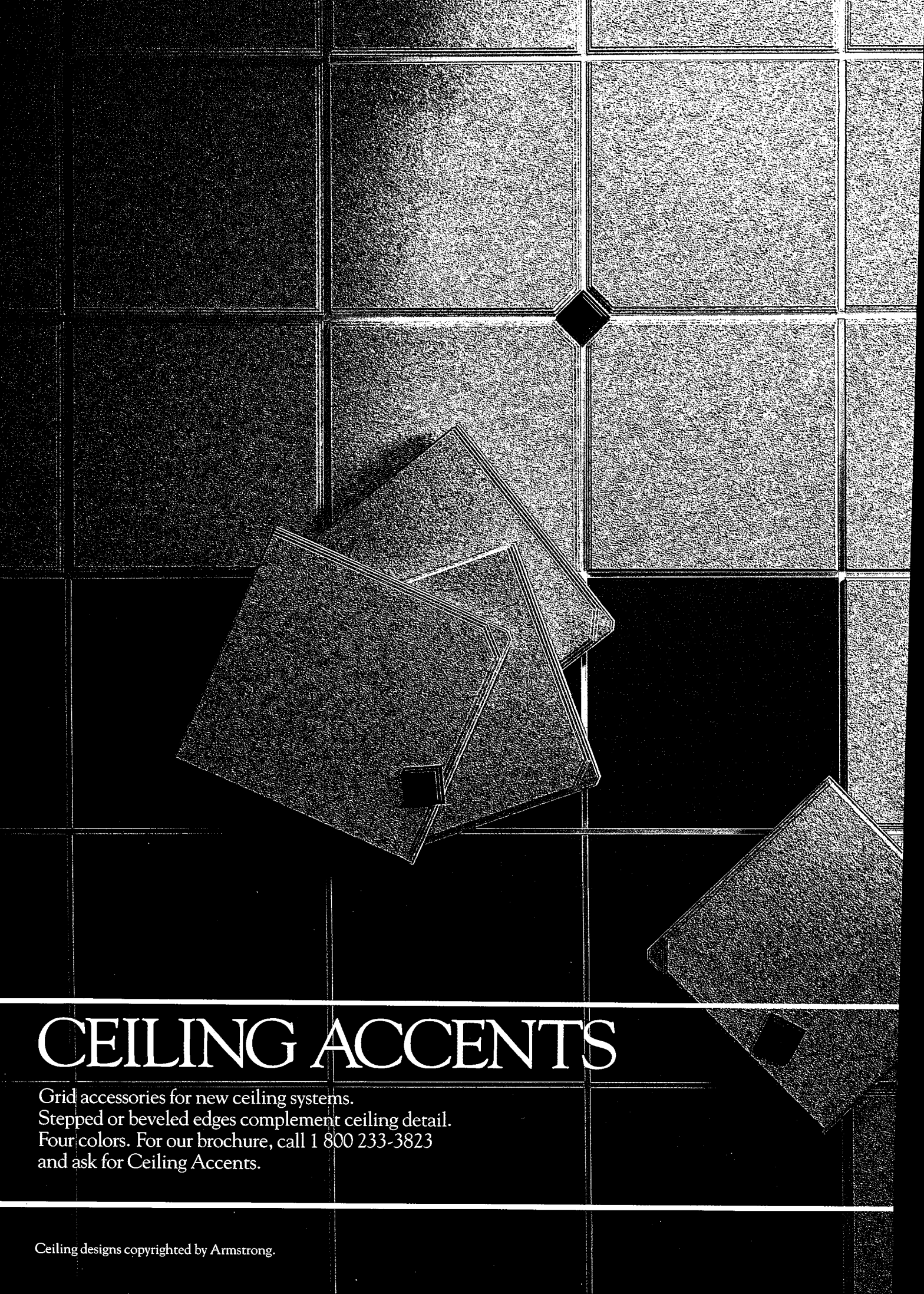
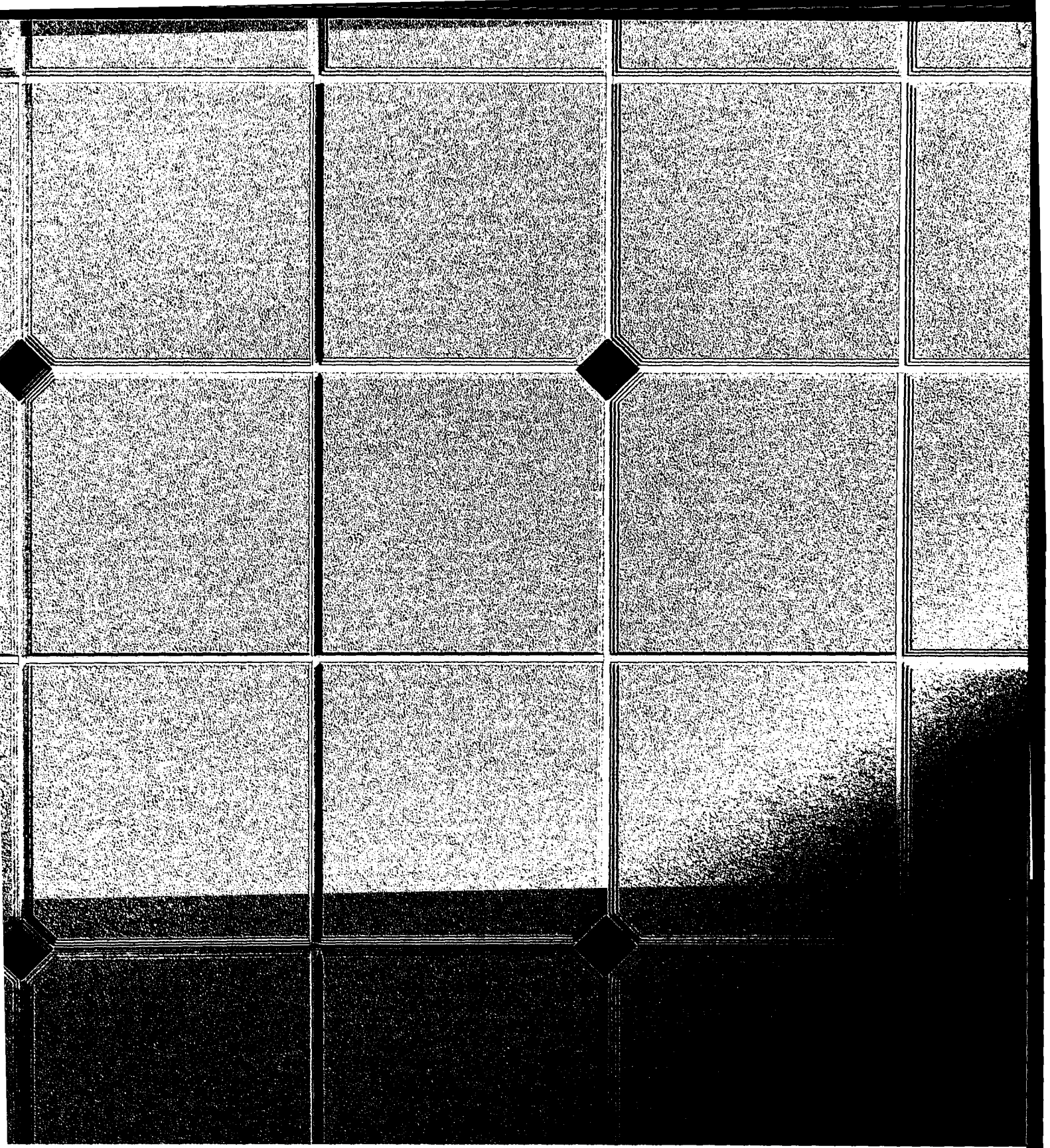
ARCHITECTURAL RECORD

Business Design Engineering
A McGraw-Hill Publication, Seven Dollars
September 1988



CEILING ACCENTS

Grid accessories for new ceiling systems.
Stepped or beveled edges complement ceiling detail.
Four colors. For our brochure, call 1 800 233-3823
and ask for Ceiling Accents.

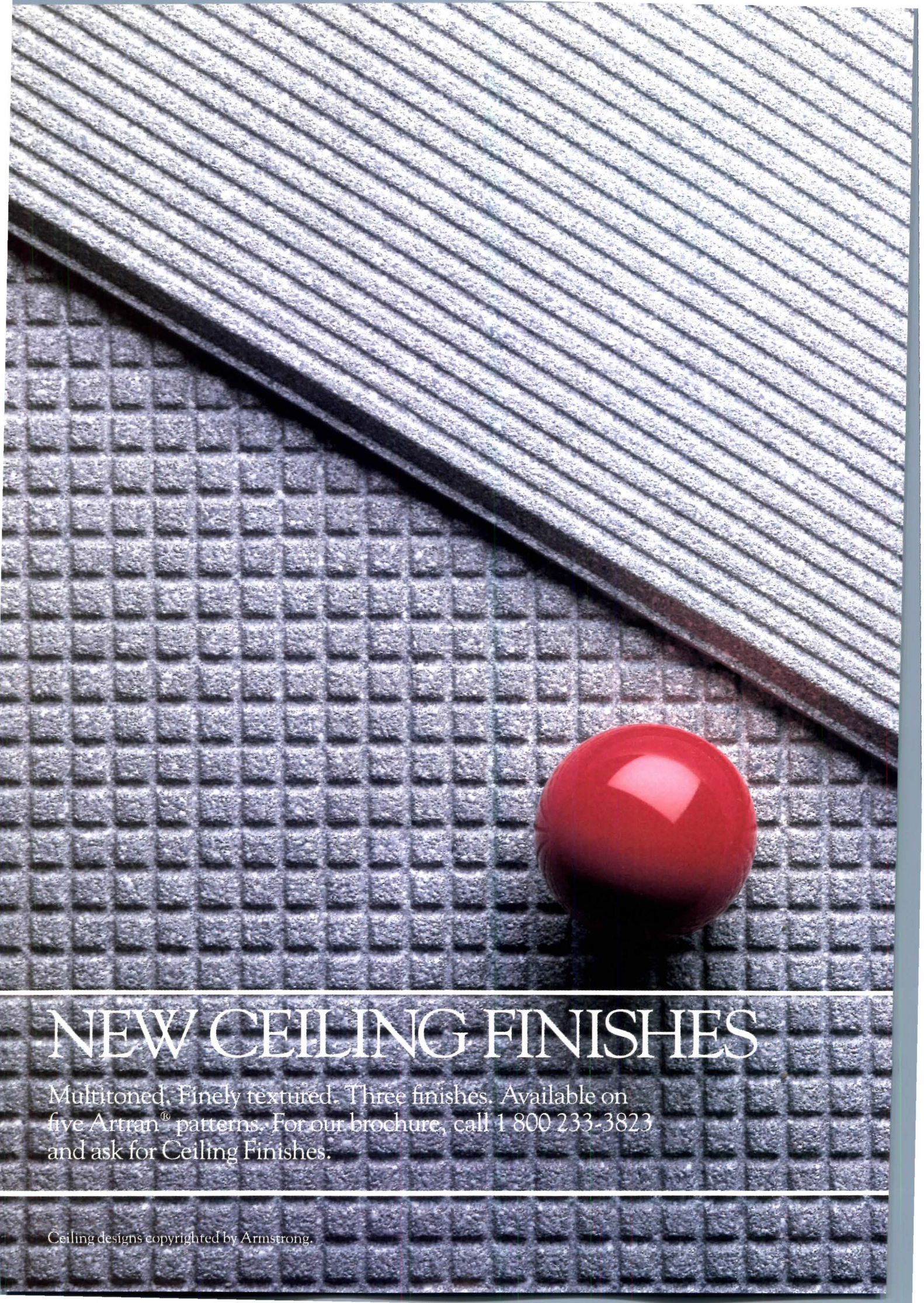


ARMSTRONG CONTRACT INTERIORS

CEILINGS
CARPETS
FLOORS
WALLS

Armstrong

Circle 1 on inquiry card


NEW CEILING FINISHES
Multitoned. Finely textured. Three finishes. Available on five Artran® patterns. For our brochure, call 1 800 233-3823 and ask for Ceiling Finishes.
Ceiling designs copyrighted by Armstrong.


ARMSTRONG
CONTRACT
INTERIORS
CEILINGS
CARPETS
FLOORS
WALLS
Armstrong
Circle 2 on inquiry card

Letters

In the light of the recent passage of Florida's landmark interior design title act, which was born in the spirit of cooperation between interior designers and architects, I found Carl Sapers's guest opinion [ARCHITECTURAL RECORD, June 1988, page 37 et seq.] to be a sad and unnecessary digression into the old mindset of "us vs. them."

The passage of the Florida title act exemplifies the fact that architects and interior designers *can* work together in enhancing both professions' accountability regarding consumer protection. The cooperative manner by which the bill was passed should go far in exorcising the specter of a "turf" struggle. I believe that current efforts testify to a meaningful and growing dialogue that will ultimately expose inflamed and passionate arguments for what they are—long on emotion and short on reason.

Personal prestige and expanded business opportunities are not the issues that compel the licensing of interior designers. It is the protection of the American public that has compelled practicing professionals in both fields to initiate cooperative legislative activities and dialogues in Florida, Massachusetts, Minnesota, Nebraska, New York, and Virginia.

I hope that Mr. Sapers's view does not represent an evolving position of the heretofore dispassionate National Council of Architectural Registration Boards (NCARB). In his attempt to undermine the interior designer's right to independent practice, we hope that Mr. Sapers—and others who also wear NCARB hats—will not exploit that independent organization to advocate their own adversarial goals.

The future belongs to architects and interior designers who are genuinely concerned with the public's protection, and they will continue to overcome their interdisciplinary differences and work together. Mutual understanding will ultimately prevail over smoke screens, illusory argument, and name-calling. Those who engage in the latter do a great disservice to the American consumer—by shortchanging the discussion, which revolves around public safety concerns and nothing else.

Charles D. Gandy, FASID
National President
American Society of Interior Designers
New York City

The article in your June issue by Jerrold Sonet [RECORD, June 1988, page 43 et seq.] will likely do more to fire up a war of formidable opposition to licensing interior designers than it will to heal the present irritations. The article does nothing to encourage a spirit of compromise and is filled with caustic remarks and half truths. In the increasingly complex world of architecture, there is no question that interior design has become a special discipline, just as have sound control and acoustics, value engineering, architectural forensics, environmental quality and impact, graphics, built-in sculpture, and others. They are all related to architecture, and

Continued on page 16

Corrections

Quoting the architect of the Dolben Library on page 90 of its July 1988 issue, RECORD got his words right but not, alas, his name. It's not Maybeck, but Joseph May*bank*. For the same story, the photographer was Wheeler Photographics, Inc.

The drawing of Kohn Pedersen Fox's Interstate Tower in Charlotte, North Carolina, shown in the study on downtown development (RECORD, July 1988, page 105), was unfortunately printed backwards.

Calendar

Through September 25
The Fairmount Waterworks, 1812-1911, drawings and watercolors by Frederick Graff, the designer of Philadelphia's famous facility; at the Philadelphia Museum of Art, Philadelphia.

Through October 18
What Could Have Been: Unbuilt Architecture of the '80s, drawings and models of recent projects; at the Cooper-Hewitt Museum, New York City.

Through October 22
"Deconstruction Zone," a temporary installation by Anita Margrill in the lot adjacent to the San Francisco Arts Commission Gallery; in San Francisco.

Through October 31
Thomas Alexander Tefft: American Architecture in Transition, 1845-1860, an exhibit of Tefft's drawings; at the National Building Museum, Washington, D. C.

September 15 to November 17
An exhibit of the work of Thom Mayne and Michael Rotondi/MORPHOSIS; at 2AES (Art and Architecture Exhibition Space), San Francisco.

September 28-29
Ardex, Architectural Design and Energy Expo, seminars and workshops cosponsored by Northeast Utilities, United Illuminating, and the Connecticut Society of Architects/AIA; in Hartford. For information: North East Promotions, 274 Silas Deane Hwy., Wethersfield, Conn. 06109 (203/529-2123).

October 1-4
Pueblo Style and Regional Architecture: The Mystique of New Mexico, symposium and exhibit, sponsored by the University of New Mexico; in Albuquerque. For information: Dr. Wolfgang F. E. Preiser, Center for Research and Development, School of Architecture and Planning, University of New Mexico, Albuquerque, N. M. 87131 (505/277-5058).

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, and WESTERN ARCHITECT AND ENGINEER) (ISSN0003-858 September 1988, Vol. 176, No. 10. Title® reg. in U.S. Patent Office, copyright © 1988 by McGraw-Hill, Inc. All rights reserved. Indexed in Reader's Guide to Periodical Literature, Art Index, Applie Science and Technology Index, Engineering Inde The Architectural Index and the Architectural Periodicals Index.

Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), b the editors and the corporation will not be responsible for loss or damage.

Executive, Editorial, Circulation and Advertising Offices: 1221 Avenue of the Americ New York, NY 10020.

Officers of McGraw-Hill Information Systems Company: President: Walter D. Serwatka. Executive Vice Presidents: Kenneth E. Gazzola Aerospace and Defense Market Focus Group; Brian H. Hall, Legal Market Focus Group; Ira Herenstein, Computers and Communications Market Focus Group; Robert P. McGraw, Healthcare Market Focus Group; Russell C. Wh Construction Market Focus Group; Group Vice Presidents: Norbert Schumacher, Energy/Proc Industries Market Focus Groups; Russell C. Wh F. W. Dodge Group; F. P. Jannott, Sweet's Grou and Real Estate Information Services. Vice President-Group Publisher: Ted R. Meredith, Construction Magazines. Senior Vice President Robert D. Daleo, Finance; Peter J. Balestiero, Human Resources. Vice Presidents: George R. Elsinger, Circulation; Julia Lenard, Systems Planning and Technology.

Officers of McGraw-Hill, Inc.: Chairman, presi and chief executive officer: Joseph L. Dionne. Executive vice president, general counsel and secretary: Robert N. Landes, Senior Vice President, treasury operations: Frank D. Peng

*Associated Services/*McGraw-Hill Information Systems Co.: Sweet's Catalog Files (General Building, Engineering, Industrial Construction Renovation, Light Residential Construction, Interiors), Dodge Building Cost Services, Dod Reports and Bulletins, Dodge/SCAN Microfilm Systems, Dodge Management Control Service Dodge Construction Statistics, Dodge regiona construction newspapers (Chicago, Denver, Lo Angeles, San Francisco).

Subscription rates for personnel of Architectu Engineering, Interior Design, Design and oth directly related firms and students thereof, ar follows: U.S. and U.S. Possessions $39.00; Can $39.00; all other countries $125.00. Single copy for Domestic and Canadian: $7.00; for Foreign $12.00.

Change of Address: Forward changes of addr or service letters to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 2025 Mahopac, NY 10541. Provide both old and ne address; include zip code; if possible attach is address label.

Guarantee: Publisher agrees to refund that of subscription price applying to unfilled part subscription if service is unsatisfactory.

Copyright and Reprinting: Title® reg. in U Patent Office. Copyright © 1988 by McGraw-Inc. All rights reserved. Where necessary, permission is granted by the copyright owne libraries and others registered with the Copy Clearance Center (CCC) to photocopy any ar herein for the base fee of $1.50 per copy of t article plus 10 cents per page. Payment shou sent directly to the CCC, 21 Congress Street Salem, MA 01970. Include code with request ISSN0003-858X ($1.50 + .10). Written permis must be secured for any other copying. Writ Reprint Manager for such permission at add below, or to obtain quotations on bulk order

Subscription List Usage: Advertisers may v list to mail information to readers. To be exc from such mailings, subscribers should send request to: ARCHITECTURAL RECORD, L List Mgr., P.O. Box 555, Hightstown, NJ 08

Publication Office: 1221 Avenue of the Ame New York, NY, 10020. ARCHITECTURAL RECORD (ISSN0003-858X) published month additional issues in April and September by McGraw-Hill, Inc. Second-class postage paid New York, NY and additional mailing office Postage paid at Windsor, Ontario, Canada. Registration Number 9617.

Postmaster: Please send address changes Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 2025, Mahopac, NY 10 THIS ISSUE is published in national and se editions. Additional pages or separate editi numbered or allowed for as follows:
Eastern Section 32Ea through 32Ef.
Central Section 32Ca through 32Cb.
Western Section 32Wa through 32Wb.
Sunbelt Section 32Sa through 32Sb.

s that work outdoors have to be rugged.
ver, that doesn't mean they need to be boorish
maginative.

drinking fountains are the toughest you can buy.
ructed of heavy-gauge steel or vibracast-reinforced
ete, they stand up to whatever abuse humans give
Special options like freeze-proofing let them stand
the elements as well.

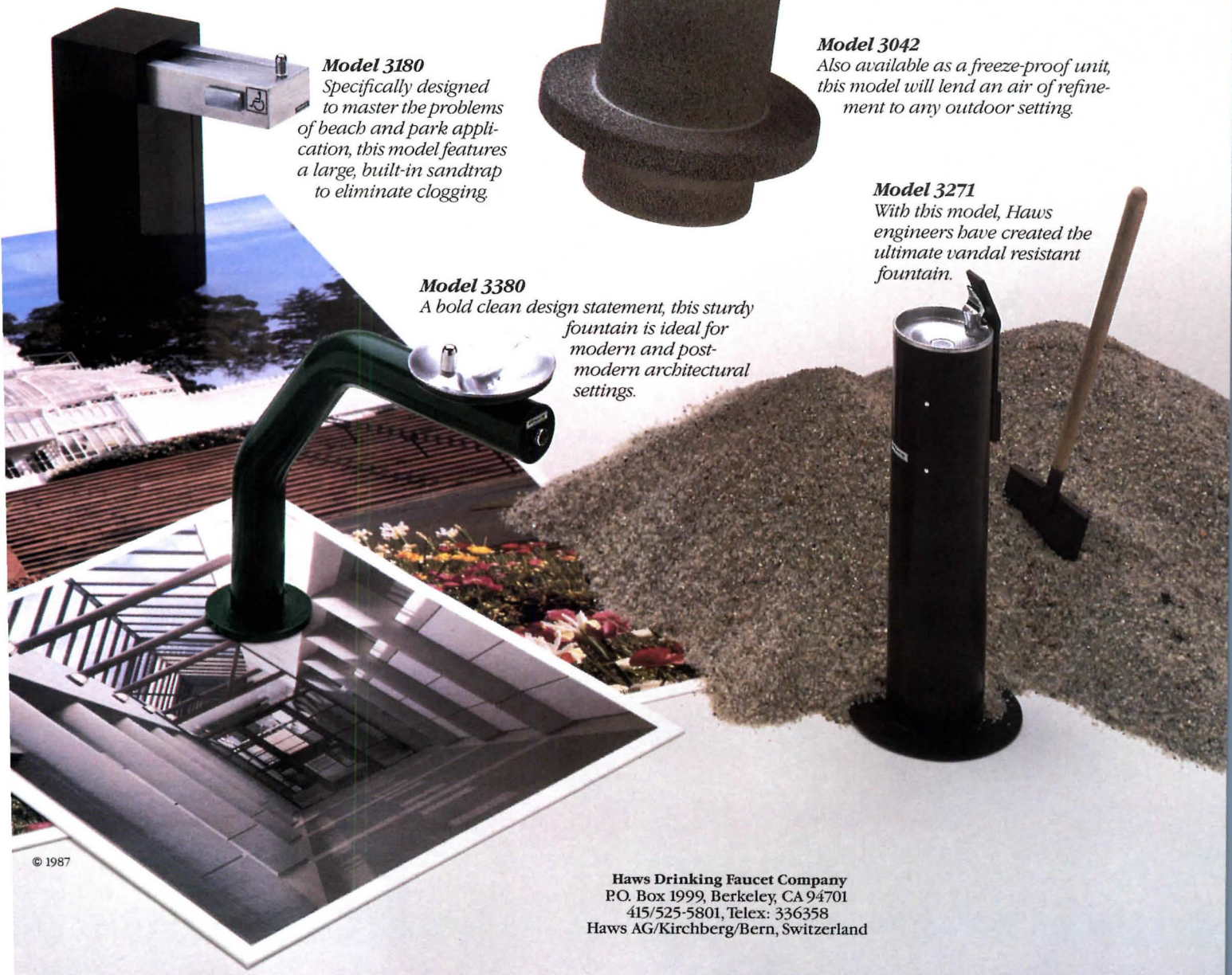
one of our lean, striking, post-modern designs,
e of our elegant natural-color aggregate models.
over 100 styles and finishes to choose from,
y to find Haws fountains that will make
ost pedestrian setting come alive–
elp all your projects go from urban
ane.

ore information on how to incorporate
orld's most popular drinking fountains into
outdoor designs, contact your Haws repre-
ive, see Sweets section 15455, or phone
veets BUYLINE.®

Make The Great Outdoors A Little More Civilized.

Haws®

THE EXCITEMENT IS BUILDING



Model 3180
Specifically designed to master the problems of beach and park application, this model features a large, built-in sandtrap to eliminate clogging.

Model 3042
Also available as a freeze-proof unit, this model will lend an air of refinement to any outdoor setting.

Model 3271
With this model, Haws engineers have created the ultimate vandal resistant fountain.

Model 3380
A bold clean design statement, this sturdy fountain is ideal for modern and post-modern architectural settings.

Haws Drinking Faucet Company
P.O. Box 1999, Berkeley, CA 94701
415/525-5801, Telex: 336358
Haws AG/Kirchberg/Bern, Switzerland

The Very Best of Today's Tapered Roof Insulation Technology

Pittsburgh Corning has developed new Tapered FOAMGLAS® Roof Insulation Systems which satisfy today's Performance Criteria and are Priced Competitively.

FOAMGLAS®
ROOF INSULATION
PC PLUSYSTEMS™

The FOAMGLAS® PC PLUSYSTEMS™ take advantage of the best physical characteristics of Pittsburgh Corning's cellular glass and foamed plastic insulations.

The nucleus of PC PLUSYSTEMS™ is FOAMGLAS® cellular glass insulation, the most moisture resistant insulation on the market. Its stability, strength, and impermeability help eliminate many causes of roof failure. Indeed, the All-FOAMGLAS® PC PLUSYSTEM 1 is the wisest choice for long-term performance and reliability.

The other PC PLUSYSTEMS™ contain underlayments of phenolic foam (PF) or polyisocyanurate foam (PI) insulations. These underlayments result in competitively priced systems with high "R" values. The top layer of Tapered FOAMGLAS® insulation overcomes the stability problems of many foamed plastic systems.

PC PLUSYSTEM 1

Tapered FOAMGLAS® with FOAMGLAS® insulation underlayment. This All-FOAMGLAS® system offers the highest resistance to moisture, ensuring constant thermal efficiency and maximum compressive strength. The tapered top layer provides slope to drain water and is compatible with built-up-roof or adhered single ply membranes.

PC PLUSYSTEM 2

Tapered FOAMGLAS® insulation with PF (phenolic foam) Underlayment provides the highest R-value available in these systems. The Tapered FOAMGLAS® insulation shields the PF Underlayment from extremes of thermal expansion and contraction and distributes loads evenly.

Guaranteed Performance!

PC PLUSYSTEMS® 1 & 2 offer 20-year insulation performance warranties. Copies of the warranties are available from Pittsburgh Corning.

PC PLUSYSTEM 3

Tapered FOAMGLAS® insulation with PI (polyisocyanurate foam) Underlayment produces a high R-value system. The Tapered FOAMGLAS® insulation reduces thermal loads on the PI Underlayment which results in a stable substrate for the roof membrane.

Your Pittsburgh Corning representative will recommend the PC PLUSYSTEM that best meets your performance criteria and cost restrictions.

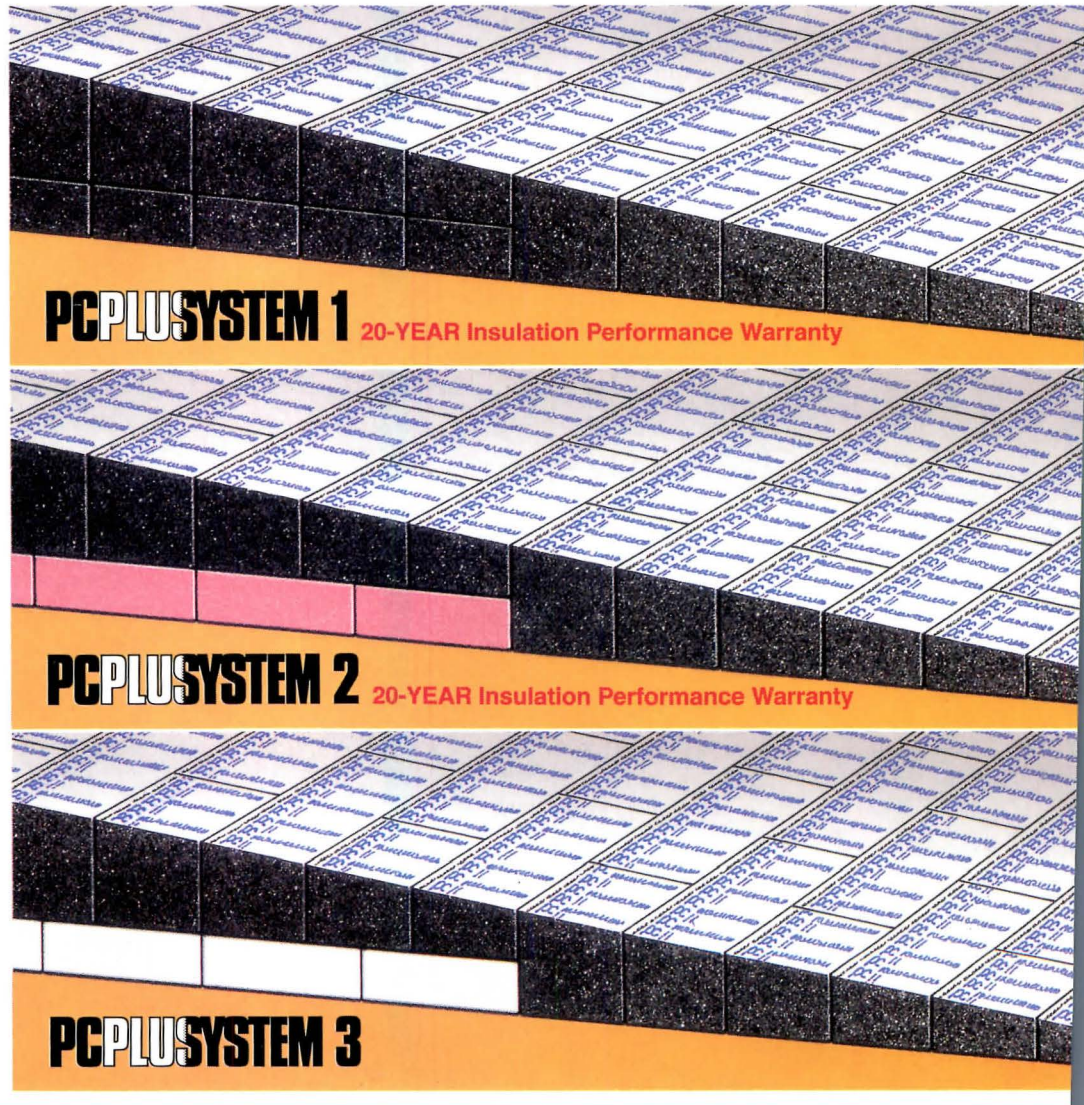


Illustration not to scale

For more information call (412) 327-6100, Ext. 356.
Or write Pittsburgh Corning Corporation, Marketing Department FB-8, 800 Presque Isle Drive, Pittsburgh, PA 15239.
In Canada, 106-6 Lansing Square, Willowdale, Ontario M2J 1T5, Tel.: (416) 222-8084.

PITTSBURGH PC® CORNING **THE INNOVATIVE INSULATION PEOPLE**

Contents

Business

Design

Engineering

Cover:
Pavilion for Japanese Art, The Los Angeles County Museum of Art
Bruce Goff; Preliminary Design; Bart Prince, Architect
Photographer: Tom Bonner

Duro-Last, the leader in single-ply roofing, wants you to see for yourself why the Duro-Last Roofing System is so much in demand.

Duro-Last . . . A Cut Above

As you can easily see, Duro-Last fabricates the entire single-ply roofing system . . . everything you need to meet all your new and retrofit roofing requirements.

Duro-Last Saves You Time And Money

Duro-Last's custom fabrication means 80% fewer field welded seams. Fewer field seams means faster and easier installation. Research shows many customers find the Duro-Last Roofing System will cut labor and installation costs up to 50%!

Duro-Last Gets To You Exactly As You Want It

The Duro-Last Roofing System Comes To You Complete. All materials arrive:

- on site
- pre-measured
- pre-cut
- welded into sheets up to a maximum 2,500 sq. ft.
- with all fasteners, custom stacks, custom curbs and other accessories

Duro-Last Gets To You Fast

Your Duro-Last roof will be in production within hours of our receiving your order. And your complete roofing package will be on its way to you within days.

Duro-Last . . . Lasts

Duro-Last isn't afraid to put its money where its roof is. Your Duro-Last Roofing System comes with a 20 YEAR WARRANTY plus a $6,000,000 LIABILITY POLICY on your building and its contents.

A View From The Side Shows Why Duro-Last Is Tops

No Matter How You Cut It . . . Duro-Last Is Tops

When you're ready for a new roof, call the roofing innovators first. Call Duro-Last TOLL FREE.

1-800-248-0280
(Outside Michigan)
1-800-752-8815
(Michigan Only)

DURO-LAST® Roofing, Inc. 525 Morley Dr. • Saginaw, MI • 4860

UL Class A (New and Retrofit Construction); FM Class 1, I-60 and I-90. CODE APPROVALS: ICBO, SBCCI, BOCA, and Metro-Dade. MEMBER: NRCA, SPRI.

Making history

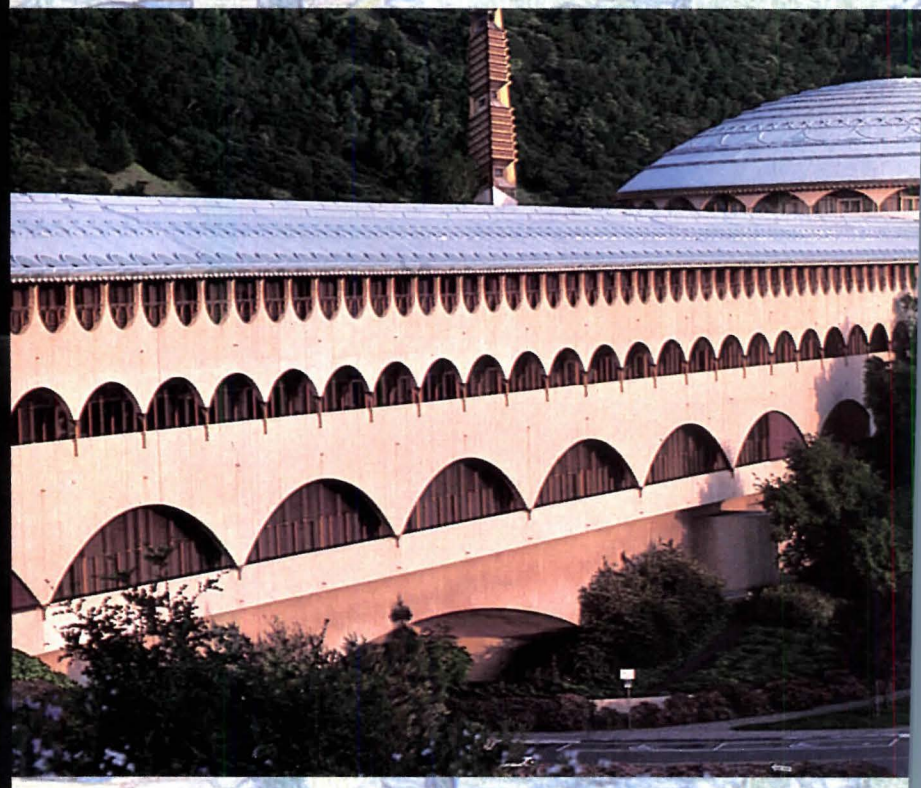
RECORD editor Mildred F. Schmertz, FAIA, has donned yet another hat: she has been named to the 11-member Landmarks Preservation Commission of the City of New York, the 23-year-old organization that's the forerunner of all American landmarks commissions—and one of the most prestigious. Her appointment is not only a boon to the preservation of distinguished structures in a city where architectural monuments are almost commonplace, but a satisfying acknowledgment that her accomplishments as a journalist and editor have been scrutinized and found to be exemplary.

In large part prompted by the demolition in 1963 of McKim, Mead and White's turn-of-the-century masterpiece, Pennsylvania Station, the establishment of New York's Landmarks Commission in 1965 sought "to designate, monitor, and preserve landmarks and historic districts ... because of their special historic, architectural, cultural, or esthetic qualities and value." Each commissioner, who serves without remuneration, is appointed by the mayor and approved by the city council only after a long and complete inquiry into the candidate's background, credentials, and special expertise for the job. The group is the policy- and decision-making body that designates landmarks "based on an evaluation of the special character, quality, and history of the property" under consideration.

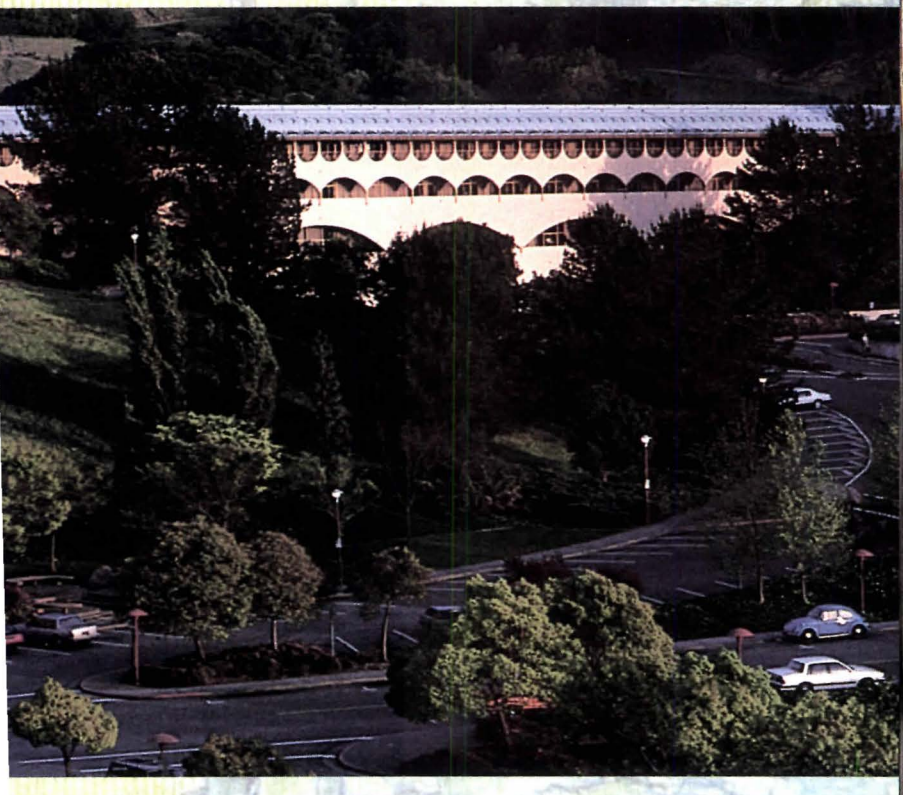
Mildred Schmertz, who's been RECORD editor-in-chief since 1985, has all the right credentials for the job. Not only has she written in these pages, time and again, about worthwhile landmarks saved by the efforts of preservation-minded citizens and carefully, lovingly restored by like-minded architects, but on a private basis she has been involved with many community groups who also seek to save the best of the old. We are extremely proud to have such a person at the top of our editorial masthead. Congratulations, Mildred.

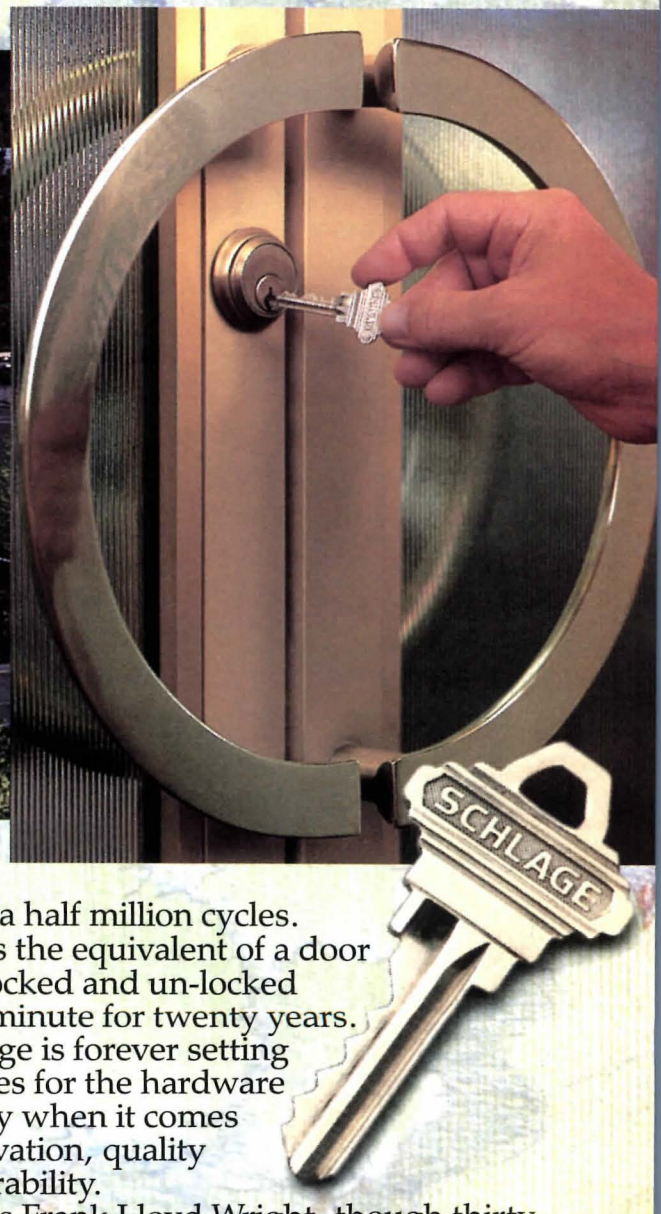
Ted R. Meredith, Publisher

THERE'S ONLY ONE FRANK LLOYD WRIGHT.



THERE'S ONLY ONE SCHLAGE.





Not long after Frank Lloyd Wright unveiled his Prairie House style of architecture, we unveiled the first cylindrical lock.

Wright went on to create such statements as Fallingwater and the Solomon R. Guggenheim Museum, while we went on to create the non-handed mortise lock and electronic lock systems.

Wright's obsession for detail was legendary. It isn't surprising, then, that Schlage locks were chosen for this timeless masterpiece: the Marin County Civic Center.

A Schlage lock is in itself a timeless masterpiece.

Recent tests have shown that our most popular mortise lock performs over six and a half million cycles.

That's the equivalent of a door being locked and un-locked once a minute for twenty years.

Schlage is forever setting examples for the hardware industry when it comes to innovation, quality and durability.

Just as Frank Lloyd Wright, though thirty years gone, is still teaching young architects how to make a building.

Send for a copy of our new full line catalog: Schlage, IHS Division, 200 Parkside Drive, San Fernando, CA 91340.

SCHLAGE
Part of worldwide Ingersoll-Rand

Esco Reveals The Hole Truth About Hydraulic Elevators.

If you believe that you can't have the reliability of a hydraulic elevator without the time and cost required to drill a hole, you haven't been told the hole story. ESCO's 886 is a completely self-contained "holeless" hydraulic elevator. Its unique design requires no hole or building modifications, making it the ideal choice for two or three landings.

Innovations such as the 886 are why architects and building owners have specified ESCO elevators for more than 50 years. Write today for a free brochure or call ESCO at 817-478-4251. We'll reveal the hole truth about hydraulic elevators – and a whole lot more.

ESCO ELEVATORS, INC.

P.O. BOX 445 ■ FORT WORTH, TEXAS 76101 ■ 817-478-4251

Circle 8 on inquiry card

EVERY BUILDING OWNER DESERVES A ROOF HE CAN BELIEVE IN.

FOR PROTECTION YOU CAN HAVE FAITH IN, COUNT ON THE MOST TIME-TESTED ROOF SINCE THE INVENTION OF RAIN.

Roofing has come a long way since the thatched roof.

We ought to know. After 130 years of technological advancements, no other system offers as much reliable protection as Manville's built-up roofing.

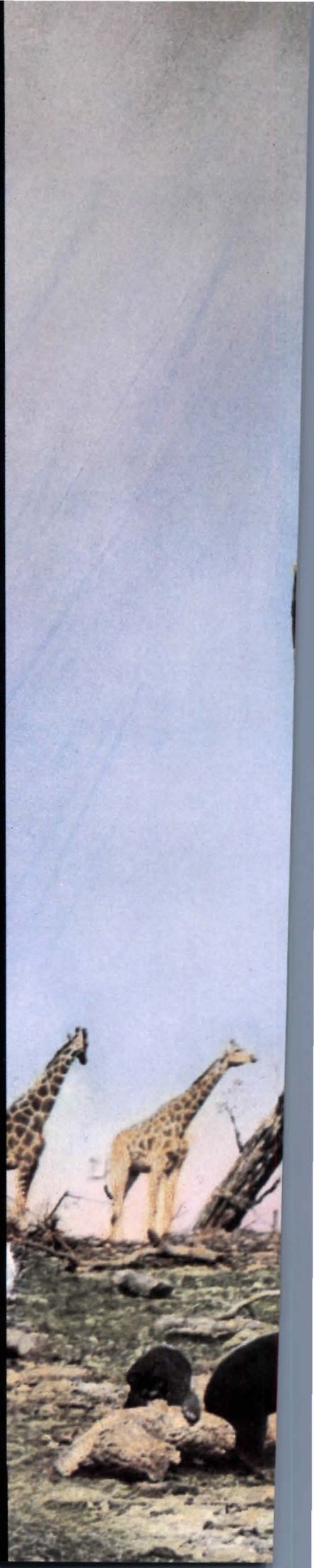
In addition to high quality roofing felts, asphalts, and insulation, Manville also provides a full line of engineered accessories designed to fit your roofing needs. And the most comprehensive systems guarantee program in the industry.

Plus, the Manville Approved Roofing Contractor program assures you of a knowledgeable, experienced, approved installer who works directly with your Manville sales representative and district engineer to get your job done right the first time. He's the best there is.

Better materials, better specifications, Manville approved contractors, and the best guarantee in the industry. Everything it takes for a roof you can really believe in.

For more information on our roofing systems, see your Manville sales representative, or contact Manville, P.O. Box 5108, Denver, Colorado 80217-5108.

Circle 9 on inquiry card




Manville
Total
Roofing Systems

Letters continued from page 4

before the age of "titles" they were historically and traditionally part of the architectural profession. Interiors have existed in buildings for thousands of years, yet only in recent history has "interior design" become a specialty outside of the architect's office.

The statement that the interior designer is involved with public safety through the selection of materials used to embellish the walls, floor, and ceiling is absurd. Codes regulate the fire hazard and toxicity of materials in a building, and any individual involved in the selection process must abide by the codes in order to receive an occupancy permit. This is required even when the owner chooses to do his own interiors. Should we license the owners as well? Space planning, on the other hand, does involve life safety, but that case was not made by Mr. Sonet.

The statement that AIA documents limit consultants to structural, mechanical, and electrical is just not true. Many firms, utilizing AIA documents, work with multitudes of consultants. C431 is designed for use with any consultant services other than engineering. C727 is also available. C141 and C161 may be used with modifications. Mr. Sonet obviously is not familiar with AIA documents. He also suggests that the architect reverse his role and become the consultant to the interior designer. Most architects will not welcome that reversal.

While most architects, we believe, could support the licensing of interior designers, the task lies in drafting language that is proper and appropriate to describe the profession and its tasks so that there is no confusion with architecture.

The major fear of most architects is that the licensed interior designer will migrate to tasks beyond the limits of his education, experience, and examination, with little or no opposition from unsophisticated building departments. Once that is allowed to happen, the public will be at great risk. The "grandfathering" of 400,000 interior designers without proper credentials of education and experience and examination is dangerous and unacceptable.

Mr. Sonet would be best advised to read the comments of Mr. Sapers and to spend his time constructively in finding language and definitions of interiors practice that are acceptable to both professions. It is time to call for a cease-fire and to sit down together to find ways to heal the wounds.

Melvin S. Markson, FARA, FISA, AIA
Chairman, Interior Design Licensing Review Committee
Society of American Registered Architects
Lombard, Illinois

Your teaser in the July News about "deconstructivism" [ARCHITECTURAL RECORD, July 1988, page 55] elicits a familiar response within me, and perhaps in other readers.

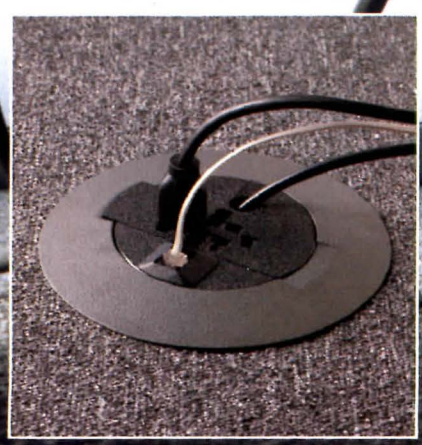
Simply, this genre represents the best and worst aspects of our profession. The work is tantalizing, ingenious, provocative, fraught with thought, and two-dimensionally lovely.

It is also cheap thrills, "wow" Shock Architecture, screaming for attention. In this way it dances the dance of uncomfortable innovation—on its own stilted, in its effect inspirational.

Too early, I guess, to tell if it passes the litmus tests of weather and use. I wonder how those commissioning and using the works feel about it once the photographers leave the site? Maybe your August issue will touch upon all of these things.

Duo Dickinson, Architect
Madison, Connecticut

Today's open office has something to hide.



A beautiful alternative. The Fire-Rated Flush Poke-Thru from the makers of Steel City® products.

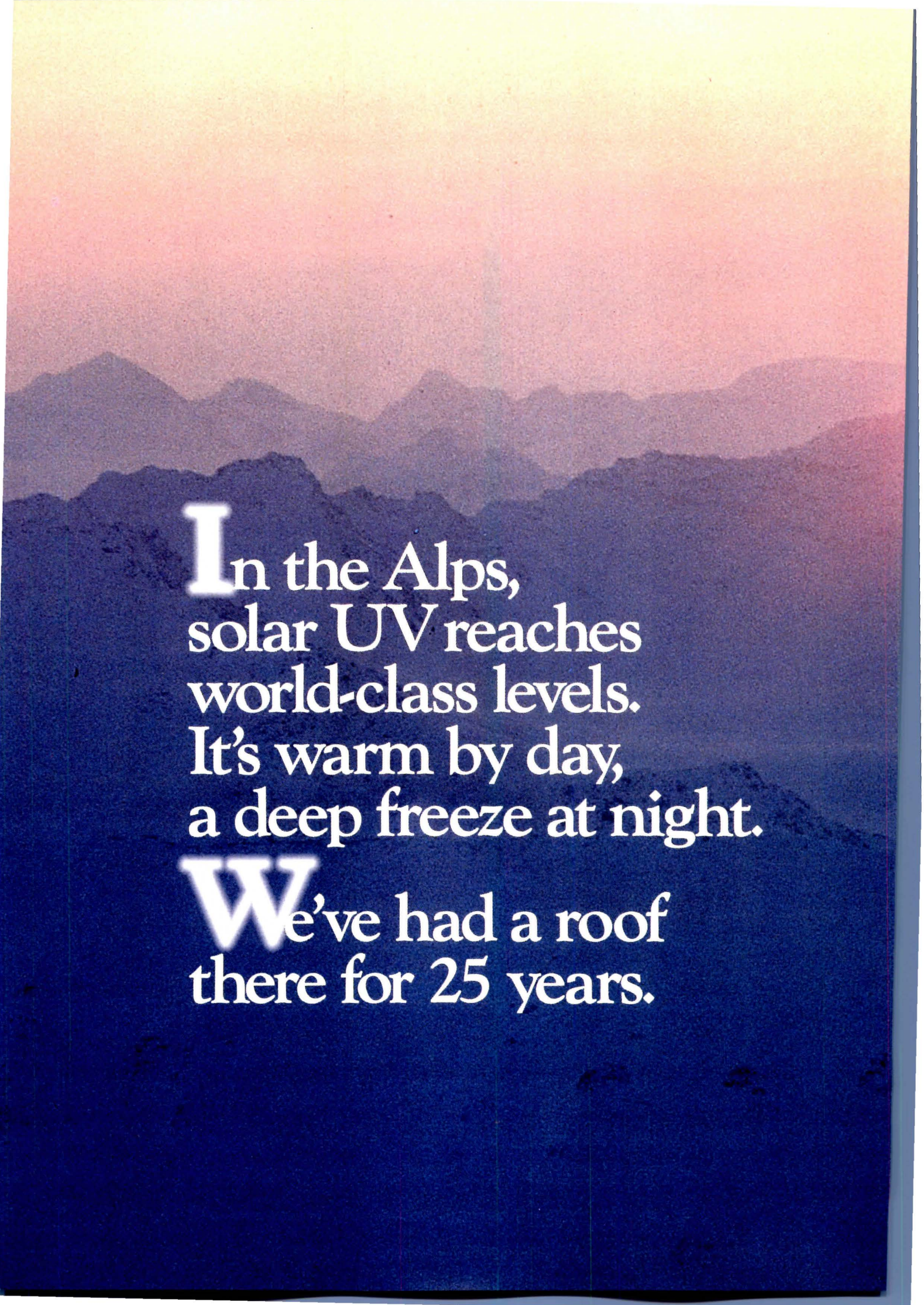
Phone lines, power cords and computer cables are there to make things happen, not to make a mess. That's why a Fire-Rated Flush Poke-Thru from Steel City is a simple, yet elegant solution. It's flush. It's unobtrusive. And Steel City Poke-Thru boxes feature a texture painted finish ring that doesn't just fit, it also enhances office decor.

With a duplex receptacle positioned in the center, computer, data and telephone wiring is routed through side ports below the floor surface, without disconnecting existing power wiring. So the Steel City Flush Poke-Thru isn't just convenient, it's conveniently installed, connected or relocated.

To find out more about the Flush Poke-Thru and other open office problem solvers, call American Electric today at (412) 323-5400. Or write: American Electric, Construction Materials Group, P.O. Box 1548, Pittsburgh, PA 15230. After all, what office doesn't have something to hide?

AMERICAN ELECTRIC
FL INDUSTRIES, INC.

Circle 11 on inquiry card


In the Alps,
solar UV reaches
world-class levels.
It's warm by day,
a deep freeze at night.
We've had a roof
there for 25 years.

Switzerland can be rough on a roof. Relentless ultraviolet radiation. Thermal shock day in and day out.

And for 25 years our roof on Biel's popular Congress House and Indoor Swimming Pool complex has been performing successfully.

To document this performance, we subjected samples of that veteran roof to a battery of tests.

It was still flexible. Still hot-air weldable. Still watertight. After a quarter of a century of service.

That's why the Sarnafil system, made in the U.S.A., is doing so well in places like Vail, Miami, Boston, and Chicago.

And why Sarnafil should be your next roof.

Check our specs in Sweet's File 07500/SAS (BuyLine 0189).

Give us a call at 1-800-451-2504; in Massachusetts call 1-800-451-2506. Or write to us at 100 Dan Road, Canton Commerce Center, Canton, MA 02021. We'll send you a full-color brochure outlining the four critical areas of roofing decision-making. We will also give you details on how to obtain a free poster of the photo in this ad.

Other roofing systems say they'll last. But how do you really know?

Sarnafil

The roof with proof.

Circle 12 on inquiry card

HEAT MIRROR™ made it fly

Create a naturally-lighted glass enclosure for thirty-nine full-size aircraft, and still comply with one of the country's toughest energy codes. That's the challenge Ibsen Nelsen and Associates faced in designing the Museum of Flight at Boeing Field, Seattle, Washington.

The solution? Use over 55,000 square feet of Heat Mirror insulating glass. Heat Mirror provides the same level of solar control as dark tinted glass, yet lets in *over four times more natural light!* There's less need for artificial lighting and a net reduction of 35 percent in the Museum's projected annual energy budget.

Compared to other low-e glazings, only Heat Mirror offers *Total Performance*: controlling winter heat loss, summer heat gain, ultraviolet radiation, sound transmission and condensation better than any other insulating glass available today.

To find out how Heat Mirror can open up your design options, contact Southwall Technologies, 1029 Corporation Way, Palo Alto, CA 94303. (415) 962-9111. Or see us in Sweet's: 08810/SOU.

For immediate help on a current project, call our Architectural Services Department, toll-free:

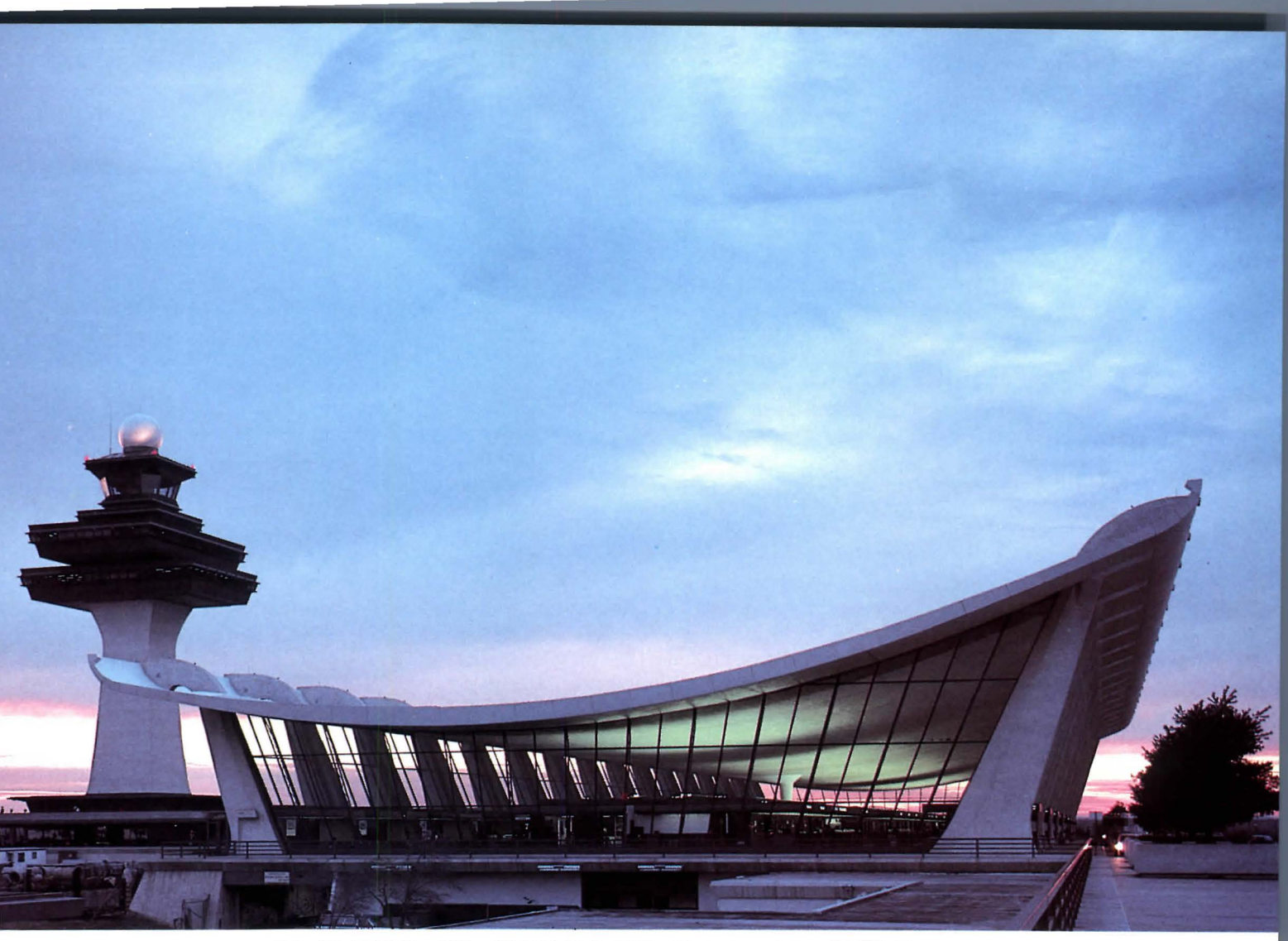
(800) 365-8794

Southwall Technologies

HEAT MIRROR™

For Total Performance Windows.

Circle 13 on inquiry card



ONE BUILDING IN WASHINGTON WHERE THERE'VE NEVER BEEN ANY LEAKS.

After 27 leakproof years, the time
come to ask some questions. What
the designers of Washington's Dulles
ernational Airport know? And when
they know it?

From the very beginning, the airport's
igners knew they had a tough roofing
on their hands. Fortunately, they
knew who to call.

Gates Engineering Company.

The happy result was a Neoprene
le-ply roofing system coated with
liquid Hypalon® H-10. The rest is a matter of public record. As documented by the FAA Engineering Branch, there have been absolutely no leaks since the roof's original installation in 1961.

As proud as we are of the Dulles roof, Gates has spent the past 27 years perfecting even better roofing systems. Our System III Hypalon elastomeric sheet roofing, for example, may be the most durable single-ply roofing system ever made. Like all our products, it's designed to create an attractive, economical, watertight seal between external elements and internal environments.

For more information on Gates products and the seal of excellence they provide, write to us at 100 South West Street, Wilmington, Delaware 19801. Or call toll-free 1-800-441-7464.

Who knows? Now that the facts about Dulles are out, maybe we'll get a chance to put a lid on the Pentagon. Or perhaps even the White House.

GATES ENGINEERING COMPANY, INC.

The Seal Of Excellence

Circle 14 on inquiry card

THE BEST WAY TO SEE THE FUTURE IS TO LOOK AT THE PAST.

One look at Notre Dame's magnificent rosette window is all it takes to see that the design was far ahead of its time. Constructed in 1163, it's still a brillant example of innovative glass architecture.

Dow Corning can help you build tomorrow's monuments, today. Because our glazing technology is far ahead of the competition. And far ahead of its time. State-of-the-art products and technical knowhow that let you work with the most advanced materials, to build the most futuristic designs.

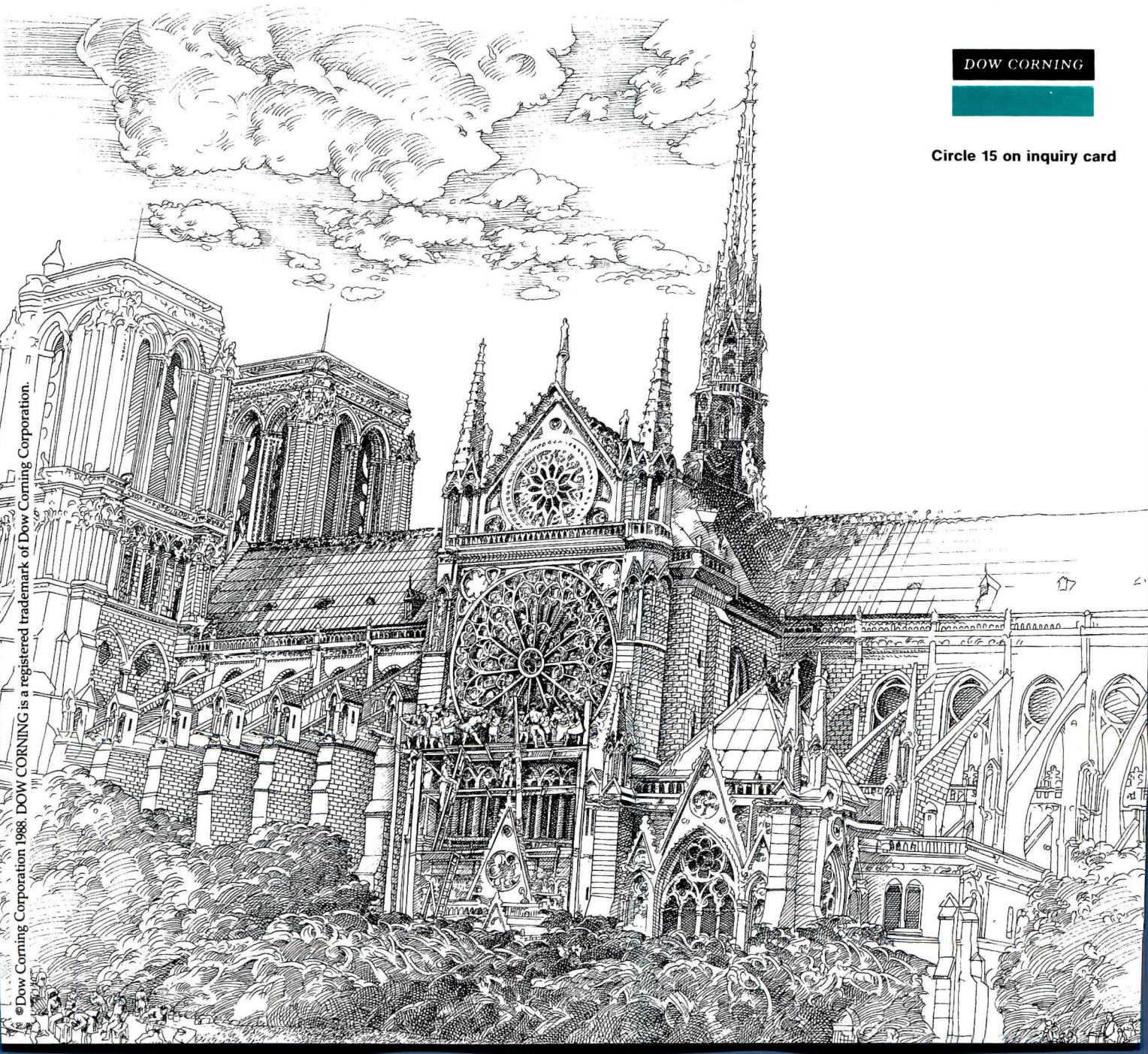
DOW CORNING® 795 for example, is a unique one-part structural silicone adhesive/sealant for both in-shop and field glazing, as well as curtain wall assembly and weatherseals. It provides exceptional primerless strength and adhesion to more substrates than any other silicone sealant.

DOW CORNING® 983 is a two-part adjustable-cure curtain-wall glazing adhesive/sealant that offers easy handling and permits automated structural sealing of insulating glass units.

DOW CORNING® 790 offers unmatched movement capability and adhesion for a variety of weather-sealing applications in stone, concrete and metal curtain-wall construction.

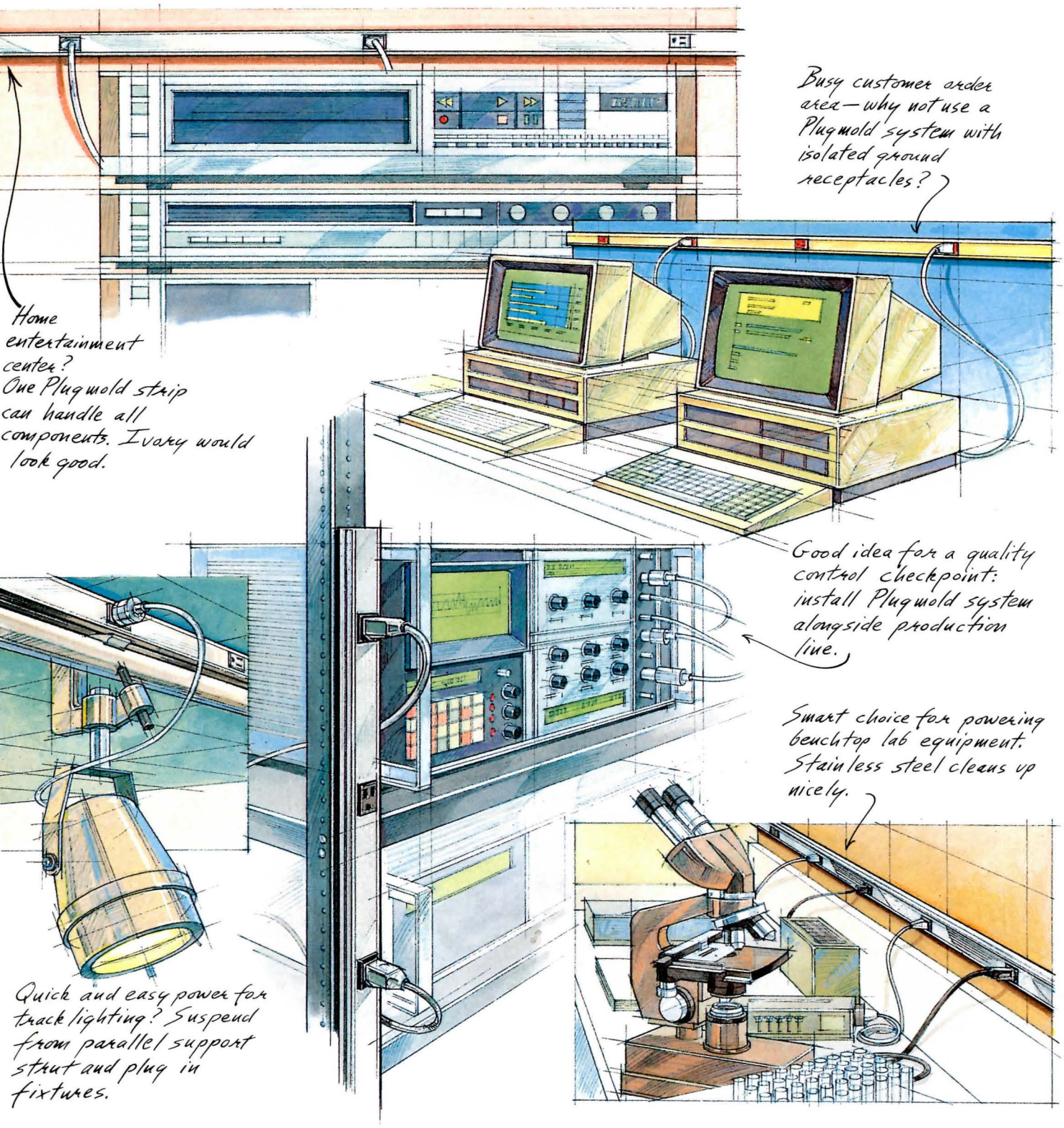
You get something else with Dow Corning glazing sealants that only the world's largest silicone producer can offer: The Dow Corning commitment to research and development, technical service and quality products.

For specification information and technical literature call toll-free **1-800-346-9882 ext 8207.** Or write Dow Corning, Dept 4009. Midland MI 48640. We'll help you build for the future, today.



DOW CORNING

Circle 15 on inquiry card



A Plugmold® multioutlet system can really start you thinking. Especially with it now in ivory, too.

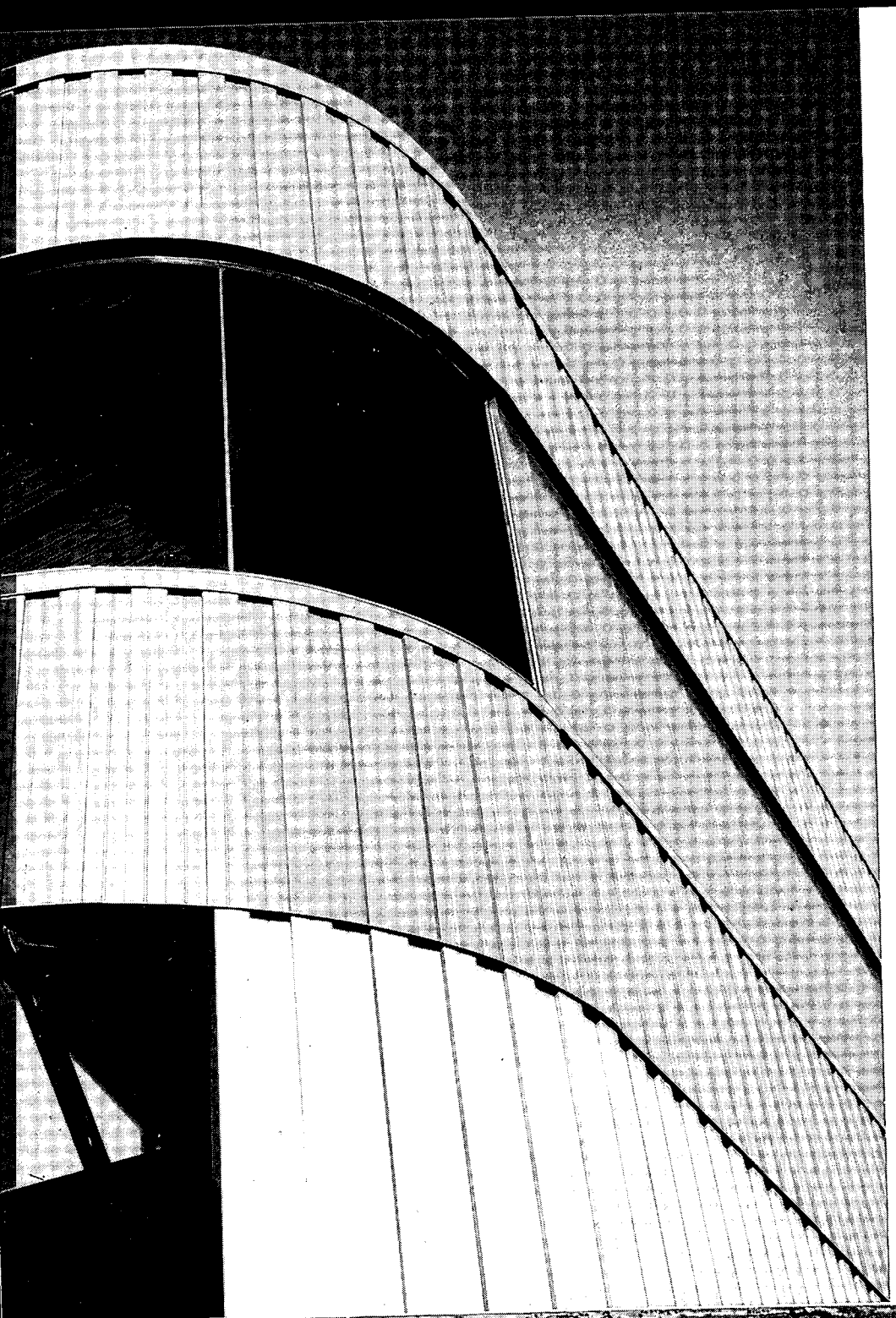
Just when you think there's no easy answer to your wiring need, you remember Plugmold multi-outlet strips. The one system that, for years now, has been solving wiring problems in very simple, very innovative ways.

In tan, gray, stainless steel and now in new ivory, where might a Plugmold system take you next? Send for the free literature that could give you still more ideas.

Wiremold®

The Wiremold Company, Electrical Division
60 Woodlawn St., West Hartford, CT 06110-0639
Telephone (203) 233-6251

Circle 16 on inquiry card



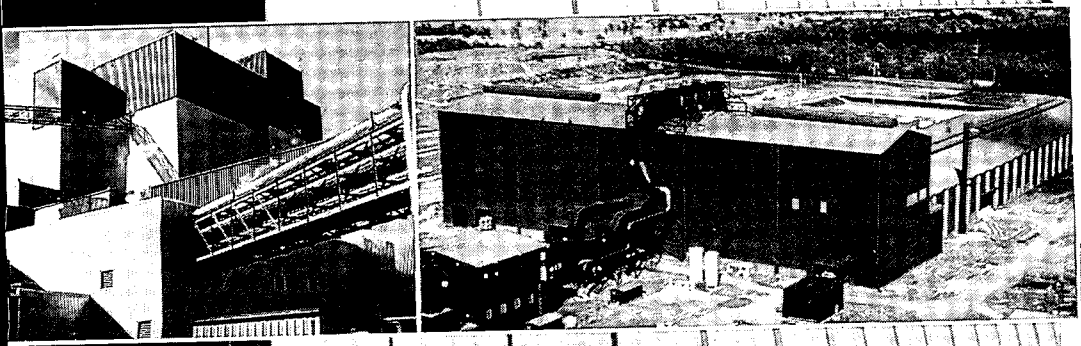
Steelite capabilities are simply attention to every detail.

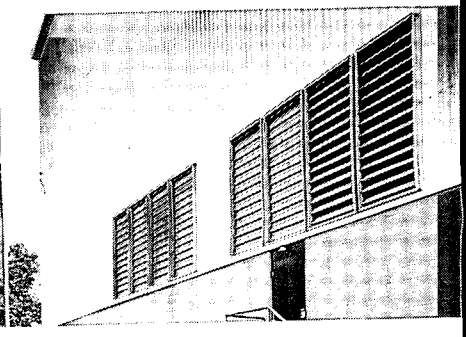
A building panel should not be a commodity. The difference is in the details—and the added values of Steelite's attention to details.

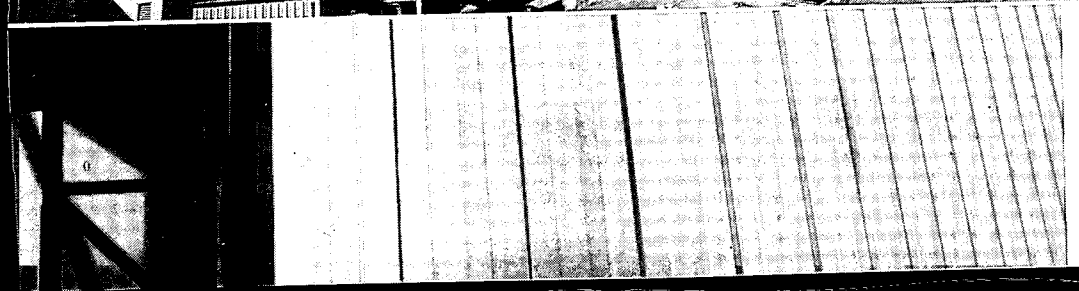
Steelite quality and service add value to a comprehensive range of building panel profiles and accessories, plus a complete line of fixed and adjustable louvers, continuous ridge and clamshell ventilators. They are all available in a variety of metals, protected by a wide choice of coatings. For every product, Steelite takes total responsibility for quality.

Steelite products are backed by skilled support that reaches from project concept through completion. Steelite will assist with design, engineering, specifications, estimating, load calculations, and pricing. Steelite is a fully qualified single source for on-time, on-budget delivery of complete building enclosure systems.

Apply the values of Steelite quality and service to your next architectural, industrial, or commercial project. For more details, send for our new capabilities brochure.

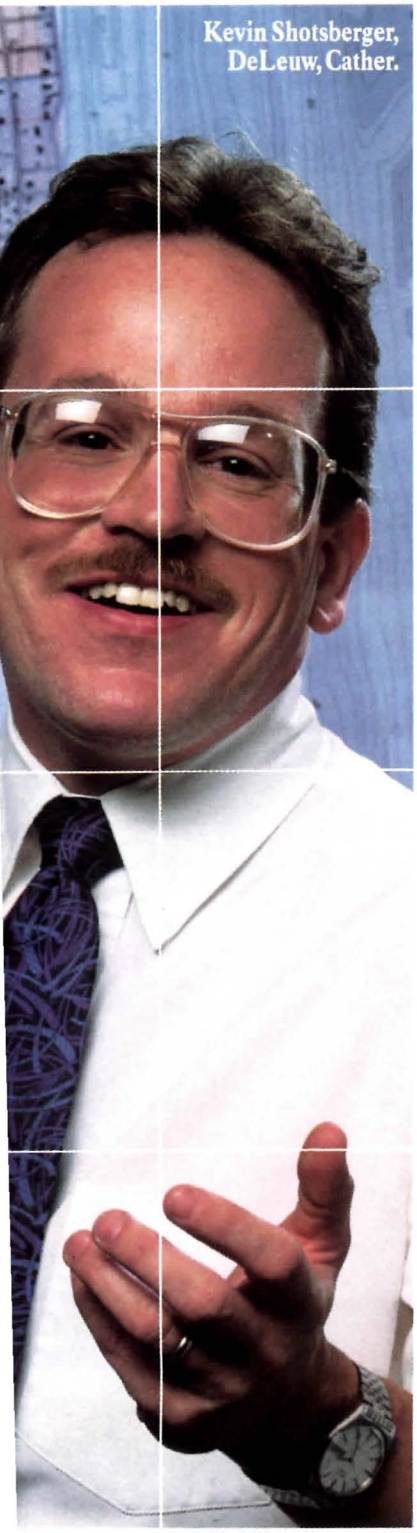






STEELITE, I
1010 Ohio River Boulevard
Pittsburgh, PA 15202
TOLL-FREE: 800-824-13
in PA, 800-824-13

"The Color And Clarity Are Amazing, It Really Gives Impact To Our Ideas."



Multi-Page Enlargement

When your business concerns reach from Lake Michigan to the South China Sea, you need a copier with far reaching capabilities.

So when Kevin Shotsberger was asked to find a new color copier for the engineering firm of DeLeuw, Cather & Company, the Canon Color Laser Copier was the obvious choice.

"We've used other color copiers in the past," says Kevin. "But the quality just was never there. Now we can make single color prints of artist's renderings or use the slide projector and multi-page enlargement to make room-length presentation boards."

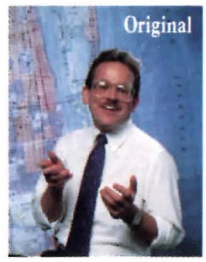
Turn-around time is equally important with the complexity of the presentations DeLeuw, Cather prepares. Work that once required outside sources can now be done entirely in-house. And at a fraction of the cost.

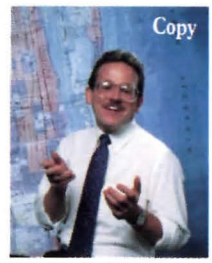
"To do this kind of work on the outside would be positively prohibitive," Kevin explains.

"We can merge documentation photos with text, or use color conversion to highlight or even change the color for greater emphasis—with the Color Laser Copier we can do overnight what used to take days. Add that to the cost savings we can pass along and everyone comes out a winner."

For a company with interests as widespread as DeLeuw, Cather, the Color Laser Copier makes a world of difference.

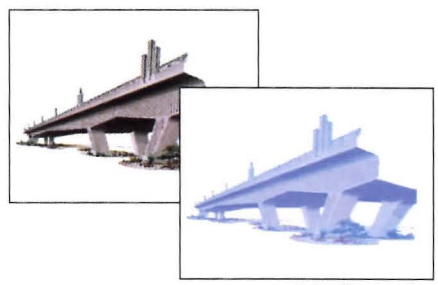
Canon
COLOR LASER COPIER





Digital Full-Color Copies

Color Copies From Slides



Color Conversion

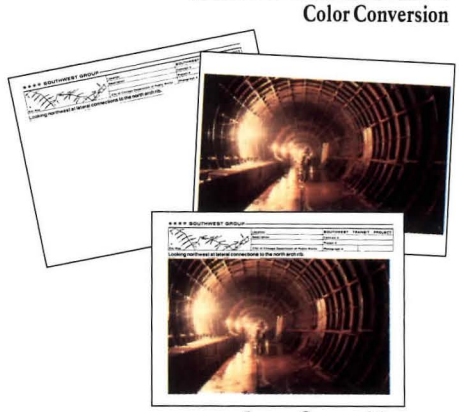


Image Composition

Area Designation

A FEW REASONS WHY A 350 TUFFLINE ENTRANCE LIVES UP TO ITS NAME.

AND A FEW REASONS WHY IT HAS TO.

350 Tuffline. Educational tool for the 80's. And beyond. For new and replacement doors at schools, college campuses, and in other high traffic and abuse-prone installations. Tuffline entrances are all their name says they are. Tested in the educational market, Tuffline is offered as single-acting entrances in both singles and pairs to 8′ heights. With durable butts, pivots, closers and panics to resist vulnerability and increase security when school's out. And design options such as Paneline® to customize without compromise.

Tuffline. At the head of the class.

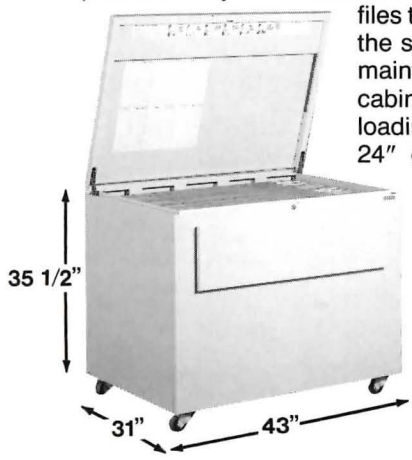
Kawneer

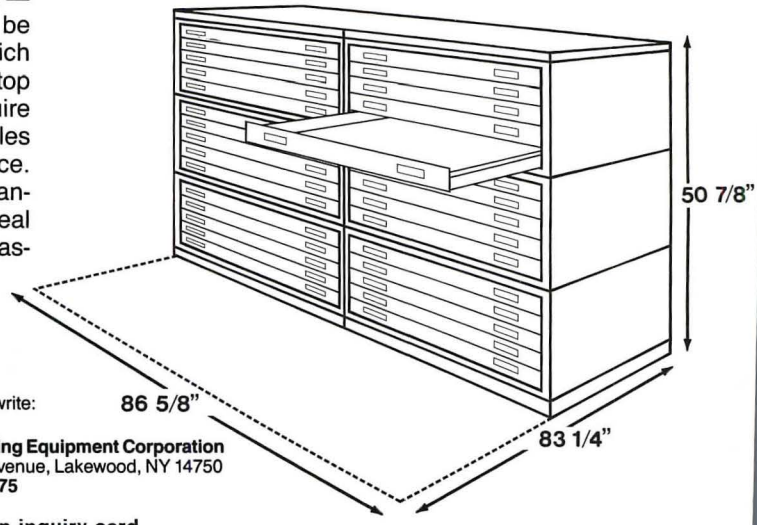
For technical specifications contact:
Kawneer Company, Inc. Department C,
Technology Park-Atlanta,
555 Guthridge Court, Norcross, GA 30092

Circle 20 on inquiry card

Buy Ulrich Planfile and Get FREE Office Space

When you choose the right kind of large document filing system you can actually get extra office space for free. Ulrich's vertical filing cabinets not only keep your drawings organized in perfect condition, they take up far less space than any alternative. In fact it takes 6 five drawer flat files to store 3,000 drawings — the same number that can be maintained in just one Ulrich cabinet. And Planfiles are top loading so they only require 24″ of aisle space. Flat files need 50″ of clearance. There are other advantages besides free real estate. Planfiles are caster mounted for easy relocation. Flat files are not designed to be moved. Ulrich cabinets offer fire protection. Flat files don't. The list goes on — easy filing access, water protection and more. For all this you would think Ulrich Planfiles cost more, but they don't.





For free brochures that detail the entire product line, call or write:

Ulrich Planfiling Equipment Corporation
2120 Fourth Avenue, Lakewood, NY 14750
1-800-346-2875

Circle 21 on inquiry card

SHAKERTOWN SIDING: CHOICE #7

RICE: Shakertown Prices Range 35% Through Product Line

Budget Budget Budget. Sometimes architects wish they had never eard the word. That's why Shakertown offers a range of price points th our panels to fit most any budget.

You can get the premium Shakertown look without a premium st. Our prices vary approximately 35 percent within our product e. Which makes us more competitive than ever.

And that makes the word budget sound better and better to chitects. Now about deadlines . . .

SHAKERTOWN SIDING
1200 Kerron St., Winlock, WA 98596
1-800-426-8970
In Washington (206) 785-3501

Harborwatch Condominiums, Charlotte, North Carolina;
Architect: David Furman/Architecture

Circle 22 on inquiry card

Wind-2

Fully Integrated Financial Management and Accounting Software Designed Specifically for Architects and Engineers.

Business Management • Payroll
General Ledger • Accounts Payable

Introducing Three New Modules:

Custom Reporting Query
Customized Reports and Graphs with Easy-To-Use Menu Interface.

Resource Scheduling
Allocate Resources Over Projects and Time with Convenient Spreadsheets.

Fixed Assets
Built-In Standard Tables and User-Defined Custom Depreciation.

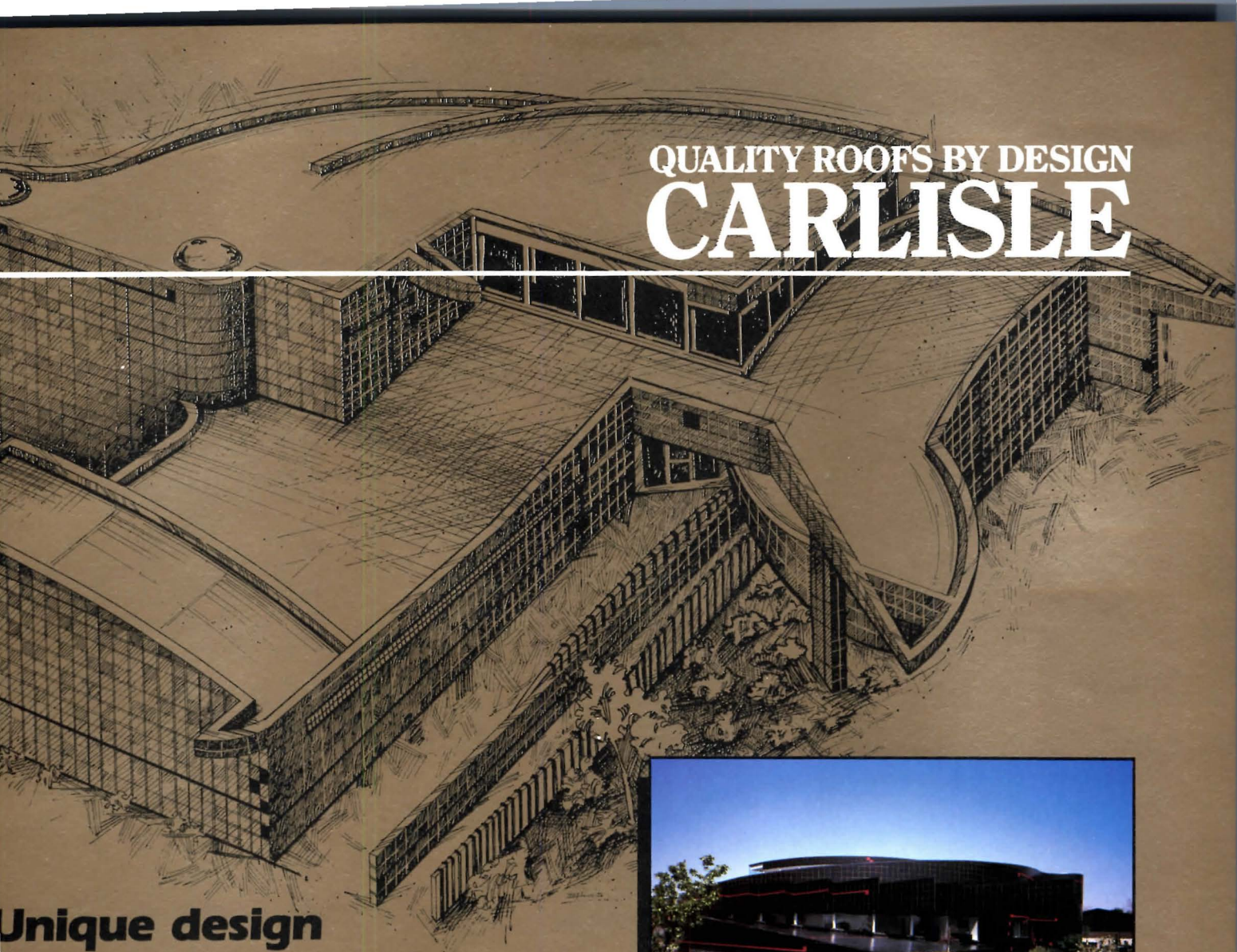
For product or price information call or write:

Wind-2 Research, Inc.
1901 Sharp Point Drive, Suite A
Fort Collins, CO 80525 • 303 482-7145

Circle 23 on inquiry card

QUALITY ROOFS BY DESIGN

CARLISLE



Architect: Harvey Ferrero
Roofing Contractor: Brodak Roofing & Sheet Metal
Carlisle Manufacturer's Representative: Holmes Assodates

Unique design considerations make Carlisle's Fully-Adhered Roofing System Max Klein's choice.

Design A" follows the irregular contours of the roofline—nd fits them like a glove.

Call it unique, exciting or striking. When Max Klein, a major astics housewares products manufacturer decided to build a w corporate headquarters, he resolved it would be uncon-ntional, beautiful and memorable.

Designed by Detroit architect, Harvey Ferrero, the Southfield, chigan structure is all of these.

The inventive architectural concept is difficult to describe. Its rals, curves, slopes and angles flow with an irregular but fluid ometry.

And the first-class-plus building required a top-of-the-line ofing system. One flexible enough to follow the intricate ometry of the roofline. A system strong and reliable enough erform outstandingly under Michigan's rigorous weather nditions. A system that is fully adhered to hold fast for usands of tomorrow's.

ey chose Carlisle's "Design A" Fully-Adhered Roofing tem.

Owner, Phil Brodak, Brodak Roofing of Wixom, Michigan erved "The roof has more angles than I've ever seen. It is flat, ular, barrel-shaped and juts in every imaginable direction. And because the roof is visible, it had to have a smooth, perfect, solid black surface."

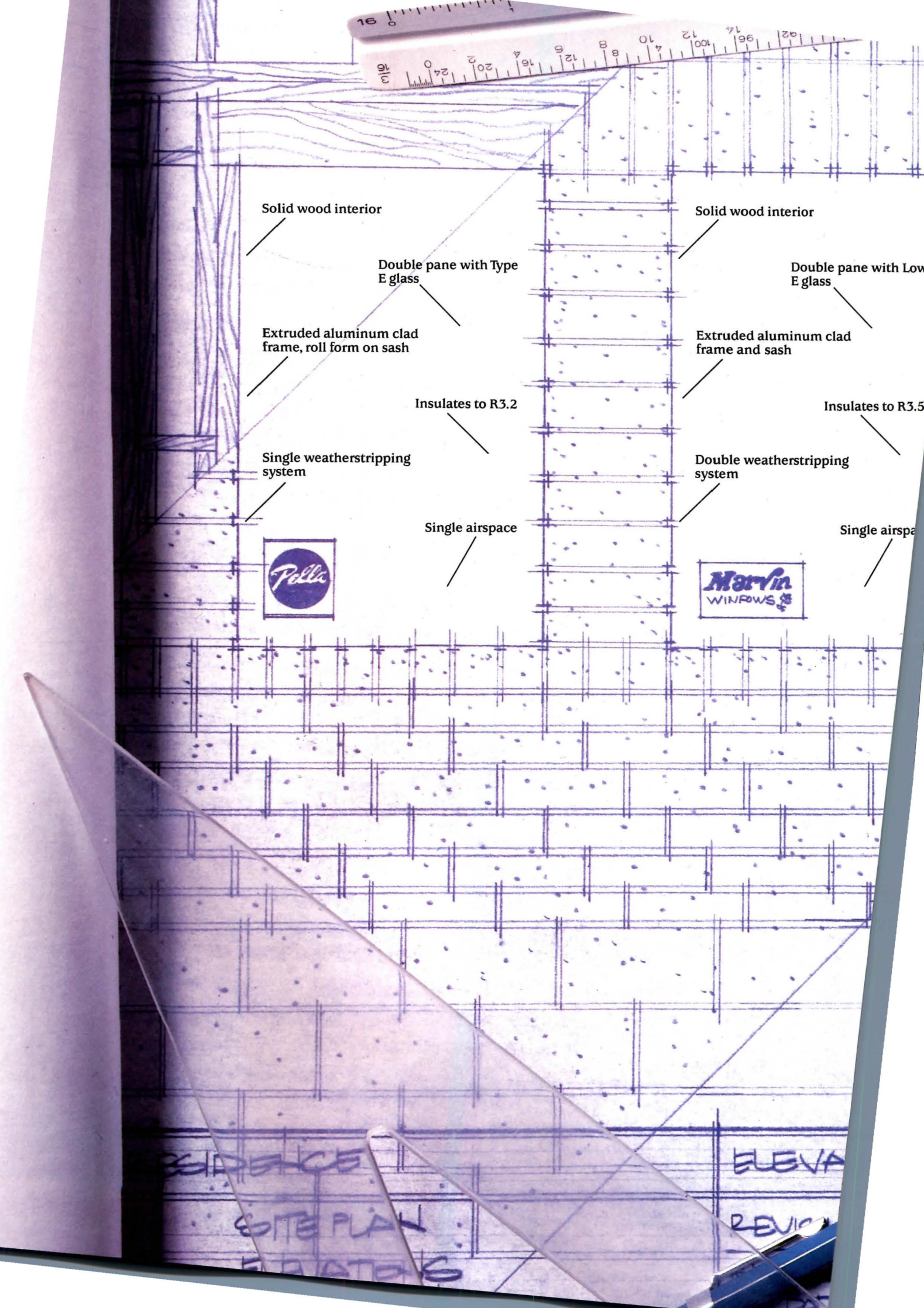
Concluded Brodak, "The Carlisle 'Design A' system is the only roof I know that could perform well under such design considerations. It was the perfect solution. Its fully-adhered roofing system allowed us to go wherever the roof went." Carlisle's roofing membranes include the standard EPDM and a new polyester reinforced EPDM. Both are available in designer colors–basic black Sure-Seal® or the innovative white-on-black Brite-Ply™.

Next time you need a roofing system try a Quality Roof by Design . . . try Carlisle.

Need more information?

Call a Carlisle representative/distributor. Or call Carlisle SynTec Systems toll free at 1-800-233-0551. In Pennsylvania, 1-800-932-4626. In Canada, 1-416-673-5557. Or write Carlisle SynTec Systems, P. O. Box 7000, Carlisle, PA 17013.

CARLISLE
Carlisle SynTec Systems


Solid wood interior
Double pane with Type E glass
Extruded aluminum clad frame, roll form on sash
Insulates to R3.2
Single weatherstripping system
Single airspace
Solid wood interior
Double pane with Low E glass
Extruded aluminum clad frame and sash
Insulates to R3.5
Double weatherstripping system
Single airspa
Pella
Marvin WINDOWS
SITE PLAN
ELEVA

Solid wood frame, vinyl sash interior

Double pane with High-Performance glass

Vinyl clad frame and sash

Insulates to R3.3

Double weatherstripping system

Single airspace

Solid wood interior

Double pane with Heat Mirror™ film

Extruded aluminum clad frame and sash

Insulates to R4.0

Triple weatherstripping system

Dual airspace

Draw your own conclusions.

Hurd windows with Heat Mirror™ may be the best windows you'll ever spec.

Beautiful select Ponderosa Pine interior, thick extruded aluminum clad exterior, Heat Mirror insulating glass, triple weatherstripping—and those are just the obvious differences.

Feature for feature, no other leading window gives you more comfort, performance or value—in more standard sizes.

From casements, double-hung, bows, bays, picture windows, trapezoids and circle tops to the largest range of patio doors available, Hurd lets you spec more performance for the money.

See for yourself. Ask your Hurd distributor for a demonstration. Or call 1-800-2-BE-HURD for more information.

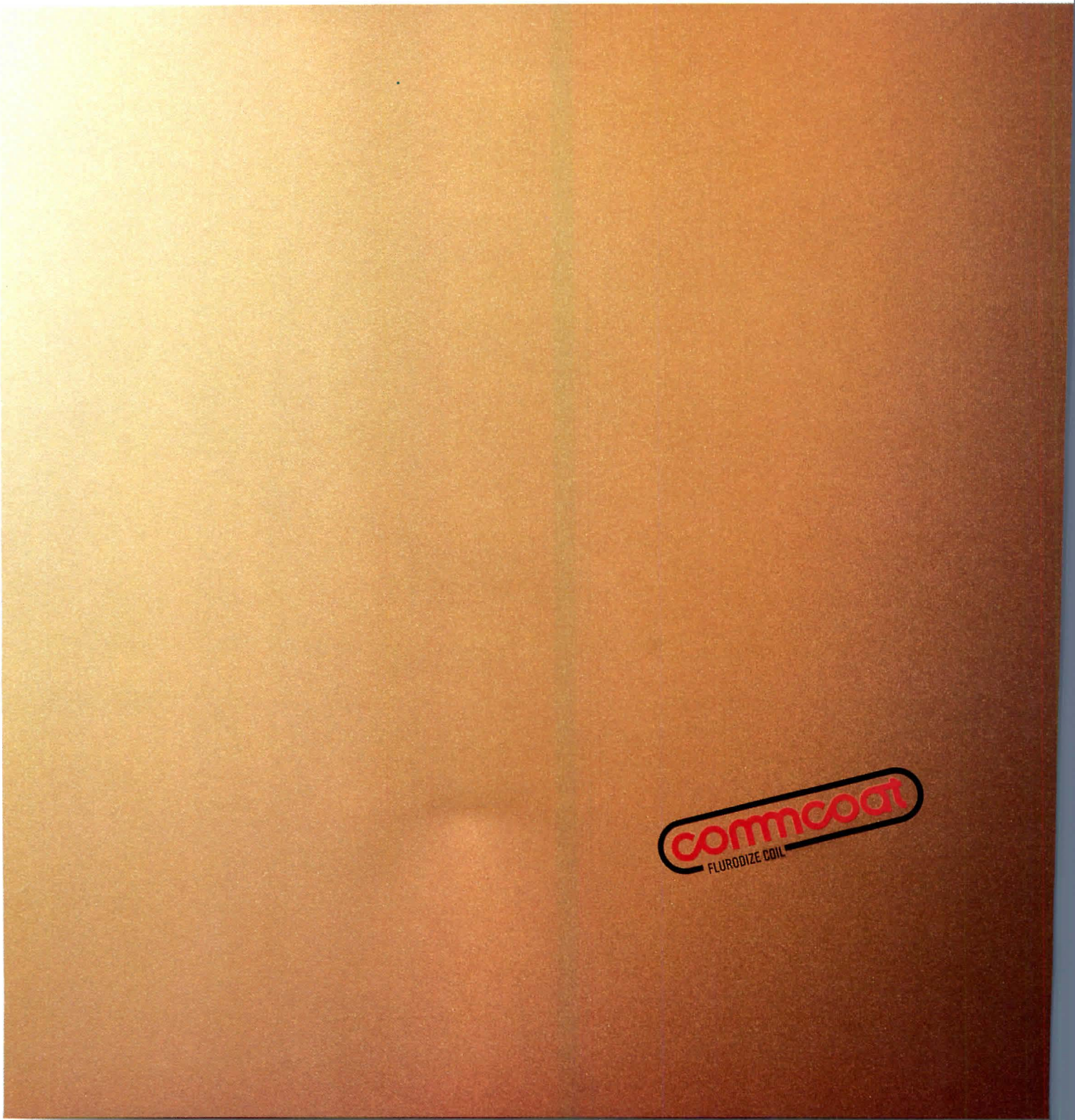
hurd WOOD WINDOWS

The ultimate wood window™

Comparison based on 1988 *Sweet's* mfrs. specs. Andersen Windowall, Marvin, and Pella are registered trademarks of Andersen Corp., Marvin Windows, and the Rolscreen Co., respectively. Heat Mirror is a registered trademark of Southwall Technologies Inc.

Circle 25 on inquiry card

The new surface anodized can't match.



What you see here is a brand new building material. Commcoat™ Flurodize® Coil.

The remarkable finish is made by bonding a Flurodize coating to our finest aluminum substrate, right in our rolling mill.

Commcoat looks a lot like anodized aluminum. Only better. And it comes in seven exciting colors. (Extrusions, too.)

For a price no higher than anodized.

But the difference is, Commcoat Flurodize Coil keeps on looking good year after year. With far less weathering, fading or staining than anodized.

Nor does its color vary from panel to panel. Or crack when sharply bent.

To get your hands on some, call any of these distributors: Petersen Aluminum Corporation, Wrisco Industries or Idéal Mét Inc. Laminated panels are produced by Alucobond Technologies.

Or call us at 1 (800) 556-1234, Ext. In California, 1 (800) 441-2345, Ext.

COMMONWEALTH ALUMINUM

Commcoat is a trademark of Commonwealth Aluminum Corp. Flurodize is a registered trademark of DeSoto, Inc.

Circle 26 on inquiry card


SCHLER WINDOWS AND DOORS. UNCOMMON. UNCOMPROMISING.
TISCHLER UND SOHN
Made in Germany since 1888.
67 Holly Hill Lane Greenwich, CT 06830 USA
Telephone 203/622-8486 Telefax 203/622-8558
Circle 27 on inquiry card

YOUR Automation EDGE

The Reason You *Must* Attend

Whether you design, engineer, manage or build, you need the right automation tools to maintain your competitive edge.

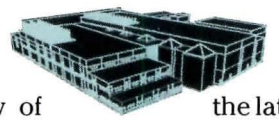
The AEC EXPO Show helps power your business with new computer-aided technologies in graphics & marketing, business management, maintenance & operations, system integration, and more. It's not just CAD. It's *everything* you need to build your automation edge. Interact with the experts during three days of **Conference "Super Sessions."** They'll tell you how to use and integrate the latest AEC technologies. Get super-practical advice. Debate current trends with your peers. Discover proven-successful strategies for implementing ideas that work–right away... ideas like high-tech marketing, advanced 3-D CAD, total business management, and networking.

New For 1988...

- ***Enhancement Center For AutoCAD* Users***
- ***Microstation Mall Featuring Intergraph Plus 25 Developers***

Call 800-873-EXPO
(9 to 5 EST)

Free Show Tickets & Product Catalog Call for free show tickets, conference programs, and a preview of the latest automation systems. Just a glimpse of the thousands of automation solutions you'll find when you attend the AEC EXPO.



1988
The Show & Conference for Architects & Engineers
AEC EXPO

Javits Convention Center · New York City · December 6-8, 1988

AEC EXPO is not affiliated with the A/E/C Systems show or its sponsors. AEC EXPO is a service mark of Expoconsul International, Inc. *The Enhancement Center for AutoCAD Users is not sponsored by or affiliated with Autodesk, Inc. (Images courtesy of Russo+ Sonder, Architects P.C. and CUH2A)

ally, vinyl siding for people
o hate vinyl siding.

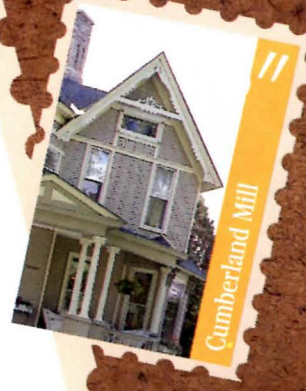
RESTORATION COLLECTION®

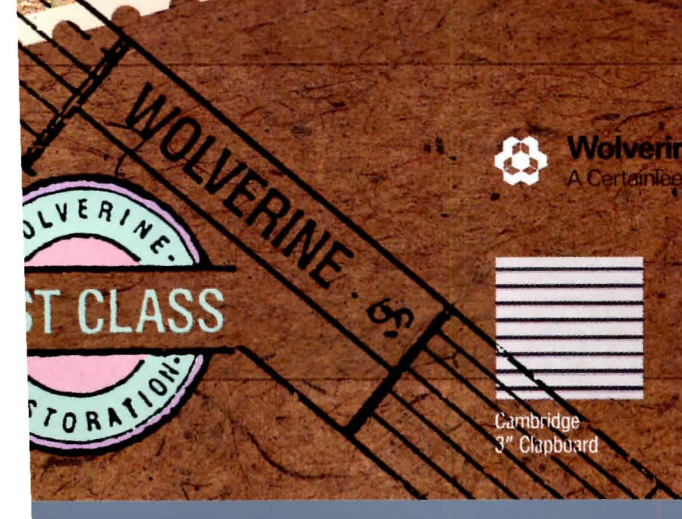
Some readers will see the words "vinyl siding" and turn the page. Their loss. In our view, the news that Restoration® premium vinyl siding is now available in five distinctive styles and profiles is pretty heady stuff.

Still, it would all be academic if the siding choices in the new Restoration Collection® didn't complement your project in the first place. They do. Because each new selection features the satin-smooth, low-gloss finish perfected by Wolverine back in 1983. In fact, it's the same "no fake wood grain" finish, in heritage-inspired profiles, that's made Restoration the non-wood siding of choice—even with Historical Commissions.

If that fact alone doesn't make you want to run out and side something, at least keep us in mind. Because now when you want the best-looking vinyl siding there is, you get to choose among 3" clapboard, rolled edge, 3" or 4½" Dutch Lap, or even 6" beaded styles. They're all in the Restoration Collection. All premium vinyl. All from Wolverine.

So if you'd like more information and rather not use a stamp to get it, call toll-free: **1-800-521-9200.**





Wolverine Technologies
A Certainteed Company

Cambridge 3" Clapboard | Chapel Hill 6" Beaded | Cumberland Mill 3" Dutch Lap | Stockbridge 4½" Dutch Lap | Monterey 3" Rolled Edge

Circle 28 on inquiry card

Break away from this sort of thing!

EKKI timbers don't do this sort of thing.

EKKI (Bongossi/Azobe) hardwood has the characteristics you associate with steel and concrete. Strength and durability.

EKKI also has one thing neither steel nor concrete will ever have: The enduring beauty of natural hardwood. And, EKKI has durability that soft pines or other wood simply cannot offer.

EKKI is so strong, so durable, it needs no chemical treatment. None whatsoever. EKKI also fends off insects, decay, vandalism — even fire!

Environmentally, EKKI is perfect. It presents no hazards at all. Think what a boon that is to installation crews, the people who erect bridges, build docks, piers, and fender systems.

HWH Corporation is an affiliate of The GWZ Group, The Netherlands, which has 90 years of experience working with this wonderful wood. We can design, engineer or fabricate your hardwood structure. We can and we will.

Make a break away from the way certain projects are always done at your place. Call Dave Harkins, our Director of Marketing at 215-661-2000. Tell him about your next project. Discover the benefits you get when you opt for EKKI.

One will almost surely be cost effectiveness.

Working with EKKI frequently reduces the amount of material you need by one-third.

Not bad. Not bad at all!

Please send literature on:

- ☐ EKKI Hardwood
- ☐ Bridges
- ☐ Design & Material Services
- ☐ Landscape Applicat
- ☐ Marine Constructi
- ☐ Other Applications

Name

Title

Company

Address

Phone

☐ Please call ASAP to discuss an immediate requir

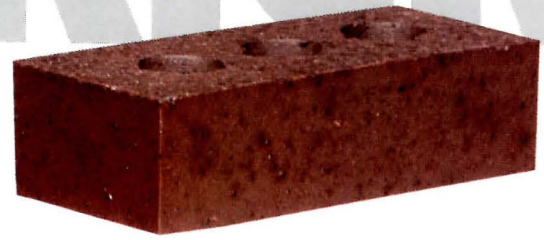
EKKI does what you never thought wood could!

HWH

P.O. Box 549 ■ 204 Progress Drive
Montgomeryville, PA 18936

Circle 29 on inquiry card

A BRICK IS A BRICK IS A BRICK



At Belden, brick is any one of over 200 choices of colors, textures, and sizes.

At Belden, brick is also an undetermined number of different shapes. Through the years, we've custom-made brick in hundreds of special shapes to meet individual design requirements. And because of the dynamics of architectural imagination, we expect to make hundreds more.

Accordingly, if you ask what shape Belden Brick is in, the answer will likely change from week to week.

THE Belden Brick COMPANY
CANTON, OHIO 44701
216-456-0031

Circle 30 on inquiry card

HOME IS WHERE THE HEART IS

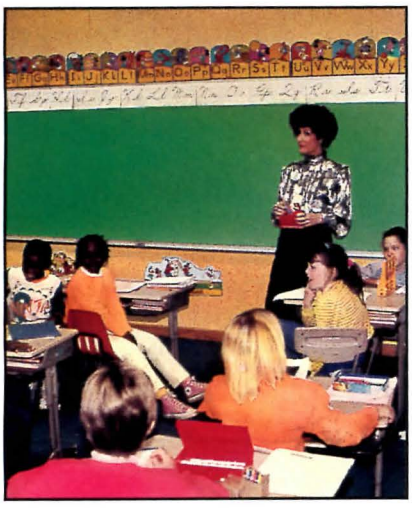
THE METROPOLITAN HOME SHOWHOUSE TO BENEFIT DIFFA DESIGN INDUSTRIES FOUNDATION FOR AIDS

SHOP THE MET HOME SHOP

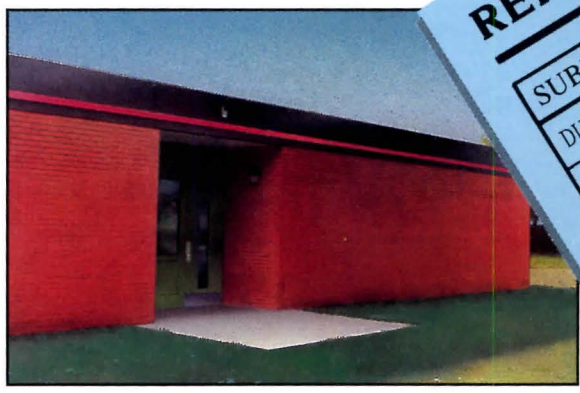
Milton Glaser

BESTEEL®

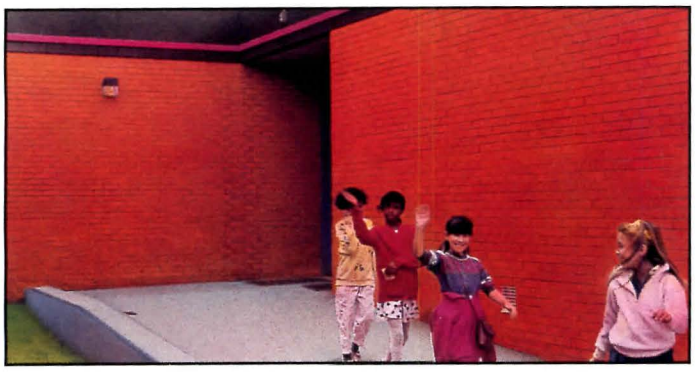
STANDS OUT IN THE CLASSROOM BECAUSE WE'VE DONE OUR HOMEWORK



A BESTEEL modular classroom is the fast track, high quality solution to student overcrowding and rising construction costs. Ask hundreds of school board members, school administrative officials, architects, principals, teachers and students nationwide. For over 30 years, as one of the nation's leading manufacturers of modular building systems, we've done our homework and built our reputation on research, design, development and installation of classrooms which provide a "permanent" solution to population surges yet are relocatable for flexibility. Whether your present need is for a single classroom or a complete campus, we understand education—the needs and the problems—and can work best with you to provide on-time delivery to meet your schedule. BESTEEL structures can be ready in as little as 30 to 45 days from the day permits are granted.



BESTEEL modular classrooms are constructed with rigid steel frames and structural components all designed to withstand the stress of time and relocation. Our non-combustible buildings meet the most stringent state requirements, yet are cost-effective and relatively maintenance free.



Compared to traditional buildings of conventional construction methods, our classrooms have more structural steel combined with concrete and glass which provides a longer lifecycle for a safe, quiet and comfortable educational environment. For more information including lease and finance assistance, mail the coupon below today or call 1-800-BESTEEL.

PLEASE SEND ME INFORMATION ABOUT BESTEEL'S MODULAR BUILDING SYSTEMS. OUR TARGET COMPLETION DATE IS APPROXIMATELY _____ I ☐ AM ☐ AM NOT INTERESTED IN LEASING.
NAME _____ TITLE _____ SCHOOL/SYSTEM _____
ADDRESS _____ CITY/STATE/ZIP _____
TELEPHONE ( ) _____
MAIL TO: BESTEEL / 1199 SOUTH FULLERTON ROAD / INDUSTRY, CA 91748

BESTEEL®

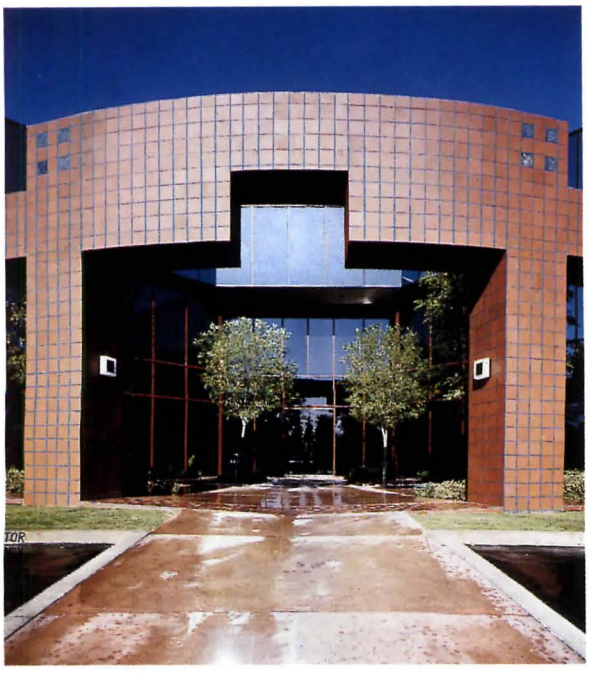
1-800-BESTEEL

Circle 33 on inquiry card

polyblend

no fault!

grout



Non-Shading! New "no-fault" Polyblend is revolutionary because it is the only ceramic tile grout specifically designed to eliminate shading. It is also more stain and mildew resistant, applies faster and easier, has increased bond strength and adhesion... *without* the use of latex additives or admixes. Just add water and you get the most dense, smooth surface ever. Based on latest polymer chemistry, new "no-fault" Polyblend is available in a spectrum of 47 colors. For more information and color cards, contact your Custom distributor or call us today.

CUSTOM BUILDING PRODUCTS

6511 SALT LAKE AVENUE, BELL, CA 90201 (213) 582-0846
1713 109TH ST., GRAND PRAIRIE, TX 75050 (214) 641-6996
2125 SWEETWATER INDUSTRIAL BL., LITHIA SPRINGS, GA 30057

Circle 34 on inquiry card

sto®

IF YOU DIDN'T NEED A PUNCTURE PROOF EIFS, THIS AD WOULD BE POINTLESS

But if your structure requires an exterior wall system that's puncture-resistant, as well as tough, attractive, thick, rigid, mechanically fastened, thermal, water resistant and durable—then we have only one point to make: Call your STO representative about TOUGHWALL, the new EIFS that combines STYROFOAM® Brand Insulation, manufactured by the Dow Chemical Company and the best of STO technology into one system that meets your building needs.

Dow® Styrofoam® BRAND

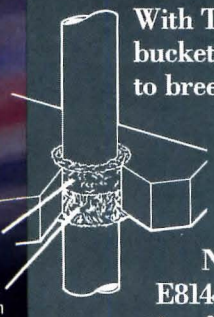
STO INDUSTRIES, INC.
Quality Lane, Box 219
Rutland, VT 05701
Tel: 802-775-4117
Telex: 95-4651
Fax: 802-775-9663

A subsidiary of STO Corp, the Systems Technology Organization

Circle 35 on inquiry card for literature

Circle 36 on inquiry card to speak with a Sales Representative

The non-stop fire/smoke stop.



The savings never end. Because the THE FIBER™ Fire/SmokeStop System saves on initial n cost as well as installed cost. You combine econom life-saving dual protection against both fire and sn

With THERMAFIBER Safing and the big 5 bucket of SMOKE-SEAL Compound, it's ea to breeze through sealing of poke-through penetrations. There's no stopping to re-load. And no framing or bracing things down. (Also available in 30-o and 3.5 gal. pail.)

Note this system has been tested per E814 and is UL-Classified as a poke-thro penetration fire stop. In addition, USG Research tested the system to conclusively demonstrate its tiveness as a smoke stop.

Start saving with the THERMAFIBER Fire/Smol System. Write: Thermafiber Division, USG Inter Inc., 101 S. Wacker Drive, Chicago, IL 60606-43 Dept. AR988

Interiors from every angle.

USG Interiors, Inc.
Thermafiber Division

CLASSIFIED UL

FILL, VOID OR CAVITY MATERIALS
CLASSIFIED BY UNDERWRITERS LABORATORIES INC.
FOR USE IN THROUGH-PENETRATION FIRE STOP
SYSTEMS NUMBER 165

USG

Circle 37 on inquiry card

Society of Marketing Professional Services to present print and audiovisual awards

Awards for the best marketing programs in 11 categories will be presented at the SMPS annual meeting this month. (First prize in the advertising category in last year's program [photo] went to design-builders Sverdrup Corporation for efforts toward breaking into the interior-design market with the advertising campaign, "consider the occupant.")

"Marketing leadership," the theme of the meeting, which will be held Sept. 13 to 16 at the Fairmont Hotel in Dallas, will be addressed by keynote speaker Jack Morris Rains, currently the Secretary of State of Texas and formerly the president of architects Neuhaus & Taylor, now 3/D International. Convention programs will be directed toward leadership in domestic and international markets, and topics will include the liabilities of marketing, the potential of marketing facilities-management services, and integrating marketing and technical staffs.

The 3,700-member SMPS is an international marketing organization for planning, construction management, and architectural-, engineering-, interior-, and landscape-design firms. For information, contact Barbara Blake, Society of Marketing Professional Services, 801 N. Fairfax St., Suite 215, Alexandria, Va. 22314 (703/549-6117).

Better resolution of disputes on the way in federal work?

A House judiciary subcommittee has tentatively embraced the use of such dispute-resolution methods as mediation on architectural and engineering work for the federal government. The subcommittee cited increasing successful use in the private sector. Two bills have been introduced in the House and the Senate that would allow the Federal Mediation and Conciliation Service to step in when disputes arise (H. R. 3052 and S. 2274). But, proceeding with usual government speed, the subcommittee anticipates little action of its own until next year at the earliest.

Use of surety bonds increases for private construction

Surety bonds that protect against building contractor failure, long mandatory in public work, are found to be on the rise in private work as well, according to a joint survey of 4,500 design professionals, attorneys, and lending institutions by the Surety Association of America and the National Association of Bond Producers. According to SAA president Lloyd Provost, contractors have the highest failure rate of any business. And the situation would not seem to be improving. Some 80 percent of respondents reported increasing loss frequencies and per-loss amounts and saw scarcely any better record for established contractors than for the unestablished. Of the architects and engineeers, 82 percent recommend surety bonds for *private work*. The survey is available from the SAA, 100 Wood Ave., S., Iselin, N. J. 08837 or NASBP, 6931 Arlington Rd., Bethesda, Md. 20814.

Better copyright protection to be extended abroad

Among the issues in the sweeping trade bill passed by the Senate in early August is action against countries that violate American intellectual-property rights, such as copyrights, and strengthening of the Trade Development Program. The House of Representatives passed an identical bill in July, and President Reagan indicated he would sign the measure.

Better international copyright protection has been of concern to architects and engineers in the past, and the International Engineering and Construction Industry Council has long advocated improving the trade-development program.

The bill will make it easier to get intellectual-property-rights protection from the U. S. International Trade Commission and will make it a violation of U. S. patent law to import into the United States that which is produced abroad, including architectural plans, by the unauthorized use of the American patent processes.

The development program basically provides grants to foreign entities and companies to buy American engineering and architectural services.

Peter Hoffmann, World News, Washington, D. C.

The palette: Bluebell, Cameo, Lavande, Robin's Egg, Wisteria.

GYM DANDY

The assignment: design an audiovisual fitness center for a large insurance company in Hartford, Connecticut.

The media: WILSONART Color Quest® Decorative Laminates.

The design team: Laura Bordeaux, AFF, IBD and Mike Bartalotta, both of Hartford, Connecticut.

Bordeaux comments: "I wanted the center to be a complete departure from anything institutional; a playful environment, designed to motivate employees past the door and through their workouts. WILSONART Color Quest proved to be the perfect vehicle. It gave me the selection I needed. And the palette to color coordinate everything from the carpet to the clock's secondhand."

The result: A happy, healthy insurance company.

HOTLINE

If you have a project you think belongs in this space, please call us.

For design details, and immediate delivery (within 24 hours) of product or 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 38 on inquiry card

Construction-economy update: For the short-term, volume is going the wrong way

By George A. Christie

Just when the nation's economy got a new lease on life via the booming export market, 1988 brought a parting of the ways for its inwardly directed construction sector. Contracting for new construction fell sharply in the first quarter, and failed to rebound in the second.

There is no great mystery surrounding the cause of the construction market's weakness. Rising interest rates and the tight lid on federal spending are handicaps, but they are not directly responsible for the 1988 decline. The single biggest issue continues to be the backlash of the mid-1980s' "tax shelter" boom. After producing a five-year supply of offices and apartments in four hectic years of overbuilding (1983-1986), the market is still only part way into the process of digesting its extra year's output. And now, the threat of increased monetary restraint, if and when inflation worsens, adds an external dimension to the construction industry's essentially internal problems. Without monetary restraint, construction activity is already sagging under the weight of its surplus commercial buildings. With monetary restraint, credit-sensitive single-family houses would become vulnerable as well.

Geography is giving the construction market's downturn a special twist. The mid-1980s' building cycle began and ended at different times in various regions. The peak was reached first in the South Central (early 1983), next in the West (late 1986), then in the North Central (mid 1987), and finally in the East (late 1987). Through 1987 there was still enough support coming from the latter regions to carry last year's national total of construction-contract value to a higher level. Since the end of 1987, however, all regions have lapsed into decline.

The 1988 construction outlook has been a downer from the start. If anything, the situation has deteriorated, though slightly.

Last fall's Dodge/Sweet's forecast of a 3-percent decline of total construction-contract value in 1988 stressed the need for deeper cuts of office and apartment building as vacancy rates hung stubbornly high despite reduced building in 1986 and 1987. Contracting for all nonresidential building would be held to a 4-percent decline as industrial and institutional-building markets served as stabilizers. Similarly, total residential building, supported by single-family-housing demand, would be limited to a 2-percent decline. Public-works construction (less federal, more local) was expected to provide some additional stability. The result: a gentle letdown from the peak of a five-year expansion of the construction sector.

The previous version of this update (RECORD, April 1988, page 39) found things progressing pretty much as expected. Declines were evident in both nonresidential building and housing, while public-works construction was, indeed, holding even with 1987. One necessary modification, however, was an adjustment of institutional building, which has not come through with the expected gain this year. As institutional building turned negative, and with commercial building falling just a little faster than forecast, total nonresidential building was exposed to a bigger decline in 1988—7 percent versus the original forecast of 4 percent.

Housing was a judgment call in the previous update. Early 1988 housing starts were clearly below the 1,525,000 units forecast for the year. Yet, it could be argued that the sharp decline of interest rates that followed the Wall Street crash hadn't yet stimulated housing demand because potential home buyers were still in financial shock. Assuming that mortgage rates would remain below 10 percent through most of 1988, it seemed reasonable at the time that a delayed response would be forthcoming, so the original forecast of 1988 residential-building-contract value (–2 percent) was not changed.

For the most part, adjustments made in that update to the 1988 construction forecast were small ones (the single exception was commercial building). At that time, it was clear that total construction-contract value was heading for a somewhat steeper decline than the original forecast of 3 percent, perhaps closer to 4 percent. Now, mainly because the gamble on a spring recovery of housing starts failed to pay off, some further downgrading of the 1988 potential is appropriate.

There has been a weak volume of residential building through the first half of 1988

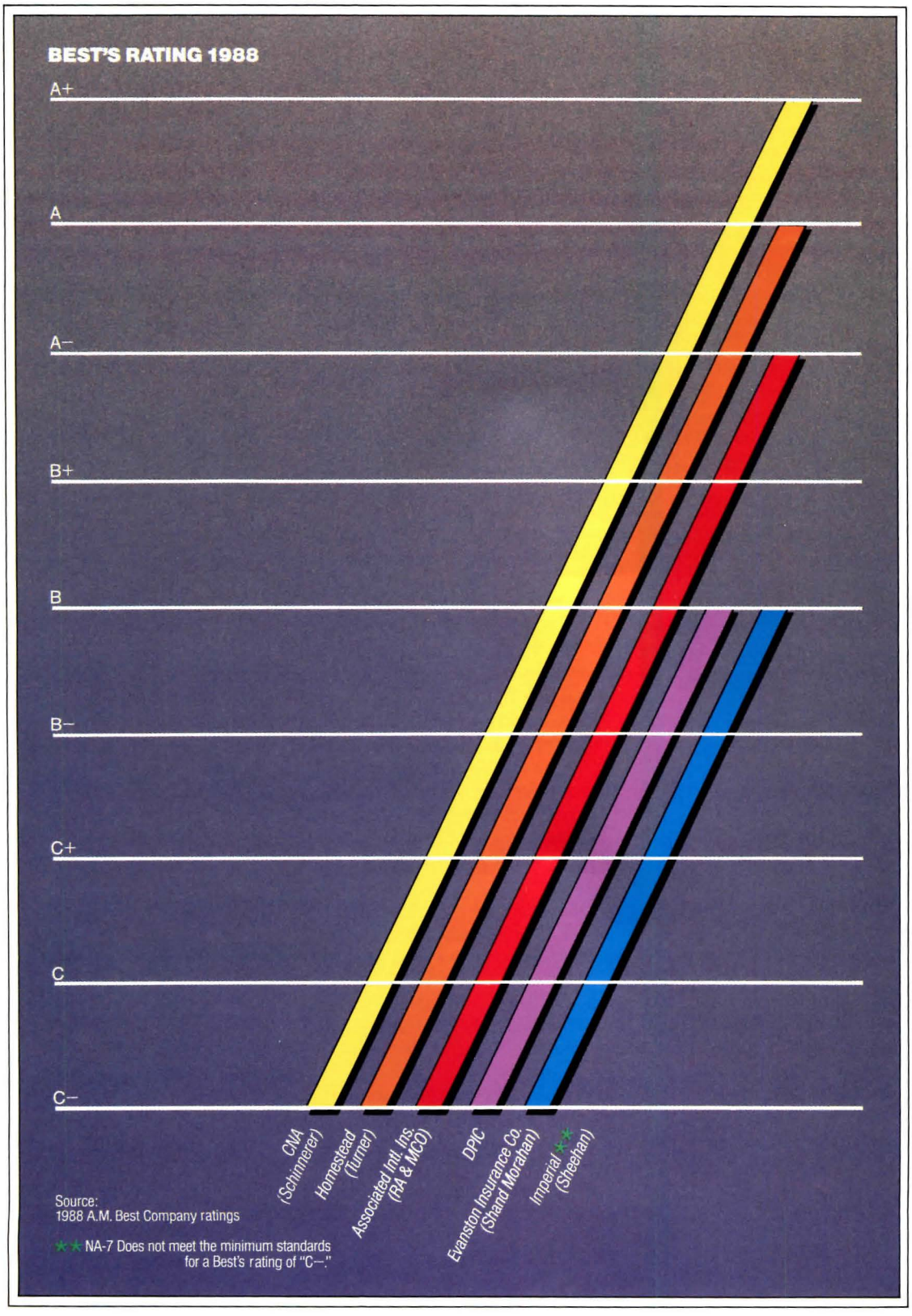
Hence, it seems highly unlikely that the full year's total will reach 1.500 million units, much less the original forecast of 1.525 million. To date (i.e., through May), 1988 housing starts, as reported by F. W. Dodge, have averaged only a little over 1.4-million units. More ominous is the second quarter, when some improvement over the weak volume of the early months was expected. Starts slipped even lower. From here, it would take a rate of just over 1.6-million housing starts in the balance of the year to bring the 1988 total to 1.525 million. That would be a minor miracle.

The shortfall of housing so far in 1988 has been confined almost entirely to apartments. First-half starts of multifamily units averaged just under 450,000 (annualized), a surprising 25 percent below the 1987 total. Surprising because, after sharp back-to-back declines in 1986 (–11 percent) and 1987 (–25 percent), apartment starts by then had

Continued on page 39

)ared by the Economics artment McGraw-Hill rmation Services pany, George A. Christie, president and chief omist.

The A, B, C's of professional liability insurance companies.



Financial advisors recommend comparing the A.M. Best Company rating of financial strength when you select an insurance company. This rating is important to you as a strong indicator of a company's future performance and stability.

According to the National Association of Insurance Commissioners (NAIC), between 1981 and 1987 the number of insolvencies for insurance companies licensed in at least two states increased by over 600%. If this should happen to your insurer, you can be left uncovered if a claim occurs.

CNA, the largest insurance organization offering liability insurance to architects and engineers, has earned an A+, Best's highest rating. This measure of excellence is a reflection of our management strength and our ability to meet our obligations now and in the future.

This didn't happen overnight. CNA and Victor O. Schinnerer & Company, Inc. have offered professional liability protection continuously since 1957.*

Today our program offers you more choices than any other to help you manage your insurance costs by letting you match your coverage to your needs. We also offer extensive loss prevention seminars, newsletters and other guidelines to help you minimize claims. But, if one should arise, we maintain claims offices throughout the country to help you.

If you want a quality professional liability program that has the financial strength to be there when you really need it, have your independent agent contact Schinnerer.

*CNA/Schinnerer is proud to have earned the commendation of the AIA and NSPE/PEPP.

Victor O. Schinnerer & Company, Inc.

Underwriting Manager
Two Wisconsin Circle
Chevy Chase, MD 20815-7003
(301) 961-9800, Telex 892340

Chicago, (312) 565-2424
New York, (212) 344-1000
San Francisco, (415) 495-3444

CNA
For All the Commitments You Make

Coverage for this program is provided by Continental Casualty Company, one of the CNA Insurance Companies.

Circle 39 on inquiry card

1988 National Estimates
Dodge Construction Potentials

Second Update July 1988

Nonresidential Buildings	1987 Actual	1988 Forecast	Percent Change 1988/87
Office Buildings	275	225	−18
Stores & Other Commercial	585	510	−13
Manufacturing Buildings	158	160	+ 1
Total Commercial & Manufacturing	1,018	895	−12
Educational	126	121	− 4
Hospital & Health	79	74	− 6
Other Nonresidential Buildings	157	150	− 4
Total Institutional & Other	362	345	− 5
Total Nonresidential Buildings	1,380	1,240	−10
Office Buildings	$ 22,777	$ 19,475	−14
Stores & Other Commercial	24,483	21,625	−12
Manufacturing Buildings	8,458	8,275	− 2
Total Commercial & Manufacturing	$ 55,718	$ 49,375	−11
Educational	$ 11,896	$ 11,925	—
Hospital & Health	8,851	8,325	− 6
Other Nonresidential Buildings	14,295	13,775	− 4
Total Institutional & Other	$ 35,042	$ 34,025	− 3
Total Nonresidential Buildings	$ 90,760	$ 83,400	− 8
Residential Buildings			
One Family Houses	1,019	970	− 5
Multifamily Housing	575	480	−17
Total Housekeeping Residential	1,594	1,450	− 9
One Family Houses	1,690	1,617	− 4
Multifamily Housing	596	492	−17
Nonhousekeeping Residential	85	78	− 8
Total Residential Buildings	2,371	2,187	− 8
One Family Houses	$ 86,636	$ 86,800	—
Multifamily Housing	27,342	23,550	−14
Nonhousekeeping Residential	7,215	6,700	− 7
Total Residential Buildings	$121,193	$117,050	− 3
Nonbuilding Construction			
Transportation Construction	$ 27,484	$ 26,850	− 2
Environmental Construction	14,959	15,400	+ 3
Total Public Works	$ 42,443	$ 42,250	—
Utilities	$ 3,225	$ 3,300	+ 2
Total Nonbuilding Construction	$ 45,668	$ 45,550	—
Total Construction			
Total Construction	$257,621	$246,000	− 5
Dodge Index (1982 = 100)	164	157	

V. Dodge basis.

reached a rate that was sufficiently below current demand to gradually work off the surplus created during the mid-1980s when starts soared to a peak of 850,000 units.

The revised 1988 estimate of 480,000 multifamily units (which implies a slightly higher second-half rate of building) means a reduction of between 15 and 20 percent from the 1987 total—the third double-digit decline since 1986! The consolation prize: faster absorption of vacant units, and an earlier recovery.

Single-family house building, originally forecast at 975,000 units in 1988 (5 percent below last year's total), was exactly on target during the first half. In the spirit of "if it ain't broke, don't fix it," this looks like a good one to leave alone. The risk is on the down side, however, as mounting inflationary pressures force interest rates up and housing starts down toward year's-end. Experience, on the other hand, teaches that the inflation-to-credit-to-housing linkage will not interact quickly enough to be much of a problem in 1988.

This mid-1988 re-evaluation of the housing market requires a reduction of the full year's potential to 1.450-million housing starts (F. W. Dodge basis), a decline that is closer to 10 percent than the original forecast of 5 percent. The value of 1988 housing output will shrink only about 3 percent, however, for two reasons. Most of the 9-percent decline of housing units will take place in apartments, which average only a little more than half the cost of single-family houses. Moreover, the cost of all new housing this year is up a higher-than-expected 6 percent.

Aside from changes for the housing sector, the previous update seems to have captured the important aspects of how 1988 is coming along. Only a bit of fine-tuning is needed now.

Projections for nonresidential building remain on target

At 1.240-billion square feet ($83.4-billion contract value), the composition of this group of commercial, industrial, and institutional buildings has been altered slightly. First-half results revealed just a bit more strength in commercial building (stores/warehouses, but not offices) than was apparent before. More intriguing is the behavior of industrial construction so far this year. With unused manufacturing capacity disappearing rapidly under the pressure of export demand, plans for 1988 business capital spending have been revised upward, from an increase of 6 percent last November to 10 percent as of May. Through midyear, however, contracting for new manufacturing plants was running behind its 1987 total. Unless industry is investing exclusively in machinery and equipment this year, a stronger second-half rate of building is in the offing. Meanwhile, the outlook for institutional building, at −3 percent, has changed little either in total or in its main components.

Public-works construction appears to be fulfilling expectations of "no change" from 1987's total contract value. It is worth restating, though, that this year's $42.3-billion total consists of roughly half a billion *less* highway and other-transportation construction and much *more* environmental work (water-resources and waste-treatment facilities, etc.).

The evolution of the 1988 construction outlook has been a process of progressive downsizing—first in commercial building, then in housing—as new information became available. The direction was never in doubt, but what started off as a 3-percent decline in October subsequently became a

Continued on page 41

The warmth of traditional stucco without the worry of doing it over. DUROCK system-matched components help you **do it right.** DUROCK Exterior Cement Board, attaching screws, joint treatment, and DUROCK Exterior Basecoat and Finish are all designed together, to work together. To give you solid, strong attachment. To speed construction. To give you quality assurance from the leader in construction technology—United States Gypsum Company.

Do it once, because the substrate resists dents and penetration. While the basecoat and elastomeric finish system withstand minor building movement, thermal expansion, and moisture.

Enduring beauty in stucco-looks or textures in a spectrum of creative colors. Do it all, once and for all with DUROCK Exterior Finish Systems. Write us at 101 S. Wacker Drive, Chicago, IL 60606-4385. Dept. AR988

DUROCK™

Exter
Fini
Sy

DUROCK System-Matched Components

United States Gypsum Company

Circle 40 on inquiry card

1988 Regional Estimates
Dodge Construction Potentials

Second Update July 1988

		1987 Actual	1988 Forecast	Percent Change 1988/87
Northeast	CT, ME, MA, NH, NJ, NY, PA, RI, VT			
Contract Value (millions of dollars)	**Nonresidential Buildings**			
	Commercial and Manufacturing	$11,671	$10,200	−13
	Institutional and Other	7,214	6,400	−11
	Total	$18,885	$16,600	−12
	Residential Buildings			
	One Family Houses	$14,175	$15,475	+ 9
	Multifamily Housing	6,824	5,800	−15
	Nonhousekeeping Residential	1,656	1,350	−18
	Total	$22,655	$22,625	—
	Nonbuilding Construction			
	Transportation	$ 5,042	$ 5,250	+ 4
	Environmental	3,047	3,375	+11
	Utilities	1,190	700	−41
	Total	$ 9,279	$ 9,325	—
	Total Construction	$50,819	$48,550	− 4
North Central	IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI			
Contract Value (millions of dollars)	**Nonresidential Buildings**			
	Commercial and Manufacturing	$12,543	$11,575	− 8
	Institutional and Other	7,194	7,575	+ 5
	Total	$19,737	$19,150	− 3
	Residential Buildings			
	One Family Houses	$15,918	$17,000	+ 7
	Multifamily Housing	5,042	4,175	−17
	Nonhousekeeping Residential	1,270	1,100	−13
	Total	$22,230	$22,275	—
	Nonbuilding Construction			
	Transportation	$ 6,172	$ 5,975	− 3
	Environmental	3,266	3,175	− 3
	Utilities	399	900	+126
	Total	$ 9,837	$10,050	+ 2
	Total Construction	$51,804	$51,475	− 1
South	AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV	1987 Actual	1988 Forecast	Percent Change 1988/87
Contract Value (millions of dollars)	**Nonresidential Buildings**			
	Commercial and Manufacturing	$18,488	$16,000	−13
	Institutional and Other	12,767	12,275	− 4
	Total	$31,255	$28,275	−10
	Residential Buildings			
	One Family Houses	$33,986	$31,600	− 7
	Multifamily Housing	8,114	6,900	−15
	Nonhousekeeping Residential	1,970	2,025	+ 3
	Total	$44,070	$40,525	− 8
	Nonbuilding Construction			
	Transportation	$10,497	$ 9,825	− 6
	Environmental	5,925	5,950	—
	Utilities	903	750	−17
	Total	$17,325	$16,525	− 5
	Total Construction	$92,650	$85,325	− 8
West	AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY			
Contract Value (millions of dollars)	**Nonresidential Buildings**			
	Commercial and Manufacturing	$13,016	$11,600	−11
	Institutional and Other	7,867	7,775	− 1
	Total	$20,883	$19,375	− 7
	Residential Buildings			
	One Family Houses	$22,557	$22,725	+ 1
	Multifamily Housing	7,362	6,675	− 9
	Nonhousekeeping Residential	2,319	2,225	− 4
	Total	$32,238	$31,625	− 2
	Nonbuilding Construction			
	Transportation	$ 5,773	$ 5,800	—
	Environmental	2,721	2,900	+ 7
	Utilities	733	950	+30
	Total	$ 9,227	$ 9,650	+ 5
	Total Construction	$62,348	$60,650	− 3

4-percent one in February, and is now at 5 percent.

Construction activity in two major regions, the Northeast and the West, will be declining approximately in line with the national trend (i.e., close to 5 percent). At the extremes will be the South (8 percent), where falling energy prices are handicapping the area's economic recovery, and the North Central (1 percent), which is benefitting most from the export boom.

Quarterly measures of 1988 contracting show that the steepest drop has already taken place

That happened in the first quarter when contracting slipped 5 percent from last year's final quarter. But, although the rate of decline slowed to only 1 percent in the second quarter, the fundamentals haven't changed. Commercial building remains overdeveloped, public-works programs are capped, and housing is vulnerable to rising interest rates.

For at least three reasons, the odds are against a recovery of construction contracting in 1989. The surplus of office and apartment space, which is currently depressing these markets, will not be fully absorbed by the end of 1988. Public-works construction will remain under a tight lid. And interest rates will be rising.

The first two of this trio of handicaps are merely extensions of familiar conditions that brought about the 1988 downturn, and there is no quick fix. The third, higher interest rates, could be an additional layer of trouble for the construction sector in 1989.

Ironically, the harder the export boom drives the economy's industrial sector, the riskier the situation becomes for the construction industry. With industrial-capacity utilization at 83 percent and unemployment at 5 1/2 percent, there is only a small reserve for continued economic expansion before inflation crosses the 5-percent threshold. Mid-1988 measures of inflation were scary enough to make nervous bankers boost the prime rate half a point, but, so far, the Federal Reserve has been willing to go lightly on the monetary brakes.

How much inflation will the Fed tolerate? It is difficult to imagine that 5-percent inflation would not draw a strong response from the central bank, even at the risk of economic stagnation. Perfect fine-tuning would call for dampening 1989 demand just long enough to let capacity catch up. This is probably asking more than the blunt tools of economic policy-making can accomplish. Nevertheless, it is prudent to expect that the Federal Reserve will be bearing down harder by the end of 1988, and that interest rates will be rising in 1989—perhaps significantly. For the construction industry, 1989 could be the year of maximum stress.

How much more decline lies ahead? A minimum of three conditions must be met before the construction market reverses itself. A better supply/demand balance must be restored to the high-vacancy markets (offices and apartments); interest rates must be low enough to stimulate the credit-sensitive markets (single-family housing and institutional building); restraint on public projects must not be so severe that it offsets the turnaround of private-sector construction once it begins to take hold.

Of course, these three conditions will not fall into place simultaneously, nor is it necessary that they do. Enough improvement in the environment for construction will have occurred before the end of 1989 to look for signs of renewed expansion of construction contracting in 1990.

Sherwin-Williams introduces the cream of the crop.

Wouldn't a trimming of Creme make that elegant Peach color specification even richer? And isn't an Irish Cream soffit the perfect topping for a Peach Sorbet wall?

Ask Sherwin-Williams. About our new ColorAnswers system. And get tomorrow's color answers to today's design questions.

From Veronese Peach to Fresco Cream, ColorAnswers is over 800 of today's freshest colors. Tinted neutrals. Clear pastels. Refined deeptones. The colors today's architects and designers are specifying.

ColorAnswers is more than just the newest colors from the leader in the paint industry. It's a compact, convenient, and easy-to-use system.

Just select your color from the fan deck. Note the color's name and number. Find that color on the tab dividers in the color case. Then just pull out the swatch—a large, easy-to-work-with, 3⅝" x 4¼" sample that works for everything from pencil concepts to final elevations and paint color specifications.

With our new ColorAnswers™ system.

Call now for more information on Sherwin-Williams ColorAnswers. 1-800-321-8194. (In Ohio, 1-800-362-0903.)

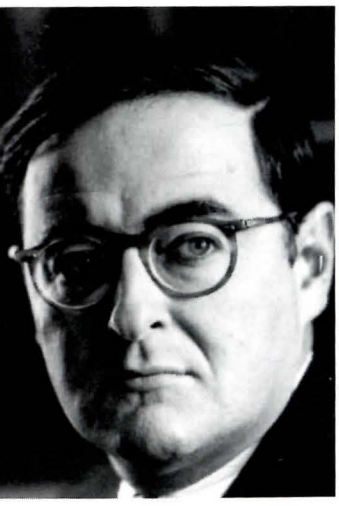
SHERWIN WILLIAMS

Ask Sherwin-Williams for ColorAnswers.

Practice: A fresh look at liability with strategies for protection

Arbitration, mediation, and contract covenants are alternate remedies in disputes with clients or contractors to avoid emptying your pockets over liability claims.

by Carl M. Sapers



My words come at a time when the future of the independent, professional practice of architecture is under an ominous cloud. Indeed, one school holds that the currency of the design-build method of project delivery and the increasing fashion of unbundling, with the owner contracting directly with each engineering discipline, is less a product of contractors' determination to dominate the construction process, or engineers to sidestep their historic role as subordinates, than the determination of architects to escape from the harsh realities of liability. Liability-coverage costs have doubled from four years ago. Insurers are harder to find than lovable lawyers. And lawyers manage to turn even the simplest dispute into major ornaments, burning up deductibles in the blinking of an eye. Multiparty litigation, with expensive and extensive pretrial discovery, has become so costly that most defendants caught in its jaws abandon all hope—even if they ultimately win, they lose.

Some suggest application to the legislature for relief. Doctors, suffering an equivalent problem, have generally failed in obtaining protective legislation, notwithstanding they are a more potent force in the community than architects. Some suggest that architects establish their own liability-insurance companies, but this nostrum wrongly implies that the cost of insurance is a result of bungling by existing insurance carriers when the truth is that insurance costs have risen with increased exposure to liability. Some suggest that owners who engage architects should agree by contract to indemnify architects from liability or, at worst, limit their own recovery against their architect to the fee paid or another stated dollar sum. As long as there are more architects than architectural commissions, seeking such contractual clauses is tilting at windmills.

Client claims are inescapable but can be less painful

Currently, some 60 percent of all claims are brought by owners directly against their architects, and it is the first part of my general theory that it inheres in the professional's relationship to his client that he cannot insulate himself from such claims. As my architect, you have a fiduciary duty to me to render decisions on my behalf, free of negligence. If you fail in that duty, you must be prepared to respond in damages. Note, precisely because you are a professional furnishing services that require the broad exercise of discretion, the law does not hold you to the more exacting standard that you always be right, but only that you faithfully perform without negligence.

It is inconsistent with that fiduciary role for the owner to be without redress if the architect performs faithlessly. But to say that 60 percent of the claims are inescapable is not to say that they need enrich the legal fraternity. Here, arbitration, mediation, and other forms of alternate dispute remedies less expensive than litigation, must be employed so as to avoid wasteful expense. In fact, I believe that a dispute between client and professional should never reach a public courtroom.

By alternate dispute remedies, I do not necessarily mean the usual American Arbitration Association system. In much of the country, that system offers a pale imitation of litigation, particularly when the association and the local law permit both extensive discovery and multi-party arbitration. It is also true that in some parts of the country the panel from which the AAA chooses its arbitrators comprises all too often superannuated lawyers, architects, and contractors who are delighted to make extra income by proceeding in a dilatory fashion with the dispute at hand.

There are clearly ways of streamlining the process so as to make it less expensive, productive of a fairer and a more consistent result, and less disruptive of the professional relationship between you and your client. In my judgment, the American Institute of Architects has an obligation to its membership to work with the AAA to achieve at least the following improvements in the existing arbitration system:

- Establishing panels of experienced developers, architects, and lawyers to compose three-person arbitration panels to hear all disputes between owners and architects.
- Developing further a pre-arbitration procedure involving mediation and regulating such discovery as is absolutely essential (but no more); and
- Persuading reluctant insurers to embrace arbitration and to appoint attorneys skilled in its uses rather than permitting arbitration only reluctantly and appointing attorneys more comfortable with litigation.

The ability of two parties to a contract to fashion their own form of dispute remedy is now beyond doubt. Moses H. Cone, Memorial Hospital v. Mercury Construction Corporation (103 S Ct 927, 1983) and cases that have followed show a specific application of the new federal substantive law of arbitration. The thrust of the recent legal development in this area is that the federal courts will respect and enforce specific agreements between two parties on how they plan to settle future disputes. The historic resistance of many courts to arbitration can no longer impair contractual understandings.

I am concerned with a new subset of owner claims against architects in an area that seems to be developing at a prodigious rate. These are claims brought by an owner's property-damage insurer under its subrogated right set forth in its insurance policy with an owner. The current AIA standard form includes a waiver of subrogation during the construction phase only. These suits, typically modest in the amount of the claim but expensive to defend, arise after the construction phase is concluded. Two years after substantial completion, a pipe bursts. The owner is paid by the property-damage insurer, and the property-damage insurer seeks recovery from others: the mark is inevitably the owner's architect. A very modest amendment to the standard form that provides for a permanent waiver of subrogation between owner and the architect would seem to deal with this problem effectively and fairly.

Continued on page 44

Sapers is a partner in the ton law firm of Hill & low. His clients include itects around the world. He djunct professor at the vard Graduate School of gn, where he teaches legal lems in design. In 1975, he ived the AIA Allied essions Medal, and, this year, elected Honorary AIA.

Contractor claims are another matter

The second part of my general theory concerns approximately 25 percent of the claims against architects—and clearly the most expensive and fastest growing part. These are claims by contractors, subcontractors, and their bonding companies. These are the most expensive claims because they invariably arise in multiparty litigation. They can be avoided if the owner, in his contractor contract, insists such potential claims be forbidden.

A typical clause in the owner-architect agreement under Article 15, Other Conditions or Services, might read:

The Owner agrees that it will include in its agreement with any Contractor and/or Construction Manager the following clauses:

15.1.1 The Owner and the Architect have acknowledged that nothing in the Architect's engagement implies any undertaking by the Architect for the benefit of or which may be enforced by the Contractor, its subcontractors, or the surety of any of them; it being understood that the Architect's obligations are to the Owner and that, in performing such obligations, the Architect may increase the burdens and expense of the Contractor, its subcontractors, or the surety of any of them.

15.1.2 The Contractor agrees to execute a separate letter agreement with the Architect which provides that (i) neither the Contractor, nor its subrogee or surety (collectively 'the Contractor'), will bring any civil suit, action or other proceeding in law, equity, or arbitration against the Architect or the officers, employees, agents, and servants of the Architect, for or on account of any cause of action which the Contractor may have arising out of or in any manner connected with the Project, and (ii) the Architect will not bring any civil suit, action, or other proceeding in law, equity, or arbitration against the Contractor or the officers, employees, agents, and servants of the Contractor, for or on account of any cause or action which the Architect may have arising out of or in any manner connected with the Project.

Unlike efforts to restrict the owner's right to recover against his professional architect, which I consider inconsistent with the architect's professional undertaking, restricting claims by the contractor against the architect is wholly consonant with the architect's fiduciary relationship. An architect cannot be expected to advance and defend his client's interest in relationship to the contractor if he is forced to protect himself against the potential claims by the contractor often arising specifically from the ardor with which he protected his client.

I believe that owners can be persuaded to accept this proposition and to insert in the contractor contracts covenants not to sue the architect.

Incidentally, with such covenants, you are not exposed to courtroom litigation as the forum for resolving construction-industry disputes. Your only potential disputes are with your client, and those will be settled privately in alternate dispute-remedies out of the courtroom.

Thirty years ago such covenants were unnecessary. The contractor's recovery was against the owner only, with whom he was said to be in "privity of contract." But in 1958, a federal court in California, where courts have often expanded plaintiff actions, held that an architect could be sued directly by a contractor who suffered economic loss at the architect's hands (United States v. Rogers & Rogers, 161 F. Supp. 132, S. D. Cal. 1958). State after state followed and now a majority of American jurisdictions allows contractors and subcontractors to sue architects higgledy-piggledy.

But the proposition is still not free of doubt. This whole line of cases afflicting the architectural profession springs, in fact, from the decision of Judge Cardozo (Glanzer v. Shepard, 233 N. Y. 236, 1922). In that case, Judge Cardozo allowed a purchaser of beans to sue the weigher of

eans directly when the latter's ertificate overstated the weight y 11,854 pounds. The judge cknowledged that the bean urchaser might be thought of s the third-party beneficiary of he contract between the seller nd the weigher, which resulted n the weigher issuing his weight ertificate upon which the urchaser relied; but he referred, he said, to reach the oal more simply:

he defendants, acting not asually nor as mere servants, ut in the pursuit of an ndependent calling, weighed nd certified at the order of one ith the very end and aim of haping the conduct of nother.

Cardozo concluded that the ean weigher owed the same uty to the plaintiff as he owed o the party who employed him. o cite Glanzer, as modern ourts do, to support contractor uits against architects is to turn ardozo's proposition on its ead. For surely no one familiar ith the construction industry ould claim that the contractor as the "end and aim" of the owner's contract with his architect. The architect does not owe the same duty to the contractor as to his client. Indeed, his client duty may compel him to make life most uncomfortable for contractors.

The architect in this respect is like every other professional fiduciary; his duty of unalloyed loyalty to his client excludes his assuming a duty to contractors.

Regrettably, none of the handful of cases holding architects liable to contractors has analyzed the issue in terms of the architect as a professional; fortunately, most of the cases considering the application of Glanzer to lawyers have turned on precisely that point. Accordingly, it is useful to review those cases when dealing with the practical policy considerations at stake. The only cases finding a lawyer liable to a party other than his client are those in which the third party was clearly the beneficiary of the undertaking of the lawyer: The lawyer has negligently prepared a will or permitted its execution without complying with the law or loses a case for a credit agency in collecting a claim. But in all other circumstances, except cases of fraud, no third-party recovery against the lawyer has been permitted.

Even California has resisted the attempt to expand the lawyer's exposure. In the leading case of Goodman v. Kennedy, 18 Cal. 3d 335 (1976), the court affirmed that privity of contract was not essential to recovery, but then held:

To make an attorney liable for negligent confidential advice not only to the client who enters an action in reliance upon the advice but also to the other parties to the transaction with whom the client deals at arm's length would inject undesirable self-protective reservations into the attorney's counseling role . . . . The result would be both 'an undue burden on the profession' and a diminution in the quality of the [the client's] legal services.

As two recent cases have held, a lawyer has no duty to his adversary beyond courtesy; any other duty would interfere with the undivided loyalty an attorney owes his client.

Before the reader despairs that only lawyers receive justice at the hands of our courts, take heart from the fact that two important courts, within the year, have denied contractors claims against architects. One of these courts was applying New York law and concluded, in substance, that Judge Cardozo would doubtlessly have reached the same conclusion were he alive today. So architects, by the covenant not to sue, may avoid contractor claims and may, by more effective advocacy, defend such claims even in the absence of such covenants.

All of this general theory is based upon the conviction that most architects still practice in the traditional role of fiduciary, preferring their client's interests over their own. Such architects should be held accountable to their clients for breach of trust or negligence only and should not under any circumstances be held accountable to contractors, subcontractors, or their sureties for their economic loss.

THIS SCHOOL OFFERS AN ADVANCED COURSE IN WINDOW TECHNOLOG

When they decided to renovate and reopen the 93 year-old elementary school in Telluride, Colorado, they decided to install Marvin Magnum windows.

Smart. Magnums are among the best-performing wood windows in the world. Whether it's positive wind load, negative wind load, air or water infiltration, they'll handle all the weather the Rocky Mountains can dish out.

Because we make windows to order, we could incorporate Magnum performance features into historically accurate replicas. At the same time, we could include custom features such as a special brick mold casing and a durable polycron exterior finish.

Our made-to-order approach meant our windows fit better. And, working closely with the contractor, we were able to deliver on schedule.

The entire project was a textbook exercise in the benefits of using made-to-order windows in renovation. And when it comes to making windows to order, we wrote the book.

For more information, call us toll-free at 1-800-328-0268 (in Minnesota, dial 1-612-854-1464; in Canada, 1-800-263-6161). Or just write Marvin Windows, 8043 24th Avenue South, Minneapolis, MN 55425.

MARVIN WINDOWS ARE MADE TO ORDER.

Circle 43 on inquiry card

Before you look at another insulated door, st look at one of the places Tri-Core has insulated.

The Eagle River, Alaska, Municipal Building has to in extremes that can range fifty degrees on either of freezing.

That's why you see Raynor Tri-Core doors on it.

Raynor Tri-Core comes with a unique, three-inch insulated core of polystyrene that retains its ating properties over time. A patented mechan- interlocked thermal break for maximum thermal performance. And perimeter seals to reduce air infiltration. It's as close as you can come to keeping the weather just like Spring on the inside. No matter what the weather is like on the outside.

For free design manual, call 1-800-545-0455 or look in the Yellow Pages under "Doors".

RAYNOR GARAGE DOORS

Circle 46 on inquiry card

TCS and the Corporate Ediface

In designing the new United Airlines Terminal at O'Hare, Helmut Jahn has made an architectural statement that is memorable for its appearance and exciting in its distinction as one of the most outstanding airport terminals in the world.

So as not to repeat the typical spiritless and dismal environment so common to such facilities, Jahn uses conceptual clarity in the choice and combination of materials.

Happily, TCS (terne-coated stainless) is used to cover the folded roof sections of the Ticketing Pavilion. Already having weathered to an attractive, warm gray, TCS quietly contributes to the overall beauty of the terminal's total visual eloquence.

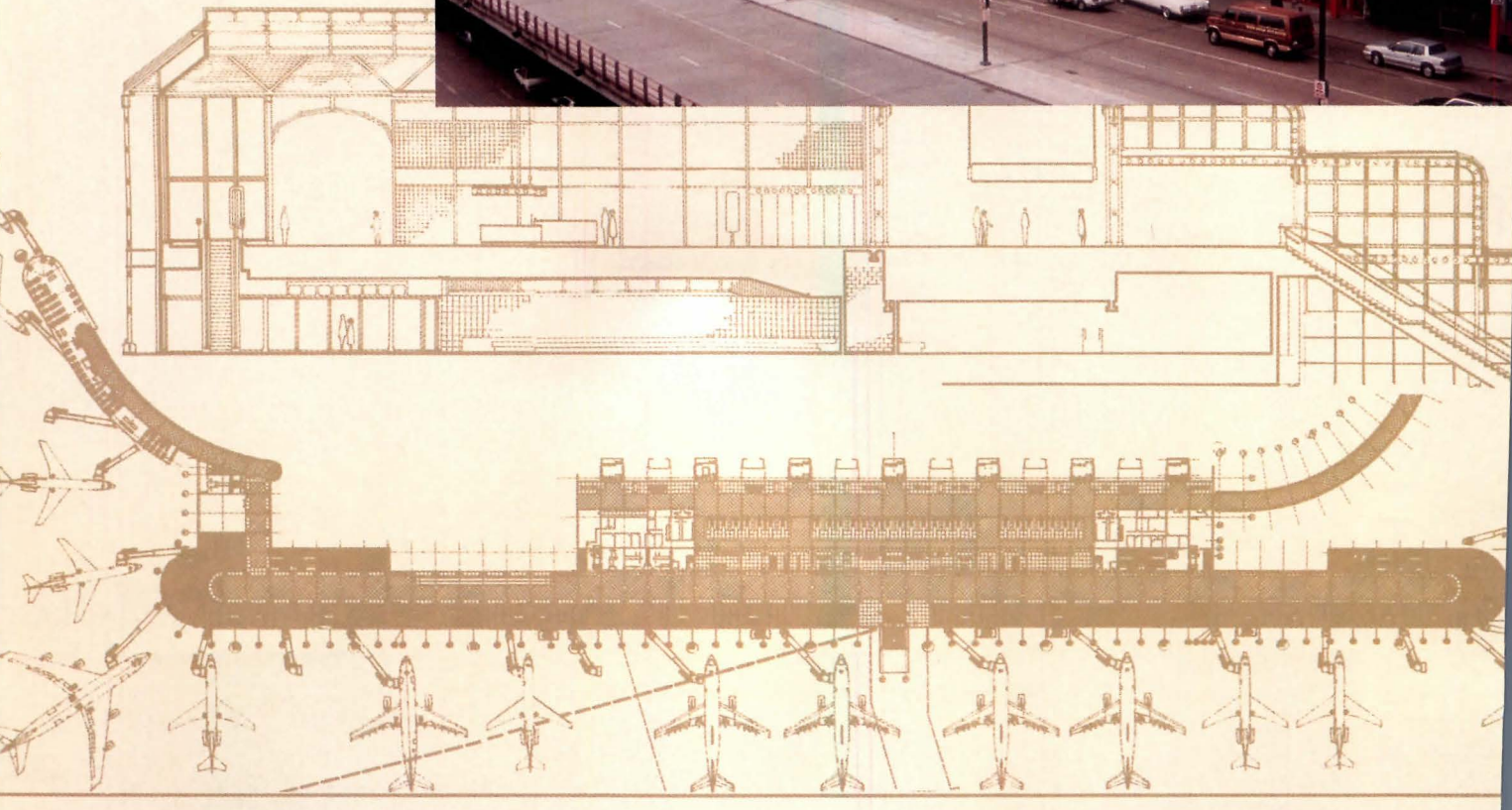
TCS is a unique roofing material. Its finest testimonial is the roster of distinguished architects such as Helmut Jahn who continue to specify it for major projects.

Requiring no maintenance, TCS promises a life span which can be measured in generations rather than years.

We feel that it deserves your consideration whenever metal roofing or weathersealing is specified.

Architects:
Murphy/Jahn,
Chicago, Illinois
Project: United Airlines
Terminal 1 Complex
O'Hare International
Airport
Chicago, Illinois
Roofer: Esko-Young,
Chicago, IL

UNITED AIRLINES



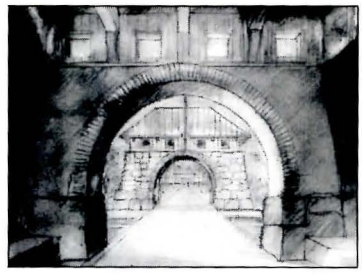
TCS
TERNE COATED STEEL

FOLLANSBEE
FOLLANSBEE STEEL • FOLLANSBEE, WV 26037

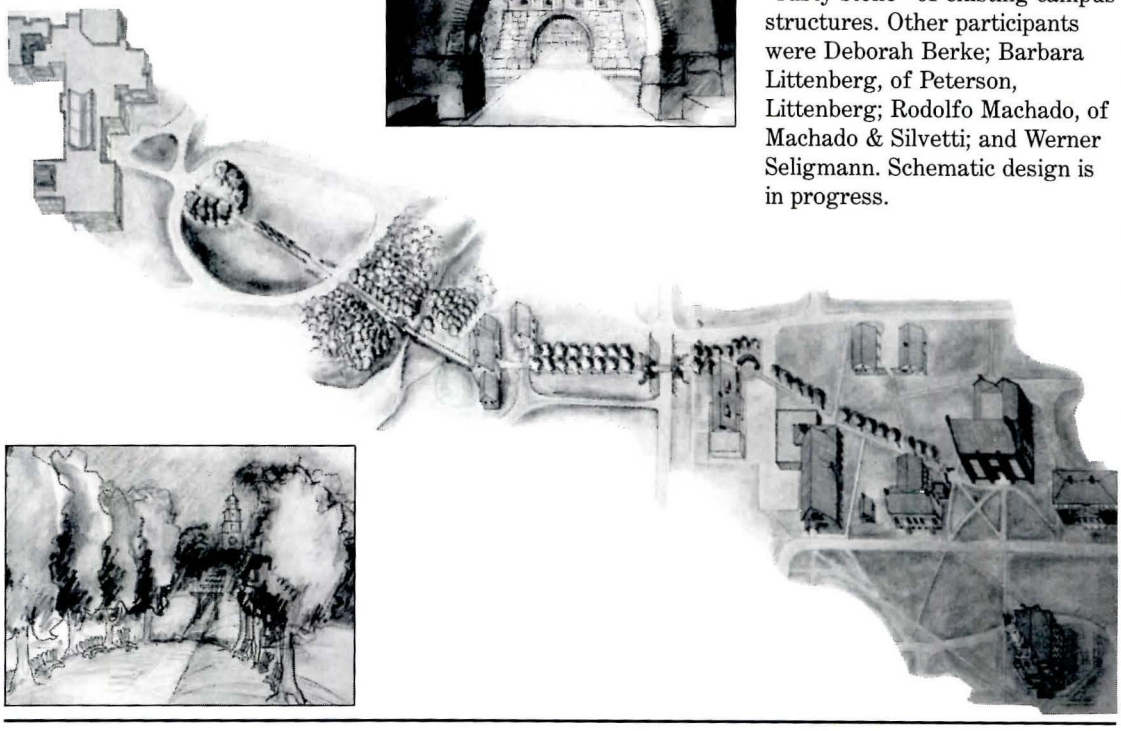
Circle 47 on inquiry card

Brooks's bosky promenade

As a surprise to its retiring president, Hamilton College, in Clinton, N. Y., held an invited competition for the design of a pedestrian way linking its historic center (dating in part to the 18th century) to a formerly separate campus erected in the 1960s. Described by the architect as both "direct and picturesque," Turner Brooks's premiated scheme begins at the newer campus (upper left in plan),

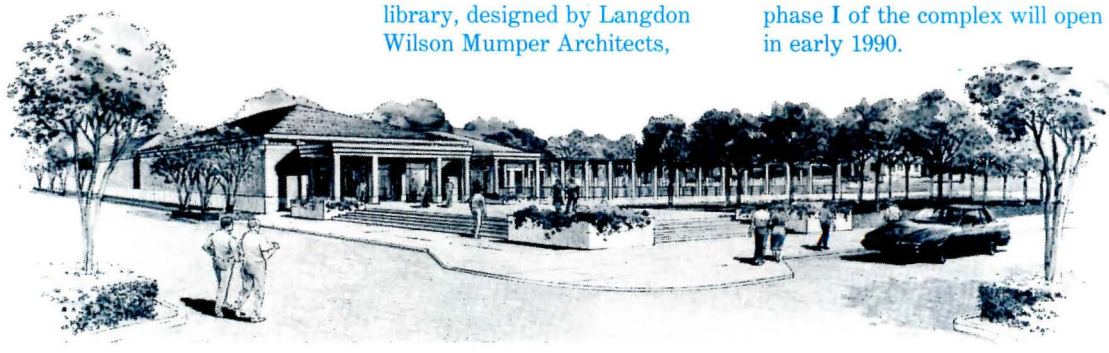


descends through a grove of trees (below left), bridges a small pond (top), passes through an existing barn, marks a thoroughfare with two "ceremonial huts" (left), and ends at a corner of the loosely organized central quadrangle of the old campus. Though follylike, the overscaled arches and heavy rusticated bases of Brooks's new elements suggest a moody Mannerism; he says the materials are derived from the "rusty stone" of existing campus structures. Other participants were Deborah Berke; Barbara Littenberg, of Peterson, Littenberg; Rodolfo Machado, of Machado & Silvetti; and Werner Seligmann. Schematic design is in progress.



Nixon archive comes home

Initially proposed for a site near the former western White House at San Clemente, the Richard Nixon Presidential Archives is now to be in Nixon's hometown, Yorba Linda, Calif. The 45,000-sq-ft museum, theater, and library, designed by Langdon Wilson Mumper Architects, surrounds a reflecting pool that anchors an axis through formal gardens to a knoll occupied by the restored wood-frame Nixon birthplace. A U-shaped structure of southwestern sandstone with limestone trim and tile roof, phase I of the complex will open in early 1990.

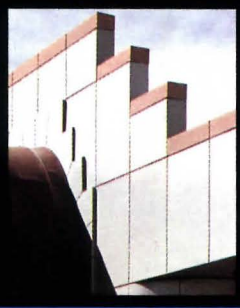


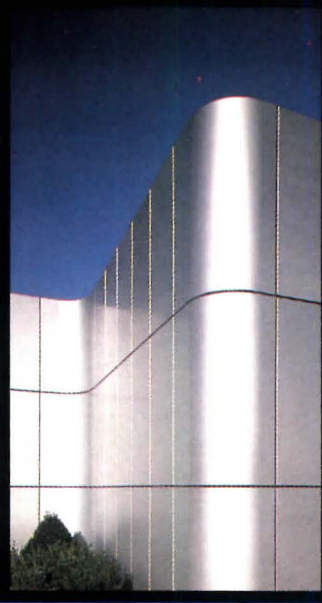
ANNOUNCING
SYSTEM 2002...
Tech Wall's New Dry Joint Syste
Ask us about it!

TECH WALL

Top Left:
Margie's
Bridal Boutique
Chicago, IL
Balsamo/Olson Group

Below Center:
R.A.B. Motors
San Rafael, CA
Esherick Homsey Dodge
and Davis Architects





Top Right:
1522 K Street
Washington, D.C.
Don A. Hawkins
Associates

Bottom:
Central Park Square
Phoenix, AZ
Clark—Van Voorhis
Architects, Inc.

Tech Wall offers architects and builders a stunning range of design possibilities — without the compromises common to other systems. From radiused corners to intricate compound curves; from continuous coping to projected curved panels; *almost anything you can design can be realized with Tech Wall.* And since Tech Wall is solid aluminum, *there are no standard sizes*. Every panel is made to meet the architectural requirements of your job.

Tech Wall also offers a virtually unlimited range of tested and proven finish options.

For further information, call today.

1-800-631-7379
in New Jersey 201-272-5200

THEC|SGROUP

UNCOMPROMISED DESIGN FLEXIBILIT

Circle 48 on inquiry card

News briefs

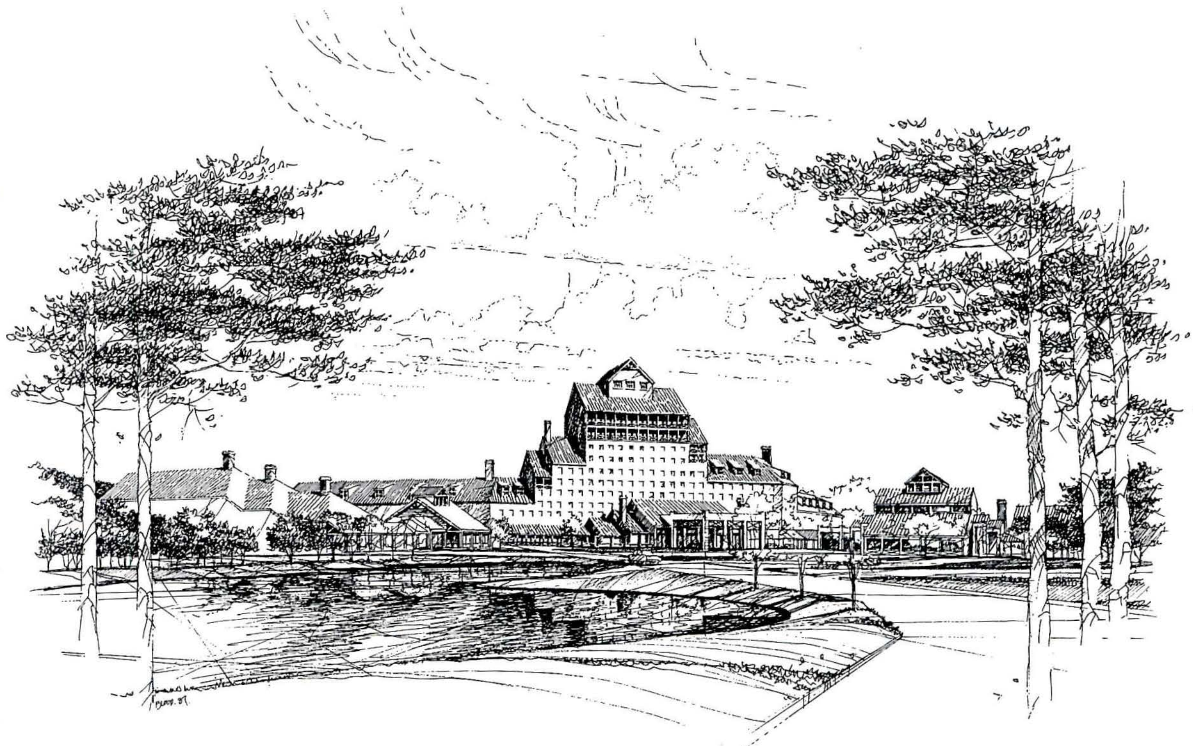
Fall Market at the International Design Center, New York, will feature a day of programs for facilities managers. Beginning October 5, and running through October 8, the exposition of furnishings and design products will also spotlight items introduced at the recent Milan Furniture Fair. Concurrently . . . **Designer's Saturday** will host a variety of events related to *its* member's product exhibitions in Manhattan and at the IDCNY. A seminar on deconstruction in architecture will be moderated by Michael Sorkin and include Aaron Betsky, John Whiteman, Anthony Vidler, Peter Cook, and Joan Copjec. The journalistic "reconstruction" of *House and Garden*—now *HG*—will be discussed by Martin Filler, an editor of the magazine.

The Central New Jersey Chapter of the AIA, said to be the only all-architect sponsor of public housing in the U. S., is commissioning a second residential complex. The chapter's not-for-profit Architects Housing Company has successfully run a 123-unit senior citizens project in Trenton, built nine years ago to designs of Geddes Brecher Qualls Cunningham.

Antron Design Awards in the carpet-fiber manufacturer's annual program included a grand prize to Simon Martin-Vegue Winkelstein Moris for its design of the David and Lucile Packard Foundation offices. Other winners were JGL Interiors with Kuhl Associates, and Thompson, Ventulett, Stainback and Associates.

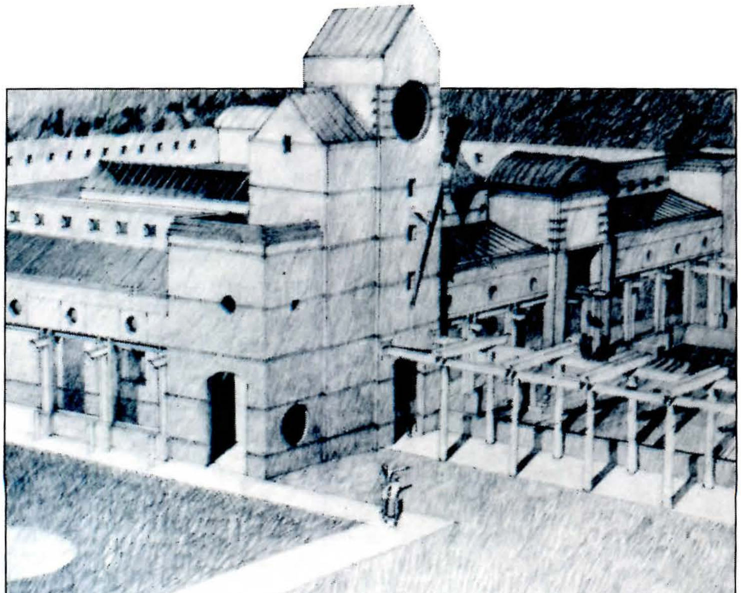
The Prince of Wales Prize in Urban Design, sponsored by Harvard University, has been won jointly by Ralph Erskine, of Sweden, and Alvaro Siza Vieira, of Portugal. This inaugural award of the prize ($20,000, to be split) recognizes the design of Erskine's Byker Redevelopment and Siza Vieira's Malagueira Quarter.

Hotel is focus of Virginia theme resort extolling region's role in westward migration



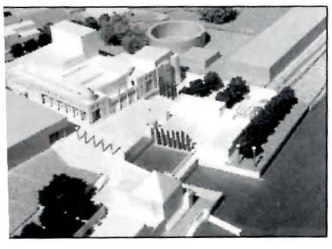
The 600-room Shenandoah Grand Hotel, by Centerbrook Architects, will anchor such diverse attractions as a frontier village, zoological exhibits, and a museum celebrating Native Americans at Explore, a new "destination" park planned for western Virginia. Visible from the nearby Blue Ridge Parkway, an 11-story central mass will create an iconic image for the 1,000-acre public-private venture, which is planned as a counterweight to eastern Virginia's Williamsburg. A two-story heavy-timber post-and-beam rooftop loggia, reminiscent of early national-park resort lodges, takes advantage of area-wide views; the lobby uses native fieldstone. Curved three-story bedroom wings extend from the central block to embrace the entry and form a courtyard. The resort will begin receiving visitors in 1992.

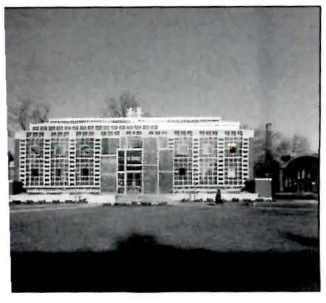
A center of learning



Linchpin of a new master plan, a 200,000-volume central library at St. Joseph's College in Patchogue, N. Y., will help organize the heterogenous spaces of the campus. In the plan developed by Bentel & Bentel Architects/Planners (geared for completion next summer), a new trellis system will extend from the brick-masonry structure, forming a series of quadrangles. An entrance portico and tower look down upon an outdoor ampitheater, and the interior focuses on a central hall, lit from above by skylights and defined by a monumental colonnade.

ews briefs





The Franklin Institute's stern Neoclassical visage has faced Philadelphia's monumental Parkway since the 1930s. Now an 84,500-sq-ft addition to the science museum, the Futures Center (1), will fill out the back of the site, previously occupied by the tail section of a Boeing 737. Instead of inspecting airliner viscera, visitors will, by May of 1990, ascend a curving ramp to exhibits depicting the place of science in the 21st century. Architect is Geddes Brecher Qualls Cunningham.

NCNB Corporate Center (2), designed by Cesar Pelli & Associates with HKS, Inc., will culminate (at 870 ft) in a filigree of silvery rods. Rising from a dark granite base, applied beige-granite piers become progressively thinner—and vertically proportioned glazing correspondingly widens—at higher floors. The mixed-use project in Charlotte, N. C. [RECORD, July 1988, pages 104-107], will include a hotel, performing-arts center, and glass-enclosed public plaza.

Expansion of the Little Theater (3), in Chattanooga, Tenn., will take advantage of its riverfront site in a competition-winning scheme by Schwartz-Kinnard, Architects, with John Meder, Architect. Patrons can enter from a boat basin past new housing, a fountain, and an outdoor amphitheater. The existing theater will be surrounded by a new lobby (facing the river), a new horseshoe-shaped auditorium, and an experimental space.

Pittsburgh Corning Glass Block Design Award winners included Perry, Dean, Rogers & Partners for the Sealey G. Mudd Chemistry Building at Vassar College (4) [RECORD, March 1986, pages 137-145], George E. Brewer for a vacation home, and students at the University of Texas School of Architecture for a conceptual project, dubbed "The Inhabited Wall."

On the avenue

Despite recent zoning changes that restrict the bulk of buildings in midtown Manhattan, 712 Fifth Avenue, an office building designed by Kohn Pedersen Fox with Schuman Lichtenstein Claman and Efron, will rise 53 stories, dwarfing a nearby 18-story hotel (left in drawing). With less than 10,000 sq ft on high floors, the tower will, nevertheless, be considerably slimmer than other recent midtown towers. Landmark structures on Fifth Avenue are to be restored as part of the project by Beyer Blinder Belle, to open in December of 1989.

Competition calendar

•Winners of the Rome Prize Fellowship pursue independent study supported by a stipend at the American Academy. This year's deadline is November 15. Applications may be obtained by writing to the Fellowships Coordinator, American Academy in Rome, 41 East 65th Street, New York N. Y. 10021-6508.

•"Fairfield 2000" is soliciting new models for low-cost housing. Submissions for the competition are due November 15; Information: Fairfield 2000 Affordable Housing Competition, 500 Summer Street, Stamford, Conn. 06906.

•Exemplary projects featuring the manufacturer's tile will be honored in the Ceramic Flooring Design Contest. The deadline is February 1, 1989, and details can be obtained by writing: Design Contest, American Olean Tile Company, Box N, 1000 Cannon Avenue, Lansdale, Pa. 19446.

COLORFUSION™

Ceramic-On-Steel Melds High-Tech With High Style.

Only AllianceWall makes COLORFUSION,™ a unique breed of ceramic-on-steel panels as beautiful as they are functional. By a new, proprietary process, we can fuse a limitless range of colors, patterns or graphics into the wall surface.

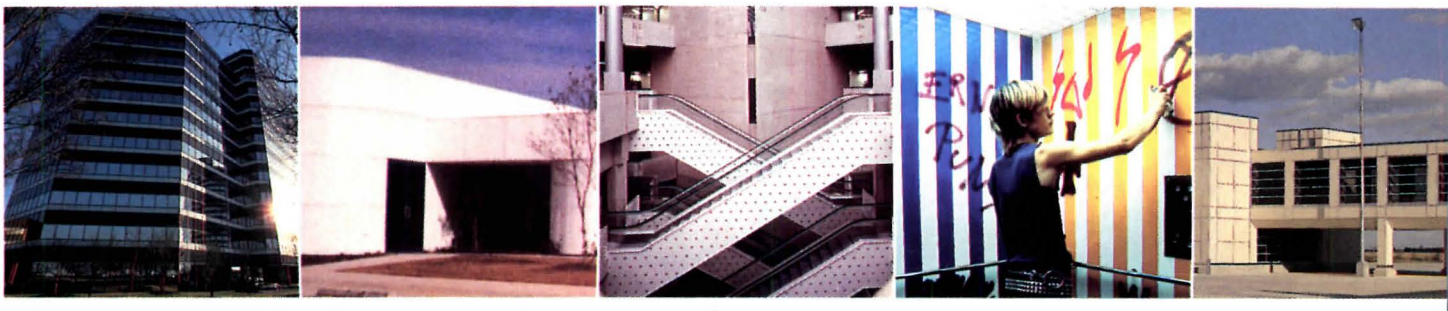
AllianceWall's COLORFUSION panels are virtually indestructible. They won't chip, crack, mar or fade, and they are scratch-, heat- and chemical-resistant. They're easier and less expensive to install than conventional wall surface materials. And they're maintenance-free.

Nice to know that ceramic-on-steel now gives you endless design possibilities. And that it will keep your design intact...a long way into the future. Write or call for more information on American-made COLORFUSION panels.

Ask about our other new metallic, matte and graphic surfaces.

AllianceWall Corporation • Box 920488 • Norcross, Georgia 30092 • (404) 447-5043 • TWX 810-766-0436 • FAX 404-446-5951

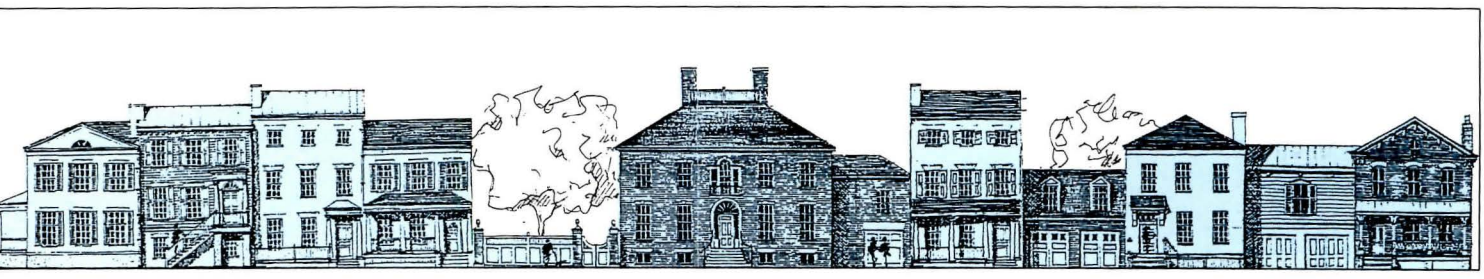
ALLIANCEWALL®



AllianceWall's ceramic-on-steel panels, *left to right*: Exterior, Paragon Building, Houston; Exterior, CIGNA Regional Office Buildings; Interior applications and escalators, Liege Hospital, Belgium; Graffitti-resistant walls, Elevator Manufacturers Worldwide; Exterior and jetways, Cedar Rapids Airport.

Circle 50 on inquiry card

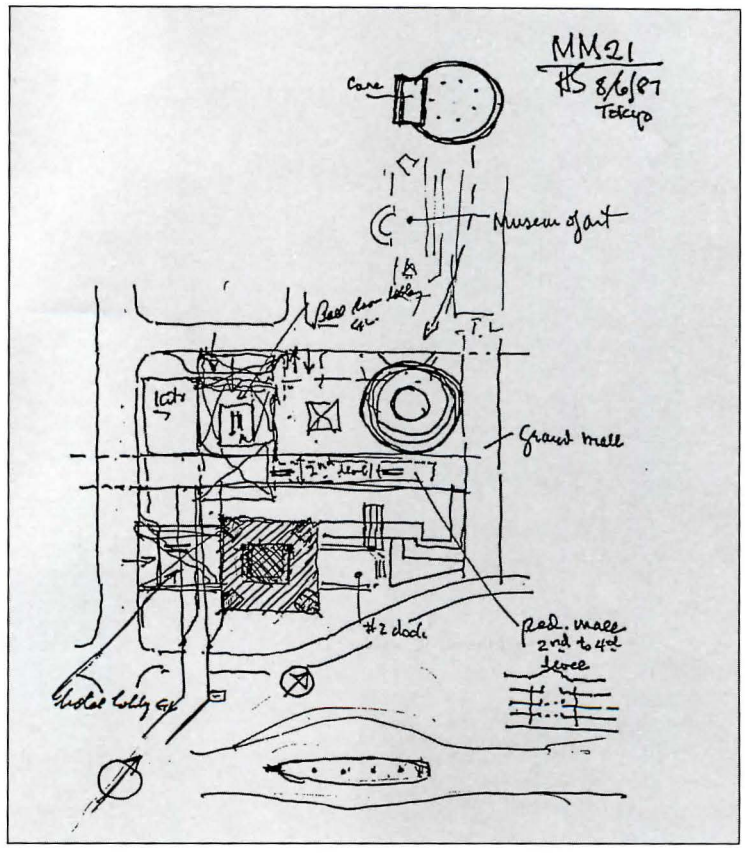
A new old-fashioned village in Maryland



t The Kentlands, Andres uany and Elizabeth Plater-yberk have carried forward the rban planning ideas embodied a ew years ago in their design for easide, Fla.—a traditional llage scale and tempo meant or pedestrian sociability rather an automotive isolation.

Developed in joint venture by Joseph Alfandre and Melvin Simon & Associates, the suburb will constitute a 352-acre enclave within Gaithersburg, Md., and will include 1,600 residential units (detached houses and apartments), 900,000 sq ft of office space (much of it above street-level shops), and 1.2 million sq ft of retail space. Much of the last will occupy a three-department-store mall, an element whose size vastly exceeds the architects' ideal but one that both the city and the builders see as essential to the development's profitability. The plan will try to tame the mall by placing it within walking distance of the housing.

The Kentlands was planned in a seven-day charette engaging many experts, among them a CAD operator who could alter plans quickly to incorporate the other experts' input. *G. M. A.*



or Yokohama, star and octorad

With the downscaling and Postmodernization of architecture in this country, Modernist architects seem to be turning to the Far East in order to develop megastructures and experiment with structural geometry. For Minata Mirai 21, a part of Yokohama's consciously futuristic waterfront redevelopment, Hugh Stubbins and The Stubbins Associates designed a two-phase project. The first phase consists of a tapering star-shaped form—the bottom two thirds office space, the top third a hotel (left in perspective). Phase two calls for a smaller, less flamboyant office tower—a symmetrical shape that Stubbins calls an *octorad*, formed by the enclosure of eight radial points around a rather squashed circle. The project, scheduled for 1992 completion, will cost about $400 million. *G. M. A.*

HOW WE HELP
CONQUER THE WIDE-

It's a single store with 222,250 square feet of space. And with everythin from a supermarket on one side to a hair salon on the other, it's no wonde they call it "a mall without walls." Hypermart USA is a joint venture of Wal-Mart Stores, Inc. and The Cullum Company. Located outside Dalla

With 222,250 square fe
Hypermart USA mar
beginning of a new era

HYPERMART
EN SPACES OF TEXAS.

already a huge retailing success. But the real success story began well be- e they opened the doors. Because just building the structure was a major dertaking in itself—an undertaking Vulcraft was proud to be part of.

We supplied all 360 tons of steel joists and joist girders plus 250 tons of steel deck for the job. But more than that, we helped design the structure. That's because Wal-Mart brought together a special team to plan and execute the project—a team which included the architect, structural engineers, steel fabricator and Vulcraft as the structural system supplier. Each was a specialist Wal-Mart knew they could count on from experience. And their experience with Vulcraft was vast, since we'd already supplied materials for over 550 Wal-Mart stores.

On this project, we worked especially closely with the structural engineer to design the most economical bay spacing possible. Because on a job of this magnitude, every cost efficiency meant tremendous savings. Furthermore, throughout construction, we came through with 100% on-schedule sequential deliveries, making sure there were no expensive delays. This kind of planning and dependability are exactly why Wal-Mart has come to Vulcraft with so many jobs. And why you should be in touch with us, too, no matter what kind of spaces you need help with.

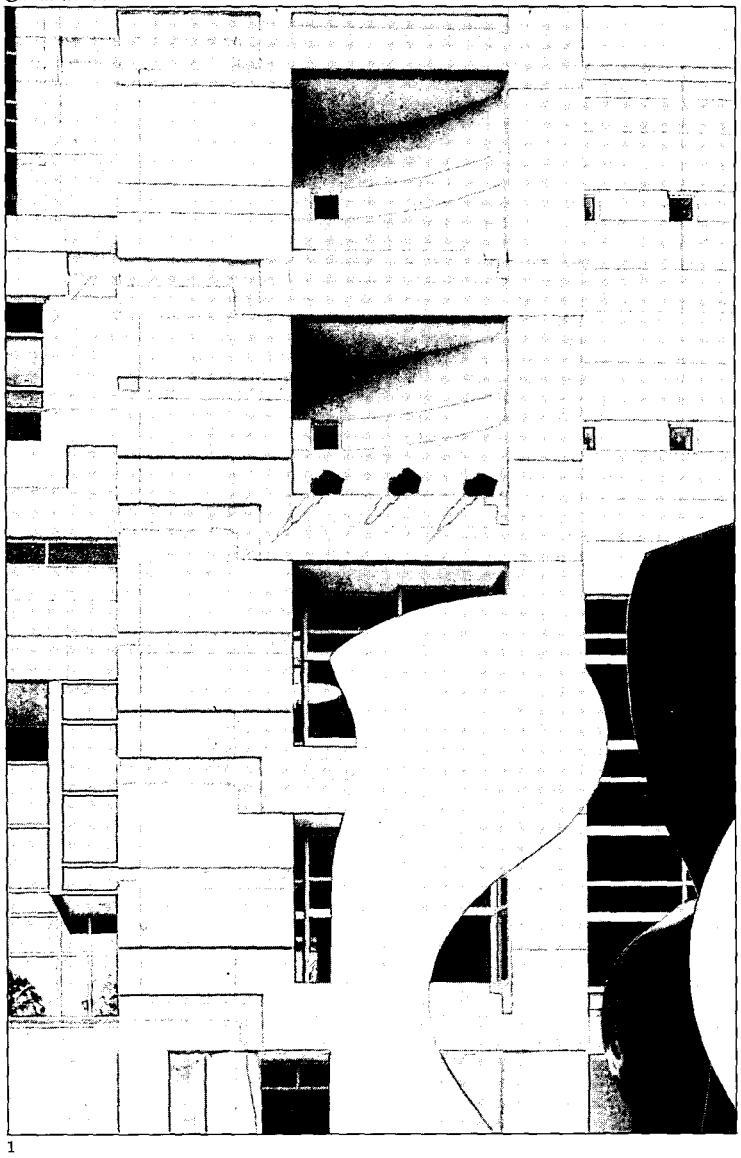
So contact any of the plants listed below, or see Sweet's 05100/VUL and 05300/VUL. You'll find that the possibilities are wide open.

VULCRAFT
A Division of Nucor Corporation

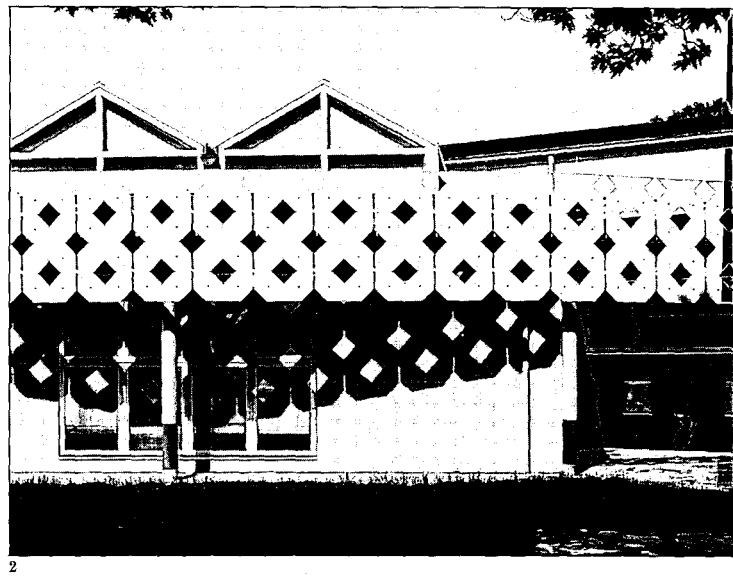
*PO Box 637, Brigham City, UT 84302 801/734-9433; *PO Box F-2, Florence, SC 29502 803/662-0381; PO Box 169, Fort Payne, AL 35967 205/845-2460; *PO Box 186, Grapeland, TX 75844 409/687-4665; *PO Box 59, Norfolk, NE 68701 402/644-8500; *PO Box 1000, St. Joe, IN 46785 219/337-5411. *Deck manufacturing locations. Architect: BSW Architects; Consulting Engineers: Wallace Engineering and Computerized Structural Design, Inc.; Steel Fabricator: L.L. LeJeune Steel; Steel Erector: JOB Erection & Engineering, Inc. General Contractor: Nabholz Construction.*

Design awards/competitions: Philadelphia Chapter/AIA 1988 Design Awards

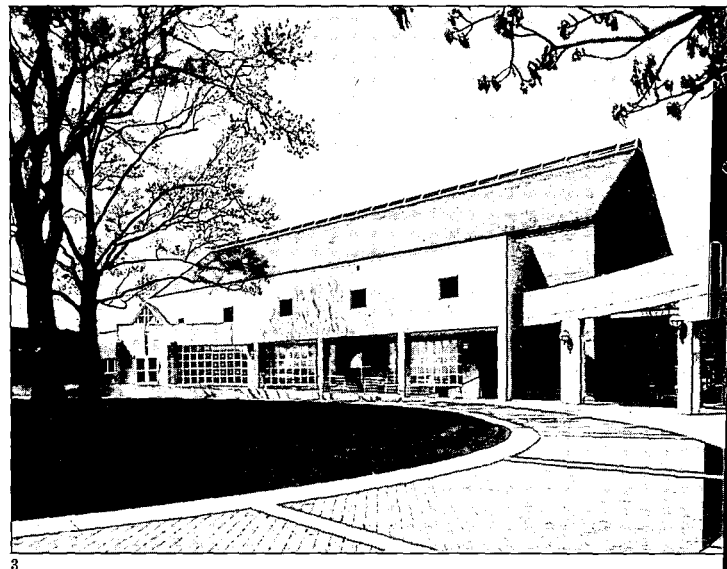
AIA Merit Awards were presented to four projects and Honorable Mentions were presented to three others in Philadelphia. The three Chicago-area jurors, Gerald Horn, of Holabird and Root Architects; Tannys Langdon, of Langdon-Woodhouse Architects; and Ralph Johnson, of Perkins & Will Architects, chose the winners from among 63 entries.



1



2



3

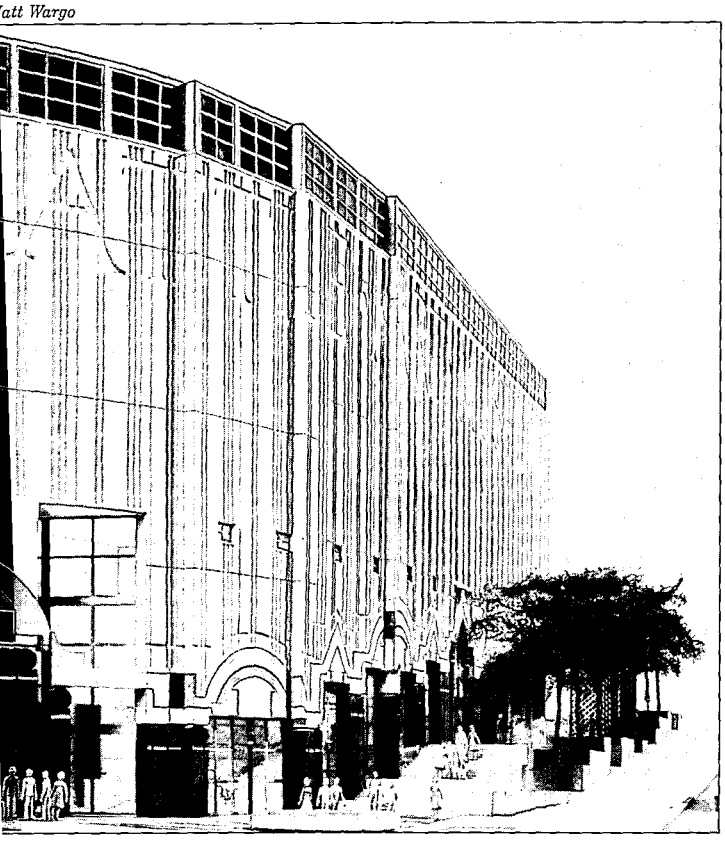
1. Founders Pavilion, Hospital of the University of Pennsylvania, Philadelphia; Geddes Brecher Qualls Cunningham Architects; Merit Award. The jury cited "the rich and innovative development of [the] exterior wall and open space" in this new 16-story multiuse hospital wing, which relates to the varied scale of adjacent buildings and connects with wings built at different times. The 450,000-sq-ft addition houses medical, psychiatric, and intensive-care beds, laboratories, a cafeteria, dining rooms, and support areas.

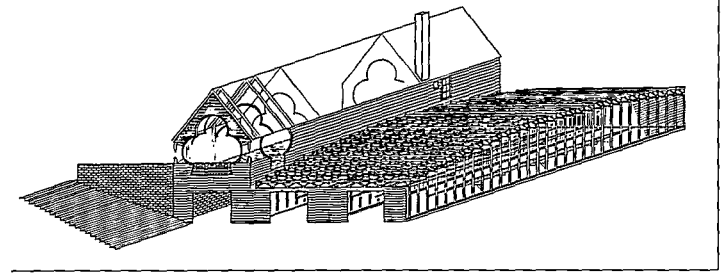
2. Carousel House, Philadelphia; Richard Conway Meyer, Architect; Honorable Mention. Program areas are contained in rectangular pavilions united by a circular punched-aluminum screen in this recreational facility serving persons with a wide range of disabilities. A "sensitive development of space and use of natural light" in the articulated roof and skylight forms distinguish spaces dedicated to individual activities.

3. The Library for the Academy of the New Church, Bryn Athyn, Pa.; H2L2 Architects; Honorable Mention. A curved colonnade embraces an existing circular drive, tying this new 102,000-volume academic library to other buildings on a small campus. The glazed- and ground-faced block arcade is set away from the brick-clad main volume of the building. Although the facility won praise for its "overall architectural quality," jurors took particular note of the "pleasant light" in the reading rooms, provided by a band of skylights at the apex of the shed roof.

4. Seattle Art Museum; Venturi Rauch and Scott Brown with Olson/Sundberg Architects; Honorable Mention. The projected 154,000-sq-ft facility will be set back from its primar street front to maintain waterfront views and face an outdoor terraced stair that navigates the two-story drop across the site ("innovative," sa the jury). The museum's name will be incised in the facade of vertically fluted limestone pane to create a civic-scale presence on a site eventually to be surrounded by skyscrapers.

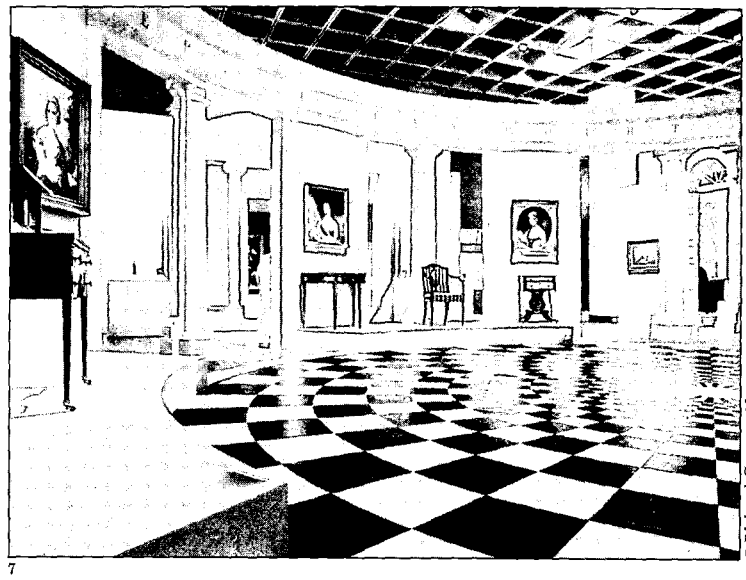
latt Wargo





©Tom Bernard

6



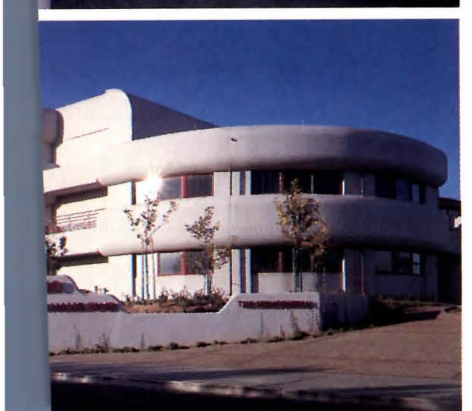
©Richard Conway Meyer

7

Boathouse, St. Andrew's
hool, Middletown, Del.;
:hard Conway Meyer,
chitect; Merit Award. Extolled
jurors as "a jewel, sensitively
led and in complete harmony
h its site," this project will
ıultaneously replace a
eriorating shell-storage
ıcture and reclaim a small
t in a larger pond that had
viously been used for sewage
ıtment. A small gully is
lged by the wood-framed
ıcture, allowing upper-level
ıss to a club room with a
:h for viewing crew races.

6. Chestnut Hill College Student Activities Center, Philadelphia; Kieran, Timberlake & Harris, Architects; Merit Award. The client asked the architect to transform an underused basement space in a historic building at a small women's college into a student activities center accommodating both daytime and evening social activities. Jurors were impressed by the imposition of a new gridded ordering system in the ceiling that, using inexpensive means, reorganized the space and disguised an existing maze of pipes and conduits.

7. Federal Philadelphia, the Athens of the Western World; Richard Conway Meyer, Architect; Merit Award. An assortment of decorative objects was united in an architectural enclosure which, according to the jury, successfully "orients and disperses visitors" within this exhibit at the Philadelphia Museum of Art. Intended as the museum's contribution to a citywide celebration of the bicentennial of the U. S. Constitution, the exhibit setting abstractly refers to the historical period of the show's subject—Benjamin H. Latrobe's vision of Philadelphia in 1800—and provides an armature within which to view diverse types of objects: paintings, prints, silver, textiles, architectural woodwork, and household furniture.



There's not much that's typical about this office building.

Except, maybe, the relentlessly red Pella Windows.

The owner wanted an alternative to the typical office building around Tucson.

The architect said that playfulness had been left out of today's architecture.

And from the beginning, Pella's custom color was the logical choice for carrying out the design.

Needless to say, this 70,000 square foot office building stands out in a neighborhood of predictably severe granite and glass offices. Williams Center features rounded corners, the playful juxtaposition of unusual shapes, and a dashing color scheme of red and white. You can't miss it.

In fact, the main entrance is easily recognized. It's under what appears to be a giant red metal water slide. Inside, however, the mood changes. Visitors and tenants reach their offices after passing through a charming courtyard with waterfall, meandering pool, lush vegetation, waterside seating, and contemporary sculpture.

The building's shape is the logical outgrowth of a desire to give all tenants a sense of place, regardless of how much or how little space they have. Small tenants aren't stuck with just a carved out portion of a rectangle. Here, tenants can even choose spaces with higher ceilings, or two-story spaces.

About those red windows.

It actually started with the red metal roof. Pella's custom color department scientifically matched the roof manufacturer's color, and applied it to the windows and trim. And, to be sure that the doors matched perfectly, even supplied the paint for the metal door manufacturer.

Pella's custom color capabilities are unlimited. You may choose the most unusual color in the known world, and putting it on a Pella Window will just be typically Pella. Plus, it's a super tough enamel finish that resists cracking, fading, chipping, and all sorts of plagues due to exposure. Yet, for all this protection on the outside, all you see on the inside is solid wood, ready to stain or paint.

The Pella Type E Slimshade.® For the sake of appearances and energy savings.

All windows feature the insulating efficiency of the Pella Double Glazing System with adjustable Type E Slimshade® blinds between the panes of glass. This gives an attractive, consistent appearance to windows from the outside, and the convenience of built-in blinds from the inside.

For the owner, it also means low maintenance because the blinds are protected from dust and damage by the removable inner glass panel.

Energy saving, too. The low E coating on the blinds is highly effective at reflecting radiant heat back outside, which saves on air conditioning inside. And Pella's low air infiltration means energy dollars won't be lost.

For more information on Pella products for commercial projects, contact your local Pella distributor. Look for Pella in the Yellow Pages under "Windows," call Sweet's BUYLINE, or see Sweet's General Building File. Or simply return this coupon.

Please send me more information on Pella Clad products for commercial projects.

Name_____

Firm_____

Address_____

City_____

State_____ Zip_____

Phone_____

Mail to: Pella Windows and Doors Commercial Division, Dept. T3118, 100 Main Street, Pella, IA 50219. Also available throughout Canada.

Bring your designs to Pella.

Williams Center
Tucson, AZ

Architect
John Campisano & Associates
Tucson, AZ

Owner
Shull/Jones Builders, Inc.
Tucson, AZ

Pella®

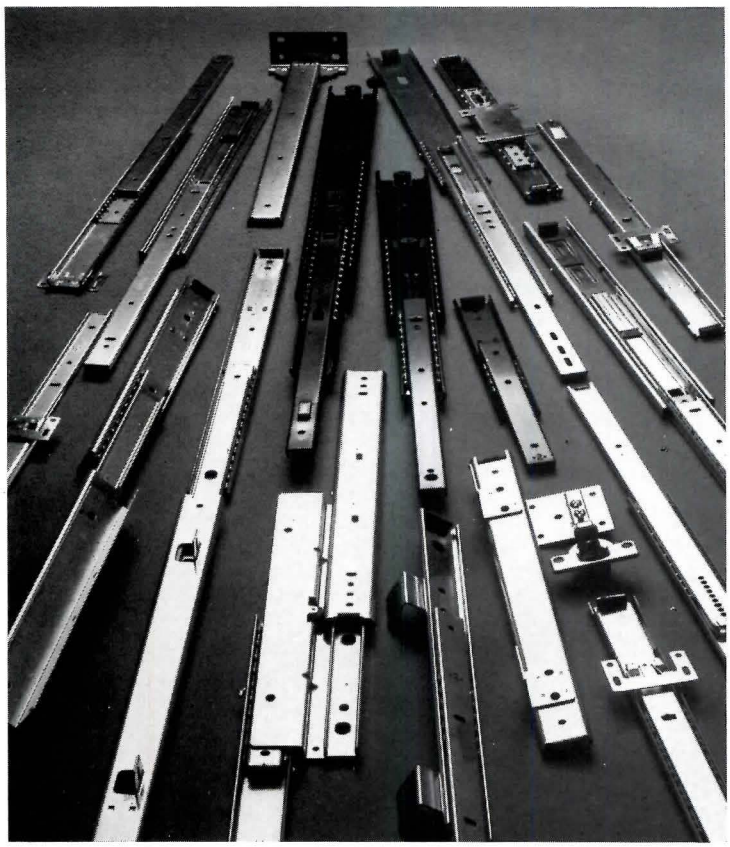
Circle 52 on inquiry card

Why you should specify Accuride slides

For residential furniture
A full line of specialty hardware for buffets, armoires, bedroom suites, home entertainment centers and office furniture.

For kitchens and baths
Ultra-smooth slides for butcher blocks, two-way drawers, kitchen drawers, pull-out pantries, over-sized pan drawers and adjustable shelves. 32mm systems available.

For fine office furniture
Slides are available for desk pedestals and lateral files in wood, metal and systems office furniture. Flipper Door™ slides for overheads. Heavy duty lateral file slides for drawers up to 60″ wide.



For national distribution
Accuride has a network of distributors in all major U.S. and Canadian markets. Well stocked and ready to serve your needs.

For Quality Assurance
Custom Features can be designed in to meet special requirements. Free design services by Application Engineers are also available.

See our catalog pages in Sweets.

Call our Customer Assistance Hotline now for all the facts.

Accuride
12311 Shoemaker Ave.
Santa Fe Springs, CA 90670
(213) 944-0921

Accuride

Circle 53 on inquiry card

Roxul

...The more rewarding alternative in curtain wall insulation

- ASTM E-119 fire rated.
- Competitively priced.
- Variety of facings available.
- *High tech* mineral fibre that is clean, high-quality and cohesive.

Ask for literature and the name of your nearest distributor.

Roxul
479 Route 17, North Mahwah, NJ 07430
(P.O. Box 307). Tel: (201) 529-1044
Fax: (416) 878-8077
Canada: 551 Harrop Dr., Ontario L9T 3H3.
Tel: (416) 878-8474 Fax: (416) 878-8077

Circle 54 on inquiry card

New Cheney Victory® Wheel n' Chair Lift offers sleek, hi-tech accessibility to public buildings.

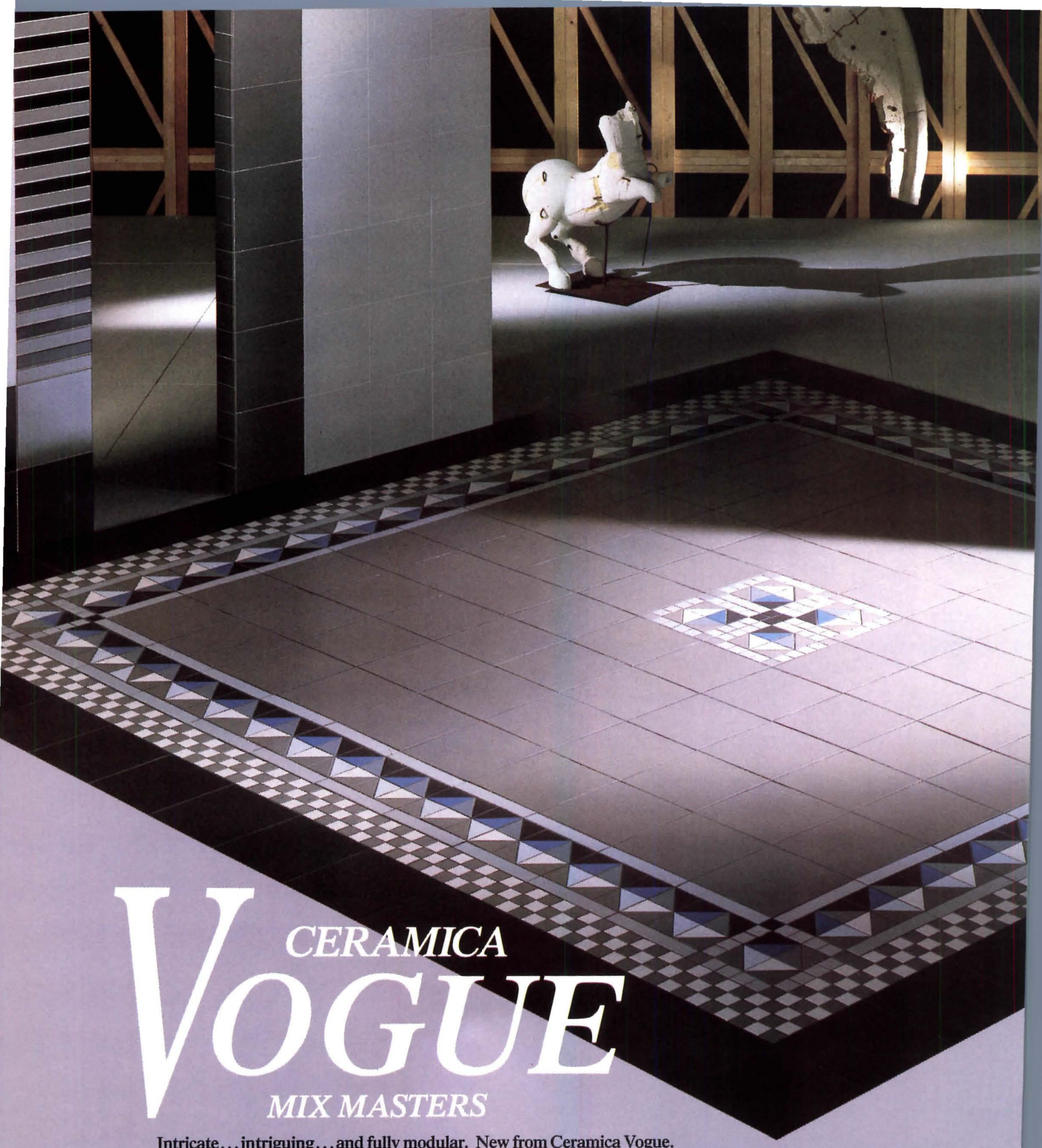
- Many unique features never before available
- Carries wheelchair or a seated passenger up to 3 flights of most stairway configuration
- Accelerates to 25 ft. p minute and automati- cally slows to 12 ft. pe minute on turns and before stations.
- Coded Key Card acce and call and send controls.
- Factory pre-programm to suit installation.
- Check Sweets Catalo for more details.

FOR FREE BROCHURE, WRITE OR CALL:
1-800-782-1222.
In WI 1-800-552-7711.

The Freedom of Movement®
CHENEY
A Mediquip Healthcare Company
Dept. AR, P.O. Box 188, 2445 South Calhoun Road, New Berlin, WI 53151.

Circle 55 on inquiry card


Conceived
of the earth
Born in fire...
Ceramics
share a soul
with man.
TILE
ITALIA



CERAMICA VOGUE

MIX MASTERS

Intricate... intriguing... and fully modular. New from Ceramica Vogue.

Create custom designs without custom expense using Vogue's interchangeable mosaics, patterns, solid colors and trim pieces.

Available in 30 expressive colors and eight basic sizes, including 4″x4″, 6″x6″, 8″x8″ and 12″x12″. Complementary mosaics, feature strips and inset pieces available in six additional sizes.

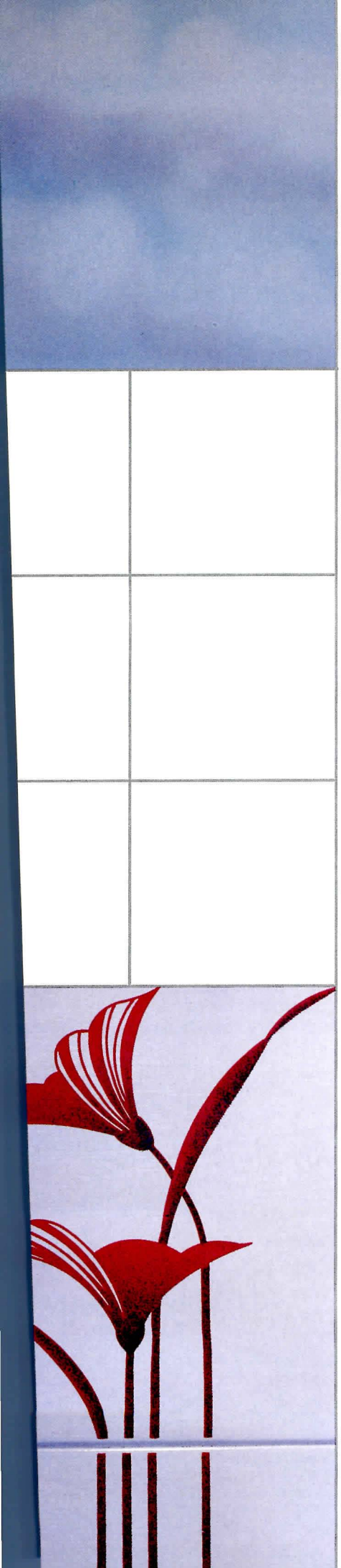
Suitable for walls and floors... designed for interior or exterior applications.

Vogue's frost-resistant, monocottura, white-body tiles introduce new possibilities in the art of intricate patterning.

ATLANTIC TRADING COMPANY LTD.
P.O. Box 495,
New Cumberland, PA
17070, U.S.A.
(717) 938-5648

Presented by the Atlantic Trading Company Ltd. Ceramica Vogue, Vercelli, Italy

Circle 56 on inquiry card



CERAMIC TILES: A BIOGRAPHY OF MAN

Ceramic tiles evolve from the richest heritage of any of the decorative arts. Flowing from one culture to another until they encircled the globe, ceramic tiles have chronicled the development of man for more than 10,000 years.

The earliest tiles tell a tale of primitive societies, giving life and color to cultures of which we would otherwise have no knowledge. As the art of ceramics adapted, later tiles bear the stamp of the great civilizations of Babylon, ancient Egypt, and ultimately Greece and Rome.

The history of Italian ceramic tiles is rooted in the Middle Ages and intertwined with man's quest to combine function and form. As Italy's early artisans merged into guilds, they quickly elevated Italian tiles to the status of an art form as well as a building material.

Fed by the rich artistic developments of the Renaissance, the aesthetic value of Italian tiles came to rival decorative statues and sculptures, and began to grace palaces, churches and public buildings throughout Europe.

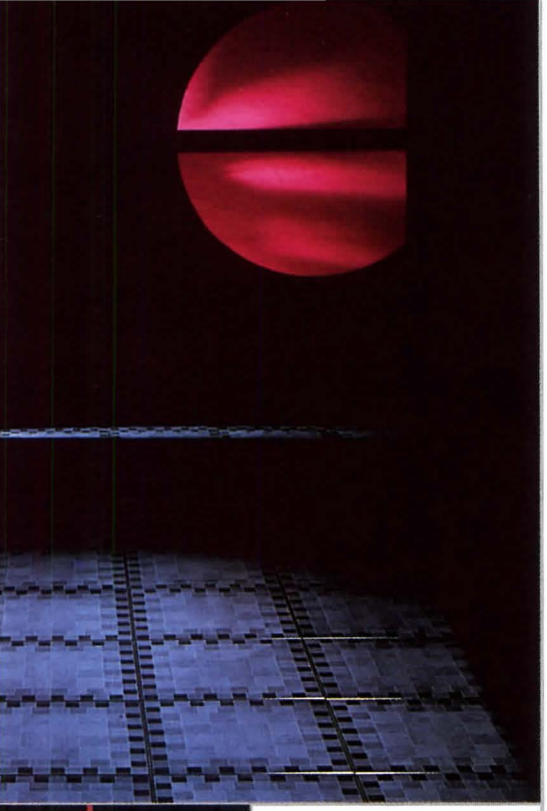
Today, the soul of the modern ceramic tile industry continues to reside in Italy. The unparalleled synergy between Italian technology and design produces a lasting medium that offers architects and designers the opportunity to record the aesthetic values of modern-day man.

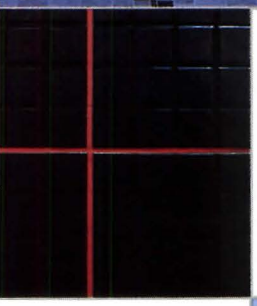
The following pages highlight a few of the possibilities inherent in today's Italian tiles. Explore their potential. Examine the strategy, the innovations and the technology that make today's Italian tiles so vibrant and essential.

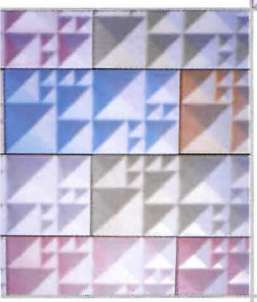
Table of Contents

Photos
Cover: Sant' Agostino's QEMT Line
From top left:
Courtesy of Italian Tile Center

Tile Italia is produced by The Delos Company, Ltd.
700 Forest Edge Drive, Vernon Hills, IL 60061.







ITALIAN TILES LEAD BY DESIGN

The Italian ceramic tile industry is unquestionably big business with sales of $2.7 billion in 1987 alone. But tile is also art to the Italians. Although the industrial evolution of Italian tile technology may impose higher production requirements and more stringent controls, Italian manufacturers nurture their creative development at all costs.

"In a country with the artistic legacy of Italy, style is in the blood," explained Anthony Bogo, president of the Atlantic Trading Company.

"Trends premiered in Italy can be expected to influence the world's architectural and design community for years to come. From traditional styles to fantasy tiles, Italian manufacturers consistently produce the freshest, most original designs," emphasized Bogo, whose company represents some of Italy's most design-oriented manufacturers.

The Power Behind the Designs

Always innovative, ever avant-garde, the best Italian manufacturers combine clay from the magic hills that surround the Sassuolo Valley with the style that effervesces from Milan.

Milan is the power behind Italian design. Milan pulses with a creative character that is the envy of New York, Paris and London. Milan is home to such international fashion designers as Valentino, Missoni, Gucci, Armani, Fendi and Ferragamo.

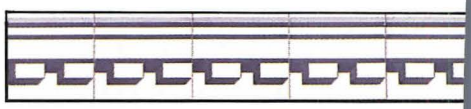
The world looks to Milan for style that transcends the fetters of passing fashion and establishes a link with the quintessential elements of pure design.

Possibly the biggest style story of the decade is the growing interaction between Italian tile manufacturers and the design community of Milan.

In their quest for fresh interpretations of color, scale and line, Italian manufacturers employ some of the best known names in the world of the decorative arts—architects, designers, artists, sculptors and painters—to further the genius of Italian tiles.

Photos: from top left.
LaFaenza's Selezione Architettura
Colorstyle by Ascot
Courtesy of Italian Tile Center
Courtesy of Italian Tile Center

Such companies as Ceramica Vogue, Gabbianelli, Ceramica Bardelli and Cedit have long been attuned to the heartbeat of Milan. Ceramica Vogue's Frammenti collection, a series of screen printed and hand-painted tiles with a Picasso-like look, are the work of Maria Luisa Brighenti, who is also the designer behind several of the intricate collections of Gabbianelli.

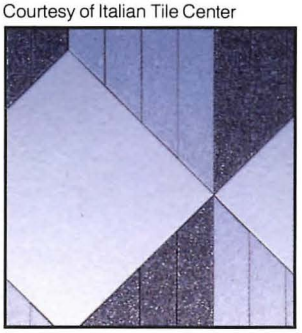


The growing interaction between tile manufacturers and the design community of Milan is the style story of the decade.

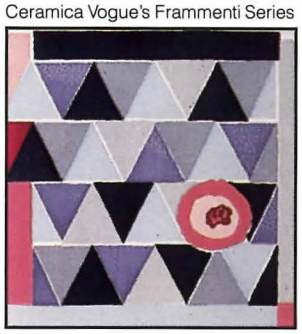
Original Designers 6R5, the studio famed for its work with housewares, furniture and small appliance designs, is the stylist behind some of Ascot and Candia's most innovative lines. While not a household name in America, Studio 6R5 is often credited with the advent of Eurostyling and its work is readily recognized in their designs for Panasonic of Japan, Germany's Villero

Opaline Keramik by Keravem

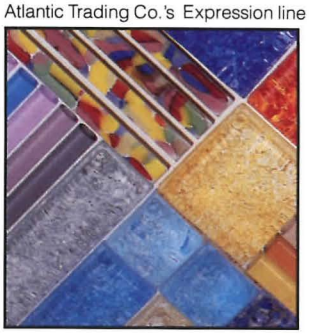
Courtesy of Italian Tile Center



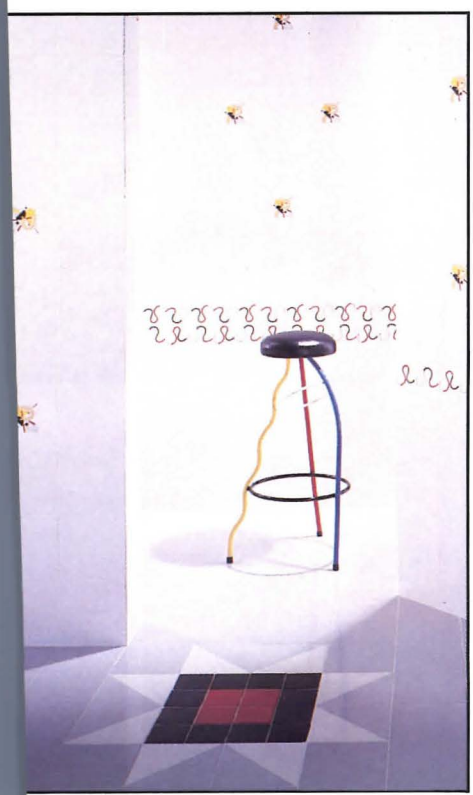
Ceramica Vogue's Frammenti Series



Atlantic Trading Co.'s Expression line



Sant'Agostino's Miraggio



aenza's Selezione Architettura

and Boch, England's Johnson Ltd., and Ted Lapid of Israel.

As the Milanese influence radiates north, the impassioned sculptor Carlo Zauli, whose works are permanently on display in London's Royal Albert Museum, directs the creation of LaFaenza's Selezione Architettura collection.

In a joint venture with Rex Ceramiche, Trussardi translates his international work with furniture, autos and fashion into a collection of uniquely textured tiles that simulate delicate fabrics and exotic reptile skins.

Iris' current contribution to the designer tile trend is the Klee line, a collection featuring geometric designs in relief and refined colors reminiscent of the artist's paintings.

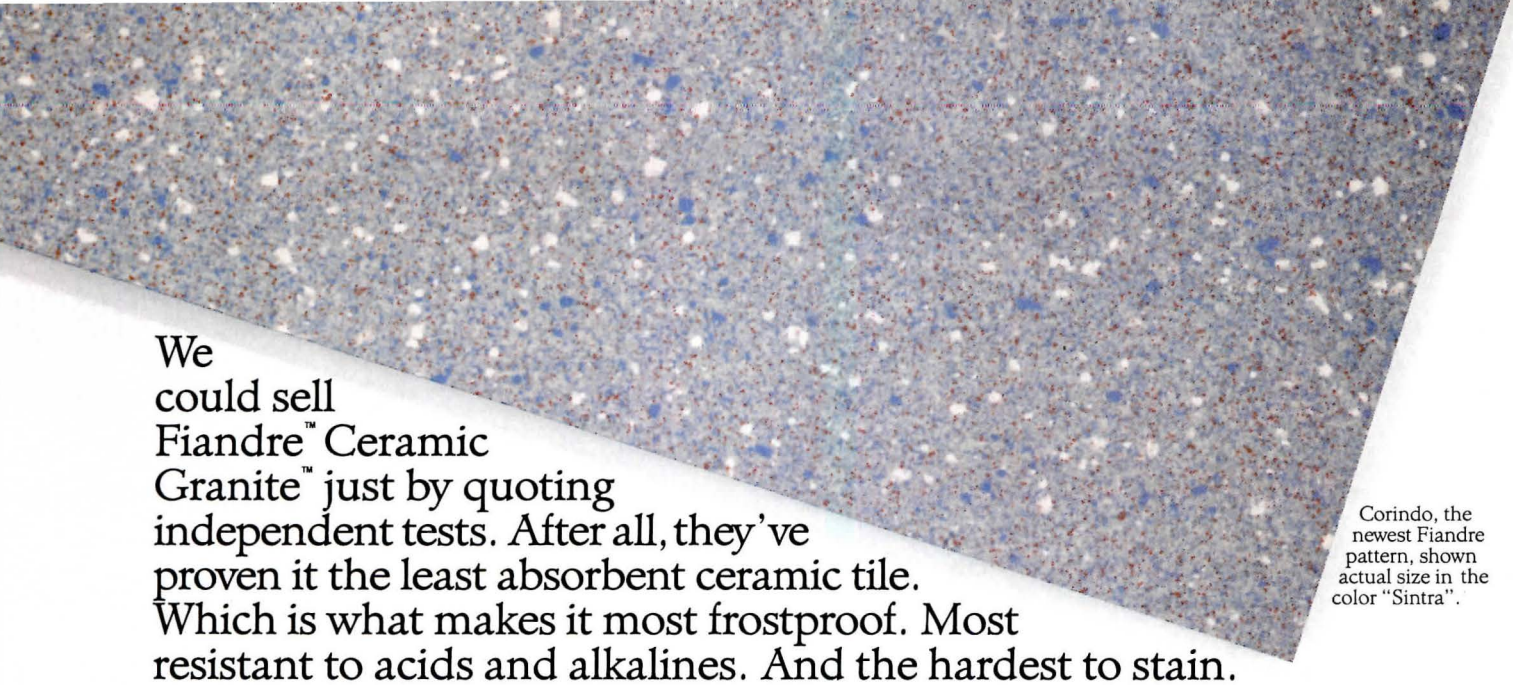
Elsewhere in the Sassuolo Valley, the heartland of Italy's ceramic tile industry, the Milanese influence can be seen in tiles with neo-modern designs, minimalist geometrics or elaborate graphics in slight relief. For the most demanding customers, there are hand-painted or silk-screened tiles done in intricate florals or abstract designs.

In the broadest sense, the Milanese style has spawned an emphasis on moldings, polishing and porcelains. The unparalleled success of the fully vitrified porcelains from Fiandre has companies scrambling to duplicate its fabled Ceramic Granite™ line. The unusual hues and mirror-like finish of Opaline Keramik™'s porcelains account for the all-out emphasis on mastering the intricacies of highly polished production.

Nowhere in the world are the choices as great, the styles as varied and the designs as fresh.

For versatility and drama, the ceramic moldings of Accenti and Expressions di Vetri Murano top the list. The best are gently sculptured ceramics with intricate and imaginative designs or luminous Venetian glass inserts in brilliant jewel-like tones. These versatile feature strips, which promise to be increasingly appealing to American designers, can form colorful accent bands or find a home framing mirrors, doorways, even accenting other designs.

The power of Italian tiles stems from the symbiosis between Italian style and design. Nowhere in the world are thousands of years of architectural styles blended as masterfully as in Italy. Nowhere in the world are the choices as great, the styles as varied and the designs as fresh. Italian tiles reflect the spirit and the passion of those gifted to create.



Corindo, the newest Fiandre pattern, shown actual size in the color "Sintra".

We could sell Fiandre™ Ceramic Granite™ just by quoting independent tests. After all, they've proven it the least absorbent ceramic tile. Which is what makes it most frostproof. Most resistant to acids and alkalines. And the hardest to stain.

Tests also prove Fiandre the hardest tile to break. Most precisely formed and sized. And harder than even natural granite.

Of course, there are some things tests don't measure. Like Fiandre's beauty. Its wide array (in fact, the widest) of colors and sizes. The appeal of its newest pattern (Corindo, shown above). Or its record-fast delivery.

So we prepared this ad. If it leaves you with any questions, call Trans Ceramica Ltd., at 312/350-1555 or write P.O. Box 795, Elk Grove Village, IL 60009.

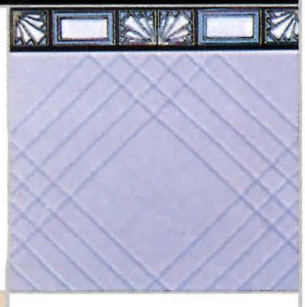
And see why, next to Fiandre, anything else is all wet.

CASTELLARANO
FIANDRE
CERAMICHE SpA

Compared to Fiandre, any other tile starts to look something like this.

Circle 57 on inquiry card

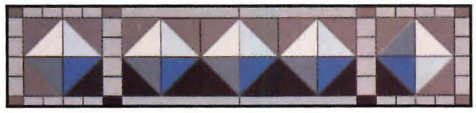

OPALINE
KERAMIK T.M.
A BRILLIANT REFLECTION
A unique line of fully vitrified porcelain tiles polished to a mirror-like reflective sheen. Available in 16 vibrant colors created especially for today's designer market. Suitable for interior and exterior installations in commercial and residential applications.
Opaline Keramik™, a brilliant achievement born of advanced ceramics technology.
KERAVEM
Keravem Ceramica del Verbano SPA
ATLANTIC TRADING COMPANY, LTD. P.O. Box 495, New Cumberland, PA 17070, U.S.A. (717) 938-5648
Circle 58 on inquiry card



TECHNOLOGY AND DESIGN MAKE ITALIAN TILE KING

Italian tiles are the undisputed leader of the world's ceramic tile industry. In 1987, Italy produced a total of 3.8 billion square feet of ceramic tile, or 35 percent of the world's output. According to Assopiastrelle, the Association of Italian Ceramic Tile and Refractories Manufacturers, Italy produced more than twice the square footage of second-place Brazil, and nearly three times that of third-place Spain.

Currently, more than 360 Italian companies manufacture ceramic tile, with scores more involved in support industries such as design, distribution, raw materials and equipment manufacture. Combined, their efforts place ceramics high on the list of post-war economic miracles that have enabled Italy to overtake Great Britain as the fifth major industrial power in the Western world.



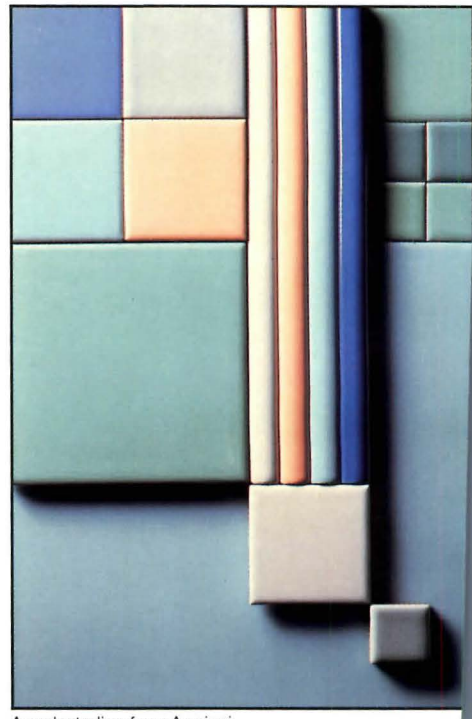
Tile is fashion that sparkles with style and stands in testimony to the purest elements of good design.

More than 100 countries actively import Italian tiles in spite of their domestic production. Why? The synergy between Italian technology and design makes Italian tile king.

Italian Style and Design

Tile is fashion, as the Italians have always known. Fashion, not in the sense of mere fad, but fashion as a means of self-expression, a personal art form that sparkles with style and stands in testimony to the purest elements of good design.

The fabric of Italy's national heritage is woven with a devotion to the principles of good design. The Coliseum,



Arredosterling from Appiani

the Sistine Chapel and the works of Michaelangelo recall its ancient roots. A walk down Via Montenapoleone, the Champs Elysees of contemporary Milan, confirms Italy's modern allegiance.

It is no coincidence that many of the great names in today's fashion circles ar Italian. Milanese designers pose the firs serious challenge to the Paris couture in more than a century. Since tile has always been fashion to Italians, it was an eminently logical step for Italy's great tile houses to mesh with its renowned couturiers in their quest for ever more i novative designs.

The Piemme tile company was perhaps the first, commissioning Valentin who created murals, hand-painted and bas-relief tiles in damask, floral prints and tiny patterns as intricate as fabric. Now, other name designers such as Mi soni, Krizia, Ferre, Oleg Cassini and Laura Biagiotti are also designing tile. The companies emerging as the style leaders include Ceramica Vogue, Asco Candia, LaFaenza, Gabbianelli and Cedit. Together, they give form to the imagination through a virtually limitle array of tile patterns, colors and textures.

Photos: from top left.
Elegraph from Rex Ceramiche Artistiche
Miraggio by Sant'Agostino
Courtesy of Italian Tile Center

Ceramica Vogue's
Interni Collection

Courtesy of Assopiastrelli

Courtesy of Italian Tile Center

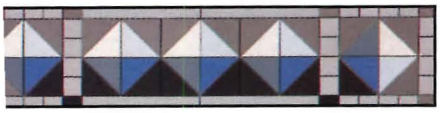
Italy introduces its new designs each
l at the ceramic tile exposition in
ɔlogna. Although the new season's
lors, styles and patterns are as closely
arded as any couturier's designs, only
ly has the technical capabilities to
ɔve a unique drawing-board idea into
ll-scale factory production.

ECHNOLOGY & INNOVATION

Italian innovations have introduced
e world to terra cotta styles which re-
ire almost no maintenance; porcelain
es that are harder than natural granite;
d glazed tiles that virtually defy
rasion.

Although other countries have begun
mestic manufacturing in response to
rgeoning demand, their technology,
eir equipment and often even their
chnicians are consistently Italian. Italy
s the world's standard.

Each year, Italian tile manufacturers
e Iris, LaFaenza and Marazzi spend
llions of dollars on research and
velopment. "Research and develop-
nt are vital components in maintain-
; Italy's superiority in international
rkets," explained Donato Grosser,
rketing and management consultant
Assopiastrelle.



***ılian technology is
ntinually in ferment:
ɔneering new products;
ɔss-pollinating the benefits
one tile with another.***

:alian technology is continually in
ıent: pioneering new products; cross-
inating the benefits of one tile with
:her. Perhaps the most far-reaching
kthrough in recent years was the in-
uction of monocottura or single-
l tiles. Led by Marazzi, said to be
irst company to manufacture
ocottura, the single-fired tiles have
ɔlished an industry standard.

Monocottura: The Revolutionary Process

As the name implies, monocottura tiles undergo a single pass through the kiln. Unlike double-fired (bicottura) and thrice-fired tiles in which the shaped raw material, decoration and glaze are added in separate steps, all the elements of monocottura tiles are fused in a single process.

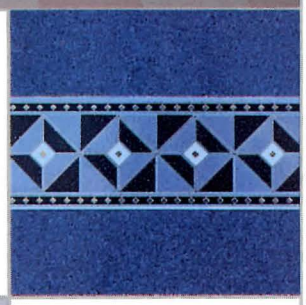
The advantage is not merely the elimination of a manufacturing step. Monocottura tiles demonstrate higher glaze/body adhesion, higher mechanical resistance and greater overall durability. In other words, monocottura technology offers improved performance without sacrifice to design.

As a result, monocottura is now the tile of popular choice. Double-fired tiles account for only about 15 percent of U.S. imports and are used primarily on walls and in light traffic areas such as residential bathrooms, according to Assopiastrelle's reports.

Italy's current research centers on producing modular tiles that fit together like pieces of a jigsaw puzzle; polishing techniques that generate tiles with a mirror-like shine; ever more extensive color palettes; and on the fusion of various materials into ceramic tiles.

Italian technological experiments with firing temperatures, glazing, oxides, glass and other raw materials ultimately produce tiles with better colors, better performance and ever more powerful designs, for the heart of the Italian tile industry is the marriage between technology and design.

Acrobaleno from Candia



TILE AMERICAN STYLE

The pharaohs decorated their pyramids with tile; the Chinese adorned imperial palaces; and Americans, well, until recently Americans relegated ceramic tile to the bathroom.

Today, ceramic tile is finally coming of age in America. According to reports published by the U.S. Department of Commerce, the use of ceramic tile has nearly doubled in less than a decade, soaring from 549.8 million square feet in 1978 to 958 million square feet in 1986, the last year for which complete figures are available.

Preliminary figures for 1987 place total U.S. consumption at an estimated 998 million square feet, according to Martin Philips, executive vice president of Economic Industry Reports, Inc., a New York company specializing in economic projections for the ceramic tile industry. "In 1997, we're projecting that the consumption of ceramic tile will increase more than 70 percent, ranging from a low of 1,720 million square feet to a high of 1,975 million square feet."

Currently, more than half of the ceramic tile used in the United States is imported, and the bulk of it is Italian. "Italian tile is a near-perfect product," explained architect Frank Key of Dallas-based Sullivan Key Merrill Architects and Planners, Inc. "Italian tile has the colors, sizes, the sophistication and the performance characteristics."

The inherent value of tile lies in its durability and low maintenance requirements as well as its style.

TILE IS COST-EFFECTIVE

As we come to better appreciate the value of life cycle economies, we realize that the inherent value of ceramic tile lies in its durability and low maintenance requirements, as well as its style.

"The advent of the great American shopping mall changed our perception of tile," explained architect Stephen Casey of Pittsburgh-based UDA Architects. "For large public spaces and high-traffic areas where time, cost and maintenance are important considerations, ceramic tile offers the optimum solution."

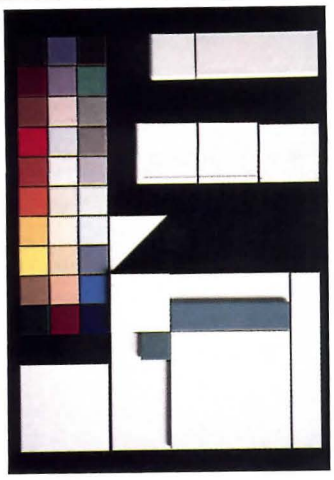
With the advent of single-fired monocottura tiles and advances in glazing technology, Italians are producing low maintenance tiles that are nearly impervious to staining, scratching and other forms of wear.

As a building material, tile offers a great deal of style for the price, according to Key. When Sullivan Key Merrill was commissioned to turn an old warehouse into the focal point of the Dallas Contract Design District, they turned to ceramic tile. "Beauty may be priceless, but financial people still want a budget," Key joked. "With ceramic tile, you can use color, scale, even tile

Dallas Design Center: Imola tile

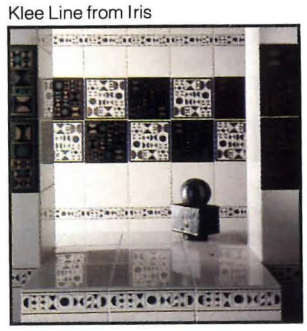
Photos: from top left.
LaFaenza's Selezione Architettura
Courtesy of Italian Tile Center
Courtesy of Italian Tile Center
Fiandre's Ceramic Granite

ogue's
ularity



Candia's
Overline Series

Klee Line from Iris



nes to make a strong but economi-
ign statement."

IS VERSATILE

amic tile is definitely out of the
oom and kitchen and into res-
its, offices and high-end spaces.
tiles are equally at home unifying
ublic spaces in hotels and hospi-
as a decorative item adding ar-
tural interest to dining rooms and
s, according to Loretta C. Fulvio
Louis-based Hellmuth, Obata &
baum, Inc.
e offers countless creative solu-
Tile can be mixed, matched, pat-
or polished. Tile gives life and
o elegant offices, luxury
ooms and sophisticated industrial
gs. Tile adds personality to the re-
corporate image of McDonald's
her fast food chains. Tile directs
ffic flow in hospitals, hotels and
t terminals. Tile makes a state-
s an exterior cladding or a pat-
paver.

***e Americans tend to be
comfortable with
als, several trends are
y emerging.***

adds low-maintenance elan to
n rooms, lobbies, elevators and
nt high-traffic areas. Tile gives
the imagination by encouraging
d interplay between sizes, colors
es.

S IN TILE

e Americans tend to be more
able with pastels, earth tones
trals, several trends are clearly
g. With architects and designers
he way, America is beginning to
he potential of larger tiles. The
ndard 4-in. x 4-in. size has given
-in. x 8-in. tiles among con-
while design professionals often
e 12-in. x 12-in. size and even
6-in. tiles.

Ascot's Linea Laser

Unlike Europeans, Americans have a tendency to think tile is forever, notes Mario Adriani, president of Forms and Surfaces, Inc., the American agent for Cooperativa Ceramica D'Imola. "Even people who will readily strip wallpaper and replace furniture wouldn't dream of changing their tile."

With resale a prime concern, the residential market seems to prefer neutral colors. "Seventy percent of our residential sales are in beige, bone and white," Adriani reports. "However, we're seeing a definite trend toward feature strips." Feature strips, narrow tile bands with colorful or dramatic designs, add a touch of personality while the room remains basically neutral.

"Feature strips make a design statement without dominating the environment," according to Adriani.

Another time-honored favorite, the terra cotta look, is also experiencing a resurgence, reports LaFaenza's Mario Lenzi. "While cotto has been warming the floors of chateaus, villas and other historic buildings for centuries, the best of today's tiles eliminate the heavy maintenance and elaborate installation requirements of traditional cotto."

Where the drama of pure design is the desired effect, ceramic mosaics are leading the way. The sophistication of Italian technology is producing an array of tiles so modularly sized they fit together like a jigsaw puzzle, explained Ceramica Vogue's Giampaolo Bedeschi.

The trend toward tiles that duplicate marble, granite and other natural stones is expected to remain strong. "Italian faux tiles offer a lot of style for the dollar," explained Walter D. Arnold III, AIA, of Dallas-based ABV & Associates. In the faux category, Fiandre is without peer. Fiandre's Ceramic Granite™ line duplicates the look and feel of natural granite and is available in a wide variety of colors and sizes, including a new 16-in. x 16-in. tile.

Another important design trend is the three dimensional look. Experiments with relief, color, shading and contrast have introduced new forms of ceramic art such as the Evoluzione line from Iris, the Overline Series from Candia, the QEMT and Miraggio collections from Sant'Agostino.

For the more daring, there are intricately patterned tiles which form dramatic murals, distinctive geometrics or delicate free-flowing designs. Perhaps the best of these are designed by La-Faenza, Candia, Ascot and Cedit.

No matter what the project, no matter what the constraints, Italian tiles offer countless creative solutions. With a seemingly endless array of colors, sizes and styles, Italian tiles give form to the imagination and encourage the creation of distinctive signature designs.

Durable Ceramic Stoneware

12 X 12 MATCH: MALACHITE, ALUMINUM, CORAL, PEARL BLUE, CHARCOAL
MERLE HAY MALL FOOD COURT, DES MOINES, IOWA

ARCHITECT - CHARLES CONLON & ASSOCIATES
INTERIOR DESIGN - JUDITH SCHUMANN, INTERIORS, LTD.
TILE CONTRACTOR - DES MOINES MARBLE & MANTLE CO.

Introducing Match. A revolutionary, new glazed ceramic tile developed in Italy to maintain its beauty on floor areas of the most concentrated traffic and harsh use. Manufactured by an innovative firing process which solves the problem of microscopic glaze craters which in the past have made ceramic tile floors difficult to maintain. The unique properties of Match increase abrasion resistance. A thick glass glaze is solid color throughout and easy to maintain. Available in 12 vibrant and subtle colors in smooth and nonskid surfaces. Its luster, durability and beauty can't be Matched.

MATCH

By

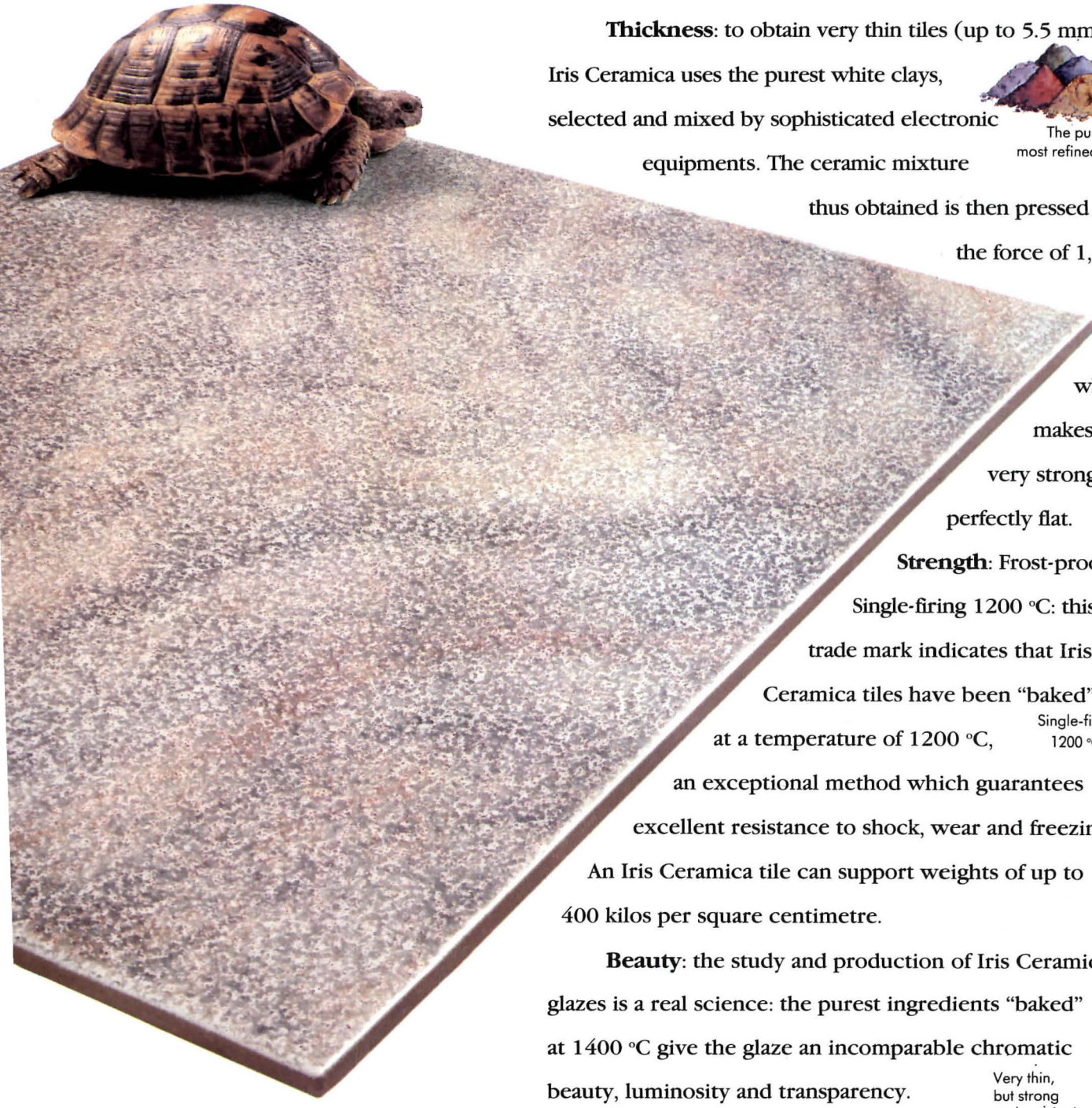
cmonoceram

CMC MONOCERAM • Via Pana, 10 • 48018 Faenza, Italia • Phone 546-46016 • FAX 546-46368 • TLX 550573 MONCER I

Circle 59 on inquiry card

HAVE YOU EVER SEEN A 40 x 40 TORTOISE?

Such a tortoise may exist. But a tile of that size is very hard to find. Iris Ceramica 40x40 cm tiles: very tough and very beautiful.



Thickness: to obtain very thin tiles (up to 5.5 mm), Iris Ceramica uses the purest white clays, selected and mixed by sophisticated electronic equipments. The ceramic mixture thus obtained is then pressed with the force of 1,500 tons: a process which makes the tiles very strong and perfectly flat.

The purest and most refined white clays.

Strength: Frost-proof Single-firing 1200 °C: this trade mark indicates that Iris Ceramica tiles have been "baked" at a temperature of 1200 °C, an exceptional method which guarantees excellent resistance to shock, wear and freezing. An Iris Ceramica tile can support weights of up to 400 kilos per square centimetre.

Single-firing 1200 °C.

Beauty: the study and production of Iris Ceramica glazes is a real science: the purest ingredients "baked" at 1400 °C give the glaze an incomparable chromatic beauty, luminosity and transparency.

Very thin, but strong and resistant.

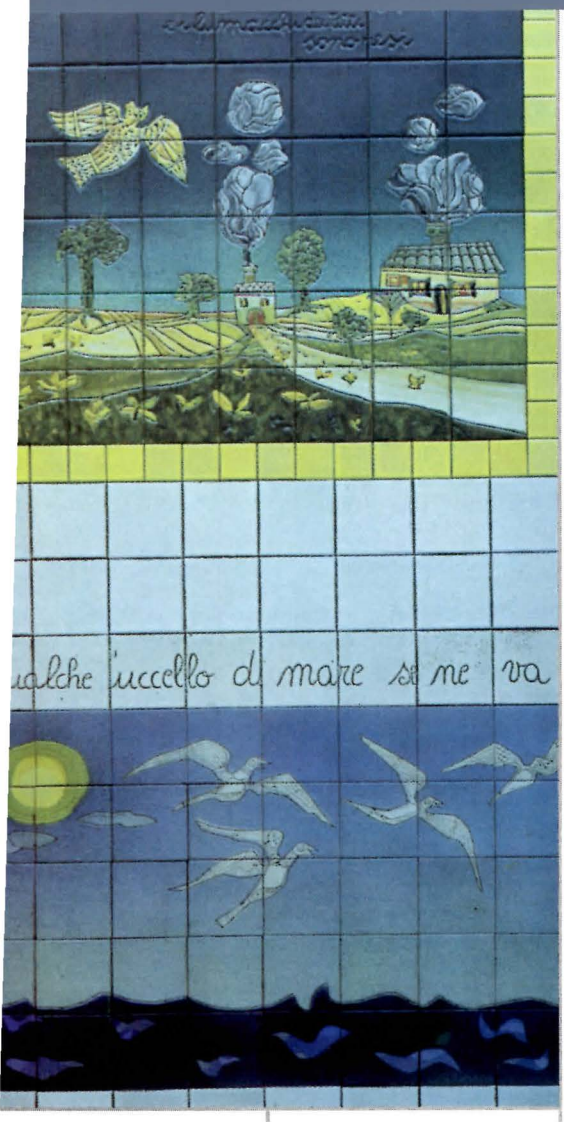
roof

iris® Ceramica

THE PARTICULAR MAGIC OF GENUINE CERAMIC.

Via Ghiarola Nuova, 119 - 41042 FIORANO MODENESE (MO) Italia - Tel. 0536-862488-862498

Circle 60 on inquiry card



THE ITALIAN-AMERICAN CONNECTION

The glittering potential of the U.S. ceramic tile market beckons Italian manufacturers like a modern-day siren. Europeans, who have long known the secret of tile's economy and versatility, utilize an average of 15 square feet per capita with Italian architecture leading the way at 30 square feet per capita. While the United States currently averages only three square feet of ceramic tile per capita, the figure is steadily rising.

Italian manufacturers see the United States as a major growth market, confirms Danato Grosser, marketing and management consultant for the Association of Italian Ceramic Tile and Refractories Manufacturers. "With American ceramic tile consumption at such a low level, an increase of even a few percentage points translates to millions of square feet of tile."

Lured by the tremendous potential of the U.S. market, many Italian tile manufacturers are positioning themselves to capture a share of the anticipated growth.

Their strategy: blend their heritage of technology and design with a native's understanding of American market conditions.

Currently, more than 100 Italian companies sell tile in the United States. However, 60 to 70 percent of the business is done by approximately 20 companies. Some of these manufacturers have local agents who develop distribution systems; some rely on company salesmen who spend four to five months each year in the United States.

The most far-sighted companies have established American subsidiaries, many with domestic manufacturing facilities. Two of the leaders in this field are American Marazzi Tile, Inc. and La FaenzaAmerica, Inc. Their strategy is t blend their heritage of Italian tile technology and design with a native's under standing of American market condition and trends.

American Marazzi Tile, Inc.

Marazzi Ceramiche of Sassuolo, Ita was perhaps the first to establish an American subsidiary. Recognizing the U.S. potential for its superior glazed product line, as well as the problems in herent in importing large quantities of tile from Italy, Marazzi Ceramiche ide tified domestic manufacturing as its ke to the American market.

In 1982, American Marazzi Tile, Inc., a wholly owned subsidiary of Marazzi Ceramiche, began manufactu ing tiles in Sunnyvale, Texas. "Domes manufacturing dramatically increases our flexibility, which translates to quic er deliveries and lower costs for our cu tomers," explained Janis Etzcorn, cor munications manager for American Marazzi.

Aided by the expertise of the Italia operation, which is universally ackno edged for the superiority of their glaz and colorants, American Marazzi beg producing 8″ x 8″ glazed floor tiles less than six months. "Additional kil will be added in the future," Etzcorn noted, "and at that time we will intro duce an additional size."

While Marazzi Ceramiche manufa tures tile for 50 countries on five con tinents, American Marazzi concentra solely on the American market, "whi gives us the flexibility to create colors styles and patterns only the America market demands," Etzcorn stressed.

With Marazzi Enduro™, a new, tremely wear-resistant glazed tile and additional lines, American Marazzi fers the American architectural and design community the benefits of Ita tile technology and the convenience local manufacturing.

LaFaenzaAmerica, Inc.

LaFaenza, S.p.A., a company wo renowned for technical innovations the artistry of its designs, also identi the subsidiary route as the most effe means of entering the American ma Given the extent of LaFaenza's proc

Photos: from top left.
Courtesy of Assopiastrelli
LaFaenza's Selezione Architettura

American Marazzi's Canyon Stone

LaFaenza's Cotto Faenza

Mapei's Designer Grouts

lines, the company deemed that an American manufacturing facility could not be operated cost-effectively, and opted to concentrate its efforts on the sales and distribution aspects of the ceramic tile marketing equation.

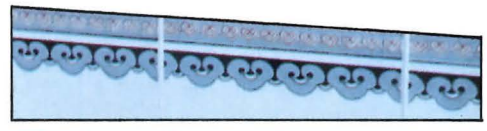
In 1986, San Francisco-based La FaenzaAmerica, Inc. opened its doors. "We expedite and coordinate the flow of tile into North America and at the same time keep Italy apprised of prevailing market conditions and developing trends," explained Larry Friedman, the company's executive vice president.

The easy contact with an American address benefits LaFaenzaAmerica's coast-to-coast distribution network by providing them with ready access to accurate inventory information and shipping dates, as well as an instant source for any technical questions that may arise.

The big winner under the LaFaenza/LaFaenzaAmerica arrangement is the American architectural and design community. The company's strategy cuts delivery time and increases the number of styles and sizes that are readily available. "We stock approximately 225 styles and sizes which can be shipped in one day, reaching any part of the U.S. within a week," Friedman stressed.

The scope of LaFaenza's commitment to the American architectural and design market is demonstrated in its Selezione Architettura and Cotto Faenza lines. Cotto Faenza, which offers the warmth and ambiance of traditional terra cotta without the elaborate maintenance requirements, was developed primarily for the American market.

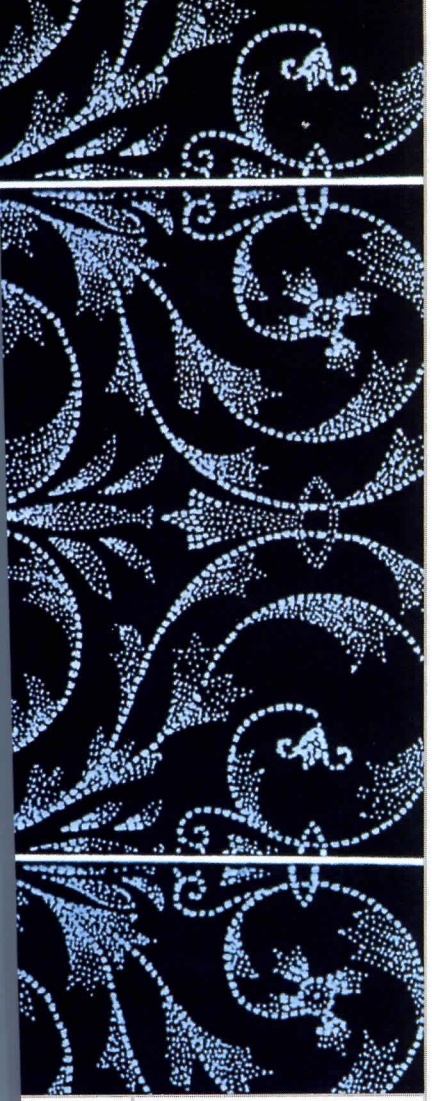
"With the LaFaenza/LaFaenza-America formula, architects and designers have ready access to the company's full range of colors, sizes and styles," Friedman added.



Their goal: provide American architects and designers with selection, service and guaranteed availability.

Despite the diversity in their product lines, both of these companies identified a domestic operation as their key to the American market. Each has carved its niche by combining the technical and design expertise of its Italian heritage with a native's understanding of the unique needs and constraints of the American market. Although their specific strategies may differ, these companies share a common goal—to provide American architects and designers with selection, service and guaranteed availability.

Circle 61 on inquiry card



Courtesy of Italian Tile Center

SPECIFYING THE RIGHT TILE FOR THE JOB

by Jess McIlvain, AIA, CCS, CSI

All ceramic tiles are not created equal. The wide variety of tiles available in the American marketplace necessitates that architects and designers understand certain basic technical distinctions in order to match a tile's performance characteristics with project requirements.

Tiles manufactured for bathroom walls, for example, would be disastrous as an exterior cladding, just as flooring tiles for a residential kitchen will not endure on the floors of commercial kitchens. Failure to adequately consider the characteristics of a specific type of tile is a common cause of installed tile failures.

Fortunately, the American National Standards Institute (ANSI) A137.1 - the "Standard Specifications for Ceramic Tile," which includes American Society for Testing and Materials (ASTM) test procedures, provides a standardized system for evaluating a tile's key characteristics. ANSI A137.1 makes it possible to compare one tile with another and provides a realistic benchmark for predicting on-the-job performance in such critical areas as ease of installation; degree of maintenance required; and how well it will look and perform over the life of the structure. Tiles meeting requirements of ANSI A137.1 are classified as "Standard Grade."

HOW THE STANDARD WORKS

Independent testing laboratories can readily establish any tile's performance characteristics through a series of tests specified in ANSI A137.1. Although nine to 11 separate tests are usually performed, there can be more. These tests measure the physical and technical properties that will determine tile performance.

Which of these characteristics is most important depends on the application for which the tile is being considered. When you're planning an exterior job, a tile's water absorption rate becomes vitally important.However, if you're considering tile for the flooring in an industrial facility, its breaking strength would become a key factor.

Remember, however, ANSI A137.1 establishes only the *minimum* performance level a tile must meet in order to be in compliance. Most Italian tiles produce results much higher than these minimums, ensuring that they will perform as well as or better than required.

THE TESTS

Architects and designers can readily investigate any tile before recommending it merely by requesting a copy of the tile's test results from the manufacturer or distributor. Although Italian tiles are thoroughly tested at every stage of development, the finished product is also evaluated against standards established by the Comite Europeen de Normalisation, the European equivalent of ANSI. For compliance in the American market, Italian manufacturers who are significant suppliers also have their tiles retested according to American standards.

The tests that are usually of greatest interest deal with water absorption, durability and dimensional accuracy. Color uniformity and porosity may also be important considerations.

Water Absorption

Water absorption (ASTM C373) is a critical factor in both stain- and frost-resistance. Generally, the lower the absorption rate, the more resistant the tile is to staining. In impervious tiles, such as porcelain tiles, material that might permanently discolor the tiles is more likely to remain on the surface, where it does less damage and is less difficult to remove.

Architects and designers can readily investigate a tile's performance characteristics merely by requesting a copy of its test results.

ANSI A137.1 water-absorption requirements are highest for porcelain tiles, requiring them to absorb no more than 0.5 percent. Within the porcelain tile category, however, be aware that for some tiles such as Fiandre's Ceramic

Granite series, absorption can be as little as 0.04 percent.

ANSI A137.1 places quarry tile and glazed wall tile on the other end of the the water-absorption spectrum. An absorption rate of 5.0 percent is permitted for quarry tile while 18.0 percent is acceptable for glazed wall tile.

Natural clay tiles fall somewhere in between, depending on whether or not they're glazed and the density of the clay body used in the tiles.

Resistance to repeated **freezing and thawing (ASTM C1026)** is related to moisture absorption, although it is determined by a separate test. When tiles freeze and thaw, they expand and contract. This can induce crazing, cracking, spalling or bond failure in tiles not designed for use under these conditions. The key point to remember here is that the more moisture a tile absorbs, the more freeze/thaw conditions can affect it. Hence, the lower the tile's absorption rate, the more it's suited for exterior uses in freezing climates.

Breaking Strength

Superior breaking strength is a significant indicator of a tile's ability to handle tough commercial environments, an important consideration where heavy equipment and rolling loads are a factor.

The **breaking-strength test (ASTM C648)** measures the amount of pressure a tile can bear. While ANSI A137.1 requires a minimum of 250 for most types of tiles, some tiles can withstand much greater pressure than others.

Porcelain tiles, for example, would normally be stronger than many nonvitreous tiles. Most Italian porcelain tiles perform well above the 250 pound minimum. At the other end of the spectrum, glazed wall tiles are only required to perform at a minimum of 90 pounds.

Dimensional Accuracy

The **thickness-range test (ASTM C499)** examines the edges of the tiles for uniform dimensions. Specifically, ANSI A137.1 requires the thickness to be controlled within 0.030 and 0.050 of an inch for various types of tiles.

Uniformity of thickness is important for aesthetic as well as practical considerations, especially in floor tiles. Tiles with substantial variations in thickness are likely to result in uneven floors with lippage between tiles.

From a practical standpoint, uneven floors have the potential for liability problems should someone trip on the edge of a high tile. In addition, if the tile has uneven edges, the higher edges will chip or break when subjected to heavy commercial traffic. To avoid these problems, extra man-hours and dollars may be required in an attempt during installation to adequately build up the low points and cull out tiles with excessively uneven edges.

From an aesthetic viewpoint, the use of uneven tiles can create shadows or waves in the resulting installation.

The **facial-dimensions test (ASTM C499)** measures the uniformity of a tile's surface. The test gauges both the tile's thickness (as described above) and how precisely the tile conforms to its specified length and width. Even seemingly insignificant size differences between pieces can require extra care and man-hours during installation. If sufficient care is not taken, unsightly variations in the width of grout joints may be noticeable when the project is finished. Tiles which meet or exceed specified requirements provide neat, even grout joints.

Many Italian tiles exceed facial-dimension requirements specified in ANSI A137.1 and can be installed with narrow grout joints. Under certain conditions on walls, they can even be installed with the edges butted together to create a groutless look.

To evaluate tile, follow this simple rule of thumb: the higher the product's ratings, the better its performance.

In this category, ANSI A137.1 is most strict for glazed wall tiles, permitting no more than 0.6 percent variations within a given lot of tiles. It permits a range of up to 1.5 percent for a test lot of paver tiles.

Warpage (ASTM C485) and **wedging (ASTM C502)** can create similar problems with aesthetics, safety, installation and maintenance. Wedging means that the dimensions of the tile are not equal on all four sides (keystone shaped), while the term warpage is used when a portion of the tile is concave or convex.

ANSI A137.1 requirements range from an acceptable maximum of 0.4 percent of the algebraic averages of all edge warpages and all diagonal warpages for glazed wall tiles to 1.5 percent along any edge or 1.0 percent on either diagonal for each of the quarry tiles in a test sample.

Warpage of paver tiles and ceramic mosaic tiles falls in the middle with the warpage of each tile in the sample not exceeding 1.0 percent along any edge or 0.75 percent on either diagonal.

On wedging, ANSI A137.1 sets a maximum of 0.6 percent for each glazed wall tile in the sample, and up to 2.0 percent for both glazed and unglazed ceramic mosaics.

Remember though, ANSI standards establish only the *minimum* level to which a tile must conform. Certain Italian manufacturers such as Ceramica Vogue have gone to great lengths to produce a new generation of glazed mosaic tiles that meet the far higher warpage and wedging standards of other categories.

MODULAR TILE

Many designs used by creative architects and designers call for several sizes of tiles to produce exciting layouts and patterns. In order for such designs to work, tiles have to be manufactured on a modular sizing system.

Frequently, tiles from several sources are used to create designs. Unfortunately, tiles from different manufacturers (and all too often from a single manufacturer) may not be made to the same module, i.e., 6″ x 6″ tiles may not fit within 12″ x 12″ tiles and have grout joints of the same width. In some cases, two 6″ tiles are larger than one 12″ tile. Such irregularities would destroy designs where these two tiles are mixed.

Some Italian manufacturers have mastered the technique of producing modular sized tiles. Regardless of whether the design calls for 2″ square tiles, 6″ or 12″ square tiles, they would fit and work perfectly together to create patterns with uniform grout joins and continuity between modular tile sizes.

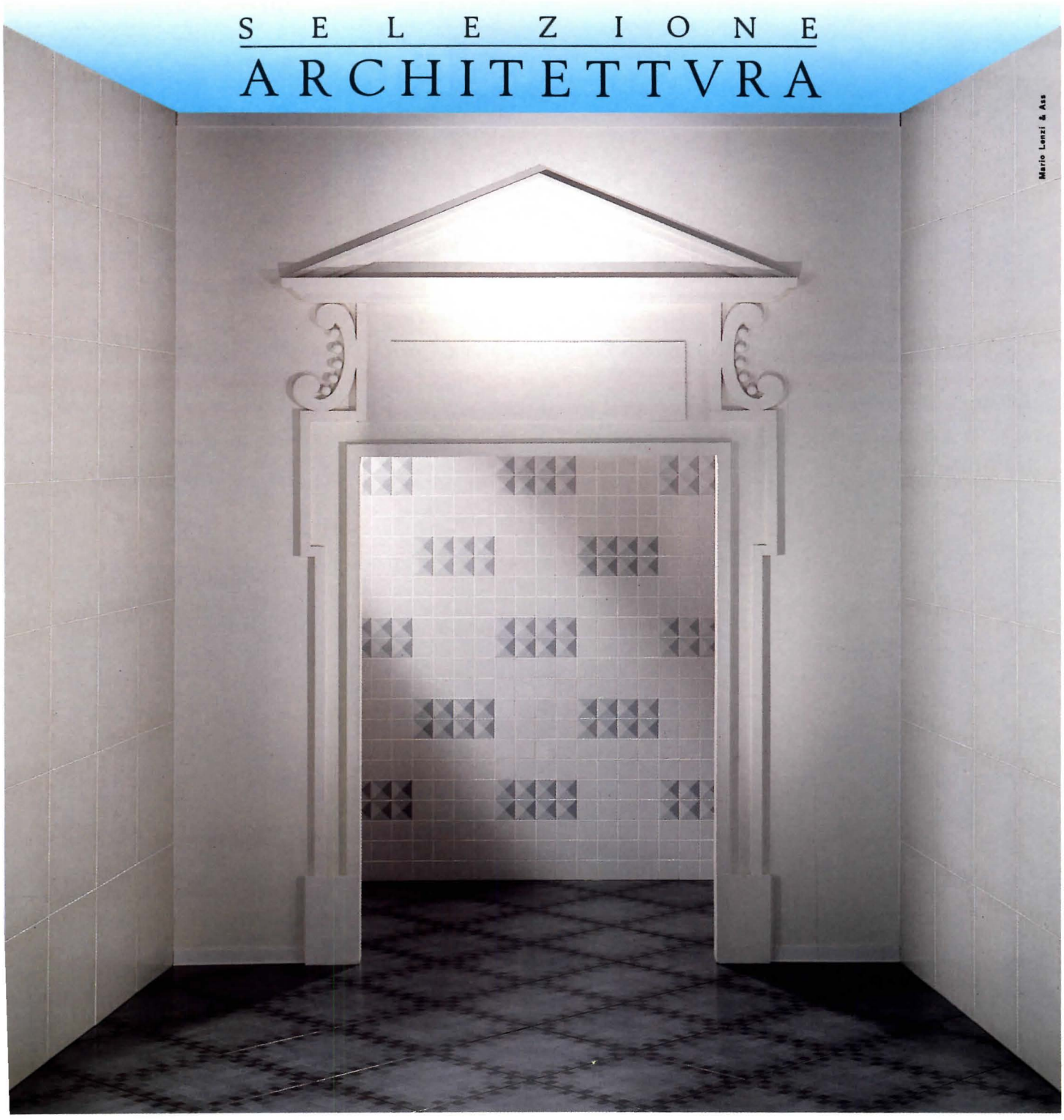
This concept works for any size tile, as long as they fit within the modular concept. Ceramica Vogue, for example is an Italian manufacturer who takes great pride in the modularity of its products. Architects and designers can readily mix and match tiles from any of Ceramica Vogue's lines.

***Jess McIlvain** is a leading independent consultant on installation of ceramic and marble tiles and causes of installation failures. He is a registered chitect and corporate member of the American Institute of Architects; member of ASTM; a professional member the Construction Specifications Institute and a Certified Construction Specifier.*

He is listed in the American Bar Association Register of Expert Witnesses in the Construction Industry. He is a construction arbitrator for the American Arbitration Association and serves on various construction industry committees.

S E L E Z I O N E

ARCHITETTVRA



)n the side walls: Tela Bianco 50 × 50 cm. On the floor: Tela nero 50 × 50 cm. On the back wall: Ombra 4 bianco 10 × 10 cm. in composition

Art and Industry

Proposals of art
in industrial production

elezione Architettura is a programme
f products and services developed by
aFaenza architects for the designers
id architects of the whole world.

CERAMICHE LAFAENZA

Ceramiche LaFaenza s.p.a.
via Emilia Ponente, 8 - 48018 Faenza - I
tel.: 0546/620800 (12 linee r.a.)
telex: 550290 Faenza I - telefax 620761

Circle 62 on inquiry card

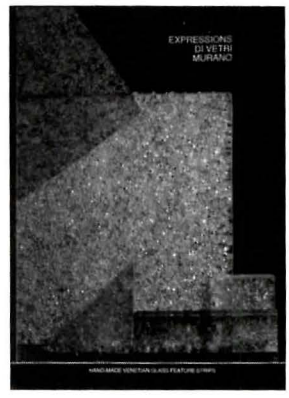
PRODUCT LITERATURE

Ceramica Vogue's Fully Modular Architectural Tiles

"Notebook," the new 25-page design guide from Ceramica Vogue features 105 possibilities that can be created with Vogue's fully modular line. Available in 30 colors and 14 sizes, the collection includes mosaics, hand-painted inset pieces, feature strips and trim pieces. *Ceramica Vogue.*
Circle 443 on reader service card.

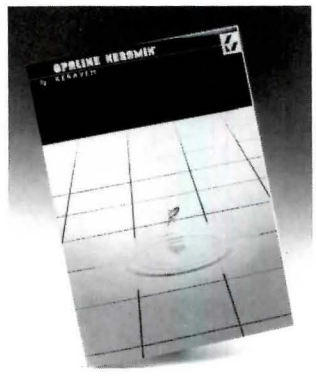
Luminous Glass Feature Strips

Expressions Di Verti Murano, a new four-color brochure, introduces sparkling accent bands and insert pieces handmade of luminous Venetian glass. Available in a wide range of jewel-tone colors. *Atlantic Trading Company.*
Circle 445 on reader service card.



Tiles with a Reflective Sheen from Opaline

Highly polished porcelain tiles in 17 reflective colors are presented in the Opaline catalog. Four-color photos illustrate interior and industrial installations and exterior cladding applications. *Opaline.*
Circle 444 on reader service card.



Architectural and Designer Tiles from LaFaenza

The Selezione Architettura catalog presents an extensive collection of tiles created specifically for the architectural community, including solid colors, refined geometrics, intricate relief patterns and tiles that mirror marble, granite and other natural stones. *LaFaenza.*
Circle 446 on reader service card.

For additional information on any of the tiles shown in this supplement, contact The Italian Tile Center, a division of the Italian Trade Commission, 499 Park Ave., New York, NY 10022, (212) 980-8866


BORDER LINES
Drama that doesn't dominate.
Accenti, versatile ceramic feature strips, to form colorful accent bands and moldings or make a statement framing mirrors, doorways... even accenting other designs.
Readily available in solid, crystallized or metallic colors or with marble, burled wood and sculptured effects.
ATLANTIC TRADING COMPANY LTD.
P.O. Box 495,
New Cumberland, PA
17070, U.S.A.
(717) 938-5648
Circle 63 on inquiry card

Brochure Introduces Marazzi Enduro™

Marazzi Enduro™, a new glazed tile designed for commercial installations, premieres in a new technical brochure. Available in 12 high-gloss colors and four matte colors, Marazzi Enduro™ carries a 10 to16 year warranty covering wear and cleanability. *American Marazzi Tile.*

Circle 447 on reader service card.

Accent Strips for Drama That Doesn't Dominate

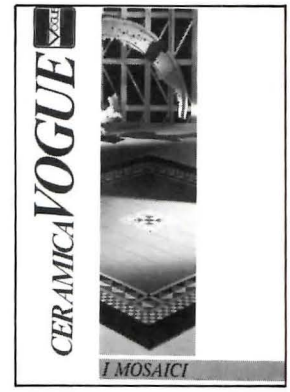
A new brochure entitled Accenti introduces a versatile line of ceramic feature strips in solid, crystallized and metallic colors or with marble, burled wood and sculptured effects. *Atlantic Trading Company.*

Circle 450 on reader service card.

Classic Art of the Mosaic Comes Alive

Mosaici, a new 16-page catalog explores the intricate design possibilities of this fully modular, glazed tile system from Ceramica Vogue. Available in four sizes and 32 precision patterns suitable for interior or exterior use. *Ceramica Vogue.*

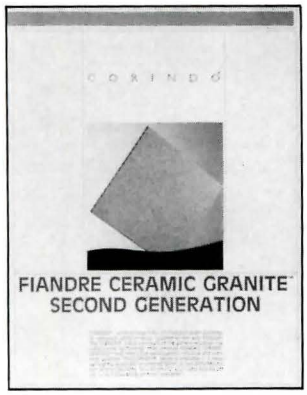
Circle 453 on reader service card.



Fiandre Introduces New Corindo Brochure

The second generation of Fiandre Ceramic Granite is introduced in a new brochure entitled "Corindo." The brochure highlights the new colors and the addition of the 16″ x 16″ size to this line of fully vitrified porcelain stoneware that duplicates the grain of natural granite. *Fiandre.*

Circle 448 on reader service card.



Monoceram Introduces Glazed Commercial Tiles

Match, a new line of glazed commercial tiles in 12 distinctive colors, is introduced in a new brochure from Monoceram. Available in four sizes with a gloss or skid-resistant finish, these tiles feature an exceptionally durable and easy-to-clean surface. *C.M.C. Monoceram.*

Circle 451 on reader service card.

American Marazzi's 1988 Catalog

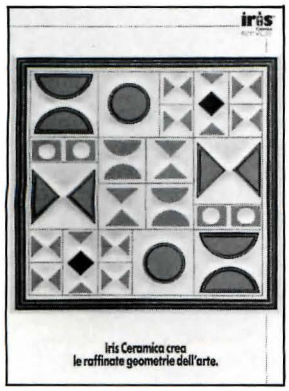
The new four-color "Product Catalog" which displays American Marazzi Tile's entire selection of glazed ceramic floor and wa tile is now available. This 8-page brochure in cludes installation photography, color chips and division office information. *American Marazzi Tile.*

Circle 454 on reader service card.

Iris Presents Geometrics in Relief

The Evoluzione and Klee brochures from Iris introduce new jewels in ceramic art. The lines feature geometric patterns in relief in a rainbow of refined colors. *Iris.*

Circle 449 on reader service card.



Low-Maintenance Terra Cotta Looks

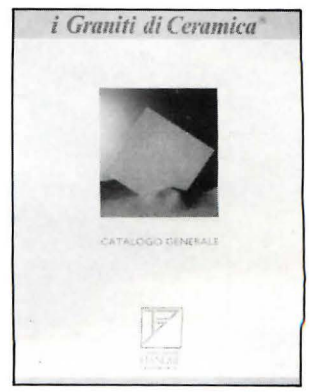
A new line of high performance tile with the warmth and ambiance of traditional terra cotta is introduced in the Cotto Faenza catalog. For interior or exterior use, Cotto Faenza is available in solid colors or rich Renaissance patterns. *LaFaenza.*

Circle 452 on reader service card.

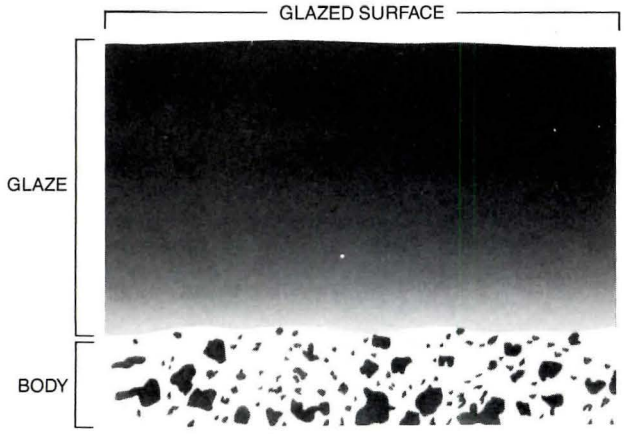
Faux Granite Tiles from Fiandre

A 72-page catalog presents interior and e terior installation ideas and technical infor mation on Fiandre's Corindo, solid color, Ceramic Granite, Industrial and Designer Line collections. *Fiandre.*

Circle 455 on reader service card.



MARAZZI *CHALLENGES TIME*



Microscopic Cross Section of Tile

Marazzi challenges time where foot traffic is heaviest. Where elegance and beauty must be matched with extreme cleaning ease.

The challenge is met with "Marazzi Enduro®," the product of a new technology in the making of glazed ceramic tile. This unique single firing process applies the glaze, a special molten and vitreous material, to the incandescent body after the inherent gases have escaped. The result — a perfectly hard and dense glaze that is completely fused to the body and easily maintained.

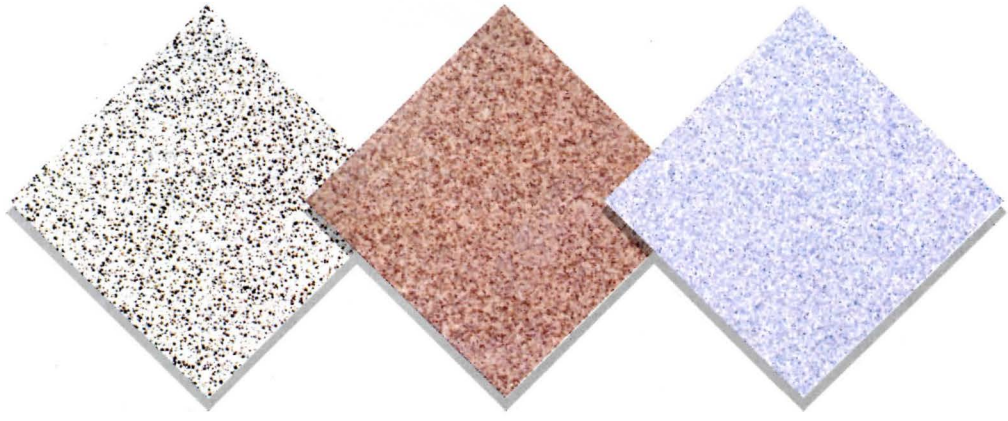
Specify "Marazzi Enduro®" for airports, mass transit facilities, shopping malls — the toughest commercial installations — and we'll back it with a 10-15 year warranty.

The "Gloss" and "Ocean" Series together provide 12 colors with a high-gloss finish in a 12″ × 12″ size. The "Matt" Series offers 4 natural colors, each available with a smooth or "Grip" finish in a 12″ × 12″ size. Cove base trims are offered for "Gloss" and "Matt."

To receive detailed technical information about "Marazzi Enduro®," the glazed ceramic tile that challenges time, call the American Marazzi Tile Marketing Department at (214) 226-0110. For immediate reference turn to section 09300/AIA in the Sweet's General Building & Renovation File.

Traditional single-fired technology captures microscopic gas bubbles in the glaze. As the surface wears, these pores open and dirt becomes trapped within. Marazzi's new process allows these gases to escape and a completely dense glaze results. Resistant to acids, solvents and detergents, "Marazzi Enduro" doesn't harbor dirt and can be completely cleaned with common detergents and water. After years of wear, "Ocean" and "Gloss" can actually be re-polished to their original luster with normal maintenance equipment.

We'll be bringing the timeless beauty of "Marazzi Enduro" to your area soon in the form of a technical luncheon. Call American Marazzi Tile for details.



MARAZZI
ENDURO

AMERICAN
MARAZZI TILE

359 Clay Road
Sunnyvale (Dallas), Tx. 75182
(214) 226-0110

Circle 64 on inquiry card

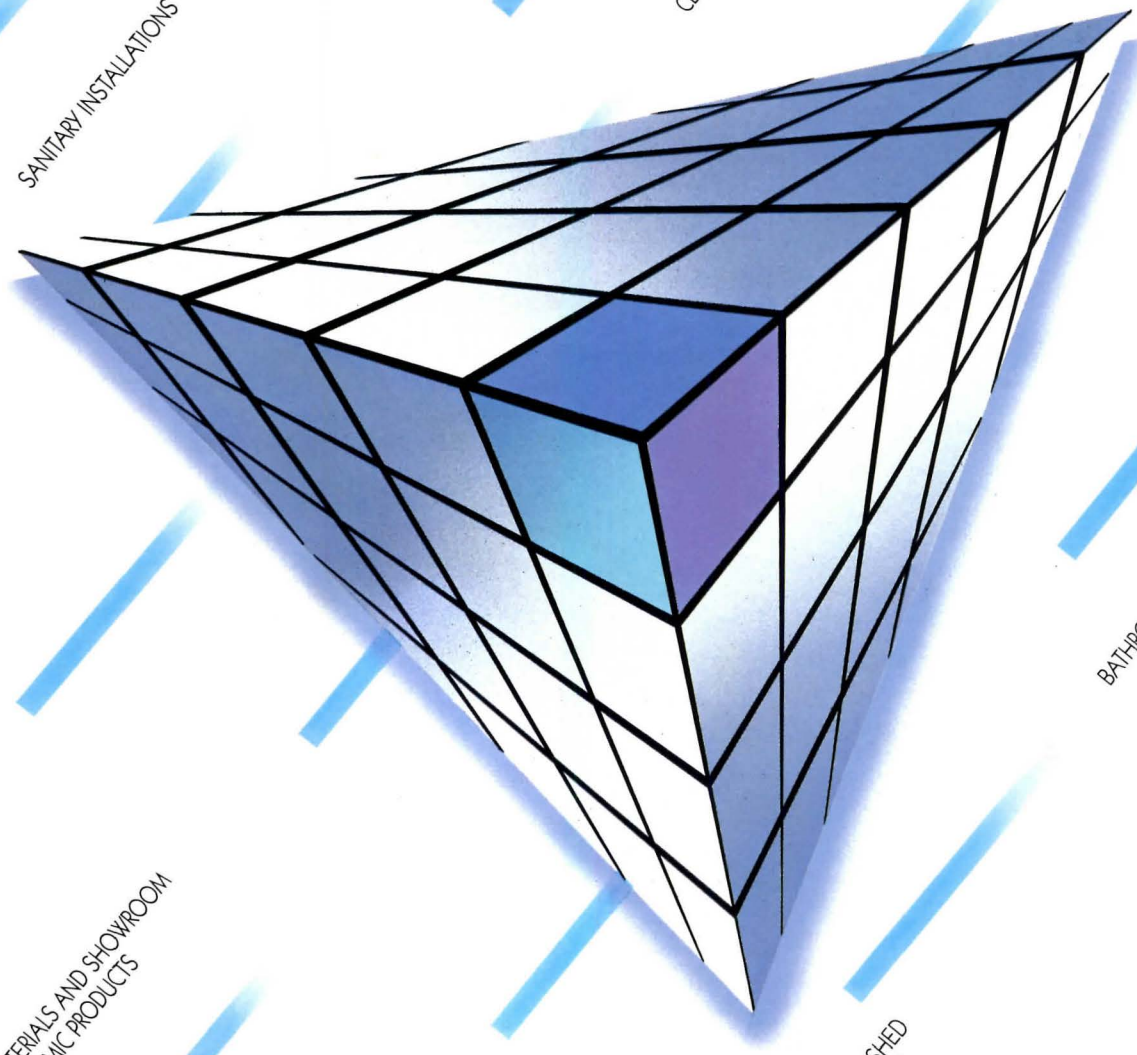
CERSAIE

INTERNATIONAL EXHIBITION OF CERAMICS FOR THE BUILDING INDUSTRY AND OF BATHROOM FURNISHINGS

BOLOGNA (ITALY) 4-9 OCTOBER 1988

CERAMIC TILES

SANITARY INSTALLATIONS



TESTING EQUIPMENT

BATHROOM FURNISHINGS

FIXTURES, MATERIALS AND SHOWROOM DISPLAYS FOR CERAMIC PRODUCTS

RAW MATERIALS, SEMIFINISHED PRODUCTS, EQUIPMENT FOR CERAMICS

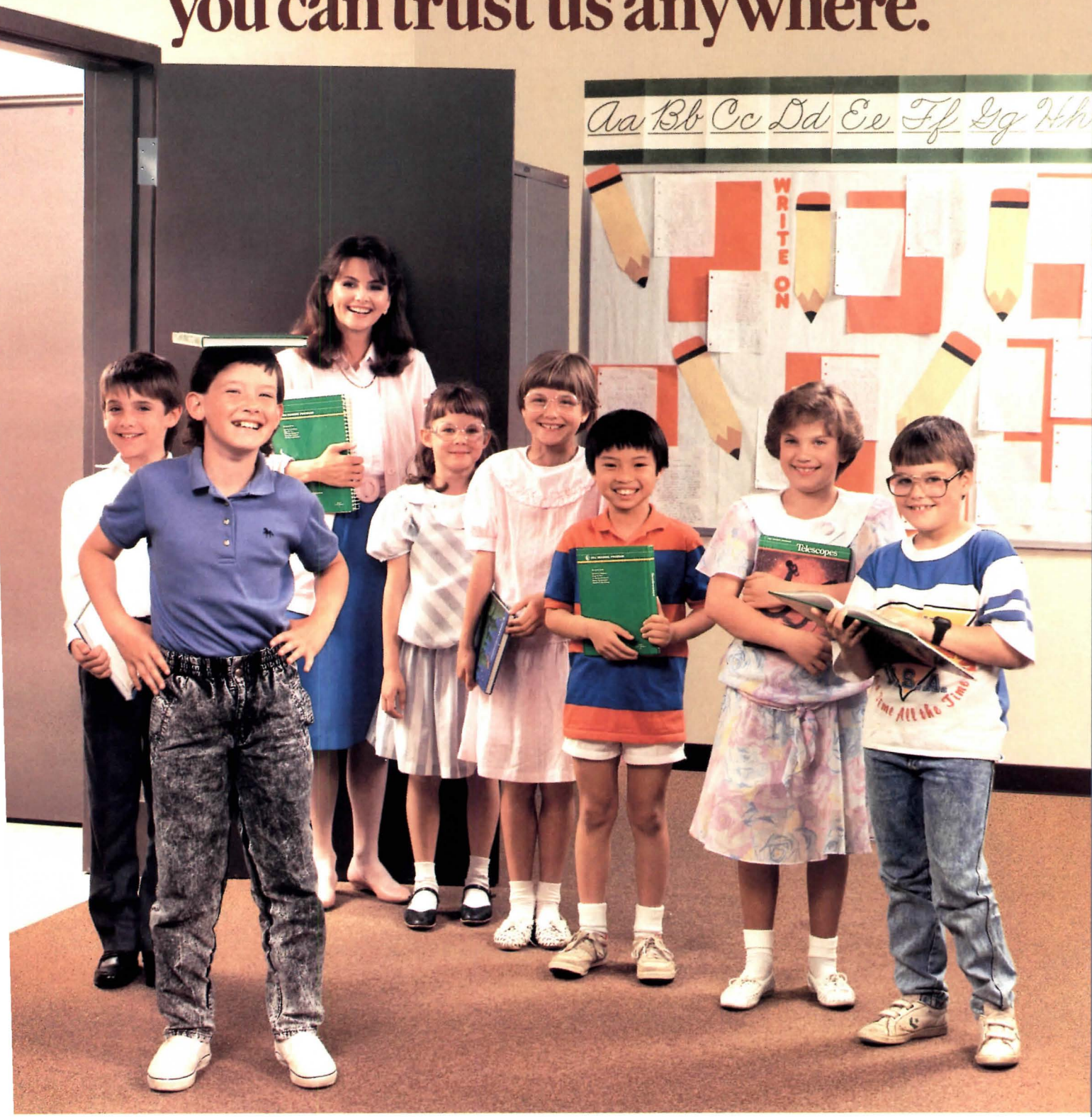
CERSAIE

Sponsored by Assopiastrelle
(Association of Italian ceramic tile and refractories manufacturers)
in collaboration with
the Bologna Ente Fiere.

Information/Press Office: EDI.CER - Viale San Giorgio, 2 - 41049 SASSUOLO (Modena) - Tel. (0536) 805900-804585 - Tlx 511050 - Fax (0536) 806510
Secretariat: CERSAIE - P.O. Box 103 - 40050 FUNO CENTERGROSS - Bologna - Tel. (051) 860040-860041 - Fax (051) 862514 - Tlx. 213499 CERBO I

Circle 65 on inquiry card

Because you trust Steelcraft with your kids... you can trust us anywhere.



Steelcraft products are used in more schools than any other. This tells you something about the strength and dependability throughout the extensive line of every Steelcraft door and frame. That's why you can trust Steelcraft anywhere for durability, selection, appearance and on-time delivery. There's no greater economy than Steelcraft value.

Steelcraft
by American-Standard

9017 Blue Ash Road
Cincinnati, OH 45242
(513) 745-6400

Circle 66 on inquiry card

Spring Rain...Summer Sun

Helios Modular Shelters
at Saddlebrook, Wesley Chapel, Florida U.S.A.

And Winter snow. In every season of the year, Helios Modular Shelters are graceful, colorful structures for shade and shelter. Translucent by day, at night they are a cheerful, luminous accent that glows with underside lighting.

The pre-engineered Helios Modular Shelter is versatile. It can stand alone, or be joined and clustered in any formation that adapts to the requirements of your space. Hexagonal or square configurations in umbrella or inverted tulip shapes are standard.

More than just a pretty parasol, the Modular Shelter is the ultimate in practicality. It has a durable, ten-year-warranty membrane that can be left up through the year or demounted easily. The sturdy steel framework and membrane are engineered for heavy wind and snow loading, meeting many model building codes, and are shipped ready to install in less than a day.

Explore the many possibilities of the Helios Modular Shelter. Our literature tells all.

Helios is a leading fabricator of custom designed soft shell structures, used around the world for their flamboyant, curvilinear shapes, light weight and long life. Send us your idea sketch, we'll help turn it into reality.

HELIOS INDUSTRIES, INC.
Soft Shell Structures Division

Helios Industries, Inc.
20303 Mack Street
Hayward, California 94545, U.S.A.
Telephone (415) 887-4800
Telex 176226
Facsimile 4158870134

Helios Modular Shelters
at Lighthouse Cove, Pompano Beach, Florida

Circle 67 on inquiry card

Books

esigning Paris: The rchitecture of Duban, abrouste, Duc, and Vaudoyer, y David Van Zanten. ambridge: MIT Press, 1987, 35.

eviewed by Aaron Betsky

avid Van Zanten's clear remise and crisp prose mirror e French academic classicist rfection in the work of four minal figures: Félix Duban, enri Labrouste, Louis Duc, and éon Vaudoyer. Van Zanten sees ese 19th-century figures as recursors of modern rchitecture, synthesizing novations in esthetic thought d engineering for new stitutions of a scale previously imaginable. Other historians—ost notably Neil Levine, Robin iddleton, and the late Donald rew Egbert—have recently amined the Beaux-Arts adition, but Van Zanten's ntribution is twofold. First, he gues that these four architects naged to convert the more nderous and archaeological proach promoted by the early h-century Ecole des Beaux-ts into the Néo-Grec style, a ipped-down classicism that t itself to new methods of istruction. They thereby found ms appropriate to the more ional, less autocratic state t arose during a politically. ultuous time (approximately 0-1870). Second, Van Zanten ows the progress of what in ; was an architectural revolt, umenting the way in which subjects' early experiences as lents flew in the face of lemic conventionality, and the new sensibility they eloped was gradually put in e. While Van Zanten nately finds the built work zzling," his comparison of the is compelling because of their varied emphasis on issues that architects still address today: the importance of history, the unification of an eclectic context, and the potential for architecture to be politically subversive.

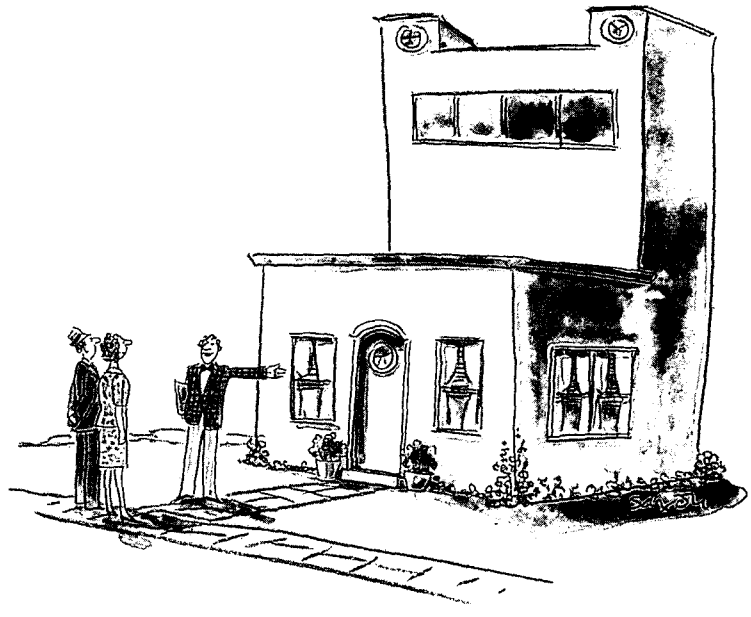
While at the Ecole des Beaux-Arts, all four had won the coveted Grand Prix (for highest student achievement in accepted academic architecture), enabling them to live and travel in Italy. Having arrived in Rome at the height of the Romantic movement in the arts and during a period of social revolution, the four laureates embraced this spirit of rebellion and sought to free themselves from the stifling influence of the academy. Labrouste, for example, documented the temple of Hera at Paestum, concentrating on "primitive" Greek elements at the expense of heroic, but more acceptable, Roman ones. Vaudoyer, like other contemporaries, sent a subtle political message home in his final *envoi.* He presented a discreetly ornamented belltower that both signaled "the democratic communal element in the architectural landscape" and eschewed the conventionally grand composition expected of students' ultimate projects. If Quatremère de Quincy, the longtime Perpetual Secretary of the Ecole, thought that the appropriate method of design and construction for important buildings had been set for all time at the beginning of the 19th century (ancient Rome being the only acceptable model), this young generation set out to prove him wrong.

Nevertheless, top students of the Ecole were traditionally expected to become virtual state architects. Van Zanten traces the manner in which his four graduates worked their way up through the complicated bureaucracy until finally each was asked to design one of the central institutions of French society. Emblematically, in his renovation and expansion of the Ecole's own edifice, Duban integrated actual fragments from cultures and historical periods not hitherto accepted as worthy of examination. Labrouste designed two important libraries, the bibliothèques St. Geneviève (the subject of an earlier Van Zanten study) and Nationale. The latter is not only inventive in its visible use of iron, it is emotive or expressive in a way that does not rely on the received models of the academic canon. Vaudoyer's cathedral of Marseilles integrated a basilican plan with a Byzantine vaulting system. The "minaret-like" domes refer to Levantine antecedents—in short a *Mediterranean* architecture didactically reaching out to the newly important colonies and referring "to the whole history of architecture in a single symphonic composition." Duc returned to the Orders, and yet, by assimilating Gothic modes of expressive support, he was able to open up the overtly classical facade of the Palais de Justice with large planes of glass.

While Van Zanten has told a clear, concise, and compelling story, this volume needs a clearer explanation of what these architects were rebelling against, and an overview of the cultural context in which they were working. The book would benefit, for example, by a working definition or catalog of Romanticism. We see how the four set the new tone in large-scale, prestigious commissions, but it is not clear how their ideas were promulgated in less important work.

Duban is quoted as saying, "Fiction should occupy the primary place in architecture .... Was not the Greek temple a legend in stone?" One could say that Van Zanten is analyzing the *structure* of this literature, if not its content or context.

m Betsky is an architectural mer and critic. He lives in ngeles.



"I'll tell you what it says to me. It says rest. It says comfort. It says home."

Elements of Style.

There's more to SwirlFlo™ than meets the eye. Not only is Elkay's latest work of art beautiful, it has all of the innovative details you demand. SwirlFlo's recessed design creates a clean profile. And, unlike other fountains, it minimizes exposed surfaces that collect dust. At the same time a unique system, developed by Elkay, prevents water back-up and leakage. SwirlFlo's contoured basin minimizes splashing, is wheelchair accessible and meets all ANSI and UNFAS codes. And it comes with Elkay's exclusive FlexiGuard™ safety bubbler, to prevent accidental mouth injuries. SwirlFlo rounds out a full line of Elkay water coolers with six different models in bronzetone or stainless steel. See how one fits into your perspective.

ELKAY®

Model No. ERP2-8BC

For more information, write Elkay Manufacturing Company, 2222 Camden Court, Oak Brook, Illinois 60521.

Circle 68 on inquiry card

Schindler reassessed

Does the sometimes iconoclastic work of Rudolph Schindler—artist, builder, architect—have anything to say to us today? An account of last spring's "Schindlerfest" at UCLA suggests that his explorations of technology and "space architecture" are indeed relevant at a time of renewed interest in Modernism.

By Judith Sheine

Last year Rudolph Schindler would have been 100 years old, an occasion virtually obscured by the simultaneous celebration of Le Corbusier's centennial. Schindler would not have been surprised. Architect of the Lovell Beach House (1925-26), one of the key buildings of the 1920s, he never achieved the large commissions or the recognition conferred upon his more famous colleagues Le Corbusier, Walter Gropius, Mies van der Rohe, and Richard Neutra.

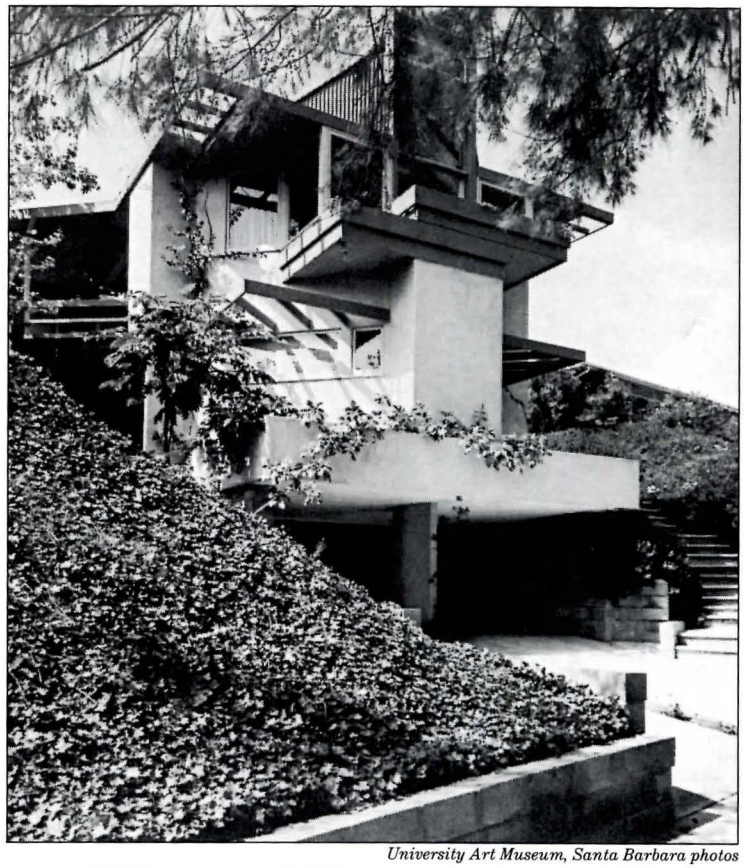
In an attempt to breathe new life into Schindler's contributions, the UCLA Graduate School of Architecture and Urban Planning last spring held "Schindlerfest: The Seminars, The Exhibition, The Colloquium, and The House Tour." Orchestrated by Lionel March, the 10-week-long event reappraised Schindler's writings and the buildings in his adopted city from a contemporary perspective.

Recognition was slow in coming to Schindler. Though recognized as incorporating important principles of International Modernism, the Lovell Beach House was passed over in "The International Style" exhibition organized at the Museum of Modern Art by Henry-Russell Hitchcock and Philip Johnson in 1932. In his preface to David Gebhard's 1971 book *Schindler*, Hitchcock notes his own earlier critical evaluation of Schindler's work: "There is certainly immense quality . . . but this vitality seems degenerate to lead to arbitrary and brutal effects." He then seemed to "make some redress" for his earlier assessment of Schindler, but apart from noting a new appreciation of the Lovell House, the effect is at best to damn him with faint praise.

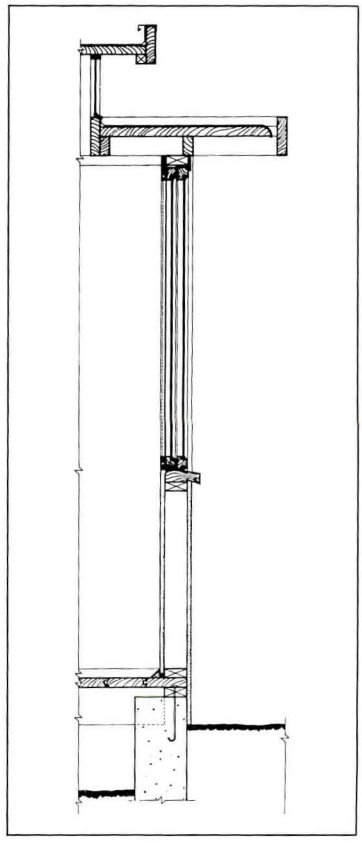
Schindler first left Vienna in 1914 to go to Chicago, where he worked in the office of Frank Lloyd Wright. He came to Los Angeles in 1920 to supervise construction of the Barnsdall (Hollyhock) House and remained to practice as an artist/builder on his own. Unlike his one-time partner and fellow Viennese, Richard Neutra, Rudolph Schindler was not an effective self-promoter; his commissions were mostly residences and smaller commercial buildings, not highly visible projects that received wide exposure. He made very few drawings or models, particularly in his later years, often designing from rough drawings as he built. However, as his writings demonstrate, Schindler was certainly not humble about his work. With a clear eye toward posterity, he saved virtually every document associated with his practice, even letters and receipts.

Schindler consciously set himself apart from other Modern architects in his theories about what he called "space architecture." These concepts, initially articulated in a 1912 manifesto written in Vienna, were later expanded in a 1934 article. In contrast to other practitioners of the International Style, whom he criticized as mere "functionalists," obsessed with "the ideal of perfection . . . the machine," Schindler viewed architecture as an "art dealing with a new medium (space)" that could "serve as a vehicle for human expression." He called upon the profession to take advantage of developments in steel-frame and reinforced-concrete construction, allowing the flow of space to become visible by lightening walls and reducing the depth of spans. While Le Corbusier, for example, accepted the conventional concrete frame and sculpted it to the spatial possibilities he saw, Schindler viewed structure as something that could be played down so that space would really

Judith Sheine is an architect and visiting assistant professor of architecture at UCLA.



University Art Museum, Santa Barbara photos



Elements of the "Schindler frame," diagrammed left, include the door-height datum above which varied roof elements were developed, the use of tongue-and-groove decking in lieu of roof and floor joists to reduce structural depth, and flush detailing of plasterwork, which is not carried above the datum line. Schindler's principles are visible in work as early as his own residence (1921-22, interior above) as well as one of his final commissions, the Tischler Residence (1949-52, top), in which the datum line is expressed on the exterior.

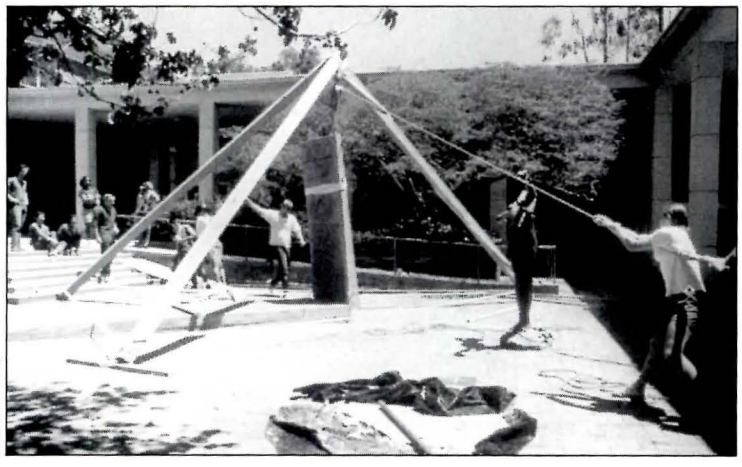
e the architecture. Later, in a 946 article, he wrote of ationalizing his design ideals hrough the use of a proportional ystem based upon a four-foot iodule called a "space reference rame," which could be divided nto smaller components to egulate the rhythm of the rchitect's "space relationships." Ie adapted the module to ommon U. S. wood-frame onstruction in the hope that his ystem would find universal pplication. (Schindler also escribed his principles in ECORD [May 1947, pages 143-46].) A datum at the standard oor height of six feet eight nches was established so that ne tops of doors and glazed penings could align with it, and tud lengths could be identical nroughout. Above the datum, ne roof (whether flat or sloped) ould float on clerestories at arious levels to differentiate pace.

Schindler experimented ntinually with building chnology: innovative tilt-up ab concrete walls were erected his own King's Road House of 21-22, and an early kind of slip-rm system (called "slab-cast") as used in the Pueblo Ribera urt, in La Jolla, of 1923 and e How House of 1925.

The Schindlerfest exhibition, ganized under the joint ratorship of Lionel March and e author, included original hindler drawings, models, and niture, and interpretive terial by UCLA students: npositional analyses, computer dels, color and graphic design dies, and full-size istructions. Part of the King's ad House was reconstructed he school's courtyard using original technique employed Schindler and his partner, tractor Clyde Chase (photos).

colloquium addressed the re span of the architect's er, beginning with a moving sonal overview given by note speaker Esther McCoy,

University Art Museum, Santa Barbara



Judith Sheine

UCLA students reconstructed a section of the King's Road House using Schindler's innovative lift-slab technique (bottom photo). Schindler and his partner are shown building the original (top).

a former Schindler employee and early champion of the architect, who first brought him to broad public attention in her book *Five California Architects* (1960). August Sarnitz, of the Otto Wagner Archive in Vienna, author of *R. M. Schindler Architekt: 1887-1953* (published this fall in English), examined Schindler's Viennese origins, including the influence of Otto Wagner and Adolf Loos, and looked at his early career in America. Lionel March discussed research on the How House, which he owns. Barbara Giella, an architectural historian who teaches at the City College of New York, appraised the work of the 1930s, focusing on the Walker House, a 1935 Schindler design in which she grew up. David Gebhard, of the University of California-Santa Barbara, concluded the session with a talk on the late houses of the 1940s and 1950s. He addressed ideas implied in Schindler's work but never fully realized, owing to the architect's untimely death in 1953.

In these talks and the discussions that followed, differences emerged among Schindler scholars and enthusiasts, particularly over the quality of the early versus the late work. Some participants reaffirmed Hitchcock's assessment that Schindler's late work was eclectic and arbitrary, whereas others argued that the spatial continuity between rooms ("space units") became ever more sophisticated in the late work. (In the Tischler House of 1949, for example, a shed roof sheathed in translucent fiberglass panels rises directly from the datum, uniting all of the living and sleeping rooms in one large but subtly differentiated space. Structure and materials seem to dissolve until only a pure bubble of space remains perched on the hillside.) Visits to 10 extant Schindler houses, organized by Beata Inaya, a Schindler client, culminated the Schindlerfest.

With the general resurgence of interest in Modern architecture and increasing media attention paid to the current Los Angeles architectural scene, it was perhaps inevitable that Schindler's late works should be compared to recent projects by contemporary California architects such as Frank Gehry. Though Schindler's architecture does incorporate the same inexpensive Southern California materials that have become Gehry's signature, Gehry's fascination with sculptural mass and extroverted composition is opposed to Schindler's concern (and his indebtedness to Wright and the Viennese) for facilitating spatial expression and rational proportional systems.

Perhaps the happiest consequence of the Schindlerfest was a new awareness on the part of current and potential owners of the importance of Schindler buildings. While a few houses are in near-perfect condition, many have been insensitively altered or remain in a tragic state of disrepair (the Pueblo Ribera Court, for example, is now nearly unrecognizable). In re-evaluating these artifacts, the Fest sparked hope that the legacy of R. M. Schindler might be preserved in the future for the waves of "space architecture" enthusiasts that are sure to come.

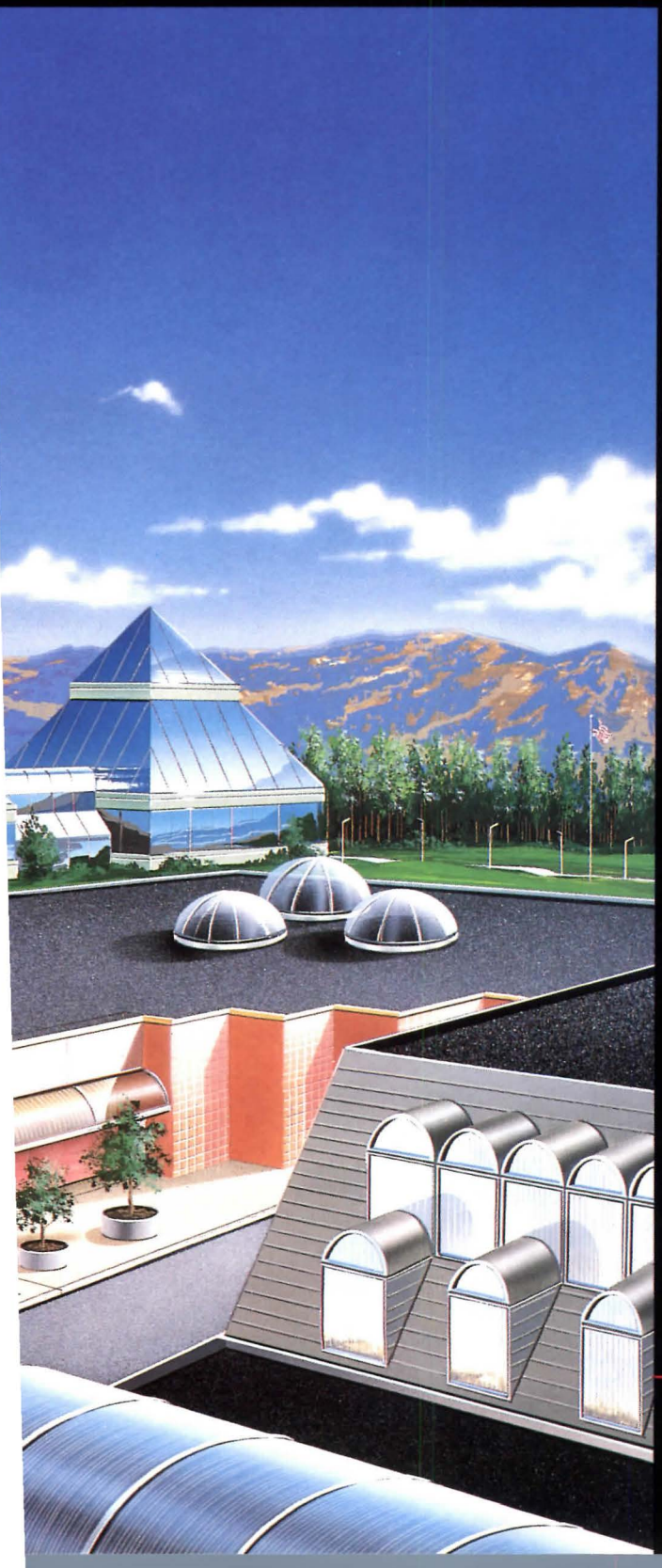
Long-Range Forecast: Clear, Warm And Beautiful.

® Registered Trademarks of General Electric Company.
* Details of limited warranty available upon request.

AN® XL Sheet: versatile overhead glazing with unique surface
ion against punishing sun and weather. Virtually
kable. Easily cold-formed on site. Tough, UV-resistant XL
-the brilliant solution for long-term weatherability in advanced
ctural design. Or for added thermal insulation, specify double-
LEXAN THERMOCLEAR® sheet.
nduring beauty backed in writing*—the family of high-
mance LEXAN polycarbonate glazing products from GE.
weets Catalog 08840 GVD or GEN, or call
45-0600.

Translucent LEXAN THERMOCLEAR sheet provides up to 40% better insulation than single-pane glass.

With a proprietary UV-resistant surface, LEXAN XL sheet is ideal for barrel vaults, covered walkways and skylights.



UV surface treatment—ensures long-term durability and weatherability without special maintenance.

Transparent—offers high light transmission and excellent appearance.

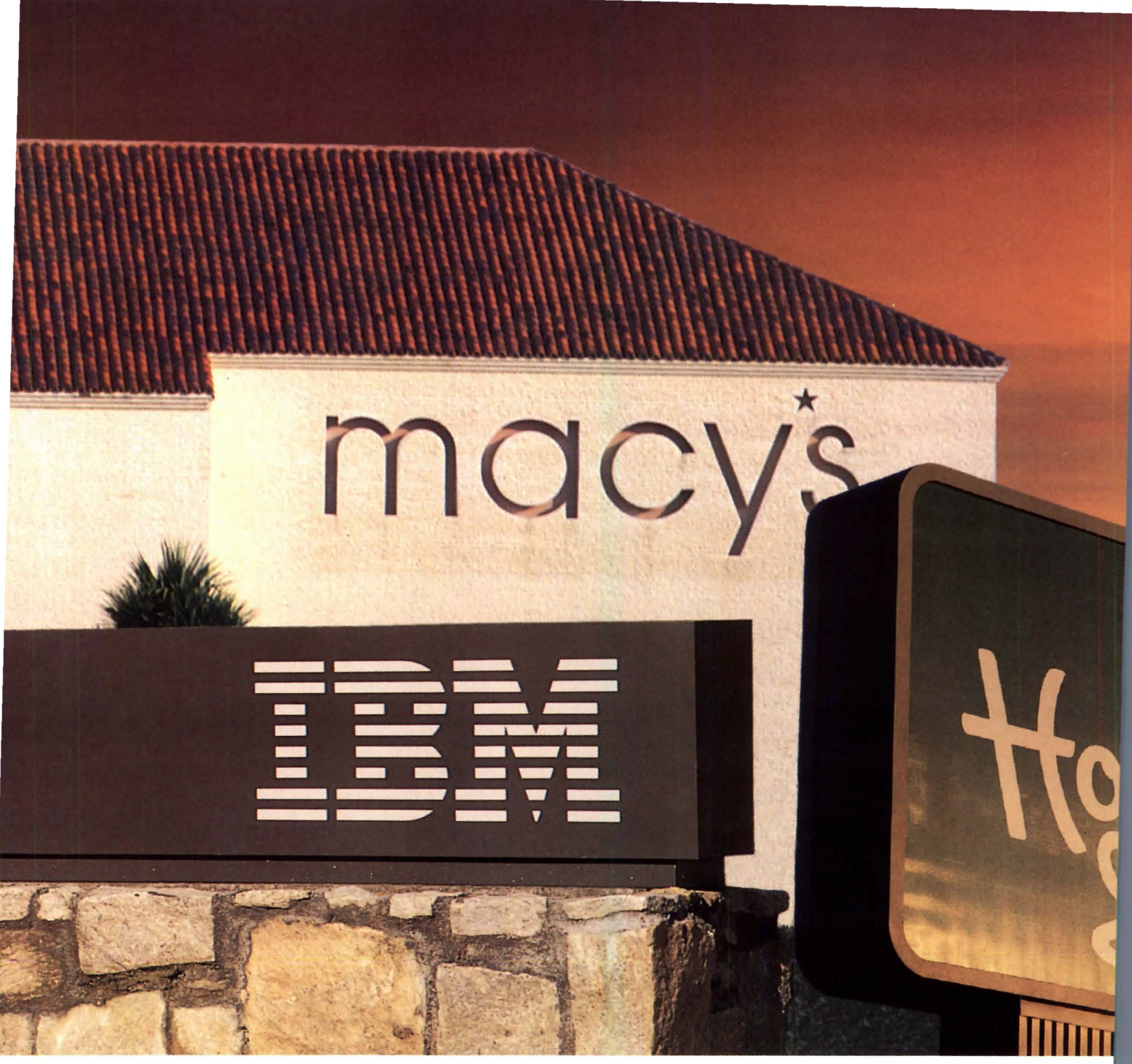
Impact resistant—250 times stronger than glass and 30 times tougher than acrylic.

General Electric Company
One Plastics Avenue
Pittsfield, MA 01201

XL • MR5 • LEXGARD® LAMINATES
LEXAN THERMOCLEAR® SHEET

Circle 72 on inquiry card

GE Plastics



A FEW SIGNS OF OUR SUCCESS WITH DENS-GLASS® PAPERLESS GYPSUM SHEATHING.

A Lot Of Big Names Have Discovered The Big Benefits Of Dens-Glass.

The problems of wind, weather and dampness have become virtually obsolete with Dens-Glass® paperless gypsum sheathing from Georgia-Pacific. This revolutionary paperless gypsum sheathing stands up to job-site weather hassles and hazards like no other product on the market.

When exposed to weather, ordinary paper-faced gypsum sheathing can delaminate, sag and warp, resulting in expensive replacement costs. Dens-Glass, however, is manufactured with unique fiberglass mats on the front and back of a water-resistant core. This design makes it the only gypsum

Dens-Glass Paperless Gypsum Sheath

DESCRIPTION:
Water-resistant gypsum core, fiberglass m
front and back.

SIZES:
1/2" and 5/8" thick; 4' × 8', 4' × 9'; 4' × 10

APPLICATIONS:
Sheathing; soffits; exterior ceilings. Ideal
substrate for exterior insulation finish syst
and other exterior finishes.

INSTALLATION:
Can be applied horizontally or vertically.

FIRE RESISTANCE:
Independent tests produced zero flame
spread; zero smoke developed.*

WARRANTY:
6 month limited commercial warranty.**

eathing panel durable enough to offer a -month limited warranty** against the ather's damaging effects. And since ns-Glass contains no paper, it provides matched fire resistance as well.

Because of its unique properties, ns-Glass has become the sheathing hoice for a large number of commer- architects and contractors. On ding projects for big names such as cy's, IBM, Lechmere, Holiday Inn, Embassy Suites, the dimensional stability resiliency of Dens-Glass has been perfect a variety of exterior applications.

Discover what a lot of astute architects builders already know: Dens-Glass is the olute best at making the problems associ- l with exterior sheathing obsolete. It's a sure sign of your concern for superior, innovative building design–and that makes you look good, as a superior, innovative building designer.

The long-term effects of weather on conventional gypsum sheathing, left; and on Dens-Glass, right.

For complete Dens-Glass exposure test results, product information, warranty, samples and a brochure outlining Dens-Glass application details on a variety of recent projects, call 1-800-225-6119. In Georgia, call 1-404-521-5716. Or write: Georgia-Pacific, Dept. AR-DGS, P.O. Box 2808, Norcross, Georgia 30091.

*ASTM E119 Fire Test of Building Construction and Materials; ASTM E48 Surface Burning Characteristics of Building Materials.
**See limited commercial warranty, available from Georgia-Pacific, for its terms, conditions and limitations.

Georgia-Pacific
MORE POWER to you!™

73 on inquiry card for Literature

74 on inquiry card to speak with a Sales Representative

At the pinnacle of the Opryland Hotel Conservatory's lush indoor Victorian garden are angle bay windows, custom built for the hotel.

When Opryland Hotel asked Norco to design some special windows, the results were gran

Some would call it a tall order...building windows for Opryland Hotel that are in perfe harmony with their Conservatory suites.

But Norco measured up and built custo windows, fine tuned on both the exterior and interior to capture the Conservatory's lush mood. The Conservatory is over two ac of architectural wonder – Victorian garden with winding trails, bubbling brooks and tumbling waterfalls.

Crowning the Conservatory's elegance are Norco's custom Angle Bay Windows,

Norco's sweeping angle bays complement the southern elegance at Opryland Hotel Conservatory suites and give guests a breathtaking view of the Conservatory.

signed with authentic True Divided Lites,
oking the rustic charm of the Old South.

high note for each suite.
ch upper level suite is graced with one
more Norco Angle Bay Window, blending
th the romantic appointments, giving
ch guest the impression he is staying in a
tely Southern mansion. And each Norco
gle Bay Window was designed to create a
or-to-ceiling wall of windows, set precisely
the right angle to give a glorious view of
e Conservatory.

**and results brought Norco back
r an encore.**
oryland Hotel's newest expansion, the
scades, is set for completion in 1988. It is
other major, skylighted interior space even
ger than the Conservatory. Its 839 additional
oms will enlarge the hotel to 1,896 rooms.
Norco's Custom Angle Bay Casement
ndows will again be center-stage in
e addition.
Norco's performance on the original
nstruction phase was so impressive that
oryland Hotel brought Norco back for
encore.
Uncompromising quality, on-time delivery
l Norco's capability to build windows to
ryland Hotel's exacting standards (at a
prisingly affordable price) are some of the
sons Norco windows are again at the top.
Norco can make your imaginative window
igns a reality.
For more information, see Sweet's File
ıber 08610/NOR. Or, call or write us today.

Besides meeting all the practical maintenance requirements of a modern hotel, the windows had to fit perfectly into the Conservatory's lush setting.

)PRYLAND HOTEL

Architects:
Earl Swensson Associates
Nashville, TN

Windows:
Norco Windows, Inc.
Hawkins, WI

Masterpieces in wood windows and doors.

NORCO®
WINDOWS, INC.
P.O. BOX 309 · HAWKINS, WI 54530
PHONE: 715/585-6311

Circle 75 on inquiry card

Great minds don't think alike.

No. 1 in a series.
Max Pack data-entry stations designed by
Mike Tatum, The HOK Interiors Group, Dallas.

This isn't exactly what we had in mind when we created PLACES.™

But it is what Mike Tatum had in mind.

Mike thought people in 36-square-foot workstations shouldn't feel like sardines. And he wanted their computers sitting within reach. But not on their laps.

He also wanted something no one had ever seen before.

With everything from fanlights to fabrics, wood to glass, PLACES gives you the freedom to create the spaces you always wanted to.

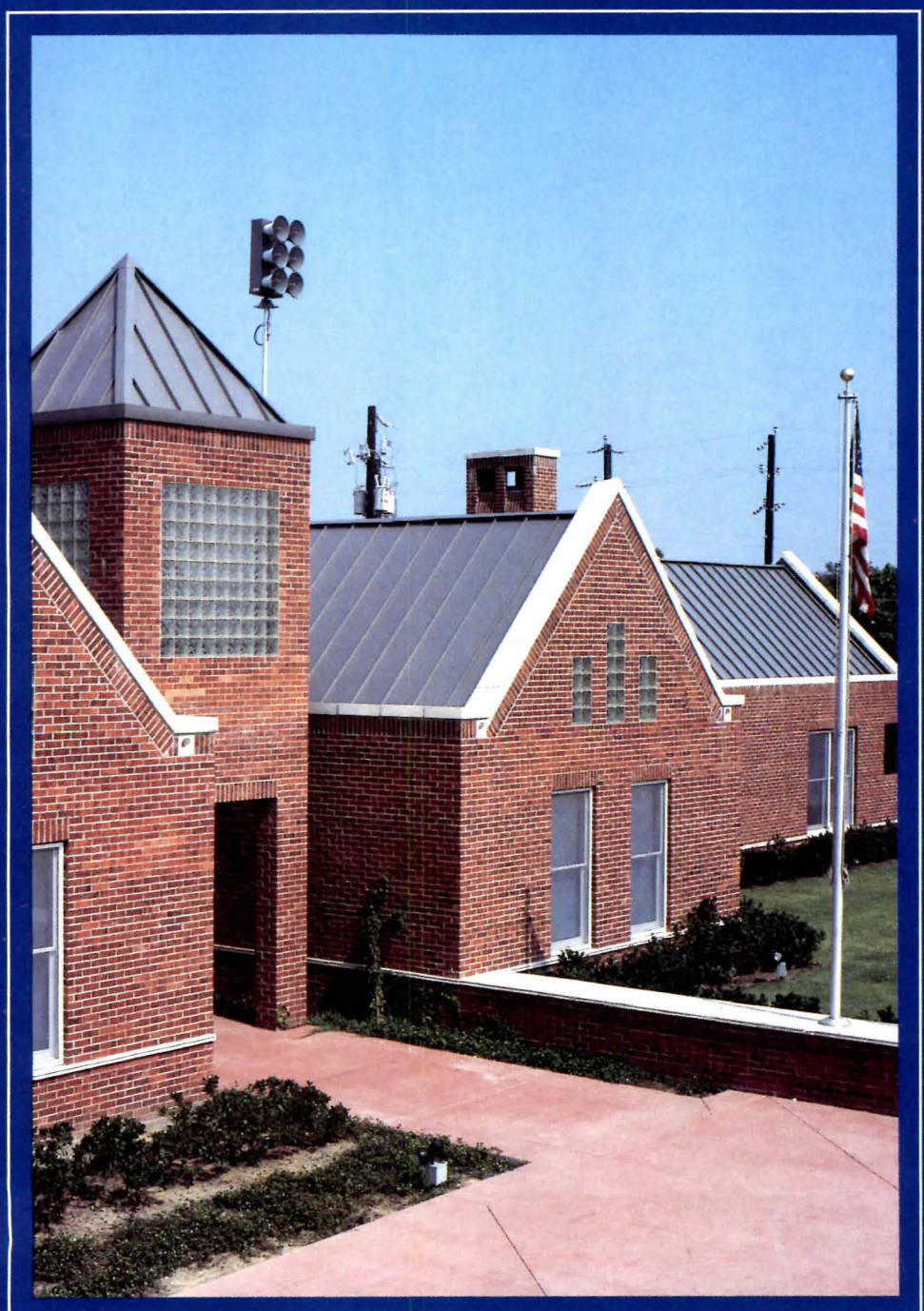
No matter what you have in mind.

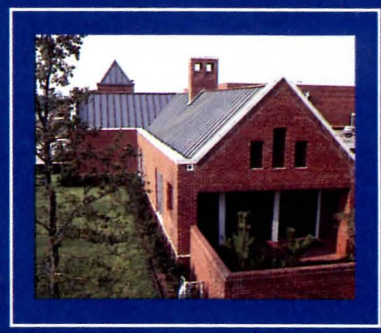
For more information call 1-800-344-2600.

HAWORTH

They're built.

WHY DOES THIS FIRE STATION LOOK GREAT?





Metal! With metal, you have the choice of colors and shapes that work with your design.

When you specify an MBCI roof system, we want you to be satisfied. We will work with your design team to insure the proper product selection for your project.

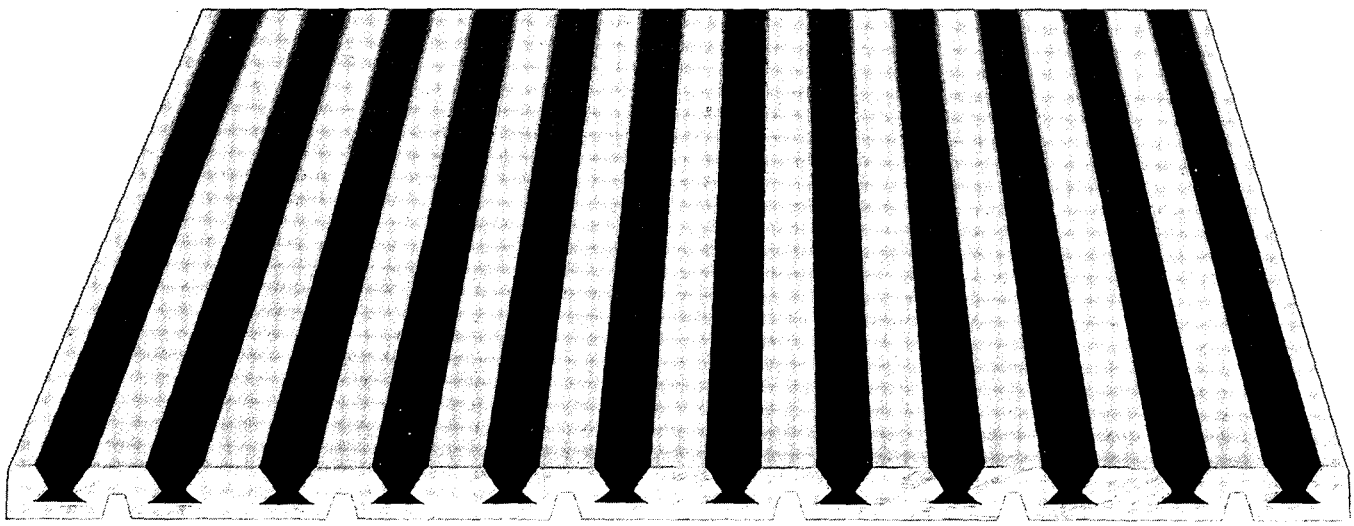
For a copy of the MBCI design manual, call or write the nearest MBCI plant. Metal is our only business and we want you satisfied.

MBCI
METAL BUILDING COMPONENTS, INC.

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
Richmond 804/526-3375
Indianapolis 317/398-4400

Architect: *Dillard Architects, Inc., Dallas, Texas*
Project: *Fire Station #2, Coppell, Texas*

Introducing TRACTION TREAD® from ZERO.



Now there's a better alternative to using plain grooves or rough abrasives for doorways and stairs. Step up to **Traction Tread** saddles and nosings from the industry innovator for 65 years.

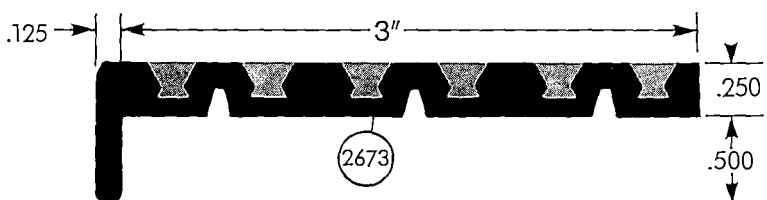
Traction Tread has specially formulated rubber-inserts fitted within profiled aluminum saddle grooves. This assures an even, smooth surface with superior traction. It creates a look and feel that other saddles and nosings can't even come close to achieving.

Over the long run, **Traction Tread** stands up better, too. That's because the rubber is flush with the aluminum saddle and wears at the same rate. And since there are no open grooves, water and dirt can't collect–so clean-up is quick and easy.

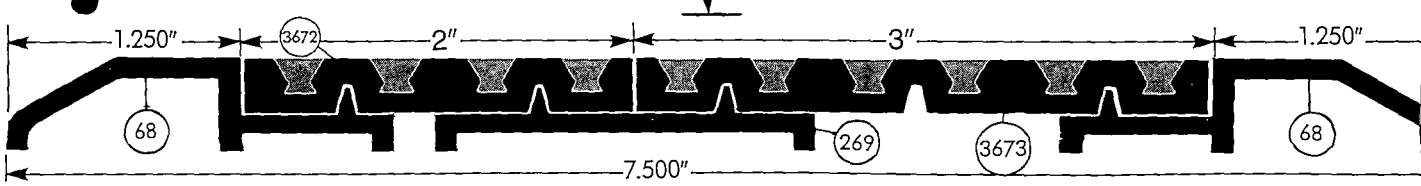
Traction Tread can be custom cut to your specific measurements and easily tailored to exact cutting or drilling needs on the job site.

1989 CATALOG

Traction Tread is one of hundreds of products detailed in our just printed 1989 Catalog. Displaying familiar standards plus a variety of exciting, new products, this 28-page catalog contains unique and proven sealing solutions for acoustical, light, smoke, fire, air filtration–even handicap systems. Product specifications and full-scale drawings are included. Write for your copy (or more information) today. Or call our sales engineers for technical advice.



Traction Tread saddles and nosings come in widths from 2" to 6", with an exclusive interlocking feature which allows adjustment to any width.



ZERO INTERNATIONAL, INC.
415 Concord Avenue, Bronx, NY 10455-4898
1-800-635-5335
In NYC, call 212-585-3230
FAX 212-292-2243
TELEX 239777 ZERO UR

ZERO INTERNATIONAL

WHEN NOTHING ELSE IS GOOD ENOUGH FOR LONG ENOUGH.

Circle 78 on inquiry card

Cool

a

warm

day the

way

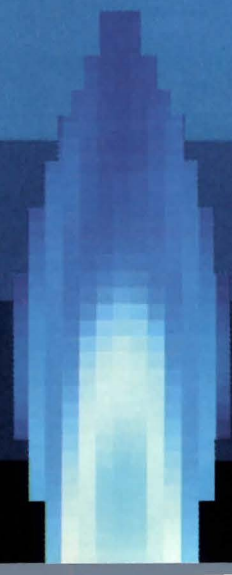
you

warm

a

cool

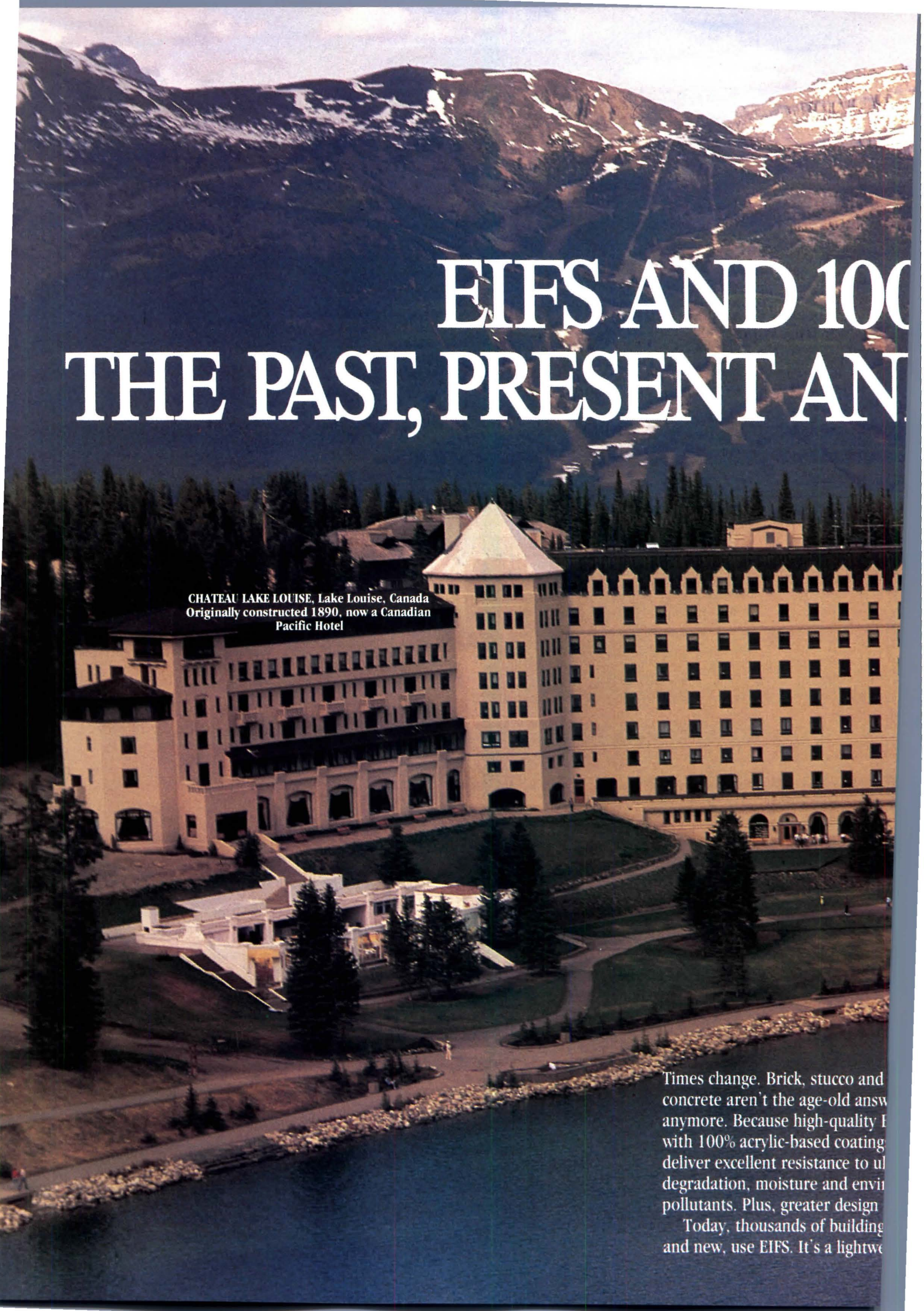
one.



Today, a new generation of advanced gas cooling equipment brings to commercial air conditioning the same economy and reliability that gas brings to heating. Before you design your next project, let your gas company show you how right gas cooling can be. Gas. America's best energy value.

Circle 79 on inquiry card

EIFS AND 100
THE PAST, PRESENT AN



CHATEAU LAKE LOUISE, Lake Louise, Canada
Originally constructed 1890, now a Canadian Pacific Hotel

Times change. Brick, stucco and
concrete aren't the age-old answ
anymore. Because high-quality E
with 100% acrylic-based coating
deliver excellent resistance to ul
degradation, moisture and envi
pollutants. Plus, greater design

Today, thousands of building
and new, use EIFS. It's a lightwe

CRYLICS.
UTURE OF EXTERIORS.

SAND LAKE IV, Orlando, Florida
Completed by Pizzuti Development, Inc.
May 1987

FULTON COUNTY JAIL, Fulton County, Georgia
Now under construction
Ova, Daniels, Busby — Architects

all system that can keep the out and the colors in. And Rohm 100% acrylic polymers offer lasting adhesion and mechanical properties for coatings, to help tain its performance and appeal for years to come.

There's no time like the present to see what it can mean to your future building projects. For more information on the durability of Rohm and Haas 100% acrylic polymers, write to our Marketing Services Department, Independence Mall West, Phila., PA 19105.

ROHM AND HAAS
PHILADELPHIA, PA 19105

ND 100% ACRYLICS. FOR BEAUTY THAT ENDURES.

Circle 80 on inquiry card

INTRODUCING 'COLOR + COL

More than ever before. 108 solid colors. 8 different finishes, including 5 totally new ones. The most technology in laminate finishes enhances all our colors. Our improved matte finish makes our solids bright and more consistent. They not only look better, they feel better, too. It all adds up to the most comprehe progressive palette in laminate.

We've also created COLOR + COLOR, a revolutionary color selection system to make using this palette ev

COLOR + COLOR divides the colorways into six families, positioning them according to their chroma and value. The presenter contains samples of the full range of Formica® brand laminate finishes, as well as complete specifications and ordering information.

COLOR + COLOR is a tool you'll use again and again for every laminate specification.

For additional information call your local Formica brand products distributor or write to: Formica Corp. One Stanford Road, Piscataw


A21
FF 1
A21
C14
OP24
C14
Consultants:
Structural Engineer:
Ariato Engineers and Associates
Electrical and Mechanical Engineers:
Frippn Strobel Cerl and Jones Engineers
E8
A member of
COLOR GUILD ASSOCIATES
F25
A member of
COLOR GUILD ASSOCIATES
88107 ©1988 Andersen Corp.

At Andersen, We Don't Subscribe To The Theory That Beauty Is Only Skin Deep.

Beauty, we believe, comes not merely from a building's exterior, but also from within. And perhaps no other commercial window offers the exterior design freedom and inner beauty of low maintenance Andersen® Perma-Shield® Flexiframe® windows.

For with this versatile window line comes the natural warmth and understated elegance of a wood interior. One that can be stained and painted to complement any decor, any time the decor changes.

Andersen Flexiframe window systems offer many custom design advantages. You can create large, unobstructed views or add dramatic shapes. With the crisp clean lines and smooth tight corners that characterize all Andersen® windows.

So to those who would prefer to judge a building solely by its cover, might we suggest that you respond instead to an inner calling. Call 1-800-635-7500 for the name of your local Andersen commercial representative. Or write Andersen Commercial Group,℠ P.O. Box 12, Bayport, MN 55003.

Andersen Commercial Group™

Andersen AW Windows · Gliding Doors

Circle 82 on inquiry card

The American Classics™
MARBLE TILE

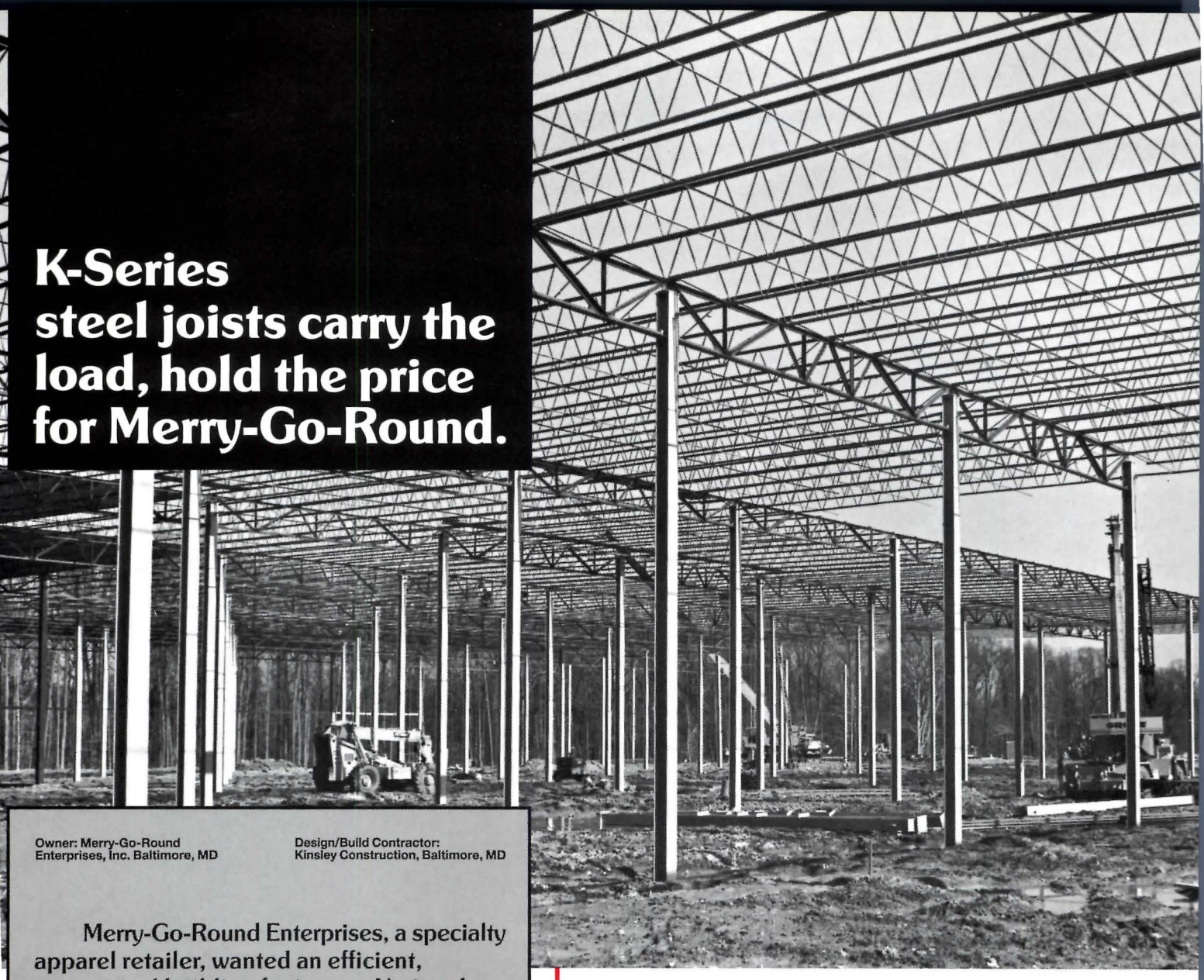
The American Classics consist of twelve domestic marble varieties cut to 12"x12"x3/8" for commercial and residential tile applications. Most of the marble varieties are also available in wall size panels as shown here. Contact us for information and samples.

Building: AT&T Capitol Center, Columbia, SC
Architect: GMK, Columbia, SC
Material: Pearl Grey Georgia Marble®

georgia marl
comp
dimension stone g
blue ridge avenue • nelson, georgia
[404] 735
1-800-334-0122 Georgia: 1-800-3
Fax: 404-735-4456 Telex:

Reference: Sweets Catalog: 04400/GEM

K-Series steel joists carry the load, hold the price for Merry-Go-Round.



Owner: Merry-Go-Round Enterprises, Inc. Baltimore, MD

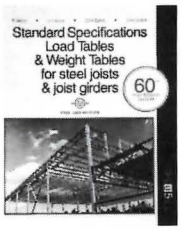
Design/Build Contractor: Kinsley Construction, Baltimore, MD

Merry-Go-Round Enterprises, a specialty apparel retailer, wanted an efficient, economical building for its new National distribution center north of Baltimore, Maryland. In addition, the large building, with 340,000 square feet of roof, had to meet some notable specifications: a roof-supported conveyor system, the flexibility of adding an air conditioning system...and fast construction.

So the design/build contractor, Robert A. Kinsley, Inc. turned to K-Series steel joist construction.

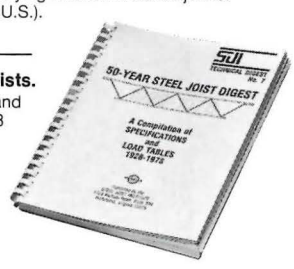
According to Project Estimator, Daren Sealover, "This type of construction provided less dead weight and more support weight per pound than other methods—key to meeting the needs of Merry-Go-Round. And steel joist construction also allowed us to proceed with the job immediately, without concern for weather, to meet the client's tight schedule."

Send the coupon for your copy of New Specifications, Load Table and Weight Tables and 50 year Digest.



NEW 60th ANNIVERSARY issue.
64 pages of facts and figures with new instructions for designating and specifying the new K-series joists. $8.50 ($9.50 outside U.S.).

No. of copies _____



50 years of steel joists.
220 pages of specs and load tables from 1928 to 1978 to help you determine load capacities **in existing structures;** plus time saving tips. $34.00 ($44.00 outside U.S.).

No. of copies _____

Total enclosed _____ (Remittance with order, please)

Managing Director
Steel Joist Institute
Chamber A
1205 48th Avenue North
Myrtle Beach, SC 29577

Name_____

Firm_____

Street_____

City_____

State_____ Zip_____

Circle 84 on inquiry card

Without Laminated Glass, You Could Have a Safety Problem Hanging Over Your Head.

In glass skylights, sunspaces, and sloped glazing installations, commercial or residential, you face the possibility of glass breakage. And without laminated glass, that could mean a big safety problem.

Unlike ordinary or tempered glass, laminated glass won't shatter when broken. It tends to stay in place, protecting people below from injury.

Moreover, laminated glass offers long-lasting beauty and clarity. It won't scratch or yellow like plastics. And it's available in a wide range of popular colors.

Laminated glass can be manufactured in flat or bent configurations, and installed in single or insulated units. Best of all, it meets model building code requirements for overhead glazing.

For more information on how laminated glass can mean better safety for your space, contact the Laminators Safety Glass Association today.

LAMINATORS SAFETY
GLASS ASSOCIATION
3310 Harrison
Topeka, KS 66611
913-266-7014

Making Glass that WORKS for You
LAMINATORS SAFETY
GLASS ASSOCIATION
3310 Harrison, Topeka, KS 66611 • 913-266-7014

Circle 85 on inquiry card

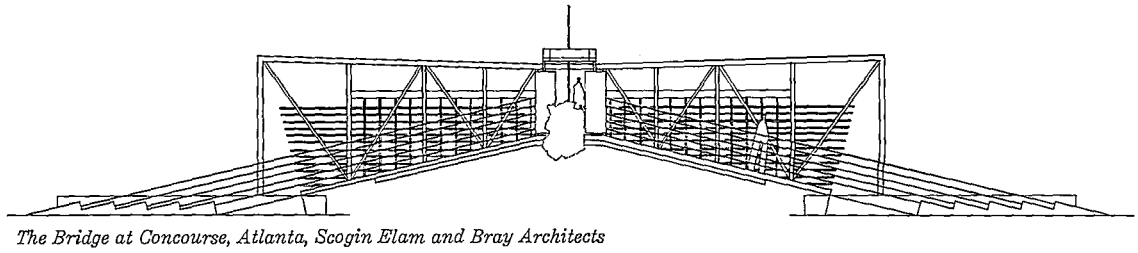
In this issue

"Only connect!" exhorted the writer E. M. Forster, in the epigraph to a novel probing the gulfs of misunderstanding and solid ground of sympathy that shape the paths of human relationships. The same maxim could serve as a thematic heading for the collection of projects that follows in this issue. One way or another, each article deals with an effort to build some kind of bridge—figuratively in most cases, and literally in the design shown below and on pages 114-117.

The new Pavilion for Japanese Art at the Los Angeles County Museum of Art, conceived schematically by the late Bruce Goff and realized by Bart Prince, links esthetic traditions that sometimes seem a world apart, sometimes neighbors. At the same time, the consummation of Goff and Prince's highly original design validates a bold leap of faith on the part of enlightened clients.The result is a work of art in its own right (see cover and pages 92-99).

Spanning cultural and generational gaps has always been the charge of America's primary and secondary schools—even if the methodologies and forms for achieving that goal have varied considerably over time, and been the subject of continual debate. This month's Building Types Study (pages 100-113) reflects on major trends in schoolhouse design, from the postwar baby boom up to the boomlet now under way. The controversy of the moment centers on whether to press on with innovative planning ideas or return to the well-tried prototypes one architect sums up as "bells and cells."

Another would-be cultural connection that stirs its share of philosophizing and argument is the Olympic Summer Games, taking place this month in Seoul. Unlike earlier host cities that found their elaborate Olympic villages to resemble costly bridges to nowhere once the games were over, the Korean capital specifically commissioned facilities adaptable to future use by its own citizens. A report on the multipurpose new town designed by Boston-based architects Woo & Williams charts the complex evolution of this ambitious undertaking (pages 118-127). The news from Korea comes in two segments: part two (pages 128-135) analyzes the Olympic stadium domes designed by engineer David H. Geiger in a world-class feat of structural creativity.



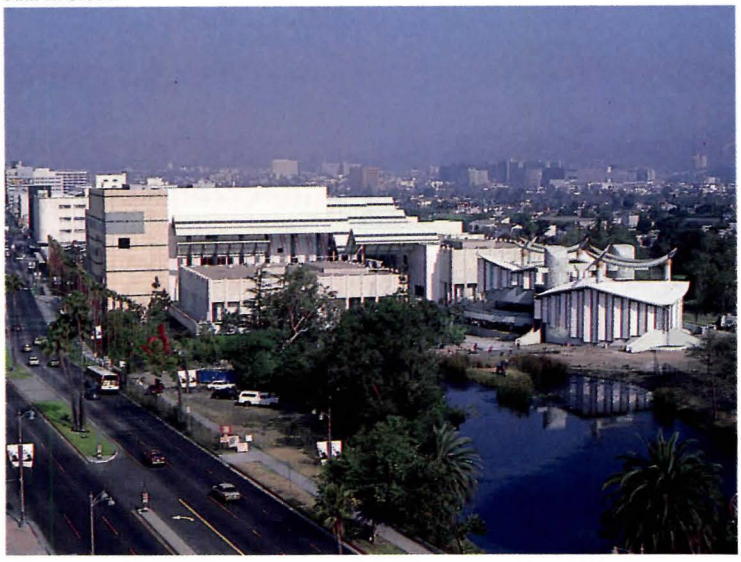
The Bridge at Concourse, Atlanta, Scogin Elam and Bray Architects

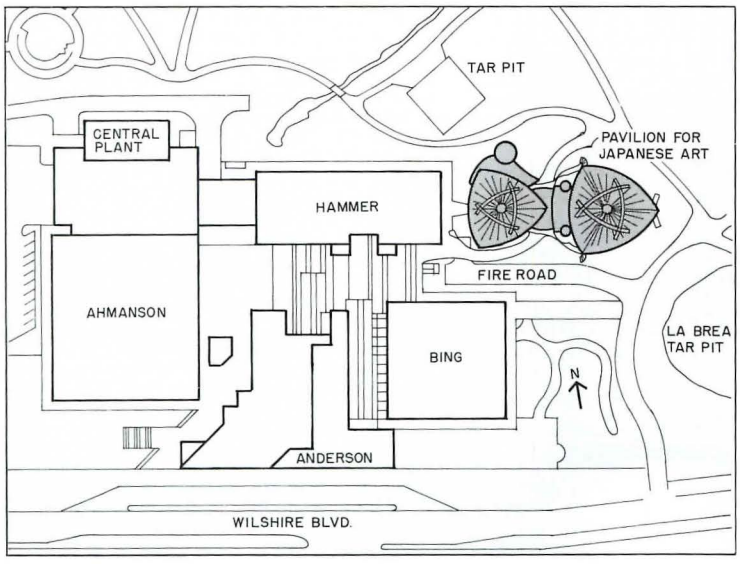
House of the tranquil mind

Pavilion for Japanese Art
The Los Angeles County
Museum of Art
Bruce Goff, Preliminary Design
Bart Prince, Architect

Between 1978 and 1982 Bruce Goff sketched preliminary plans for a unique gallery of Japanese art, but he died before completing the design. A six-year collaboration among a generous patron, a talented disciple, and an expanding Los Angeles museum has turned

Paul M. Sachner





The Pavilion for Japanese Art (right in photo above) is tucked into the northeast corner of a 5.5-acre parcel in Hancock Park that was set aside for the Los Angeles County Museum of Art complex in 1961. The pavilion is the most recently completed project in LACMA's ambitious expansion plan, which includes the Robert O. Anderson Building, designed by Hardy Holzman Pfeiffer and completed last year (left in photo); the ongoing renovation of the museum's Ahmanson, Hammer, and Bing buildings, designed by William Pereira in the early 1960s; a new decorative-arts building proposed for the current visitors' parking lot just west of Ahmanson; and a mixed-use facility across Wilshire Boulevard that would be a joint venture with an as-yet-unnamed developer.

"Simplicity is considered by some a virtue," wrote Bruce Goff in 1957, "but it may only disguise the absence of anything important; complexity is sometimes considered confusing, when in reality this is only a matter of first appearance." Throughout a long career that began in 1916 when the 12-year-old Goff entered an apprenticeship with the Tulsa firm of Rush, Endacott & Rush and ended with the architect's death in 1982, he consistently masked some surprisingly straightforward notions about program and interior space with elaborate geometries and complicated structural mannerisms. Given the highly personal character of his buildings, most of which are single-family houses inaccessible to the public, scattered across the Great Plains and Southwest, Goff has addled historians attempting to determine his position among his architectural contemporaries. As David De Long observes in a monograph recently published by the Architectural History Foundation, Goff's artistic temperament, like Frank Lloyd Wright's, was based on "an expression of individual choice unfettered by concerns of taste or style." The Kansas-born architect, geographically and philosophically isolated from the intellectualizing of Bauhaus-trained peers, believed that "each time we do a building, it should be the first and the last.... Artists who attempt to create a 'manner' or 'style' by endless variations on a theme... usually have only one song to sing." If a few critics still dismiss Goff as an aberrant footnote to the history of 20th-century architecture, most have come to view his oeuvre in a more favorable light, using terms such as "characteristically American" or "romantically idiosyncratic" to describe Goff's 450 commissions and 147 realized designs.

Above all else, Goff enjoyed the unwavering loyalty of his clients and students, two of whom are responsible for guiding th architect's last project—and the largest commission of his independent practice—to completion. Scheduled to open late this month, the Pavilion for Japanese Art, in Los Angeles, is a remarkable collaboration among Goff, who drew up a schematic plan and elevation for the 32,100-square-foot building shortly before his death; Joe Price, Goff's major patron and one of this country's most discerning collectors of Japanese art; Bart Princ the Albuquerque architect and Goff protégé who prepared working drawings for the pavilion and supervised its construction; and the Los Angeles County Museum of Art, the ambitious cultural institution on Wilshire Boulevard for which t pavilion is only the most recent component of an ongoing expansion [RECORD, February 1987, pages 110-119].

Joe Price met Bruce Goff in 1951 while studying electrical engineering at the University of Oklahoma. During the 1950s, Price's family began using some of the wealth it had accumulat through the manufacture of oil and gas pipeline to commission works of architecture, including the celebrated mixed-use towe Bartlesville, designed by Frank Lloyd Wright in 1952, that bear the family's name. While Joe's father, Harold, Sr., and brother, Harold, Jr., continued to employ Wright for the design of their own houses, Joe turned to Goff for a series of residential commissions, erected in Bartlesville between 1956 and 1978. Around 1963 he also began acquiring Japanese art in earnest, mainly painted screens and scrolls of the Edo period (1615-1868 Twenty-five years later, scholars generally consider Price's 300 work collection—dubbed Shin'enkan, or "house of the tranquil mind," after the studio of the 18th-century painter Itō Jakuchū to be the finest group of late Edo-period paintings outside Japa

Goff's schematic drawings into built reality. The result is an instant landmark along Wilshire Boulevard and a homage to one of America's greatest architectural expressionists.

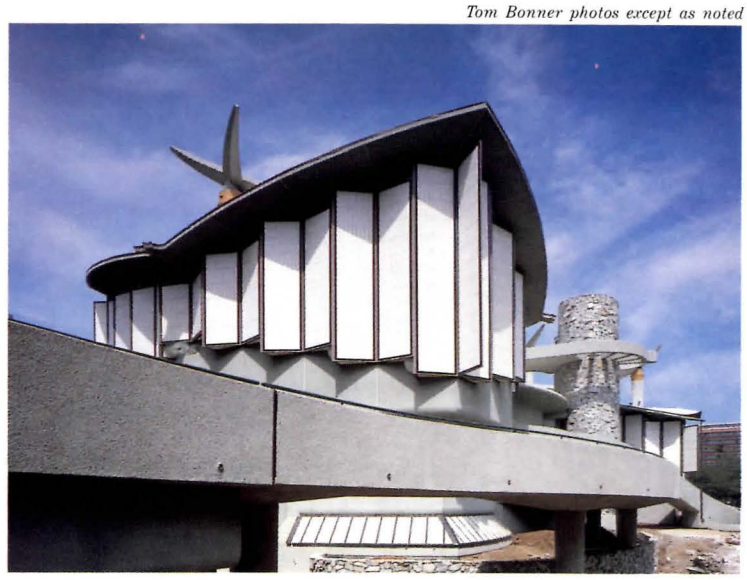
In 1976, Price approached the Metropolitan Museum of Art in New York to discuss the possibility of donating his collection, and commissioned Goff to draw up a preliminary redesign of the Met's existing Japanese galleries. Although the museum's trustees apparently liked Goff's scheme of varied floor levels and suspended canopies, they balked at his choice of materials—a characteristically unorthodox combination of composition board, textured plastic, and other synthetic finishes—and in 1978 the project was dropped. (The Met eventually turned to its own master-plan architect, Kevin Roche, who designed the handsome, but comparatively conventional, Sackler Galleries for Asian Art that opened last year.) Over the next five years, Price investigated several other likely places to house his collection, including university museums at Harvard, Stanford, and Princeton. When he finally chose the Los Angeles County Museum of Art in 1983, Price based his decision on a feeling that in Southern California, I simply found an interest in the Orient, specially Japan, that was lacking elsewhere."

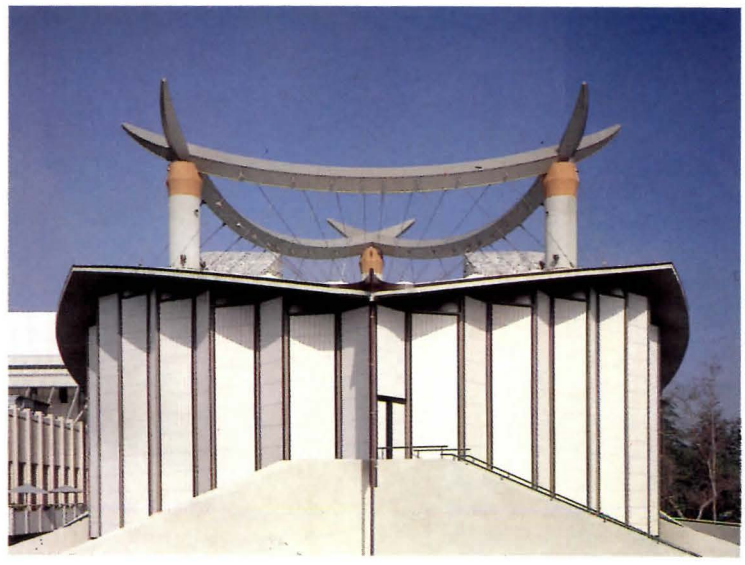
While his patron searched for an appropriate site, Goff was busily preparing a series of proposals for a freestanding pavilion, suitable for virtually any location, that would incorporate a major gallery for exhibition of screens and scrolls as well as a separate wing housing art-storage and study areas. From the outset, both Price and Goff sought to create a museum where, in Price's words, "the art itself would be the client." Toward that end, Goff turned to the Japanese architectural device of the tokonoma, an intimate alcove used in traditional teahouses and residences for the artistic presentation of a single hanging scroll or flower arrangement. Goff devised an ingenious system of three two-story-high double-sided tokonomas, linked by a continuous ramp and set within an open volume defined by curved walls. In order to avoid illumination by artificial spotlights, Goff proposed sheathing the pavilion in nonbearing walls of faceted fiberglass panels whose milky translucence would allow varying amounts of natural light to enter the pavilion according to the time of day, while visually recalling Japanese shoji.

This basic concept, articulated in the form of a schematic plan and elevation, was all that existed when Goff died. It was left to Prince to work out the pavilion's structural intricacies—particularly its elaborate roofs, which are suspended by galvanized-steel cables from curving steel box beams attached to reinforced-concrete columns, and its structurally independent, cantilevered system of interior ramps and viewing platforms. Then, too, the younger architect had to address a significant change in the building's program (in addition to the Shin'enkan collection, the pavilion must accommodate LACMA's existing Japanese holdings), and he had to adapt the structure to its specific location in Hancock Park, at the northeast corner of the LACMA complex (Goff's design had been, of necessity, site-specific)—all the while struggling to keep his mentor's original intentions intact.

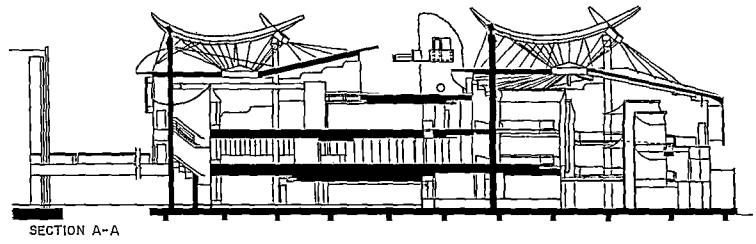
As an academic exercise, one can speculate on how Goff might have completed the pavilion had he lived through its final design and construction. How, for instance, would he have joined the pavilion to the museum's Times Mirror Central Court to the west, a problem that Prince solved by means of an elevated curving walkway (photo top right)? How would he have handled the desired addition of a third story to incorporate commodious east-wing galleries devoted to the exhibition of three-dimensional

Tom Bonner photos except as noted





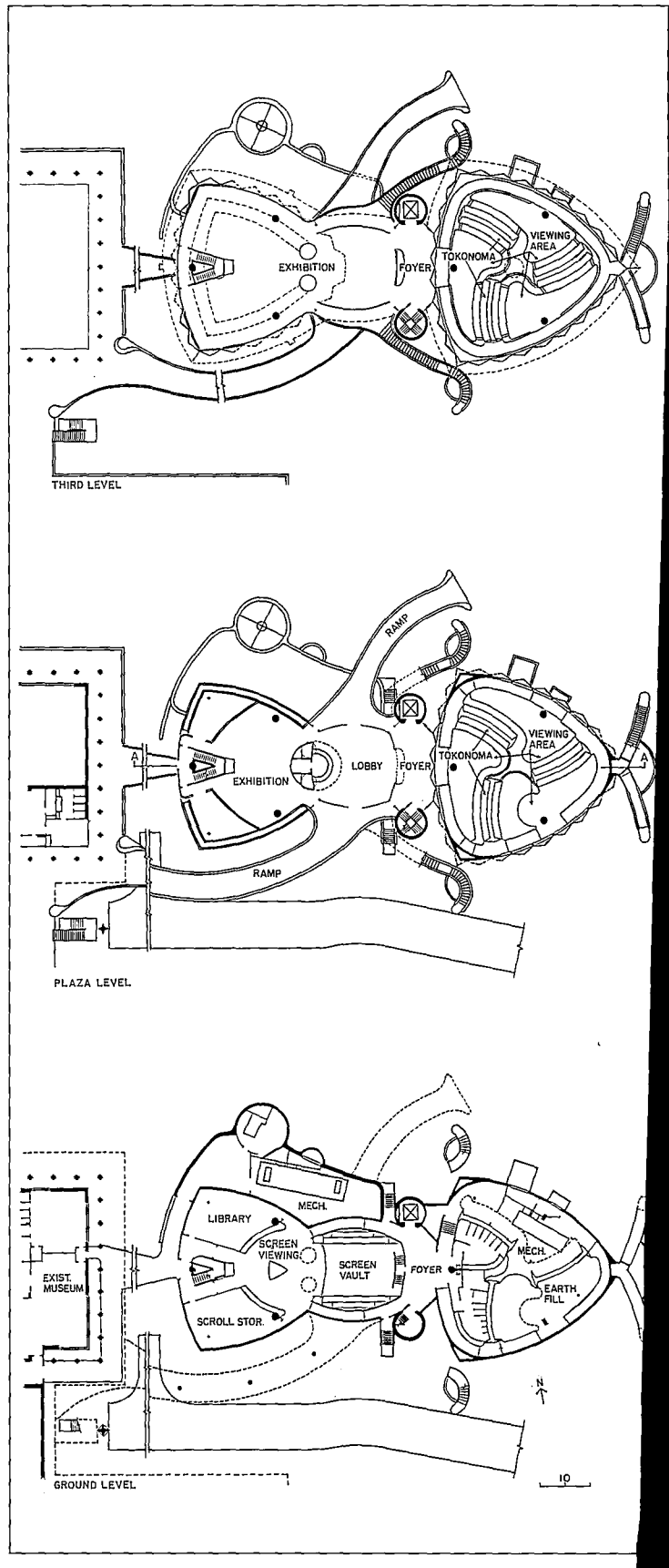
After Bruce Goff's death in 1982, Bart Prince finished the pavilion design, specifying details like small globe lights nestled into the corners of fiberglass wall panels (pages 92-93) and the curved walkway that links the pavilion to the museum's existing buildings (top photo). He also had to design the pavilion's elaborate security and fire-protection systems and deal with the seismic considerations that accompany any building project in Southern California. For example, two circular reinforced-concrete towers housing the pavilion's main stairwell and elevator are sheathed in green-quartz aggregate installed with steel ties and wire meant to ensure positive attachment during an earthquake. The exterior overhead walkway connecting the two towers—a visually expressionistic tour de force—also functions as a seismic stabilizer.



objects not part of the Price collection (opposite)? How would he have dealt with the budgetary and esthetic compromises that inevitably accompany projects of this type? Although Price gave LACMA $5 million toward construction expenses, the building will eventually cost nearly $13 million, and certain cost-cutting measures were necessary. The use of gray-green exterior stucco, for example, was at least partly dictated by budget. Prince would have preferred ceramic tile; what would Goff have specified?

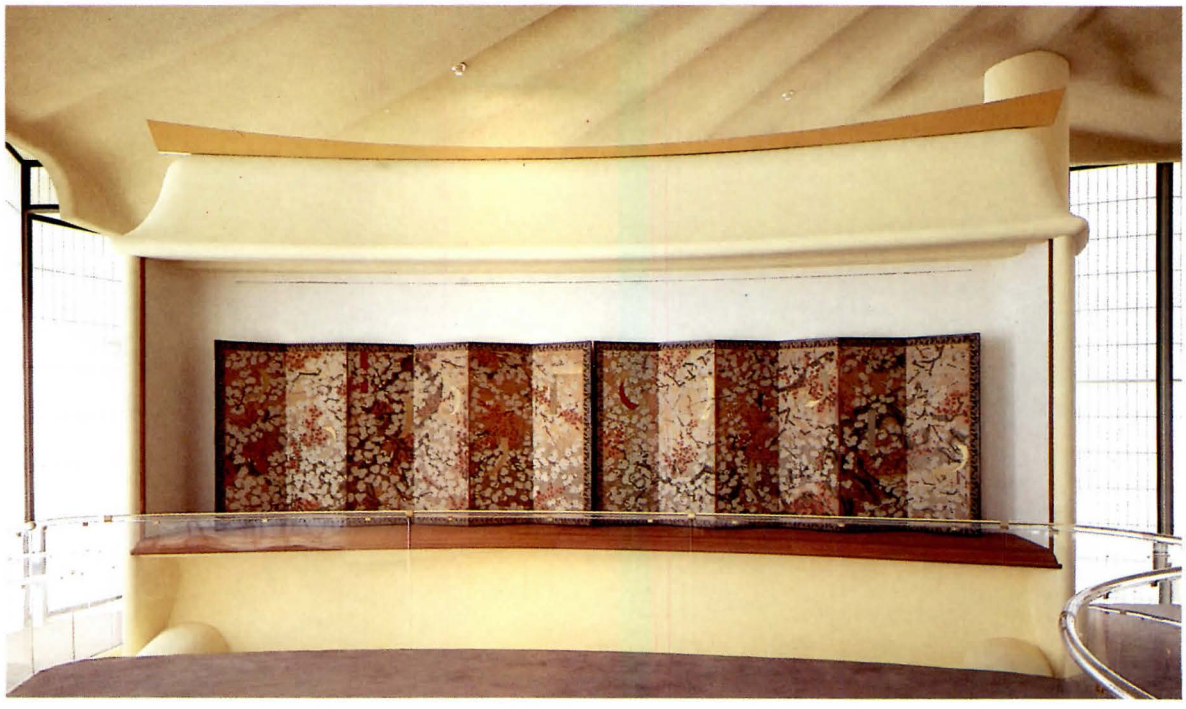
Such speculation, however, is moot. As built, the pavilion is an unqualified triumph, not only for its stylistic originality but also for its functional success as a museum. On initial inspection, the pavilion's formal expression exhibits a mixed bag of historical precedents, ranging from the upturned eaves of traditional Japanese temples and gates, to the soaring cantilevered roofs of Eero Saarinen's TWA Terminal and the futuristic coffee shops that proliferated throughout the country, but especially in Los Angeles, during the 1950s and '60s. And yet, this building does not easily lend itself to conventional art-historical analysis, reflecting instead Goff's lifelong goal, first stated in 1933, of producing "architecture not of the past or future, but for the continuous present." Consistent with this line of reasoning, the pavilion appears deliberately enigmatic: from the outside its translucent panels give virtually no clue to what is going on inside. That aura of mystery and surprise, so characteristic of Goff's work in general, is heightened by the fact that the building has no obvious front or rear elevation. It resides at the edge of the primordial La Brea Tar Pits like some lazily kinetic architectural Möbius strip, encouraging the observer to circle slowly and contemplate the eerie timelessness of its setting. (Ironically, given that Price had not yet settled on Los Angeles when Goff prepared his preliminary design, the pavilion's blend of Oriental serenity and American expressionism seems an apt metaphor for a city whose cultural identity incorporates both Western and non-Western impulses.)

Once inside, visitors typically ascend to the building's top level in a half-round elevator, tour the west-wing galleries, and begin a dimly lit downward passage of ethereal beauty, nearly impossible to depict in words or photographs, through the east-wing tokonomas back to ground level (pages 98-99). Knowing that they were destined to be compared with Wright at the Guggenheim Museum, Goff and Prince deftly solved the principal drawback of Wright's famous spiral—viewing art on an incline—by positioning a level observation platform in front of each tokonoma. Unlike the Guggenheim, moreover, where the ramp essentially *makes* the building, the LACMA pavilion's circulation and viewing system is a freestanding element inserted into a three-story shell. The platforms stop three feet short of the tokonomas, allowing humidified air and the sound of moving water from a plaza-level fountain to circulate freely throughout the three-story-high space. If the east wing has any built progenitor, it is probably less the Guggenheim than Goff's own best-known work, the 1950 Bavinger House, whose combination of floating stairways and suspended living platforms set into a single volume seems a residential variation on the pavilion's underlying theme. In the end, however, as Price had initially envisioned, the pavilion's profounder spiritual wellspring might be the singular beauty of the art exhibited inside. Far from the studio of the painter Jakuchū, Goff and Prince have created another memorable house of the tranquil mind. *Paul M. Sachner*



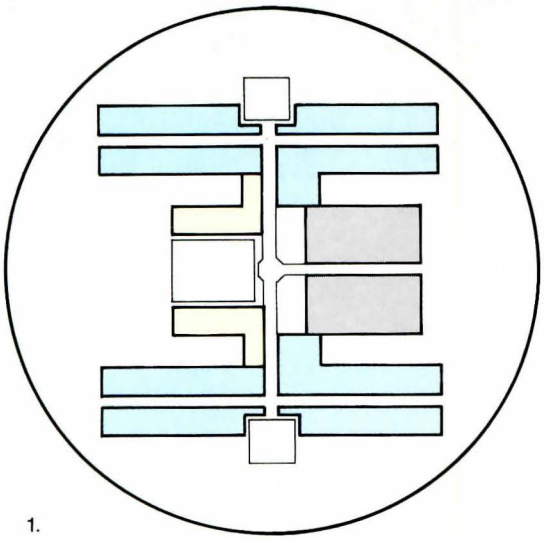
The Pavilion for Japanese Art comprises east and west wings connected at the plaza level by a lozenge-shaped lobby (plans opposite). The east wing (pages 98-99) is devoted to a regularly changing exhibition of Edo-period screens and scrolls mounted on three two-story-high tokonomas. The west wing houses a variety of three-dimensional objects from the museum's permanent collection, including large Buddhist sculpture, netsuke, archeological materials, ceramics, lacquers, metalwork, and kimonos. Around 30 objects are on display at any one time, primarily in a 3,300-square-foot gallery located on the wing's upper level (photos below). An adjoining 1,100-square-foot gallery (not shown) accommodates woodblock prints and small objects in vitrines. A third gallery and bookstore occupy the plaza level, while curators' offices, a library, and art-storage facilities are situated on the ground level.

Framed in steel and clad in stucco, the 40-foot-high tokonomas in the pavilion's east wing terminate in wood ridges (opposite). Painted screens up to 24 feet wide have been installed on the concave side of each tokonoma, where they can be viewed either close-up or at a distance (below left and bottom). Vertical scrolls are displayed on the convex side, where a more intimate view is afforded (below right). Curving acrylic rails and a three-foot space separate viewer from art, eliminating the need for protective glass.

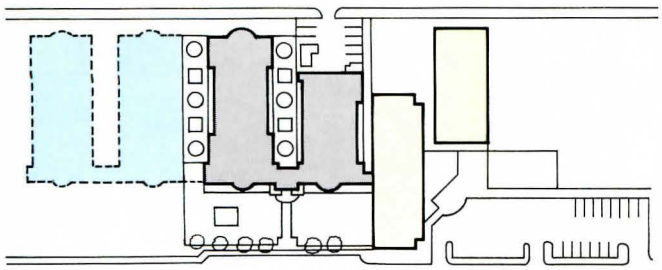


Pavilion for Japanese Art
The Los Angeles County Museum of Art
Los Angeles, California
Architects:
Bart Prince, architect; Bruce Goff, preliminary design
Engineers:
Engineering Associates (structural); Hayakawa Associates (mechanical/electrical)
Consultant:
Project Control, Inc. (owner's representative)
General contractor:
Kajima International, Inc.

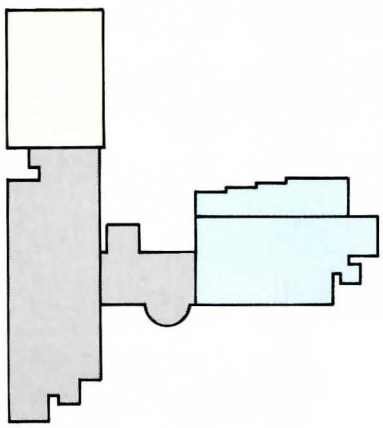
Back to bells and cells?



1.



2.

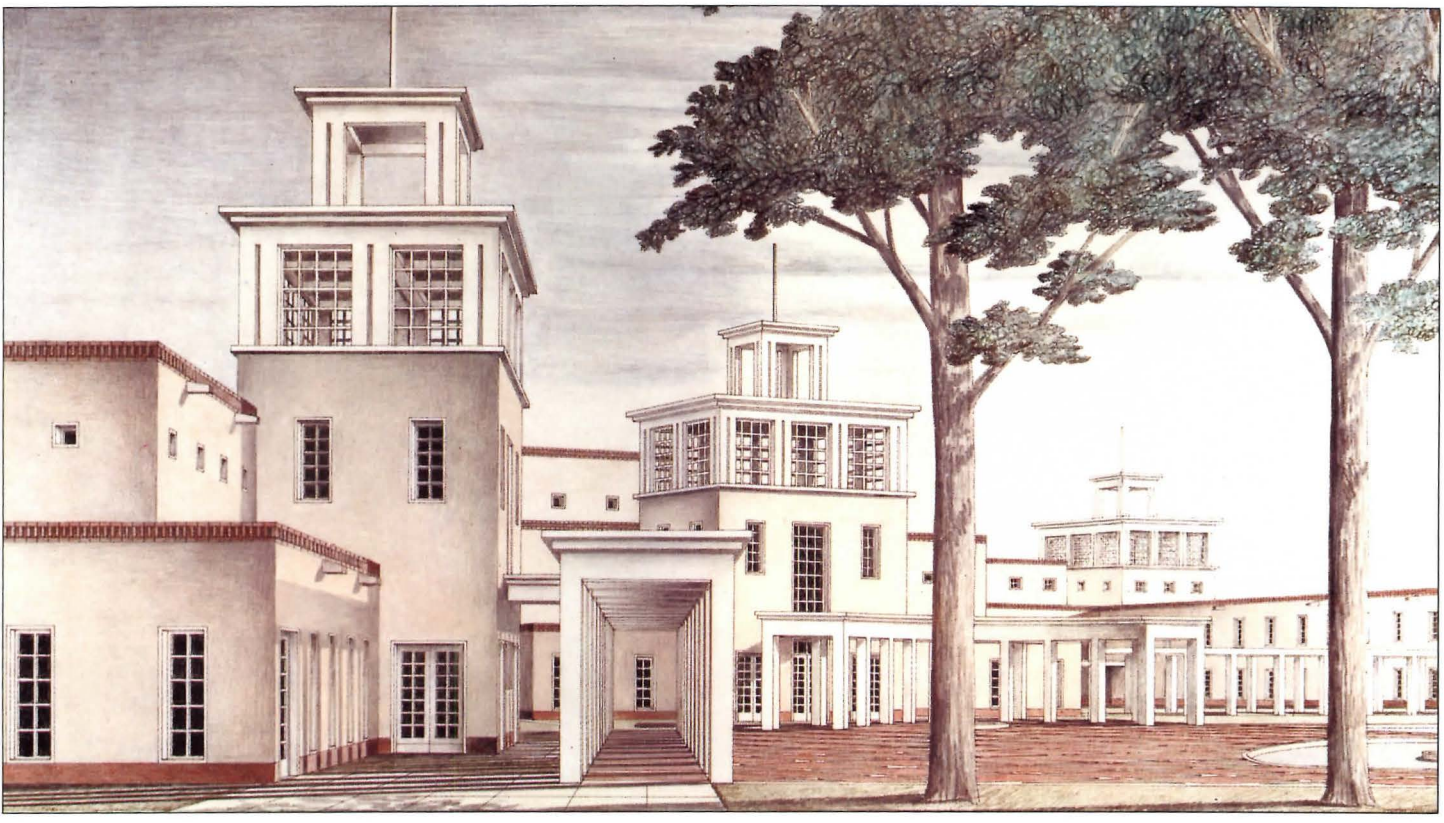


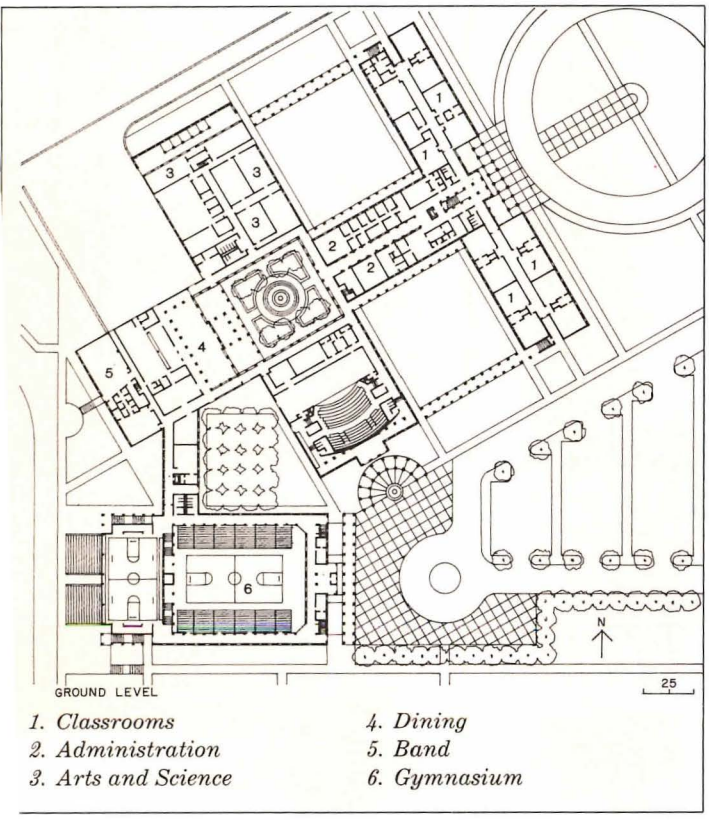
3.

The diagrams above represent planning schemes underlying the three built projects included in the design portfolio that follows.
1. Capital High School, Santa Fe, New Mexico; Perkins & Will with Mimbres, Inc., Architects
2. Gardendale Elementary School, San Antonio, Texas; Reyna Caragonne Architects
3. Arlington Elementary School, Lawrence, Massachusetts; Earl R. Flansburgh + Associates, Inc., Architects

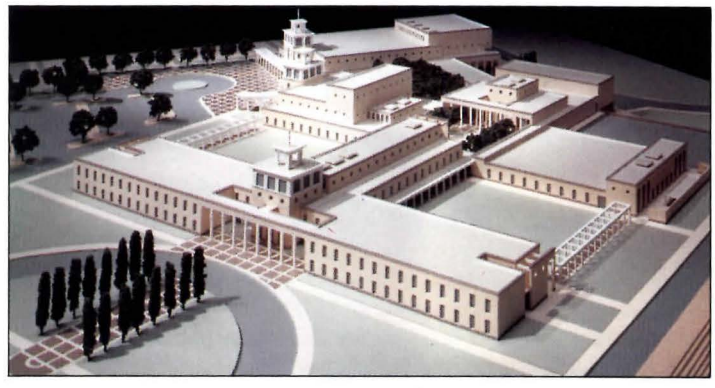
The winds of change buffeting school curricula have not spared architectural form. While the prevailing back-to-basics movement in pedagogy is encouraging a revival of traditional layouts ("bells and cells," architect Earl Flansburgh terms them), communities are pressuring school districts to include more facilities for shared use. And the clamor for specialized areas—especially for computers—persists, even when necessary funding is unavailable. Districts that were closing schoolhouses a few years ago must now contend with dramatically increased enrollment, both from population shifts and from the ongoing "baby boomlet." RECORD editor Herbert L. Smith asked partners in three firms—each with several decades of school-design experience, and each a respected innovator in the field—to discuss the ways in which planning for primary and secondary education has changed since the widespread experiments of the '60s and '70s. Earl Flansburgh's firm was founded in 1963, and has been responsible for the design of some 90 schools. Bill Brubaker, a partner in the Chicago office of Perkins & Will, has guided the design of more than 50 facilities since that firm's inception in 1950. Paul Kennon spoke for CRSS, a practice with nearly 1,000 such projects to its credit. On the following pages we present commentary on past and current trends from these seasoned experts, and offer a look at their responses to new challenges. To broaden the perspective, we also show how a relatively young firm, Reyna Caragonne Architects, has brought a traditional program up to date for typical budget-wary clients. James S. Russell

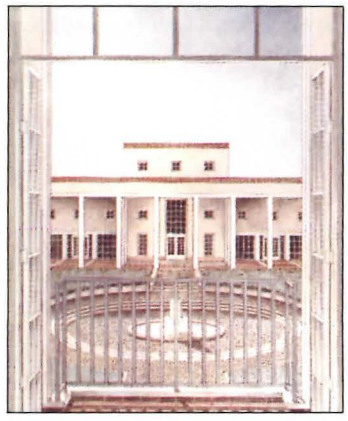
Building Types Study 657: Schools





1. *Classrooms*
2. *Administration*
3. *Arts and Science*
4. *Dining*
5. *Band*
6. *Gymnasium*





ı kit of indigenous esign parts

ıpital High School
nta Fe, New Mexico
rkins & Will
th Mimbres, Inc., Architects

This scheme assembles separate associative design elements, which have been arranged to take advantage of specific site conditions. Loftlike classroom and office pavilions (upper right in plan) focus on an axis with distant mountain views, and specialized pavilions for theater, music, and sports (left and upper left in plan) are organized around a landscaped courtyard. The blocks are united by architectural elements that are both familiar and responsive to the hot desert sun: towers and arcades associated with local civic buildings mark the skewed gymnasium wing (left in top photo), performing arts wing (center in photo), and entrance to the academic wing (model). The enclosure of the two large courts will allow graceful additions as the current student population of 800 gradually swells to an anticipated 1,300.

RECORD: The late 1960s and '70s were times of educational change and re-evaluation. Architects were concerned about designing flexible schools that would not become obsolete. How have curricula and facility priorities changed since then?

Earl Flansburgh: Flexibility was achieved by such architectural elements as open-plan classrooms with operable partitions (suitable for team teaching), and conference rooms and specific project areas related to clusters of classrooms. Now, with renewed interest in basic education in mathematics, science, English, and history, we don't see this interest in flexibility. There is less emphasis on enrichment of these basic subjects, and programs in art and music are less sophisticated. The reasons for this are primarily economic. With the increased cost of education (teaching salaries and building operations above all), there is less left over for these items, now considered "frills."

Paul Kennon: We still need to be open to the convertibility of spaces because of sophisticated equipment, utilities, and wiring. Teaching methods and enrollment levels are by no means fixed.

RECORD: Though schools have always functioned as community facilities, the aging of our population has made such shared use an ever higher priority. How have you responded?

Bill Brubaker: The "community school," serving the needs not only of students but also adults, is indeed a timely concept. Among the public uses that can be offered are cultural activities, day-care, and health and social services. Even adults without children can participate and have a stake in the success of schools, and it is hoped that this will translate into greater support through tax dollars and volunteer work.

EF: A major design requirement for recent auditorium projects has been the accommodation of the client community's town meeting. And today there are many neighborhood-based drama clubs and musical organizations—at the same time that similar *school* activities have excited less public interest.

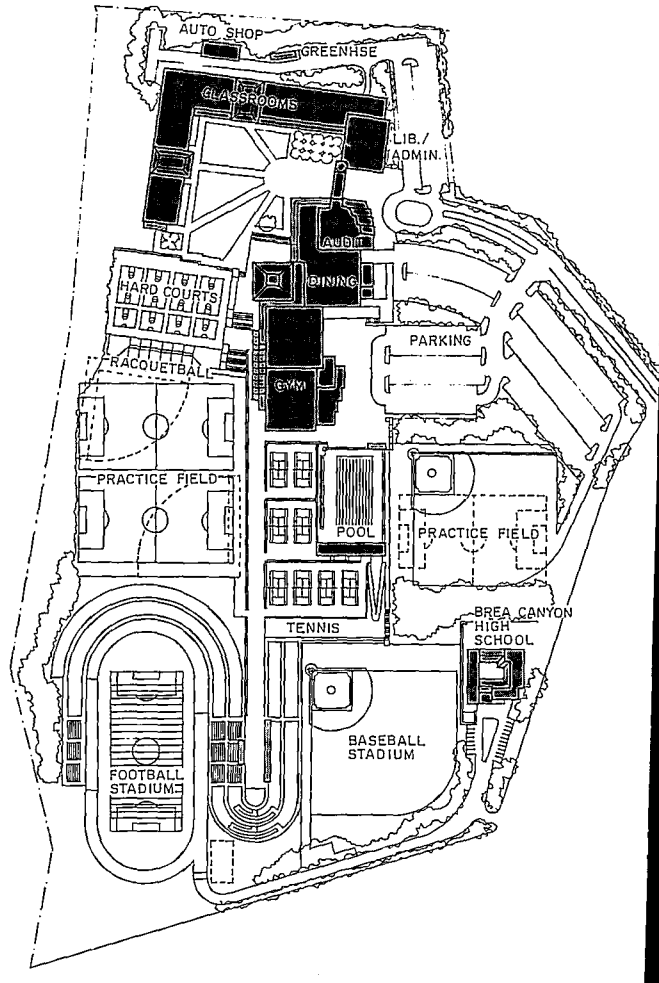
PK: Education will increasingly draw on the resources and expertise within the community. We are working together with IBM and the Poughkeepsie, New York, school district, for example; and Indiana University and AT&T have created a new teaching and learning center for high schools throughout the state. With education a lifelong process, it is worth exploring the amalgamation of facilities on one site, from nursery school and K through 12 to community college and continuing education.

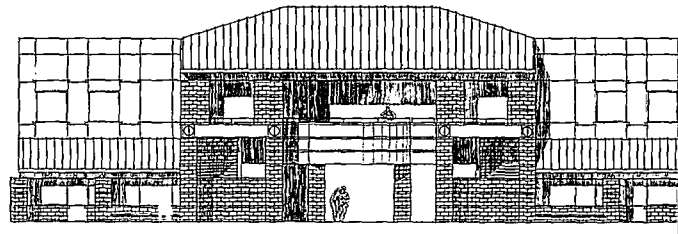
RECORD: How do today's design programming priorities differ from yesterday's?

PK: We find we have to use system techniques to get schools built quickly to tight budgets, as at the Brea-Olinda High School (right and opposite).

EF: Fieldhouses used to be popular in high schools and we designed and constructed several. Today only a basic gym is typically programmed in public schools. In independent schools, however, large athletic and physical education spaces are still a high priority. The growth of women's athletics has effectively doubled the outside field requirements for all schools, and increased indoor space for physical education. Gone are the days when the visiting team used the girls' locker room.

BB: Because educational needs and programs change, buildings for education should allow both for change within and for graceful external expansion. Some schools may have to be designed with future adaptive reuse in mind. For instance, a school located on a busy corner might be developed for easy

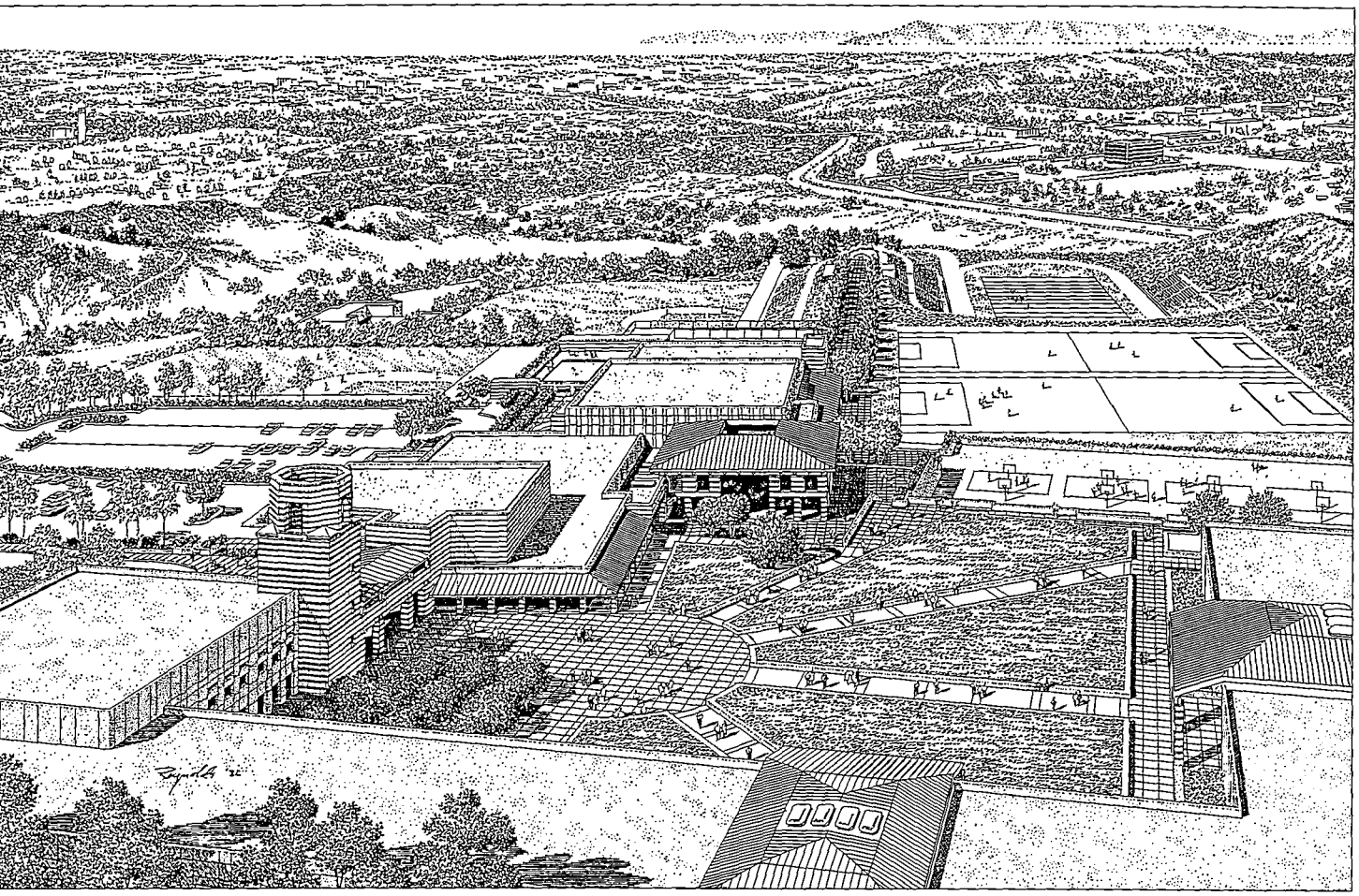


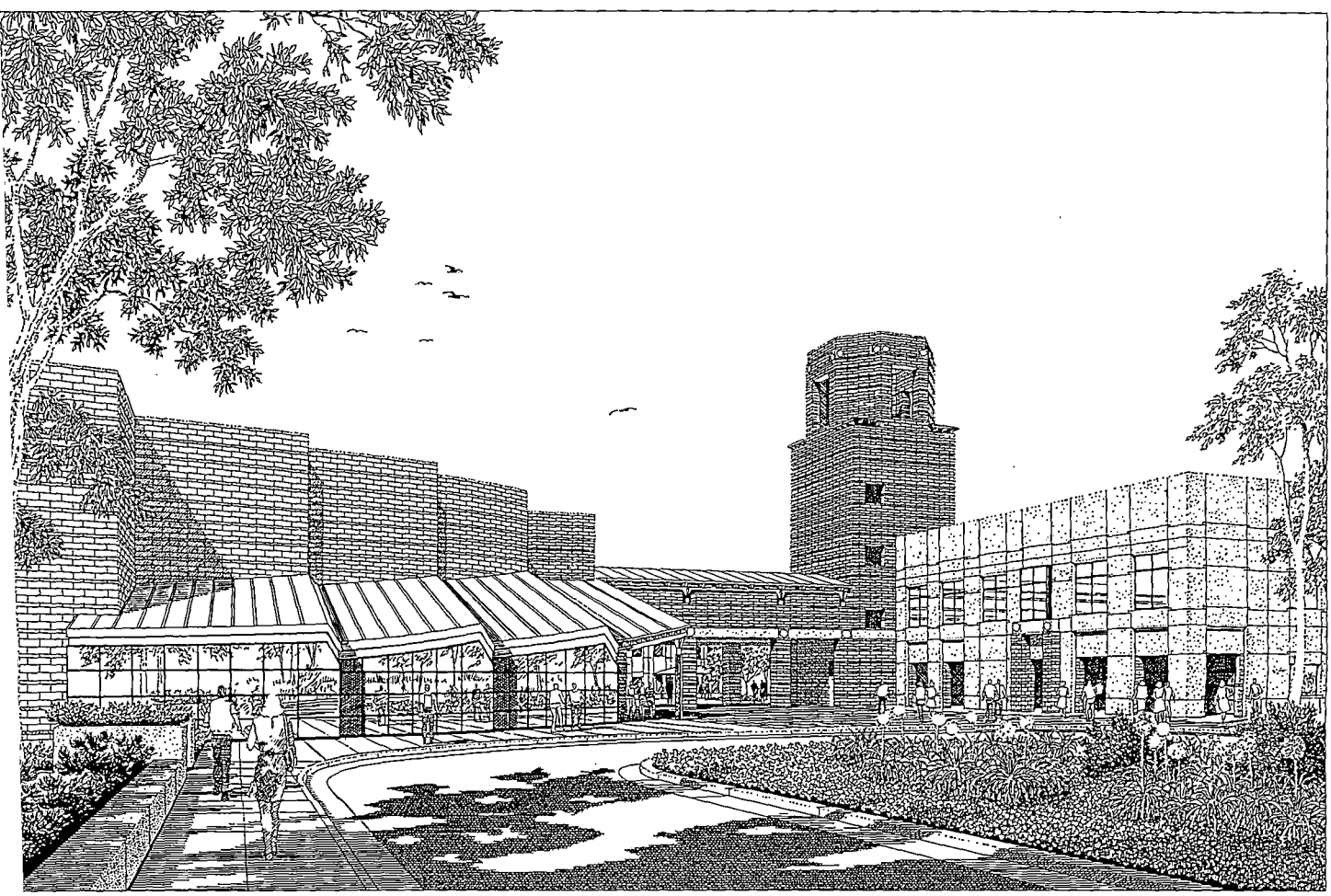


Cost-conscious facilities bring town and gown together

Brea-Olinda High School
Brea, California
CRSS, Architects

Classrooms cluster around a courtyard at the top of a ridge a 239,000-square-foot complex. Sports and performing-arts facilities used year-round for academic programs are also shared by the local community These dual-use elements are separated from the academic quadrangle and cascade down the sloping site, accessible via tree-lined pedestrian way (pla Owing to cost and time restraints, the design firm's construction arm adapted tilt-concrete-wall technology normally reserved for warehouses.





conversion to commercial use. Urban schools have very different needs from suburban ones: their sites are smaller and they often face heavily trafficked streets and have multifloor neighbors requiring a contextual response. We now have three prototype schools underway in New York City, where we're dividing the program into three- and four-story townhouselike units.

EF: Libraries today are similar in some ways to those of a decade ago but also different in many ways. The library is still the center of the school, but the librarian's jurisdiction over the computer is fading. The personal computer—now almost 10 years old—has become just another piece of standard equipment in the classroom. Many students have some computer skills as do many teachers. The rise of the personal computer has also eliminated the over-complicated mainframe computer system.

BB: We don't yet know how big an effect computers will have on school design in the future.

PK: Schools *must* address new needs. We may soon be providing such "smart building" technologies as accessible floors and fiber-optic cables.

RECORD: In the '60s we saw straightforward massing, usually with flat roofs. Now we see more complex forms, greater use of color, and historical recall. Is this just knee-jerk Postmodernism?

BB: First of all, regionalism is a rediscovered trend in school design. We are learning to recognize the natural logic of many local building traditions. The Santa Fe High School (pages 100-101) and our prototype schools in New Mexico (pages 106-109) attempt to benefit from regional values.

EF: We're seeing simple interiors, reflecting a basic educational program. Exterior educational symbolism has replaced interior educational flexibility as a driving force for academic buildings.

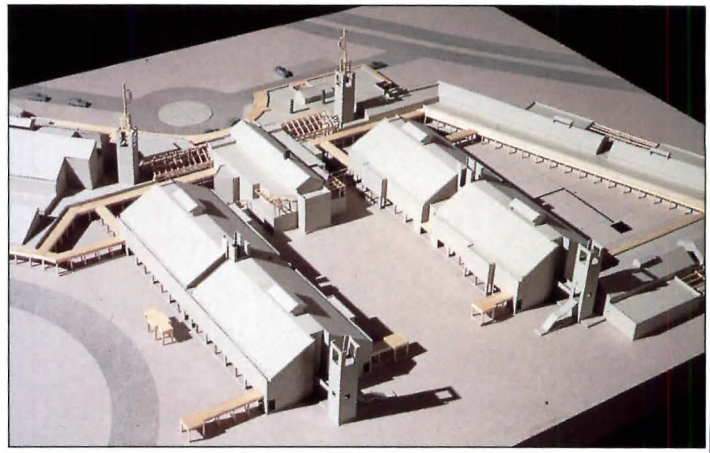
BB: Pitched roofs create more spatial interest. People appreciate great spaces as a relief from the sameness of classroom, office, laboratory, and corridor spaces. A dining room or library can be seen as a spacious commons or as an atrium. Stark corridors can be developed as "student streets." These kinds of focal points give students a sense of place.

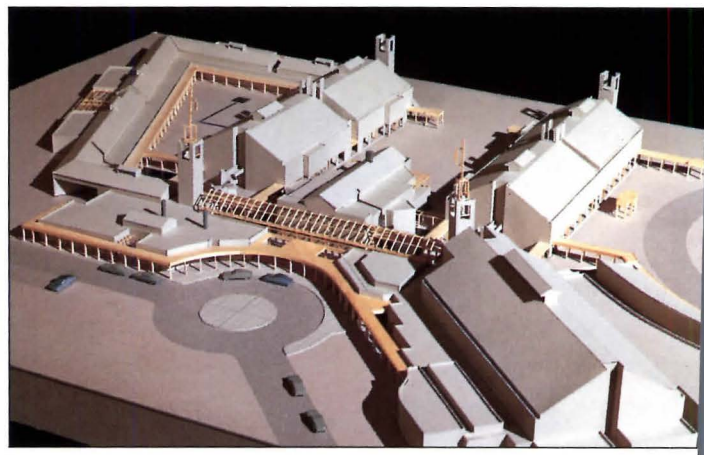
PK: In high schools we have to look at wider corridors for better crowd control. Crowded conditions may even lead to physical violence. Code-mandated widths are not enough. But corridors can do double duty by being attractive to encourage socialization as well as security.

RECORD: We hear more than ever from politicians about the importance of education. Are we going to see greater richness in the programs? Will the form of facilities continue to change?

BB: There is a revived interest in school design nationwide. New facilities are needed not only in growing parts of the South and West but also in established communities. Local population shifts are occuring; many old buildings are either functionally inadequate or too costly to maintain.

EF: In some respects we will probably be dealing with a different teacher and a different faculty. For generations our society benefited from the highly intelligent "young ladies" who chose teaching as an appropriate career. But the social-studies teacher of the '50s is today's bank vice president. Sadly, we are not attracting imaginative people to the field. It took the launching of Sputnik to make postwar American society aware of the shortcomings of our teaching in mathematics and science. The threat of Japanese technical and manufacturing superiority may be *this* generation's Sputnik.





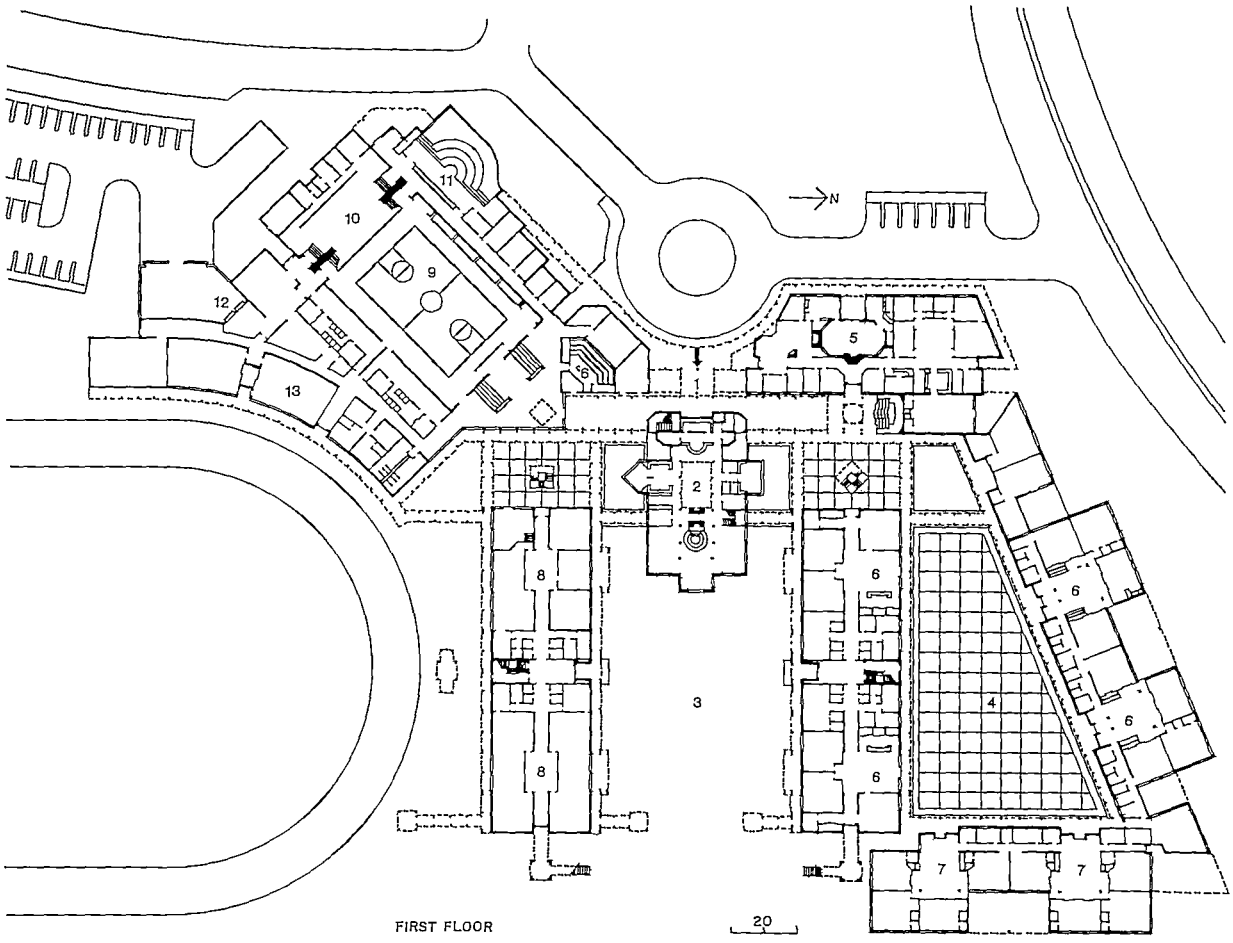
©Sam Sweezy

Open classrooms retain their appeal for an independent curriculum

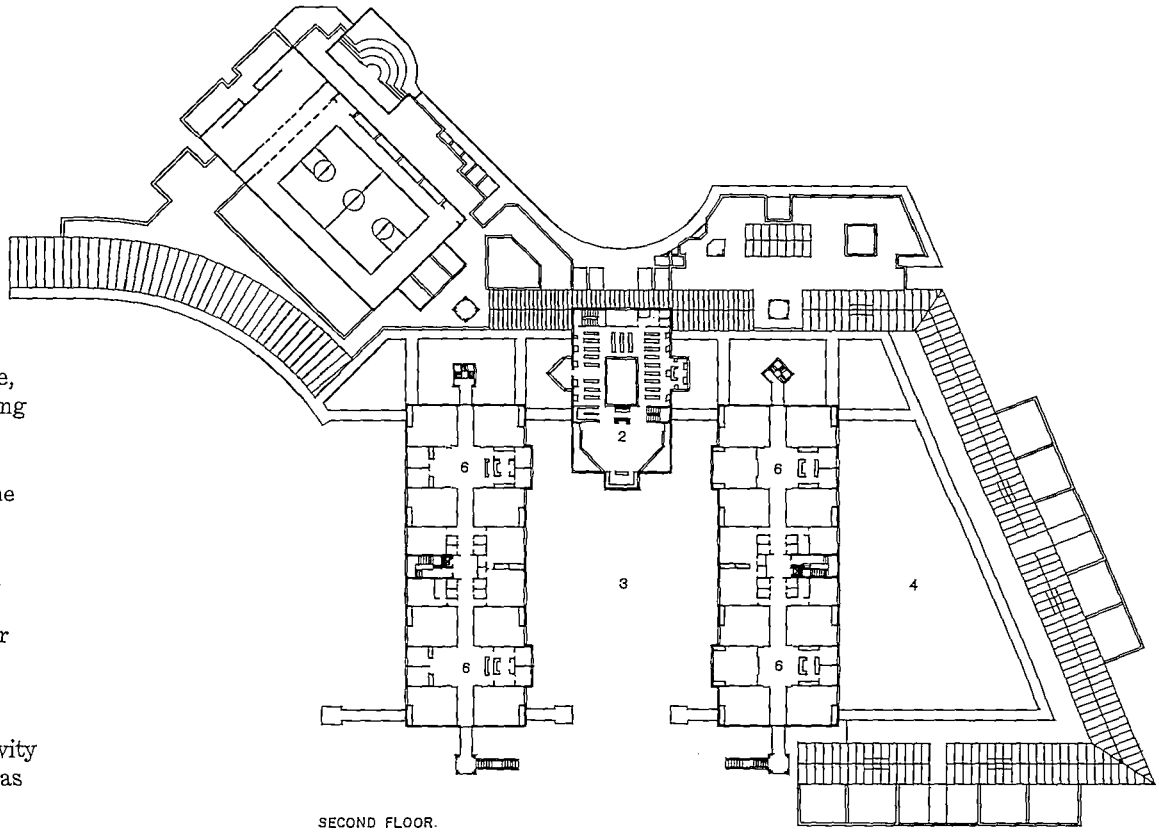
Glenwood School
Dallas, Texas
Earl R. Flansburgh + Associates, Architects

The concept of "project areas" accessible from series of flexibl classrooms lies at the heart of this design for an independent K-12 school. Sliding or folding doors enable these spaces to alternate as separate teaching units or open-plan clusters, according to changing requirements. Individual offices for teachers and curriculum coordinators adjoin each three-four-classroom group, along w a complement of conference areas serving smaller classrooms. At the client's request, Flansburgh's campus plan stresses the individual

1. Entrance
2. Library
3. Lawn
4. Courtyard
5. Administration
6. Classrooms
7. Pre-kindergarten
8. Special labs
9. Gymnasium
10. Stage
11. Music
12. Receiving
13. Multipurpose



FIRST FLOOR



SECOND FLOOR.

ıtities of the lower, middle, upper schools, while giving entire complex a institutional, informal ·acter in harmony with the ·ounding residential ·hborhood. The shared ities of library, gym, and ure hall help to provide a ying community focus for ·wood's three main ions—and take fullest ntage of a relatively tricted site. Outdoor activity es, linked by open paths as as covered walkways, ırage the enjoyment of somely landscaped grounds.

Inventive regionalism sparks a prototype for the desert

Desert View Elementary School
Sunland Park, New Mexico
Perkins & Will,
Design Architects
Mimbres, Inc.,
Project Architects

For an arid terrain in southeastern New Mexico, where typical buildings are often colorful, but very unassuming and practical, architects Perkins & Will have developed this budget-conscious, prototype elementary school that translates simple concrete block and bar joists into eye-catching structures for about $50 a square foot.

An early decision was made to keep the schools small-scale and complete in themselves, according to Ralph Johnson, the architects' design principal for this project. Thus, instead of one big, campuslike elementary school to accommodate all of t expected student population, three identical facilities were repeated about a quarter of a mile apart—one each for grad K-2, 3-4, and 5-6. Compatible a groupings were one object of scheme; another was utilizing limited land parcels readily available on the periphery of t community.

And, as each school shares some facilities with the public they give the bonus of a serie neighborhood centers and oas like focal points. Each school encircled by a low, native-roc wall to separate irrigated, planted areas adjoining the

ding from the surrounding
d-blown, sandy desert.
he school plan is simple, but
rly zoned and arranged
ınd courts. Walkways are
led by translucent fiberglass
s and canvas awnings.
srooms are repetitive
dard sizes, off double-loaded
dors, flanking the shared
ities: administration, library,
eria, and a multipurpose
ı. The scale and massing of
abled pavilions housing the
wo areas—together with a
r sculptural entrance
—signal their added use
umerous community
ions. The other areas are shed-roofed, off clerestoried spines.

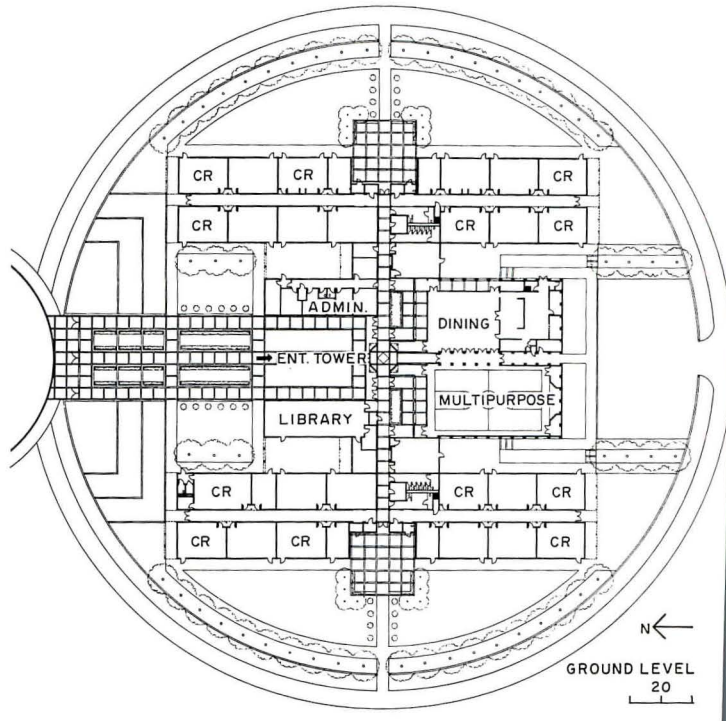
The varied fenestration—ranging from tiny windows to entire gable ends—helps give the building a much larger, grander sense of scale than its relatively modest size would ordinarily evoke. Similarly, integral color in the concrete-block bearing walls and the bright paint of the exposed steel structure give a festive elegance to the forthright materials.

It all adds up to a strong associative regionalism for the desert climate, without depending on direct recall or stylistic historicism.

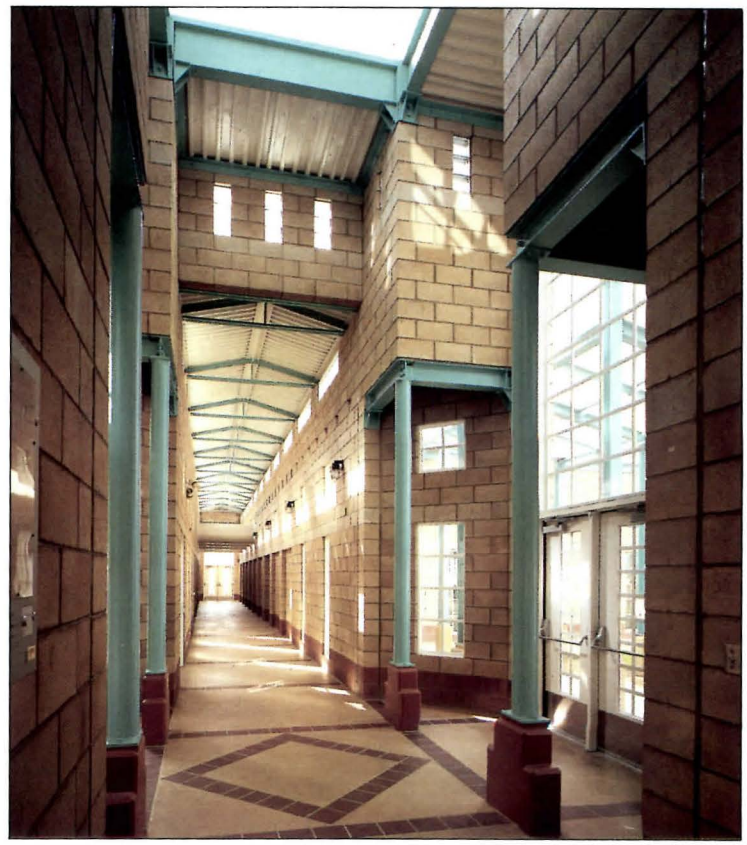
©Robert Reck photos

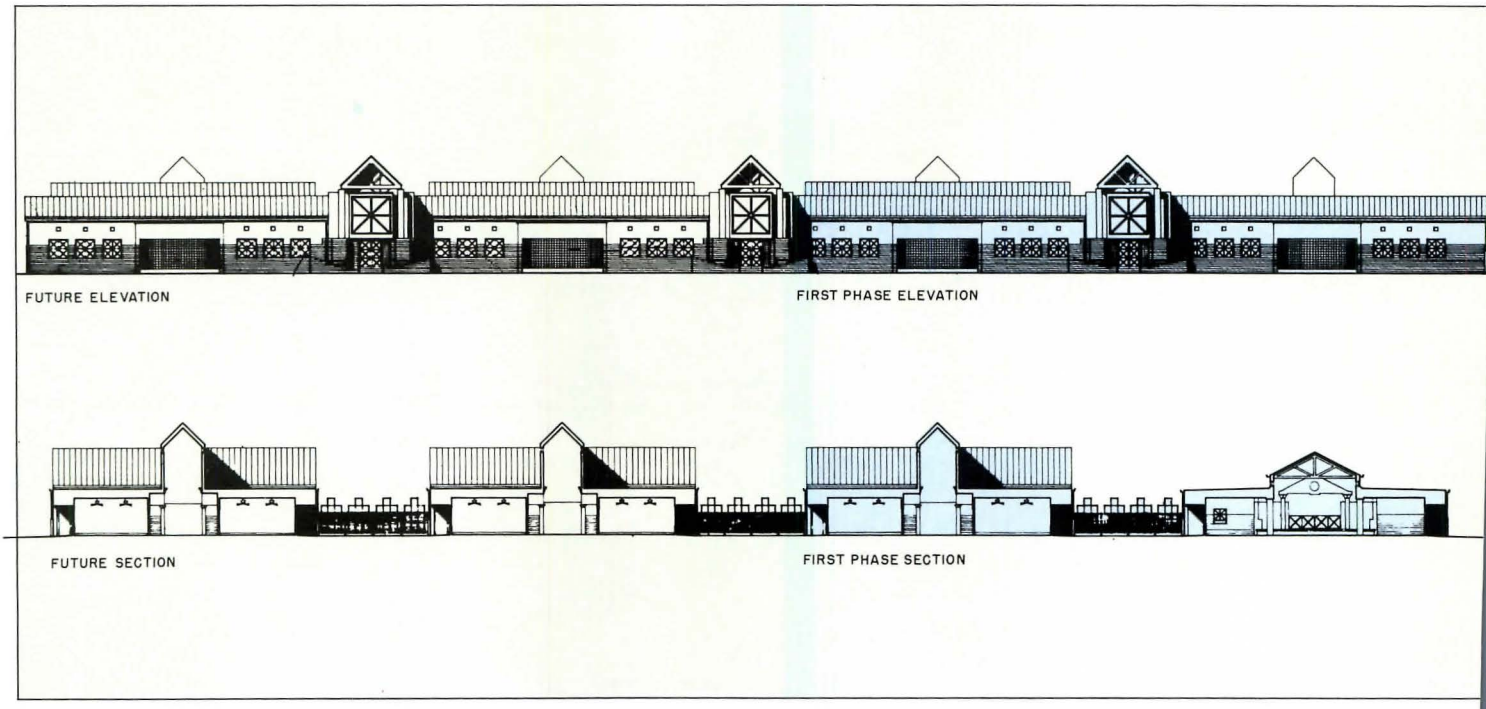
The cooling interplay of light and shade evident indoors and out in this prototype desert school will be strengthened when landscaping matures within the encircling stone walls. All interior spaces are air-conditioned. The concrete block, metal roofs, and steel structural members are left exposed as finishes inside and out.

Desert View Elementary School
Sunland Park, New Mexico
Owner:
Gadsden Independent School District
Design architect:
Perkins & Will—Ralph E.



Johnson, design principal; James Toya, project manager; Elizabeth Fakatselis, Jerry Johnson, Mark Romack, Stua Royalty, Carolyn Smith, project designers
Project architect:
Mimbres, Inc.—Kestutis Germanas, Sam Jamron, project architects
Engineers:
Mimbres, Inc. (structural); Bridgers & Paxton, Inc. (mechanical); Tierra Del Sol (electrical)
Consultants:
Cervantes P. E. & Associates (site engineering); Gordon B (specifications)
General contractors:
Wooten Construction Co. and Snider/Chapman Construction Co.



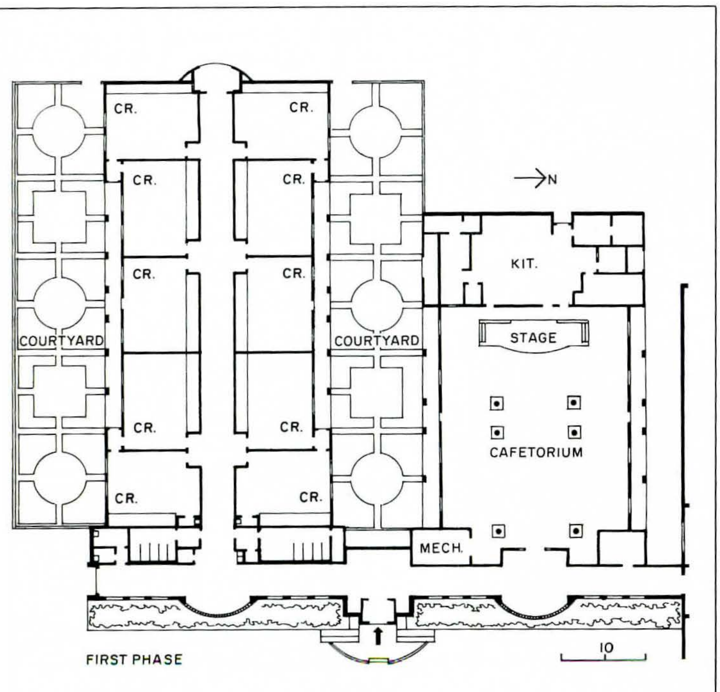


A sprightly add-on scheme copes with renewal and growth

Gardendale Elementary School
San Antonio, Texas
Reyna Caragonne Architects

Among those re-exploring variants of the standardized plan approach, Reyna Caragonne Architects has developed a simple add-on scheme. Given the desired time- and cost-savings, their project is perky, colorful, and appealingly scaled. The basic unit is a no-nonsense plan of 10 standard classrooms flanking a double-loaded corridor, and fronted by a lateral corridor (top photo far right) from which entries and future classroom expansion can be added. All corridors are double height and, together with the resulting interplay of pitched roofs, give a much needed variety in spaces and forms. The units are designed to be separated by three-sided interior courtyards, with the fourth side closed by decorative lattice fencing. The lattice alone is used to form a court for the end unit (photo bottom right). Each classroom has access to a court for outdo recreation and instruction, and for natural light and ventilatio through operable windows if desired. (The units are also air conditioned.)

For this school, a master pla was developed to gradually replace and expand an existing facility (see plot plan far right with the old structures

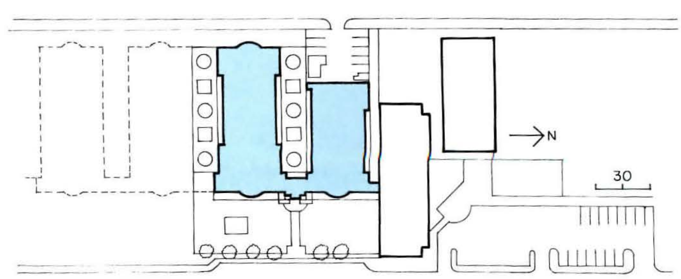


ccessively demolished as new its are added. The first phase own here consists of one ssroom unit and a kitchen and ing facility; future plans call more classrooms and a small ninistration wing.

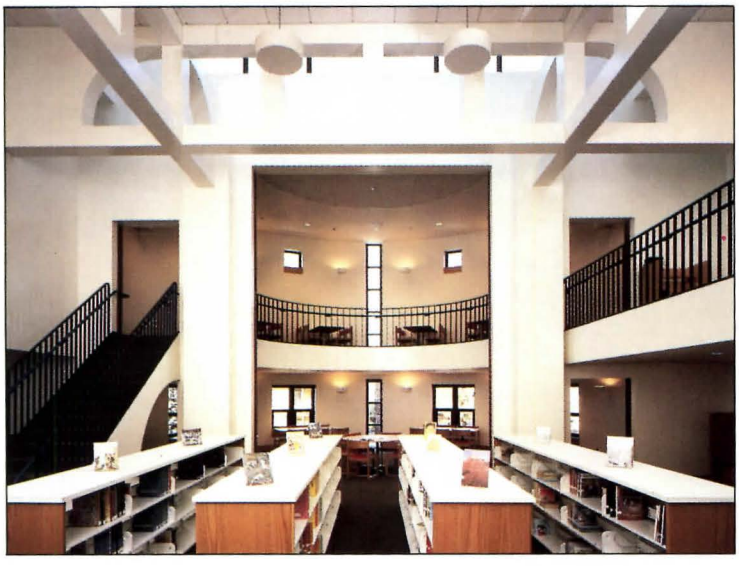
'he basic structure is steel me, with metal studs, wood sses, and prefinished nding-seam metal roofing. eriors are finished with cco, glass block, and glazed ictural clay tile. The cost was per square foot.

o date, two other San onio schools have also built of the classroom units to ind existing facilities.

Gardendale Elementary School
San Antonio, Texas
Owner:
Edgewood Independent School District
Architect:
Reyna Caragonne Architects—Elias Reyna, partner-in-charge; Alex Caragonne, architect; Debra Dockery, project architect
Engineers:
Robert Harper (structural); William Dorbant (mechanical/electrical)
General contractor:
Wes Lockeridge & Associates



©Sam Sweezy photos



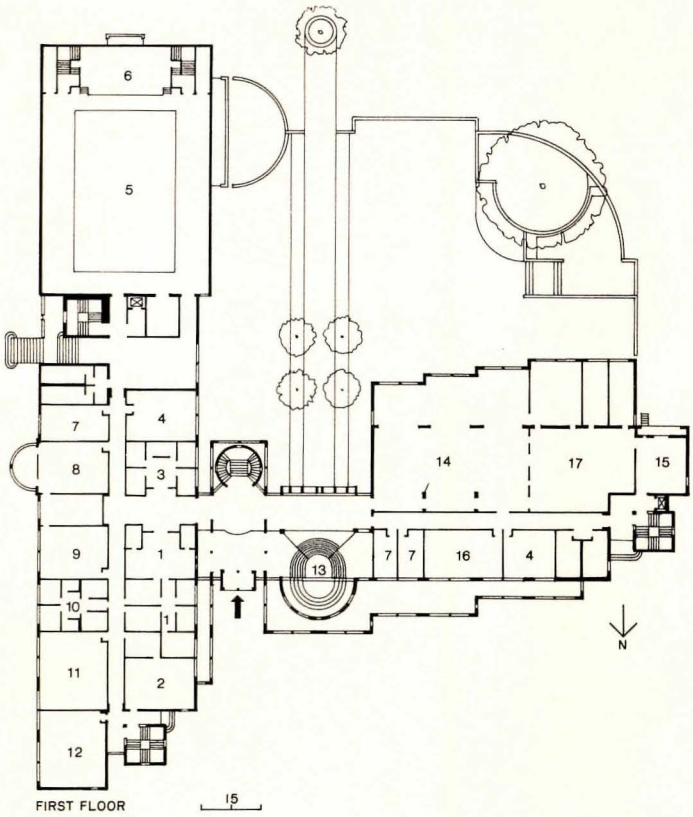
Varied textures and subtle color enrich a conservative plan

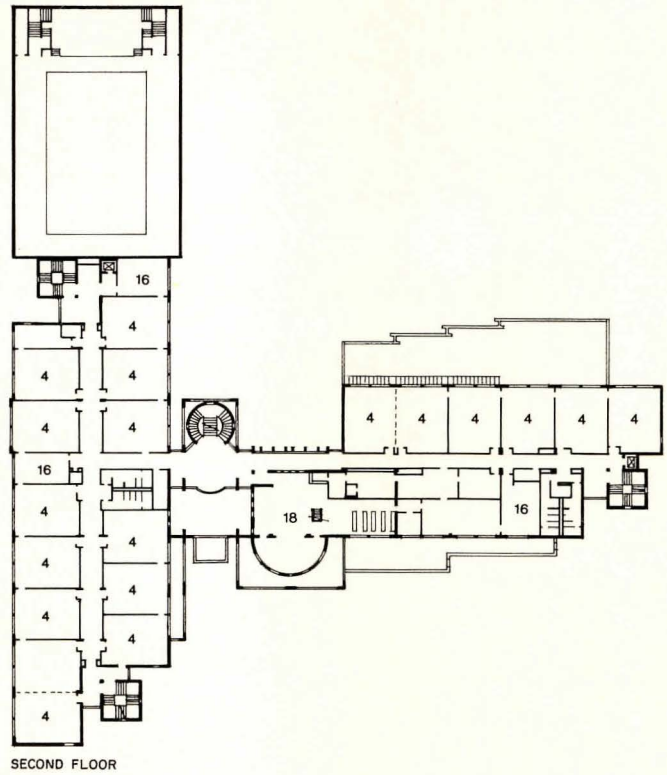
Arlington Elementary School
Lawrence, Massachusetts
Earl R. Flansburgh + Associates, Inc., Architects

Never one to be daunted by changing attitudes or restrictions, Earl Flansburgh (while obviously regretting that a return to traditional "bells and cells" is replacing the imaginative school planning encouraged in the 1960s and early '70s) has perceived a somewhat compensating new interest and concern with the quality of the architecture itself. However, Flansburgh's increase in "architectural richness" is by no means that of applied ornamental pastiche or fashionable cliché, but is the result of carefully studied massing, detailing, colors, and textures of the materials.

In plan, the K-8 school is approximately a "T" shape, separating older and younger students. At the juncture, by th main entrance, is an indoor amphitheater (bottom photo above) on the first floor, and a library (photo bottom left) on t second level. The top floors are basically standard-sized classrooms off double-loaded corridors. There are specialized rooms for arts and crafts, science labs, industrial-arts shops, and home economics. L usual are facilities for a computer center and an audiovisual production studio.

1. *Administration*
2. *Faculty lounge*
3. *Guidance*
4. *Classroom*
5. *Gymnasium*
6. *Platform*
7. *Seminar*
8. *Art*
9. *Arts & crafts*
10. *Health*
11. *Sewing*
12. *Cooking*
13. *Amphitheater*
14. *Cafeteria*
15. *Receiving*
16. *Special education*
17. *Kitchen*
18. *Library*



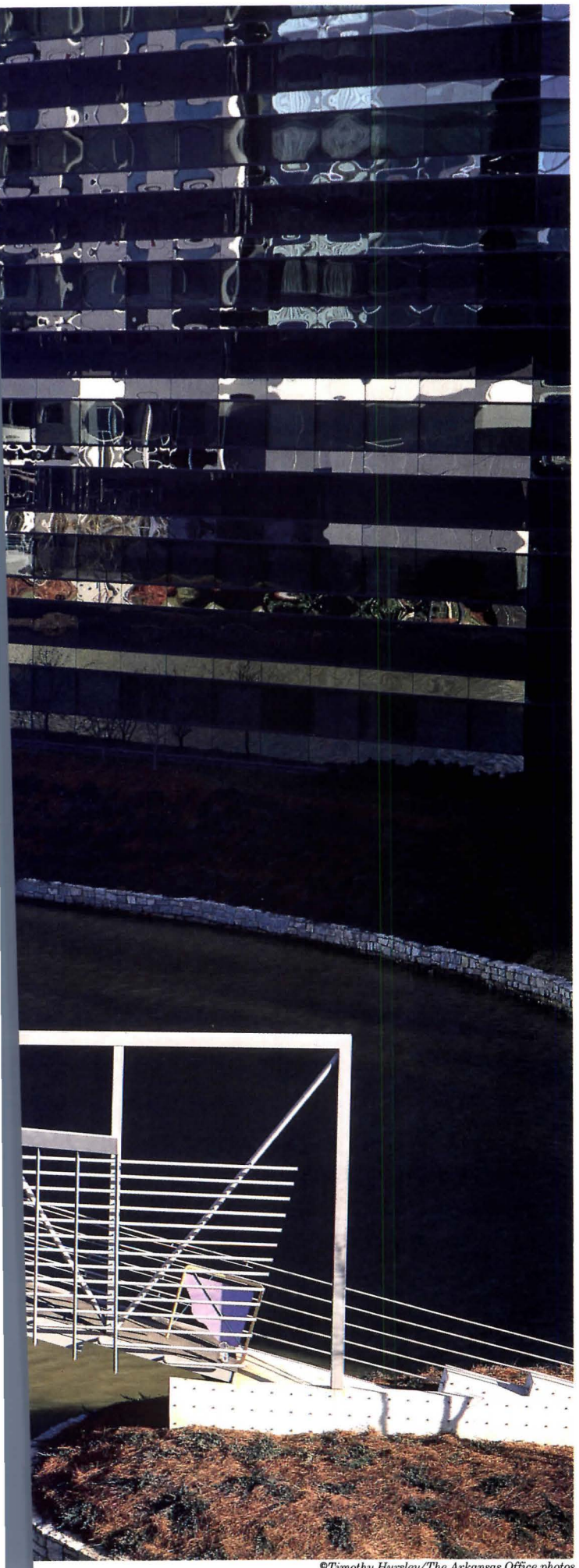


though the school has a few
nall conference rooms,
ansburgh notes that the
merous project spaces and
nference areas of earlier years
e gone, partly the result of
anges in teaching techniques,
rtly from a sharp reduction in
e number of teacher aids and
ecialized support personnel.

lington Elementary School
wrence, Massachusetts
ner:
y of Lawrence
chitect:
rl R. Flansburgh +
sociates, Inc.—Earl R.
nsburgh, principal-in-charge; Joseph Diviney, associate; John Cannon, Daniel Perruzi, design associates; David Hocker, contract documents; Ned Collier, William Lim, design team; Gary Larson, landscape
Engineers:
R. G. Vanderweil Engineers, Inc. (mechanical/electrical); David Berg Associates (structural)
Consultants:
Bolt, Beranek & Newman (acoustics); Hanscomb Associates (costs)
General contractor:
R. W. Granger & Sons, Inc.

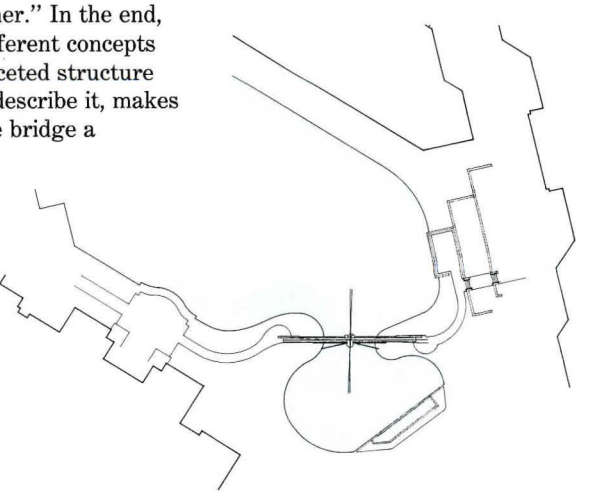
The Bridge at Concourse
Atlanta
Scogin Elam and Bray
Architects

Defying gravity

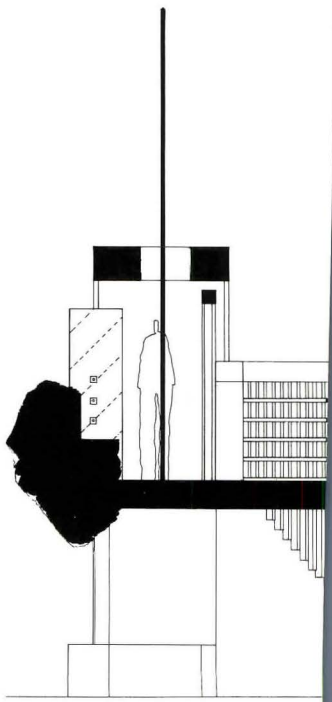


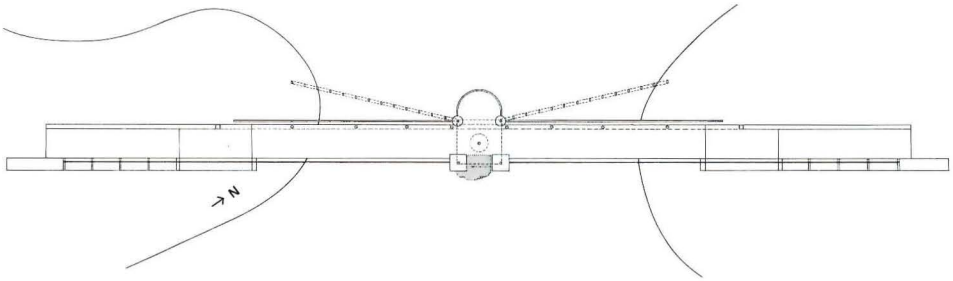
©Timothy Hursley/The Arkansas Office photos

With probably unwitting irony, some real-estate image-maker gave the name Perimeter Center to a northern outgrowth of Atlanta where slick new colossi loom above a still-sylvan landscape like the shards of an exploded city. The phenomenal disconnectedness of the ambiance makes it symbolically appropriate that the developer of an office-hotel complex there, called Concourse, should have decided to erect a bridge as an outdoor focal point. The client explained to architects Scogin Elam and Bray that the bridge was functionally nonessential; to get from one part of the compound to another, it's easy enough to skirt the manmade lake at its core. The crossing was meant instead to be "a piece of jewelry" to adorn a conventional background. Scogin Elam and Bray enthusiastically seized the opportunity to contemplate the very essence of "bridgeness," and given the premise that this particular bridge embodied a *desire* to connect two points rather than a necessity, they were free to stretch their thinking far beyond the usual pragmatic boundaries. "We considered everything from natural stone bridges, water bugs, and lily pads to constructivist assemblages," Mack Scogin recalls; "at one point we came up with sailboats that would take you from one side to the other." In the end, they fused different concepts into a multifaceted structure that, as they describe it, makes traversing the bridge a stimulating "mind-game." The most obvious riddle is a boulder jutting through one side of an open pavilion at the midpoint of the span. As if to intensify the effect of solid matter flouting gravity, the parapet opposite the rock sprouts cantilevered screens that hover above the water like dragonfly wings. A subtler enigma arises from the schizoid structure implied by webs of cables anchoring one half of the bridge and outsize trusses rising above the other: both tectonic systems are in fact purely decorative, since the footpath is a self-supporting single span. The esthetic tension between the symmetry of the bridge elevation along its major axis and the asymmetry of its transverse section are both palpable as one climbs either ramp and meets an upright pole mounted beside the rock, right at the center of the narrow footpath, where it forces one to squeeze by on either side. In part, this duality reflects the nature of the site: an intimate cove on one flank, the open lagoon on the other. But it also counters the blandness of its built environs with a welcome reminder that paradox, whimsy, and surprise are worth enjoying along the way, no matter where one is headed. This is a folly in the best sense of the word. *D. B.*



The single-span structure of the 50-foot-long bridge is steel with concrete abutments. Metal members are finished with automotive paint. ("It's actually the paint flecked with metal that they use on BMWs," says Scogin. "We thought it was the perfect contextual element.") In character with the thematic paradoxes at the heart of the design, everything is not what it appears to be. The giant trusses and the tension cables borrowed from suspension-bridge technology are actually nonfunctional, as are most of the outsize stainless-steel bolts on the abutments (only six bolts are structurally necessary); the midspan pavilion is plywood detailed and painted to simulate metal. Of the boulder meant to allude to natural bridges, Scogin reports: "We originally had this vision of plucking a great rock from some creek bed in the area—massive granite that had been touched by water for thousands of years. But no one would give or even sell us one. We ended up buying lava rock from Hawaii." Ambiguous scale relationships between the rock, other bridge components, and people walking through enhance a playful composition.





The Bridge at Concourse Atlanta
Owner:
The Landmarks Group
Architect:
Scogin Elam and Bray Architects, Inc. (originally commissioned as Parker and Scogin Architects)—Mack Scogin with Merrill Elam; Lloyd Bray and Dick Spangler
Engineer:
GPWD Consulting Engineers (structural)
Consultant:
Ramon Noya (lighting)
Contractors:
Anonymous Friend, David Biddle, CNE Enterprises, A J Concrete Pumping, John Caudle, Nancy Moynihan, Buz Biddle, A-Derrick, Inc.

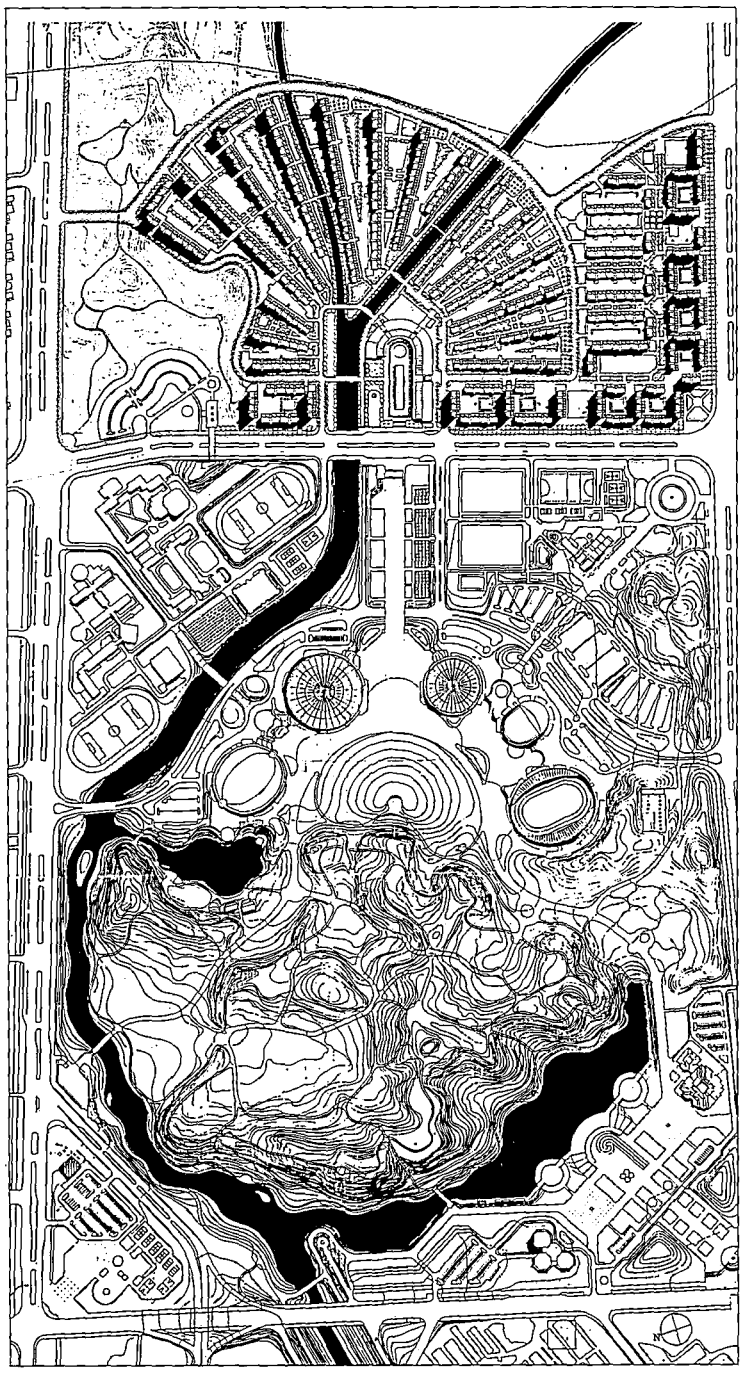
An Olympic challenge

Since Pierre de Coubertin revived the idea of an international athletic competition at the turn of the century, the Olympic Games have grown to enormously affect the physical design of host cities, eclipsing world's fairs in their scale and impact. During the last two weeks of this month the 1988 Games will be staged in Seoul, Korea, a developing country that has utilized the premier sports event as a catalyst for long-term national and metropolitan improvements. One of the most significant examples of these civic investments is the Olympic Village, a 165-acre residential development south of downtown Seoul that lies adjacent to the sports park. During the Games, the complex will house

oul Olympic Athletes' and
eporters' Village
oul, South Korea
oo & Williams, Architects

Mick Hales photos

nusands of athletes and, later this year, it will converted to a new town for more than 25,000 idents. The architect commissioned by the city Seoul to design this high-density development Voo & Williams, a Boston firm selected over other entrants in a design competition. In ating a mix of residential towers and support ilities, such as the athletes' dining hall tured above, the architects incorporated ects of Korean tradition within an unusual anization of public and private spaces. The ovative result not only serves as a model for ure development in Seoul, but offers both East West lessons in urban design that will long 'ast the '88 Olympics.



The main site of the 1988 Olympics consists of a 600-acre sports park (bottom two-thirds of plan) and housing for 22,000 visitors (top), divided by a highway. Woo & Williams connected the Olympic Village to the athletic facilities by placing a public plaza and athletes' dining hall on axis with the park's major entrance.

When the 24th Olympic Summer Games draw to a close next month in Seoul, the biggest winner may turn out to be the host city itself. Despite its recent political and economic upheavals, Seoul has spent the last seven years intensely preparing for the international event, constructing new cultural facilities, public amenities, and city services. The area to benefit most from these civic improvements is the Chamsil district south of the Han River, where the Games are being staged. Once a far-flung suburb of the capital, the district has grown into a thriving commercial subcenter of Seoul, triggered by the government's investment in civil works associated with the Olympics.

The actual site of the events, designed by a team of Korean architects and planners, comprises 600 acres of parkland with five indoor venues for swimming, fencing, gymnastics, cycling, and weightlifting, completed earlier for the 1986 Asian Games (bottom of site plan, left). To the east of this Olympic Park, a vast complex of 5,540 housing units and communal facilities will accommodate 13,000 athletes and 7,000 reporters, and after the Games, become a permanent community (plans, opposite). Seizing upon the rare opportunity to build such a new town, the city held an international design competition in 1984 in search of fresh alternatives to the monolithic towers that crowd the Seoul skyline. In awarding the commission to the Boston-based firm of Woo & Williams, the capital gained not only gracious accommodation for its visitors, but an environment that encourages a continuation of the spirit of social harmony underlying the Games.

"We used the occasion of the Olympics to rethink the nature of large-scale housing in Seoul," explains Korean-born architect Kyu-Sung Woo, whose previous experience in housing design includes a winning scheme for the 1975 Roosevelt Island competition in New York City and a 30-acre inner-city development in Columbia, South Carolina. Woo explains that the organization of the Olympic Village is rooted in its irregularly shaped site, which he likens to an island surrounded by wide boulevards, hilly parkland, and a greenbelt. Impelled by the geometry of an existing Y-shaped stream, the architect arranged the athletes' housing in a radial pattern that conforms to the bowl-shaped terrain and is linked to a centrally located park, public plaza, and commercial building placed on axis with the Olympic Park's promenade. (This candy-cane-shaped structure will be used as the athletes' dining hall during the Games and then converted into a shopping galleria.) The fan-shaped arrangement is reinforced in elevation by a gradual increase in building height; the blocks step up from the center of the site to form a protective wall against the enfolding hills. In contrast, the southern portion of the site, which will house reporters covering the Games, is divided into smaller blocks densely arranged in an orthogonal pattern parallel to the adjacent boulevard.

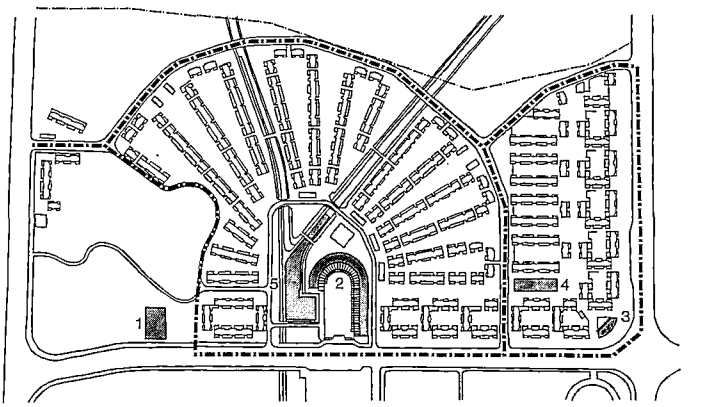
Although the heart of the Olympic Village appears deceptively simple in plan—like a section cut from Ebenezer Howard's Garden City—walking through the complex reveals a much richer variety of public and private spaces, framed by vistas that open up to the distant mountains. The apartment towers throughout the Village are repetitive in form, but distinct precincts are created by the asymmetrical arrangement of buildings within the complex. Woo proportioned the blocks according to the dimensions of the Manhattan grid, but scaled down the American prototype with midblock pedestrian passageways, underground

garages, restricted surface parking, and vehicular circulation that prevents through traffic. While the stepped towers evoke the monumentality of the 1976 pyramidal Olympic Village in Montreal, the tree-lined streets, front yards, and planted interior courtyards in Seoul recall the parklike setting of Munich's 1972 "Olympic Games in the Green."

Woo acknowledges the influence of these prototypes, but credits Korean architectural precedents as a more profound source—though his sensitivity toward regional design is not expressed in obvious visual mimicry. Instead, he articulated the apartment towers in a straightforward Modern idiom, deferring to Asian precedents in siting and unit organization. The introspective character of traditional Korean courtyard houses, for example, is evidenced in the way apartments focus on communal gardens and play spaces positioned at the centers of the wedge-shaped blocks. In response to a local preference for south-facing living quarters, the architect inserted deep, two-story balconies into the duplex apartment blocks, allowing sunlight to penetrate every unit regardless of the building's orientation. This unusual solution was not initially well received by the majority of apartment purchasers, however. Most Seoul high-rise dwellers are unfamiliar with the concept of a duplex unit and, as Woo asserts, culturally, there's less desire in Korea for housing diversity."

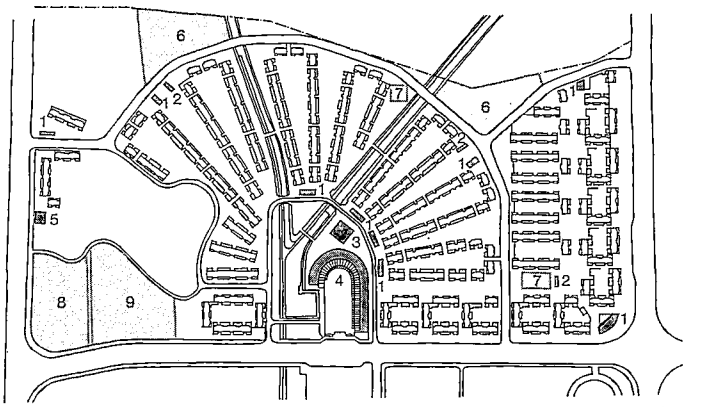
While the post-Games success of the Olympic Village has yet to be judged—permanent residents will move in beginning this December—its impact on Seoul's metropolitan development promises to be significant, as planners and policy-makers from the Pacific Rim nations concluded at a conference held in the capital last June. Organized jointly by the Massachusetts Institute of Technology's East Asian Architecture and Planning Program and Seoul National University's Graduate School of Environmental Studies, the four-day event was intended to evaluate the long-term effects of the Olympics on the physical design of previous host cities such as Melbourne, Tokyo, Montreal, Mexico City, Los Angeles, and on the future character of Barcelona, which is now preparing for the 1992 Games.

In addressing the urban impact of the Seoul Olympics, Hong-il Kang, a research director for Korea's National Housing Corporation and master planner of the Olympic Park, addressed both the positive and negative consequences of staging the Games in a developing country like Korea. "Improved urban services, increased public amenities, and accelerated real-estate development are in themselves a desirable outcome of hosting such an event," he noted, but warned that "they will contribute to the widening disparity between Seoul and other regions, further attracting capital and people to the city." Furthermore, he maintained, the city's decision to construct the Olympic Village in the Chamsil district will further entrench the surrounding Kangnam area south of the Han River as "a middle-class haven overshadowing its counterpart [to the north]." Nevertheless, considering the opinions of his fellow participants, Kang concluded that the urban-design benefits associated with hosting the Games essentially outweigh the drawbacks. "The lasting effect is to be decided not by the nature of investments made so far, but by what future actors will do with them." In the case of Seoul's Olympic Village, Kyu Sung Woo and Jack Williams have set the stage for future development with an inspiring model for new towns. It is now up to local architects and developers to follow their lead. *Deborah K. Dietsch*



DURING OLYMPICS

1. *Athletes' reception center*
2. *Athletes' dining hall*
3. *Reporters' reception center*
4. *Reporters' dining hall*
5. *Waterfront park*



AFTER OLYMPICS

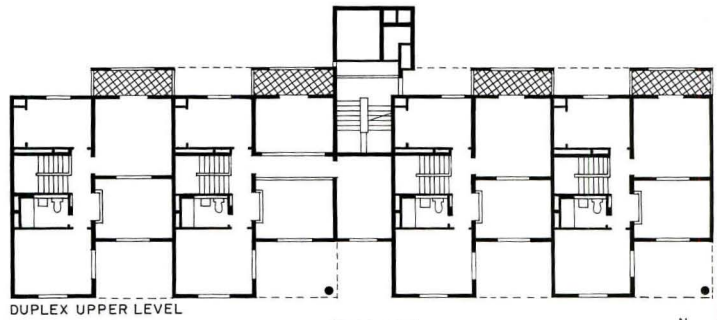
1. *Convenience store*
2. *Facilities for the elderly*
3. *Swimming pool*
4. *Shopping arcade*
5. *Fire station*
6. *Elementary school*
7. *Nursery school*
8. *Middle school*
9. *High school*

Seoul's 165-acre Olympic Village consists of housing units for 13,000 athletes (top plan, left) and 7,000 reporters (top plan, right). After the Games, the visitors' support facilities will be converted to commercial uses and four new schools, designed by local firms, will be built at the periphery of the new town.

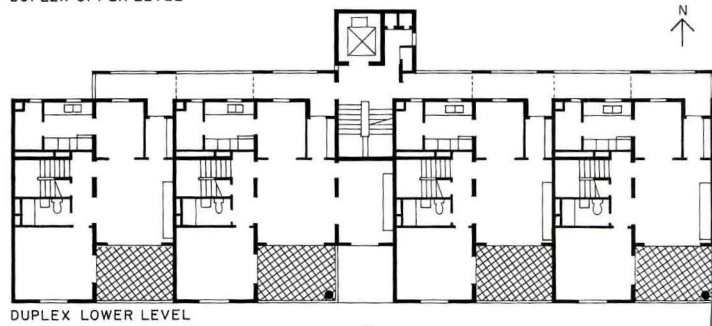
In the athletes' section of the Olympic Village, radiating blocks flank an existing Y-shaped waterway that is spanned by nine bridges designed by Woo & Williams and structural engineer Waclaw Zalewski (below). Since local zoning prohibits mixed-use buildings, the architects relegated public functions to interstitial spaces between the residential towers; for example, they located the main recreational facility and a commercial block behind the central shopping arcade (bottom). At the fork of the

ream, they clustered pines round a stone sculpture by Korean artist Yongjin Han below and opposite, top) to orm a park. Landscaping ithin the Village includes ows of ginkgoes and sycamores hat accentuate the forced erspective created by the wedge-shaped blocks (bottom). To underscore the stepped formation and orientation of the concrete towers, Woo & Williams, aided by painter Miae Moon, specified a palette of light colors for exteriors that subtly changes tone with the shifting sunlight.

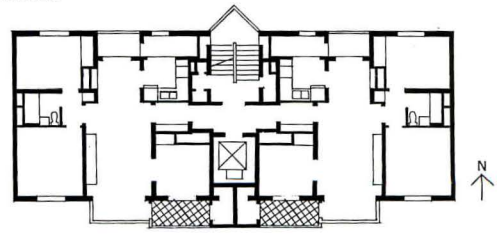
The residential towers of the Olympic Village are organized into three-, four-, and five-bedroom apartments according to two basic types: duplexes (top plans) and one-level units (bottom plans), which constitute 80 percent of the complex. Woo varied the types with a rhythmic articulation of projecting and setback forms, including triangulated stair towers in the blocks of one-level units (bottom photo). Spacious balconies amplify southern exposure for double-height living rooms in the duplexes (top plans) and private gardens flank street-level apartments (top left and opposite). Inside each block, communal courtyards built over underground parking garages provide surface parking and landscaped recreation areas (middle left), which are accessible from midblock pedestrian passageways (opposite).

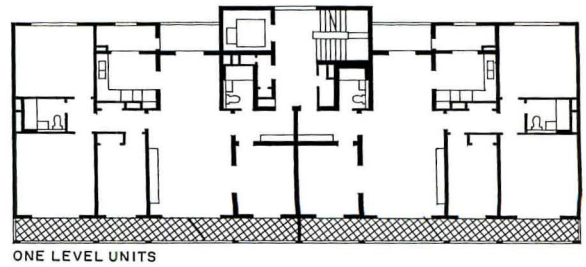


DUPLEX UPPER LEVEL

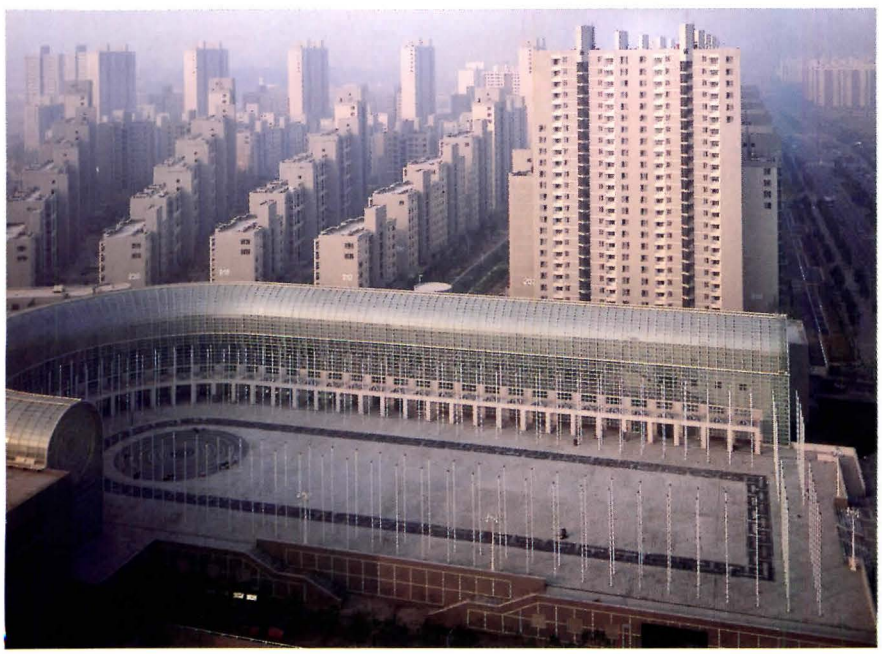


DUPLEX LOWER LEVEL





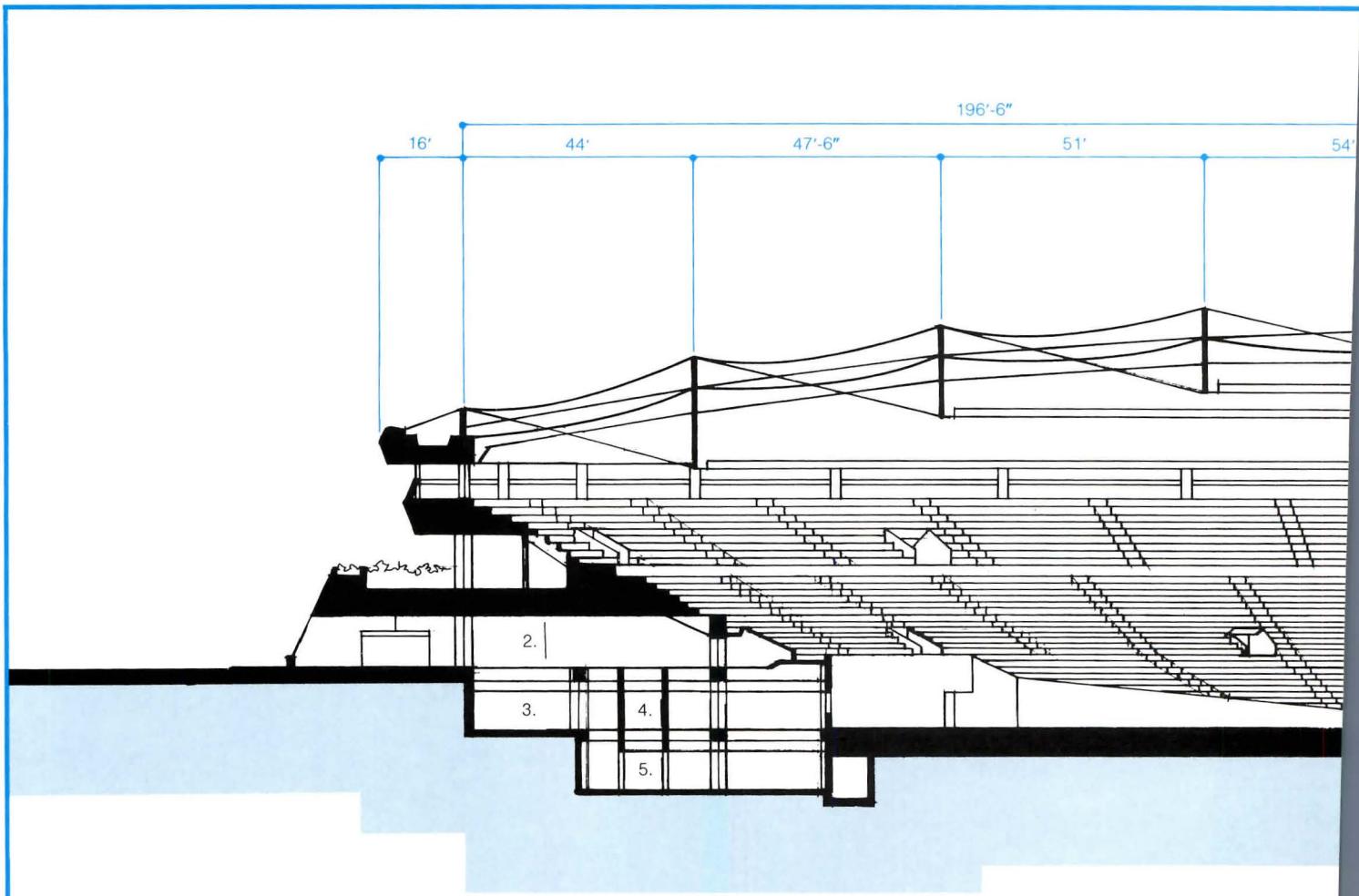
ONE LEVEL UNITS



The focus of the Olympic Village is the athletes' dining hall, which will soon become a shopping center for permanent residents. Its candy-cane shape embraces a ceremonial plaza with flags of the 161 nations participating in the Games. Inside the building, colonnades step back to create an effect Woo compares to "an Oriental painting with graduated layers of mountains" (opposite).

Seoul Olympic Athletes' and Reporters' Village
Seoul, South Korea
Architect:
Woo & Williams—Kyu Sung Woo, principal-in-charge; J. Pablo Molestina, Celine Larkin, Du Nam Choi, project architects; Gene Park, Samuel Isenstadt, Laura Lesniewski, Anne E. Cook, project team
Associate architect:
Ilkun Architects and Engineers—Il In Hwang, In Seol Kim, Kwan Young Choi, principals; Won Hyung Lee, Sang Jin Han, Whee Kon Kim, project managers; Kwang-Yup Chang, Bong-Soo Kim, Young Woo Kim, Kwan Seok Kim, Young Lee, Byung Cheul Choi, job captains
Affiliated architects:
Kun Won Architects; Woo Yang Architect & Associates; Kerl Yoo (coordinating); Pyung Ho Kim (supervising)
Engineers:
Chang Nam Lee, Who Kwan Le (structural); Waclaw Zalewski (structural concept); Moo Ae Engineering (mechanical); Iljin Electric (electrical); Sae Han Engineering (civil); Vanesse/ Hangen (traffic)
Consultants:
Oswald Nagler (open spaces); Seoann Landscape Architects (landscape); Powell Associates (lighting); Harvey Bryan (energy); Miae Moon (color); Hussey & Lindsey Associates (food services)
General contractors:
Sambu Construction; Hanshin Construction; Sam Ho Intl; Lo Construction; Kong Yung Construction; Shin Sung Corp Korea Shipbuilding and Engineering; Daewoo Corp.; Hankook Kunup Construction You One Construction; Jung Woo Development; Miryung Construction; Life Housing an Development

Structural gymnastics for the Olympics



SECTION THROUGH GYMNASTIC STADIUM

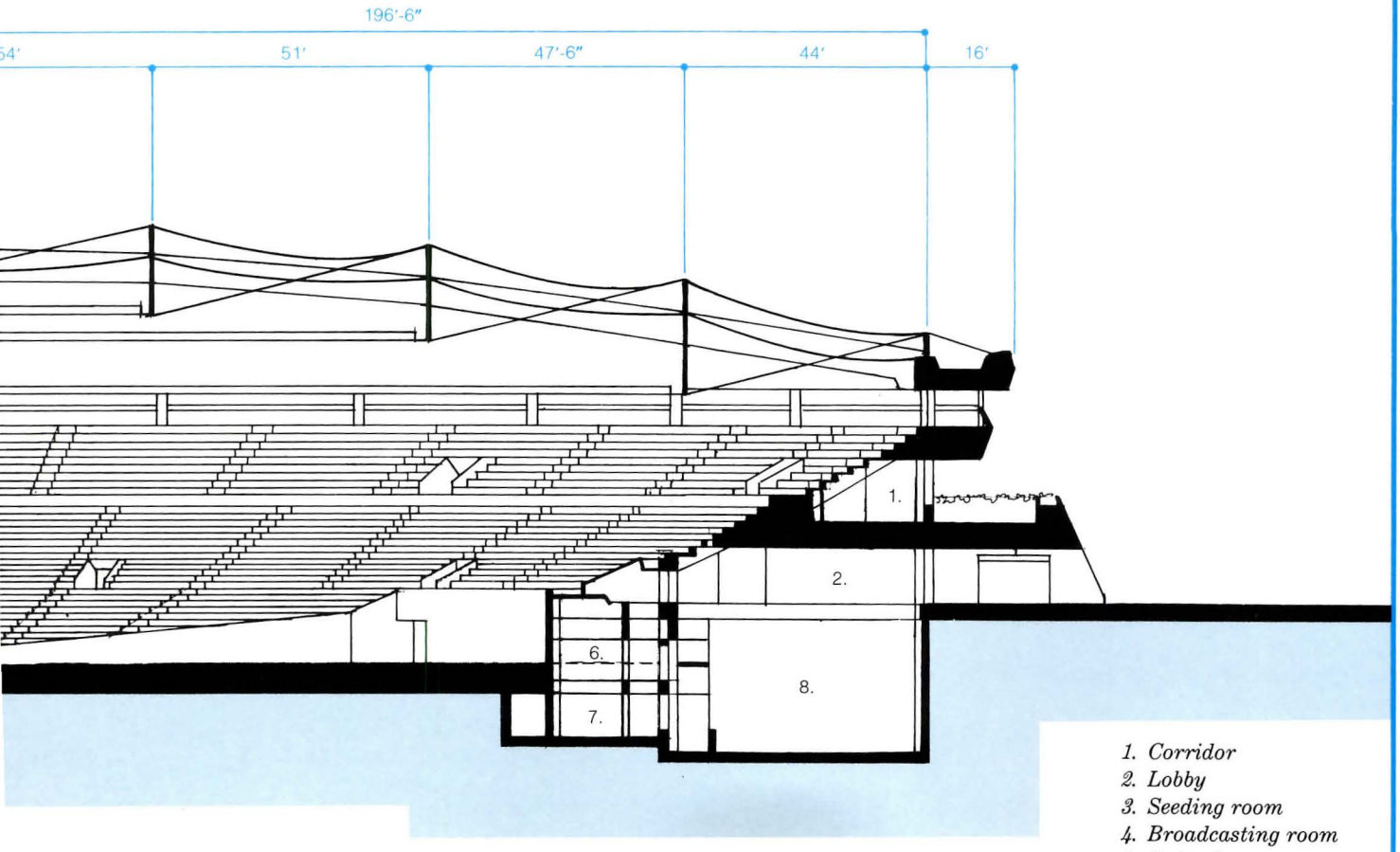
Photos courtesy Dow Corning Corp., except as noted.

The calculated spring, poetic line of flight, and perfect balance s characteristic of an Olympic gymnast are appropriately embodie in the cable dome that will look down upon the gymnastic competition in Seoul. With equally fitting elegance, another 198 summer Olympic event, fencing, will take place in a second stadium enclosed by a similar dome (section of gymnastic stadium, above; in photo this page, fencing arena is to the right of the gymnastics stadium). These roof structures, also known tensegrity domes, are the first of their kind ever realized.

The designer, engineer David H. Geiger, based his structural system on the theoretical work of R. Buckminster Fuller, whos well-known fascination with tensile forces in nature led him to devote much of his later life to investigating man-made forms which the presence of compression could be dramatically reduc and replaced by intricately connected networks of tension. He called such structural configurations "tensegrity," meaning tensional integrity, a phenomenon he described as compression elements becoming "small islands in a sea of tension."

Geiger was led to his re-evaluation of Fuller's pioneering work

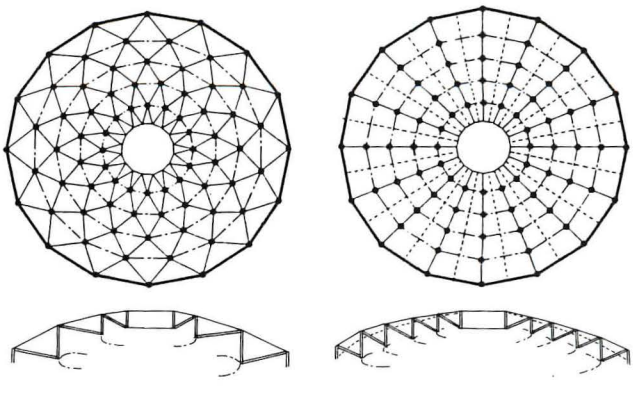
asing his design on R. Buckminster Fuller's ensegrity principle, New York engineer David H. Geiger has developed the first tensegrity domes ver constructed. Referred to by Geiger as cable omes, these roofs span two of the stadiums to be sed during the 1988 summer games in Seoul.



1. *Corridor*
2. *Lobby*
3. *Seeding room*
4. *Broadcasting room*
5. *Batteries*
6. *Athletes' waiting room*
7. *Locker room*
8. *Training room*

course of searching for a stadium roof enclosure that would as economical as an air-supported structure while ommodating an insulated fabric membrane. The breakthrough t took theory into practice occurred when Geiger overcame structural redundancies inherent in Fuller's triangulated figuration (a comparison of Fuller's and Geiger's tension ıes appears at right). In Geiger's approach to tensegrity, tinuous tension cables and discontinuous compression posts laid out radially so that the three-dimensional flow of e is simplified, thereby making the cable dome statically rminant. With this configuration, low-profile curves are ible, bringing with them the advantages of lower wind uplift; drifting of snow, and therefore lower snow loads; and mal surface area, thus reducing fabric costs.

e completing the domes in Seoul, Geiger has designed and ɔw overseeing construction of two other cable domes: 5- by 304-ft elliptical dome at the University of Illinois, a 680-ft-dia circular dome for the municipal stadium in 'etersburg, Florida. *Darl Rastorfer*



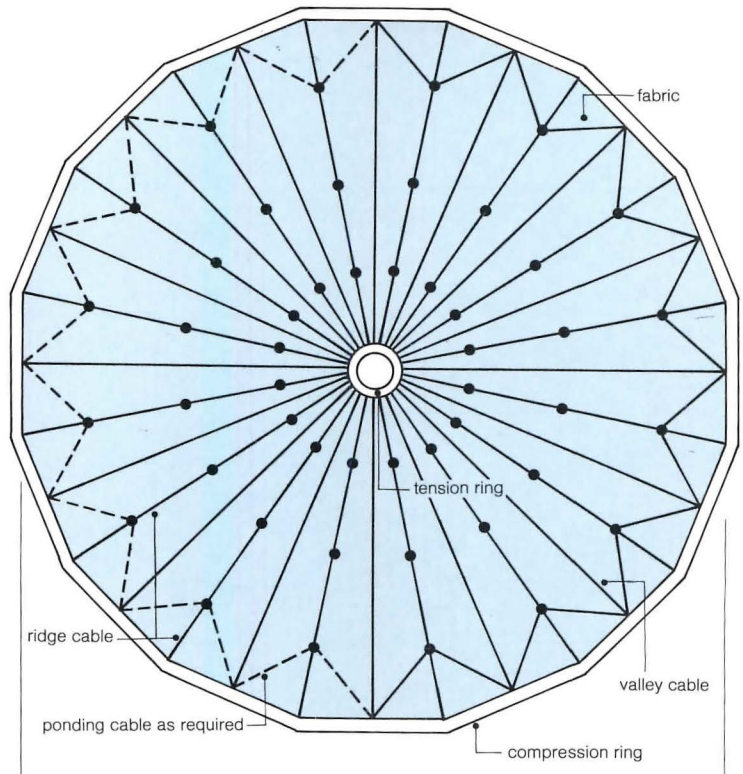
Fuller's tensegrity dome

Geiger's cable dome

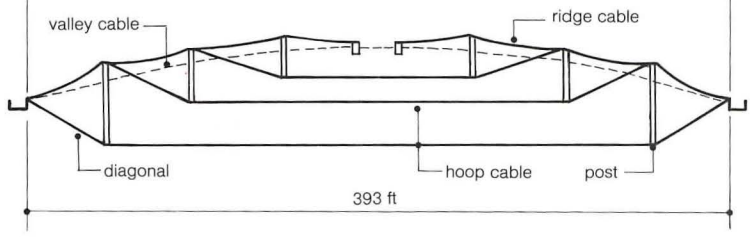
The cable dome and its membrane

David H. Geiger's patented cable dome achieves its span by means of continuous tension cables and discontinuous compression posts. Loads are carried from a central tension ring through a series of radial ridge cables, tension hoops, and intermediate diagonals until they are resolved in a perimeter compression ring (illustrations at right).
With this configuration, the dome behaves like a series of paired cantilever trusses not quite touching at the center. One of the system's advantages is that, as the length of span increases, the weight, 2 psf, remains constant and the cost per sq ft increases very little. All that is needed to accommodate increased spans is the addition of another module defined by its tension hoop. The Seoul gymnastic stadium's 393-ft-dia dome required three tension hoops set 47.5 ft apart. The 295-ft-dia dome over the fencing stadium required a two-hoop configuration.

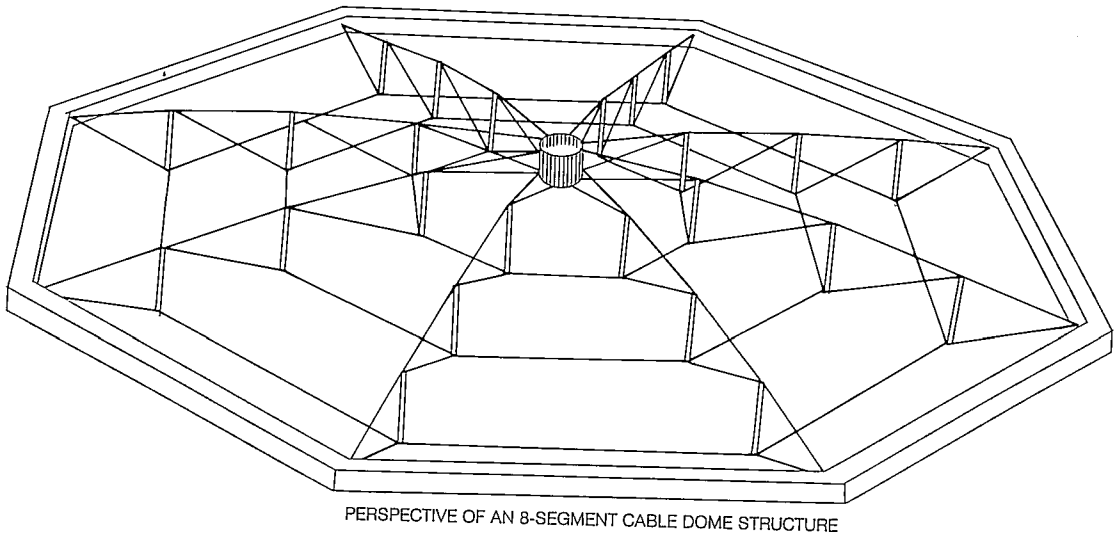
The membrane that covers the dome (section and plan details, opposite page) comprises four independent layers. The outermost is a high-strength fiberglass fabric with a silicone coating on both sides. Beneath this is an 8-in. insulating layer of fine, silky fiberglass enclosed in polyester bags. Six inches beneath the insulation is a *Mylar* vapor barrier. Two feet below the *Mylar* is a silicone-coated acoustic liner made with an open-weave, fiberglass fabric. The thermal performance of the membrane system is R10; its overall light transmission is 6 percent, which enables the sun to meet most daytime lighting needs (photo at right).



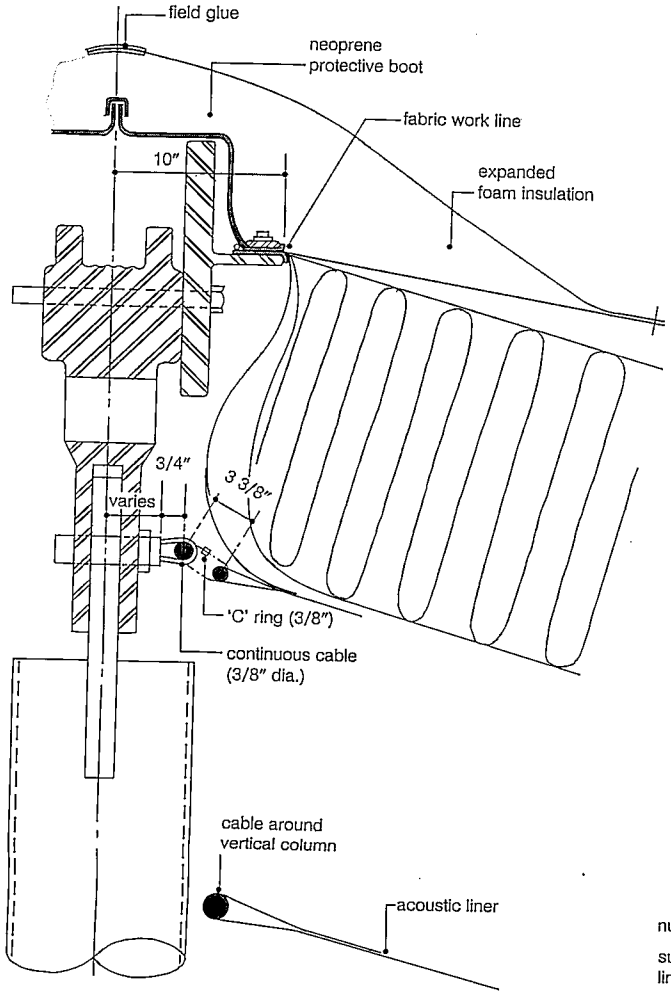
ROOF PLAN



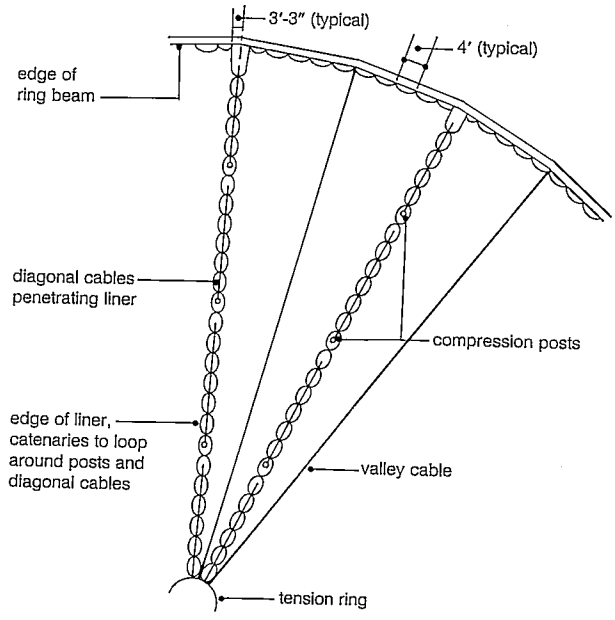
ROOF SECTION



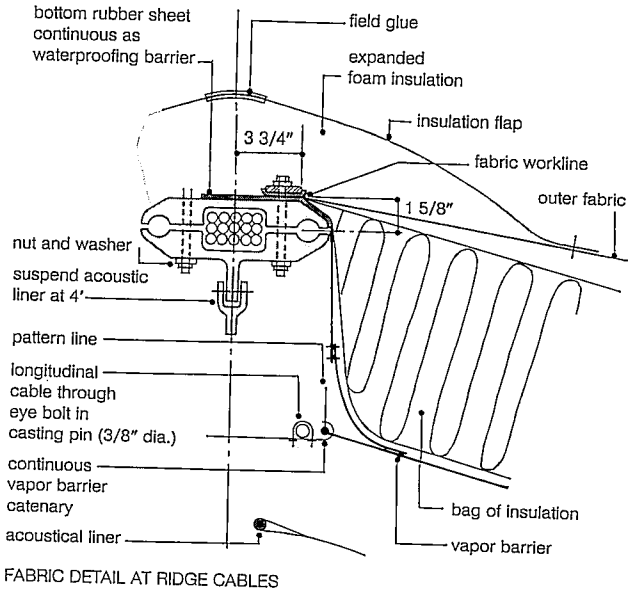
PERSPECTIVE OF AN 8-SEGMENT CABLE DOME STRUCTURE



FABRIC DETAIL AT COMPRESSION POST



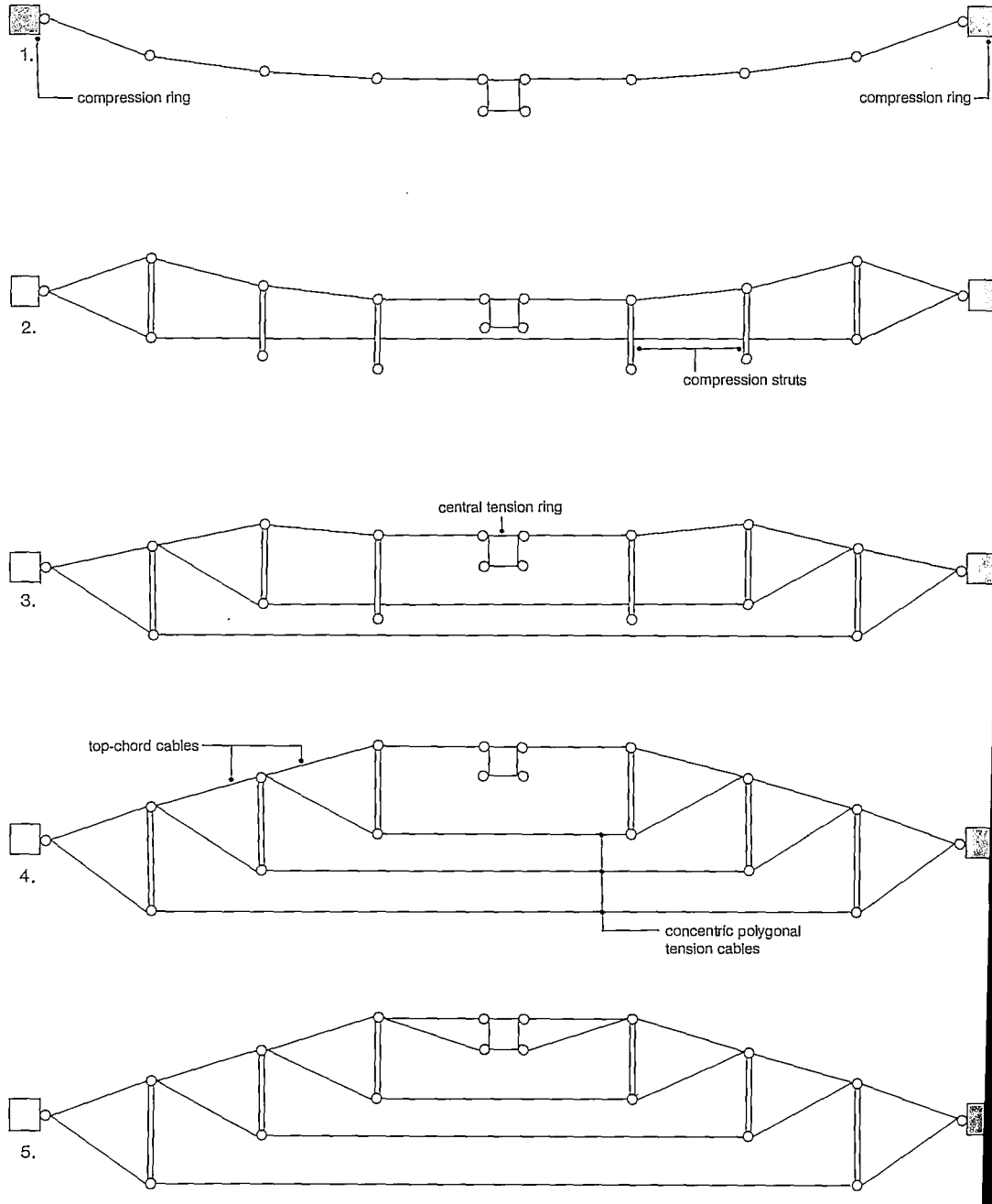
PARTIAL REFLECTED CEILING PLAN



FABRIC DETAIL AT RIDGE CABLES

Lacing the dome together

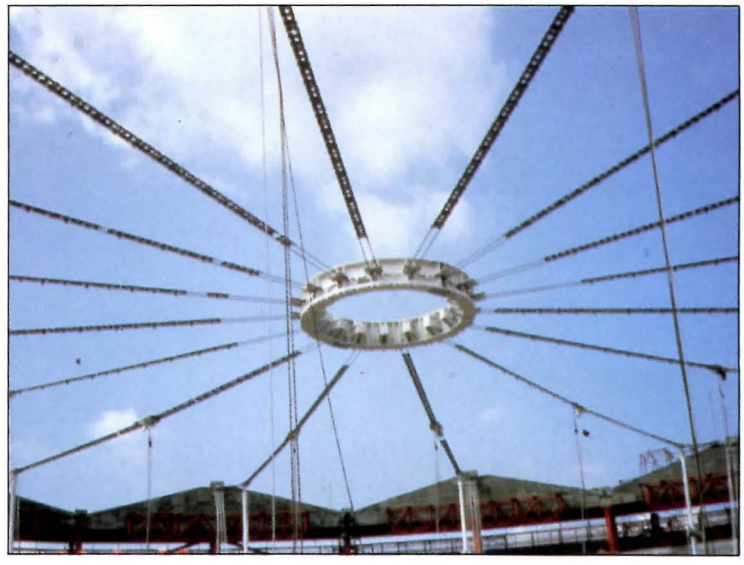
Construction of the cable domes began by laying in place, on the ground, the tension ring and 16 ridge cables that are made by threading 0.6-in. steel cable through the top casting for each compression post (bottom right photo, opposite). Although this assembly could have been lifted into place by tightening the ridge cables at the compression ring, the erection subcontractors for the stadium chose to lift the tension ring by crane to the top of a temporary support tower (top left photo). With ridge cables spanning from the reinforced-concrete compression ring to the supported tension ring, the strands of the outermost tension hoop were laid in position on the ground with the bottom castings for the compression posts in position. The bottoms of the posts themselves were then bolted to the castings, and the hoop and posts were lifted and attached to the castings of the already erected ridge cables (bottom left photo). The two-strand diagonals, which run from the top of the compression ring to the bottom of the posts, were then tensioned, pulling the hoop into final position (the second step in diagram sequence at right). Thirty-two workers were stationed in baskets at the bottom of the compression posts (middle left photo) to operate the jacks for tensioning the diagonals—two men at each of the 16 ridge cables. The workers had to apply tension in perfect unison to raise the hoop to a level position. The process of laying out the hoop and posts, lifting them into position, and lacing them into the network with diagonals was then repeated for each hoop until the entire network was in place (third, fourth, and fifth steps in diagram).

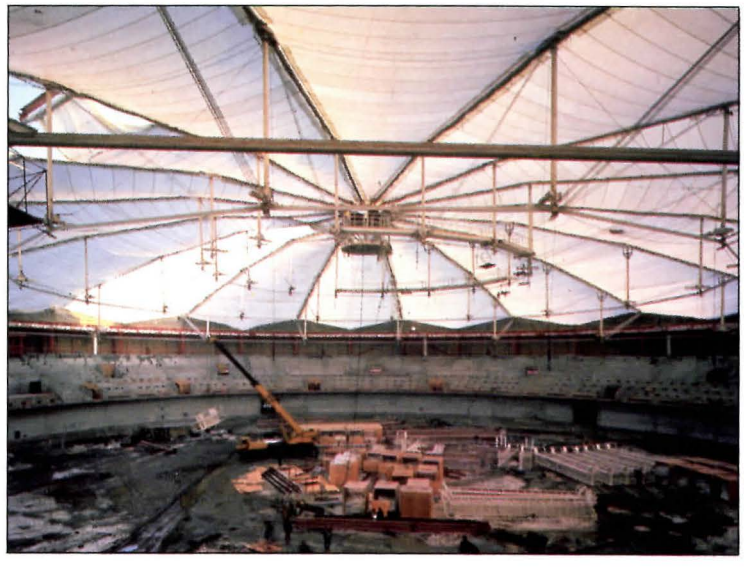


Roof erection steps:

1. *Hang tension ring, then hang posts and hoop cables*
2. *Tension first diagonal to 69 kips*
3. *Tension second diagonal to 84 kips*
4. *Tension third diagonal to 65 kips*
5. *Tension fourth diagonal to 4 kips*

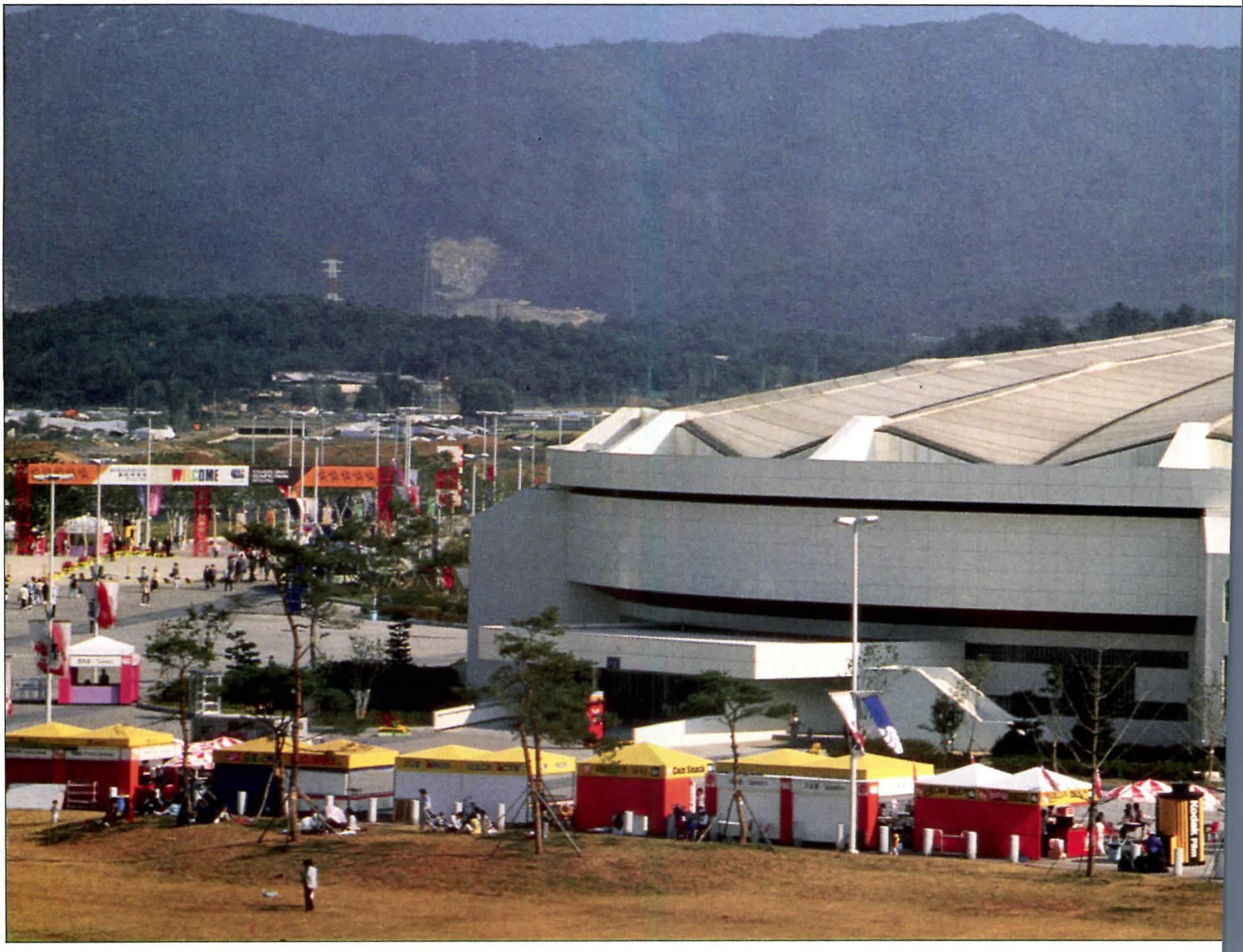
he fabric cladding was stalled by attaching it to luminum castings that cover e ridge cables. The castings ave threaded metal studs ottom right and left photos) at match holes in the outer bric layer. This was the first yer to be installed in the four-layer system. Starting from the tension ring, the layer was unfurled from a roller held in position by a crane (middle right photo). Once unfurled, the fabric was bolted to the castings with a stainless-steel nut. The casting to which the outer layer was attached also has three attachment panels that match the three layers of inner fabric—the top and bottom of the 8-in. insulation bag and the vapor barrier below (these layers were installed from the inside). Finally, the acoustical liner was attached to the vapor barrier with a zipper. With the four fabric layers in place, valley cables were installed and tightened to stress the fabric.





courtesy David H. Geiger

As a roofing system, the waterproofed fiberglass fabric must be carefully sealed at its construction seams. These seams occur at the 16 ridges that define the 16 fabric segments. Seams are formed with a silicone adhesive that requires no heat to effect a tight bond. At the points where the fabric is attached to the structure, silicone rubber gaskets were incorporated as a water barrier. Expanded foam insulation and flaps of silicone-coated fiberglass fabric cover the gaskets and nuts (section details, page 131). The outer lip



©Mick Hales

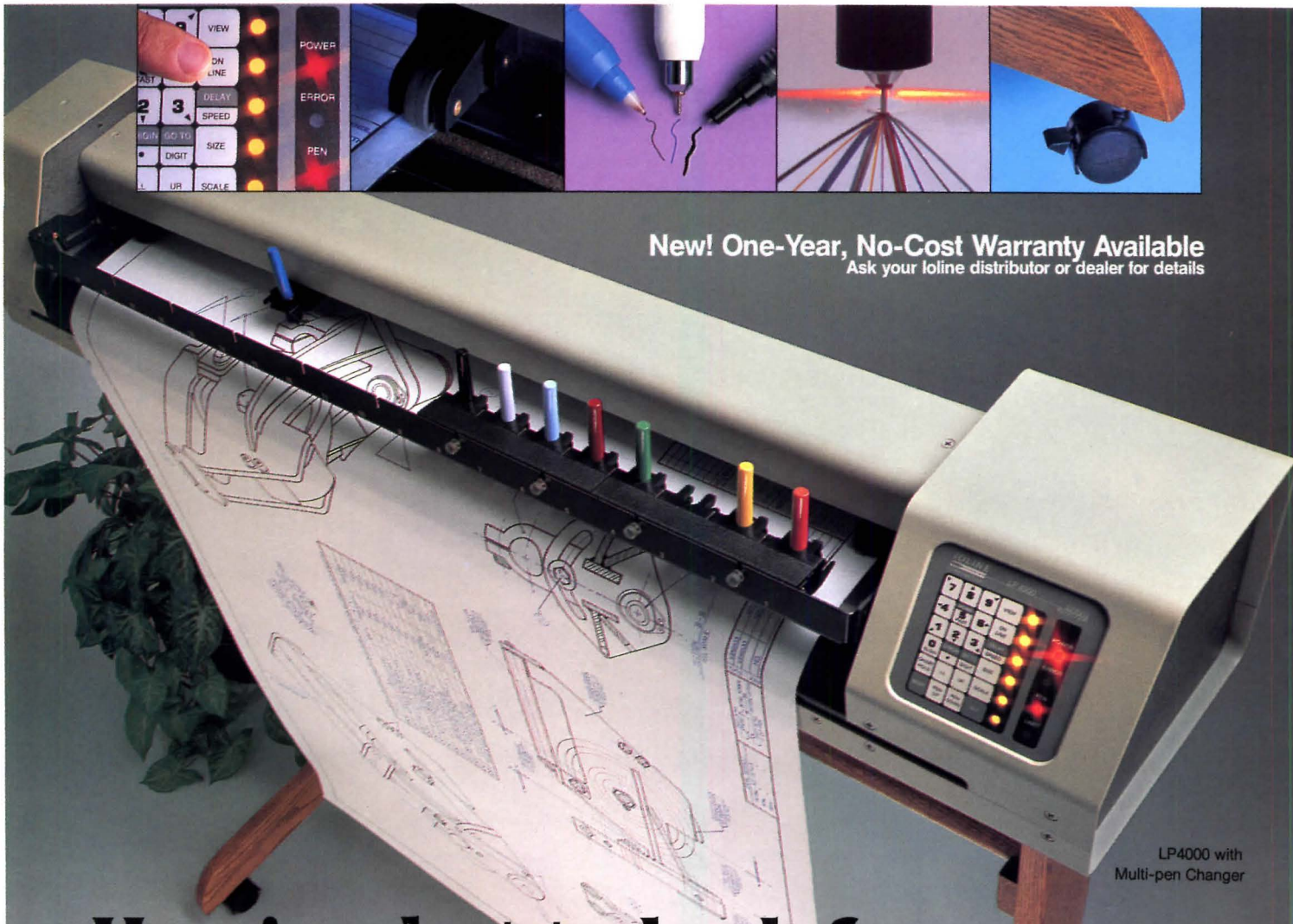
f the dome, which rests on the ompression ring (lower photo), as sealed and flashed for ater tightness. The lantern n the center of the dome, as llustrated in the photo of the encing stadium, below, is part f the facility's ventilation ystem. Fans installed in the tension ring pull air up and vent it through the lantern.

mnastic and fencing diums
ul, South Korea

chitects:
ace Group of Korea mnastic stadium); Dong eong Architects and nners in joint jenture with ng Ik University (fencing dium)

gineer:
ger, Gossen, Hamilton gineers, PC (stadium es)—David H. Geiger, cipal-in-charge; Paul sen, project manager; David n, project engineer/ puter operations

Contractors:
Ssang Yong Construction Co. Ltd. (general contractor for gymnastics stadium); Korea Shipbuilding & Engineering Co. (general contractor for fencing stadium); Woo Chang Construction Co. (erection subcontractor for gymnastics and fencing stadium domes)



New! One-Year, No-Cost Warranty Available
Ask your Ioline distributor or dealer for details

LP4000 with Multi-pen Changer

Here's what to look for when you want great value

IOLINE plotters are designed to give you more flexibility and features for less cost than any other machine of their kind.

For example, our plotters draw not only on A through E sizes of media, but also plot on hundreds of in-between sizes from 1.5″×1.5″ up to 37″ wide roll stock. This saves you time and money by allowing you to make "check plots" on small, low-cost paper before committing to full-size media for final work.

It's easy also to set paper size, pen speed, micro-calibration, plot rotation—everything exactly as you want—by just tapping a few keys on the plotter's intelligent keypad. Plus, up to 3 sets of personalized defaults can be saved in its *non-volatile* memory.

They're fast, too. Our high-performance LP4000™ draws at speeds selectable up to 20 inches per second (ips) axially with .001″ resolution. For less demanding applications, our economical LP3700™ plots up to 10 ips axially with .0025″ resolution.

Another feature is compatibility. IOLINE plotters emulate both HP-GL and DM/PL plotter languages so they work with a host of software like AutoCAD, VersaCAD, and CADKEY, to name a few.

Furthermore, our Multi-pen Changer™ option holds up to 20 pens and, with our hyperBUFFER™ option, you can dramatically increase plotting throughput with intelligent vector sorting and compression buffering of up to 1MB of plot data.

Now here's the clincher: Our top-gun LP4000 costs just $5,495* less options. And there are other models priced even lower!

Why wait? Call us now at **206-821-2140.** Or, circle our reader service number and we'll gladly send you our brochure.

Remember, getting your money's worth—that's what IOLINE plotters are all about.

IOLINE™
LARGE-FORMAT PEN PLOTTERS

IOLINE CORPORATION 12020 - 113th AVE. NE KIRKLAND, WA 98034 (206) 821-2140 TELEX 4949856 IC UI FAX (206) 823-8898

LP4000, LP3700, Multi-pen Changer, and hyperBUFFER are trademarks of Ioline Corporation. AutoCAD is a registered trademark of Auto Desk Inc. VersaCAD is a registered trademark of T&W Systems. CADKEY is a registered trademark of MicroControl Systems, Inc. *Suggested U.S. List price.

Circle 86 on inquiry card

Software reviews for architects

One of the Cornerstone whole-model options (top) brings up a cross-section of a small house reduced to one-third size to fit in screen. Selecting the box function (bottom) enlarges the upper left-hand corner of the model, which is called HOUSE.

y Steven S. Ross

Micro CADAM Cornerstone 1.3

microcomputer adaptation of ockheed's mainframe CADAM rogram so popular among quipment designers articularly federal aerospace ntractors). The micro version n use mainframe files directly ven preserving mainframe file mes) and allows easy ssword protection and file cking, even in networks made entirely of microcomputers. nlike mainframe CADAM, hich is 3-D, Cornerstone is a .5-D" CAD program that lows orthographic and ometric—but not true rspective—views.

quipment required: IBM AT PS/2 (Model 50 or larger) or mpatible, 640K, high-density 2 megabyte floppy or 1.44 egabyte hard-shell floppy ive, hard disk, 80287 processor chip (80387 on the 5/2 Models 70 and 80), PC-DOS MS-DOS 3.0 or higher, and at st one serial port (for the curity device). A mouse and eral adaptor cables are luded with the software. rks with AT&T 6300 color and nochrome systems, EGA, A, IBM Professional Graphics aptor, IBM 5379, Hercules nochrome, and various phics accelerator cards from ist 10, Bell & Howell, Matrox, heus, and VMI. Supports ters from Calcomp, Houston ruments, HP, IBM, Bruning, , or can produce Computer phics or HPGL files for ting by various graphics ices. Supports all major ter families.

dor: CADAM, Inc., 1935 N. na Vista St., Burbank, CA 4. $2,995 for Cornerstone DXF translation software, 0 for key control box

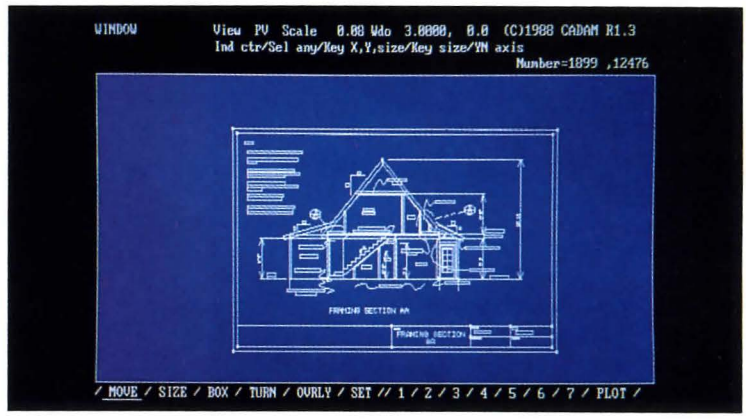
Ross is a prominent nputer consultant and a lar contributor to RECORD.

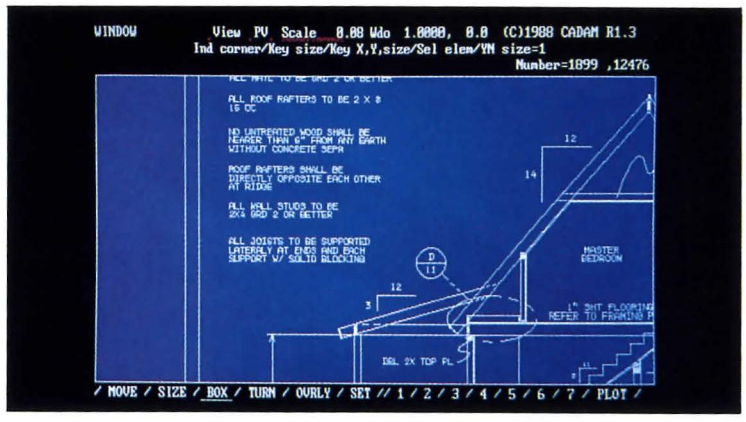
(unnecessary unless there's a mainframe user around who's used to having it), $1,500 for mainframe-micro data transfer software, $500 for Geometry Interface Module that allows interface with finite element modeling, bill of materials processing, and so forth. There's 60 days free telephone support for Cornerstone, after which the fee is $350 per year. All software upgrades sent for $600 per year ($350 per year for additional units at the same site).

Summary

Manual: The three manuals (installation, user guide, training) are well organized, but occasionally fail to provide needed information about step-by-step procedures. This should be no problem for users familiar with microcomputers or mainframe CADAM. Others will make many calls. We installed the system on an IBM AT clone in less than 30 minutes, and had it running in another hour. In contrast, an architect and an architecture student with some computer experience, working separately, were unable to manage the task. The installation manual, for instance, assumes the hard disk is designated drive C and that users know how to copy and rename DOS files. Jumpers had to be reconfigured on a Summagraphics tablet. Cornerstone recognized its security copy-protection device only if it was attached to COM1. And on and on . . . .

Ease-of-use: Fair. As is typical of systems adapted from mainframe programs, commands are often cryptic. On the other hand, the command structure is not as hierarchical as some other mainframe programs, and most commands are accessible by hitting the F1 key and using the mouse to point and shoot. Drawing speed is acceptable, even with a standard EGA graphics card. The range of available "tools" (points, circles, and so forth) for creating an image on-screen is acceptable. There's no on-line help.





Sometimes, the addition of a new element overwrites and erases something already on the screen. Hitting the F3 key refreshes the screen display, restoring all the details. The on-screen redraw can be stopped by pressing the CONTROL and BREAK keys at the same time. But when that's done (as the manual warns), the screen can show a group of objects in the original location after the group has been moved. Small drawings can be combined into bigger ones—in fact, that's the preferred way of working. But the units must be consistent (inches, feet, meters, etc.). In translating to DXF files, this can produce some oddities. Start in millimeters, for instance, and specify inches in the translation, and a 24.5 mm line ends up specified as 24.5 inches instead of one inch.

It is helpful to understand the Cornerstone file conventions. The documentation suggests that each "group" be considered something like a filing cabinet containing all the files from a specific project or functional area. A "user" is a drawer within the cabinet, where specific collections of models are kept. Each drawing and its associated data are a "model." The documentation suggests that the models be considered like file folders in a particular drawer.

The metaphor is a good one. And it must be grasped from the very beginning. That's because getting into Cornerstone

"Just Released for OS/2: SuperProject Expert/2"

New... SuperProject Software What The Experts Have To Say:

Aerospace: *"SuperProject is the best. Earned Value Reporting and Work Breakdown Summarization give me complete project control and the graphics make impressive presentations."* **Barry Feeley,** Technical Manager, Ford Aerospace.

Construction: *"The familiar SuperCalc® and 1-2-3 menu system makes it really easy to learn and use. It handles multiple projects, networking and flexible report writing. The multiple resource calendars and histograms manage resources very efficiently."* **Ted Ritter,** CEO, O'Connor Construction Co.

Data Processing: *"The Outliner allows me to quickly sketch critical schedules from the top down. Expert is way ahead of the pack."* **D.W. Nesper,** Regional Consulting Manager, Wang Labs.

The SuperProject® Family—Plus, Expert and Expert/2—is the most advanced PC project management software available. The smallest to the largest and most complex projects imaginable are easily handled thanks to its virtual memory management skills.

Newly released SuperProject Expert/2 running under OS/2, gives you true multitasking. For example, this enables you to enter data in the foreground while outputting a report in the background.

And only Computer Associates gives you PC *and* mainframe project management. Develop your project planning on a PC and then upload to a mainframe with CA-PLANLINKS™. You can then consolidate that project with others via CA-TELLAPLAN™ and take advantage of its resource pooling and presentation graphics.

The SuperProject Series

FEATURES	SUPERPROJECT PLUS	EXPERT	EXPERT/
PERT, Gantt Diagram w/CPM	Yes	Yes	Yes
Outline/Work Breakdown Chart	Yes	Yes	Yes
Resource Histogram	Yes	Yes	Yes
Resource Leveling	Yes	Yes	Yes
Tasks Per Project (Max)	1,560	1,560	Unlimite
Mainframe Link	Yes	Yes	Yes
Calendars	Yes	Yes	Yes
Export/Import (Partial or All)	Yes[1]	Yes	Yes
Multi-Project Resource Pooling		Yes	Yes
Built-In Graphics Output		Yes	Yes
Networking		Yes	Yes[2]
Plotter Support		Yes	Yes
Multitasking			Yes

[1] Exporting only [2] When LAN Mgr. is avail

For your free demo diskett or more information, call 800-533-2070 (Ad 5730 In Canada: 1-800-663-690

Computer Associates
1240 McKay Drive, San Jose, CA 951

COMPUTER ASSOCIATES™
Software superior by design.

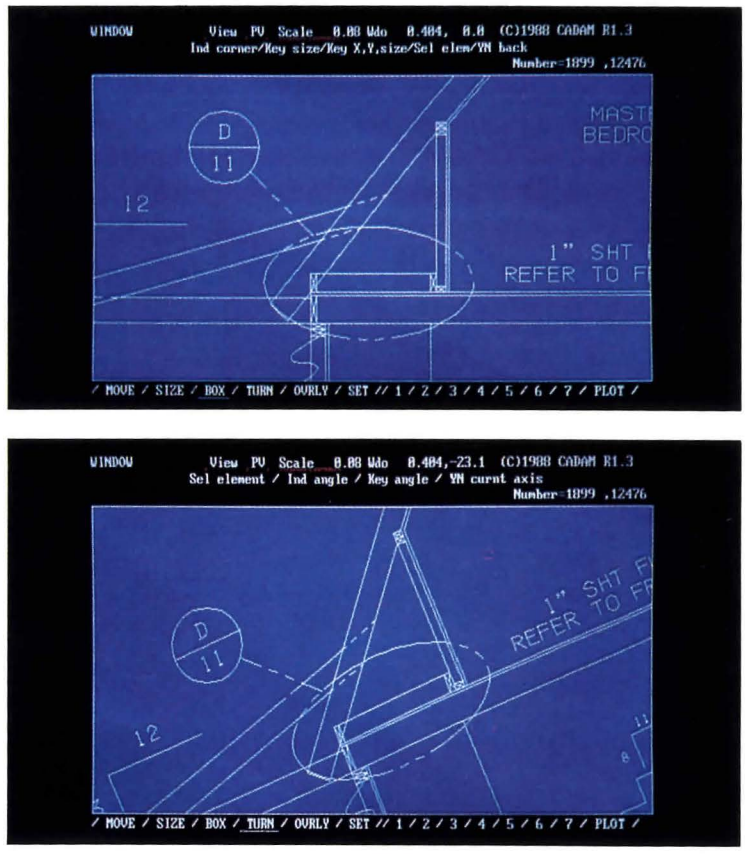
- World's leading independent software company.
- Broad range of integrated business and data processing software for mainframe, mid-range and micro computers.
- Worldwide service and support network of more than 70 offices.

Accounting • Spreadsheets • RDBMS • Graphics • Project Management • Resource & Operations Management

Circle 87 on inquiry card

ftware reviews continued from page 145

User can further enlarge and home in on a roof detail in the HOUSE option (top), and then turn the enlarged image (bottom). Redraw is fast, only a few seconds with standard EGA card and 256K of EGA graphics memory for this operation.



quires specifying both a group d a user. That's mentioned on ges 1-19 of the user guide, but ver really explained well ough in the guide to actually t a user into the program. ad Lesson 1 of the training nual first. There, the ggested group to start is AD," and the user is "train." arting that way provides ess to demonstration and actice files. Another approach uld be to name the group for project, and use your own tials for the user.

Once the group and user are ved in, the drawing area pears on-screen with a menu. pick a file from another up, choose the USER option the menu. To pick a model m the group originally cified, select CALL. To start ew model, select START, and forth. This requires two sses of a mouse button—one select a command, and the ond to execute it.

Names of existing models in a en group pop up on the een, and can be selected by itioning the mouse cursor r them. Model names are not ted to the eight characters wed by PC-DOS and MS-S. Instead, each name can be o 20 characters. The default use the last four characters dentifying the group, and first 16 characters to identify specific model—or drawing. es are allowed. In addition, s can attach descriptions to model name.

e long model names and the ional notes are extremely ul, because each individual l has limits—a maximum of 100 kilobytes, or 15 to 0 four-byte "words." These should not prove difficult y within for most projects; allow approximately 15,000 ate elements per model segment of a complex , in general, counts as an nt). And the models can be id for plotting.

In contrast, files can be almost any size in AutoCAD and similar software, but the largest files are difficult to manipulate and to transfer, so most practitioners break them up anyway.

All this is quite different from most DOS-based CAD software that can be connected to a mainframe or minicomputer. Such software usually requires that the DOS file name conventions be used everyplace. AutoCAD, for instance, is limited to eight characters per drawing name, even if transmitting the file to a central computer. The downside: Normal DOS commands like COPY cannot be used to back up copies from the hard disk to a floppy. Instead, the less familiar BACKUP command is used to move a group of files, issuing commands from within Cornerstone's menu structure.

Use a network to link personal computers using Cornerstone and avoid most BACKUP matters entirely. CADAM recommends Locus Computing Corporation's PC-Interface for this. PC-Interface links personal computers using MS-DOS or PC-DOS to a "server," a personal computer or minicomputer using UNIX (or XENIX or ULTRIX, both brand names for specific UNIX operating systems).

The personal computers that act as terminals can use either DOS or UNIX commands. Each terminal must have its own copy of Cornerstone. Because models are compact, they move through the network quickly. That makes the RS-232 ("serial") cable a fairly good substitute for an Ethernet network with Ethernet cards. The RS-232 cable can be connected to a serial port that costs as little as $20. An Ethernet card costs $500 to $1,000.

As in most networks of this type, only one user at a time can access a given group of files—or models. The idea is to protect the integrity of each model, so that one user isn't adding something, for instance, to a wall that's just been moved.

Even on a single computer, models and groups can be password-protected. This makes Cornerstone particularly useful for offices with mixed practices, such as architecture and mechanical or civil engineering.

All this doesn't mean much if Cornerstone is difficult to draw with. It isn't difficult to use. But it is different. To move around the screen to see part of the drawing that's off the screen edge, for instance, go into WINDOW mode, move the cursor to a point that will be the new center of the screen "window" to view the drawing through, and select the point. The effect is of moving the screen, as if it were a narrow porthole, over a fixed image—rather than of moving the drawing underneath a fixed screen.

To move in on a section of a drawing, select two diagonally opposite corners. That's conventional enough, but the box being formed by the corners doesn't show on-screen as an outline while it is being defined.

A library of standard shapes can be created, but each is actually a little model that must be called to the screen. In basic Cornerstone, one cannot use a digitizing tablet with specific spots defined for primitive shapes to insert into a drawing at the flick of a digitizer puck-button.

Views can be quickly switched to see all sides of a three-dimensional object, but only one view appears on screen at a time. (Well, actually, one can combine a bunch of views on one drawing, and reduce the screen image to see all the views at once, but the views are independent of one another—one isn't updated automatically as another is modified.) Models can be combined with different colors, as can groups of specific objects within models.

It only looks like a pen plotter.

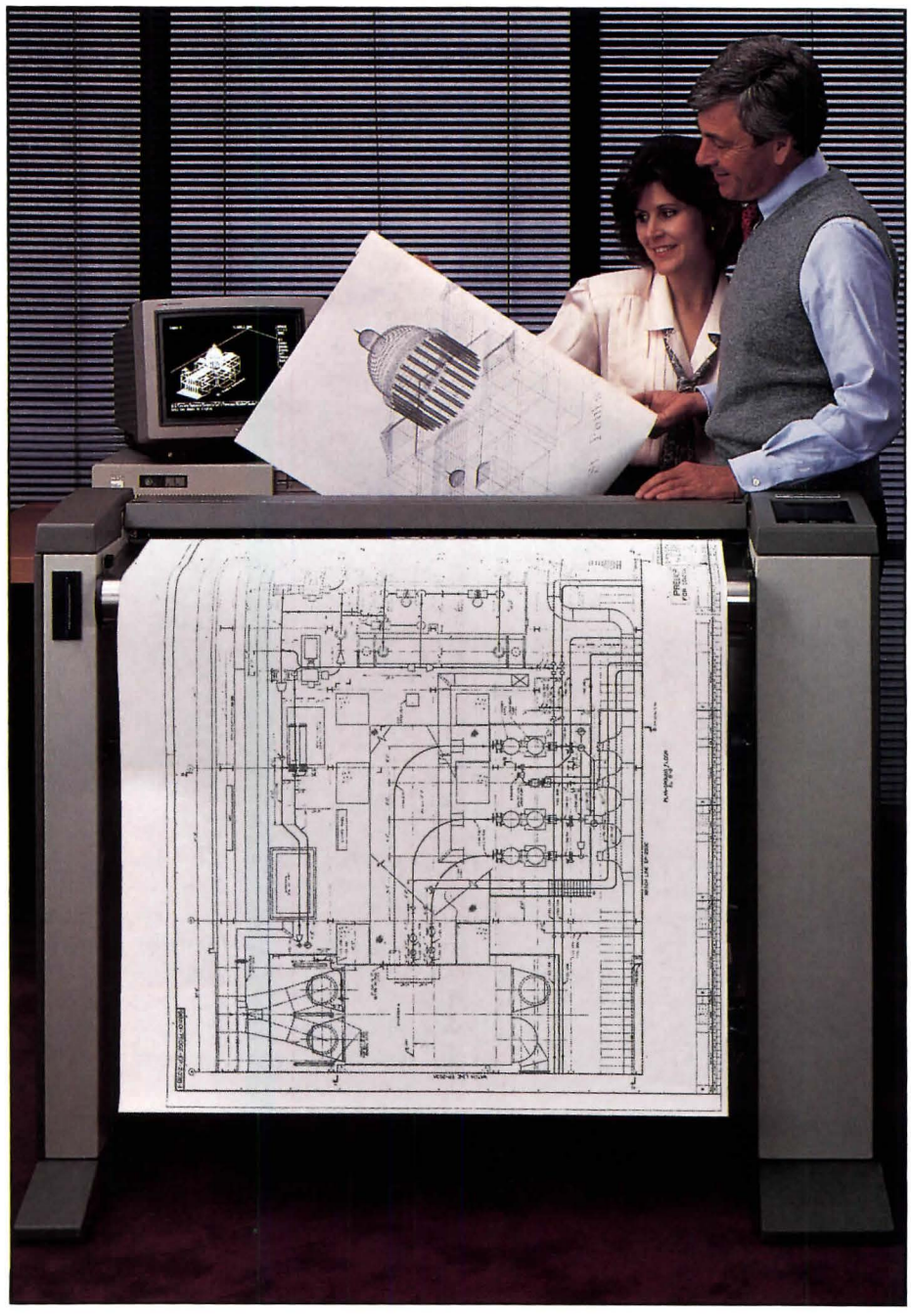
But look again. It emulates pen plotters, reading popular 906/907 and HPGL data formats. It comes in pen plotter widths – 24 and 36 inches. And you can use it with your favorite CAD packages, such as AutoCAD, VersaCAD, or MICRO CADAM.

But the Versatec 8500 series is like no pen plotter made. It is more reliable, because it plots with electrons, not pens. It's faster, plotting D or E size drawings in less than a minute. It can plot an unlimited number of vectors, variable line widths (to ½ inch wide), dashed lines, or text without reducing speed.

A built-in rasterizer and full-page buffer enable fast output at a constant rate for outstanding quality. Plot an original in fifty seconds. Make copies without retransmitting data. And plot over one hundred drawings without changing paper.

So fast you can share one plotter among several users. So quiet you can run this plotter at your desk. So reliable you can plot unattended at remote sites. This is the revolutionary new 8500 series of electrostatic plotters. Prices start at under $20,000.

Circle our readers' service number or call toll-free 800/538-6477* for a free product application brochure.



*In California, call toll-free 800/341-6060

HPGL is a trademark of Hewlett-Packard. 906/907 is a trademark of CalComp. AutoCAD is a trademark of Autodesk. MICRO CADAM is a trademark of CADAM Inc. VersaCAD is a trademark of Versacad Corporation. Versatec is a trademark of Versatec, Inc. Xerox is a trademark of Xerox Corporation.

Plot data courtesy of Autodesk.

VERSATEC
A XEROX COMPANY

Circle 88 on inquiry card

oftware reviews continued from page 147

The Seleris board keeps VersaCAD happy by generating its own signals—but also keeps track of what the plotter is doing. We couldn't fool it.

Dimensions can be noted in NSI or ISO style. Features can e annotated, and the notes can e of any size, attached to any oint in a model. A model can be p to 20,000 measurement units rom one side to the other. This auses no great problems when odeling a mechanical object, ut it can be a problem with a uilding and site if it is all andled as one model. If the nits are set to inches (a easonably convenient unit for izing everything from a tructural beam to a bolt), there ay not be enough room for ecording the contours of a large ite.

Cornerstone's DXF translation tility can move drawings back nd forth between it and rograms such as AutoCAD and ersaCAD that can read DXF les. As with all such anslations, however, the DXF le can contain only information ommon to both CAD packages at will use the drawing. utoCAD supports user-defined ne styles and a large library of nts, for instance. Cornerstone es not. Both the latest utoCAD and Cornerstone lease support splines, but the lines are converted to multi- gment polylines when anslating in either direction.

In general, Cornerstone, as an bject-oriented" CAD system, s potentially stronger database nctions than layer-based stems like AutoCAD. But toCAD and other three- nensional CAD packages have re sophisticated drawing ilities.

Cornerstone has easily the rst customer support setup 've encountered. The system obbled by a bizarre phone tem that mimics a black hole. one point, seven consecutive e-mail messages were left out response.

Seleris PC

An add-in board and software for buffering and controlling plotters from IBM PC, AT, and IBM-compatible computers. The system installs and works smoothly. Extra Sel-Net boards that plug into the Seleris PC allow up to nine computers to be networked to a single plotter.

Equipment required: IBM PC, XT, AT, or compatible with available 8-bit full-length slot. The software reroutes plot data to the board as if the board were a COM or serial port, but the board does not interfere with existing serial ports in the computer (there can be up to three normal COM ports along with Seleris). Compatible with CalComp, Houston Instrument, HP, Ioline, Zeta, Western Graphic, and other plotters. Listed as compatible with AutoCAD, VersaCAD, MEGA CADD, Cadkey, CadVance, DataCAD, Generic CADD, Lotus Freelance Plus, Personal Designer, FastCAD. We tested it successfully with Drafix and an HP plotter as well.

Vendor: Western Automation Laboratories, Inc., 1700 North 55th Ave., Boulder, CO 80301. 303/449-6400. As tested, with one plotter port and 512 kilobytes of memory, $695. Various configurations available, up to eight ports and 4.5 megabytes of memory ($4,295), with another 4 megabytes of memory costing $2,685. The expansion options are all add-ons; expansion does not require throwing away existing boards.

Summary:

Manual: Excellent. Minor technical updates are handled with a documentation file on disk and some insert sheets.

Ease-of-use: Good. The board installed in the normal way. It comes with up to 2 megabytes of buffer memory installed, and can hold up to 8.5 megabytes for groups of really big plots. The memory chips are the kind that plug into the board edgewise; they are easier to handle than the older chips with two rows of pins to insert. Software installation is easy, too. In fact, configuration files for the most common mixes of plotter and CAD software are already on the disk.

Error-trapping: Good. We were able to test the board and the software only one-on-one (one computer, one plotter). But we tried everything to confuse it: Unplugging cables, turning the plotter off in the middle of a plot, changing the number of regular COM (serial) ports, rigging a 30-foot-long cable between the board and the plotter. Nothing froze the system, nothing caused data loss. The Seleris PC board comes with both 9-pin and 25-pin sockets—and a warning to use only one or the other.

Computers have been getting faster. But pen plotters, limited by the speed that ink can flow from a pen point onto plotting media, have just about reached their theoretical limits. There's also the matter of how fast data can be sent down a normal serial cable. For various reasons, 9,600 bits per second is now the top rate plotters will accept.

All this creates an obvious production bottleneck. The first solution was to put a buffer—extra memory—inside the plotter itself. But data can still get to this buffer no faster than 9,600 bps. A better solution is a separate little disk drive attached to the plotter. Plot files can be put on a disk and the disk carried to the plotter. Computer mavens derisively call this "sneaker net," but it offers a cheap, practical solution when the layout of the office allows it.

Another approach is software that reserves a part of normal random-access memory (RAM) as a buffer space. The plot file is read off the computer's disk to the buffer in pieces, and the buffer sends it on to the plotter. While all this is going on, the computer can be used for drawing or any other function. There are two big problems: First, this slows the computer down a bit. Second, some software, most notably AutoCAD, needs all the RAM it can get. There's a little problem, too: Some CAD software, most notably VersaCAD, likes to keep close track of what the plotter is doing. If the plotter doesn't send signals back, saying it is still operating, VersaCAD stops plotting. Some buffer software blocks the signals.

The Seleris board sidesteps all the problems. It keeps VersaCAD happy by generating its own signals — but also keeps track of what the plotter is doing. We couldn't fool it. It accepts data internally on the computer's "bus" (the printed-circuit that connects the sockets into which the boards fit to the computer's brains) at almost 120,000 bps. Once the transfer is completed, the board, not the computer, manages the transfer to the plotter at 9,600 bps. The board uses its own memory and its own processing power, so the computer can be used for other things in the meantime.

Are there better solutions? Super-fast electrostatic plotters, for one. But they are still super-expensive. In the meantime, consider the Seleris approach if "sneaker net" isn't practical.

PLOT FASTER, LONGER, EASIER!

The JDL 850 GL+ Plotter/Printer makes plotting more productive in every way

Plot faster than pen plotters –

The 850 GL+ combines a one megabyte plot buffer with new high speed parallel plotting to produce plot output speeds up to five times faster than a pen plotter. Quick check plots save time and increase your system productivity. And the unrivaled plot speed comes with no loss in quality. You get D and E-size readability at C-size. Mini check sets are easier to handle and save on media costs too.

Plot as long as you like –

The 850's new long axis, "free size", plotting lets you plot up to 78 inches long. Or, with the new plot-append feature create unlimited length plots. Ideal for mapping, project management or any design that requires an extra-long plot.

Automatic cut sheet feed and roll feed mean reliable, unattended, continuous plot production. Plot over lunch, plot all night long or plot remote on your network.

Plot easier than ever –

The 850 GL+ can be automatically configured to run with many popular CAD and graphics packages. The new, simplified menu provides for quick set-up and flexible image control, including enlargement and reduction and a multiple copy selection. The 850's proven technology gives you color hardcopy in 14 colors with crisp consistent lines, without the bother of pens and special media, or the worry of running out of ink or constant pen maintenance. You can plot for weeks without so much as a thought to anything more than changing the paper.

- **Compatible with PCs, Macintosh, workstations, mainframes and LANs**
- **HP-GL compatibility: 7585, 7580, 7550, 7475**
- **High speed plot file transmission over serial or parallel ports**
- **Standard 1.0 MB or optional 2.5 MB plot spool buffer**
- **Long axis, "free size", plotting**
- **Continuous, unattended plotting with automatic cut sheet and roll feed**
- **AutoShade™ compatible**

Plus added value – 3D rendering and text printing

The 850 GL+ doesn't limit your design or business potential. Full color, 3D rendering compatible with AutoShade™, VersaCAD Design™, CADkey™ and others, it can produce over 2000 colors, the only low cost C-size plotter capable of true shaded output.

For your business needs the 850 GL+ quietly delivers letter quality text at 144 cps and draft printing at 360 cps for bills of material, estimating, word processing and spreadsheets. No need to spend money on a separate printer.

Find out why more design professionals are specifying the 850 GL+ as their workstation plotter/printer of choice. Call us for specs, plot samples or a demo.

JDL
Japan Digital Laboratory

2649 Townsgate Road, Suite 600
Westlake Village, CA 91361

WEST: (805) 495-3451 • EAST: (704) 541-6352

DataCAD drawing courtesy of the Gleason Partnership. HP-GL, AutoShade, VersaCAD, CADkey and Macintosh, are registered trademarks of Hewlett-Packard Co., Autodesk, Inc., VersaCAD Corp., Micro Control Systems, Inc. and Apple Computer Corp. Nationwide service by BRUNING

Circle 89 on inquiry card

Computers: Paving the way to new architectural services in facility management

By Eric Teicholz

Because corporations have up to 25 percent of their assets tied up in existing physical facilities, architects are increasingly offering help in managing them to their design clients and other corporations. Architects in this role are automating because a client may insist on it or they feel it will help them compete. What they are finding, however, is that it is necessary to perform the new functions efficiently.

Efficient performance in facility management can offer profitability that is at least as good as that for traditional design services. Furthermore, it can help secure additional design work from existing clients and attract new ones.

Let's look at the potential for architects in facility management

The services architects offer that are in highest demand by clients are long-term planning and the development of detailed design programs. Next are the development of space standards and of blocking and stacking plans. Last are updating floor plans, maintenance of furniture inventories, and the evaluation of long-range plans. There is an indication, however, that demands are rapidly increasing for furniture and equipment inventories, and as-built plans, to be used in cost accounting.

A report by the International Facility Management Association found corporations change the use of more than 34 percent of their space each year. (This change is called a churn rate.) And the percentage is increasing. The IFMA survey reported that churn was caused by a number of factors, including those listed in the table below.

Reasons that corporations change the use of space

Department reorganization	**49%**
Company growth	**44%**
Corporate reorganization	**43%**
Department rearrangement	**35%**
Moving to a different facility	**24%**
Projects	**23%**
Consolidation	**17%**
Downsizing	**15%**
Automation	**10%**

Not all facility-management work is work that all architects will want. For instance, the IFMA study indicated that an average of 64 percent of the relocations consisted of less than 5,000 square feet and that the design work involved in these moves was almost always performed by in-house, facility-management staff. The amount of planning time allocated to accommodate these small space changes (called lead time) is usually extremely tight and can be measured in weeks. Short-range changes are usually made in reaction, for example, to a market trend, to a recent corporate acquisition, to general growth or shrinkage, or to any of the factors listed in the table. These changes are often difficult to predict. Thus, architects wishing to get into facility management for such small changes may have to be extremely flexible and provide the work inexpensively in direct competition with in-house staff.

There is a way in which high churn rates, even when the changes are small, can benefit architects—if the service can be sold better than it is at present. And that is the resulting increased need for updated floor plans. Updated plans usually lag far behind personnel moves. And updating becomes expensive if a company's in-house staff must be sent to the facility to take measurements and then draw plans by hand. Because architects who design a building maintain its floor plans, they can most easily update them. If the architectural firm was automated and used a CAD system to create the original construction documents, then the firm will be an even more likely candidate for this service. This does make the entering into the system of design changes that are made during the construction phase all the more important. Architects who wish to offer updating services but who have not done the original design or, for some reason, have not kept track of construction-phase changes must, of course, factor the costs of creating the digital floor plans into their fee.

Long-range space planning offers the greatest potential for architects in facility management

Most long-range space forecasting models currently employed by corporations are relatively unsophisticated. Forecasting is done, for the most part, by holding interviews with department heads.

Architects know that planning for expansion and change are

Continued on page 157

Mr. Teicholz is president of Graphic Systems, Inc., a facility-management consulting, software, and publishing company based in Cambridge, Mass.

United States Aluminum Corporation's Five Year Warranty on the corner construction of Entrance Doors is another first by number two.

Yes, it is true that United States Aluminum Corporation is only the second largest manufacturer of aluminum entrance doors in the United States. But, we are the ***first*** to issue you a ***five*** year warranty against corner construction failure.

With this five year warranty, doesn't it make sense to specify entrance doors by United States Aluminum Corporation on all your projects?

We offer a complete line of entrance doors to meet your requirements: trim, narrow, medium and wide stiles, also flush panel, and mall sliders.

Available in clear, bronze or black anodized finish or custom painted to architect's specifications.

See us in Sweets 08400/UMV

For complete information call 1 (800) 527-6440, in Texas call 1 (800) 442-3247, or write:

United States Aluminum Corporation

Manufacturing Facilities

3663 Bandini Blvd.
Vernon, California 90023
Telephone (213) 268-4230

200 Singleton Drive
Waxahachie, Texas 75165
Telephone (214) 937-9651
or (214) 299-5397 metro

6969 West 73rd Street
Chicago, Illinois 60638
Telephone (312) 458-9070

720 Cel-River Road
Rock Hill, South Carolina 29730
Telephone (803) 366-8326

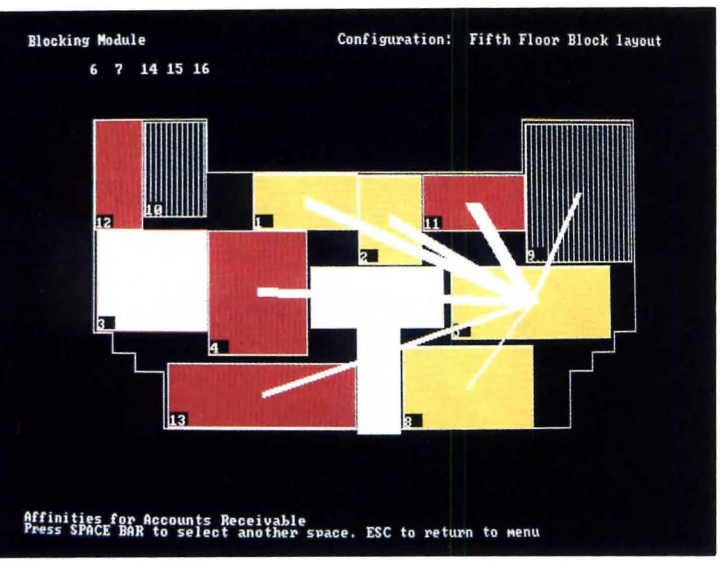
Subsidiaries of International Aluminum Corporation

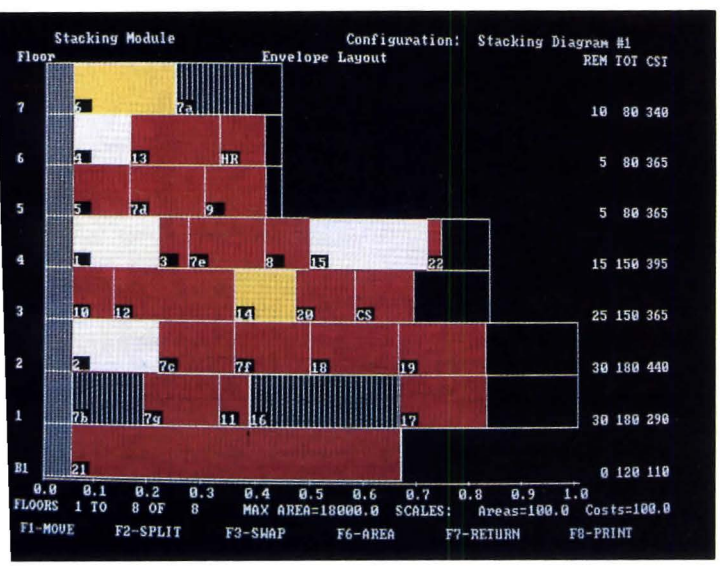
USA-115-7/88-MG

Circle 90 on inquiry card

omputers continued from page 151

There is a way in which high churn rates, even when the changes are small, can benefit architects—if the service can be sold properly.





ıcking and blocking ıgrams show the optimum ationships of corporate ıartments as they move ınd within their buildings. stacking diagram shows the ıartments in their best itions in section and blocking diagram shows n in plan—on which thicknesses of connecting ɹrammatic lines show the importance of adjacency for intercommunication. To produce the diagrams, the author starts with a matrix, in which a low number indicates a strong relationship and a high one, less importance. The computer then takes the information and generates the one best solution that satisfies all of the input criteria.

often design functions that must grow out of a knowledge of space and equipment at hand. Here is an obvious tie-in with the updating of plans. And planning must be based on the latest developments in partitions, furniture, raised floors, underfloor ducts, floor-fed wired panels, such technological innovations as local-area networks, and a host of other factors that architects are best equipped to address.

Further, the development of space standards by architects is an obvious basis for forecasting space requirements. Most small- to medium-sized corporations do not employ standards of any kind.

Standards that do not rely on the products of one manufacturer are most valuable for forecasting purposes and for the creation of new layouts. Increasingly, architects and facility managers are automating these standards on CAD systems. But, to develop libraries of furniture standards is a time-consuming process. Large manufacturers of furniture, such as Steelcase, Herman Miller, and Hayworth, have made proprietary databases available for specific CAD systems. At least one service company, Computer Aided Planning, in Grand Rapids, Mich., sells furniture databases for most major manufacturers.

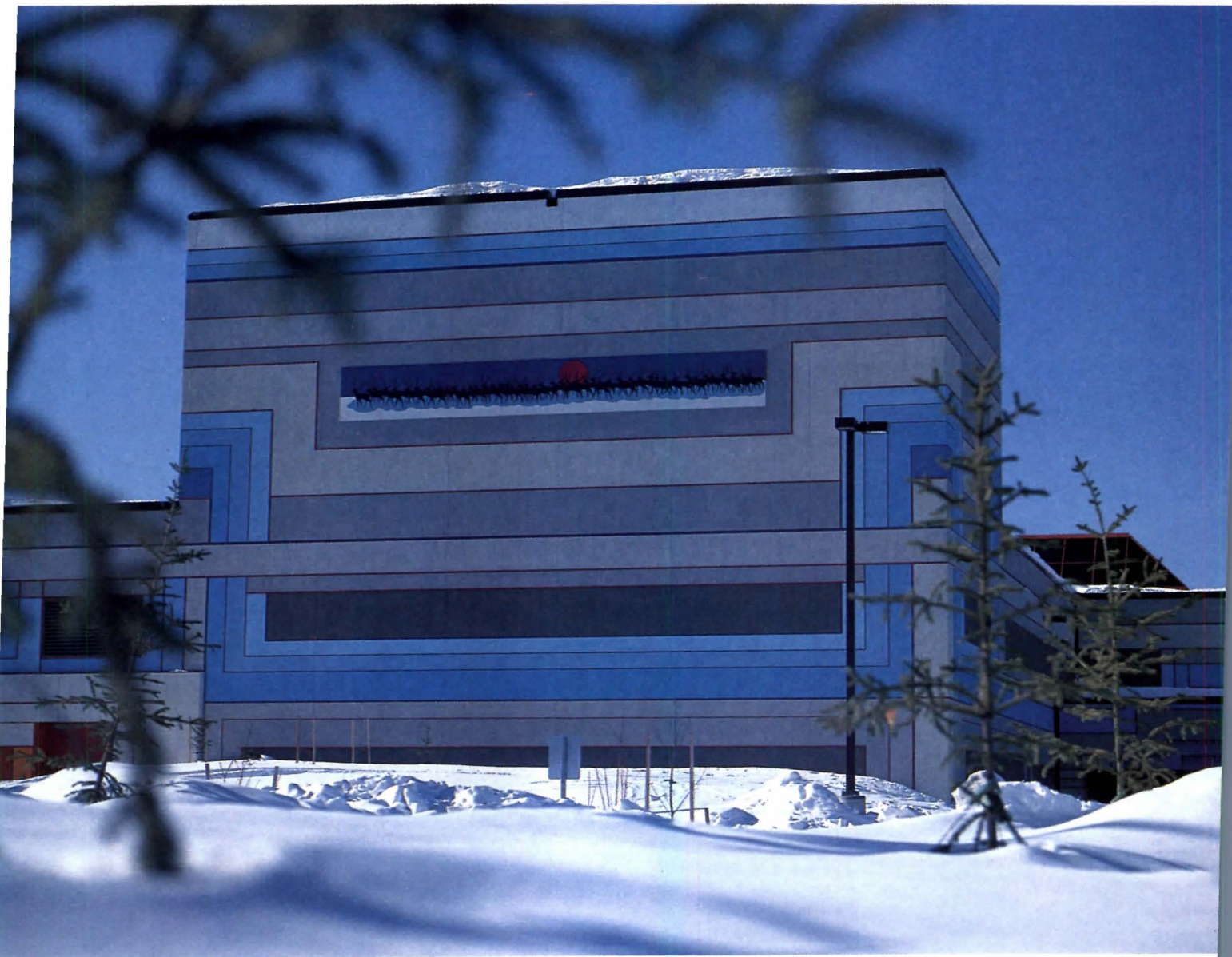
Architects are well equipped to do space allocations. These can be used to project departmental moves by showing block plans of the spaces that various activities require. A more sophisticated form of space allocation shows how various departments should be situated in relation to each other. Factors include acoustical and other environmental requirements, but most important is maximizing desired adjacency relationships, which is readily solved with automation. Desired relationships or traffic flows between spaces can be represented as a numerical value in a matrix. A low number in a matrix might represent a strong relationship between two spaces whereas a high number would mean that the spaces could be far apart. There are a number of computer algorithms that can optimize such adjacency relationships and then produce graphic representations, as shown in the illustrations.

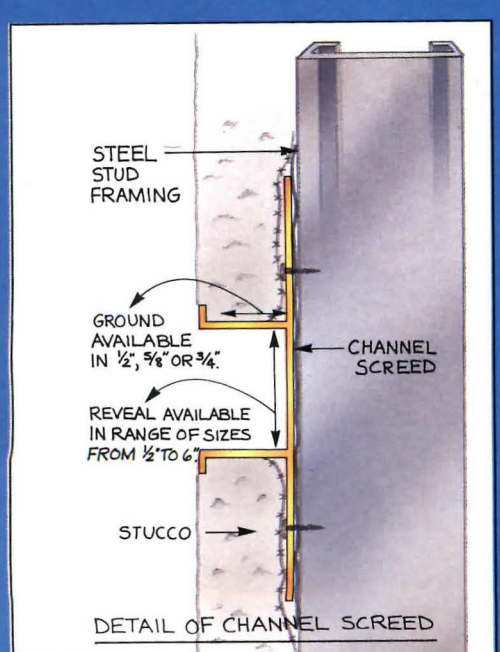
Here is how to sell and charge for computer-aided facility-management services

Most architects and other consultants will charge by the square foot for basic services. For instance, they generally charge about $0.05 per square foot to create the base building plans—although some will charge as little as $0.03. Up to an additional $0.10 per square foot is charged to create an associated attribute database if space-utilization reports are required. Thus, the charge for a digital database consisting of both graphics and attributes for base building, interior, and block plans would cost the client a maximum of $0.15 per square foot. Some consultants will charge on a fixed fee or upset basis but will always calculate costs on a square footage basis.

The most effective marketing technique is going back to design clients to offer automated facility-management services. Other techniques, in order of decreasing effectiveness, include regional mailing, trade shows, and cold calling. The importance of marketing only to firms that recognize and understand the need for facility management might be stressed. For most architects, the cost of educating clients as to what facility management can and cannot do is too expensive to undertake.

Fry's Aluminum Architectural Moldings Add a Third Dimension to Your Design





North Pole Senior High School — A silent sentinel in the snow-covered frontiers of Alaska. A symphony of visual impact and originality, made possible with Fry aluminum moldings. Custom extrusions, carefully ma colors, and factory fabricated intersecting pieces allow this design to flo an uninterrupted fashion.

Fry's other capabilities to aid your unique design include radiused mold and fabrication enhancements to ease installation. No longer a purely functional product, **Fry aluminum moldings** provide you with design o as limitless as your imagination.

FRY REGLET
Aluminum Architectural Moldings

625 South Palm Avenue
Alhambra, California 91803
(818) 289-4744

2777 Peterson Place
Norcross, Georgia 30071
(404) 441-2337

Look for us in Sweets catalog 09200/Fry.

Circle 92 on inquiry card

New products

For more information, circle item numbers on Reader Service Card

ıd stuff
ıe boomlet in baby-boomers' ıbies may be reflected in the ımber of product introductions r the school, day-care, and ormitory markets. Some embers of the class of 1988:

2. Tables and chairs
ian Kane's *Rubber Children's urniture Group* for Metro cludes armless chairs in three zes: preschool, youth, and lult, with matching-height und or square tables. The ated-steel frames are encased textured rubber tubing to event impact injuries; seats are echwood in a natural finish or any of 24 textured colors. eld-installable options include a ivel tablet arm and a rforated steel book rack that ounts under the seat. etropolitan Furniture Corp., outh San Francisco, Calif.
rcle 300 on reader service card

Junior lounge
ggested for day-care, library, clinic waiting rooms, child-size fa and chairs are cushioned in e-retardant foam covered with noisture-barrier liner. Each el-spring seating core carries 0-year warranty. Tables in a nber of sizes, shapes, and es can be ordered at any ght. Nemschoff Chairs, Inc., eboygan, Wis.
cle 301 on reader service card

Dormitory unit
v components, such as a pull- computer keyboard shelf, e been added to the *Uni-Tec* nitory furniture line. This e-saving loft bed/desk/ eau/wardrobe is made of l oak, finished in a stain- f catalyzed varnish. ay Furniture Co., Inc., oygan, Wis.
le 302 on reader service card
products on page 161


1


2


3


4

HARTMANN SANDERS CO

FG Classic™

Fiberglass and Load-bearing, The Ultimate Architectural Column.

Not just another column cover. A technological breakthrough in architectural columns -- molded of fiberglass, one-piece shaft construction and load-bearing. Impossible? Not with our unique application of a specialized fiberglass manufacturing process.

FG Classic™ fiberglass columns are stronger than wood columns, will adapt to any of our ornamental capitals, and are especially suited for installation in areas with harsh weather conditions. Also, their light weight means substantial savings in installation time and manpower.

And because they're Hartmann-Sanders columns, you're assured of their quality and design *based on the classical Orders of Architecture*. In fact, we're so certain of their quality and reliability, FG Classic™ columns carry an unprecedented twenty-year warranty.

Call or write today for more information about FG Classic™ and the advantages of specifying Hartmann-Sanders. For more than ninety years, we've been manufacturing the finest architectural columns available. Whether wood or fiberglass, that tradition continues.

An Old Company With New Ideas

HARTMANN-SANDERS COMPANY
4340 Bankers Circle • Atlanta, Georgia 30360
(404) 449-1561 • (800) 241-4303

Circle 93 on inquiry card

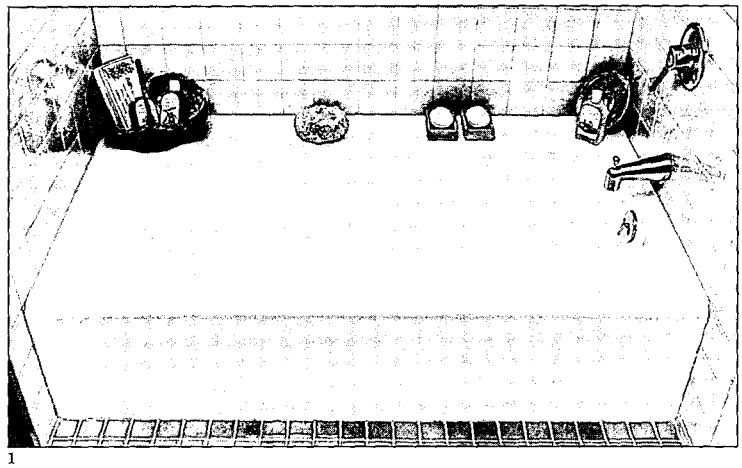
For more information, circle item numbers on Reader Service Card

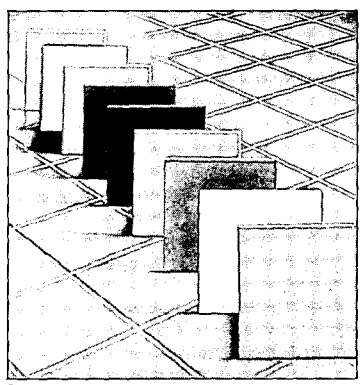
Molded bathtub
e *Princeton* is the first tub ade in *Americast*, a new anufacturing process in which metal tub shell covered with rcelain enamel is fitted onto a id structural composite mold. e new tub is much lighter and sier to handle than cast- n units, but retains the perior abrasion-resistance of a rcelain finish. The molding ocess also permits more ecise details, such as a tile ge, beveled headrest, and an egral shelf extending back to e wall in the 34-in.-wide model ctured. *Americast* tubs are ailable in 11 colors and white. nerican Standard Inc., scataway, N. J.
rcle 303 on reader service card

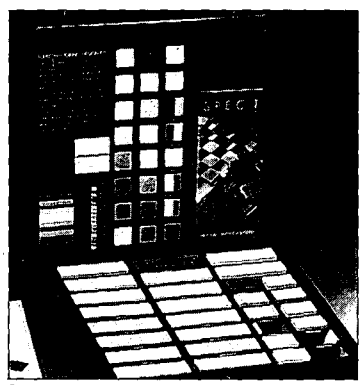
Ceramic tile
heavy-duty commercial tile, *tra Pavers* come in 8- by 8-in. d 12- by 12-in. sizes, with a odified cushion edge. The tile s a slightly abrasive glazed ish, and comes in 10 colors, nging from light gray and ite to red-brown and denim e. American Olean Tile, nsdale, Pa.
cle 304 on reader service card

esilient flooring design
looring design kit, the *Spec 1* tains one-in.-sq pieces of gco vinyl tile in 29 colors and cted textures, as well as ial feature strips and a layout . The designer can rearrange chips in any desired bination of colors and netric patterns, simulating final flooring pattern to scale out schematic drawings. co Co., Tuscumbia, Ala.
le 305 on reader service card

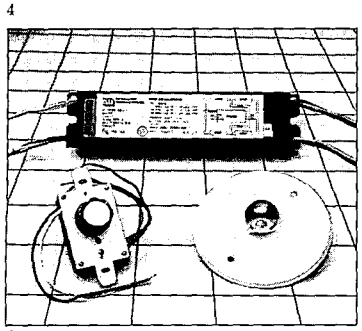
eechwood chair
gner Vico Magistretti ibes his *Trattoria* chair as nterpretation of a smaller- d 18th-century model. Made iline-stained beechwood, *oria* may be ordered with a or tea-colored frame, and a ellow, violet, or black seat. Inc., New York City.
306 on reader service card

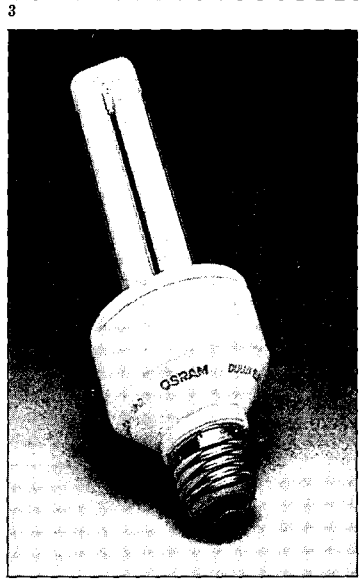

1

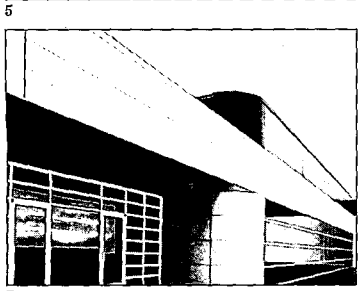

2

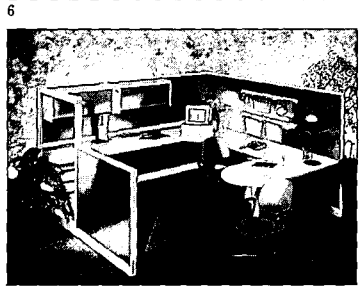

3


4


5


6


7


8

5. Fluorescent lighting control
A photo-sensor tuning control that works with electronic fluorescent lighting ballasts, the *XO/ATC* automatically links lamp output to available daylight, maintaining a specified light level throughout the day. XO Industries, Inc., Mountain View, Calif.
Circle 307 on reader service card

6. Screw-in fluorescent
The *DULUX EL* is said to combine the energy-saving and long-rated life of a fluorescent bulb with the installation convenience and color values of an incandescent lamp. The compact bulb has a built-in electronic ballast, and provides even light distribution from any burning position. The 20W *DULUX EL* bulb is equivalent to a 75W incandescent. Osram Corp., Montgomery, N. Y.
Circle 308 on reader service card

7. Aluminum-framed storefront
A stock-length, screw-spline storefront with no-extra-charge customizing options, the *Mor::Front* system comes in four low-profile mullion styles, nine paint colors, and four anodized finishes. Exterior face caps and mullions may be specified in different factory-applied colors; ribbon window, 9-ft butt-glazed, and standard storefronts are provided by the framing system. Vistawall Architectural Products, Terrell, Tex.
Circle 309 on reader service card

8. Office system
The *Orion* office has a high-tech look, with a square post design said to facilitate reconfiguration and provide a wrap-around appearance to the panel fabric. Accessories, such as pencil holders, signage, and hanging files, clip onto either the panel frame or a panel-mounted bar. Rosemount Office Systems, Inc., Lakeville, Minn.
Circle 310 on reader service card

More products on page 169

CARADCO

Timeless design meets modern ingenuity.

Now you can include the elegant style of authentic true divided lites in your best architectural designs—without giving up comfort or practicality.

The natural wood windows and patio doors in the Georgetown™ Collection by Caradco are available with insulated glass and 1⅜"-wide muntin bars or single pane with ⅞" muntin bars. Caradco has combined this timeless look with the latest technology and energy efficiency.

Custom or in-stock, Caradco's Georgetown true divided lite windows and doors give your imagination room to work, and your business room to grow.

Compare the quality. Compare Caradco

A Kusan, Inc. Company, Rantoul, Illinois 61866

A complete line of quality true divided lite wood windows and patio doors: casements, awnings, double hungs, round tops and custom.

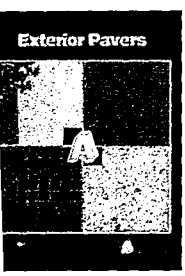
Circle 94 on inquiry card

Product literature

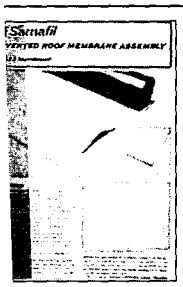
For more information, circle item numbers on Reader Service Card

Custom light fixtures
A color brochure illustrates architectural applications of custom fixtures, including lobby uplighting sconces, pole-mounted lights, and several types of chandeliers. Appleton Lamplighter, Appleton, Wis.
Circle 400 on reader service card

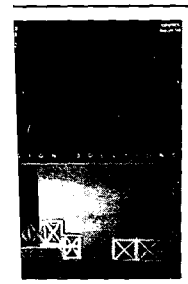
Electronic access control
A new *Dentco II* two-wire system lets the user program different security levels for each of many doors from a central station. Keycodes are entered by card or pushbutton combination. Detex Corp., New Braunfels, Tex.
Circle 401 on reader service card



Exterior pavers
Pressed concrete pavers with wear surfaces of marble, granite, and porfido are offered in sizes up to 20- by 20-in. A brochure describes sand-bed and pedestal-mount installations. Verona Marble Co., Dallas.
Circle 402 on reader service card

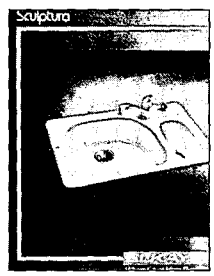


Single-ply roofing
Technical data sheets explain the advantages of the *Sarnafil* PVC membrane as used in mechanically attached, fully adhered, and IRMA systems. Sarnafil, Inc., Canton, Mass.
Circle 403 on reader service card



Site furniture
Benches, planters, and other site furnishings in wood, metal, and fiberglass are presented in a 1988 architectural catalog. Woodcrafters of Florida, Jacksonville, Fla.
Circle 404 on reader service card

NFPA codes
Ordering information is available for the 1988 Life Safety Code system of materials, consisting of handbooks, a videotape, and a seminar on NFPA 101. National Fire Protection Association, Quincy, Mass.
Circle 405 on reader service card

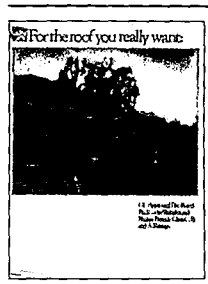


Molded composite sink
Introduced in a color brochure, the *Sculptura* sink is made of a new, integrally colored composite; the bowl bottoms have a crinkled finish to prevent damage to dishes. Elkay Mfg. Co., Oak Brook, Ill.
Circle 406 on reader service card

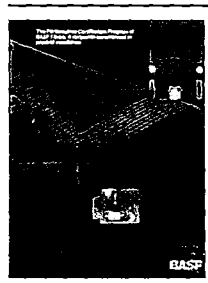
Space-saving stair
A color brochure explains how pre-engineered alternating-tread stair designs improve user safety and save floor space; prices for wood, steel, and aluminum stairs are listed. Lapeyre Stair, Inc., New Orleans.
Circle 407 on reader service card

Light-diffusing walls
Architectural catalogs describe the energy-saving and light-transmitting values of the *Kalwall* fiberglass panel system, and picture the system used in built projects. Kalwall Corp., Manchester, N. H.
Circle 408 on reader service card

Office design hotline
A folder explains how a no-charge Access Line provides specifics on office product use, test data, code compliance, and acoustic and other technical information. Steelcase Inc., Grand Rapids, Mich.
Circle 409 on reader service card



UL-listed cedar shingles
A folder describes how red-cedar roofing products are pressure-treated to meet the long-term fire-resistance standards of UL-790. Red Cedar Shingle & Handsplit Shake Bureau, Bellevue, Wash.
Circle 410 on reader service card



Carpet performance
A technical brochure describes the *Zeftron* certification program, which provides the carpet specifier with test results that predict long-term carpet performance. BASF Corp., Fibers Div., Williamsburg,
Circle 411 on reader service card
More literature on page 166

ARCHITECTS

SSOE, Inc., a leading national A/E consulting firm headquartered in Toledo, Ohio, is in the midst of an exciting staff expansion. Our client base of industrial, commercial, and institutional concerns continues to grow and provide new challenges for our office of over 400 employees.

Presently, we are seeking career-minded, degreed architects who can bring their expertise to one of our commercial/institutional or industrial architectural teams. Professional registration preferred.

As part of SSOE's new philosophy regarding CADD, all architects will eventually be trained to use CADD as a design tool.

SSOE offers a comprehensive benefits package, profit sharing, and outstanding advancement opportunities. Qualified candidates should submit resume, cover letter, and salary requirements to:

Human Resources

SSOE, INC.

Engineers, Architects
and Planners
1001 Madison Avenue
Toledo, OH 43624

No Telephone Inquiries. EOE

Architects — $25,000-85,000 Group One Search Executive Architectural Recruiters. Key positions nationwide at all levels with Regional & National firms. Experience in research/development, health care, commercial, criminal justice, educational, institutional, industrial and multi-family projects. Confidential. No Fee. Include salary requirements. 4917 Ehrlich Road, Suite 103, Tampa, FL 33624, (813) 969-0544.

Michael Latas & Associates, Executive Search and Professional Recruiting Consultants, Specialists in the architectural and engineering fields. Operating nationally. Inquiries held in the strictest of confidence. 1311 Lindbergh Plaza Center, St. Louis, Missouri 63132; (314) 993-6500.

Project Architects Prominent Cincinnati Design Firm with challenging opportunities in Corporate, Commercial, Retail, Institutional and R&D Facilities; applicant experienced in these building types, registered with a minimum of ten years experience in production of construction documents. Designers. To work with newly formed design studio; a degree in Architecture required; from intern to five years experience. Job Captain. A degree in Architecture required with a minimum of five years experience. Send detailed resume, examples of work and salary history to: Jack E. Hodell, c/o Baxter Hodell Donnelly Preston, Inc., 3500 Red Bank Road, Cincinnati, Ohio 45227. EOE. M/F.

POSITIONS VACANT

Construction Field Manager: 40 hrs. per wk; 10-20 hrs. over-time per wk.; 8:00 A.M. to 5:00 P.M.; $60,000 per year, provides professional services in construction management of airport terminals and other specialized facilities. Duties include coordination between airlines, airport authorities, engineers and contractors. Analysis of FAA and airport authority regulations and negotiating approvals. Monitoring all construction activity for compliance with contracts, schedules, airport safety requirements and building codes. Interpretation and enforcement of airline use agreements, ensuring budget compliance and proper allocation and disbursement of bond funds. Jobsite resident management, directing activities of construction field engineers, ensuring quality control and verifying material quantities. Directing supervisory personnel and subcontractors in respect to scheduling, construction and progress. Interpreting specifications in coordinating phases of construction, and ensuring compatibility with other airport projects. Review and approval of contractor and engineer pay requests. Must have 8 yrs. of grade school and 4 yrs. of high school and 5 yrs. of college. Must have B.S. in Architecture. Must have 5 yrs. experience in job offered or 5 yrs. experience as Resident Engineer in Airport Construction. Experience must include 2 yrs. in construction of steel-framed terminal buildings. Applicants should forward resumes to: Illinois Department of Employment Security, 401 S. State St., 3-South, Chicago, IL 60605, Attn: Robert S. Felton; Ref. 8511-F. An Employer Paid Ad.

Architectural Positions: New national multidisciplined A & E firm seeks registered architects with a minimum of 7 years experience. Excellent career opportunities and project load. Send resume in confidence to: Alan E. Adler, A.I.A., The Greenwood Partnership, Box 617, Lynchburg, Virginia.

POSITIONS VACANT

Design Architect — Job function and resposibilities include providing professional arc tectural services in planning, design develo ment and preparing construction docume for new construction and rehabilitation of ex ing buildings; consult with client to determi project requirements, prepare scale drawi and contract bid documents; utilize mod and traditional technologies such as in fill ar tecture and traditional European technolog in urban and inner city projects. Candidate m have a Bachelor of Science in Architecture a must have 3 years experience. Working ho are 8:00 a.m. to 5:00 p.m., 40 hours per w plus approx. 8 hours per week overtime. Sa $23,136.00 per year. Overtime rate $9.62 hour. Send resumes to: Illinois Departmen Employment Security, 401 South State Stree 3 South, Chicago, Illinois 60605. Attention R ert S. Felton, Reference # V-IL 8273-F.

Interiors Manager. This midsize growing ar tectural practice seeks a highly skilled desig to direct all aspects of the interior design partment. We seek a graduate architect strong experience in interior design and in m aging and marketing an interior design gr Must have strong technical skills and abili schedule, budget, supervise and coordinat verse projects, and proven ability to supe the staff. Terrien Architects' practice inclu variety of public and private projects in a tecture, landscape architecture, and inte space planning and design. As manager o interiors design department, you are a pa our top management team. Your depart has a strong support of our marketing and ness administration groups. Send resume cover letter to Interiors Manager. Terrie chitects, Inc., 900 Maine Savings Plaza, Port Maine 04101. Equal Opportunity Employer

HIRE 1990 & 1991 GRADUATING ENGINEERS —NEXT SUMMER!—

First, it's in our industry's best interest to hold and encourage its life-blood by providing career-conscious undergraduate engineering students with meaningful summer job experience in their future profession.

Second, since there'll always be more anxious applicants than openings, you'll be able to select the cream of the crop, then evaluate them under "game-conditions" with an eye towards hiring them after they graduate.

By filling out and returning the coupon below, your organization will be included in summer job listings to be featured in the January 1989 issue of McGraw-Hill's GRADUATING ENGINEER.

This edition will be distributed to 83,000 engineering students on over 300 campuses by Deans and engineering department heads.

Please supply the name of the person students should contact, and a phone number for our checking purposes only.

PLEASE PRINT OR TYPE

Free summer job listing

MAIL TO: ARCHITECTURAL RECORD/POST OFFICE BOX 900/NEW YORK/NY 10108

NAME/TITLE of individual to be contacted — Your Signature

NAME OF ORGANIZATION — Telephone (our use only)

ADDRESS: Mailing address of your personnel office

TYPE AND NUMBER OF STUDENTS SOUGHT: Architect Illustrator

Mechanical or Civil Engineer/Computer Science/Draftsperson/Model Builder

Note: Last date coupons can be accepted for this year's summer job listings is November 20, 1988

Stay Competitive in the 80's.

ubscribe *now* to RCHITECTURAL ECORD *and save!*

ARCHITECTURAL RECORD is ır best information center for finding what's new and innovative in hitecture.

Enter your subscription to ARCHI-CTURAL RECORD and you can ld your own personal reference ary that will grow more useful and uable every month.

Order your subscription with handy order card. Mail it today!

SAVE UP TO $39

YES. Please send me ARCHITECTURAL RECORD for the period indicated.

ARCHITECTURAL RECORD
P.O. Box 2023, Mahopac, N.Y. 10541

Please check the terms you wish:

- ☐ 12 months (14 issues) $39
- ☐ 24 months (28 issues) $59 **A better buy** with $19 savings!
- ☐ 36 months (42 issues) $78 **Your best buy** with $39 savings!

Please answer all questions:

Name _____ Title _____

Company _____ Type of firm _____

Mailing address _____

City/State _____ Zip _____

This is a:

☐ Business or ☐ Home Address

☐ New or ☐ Renewal subscription ☐ Payment enclosed ☐ Bill me

☐ American Express ☐ VISA ☐ MasterCard ... Interbank # _____

Account # _____ Date card expires _____

Signature _____

Allow 4-12 weeks for shipment of first issue. Rates good only in U.S., Possessions, and Canada.

Please check appropriate boxes:

☐ Architect Registered in state(s) of _____

☐ Engineer
☐ Owner/principal
☐ Designer
☐ Interior Designer
☐ Draftsman
☐ Corp. Officer
Title _____

☐ Student/School _____

_____

Signature

38911D

SAVE UP TO $39

YES. Please send me ARCHITECTURAL RECORD for the period indicated.

ARCHITECTURAL RECORD
P.O. Box 2023, Mahopac, N.Y. 10541

Please check the terms you wish:

- ☐ 12 months (14 issues) $39
- ☐ 24 months (28 issues) $59 **A better buy** with $19 savings!
- ☐ 36 months (42 issues) $78 **Your best buy** with $39 savings!

Please answer all questions:

Name _____ Title _____

Company _____ Type of firm _____

Mailing address _____

City/State _____ Zip _____

This is a:

☐ Business or ☐ Home Address

☐ New or ☐ Renewal subscription ☐ Payment enclosed ☐ Bill me

☐ American Express ☐ VISA ☐ MasterCard ... Interbank # _____

Account # _____ Date card expires _____

Signature _____

Allow 4-12 weeks for shipment of first issue. Rates good only in U.S., Possessions, and Canada.

Please check appropriate boxes:

☐ Architect Registered in state(s) of _____

☐ Engineer
☐ Owner/principal
☐ Designer
☐ Interior Designer
☐ Draftsman
☐ Corp. Officer
Title _____

☐ Student/School _____

_____

Signature

38912D

SAVE UP TO $39

YES. Please send me ARCHITECTURAL RECORD for the period indicated.

ARCHITECTURAL RECORD
P.O. Box 2023, Mahopac, N.Y. 10541

Please check the terms you wish:

- ☐ 12 months (14 issues) $39
- ☐ 24 months (28 issues) $59 **A better buy** with $19 savings!
- ☐ 36 months (42 issues) $78 **Your best buy** with $39 savings!

Please answer all questions:

Name _____ Title _____

Company _____ Type of firm _____

Mailing address _____

City/State _____ Zip _____

This is a:

☐ Business or ☐ Home Address

☐ New or ☐ Renewal subscription ☐ Payment enclosed ☐ Bill me

☐ American Express ☐ VISA ☐ MasterCard ... Interbank # _____

Account # _____ Date card expires _____

Signature _____

Allow 4-12 weeks for shipment of first issue. Rates good only in U.S., Possessions, and Canada.

Please check appropriate boxes:

☐ Architect Registered in state(s) of _____

☐ Engineer
☐ Owner/principal
☐ Designer
☐ Interior Designer
☐ Draftsman
☐ Corp. Officer
Title _____

☐ Student/School _____

_____

Signature

38913D

No Postage Necessary If Mailed in the United States

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 153 NEW YORK, NY

Postage will be paid by

ARCHITECTURAL RECORD
Subscription Department
P.O. Box 2023
Mahopac, New York 10541-9961

Please detach card along perforation.

No Postage Necessary If Mailed in the United States

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 153 NEW YORK, NY

Postage will be paid by

ARCHITECTURAL RECORD
Subscription Department
P.O. Box 2023
Mahopac, New York 10541-9961

Please detach card along perforation.

No Postage Necessary If Mailed in the United States

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 153 NEW YORK, NY

Postage will be paid by

ARCHITECTURAL RECORD
Subscription Department
P.O. Box 2023
Mahopac, New York 10541-9961

Please detach card along perforation.

MAIL YOUR SUBSCRIPTIO ORDER CARD TODAY AND SAVE!

CULTY POSITIONS VACANT

ARCHITECT
Lecturer in Design

LINCOLN COLLEGE
UNIVERSITY COLLEGE

We seek an enthusiastic and talented young architect / designer to help teach our newly introduced Bachelor's Degree in Landscape Architecture. Lincoln offers the only university degrees in landscape architecture in New Zealand, and our graduates fill a widening range of roles. We therefore seek to provide a rounded design education, and are diversifying our teaching staff to achieve this.

Our ideal applicant would have a keen interest in contemporary design theory and urban design, and possess skills in project development and implementation. The appointee will join a small team of committed professional design teachers, who are also involved in a range of extension, research and consultancy activities.

Appointment would normally be as lecturer, but for an outstanding applicant appointment may be made at the senior lecturer level. The Lectureship is an established University position with appointment for a period of three years in the first instance.

Current salary ranges are as follows:

Lecturer	NZ$35,000-$42,100 per annum
Senior Lecturer	NZ$44,600-$56,600 per annum

Salaries are currently under review.

Travel and removal expenses are reimbursed up to specified limits. Government Superannuation is available.

Further information and Conditions of Appointment are available from the undersigned with whom applications close on 30 September 1988. Please quote vacancy number 88/35 when making enquiries. Lincoln College is an equal opportunity employer.

G A Hay, Registrar
Lincoln College
Canterbury
NEW ZEALAND

ersity of Illinois at Urbana - Champaign, ol of Architecture, Structures Division. Full , 9 mon. tenure track / tenured, Ass't or As- Prof. to teach undergraduate and graduate tures courses, conduct research in building tures, a beginning 8/21/89. Qualif.: 1. PhD research experience; or M. Arch, MSAE, or E and licensed Arch., SE, PE; and 3. teaching esearch ability. Rank and salary based on ications. C.V. and 3 references must be ved by 10/15/88 to assure full considera- Send to: D.J. Wickersheimer, School of Ar- ture, 608 E. Lorado Taft Dr., Champaign, IL . (217/333-1998). The Univ. of IL is an EO Employer.

NESS OPPORTUNITIES

y Southern multidiscipline consulting ering firm seeks to buy or merge with dy- architectural firm with objective to in- both practices through synergism, disci- available, and enlarged geographic area. If ted contact: BO-5282, Architectural .

AL SERVICES

stimating, Quantity Surveys, Computer ations, Corp, DOD, GSA, VA. Construc- ost Systems, Chicago, (312) 858-5441; — (813) 887-5600.

POSITIONS VACANT

ARCHITECTS: Position with progressive architectural firm in New York State. Openings available in Ithaca and Garden City Offices for licensed professional architects and graduate architects with a minimum of five years experience. Strong project management skills required. Growth and advancement opportunity. Resume / salary history: **Fred H. Thomas Associates PC, 2560 North Triphammer Road, Ithaca, New York 14850**

Computer Programmer. Applicant will maintain and enhance existing software programs and develop new ones for generating working drawings for plumbing and fire protection components of facilities designed by employer for the energy and loads analysis programs used in designing the HVAC (Heating, Ventilation, Air Conditioning) systems. Master of Architecture and Bachelor of Engineering. 37 ½ hours per week. 8:40 a.m.-5:15 p.m. $600 per week and overtime at $16.00 per hour. Please send resume to: Illinois Department of Security, 401 South State Street — 3 South, Chicago, Illinois 60605, Attention: Robert S. Felton, Reference #V-IL 8424-F, An Employer Paid Ad, Equal Opportunity Employer M/F.

FACULTY POSITIONS VACANT

Full time faculty position in design. The School of Architecture is seeking applicants for one or more full time nine-month tenured or tenure track design faculty positions at the Assistant Professor, Associate Professor, and/or Professor rank beginning August 21, 1989. Candidates should be highly motivated and dedicated individuals who can take advantage of the unique resources at the University of Illinois for teaching and research. These positions will involve both studio and lecture / seminar teaching activities. Applicants with professional, teaching and/or research experience in a range of architectural work including Housing and Urban Design, or CAD are especially encouraged to apply. Rank and Salary will be determined by previous experience. Minimum requirements are: Architectural registration plus a Masters Degree or a PhD, or similar and equivalent experience. Previous experience in teaching, research or national recognition for design excellence is desirable. Applications, including a letter of interest, a C.V., and names of 3 references must be received by November 1, 1988 for full consideration. Materials should be sent to: Professor R.A. Forrester, Director, School of Architecture, 608 E. Lorado Taft Drive, Champaign, Illinois 61820, (217) 333-1330. The University of Illinois is an Equal Opportunity / Affirmative Action Employer.

TO ANSWER BOX NUMBER ADS

Address separate envelopes

(smaller than 11" x 5")

for each reply to:

Box Number (As indicated)

Classified Advertising Center

Architectural Record

Post Office Box 900

NY 10108

FOR SALE

TREE STAMPS

Treeline's crafted rubber stamps combine quality of hand drawn trees and people with speed and convenience of stamps. Write for free catalog.

TREELINE
Box 4679, Charlottesville, VA 22905

Church Chairs
For more information, call: 1-800-537-1530 In Ohio, 1-800-472-2722
SAUDER®

BOOKS FOR SALE

FEES FOR ARCHITECTS!

MELTON ARCHITECT'S SERVICES is a book of more than 200 pages that shows you the way to determine the minimum cost of Architect's Basic Service for more than 75 different types of buildings. It is 5½" x 8½" in size and has a beautiful leatherette back with wire roll binding and heavy weight pages for long life.

PREPAID $29.95
Send to T. L. MELTON CO., P.O. BOX 2644 ATLANTA, GA 30301

SEND YOUR AD COPY *FAST* VIA TELECOPIER

If you have a telecopier, just call the number below to see if your equipment is compatible. If you don't have a telecopier, call and we'll help you locate the nearest one. It could even be in your own firm or building.

To enable you to get your classified advertising typewritten copy into this section at the last possible minute, we've installed a XEROX 295 TELECOPIER (which also receives copy from other makes) in our New York home office.

NOTE: The Xerox 295 cannot accept photos or art, but as always, there is no charge for typesetting and layout service.

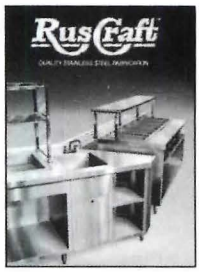
CALL McGRAW-HILL (212) 512-6800

Literature continued from page 163

Bath fittings
Faucets, knobs, shower heads, towel bars, and other bath accessories, made in Italy to American dimensions, are shown in a color catalog. Hastings Tile & Il Bagno Collection, Freeport, N. Y.
Circle 412 on reader service card

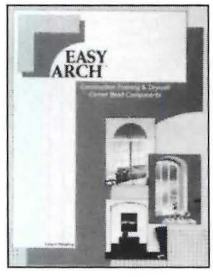
Residential appliances
A 40-page color catalog gives performance and dimensional data on a full line of home appliances, including space-saving washers, dryers, and refrigerators. The Kelvinator Appliance Co., Columbus, Ohio.
Circle 413 on reader service card

Automated storage
The safety, space-saving, and security advantages of automated *Power File 2000* high-density storage and retrieval systems are covered in a product folder. White Office Systems, Kenilworth, N. J.
Circle 414 on reader service card



Food service equipment
A brochure on *Ruscraft* sinks, tables, cabinets, and counters explains how the stainless-steel subassemblies can be economically customized for any size commercial kitchen. Ruslander & Sons, Inc., Buffalo.
Circle 415 on reader service card

Oak flooring
A 24-page brochure illustrates plank and parquet hardwood floors installed in department stores, hotels, restaurants, and other commercial projects. Bruce Hardwood Floors, Dallas.
Circle 416 on reader service card

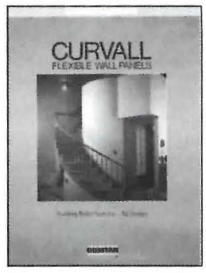


Preformed drywall arches
A color catalog explains the *Easy Arch* system, said to facilitate the construction of true arches, eyebrow and low-rise arches, passages and doors, cased openings, and nooks. Stretch Forming Corp., Murrietta, Calif.
Circle 417 on reader service card

Playground equipment
A full-line catalog features play equipment, exercise courses, and site amenities for schools and parks, made of easy-to-assemble southern pine and redwood parts. Creative Playgrounds, Ltd., Sun Prairie, Wis.
Circle 418 on reader service card

Door hardware
A colorful 16-page catalog covers the *Omni Group* of wood, metal, and nylon doorpulls, described as well-designed and moderately priced for general applications. Forms + Surfaces, Santa Barbara, Calif.
Circle 419 on reader service card

Heat generation
An 8-page brochure explains how the compact design of monotube-coil commercial steam boilers offers substantial savings in weight, space needs, and energy costs over standard units. Clayton Industries, El Monte, Calif.
Circle 420 on reader service card

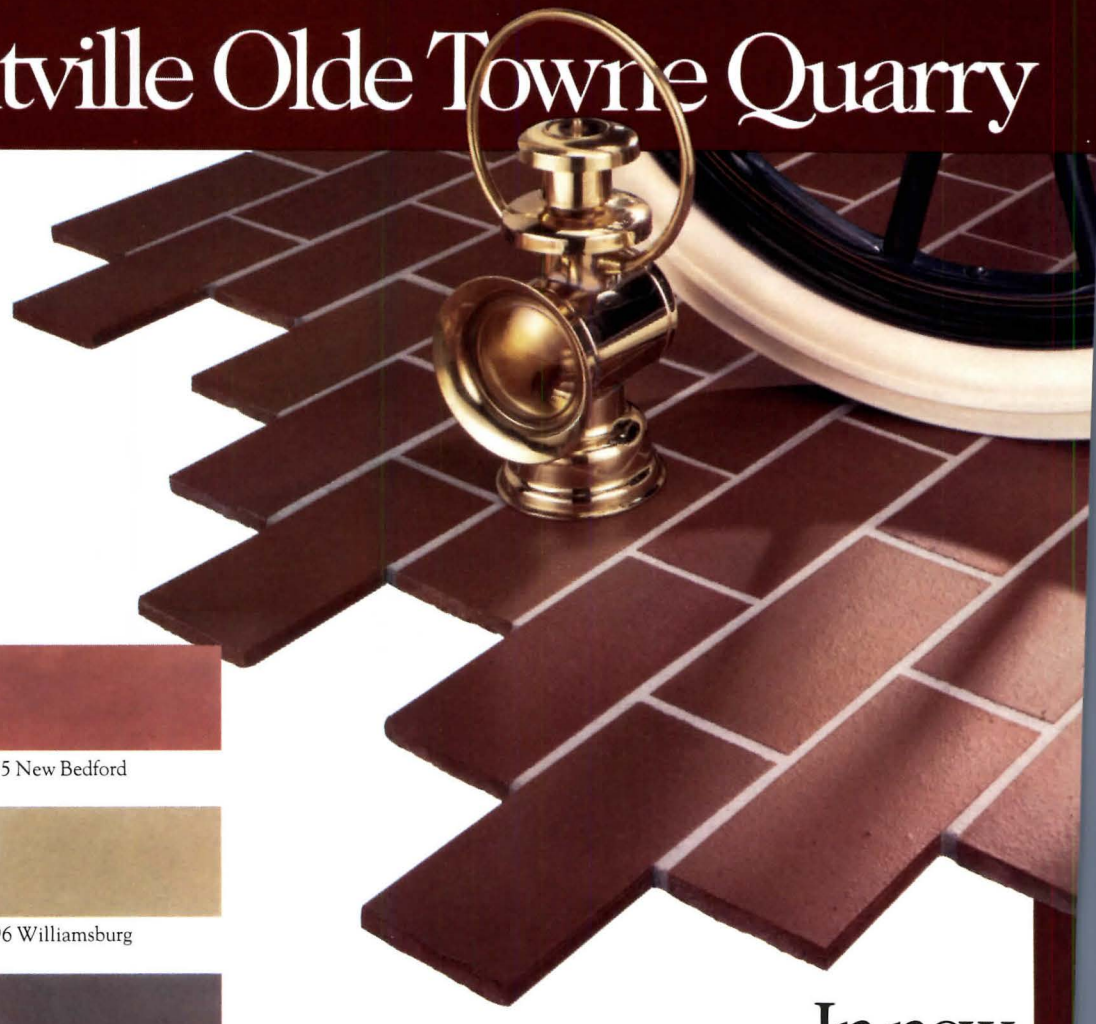


Curved wall panels
A folder shows how *Curvall* flexible fiberboard panels easily conform to curves with a radius as tight as 30 in., without scoring, wetting, or other preparation. Domtar Gypsum, Oakland, Calif.
Circle 421 on reader service card

Glass doors
The *Classic 1* entrance, said to be adaptable to a range of opening requirements and hardware options, is introduced in a 4-page color folder.
ACI Glass Products, Farmers Branch, Tex.
Circle 422 on reader service card

Tables
A 12-page color brochure highlights appearance, shape, and functional details of the *Tempest* line of tables for conference, office, school, and dining areas. Howe Furniture Corp., Trumbull, Conn.
Circle 423 on reader service card

Summitville Olde Towne Quarry



10 Summitville Red

64 Bone

74 Harbor Blue

95 New Bedford

84 Wintergreen

96 Williamsburg

87 Cadet Gray

97 Valley Forge

88 Confederate Gray

89 Charcoal Gray

94 Colony

In new industrial strength colors.

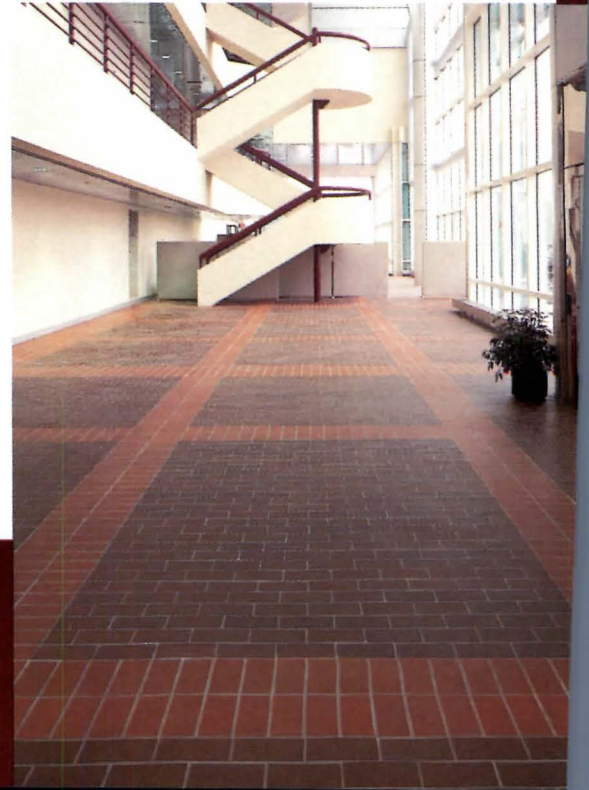
Now Olde Towne Quarry gives you 11 tough color options including 7 NEW colors.

Olde Towne has long been the right choice for indoor or outdoor use, thanks to its trouble-free maintenance and its rugged appearance. Making Olde Towne ideal for patios, sunrooms, lobbies, walks and parking areas.

A new 6"x 6" size has been added to the 4"x 8" and 8"x 8" sizes. All are ½" thick. Smooth or wire-cut surface and trim shapes are available in all colors.

Combined with Summitville's full line of installation products and tile maintenance systems, you have everything you need for any installation.

Find out the complete Summitville Story from your nearest Summitville Distributor.



Summitville®

Summitville Tiles Inc. • Summitville, Ohio 43962

MADE IN USA

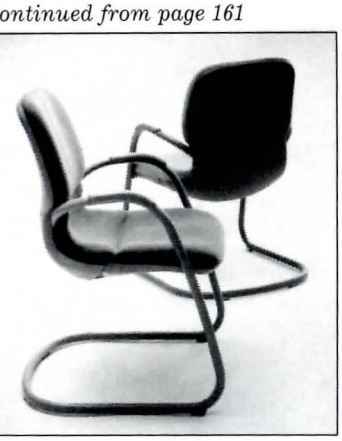
MEMBER TILE COUNCIL OF AMERICA INC

Circle 96 on inquiry card

SHAPES

TRIM SHAPES

ontinued from page 161

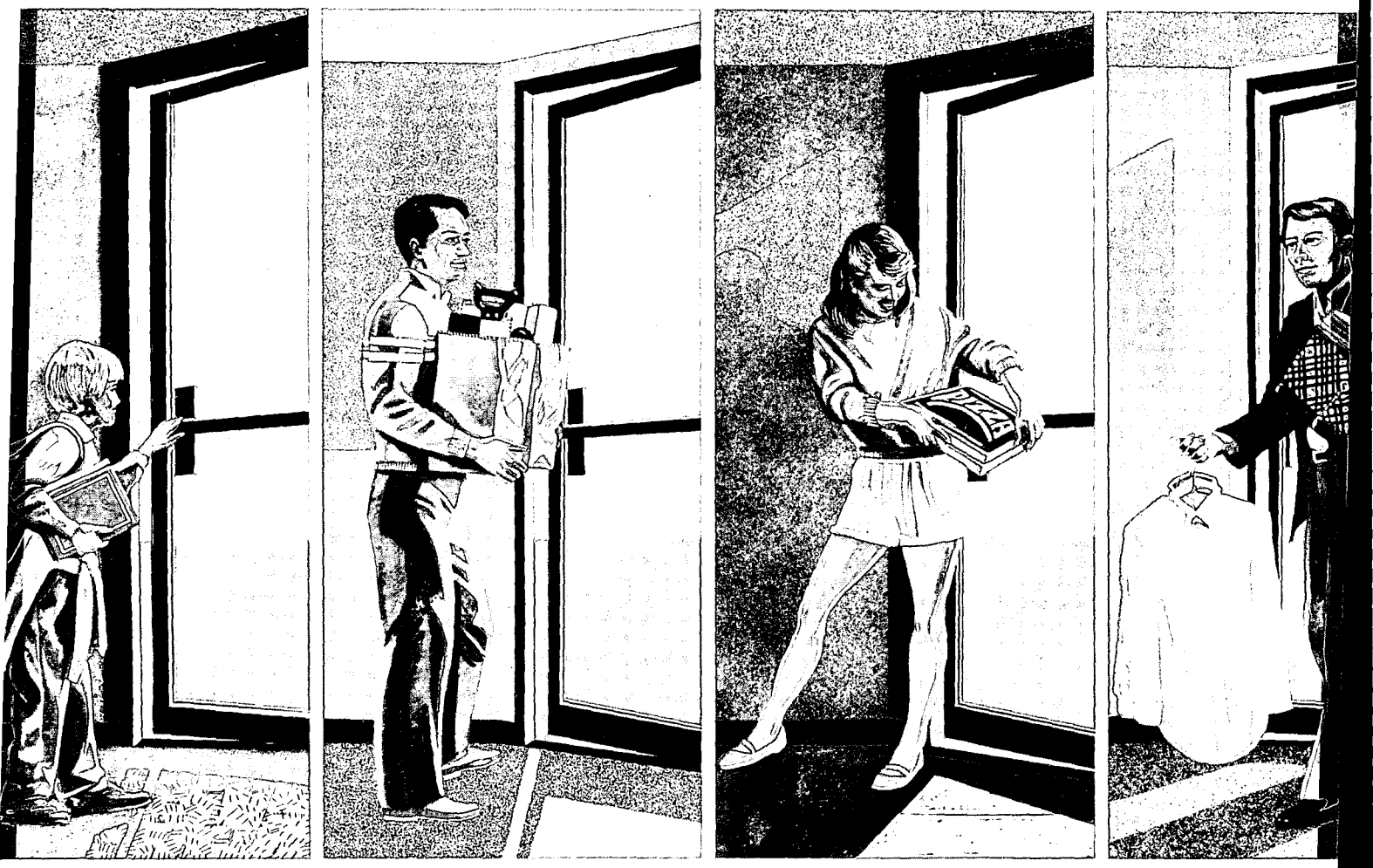


rgonomic pull-up
he *Sensor Chair* is now vailable in a sled-base model, or use as side or conference eating. The *Sensor* line also omes in new shell colors and a ider range of patterned pholstery fabrics. Steelcase nc., Grand Rapids, Mich.
ircle 311 on reader service card

pen-plan system
ne *CONCENSYS* panel and mponent system integrates ivate-, semi-private, and ister-type workstations into a stom office layout that mbines both traditional and ectronic task areas. Features clude 24- and 30-in.-deep work rfaces, upper raceways for mmunications lines, and a ree-circuit power raceway in base of each panel, with tical raceways that distribute vice to desk level. Fabric-ered panels come in warm or l color groups. The HON Co., scatine, Iowa.
cle 312 on reader service card

Play castle-in-a-kit
Swedish-made *Hags Play* structures are constructed onsite of pressure-treated wood and corrosion-resistant metal fasteners; the expandable component system can be installed on any type of terrain with minimal ground preparation. Already used in playgrounds in New York City, the equipment is said to combine safety, play value, creativity, and durability. Group BB, Inc., Pompano Beach, Fla.
Circle 313 on reader service card

push... nudge... thump... or bump



People are putting some great moves on the Dor-O-Matic

Push-N-Go

Open the door just 5° and this new Dor-O-Matic opener continues to open the door . . . automatically!

The Dor-O-Matic Push-N-Go door opener speaks your customer's body language!

The Dor-O-Matic Push-N-Go is the automatic door opener that gives your customers a helping hand, without costing you an arm and a leg.

That's because Push-N-Go keeps door operation simple. With a push, nudge, or a bump, your customer opens the door a scant 5°, then Push-N-Go takes over, automatically swinging the door open.

Push-N-Go operates that easily!

What's more, Push-N-Go conserves heating and cooling costs. With a hold-open cycle that is less than one second, Push-N-Go keeps energy loss to a minimum.

Push-N-Go is easy to install, as well. There are no rails, no pressure mats, and no electronic beams required, yet Dor-O-Matic Push-N-Go meets the ANSI/BHMA (A156.19-1984) standard for low energy power operated doors.

Push-N-Go from Dor-O-Matic. When it comes to money-saving performance, year-in and year-out, it's the automatic door that speaks *your* language!

For more information, call or write:

DOR-O-MATIC®
AUTOMATIC DOOR EQUIPMENT

7350 West Wilson Avenue
Chicago, IL 60656-4786
1-800-543-4635
In ILL, call: (312) 867-7400
FAX (312) 867-0291

Circle 107 on inquiry card


Telephone 617 492-4000
Telefax 617 492-4001
Kroin Sanitary Fittings offer a comprehensive system of all-brass faucets, fixtures and accessories for the kitchen, lavatory and bath. All models are available in twelve epoxy colors, polished brass and chrome.
Design: Prof. Arne Jacobsen
Selected for the Design Collection, MoMA.
Circle 6 on inquiry card

1	Exxon
2	General Motors
3	Mobil
4	Ford Motor
5	IBM
6	Texaco
7	E.I. du Pont
8	Standard Oil (Ind.)
9	Standard Oil of Cal.
10	General Electric
11	Gulf Oil
12	Atlantic Richfield
13	Shell Oil
14	Occidental Petroleum
15	U.S. Steel
16	Phillips Petroleum
17	Sun

Manufacturer sources

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

Pages 92-99
The Pavilion for Japanese Art
Bart Prince, architect
Translucent panels: Kalwall. Stucco: La Habra. Stone: green Utah quartzite. Roofing: Tuff-Corp. System; copper flashing. Coating on steel: PPG Industries (*Pitthane*). Interior paints: Sinclair. Carpeting: Bigelow-Sanford. Track lighting: Lightolier. Tile: American Olean.

Pages 106-109
Desert View Elementary School
Perkins & Will, design architects
Integral-colored CMU: Builder's Block. Glass block: Pittsburgh Corning. Awning fabric: Phifertex. Roofing: ASC Pacific (*Duraseam*); Vulcraft. Quarry tile: American Olean. Fiberglass panels: Resolite. Steel windows: Hope's Arch. Products. Locksets: Best.

Pages 110-111
Gardendale Elementary School
Reyna Caragonne Architects
Structural glazed tile: Elgin Butler. Glass block: Pittsburgh Corning (*Vue*). Metal roof: Berridge Mfg. Entrances and windows: Kawneer. Glazing: GE Plastics (*Lexan*) with plate glass. Hardware: Sargent.

Pages 112-113
Arlington Elementary School
Earl R. Flansburgh + Associates, Inc., architects
CMU and veneer brick: Modular Brick. Roofing: Carlisle. Aluminum windows: Wausau. Locksets: Schlage. Paints: PPG Industries.

Pages 114-117
The Bridge at Concourse
Scogin Elam and Bray Architects, Inc.
Coating on steel and wood components: DuPont.

Pages 128-135
Cable domes for fencing and gymnastics stadiums
Silicone-coated fiberglass fabric: Dow Corning.

Laminated glass. Because Victorian Apartments wanted high style, not high decibels.

It's an increasingly common problem. A site so noisy you're not sure you can make it habitable. Let alone marketable. So you're stuck, between the need for sound control on one hand and the need good architecture on the other.

The solution: windows of laminated architectural glass with Saflex® plastic interlayer, like these being alled in the Victorian Apartments.

aminated glass lets you put in the windows you want, and p out the sounds you don't. All at a cost that makes sense.

ind out more. Send in the coupon and we'll send you a free y of our Acoustical Glazing Design Guide, plus IBM* PC- patible software to help you with the ifications. For more information chnical assistance, call)-325-4330.

lemark of International Business Machine Corporation. Company 1988. ®Trademark of Monsanto Company.

Yes, please send me free information on laminated glass for sound control.

☐ Send the Acoustical Glazing Design Guide. ☐ Send the computer disk.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

PHONE (_____) _____

Send to: Monsanto Company, 800 North Lindbergh Blvd., Dept. 204, St. Louis, MO 63167 AR 988

Laminated glass. Making a clear difference.

Monsanto

SAFLEX®

PLASTIC INTERLAYER

Circle 98 on inquiry card

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

The purpose of a roof is to keep what's outside a building from getting inside. 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 Stevens Hi-Tuff™ roofing system. Put holes in your roof so it doesn't leak.

What goes down doesn't come up.

We mechanically attach the scrim-reinforced, Stevens Hi-Tuff membrane to your roof deck with tough, corrosion-resistant fasteners. Then 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.

And because our membrane's made of Hypalon* synthetic rubber, it cures after it's hot-air welded to resist ultraviolet rays, rain, pollution, heat, and cold.

Our operators are now standing by.

If you'd like to know more about the Stevens Hi-Tuff roofing system, we'd like to tell you more. So give us a call at 1-800-848-4400, extension 163. We'll take care of the rest.

Circle 99 on inquiry card

*Hypalon is a registered trademark of DuPont.

WHAT'S BEHIND THE DOOR?

tors and customers, a Stanley -Door system is a welcome con- ce. After all, busy people appre- ie hands-free operation of ated entrances. And they see resence as a sign of a successful riving business.

ou, an architect, owner, or er, that same system is your urance of the quietest, most lable, trouble-free entrance buy.

t makes our door systems so ? While other manufacturers omise dependable operation, n match Stanley for design, cturing and service innova- novations *proven*, both in the lab and in the field, to increase the ownership convenience of automated entrances.

Stanley Magic-Door employs new computer-aided design and manufacturing techniques. New, state-of-the-art computerized testing and quality control. We've made exciting, cost- and time-saving advances in microprocessor circuitry as well as field-programming. And we have a new, centralized training center. All these innovations give Stanley Magic-Door systems reliability you can count on. Day after day, year in and year out.

Choose Stanley Magic-Door for automated swinging or sliding entrance systems, operators, controls and accessories. For custom colors, bronze or aluminum finishes. For standard entrances or interior applications, or systems custom-designed to fit your style. Whatever your requirements in automated door systems, step up to Stanley Magic-Door. And get behind the leader.

See our Sweet's catalog 08720/STA or for more information, call 1-800-232-3663 (in Connecticut, (203) 677-2861).

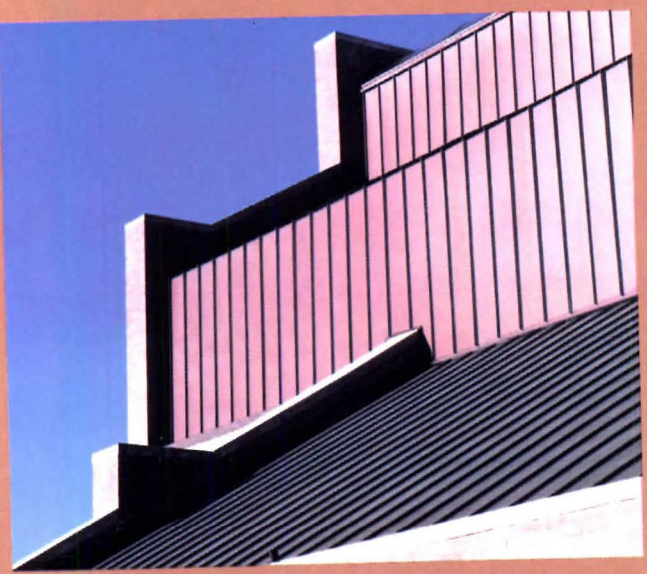
STANLEY®

The People Who Help You Do Things Right

Stanley Magic-Door® Division of
The Stanley Works, Farmington, CT 06032

Circle 100 on inquiry card

COPPER COMES OF AGE



Copper comes of age! Alumax offers a wide range of simulated copper coatings. The selection includes Metallic Copper (non-ageing), Ageing Copper, Pre-Aged Copper, Patina Green and 16 oz. Pure Copper. Call or write today for complete specifications.

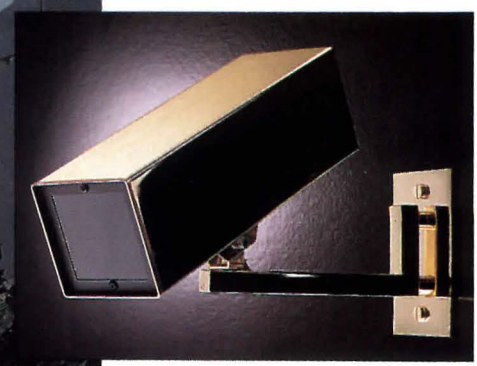
MADE TO LAST. GUARANTEED TO PROVE IT.

ALUMAX
BUILDING SPECIALTIES DIVISION

P.O. Box 163 • 227 Town East Blvd.
Mesquite, Texas 75149 • (214) 285-8811
Refer to Sweet's 07410/ALU

Circle 101 on inquiry card

STERDAY'S SECURITY SYSTEMS DON'T BELONG IN TOMORROW'S BUILDINGS.



Color, form, and crisp, clean lines have replaced the industrial look of yesterday's security systems.

One such creation is Vicon's ArchiTech Line, offering discreet surveillance with visual appeal. Because one should not have to compromise a flawless interior.

Vicon. The art of surveillance.

VICON

Atlanta, Georgia
404/449-0499

ngeles, California
714/990-3858

smouth, England
+(0705) 665-312

ormation:
dustries Inc. 525 Broad Hollow Rd., Melville, N.Y. 11747-3703 Phone: 800-645-9116 (in New York 516-293-2200)

Circle 102 on inquiry card

Advertising index

Bold face—page number
Italics—Reader Service number

For detailed data, prefiled catalogs of the manufacturers listed below are available in your 1988 Sweet's Catalog File as follows:

(G) General Building & Renovation
(E) Engineering & Retrofit
(I) Industrial Construction & Renovation
(L) Homebuilding & Remodeling
(D) Contract Interiors

Sales offices

Main Office

IcGraw-Hill, Inc.
221 Avenue of the Americas
lew York, New York 10020

ublisher
ed Meredith (212) 512-4685

ssociate Publisher
oscoe C. Smith III (212) 512-2841

Director of Business and Production
Joseph R. Wunk (212) 512-2793

Director of Marketing
Camille Padula (212) 512-2858

Classified Advertising
(212) 512-2556

District Offices

tlanta
170 Ashford-Dunwoody Road
tlanta, Georgia 30319
regory Bowerman (404) 252-0626

oston
07 Boylston St.
oston, Massachusetts 02116
ouis F. Kutscher (203) 968-7113

hicago
45 N. Michigan Ave.
hicago, Illinois 60611
nthony Arnone, (312) 751-3765
homas P. Kavooras, Jr.,
12) 751-3705

leveland
5 Public Square
leveland, Ohio 44113
eorge Gortz (216) 781-7000

enver
400 S. Alton Ct. Suite 111
nglewood, Colorado 80112
ohn J. Hernan (303) 740-4630

etroit
00 Town Center, Suite 770
outhfield, Michigan 48075
13) 352-9760

ouston
00 W. Tidwell, Suite 500
ouston, Texas 77040
ckwood Seegar (713) 462-0757

Los Angeles
Media Sales Associates
23232 Peralta Drive
Laguna Hills, Calif. 92653
William W. Hague (714) 859-4448
Richard Ayer

New York
1221 Avenue of the Americas
New York, New York 10020
Laura Viscusi (212) 512-3603

Philadelphia
1234 Market St.
Philadelphia, Pennsylvania 19107
Frank Rose (215) 496-4966 PA
(203) 968-7112 CT

Pittsburgh
6 Gateway Center, Suite 215
Pittsburgh, Pennsylvania 15222
George Gortz (412) 227-3640

San Francisco
Media Sales Associates
William W. Hague (415) 345-0522
Richard Ayer

Stamford
777 Long Ridge Road
Stamford, Connecticut 06902
Louis F. Kutscher, (203) 968-7113
Frank Rose, (203) 968-7112

e President Market
Development
leral Government
l R. D'Armiento
0 K Street NW
te 1170
shington, D.C. 20006
2) 463-1725

Cost Information Systems
McGraw-Hill Information Systems Co.
Percival E. Pereira
P.O. Box 28
Princeton, N.J. 08540
Toll Free 800/527-5295
N.J. (609) 426-7300

erseas Offices

nkfurt/Main
igstraBe 19
nkfurt/Main, Germany

ffield
West St.
field S14ES, England

n
Baracchini No. 1
n, Italy

s
Faubourg St-Honoré
8 Paris, France

Tokyo
2-5, 3-chrome
Kasumigaseki, Chiyoda-ku
Tokyo, Japan

South America
Empresa Internacional de Comunicacoes Ltda.
Rua da Consolacao, 222
Conjunto 103
01302 Sao Paulo, S.P. Brasil

BLAZING DAYS SNOWY NIGHTS.

When Arrowhead at Vail's resort complex needed a clubhouse roof that could stand up to the mercurial Colorado weather—as well as serve as a project landmark—they chose a system that would catch the eye as well as face the elements. A custom-designed, metal batten roofing system from Overly.

The gleaming copper roof proved to be the right compliment—to world-class skiing, to the Jack Nicklaus-designed golf course, to the soaring mountains. Best of all, its design withstands the weather—from scorching sunlight to sub-zero temperatures.

So for virtually any roofing design—domes, barrels, and pitched, new or retrofit—specify Overly metal batten roofing systems. They're custom-engineered in aluminum, copper, and stainless steel, and come with a 30-year warranty. They'll carry the load despite sun or snow, because Overly roofing systems provide free expansion in all horizontal and vertical joints without use of caulking or sealants of any kind.

Call or write for our latest roofing catalog, monograph, and guide specification. They'll tell you the rest of the Overly story.

overly
MANUFACTURING CO.

(East)
P.O. Box 70
Greensburg, PA 15601
(412) 834-7300
TWX 510-468-0539
FAX (412) 834-8221

(West)
P.O. Box 947
Fallbrook, CA 92028
(619) 723-1105
FAX (619) 728-7512

Circle 105 on inquiry card

1

2


3

Six major reasons to specify Sloan...

the first time.

At first glance, it's difficult to imagine how these six different buildings are related. But if you take a closer look at their histories, you'll find they all share a common theme: the washrooms in all six buildings have been refitted with Sloan flushometers.

True, these buildings don't look old enough to need major plumbing repairs. But the fact is, the original flushometers that were installed just didn't hold up. Even after repeated servicing, they continued to malfunction. They didn't shut off properly. They leaked at the stops. In some cases, they even flooded the washrooms. In short, they weren't Sloan flushometers.

Unlike substitutes, Sloan flushometers offer proven, reliable service. With built-in quality at an affordable price. That's why today more buildings are equipped with Sloan flushometers than with any other brand.

Only Sloan's rugged, tamper-proof design can assure the quiet, dependable operation so critical in buildings like these. Plus, Sloan flushometers are built to last for years with only minimal, routine maintenance—an important consideration for specifiers who value time and money.

The next time you consider specifying a substitute, think about these six buildings. Then specify Sloan. The first time.


4


5


6

1. Psychiatric Center of Michigan Hospital, New Baltimore, MI **2.** YMCA of Raleigh, NC
3. Barnett Bank, Tampa, FL **4.** S.E. Louisiana University School of Nursing, Baton Rouge, LA
5. Southwest Financial Plaza, Phoenix, AZ **6.** North Central High School, Spokane, WA

SLOAN VALVE COMPANY
10500 Seymour Avenue, Franklin Park, IL 60131
A Tradition of Quality and Pride

Circle 106 on inquiry card

ARCHITECTURAL RECORD

Business Design Engineering
A McGraw-Hill Publication, Seven Dollars
Record Interiors, Mid-September 1988

CUSTOM FABRIC WALLS

Choose any fabric (Donghia fabric shown). Also specify panel shape, edge detail, tackability, and level of acoustical control. For our brochure, call 1 800 233-3823 and ask for Custom Walls.