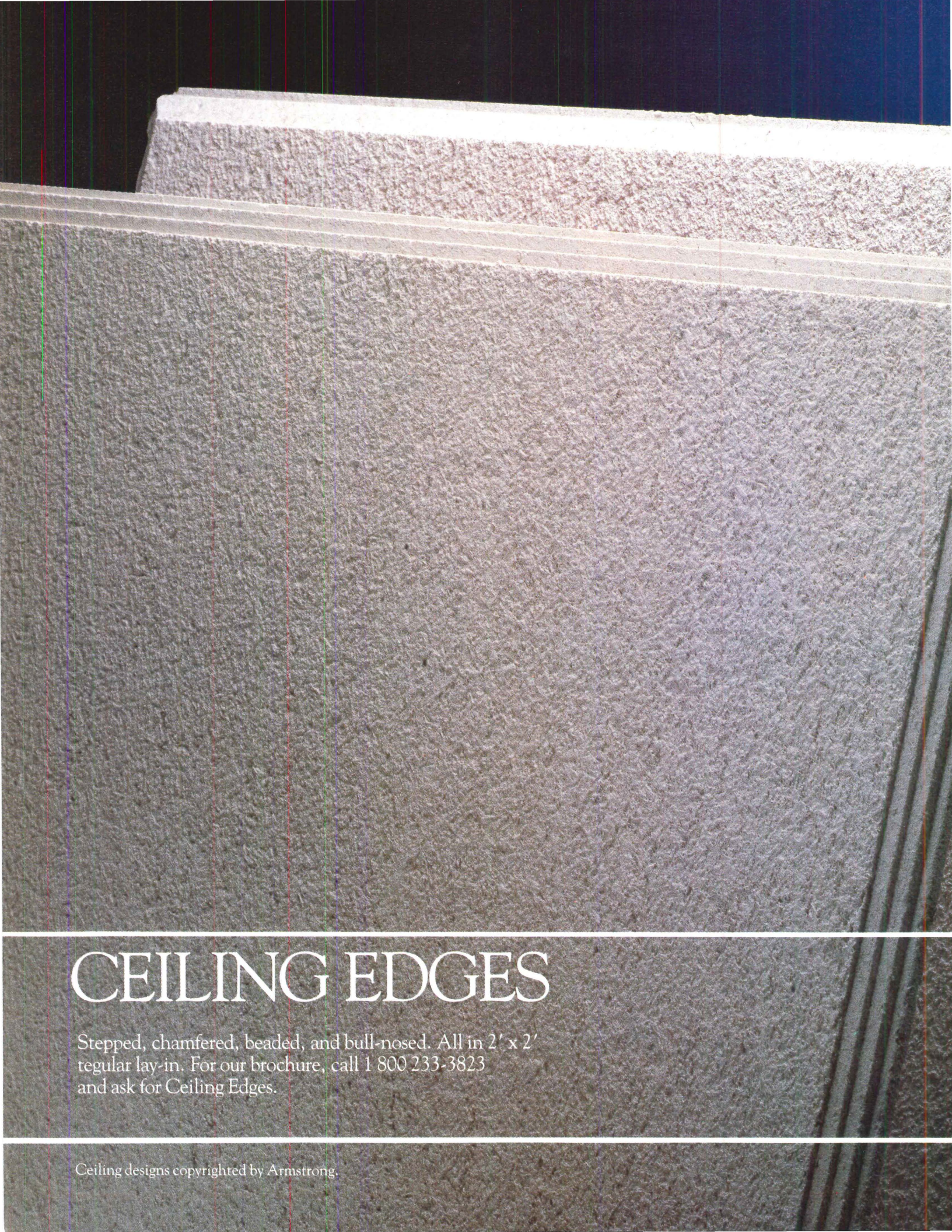
ARCHITECTURAL RECORD

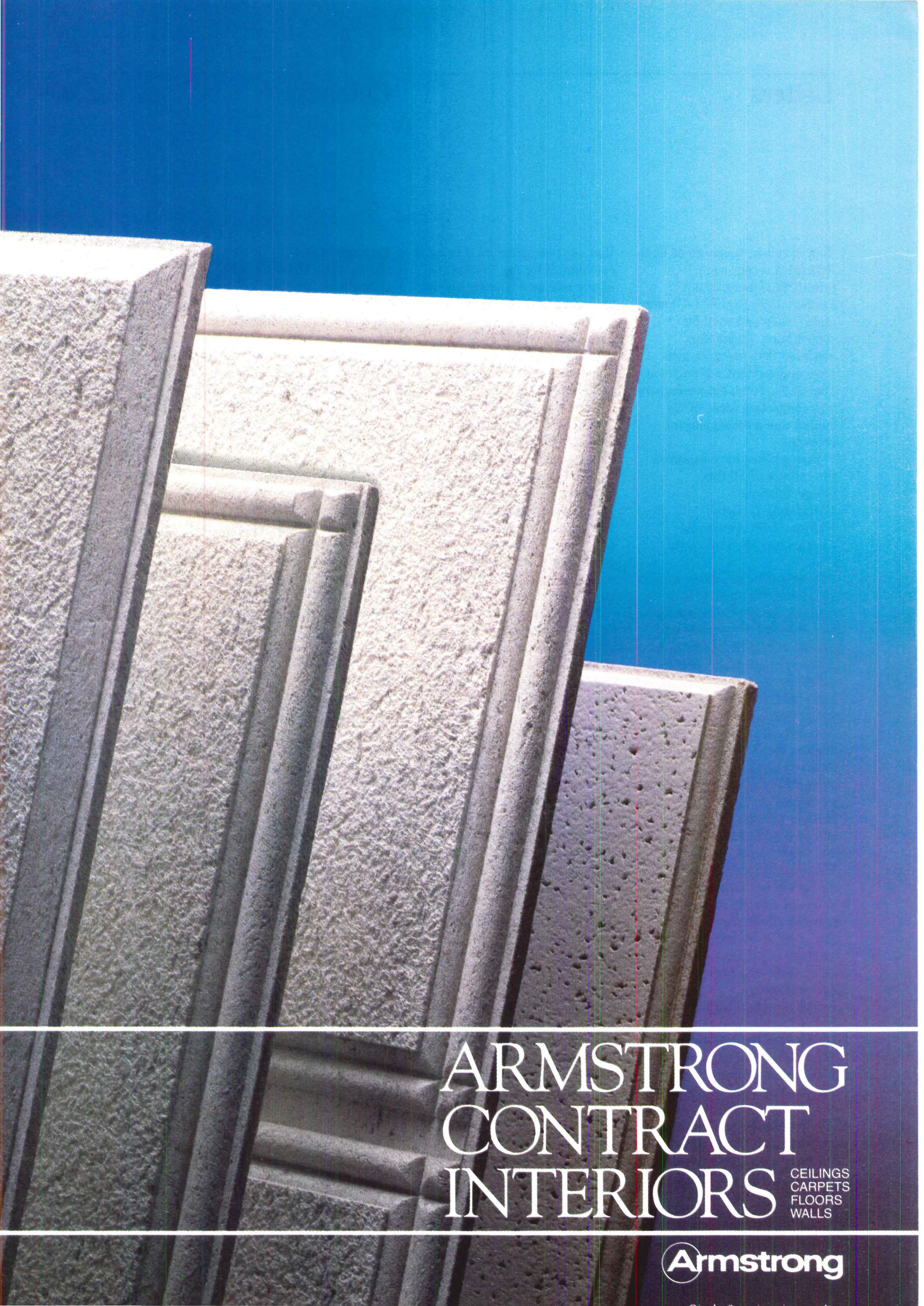
Business Design Engineering
A McGraw-Hill Publication, Seven Dollars
April 1989



CEILING EDGES

Stepped, chamfered, beaded, and bull-nosed. All in 2′ x 2′ tegular lay-in. For our brochure, call 1 800 233-3823 and ask for Ceiling Edges.

Ceiling designs copyrighted by Armstrong.



ARMSTRONG CONTRACT INTERIORS

CEILINGS
CARPETS
FLOORS
WALLS

Armstrong

Letters

Your excellent coverage of Paul Rudolph's recent work [ARCHITECTURAL RECORD, January 1989, pages 74-85] was a most timely and valuable contribution. I have also observed that few architects have realized that not only was Paul still around, but perhaps he was completing some of his largest and most significant projects.

Your articles have captured the essence of all this. Congratulations.

William M. C. Lam
William Lam Associates
Cambridge, Massachusetts

The difficulties of editing a mass of information down to a readable article are enormous. Unfortunately, the condensed version of my "Booming L. A.: brave new urbanism" [RECORD, February 1989, pages 71, 73] left a few mistaken impressions. I would like to make it clear that I do not think that any of the finalists for the Los Angeles Gateway Competition successfully addressed the urban guidelines of the program. The winning scheme fails notably to extend beyond imitative forms and false monumentality. Moreover, the destiny of downtown Los Angeles appears to be not a happy marriage between *Blade Runner* and Jane Jacobs, but rather a surreal montage of urban visions called up by these two names.

Aaron Betsky
Santa Monica, California

Your November editorial on "Serving the larger public" and Paul Sachner's essay "Heroes in our own backyard" struck some familiar chords with us, since we have just completed the first cycle of our Housing Awards Program. Your two articles expose some of the thinking behind your program, and we have labored through a similar process in developing ours.

It should be said at the outset that our perception of housing is conditioned by the "publicness" of our role as a housing agency. This unavoidable bias led us gradually to a shift in our perspective—from seeing housing as a physical object to understanding housing as a social objective.

From this perspective, we saw the housing object as an intrinsically historic manifestation that reflects transitory perceptions of value as found in style, materials, space configuration, decor, etc. By contrast, we perceived the housing objective as a permanent driving force often embraced as a societal ideal (or even a moral imperative).

Following that thread, we came to realize that the attributes of the housing object, in addition to being influenced by transient trends, will also vary with income, status, and designer.

Against this fluidity of formal ideas and the convulsions of styles, we perceived the criteria for meeting the housing objective as *access, adequacy,* and *affordability.* Since these are constant and clearly definable, we adopted them as our primary criteria.

Panis Grammeros
Research Division
Canada Mortgage and Housing Corporation
Ottawa

Correction

James Murrary Howard, Architect for the Historic Buildings and Grounds of the Jeffersonian Restoration Advisory Board, writes to say that the material used to reroof Thomas Jefferson's buildings at the University of Virginia is not aluminum as reported in RECORD's article (February 1989, pages 124-127). Rather the material "should instead be termed stainless steel," as shown in the drawing on page 126.

Calendar

Through May 1
Photographs of Irving Gill's architecture, by Marvin Rand; at the Modern Living gallery, 4063 Redwood Ave., Los Angeles.

Through July 16
"L'Art de Vivre: Decorative Arts and Design in France, 1789-1989," a major exhibit honoring the bicentennial of the French Revolution; at the Cooper-Hewitt Museum, New York City.

April 1 through May 27
"Alternative Visions: Chicago," an exhibition of Chicago's new generation of architects; at the Chicago Public Library Cultural Center.

April 26-29
Fourth annual convention, National Wood Flooring Association; in Dallas. For information: National Wood Flooring Association, St. Louis, Mo. 63122 (800/422-4556).

May 5-8
121st annual convention, American Institute of Architects; in St. Louis. For information: John C. Gaillard, 1735 New York Ave., N. W., Washington, D. C. 20006 (202/626-7937).

May 10-12
The International Advanced Illumination Exposition & Conference; at the Los Angeles Convention Center. For information: Jacqueline Illonardo, National Exposition Company, 15 W. 39th St., New York, N. Y. 10018 (212/391-9111).

May 13-20
"Minds for History," a conference organized by Paolo Soleri; at Arcosanti, Cordes Junction, Mayer, Ariz. For information: Caroline Goldsmith, Arts & Communications Counsel, Ruder Finn & Rotman, 301 E. 57th St., New York, N. Y. 10022 (212/593-6400).

May 18-21
1989 National Conference, International Furnishings and Design Association; in Dallas. For information: Kathleen Frederick, IFDA, 107 World Trade Center, P. O. Box 58045, Dallas, Tex. 75258 (214/747-2406).

ARCHITECTURAL RECORD (Combined w AMERICAN ARCHITECT, and WESTERN ARCHITECT AND ENGINEER) (ISSN0003 April 1989, Vol. 177, No. 4. Title® reg. in U.S Patent Office, copyright © 1989 by McGraw- Inc. All rights reserved. Indexed in Reader's to Periodical Literature, Art Index, Applied S and Technology Index, Engineering Index, T Architectural Index and the Architectural Periodicals Index.

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

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

Officers of McGraw-Hill Information Servi Company: President: Walter D. Serwatka. S Vice President: Robert D. Daleo, Finance; V President-Circulation: George R. Elsinger. Executive Vice Presidents: Russell C. White Construction Market Focus Group; Kenneth Gazzola, Aerospace and Defense Market Foc Group; Brian H. Hall, Legal and Accounting Market Focus Group; Ira Herenstein, Compu and Communications Market Focus Group; P. P. McGraw, Healthcare Market Focus Group President-Group Publisher, Construction Magazines: Ted R. Meredith.

Officers of McGraw-Hill, Inc.: Chairman, President and Chief Executive Officer: Josep Dionne. Executive Vice President, Office of t Chairman: Richard B. Miller. Executive Vice President, General Counsel and Secretary: R Landes. Senior Vice President, Treasury Operations: Frank D. Penglase; Senior Vice President, Editorial: Ralph R. Schulz.

*Associated Services/*McGraw-Hill Informati Services Co.: Sweet's Catalog Files (General Building, Engineering, Industrial Constructi Renovation, Light Residential Construction, Interiors), Dodge Building Cost Services, Do Reports and Bulletins, Dodge/SCAN Microfi Systems, Dodge Management Control Servic Dodge Construction Statistics, Dodge region construction newspapers (Chicago, Denver, Angeles, San Francisco).

Subscription rates for personnel of Architec Engineering, Interior Design, Design and ot directly related firms and students thereof, follows: U.S. and U.S. Possessions and Cana $42.50; Europe: $150.00 (incl Air); Japan: $16 (incl Air); all other Foreign: $125.00. Single c price for Domestic and Canadian: $7.00; For Foreign: $10.00. For Subscriber Services (U. only): 1-800-525-5003; (Canada & Foreign): 609/426-7070.

Change of Address: Forward changes of ad or service letters to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 566 Hightstown, NJ 08520. Provide both old and address; include zip code; if possible attach address label.

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

Copyright and Reprinting. Title® reg. in Patent Office. Copyright © 1989 by McGraw Inc. All rights reserved. Where necessary, permission is granted by the copyright owne libraries and others registered with the Cop Clearance Center (CCC) to photocopy any ar herein for the base fee of $1.50 per copy of 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 permi must be secured for any other copying. Writ Reprint Manager for such permission at ad below, or to obtain quotations on bulk order

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

Publication Office: 1221 Avenue of the Am 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 offices Postage paid at Windsor, Ontario, Canada. Registration Number 9617.

Postmaster: Please send address changes t Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 566, Hightstown, NJ 08 THIS ISSUE is published in national and se editions. Additional pages or separate editio numbered or allowed for as follows:
Eastern Section 32Ea through 32Ed.
Western Section 32Wa through 32Wd.
Sunbelt Section 32Sa through 32Sb.

Pedigrid/Pedimat®: unparalleled elegance, design flexibility and performance.

NEW CARPET COLORS.
25 in all—and they're sensational.

OPTIONAL LOGOS AND CUSTOM GRAPHICS.
Through a unique and exclusive process, your mat can be permanently personalized with graphics which cannot wear off.

IMPROVED WEARABILITY AND STAIN RESISTANCE.
Increased density, pile height and the addition of a stain repellant just made our splice-free Antron III® carpet even better!

DESIGN FLEXIBILITY AND SAFETY.
Pedigrid/Pedimat can be fabricated to virtually any size or shape. They're also engineered for safety and trouble-free performance.

For design assistance and colorful new literature, call toll free 1-800-233-8493.

THE C/S GROUP
Muncy, PA • San Marcos, CA
Mississauga, Ont.

Circle 3 on inquiry card

S P A C E S A V E R

FIRST CHOICE IN HEALTH CARE.*

Spacesaver mobile storage systems can double your capacity—or compact current volume into half the space.

That's what Spacesaver high-density filing/storage systems are doing already—in thousands of health care installations.

Customized systems meet the varied needs of virtually every department.

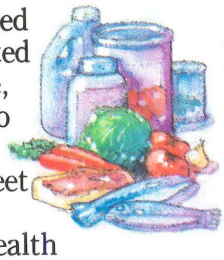
PATHOLOGY

"The mobilized system really cuts time locating reference tissue samples...we accomplish a lot more daily lab work."

Supply/specimen storage systems, integrated into the lab layout, preserve or even *expand* work area—while saving steps and boosting staff productivity.

Easy access and improved organization with Spacesaver makes the increased capacity for slides, paraffin blocks, surgical specimens, chemicals —you name it—even more of a "plus."

FOOD STORAGE



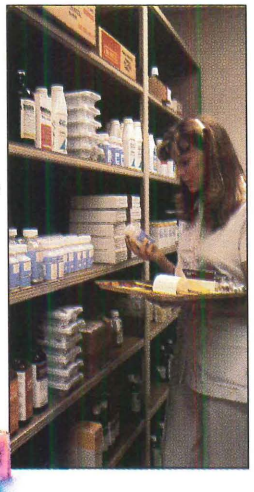
Systems tailored to fit strictly limited cold storage space, pack the most into every square foot...and also meet the specifications for health regulations.

Likewise in ambient areas, custom units accommodate the full gamut of food stores. Even when stacked with cans, heavy-duty shelving is readily moved, providing easy access.

PHARMACY

Capacity to handle Unit Dose Packaging, plus flexibility for a host of diverse drugs and supplies—that's Spacesaver.

"The system not only accommodates all of our current pharmaceuticals, but we have a third of each shelf left for new supplies."



Systems allow quick, easy staff access for ongoing patient needs...and smoothly accommodate multiple daily deliveries. They also can provide complete security.

Exclusive Nationwide Local Area Contractor Network.

And only Spacesaver comes to you via a coast-to-coast network of Area Contractors. For local installation and service...with specialists experienced in health care challenges.

See how their Spacesaver systems can help you save space—and a lot more.

Spacesaver
When Performance Counts.

*National survey by American Hospital Publishing Inc., shows that Spacesaver accounts for over 50% of all High-Density Mobile Filing and Storage Systems in U.S. Health Care Facilities. Details available.

For more information, circle these Inquiry Card numbers:

Spacesaver Systems for...						
	Pharmaceuticals	4	*Bulk Storage*	7	*EKG Files*	10
	Food Storage	5	*Administration*	8	*Medical Records*	11
	Pathology	6	*Radiology*	9	*Medical Libraries*	12

The Spacesaver Group
1450 Janesville Ave.
Ft. Atkinson, WI 53538
1-800-492-3434
In Wisconsin, call 414-563-5546

or
red F. Schmertz, FAIA

aging editor
lyn De Witt Koenig

utive editors
M. Sachner
rah K. Dietsch

or-at-large
ert L. Smith, Jr., FAIA

or editors
e M. Anderson
garet F. Gaskie
les K. Hoyt, AIA
n D. Stein

ciate editors
es S. Russell, AIA
F. Blatterman

gn director
rto Bucchianeri
a Egger-Schlesinger, senior associate
iel Cuttrell, illustration
yck Fledderus, illustration

gn consultant
simo Vignelli

orial production manager
ette K. Netburn

orial consultants
rge A. Christie, Jr.
en S. Ross

ip circulation director
ard H. Di Vecchio

ulation manager
llis Josselsohn

ctor of business
production
ph R. Wunk

ctor of marketing
ille H. Padula

stant to publisher
abeth Hayman

ociate publisher
coe C. Smith III

lisher
R. Meredith

uiries and submissions of work for
lication may be addressed to any
or, though the editors listed below
e a special responsibility for the
ject areas named:

orah K. Dietsch, houses
en D. Stein, interior design
ce M. Anderson, design news and
mpetitions
rles K. Hoyt, business
n F. Blatterman, new products and
roduct literature

Letters/calendar, 4
Editorial: Plus to minus: the construction downturn, 9

Business

News, 21
Construction economy update: A kind and gentle letdown in 1988 leads to the seeds of a possible turnaround in 1990, by George A. Christie, 25
Legal perspectives: When liability insurance can cover your construction-cost estimate problems, by Arthur Kornblut, 31

Design

News, 37
Design awards/competitions, 46
Observations/books, 49

In this issue, 65

Portfolio by Franklin D. Israel Design Associates, 66

Anderson Ranch Arts Center, Aspen, 74
Harry Teague, Architect

Building Types Study 664: Hospitals
Ambulatory Services Building,
Brigham and Women's Hospital, Boston, 79
Kaplan/McLaughlin/Diaz, Tsoi/Kobus and Associates, Associated Architects
Cumberland Neighborhood Family Care Center, Brooklyn, 84
Michael Fieldman & Partners, Architects
Merle Norman Pavilion, Santa Monica Medical Center, 86
Bobrow/Thomas and Associates, Architects

Three projects by Ellerbe Becket/New York, Architects, 90

Alaska Center for the Performing Arts, Anchorage, 96
Hardy Holzman Pfeiffer Associates, Architects
Livingston Slone, Inc., Associated Architects

Engineering

Acoustics at Anchorage, 106
By Mark Holden, Jaffe Acoustics, Inc.
New products: Laminated glass, 116

Computers: Practice, 133
Roundtable tackles the difficult issues, Part II
Computers: Technology, 139
Software reviews for architects, by Steven S. Ross

New products, Lighting, **119**
Product literature, **125**
Manufacturer sources, **154**
Classified advertising, **146**
Advertising index, **160**
Reader service card, **163**

Cover:
Lamy/Newton residence, Los Angeles
Franklin D. Israel Design Associates
Photographer: ©Grant Mudford

Contents

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 13 on inquiry card

Plus to minus: the construction downturn

On page 25 begins McGraw-Hill vice president and chief economist George A. Christie's first update of the 1989 Dodge/Sweet's Construction Outlook. He hasn't been able to find much to cheer us. Everyone knows that offices, apartments, and hotels are overbuilt, markets having peaked for the first two categories in 1985, and for the latter in 1986. But will this market turn upward this year? No, says Christie, it has not reached bottom yet. We mustn't expect a turnaround in these building types until 1991.

What about industrial construction, retail building, public-works construction, and institutional building? All down, reports Christie, but just a little. Public-works construction will resume if and when state and local governments shoulder more of the costs and federal deficit reduction becomes less of a priority.

Hope lies, according to Christie, in the demographics of the past decade. The good news merits a direct quote: "The fastest-growing segment of the population is the 30 to 50 age cohort, putting the 60-million strong '50s Generation squarely in the market for homes. The next most important growth of the population is taking place at the extremes—under 15 and over 65. One group needs schools; the other, health-care facilities."

Homes, schools, and health-care facilities. Will the population that needs them, get them? As of now the housing market is expected to sag temporarily, until the Fed reverses its anti-inflation strategies. School and health-care-facilities construction is also directly affected by credit availability. Christie warns that a restrictive monetary policy may bring about the recession that nobody wants. If interest rates decrease, however, because loan demands subside, or because the Fed allows them to fall, there will be a surge in housing demand, and the commercial and institutional construction that goes with it. Christie predicts that 1990 is the year it will all begin to happen. May it be sooner.

Mildred F. Schmertz

COLORFUSION.™

AllianceWall's ceramic-on-steel surfaces.

High style. High-tech. Inside and out.

DURABILITY

Among the toughest surfaces available today. COLORFUSION surfaces will never scratch, fade, erode, stain, chip, or crack.

Extremely easy to maintain and clean.

IMPERVIOUS

Nonporous surface not affected by heat, cold, water, acid, acid rain, dirt, smog, graffiti, abrasives, cleaning agents. The surfaces are fire rated.

FINISHES

Available in any color, any graphic on matte, semi-gloss or textured finish. The only continuous porcelain coil process in the USA insuring total color/finish consistency.

EXTERIORS

High rise buildings, retail stores, food service, hospitals, schools, hotels, industrial, rail cars, etc.

Contrasts beautifully with other materials.

Complete installation systems available.

INTERIORS

Ideal for public areas, clean rooms, labs, rest rooms, plants, schools, hospitals, elevators, tunnels, rail cars, etc.

Write or call for more information on American-made COLORFUSION™ panels.

ALLIANCEWALL®

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

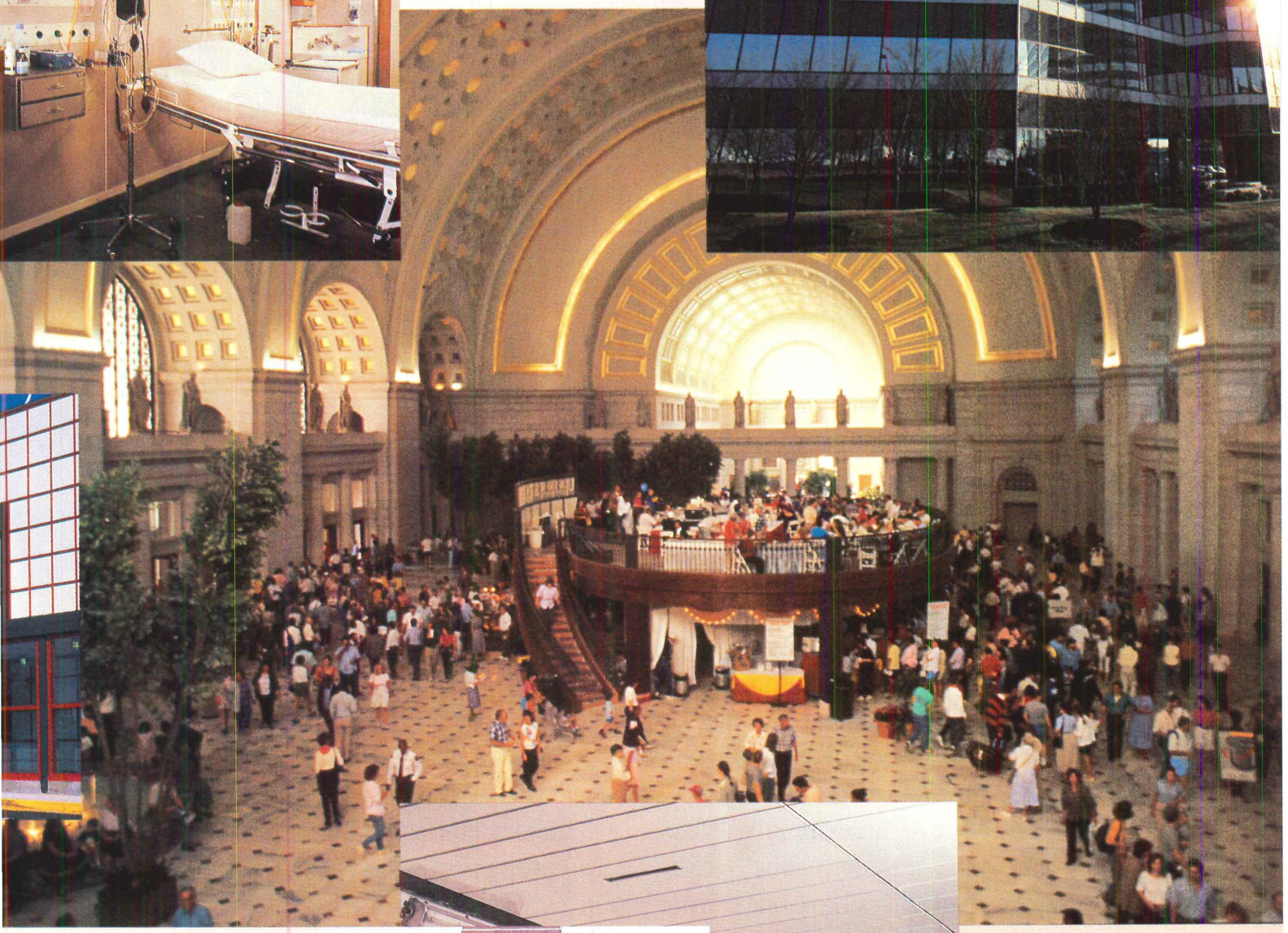
Circle 14 on inquiry card

Big Star
COLORFUSION panels, spe
because they have a clea
ance, are easily cleaned
proof. The panels functi
all weather extremes. Fa
colors and graphics.

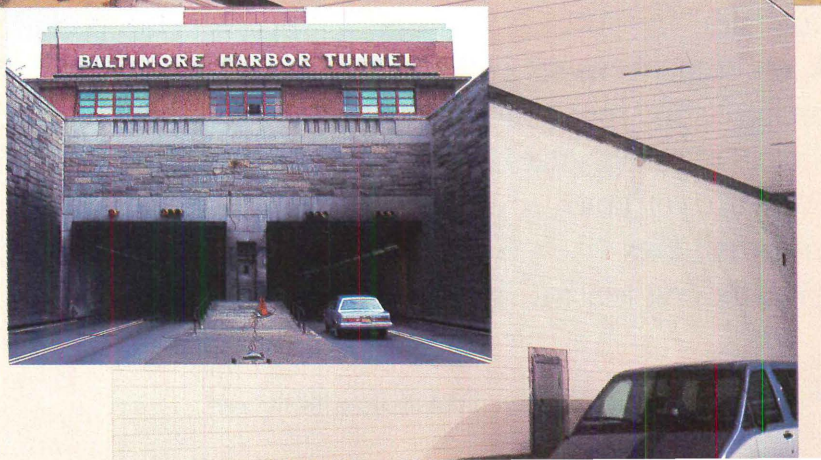
The University Hospital, *Liege, Belgium*
COLORFUSION panels, specified because their non-porous surface is easy to clean and virtually bacteria free. They are also impervious to acids and chemicals. The bright, clean, contemporary colors and textures of the panels provide a pleasant ambiance.

Paragon Building, *Houston, Texas.*
COLORFUSION panels, specified as part of a complete curtain wall system. The non-progressive system makes them easy to install and access. Panels are available in contemporary colors and textures. And in any graphic desired.

Union Station, *Washington*, D.C.
COLORFUSION panels, specified for high-traffic, public areas because they are easy to clean and graffiti-proof. Sleek surfaces give a high-tech look.



Baltimore Harbor Tunnel
COLORFUSION panels, specified because they are easy to install and maintain. They are easy to clean and are graffiti-proof. AllianceWall designed this proprietary easy-access, non-progressive installation system. The system was cost competitive.



Meet the Only Answering Machine You'll Swear By, Not At.

Dave Mahowald.

When you call us for technical coating expertise and specifying information, you'll be glad Dave Mahowald answers your call.

He's a member of the Sherwin-Williams Paint DataBank® team of coating systems experts. And that makes Dave one of your best "answering machines."

Every week, our team of experts gives hundreds of architects and spec writers answers to all types of coatings questions. Answers that can save you time and prevent costly mistakes.

Like telling you the best way to prepare various substrates, from concrete block to copper and galvanized metal. Or when to use a primer. And when not to. Ask us about application techniques, resistance properties or colors for pipe coding and safety markings. Even the minimum dry film thickness for specific applications.

When you need answers in a hurry, call our toll-free Paint DataBank: 1-800-321-8194, in Ohio 1-800-362-0903, from 8:30 a.m. – 5 p.m. EST, Monday-Friday. No canned messages. Just candid advice from the experts.

SHERWIN WILLIAMS®

Circle 15 on inquiry card

Genius is 1% inspiration and 99% perspiration.

But you can change the formula.

A Macintosh® personal computer is one of the most powerful advocates your bright ideas can have.

As millions of business people have already discovered, Macintosh quickly converts flashes of inspiration into blazes of glory — without oceans of sweat.

Now, Macintosh is making things better for people who make better things.

With innovative new software like *Claris CAD* that allows designers, engineers and architects who've never used a computer to see their ideas rise on a Macintosh with just a few minutes of training.

Macintosh makes sophisticated design programs like *VersaCAD* accessible to people who have a p for excellence — but an aversion to wasting thei learning complex computer commands.

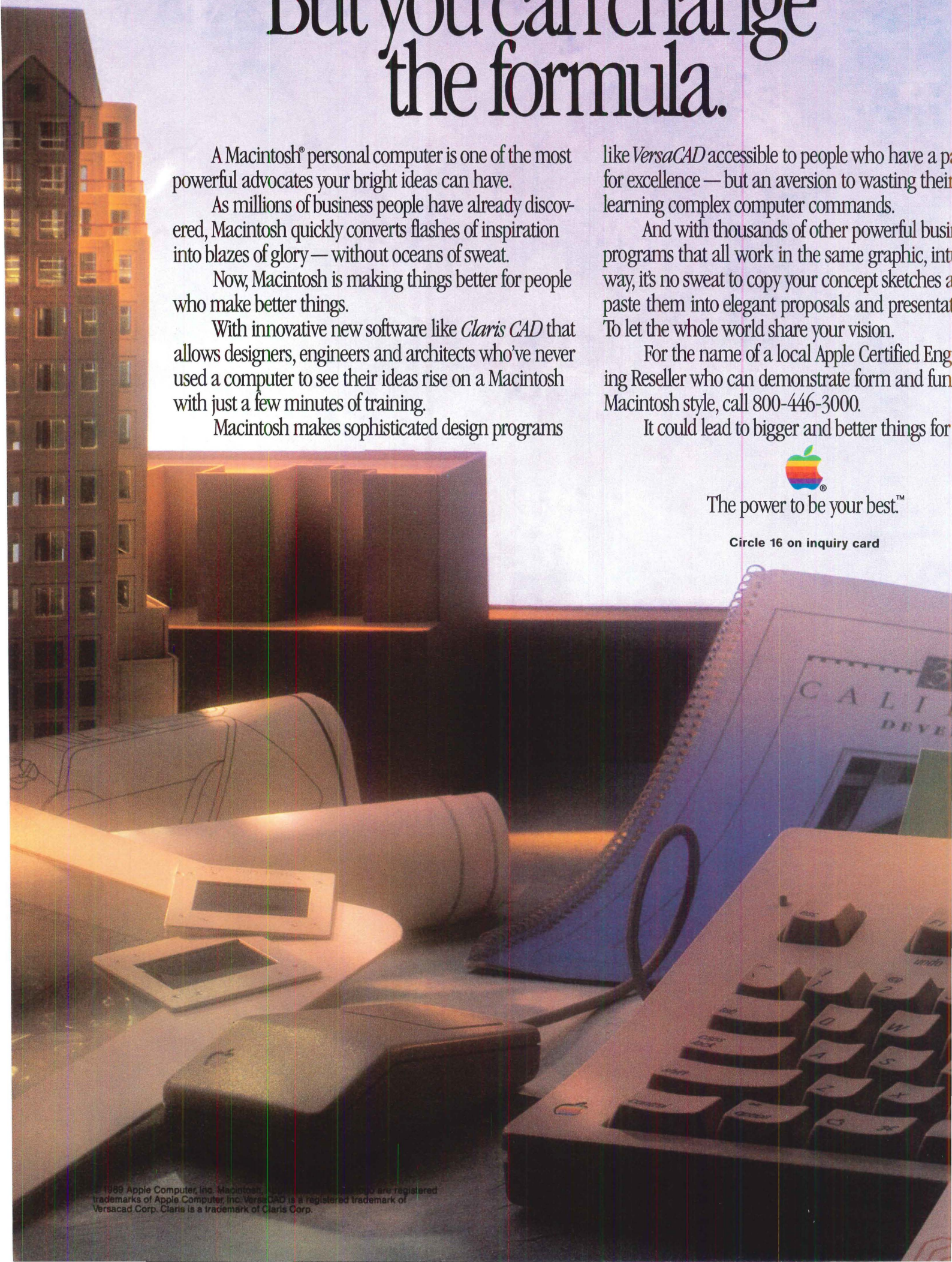
And with thousands of other powerful busi programs that all work in the same graphic, int way, it's no sweat to copy your concept sketches a paste them into elegant proposals and presenta To let the whole world share your vision.

For the name of a local Apple Certified Eng ing Reseller who can demonstrate form and fun Macintosh style, call 800-446-3000.

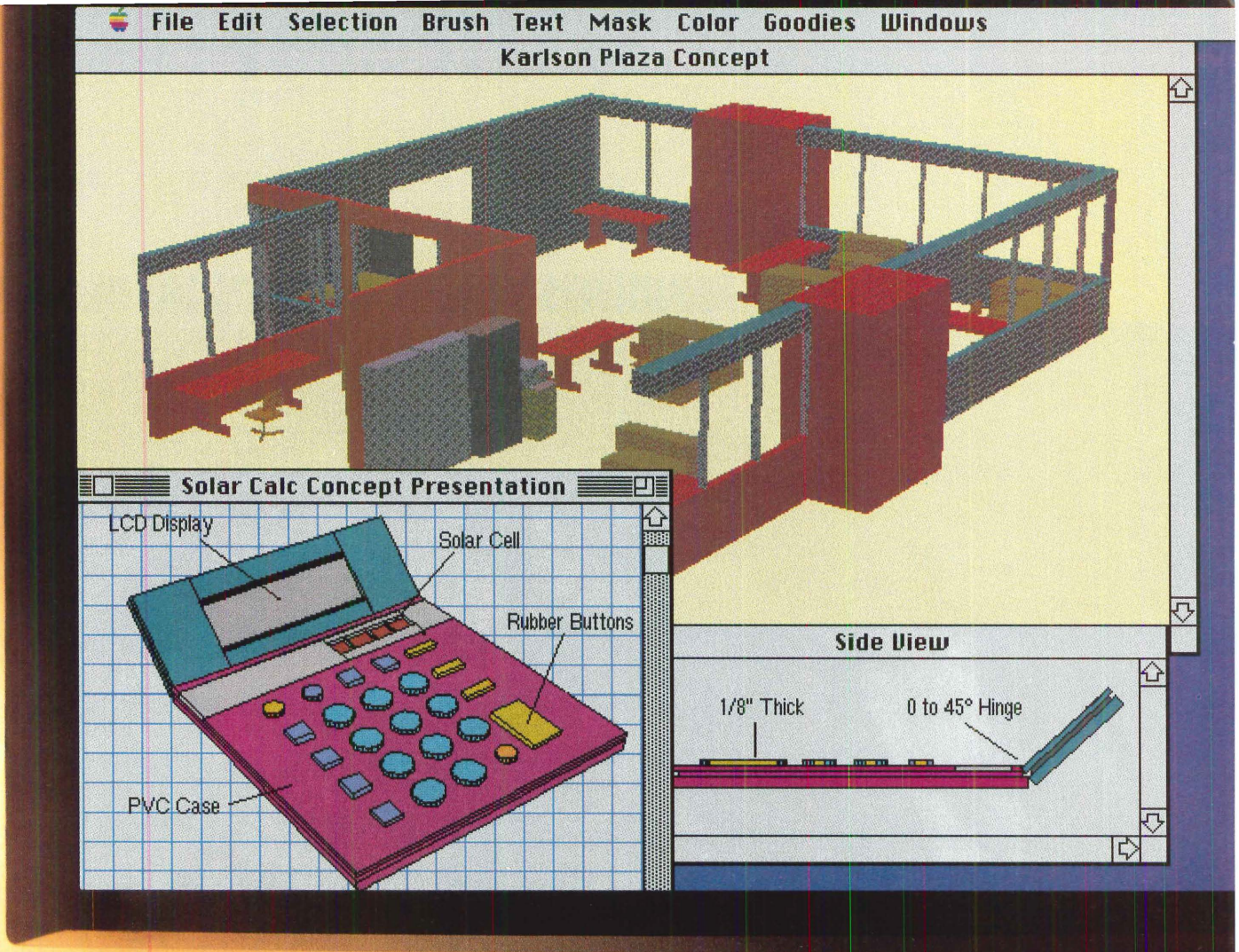
It could lead to bigger and better things for

The power to be your best.™

Circle 16 on inquiry card



© 1989 Apple Computer, Inc. Macintosh ... are registered trademarks of Apple Computer, Inc. VersaCAD is a registered trademark of Versacad Corp. Claris is a trademark of Claris Corp.



Macintosh IIx

T PROPOSAL

WE MAKE WINDOWS WHERE MONEY'S NO OBJECT.

AND WHERE MONEY'S PRECISELY THE POINT.

Over the years, we here at Marvin have built something of a reputation for ourselves. We've become the company to call when the plans call for a dazzling, one-of-a-kind masterpiece.

But there's another side to Marvin. A more practical, down-to-earth side. In addition to difficult, one-of-a-kind windows, we make the industry's broadest and most versatile line of standard shapes and sizes.

As a result, you can probably maintain the basic integrity of your design at practically any budget level.

You see, we make windows to order. Which means you can specify the features you want us to build in. And you can specify the features you want us to leave out.

For more information call 1-800-346-5128 (in Minnesota, 1-800-552-1167; in Canada, 1-800-263-6161) or write, Marvin Windows, Warroad, MN 56763.

Sometimes money's no object. Sometimes money's precisely the point. Which is precisely why Marvin Windows are always a smart choice.

MARVIN WINDOWS ARE MADE TO ORDER.

Circle 17 on inquiry card

Sunbrella Firesis
Designers' Bigg

akes Care Of
t Hang-Ups.

Finding fabrics for awnings and other fabricated items hasn't been easy. Because any materials that have met commercial fire codes have been stiff, shiny and even plastic looking.

But with Sunbrella Firesist, you can have the look and feel of canvas you've wanted. Because our fabric hasn't been coated with chemicals or laminated with glossy resins. And it isn't made out of vinyl, either. Instead, it's actually woven from self-extinguishing fibers. What's more, these fibers are made of color-pigmented modacrylic. Which means they provide rich, saturated hues. Hues that are locked in so they can't be faded or washed out.

Even better, Sunbrella Firesist won't crack, peel, harden, mildew or rot. And it's highly soil resistant, too. In fact, we're so sure it'll live up to these promises, it comes with a 5-year limited warranty. And it has yet another advantage: It's highly breathable, making it very energy efficient.

Of course, Sunbrella Firesist also meets the toughest codes like the requirements of the National Fire Protection Association and the California Fire Marshal's test. Which means you can put it up just about anywhere.

Glen Raven

SEF® PLUS
Modacrylic Fiber by Monsanto

So find out about our wide selection of solids and patterns. Contact your local fabricator or Glen Raven Mills, Inc., Glen Raven, NC 27215, 919/227-6211.

Sunbrella Firesist®

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

Circle 18 on inquiry card

When your substrate says DUROCK® you're stopping water deterioration with our secret ingredient . . .

Portland Cement.

The fact of the matter is that unless your caulk, grout and mortar are installed perfectly, water seepage is inevitable. And water seepage sooner or later ruins even water-resistant gypsum board—while portland cement-based DUROCK® Interior Tile Backer Board stands up to even thorough water immersion indefinitely.
The common denominator in both DUROCK Tile Backer Board and concrete is Portland Cement.

Once And For All—An Unbeatable Board, A Complete System

Of course we could tell you about all the fire, sound and water tests we've passed, about how easy DUROCK Board is to install. How it lends its strength not only to tiled bath areas, but also to floors and countertops. And how we've got your complete needs covered through our tile-setting system, which includes DUROCK Type P Glass Fiber Tape, DUROCK Latex Fortified Mortar, DUROCK Type I Ceramic Tile Mastic and anti-corrosive DUROCK Screws.

But when it comes to building quality into your work as well as your reputation, DUROCK is all you really need to remember.

DUROCK. It's quality the way it used to be. Quality the way it's always been at United States Gypsum Company. So cement your relationship with the only real choice for wet areas. Write to **United States Gypsum Company** or **Durabond Professional Products,** DAP Inc., 101 South Wacker Drive, Chicago, IL 60606-4385, Dept. AR489

USG

United States Gypsum Company

Copyright, 1989 United States Gypsum Company

Circle 19 on inquiry card

Get ready to see the latest in computer technology

t is time once again to register or the largest annual computer how and conference geared to rchitects and engineers. A/E/C ystems '89 will open in the naheim Convention Center on une 5 and run through June 8. ome 500 exhibitors will show hat the past year of evelopment will be bringing us. Technology neighborhoods" (or roups) of related systems will e hosted by major suppliers, eature third-party applications, nd focus on functions geared to pecific needs.

"The cluster concept ncourages the development of ntegrated applications," says eorge Borkovich, one of the how's co-principals. "Architects, ngineers, contractors, and acility managers can unite hrough common technology that llows them to share data." Says Iichael Hough, the other rincipal: "Exclusivity and olation are out."

Conferences will be conducted

Conferences on subjects ranging from making systems work to making them pay promise to be well attended at the early June A/E/C Systems show—as they were last year.

by some 200 speakers (including RECORD consultant Steven Ross) and will cover such diverse subjects as *CAD applications that make good business sense, Integrating CAD and specifications, Advanced animation techniques,* and *Advanced concepts for customizing CAD,* this last conducted by architect Ken Sanders (Roundtable, page 133).

"Every year we survey the construction industry to identify the topics of most interest," says Borkovich. "Equally important to the quality of the program is what we do *not* present—such as circuit lecturers' canned topics nor sales-type presentations."

For information, contact A/E/C Systems '89, P. O. Box 11318, Newington, Conn., 06111 (800/527-7943). *C. K. H.*

Design-firm salaries estimated to go up 6 percent in '89

A survey conducted by the Financial Managers' Group, an association of financial managers in the design profession, indicates that design-firm salaries on a national basis should increase 6 percent on average. This increase would top last year's 5.8 percent, but it would not be across the board. Interior designers and landscape architects should get the best raises (8.3 and 7.5 percent, respectively), while architectural and engineering firms should fare the worst (4.9 percent). Similarly, regional and firm-size variations are predicted, with New England taking the regional lead at 7 percent for all design professions, and the smallest firms of all types (below 10 people) getting 8.2 percent increases on average—catching up after a period of notoriously low salaries. A copy of the survey is available for $75 from FMG, P. O. Box 18918, Oklahoma City, Okla., 73118.

Congress's initiatives seen as threats to small architectural firms and the costs of construction

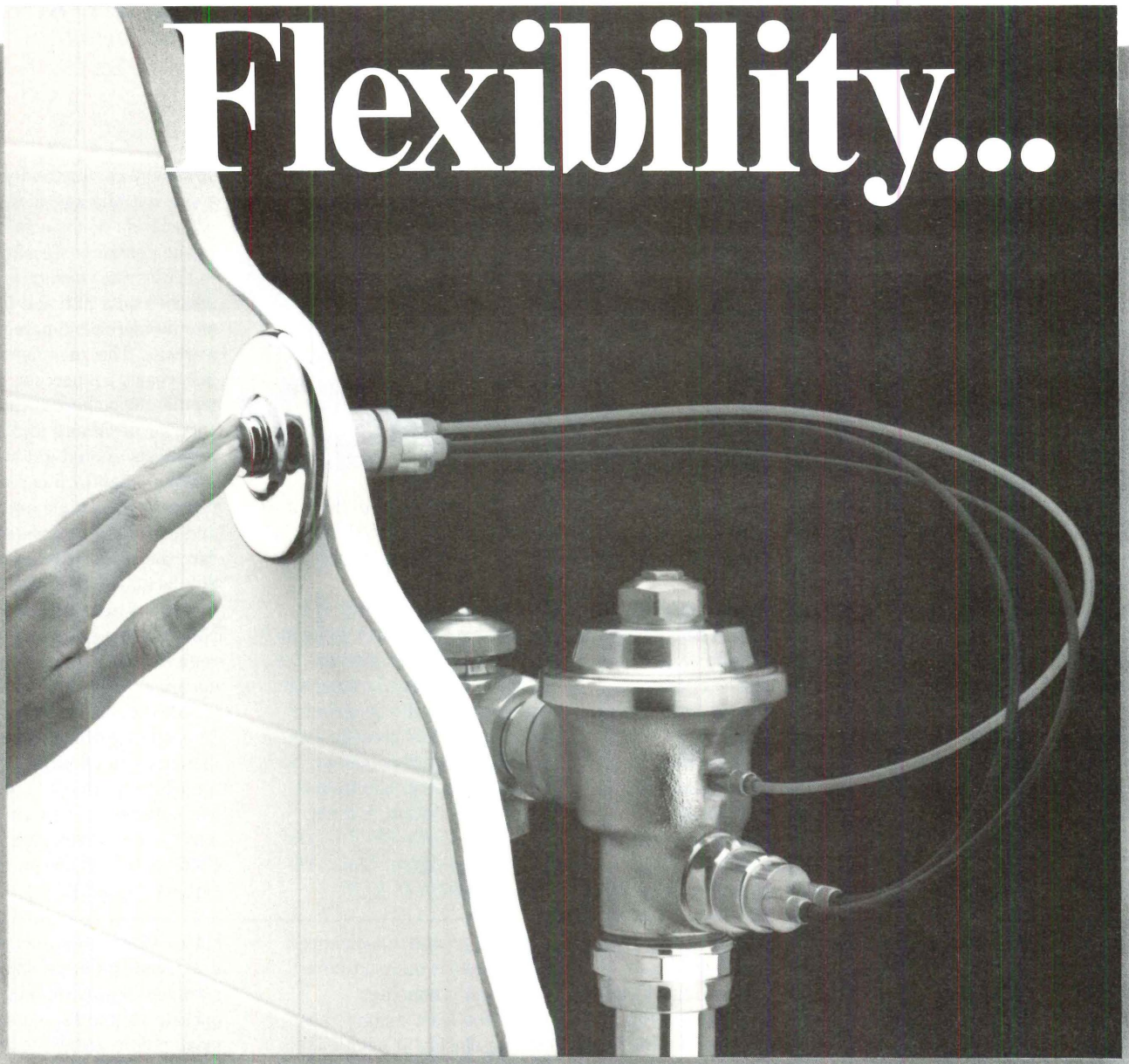
With the vast majority of rchitectural offices employing ewer than 10 people, issues that dversely affect small business n general are clearly threats to ost architectural firms. Among ills upcoming before a Democrat-controlled Congress re several well-meaning ttempts to expand social ervices and, in the process, lace what could be perceived to e potential new burdens on the conomic viability of small firms. Many of these bills surfaced in he last session of Congress and ave been, or are very likely to e, reintroduced in the new 101st Congress. Among them are minimum quotas for minority employment, and broadened requirements for parental-leave and health-care benefits, the latter sponsored by Senator Ted Kennedy. The idea of setting minimums for minorities seems ironic in the face of the Supreme Court's decision in January that would effectively limit their previous edge in competing as contractors for public-works construction at the state and local levels. One bill recently passed: the Drug Free Workplace Act that requires all firms with government contracts to monitor any potential drug use by employees.

Bills that might adversely affect construction viability, such as H. R. 281, are also of concern to architects. This bill would prohibit "double-breasting," the practice of construction firms operating both union and non-union subsidiaries. One bill recently passed: The Fair Housing Amendments Act imposes greater handicapped requirements on most new multifamily housing.

Not the least among those looking closely at such bills is the AIA. Its efforts are led by Gregg Ward, a recent group vice president who was previously with the Environmental Protection Agency and the National Construction Industry Council. "We're looking at anything that could mean an additional expense to architects," states Ward. New strategies to get architects more directly involved in government operations and to make them more politically active were initiated in late February. "It's an expansion of institute activities, not a total switching of gears," Ward explains. He envisions more architects assuming political roles in government administration. "We architects have been speaking only to ourselves too long."

Gregg Ward: "We architects have been speaking only to ourselves too long."

Another serious concern of the institute and indeed all nonprofit organizations (ranging from the Sierra Club to the Associated General Contractors of America) is recurring legislative proposals that would tax nonprofits on their revenue-producing activities. A coalition of 25 such groups has written the House Ways and Means Committee to urge more study before any new legislation comes to a vote. *Peter Hoffmann, Washington, D. C.*



It's all in the tubing.

The Hydro Flush system is flexible because we are able to tap into the valve body and with the flexible tubing, transfer the water through the remote push button and then into the handle piston to actuate the valve.

For the Designer—The flexibility to locate the actuator independently of the valve. On the fixture wall, on the side wall, or in another room, most anywhere without regard to location of the valve body. *The flexible tube bends to your needs.*

For the Contractor—The flexibility to independently locate the valve and the push button. No more walls to measure. *Again the flexible tube bends to your needs.*

For the Wholesaler—The flexibility for the first time to be able to stock concealed valves, because one valve handles all wall sizes. *Again the flexible tube bends to your needs.*

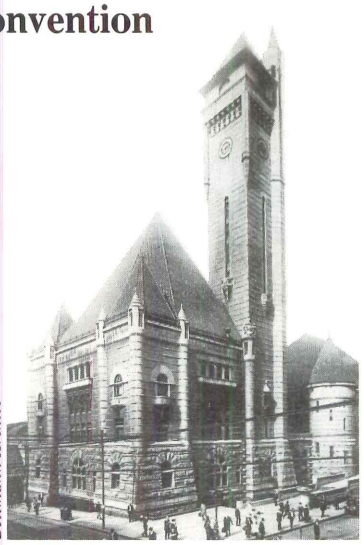
Delany
FLUSH VALVES **SINCE 1879**

Coyne and Delany Co.
P.O. Box 411 · Charlottesville · VA · 22902 · USA
(804) 296-0166 · Cable: Coynandel · TELEX 822419

Circle 20 on inquiry card

leet me in St. Louis– t the AIA national convention

ero Saarinen's Gateway Arch ll be one of the landmarks embers may admire when the A holds its annual convention is year in St. Louis, May 4-8. e keynote address will be ven by Dr. Robert Schuller, clesiastical client par cellence. Under the general eme of "Vision/Realization," e sessions will address a broad nge of topics. Friday will ature a young-architects forum d professional-development ograms such as qualifying nsultants, affordable housing, anaging others and yourself, d the annual Walter Wagner ducation Forum (named in nor of the late RECORD editor), hich, this year, will discuss the vergent professional trends of ecialization and generalization. turday's sessions will feature, nong others, one seminar titled *Excellent architecture: ow do we know—so what?* andidates for institute offices ill give their speeches, the



Bettmann Archive

AIAS will hold its juries, and there will be studies of local preservation efforts, including St. Louis's Union Station (photo). Seminars on Sunday will include *How clients really select design firms* and *Minimizing roofing failures*, and the day will be topped off by the annual Dodge-Sweet's/RECORD party, billed as the highlight of the convention's social calendar. Other intensive seminars will be on MasterSpec, the basis of McGraw-Hill's new Electronic Sweet's. Contact the AIA at 1735 New York Ave., N. W., Washington, D. C. 20006.

Word-of-mouth still gets the work

Despite architects' much heralded forays into aggressively marketing their services through such means as targeting programs, advertising, and public relations, a survey of 57 top client executives commissioned by Ellerbe Becket reveals what most professionals have suspected all along: word-of-mouth from past clients is still the best source of commissions. The survey shows, says Ellerbe Becket Los Angeles director Robert Nasraway, that even such time-honored vehicles as brochures, audio-visual presentations, and cold calls will always play a secondary role. The executives' ranking of influences on their design-firm selection from most important to least: word-of-mouth from peers; past experience with a firm; personal contact from a firm representative; articles in periodicals and journals; and professional-association meetings.

NCGA convention: CAD promises a leap forward

Computer 3-D graphics will make its big breakthrough in '89, is the expected prediction of speakers at the annual convention of the National Computer Graphics Association, April 17-20 at the Philadelphia Civic Center. The reasons for the leap forward are fast-advancing technology in general, specific new products in particular, and decreasing costs. The showing of winners from the organization's annual animation competition should provide an amusing evening at the awards dinner April 18. Contact the NCGA, 2722 Merrilee Drive, Suite 200, Fairfax, Va. 22031 (701/698-9600).

weeping changes oreseen for rofession

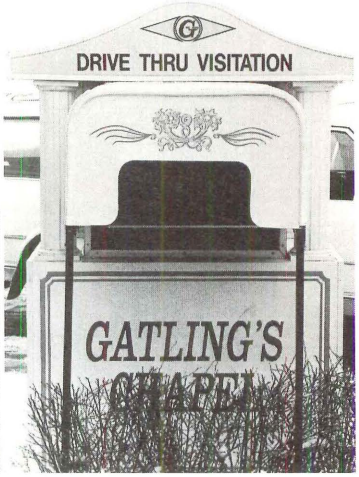
t a recent annual lunch given y RECORD to honor the incoming resident of the AIA, Benjamin rewer (background report: ECORD, February 1989, page 23) e Texas architect gave his ews on a theme heard often ese days—that the profession ill have to adapt to changes at are either rapidly on the ay or already here in not fully cognized forms.

For instance, Brewer says, hools are turning out rchitectural graduates at a rate at will double their number in very short time. He foresees ttle room for them all in raditional forms of practice, but he looks forward to the benefits for the profession and the public as a whole when many of these graduates go into related or (most likely, considering the numbers involved) unrelated fields with better visions of their environment. By the year 2000, he predicted, 40 percent of these students will be "non-Anglos"—black or Hispanic—meaning that their new visions will be carried across broader segments of the population. In line with a new thrust at the AIA *(see Congressional initiatives,* previous page), Brewer hoped that many former architectural students would either enter or, at least, become more interested in politics in order to shape the climate in which architects work.

One reason that there will not be room for all those students now in architecture schools: "My 35-person firm can carry the workload that an 80-person firm did before the technological revolution." Clearly, computers could upset the proportion of people to project size and volume that we have taken, until recently, as given.

Perhaps the greatest change Brewer foresees is one that is really already here: the growing international scope of practice. "Architects are going to have to learn new languages, customs, and ways of doing things to compete." Americans can no longer rely on economic predominance to make others adapt to their ways. He talked of greater standardization of practice among countries, citing the recent accord with Canada to try to attain interchangeable ways of working. "We are now trying to find such basis for agreement with Japan and the sleeping giant to the south"—a challenging assignment for the new president, one he may not be able to resolve in his one-year term due to the fundamentally different ways that architecture is practiced in those countries. *C. K.H.*

A breakthrough in drive-throughs



The New York Times/Richard Dirk

One building type architects may be slow to adopt is the drive-through mortuary in which mourners can see the deceased without leaving their cars. While mortuaries in general have been listed as a recession-proof building type, the drive-through has been limited to a few in Florida and California. Now, an operator in Chicago has come up with a variation that allows curb-side viewing on a video screen (photo). Drive-throughs not only help working people pressed for time but senior citizens with already limited mobility. *Ars est longa, vita brevis.* Architects may want to look to the future.

Top Performance

Whenever crowd safety is a factor, tough fire-code requirements are best handled by SUPER FIRETEMP.

SUPER FIRETEMP outperforms other fireproofing materials. It retains its shape, size, and strength under continuous service at 1700° F. And SUPER FIRETEMP can withstand fires in excess of 2000° F. under ASTM E119 or U.L. 1709 conditions.

That's why SUPER FIRETEMP is getting top billing across the country from contractors, architects, and engineers concerned with saving money, saving time, and saving lives.

The United States Air Force Academy serves over 5,000 meals a day to hungry cadets in their enormous dining facility, one of the largest of its kind in the country.

And AMC Theatres are playing to packed audiences from coast to coast in their comfortable multi-cinema complexes.

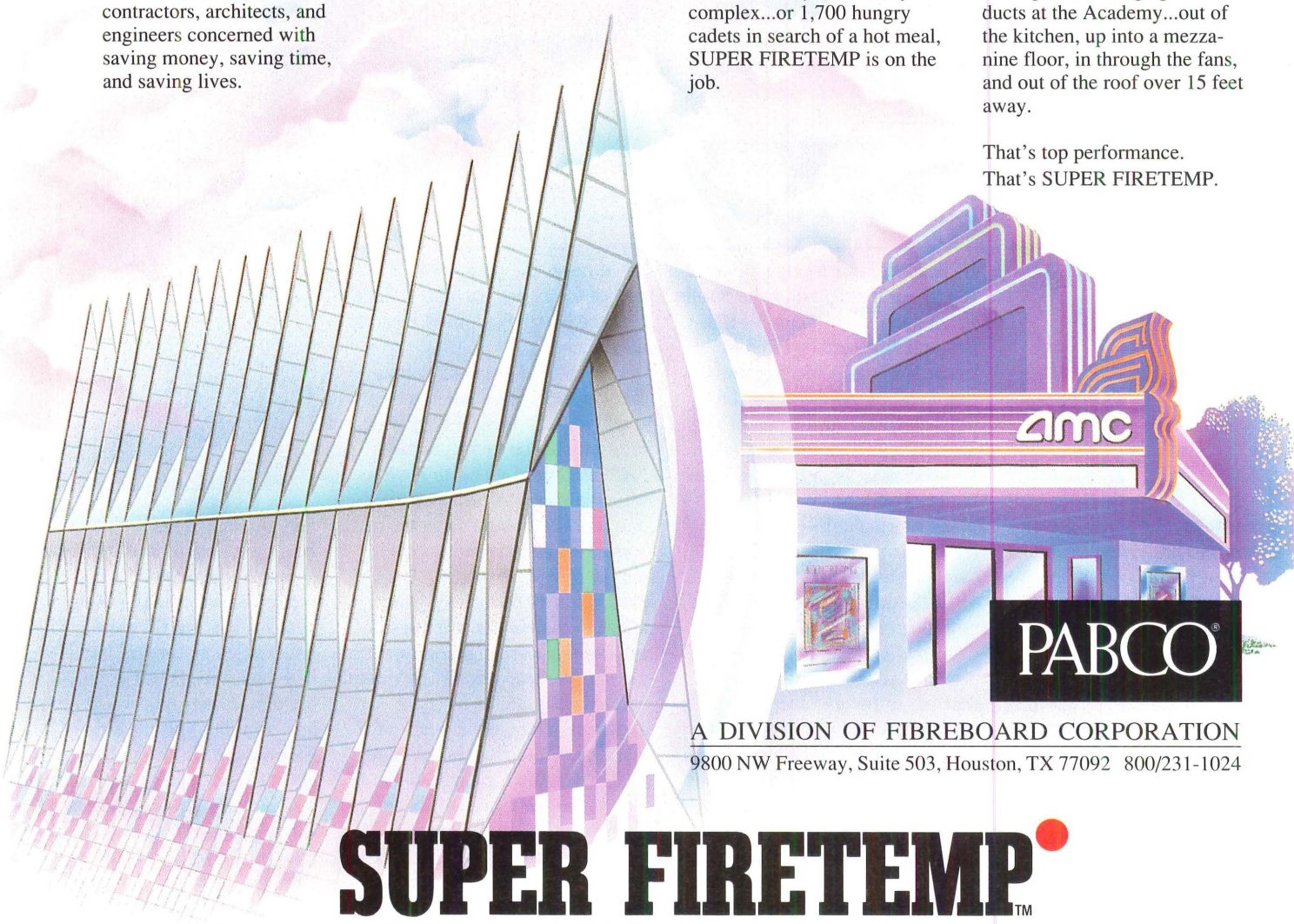
So what do they have in common? A concern for safety.

Whether it's the matinee crowd at AMC's City of Industry complex...or 1,700 hungry cadets in search of a hot meal, SUPER FIRETEMP is on the job.

SUPER FIRETEMP cuts so accurately that a lot of jobs can be fabricated off-site. That's exactly what Bob Reseigne of All-Purpose Installation did on the big AMC Theatre job. He clad 32 steel columns in less than half a day with two men, a nail gun...and SUPER FIRETEMP.

And SUPER FIRETEMP comes in big 4'x8' sections. That made it the perfect choice for Rocky Mountain Mechanical Insulation when they were awarded the Air Force contract to fireproof six huge grease ducts at the Academy...out of the kitchen, up into a mezzanine floor, in through the fans, and out of the roof over 15 feet away.

That's top performance. That's SUPER FIRETEMP.



PABCO®

A DIVISION OF FIBREBOARD CORPORATION

9800 NW Freeway, Suite 503, Houston, TX 77092 800/231-1024

SUPER FIRETEMP™

WHEN THERE'S NO SUCH THING AS TOO SAFE

Circle 21 on inquiry card

Construction economy update: A kind and gentle letdown in 1988 leads to the seeds of a possible turnaround in 1990

By George A. Christie

For the first time in five years, contracting for new construction—the leading indicator of expenditures for construction put in place and of on-site demand for building products—declined in 1988. As declines go, it was a kind and gentle letdown, leaving last year's total of newly started construction only 1 percent below the 1987 record high of $258 billion.

It wasn't the size of the 1988 decline that mattered as much as the direction the construction market took. Where did things go wrong last year, and what are the prospects for going right in 1989?

A post-mortem on 1988

Although there have been some soft spots in the construction market for the past few years, 1988 was the year when the weaknesses finally outweighed the strengths. Minus signs are nothing new for three categories of building, which together comprise roughly 20 percent of total construction value. Contracting for apartments and offices has been declining ever since these overbuilt markets reached their peaks in 1985. Hotel construction turned sour a year later. The collapse in these all-too-familiar problem areas was still gathering momentum in 1988 when the combined value of newly started projects fell another 13 percent.

What made 1988 different from 1987 was the loss of support from several other categories of construction that flipped from the plus column to the minus column last year. Declines in these areas were generally small (industrial construction, –2 percent; retail building, –3 percent; public works construction, –1 percent; institutional building, –1 percent), but it meant that an additional 40 percent of total construction activity turned the corner in 1988.

Had it not been for the continuing strength of single-family housing demand, this review of 1988 construction activity would make grim reading. But with just over 1-million (F. W. Dodge basis) new houses started last year—virtually the same number as in 1987—the shortcomings of the commercial and public construction markets were partially offset. Last year's crop of new single-family houses offered a blend of quality, regionality, and inflation that added up to $92.5 billion, nearly 7 percent more than in 1987. This made the difference between last year's soft letdown of total construction activity and what might otherwise have been described as a hard jolt.

For 1989, some of the obvious questions are:

- Is it reasonable to expect that any of last year's declining markets will turn upward this year? And if not, when?
- Failing a recovery of the commercial and/or public construction markets in 1989, can single-family house-building come to the rescue again?

More underbuilding needed

At last it can be said that vacancy rates of commercial properties are receding, but that isn't saying much. They've got a long way to go before new construction can return to normal levels.

A total of 900 million square feet is the ballpark estimate of the annual volume of offices, apartments, and hotels that the market is currently capable of absorbing. In the three-year descent from the lofty peak of 1.25 billion square feet (that was in 1985, the height of the mid-1980s tax-shelter boom), contracting passed through the 900 million level in 1987, reaching 776 million square feet last year—a 38 percent cutback . . . so far. But since new construction continued to exceed the theoretical 900 million square-foot rate of absorption through 1987, vacancy rates kept rising even though new construction was falling sharply. For offices, the peak of vacancy rates was reached in 1987's first quarter at 21.5 percent; for apartments, in 1988's first quarter at 8 percent. The hotel vacancy rate may only now be peaking at around 35 percent. With new construction currently about 15 percent below the level of absorption, vacancy rates should continue to decline—but slowly.

There is no reason to conclude that the cutback of the new construction of offices, apartments, and hotels has yet reached bottom. Correction of mid-1980's overbuilding is underway, but a further reduction of new construction in 1989 to approximately 700 million square feet is needed to hasten the return to balance and viability. Still another year of depressed building in 1990 at the 700-million-square-foot level will ready the commercial-building market for recovery—led by apartments—in 1991.

Bottoms up to cure federal drought

More than a year ago it was apparent that funding of public-works programs had reached its limit for a while. Following several years of vigorous expansion through the mid-1980s, contracting for highways, bridges, mass transit, water-resource development, and waste-treatment facilities had climbed to a record $42 billion in 1987, but went no higher. Mounting pressure for deficit reduction changed more than a few priorities in 1988, the infrastructure among them.

If the world of federal budgeting can be divided into three parts—uncontrollables (e. g. , interest on the federal debt), high-priority controllables

Continued on page 27

A ROOF MEMBRANE IS ONLY AS GOOD AS THE INSULATION BENEATH IT!

With the ALL-FOAMGLAS® Insulation

PC PLUSYSTEM 1

that's very, very good!

Kenwood High School, Baltimore County Public School System, Baltimore, Maryland

Our 20-year warranty says a lot about our insulation. That means a lot for the entire roofing system ... and for you.

When we guarantee our insulation, we're doing more than insuring the insulation's integrity. We're also providing reassurance for *your* selection and specification of our insulation.

That's because we know that insulation failure can lead to *membrane* failure. And that, in turn, can lead to the loss of integrity for the whole building. Not a good situation for the occupants and owners— or *your* integrity!

Our All-FOAMGLAS® Insulation PC PLUSYSTEM 1 comes with a 20-year Performance Warranty!

Dimensional Stability— *GUARANTEED!*

With a reversible coefficient of expansion of 0.0000046 in/in/°F, thermally caused movement is virtually nonexistant with PC PLUSYSTEM 1. There is no movement by the FOAMGLAS® insulation which will tear apart the system and damage the membrane.

Compressive Strength— *GUARANTEED!*

PC PLUSYSTEM 1's high compressive strength ensures against insulation compaction. And that helps to eliminate membrane failure caused by foot traffic or equipment sitting on the roof.

Impermeability— *GUARANTEED!*

Its 100% closed cellular glass composition won't absorb moisture. So, PC PLUSYSTEM 1 can't retain or transmit water should there be a faulty membrane installation or failure. And PC PLUSYSTEM 1 can't swell with water to stress and weaken the membrane.

Efficiency—*GUARANTEED!*

Because of these outstanding physical properties, the insulating efficiency of PC PLUSYSTEM 1 can be guaranteed for 20 years. This means there's never a need to remove an otherwise sound membrane to replace inefficient insulation.

When it's time to specify your next roof insulation, why settle for anything less than the 20-year promise of PC PLUSYSTEM 1? The insulation that helps to protect the building *below* as well as the membrane *above*!

For more information on our PC PLUSYSTEMS, or a copy of the warranty, call (412) 327-6100, extension 356. Or write Pittsburgh Corning Corporation, Marketing Department FB-9, 800 Presque Isle Drive, Pittsburgh, PA 15239. In Canada, 106-6 Lansing Square, Willowdale, Ontario M2J 1T5, Tel: (416) 222-8084.

PITTSBURGH PC® CORNING

Circle 22 on inquiry card

nstruction economy update continued from page 25

g., defense, entitlements), and erything else—most programs ncerning the nation's frastructure would fall in the ird category, along with many ner important domestic issues. is was clearly the message of e fiscal 1989 budget which has ain stonewalled public-works ending for the current year. The Department of ansportation's budget for cal year 1989 shows ligations for highway, mass-ansit, and airport construction by a token $300 million to 8.2 billion. This year's total of deral grants to state DOT's ovides slightly more for ghways and airports, but less r mass transit.

The restructuring of EPA's ngstanding construction ant program to state-level revolving-loan funds adds an element of suspense to the near-term outlook for waste-treatment plants. With states now required to use half their federal allocations to create loan funds for future plants, 1989's construction contracting will probably stall temporarily.

In the longer run, growth of public-works construction will resume when the urgency of deficit reduction lessens, and as state and local governments take on a larger share of the cost. Taxes, user fees, loan funds, and other innovative financing mechanisms are the means for developing bottom-up stimulus in this traditionally top-down construction process. There is no free New Federalism.

1989 National Estimates
Dodge Construction Potentials

First Update March, 1989

		1988 Actual	1989 Forecast	Percent Change 1989/88
Nonresidential Buildings				
Floor Area (millions of square feet)	Office Buildings	245	200	−18
	Stores & Other Commercial	554	460	−17
	Manufacturing Buildings	151	155	+ 3
	Total Commercial & Manufacturing	950	815	−14
	Educational	126	120	− 5
	Hospital & Health	71	68	− 4
	Other Nonresidential Buildings	152	137	−10
	Total Institutional & Other	349	325	− 7
	Total Nonresidential Buildings	1,299	1,140	−12
Contract Value (millions of dollars)	Office Buildings	$ 21,355	$ 18,575	−13
	Stores & Other Commercial	23,741	20,850	−12
	Manufacturing Buildings	8,402	8,900	+ 6
	Total Commercial & Manufacturing	$ 53,498	$ 48,325	−10
	Educational	$ 12,535	$ 12,425	− 1
	Hospital & Health	8,013	8,075	+ 1
	Other Nonresidential Buildings	13,979	13,150	− 6
	Total Institutional & Other	$ 34,527	$ 33,650	− 3
	Total Nonresidential Buildings	$ 88,025	$ 81,975	− 7
Residential Buildings				
Dwelling Units* (thousands of units)	One Family Houses	1,008	950	− 6
	Multifamily Housing	451	425	− 6
	Total Housekeeping Residential	1,459	1,375	− 6
Floor Area (millions of square feet)	One Family Houses	1,697	1,598	− 6
	Multifamily Housing	470	434	− 8
	Nonhousekeeping Residential	72	70	− 3
	Total Residential Buildings	2,239	2,102	− 6
Contract Value (millions of dollars)	One Family Houses	$ 92,469	$ 91,025	− 2
	Multifamily Housing	22,871	21,950	− 4
	Nonhousekeeping Residential	5,870	5,725	− 2
	Total Residential Buildings	$121,210	$118,700	− 2
Nonbuilding Construction				
Contract Value (millions of dollars)	Transportation Construction	$ 24,244	$ 24,800	+ 2
	Environmental Construction	17,909	17,950	–
	Total Public Works	$ 42,153	$ 42,750	+ 1
	Utilities	$ 3,829	$ 4,000	+ 4
	Total Nonbuilding Construction	$ 45,982	$ 46,750	+ 2
All Construction				
Contract Value (millions of dollars)	Total Construction	$255,217	$247,425	− 3
	Dodge Index (1982 = 100)	162	157	

*F.W. Dodge basis.

A brighter credit outlook holds the key to a broad turnaround

With commercial building and public-works construction both locked into a rerun of 1988 (i. e., one down, the other even), the opportunity for a different outcome of total construction in 1989 rests with the remaining parts of the building market, which consists mainly of single-family houses and institutional structures. Both are closely linked to demographics, and both are sensitive to credit conditions.

In contrast to the 1970s, the demographics of the past decade have been highly supportive of single-family housing and institutional building. The fastest-growing segment of the population is the 30 to 50 age cohort, putting the 60-million-strong '50s Generation squarely in the market for homes. The next most important growth of the population is taking place at the extremes—under 15 and over 65. One group needs schools; the other, health-care facilities.

For the past four years, dormant inflation and stable interest rates have been letting the favorable demographic potentials of the 1980s come through. Since 1985, contracting for single-family houses and institutional buildings averaged 25 percent higher (in constant dollars) than during the first half of the decade when soaring mortgage and municipal-bond rates severely inhibited building. But the clock has run out.

Responding to the mounting inflationary pressures of an economy that is pressing against its capacity limits, the Federal Reserve has steadily tightened credit—cautiously through 1988, and more aggressively in the early months of 1989. Until recently, the consequences of this progressively restrictive monetary policy have been confined to short-term interest rates. But as the Fed turns up the heat, it is inevitable that the rise of nearly 3 percentage points in short-term rates since this time last year will spill over into mortgages and municipal bonds. As this happens, homebuilding, as always, will be the first casualty.

At some point in 1989, the Fed must make the choice between backing off its anti-inflation posture or accepting responsibility for the recession of 1990. The economy, coming off a surprisingly strong year, will be winding down of its own accord during the quarters ahead as exports and business capital spending—last year's strengths—lose some of their momentum. Without something to take their place, the "slowdown" scenario (to 2 1/2 percent real GNP growth) is the expectation of all but the most dedicated optimists and/or pessimists. Under these conditions, unrelenting credit restraint seems neither necessary nor prudent, and carries the risk of inducing a recession that nobody wants—least of all the Bush Administration.

The probability of economic slowdown through 1989 is the best argument for a mid-year peak and reversal of short-term interest rates followed by longs. Whether rates will recede because loan demand weakens or because the Fed becomes more interested in sustaining growth than fighting inflation is a moot point. What counts is that the discomfort of higher long-term interest rates is likely to be confined to 1989. Numerically, it is assumed that the conventional fixed mortgage rate, currently at 10 3/4 percent, will rise to 11 1/2 percent by 1989's second and third quarters, and decline thereafter. Municipal bond rates, presently at 7 1/2 percent, will follow a parallel course. By mid-1990, chances are good that the entire rate structure, short and long, will have reverted close to 1988's average levels, leaving 1989 as a temporary departure.

In contrast to the last three years, when single-family building provided steady, high-level support while multifamily construction plummeted, 1989 will feature some role reversal. Multifamily housing starts, having fallen to only a bit more than half their 1985 peak, are close to rock bottom at 450,000 units. As multifamily building stabilizes in 1989, rising mortgage rates will shift the risk to one-family housing, pulling this year's starts below 1-million units for the first time since

Continued on page 29

ONE OF THE FEW PEOPLE AT KIMBALL ALLOWED TO CUT CORNERS.

KIMBALL CRAFTSMEN, AT YOUR REQUEST, CAN SHORTEN DESKTOPS. RECONFIGURE CASEGOODS. CHANGE FINISH
BECAUSE WE CAN ALTER OUR STANDARD DESIGNS TO MEET *YOUR* STANDARDS.
KIMBALL. THE CHOICE THAT WORKS. FOR SPECIAL ORDERS. 1-800-482-1616.

KIMBALL ARTE

nstruction economy update continued from page 27

5. Total housing starts in
9 are forecast to decline
ercent to 1,375,000 units
W. Dodge basis).
f, as expected, the rise of
rtgage rates is short-lived,
t of 1989's unrealized housing
ential is likely to resurface in
0. A conservative estimate of
s carryover, layered on a base
current demand that would be
sistent with 10- to 10 1/2-
rcent mortgage money, would
1990's housing-start total
rly 10 percent to 1.5 million
ts. A turnaround of this
ent is all it would take to
nch the next expansion cycle
total construction activity.
Contracting for institutional
ldings (schools, health-care
ilities, public-administration buildings, etc.) marches to a different demographic drummer than housing, but in the short run it shows similar sensitivity to credit conditions. Like housing, institutional building will sag temporarily in 1989 as higher municipal-bond rates lead to deferred marginal projects.

Two more obstacles

Retail building, a derivative of residential development, will be declining through 1989 . . . and 1990 as well. Contracting for shopping centers, stores, and warehouses, which consistently follows housing, first turned down in 1988—right on schedule, a year after the reversal of housing starts. As residential building continues to fall through 1989 (bringing to an end its three-year slide), retail building, a year behind, will still have two years of adjustment to make. Recovery of the housing market in 1990 should trigger a rebound of retail building in 1991.

Industrial construction is simply not responding to the economy's recent surge of output in the way that past experience says that it should. With capacity utilization at 84 percent, and with business capital spending up 10 percent in 1988, contracting for manufacturing facilities should be responding with a strong rise when, in fact, the value of last year's new industrial construction contracting declined slightly. A reason: productivity, not mere capacity, clearly has been given top priority in the pursuit of world markets. Virtually all of the gain in 1988 investment in manufacturing facilities was concentrated in machinery and equipment, not buildings. With the prospect of economic slowdown in 1989/90, this is hardly the appropriate time for a belated surge of industrial construction.

Reversing the reversal

The reversal of contracting for new construction in 1988 didn't happen all at once. Rather, it occurred by a process of progressive erosion. The construction market came apart piece by piece over several years.

- In 1986/87, the collapse of the commercial-building boom slowed the pace of total construction from its double-digit expansion of the mid-'80s to only 4 percent (the prevailing rate of inflation).
- In 1988, declines of public-works construction and institutional building left single-family housing as the only viable building market. That wasn't enough to deter last year's 1-percent decline of total construction.
- In 1989, rising mortgage rates will temporarily undermine the remaining support for house-building. Without offsetting gains in other construction markets, total contract value is headed for a secondary decline of another 3 percent.

Getting the next wave of expansion going is a matter of putting the pieces of the construction market back together again. It will begin most likely in 1990, when falling interest rates liberate housing demand. And it will be reinforced in 1991 by a welcome upturn of commercial building.

Prepared by the Economics Department McGraw-Hill Information Services Company, George A. Christie, vice president and chief economist.

Copyright 1989 McGraw-Hill, Inc. with all rights reserved.

989 Regional Estimates
Dodge Construction Potentials

First Update March, 1989

ortheast

CT, ME, MA, NH, NJ, NY, PA, RI, VT

ntract
lue
illions
dollars)

	1988 Actual	1989 Forecast	Percent Change 1989/88		1988 Actual	1989 Forecast	Percent Change 1989/88
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$10,276	$ 9,300	−9	One Family Houses	$15,370	$14,850	−3
Institutional and Other	7,181	6,700	−7	Multifamily and Nhskpg.	6,690	6,175	−8
Total	$17,457	$16,000	−8	**Total**	$22,060	$21,025	−5
Nonbuilding Construction	$ 9,438	$ 9,725	+3	**Total Construction**	$48,955	$46,750	−5

orth Central

IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI

ntract
lue
illions
dollars)

	1988 Actual	1989 Forecast	Percent Change 1989/88		1988 Actual	1989 Forecast	Percent Change 1989/88
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$12,627	$11,600	−8	One Family Houses	$16,844	$17,000	+1
Institutional and Other	7,470	7,625	+2	Multifamily and Nhskpg.	5,468	4,925	−10
Total	$20,097	$19,225	−4	**Total**	$22,312	$21,925	−2
Nonbuilding Construction	$ 9,590	$ 9,750	+2	**Total Construction**	$51,999	$50,900	−2

outh Atlantic

DE, DC, FL, GA, MD, NC, SC, VA, WV

ntract
lue
illions
dollars)

	1988 Actual	1989 Forecast	Percent Change 1989/88		1988 Actual	1989 Forecast	Percent Change 1989/88
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$12,287	$10,475	−15	One Family Houses	$23,605	$22,975	−3
Institutional and Other	6,955	6,825	−2	Multifamily and Nhskpg.	7,421	7,350	−1
Total	$19,242	$17,300	−10	**Total**	$31,026	$30,325	−2
Nonbuilding Construction	$ 7,994	$ 8,000	–	**Total Construction**	$58,262	$55,625	−5

outh Central

AL, AR, KY, LA, MS, OK, TN, TX

ntract
lue
llions
dollars)

	1988 Actual	1989 Forecast	Percent Change 1989/88		1988 Actual	1989 Forecast	Percent Change 1989/88
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$ 5,775	$ 5,725	−1	One Family Houses	$10,125	$10,550	+4
Institutional and Other	5,362	5,000	−7	Multifamily and Nhskpg.	1,479	1,575	+6
Total	$11,137	$10,725	−4	**Total**	$11,604	$12,125	+4
Nonbuilding Construction	$ 8,841	$ 8,675	−2	**Total Construction**	$31,582	$31,525	–

est

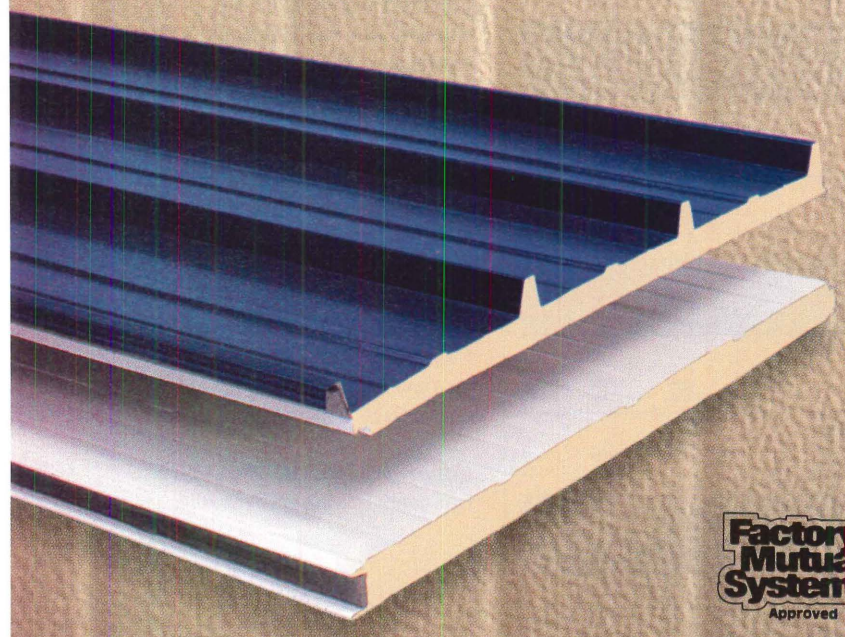
AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY

ntract
ue
llions
dollars)

	1988 Actual	1989 Forecast	Percent Change 1989/88		1988 Actual	1989 Forecast	Percent Change 1989/88
Nonresidential Building				**Residential Building**			
Commercial and Manufacturing	$12,533	$11,225	−10	One Family Houses	$26,525	$25,650	−3
Institutional and Other	7,559	7,500	−1	Multifamily and Nhskpg.	7,683	7,650	–
Total	$20,092	$18,725	−7	**Total**	$34,208	$33,300	−3
Nonbuilding Construction	$10,119	$10,600	+5	**Total Construction**	$64,419	$62,625	−3

The Best Industrial Buildings Deserve Aluma Shield® Insulated Panels

Nissan Auto Assembly Plant—5,500,000 Square Feet of Roof and Wall Panels.



Choose Aluma Shield wall and roof panels and choose the most cost efficient high quality system money can buy. We offer a full line of panels insulated with foamed-in-place polyurethane to fit any temperature requirement for any industrial and commercial building design.

New Panel Products For Roofs, Walls and Partitions

Aluma Shield offers a new high rib panel for wall or roof application, and is available with a choice of metals including copper. Also new is our flat exterior wall panel with concealed fasteners, and our exposed fastener partition panel for interior or exterior applications.

When compared to existing field assembled metal wall and roof systems, Aluma Shield panels provide a far superior system built in less time, with lower installation cost, and lower insurance premiums.

New For North America – Proven In Europe

While Aluma Shield has operated a fully automated continuous line panel manufacturing system since 1983, the technology and equipment for producing our new line of panels is even better. Over 300 million square feet of complete buildings have been constructed in Europe utilizing this system.. a system which is totally state-of-the-art and gives us the capacity to supply over 15 million square feet of panels per year.

This means you get the panels you need, when you need them with an assurance that our factory controlled quality and product expertise will result in a building that looks great, is energy efficient and highly affordable.

Call or write today for more information on the full line of Aluma Shield insulated panel products.

Factory Mutual System Approved

CLASSIFIED UL

ALUMA® SHIELD INDUSTRIES, INC.

405 Fentress Blvd., Daytona Beach, FL 32014
904/255-5391 • TELEX 808-631 • FACS 904/258-169

Circle 24 on inquiry card

egal perspectives: Vhen liability insurance can cover your onstruction-cost estimate problems

While liability-insurance carriers will routinely deny architects coverage for faulty construction-cost estimates, one case involving an engineer illustrates that coverage may hinge on whether the fault was in design or in calculating the estimate in the first place.

Arthur T. Kornblut

ost professional liability-surance policies available to chitects contain a standard clusion to eliminate coverage claims related to cost timates. The exclusion is quite oad and it covers both oviding and failing to provide revise) statements of obable construction cost.

rchitects should not get into e position of being sponsible for estimates

e logic behind the insurance clusion is that an architect's st estimate is nothing more an an educated professional lgment about how contractors y price his work at some point the future. At that future int, the contractor's price is true value of the work being rchased by the owner. Even if ere is a wide variance between architect's estimate and the ntractor's price, the owner is igated to pay for the value ng received, and the architect his insurer) should not be le for part of the cost of the ner's project. In other words, owner is not entitled to get t of the project at someone e's expense.

The standard AIA owner-hitect agreement B141 ntains explicit protective language to make it clear that an architect does not guarantee that contractors' bid prices will not vary from his estimates. He is not liable because of the numerous factors over which he has no control—not the least, the bidding climate at the time the contractor submits his prices.

The only exception occurs when the owner and architect agree in writing on a fixed limit of construction cost. If that amount is exceeded, the architect may have to redesign the project at no additional fee. If there is an agreed-upon fixed limit of construction cost, the contract gives the architect wide latitude to reduce and adjust the project scope and quality in an effort to keep it within the owner's budget limitations.

Although there have been several recent cases upholding the AIA contract protections from liability for cost estimates, cases on the related insurance exclusion are rare. This reflects a lack of claims, probably due to the contract language precluding the underlying liability.

But a court may find for insurance coverage of estimate faults even when an exclusion clause seems to say otherwise

In a recent Maryland decision, Comstock Insurance Company v. Thomas Manson & Associates, developers wanting to convert a warehouse into an office and motel complex consulted with an engineer about the economic feasibility of the motel *before* purchasing the property. The developers stressed to the engineer that to be economically feasible the motel would have to be built within and utilize part of the warehouse because of the high cost of demolition and new construction.

The engineer then prepared preliminary drawings and cost projections showing the motel could be built within the warehouse structure for $12,500 per unit. Based on this information, the developers concluded that the project was economically feasible and they entered into a purchase contract with the warehouse owner. The contract called for a purchase price of $4,200,000 and a $200,000 deposit with an option of canceling the contract at no cost within 20 days—after which the purchaser liability for not closing would be $287,500 (the deposit plus an additional $87,500).

The developers, believing the engineer's projections, did not exercise their right to withdraw within the 20-day period. But, it turned out that the motel could not be built as designed by the engineer. To utilize the existing warehouse would have resulted in costs even greater than new construction. The developers then defaulted on the contract, forfeited their $287,500, and refused to pay the design fee.

Litigation with unforeseen consequences often begins when a design professional files suit to collect unpaid fees. Here, the engineer sued the developers. The developers counterclaimed for negligent misrepresentation on the part of the engineer and breach of contract, which happened to be an AIA form.

The first turn of events saw the trial court dismiss the action by the engineer on two grounds: The design firm was a foreign corporation that regularly did business in Maryland, but had failed to register in that state (a mistake often made by design professionals with incorporated practices working in multiple jurisdictions), and, secondly, the engineer's contract (the AIA form) called for providing architectural services, when neither the employees nor the firm were so licensed.

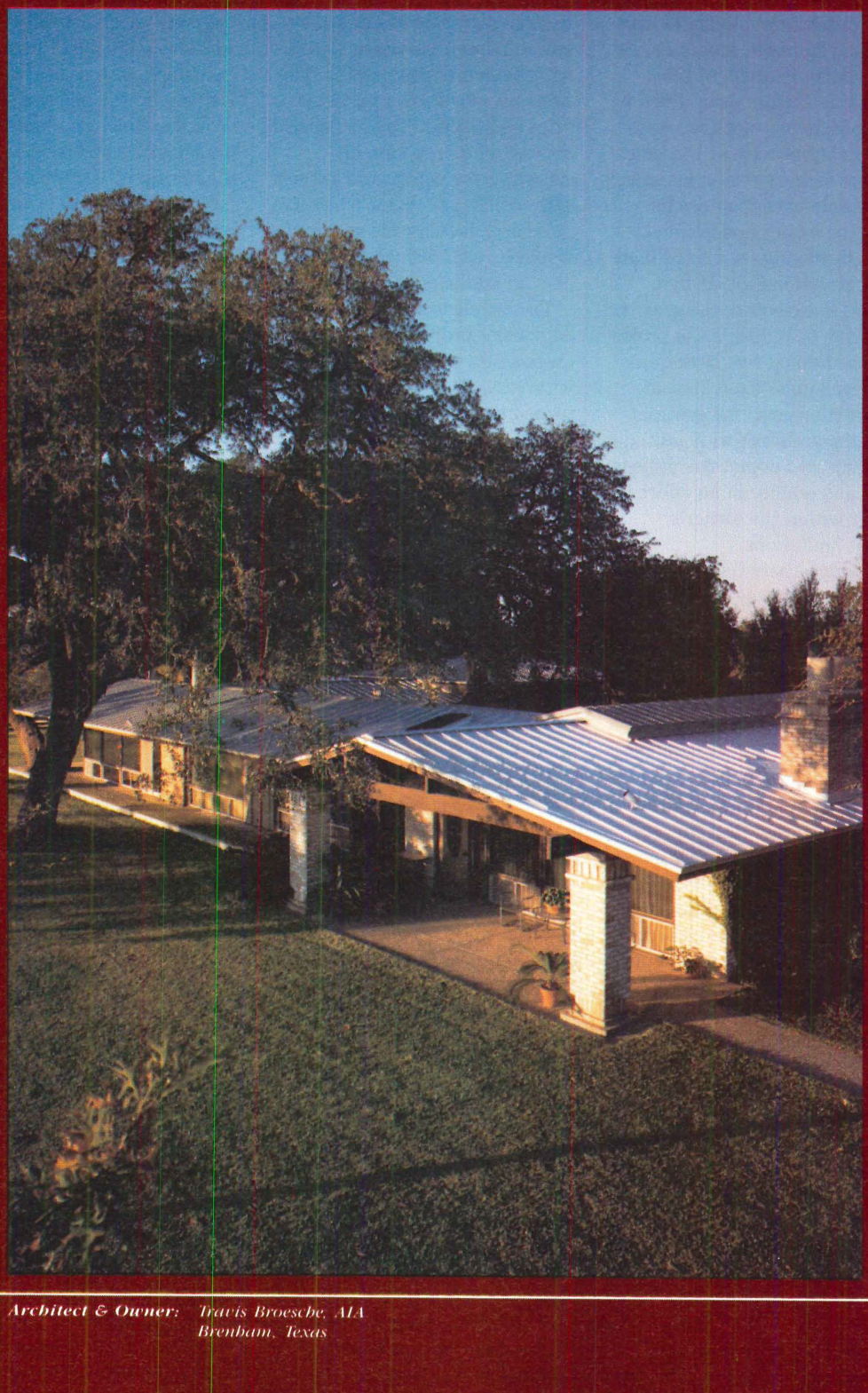
In their counterclaim, the developers were successful in showing that the engineering firm had erred both in its design and in its estimate of the probable construction cost, and the court awarded the developers the $287,500 these errors had cost them. The engineer then turned to its professional-liability carrier, Comstock, to pay the judgment. Relying on the policy exclusion of cost-estimate problems, Comstock denied coverage and then brought declaratory-judgment action to have the court construe the policy in support of the insurer's position. Unfortunately for Comstock, but fortunately for the engineer, the court saw things differently.

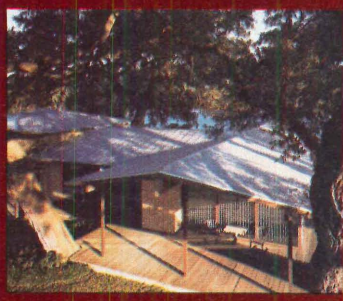
Comstock basically argued that the owner's loss was caused primarily by the engineer's faulty estimate of what the project would cost, and therefore it fell within the exclusion. The engineer's position was that the loss was caused by negligent design, which would be covered by the policy. In reaching its decision, the court relied on a couple of legal principles that work against insurance carriers. One holds that insurance policies are to be construed liberally in favor of the insured. Another holds that if a loss stems from several sources and any one is covered, the insurer is liable even if other contributing causes are specifically excluded.

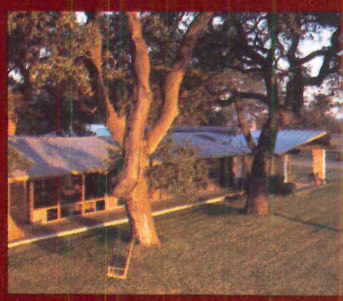
In the case before it, the court observed that a major factor in causing the cost estimate to go from $12,500 per unit to more than $24,000 per unit was the engineer's design misconception that the existing structure could accommodate the motel. The court concluded: "At most, we believe, the exclusion would cover mistakes in the preparation of the estimate itself—errors in estimating the quantity or quality of materials that will be needed, or in applying or estimating component costs, or in arithmetic or other aspects of calculating or constructing the estimate. But, if the overrun results from an underlying defect in either design or other basic engineering work, the exclusion would not apply."

Kornblut is a registered hitect, a practicing attorney he firm of Kornblut & olove in Washington, D. C., l former chairman of the erican Bar Association's um Committee on the struction Industry.

Would You Trust Metal To Perform On Your Own Home







"As an architect, I have had the portunity to work with MBCI several projects, and did not hesitate to specify their materia on my own home. MBCI delive fine, quality product, and I am pleased with the end result," s architect Travis Broesche, AIA.

When you specify an MBCI roo system, we want you to be satisfied. We will work with yo design team to insure the prop product selection for your desi

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

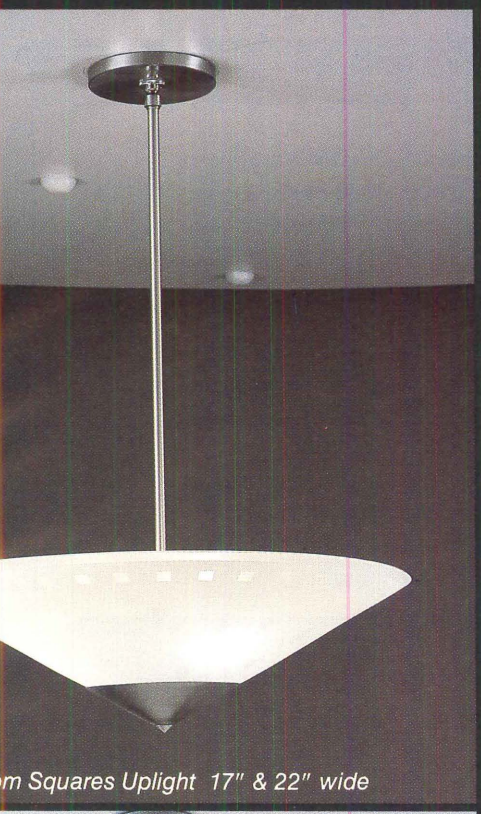
Architect & Owner: *Travis Broesche, AIA*
Brenham, Texas

MBCI
METAL BUILDING COMPONENTS, INC.

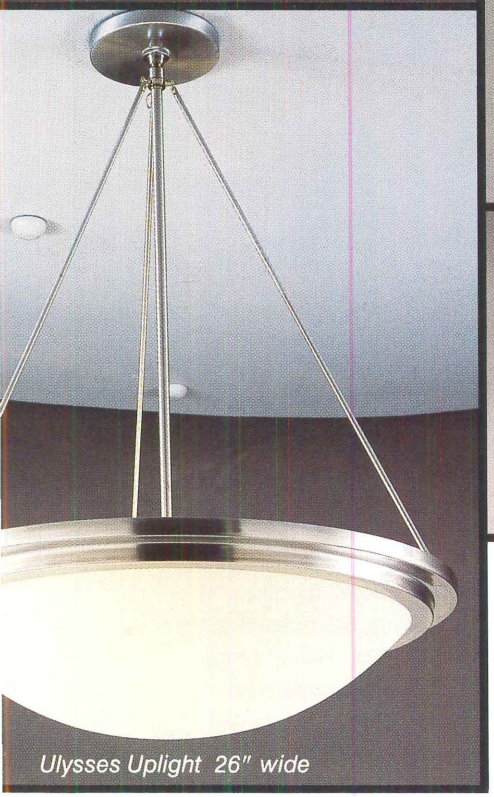
Houston 713/445-8555
Lubbock 806/747-4291 Atlanta 404/
Oklahoma City 405/672-7676 Tampa 813/
San Antonio 512/661-2409 Richmond 804/
Dallas 214/988-3300 Indianapolis 317/

Circle 25 on inquiry card

THE AMERICAN GLASS LIGHT COMPANY

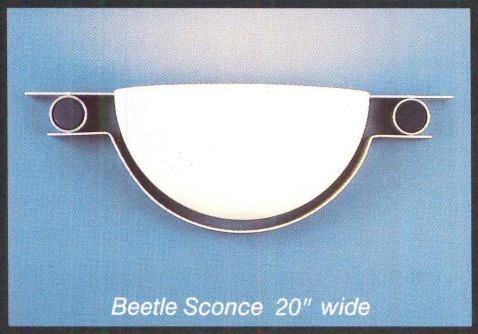


m Squares Uplight 17" & 22" wide

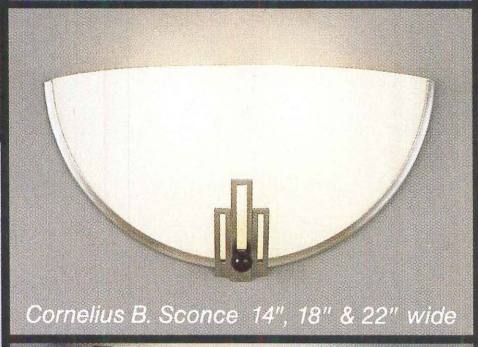


Ulysses Uplight 26" wide

Elfi Z. Sconce 18" wide



Beetle Sconce 20" wide



Cornelius B. Sconce 14", 18" & 22" wide

Sandy's Favorite Sconce 14", 18" & 22" wide

Winston Uplight 22", 32" & 48" wide

Alexandra Uplight 17" & 22" wide

Because the Details Make the Difference.

"Details are everything." It's what we believe in and it's why our customers believe in us.

Designed by architect Sandy Littman, the new American Glass Light collections uniquely combine fine detailing with glamorous and classic composition. All fixtures are manufactured to the highest technical standards and most are available in fluorescent.

All of our fixtures are UL listed. Some are even available in up to 3 foot and 4 foot widths.

Using only the finest materials, our products are executed by our own team of engineers and manufactured in our own factories—here in America.

Call for our new and complete catalog, or for an appointment to visit our showroom.

Custom projects are welcome.

the American Glass Light Co.®
LIGHTING DESIGN BY SANDY LITTMAN

A Littman Group Company

Circle 26 on inquiry card

SHOWROOM: 49 West 27th Street, New York, New York 10001 (212) 213-1200

A CODEWORKS PROFILE

Saxelbye, Powell, Roberts & Ponder, Inc. is a charter subscriber to CodeCONTROL, an information service which provides building regulatory information. CodeCONTROL provides building, mechanical, energy, plumbing, fire prevention, handicapped accessibility, and Life Safety Code® Information specific to each project and location.

Subscribers can request applicable information by completing a check list for their project. Don Kluge describes CodeCONTROL:

"CodeCONTROL cuts down the time and tedium of code searches. CodeCONTROL enforces a consistent approach to code searches, ensuring that all our code searches are thoroughly documented."

"CodeCONTROL cuts down the time and tedium of code searches."

Don Kluge AIA, CSI, CCS is the Senior Vice President of Saxelbye, Powell, Roberts & Ponder, Inc., a Jacksonville, FL architectural, interior design and planning firm celebrating its 75th birthday this year.

"Having all the code information from each of the code documents listed by design topic enables us to make certain that no code provision is overlooked. For example, all egress issues are grouped together whether they're from the building, handicapped accessibility or fire prevention codes. That kind of quality assurance is very important to us. We at Saxelbye are dedicated to ongoing educational and training programs that focus on quality and excellence throughout all phases of our practice."

"Another great benefit of CodeCONTROL is that the information is continually updated. Instead of calling different information sources at various locations to find out what code is being enforced, I can order an Administrative Report and receive a listing of all codes enforced and the applicable enforcing agencies."

CODEWORKS
CORPORATION

Codeworks Corporation, 1225 Nineteenth Street, N.W., Suite 750
Washington, D.C. 20036 (202) 778-6300 (800) 634-2633

Circle 27 on inquiry card

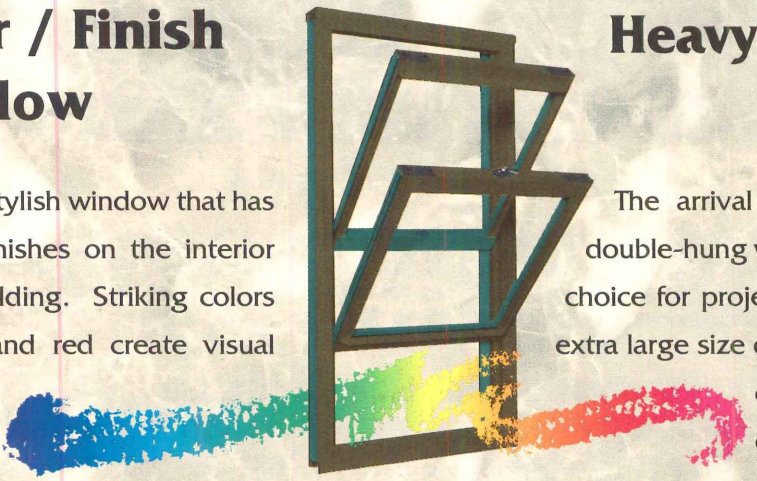
Introducing...

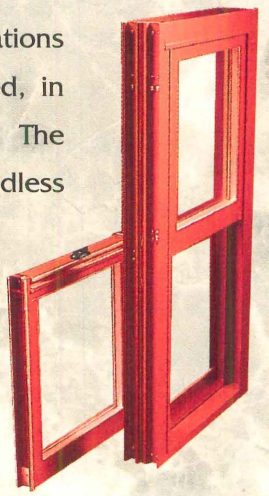
Two New Products That Will Change The Way You Specify Windows.

The Only Limit Is Your Imagination!

Two Color / Finish Window

Welcome an exciting, stylish window that has completely different finishes on the interior and exterior of the building. Striking colors such as blue, green and red create visual interest on the exterior, while finishes such as white, brown or beige accentuate the interior decor. Or, combinations such as anodized and paint can be used, in addition to a multitude of special finishes. The design freedom of this process creates endless opportunities using double-hung tilt, single hung, projected, casement and fixed lite units for a truly unique window project.





A Strong Solution to Your Project

Heavy Architectural Window

The arrival of the highest performing double-hung window* will be the foremost choice for projects that require windows of extra large size or where the size and weight of the sash may affect the operating performance of the window. And, if history dictates replicating existing monumental windows, this new window provides an excellent choice for outstanding structural integrity. A rugged, four-inch master frame allows for special balances that result in trouble-free operation. Thermally broken, this window provides the superior structural and thermal performance you need to meet the most stringent specifications.

*This window has achieved the highest performance rating of any full test size, double hung, heavy architectural aluminum window, according to AAMA's most recent certified products directory published September, 1987.

SEASON•ALL®

Since 1947, The Standard of Excellence In Windows

1480 Wayne Avenue • Indiana, PA 15701 • 800-999-1947

INDAL

SEASON•ALL WINDOWS AND DOORS

us at the
IB Show • Booth 3342

See us in Sweet's-Buyline 1433

Circle 28 on inquiry card

NATIONAL LIGHTING SHOULD BE YOUR PRIMARY LIGHT SOURCE

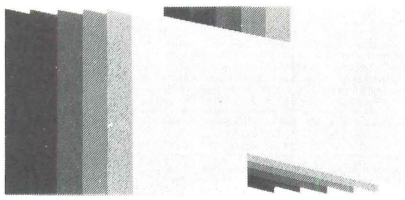
EMPIRE STATE / CHRYSLER

'80's technology meets '30's splendor with dazzling results. The re-lighting of the Empire State Building's legendary tower combined conventional strip lighting with solid state ballast technology. The Chrysler Building's gem-like spire–whose zig-zag lighting was originally conceived, though never executed, by architect William van Alen–was finally lit as he'd intended in 1981. The 120 window openings are outlined brilliantly with 480 40-watt fluorescent tubes–and a peerless landmark is reborn.

For nearly 50 years National Lighting has been the primary source for commercial and industrial lighting fixtures in the New York metropolitan area. As old as the fluorescent lighting industry itself, National has had a reputation for fast, accurate and reliable service since 1940.

Visit National Lighting Booth #1147
"Spotlight on Innovation"
Lighting World International
at the
Jacob Javits Center
May 10th–12th

National Lighting is Represented by
Lighting Dynamics of New York, Inc.



National Lighting Company, Inc.
Fluorescent Lighting

522 Cortlandt Street, Belleville, New Jersey 07109 N.Y. 212/267-4400 N.J. 201/751-1600

Circle 111 on inquiry card

A window isn't special just because some window company says it is!

But, at Weather Shield...

Circle 32 on inquiry card

When we say special, we mean "SPECIAL"!

We hesitate to say that special is commonplace, because every Weather Shield wood window and door is given the same attention to detail and craftsmanship while it is being made. But when you have been producing first quality wood windows and doors for over a quarter of a century, producing a special window for a unique project is easy.

Our entire business philosophy has been built around supplying the building community with distinctive wood windows and doors. Creative products built from the finest quality materials and assembled by dedicated craftsmen who understand that every window or door, even a standard one, is "special" to someone.

Weather Shield... Where special really means "**SPECIAL**"!

All Weather Protection · Always!

WEATHER SHIELD® MFG., INC. MEDFORD, WIS.

Weather Shield Mfg., Inc

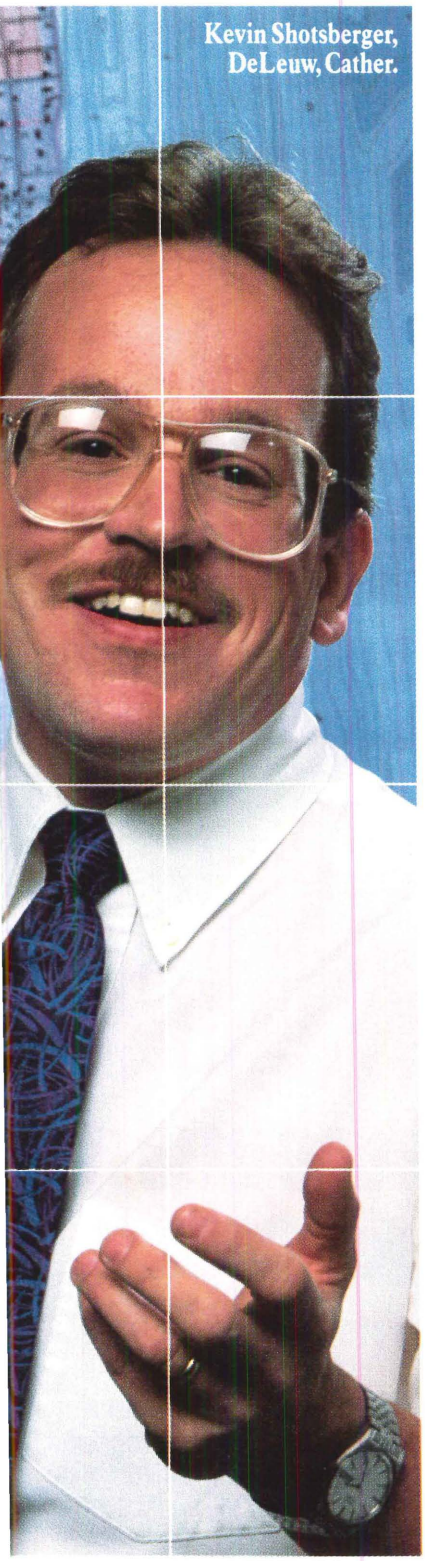
Medford, WI 54451 • 715/748-2100

"Better Ideas In Wood Windows!"

Products described are available using SUNGLAS HRp (heat reflective) Low E glass. A product of Ford Glass Division.

Circle 32 on inquiry card

"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."

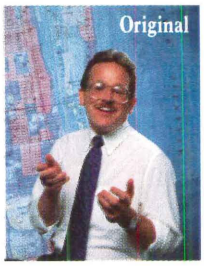
Turn-around time is equally important with the complexity of the presentations DeLeuw, Cather prepares. Work that once required outside sources can now be done entirely in-house. And at a fraction of the cost.

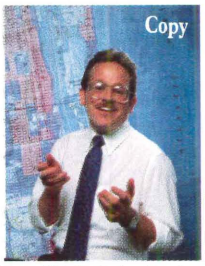
"To do this kind of work on the outside would be positively prohibitive," Kevin explains.

"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."

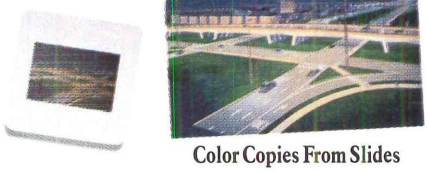
For a company with interests as widespread as DeLeuw, Cather, the Color Laser Copier makes a world of difference.

Canon
COLOR LASER COPIER

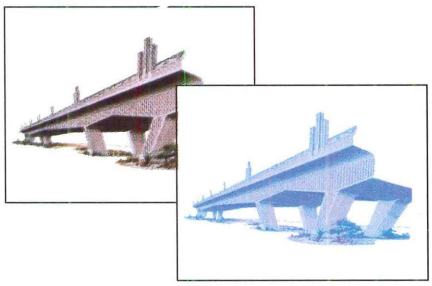




Digital Full-Color Copies



Color Copies From Slides



Color Conversion

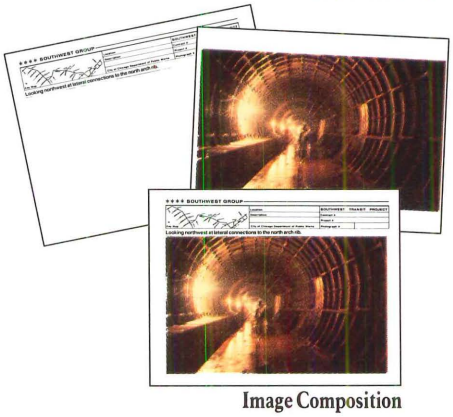
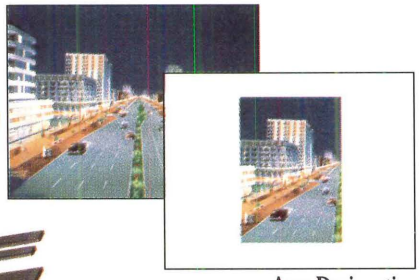


Image Composition



Area Designation

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

For more information, call toll free **1-800-OK CANON.**
Or write Canon U.S.A., Inc., P.O. Box 3900, Peoria, IL 61614.
© 1988 Canon U.S.A., Inc.

Circle 33 on inquiry card

"With my kind of inventory, there was no question about selecting the right roof."

Al Aston, Quality Assurance and Facilities Manager,
VECTA, a division of Steelcase.

Al Aston

With an extensive inventory of fine fabrics and exotic woods, leaks were disastrously expensive. VECTA needed a replacement roof that could offer warranted protection against Texas-sized weather problems. Like prairie winds, 110° heat, torrential downpours and sudden "blue northers." The roof had to withstand lots of building movement as well.

Bond Cote reinforced NBP membrane, containing high tenacity Trevira® polyester from Hoechst Celanese, is impervious to almost anything Texas weather can throw at it. Since rolls are mechanically attached and welded together, there's little chance of the roof ever coming apart.

Mr. Aston got the protection he needed. And he got an important extra as well. "Its reflective white surface was a bonus. We were able to cut back on air conditioning immediately. The clincher was the warranty. I'd say talk to WestPoint Pepperell when you want the right roof."

BOND COTE®
ROOFING SYSTEMS

Call us toll-free 1-800-368-2160. Or write Bond Cote Roofing Systems, P. O. Box 71, West Point, GA 31833-0071.

Circle 34 on inquiry card

West Point Pepperell

Trevira®
The HOECHST® name and logo and TREVIRA® for polyester are registered trademarks of Hoechst A.G.

Venturi's kit-of-parts for high-end housing

While developers of office buildings and retail complexes have at least occasionally recognized both the esthetic and commercial value of star-quality architectural design, builders of single-family housing have all too seldom followed suit. But residential builder/developer Warren Pearl does not hesitate to speak his mind on the matter: "The builder, by choosing to bypass the design development services of talented architects, has consistently short-changed the high-end consumer."

For a 670-acre "country club" community in West Palm Beach, Florida, Pearl has put his concept to the test by commissioning Robert Venturi of the Philadelphia firm Venturi, Rauch and Scott Brown to develop a design with sets of distinguishing variants. Though the houses will in all cases be finished with stucco and red tile roofs, their massing varies according to their several plans: in some cases, the house gains a partial second floor, and thence a broken roofline. Entrance variations include six designs for doors—Spanish, Jacobean, Palladian, Tuscan, each carefully composed although the styles, in true Postmodern fashion, are suggested rather than slavishly drawn. Each doorway is surrounded by a variety of suitable window types. Inside, the owner is offered another six modifications—these for a fireplace wall in the living room, for which doors, mantels, surrounds, and chimney breasts vary (four of the six designs are shown directly above).

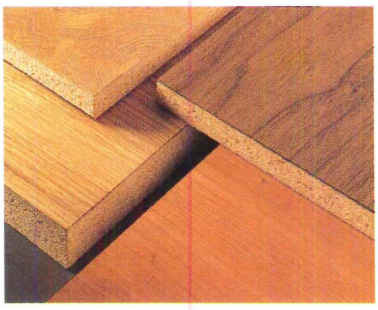
Trial by fire.

When the Edmonton Law Courts wanted a fire-retardant panel for their expansion project, the decision was in favor of Duraflake® FR. The Class I fire-rated particleboard that's gone through trial after trial.

It has a UL flame spread rating of 20. And a smoke developed rating of 25. Plus it's stable and won't bleed chemicals. Important requirements when laminating fine veneers such as the teak used in Edmonton's courtrooms.

You can order Duraflake FR cut-to-size, or in four- or five-foot wide panels of standard length. Four-foot wide panels are also available up to 18 feet in length. It's even available as a high-pressure laminate panel called DuraDesign® FR, for use in casegoods and furniture.

If you have to meet strict fire codes, call (503) 926-5866 for Duraflake FR. And give it a trial.



Duraflake® FR

Duraflake Division
Willamette Industries, Inc.
Albany, Oregon 97321
(503) 928-3341

Circle 35 on inquiry card

ews briefs

pping the Eiffel Tower: ench architect Jean Nouvel, in laboration with the British gineers Ove Arup & Partners, s won the design competition Le Triangle de la Folie at La fense in Paris. The office ver, a circular concrete ilding, will be 100 meters gher than the Eiffel Tower.

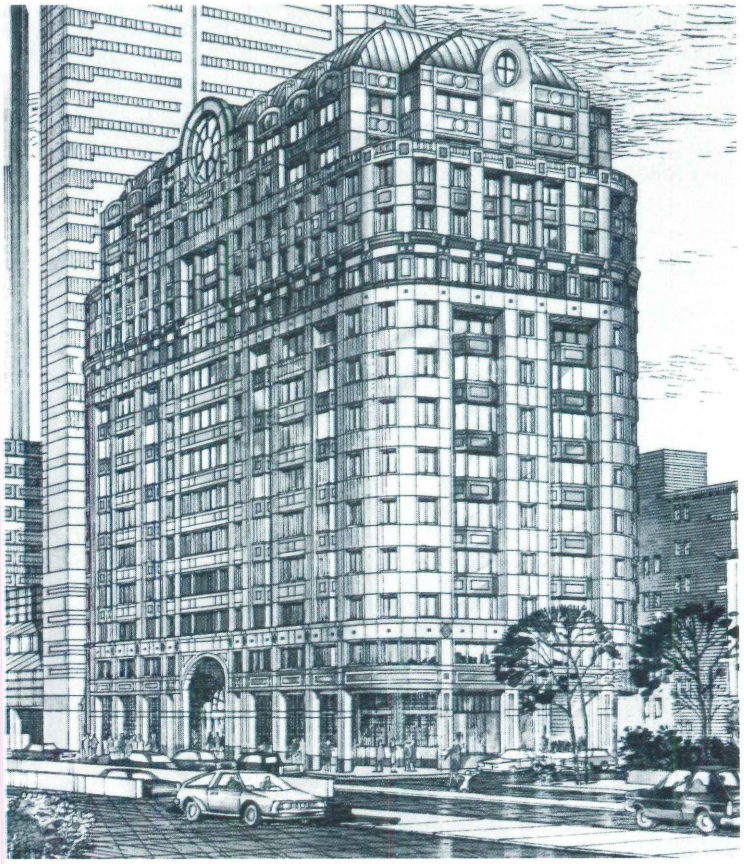
artistic partnership: the San ancisco Museum of Modern t and Mitsui Fudosan S. A.) have formed a five-year artnership" for the study of panese architecture and sign. The Japanese corporation ll provide Paolo Pelledri, MMA's curator of chitecture and design, with a twork of contacts and with ancial support for travel in pan.

tting their money where eir mouths are: Jung/Brannen ssociates and the Boston ciety of Architects jointly ught a Boston landmark at 50 oad Street for $2.3 million. e granite warehouse, designed 1853 by Charles Edward rker, will become the adquarters of the BSA.

nking architecture and the blic: architect Norman L. oonce has become president of e American Architectural undation, an organization tablished by the American stitute of Architects in 1942 as neans of informing and ucating the lay public about chitecture. Koonce has been a incipal of the Bogalusa, uisiana, architectural firm of night, Koonce, Howe & sociates.

mes architects play: Maxis ftware has released SimCity, e City Simulator. According to manufacturer's literature, game allows the player not ly to design and construct our own utopian dream city" t to "wipe out a city through rorism, financial smanagement, or by evoking a tural disaster such as an rthquake or monster attack."

Turn-of-the-century Eclectic? Look again . . .



In Boston, Huntington Avenue makes up much of the length of a spine of high-rise office buildings that traverses the city and that includes Hancock Tower, Copley Place, and the Prudential. This site at 116 Huntington Avenue in the Back Bay must mediate the tall scale of Copley Place (at the left edge of the rendering), the residential scale of St. Botolph Street (right edge), and the high-speed traffic on Huntington Avenue (bottom edge). At the same time, and in addition to sleek Modern buildings, the neighborhood still boasts a number of feisty Bostonian/Eclectic commercial buildings that were erected toward the end of the last century. Architects Childs Bertman Tseckares & Cosendino paid homage to the style with an elaborately ornamented brick and precast-concrete commercial building having sidewalk arcades, rounded corners, numerous balconies and loggias, and a kind of mansard roof.

An urban mall for a suburb

Silver Spring, Maryland, may be a suburb of Washington, D. C., but the Silver Triangle complex has decidedly urban ambitions for the small city. In addition to a large shopping mall, complete with the requisite pair of anchoring department stores, the mixed-use development will include four office buildings and a hotel. Architects Dewberry & Davis, of Fairfax, Virginia, surrounded the base not with the expected suburban parking lot but with sidewalks, show windows, and cafés. High glass gallerias mark the major entrances and provide pedestrian diagonals across the large two-block site. Across a major street bisecting the site, a glass bridge, called Skyway Court, will contain three floors of retail space. The mall, developed by Moore & Associates of Silver Spring, will be served by the adjacent metropolitan transit bus station.

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.

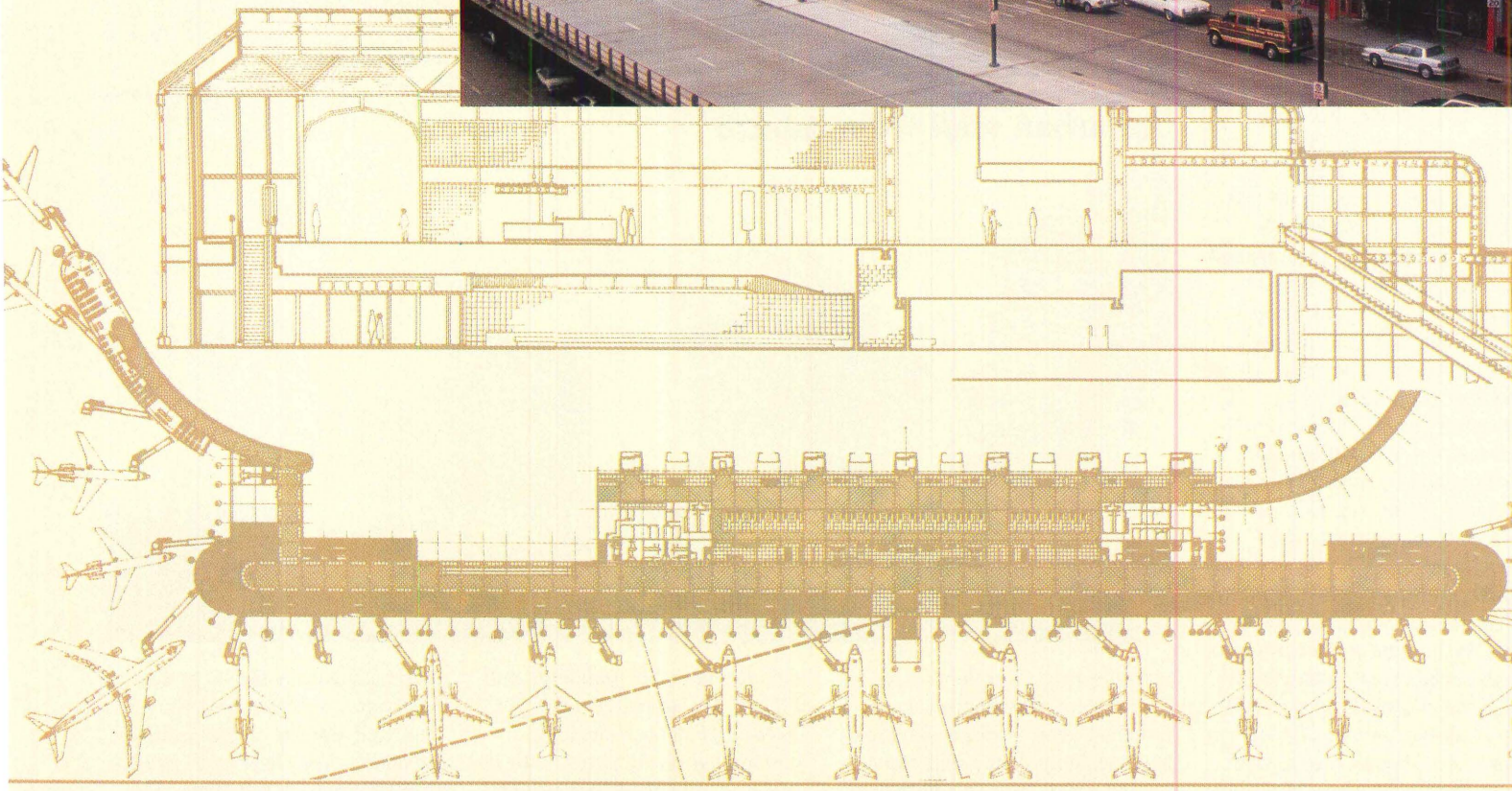
TCS is a unique roofing material. Its finest testimonial is the roster of distinguished architects such as Helmut Jahn who continue to specify it for major projects.

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

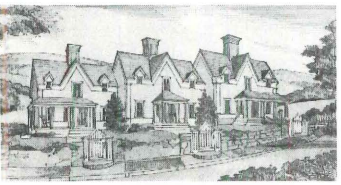


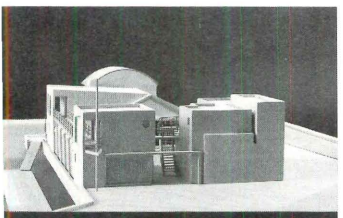
TCS
TERNE COATED STAINLESS

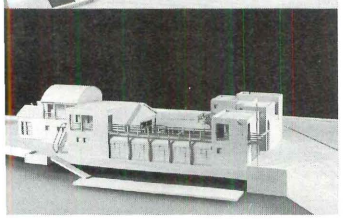
FOLLANSBEE
FOLLANSBEE STEEL • FOLLANSBEE, WV 26037
Call us toll-free 800-624-6906

Circle 36 on inquiry card

News briefs







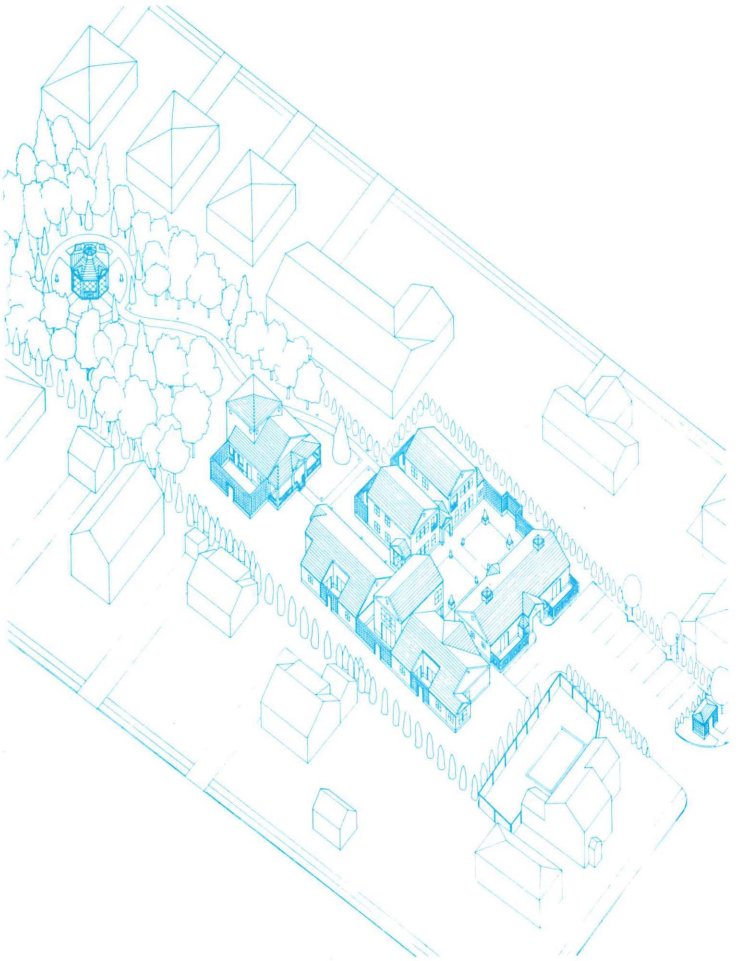
Seaport Mews (1), designed by architect John Whipple Barton under the auspices of the New York Landmarks Preservation Commission, is a conversion of an antique commercial building into luxury loft apartments. The 1835 structure, the largest vacant commercial building in the city's historic South Street Seaport District, will combine the restoration of cast-iron Neoclassic detailing at ground level and the addition of two upper floors for apartments, which will be recessed out of casual sight behind the cornice.

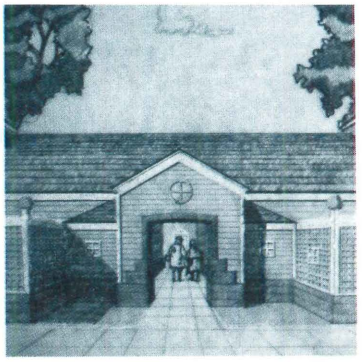
Vermont ski houses (2), located at the Stratton Sun Bowl, were designed by Beinfeld Wagner and Associates of Norwalk, Connecticut, in the New England vernacular—colonnaded verandas, clapboard siding, steep-pitched roofs—though the contents are up-to-date luxury. Developed by the Stratton Mountain Corporation, they will face the ski slopes and surround a golf course.

The East 90th Street Pier (3) on New York City's East River, formerly a station for the harbor's fire department, will be renovated by the Asphalt Green recreational center. The new facilities, designed by architects Keenan/Riley, will incorporate classrooms for an after-school environmental center. The pier will also become the home of the New York Rowing Association, with a floating dock, a ramp, a boathouse, and a rooftop deck for spectators.

Capitol Square (4) in Concord, New Hampshire, designed by McGowan Brook Reno, will combine new and old: on one side of the street, an existing five-story 19th-century building (at far right in rendering), and on the other side, a new eight-story building, the lower five stories repeating the older building's brick masonry. It will be the city's largest mixed-use high-rise, with offices, stores, restaurant, and spa.

Landlocked town houses





For a narrow site almost entirely enclosed by houses in Metuchen, New Jersey, architect Michael Burns designed an eight-unit housing project for the elderly. The parcel had held the deteriorated family home of developer Andrew D'Urzo, who wanted to replace the old house with a new house for his mother and with a "socially intensive community" for adults.

A bricked pedestrian way will lead from a parking lot just off the street through the town-house cluster to a detached house; a gazebo will culminate a meandering path at the back of the lot. The entrance gate (above left), flanked by two one-bedroom units, leads to an inner courtyard (above right), which is bounded by one- and two-story houses and their front porches. Each of the houses will have a protected terrace at its back on the perimeter of the development, and two-story houses at the edge of the courtyard will also have recessed balconies upstairs. Because the neighboring houses will largely conceal the project, Burns designed a bus shelter as identification on the street.

The clapboard houses will have shingle roofs and rusticated stucco bases.

Astro-Glass®

(O-SX-SX-O)

Dor-O-Matic's full glass automatic sliding door entrance

The Astro-Glass® automatic sliding door package is unique in what it includes. And what it doesn't.

First, the package comes **complete** with ½" clear tempered glass in doors and sidelights. Yet the ensemble of glass doors and sidelights has **no vertical stiles** to intrude on the panoramic view!

All Astro-Glass packages come complete with safety reversing and two horizontal safety beams.

To meet exit code requirements, the two sliding glass doors can be opened to 90° in an emergency from any position in their cycle thus complying with N.F.P.A. #101.

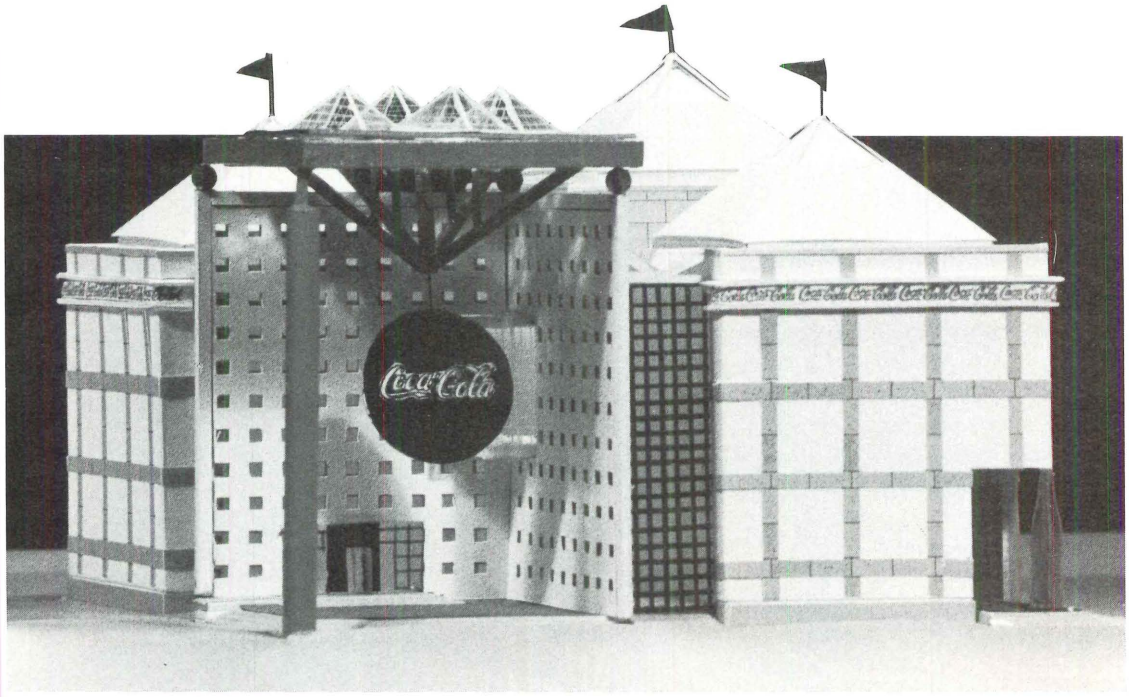
A manual lock in the bottom door rails is available for night security.

For information, call toll free 1-800-543-4635 or write for our new Astro-Glass Package Brochure.

DOR-O-MATIC®
AUTOMATIC DOOR EQUIPMENT
Circle 37 on inquiry card

7350 West Wilson Avenue
Chicago, Illinois 60656-4786
Attn: Sales Mgr.–Auto Division
(312) 867-7400 • Telex 317607
Fax (312) 867-0291

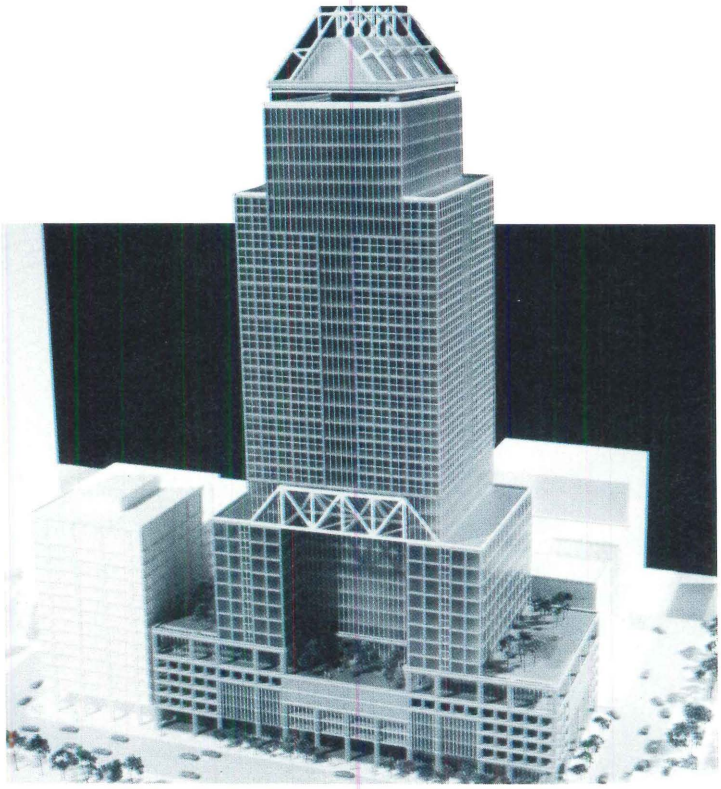
he pause that refreshes

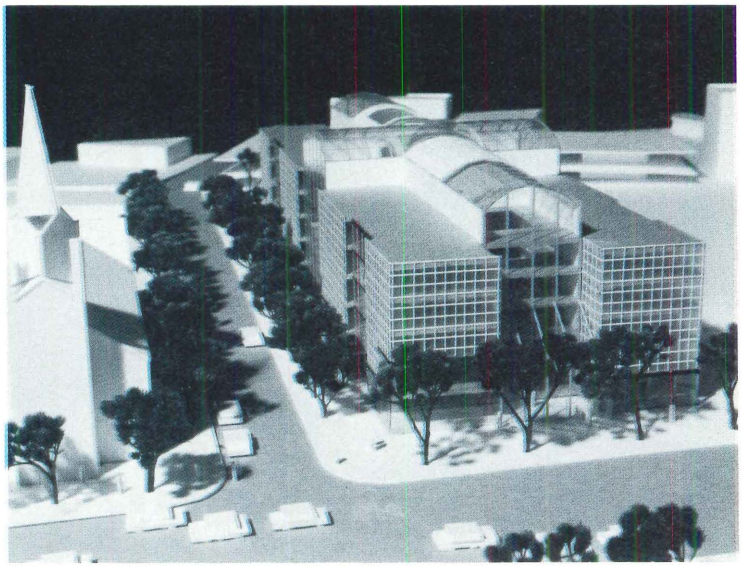


he new Coca-Cola visitors' avilion will be built in Atlanta the juncture of state offices, me historic churches, and nderground Atlanta, a center mbining shops and ntertainment. The pavilion, ntaining Coke memorabilia and her displays, will offer a latively sober stucco and mestone facade to the overnment precinct, a livelier en quadrant (shown) to the nderground Atlanta entrance. he circular neon Coke sign places one demolished in 1981. he architects are Thompson, entulett, Stainback and ssociates/Turner Associates.

he two faces of downtown

Because CBDs attract large numbers of workers, shoppers, and visitors, their buildings vary in size and form.





ese two office buildings, signed by Cleveland architect chard Fleischman, illustrate ferent aspects of Cleveland's wntown.

On one hand, the more or less amorous central business strict attracts both business sitors and pleasure seekers. Fleischman's design for the high-rise mixed-use Convention Plaza (left) offers retail space along the sidewalk and on a mezzanine that will become part of Cleveland's covered connector system. Above these levels, several floors of parking will be succeeded by a hotel, with an office tower on top of all. Wind load from Lake Erie will be transferred from the tower to the base by a large exposed Vierendeel truss.

Less glamorously but just as vitally, the more modest edges of the CBD attract service offices, which require both reasonable rents and central locations. The Cuyahoga County Human Services and Support Agencies Building (right) will be developed privately and leased by the government. Fleischman calls the glass-vaulted lightwells that cut through the office floors "spatial oases" for workers.

A flying start.

You're looking at the busiest terminal in the world's busiest airport: United Airlines at O'Hare. 400 flights a day through 85 acres of terminal.
That means a lot of escalators, moving walks and elevators. And no room for bottlenecking breakdowns.
To handle all those millions of people smoothly and efficiently, United needed big and they needed good.
Fortunately, there's a word for that in Chicago: Otis.

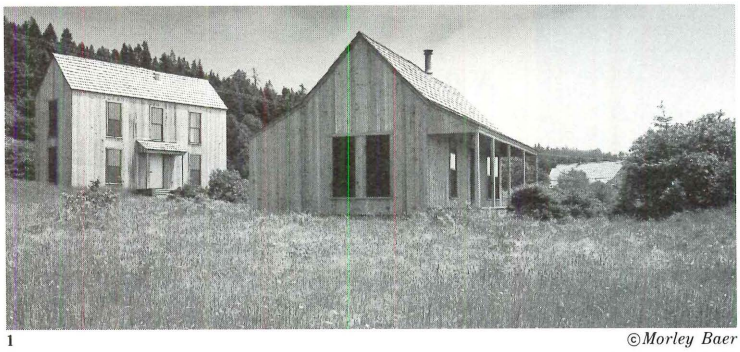
Our Otis subsidiary is a leading company in the building systems industry.

UNITED TECHNOLOGIES OTIS ELEVATOR

Circle 38 on inquiry card

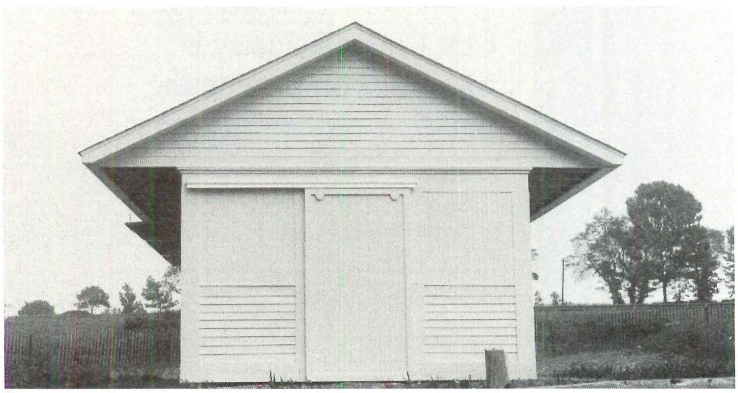
Design awards/competitions: American Wood Council 1988 Wood Design Awards Program

In its latest design awards program, the American Wood Council gave six Honor Awards and six Merit Awards. While most of the awards were for residential projects, as one might expect of wood structures, premiated buildings also included a restored tavern, a scout camp, an animal shelter, and a pleasure pier. "The winners represent a movement away from excessively clever devices popular in recent years," the jury commented in its report. "These are refreshing, serious,

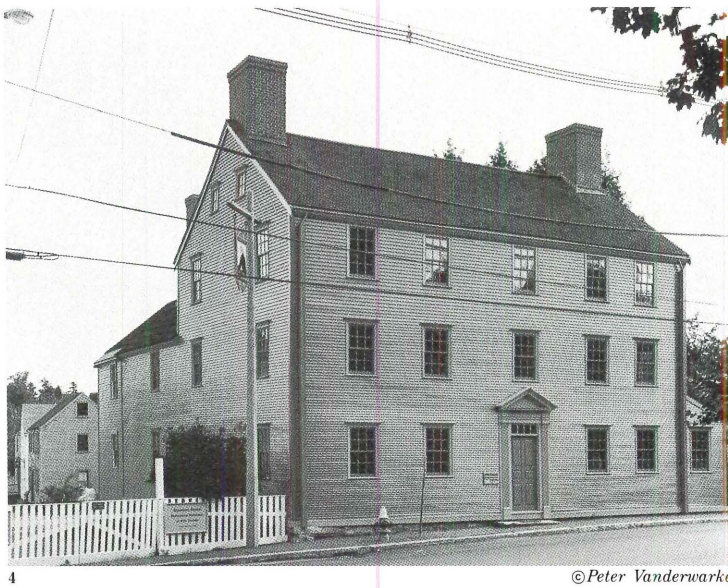


1 ©Morley Baer

2



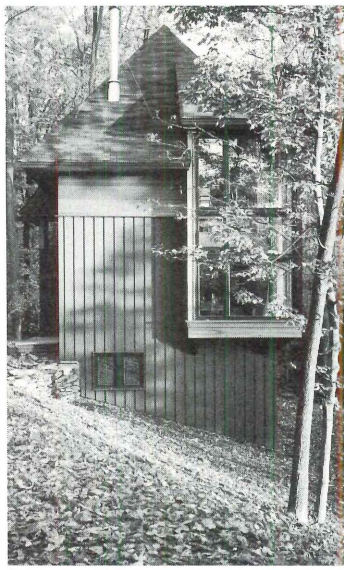
3



4 ©Peter Vanderwarke

Alise O'Brien

5



6

1. Sea Ranch Employee Housing, Sea Ranch, California; William Turnbull Associates, architects (Honor Award). Heavy timber construction and vernacular style have characterized Sea Ranch for 20 years. "Simple wood forms carefully detailed inside and out lend dignity to this low-income housing project, sensitively sited on a coastal meadow," the jury said.

2. Seneca Lake Pier and Pavilion, Watkins Glen, New York; Chad Floyd, Centerbrook Architects (Honor Award). The restored cedar pavilion and its 330-foot pier mark the start of the town's rejuvenation on the shore of one of New York's Finger Lakes. The jury called the project "a delightful reinterpretation of the Victorian pleasure pier."

3. Loafing Shed, Dutchess County, New York; Stephen Sullivan Architects (Honor Award). A utilitarian building meant to shelter retired polo ponies, the small structure combines horizontal clapboard with vertical siding. The jury admired the "elegant simplicity" and "harmonious proportions" of the open-air pole structure.

4. William Pitt Tavern Restoration, Strawbery Banke Museum, Portsmouth, New Hampshire; Allen Charles Hill, architect (Honor Award). The restoration of the 1766 inn preserves or replicates hewn timber beams, rafters, and joists, and reproduces short pine clapboards, using historical methods in all cases. The jury praised the "meticulous, important restoration . . . reinforcing [the tavern's] strength and severity rather than trying to dress it up."

5. Assembly Building/Camp Grizzly Cub World, Beaumont Scout Reservation, High Ridge, Missouri; Team Four, Inc., architects (Honor Award).

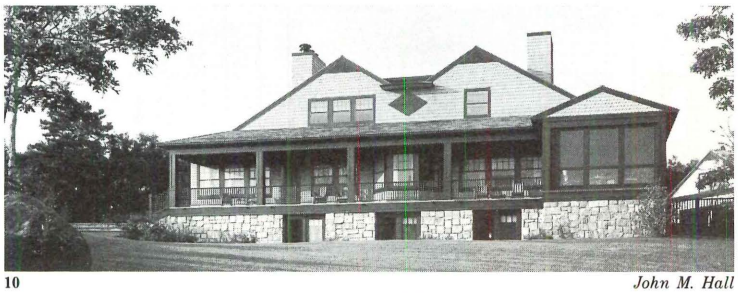
Constructed of wood to relate to its forested setting, the building uses grooved plywood siding inside and out. "Fanciful details enrich this very simple, barnlike building," the jurors said.

6. Caradco View, Bucks County, Pennsylvania; Bentley LaRosa Salaski, Design, architects (Honor Award). Three types of wood cladding serve to variegate the tall three-room house: vertical board-on-board, shiplap siding, and horizontal clapboard. As the jurors commented, "Skillful juxtaposition of wood elements lends a playful quality to this 'big' small house."

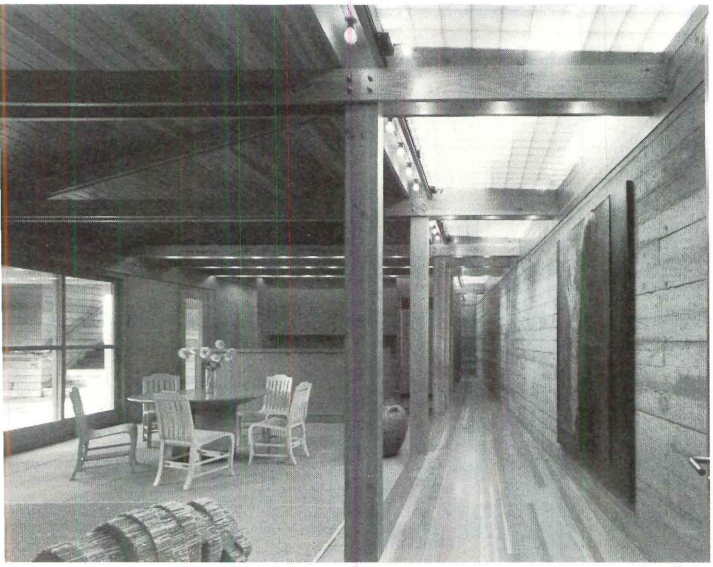
obing projects, exploring the fundamental use of wood as a aterial, rather than to bombard the senses." Members of the ry included Kurt Andersen, design critic for Time *magazine; ter Q. Bohlin, of the Wilkes-Barre, Pennsylvania, chitectural firm Bohlin, Powell, Larkin, Cywinski; Lawrence Booth, of Booth/Hansen & Associates, Chicago; Heidi chardson, of Richardson, Butler Associates, San Francisco; d Cynthia Weese, of Weese Hickey Weese Architects, Chicago.*

Wayne Cable

9 *Creative Sources*



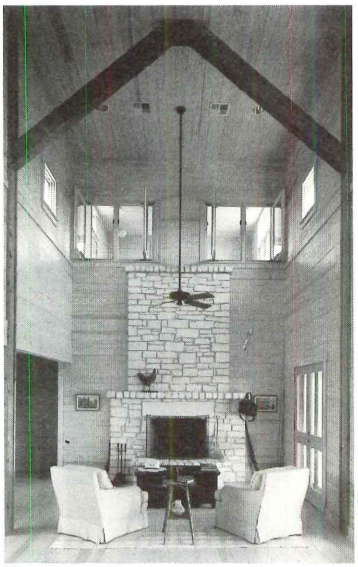
10 *John M. Hall*



Art Grice

©Nick Merrick/Hedrich Blessing

11



©Paul Hester

12

Davis Residence, Union Pier, chigan; Peter Landon chitect (Merit Award). To take vantage of views of Lake chigan, the back of this nodeled vacation house got o floors of gridded glass doors d windows. "An exceptionally sitive and well-crafted inement to an existing ucture, retaining the elessness of the rural ngalow."

Guest House, Seattle; James tler Architects (Merit Award). e exterior was designed to appear into the surrounding woods, while the interior re dramatically contrasts concrete surfaces with fir framing. The jury liked the "exquisite interior detailing, elegant skylighting system, and direct yet subtle plan."

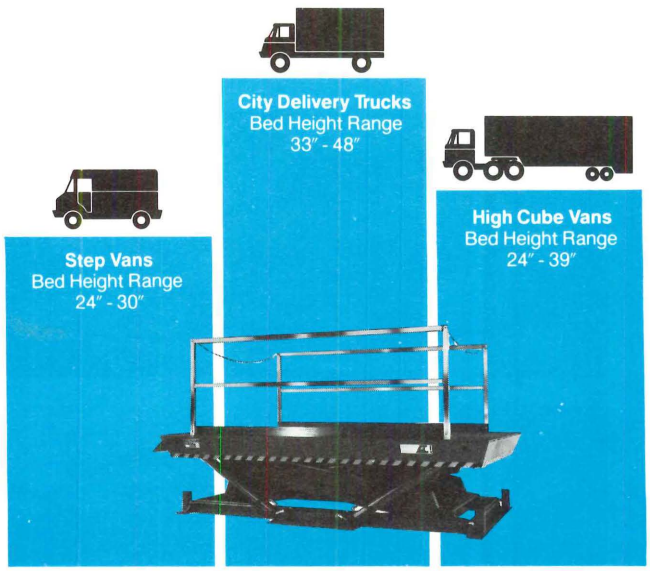
9. Seaside at Wild Dunes, Wild Dunes Beach and Racquet Club, Isle of Palms, South Carolina; Chris Schmitt & Associates, Inc., architects (Merit Award). Inspired by the design of nearby vacation cottages, this 24-house community uses double-hung windows, covered porches, and gingerbread trim. "A few carefully placed and highly effective details individualize these simple cottages, sensitively adapted to this coastal community," the jurors said.

10. Fisher Residence, East Hampton, New York; Robert A. M. Stern Architects (Merit Award). In admiration of the turn-of-the-century summer houses in this part of Long Island, this house has sweeping verandas and cedar-shingle siding. The jurors appreciated the "careful detailing inside and out," and at the same time commended "an easygoing historicism that succeeds because it is humane."

11. Private Residence, Highland Park, Illinois; Stuart Cohen & Anders Hereim Architects (Merit Award). Like other shore houses premiated in this program, this one, on Lake Michigan, harks back to earlier waterfront buildings, with large windows, French doors, and window seats to exploit the views. "Inventive, dynamic, lyrical interior spaces and volumes," said the jury.

12. The Schulte Ranch, Round Top, Texas; Cannady Jackson & Ryan, Architects (Merit Award). Both weekend retreat and working ranch, the house has at its center a tall room with wind bracing at the ceiling and heart-pine paneling. "A successful hybrid of stark, clear, dramatic imagery and simple vernacular forms," the jury commented.

Every dock needs a lift



Superdoks.
More than versatile,
Universal.

A matter of inches

The difference between one truck bed height and another is more than a matter of inches. It can be the difference between a good day and a bad day.

While dock levelers give you only 18" of height variance, Superdoks give you an unmatched 58" of operating flexibility.

Whether it's a high cube load from Kankakee . . .

Or a single pallet in a pick-up truck, Superdok quickly and safely moves any load up to 20,000 lbs. You can wheel a handtruck or drive a forklift onto a truck faster and safer than ever before. The sturdy scissor design makes each lift a steady, even motion.

Whether you're handling a truck every five minutes . . .

Or a few trucks a day, Superdoks can pay for themselves in a year of convenient, virtually maintenance-free service. No other alternative is as dependable and versatile. No other alternative makes Just-In-Time workflow work so well.

For more information on the one dock that can make a difference, call or write:

ADVANCE LIFTS

Advance Lifts, Inc., 3575 Stern Ave., St. Charles, IL 60174 312-584-9881

Circle 39 on inquiry card

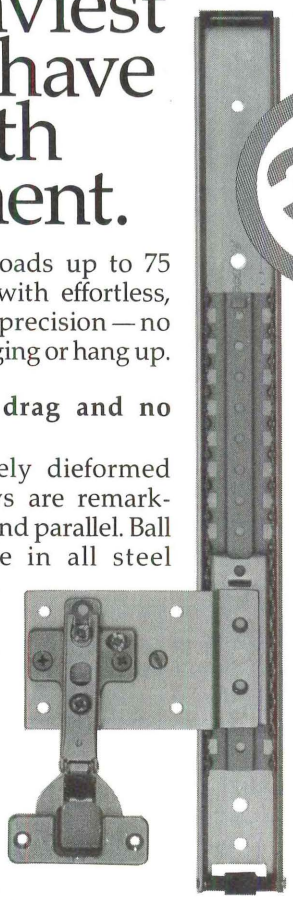
Now, even the heaviest pocket doors can have the ultra-smooth Accuride movement.

The Accuride 1332 Flipper Door Slide® is specifically designed to carry and conceal doors up to 60" or more.

An exclusive new cable system enables the Accuride 1332 to handle cantilevered loads up to 75 lbs. per pair with effortless, syncronized precision — no drooping, sagging or hang up.

No sag, no drag and no wobble.

The precisely dieformed steel raceways are remarkably straight and parallel. Ball bearings ride in all steel bridged retainers. Tolerances that virtually eliminate wear are achieved by keeping all processes that others "job out" under total Accuride control. The result is a door that moves very smoothly.



Fully compatible with the 32mm System.

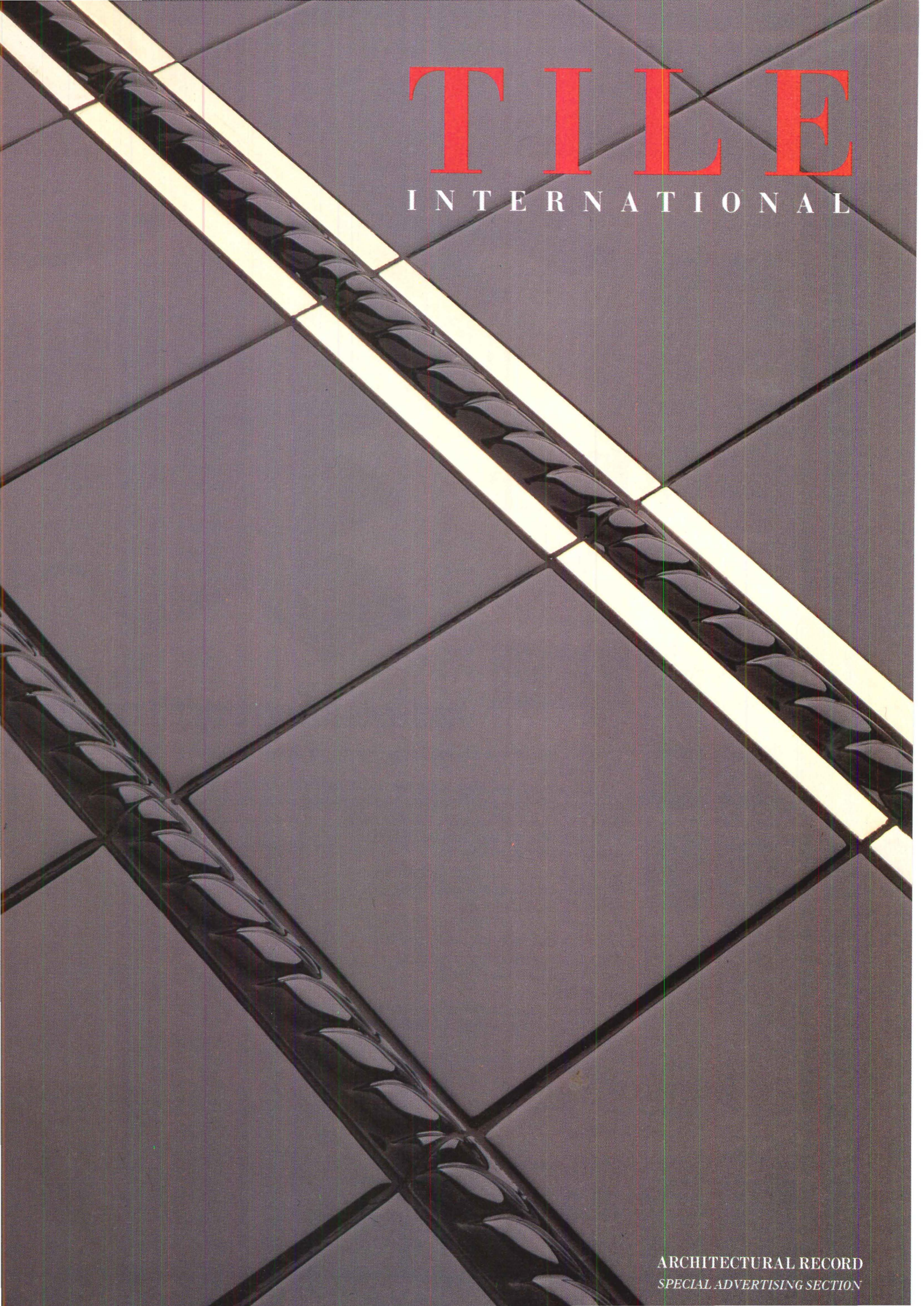
The slide and bracket mounting holes are spaced at 32mm increments from 297mm to 713mm. Model 1332 can be mounted with wood screws or euro screws. And, the model 1332 does the same job as other specialized slides that easily cost 15 times more!

For more information write Accuride, Attn: Customer Assistance, 12311 Shoemaker Ave., Santa Fe Springs, CA 90670. Phone (213) 903-0373. Fax (213) 903-0208.

To Close the Sale, Open the Door.

Accuride®

Circle 40 on inquiry card



TILE
INTERNATIONAL

ARCHITECTURAL RECORD
SPECIAL ADVERTISING SECTION

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

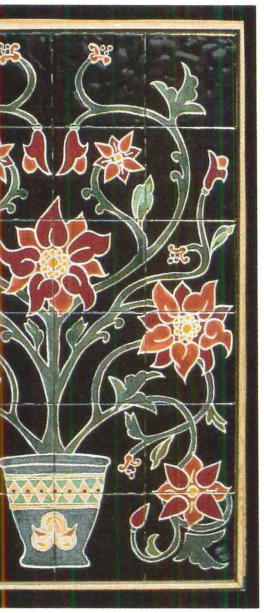
MEMBER TILE COUNCIL OF AMERICA INC

Circle 41 on inquiry card

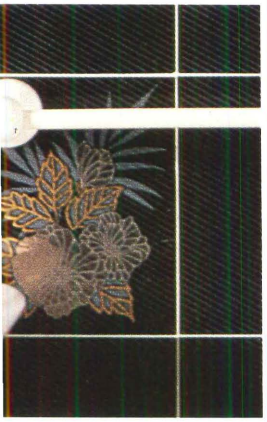
SHAPES

TRIM SHAPES

The Visual Dialogue



Designs In Tile



Sarreguemines

Bardelli

Ceramic tile speaks to the human experience through the international language of design. The deliberately lyrical discourse between solids and patterns, performance and style addresses the complexities of man in his ancient endeavor to master his universe.

The appeal of ceramics is universal, answering the primordial call of earth and fire. Through the magic of man's imagination, mere clay is transformed into a dance of color, texture and light. Architectural ceramics are man's link with the past, his gift to the future.

The art of ceramics crosses all cultural barriers, spanning oceans and time to produce innovative designs. Each nation's tile has a distinct personality, its own individual character. Rarely does a contemporary work have such a close relationship with the essence of its culture and its age.

Explore the potential of architectural ceramics. Examine the innovations, the vibrance of design. We stand at the threshold of a major architectural movement lured by a medium impervious to the ebb and flow of time.

Table of Contents

Playing with Fire to Achieve Perfection T6
The choices, ah, the choices in international tile designs.

Provocative yet Practical T9
Ceramic tiles enhance high-end spaces.

Floor Show T14
High-traffic commercial floors.

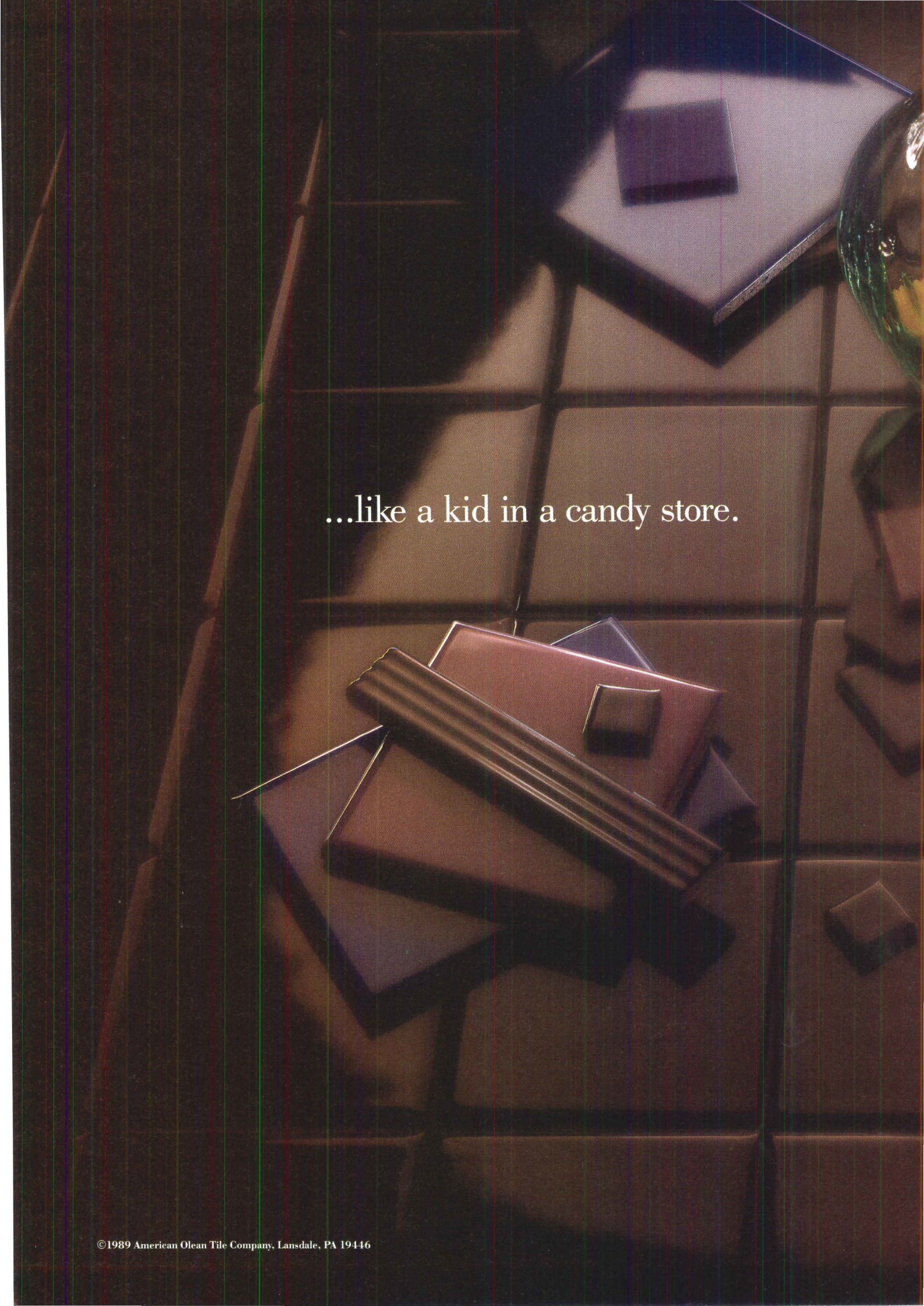
Exploring the Heights T17
Innovative exteriors feature ceramic tile from the ground up.

Quarry Tiles: A Legacy of Performance T22
A time-honored favorite comes into its own.

On the Cover:
International Tile

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

All rights reserved.



©1989 American Olean Tile Company, Lansdale, PA 19446

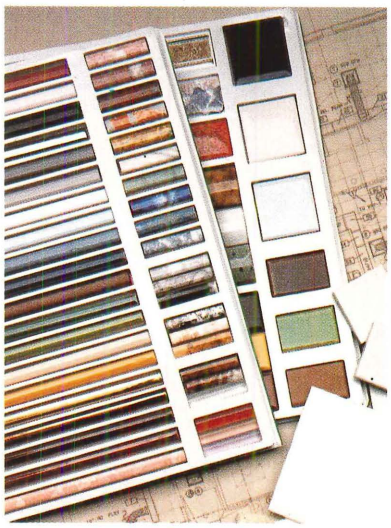
American Olean
an Armstrong company

o one else offers as many textures, colors and styles of ceramic tile. So, to satisfy your sweetest desire, call 1-800-541-TILE, Ext. 355. Or write us at 3509 Cannon Avenue, Lansdale, PA 19446. American Olean. The brightest choice in ceramic style.™

Circle 42 on inquiry card

Playing With Fire Achieve Perfectio

Italian Tile Center



Atlantic Trading

Designs In Tile

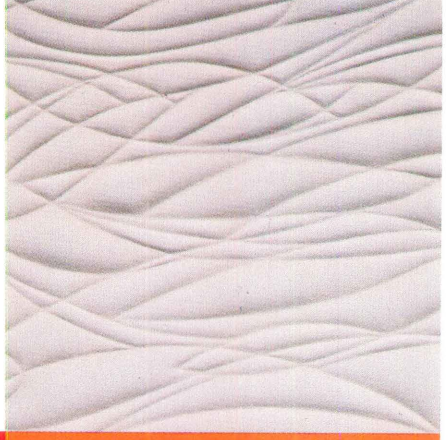
Architectural ceramics capture the essence of an experimental age. Here, art and industry combine to create a permanent canvas inscribed with each nation's values in style and design.

Aesthetically, the dialogue between innovation and art expresses each culture's philosophy toward the decorative arts, the importance it attaches to artistry in the theater of everyday life.

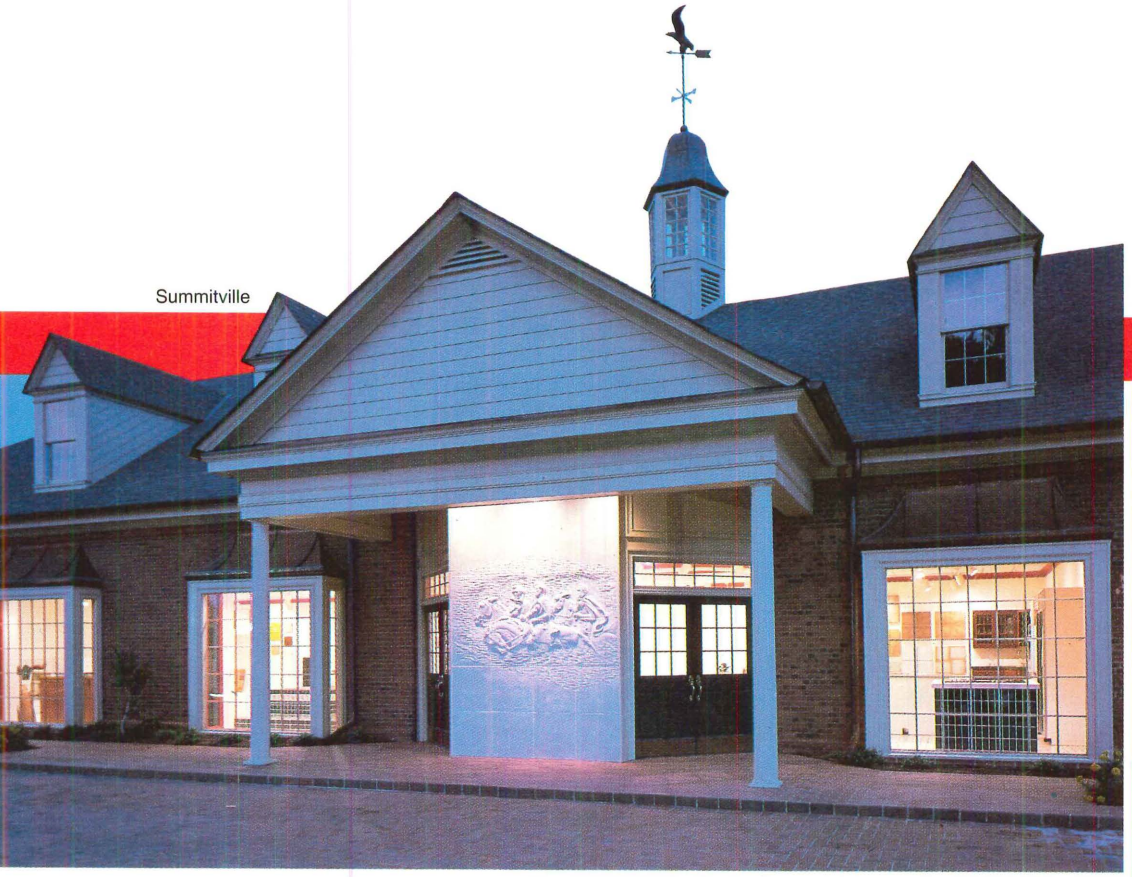
In the industrial arena, ceramic tile technology is continually in ferment, pioneering new products, cross-pollinating the benefits of one tile with another. Once, tile classifications were simple: wall tiles were to be used on walls; floor tiles were for floors.

Today, the sheer brilliance of modern ceramic technology has spawned a new generation of tiles that seem to defy conventional norms. Now, polished tiles can outshine glazed and glazed tiles are suitable for even the highest traffic areas.

Sarreguemines



LaFaenza



Summitville

Nowhere is the synergy between technology and design so vibrant, so essential, so complete.

Highly polished tiles reflect the day-to-day dramas played out in their presence. Choose ceramic mosaics to mirror the intricacies of life, or quarry tiles to take the natural order to its peak.

For the most demanding, there are hand-painted tiles, many inlaid with platinum or 14k gold designs. Some of the newest are from Imola, Sarreguemines, Saloni and Designs In Tile, or the fantasy florals Ascot imbues with tiny crystals of luminous Venetian glass.

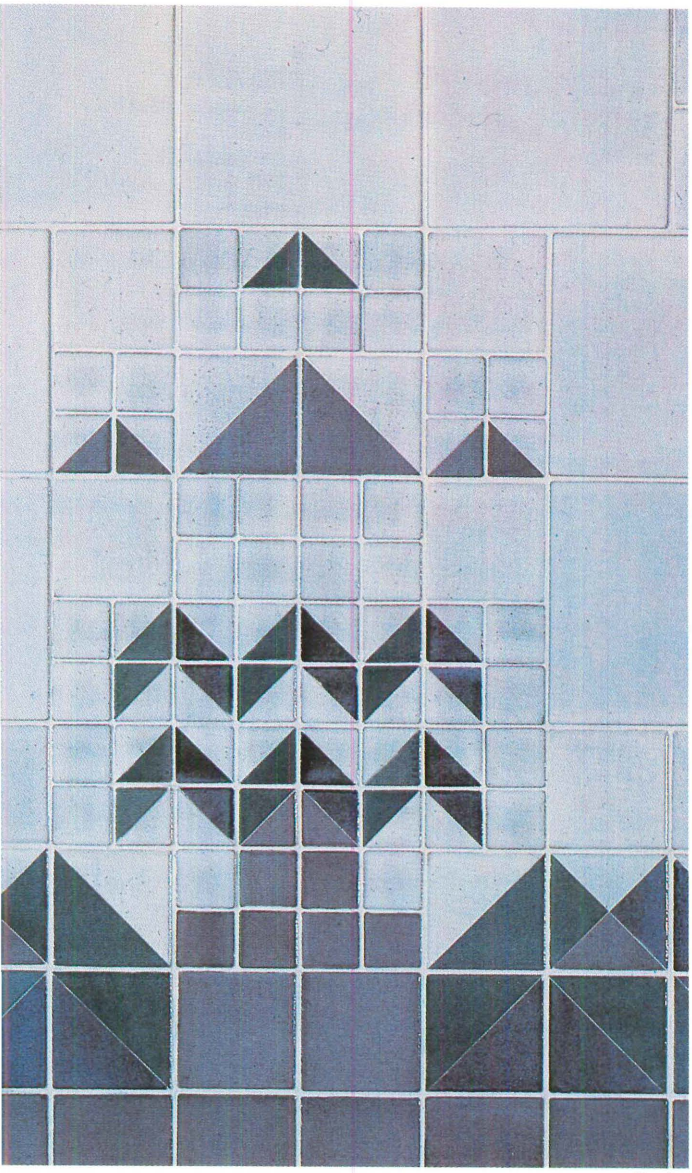
For drama that does not dominate, the ceramic feature strips from Atlantic Trading and International Tile top the list, offering ceramic moldings with marble, pearl and opulent metallic effects.

In the contemporary sculpture category, the three-dimensional tiles from Gres de Valls, Summitville, LaFaenza and Iris are works of art.

For hand-crafted, almost indulgent styling, look to Epro, Ima, Ludowici Stoneware and Gres de Saintonge.

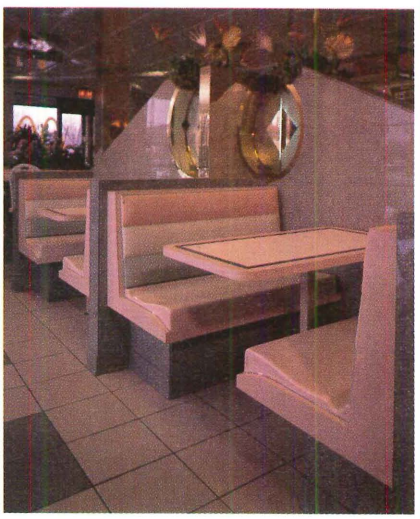
In the faux category, the granite-like tiles of Crossville, Inax, American Olean and Fiandre are an unparalled success.

The sheer variety of architectural ceramics stands in testimony to man's ability to marry technology to the quintessential elements of design. Today's tiles give form to the imagination as they reflect the spirit and passion of those gifted to create.



Decize

American Olean



Fiandre

The meaning of beauty

■ The beauty of GRANITIFIANDRE® makes you forget its most important quality: superior technology. The result of endless research, matchless creativity and sophisticated technology, GRANITIFIANDRE® in polished or matte finish allows for infinite creations of stunning beauty. GRANITIFIANDRE® is porcelain stoneware through and through. Stronger than granite, it is a perfect blend of function and aesthetics. GRANITIFIANDRE®, architectural projects that leave a mark forever!

■ In CANADA:
OLYMPIA FLOOR & WALL TILE Co.
Head office:
1000 Lawrence Ave. West
Toronto, Ontario
Canada M6B 4A8
tel. 416.785.6666
fax 416.789.5745

■ In U.S.A.:
TRANS CERAMICA LTD
P.O. box 795
Elk Grove Village
IL 60009, U.S.A.
tel. 312.350.1555
tlx 517085 TCLCER
fax 312.350.9180

■ In MEXICO:
VITROMEX S.A.
Blvd. Isidoro Lopez
Z.4103
Apdo. postal 385
25230 Saltillo, Coah, Mexico
tel. 841.53144/53242
tlx 381190 VITSME
fax 841.53122

GRANITIFIANDRE

Circle 43 on inquiry card

High-End Spaces

Provocative Yet Practical

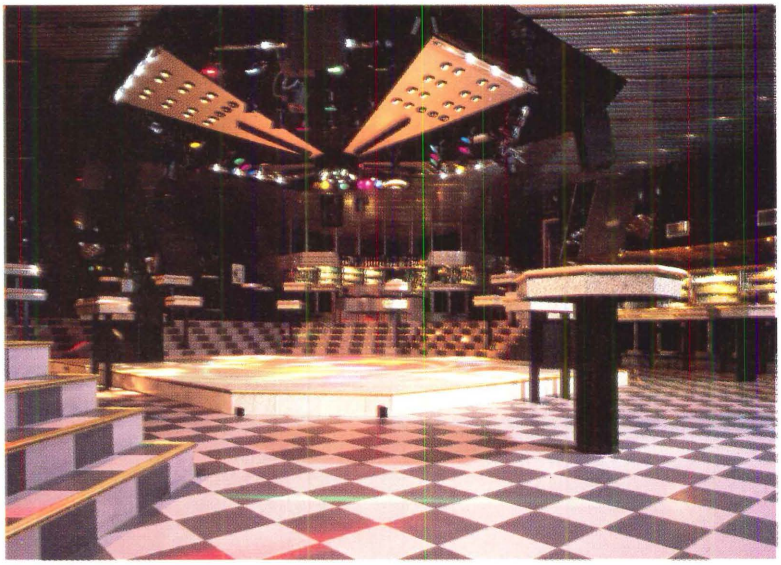
zzi

Architectural ceramics add richness and texture to the human experience. Tiles can be mixed, matched, patterned or polished in countless combinations to express man's range of thoughts and emotions.

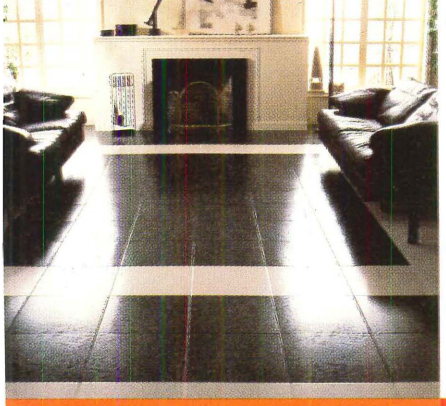
With its myriad of sizes, styles and colors, tiles can be used to celebrate the significance of detail or to preserve harmony through the continuity of line and form.

American Olean

LaFaenza



Royal Mosa



Saloni

In the hands of a master, tiles are blended to evoke an emotional response, creating soothing or stimulating designs in accordance with the architect's vision.

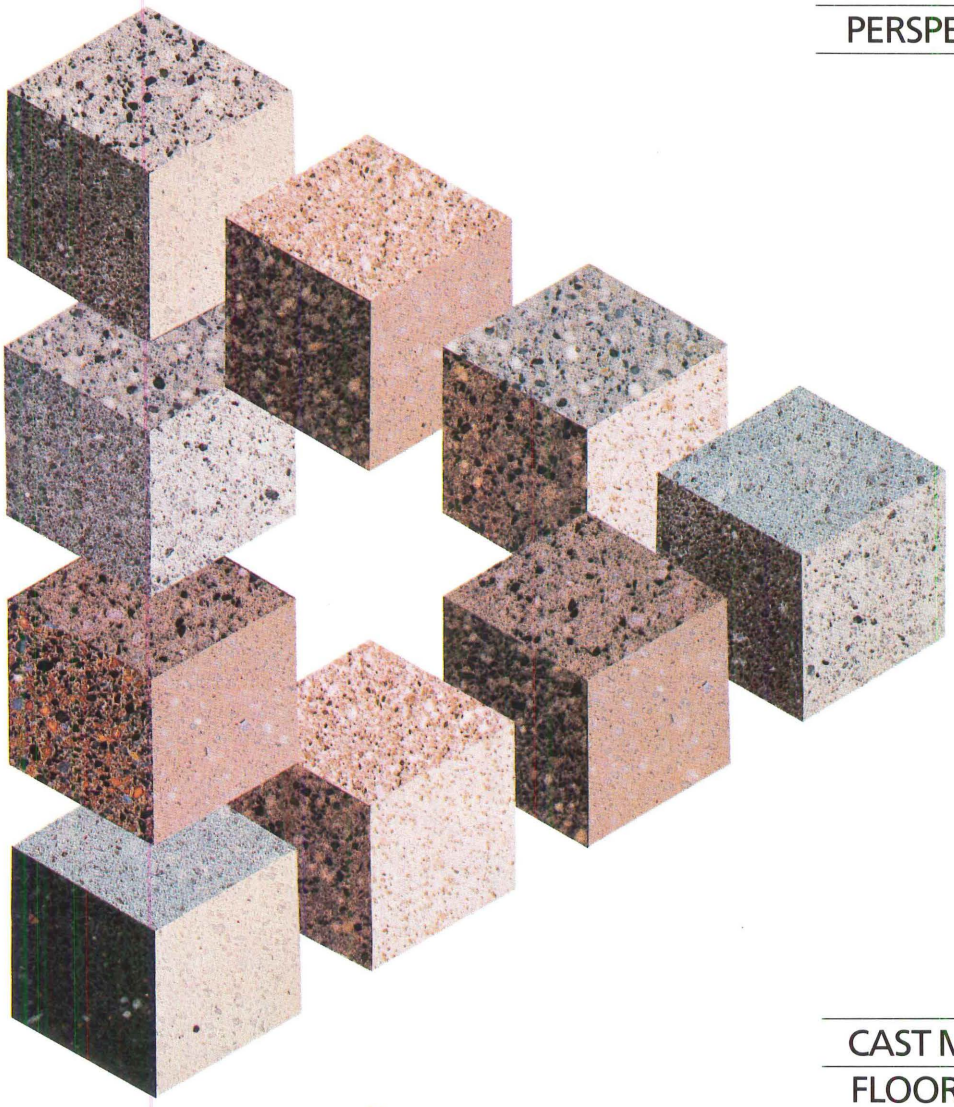
In an increasingly complex age, the validity of a design must also be measured by its power to perform. The soul must be satisfied, but practical requirements must also be acknowledged. Where these two concepts diverge, ceramic tile offers the optimum solution.

Tile gives life and color to elegant offices, luxury showrooms, sumptuous homes and sophisticated industrial settings. Tile adds personality to a required corporate image. Tile directs the traffic flow in hospitals, hotels, shopping malls and airport terminals. Tile adds low-maintenance elan to reception rooms, lobbies and important high-traffic areas.

Where durability and design share the starring role, tile is a top performer.

Crossville

LET
ARMSTONE™
COLOR
YOUR
PERSPECTIVE



CAST MARBLE
FLOOR TILES
AND
WALL PANELS

Classic colors triumph in an award-winning palette of 15 colors. A depth of hues, in honed and polished finishes, enables you to create a visual feast in design.

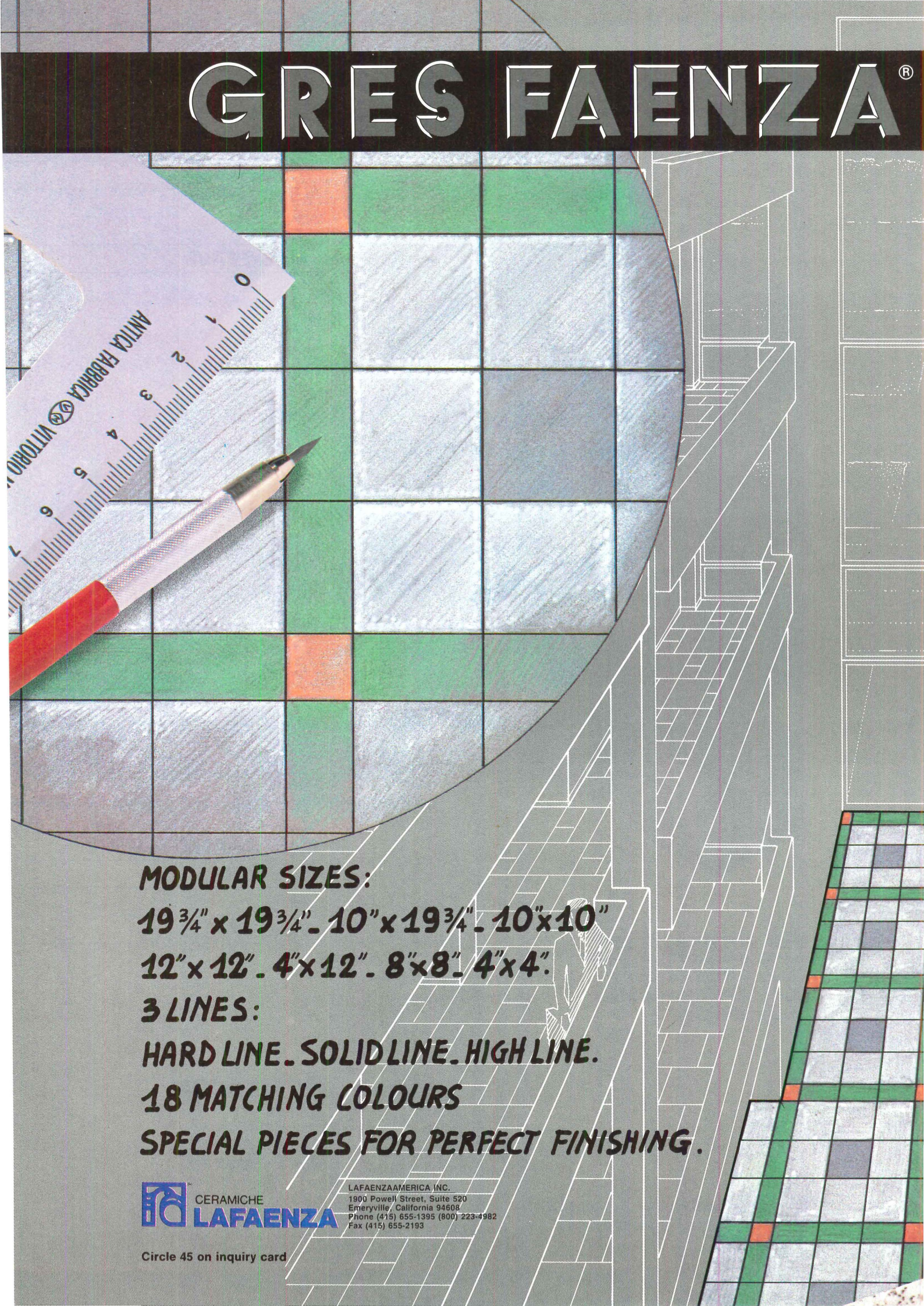
ARMSTONE by ArmStar

An affiliate of
Armstrong World Industries
and Shell Oil Company

Circle 44 on inquiry card

For details, contact your local Armstone distributor;
or contact ArmStar, Box 820, Lenoir City, TN 37771
(615) 986-4040

GRES FAENZA®



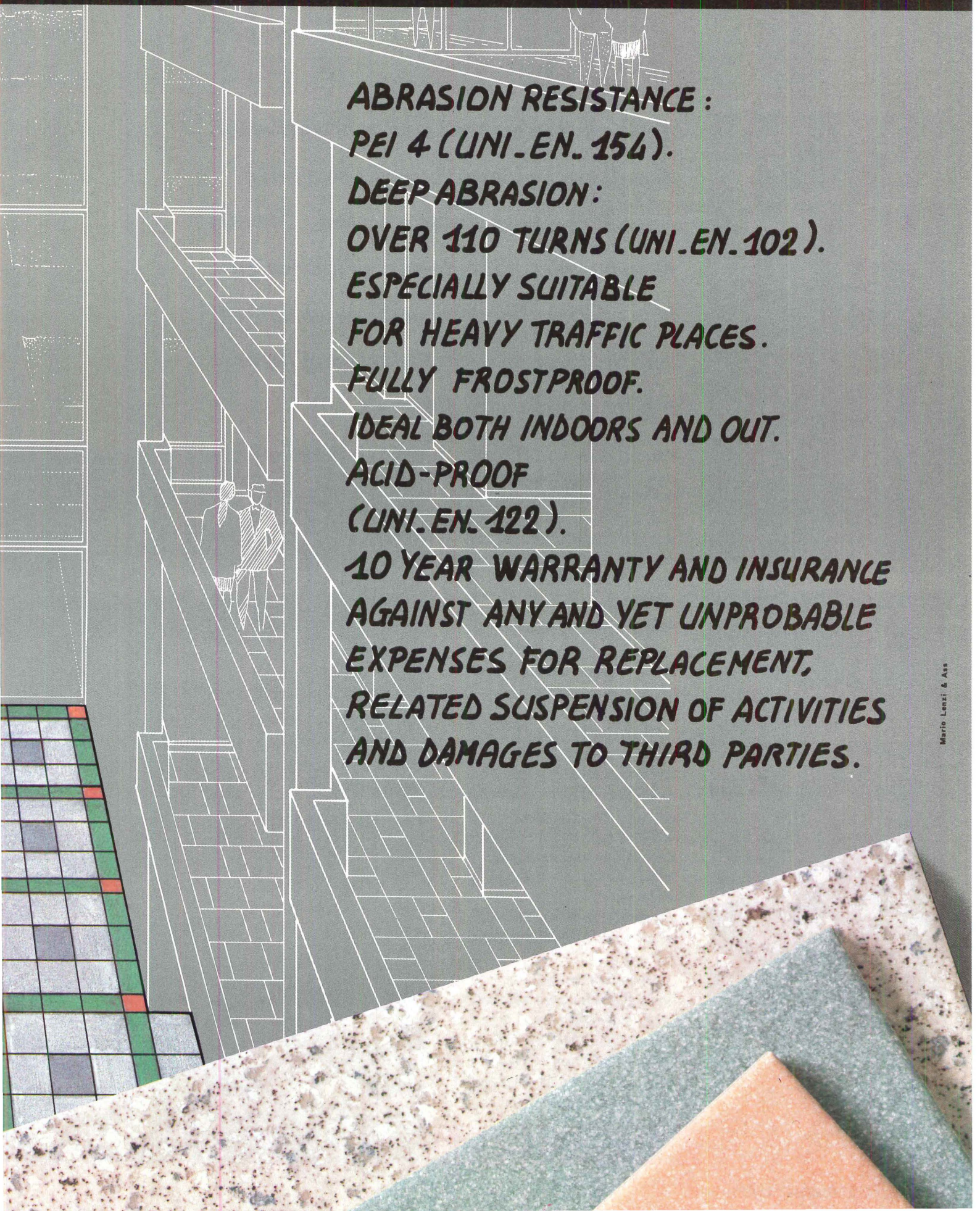
MODULAR SIZES:
19¾" x 19¾" - 10" x 19¾" - 10" x 10"
12" x 12" - 4" x 12" - 8" x 8" - 4" x 4".
3 LINES:
HARD LINE - SOLID LINE - HIGH LINE.
18 MATCHING COLOURS
SPECIAL PIECES FOR PERFECT FINISHING.

CERAMICHE LAFAENZA

LAFAENZAAMERICA INC.
1900 Powell Street, Suite 520
Emeryville, California 94608
Phone (415) 655-1395 (800) 223-4982
Fax (415) 655-2193

Circle 45 on inquiry card

NEW CERAMIC GENERATION



ABRASION RESISTANCE :
PEI 4 (UNI_EN_154).
DEEP ABRASION :
OVER 110 TURNS (UNI_EN_102).
ESPECIALLY SUITABLE
FOR HEAVY TRAFFIC PLACES.
FULLY FROSTPROOF.
IDEAL BOTH INDOORS AND OUT.
ACID-PROOF
(UNI_EN_122).
10 YEAR WARRANTY AND INSURANCE
AGAINST ANY AND YET UNPROBABLE
EXPENSES FOR REPLACEMENT,
RELATED SUSPENSION OF ACTIVITIES
AND DAMAGES TO THIRD PARTIES.

Mario Lenzi & Ass

High-Traffic Commercial Flooring

Floor Show

American Olean

Summitville

Aesthetic integrity demands attention to detail. Each element must be carefully considered, each factor weighed. All must be in balance if the rhythm of the design is to emerge. Nowhere is the potential for conflict as great as in the arena of high-traffic commercial flooring.

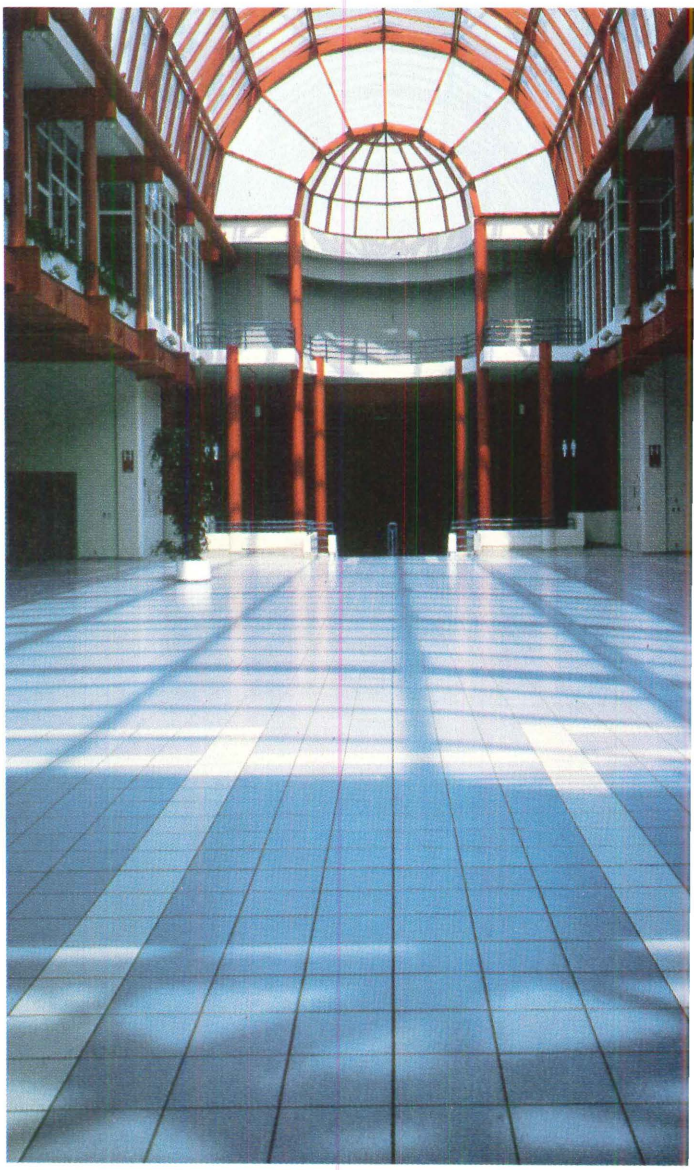
Provocative but practical is the edict. Dramatic but durable is the dream. When the dichotomy is all-pervasive, ceramic tile steps to the fore. Quarry tiles, porcelains and the new super-glazed tiles offer countless creative solutions.

SUPER-GLAZED TILES

Glazes invite an infinite variety of colors and designs with finishes that range from matte to satin to high gloss.

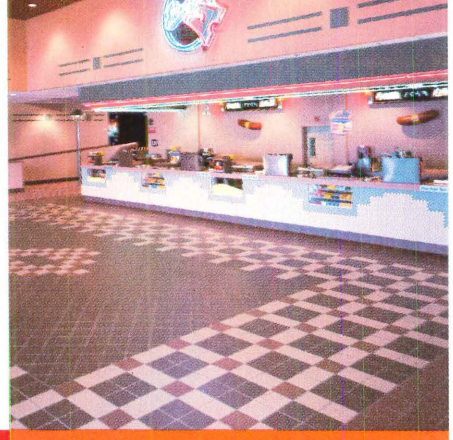
Until recently, glazed tile was usually synonymous with wall tile. Today, a new generation of super-glazed tiles has emerged. Spawned by a technological breakthrough, these tiles marry the aesthetic benefits of traditional glazed tiles with the performance characteristics required for transportation terminals, courtyards and shopping malls.

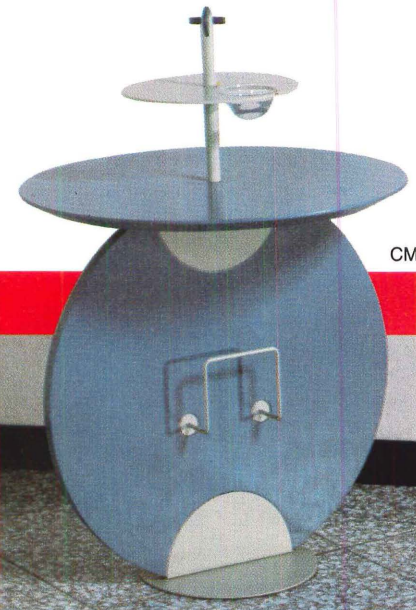
Among the best of the new super-glazed lines are Match and Pregio from CMC/Monoceram, Marazzi Enduro from American Marazzi, LaFaenza's Gres Faenza and the Interni Plus collection from Ceramica Vogue.



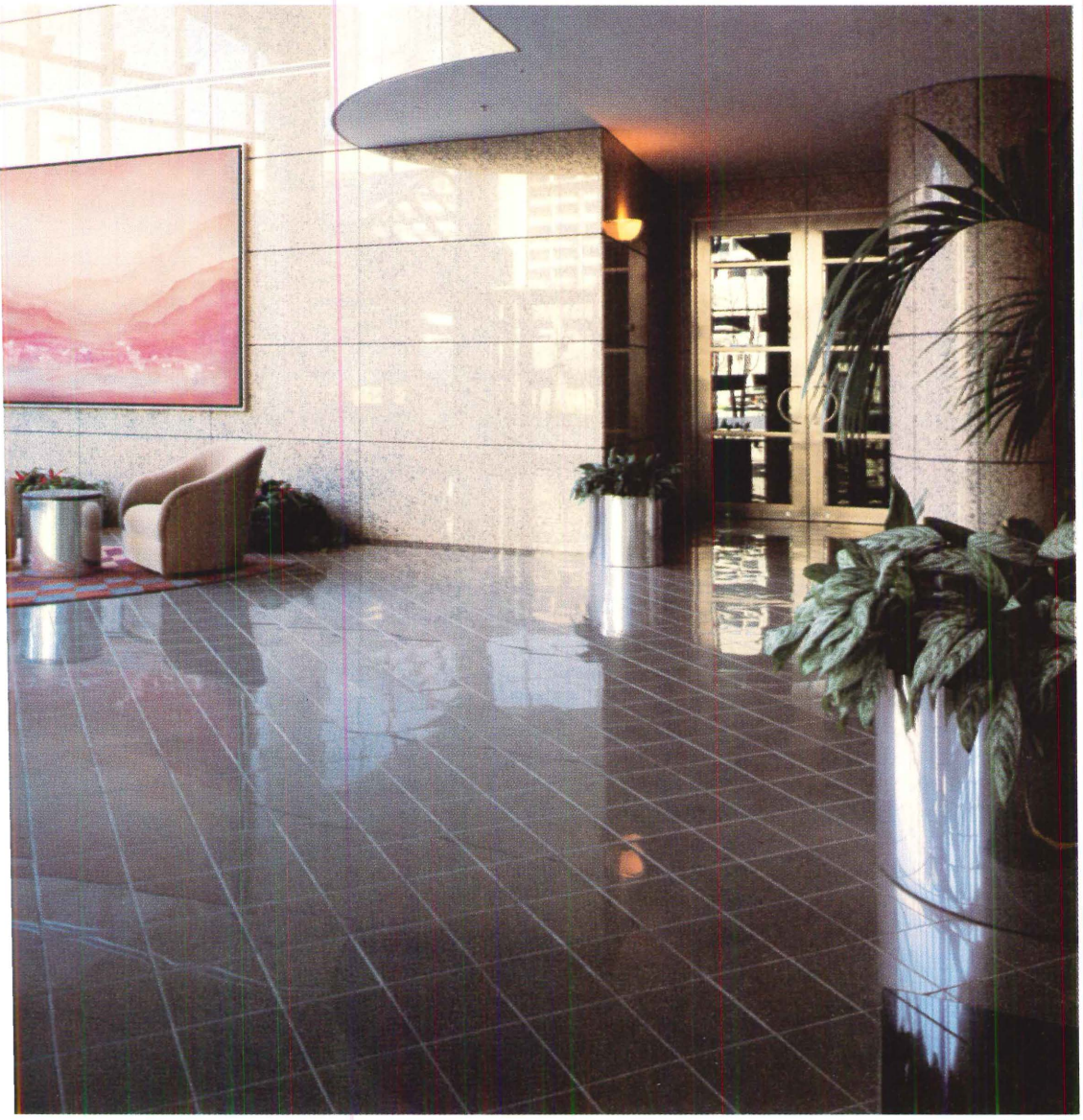
American Marazzi

American Olean





CMC/Monoceram



Crossville

UNGLAZED TILES

Unglazed tiles are simply the untreated tile or bisque. While porcelain tiles are the newest stars in this group, unglazed mosaics and pavers are equally enduring performers.

Porcelains, or fully vitrified tiles, are renowned for their exceptional durability and strength. In the all-important water absorption ratings, a critical factor in determining both stain- and frost-resistance, ANSI A137.1 standards are highest for porcelain tiles, requiring them to absorb no more than 0.5 percent.

In the porcelain tile group, look to Crossville, American Olean and Fiandre for selection and design.

QUARRY TILES

Quarry tiles are a time-honored favorite, especially when strength and slip-resistance are key components of the design.

Slip-resistance, or a tile's co-efficient of friction, is a very grey area. ANSI A137.1 requires a minimum rating of 0.60, but there are also no state laws or building codes that mandate or establish a specific slip-resistance standard. As a result, in installations where slip-resistance is a critical factor, a good rule of thumb is the higher a tile's slip-resistance rating the better.

While quarry tiles are available with a variety of slip-resistant textures and finishes, their co-efficient of friction rating can move even higher with the addition of special abrasive grains. With leading companies, such as Summitville and American Olean, an additional amount of abrasive graining can even be specified.

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

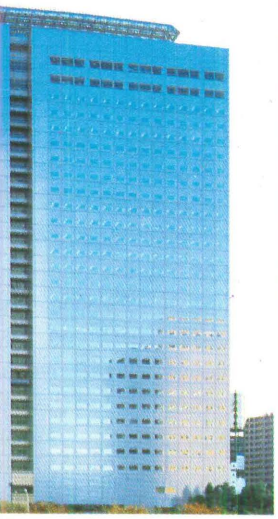
TILE GROUP ITALIA

acmonoceram

P.O. Box 616
Elk Grove Village, IL
60009-0616
312/439-6644
312/439-6876 FAX

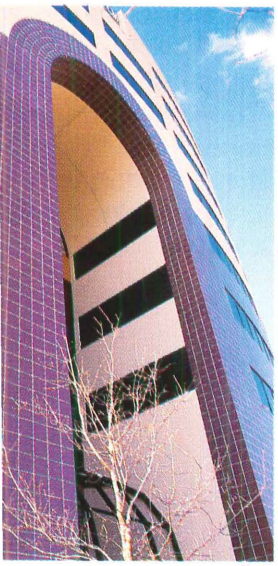
Circle 46 on inquiry card

Exploring the Heights



In the cold world of clients and compromises, ceramic tile is the way of the prophet. Innovators turn to tile for drama, durability and delight.

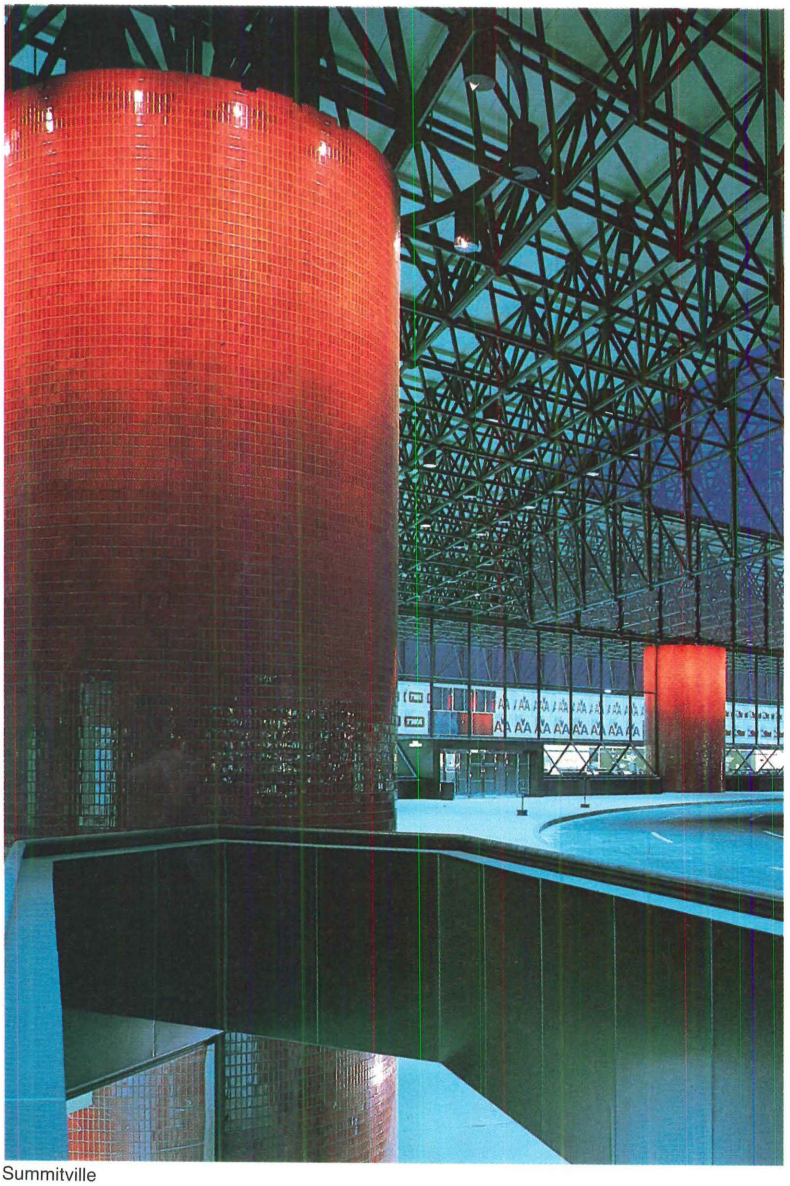
Tile does not deny old ventures; neither is it enslaved by them. With the purity of linear geometry, tile acknowledges the merits of past solutions and moves beyond.



Tile is witty, adventurous…a decorative statement suitable for any environment where a strong personal character is the desired effect.

As an exterior cladding, tile adds color and texture to a building's skin. Tile walkways and courtyards add richness and dimension. Tile's colors, sizes, even grid lines add proportion and scale. Tile proposes a solution that distinguishes the refined from the merely plain.

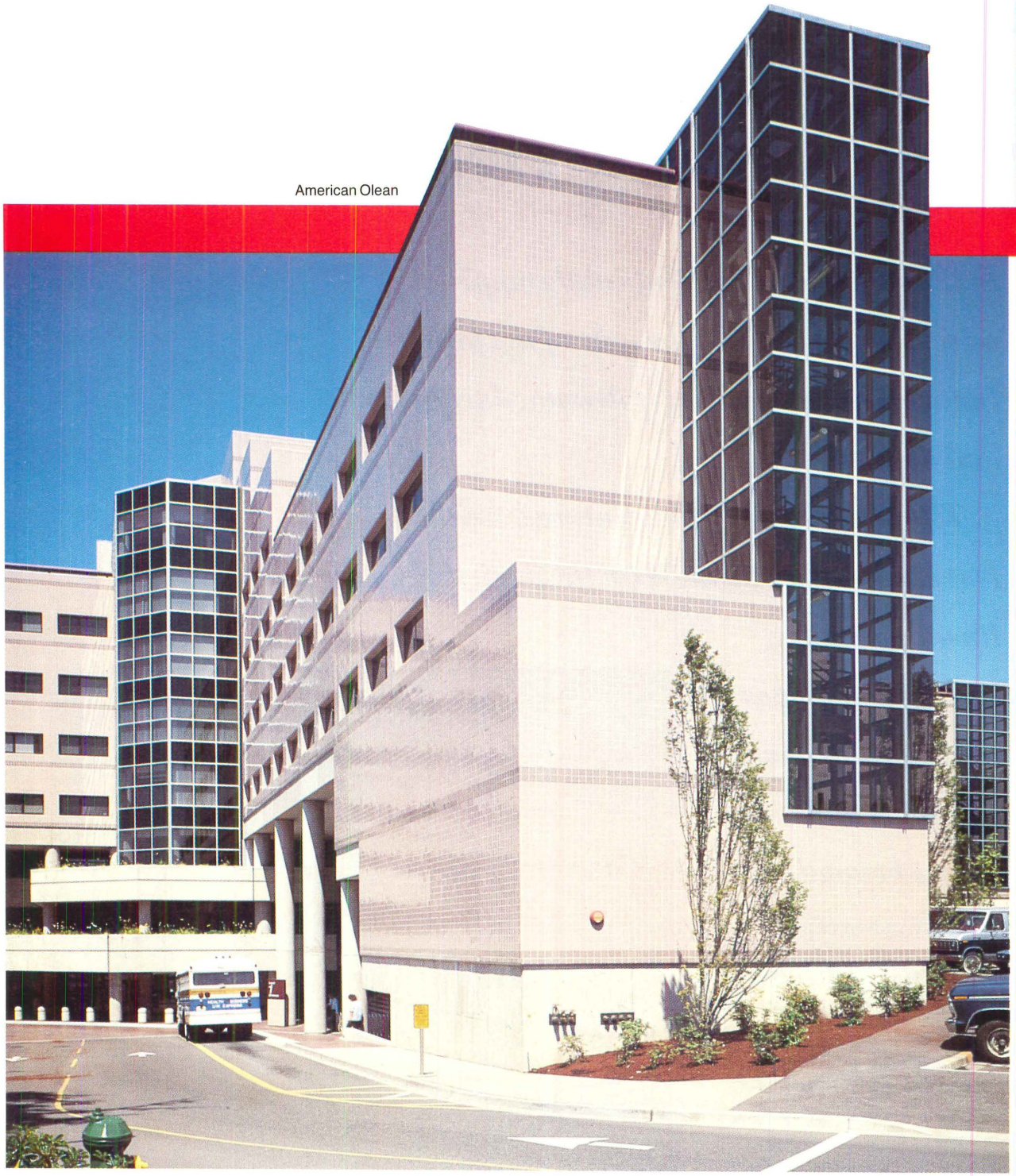
In the exterior cladding category, porcelain tiles lead the way.



Summitville

Desvres

American Olean



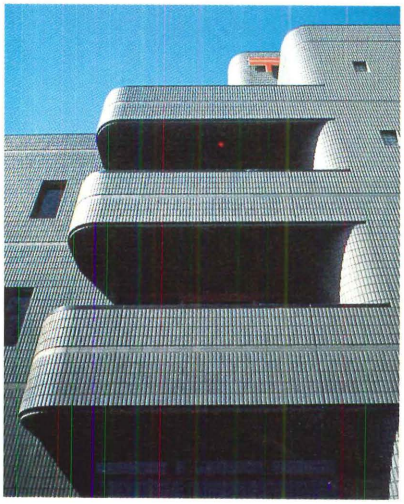
Virtually impervious to m
ture, unaffected by freeze-
cycles, porcelain tiles are a
less performer.

Highly polished porcela
mirror the dramas of every
life. Granite-look tiles offe
ury and tone for a fraction
price. The new fluted tiles
Inax invite the architect to
pass traditional angles and

In the porcelain categor
Crossville, Inax and Fiand
the standard-bearers.

At ground level, look to
tiles, mosaics and unglaze
ers to fulfill their social
responsibility.

Incise a line of color or d
tize the continuity of scale
form. Tiles enhance the hu
dimension, adding breadt
scope to the design.

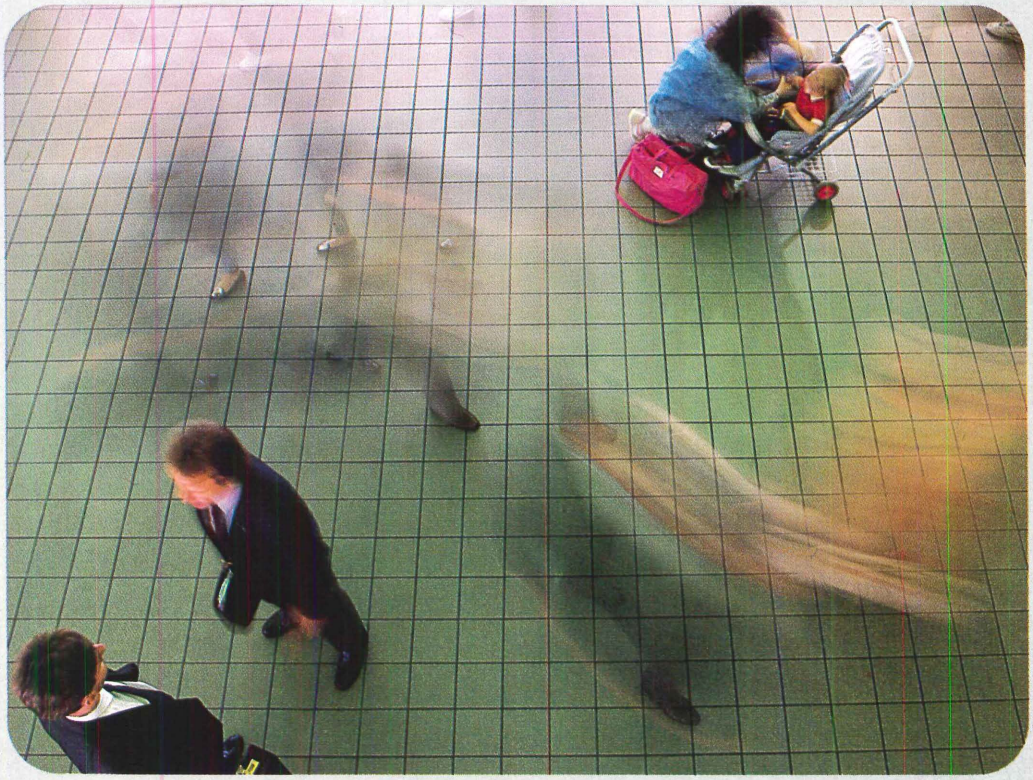


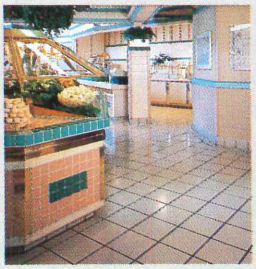
Inax

Inax

Iris

User friendly hard ware





We call it GENESIS,™ our superior porcelain ceramic tile. Friendly by Nature, with lots of help from state-of-the-art Technology. Non-stop research & development, a pioneering manufacturing process: just two key reasons why independent tests prove ours the finest porcelain in the world. The most resistant to staining, breaking, wearing. Delivered with speed only a U.S.-based manufacturer can promise.

GENESIS.™ Versatile colors, textures, sizes. From America's up-and-coming ceramic tile manufacturer.

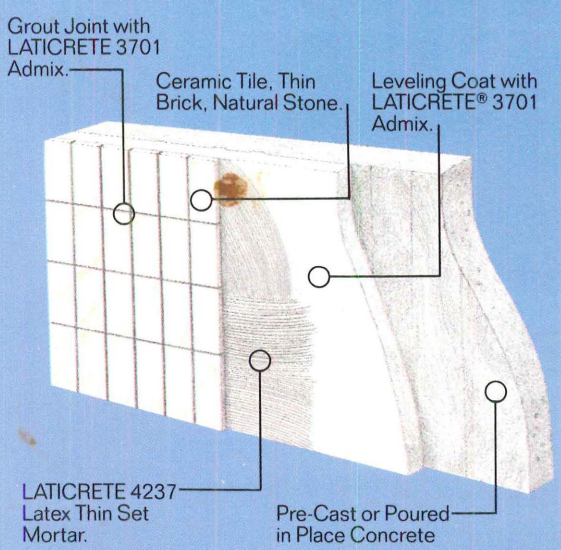
CROSSVILLE™ CERAMICS
Out Front in Porcelain Tile Technology

P.O. Box 1168
Crossville, TN 38557
(615) 484-2110

Circle 47 on inquiry card

BUILDING REPUTATIONS

THIN BED SYSTEM WITH LEVELING COAT



For over a quarter of a century architects worldwide have field proven the superior qualities and performance of the LATICRETE® System for the installations o ceramic tile and stone facades. They have withstood conditions from the Arctic to the Tropics.

Tele Diffusion De France; Romainville, Pa France is the ultimate test of structural des finishing materials and ceramic tile installati systems. Of the materials tested by the EM Swiss Federal Institute of Building Researc LATICRETE was the only one capable of pa the stringent testing. Using LATICRETE sy materials, this concrete tower was clad wit white ceramic tile.

LATICRETE International is the world lea the manufacture of installation materials fo ceramic tile and natural stone.

Build your reputation by building on our reputation...specify the LATICRETE syste Competent technical services, planning ar project review are available.

Distinguished architect Claude Vasconi sought a ceramic tile installation system that would withstand the severe test of b climate and stress.

LATICRETE INTERNATIONAL, INC.
1 LATICRETE PARK NORTH • BETHANY • CONNECTICUT 06525-3498 USA
TEL. (203)393-0010 • TOLL FREE (800)243-4788 • TELEX 96-3541 LATICRETE BTHY
® FAX: (203) 393-1684

Circle 48 on inquiry card

DENS-SHIELD™ TILE BACKER FROM G-P. IT'S NOT JUST LIGHT... IT'S WATER-TIGHT.

The lightweight, water-resistant properties of the common duck feather make it one of nature's most perfect designs. At Georgia-Pacific, these same features served as our inspiration in the development of Dens-Shield™ tile backer.

Easier To Handle And Less Expensive Than Cement Board.

Dens-Shield is a full 33% lighter than Durock® or Wonder-Board® –and far less expensive than cement board, as well. Because it's lightweight and easier to cut, Dens-Shield is easier to handle and easier to install. Dens-Shield gives the same 1 and 2-hour fire rating as cement board, yet saves you installation time, effort and cost–and no special cutting or drilling tools are required. Dens-Shield is also less brittle than cement board, so it's less likely to chip or break–especially at the corners.

Tougher On Moisture Than Conventional Gypsum Board.

Dens-Shield's revolutionary core consists of a unique gypsum material that provides greater water-resistance and dimensional stability. Fiberglass mats on the front and back add even more protection, and an exclusive water and moisture-resistant coating makes the face practically waterproof. Properly installed, Dens-Shield requires no additional water or vapor barriers to prevent moisture from entering the wall cavity.

Dens-Shield is ideal for use as a backer board for walls or ceilings in tile baths, showers, locker rooms, or other high-moisture areas. It can be tiled, painted or papered and is available either 4′ × 8′ × 1/2″ or 4′ × 5′ × 1/2″.

Check out the light-weight, tough-performing alternative to conventional tile backer. Specify Dens-Shield–the revolutionary material inspired by one of nature's most perfect designs.

For more information and the location of the Georgia-Pacific Distribution Center or Sales Office nearest you, call 1-800-447-2882, ask for operator #1.

Georgia-Pacific GP
MORE POWER to you!™

Dens-Shield and MORE POWER TO YOU! are trademarks of Georgia-Pacific Corporation. Durock is a registered trademark of United States Gypsum Company. Wonder-Board is a registered trademark of Modulars, Inc. ©1988 Georgia-Pacific Corporation. All rights reserved.

Circle 23 on inquiry card for literature

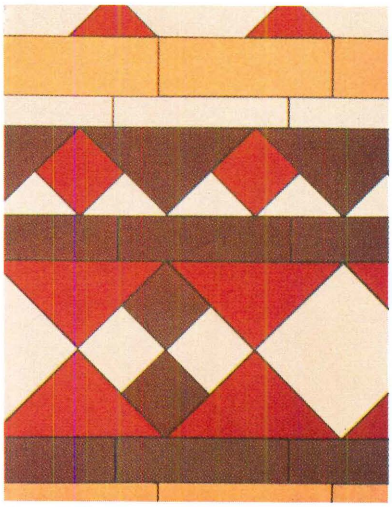
Circle 49 on inquiry card to speak with a Sales Representative

A Legacy of Performance

American Olean

Perhaps the first generation of ceramics to go beyond the confines of mere decoration, quarry tiles are a fusion of form and substance.

Quarry tiles are a classic. They have been warming the floors of chateaus and villas for centuries in a reconfirmation of the value of permanence.



Summitville

Quarry tiles also are perhaps the most misunderstood members of the entire ceramic family. To some, the term quarry suggests warm earth-tone colors. Others know the tile for its tireless performance.

The American National Standards Institute (ANSI A137.1) defines a quarry tile by its manufacturing process: quarry tiles are extruded, not pressed.

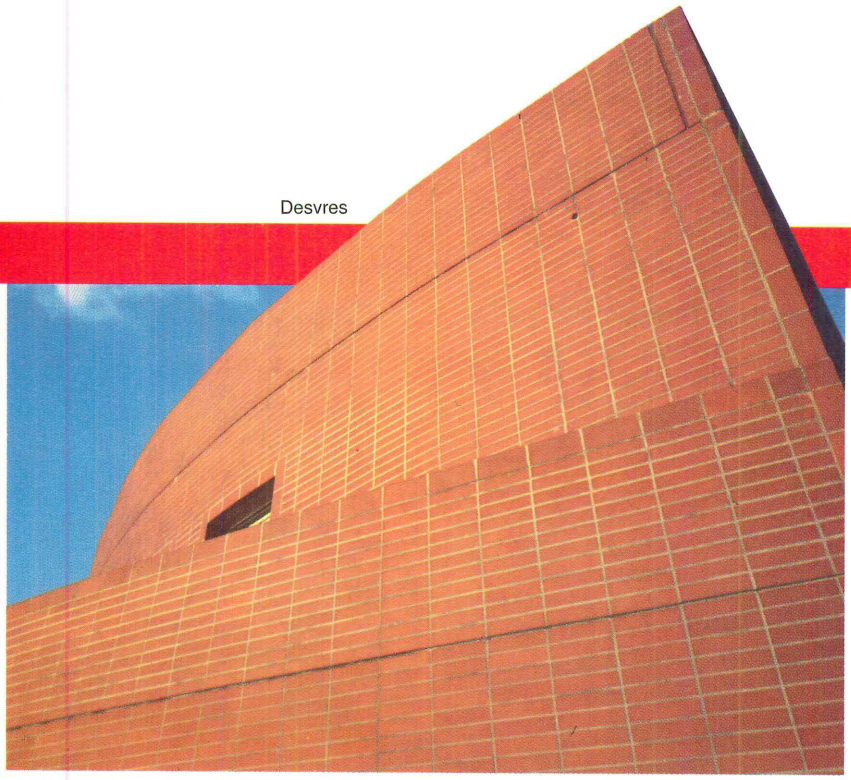
Semantics aside, quarry tiles are top contenders in high-traffic commercial installations and the workhorse of many manufacturers' ceramic tile lines.

Quarry tiles are dense and durable. Their superior breaking strength is a significant indicator of the tile's ability to handle

Summitville

American Olean

Desvres



mmercial environments,
rtant consideration
eavy traffic, heavy equip-
rolling loads are critical

ugh ANSI A137.1 sets
dard at a minimum of
or most types of tile,
iles traditionally test
ne 300psi to 740psi

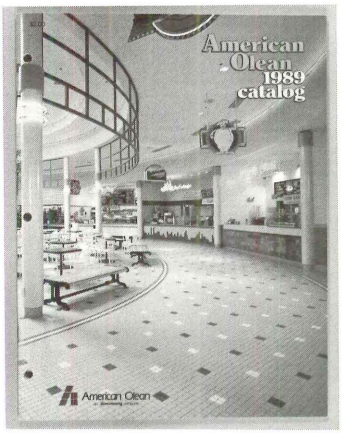
esign medium, today's
iles boast a new infusion
. They are available
r unglazed in a kaleido-
sizes, textures and
hough sun-kissed colors
common, leading com-
uch as Summitville,
n Olean and Desvres,
alette of contemporary
vell.
ated by the effects of
l shading, quarry tiles
uraging some of the
venturous patterning in
Strike a match or pair
lease. Herringbones,
oards, stripes, textures
ves are gracing retail,
al and commercial
ions as a major element
ic design.

Summitville

American Olean

American Olean

Product Literature

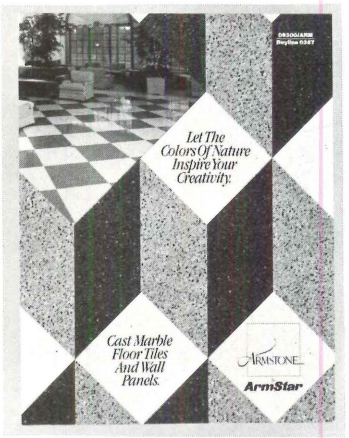


American Olean's 1989 Catalog

American Olean's new product catalog introduces three new tile lines and premieres the new colors being added to existing lines. The full-color, 55-page booklet is redesigned for easier use with color-coded tabs to help locate product sections.

The catalog includes 26 ceramic tile lines, a natural stone section and installation products. *American Olean.*

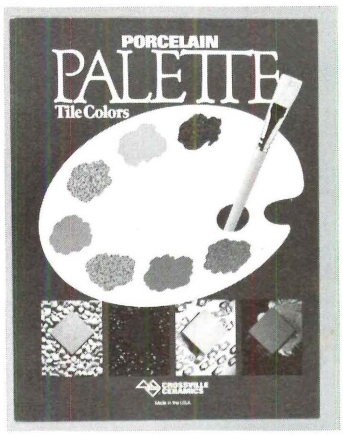
Circle 436 on reader service card.



Marble Aggregate Tiles

Armstone cast marble floor and wall panels are presente a new brochure from ArmSt The brochure features Arm- stone's 1989 color palette, w includes polished tile in 15 c and honed tile in 13 colors. polished finish is recommen when a high-gloss look is pr ferred, while the softer hone finish works well to minimiz maintenance in high-traffic areas. *ArmStar.*

Circle 439 on reader service c

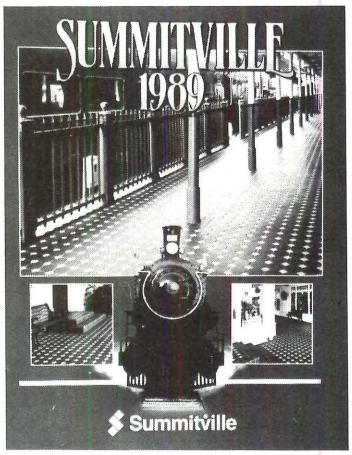


Porcelain Tiles from Crossville

The "Porcelain Palette" brochure from Crossville depicts the company's entire line of fully vitrified porcelain tiles. The brochure covers matte, polished and textured tiles and lists the sizes, colors and special trim pieces available in each style.

Technical information, a short-form specification sheet and a detailed warranty are also included. *Crossville.*

Circle 437 on reader service card.

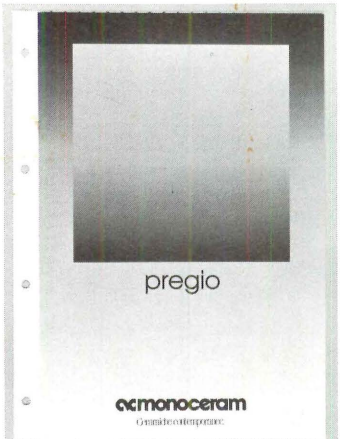


Summitville Introduces 1989 Catalog

The new full-color, 40-page log outlines the entire Summ ville line. The catalog prese installation ideas and techn information on 13 lines rang from quarry tiles to decorat insert tiles and murals.

The catalog also includes separate informational secti on setting and grouting proc and their specification. *Summitville.*

Circle 440 on reader service c

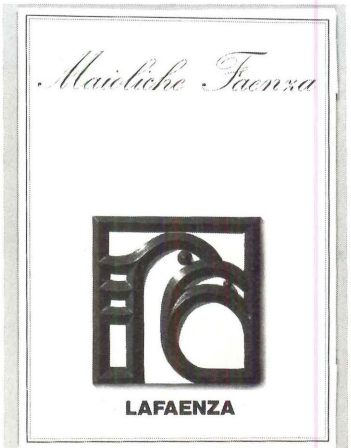


Glazed Granite-Style Floor Tiles

Pregio, a new line of 16″ x 16″ glazed floor tiles designed especially for heavy commercial installations, is introduced in a new four-color catalog from CMC/Monoceram.

Each of Pregio's six colors that reproduce the tones of natural granite are featured in the brochure along with technical information and installation ideas. *CMC/Monoceram.*

Circle 438 on reader service card.



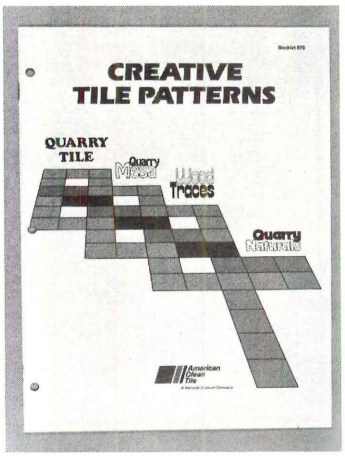
Wall Tiles from LaFaenza

LaFaenza's new four-color log premieres its first officia entries in the field of double tiles. The brochure highligh tiles with floral, geometric a delicate abstract designs in colors ranging from the pale pastels to intense violet and black.

The Maioliche collection available in three sizes mat with strip tiles and special t pieces. *LaFaenza*

Circle 446 on reader service c

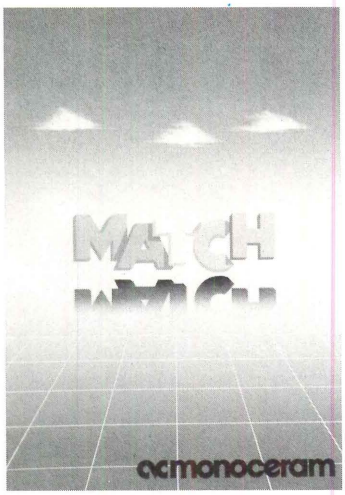
Circle 50 on inquiry card



Quarry Tile Design Guide

A new 12-page booklet from American Olean illustrates innovative design ideas for quarry tiles. The booklet includes 65 patterns and borders in clearly drawn diagrams. Designs are reproduced in black, white and shades of classic quarry red for maximum visual assistance. A key is provided to help determine type of quarry tile plus the percentage of each required for a particular design. *American Olean.*

Circle 442 on reader service card.

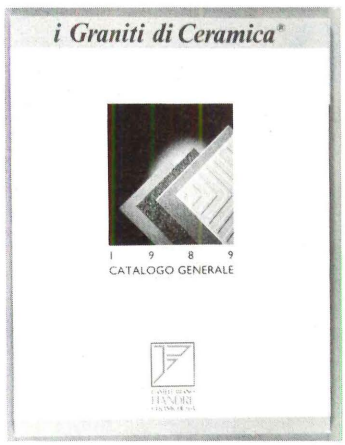


Glazed Commercial Tiles

Match, a new line of glazed co
mercial tiles designed for hea
traffic installations, is presen
in a four-color brochure from
CMC/Monoceram. The Matc
collection is designed for hea
traffic installations and featu
an exceptionally durable and
easy-to-clean surface.

Available in four sizes and
12 distinctive colors with eith
a gloss or skid-resistant finish
CMC/Monoceram.

Circle 445 on reader service ca



Fiandre's 1989 General Catalog

An 86-page catalog presents interior and exterior installation ideas possible with Fiandre Ceramic Granite. The comprehensive, four-color catalog contains complete information on the sizes, colors and trim pieces available for each of the Fiandre lines. These include the Corindo, solid color series, Ceramic Granite, Industrial and Designer Line collections. *Fiandre*

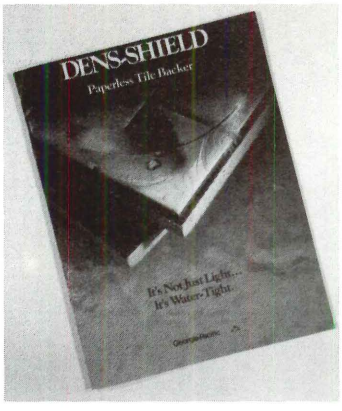
Circle 443 on reader service card.

Glazed High-Traffic Floor Ti

Gres Faenza, a new line of gla
floor tiles suitable for heavy c
applications, is introduced in
new catalog from LaFaenza.

Gres Faenza is designed fo
interior or exterior applicatio
where low maintenance and
exceptional durability are
equally important. The broc
features the wide variety of si
and colors available in the lin
LaFaenza.

Circle 441 on reader service ca

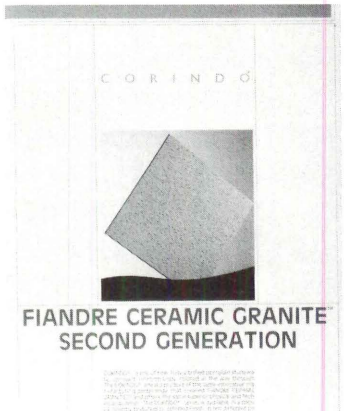


Paperless Tile Backers

An eight-page brochure highlighting Dens-Shield moisture resistant tile backers is available from Georgia Pacific. Dens-Shield features a water-resistant coating, inorganic fiberglass mats front and back and a water-resistant gypsum core.

The brochure includes characteristics, recommended framing and fasteners, applications and architectural specifications. *Georgia-Pacific.*

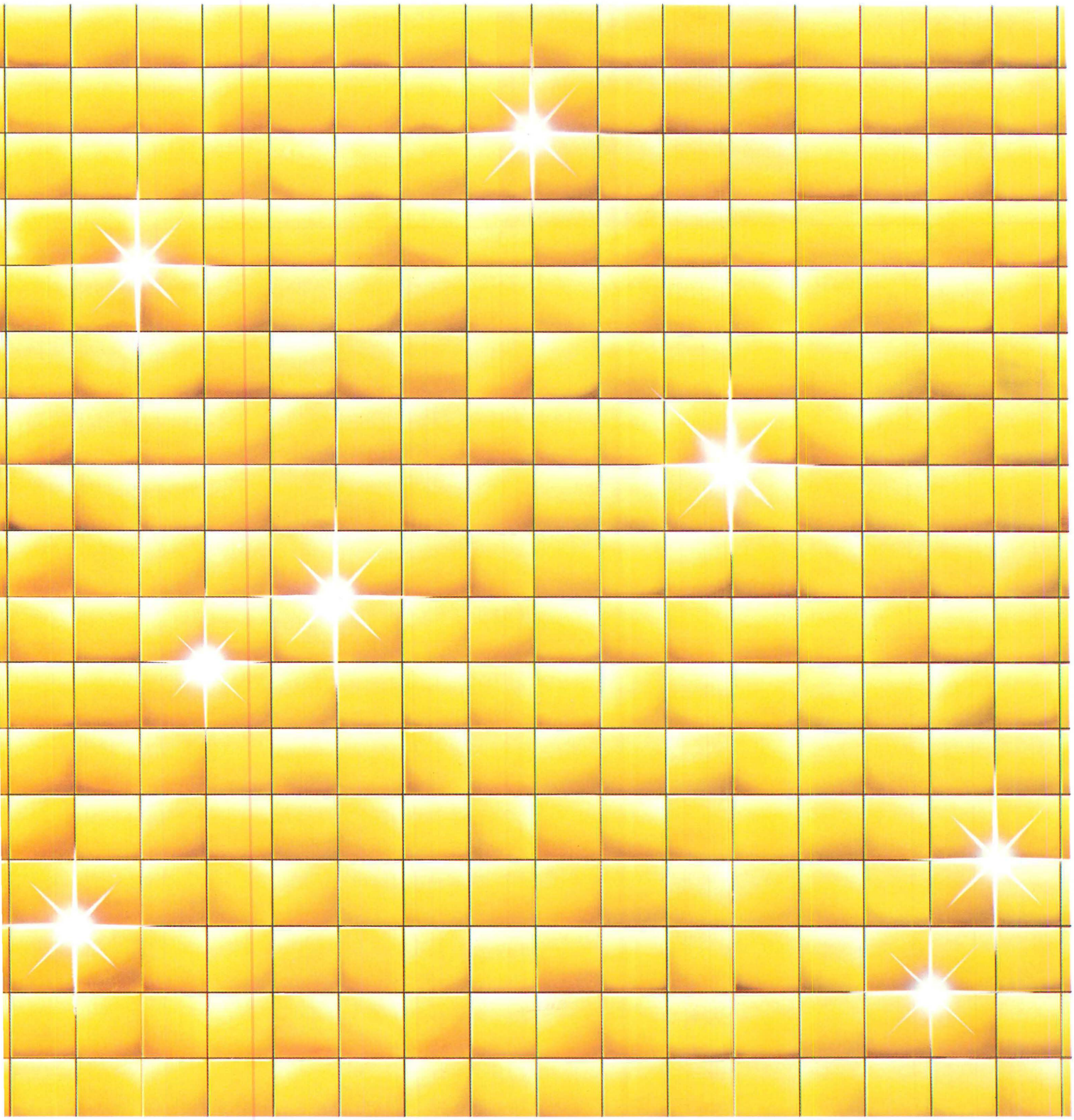
Circle 444 on reader service card.



Fiandre Highlights Corindo

The second generation of
Fiandre Ceramic Granite is o
lined in a six-page, four-colo
brochure entitled "Corindo."
The brochure highlights the
colors and the addition of th
x 16" size to this line of porce
stoneware that duplicates th
large granular patterning of
ural granite. The brochure's
illustrations demonstrate th
design potential of this inter
and exterior tile. *Fiandre*

Circle 447 on reader service ca



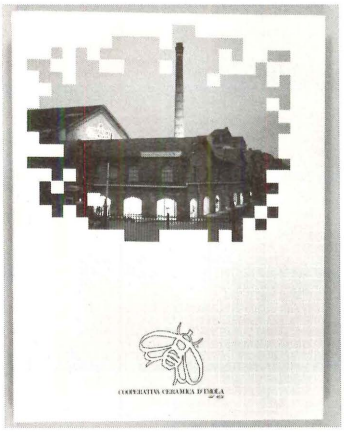
Since 1874
there is a golden manufacturer in the world of ceramics.

The valuable ceramics is not merely made by pugging particular clays with water. A big manufacturer, who wants to be considered as such, should be able to put much more in his ceramics. In each tile made by Cooperativa Ceramica d'Imola, there are more than 100 years of tradition, work, carefulness and experience, which all the generations, succeeding one another, helped to develop. But there's still more. The dynamism and the preparation of our managers who are engaged in maintaining our leadership position within the market; the results of the most advanced and complete technology of this field; the creativeness and the taste of designers and artists famous all over the world; the quality, the price, the reliability and the services that nowadays, a more demanding market rightly requires. That's why our tiles are estimated to be of great value, although they are not made of gold.

COOPERATIVA CERAMICA D'IMOLA
In History.

Via Vittorio Veneto, 13 - 40026 Imola (Italy) - Tel. (0542) 31500 - Fax (0542) 31749 - Telex 510362 Imola I

Circle 51 on inquiry card



Imola's 1989 Catalog

A comprehensive, four-color catalog from Imola outlines the company's extensive collection of wall and floor tile. The catalog features delicate wall tiles with floral, geometric and abstract designs, as well as three-dimensional tiles, murals and hand-painted designs.

Highlights of the floor tile collection includes patterned, textured and solid color tiles suitable for a wide range of installation. *Imola*

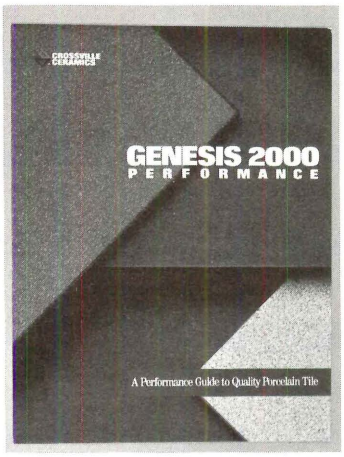
Circle 448 on reader service card.

Sizzle Strips Add Excitement

American Olean's new cerami tile Sizzle Strips add life to an backsplash or kitchen counte Stack them end on end or pla them side by side for creative accents to complement plumb fixtures and countertops.

Sizzle Strips are available i three sizes and with 19 vibran glazes designed to blend with current plumbing colors. *American Olean.*

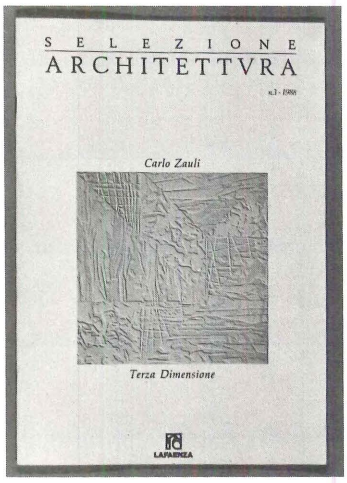
Circle 450 on reader service car



Porcelain Tile Maintenance Guide

The "Genesis 2000" brochure is a performance guide to quality porcelain tiles from Crossville Ceramics. The brochure outlines installation, care and maintenance requirements. Such issues as sealing, cleaning procedures and stain removal are thoroughly addressed. A convenient reference chart for the removal of the most common stains is also included. *Crossville.*

Circle 449 on reader service card.



Three-Dimensional Tiles

Terza Dimensione, a four-col 24-page catalog, illustrates th unusual three-dimensional til from LaFaenza.

The textured surface of the relief tiles plays with light in colors of beige, gray and pure white. Developed by the sculp Carlo Zauli, the nature motif tiles in the Terza Dimensione collection are suggestive of th effects of wind, water and san *LaFaenza.*

Circle 451 on reader service car

Advertisers Index

American Olean Tile Company
1000 Cannon Ave.
Landsdale, PA 19446-0271
(215) 855-1111

ArmStar
P.O. Box 820
Lenoir City, TN 37771
(615) 986-4040

Crossville Ceramics
P.O. Box 1168
Crossville, TN 38557
(615) 484-2110

Fiandre
1070 Tower Lane
Bensenville, IL 60106
(312) 350-1555

Florida Tile
P.O. Box 447
Lakeland, FL 33802
(813) 687-7171

Georgia-Pacific
133 Peachtree St., N.E.
Atlanta, GA 30303
(404) 521-5860

Cooperativa Ceramica D'Imola
3811 N.E. Second Ave.
Miami, FL 33137
(305) 573-4506

Innovative Marble & Tile Inc.
470 Smith St.
Farmingdale, NY 11735
(516) 752-0318

Italian Tile Center
499 Park Ave.
New York, NY 10022
(212) 980-8866

LaFaenzaAmerica, Inc.
1900 Powell St.
Suite 520
Emeryville, CA 94608
(415) 655-1395

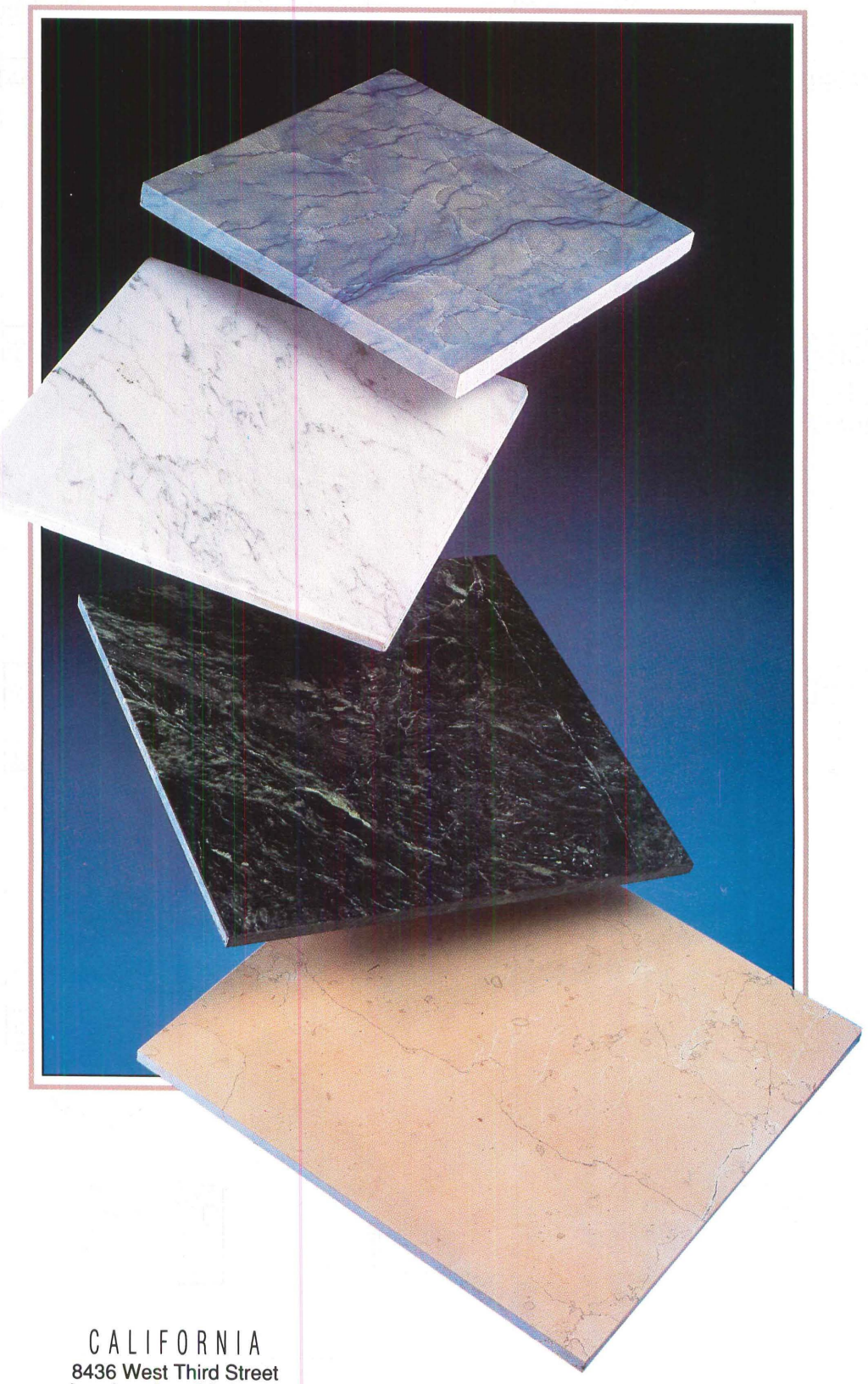
Laticrete International, Inc.
1 Laticrete Park North
Bethany, CT 06525
(203) 393-0010

CMC/Monoceram Tile Group Italia
P.O Box 616
Elk Grove Village, IL 60009
(312) 439-6644

Summitville Tiles Inc.
P.O. Box 73
Summitville, OH 43962
(216) 223-1511

Trade Commission of Spain Home Furnishings Division
2655 LeJeune Rd.
Suite 1114
Coral Gables, FL 33034
(305) 446-4387

ELEGANCE IN PROFILE



ENJOY
THE
RICHNESS
THAT ONLY
FINE
MARBLE
AND
GRANITE
CAN
ACHIEVE

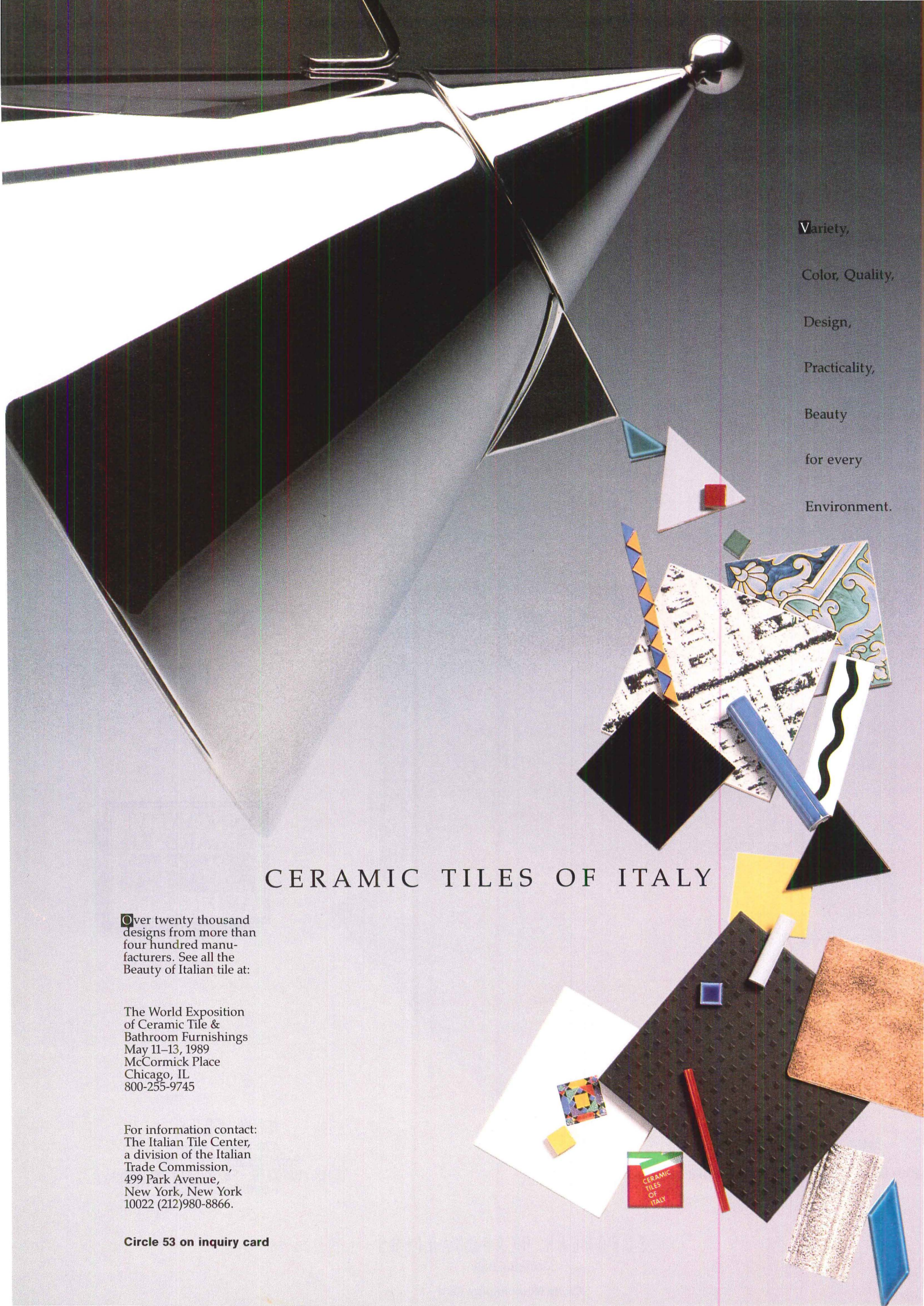
INNOVATIVE MARBLE AND TILE INC

CALIFORNIA
8436 West Third Street
Los Angeles, CA 90048
(213) 653-5533 • Fax# (213) 653-6072
1-800-62 STONE

NEW YORK
470 Smith Street
Farmingdale, NY 11735
(516) 752-0318 • Fax# (516) 752-0411
1-800-62 STONE

EUROPEAN HEADQUARTERS
Florence Italy

Circle 52 on inquiry card


Variety,
Color, Quality,
Design,
Practicality,
Beauty
for every
Environment.
CERAMIC TILES OF ITALY
Over twenty thousand designs from more than four hundred manufacturers. See all the Beauty of Italian tile at:
The World Exposition of Ceramic Tile & Bathroom Furnishings
May 11–13, 1989
McCormick Place
Chicago, IL
800-255-9745
For information contact: The Italian Tile Center, a division of the Italian Trade Commission, 499 Park Avenue, New York, New York 10022 (212)980-8866.
Circle 53 on inquiry card
CERAMIC TILES OF ITALY

S E L E Z I O N E
ARCHITETTVRA

Mario Lenzi & Ass. Prog. grafico M. Pavani

Carlo Zauli: terza dimensione Selezione Architettura 1988

Art and Industry

Proposals of art
in industrial production

Selezione Architettura is a programme of products and services developed by LaFaenza architects for the designers and architects of the whole world.

CERAMICHE LAFAENZA

LAFAENZAAMERICA INC.
1900 Powell Street, Suite 520
Emeryville, California 94608
Phone (415) 655-1395 (800) 223-4982
Fax (415) 655-2193

Circle 54 on inquiry card

At last, a tile that can take years of beeting without leaving a stain.

Natura Granite beats porcelain and quarry tile hands down. In fact, no ordinary paver can touch the stain-resistant qualities of this unbeatable ceramic tile. Its durable glazed matte surface is designed to hold up under the toughest conditions . . . in a choice of 12 natural colors that will hold their beauty for years. For samples and information, contact your nearest Florida Tile distributor. Or call 1-800-FLA-TILE today.

Natura® GRANITE SERI

florida tile

SIKES CORPORATION ▪ LAKELAND ▪ FLORIDA 3

Natura and Florida Tile are registered trademarks of Sikes Corporation. Natura Granite Series is a trademark of Sikes Corporation. © 1988

Circle 55 on inquiry card

econsidering obert Moses: ower vs. paralysis

On the 100th anniversary of his birth, a symposium at Columbia University reexamined the legacy of New York's construction czar, whose methods contrasted so dramatically with today's fragmented process for building major public works.

hile planners, developers, and chitects from coast to coast ing their hands over the reaucratic obstacles countered in constructing arly *anything*, it is worth examining, as a recent mposium at Columbia iversity did, the career of bert Moses. Moses was ither architect, engineer, nor nner, but through positions he ld in largely autonomous city d state authorities, he ercised tremendous control er public construction in New rk from the late 1920s to the rly '70s. He might have slipped o obscurity had it not been for bert Caro's Pulitzer-Prize-nning book, *The Power oker*, in which the protean ga of Moses, and what Caro scribes as a single-minded est for power, is laid out. The lume tallies parks, bridges, adways, public housing, and en two world's fairs for which ses was responsible—a ggering output that one nference speaker valued at 00 billion in today's dollars. Even more extraordinary is e way Moses bulldozed many these projects through some the most densely populated ighborhoods in New York y, displacing hundreds of usands of residents. Moses s said to be for a time the w York region's most popular blic servant, and he was luential nationwide in the nning of highways and parks, t his career ended in terness, as one-time advocates lied against what Caro called "meat-ax" approach. If ses's methods were not ays ingratiating ("never ged with legality," he would ip), time and time again he got ngs done, not infrequently npleting projects that had lain rmant for decades. Though nold Vollmer, a landscape hitect long associated with ses, called Caro's volume no re than "a gossip column,"

UPI/Bettman Newsphotos

Extending the East River Drive in New York (1940) was among the extraordinarily complex projects Robert Moses pushed through dense sections of the city.

most of the participants preceded their remarks by indicating how important a contribution it represented. In the view of Robert A. M. Stern, Moses employed the best and the brightest, including Othmar Amman, among the premier bridge designers of the time, and architect Aymar Embury, whose accomplishments at vast Jones Beach State Park (a water tower as stone-and-brick campanile, for example) were praised by Stern in an overview of Moses-sponsored architecture.

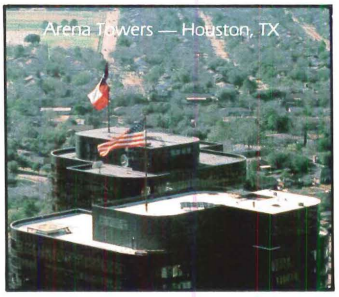
The symposium did not have to stray far from a reassessment of Moses to examine issues affecting the entire gamut of public works—he was profoundly and controversially involved in all of them. Most observers have viewed the disruption that accompanied construction of the Cross Bronx Expressway, for instance, as the critical element in the borough's transformation from a vibrant working-class community to the nation's premier urban catastrophe. Social science professor Kenneth Jackson claimed that other factors were at work as well, including redlining by the FHA (Jackson says maps documenting this illegal discrimination remain on secret file in Washington), and a housing stock that was already declining. (Caro's version was defended by Marshall Berman, a professor at the City University of New York, who lived through this period in the Bronx.)

Moses's projects displaced an incredible 500,000 people, yet his apologists note that 850,000 were rehoused. Though Jackson described the public-housing stock built under Moses as "unique in its quality and desirability," most architects have in the past judged it extremely harshly. Stern did not even mention it. Yet Moses's projects—unlike those in many other cities—remain largely viable, which, as was indicated, may testify as much to the way they are managed (and to the lack of alternatives within the city) than to their innate quality. Meanwhile, New York's public housing is newly threatened by explosive drug activity, overcrowding (the city's projects house as many as 93,000 "unauthorized") and by a waiting list increasingly poorer and less racially integrated. The state of many of the 80,000 units built under Moses was documented photographically by Camilo Vergara. He showed how 900- to 1,500-unit housing projects over two postwar decades had been aggregated into vast dun-colored-brick "project cities." In the photos, 10- to 20-story slabs now blend together as fortresslike battlements, rising ever more prominently out of surrounding neighborhoods that are literally disappearing amid accelerated decay and demolition.

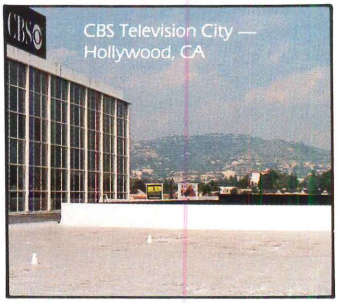
Moses's career sharply defined the most vexing question of public construction in a democracy: who makes decisions? The pact that public officials as famous and diverse as Nelson Rockefeller and Franklin Roosevelt made to get great public works accomplished was to allow Moses to accumulate enormous personal power. Kenneth Frampton, in a presentation that provoked a lively debate, saw Moses as coming out of the same technocratic tradition that made Baron George-Eugène Haussman's mighty reshaping of Paris in the 19th century possible. Lacking imperial patronage, Moses created his own "state within a state"—the Triborough Bridge and Tunnel Authority—which became the instrument of much of his power. But, as Caro amply documents, Moses, paradoxically, had been active in the early 20th-century populist movement. Frampton asserted that Moses exploited his liberal credentials in a way comparable to fascist regimes in Germany and Italy that established their popular legitimacy based on the ability to get things done. Frampton likened the construction of the German autobahns, palpable symbols for a nation emerging from battlefield defeat, to Moses's effect on public officials, who found they could neither

Your Duro-Last Roof Will Be Known By The Company It Keeps.

Lake County Village Shopping Center — Phoenix, AZ


Arena Towers — Houston, TX

Con-Rail — Altoona, PA

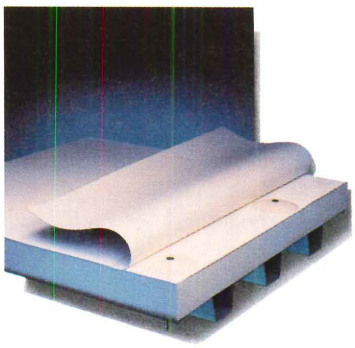

CBS Television City — Hollywood, CA

With a Duro-Last single-ply roofing system, you're joining some pretty good company . . . like CBS Television City, The Wall Street Journal, Con-Rail, Transwestern Property Company, Lake County Village Shopping Center, just to name a few.

These satisfied customers know Duro-Last is the top single-ply performer. And for a variety of reasons:

- Duro-Last **custom** fabrication to your specifications gives you a roofing system big on performance and low on waste.
- A Duro-Last roof goes down quick and that means a savings of time and money.
- Duro-Last means durability with our exclusively designed Celanese Fortrel™ polyester high tenacity fabric, coated on each side with a specially formulated thermoplastic polymer.
- Duro-Last gives you double protection with a 20-year warranty and $6,000,000 liability insurance policy.

Those are just a few reasons why more and more Duro-Last roofs are being seen in some pretty good company. Shouldn't you join the long list of satisfied Duro-Last customers who are buying the "system" and not just roll goods?



Call today. It's your first step to putting . . . and keeping . . . your roof in some pretty good company.

1-800-248-0280
1-800-356-6646 (West of the Mississippi)

DURO-LAST® Roofing, Inc.

Circle 56 on inquiry card

Holl and Ambasz, in a manner of speaking

By Roger Kimball

ew politicians could turn own Robert Moses's (left rear) equent ribbon-cutting remonies. Governor Herbert Lehman (wielding scissors) and Mayor Fiorello La Guardia (left front) open the Henry Hudson Parkway in 1937.

and up to his single-minded sion (backed by control of ormous toll receipts) nor resist e frequent ribbon-cutting remonies he provided them. However, as one panelist gued, "that was then, this is w." In part because of abuses Moses and others, there is day extensive public rticipation in planning for blic works. In the view of any, the cumbersome provals process that companies large-scale building s brought on a new period of ralysis in public construction d, as *New York Times* critic ul Goldberger noted, a sequent "Moses envy." It is e methods employed by Moses at "present a moral dilemma," cording to Sylvia Deutsch, airman of the City Planning mmission. "We don't think out the 4,000 lovely little mes that were decimated in nset Park by one loop up to e Verrazano Narrows Bridge. appreciate the convenience."

Lacking a figure like Moses today, "We wistfully long for consensus," she argued. Asserting that "there is very little we can learn from Moses," Deutsch says that dealing with this lack of consensus is the central question in the physical remaking of cities, not whether to return to Moses-style authoritarianism. Thus, notwithstanding the 14 expressways, 416 miles of autos-only parkways, seven major bridge spans, a multidam hydropower complex garlanded with parks and parkways, the tens of thousands of public housing units, the 658 playgrounds, and the United Nations and Lincoln Center, the question Caro (who was unable to make his scheduled appearance) asked in the introduction to *The Power Broker* remained unanswered by the Columbia conferees: "Would New York have been a better place to live had Robert Moses never built anything?" *James S. Russell*

The recent exhibition of work by the New York-based architects Emilio Ambasz and Steven Holl at the Museum of Modern Art—the fourth in a series of exhibitions sponsored by the Gerald D. Hines Interests Architecture Program—provided a clear but concise introduction to the work of two relatively young architects whose stars are clearly on the rise. Nestled quietly behind the blaring cartoons and other camp images featured in the museum's mammoth Andy Warhol retrospective, the exhibition (which closed April 4) presents a modest collection of drawings, models, photographs, and architectural mock-ups in a single partitioned gallery. In many ways, the show is a refreshing change from the pretentious absurdities that were on view in the previous installment of the Hines architecture series, the infamous "Deconstructivist Architecture" exhibition [RECORD, July 1988 page 55, and August, 1988 pages 53-57] that (as the Warhol retrospective leads one to observe) had its 15 minutes of fame last summer and then was promptly forgotten.

Born in Argentina in 1943, Emilio Ambasz currently splits his practice between New York and Bologna, Italy. Since he worked as curator of design at MOMA from 1970 to 1976, the exhibition was a homecoming of sorts for him. Though he has built relatively little—many of the projects on view at MOMA are really unbuilt architectural fancies—Ambasz has been receiving a good deal of attention of late for his ingenious efforts to integrate landscape and high-tech Modernist architecture. Sometimes these efforts border on the subordination of architecture to landscape, as when Ambasz envisions his buildings or monuments buried partly or wholly in the surrounding environs. His first major building, for example, the Lucille Halsell Conservatory, in San Antonio, is constructed almost entirely below grade and faces onto a carefully manicured sunken courtyard.

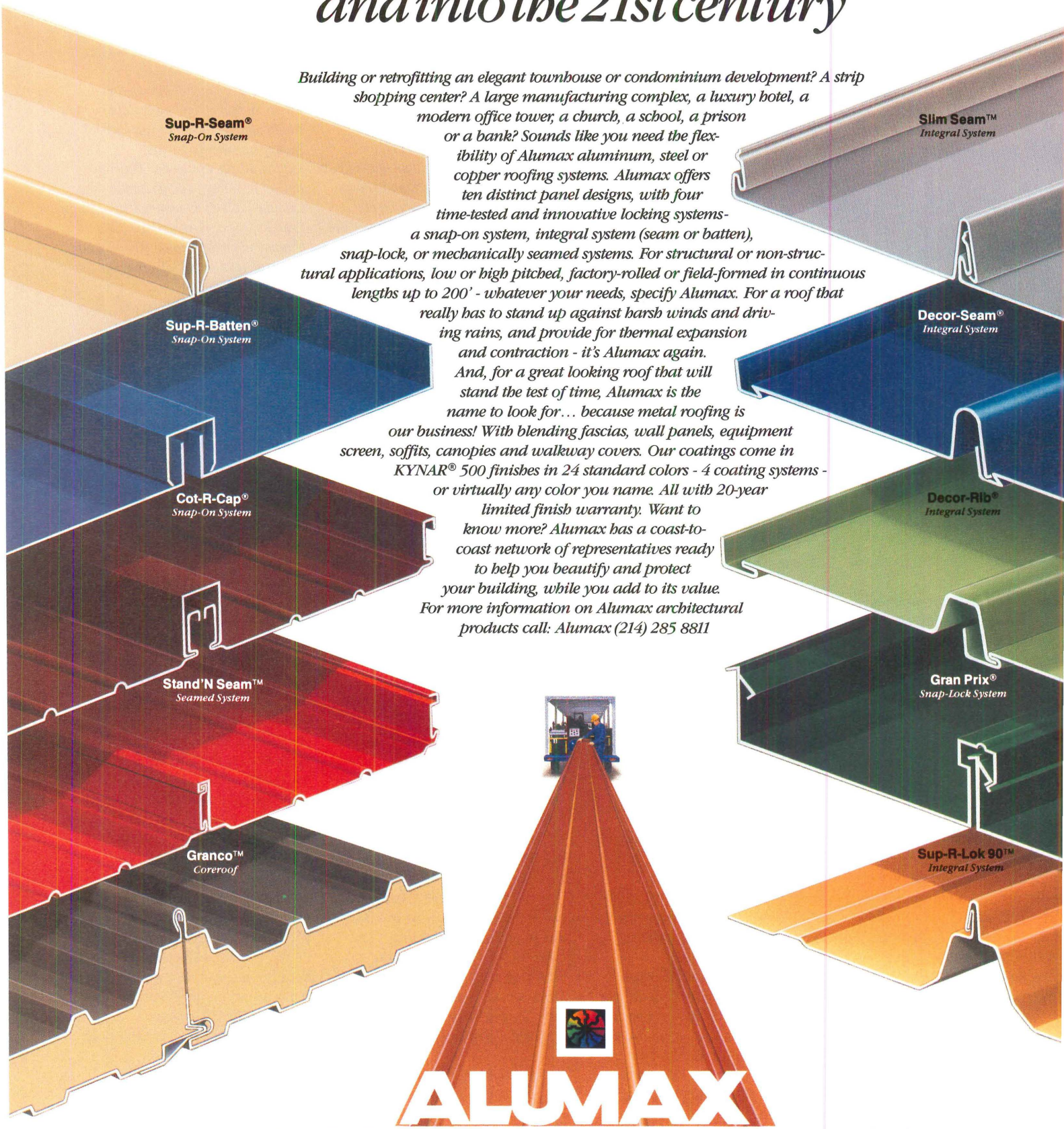
Steven Holl is apparently also attracted by the thought of buried architecture, though he would seem to prefer to put things underwater rather than underground. One of his projects is a floating, partly submerged house designed as a vacation retreat for a couple in St. Tropez. Born in 1947, Holl is currently an associate professor in the Graduate School of Architecture at Columbia. Like Ambasz, Holl has several unbuilt architectural fancies on view in the exhibition, though one will also find photographs of several finished interiors and houses as well as some sumptuously rendered architectural details and drawings. Some of Holl's perspective drawings are exquisitely done, and are, esthetically, the highlight of the exhibition.

While there are other projects by both architects that merit discussion, perhaps the most significant question that this exhibition raises concerns not the individual projects but the way in which the work as a whole has been received and talked about. Ambasz is said to take his inspiration primarily from primitive architecture, Holl from vernacular urban architecture; but what they both have been subjected to is a dubious new vocabulary of praise emerging in the press.

The basic formula of this new vocabulary goes something like this: "The work of architect 'X' rejects both the rigid orthodoxies

Roger Kimball, a frequent contributor to RECORD, also writes for The New Criterion, The London Times Literary Supplement, Commentary, *and other publications.*

Introducing Alumax's All Star Metal Roofing lineup for today and into the 21st century



Building or retrofitting an elegant townhouse or condominium development? A strip shopping center? A large manufacturing complex, a luxury hotel, a modern office tower, a church, a school, a prison or a bank? Sounds like you need the flexibility of Alumax aluminum, steel or copper roofing systems. Alumax offers ten distinct panel designs, with four time-tested and innovative locking systems- a snap-on system, integral system (seam or batten), snap-lock, or mechanically seamed systems. For structural or non-structural applications, low or high pitched, factory-rolled or field-formed in continuous lengths up to 200' - whatever your needs, specify Alumax. For a roof that really has to stand up against harsh winds and driving rains, and provide for thermal expansion and contraction - it's Alumax again. And, for a great looking roof that will stand the test of time, Alumax is the name to look for… because metal roofing is our business! With blending fascias, wall panels, equipment screen, soffits, canopies and walkway covers. Our coatings come in KYNAR® 500 finishes in 24 standard colors - 4 coating systems - or virtually any color you name. All with 20-year limited finish warranty. Want to know more? Alumax has a coast-to-coast network of representatives ready to help you beautify and protect your building, while you add to its value. For more information on Alumax architectural products call: Alumax (214) 285 8811

ALUMAX

Alumax Building Specialties Division, P. O. Box 163, Mesquite, Texas 75149 (214) 285 8811

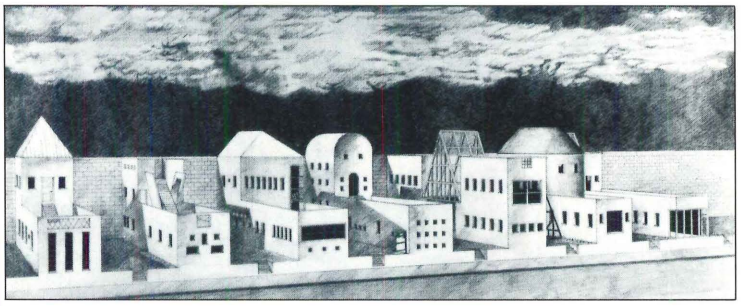
Stand'N Seam™, Granco Coreroof™, Slim Seam™ and Sup-R-Lok 90™ are trademarks, Sup-R-Seam,® Sup-R-Batten,® Cot-R-Cap,® Decor-Seam,® Decor-Rib® and Gran Prix® are registered trademarks of Alumax, Inc. © 1989 Alumax.

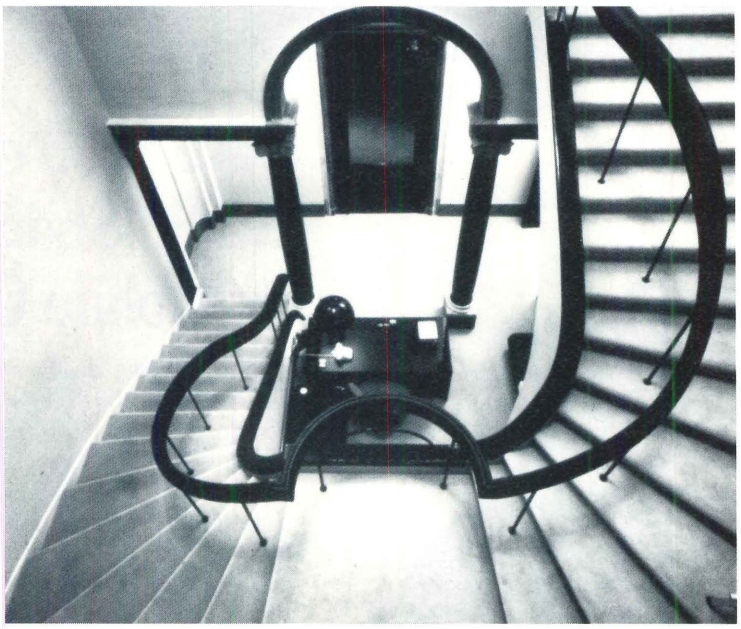
Circle 57 on inquiry card

"The most significant question that this exhibition raises concerns not the individual projects but the way in which the work as a whole has been received and talked about."

Modernism as well as the
perficial historicism of
stmodernism in an effort to
suscitate a deeper, even a
thic, dimension of
chitectural thinking and
actice." Look around: some
rsion of this statement can be
nd repeated like an
antation everywhere in
tures and articles. And note
t there is considerable leeway
the choice of adjectives.
stead of saying "rigid
hodoxy," for example, the
piring critic might try
scribing Modernism as some
m of "ideology" or "narrow
ionalism" ("rationalism" is
ually considered a pejorative
m by itself, but it is a good
a to add something like
arrow"—or, if you want to be
cy, "Cartesian"—just to be
re). Similarly, one is not bound
castigate Postmodernism's
nchant for historical pastiche
"superficial." The main thing
to cast doubt on the idea that
stmodernism's so-called
turn to history" is a richer,
re humane view of
hitecture, and to distance
's own candidate for
hitectural stardom from its
rialities.

The question of exactly what
t of alternative to Modernism
l Postmodernism is being
posed in this formula is a
re troublesome matter, partly
ause the acceptable terms
d to be exceedingly vague,
l partly because, at bottom,
st of the vaunted alternatives
n out to be differently
kaged rather than
stantially changed. Still,
re are some safe bets here,
, and in addition to "mythic"
an particularly recommend
imitive," "vernacular,"
chaic," and their cognates
l corollaries. The point is to
gest mysterious depths that
e been ignored, forgotten, or
rely parodied by other
hitects. Some opening
arks that Stuart Wrede,





©The Museum of Modern Art photos

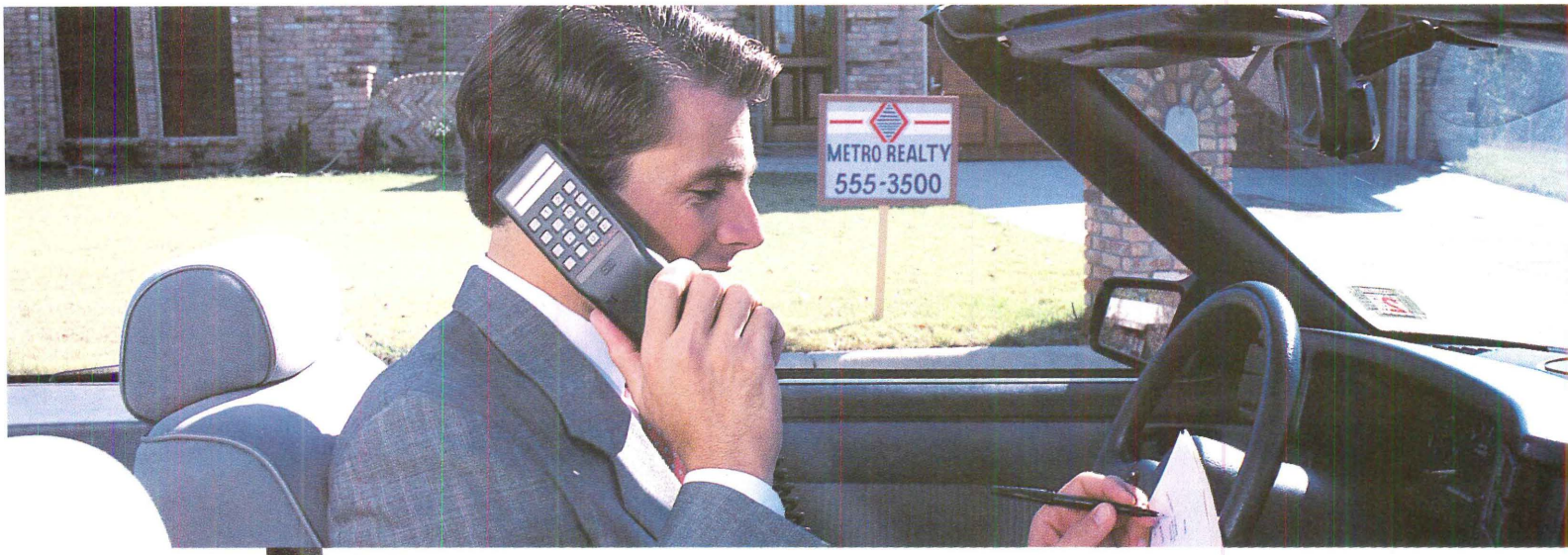
The MOMA exhibition includes projects both speculative (Steven Holl's Autonomous Artisans' Houses, Staten Island, N. Y., of 1981-84, top) and pragmatic. Among Ambasz's signature interiors is the Bank Bruxelles Lambert, in Milan (1979), which features a wandering handrail (bottom).

director of the museum's Department of Architecture and Design and the organizer of the exhibition, made in the brief essay he contributed to the brochure accompanying this exhibition epitomize the procedure. "Unlike architects who have sought inspiration mainly in the formal language of Modernism," Wrede wrote, "or those who sought to recapture meaning and symbol by a return to historic modes of architectural representation, Ambasz and Holl have sought to revitalize the mythopoetic side of Modernism."

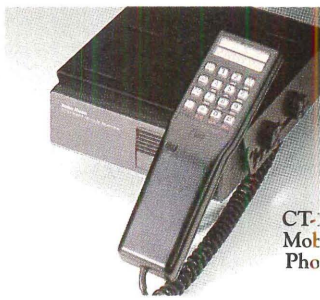
Understandably, architects eagerly acquiesce or even encourage this sort of talk (often contributing to it themselves) because it seems like good publicity; after all, what could be better than to transcend at a single stroke the various liabilities ascribed to most of one's colleagues and thus achieve instant preeminence? The problem is that this handy scheme for transcending the rigors of Modernism and the riots of Postmodernism usually turns out to be little more than (as the Danish wit Hamlet once put it) "words, words, words." And when one is dealing with architects of real but somewhat idiosyncratic and still developing talent—as one assuredly is with Ambasz and Holl—then the words simply serve to obscure rather than explain the work. No matter how much the architects themselves might purr to hear it, the notion that their projects aspire "to get back to a pure and mythical ground zero of architecture," as Wrede would have it, really does not do much to help us understand their work.

Joseph Rykwert argued at the end of his searching monograph *On Adam's House in Paradise: The Idea of the Primitive Hut in Architectural History*, that "The return to origins is a constant of human development and in this matter architecture conforms to all other human activities. The primitive hut—the home of the first man—is therefore no incidental concern of theorists, no casual ingredient of myth or ritual," but "remains the underlying statement, the irreducible, intentional core" of building. Now this is perhaps true, but when Wrede tells us that, for example, "Ambasz's projects provide an architectural model for a pastoral ideal, a new harmony between man and nature," we know we have passed beyond the borders of architectural criticism into the mushy land of public-relations puffery. In this sense, MOMA's exhibition of the work of Ambasz and Holl assumes the proportions of a cautionary tale. What we see are two promising but largely untried architects being treated as masters. And as is so often the case in these matters, what was meant to boost reputations ends up diminishing them.

Put the whole world in your hand.



Save $200 on a Radio Shack Transportab or Mobile Cellular Phone



Start Enjoying the Benefits of a Cellular Telephone. Now you can make and take calls wherever there's cellular service. Stay in touch going to and from work, on a service call or making a delivery. And, if help is needed, the police, a tow truck, a doctor or mechanic is just an *in-car* phone call away.

A "Car or Carry" Transportable for $799*. You can the CT-201 in your car, truck or van, or go portable ar carry it with you. Just snap on the Portable Adapter (s separately) and make calls at a job site, in a rental car aboard a pleasure boat. The 3-watt output is five time that of many other portables.

A Full-Featured Mobile Phone for $599*. A CT-101 you make and take calls from your car. You'll be able t confirm meetings and reservations in advance to avoi wasted trips, as well as receive important messages fro home, office and clients.

No-Cost, No-Obligation Demonstration. Let us shov how the transportable CT-201 (#17-1005) for $40 per month† or the CT-101 mobile phone (#17-1075) for $3 per month† can make you more productive.

*Subject to 90-day minimum new activation with Radio Shack carrier (see store for details). CT-201 requires mobile antenna and portable adapter. Price without activation: $999. CT-101 requires antenna. Price without activation: $799. †Radio Shack revolving credit. Payment may vary depending upon account balance. Prices apply at participating Radio Shack stores and dealers.

Radio Shack
The Technology Stor
A DIVISION OF TANDY CORPORATION

Circle 58 on inquiry card

Books

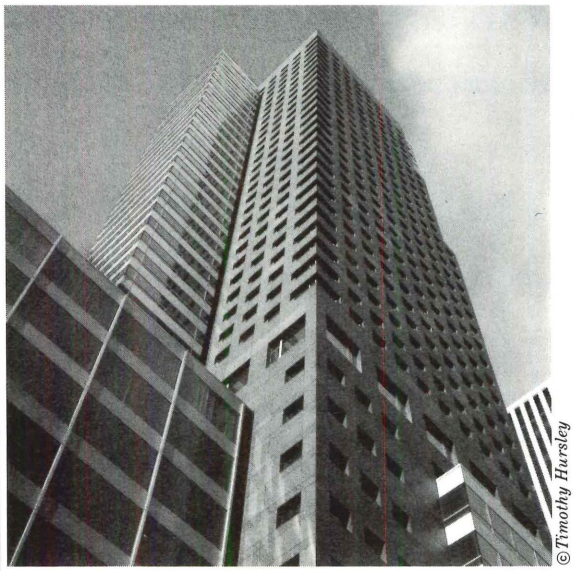
e Architecture of Kallmann cKinnell & Wood, with essays Alex Krieger, Peter senman, Eduard Sekler, and bert Campbell. New York: zzoli, 1988, $25.
mes Stewart Polshek: ntext and Responsibility, th essays by Helen Searing d Gwendolyn Wright. New rk: Rizzoli, 1988, $45.

viewed by Charles D. Warren

ese recent monographs cument the highly divergent rk of two firms that have in mmon prestigious commissions the corporate and institutional ctors. Only seven projects are acefully bound within the bossed paper covers of the lume on the work of Kallmann cKinnell & Wood. Lush color otographs chronicle the markable metamorphosis of e firm's work, from the werful brutalism of Boston ty Hall (1968) to the gentle straint of the American ademy of Arts and Sciences 81). Though these two ojects suggest an abrupt nsformation, a close look veals instead a steady aturation. This firm's careful, sessive interest in the physical alities of architecture is ever esent in their work, exhibiting mmon themes of durability d clarity, whatever the ilding material.
A complete chronology of ojects is included, providing a mprehensive account of the ge of the architect's efforts. ort essays by Alex Krieger, ter Eisenman, Eduard Sekler, d Robert Campbell, and a eword by José Rafael Moneo, e more laudatory than alytical in tone, but vertheless provide an derstanding of the firm's

arles D. Warren is principal his own architectural firm in w York City.

Left: 500 Park Tower, James Stewart Polshek and Partners with Schuman Lichenstein Claman Efron, associated architects.
Right: Boston City Hall, Kallman McKinnell & Wood, architects.


© Timothy Hursley

©ESTO Photographics

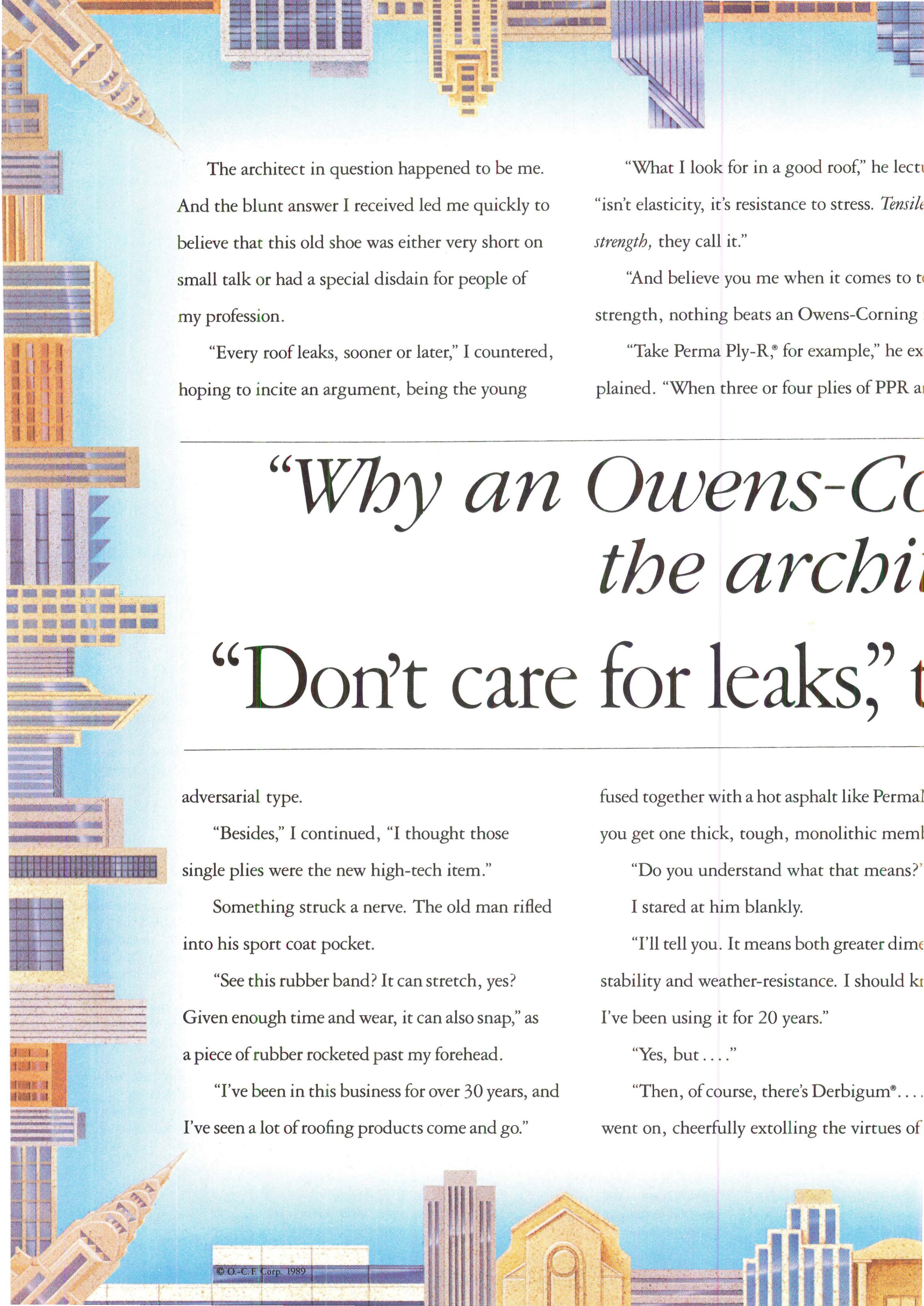
intellectual milieu. The book's elegant design and its meticulous production are indicative of a concentration on refinement and quality of detail rather than comprehensiveness. This tells us a good deal about the firm: it has focused its energy on a small number of very important commissions, each having fortuitous circumstances. In so doing Kallmann McKinnell & Wood has not produced an architecture of innovation, but one of solidity and precise detail.

Architects are not always presented with ideal circumstances, but they should try—as James Stewart Polshek has, again and again—to make the best of difficult situations. Confronted with constrained sites, complex programs, and extremely limited budgets, Polshek's firm has often produced an architecture well-suited to the particularities of its circumstances. *James Stewart Polshek: Context and Responsibility* records these diverse achievements as well as work that succeeds less well in facing the architectural dilemmas our age has so plentifully provided.

The variety of building types shown is impressive, with projects ranging in scope from suites of rooms to skyscrapers. Many difficult commissions exceed reasonable expectations: how surprising it is to find, for example, a resource-recovery plant transformed into a garden of industrial delights, or public housing in the Bronx that aspires to emulate (if not entirely successfully) the rich traditions of its Art Deco neighbors. Polshek and his associates show their skill equally well in less financially constrained circumstances. The tower at 500 Park Avenue [RECORD, July 1984, pages 86-95] appears to be a seamless extension of Skidmore, Owings & Merrill's celebrated Pepsi-Cola Building, of 1960. The sleek, International Style interiors for AMRO Bank, the building's current occupant, have been carefully fitted within the earlier structure.

Although Polshek's projects are well documented, with many color photographs and drawings, they are arranged in rather cumbersome categories such as "Creation," "Reinforcement," and "Reparation." Short essays by Helen Searing and Gwendolyn Wright introduce the buildings and projects, and Polshek himself contributes an autobiographical text (it rambles at times). His fulminations against style, which recur throughout, are poorly reasoned and gently contradicted in Searing's helpful essay. (One is surprised to learn that Polshek finds it frivolous for architects to design decorative objects, but important to design a store in which to sell them.)

Moreover, striking contradictions at times crop up in the firm's work. In light of the volume's subtitle—*Context and Responsibility*—one can only ask if the proposed Metropolitan Park Tower, a 32-story skyscraper that would bear down menacingly on Stanford White's 1894 Metropolitan Club, *is* responsible, or sensitive in any conceivable way to its surroundings. Similar questions might be raised about the Rochester (N. Y.) Convention Center. An exquisite Classical bank by architect and theorist Claude Bragdon that occupied the site was originally intended to be incorporated as a principal public entrance. Instead, it was demolished after Polshek had persuaded the city that the building could not be saved because its doors were too narrow to accommodate projected crowds.



The architect in question happened to be me. And the blunt answer I received led me quickly to believe that this old shoe was either very short on small talk or had a special disdain for people of my profession.

"Every roof leaks, sooner or later," I countered, hoping to incite an argument, being the young adversarial type.

"Besides," I continued, "I thought those single plies were the new high-tech item."

Something struck a nerve. The old man rifled into his sport coat pocket.

"See this rubber band? It can stretch, yes? Given enough time and wear, it can also snap," as a piece of rubber rocketed past my forehead.

"I've been in this business for over 30 years, and I've seen a lot of roofing products come and go."

"What I look for in a good roof," he lectu "isn't elasticity, it's resistance to stress. *Tensile strength,* they call it."

"And believe you me when it comes to t strength, nothing beats an Owens-Corning

"Take Perma Ply-R,® for example," he ex plained. "When three or four plies of PPR a

"Why an Owens-Co the archi

"Don't care for leaks," t

fused together with a hot asphalt like Permal you get one thick, tough, monolithic memb

"Do you understand what that means?"

I stared at him blankly.

"I'll tell you. It means both greater dime stability and weather-resistance. I should kn I've been using it for 20 years."

"Yes, but . . . ."

"Then, of course, there's Derbigum®. . . . went on, cheerfully extolling the virtues of

© O.-C.F. Corp. 1989

ure-resistant, modified bitumen membrane,
velded for optimum adhesion."
hat's not all," he assured me.
had little doubt.)
ou have to think about insulation. Owens-
g Fiberglas® Roof Insulation doesn't lose its
l value over time like isocyanurate foams."

high water. Whatever Mother Nature dishes out."

Ironically, at that moment, Mother Nature was dishing out cats and dogs. While the roof overhead proved his argument to be literally watertight.

"Owens-Corning is the largest, most respected manufacturer in the business and roofing is their *sine qua non*."

---

ng roof?" asked naively.

contractor said dryly.

---

his a contractor or chemist, I wondered?)
n fact it can actually add to the life of the
minimizing blisters."
ll that, installed to the highest standards by
-Corning approved contractors. And backed
strongest guaranty program in the industry."
elt myself sinking under the weight of ice-
gic.
n brief, you get a roof that can withstand the
its. Come wind, come snow, come hell or

"A chemist and a Latin scholar," I mumbled under my breath.

"No, a simple contractor," he said with a twinkle.

OWENS/CORNING FIBERGLAS

If you'd like to enter in on this dialogue, call 1-800-FIBERGLAS, or send in the coupon below.

Name_____ Company_____

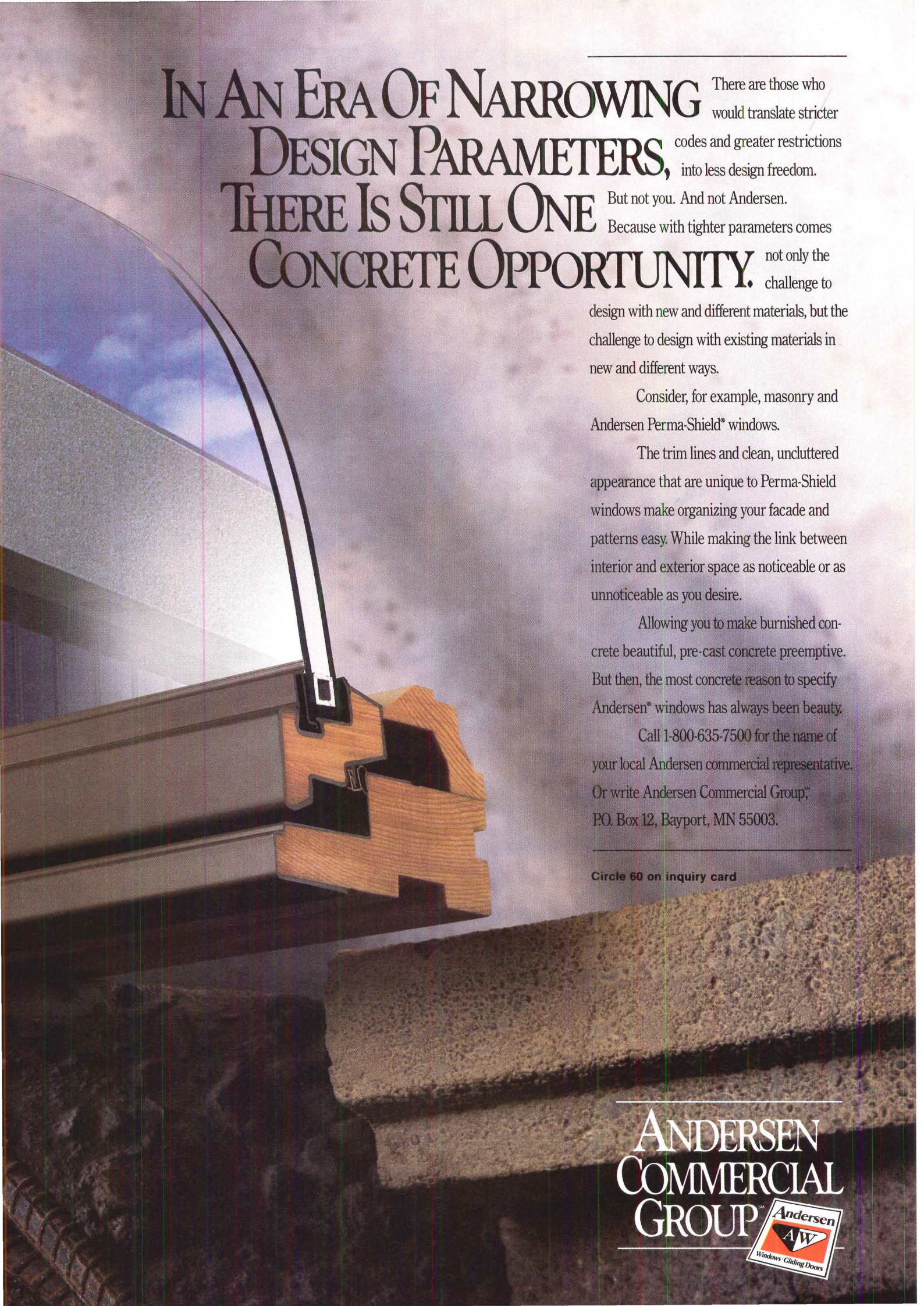
Address_____

City_____ State_____ Zip_____

Mail to: C.G.R. Meeks, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659

Circle 59 on inquiry card

88104 ©1988 Andersen Corp.



In An Era Of Narrowing Design Parameters, There Is Still One Concrete Opportunity.

There are those who would translate stricter codes and greater restrictions into less design freedom.

But not you. And not Andersen.

Because with tighter parameters comes not only the challenge to design with new and different materials, but the challenge to design with existing materials in new and different ways.

Consider, for example, masonry and Andersen Perma-Shield® windows.

The trim lines and clean, uncluttered appearance that are unique to Perma-Shield windows make organizing your facade and patterns easy. While making the link between interior and exterior space as noticeable or as unnoticeable as you desire.

Allowing you to make burnished concrete beautiful, pre-cast concrete preemptive. But then, the most concrete reason to specify Andersen® windows has always been beauty.

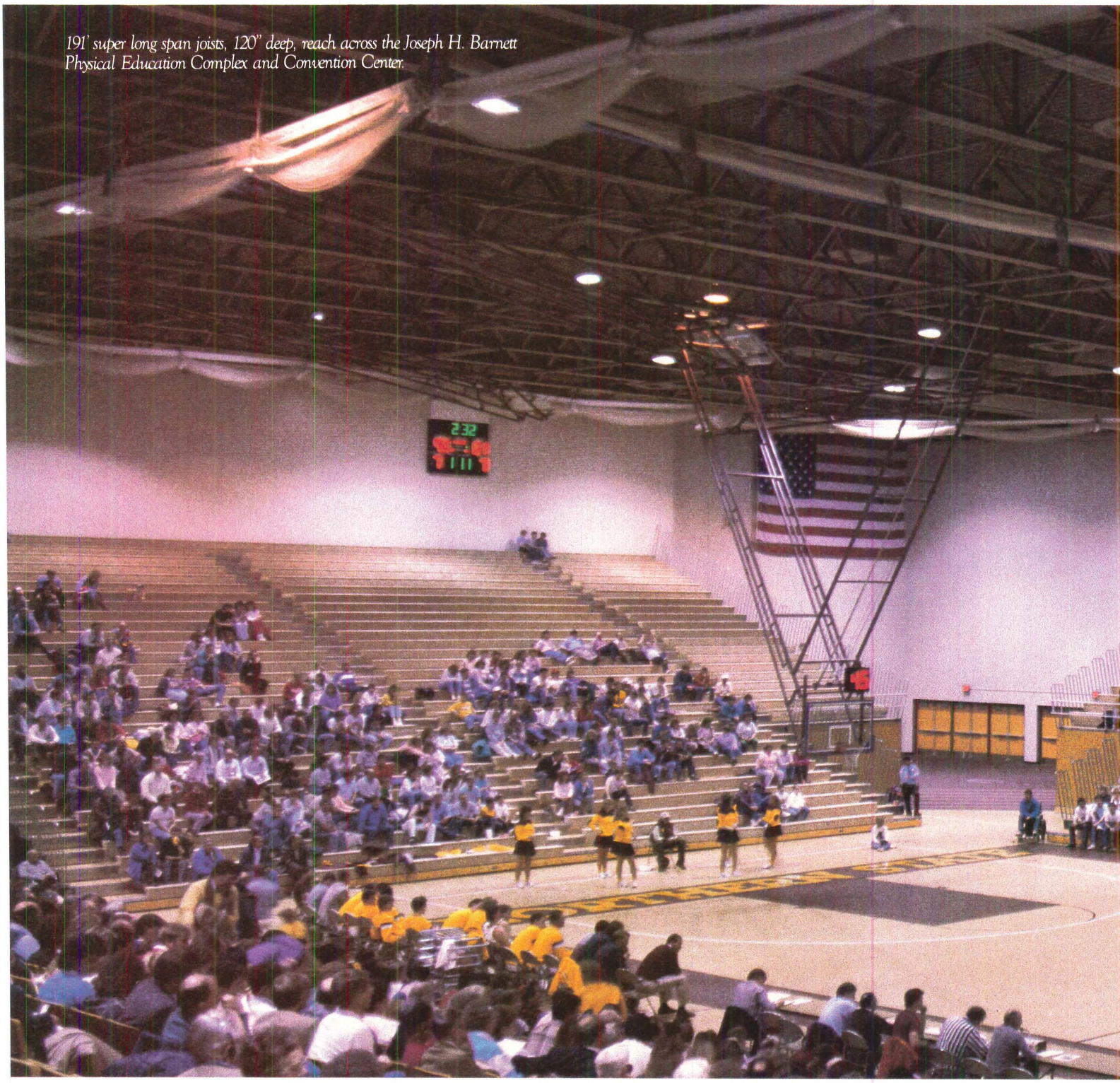
Call 1-800-635-7500 for the name of your local Andersen commercial representative. Or write Andersen Commercial Group℠, P.O. Box 12, Bayport, MN 55003.

Circle 60 on inquiry card

Andersen Commercial Group℠

Andersen AW Windows/Gliding Doors

SOME OF NORTHERN STA
AREN'T IN



191' super long span joists, 120" deep, reach across the Joseph H. Barnett Physical Education Complex and Convention Center.

The supporters are the super long span Vulcraft joists high above the floor of the Northern State College Barnett Center in Aberdeen, South Dakota. And super long isn't all they are. They're also super strong.

The architect first considered a space frame type of structure. But he chose super long span joists because he was impressed by what he had seen on other Vulcraft jobs. Impressed with the strength of the joists. Impressed with the aesthetics. Impressed with V craft's design experience. Impressed with the ea construction. And impressed, too, with the low

The joists for the Barnett Center are 191 fee and they arrived in three pieces at the job site and simply bolted together. Which made it a very fas simple method of doing things.

And Vulcraft helped keep the job on trac

S BIGGEST SUPPORTERS
E STANDS.

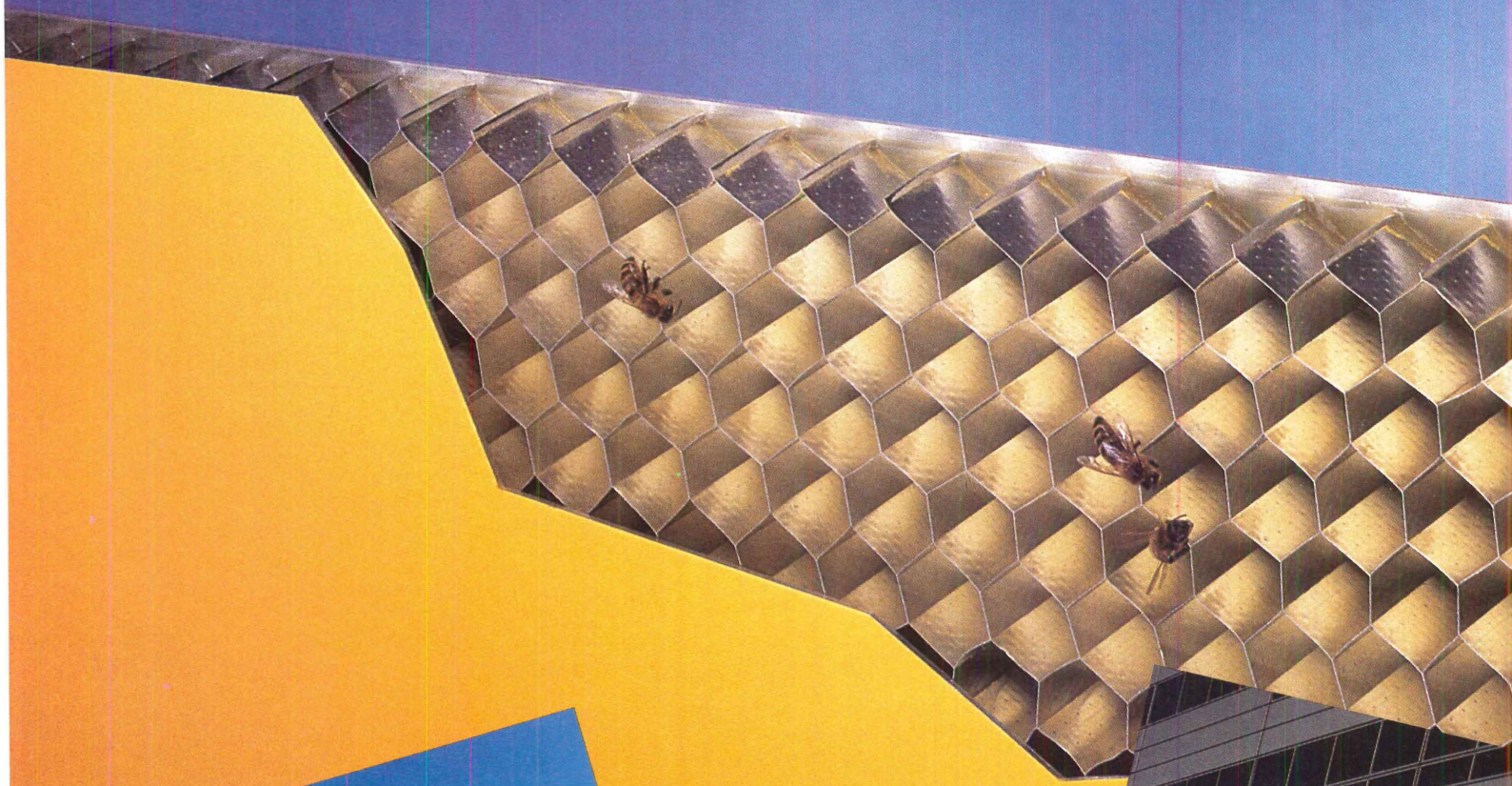
ng sure that the materials arrived on site exactly
n they were scheduled. And that includes the
st 99,000 square feet of steel deck we supplied too.
So if you're into dynamic designs, now you know
e you can find easy to install super long span joists
will fit right into your game plan. Contact your
est Vulcraft plant or take a look at Sweet's 05100
L and 05300/VUL product review.

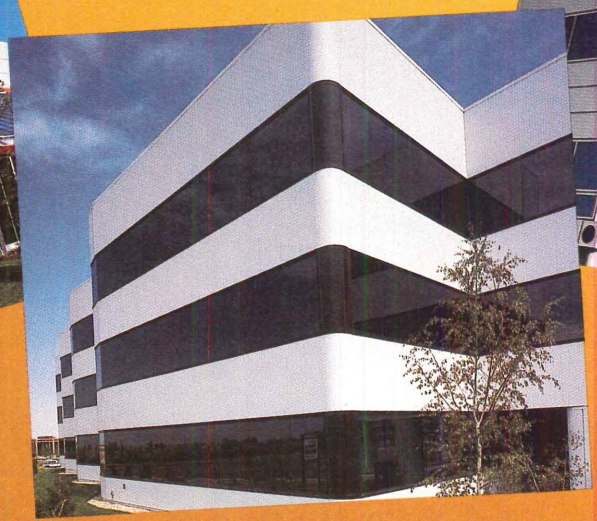
VULCRAFT
A Division of Nucor Corporation

*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/Engineers: Spitznagel, Inc., and Herges-Kirchgasler-Geisler & Associates; General Contractors: Kyburz-Carlson Construction, Inc.; Construction Managers: The Christensen Corporation; Steel Fabricator: Mid-America Steel, Inc.*

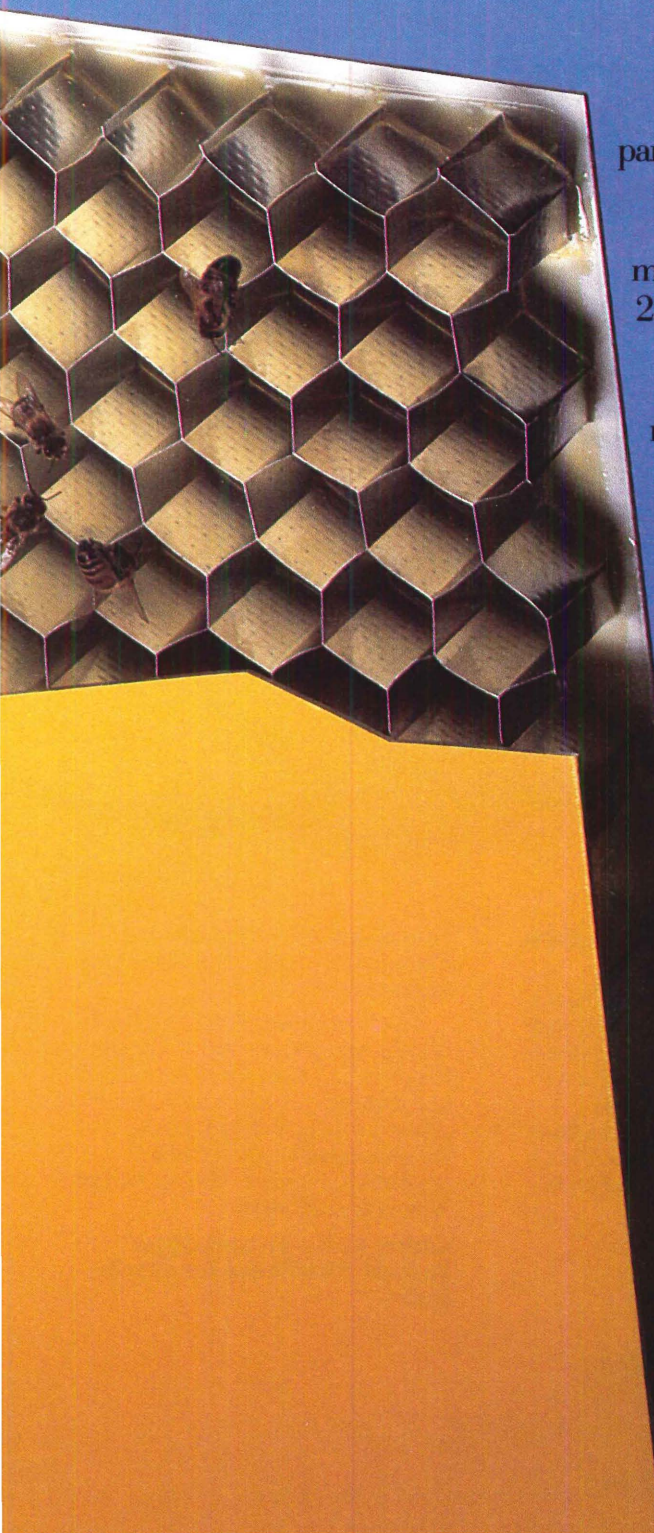
Circle 61 on inquiry card

We borrowed one from some ver





ur best panel ideas ood designers.



We're not ashamed to admit it.

Our engineers got the idea for our Alveus panels and curtain walls from somewhere else.

They took it from nature.

The honeycomb core in a beehive is a masterpiece of engineering and art. It can support 25 times its weight in spite of its ultra thin shell.

Which is just what we were looking for.

So inside Alveus panel products you'll find a rigid aluminum honeycomb core. Making them lightweight, yet still able to maintain exceptionally high strength-to-weight ratios.

It also gives you surfaces with absolute flatness.

And lets you curve them into almost any configuration you want. From rounded corners to column covers.

So when you need a smooth surface design that blends with glass to create an uninterrupted flush, monolithic surface, look for Alveus panel and curtain wall.

The ones with the honeycomb core.

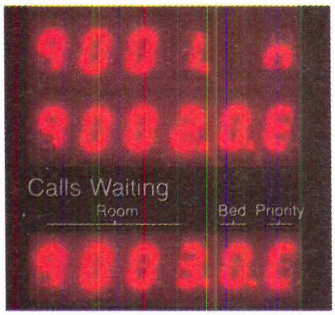
After all, four-hundred million bees can't be wrong.

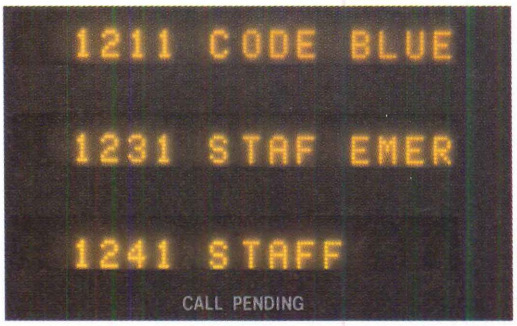
For complete architectural design specifications, contact Kawneer Company, Inc., Department C, Technology Park-Atlanta, 555 Guthridge Court, Norcross, GA 30092.

Kawneer
Panel Products

Circle 62 on inquiry card

Quick. Which emergency messages can you read?





The new Dukane ProCare 4000.™ It speaks your language.

No matter how well a hospital is designed, an inefficient nurse call system can make it look bad. That's why we developed the fast-response features of the ProCare 4000.

No more confusing codes to decipher.

The ProCare 4000 communicates with simple language. Which means training nurses on the system will be simple as well. It also eliminates the all-too-common problem of having temporary help that can't use the system. And programming takes only minutes.

Static-hardened for ultra-reliable performance.

Tough environmental conditions set the stage for problems with static electricity. Even the changing of a patient's bed linens can produce a charge that can knock out an ordinary nurse call system in a flash. But the Dukane ProCare 4000 is no ordinary system. It's built to handle just about anything.

Space-saving, compact size. Compatible with other Dukane systems.

The new Dukane ProCare 4000 comes with a lot of added engineering features. But does it in a surprisingly compact size. And if you're currently using a microprocessor-based Dukane system, you'll find the upgrade to ProCare 4000 to be both simple and affordable.

Quick! Call your authorized Dukane distributor for details today.

DUKANE

312-584-2300
2900 Dukane Drive
St. Charles, IL 60174

Circle 63 on inquiry card

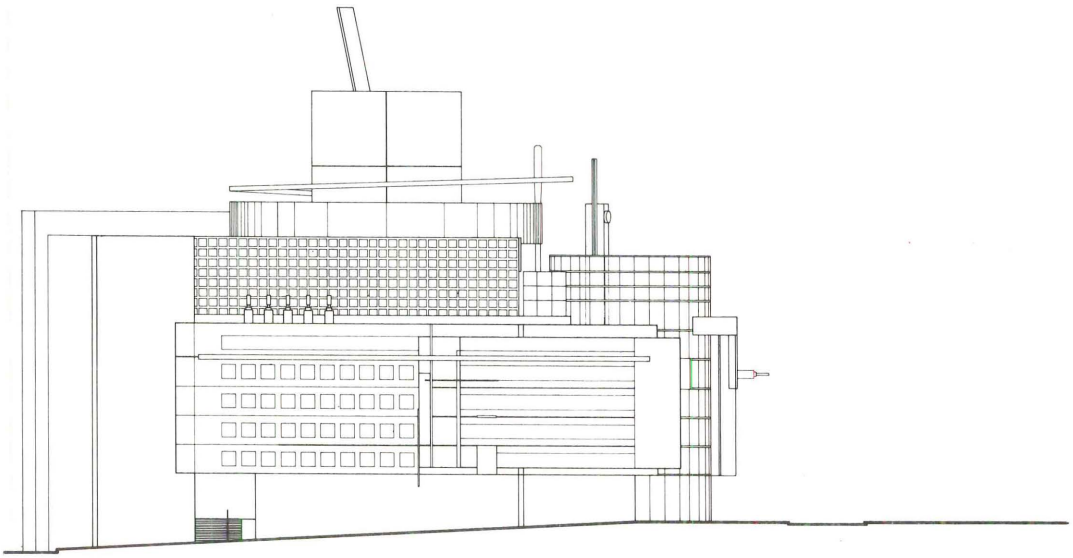
AR489

In this issue

"I'm not going to design something that my clients aren't comfortable with," maintains Franklin Israel, the 43-year-old Los Angeles architect whose work combines the fragmented compositions often associated with West Coast architecture and a carefully thought-out formalism that stems from Israel's East Coast apprenticeship. Our portfolio of Israel's most recent work (cover and pages 66-73) reveals the architect's pragmatic-yet-inventive attitude by examining two built projects in Los Angeles—the offices for a film-production company and an addition to a suburban house—as well as an exhibition of Israel's work, designed by the architect and organized by the Walker Art Center in Minneapolis.

To a large degree, all of the projects featured this month exhibit a gratifying blend of necessity and invention geared, in part, to keeping the customer satisfied. For the Anderson Ranch Arts Center in Aspen, Colorado (pages 74-77), Harry Teague provided cost-efficient, up-to-date studio space for printmakers, ceramicists, woodworkers, and photographers while responding to the artists' request that he retain the appealingly rustic character of the center's existing collection of log houses and barns. Like Teague, Hardy Holzman Pfeiffer was faced with severe cost constraints when the city of Anchorage commissioned the firm to design the new Alaska Center for the Performing Arts (pages 96-105). Even without the veneer of luxurious materials often associated with such ambitious cultural complexes, the architects gave Anchorage a first-rate building ensemble comprising three theaters for concerts, dramatic presentations, and community events. (A separate technical article, pages 106-110, examines the Center's acoustical features).

Our Building Types Study on hospitals (pages 78-89) gives a sampling of the surprisingly noninstitutional environments in which three hospitals in Boston, Brooklyn, and Santa Monica hope to improve operating efficiency and increase revenues. Finally, a provocative collection of unbuilt projects by Ellerbe Becket (drawing below and pages 90-95), one of the top-dollar-volume firms in the country, contradicts the notion that well-established practices produce only anonymous "safe" buildings. In the end, while it is encouraging to see an architect like Israel cater so diligently to client concerns, perhaps it is even more heartening when a large corporate firm like Ellerbe Becket lets its hair down a bit.



:hibsted Gruppen
eadquarters, Oslo
llerbe Becket/New York,
rchitect

With due respect

The work of Los Angeles architect Franklin Israel combines current impulses in West Coast architecture with an East Coast regard for material refinement and compositional order.

When Frank Israel talks about his work, he openly acknowledges his sources, characterizing an element or entire project as an architectural homage. "It's an homage to Carlo Scarpa," he says, pointing to an eye-shaped window in his offices for a film-production company. "It's an homage to Rudolph Schindler and Frank Lloyd Wright," he notes of his modular addition to a suburban house. Israel's respect for the past, however, is not purely manifested in imitative historicism. Like many young architects practicing in Los Angeles, the 43-year-old designer is as much inspired by the work of Frank Gehry as the Modern masters. "Gehry taught me to loosen up, to use common materials in an inventive way," says Israel, whose recent projects display his mentor's penchant for dividing a program into discrete architectural objects. Israel's fragmented compositions, however, are tempered by a studied formalism, the result of his apprenticeship with several New York firms and a sojourn at the American Academy in Rome. Beaux-Arts axiality, symmetry, and modularity regulate his Modern-inspired abstractions and distinguish his work from the more makeshift character of contemporary West Coast architecture. "Frank Israel's work is much more refined than Gehry's, with an elegant, Japanese way of handling materials," explains Mildred Friedman, design curator of the Walker Art Center, who selected Israel as the first subject of her three-year "Architecture Tomorrow" series [RECORD, February 1989, page 69]. The show premiered last fall and is now on view at the San Francisco Museum of Modern Art. With characteristic regard for detail, Israel designed the entire installation, from six cratelike enclosures (above) to meticulously crafted models on pedestals (opposite). Arranged in a grid to suggest an urban matrix, the sheds offered variations on the theme of wood construction—a kind of homage to the balloon frame. All were entered from the gallery perimeter, except for one, a splintered assembly that housed six spruce trees. In the remaining five, Israel installed models and mahogany-framed drawings of both built and unbuilt work to represent his decade-long practice. Displayed against concrete panels hung inside the sheds, the selected projects emphasized the architect's stylistic diversity, sensuous handling of materials, and fondness for theatricality (influenced in part by his brief stint as a movie-set designer and art director).

Israel's installation at the Walker Art Center, Minneapolis

The Gillette Studio, a loft conversion in lower Manhattan [RECORD, mid-September 1985, pages 86-93], for example, conveys the planar mystery of a Luis Barragán house, while the recently completed, low-budget Propaganda Films (pages 68-71) exudes the explosive air of a colorful, neoconstructivist collage. Both projects successfully embody Israel's predilection for isolating small structures within a larger shell, and treating the areas between them as residual space. The potential disorientation of these essentially Modern plans, however, is countered by strong axes and localized symmetry that anchor the object-rooms of the interiors to their boundaries and, ultimately, to the street.

Israel's stuccoed family room/studio addition to the Lamy/Newton residence (cover and pages 72-73) similarly opposes its point of reference—a banal, neo-Colonial spec house—but it, too, stops short of complete disjunction. Framed by corner windows that owe an obvious debt to Schindler and Wright, its symmetrical facade maintains a self-contained aloofness from the rest of the house. Inside the seemingly pure volume, however, boundaries between new and original disappear. Defined at its center by a freestanding steel framework, the one-room addition is enclosed on two sides by the original clapboard exterior of the house, which the architect utilized to create a cubistic integration between his design and the existing architectural elements.

Israel possesses a facile ability to vary his style, a versatility that stems, he explains, from "a search for an appropriate response to the specifics of each project's site and program." It is an undogmatic approach that combines a Modern vocabulary with a Postmodern regard for context. "Postmodernism is currently out of fashion," he says. "But certain of its tenets are still valid, such as relating buildings to the city, street, and landscape." Although sprawling Los Angeles hardly seems demanding of strict contextualism, Israel views the decentralized character of the metropolis—a "city of cities within"—as worthy of serious consideration, reflected by his internalized object partis for the Gillette Studio and Propaganda Film offices. In addition, the architect's borrowings from masters such as Schindler and Wright give his work a regional flavor sympathetic to the city's Modernist tradition of residential design.

Israel admits that his sensibility is "still evolving," citing a diverse list of sources that continue to affect his vision, from the theory of Robert Venturi to the site plans of early Roman towns. Most recently, however, he has begun to narrow the scope of his influences to produce designs that, while stylishly representative of the current Los Angeles scene, are more clearly his own. The Malibu beachfront residence for film director Robert Altman and proposed gallery for a renowned Los Angeles art collector, for example, reflect a subtler hand than his earlier projects. Israel's straightforward organization of these buildings, delineated with screen walls, hints at the architecture of Wright, Schindler, and Japanese models without obvious imitation or fashionable maneuvers. Serenely tied to the landscape, they pay homage to the simplicity of form, natural light, and Israel's self-professed interest in ritual.

In explaining the motivations behind his projects, Israel admits that his clients play an important role in formulating the design direction of each project. He adheres to the unfashionable belief that architecture is a service profession, stating, "I'm not going to design something that my clients aren't comfortable with." It's a homage that may be his most enduring.

Deborah K. Dietsch

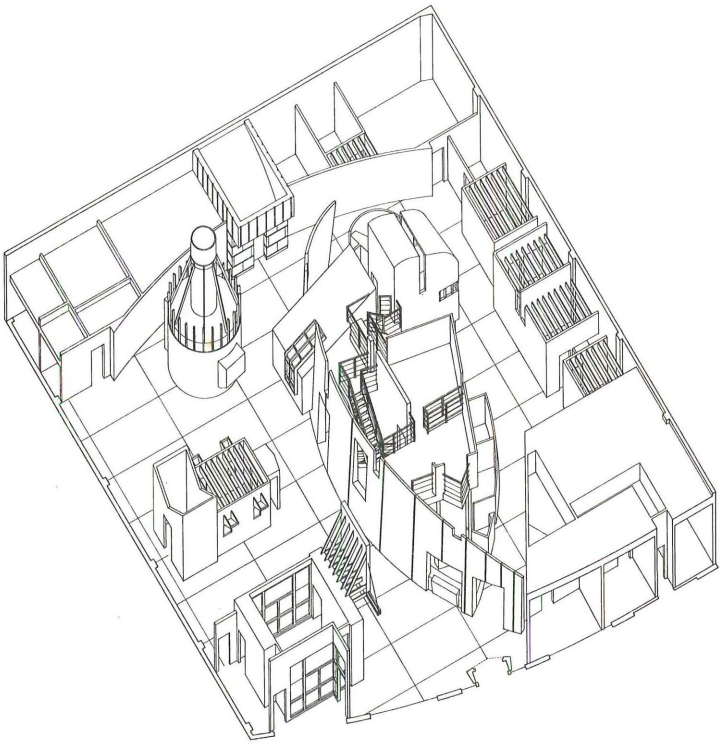
ortfolio by Franklin D. Israel
esign Associates

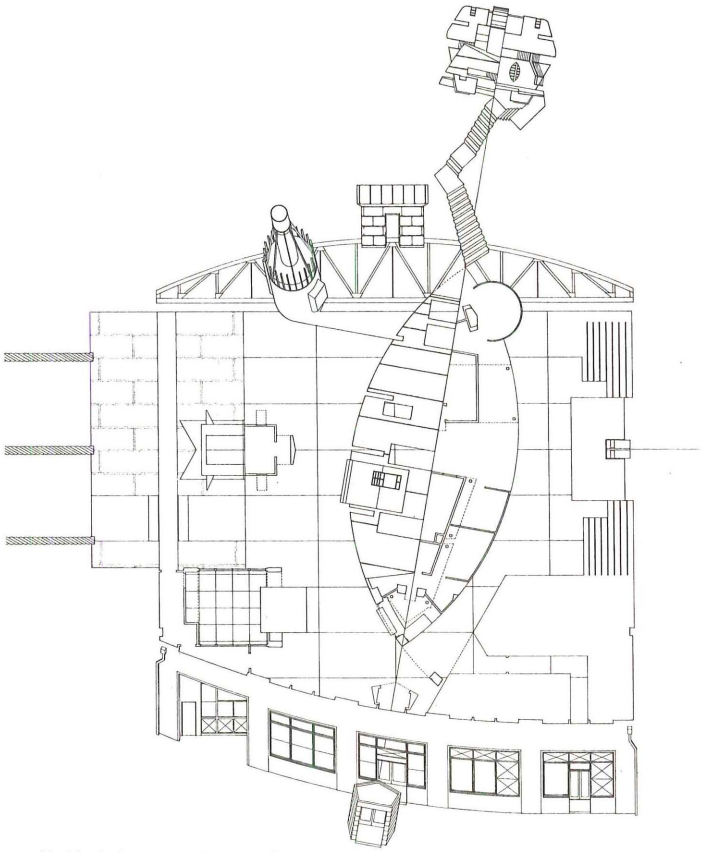
Mythic proportions

Propaganda Films
Los Angeles
Franklin D. Israel Design Associates, Architects

"It promotes the myth of Hollywood," explains Frank Israel of Propaganda Films, a three-year-old company that produces music videos, TV commercials, and movies. He accordingly designed the firm's offices like a stageset on a film studio backlot by grouping a series of freestanding pavilions within the unfinished space of a 10,000-square-foot warehouse. Rendered in colorfully painted drywall and exposed wood framing, the fragmented "village" recalls the cheap materials and wrenched compositions of Frank Gehry. But the detailed articulation and axial relationships that underlie this seemingly ad hoc arrangement clearly embody Israel's more formal sensibility.

The interior focuses on a lozenge-shaped assemblage that Israel aligned with the warehouse's curved front facade (drawings and bottom right). Interlaced by the structure's bow trusses (opposite top), this three-tiered "boat" of offices is designed "to pull you in," according to the architect, who placed an executive suite in the "prow" and added a Corbusier-inspired enclosure to one corner (drawings and overleaf). Israel surrounded this centerpiece with a backdrop of rooms that aligns with the orthogonal perimeter, including a film vault symbolically positioned directly on axis with the entrance, and two independent volumes used as a coffee bar/casting room and production center. At the rear of the space, he inserted a freestanding turbine-shaped cylinder, emblazoned in Golden-Gate-Bridge red, to serve as a conference room (opposite top). Furnished with recycled 1940s office furniture and billboard lighting fixtures, the low-cost ($35 per square foot) ensemble projects a sense of raw energy, underscored by Piranesi-like juxtapositions of stairways, angled walls, and trusses.





©Grant Mudford photos except as noted

Opposite page:
1. View of production center (left), office "boat" (right), and video conference room (background) from entrance.
2. Entrance vestibule (right) and reception area (left).
Pages 70-71:
3. Production center with metal-tipped uplights (right) and stairway to central offices.
4. Windows in office "boat," including an eye-shaped opening that mirrors plan.
5. Corbusier-inspired pavilion on pilotis at corner of central office structure.
6. Curved wall of central office enclosure slotted with bow trusses and staircase.

Architect:
Franklin D. Israel Design Associates—Franklin D. Israel, principal-in-charge; H. Seth Rosenthal, project architect; Jeffrey M. Chusid, project manager; Christopher Duncan, Mitchell De Jarnett, project team; Paul Fortune, interior furnishings and finishes
Engineers:
Davis-Fejes Design (structural); Silver Engineering (mechanical)
Lighting:
Sol Goldin
General contractor:
Iverson Construction

3

4

PROPAGANDA

Different strokes

Lamy/Newton Studio
Los Angeles
Franklin D. Israel Design Associates, Architects

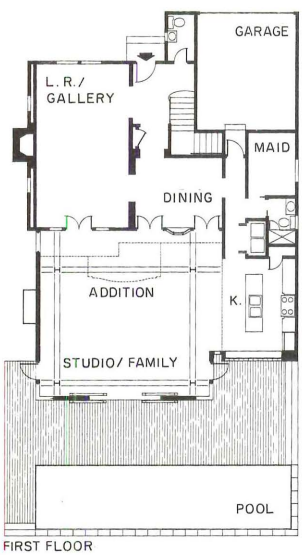
In commissioning an addition to their house, fashion designer Michele Lamy and artist Richard Newton requested that Frank Israel design "something different." Different from their Leave-it-to-Beaver suburban street and neo-Colonial house, but not different enough to upset the neighbors.

Israel complied by designing a 729-square-foot stuccoed box at the rear of the house that serves as an art studio and gallery, guest bedroom, and family room. Flanked by a deck and lap pool, and detailed with Schindler-inspired corner windows, it would appear to be more at home in the Hollywood Hills than on a genteel street in Hancock Park. Its sensitively attuned proportions and discreet location, however, establish a polite coexistence, not an abrasive confrontation, with the clapboard-and-pitched-roof vocabulary of the existing house.

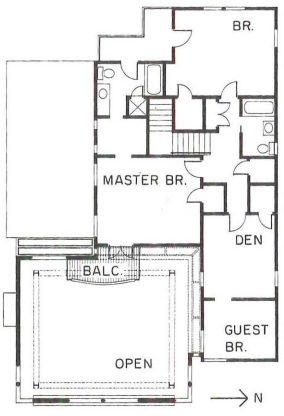
Inside, Israel interwove his space with the adjacent rooms by opening up the kitchen, newly clad in glass block (top right), and maintaining the original exterior walls of the house (bottom right) as part of his composition. He reinforced the screenlike character of the enclosure by exposing the steelwork as a freestanding cube at the center of the space. Suspended from this structure is an oak-clad balcony off the master bedroom and a drywall "curtain," which frames a graphic interplay between openings in the existing and newly erected walls (opposite).

Architect:
Franklin D. Israel Design Associates—Franklin D. Israel, principal-in-charge; James Harlan, Amy Alper, Yo-ichiro Hakamori, Milena Iancovici, project team
Engineer:
Davis-Fejes Design (structural)
General contractor:
Richard Loring

©Grant Mudford photos



FIRST FLOOR

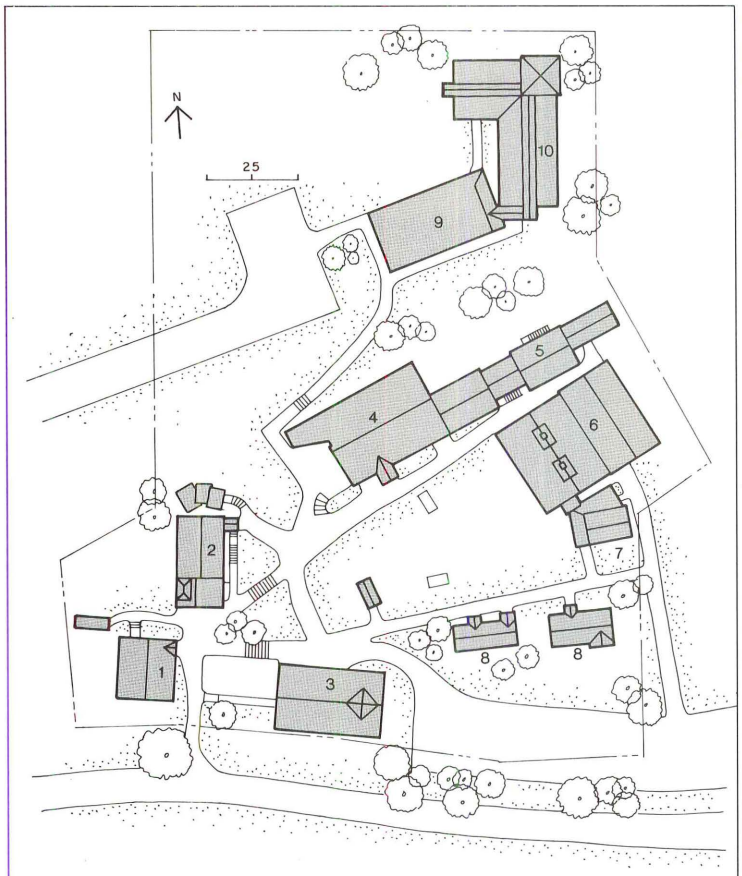


SECOND FLOOR 5

Anderson Ranch Arts Center
Aspen, Colorado
Harry Teague, Architect

The ranch artistically reconsidered

Gary Tarleton



1. *Ranch house*
2. *Dows Barn*
3. *Fischer Photography Center*
4. *Maloof Barn (woodworking)*
5. *Ceramics studios*
6. *Wyeth/Lyon kilns*
7. *Gates Barn*
8. *Residence*
9. *Dining hall*
10. *Wyly House (dormitory)*

Architects are not always given ideal raw material, but what Harry Teague encountered on the site of the Anderson Ranch Arts Center would likely have given anyone pause. An adjunct of the nearby Snowmass ski resort, the center in 1980 consisted of an assortment of sagging log houses and barns, some of which had been moved to the site as development swallowed up local ranches. Though the buildings were neither weatherproof nor properly equipped to meet the needs of the printmakers, ceramicists, woodworkers, and photographers the center intended to serve, the artists were emotionally attached to the structures' romantically gloomy character. (The 11 photographers who documented this story were part of a workshop taught by Timothy Hursley.)

From his initial involvement in 1980, Teague has rejected a "Historic Anderson Ranch" embalming of the barn buildings as inappropriate to the needs of the artists; rather, his mission has been to reshape the "wonderful decrepitude" of the center's existing structures into a vital, if not necessarily tidy, whole, all the while keeping to construction methods that could deliver finished projects for budgets that ranged from $18 to $40 a square foot. In Dows Barn (1981), Teague framed new stud-wall supports within a former horse barn, reroofed it in galvanized sheet, installed level floors for a print shop and gallery, and erected flat walls suitable for hanging artwork. A studio-mezzanine hung in the center of the barn's "nave" diffuses the sharp Rocky Mountain light streaming into exhibit spaces below. (New floor levels were similarly installed in Gates Barn, section page 76). Outside, Teague added an administrative-office tower and a new porch that functioned as the nexus of the center's social activity during its early days. Overhead doors in the ground-floor print shop expose artists to the surrounding mountains as well as to off-the-cuff comments from passersby, allowing the kind of spontaneous collaboration that the center has consciously nurtured.

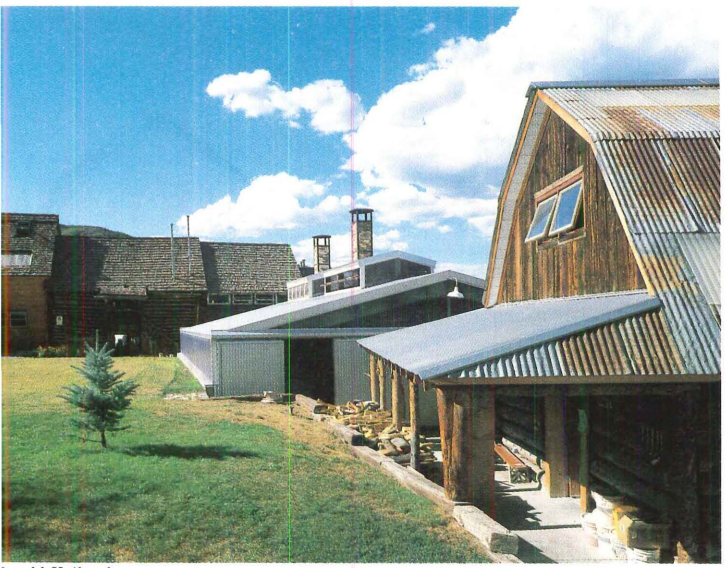
For Dows Barn and subsequent projects, board-sheathed stud-wall construction sets apart new work like the 1984 lean-to addition that supports what was once a collapsing barn (left) from the old buildings. By positioning several new structures among existing ones, Teague has created an irregularly shaped quadrangle that screens out unsightly resort-related additions to the surroundings. The Fischer Photography Center (1986), punctuated by one of Teague's ubiquitous porches, presents a facade to this green. A steel-framed metal-roofed kiln structure, completed in 1988 (opposite top), adds an incombustible industrial note to what Teague calls the "funky medieval" character of the old ranch buildings and permits year-round use of ceramics facilities. To the north, a new quadrangle will extend west from a recently finished dining hall and dormitory wing (top of site plan).

Teague's nine-year tenure has had its improvised moments. For instance, when one-by-three-foot wooden bridge supports were donated, they were adapted to brace the Maloof Barn (page 76). Overall, however, the diverse projects rely on an underlying architectonic consistency (the bark-sheathed porch columns, brightly painted punched windows), and a commonality of scale (unfolded elevation, page 76). The work's deliberate unassertiveness has allowed a poetic kind of artistic messiness—endemic to throwing pots or assembling chairs—to come to the fore. A more formalistic rendering, it seems, would simply have amplified the limitations of this extremely modest undertaking. Instead, Teague has seen—in Robert Venturi's words—"what is and what ought to be."

James S. Russell

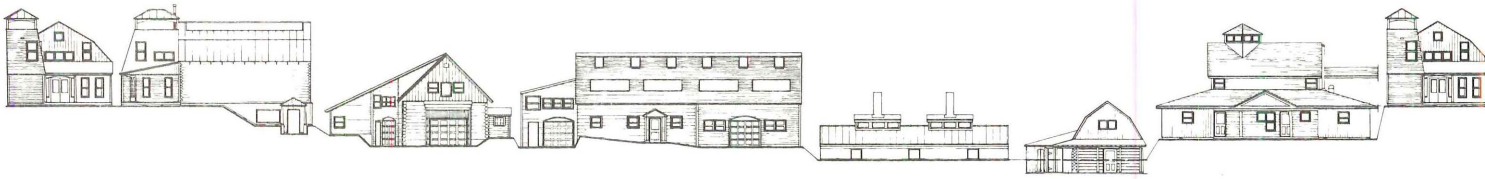
With the judicious use of new construction, Harry Teague has shaped an art center out of buildings dating from the homesteading days of Colorado's spectacular Snowmass Valley.

ay Hyma



Harold Hoiland

Henry S. McKee



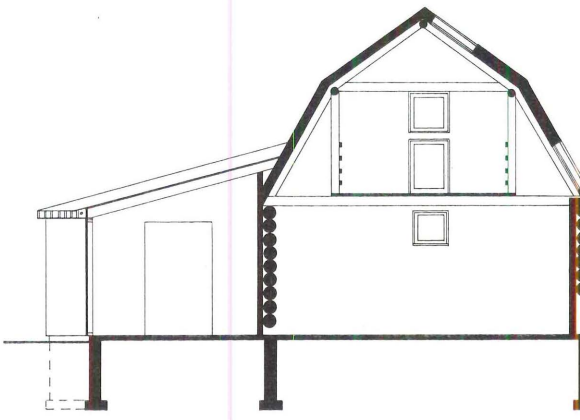
Henry S. McKee

De Ann Shields-Marley

Henry S. McKee

Harry Teague's own palette of bark-sheathed columns and siding sets new construction discreetly apart from the fissured, silvery patina of the old (opposite). A new porch and tower shore up the once-listing Dows Barn (top), while new mezzanine framing installed under the roof of the Gates Barn (section below) braces weakened log walls and filters harsh light from skylights overhead, a strategy employed in the Maloof Barn as well (bottom left), where donated bridge timbers support a painting studio over the wood shop.

Anderson Ranch Arts Center
Aspen, Colorado
Architect:
Harry Teague, Architect—Ted Guy, associated architect (Wyl dormitory); Denis Cyrus, Glenn Rappaport, Jake Vickery, project architects; Bo Tatham, assistant
Structural engineers:
Collins Engineering, Preston Buildings (Wyeth/Lyon kilns)
Contractors:
S.L.O.W. Construction (Dows Barn, Gates Barn); Advanced Mountain Structures (Maloof Barn, Fischer Photography Center); Doug Casebeer (Wyeth/Lyon kilns)

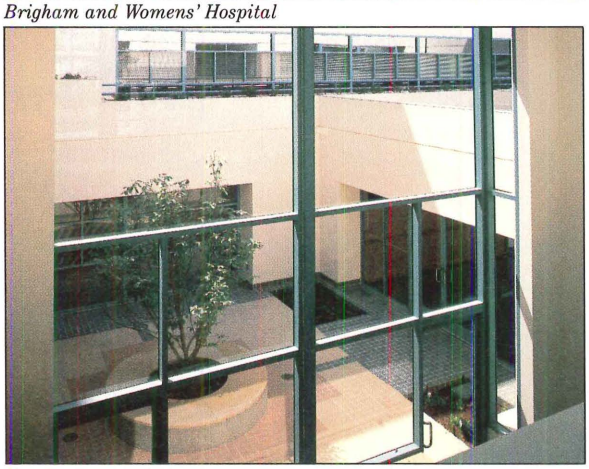


GATES BARN

anna Dikeman

Keeping fit

Brigham and Womens' Hospital



Cumberland Neighborhood Family Care Center

Santa Monica Hospital Medical Center

Although hospitals are often fingered as prime suspects in the continuing "Case of the Runaway Health Costs," they tend to see themselves, with some justice, as innocents ensnared by circumstances beyond their control. The alibis are familiar. Both the federal government and the states are attempting to rein in out-of-control medical subsidies by setting limits on their reimbursements to hospitals for care of the elderly and indigent. The insurers of private patients, who have largely made up the difference, are beginning to balk too. The length of hospital stays is diminishing accordingly, and so are the absolute number of admissions as more sophisticated outpatient procedures further reduce the need for 24-hour care. Shortages of skilled personnel, especially nurses, and pricey keep-up-with-Dr. Jones medical gadgetry drive up operating costs. The litany goes on . . . .

Those accustomed to thinking of hospitals as havens of selfless succor may be jarred by the bottom-line cant of today's health-care "industry": market share, profit centers, and the like. But competition within the field—for patients, for staff, for funds—has become as normal as cherry pie. The medical facilities shown here thus represent just a few of the physical strategies hospitals are resorting to in their quest for economic viability, and, sometimes, even survival. Boston's Brigham and Women's Hospital, a teaching and tertiary-care institution, has added a major center for ambulatory services, in addition to reorganizing and rebuilding to improve both its operating efficiency and its public image. In deepest Brooklyn, an under-used hospital wing has been transformed into a family care center that is also a beacon of quality in its blighted neighborhood. The Santa Monica Hospital instead chose to replace its outdated, resource-draining structures altogether—and called on the growth-sated community to vet the new buildings' design in advance.

Finally, though, hospitals' shift in stance from omnipotent providers to solicitous purveyors is better shown than told. How quickly would you label the images on this page "health care"? *Margaret Gaskie*

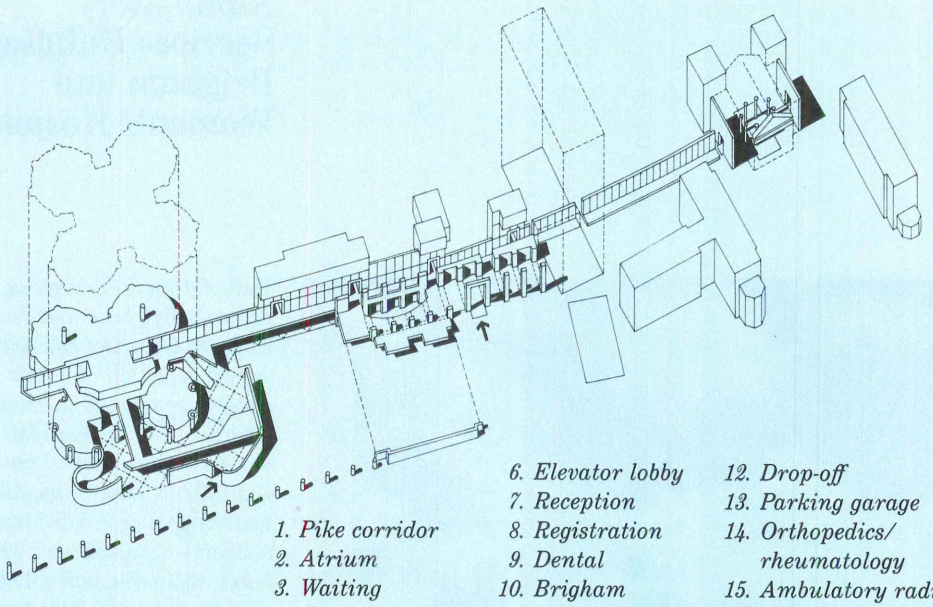
Ambulatory Services Building, Brigham and Women's Hospital

eve Rosenthal photos

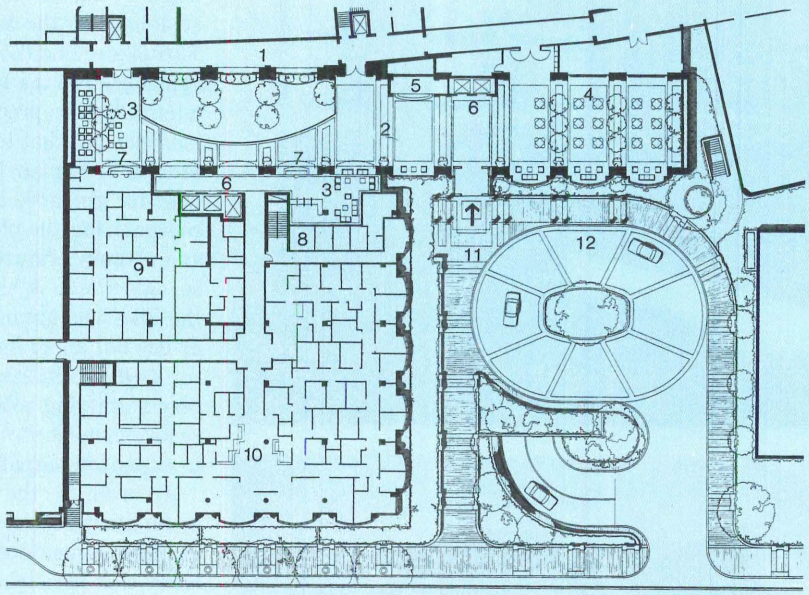
The 1974 merger creating Boston's Brigham and Women's Hospital was duly celebrated by the construction of a new nursing tower and ancillary facilities. Yet 10 years later some 500,000 square feet of the institution's space was still scattered among individual buildings accreted over 60-odd years, their sole link a 1,000-foot corridor similarly mixed in both pedigree and configuration.

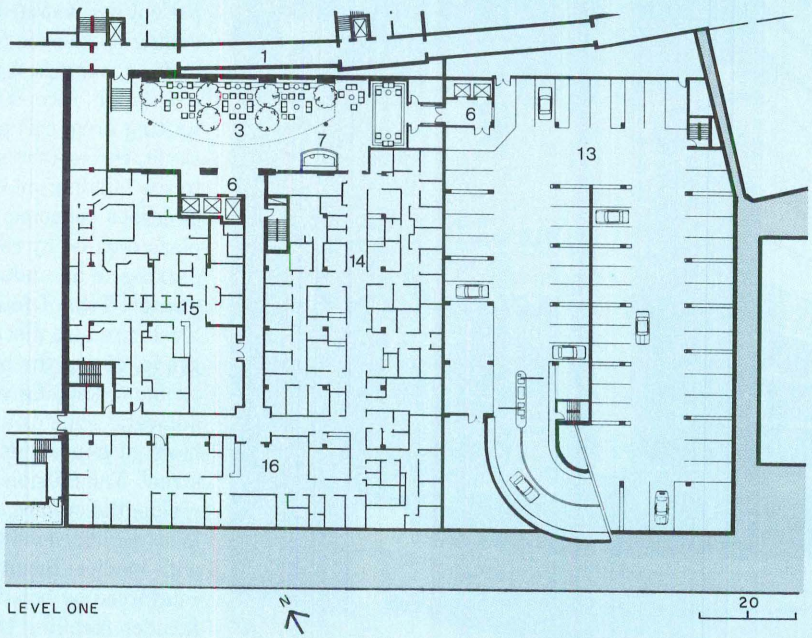
Known as the "Pike" for its length—and for traffic rivaling rush hour on the Massachusetts Turnpike—this thoroughfare symbolized to the hospital's administrators precisely the inefficiencies that led them to architects Kaplan/McLaughlin/Diaz for guidance in reorganizing the physical plant and planning future growth. Not so, said KMD. A hidden asset, the Pike was not only a vital artery but an ad hoc "commons" for staff. Revitalized, it could play a unifying role in a redevelopment strategy geared to expanded outpatient care.

Accordingly, the new ambulatory-services building includes a generous 300-foot-long lobby that parallels the mid-portion of the Pike, siphoning off patient and visitor traffic and adding spill-space for impromptu staff exchanges. A combined circulation, reception, and waiting area, this plantscaped, skylit, three-story atrium carries to the building interior the generous welcome of an entry plaza created by relegating parking to an underground garage. Two of four treatment levels are also placed below grade, giving the building a low profile in keeping with the domestic scale of a surviving block of houses just across the street. The illusion of a residential square, a prized oasis in a neighborhood tight-packed with medical facilities, is further reinforced by bow-fronted facades recalling typically Bostonian rowhouses. *M. F. G.*



1. Pike corridor
2. Atrium
3. Waiting
4. Café/assembly
5. Information
6. Elevator lobby
7. Reception
8. Registration
9. Dental
10. Brigham Medical Group
11. Entrance
12. Drop-off
13. Parking garage
14. Orthopedics/ rheumatology
15. Ambulatory radiology
16. Rehabilitative services/ podiatry





In addition to the atrium serving the mid-Pike outpatie facility, Brigham and Women master plan calls for improve public spaces in the inpatient area, where an underused courtyard has become a glass-enclosed lobby (left in axonometric), and in the research/administration area at the east end of the campus, where the original Brigham Hospital lobby is being restore to its former splendor (right i axon). The two hospital-based floors below grade include an upper level that consolidates services for patients with limited mobility—radiology, rheumatics, orthopedics, podiatry, and rehabilitation programs—around a commo access point from the garage and a waiting room open to t atrium above (plan center left and photo below opposite). Th two floors above house private physicians' offices and clinics, which line the west end of the two-story upper lobby with bowed fronts that mimic in drywall the articulated glass and metal curtainwalls of the rowhouse-like exterior facades

Suite A

The atrium's principal waiting area is a two-story lobby (top opposite) with tall bay windows overlooking the entry plaza. Nearby links to the entry and garage elevator and, via the Pike, to research and administrative facilities, make it convenient as well for staff meetings and seminars and occasional public receptions. The serenity, cheerful lighting, and tasteful appointments of the lobby and patient registration areas (top left) also appear in such "back-of-the-house" areas as special treatment facilities (rheumatics/orthopedics corridor shown bottom opposite) and the waiting/reception areas of private medical groups (center and bottom left).

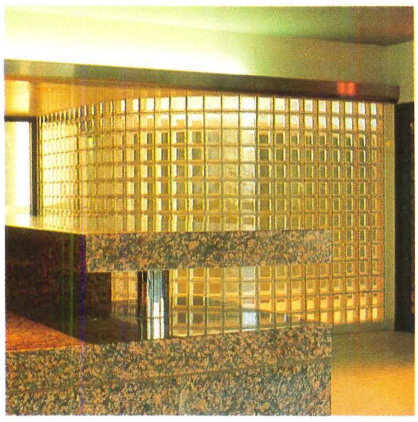
Ambulatory Services Building
Brigham and Women's Hospital
Boston, Massachusetts
Owner:
Brigham and Women's Hospital
Associated architects:
Kaplan/McLaughlin/Diaz—Mitchell Green, Herbert McLaughlin, Bruce Nepp, Kenneth Schwarz
Tsoi/Kobus and Associates—Mark Hall, Richard Kobus, Gertrude Levy
Engineers:
Weidlinger Associates (structural); Shooshanian Engineering Associates (mechanical/electrical)
Interior design:
Tsoi/Kobus and Associates—Richard Kobus, Heidi Richards
Landscape architect:
William Pressley and Associates
General contractor:
George B. H. Macomber Co.

Cumberland Neighborhood Family Care Center

A facade of glass and polished granite sweeping across a ceremonial approach via ramp and stair to a glass-roofed court (top right) is hardly a predictable overture to a city-run clinic in a Brooklyn neighborhood dominated by the scruffy red brick of high-rise public-housing projects. But as architect Michael Fieldman points out (and persuaded the client), the slick granite readily sheds grafitti; the entry ramp provides handicapped access; and the covered pavilion serves as drop-off and outdoor lobby. The court, originally used by ambulances, also enlarges the on-site domain of the local community board, which was provided with meeting and administrative space in the former ambulance garage.

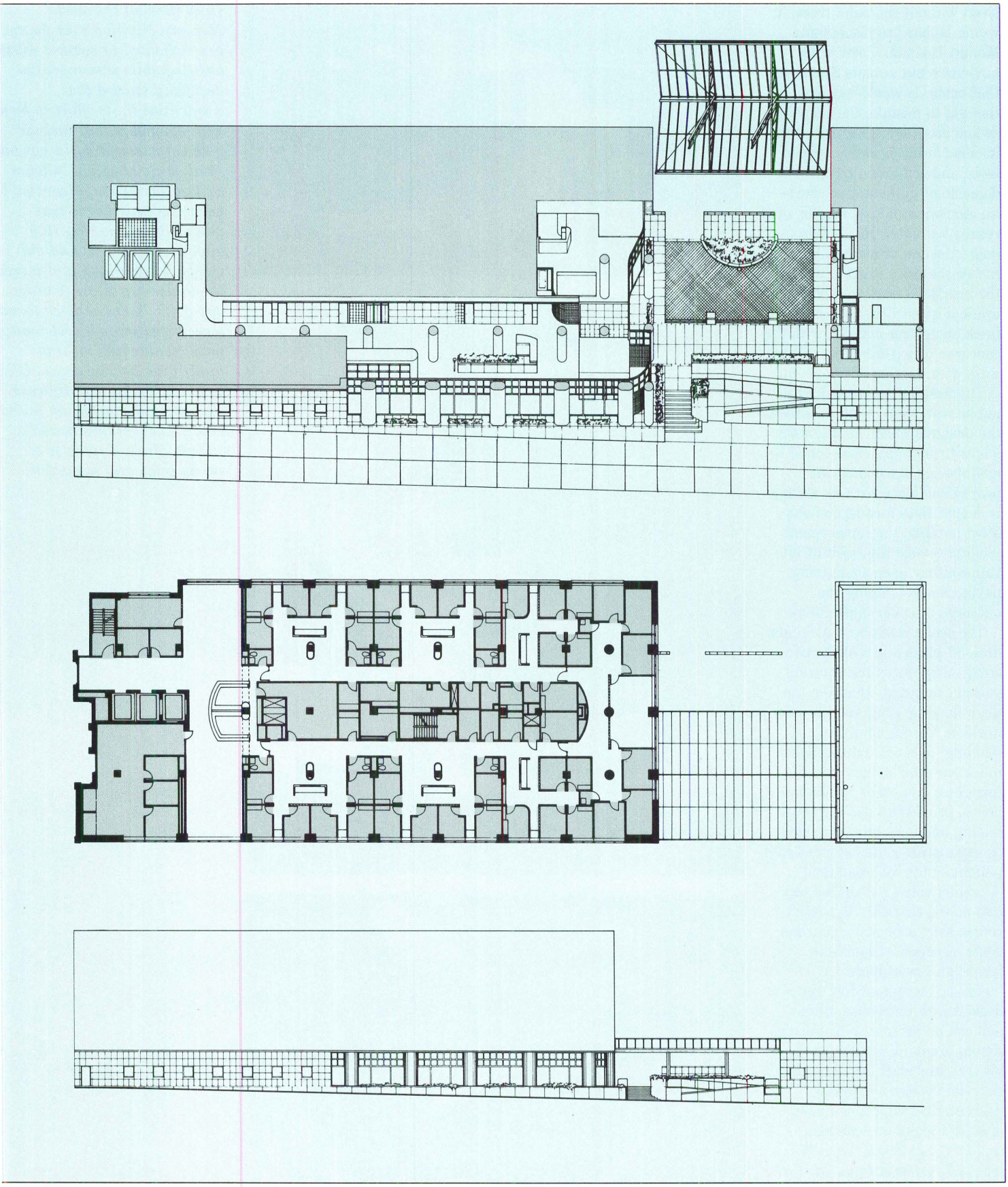
A similarly fresh look at what is both fitting and affordable pervades the gut conversion of the Cumberland Hospital to a municipal outpatient facility. To bring civility to an impersonal institutional setting, for example, patients are assigned to ongoing "care teams." The resulting sense of continuity and familiarity is reinforced by giving each team its own suite of consulting and examining rooms, and a waiting area (center far right). Within them, deft use of glass block and window access maintain privacy but provide waiting patients with borrowed light and orienting views.

Similar efforts to ease the tedium and tension of waiting are apparent in the ground-floor reception and business lobby (center right and bottom far right), where window walls look out on the street and court. The fat columns dividing waiting from circulation areas also emphasize the route between the entry and elevators to upper-floor clinics. In a corner off the entry, a curved glass-block wall (bottom right) marks the separate waiting and play spaces of a women's and children's care center. *M. F. G.*



glazed pavilion and open urt (right in drawings below) troduce the main entry to e Cumberland clinics, which fer programs in primary and ecialty care, dentistry, ental hygiene, and coholism, as well as centers r senior citizens and for women, infants, and children. On a typical floor (fourth floor at center below), the elevator lobby leads to a reception area from which patients are directed to individual "care-team" offices and waiting rooms. Administrative suites overlook the court on the north.

Cumberland Neighborhood Family Care Center
Brooklyn, New York
Owner:
New York City Health & Hospitals Corporation
Architect:
Michael Fieldman & Partners—Michael Fieldman, partner-in-charge; Miles Cigolle, director of design; Mark Walch, project manager; Virginia Wirt, Davy Ben-Zion, Diane Lasko, design team
Engineers:
Severud/Szegezdy (structural); Kallen & Lemelson (mechanical/electrical)



Merle Norman Pavilion, Santa Monica Medical Center

Even without the palm trees, it would be hard to place Santa Monica Hospital's new wing anywhere but seaside Southern California. It would be easy, though, to mistake the casually swank six-story structure, with its sandy stucco, softly curved bays, and sea-green trim, for a domicile of quite another sort—an apartment house, maybe, or a residential hotel. Nor is this domestication incidental, but rather the price exacted when the hospital's need to replace its original (circa 1926 and 1937) brick structures collided with the concerns of a community grown wary of unbridled development.

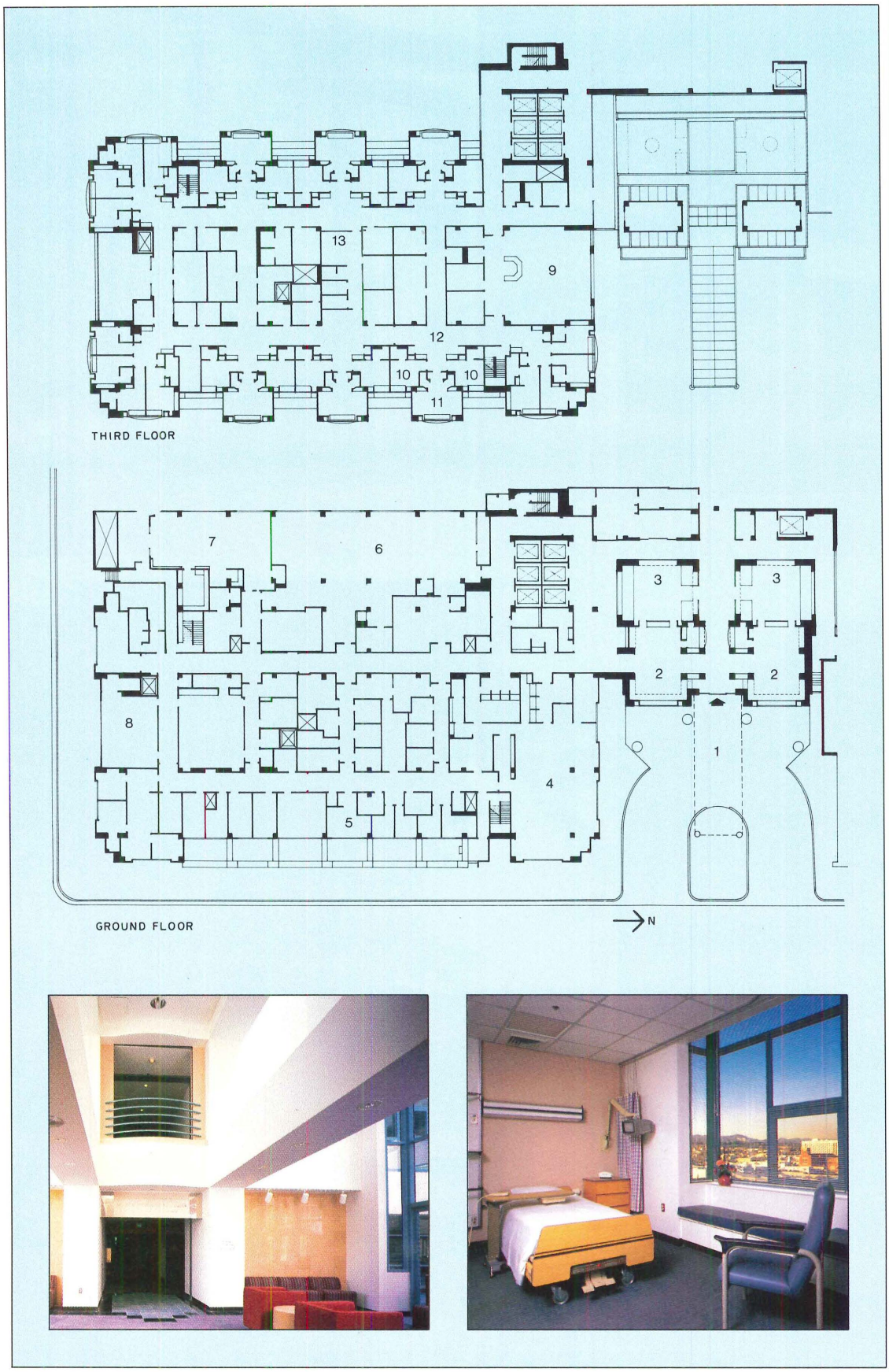
The hospital responded with public workshops that smoothed the design's rough institutional edges to contours close-tuned to neighboring areas. But the project's alliance with its setting is deeper than facadesmanship. Most notably, the replacement facilities evoke the spirit of late-19th-century open-air nursing pavilions by engaging the outdoors at every opportunity.

The scene is set by the circular drop-off plaza and a skylit two-story entry structure abutting paired courtyards that join the main nursing wing and the new pavilion. Throughout the building, pools of natural light mark elevator lobbies, corridor junctions, and other circulation nodes, providing cues for way-finding and orientation, as well as expansive vistas extended into patient suites by broad (and operable) windows. On the top two floors, corridors to patient rooms skirt a two-story garden court, accessible from both levels; on lower floors, "leftover" scraps of rooftop, also decked with umbrellas, tables, and chairs, are put to like use as sitting areas for patients, visitors, and staff. Even on the surgical floor, a windowed perimeter corridor and glazed openings in operating suites assure visual contact with the hospital's surroundings. *M. F. G.*

©*Michael Arden photos*

Only three of the Merle Norman Pavilion's six floors are dedicated to patient rooms, but its public posture leans decidedly toward the residential in its effort to blend with neighbors that include both commercial buildings and small-scale housing. Indoors and outdoors are integrated by generous courtyards that adjoin the auto entry (top opposite), link new and old wings (bottom left), and pierce the upper two floors (bottom opposite). A side setback forms a sheltered second-level rooftop park (center left) looking toward the nearby ocean. Other bows to Southern California climate and convention include traditional materials and a "Santa Monica" palette of sandy beige and sea green.

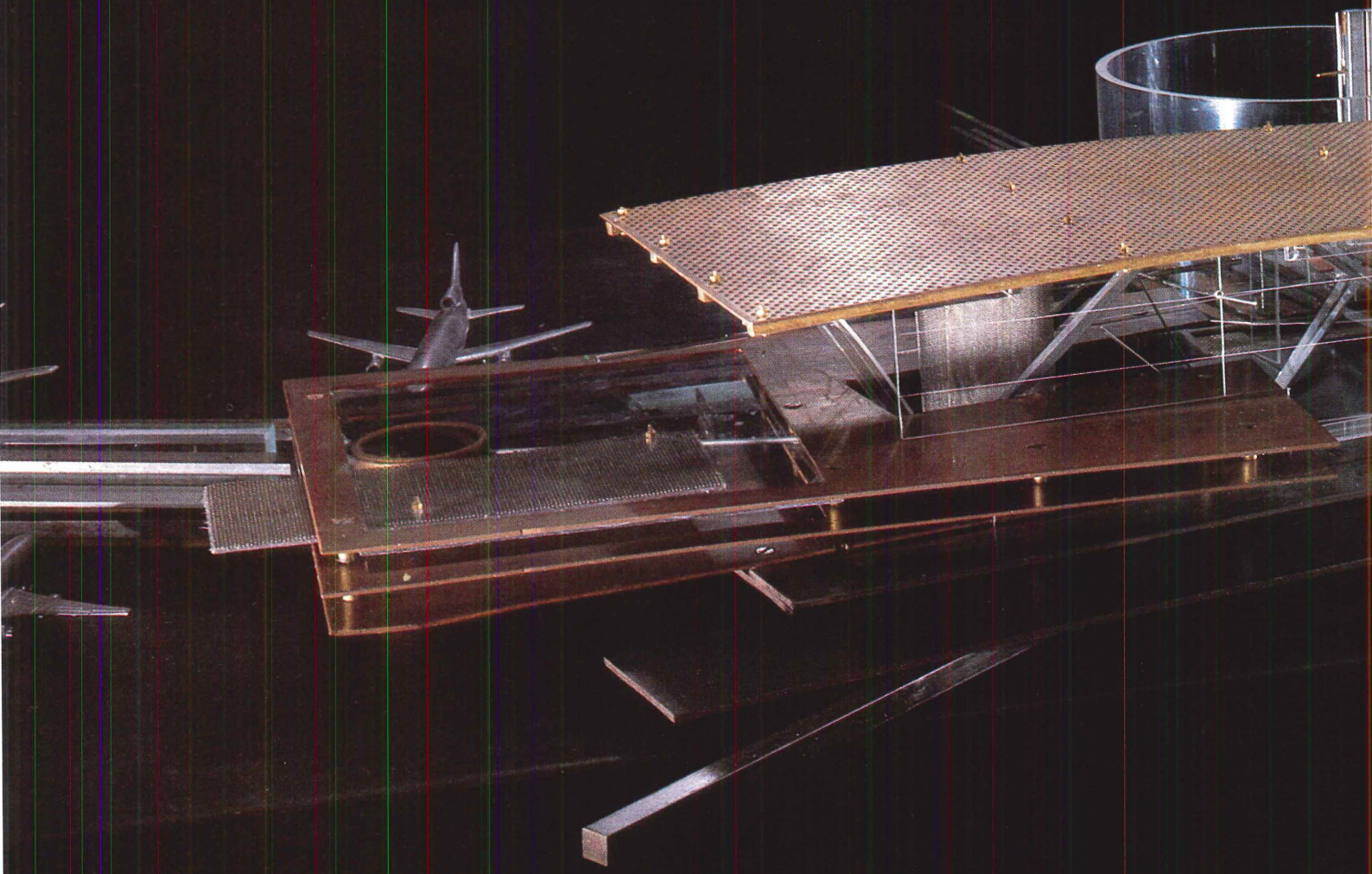
1. *Entrance canopy*
2. *Lobby*
3. *Courtyard*
4. *Accounting*
5. *Social services*
6. *Medical records*
7. *Medical library*
8. *Education*
9. *Courtyard*
10. *Private room*
11. *Semiprivate room*
12. *Satellite nurses' station*
13. *Nurses' station*



Because its certificate covered only modernization, the 190,000-square-foot replacemen for the hospital's outmoded structures houses a mixed bag of facilities. The ground floor, for example (plan center left), includes business offices, social services, and educational resources; the second floor, outpatient services; and the fourth floor, surgery. Nursing areas are on the third (plan upper left), fifth, and sixth floors. The 107 patient rooms (bottom near left) are arrayed in suites of two doubles and two singles, each with a satellite nurses' station. The modernization relocates the main entrance to both the new wing and an existing nine-sto nursing tower in a two-story atrium lobby (bottom far left, and opposite), daylit by skylights and glass walls that open onto adjacent courtyard

Merle Norman Pavilion
Santa Monica Hospital Medic Center
Santa Monica, California
Owner:
Santa Monica Hospital Medic Center
Architect:
Bobrow/Thomas and Associat —Michael L. Bobrow, partner for design; Julia Thomas, partner for planning; Robert Wielage, principal-in-charge; John Sealander, project architect; William Norrish, senior designer; Jacques Kravchenko, job captain
Engineers:
Cygna Consulting Engineers (structural); Hayakawa Associates (mechanical/ electrical); Mollenhauer, Higashi & Moore (civil)
Consultants:
Lawrence Reed Moline, Ltd. (landscape); Tardy and Associates, Cannell-Heumann Associates (interiors); Suzanne Dvells Design (graphics)
General contractor:
Kitchell Contractors, Inc.

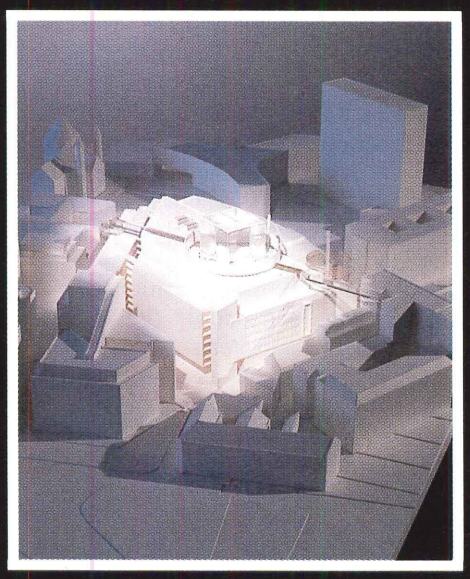
Against all odds



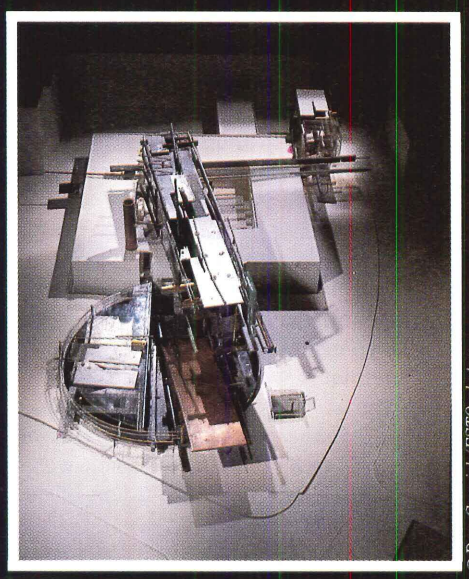
With nine offices around the country to support and a mandate to surpass last year's annual revenues of approximately $80 million, Ellerbe Becket (the product of St. Paul-based Ellerbe Associates' 1988 acquisition of the Los Angeles firm Welton Becket) is in an unlikely position to experiment with architecture. But the New York office's maverick design team, led by Peter Pran and Carlos Zapata, has apparently convinced the firm's managing partners that their way-out competition proposals are anything but risky business. The duo's biggest advocate in the firm, administrative principal B. Wayne Fishback, claims that "each competition is a game of odds"; and yet, as the three projects shown here reveal, Ellerbe Becket's willingness to play the game indicates a belief that the odds are in its favor.

Three projects by
Ellerbe Becket/New York, Architects

Consolidated Terminal, Kennedy Airport



Schibsted Gruppen Headquarters, Oslo



School of Architecture, University of Minnesota

©Dan Cornish ESTO photos

"There are reasons that it's difficult for large firms to produce excellent architecture: There is a need to keep the big monster moving financially, and so management types are put in charge. Such environments are not very accepting of leading designers." B. Wayne Fishback, senior vice president/adminstrative principal

Ellerbe Becket wants to disprove the notion that big design firms produce only anonymous architecture. As the three projects shown on these pages suggest, this multimillion-dollar company is not just churning out background buildings. Although corporate commissions typically do *not* encourage an idiosyncratic approach, Ellerbe Becket seems determined to combine fiscal growth with artistic creativity—and to do both at an unprecedented scale. In April of last year, *Crain's New York Business* listed the city's largest architectural firms, ranking Ellerbe Associates number one by project dollar volume and Welton Becket 14th. Two months later the St. Paul-based Ellerbe acquired the smaller company, creating an architectural juggernaut of some 1,000 employees nationwide and annual revenues totaling approximately $80 million. Now with nine offices around the country (in addition to St. Paul and New York, Ellerbe Becket currently has outposts in Minneapolis, Washington, D. C., Tampa, St. Louis, Chicago, Kansas City, and Santa Monica), it is apparent that the firm has come a long way from Ellerbe's humble beginnings in 1909 as a father-and-son shop. But, according to senior vice president and administrative principal of the New York office, B. Wayne Fishback, not so far as to forget the firm's self-imposed mandate "to create cutting-edge architecture."

More recently, Ellerbe Becket has gained a higher profile among the architectural cognoscenti, due largely to several controversial projects masterminded by the New York studio's design director, Peter Pran, and associate design director, Carlos Zapata. (Their work will be included in an exhibition at the Deutsches Architekturmuseum, in Frankfurt, scheduled to open this spring.) The Norwegian-born Pran, 53, and Zapata, 27, of Venezuela, form an unlikely team, and it is perhaps the incongruity of both the duo and their joint role in the firm that make their mission all the more daunting. Zapata describes the constructivist esthetic that characterizes their collaboration to date as "a layering of materials that is responsive to the conditions of a particular site." His partner is more philosophical in his assessment of their work. Searching for an appropriate stylistic umbrella, Pran has settled on the term "New Modernism," which the architect says intentionally "rejects historicism as not recognizing our own time." Theoretical differences aside, both Pran and Zapata are eager to put their ideas into practice, and in the past year have entered a series of competitions, looking for clients willing to give three-dimensional reality to their vision.

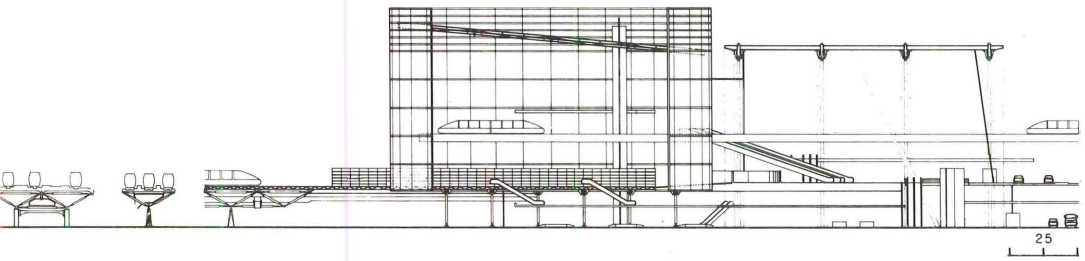
As a forum for exploring and exposing new ideas, invited competitions are ideal for large, financially sound firms like Ellerbe Becket. Although a majority of Ellerbe's practice was in health-care facilities, Welton Becket built its reputation doing corporate facilities, and the combined firm foresees future business expansion to be primarily in the latter sector. To pursue potential projects in that area, Ellerbe Becket is willing to bankroll its entry in select competitions. (Typically, the honorarium paid by competition sponsors covers only a third of the cost of entering.) Fishback explains why Ellerbe Becket will underwrite the remaining two-thirds: "Most firms spend between 6 and 10 percent of their annual revenues pursuing new business, which in our case equals roughly $3 to $5 million. We think we've got good odds in competitions because of the design talent of our office. As a result, entering certain competitions is a good investment."

Last May, the Schibsted Gruppen, publisher of Norway's two largest newspapers, *Aftenposten* and *Verdens Gang*, announced a competition to design a new headquarters building in the historic heart of Oslo. It was Schibsted's intention to include one American firm in a run-off among Norwegian firms because, as chairman of the board Einar Nagell-Erichsen stated, the company was "most impressed with American architects." Five contenders from the United States were interviewed for the single slot, and eventually Ellerbe Becket was asked to compete against four Norwegian firms. Schibsted premiated Ellerbe Becket's scheme (bottom left page 91 and page 94), claiming that the Americans' assemblage of concrete, steel, and copper panels "fulfilled all our expectations . . . for something new and inspiring." The in-house jury of nonarchitects was able to see beyond the sculptural, almost visionary, appearance of Ellerbe Becket's model: though itself an artful collage, the model belies the structural feasibility of the project, which was engineered by master technicians Ove Arup & Partners.

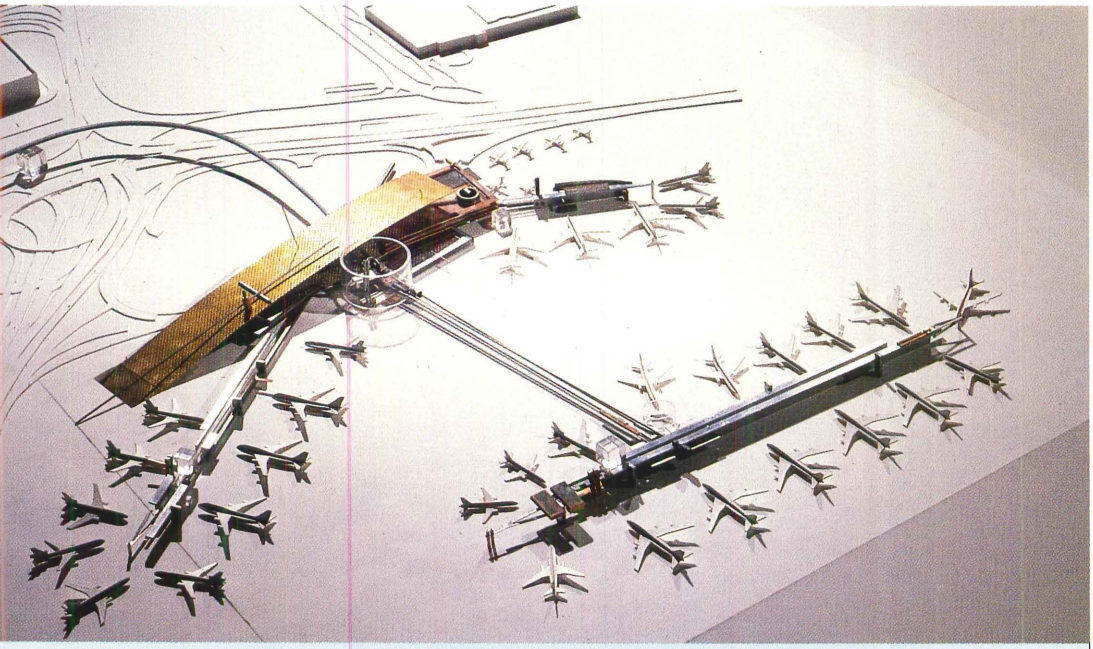
Ellerbe Becket was also one of five firms invited to compete for the design of the American Airlines/Northwest Airlines Terminal at New York's John F. Kennedy International Airport, a combined undertaking of both airline companies and the Port Authority of New York & New Jersey. Inspired by the function of the building and, perhaps, by its proximity to Eero Saarinen's TWA Terminal across the parking lot, the team proposed a series of intersecting metal planes topped by a winglike steel roof, which is intended to symbolize flight (pages 90-91 and 93). Although Pran and Zapata's mechanical esthetic was ideally suited to the program, the commission ultimately went to competitor Murphy/Jahn.

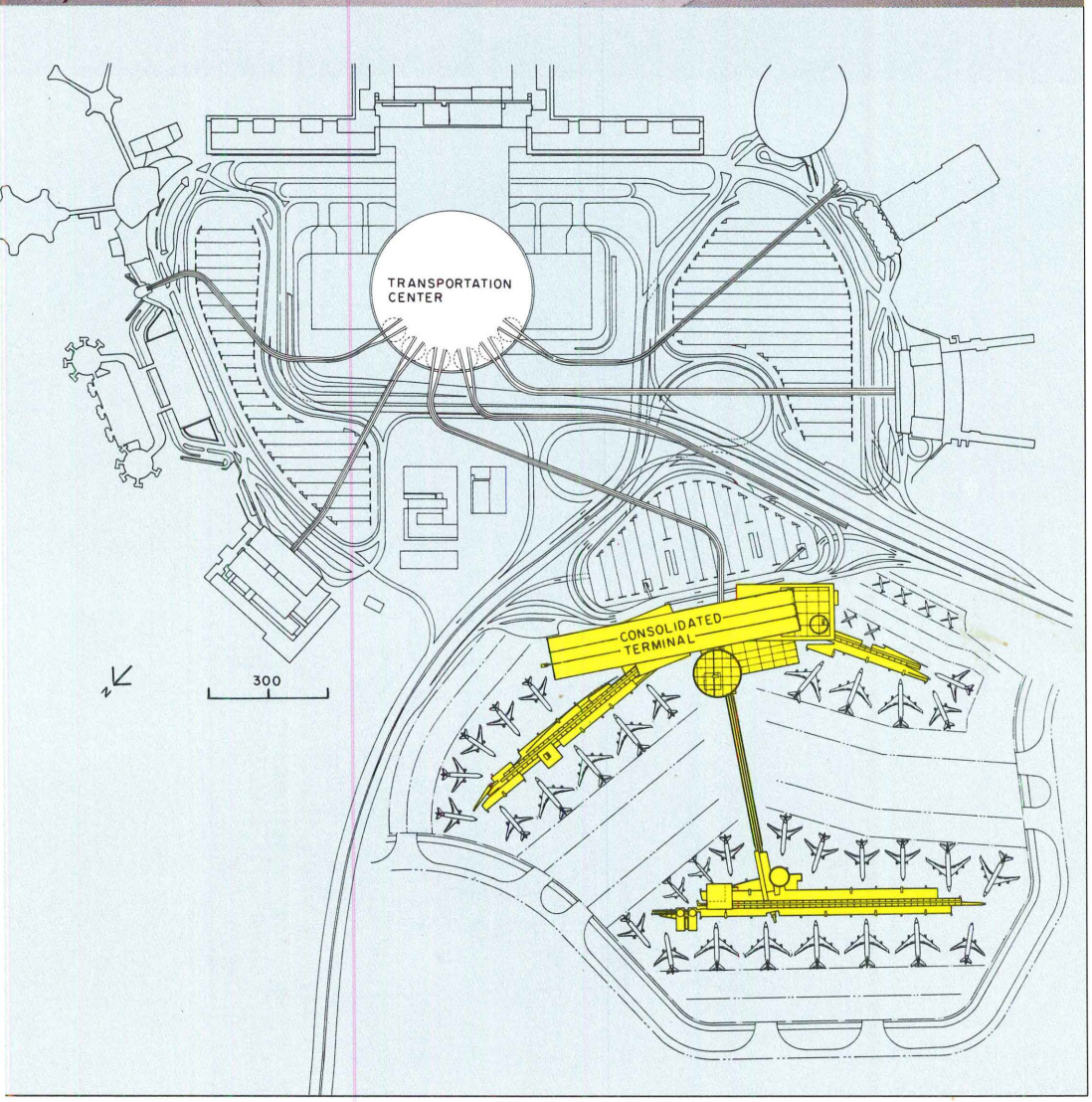
The University of Minnesota deemed the architects' idiosyncratic style an appropriate metaphor for the art of construction, and selected the firm from some 50 candidates to design an addition to its existing School of Architecture and Landscape Architecture. (Since then, however, Steven Holl, who initially worked with Ellerbe Becket/New York as an associated architect, was asked by Ellerbe Becket/Minneapolis to design an alternative proposal.) Pran and Zapata's scheme (bottom right page 91 and page 95) shows a glass and steel bridge of studios and classrooms overlapping the existing school, a 1950s concrete structure, in an attempt to "incorporate the dull masonry building into an active, unified whole," in Pran's words.

With the Schibsted Gruppen project likely to proceed as planned, the status of the addition to the University of Minnesota's School of Architecture and Landscape Architecture unclear, and the design of the American Airlines/Northwest Airlines Terminal at Kennedy officially awarded to another firm, Pran and Zapata's competition record is checkered. Whether the renegade team can maintain its position as Ellerbe Becket's creative engine remains to be seen. Although Fishback, Pran and Zapata's New York boss, claims the pair deserves the recognition that their controversial designs have brought both them and the firm—"It is good for the company to have signature architects producing the work"—the home office in Minneapolis does not necessarily share his view. Pran and Zapata realize all too well that they continue to run the risk of alienating Ellerbe Becket's corporate management by designing proposals that may seem, even to an architect's eye, a bit far-fetched. Corporate image aside, what Pran and Zapata need most at this stage of their careers is a completed work of architecture, confirming the viability of their intriguingly unorthodox designs. *Karen D. Stein*



Consolidated Terminal, John F. Kennedy International Airport, New York





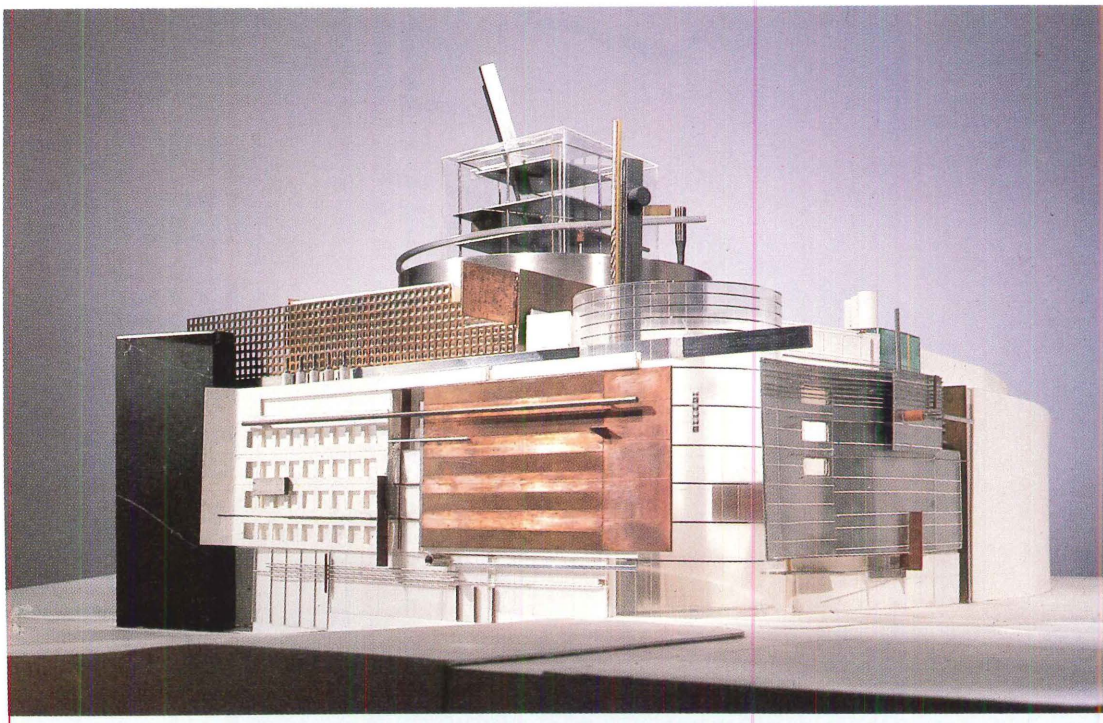
Ellerbe Becket (in association with planner David E. Leibowitz) was one of five firms invited to compete for the design of the $600-million combined American Airlines/Northwest Airlines Terminal Building, the first new terminal to be constructed at Kennedy Airport in over three decades. The architects proposed a massive steel canopy to act both as the building's roof and emblem, which (like Eero Saarinen's neighboring TWA terminal of 1962) is intended to express "flying before you fly," according to architect Peter Pran. Completing JFK's existing ring of terminal buildings, the soaring curve would contain check-in, ticketing, and customs areas. An adjacent glass cylinder was designed to incorporate, on lower levels, a station for the monorail between the AA/NA terminal and the as-yet-unbuilt Transportation Center (a project of PRC Engineering/I. M. Pei & Partners) and, on upper floors, a restaurant with panoramic views. To accommodate the 44 aircraft gates mandated by the program, the architects devised a satellite gate station accessible by monorail. Last December, the client consortium, which includes both airline companies and the Port Authority of New York & New Jersey, opted for the proposal of Murphy/Jahn, presumably because the latter scheme is a variation on the Chicago firm's own widely lauded design for the United Airlines Terminal at O'Hare International.

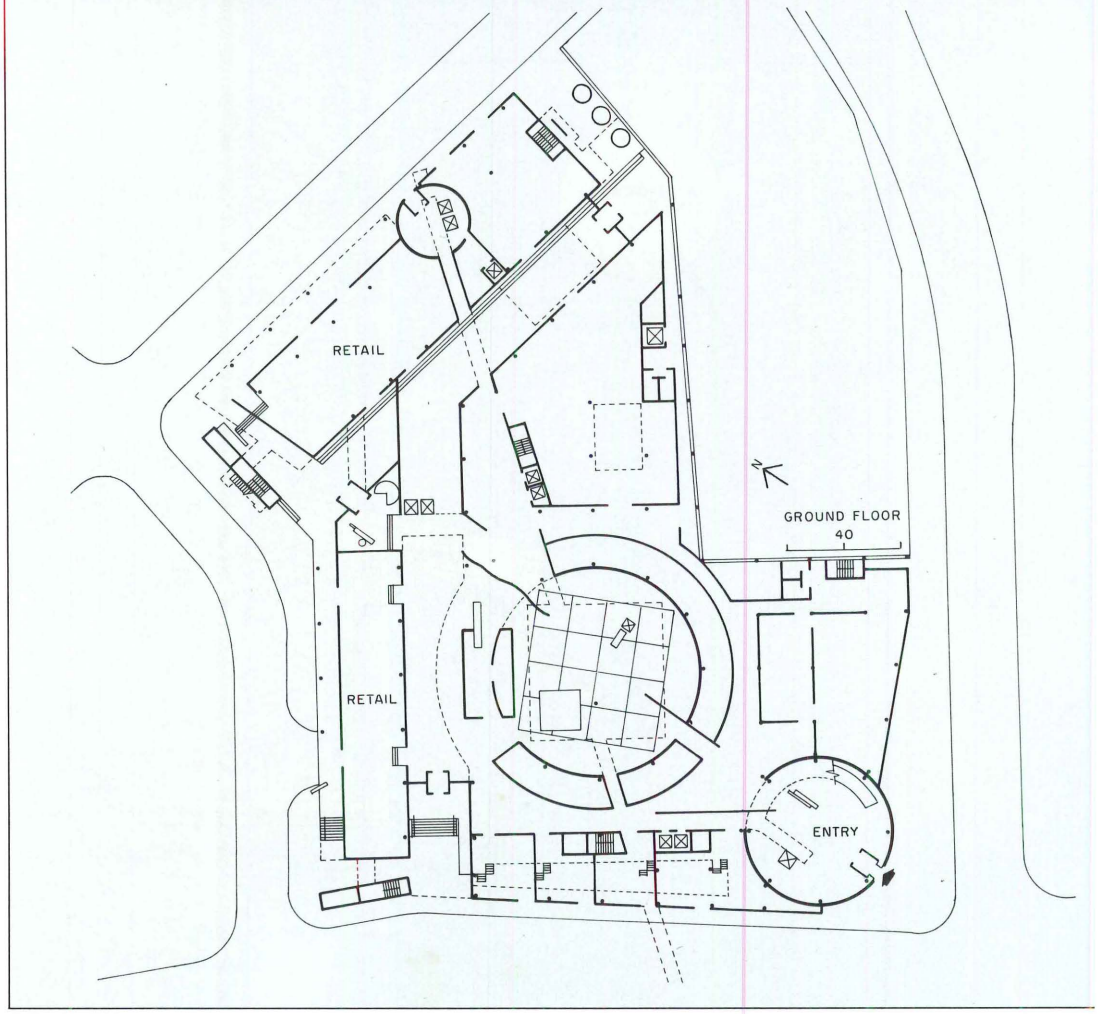
Architect: *Ellerbe Becket/New York, design—Peter Pran, Carlos Zapata, B. Wayne Fishback, Vache Aslonghli, Maria Wilthew, Darius Sollohub, Curtis Wagner, Eduardo Calma, and Frank Yu, project team; Office of David Elliot Leibowitz, planning—David Elliot Leibowitz and Gilbert E. Balog, project team*

Schibsted Gruppen Headquarters, Oslo

In May 1988, Schibsted Gruppen, a privately owned Norwegian publishing company, announced an international competition for the design of a new headquarters building in the center of Oslo. The company's board of directors asked five firms to participate, and eventually premiated the scheme of Ellerbe Becket, the only American architect in the group. To accommodate a complex program, including leasable office and retail space on the ground floor, project architects Peter Pran and Carlos Zapata propose what appears in plan as a squat L-shaped form, completely filling in the oddly shaped site. Although the concrete structure is meant to harmonize with neighboring masonry buildings, copper and steel panels affixed to the facades clearly herald it as a newcomer. A steel beam cantilevered from one side is meant "to mark the building's point of entrance," while horizontal metal banding "responds to the conditions of the site" by accentuating the linearity of the streetfronts. The cynosure of the building is a cylindrical glass atrium that features a transparent multistory cube suspended in its upper portion. The cube, accessible via an inclined elevator (its shaft pierces the roof of the atrium—see photo right), will contain executive suites and a cafeteria. Although a definite groundbreaking date has yet to be set, architect and client are hopeful it will occur next year.

Architect: *Ellerbe Becket/New York—Peter Pran, Carlos Zapata, B. Wayne Fishback, Vache Aslonghli, Maria Wilthew, Curtis Wagner, Eduardo Calma, Robert Calma, Robert Zumwalt, and Michael Welebit, project team*
Associate architect: *Platou, Oslo*

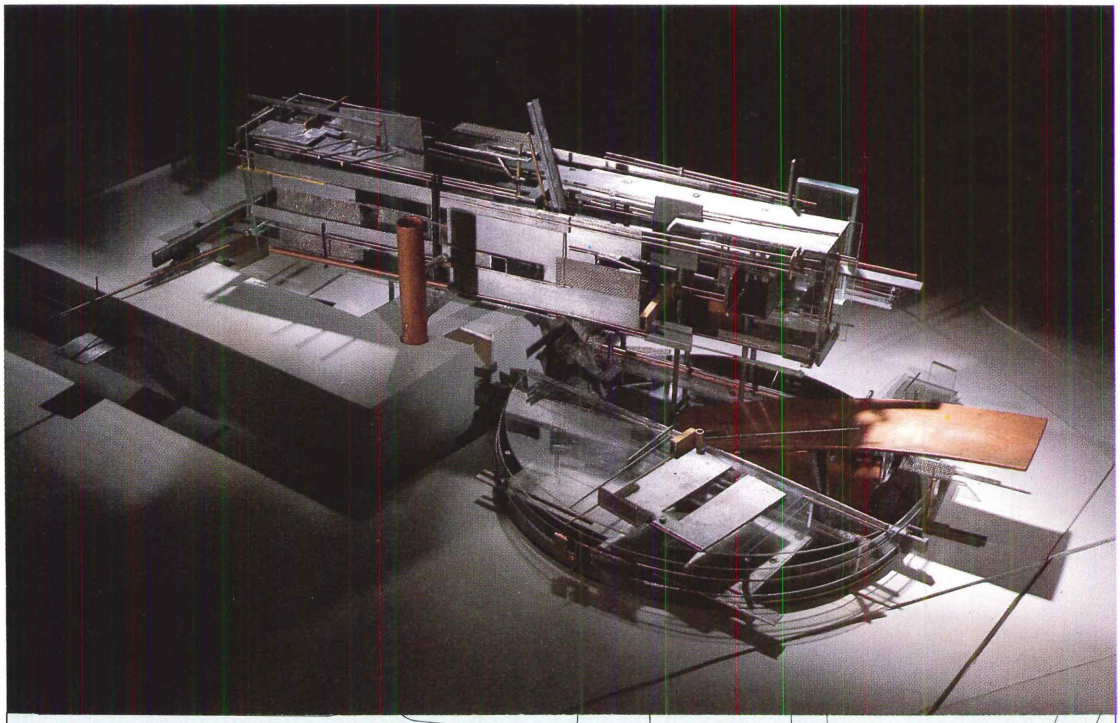


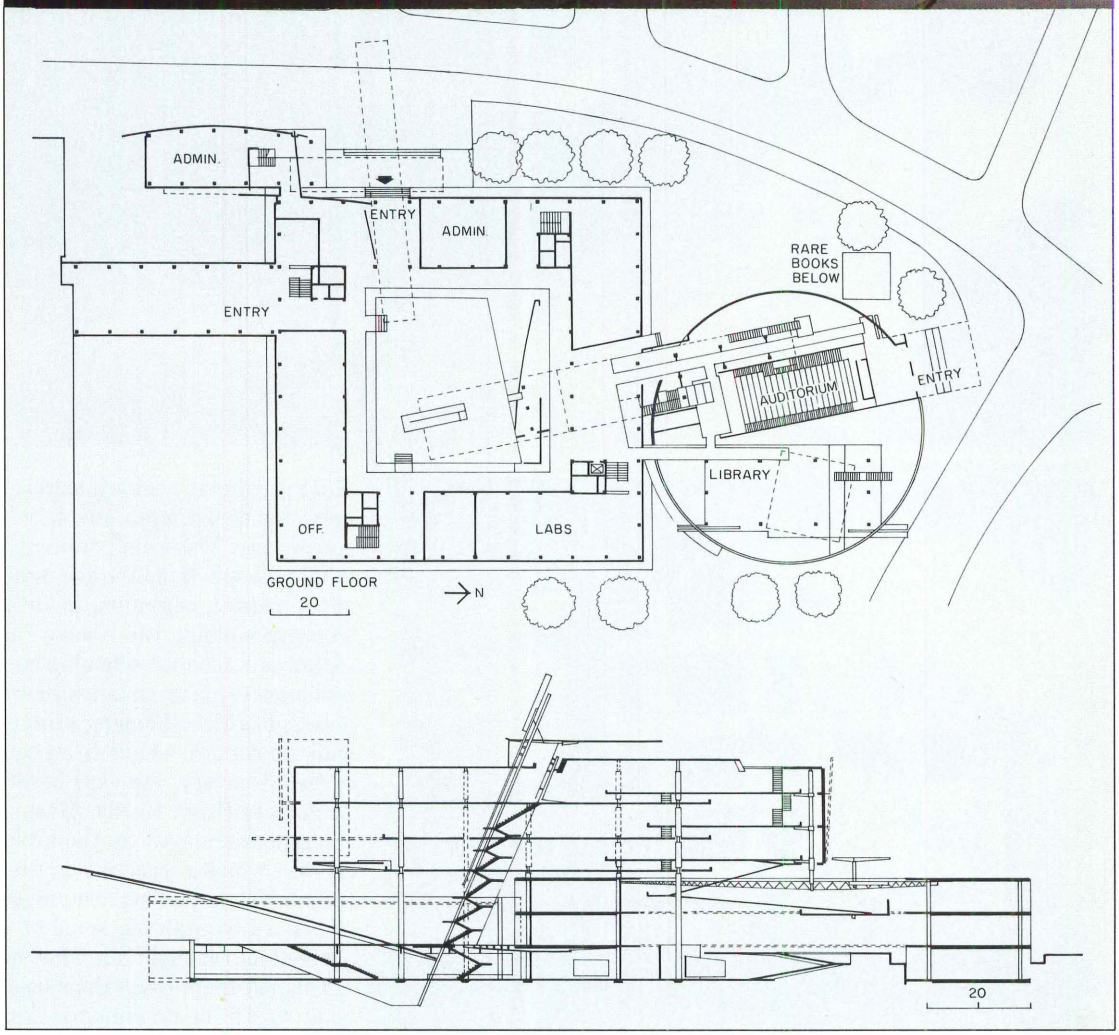


Jniversity of Minnesota School f Architecture

ith the intention of building an ldition to its School of rchitecture and Landscape rchitecture's present facility, ie University of Minnesota, in inneapolis, solicited ualifications from some 50 rchitects nationwide. The state ared down the pool to five nalists, eventually awarding ie commission to Ellerbe ecket. The parti developed by ie firm's New York office, nder the leadership of Peter ran and Carlos Zapata, consists a two-story glass and steel idge of studios and classrooms at overlaps the existing square 50s structure in an attempt to tegrate old and new into a nified composition (in effect, ie existing building would be ft intact with the exception of a ew roof—see photos page 91 id right). A cylindrical volume ntaining the library, uditorium, and cafeteria is eant to reconcile opposing ids that converge at the edge the site. A cantilevered curved pper canopy marks the main ntrance to the building, while econdary and tertiary entrances re denoted by smaller steel anopies. A subterranean rare-ook library is topped by a light ell. Subsequent to Pran and apata's presentation of their heme to university officials, llerbe Becket/Minneapolis vited New York-based Steven oll, who was temporarily ssociated with Ellerbe Becket/ ew York on the project, to esign its own project. At last ord, the Holl scheme has been pproved by administration ficials.

rchitect:
llerbe Becket/New York and 'inneapolis—Peter Pran, arlos Zapata, Eduardo alma, Curtis Wagner, Maria 'ilthew, Frank Yu, Vatche slonghli, John Gaunt, Bryan arlson, Ron Snyder, and Tom chneider, project team



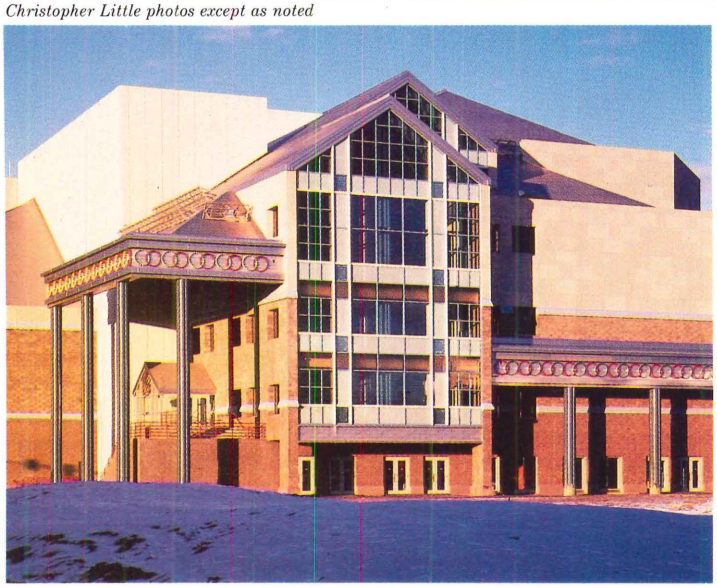


Alaska Center for the Performing Arts
Anchorage, Alaska
Hardy Holzman Pfeiffer Associates, Architects
Livingston Slone, Inc., Associated Architects

Northern lights

Christopher Arend

Christopher Little photos except as noted



Most architects seeking historic or esthetic context as a starting point for designing a new building would be hard put to find it in Anchorage. This small sub-arctic city of just over a quarter million people (half the population in all of the state) has a very short history, beginning in 1914 as a collection of tents for workers building the Alaska railroad. The oldest building still extant is a pioneer schoolhouse built in 1915. Most of the newer buildings—glass-curtainwalled office mid-rises, a few high-rise hotels, low-rise shopping streets, and woodsheathed two-story walk-up condos—have been constructed since 1969, a direct resu of the discovery, the year before, of oil at Prudhoe Bay. Architects Hugh Hardy, Malcolm Holzman and Norman Pfeiffer brought fresh eyes to Anchorage, however, and did indeed find a context worth respecting in the city's modest scale. They found themselves in particular sympathy with the 1920s settler huts ar clapboard bungalows, some of which now have landmark protection, that still dot what has become the center city.

This led them to do their best to disguise the actual size of what was to be an immense four-theater complex that today, wit

What sort of building is this? The setting suggests downtown, the marquees signal theater, three stagehouses promise complexity, warmly lit and cheerful multistory gabled lobbies lure the passer-by. But Alaska's new performing-arts center resembles no other, because Anchorage is like no other place.

ıst three theaters and their lobbies and support services ɔmplete, comprises 176,000 square feet. As the plans and ections (overleaf) indicate, the building pushes to the limits of its ite and overflows an adjacent street, stopping just short of a mall public park. HHPA's basic strategy for deceiving the eye as to break the complex down into segments, each of which ɔuld be separately viewed from the street as compatible in scale ith neighboring structures. Thus the building has four principal ntrances, each celebrated by its own marquee. The marquees are ıpported by columns encased in fiberglass, their fascias ecorated by rings of colored light that flash, fade, and brighten ı a variety of patterns designed and computer-programmed by ew York artist Eric Staller. Beneath the marquees, little gabled ntrance doors recall Anchorage's bungalows.

The apparent size of the halls, each of which required certain ıterior volumes for acoustic purposes, has been reduced by eeping their cornices as low as possible and articulating each one y means of a different roof shape clad in interlocking stainless-teel shingles. The exterior theater walls are banded in two or three tiers, with the lowest tier of brick set in Flemish bond, the middle tier of concrete block set in a similar but larger pattern, and special laminate over insulation at the top, imprinted with an oversized version of the pattern. Glass curtainwalls and occasional windows bring daylight to the public spaces and reveal the life of the theater at night.

From the beginning, HHPA had hoped to use more expensive and elegant materials on these facades, but had to "value-engineer" them out of the drawings and specs due to cost overruns, and to the diminishment at an untimely moment of Alaska's oil royalties, the source of the center's funding. Fortunately for Anchorage, the HHPA firm is adept at keeping the architecture while making the building cheaper. "We preserve our ideas by doing it some other way," Malcolm Holzman explains. "Luxurious finishes are not a measure of our work. We don't live by that. If we can't do it cheap, yet do it well, then why bother?" And for the citizens of Anchorage, now in possession of a superb performing-arts facility, all the bother will turn out to have been worth it. *Mildred F. Schmertz*

Making it fit

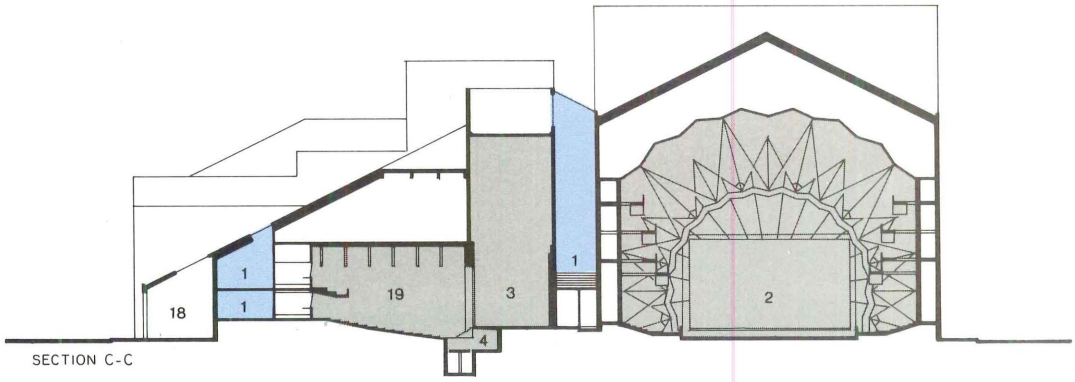
1. *Lobby*
2. *2,100-seat hall*
3. *Stage*
4. *Pit*
5. *Dressing*
6. *Mechanical*
7. *Stage entry*
8. *Loading*
9. *Seats*
10. *Office*
11. *Retail*
12. *Workshop*
13. *Storage*
14. *Truck dock*
15. *Experimental theat*
16. *Traps*
17. *800-seat hall*
18. *Walkway*
19. *350-seat hall*

How do you place four performing-arts halls of varying size and character—as well as service, support, and public spaces for each—within a city block that is not quite big enough? HHPA took a big step toward solving the problem by persuading the city to close a street (see site plan), and used the space gained as a foyer for the orchestra hall and a small entry plaza at the southeast corner.

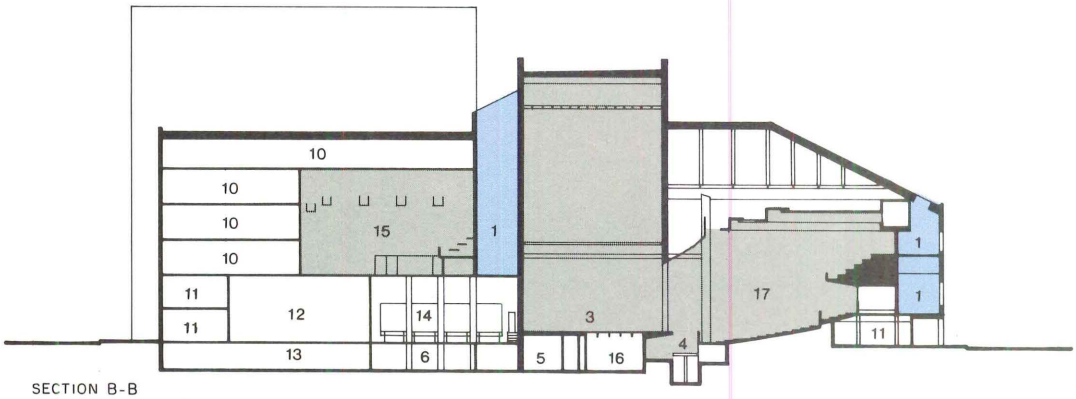
The rest of the building's perimeter presses tightly against the remaining sidewalk boundaries. Furthermore, incorporating the street into the performing-arts center connects the building directly to the edge of a small city park to the east.

The disposition and interrelationships of interior space are ingenious. The smallest of the three stage houses was a given. It had to be saved, not just as an economy (it turned out not to be), but as a vestigial landmark of a beloved theater named for Alaska's landscape painter Sydney Laurence. To conceal their size (immense for downtown Anchorage), the narrow sides of the two new stagehouses were made to face the sidewalks, forming a pinwheel in plan and allowing the wider dimensions to be hidden by abutting halls.

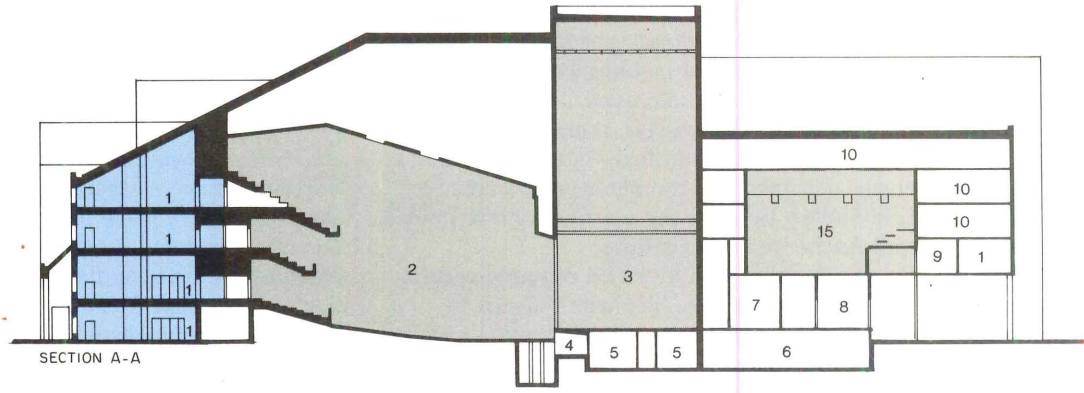
Multilevel foyers meander, rather like medieval streets, around and through the interstices between the performing halls. No spaces of any kind appear to be one cubic foot larger than needed, and indeed the orchestra shell within the 2,100-seat multiuse auditorium just barely contains the full Anchorage Symphony. (The bass viol players, with no room for their high stools, must stand throughout the performance.) All essential performing-arts functions are well served, however, and most of HHPA's skilled crimps and tucks don't show.



SECTION C-C



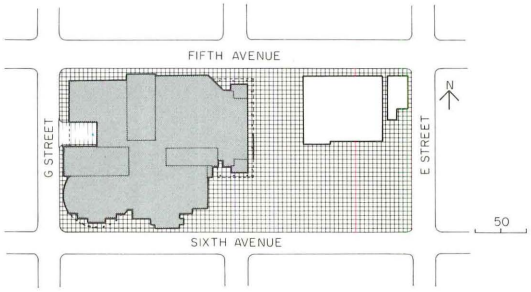
SECTION B-B

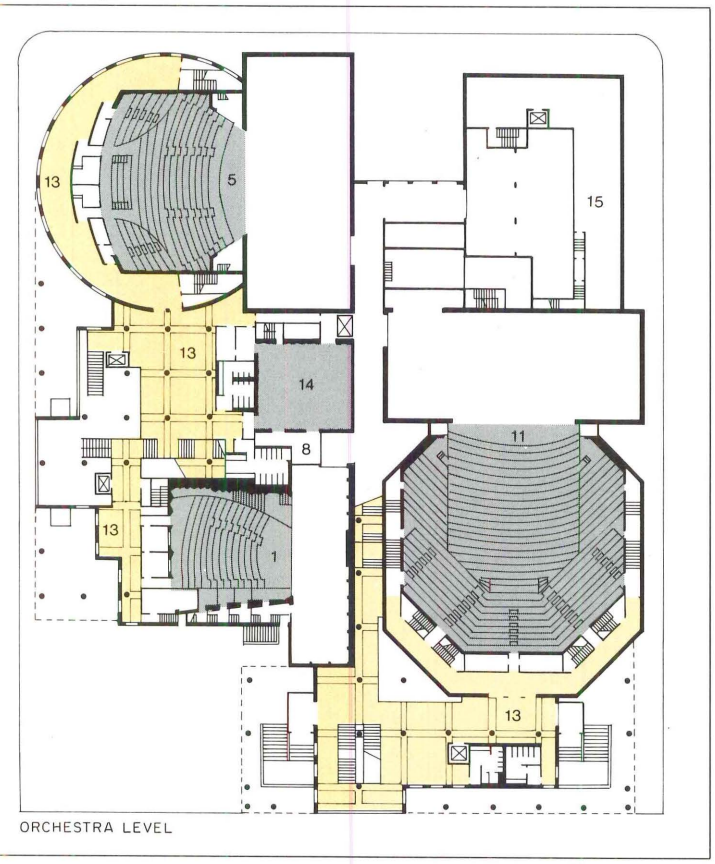


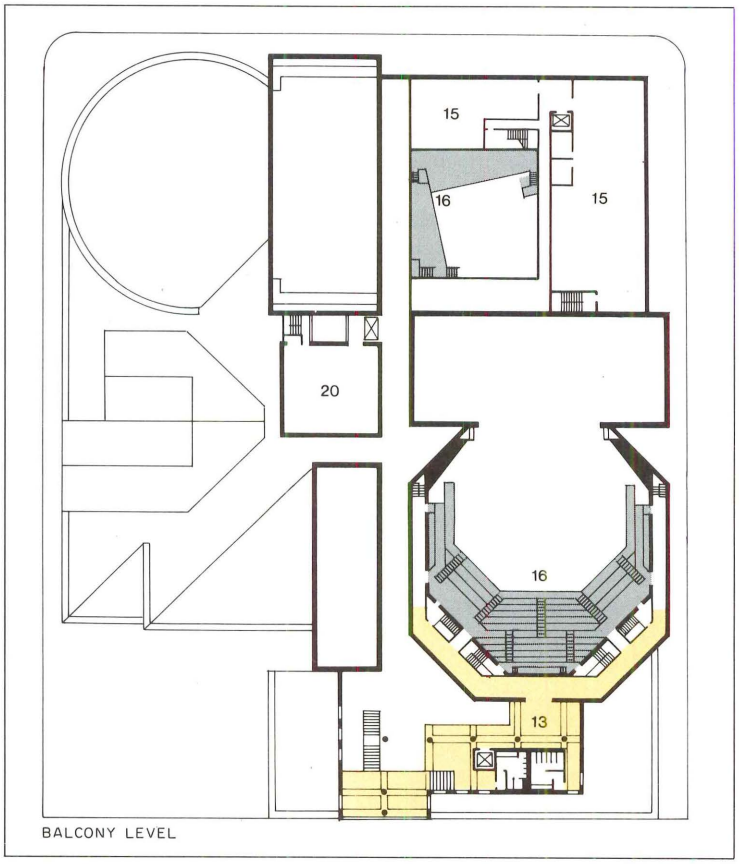
SECTION A-A

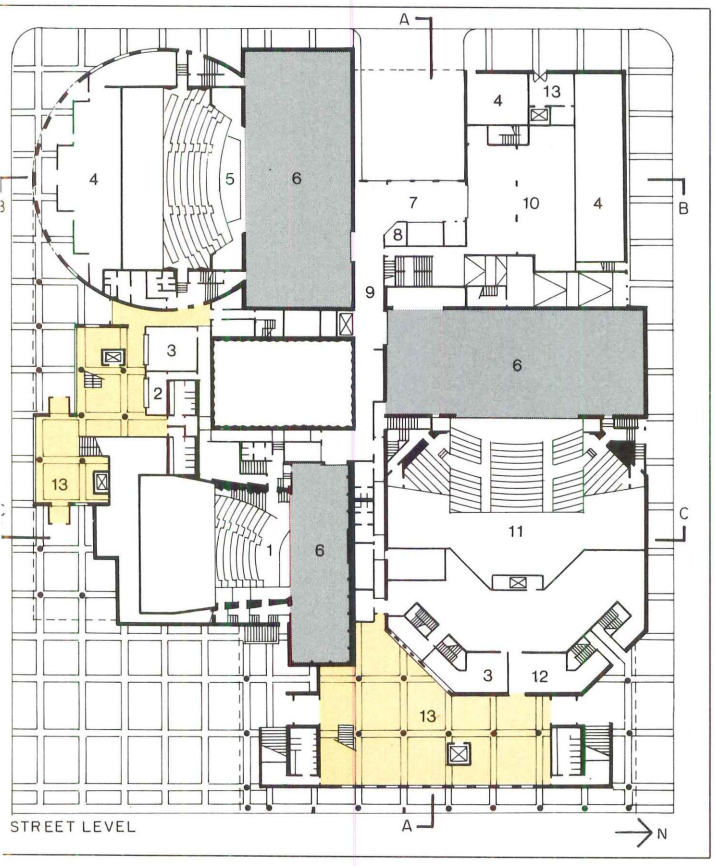
350-seat hall
Tickets
Coats
Retail
800-seat hall
Stage
Loading
Storage
Service
Workshop

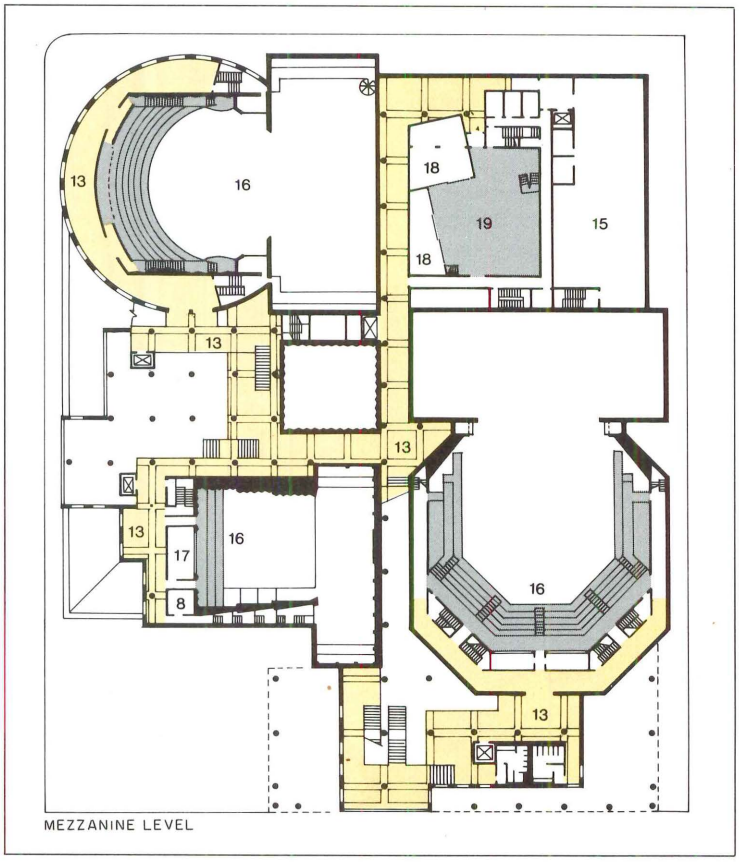
11. 2,100-seat hall
12. Administration
13. Lobby
14. Rehearsal
15. Commercial
16. Mezzanine
17. Control
18. Seat storage
19. Experimental theater
20. Mechanical











Sub-arctic warmth

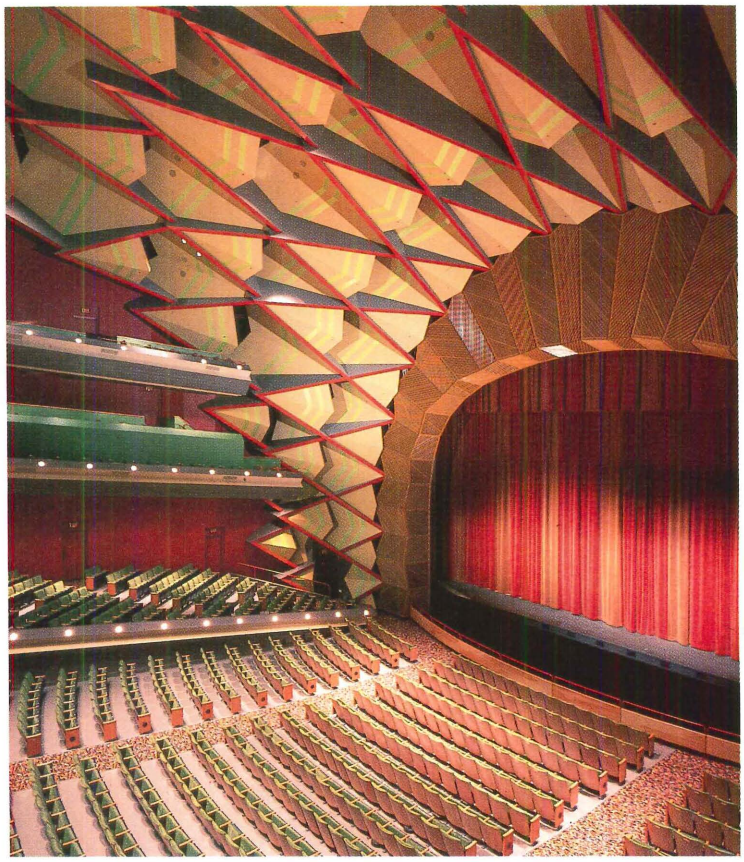
The sun rises late and sets early during the long Alaskan winters, and it can get pretty cold outside. The frozen beauty of the surrounding mountain peaks does little to offset the gloom of downtown Anchorage. The Alaskan summers are a happier story. Days are long and bright, and the fields in the mountain valleys just outside the city are filled with wildflowers. HHPA, seeking ways to bring summer warmth and light year-round to the public spaces of the new Alaska Center for the Performing Arts, has introduced large quantities of daylight into them by means of individual windows and large window walls. Originally there were to have been skylights as well, later cut from the budget.

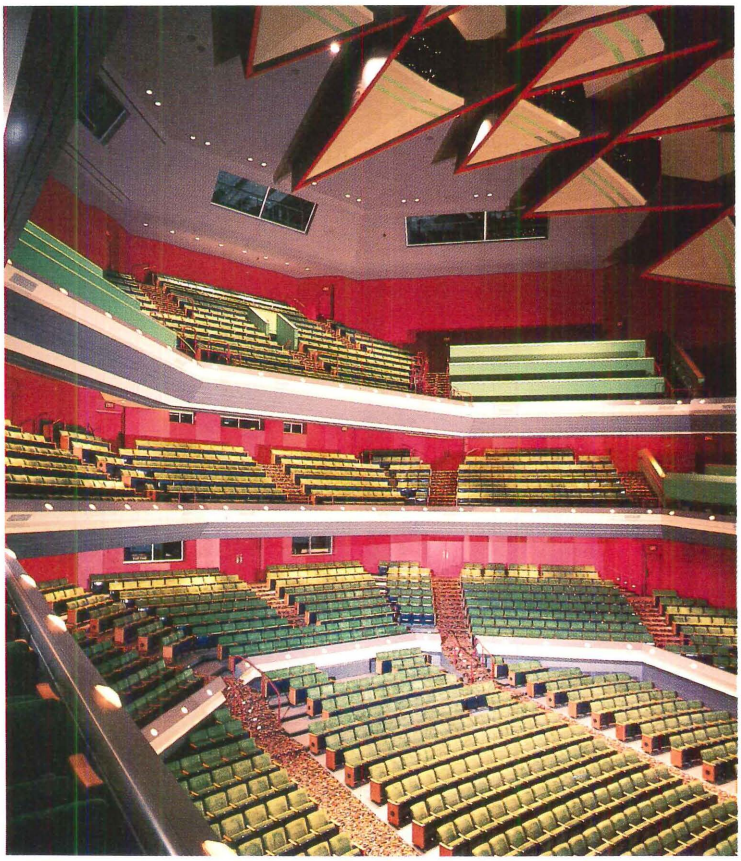
The 6-foot-wide flowers in the foyer carpet, a design by local artist Nancy Taylor Stonington, were inspired by arctic poppies. Extensive rubberized flooring at the entry level (photo opposite) absorbs outdoor dirt and moisture before it reaches the carpeting in the foyers and performing halls. The forest of columns is encased in polymer-coated fiberglass. The columns, like the plaster balustrades, include integral light fixtures designed by Paul Marantz.

The large hall

The magnificent shell of the 2,100-seat Evangeline Atwood Concert Hall has come to be called the "aurora," short for aurora borealis—known also as northern lights—the polar region's most spectacular natural phenomenon. Alaska's aurora, seen in the night sky from August to May, often appears as a great multitiered arc, glowing red, yellow, green, and violet. Hugh Hardy denies that he and his partners had this stunning solar light show in mind as they invented the big hall's enclosure, but does not object to the comparison.

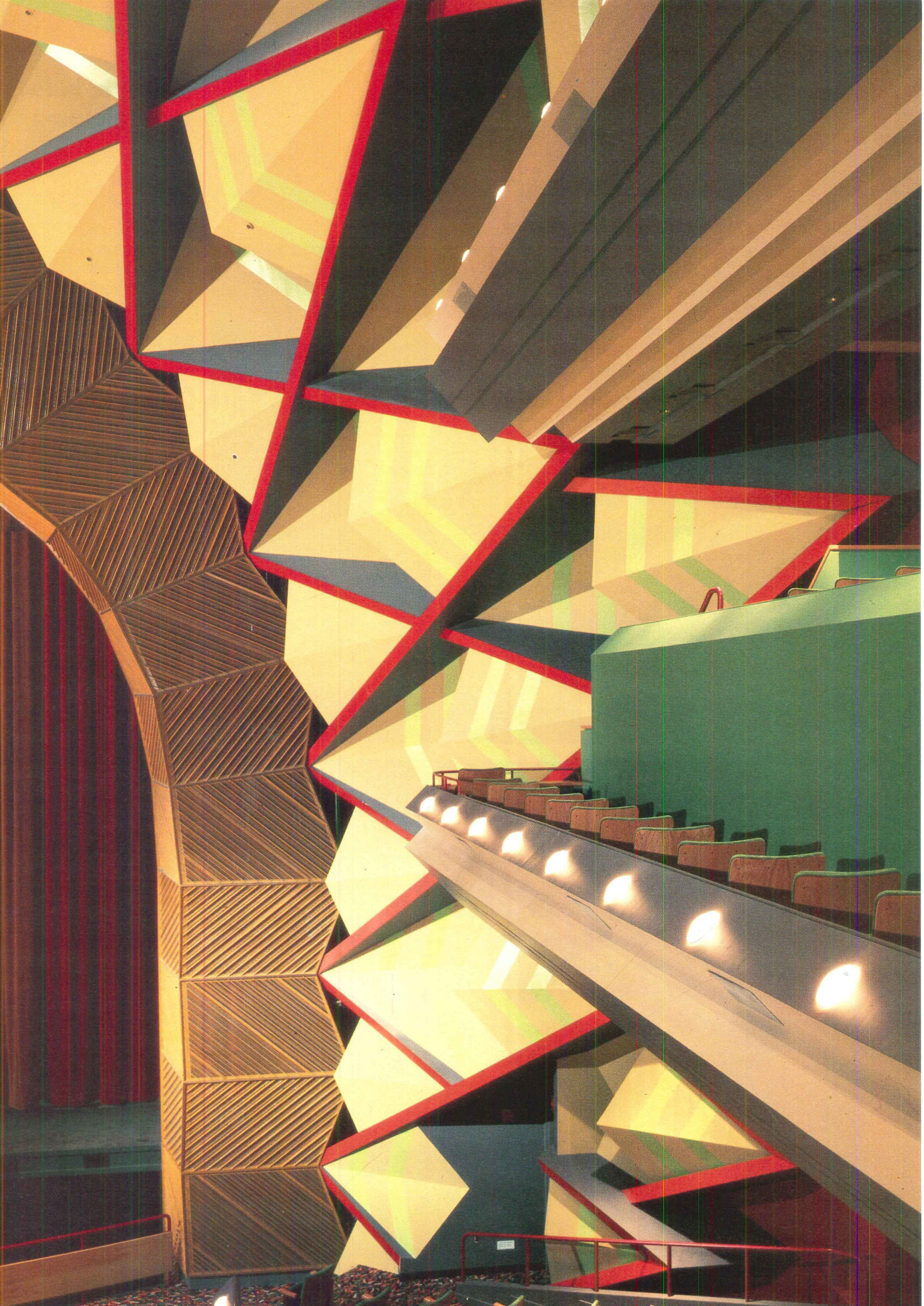
HHPA's basic intention, the same purpose that governs the firm's design of other large halls (the big room at the Hult Center in Eugene, Oregon, being the most recent example), was to make an immense space seem smaller and more intimate. Distances between blocks of seats and the stage are minimized by means of a raised orchestra parterre section and wraparound mezzanine and balcony levels. The design of the acoustical shell (needed to both absorb and deflect sound) also becomes a scale-reducing strategy. In both the Anchorage and Eugene theaters, a great enclosing basket woven of large, scale-reducing segments obliterates the distinction between walls and ceiling. The particular weave designed for Eugene would probably have worked just as well in Anchorage, but HHPA prefers to invent an original enclosure for each new hall.



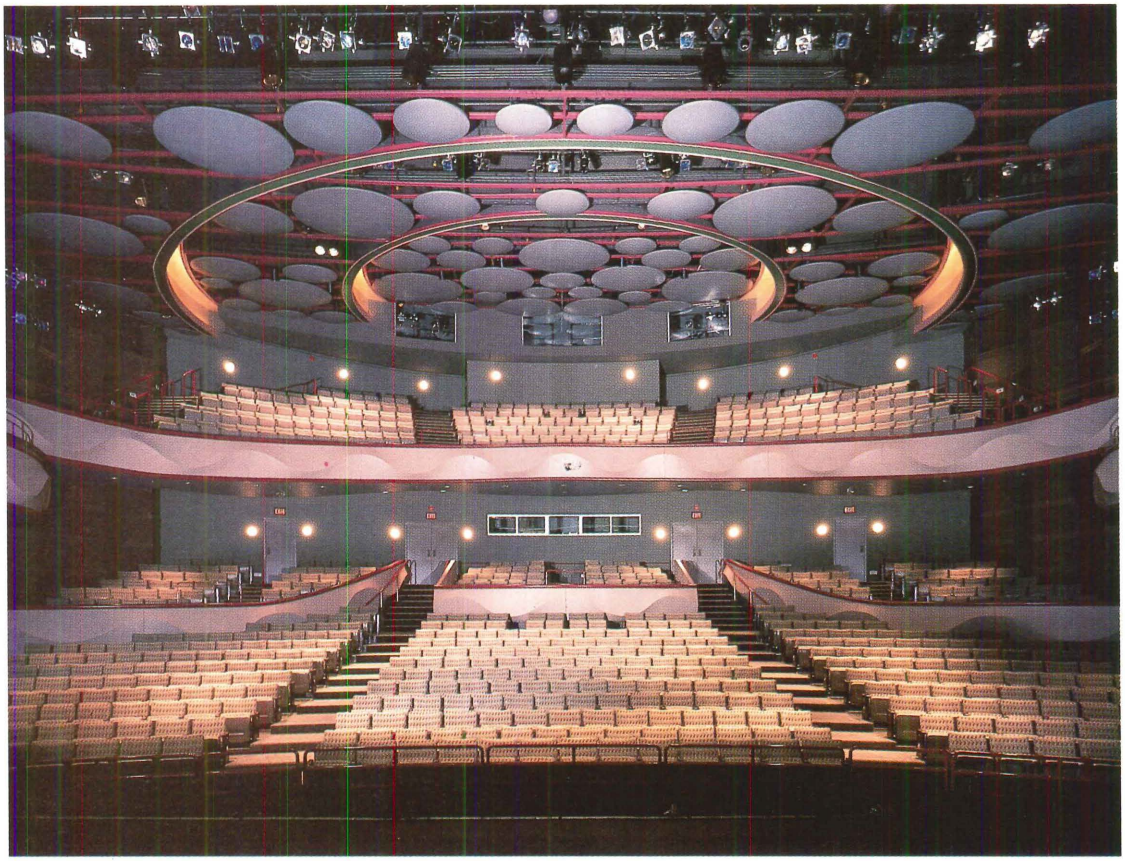


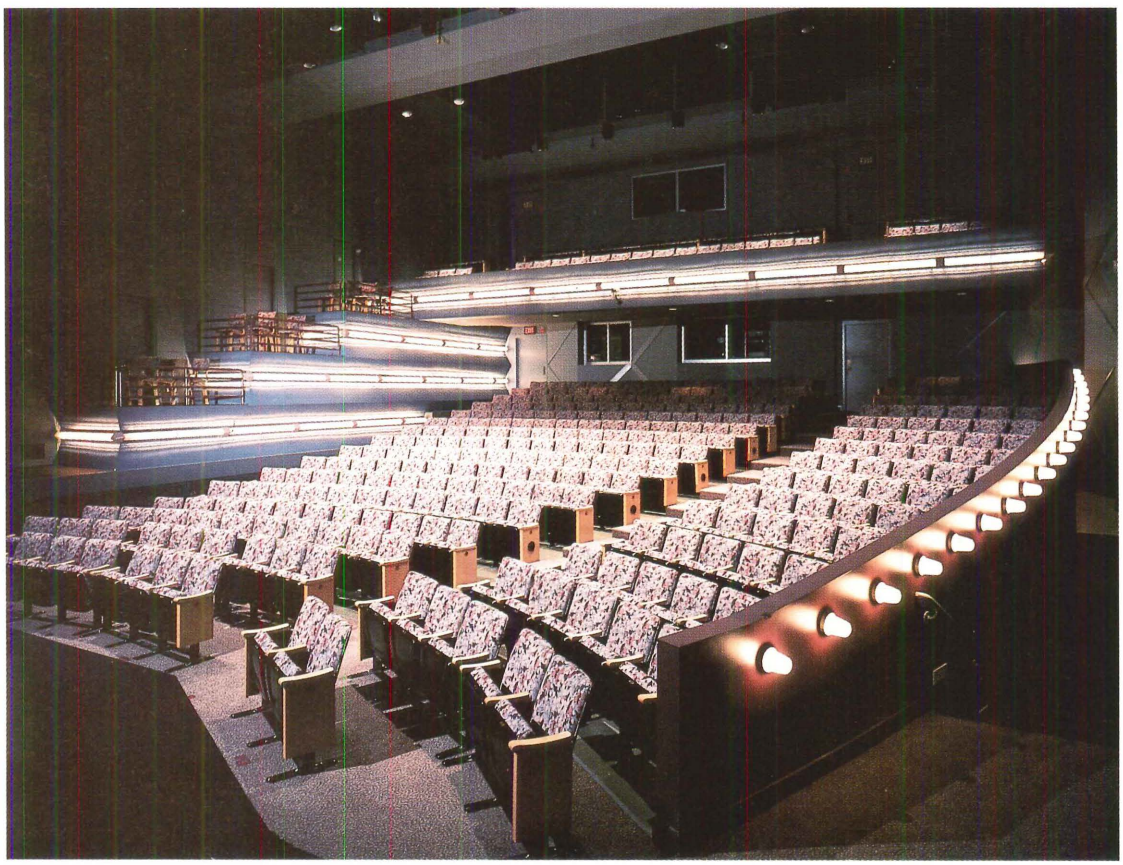
Wonderful as completed, the Anchorage aurora was to have been even more magnificent. In an earlier, scintillating design, HHPA proposed that each individual radiating wedge or diamond-shaped spear be edged with fiber optics. Forced to cut costs, the architects then suggested that the shell be illuminated by fixtures concealed within it, but finally had to settle for reflected light issuing from spots along the balcony fascias, as the photos (left and opposite page) indicate.

The shell, of painted gypsum wallboard on metal studs, frames a proscenium opening rising 40 feet above the stage floor. Stage lights, invisible to the audience, are concealed in each spear. The aurora, completely worked out in model before drawings were made, was quickly built by means of laser technology. A pulsating beam of light, set at various levels of the scaffold, was used to pinpoint in space each of the connecting points for the metal-stud frame, simplifying and speeding its erection. According to partner-in-charge Norman Pfeiffer, the aurora turned out to be "miraculously close to the drawings. If it is off a tiny fraction," he adds, "who will ever know?"



Multiple halls, multiple uses





The 800-seat Discovery Theater, named to celebrate the discovery of the Prudhoe Bay oil field, is designed for drama, and popular music performances (top left and opposite page). The ceiling and all floors, including those of the balconies and the boxes, slope gently toward the stage to focus audience attention. The as-yet-unnamed 350-seat hall (below left) allows actors entrances and exits through the audience. One side of the stage steps down to form an actor's vomitory, and the other side steps up along the side wall to the balcony.

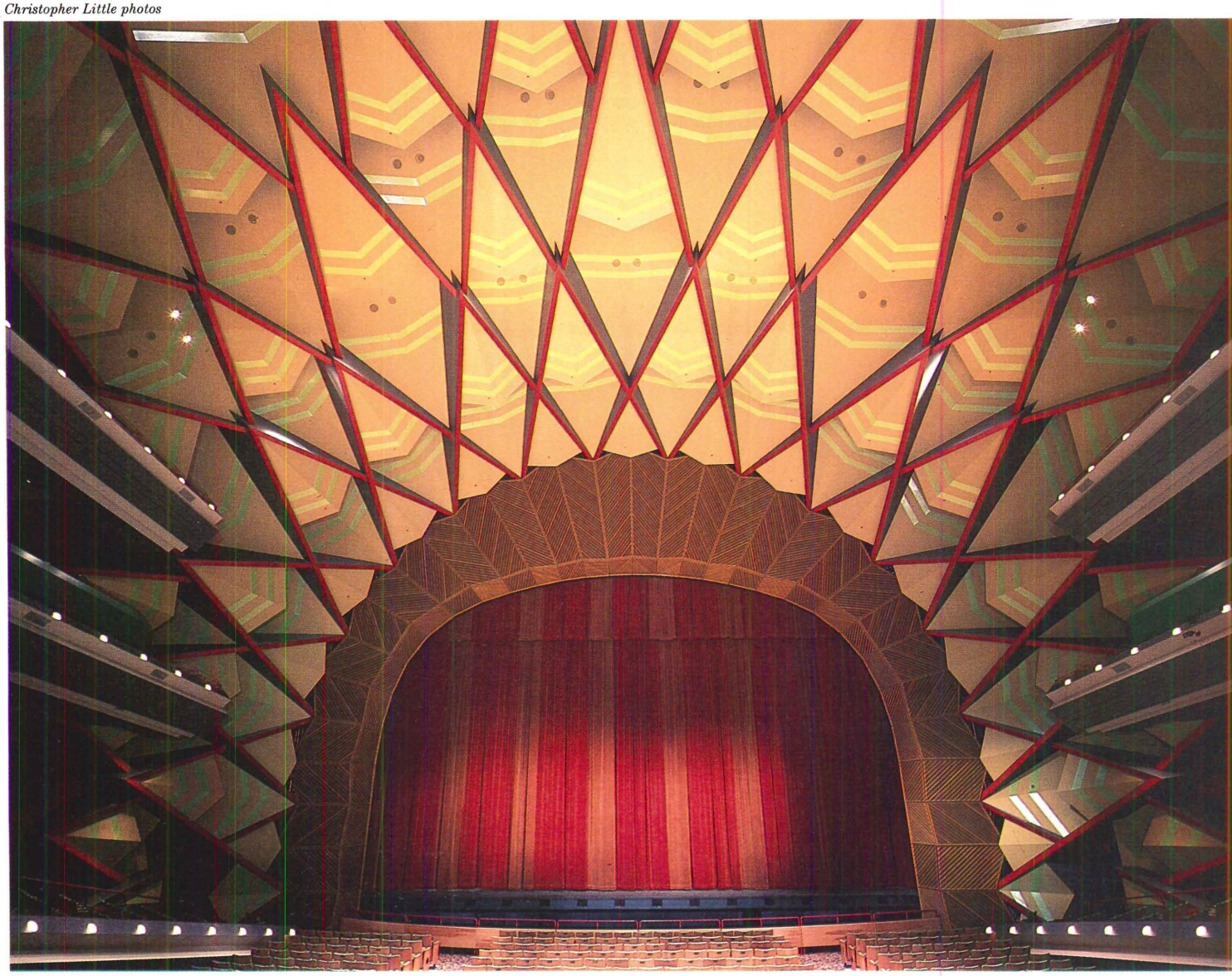
Alaska Center for the Performing Arts
Anchorage, Alaska
Owner:
The Municipality of Anchorage
Architect:
Hardy Holzman Pfeiffer Associates—Norman Pfeiffer, partner-in-charge; Malcolm Holzman and Hugh Hardy, collaborative partners; Victor Gong, administrative partner; Harris Feinn, project architect; Robin Kunz, project interior designer; Jonathan Strauss, field representative
Associated architect:
Livingston Slone, Inc.
Engineers:
Dowl Engineers (civil); LeMessurier/SCI (structural); Pan American Consulting Engineers (associate structural); Crews MacInnes, Hoffman/VITRO (mechanical/electrical)
Consultants:
Harding Lawson Assoc. (geotechnical); Gus Degenkolb and Emile Mortier (code); HMS, Inc. (cost); Jaffe Acoustics, Inc. (acoustics); Lerch Bates (elevator); Jules Fisher-Paul Marantz, Inc. (architectural lighting); Jerit/Boys, Inc. (theater); Sverdrup/SPCM, Inc. (project management)
General contractor:
Kiewit Construction Company and Hoffman Construction Company

EXIT
EXIT

Acoustics at Anchorage

By Mark Holden

Christopher Little photos



The 2,100-seat Evangeline Atwood Concert Hall
Representing some of the latest advances in acoustic design, the Atwood Concert Hall features acoustics that can be varied to suit a wide variety of performing-arts programs. From drama to opera, from rock 'n roll to symphony orchestra, Atwood provides an acoustic environment creating a true multiuse facility, that from opening night has been a critical success.

Mark Holden is a principal and director of design of Jaffe Acoustics.

In approaching the acoustic design of the hall, Jaffe Acoustics worked with the architects, Hardy Holzman Pfeiffer Associates, and theater consultants Jerit/Boys, Inc. to articulate important architectural, acoustical, and theatrical goals. Initial discussions resulted in a design concept for the hall which emphasized intimacy, improving the connection between audience and performer.

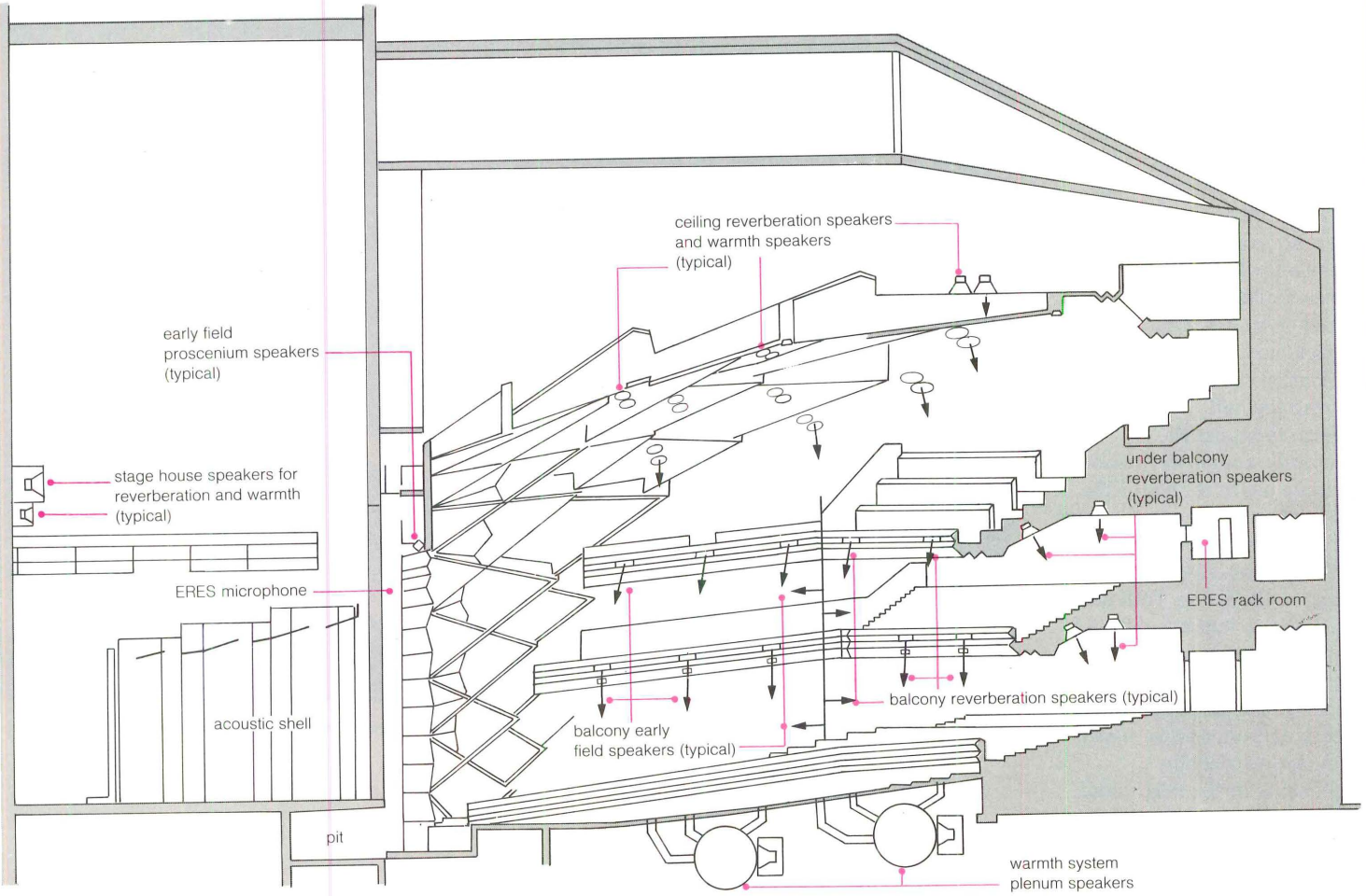
To achieve physical intimacy for 2,100 people in the Atwood Hall, Malcolm Holzman selected the traditional European opera house as a model. Using this guide, Holzman produced a design with multiple balconies which swept around the side walls to the stage.

To accommodate both the client's goal of a multiuse facility and the architect's desire to foster a strong link between audience and performer required sophisticated acoustical design solutions. Jaffe Acoustics' solution relied on two basic elements:
1. An architectural acoustics design tailored to meet the requirements of light opera and amplified Broadway programs.
2. An Electronic Architecture System that provides the appropriate environment for orchestral music by adding reflections and reverberation, which are essential to our perception of brilliance, warmth and fullness in music.

In addition to these elements we also integrated into the hall full complement of sophisticate sound-reinforcement systems a well as backstage production-support and front-of-house systems.

Architectural acoustics
While the decision to employ an Electronic Architecture System in Atwood Concert Hall freed HHPA to investigate a wide

ach of the Alaska Center for the Performing rts' three multiuse theaters has a different coustic requirement, met by electronic and/or hysical acoustic elements devised by Jaffe coustics, Inc.



ATWOOD CONCERT HALL ERES SYSTEM

ıriety of design solutions, it did ɔt eliminate the need for a well- ·veloped architectural acoustic ·sign.

To assist HHPA in developing e early concepts for the hall, .ffe Acoustics supplied a .riety of acoustic criteria. :hieving the proper verberation time (in the range 1.4 to 1.6 seconds) required at a ratio of 285 cubic feet/ ·rson be established, resulting a total enclosed volume of 0,000 cubic feet in the hall. To project sound from the ıge throughout the audience amber, critical angles for wall ıd ceiling areas adjacent to the proscenium arch were developed. These walls form the "throat" of the hall and are essential for good vocal quality in opera.

Once sound enters the hall, it is important that it be evenly distributed or diffused by the envelope of the room. Diffusion is provided through the shaping of walls, ceiling, and balcony fascias. To promote diffusion, we advised HHPA to incorporate articulated surfaces as a basic element of the design of the hall's interior.

In addition to these specific criteria, early design discussions also focused on such issues as finish materials, the orchestra pit, the orchestra shell, sound isolation, and mechanical-system noise control.

With these criteria, HHPA developed its initial concept for the Atwood Concert Hall and constructed a model. Acoustic tests were conducted with the model in an anechoic chamber in Jaffe Acoustics' laboratory. These tests revealed some minor deficiencies in reflection patterns in the hall, resulting in a recommendation to flatten the aurora ceiling. This recommendation was implemented, the model modified, and a new series of tests completed which verified the soundness of the acoustic concept.

The final hall illustrates the outcome of this process. The stunning aurora ceiling, in addition to focusing attention on the stage, creates the essential throat. The multiplicity of facets in the aurora and on balcony, mezzanine, and parterre fascias provides excellent diffusing surfaces.

Orchestra pit and shell design

Completing the architectural acoustic design are the orchestra pit and concert enclosure. The pit is a modified Bayreuth-style design that extends partially

under the stage. It features a variety of absorptive materials which, in combination with the overall configuration of the pit, enable the conductor readily to achieve proper balances among orchestral sections and between pit and stage.

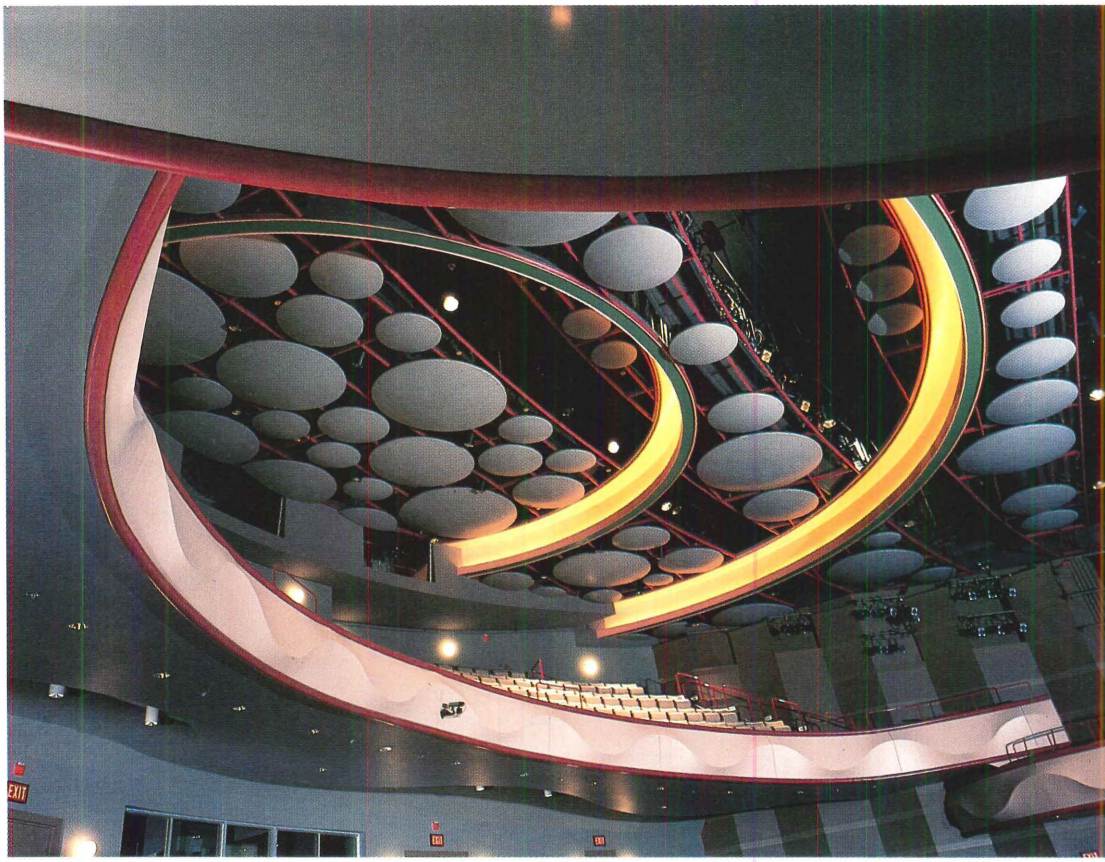
A concert enclosure or shell provides the necessary on-stage acoustic environment for the orchestra. Ceiling and wall panels are constructed of one-half-inch-thick plywood on steel frames. Ceiling panels are hooked or hinged, which enables complete control of the distribution of sound energy entering the hall. Openings between these panels acoustically couple the volume of the stage house to that of the hall, further improving the sense of warmth both on stage and in the front rows of orchestra seating in the house. Wall panels are shaped to improve diffusion on stage, fostering a better-blended orchestral sound.

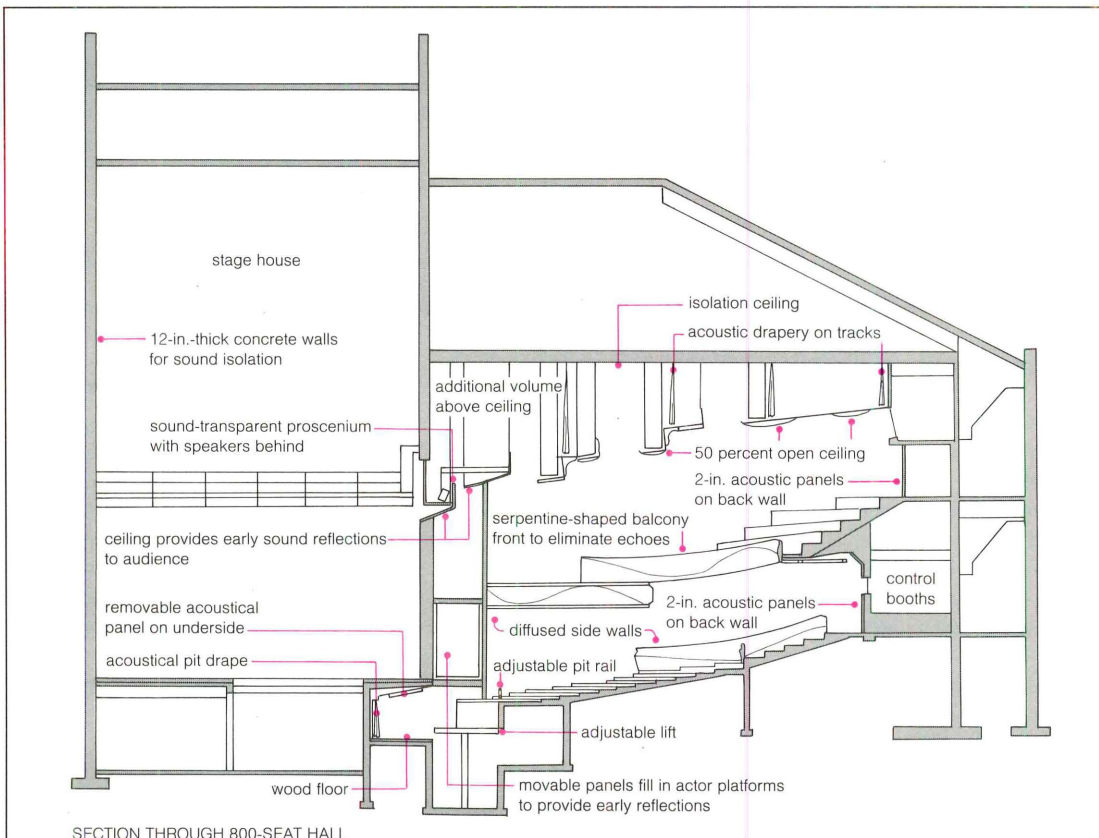
Prior to the first orchestra concert, Jaffe Acoustics tuned the enclosure, making adjustments to the height and angle of ceiling panels and the position of wall panels. Measurements and listening during orchestra rehearsals and concerts confirmed that the shell has indeed been properly tuned.

Storing the shell is quite easy. Ceiling panels can be folded flat and flown up into the stage house where they only take up one line set. Wall panels have integral dollies which are designed to nest so that the entire set of wall units can be stored in niches at the rear of the stage. Setting or striking the enclosure can be accomplished by four people in less than 90 minutes.

Electronic architecture

Over the course of the last three decades, a considerable effort has been made to quantify subjective judgments of concert-hall acoustics. The result of this





SECTION THROUGH 800-SEAT HALL

ork has been the development
a translation system that
ables the acoustician to relate
usical terminology such as
ansparency, brilliance, and
esence to the physical
inciples at work in the hall—
., the acoustician's language—
d then translate these into a
cabulary for the architect's
eds.

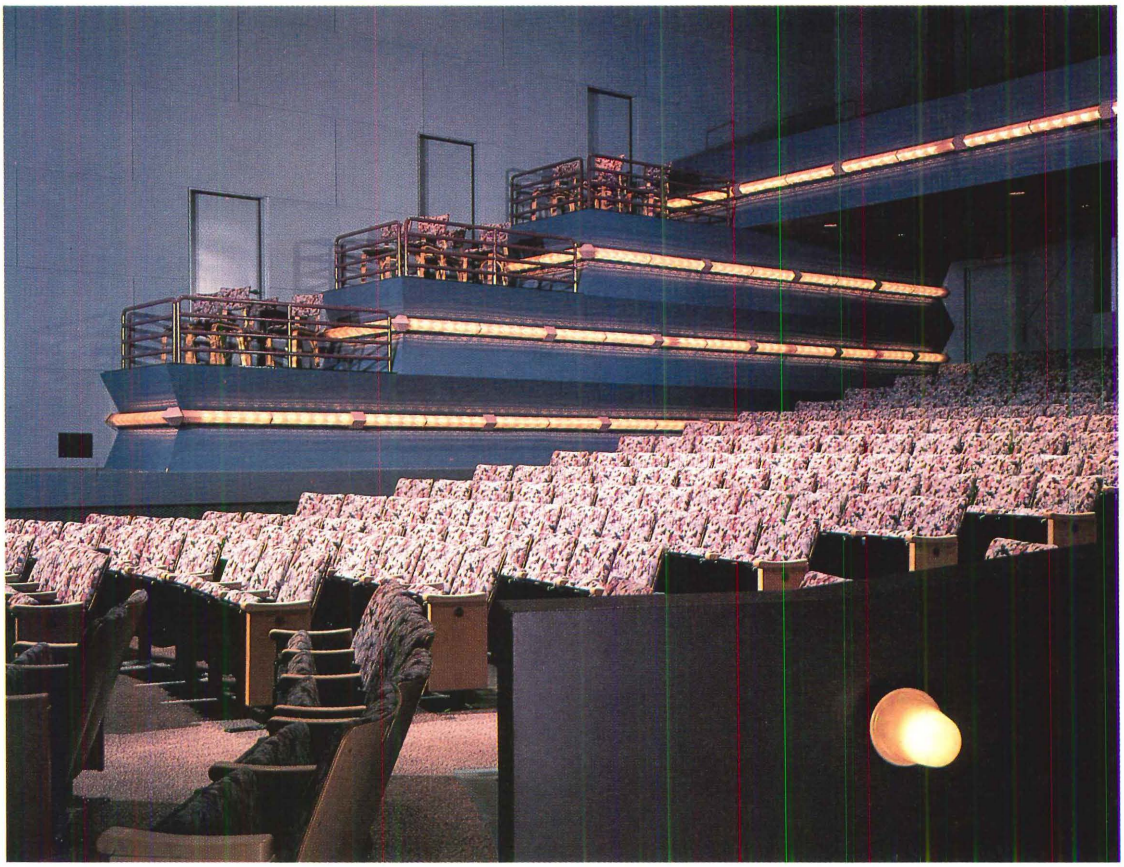
This Acoustic Translation
stem not only enables us to
commend criteria to assist in
veloping the architectural
sign, but also allows us to
ecify the characteristics of an
ectronic system which can
odify the acoustic environment
the hall.

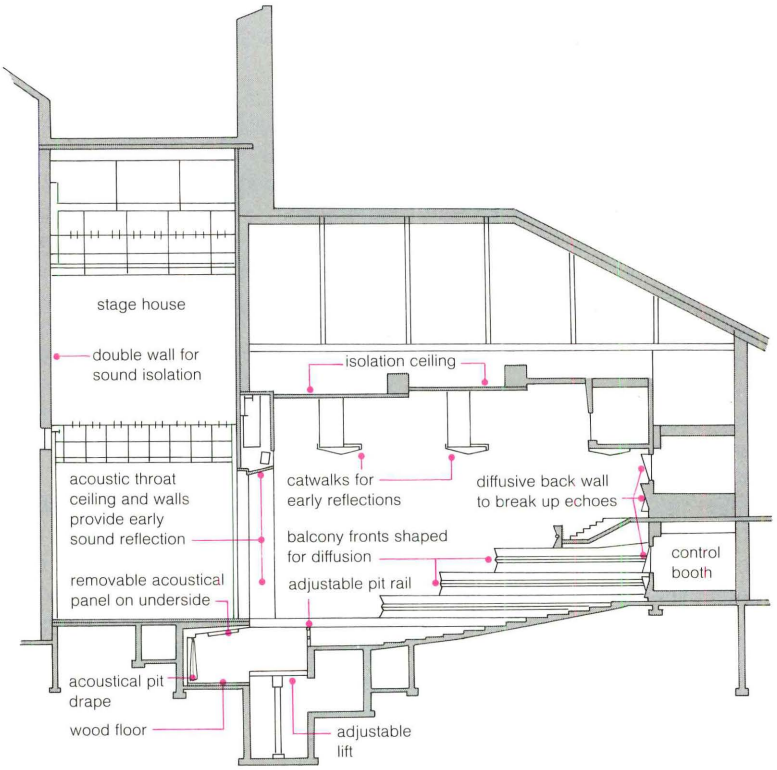
We refer to these systems as
lectronic Architecture because
is term most clearly defines
eir function. Using these
stems, we in effect move walls
d ceilings, producing a
fferent acoustic environment
ithout actually making physical
anges to the hall. In this
shion, wide rooms can be made
sound narrower—and thus
ore intimate—while small
oms can be made more
verberant and thus yield a
ller, richer experience.

These systems are typically
mposed of three sub-systems:
early-field system, a late-field
stem, and a reverberation
stem. Atwood Concert Hall's
stem, one of the largest of this
pe, includes all three of these
b-systems.

rly field

ie perception of brilliance,
esence, intimacy, and
ansparency in music are
verned by what acousticians
ll early reflections. Simply put,
rly reflections are those which
rive at the listener within 20 to
milliseconds after the arrival
the sound coming directly
om stage to listener. Knowing
at sound in air travels slightly
s than one foot per
llisecond, it is easy to see the
ometric relationship necessary





SECTION THROUGH 350-SEAT HALL

to produce these reflections, i.e., a fairly narrow hall (less than 60 feet wide) or ceiling surfaces close to the listener.

In Atwood, HHPA wanted to create a wide hall which would ensure that all patrons were relatively close to the stage. This would normally result in a distant orchestral sound for patrons in the center orchestra seats. To correct this, the early-field system adds reflections at proper time intervals. The system comprises loudspeakers implanted in the mezzanine and balcony fascias at the sides of the hall. Signals are routed to the speakers from a single microphone over the orchestra suspended from the underside of the proscenium arch. Before reaching the speakers, the signal is processed, delayed if necessary, and amplified.

Late field

Our perception of warmth is governed by late-arriving low-frequency reflections, that is reflections which are below 250Hz and which arrive at the listener 75 to 300 milliseconds after the arrival of the direct sound. These reflections arise as a result of the volume and geometry of the hall and the stiffness and weight of boundary materials.

In Anchorage, the volume of the hall was limited by the requirements of amplified programs, which need a dry acoustic environment. To compensate, late-field speakers were distributed throughout the hall and stage. Speakers were implanted in the ceiling and over the balcony, mezzanine, and parterre. Speakers were also located in the stage house and in the return air ducts under the orchestra seats.

To produce a rich and full field, the system processes the microphone signal through a special digital delay that creates eight closely spaced replicas of the original source. These replicas produce the multiplicity of low-frequency reflections that we perceive as warmth.

Reverberation

Reverberation is the persistence of sound in a large room after the source has stopped producing sound. Musicians often describe this as wetness or running liveness. Reverberation is a function of the volume of space and the amount of absorption in it. Preferred classic-music halls have a reverberation time of approximately 2.0 seconds at mid-frequencies (500Hz). When occupied, Atwood Concert Hall was designed to have a mid-frequency reverberation time of 1.6 seconds, consistent with the needs of light opera.

This required a reverberation enhancement of almost 5/10 of a second (or a 25 percent increase) to meet the standards of classic-music halls for orchestral music. Called the Reverberation-On-Demand System or RODS, this design utilizes a special digital processing unit which controls the system input and output. It prevents the microphone from hearing the speakers, eliminating loops or recirculation paths that cause undesirable coloration of the reverberation enhancement. The RODS processor works with larger versions of the delay unit used in the late-field system. One delay works with mid-frequencies, producing 48 replicas of the original sound, while the other works on low frequencies, creating 72 replicas of the original sound.

The output of the processing electronics is amplified and distributed to a complement of speakers in the hall. These speakers are located in the aurora ceiling, the ceilings above the balcony, mezzanine, and parterre, and implanted in the fascias of the balcony and mezzanine at the rear of the hall. There are also speakers in the stage house.

Operation of the Electronic Architecture System is very simple. The system was tuned by Jaffe Acoustics prior to use. The client need only turn it on to use it.

The 800-seat Discovery Theater

In order that drama and a wide variety of events satisfactorily be produced in a hall with a volume-per-seat ratio of 340 cubic feet (to hold the sound power of orchestral performance), the consultants designed variable physical acoustical elements as part of the architecture to assure good speech intelligibility for theatrical productions and amplified popular entertainment.

Reduced liveness and early first reflections improve intelligibility. The section (page 108) shows the location of the variable draperies used to reduce liveness and the suspended, round, inverted fiberglass domes that provide initial reflected energy.

The 350-seat theater

The smaller the hall, the easier it is to design for multiple use. Its multiuse nature is limited to straight drama, local recitalists, lecturers, and other low-sound-power presentations.

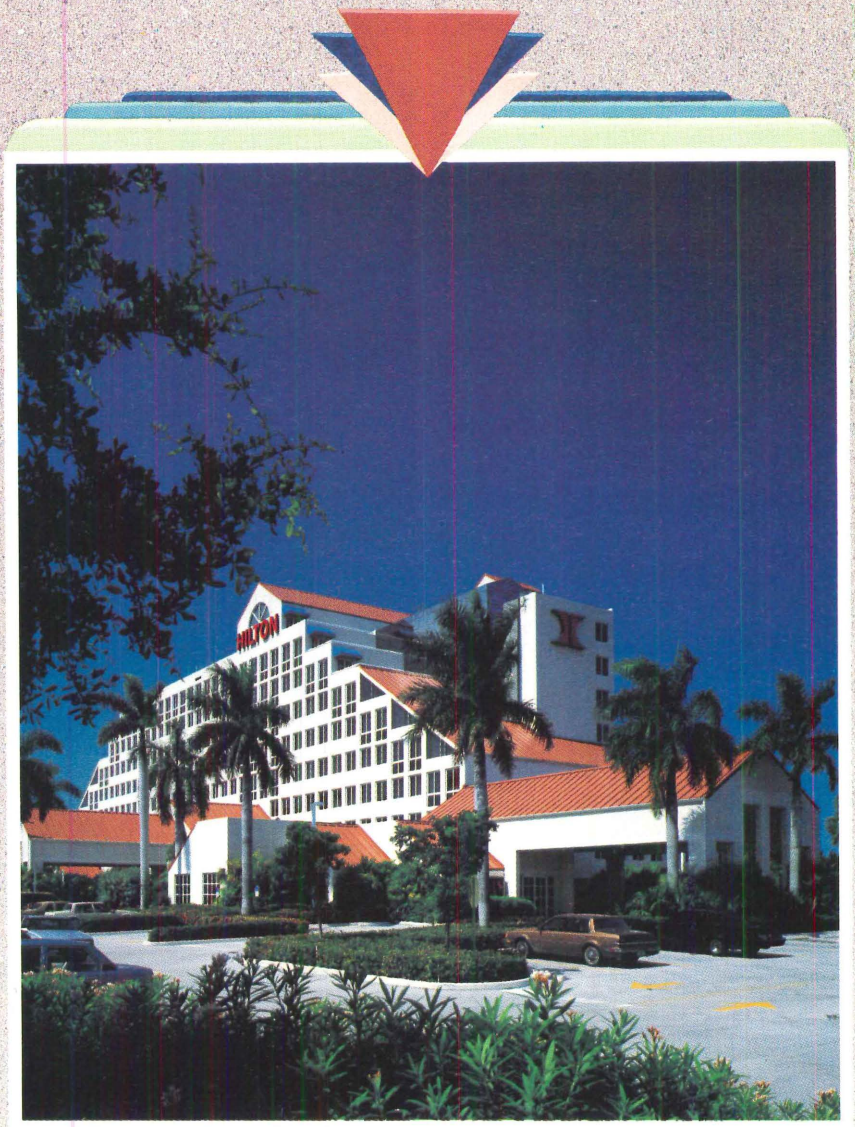
The volume per seat in this hall was set at 280 cubic feet, and (as the section indicates) no variable acoustic elements were designed into the seating area itself. The coupled shell for musical performances was a must.

Common features in all three halls

Not obvious to the casual observer are the measures taken to exclude unwanted noise for the exteriors of all three halls. Isolation of the halls from external noise sources, such as traffic noise, was achieved by wrapping the lobby and circulation spaces around the body of the audience chamber. Jet aircraft noise from a nearby Air Force base was excluded through a special double roof construction. The outer envelop is made of metal roof deck on thermal insulation over concret on a metal deck. Suspended fro this assembly is the attic ceiling which is composed of two layer of gypsum board. All penetrations of the inner ceiling are caulked. Finally, glass fiber batt insulation is placed in the gap between the inner and oute roof assemblies.

The stage house walls of the Atwood Hall and Discovery Theater are poured concrete ranging in thickness from 10 to 15 inches, forming an effective barrier to unwanted sound. The stage house walls of the smalle theater are a composite construction employing multipl layers of gypsum board stage side and metal panels on the exterior. The stages are isolate from each other by a physical separation created by a backstage circulation corridor. Access to the stages from the corridor is via special design acoustic doors which enable all three spaces to be used simultaneously.

The mechanical systems for three halls were designed to similar standards. At the start, Jaffe established as the maximum background noise level the goals described by Noise Criteria (NC) 20. To achieve this, the systems empl large ducts and low-air velociti Supply ducts are routed to the ceiling in each hall, where they dump conditioned air above the finished ceiling. Air is returned from the hall via mushroom vents under the seats which le to large ducts and then to tunnels leading to the main mechanical rooms. Separate systems are provided for each stage and for the control room in each hall. Mechanical rooms are remotely located to isolate noisy air-handling equipment.



Project: Grand Hilton Hotel
Owner: The Sausman Hotel Group
Architect: John Nichols & Associates
General Contractor: Hardin Construction Co.
Roofing Contractor: Roth Bros. of Florida
Color: Terra Cotta

Terra Cotta PAC-CLAD

Terra Cotta PAC-CLAD was selected for installation on the Grand Hilton Hotel in Deerfield Beach, Florida. The architect, John Nichols & Associates, responded to the owners desire for use of vivid color and post-modernist form in their design. The roofing panels were roll-formed on-site by Roth Brothers of Florida, Inc.

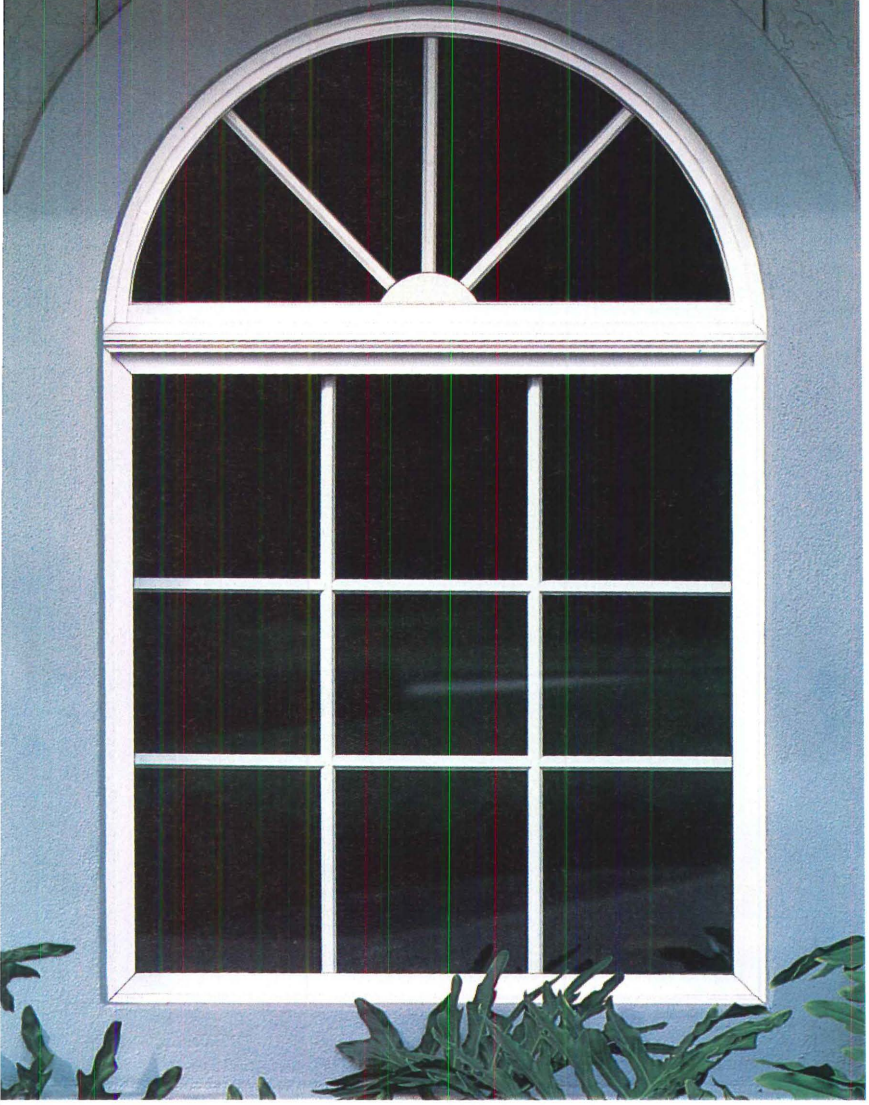
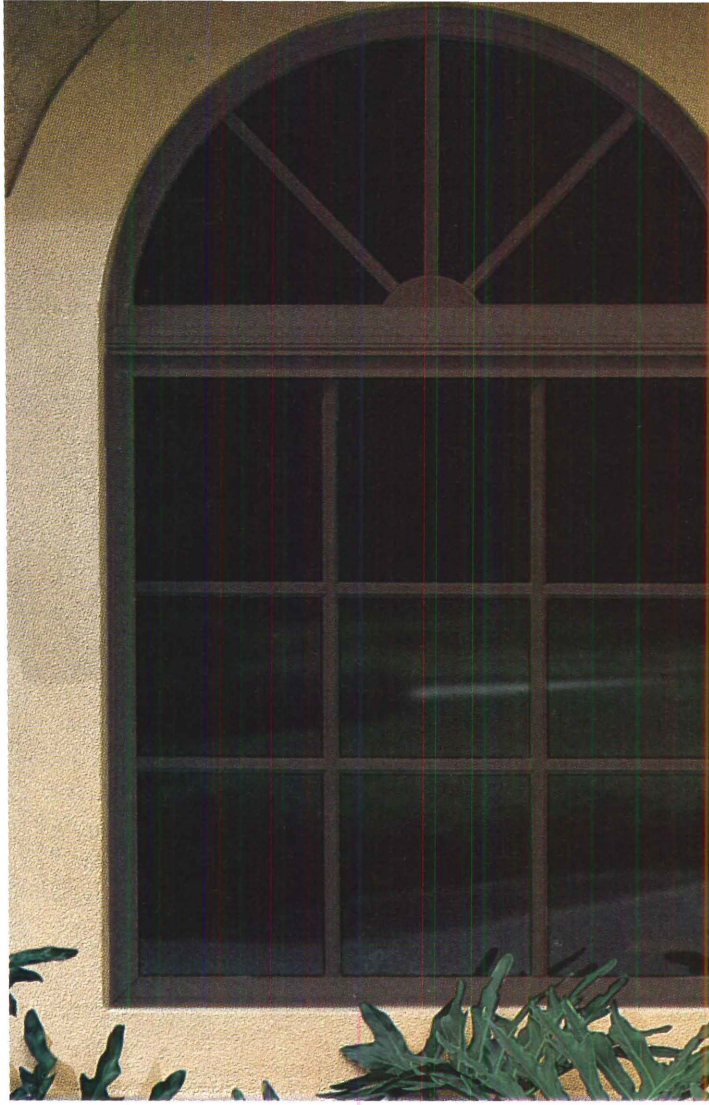
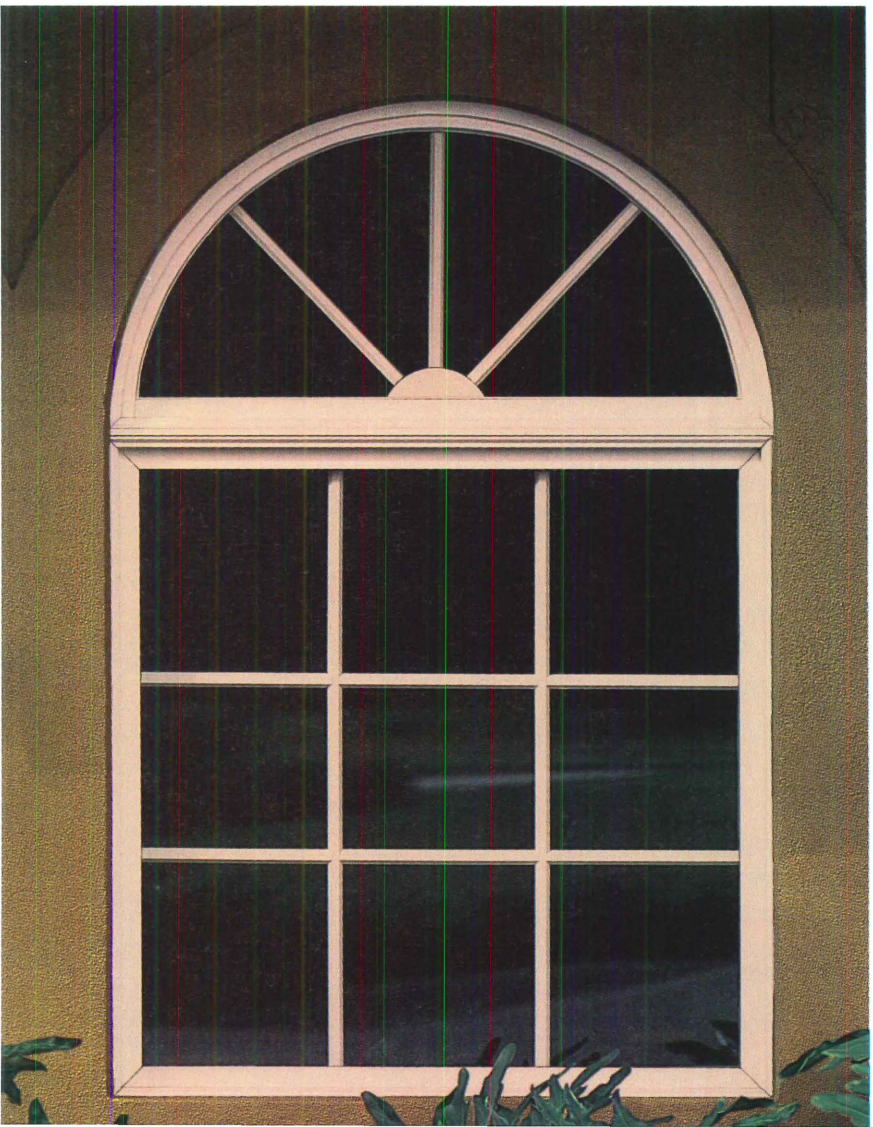
PAC-CLAD is a full Kynar 500® finish ideally suited for use in tropical climates. PAC-CLAD is available with a non-prorated warranty covering finish fade, peeling and chalking. Terra Cotta is one of sixteen standard colors available on steel and aluminum.

For complete information regarding the Petersen product line, please call for specifier's service toll-free, **1-800-PAC-CLAD**.

PAC Petersen Aluminum Corporation

955 Estes Avenue • Elk Grove Village, IL 60007 • 1-312-228-7150
1-800-PAC-CLAD • FAX: 1-312-956-7968
Other Plant Locations: 8735 Bollman Place • Savage, MD 20763 4295 Hays Drive • Tyler, TX 75703
See our catalog in Sweet's: file numbers 07610/PET, 07715/PET and 10440/CHC.

Circle 64 on inquiry card

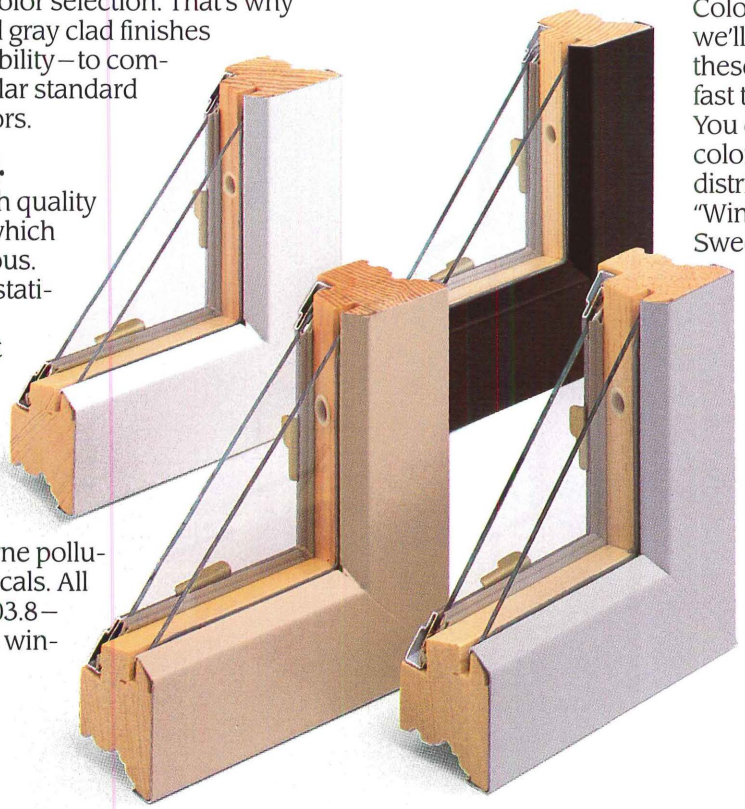
Now, Pella doubles your choice of window colors.

Pella® introduces Tan and Gray colors to their standard brown and white offerings to meet your need for greater design flexibility.

e always listened to what features architects and
ers want in windows and doors. Today, owners
emanding a greater color selection. That's why
offering new tan and gray clad finishes
an accelerated availability—to com-
ent our already popular standard
and brown clad colors.

s color your thinking.

ese are the same high quality
tectural finishes for which
Clad Colors are famous.
re baked-on, electrostati-
applied finishes that
off the many ills that
ngs are heir to:
g, chipping, crack-
eeling, blistering
halking. Not to
ion their resistance
corrosive action of
ain, salt spray, airborne pollu-
and corrosive chemicals. All
rm to AAMA spec 603.8—
assurance that these win-
endure and endure.



Accept no limitations.

Of course, we still offer dozens of Pella Custom Clad Colors. If you have a specific color in mind, we'll match most any sample. But even on these custom orders you'll marvel at our fast turnaround time.

You can obtain information on these new colors and free samples from your Pella distributor. Look in your Yellow Pages under "Windows", call Sweet's BUYLINE or consult Sweet's General Building File. Or send us the coupon below.

Bring your designs to Pella.

Please send me the current literature on new Pella Clad Colors.

Name_____

Firm_____

Address_____

City_____

State_____ Zip_____

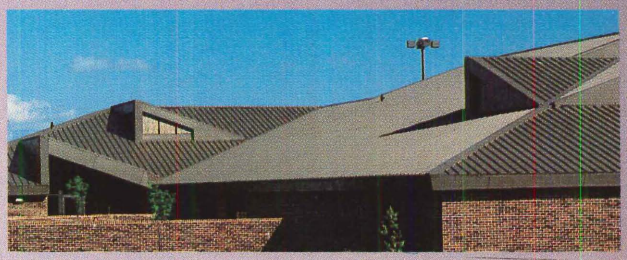
Telephone_____

Pella Windows and Doors, Commercial Division
Dept. **T31D9,** 100 Main Street, Pella, Iowa 50219
Also available throughout Canada.
© 1988 Rolscreen Company

Pella®

Circle 65 on inquiry card

A DROP IN THE BUCKET VS. A DROP IN THE BUCKET



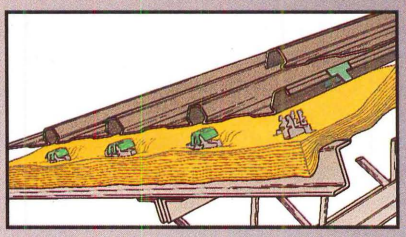
The Total Performance Roof from Robertson. It may be a bit more expensive up front. But the *few extra cents* are just a drop in the bucket when you consider the alternative.

The alternative—a less expensive, less reliable roof. That too, can be a drop in the bucket. You know... the other kind. It can lead to a steady stream of on-going problems, like water damage and repair costs.

The choice is yours.

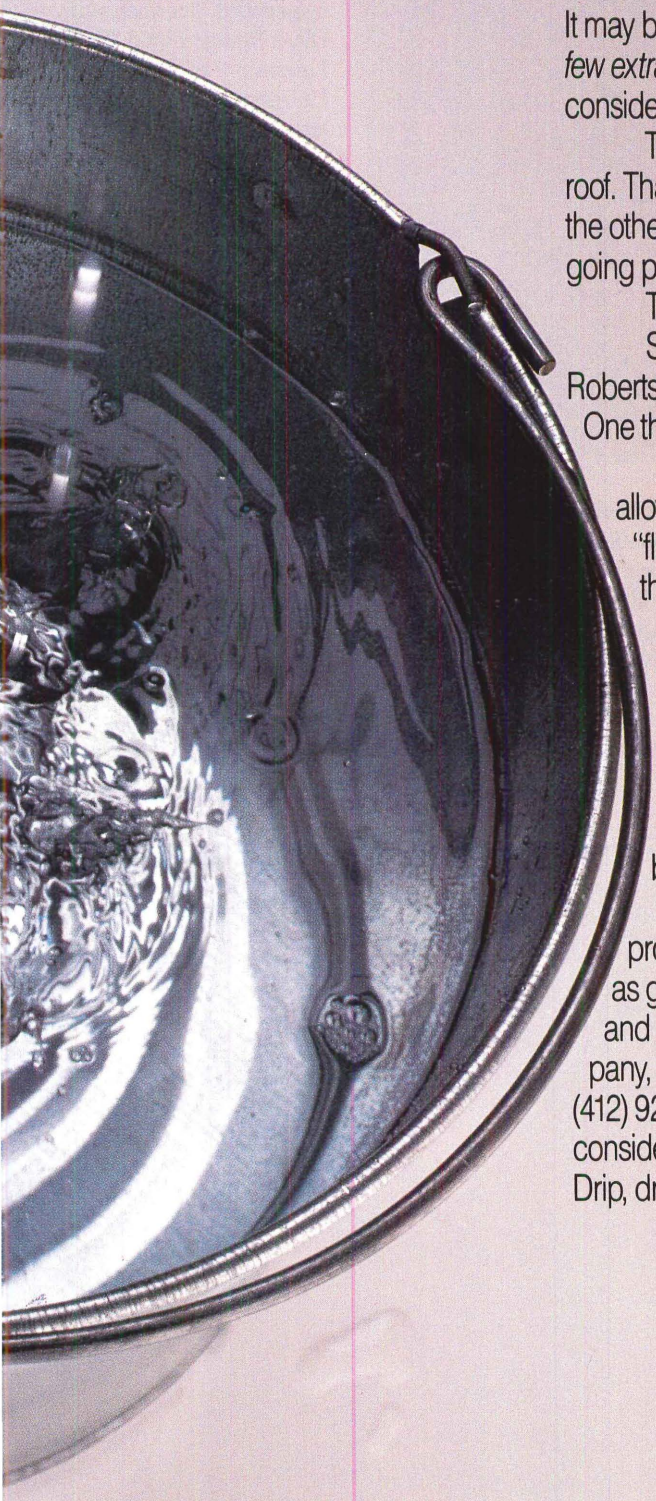
Specify the Total Performance Roof from Robertson and you'll get a No Compromise Roof. One that'll last longer and perform better.

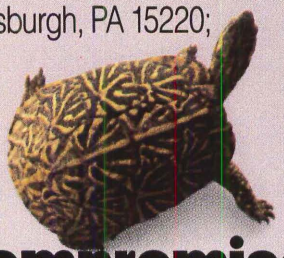
Why? Thermally-responsive, hidden clips allow the roof panels to actually "float". That accommodates thermal change, so stress and leaks are eliminated.



On top of it all, there's our maintenance-free, multi-layered coating systems. Versacor HF_2 or PF. Simply put, they're the best performers on the market. And *you* select the coating that best suits your building's environment.

So no matter if it's a new construction project or a retrofit job, this is one roof that looks as good as it works. Write or call for a free catalog and you'll see for yourself; H.H. Robertson Company, 400 Holiday Drive, Pittsburgh, PA 15220; (412) 928-7500. But first, consider the alternative. Drip, drip, drip.





The No Compromise Roof

Robertson®

Circle 66 on inquiry card

New products: Laminated glass

For more information, circle item numbers on Reader Service Card

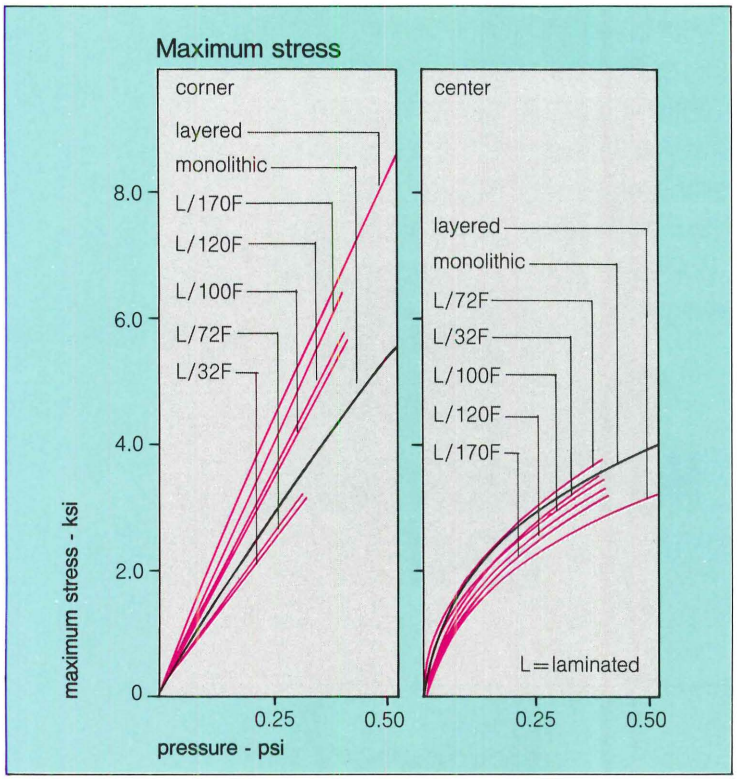
Laminated glass is like aspirin: though it has been around for over 50 years, new properties keep coming to light. Originally developed as a safety glazing for automobile windshields, laminated glass is now widely mandated by code for overhead and sloped-glass applications because of the interlayer's ability to retain glass pieces in case of breakage. The Law Courts in Vancouver, B. C. by Arthur Erickson exemplifies large-scale use of laminated glass as safety glazing (right).

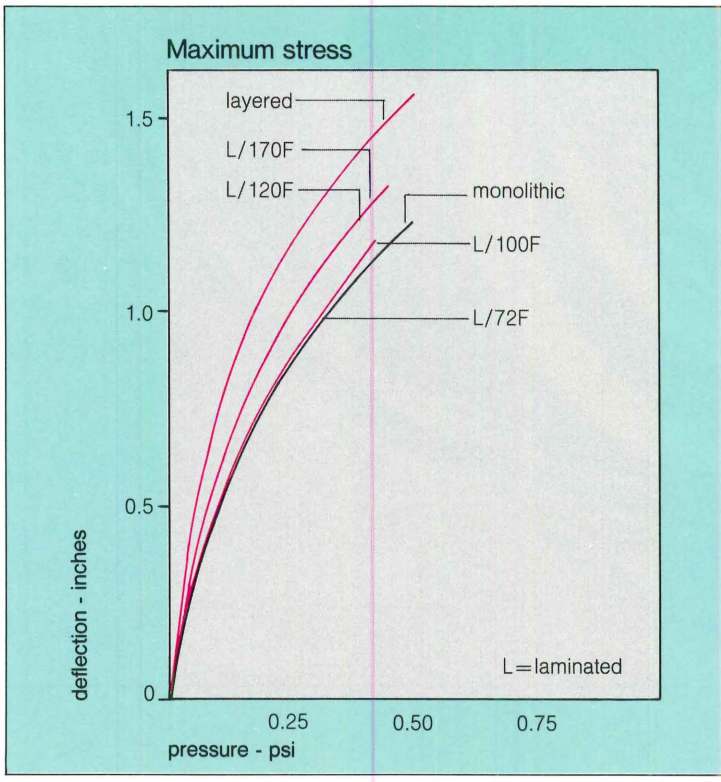
But laminated glass has other significant architectural benefits: as an acoustical glazing product, security glass, ultraviolet screen, and, when tinted, solar-energy control. Its widespread use has been limited by the very conservative allowable strength values attributed to laminated glass by building-code groups, which have considered laminated glass to be only about half as strong as monolithic glass in resisting wind and other loads. Though major codes have

loosened their restrictions, with the SBC and BOCA now assigning laminated glass 75 percent of the strength of an equal thickness of monolithic, the tendency, according to Monsanto Chemical, manufacturer of Saflex, a polyvinyl butyral sheet used as the adhesive interlayer, has been to underestimate the structural contribution of this laminating membrane. It claims that current codes do not realistically reflect the capacity of the interlayer to transfer shear across both plies of glass, thus making the two plies act as one and significantly increasing the glass's ability to resist wind and other loads. To fully evaluate the actual structural strength of laminated glass, the company sponsored an open-ended, five-year study at the Glass Research and Testing Laboratory of Texas Tech University in Lubbock, under the direction of Dr. Joseph Minor, now chairman of the Department of Civil Engineering, University o Missouri-Rolla. The research incorporated experimentally-verified computer programs, and tested to failure about 300 laminated glass units.

The results of this testing program, just published by Monsanto in *A Guide to the Structural Performance of Laminated Architectural Glass*, prove that, under normal loading and temperature conditions, laminated glass will perform comparably to the same total thickness of monolithic annealed glass. The charts shown below, compare the performance, at various temperatures under load, of

Laminated glass behavior

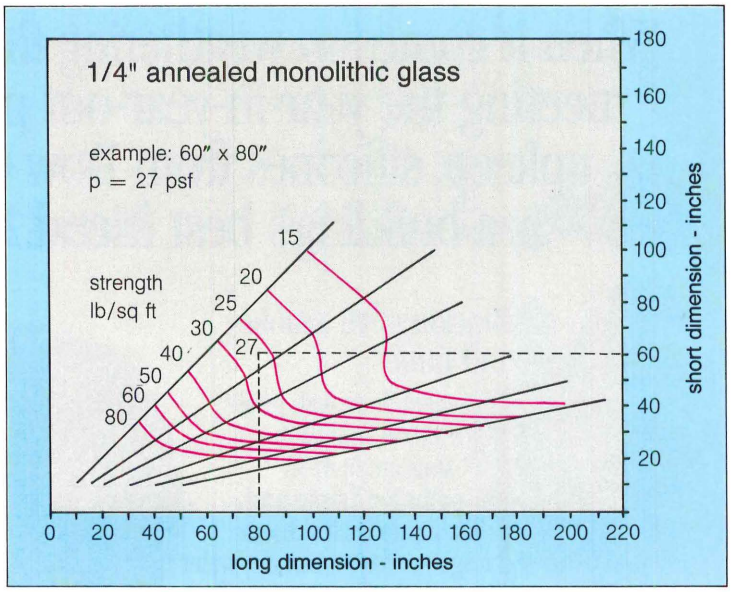




New structural-performance guide for laminated glass provides a new definition of its strength relative to monolithic glass.

nonolithic and laminated glass, ach 1/4-in. thick. The test results how that only at temperatures bove 170F will laminated glass ct as if it were a layered ssembly. Addressing the ossibility that creep may increase s the interlayer is thickened, nvestigation found only small ncreases (under 5 percent) in both tresses and deflections as the nterlayer thickness was changed rom 0.030 in. to 0.060 in. (below).

The research identified two nusual loading situations where lesigners should not use aminated at thickness-for-hickness parity with monolithic. One would be when glass surface emperatures could be greater han 120F at the time of naximum design wind load (when he thunderstorm of the century its Phoenix in the summertime vithout any cooling rain). The ther, when laminated glass at oom temperature (75F) is loaded or long periods, could occur in he interior laminated light of an nsulating unit installed over a warm atrium under heavy snow load. Such laminated lights cannot be guaranteed to act as a monolithic unit.



In Monsanto's Guide, annealed glass was considered to have the long-term strength values developed by W. L. Beason and J. R. Morgan, accepted by ASTM Task Group E06.51.13. (The chart, top, of 1/4-in. annealed glass supported on four sides, reflects these new strength values.)

The next edition of the National Building Code of Canada will incorporate the ASTM E06.51.13 annealed-glass strength data, and will use these figures in its recommendations for heat-tempered, laminated, and insulating glass. The laminated-glass strength numbers will reflect the methodology used in the Monsanto experiments.

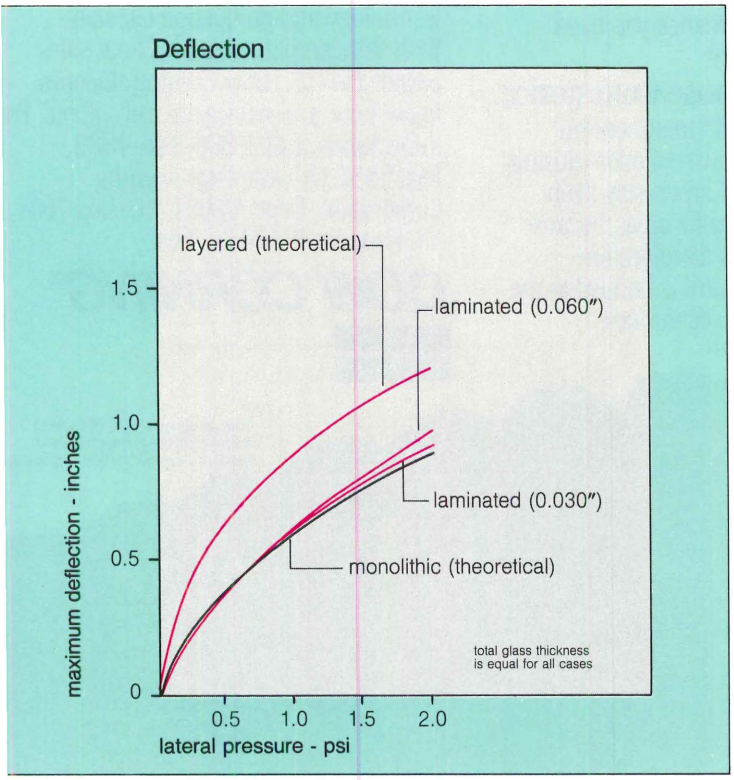
The next step in approval of the structural data developed for the Guide will be review by the Glazing Industry Code Committee, which may recommend changes to the model codes. The Guide itself, offered without charge to architects and other specifiers, provides a technically sound basis for the structural design of glazing systems with laminated glass under a wide range of environmental conditions, according to Monsanto. The procedures are also available on an IBM-PC compatible disk that lets designers imput their own criteria to evaluate different glazing options and loading conditions. *J. F. B.*

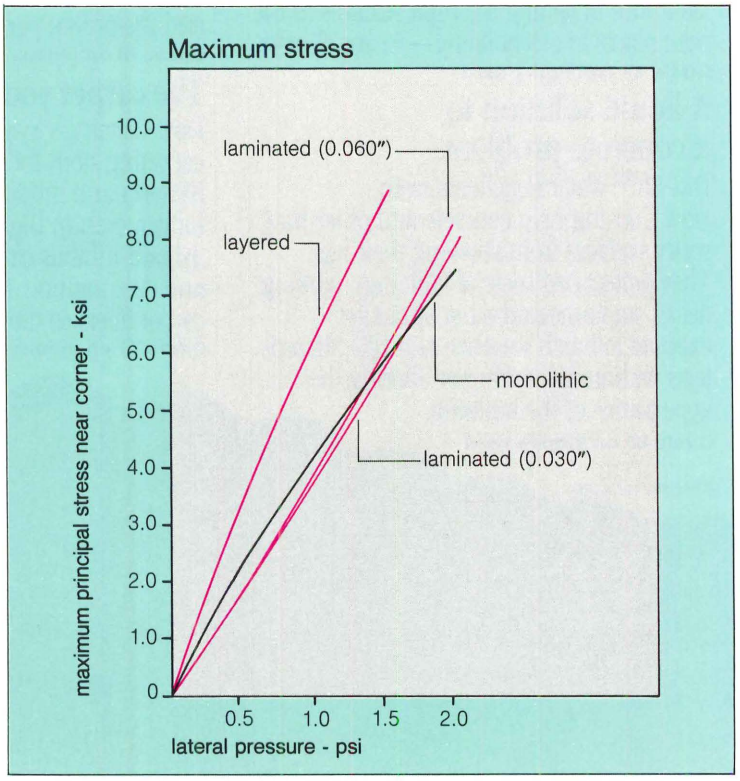
Monsanto Chemical Co., St. Louis.

Circle 300 on reader service card

More products on page 119

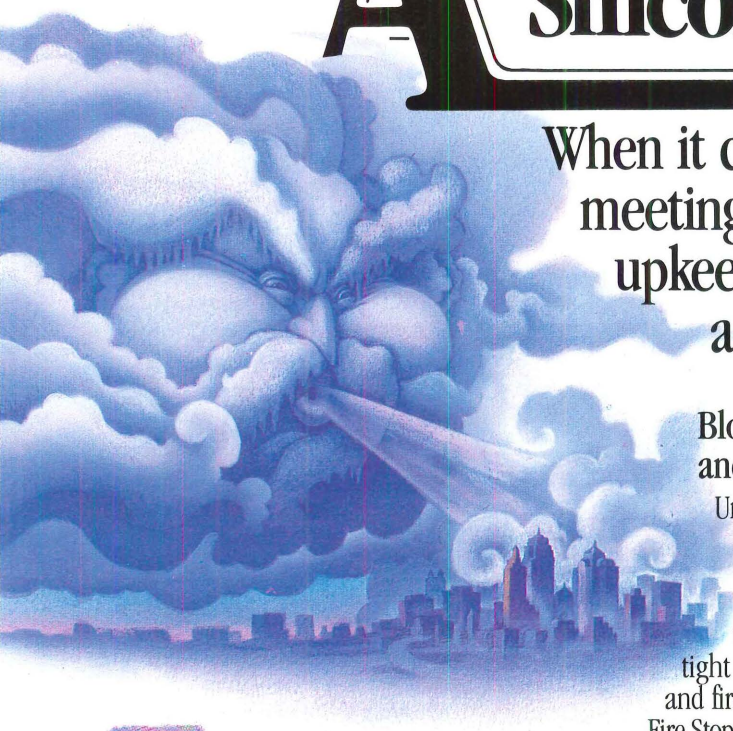
Interlayer thickness





Dow Corning Presents

A Greatly Abridged Guide to Silicone Building Materials



When it comes to weathering the elements, and meeting the year-in-year-out problems of upkeep, silicones from Dow Corning can be a building's best friend. For example:

Blocking fire, smoke and fumes.

Unsealed floor, wall penetrations, and safing slots are built-in paths for flames and toxic smoke. Seal them tight against fumes, smoke, water and fire with the Dow Corning® Fire Stop System. Either the flexible foam, the caulk-like sealant, or intumescent wrap strip can help assure your building's safety.

Circle 69 on inquiry card

The roof that won't come apart at the seams.

If there is a leak in the roof, it's probably at the seams. The answer: a Dow Corning® Seamless Roofing System . . . a seamless, customized roof that is durable and weather-tight. It's a system that's been going strong on more than 8,000 buildings since 1974.

Circle 72 on inquiry card

Construction Sealants that shrug off the weather.

Sealants represent only 1/10 of 1% of total building costs, yet sealant failures can cause 10% of new building problems. Which is why Dow Corning's wealth of construction sealing technology and its versatile line of silicone sealing, glazing and weatherproofing products are so valuable. They're your assurance of getting the right sealants in the right places in any building — in any climate.

Circle 67 on inquiry card

A liquid solution to a concrete problem.

DRI-SIL™ Water Repellents from Dow Corning help concrete and other masonry surfaces from showing their age. They protect commercial buildings, parking decks, stadiums and other structures exposed to harsh weather. And DRI-SIL protects without darkening or altering the appearance of the building.

Circle 68 on inquiry card

A transformer liquid that's safe.

Get the performance advantages of liquid-filled transformers plus the safety of silicone. Dow Corning® 561 Silicone Transformer liquid is environmentally compatible. And it has good electrical properties, temperature stability, fire resistance and the proven performance you need.

Circle 70 on inquiry card

The carpet your nose won't notice.

Dow Corning's Sylgard® treatment on carpeting stops the growth of odor-causing bacteria and mildew. Carpets stay fresh longer, even in high traffic areas, because Sylgard inhibits carpet discoloration and deterioration. Sylgard is bonded to the carpet fibers so the protection lasts.

Circle 71 on inquiry card

A world of silicones worldwide.

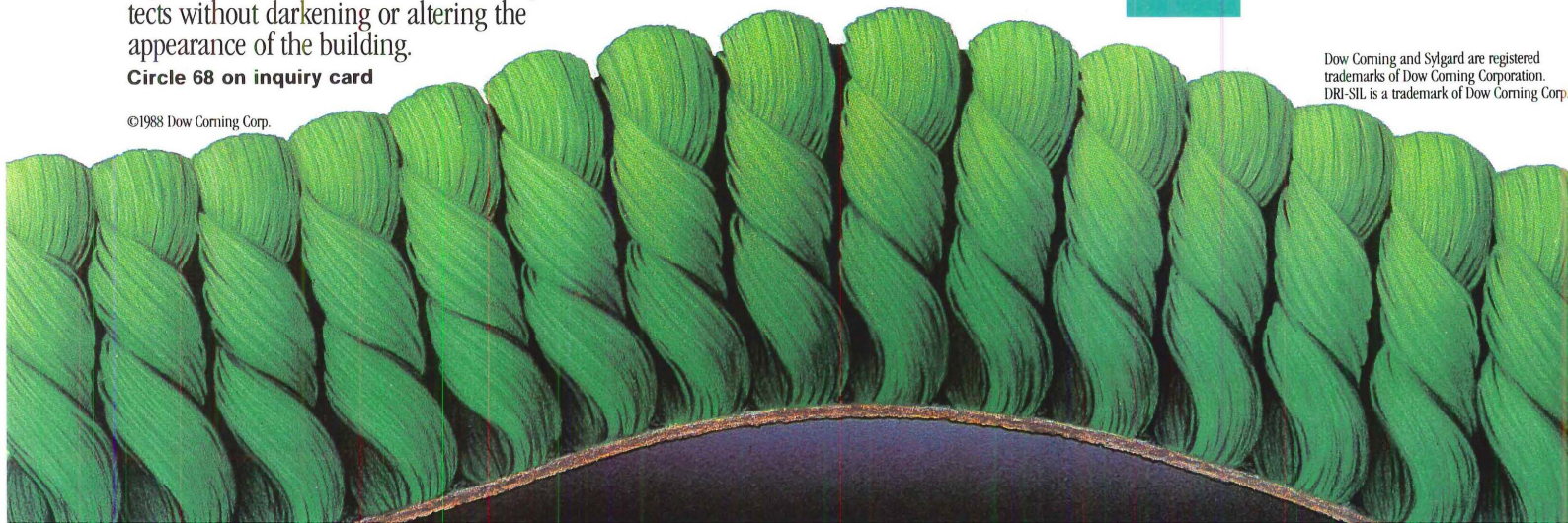
Virtually anywhere in the world, you can call on Dow Corning's experience, technology and production capacity. With thirteen plants and half our sales outside the U.S., Dow Corning silicones, know-how, and service are truly global. For information, call 1-800-346-9882, Ext. 5531. Or write Dow Corning Corporation, Dept. A-8004, P.O. Box 7604, Mt. Prospect, IL 60056-7604.

DOW CORNING®

DOW CORNING

©1988 Dow Corning Corp.

Dow Corning and Sylgard are registered trademarks of Dow Corning Corporation. DRI-SIL is a trademark of Dow Corning Corp.



New products: Lighting

For more information, circle item numbers on Reader Service Card

Fan-shaped sconce
om Leucos, Luna diffuses light rough white Murano glass with nslucent trim in crystal, blue, gray. Sconce accepts tungsten logen, incandescent, or compact orescent sources. IPI, Inc., ng Island City, N. Y.
rcle 301 on reader service card

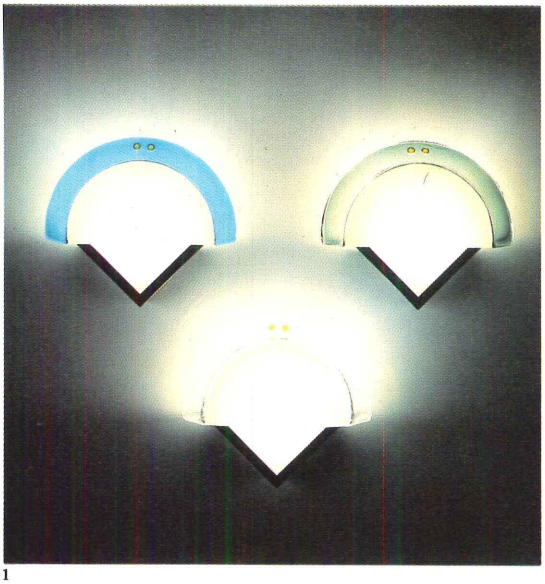
Standing tall
new floor model of PAF's ssic Dove lamp has a 33-in.-long ticulating arm, which can rotate lly on a black metal base. Finish oices are black, white, blue, llow, and red. Koch + Lowy, ng Island City, N. Y.
rcle 302 on reader service card

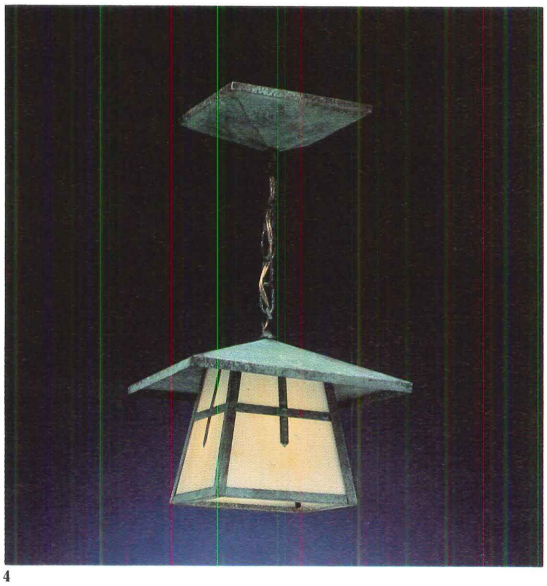
Large-scale sconce
e 24- by 10-in. Renaissance ture is made of white acrylic, shown, or painted metal, ached to a brass- or chrome-ish trim ring. Primary lighting supplied by a single HID lamp up to 250 watts; a secondary orescent source accents the ture's spherical shape. SPI ghting, Inc., Mequon, Wis.
rcle 303 on reader service card

Porch light
e Hawthorne, shown in verde tique finish with cream-colored t glass, is a reproduction of an lwardian-era fixture. Part of the aftsman Collection, the indoor/tdoor lantern comes in various etal finishes and art-glass lors. Rejuvenation Lamp & xture Co., Portland, Ore.
rcle 304 on reader service card

Custom pendant
ndblasted 1/4-in.-thick acrylic rms the light-directing discs and fusing cylinder of this pendant ture, designed by architect Jim ahnke for the new City Hall in marac, Florida. Appleton mplighter, Appleton, Wis.
rcle 305 on reader service card

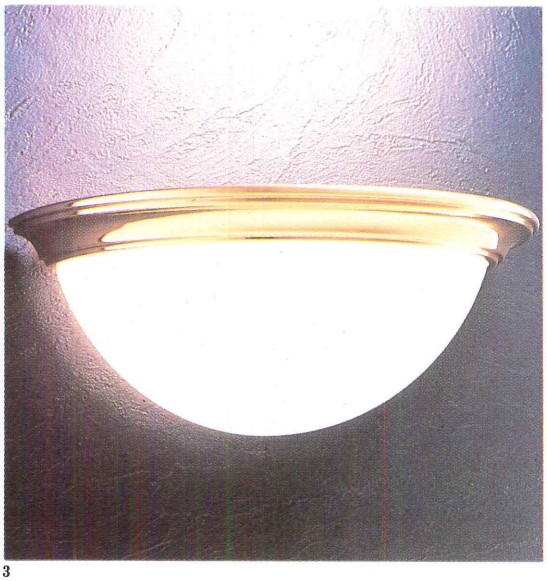
Murano glass bracket
ew from VeArt of Italy, the Isa nce is offered as shown, in ite with aquamarine trim, or ack opaline glass. Light source a 100W halogen bulb. Artemide, c., Long Island City, N. Y.
rcle 306 on reader service card
ntinued on page 122

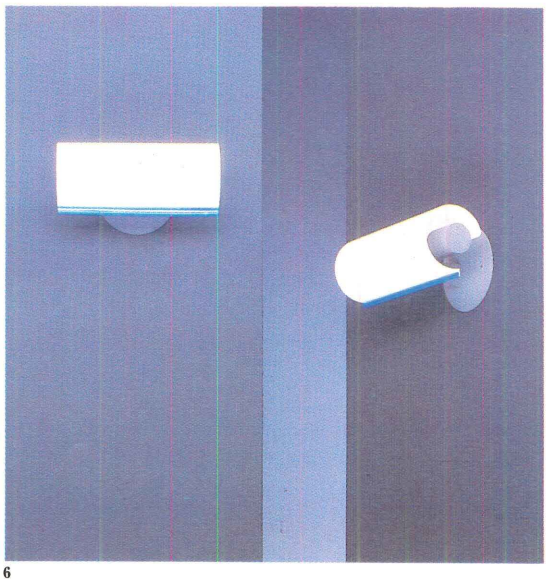

1


4

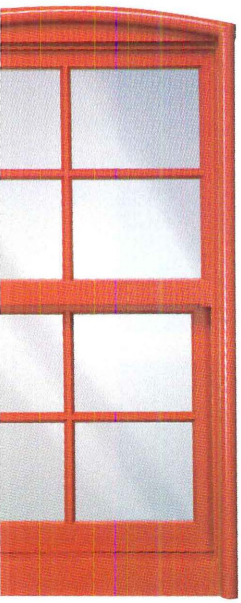
2

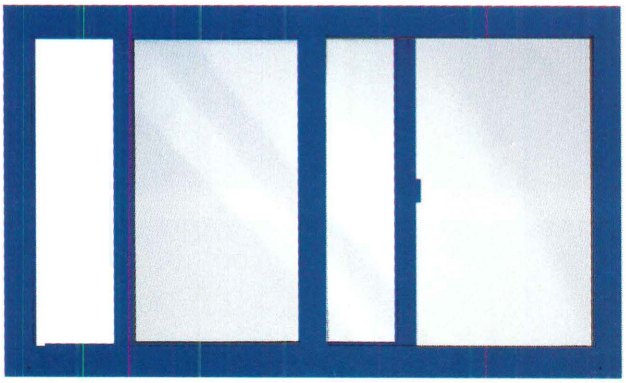
5

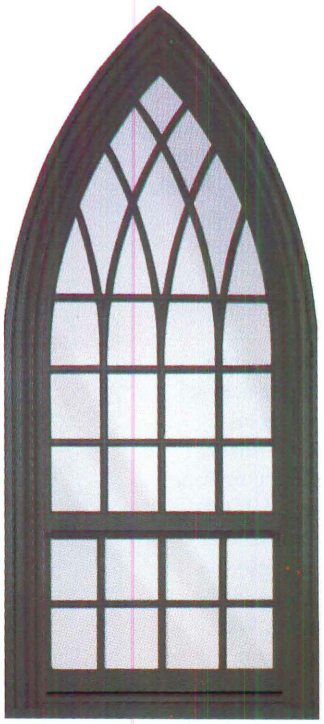

3


6

WE DO WINDOWS.

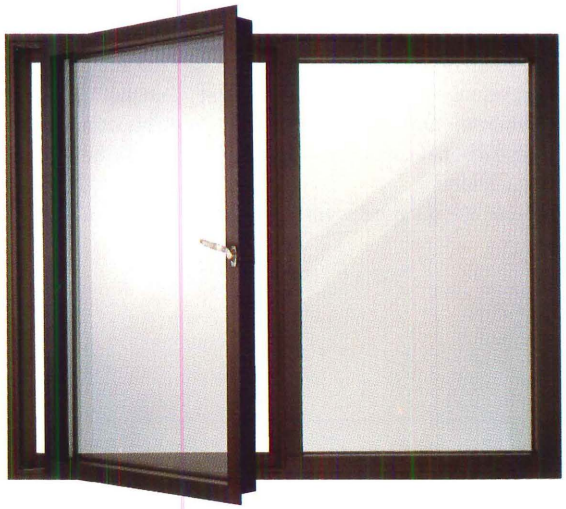


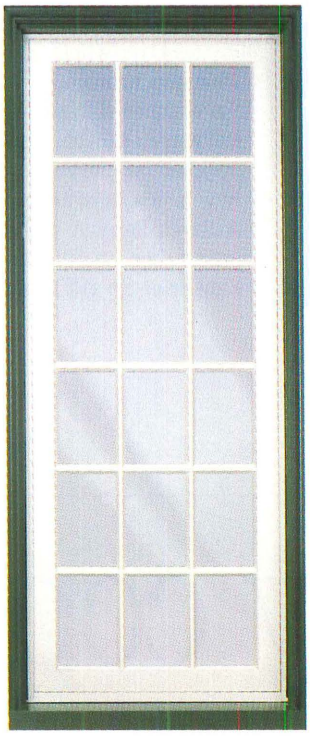




© 1989 EFCO Corporation

MORE WAYS THAN ANYONE.





Anytime you need windows, think of EFCO. We offer the best selection of custom, high performance windows available, anywhere. Windows for new construction. Windows for renovation. Windows for special applications. Windows for rush jobs. No matter what your need, EFCO has the right window. For your next job, think of the company that does more windows, more ways, than anyone. Think of EFCO.

For more information regarding the complete EFCO line of custom, high performance, aluminum architectural windows consult Sweet's (Section 08500/EFB). Or call us toll free.

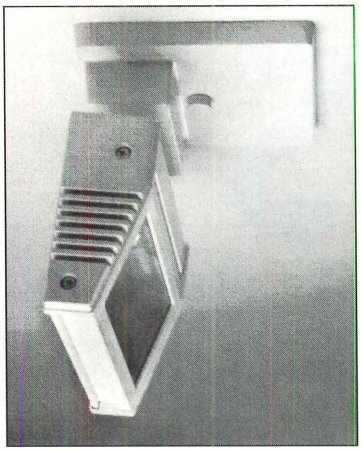
1-800-221-4169

EFCO

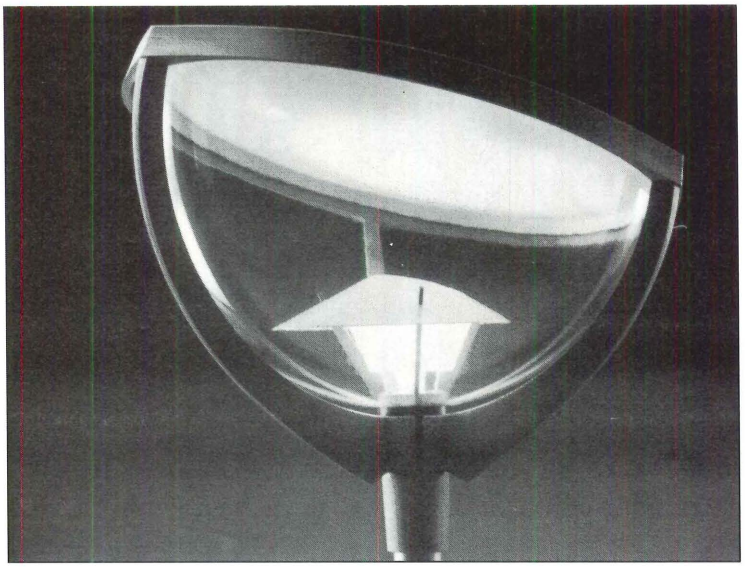
More Windows, More Ways, Than Anyone.™

EFCO Corporation, P.O. Box 609, Monett, Missouri 65708-0609 1-417-235-3193

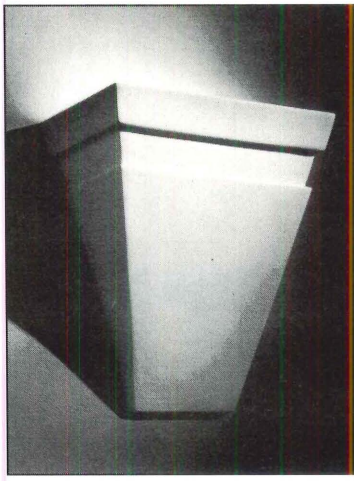
Products *continued from page 119*



Full-spectrum wall-washer
A miniature addition to the Shovelite line operates at a color temperature of 3,000K. Said to provide smooth light distribution with sharp beam cutoff, the adjustable fixture is suggested for lighting individual works of art, as well as for illuminating full-wall murals. Rambusch, New York City.
Circle 307 on reader service card



Post-top luminaire
An outdoor fixture with a diameter of 29 in., the MH Wegner luminaire is designed to have the appearance of a light within a light. A white polycarbonate diffuser redirects light from an HID source set in a downlight reflector. This reflector, with an open top, is positioned by three struts, finished in orange for visual interest. Housing is cast aluminum and clear polycarbonate. Poulsen Lighting, Inc., Miami.
Circle 308 on reader service card



Architectural element
Designed by Louis Bromante, and cast in reinforced-plastic resin, the Brownstone sconce comes in white, as shown, or any custom color. Several types of faux-stone or metal finishes may be ordered. The same shape is also available as an unlit, solid-top bracket. Sirmos, Inc., New York City.
Circle 309 on reader service card

Every copier company tal

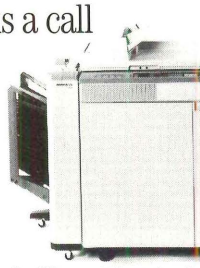
We're doing something abo

Choosing a new copier isn't easy. You look at copiers, you listen to promises. It all gets very confusing.

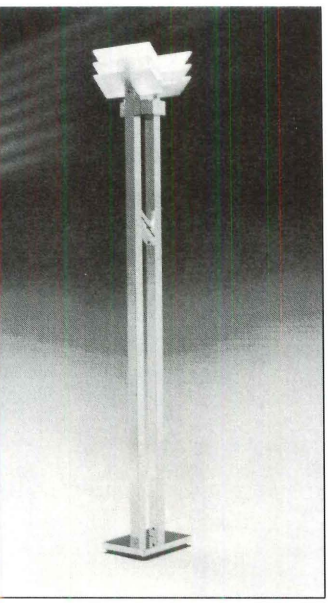
Now, you don't have to listen to a lot of talk about promises. You can read ours. Because we put it in writing. If you try to compare it to other copier guarantees, you'll find there's no comparison. Suddenly, a difficult decision becomes a very easy choice to make.

Look at the certificate above. Nobody offers you as good a copier guarantee as Harris/3M. So, while copier salespeople are all giving you a lot of talk, ours will give you something great to read.

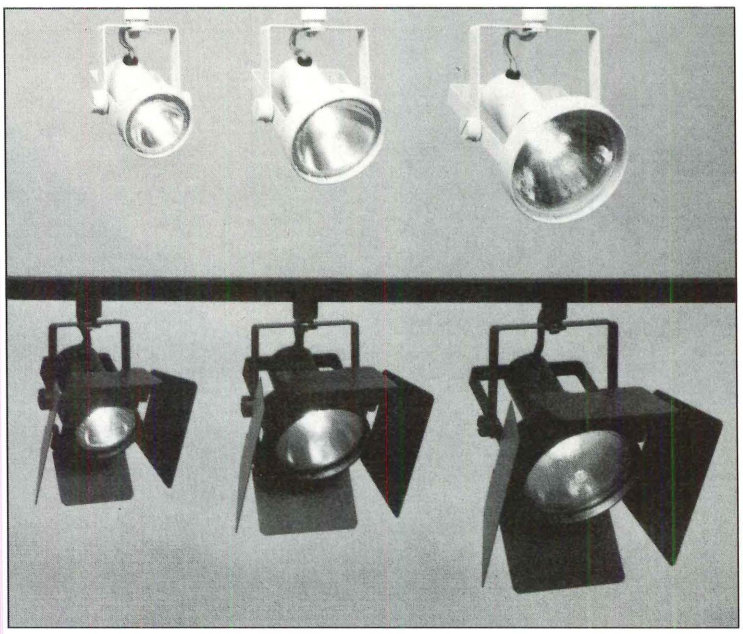
Send in the coupon. Or give us a call at 1-800-TLC-COPY. (In Canada, 1-519-668-2230.) We'll send you our 8-page *Consumer Guide to Copiers*. Then, we can talk about it.



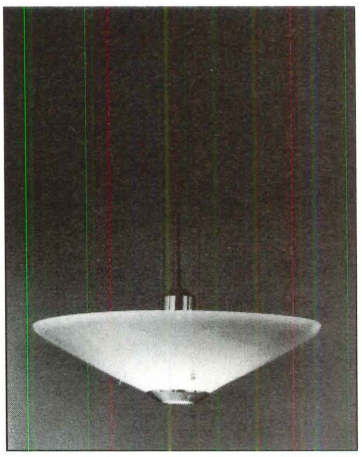
Harris/3M copiers have features for all sizes of offices. That inclu the 6070. Seventy copies a minute, guaranteed.



rchère
e sandblasted glass fins of sella's six-foot lamp obscure are from the 500W high-ensity quartz bulb that uminates the ceiling. For neral room lighting, the rchère has a sliding dimmer, d comes in a number of metal d paint finishes. Casella ghting, San Francisco.
rcle 310 on reader service card

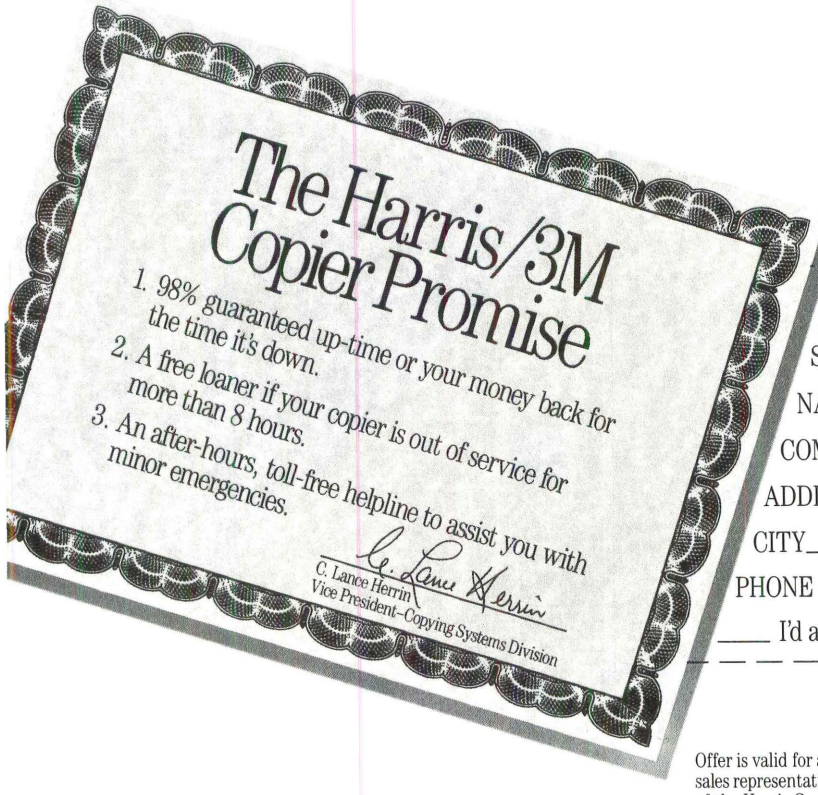


Track lighting
New ParStar fixtures accommodate miniature line-voltage halogen lamps, as well as Par-38 halogen sources. Features include a fixed socket for easy relamping; vertical aiming adjustment; full-circle rotation; and control accessories such as louvers, filters, scrims, barn doors, and a wallwash adapter. Staff Lighting, Highland, N. Y.
Circle 311 on reader service card



Art-glass pendant
The shade of the Avanti lamp is made of white opal triplex glass, in which solid opal rods have been melted to create a light-catching filigree. The pendant version pictured has steel cables; retaining knobs and bottom cap are polished brass. Lightolier, Inc., Secaucus, N. J.
Circle 312 on reader service card
More products on page 145

out customer satisfaction.



Yes, I'd like to know more about Harris/3M copiers and the Harris/3M Copier Promise.
Send to Harris/3M, P.O. Box 785, Dayton, OH 45401

NAME_____

COMPANY NAME_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

PHONE # ( )_____

____ I'd also like information on your fax machines. MH489

HARRIS/3M

Offer is valid for a limited time and other restrictions and limitations apply; see your Harris/3M sales representative for details. ©1988 Harris/3M Document Products, Inc. Harris is a trademark of the Harris Corporation. 3M is a trademark of the 3M Company.

Circle 74 on inquiry card

The most exciting idea in roofing systems? We'll give you a tint.

Single ply roofing in colors.

A beautiful way to integrate roof surfaces into overall building design. Or to provide intriguing color accents, if you prefer. Either way, now you can have a roof which enriches your design rather than detracts from it.

Aesthetics and design flexibility aren't the only reason to specify Sarnafil. Consider performance. Sarnafil's thermoplastic membrane has withstood some of the worst weather conditions on the planet for 25 years. Unrelenting bombardment from ultraviolet radiation. Grueling thermal shock day after day. High winds. Drenching rains. Yet after a quarter of a century, it's still flexible, still hot air weldable, still watertight. When a membrane formulation proves itself so well, there's no reason to change it. Except to make it more colorful.

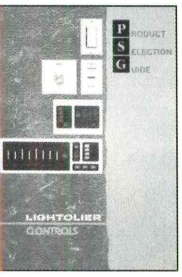
There is something new under the sun. Sarnafil mechanically attached and fully-adhered single ply roofing systems. In 21 vibrant colors. Discover how they can increase the potential for striking new designs. Call **1-800-451-2504 (In Mass. 1-800-451-2506),** or call Sweet's Buyline.

Sarnafil®

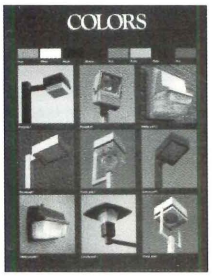
The roof with proof.

Circle 75 on inquiry card

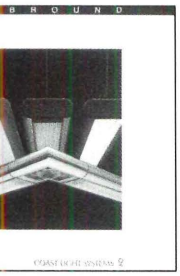
Product literature: Lighting



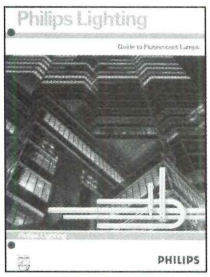
Architectural-lighting controls
A 26-page catalog explains how dimmers provide full control of the luminous environment of home or office. Products range from single-pole devices to an in-the-wall digital control system. Lightolier, Inc., Secaucus, N. J.
Circle 400 on reader service card



Painted luminaires
A product data sheet contains samples of the expanded range of powder-paint colors offered on exterior luminaires, poles, and wall units. Finish exceeds ASTM weather-resistance standards. Holophane, Denver.
Circle 406 on reader service card

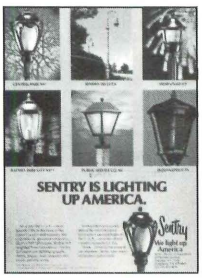


Low-profile fluorescents
An eight-page design guide includes complete technical data on the Obround linear fixture for both ambient and task lighting, offered in many finish and mounting options. Coast Light Systems, Santa Ana, Calif.
Circle 401 on reader service card



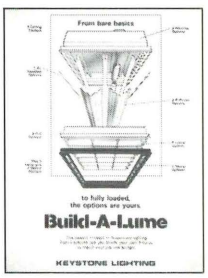
Fluorescent lighting
A Guide to Fluorescent Lamps contains 34 pages of product description, operating and energy-saving features, and tips on selecting lamp colors for all types of fluorescent sources. Philips Lighting Co., Somerset, N. J.
Circle 407 on reader service card

Spherical floodlights
A four-page brochure illustrates the 16 preset rectangular-beam patterns offered by 571/575 Infranor fixtures used for lighting building facades, parking lots, and sports facilities. Sterner Lighting Systems, Winsted, Minn.
Circle 402 on reader service card

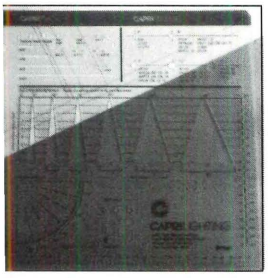


Ornamental exterior lights
Sentry's 1989 catalog presents decorative luminaires and standards for parks, streets, and plazas, including Art Deco and Bishop's Crook styles. Sentry Electric, Freeport, N. Y.
Circle 408 on reader service card

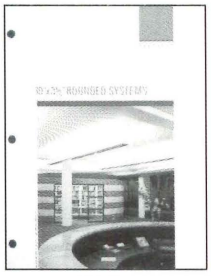
General-purpose lighting
A 48-page catalog shows recessed downlights and surface fixtures for many types of bulbs. Each Riviera fixture can be matched with its residential or commercial application. Marco Lighting, Los Angeles.
Circle 403 on reader service card



Customized troffers
A folder supplies catalog pages on parts of the Build-A-Lume system, fluorescent fixtures that can add performance or appearance options to match a project's budget. USI Lighting, Inc., Spokane, Wash.
Circle 409 on reader service card

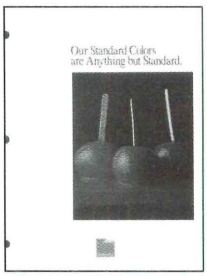


Design template
A layout template, with cutouts representing downlight ceiling apertures, beamspreads, and common electrical symbols, facilitates the specification and pricing of Capri fixtures. Capri Lighting, Los Angeles.
Circle 404 on reader service card



Indirect lighting
Part of a series, an eight-page catalog on lensed indirect fixtures includes on-site color photography and connection details, and illustrates low-glare performance characteristics. Peerless Lighting Corp., Berkeley, Calif.
Circle 410 on reader service card

Low-voltage lighting
A 24-page catalog consolidates design, specification, electrical, and optical data on standard and custom low-voltage fixtures using MR16 and MR11 sources. B-K Lighting, Fresno, Calif.
Circle 405 on reader service card



Linear downlighting
Fourteen fixture colors, bringing the total of standard shades to 23, are illustrated in a six-page Litecolor catalog. A swatch book is also offered to specifiers. Litecontrol Corp., Hanson, Mass.
Circle 411 on reader service card
Continued on page 127

COLOR

adds a new dimension to your designs

DORMA's array of colors match closers with doors and hardware

For the first time, the colored hardware you specify can have a truly uniform appearance. Because DORMA, the world leader in hydraulic door closers, has broken through the barriers that limited your selection to the few standard painted and plated finishes.

Now you can choose from an array of colorful closers and hardware that will match or contrast your doors... without adding excessive cost. And underneath the eye-catching colors will be a high-quality DORMA surface-applied door closer you can depend on for trouble-free service.

Both our European-designed TS Series and our North American DC Series meet today's most demanding standards for interior and exterior door control. From basic door closing to sophisticated fire/life safety conditions, DORMA offers economical, aesthetically coordinated door controls for every application.

When you specify DORMA door closers, you can design with confidence. DORMA's reputation for quality, reliability and versatility is built on 35 years experience on five continents. And as an innovative industry leader, we see beyond black and white.

For more information, call us to arrange a meeting with one of our consultants. There's a bright future with...

Door control—the **DORMA** *way*

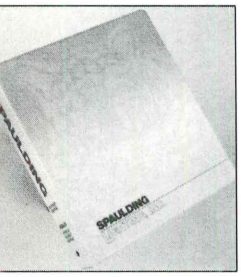
DORMA Door Controls Inc., Dorma Drive, Reamstown, PA 17567
215-267-3881 Fax: 215-267-2106

DORMA Door Controls Ltd., 1680 Courtney Park, Unit 13
Mississauga, Ontario L5T 1R4
416-673-1281 Fax: 416-673-5850

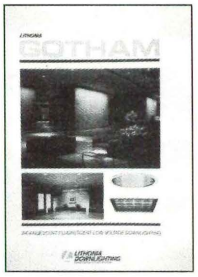
Circle 76 on inquiry card

Product literature: Lighting *continued*

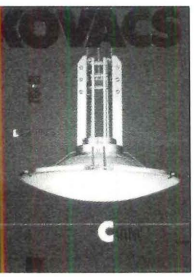
For more information, circle item numbers on Reader Service Card



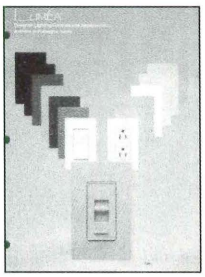
Lighting specification
A product binder contains photographs, sizing and lamping data, and design standards for Spaulding exterior lights and Indalux ambient and accent fixtures. Spaulding Lighting, Inc., Cincinnati.
Circle 412 on reader service card



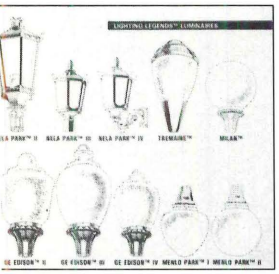
Downlighting
A 60-page specification catalog covers all Gotham Series incandescent, fluorescent, and low-voltage downlights. Dimensional, photometric, and installation data are included. Lithonia Lighting, Conyers, Ga.
Circle 418 on reader service card



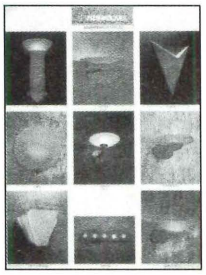
Lamps and fixtures
A 64-page lighting catalog pictures classic swing-arm standing lamps as well as Viennese pendants and Yubi Kaabu sconces. Technical data are supplied. George Kovacs Lighting, Inc., New York City.
Circle 413 on reader service card



Lighting controls
A selection sheet shows Lumea slide dimmers, wallplates, receptacles, and outlets in all 14 colors offered, ranging from pastel rose to Chinese red. Lutron Electronics Co., Inc., Coopersburg, Pa.
Circle 419 on reader service card

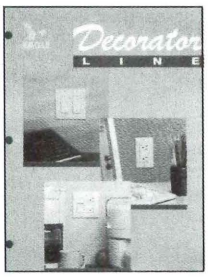


Traditional luminaires
A data sheet introduces Lighting Legends, circa-1900-styled post-top and wall-mounted luminaires with globes of clear, frosted, or white impact-resistant Lexan polycarbonate. GE Lighting Systems, Hendersonville, N. C.
Circle 414 on reader service card



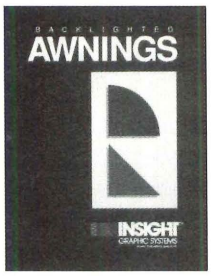
Glass and acrylic lighting
Sconces, torchères, pendants, and table lamps made of glass, metal, and decorative acrylic materials are illustrated in a design guide. Les Prismatiques, New York City.
Circle 420 on reader service card

Airport floodlighting
A six-page application guide shows how AktraFlood HID luminaires affect safety and efficiency, citing photometric performance, bi-level switching, and weather-resistant housings. Wide-Lite, San Marcos, Tex.
Circle 415 on reader service card

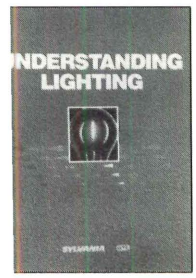


Decorative switches
The Decorator Line of dimmers, switchplates, and other devices for homes, offices, and institutions is shown in an eight-page color catalog. Eagle Electric Mfg. Co., Inc., Long Island City, N. Y.
Circle 421 on reader service card

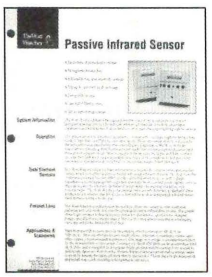
Passive control
Described in a brochure, the infrared SensorSwitch controls lighting levels automatically, based on both occupancy and ambient sunlight levels. Sensor Switch, Inc., Branford, Conn.
Circle 416 on reader service card



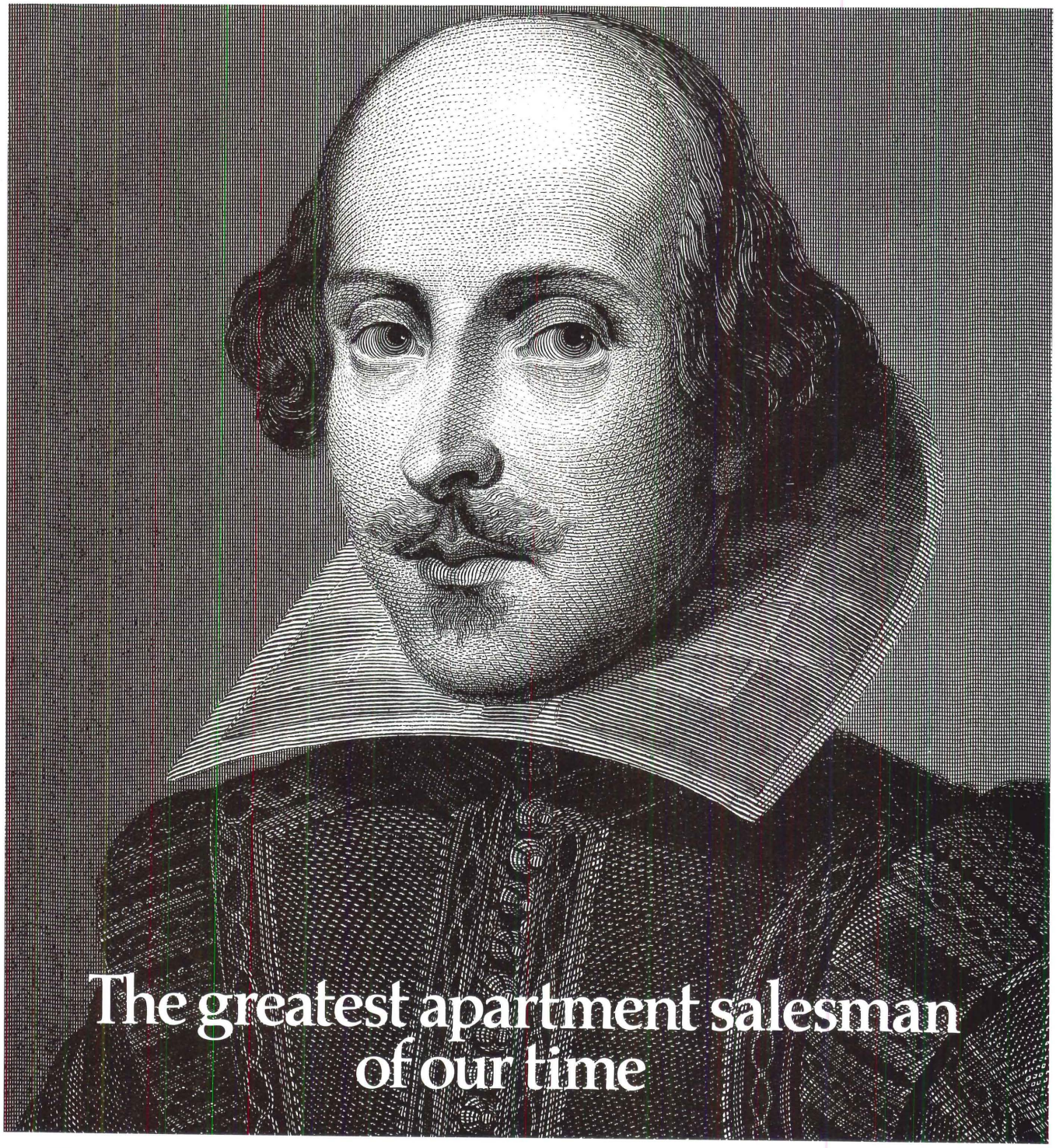
Backlighted awnings
A design brochure explains Insight Graphic Systems, a method of creating illuminated awnings and valances from preassembled modules. Lighting Systems, Inc., Cincinnati.
Circle 422 on reader service card



Lighting course
An informative 20-page booklet, Understanding Lighting, defines basic lighting terms and the properties of light and color, and lists the features of several electric light sources. GTE Lighting, Danvers, Mass.
Circle 417 on reader service card



Lighting control
Passive infrared sensor technology is explained on a data sheet introducing this maker's dual-function device, capable of operating both lighting and hvac units. The Watt Watcher, Santa Clara, Calif.
Circle 423 on reader service card



The greatest apartment salesman of our time

To most of us, William Shakespeare is the quintessential playwright.

But when the Ballard Realty Company of Montgomery, Alabama, needed tenants for a new apartment complex, Mr. Shakespeare proved to be a top-notch salesman as well. With every signed lease, Ballard Realty offered free membership subscriptions to the nearby Alabama Shakespeare Festival. In no time, over 80% of the company's units were leased before construction was even completed.

Throughout the country, small and medium-sized businesses, like Ballard Realty, are discovering what blue chippers have known for years: that the arts can help create a positive public image, increase a company's visibility and improve sales. All this while reducing taxable income.

If you would like information on how your company—no matter what its size—can benefit through a partnership with the arts, contact the Business Committee for the Arts, Inc., 1775 Broadway, Suite 510, New York, New York 10019, or call (212) 664-0600.

It may just be the factor that decides whether this year's sales goals are to be or not to be.

BUSINESS COMMITTEE FOR THE ARTS, INC.

This advertisement prepared as a public service by Ogilvy & Mather.

TAKE THESE TWO GIANT REFERENCES FOR ONLY $14.95

when you join the Architects' Book Club®

You simply agree to buy 2 more books — all at handsome discounts — within the next 12 months.

An Extraordinary Offer!
A $184.00 Value

Here, at enormous savings, are two books from the renowned Time-Saver Standards series — master reference works which are filled with professional building data, design procedures, facts, definitions, and real-life examples. They help you produce better designed, more cost-effective sites and structures because they're practical, thorough, and specific. Every page of each giant volume has detailed information you'll use to save time and money. And to make all material perfectly clear, powerful graphics support the text — *over 1,000 illustrations for each book.*

TIME-SAVER STANDARDS FOR SITE PLANNING

Edited by Joseph DeChiara and Lee E. Koppelman

- covers every aspect of good site selection, development, and use
- gives construction details for all phases of site development
- provides basic design criteria for *all* types of buildings
- organized to follow the actual design sequence
- 864 pages are filled with easy-to-use drawings, charts, tables, and cutaway views

(Pub. Pr., $92.00)

TIME-SAVER STANDARDS FOR LANDSCAPE ARCHITECTURE

Edited by Charles W. Harris and Nicholas T. Dines

- fully covers more than 50 topics ranging from pedestrian circulation to sports facilities to lighting
- offers several alternative solutions to a given problem
- saves you time by compiling frequently used data in one source
- organized into nine major sections on processes, standards and guidelines, techniques, structures, improvements, special conditions, site utilities, materials, and details and devices — all cross-referenced
- 864 pages and 1,138 illustrations offer easy-to-use guidelines

(Pub. Pr., $92.00)

A36619

4 more reasons to join today!

1. **Best and newest books from ALL publishers!** Books are selected from a wide range of publishers by expert editors and consultants to give you continuing access to the best and latest books in your field.

2. **Big savings!** Build your library and save money, too! Savings range from 20% to 40% off publishers' list prices.

3. **Bonus books!** You will automatically begin to participate in our Bonus Book Plan, that allows you savings up to 70% off the publishers' prices of many professional and general interest books!

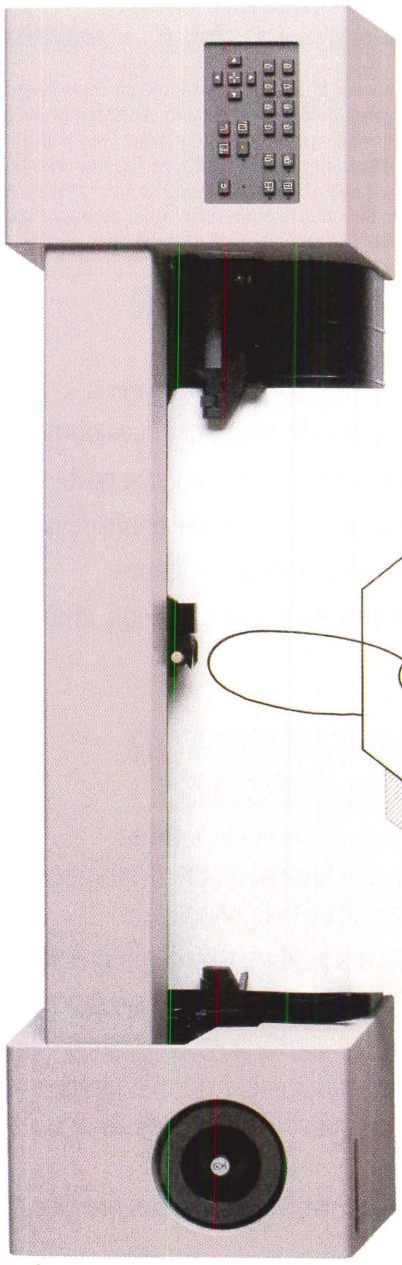
4. **Convenience!** 14-16 times a year (about once every 3-4 weeks) you receive the Club Bulletin FREE. It fully describes the Main Selection and alternate selections. A dated Reply Card is included. If you want the Main Selection, you simply do nothing — it will be shipped automatically. If you want an alternate selection — or no book at all — you simply indicate it on the Reply Card and return it by the date specified. You will have at least 10 days to decide. If, because of late delivery of the Bulletin you receive a Main Selection you do not want, you may return it for credit at the Club's expense.

As a Club member you agree only to the purchase of two additional books during your first year of membership. Membership may be discontinued by either you or the Club at any time after you have purchased the two additional books.

To join and get your books, call toll free 1-800-2-MCGRAW. Or fill out the attached card and mail today! If the card is missing, write to:

Architects' Book Club®
P.O. Box 582, Hightstown, New Jersey 08520-9959

Introducing a small feature that will change the way you think about HP plotters.



Suggested U.S. list price.

Surprised? So are a lot of people who think HP quality, reliability and performance are out of their reach.

The exceptionally versatile line of HP DraftPro plotters starts at just $3995 for the C-D model. And now the line has been expanded to give you a much wider choice of paper sizes.

The new DraftPro DXL goes from A to D for $4995. And the new DraftPro EXL handles standard A to E for $6495.

All three have been rigorously tested to HP standards. Which is the main reason we can offer a one-year on-site warranty—four times longer than the competition.

So call us at **1-800-752-0900, Ext. 623G.** We'll send you complete information and a sample plot. It will make you do a lot of positive thinking.

The new DraftPro series.

HEWLETT PACKARD

©1988 Hewlett-Packard Company PE12808

Circle 77 on inquiry card

omputers: oundtable tackles the difficult issues

What do we want to get out of CAD? A group of panelists long active in the field continues a discussion begun in RECORD in February (pages 159-161) and gives us their expectations along with ways that they may be best achieved.

anelists

huck Eastman, moderator
rofessor
CLA Graduate School of
rchitecture and Urban
lanning

onald Fullenwider
resident
ullenwider CAD Services
A/AIA computer committee
-chair

rry Poindexter
irector of computer services
idmore, Owings & Merrill-
os Angeles and computer
mmittee co-chair

onald Gibbs
rincipal
ugh Gibbs & Donald Gibbs,
rchitects

ohn Johnson
omputer consultant

uane Koenig
ice President
entley Engineering Company

om Lazear
resident
rsacad, Inc.

mes Lefever
irector of computer services
lerbe/Becket Associates

urray Milne
rofessor
CLA Graduate School of
rchitecture and Urban
anning

thony Ngai
ecutive vice president
idenfrost/Horowitz &
sociates

nneth Sanders
irector of computer services
ason Pomeroy Associates

Left to right: computer consultant Donald Fullenwider; Versacad president Tom Lazear; architect James Lefever, and consultant John Johnson.

Computers could affect the entire way architects think about design. For instance, architect Donald Gibbs argued for working within set parameters—"adapted to computers' way of working." While this might rankle other architects who think of their profession primarily as giving form, he pointed to Japanese houses—"eloquent structures based on formal arrangements of units with defined dimensions." With a systematized way to construct buildings, architects could concentrate on the way buildings go together rather than be preoccupied first by new forms, then "chasing the details around to solve all the problems of how things go together. We now think of each new building as a new system. It's fun. But we never wind up with a refined system."

"I'd like to see a procedure-oriented system that still has the flexibility to let me draw what I want," said architect James Lefever.

Architect Kenneth Sanders pointed to current steps in systematization such as new stair-design software: "You give the parameters and the computer draws a stair for you automatically." But, he pointed out, such systems are applied only to individual components in isolated context. "The next step is to tie together such systems so that, if a designer wants to change floor-to-floor heights, the stairs react to that. However, you cannot oversell the ease of change, or that's all the designers will do."

Computers may help integrate architecture and engineering better than they are now. Moderator Chuck Eastman cited energy analysis as a possible example. Professor Murray Milne told of his project to develop an interface between an energy-analysis program and CAD. Sanders talked of linking CAD and cost-estimating packages.

The new generation of SOM's programs is designed to have both capabilities. Admitted SOM's Terry Poindexter: "They're tremendously compute-intensive exercises. But, technology is becoming relatively cheap."

Prospects for CAD capabilities may be better than we think

VersaCAD's Tom Lazear clearly felt designers and engineers are not using systems up to current capabilities: "We don't know how to communicate what systems can do because you don't tell us what you want and what your priorities are."

But there was still doubt among the other panelists that suppliers are paying as much attention to building designers as to, say, big commercial companies. "The architectural market is a bunch of five-person shops and a few bigger ones," Lazear reminded the panelists. "About the best strategy for us is to learn what works for the big folks and do that small-scale for the rest."

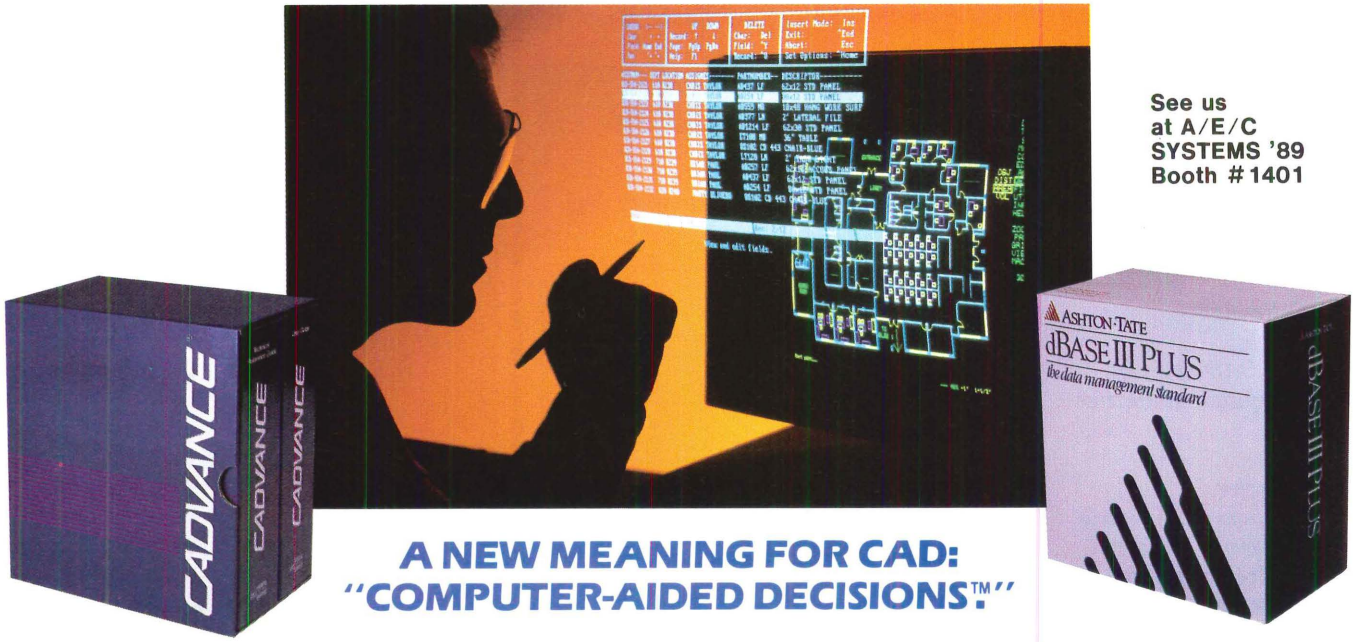
Eastman concluded that such standardized systems would certainly promote the advance of the art because of the leverage in a large pool of buyers. But would architects buy them? That, said Eastman, would depend on a central motivating group such as the AIA. Lazear pointed out that the AIA is already a distributor of one proprietary system. "That was a bad mistake," said Sanders. "The AIA's role should be education, information, and training." Lazear suggested that the AIA would do better to endorse all systems meeting uniform standards, not just one.

"Our productivity has given us islands of automation," said computer consultant John Johnson. "The next big jump is to build bridges or drain the lake." He singled out ways to do this, such as the automated communication system between designers, consultants, and manufacturers that McGraw-Hill is currently developing with Electronic Sweet's.

But Sanders thought truly intelligent systems probably could not be produced from existing ones and that, in some cases, it required starting over: "There's only so far you can go with building on generic drafting packages because you're trying to stuff all this intelligence into pretty dumb objects."

Continued on page 135

THE CADVANCE/dBASE CONNECTION.



See us at A/E/C SYSTEMS '89 Booth #1401

A NEW MEANING FOR CAD: "COMPUTER-AIDED DECISIONS.™"

Link Drawings to Data and Data to Drawings.

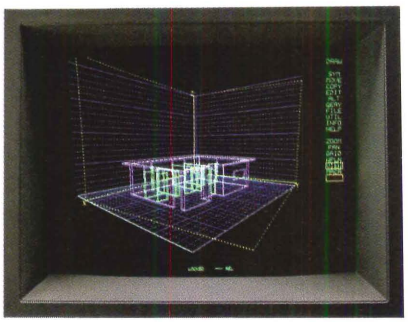
There's more to CAD than fast drawings. At least at ISICAD there is.

Now you can directly link CADVANCE® PC-CAD drawings with non-graphic information in dBASE® files for a total solution to information management.

CADVANCE Advances.

CADVANCE goes beyond ordinary computer-aided design and drafting on your PC. It allows you to manage the information behind the pictures, and puts you in total control of your project.

By linking drawings with data in a relational database, you increase the intelligence of your drawings. Keep track of inventories, estimates, costs, locations, schedules—and report on them easily. Evaluate alternatives quickly, completely and economically. Gain control of project information so you can make better, faster management decisions: "Computer-Aided Decisions."



VGS—The new standard in 3D user interfaces.

Instant Updates.

With the CADVANCE/dBASE connection, your database can be updated directly from the graphics screen—without exporting, without delay, without repeating steps, and without complication. When you change information in the drawing, it is reflected in your database. And vice versa. Information is always consistent, so you avoid potentially costly errors.

The Latest in 3D.

In addition to advanced information management capabilities, CADVANCE Version 3.0 offers full 3D drawing and visualization capabilities, including an innovative user interface called the Visual Guidance System (VGS™). The VGS sets a new standard for 3D design and gives you the easiest, most intuitive interaction with 3D available today. See for yourself how easy 3D really can be.

	CADVANCE®	AutoCAD®	VersaCAD Design®
Direct two-way link to dBASE	**Yes**	No	No
3D VGS user interface	**Yes**	No	No
AE/FM application features	**Built-in**	+$1,000	+$1,000

CADVANCE, Computer Aided Decisions, and VGS are registered trademarks of ISICAD, Inc. dBASE is a registered trademark of Ashton-Tate. VersaCAD Design is a registered trademark of VersaCAD Corp. AutoCAD is a registered trademark of Autodesk, Inc.

TIME FOR DECISION

☐ Please have a dealer call me.
☐ Please send your free brochure that explains how successful companies are making the CADVANCE/dBASE connection.

For immediate response call **800-556-1234 Ext. 281** or **800-441-2345 Ext. 281** (in Calif. only). Or send in this coupon.

Name _____ Phone (___) _____
Title _____
Company _____
Address _____
City _____ State _____ Zip _____

ISICAD

ISICAD, Inc. P.O. Box 61022, Anaheim, CA 92803-6122

Circle 78 on inquiry card

omputers: Practice continued from page 133

"In the long run, it's better to have many people who can use CAD but not full time"—eliminating burnout and also "the perception of a lot of people that computer use is a trap: 'If I touch it, I'll never escape.' "

ne key to success with CAD is tting people to want to use it

efever singled out a major oblem of CAD when people ained to work manually have to e it: "There's usually a lot of m-twisting."

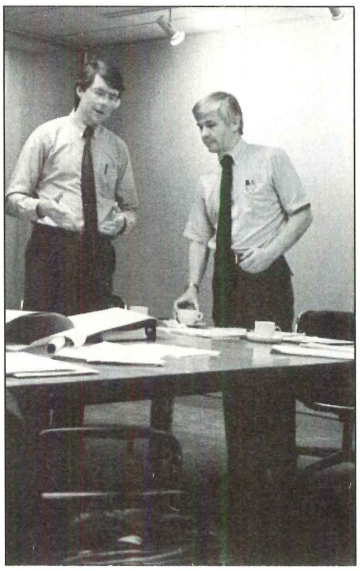
Engineer Duane Koenig tolled the clean slate—such as s firm had when it opened its os Angeles office: "We didn't ve any discussion. The people red and the procedures written ere all geared for CAD."

"I started out having a small fice," said architect Anthony gai, "so whatever I said was w. It was learn CAD or find nother office. Now I have 65 eople and I have to do battle ecause older, more experienced eople coming in think CAD is me new animal rather than a ol to ease work."

Lefever said it probably would ot be even productive to have nior people learn. "We try to doctrinate them in concepts."

Who, then, in a firm should se computers? Poindexter and ibbs represent the extremes of fices, one where almost eryone uses systems, the other here mostly those with special titudes do. Sander's office is in tween: "It's very tempting, hen you're starting out," he id, "to discover a wizard and it him in front of the screen 24 urs a day—especially because u've bought this expensive uipment and want to use it as ficiently as possible. Then that rson burns out and quits. In e long run, it's better to have any people who can use CAD it not full-time"—eliminating rnout and also "the perception a lot of people that computer e is a trap: 'If I touch it, I'll ver escape.' "

Poindexter: "When that special oject runs in the door, the first ing you're tempted to do is ab all the computer experts d do the drawings. But, until u make it clear that people can e computers and go on to her things, it's very difficult to



Architect Kenneth Sanders talks with moderator, UCLA professor Chuck Eastman.

sell them to the entire staff."

Gibbs allowed that, despite his firm's established procedures for relaying information, there were problems with his two-tier organization: "The hardest thing to find is an efficient way for the people who do not input work to communicate information to those who do. To what extent can you mark up drawings during the day and slip them under the door for someone to enter that night?" Still, he likened the system to the traditional one of having designers and draftsmen.

Who should do the training?

Koenig asked if *anyone* used suppliers' training anymore, implying that in-house training was the way to go. (Fullenwider reminded that another option was hiring a consultant like himself.) Lazear acknowledged that suppliers' training might be limited: "They teach the fundamentals of making lines and running a plotter, but not how to organize information."

Lefever, representing a large seasoned company with set ways of doing things, still saw an advantage in the limited training by suppliers: "Vendor training *is* useful for someone starting out." Sanders too thought suppliers' training for proprietary sytems was essential when firms start out with them. "But," continued Lefever, "if that training is extensive, I'll spend a week having to retrain—not in drawing lines and circles—but how we generate a plot and what we do first on a job." Ngai pointed out that certain areas of training, such as video, could only be done by the suppliers.

"As a consultant, I train people," said Johnson, "because they don't want to go far away for it. But they won't pay for a separate course in management. I think there's a strong do-it-yourself ethic in architecture."

Much common wisdom has said that firms are better off training personnel from scratch, rather than having to retrain experienced people with previously set ways. Not so, said Poindexter. "If they're over the mind barrier of what a computer does versus the manual method, then it's a tremendous help."

"People circulating within our profession," pointed out Koenig, "bring good ideas to all of us."

"We keep about 30 people trained," said Lefever. "One of the problems is that other firms keep hiring them away from us." Those firms obviously liked people with prior training. And, he added: "We've also hired away a few trained people who've been a godsend to us."

Is training on specific systems a good idea in architectural schools? "The important thing," said Milne, "is more bright students who are interested and involved because that's the source from which a lot of systems development springs."

"It should be possible," asserted Johnson, "to prepare a framework of generic ideas about CAD that's not specific to one system." Sanders responded: "Deeper understanding is gained only after you've learned your second or third system. Then you see the big picture and not just the specifics of the system you've learned." But, objected Eastman, "teaching students to use intelligently a couple of systems imposes a lot of memorization requirements. They're learning too much minutiae already."

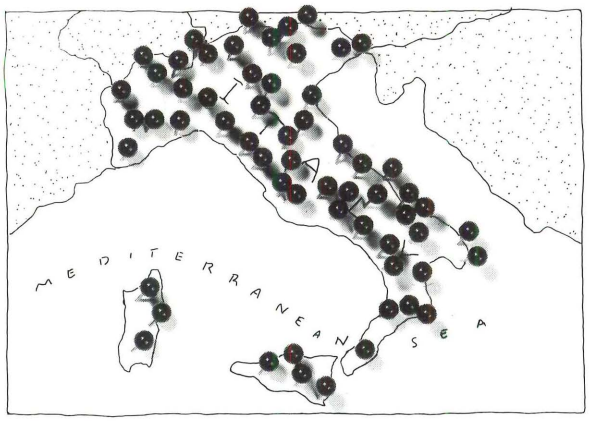
"Having exposure to systems in schools," concluded Lefever, "is wonderful. But what we really want to find is people who are fired up about being architects."

Workstation networks are blossoming but clearly need development

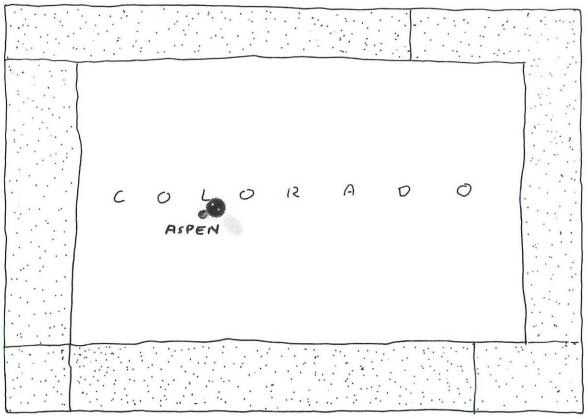
One caution in SOM's computer experience: To stop constant competition for system resources, the firm has recently gone from a mainframe to stand-alone workstations, networked together. The result is lower maintenance because the equipment is cheaper, but the cost of labor to coordinate between the workstations is going up. Procedures and standards are not a problem because one workstation is devoted to keeping track of them. But data files are. "People have to understand that you just can't zap these files around to various machines," said Poindexter. At SOM, one "home" machine for each project contains the latest input. On big projects, there may be several home machines—one holding the elevations, another the plans, etc. The network is set up to consolidate the files automatically at midnight so that one up-to-the-minute set of data is available for development each morning. Poindexter sees the potential for "disaster" lessened when current networking software is updated. Sanders supported workstations: "The PC gives you good response time. If one fails, you have others.

Continued on page 137

The Centers of Italian Design.*



*Except June 13-18th.



For one week, the true center of Italian design will be Aspen. That's where outstanding designers, artists, architects, and writers will unite for "The Italian Manifesto: The Culture of Nine Hundred and Ninety-Nine Cities." Speakers will include architects Aldo Rossi, Renzo Piano, Joseph Rykwert and Tobia Scarpa; designers Mario Bellini, Michele de Lucchi, Achille Castiglioni, and Emilio Ambasz; fashion designers Luciano Benetton and Gianfranco Ferre; and museum director Philippe de Montebello. Italian design will never be more accessible.

International Design Conference in Aspen June 13-18, 1989
$475 for regular registration
$250 for one additional household member
$125 for full-time students (photocopy of current ID required with registration)

Name_____

Address_____

City_____ State_____ Zip_____

Profession_____

Firm Affiliation_____

Where you are staying in Aspen_____
Make check payable to IDCA and mail to:
IDCA, Attention Registrar, PO Box 664, Aspen, CO 81612
For further information, write or call (303) 925-2257

IDCA

mputers: Practice continued from page 135

e really need to migrate
ward stand-alone workstations
th a shared database."

an computers really pay for emselves?

he large firms are forced into
ing very organized about their
ternal auditing of time for all
is equipment," said Sanders.
e might well have included the
all ones too. "Some firms," he
ntinued, "when they're
arting out with a PC system,
ase the equipment and their
onthly payments are only a
w hundred dollars. A lot of
ms are surprised because they
n actually afford more
uipment than they thought."
For internal monitoring
rposes, SOM, which owns its
vn equipment, has its central
fice maintain records of the
sts of equipment use.
lements of those costs include
lministration, supplies, system
pport, integration of newly
veloped functions into the
stem, continuing education,
sic software development
one by the central group), and,
the plus side, depreciation of
uipment, which flows back to
at group. "Ideally," said
indexter, "this budget, when
l is said and done, comes down
zero." That is, costs and
come for the computer entity
ould balance—at the least—
hen compared to conventional
oduction methods.
Sanders thought that auditing
ould show even better results:
f all you can do is break even
ith manual production, you
ve replaced a potential profit
nter with a cost center." But a
m starting out in computers
nnot expect such positive
sults right away. Said Gibbs:
or the first couple of jobs,
AD may not be productive. If
u weren't involved with the
ale hormonal imbalance, you
ouldn't take the loss. But, if
u start off and think I have to
ake this thing pay right away,
at it has to produce $40 per
rminal per hour, nobody wants
touch it." His firm has taken
e long haul and that is what
akes computers pay. A true
st was his firm's performance
one subway station project in
series being done by different
ms on cost-plus-fixed-fee
ntracts. His was the only firm
using CAD and one of the most, if not the most, efficient. "One of the things we've discovered," he concluded, "is that you only have to use a computer five or six hours a day to make it pay."

"The cost of hardware," summed up Eastman, "has dropped tremendously, so getting into business is not so threatening. The other thing I sense happening is that doing such analysis as $40 per seat per hour and then having to twist the arms of project managers to use CAD is slackening. You know you are going to succeed."

Where architects stand on billing clients for computer time

Poindexter said that SOM has two ways of handling that. Under the usual lump-sum fee, the election to use computers is SOM's and the client does not pay directly. "Many functions are very efficient for us to do on the computer, so we use it anyway." But, he continued, "in some cases, we do negotiate with the client to pay computer time . . . based on work [such as video walk-throughs] that we would not normally produce in the general contract scope."

Said Ngai: "I think one of the reasons to get CAD, however naive it is, is that CAD will reduce our costs. But, in many cases, we're charging clients more to use CAD. And that makes no sense to them." Koenig: "Five or six years ago, we were all hopeful that we would be able to charge some of our CAD time to clients. It was just a hope and it went away."
Charles K. Hoyt

Charlotte chose Masonry with DRY-BLOCK® for their Jewel. Would you consider anything less for your masterpiece?

Over 700,000 DRY-BLOCK® units used in the Charlotte Coliseum

The beautiful, split-face masonry units making up the walls of the fabulous Charlotte Coliseum are protected from the elements by the DRY-BLOCK® System.

Depend on DRY-BLOCK,® the original, integral water-repellent system for lasting beauty that stands up to whatever Mother Nature dishes out.

For the full story on the Charlotte Coliseum, just drop us a line.

FORRER INDUSTRIES
7221 West Parkland Court
Milwaukee, WI 53223
(414) 354-4400
1 (800) 558-7066

NATIONAL CONCRETE MASONRY ASSOCIATION

Circle 79 on inquiry card

No Architect Throws Away Sweet's

- 70% of loose catalogs end up in the circular file.* But...
- 96% of architects use catalogs in Sweet's as their prime reference source.**
- Catalogs in Sweet's are referred to 10 times as much as any other source, including manufacturers' loose catalogs.**

Architects Use Sweet's

SWEET'S McGRAW-HILL

Sweet's Group
McGraw-Hill Information Services Company
1221 Avenue of the Americas, New York, NY 1002

Catalog Perspective, Smith Stanley & Co.
**Information Sources Used by Architects,*
Glen Oaks Research & Statistical Services

Software reviews for architects

y Steven S. Ross

FastCAD 2.05

rue to its name, a fast, ersatile 2-D program with good rinter and plotter utilities, ransfer to and from AutoCAD nd to desktop publishing oftware, and excellent control f screen attributes. It can be un from floppy disks for work the field or at home. A 512K omputer with simple graphics onitor can keep a 10,000-entity rawing in memory; FastCAD self uses less than 400K. A 3-D ersion is expected this spring.

Equipment required: IBM XT, T, PS/2, or compatible, 512K 40K recommended, and ecessary for most high-esolution graphics cards such as eluxe 640x480 EGA); two floppy isk drives (hard drive ecommended); coprocessor chip 8087, 80287, or 80387), mouse or igitizing tablet, graphics onitor (color recommended, but relatively inexpensive EGA orks well). Supports a wide ange of graphics monitors, rinters, and plotters.

Vendor: Evolution Computing, 37 South 48th St., Suite 106, empe, Ariz. 85281. 602/967-8633. 2,295 including unlimited upport; updates are $30 to $50 ach. The 3-D version will sell or $2,995 after a transition eriod during which current sers can upgrade for $50.

ummary

Manual: Very good. A single oseleaf binder contains excellent tutorial and reference sections, and a good guide to FastCAD's macro and script languages.

Ease-of-use: Excellent. Even allowing for the fact that this is a 2-D package—with fewer commands than a 3-D system needs—installation is easy, and on-screen prompting almost intuitive. On-screen menus can be easily customized. FastCAD behaves in a standard way with regard to freezing and unfreezing, hiding or showing any of the 256 layers possible in a drawing. A nice time-saving touch: Layers can be frozen or thawed on mid-command.

Error-trapping: Good. The drawing files hold a record of all changes until the user specifically asks for intermediate changes to be removed. Some file translation procedures overwrite old versions of the file. All the standard warning prompts, such as an alert upon leaving a session without saving work, are there. Some intermediate menu screens do not allow a graceful cancellation of a procedure (cancellation comes only from the final screen in a procedure).

It is possible to create a file that is bigger than the disk space available to hold it. The user gets the unpleasant news when he or she tries to end the drawing session. At that point, FastCAD will probably have some of the file stored on the disk, and some in random-access memory. When the part that is in RAM is added to the disk, there may not be enough room for everything.

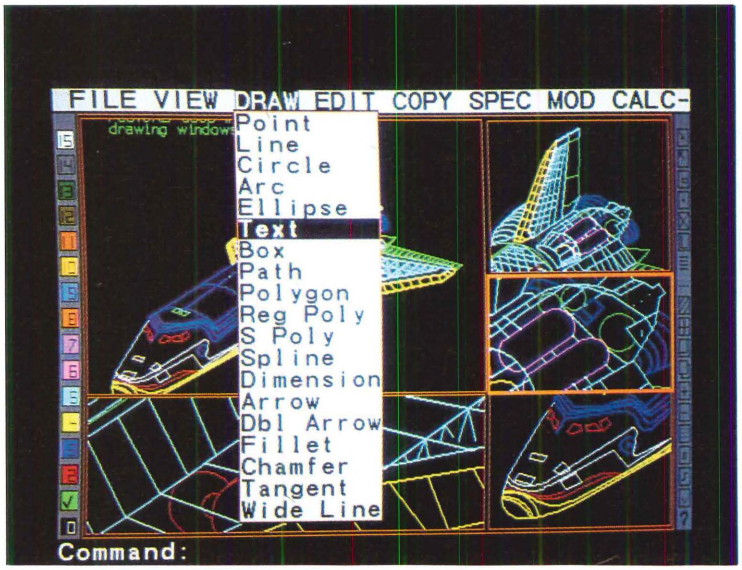
Review

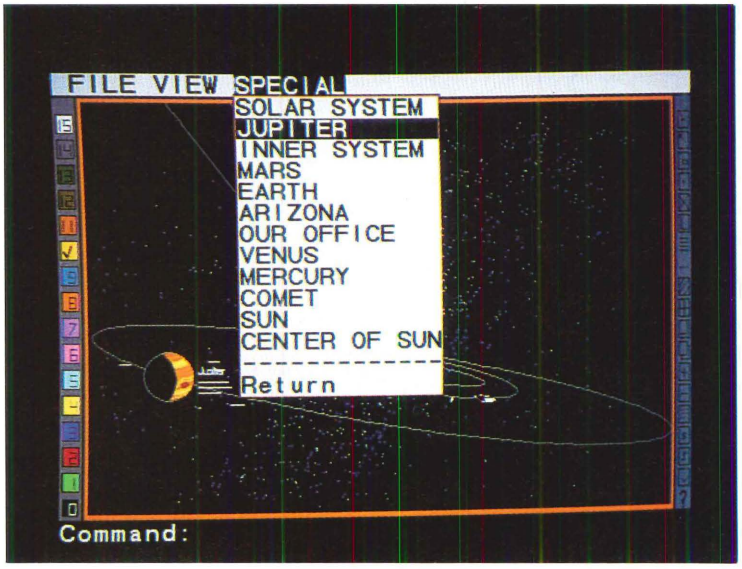
Looking for CAD software that doesn't require a huge training investment and $10,000 worth of equipment to run? Want an easy way to prepare drawings for use in desktop publishing software such as PageMaker and Ventura? Need to take CAD into the field, on a small laptop computer? FastCAD could be for you. All of the system files will fit on a single 720K floppy disk. And, with care, files can even be split between two 360K floppies.

FastCAD will run with as little as 512 kilobytes of random-access memory. But the standard 640K is a more comfortable fit. FastCAD requires that the computer be configured to open at least 16 files and 20 buffers. That's more than the default values built into PC-DOS and MS-DOS, but equal to or less than most CAD software needs.

The only conflict we found—a minor one —was in installing FastCAD on the same hard disk as Ventura, the desktop publishing package from Xerox. Ventura (in common with many packages that must use a mouse, digitizing tablet, or other

Continued on page 141





A change in one of the eight views on the FastCAD screen updates all the others. Color choices can be changed using the palette on the left of the screen; drawing tools are to the right (top). Special menus can also be created, such as different views of the solar system (above).

teven S. Ross is past president f CCM, an educational software ompany in New York City, and ow teaches journalism at olumbia University, where he lso runs a large computing aboratory for students. He is ften consulted on quality-ssurance matters; his latest ook, Construction Disasters: esign Failures, Causes and revention, *was published by cGraw-Hill in 1984.*

NORTHWEST

EVERYTHING YOU'VE EVER WISHED
FOR IN A FREQUENT FLYER PROGRAM.

Wouldn't it be great to get a free domestic trip after only 20,000 miles? Or a free trip to Europe after just 40,000 miles? Or even a free trip to the Far East after just 60,000 miles? Wishful thinking? No, these are just some of the awards you get with Northwest WORLDPERKS®, the best frequent flyer program around.

And now it's even better with the FLY-WRITE™ ticket, the mileage award that's automatically issued every 20,000 miles and is good for travel anywhere in the contiguous U.S. With the new FLY-WRITE ticket, you just make a reservation, then you literally write your own ticket, go right to the gate and take off.

So enroll in WORLDPERKS on your next flight. It's your every wish come true.

© 1988 Northwest Airlines, Inc.

LOOK TO US NORTHWEST AIRLINES

oftware reviews continued from page 139

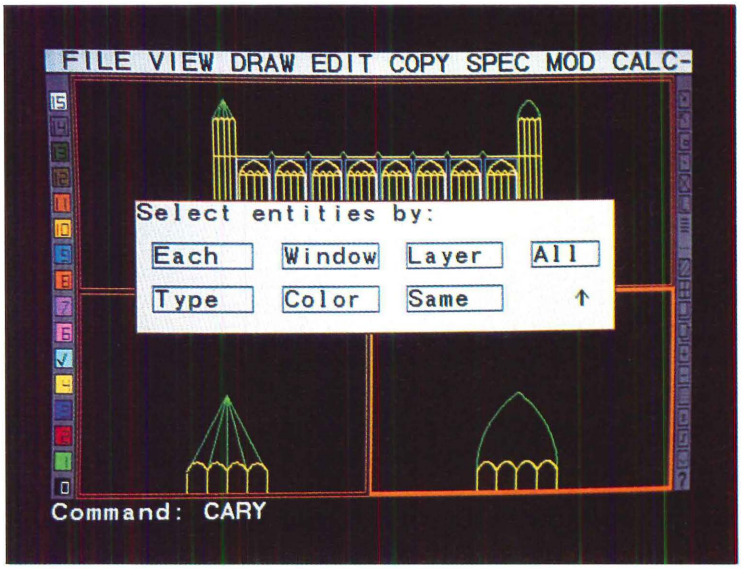
FastCAD is a joy to use in normal operation. The drawing screen is large, and up to eight rectangular windows can be on screen at once.

inting device) has its own ays of coupling itself to such evices. FastCAD uses the so- lled "device driver" that comes ith each mouse or other inting device. The device iver for a mouse, for instance, usually a file called OUSE.SYS. Installing it nfuses Ventura and other ftware that bypasses such ivers. Those who must put astCAD on a hard disk that has her packages like Ventura as ell will have to write a special rsion of the standard ONFIG.SYS file, change to it use FastCAD, and reboot the mputer.

FastCAD is a joy to use in rmal operation. The drawing reen is large, and framed with color palette on the left (on- reen shades can be changed at ill), an icon bar containing arious drawing tools and mmand buttons on the right, d a menu bar above.

Up to eight rectangular indows can be on screen at nce, showing eight views. The arious views can be zoomed and anned independently. But they t together when details are lded. For instance, there can be ne window showing the detail the top of a doorway, and nother zoomed in on the bottom the doorway. A user can start line at the top, in the first indow, pull the pointing device to the second window, and nchor the line at the bottom. astCAD will calculate the true ngth of the line, even though ither window displays it in its ntirety.

Adding text is done by going the DRAW menu (pulled down om the top of the screen), and oosing the "text" option. astCAD opens an on-screen indow into which the desired xt is typed. Using the "big pe" display option, the typed xt goes into as many as four es. Using the "small type" tion, it goes into two lines. But ther way, each windowful of



Intermediate windows for many commands do not include a cancel option.

However, when the command is finished, the final window allows such cancellation.

type (128 characters maximum) gets added as one line on the screen. Text can be inserted into the drawing at any angle.

Measurements can be displayed on-screen as well. The measurements automatically change, of course, as the drawing is modified and walls are, for instance, stretched or shortened. As is common with CAD file translation software however, this dynamic action is not preserved if the file is translated to (or from) the AutoCAD-standard DXF format.

Most drawing tools are chosen from the pull-down DRAW menu rather than from the screen-side icon bar. For instance, to draw an arc, go to DRAW, pull the menu bar down with the mouse or digitizer puck, then move downward to point at the ARC option. The arc's path then appears on the screen as its placement is defined (in the standard way, by specifying three points for the arc to pass through).

A preferable alternative is to define commands as "buttons," or command areas, on the digitizing tablet. The installation program makes this easy.

Walls are a bit awkward to draw as double lines. Choose the WIDE LINE option from the DRAW menu. FastCAD handles a wide line like a polygon. Then choose a width (the default is 0.20—a fifth—of whatever measurement unit chosen to draw in), specify the first point (where the wall is to start), the second point, and so forth. Even after they are on the drawing, the widths of existing wide lines can be changed automatically from the menu.

The default leaves the space between the lines blank, but they can be filled with a number of patterns as well. That makes drawing wall junctions easier (there's no need to clean up the interior line in a T intersection for example, because you can specify the fill and delete the surrounding lines).

FastCAD includes a "macro" programming language that allows a user to define a set of commands for automatic playback, either by pressing a keyboard combination or by using a digitizing tablet-button. One useful set, for instance, would draw the standard frame and signature box around a drawing. The only limitation is that the macro has to fit within 16 kilobytes of memory. That's generous for most purposes—at least 180 lines of text, and maybe a lot more (depending on the word-processing program used to create the macro). Each line can contain at least one command.

Macros can be created that prompt users, loop and branch, just like any other program. For instance, a macro for drawing parking stalls can be created that stops and prompts the user for the standard angle the stalls must be drawn at.

Short macros are easy to create. Simply tell FastCAD that a macro is being defined, then enter the commands. The macro can then be saved with the SAVMAC command. But such macros cannot be edited; make a mistake and a user has to start from scratch. Longer macros should therefore be written with a word processor. If a small word processor is used, it can be run alongside FastCAD. But if it is larger than 64K (and all modern word processors are), the macro will have to be typed separately, then brought into FastCAD.

That's awkward. If you want to play the macro game, learn to use EDLIN (a simple line-oriented text editor that comes with DOS). Borland's Sidekick also can co-exist with FastCAD in 640 kilobytes, as long as Sidekick is configured to load only the notepad.

Software reviews continued on page 143

SEMINAR

EFFECTIVE USE OF

SWEETSPEC

1989

SweetSpec: (swēt´ • spĕk´) *n.* McGraw-Hill's new interactive, computerized construction specification writing system on compact disc from Electronic Sweet's.

Who should attend
This intensive one-day seminar will demonstrate both the basics of SweetSpec and sophisticated techniques for achieving maximum efficiency. Professionals who would benefit from participation include the following: architects, engineers, designers, facility managers, and others with the need to create correct, up-to-the-minute construction specifications.

Your instructors
All instructors are professionals who have participated in the actual development of SweetSpec. Classes will be limited in size, so early enrollment is advised.

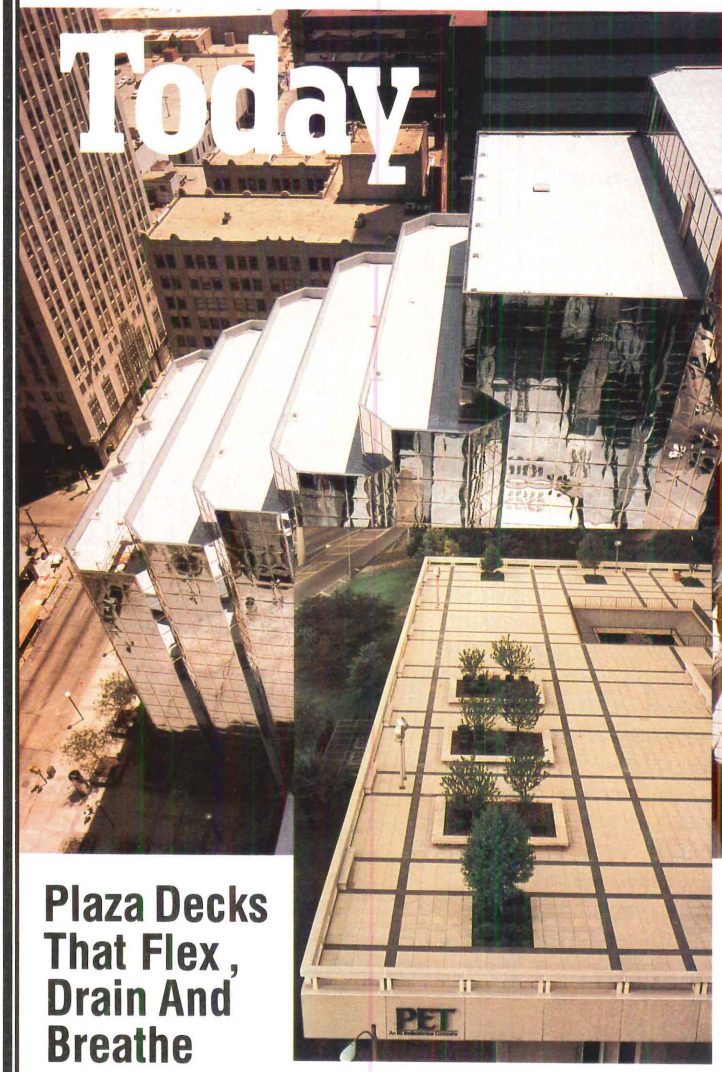
Fees
One Registrant: $345
Two or more registrants per firm: $295 per person
Course binders are included in the price of the seminar, but they may be purchased separately at $75 per copy.

Registration
You may register for a seminar and make all travel arrangements with a single telephone call to All-Around Travel, Inc. at **800-523-1353.** (In Georgia, call 404-263-9786 collect.) Or write to:
SweetSpec Seminar
Heery International, Inc.
999 Peachtree St., N.E.
Atlanta, GA 30367-5401

MAY 13	**ATLANTA** • Colony Square Hotel
MAY 15	**ORLANDO** • Wilson World Hotel
MAY 20	**CHICAGO** • Hilton (Michigan Ave.)
MAY 22	**ST. LOUIS** • Airport Hilton
JUNE 10	**DALLAS** • Hilton (Central Expressway)
JUNE 12	**LOS ANGELES** • Sheraton Santa Monica
JUNE 17	**BOSTON** • Park Plaza & Towers
JUNE 19	**NEW YORK** • Marriott Marquis
JULY 8	**SAN FRANCISCO** • Marriott Fisherman's Wharf
JULY 10	**SEATTLE** • Red Lion - Airport
JULY 15	**COLUMBUS, OH** • Marriott North
JULY 24	**WASHINGTON, D.C.** • Hilton (Towers)

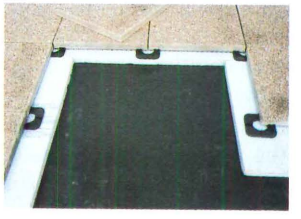
Circle 80 on inquiry card

Step Onto The Next Century...



Plaza Decks That Flex, Drain And Breathe

Terra System One™



WAUSAU TILE TERRA SYSTEM ONE ®

Extremely Durable Terra-Pavers...
Terr-adjust Leveling Pedestals...
Terra-Tabs...Top Quality Components That Are Guaranteed As A System.

A One Source • Complete System

WAUSAU TILE
P.O. BOX 1520 • WAUSAU, WI 54402-1520 • 715/359-3121
1-800-992-8728

Circle 112 on inquiry card

oftware reviews continued from page 141

A 2-D CAD package for the Macintosh, SNAP! does a lot considering its files fit on one 3.5-inch floppy disk.

Snap! 3.0

A versatile midrange 2-D CAD package for the Macintosh. There's especially good control of symbol libraries, and a time-accounting system is built in. Snap! will run acceptably on machines as small as a Mac Plus, and can exchange files with most other Mac software, either in the Postscript format or as PICT files. It both imports and exports PICT. The command interface is most efficient when using a digitizing tablet.

Equipment required: Macintosh Plus, SE, or II. System 6.0 or higher recommended. Hard disk and Kurta ADB digitizing tablet recommended.

Vendor: Forthought, P. O. Box 2, Sunset, S. C. 29685. 803/878-3484. $695 includes unlimited technical support and free updates. Major upgrades, about once a year, are deeply discounted. The upgrade to version 3.0 from earlier versions is $69.

Summary

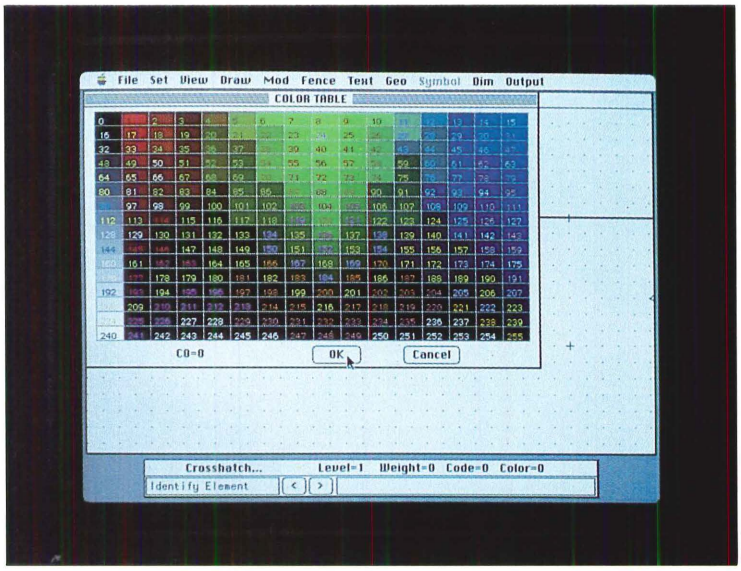
Manual: More voluminous than supplied with most Macintosh software, with an adequate tutorial and good reference section. The book, in the form of a fat paperback, is difficult to hold open while going through the tutorial lessons.

Ease-of-use: Good with the tablet. Adequate with the mouse.

Error-trapping: Good. All the standard warning prompts are there. Installation requires killing the Macintosh Multifinder (if you use it) and restarting the computer. It is tough to deliberately crash the system. When we finally managed it, there was no problem restarting. Evidently the offending file was not saved to disk in a form that would force Snap! to choke (there is no automatic save anyway). The "Save as" command allows saving to a new file. But doing so closes off the existing file, thus shutting down the time-accounting function. It also leaves the other file as it was last saved, without new modifications that may have been made.

As with many Macintosh packages, there's no easy software check to assure that output is sent to the correct port for printing—you can uselessly "print" a file to the hard disk instead, if the drive is connected where Snap! expects the printer to be. It is all too easy to accidentally reset or freeze the time-accounting "clock."

A user can prepare a file for plotting, update the design, and replot it without including the updated changes. That's because an intermediate set of "stroke" files must be created by the user for plotting. Hewlett Packard's HPGL and Houston Instruments' DMPL plotting languages are supported.



SNAP! uses the familiar Macintosh color wheel and supplements it with a matrix of 256 hues and shades.

Review

Snap! does a lot, considering that all its files fit on one 3.5-inch floppy disk. The drawing program is full-featured, with 63 layers, and the ability to attach a symbol library. Only one library can be attached to a drawing file, but this is a minor limitation; symbols in the library can be nested in numerous variations.

There's flexibility in choice of units, too. Time-accounting is built in. And files can be transferred easily to desktop publishing packages or to simpler drawing programs. With some ingenuity, files can be exchanged with a Macintosh spreadsheet program like Excel for creation of a bill-of-materials. This function is new; there are no specific instructions for that in the manual, although it is mentioned in promotional materials. (The relevant command, Get Element Info, is in the Dimension menu. A user fences an element, snaps to it, and replies to window prompts about the element's size, color, and so forth. Snap! passes the data to a file in which each element's data occupies a separate line.)

There's the standard set of advanced drawing tools available, including spline. The biggest shortcoming: No automatic generation of walls with double lines.

With a mouse, the tools are picked from Mac-style pull-down menus, rather than from a palette. Fortunately, it is easy to customize the pull-downs, and to lay out a custom menu on a Kurta digitizing tablet. One can also build the equivalent of a palette on-screen, by creating "menu buttons." With the tablet, a command or a symbol can be invoked by moving a four-button Kurta cursor over the area reserved for that command, and pressing a cursor button. With the on-screen buttons, move the mouse to the desired button.

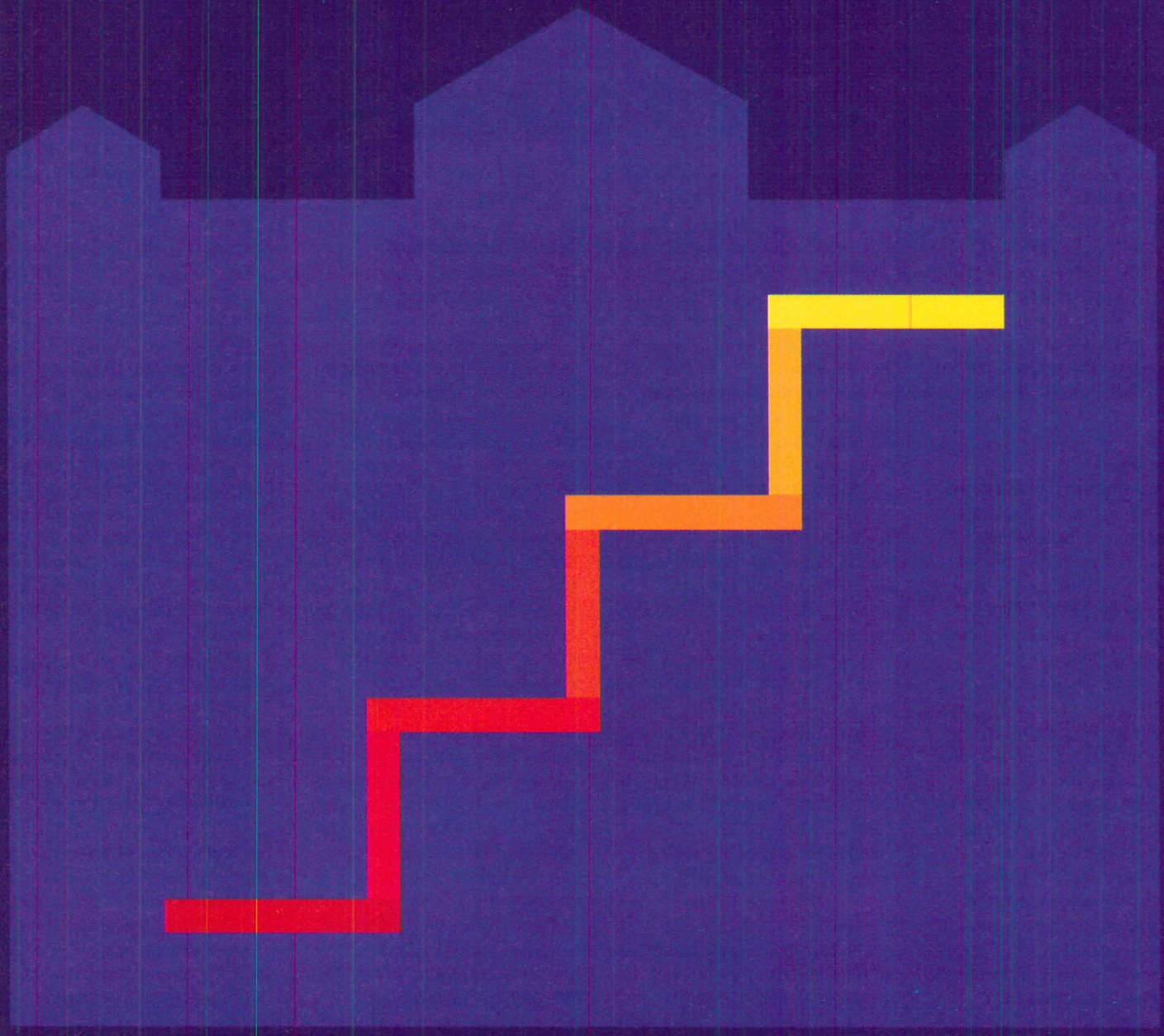
The easiest way to start a drawing is from a "seed file" in which defaults already have been saved. Any file can become a seed file, simply by choosing the "Save as Seed File" option from the File menu. Defaults can include units. The user selects a major unit, such as feet, and a minor unit that's a subdivision of the major. For instance, selecting 12 minor units per major unit would correspond to a minor unit of inches if the major unit is feet. Once a drawing is begun, minor units can be changed; majors can't.

Any drawing can be saved as a symbol. But because only one symbol library can be connected to a design file at a time, plan with care. To use symbols stored in a different library, switch to the new library by connecting it to a design drawing.

Only one view of the drawing can be seen on-screen, but a second view can be kept in memory; users can toggle between them almost instantly. Actually, up to five views can be saved and retrieved fairly quickly from disk (or from memory if there's enough memory in the first place, and if "virtual windows" is turned on).

"Plotting" the output (to a plotter or to a LaserWriter in plotting mode) generally gives higher-quality output than "printing" does, and allows selection of specific levels of the design to plot at specific line weights.

NEOCON® 21



THE MERCHANDISE MART CHICAGO JUNE 13·16 1989

TAKE A STEP TOWARD THE FUTURE AT NEOCON 21.

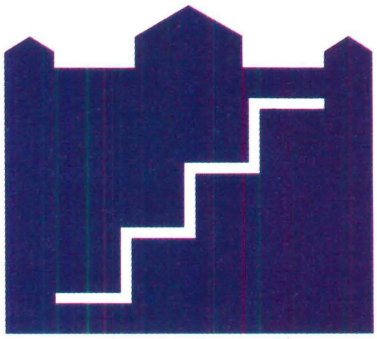
Once a year, an event occurs of such magnitude that it draws the entire architectural community together. It's an event which presents the latest contract furnishings and brings together architects from around the world. It's NEOCON 21, at The Merchandise Mart in Chicago. From June 13-16, you'll be able to make plans for your next interiors project and network with other professionals at the year's most influential design event.

Resources for this year and beyond.

In NEOCON's twenty-first year, the event will be more exciting than ever, with millions of square feet of product previews. Whether you're presently involved in the shaping of interiors for your clients or looking to expand your interiors work, NEOCON is the place to examine the scope of the contract furnishings industry, and the place to find new resources for building products and technologies. There's only one building in the world that could contain an event of this scope: The Merchandise Mart.

A network of vital information.

Your entire staff will benefit from NEOCON 21's educational opportunities. You'll attend keynote and professional sessions dedicated specifically to issues that affect your practice. NEOCON is a time to meet, discuss, and discover new directions.



At the heart of architectural history.

NEOCON is a landmark event in a landmark location: Chicago, a city with a history shaped by architecture and design. Because it's at the heart of the nation, you'll find travel plans simple and cost affordable. And The Merchandise Mart can help you budget your NEOCON visit, too, with early registration discounts on air fares and hotel rates. Take the first step toward future business success: mail in the coupon below today.

Mail to: The Merchandise Mart,
NEOCON 21
470 The Merchandise Mart,
Chicago, IL 60654

Take the first step. Send for your NEOCON 21 registration packet today. The first 2,500 to register will receive a limited edition poster commemorating NEOCON 21.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____ CITY _____

STATE _____ ZIP _____

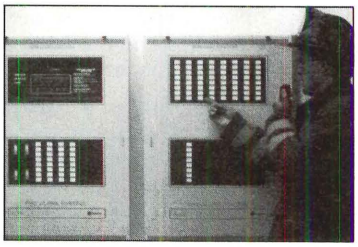
For more information, or to receive the registration packet, please call 1-800-342-6278 (in Illinois, call 312/527-7618).

THE MERCHANDISE MART CHICAGO

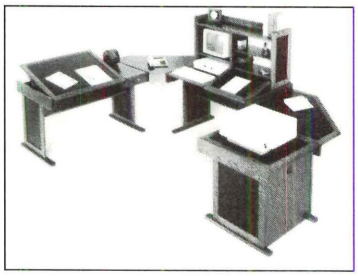
Circle 81 on inquiry card

Continued from page 123

Automatic hand dryer
The new Optima hand dryer is activated by an infrared sensor on an as-needed basis; a low-rpm motor reduces noise levels. The cast-metal housing, available in six colors, is sized to facilitate retrofit installation. Sloan Valve Co., Franklin Park, Ill.
Circle 313 on reader service card



Fire-alarm control system
New features of the microprocessor-based 4100 fire-alarm control system include addressable devices that indicate the exact location of an alarm, not just the zone. Digitized messages are delivered in a natural voice, in foreign languages as well as English. A fire-fighter telephone system provides two-way and microphone communication. Simplex Time Recorder Co., Gardner, Mass.
Circle 314 on reader service card



Workstation furniture
Electronic support units of solid oak or walnut can be configured to suit a combination of computer-oriented design requirements. A split-surface desk provides space for hardware on one side, and an adjustable table with two degrees of tilt for use with a digitizer. Foster Mfg. Co., Philadelphia.
Circle 315 on reader service card
Continued on page 149

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. Group One Search, P.O. Box 5199, Marietta, GA 30064-5199 or P.O. Box 273210, Tampa, FL 33688. 404-423-1827 or 813-969-0544.

Architects — Type I, III and V. Commercial — Industrial. Minimum 5 years experience. Send resume in confidence to: Architects International Inc., Attn: Kirsti Anderson, 225 West Broadway, Suite 500, Glendale, CA 91206.

Architectural Delineator. Key personnel required in all phases: cars, figures, landscaping, interiors and perspective layout draftsman. Send samples, resume & salary requirements to: Art Associates, Inc., 4635 W. Alexis Road, Toledo, OH, 43623.

Sales Representatives. 38 yr old manufacturer of "high end" Architectural Signage, consisting of Metal Letters and Corporate Logotypes, Interior Informational/Directional Signage, Exterior Post/Panel Ground Set Signs and Bronze Plaques. Paying high commission for sales to Corporate, Specifier and Institutional Markets. Most Eastern Regions Available. Send resume: SAC, P.O. Box 175, Boston, MA 02134-9108 or call 617-566-4079.

Wanted: Manager-Architecture. This is an executive position offering ownership opportunities and management participation to help shape and direct our existing growth. The ideal candidate will possess: — 15+ years experience — NCARB registration — appropriate education — Excellent verbal and written communication skills — Previous supervisory experience a plus. We are seeking an experienced and innovative architect who can aggressively lead and direct projects and provide the leadership and direction required for retaining and expanding our client base. If you are interested in being considered for this key position, please forward your resume in confidence to: Manager — Personnel, Marathon Engineers / Architects / Planners, P.O. Box 1627, Augusta, Georgia 30903-1627. An EEOC Employer.

Now recruiting. For Qualified Federal Architect GS-05 through GS-12 Levels. Salary Ranges start at GS-05 $19,654 to GS-12 $43,753. Higher level positions develop specifications for architectural phases of a wide variety of buildings and structures. Review work performed by private architect/engineering firms. Provide construction support. Must have a degree from an accredited college or university (or equivalent experience) and a minimum of three years of experience. RA preferred. Openings at the lower levels are for Facilities Master Planners with education, training professional background, and experience in areas conducive to the preparation of master plans. Those interested may apply by completing SF-171's and submitting them to the Civilian Personnel Department, Naval Air Station, Patuxent River, MD 20670-5409. For further information contact Molly Balius, 301-863-3545 or 4838.

Landscape Architect II: Seeking candidate skilled in masterplanning park sites and preparing architectural construction designs and specifications. Will collect data, evaluate park projects, coordinate with consulting architects, engineers, and County Agencies; and make presentations to citizens and Board. Graduate work with 3-5 years experience in Landscape Architecture required with eligibility for VA certification. This Agency operates in an expanding market in Prince William County (35 miles West of Wash., D.C.) with excellent opportunities for growth and development, Hiring Salary: $28,677-$31,544/year with a generous benefit program. Send resume to: Exec. Recruiter, Prince William County Park Authority, 14420 Bristow Road, Manassas, VA 22111, or call (703) 335-7060 or Metro 631-1402.

Business Manager/Architect. To be responsible for administration/management of growing 20+ person firm. 10 years experience as Project Manager; 5 years experience as Business Manager, a minimum. Position requires well developed skills in personal relations, verbal and written communications, procedural organization, budgeting, scheduling and problem-solving. MBA preferred. Major career opportunity. Candidates not meeting the above requirements please do not apply. Salary open. Send resume and reply to: Brooks/Collier, 3131 Eastside, Suite 100, Houston, TX 77098. Attention: James T. Collier.

Medical Programmer/Planner, Equipment Specialist. A major career opportunity for a licensed architect to work directly with clients in programming and planning of various scale medical facilities. Knowledge of functional requirements of hospital equipment a plus. Must have a minimum 10 years experience in health planning/architecture, and well developed skills in personal relations, verbal and written communications. In-depth knowledge of codes and regulations a must. Candidates not meeting the above requirements please do not apply. Salary open. Send resume and reply to: Brooks/Collier, 3131 Eastside, Suite 100, Houston, TX 77098. Attention: James T. Collier.

Director of Interiors. 55 person archittural firm invites responses for a senior inte designer to manage the interior design gr Must have interior design or architectural de and 10 years experience in interior design rela to office, corporate, and health care proje Must have ability to manage personnel, direc phases of work and maintain excellent client tact. Exceptional opportunity for someone leadership and marketing skills. Send res and salary requirements to JPL Architects, 900 Jackson St., Suite 700, Dallas, TX 75202.

Michael Latas & Associates, Execut Search and Professional Recruiting Consulta Specialists in the architectural and enginee fields. Operating nationally. Inquiries held in strictest of confidence. 1311 Lindbergh P Center, St. Louis, Missouri 63132; (993-6500.

Design Firm Principal. Immediate op ing in expanding Architectural/Engineering fice in upstate New York. Qualifications incl Professional Degree Registration and minim of 10 years' experience in project manage and marketing. Top leadership track position ceptional career opportunity. Excellent sala benefits. P-5690, Architectural Record.

FACULTY POSITIONS VACANT

Columbia University: Faculty Positi Assistant Professor of Architecture: Emphasi Architectural Design, Urban Design, and/or chitectural History/Theory. Candidates hold a Master of Architecture or equival Professional and/or teaching experi required. Assistant or Associate Professo Historic Preservation: Emphasis on Conse tion and Restoration of historic structu Qualifications should include graduate degre Architecture, Building Conservation, or rel field, teaching, and/or professional experie research capabilities in the field (both modern and modern structures). Deadline April 30, 1989 applicants should respond letter of interest, curriculum vitae, name three references and illustrations of their wo a writing sample not exceeding 35 pages. Ma ial should be sent to: Bernard Tschumi, D Graduate School of Architecture, Planning, Preservation, 400 Avery Hall, Columbia Uni sity, New York, NY 10027. AA/EO Emplo Women and Minorities encouraged to apply.

PROFESSIONAL SERVICES

NYC DEPT. OF BUILDINGS EXPEDITING SERVICES
Thorough building code & zoning consultation. Re & complete service for all types of commercial an dential filings including Certificates of Occupancy
HANNIBAL GALIN & ASSOCIATES
(718) 783-6052

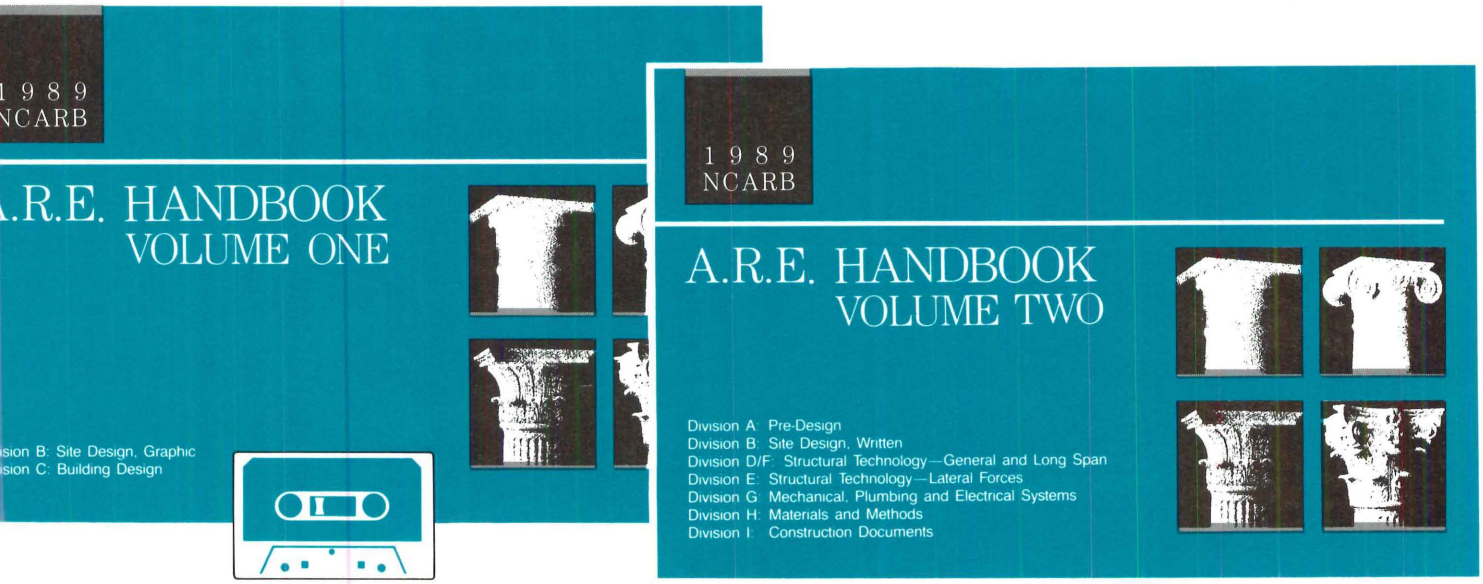
SPECIAL SERVICES

COMPLETE PREPARATION FO THE REGISTRATION EXAMS
Architectural License Seminars (213) 208-71
Box 64188 Los Angeles California 90064

Cost Estimating, Quantity Surveys, C puter Applications, Corp, DOD, GSA, Construction Cost Systems, Chicago (312) 5441; Tampa — (813) 887-5600.

1989 A.R.E. CANDIDATES!

CARB's Handbook Essential to Comprehensive Exam Preparation



rder your 1989 A.R.E. Handbook now to enhance your preparation for the Architect Registration Examination. Updated and improved, the edition offers a comprehensive iew of all divisions of the exam.

Actual design solutions and ple A.R.E. questions give you first- l knowledge of the A.R.E. An ocassette of design critiques is ded with Volume 1. Follow along -by-point to understand the practical cation of the grading criteria as are applied to graphic solutions the 1988 A.R.E.

New up-to-date narratives de developing a strategy to suc- fully complete the graphic exams as as current information on new com- ized testing technology developed ie NCARB.

Volume 1 covers the graphic portions of the A.R.E.: Division B: Site Design, Graphic and Division C: Building Design. Volume 2 covers the written portions: Division A: Pre-Design; Division B: Site Design, Written; Division D/F: Structural Technology—General and Long Span; Division E: Structural Technology—Lateral Forces; Division G: Mechanical, Plumbing and Electrical Systems; Division H: Materials and Methods; and Division I: Construction Documents and Services.

Order your Handbooks now by sending your check or money order in the correct amount with the order form to the address indicated. You may charge your Handbook on your Visa, MasterCard or American Express. Persons with active NCARB/IDP Council records qualify for a discount. Please specify a complete daytime address; no post office boxes please.

VOLUME 1

(Divisions B, Graphic and C)

- Expert critiques of design solutions from the 1988 A.R.E.
- Strategy for completing the Building Design test
- Contents of the Exam Information Booklets and Juror's Manual
- Updated bibliographies for graphic divisions

VOLUME 2

(Divisions A, B, Written, D/F, E, G, H and I)

- Sample exam questions and answers from previous exams
- Official test information booklets
- Updated bibliographies for written divisions

Order Your 1989 A.R.E. Handbooks from NCARB!

Detach and mail payment to NCARB, A.R.E. Handbooks, 1735 New York Avenue, N.W., Suite 700, Washington, DC 20006. Make checks payable to NCARB. Delivery takes 4-6 weeks.

Name _____
(Please print)

Company _____
(If applicable)

Address _____
(Daytime—No P.O. Boxes)

City/State/Zip _____

IDP Council record no. _____
(If applicable)

NCARB USE—DO NOT WRITE IN THIS SPACE

D/R _____ CK/MO _____
IDP/OK _____ AMT _____
AUTH _____ DUE _____

QTY	VOL	PRICE*	TOTAL
	SET	$95	
	VOL. 1	$70	
	VOL. 2	$40	

D.C. residents add 6% sales tax to total.

*Persons with active **NCARB/IDP** Council records pay: Set: $80, Volume 1: $60, Volume 2: $35. Include your IDP number to qualify.

☐ Payment enclosed

☐ Charge my:

☐ Visa ☐ MasterCard

☐ American Express

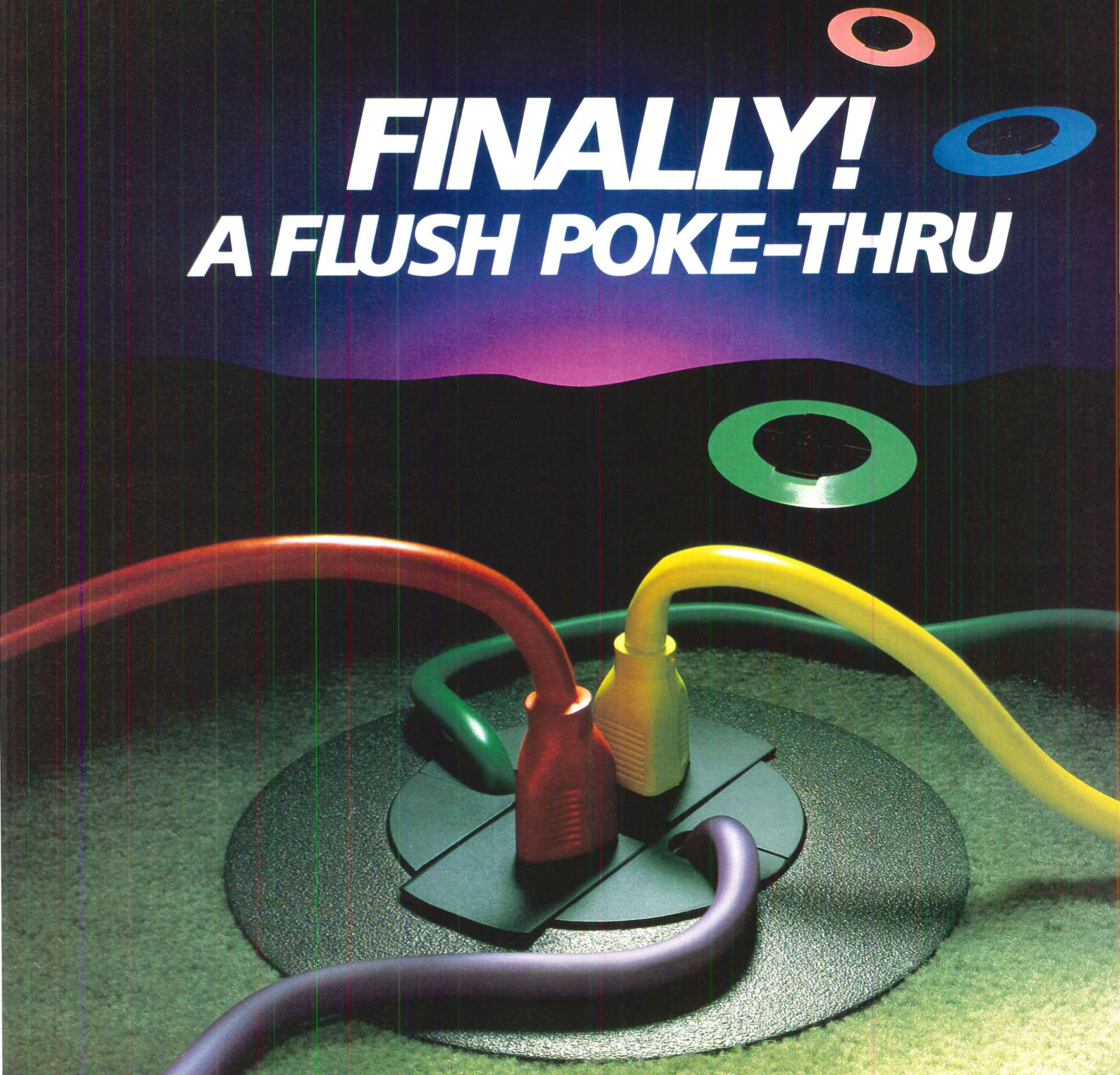
_____
Acct. No.

_____
Expiration Date

_____
Signature

A

FINALLY! A FLUSH POKE-THRU



The Headless Poke-Thru is here.

If you're an architect or interior designer we just "made your day". We finally got rid of the electrical outlet "doghouse".

If you're a specifying engineer, you'll be happy to hear that Raceway has developed the first **Flush Poke-Thru** with **full capacity**... two services in a single 3" hole; 15 or 20 amp, 125V duplex receptacle power. **Plus** two individual openings for low tension wiring for telephone, signal or data communications. **U.L. Classified and Listed.**

If you're a contractor, put this into your calculator. The Raceway **Flush Poke-Thru** comes factory pre-wired, terminating in a junction box which is **integral to the fitting.** (Perfect for rennovation since it installs over existing wires.) Just drill the hole... step on it... you're finished.

There are so many more exciting features. Color-coordinated choice of retainer ring... a sliding polycarbonate receptacle cover... but that's why we printed a brochure. It's all in there.

Send for it. Join the rush to get flush. Write or call Raceway Components, Inc., 263 Hillside Avenue, Nutley, N.J. 07110. 201-661-1116.

RCI

RACEWAY COMPONENTS, INC.

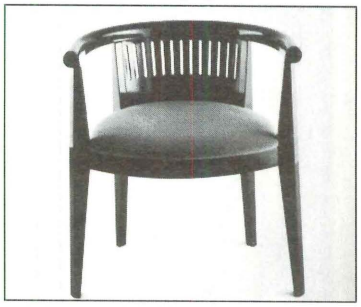
Mfg. I.B.E.W.

U.L. Classified and Listed

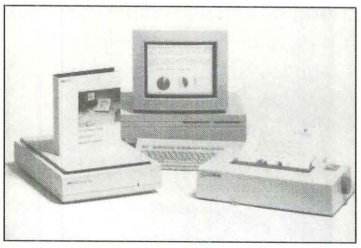
Pat. Pending

Circle 82 on inquiry card

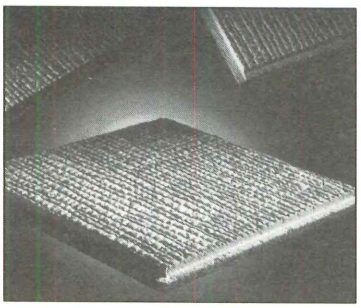
Continued from page 145



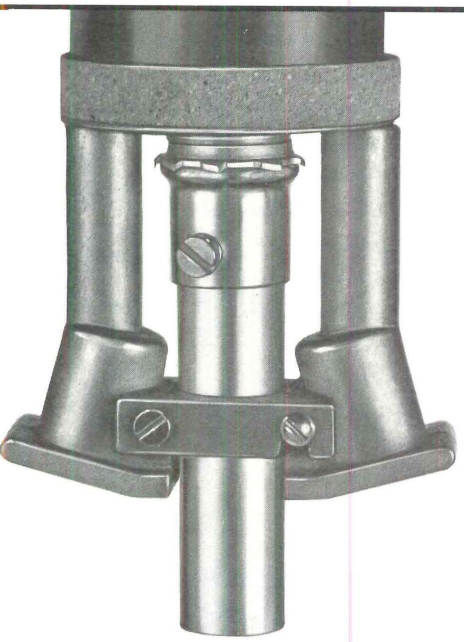
Bentwood chair
Available as an armchair or a two-person settee, Enzo Berti's Verona design has an arm and back formed of one piece of steam-bent hardwood, supported by a back panel slotted to achieve a Viennese effect. Monel Contract Furniture, Inc., Oakland Gardens, N. Y.
Circle 316 on reader service card



Printer interface
A new accessory for the PaintJet color graphics printer enables it to work with leading Apple Macintosh-based software. The interface kit supports 256 colors on the Macintosh II, and 8 colors on the SE and Plus computers; price is about $125. Hewlett Packard Co., Palo Alto, Calif.
Circle 317 on reader service card



Textured ceiling tile
Tapa, an extension of the Auratone ceiling line, has a subtle surface texture said to look like grasscloth. The new pattern, available in 24 colors, comes in a variety of size and edge configurations. USG Interiors, Inc., Cedar Rapids, Iowa.
Circle 318 on reader service card
Continued on page 150



YOUR CONNECTION TO THE PIPELINE

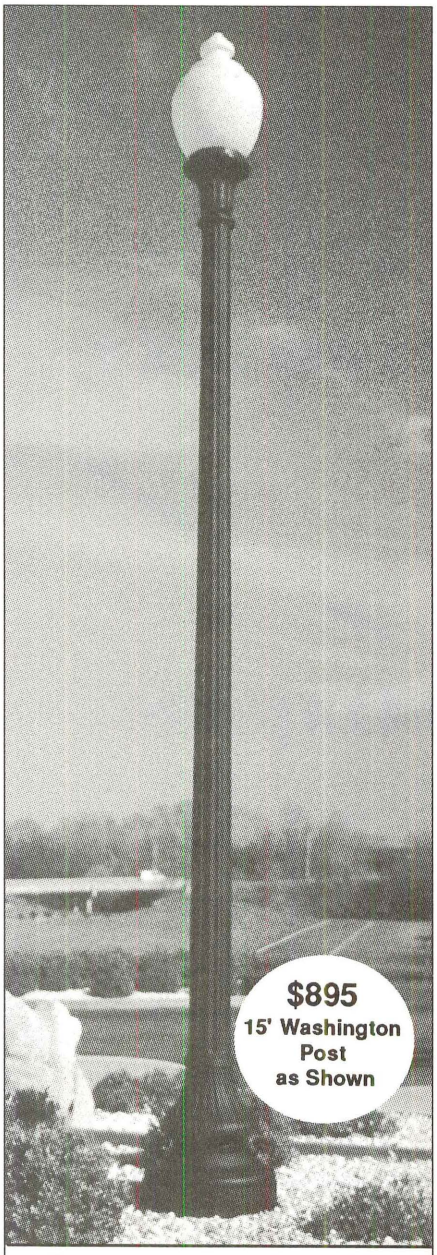
Here's another member of the Raceway family of Flush Poke-Thru adapters.

Although the Raceway Flush Poke-Thru is designed to accommodate low tension wiring run open in a plenum (the norm), wire management sometimes dictates the use of conduit. If a Poke-Thru is installed in an inaccessible ceiling, both high and low tension must be piped to an accessible position. The Flush Poke-Thru **Communications Adapter** permits fast, easy connection to conduit. A simple "snap on" device instantly attaches to the Poke-Thru while threaded openings accept ½" conduit.

For further information on the Raceway Flush Poke-Thru, write or call Raceway Components, Inc., 208 19th Avenue, Paterson, N.J. 07524. 201-661-1116.

RCI
RACEWAY COMPONENTS, INC.
N

Circle 82 on inquiry card



BUY FACTORY DIRECT & SAVE!

Classic Lamp Posts offers the highest quality, lowest cost lighting posts and luminaires for street lighting, parks and parking lots in America. These unique lamp posts are molded of a steel-reinforced outdoor polymer and urethane laminate that we call "Polysteel".

Our polysteel posts:

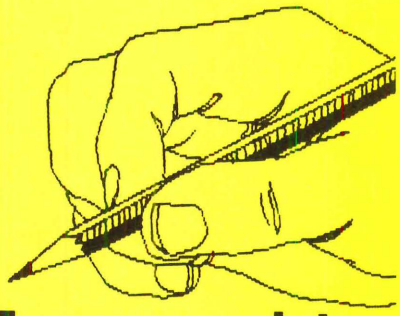
- **Never Need Painting**
- **Easy to Install**
- **Available in qty's of 1 to 1,000**
- **Our Objective: 4 week delivery**
- **Designed for municipal use**
- **Available in 8' to 15 ' heights**

FREE 12 PAGE COLOR CATALOG!

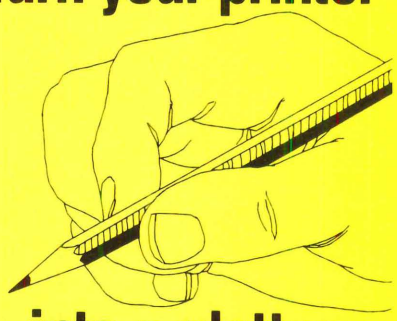
CALLTOLL FREE (800) 654-5852
IN FLORIDA (305) 696-1901

Classic Lamp Posts, Inc.
3645 N.W. 67 Street Miami, FL 33147

Circle 83 on inquiry card



Turn your printer



into a plotter

Imagine your present printer turning out crisp, high resolution plots while you continue to work, *without interruption,* at your PC.

The EOgraph Plus add-on board lets you do that, and more.

You have total control over eight different line widths, and as many colors as your printer offers.

You can produce drawings 15 feet long, and longer, in any carriage width.

How about multiple plots, or automatic queuing of text and plots? Yes, the EOgraph Plus lets you do that, too—with ease.

Think of it! Using virtually *any* CAD or graphics program, you can work at your PC while your printer generates plotter-quality drawings with nearly incredible detail.

Best of all, you get all of this without the headaches, or expense, of baby sitting a plotter.

Thousands of users agree: No other PC add-on can increase your productivity, or pay for itself so quickly, as the EOgraph Plus.

It may sound too good to be true, until you call for the facts, toll-free, at 1-800-548-5780.

DEALER INQUIRIES WELCOME

EOgraph Plus™

Eotron Corp / 121 Westpark Road / Dayton, OH 45459

Please send information and independent test reports to: ARE

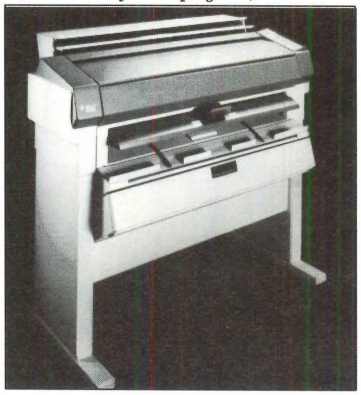
NAME

ADDRESS

CITY STATE ZIP

Circle 84 on inquiry card

Continued from page 149



Wide-width copier
The 5025 copier, designed for the large-document requirements of architects and engineers, makes copies up to 36-in. wide by any manageable length. Features include automatic toner replenishment and cut-line suppression from cut-and-paste originals. The compact unit uses sheets or rolls of plain paper, bond, vellum, tracing paper, or film. Ozalid Corp., Binghamton, N. Y.
Circle 319 on reader service card

Walkway canopy
Three new canopy configurations—barrel vault, dome, and clustered pyramid—are designed to drain water completely through a self-contained internal gutter. The sectional extruded-aluminum frame comes in a variety of standard and custom sizes and finishes; acrylic glazing is offered in clear and solar-control tints. Canopies are also suitable for entrances, and meet code and loading requirements. Alcan Building Products, Warren, Ohio.
Circle 320 on reader service 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

27 million Americans can't read. And guess who pays the price.

Every year, functional illiteracy costs American business billions.

But your company can fight back...by joining your local community's fight against illiteracy. Call the Coalition for Literacy at toll-free **1-800-228-8813** and find out how.

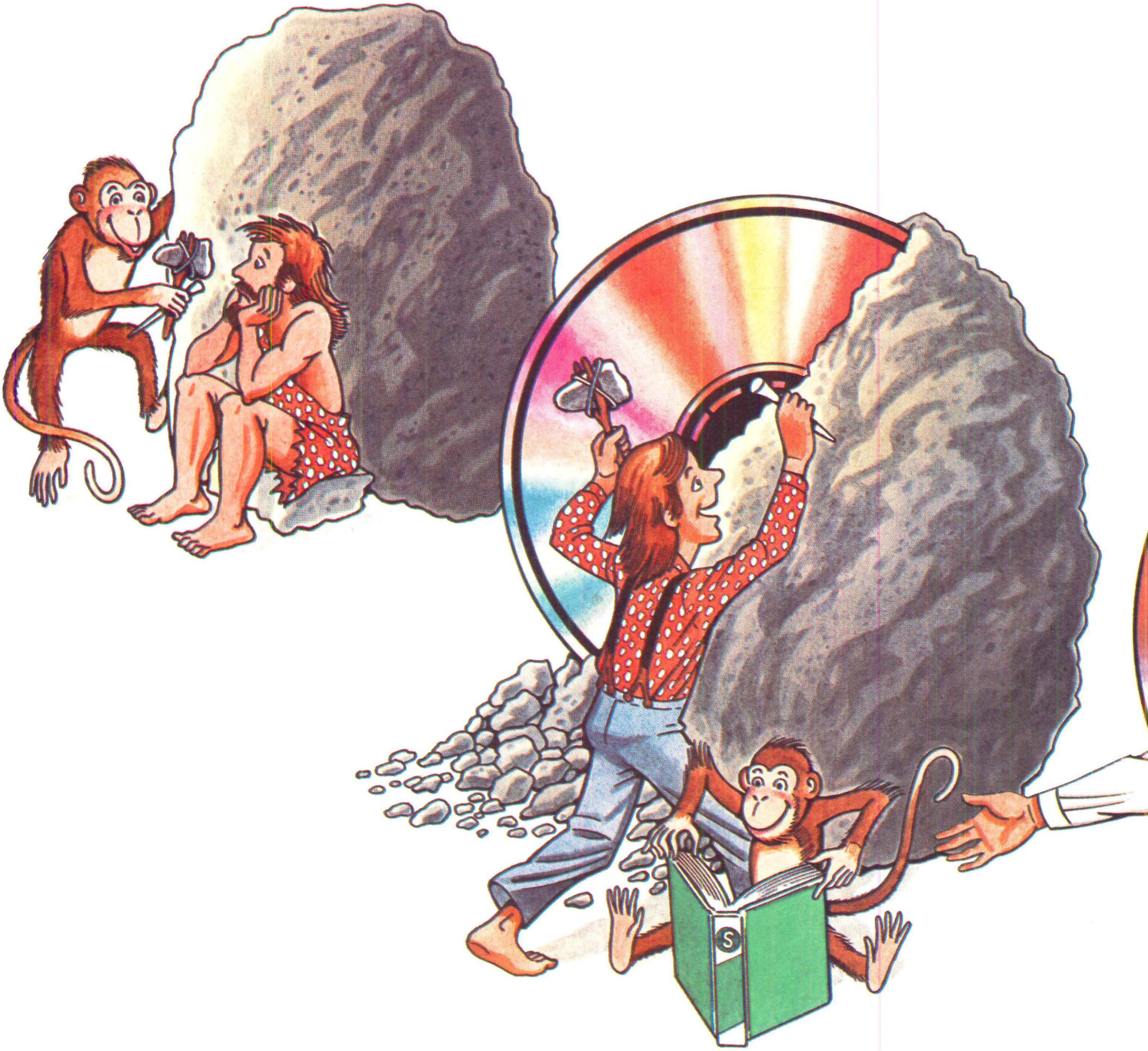
You may find it's the greatest cost-saving measure your company has ever taken.

A literate America is a good investment.

Ad Council Coalition for Literacy

LECTRONIC SWEET'S...**It's About Time.**

Sweet's R•Evolution in better product specification writing comes full circle



Don't let the R•Evolution pass me by!

Please send me complete details about Electronic Sweet's and the special NEC CD-ROM Reader offer.
My company currently ☐ receives ☐ does not receive Sweet's Catalog Files.

Name _____

Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Telephone (_____) _____

Attach the coupon to your company letterhead and mail to:
Sweet's Group
McGraw Hill Information Services Company
1221 Avenue of the Americas
New York, N.Y. 10020
Attn: Electronic Sweet's Special Offer

For faster service, call
1-800-848-9002

on and nuary...

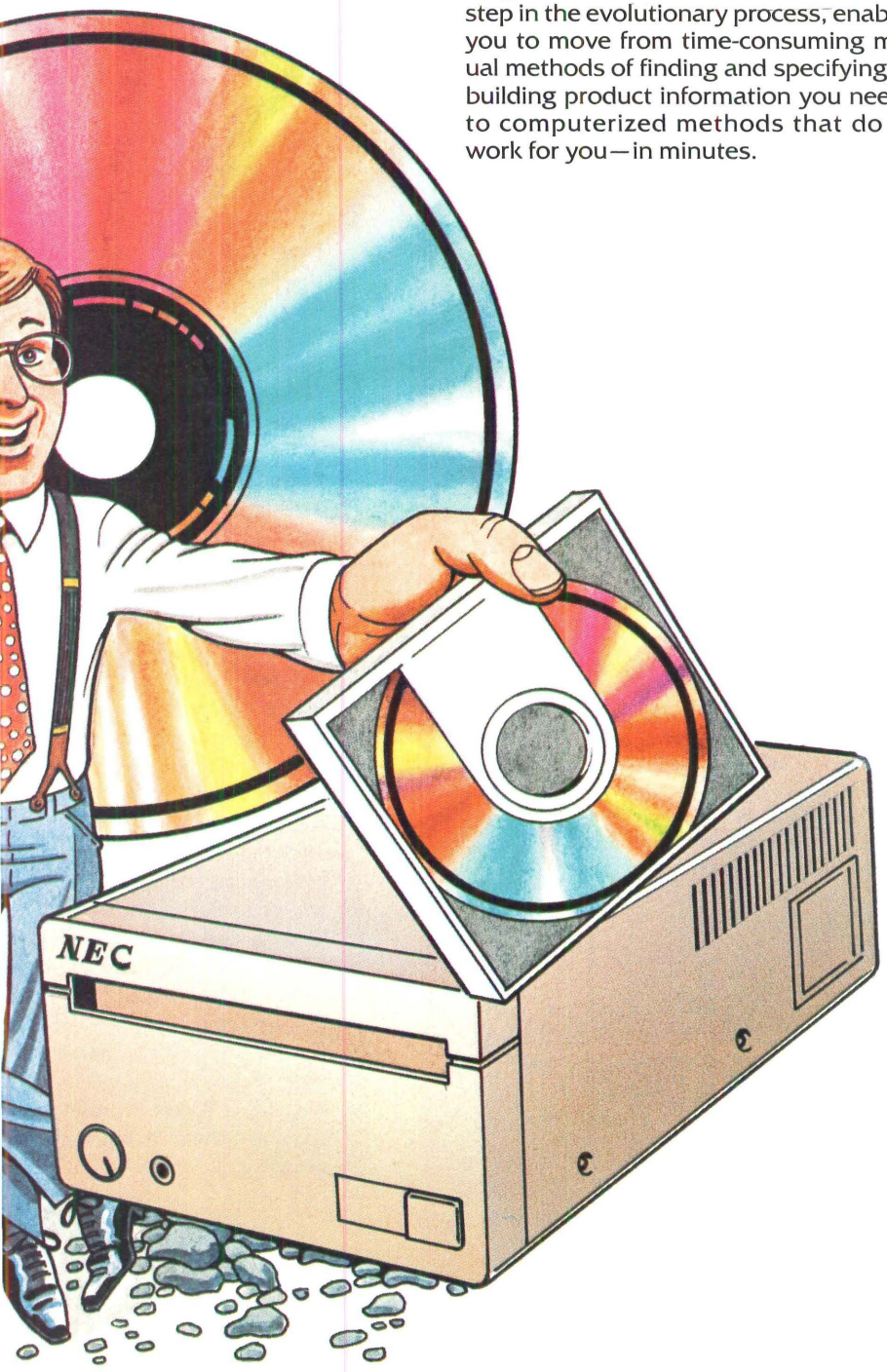
Are You Ready?

In the beginning of time, man made the wheel, and it revolutionized the world.

In 1906, Sweet's introduced the first Sweet's Catalog File, and it revolutionized the way design and construction industry professionals obtained manufacturers' building products information.

In the beginning of next year, you can get Electronic Sweet's on Compact Disc which will help "R•Evolutionize" the way you select products and write specifications.

Delivered automatically to qualified recipients of Sweet's General Building & Renovation or Engineering & Retrofit Catalog Files, Electronic Sweet's is the next step in the evolutionary process, enabling you to move from time-consuming manual methods of finding and specifying the building product information you need... to computerized methods that do the work for you—in minutes.



After all, the less time you spend on searching for products which meet your design requirements, the more time you'll have to design. The less time you spend on producing specification documents, the more time you'll have to produce. And time is money.

Electronic Sweet's is about time. **Your** time. And how to make the most of it, with:

SweetSearch which...

- Finds products by criteria of your choice;
- Assures that **every** product in Sweet's Catalog Files relevant to your project needs is found;
- Uses product search characteristics developed by and for design professionals;
- Displays uniform product profiles for easy product comparisons; and,
- Does it all with electronic ease...in seconds!

And with *SweetSpec* which provides you with...

- Fully customized specifications for your individual projects;
- The most current specification data available;
- "Tutorials" for decision-making assistance;
- Comprehensive, accurate, high quality specifications; and,
- Printed specification documents on your desk for your professional review in a matter of minutes!

But Electronic Sweet's won't be able to do a thing for you without a CD-ROM Reader for your IBM-compatible PC to "play" it on. And, for a limited time, Sweet's can help you save more than 50% on a state-of-the-art NEC CD-ROM Reader. For complete details, call 1-800-742-2255 or return the coupon in this ad.

Save money on this special offer now, and **you** will be ready to save both time and money when Electronic Sweet's arrives next year.

Join the Electronic Sweet's R•Evolution. We're changing with the times. Shouldn't you?

R•EVOLUTION

ELECTRONIC SWEET'S

It's About Time.

SWEET'S MCGRAW-HILL

Information To Build On

Sweet's Group • McGraw-Hill Information Services Company • 1221 Avenue of the Americas, New York, N.Y. 10020

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 74-77
Andersen Ranch
Harry Teague, Architect
Windows: Eagle Window & Door; Marvin Windows. Fiberglass-reinforced plastic glazing: Lasco Products Group (Lascolite). Skylights: Velux-America. Wood stains: Olympic HomeCare Products.

Pages 79-83
Brigham and Womens' Hospital
Kaplan/McLaughlin/Diaz, Tsoi/Kobus and Associates
Associated Architects
Pages 79, 81—Curtainwall: Hankins & Johann. Insulating glazing: Southwall Technologies (Heat Mirror).
Page 81-82—Lobby seating: custom by Tsoi/Kobus, fabricated by Trouvilles. Upholstery: International Fabric. Sconces: American Glass Light. Floor tile: Trans Ceramica (Fiandre). Carpet: Harbinger.
Page 83—Custom casework: Scott & Duncan. Wall rails: Loughman. Ceiling tile: Fabri-Trak, Unique Concepts. Carpet: Bentley. (top) Guest seating: Krueger. Pendants: Litecontrol. (middle) Pendants: American Glass Light. (bottom) Chairs: Steelcase.

Pages 84-85
Cumberland Neighborhood Family Care Center
Michael Fieldman & Partners, Architects
Curtain wall and entrance: M.B.K. Architectural Metal Products. Glass block: Pittsburgh Corning. Granite cladding: Lacroix & Fils Granite. Canopy glazing: Rohm & Haas (Plexiglass). Open-cell grid ceiling: American Luminous Ceilings. Paints: PPG Industries. Laminate surfacing: Wilsonart. Vinyl flooring: Tarkett. Thin-set terrazzo: D. Magnan & Co. Ceramic tile: American Olean Tile. Pedestal-type radiator: Standard Fin-Pipe Radiator. Downlights: Horizon Lighting. Pendants: Abolite. Sconces: Flos. Track lighting: Halo.

Pages 86-89
Santa Monica Hospital Medical Center
Bobrow/Thomas and Associates, Architects
Pages 86-87—Entrance: U.S. Aluminum. Sliding doors: Horton Automatics. Steel-framed windows: Carmel Steel. Aluminum-framed windows and doors: Wausau Metals. Glazing: PPG Industries. Built-up roofing: Tremco; Koppers. Planters: Architectural Fiberglass. Pavers: Structural Stoneware.
Pages 88-89—Sconces: Halo. Recessed lighting: Lightolier. Marble: Emser (Julian Jade). Ceiling: Armstrong World Industries. Patient beds: Hillrom. Carpeting: Interface. Skylights: Super Sky Products.

Pages 96-105
Alaska Center for the Performing Arts
Hardy Holzman Pfeiffer Associates, Architects
Pages 96-97—Curtainwalls, entrances, and aluminum windows: Kawneer. Glazing: PPG Industries. Column coatings and covers: Polymer Plastics; Plastrglas. EPDM roof: Carlisle. Stainless steel shingles: Ettle and Franz.
Pages 100-101—Mat flooring: Futuris. Custom-woven carpet: Bloomsburg Carpet Mills. Tufted carpeting: Harbinger. Cast-terrazzo tile: ArmStar (Armstone). Glass tile: Forms + Surfaces.
Pages 102-105—Fixed theater seating: Irwin Seating. Box seats: Thonet. Tapestry upholstery: Valley Forge Fabrics. Plush upholstery: King's Plush. Wall coverings: Guilford. Laminate surfacing: Nevamar.

Circle 85 on inquiry card

The P-touch is a compact electronic Lettering System that can create reproducible quality lettering at the touch of a button.

Its speed, ease, versatility, and portability make it hard to resist. And its price makes it impossible to resist.

Its business and personal applications are virtually unlimited. It's as simple as dialing the selector knob to the letter, number or symbol you want and pressing a button. That's all it takes to create razor-sharp lettering in a choice of three colors or black and white.

Plus, with its 45 character memory and editing capabilities, you can make changes or take out any errors before you print it out.

Another big plus: the P-touch operates on AC or batteries so it's ready to go to work anytime and everywhere.

Mr. Dean F. Shulman, V.P. Marketing
Brother International Corporation
8 Corporate Place, Piscataway, NJ 08854

Dear Mr. Shulman: Please send me additional information on the Brother P-touch Lettering System.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE/ZIP _____

TELEPHONE _____

DEPT. _____ AR4

P-touch

Professional Lettering System

Sells for less than 200^{00}

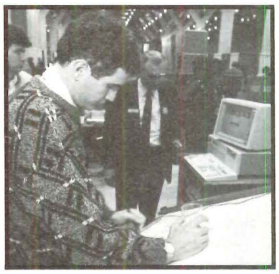
brother USA 35TH ANNIVERSARY

We're at your side.

brother®

TheOne

N o t t o M i s s !



June 5–8, 1989
Anaheim, California Convention Center

Next June more than 30,000 architects, engineers, contractors, facilities managers, interior designers, mapping professionals, process/power engineers, specifiers, project managers, computer consultants, CADD specialists, and other design and construction professionals will attend A/E/C SYSTEMS® '89.

In fact, they wouldn't miss it.

Should you?

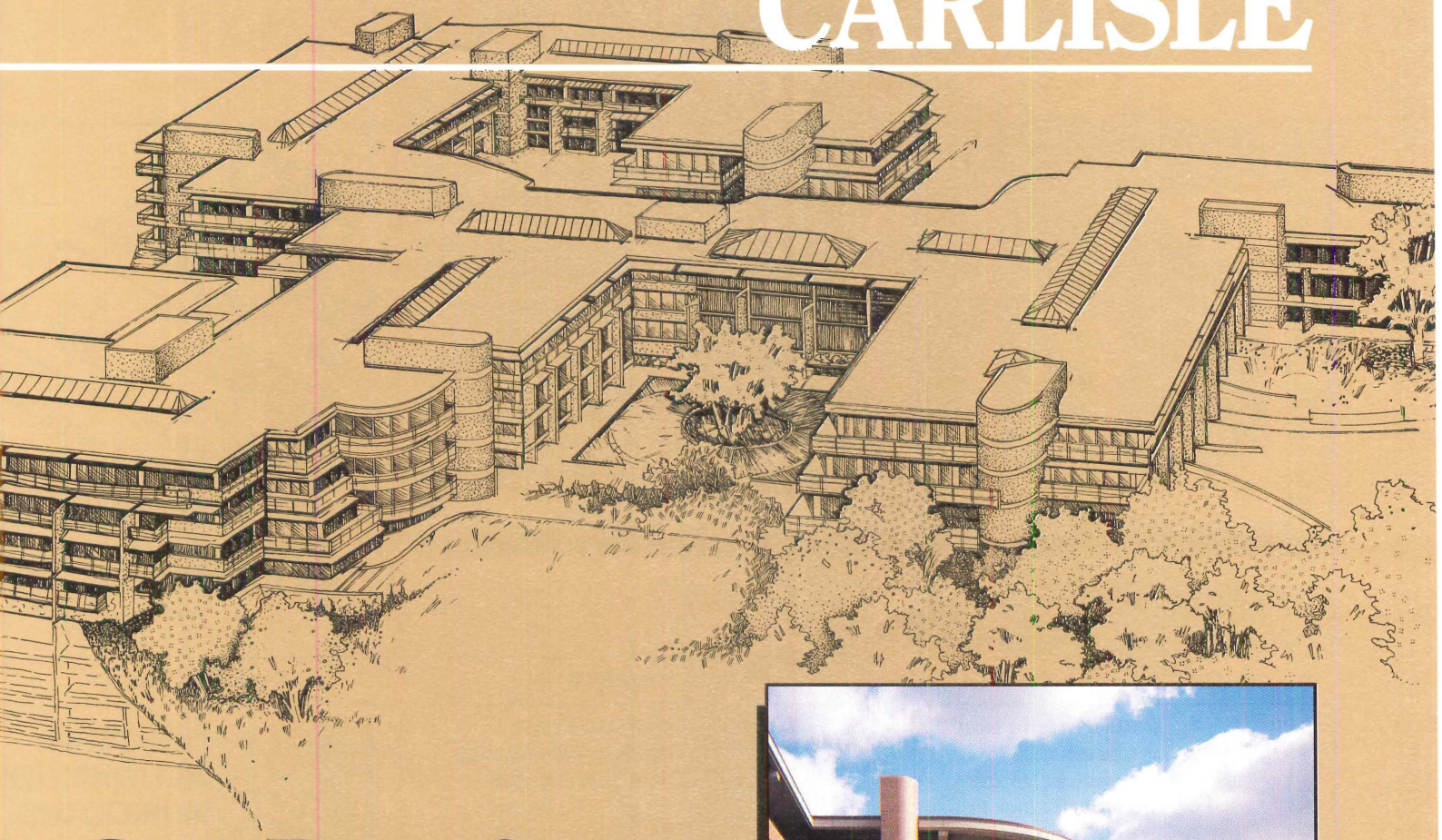
The world's largest computer and high tech show for the design and construction industry

A/E/C SYSTEMS® '89

For complete information call toll free 1.800.451.1196
or write to P O Box 11318, Newington, CT 06111

THE LEADER IN SINGLE-PLY ROOFING

CARLISLE



he Great Taste of
cDonald's Chose a
arlisle Roofing System

e-ply roof helps maintain
ntegrity of the adjacent landscape.

velopment of McDonald's corporate office campus in Oak Brook, anned for completion by the year 2000, is moving right along. atest addition on the 81-acre site is a multi-level executive office ing. The owner, and Chicago architect Lohan Associates selected a le system to secure the 100,000 square-foot roof structure.

cording to Dirk Lohan, FAIA, "Carlisle's ballasted system was an solution to McDonald's roofing requirements. The EPDM mem- protects the structure from the effects of wind, snow, water and old midwest winter environment . . . and at a reasonable cost."

ctive, Secure, Weatherproof.

is Carlisle ballasted system incorporates an inverted membrane nbly designed for flat or nearly flat roofs where ballast load is not blem. It utilizes a .045 in. thick Sure-Seal EPDM membrane loose over a post tensioned smooth finished concrete deck. Splicing ent and In-Seam Sealant™ are applied to secure the field splices. , the perimeter is secured and insulation installed above the brane. Finally, a protective fabric scrim and ballast are added.

r Innovative Systems To Choose From.

rlisle has many systems available to meet your roofing needs. ded are the new Design "A" Fully-Adhered and innovative hanically-Fastened Roofing Systems. Both systems utilize the ue .045 in. thick polyester-reinforced EPDM membrane and are able in either Sure-Seal® (black) or Brite-Ply™ (white) membranes.

Architect: Lohan Associates
Roofing Contractor: Olsson Roofing Company
Carlisle Manufacturer's Representative: Cambric Corporation

McDonald's—over seventy billion hamburgers served. Carlisle—over 70,000 roofs warranted and over two billion square feet of membrane installed by authorized applicators.

Need More Information?

Call a Carlisle manufacturer's representative/distributor. Or call Carlisle SynTec Systems toll free at 1-800-233-0551. In Pennsylvania 1-800-932-4626. In Canada 1-416-564-5557. Or write Carlisle SynTec Systems, P. O. Box 7000, Carlisle, PA 17013.

QUALITY ROOFS BY DESIGN

CARLISLE

Carlisle SynTec Systems

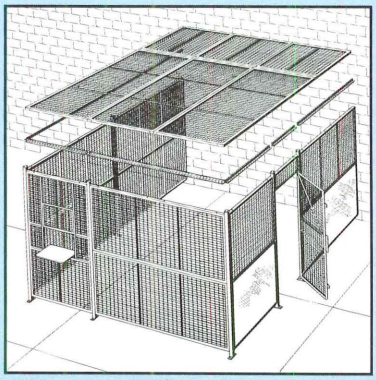
, Sure-Seal, Brite-Ply and In-Seam Sealant
demarks of Carlisle Corporation.

© 1989 Carlisle Corporation

Circle 87 on inquiry card

The Marketplace

THE VERY BEST



Woven Wire Partition

• Quality Product • Fast Delivery •

WireCrafters, Inc.

1-800-626-1816

6208 Strawberry Lane, Louisville, KY 40214

Circle 88 on inquiry card

Superior Metal Trim Makes Superior Metal Trim. An exhaustive selection of quality metal trim. Over 50 shapes/sizes; expansion, ventilation, separation screeds; drip moulds, base grounds. In zinc and other metals. We welcome orders for custom shapes and sizes. For full information, write *Delta Star, Inc., 1777 Industrial Way, Belmont, CA 94002-4085. Phone 415/591-4461 or 800/892-8673.*

Circle 89 on inquiry card

BIRD BARRIER

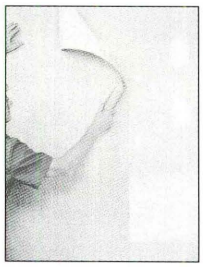
NIXALITE BIRD CONTROL

•Humane and ecological
•Virtually maintenance free
•Inconspicuous stainless steel spikes
•Commercial, institutional or residential
•Proven reliable for 39 years

NIXALITE of AMERICA
1025 - 16th AVE. • BOX 727
EAST MOLINE, IL 61244 • 309-755-8771
800-624-1189 • FAX 309-755-0077
SPECIALISTS IN BIRD CONTROL

For more info., see Sweet's section 10290/NIX

Circle 90 on inquiry card

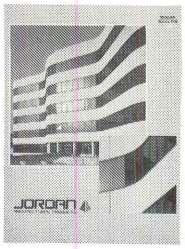


Plaster in a Roll™ Covers Old Gypsum Board Fast. Plaster in a Roll™ renovates damaged gypsum board in one simple step. Heavy-duty, gypsum-impregnated fabric in 50 colors and 3 weaves. Goes up easy as wallpaper, cures hard as plaster. Class "A" fire rating. Accepted by U.S. government agencies. *From Flexi-Wall® Systems, P.O. Box 88, Liberty, SC 29657. Phone 803-855-0500.*

Circle 91 on inquiry card

ULTRA/FLOR Mortar Eases Large Tile Installation. Mapei, the world's leading manufacturer of ceramic tile adhesives and grouting systems, introduces ULTRA/FLOR medium bed dryset morter. ULTRA/FLOR is designed to be applied from 3/8" to 3/4", minimizing the need for back buttering and providing excellent support under large tile, marble and dimensional stone. Now also available in white. *Mapei Corporation, 1350 Lively Blvd., Elk Grove Village, IL 60007. Phone 1-800-992-6273.*

Circle 92 on inquiry card

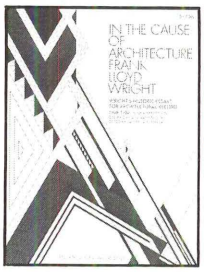


CUSTOM ALUMINUM WINDOWS

Operable and fixed aluminum systems, for new construction and replacement applications. Window series, characteristics and performance criteria are outlined in JORDAN's 1989 SWEET'S CATALOG FILE 08500/JOR. Look us up in Sweet's or send for your personal copy.

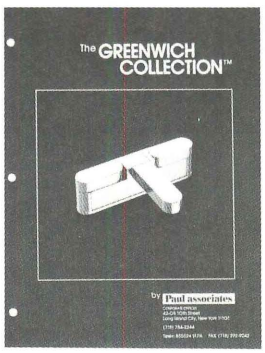
JORDAN
ARCHITECTURAL PRODUCTS
2460 FRISCO AVE. • MEMPHIS, TN • 901/744-1177

Circle 93 on inquiry card



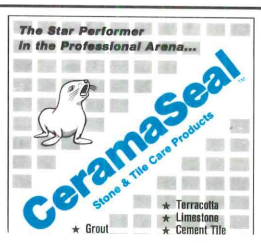
Frank Lloyd Wright's Timeless Essays
IN THE CAUSE OF ARCHITECTURE.
A collection of essays (until 1927) written by Wright, has retained the agelessness of his ideas. Edited by F. Gutheim and reprinted as a 246 page, high-quality paperback. $12.95 (includes postage & handling.) Send to : *ARCHITECTURAL RECORD BOOKS - 41ST FLOOR - 1221 Avenue of the Americas - New York, NY 10020.*

Greenwich Collection of Bathroom Designs by Paul Assoc.



Many faucet designs come in a choice of handles in gold, chrome and colors. Also available — a coordinated collection of accessories including towel rings, bars shelves, and more. All from the most prestigious name in the industry: Paul Assoc. 42-05 10th Street, Long Island City, NY 11101 Tel. 1(718) 784-2244. Fax 1(718) 392-9242. Catalog Available.

Circle 94 on inquiry card



A New Catalog Is Available Containing Maintenance Products For The Stone And Tile Industry. Water repellents, oil repellents, graffiti-resistant sealants, marble care, floor finishes for stone, grout sealant, exterior water borne acrylics. *Information Call: 1-800-356-4903. Ceramaseal Company, P.O. Box 33322, Seattle, WA 98133. Fax: 206-789-6272.*

MASTERPIECE

Circle 95 on inquiry card

British Solid Teakwood Site Furnishings

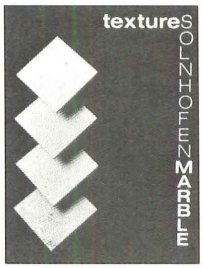
A superior collection of diverse designs from England's major joineries and custom workshops.

30 page Colour Catalogue

Benches ♦ Tables ♦ Planters
Trash Receptacles
Free "Quick-Ship" from stock
Call 1-800-872-8325

Country Casual—ARM
7317 Germantown Rd., 1-301-540-0040
ermantown, MD 20874 FAX 1-301-540-7364

Circle 96 on inquiry card



SOLNHOFEN NATURAL STONE Creates New Texture Series. SNS can now solve major design problems with the use of **textured** marble. **Textures** allow you to use marble where slip resistance is a concern or with polished tile and facade to add sophistication and design interest. *CONTACT SNS, INC. : 425 Brannan #210 San Francisco 94107 or via FAX: 415-546-4968 about your next stone project.*

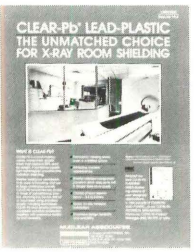
Circle 97 on inquiry card

COMPLETE GUIDE TO PORCELAIN ON ALUMINUM ARCHITECTURAL PANELS

...Ideal for window retrofit, curtainwall and fascia projects. 25-year warranty against crazing, cracking or fading. Available in ¼" or insulated up to 4" thick. For more information plus **FREE SAMPLE CALL TOLL FREE 1-800-228-2391.**

The mapes permanent solutions
Mapes Industries, Inc. / P.O. Box 80069
Lincoln, NE 68501 / (402) 466-1985
FAX: 1-402-466-2790

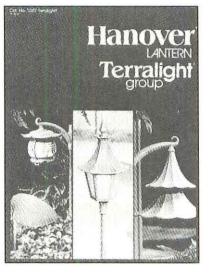
Circle 98 on inquiry card



CLEAR-Pb® Modular Barriers and Windows are the Unmatched Choice for X-Ray Room Shielding. Made of lead-impregnated, transparent plastic, CLEAR-Pb provides complete radiation protection with panoramic viewing. Pre-fabricated for quick, on-site assembly. Attractive, space-saving decorator look. Shatter-resistant; choice of lead equivalencies. Free CLEAR-Pb X-Ray Room Planning Guide available.

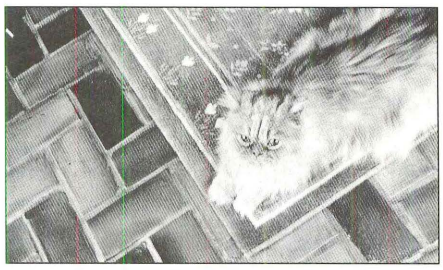
NUCLEAR ASSOCIATES
VICTOREEN
A Division of VICTOREEN, INC.
100 VOICE ROAD
CARLE PLACE, NY 11514-1593 U.S.A.
(516) 741-6360
FAX (516) 741-5414

Circle 99 on inquiry card



Terralight Landscape Group from Hanover Lantern. A unique collection of durable cast aluminum garden, pool and patio lighting fixtures. Design styles range from Oriental, Nautical to Traditional. All fixtures are standard household 120 volt or with optional low voltage (12 volt) conversion kits, ground spikes, J-boxes and transformers. All fixtures are U.L. & CSA approved. Quality fixtures made in the U.S.A. *Hanover Lantern, 470 High St., Hanover, PA 17331- 9958. (717) 632-5039.*

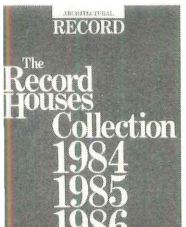
Circle 100 on inquiry card



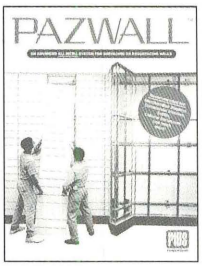
Handcrafted Ceramic Tile Signed By The Hand That Made It. America's premiere handcrafted tile is found in the nation's finest homes and commercial buildings. Call or write for descriptive literature. ***Epro, Inc.**, 156 E. Broadway, Westerville, OH 43081. (614)-882-6990.*

Epro, INC

Circle 101 on inquiry card



The Record Houses Collection. A compilation from 1984/1985/1986. Everyone loves RECORD HOUSES! And we have put three years' worth into a single volume. Over 260 pages, in full color, with plans and text directly from the pages of ARCHITECTURAL RECORD's RECORD HOUSES issues. Just $16.95 (includes postage and handling.) Send to: *ARCHITECTURAL RECORD BOOKS - 11st FLOOR - 1221 Avenue of the Americas, N. Y., NY 10020.*



Discover The PAZWALL Advantage!

The most innovative wall system to date. Our system combines an erector-set technology with exceptional design flexibility.

PAZWALL utilizes any material in panelized form: marble, stone, glass, plastic laminate, vinyl, fabric, etc.

And **PAZWALL** does not stop at walls. Soffits, fascias, light coves, . . . are all easily achieved. Our technical staff is eager to assist.

Fast! Accurate! Strong! Clean! Versatile!

Ideal for retail and commercial use.
Call for informative brochure:
PAZ SYSTEMS INC. (800) 323-WALL

Circle 102 on inquiry card

The REPort... the monthly newsletter for building product sales reps and distributors. News briefs and reports, building products, law, marketing, management, selling tips, news of companies and people, employment listings, new lines available...and sales leads on major construction projects...everything the successful rep or distributor needs to know...from McGraw-Hill. $69/year (12 issues). Subscribe now and get 5 valuable sales manuals FREE. Call 212/512-3442.

Advertising index

For detailed data, prefiled catalogs of the manufacturers listed below are available in your 1989 Sweet's Catalog File as follows:

(G) General Building & Renovation
(E) Engineering & Retrofit
(I) Industrial Construction & Renovation
(L) Homebuilding & Remodeling
(D) Contract Interiors

A

Accuride, **48**; *40* [D]
(213) 944-0921
Advance Lifts, Inc., **48**; *39* [G]
(312) 584-9881
A/E/C Systems, Inc., **156**
(800) 451-1196
AllianceWall Corp., **10-11**; *14* [G]
(404) 447-5043
Aluma Shield Industries, **30**; *24* [G]
(904) 255-5391
Alumax Building Specialties, **52**; *57* [G-D]
(214) 285-8811
American Glass Light Co., **32Ea**; *26*
(212) 213-1200
American Olean Tile Co., **T4-T5**; *42* [G-D]
(800) 541-TILE
Andersen Corp., **58-59**; *60* [G-L]
(800) 635-7500
Apple Computer, Inc., **13 to 15**; *16*
(800) 446-3000
Architect's Book Club, **129 to 131**
(800) 2-MCGRAW
Armstar, **T11**; *44* [G-D]
(615) 986-4040
Armstrong World Industries, Inc., **Cov.II-1**; *1*, **2-3**; *2* [G-E-D]
(800) 233-3823

B

Besteel Industries, **32Sa**; *31*
(800) BESTEEL
Big Show, **32Wd**
(305) 477-0303
Bond Cote Systems Co. Div., WestPoint Pepperell, **36**; *34* [G]
(800) 368-2160
Brother International Corp., **155**; *86*

C

Canon U.S.A., Inc., **35**; *33*
(800) OK CANON
Carlisle Syntec Systems, Div. of Carlisle Corp., **157**; *87* [G-E-I]
(800) 233-0551
Classic Lamp Posts, Inc., **149**; *83*
(800) 654-5852
CMC/Monoceram, Tile Group Italia, **T16**; *46*
(312) 439-6644
Codeworks Corp. **32Eb**; *27*
(202) 778-6300
Cooperativa Ceramica D'Imola, **T27**; *51*
(305) 573-4506
Coyne & Delany Co., **22**; *20* [E]
(804) 296-0166
Crossville Ceramics, **T19**; *47* [G-D]
(615) 484-2110
C/S Group, **5**; *3* [G-E]
(800) 233-8493

D

Dor-O-Matic, Div. of Republic Industries, Inc., **42**; *37* [G]
(800) 543-4635
Dorma Door Controls, Inc., **126**; *76*
(215) 267-3881
Dow Corning Corp., **118**; *67 to 72* [G-E-I-D]
(800) 346-9882
Dukane Corp., **64**; *63*
(312) 584-2300
Duro-Last Roofing, Inc., **50**; *56* [G-E]
(800) 248-0280

E

Ebco Manufacturing Co., **154**; *85* [G-E-I]
Efco Corp., **120-121**; *73* [G-I]
Eotron Corp., **150**; *84*
(800) 548-5780

F

Fiandre, **T8**; *43*
(312) 350-1555
Florida Tile Div., Sikes Corp., **T32**; *55* [G]
(800) FLA-TILE
Follansbee Steel Corp., **40**; *36* [G]
(800) 624-6906
Forrer Chemical Co., **137**; *79* [G]
(414) 354-4400

G

Georgia-Pacific Corp., **T21**; *23,49* [G-I-L]
(800) 225-6119
Glen Raven Mills, Inc., **18-19**; *18* [G]
(919) 227-6211

H

Harris/3M Document Products, Inc., **122-123**; *74*
Hewlett-Packard, **132**; *77*
(800) 367-4772

I

Inax Corp., **32Wa**; *29*
(213) 657-5379
Innovative Marble and Tile, Inc., **T29**; *52* [G]
(516) 752-0318
International Design Conference in Aspen, **136**
(303) 925-2257
ISICAD, Inc., **134**; *78*
(800) 556-1234
Italian Tile Center, a Div. of the Italian Trade Commission, **T30**; *53*
(212) 980-8866

K

Kawneer Co., Inc., **62-63**; *62* [G]
Kimball Office Furniture Co., **28**
(800) 482-1616

L

LaFaenza America, Inc., **T12-T13**; *45*, **T31**; *54*
(415) 655-1395
Laminators Safety Glass Assn., **8**; *13*
(913) 266-7014
Laticrete International, Inc., **T20**; *48* [G]
(800) 243-4788

M

Marvin Windows, **16-17**; *17* [G]
(800) 328-0268
MBCI, **32**; *25*
Merchandise Mart Properties, Inc., **144-145**; *81*

N

National Lighting, **32Ed**; *111*
National Symposium on Health Care Interior Design, Inc., **162**; *108*
(415) 370-0345
NCARB, A.R.E. Handbooks, **147**
Northwest, **140**
(800) 447-4747
Nucor Corp., **60-61**; *61* [G-E]

O

Owens-Corning Fiberglas, **56-57**; *59* [G-E-I-L]
(800) 537-3476

P

PABCO, a div. of Fibreboard Corp., **24**; *21* [G-E-I]
(800) 231-1024
Pella Rolscreen Co., **112-113**; *65* [G-L]
(512) 628-1000
Petersen Aluminum Corp., **111**; *64* [G]
Pittsburgh Corning Corp., **26**; *22* [G-E]
(800) 992-5769

R

Raceway Components, Inc., **148-149**; *82*
(201) 661-1116
Radio Shack, **54**; *58*
Robertson Bldg. Products Group, H. Robertson Co., **114-115**; *66* [G-E-I]
(412) 928-7500

S

Sargent & Co., **Cov.III**; *109* [G]
(203) 562-2151
Sarnafil, Inc., **124**; *75* [G-I]
(800) 451-2504
Season-All Industries, Inc., **32Ec**; *28* [G-I]
(412) 349-4600
Shakertown Corp., **161**; *106* [G-L]
(800) 426-8970
Sherwin-Williams Wholesale, **12**; *15* [G-E-I]
(800) 321-8194
Southern California Edison, **32Wc**; *3*
(800) 952-5062
Spacesaver Corp., **6**; *4 to 12* [G-I]
(800) 492-3434
Summitville Tiles, Inc., **T2**; *41* [G]
Sweet's Div. -McGraw-Hill Information Systems, **138, 151 to**
SweetSpec Seminar, Heery International, Inc., **142**; *80*
(800) 523-1353

T

Trade Commission of Spain, Home Furnishings Div., **T25**; *50*
(305) 446-4387

U

United States Gypsum Co., Interior Durock, **20**; *19* [G-L]
United Technologies, **44-45**; *38* [G]
USG Interiors, Inc., **Cov. IV**; *110* [G-E-I-L-D]

W

Wausau Tile, **142**; *112* [G-E-I]
(715) 359-3121
Weather Shield Mfg., Inc., **33,34**; *32* [G]
(715) 748-2100
WestWeek, **161**; *107*
Willamette Building Products, **38**; *35*
(503) 928-3341

les offices

Office

aw-Hill, Inc.
Avenue of the Americas
York, New York 10020

sher
Meredith (212) 512-4685

iate Publisher
e 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

rict Offices

ta
Ashford-Dunwoody Road
ta, Georgia 30319
ry Bowerman (404) 252-0626

n
oylston St.
n, Massachusetts 02116
F. Kutscher (203) 968-7113

go
. Michigan Ave.
go, Illinois 60611
ny Arnone, (312) 751-3765
as P. Kavooras, Jr.,
751-3705

land
blic Square
land, Ohio 44113
e Gortz (216) 781-7000

er
S. Alton Ct. Suite 111
ewood, Colorado 80112
J. Hernan (303) 740-4630

ton
W. Tidwell, Suite 500
ton, Texas 77040
wood 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
777 Long Ridge Road
Stamford, Connecticut 06902
Frank Rose (203) 968-7112

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

Marketplace
yl Hudson
Ruvane
-544-7929

Vice President Market Development
Federal Government
Paul R. D'Armiento
1750 K Street NW
Suite 1170
Washington, D.C. 20006
(202) 463-1725

seas Offices

kfurt/Main
gstraBe 19
kfurt/Main, Germany

ield
Vest St.
ield S14ES, England

1
Baracchini No. 1
1, Italy

;
Faubourg St-Honoré
; 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

SHAKERTOWN SIDING: CHOICE #1
FACE: Colonial or Cascade Classic

Some architects want the clearest cedar shingle face available. To them we offer our Colonial panels. Each Colonial panel has 100% vertical grain, No. 1 Grade Western Red Cedar shingles.

But other architects want that rustic look. So we say choose our Cascade Classic panels. Each Cascade Classic panel has enhanced grain patterns and an occasional hand-sorted tight knot for the natural look of wood. Colonial or Cascade Classic, all of our panels are made with the same precision and quality manufacturing that for over 35 years has said "Shakertown Siding."

SHAKERTOWN SIDING
1200 Kerron St., Winlock, WA 98596
1-800-426-8970
In Washington (206) 785-3501
The Woodlands of Darien, Darien, Illinois; Developer: Robert C. Ranquist

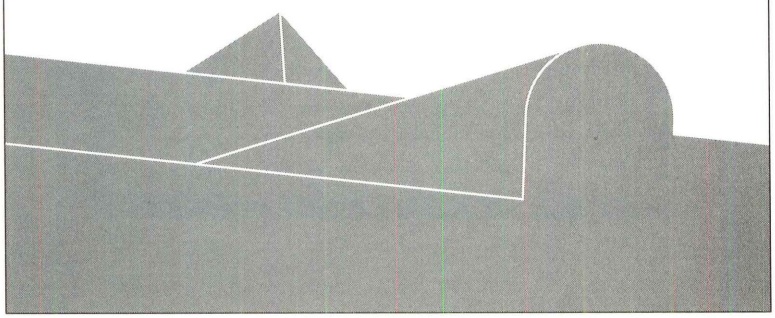
Circle 106 on inquiry card

The greatest people attended WestWeek 89

The major design event of the year at Pacific Design Center

The international furnishing resource in Los Angeles

The marketplace for Pacific Rim



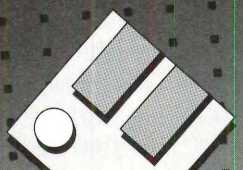
Circle 107 on inquiry card

"DESIGN SOLUTIONS FOR SPECIAL POPULATION GROUPS"

November 29–December 2, 1989
Marriott's Orlando World Center / Orlando, Florida

The Second Symposium on Health Care Interior Design will focus on "Design Solutions for Special Population Groups." The Symposium will feature presentations by 20 nationally recognized health care design experts, tours of exemplary local health care facilities and a Trade Show Exhibition – all addressing the unique requirements of geriatric, psychiatric, pediatric and other special population group facilities – and highlight strategies for creating high-quality, life-enhancing health care environments that support healing and promote well being.

Architects, health care professionals, interior designers, educators and manufacturers will find this one-of-a-kind Symposium invaluable in developing innovative approaches to health care facility design.

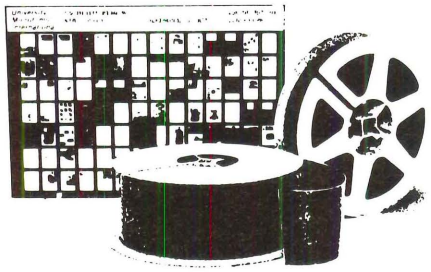


SECOND SYMPOSIUM ON HEALTH CARE INTERIOR DESIGN

For a registration kit and/or more information contact:
National Symposium on Health Care Interior Design, Inc.
4550 Alhambra Way
Martinez, California 94553
415/370-0345

Circle 108 on inquiry card

this publication is available in microform



Please send me additional information.

University Microfilms International

300 North Zeeb Road
Dept. P.R.
Ann Arbor, MI 48106
U.S.A.

18 Bedford Row
Dept. P.R.
London, WC1R 4EJ
England

Name _____
Institution _____
Street _____
City _____
State _____ Zip _____

Use your STAC number!

XXXXXXXXXX5-DIGIT 69699
6400 009876543 FEB90 S07
TERRY DOE, TD & ASSOCIATES
128 MAIN STREET
ANYTOWN IL 69699

Need product information *fast*? Your Architectural Record *Subs* *Telephone Access Card* number can help *speed* information t about any product or service (advertised or new products/m facturers literature items) described in this issue.

Architectural Record's exclusive STAC number system enables you t and key your "more information" requests directly into our comput touch-tone telephone. Your personal STAC number is conveniently *above* your name on the mailing address label for each issue. IMPORT Your STAC number starts *after* the first four numbers and is separated them by a space. If your STAC number starts with one or more zeros, i them. (For example, the STAC number on the above label is 9876543.

Soon after your call, advertisers can access your requests by phone fro computer, and start speeding information to you. So when you need inf tion fast, free help is as close as your STAC number. And STAC serv available to you 24 hours a day, seven days a week.

BEFORE YOU DIAL:

1. Write your STAC number in the boxes in Step 4 below. Do not add leading zeros.

2. Write the Reader Service numbers for those items about which you want more information in the boxes in Step 6. Do not add leading zeros.

CALL STAC:

3. Using a standard touch-tone telephone, call 413/ 442-2668, and follow the computer-generated instructions.

ENTER YOUR STAC NUMBER AND ISSUE NUMBER:

4. When the recording says, "Enter your subscriber number..." enter your STAC number by pushing the numbers and symbols on your telephone keypad. Ignore blank boxes. Enter:

☐☐☐☐☐☐☐☐☐ # #

5. When the recording says, "Enter magazine code and issue code..." enter these numbers and symbols:

2 5 # 4 9 # #

ENTER YOUR INQUIRIES:

6. When the recording says, "Enter (next) inquiry number..." enter the first Inquiry Selection Number, including sym from your list below. I blank boxes. Wait for the pt before entering each s quent number (maximu numbers).

1. ☐☐☐☐ # ☐
2. ☐☐☐☐ # ☐
3. ☐☐☐☐ # ☐
4. ☐☐☐☐ # ☐
5. ☐☐☐☐ # ☐
6. ☐☐☐☐ # ☐
7. ☐☐☐☐ # ☐
8. ☐☐☐☐ # ☐
9. ☐☐☐☐ # ☐
10. ☐☐☐☐ # ☐
11. ☐☐☐☐ # ☐
12. ☐☐☐☐ # ☐
13. ☐☐☐☐ # ☐
14. ☐☐☐☐ # ☐
15. ☐☐☐☐ # ☐
16. ☐☐☐☐ # ☐
17. ☐☐☐☐ # ☐

END STAC SESSION:

7. When you have entered a Inquiry Selection Numbe the recording prompts, next inquiry number," E call by entering:

# #

If you are a subscriber and need assistance, call 212/512-3442. If you a a subscriber, fill out the subscription card in this issue, or call Archit Record Subscription Services at 1-800-525-5003.