim, Mead & White's Pennsylvania Station (top left). "Can we mourn something that we never knew?" asked Zeno, explaining that the station (1910–1964) was destroyed before she was born. In San Francisco, Nora R. Klebow spoke up for the 1908 City of Paris department store by Clinton Day and Bakewell & Brown (top right), maintaining that the Neiman-Marcus store that replaced it in 1982 "doesn't hold a candle to the original gem." Joseph Serratore of Philadelphia nominated two blocks of buildings destroyed to make room for the new Pennsylvania Convention Center. "I gained some satisfaction that these steel and masonry structures (above left) gave demolition crews a fight for their money," he wrote. Barbara M. Walker of Ossining, New York, lamented Frank Furness's 1875 Guarantee Bank, which "stood hard by Carpenter's Hall in Philadelphia and was removed during a recent era that regarded the 19th Century as an affront to the 18th." But the most emphatic response was from Eric Emmett Davis, Chicago, who wrote: "I take comfort in the knowledge that Mephistopheles saved a seat in one of Hell's lower circles for the late Mayor Richard J. Daley, destroyer of Adler & Sullivan's Chicago Stock Exchange" (1894–1972, above right).*

**Question of the Month**

## \\ What visual artist has most influenced your work? //

*Architects often turn to other branches of the arts for inspiration. Is there a painter, sculptor, dancer, or other artist (no architects, please) whose work has affected your own? Before October 15, send your answer – and a visual image to support it – to* Furthermore Editor, P/A, 600 Summer Street, Box 1361, Stamford, CT 06904. *We'll publish the most intriguing responses in Furthermore in December.*

### P/A in September

**Five years after it won a P/A Award, Kohn Pedersen Fox's 56-story mixed-use complex in Frankfurt is open for business. Next month, we'll look at the building and discuss the intricacies of working in Europe for American architects. Also in the issue:**

- **realistic images of Louis I. Kahn's unbuilt Jerusalem Synagogue, generated on a computer by architect Kent Larson;**
- **a profile of BSW Architects, a Tulsa, Oklahoma, firm that has discovered a controversial formula for success: high-volume, repetitive clients – most notably Wal-Mart – and an efficient CAD production system;**
- **an article on a new set of dormitories on the Berkeley campus by William Turnbull;**
- **in Perspectives, our own account of a P/A affordable housing competition for Williamsburg, Virginia, that was killed by NIMBYism;**
- **in Technics, a revisit – in the wake of Hurricane Andrew– to the issues surrounding glazing and windborne debris.** ■

# Miele. A shining example of what dishwashing should be.

After nearly a hundred years of creating state-of-the-art appliances, some companies might be tempted to rest on their laurels.

At Miele, however, our view is just the opposite. Our engineers, designers and craftsmen have an ongoing commitment to innovative technology and uncompromising quality. Which is why Miele has so often led the way in setting new standards of excellence.

Our dishwashers are a case in point. Miele made Europe's very first automatic dishwasher - quite a revolutionary concept in 1929. Then, in the late 1970's, we introduced the breakthrough technology of micro-computer touch-control. And now, Miele's newest dishwashers boast features light-years ahead of the rest of the industry.

Take our unique cutlery tray. A simple, utterly sensible convenience destined to make the old silverware basket obsolete. Individual grooves hold each piece of silverware separately for thorough, gentle cleaning with no danger of scratching. The tray even lifts out, so you can just slip it away in a drawer, silverware and all.

On a rather larger scale, there's the advantage of an indestructible cabinet of surgical stainless steel. The blissful quiet of triple insulation. Three spray arms with strategically angled nozzles for powerful jet cleaning of even the most casually loaded pieces.

These ecologically and economically sensible machines use as little water, detergent, and energy as possible. They're designed with an advanced triple filtration system, plus a water softener that's built right in. And, of course, our intelligent wash programs can be trusted to scrub the lasagna pan *or* carefully bathe the Baccarat.

Does such innovation have its price? Of course. But it also provides the entirely satisfactory assurance of getting precisely what you pay for: uncompromising quality.

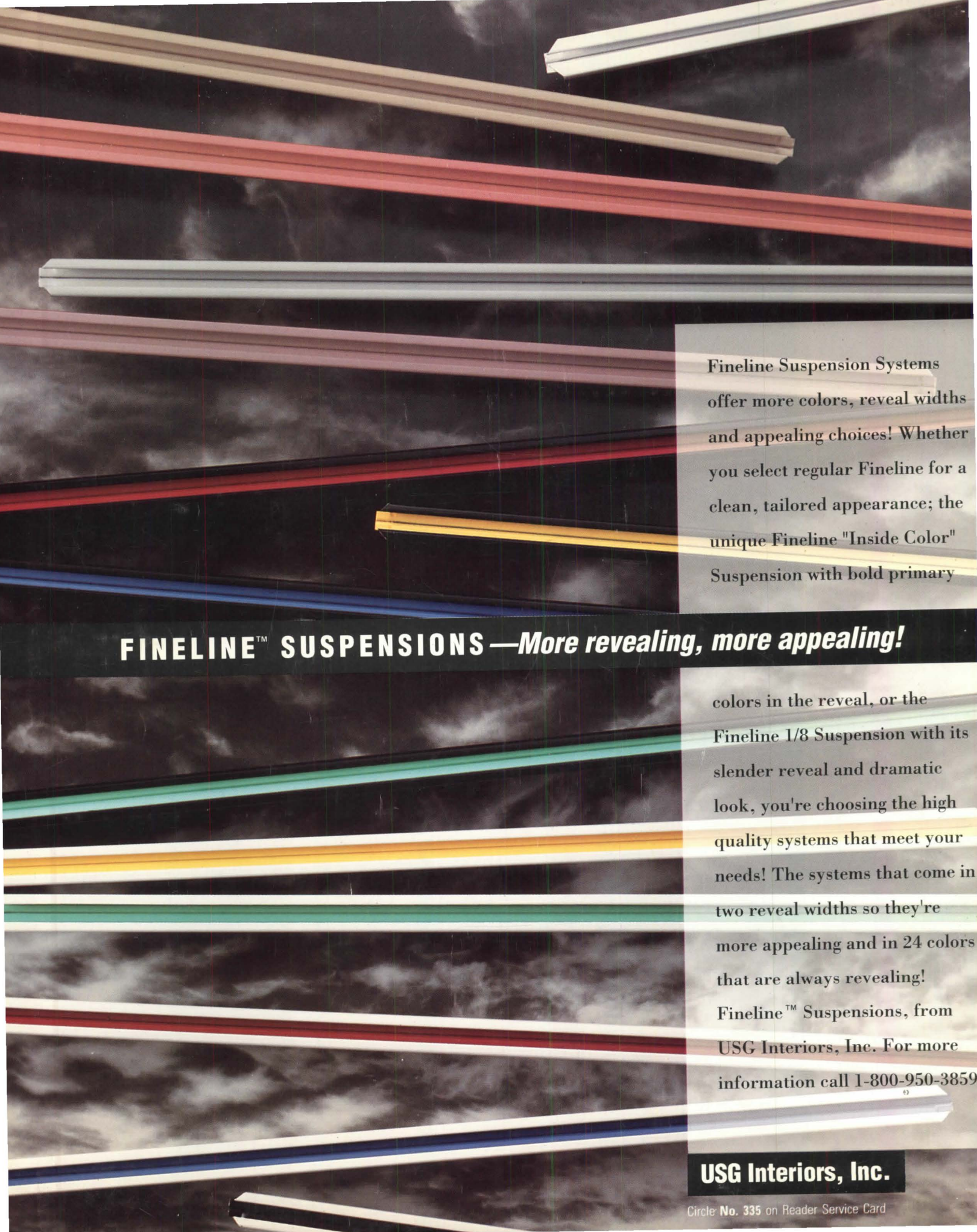
Miele dishwashers are made in Germany and are part of the fine line of Miele appliances now available through your architect or designer, and from preferred dealers.

**Miele®**

Anything else is a compromise

**For the name and location of your nearest dealer, please call:** 1-800-289-6435.

Circle **No. 315**



Fineline Suspension Systems offer more colors, reveal widths and appealing choices! Whether you select regular Fineline for a clean, tailored appearance; the unique Fineline "Inside Color" Suspension with bold primary

## FINELINE™ SUSPENSIONS—*More revealing, more appealing!*

colors in the reveal, or the Fineline 1/8 Suspension with its slender reveal and dramatic look, you're choosing the high quality systems that meet your needs! The systems that come in two reveal widths so they're more appealing and in 24 colors that are always revealing! Fineline™ Suspensions, from USG Interiors, Inc. For more information call 1-800-950-3859

**USG Interiors, Inc.**

Circle **No. 335** on Reader Service Card