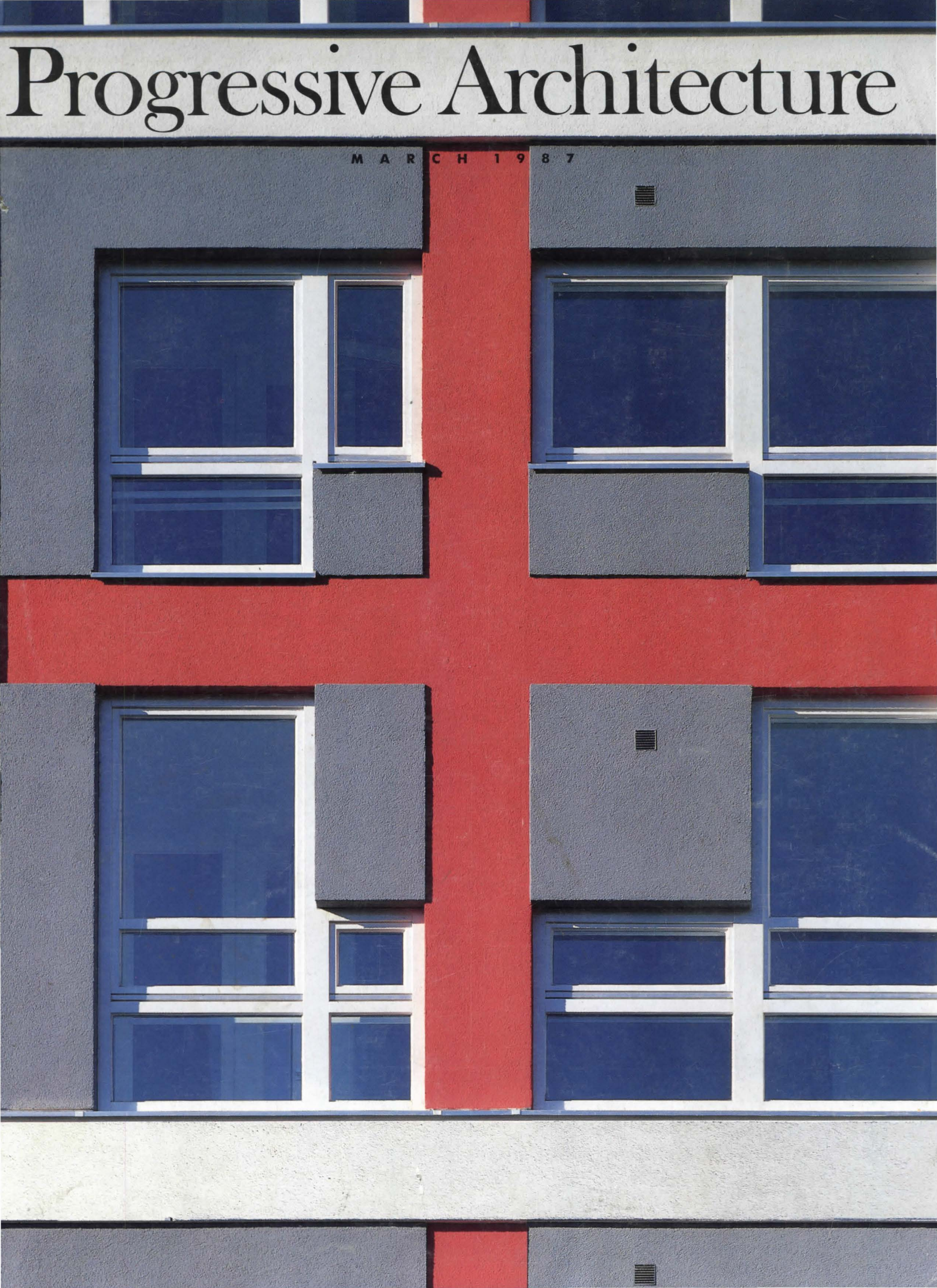
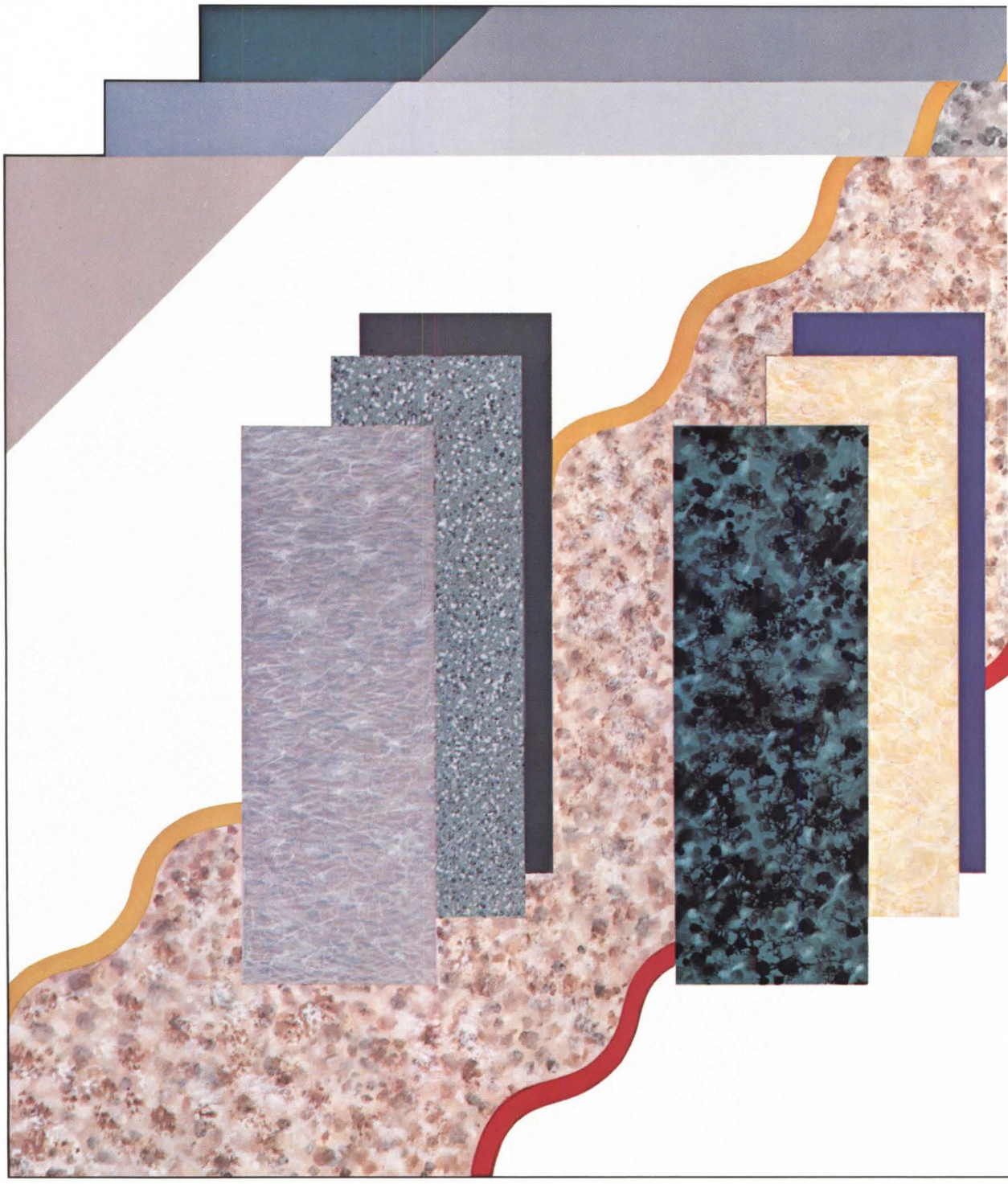
Progressive Architecture

MARCH 1987



AT FORMICA CORPORATION



For samples, call Zip Chip, 1-800-524-0159 (in N.J. 1-800-624-1914).

NNOVATION ALWAYS SURFACES.

Count on Formica Corporation to give you the competitive edge for your next design. This year, we're introducing a wide range of new patterns that will expand your creative horizons.

Work with the variety of stone textures in our American Granite collection. Create with the subtlety of our pointillist Dust and Clear Sand collections. Design with the realistic look of hand-made paper from our Papercraft collection. Embellish with the rich, natural beauty of our Woodgrains. Plus, all solid colors are available in a polished finish.

So if you're looking for tomorrow's ideas today, look to Formica Corporation. The first name in exciting surfaces.

FORMICA® BRAND products

THE FIRST NAME IN SURFACES.
THE LAST WORD IN INNOVATION.

REPUTATIONS AREN'T BUILT IN A DAY.

For over half a century, we've built our reputation building reputations.

Olympic® protects more than wood. We protect reputations, whether you're an architect, builder, property manager or painter.

We've always brought you products made from the finest raw materials under strict quality control. Year after year, project after project. Which is one reason why Olympic protects more homes than any other stain.

In addition to excellent products, we offer you a support team dedicated to excellence.

The Olympic Stain Professional Team brings you personal service and technical assistance like property inspections, complete color design and coordination, product consulting and experienced bid counseling.

We know you've spent a long time building your reputation.

We can help protect it for a very long time.

OLYMPIC STAIN.

We've been protecting the American Dream for over half a century.

Circle No. 358


OLYMPIC
OIL STAIN

Lattice and Symphony designed by Glenn Gee

Presenting the Symphony Chairs, in high-gloss lacquer, natural or stained beech. Four different back details, all complementary to our Lattice Tables and Domain System.

We have showrooms in major markets or contact Scandiline at 1217 West Artesia Blvd., Compton, CA 90220 (213) 537-6411.

SCANDILINE

Circle **No. 374** on Reader Service Card

MARCH 1987

Progressive Architecture

Penton Publishing
Progressive Architecture (ISSN 0033-0752) is published monthly by Reinhold Publishing, A Division of Penton Publishing, 1100 Superior Ave., Cleveland, OH 44114: Philip H. Hubbard, Jr., President; Harry I. Martin, Robert J. Osborn, Vice-Presidents; Penton: Thomas L. Dempsey, Chairman; Sal F. Marino, President; James K. Gillam, N.N. Goodman, Jr., Paul Rolnick, Executive Vice-Presidents. Executive and editorial offices, 600 Summer St., P.O. Box 1361, Stamford, CT 06904 (203-348-7531).

ABP ABC MPA

ARCHITECTURAL DESIGN

Editor in charge, Pilar Viladas

TECHNICS

SPECIAL SUPPLEMENT

104

108

DEPARTMENTS

Cover
Detail of apartment building, West Berlin, by Peter Eisenman (p. 81). Photo: Reinhard Görner.

Subscription information: Send all subscription orders, payments and changes of address to Progressive Architecture, P.O. Box 95759, Cleveland, OH 44101 (216-696-7000). 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, engineers, and draftsmen employed in allied fields. Subscription rates for U.S. professionals are $30 for 1 year ($35 in Canada, $65 for foreign); $45 for 2 years ($55 in Canada, $115 for foreign); $70 for 3 years ($85 in Canada). U.S. student subscription for 1 year is $30. Subscription rate for U.S. nonprofessionals is $45 for 1 year ($60 in Canada, $85 for foreign). Single copies are $7 in the U.S., $8 in Canada, and $9 for foreign except December Information Sources issue, $12 in the U.S., $12 in Canada, and $20 for foreign. Permission to photocopy is granted for users registered with the Copyright Clearance Center (CCC), provided that the base fee of $1 per copy of the article plus $0.50 per page is paid directly to CCC, 21 Congress St., Salem, MA 01970. Code number is ISSN 033-0752/81. Indexed in Art Index, Architectural Index, Engineering Index. Second class postage rates paid at Cleveland, Ohio, and additional mailing offices. Volume LXVIII, No. 3. Printed in U.S.A.

Announcing

DUROCK®
EXTERIOR CEMENT BOARD

NEW SUBSTRATE SYSTEM

At last, a dependable, weather-resistant substrate designed for low rise applications. DUROCK® Exterior Cement Board is part of a total system utilizing specific company products (see schematic) to accommodate a variety of finishes. You'll find it's the cost-effective alternative you need to meet today's accelerated construction schedules. Large 4'x 8' panels feature a unique reinforced edge for extra performance and ease in handling. DUROCK Exterior Cement Board is marketed by UNITED STATES GYPSUM COMPANY and the DURABOND DIVISION OF USG INDUSTRIES, INC. Write to either source at 101 S. Wacker Dr., Chicago, IL 60606-4385, Dept. PA 387

*A division of the Portland Cement Association

BACKS THIN BRICK, STONE AGGREGATE, TILE FINISHES

Evaluated by Construction Technology Laboratories* with these products: USG® Steel Studs, DUROCK® Exterior Cement Board, DUROCK™ Latex Fortified Mortar, DUROCK™ Screws and DUROCK™ Exterior Tape.

USG Exterior Systems

Circle No. 381

"Artist's Renderings"

Publishing architect's drawings without credits is simply standard practice for most of the press. Are there solutions to this anonymity problem?

IN the everyday press of America, architects just "don't get no respect." Like the humiliated comedian Rodney Dangerfield, they present themselves as authority figures but are frequently just ignored. Any day, we can pick up a local paper and see "artist's renderings" of new building projects, with no recognition at all of the professionals who are shaping those structures.

I have been particularly struck recently by the failure of even respected institutions such as our universities to give architects their due. A current fund-raising brochure from Columbia University, entitled "Facilities Building at Columbia" is devoted mainly to a rosy review of construction there. A 1000-word essay goes into considerable detail about some of the recent and current work. The Computer Science Building, for one, is said to have been praised by *Interior Design, Architectural Record,* and *The New York Times,* and to have won an Award of Design Excellence from the New York State Associations of Architects. Even given all these details, there is no room for the architects, R.M. Kliment & Frances Halsband.

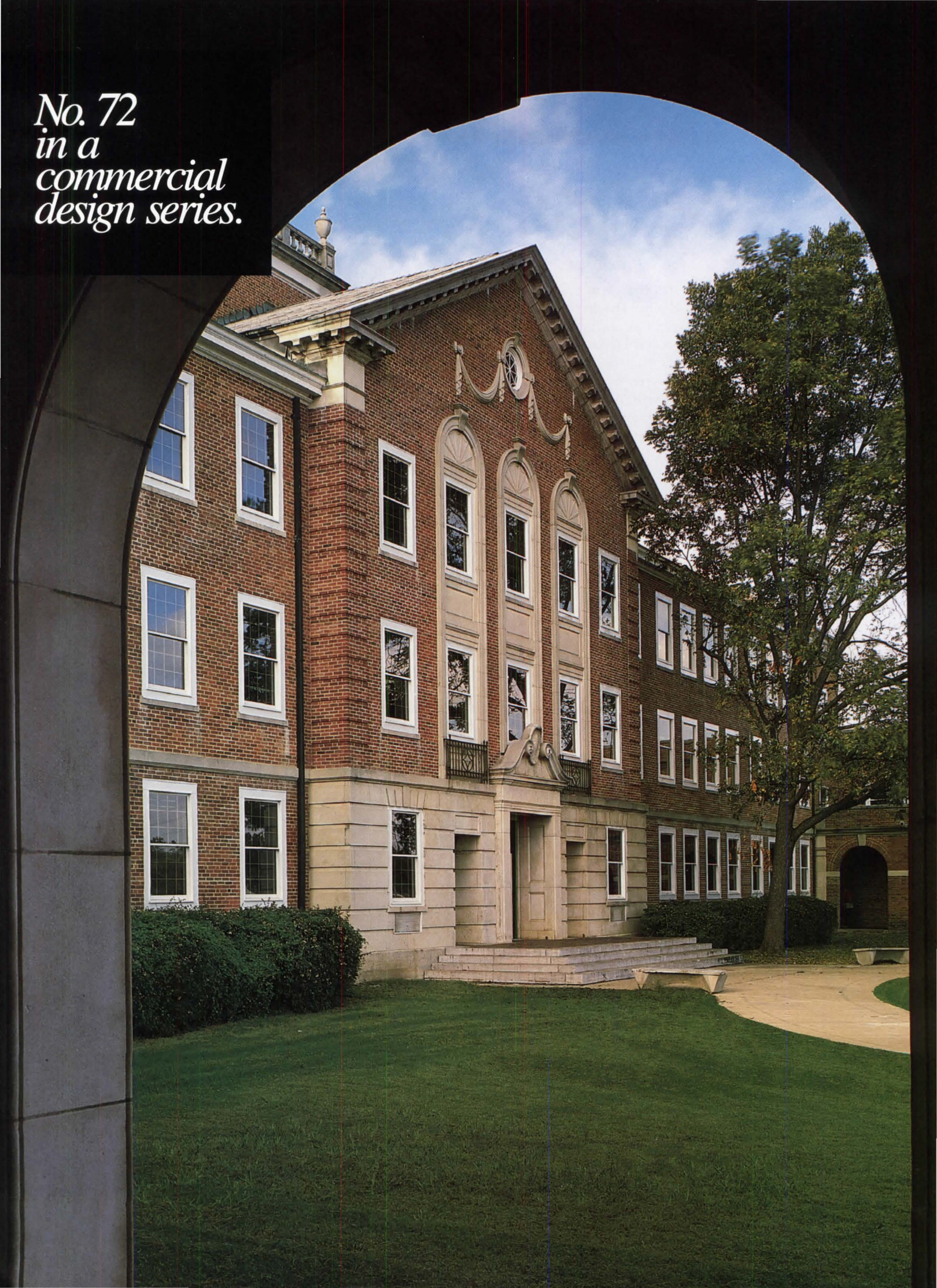
Four of the projects are illustrated; a caption identifies them and describes them ("bright and inviting," for instance) but maintains the silence about architects. One of the illustrations, however, is identified, by the words "Gruzen Samton Steinglass Architects, Planners" running up along one edge of the picture. One firm had managed to get named, if only as the source of the illustration.

About the same time, I noted an article in *The New York Times* about three proposals for Hudson River Center, a massive development contemplated for Manhattan's West Side. In that case, architects were named in the text, but the only one with credit next to the model picture was Gruzen Samton Steinglass.

How does Gruzen Samton Steinglass do it? According to their Director of Development, Cheryl Creber, they put a notice on the back of every photo or drawing reproduction that leaves the office, saying "Use of this material requires credit to . . ." It includes the firm's name, address, and phone number. (Photographers and renderers are named, too.) A printed, stick-on label is used; stamps are too likely to smear. Is this device sure to work? Not at all. The *Daily News* and the *New York Post* showed their Hudson River Center view with no credits, and the firm has sent them letters pointing out these lapses.

Another university offense that I spotted recently was more extreme—even a bit bizarre. An article in the *Princeton Alumni Weekly* called "Coping with Construction" portrayed architects as not very dependable. The whole point was to detail the tribulations of university officials who, it seems, must diligently monitor construction of their facilities to "prevent major oversights and minor blunders." The expansion of the university's Art Museum is attributed to "the architect, Mitchell Jergler." [sic] The article further alleges that "Jergler, who is an Australian" was not sufficiently familiar with local codes. In fact, this expansion is being designed by the firm of Mitchell/Giurgola and, although they are the architects of the brilliant new parliament house now rising in Canberra, they are not, nor have they ever been, "an Australian." Here we have a firm that has won the AIA Firm Award, with one principal, Aldo Giurgola, holding the AIA Gold Medal—but to the *Princeton Alumni Weekly* they might as well be chopped liver. Consider, too, that Columbia and Princeton house two of the most respected schools of architecture in America. Yet architects designing buildings for them can be ignored—and if they are identified, watch out!

What can be done to remedy the situation? Individual professionals can simply monitor the publications they receive and write indignant letters when they see architects slighted. Individual firms can put the kind of requirement that Gruzen Samton Steinglass uses on any images that leave the office. (Don't require permission—which could be perceived as an obstacle—just credits.) AIA Chapters and other organizations can do more: they can hold receptions for the daily press where mutual concerns can be aired; they can hold no-nonsense meetings with newspaper management. Beyond that, they can do everything within reason—public exhibitions, awards programs with festive ceremonies, appearances at schools, organizations, etc., design competitions, public opinion polls—to impress on the public that architectural design does not just happen. It is done by Somebody. ■

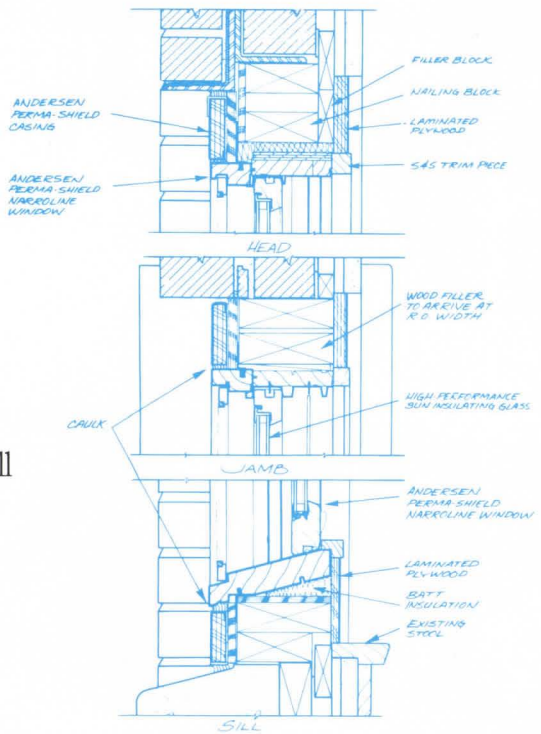

No. 72
in a
commercial
design series.

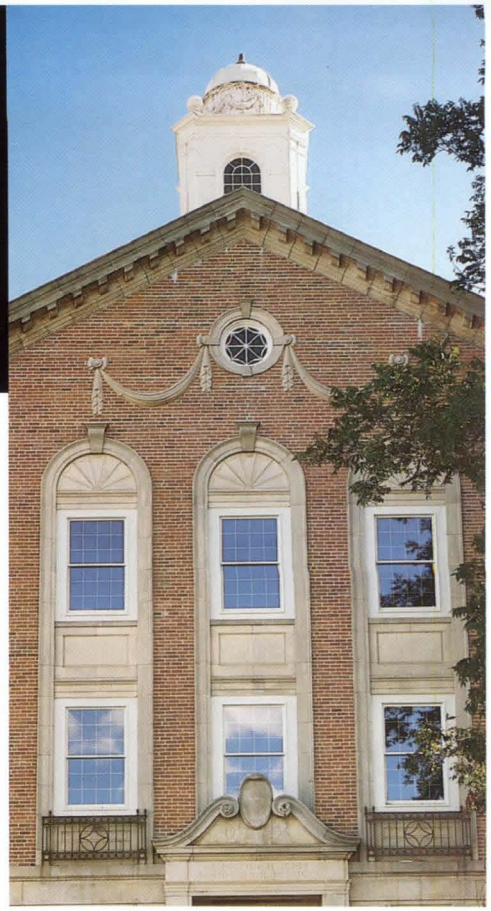
THE SMART WAY TO UPDATE AN OLD SCHOOL AND STILL KEEP IT TRADITIONAL.

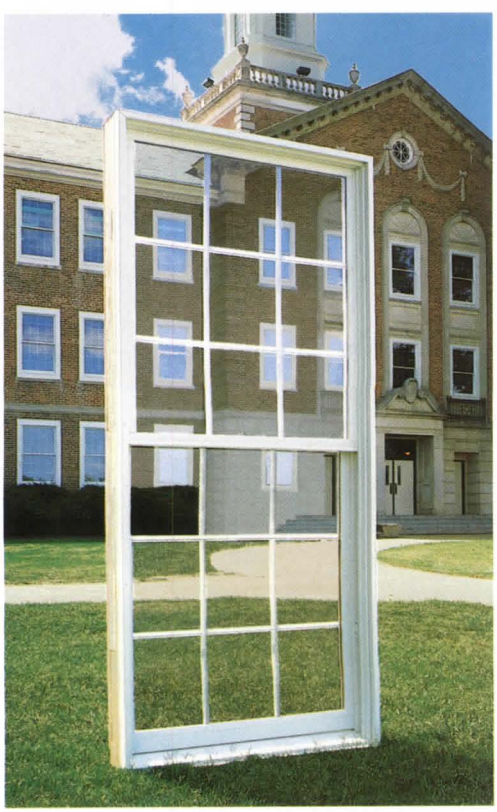
This most impressive structure, located in Fort Worth, Texas, is Arlington Heights High School. A local landmark as much admired today as when it was built half a century ago.

When it came time to replace the worn-out original windows, school district officials wisely decided to install Andersen® Perma-Shield® Narroline® windows.

A prime concern was to preserve the historic architectural style of the building. It's plain to see that the Narroline double-hung windows—with







their clean, simple lines—tie in very naturally. Almost as if they had been there all along.

Esthetic values aside, Andersen windows provide very material benefits. Starting with energy efficiency.

In this case, the windows are equipped with our High Performance Sun insulating glass—expressly developed for use in hot-climate areas.

The officials were particularly impressed with the shading coefficient of this revolutionary glass—which in effect helps turn hot Texas sun into cool daylight. Further, the windows easily met government specifications that qualified the project for federal energy credit.

All Andersen windows far exceed industry standards for weathertightness*—which also helps keep energy bills down.

Maintenance costs are minimized, too—because our Perma-Shield® vinyl exteriors never need painting or puttying. The removable, one-piece Perma-Fit grilles also make window cleaning easier.

Whether you lean toward old or new schools of architecture, count on Andersen windows to be totally in keeping with your plans.

For more details, call your Andersen distributor or see Sweet's File 08610/AND. Or write Andersen Corp., Box 12, Bayport, MN 55003.

*NWMA I.S. 2-80

Arlington Heights High School
Fort Worth, Texas

Administration: Fort Worth School District

Project work: School district maintenance and carpenter shop personnel installed all the Narroline windows and trimmed them out with Perma-Shield® casing.

Come home to quality.

Andersen AW Windows • Patio Doors ™

Andersen

Introducing
Architectural Mini-Floods

Low Wattage
High Performance
Compact Floodlights

Lamp Modes:
13W. PL Fluorescent
35W. HPS
40W. T-12 Fluorescent
60W. Incandescent

Applications:
Signs
Walls
Facades
Trees
Shrubs
Patios
Atriums
Hedgerows
Entrances
Pathways
Perimeters
Driveways
Courtyards
Sculpture

KIM LIGHTING
Subsidiary of Kidde, Inc.
KIDDE

16555 East Gale Ave. • Post Office Box 1275
City of Industry, Calif. 91749 • 818/968-5666
FAX 818/330-3861

Circle No. 347

Views

Awards: Social Conscience
After reviewing the 34th Annual P/A Awards (Jan. 1987) I am delighted to see a first award going to Mockbee-Coker-Howorth Architects for the project Breaking the Cycle of Poverty: three houses for needy families in Madison County, Miss. It is very exciting for me to see this kind (and quality) of work receiving professional recognition. It is even more exciting to see professionals taking on jobs such as this. The world needs more socially committed trained professionals to give their time and talents to eliminating poverty housing by building simple decent dwellings in which all people can live.
Ellen Olson Schippert
Project Coordinator
Habitat for Humanity
Detroit, Mich.

Information: Getting Organized
I applaud you on your emphasis on information in the December issue of P/A. Architecture is more than pretty pictures and purple prose. The Technics section was the most useful. I've already got our word processing department typing inquiries to the various associations listed to pick up material missing in our technical collection.

To me the most interesting section was the "Information: The AIA as Resource." We've all heard about the Information Center and some of us have tried to take advantage of it, with mixed results. Mr. Vonier does a disservice to those dedicated and energetic librarians at the AIA by demonstrating that they will never be able to give you the service you would like them to because of the structure of their parent organization. Rather than encouraging me to take advantage of their services his analysis makes me ask "Why bother?" I've been in the architectural information business for over seven years and what architects need to be told is not what can't be done, but what's available to help them.

Finally, let me ask the question I've muttered under my breath out loud to all those architectural geniuses I've worked with over the years: "If you're so smart how come you aren't better organized?"
William van Erp
Librarian
Gensler and Associates
San Francisco, Calif.

Pacific Design x Three
I was extremely amused by the inclusion of the Pacific Design Center Expansion in your annual P/A Awards (Jan. 1987, pp. 92–93). Are we to take seriously your jurors' implication that "strong, primary colors" are enough to glorify the erection of an 875,000-sq-ft building? There is no doubt that the original "blue whale" was a powerful statement; it is irrational, however, to "triple" the original concept and expect the new group of buildings to retain the unique character and quality of the original. The three disjointed and unarticulated forms are a monument to arbitrariness and the abandoned intellect. We all know that the design process is a compromise, but such surrender to commercialization is unique, even in Los Angeles.

As for the jurors' comment that the new open plaza is "very nice," well, it is a very nice left-over space; it is laughable, though, when this planted left-over space is described in the building program as "public plaza." I am surprised that this project was not given an Urban Design Award.
Lazaros Papademetropoulos
CHCG Architects, Inc.
Montclair, California
[The design solution here invites controversy. But the writer does not explain why added square footage or "commercialization" are not appropriate for this site. Nor has he noticed that the plans show the plaza to be more than a "planted left-over space."—Editor]

Desktop Publishing Corrections
The following are two corrections to the article on Desktop Publishing (P/A, Feb. 1987, p. 47). The Lotus Development Corporation's "Manuscript" software is not in "pre-release test form" as stated in the article, but was released on December 19, 1986. Also, "Manuscript" will not import AutoCAD files in its current version, although Lotus plans to offer that capability sometime this year.

Telephone Number Correction
Telephone number for the American Society of Architectural Perspectivists in the Information Sources issue (P/A, Dec. 1986, p. 78) should be (617) 846-4766.

Model Credit Corrected
The model of Cesar Pelli's Pacific Design Center Expansion (P/A, Jan. 1987, p. 93) was built by Dimensional Presentations Inc., Culver City, Calif.

Contribution Credit
The article on Industrialized Housing (P/A, Feb. 1987, pp. 92–95) should have acknowledged the contributions of Michael Joroff, MIT; Yujiro Kaneko, Building Center of Japan; and William Coaldrake, Harvard University.

Software Correction
The reference to Alpine Datasystems in the architects' survey Poll of our Information Sources issue (Dec. 1986, p. 87) was incorrectly published as "Alpan." We regret any inconvenience this has caused to readers or to Alpine Datasystems.

Photo Credit Extended
The portraits of the eight jurors for the 34th annual P/A Awards program (P/A, Jan. 1987, pp. 82, 83, 118, and 130) were taken by Zeva Oelbaum.

West Week Correction
Mueller Corporation was inadvertently omitted from the West Week Directory (P/A, Feb. 1987, p. 1WW). They will be at PDC Space No. 367. One of their products appears in the same issue on p. 23WW.

ANNOUNCING:

ROOFING EXPRESSION I

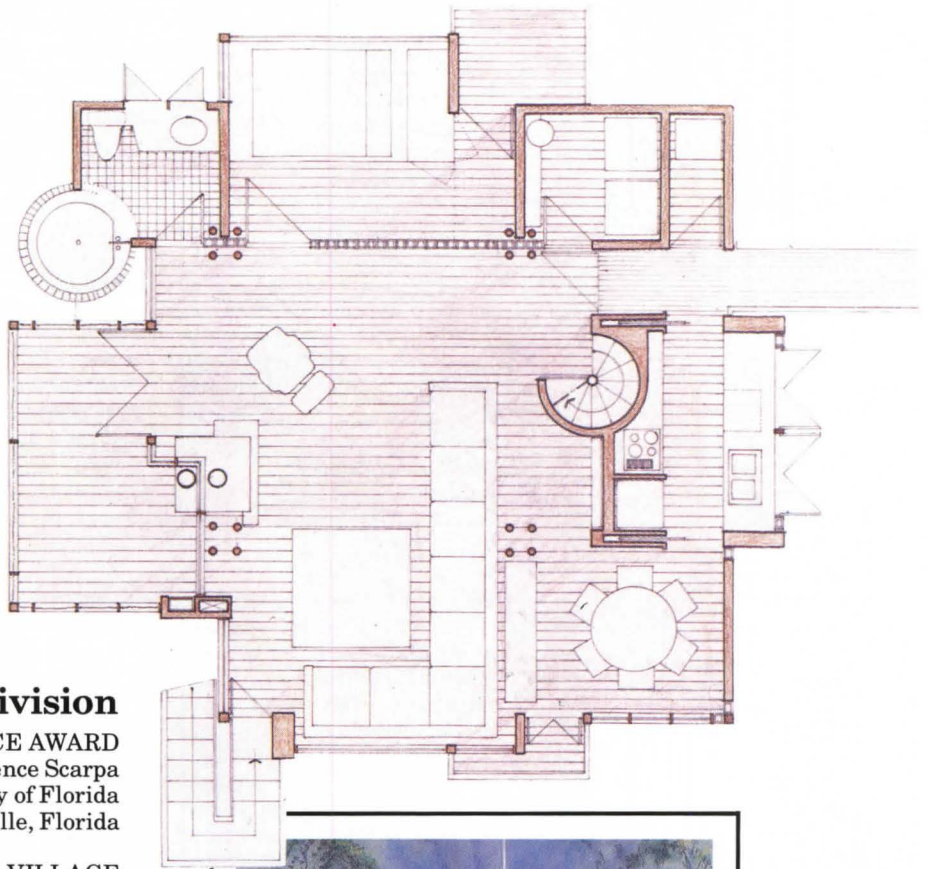
A DESIGN COMPETITION SPONSORED BY FOLLANSBEE STEEL

Follansbee Steel Corporation established a roofing design competition, "Roofing Expression I" to recognize excellence in the use of Terne and TCS (terne-coated stainless steel) as a design element in commercial, industrial, institutional and residential structures.

The competition was open to senior students in accredited architectural programs and young professionals.

Follansbee is happy to announce the winners in each of these divisions and wishes to thank the many students and professionals who submitted excellent creative responses to the competition's guidelines.

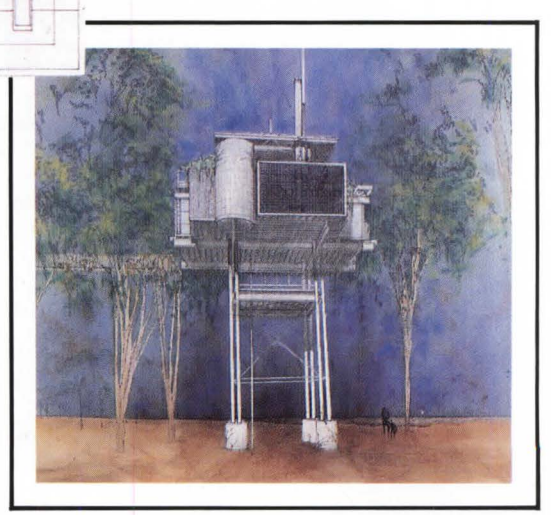
Entries were judged by a distinguished panel of architects on the combination of aesthetic expression, functional suitability, engineering excellence and economy.



Student Division

FIRST PLACE AWARD
Lawrence Scarpa
University of Florida
Gainesville, Florida

TREEHOUSE VILLAGE
Jury comment: "Valid application of the roofing material both in use and environment...delightful combination of elements to create a total living environment...superbly presented...deserves to be built."



SECOND PLACE AWARD
Spiros D. Menzelopoulos
Iowa State University
Ames, Iowa

THIRD PLACE AWARD
Stephen R. Mileham
University of Oregon
Eugene, Oregon

THE WINNERS

THE JURY

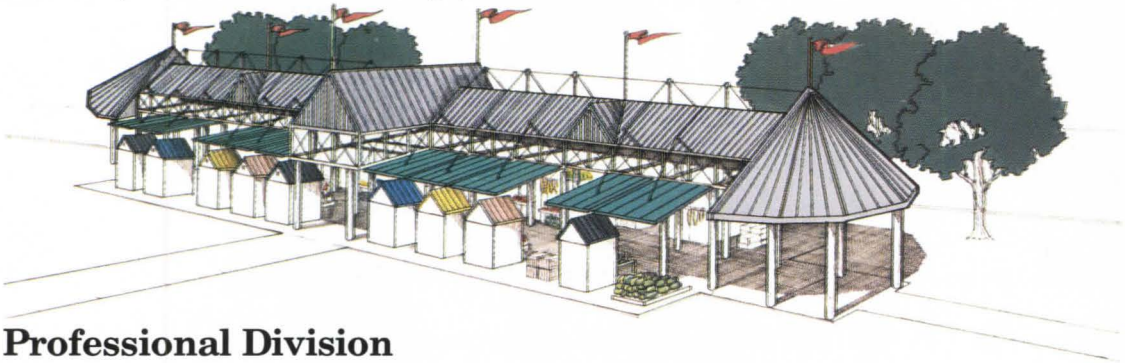
Follansbee was honored to have as a jury in the judging of Roofing Expression I:

Mr. Russ Champlin, Jr.
Champlin & Haupt, Inc.
Cincinnati, Ohio

Mr. Hyman Myers
The Vitetta Group
Philadelphia, PA

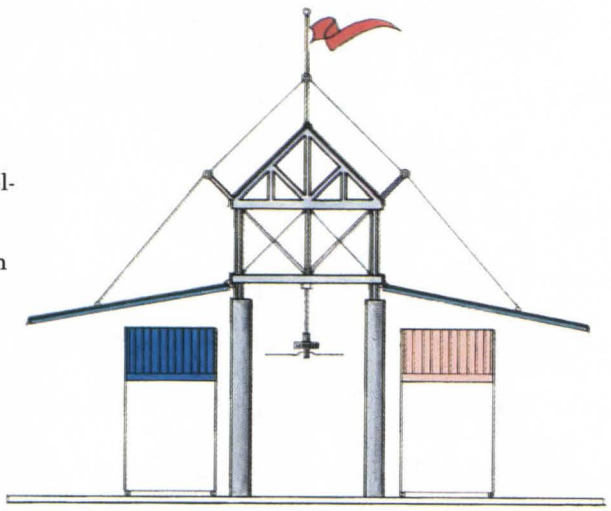
Mr. Tasso Katselas
Tasso Katselas Associates
Pittsburgh, PA

Congratulations to all professionals and students on the high level of quality and design excellence represented by all entries.



Professional Division

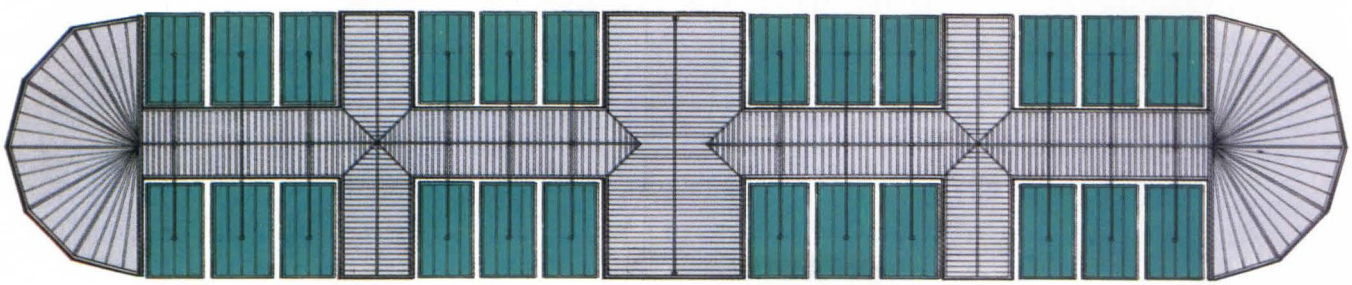
FIRST PLACE AWARD
Dennis K. Cowart
and
Sonia McNabb Cowart
New Orleans, Louisiana

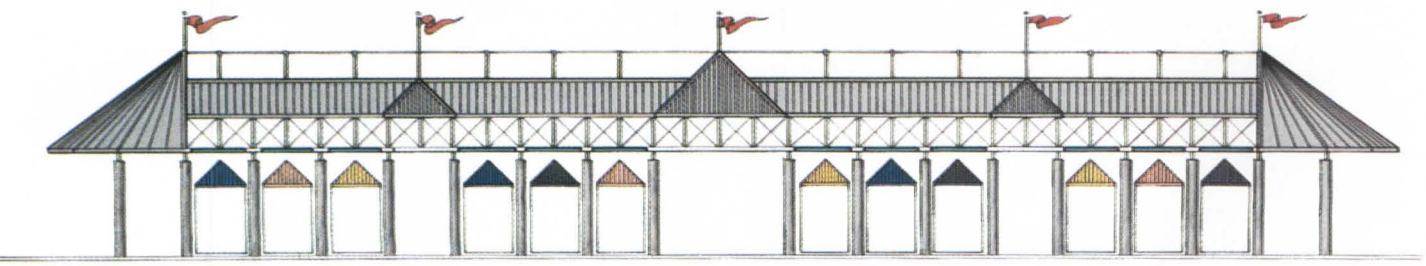


OPEN AIR MARKET
Jury comment: "Festive air is excellent...repetitive use of modular devices is innovative in that it continues the tradition of the open market using modern materials."

SECOND PLACE AWARD
Brad A. Erdy
Chicago, Illinois

THIRD PLACE AWARD
Paul J. Byrne
Weymouth, Massachusetts





DISTINCTIVE.

One of the most enduring breeds on earth is a merger of what appears to be incompatible. Unusual combinations create remarkable results. We know. We, too, have arrived at the best of both worlds. Formerly Hiebert and Corry Jamestown, we are now CorryHiebert. ◇ We have merged well established business acumen with award winning design. We have combined stability and reliability with the extraordinary. We have fused the highest quality products with the most responsive service. ◇ We are a different creature altogether. As such, we will both earn your respect and command your attention. ◇ And, in an industry where the well adapted thrive, we will continue to stand out long after distinctions have become blurred among the others.

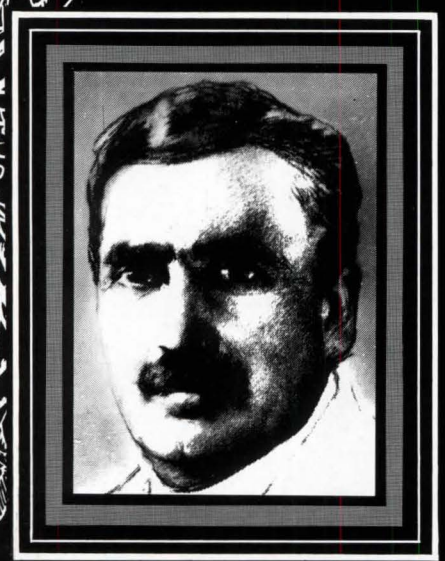
CORRY HIEBERT

If you would like to find out more about our company call 1 800 458 0593 or write 511 Carpenter Freeway Irving Texas 75062

Circle **No. 390**

EXPOSITION DE 1892

SOCIÉTÉ DES ARTISTES FRANÇAIS



MENTION HONORABLE A MONSIEUR RIXSON (O.C.)

Oscar C. Rixson
Architect
Graduate, Ecole des Beaux-Arts
1892 Award Winner, Société des Artistes Français
Founder, Rixson-Firemark

Sometimes, Only an Architect Knows What an Architect Needs

As an architect himself, Oscar C. Rixson believed architects and designers should have the freedom to concentrate on superb design unblemished by unattractive hardware. He set out to produce door controls which were unobtrusive yet durable, inconspicuous yet effective, out of sight yet never out of service.

Today, the company he founded remains dedicated to fulfilling architects' needs by developing door closers and pivots for the most demanding architectural situations —with an eye toward preserving the beauty of the design.

Continuing this tradition, we invite you to examine our new brochure demonstrating the benefits of our hardware products in interior applications ranging from offices and lobbies to hospitals and churches. In any time, excellence knows no compromise.

RIXSON-FIREMARK

9100 W. Belmont Ave., Franklin Park, IL 60131 Ph. (312) 671-5670

A DIVISION OF CONRAC CORPORATION

The best investments around aren't sold on Wall Street.

In fact, most people on Wall Street probably don't even consider them investments.

But they should. And so should you.

Because these investments not only give you a high return on your money. They guarantee it.

They're energy-saving Sylvania lamps. And they prove that the cheapest lamp isn't necessarily the least expensive.

Take our Sylvania SuperSaver® fluorescent lamp for example. It costs more than the standard 40-watt fluorescent lamp, but uses 7 watts less. At the national average electric rate of 8 cents per kilowatt hour, the SuperSaver cuts energy costs by $11.20 over the operating life of the lamp.

These savings in energy costs result in a 173% annual return on your incremental investment. Even if the standard lamp were *free,* you'd be losing more than $8.00 by not switching to a SuperSaver fluorescent.

ROI varies from lamp to lamp. But any of our exclusive energy-saving Sylvania fluorescents, incandescents and H.I.D. lamps give you a better return than stocks, bonds, and other conventional investments.

So if you're looking for a great return for your money, why look on Wall Street? Just call **1-800-LIGHTBULB** (or if you prefer, contact your IED Independent Electrical Distributor or write GTE Products Corp., Sylvania Lighting Center, Danvers, MA 01923).

SYLVANIA GTE

MBCI OFFERS YOU A QUALITY ROOF SYSTEM PLUS...

Architect:
O'Teri, Tisdale & Gayle

Product Shown:
Craftsman Series with Small Batten

Personal technical assistance. When you design and specify an MBCI architectural panel system, our Technical Consultants are ready to aid you in product selection and application. We want your project to be the way you designed it.

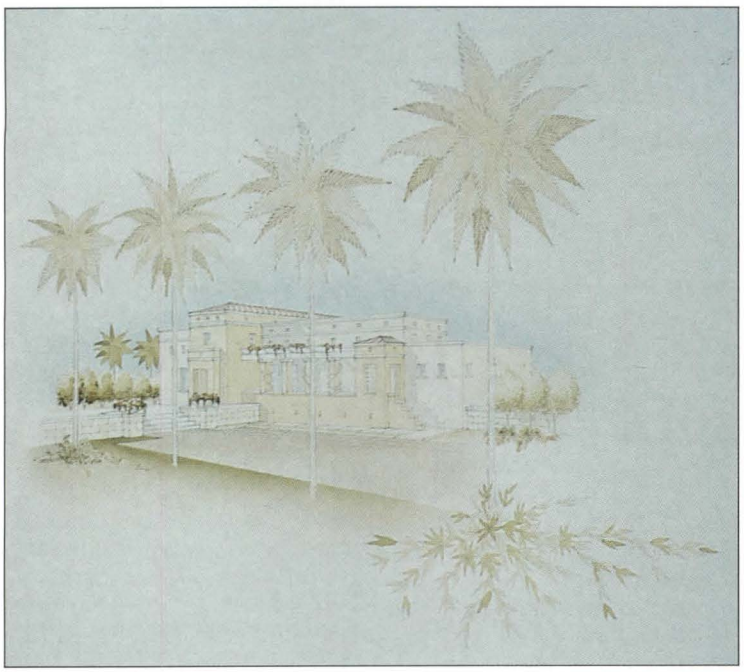
Personal technical assistance—another example of why MBCI has grown to be a major supplier of architectural panel systems for roofing, siding, facades, and soffits. For our complete line of quality products, see Sweet's 07410/MEB and 07610/MBC.

MBCI®
METAL BUILDING COMPONENTS INC
A MONIER COMPANY

Houston 713/445-8555
Lubbock 806/747-4291
Oklahoma City 405/672-7676
San Antonio 512/661-2409
Dallas 214/988-3300
Atlanta 404/948-7568
Tampa 813/752-3474

Circle No. 353

P/A News Report



First place McDonald's by Diaz and Perez, University of Miami.

McDonald's Competition: Hold the Mansard

For today's American architecture students, McDonald's has always been part of the landscape. So familiarity was on their side in designing a prototype McDonald's, the subject of a national design competition sponsored by the American Institute of Architects Students, with support of the giant fast-food company. Winners were announced on January 12.

A fast-food restaurant presents an almost ideal problem for such a competition. Its program is easily grasped, and the competitor has ample leeway for design invention. A universal prototype was not necessarily called for; McDonald's spokemen point out that the company is now building a great variety of restaurants, tailored to various settings (and opening a new one every 17 hours on average!).

The contest drew 365 qualified submissions from 100 schools—the largest participation of any AIAS competition to date. The jury included: Philip

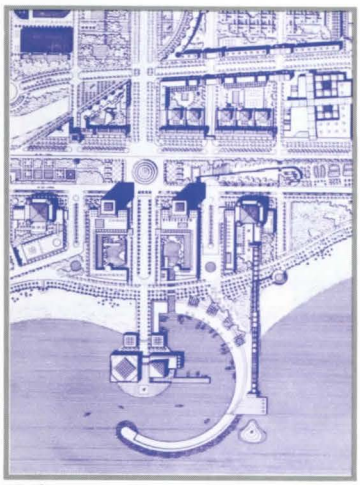
(continued on page 35)

Charleston Charette for an Aquarium

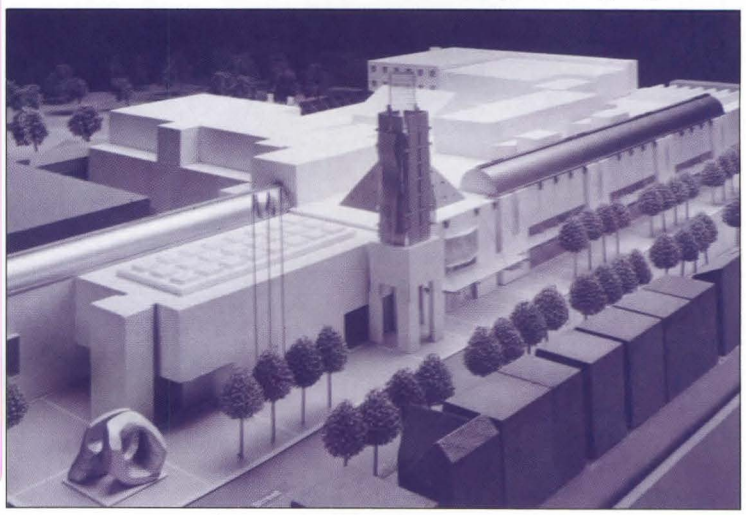
The team of architects Clark & Menefee, Charleston; Eskew, Vogt, Salvato & Filson, New Orleans; and Coe, Lee, Robinson & Roesch, exhibit and landscape architects, Philadelphia, have won the competition to design the South Carolina Science Museum in Charleston. The complex project is composed of three parts related only by location: a restaurant, a National Park Service tour boat facility serving Fort Sumter and other historic sites in the Charleston harbor, and an aquarium.

The City of Charleston seized upon the design charrette as the ideal means to launch this public project. They also took pains to counter some of the classic prob-

(continued on page 35)



Olympic athletes will be housed in a village designed by Martorell Bohigas Mackay. See page 45.



Myers' design for Art Gallery expansion.

Myers Wins Art Gallery

The firm of Barton Myers Associates has won a limited design competition for the $28 million expansion and renovation of the Art Gallery of Ontario, in Toronto. The scheme, favored over three others by a jury that included architects Phyllis Lambert and Moshe Safdie, makes a coherent composition of the accumulated pieces and styles that chart the scattershot evolution of the gallery from 1911 to the present.

First housed permanently in a Victorian mansion at the south end of the site overlooking public parkland, the gallery received a major addition to the north in the Beaux Arts style in 1926. Two more north-facing additions, both in the International Style, were completed in the 1970s by John C. Parkin Architects. The need for more storage and exhibition space was one reason for the latest and final

(continued on page 35)

Pencil Points

Leon Krier **has resigned as director of the SOM Foundation. The theorist was appointed to a three-year term last September.**

Philip Johnson, **withdrawing from "office operations," will now serve as design consultant to the firm of John Burgee Architects, formerly known as John Burgee Architects with Philip Johnson.**

Robert A.M. Stern Architects, **New York, with Jung/Brannen, Boston, will replace John Burgee Architects for the second phase of the troubled New England Life project in Boston (P/A, Oct. 1986, p. 34). Construction for the first phase of that project was halted last month, when soil settlement threatened to undermine nearby structures in Back Bay, including the historic Trinity Church.**

Trinity Church **itself just won $11.6 million in compensation for structural damage caused by construction of the Hancock tower 12 years ago. Settlement resulting from excavation for that highrise caused the church's central tower to shift a full 5 inches.**

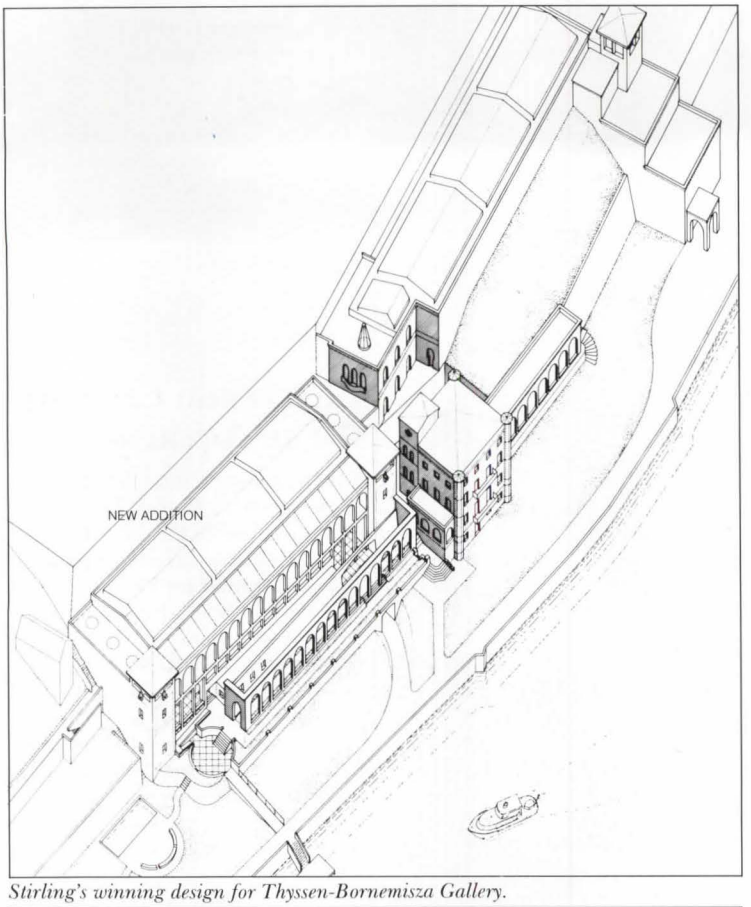
Philip Johnson **has donated his Glass House in New Canaan, Conn., to the National Trust for Historic Preservation. A key work of American Modernism, the Glass House will remain a private residence for as long as its architect lives there.**

Zimmer Gunsul Frasca **of Portland has won the competition to design the Portland Convention Center. Also competing were DMJM, Los Angeles, and I.M. Pei & Partners, New York.**

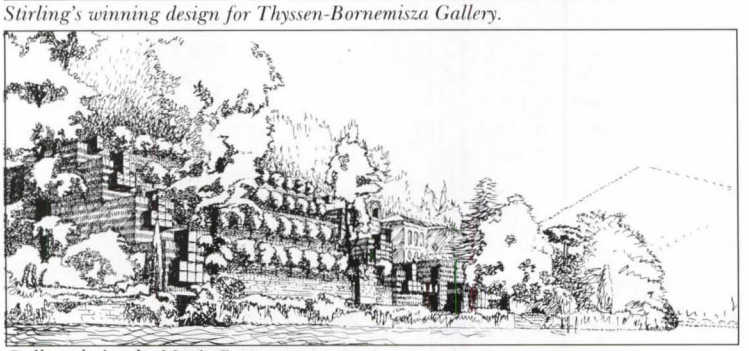
Hellmuth, Obata & Kassabaum, **St. Louis, has been commissioned to design a new convention center for Tampa, Fla.**

Pereira Associates **will design the new Otis Art Institute of the Parsons School of Design, Los Angeles. Also considered for the commission were Welton Becket & Associates, Dworsky & Associates, Fred Fisher & Associates, Robert Mangurian, Moore Ruble Yudell, and Morphosis.**

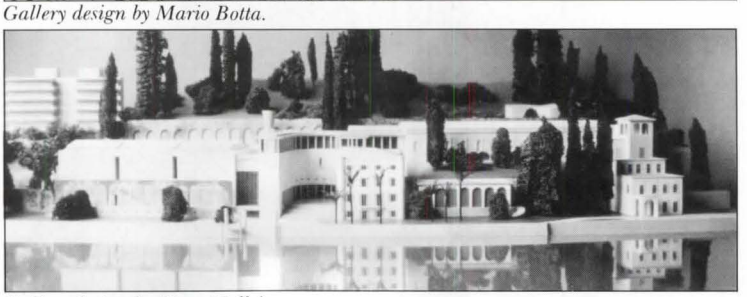
Frank Lloyd Wright's Pottery House, **designed in 1940 but built in 1984, has been sold by Sotheby's for $2 million, which the auction house claims is a record for a Wright house.**



Stirling's winning design for Thyssen-Bornemisza Gallery.



Gallery design by Mario Botta.



Gallery design by Hans Hollein.

Stirling Wins Lugano Contest

James Stirling, Michael Wilford & Associates of London have won an invited competition to design a new gallery for the Thyssen-Bornemisza Collection in Lugano, Switzerland.

The gallery, which holds one of the most important private art collections in the world, opened to the public in 1947. The late baron, father of the present Baron Von Thyssen, had built in 1932 a pinakothek, strictly reserved for private viewers, adjacent to his 17th-Century Villa favorita. His son Hans Heinrich von Thyssen-Bornemisza added some 800 modern and contemporary artworks to the collection.

Five architects were invited to participate in the competition: Atelier 5, Bern; Mario Botta, Lugano; Hans Hollein, Vienna; Ruch & Husler, St. Moritz; and James Stirling, Michael Wilford. Of the five, three seem to have answered fully the complex program. Botta's terraced architecture, covered with trees, strictly related to the mountain landscape. Hans Hollein, on the other hand, integrated the new building with the old villa.

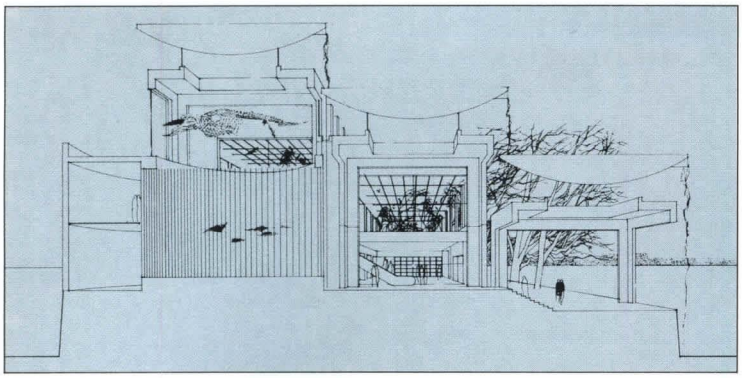
The winning project by Stirling was selected by a limited jury of three experts plus the baron himself, who declares Stirling's plan "convincing" for "the integration of the new building into the landscape and its harmonious adaptation to the existing architectural ensemble." The British architect is also well experienced in museum design, having completed the Staatsgalerie in Stuttgart, the Fogg Museum extension in Cambridge, and the Tate Gallery extension in London, which opens next month. This latest gallery design is subdued yet impressive, rising behind the existing 1932 colonnade and promenade, which are left untouched. The gallery matches beautifully the romantic atmosphere of Lake Como, its appearance "private and unmuseum-like" as Stirling describes it, and as Baron von Thyssen desired.

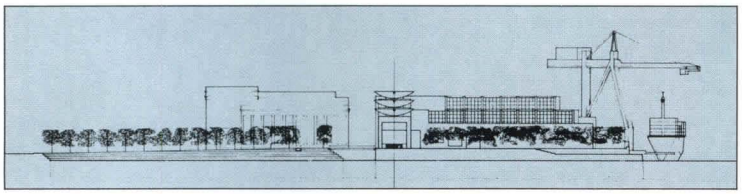
Donatella Smetana ■

Making Cities Accessible

"We've got to remind architects that they are designing for all people," said violinist Itzhak Perlman at a Boston ceremony launching a new national awards program for accessible design. The "Best of Accessible Cities" seal of approval will be awarded by the Adaptive Environments Center in Boston to architects and owners in designated cities around the country over the next five years. "I hope that in the future we won't need these awards," said Perlman, "that good design and accessibility will happen as a matter of course."

In a pilot program staged in Boston last fall, the Copley Place Marriott (The Stubbins Associates, architects) was awarded the grand prize for new construction, and the Boston Children's Museum (Dyer/Brown Associates, architects) won the grand prize for renovation. Also honored were the West Wing of the Museum of Fine Arts (I.M. Pei & Partners); West Roxbury High School (Samuel Glaser); the New England Aquarium (Cambridge Seven Associates); J.F. Kennedy Memorial Library (I.M. Pei & Partners); stage area access in the auditorium of the Federal Reserve Bank of Boston (The Stubbins Associates); the rooftop playground of the Josiah F. Quincy School and Community Center (The Architects Collaborative); and the revolving doors of Terminal C at Logan International Airport (Burns and McDonell). ■





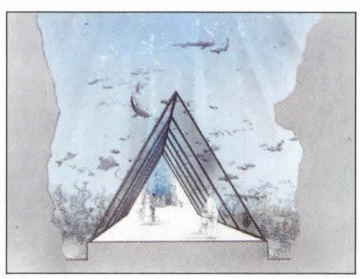
Winning design by Clark & Menefee and Eskew, Vogt, Salvato, & Filson.

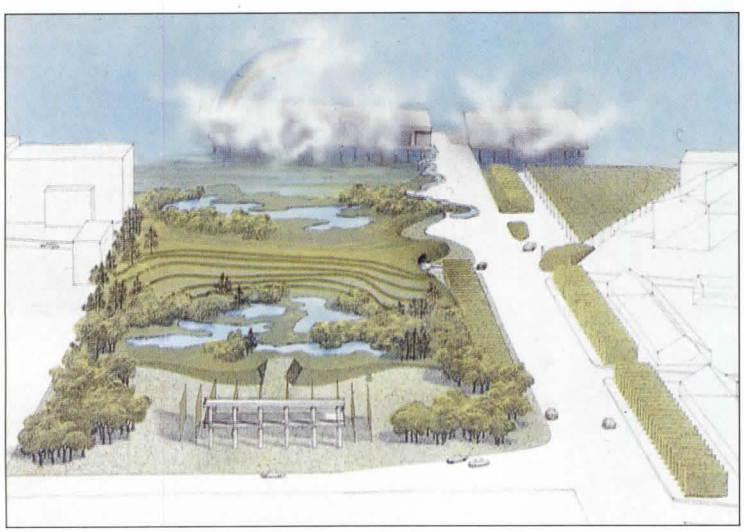
Charleston *(continued from page 33)*
lems that plague this particular type of accelerated competition, which took place over the course of four days last August. The five design teams were each assigned an aquarium expert to "keep them honest," says professional advisor Jonathan Barnett. They were also required to associate with a local firm. While contestants were promised only a site-planning commission, the city itself will act as client for the aquarium, and Mayor Joseph Riley, Jr., seems committed to building it.

The winning scheme was praised by the jury for its ingenious site planning which, wrote jury chairman Thomas Beeby, "addresses the water in an imaginative way." The aquarium, set apart on its own island, projects into the harbor for a better view of Fort Sumter.

The scheme by Emilio Ambasz & Associates, New York; Cooper-Lecky Associates, Washington, D.C.; Liollio Associates, Charleston; and The Larson Company, Tucson, was also singled out for special recognition by the jury.

The three remaining schemes are distinguished best by style, from the predictable signature of Michael Graves of Princeton, N.J., Ray Huff of Charleston, and BIOS of Seattle to the industrial landscape of Antoine Predock of Albuquerque, N.M., Cumings & McCrady of Charleston; and Ace Design of Sausalito to the warehouse vernacular of Monterey Aquarium architects Esherick, Homsey, Dodge & Davis of San Francisco, Rosenblum & Associates of Charleston, and Joseph A. Wetzell Associates of Boston. ■





Special recognition: Ambasz, Cooper-Lecky, and Liollio.

Toronto *(continued from page 33)*
expansion proposal. Equally pressing was the need to overcome the shortcomings of the Modernist pieces, principally their bland monumentality and aloof withdrawal from a lively downtown street.

The Myers team, led by Bruce Kuwabara and Thomas Payne, dispensed with Parkin's formal concrete staircase and sunken ramps, extending the north façade to the street where it is announced by a double-height entrance court placed off-center, at grade. The court is capped by a skylighted pyramid and accented by a bold bay window. A favorite Myers motif—a High-Tech tower—serves as a beacon. Gallery shops run the length of the façade; above them, under a continuous vault, lie new exhibition galleries. Cladding will be of striped sandstone.

Additions to the southwest include a glazed sculpture court, a smaller tower to mark the new entrance for touring parties, a restaurant with park views, and an arcade. The new south office wing steps back in deference to the 19th-Century mansion. Impressive for its clarity and urbanity, the project is Myers' first major public commission in Toronto. ***Adele Freedman*** ■

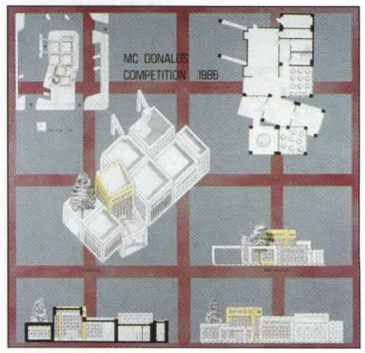
The author is architecture critic for the Toronto Globe and Mail.

Window Details

While the worship of detail has faded among architects in recent decades, it has not disappeared, but is alive and well within the preservation community, as a recent conference on windows for historic buildings showed.

Sponsored by several public and private preservation groups, the three-day conference held last December considered purely practical details: how to maintain historic windows, how to repair them when they have deteriorated, and how to match their appearance when they must be replaced. Indeed, between the conference and the two books published in conjunction with it, *The Window Handbook* and *The Window Workbook for Historic Buildings* (available individually or as a $70 set from the Historic Preservation Education Foundation, P.O. Box 27080, Central Station, Washington, D.C. 20038-7080), almost anything anyone might want to know about the subject was covered. ***Thomas Fisher*** ■

Second prize: R.L. Burns, Montana State.



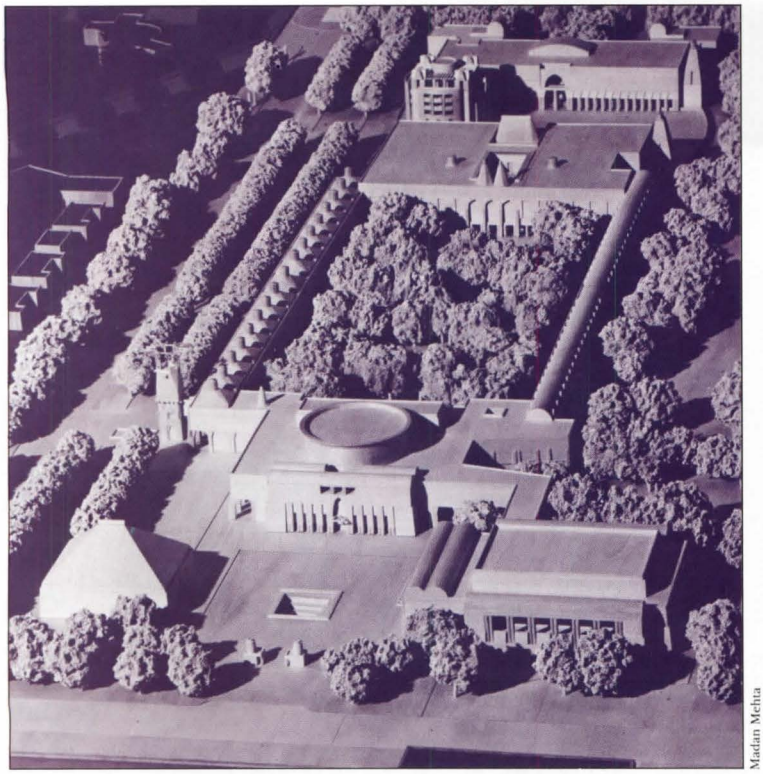
Third prize: Stephen Evans, Auburn.

McDonald's *(continued from page 33)*
Johnson, Robert A.M. Stern, Fred T. Matthias, corporate architect for McDonald's; Katherine Pedersen, student; and John Morris Dixon of P/A.

First place award of $4000 went to Dagobert Diaz and Orlando Perez of the University of Miami for a Classical Revival design featuring second-story and terrace dining areas. While some jurors questioned the appropriateness of its dignified image, Matthias cited the construction of many recent outlets in sensitive older neighborhoods and praised its functional excellence; the drawings also showed exceptional skill.

Second prize was awarded to Robert L. Burns of Montana State for a bold Constructivist scheme that recalled the early McDonald's of the commercial strip. The third-prize entry by Stephen Evans of Auburn was composed of cubelike modules entered through a taller, twisted, yellow-painted module that would serve as the identifying landmark. Six Honorable Mention awards were won by students from U. of Ill., Champaign-Urbana; U. of Calif., Berkeley; Arizona State; Woodbury; U. of Miami (again); and Pratt Institute. In all, $11,450 in prize money was distributed to winners and to the AIAS chapters of the top three.

At the awards announcement, McDonald's indicated that none of the winning schemes might actually be executed, but that the entries as a group would be a resource on which the corporation's architects could draw. ***John Morris Dixon*** ■



Madan Mehta

Ralph Lerner's design for the Indira Gandhi National Center for the Arts.

Lerner Wins Gandhi Center

Ralph Lerner of Princeton, N.J., has won an international competition to design the Indira Gandhi National Center for Arts in New Delhi. The site selected by the Indian Government for the Center is a prominent one, adjacent to the Central Vista laid out by Edwin Lutyens. Lerner's scheme is organized around a series of five courtyards. The most public facilities—the 800-seat National Theater, 2000-seat Concert Hall, traditional Indian Theater, and outdoor amphitheater for 500—are clustered around the westernmost courtyard, while to the east lie the research, administrative, and collections areas, together with a residential building for scholars and staff facilities. At the heart of the plan, a grand 350′ x 700′ Central Court is surrounded by a continuous arcade. The five courts parallel the east-west axis of New Delhi.

Lerner's design was selected from 190 submissions. Second prize went to Gautam Bhatia, India, and third prize was shared by Francoise Helene Jourda, France, David Jeremy Dixon, U.K., and Alexandros Tombazis, Greece. ■

MoMA Curator Drexler Dies

Arthur Drexler, until recently Director of the Department of Architecture and Design at the Museum of Modern Art, died of pancreatic cancer on January 16 at the age of 61.

Drexler joined the Museum as Curator of Architecture and Design in 1951 and was appointed Director of that department in 1956. Over the course of his 30-year tenure in that position, Drexler organized many significant exhibitions, including one-man shows dedicated to Antoni Gaudi (1958), R. Buckminster Fuller (1959), Frank Lloyd Wright (1962), Louis I. Kahn (1966), Le Corbusier (1978), Richard Neutra (1982), and Mies van der Rohe (1986). Drexler was also responsible for the influential and at the time startling "Architecture of the Ecole des Beaux Arts" (1975).

Author of many books on 20th-Century architecture and design, Drexler's most recent publication is the four-volume illustrated catalog of Mies van der Rohe Archive, one of many significant gifts acquired by MoMA under his directorship.

While greatly expanding the museum's architecture and design collections—one of few such collections in the world—Drexler also oversaw the department's physical expansion from 1700 square feet to 6500 square feet and dedicated the Philip Johnson Gallery, the first museum space permanently allocated to drawings and models of modern architecture.

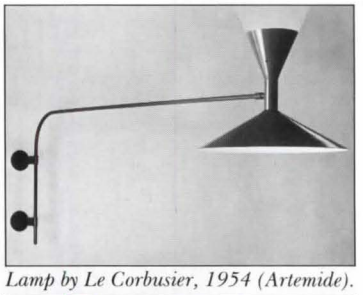
Stuart Wrede, Curator of Architecture and Design since September 1985, has been appointed Acting Director of the Department. ■

Corbusier Show in Milan

Celebrations marking the centennial of Le Corbusier's birth began in Milan in January with the exhibition "Le Corbusier: The Project as Change."

Sponsored by the Scientific Committee of the Polytechnical School of Milan, the show includes lighting, furniture, and other industrial designs by Le Corbusier. One striking example is the wooden model of a car designed between 1928 and 1936 but not realized until 50 years later, by Italdesign. Le Corbusier wrote that his project looks for "the maximum comfort, which fixes the minimum of the car." Giorgetto Giugiaro, head of Italdesign, considers the car a "farsighted miracle. Only at the end of the 1970s," says he, "was the concept of a car shaped as a wrapping for a function accepted by car manufacturers." The car's front bumper with spring and rubber spots anticipates American safety regulations by 30 years.

Furniture currently reproduced by Cassina and three prototypes of lamps derived from unexecuted drawings, one of which is to be reproduced by Artemide, are also shown in the exhibit. ***Donatella Smetana*** ■



Lamp by Le Corbusier, 1954 (Artemide).

Lamp prototype by Le Corbusier, 1951.

Winners Hank Koning, Julie Eizenberg, Tom Goffigon with Pilar Viladas.

Photos: Keri Pickett

Winner Bryan Bell, Jr.; Sister Grace.

P/A Awards at the Plaza

Progressive Architecture sponsored an awards luncheon at the Plaza Hotel in New York on Jan. 23 to honor the winners of the 34th annual P/A Awards program.

Braving the conditions resulting from the heaviest January snow storm in the city in eight years, some 300 professionals, including 22 of the 23 winners (one winner, Gary Siebein, was weather bound), looked on as presentations were made. All winning projects in architectural design, urban planning, and research were published in the January issue of P/A.

At a separate event, on the same day, the winners of the 12th annual P/A AdAwards (P/A, Jan., p. 38) were honored. ■

Urban Success at Marketplace Center

Born in controversy and reared with compromise, Boston's new Marketplace Center, designed by the WZMH Group, is a building that often overcomes its origins to fulfill its name: It is a market and a place that even manages to shape a center. On the tenth anniversary of the neighboring Faneuil Hall Marketplace, this building-next-door is an agreeable terminus to the Market, a gateway or viaduct to Boston's waterfront, and a curtain concealing the monstrous Central Artery to the east.

However, the low-rise crescent that completes Faneuil Hall Marketplace is only half of this 400,000-square-foot $35 million structure; the other half is a 16-story office tower at 200 State

(continued on page 38)


Pionite™
Decorative Laminates
COLORS TO JAZZ IT UP!
Cool. The 1987 collection of Pionite® decorative laminates. A select group of 86 swinging solid colors and shades, including 30 new colors for '87. A smooth arrangement of subtle neutrals, soft pastels, cool blues and greens, rich earthtones, and brash vibrants. All high quality. All in stock. All in suede and gloss finishes. Many in MelCor II™ solid core laminate.
Make your designs really jump. With the many colors of Pionite decorative laminates.
Write for color samples and a free poster of this ad.
Sterling
Engineered Products
A TRINOVA COMPANY
Sterling Engineered Products Inc., Laminated Products Group, Dept. ADV., 1715 Indian Wood Circle, Maumee, OH 43537.
Circle No. 376 on Reader Service Card

Marketplace *(continued from page 36)*
Street, a chunky glass box that looms too large for the neighborhood.

The schizophrenic scheme—half congenial urban marketplace, half supersized office tower—symbolizes the two impulses at work in Boston. The low-rise crescent designed for amenity and context hews to the old idiom of downtown; the mid-rise office block conforms to the 1980s urge to build more bulk for the buck.

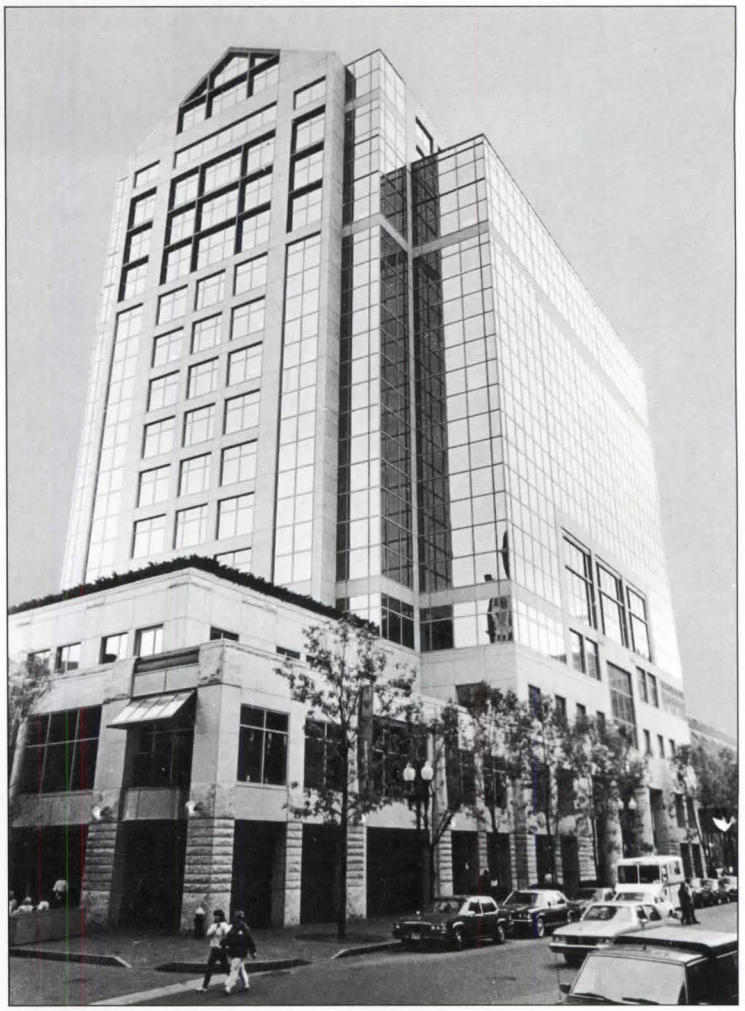
Marketplace Center is probably the most complex new structure in the city. Its materials—granite, brick, steel, glass, and more—could fill a sample book. Its peculiar site nods to many contexts: the classic vista of State Street and the granite commercial buildings of Boston's heyday, the pedestrian shopping lanes of Faneuil Hall Marketplace, and the brick beauty of Boston's wharves across the Central Artery. Nearby gems like the Custom House, the State Street block, and the Grain Exchange beg for an accommodating architecture.

Beyond such physical or aesthetic complexities Marketplace Center faced an array of political problems when the enterprise began in 1981. The Boston Redevelopment Authority finally took the reins. A chronology of conferences and adjustments followed. Sheafs of drawings later, Marketplace Center emerged. To this day, it remains as hard to assign authorship as to pick a single view for the building.

The BRA probably encouraged the use of masonry and attention to contextualism. Unfortunately, the tower's bulk was not reduced. Moreover, no brick detailing could make a lively streetscape of the deadly garage entrances and vents on the Center's waterfront façade.
(continued on page 39)

Photos: Cary Wasserman

Marketplace Center, mall building.



Marketplace Center, tower on State St.

CLASSIC EXAMPLE

Architect: *Barancik Conte & Associates*
Owner: *Levy Organization*
G.C.: *Schal Associates*

CAST FOR QUALITY APPEARANCE
PRECAST/PRESTRESSED OFFICE BUILDINGS

The building had to have visual appeal and manifest quality. It had to be the standard against which others were judged. At the same time, strict economies were necessary.

The architect specified white quartz faced precast concrete panels to complement the restrained simplicity of the building. The consistent beauty of the panels, ease of construction and a competitive price provided the prestigious image within budget parameters.

We call it a classic example.

Additional information? Contact your local producer or write:

pci

Prestressed Concrete Institute, 201 N. Wells St., Chicago, IL 60606 • (312) 346-4071

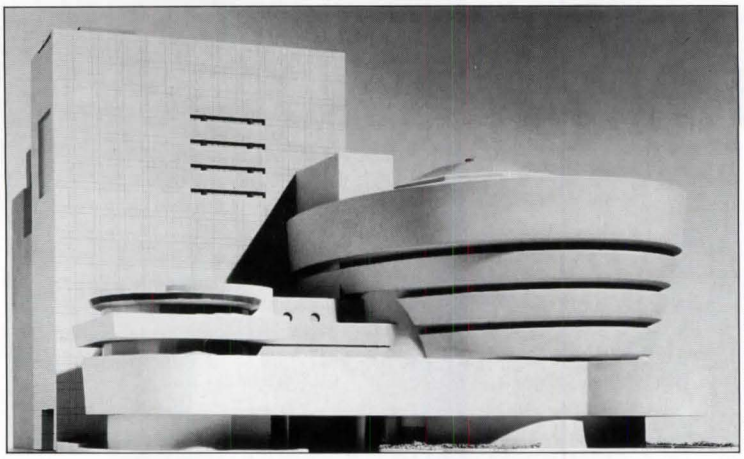
Circle No. 361 on Reader Service Card

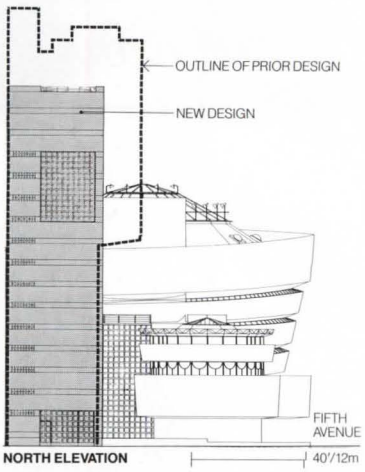
Marketplace *(continued from page 38)*

The rich array of devices seems at times excessive. Fancy grillwork, trusses, neon, and peaked glass towers decorate a potpourri of storefronts along the arcade, ranging from a De-Stijl-style chocolate shop to a high-tech aluminum-cloaked clothing store to the Colonial Brookstone's.

Seldom, however, can one find such try-harder detailing to fault. Miraculously, in Boston, a building has succeeded in bettering its setting by blending in.

Jane Holtz Kay ■





Gwathmey Siegel's new expansion of Guggenheim Museum, model viewed from west.

Guggenheim Revision

In February, New York's Guggenheim Museum revealed Gwathmey Siegel & Associates' revision of their proposal for a tower addition to the 1959 Frank Lloyd Wright masterpiece. Their earlier expansion scheme (P/A, Dec. 1985, p. 25), which garnered so much criticism (P/A, May 1986, p. 25), was withdrawn last fall when the museum realized it could not win enough votes for approval from New York City's Board of Standards and Appeals.

The new scheme is very similar in shape, mass, and volume to the ten-story tower addition proposed for the same rear site in 1957 by Wright, which was never carried out. Instead, William Wesley Peters added a four-story annex in 1968 with a foundation designed to accommodate a ten-story building. Its foundation and columns will be reused in the new building.

This design represents a radical revision of Gwathmey Siegel's first proposal. Most significantly, the cantilevered upper portion of the tower has been eliminated, thus reducing the depth of the most visible part of the addition from 50 feet to 35 feet. In addition, the face of the building is changed dramatically, from a composition of beige and gray-green tile to a subdued, gridded limestone. Furthermore, one floor has been eliminated from the earlier 11-story proposal.

All of this came at a cost, though. The revision sacrifices 20 percent of the earlier space, which means that the archives, conservation, and storage cannot be accommodated but must remain where they are now in the old building or be moved to off-site rented space, where the library is already. But by eliminating these spaces and devoting the addition only to offices and exhibition, the new scheme gains 1400 square feet of gallery space compared with the earlier one. More important, though, all nonpublic functions will now be in the addition, thus freeing for the first time the entire original Wright building's spaces—both the large and the small rotunda—for public use. Also, in this scheme, there will be a new outdoor sculpture terrace overlooking Central Park, entered from the fifth floor of the addition.

The limestone façade will be

(continued on page 43)

COUNTRY FLOORS®

CERAMIC TILES & TERRA COTTAS from Portugal, France, Spain, Italy, England, Holland, Finland, Mexico & Peru.

PB OCTAGONE, terra cotta 8" × 8" × ⅝"; PB DOT, blue 2 ¾" × 2 ¾"; PB CARRÉ, terra cotta 7" × 7" × ⅝"

MS ROSETA ARABE 5 ½" × 11" × ½"; MS SPIRAL BORDER, blue 2 ¾" × 11" × ½"

For a 96 page colour catalog send $10.00 (U.S.) to your nearest representative.

CALIFORNIA
Ceramic Design
1436 South Grand Avenue
Santa Ana, CA 92705

The Studio
1925 State Street
Santa Barbara, CA 93101

Tilecraft, Ltd.
The Galleria, Space 226
101 Henry Adams (Kansas) St.
San Francisco, CA 94103

DISTRICT OF COLUMBIA
Ademas
721 8th Street S.E.
Washington, D.C. 20003

DISTRICT OF COLUMBIA
Ademas
The Design Center
300 D Street S.W. Suite 235
Washington, D.C. 20024

FLORIDA
Country Floors
94 N.E. 40th Street
Miami, FL 33137

GEORGIA
Associated Products
Division of Sandsy, Inc.
351 Peachtree Hills Ave. N.E.
Suite #227
Atlanta, GA 30305

ILLINOIS
Hispanic Designe
6125 N. Cicero Avenue
Chicago, IL 60646

Hispanic Designe
1309 Merchandise Mart
Chicago, IL 60654

KANSAS
International Materials
4585 Indian Creek Parkway
Overland Park, KS 66207

MAINE
Keniston's
269 Commercial Street
Portland, ME 04101

MASSACHUSETTS
Tile Showcase
One Design Center Place
Suite #639
Boston, MA 02210

MICHIGAN
Virginia Tile
22201 Telegraph Road
Southfield, MI 48075

Virginia Tile
Design Center
1700 Stutz St. Suite 22
Troy, Michigan 48084

MINNESOTA
Hispanic Designe
International Market Square
275 Market St. Suite 111
Minneapolis, MN 55405

MISSOURI
Ceramic Tile Services
1610 Hampton
St. Louis, MO 63139

NORTH CAROLINA
Henry Dowdy & Assoc. Ltd.
116 South Lindsay Avenue
High Point, NC 27260

OHIO
Studio One
Pendleton Square
1118 Pendleton Street
Cincinnati, OH 45210

The Thomas Brick Co.
27750 Chagrin Boulevard
Cleveland, OH 44122

Tiles of Columbus
1217 Goodale Boulevard
Columbus, OH 43212

OKLAHOMA
Country Tile Design
3511 South Peoria
Tulsa, OK 74105

OREGON
Tileworks Inc.
500 N.W. 23rd Avenue
Portland, OR 97210

PENNSYLVANIA
Country Floors
1706 Locust Street
Philadelphia, PA 19103

Tile & Designs Inc.
229 Spahr Street
Pittsburgh, PA 15232

RHODE ISLAND
Designs Unlimited Inc.
1015 Aquidneck Avenue
Middletown, RI 02840

TENNESSEE
Monarch Tile
4072 Senator
Memphis, TN 38118

Associated Products
Division of Sandsy, Inc.
103 White Bridge Road
Nashville, TN 37209

TEXAS
French-Brown Floors
7007 Greenville Avenue
Dallas, TX 75231

CANADA
Country Tiles
321 Davenport Road
Toronto, Ontario M5R 1K5

Country Tiles
1632 Ouest Rue Sherbrooke
Montreal, Quebec H3H 1C9

AUSTRALIA
Country Floors
28 Moncur Street
Sydney, N.S.W. 2025

Country Floors
1260 High Street
Melbourne, Vic. 3143

Country Tiles
262 Stirling Highway
Perth, Australia 6010

***Please note that as of June, 1987, our New York showroom will be located at:**
15 EAST 16th STREET
NEW YORK, NY 10003
(212) 627-8300

300 East 61st St., New York, NY 10021 (212) 758-7414 • 8735 Melrose Ave., Los Angeles, CA 90069 (213) 657-0510

Circle No. 319 on Reader Service Card

We light the American dream with track.

You design the American dream, we light it. Malls, museums, hotels, offices, restaurants. All are part of the American dream, and you play a dynamic role in its realization. We at Progress are *proud of our* supportive role, and build that pride into the industry's widest selection of fixtures for commercial and residential installations. Our quality track lighting is a prime example... it's a system that is second to none... engineered to help make your dream, a reality. For our new track catalog, contact Progress or your local distributor.

Parisian Plaza Mall, Huntsville, Alabama

PROGRESS®

Subsidiary of Kidde, Inc. KIDDE Box 12701 Philadelphia, PA 19134

Circle No. 389 on Reader Service Card

Guggenheim *(continued from page 40)* detailed as a grid of deeply cut eight-foot squares. Four narrow rows of windows facing west to the park and a two-story-high window facing north will bring daylight into the offices.

As was Wright's addition proposal, this is very much of a background building. It is not, Charles Gwathmey said, "a scheme of dialogue and composition," as was the earlier scheme, "but one of mediation—a mediating façade for the primary parts of the original building set against it . . . and a scheme that responds to the legitimate concerns of critics, historians, and the neighborhood."

This scheme will still require some variances from the city's zoning laws, but they are basically minor ones, and it is not hard to imagine fairly quick approval. There is, after all, little about this proposal that is not wholly admirable in its willingness for accommodation.

David Morton ■

Toxicity Testing Now Law

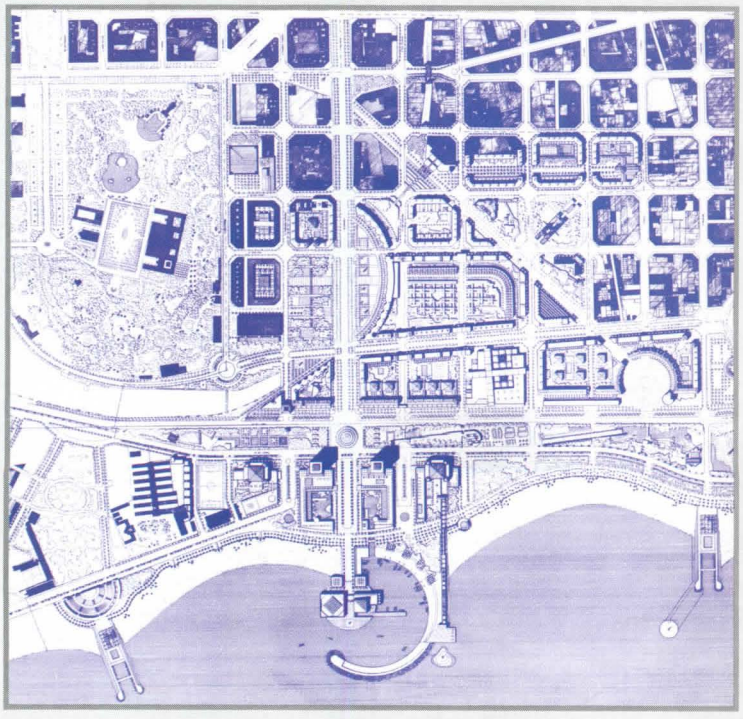
After years of debate among government officials and building product manufacturers, New York State's Uniform Fire Prevention and Building Code Council has voted to require the testing of building products for their toxicity during combustion. The law requires only that products be tested; it says nothing about banning the use of products that give off large amounts of toxic fumes, although many product manufacturers worry that such a ban may be next. Some manufacturers also have complained that testing will cost them excessive amounts of money and that the testing protocol—exposing mice to samples of smoldering material within an air chamber—does not represent the actual hazards in a burning building.

New York State officials argue, in defense, that the testing will not be unduly costly and that, with 80 percent of the deaths in fires caused by toxic fumes and smoke, some measures had to be taken to encourage private industry to develop less toxic products. Testing information will be kept by the New York Secretary of State's office and will be available for use throughout the country. The only point upon which everyone seems to agree is that other states and municipalities will undoubtedly include similar requirements in their codes in the future.

Thomas Fisher ■

For the 1992 Olympic Games, Barcelona is redeveloping a section of the city to be used temporarily as the Olympic Village and permanently as housing. Master plan is by Martorell Bohigas Mackay.

Photos: C.B. Foto



Map of Barcelona (top), with proposed Olympic Village at bottom center; building envelopes and public spaces (bottom).

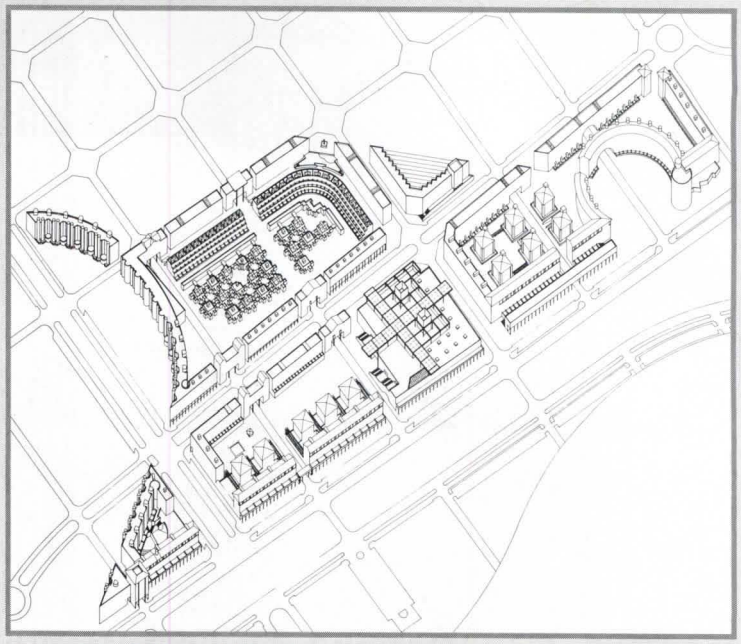
Barcelona's Olympic Village

When Barcelona hosts the Olympic games in 1992, international athletes will be housed not in the usual Olympic Village designed as a suburban ghetto, but in an integral piece of the city that probably would have been built, Olympics or not, to house citizens permanently.

Barcelona has twice before harnessed the energy inspired by international events to take major steps in urban development. The 1888 World Exhibition, sited in the former precinct of the Ciutadella Park, gave the city the confidence to expand beyond its medieval walls, and provided the impetus to execute finally an urban plan designed in 1859 by Idlefons Cerda. That plan featured a grid layout with major boulevards and smaller intermediate streets, as well as diagonally cut-off corners designed to accommodate the turning radius of the steam tramways and to provide a rhythm of street and square, with a garden planned at every intersection. For the World Exhibition of 1929, the city converted the mountain of Monjuic into a cultural park, and in the process connected the Cerda-planned central city to the surrounding villages.

For the 1992 Olympics, Barcelona again focuses attention on Monjuic and the Ciutadella. In the former area, a major restoration of the existing stadium is being carried out to supplement the new one designed by Arata Isozaki; and in the area just beyond the Ciutadella Park, a site has been chosen for athletes' housing in the city's abandoned industrial port, giving Barcelona residents unaccustomed, but desired, access to the sea.

The firm of Martorell Bohigas Mackay, with Albert Puigdomenech, was hired to prepare the Olympic Village master plan for 3500 dwelling units. MBM has taken lessons both from Cerda and from Berlin's IBA '87—the housing demonstration of the



Axonometric of Olympic Village housing.

last several years of designs by internationally renowned architects (P/A, Feb. 1986, pp. 93–101).

From Cerda they took the 360′ grid, with major and minor streets; in this case, akin to Le Corbusier's superblock, every third street is a major boulevard. As in Cerda's plan, intersections have diagonal corners.

As to IBA's lessons, they learned both from its successes and failures. Like the IBA organizers, they aim to incorporate 20th-Century advances in sanitation standards (appropriate ventilation and sunlight, for example) into a traditional urban form, with imposing street walls and linear parks. The main street-edge buildings, six stories high (approximately equal to four 19th-Century floors), form the "façade" of the city, while housing within the superblocks is arranged with ample courtyards. Some blocks contain townhouses with gardens, some are arranged like Casbah villages, and some have four- or five-unit apartment buildings.

But unlike IBA's policy of creating the appearance of many small property owners, with infill the overall vision ("the city as a historical event instead of the ideal city," as David Mackay sees it), here the wish is to make a grander intervention, as at Bath or the Rue de Rivoli.

Major topographical or infrastructure features have contributed to the shape of the plan. Railway tracks are being sunk, and a boulevard follows its crescent form on the surface. A diagonal boulevard occurs over a major existing sewer line, next to which two new ones are being added. On a linear park parallel to the waterfront, some of the old factories may be retained as "archaeological ruins." And military barracks may be converted to hotels.

At the end of the city's only major avenue leading to the waterfront, the plan takes a flamboyant, commercial turn. Two office towers create a gateway to a hotel complex, culminating in a small crescent-shaped pleasure harbor with a conference center "island" at its center.

While Martorell Bohigas Mackay has prepared the urban design, numerous architects will design the buildings. Approximately eight gateway buildings by internationally renowned architects will bridge the major roads. Each superblock will be subject to the control of one architect, who will discuss design policy with Martorell Bohigas Mackay.

The master planners are also expecting that the government will build into the organization more control over private developers than IBA's patrons enjoyed. The city is either buying up the land and giving 50- to 80-year leases (thereby avoiding speculation on the land itself and, as owner, exercising strict control over what is built) or is controlling the development of land it does not own by setting up planning boards.

Given the overall strength and intelligence of the Olympic Village plan, this international event in 1992, like its two predecessors in Barcelona, is likely to give physical shape to the goals of the city's leadership, and to the seven-year-old democratic government of the Spanish nation. ***Susan Doubilet*** ■

This name appears on the best drafting furniture in the world

PLAN HOLD®
A CPG INTERNATIONAL COMPANY

Our quality standards all boil down to three words.

Good enough isn't.

Our entire drafting furniture line stands as testimony to that. Every drafting table, from traditional 4-Post to the automatic Hi-Tech; every reference and light table, taboret and light box is the product of our uncompromising demand for the highest quality and craftsmanship.

We won't put our name on anything less.

Visit your Plan Hold dealer–see what a difference three words can make.

Literature Upon Request

PLAN HOLD CORPORATION • 17421 VON KARMAN AVENUE • IRVINE, CALIFORNIA 92714-6293 • DEALERS IN ALL MAJOR U.S. CITIES AND CANADA
A CPG INTERNATIONAL COMPANY

Circle **No. 362** on Reader Service Card

The day you start designing every house exactly alike

Whether you're working on a custom design or custom appearance, you want every home to have a look of its own.

That's why we designed so much versatility into Restoration™ vinyl siding. So you can put your personal stamp on every project.

LZT Associates, Inc., J. Thomas Seymour, Project Designer, AIA

Corbin Yamafuji Partners, Inc.
Gary Gregson, Architect, AIA

What's more, Restoration vinyl offers your clients everything they've come to expect: beauty, quality, long life, low maintenance.

FINALLY, VINYL SIDING WITH A LITTLE IMAGINATION.

Restoration's smooth, low gloss finish has the appeal of painted wood without the high cost. It won't blister or peel, and never needs painting. That's a promise.*

But it's only part of the story.

Our Restoration Collection™ adds the finishing touches: window and door surrounds, wide corner posts, beaded soffit, lattice, and decorative rounds.

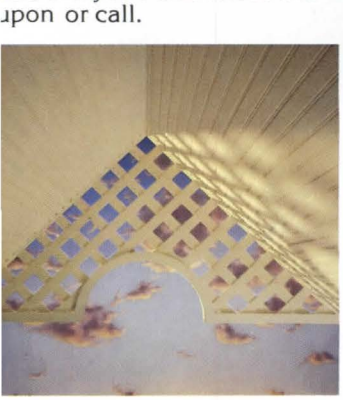
All in premium vinyl. All easily adapted to give accent and shape to your ideas.

Wilkins-Riedmann & Associates, Inc., Frank J. Riedmann, Architect

RESTORATION COLLECTION™

ve'll start producing siding like everyone else's.

HOTHER IMAGINATIVE IDEA: HELP.
You don't need telephone order takers. You do need
ople who can knowledgeably answer your questions.
Our technical staff will field your calls from any corner
the U.S. We'll rush you liter-
ure and samples. We'll help
y way we can with the pro-
ts you're working on. And if
u need us on site, we can be
ere in person.
Help you can talk to. That's
w we do things.
Talk to us soon about a
ing product that's quite
like everyone else's. Use the
upon or call.



Wolverine Technologies
1-800-521-9020
(in Michigan, call **313-386-0800**)

Circle **No. 386** on Reader Service Card

☐ Send me your 1987 Restoration information package.
☐ Have your rep contact me immediately.

Name _____
Title _____
Firm _____
Street _____
City/State/Zip _____
Phone _____

Wolverine Technologies 1650 Howard Street, Lincoln Park, MI 48146

*Write us for a copy of the Lifetime Warranty.

GAF'S REPUTATION FOR BUILT-UP ROOFING HAS BEEN BUILDING FOR OVER A CENTURY.

Our growth is symbolized in the illustration. Right up front, the leading product line in the business, spearheaded by the GAFGLAS® BUR System.

Backing up that product, GAF has the best and brightest talent in the industry. A national network of dedicated professionals committed to responsible selling, distribution, and prompt, cooperative service that extends to our 1-800-TEC-ROOF "hotline."

And behind it all, a better-than-100 years tradition of innovation, experience, excellence, and performance; performance exemplified by today's GAFGLAS Ply-4; performance that has seen more than 500-million square feet installed without a single product-related failure; performance that has prompted us to offer, with total confidence, our Liberty Series of Guarantees, far and away the most progressive and comprehensive program in the industry.

With pride in our past, our present, and our people, we look forward confidently to a continuing picture of GAF and You building together for the future.

GAF Building Materials Corporation,
a Subsidiary of GAF Corporation,
1361 Alps Road, Wayne, NJ 07470. (201) 628-3000.

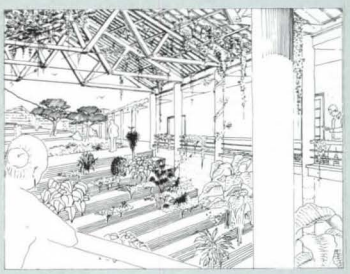
101

GAF® GAFGLAS® BUR

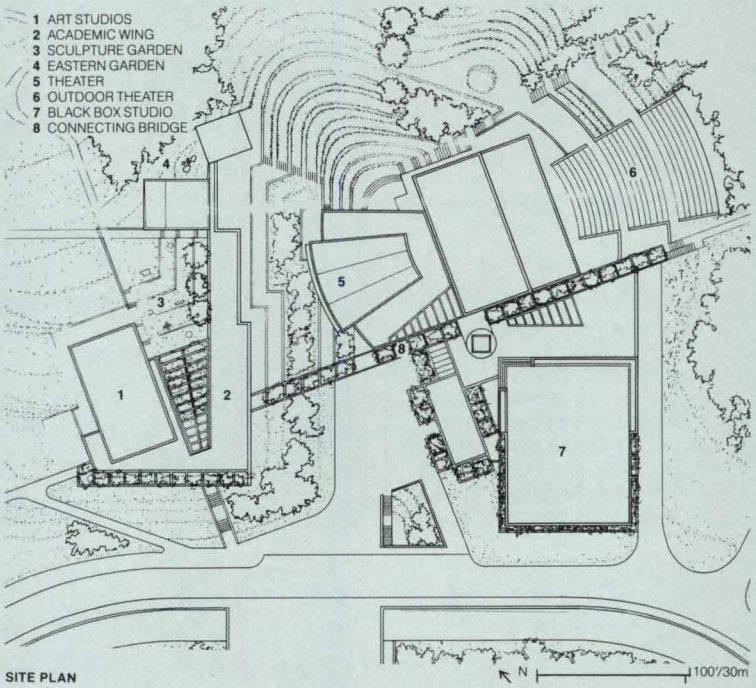
Circle **No. 336**

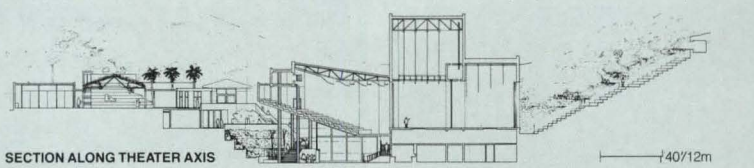
Competitions

An international competition for a media arts center at Hawaii Loa College drew 172 entries and yielded five awards. In the winning scheme by Adele Santos, building volumes are woven into a gardened hillside.

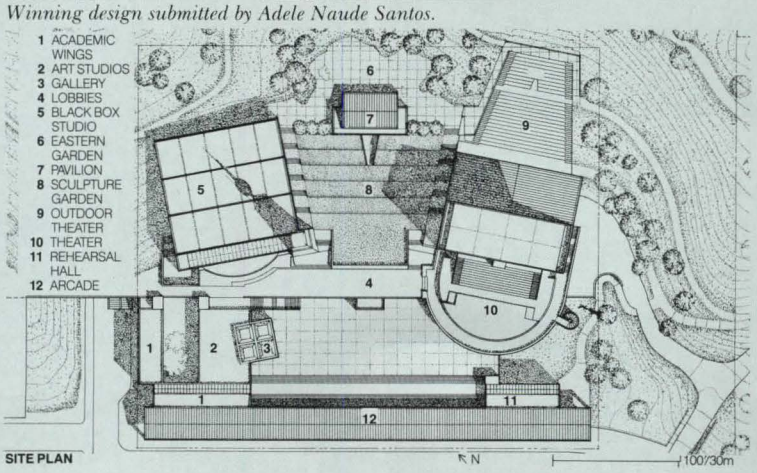


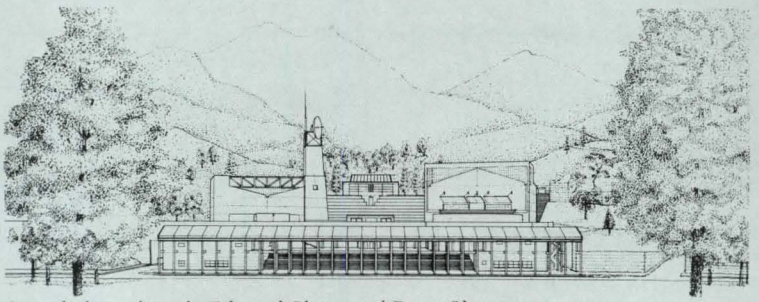
Sketches of the winning scheme (top to bottom): main entrance, trellised court in academic wing, main theater entrance.





Winning design submitted by Adele Naude Santos.





Second-place scheme by Edmund Chang and Roger Sherman.

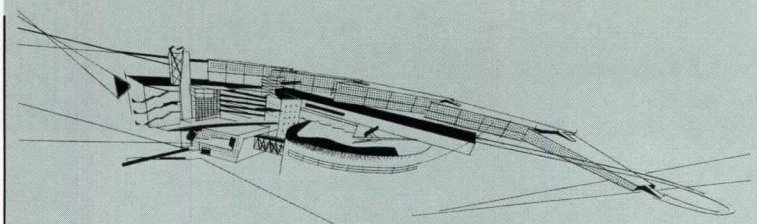
Hawaii Loa College Competition

Two principal challenges faced participants in this open competition for a college arts complex: how to bring order to a facility demanding volumes of varied shapes and scales; how to respond architecturally to a location dominated by natural spectacle. Although the site itself is undramatic, it faces south toward the angular cliffs of the Nuuanu Pali—a hard formal composition to compete with.

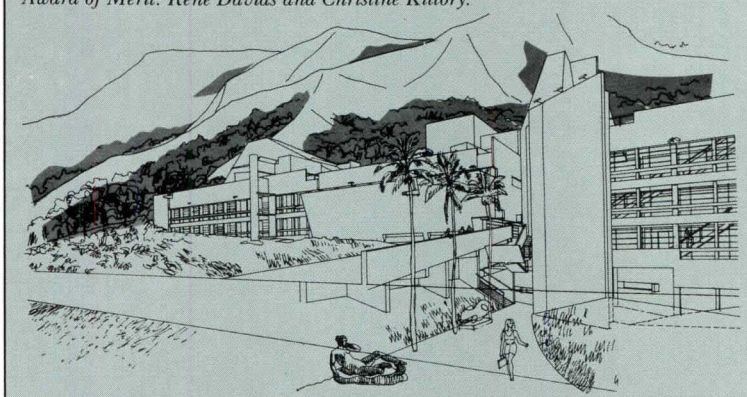
When the 430-student college began planning this center for visual and performing arts and electronic media (which will also serve as an arts facility for its district of Oahu and a media center with international links), the need was clear to exceed the humdrum design standards of both campus and locality. With support from the National Endowment for the Arts, the college launched this competition; Vision, Inc., of Cambridge, Mass., managed the competition, with architect Michael Robinson of Vision serving as advisor. The jury was chaired by Michael Pittas of Los Angeles and included architects Arata Isozaki of Tokyo, John Andrews of Sydney, and John Hara of Honolulu, as well as John Morris Dixon of P/A, and Philip Bossert, president of the college.

The program called for 78,934 square feet of building and 27,500 square feet of programmed outdoor facilities. Besides a 500-seat theater, it includes an outdoor theater, to be usable in combination with it, and a black box studio for theater and TV production. It lists art studios, classrooms, an Oriental performance garden, a sculpture garden, and numerous auxiliary spaces with demanding proximities. The complexity of the problem was possibly too great for a two-board open competition; many of those who entered never got beyond the mechanics of the problem.

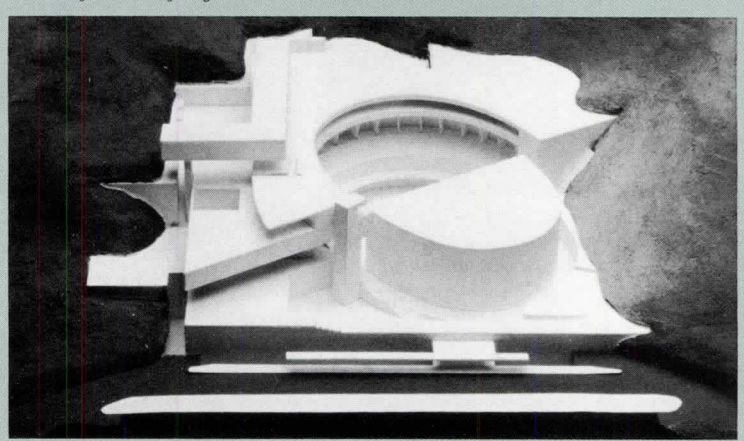
Winner of the $10,000 first prize—and the prospect of a commission—was an entry by



Award of Merit: René Davids and Christine Killory.



Award of Merit: Pfau-Jones/Holt & Hinshaw.



Award of Merit: UKZ, Inc.

Adele Naude Santos Architects of Philadelphia (in association with Atelier Mobile of Team Zoo, Japan). Here the diverse elements of the complex are dispersed on the bowl-shaped terrain to minimize their height and apparent bulk. Access from the roadway to the south is convenient, and an east-west pedestrian bridge ties the complex together and links it to the campus. Architectural forms are simple and sparsely delineated in the presentation.

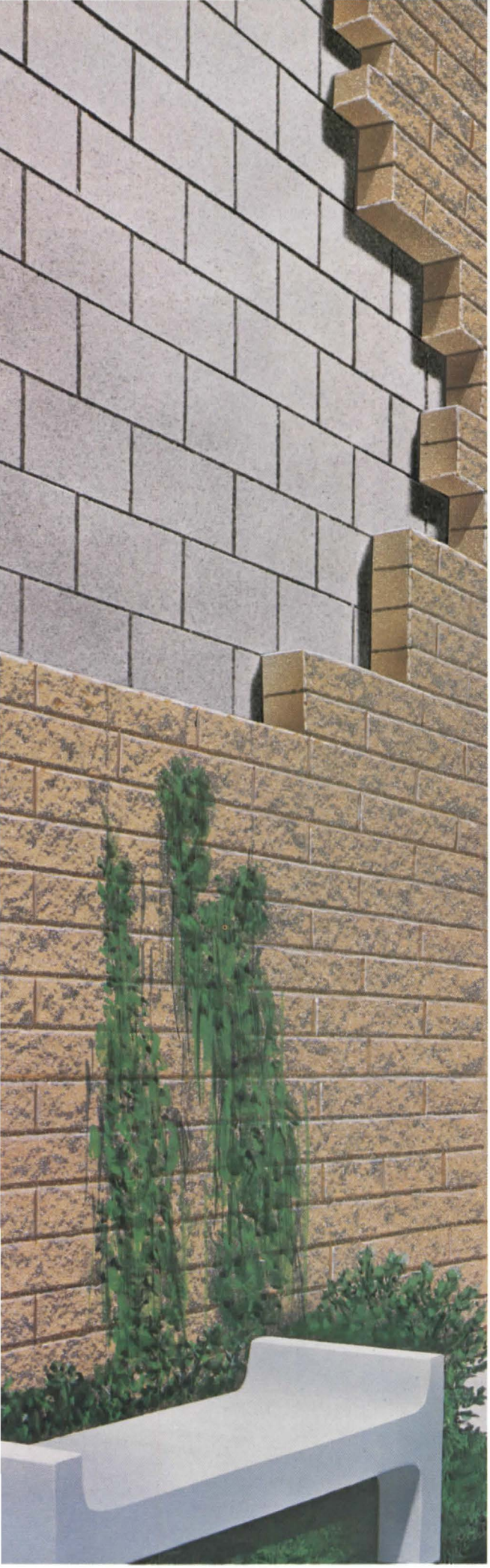
The second-place entry by Edmund Chang and Roger Sherman of New York showed how effectively the program could be housed in traditional building forms. Its two major theaters symmetrically flank an axial sculpture terrace capped by an Oriental performance pavilion. The 300-foot-long arcade through which the complex is entered from the south, and the extensive paved plaza it leads to, were considered too monumental for this situation.

Awards of Merit, unranked, went to three schemes. In the entry by René Davids and Christine Killory of London, sliverlike building forms were poised above the major volumes at angles, in a manner recalling projects of Zaha Hadid. Rooftops would be joined to form a sweeping helical path to a lofty viewing platform.

The scheme by Pfau-Jones/Holt & Hinshaw of New York was the most conventional of those honored, presenting a fairly solid flank of multistory volumes—in their words, "a dam"—to the approach road.

In the design submitted by UKZ of Ithaca, N.Y. (now of Yonkers, N.Y.), the main theater is given a prominent cylindrical form, backed up by an exactly corresponding cylindrical open space for the outdoor theater. Other facilities are packed in at the base of the slope, using the outdoor theater space for light and view, with gardened rooftops forming a vast viewing platform. Though conceptually strong, this scheme seemed too compact for this climate.

Although the overall level of entries was not high, these five gave the jurors solid bases for debate—and some tough choices. ***John Morris Dixon*** ■

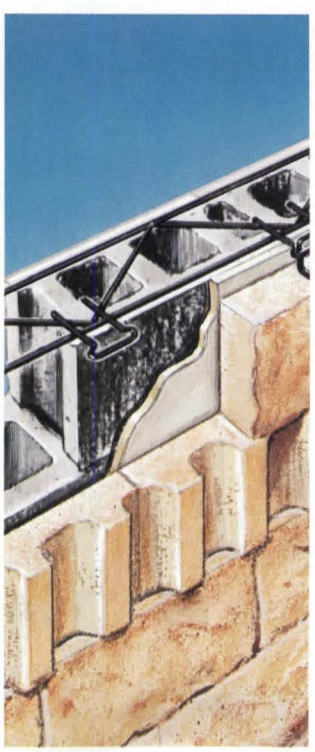


Here's a wall for the ages. a split face concrete masonry veneer, backed up with regular block units.

Discover the Concrete Masonry Advantage

of the hidden guardian: The concrete masonry backup wall system– structurally strong, weather-proof, firesafe, energy efficient, flexibility of design.

You're looking at the best, the most versatile wall system going. Time-tested for over seventy years, the block backup wall system delivers concrete masonry's legendary economy, speed of construction and much more.



An insulated concrete masonry cavity wall under construction.

Structural Integrity: Proven history of successful performance in structural applications in countless buildings.

Moisture Resistance: One of the most important properties of concrete masonry backup walls is resistance to moisture penetration.

Energy Conservation: The mass of concrete masonry provides outstanding energy saving which holds down the cost of heating and cooling and increases comfort by moderating interior temperature variations.

Noise Control: Concrete masonry has built-in sound control which is particularly important in the construction of multi-family housing.

Fire Safety: Concrete masonry simply cannot burn and stops the spread of fire instead of contributing to the combustibility fueled by other types of building materials.

Aesthetics: By designing the outer wythe in concrete masonry veneer units, the result is a structural wall of great beauty and integrity.

Check our insert in Sweet's catalog.

Circle **No. 357** on Reader Service Card

NATIONAL CONCRETE MASONRY ASSOCIATION

Marketing Department
National Concrete Masonry Association
P. O. Box 781
Herndon, Virginia 22070

Send me further information on the concrete masonry backup wall system.

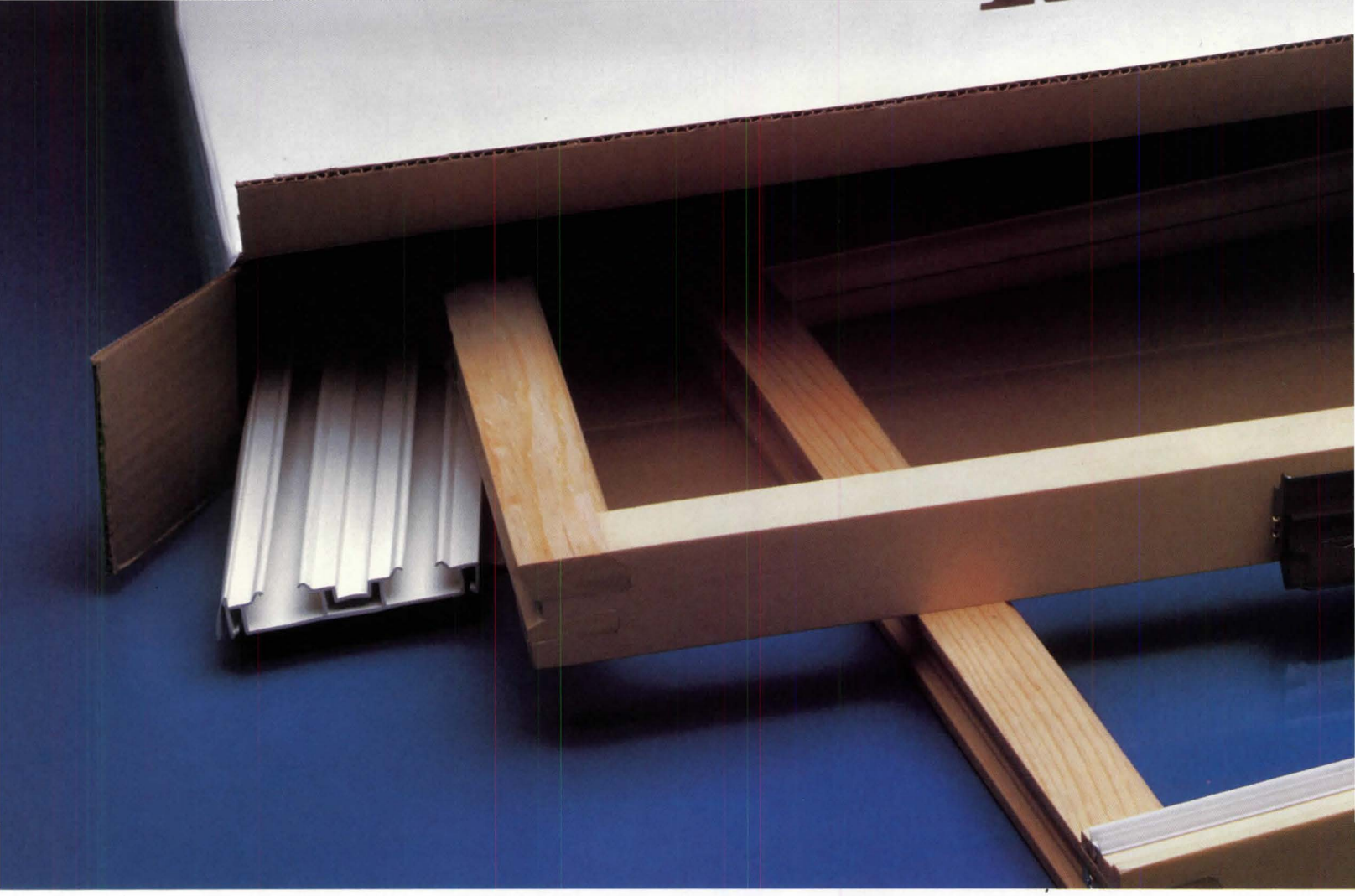
Name _____

Firm Name _____

Address _____

City _____ State _____ Zip _____

Phone _____



WHY YOU SHOULD BUY A WINDOW THAT'S MISSING SOME PARTS.

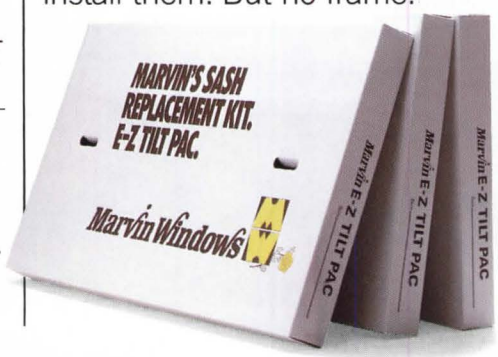
When you pull our newest window out of its carton, you'll be quick to notice that its frame and casing are missing.

We didn't just forget them. We left them out to save you money.

INTRODUCING E-Z TILT PAC, THE SASH REPLACEMENT KIT FROM MARVIN WINDOWS.

We discovered that, although the sash in many old windows are worn out, the frames and trim are often in good condition. So we designed a kit that lets you replace only the sash.

The E-Z Tilt Pac includes two energy-efficient wood sash and all the hardware you need to install them. But no frame.



You pay only for the sash. Not the whole window.

THE E-Z TILT PAC SAVES ENERGY.

Like all Marvin Windows, the sash are made of fine-grained Ponderosa pine. This wood was chosen for its excellent insulating properties and the way in which it accepts a stain-and-varnish, or paint, finish.

High quality weatherstripping minimizes drafts. And double glazing further reduces energy losses.

THE E-Z TILT PAC SAVES TIME.

Since you keep the original frame and trim, you can install an E-Z Tilt Pac in far less time than a whole new window. It's this easy:

1. Carefully remove the old inside stop and sash.
2. Nail the Tilt Pac clips to the frame and snap the jamb liner into place.
3. Slide the new sash into place.
4. Replace the original inside stop.

(Complete installation instructions are included in every kit.)

The E-Z Tilt Pac will save you time window cleaning, too.

The sash offer Marvin's E-Z Tilt feature. They tilt into the room for easy cleaning. Or they can be quickly removed. So you can clean them inside and out safely. And easily.

WE'VE REPLACED LONG DELIVERY DELAYS, TOO.

Marvin has the best delivery system in the business. We can ship your E-Z Tilt Pac kits within two or three weeks from the time we receive your order. That's even true of special sizes.

For more information, write Marvin Windows, Warroad, MN 56763. Or call 1-800-346-5128. In Minnesota, call 1-800-552-1167.

PA 30693

Send to: Marvin Windows
Warroad, MN 56763

Name

Company

Address

City

State Zip

MARVIN WINDOWS ARE MADE TO ORDER.

P/A Calendar

Exhibitions

Through March 29
The Architecture of Frank Gehry. Contemporary Arts Museum, Houston, Texas (P/A, Oct. 1986, pp. 69–101).

Through April 4
Building/Garden, Garden/Building. Galleria, Portland, Oreg.

Through April 5
Modern Jewellery—the Cleto Munari Collection (works by Ettore Sottsass, Hans Hollein, Peter Shire, Cesar Pelli, Robert Venturi, and others). Musée des Arts Decoratifs de Montreal, Montreal.

Through April 6
The Imagined Cities: An Italian Voyage. Nine Projects for Nine Cities. Palazzo della Triennale, Milan, Italy.

Through April 26
Ornamental Architecture Reborn: A New Terra Cotta Vocabulary. Purdue University, West Lafayette, Ind.

Through April 26
Crystal Palaces. Cooper-Hewitt Museum, New York.

Through April 26
Frank Lloyd Wright and the Johnson Wax Buildings: Creating a Corporate Cathedral. Grand Rapids Art Museum, Grand Rapids, Mich. Also, **May 12–July 19,** Cooper-Hewitt, New York.

Through May 24
The Golden Age of Ottoman Architecture: Sinan, Sultan Suleyman's Court Architect. The Octagon Museum, Washington, D.C.

Through May 31
The Art that is Life: The Arts and Crafts Movement in America 1875–1920. Museum of Fine Arts, Boston.

Through June 9
Gaudi in Context: Building in Barcelona, 1873–1926. Cooper-Hewitt Museum, New York.

Through July 19
American Decorative Window Glass, 1860–1890: The Home as Heaven Below. National Building Museum, Washington, D.C.

Through July 31
New and Different: Home Interiors in 18th-Century America. Museum of American History, Smithsonian Institution, Washington, D.C.

March 5–June 7
Le Corbusier: Architect of the Century. Hayward Gallery, South Bank Centre, London.

March 12–May 3
Tokyo: Form and Spirit. San Francisco Museum of Modern Art, San Francisco (See P/A, June 1980, p. 24).

March 23–June 28
The Function of Ornament: The Architecture of Louis Sullivan. Cooper-Hewitt, New York (see P/A, Sept. 1986, p. 23).

April 4–June 28
The Machine Age in America 1918–1921. Museum of Art, Carnegie Institute, Pittsburgh, Pa. (See P/A, Nov. 1986, p. 110).

April 11–July 17
Interlacing: The Elemental Fabric, curated by Jack Lenor Larsen. American Craft Museum, New York.

April 11–July 20
Die Revision Der Moderne: Postmodern Architecture 1960–1980. Williams College Museum of Art, Williamstown, Mass.

April 13–May 25
Decorative Brickwork: Instant Style for New & Old. Glen-Gery Brickwork Design Center, Washington, D.C.

April 17–July 26
American Art Deco. Renwick Gallery, Smithsonian Institution, Washington, D.C.

April 21–May 23
Room in the City, proposals for tenament housing in New York. The City Gallery, New York.

May 28–June 26
The Art of Tall Building. Gallery at the Old Post Office, Dayton, Ohio.

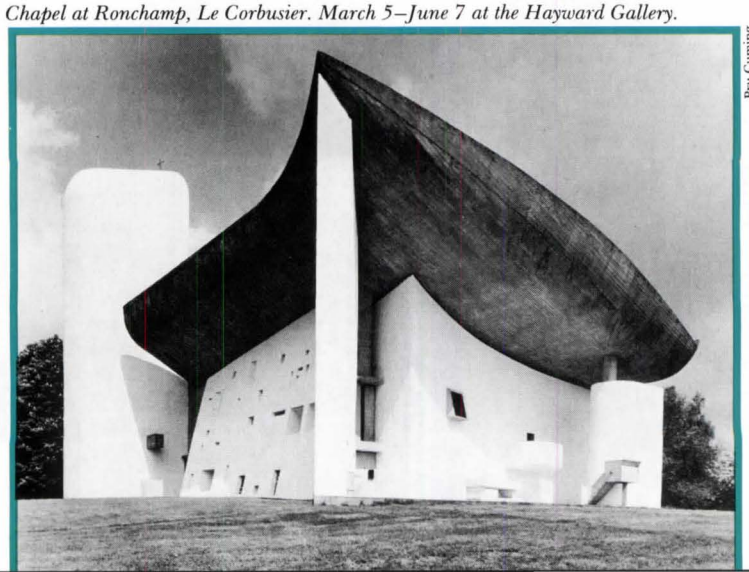
Competitions

March 31
Deadline, AIA Architectural Photography Competition. Contact St. Louis Chapter AIA, 911 Washington Avenue #225, St. Louis, Mo. 63101-1203 (314) 621-3484.

April 1
Deadline, Ninth Annual Innovations in Housing Design Competition. Contact Innovations in Housing, P.O. Box 11700, Tacoma, Wash. 98411 (206) 565-6600.

April 1
Deadline, "Give Them Shelter, It's Not for Everyone," Bomb Shelter design competition. Contact Competition Coordinator, ADPSR, Northern California Chapter, 120 Howard St., Suite B-726, San Francisco, Calif. 94105 (415) 775-2242.

Chapel at Ronchamp, Le Corbusier. March 5–June 7 at the Hayward Gallery.



Pru Cuming

April 30
Application deadline, AIA/SUNSET Magazine Western Home Awards Progam. Contact AIA/SUNSET Magazine, P.O. Box 2345, Menlo Park, Calif. 94025 (415) 321-3600.

May 1
Deadline, Du Pont Hypalon Excellence in Architecture Awards. Contact Bill Onderick, Du Pont Company, External Affairs Department, Wilmington, Del. 19898 (302) 774-9471.

May 15
Deadline, Second Annual Hardwood Flooring Design Competition. Contact Kentucky Wood Floors, P.O. Box 33276, Louisville, Ky. 40232 (502) 451-6024.

June 1
Deadline, Work Space Design Competition. Contact LIMN Company, 821 Sansome St., San Francisco, Calif. 94133 (415) 397-7471.

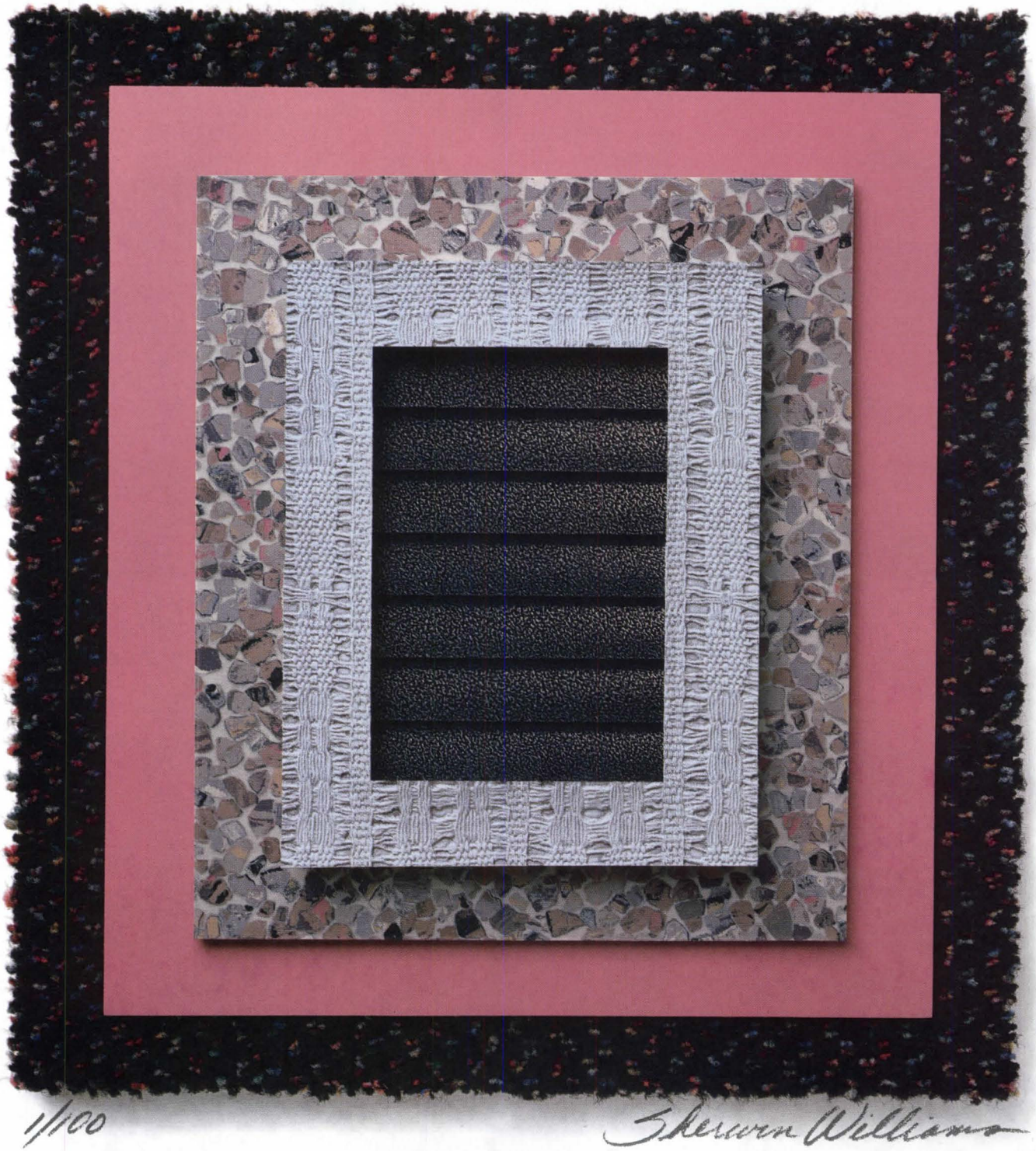
June 15
Deadline, ACSA/General Motors Interdisciplinary Design Research Competition. Contact Daphne Scott, The Association of Collegiate Schools of Architecture, 1735 New York Ave., N.W., Washington, D.C. 20006 (202) 785-2324.

June 15
Deadline, East Meets West in Design. Contact East Meets West, P.O. Box 974, Rockefeller Station, New York, N.Y. 10185 (212) 586-6314.

June 15
First application Deadline, Fulbright Scholar Awards. For program details contact Council for International Exchange of Scholars, 11 Dupont Circle N.W., Washington, D.C. 20036-1257 (202) 939-5401.

June 19
Deadline, Town of Leesburg Design Competition. Contact Competition Project Director, Town of Leesburg, 15 West Market St., P.O. Box 88, Leesburg, Va. 22075 (703) 777-2420.

(continued on page 59)



Unlimited Editions.

Color from Sherwin-Williams, the color expert. Unlimited choices in paint, floorcovering, wallcovering, and window treatments. As a member of the Color Marketing Group, we keep up-to-date on the newest color trends and incorporate them into our products. Which makes it easy for you to select the newest trends. All readily available through our national network of 1,700 stores. For expert assistance, call **1-800-321-8194** (in Ohio, 1-800-362-9181).

SHERWIN WILLIAMS

Ask Sherwin-Williams.
Architects Do.

Circle **No. 371** on Reader Service Card

The Advantage Of Being A Little Less Bright.

For a long time, reflective glass has been one of the brightest ideas around. But lately, architects and builders have been asking for a glass with a lower reflectance. So PPG created SOLARBAN® 565. The new high-performance glass with an outdoor reflectance of only 7-14%, virtually the same as clear glass.

SOLARBAN 565 is one of the least reflective glass products that PPG makes. So, you can literally use it anywhere.

Even though SOLARBAN 565 is less bright, it's never boring. You have your choice of four gemstone colors to play with: (from top) Honey Opal, Verdelite, Citrine Quartz and Sunstone. And with that many options, you'll have no trouble creating stunning exteriors everyone can enjoy.

There's another side to SOLARBAN 565, too. Versatility. You can use it in Twindow® units, monolithic vision and spandrel applications, laminated glass and structural silicone glazing.

SOLARBAN 565—the newest addition to the SOLARBAN family of high-quality, high-performance coated glass from PPG. A world leader in advanced glass technology. If you'd like to know more about it, write: PPG Industries, Inc., Glass Advertising, CG29, P.O. Box 8727, Harrisburg, PA 17105.

PPG

Circle **No. 359**

Conferences

March 22–27
American Concrete Institute Annual Convention, San Antonio, Texas. Contact Convention Dept., ACI, P.O. Box 19150, Detroit, Mich. 48219 (313) 532-2600.

March 25–27
WESTWEEK '87, Pacific Design Center, West Hollywood, Calif. Contact James Goodwin, Director Marketing Communications, Pacific Design Center, 8687 Melrose Blvd., West Hollywood, Calif. 90069 (213) 657-0800.

March 31–April 2
American Institute for Design and Drafting 27th Annual Convention and Technology Exposition, Sheraton St. Louis Hotel, St. Louis. Contact AIDD, 966 Hungerford Dr., Suite 10B, Rockville, Md. 20850.

April 6–10
1987 European Conference on Architecture, Munich. Contact Conference Organizer, H.S. Stephens & Associates, Agriculture House, 55 Goldington Rd., Bedford MK40 3LS England.

April 9–12
The Wright People (Speakers: Vincent Scully, Edgar Kaufman Jr., and others), College of Architecture and Urban Planning, University of Michigan, Ann Arbor, Mich. Contact University of Michigan Conference Department, 200 Hill St., Ann Arbor, Mich. 48104.

April 10–12
People and Architecture: Is Anyone in There? Eighth Annual Monterey Design Conference, Monterey Sheraton Hotel. Contact California Council, American Institute of Architects, 1303 J St., Suite 200, Sacramento, Calif. 95814 (916) 448-9082.

April 16–17
8th Conference on Roofing Technology, Gaithersburg, Md. Contact National Roofing Contractors Association, One O'Hare Center, 6250 River Rd., Rosemont, Ill. 60018 (312) 318-6722.

April 25–26
Corrosion of Artistic Works & Historic Structures, Massachusetts Institute of Technology, Cambridge, Mass. Contact Technology & Conservation, One Emerson Place, Boston, Mass. 02114 (617) 227-8581.

April 29–May 2
National Wood Flooring Association Annual Convention, Marriott Pavilion, St. Louis, Mo. Contact Bonnie Holmes, 2714 Breckenridge Industrial Court, St. Louis, Mo. 63144.

May 2–10
National Roofing Week. Contact The Asphalt Roofing Manufacturers Association, c/o Sumner Rider & Associates, 355 Lexington Ave., New York, N.Y. 10017 (212) 661-5300.

May 6–8
World Exposition of Ceramic Tile and Bathroom Furnishings, Los Angeles Convention Center, Los Angeles. Contact The Siesel Company, 845 Third Ave., New York, N.Y. 10022 (212) 759-6500.

May 6–10
Scandinavian Furniture Fair, Bella Center Exhibition Hall, Copenhagen, Denmark. Contact Gura Public Relations, 156 Fifth Ave., New York, N.Y. 10010 (212) 807-6860.

May 11–13
Lighting World International, Jacob K. Javits Center, New York. Contact National Expositions Co., 49 W. 38th St., New York, N.Y. 10018 (212) 391-9111.

May 29–June 2
Environmental Design Research Association Conference, Ottawa, Canada. Contact Conference Secretariat, 275 Bay Street, Ottowa, Canada K1R 5Z5 (613) 232-8228.

June 1–4
RETSIE/IPEC 87, The Renewable Energy Technologies Symposium & International Exposition/The International Power Exhibition & Energy Conference, Anaheim Convention Center, Anaheim, Calif. Contact TMAC, 945 Front St., Suite 106, San Francisco, Calif. 94111 (415) 398-4800.

June 9–12
NEOCON, The Merchandise Mart and Expocenter, Chicago, Ill. Contact Exhibit Manager, Expocenter/Chicago, 350 N. Orleans St., Chicago, Ill. 60654 (312) 527-7633.

June 19–22
Architecture '87: Fact, Future + Fantasy, American Institute of Architects 1987 Annual Convention, Orlando, Fla. Contact Jim Ellison, AIA, American Institute of Architects, 1735 New York Ave., N.W., Washington D.C. 20006 (202) 626-7347.

June 23–26
A/E/C Systems '87 and DesCon '87, Washington D.C. Convention Center, Washington, D.C. Contact Conference Director, P.O. Box 11318, Newington, Conn. 06111 (800) 445-7790.

Maximum output.

Introducing the only reader/printer you may ever need.

The multitalented NP 780 may be the only universal dry plain paper reader/printer you'll ever need. Superb optics, highly automated microcomputer controls, and plain paper convenience make the advanced NP 780 a model of efficiency—for low- or high-volume production.

It even knows black from white.

The innovative NP 780 can automatically remove unnecessary borders from prints by using its intelligence to find the edge of an image. Using the automatic border erasure function, now you can produce easy-to-read prints, that are close to original size, without all that black border. And you'll save on toner consumption.

Define your own borders.

The unique NP 780 also lets you control the image printing area by simple digital entry on its control keyboard. You can eliminate unwanted borders. *And* mask out unneeded information from your prints with just a few simple commands.

Control keyboard

A knack for back-to-back.

With the revolutionary NP 780, you can have pushbutton control over printing formats. Print side-by-side images displayed on the screen on two separate sheets. Also available is a special book format function to print images back-to-back on one sheet.

Positively simple.

The versatile NP 780 gives you bi-modal capability by fingertip control. Simply select the mode and the NP 780 can print positive images from either positive or negative film. A great help when you're handling different type of films.

Versatile worker.

It produces crisp, clear plain paper copies as fast as 20 prints a minute—the fastest on record. And dual 250-sheet paper cassettes plus an optional 1,000 sheet paper deck let you select paper sizes from statement size to 11″ x 17″. Add to that the NP 780's wide array of film carriers; and you've got a versatile machine that lets you print from just about any format, fast.

Image maker.

The NP 780 also lets you keep a sharp image. The superb array of lenses, from 7X to 53X, plus three zooms, and automatic exposure control help you get high image quality.

The Canon NP 780: Maximum output with minimum fuss.

For more information, check the Yellow Pages for your nearest authorized Canon dealer. Or call toll-free 1-800-453-9000, and ask for Canon Micrographics.

Canon U.S.A., Inc., Micrographics Division
P.O. Box 619865, D/FW Airport, TX 75261
☐ Please send me more information on the NP 780.
☐ Please send me information of the full line of Canon micrographics equipment.
☐ Please have a salesperson contact me.

NAME
TITLE
COMPANY
ADDRESS
CITY
STATE ZIP
TELEPHONE PA0387

Canon

Enjoy easy extended payments with the Canon Credit Card. Ask for details at participating Canon dealers and retailers. Available only in U.S.

Canon MICROGRAPHICS READER PRINTER NP780

Canon U.S.A., Inc., New York Office/Headquarters: One Canon Plaza, Lake Success, NY 11042 Atlanta Office: 5625 Oakbrook Parkway, Norcross, GA 30093 Chicago Office: 100 Park Blvd., Itasca, IL 60143 Dallas Office: 3200 Regent Blvd., Irving, TX 75063 Los Angeles Office: 123 Paularino Avenue East, Costa Mesa, CA 92626 Canon Government Marketing Center: 5701 General Washington Drive, Alexandria, VA 22312
Canon Canada, Inc., Headquarters: 6390 Dixie Road, Mississauga, Ontario L5T 1P7 Calgary Office: 2828 16th Street, N.E., Calgary, Alberta T2E 7K7

Circle **No. 318** on Reader Service Card

P/A Practice

Law: Norman Coplan discusses liability in relation to the AIA's new Code of Ethics.
Computers: Nicholas Weingarten argues that computers can help unite the design disciplines.
Specifications: William Lohmann talks about becoming a specifier.

Law: AIA Code of Ethics

The ethical standards of practice for the architectural profession have traditionally been established by the AIA. However, for a period of several years prior to 1987 under the antitrust strictures of the United States Department of Justice, no code of ethics was in effect. This void was filled on January 1, 1987, by the Institute's adoption of a new Code of Ethics and Professional Conduct. Although only members of the AIA are subject to this code, the adoption of ethical standards will have an effect upon all architects, whether or not they are members.

The Code is divided into Canons, Ethical Standards, and Rules of Conduct. The Canons set forth broad principles of conduct; the Ethical Standards describe specific goals to be achieved in professional performance and behavior; and the Rules of Conduct define mandatory requirements, the violation of which will support disciplinary action.

Two of the Canons relate to the general obligations of architects and their obligations to clients. The Canons state that architects should maintain and advance their knowledge of the art and science of architecture, that the exercise of uncompromised professional judgment should take precedence over any other motive, and that members should serve their clients competently and in a professional manner and should exercise unprejudiced judgment on their behalf. Under these broad principles, the Code contains mandatory requirements relating to the competence of a practicing architect. One rule states that an architect shall demonstrate "a consistent pattern of reasonable care and competence in practicing his profession" and shall apply such knowledge and skill "which is ordinarily applied by architects of good standing practicing in the same locality." A second rule provides that an architect "shall not undertake to provide professional services if his competence is substantially impaired by physical or mental disabilities." A third rule states that architects "shall undertake to perform professional services only when they, together with those whom they may engage as consultants, are qualified by education, training, or experience in the specific technical areas involved."

Before these rules were adopted, some objection was made to a Code dealing with the subject of competence on the ground that it could expand the potential liability of architects in the practice of their profession. As now supported by the Code, for example, a claim of negligent performance may be based upon the premise that the architect did not have sufficient qualification by training or experience to handle a particular project. Although the intention of the Institute in formulating these rules was to insure that members not undertake projects that are beyond their professional capacity, the rules may be used to support liability claims and, therefore, affect all architects.

A third Canon deals with the architect's obligation to the public, and provides that the architect "should thoughtfully consider the social and environmental impact of his professional activity." Under this Canon, there are mandatory rules prohibiting an architect from knowingly violating the law; from making or offering to make any payment or gift to a local, state, or federal official with the intent of influencing that official's judgment; from engaging in any conduct involving fraud; and from counseling or assisting a client in conduct that the architect knows, or reasonably should know, is fraudulent or illegal. This Canon also deals with a subject that is quite troublesome to the practicing professional: what action architects should take when the client, in a project, is violating a law or regulation that may adversely affect the safety of the public.

(continued on page 65)

Computers: Myths and Design Reality

Science and technology, while often employed in the realization of design, have often been suppressed from the art of the design process itself. This is well demonstrated by the profession's use and misuse of computer-aided design. The myths to which the architectural community has succumbed, and in some cases perpetrated itself, have done great harm to both the process of design and the work that results. It is time for all ofus to confront the computer on its own terms. The architect who refuses, fearing encroachment upon the design process, has abdicated control to those that might understand the machine, but not its intent.

Automating an architectural practice is a difficult, costly, and time-consuming process, and, unfortunately, the need to automate usually comes when one or more of these necessary processes is in short supply. The firm with too much work will have no time to train and absorb the lessons of computer-aided design. The firm with too little work will have insufficient means to invest hard capital in computer hardware. No outside expertise will save the professional who ignores this dilemma, and none

(continued on page 62)

Specifications: Becoming a Specifier

Specification writing has always been a career option in architecture. In the past, however, the role of specifier (and specifications) was difficult to define. Specifications were often prepared by whoever was not busy at the time. The line between information on drawings and in specifications was fuzzy, to say the least. Information management was unheard of. No real connection had been made between documentation, liability, and professional responsibility.

(continued on page 67)

Computers *(continued from page 61)* can really evaluate the risk in his or her place.

The Cult of Productivity

To back their recommendations for computerization, the experts have always cited outrageous productivity figures. CAD systems have been credited with productivity increases of two, three, and even ten times. But productivity followed the computer into the architect's vocabulary, and suspicion should be cast upon requirements that are preceded by solutions. In fact, prior to the late 1970s there was little, if any, talk about increasing the productivity of the design office. Productivity referred only to quantity, not quality, and it was felt that an architect succeeded on the strength of previous work, not the number of drawings produced per hour.

For some reason, that impression has changed, and curiously, this has occurred just as the business community has reached a state of disenchantment with its version of computerized productivity: office automation. For example, a recent issue of *Fortune* states that, despite a nationwide investment in the billions of dollars, "so far productivity has grown more slowly in the computer age than it did before computers came into wide use."[1]

The problem is that many consider the design process as separate and distinct from the communication of the design (i.e., the creation of presentation and contract documents). We assume that speeding up the latter will allow more time to be devoted to the former. As John Busby, Jr., the president of the AIA, comments, "Consider the consequences of delivering over to the computer those routine non-design tasks that currently eat up so much of a firm's time and energy. Liberating what by some estimates is 80 percent of a firm's effort and channeling that energy into the creative, decision-making part of a project is bound to improve productivity."[2] In fact, it will do just the reverse. The elevation of such a large proportion of a firm's staff into "decision-making" roles will increase the time it takes to make decisions, enlarge the salary expenditure of the firm, and, therefore, lower its productivity. This effect is best summarized by Brooks's Law, "Adding manpower to a late software (read design) project makes it later."[3]

The myth of productivity gains must be replaced by the concept of enhanced communication and improved quality. We must reevaluate what it is we, as designers, do and how we do it. As the *Fortune* article reports, "Automating office tasks rarely leads to substantial savings. The large payoffs come not from increasing the efficiency with which people perform old jobs, but from changing the way work is done." It is time to admit that simply shortening the drafting cycle will not add time to the design phase; indeed, lower fees instead may substantially shorten design time.

Standardization of Repetition

Productivity estimates are often derived by examining the degree of repetitive drafting in an architectural office. The implication is that the computer can be used to endlessly repeat standardized details and other items previously drawn by hand. This myth is detrimental on two counts. First, in architectural design, this "problem" is already addressed by a long tradition of avoiding repetition through a variety of drafting conventions. In addition, techniques such as overlay drafting and "sticky-back" details have long been available to those who felt the need to use them. Using a computer to automate such techniques, especially for the office not already familiar with them, is an expensive and risky proposition.

Second, the enshrining of repetition has caused many to oppose computers out of fear that they will lead to the mass production of repetitive and monotonous forms. Exactly the opposite has occurred in every design discipline undergoing automation. In manufacturing, the computer has permitted retooling to take place on an item-by-item basis, in clothing design it is allowing custom sizing, and in the electronics industry it is greatly responsible for the increase in custom-designed chips and circuit boards.

The need for repeated changes in the design process is also used to justify computerization. While the computer's ability to help increase the number of solutions to a given problem is often beneficial, it is difficult to measure its true value. Do multiple answers improve the quality of a solution, or just obscure the correct choice? There is a very clear distinction between the advantages of improved quality and the seductive nature of the computer to expand quantity. As *Fortune* explains, using the advent of word processing as an example, "Doing an additional draft or two beyond what would have been done in the typewriter era may achieve gains in quality—more effective letters, more readable reports—but the number of drafts sometimes reaches double digits."

The argument for repetition, therefore, should be turned on its head. Our reliance on repetitive forms and motifs, while being derived partially from cultural and aesthetic biases, is often due to economic and time constraints. We should employ the computer to loosen those constraints rather than to reinforce them.

The Price of Low-Cost Hardware

There is much pressure upon architects to purchase CAD systems because advances in microelectronics are reducing the cost of computer hardware by an order of magnitude every few years. The unreported bad news is that user expectations are increasing at an even greater rate. This means that year by year, for a fixed sum of money, you will be able to purchase a significantly more powerful computer that will do somewhat less than you expected. This is referred to as the "exponential growth of expectations," and it is having an adverse effect on the way in which architects are perceiving computers.

As an example, ten years ago it was necessary, when discussing computer graphics, to lapse into analogies of painting on TV screens. Today, computer-animated films, commercials, and rock videos, not to mention personal computers and CAD advertisements, have made even novice users visually sophisticated. While the price of the graphics hardware needed to produce such images has dropped significantly, the average user's perceived needs have escalated to include features such as multiple scrolling windows, full color rendering and real-time motion. Today's price for such capabilities? About the same as the price for high-priced graphics a decade ago.

In this light, computer trade journals proposing that "you can now buy a PC CAD-capable hardware system for under $2500" are doing prospective purchasers of such systems a great disservice. They fail to mention that this sum will hardly buy what is commonly perceived as a PC-CAD system, and while $2500 sounds fine, seeing the screen without squinting will run another $4000, and digitizing anything larger than a note pad will cost an additional $3000. This does not even begin to cover plotting ($5000), RS-232 switches ($100), monitor stands ($100), cables ($200), backup floppies ($100), and software ($3000).

A few years ago, the exorbitant cost of computer hardware, and especially of computer graphics equipment, kept all but the most resolute user away from computer-aided design. This may have been a positive influence in that the dedication necessary to tackle the automation of a design office was (and still is) the single greatest factor in determining the success of such an endeavor. Back then, those that had the will to attempt computerization, by definition succeeded. This is no longer the case, and we have begun to see firms half-heartedly nosing their way into computers without the necessary commitment to make them succeed. In fact, the lure of low-cost hardware has misled many buyers into purchasing inadequate systems rather than consolidating their resources for entry at a more appropriate level. The ensuing user frustration, the many hidden costs, and the disappointment on the part of both managers and operators have created more unused CAD systems (dusty-CAD in computer jargon) than most are willing to admit. Therefore, the real effect of low-cost hardware may be an increase in the rate of implementation failures. And the price of failure is no trifling sum in anyone's book.

The Realities of Design

A recent article in *Computer Graphics World* pondered why architects had not embraced the computer as rapidly as other design professions. "On the whole," it stated with presumed authority, "architectural design and its supporting engineering and drafting applications are graphically less complex than electronics design."[4] In fact, just the opposite is true. No other design discipline deals with projects that encompass the range of scales, the number of elements, and the complexity of relationships. Nor do most other design professions require the degree of viewing control or color simulation (ever see a full-color rendering of a circuit board in architectural perspective?). Add to this the symbolic and cultural baggage that we haul around and how little control we exercise in the production and marketing of the items we design, and it is little wonder that we have found computer tools grossly in-

(continued on page 65)

Computers *(continued from page 62)*

adequate.

But architecture has itself to blame for the lack of proper design tools. If other disciplines are more successful at utilizing the potential of CAD, it is because they have devoted much more time and energy understanding that which they design and how they design it. They have prioritized their goals and have built tools to realize them. An old proverb states "A good workman is known by his tools." It is time for us to know our tools as well. To do this, we must see design as a universal experience and the computer as a means for sharing it.

Therefore, the true role of the computer in architecture, and the reason we should all welcome its arrival, is to break down the isolation of the design process: To allow us to discuss, on an even footing, the wishes of clients, the needs of society, the contributions of other design disciplines and the role of architects. As Nobel-laureate Herbert Simon states, "We have noticed the growing communication among intellectual disciplines that takes place around the computer. The ability to communicate across fields—the common ground—comes from the fact that all who use computers in complex ways are using computers to design or to participate in the process of design."[5] It is time for architects to ignore the myths and begin participating as well. ***Nicholas H. Weingarten*** ■

The author heads the computer consulting and software development firm of Weingarten Associates in Chicago.

1. Katharena Leanne Zanders, "The Puny Payoff from Office Computers," *Fortune,* May 26, 1986.
2. John A. Busby, Jr., "CAD Technology Demands Design Innovation," *Design Graphics World,* November 1986.
3. Frederick P. Brooks, Jr., *The Mythical Man-Month,* Addison-Wesley Publishing Company, 1975.
4. John Gantz and Richard Fichera, "PC's Revolutionize Architectural CAD," *Computer Graphics World,* August 1986.
5. Herbert A. Simon, *The Sciences of the Artificial,* MIT Press, 1969.

Law *(continued from page 61)*

This mandatory rule states that, if in the course of their work on a project, architects become aware of a decision taken by their employer or client against their advice that violates law or regulation and that, in their judgment, will materially affect adversely the safety to the public of the finished project, the architects shall "(a) refuse to consent to the decision, and (b) report the decision to the local building inspector or other public official charged with the enforcement of the applicable laws and regulations," unless the architects resolve the matter satisfactorily by other means. By specifically charging its members with the duty and responsibility of notifying the building department if their clients take action that may adversely affect the safety of the public, the Institute is mandating a course of conduct that would put at great risk an architect who fails to "point his finger at his client" if someone is eventually injured at the building site.

The Code also contains a Canon setting forth obligations of the members to the profession, stating as a general principle that members should uphold the integrity and dignity of the profession. The most significant mandatory rule under this Canon is the provision that "members shall not sign or seal drawings, specifications, reports, or other professional work for which they do not have direct professional knowledge or direct supervisory control." As stated by the Institute, the essence of this rule is that the seal of an architect should not be affixed to any professional work unless he intends to accept professional liability for its adequacy. This rule mirrors the efforts in many states to enforce the licensing and registration laws by preventing their circumvention by the unqualified through the use of the seal of a licensed professional. ***Norman Coplan, Hon. AIA*** ■

The author is a member of the law firm Bernstein, Weiss, Coplan, Weinstein & Lake, New York.

WHO

YOU:

Accountant, Banker, Baker, Traveling Salesman. Go-getter, Fast-tracker. They can all use the AT&T Card.

In fact, anybody who travels a lot can benefit from it. Because calling with the AT&T Card keeps you close to the people you need to talk to.

The AT&T Card will free you from coins and delays, give you an itemized record and AT&T's lowest rates for state-to-state calling, next to direct dialing. It costs less than calling collect, or making coin calls out-of-state. And you can use it to call almost anywhere in the world and to call home from many foreign locations.

So, if you travel a lot, get the AT&T Card and plug into the AT&T Long Distance Network. It's as simple as dialing

1 800 CALL ATT, Ext. 229.

AT&T

The right choice.

Specifications *(continued from page 61)*
Those functions had not yet focused on the specifier.

The times have changed. The field has been established, given credence through nationwide organizations, peer recognition, and the professional activities of many individuals. The Construction Specifications Institute (CSI) has grown by quantum leaps in recent years (now almost 10,000 professional members) and monitors a specifier certification program. Most large firms employ full-time salaried specifiers, who are often responsible for product research, library maintenance, computer systems, and quality control procedures in addition to specification writing. Many specification consultants are serving small to mid-size firms. Even the courts are placing greater emphasis on the role of specifications in construction disputes. After all, jury members (and judges) are probably more familiar with words than with drawings.

A decision to become a specifier is not made early or lightly. Because it is shadowed by the initial lure of architectural design and is in fact a specialty within the design process, specification writing is not presented to high school students as an ultimate career option. Some college students begin to think seriously about specifications but seldom as a result of any conscientious guidance by the teaching or counseling staff. Unfortunately, there is not much chance of learning more in school about specifications than the CSI Format, if that. An awareness of opportunities in the specifications field seems to grow after one has entered the workplace and realizes that all is not design. Certain aptitudes are desirable, but the real basis for making a decision is acquired mostly through work experience.

Whether they made a conscious decision to enter the field or simply drifted into it, most specifiers acknowledge several character traits, aptitudes, and work experiences that were obvious factors in the process. They tend to be methodical in their work habits and meticulous in response and follow-through on assignments. Obviously they have, or develop, the ability to write clearly and concisely. Because they must work with other people, they are usually good at verbal communication too. They are basically confident in their own knowledge and, for their survival, are honest with themselves about their shortcomings.

Work experience requirements are the primary reason that specifications will probably never become a degree path at school, although formal architectural education is itself one of the basic necessities. After all, an understanding of the design process in all of its nuances is essential. But the real work begins outside. Beyond college, three to five years of broad practical experience are a minimum requirement. A specifier's early background should include time at the drafting board (both architectural and engineering disciplines), field work with an architect or contractor, product and materials research, some computer applications, budget estimating, and client contact, however limited. The diverse exposures of a small office are especially useful. The actual techniques of specification writing vary among offices and can be acquired on the job.

Someone considering a career in specifications can also benefit from the sources of continuing education for the specifier. CSI has many related publications, including a "Manual of Practice," and a technical magazine devoted to construction communication. With over 130 CSI chapters in the United States, professional contact and guidance are also close at hand. The American Institute of Architects has a chapter on specifications in its "Handbook of Professional Practice." Seminars on specification writing, such as those frequently offered by CSI chapters and the University of Wisconsin (among others), are invaluable. So are several books on specifications and occasional articles in *Construction Specifier* and *Progressive Architecture* magazines.

The real satisfactions of becoming a specifier—team involvement, recognition, even a degree of respect—are worth the time that it takes to get there.

William T. Lohmann, AIA, FCSI ■

The author is Specifications Manager for Murphy/Jahn, Chicago.

Cold Spring Granite. Its beauty is its strength.

Kawneer 3200 DesignWall. Its strength is its beauty.

The grandeur of granite requires the strength of design integrity to maintain its lasting impression. And now, Cold Spring Granite and Kawneer have put the two together in a single curtainwall system engineered to retain its beauty through the years.

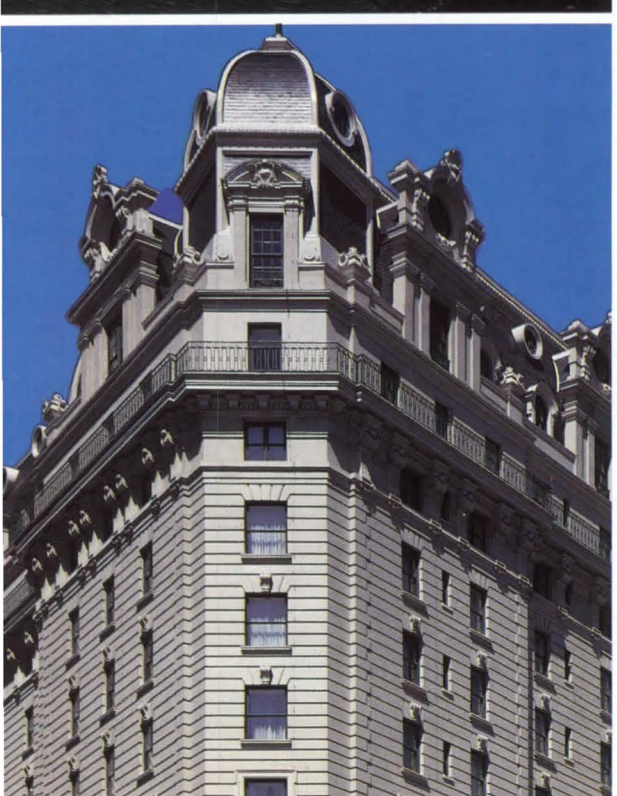
Kawneer 3200 DesignWall allows Cold Spring Granite panels to be installed in a clean, flush appearance. Structural silicone holds the vision glass to the aluminum curtainwall vertical mullions. And, the result is a high performance package with aesthetic appeal. (*Performance results are available on request.*)

Cold Spring Granite panels for Kawneer 3200 DesignWall are available in nine different and distinctive colors and three handsome finishes—polished, honed, and thermal.

Cold Spring Granite and Kawneer 3200 DesignWall. Put them together by contacting your Kawneer Sales Representative or writing:
The Kawneer Company, Dept. C,
Technology Park Atlanta, 555
Guthridge Court, Norcross, GA 30092

Kawneer
The Designer's Element

Circle No. 343



Washington's famous Willard Hotel is a masterful marriage of the classic and the new.

And a masterwork of custom Pella Windows.

It had been called the Unofficial White House. Crown Jewel of Pennsylvania Avenue. Center of Washington's political and social life. Then, in 1968, this enormous Second-Empire landmark closed. For 15 years, what remained of ebullient plaster cornices, intricate Italian floor tiles, scagliola columns and fine moldings swelled in steamy summers and shrank in winter chills.

Now the historic Willard Hotel has been gloriously restored as the Willard Inter-Continental. Matching it in form, detail and spirit, a new office and retail infill complex has been designed as a series of stepped pavilions. It stands behind a columned plaza to give Henry Hardenbergh's 1901 hotel center stage.

For this labor of love, nothing but the best would do. And, at the architect's insistence, that meant 1,675 custom Pella windows. For historic fidelity outside, wood beauty inside, and a lifetime of low-maintenance Pella quality.

Custom color, custom profile

Because of the hotel's historical significance, windows had to meet National Park Service approval for design, exterior profiles and installation details, with exterior cladding and vinyl jamb liners duplicating the original green trim color. Pella custom-finished the aluminum cladding in baked enamel that needs no painting.

Exterior glass-to-masonry profiles of the new units matched the original with special sash dimensions, various exterior jamb extensions and perimeter trim extrusions which Pella modeled after pieces of the original wood trim. This also compensated for endlessly variable masonry opening sizes.

Pella designed and built 1425 Traditional Double-hung (TD) units with insulating glass, including arch-tops with integral, clad muntins. Enormous fixed windows with venting casements above them match original 7x14′ double-hungs. From go-ahead until delivery, all window design, testing and manufacture took only seven months. The Pella distributor installed all windows in floor-by-floor sequence, right on schedule. A great benefit from a construction management standpoint.

New Large Double-Hung Window

About 300 openings at the Willard required nine-foot-tall double-hung windows in varying widths, with full Pella performance and structural integrity. The resulting Large Double-hung (LD) windows are now available in custom dimensions for your commercial projects. Clad LD windows are especially appropriate for landmark buildings, with authentic-looking aluminum exterior muntins and Pella's rotating sash for cleaning from indoors.

Your Pella distributor can tell you more. For information, look for Pella in the Yellow Pages under "Windows". Call Sweet's BUYLINE or see Sweet's General Building File. Ask about our Pella CAD library. Or send the coupon.

Please send me the latest literature on Pella for replacement and new construction.

Name _____

Firm _____

Address _____

City _____

State _____ Zip _____

Telephone _____

This coupon answered in 24 hours.

Mail to: Pella Windows and Doors, Commercial Division, Dept. T35C7, 100 Main Street, Pella, IA 50219. Also available throughout Canada.

Pella. The significant difference in windows.

Willard Inter-Continental
Owner/Developer
The Oliver T. Carr Company, Washington DC
Architect
The Office of Vlastimil Koubek, Washington DC
General Contractor
George Hyman Construction Company, Bethesda, Maryland

Pella®

Circle **No. 364**

BLUER THAN BLUE

The Genicom IBM compatible printers. More than IBM. For less.

Genicom has gone IBM® two better. Presenting the Genicom 3500 dot matrix series and 4500 line matrix series printers. Both 100 percent plug, panel and protocol compatible with IBM. And designed to work hand in hand with IBM 3270 cluster controllers or IBM 34/36/38 systems.

In fact, these printers are so true blue you could operate them with an IBM manual.

So what's the difference?

Plenty. The Genicom 3500s and 4500s are faster. And packed with more features. All for up to 40 percent less than what you'd pay for IBM. So why pay more for basic blue?

Printers That Beat The Blues.

If you're looking for speed and versatility in a reliable dot matrix printer, you can depend on the Genicom 3500 series.

Select from four models. And get printing at double the speed of IBM: up to 400 cps data processing and 120 cps letter quality.

Choose options like bar code printing. Alternate fonts. A cut sheet feeder. Even a 55 dBA extra quiet enclosure.

King of the Blues.

For heavy duty applications, the Genicom 4500 series is king. Fly through drafts at 800 lines per minute. Then, shift easily into high speed letter quality printing or high resolution graphics. And of course, Genicom offers a wide range of 4500 series options, including bar code printing.

Like all its products, Genicom stands by the 3500s and 4500s with an international service organization. Giving you the full support of America's largest independent printer manufacturer.

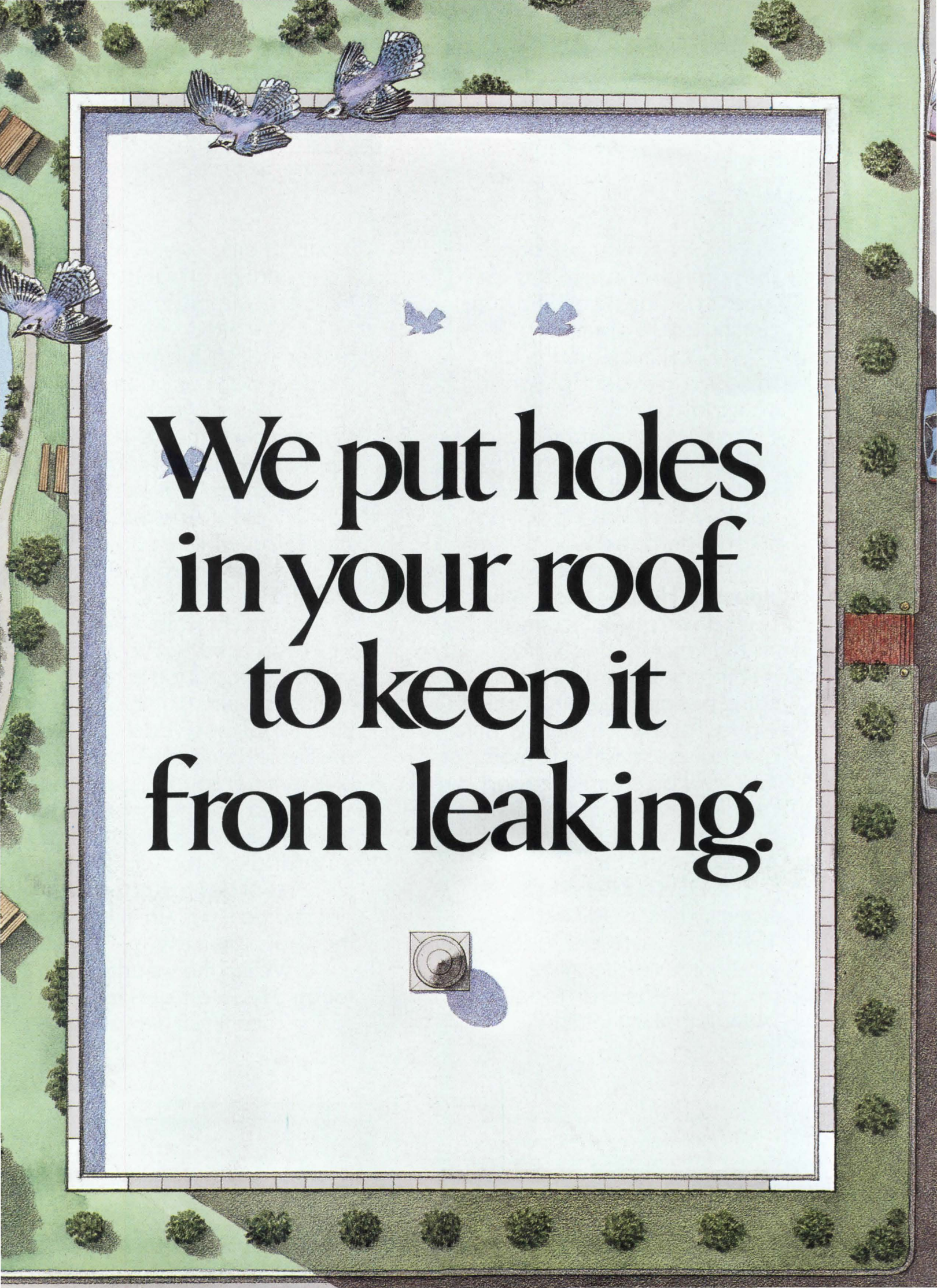
So, when it's time to choose the perfect printers for your IBM system, don't settle for second best. Color them bluer than blue with Genicom.

For more information, contact your nearby Genicom distributor. Or call 1-800-437-7468. In Virginia, call 1-703-949-1170.

GENICOM®
The Printers That Mean Business.
Genicom Drive, Waynesboro, VA 22980

Circle No. 004 on Reader Service Card

IBM is a registered trademark of International Business Machines Corporation.


We put holes
in your roof
to keep it
from leaking.

Generally speaking, the purpose of a roof is to keep what's outside a building from getting inside a building.

Which means the last thing you'd expect to want in your roof is a hole.

But that's exactly what we do with the most advanced single-ply roofing system you can buy. Put holes in your roof so it doesn't leak.

The mechanically-attached Hi-Tuff™ roof. What goes down doesn't come up.

To stick a single-ply membrane to the roof deck, some people use glue. Which works. For a while. But because glue can be sensitive to moisture, rooftop chemicals, and building expansion, the membrane can come unglued. And there goes the roof.

Others use ballast, or stones. Thing is, to keep a 100,000 square foot roof in place, you need a million pounds of stones on top of it. Now, is that something you want hanging over your head?

Which brings us to the Hi-Tuff roof from Stevens.

We attach the scrim-reinforced, Hi-Tuff membrane to the deck with corrosion-resistant fasteners. We cover the fasteners with the next layer of membrane. And then we fuse the two layers together with a hot air welder. The result is a single, roofwide sheet of rubber.

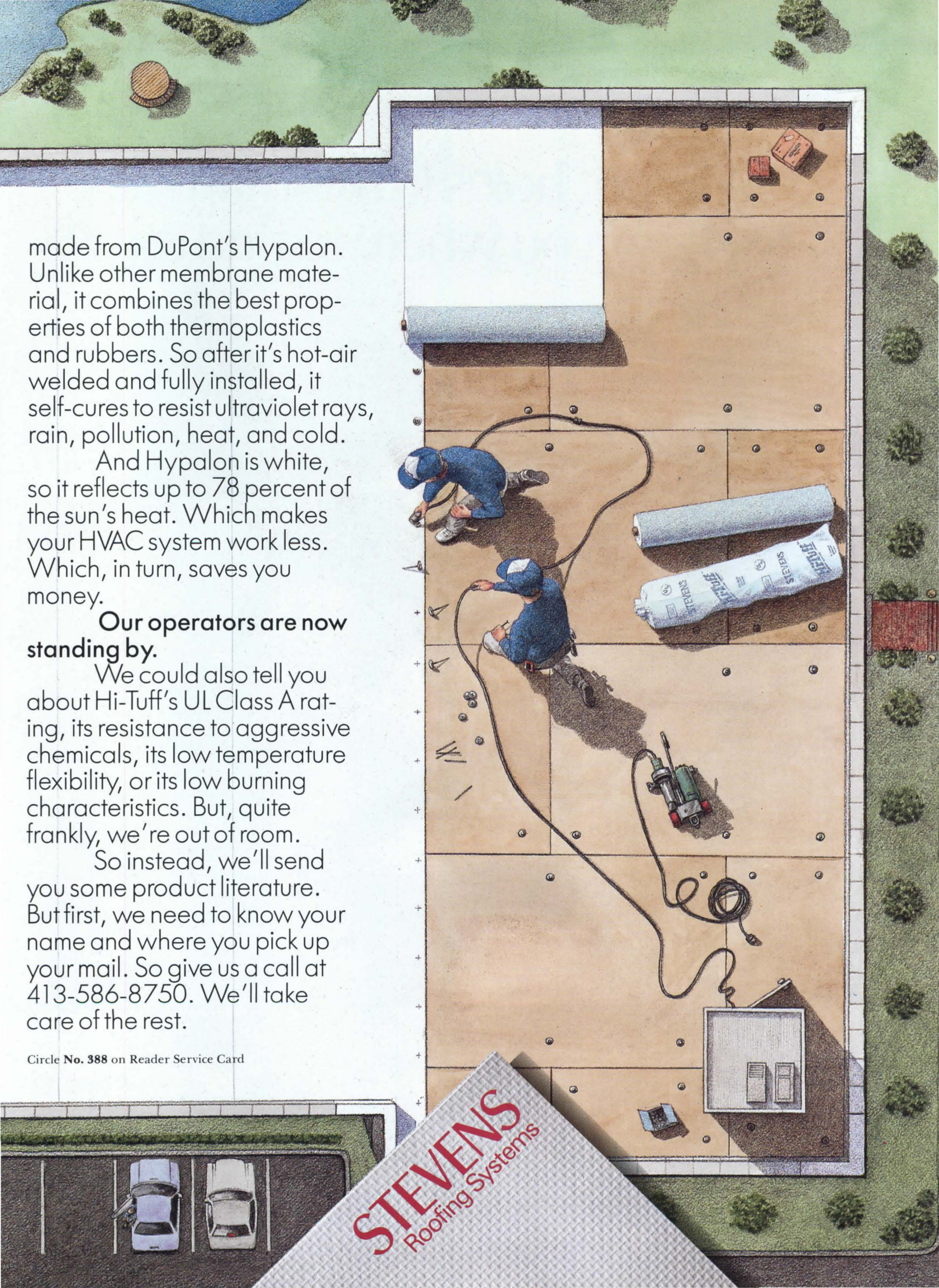
A Stevens roof isn't gone with the wind.

Once installed, a Hi-Tuff roof resists destructive wind uplift forces. In fact, in Factory Mutual's wind uplift test, the Hi-Tuff roof received the highest available rating of 90 pounds of pressure per square foot, then exceeded it by 50 percent. Which means if there's a place on earth that's too windy for a Hi-Tuff roof design, nobody's discovered it yet. Or if they did, they got blown away.

When the weather gets tough, Hypalon* gets tougher.

The Hi-Tuff membrane is

*Hypalon is a registered trademark of Du Pont.



made from DuPont's Hypalon. Unlike other membrane material, it combines the best properties of both thermoplastics and rubbers. So after it's hot-air welded and fully installed, it self-cures to resist ultraviolet rays, rain, pollution, heat, and cold.

And Hypalon is white, so it reflects up to 78 percent of the sun's heat. Which makes your HVAC system work less. Which, in turn, saves you money.

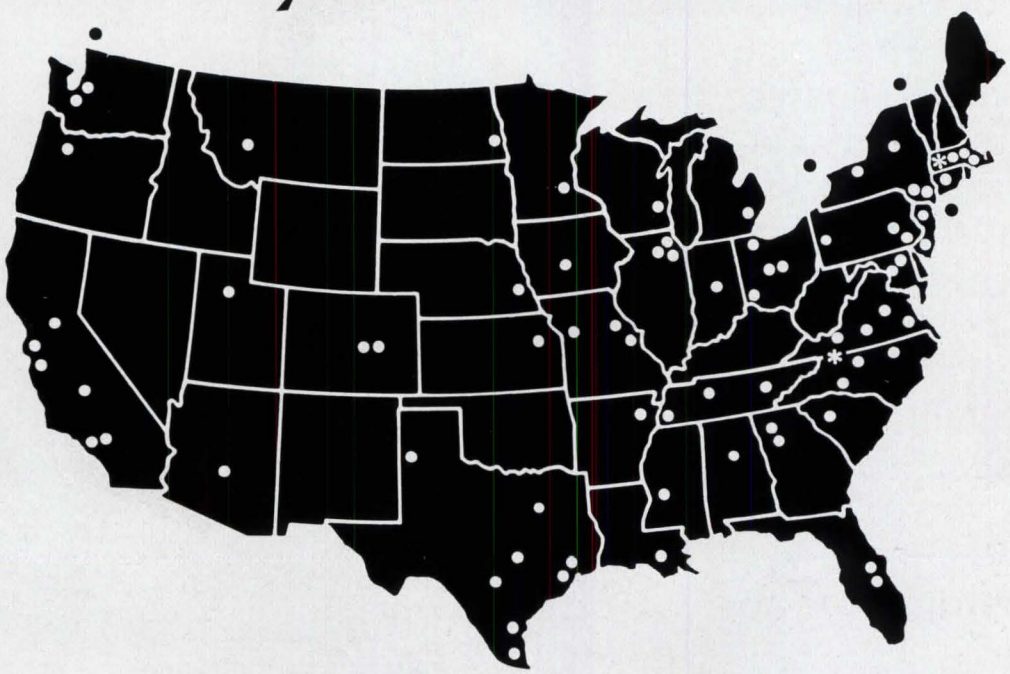
Our operators are now standing by.

We could also tell you about Hi-Tuff's UL Class A rating, its resistance to aggressive chemicals, its low temperature flexibility, or its low burning characteristics. But, quite frankly, we're out of room.

So instead, we'll send you some product literature. But first, we need to know your name and where you pick up your mail. So give us a call at 413-586-8750. We'll take care of the rest.

Circle **No. 388** on Reader Service Card

We put holes in this map to show you where to find us.



Main Office
J. P. Stevens & Co., Inc.
Stevens Elastomerics/
Roofing Systems
395 Pleasant Street
Northampton, MA 01061
413/586-8750

Alabama
S. F. Products, Inc.
Birmingham
205/823-7663

Arizona
Western Allied Systems Co.
Phoenix
602/938-0808

California
Roofers Mart of Southern CA., Inc.
Walnut
714/598-8408

Western MacArthur Co.
Fresno
209/237-3183

Western MacArthur Co.
Sacramento
916/927-9911

Western MacArthur Co.
San Francisco
415/648-7800

Western MacArthur Co.
San Jose
408/971-9380

Colorado
Western Allied Systems Co.
Denver
303/289-4601

Connecticut
Valley Wholesale of Hartford, Inc.
Hartford
203/728-5100

Florida
Florida Roofing Supply Co.
Ovieto
305/365-1476

Georgia
Heely-Brown Co.
Atlanta
404/352-0022

Illinois
Allied Building Products Corp.
Bensenville
312/766-3464

Allied Building Products Corp.
Blue Island
312/396-1950

Saturn Associates
Schaumburg
312/303-5520

Indiana
Allied Building Products Corp.
Indianapolis
317/243-7338

Saturn Associates
Carmel
317/843-8230

Iowa
Allied Building Products Corp.
West Des Moines
515/225-8530

Saturn Associates
West Des Moines
515/224-0411

Louisiana
S. F. Products, Inc.
Houma
504/876-7912

Maryland
Allied Building Products Corp.
Columbia
301/995-6540

Massachusetts
Valley Wholesale of Boston, Inc.
Haverhill
617/374-9333

Valley Wholesale, Inc.
West Springfield
413/781-7700

Michigan
Allied Building Products Corp.
Detroit
313/491-0300

Saturn Associates
Bloomfield Hills
313/333-3535

Minnesota
Saturn Associates
Edina
612/922-2819

Mississippi
S. F. Products, Inc.
Jackson
601-362-8300

Missouri
Saturn Associates
St. Charles
314/966-7262

S. F. Products, Inc.
North Kansas City
816/421-7589

Montana
Western Allied Systems Co.
Bozeman
406/586-2007

Nebraska
Western Allied Systems Co.
Omaha
402/592-1275

New Jersey
Allied Building Products Corp.
East Rutherford
201/935-0800

New York
Allied Building Products Corp.
Marcy
315/733-0415

Allied Building Products Corp.
Mineola
516/248-6173

Allied Building Products Corp.
Rochester
716/328-7330

North Carolina
N. B. Handy Co.
Charlotte
704/377-9903

N. B. Handy Co.
Greensboro
919/855-3900

N. B. Handy Co.
Raleigh
919/828-5421

North Dakota
A. K. Foss, Inc.
Fargo
701/280-0440

Ohio
Allied Building Products Corp.
Cincinnati
513/771-6070

Saturn Associates
Columbus
614/888-6455

Oregon
Western Allied Systems Co.
Beaverton
503/646-5836

Pennsylvania
Allied Building Products Corp.
Blandon
215/926-1009

Allied Building Products Corp.
Bridgeville
412/221-8003

Allied Building Products Corp.
Philadelphia
215/425-6780

Rhode Island
Valley Wholesale of Rhode Island, Inc.
Warwick
401/467-9400

South Carolina
Roofers Supply of Greenville, Inc.
Greenville
803/299-0055

Tennessee
Heely-Brown Co.
Knoxville
615/521-5060

S. F. Products, Inc.
Memphis
901/363-7000

S. F. Products, Inc.
Nashville
615/331-3900

Texas
Railton, Inc.
Austin
512/452-4820

Railton, Inc.
Corpus Christi
512/884-2872

Railton, Inc.
Dallas
214/631-3948

Railton, Inc.
Harlingen
512/425-6631

Railton, Inc.
Houston
713/675-7456

Railton, Inc.
Lubbock
806/763-1932

Railton, Inc.
San Antonio
512/533-5023

Utah
Western Allied Systems Co.
Salt Lake City
801-964-0166

Virginia
N. B. Handy Co.
Lynchburg
804/847-4495

N. B. Handy Co.
Norfolk
804/461-6470

N. B. Handy Co.
Richmond
804/649-7064

N. B. Handy Co.
Roanoke
703/343-2467

Washington
Western Allied Systems Co.
Auburn
206/838-0109

Wisconsin
Allied Building Products Corp.
West Allis
414/476-6222

Saturn Associates
Wales
414/548-4393

Canada
Lexcan Industrial Supply Ltd.
Montreal
514/681-1452

Lexcan Industrial Supply Ltd.
Rexdale, Ontario
416/249-8361

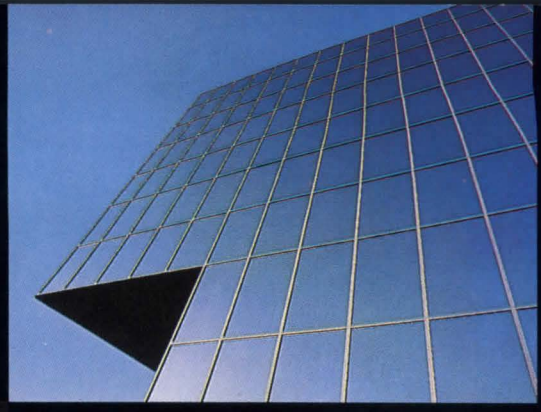
Lexcan Industrial Supply Ltd.
Vancouver
604/687-6330

*Manufacturing Plants

STEVENS
Roofing Systems

An Unforgettable Sighting.

ECLIPSE® reflective glass from LOF.



ECLIPSE® reflective glass is different. Strikingly different.• Its tones are sharp, dramatic. Unambiguous. Without the milky, yellowish cast of some pyrolytically coated architectural glass. • Whether used in low, mid or high rise structures, as first or second surface, ECLIPSE reflective can lend substance—and impact—to the right design. • Yes, there are other, more practical reasons to choose ECLIPSE glass. Reasons like solar control. Post-temperability. A remarkably low absorption characteristic. And availability that verges on the immediate. • But the best reason to call on ECLIPSE glass is still the simplest: *It looks so beautiful on a building.*

ECLIPSE®
Reflective Glass

Libbey Owens Ford
A member of the Pilkington Group

Philadelphia	(800) 523-0133	Out-of-State
	(800) 331-1910	In-State
Chicago	(800) 262-4787	Out-of-State
	(800) 327-7008	In-State
Atlanta	(800) 438-2330	Out-of-State
	(404) 242-8860	In-State
San Francisco	(800) 843-8552	Out-of-State
	(800) 247-7764	In-State

Circle **No. 350**

COMPAQ® creates the with a business

The new COMPAQ DESKPRO 386™ is the first *complete* high-performance PC CAD/CAE solution that single-handedly runs all the popular engineering *and* business software. It offers versatility without compromise. Each and every component far surpasses the limits of previous "advanced technology" PCs. From its superior microprocessor to its exceptional memory capacity to its greater storage to its monitor all the way to its faster disk drives, it is the most advanced personal computer in the world.

The first PC to offer a true minicomputer level of performance. It runs thousands of engineering and *business programs 2-3 times faster than ever before possible.*

The most advanced persona

COMPAQ® is a registered trademark; COMPAQ DESKPRO 386™ is a trademark of COMPAQ Computer Corporation. Intel® is a registered trademark of Intel Corporation. Lotus® and Lotus 1-2-3® are registered trademarks of Lotus Corporation. Microsoft® is a registered trademark of Microsoft Corporation. AutoCAD™ is a trademark of AUTODESK, Inc. UNIX® is a trademark

first engineering PC background.

Minicomputer performance on your desktop

The COMPAQ DESKPRO 386 delivers minicomputer-level performance. Running at an impressive 16 MHz, its 80386 technology and advanced 32-bit architecture run engineering software like AutoCAD™ and CADVANCE,™ and business programs like Lotus 1-2-3,® 2-3 times faster than any other advanced technology PC. Plus it welcomes boards for communicating with mainframes as well as industry-standard graphics display boards and peripherals, all crucial to your design. You can also add the 8-MHz Intel® 80287 coprocessor to speed graphics- and floating-point-intensive applications.

More memory to draw on

Every single component in the COMPAQ DESKPRO 386 has been optimized to take advantage of its increased speed and power.

You can get up to 10 Megabytes of 32-bit high-performance RAM on the system board, 14 Megabytes overall, without waiting for new versions of DOS to use it.

The COMPAQ Expanded Memory Manager comes built in. It provides Lotus®/Intel®/Microsoft® Expanded Memory Specification and VDisk support, letting you use up to 8 Megabytes of 32-bit RAM, which makes complex software run much faster than ever before.

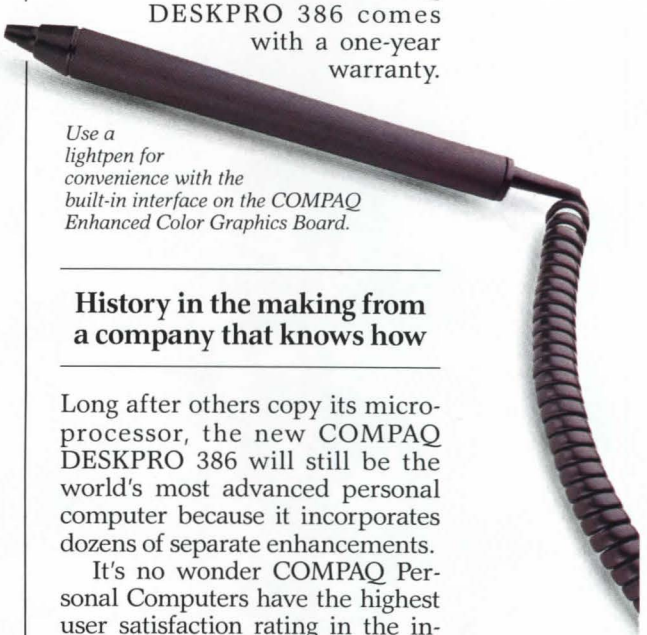
Shatter the 640K memory barrier with the built-in COMPAQ Expanded Memory Manager.

More to work with

The COMPAQ DESKPRO 386 sports the fastest 40-, 70- and 130-Megabyte internal fixed disk drives in the industry so you can access data two times faster than other advanced-technology PCs.

Watch the performance on the new COMPAQ Color Monitor for enhanced text and graphics resolution. Displaying 16 colors at once from a palette of 64, it comes with the COMPAQ Enhanced Color Graphics Board.

Exceptional speed, enhanced graphics and the ability to run today's UNIX*-based CAD/CAE software along with thousands of industry-standard business programs, make a versatile, cost-effective alternative to expensive dedicated workstations. Plus, the new COMPAQ DESKPRO 386 comes with a one-year warranty.

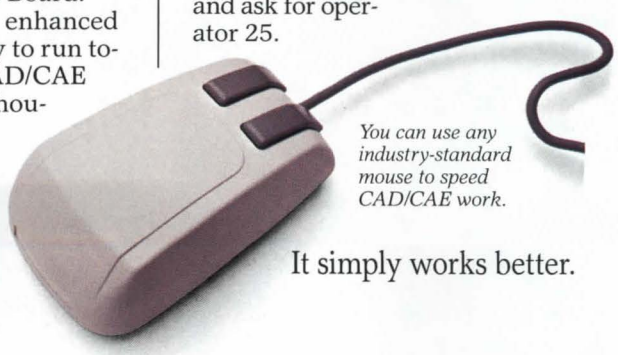


Use a lightpen for convenience with the built-in interface on the COMPAQ Enhanced Color Graphics Board.

History in the making from a company that knows how

Long after others copy its microprocessor, the new COMPAQ DESKPRO 386 will still be the world's most advanced personal computer because it incorporates dozens of separate enhancements.

It's no wonder COMPAQ Personal Computers have the highest user satisfaction rating in the industry. And no wonder we made the FORTUNE 500 faster than any other company in history. For the Authorized Dealer nearest you, or to obtain a brochure, call 1-800-231-0900 (in Canada, call 416-449-8741) and ask for operator 25.



You can use any industry-standard mouse to speed CAD/CAE work.

It simply works better.

omputer in the world

COMPAQ DESKPRO 386™

C O L O R Q U E S T®

You've been down this road before.

Your mind's racing. You've got talent to burn. And you're about to drive yourself crazy looking for the solid colors to take you from concept to reality.

At that moment, you'd mug Foster Grant® for a new set of shades. But you needn't go to extremes. There's a simpler solution.

Renew your creative license with Color Quest '87.

Once you do, you'll find yourself in the driver's seat with 33 brilliant new solid colors. If you think this is an incredible addition, you're right. There are fresh pastels to fuel your imagination. Blended classics offering subtle nuance. Jewel brights that illuminate. And dramatic darks with power to spare.

Now let your imagination slip into overdrive.

When you add these new solids to the existing Color Quest line, you have 110 of the most exciting design opportunities available. It's a palette of evolutionary proportions. And enough to renew anyone's creative license.

Of course, after you renew your creative license, you may be overrun by clients wanting to know who's behind those new Color Quest shades.

But then, you've been down that road before, too.

Renew Your Creative License Today!

For quick delivery of product samples and literature, call toll-free (within the Continental U.S.A.):
1-800-433-3222 In Texas: 1-800-792-6000

WILSONART®
BRAND DECORATIVE LAMINATE

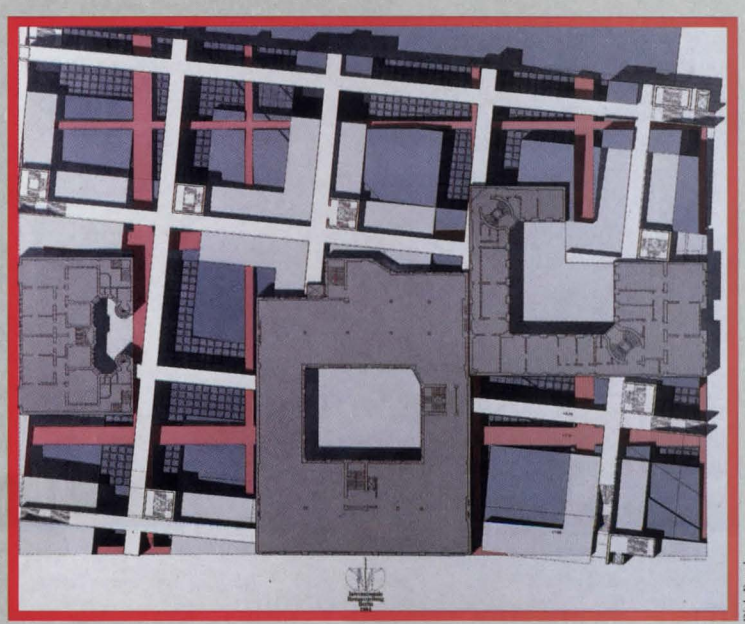
Bringing new solutions to the surface™

Circle **No. 385**

Progressive Architecture

The Divided Self

Peter Eisenman of Eisenman Robertson Architects has designed an apartment building in Berlin, part of the IBA '87 housing exhibition. An office building (p. 88) and several artifacts by the architect (p. 90) also explore some of the same aesthetic and philosophical issues.



Dick Frank

Eisenman's original site plan of Checkpoint Charlie block.

Peter Eisenman's 37-unit apartment building, part of the IBA '87 housing exhibition, stands at the corner of the block adjacent to Checkpoint Charlie (background in small photo right, obscured by subway entry). The architectural design is part of a scheme for the total block, which was planned to include a park with deep excavations commemorating Eisenman's artificially reconstructed history of the site (original site plan, previous page). Only the southwest corner of the site, consisting of the buildings shown on these pages, has been completed.

The scheme is based on two grid systems, one parallel to the block (the light green walls that follow the street line) and one following the standard north/south Mercator mapping grid (the canted-out sections, with large red, white, and gray interlocking grids).

THE German word *wahnsinn,* meaning madness or delusion, has assumed in popular usage a non-derogatory, and certainly nonmedical, connotation, similar to our current "mad," or "bad," but even more reverberant. In a recent *Harper's* magazine essay on the 25-year-old Berlin Wall (Aug. 1986, pp. 47–53), Berlin author Peter Schneider explains that he who uses the word "declares his allegiance to a spiritual condition beyond good and evil." While acknowledging that this new sensibility is felt worldwide, Schneider suggests that it "has found its natural home . . . in the divided city" of Berlin. And he calls the Wall the "concrete symbol of the Divided Self."

Peter Eisenman, throughout his career, has struggled to find architectural expression for this age, for the condition of "fundamental human estrangement." Who, then, is more fit to build in today's Berlin, and at the very point in his career when "site" is emerging as an influencing factor? And where more fitting for Eisenman to build than beside Checkpoint Charlie, the westerner's peephole to the other world?

Modern architecture, Eisenman feels, did not move far enough in reflecting the 20th-Century condition of alienation, did not achieve a "dislocation" in architecture, as he puts it. It would not relinquish the chimera of a Utopia attainable through science ("science" in this century falsely and briefly replacing "man," who in the 15th Century had replaced "god," as the conceptual center of man's universe) but clung to the traditional references to the human form—human scale references, for example, or the body as column.

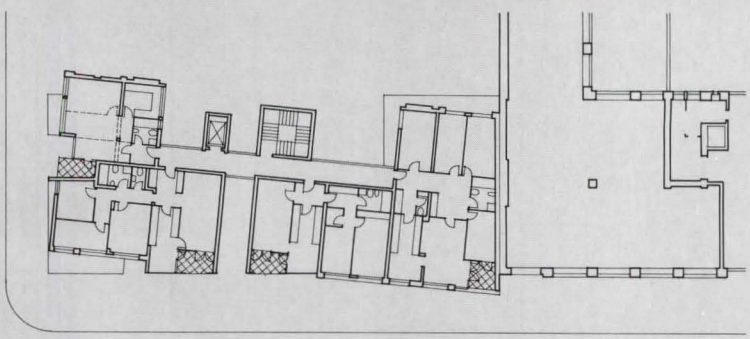
In the first phases of his career, Eisenman designed houses (P/A, March 1972, pp. 80–87), built and unbuilt, which called into question all the accepted traditions: the expression of shelter, the unequivocal hierarchy of solid and void and of structural parts, and the reflection of human scale, even social interactions. The houses, designed while Eisenman was Director of New York's Institute of Architecture and Urban Studies, were primarily objects of investigation. They did shelter their inhabitants, but they were based on a language that was self-generated and self-referential, and their sites were merely incidental.

In 1978, Eisenman entered a new phase both personally (he entered psychoanalysis, for one) and professionally, eventually leaving the Institute and joining Jaquelin Robertson in partnership. In design, he worked on projects of greater complexity and size, and, while not abandoning his concern for "dislocation," he began to delve into the implications of the given site: He cites his theoretical design for the Cannaregio section of Venice as the turning point.

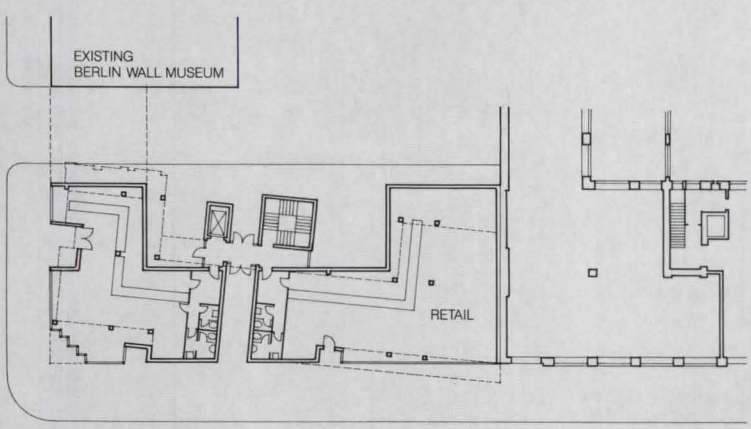
Then, just as Eisenman opened himself to "site," along came the site that was ripe for him: Checkpoint Charlie. As concrete as the Berlin Wall is, there are few absolutes about its existence, aside from the deaths that have occurred there: "Germans killing Germans trying to flee from Germany to Germany" (see "Why the Wall Still Stands," *Atlantic Monthly,* Aug. 1986, pp. 20–26, one among numerous articles written for the Wall's 25th anniversary). On a political level, as that article makes clear, "The Wall may have spared mankind a superpower confrontation in 1961 . . . ; today it serves the interests not only of East Germany and the Soviet Union but also of the United States and West Germany." On a human level, while it is simple enough to say that the Wall represents the repression of a people by their self-styled leaders, few expect or find Nirvana on the West. If the Wall were demolished, as Schneider has written in the *Harper's* article, "I don't believe East Germans would rush into the open arms of the West Germans. Nor would those Western arms actually open."

The greenish section, with its small, square grid, tends to equalize window and wall, all being of glass with white-painted aluminum mullions. For the wall, the back of the glass is painted white, and makes a sandwich with the 3¼ inches of rigid insulation behind, over a 10-inch-thick concrete bearing wall. The windows were to be flush with the wall surface, but budgetary constraints precluded this.

The canted-out section, with interlocking two-story-high grids, tends to obscure the relationships of windows and floor levels. The colors and wall thicknesses reflect the levels of the planned park. Walls here are of plastic-coated thermal insulation, between 3¼ inches and 6½ inches thick, over a 10-inch-thick bearing wall.



TYPICAL FLOOR PLAN



GROUND FLOOR PLAN N ↑ 20'/6m

And on an urban level, while both sides of the original city are but fragments without a center, and the parts add up to far less than the original whole, life proceeds as usual, the Wall being "a twelve-foot-high, twenty-eight-mile-long, concrete blind spot," as Schneider puts it.

Eisenman's Approach

Into this fray, where no clichés apply, stepped Eisenman, to whom cliché is detestable. Invited to participate in, and winning, one of the IBA Housing Exhibition competitions (P/A, Feb. 1986, pp. 93–101, and Jan. 1982, pp. 197–204), Eisenman refused to indulge in nostalgia. "Living in the city" is IBA's theme—the city of collective memories. But what memories? Fascist Berlin? Anathema. The 19th Century? If literally reconstructed, it would be inauthentic, inappropriate, intellectually repressive, a void in the continuum of history.

Spanish architect Ignacio de Sola-Morales has written (in *Arquitectura Bis,* Dec. 1983) that with the Berlin project Eisenman underwent a radical change, from amnesia (in the self-referential houses) to memory. But it is critical memory that comments on the past as recalled in the passages of the mind today and traced as a new, fictional, archaeology of the site—not as evoked by mimetic forms.

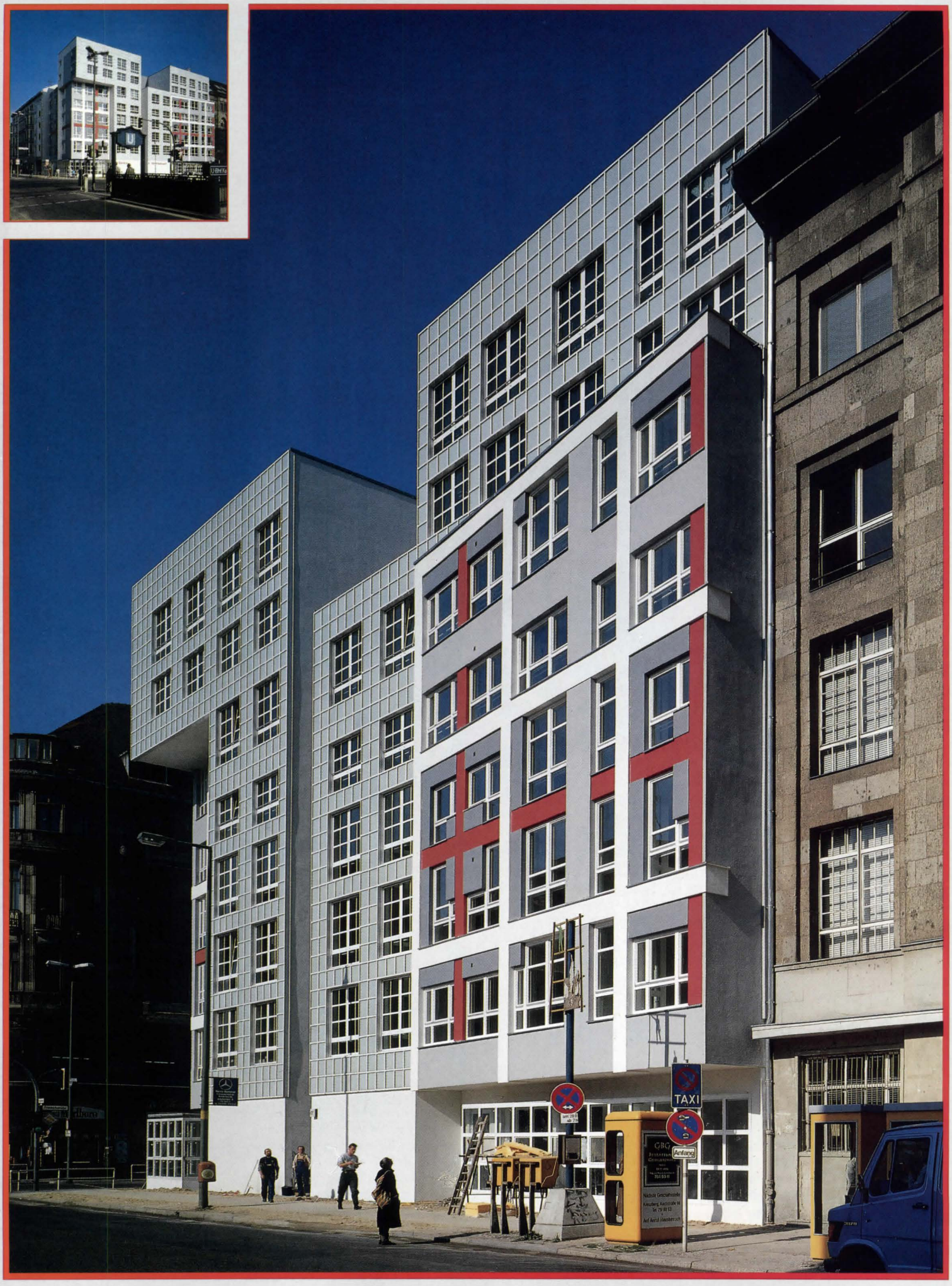
Ironically, the competition-winning architecture, which was generated by Eisenman's artificial archaeology of the site, has been built, but the site excavations have not been executed (they may be in time). In fact, fragmented like the divided city where it is built, only a fraction of Eisenman's initial architecture has been realized; enough, however, to retrace the memory of the whole scheme.

The original scheme (page 81) fills an entire block just south of the wall, at the east side of Checkpoint Charlie. Digging and building around three existing buildings on the site create "The City of Artificial Excavation," but only the southwest corner of the site was built as designed by Eisenman.

The design, which creates a multilevel memorial "park" within the site, superimposes two grids, the local city grid, and the Mercator grid. These acknowledge the neighborhood as well as Berlin's status as a city of the world, "sacrificed on the altar of modern history," as Eisenman puts it. The design also acknowledges the site conditions when this area was originally mapped: the block was an anomaly, occurring at the meeting of two grids (see Kurt Forster's article in *Archetype,* Spring 1981).

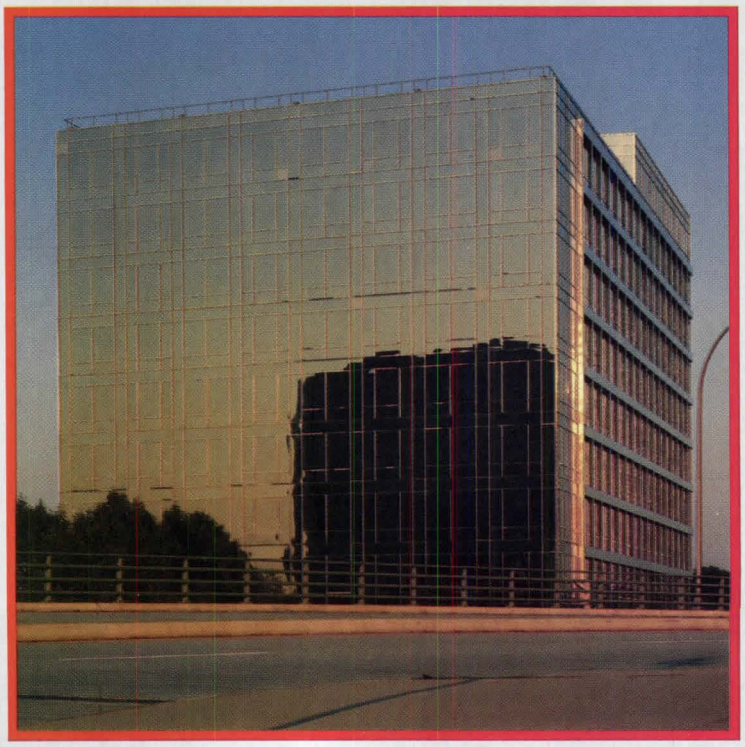
From this groundplan, Eisenman digs downwards, "discovering" the traces of remembered history. As he expressed it in his original design statement: "Working downward, the grid discovers at the lowest level of excavation, the trace of the absent wall of the eighteenth century. This invisible wall is plotted on the lowest ground plane as a shadow. Next comes the excavation of the foundation walls of nineteenth-century Berlin—not the actual foundation walls which once existed, but an artificial reconstruction, a hypothetical rationalization of what they might have been. These walls derive their location from the position of the three existing buildings, which taken together provide the fragments of a former grid . . . This pattern of foundation walls conforms to the regular street grid of Berlin. The walls are made of Berlin brick, and the top of the walls comes up to the present-day ground level of the city."

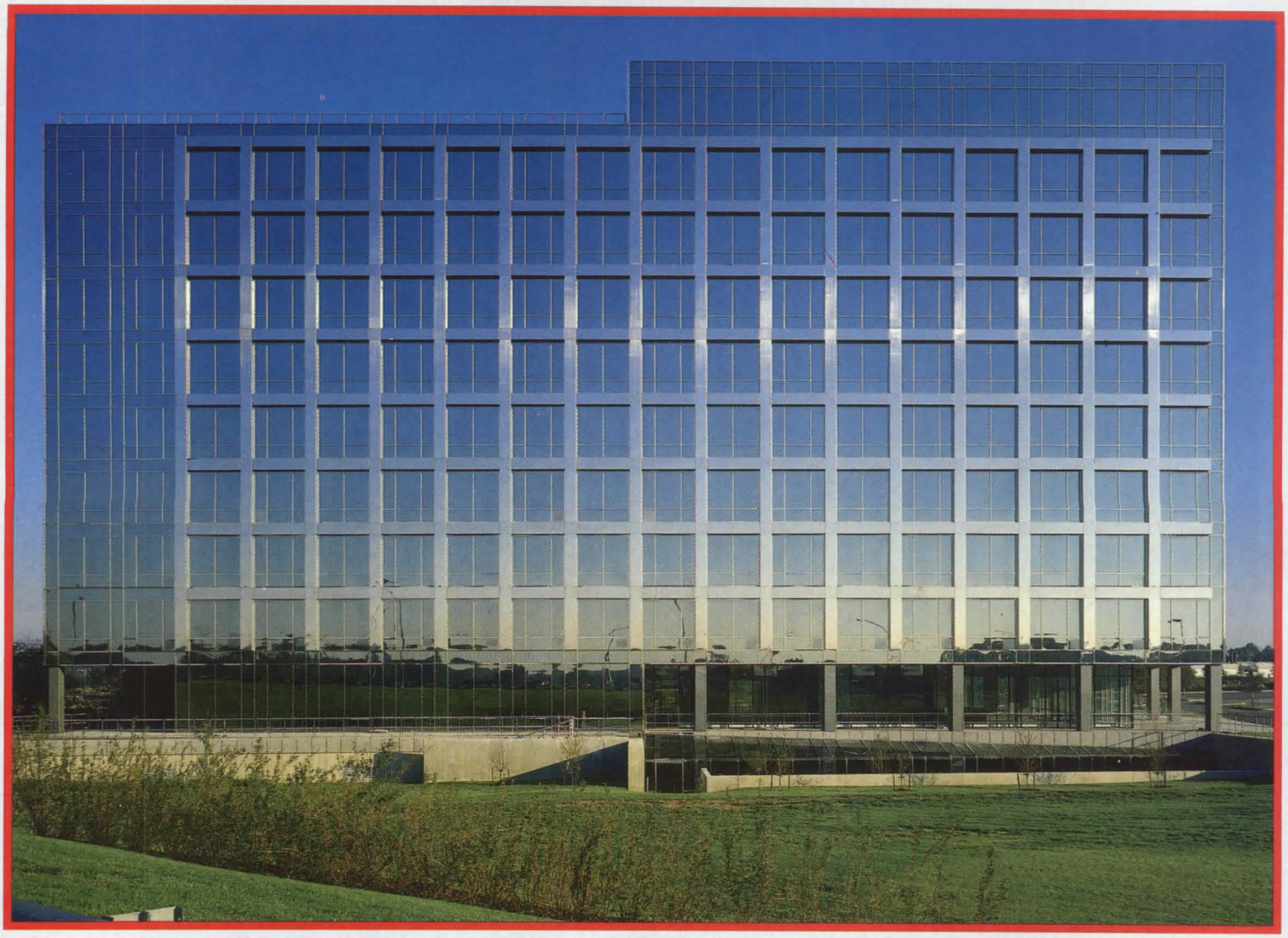
Upon these traces of memory, antimemory is developed, in the form of the Mercator grid. This "most neutral and artificial system of marking" is built as limestone walls 3.3 meters high—the height of the Berlin Wall itself—thereby neutralizing the real thing by mak-

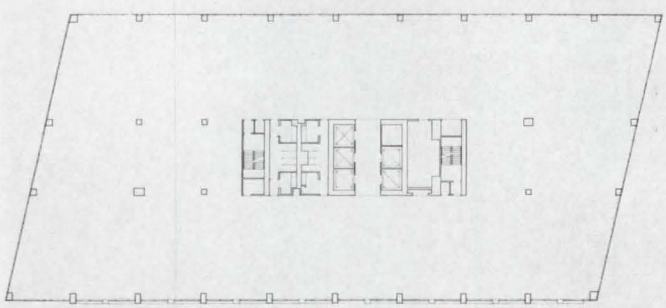

TAXI
Anfang

Travelers Financial Center
Hempstead, N.Y.

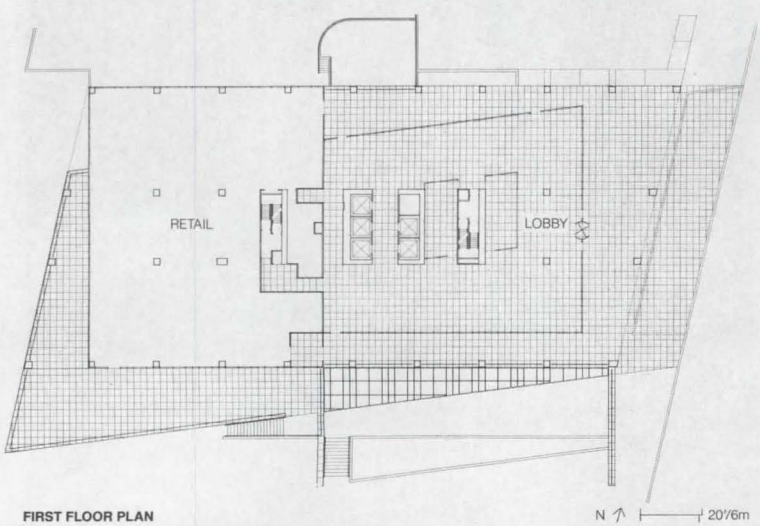
In a speculative office building on Long Island, with quarters for the Travelers Insurance Company, Eisenman uses two principal devices to generate a sophisticated form. On a far less provocative site than Checkpoint Charlie, he uses the nonrectangular relationship of two parkways to generate an intersection of trapezoids; the main eight-story body of the building, however, remains a simple parallelogram. And on the building's south side (facing page), a stainless steel sunscreen is reflected in the reflective glass curtain wall, in contrast to the north side's flat screen.







TYPICAL FLOOR PLAN



FIRST FLOOR PLAN

Project: *Travelers Financial Center, Hempstead, N.Y.*
Architects: *Eisenman/Robertson Architects, New York, in joint venture with Trott & Bean Architects, Columbus, Ohio (Arthur Baker, Peter Eisenman, Richard Trott, partners in charge; Michael Burkey, Richard Morris, Faruk Yorgancioglu, associates in charge; Thomas Leeser, Peter Thaler, Ross Woolley, project architects; Andrea Brown, Wes Jones, Mark Mascheroni, Joanne Rivkin, Scott Sickeler, project team).*
Client: *Fair Oaks Development and Schottenstein Properties.*
Site: *near Meadowbrook Parkway on suburban Long Island.*
Program: *a 10-story office building, with 8 floors of office space (approx. 25,000 sq ft each), ground floor retail, and lower level private dining space.*
Structural system: *structural steel with metal deck and concrete slab.*
Major materials: *stainless steel sunscreen, reflective glass curtain wall.*
Mechanical system: *fully air conditioned (spring coil system) with supplementary perimeter radiation. Computer-controlled elevators, central computerized building management system. Metal deck is 60 percent electrified floor for wiring access.*
Consultants: *Office of Irwin Cantor, structural; Cosentini, mechanical.*
General contractor: *Turner Construction Company.*
Cost: *$20,000,000.*
Photos: *©Wolfgang Hoyt/ESTO.*

The L-shape unifies the artifacts on these pages with the Berlin apartment building, and neutralizes the concept of scale.

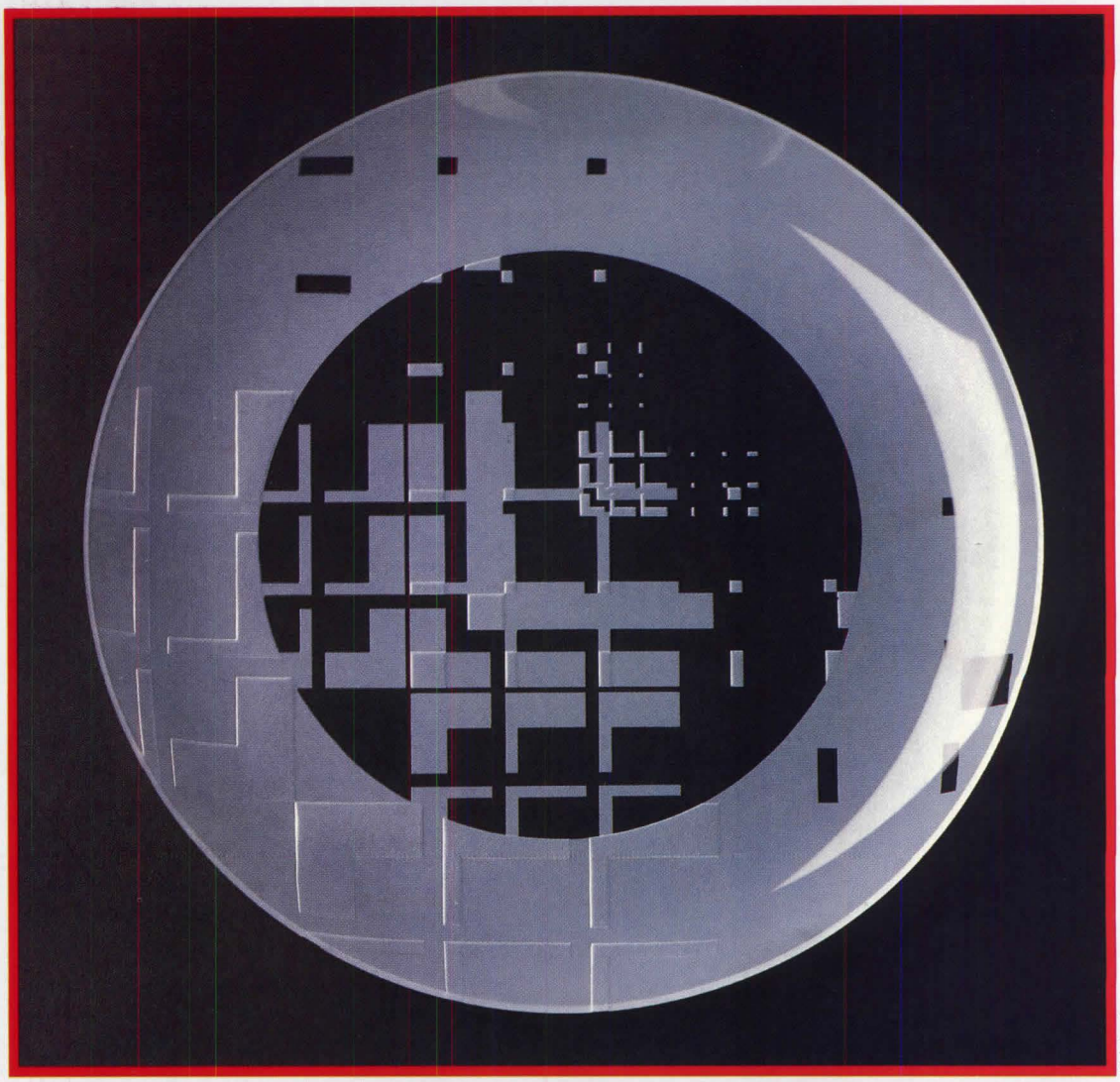
The glass plate (right) was designed for the Swid Powell collection. The original design was to have been of porcelain, and three-dimensional, with L-shapes "growing and multiplying" on both back and front. A porcelain prototype was produced with raised L's on the front, but the plate that will be marketed is of glass, with L's sandblasted on the back.

The doorhandle (facing page, top) was designed for the Ohio State University Visual Arts Center, and formed part of the International Design Workshop held last September by the FSB hardware company of Brakel, West Germany.

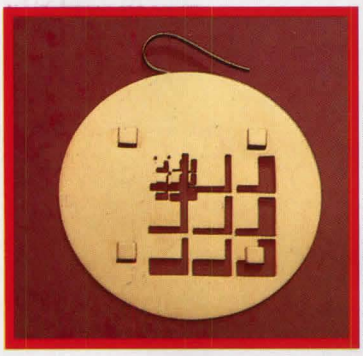
The earring (bottom right), pendant (bottom, far right), and ring (facing page, bottom right) are part of a group of gold jewelry designed for the Cleto Munári collection.

The calendar (facing page, bottom left) was designed for *A+U* magazine, and uses the Japanese symbols that connote the year, number, color, and animal. Eisenman's design reflects the fact that it is the "four," "green," "rabbit" year, and, while complicated looking, does function as a calendar.

Peter Eisenman was the partner in charge and Thomas Leeser the associate in charge of the design of these artifacts. Project architect for the calendar was Hiroshi Maruyama, and for the remaining articles, Kyna Leski.

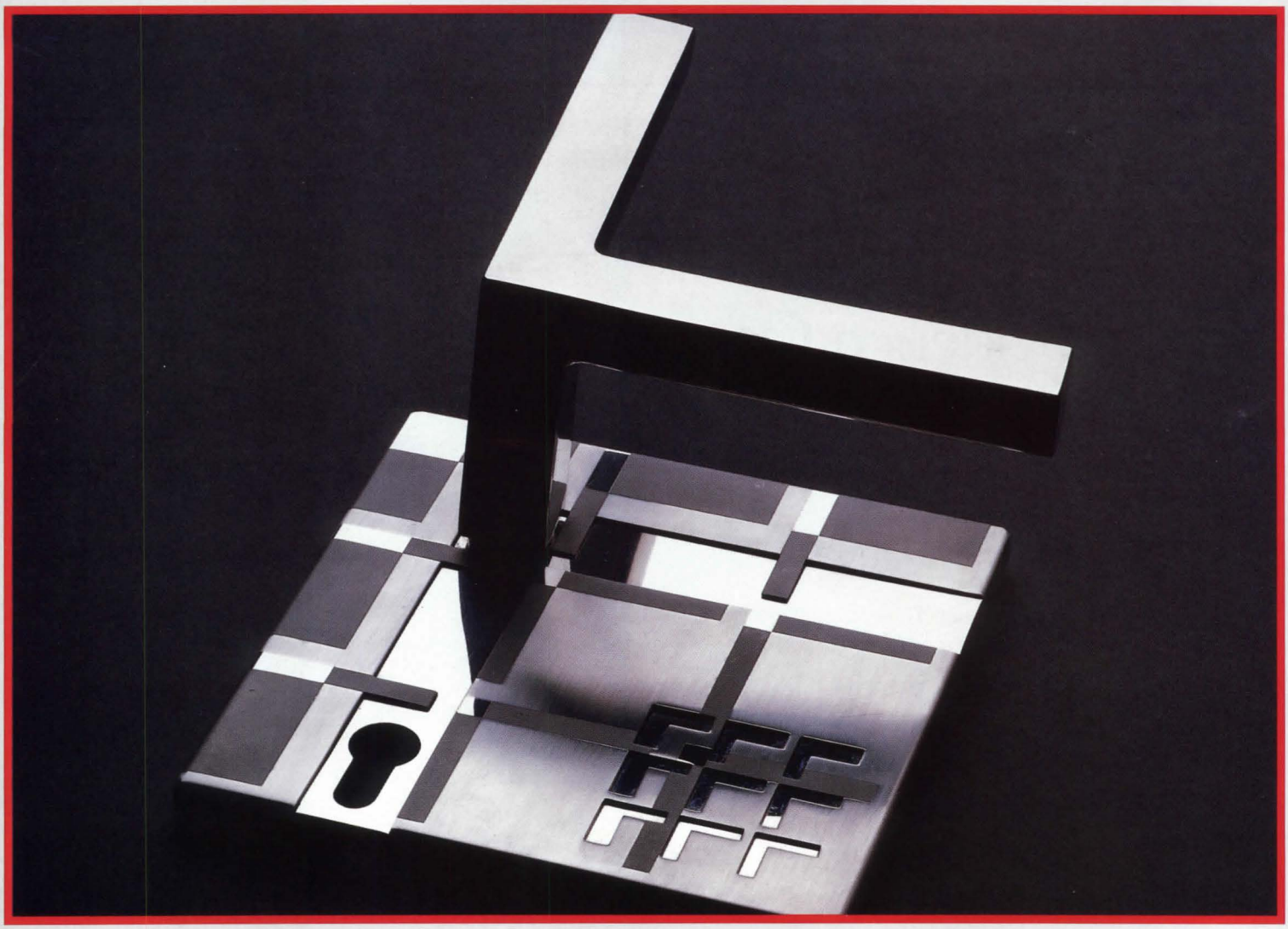


Dick Frank

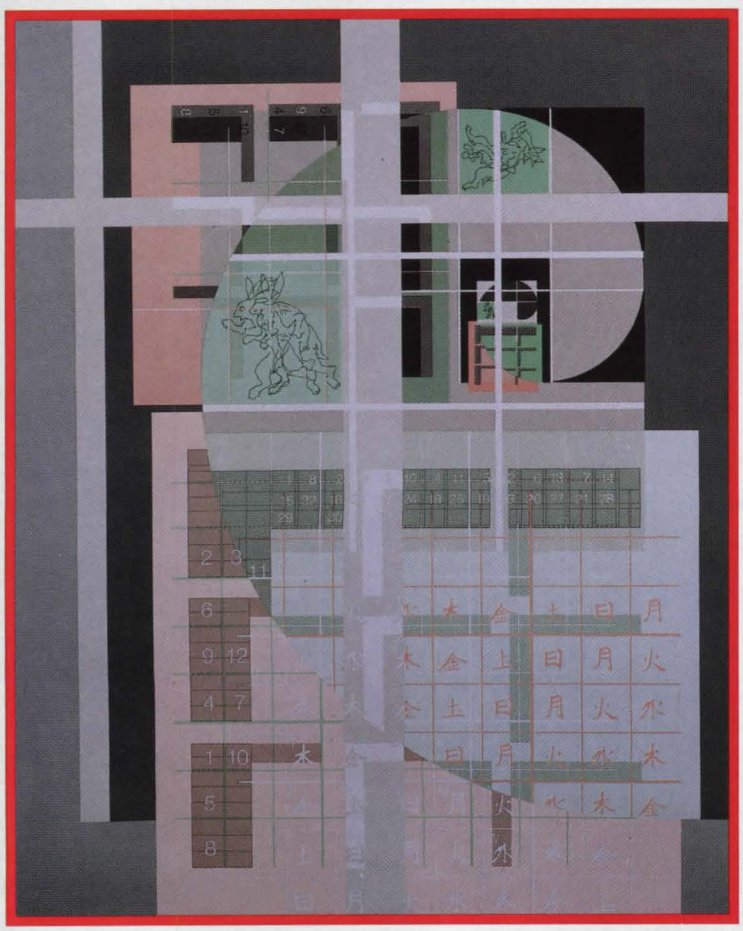


"Modern Jewelry: New Design" exhibition

"Modern Jewelry: New Design" exhibition



Dick Frank



Dick Frank

"Modern Jewelry: New Design" exhibition

The Providence Connection

Urban design issues are resolved by Skidmore, Owings & Merrill in the master plan for an area of Providence, and their design for relocated railroad station facilities near the Statehouse.

IT is not easy to create a building that is at once unassuming and a civic statement. As authors of an urban master plan and design architects for the new railroad station in Providence, Skidmore, Owings & Merrill confronted just such a challenge. In selecting the urban plan for an Award in the P/A Awards program (Jan. 1981, p. 94), juror Jacques Brownson cautioned that the design for a new station would have to be handled very sensitively. In the P/A Awards two years later, the station itself was honored with a Citation (P/A, Jan. 1983, p. 100). At that time, juror Alan Chimacoff commented that the design "has made, within the context of a one-story building, an architectural move that would make it work—to put the dome on top—and I hope that that would get built."

In the master plan, accomplished with Barton-Aschman Associates as traffic and transportation consultants, SOM noted that the downtown area was tightly limited by the location of the existing rail lines, and that the gulf between the CBD and the Capitol building was virtually impossible to bridge. In addition, deterioration of the aging rail facilities had been allowed to go on too long. After further study, the decision was made to relocate the rails to allow for planned expansion downtown and to diminish the effect of the government/city gap.

SOM/Washington was selected as the design architect, working with a joint venture of Perry, Dean, Stahl & Rogers, Robert T. Coles, and Baker & Conlon; Ammann & Whitney were the consulting engineers. Because the relocation brought the new facility some 600 feet closer to the McKim, Mead & White Statehouse, the architects had to balance between significant civic building and quiet respect. A combination of a clock pylon and a dome was chosen to indicate the former, while Indiana limestone and subtly Classical details help accomplish the latter.

In all respects, the new station is a consummately good neighbor, floating on a plane that continues the sweep up the hill leading to the Capitol. Kept tucked away, both the tracks and the two-level parking structure are unobtrusive now, and will be increasingly so as the rest of the gulf on the downtown side is developed.

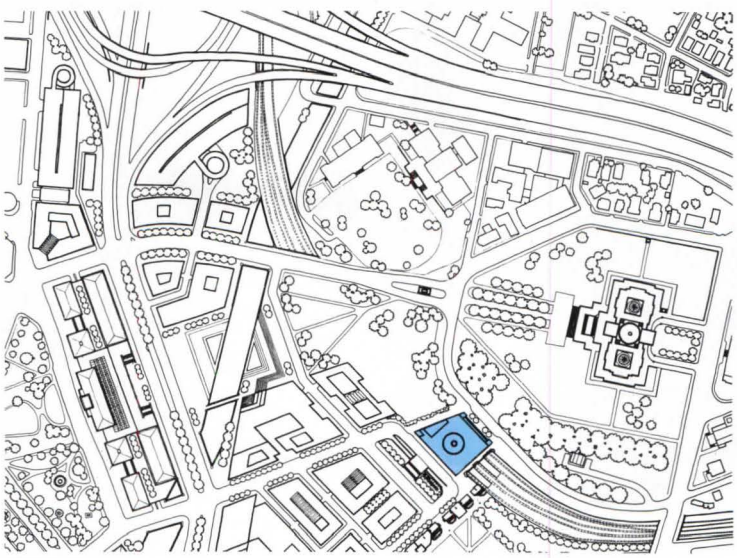
Respecting the street axes set forth in the overall area plan, the exterior plan shape reinforces the view corridor between the capital area and the downtown. The interior primary axis is derived from an alignment with the Capitol dome, a skewed effect countered well by the domed central space. Wood benches encircle the floor under the dome; ticketing windows close off the secondary axis on one side, with other support facilities—concessions, restrooms, baggage room, etc.—filling out the remaining perimeter.

Limestone is used for wall surfaces inside and out (waiting level only), set off very quietly by concrete columns and lintels. Slate waiting room floors are accented by a marble circle; the same marble appears in a shelf between the inward- and outward-facing seating rings. Signage is thought out well and clearly placed on a maroon/red background. Stainless steel gates mark the stair and escalator entrances down to the train platform, and stainless steel handrails further carry on the material most prominently used on the exterior of the dome.

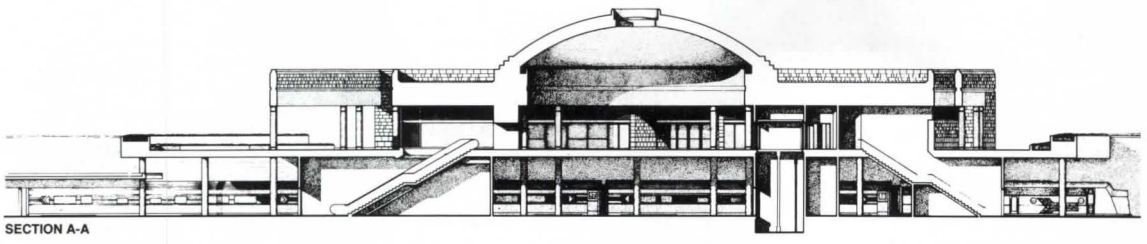
Using real restraint and an economy of means, the architects have produced a dignified and respectful gateway to Providence. The paired columns, low dome and clock tower, and the chamfered reveals all work to blend the new station into a harmonious relationship that will only get better as the chasm on the downtown side progresses in its development process. In the meantime, SOM has shown that its recognition, twice, in the P/A Awards program was deserved. ***Jim Murphy*** ■

Proximity to the Capitol (above) was the primary reason for adopting quiet historicism in the new station. The canted west façade (right) faces a landscaped park over the newly relocated tracks, with downtown Providence viewed across the gulch being redeveloped between the CBD and the capital area (far right). Clock tower and stainless steel dome, along with paired columns and Indiana limestone façades, create the statement of a civic building desired by the architects.

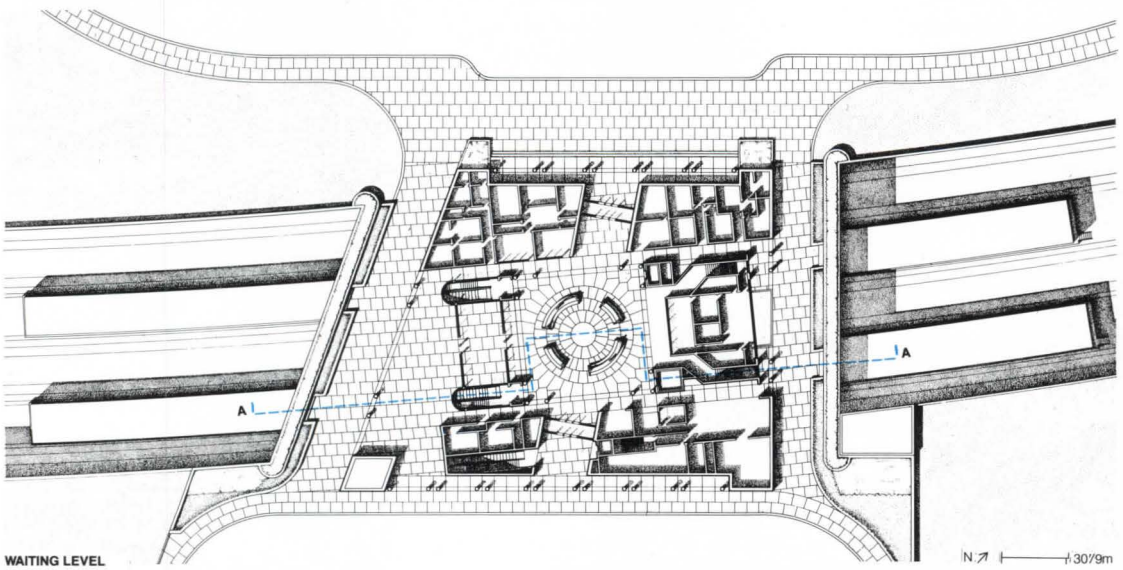

PROVIDENCE STATION



Viewed from the east (above), the full height of the station is visible, with two-level parking structure on the left, under landscaped plaza. Submerged tracks enter the station in the open from this side, under park from the opposite side (not shown on floor plan, right). Site plan (left) indicates development intended by the urban plan, which will replace the parking lots and old railroad alignment seen in the aerial photo. Waiting area (facing page, top) under the rotunda is the main focus of the facility, surrounded by ancillary support functions.



SECTION A-A

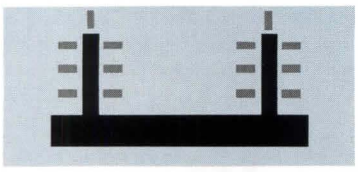


WAITING LEVEL

Project: *Capital Center Project/ Providence Train Station, Providence, R.I.*
Architects: *Skidmore, Owings & Merrill, Washington, D.C., and a joint venture with Ammann & Whitney, consulting engineers; Perry, Dean, Stahl & Rogers, Robert T. Coles, and Baker & Conlon, architects. (For SOM: David M. Childs and Richard Giegengack, project design partners; Marilyn Jordan Taylor, urban design partner and project director; Milo L. Meacham, senior designer. DeLeuw Cather Parsons, project management, Northeast Corridor Improvement Project.)*
Client: *U.S. Department of Transportation, Federal Railroad Administration, Office of Northeast Corridor Development.*
Site: *first phase of redevelopment on 45 acres, between downtown and capital area.*
Program: *new train station, approximately 25,000 square feet, with support facilities, ticketing, waiting, and 350-car parking structure.*
Structural system: *prestressed concrete piles and treated timber piles (at retaining walls), cast-in-place concrete columns and station/retaining walls, deck, and parking structure. Steel framing, dome and station roof.*
Major materials: *architectural concrete, Indiana limestone, slate, stainless steel dome (see Building Materials, p. 178).*
Mechanical system: *gas-fired hot water boiler with remote air handling units.*
Consultants: *Bolt, Beranek & Newman, acoustical.*
General contractor: *The Gilbane Building Company.*
Costs: *$32 million.*
Photos: *Steve Rosenthal.*

P/A Inquiry
Airport Terminals

Deregulation and terrorism have both had a marked effect on air travel. No less dramatic has been their effect on the design of airport terminals, the results of which are examined here.



Central Terminal with Piers
The placement of gates along a pierlike concourse is the most common configuration for airport terminals. Such an arrangement is relatively economical to build and operate and requires less acreage than other types. The major disadvantage involves the long walking distances, especially for passengers moving from one concourse to another in large airports. The pier configuration provides a convenient place for security equipment at the head of each concourse, although with both enplaning and deplaning passengers passing the same point, considerable congestion can occur there. Because the piers normally extend between the terminal and the taxiways, the degree to which each pier can be lengthened is usually limited (see projects 1, 2).

TO the occasional air traveler, the airport of today may seem little changed from that of just a decade ago. But it is profoundly different, especially in its organization and operation. The change is largely attributable to two events: the Airline Deregulation Act of 1978—a law that relieved the airlines of governmental control over their fares and routes—and the international terrorism that has plagued airlines and airports throughout the 1980s.

Of those two, deregulation has had the greater effect on airport design—an effect due, at least in part, upon the growth it has spurred. Since 1978, the number of commercial airlines, for example, has increased fourfold and the number of passengers has grown at around 8 percent annually. Such rapid expansion is difficult to handle in the best of circumstances, but when combined with the competitive business climate deregulation has created within the airline industry, it presents enormous problems for airport designers and operators.

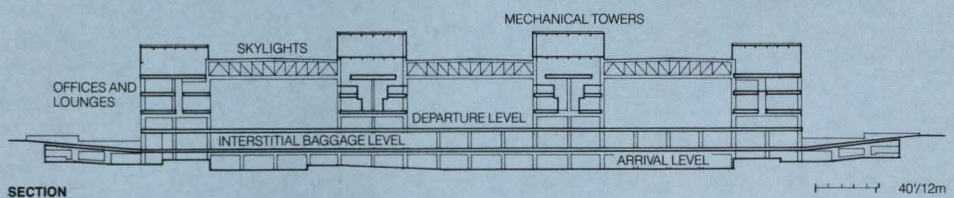
Accommodating the Airlines

"There used to be formulas for the design of airports," says Geoffrey Egginton of the airport planning firm of Thompson Consultants, "but since deregulation, the formulas simply don't apply." One reason, adds Arnold Thompson of the same firm, is that "airlines, which used to share information, now won't reveal anything about their fleet mix or schedule changes. When designing a terminal, you can't depend upon them telling you what they need; you have to look, instead, at other trends and at what the airlines are doing in similar situations."

Such uncertainty demands that airport terminals be exceedingly flexible. Signage systems, for example, should allow for the easy change of airline names and logos as carriers expand or contract their services. Ticket counters, too, should be as physically continuous and as visually unified as possible to minimize the effect

1 The Tom Bradley International Terminal at Los Angeles airport, designed by Pereira/Dworsky/Sinclair/Williams with Thompson Consultants, has gates in two piers that extend to either side of a central, multistory terminal. An adjacent taxiway demanded that the concourses be single-loaded; moving sidewalks reduce the longer walking distances that that entails. Deplaning passengers move, out of sight of the holding areas, to the lowest level where they proceed to baggage claim, customs, and immigration areas. There is an interstitial level for baggage handling equipment, above which stands the ticketing counters and concession areas, located within four-story-high halls. A mezzanine contains a restaurant, and upper floors contain airline offices and lounges. The building deftly handles the necessary separation of secured and nonsecured passengers right at the gates. It also shows that the complex circulation systems of such terminals need not lead to claustrophobic spaces.

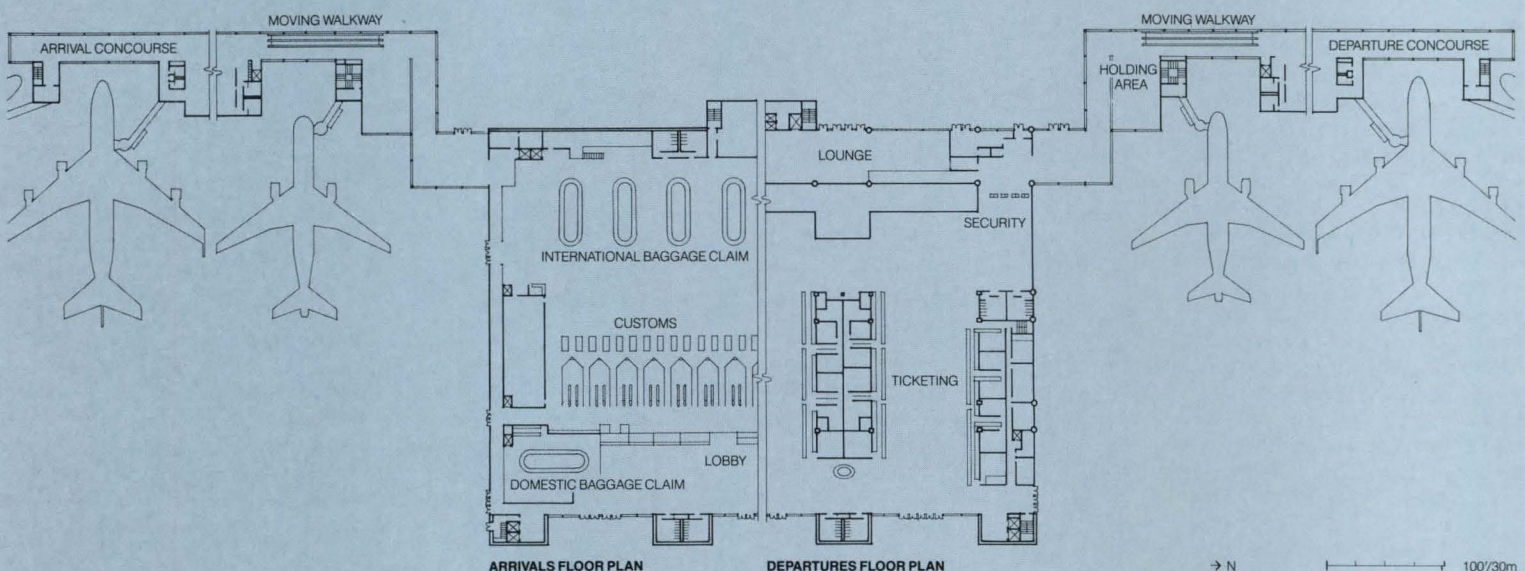
2 The Nashville Metropolitan Airport, designed by architects Gresham, Smith & Partners and Robert Lamb Hart with Thompson Consultants, has two piers radiating from a four-story atrium. To reduce traffic congestion at curbside, the architects have separated arriving and departing traffic, and ground transportation on a three-level roadway that takes advantage of a drop in grade. The concourses extend at 45-degree angles from the outside corners of the terminal, easing aircraft access to the gates. Between the concourses and ticketing counters are concession areas—their key location an expression of the importance of retail operations, not only to passengers, but to the airport authority. The holding rooms in the concourses project from the corridors and are framed by stairs and toilet facilities to provide the maximum amount of flexibility within each area.



SECTION

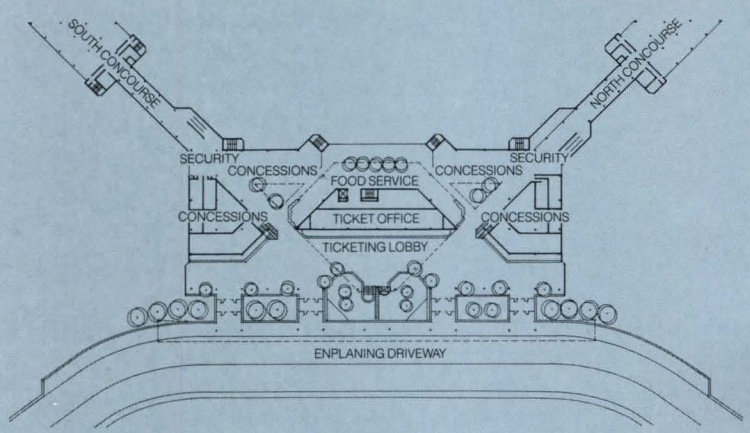
40'/12m

Ronald Moore Photography

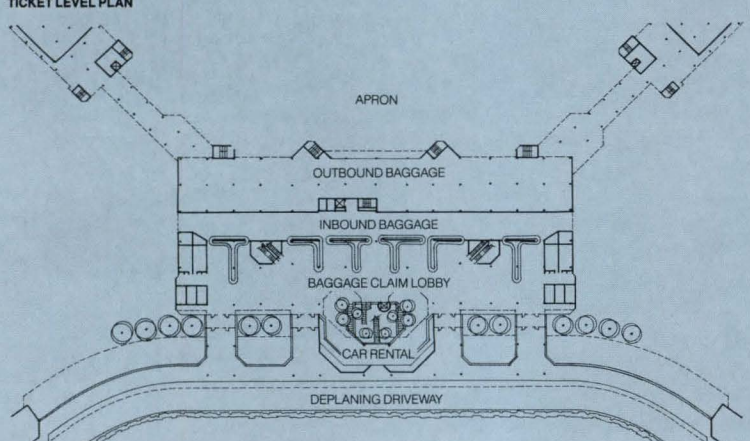


ARRIVALS FLOOR PLAN **DEPARTURES FLOOR PLAN**

→ N 100'/30m



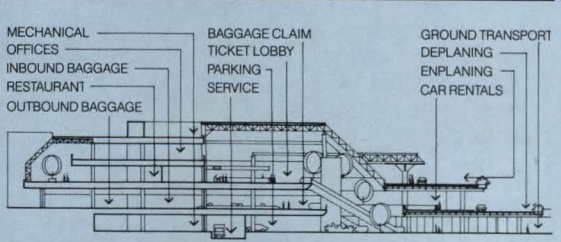
TICKET LEVEL PLAN



BAGGAGE LEVEL PLAN

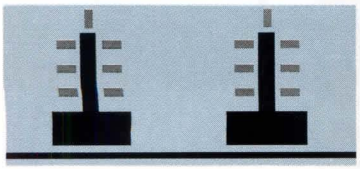
↘ N 100'/30m

Robert Lamb Hart

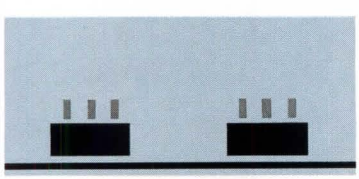


SECTION THROUGH CENTRAL LOBBY

100'/30m



Unit Terminals with Piers
The combination of piers and unit terminals can reduce the long walking distances that occur when concourses are all connected to a single large terminal building. Unit terminals usually allow departing passengers to park closer to their gates since the number of people seeking access to each building is relatively small. Also, assuming that some form of people-mover connects the terminals, this arrangement can shorten the walking distances among concourses. A further advantage of unit terminals is the ease with which they can be expanded laterally without seriously disrupting airport service. The disadvantages of this configuration include a greater redundancy of facilities required in each terminal and thus a higher construction and operating cost (see project 3).



Unit Terminals
Unit terminals used without piers require that planes dock at the terminals themselves. By eliminating the piers, this arrangement further reduces the walking distances of passengers. It also requires less square footage and provides better aircraft accessibility than other schemes. The major disadvantage of this configuration is the relatively fewer gates a given size terminal can accommodate. Other drawbacks inherent in *all unit terminal* concepts include a redundancy of facilities, higher construction and operating costs, and relatively longer taxiways. *Nevertheless, unit terminals* hold a distinct advantage in hub airports because they allow an airline that wants to centralize its operations to have its own *building and* develop its own identity (see project 4).

of changes.

The air-side of terminals also requires a higher degree of flexibility. "The ticketing counters at the gates should be movable," notes Theodore McCagg of the architectural firm TRA, "and the holding rooms should be open with no toilets, stairs, or other fixed elements obstructing their expansion." Such flexibility extends even to the curtain wall where the proper mullion spacing can ease the movement of loading bridges along a concourse to accommodate the wide variety of airplanes now flown by commercial carriers.

Deregulation has made the airlines not only more competitive and secretive, but more cost conscious. That can become a problem since most improvements in airports are paid for by revenue bonds backed by airline credit, giving the carriers considerable influence over what is done. "The airlines," says Andrew Zdzienicki of Tippetts-Abbett-McCarthy-Stratton, "try to get as much as they can for as little money as they can. Airport authorities may want higher quality buildings, but if the airlines won't spend the money, the authorities usually back down." Because the image of the airport is important to almost everyone, where cuts often occur, according to Zdzienicki, are in the quality of finishes. Cuts in those areas seem particularly short-sighted given the abuse to which airports are subjected and the length of time most airlines remain in terminals as tenants, and are particularly frustrating to architects given the relatively small percentage facilities demand from airlines' overall costs: less than three percent, according to one source.

The tug-of-war between airport authorities and the airlines extends beyond the question of finishes to that of who exerts the most control in terminals. The airlines, for example, used to sign long-term leases for their space, which gave them considerable influence in airport operations. But, as airlines have gone in and out of business more rapidly, airport authorities have begun to offer shorter leases in an effort to regain control of their terminals. The airlines, in turn, have begun creating hubs, often at underutilized airports—a move that, among other things, reasserts their influence over airport operations.

"Hubbing," to use the industry parlance, has made many airlines more efficient by allowing them to centralize their operations. It also has brought considerable economic benefit to the hub communities, "generating new jobs, attracting new businesses, and generally putting a city on the map of interstate commerce," observes Arnold Thompson. The effect hubs have had on the airports themselves also is considerable. "At many hub airports," says architect Robert Lamb Hart, "the concourses become almost independent terminals, with more concessions and ticketing operations there." Because "hubs have at least 50 percent of passengers transferring planes," adds Lowell Brody of the Grad Partnership, "baggage handling (also) becomes more complex, with more space required for conveyors."

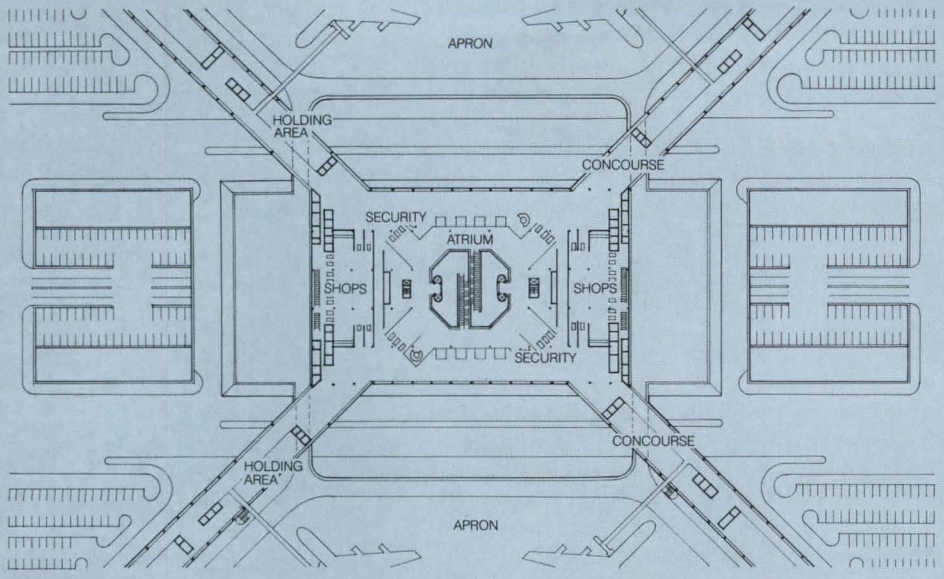
Another change in recent years has been a shift in airports' sources of revenue. Parking ranks just behind or, in some airports, actually ahead of the revenue received from the airlines—a fact that has led many airports to expand their parking lots or build parking garages. Concessions, too, have become an important source of income for airports, so much so, says Theodore McCagg, that "airports may someday become shopping centers that you fly from." No more just a collection of bars, restaurants, and gift shops, concessions at airports have become much more diverse, including book stores and clothing stores, and have become more dispersed along concourses and in the terminals themselves. The larger airlines have taken advantage of this trend. Many have installed private clubs of their own that offer everything from lounges and restaurants to meeting rooms and computer facilities.

Accommodating the Passengers

Whatever else airports may offer in terms of services, they remain "essentially a movement system," comments Gyo Obata of Hellmuth, Obata & Kassabaum. Much of the money spent on airports since 1978 has been to insure that the increasing numbers

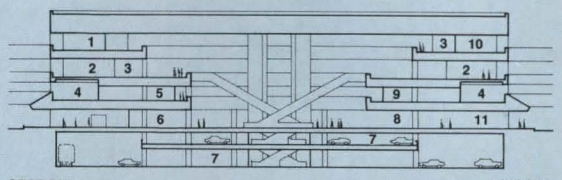
3 The Tehran airport, designed by Tippetts-Abbett-McCarthy-Stratton for the Shah of Iran in the mid-1970s, shows how unit terminals can work with pier concourses. All vehicular traffic was to have moved along a central circulation spine that connected the unit terminals and formed the upper level of a below-grade parking structure. Departures and arrivals were to have occurred on opposite sides of the same level. Baggage handling areas occupied the next level, bridging over the roadway to give baggage crews access to the aircraft. Above that stood the concession areas and access to the concourse holding areas, which were connected to the arrivals and departures level via escalators and elevators in a central atrium. The concourses extended from each terminal at 45-degree angles, allowing planes to power in and out of their gates and passengers to better orient themselves to the atrium spaces. A people-mover system was to have connected the various terminals. The design shows how the unit terminals can reduce the scale and distances of large airports.

4 The King Khaled International Airport in Riyadh, Saudi Arabia, was designed by Hellmuth, Obata & Kassabaum. It consists of four triangular unit terminals that are connected by moving walkways and a below-grade transit. Aircraft dock at gates along two sides of the terminals. Departing passengers move through security right after they have checked in; from there, they circulate around a central court to their gates. Arriving passengers are taken by escalators at the jetways to a lower customs, immigration, and baggage claim level, although these people too have visual access to the central court. The buildings, with their ascending shell roofs, represent a tradition in terminal design of expressing the activity of flight. The unit terminals at Riyadh have a fairly high ratio of floor space to the number of gates. But they offer room for amenities that are rare in terminals with a more efficient use of space.



CONCOURSE LEVEL

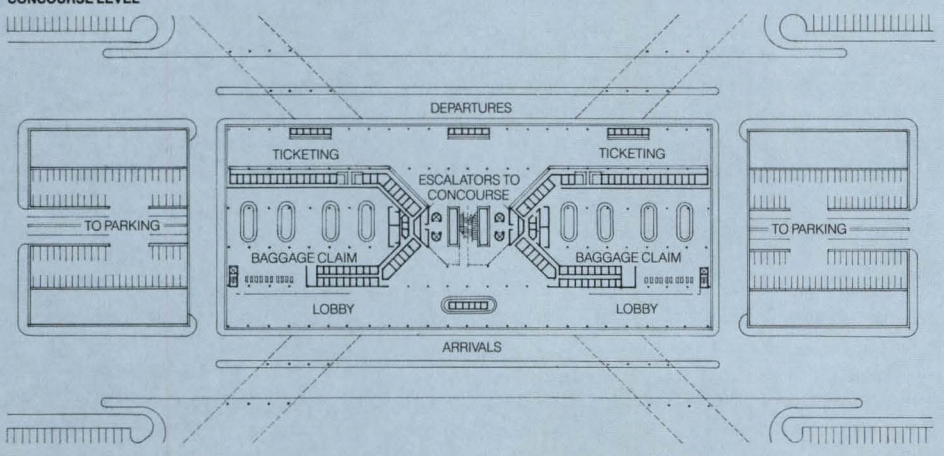
Jack Horner



SECTION

100'/30m

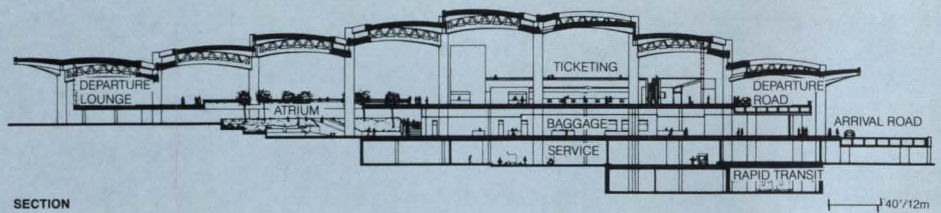
1 RESTAURANT SHOP
2 SEATING AREA
3 SHOP
4 BAG CART ROAD
5 OFFICES
6 VISITORS HALL
7 PARKING
8 CHECK-IN LOBBY
9 KITCHEN
10 FIRST CLASS LOUNGES
11 TICKETING



CHECK IN AND BAGGAGE CLAIM LEVEL

N→

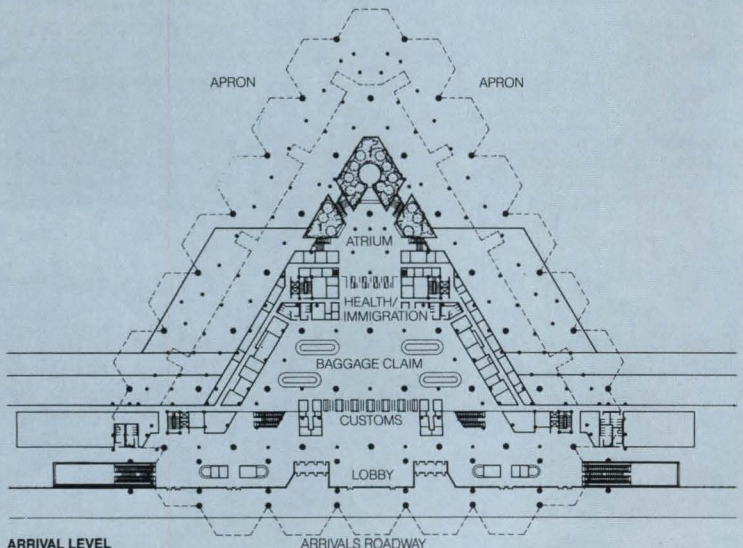
100'/30m



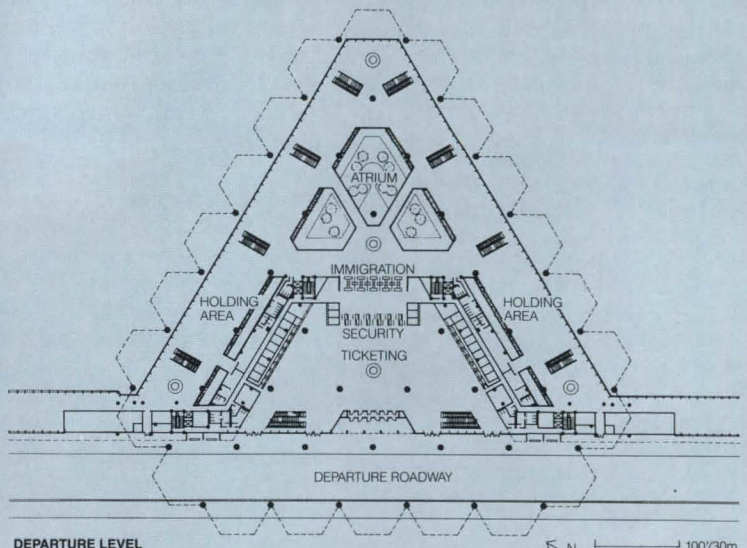
SECTION

40'/12m

Gregory Murphy



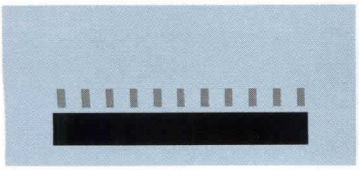
ARRIVAL LEVEL



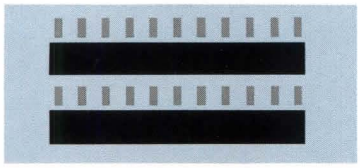
DEPARTURE LEVEL

N

100'/30m



Linear Terminals
Linear terminals can take two very different forms. At small airports with few gates, such terminals allow aircraft to dock alongside the main building. At large airports, the linear terminal idea has led to the elimination of a central ticketing and baggage facility in favor of a string of gates immediately adjacent to parking areas. For the small airport, the linear configuration results in a relatively low-cost structure that is also easily secured and convenient for both enplaning and deplaning passengers. For the large airport, the linear configuration presents many more problems. While the structure itself may be low in cost and convenient for enplaning passengers who can park near their gates, large linear terminals are costly to operate because of the redundancy of facilities and difficult to secure because of the large number of entrances (see project 5).



Linear Terminal with Satellite
One way of circumventing some of the problems associated with large, linear terminals is to combine them with remote satellite terminals. That allows the linear terminal to remain a reasonable length, without too great a distance between its farthest gates. If the terminals remain relatively small, the walking distances and redundancy of facilities can be kept to a minimum. The added advantage of remote satellites is the large number of planes that a double-loaded concourse can accommodate. Satellites, especially if served by an underground people-mover, also ease planes' access to their gates. The disadvantages of this configuration include the relatively large amount of acreage it requires and the high cost of people-movers (see project 6).

of planes and passengers do indeed keep moving. The trick, says Leon Moed of Skidmore, Owings & Merrill, "is to expand while keeping everything in balance. If even one part of a facility is undersized, the whole airport can suffer." More airlines and more passengers mean more gates, larger holding rooms, longer ticket counters and baggage carrousels, more concessions, larger parking areas, and wider access roads. The common bottlenecks occur at the security checkpoints, limited in dimension to increase control and minimize labor, and at ticket counters and baggage claim areas, especially when several large airplanes are departing or arriving at the same time. Ample queuing space in those areas is essential.

The price wars that have come with deregulation also have attracted more elderly and young people, making the efficient movement of people through terminals an even more difficult problem. While the codes have insured that most terminals are accessible to the handicapped, many airports still present travelers with excessively long walking distances. Two solutions to the problem—once popular but now largely discredited—involved busing people to airplanes or stretching out the terminal so that people could drive and park very close to their gate. The busing option fell out of favor because of the extra time and potential for trouble that it entailed. The park and fly option met the same fate because of the difficulty of securing such terminals and because of the inconvenience people faced when transferring planes or when returning to a gate distant from their point of departure.

What has reduced the walking distance in many terminals has been the installation of moving sidewalks and electric carts or trains. Cost remains the primary obstacle to the installation of such people movers, although lack of space also can be a major problem in older airports. The recent trend toward more compact terminals—driven as much for reasons of security as for convenience—also may bring some relief from long walks.

The clarity of a terminal's organization, while important to all travelers, is especially so to those less familiar with flying. "Terminals," says David Childs of Skidmore, Owings & Merrill, "should have a clear, simple order; a sense of procession; and a degree of transparency so that people can orient themselves in relation to the planes." Many airports don't achieve those goals because of the usually ad hoc nature by which they expand. Establishing an order strong enough and a circulation system simple enough to withstand future changes surely counts as one of airport designers' major challenges.

The movement of baggage through terminals is as important as that of passengers. To keep up with the crush of passengers, industrial designers have developed automated baggage handling systems. "The newest systems," says Geoffrey Egginton, "use lasers to read bar codes placed on each piece of luggage. The computer operating the system records each bag and then sends it down the appropriate conveyors." Such equipment requires an enormous amount of space; the baggage make-up room at the new United terminal at O'Hare Airport, for example, is 250,000 square feet. And, despite its level of automation, such equipment "doesn't necessarily save on manpower," says Theodore McCagg. "The sheer number of bags going through large airports simply requires that degree of automation just to keep up."

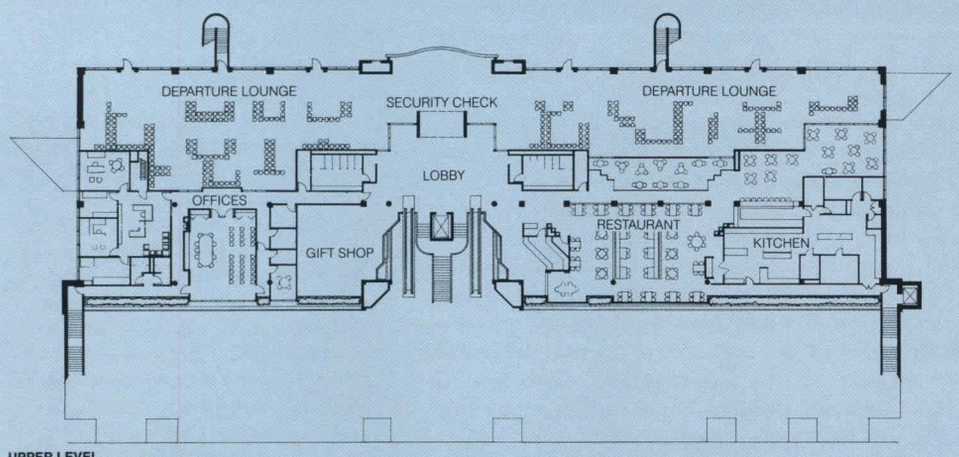
Securing Passengers

Baggage also has become the focus of what, next to deregulation, is the most difficult issue facing airports: terrorism. Up to now, protecting against this has had a minimal effect on the design of terminals; the most obvious impact has been the placement of x-ray and metal detecting machines in concourses. But, as terrorists have become more sophisticated and their sabotage more widespread, the response to the threat also has changed.

One change has been in the processing of baggage. Airlines, for example, have increased their use of curbside baggage check-in—an effort aimed not only at speeding up the processing of departing passengers, but at separating people and baggage as soon as possible to allow a more careful examination of luggage

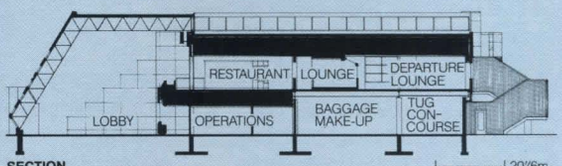
5 The new terminal designed by Foss Associates with Thompson Consultants for Fargo, North Dakota, exemplifies many of the planning issues that face small airports. Its relatively small amount of vehicular traffic allowed the placement of both departure and arrival curbs on one level. That, in turn, allowed the placement of ticket counters and baggage claim on the same level, separated by a central core of escalators, stairs, and toilets. Concessions and holding areas at Fargo occupy a second floor mezzanine above the airline offices and baggage sorting rooms. Linear schemes have several advantages for small terminals such as that at Fargo. The building is compact, walking distances are short, and circulation routes are clear. Expansion, too, is simplified since both departure and arrival areas can be extended in a linear fashion without disrupting service. The difficulty comes when such terminals go beyond a certain size; the dimensional requirements of the aircraft eventually become much larger than those of the terminal.

6 The United terminal at Chicago's O'Hare International Airport was designed by Murphy/Jahn with A. Epstein and Sons. It breaks the airport's pattern of central terminals with Y-shaped piers by using both a linear and a satellite configuration. Departing passengers arrive at the second level and get checked in at a series of flow-through counters; these allow a more efficient processing of people, although they work best in terminals occupied by a single airline. Once passengers have checked in, they move immediately through security and into a linear, skylighted concourse with gates along one side. Escalators and moving walkways offer below-grade access to a remote satellite terminal with a double-loaded concourse. Baggage sorting also occurs in a large room beneath the apron. The linear and satellite concourses give planes easier access to their gates with enough space between the buildings for two wide-body jet taxiways.

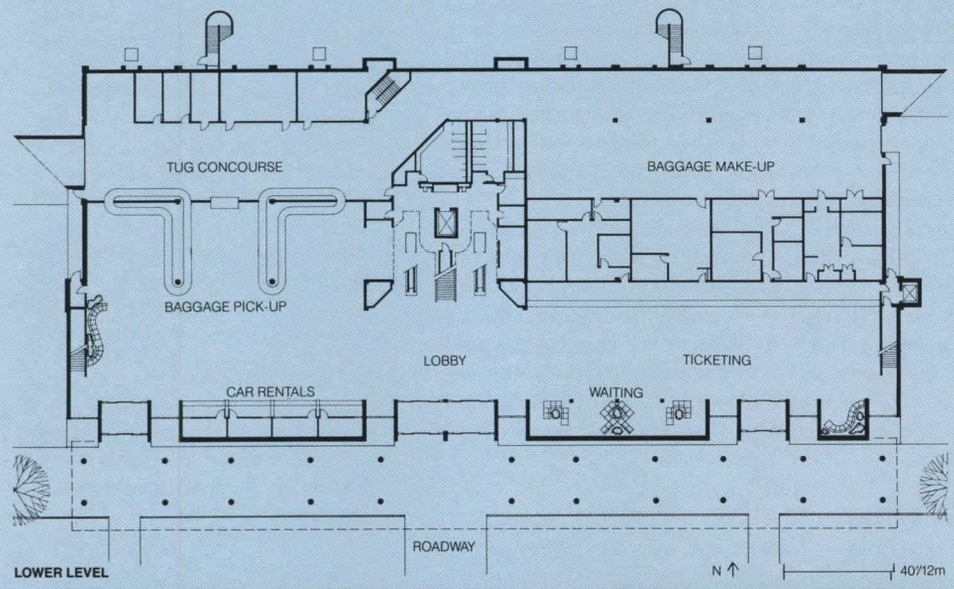


UPPER LEVEL

Joel Strasser

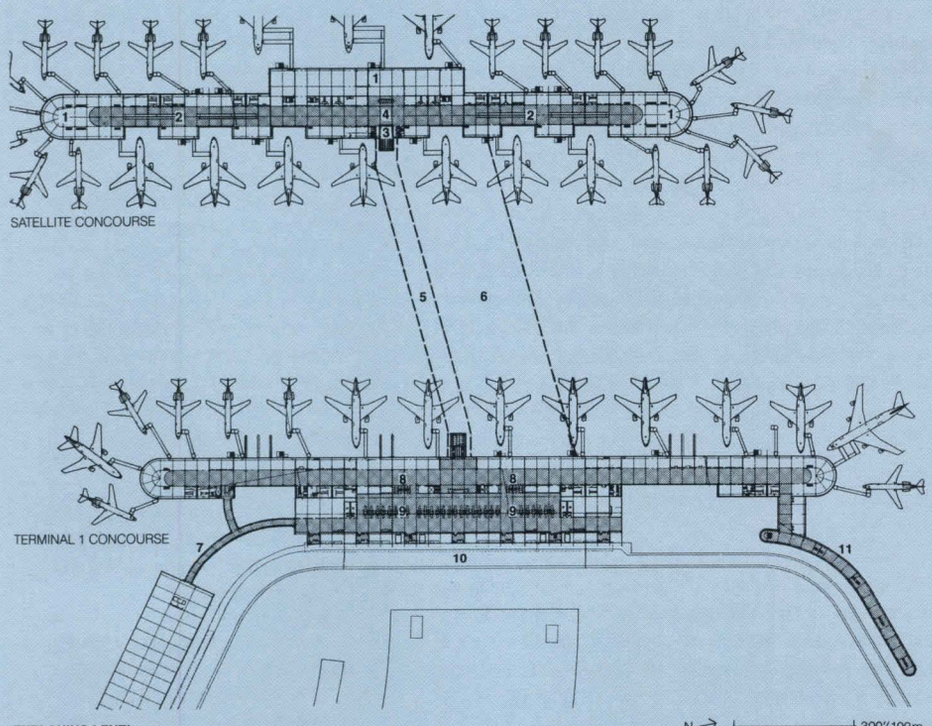


SECTION



LOWER LEVEL

Murphy/Jahn



ENPLANING LEVEL

1 HOLDING AREAS
2 MOVING WALKWAYS
3 ESCALATORS
4 CONCOURSE
5 UNDERGROUND MOVING WALKWAYS
6 UNDERGROUND BAGGAGE SORTING ROOM
7 WALKWAY TO EXISTING TERMINAL
8 SECURITY
9 FLOW THROUGH TICKET COUNTERS
10 ENPLANING ROAD
11 COMMUTER CONCOURSE

ARRIVAL LEVEL

The Casual Quilted Giraffe
New York

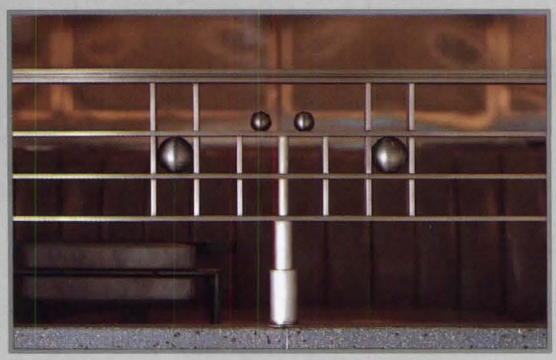
Cool and Crisp

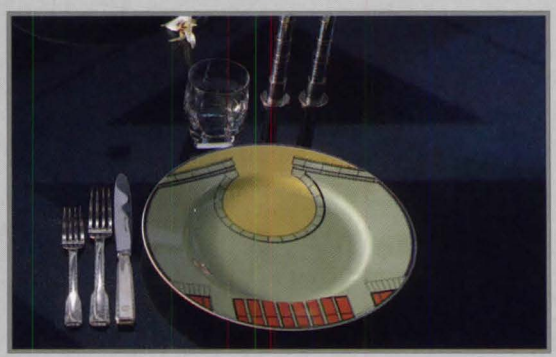
Precise geometry, a palette of tough but luxurious materials, and impeccable detailing are the hallmarks of McDonough Nouri Rainey & Associates' design for an unusual New York restaurant.

TUCKED into the ground-floor arcade of New York's AT&T Building is one of the more controversial experiments in current restaurant design. The clients, Barry and Susan Wine, already owned The Quilted Giraffe, renowned far beyond New York for its adventurous haute cuisine. But for their second venture, a more informal, "no-tablecloth" dining spot, the Wines asked New York architects McDonough Nouri Rainey & Associates, with senior designer Michael Neal, to create "an elegant cafe," which they christened The Casual Quilted Giraffe. The new restaurant is indeed elegant; casual it is not.

The 2200-square-foot, 90-seat dining room is sleek, cool, and opulent in its materials, and nearly fanatical in its consistency of proportion and detail. It is organized along a major axis with the dining/bar area at one end and the kitchen/coat check/restroom area at the other defined by a silver-leafed wine console and waiters' station, respectively. In the dining area, this axis bisects a square, anchored at each corner by a pair of stainless steel torcheres with hammered aluminum reflector bowls. Raised galleries, bounded by stainless steel railings, contain banquette seating on the north and west sides. Above the gray leather banquettes, custom wall panels of shimmering, perforated stainless steel absorb noise, as do similar panels in the vaulted ceiling. The floor, dividing walls, and bar base are charcoal-colored terrazzo, while the table and bar tops are black granite. The architects' fascination with detail is endless: the bar top has a plan of the restaurant inlaid in niobium and titanium, colored by electrical charges, and the table tops have tiny geometric-pattern inlays of the same metals. The pass-through windows at which waiters pick up food from the kitchen are double-hung, counterweighted, etched-glass wonders. Silver-plate wine buckets are designed to hang on the stainless-steel railings. The proportions of the room are legible in the varying widths of the expansion joints in the terrazzo. Even the dishes are de-

From the AT&T arcade, the visitor's first glimpse of the Casual Quilted Giraffe is its bar (above left), made of terrazzo, granite, and stainless steel. Beyond it, the dining area (above right) consists of a square seating area anchored by four pair of stainless steel and aluminum torcheres, and enclosed on two sides by raised banquette seating (facing page). Perforated, double-layered stainless steel wall panels absorb sound, and reflect light from the stainless steel wall fixtures. The strong geometry of the vaulted ceiling, which contains more stainless steel acoustical panels and low-voltage lighting, is based on a 90-degree rotation of the dining room's central square.



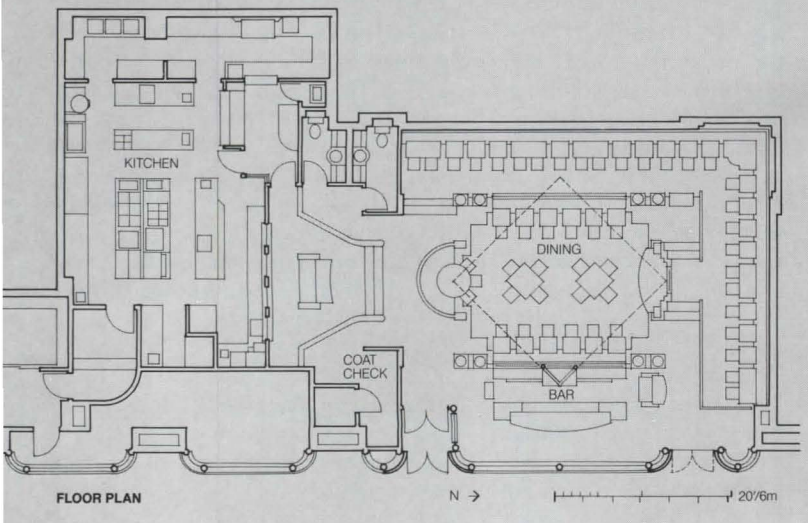


signed: per the clients' request for an architectural motif, architect J. Woodson Rainey, Jr., created a plate that features the famous AT&T top. This is design that just won't quit.

But does it make for a successful restaurant? The Casual Quilted Giraffe is architecturally impeccable, efficiently organized, acoustically civilized, and skillfully lighted. Owner Barry Wine calls the design "truly avant-garde," reports that restaurant cognoscenti (as well as other architects) rave about it, and gives full credit to the architects for the high caliber of design and workmanship. Nevertheless, the clients have added some distinctly nonarchitectural embellishments (not shown in these photographs)—pink gels over the wall lights, gift-wrap bows on the torcheres, and stuffed bears sporting Casual Quilted Giraffe t-shirts, to name a few seen on a recent visit. According to Barry Wine, they were deemed necessary "from a business standpoint" to mollify "a certain segment of the restaurant-going public that feels it's too cold a design."

That may be, but stuffed animals aren't going to warm it up. Unlike much of today's restaurant design, which is either mock-period-piece or safely Minimalist, McDonough Nouri Rainey's design is a piece of real architecture, and a good one. If it seems cold, it may be because the palette, which is intended to be neutral, is just too monochromatic. The elephant-gray upholstery looks too corporate against the beautifully crafted stainless steel, the light-reflecting potential of which would be increased even further by the substitution of white tablecloths for black tabletops. This, of course, would contradict the restaurant's "informal" concept, but then any place where lunch for two can often top the $100 mark isn't all that informal. This is a design that needs, if anything, dressing up—not dressing down. ***Pilar Viladas*** ■

The restaurant's main axis is defined by a wine console in the dining room (facing page, flanked by flower arrangements) and by a waiters' station in front of the pass-through windows to the kitchen (above), an area that is raised to accommodate kitchen mechanical systems. The kitchen windows, framed by a stainless steel "swag," are meant to be seen as a stage set for the behind-the-scenes workings of the kitchen. The geometry of the design is articulated in the terrazzo's expansion joints (top left, maître d's station) and the stainless steel railings (top right), and the restaurant's location is reflected in the plates (top center), with their motif of the famous broken pediment.



FLOOR PLAN

Project: *The Casual Quilted Giraffe, New York.*
Architect: *McDonough Nouri Rainey & Associates, New York (J. Woodson Rainey, Jr., partner in charge; William A. McDonough; Hamid Reza Nouri; Michael Neal, senior designer; Mark Rylander; Andreas Hausler; Lee Dunnette; Janet Roseff; Burt Tyson).*
Building architects: *John Burgee Architects with Philip Johnson, New York.*
Client: *Barry and Susan Wine.*
Program: *5500-sq-ft restaurant, including 2200-sq-ft dining/bar area and 3300-sq-ft kitchen, on the ground floor of the arcade at the AT&T Building.*
Major materials: *stainless steel; aluminum; terrazzo; glass; granite* *(see Building Materials, p. 178).*
Mechanical systems: *direct air supply through ceiling slots.*
Consultants: *Jerry Kugler & Associates, lighting; Cosentini Associates, mechanical; James Wiesenfeld, structural.*
General contractor: *F.J. Sciame & Company, Inc. (James Kilkenny, project manager; Richard Butrico, field superintendent).*
Costs: *$1.5 million, excluding fees.*
Photos: *Nathaniel Lieberman.*

Best Products Corporate Headquarters, Phase Two
Richmond, Va.

Best Laid Plans

Best Products decided not to follow the original plan for phased expansion of its headquarters that HHPA drew up five years ago as they completed the scheme's first phase. Phase two is radically different, but equally interesting.

Most of the 850-foot façade and all three phases of Best's headquarters can be seen when looking toward HHPA's phase two (above). Their phase one of five years ago (photo, overleaf) is at the extreme west (left) of the building, and Marcellus Cox and Smith's phase three is between the two. The glass block wall that formed the full-height of the two-story phase one is used for the three-story phase two (facing page), but half of the lower floor extends below it and half of the upper one above it. The portico extends inside and rises and widens to become an atrium.

WHEN Best Products completed phase one of its corporate headquarters (P/A, Feb. 1981, pp. 66–73), it was generally presumed that the phased expansion of the building would follow the master plan that Hardy Holzman Pfeiffer Associates drew up along with the original building. But that turned out not to be the case.

It was decided not to build phase two contiguous with phase one. Phase two, moreover, was to be larger than that envisioned in the master plan—three stories rather than the established two—and it was to be very economically constructed.

About the time HHPA began working on phase two, the company acquired an additional catalog-showroom retail merchandising business almost as big as Best itself, which had already been the largest in the country. With this acquisition, Best rose from a $1 billion to a $2 billion a year business, but profits did not rise proportionately. Nevertheless, the company had to expand again, and again very economically. But this time the new management decided not to go with HHPA, whose work was seen by some in the corporate hierarchy (according to HHPA sources) as too costly. Consequently, for phase three, the corporation brought in Marcellus Cox & Smith, with whom the new president had worked before. MC&S were also asked to furnish the interiors of HHPA's phase two.

HHPA's Phase Two

Phase two is basically a box with one end stepped in plan to accommodate a continuation of a portion of the curved glass block wall that distinguishes phase one. "We couldn't use it for the whole building," Malcolm Holzman reports, "because it would have been much too expensive." They also could not, for the same reason, continue any of the water course that is such an important feature at the base of phase one. But the glass block wall does form a very sensible and imaginative transition from phase one. It is of the same height and at the same level as the earlier wall, but behind it, the lowest building level is halfway submerged into the ground so that only half of the third floor rises above the two-story glass block wall. Because the site slopes away to the east, the land at the western portion of the building in front of the glass block wall is bermed to give an appearance similar to that of phase one.

The Atrium

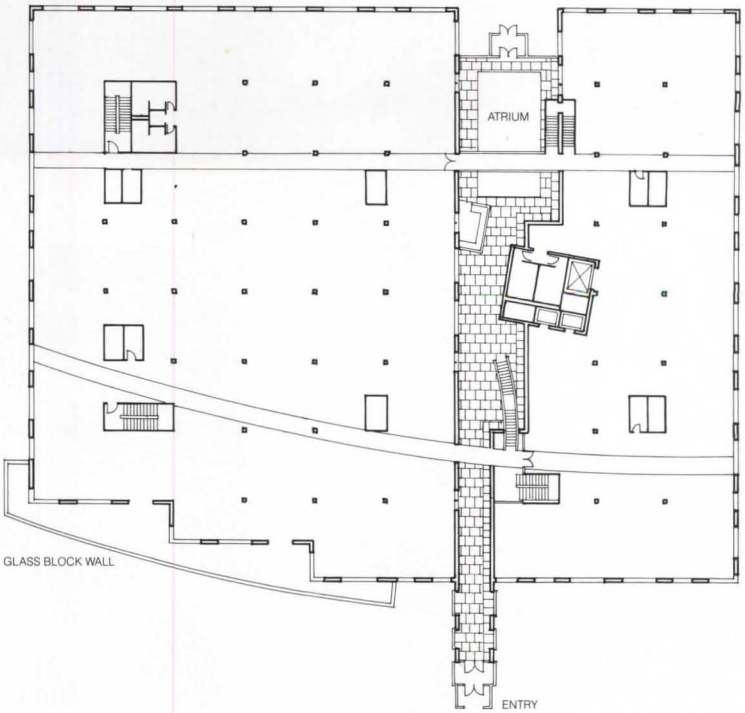
At a point about two thirds to the east of the front façade, phase two is literally cleft in two by a metal and Kalwall entry portico. This extends as a great, gabled, skylighted hall to the rear, continually rising and widening to form the central atrium lobby for phase two (pp. 112, 113). "We took the money away from the skin so we could

The plan of phase two (right) shows how the entry widens to become an atrium toward the rear; also, it shows the tiled passageway, which is repeated from phase one and is also used in phase three, connecting the entire 850-foot length of the building.

The two-story phase one (photo below) is separated from the land by a water-course, but this element was not repeated for the glass block wall of phase two.

The entry portico (facing page, bottom) that extends as a hall and atrium through the building emerges as a high, skylighted portal at the rear (facing page, top).

The cement shingles that clad most of the exterior of phase two seem to be random, but they are actually applied in a repeating pattern in white, gray, and black.



FIRST FLOOR, PHASE 2 ↑ N 40'/12m

spend it on the atrium," Holzman explains, "so that people wouldn't feel like second-class citizens in here" (which, one presumes they would feel, given the office spaces).

The atrium, which seems to explode toward the woods in the back (facing page, top), is a vast, dynamic space rising almost 70 feet, and traversed by bridges connecting the two halves of phase two. About halfway into the entry hall, the elevator core stands as a canted box, seemingly dropped into the space. It is clad in verde and cipollino Italian marble applied in a manner "to look thick," Holzman confides. The floors are surfaced in a beautiful New York State flagstone of various dark but warm hues. The west wall of the atrium is rather a shock, though. It is clad in Tectum panels, a material normally used for roof decking but not hung on the walls for its sound absorbing qualities, as it is here, since the 1950s.

The Offices

The office interiors are minimal. There is nothing of interest in them like the "colonial houses" partitioning system and rich layout that HHPA devised for phase one. There is, though, the same tile pattern on the main circulation route, which repeats the curved path of phase one.

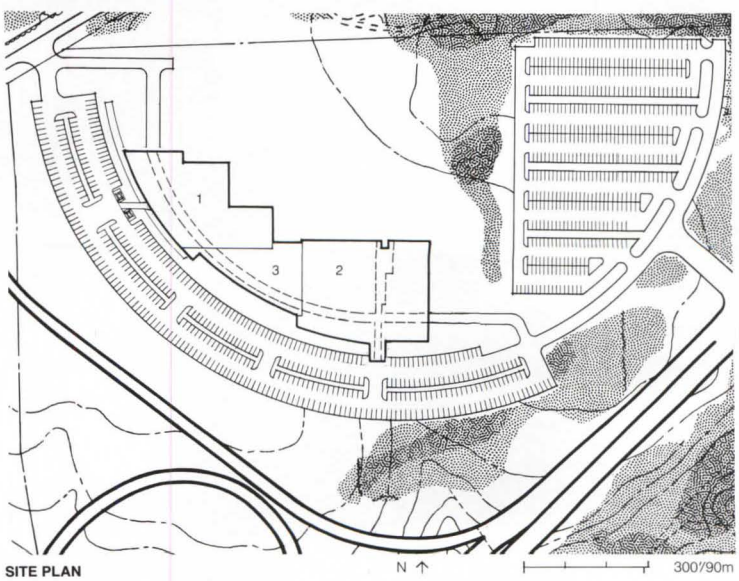
The interiors of both phase two and of MC&S's phase three are absolutely work-a-day open office spaces monotonously filled with beige furniture systems. Only the art on the walls tells you that you are in Best's offices.

The Exterior

By far the most unusual and fascinating aspect of phase two is the exterior cladding material used for most of the front and all of the back of the 300-foot-long addition. Here, the building gets down to basics: shingle on tar paper on plywood. The 16″ x 16″ shingle is made of inorganic-fiber-reinforced cement and applied in a white, gray, and black pattern that at first seems to be random, but which turns out on close inspection to have a repeat. Here again, an ordinary material is used in a most unusual way.

MC&S's Phase Three

As far as MC&S's phase three is concerned, it should be given high marks for its deferential posture toward the HHPA pieces flanking it. The wedge-shaped structure (far left in photo, p. 108) presents a simple curtain wall to the front, it picks up the same terra cotta cornice and base line as phase one, and it even steps back several feet from the HHPA portions. Both inside and out, it is about as unobtrusive a connection as one could want.



SITE PLAN N ↑ 300'/90m

The atrium is almost 70 feet high toward the rear of phase two (facing page, looking toward the front of the building). It is topped by a Kalwall and Metaline roof, and one of its sides is clad in Tectum panels—a roofing material that has not been used in this way since the 1950s. The elevator core is clad in two kinds of Italian marble: verde and cipollino.

Bridges running through the atrium (right) connect the three levels of phase two, and the carpeting on the floor is a repeat of that used in phase one, originally inspired by a painting by Jack Beal.

At the rear of the atrium (bottom), a high glass wall gives views out to the woods and gardens beyond. Typical of the Best corporation, though, there is still a lot of art on the walls inside.

Inside, phase three had to accommodate the transition from the two-story phase one to the three-story phase two. It does this by way of a curved hall with ramps that follow the same path as the main circulation spine of phases one and two. Now, the entire 850-foot-long building is connected by one major, continuous interior circulation spine. But, since as far as one can determine, economy was the justification for switching architects for phase three, it would be interesting to know what that phase cost. According to company spokesmen, however, the figures are not available yet.

Phase Two's Economy

If it was an economical building Best wanted, that is exactly what they got with HHPA's phase two. It is twice the size of phase one, and cost the same amount of money, five years later. With this addition, HHPA continues their reputation for surprises. But this time one of the surprises was the price: a $62.50 per square foot cost for a building that delivers an unusually high return on the client's investment. ***David Morton*** ■

Project: *Best Products Corporate Headquarters, Phase Two, Richmond, Va.*
Architect: *Hardy Holzman Pfeiffer Associates New York (Malcolm Holzman, partner in charge; John Lowery, project manager; Charles Muse, project architect; Barlene Fridstein, Robin Kunz, interiors; Kim Beeler, David Gross, Mark Kessler, Lindsay Reeds, team).*
Client: *Best Products Company, Inc.*
Site: *partially wooded flat area facing I-95 outside of Richmond.*
Program: *office building of 135,000 sq ft including 4300-sq-ft atrium.*
Structural system: *concrete foundation, steel W-shape columns, concrete slab floor on metal deck.*
Major materials: *mineral fiber shingles on exterior sheathing on 6-in. metal studs with batt insulation infill; terra cotta; facet surface glass block and solar reflective glass block on steel bar joists at 6' 0" o.c.; special glass corner blocks; gypsum board on metal studs (see Building Materials, p. 178).*
Mechanical system: *electric rooftop units.*
Consultants: *HHPA, atrium interior; LeMessurier/ScI, structural and mechanical; Jules Fisher & Paul Marantz, lighting.*
General contractor: *The Whiting-Turner Contracting Co.*
Costs: *$10,230,000; $62.50 per sq ft, not including furnishings.*
Photos: *Norman McGrath.*

P/A Technics
Precast Concrete

Some architects never gave it up, but others are rediscovering architectural precast concrete after several decades. The projects shown on these pages demonstrate the range of possibilities.

CONCRETE is as old as the Romans, but the precast concrete industry in the United States is still fairly young. "Precast and prestressed started in the U.S. in the early 1950s," says Richard Hill of Exposaic Industries in Charlotte, N.C. "It's still a small industry compared with other building materials. Architects are just getting into it."

Getting into it again, in fact. Although structural precast has long dominated some markets, most notably those for parking garages and industrial buildings, architectural precast has had its ups and downs. All the rage in the 1960s, precast was perhaps excessively identified with certain styles—the rough, Brutalist boxes of Marcel Breuer, the finicky Gothic of Minoru Yamasaki, or the corporate kit-of-parts of SOM and many others. When those styles fell from favor, the material did too.

Quality control also proved problematic. "Precast was getting a good share of the work ten years ago," says Kansas City architect Stephen Abend (page 115). "But service and scheduling were problems." "Precast has had an image problem," admits Muriel Burns of Preco Industries. "We've seen our competitors getting ahead of us," says Joseph Mallamo of Exposaic, who heads a committee of the Precast Concrete Institute set up to study the results of a new marketing survey. But, he adds, "It's coming back. We need to let architects know the quality has improved over the years."

Some architects, of course, don't need convincing. "Precast concrete is the ideal building material for these times—for the same reasons it was so twenty years ago," argues New York architect Herbert Beckhard (page 116). The classic advantages of precast, which first attracted architects from Le Corbusier to SOM after World War II, remain today. Durable, versatile, and readily available, precast concrete is above all an efficient material.

Technical Advances

Although the basic technology hasn't changed dramatically, minor but significant modifications have expanded the precast repertoire. "Dynamic wall" designs that assemble a series of precast elements into very large structural units, most commonly through post-tensioning, have made larger spans possible. The use of glass-fiber-reinforced concrete and other lightweight aggregates (page 117) allows for the fabrication, shipping, and lifting of lighter or larger units. New aggregates and pigments have extended precast's color range.

In addition, tilt-up construction, formerly confined to one- and two-story industrial buildings, is now used for three- and four-story prime office buildings, some with elaborate towers and setbacks. Finally, although precast remains largely a regional industry, the old rule of thumb—100 miles from factory to building site—is obsolete. Indeed, Canadian precast products have proved surprisingly competitive in this country (page 118).

Substitute Materials

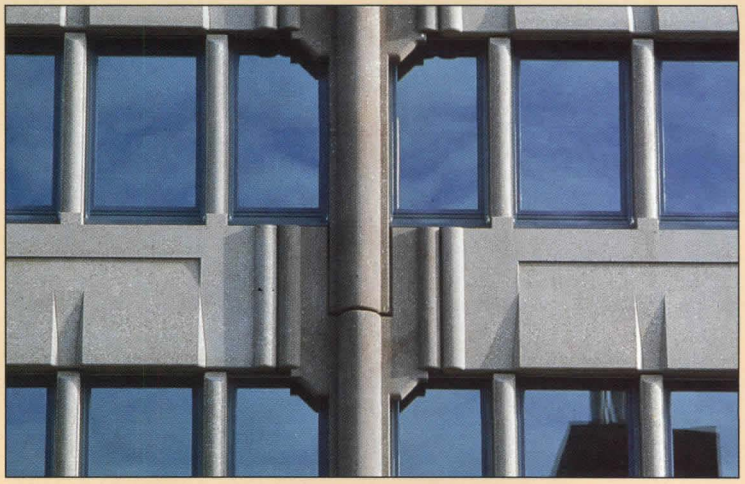
It is, however, not the natural properties or appearance of precast but its ability to mimic other materials that accounts for much new interest. The precast building of the future may not immediately appear to be precast at all. "People take it for granite," says one ad, promoting precast as an economical substitute. Mixed claddings are increasingly favored, especially for high-rises, whose lower floors may be clad with granite or another natural material, while upper floors are enclosed in cheaper, precast panels using aggregate that mimics those materials. Similarly, composite claddings with factory-applied facings of stone, brick, or ceramic tiles can offer considerable savings over conventional hanging methods.

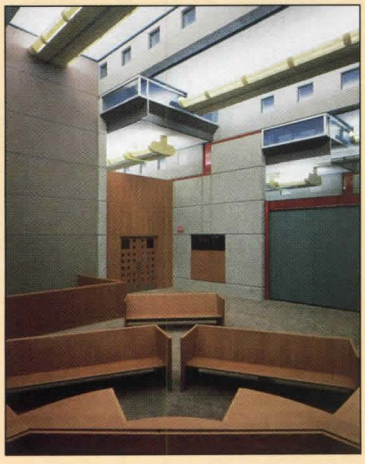
Precast, or cast stone as it is known in the preservation world, has long provided an economical and durable replacement material, replicating a wide range of historic detail (page 119). The resurgence of historicism, moreover, has created a whole new market for precast in Europe (p. 119) and America (p. 118). "It is difficult to imagine an architectural style that cannot be expressed with this material," claims PCI. Architects are, increasingly, proving that claim is no hyperbole.

Daralice D. Boles ■

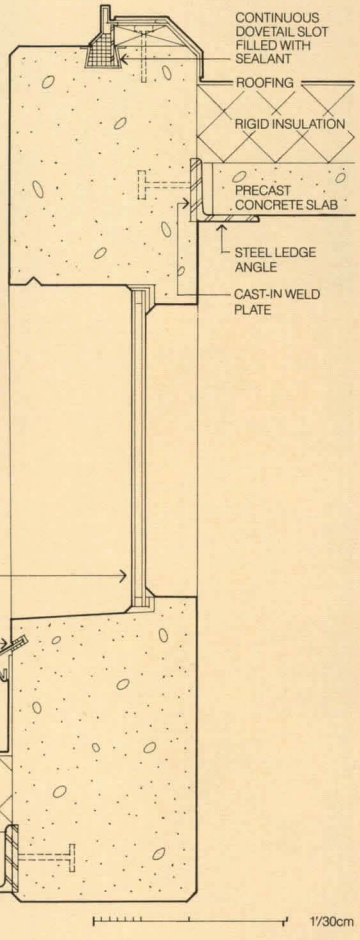
Acknowledgements

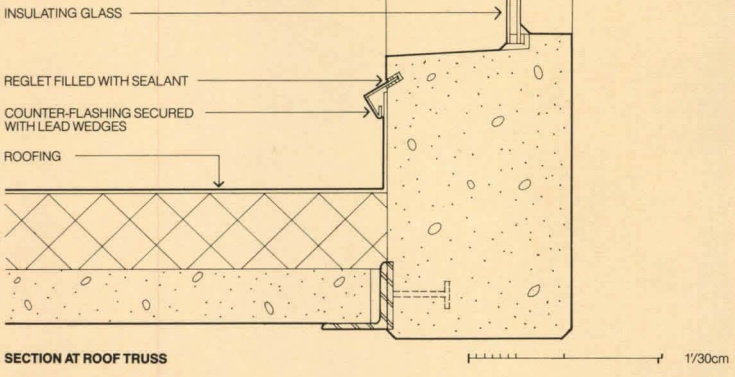
In addition to those individuals mentioned in this article, P/A would like to thank the following individuals for their assistance: Sydney Freedman, Brian Goodmiller, Prestressed Concrete Institute; David Hanson, Fabcon; James Horstman, Scott Knickelbine, The Delos Company; Frederic Nassaux, American Concrete Institute; Robert Walton, Architectural Precast Association.





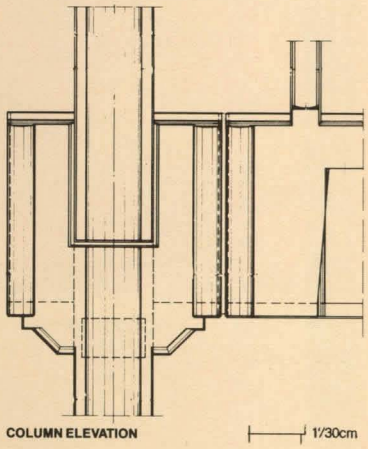
Photos: Assassi Productions



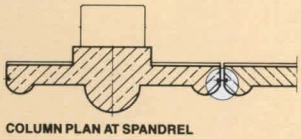


SECTION AT ROOF TRUSS 1/30cm

Photos: Deidi von Schaewen

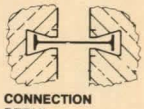


COLUMN ELEVATION 1/30cm



COLUMN PLAN AT SPANDREL

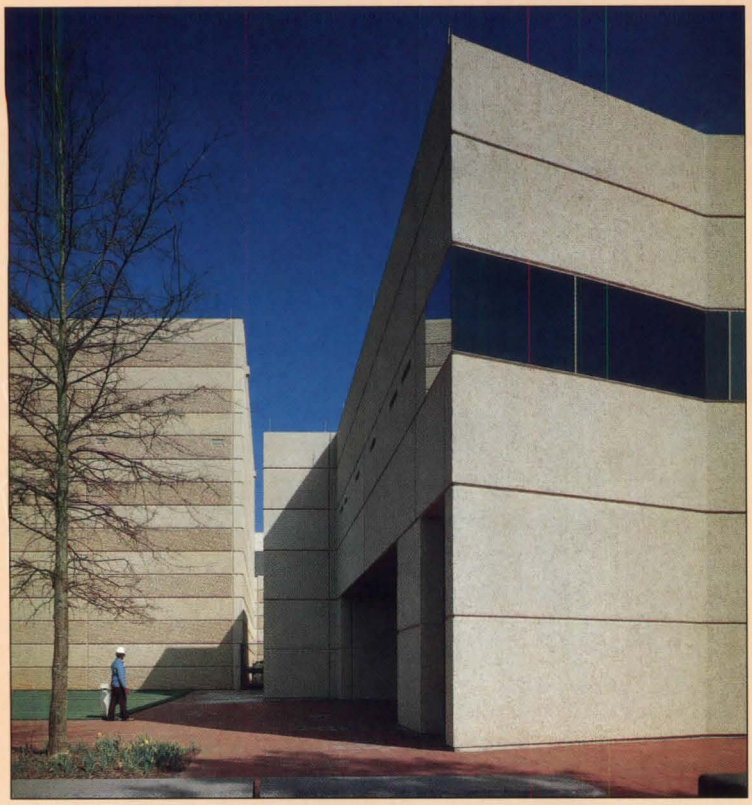
COLUMN PLAN AT WINDOW

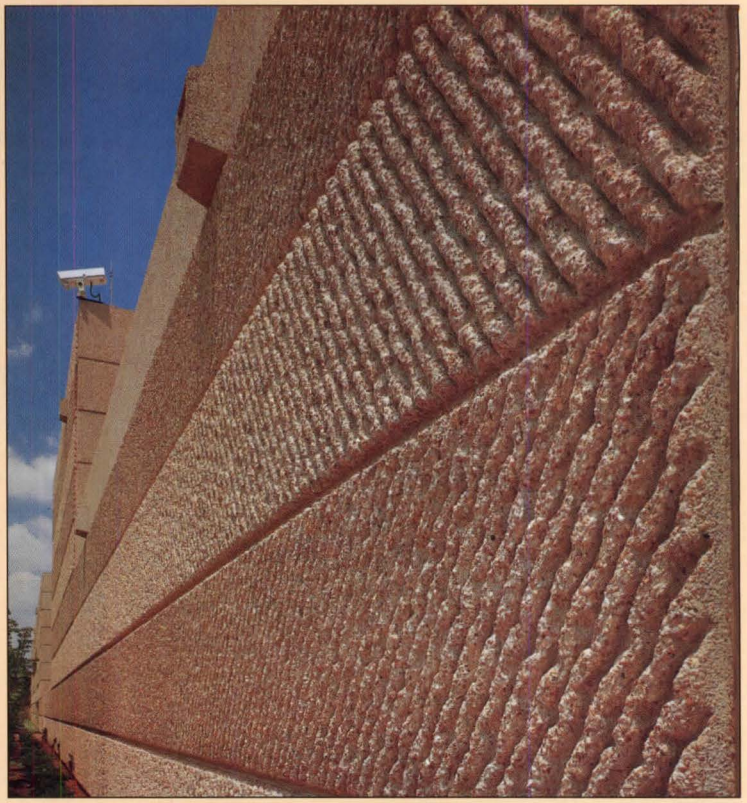


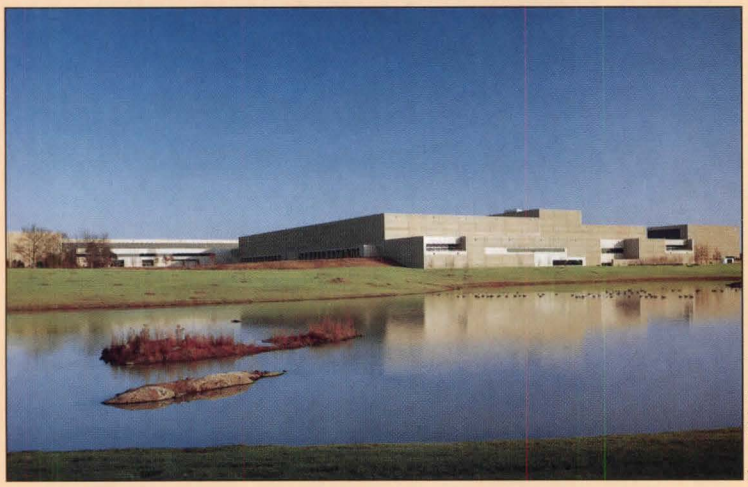
CONNECTION DETAIL

Clay County Adminstrative Service Center, Kansas City, Mo. Architects: Abend Singleton Associates, Kansas City. **Although the first design for this small, 10,200-square-foot government office building called for reinforced masonry, precast concrete proved more economical. "Precast suggested a stone appearance—a real solid, monumental look," says architect Stephen Abend. "The building is designed as an expression of prefabrication. It's a kit of parts, all of which are modular and manufactured off-site." The bearing walls, exposed outside and in to cut the cost of interior finishes, have a heavy, sandblasted finish with well-defined joints. These walls support smooth-finish, "brush-blasted" precast beams that are cut through with clerestory windows and act as trusses (top). Organized in five ascending 12-foot bays (the building is recessed into a hill), the beams span a maximum of 72 feet (bottom). Although the architects had hoped for a more colorful concrete, the strict budget allowed only ordinary structural gray cement and a sand-colored aggregate.**

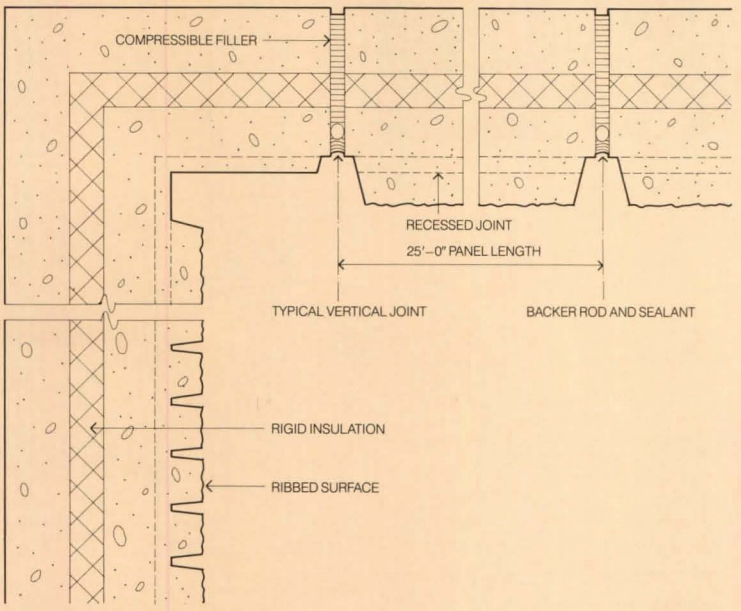
Zublin Headquarters, Stuttgart, West Germany. Architects: Gottfried Böhm, Cologne. **A well-known international contractor, the Zublin company itself manufactured the precast concrete for its new company headquarters outside Stuttgart. Virtually every element is executed in precast, from the atrium trusses and bridges to the stair towers, including treads. The floors are constructed of precast plank, with a poured concrete finish, supported on precast columns and beams. The façade's decorative spandrel panels, cast separately with integral window mullions, were designed with a slight profile that projects over the glazing (middle). Böhm used iron oxide pigments to color-code structural elements, with columns tinted a darker shade of red. (A white cement mix was used for the lighter spandrels, and a normal mix used for the columns.) Connections are exaggerated, the edges of adjacent pieces thickened to accommodate plastic connectors (see column plan at spandrel and connection detail). The fine, granitelike finish is achieved by the use of a retarding agent in the mold and, subsequently, a fine high-pressure washing, which exposes the Rhine sand texture.**







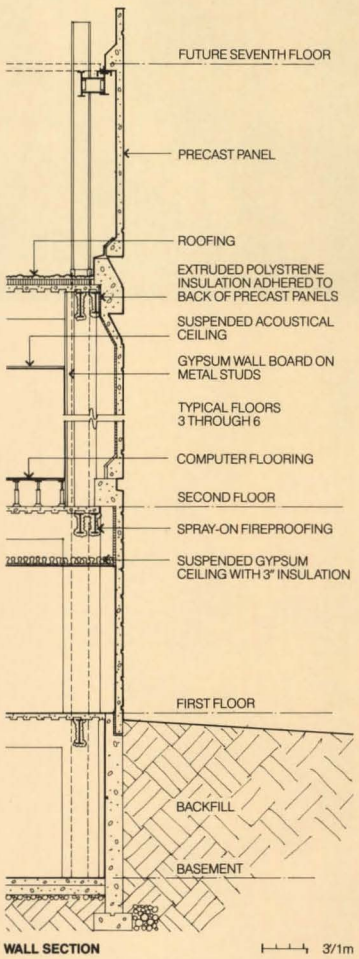
Photos: Rick Alexander



TEXTURE DETAIL

Philip Morris Cigarette Manufacturing Facility, Concord, N.C. Architects: Beckhard Richlan & Associates, New York.

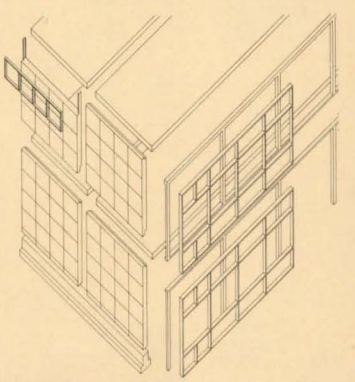
Herb Beckhard learned the art of precast from a master—Marcel Breuer. The architect considers precast "a phenomenally sensible choice" for contemporary buildings. He acknowledges, however, that precast construction has "drifted away from the Breuer code." Improved glass technology, for example, has virtually eliminated the rationale behind Breuer's heavy sunscreens, which were designed to cut daylight. Instead, says Beckhard, precast has become more overtly decorative, but with "a decoration generated by the material, or an expression of the structure." The long façades of Philip Morris, for example, are shaped by massive 8′ x 28′ panels (bottom). These simulate the hand-hammered look of "fractured fins" (top right). Precasters Exposaic of Charlotte, N.C., first built a smooth-ribbed mold of wood, casting from it one master panel. That piece was then hammered and sandblasted, and a rubber mold was made of its hand-finished surface. This second mold was used to cast the final panels. Working "within the parameters of the material," Beckhard shifts to smooth-finish precast panels at corners and around windows (top left). Exposaic produced over 500,000 square feet of precast for Philip Morris over the course of 15 months. The order was, says sales manager Richard Hill, ten times the size of a normal job, but was made manageable because "the architects did an extremely good job on detailing."



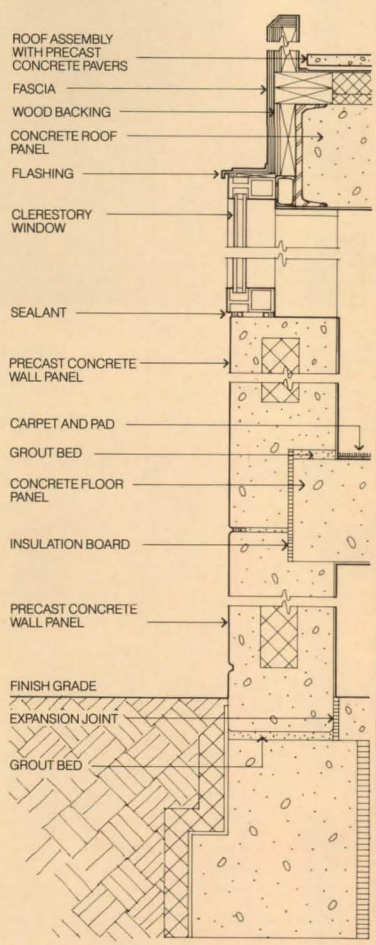
WALL SECTION 3/1m

Duke Power Computer Center, Charlotte, N.C. Architects: J.N. Pease Associates, Charlotte.
A fast-track schedule made precast "the only skin we could use that the contractor could get in time," says project designer Allan Wingfield of this 203,541-square-foot addition to an existing computer facility. Designed and constructed over a 10-month period, the center occupies a tight urban site. Precast components were therefore stored off site and brought in as needed. The decorative "tartan plaid" that gives relief to massive windowless walls is the result not of pigmentation but of texture (bottom).

The typical panel produced by Columbia Concrete Products, Columbia, S.C., is 8′ x 16′ x 6″. Within each panel, the light-colored, six-foot square was lightly sandblasted. The surrounding two-foot-wide grid, set off from the squares with a 2-inch-wide by ½-inch-deep reveal, was given a darker, rougher finish through the use of retarders that exposed the aggregate (middle). The same finish was used for the building's striated base (top). The deep-set reveals on the long façades are purely decorative. The huge parapets are designed for future relocation when the building expands.

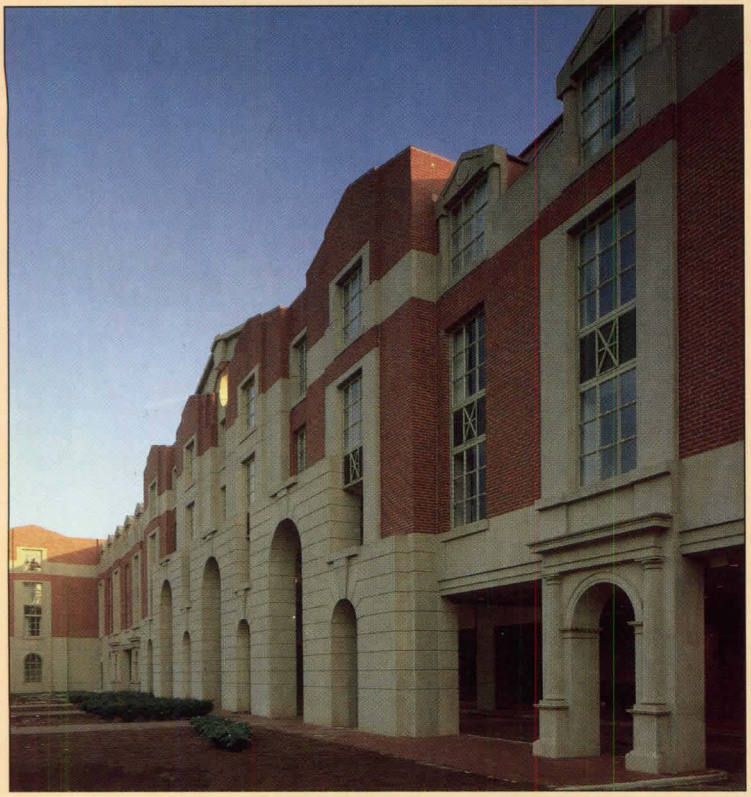


CONSTRUCTION ELEMENTS

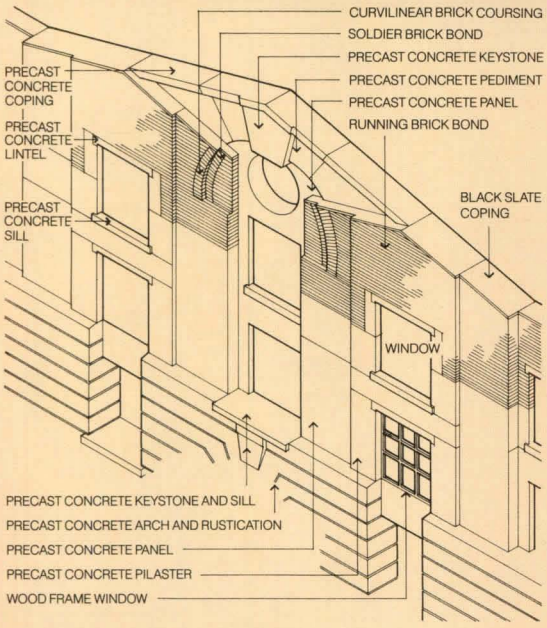


WALL SECTION 1'/30cm

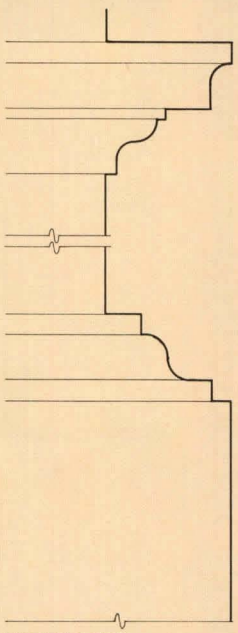
Rockwood Residence, Portland, Oreg. Architect: David Rockwood & Associates, Portland.
This permanent residence for a retired couple is constructed of two separate structural systems: a steel tube and glass curtain wall, and lightweight precast concrete sandwich panels used for walls, floor, and roof (top). The pumice aggregate concrete wall panels, fabricated by Pacific Concrete Fabricating, Vancouver, Wash., are 11′-6″ square, scored with centerlines to produce what the architect terms a "plaid grid" (bottom). Each panel's 10-inch thickness is composed of a 3½-inch inner wythe that is loadbearing and a 3-inch non-loadbearing outer wythe, separated by 3½ inches of rigid urethane insulation. (This system allows inner and outer faces to respond independently to the differing temperatures of outdoors and in.) Welded steel girders bind inner and outer wythes together. Vertical steel channels cast into inner panel edges are welded together to form column supports at the clerestories. The pumice aggregate proved not only cheaper but also lighter (80 pounds per cubic foot) and stronger than standard weight hard rock concrete.



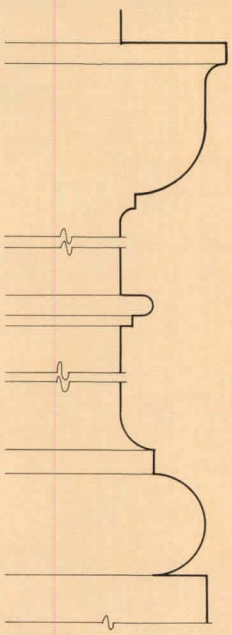
Photos: Jack Pottle



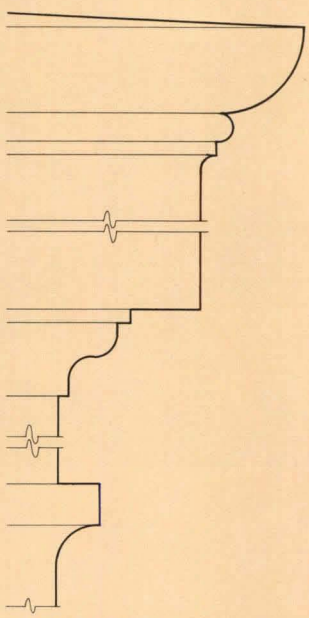
AXONOMETRIC OF PRECAST CONCRETE PEDIMENT



PEDESTAL PROFILE

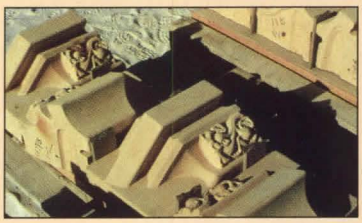


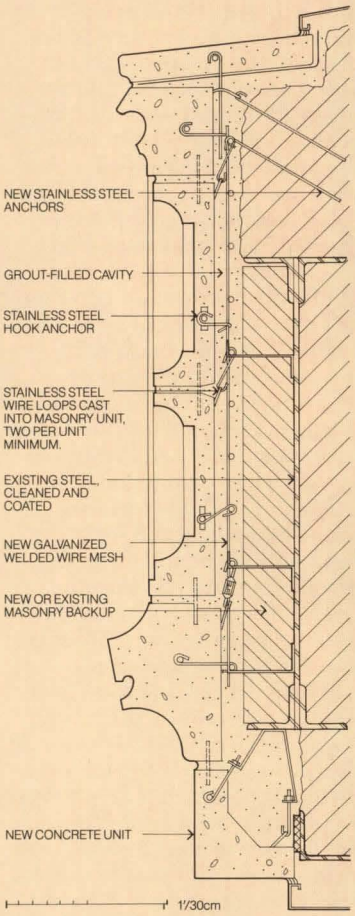
COLUMN PROFILE



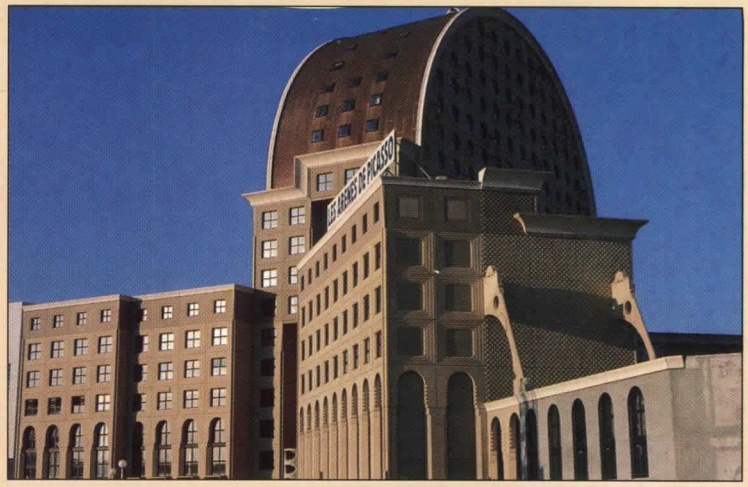
ENTABLATURE PROFILE

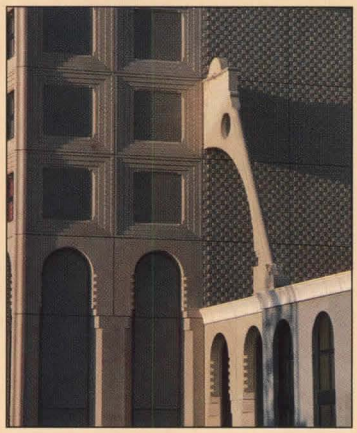
Hyatt Regency Hotel, Greenwich, Ct. Architects: Kohn Pedersen Fox Associates, New York.
Acid-etched precast was used in place of ornamental limestone for Classical columns, dormers, and other details of this 400-room hotel. Canadian Pre-Con Company "worked with us instead of fighting us," says project manager Charles Alexander. For example, Pre-Con cast the interior atrium columns in four separate pieces: the base, top, and two slender cylinders. Steel rods cast into each piece were then welded together at the knuckles and connecting collars cast around them to produce a monolithic appearance (right). Precast is also used as a backup support for the brick veneer, which was laid up in the field and tied back into the precast wall with steel connections. The system proved less expensive than standard masonry. It also looks better, says Alexander, than integrated brick tile and precast panels, which "can't turn corners. We got a more traditional, monolithic facade," he continues. "It looks more massive, more true. We never wanted it to look like precast." The project also makes use of more conventional precast products and practices, including structural precast planks used in construction of the top three floors and loose-laid lintels and sills for some windows.

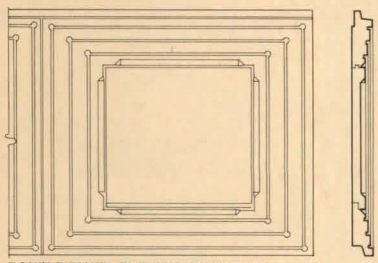




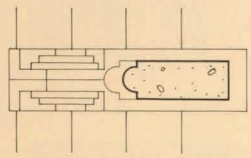
SPANDREL ANCHORAGE DETAIL

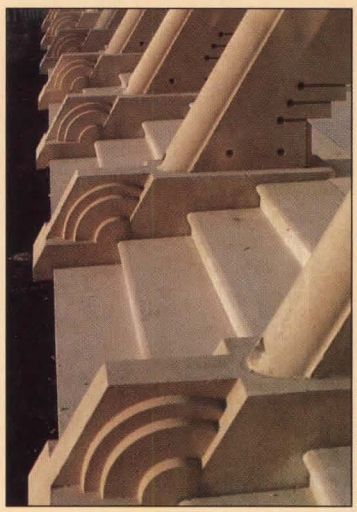


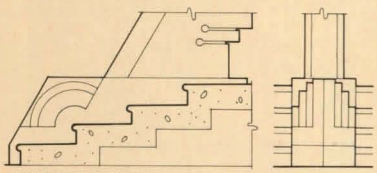




DOUBLE PANEL, ELEVATION AND PLAN







COLUMN BASE IN PLAN, SIDE AND FRONT ELEVATIONS

Photos: Deidi von Schaewen

Woolworth Building Restoration, New York. Architects: The Ehrenkrantz Group & Eckstut, New York.
The high cost and limited availability of terra cotta made cast stone an economical substitute for restoration of the Woolworth's damaged terra-cotta façade (top). Several precast mixes were tested for the effects of freeze-thaw cycles, sun, and acid exposure. The selected precast was integrally colored, lightly sandblasted, and finished with a waterproof coating (middle). Art Cement Products, Wilbraham, Mass., produced over 26,000 replacement pieces, using 630 wood and metal forms and 185 rubber molds for the more ornate pieces (bottom). The elements are held in place by stainless steel hangers attached to individual anchors or, where several adjacent pieces were replaced, to a galvanized steel grid. A total of ten color variations were accomplished by successive pours: "from the side, it looks like a layer cake," says Ehrenkrantz principal Theodore Prudon. He feels that cast stone will remain a specialized business. "For manufacturers, restoration has always been a sideline. For standard precasters, it's too finicky, and the quantities are too small."

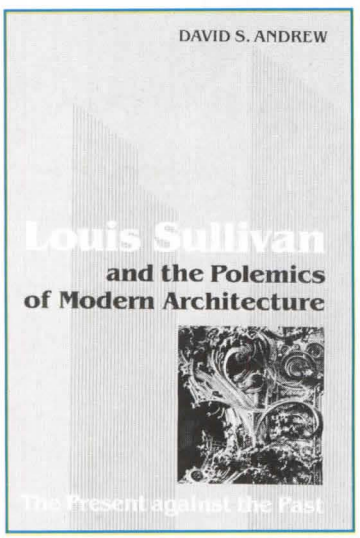
Les Arènes de Picasso, Marne-la-Vallée. Architect: Manolo Nuñez-Yanowsky, Paris. European architects have long appreciated the sculptural possibilities of precast concrete, but few push the material as far as does Manolo Nuñez. In this housing project outside Paris, Nuñez takes advantage of advanced French casting techniques to produce an astonishing range of complex geometric shapes, reminiscent in some places of Art Nouveau, in others of computer circuitry. The precast panel drawings communicate Nuñez's intentions by means of elaborate "captions" and arrows or numbers (+0, +3, +5) indicating the direction and rise of a given plane. Curved pieces, like the cornice of the great disk, are located and sized mathematically by means of angles and radii. The pieces themselves are held in place by means of metal studs or plates, the latter attached to the panel by means of embedded pins. The metal connections are soldered together, then covered in a cement mortar.

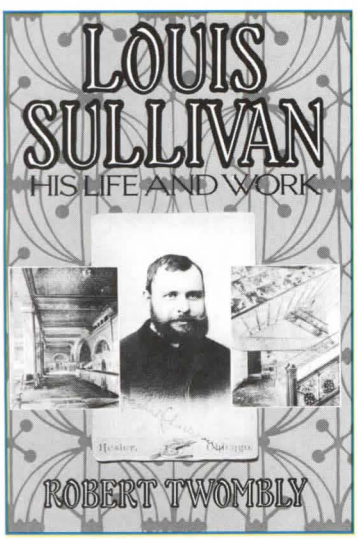
Books

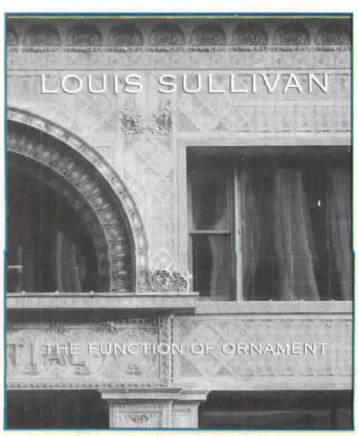
Louis Sullivan and the Polemics of Modern Architecture: The Present Against the Past *by David S. Andrew. Champaign, The University of Illinois Press, 1985. 200 pp., $19.95.*

Louis Sullivan: His Life and Work *by Robert Twombly. New York, Elisabeth Sifton Books/Viking, 1986. 530 pp., $29.95. Paperback edition, University of Chicago Press, 1986, $16.95.*

Louis Sullivan: The Function of Ornament *edited by Wim De Wit, with Introduction by Gyo Obata. New York, W.S. Norton & Co., also Chicago Historical Society and the St. Louis Art Museum. 1986, 224 pp., illustrated, paperbound $35.00.*







Sullivan—Lieber Meister

Is the architect a heroic master builder or a professional product of his time and culture? By their very formats, the two new books about Louis Sullivan raise this large question. To David Andrew, Sullivan's life and work is an excuse for social criticism: "I have written also to suggest that such men as Louis Sullivan might be regarded, not so much as heroes in their childlike technological optimism, but as allegorical figures in a Faustian object lesson." The sad life of Sullivan is indeed a trope in American architectural history. Andrew justifies his *Louis Sullivan and the Polemics of Modern Architecture: The Present Against the Past* with the above quote. He seeks to put the architect's personal self-destruction in terms of the aims and context of the, perhaps impossible, task of his architecture. It is the equally important contribution of Robert Twombly's *Louis Sullivan: His Life and Work* to collect and organize all that is known about that life so that we may better know the architecture it produced within the context of a culture that allowed it to emerge. Andrew gives us the reasons for Sullivan's ultimate failure; Twombly traces its successful imprint on our society.

Twombly seeks to reconstruct every detail of his subject's life, down to the boat he boarded to return to America after his stay at the École des Beaux-Arts in Paris. Such detail becomes tedious, yet out of all this information emerges an architecture. When Twombly defines Adler & Sullivan's early designs in terms of their response to the needs of a *nouveau riche* Jewish clientele seeking to build itelf an acceptable life in a new city without a culture, the basis is laid for a reevaluation of much early Midwestern domestic design. Similarly, the fact that such a large percentage of the Adler & Sullivan firm's work was industrial lends a factual base to the mechanistic models proposed by critics, starting with Sullivan himself for their later, more civilly oriented work.

It is in the discussion of the architect's sexuality that the author is most effective in justifying the relationship between building and human action in late 19th-Century society. Sullivan's image of himself as the central actor whose role is to translate the lines society has written for itself into built poetry, which will clearly enunciate otherwise inchoate desires and self-images, was frustrated throughout his life by the overwhelming weight of physical and social rules and regulations into which he had to insert his buildings and out of which he sought to construct an architecture. Similarly, his desire to act "naturally" and responsibly and to give direction to his peers and students was frustrated by a sexual and social persona severely at odds with then accepted norms of behavior.

The most successful buildings Sullivan designed were places of social gathering and display, while his otherwise provocative houses suffered, according to Twombly, from the fact that they were "shrines for some idealized notion of a family that would have been totally unsuitable for real living." Similarly, he failed to give direction to his society or his profession in his civic commissions, such as the Transportation Building at the Columbian Exposition. It was instead in those façades or commissions of consumer celebration that he could create a fantastic image of reconciliation through a weaving together of an architecture that was both alienated enough from daily life to be acceptable and elementally honest enough to be recognizable that Sullivan created masterpieces. Though Twombly never seems to want to elucidate the exact nature of Sullivan's strategy of fantastic and organic self-alienation, and though his actual descriptions of buildings are forced at best, he has laid out all the material within the clearly understandable narrative of Sullivan's life.

It is logic and facts that are almost completely lacking from Andrew's book. Instead, he has a central thesis to carry us quickly through his slender version of Sullivan's life and work. The author claims to have discovered the hidden contradiction at the heart of the architect's eventual demise and "formal ambiguity" he sees in all of his work. By taking literally Sullivan's writings, Andrew has come to the conclusion that while the architect claimed to desire the creation of an organic architecture whose appearance would be as natural as that of a flower, he instead contributed to the destruction of the natural world and the creation of disjunctive artificial social relations that mark the urban world by participating in the creation of the business-oriented American city. Sullivan also claimed to want to represent a culture, says Andrew, but then ignored society's wants and desires to impose his own idiosyncratic vision on its infrastructure.

What Andrew fails to notice—and it is amazing that his editors similarly ignored this simple logic—is that Sullivan was making an argument out of analogy. He was not claiming that the city should be a flower, but that its growth should be like one. "Organic" for Sullivan meant natural, not naturelike. In fact, it is interesting to note that Sullivan's so-called organic ornament is in fact a fantastic, almost mechanistic translation of plant forms into shapes that much more closely reflect the industrial and social world in which he was building. Nature for Sullivan was already a distant source for abstract ornament or for relaxation, not a vital part of his life. His ideal was instead, as he said, that ". . . above all there shall effuse from the completed structure a single sentiment which shall be the spiritual result of a prior and perfect understanding and accumulation of all the data." A romantic scientist, Sullivan believed—as Twombly ably demonstrates—that he could

(continued on page 127)

Chicago Historical Society

Sandblasted door window, 1883, from Function of Ornament.

fully know his situation without making ethical judgments on his client or users, and then transform both his context and his life into a better stage for human action. Andrew makes a value judgment based on transference: because he as author longs for the return of a world without cities and social turmoil, without architecture and nature as separate realms, he blames Sullivan for failing to share this desire and attempting instead to create a world beyond that separation.

Andrew's real problem is in fact with the "modernism" Sullivan is thought to have fostered. Such an architecture created a "wholesale fabrication of forms" by elitist architects manipulating the uncomprehending populace through their fancy buildings. Unfortunately, Andrew is probably right about the alienation of modern American architecture. It is strange that Sullivan, who fought all his life against an architecture that was not representative of the forces and institutions that housed it, and against an architecture dominated by elitist male manipulators of cultural elements so arcane and distant as to be outside of the realm of the user or observer of the metropolis, is blamed for this situation. Architects cannot be blamed for their clients, as Andrew does in damning the Wainwright building because the developer was a fraud. They can withdraw, or they can engage in either Andrew's Faustian or Twombly's Oedipal opera of forms. We can only judge their performances.

Perhaps Sullivan's idealistic and earthy architecture was doomed, perhaps one cannot build in an unjust city. Yet the desire to bring architectural justice to fruition remains the driving force for the best architects today. Whether it is in the biographical facts of the architect's life or in the farce of modern existence that this perhaps self-destructive constructive impulse is based, it is a desire for which Sullivan's architecture remains a tall and soaring object. ■

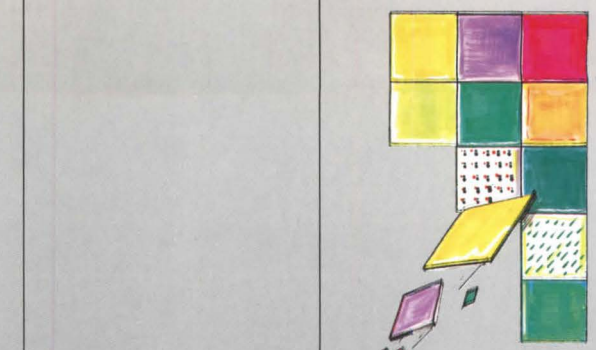
Aaron Betsky

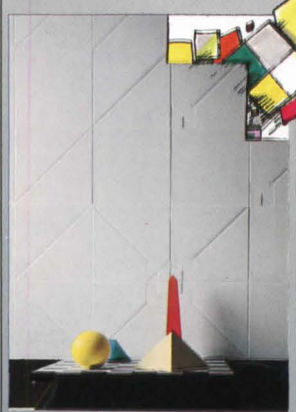
The reviewer is an architect and architectural journalist working for Frank O. Gehry & Associates in Los Angeles.

Sullivan's Ornament

As a handsomely illustrated and attractive companion to the books discussed above, *Louis Sullivan: The Function of Ornament* also provides scholarly essays on the subject. The volume was initiated by the St. Louis Art Museum and the Chicago Historical Society as the catalog accompanying the exhibition (of the same name), which debuted in Chicago last September and will move to New York's Cooper-Hewitt Museum (March 25–June 28, 1987) before ending at the St. Louis Art Museum (August 28–October 25, 1987). In the book, David Van Zanten discusses Sullivan's design up to 1890, William Jordy gives quite a detailed exposition of the tall buildings, and Wim De Wit discusses the extraordinary bank buildings. The volume ends with an analysis of the critics' reactions to Sullivan by Rochelle Berger Elstein, and a contributed Chronology and list of Sullivan's major designs, by Robert Twombly. ■

COOPERATIVA
CERAMICA D'IMOLA
is the largest supplier
of ceramic tiles from
Italy in the U.S.

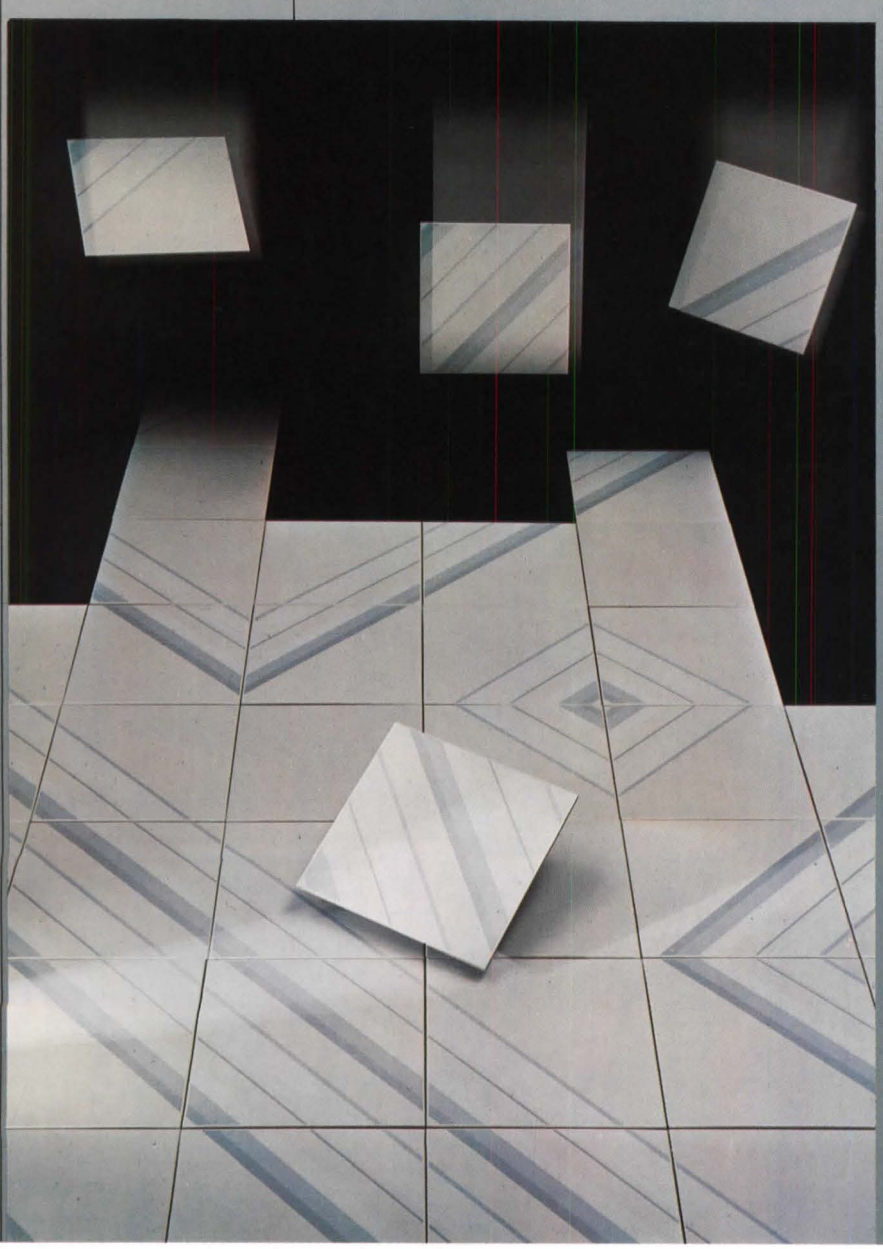




since 1874

COOPERATIVA CERAMICA D'IMOLA

IS LEADER IN DESIGNING & MANUFACTURING CERAMIC TILES AND CAN OFFER AN INCOMPARABLE SELECTION OF PRODUCTS. SHOULD YOUR DESIGNS CALL FOR SPECIAL SOLUTIONS, OUR NATIONWIDE NETWORK OF DEALERS IS AVAILABLE TO YOU WITH HUNDREDS OF COLORS, SHAPES, DESIGNS.



PLEASE CONTACT US FOR CATALOGS AND SAMPLES:

M.F.G. Manufacturers Rep. Inc.
3811 N.E. 2nd Ave.
Miami, Fla. 33137
Phone 305.573-4506
Telex 6811211

W.S. ENTERPRISE INC.
1741 Coral Way
Miami, Fla. 33145
Phone 305.858-4744
Telex 803089

COOPERATIVA CERAMICA D'IMOLA
Via Vittorio Veneto, 13
40026 Imola (BO) - Italy
Phone 0542-31500
Telex 510362
Telex 222194

Circle **No. 325**

MARCH 17th '87
bee's day
NEW YORK

THE FIRST INTERNATIONAL CONVENTION OF TILE INDUSTRY CULTURE & ART

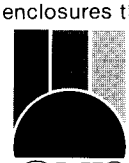
QUALITY & INTEGRITY —
the logical reasons to

Sunbilt™ Creative Sunrooms are architectural additions, designed and built to last by an affiliate of J. Sussman, Inc., a highly regarded, internationally renowned company known for quality and integrity for over 80 years.

Service, Cooperation, Delivery and above all QUALITY are the hallmarks of **Sunbilt Solar Products by Sussman.** Specify **Sunbilt** for trouble free glass enclosures that meet or exceed snow and wind load code requirements. Don't settle for anything but the best — **Sunbilt.**

Write or call for a FREE color catalog.

SUNBILT DEALERSHIPS AVAILABLE



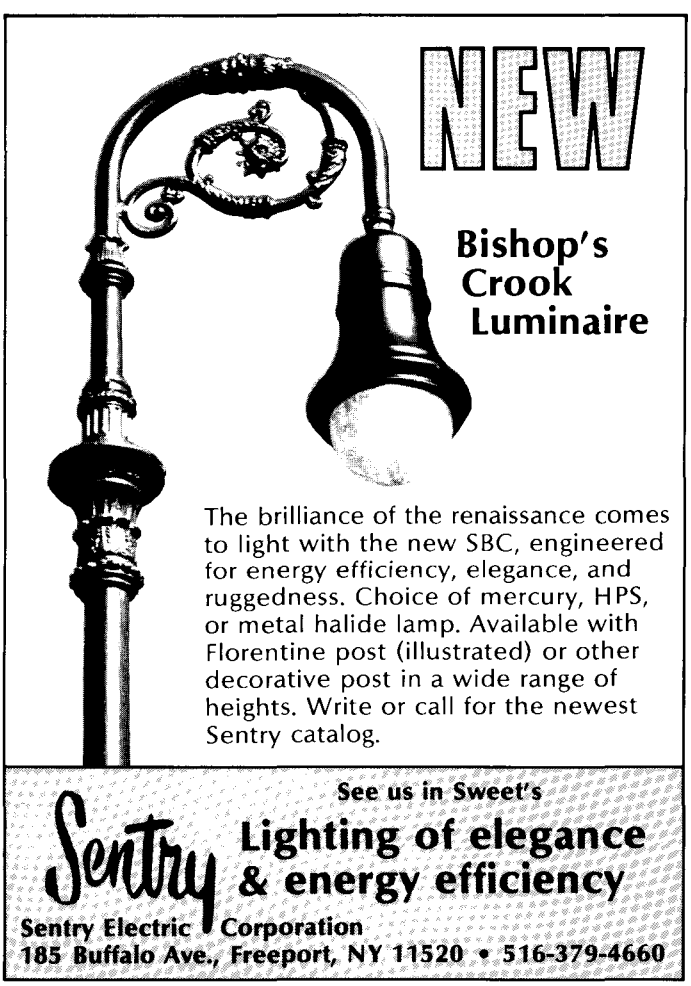
See us in Sweets— sec. 13123/SUS

sunbilt™ **CREATIVE SUNROOMS**

SUNBILT™ SOLAR PRODUCTS by SUSSMAN, INC.
109-10 180th St., Dept. B, Jamaica, N.Y. 11433 • 718-297-6040 ©1987 Sunbilt

Residential & Commercial Enclosures

Circle **No. 377** on Reader Service Card



NEW

Bishop's Crook Luminaire

The brilliance of the renaissance comes to light with the new SBC, engineered for energy efficiency, elegance, and ruggedness. Choice of mercury, HPS, or metal halide lamp. Available with Florentine post (illustrated) or other decorative post in a wide range of heights. Write or call for the newest Sentry catalog.

See us in Sweet's

Sentry **Lighting of elegance & energy efficiency**

Sentry Electric Corporation
185 Buffalo Ave., Freeport, NY 11520 • 516-379-4660

Circle **No. 378** on Reader Service Card

HOW TO KEEP $40 MILLION IN MORTGAGES READY TO MOVE EVERY MONTH.

Seafirst Mortgage Corporation's real estate group markets mortgage loans to investors, processing $30-40 million in loan shipments each month. Logging all the files by hand and keeping track of their circulation through other departments was becoming cumbersome with increased volumes. Greater efficiency and sophistication were sought by Seafirst.

"The Kardex Solution" met their criteria, with a records control system that tracks all files through all departments—from one work station. And Seafirst got an added benefit. Almost 30% savings in the floor space needed for their files.

THE KARDEX SOLUTION.

Find out how Kardex brought efficient records control and storage to this office. Send for free information on the THE KARDEX SOLUTION.

NAME TITLE

COMPANY NAME

ADDRESS

CITY STATE ZIP

43

KARDEX®

THE Leader in Filing Systems

Marketing Dept.
KARDEX, P.O. Box 171, Marietta, Ohio 45750
800-848-9761 Ext. 330 (In Ohio 800-282-9556)

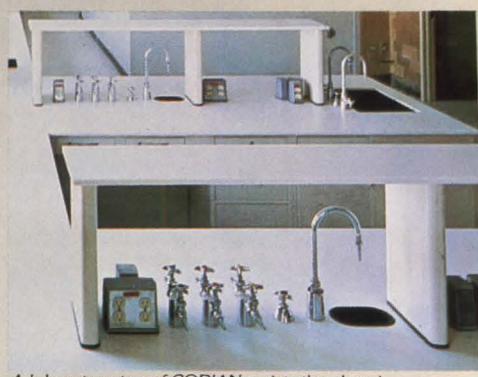
Circle **No. 345** on Reader Service Card

Use Corian® almost any scratches, even cigarette

Solid, non-porous CORIAN keeps on looking good, in hotels, airports, hospitals–applications where other materials age fast.

Du Pont CORIAN building products are totally unlike thin plastic laminates or gel-coated surface materials that can easily be irreparably damaged. Instead, CORIAN is solid and non-porous, with color and pattern clear through. A perfect choice for those places where traffic is rough and people can be careless.

Since it is non-porous, most stains wipe off CORIAN with a damp cloth. More stubborn stains, even cigarette burns, rub off with household cleanser. Accidental cuts and scratches can be repaired with fine sandpaper. All of this with no permanent damage to the beauty of CORIAN.



A laboratory top of CORIAN resists the chemicals and solvents used in the Pathology Department of a major Chicago hospital.

thin plastic laminates must be glued to a substrate for support.

most "cultured marble" is a porous substrate with a thin decorative surface.

CORIAN is solid–the beauty goes all the way through.

And yet, for all of its built-in toughness, CORIAN has a subtle, rich appearance. It is satiny smooth and warmly pleasing to the touch. Neutral and compatible.

CORIAN can also be worked and shaped like a fine hardwood and inconspicuously seamed with Du Pont's special adhesive system, for individual design effects that let you put a personal and lasting imprint on a project.

Stubborn stains–like cigarette burns–are easily removed with household cleanser.

Accidental cuts and scratches can be sanded out without destroying the beauty.

Send for more information on CORIAN.

See Sweet's General Building Market 6.15/Du, or phone Du Pont at 800-527-2601. For our 16-page book, "Designing with CORIAN,®" write Du Pont Co., Room X39927, Wilmington, DE 19898. Telex: 83-5420.

Outside the U.S.A.: Canada: Du Pont Canada Inc., Box 660, Station "A," Montreal, Que., Canada, H3C 2V1; Europe: Du Pont de Nemours Int'l. S.A., 50-52 Route des Acacias, Geneva 24, Switzerland, Phone: 41-22-37-86-18; Australia: Du Pont (Australia) Ltd., 168 Walker St., Nth. Sydney, N.S.W., 2060 Australia, Phone: 923-6111; Japan: Du Pont Far East, Inc., Kowa No. 2, 11-39, Akasaka 1-Chome, Minato-Ku, Tokyo, Japan 107, Phone: 03-585-5511; Singapore: Du Pont Far East, Inc., Suite 601, World Trade Ctr., 1 Maritime Sq., Singapore 0409, Phone: 273-2244.

where, because stains, burns, come right out.

CORIAN shrugs off rough wear and looks great in this fast food outlet in Rotterdam, Netherlands.

Westin Hotels' South Coast Plaza installed CORIAN 7 years ago, and it still looks like new.

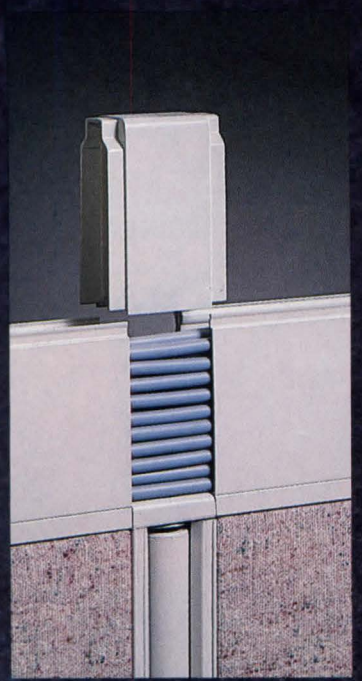
Corian is solid all the way through.

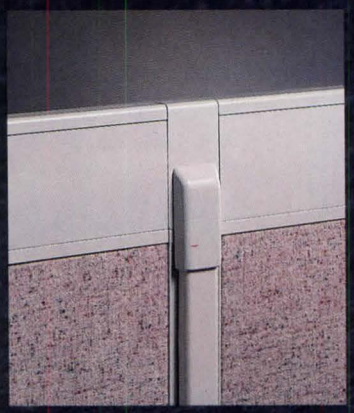
CORIAN

Solid Beauty That Lasts.

DUPONT

REG. U.S. PAT. & TM. OFF.

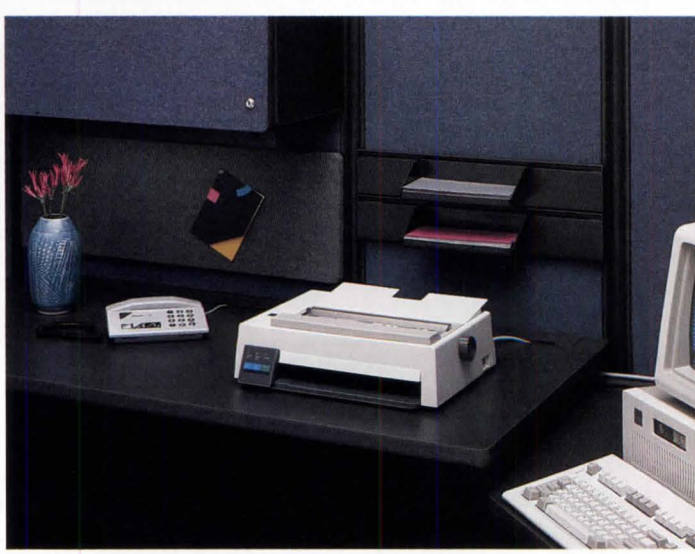




Top: A special adapter for Comm-Pak voice and data outlets snaps into any Powr-Pac knockout location.

Left: Data-Trak's vertical cable manager. Used for routing cables to Powr-Pac or the bottom raceway.

Data-Trak: A highly efficient method of isolating low-voltage communications and data cables in a top raceway to prohibit any electrical interference from baseboard power. Complies with stringent government requirements for the separation of communications and electrical cables.



T TAKES A COMPANY LIKE WESTINGHOUSE D TAKE CONTROL OF THE ELECTRONIC OFFICE.

ompany that understands tech- ɔgy on every level. A company ı the knowledge to develop a ɔle management system which udes top raceway, baseboard d most importantly work surface ɔabilities.

Vestinghouse we believe a l designed cable management :em should increase worker ductivity as well as office power. :t's why we developed Powr-Pac.™ ay to provide electricity, route ıles and keep connections close at hand. Because what good is power if it's difficult to get to?

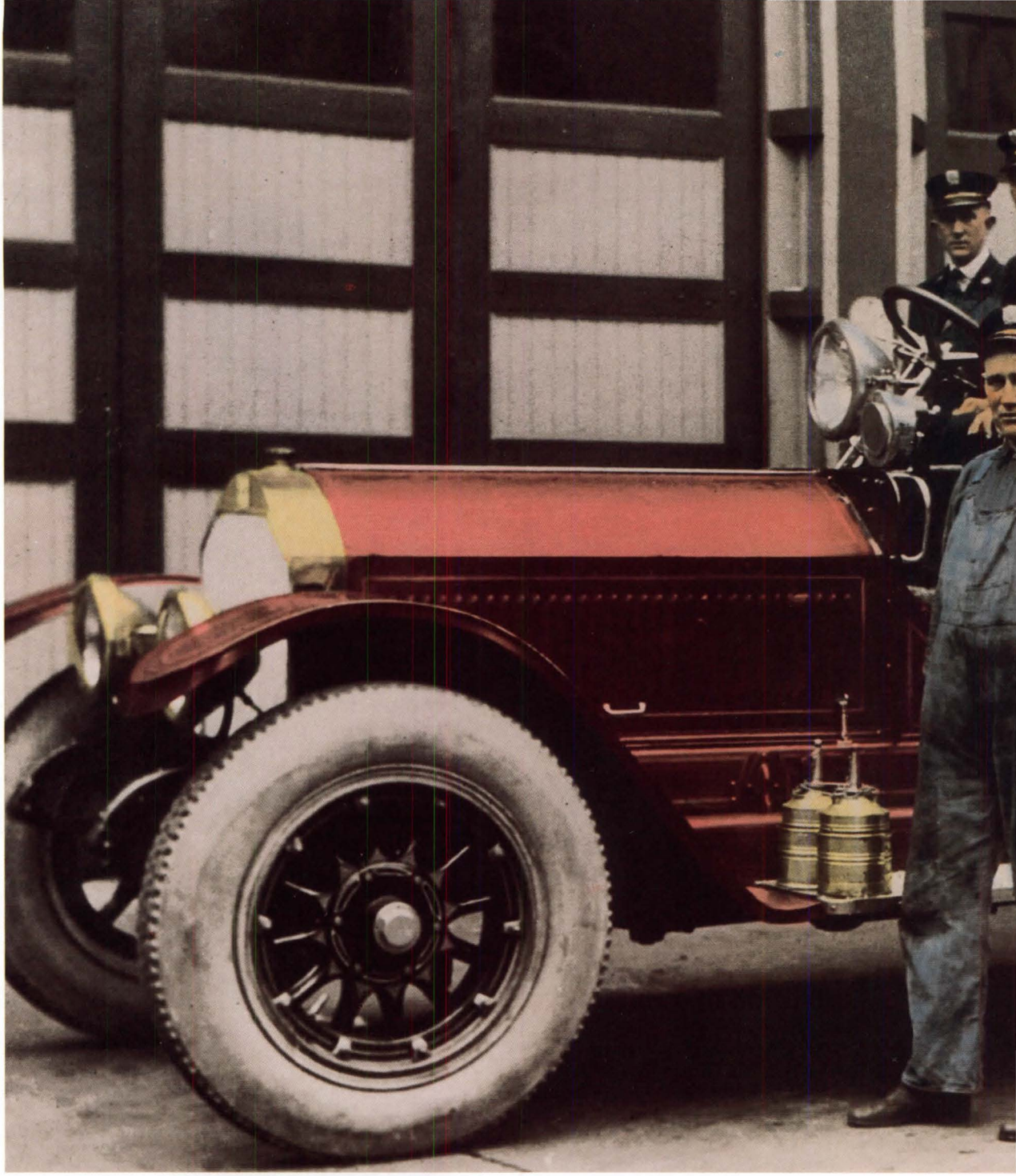
Powr-Pac attaches directly to the back of the work surface, placing power and communications lines within easy reach of employes. Lines can be fed from top or bottom raceway channels. Work surfaces remain clean and uncluttered for maximum utility. And with connections at the surface, computer hardware and telephones can be rearranged quickly and easily.

Powr-Pac is the latest addition to Wes-Group... the comprehensive range of integrated, yet interdependent subsystems from the total quality leader. Westinghouse. More than 100 years of delivering quality you can be sure of. Let us help you take control. Write Westinghouse Furniture Systems, 4300 36th Street, S.E., Grand Rapids, Michigan 49508, or call 1-800-445-5045.

Circle **No. 384**

Westinghouse Furniture Systems

You can be sure . . . if it's Westinghouse



Now You Can Keep Guys Like These

Glen Raven

SEF PLUS® Modacrylic Fiber by Monsanto

For years, even the best designers have been stymied by fire codes. Anyone who wanted to use indoor and outdoor fabrics for awnings, canopies, or other treatments in commercial settings had to take more than a little heat.

Because even if you could satisfy codes, chances were you couldn't find fire-retardant fabrics worth the trouble. So many an imaginative idea got snuffed.

Sunbrella Firesist® To The Rescue.

Happily, all that's in the past. Because now there's a beautiful, durable fabric that measures up to the toughest standards—yours and the fire department's. Sunbrella Firesist.

This new canvas fabric meets the requirements of the National Fire Protection Association as well as the stringent California Fire Marshal's test. But that's only the beginning. The fact is, Sunbrella Firesist is unlike any other material you can buy.

No Other Interior/Exterior Fabric Is Woven From Pigmented, Flame-Retardant Modacrylic Fibers. Or Comes With Our 5-Year Limited Warranty.

Sunbrella Firesist isn't just another fabric sprayed or coated with flame-retardant chemicals. Instead, it's woven from fibers which are inherently flame retardant. This means Sunbrella Firesist will never lose flame retardancy since that retardancy can't be washed out or dry-cleaned away.

In addition to making decorative fabric treatments safer, these fibers make them better than those made

From Throwing Water On Your Ideas.

of conventional fabrics. Like traditional Sunbrella® fabrics, Sunbrella Firesist won't crack, peel, harden, or be affected by rot. Furthermore, it's highly soil resistant. Finally, its solution-dyed, locked-in colors won't fade. We're so sure Sunbrella Firesist will live up to these promises, it comes with a 5-year limited warranty.

Compared with coated or laminated vinyl, Sunbrella Firesist looks even better. That's because Sunbrella Firesist is highly breathable, so that moisture doesn't get trapped underneath, allowing mildew to form.

Now You Can Execute Your Hottest Designs.
With Sunbrella Firesist, you can specify fabrics for treatments from decorative panels to privacy screens to cabanas, knowing you'll get the results you want. We offer an excellent choice of richly colored solids, and many additional solids, stripes, and fancy patterns will be available soon. Unlike many fabrics, ours is the same color on both sides. So it looks great from any angle.

Find out more about Sunbrella Firesist by contacting Glen Raven Mills, Inc., Glen Raven, North Carolina 27215, 919/227-6211. So the next time someone says you can't meet a fire code, they'll just be blowing smoke.

Sunbrella Firesist®

®Sunbrella, Sunbrella Firesist are registered trademarks of Glen Raven Mills, Inc.
®SEF-PLUS is a registered trademark of Monsanto Chemical Company.

Circle **No. 338**

HIGHLY INTELLIGENT.

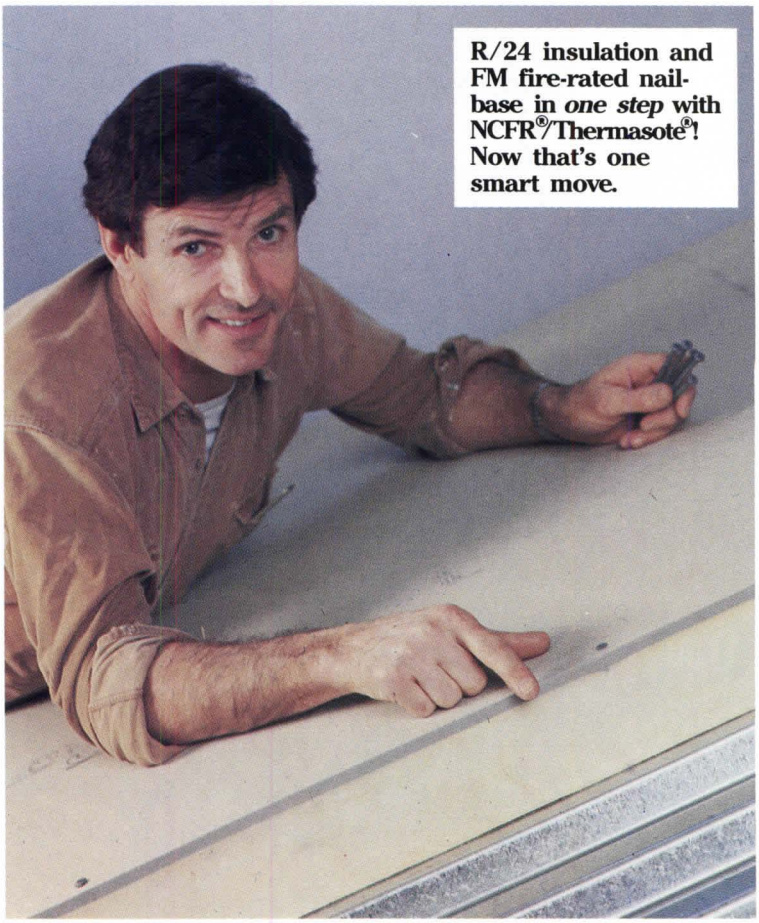
Smart FM-1 type commercial construction begins at the top with fire-rated NCFR®/Thermasote® nailbase R/24 roof insulation panels.

Raise the roof on the efficiency of your next commercial project.

Cut your labor time. Boost insulation value. Improve flame spread ratings.

You can do it all in a *one-step application*, by joining the smart architects who routinely select NCFR®/Thermasote®.

This unique composite of UL Class A listed and fire-rated NCFR® nailable sheathing, plus polyisocyanurate foam core with fiberglass facer, is unequalled for FM-1 type commercial construction on metal decks.



R/24 insulation and FM fire-rated nailbase in *one step* with NCFR®/Thermasote®! Now that's one smart move.

You can attach shingles, slate, tile, or your choice of other roofing such as BUR or single-ply membrane directly to the NCFR®/Thermasote® nailbase panels.

MATERIAL SPECIFICATIONS (4' x 8' Panels)				
Overall Thickness Nominal	2.0"	2.5"	3.0"	4.0"
Wt. per sq. ft.	1.5	1.6	1.8	2.1
R-FACTOR AGED*	10.4	13.6	16.8	23.8

Factory Mutual System APPROVED * RSC TMA THERMAL CONDITIONING PROCEDURE CERTIFICATION

You'll raise insulating efficiency. Improve flame-spread ratings. And boost productivity.

That's *highly* intelligent.

For a free sample, and complete details, call (609) 883-3300. Or write:

homasote COMPANY

P.O. Box 7240, West Trenton, NJ 08628-0240

SMART ARCHITECTS CHOOSE HOMASOTE.

5668

Circle **No. 340** on Reader Service Card

Designing for Security

Contents

MOST building owners are experiencing heightened concern over security. Some, faced with an increasingly violent and threatening world, are determined to make bolder efforts to assure the safety of their employees, products, and facilities. As a result, an intense search is under way for new and better ways to help protect people and buildings against crime and violence.

What does architecture have to do with crime, whose roots and solutions lie far outside its realm? Architectural design can provide only an imperfect and incomplete set of responses. Still, knowing that one cannot do everything, and that every possible security threat cannot be thwarted, does not make a case for doing nothing.

So, more and more, designing for security becomes essential to building. As a growing number of designers and building owners are discovering, the question quickly becomes: How do we provide the greatest security possible, without compromising the higher purposes for which we build? This special P/A supplement shows that recent projects and emerging knowledge provide some helpful answers. *Thomas Vonier, AIA, Editor-in-charge* ■

For High Traffic Doors, Specify Von Duprin...

and get High Style in the Bargain!

When you need exit devices for high traffic doors, you don't have to give up style to get durability

Von Duprin offers you a choice of two attractive touchbar series — the 33 and 99. Both are exceptional combinations of design and value, giving you great flexibility, with latching applications that include mortise, vertical rod or rim type, for narrow or wide stiles . . . and options that let you custom design your job.

Both designs are UL listed for Accident Hazard and Fire Exit Hardware (A Label). And they meet handicapped access codes.

Smooth, easy-operating Von Duprin 33 and 99 series touchbar exit devices look so good you won't believe how tough they're built. If you looked inside you'd find the rugged construction and precision fit that show skilled craftsmanship.

At Von Duprin, door exit hardware is our only business. So when you need exit devices that will give your project style without sacrificing durability, give us a call . . . or write for complete information. Von Duprin, Inc., 400 W. Maryland Street, Indianapolis, IN 46225, (317) 637-5521

"The Safe Way Out"

VON DUPRIN

Part of worldwide Ingersoll-Rand

Circle No. 382 on Reader Service Card

Ask Not for Whom the Alarm Rings . . .

IT'S unfortunate, but true: Each passing day sees an expansion both in the range of building types for which security is a concern, and in the level of those concerns. Growth in the basic demand for security systems poses three familiar challenges for architects:

- **Determining requirements.** Security needs must be determined early, as part of the project programming and definition process. Hardly any building today is without some security concerns, but clients may not be aware of them, or may fail to articulate their requirements. The burden is often on the design team to identify security needs and to suggest potential steps. Surveys of existing or similar operations and interviews with personnel may help to pinpoint security concerns that might otherwise be overlooked.
- **Knowing the technology.** A proliferation in available security devices and systems, coupled with rapid and substantial advances in the capabilities of specific systems, means that keeping abreast of developments can be a full-time job. Many projects today, even apparently routine ones, involve security system specialists as members of the design team. Yet, as is often the case with other areas of technical specialization, architects must have a basic understanding of principles of application and operation.
- **Understanding architectural implications.** Security can't be left solely to the practitioners of a narrow technical discipline; designs must respond broadly to the complicated and occasionally conflicting imperatives of security and life-safety, in concert with many other project variables and requirements. Space and other provisions must be planned to support security objectives.

Defining what's needed usually involves a combination of common sense and methodical investigation. Most retail stores involve concerns with pilferage and shoplifting. Most commercial offices involve the storage of confidential records, valuable supplies, and equipment. Banks, clinics, hospitals, and pharmacies routinely involve considerations of controlled access and secure storage. Warehouses and distribution outlets face constant challenges by burglars and thieves. Transportation terminals and places of public business are generally concerned with the detection and interdiction of hand-carried weapons and explosives. Many industries involve materials and supplies that are both valuable and, if used improperly, dangerous. The architect's job is to identify the basic security requirements and programmatic directives.

Beyond such basics, a few of which are governed by regulations and standard security practices, many clients now have strict security objectives engendered by closely guarded trade secrets and work with materials or information of high intrinsic value. Others, as a consequence of recent grisly incidents, are greatly concerned with preventing tampering and sabotage of products, equipment, and facilities. The design team should inquire about existing or planned security policies and practices, so that this will inform the building programming process.

Knowing security technology is made easier by the willingness of most security equipment manufacturers to provide technical advice and counsel during the design process. As always, however, design professionals must be in a position to evaluate and implement such advice on an independent basis; to the uninitiated this task can be daunting, so consulting expertise may be required.

There is no shortage of persons and firms purporting to offer security expertise; indeed, their ranks seem to grow daily. It is essential to assess carefully the experience and track record of prospective security consultants and to be clear about what they are expected to deliver. For example, if a consultant is to recommend security equipment and system layouts, is he or she also to draft final specifications and drawings? Has the consultant worked on projects of a comparable nature and scope and, if so, was the work well regarded?

Understanding the architectural implications of project security objectives is where designers can make the greatest contribution, because architects generally make the basic design decisions about circulation, access, building materials, fenestration, and many other features that can support or thwart overall security aims.

Building clients and design professionals are not the only ones concerned about security during the design process. Police authorities in various jurisdictions now require "security reviews" as part of the building permit approval process, on much the same basis as their fire-fighting counterparts have for decades. They look for obvious spots where assaults, muggings, break-ins and other "crimes of opportunity" may occur and suggest ways in which designs can be improved. Even where such reviews aren't required, law enforcement officials may be able to offer useful advice.

Preconstruction security audits and reviews may be required also to obtain certain kinds of insurance coverage. Some segments of the insurance industry have developed considerable experience with and standard recommendations for security provisions in retail and commercial properties. Many companies with retail outlets and other facilities that are attractive targets for theft and robbery also promulgate security standards and communicate these requirements as part of the design brief.

If security is treated as (yet another) one among many design requirements, security measures aren't onerous or difficult. A growing number of architects, aided by knowledgeable equipment manufacturers and systems specialists, find that such steps are simply, if sadly, the reasoned and measured response of a society that must be increasingly concerned with protecting its people and institutions against the acts of vandals, opportunists, violent political radicals, spies, deranged persons, and ordinary thieves.

In too many cases, though, security provisions remain design afterthoughts; a Washington architect recently expressed dismay at the sullying of his design for an upscale retail clothing outlet by ugly antishoplifting alarm devices and a clashing booth installed later near the shop entrance for a security guard and for parcels to be checked by shoppers. He in turn was chided by a security consultant: "You should have known that these items would be needed and you should have designed them into the project." The shop owner berated both of them for not working together more effectively to meet her needs.

The three articles that follow examine security as a pervasive force in design. Landscape architect Jeanette Behrends assesses security as a factor in site selection, planning, and design. Three authors from a Washington, D.C., architectural office address the basics of protecting key building elements. Finally, a security technology specialist examines a variety of systems and devices useful for augmenting architectural measures. Throughout, examples are shown of security measures that support the architecture and the building program.

Thomas Vonier ■

The author, editor-in-charge of P/A's security supplement, is a Washington, D.C., architect and is P/A's correspondent there. He recently directed a special study of embassy security, sponsored by the U.S. Department of State, and served as architectural advisor to the United Nations on security for overseas construction projects.

Security Conscious Site Design

WHENEVER possible, security planning should begin during the process of site selection. Although it may be possible to secure sites that are not well chosen from a security standpoint, the greatest opportunities for achieving a secure operation begin with locating a site that meets not only architectural, operational, and developability requirements, but also presents security advantages.

The integration of security considerations with other site selection criteria is probably best accomplished through the application of a systematic site selection methodology. This is especially important when a large number of factors with varying levels of importance are involved. If security is a driving factor, then specific security criteria should receive higher rankings of importance than other factors involved in the decision process. Site size can be an important decision factor, because larger sites allow greater design flexibility and offer more opportunity to respond to undesirable security situations or to other difficult development conditions. A three-step selection procedure may be useful:

- **Project definition:** Determine the facility program and its site-related requirements. Location, building, operation, and economic aspects must be identified. Security levels can be defined by identifying the areas, items of equipment, buildings, activities, and personnel that are most sensitive or vulnerable. The more detailed the program, the more effective and successful the site selection process will be.
- **Site generation:** Once basic selection criteria have been established, sites that are generally suitable can be subjected to more extensive evaluation. Synthesize the program requirements into a list of criteria that can be used to identify alternative project sites. One of the key elements to be established at this stage is site size; if too small a site is chosen, security objectives could be jeopardized. Small sites can make it difficult to provide an adequate buffer around the perimeter, or to control and check on-site circulation.
- **Site evaluation:** Carefully evaluate alternative sites against very specific program requirements. After such extensive evaluation it should be possible to determine which sites are most suitable from the standpoint of security. Even if the most secure site is not selected for some reason (often there are other overriding concerns, such as developability, cost, or location), this process makes it easier to identify measures needed to overcome any security deficiencies on the selected site.

Site planning

Site planning should begin with a thorough security analysis. This should assess conditions both on and off site, taking into account: topography; vegetation; adjacent land uses; circulation patterns; sight lines; potential areas for refuge or concealment; existing lighting; and the types and locations of utilities, including their vulnerability to tampering or sabotage.

Concerns for security do not alter significantly the traditional site design process, but they do add new criteria. Security measures integrated at the planning stage will be much more successful than those added later as afterthoughts. The following general guidelines won't apply to all situations, but they raise points that should be considered.

- **Circulation:** Because many threats are related to off-site pedestrian and vehicular circulation routes, all points of access and patterns of movement must be carefully planned. Where possible, permit vehicles to approach the site only at designated access points. Keep critical buildings and activity areas away from off-site vehicle areas and pedestrian zones. Planting beds, berms, fences, and walls can be used as barriers to control access. Motor vehicle speeds should be reduced around the perimeter of the site and at all access points. Roadway curves and turns, speed bumps, changes in pavement, narrowing of lanes, curbing, and medians can be used to arrest progress, reduce speed or contain movements. Pedestrian and vehicular movement should be controlled to defined areas, through the use of such devices as high curbs, median strips, planters, fencing, or walls. Service and pedestrian routes should be separated from primary vehicular routes on site. Roadways should be designed for low-speed driving. If drive-by attacks are possible threats, sightlines from surrounding roadways should be obscured.
- **Site access:** Site access points are key components in a perimeter security system. The most effective entrances accommodate the functions of observation, detection, inspection, and access control, while containing the vehicles and pedestrians until access is granted. The location of site entrances can be as important as their detailed design. In general, site access functions should be placed as far away as possible from the critical buildings and areas that are being protected.

The total number of access points should be kept to a minimum. Entrances should be positioned where they can take advantage of off-site conditions. For example, it may be better to locate an entrance on a side street rather than on a main thoroughfare, because side streets tend to reduce automatically the volume and speed of the traffic approaching the site. Entrances should not be located directly opposite intersecting streets, where would-be intruders might gain greater speed to crash through entry gates.

When site security is a major concern, a perimeter guardhouse and gate are the minimum response. A sally port arrangement is preferable, which permits access to vehicles one at a time for inspection and releases them through a second gate after clearing inspection. Gate areas should be designed so that they cannot be circumvented by vehicles leaving the roadway. If entry gates are not part of a surrounding wall or fence, then bollards, plantings, berms, ditches, or other barriers can be used.

In high-threat situations, entry gates can be augmented with static and operable barriers. Operable barriers can be located inside or outside of the entry gates and used to give added strength or to protect the gates and the guardhouse. They may also be deployed in the event of a gate malfunction.

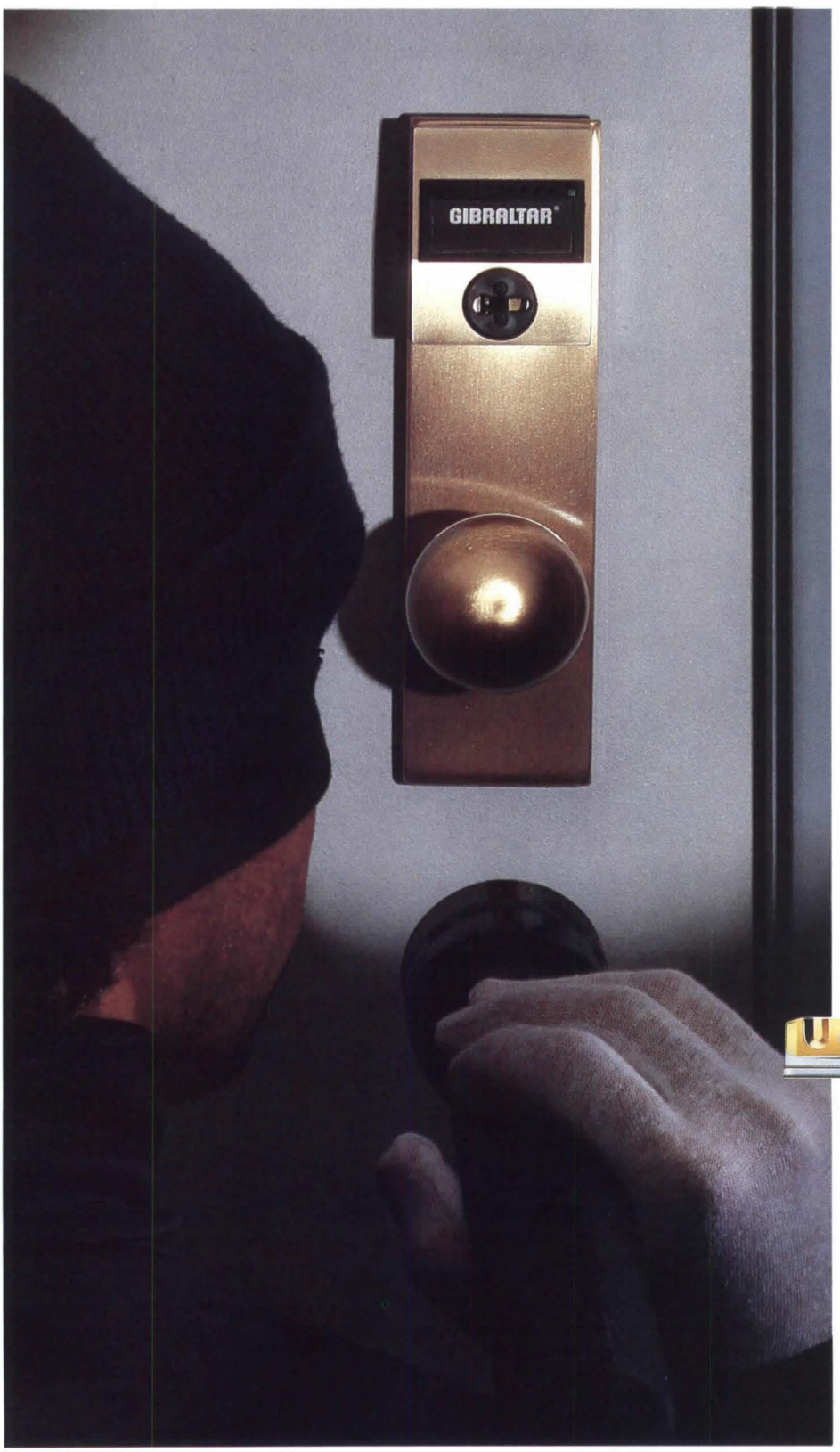
Static barriers include bollards, planters, and walls. Operable barriers include sliding gates, pop-up bollards, crash beams, booms, and tire shredders. Static barriers require little maintenance once installed, but may be difficult to replace or repair if damaged. Operable barriers can be deployed only when needed, but require regular maintenance and attending.

Vehicle entrance areas must also be designed to accommodate a stacking area for vehicles awaiting inspection. Turnaround areas should be provided for vehicles that are denied access. Where possible, pedestrian and vehicle access should be separated and a separate gate, guard, and inspection area for pedestrians should be provided. Consideration should also be given to separating employee and visitor access.

- **Site perimeter:** The site perimeter is the first line of defense for a facility. Although it is usually possible to deter intruders, denying them access is more difficult. Short of constructing what would rival a prison wall, it is difficult to deny access to intruders who have adequate time and resources. Thus, the goal of denying access becomes an attempt to create delay sufficient to permit detection. The site perimeter involves aesthetics, image, and environmental compatability as key concerns, so the security measures employed at the perimeter must also function as part of the total design for the facility.

The site perimeter design should respond to security objectives identified in a detailed threat analysis. Different threats

To anyone trying to break into business, we say, "Tough."



No matter how well you design a building for security, your work could still be picked apart. Right at the front door.

But now, you can put an extraordinary line of defense in the hands of your clients. And out of the reach of criminals.

Introducing the Gibraltar 2000 Electronic Keying System. Smart. Tough. Amazingly simple.

It can check identification. Refuse unauthorized keys. And keep itself virtually pick-proof.

It uses keys that are magnetically coded. Keys that make unauthorized duplication impossible.

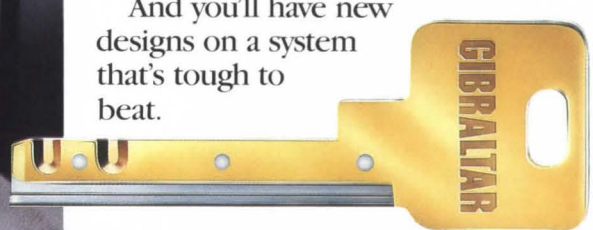
And for added security, they're the first electronic keys that can throw a deadbolt from the outside.

The Gibraltar system requires no special designing or wiring. And its increased levels of control and cost efficiency will impress your clients. For a long time to come.

So find out more about how the Gibraltar 2000 system can give your clients a tougher line of defense.

Send the attached card today.

And you'll have new designs on a system that's tough to beat.



SYSTEM 2000

GIBRALTAR®

ELECTRONIC KEYING SYSTEM

FALCON LOCK

5555 McFadden Avenue
Huntington Beach, CA 92649
(714) 891-0384

Circle **No. 330**

Most building owners are experiencing heightened concern over security.

will produce different design responses. For example, a facility concerned with pedestrian intruders may require a nine-foot wall or fence that deters climbing. A facility concerned with keeping its on-site activities private may require a wall, fence, or plant screen that also blocks views. If drive-by attacks or thrown explosives are realistic possibilities, this may call for dense barriers, such as walls or fences with heavy plantings and, most important, a wider perimeter area with more distance between the perimeter and buildings that might be targets.

Site security barriers can take the form of walls, fences, berms, plantings, ditches, bollards, natural topographic separations, or a combination of such elements. A solid reinforced wall is probably the only barrier that can be used by itself to meet most security requirements: walls can be designed to arrest vehicles, withstand small explosives, deflect bomb fragments or gunfire, restrict sightlines, and deter climb-over attempts.

The major drawback to using solid, continuous walls is the possibility that they will impart a fortresslike appearance. While perimeter designs often employ various barrier techniques in combination, it is important not to let the use of one barrier compromise the effectiveness of another. For example, when a berm is combined with a wall or fence, the effective barrier height is measured from the base of the fence or wall, not from the base of the berm. Landscape materials used to soften the appearance of a wall should not facilitate the defeat of the barrier (say, by providing handholds for climbing) or provide hiding places.

Site design measures

The detailed site design stage is the culmination of security planning efforts, and involves selection of site elements in order to fulfill security objectives. The nature of the threat as well as the design intent will govern decisions about the specific materials used.

Redundancy can be beneficial not only for security purposes, but also from an aesthetic standpoint. The strength of a barrier may be heightened by using several relatively inexpensive barriers in combination. For example, berms, bollards, and fences can be combined into a single, attractive line of defense. If one barrier, lighting element, or system is defeated or damaged, another comes into play. In this way, the entire security system does not fail from a partial malfunction or penetration.

- **Walls:** Walls can be used to serve a variety of security functions, including: delay and or prevention of access to the site; control of sight lines; and deterrence of some types of armed attack. The basic structural design of the wall may be more critical than the materials that are used in its construction; obviously, dry set walls cannot be recommended, but the differences in the resistances of concrete, brick, stone, or stone-faced are generally not significant. Reinforcing bars and mesh at tight intervals can make a wall more resistant to hand tool penetration.

  Added reinforcement also provides greater strength against explosives or crash-through attempts. Footings must of course be proportional to the overall size and weight of the wall, but should also be designed to resist overturning. Walls intended to resist climbing should be at least nine feet high and must be free of any features that would provide hand or foot holds. If vandalism is likely to be a problem, commercial coatings are available to facilitate the removal of paint and graffiti markings.
- **Fences:** Fences are rarely adequate security barriers in the face of such threats as undesired observation, tossed explosives or incendiary devices, or drive-by ballistic attacks. Fences are more easily and quickly penetrated than walls, thus decreasing the delay time useful to detect and intercept intruders. For aesthetic reasons, however, fences are often desirable along the perimeter. In such cases a combination of design measures is appropriate. Fencing can be combined with low walls, wall sections, berms, steep embankments, or plant massing. Fence sections alone should be used only when the threat level is low or when a substantial setback area exists between the perimeter and any critical buildings or activities.

  To deter climbing, fences should be at least nine feet high. The design should not provide any hand or toe holds; horizontal support rails should be located only at the top and bottom of the fence. If chain link fence is considered, attention should be given to the strength of the link, as this fence type is normally susceptible to rapid hand tool penetration. A vertical steel picket fence can be successful if the space between individual bars is no more than three inches. Whatever fence material is chosen, it should be resistant to bending through use of hand tools. A continuous reinforced concrete footing is also recommended to anchor posts securely and to resist overturning.
- **Lighting:** Goals of a security lighting plan should include observation, inspection, deterrence, and safety. Vegetation, topography, site size, building location, circulation, and off-site uses will influence the type of system to be installed.

  Security lighting should be uniform in the horizontal plane without hot or cold spots. The effect should be continuous with overlapping cones of light, eliminating excessive shadow areas. The lighting at the perimeter should not illuminate guards, building entries, activity areas, or inspection areas to an outside observer.

  Light fixtures should be placed far enough behind the perimeter barrier to provide a ground light pattern that includes the barrier and a limited area on both the inside and outside. The guardhouse should not be subject to glare, which could hamper observation. When closed circuit television units are to be used, the lighting selected must ensure evenness of illumination and the correct level of intensity.

  Security lighting fixtures should be resistant to vandalism and sabotage. Wiring should be contained within the standard and housing, and any access to the equipment should be locked. Lamps should be protected from accidental or intentional vehicle impact by locating them off roadways or on raised bases. Lamp restriking time may be critical. Incandescent lamps take a fraction of a second to restrike when they are hot, while metal halide lamps can take up to 15 minutes to regain full power if shut off while hot. With such delay, intruders could gain access to the site under cover of darkness. Emergency lighting systems may be required, to be activated with any malfunction of the primary lighting system.
- **Upkeep:** Maintenance considerations cannot be overemphasized. When breakdowns occur, repair personnel must be available to remedy problems immediately if security is to be maintained. Routine preventive maintenance is essential, even for plants that may require pruning, so not to obstruct observation and to deny aid to those who would climb over perimter walls. Light fixtures need regular lamp replacements and orientation adjustments. Gates and operable barriers require lubrication. Fences and walls require occasional repair and attention to rust and corrosion. Without constant, repeated attention, even the best laid plans will be defeated.

Jeanette D. Behrends, ASLA ■

The author is a landscape architect with the offices of Edward D. Stone, Jr. & Associates in Orlando, Fla. She served as a consultant on a special study of embassy security, sponsored by the U.S. Department of State, and has worked on landscape designs for a number of public and private projects involving security.

LCN SMOOTHEE® CLOSERS PROVE THEIR VALUE IN BUSTLING SHOPPING MALL

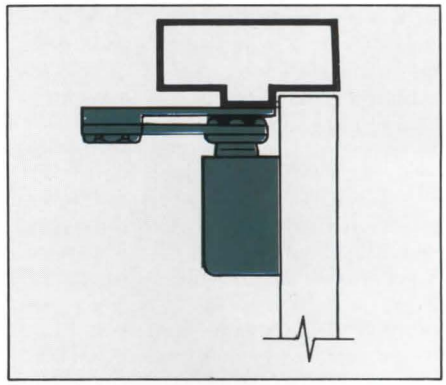
Union Station, St. Louis, MO; H.O.K., Architects, St. Louis.

Restoration of Union Station in St. Louis is said to be the largest adaptive reuse project in the country and one of the most dramatic. Attention to detail was critical to the success of the project. Even the door closers for the main entrance, a high traffic area in the mammoth structure, had to meet strict performance criteria.

Cush-N-Stop,® a 4110 series Smoothee closer was specified. These heavy duty closers have a built-in limiting stop preceded by hydraulic back check to cushion the opening swing of the door. Their efficient operation, easy regulation and durability have been proven after many years in the field.

For more information, see Sweet's Section 8. **Or, in U.S.A.,** contact LCN Closers, P.O. Box 100, Princeton, IL 61356; (815) 875-3311.

In Canada, Ingersoll-Rand Door Hardware, Mississauga, Ontario LE5-1E4; (416) 278-6128.



LCN CLOSERS

Part of worldwide Ingersoll-Rand

Circle **No. 349** on Reader Service Card

Preventing Unauthorized Access

THE building shell and its openings represent, after the site perimeter and the surrounding grounds, the crucial second line of defense against intrusion and forced entry. A critical factor for the architect is to assure that all elements and subsystems of the building exterior are given careful and balanced treatment. All affected systems should be designed to achieve a comparable level of penetration resistance, as overall building security is only as good as the weakest link.

Doors

Doors are by nature among the weakest links in a secure building, because of their inherent difficulties of providing both access and penetration resistance. Egress needs must be carefully evaluated. While security needs may press for keeping exterior doors to a minimum, this may conflict with fire and life-safety code requirements. Highly resistant doors fall outside of the realm of standard offerings, and are typically devoid of exterior hardware or ornamentation. In high security applications, the need to specify doors that approach the level of penetration resistance provided by walls, floors, and ceilings significantly narrows the range of available options.

Doors, too, are only as strong as their weakest elements. Attention must be paid to latches, locks, bolts, and panic hardware; hinges; the door frame and surrounding wall; and the door leaf itself. In their standard forms, none of these items offers much penetration resistance; if neglected, one item can negate the effects of other carefully specified, highly secure subsystems. A truly secure door system must present a whole that is uniformly resistant.

- **The door leaf.** Standard doors do not represent a significant deterrent to competent intruders using basic hand tools. The time required to break through a typical exterior door is less than one minute. The extent to which this penetration time can be increased is limited primarily by considerations of weight and cost. The use of steel plate magazine doors can double penetration time, which is considered reasonable for the door leaf itself. Kalamein (metal-clad) doors are a good choice, provided the cladding cannot easily be peeled away from the core. Stamped or formed sheet steel should be avoided, as should doors with core materials that do not offer the same level of resistance as exterior wall materials.

In general, the strength of the door adjacent to hinges and locks is important in preventing an intruder from prying a space between the edge of the door and the door frame. A solid core door, or one that is sufficiently reinforced at its edges, will help to assure that leverage applied at the hinges or lock-strikes will not defeat the door leaf itself. Attention must then turn to the door frame and hardware.

- **The door frame.** Door frames should be steel of a strength consistent with the overall level of security desired for all building subsystems and at least the same gauge as the door material. Gaps must be kept to a minimum between adjacent wall framing and the door buck, or between rough framing and the door frame and casing in wood construction. This means that all rough-in work, completed prior to installation of the frame, should be based on the actual door assembly dimensions. Shimming, common in both commercial and residential construction, should not be allowed to create places where prybars could be used to separate the door and frame.

The integrity of any metal door frame can be significantly improved if the space between the frame and the adjacent wall is grouted. This strengthens the frame and prevents it from being pried away from the door. Typically, holes are drilled on all sides of the door frame to allow for grouting after the frame has been installed. This fills voids where burglary tools might gain leverage. In both steel and wood construction, rough door frames should be double- or triple-studded and tied to the nearest wall studs by horizontal members at heights corresponding with hinges and bolts.

Locks and operating hardware

The fastest and quietest way to enter a secure building is by defeating door locks and operating hardware. Consequently, this sometimes requires these systems to be bulky and complex. Considerations of occupant convenience and code compliance limit the choice of egress control systems to those that are relatively easy to unlock, unlatch, or release. Under fire conditions, it is essential that occupants be able to exit the building, and that firefighters be able to enter unimpeded. This is one reason for the widespread use of electronic sensing devices and status monitors at building entrances, exits, and emergency staircases. The alternatives here include low-voltage strikes that release in case of fire, as well as simple mechanical 5–6-button cipher locks and pick-resistant lock cylinders with uniquely shaped and coded keys.

The use of a prybar to separate the door and frame is the most common method of compromising a locked entry. As noted earlier, solid doors and frames help to impede this type of forced entry, but two additional approaches can be used to discourage the application of prybars at door latches. The easiest is to provide multiple lock bolts at different locations along the edge of the door. This includes cremone locks, which secure the top and bottom of the door, provided they are of comparable quality to standard locking hardware.

Another common measure involves welding a strip of sheet metal, or astragal, to the outside edge of the door, preventing a prybar from being inserted between the door and frame. This method can be used in existing situations where the door and frame are of relatively low resistance and greater security is desired.

Panic hardware, required on most exterior doors, is an important element in door security. Even though it usually cannot be seen from the building exterior, most interior panic-type hardware can be quickly compromised with a wire hook passed through a small hole drilled through the door leaf. To prevent this, a metal plate can be attached between the door and hardware with a 90-degree bend below the push bar. Drill resistant door steel will extend penetration time, and the bent section will prevent the threading of wire to the pushbar through a hole drilled below the hardware.

- **Hinges.** Standard full-mortise butt hinges are commonly installed with their business ends toward the exterior of the building. The removal of hinge pins, or grinding or cutting of the hinge knuckles, allows a door to be pulled out of the frame and removed. The most obvious approach to this problem is to specify hinges that pivot from a point inside the exterior door plane. Unfortunately, few of these products exist for use on heavy, high security doors. A number of security hinges are available with heavy-duty knuckles and pins, or in a piano-style configuration that runs the height of the door. A basic modification to improve the penetration resistance of heavy-duty hinges involves either welding the pins to the hinge knuckles, or installing a set screw or stud through the knuckles into the pin. Both techniques should be carried out with the door open so that these modifications are inaccessible when the door is closed. Lift-off hinges, which have no separate pins, offer similar protection.

Exposed hinges can be quickly violated regardless of these techniques, making it possible for a door to be removed entirely from an entryway. One way to prevent this is to include a stud or spline in the door edge that fits a hole or groove in the frame when the door is closed. Several manufacturers make hinges that incorporate this feature; it can

Vicon For Security... Everything from A to Z.

Vicon's products have always been an integral part of CCTV surveillance... from Automatic switchers to Zoom lenses.

Now Vicon has it all. With the addition of cameras, monitors and VCRs to our extensive line of CCTV accessories, we now provide total systems. A full line of integrated, designer-styled security products that blend function with form.

Always the pacesetter, our Ability combined with our Zeal gives you Vicon's state-of-the-system performance.

Let us send you literature describing our products. Write: Vicon Industries Inc., Department 586, 525 Broad Hollow Road, Melville, New York 11747. Or call toll free 800-645-9116 (in New York call 516-293-2200).

VICON

Chicago, Illinois Atlanta, Georgia Carrollton, Texas Brea, California San Jose, California Portsmouth, England

Circle **No. 383** on Reader Service Card

More and more, designing for security becomes essential to building.

be added on-site to improve the security of existing doors. Hinges are also available with studs that extend into the door edge and door frame, to prevent mounting screws from being sheared off. Another method is to mount a plate or "Z-strip" to the inside edge of the door, overlapping the inside of the door frame. These techniques are quite effective in delaying penetration because they are not detected by intruders until after the hinge knuckle/pin assembly has been compromised. Where full-mortise hinges cannot be fitted and bolts or screws must be exposed to the exterior, use of screws with breakaway sections or special driver requirements can prevent use of conventional hand tools for removal of hinges.

Windows

The requirement for high security windows can pose severe limitations in terms of using off-the-shelf units. Many available products have the mark of security: fat mullions and muntins and small aperture sizes. A generally accepted rule of thumb for the minimum area required for human passage is 96 square inches, a constraint that is too limiting for many applications. The challenge is to achieve balance between glazing and frame, so that the entire window assembly has a uniform penetration resistance that is matched to the penetration resistance of the entire exterior. Many situations will require creative improvisation using standard components and materials arranged in new ways.

- **Window frames.** The strength required of the sash and muntins depends primarily on the type and size of glass used. Glass that can be easily broken with hand tools must be combined with window frames that can withstand attack once the glazing is broken. Stronger, more expensive glass may allow the use of thinner frame assemblies. In either case, the size of apertures and operability must be evaluated for the job in question.

  Ideally, all frame members should be part of a single, fixed steel structure that can be firmly connected to reinforced building walls. This connection should combine welding to structural steel or secure anchoring to concrete to prevent the removal of window units. Steel is generally preferable to other frame materials, because it is highly resistant. The decision to eliminate operable windows should be coordinated with mechanical engineers to assure that ventilation equipment is adequately sized. If ventilation is desired, fixed vision glass can be used in combination with operable units that are beyond the reach of intruders.
- **Window hardware.** Provisions are available for windows similar to those available for doors. For example, some manufacturers offer window units in which the movable sash elements are anchored at points on all sides of the frame, by means of splines or posts. The glazing and sash elements should be resistant, too, but his anchoring approach makes removal of the sash after glass breakage much more difficult. Also, many window manufacturers offer security hardware, including keyed window locks and operators, that require special drivers.
- **Glazing.** Typical glass products offer little resistance to intruders with hand tools. Standard window glass has a penetration time of less than 20 seconds, and therefore should not be specified where security is an issue. Tempered or wire glass is often thought to be a sufficient substitute, but these products are manufactured primarily to offer safety and protection in the event of breakage, and provide little protection from vandals and intruders. Other options are available, especially with the use of transparent glazing materials, but are generally priced in accordance with the relative level of security offered.

  Glazings laminated with polyvinyl butyral can offer significant improvement over other common types, but should in no way be considered impenetrable. Regular laminated safety glass is similar to standard glass when attacked with hand tools. "Security glass" with a thickness of over ½ inch represents a significant improvement, but can still be smashed out of a frame in less than two minutes.

  Truly secure glazings must incorporate transparent plastic materials. Polycarbonates and, to a lesser extent, acrylic products are extremely resistant to attack with hand tools, thermal tools, and ballistic weapons. Also, they are considerably lighter than security glass products. The drawbacks associated with transparent plastics are its flammability and poor resistance to scratching, ultraviolet radiation, and chemical attack. These problems can be solved by sandwiching the plastic materials between layers of strengthened glass. Care should be taken when specifying these products that the manufacturer's requirements for frame type and glazing technique are met. They must be installed properly, taking into account coefficients of expansion that can exceed those for glass by as much as a factor of eight.

  A low-cost alternative for bringing daylight into a secure space is translucent fiberglass-reinforced polyester glazing material. These products are not only quite resistant to attack; they also may be less expensive than standard glass, are lightweight, and have good thermal characteristics. This combination can allow for the use of larger window areas to compensate for lack of view. It is important to determine, however, that these materials will provide the desired level of impact resistance, and there remains the potential for degradation over time from ultraviolet radiation.

The building shell and other openings

Two areas remain for detailed consideration, especially if a high level of security is required: the contiguous building shell, aside from doors and windows; and utility openings. These are easily overlooked by designers as possible means of entry.

Most stud wall and metal deck roof assemblies can be breached with hand and power tools in less than two minutes, putting them in the same category as moderately secure doors and windows. Relatively little can be done to improve the resistance of such conventional construction. Reinforced concrete increases penetration time in walls, roof, and floors, especially in thicknesses of four inches or more. Concrete panels are a good choice for exterior walls where moderate security is desired. The use of polymer- or fiber-reinforced (with glass or polypropylene fibers) concrete will improve the penetration resistance of concrete applications, and can be used to improve strength-to-weight ratios if structural capacity is a concern.

Utility openings are often neglected in otherwise well-conceived security designs. These openings must be a part of the balanced design approach followed throughout the building. High security grills, hatches, and covers are readily available. Additional security can be provided by limiting passage diameters near duct or pipe penetrations to ten inches, or by using vent bricks.

Regular design reviews with security in mind can help to spot other areas or items that might have been overlooked. Throughout the building design process, particularly as concerns the detailed aspects of the exterior building envelope, the architect's challenge is to provide security that is attractive and unobtrusive, while providing balanced and effective deterrence to unauthorized access.

Donald L. Anderson, Maryrose T. McGowan, and James A. Hunt ■

The first two authors are, respectively, an analyst and a graduate architect working with the Washington, D.C., offices of Burt Hill Kosar Rittelmann Associates, architects and engineers. The third, a registered professional engineer and architect, is a senior associate at the firm's headquarters in Butler, Pa.

Corbin has no equivalent.

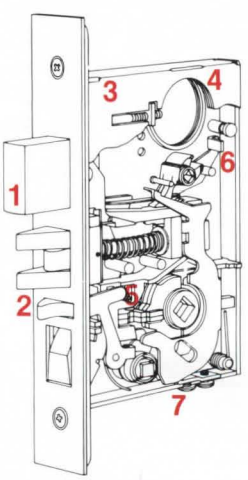
In form.

9500 Series Mortise Lock

In function.

Form and function. Beauty and technology. The architect requires them. The contractor needs them. The building owner demands them. The choice is Corbin.

Corbin Mortise Locksets combine innovative design, elegant styling and quality materials in a wide range of functions and finishes — just what you'd expect from the leaders in mortise lock technology. That's why specifications read: "Corbin — no substitution." Write or call for complete information.



CORBIN
HARDWARE GROUP
EMHART

Emhart Hardware Group
225 Episcopal Road
Berlin, CT 06037
1 203 225-7411

1. Solid, one piece, 1" stainless steel deadbolt exceeds ANSI Grade 1 strength requirements by 300%.

2. Sturdy 3/4" anti-friction latchbolt exceeds ANSI Grade 1 Bolt Strength Rating by 300%; much stronger than a reversible latch.

3. Heavy gauge 3/32" steel case — nickel/chrome-plated finish for added corrosion resistance.

4. Exclusive, total non-ferrous lock construction available for corrosive environments and marine applications.

5. Heavy-duty springs furnished standard to extend life and resist lever sag.

6. Thru-bolted trim for greater strength and easier installation.

7. All lever handle trims have a standard fusible link — to meet demanding UL "A" label requirements.

Circle **No. 326** on Reader Service Card

Detecting Intrusions and Controlling Access

PHYSICAL security systems are relatively new additions to the expanded family of electronic devices, networks, and controls now used to perform routine security functions in contemporary buildings. Electronic intrusion detection and access control techniques must be elements in a total security system and design approach. Each technique has distinct operational characteristics and environmental reactions, along with differing requirements for installation and maintenance. A few general points should be made before moving to specifics.

- **Consider space and servicing needs.** Some access control and screening equipment requires considerable space for normal operations, with additional or special space for servicing. Identify these requirements early, and plan accordingly.
- **Plan for generous wiring.** In addition to security system networks within buildings, there may be sensors, closed-circuit television alarm assessment cameras, and lights for outdoor surveillance. Also, site and building entrances may require electrically controlled door and gate openers, communication circuits, duress alarms, and monitors. Thus, generous amounts of tamperproof (or at least tamper-indicating) conduit should be planned to carry sensor signal and power (usually not in the same conduit) to a space.
- **Plan for backup power.** Most security equipment must remain operational during adverse conditions and requires emergency batteries or uninterruptible power supplies. Where many sensor devices are used along an extensive perimeter, the backup power requirements may be substantial. Provisions may be necessary for situations that would involve failure or defeat of even backup power.

Although most industrial, business, and residential security situations will require only a few of the available techniques, it is useful to understand common alternatives and considerations that govern their application.

Intrusion Detection

Devices intended to detect building intrusions have been available for some time, but significant performance improvements have been made recently and advances are being made in testing techniques. All physical security devices can eventually be defeated or compromised, so the strengths and weaknesses of each technical approach must be understood to permit the proper planning, design, and operation of a total security system.

Security objectives, which define the purposes of the equipment and the types of threats to which it must respond, should specify desired performance in three primary areas: probability of detecting intruders; vulnerability to intentional defeat of the equipment; and the acceptable nuisance alarm rate.

Many building owners and police authorities are bothered by nuisance or "false" alarms. In modern solid-state circuits, the number of alarms that cannot be identified with some known physical stimulus (such as radio frequency interference, sudden or rapid changes in humidity and air movement, nonuniform heating, movement of objects, or small animals or authorized personnel who are in the area when the equipment is active) is quite small. The key is to identify and plan around the stimuli that trigger these responses. Most manufacturers and installers will know how to minimize these problems.

- **Site intrusion detection** typically involves buried sensors, which may rely on seismic or magnetic devices. These detect motion or mechanical stress on the ground or on a perimeter barrier. Some devices can detect not only human movement, but also the presence of ferrous materials such as burglary tools or weapons. Fence- and wall-associated sensors include tripwires and a variety of switches that detect disturbances. Free-standing sensors can be mounted on walls, fences, trees, and buildings; using microwave, infrared, and electric field principles, these detect motion and activity through disturbance or interruption of a field. Almost all such systems work best if the perimeter ground is level and its edge is straight. Buried sensors are sometimes laid underground in a serpentine pattern, deviating from an apparent or obvious property limit, to discourage successful bridging.
- **Boundary-penetration sensors** are designed to detect breach—or attempts at penetration—of a building shell. Normally this is at doors and windows, usually through the use of switches and sensors placed on the door and window frames. These sensors use magnetic, balanced-magnetic, or mechanical switches, which detect the opening of a portal by opening of the switch or by disturbance of the device. Wire-grid and metal-foil techniques detect breakage of window panes or door panels by interruption of electrical continuity. Where determined intruders are anticipated, vibration sensors can be mounted on walls, as well as on doors and windows. They react to violent jarring and shocks, triggering an alarm.
- **Motion (volume) sensors** are used in key interior areas, known as "trap zones," through which intruders must pass in order to reach a destination or target. The sensors in these areas can also be used to trigger devices that dispense tear gas, foam, or smoke, if the protection objectives dictate such measures.

Sensors shouldn't be expected to detect motion that is too close or too far away. Passive infrared sensors are sensitive to movement perpendicular to their field of view, and microwave and ultrasonic devices can discern motion toward and away from the sensors. Each type of sensor has a definite nonuniform detection pattern; their sensitivity and detection pattern is a function of the velocity of the intruder. Combinations of types of sensors are sometimes used to compensate for any weaknesses. Motion detectors are relatively inexpensive, so enough sensors should be used in each zone to ensure that intruders will have to move in the sensitive direction of at least one of the sensors. Each sensor should be in the field of view of some other sensor to make defeat more difficult.

Access Control

Entry control systems are intended to allow the movement of authorized personnel and material through normal exit/entry locations. They help to protect against theft, pilferage, and unauthorized access by "insiders" in testing for the presence of vital components or information. If used throughout the facility and not just at main entry points, these systems can create a system of internal compartmentalization within a building.

Access control systems must also detect and delay unauthorized persons ("outsiders") and the unauthorized movement of material and contraband by allowing screening at the outer perimeter. Entry control systems can be divided into three basic categories:

- **Conventional techniques** include the use of entrance guard personnel. Unguarded turnstiles, gates, and other personnel barriers may be used with electrically operated bolt-type and electromagnetic locks, which may employ keys, cards, or push-button codes or combinations.
- **Remote control systems** employ personnel-traps, in which telephone and CCTV monitors, as well as the operation of access doors, are under the control of a security officer who is located remotely from the trap. This approach is usually slower than having security personnel at each entry point, but it allows one person to control many entry points during off-peak hours.
- **Unique knowledge and unique possession** involves knowledge of a password or identification number, or possession of such items as keys or coded cards, including magnetic, optical, and proximity reader cards. Positive personnel identification approaches rely on

Dallas Corporation

Round and round the clock security.

Our Control Flow Series™ revolving door makes security automatic. With one- or two-way traffic control and optional personnel recognition devices such as card readers, digital access codes and remote monitor stations, this door lets only those who are authorized pass. For those who aren't, there's a braking system to lock the door's rotation. And a voice annunciator to inform them when they've entered an unauthorized area. For added security, this door accommodates up to 1″ security glazing.

As far as efficiency goes, this door saves you money all the way around. It reduces air infiltration up to 700%. It's up to 30% less expensive than the competition. You can save on security personnel costs. And last, but not least, it's constructed from sectional flat glass, which saves when it comes to maintenance and replacement costs – without giving up the aesthetic appeal that curved glass offers. But if a round enclosure with curved glass is a must for you, we do have it available.

Horton's control flow revolving door is everything you could possibly need in a security entryway. For more information on our Control Flow Series, call toll-free 1-800-531-3111. In Texas, call 512/888-5591. Or write for a complete brochure and specifications to Horton Automatics, 4242 Baldwin Blvd., Corpus Christi, Texas 78405. Also, look for our catalog in Sweet's General Building File, Sec. 8.1a/Hor.

Horton Automatics

Circle **No. 341** on Reader Service Card

How do we provide security without compromising what we build?

unique personnel attributes, including facial features, biometrics, palm prints, eye retinal patterns and fingerprints. Some devices also rely on the principle of unique personal performance, including signature or speech recognition.

A single access control system can employ one or a combination of these approaches. Desirable features for all entry-control systems include: protection against persons passing freely back outside of a secured zone after having been admitted; prevention of multiple personnel entering on a single authorized admittance; alarm zone identification by name to remote guard personnel; and provisions for the adjustment of operations depending on volume of traffic (at minimum, to account for day and night use).

It is also desirable to provide for automatic reminders to remote guard personnel if an entrance that should have been closed has been left open (for example, after normal business hours, or after passage by an authorized person). For later routine review or for special investigations, access control points should always provide for logging of all events, by the manual or automated recording of badge numbers and names, or by other means of identification. Continuous video recording is now widely used for this documentation purpose.

Contraband detection

Considerable emphasis is being placed today on the detection of weapons and other potentially harmful devices or substances. Usually this involves checking persons and their hand-carried parcels by means of attended screening devices. Installation considerations are given below for common approaches.

- **Walk-through metal detectors** are freestanding units designed to be used in entrance areas. Most metal detectors are approximately 3 feet wide, 7 feet high and 2 feet deep, and are used indoors in fixed positions. Moving metal (such as steel doors, cabinet doors, dollies, etc.) within 5 feet of the main detector field can cause false alarms. Electromagnetic interference from nearby X-ray machines, other metal detectors, radio transmitters, power line voltage surges, and flickering fluorescent bulbs can also reduce sensitivity or trigger nuisance alarms. Walls that contain metal studs and/or expanded metal lath should be 5 or more feet away to avoid distortion of the detector field. If two or more detectors are to be operated in close proximity, they must be synchronized. Auxiliary cables to accomplish this are readily available from most manufacturers. If nonmetal walls are used and alarms of unknown origin are being experienced, the area beyond should be inspected for movable metal objects.

  When CCTV cameras are used to monitor areas in which walk-through metal detectors are being used, poor picture quality may result if cameras are too close to the metal detectors and are not well shielded against electromagnetic radiation. The intermittent touching of ungrounded metal objects in the vicinity of the detector may cause false alarms. Such areas include drop ceilings, raised computer floors, wall partitions and supports, electrical conduit, metal-framed windows, and chain-link fence.

  Installation suggestions to accommodate almost any situation are available from most manufacturers. Contour maps of the detector's exterior sensitivity are useful, because they help to determine the spacing required between detectors and other surrounding equipment. Proper spacing minimizes external interference.
- **Explosive detectors** usually operate on the principle of vapor detection. Most explosive substances emit vapors of a discernible, distinctive character. However, these devices are only as effective as their ability to collect and concentrate the explosive vapors. Walk-through booths are available, usually requiring a "pause" time so that a large volume of air can flow over the person in the detector. Such units should be installed in areas that are free of drafts, to maximize their sensitivity, and must be operated in relatively dust- and smoke-free environments.
- **Credential readers and positive personnel identification stations** that may be needed are determined by the total number of persons who will be entering a facility within a given time (for example, at the start of work shifts). Once the total volume and the desired rate of passage is known, the total need for parallel devices and turnstiles can be determined. Taking care to locate receptionists and security officers so that one person can observe and control multiple entry points helps make more efficient use of personnel. Audible alarms, which attract attention to gates or turnstiles that are being forced or that reject a card, help to discourage breach attempts and quickly direct guards to a problem.

Security control and information display

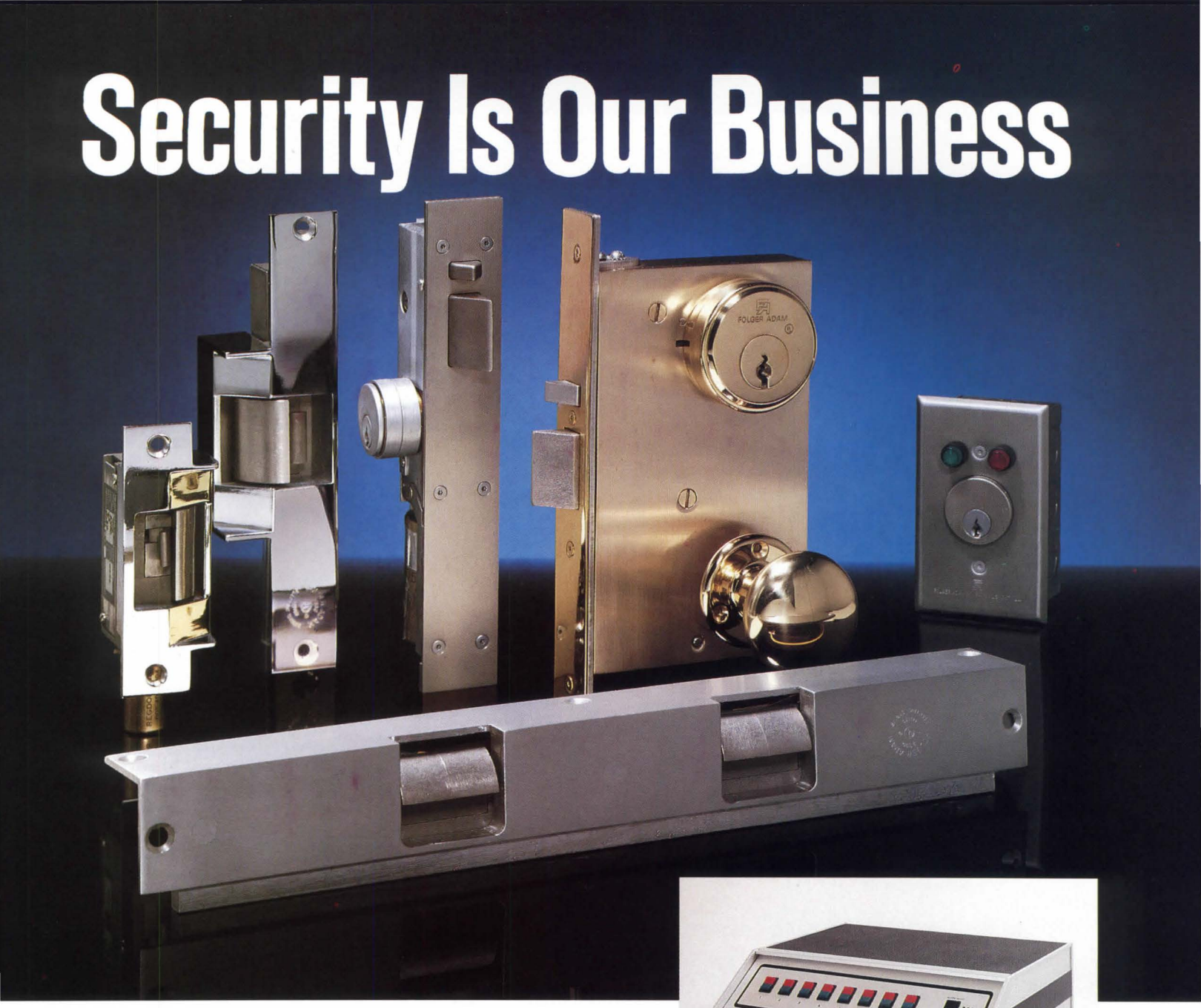
The major architectural consideration in designing security control and information display systems is how and where the equipment will be installed in the building. Such systems typically involve microelectronic circuitry and thus may require environmental conditions similar to those required for fairly complex computer equipment. Thought should also be given to access to the area where this equipment is placed. This is the "nerve center" of the security system and should be treated as a sensitive, limited access area. The ergonomics of console and booth design must be considered; guards shouldn't have to go through physical contortions to watch screens, and systems should rely on redundant alarms (such as warning buzzers and lights triggered simultaneously by a breach or other event), rather than on continuous visual monitoring of video screens.

In summary, architects who know the basic types of electronic intrusion detection and access control devices—and who understand their principles of application—can be much more effective helping the design team to produce better, less troublesome security systems. Without this knowledge, architecture and security may work at cross purposes.

James D. Williams, Ph.D. ■

The author is president of the WLS Group in Albuquerque, N.M., a security systems consulting firm. He has written many technical articles on access control and intrusion detection systems and was a program manager in security technology evaluation for Sandia National Laboratories.

Security Is Our Business



3100 CONTROL SYSTEM

Whether it's an office building, embassy, a bank, or maximum-security prison, we can provide the right security hardware.

The same technology which made FOLGER ADAM COMPANY the world's largest manufacturer of detention locks, has also been applied to high-security protection for buildings of all kinds.

FOLGER ADAM locks and access-control hardware are widely used in commercial and industrial buildings, and for restricted areas in institutions. There is also a broad line of electric strikes, known for their long wear and dependability, by security specialists everywhere. FOLGER ADAM electric strikes are stocked by distributors, across the country, ready for fast delivery.

A new, solid-state, desk-top control system, recently introduced, is designed for the remote control and monitoring of up to 12 security doors per unit. Complete information about this 3100 Control System, and other access-control products, is available upon request.

FOLGER ADAM COMPANY

16300 West 103rd Street, Lemont, IL 60439 • 312/739-3900 • Telex: 72-3420

Circle **No. 332** on Reader Service Card

General Building Design Guidelines for Security

- To a height of at least 15 feet above grade, design the exterior of the structure so that it is hard to climb.
- Minimize the number of exterior openings at or below grade, and protect any required openings against entry using hand tools.
- At grade level, or anywhere where access to exterior walls may be gained, design walls to resist penetration by intruders using hand tools.
- Provide sufficient space in entry areas for security personnel, sign-in desks, credential readers, personnel identification equipment, and such contraband detection equipment as package search x-ray machines, walk-through metal detectors, and explosive detectors.
- Provide adequate space for maintaining security equipment, which may require disassembly.
- Protect all utilities and control panels from unauthorized access and interruption.
- Design elevators, stairways, and automated locking mechanisms so that security is not unduly compromised during emergency evacuations.

Major Elements in a Physical Security System

Exterior sensors

- Fence associated sensors (at site perimeter)
- Buried sensors (along site edge)
- Freestanding sensors (on building exterior, at site edge)
- Special sensors (for approaching aircraft, etc.)

Interior sensors

- Boundary penetration sensors (to detect open portal or breach)
- Motion sensors (to detect intruders within space)
- Proximity sensors (to detect approaching persons)

Video and lighting systems

- CCTV cameras (for interior and exterior surveillance and for verification of alarms)
- Lighting (for interior and exterior surveillance and for proper illumination of video subjects)

Integrated information display and control system

- Should be secure and well-designed for personnel comfort; use redundant alarms

Entry control systems

- Guard personnel (remote and on-site)
- Contraband detection (includes walk-through metal detectors and explosives detectors)
- Credential readers (including unique knowledge of codes or possession of keys)
- Positive personnel identifiers (unique personal features)

Delay and disabling elements

- Vehicle barriers (both operable and static)
- Personnel barriers (both operable and static)
- Disabling media (tear-gas, aqueous foam, etc.)

On- and off-site communication systems

- To remote private security personnel
- To public emergency and police authorities

Watch and guard personnel

- To perform routine inspections
- To verify causes of alarms
- To respond to known intrusions

Design and performance. Hardware classics by Sargent.

This is what you're looking for in exit hardware: timeless design and exacting craftsmanship. Complete security. Reliable, long-lived performance. Backed by responsive service and on-time delivery.

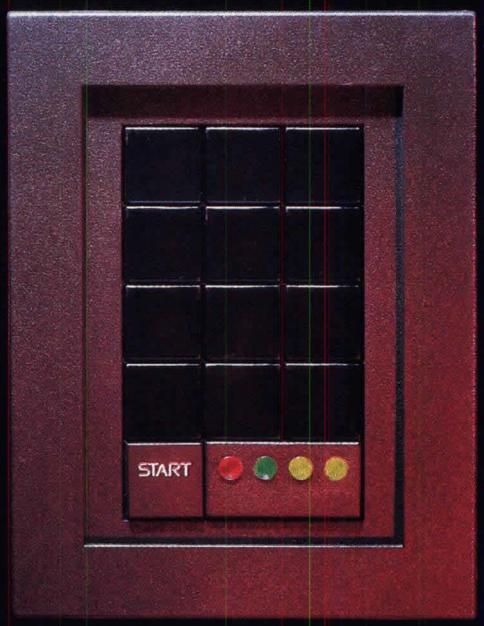
For enduring qualities in exit devices, locks and door closers, choose the complete Sargent line. And get classic architectural hardware.

SARGENT
A Unit of L.B. Foster Company
FOSTER

Sargent, New Haven, Connecticut 06511
Sargent of Canada Ltd.

Circle **No. 370**

Sargent exit devices and Fire Exit Hardware include mortise, vertical rod or rim types in a wide selection of functions and finishes. Shown are the 6400 in brushed bronze, the 9800 in polished brass and the 6800 in polished stainless steel.



THE KEYPAD THAT KNOWS HOW TO KEEP A SECRET

Hirsch Electronics presents the first truly discrete keypad: responsive only to the user while providing an intimate environment that's virtually impenetrable by the outside world.

The microprocessor-controlled *Digital Scrambler®* is the only keypad that absolutely prevents access codes from being copied, stolen or compromised.

The keys on the keypad remain blank until "start" is pressed. Then, instead of appearing in the traditional configuration, digits are randomly positioned. The *Digital Scrambler* displays a different numerical pattern each time it's used. It's impossible to see the code being entered by watching the fingers press the keys.

The unique design of the *Digital Scrambler* limits the viewing range to ±4° horizontally and ±26° vertically. It's virtually impossible for anyone else to see the numbers when you are using the keypad.

The revolutionary *Digital Scrambler* is the heart of a growing family of products featuring unique systems, applications and technologies. The remarkable and affordable Hirsch systems have the capabilities to monitor, report and control status changes through any size facility.

Call us for your nearest Hirsch distributor.

HIRSCH ELECTRONICS CORPORATION

1751 LANGLEY AVENUE IRVINE, CALIFORNIA 92714 (714) 250-8888

Circle No. 339 on Reader Service Card

Security Products

Tufloc high security hinged padlock offers protection against forced entry. The hardened stainless steel alloy resists sawing, drilling, hammering, and corrosion. Special features in the core improve picking resistance. The lock can be mounted on inward, outward, double swinging, sliding, and roll-up doors. Best Lock Corp.
Circle 130 on reader service card

Noncontact explosives detector from Britain is a portable battery-powered unit said to be able to detect nearly all commercial and military explosives in most climatic and environmental conditions. Applications range from body and package screening in shops and public transportation systems to explosives searches during security operations. It needs no purging between testing, making it suitable for screening large numbers of people. AI Security.
Circle 131 on reader service card

The SA-2252 security system for residences consists of the control unit, one to five remote panels for operating the system, detection devices, and alarms. There are both perimeter and interior circuits. During the day, the interior circuit can be turned off and the perimeter circuit left on. When the owner is away or retires at night, the interior circuit provides a second line of defense. An emergency circuit is on 24 hours a day and trips an alarm instantaneously at the press of a button. Up to five indoor and outdoor remotes can be used. NuTone Inc.
Circle 132 on reader service card

SOMFY rolling shutters add security against vandalism and intrusion through windows and skylights. Motors and controls open, close, and lock the shutters securely with just the push of a button. They provide an exterior shield that is internally controlled. Somfy Systems.
Circle 133 on reader service card

Home Alarm Terminal 3040A serves residential and light commercial buildings. Installation is simplified because the panel and communications functions are combined into one unit. Plug-in components require no change of external wiring during installation, service, or reconfiguration of the system. The Arming Control Station activates or deactivates the burglar alarm, initiates emergency alarms, and observes or tests the status of the system. General Instrument, Tocom Div.
Circle 134 on reader service card

New brass window hardware includes a 2¼-inch-long proprietary sash bolt, which is installed through the outer corners of the lower sash and capped by either a decorative or plain screw cover. Developed for high risk areas, these bolts secure double-hung windows. They can be removed from inside if necessary. Each style is available in a choice of four finishes. Baldwin Hardware Corp.
Circle 135 on reader service card

Building Systems & Controls Catalog is a comprehensive product reference source for security, fire and access control, communications and energy management systems. It has catalog pages from manufacturers of access controls, CCTV systems, communication systems, detection and alarm equipment, energy management systems, fire and smoke controls, lighting controls, and security and EM services. To receive a form to indicate eligibility to acquire a copy free of charge, write to Hutton Publishing Co., Inc., 375 N. Broadway, Jericho, N.Y. 11753.

Rolling shutters provide hurricane protection, building security, and energy savings. There are electrically or manually controlled shutters for a wide range of applications that include public housing, private houses, government installations, and commercial and industrial buildings. Also available are rolling shutters in curved configurations. A.C. Rolling Shutters.
Circle 136 on reader service card

Dual Tec III provides 18 optical zones of protection for increased performance and a 35′ x 30′ protection pattern. It has sensitivity of two to four steps within the field of view. There are 11 optical zones in the main axis, 7 optical zones in the lower axis. C&K Systems, Inc.
Circle 137 on reader service card

AutoCommand II Fire Alarm System microcomputer-based signaling system monitors manual and automatic devices, such as fire, watch patrol, and security systems. An 80-character visual display and extensive vocabulary aid the operator in responding to alarms. The system can be customized with accessories such as CRT's, printers, voice-tone alarm signaling, and lamp annunciators. Autocall Div.
Circle 138 on reader service card

Proximity Access Control Systems require no contact between card and reader. With no slots or slides, there is nothing to jam or attack. The sensors are enclosed in impact-resistant, weatherproof Lexan® plastic that withstands very cold and very hot weather conditions. Card codes are produced by tuned circuits embedded in fiberglass epoxy. Schlage Electronics.
Circle 139 on reader service card

Armorshield™ bullet-resistant door protects against the highest power handgun classifications. It has 10-gauge concealed armor plate welded to one face and the frame. It has heavyweight ball bearing nonremovable pin hinges, a steel reinforced mortise lock, and heavy-duty hardware. A urethane foam core bonded to interior surfaces offers thermal and sound barrier properties. Ceco Door Division.
Circle 140 on reader service card

Product Selection Guide offers a complete 16-section guide to CCTV systems and accessories and their interrelationships, and provides descriptions of various packaging operations. There also is a section entitled "How to Decide What is Needed for a CCTV System" that considers the variables of security or surveillance systems. Vicon Industries, Inc.
Circle 216 on reader service card

CareTaker electronic house sitter lets the owner monitor and control heating, lighting, and fire/security systems by telephone. It works with smoke detectors and other fire/security devices, and has a talk-back feature that reports house temperatures and protection levels over the telephone. The owner can adjust the thermostat and turn lights on or off by telephone. The system automatically phones for help in case of fire, intrusion, or unsafe temperatures. It can summon police, firemen, or medical help. Interactive Technologies.
Circle 141 on reader service card
(continued on page 156)

PassWay 8 card access control secures restricted areas. It uses Wiegand card readers, hands-free proximity readers, or keypads to open doors or gates to secured areas. The system controls up to 16 doors and manages up to 4000 employee access cards. A dual console allows the PassWay 8 system to be monitored from two different locations. Wells Fargo Alarm Services.
Circle 142 on reader service card

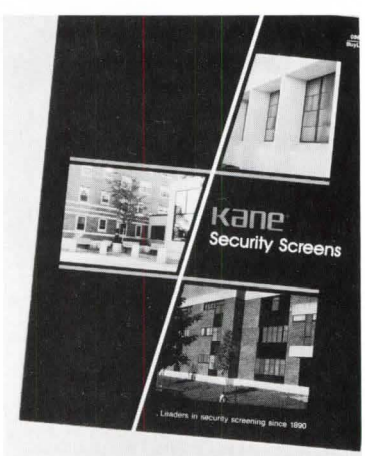
Vector 2000 provides alarm system control and communications, with identification of each individual point of protection. The system is described and illustrated in a 12-page color brochure. It lists product features and specifications. Ademco.
Circle 217 on reader service card

Detention windows bulletin describes steel, stainless steel, and aluminum windows that provide various degrees of security for correctional and psychiatric institutions. The windows are custom built according to the architect's or institution's specifications. The four-page bulletin includes drawings and specifications and photos of recent installations. Courion-JPB Enterprises.
Circle 218 on reader service card

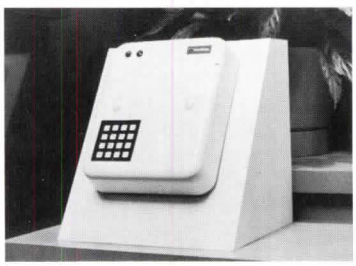
Security hinge 4½FM-ICS has a stud on the back of each leaf that is integrally cast. Studs extend into the door and frame when installed, anchoring the hinge firmly in place. This heavy hinge, with nonremovable pin, is suitable for doors with heavy use. It is supplied with tamper-resistant screws. Folger Adam Co.
Circle 143 on reader service card

Security products for commercial businesses are shown and described briefly in a six-page brochure. A building cutaway gives an example of how Mosler products can be applied and discusses additional services available. Mosler Inc.
Circle 219 on reader service card

Profilon Plus applied to the interior surface of a window strengthens, laminates, and greatly reduces the possibility of flying glass. According to the manufacturer, Profilon Plus protection makes ordinary glass better able to withstand accidental damage, vandalism, smash and grab robberies, rioting, street crimes, and hurricanes. It is a double-ply transparent polyester film with monofilaments between laminations at 1½-inch intervals. Solar tinted and alarmed security film are also available. American Armatura Company.
Circle 144 on reader service card



Security screen products catalog has details on steel, stainless steel, aluminum Defender II and Van-Guard II screens, and narrow-line aluminum Van-Guard screens. The screens are used in public housing, commercial buildings, prisons, utilities, hospitals, laboratories, and museums. Also shown are integrated astragals that are said to upgrade security by concealing screen lock bolts and hinges. Kane Manufacturing Corp.
Circle 220 on reader service card



Proximity 2000 access control system controls access to a secure area for as many as 65,000 people. It provides hands-free operation by reading concealed tags or cards over a distance of 12 to 16 inches. The system can be easily integrated into an existing Cardkey access control system and can provide uniquely encoded cards for each installation. Card reading is unaffected by nearby metal objects and is designed to avoid accidental reading of cards worn by personnel walking by Proximity 2000 protected areas. Cardkey Systems.
Circle 145 on reader service card

The Home Automation System can be programmed to control and monitor up to 256 functions in a house, including appliances, security system, heating, and air conditioning. It operates with hardwire, infrared, radio frequency, power line carrier, and phone lines. The master controller can be operated from any touch-tone telephone, allowing an owner to check whether doors are locked, if the security system is on, or if appliances are turned off. Commands over the phone can then change that situation. Many different automatic functions can be programmed and there are several options. Mitsubishi Electric Sales America, Inc.
Circle 146 on reader service card

Sequential Activity Sensor Series 6510 monitors for the repetitive sounds associated with intruder activity. Its memory forgets random sounds, yet responds to intruders. It comes in both hardwire and wireless versions. Sentrol, Inc.
Circle 147 on reader service card

The TigreLok electromagnetic locking device, developed in conjunction with consultant Irving Saphirstein, keeps doors locked with 1200 pounds of holding force. It conforms to NFPA 101 regulations and provides safe, positive, instantaneous door control. The devices are intended for schools, hospitals, hotels, and other facilities requiring security and safety. A door position switch provides for remote monitoring. Rixson-Firemark.
Circle 148 on reader service card

Bullet-resistant security equipment, shown and described in a 12-page brochure, includes doors, windows, guard enclosures, and modular partitions. The brochure lists standard features, options, and ballistic level ratings. National Bullet Proof.
Circle 221 on reader service card

Computerized card access and alarm monitoring central station is in operation around the clock, every day of the year. Computers, backed by no-interruption power supplies, manage remote office buildings for clients. Historical reports trace the activities of card holders in the access control programs. Hard copy printouts document events for the time period desired. Engineered Security Systems, Inc.
Circle 149 on reader service card

The DKP System II Digital Keypad limits access to restricted areas. The unit will hold up to 2000 4- or 5-digit codes. Programming is done on site using the main keypad. Features include two modes of antipassback to prevent repeat use of code numbers; eight individual time zones for limiting code numbers to set times; and a printer output to document keypad activity. The system can be completely self-contained or have up to 16 satellite keypads. An alarm relay can be activated by door ajar, hostage, invalid code attempts, or tamper switch alarms. Select Engineered Systems, Inc.
Circle 150 on reader service card
(continued on page 158)

MORE

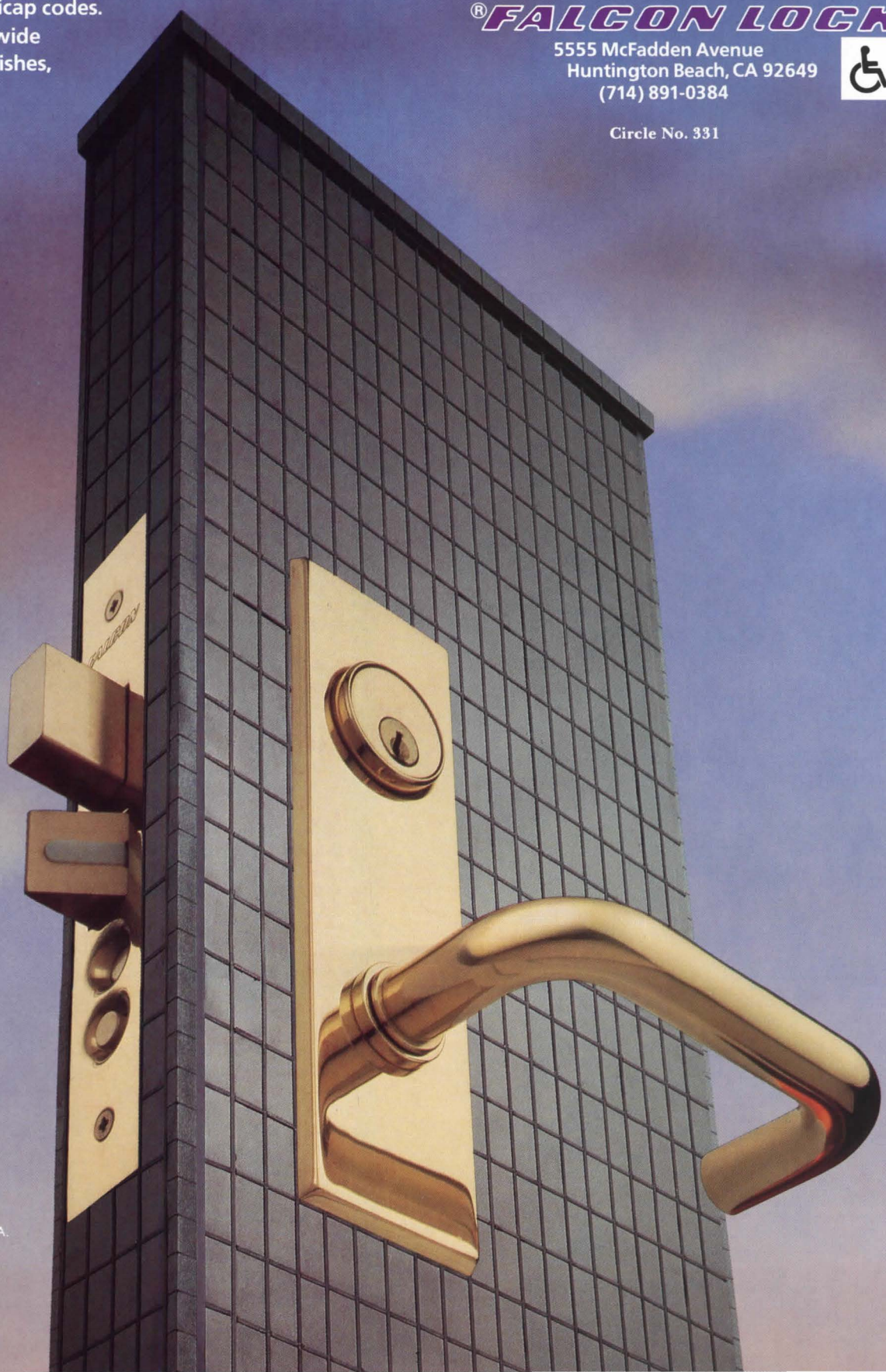
LEVERAGE

Contemporary styling rounds the bend with Falcon's sleek new Sutro Lever. And Sutro's sweeping lever line features a return that satisfies even the toughest handicap codes. Available in a wide selection of finishes, including Polished and Satin Stainless Steel. Falcon's Sutro: more of the kind of leverage that makes any job easier.

®FALCON LOCK

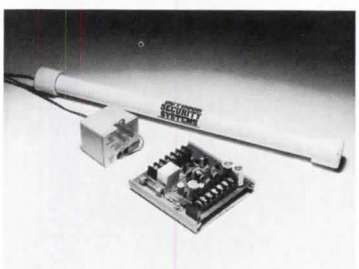
5555 McFadden Avenue
Huntington Beach, CA 92649
(714) 891-0384

Circle No. 331



Made in U.S.A.

Security Products

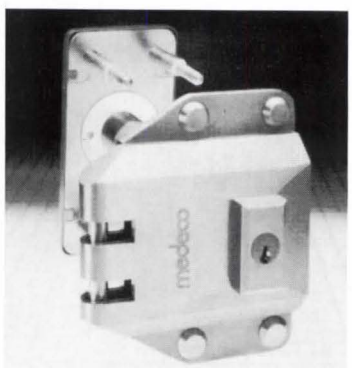


The High Value Driveway Sensor uses direct burial sensors that can be placed directly in dirt, asphalt, or concrete for easy installation and concealed security. It offers economical, dependable protection for houses, and commercial and industrial applications. The sensor's 100 percent solid state circuitry and high RFI immunity reduce false alarms. It also can be used to turn on exterior lights or operate a gate. Outdoor Security Systems.
Circle 151 on reader service card

Standard Duty Cylindrical Lockset, 6600 Series, is constructed of durable stainless steel and will be offered in several finishes and functions, three designs, and four backsets. Masterkeying can be done at the factory or in the field. The 6600 Series also can be masterkeyed with other Corbin locks. The series conforms to ANSI 156.2-1983 Series 4000 Grade 2, and is UL listed for Class A and lesser doors. Corbin Division, Emhart Hardware Group.
Circle 152 on reader service card

The 1400 Series fire release modular control systems interface an electric or pneumatic Gemini™ door controller with a building's fire alarm, smoke alarm, and power failure system. In an emergency, the control automatically unlocks all doors equipped with the Gemini operator, providing free egress to stairwells, and allows the outside door knob to operate. A four-page brochure describes this and other Series 1400 modular controllers. Architectural Control Systems, Inc.
Circle 222 on reader service card

Defender-Lite security glazed units have a framing system used in hospitals, prisons, commercial and industrial buildings, institutions, and housing projects. The units are described in a catalog that contains specifications and section details for aluminum, steel, and stainless steel frames. Defender-Lite panels can be installed inside or outside. They are designed for low air infiltration and will act as storm windows. Kane Manufacturing Corporation.
Circle 223 on reader service card

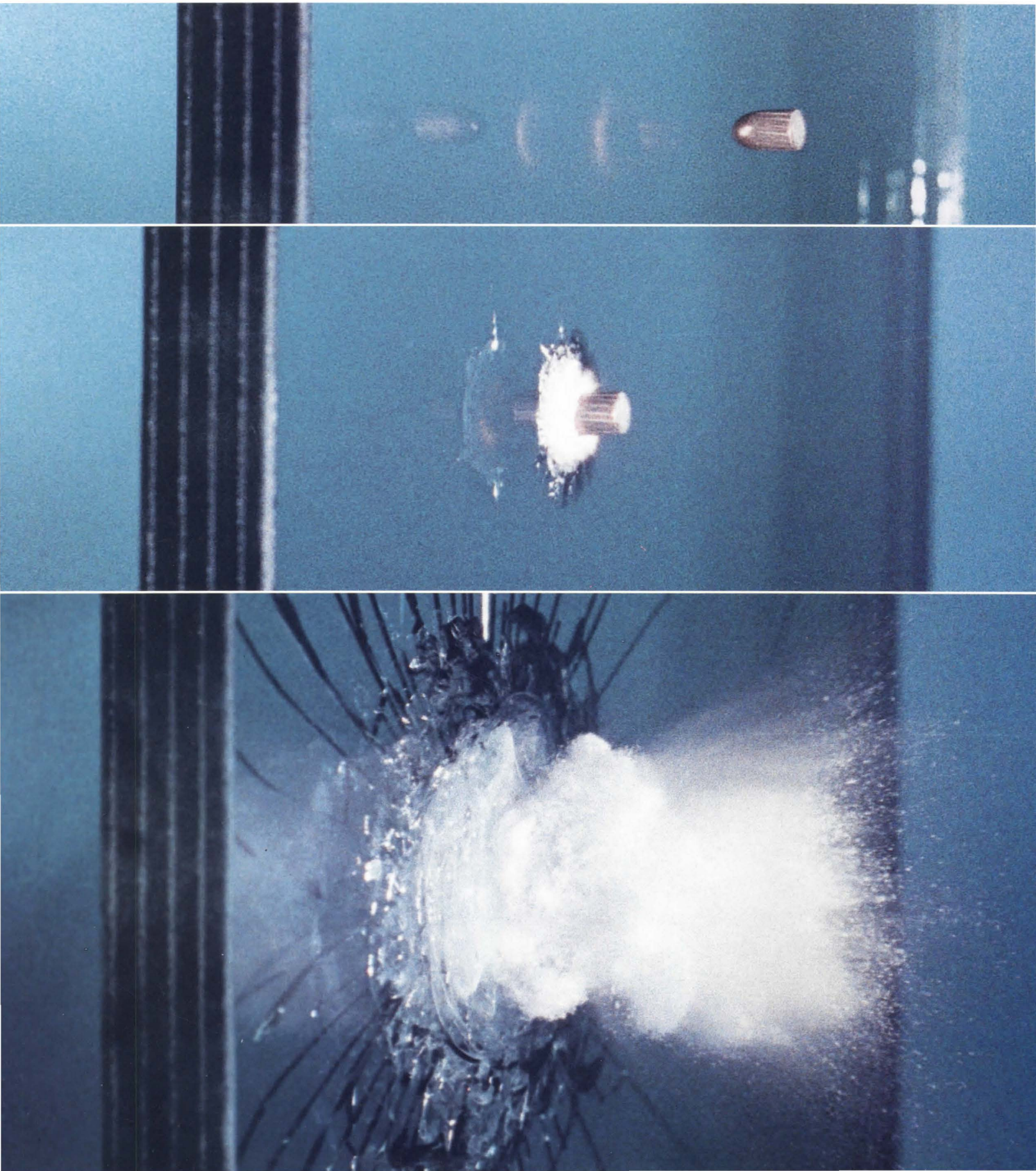


The D-10 high security dropbolt offers protection for high crime, high risk areas in residential and commercial door applications. A guardplate shields the lock cylinder from hammering and wrenching. The UL listed Bodyguard® steel cover plate has a hardened disc for added protection. The lock is operated by a coded key and has more than 23,000,000 combinations. Medeco High Security Locks.
Circle 153 on reader service card

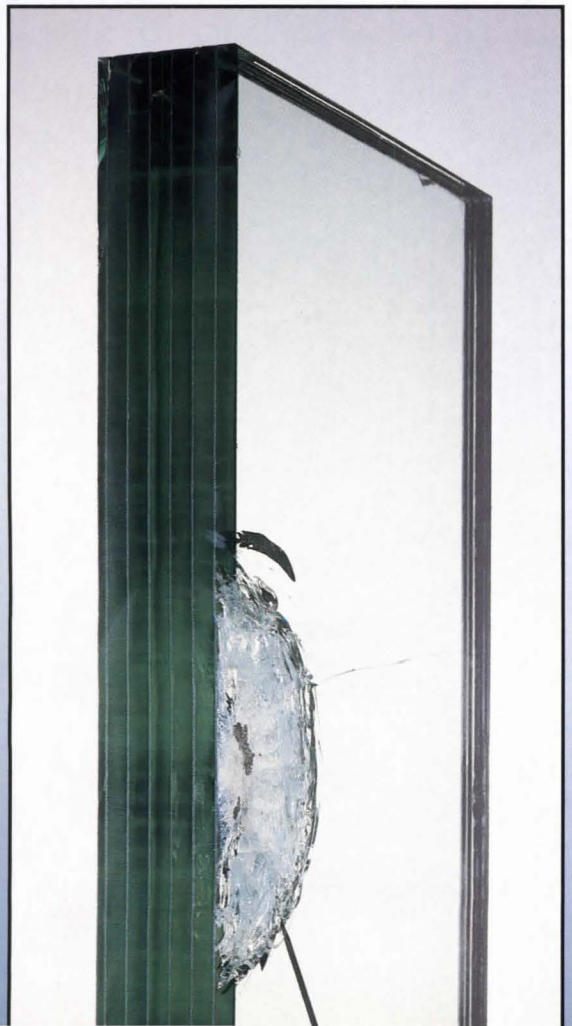
The Series 5000 restricted exit control system permits control of door opening after the exit device has been activated and the alarm sounded. This irreversible action provides the security and control needed to prevent unauthorized use. If smoke detectors, water flow indicators, or other emergency sensing devices have been activated, the conditional release is voided and the door can be opened for safe egress. Von Duprin, Inc.
Circle 154 on reader service card

(continued on page 165)

IF YOU'VE NEVER THOUGHT OF LAMINATED GLASS AS A SECURITY DEVICE...



THINK AGAIN.



Laminated Glass Stops Bullet Dead In Its Tracks.

Front cover and above:
Super high-speed photography shows a pane of nominal 1 3/16-inch thick laminated glass stopping a Super .38 slug.

Left:
Cross-section of nominal 1¾-inch thick laminated glass cut at point of impact by .44 Magnum slug.

Any building is only as secure as its weakest point—its windows and doors. An intruder needs only smash the glass or cut it. And today's security manager cannot ignore the possibility of an attack with firearms.

Laminated glass made with supertough Saflex® plastic interlayer can deter such attacks. It allows the creative options of glazing while providing greater protection against forced entry and violent attack than other glass products such as tempered or wired glass.

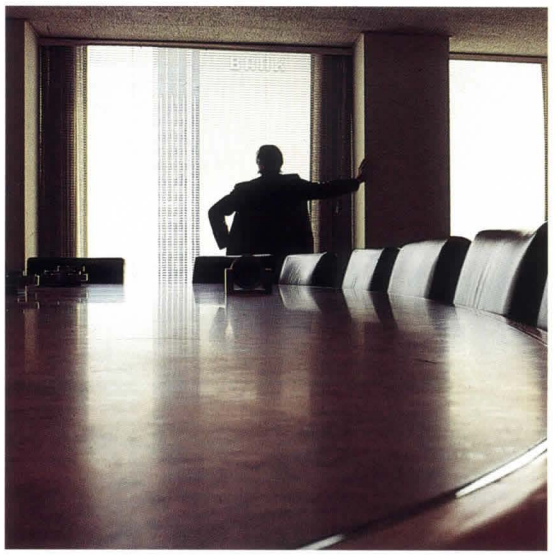
Laminated glass also provides the security manager and the architect with an attractive alternative to bars, grills, solid walls and other more costly, less sightly systems.

Compared to polycarbonate (plastic) window systems, laminated glass is more cost effective. It does not scratch or turn yellow like plastic. And laminated glass has an indefinite lifetime.

Underwriters Tested for Bullet Resistance

Layers of glass bonded together with Saflex look like ordinary glass, but can be fabricated to resist penetration from medium to superpower small arms and high-power rifles.

Laminated glass can be fabricated to meet the performance requirements of Underwriters Laboratories for bullet resistive glazing, as specified in UL752.



Weapon	Ammunition, Typical Characteristics	Laminate Thickness
Super 38 Automatic	130 grain metal case Velocity: 1280 fps Energy: 475 ft-lb	1 3/16"
.357 Magnum Revolver	158 grain soft point Velocity: 1450 fps Energy: 740 ft-lb	1½"
.44 Magnum Revolver	240 grain soft point Velocity: 1470 fps Energy: 1150 ft-lb	1¾"
30-06 Rifle	220 grain soft point Velocity: 2410 fps Energy: 2830 ft-lb	2"

Note: Tests are conducted at approximate temperatures expected in use.
The projectile must not penetrate the glazing and large fragments of glass cannot be forcibly thrown more than 18" from the backside of the glass.

Hammers, Crowbars, and Cutting Tools

Main-force attacks on windows typically involve hand-held weapons such as crowbars, bricks or cutting tools. Two-ply laminated glass just ¼-inch thick with an 0.030-inch Saflex interlayer can provide resistance to attacks with such weapons. And because laminated glass combines two or more panes of glass, it cannot be cut from one side only. Thicker Saflex interlayers and multiple plies of glass and Saflex interlayer can offer even greater resistance to sustained attacks.

LAMINATED GLASS.

Clearly your best choice.

Laminated glass with Saflex plastic interlayer offers much more than just superior security performance.

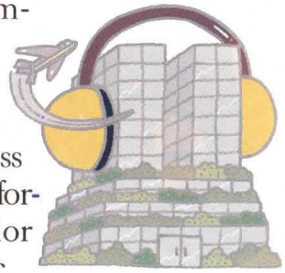
Safety

Laminated glass can reduce the risk of injury from broken glass. The glass tends to adhere to the Saflex interlayer after breakage, even during high energy attacks from bullets or hand-held weapons.

Since laminated glass remains integral even when broken, it can keep out wind and wind-blown debris to prevent weather-related damage. It satisfies the break-safe requirements of all safety standards and is the glass of choice for sloped and overhead glazings.

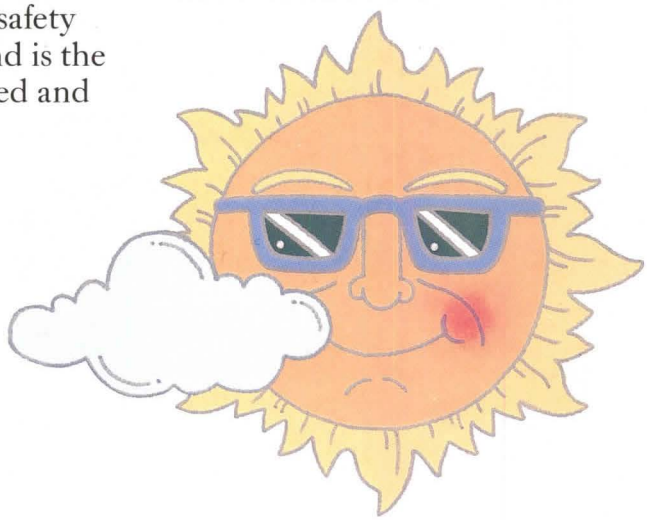
Sound Control

The vibration damping characteristics of the plastic interlayer combined with the mass of the glass give laminated glass acoustical performance superior to monolithic or air-spaced glass. And laminated glass can be used in standard window designs.



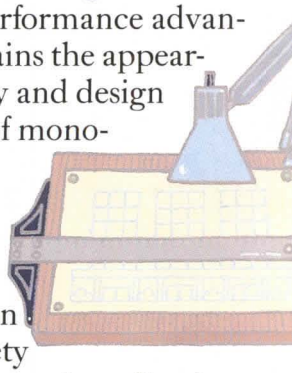
Solar Energy Control

Laminated glass effectively reduces solar energy transmittance. It also reduces glare without distorting colors. And it filters ultraviolet radiation to protect furnishings, displays and merchandise.



Design Options

While laminated glass offers superior performance advantages, it retains the appearance, clarity and design flexibility of monolithic glass.



Laminated glass is available in clear or in a wide variety of colors. It can be reflective, curved, insulated, annealed, or tempered.

Get the Whole Story

To learn more about how laminated glass can meet your security requirements without sacrificing your creative design options, send for our newest brochure: *Security Applications of Laminated Architectural Glass.* It's free for the asking. Just call Monsanto at 800-325-4330, write, or send the coupon to Monsanto, Dept. 204, 800 N. Lindbergh Blvd., St. Louis, MO 63167.

Monsanto

SAFLEX®
PLASTIC INTERLAYER

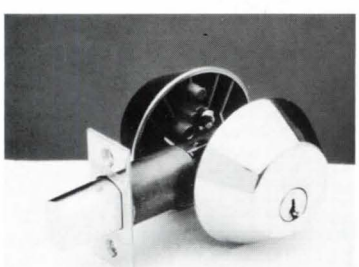
Veritron™ voice verification system identifies natural voice characteristics, providing certainty of identification and simplicity of use. Identity verification is a yes/no determination of whether a person is the one he or she claims to be. Subjective judgment is replaced by a fast, reliable computerized system. Voxtron Systems, Inc.
Circle 155 on reader service card

ScrambleLock access control accommodates up to eight three- to eight-digit codes, with more than 100 million possible combinations. The Digital Scrambler® keypad has a scrambled pattern display and restricted viewing angle to inhibit unauthorized use of codes. Hirsch Electronics Corp.
Circle 156 on reader service card

CCTV surveillance systems include several types of cameras, video monitors in either black and white or color, ranging in size from 5 to 20 inches, sequential switchers, and recorders. A 24-page catalog illustrates and describes the products and their capabilities. Ikegami Electronics (USA), Inc.
Circle 224 on reader service card

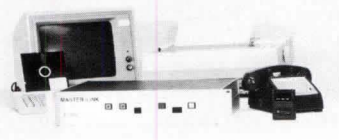
LKAC-IS access control system restricts access to a single point. Codes in the memory are conveniently changed by end-users to reduce call-backs. Features include adjustable release time and high security of remotely located decoder. It is available with the Stormpad for use in outdoor or perimeter access control applications. Nel-Tech Inc.
Circle 157 on reader service card

Centry entry management service helps building managers control building entry after normal business hours, on weekends, and on holidays. Doors are locked and unlocked on a predetermined schedule. All programming and system management takes place from a Honeywell Central Station by technicians who make changes in passcard assignments or building lock-up schedules based on instructions from building managers. The technicians also monitor the status of locked doors to assure that they close properly. Honeywell Inc., Protection Services Div.
Circle 158 on reader service card



The D9000X Deadbolt has a tamperproof screw that cannot be removed by conventional means, a heavy duty strike, and a cylinder hold-down screw that resists blows to the cylinder. The one-inch projection deadbolt has a ¼-inch hardened steel roller that resists sawing and prying. The solid steel mounting plate helps to resist prying of the outer trim. Weiser Lock.
Circle 159 on reader service card

Data Shield storage chambers protect tapes, disks, microforms, and other computer media. Each chamber is assembled of lightweight panels, metal-clad inside and out, and insulated with R-34 urethane. The panels lock together quickly and securely. It is possible to add extra panels to enlarge the chamber, or to dismantle it for relocation. Bally Engineered Structures, An Allegheny International company.
Circle 160 on reader service card
(continued on page 166)

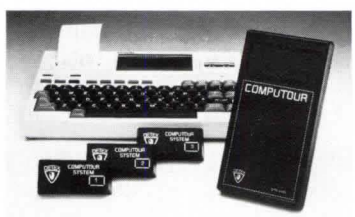


Master-Link is a full-function, programmable alarm monitoring and control processor for remote management of equipment, environmental conditions, and site security. It can monitor and control computer centers, buildings, laboratory experiments, etc. The unit can be moved from site to site and fits conveniently under an airline seat, allowing it to be installed economically at high risk locations. Master-Link can poll up to 21 monitored functions. Any telephone keypad can be used to acknowledge the alarm and obtain the status of present and past alarms. TeleMonitor Corp.
Circle 161 on reader service card

Door controls catalog includes door closers, life safety door controls, and special function controls. Some are equipped with smoke detectors that allow the door to close as a safety measure. Electromagnetic door holders described can be used in high security areas to hold doors open or closed from a central console, admitting only authorized personnel with keys. Norton Security Products Division.
Circle 225 on reader service card

Hardlines brochure covers bullet-resisting, penetration-resisting, blast-resisting, and activated barriers. There are transportable guard enclosures, interior-based activated barriers, door/frame/hardware assemblies, wall panels, transfer units, vision and service windows, appliqué armors, and accessories. Chicago Bullet Proof Equipment Co.
Circle 226 on reader service card

Design and installation of new security systems, maintenance and upgrading of existing systems, and operational support services are tailored to particular circumstances and threats. The company first analyzes the needs, then designs and engineers a system with cost estimates. The system is then installed, and personnel are trained to operate it. System maintenance can also be provided. Penn Central Technical Security Co.
Circle 162 on reader service card



CompuTour™ electronic watchtour system offers management rapid access to security information from remote installations. The system consists of a compact, lightweight Tour Recorder and discrete electronic Tour Stations that have no keys to become lost or stolen. They need neither electrical wiring nor batteries. The system collects, stores, and retrieves tour data in an easily analyzed, digital form. A logical extension of the traditional watchclock, CompuTour combines portable tour recording with centralized monitoring. Detex Corporation.
Circle 227 on reader service card

Logiplex® Auditor has a master control panel to monitor and control local security systems and communicate system status to a host computer. Interface modules are available for intrusion/equipment monitoring and a serial card for access control. The access control system will support 65,000 card codes, 30 time zones, and 120 levels of security. An Auditor III remote fire panel controls fire warning and fire response equipment. Logiplex Corporation.
Circle 228 on reader service card

CLEARSEAL III™ PROTECTS WALLCOVERINGS FROM GREASE, GRIME, AND PUPPY LOVE.

Clearseal III provides lasting protection against dirt and stains. And does it invisibly.

Clearseal III is available now on a custom basis on most Guard® commercial wallcoverings. Compared to untreated wallcoverings, those with Clearseal III are significantly easier to clean.

And because there's no loss of texture or definition in the embossing detail, Clearseal III protects without any compromise in styling or design flexibility, and without affecting installation.

That's why with Clearseal III, you won't even know it's there — until you need it. Contact your nearest distributor for more information.

BORDEN **GUARD**

CONTRACT VINYL WALLCOVERING

Circle No. 324 on Reader Service Card

ALPOLIC®

The Lightweight, Rigid, Bendable Composite Material

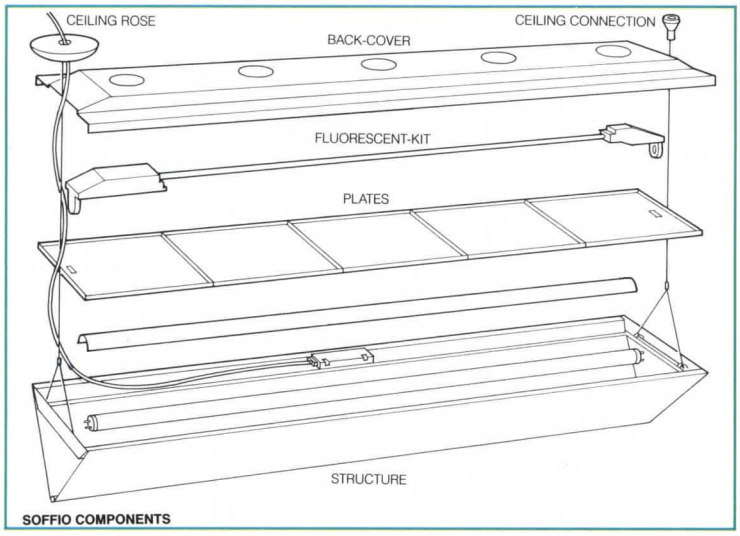
Alpolic combines beauty with superior flatness and easy workability. Used for exterior sheathing, display panels, sign boards and other applications, it resists weather and corrosion. Used for interior applications such as displays, it will enhance the beauty of your designs.

Alpolic is available in silver, light bronze, dark bronze, gold and black anodized finishes and painted in a range of colors.

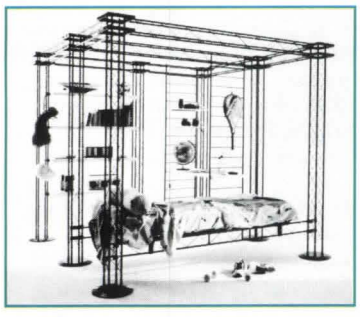
MITSUBISHI CHEMICAL INDUSTRIES AMERICA INC. (MCIA)
100 Wade Avenue, South Plainfield, NJ 07080
Phone: 201-757-6900 • FAX: 201-757-6690

Circle **No. 355** on Reader Service Card

New Products and Literature



SOFFIO COMPONENTS



Systems: for lighting and for display

Lighting

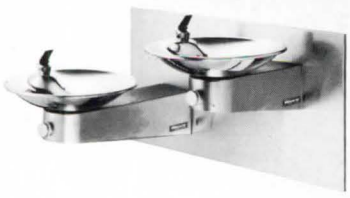
The Soffio modular lighting system for interiors, designed by Emilio Ambasz for Sirrah of Italy, is a highly versatile assembly that offers two lighting channels suitable for 110/220-volt or 12/24-volt power supplies. In addition, within the same fixture, lighting sources are highly variable: fluorescent tubes can be used for overall illumination or they can be coupled with halogen lamps or filament bulbs to intensify a floor area or particular workplace, shining either upwards or downwards. One can use any combination of the three sources, all of which are shaded by a special screening material that is easily removable for washing and is also self-extinguishing. IPI Inc.

Circle 100 on reader service card

Display

The Zero modular display system produced by Quattrocchio of Italy was designed by De Pas/D'Urbino/Lomazzi. Each component of the system is connected by a die-stamped high-strength aluminum spigot; the universal link is the six-direction junction from which beams can be extended horizontally or vertically. Zero allows infinite modular constructions for residential interiors, shop fittings, or for exhibition stands and pavilions. Many accessories are available (as shown in illustrations), and the system, which is manufactured in epoxy-coated steel, is produced in two basic colors—titanium white and beluga black—although other special colors are available upon request. INTERREP.

Circle 101 on reader service card

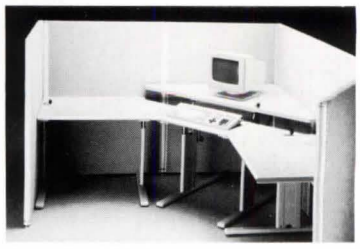


Barrier-free drinking fountain, Model 1114RF, is designed for either new installation or as a replacement for fountains that do not meet handicapped accessiblity requirements. It has a stainless steel receptor, outer shell, bracket, and backplate. Bubbler and push button are polished chrome plated. Haws Drinking Faucet Company.
Circle 111 on reader service card

Aluminum pipe railings of non-welded construction have all fasteners concealed, providing a smooth, tight press-fit finish. The OSHA-approved railings can be embedded in concrete, mounted on decks with base flanges, or side-mounted with fascia flanges. Special curves on pipe radius are available. Finishes are white, black, bronze, dark bronze, and brown baked-on enamel and Satin and Duranodic anodized. Superior Aluminum Products.
Circle 112 on reader service card

Venetian blind windows now include 12 distinctive configurations. There are fixed, pivoted, and in-swing casement designs and a variety of glazing and glass types. Features include: factory glazing capped with silicone to eliminate air and water infiltration; prefinished Thermolok cavity to ensure adhesion; and dual glazing for thermal and acoustical performance. Wausau Metals Corporation.
Circle 113 on reader service card

Architectural metal roofing and mansard panels are described in a 12-page brochure. The line includes roofing panels in three different rib profiles; roofing and mansard panels in a thin-seam design; mansard panels in three profiles and widths; and panels that can be used as soffits for mansards or as interior or exterior wall panels. A color chart is included. Engineered Components Inc.
Circle 207 on reader service card



A custom workstation to fit a 6′ x 6′ corner area has a bi-level corner table with crank-adjustable keyboard and VDT surfaces. Side surfaces provide additional work space. Two crank-adjustable or manually controlled single surface tables complete the workstation. Standard laminate top colors are light oak, beech, tan, dark oak, and light gray. Steel frame colors are brown, white, tan, black, and dark gray. Human Factor Technologies, Inc.
Circle 114 on reader service card

The Suspended Ceiling Module sign, of seamless, molded fiberglass, is available in three sizes and three corner shapes to fit standard ceiling grids. The lightweight module requires no additional ceiling support. Graphics can be unlighted or internally lighted, with either permanent or changeable messages. An optional feature allows for partial downlight. APCO.
Circle 115 on reader service card

Tile catalog for 1987 introduces four new lines, new quarry tile colors, and new ceramic mosaic patterns. It shows 26 ceramic tile lines, ceramic tile trim, bathroom accessories, Elegance® natural marble, and natural slate. Installation materials are shown, and specifications are included. American Olean Tile.
Circle 208 on reader service card

Unglazed ceramic tiles Ironrock® and Metro® Quarry are abrasion- and slip-resistant, easy to maintain, and do not require sealing. Suitable for interior and exterior floors and walls, they are available in 15 natural colors in modular sizes. Metropolitan Ceramics.
Circle 116 on reader service card

Architectural books list constituting a comprehensive reading guide for undergraduate and graduate students covers design, history, and criticism. The list is divided into books about architects, architectural history, urban design, technical subjects, and drawing. The Prairie Avenue Bookshop.
Circle 209 on reader service card
(continued on page 174)

Actual images displayed on a CalComp System 25, showing rendered perspective composites onto a photographic background.

MORE ARCHITECTS MODEL THEIR THOUGHTS WITH CALCOMP THAN ANY OTHER CAD SYSTEM.

Whether you're looking for powerful 3D building modeling or high-performance 2D drafting, there isn't an architectural CAD system offering more design creativity and production efficiency than CalComp's System 25.

First, because of CalComp's extensive library of architectural software. And second, because System 25 is the fastest of all CAD systems and one of the easiest to learn and use.

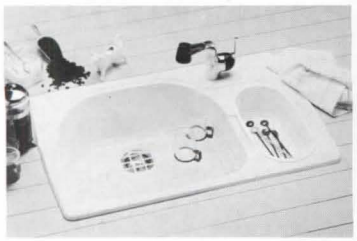
It's the only architectural CAD system that lets you start small and grow with complete compatibility.

But what about quality? CalComp System 25 was developed by architects for architects. And it's not just one system, but a continuum, from the CADVANCE-based 100 Series for PC users through the 300 Series to the high-performance multi-users 600 Series.

And System 25 is backed by the world-wide resources of a Fortune 500 company. CalComp's commitment includes installation, training, regional support teams and an 800 number hotline.

To learn more about why more architects model their thoughts with CalComp, just write or call for our 8-minute movie. It's titled "CAD to Reality," and is available on VHS or Beta for just $5 to cover postage and handling. Then decide which system to buy. For more information, contact: CalComp, P.O. Box 3250, Anaheim, California 92803. Phone us toll free 1-800-CALCOMP.

CalComp
A Lockheed Company

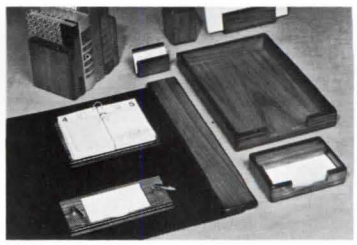


The Prestige 33″ x 22″ sink is being offered in white or almond. It is being produced in a material that the company says resists wear better than ceramic and enamel. It is said to be very resistant to chips, cracks, and abrasion. Franke, Inc.
Circle 117 on reader service card

Dexstar® 850 is a protective coating system for most metal substrates. It is a coil coating system for commercial, industrial, or institutional metal building construction suitable for use on sidewalls and roofs, where formability and durability are important. A six-page brochure describes Dextar 850 and provides specifications. Midland Division, The Dexter Corporation.
Circle 210 on reader service card

Fog, a smoky gray color, has been added to the Orizzonti Series of tiles. It has a slightly textured finish to provide a degree of pedestrian safety while remaining easy to clean. The series can be used in residential and medium commercial areas such as malls, banks, and hotel lobbies. The tile is eight inches square and there are single and double bullnose trims. American Marazzi Tile.
Circle 118 on reader service card

Terrace Stone concrete slab paver is manufactured in the style of European pavers. There are five styles: aggregate, brickface, squares, slate, and round with squared edges, in a variety of colors. Hokanson Building Block Company.
Circle 119 on reader service card



The Aristocrat Series of desk accessories is made of hand-rubbed teak with accents of solid ebony. The series includes desk pad, pen sets, memo and Post-It® holders, letter trays, calendar holders, spindle, mail and card holders, bookends, and pencil cups. Desk Pro, Inc.
Circle 120 on reader service card

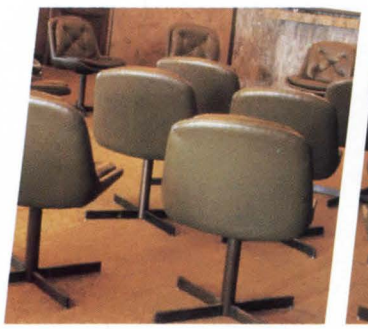
The 1824 Graphic Zoomer plain paper copier can copy, reduce, or enlarge documents and drawings from 50 to 100 percent, or any size in between in increments of one percent. Engineering drawings and blueprints can be reduced for convenient handling or enlarged for cut and paste design change. The copier accommodates paper sizes from 8½″ x 11″ to 18″ x 24″. Graphic Enterprises.
Circle 121 on reader service card

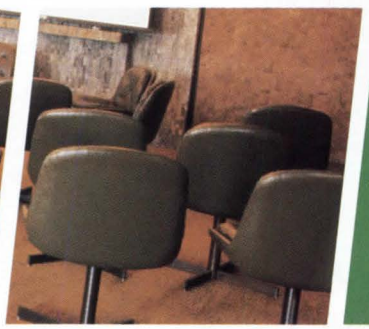
Soliloquy glazed porcelain ceramic tile is packaged in three basic patterns: diagonal, check, and solids. Patterns and colors can be mixed and matched to create unique designs. It is backmounted in nine-tile modules. Bullnose and outside corner trim pieces are available separately. Metropolitan Ceramics.
Circle 122 on reader service card

Decorative faucets and accessories catalog features over 70 different spouts and many handle and escutcheon combinations. Metal and colored enamel finishes and porcelain colors make it possible to create a faucet to match any bathroom or kitchen decor. Accessories are available to coordinate with all Harden faucets. The 96-page catalog costs $5.00 and is available from Harden Industries, P.O. Box 59911, Los Angeles, Calif. 90059.

Site Furnishings brochure describes and illustrates in color clocks, benches, and drinking fountains. Accessories include trash containers, planters, and tree grates. There also are directories, bicycle racks, outdoor lighting, and food service furnishings. Information provided includes sizes and materials. Canterbury International.
Circle 211 on reader service card
(continued on page 176)

Design Communication Into Your Next Creation!





Concealed electric or rear projection screens, choice of surfaces.

Any room becomes a meeting room when you design with Da-Lite.® Whatever communication aids you need can blend beautifully and unobtrusively into the decor you choose.

For slides, motion pictures or video projection, there's the famous Da-Lite Executive Electrol® disappearing screen that glides smoothly and silently down from its hidden compartment in the ceiling. There's even an optional wireless remote control that allows the screen to be operated from anywhere in the room.

Or to project in near normal room light without the distraction of a projector, choose a Da-Lite/Polacoat® rear projection screen that insulates and isolates the projector behind the screen. And screens may be delivered in their own handsome frames to simplify installation.

For smaller office presentations, consider the Da-Lite/Oravisual® communication cabinet with a porcelain-on-steel whiteboard surface for dry erase marker presentations or magnetic attachments. Other features include paper pad hooks for flip-chart presentations, a Da-Lite projection screen and tack boards. Choose from several sizes, all in handsome cabinetry for a variety of interior designs. In natural wood or laminate finishes. These quality finishes are also available in Da-Lite/Oravisual lecterns.

So next time you design, keep Da-Lite in mind.

DA-LITE® | *A Heritage Communications Company*

For full information, see your Da-Lite dealer or contact:

Da-Lite Screen Company, Inc.
P.O. Box 137
Warsaw, IN 46580
219-267-8101
Telex 23-2649

Computer furniture can be used as individual pieces or grouped to provide work stations. The 5200 Series has standard adjustable chrome legs with adjustable glides and optional casters. Work stations have 1¼-inch high-pressure laminate tops in Walnut or Royal Oak with black vinyl banding and are 30 inches deep. Royal Seating Corp.
Circle 123 on reader service card

Monocottura paver tile for residential and commercial use is shown in a full-color, 16-page catalog. Tiles are illustrated in color as well as in installations. Interceramic.
Circle 212 on reader service card

Model Guide Specifications, Asbestos Abatement in Buildings offers guidance for asbestos abatement by enclosure, encapsulation, and removal. It can also be used as a guide for writing specifications for an asbestos maintenance and repair program. The guide represents the consensus of a cross-section of the building, scientific, and medical communities, who volunteered to oversee its preparation. The book costs $75 in a looseleaf binder. Floppy diskettes with hard copy cost $150. They are available from National Institute of Building Sciences, 1015 Fifteenth St., N.W., Suite 700, Washington, D.C. 20005.

Aurora Wireless Remote Control allows operation of Lutron's Aurora Lighting Scene Control from virtually any location in a given area. Four specific lighting scenes can be created, each consisting of up to 12 zones. Two components are required to integrate the remote control into the dimming system, a hand-held transmitter and a wall-mounted or ceiling-mounted receiver. The transmitter has pushbuttons that activate each of the four preset lighting scenes, and a system on/off button. Lutron Electronics Co., Inc.
Circle 124 on reader service card

Verosol FR™ metallized and nonmetallized shades are available in opaque or sheer densities and a wide range of colors and textures. The shades provide energy savings equal to an additional pane of glass and help prevent fading of shades, carpets, and upholstery. The metallized fabric is inherently antistatic, reducing maintenance costs. The shades have a compact stacking height of approximately ½ inch for every two feet of drop. ComShade Co., Inc.
Circle 125 on reader service card

Action Plus task seating features fingertip pneumatic height adjustment, a backrest fully adjustable for height, angle and back support tension, and durable construction. Thick padding and a wide seat ensure comfort. The chair is available in three fabric colors: brown, red, and black. It has either nonskid feet or casters. Plan Hold Corp.
Circle 126 on reader service card.

Movable Wall System GB-350 technical bulletin discusses the design possibilities of this demountable partition system. Sections cover flexibility and installation; panel, trim, and accessories; glazing and furniture-hanging capability; fire and sound transmission ratings; and Durasan gypsum wall panels and Gold Bond Saxon® steel-faced gypsum panels. Technical drawings offer views of the Gravity Lock fastener, and ceiling, cornice, and rail-height applications. Gold Bond Building Products.
Circle 213 on reader service card

Building Construction Cost Data 1987 contains unit costs for more than 20,000 building components for easier, more dependable estimates. This latest edition includes man-hour information as well as daily output information. Installation costs are broken down by labor and equipment. New methods and materials are updated up to press time, and the information is arranged in the 16 CSI divisions. It is available for $44.95 from R.S. Means Co., Inc., 123 Construction Plaza, Kingston, Mass. 02364.

Decorative hardware and bathroom accessories of cast acrylic and simulated granite are combined with solid brass components. They are available in a variety of colors and shapes. The group includes door and cabinet hardware, towel bars, shelves, rings, hooks, and toilet tissue holders, all illustrated in a full-color six-page brochure. Acrymet Industries, Inc.
Circle 214 on reader service card
(continued on page 178)

A DHI-certified consultant is an investment in experience.

An investment that pays.

Certification in the architectural openings industry does not come easy. It is earned by people who have invested years of time and talent to achieve the pinnacle of perfection and who have then passed two days of intensive DHI testing. It's an investment in professional excellence that is paying off everyday within our industry. And, it's an investment that will pay off for you when you use the services of a DHI-certified consultant.

Keep your doors open for AHCs and CDCs.

Your building projects demand the kind of specifying expertise provided by Architectural Hardware Consultants (AHC) and Certified Door Consultants (CDC). Today there are over 2,000 consultants around the world serving architects, contractors, code makers, engineers and anyone with the need for perfection. So, when it comes to specifying doors and architectural hardware, keep your doors open for the AHC and CDC.

dhi

Door and Hardware Institute
Box 1000PA
7711 Old Springhouse Road
McLean, VA 22102-3474
703/556-3990

The wallprint collection by Scot Simon consists of ten designs printed with matte inks on satin pearl and metal colored grounds. The collection comes in standard 30-inch-wide rolls. The wallcovering has a Class A fire rating and passes the ASTM E84-84A tunnel test. Innovations in Wallcoverings Inc.
Circle 127 on reader service card

Woodgrains Plus™ decorative laminates provide furniture manufacturers and interior designers with a varied selection. The 36 patterns are available in a variety of product types, including general purpose and postforming grades, decorative tambours, prelaminated panels, and wall panel systems. Wilsonart, Ralph Wilson Plastics.
Circle 128 on reader service card

Electric range and microwave oven combination 28-7CXWV8 has a self-cleaning electric oven and solid disc top heating elements. Features included on the range are storage drawer, removable oven door, porcelainized broiler pan, chrome-plated oven racks, signal lights, spill-catching cooktop, variable broiler control, and lighted oven window. It is equipped with a one-cubic-foot-capacity microwave oven that features a cook code/roast code, ten heat levels, speed defrost, and a probe. Magic Chef.
Circle 129 on reader service card

Outdoor lighting four-color, 24-page catalog shows historic, Victorian, and Colonial lighting globes and posts. Each light is shown in an outdoor setting, accompanied by a description. Photometric charts are provided for each model. There also are lamp selector and bracket selector guides. Sternberg Lanterns.
Circle 215 on reader service card

Building Materials

Major materials suppliers for buildings that are featured this month as they were furnished to P/A by the architects.

Providence Station, Providence, R.I. (p. 92). *Architects: Skidmore, Owings & Merrill, Washington, D.C., and a joint venture of Perry, Dean, Stahl & Rogers, Robert T. Coles, Baker & Conlon, and Ammann & Whitney.* IRMA roof system: Carlisle. Stainless steel dome: USX. Insulation: Styrofoam by Dow. Hardware: Schlage. Custom signage: Colite Industries. HID lighting: Lightolier. Plumbing fixtures: Kohler. Washroom accessories: Bobrick. Air conditioning: Carrier.

The Casual Quilted Giraffe, New York (p. 104). *Architect: McDonough Nouri Rainey & Associates, New York.* Stainless steel panels: F. Werner, Inc. Carpet: Harmony. Chairs: Bieffeplast. Terrazzo: D. Magnan & Co., Inc. Custom lighting fixtures, handrails, bar legs, and glass cabinet: Fayston Iron & Steel Works. Granite tabletops: Granite Importers. Table inlays: Tamiko Ferguson. Custom cabinets: Cozzolino Furniture. Etched glass: B. Gilsoul & Partners. Leather upholstery: Rollhaus Brothers. Kitchen equipment: Superior Restaurant Equipment Co., Inc.

Best Products Corporate Headquarters, Phase Two, Richmond, Va. (p. 108). *Architects: Hardy Holzman Pfeiffer Associates, New York.* Concrete: Lone Star. Reinforcing steel: Owen Steel. Tubular steel: Montague-Betts Co. Glass in aluminum frame: Armalite and PPG. Skylights: Kalwall. Glass doors: Brite Vue Glass Systems. Flagstone: Georgia Marble Co., New York Quarries. Roof insulation: SIBO. Wall insulation: Manville. Steel framing studs: Inryco/Milcor. Concrete on steel deck: United Steel Deck Inc. Terra cotta: Gladding McBean & Co. Glass block: Pittsburgh Corning Corp. Cement exterior shingles: Supradur Manufacturing Corp. Interior wall panels: Tectum. Interior curtainwall: Binswanger. Paint: MAB Paints. Hinges: Zero International Inc. Elevators: Dover. Stairs: Creative Iron Co. Electric distribution: Robertson. Heating/air conditioning: Carrier.


Enhance Your Design
With The Practical Alternative
To Laminated Shingles.
CertainTeed's Horizon Shangle® is the cost-effective alternative to laminated shingles. It was created with a unique design* to give it the appearance of heavier weight shingles. So it can give your projects outstanding looking roofs at a price well below that of laminates.
Horizon is a high-quality shingle. A special patented manufacturing process gives Horizon the deeply textured look of wood shakes or slate as well as excellent granule retention for long-lasting beauty and protection. Horizon is available in both organic and fiber glass composition, depending on geographic area, with U.L. and ASTM ratings for fire resistance. And its wide range of colors can complement any style home. Because of its quality construction, Horizon is backed by a unique 25-year limited warranty, transferable from homeowner to homeowner.
Horizon is easy to install. It goes up as easily as any 3-tab shingle, which can save time and, ultimately, money. And because it is a one-piece shingle, Horizon provides greater protection in valleys than two-piece shingle construction. Its self-sealing adhesive strips are designed to give additional protection by sealing the entire roof using the sun's heat to form a weather-proof shield.
Horizon, with its laminated appearance, high-quality construction, ease of installation and lower cost, presents an outstanding design opportunity. It is a practical alternative to laminated shingles that can add value to your projects.
For more information, contact Horizon Marketing Manager, CertainTeed Corporation, Shelter Materials Group, 1-800-322-3060.
CertainTeed
Circle No. 323
HORIZON
© 1986, CertainTeed Corporation
Product shown is Fiber Glass Based.
*Pat. pend.

The International World of Lighting... COMBINING THEORY AND PRACTICE, PRODUCT AND APPLICATION, DESIGN AND IMPLEMENTATION.

May 11, 12, & 13, 1987
Jacob K. Javits Convention Center
New York City

EXHIBITS: FIXTURES • CONTROLS
SOURCES • SWITCHING/DIMMING
FLOODLIGHTING • SECURITY • FIBER OPTICS
RETROFIT/CONVERSION • THEATRICAL
TRACK • TASK • LANDSCAPE • DECORATIVE

SEMINARS: PHOTOMETRICS • COLOR &
PERCEPTION • OFFICE & RETAIL DESIGN
FIXTURE DESIGN • CONTROLS • FIBER OPTICS
HEALTH & PSYCHOLOGY • LANDSCAPES
FACADES • MUSEUMS • INDUSTRIAL • HOW
TO/WHAT NOT TO • MARKETING

LIGHTING WORLD INTERNATIONAL

The Largest Architectural Lighting Exhibition and Conference in the US

SPONSORS
International Association of Lighting Designers
Illuminating Engineering Society of North America
New York Section of the Illuminating Engineering Society

For further information contact —
National Expositions Co., Inc.
49 W. 38 Street, New York, NY 10018
(212) 391-9111 Telex 135401 dimcomm Fax (212) 819-0755

Circle No. 352 on Reader Service Card

P/A in April

John Fulker

Residence, Sun Valley, Idaho, by Arne Bystrom, Architect.

P/A Awards Update: Three Houses

Three remarkable residential buildings, all executed from winning designs in the P/A Awards program, will be shown and discussed. The Sun Valley house by Arne Bystrom is outstanding mainly for its energy systems and its intricate wood details. A house in New Jersey by UKZ, Architects, is notable for its minimal sculptural form, clad in a bold pattern of marine-grade plywood panels. The studio/guest pavilion adjoining the house of architect Anthony Ames in Atlanta is an object lesson in the use of Early Modern forms and subtle colors.

Refined Highrise

Another completed P/A Awards winner, an office/apartment tower in downtown San Francisco, by that city's SOM office, shows the virtues of restraint.

P/A Technics Computers

Using the case study method, a single building by a firm with strong computer capability is examined both for its examples of computer applications and its implications for future practice.

Future Issues

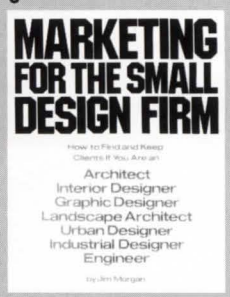
June will bring P/A's Special Issue on Young Architects, and July a very different one-topic issue on instructive new developments in Paris.

P/A BOOKSTORE

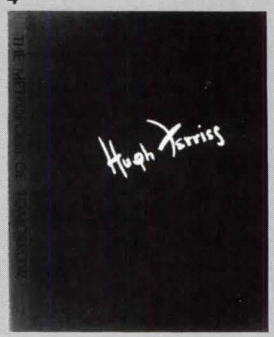
1

2

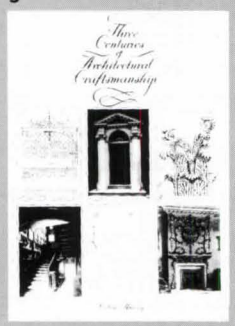
3



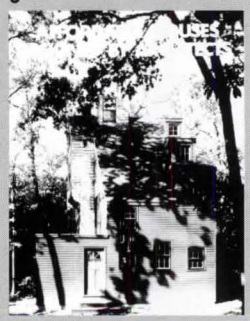
4



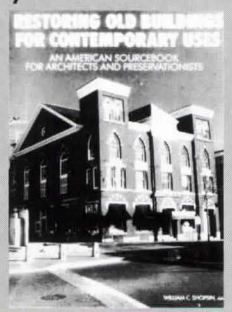
5



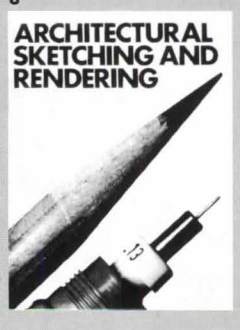
6



7



8



Order Information
To receive books, circle appropriate numbers on the Reader Service Card in the back of this issue. Payment must accompany orders being shipped to P.O. Box numbers. Please allow 6-8 weeks delivery. Prices subject to change.

Send the card in an envelope to:
Marie DeFelice
Progressive Architecture
P.O. Box 1361
Stamford, CT 06901

P/A Back Issues
A limited supply of the following issues are available at $7.00 a copy. Check MUST accompany order!

February
Lapena Torres/Gwathmey Siegel/Polshek/Affordable Housing
January
34th Annual P/A Awards
December, $12.00
Special Issue: Information Sources
November
Isosaki's MOCA/Preservation/Fire Safety
October
Special Issue: Gehry/Enclosed Stadiums
September
Interior Design/Audio-visual Rooms
August
Barcelona Pavilion/Stern Residential/Office Lighting

1 Contemporary Japanese Architecture
by Botond Bognar, 363pp., illus. ($41.95)
This is a unique comprehensive study of Japan's architectural evolution, from its beginnings to the present. See the influences of Buddhism, Shintoism and traditional Japanese concepts of space and time on modern Japanese architectural trends.
Circle B601 under Books

2 The Small House, an Artful Guide to Affordable Residential Design
by Duo Dickinson, 196pp., illus. ($34.95)
This handsome work features houses representing all regions of the U.S. and includes examples of primary and vacation or second homes. The designs prove small houses can be built to accommodate a variety of sites, budgets, family size and aesthetic sensibilities.
Circle B602 under Books

3 Marketing for the Small Design Firm
by Jim Morgan, 159pp., illus. ($27.50)
Geared specifically for firms with ten or fewer employees, this is detailed, proven advice for getting more business with the budget you have to work with. Sample charts, forms, checklists, letters, tips for better promotion and more.
Circle B603 under Books

4 The Metropolis of Tomorrow
by Hugh Ferris, 200pp., illus. ($35.00)
Ferris draws and discusses the skyscraper and presents his romantic vision for a humanistic city of the future. Divided into three parts: built skyscrapers of the 1920s, projected trends and his visionary metropolis. Includes an essay by architectural historian Carol Willis.
Circle B604 under Books

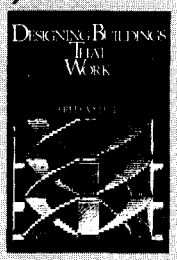
5 Three Centuries of Architectural Craftsmanship
by Colin Amery, 240pp., illus. ($21.50)
A carefully chosen series of drawings demonstrate the skills of the craftsmen and the skills of the architect. Buildings included from the 17th, 18th and 19th centuries and examples taken from domestic and public building worlds.
Circle B605 under Books

6 Affordable Houses Designed by Architects
by Jeremy Robinson, 168pp., illus. ($45.50)
This volume shatters the myth that architect-designed houses are more costly than developer-built houses. With photos, floor plans, drawings and details of interiors and exteriors presents ideas on how to construct beautiful and unique houses within limited budgets.
Circle B606 under Books

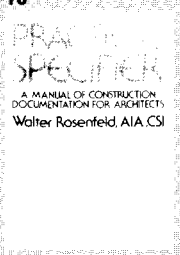
7 Restoring Old Buildings for Contemporary Uses
by Wm. C. Shopsin, AIA, 208pp., illus. ($29.95)
Case studies of five very different kinds of preservation projects are the book's centerpiece. Each study analyzes projects that are representative of the type of work available to the general architect today. Includes a directory of preservation organizations and agencies.
Circle B607 under Books

8 Architectural Sketching and Rendering
by Stephen Kliment, 192pp., illus. ($27.50)
Whether you are a designer, an architect, an artist or a student interested in architecture, this volume, filled with a broad range of sketching and rendering techniques and styles, offers the complete intermediate level of instruction you need.
Circle B608 under Books

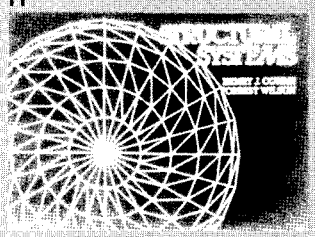
9



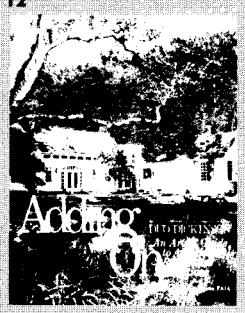
10



11

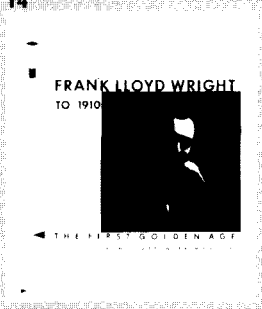


12



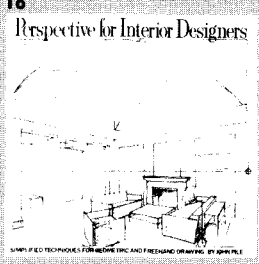
13

14

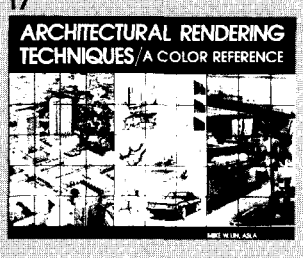


15

16



17



18

9 Designing Buildings That Work

by Fred A. Stitt, 244pp., illus. ($37.50)

Designers, architects and others can improve upon the building plan process by using "high speed design" rather than the hit-or-miss intuitive planning methods. Proven techniques for predesign, planning rules of thumb and systematic problem solving.

Circle B609 under Books

10 The Practical Specifier, A Manual of Construction Documentation For Architects

by Walter Rosenfeld, AIA, CSI, 181 pp., ($29.95)

This book is full of tips and techniques that make specifying easier and that head off extra costs and potentially damaging litigation. Discusses the consequences of various decisions and points out mistakes to avoid. Up to date and deals with specific problems not discussed elsewhere.

Circle B610 under Books

11 Structural Systems

by H.J. Cowan & F. Wilson, 256pp., illus. ($19.95)

This comprehensive guide to preliminary structural design uses a minimum of mathematics and numerous illustrations to describe structural forms and their mathematics. A strong emphasis on graphic presentation and an instant-access reference to structural design. Full consideration of the internal and external forces that a building must withstand, and the interaction of structural and environmental design.

Circle B611 under Books

12 Adding On, An Artful Guide to Affordable Residential Additions

by Duo Dickinson, 177pp., illus. ($36.50)

This book offers a multitude of ideas to help both architect and homeowner. Rejecting the inevitability of standardized design solutions, the author proves that the thought and care of good design can create unique, effective and beautiful improvements that meet today's needs.

Circle B612 under Books

13 Italian Gardens of the Renaissance

by J.C. Shepherd & G.A. Jellicoe, 144pp., illus. ($45.00)

Originally written in 1925, this book still stands today as the classic work. It traces the evolution and development of Italian garden design from the early Renaissance work of Michellozzi, Bramante and Rossellino. Twenty-six of the finest and most important Italian villas are featured, each with plans and principal elevations.

Circle B613 under Books

14 Frank Lloyd Wright to 1910

by Grant Carpenter Manson, 238pp., illus. ($21.95)

A guide to Frank Lloyd Wright's life up to 1910 — the decisive turning point in his career. Depicts his childhood and family influences, his scanty formal training, and the beginnings of his architectural work under Lyman Silsbee and Louis Sullivan. Photographs, drawings and plans included.

Circle B614 under Books

15 The New Atrium

by Michael J. Bednar, AIA, 238pp., illus. ($37.50)

This book covers the new atrium thoroughly and in detail — from its historic and contemporary evolution to its role in urban planning, architectural design, and historic preservation. An authoritative reference guide and an invaluable source of inspiration, it provides timely information to help to conceptualize, design and execute a successful atrium building.

Circle B615 under Books

16 Perspective For Interior Designers

by John Pile, 160pp., illus. ($24.95)

Learn to draw interior perspectives through the use of a basic formula. The author offers an easily accessible and quickly learned method that will serve every designer's drawing needs. Step-by-step demonstrations, analyses of constructed layouts, and illustrations of completed works make this book a complete and accurate guide.

Circle B616 under Books

17 Architectural Rendering Techniques: A Color Reference

by Mike W. Lin, AIA, 253pp., illus. ($41.95)

All major types of architectural drawings fill this comprehensive guide to rendering media, styles and execution times. Examples displayed can be traced or studied to improve technique and generate new ideas. Architects and designers at all levels of expertise can improve their graphic and architectural rendering by following the presented methods.

Circle B617 under Books

18 Home Planners' Guide to Residential Design

by C. Talcott, D. Hepler & P. Wallach, 218pp., illus. ($21.95)

This guide demonstrates ways to ensure that the design of one's home is functional, technically feasible and aesthetically pleasing. Filled with helpful tips and realistic guidelines, it explains the basic principles of residential design and provides step-by-step procedures.

Circle B618 under Books

P/A Job Mart

Situations Open

ARCHITECTURAL DESIGNER

Needed to analyze sites and programs and develop integrated multi-use building design concepts, master planning studies and models, using computer-aided design system, and consults with professional and site personnel. Must be willing to travel and to meet with customers. Must have ability to test and generate project data on computer imaging system. Require B.S. in Architecture with emphasis in design and six months experience as Architect (Design). Salary $21,976.00 per year. Apply at the Texas Employment Commission, Dallas, Texas, or send resume to the Texas Employment Commission, TEC Building, Austin, TX 78778, J.O. #4640380. Ad Paid by an Equal Employment Opportunity Employer.

FACULTY POSITION IN ARCHITECTURE

THE PENNSYLVANIA STATE UNIVERSITY

Responsibility for teaching undergraduate/graduate students computer applications in a multi-task, multi-user environment in various architectural fields such as, CAD, Mapping, Environmental Design and Planning, Design Information Systems, Thermal Environmental Comfort and Mechanical Systems. Specialization in architecture and information systems. Experience in computer aided design, computer programming, environmental systems and planning. Required: B.S. in Architecture, Masters in AE. Rank: Instructor - Salary Range: $18,000-$22,000. Submit a resume, including curriculum vitae and names of references to: Head, Department of Architecture, 206 Eng. Unit "C", The Pennsylvania State University, University Park, PA 16802 by April 1, 1987.

An affirmative action equal opportunity employer

ARCHITECT MANAGER

Architect needed by 80-year old growth company with three million in annual sales. Specializes in the nationwide sales of residential home designs through the publication of home plan books and magazines. Position requires management of an in-house design staff as well as freelance design contributors, editing of new design submissions, and original design work. This is an unique career position that offers diversity, challenge and growth. Applicants must demonstrate superior design sense as well as technical competence in the residential field. Send resume and salary requirements to:

Garlinghouse Company,
P.O. Box 1717,
Middletown, CT 06457.
EOE

FACULTY POSITION IN ARCHITECTURE

The faculty of engineering, Jordan University of Science and Technology invites applications for faculty positions in Department of Architecture in the field of architectural design, building technology and housing and urban planning. Qualifications: Ph.D. in Architecture. Some teaching, research or practical experience desirable. The positions offer competitive salaries and benefits. Positions available from September '87. Apply with resume by the end of April to: **Department of Architecture, Jordan University of Science and Technology, Irbid, Jordan.**

ARCHITECT

Specializing in urban & site planning (landscape). BS in Architecture or equivalent; 5 yrs experience in Landscape Architecture/Urban Design. 40 hrs per week, $350 per week. Contact Job Service of Florida, 105 E. Broward Blvd., Fort Lauderdale, FL 33301. Re: Job Order #FL5201932.

DEAN

GRADUATE SCHOOL OF ARCHITECTURE, PLANNING AND PRESERVATION

A Dean is being sought for Columbia University's Graduate School of Architecture, Planning and Preservation, to take office on July 1, 1987 or soon thereafter.

Besides its core programs leading to the degrees of Master of Architecture and Master of Science in Urban Planning or Preservation, the School offers degree programs in Urban Design, Building Technology, and Real Estate Development. Dual degree programs are also offered in cooperation with the Schools of Business, Law, Public Health, Social Work, and International Affairs.

We seek a proven leader who is able to manage the School, lead its faculty and expand its resources.

Nominations and applications should be sent by March 20, 1987 to the Chairman of the Search Committee: Michael Mooney, Deputy Provost, Columbia University, 211 Low Memorial Library, New York, NY 10027. We take affirmative action toward equal opportunity.

Columbia University

YALE UNIVERSITY SCHOOL OF ARCHITECTURE: Seeks applications for an open position in architectural design.

DESCRIPTION: Graduate level teaching position in architectural design beginning September, 1987. Emphasis on design guidance and criticism, with ability to lecture on architectural theory.

QUALIFICATIONS: Advanced degree in architecture/equivalent professional education, practice and teaching. Candidates with a minimum of five years teaching/professional experience will be given preference.

SALARY AND RANK: Adjunct Associate Professor with salary commensurate with qualifications.

APPLICATION DEADLINE: Applications postmarked by 1 April, 1987.

Applicants should send curriculum vitae, the names and addresses of references to:

Alexander Purves, Chairman,
Search Committee
School of Architecture, Yale University
180 York Street
New Haven, CT 06520

Yale University is an equal opportunity/affirmative action employer. Applications from women and minorities are encouraged.

WANTED

Architect 40 hours per week 9-5, 12:84 per hour, $19.00 overtime provides professional services in research, design, construction, alteration or repair of real property, such as private residences, office buildings, theaters, public buildings, or factories: Consults with client to determine functional and spatial requirements and prepares information regarding design specifications, materials, equipment estimate costs, and building time. Plans layout of project and integrates engineering elements into unified design. Prepares scale and full size drawings and contract documents for building contractors. Furnishes sample recommendations and shop drawing reviews to client. Assists client in obtaining and awarding construction contracts. Supervises administration of construction. Contracts and conducts periodic onsite observation of work in progress. May prepare operating and maintenance manuals, studies and reports. Minimum four years of college with Bachelors degree in Architecture. Six years of experience required. Send resume to:

Illinois Job Service
401 S. State, Room 3 South
Chicago, IL 60605
Attn: Mrs. S. Chalem
Ref; 5785-S
An Employer Paid Ad

ARCHITECTS

Our continued growth and success has provided career opportunities in our employee-owned professional firm.

We provide a professionally satisfying state-of-the-art environment and an equally attractive compensation package. We are currently seeking individuals for the following positions in our Rochester, NY office:

PROJECT ARCHITECT

License preferred with degree in Architecture and 7-10 years' experience in institutional, commercial and industrial projects.

JOB CAPTAIN

Degree in Architecture with 5-10 years' experience in professional office coordinating contract documentation and specifications. Requires complete understanding of materials.

DESIGNER

Degree in Architecture with 5-10 years' experience in institutional, commercial and industrial design. Must have ability to work with a group.

Please send your resume, in confidence, to: **SEAR-BROWN ASSOCIATES, P.C., 85 Metro Park, Rochester, NY 14623.** An Equal Opportunity Employer M/F.

SEAR-BROWN
ASSOCIATES, P.C.

Engineers Architects
Surveyors Landscape Architects

ARCHITECT-Specializing in urban & site planning (landscape). BS in Architecture or equivalent; 2 yrs experience in Landscape Architecture/Urban Design. 40 hrs per week, $350 per week. Contact Job Service of Florida, 105 E. Broward Blvd., Fort Lauderdale, FL 33301. Re: Job Order #FL5201919

ENVIRONMENTAL DESIGNER

Full-time Environmental Designer position to perform environmental design of architectural engineering projects using CAD Software and computer graphics. Mimimum qualifications are a Bachelor's Degree in Environmental Design and 6 mos. experience in environmental design. Annual salary is $30,000. Please submit resumes and inquiries to **J. Glatt, CI 114 Cordell Hull Bldg., Nashville, TN 37219.**

Architectural Computer Designer. Design a variety of commercial and industrial structures. Use IBM PC computer to arrange space, volume, shapes, areas and forms into spatially sound systems, modules, areas and buildings for safe and attractive projects. Prepare construction documents specifying building materials and interior design. Advise on construction contract, liase with architects, engineers and conduct on sight budget verification. Requires a Bachelor of Architecture degree with major in Architectural and Industrial Design, background in construction, interior design and material specifications: concrete, steel, heating and air conditioning and minimum 4 years experience. Salary $2,768.00 per month. Job site: San Juan Capistrano, CA.
Send this ad and resume of your qualifications to Job NBRMD11631, P.O. Box 9560, Sacramento, CA 95823-0560 not later than April 2, 1987.

Architect Spec. Writer and Plan Checker. Los Angeles Arch/Planning firm is seeking an Architect exper. in spec. writing and construct. document checking. Min. 15 yrs. experience with 5 yrs. as spec. writer. Send resume to: Progressive Architecture, Job Mart, Box 488

PROJECT DIRECTOR
SR. PROJECT DESIGNER
PROJECT ARCHITECT
SR. MECHANICAL ENGINEER

Hansen Lind Meyer Inc. offers you the opportunity to join one of the largest A/E design firms in the country. Share in a variety of challenging opportunities with a growth-oriented firm. Enjoy a diversified client base and be part of our team approach to projects. Positions are in Chicago and Iowa City, Iowa, office locations. Excellent compensation and benefits. Please submit letter, resume and work samples with salary requirements to:

Director of Personnel
HANSEN LIND MEYER INC.
Drawer 310, Plaza Centre One
Iowa City, Iowa 52244

EOE

Marriott® corporation

Architecture and Construction

Marriott Corporation's highly regarded Architecture & Construction Division seeks Architects to enhance our growing design staff. Located at Marriott's modern corporate headquarters in suburban Maryland, these professionals will support our continued growth well into the 1990's through nationwide expansion projects which include: FULL-SERVICE HOTELS, ALL-SUITE HOTELS, LIFE-CARE COMMUNITIES, AND NEW DEVELOPMENT PRODUCTS. Numerous new opportunities await talented professionals with experience in hotels, hospitals and similar projects:

Project Architects
Project Coordinators
Draftspersons

Project Architects & Project Coordinators must have Architectural Degrees (registration preferred) with 5-10 years experience in the development/review of complex construction documents. Background should include multi-project management & coordination of outside design consultants.

Draftspersons must have Architectural Degree with 3+ years experience developing schematic through working drawings of commercial projects. PC CAD experience preferred. Ability to interact with all design disciplines & consultants essential.

We offer exciting opportunities, competitive salaries and benefits. Send resume to: **Marriott Corporation, Dept. 222.XO9, Marriott Drive, Washington, DC 20058.** To be considered, **Salary History** must be included. If unable to send resume, call (301) 493-2220. Lines open 24 hours-a-day. All inquiries will be held confidential.

An Equal Opportunity Employer m/f

FACILITIES PLANNING

Challenging and diversified position in Thomas Jefferson University, a leading academic health center located in center city Philadelphia, for degreed person experienced in Facilities Planning/Management or Architecture in a corporation or institution.

Responsibilities will include developing a long range facilities plan, space programming and maintaining a computerized space inventory system. Familiarity with computer aided design (CADD), as well as other facilities management software programs a plus. This position could possibly include design/project management responsibilities for the qualified candidate.

Salary is commesurate with experience. Excellent employee benefit program. Send detailed resume with salary requirements, in confidence, to: Mrs. Linda C. Mitchell, Employment Manager.

THOMAS JEFFERSON UNIVERSITY
11th & Walnut Streets
Philadelphia, PA 19107
Equal Opportunity Employer

Architect for small international firm to perform business development, client relations, initial site evaluations, feasibility studies, design and project coordination with foreign clients/consultants and contractors, 30% of which is in Scandinavian, French or Greek languages. Minimum 10 years related experience, 50% of which outside United States, Bachelor in Architecture, foreign or U.S. license and verbal capability of at least two of above languages. Salary $37,666 per year. Job Site: San Francisco, CA. Send this ad and a resume to Job #FC 1029, P.O. Box 9560, Sacramento, CA 95823-0560 not later than April 2, 1987.

Architects

Expanding AE firm looking for energetic, design architects with 5+ years experience and design-oriented graduate architects with 2 years experience. Send resume to:

N.A.S. CORPORATION
Attn: Robert Kirk, A.I.A
401 South Earl
Lafayette, IN 47903
Equal Opportunity Employer M/F

Architect for Residential/Commercial Design Consultancy; develop designs for reconstruction/renovation, interior/exterior. Prepare blueprints, drawings; assist in obtaining bids, subcontractors. Design furnishings, builtins, cabinets; assure code compliance. Req. Bachelor's Architect + 4 yrs. exper. as architect. (If without state license, will work with licensed architects until license is acquired). Also exper. arch. design from stone, wood, glass for residences and commercial bldgs.; exper. selection/supervision subcontractors, applic. earthquake standards for commercial/residential bldgs.; exper. design of built-in interior fixtures; exper. modern/contemporary residence design using modernist and post-modernist eclectic design principles. Job site: San Diego, California. Salary: $28,148 per year. Applicants send this ad and your resume to: Job #WS0085, P.O. Box 9560, Sacramento, CA 95823-0560 not later than April 3, 1987.

ARCHITECTS

Award-winning, established, midwest firm seeks graduate architects with 3-5 years experience for a variety of challenging assignments. Unlimited growth opportunity for motivated, talented professionals. Diversified, stable client base includes projects of varying size and complexity requiring skills in design and management. Abundant cultural and recreational opportunities in low cost of living area. Resume to:

Levin Porter Associates
24 North Jefferson Street
Dayton, OH 45402

Situations Wanted

Architect/Construction Manager 25 years diverse exper, all phases of work from private practice to corporate engineering. Desires Key Management position S/E area. Contact Box 489, *Progressive Architecture.*

Computer Software

Powerful & Inexpensive Design & Planning Software. ***Architecture, Landscape,*** and ***Interiors*** for Apple // and IBM. Create floorplans, interior designs, or landscape details. Apple *Architecture, Landscape,* or *Interiors:* $69.95 each. IBM combo: $99.95. With **EVERYBODY'S PLANNER** easily create project plans and flowcharts. Includes 7 reports, color flowchart activation. $99.95 (IBM or Apple //). **Abracadata,** Dept. PA, PO Box 2440, Eugene, OR 97402, 503-342-3030

TCS

Now, a complete software system for professionals with no time to lose . . .

Time & Billing
Costing
Payroll and more . . .
Professional Practice Management™

from TCS Software allows architects and engineers to track time and expenses in order to analyze firm profitability and employee use of time as well as to generate invoices. Invoicing, costing, and payroll use the same time and expense transactions, resulting in an efficient system which requires a minimum of data entry.

PPM is available now already installed on a Maynard OnBoard 10 hard disk card—plenty of space for programs and data.

TCS Software, Inc.
6100 Hillcroft
Houston, TX 77081
800-231-6454
In Texas, 800-392-6342

Computer Hardware

FOR SALE

SIGMA III CADD System, two workstations, 19" high resolution color, HP 36" plotter, 400 megabyte disk, tape backup, Sigma Design Software, 3-D color modeling, new $226, 635, sales price $89,500.

(512) 828-9090

Services

ARCHITECTS & ENGINEERS PROFESSIONAL LIABILITY INSURANCE
competitive rates...excellent service representing the Schinnerer & Co program commended by AIA and NSPE
ASK FOR A QUOTE - NO OBLIGATION
STUART E. COHEN LTD.
208 Gramatan Avenue
Mount Vernon, NY 10550
(914) 667-6633

ARCHITECTS - $25,000-75,000 GROUP ONE SEARCH
Executive Architectural Recruiters. Superb positions Nationwide at all levels with Regional and National firms. Confidential. NEVER A FEE. P.O. Box 1639, Land O'Lakes, FL 33539.
(813) 961-1392

RitaSue Siegel Agency™
A recruiting service to find architects, interior, graphic and industrial designers, marketing and sales support people for consultants and business. Confidential. Nationwide, international.
60 W. 55 St., New York, NY 10019
212/586-4750

JOB LEADS — Looking for dependable leads? *WEEKLY CONSTRUCTION PREVIEW* publishes an average of 50 new projects each week, updates another 200, tells you who is looking for architectural proposals right now. For more information on a free subscription to qualified architects call 603-827-3358

RECRUITMENT SERVICE: V.S.I. is the leading recruiter of professional talent in the architectural and construction industries. We offer the industry's most comprehensive database. Contact:
V.S.I., Inc.
6425 Powers Ferry Rd., Ste. 365
Atlanta, GA 30339
(404) 965-1600

Educational Opportunities

ATELIER
MARINHA MASCHERONI
STUDIO
COMPUTER DESIGN COURSES, TUTORIAL
212•5803804
20 WEST 84th ST., NEW YORK, N.Y. 10024

STUDY ABROAD THROUGH SYRACUSE UNIVERSITY ARCHITECTURE AND ENVIRONMENTAL DESIGN PROGRAMS SUMMER 1987

ITALY

Environmental Design in Italy: Room, House, City (May 25-June 26)

Pre-Architecture in Florence (May 25-July 3)

Architecture: Summer Semester in Florence (May 18-July 31)

FRANCE

Architecture: A Le Corbusier Pilgrimage on the Occasion of the Architect's 100th Birthday (May 25-June 26)

Courses directed by Syracuse University faculty and complimented by European critics, architects, lecturers and professors. Open to undergraduate and graduate students, practicing professionals, and community participants interested in studying abroad. Non-credit option available.

For a catalog and application on these courses and others contact:

SYRACUSE UNIVERSITY
Division of International Programs Abroad
119 Euclid Avenue
Syracuse, NY 13244-4170
315/423-3471

Notice

Please address all correspondence to box numbered advertisements as follows:

Progressive Architecture
Job Mart—(Assigned Number)
P.O. Box 1361
600 Summer Street
Stamford, Connecticut 06904

Advertising Rates

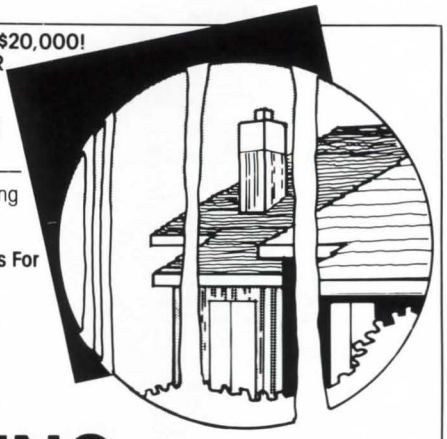
Display style $160 per column inch, per your layout. Maximum 6 inches. Commissionable to recognized advertising agencies. Approximately 35 words per inch. Column width approximately 1¾". No charge for use of box number. Situations wanted advertisements: $65 per column inch. Noncommissionable.

Check or money order should accompany the advertisement and be mailed to Mary Miller, P/A Classified, 1100 Superior Ave., Cleveland, OH 44114 (Telephone 216/696-7000, Ext. 2584).

Display style advertisements are also available in fractional page units starting at ¼ page and running to full page.

Insertions will be accepted no later than the 1st of the month preceding month of publication. Copy to be set due seven days earlier.

NATIONAL PRIZE: UP TO $20,000!
ADDITIONAL PRIZES: FOR MICHIGAN-BASED BUSINESSES, AND STUDENTS AT MICHIGAN COLLEGES



The Michigan State Housing Development Authority, Michigan Department of Commerce, **Invites Entries For**

THE 1987 HOUSING COST REDUCTION COMPETITION

The Authority is seeking the best products, design solutions, or construction methods that will reduce the costs of single family or multifamily housing for low and moderate income people. **ENTRIES DUE SEPTEMBER 8, 1987.**

Competition rules and forms are available from: J.R. Flanigan, Chief Architect, Michigan State Housing Development Authority, 401 South Washington, Lansing, Michigan 48909.

Circle **No. 354** on Reader Service Card

IT'S TIME TO GET OUT OF THE DARK.

Open your eyes and see just how many subjects are covered in the new edition of the Consumer Information Catalog. It's free just for the asking and so are nearly half of the 200 federal publications described inside. Booklets on subjects like financial and career planning; eating right, exercising, and staying healthy; housing and child care; federal benefit programs. Just about everything you would need to know. Write today. We'll send you the latest edition of the Consumer Information Catalog, which is updated and published quarterly. It'll be a great help, you'll see. Just write:

Consumer Information Center
Department TD
Pueblo, Colorado 81009

U.S. General Services Administration

P/A Advertisers' Index

Note: R or W after page numbers denotes material that appears in regional editions only.

Kentile Portilla II Tile.
The Height of Fashion.

the Kentile decision.
It's the easiest one you'll ever make.

The height of fashion starts on the floor with Kentile® Portilla II vinyl composition tile. Its big, bold vinyl chips create a rich, dynamic effect that coordinates beautifully with today's commercial decorating themes. And through-mottling contributes to Portilla II's durability.

Designed for long-lasting beauty, Portilla II has a smooth, grease-resistant surface that requires only minimal care to maintain its elegance.

Portilla II comes in 12″ x 12″ squares, 1/8″ thick. And it's available in 6 exciting, new high fashion colors: Tawny, Alabaster, Charcoal, Mulberry, Walnut and Tan.

Create your own exciting floor show with Portilla II. Ask your Kentile representative to show you the complete line today.

KENTILE® FASHIONS in FLOORS
Kentile Floors Inc., Brooklyn, N.Y. 11215

Circle **No. 348** on Reader Service Card

END WALL DAMAGE BEAUTIFULLY WITH ACROVYN®

Tired of seeing bruised walls and crumbled corners in your otherwise pristine interiors? Well here's a practical solution that won't compromise your design. It's the Acrovyn wall protection system and its good-looks belie its tough shock-absorbing resiliency.

Dozens of bumper guard, corner guard and handrail profiles offer protection for every need. And 28 designer colors combined with superb styling mean that Acrovyn fits aesthetically, either as an unobtrusive blend or as an architectural accent.

Acrovyn's been on-the-job fighting wall abuse for years. In fact in thousands of installations around the world the Acrovyn system has saved owners countless dollars in wall repairs.

So, if your walls are getting bruised you should get Acrovyn – it fits beautifully.

THE C/S GROUP

Muncy, PA (717) 546-5941

San Marcos, CA (619) 744-0300

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

Office complex,
New York City, NY
Designer:
Soo Kim Associates,
New York City, NY