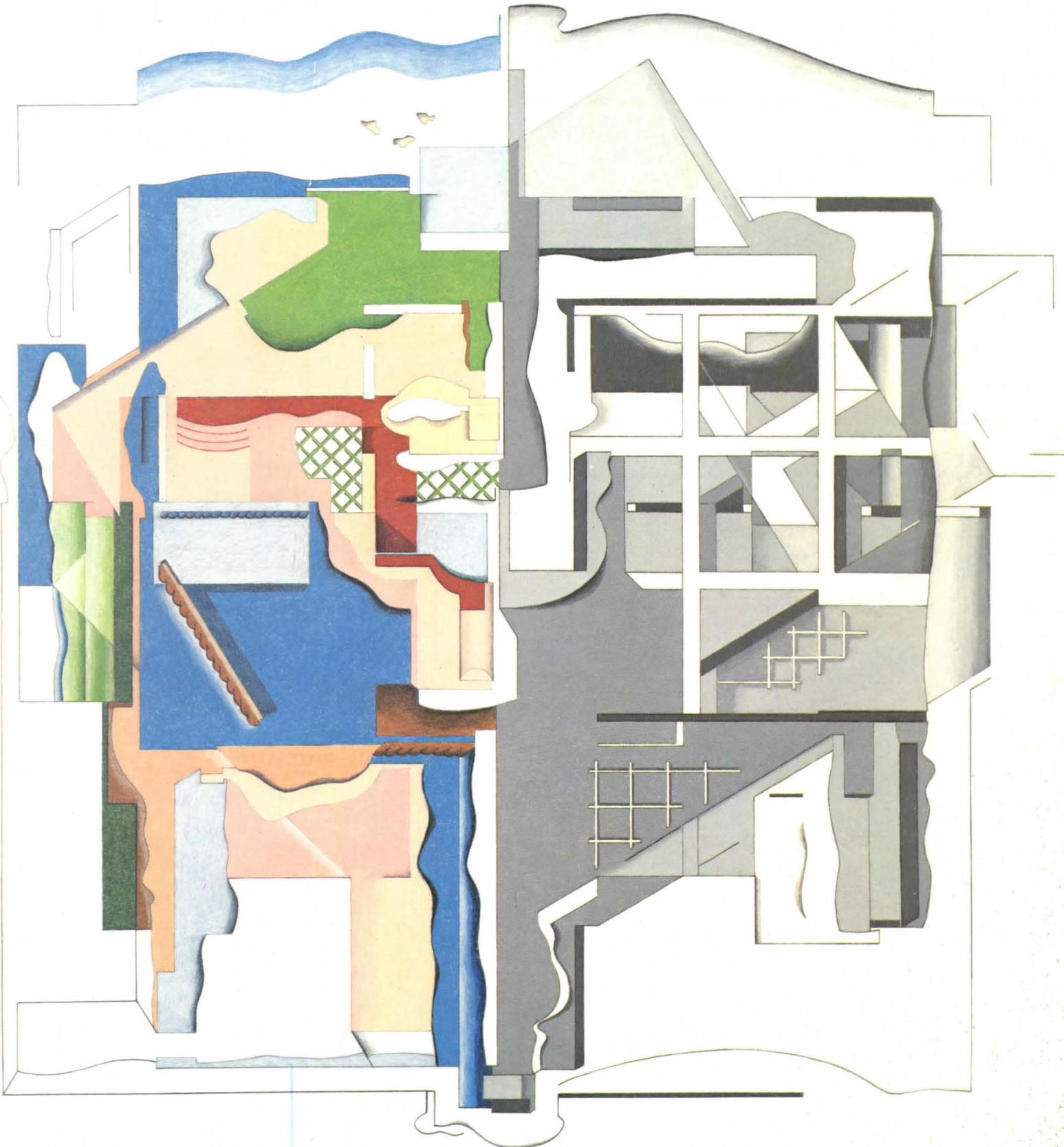


Eisenman and Graves

Progressive Architecture

March 1972, A Reinhold publication





Azrock— the almost perfect floor...

for Office Buildings

Azrock vinyl asbestos tile serves more office building requirements more perfectly than any other type of flooring. Yet it costs less than half as much as it did 20 years ago. And today it's a better floor. Here's why you can specify Azrock with confidence:

- Styled to coordinate with contemporary interiors
- Long lasting durability
- Fire safe, will not support combustion
- Shock proof
- Easy, economical cleaning and stain removal
- Resilient underfoot comfort
- Lowest motion resistance
- Non-allergenic, mildew proof, no odor retention
- Exceeds federal specifications
- Low-cost maintenance
- Low initial cost

Vinyl asbestos tile is one of the most widely used floorings in office buildings today. Offer clients a colorful, high style floor and cut maintenance problems with low-cost Azrock vinyl asbestos tile—the best floor for office buildings.

Floor shown: Alvarado, one of over 150 colors and styles

the vinyl asbestos
floor tile people



Write for free samples and No-Wax Maintenance information.
Azrock Floor Products, 523A Frost Bldg. San Antonio, Texas 78292.

On Reader Service Card, circle no. 325



**Design freedom with
Steelcraft "sticks"
used as a steel, load bearing
wall framing system**

The "Stick system" gives architects unlimited opportunities to design custom entrances, fronts, interior walls — any conceivable glass wall opening using standard steel sections. These stick systems are fabricated locally by a national network of distributors to meet all job requirements and field conditions.

Steelcraft[®] Manufacturing Company

9017 Blue Ash Road, Cincinnati, Ohio 45242 U.S.A.
Phone (513) 791-8800

An American-Standard Company



7005

Want to save space? Oasis will meet you halfway.

We'll meet you at the water cooler which extends just 9½" from the wall.

That's our semi-recessed model designed to do more than just save space. It conceals the plumbing. It's easy to install because it comes with a steel mounting box.

It even comes with a full 5-year warranty. The industry's strongest.

This water cooler is available in

13, 7 or 5-gph capacities. And you have a choice of decorator finishes.

Fully-recessed models available too.

See details in Sweet's. Or call your Oasis distributor, listed in Yellow Pages. The "Quality you take for granted" is part of every Oasis water cooler, humidifier and dehumidifier—products of Ebco Mfg. Co., Dept. PA-1, 265 N. Hamilton Rd., Columbus, O. 43213.

OASIS® 

March, 1972

Progressive Architecture

Editor
John Morris Dixon, AIA

Executive Editor
Burton H. Holmes, AIA

Managing Editor
Rita Robison

Associate Editors
David A. Morton, Features
James A. Murphy, AIA, Features
Clinton A. Page, News Report
Sharon Lee Ryder, Interior Design
Joyce Reback, Products, Book Reviews

Copy Editor
Charlotte Van Voorhis

Editorial Assistants
Rose Calomino
Barbara McCarthy

Graphics
Joel Petrower, Art Director
George Coderre, Assistant Art Director
Anne Marie Sapione, Art & Production
Nicholas R. Loscalzo, Architectural Drawings
Bradbury Thompson, Graphics Consultant

Contributing Editors
Esther McCoy, Architecture west
Norman Coplan, It's the law
Bernard Tomson, Hon. AIA, It's the law
E. E. Halmos, Jr., Washington report
Harold J. Rosen, PE, FCSI, Specifications clinic
Syska & Hennessy, Inc., Environmental engineering

Publisher
Harrington A. Rose

William F. Bondlow, Jr., Adv. Sales Manager
Burchard M. Day, Promotion Director
Joseph M. Scanlon, Production Director
Daniel H. Desimone, Production Manager
Janice Carmichael, Assistant Production Manager
Richard H. Di Vecchio, Circulation Director
Marc Ross, Fulfillment Manager
Walter L. Benz, Research Director
E. M. Wolfe, Reader Service Manager

Departments

- 6 Views
- 27 News report
- 61 Products and literature
- 67 Editorial
- 106 Environmental engineering
- 108 Specifications clinic
- 113 It's the law
- 114 Books
- 162 Job mart
- 166 Directory of advertisers
- 169 Reader service card

- 68 **On reading architecture**
Architects Peter Eisenman and Michael Graves explore architecture as a system of meaning, hoping to know more about its intrinsic nature
 - 88 **Reclaiming a riverfront**
A plaza over a public parking garage, designed by Frank Schlesinger, gives the banks of the Genesee River back to the people of Rochester, N.Y.
 - 94 **Materials and methods: Toward proper seamless flooring specs**
There are numerous specs for seamless flooring but no standards whereby manufacturers and specifiers may apply common criteria to their evaluations
 - 96 **Start of a new tradition: co-ed prep**
Architect Benjamin Thompson did more than design additions to two prep schools in St. Paul; he helped plan their merger into one co-ed institution
 - 100 **Planning for growth: managing change**
In the first of a series of articles on office management, P/A takes a look at the problems and opportunities that growth brings to architectural firms
- Cover:** Diptych by Michael Graves, representing his work on the right, and Peter Eisenman's work on the left

Progressive Architecture, published monthly by Reinhold Publishing Corporation, a subsidiary of Litton Publications, Inc., Division of Litton Industries. Philip H. Hubbard, Jr., President; Harry I. Martin, Group Vice-President; Charles O. Bennewitz, Treasurer; Kathleen A. Starke, Secretary; Robert W. Roose, Vice-President. Executive and editorial offices, 600 Summer Street, Stamford, Conn. 06904.

For subscription or change of address write Progressive Architecture, 25 Sullivan St., Westwood, N.J. 07695, giving former as well as new address, zip codes, recent address label if possible. Allow two months for change.

Subscriptions payable in advance. Publisher reserves right to refuse unqualified subscriptions. Subscription prices to those who, by title, are architects, engineers, specifications writers, estimators, designers, or draftsmen, and to government departments, trade associations, above title groups on temporary military service, architectural schools, architectural students, advertisers and their employees; \$6 for one year; \$9 for two years; \$12 for three years. Professionals outside the U.S., U.S. Possessions and Canada: \$18 for one year; \$24 for two years; \$30 for three years. U.S., U.S. Possessions and Canadian nonprofessionals: \$12 for one year. Foreign nonprofessionals: \$30 for one year. Single copy \$3, payable in advance. Indexed in Art Index, Architectural Index, Engineering Index. Second-class postage paid at Stamford, Conn, and additional offices. Volume LIII. No. 3. Printed in U.S.A. Reinhold Publishing Corporation © 1972. All rights reserved.





Environmental Systems Building, St. Louis, Mo.
Owner: Emerson Electric Co.
Architects: Hellmuth, Obata & Kassabaum Inc., St. Louis, Mo.
Glazing Contractor: Hadley-Dean Glass Co., St. Louis, Mo.

How to save electricity without remembering to turn out the lights: Vari-Tran.[®]

Emerson Electric's new Environmental Systems Building is sheathed in Thermopane[®] insulating glass with a Vari-Tran 208 coating. Because Vari-Tran was used instead of 1/4" bronze plate glass, over \$4,000 less electricity will be needed every year for heating and cooling. With the problem of energy supply being critical, that's a meaningful saving in power.

As for pure financial saving, Emerson started saving money the moment it approved

Vari-Tran for its building. Early studies showed that Vari-Tran was the least expensive glass that met Emerson's rigid specifications. Even though it's *our* most expensive glass.

Emerson saved heat because Thermopane units have a 50°+ inside surface temperature when it's zero



outside. That meant there was no need for under-window radiation and under-floor piping, which saved some \$40,000. And Thermopane units virtually eliminate drafts, allowing desks to be placed next to the windows.

Compared to tinted glass, the reduction in solar heat gain with Vari-Tran reduced air-conditioning equipment requirements by 97 tons. Resulting saving: \$24,250.

As for aesthetics, Vari-Tran's golden color harmonizes beautifully with the building's Corten Steel.

If you're planning a building, we're sure Vari-Tran can provide comfort and save dollars, too. So let us send you a computerized cost analysis of glazing alternatives. Simply contact your L-O-F Architectural Representative or Architectural Dept., Libbey-Owens-Ford Company, Toledo, Ohio 43695.

On Reader Service Card, circle no. 364

LOF Hi-Performance Glass
GLASS The glass that cuts building costs

Views

Correction and amplification

Dear Editor: I must first thank you for publishing Unity Bank in the Nov. issue of P/A (p. 120) then record my considerable objection to a portion of the text.

Although black-white dualities and conflicts were not my conscious attempt in designing Phase One of the Bank nor Steve's [Stephen Tise] intent in completing Phase Two, there can be little doubt that both user and observer must be free to interpret the result in whatever way it hits them. I, therefore, found your observations both curious and interesting and in no way disturbing. If, in fact, the visual images there excite in some the physio-psychological responses you noted, then we have inadvertently reflected the way things are and this is good, perhaps even very good.

This being so, you will certainly understand how important it is that you and others know that our Bank was *not* financed by whites. I, together with a number of determined black men, met in a basement for 18 months investing the energies and dollars required to demonstrate the need and illustrate the supporting market for Unity.

For the first time in the history of American banking, stock was offered at a cost per share capable of being reached by all but the destitute. Techniques were developed for marketing stock within a community that found the concept foreign and uncomfortable, and when Unity received its Charter, more than 3000 held its stock with a black majority.

I am hopeful that you will agree that there are too few similar examples for this one to be incorrectly recorded. Considering the nature of things, it may even be significant that it could happen . . . in just the way it did.

Finally, the mural was painted by Gary Rickson, a local black artist, who incidentally beautifully defaced the Roxbury YMCA across Warren Street from the Bank site with his strange and moving mysticism. The "faceless black man" . . . there . . . "in search of an identity" . . . is seen by many instead as someone akin to Gibran's "fore-runner." A sentinel of things to come.

I am hopeful that you will receive these comments with the good will intended.

*Don Stull, AIA
Boston, Mass.*

Dear Editor: We were very pleased to see the inclusion of our Virgin Islands Public Television System station in your January 1972 issue (p. 29). Through an unfortunate oversight on our part, in our original letter to you, we neglected to mention the name of our partners in joint venture on this project—Design Collaborative—and wish to correct this for the record.

*Laurence S. Cutler
Ecodesign, Inc.*

Rooftop systems

Dear Editor: Your article on mechanical systems in your October 1971 issue was quite informative, and will no doubt be retained for reference by many designers. Congratulations.

I would take issue with one statement cited on page 82, concerning rooftop systems, which reads, ". . . completely pre-tested package." Alas, this is not correct.

An article by Consulting Editor H.T. Kahoe in the Jan. 1971 issue of *Air-conditioning & Refrigeration Business* reports that many manufacturers didn't test rooftops as a complete unit. In the August 1971 issue of the same magazine, the same writer reports, ". . . two manufacturers have installed elaborate test labs, especially for rooftops. And more will follow."

With more than one hundred manufacturers producing such equipment, a suitable program of testing and standardization of ratings would create a great deal more satisfaction among the users of rooftop equipment.

*Robert E. Ross
Better Heating-Cooling Council
Berkeley Heights, N.J.*

Juvenility, arrogance, irresponsibility?

Dear Editor: Regarding your editorial in the December 1971 issue of *Progressive Architecture* touching on the political role of the architect, please spare us the juvenility, arrogance and irresponsibility expressed by your statement "the architect

is the one person qualified by training and experience, as well as by some innate sensitivity, to influence or make decisions affecting the physical growth and planning of cities."

With the exception of a few in your profession, an understanding of the natural science is totally lacking; interpretation of social needs is generally based on the individual's personal preconditioned lifestyle and sensitivity often comes through as hoped-for uniqueness in building form rather than a solution of physical contingencies or a complement to the visual fabric of the city.

The current situation with regard to the quality and appeal of North American cities is not that inspiring and architects have been professing the "master builder" role for many decades. The profession has lost its chance; it is not so inclined or it is incapable of the role you ascribe to it.

*E.J. Walker
Master of Landscape Architecture
Regina, Canada*

[Somehow the point we were making did not, it appears, reach Mr. Walker; i.e., that "the architect is the one person etc. . . ." is the blown up, romantic, knight-on-a-white-horse view of the architect that even architects can be seduced by and the public often is. The facts are—but then, that's what we think the editorial is all about. Ed.]

Design awards

Dear Editor: Upon reading the January Design Awards issue I think that the urban design jury brought up some very important considerations the architectural jury gave only lip service to. The comments in regard to "the issue of people, people use, and people need" are as relevant and applicable to architecture as they are to urban design. The paucity of inputs about the "nature of man and human behavior" is as vitally important in the design of schools, offices, condominiums and recreation centers as to the design of cities. . . .

Mr. Flansburgh's comment that advocacy design is the toughest kind seems to spotlight the very problem to which we should be focusing our efforts. Our inability and lack of interest in developing a methodology for eliciting usable information from users is at its core. Unless we work to solve this problem we will continue, in Mr. McHarg's words, "regurgitation of the worst of the past cliches in which there has been no testing . . ." not only in urban design but in architecture.

*Lawrence P. Friedberg
Cornell University*



New decks to give you better deals on exterior stains.

New Wonder Woodtones™— a complete line of solid hide and semi-transparent exterior stains. Forty-eight colors. Ideal for wood siding, porches, shingles, shakes, steps, fences, exterior plywood benches or rustic woods.

Wonder Woodtones works for you indoors, too — on beams, barnwood or rough-sawn panels. The flat finish brings the wood texture to life, yet it's heavy enough to hide old stained surfaces.

Ask your Devoe representative to show you these important new exterior stains — they're in the Celanese tradition of color leadership, a part of the Colors of the '70's family.

DEVOE PAINT, DIV. OF CELANESE COATINGS CO.

224 East Broadway, Louisville, Ky. 40202

On Reader Service Card, circle no. 337



Announcing the first Owens-Corning Energy Conservation Award for architects and engineers.

Show our Awards Jury a building design that doesn't waste energy—and you could win one of the three Energy Conservation Awards Owens-Corning will present this year.

The Awards Jury will be looking for three things: Creativity. Originality. And designs that save energy.

We're running this program because of the urgent need to conserve energy. Too many buildings waste energy and contribute to environmental pollution.

By offering Energy Conservation Awards, we hope to stimulate new designs and ideas for conserving energy. We also want to honor the architects and engineers who do the best job of designing buildings and mechanical systems that save energy.

The winning combination of energy-saving ideas could be in the building you're working on now.

Who can enter. All registered architects and professional engineers practicing in the U.S. are eligible. As individuals. Or in teams. But to qualify, your entry must be a commissioned building project—in the design process, under construction or a completed structure.

The use of Fiberglas* products is not an entry requirement.

The Awards. The Awards Jury—outstanding

professionals in the fields of architecture and engineering—will present an award in each of these categories:

Institutional—schools, hospitals and government buildings, for example.

Commercial—office buildings, shopping centers, retail stores and similar structures.

Industrial—including manufacturing plants, research centers, warehouses.

Equal emphasis will be given to all entries in each category, regardless of project size.

Winning architects and engineers will receive a Steuben crystal sculpture—the multi-faceted polyhedron shown on the opposite page. The firms and building owners associated with the winning entries will receive Steuben plaques.

Send for entry details now. Completed entries must be submitted by August 31, 1972, so that winners can be notified in September 1972.

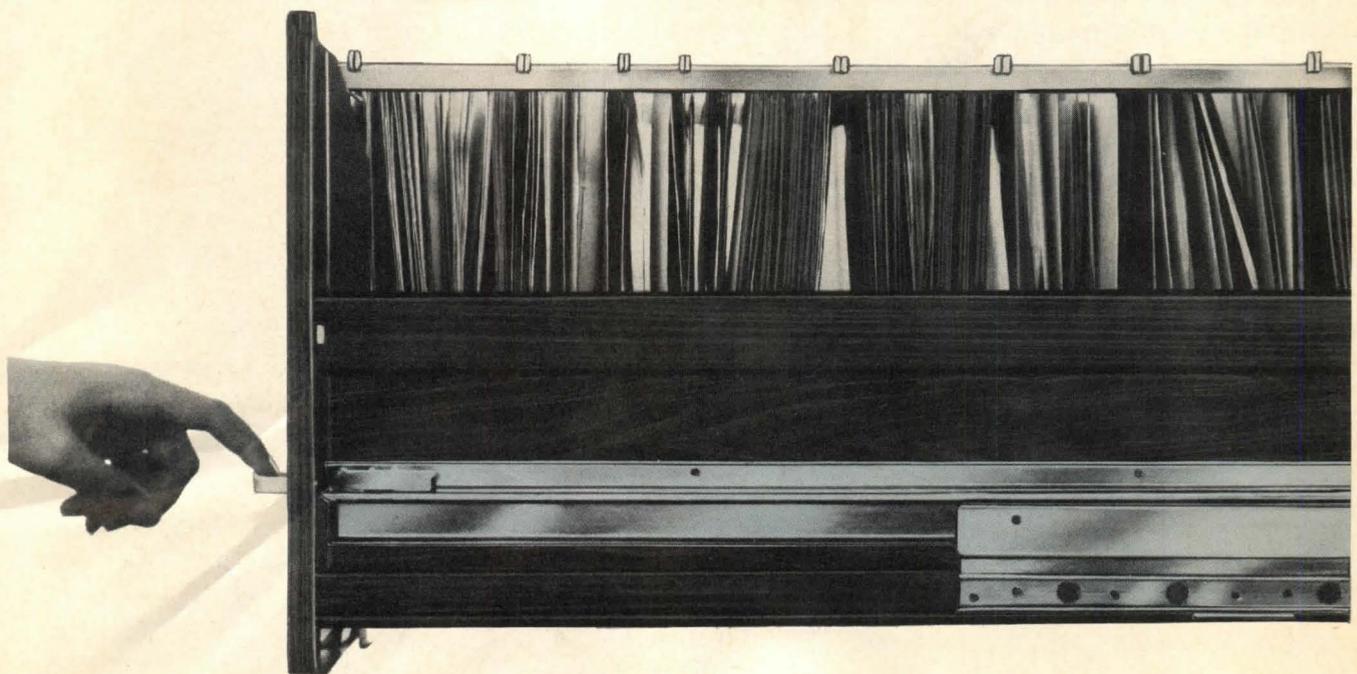
For a brochure giving complete details, contact your local Owens-Corning representative. Or write: Owens-Corning Fiberglas Corporation, Energy Conservation Award Program, Fiberglas Tower, Toledo, Ohio 43659.

*T.M. Reg. O.-C.F.

Owens-Corning is Fiberglas

OWENS/CORNING
FIBERGLAS
TRADEMARK®

THE
SLIDE
WITH
THE
VELVET
TOUCH.



THE
525.

Grant's spectacular new progressive
action slide features incomparably
smooth operation • up to 150 lb.
load capacity • simple installation
• "quick-disconnect" mechanism •
wide range of sizes •

It's ready for action!

GRANT®
WE KEEP THINGS MOVING

GRANT PULLEY & HARDWARE CO.
A Division of Instrument Systems Corporation
49 High Street, West Nyack, New York 10994

Has anyone ever called your wiring system **beautiful?**



Wiremold's slim, stylish, Tele-Power™ Poles, carrying telephone and electric circuits from overhead to deskside in the open office, get that kind of compliment. They're easy to install, easy to relocate and they require no rug or floor cutting. They're functional and versatile. And,

people even say, "They're beautiful." That's only fair. We also produce surface wiring systems to carry telephone and electric service (and all the outlets needed) on walls. It's smart and contemporary too *but so inconspicuous.* People hardly ever mention it!

The logo for Wiremold, featuring a stylized 'W' with a horizontal line through it, followed by the word 'Wiremold' in a bold, sans-serif font. A registered trademark symbol (®) is located to the upper right of the word.

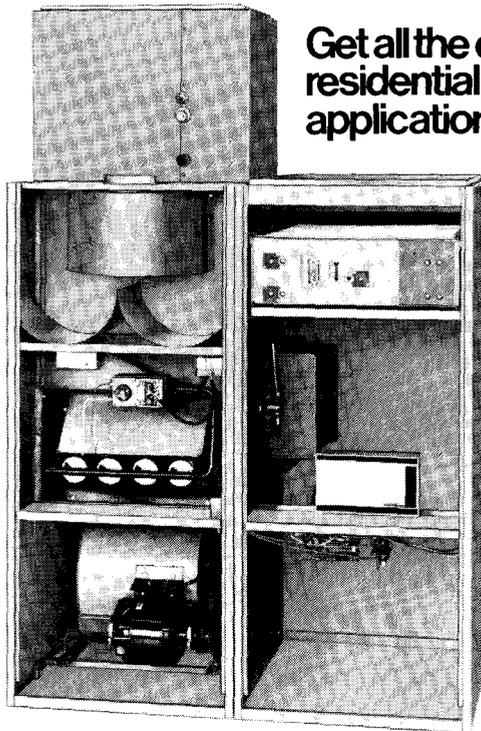
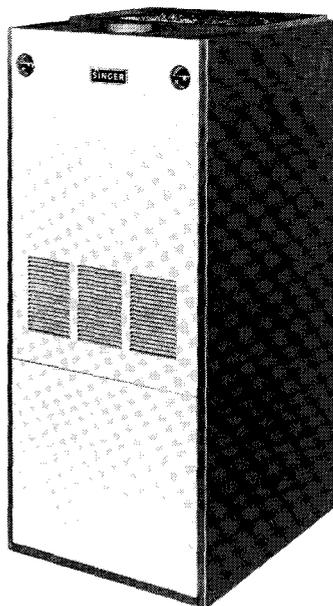
The Wiremold Company West Hartford, Connecticut 06110

Singer has The Total Comfort Package.

Get all the equipment you need for residential year-round air conditioning applications from one source.

The Series GB1500 Gas-Fired Furnace

The heart of the package. Ranges in capacity from 100,000 to 250,000 Btuh. Designed to adapt to Singer Cooling, Electronic Air Cleaning, Automatic Humidification and Deodorizing.



Total Comfort Package

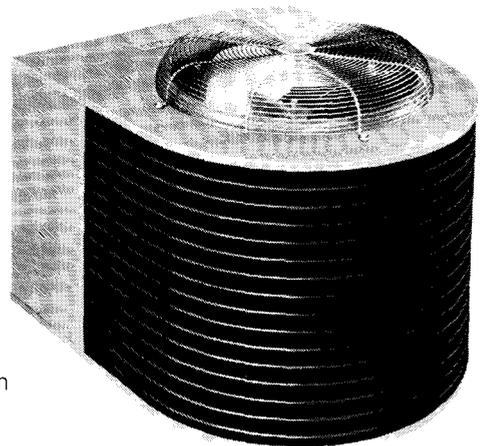
Series GB Furnace with components: Alumaklad Heat Exchanger, Silent Comfort Circulator, Duo-Flame Burner Assembly. Matching Return Air Cabinet components: Electronic Air Cleaner, Humidifier and Deodorizer.

The Series ACR 50000 Half-round Condensing Unit

The ACR 50000 Series is the latest development in the Singer line of whole house air conditioning equipment.

The compressor is spring mounted, permanently lubricated and hermetically sealed and is warranted for five years.

The condenser coil is "U" formed of Alfuse bonded aluminum fins and tubes designed to provide high heat transfer efficiency and to give protection to the condenser and operating controls.



Whatever you need for a residential air conditioning application, Singer has it all. Singer has the best of it all. And it's all in one place.

One Singer distributor or dealer can quote you fully on all components for any residential job. He has every conceivable combination of equipment you might need. In a full range of capacities and sizes. For gas, oil or electric heating.

You already know Singer's long history of superior quality and performance in the heating/cooling field. But don't be fooled: when you get Singer, you get the best.

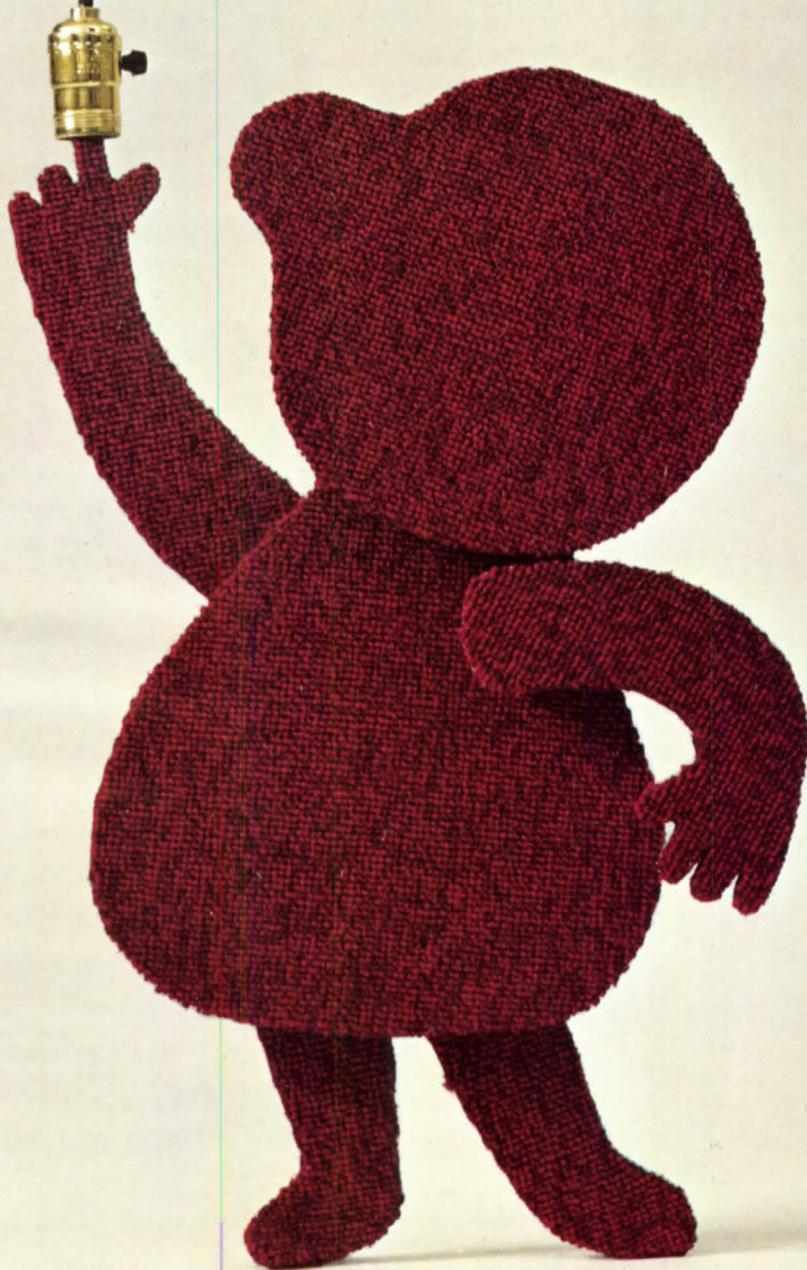
Without paying the most. Make us prove it by quoting on your next job.

Specify Singer and you enhance the value of your houses. Your buyer knows he's getting total comfort all year long. And you cut down, or cut out, callbacks.

For full information and specifications write: The Singer Company, 62 Columbus St., Auburn, NY 13021. Or talk to your nearest

Singer distributor or dealer. Or phone (315) 253-2771.

Comfortmaker*
heating & air conditioning
by **SINGER**



ACRILAN[®] 2000+
ACRYLIC
IS STATIC RESISTANT

Acrilan[®] 2000+
ACRYLIC
**is static resistant, but it sure
adds spark to this library.**

At the new Georgetown University Law School, you can touch a door-knob, a switch or a drinking fountain without a flinch.

But there's more to static resistance than that.

Carpets that build up static charges attract dust particles, get dirty quicker and are harder to clean. They get dull and tired-looking sooner, and that would be a shame.

Especially when you see how beautiful they look right now.

The blue is glowing. And on other floors of this new Washington, D. C., landmark, the carpet is handsome in red and charcoal.

Acrilan[®] acrylic 2000+ makes it easy for interior designers. It has unlimited style potential and colors too. If you want level loop carpeting, some of the best contains Acrilan 2000+, but with this fiber you also have the versatility of higher style.

Here you see it in heavy-duty use, with 42 ounces of resilient Acrilan in every beautiful yard, packed in at eight rows to the inch.

That's tough construction, with a tough fiber.

For more reasons to specify Monsanto's Acrilan 2000+, turn the page and check the facts.

They speak for themselves.

ACRILAN[®] 2000+
ACRYLIC



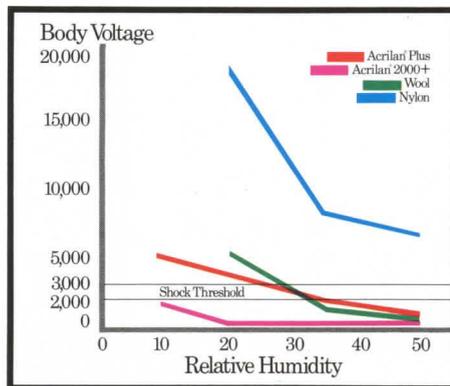
FACTS TO HELP YOU SPECIFY ACRILAN® PLUS AND ACRILAN® 2000+

ACRYLIC

ACRYLIC

DURABILITY

In the many tests that measure durability, including abrasion and stair wear, Acrilan Plus and Acrilan 2000+ outperform wool by at least 30%. But durability means more than abrasion resistance. It means the ability to keep a rich, new look despite a long period of hard traffic and difficult soiling and fading conditions. Acrilan was first introduced in carpeting fifteen years ago. Many of the original installations are still in place, still look young and beautiful. And that's the best proof of durability.



STATIC RESISTANCE

Acrilan Plus offers exceptionally low static build-up and discharge rate. But where this factor is of great importance, specify Acrilan 2000+. Under normal conditions, carpets of Acrilan 2000+ are virtually static-free. This eliminates discomfort from touching metal objects and cuts down on interference with delicate electronic equipment. It also makes for a carpet that stays cleaner, because there is no static build-up to attract air-borne dust and soil.

STYLING

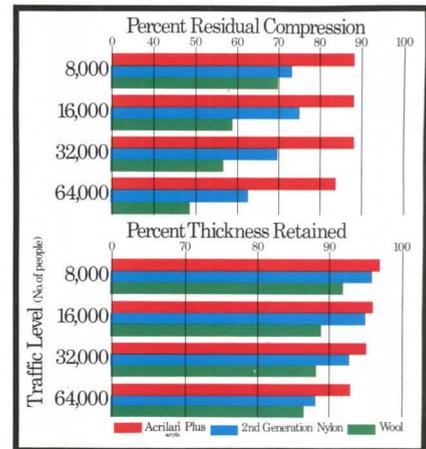
Did you ever notice how similar in appearance continuous filament nylon contract grade carpets are? Carpets of Acrilan Plus and Acrilan 2000+ on the other hand have decorating versatility unsurpassed by any other fiber. Carpets made with Acrilan® acrylic fiber, in fact can be tufted, woven, knitted or fusion bonded in an endless variety of designs, textures and colors that make possible a kaleidoscope of stylings. All this with the added benefit of being non allergenic, moth proof and mildew proof that comes from being a clean synthetic fiber.

EASE OF MAINTENANCE

Acrilan Plus has a smooth, hard surface that gives dirt particles no place to cling to. It vacuums easily and beautifully. It is non-porous and hydrophobic (resists moisture absorption). Many spills wipe up without a trace. Acrilan 2000+ has the added advantage of color locked in the fiber. Because each fiber is colored all the way through, even the harshest detergents can be used without any bleaching effect.

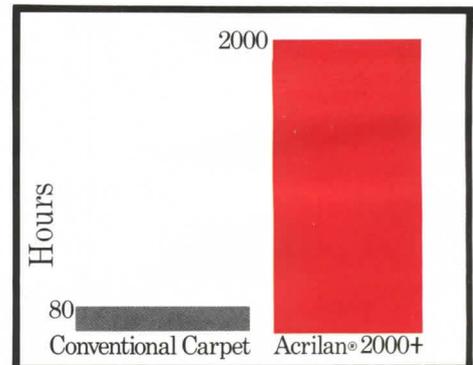
FLAME RESISTANCE

Government standards for flame resistance are currently being re-evaluated. But for now, stringent requirements are still in effect. Hospitals that receive any kind of federal assistance must comply. Jet aircraft carpeting must meet stiff F.A.A. regulations. Many states and localities have their own requirements for schools, nursing homes and college dormitories. Acrilan Plus and Acrilan 2000+ now have built-in fire retarders that give carpet manufacturers the capability of meeting all government requirements.



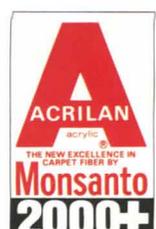
RESILIENCE

If a carpet fiber is not resilient, does not "bounce back" after compression, the carpet will tend to look worn long before real wear occurs. Acrilan Plus and Acrilan 2000+ have the ability to recover after long periods of compression under heavy furniture, as well as the ability to come back after side compression, such as that caused by heavy traffic.



COLOR FASTNESS

Contract carpeting should have colors that stay bright, don't fade under tough conditions. Acrilan Plus performs well, even where food, drug or chemical spills are a problem. It has good resistance to both acids and alkalis, and can be safely cleaned with any ordinary cleaning agent. For tougher jobs, consider Acrilan 2000+. We tested it with nearly one hundred hospital stains and their solvents without affecting fiber tenacity or color. In sunny locations with large glass areas, there is nothing to beat this fiber. 2000+ is a Weatherometer rating, showing no fading after 2,000 hours of burning noon-day sun. For comparison, the industry standard for normal carpets is 40 hours. The plus in Acrilan 2000+ indicates that some of our colors rate up to 6,000 hours on this standard industry test. So you can see that we are being modest in naming this fiber.



KINNEY[®] REFLECTIVE GLASS
ASG REFLECTOVUE[®]
ASG REFLECTOVUE[®]
ASG REFLECTOVUE[®]
ASG REFLECTOVUE[®]
ASG REFLECTOVUE[®]
ASG REFLECTOVUE[®]
ASG REFLECTOVUE[®]

GET THE PICTURE?

ASG Industries, Inc., has purchased the glass coatings division of Kinney Vacuum Company. This involves the vacuum deposition of metals on glass, a technique used in the manufacture of light and heat resistant architectural glass and transparent mirrors. The production facilities have been moved to Tennessee where ASG laminated glass and insulating units are manufactured.

Chrome, gold and silver reflective glass is being produced under the tradename REFLECTOVUE[®]. Transparent (one-way) mirrors will be marketed under the tradename DUOVUE[®].

New literature and technical data are being prepared. Return the coupon, and you will receive the new material when available. In the meantime, please refer to your current Kinney literature and direct your inquiries to the nearest ASG sales office.

- Atlanta, Ga., (404) 636-3001
- Boston, Mass., (617) 482-0663
- Chicago, Ill., (312) 693-2031
- Dallas, Texas, (214) 748-6391
- Detroit, Mich., (313) 547-6880
- Los Angeles, Calif., (213) 723-7171
- San Francisco, Calif., (415) 697-7244
- Stamford, Conn. (203) 325-4411

Please Send New Literature And Technical Data When It Is Available.

- Reflectovue[®] (ASG Reflective Glass)
- Duovue[®] (ASG Transparent Mirrors)

(Please Print)

Name: _____

Firm: _____

Address: _____

City: _____

State: _____ Zip: _____



ASG Industries Inc.

POST OFFICE BOX 929
 KINGSPORT, TENNESSEE 37662

On Reader Service Card, circle no. 324

Change is inevitable but its cost can be minimized.



To accommodate business customers, last year we installed more than 6,000,000 telephones. And moved many million more.

To help minimize the cost and inconvenience to you, the Telephone Company maintains a large force of Building Industry Consultants all over the country.

They offer you the benefit of our accumulated experience, to help you anticipate communications needs today and tomorrow.

At its simplest, that means a discussion of the number of telephones likely to be needed. The Building Industry Consultant knows which types of business involve particularly heavy usage. (Some offices conduct 90 percent of their business by telephone.)

Then the Consultant can advise you on such structural matters as location of apparatus closets, vertical conduits and underfloor ducts.

Not to mention the special requirements of computers and teletypewriters.

And anything else that might help you avoid expensive changes.

To contact a Building Industry Consultant, call (212) 393-4537 (collect) and we'll tell you who's the closest one. And, if you wish, arrange an appointment.

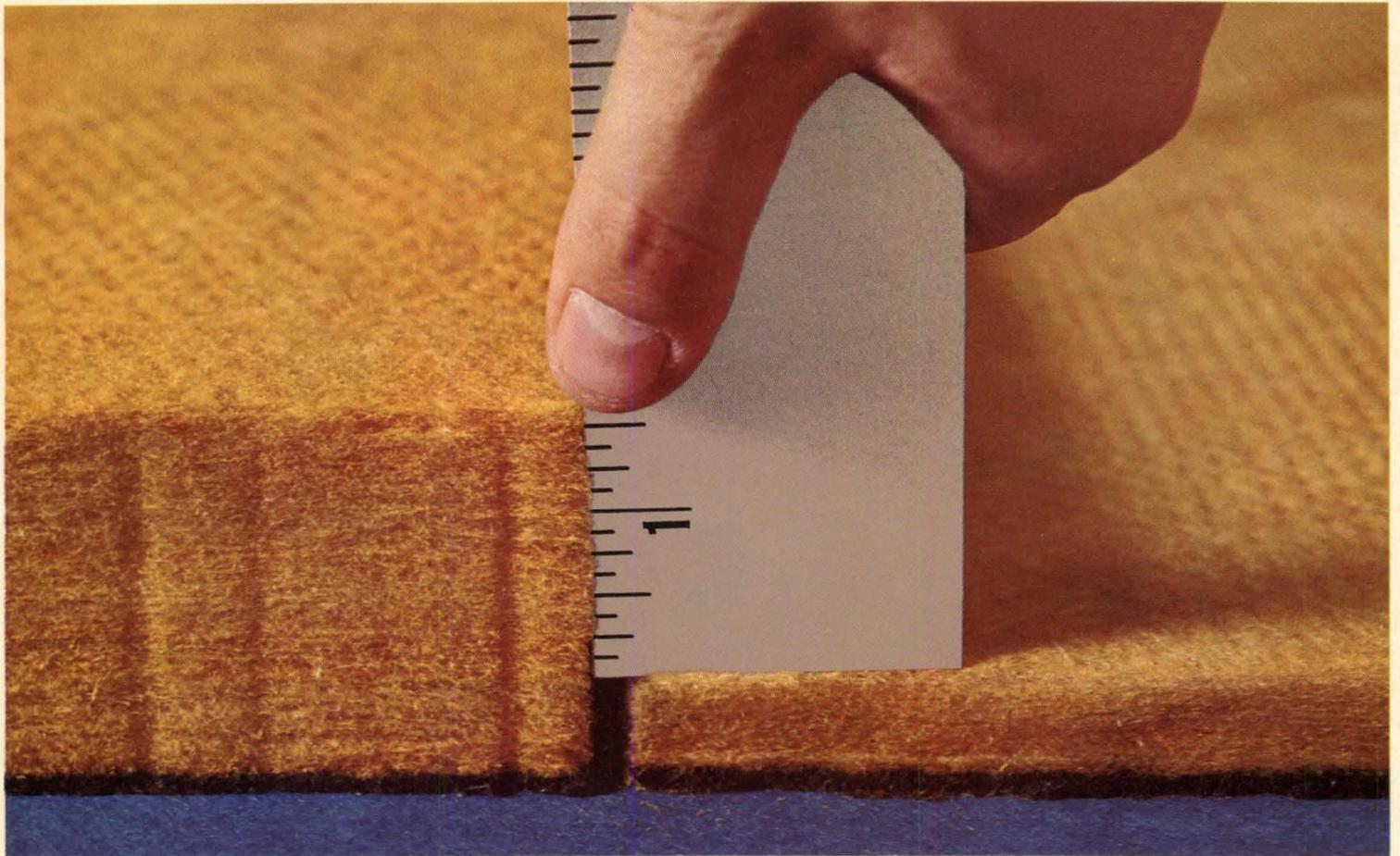
After he's advised you on your immediate problem, he'll give you our special hard-cover book, "Communications Pre-planning for the Modern Building."

AT&T and your local Bell Company are always trying to improve service to the building industry.

The sooner you contact us the better we can serve you.



Efficient building idea: Use this much more Fiberglas roof insulation and save up to \$27,000 every 60,000 sq.ft.



Those are the potential savings you could realize on the initial cost of heating and cooling equipment. Your client could also save an additional \$2500 a year on fuel.

Simply by using 2 1/4" instead of 3/4" of Fiberglas* roof insulation.

These particular savings were figured for a suburban office plaza in the northern climates (zone 1). Factors taken into account were: the normal temperature range of

the region, size and type of roof deck, the "U" improvement due to thicker insulation. And the added cost of the thicker insulation.

How much can you and your client save by using 2 1/4" insulation?

Send for our free booklet "Raising the Roof." It'll show you how to figure your own savings for your section of the country for common types of roof decks.

Write Mr. A. D. Meeks, Architectural Products Division, Owens-

Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Energy Conservation Award

Owens-Corning is offering awards to stimulate new designs and ideas for conserving energy. Special Steuben sculptures will go to the three architects or engineers who—according to a panel of independent judges—do the best job of designing buildings that don't waste fuel. See our announcement in this magazine for details.

Owens-Corning is Fiberglas

OWENS/CORNING
FIBERGLAS
TRADE MARK ®



The Caradco Sculptured Door

Elegance.

You get deep-carved panels fashioned from one-piece, wood-grained faces that can't split, check or shrink; a factory prime coat that welcomes paint or toned stain... that lets you suit the final finish to your fancy, be it avantgarde, traditional or in between. Result: it looks like more than it costs. And that's the beauty of it: *it costs less* than conventional panel doors.

We did even more with the door pictured. We

prefinished it with a smooth white factory coating, to bring out the full richness of the wood texture. It's easy to see why this *practical* eye-ful has tremendous buyer appeal. For more facts on Caradco Sculptured Doors, please call us or write.

Caradco Window and Door Division

Scovill

Main Plant, Dubuque, Iowa 52001 Eastern Assembly Plant, Hainesport, New Jersey Ohio Assembly Plant, Columbus, Ohio

On Reader Service Card, circle no. 335

News report

28 **Buildings on the way up**
 52 **Calendar**
 52 **Personalities**
 52 **Awards**
 52 **Washington report**
 58 **Architecture west**
 61 **Products**
 63 **Literature**
 50 **Notices**

Whitney Museum setting for Design Awards dinner

For the first time in its 19 years, all the winners in the annual P/A Design Awards program were able to attend the design awards presentation and dinner, some traveling from as far as Los Angeles and Seattle. This year's dinner was held at New York's Whitney Museum, where, on the third floor, super-scaled works by Warhol, Lichtenstein and other contemporary artists provided a vivid backdrop for a record 200 architects and guests.

During the before-dinner cocktail hour, the 18 winning projects were shown in a continuous dual slide presentation; after dinner, P/A editor John Dixon handled the actual awards presentations. The three top awards (this was the first time the jury had given three top awards) went to James Associates, Inc., for South Dearborn Community High School, Aurora, Ind.; Works (West) for 00:00 A Mobile Theater; and Ralph Rapson and Associates, Inc., for a Humanities Building for the University of Minnesota, Morris.

When sudden illness kept Prof. Vincent Scully of Yale, the scheduled speaker for the evening, from sharing his views on architectural education, Malcolm Wells, one of the guests, graciously agreed to take his place. Wells, an architect/conservationist, spoke briefly on architecture and environmental problems, noting that he sees a growing awareness of the effect of the man-made environment on nature, an awareness that he detected in many of the Design Awards winners.

N.Y. adopts CSI format for state projects

New York state agencies responsible for the planning, design and construction of buildings will soon begin using the CSI uniform system for their projects. The directive came from Governor Nelson A. Rockefeller and applies to state projects and state financed projects being built for local units of government; wherever possible, the letter said, the new policy will apply to projects started after April 1.

More accurate bidding, better project control and better use of time and money are among the advantages cited for the policy, which really makes official what the New York State Council on Architecture has been urging for some three or four years. A number of the state agencies have been using the CSI uniform system, and other agencies will now convert to it.

According to John P. Jansson, executive director of the [continued on page 30]



P/A's Harrington Rose with past jurors Kommendant, Le Messurier and Johanson



James Associates' Jefferies and Sander, P/A's John Dixon, center



P/A's Burton Holmes with James Embry

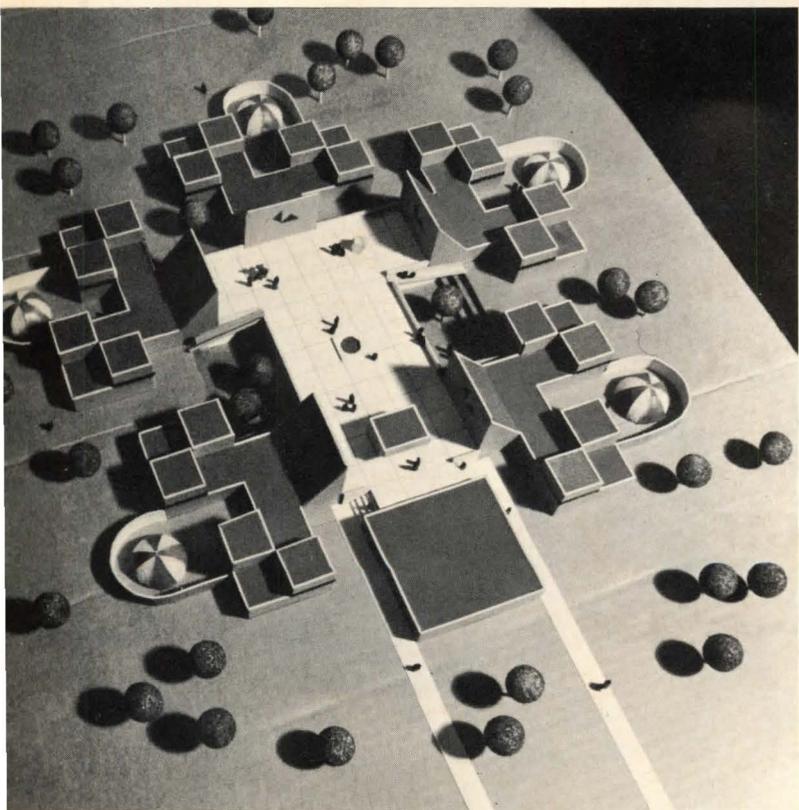
Works (East)



Speaker Malcolm Wells



Buildings on the way up



1 A central atrium, nine stories high, will be the heart of the Resource Center, a market place for furnishings planned for Century City in Los Angeles. The 90' x 120' air conditioned atrium will be topped by a translucent skylight supported by an aluminum frame and surrounded by balconies; two glass enclosed elevators will run on an exposed shaft and escalators will serve each floor. The 1,136,000 sq ft building will have a reinforced concrete structure with a natural sand blasted finish, reinforced brick infill panels and dark solar glazing. Welton Becket and Associates are the architects.

2 Inflatable classrooms that can be taken to other locations increase the flexibility of a 625-student elementary school designed for Denver's Cherry Creek School District by William C. Haldeman. Students are grouped in five families of 125 students each and housed in huts providing mobile classrooms, open flexible areas for team teaching and exterior enclosed instruction areas. Each hut has its own kitchen, in which students may, from time to time, prepare food, though most food is prepared in school district's central kitchen. Art, science and toilet facilities and teachers' area are on balcony of each hut. Huts are connected by a media center topped by a plaza; an activity room is also provided.

3 Teaching hospital for Saigon will graduate 200 doctors a year; 500-bed hospital will serve 400,000 outpatients annually. Designed by Caudill Rowlett Scott and collaborating architects Ngo Viet Thu, Bui Quang Hanh and Le Van Lam, the hospital will include facilities for a community health education program; nursing school and dormitory; housing for faculty, residents and interns and staff; and shelters for families of patients.

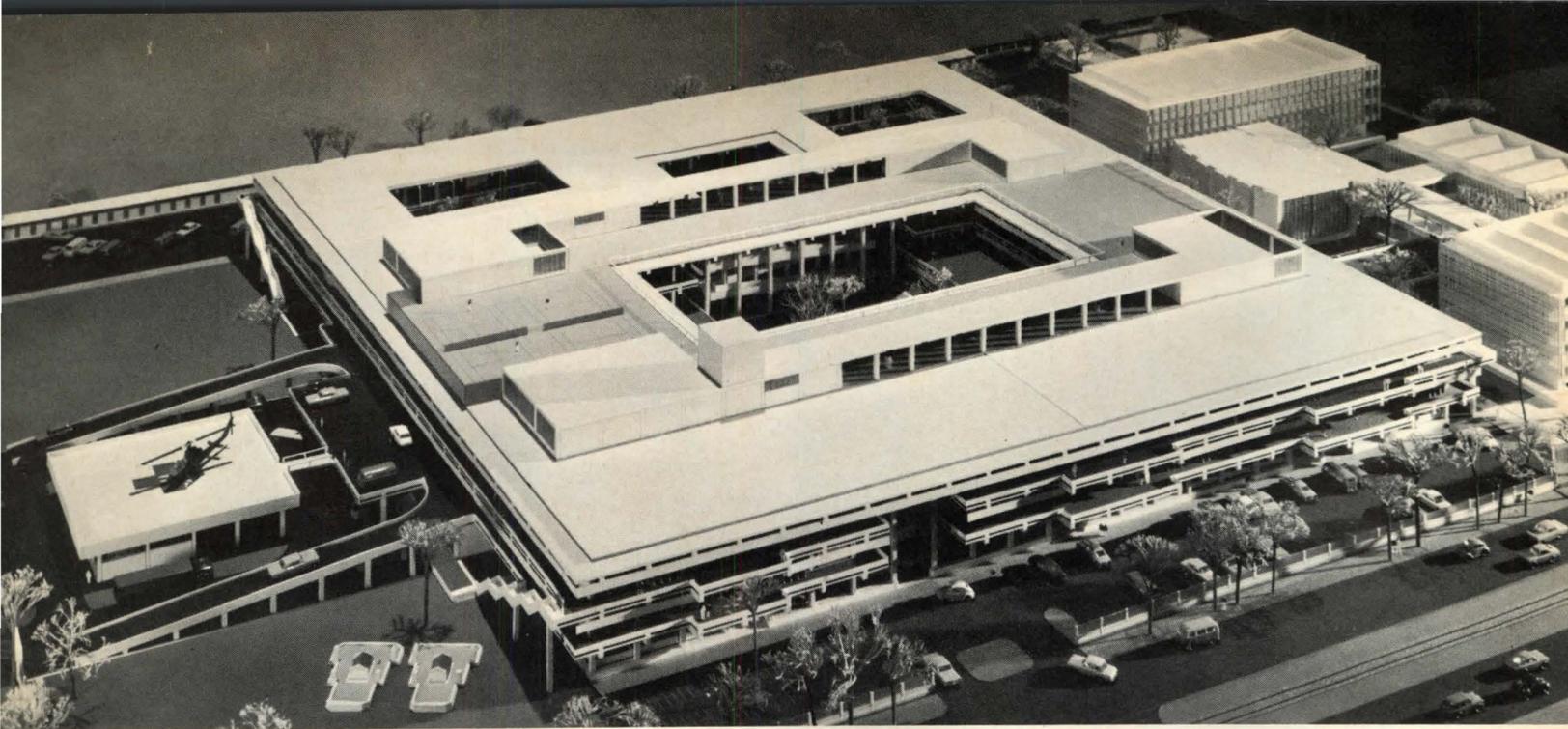
4 Earth berms and continuous filter ventilation reduce the impact of noise and air pollution on a Seattle fire station located near an elevated highway and a steel mill. Architects Joyce, Copeland, Vaughn placed the station back from the street to provide room for maneuvering fire equipment. Roof and tower are precast concrete; front and interior walls are concrete masonry; and the sloping roofs are surfaced with ribbed aluminum siding.

5 Offices, hotels, apartments and stores will be included in Water Tower Plaza, designed for downtown Chicago by Loebli Schlossman Bennett & Dart and C.F. Murphy Associates. Surrounding a central atrium will be seven floors of shops including Marshall Field and Lord & Taylor. Above the shopping levels will be two levels of offices; above them will be the mechanical and service floor for the hotel, topped by the hotel lobby. The tower will contain 18 hotel floors, a health club, 40 floors of apartments and another mechanical level at the very top. A grand lobby at one end will be the major entrance to the shopping levels; the hotel and apartment floors will have their own separate lobbies and elevators. Parking for 650 cars will be provided underground.

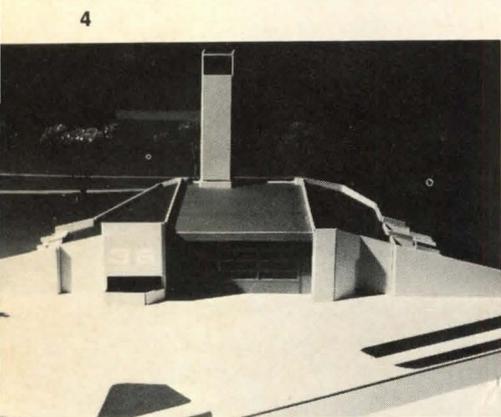
6 A steel and concrete drum will house the cyclorama painting of the Battle of Atlanta when the new cyclorama building is erected in Atlanta's Grant Park. The painting, 370 ft in circumference and 50 ft high, has been an historical and tourist attraction for years. Designed by Finch Alexander Barnes Rothschild & Paschal, the building will feature a seating area for 190 persons that will rise and rotate to allow viewing of the painting, accompanied by appropriate lighting, music, sound and narration. Structure for the building, which will include an auditorium, exhibit area and lobby, will be cast in place concrete, with structural steel for the large cyclorama span. The exterior of the drum will be precast concrete.

7 Architecture appropriate to an old New England town was one of the key considerations in the master plan for rebuilding Tabor Academy in Marion, Mass. First stage in new construction for the nearly century-old school is the \$3 million Academic Center, designed by Hugh Stubbins and Associates. Administration offices, lecture halls, faculty offices and teaching facilities for languages, humanities, math and science will be included in the 57,890 sq ft center.

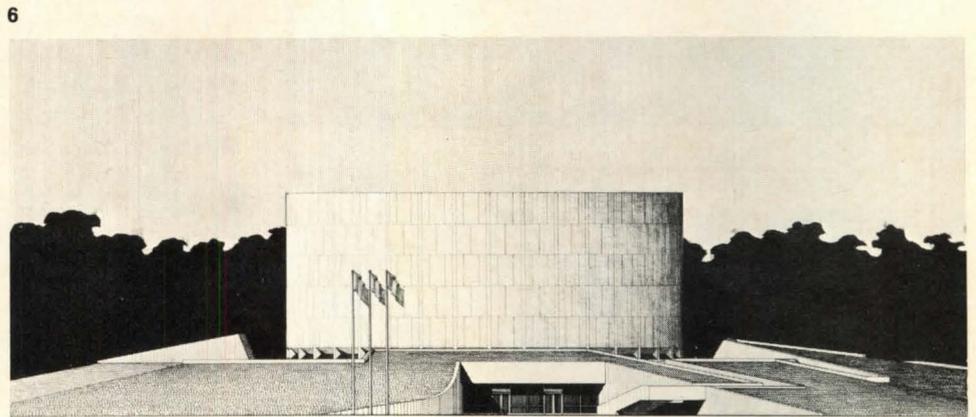
8 On an odd shaped five-acre site in Harlem, the New York City Educational Construction Fund is planning to build a \$46 million complex providing 1000 units of low and moderate income housing and an intermediate school. The housing part of the project, about \$35 million of the total cost, will be sponsored by the Negro Labor Committee; it will be built on the air rights above the school and land adjacent. Site development costs will be shared. Architects are Richard Dattner and Associates, Henri A. LeGendre and Associates and Max Wechsler and Associates.



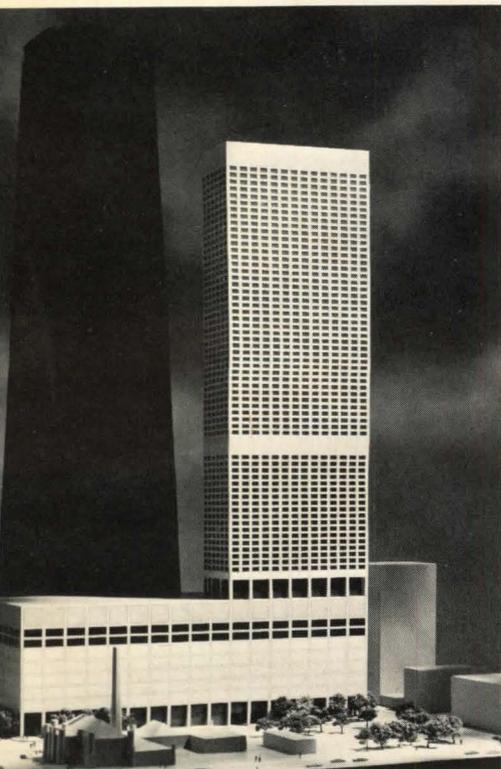
3



4



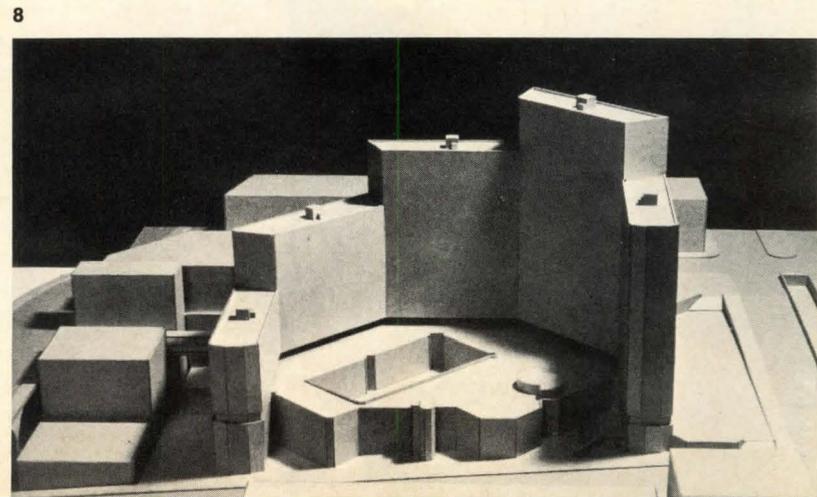
6



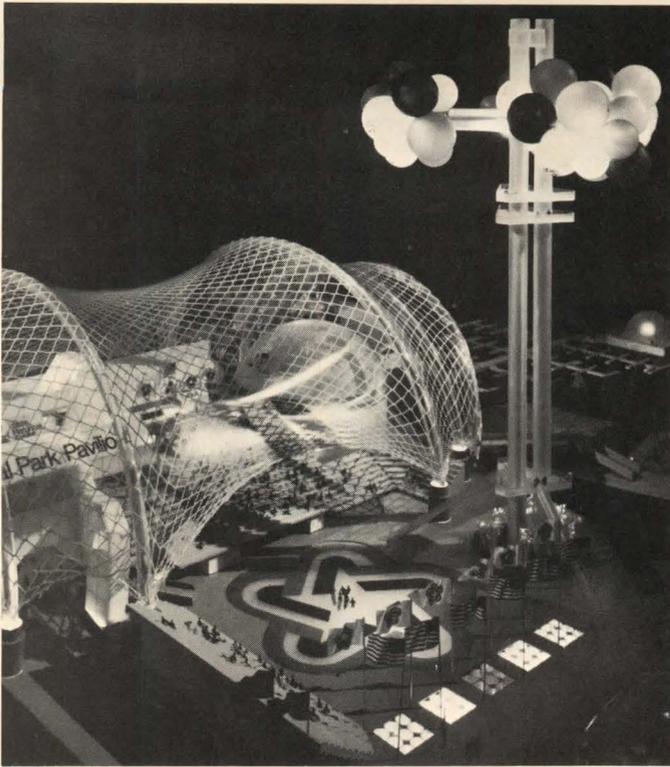
5



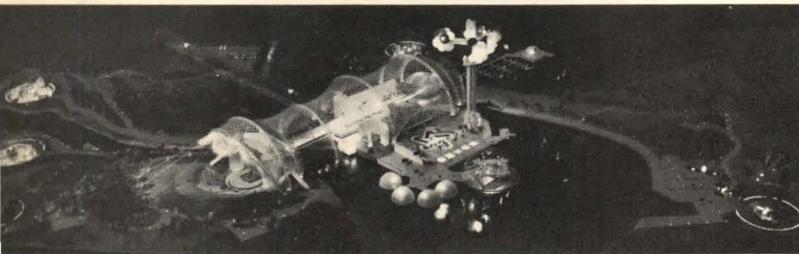
7



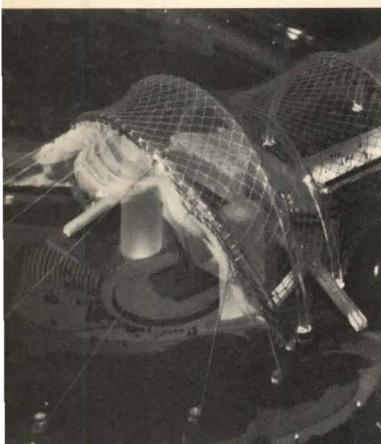
8



Bicentennial Park: plaza . . .



satellite structures . . .



canopied amphitheater . . .



transit link

New York State Council on Architecture, it has been "conservatively estimated that over a hundred thousand manhours by state agency personnel, architects, engineers, contractors, subcontractors, manufacturers, suppliers, etc., can be saved because of this step. Apply a cost of \$15 to \$20 per manhour and you begin to realize what it means in terms of dollar savings to the taxpayers of New York State."

Bicentennial: 50 fairs in '76?

Late last month, the American Revolution Bicentennial Commission approved, and then sent to Congress and the White House, a proposal to make the 1976 celebration a totally national event—a network of Bicentennial Parks, one in each state, to be created on land reclaimed for public use by the Federal government. The Parks would provide an indoor/outdoor setting for touring cultural, educational and recreational events; they are planned to be permanent state-run facilities after 1976.

Davis, Brody and Associates have developed a prototype design, "just an idea of what the parks could be," says Jack Masey, the commission's design director, who hopes no two will look alike. It calls for lightweight structures such as tension net canopies and rigid or inflatable domes to shelter exhibits, performances, restaurants and other facilities. Key concerns are low cost, informality and variety; the only things standard to all parks would be utility hookups and backstage facilities for the touring events. The parks will also include some kind of transit link with remote parking areas, perhaps a low-pollutant bus.

Overall design for the parks would be coordinated by a national design review board, with local architects, planners and designers selected by state and regional commissions. Ecological studies would be made to see that the parks maintain local natural character. Sizes would vary from 100 to 500 acres; average cost might run around \$23 million per park. The total design and construction cost of \$1.2 billion for 50 parks would be borne by the Federal government.

Giant vacuum cleaner prevents pollution

Dust, fumes, noise and other harmful byproducts are not hard to come by in a metal casting operation. What is hard to come by, and costly to boot, is the equipment to control them. But for a cool \$24 million, the 2,641,000 sq ft Ford Motor Company Michigan Casting Center was equipped with a variety of pollution control devices, many of them designed specifically for the plant.

The biggest problem is dust collection. Areas for screening, crushing and conveying raw materials are hooded and exhausted to dust collection equipment. Five exhaust fans with a total capacity of 150,000 cfm are used to move the air. Fumes from the electric arc melting furnaces and the holding furnaces are routed through a fabric filter collector; dust and fumes from raw material handling and furnace pouring are vented to a 30-compartment dust collection with 15,840 dacron bags. Eight exhaust fans outside the collector have a combined capacity of 1,776,000 cfm. Another fabric filter collector cleans air from the molding area; this unit has 50 compartments, 13,600 bags. Another, much smaller bag house, this one with 3 compartments, 480 bags, handles dust from the preparation of sand cores for molds.

Noise is another major problem, particularly because much [continued on page 32]

Florida Tile is recycling dirt into something beautiful.

We're taking natural, redburning shale from the earth and molding it by hand into a vibrantly rustic, half-inch, glazed semi-vitreous tile. We call it Earthstone. The authentic richness of Earthstone is enhanced by the variegated texture inherent in the hand-

molding process. The glaze — in five colors formulated to produce rich earth tones — is highly resistant to abrasion and needs no waxing, no buffing, no stripping. Immediately available in six shapes. Custom shapes are available upon request.

florida tile



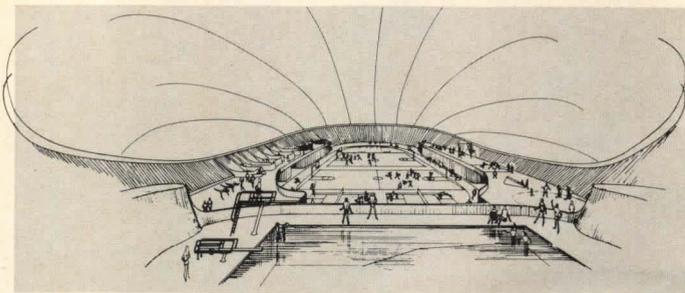
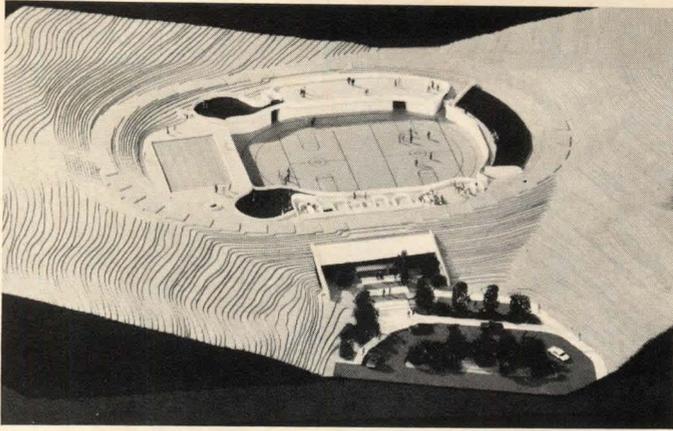
DIVISION OF SIKES CORPORATION

FLORIDA TILE • P. O. BOX 447 • LAKELAND, FLORIDA 33802

On Reader Service Card, circle no. 398

Earthstone is a trademark of Sikes Corporation.





Permanent air supported structure

of the equipment can't be enclosed. Operators can be, though, and all arc-furnace operators have soundproof enclosures; workmen in high noise areas wear ear protectors. Vibrating and oscillating parts that can produce noise are treated, where temperatures allow, with vibration damping material bonded to metal contact surfaces.

Dry dust collectors have helped reduce the amount of water used in the plant, and wherever possible, water is recycled. By removing scale producing minerals from water coming into the plant, it is possible to recycle cooling water indefinitely.

This time the balloon stays up

An air supported field house at Milligan College in Johnson City, Tenn. recently was classified as a permanent building; it was the first privately financed air supported structure in the U.S. to receive that classification. The 60,000 sq ft field house was designed by Shaver & Co., with Dr. David Geiger of David Geiger-Horst Berger as structural engineer.

The roof, two layers of specially coated fiber glass fabric, is held down by a network of cables which are connected to a concrete tension ring resting on an earth berm that encloses the structure. Four blowers maintain a constant air pressure to support the roof. Under the roof is a large basketball court and an auxiliary one, a swimming pool, an indoor track and areas for other sports, along with offices and classrooms.

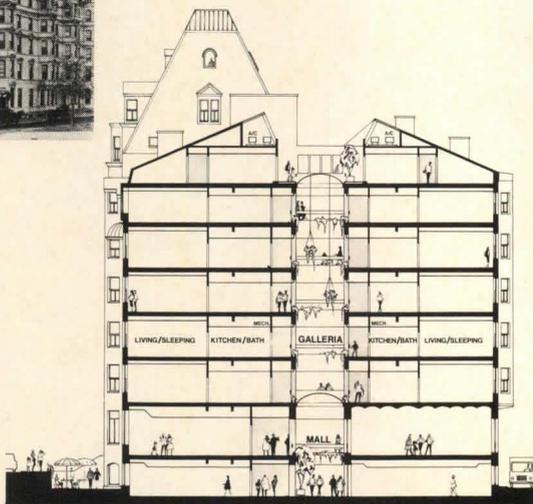
Back Bay hotel becomes apartment building

Abandoned and decaying after earning a reputation as one of the country's finest hotels, the Vendome, in Boston's Back Bay, is now being converted to an apartment building. The handsome French Second Empire building, designed by William G. Preston and completed in 1881, will provide studio and one-bedroom apartments, retail and commercial space. Only the interiors will be changed; the exterior will remain basically as it has been.

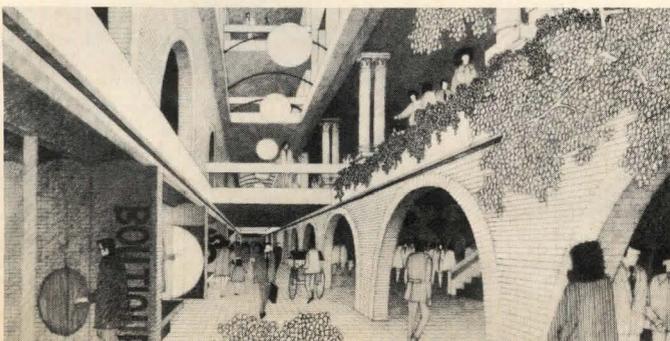
The architects for the renovation, Stahl Associates, felt that all sound existing elements should be retained. These included waste lines, vent stacks, cast iron columns, elevator shaft and hoistway and the load bearing masonry walls. The basic design splits the old hotel into two vertical zones separated by a five-story galleria topped by a vaulted skylight beneath the existing interior light well. Each of these vertical zones has shops on the two lower concourses, with five levels of apartments above them. A two-level mall beneath the galleria will result from removing parts of the first floor and systematically vaulting the basement masonry walls.

On the exterior, the stone will be cleaned, fire escapes removed; new windows, doors, roofing and other elements will be designed to conform to Preston's design. A number of new materials and techniques are being used to provide the original look without costly duplication of original materials. A biodegradable cleaner was used on the stone, elastomeric coatings colored to simulate patina are to go over the existing copper mansard roof. Instead of new slate, a lightweight asbestos roofing material that closely matches in color and texture will be used.

Besides its place in Boston's architectural heritage, the Vendome boasts some history of its own. It had New England's first commercial installation of electric lights, and was proud of its spacious bathroom with every guest room. Many [continued on page 34]

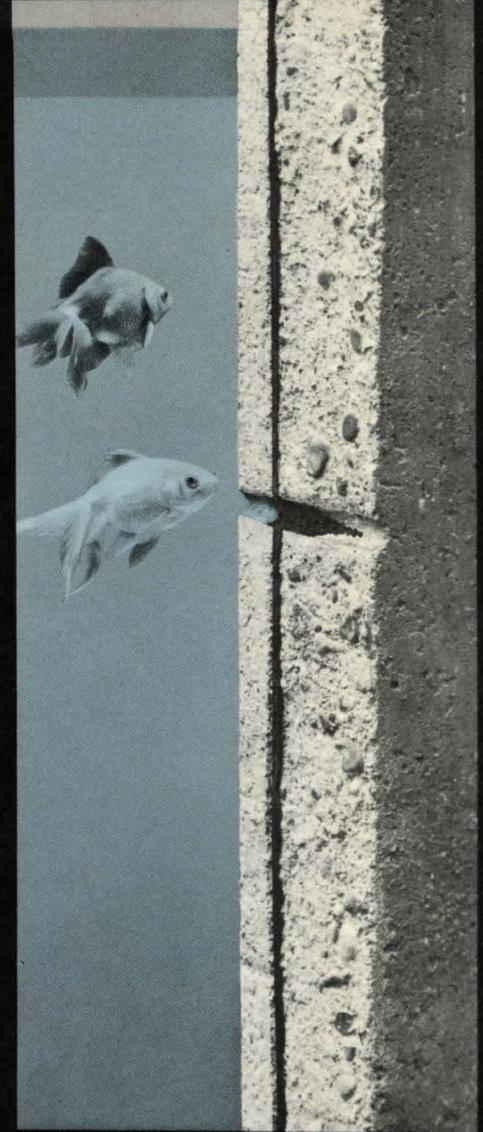


Vendome Hotel re-done



You can drill through
our liquid membrane.

But you can't put
a hole through it.



Concrete fish tanks probably aren't in your line of design, but it shows exactly how positively waterproof our liquid membrane is.

The Uniroyal liquid membrane is a hot-applied, rubberized asphalt compound that bonds securely and continuously to any sound, horizontal or vertical surface. Water can't get through or under it.

The waterproof membrane remains flexible indefinitely and self-heals if mechanically damaged. It bridges moving cracks up to 1/16 inch without reinforcement. Yet *it's non-flowing* once applied, making it the ideal waterproofing for vertical applications.

Expansion joints are effectively sealed with liquid membrane and rubber

reinforcing sheets.

Uniroyal liquid membrane is quickly applied in temperatures down to 0°F. It spreads and flows freely to conform to all surface irregularities.

As for actual applications, the sky's the limit. Uniroyal liquid membrane has been used to waterproof everything from underground garages to high-rise buildings.

If you've got a job coming up that requires reliable between slab waterproofing, we'll help you make your design watertight. Just fill in and mail the coupon.

Uniroyal, Inc.
Engineered Systems Dept.
312 North Hill Street
Mishawaka, Indiana 46544

Name _____

Firm _____

Address _____

City _____

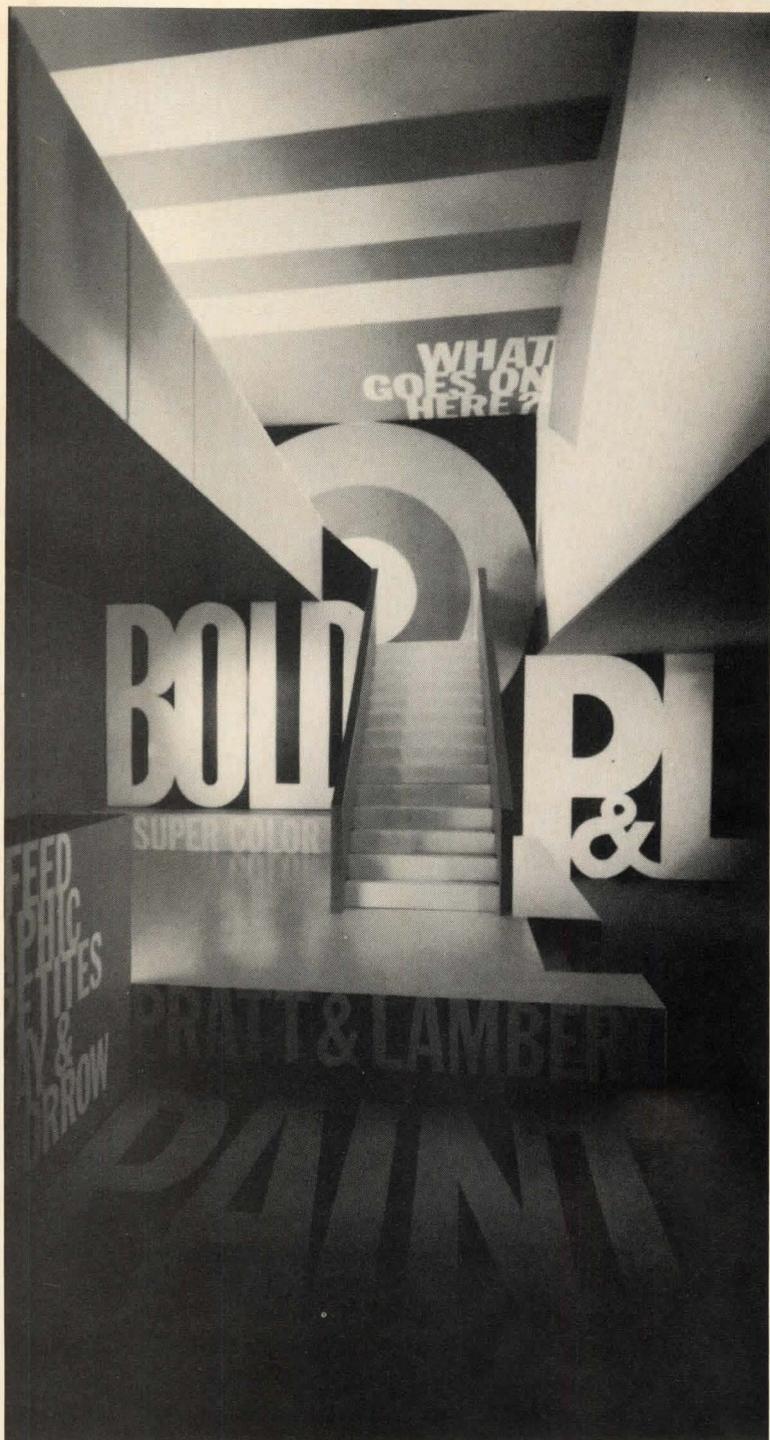
State
ASP NO. 1430

Zip
PA-3



On Reader Service Card, circle no. 392

What goes on here?



★ PRATT & LAMBERT / BOX TWENTY-TWO / BUFFALO, N.Y. 14240

On Reader Service Card, circle no. 376

News report continued from page 32

notable guests, among them President Grover Cleveland, Sarah Bernhardt, Phineas T. Barnum, Harriet Beecher Stowe, General U.S. Grant and Henry James, stayed at the hotel, and its reputation lasted until well into this century.

LeMessurier Associates are structural engineers for the project; Vincent J. Piconi is the consulting mechanical engineer to the owner. The final listing on the credit sheet: "Father Confessor: William Gibbons Preston FAIA (1842-1910)."

AIA Task Force report outlines a national growth policy

Public control of land use through the assembly and preparation of land for development, an emphasis on the neighborhood as a basic "growth unit" and changes in the governmental and legal aspects of community development are the basic ideas of a national growth policy developed by the American Institute of Architects. The report was the product of the Task Force on National Policy, made up of Archibald C. Rogers, chairman; I.M. Pei, Jaquelin Robertson, William L. Slayton and Paul N. Ylvisaker. A dozen top-level consultants also contributed material to the effort, which grew out of discussions held in 1969. Approved by the AIA Board of Directors, the task force report will be given its final approval by members at the national convention in Houston. And then the Institute plans to promote the proposed policy vigorously, lobbying for necessary legislation at all levels of government.

The real heart of the AIA's growth policy is public control of land. The report, task force chairman Rogers said, "may seem radical in its emphasis on the public control and assembly of land, but public control of land has been a tradition in the U.S. It has only been recently departed from."

What the report recommends is that governmental agencies assemble a million acres of land for community development within the cores and on the edges of 58 metropolitan areas having over a half million population. The land would appreciate in value, and its original cost (\$5000 an acre, on the average) would be recovered as the land is developed, as would the cost of preparing it. Planning, the report says, should be based on neighborhoods, or growth units, appropriately (500 to 3000 dwelling units) sized to allow their use in rebuilding inner city neighborhoods or building complete new communities of many such units.

In this manner, according to the task force, a third of the urban growth expected in the next 30 years could be accommodated and controlled. Even so, that third would set an example for the rest. "We don't have to control everybody," task force member Jaquelin Robertson explained. "Developers tend to copy what's going well."

The report contains a "latent threat to the status quo," Rogers said. The process it sets up would require creative institutions and a willingness to experiment. Even with rapid adaptation, existing forms of government are not likely to catch up, says Rogers; new forms may need to be invented.

Specifically, the AIA's growth policy, with its stress on the neighborhood growth units, runs counter to a number of existing practices and will require changes in a lot of areas. Growth units won't be built at the rate and scale proposed, the report says, unless there is an assured flow of credit at stabilized interest rates for a sustained period of time, and

[continued on page 38]

A SCHOOL IS BORN.

Gestation period 150 Days.

This spanking new 48,500 square-foot, 3-story Hood Junior High School in Derry, New Hampshire is the first completely pre-engineered environmental school in New England. Built during the last half of 1971, it accommodates approximately 500 students.

AllianceWall porcelain-on-steel panels form both the exterior and interior walls. Officials estimate the use of these panels will save the school district thousands of dollars each year in maintenance. The AllianceWall panels never require painting and are both graffiti and vandal-proof. They cannot be scratched or marred and paint wipes off without leaving smear marks.

Designers of the school* also used floor-to-ceiling chalkboards of AllianceWall porcelain-on-steel in various decorator colors to achieve an ideal teaching environment.

Shown here (left to right) is an exterior photo of the new 3-story addition which is connected to the original school by a double-deck enclosed passage-way. Also shown is the school science laboratory and two art studios.

Write today for complete information and free floor plan.

*Titan Environmental Construction Systems, Inc.
2539 St. Paul Street, Baltimore, Maryland 21218.

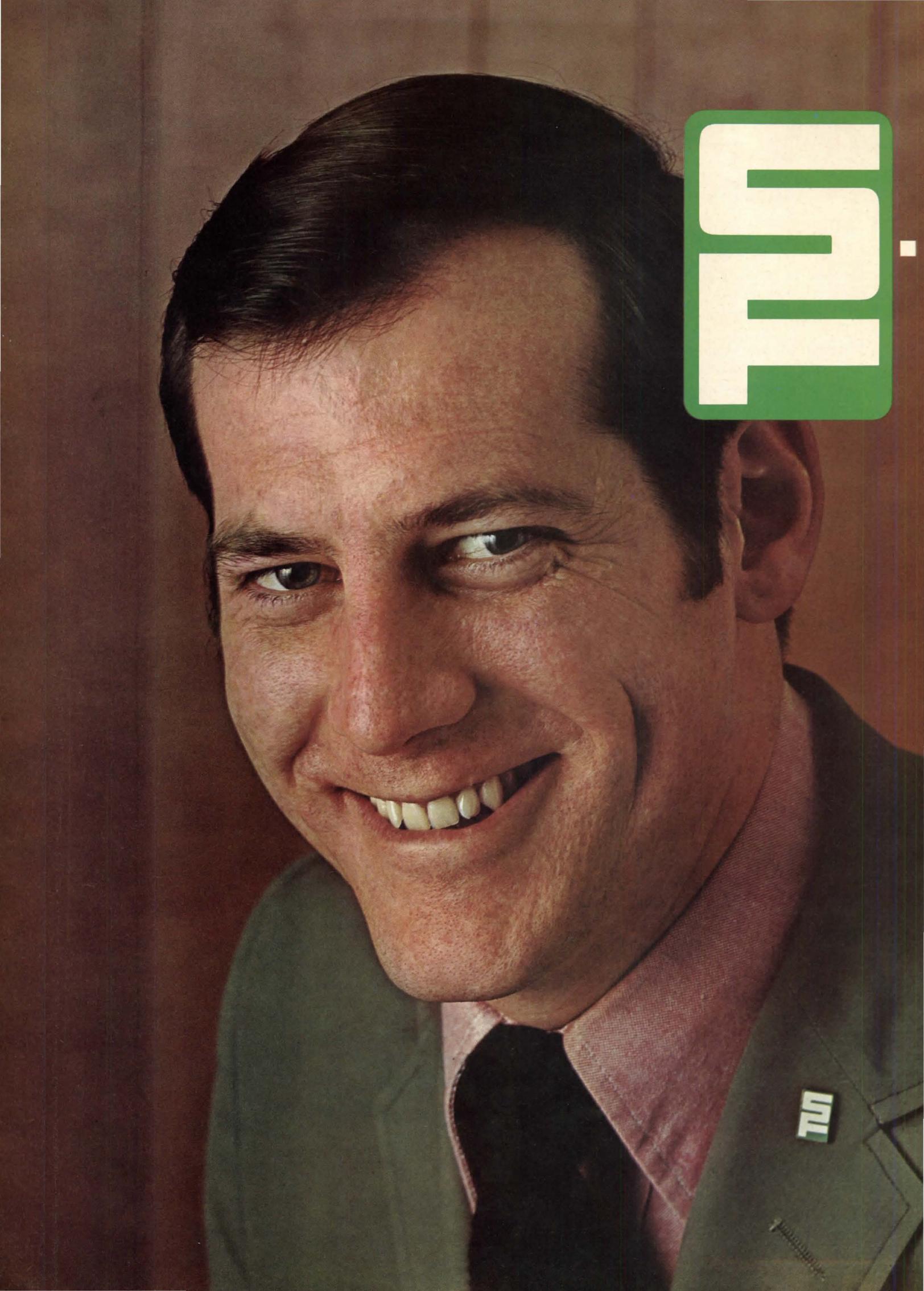
AllianceWall Corporation

Box 247, Alliance, Ohio 44601

European Plant:

Alliance Europe, N.V., Box 19, 3600 Genk, Belgium





.this mark means:

Calling up fieldman John Zinn and getting straight answers about how southern pine can help your building needs.



ONE OF A SERIES PRESENTED BY THE AMERICAN WOOD COUNCIL

This mark stands for a lot of things. Quality housing, timber resource development, increasing wildlife population through managed forests, improving the environment. And service.

The kind of service you get, for example, from John Zinn, one of our 21 busy fieldmen. Whether it's technical assistance, advice on building specs or a rush order for Southern Pine lumber, John is ready to lend a hand when and where you need it.

Our member mills, who hired John and other fieldmen to help you, are progressive manufacturers dedicated to technological and product improvement. That's just one reason why you should buy or specify lumber bearing this mark. There are many more. But we'll tell you about them later.

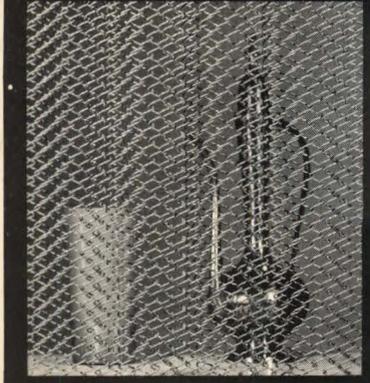
SOUTHERN FOREST PRODUCTS ASSOCIATION
POST OFFICE BOX 52468, NEW ORLEANS, LOUISIANA 70152



DRAPERY FUNCTIONAL METAL MESH FOR

NIGHT CLUBS

10,000 sq. ft.
1/4" anodized aluminum,
Casino, Freeport,
Bahamas



AIR PORTS

La Guardia Airport,
New York
1/4" anodized aluminum

YOUR DESIGN

The new texture
of wire for
Dividers / Windows

PACIFIC DRAPERY is available in a steel, or aluminum anodized wire mesh / It is custom finished and woven to meet each individual requirement / It is painted or anodized in a spectrum of decorator colors / Pacific Drapery is woven in one-eighth, three-sixteenth, one-quarter, three-eighth, and one-half inch mesh / Pacific Drapery Wall is easy to install and maintain / Write for actual sample of this new product. We will also send prices.



DRAPERY WALLS

2235 S. E. 11th Avenue
Portland, Oregon 97214
Area Code 503-233-4661

News report continued from page 34

unless low and moderate income families are subsidized (through all programs) to the degree that tax deductions subsidize higher income homeowners. Public funds and guarantees to support large amounts of front money will have to be expanded at federal and local levels. The problems of assembling large sites are probably less than the problems of arranging zoning and building code approvals and other needed consents; new legislation allowing planned community development offers some help, but some sort of arrangement is required by which someone other than the developer holds the land until consents are set. Federal and state governments will have to plan and construct networks of public services (utilities, transit, sewers, etc.) to provide a framework for growth. Tax disincentives, at federal and state levels, that work against building and rebuilding at the neighborhoods scale will have to be removed; new tax incentives will have to be worked out. Different forms of taxes, along with revenue sharing, will further the progress of planned growth. At the Federal level, something like a national development corporation would be needed to handle large scale coordination and negotiation; development corporations would also be needed at state and local levels.

The task force report has already caught a bit of flak from some members. There are those who feel it's too radical, others who feel it's not radical enough. Either way, it is sure to prompt healthy discussion between now and the convention, and its discussion then should be lively.

Houston to be host to new kind of AIA convention

The upcoming AIA convention in Houston reflects, at least on paper, many of the lessons learned at past meetings, the big one being that parts of the convention shouldn't compete with one another. This year's convention will be a multi-part affair: there will be the usual business sessions, plus the report from the Task Force on National Policy, plus the exposition (theme: the Marketplace of New Ideas), plus the Building Team Conference (which is really a separate meeting). According to the AIA, they are all scheduled to eliminate overlaps and conflicts.

Everything is a bit earlier this year—the convention itself, scheduled for May 7–10, and the opening session, which is set for Sunday afternoon, May 7. Institute honors will be presented at that time, and Dr. Rene Dubos, microbiologist and pathologist who has written and lectured widely about man's relationship to the environment, is the keynote speaker.

Discussion of the Report of the Task Force on National Policy will be a major part of the convention, and Texas Senator John Tower will be a guest speaker. Business sessions will also take up part of the time, and some new rules will govern convention resolutions. Resolutions duplicating ones passed during the past five years will be discouraged; the resolutions committee will report only resolutions it recommends.

The Marketplace, as AIA is referring to the building products exposition, will be more than just a manufacturers' show. The manufacturers will be there, of course, but so will officials from federal agencies; discussions of practice problems, meetings on housing, pollution and other topics will all be set up so as not to interfere with anything else. And reflecting its

[continued on page 43]

separate nature, this year's Building Team Conference, which last year seemed to out-draw the business sessions, is set for the days following the convention, May 10-12. One further reflection of its separate nature: a separate registration fee.

On top of all the serious matters, the convention offers the usual social affairs, cocktail parties, formal balls and tours (the Astrodome, NASA Manned Spacecraft Center among others). And for those who have the time and inclination, the convention will reconvene in Mexico City May 12-13.

P/A staff wins editorial honor

The P/A editorial staff was honored with a certificate of merit in the 18th Annual Jesse H. Neal Award Competition of the American Business Press. The certificate, recognizing high editorial quality, was given for the October 1971 issue "Life Support Systems for a Dying Planet."

Students help design Columbus, Ind. grade school

With the help of 15 grade school students, an elementary school being designed for Columbus, Ind. by Caudill Rowlett Scott is turning out to be just what the students want—spiral slides, tunnels and all. Well, not "all," because the robot teachers, pushbutton desks, pool tables and water beds were a bit more than could be handled.

But, says Paul Kennon of the Los Angeles office, "they specified a spiral slide so that's what we've given them." Slides run parallel to stairs, and one runs from a learning space down to the library. One of the tunnels connects a learning area with the dining room 30 ft away, and another runs under a mound of earth to link the school with the playground.

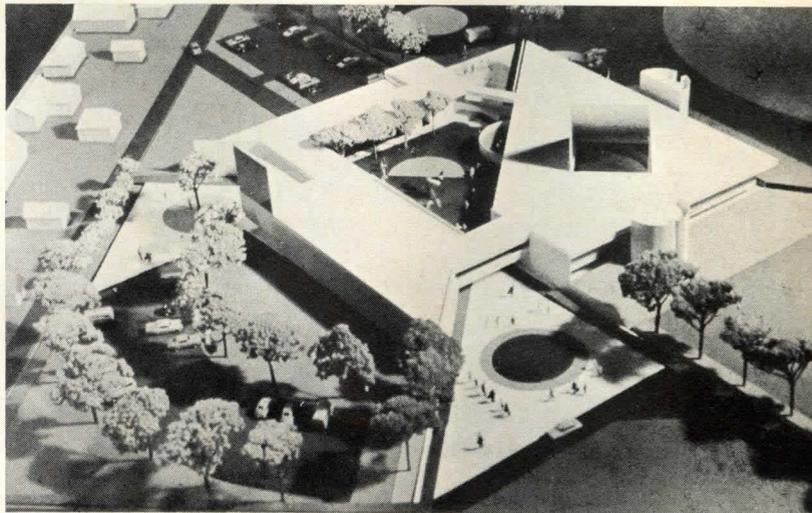
The school will consist of three sections grouped around a court, with a mall cutting diagonally through the building. It will house about 640 students; it will also serve as a community center for adult education and Head Start programs.

Paris competition winner shown in New York

For its first public showing outside Paris, Le Centre Beaubourg was on display last month at New York City's Museum of Modern Art. The new museum will replace the present National Museum of Modern Art and include galleries for industrial design, theaters, cinemas, experimental galleries, a center for acoustical research and an art library. The project was the result of a government-sponsored competition won by architects Renzo Piano and Richard Rogers. Plans shown in New York were approved by President Pompidou; construction starts this year.

The original proposal was for a transparent box whose walls would incorporate moving electronic images, letting the buildings serve as a giant screen for art information and news. Columns were placed along the exterior walls, providing an uninterrupted interior space, with elevators and escalators along the outside wall. Deep trusses were to provide the needed spans; their depth would also let alternate floors be used as storage areas. Transparent wall and roof panels were to be demountable.

That original concept was altered to meet practical needs, according to exhibition notes by Arthur Drexler, Director of [continued on page 46]



CRS' Kennon, clients and school



Le Centre Beaubourg



Porcelain-enameled home for National Molasses Company



A subtle charm sifts through the crisp simplicity of National Molasses Company's new headquarters office building near Philadelphia. All-over paneling in porcelain-enameled steel is relieved with accents of sandblasted architectural concrete. Vertical severity is avoided by back-slopes at the parapets, repeated along the window-sill line.

The structure achieves unity with its environment through the selection of an earthy umber hue for the porcelain enamel. Architects are making ever-increasing use of these Nature-tone porcelain finishes, along with attractive textures and embossments. On the practical side, porcelain-on-steel panels offer rigidity, light weight, corrosion resistance, cleanliness, and fastness of color.

Bethlehem furnishes special enameling steel sheets to fabricators who form and coat architectural panels. Ask us for a copy of the Porcelain Enamel Institute's brochure in the popular matte-finish Nature-tone hues. Bethlehem Steel Corporation, Bethlehem, PA 18016.

BETHLEHEM STEEL



Architects:
Hayes & Hough Architects, Philadelphia, Pa.

Structural Engineer:
Charles O. Muscheck, Philadelphia, Pa.

Porcelain Enamel Panels:
The Bettinger Corporation, Milford, Mass.

Owner: National Molasses Company,
a Subsidiary of C. Brewer & Company, Limited,
Willow Grove, Pa.





Gropius and JFK Building, Boston

MOMA's Department of Architecture and Design. The truss system provided more than the needed storage space, so some of those areas are now to be used for exhibits; some of the galleries have been given their own internal stairs. These developments, the notes said, will work against the flexibility of the wall system.

Gropius exhibit to tour country

Following successes in Berlin and Zurich last year, photographic retrospective of the work of Walter Gropius will now tour this country; it opens this month in Cambridge, Mass. at Harvard's Fogg Art Museum. The show, which includes 212 photograph panels, plus scale models, slides and a filmed interview with Gropius, was arranged jointly by Ise Gropius, The Architects Collaborative and the Bauhaus Archive in Berlin.

The photographic panels cover all of Gropius' projects, among them the Graduate Center at Harvard, Back Bay Center Development in Boston and the Pan Am Building in New York, along with earlier projects such as the project for the Total Theater. A special model of the Total Theater was built by Charles Forberg Associates for the exhibit, and the show is accompanied by an illustrated catalog prepared by Ise Gropius with an introduction by James Marston Fitch.

Survey studies employees' reaction to graphics

Designers often assume that what they design will have the desired results, particularly if they themselves are satisfied; it's hard, however, to be sure without some sort of after-completion study, and not everyone takes time for that. Designers at Albert C. Martin & Associates did such a study last year, of the new Sunkist International Headquarters in Sherman Oaks, Calif., aimed particularly at the interior graphics.

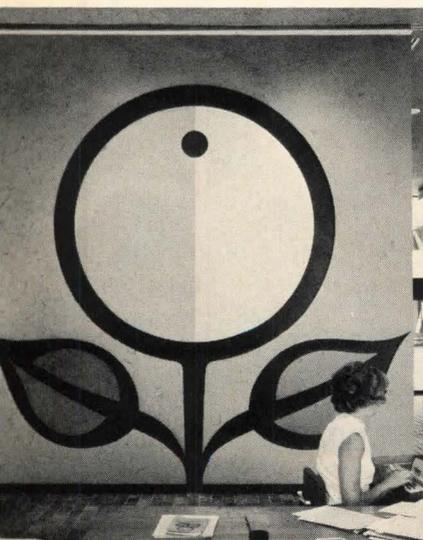
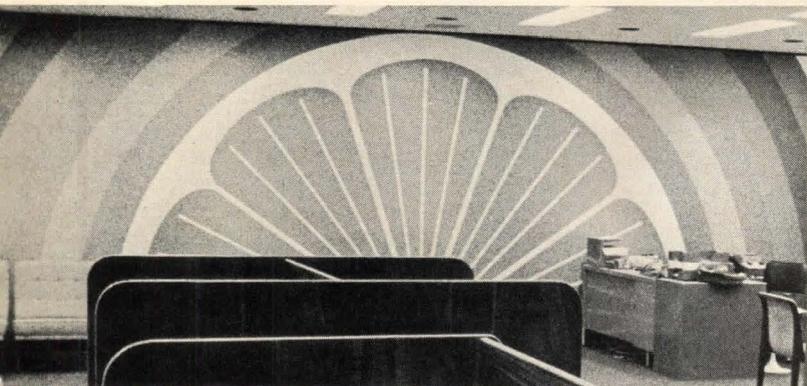
Questionnaires were distributed to Sunkist employees, and the Albert C. Martin computer people evaluated and compiled the results. Almost all the employees surveyed felt that attractive facilities are an important part of company business and play a part in internal morale; close to the same number noted that they prefer colorful surroundings. Virtually all employees noticed the graphics, which included directional signs and decorative murals. The signs worked well, according to 78 percent of the employees, and 87 percent feel they are helpful; the departmental identification signs were particularly liked. About half the employees surveyed felt that the murals added to the vitality of the building; most didn't feel they were useful as directional aids. Over half prefer them to solid colored walls, and 30 percent would like to see more of them.

Reactions to the building were also surveyed. Just under three-fourths of the employees felt the building was a plus for the corporate image. The 164,000 sq ft building rises from a landscaped podium housing building services and parking spaces. In plan it is a square doughnut, 200 ft on a side, with a large court at the center; in elevation, it is an inverted stepped pyramid three stories high.

Penn State team builds weather model

A team of architectural engineers at the Pennsylvania State University is doing something about the weather—they're developing a computer simulation of typical weather for an entire year. With a \$150,000 National Science Foundation grant, the team hopes to provide a tool that will let architects and engineers design buildings for optimum results from available

[continued on page 50]



Sunkist graphics: employees like them





Most people won't know the wall is solid pecan. But you will.

To most people a beautiful sheet of pecan plywood wall paneling is enough. We know because we make a lot of plywood wall paneling. But to another, small group of people it's not enough. These people want that extra dimension of depth and beauty that comes only with individual planks of solid pecan. Or oak, cherry, walnut or elm. But most of all they want the complete personal satisfaction of knowing themselves that they have solid planks. The very finest.

It's true that very few people will know what the difference is. But they will sense that there is some-

thing unusual in this wall. They'll want to touch it; rub their fingers across it. Yet they probably won't know what makes it different. But you will. And your client will. It's solid. It's from Bruce.

And that's enough. Incidentally, the floor is solid, too. Solid oak Unit-Wood Blocks. One of many beautiful solid oak prefinished floors by Bruce.

If you are on the West Coast, visit our new Designers' Showroom at 8908 Beverly Blvd. in Beverly Hills. You can select from six different species of prefinished solid wall plank and a whole gallery of New Bruce Floors.

Bruce Hardwood Floors and Walls

PA

Division of Cook Industries, Inc.

Please send me free information on:

- Bruce Floors
 Bruce Wall Plank

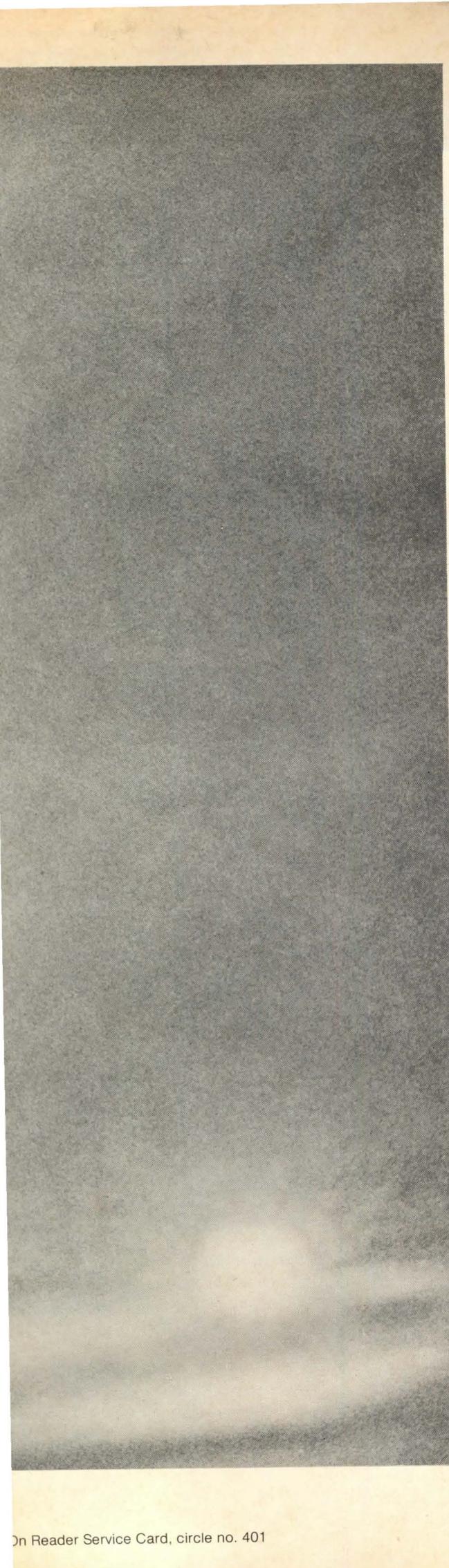
\$1 each enclosed for sample kit of:

- Bruce Floors
 Bruce Wall Plank

Mail to: Bruce Flooring, 1648 Thomas, Memphis, Tenn. 38101

Name _____ (please print)
Firm Name _____
Address _____
City _____ State _____ Zip _____

**The electric climate is
for architects who want
unlimited design
flexibility.**



**Here's how it helped
Harwood K. Smith & Partners
design an 18-story building
that saves its owners thousands
of dollars every year.**

The Zale Corporation wanted a unique and striking building for their headquarters in Dallas, Texas. Yet it had to be efficient, functional and built within a strict budget. Architects Harwood K. Smith & Partners found the answer. They had the Zale Building constructed with an all-electric environmental system for year-round comfort—which adds up to *the electric climate*.

With *the electric climate*, there's no need for a large maintenance staff because all-electric systems require less care and attention. Result—the building's owners will save thousands of dollars every year.

And the building's occupants? They'll work in year-round comfort since electric environmental systems are steady, even and quiet.

Before planning your next building, ask your electric utility company to show you how they can help you turn *your* next blueprint into satisfying reality—for you and your client.



Live better electrically

Electric Energy Association, 90 Park Avenue, New York, N.Y. 10016

fuel, which will lead, according to project head Larry O. Degelman, to reduced air pollution and savings in fuel costs.

The study is aimed at developing a "typical weather year" for any area where energy analyses are performed. Through mathematical techniques, dry and wet bulb temperatures, wind direction and speed, solar radiation intensity, sun position in the sky and cloud cover will be simulated. The model would contain average and extreme temperatures.

The first phase of the study, now underway, is concerned with basic simulation model studies. The second phase will develop computer programs for hour-by-hour weather simulation; thermal heat flow models for walls, windows and roofs; internal load analysis, dealing with human energy, lights and equipment; and energy systems simulation.

Do it yourself Globe Theater plans

Ambitious real estate developers, clever entertainment promoters and possibly even over-reaching theater buffs might consider an offer from a British company known as Shakespeare Globe Development Co., Ltd. The company has for sale complete plans and specifications for a reconstruction of Shakespeare's second Globe Theater; plans for a commercial complex, done in Elizabethan style, that would provide a restaurant, museum and conference facilities can also be had. Prefabricated interior and exterior decor schemes will be available to hang on a steel and concrete structure.

Reconstruction details were prepared by C. Walter Hodges, an authority on the theater, and Anthony S. Tasker, a British architect well versed in period styles. Practical considerations led to the choice of the second rather than the first Globe Theater: it was possible to roof the open yard for year-round use, without losing too much atmosphere, and the stage of the second Globe wasn't surrounded by columns. Large areas of timber are replaced in the reconstruction with glass fiber reinforced plastic. Capacity would range from 700 to 1000 people. The commercial complex would be built beneath the theater and covered with grass, so that the theater would appear to rise from a grassy mound. Cost in Britain is put at about \$2.8 million. It's not too far fetched an idea for the U.S.; after all, London Bridge is now in Arizona.

Obit for the master builder

"Obituary," read the heading at the top of the page, and then the announcement from the New York Chapter AIA went on to "note with sorrow the passing of the architect from the role of 'Master Builder'." Initiative and control in "determining the type and form of development has passed to developers, package builders and entrepreneurs," letting the architect participate "only as a subordinate design and drafting service," the chapter went on to say in announcing a series of seminars on the subject.

Le Corbusier the artist

"Every day of my life," Le Corbusier once wrote, "has been devoted to drawing. I never stopped drawing or painting; it is useless to look elsewhere for the key to the research of my work." The course of his career as a painter was traced in a recent exhibit at the Galerie Denise Rene in New York City.

Many architectural critics have noted a close resemblance in the powerful forms of Corbu's architecture—his wind-breaks, angled ramps, and pilotis—to his still lifes of the early Purist phase. Corbu helped to found the Purist movement, and highlights of this retrospective of paintings and drawings are his works of that period—1918–1928—when he signed his name Jeanneret. The still lifes use such common objects as violins, pipes and bottles—somewhat related to Leger—and are painted in subtle colors. The drawings have great clarity of design and are strong evidence that Corbu's pictorial forms were the basis of his architectural invention.

1971 housing starts break old record

Readily available mortgage money, along with increased government subsidies of low income housing, helped boost the 1971 housing starts total to a record high. The final 1971 figure was 2,048,000 starts, 7 percent above the old record, set in 1950, and a whopping 43 percent above the 1970 mark, according to the Commerce Department. Not included in the figures were approximately 500,000 mobile homes sold during 1971.

Columbia University to show rare Piranesi drawings

A set of recently discovered architectural drawings by Giovanni Battista Piranesi will be part of an exhibition of Piranesi drawings to be held at Columbia University in March. The drawings show Piranesi's plan, done in 1764, for the remodeling of Rome's Basilica of S. Giovanni in Laterano, one of only two working projects Piranesi developed.

For more than 50 years, the 24 drawings had been in the hands of a European family; the first hint of their existence was a passing reference in a scholarly article in 1968. Through an art dealer, Columbia found the drawings this past summer and purchased them with specially donated funds. Until they were found, there were only four known drawings of the remodeling plan for the Basilica; they are in the Morgan Library.

On 2' x 3' sheets of heavy yellowed paper, the ink and wash drawings show interior elevations, ornamental details and a new baldachin and altar for the church. They are, according to the late art historian Rudolf Wittkower "one of the greatest Piranesi discoveries in many, many years."

Florida firm named architects for Democratic convention

Ferendino Grafton Spillis Candela have been given a project that is a strong contender for the title of least permanent architectural design. The firm was named by Florida's Gov. Reubin Askew to be architects for the 1972 National Democratic Convention in Miami Beach. They will be responsible for planning the interior of the convention hall to accommodate delegates, guests and the working press.

Battle for Chicago Stock Exchange enters new phase

Chicago preservationists didn't manage to stop the demolition of Adler and Sullivan's Stock Exchange Building, but another strange phase of the battle has begun. This one centers on what happens to the remains.

In February of last year New York's Metropolitan Museum said that if the building were demolished it would like to preserve some part of it as a permanent display, realizing that the first chance should go to Chicago institutions. At that time, [continued on page 52]

STEEL THE SPECS

Exclusive low-cost alternative for interior installations where steel butt hinges are used; the No. 9 Series Heavy Duty door holder and stop, with rugged steel arm and channel.



Checkmate

A Division of **RIXSON** Inc.
9100 W. Belmont Ave., Franklin Park, Ill. 60131
In Canada: Rixson of Canada, Ltd.

On Reader Service Card, circle no. 339

1



3



5



7

8

9



9 Series, Holder and Stop (Steel)

Exceptional shock resistance . . . silent, self-lubricating operation . . . adjustable hold-open or stop-only control to 110° . . . surface mounted.

(Also available with bronze arm and channel or bronze arm and steel channel. Plated finishes available.)

Request details on the No. 9, or the 1, 3, 5, 7, and 8 Series holders.

the Metropolitan was told that the Art Institute of Chicago wasn't interested in the external parts of the building, and the Metropolitan later followed up with a proposal for installation of the entrance arch and five to seven bays of the first three floors of the façade. Then the museum was told that the city of Chicago didn't want the arch to leave town; the city architect's office has proposed putting the arch in Grant Park.

Last October and November, Richard Miller, president of the landmarks Preservation Council, proposed that the 30 North LaSalle Partnership (the developers who plan to replace the building), the Art Institute of Chicago, the University of Illinois Chicago Circle Campus and the Metropolitan get together on the problem. The Metropolitan would get the arch and related bays; the trading room would be reconstructed in Chicago; and an architecturally important section of the cornice and 13th floor colonnade would be erected at the Chicago Circle Campus. Reaction, the Preservation Council says, was generally favorable, except for some people connected with the city.

Calendar

- March 16-Apr. 15.** Three seminars on design and planning sponsored by The Graduate School of Design Association and the Graduate School of Design, Harvard University, Cambridge, Mass.
- March 13-14.** AIA/CEC Public Affairs Conference, Statler-Hilton Hotel, Washington, D.C.
- March 15-17.** Michigan Society of Architects, AIA, annual convention, Detroit Hilton Hotel, Detroit, Mich.
- March 27-29.** Symposium on housing and mental health sponsored by the Environmental Research Group of the School of Architecture, University of Maryland, College Park, Md.
- Apr. 16-19.** Eighth North American Conference on Campus Planning and College Building Design, Urbana campus, University of Illinois.
- Apr. 24-26.** Second International Symposium on Lower-Cost Housing Problems Related to Urban Renewal and Development sponsored by the University of Missouri-Rolla, at Stouffer's Riverfront Inn, St. Louis, Mo.
- Apr. 24-28.** National Structural Engineer Meeting of the American Society of Civil Engineers, Sheraton-Cleveland Hotel, Cleveland, Ohio.
- Apr. 27-28.** Thirty-third annual conference of the Guild for Religious Architecture, Regency Hyatt House, Atlanta, Ga.
- May 2-5.** Symposium on the Performance Concept in Buildings, American Society for Testing and Materials Headquarters, Philadelphia, Pa.
- May 7-10.** 1972 AIA National Convention and Exposition, Albert Thomas Convention Center, Houston.
- May 10-12.** Second National Conference for the Building Team, Albert Thomas Convention Center, Houston.
- June 26-30.** Systems Building and Industrialization in the United States, MIT, Cambridge, Mass.

Personalities

S. Buddy Harris, vice president of Gruen Associates, Los Angeles, has been named to the 1972 Board of Governors of the Washington Building Congress.

William Hawley, Palo Alto, Calif. architect, has taken office as

president of the Santa Clara Valley Chapter of the AIA. Other newly elected officers are: **David C. Thimgan**, Santa Clara, vice president; **Rex Morton**, San Jose, secretary; **Jim Morelan** of Campbell, treasurer.

Bruce Abrahamson has been elected president of the Minnesota Society of Architects. Also elected were: **Saul Smiley**, vice president and president-elect; **John Weaver**, secretary; and **O. Reuben Johnson**, treasurer.

Dr. Jerome Catz, professor of mechanical engineering, has been named acting dean of the University of Miami School of Engineering following the resignation of Dr. Donald A. Sawyer.

Bernard B. Rothschild, FAIA, has been elected president of the Georgia Association of the AIA. **John R. Reiter, AIA**, was named vice president, president-elect; **Robert R. Jinright, AIA**, secretary; and **John A. Busby, AIA**, treasurer.

Arthur Rosenblatt, AIA, was named vice director for architecture and planning at the Metropolitan Museum of Art, New York City.

Alvin Boyarsky has been made chairman of the Architectural Association School of Architecture and Academic Board, London, England.

Social philosopher **Lewis Mumford** has been elected by the University of Virginia's Board of Visitors as the Thomas Jefferson Memorial Foundation Visiting Scholar in Architecture for the semester beginning February 1.

Awards

Three awards of merit were given in the Army's Chief of Engineers Architectural Design Awards Program: **Nolen and Swinburne Partnership** (Officers' Open Mess, McGuire Air Force Base, N.J.); **George Matsumot and Associates** (family housing at the Presidio, San Francisco) and **Charles W. Jones Engineering** (Sacramento Peak Observatory, Vacuum Telescope, Sacramento Peak, N. Mex.).

Washington report

Safety costs

Architects should make no mistakes about the effects—both on costs and on working conditions—of the now-accelerating application of the Occupational Safety and Health Act (OSHA), on Federal books as Public Law 91-596. Contractors, machinery manufacturers, machinery dealers—the operating end of the construction industry—are very seriously concerned, and they are very serious in pointing out that vast increases in construction costs will result. In addition to mounting a concerted drive in Washington this year to gain “sensible” modifications, they are calling for changes in design and specifications that will allow them to absorb some of the new requirements without too-drastic price increases that could cut down volume.

Specifically, the contractors say that OSHA regulations already issued will cost them as much as \$2 billion just to add required safety items to their existing machinery for rollover protection. All tractors built before 1969, for instance, must carry such protective equipment by 1975, and most such machines don't have frames heavy enough for this added impact load. Addition of load-indicating devices on cranes will cost millions more, they say, and require re-training of operators to handle quite sophisticated electronic equipment. Many other

[continued on page 54]

After you've gone to so much trouble to make your students and faculty comfortable, it would be a shame to shock them with your carpet.

Because no matter how beautiful or luxurious a carpet may look, it will still build up static electricity. Which you can feel when you open a door, turn on a light or touch someone.

It's not enough to harm you. Just enough to continuously annoy you.

That's why the architects and interior designers of Averett College specified Bigelow-Sanford's Dura-tred® carpeting, a blend of 69% Zefran® acrylic, 28% nylon and 3% Zefstat® metallic yarn for static control.

Unlike other anti-static control devices that may wear out or wash out, Zefstat anti-static yarn is the only one backed by a guarantee to provide comfort from static. For five years or the life of the carpet, under normal conditions.

Of course no one will see or feel Zefstat in the finished carpet. Because we blend it into our nylon and acrylic yarns during yarn production.

What you and your students and your faculty will see is a magna cum laude quality carpet certified for college use by Dow Badische. You see, before our label goes on we put samples of the carpet through extensive tests for all sorts

of wear and tear. So that when you see our label you can be assured that the beauty of your carpet isn't temporary but is built-in for a long tenure under college conditions.

Anything less than that would be shocking.

For more information on how Zefstat can make your college or university more comfortable, send for our booklet on Static Control for Colleges and Universities. Write Dow Badische Company, Dept. 100, 350 Fifth Avenue, New York, New York 10001.

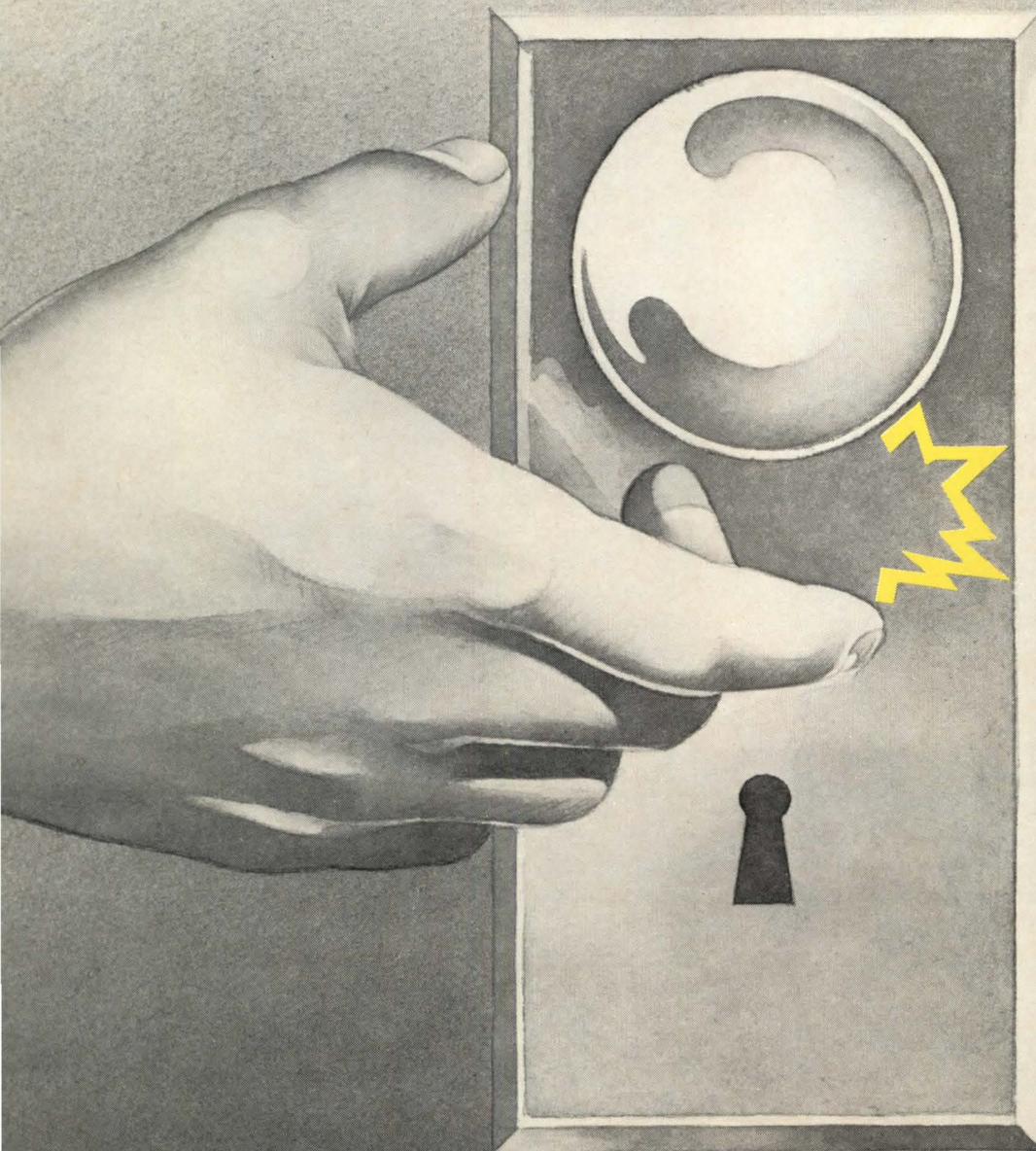
ZEFSTAT 

THE ONLY ANTI-STATIC CARPET YARN GUARANTEED FOR 5 YEARS

Zefran® and Zefstat® are registered trademarks of Dow Badische Co.

On Reader Service Card, circle no. 343

**We've taken some of the shock
out of going to the Dean's Office
at Averett College.**



requirements will cost money: provision of excessive guard rails and safety devices (including life-lines, for example) on roofing work or almost any work more than 10 feet off the ground, will force many of them out of business, they say, or force substantial increases in their bids.

They also complain that their efforts to comply are resulting in further trouble. Contractors have asked OSHA (which is being handled out of the Labor Department) to send advisers to their jobs to find out how well they're doing to meet requirements, and then have found themselves cited for the violations they are trying to correct.

Finally, there's considerable worry that OSHA has handed over a powerful bargaining weapon to labor unions, who have taken up "safety" as a battle cry this year. Complaints of OSHA violations can force a job shutdown while inspections and corrections are debated; the threat of such complaints can be a lever against employers.

The vast confusion over safety, and the so-far popular public clamor for it, have obscured the basic legal acts behind the program. These are two: The 1969 "Construction Safety Act" and OSHA itself, put on the books December 29, 1970. Both statutes require detailed regulations from the Labor Department—which took the initially simple course of adopting regulations under the Safety Act (published in the official "Federal Register" for April 17, 1971) bodily as part of OSHA. Since then, further regulations—concerning rollover protection equipment, crane devices and the like—have been issued. The regulations so far in effect go far beyond machinery. They include scaffolding, safety devices at openings and on roofs, noise levels, sanitation, conditions of excessive heat and cold at work sites and much more.

A major problem, as the contractors point out and federal staffers admit, is that there isn't anything like the research background that should have existed before regulations were promulgated. Construction, for example, is almost automatically classified by everybody as the nation's second most dangerous occupation (next to mining), yet there are no really reliable statistics to prove that assumption, partly as a result of wide divergence in current methods of reporting construction accidents and fatalities. Administrators are very much in the same position as those charged with eliminating air and water pollution: In both cases, research findings or not, Congress and, at least, a vociferous part of the public are clamoring for action, so something is being done—even though much may have to be undone in years ahead.

In any case, the operating elements of the industry are now preparing to mount a drive with three main thrusts: 1) To obtain immediate modification of some of the OSHA regulations; 2) To obtain adequate funding for major research into the general area of construction safety; 3) To call on architects and engineers to keep OSHA considerations in mind in their designs and specifications, and try to make it possible for the builders to work without incurring too much added expense for reasons of safety.

Behind the budget figures

Construction would fare well enough in fiscal year 1973, if Congress accepts the President's budget without much change—as it is likely to do.

The total earmarked for federal construction spending (including the highway program, federal buildings, Army and Defense spending, Bureau of Reclamation, General Services Administration and the like—but not loan and grant programs such as those for housing) is \$13.7 billion. That represents a jump of about 5 percent over the current fiscal year.

But Presidential budgets are often over-rated as news stories—for the figures they show. The fact is, totals such as the more than \$246 billion included in Mr. Nixon's budget are absolutely unimaginable to most citizens. The budget is only a proposal, anyway; it may bear only a general resemblance to actual spending programs that Congress approves. So the significance of the budget is really in what it shows of administration thinking and planning. In that respect, there are some important points for the construction industry in the 1973 budget.

Despite the apparent rise in spending that is forecast, nearly 87 percent of the requested construction appropriations are to carry on work already under way, not new work. For example, there are only 13 "new starts" listed for both the Corps of Engineers and the Bureau of Reclamation, despite substantial rises in the total allocated to those major construction agencies; the requested allocation from the Highway Trust Fund is \$4.8 billion—exactly what is called for by existing law.

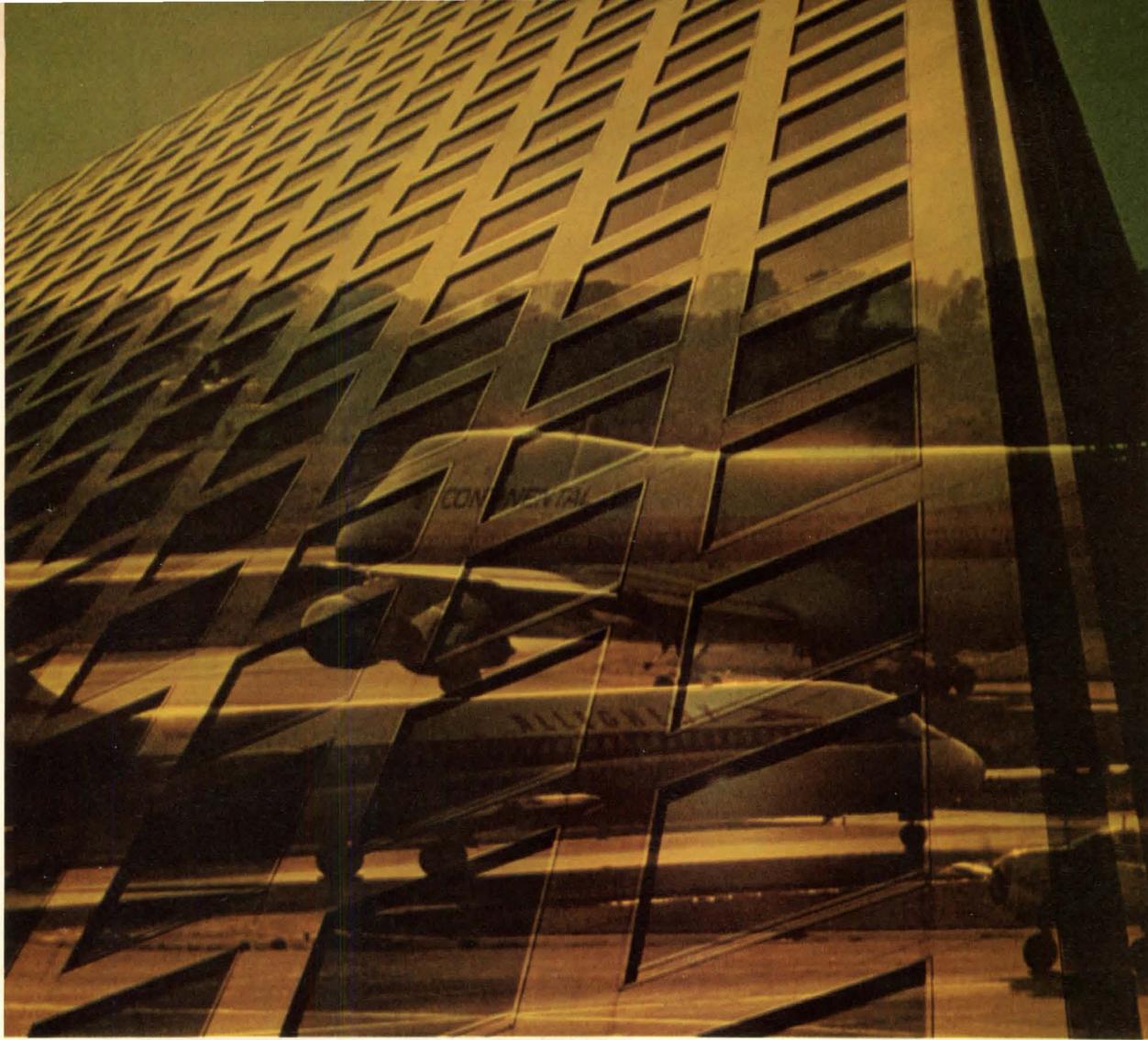
The budget does signal a major change in operating procedure by GSA. The \$308 million appropriation called for will cover completion of four buildings already under construction (including the \$112 million FBI headquarters in Washington); a couple of border inspection stations, and some sprucing up of Washington for the 1976 bicentennial celebration. "Construction of other buildings," said Mr. Nixon's message, "will be shifted to private investment financing upon enactment of pending legislation." That statement apparently means GSA will shift to something like the "lease purchase" system used by the Post Office until it became a quasi-independent corporation.

The Postal Service emerges as a major buyer of construction. It plans to award 36 contracts for major buildings and 75 for minor projects—to cost a total of \$600 million on completion—within the year.

The increase of about \$782 million (to a total of \$2.3 billion) for military construction will cover construction of additional family and bachelor housing, hospitals and troop housing facilities on military posts.

Of special importance is the clear implication that controls must continue to be maintained in the industry. "Construction costs have risen at a rapid rate for the past 10 years," the President told Congress. They have risen even more sharply in recent years. The Department of Commerce Composite Index (of construction costs—1967 taken as 100) rose to 125 in January 1971 compared to 118 in January 1970 and 110 in January 1969. By August 1971, the index had reached 134. "(After establishment of controls in March and October) preliminary figures through November 1971 indicate that the construction cost index remained stable at the August level. . . ."

Obviously, the Administration couldn't be satisfied with the 134 figure. Equally obvious, wage controls had forced the index to remain steady—hence further doses could be expected to continue this steadiness, if not start a downtrend. [E. E. Halmos]



You're looking at Sound Control

Shatterproof Sound Control Glass doesn't look different, it just sounds different. Quiet, peaceful, relaxed.

Take a good look. Sound Control is serious business. Without it . . . health is endangered, productivity falls off, vacancies occur, and businesses are forced to re-locate.

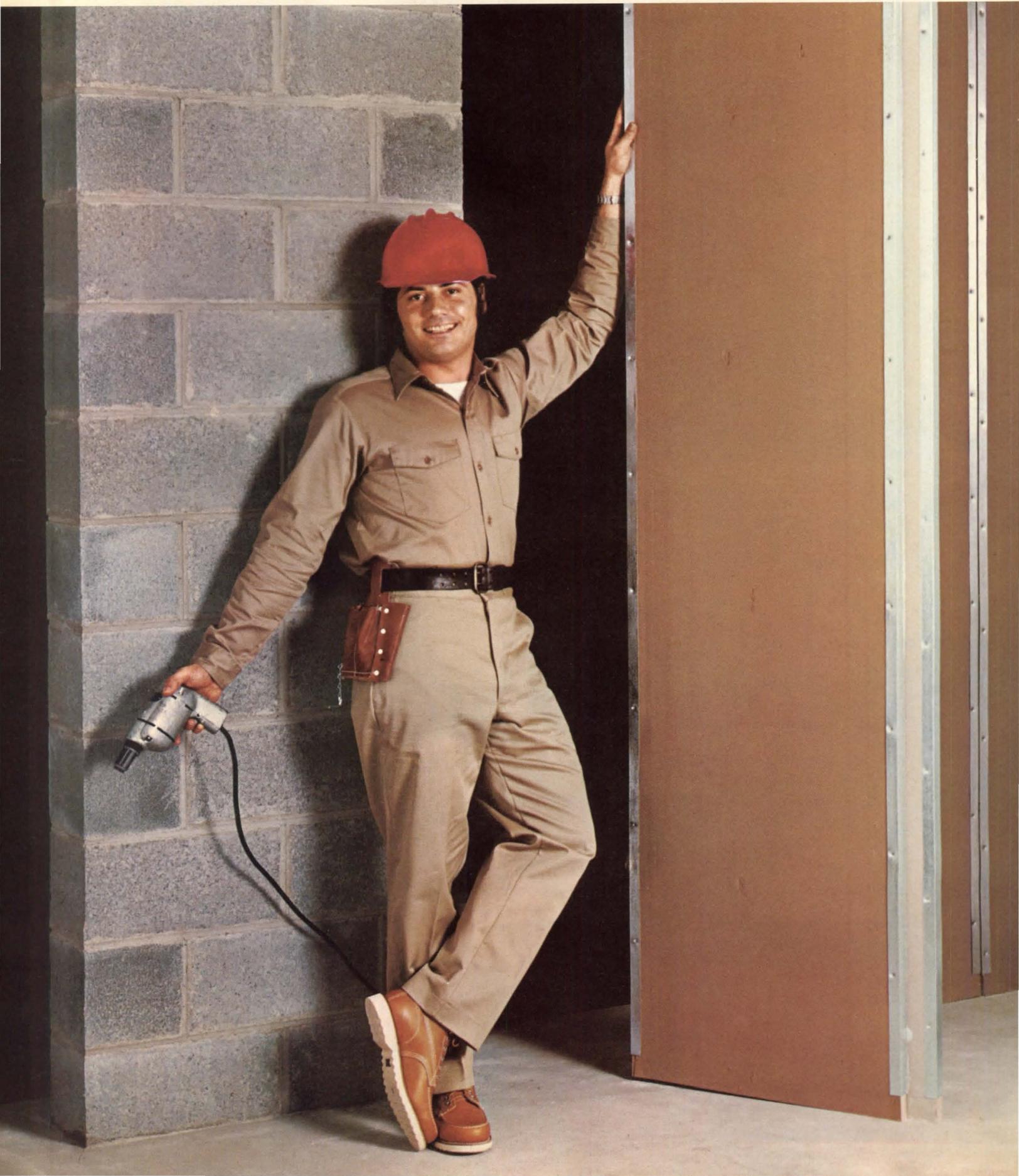
With it a building has everything going. Especially when Sound Control is combined with other Shatterproof functions such as Heat and Cold Protection, Solar Rejection, Glare Reduction, Security and Safety. And reduced operating costs.

In clear and tones of bronze and gray as well as subdued reflective tones of bronze, gold, gray, and chrome . . . in the largest quality sizes in the industry.

For a deeper look at Sound Control write for our Sound Control Brochure. Shatterproof Glass Corporation, Dept. 101B, 4815 Cabot Ave., Detroit, Michigan 48210. Phone: 313/582-6200.

Shatterproof
GLASS CORPORATION *Architectural Division*

TAKE YOU



R CHOICE

**You can specify masonry for shaft enclosures,
or you can save space and weight with Gold Bond Metaledge Corewall.**

Metaledge Corewall™ goes up in one piece — one step. Constructed in "ship-lap" configuration, panels have water-repellent surfaces. Offset long edges come with 24-gauge hot-dip galvanized steel channels attached. Panels are progressively attached to 2 x 2-inch, 20-gauge tracks with 2-5/8-inch self-drilling screws. Corewall is faced with any combination of regular gypsum wallboard, Fire-Shield Wallboard, M.R. Board or Durasan® to meet specific fire rating, acoustical rating, aesthetic or job requirements.



This is the 57-story IDS Tower in Minneapolis, Minn. — tallest structure between Chicago and the West Coast. 425,000 square feet of Metaledge Corewall have helped slash structural steel requirements substantially. Metaledge Corewall not only met every shaft wall material specification for the Tower, but was far less expensive than the method specified in the first place...far faster and easier to install.



Concrete block is 6" to 8" thick, weighs in at 30-40 pounds per square foot. Metaledge Corewall is 2" thick, weighs 10.5 pounds per square foot. Which would you rather specify to enclose your high-rise elevator shafts, stairwells and other vertical chases?

Space-maker. Since Metaledge Corewall panels weigh less, take less space — your building requires less foundation, less structural steel. It adds up to an average of 1/2 square foot more usable space per lineal foot of shaft enclosure. That's space you never had before at no extra cost.

Fast-mover. After installation of top and bottom steel angle runners, Metaledge Corewall panels are simply tilted into place and screw attached. All in one step from the corridor side only. And because vertical metal runners are built into the panels, there's no need to erect metal studs. Nor do you need scaffolding. There's not a faster, simpler system anywhere.

Job-expediter. Large panels (2' wide and up to 16' high) not only speed shaft enclosure work, but simplify scheduling, too. Men and materials are moved early in the job regardless of weather. Panels arrive ready-cut to required lengths, which reduces on-site modifications to bare minimum. Finish face is gypsum drywall.

Code-follower. Metaledge Corewall withstands air pressure produced by high-speed elevators. All components of the system are non-combustible... offer up to 4-hr. fire ratings. Sound reduction in the 40's is available.

That's what we mean when we say — "We're Constructive". Metaledge Corewall — a better way to build high rises. Providing architects with a system that saves weight and space without sacrificing strength is another constructive response from the people at Gold Bond.

For more information, talk to your Gold Bond Building Products sales consultant. Or write Gold Bond Building Products, Division of National Gypsum Company, Dept. PA-32G, Buffalo, N.Y. 14225.



Architecture west

Most collections of architectural drawings wind up in dead storage, but not at UC Santa Barbara. There, David Gebhard is putting together archives which include early modern masters R.M. Schindler and Irving Gill, and some good Spanish Colonial Revival and Moderne of the 1920s. All material is filed in rooms open to scholars. Six years ago Gebhard, director of UCSB Art Galleries and a noted historian, started a program of modest-budget architectural shows which do more than present two-dimensional material. Furniture is often built from the architect's plans. An Art Deco show centered around Kem Weber featured department store decor and packaging. Future shows will include the work of J.R. Davidson, Gregory Ain, Raphael Soriano and Harwell Hamilton Harris. Gebhard writes and designs the meaty catalogs, all collectors' items.

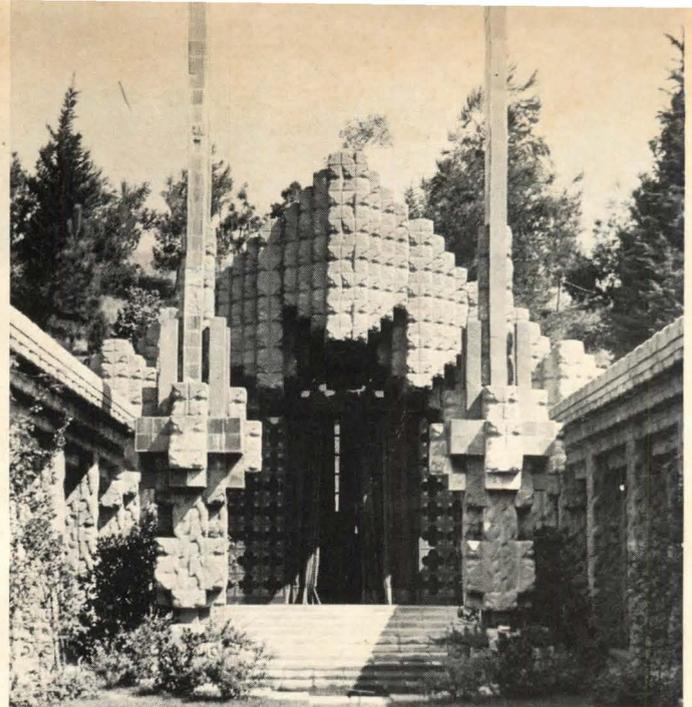
For the recent show on Lloyd Wright, arranged by Gebhard and Harriette von Breton, a fountain was erected in the gallery patio; the textured concrete blocks were made from facsimiles of the original molds. Replicas of blocks for Wright's own 1928 house formed an entry.

Lloyd began his career as a landscaper with the second generation Olmsteds, then spent two years in the office of Irving Gill, where he learned to love the shear wall. Many of his houses of the 1920s and 1930s combine what he calls the "silent wall" with passionately concentrated ornament. There is a strangeness about his early work, equaled in American architecture only by Bruce Goff's. Lloyd's surprises, unlike Goff's, gave way in time to a more familiar poetry.

Lloyd's first style is closer to German Expressionism, especially the dripping ornament used by Hans Poelzig, than to FLW. But Lloyd's grows out of the cubic form of the concrete block rather than the free form of the icicle.

Among the items shown was a three-dimensional presentation of his early plan for Los Angeles Civic Center—very Saint Elia with its emphasis on modes of transportation. A later city plan showed raised roads raying out from Civic Center to the sea, the roadbeds built of impacted city waste. He sketched in below road level a series of oases with pools, making of the city a modern Tenochtitlan.

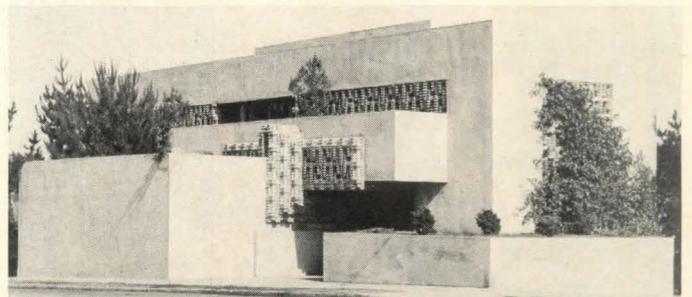
His delineation is filled with rich imagery, an inherited talent. There is a straightforwardness and toughness in such solutions, however, as his slip-form system for concrete walls of a 1923 hotel. He is less a technologist than one who tries out his hunches.



Lloyd Wright's Sowden residence (1926)



Samuel Residence (1928)



Wright's own studio-house (1928)

At 79, Lloyd keeps busy on numerous projects, assisted by his son Eric. Currently under construction is a church in the vein of his famous 1949 Wayfarers Chapel in Palos Verdes; the romantic glass-roofed chapel, set among redwoods, is a favorite place for weddings.

At the same time as the UC Wright show, USC was exhibiting on the small elegantly Miesian buildings by Crombie Taylor, who came to the School of Architecture from IIT. Much of the work shown was built around Chicago, best known being the Hull House and a small apartment house whose loving care in plan and detail are unforgettable. [Esther McCoy]

Siding.

This embossed surface simulates the textured surface of Weyerhaeuser Panel 15. The color is shasta white, one of eight stock Panel 15 colors.

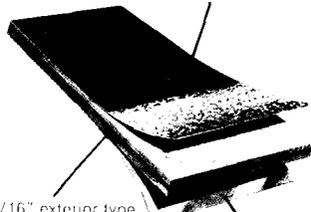
We've counted 21 ways you can use Weyerhaeuser® Panel 15.

Siding. Panel 15 is one of the most functional siding products to come along in years. It's aluminum overlaid plywood with a prefinished surface guaranteed for 15 years. You get an exterior finish, sheathing and insulation all in one product. And siding is only one use of Panel 15. For details see your Sweet's Architectural File 7.5/Weyco or contact your nearest Weyerhaeuser office. *If you have a job in mind and need information right away, air mail a request to George Lahey, Weyerhaeuser, Tacoma, Washington 98401.*

(Footnote: The shasta white finish is approved by U.S.D.A. for use in meat processing areas.)

Weyerhaeuser® Prefinished Siding/Panel 15

10 mil, pebble textured aluminum sheet, prefinished with baked-on enamel

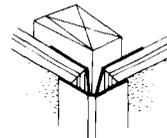


5/16" exterior type plywood core

2 mil reflective insulating foil

A complete system.

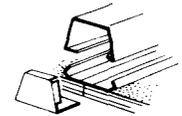
We call it a system because you can get a variety of accessories for concealment of joints, weather stripping, panel connections, corner and trim details—also nails to match your panels. Five of the most popular accessories are shown at right. Stock panel sizes are 4' x 8' and 4' x 10' (5/16" thick). If you're interested in special colors, talk it over with your Weyerhaeuser representative.



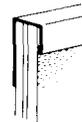
Adjustable Outside Corner



H-Mold



High Rib Batten



J-Mold

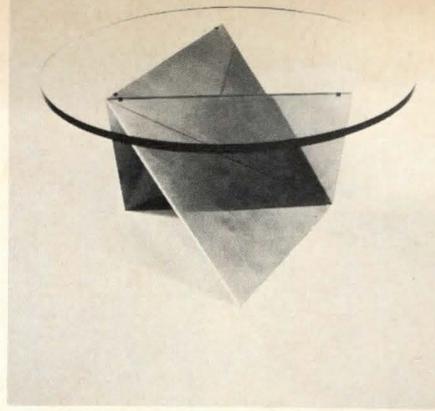


U-Channel



Weyerhaeuser

Products and literature



The art of furniture making

The art of furniture making. Old fashioned workmanship—the use of fine materials and superior craftsmanship—distinguishes this furniture in both stainless steel tables and upholstered pieces. The tables are made of domestic #304 stainless steel—in some cases the legs are specially designed to be the sole support of the $\frac{3}{4}$ " glass insert top. Among the tables offered is "Octable" designed by Charles Hans Winecoff, with two stainless steel planes intersecting at 90 degrees forming the base for the round glass top. Upholstered furniture is made with shaped, kiln-dried hardwood frames, with upholstery done so that all but essential seams are eliminated—where a seam is necessary it is hand sewn; welting is fastened to the frame, tufting is tied to the inner spring or the jute webbing. This is costly furniture designed for heavy service and long-term wear. Scope Furniture.

Circle 101 on reader service card



Upholstered components

Upholstered components. Through the use of molded urethane foam, dacron and what its makers describe as a unique coupling device, this contract furniture reportedly provides comfort, ease of assembly and reasonable cost. Called the Camaleonda system, it comprises eight elements: three base units, three back units and two arm units—based on a plan module of 11.5" x 11.5". Its variety of combinations may be recomposed quickly. Available in fabrics, leathers and vinyls. Atelier International, Ltd.

Circle 102 on reader service card

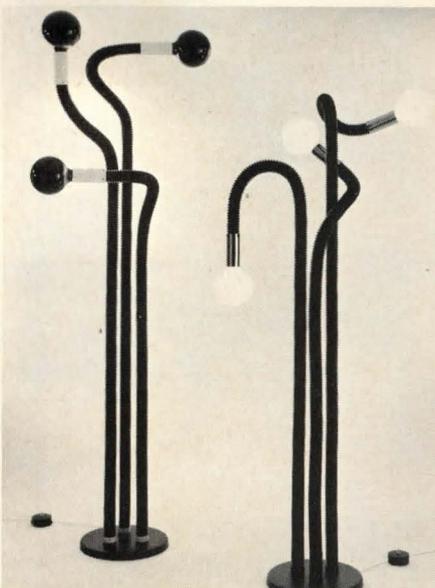
Flex-o-lites. Wiggly lighting fixtures can be formed into dozens of shapes; the Flex-o-lite coils come in varied lengths for use as table, desk, wall or floor lamps. The arms support baby spots, small fluorescents, special bulbs and opal globes, all completely adjustable in light direction. Raymor.

Circle 103 on reader service card

Hand carved doors. Carved from solid mahogany by master craftsmen, these doors come carved on one or both sides. In standard and custom sizes, they may be had with matching laterals and transoms. Other doors are coupled with wrought iron, heavy wood grilles and three-dimensional turnings. Window shutters, floor screens, shoji and other decorative panels available. Pinecrest, Inc.

Circle 104 on reader service card

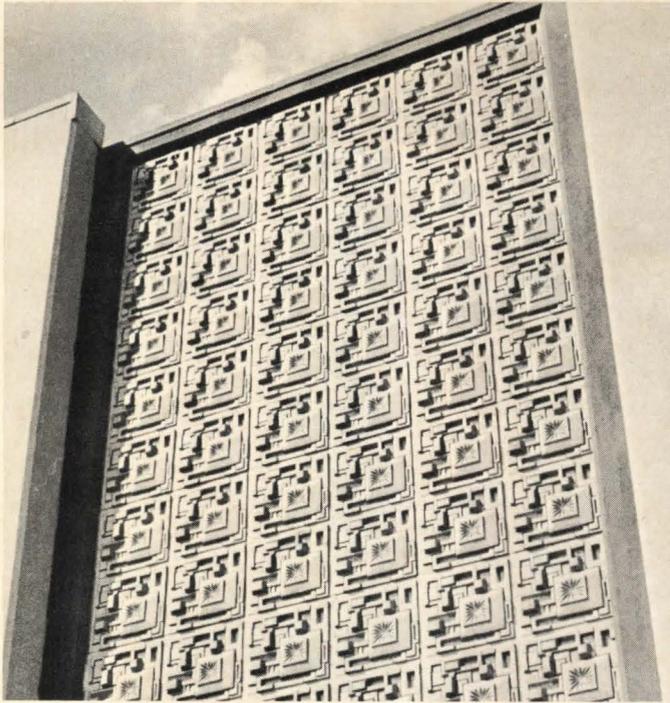
[continued on page 62]



Flex-o-lites



Hand carved doors



Forms for sculptured concrete walls

Forms for sculptured concrete walls. Using lightweight disposable forms fabricated from expanded polystyrene, concrete is sculptured to have the look of stone work, brick, wood and varied abstract designs. According to the designers, the forms are produced at substantially lower cost than contoured wood or fiberglass molds; their light weight makes them easier to use and to ship. During the molding process a tough skin is left on the form, limiting denting or sagging under the weight of the concrete. The foamed plastic is removed from poured concrete by high-pressure water blast, leaving a smooth finished surface. Liner sizes go up to 4' x 7'; exclusive designs also available. Dylite polystyrene by Sinclair-Koppers. Sculptor-designer Robert Jones of Labrado Forms.

Circle 105 on reader service card

Black and white paneling. For new construction or remodeling, these panels are offered in black and white graphic patterns. Available in 16" x 8' planks, 1/4" thick, they can be applied over any solid backing or new framing. Marlite Paneling.

Circle 106 on reader service card

Greendome greenhouse. A geodesic dome greenhouse, the "Greendome" is described as easy to assemble, with a spherical structure that combines strength and economy. The dome shape should make heating requirements less expensive and offer better air circulation. Prefabricated, with automatic fan and louver exhaust system, intake louvers, thermostat, electric light and cable, thermometer and mounting stakes, it is 14 ft in diameter and 10 ft high. The triangular framework, with the vinyl liner attached beneath it, avoids the shadows that are inherent in other structures. Dome East.

Circle 107 on reader service card

Push plates and push bars. Handcrafted in cast bronze or aluminum, these push plates attach directly to doors with epoxy and drive pins, require no exposed screws. The push bars, designed for aluminum framed doors, are offered in extruded aluminum with a selection of handcrafted insert designs in cast aluminum or bronze. Also suitable for use as window wall or elevator cab rails. Forms & Surfaces.

Circle 108 on reader service card

Uniloc. Prefabricated framing system uses extruded aluminum members fastened with metal pins and clips into a unitized support network. Panels of polyester reinforced with fiberglass are snapped into the metal framing after a vinyl gasket has been placed in the channel. The panels weigh about 1 psf and are available in a variety of opaque colors and patterns. Class I fire-retardant rating, and approved by several government agencies for use in high-rise buildings. PPG Industries, Inc.

Circle 109 on reader service card

Roof system. Insulation, felt, roofing joint tape and a new bitumen are offered as a package for use on metal, wood or concrete roof decks. Standard roofing techniques are used to apply the materials, the cost of which is said to be competitive with current low-cost roofing applications. It is applicable to any roof with a slope of 1/2 in. or less per ft. The insulation is a glass fiber material with a base of fiberglass and bitumen. Koppers Co., Inc.

Circle 110 on reader service card



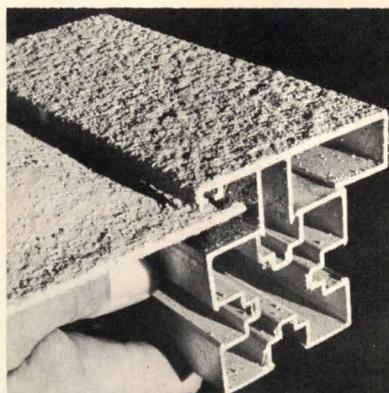
Black and white paneling



Greendome greenhouse



Push plates and push bars



Uniloc

Electric heating elements. Flexatherm is described as a metal/foil heating element offering higher heating efficiency, reduced total system costs, lower-temperature black heat, no hot spots in heating elements, minimum stratification of output air temperature, faster heat-up and cool-down characteristics, longer-life expectancy. Gould Inc.

Circle 111 on reader service card

Gliding window. Perma-Shield gliding window features a rigid-vinyl cladding over preservative-treated wood sash and frame. Maintenance free, the sash is completely encased in the vinyl for weather protection and to eliminate painting. Welded insulating glass is available. Standard double units have stationary right sash and operating left sash; triple-sash windows have fixed center sash flanked by operating sash. Anderson Corp.

Circle 112 on reader service card

Literature

School climate control. "Designers are Ingenious People" is a 48-page brochure offering simplified mechanical drawings, photographs and text describing innovative approaches to particular aspects of school design. In citing 20 architectural firms for their efforts, it presents a cross section of current trends in school construction including renovations and additions, open space treatment, systems bidding, the educational park concept, built-in expansion capability and flexibility to meet new teaching techniques. Described are cost savings, combination of the hub open space with traditional classroom structure, provision for doubling student capacity with little changes in the mechanical system, a multisystem approach to heating and air conditioning, the use of one water chiller for two schools and more. American Air Filter Co.

Circle 113 on reader service card

Antistatic carpet yarn. An almost invisible yarn is being tufted directly into carpet along with all conventional yarns to make nonstatic carpet. The yarn can be guaranteed to eliminate annoying static from carpets of BCF Nylon, a fiber associated with extremely high levels of static electricity. Antistatic performance is guaranteed for five years or the life of the carpet, whichever is sooner. Dow Badische Co.

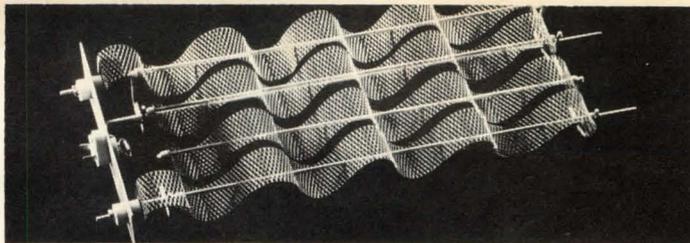
Circle 114 on reader service card

Ceramic tile catalog. Thirty-six-page brochure shows this company's line of ceramic tile including Rediset, the tile system with silicone grout, and Cumulus, a super-white tile. Also shown are glazed tiles, ceramic mosaics, Murray quarry tile, silk-screened tile and bathroom accessories. Dimensions and trim included, as well as architectural specifications, color coordination, mural and swimming pool design service. American Olean Tile Co.

Circle 115 on reader service card

Timber spec-data sheet. A spec-data sheet on structural glued laminated timber contains information on composition and materials, sizes, shapes, finishes and wrapping. It also covers applicable standards, durability, fire safety, installation and maintenance. American Institute of Timber Construction.

Circle 116 on reader service card



Electric heating elements



Gliding window

Insulating concrete for roof decks. A 4-page data sheet covers perlite insulating concrete, discussing such properties for roof decks as insulating value, light weight, nailability, ease of placement and fire resistive ratings. Included are tables showing U values, materials required per cu yd as well as comparisons with other concretes including expanded slag, shale or clay and sand and gravel. Perlite Institute Inc.

Circle 117 on reader service card

Prepainted aluminum. This coated aluminum coil is described as having a "super hard" modified polyester topcoat over a tough and flexible epoxy undercoat. The painted sheet can be formed without harming the coating. Some of its properties presented in the bulletin include weathering resistance, color stability, hardness and impact resistance. Amax Aluminum Mill Products.

Circle 118 on reader service card

Roof edging. How to accommodate roof movement wherever two surfaces meet is detailed in an illustrated brochure. Tremline is a fascia and flashing system that consists of modular extruded aluminum and an elastomeric membrane to withstand varying directions and rates of movement. Snap-in components eliminate any exposed fasteners and can move independently without exerting strain on each other. Diagrams show adaptability to various concrete and steel roof decks and those employing parapet walls. The Tremco Manufacturing Co.

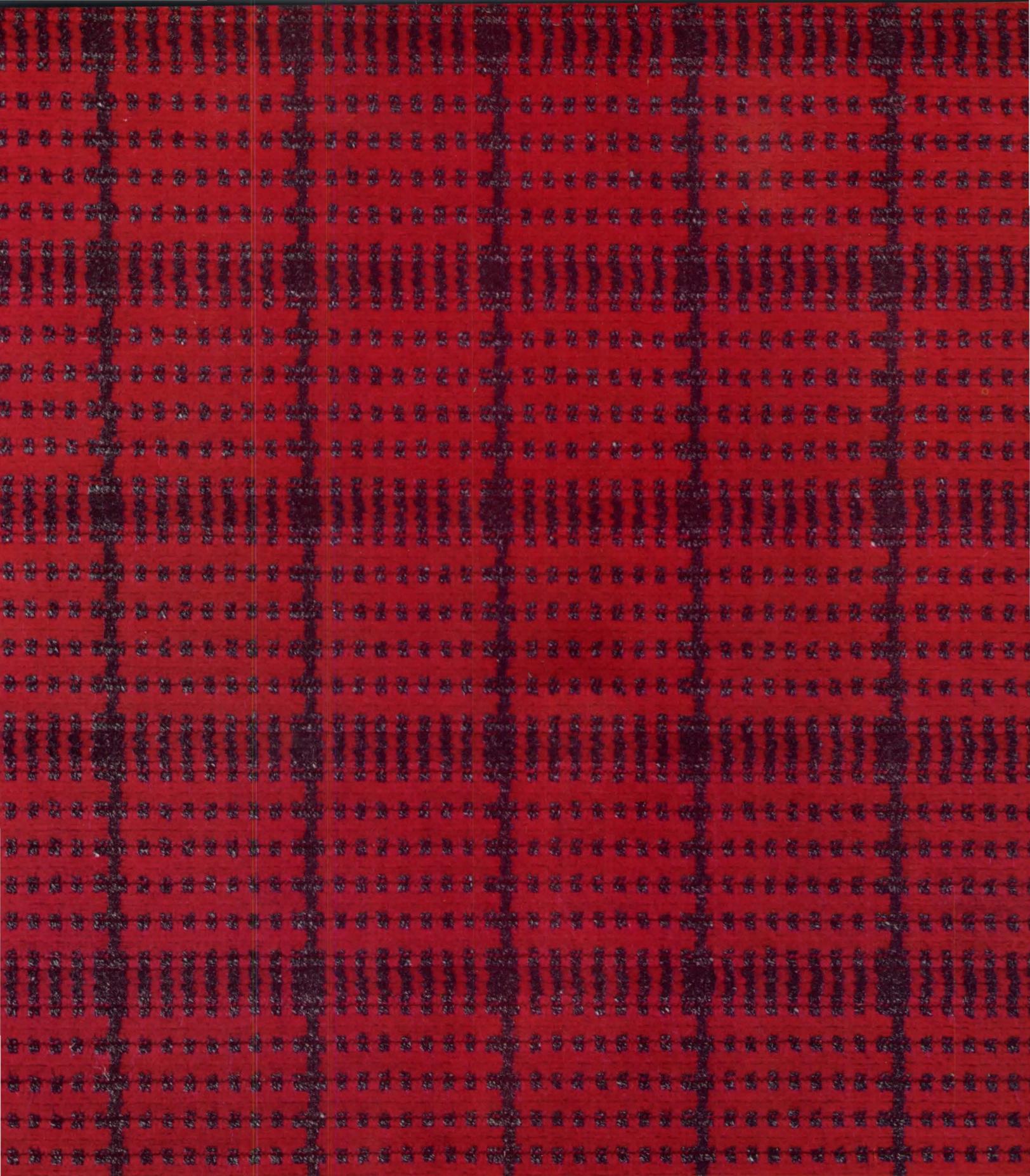
Circle 119 on reader service card

Concealed bearing hinge. Brochure shows concealed bearing two-knuckle hinge available in a wide range of types, finishes and materials. McKinney Manufacturing Co.

Circle 120 on reader service card



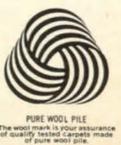
OUT OF DARKNESS...



COMES THE LIGHT

How creative would you be if you had to work in darkness from 9 to 5? Then why impose it on others? Magee says stop darkness before it starts with their new carpet Alternates. 100% quality wool mark carpet. If you'd like to see the light: write The Magee Carpet Company, 919 Third Avenue, New York, N.Y. 10022...before it gets dark. A CARPET COMPANY THAT GIVES YOU ALL THE CREDIT FOR BEING CREATIVE.

CARPET BY
MAGEE



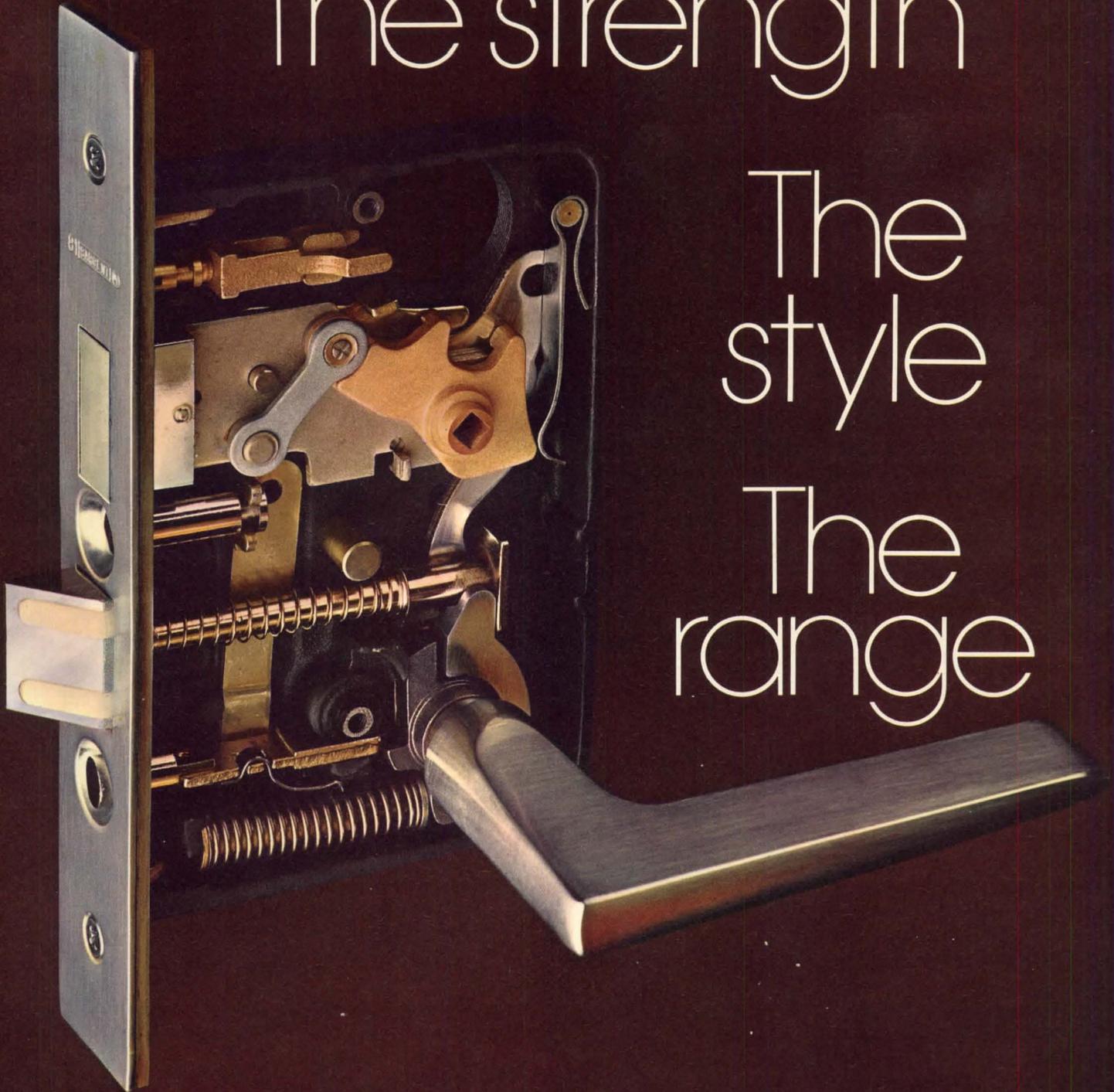
PURE WOOL PILE
The wool mark is your assurance
of quality tested carpets made
of pure wool pile.

The looks, the lines of Sargent locksets speak for themselves. The high-styled trim, the handsome hardware finishes. □ Now look deeper for the inside Sargent quality. We give you the works that last . . . and out-last. □ And Sargent provides the range of locks and latches to accommodate any door requirement, in any value range. □ Sargent locks and latches . . . well worth another look.

The strength

The style

The range



 **SARGENT**®

A complete line of advanced architectural hardware, including the Sargent Maximum Security System
New Haven, Connecticut □ Ontario, Canada

Progressive Architecture

March 1972

You may be skeptical about the work of Peter Eisenman and Michael Graves presented in this issue. We were skeptical here at P/A. We are, after all, concerned with architecture as human environment, and the designs of these two architects (who work separately, but talk to each other a lot) seem remote from user needs.

The obviously theoretical nature of their work can raise more than just doubt; it can arouse quick antagonism, as it did in the last P/A Design Awards jury. Taped discussion about an Eisenman submission runs like this: "If you want nonrelevant housing, this is nonrelevant housing," says Voice One. "I object intensely," responds Voice Two. "Look at the violence that architect has used on the client. He's got a 6'9" x 6'9" bedroom, and all of that construction. . . ." A third Voice breaks in, concluding that "the architect's concerns have nothing to do with people who encounter the building; it's an abstraction. Is there a vote on this? It's 'No' of course." (The house in question is not shown in this issue.)

Our editors took a further look at the designs of Eisenman and Graves, and read over what they had to say about semantics and syntactics. Was it just mumbo-jumbo, or was there a valuable message in it? The decision: these are thoughts to be taken seriously and passed along.

Eisenman and Graves acknowledge that program needs have little to do with their designs—at least for houses, which make up the bulk of their output to date; the program of a house, after all, is rarely challenging. But they would strongly deny that their efforts "have nothing to do with people who encounter the building." Their primary concern, they maintain, is to give the user a new understanding of his environment. They have set out, therefore, to study the ways architecture can *communicate*—Graves giving more attention to historical precedents, Eisenman carrying on a more abstract investigation. Both have turned to the currently prolific field of linguistic theory for parallels.

The application of theories of communication to architecture does not make easy reading. But Eisenman and Graves do not mean to be obscure; they are determined, as we are, to make their ideas accessible to a broad audience. You do not have to be familiar with Noam Chomsky or Um-

berto Eco to understand their approach, as it is explained here; I can testify personally to that. (If you want to read more about their theory sources, as I do, they have provided a handy book list, page 86.)

Eisenman and Graves are not the only people in the world exploring the relationship of architectural form to language. But they have pursued it over a period of years—in two complementary directions—and they have each completed buildings that demonstrate their ideas.

To build, of course, they have obviously found clients willing to sponsor their experiments. What motivates these clients? After discussion with both architects about their commissions, it seems clear that their clients are not just patrons of the latest architecture-as-art. Though their houses look something like the International Revival constructions currently displayed along the eastern beaches, they also contain jarring elements and unsettling spatial devices that would put off the modish collector. Their clients have to be committed to a particular intellectual process.

Eisenman's client for House II, for instance, (page 80) actually sought out an architect who could design a building reflecting Noam Chomsky's theories. When the house was finished, the client did not agree fully with Eisenman's interpretation of Chomsky; he also found that living inside a spatial experiment was more disconcerting than he had expected, though the house meets all of his functional requirements. Since it is a weekend-vacation house, the client and his family can experience it in short takes, and Eisenman hopes they will eventually enjoy it.

Most of Graves' clients follow his design process step by step and take great satisfaction from understanding each decision as it is made. (Graves' designs, unlike Eisenman's, can be seen as aggregates of small, related decisions.) The clients for the Hanselmann house (page 76) participated even further, doing some of the actual construction themselves, with Mrs. Hanselmann acting as general contractor for the rest. They know every detail of their house as few clients can.

If the work of Eisenman and Graves does, in fact, advance our understanding of architectural form, we will owe these client-sponsors our thanks.

Eisenman and Graves: an analysis by Mario Gandelsonas

On reading architecture



Graves: Benacerraf residence addition.

Working independently, architects Peter Eisenman and Michael Graves are exploring the application of theories of communication to the problem of generating architectural form. Presented here are their works and ideas, based on an analysis by architect Mario Gandelsonas, and written in collaboration with P/A associate editor David Morton

In recent years, there has been a re-examination of the functionalist tradition, in which two opposing tendencies can be recognized. The systems approach attempts to cope with today's complex world by linking architecture to computer technology and to sophisticated mathematical models; it tends to shift architecture further toward the realm of engineering. In contrast, there is an emerging tendency that views the system of architecture as a system of cultural meaning; it attempts to explain the nature of form itself, through viewing the gener-

ation of form as a specific manipulation of meaning within a culture. It is within this approach that the work of Eisenman and Graves belongs.

In the pages that follow, the work of these two architects is presented for the first time. While they work independently, their approaches are related to certain shared concerns. Their work can be viewed as complementary possibilities within the general perspective of signification (meaning) in relation to architecture.

Systems of signification

Meaning can be transmitted through language—a system of agreed-upon rules used to communicate. It can be seen as the product of certain operations performed on language, or as the operation of language itself.¹

Meaning becomes a problem only when access to it is difficult. When one encounters an unfamiliar language, for in-



Eisenman: House II.

On reading architecture

stance, the first communication problem is that of meaning. For any message to acquire meaning, it must be submitted to translation. Meaning, then, is linked to language, to communication and to message. But the term "meaning," which is so evidently linked to language, can be extended to other cultural systems; for example, while there are certain paintings or music one may not "understand," or which seem without meaning, they are recognized as cultural systems of signification; each is related, in a different way, through a specific form, to the problem of meaning in a given society or culture.

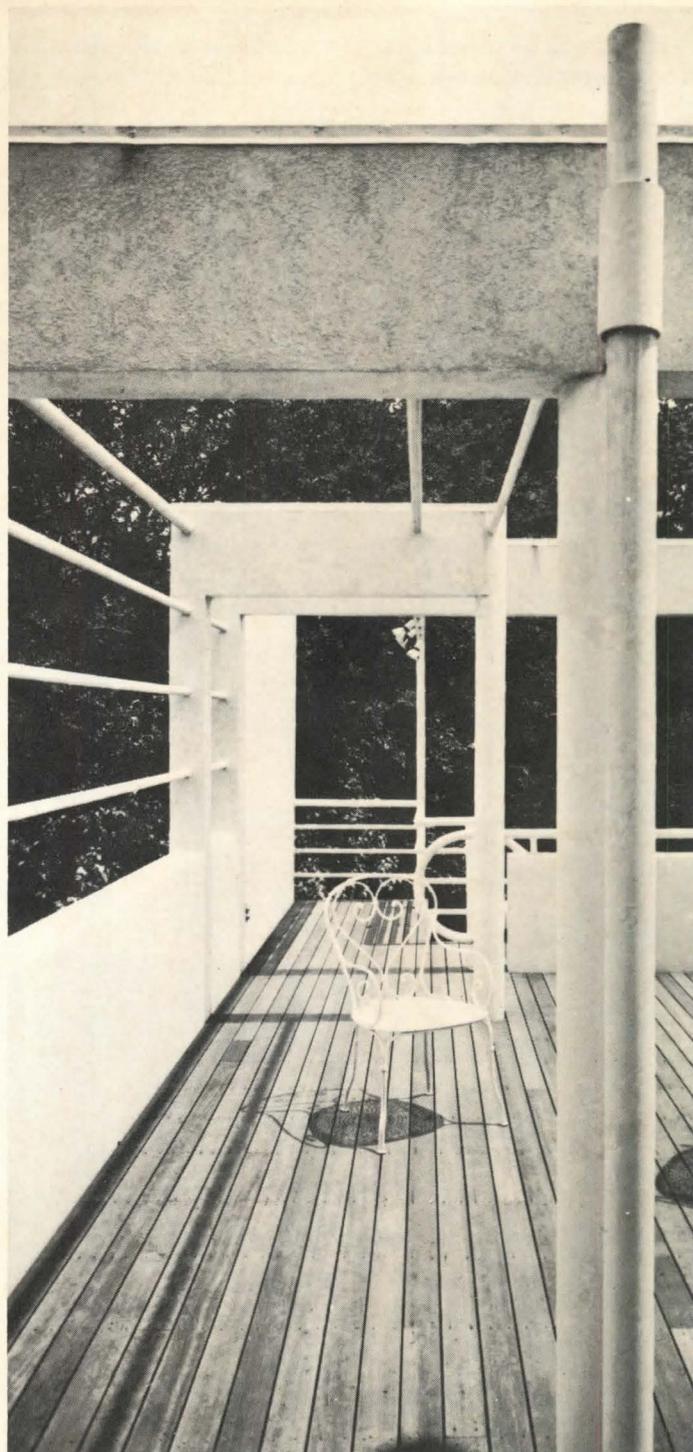
Architecture as a system of signification

Important investigation has been done in relation to cultural systems as systems of signification in a-literate societies,² but little has been done in relation to our own culture—very little specifically in relation to architecture, which usually has been concerned with direct function rather than with the problem of meaning. That architecture is indeed a system of signification is suggested by the fact that function represents a relation between architectural products and their use, which is a recognized and understood cultural fact; in addition, the known set of architectural forms is limited and has systematic characteristics.

Architecture has been implicitly concerned with the problem of signification since the Renaissance when architects such as Alberti and Palladio resystematized Vitruvius' *Ten Books on Architecture*, thus marking the constitution of architecture as a specific mode of organizing notions and concepts (a system of rules: prescriptions and interdictions) related to the manipulation of significant forms in the design and construction of "buildings."³ While in most architects' work the systematic characteristics are *implicit*, they become necessarily *explicit* in Eisenman's and Graves' exploration of architecture as a system of signification. By comparing their work to that of others dealing, apparently, with similar problems of meaning, their position can be clarified.

There are many buildings that cannot be explained in terms of a functionalist approach alone. For example, the new "Parthenons"—certain public buildings and cultural centers—might be defined as symbols in that they stand for, represent or denote something else, not by exact resemblance, but by suggestion. As de Saussure notes, "one characteristic of the symbol is that it is never wholly arbitrary; it is not empty, for there is a rudiment of a natural bond between the signifier [the building] and the signified [its meaning]."⁴ For these buildings to symbolize something else, such as a Greek temple, they must establish and maintain a relationship to the thing being symbolized. Because some of their formal patterns strongly suggest the Greek stylobate, colonnade and entablature, they can be read "as temples" immediately. Usually, there is not a direct and obvious relationship between form and meaning in architecture because, in architecture, this relationship is much more complicated and systematized. It is usually simplified, however, when it appears as a direct relationship between architectural form and something that embodies conventional meaning.

Because there is no direct relationship between form and conventional meaning in Eisenman's and Graves' work, it may appear unintelligible at first. Although they work within

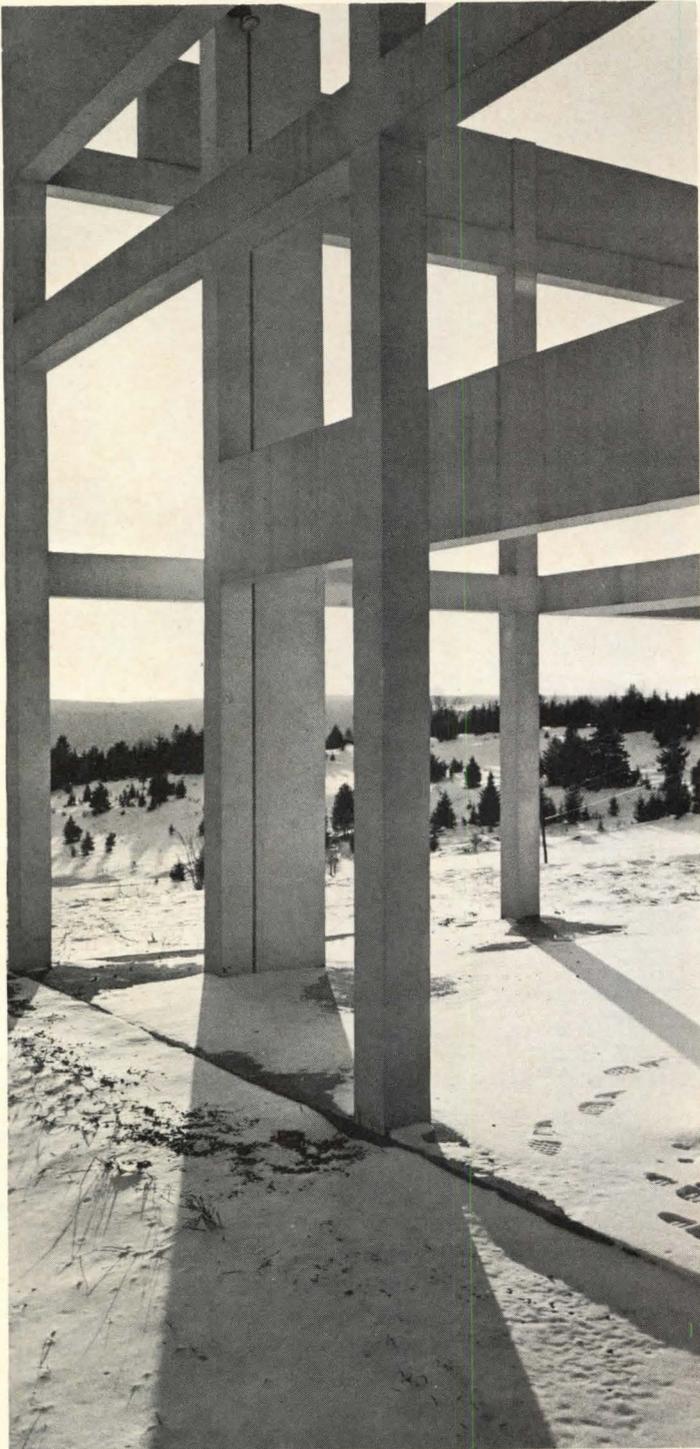


Graves: Benacerraf residence addition.

the system of architecture (as a system of notions or a set of rules), they attempt to separate themselves from this system in order to view some aspects of it more objectively. Architecture can become, in their terms, a process of its own examination, through which they hope to understand something of its intrinsic nature.

Semantics and syntactics

Both Eisenman and Graves approach architecture as a system of signification. Within this general approach, however,



Eisenman: House II.

their works represent two completely divergent positions. While Graves indicates the relationships between architecture and context, as shown through his interest in the history of architecture and painting and his concern with architecture and nature, Eisenman disregards all relationships between architecture and any cultural meaning. The position of each is concentrated on one of the main and specific aspects particular to architecture as a system of signification. Although Charles Morris indicates that every system of signification has three characteristic dimensions—semantic, syntactic and

pragmatic—it is only the first two that are of primary concern to Eisenman and Graves. “Semantics,” according to Morris, “deals with the relation of signs [something that refers to something], to their designata [what is taken account of] and so to the objects which they may or do denote. . . . Syntactics [is] the study of the . . . relations of signs to one another in abstraction from the relations of signs to objects or to interpreters.”⁵

The general distinction between semantic and syntactic can be seen in architecture. Architectural form, as conceived by the architect through internalized thought, has always been related to an external problem. Because of this, architecture has developed essentially along semantic lines. However, since the basis of architecture lies within its function as a *system* of problem solving, it would seem important for architecture to construct a body of syntactic concepts to guide it in this activity. While there are certain prescriptions for possible relationships among different architectural elements, or combinations of groups of elements, these prescriptions relate mainly to the solution of external problems, and ultimately only reinforce dependence upon external requirements.

The unique characteristic of Eisenman’s work lies in the attempt to separate his work from this general attitude. In his houses, the semantic aspects have been absorbed in “marks” that interrelate without dependence on external references; they are not substitutions of something absent. Consequently, his work exists primarily within the syntactic dimension of architecture. Although Graves’ work remains within the semantic level of architecture, it is distinct from architecture that relates forms to external requirements, because his main concern is to show the linkages that exist between the actual form and the complex system of architectural notions or ideas that generate it.

Their work is not fully explained, however, by comparing their similarities and differences. Therefore, a different communication model is used to analyze the work of each.

For Graves, a first model is used to show the differences between direct communication (function or use in architecture), and the system of signification (the system of notions that allows that communication). A second model shows the specific nature of signification through the two aspects of the semantic dimension.

For Eisenman, his own general model of the syntactic dimension is enlarged and considered within a dialectic relation between the “writing” of architectural form (as the generation or transformation of form), and the “reading” of architectural form (for relating implicit and explicit relationships) through the design as a device allowing these readings. Following these models, Graves’ work is presented through various aspects, or parts, of several buildings, while Eisenman’s work is presented as one complete building.

Peter Eisenman is Director of the Institute for Architecture and Urban Studies in New York. **Michael Graves** is Associate Professor of Architecture, and Director of the Visual Arts Program, at Princeton University. **Mario Gandelsonas** is Associate Professor of Semiology of Architecture at the University of Buenos Aires, and at present a Graham Foundation Visiting Fellow at the Institute for Architecture and Urban Studies.

On reading architecture

Michael Graves: the semantic dimension

In analyzing some of Graves' buildings realized between 1966 and 1971, it will be helpful to consider the ways he organizes slide lectures in which he discusses aspects of his work. His lectures are divided into segments dealing with pairs of contradictory notions illustrated by paired images representing natural landscapes, Classical art and architecture, and Cubist painting, and concluding with the presentation of various aspects of his own work. In shifting from external forms to his own architectural forms, he never shows buildings as whole units, but only as fragmented elements or focused parts taken out of context, with meaning concentrated solely in intersecting or in dominant elements. Order emerges though, when his organization is seen as reflecting essential characteristics within his work that are considered as messages within the semantic dimension of architecture.

Communication and signification

If architectural form is considered as a message, then what is the role of this message? In language, its role is to transmit signification (meaning). However, any individual act of communication, whether language or not, is defined by a set of factors comprising sender, receiver, channel, code, referent and the message itself. The presence of these factors is indispensable to any communication, whether it be language or another system of signification, such as painting, music, film or architecture.

With this definition, any object, architectural or not, has the possibility of communicating a message, as Umberto Eco suggests in *The Semiotic Threshold*.⁶ For example, the use of a door as a movable barrier to open or close a passage both allows this function and *promotes* it. To state that a device promotes a function indicates that the device performs the function of communication, or that the device itself communicates its own function. Indeed, the dictionary usually defines an object (signifier) by describing it, as well as by indicating its function (signified).

Primary meaning and secondary meaning

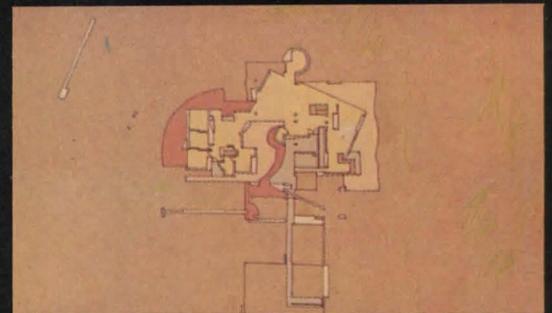
To consider an object in its direct communicational aspect results in its definition only in terms of its primary meaning, that is, in terms of its function. In this context, architectural form can be analyzed as a message referring only to the referent (use) and to the channel (physical support). But, as noted above, the complete communicational circuit also includes the sender, receiver and code. These six communicational factors are, according to Roman Jakobson's model of the communicational act,⁷ related to six complementary areas of signification within any system of signification, for instance, within the system of architecture. Although this model only classifies areas of signification without explaining them, its application allows one to isolate areas related to the primary meaning in architecture, or the notion of function, from other areas related to secondary meanings. The primary meaning in



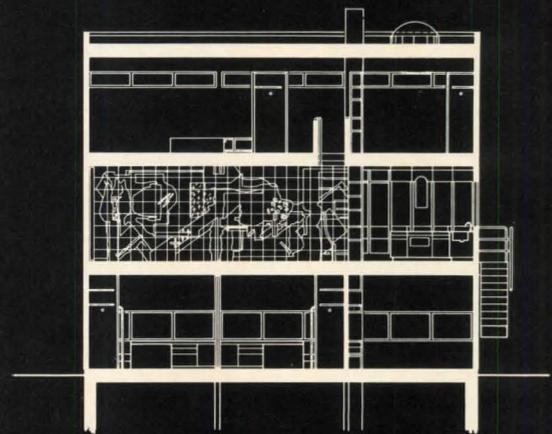
1 Alexander residence library.



6 Gunwyn office.

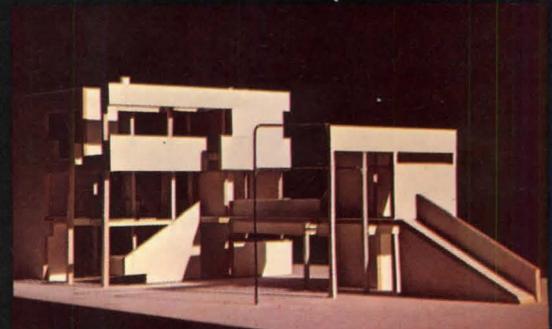


10 Drezner residence.



13 Hanselmann residence.

16 Hanselmann residence.





2 Benacerraf residence.



3 Benacerraf residence.



4 Gunwyn office.



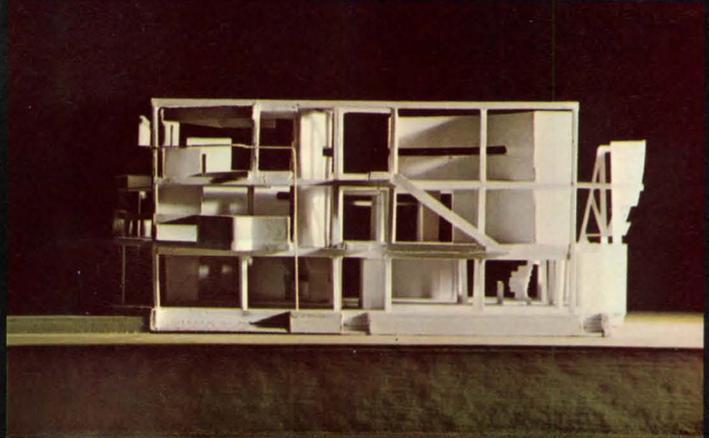
5 Gunwyn office.



7 Benacerraf residence.



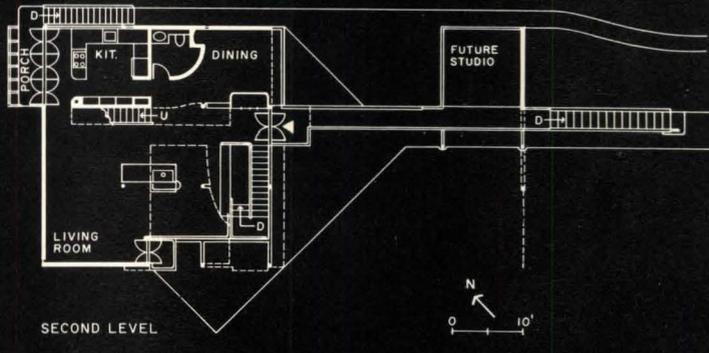
8 Alexander residence.



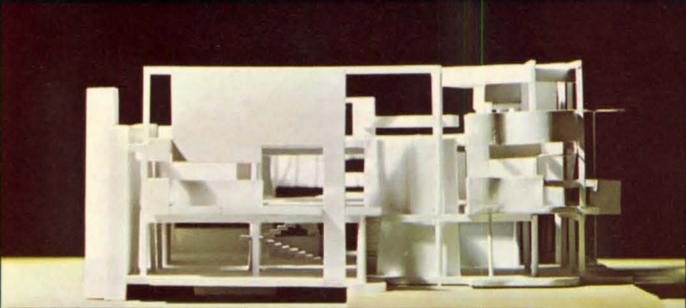
9 Doctor's residence.



11 Hanselmann residence.



12 Hanselmann residence.



14 Doctor's residence.



15 Hanselmann residence.

17 Gunwyn office.



18 Gunwyn office.

On reading architecture

architectural messages is "buildings" (as messages) "representing" their use (referents) or their physical structure (channels). Secondary meanings "represent" and emphasize the areas related to sender, receiver and code—rarely conscious and explicit parts of architectural design.

The concern of modern architecture has been mainly within the area of primary meaning, the functional area. And important to the functionalists' concern within this area was the replacement of one set of rules with another set of rules—with the replacement, for example, of Classical, symmetrical architectonic compositions by asymmetrical compositions determined by the building's use, as in Le Corbusier's Pavillion Suisse. Graves' main concern lies in the area of secondary meanings: his interest is not in replacing rules, but in showing the rules as rules, that is, as prescriptions or prohibitions. He does this by paraphrasing or quoting the vocabulary of modern architecture. For example, his "idealized window" (1), a quotation drawn from Corbu's garden in the Petit Maison, indicates a series of opposite architectonic notions, such as architecture/nature, ideal/real, in/out, which are within the area of secondary meaning that is related to the code (the system that interrelates elements to make a message understandable).

In Graves' work, each of the areas of secondary meaning is structured in the same way. Pairs of notions are related to each other according to their similarities and differences. A horizontal plane, read as "romantic" or perceptual, is opposed to a vertical plane, read as abstract or conceptual (2). By postulating these pairs of oppositions, Graves is demonstrating the principle that anything acquires meaning when opposed to something else, since oppositions represent the basis of any meaning (3).⁸

Some characteristic oppositions can be abstracted from Graves' work to demonstrate their ability to indicate signification. The opposition between horizontal plane and vertical plane represents the opposition of architect vs. user. It is a "double program" that comprises the architectural rules plus the user's requirements. These are not only different, but contradictory to each other. Within an architectural rule-system, however, the means of resolving the contradiction may be provided (4). The opposition between *in* and *out* represents the opposition of the real use of the building as a scene for one's action vs. the symbolic use, or the reading and interpretation of the building by others (5). The opposition of plan to internal elevation represents the opposition between the plan as designed and the elevation as read (6). The idealized window or the sky supported by a column represents the opposition of nature vs. architecture (7).

Graves emphasizes areas related to secondary meanings only to show that secondary meanings exist. But to show their function as areas of signification in architecture, other elements of his work should be considered.

Signification in architecture

In architecture, signification might be described in terms of two interrelated aspects; the first, a set of possibilities for structuring the components, subcomponents, systems and subsystems of a building; the second, a repertory of ideas, images and notions from an architectural repository. With this

model, the semantic dimension of the architectural system can be seen as a synthesis between the first, specifically architectonic aspect, and the second, repository aspect, which can draw its formal patterns from architecture itself or from anywhere else, such as painting, music, etc. The architectonic aspect does not provide form but only the possibility for structuring form; the repository aspect provides the sources of actual formal patterns.

The architectonic aspect

The architectonic aspect could be described as composed of codes (organized architectonic ideas or sets or rules for their organization), and the operations of metaphor and metonymy, which enable selection and combination of architectonic ideas or rules to form complex architectonic units.

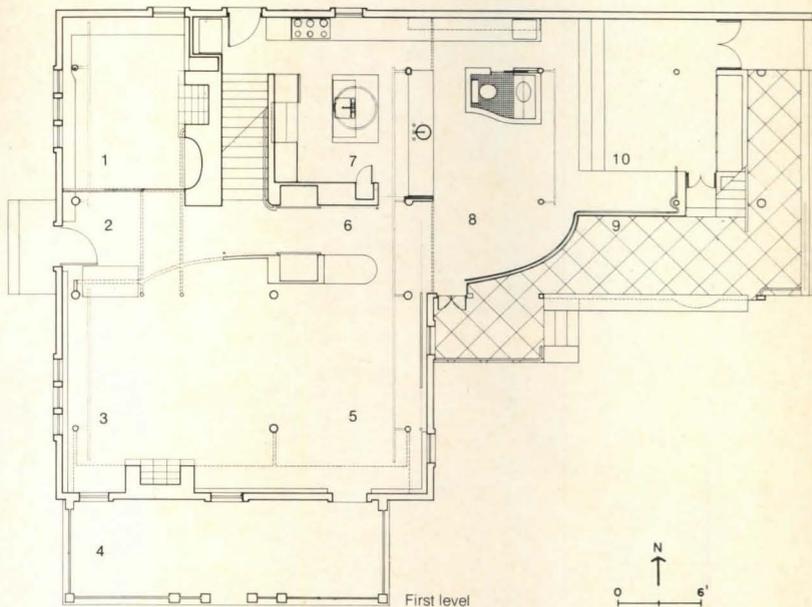
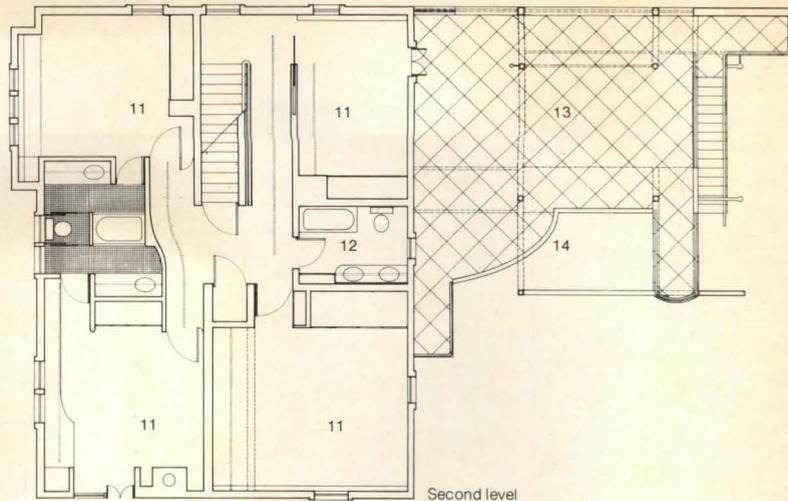
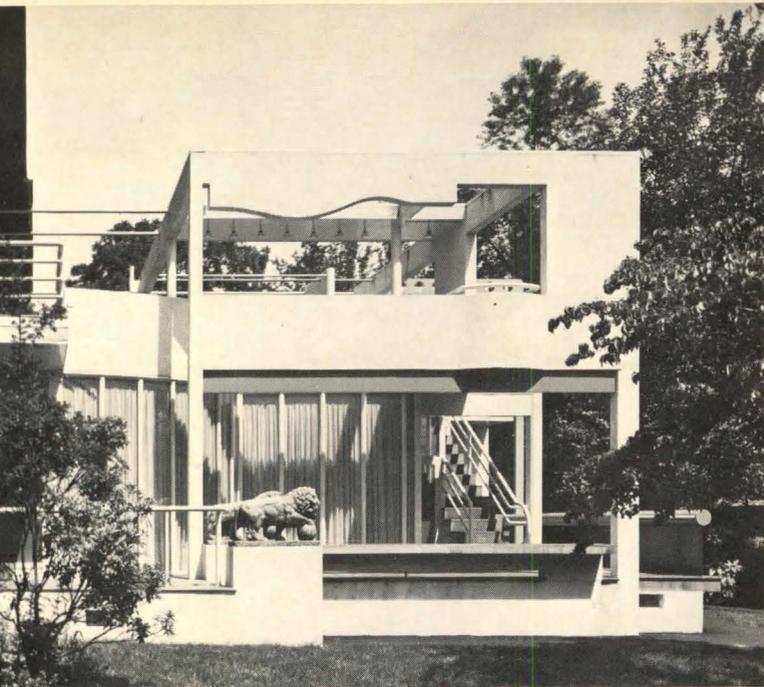
The notion of code refers to the organization, or system, that interrelates the elements, or units, of any message and makes possible its understanding.⁹ The basic elements of a code should not be seen as singular elements, but as pairs of oppositions interrelated in infinitely complex ways. Each pair embodies two notions that have something in common in conjunction with something that separates them, such as *in* and *out* (8).

In architecture, code has traditionally been seen as a body of architectonic ideas structured within a fixed framework. This understanding of architectural code, however, is restricting; it does not explain the complexity of architecture. To suggest this complexity, architectonic code could be seen rather as a field of dynamic tensions, based on oppositions, which only provide an empty framework of possible architectonic relationships. It is through this framework that the sets of ideas, images and notions of buildings drawn from the architectural repository must pass, in order to create the synthesis that underlies architectural form (9).

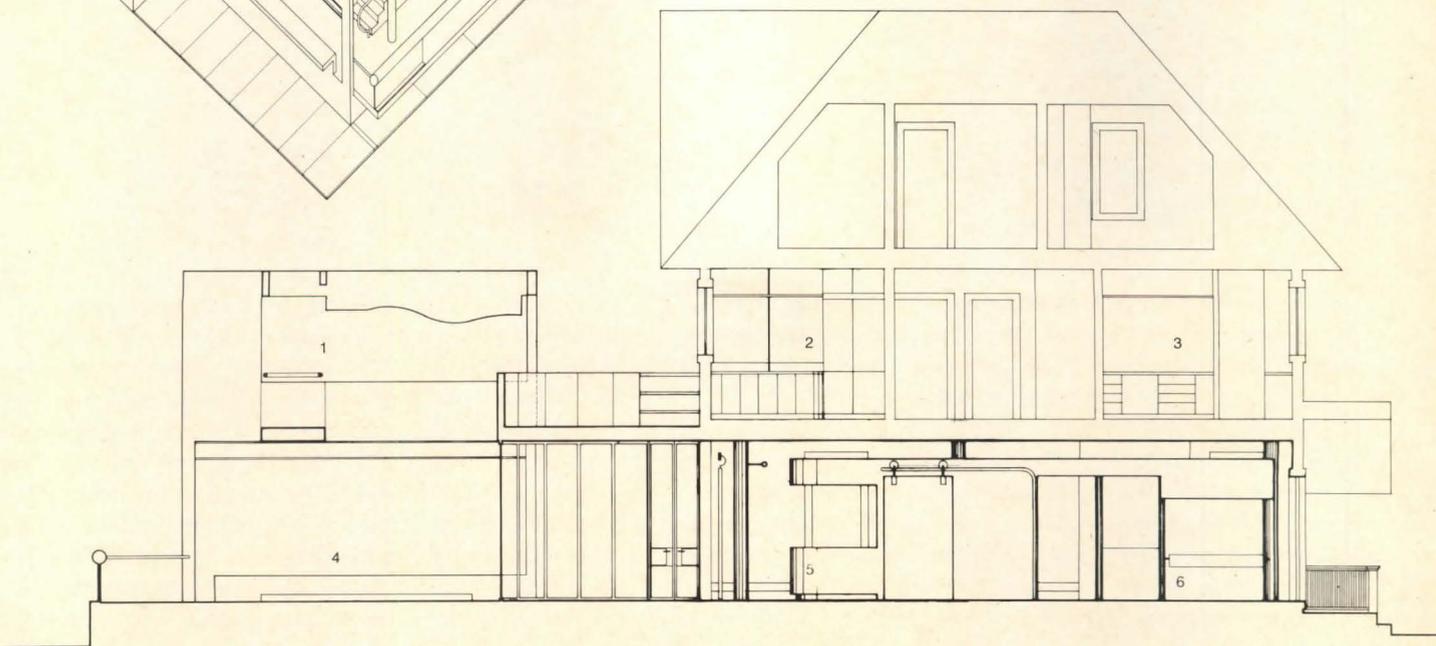
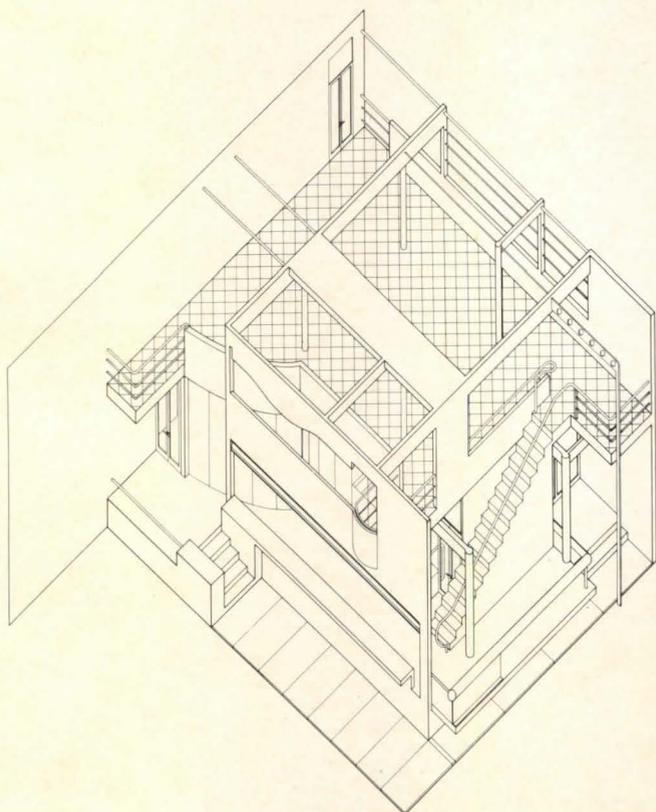
Metaphor refers to an operation that links a message, by the selection or substitution of its elements, to a code. It also establishes, by relating elements through a code, a connection between elements present in the message and elements absent from the message, which could be substituted for them. Metonymy refers, on the other hand, to an operation that interrelates the elements present in the message itself, by their internal combinations.¹⁰

In architecture, metaphor and metonymy operate within a logic predicated on architectonic rules. For example, in Classical architecture the relationship between the five orders is based on a complex code involving oppositions such as simple/complex, rude/elegant, male/female, etc. Even when the orders have a similar role in a building, the substitution of one order for another constitutes a metaphorical operation that provokes a change in the meaning of a building as a message according to certain rules. But there are also rules for the combination of orders—the way one must be placed under another—which govern the metonymic operation.

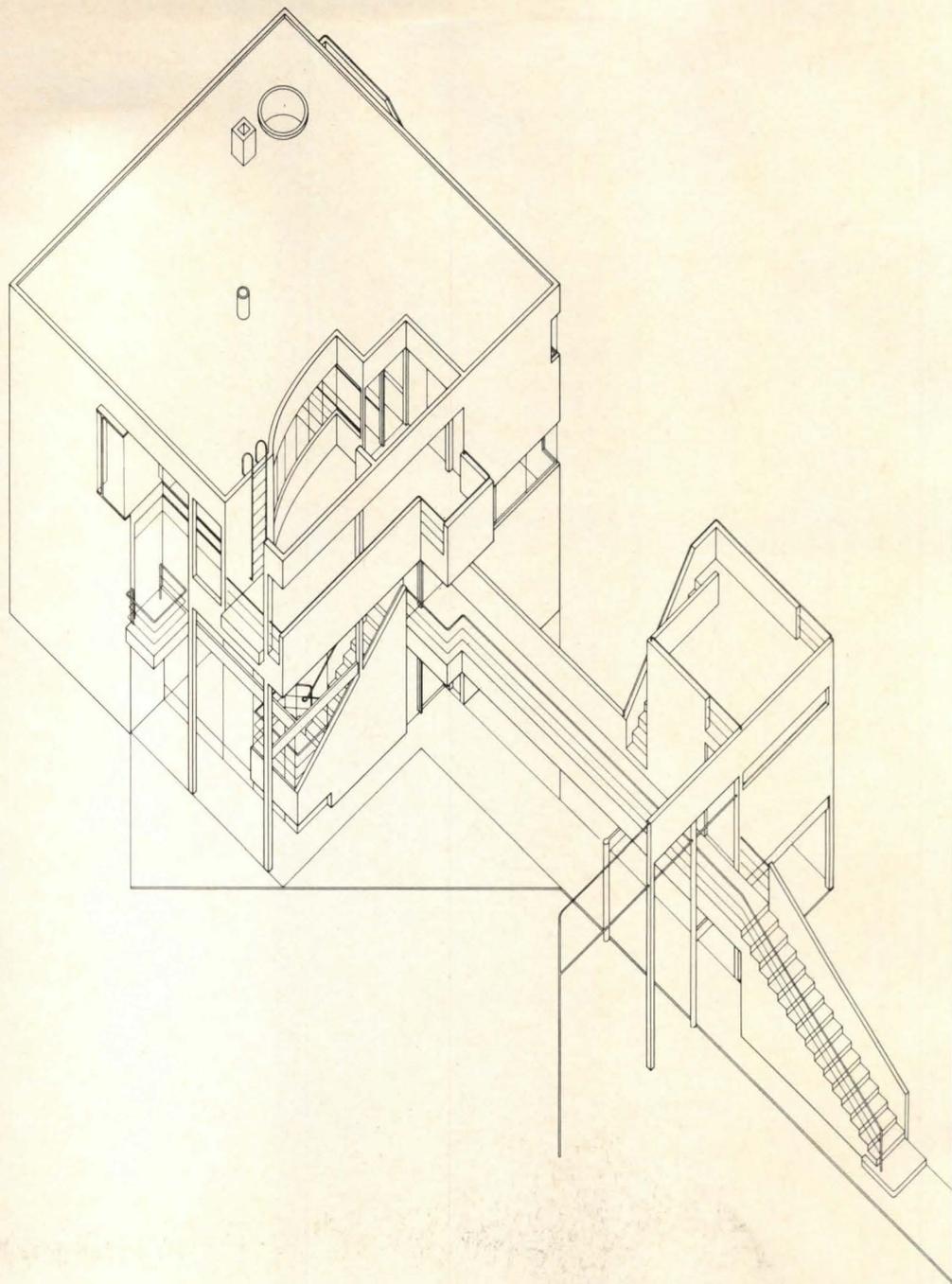
In the work of Graves, the architectonic order is upset through a particular use of metaphor. Instead of combining architectonic ideas according to the traditional architectural rules, which prescribe the selection of one element from a pair of oppositions, he shows, through expressing both elements of the opposition, the opposition itself.



Benacerraf house: first level, 1 bedroom, 2 foyer, 3 living room, 4 screened porch, 5 dining, 6 bar, 7 kitchen, 8 breakfast, 9 terrace, 10 playroom; second level, 11 bedroom, 12 bath, 13 terrace, 14 void. Below, section looking south.



On reading architecture

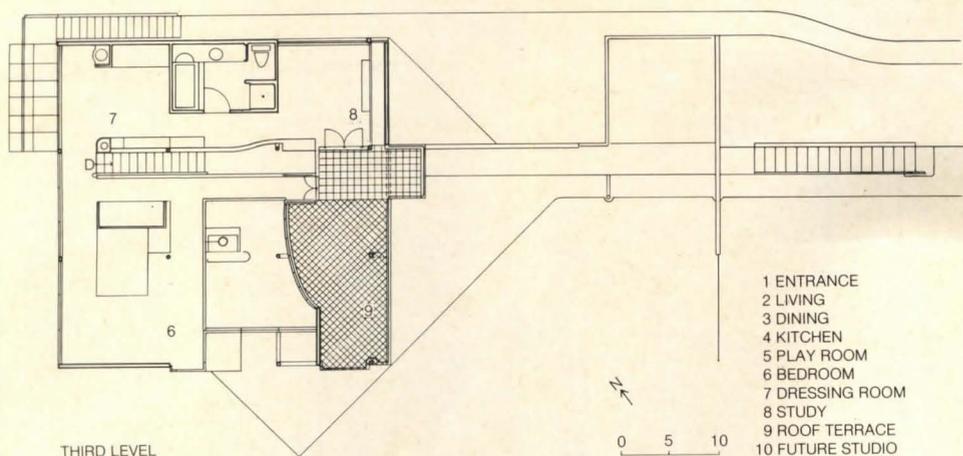


Hanselmann House, above, approaching from south; other photos, details of SW corner.

In doing so, he upsets the normal syntactic relationships for the purpose of showing the different sets of architectural codes as codes in themselves. Because attention is focused on oppositions, the building is initially seen more as a grouping of apparently unrelated components, than as a cohesively organized unit in itself; on further inspection, however, order is revealed (10). This emphasis on metaphorical operations, revealed through the way Graves structures components as manifestations of architectonic codes, can be illustrated by two examples, an interior wall and an entrance.

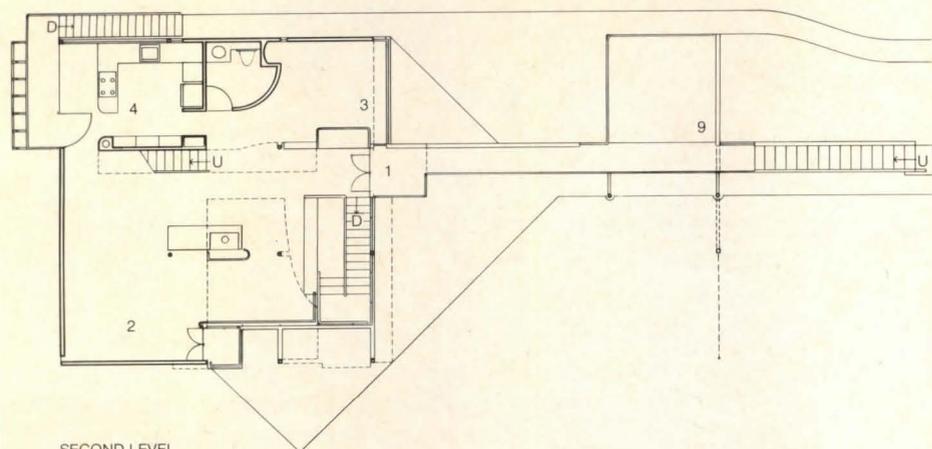
In the Hanselmann House, an idealization of the *plan* of the

building is superimposed on an interior wall (*elevation*), thus juxtaposing contradictory elements (11) representative of a chain of oppositions. The contrast between the drawing (in this case as a painting) and the wall is equivalent to the opposition between the horizontal plane where the drawing is "written" and the vertical plane where the façade is "read" (12). It is also equivalent to the opposition between the architect's vertical line of vision while making the drawing and the client's horizontal line of vision when perceiving the wall. Each of these pairs of oppositions represents a specific arrangement of one set of ideas specific to architecture—the

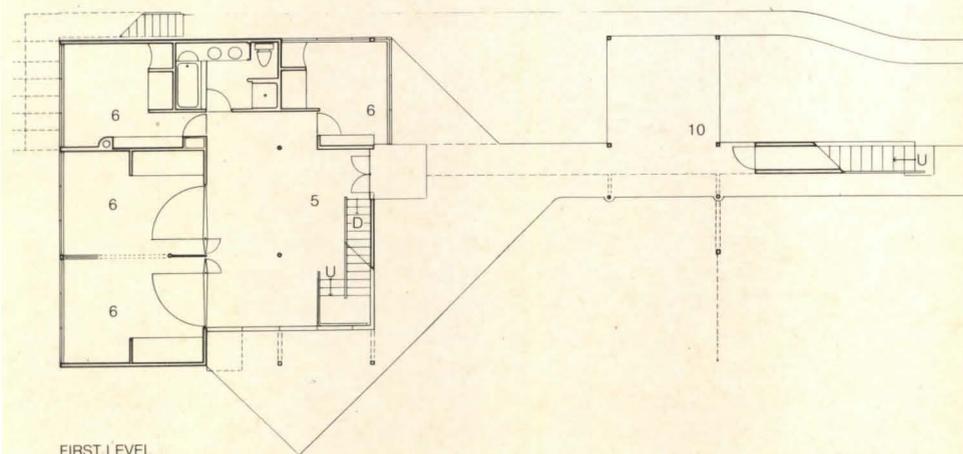


THIRD LEVEL

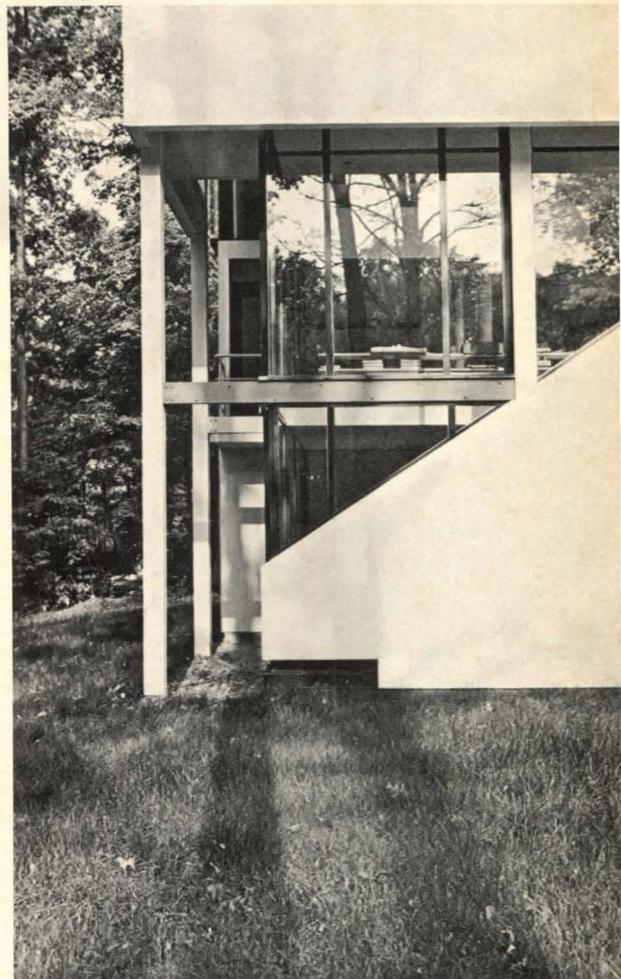
- 1 ENTRANCE
- 2 LIVING
- 3 DINING
- 4 KITCHEN
- 5 PLAY ROOM
- 6 BEDROOM
- 7 DRESSING ROOM
- 8 STUDY
- 9 ROOF TERRACE
- 10 FUTURE STUDIO



SECOND LEVEL



FIRST LEVEL



opposition between architect and client. This series of oppositions is also representative of one of the possible architectural codes, in this case, the writing/reading code (13).

This code is based on the differences between the complexities of creating (writing) a design and the apparently simple interpretation of the built space (reading); between the paper drawing and the existing building; between the plan as generating an elevation, section or perspective, and the wall as the material from which the building is read (14). While the code is representative of oppositions, its own essence lies in contradiction, that is, in the fact that the building itself only

partially manifests the operations, or drawings, that generate its architectural form.

Another illustration of a component representing contrasting elements is shown in Graves' treatment of the entrance to the Hanselmann House, where he has literally removed a component (a complete, positive, cubic volume that normally would be the entrance area), and re-established it as a separate, but connected, component of the building (15). Here the removed volume and its resultant void also represent a chain of oppositions. In this case, a building section has been extended to the external facade, thus revealing internal

On reading architecture

aspects of the building. The terms of opposition are, on one side, internal, positive solid volume, private and real use, and on the other side, external, negative or voided volume, public and symbolic use (16).

This uniting/separating, or delimiting code, represents a second possible architectural code based on the differences between the building as a "transparent" mediator between man and function (real use), and the building as a material and opaque object where the line of vision stops (symbolic use); or between the use of a private system (inside) that is radically different and separated from the public use (outside). The interpretation of a building as a double system (inside/outside) depends upon a delimitation in which skin is interpreted as form, and where the entrance connects and interrelates the internal and external forms and spaces (17).

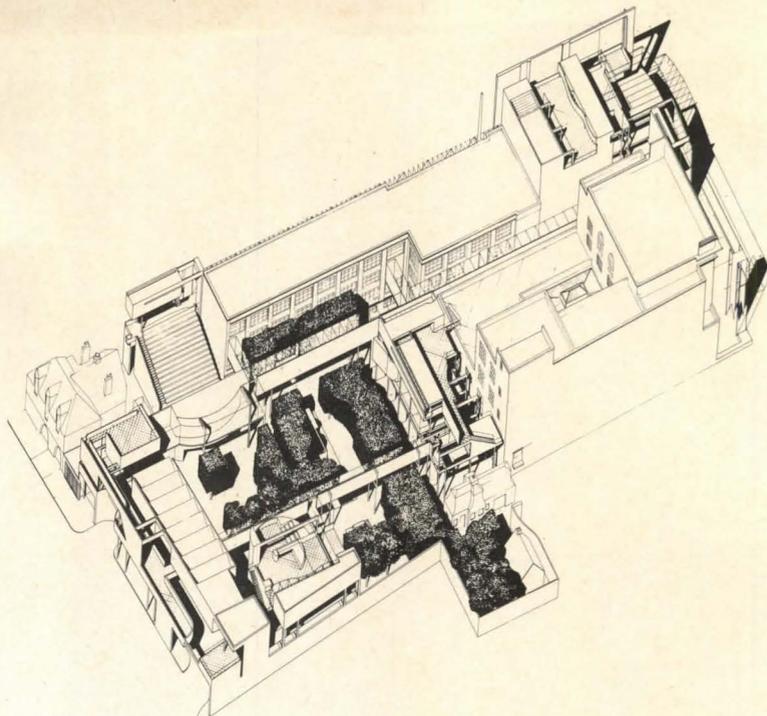
The repository aspect

Architectural form can be seen as the manifestations of the codes, plus "quotations" drawn from the architectural repository.¹¹ These quotations are sets of ideas, images in general, and notions about buildings in particular. In drawing from this repository, the architect can select any form or idea in its original state; he can use formal patterns directly from the five orders of Classical architecture, for instance, or he can use aspects of Mediterranean popular architecture as found in Le Corbusier. Alternatively, the architect can use the opposite of an original form or idea, as occurred with the use of asymmetrical order in modern architecture in contrast to the Classical rule of symmetry. Finally, the architect can modify or transform earlier ideas or forms to generate new ones, such as occurred with the invention of new orders in Classical architecture.

In Graves' case, there are four areas of primary interest: Classical art and architecture, Cubist painting, Modern architecture, and nature. His isolation of these four areas, which are crucial to an understanding of his work, relates to his intention to indicate the oppositions comprising architectonic codes, and to his exclusive use of metaphor, that is, with the operation that links a message to a code. He believes these four areas hold material pertinent to the notion of code in architecture.

During the Renaissance, architectural codes were constituted and institutionalized; the notion of nature played an important role in this constitution. To the Classical architect, the implicit opposition between nature and architectural form was resolved through the assimilation of the underlying laws of nature, which possessed, for Alberti, the essence of beauty. The designation of a building as architectural meant that it was beautiful, and since beauty was obtained through the understanding of nature, the primary essence of architecture was its relationship to nature. The Modern movement, with its self-conscious synthesis of art and architecture, represented an important historical change where some codes were abandoned, others were maintained and, finally, new codes were incorporated into architecture.

In relation to Classical art and architecture, Graves feels that Modern architecture offered a new conception of space as cubic volume contrasted to that seen, for example, in a Piero della Francesca painting, where space is defined by

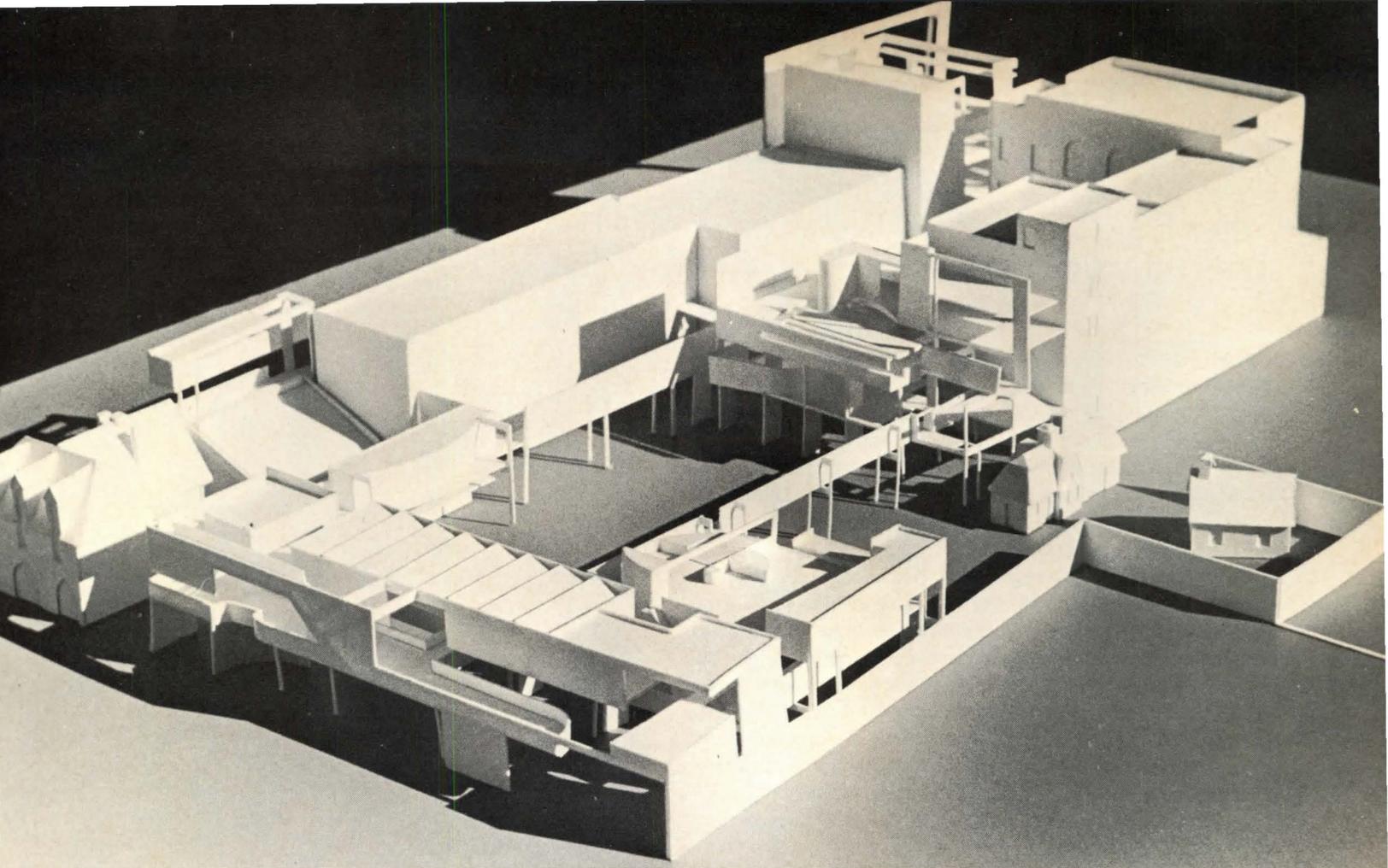


Newark Museum, Newark, N.J., proposed additions unifying existing complex.

frontal planes arranged to form the background of narrative settings. Furthermore, he believes that the Modern concept of architectural space has never been fully developed, and in an attempt to understand it, he has based his investigation upon a contrast between Classical and Modern architectural space, as well as upon certain similarities he finds in the two. This investigation is also concerned with the relationship between architecture and Classical painting—an area where Graves finds highly developed concepts of spatiality, such as the notion of delimitation, of layering of planes within space, and of light as a coordinate of structuring space.

In Modern painting, and in Cubist painting in particular, Graves feels that notions such as duality and plurality are more highly developed than in architecture. For instance, in the work of Juan Gris, objects are not seen only as formal pieces, but as problems to be manipulated for the purpose of providing an expanded sense of pictorial form. Gris accomplished this through the manipulation of notions such as inside/outside, real/ideal, male/female, etc. Such pairs of notions represent, to Graves, the idea of duality, while their appearance together represents his idea of plurality. This idea of duality can be compared to the notion of oppositions which, in acting as sets or combining together, are the bases of the code. To Graves, the difference between the ideas of duality and plurality is significant. In duality, concern is with elements in relation to one another on a one-to-one basis; in plurality, concern is with relationships among relationships.

As suggested earlier, the virtue of Classical architecture was derived from its "imitation of nature" (Alberti, Palladio), its transposition of "natural" laws for the purpose of giving order to architectural form. Architecture continues to be related to this concept of nature, but on a different level where the opposition is between nature and culture, between needs



seen as "natural," or without order, and the program which transforms them into architectural order.¹² Graves' interest in nature is more closely aligned to a Classical position, though perhaps not for the same reasons as those of the Classical architect. Graves relates the notion of nature to architectural form in different ways. He develops the new conception of space in Modern art and architecture by jointly analyzing the relationships between plane (surface) and volume (depth), and between nature and architecture. An example in his work shows the sky as a plane supported by a column as a tree, while a beam represents an arbor and clouds define transitory areas in a ceiling (18).

This substitution of elements cannot be explained only in terms of the relationships between architecture and nature. In relating architectural forms to "natural" forms, Graves introduces an additional use of metaphor, which sees metaphor as an operation that may constitute the basis of architectonics itself, that is, how any architectural system is established as a closed entity.

Hypothetically, if man's primordial home could be understood in architectural terms as "shelter," then an arbor could be seen as a "ceiling" sustained by trunks of trees as "supports." In terms of signification, the tree (signifier) is seen as a support (signified): $\frac{\text{tree}}{\text{support}} = \frac{\text{signifier}}{\text{signified}}$. With man's ability to consciously construct shelter, a transformation of signification took place; in this example it occurs within the operation of giving form to the support. In shaping a material to make a support, a column was created to substitute for the known support, the tree: $\frac{\text{column}}{\text{tree}}$. The entire operation could be symbolized in the following way: $\frac{\text{column}}{\text{tree}} \times \frac{\text{tree}}{\text{support}} = \frac{\text{column}}{\text{support}}$. By thus joining the old and new significations, the tree is canceled, or repressed, and becomes a latent signifier. The operation described by this formula is the oper-

ation known as metaphor,¹³ and it is precisely this operation that forms the beginning of any architecture. In his use of a tree as a support, Graves reverses the architectural metaphor and brings it out of its latent position to return it to its position as original signifier: $\frac{\text{tree}}{\text{support}} \times \frac{\text{support}}{\text{support}} = \frac{\text{tree}}{\text{support}}$ (5). By means of this kind of gesture, Graves might be providing important elements for understanding the basis of architecture as a system of primary operations that is still present, although usually repressed, in any gesture of the architect. Usually, the primary operation, or the original metaphor, like the subconscious, remains hidden and is only perceptible in certain moments, such as dreams, where poetics plays a fundamental role.

The crucial aspect of Graves' work is its indication of the notion of code in architecture, showing that the direct or apparent manifestations of architecture represent only a primary level of understanding, and that a second level, organized in a specific way, underlies the first level. The recognition of this underlying organization has two consequences: it implies a definition of the limits of the architectural system (the describable set of rules); it also implies the repression of certain basic operations that separate entities belonging to the system from those that remain outside. While Graves indicates this operation of original metaphor, the actual thing represented by the metaphor remains, in reality, a latent and "repressed" problem within the definition of the generation of architectural form.

In contrast, just the opposite situation is represented in the work of Peter Eisenman; his approach to architecture places special emphasis on the generation of form, while the relationships between architectural form and context, which are characteristic of the semantic dimension, are suppressed or absent from his work.

Peter Eisenman: the syntactic dimension

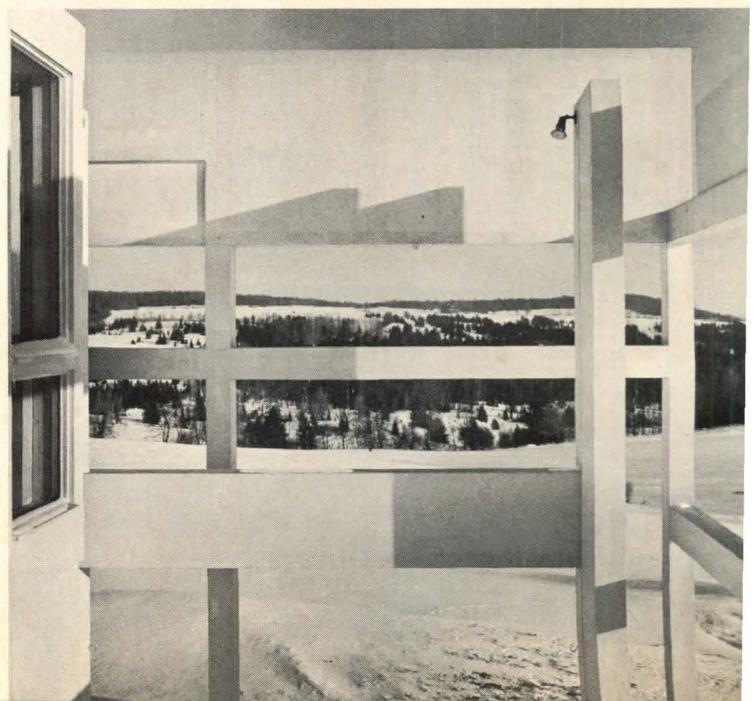
The key to Peter Eisenman's work lies in his concern for the architectural system itself, *unrelated to any exterior reference*. In this respect, he works exclusively within the syntactic dimension of architecture, where syntactics is independent of semantics. If his work is compared to other architecture, one is immediately aware of certain differences, without necessarily realizing that these differences are due to his exclusion of the semantic dimension.

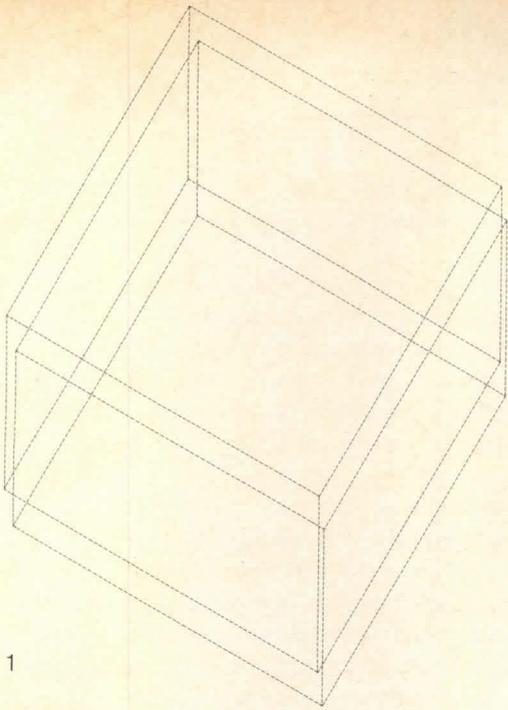
An architecture that suppresses syntactic operations and emphasizes the semantic dimension, such as Graves', is a logical contrast to Eisenman's syntactic approach. Compared to Graves' work, Eisenman's may seem almost impossible to approach on any known level; the reason for this is that a "known level," or context, is precisely what is absent from his architecture. Communication is inimical in Eisenman's work; he attempts to eliminate all factors at the communicational level except the message itself (a house is actually there). Consequently, there seem to be few or no references to client, user, to technical structure or to symbolism. The message is as unresponsive to existing communication models as it is to the semantic model used to analyze Graves' work. Thus, a new model must be sought.

There are three links to external reality that are helpful in an initial appraisal of Eisenman's work. The first is the notion of use; his structures are only incidentally houses, that is, they are determined as such by their name and use. At a more basic level, the program of the house is welcomed by Eisenman because, as he notes, "... in a sense, its program is known; there is an infinite set of combinations for its solution in physical terms; therefore, its importance to me is that it allows the concern for function to be reduced ... there is little polemic or new meaning available in the particular arrangement of its functions."

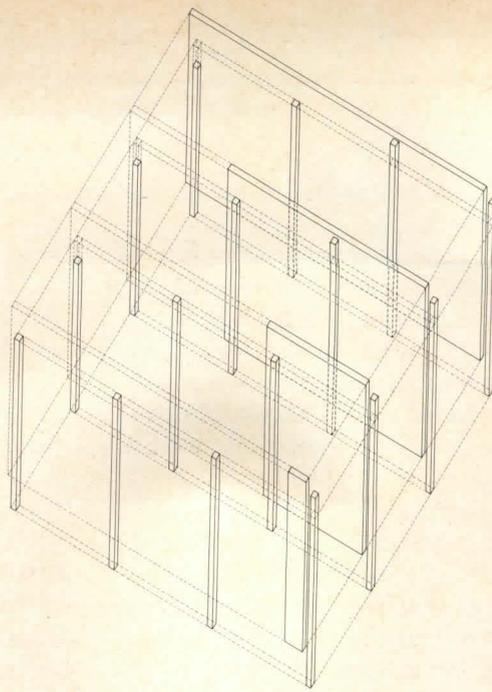
The second link to reality is the use of a certain technical structure. Eisenman's use of a structural grid is based upon his belief that "modern technology provided architecture with a new means for conceiving space ... in a sense, space was no longer necessarily limited or defined by structure, and this was especially true with respect to the use of the load-bearing wall; the column became both the primary structural and the primary formal element. With a diminishing of these structural constraints, it was possible to examine the column and the wall in a capacity other than in the solution of pragmatic problems ... Le Corbusier's *Maison Domino* was paradigmatic in this respect."

The third link to external reality is Eisenman's use of a vocabulary based on Modern architecture: "For me, 'Cardboard' architecture is not an aesthetic, not a style, not an eclecticism. 'Cardboard' architecture is not a pejorative term but a rather precise metaphor describing two aspects of my work. First, it is an attempt to unload the existing semantic. While in itself it may be semantically charged, it might be considered syntactically neutral, and thus lead to a new semantic. Second, 'Cardboard' is connotative of less mass, less texture,

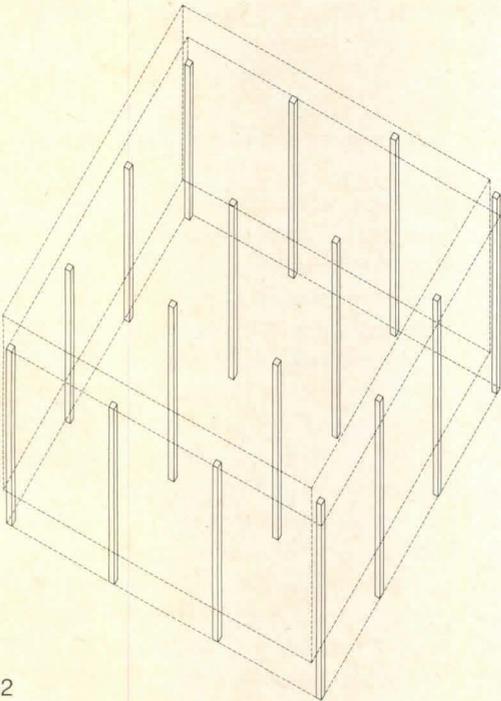




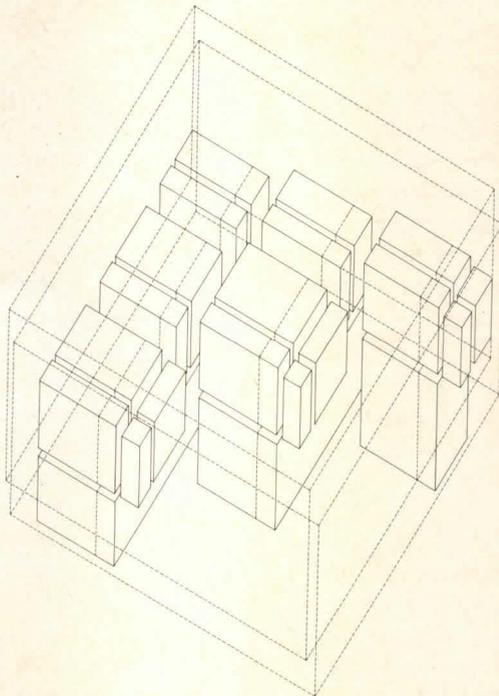
1



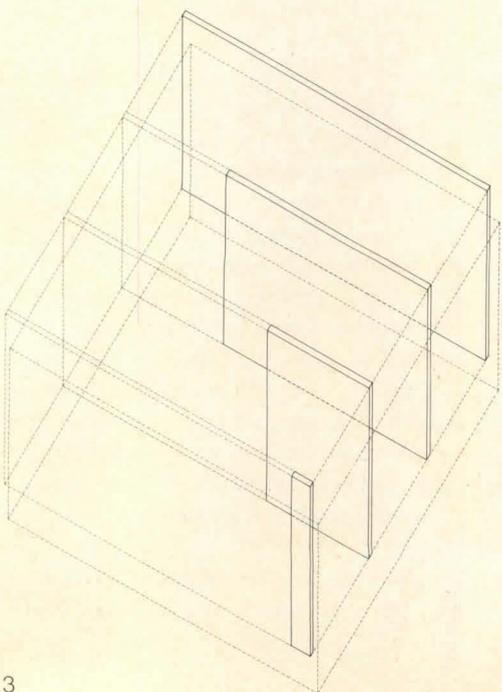
4



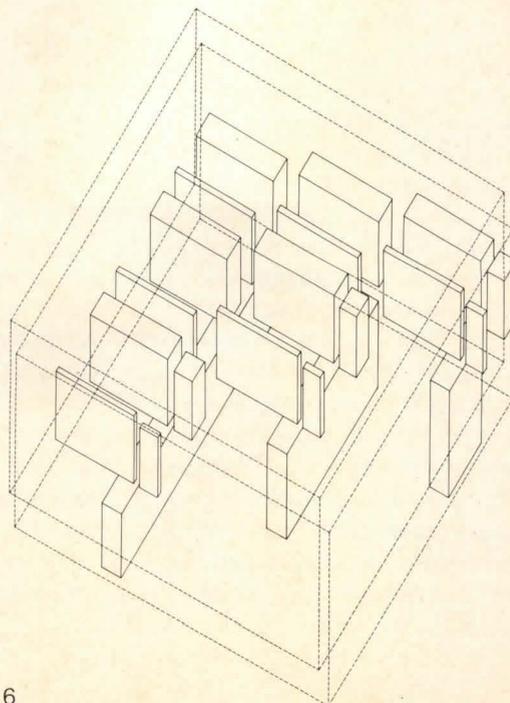
2



5



3



6

House II

Selected drawings indicating transformations in the deep structure:

- 1 Two square volumes shifted along a diagonal establish dual-deep structure.
- 2 The grid of columns marks first volume.
- 3 Planes on diagonal mark second volume.
- 4 Combination of columns and planes.
- 5 Developed volumes on diagonal mark second volume.
- 6 Positive and negative relationships of plane and volume.

On reading architecture

less color, and ultimately less concern for these. It is closest to the abstract idea of plane."

On the basis of these three notions alone, it is impossible to say anything about this architecture other than it is, at least, architecture. (Similarly, one could recognize Chinese as a language, yet have no understanding of its meaning.) For the implications of Eisenman's work to be seen, one must suspend concern with normal external references, and consider a framework where architectural form is related only to architectural form. Within such a framework, a building can only be seen as a complex of interacting relational units where it is impossible to perceive or separate components, because there are no components as such.

Usually, an architect concerns himself with combining components in order to design a building, or, as in the case of Graves, with a dialectic relationship between components and the building. Eisenman's concern, on the other hand, is with the building as the manifestation of a system of relationships; that is, with the architectural system as the generator of architectural form as well as its meaning.

If Graves' lectures were important to analyzing his work, Eisenman's writing are equally integral and fundamental to any comprehension of his buildings, since he considers his writings as essential to the architectural process as his drawings and models.¹⁴ Their mutual function is to make explicit the architectural problems he attempts to explore in each project, where the project is considered as research into the nature of architecture itself, or more specifically, into the syntactic dimension of architecture. With this attitude, he separates himself from the tradition in which writing is concerned with descriptive and prescriptive aspects of architecture and attempts to explain architecture as a system of signification.

Syntactic structure

A second aspect, which further separates his work from the traditional conception of architecture, is seen through comparison with Graves, for example, who is providing data for understanding the semantic dimension. Eisenman, through exploring the syntactic dimension itself, is inventing data.

To define, in architectural terms, the relationship between semantics and syntactics, Eisenman has introduced an important idea from generative, or transformational grammar, in which language is seen as a generative activity rather than as a description of semantic and syntactic relationships.¹⁵ In this view of language, syntactics takes on a new meaning where syntactic structure itself is seen as the primary generator of language. Eisenman incorporates this concept into architecture because it helps him to account for what he sees as a similar process of synthesis in architecture, the process of the generation of architectural form. He replaces the semantic relationship of form to external requirement, function or structure, by a system of internal relationships—that is, function and actual structure are seen in terms of relationships between relationships, defined by the three primary physical systems of line, plane and volume. In doing so, he sharply separates semantics from syntactics; the semantic aspects become absorbed, and are revealed as abstract notations, and not as forms related to use or to other meaning. Their relevance depends solely on their combination with

each other, rather than on their relationship to external references. They are not substitutions or signs representing something absent.

The prime consequence of this isolation from external relationships is the dissolution of the main semantic opposition of form to program (internal/external). This opposition is replaced by a new internal system of oppositions; the operation moves into an exclusively syntactic level (internal-internal) where units are only related to each other.

Relational units and deep structure

The relationships between units are based on complex systems of oppositions which develop from line, plane and volume. These elements, meaningless in themselves, become a system of equally weighted elements (as opposed to the traditional aesthetic distinction between primary, secondary, and tertiary systems), or a system of relations defined by a dialectic between elements. In this system, volume can be seen as an extension of the plane, while line or column can be seen as a residue of the plane. This understanding is possible through recognizing what Eisenman calls transformational rules, which mark and link deep structure with the specific column or wall.

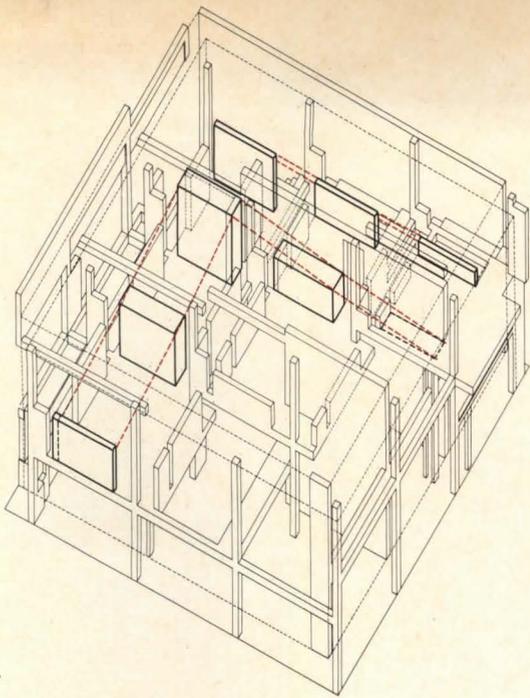
In Eisenman's House II, three main relational systems, which he calls deep structure oppositions, are used: column/wall, volume/column and volume/wall. The complex system of these oppositions influences, or is marked in, the surface structure. As Eisenman says, "In House II the spatial system attempts to provide for a continuing and countermending dialectic using the column and the wall. Here the interplay of shear wall and screen walls provides a formal structure comparable to that existing in the Domino House between the screen wall and the column grid. The articulation of the column and the volume is an attempt to create a dialectic between a reticulated grid, i.e., form which is essentially additive, and walls cut away to reveal columns, i.e., form which is essentially subtractive. This same idea is involved in the specific articulation of the columns . . . which can be read either as additive, that is, as a build-up of planes, or as subtractive, that is, as a cut-away to reveal a residue of planes."

Layerings

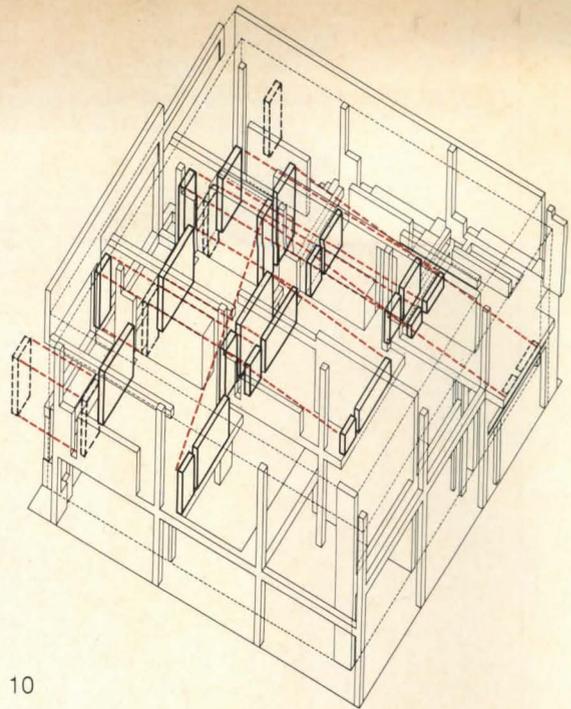
All of these elements represent only the combination of simple, explicit elements in Eisenman's work. These elements are further conditioned, however, through systems of implied movement linked to the notion of systematic parallel or diagonal layering, which has a unique role in his architecture.

Layering, as an adjunct to the Classical concept of space as a dramatic setting, was expected to reinforce the illusion of perspective from fixed observation points. In Graves' work, which develops from concepts of space in Modern architecture, layering is derived from notions of space as exemplified in Cubist painting, where space is perceived not as a stage setting, from a fixed proscenium or picture plane, but rather as a dialectic between plane and depth; between frontal and non-frontal planes; between an observer's ability to make precise readings of frontal planes, and only imprecise readings of peripheral planes.

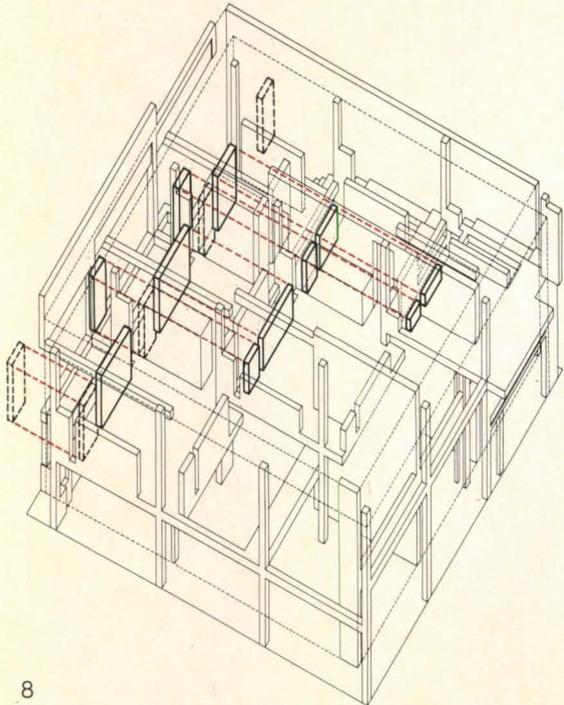
Eisenman's use of layering has little in common with that of



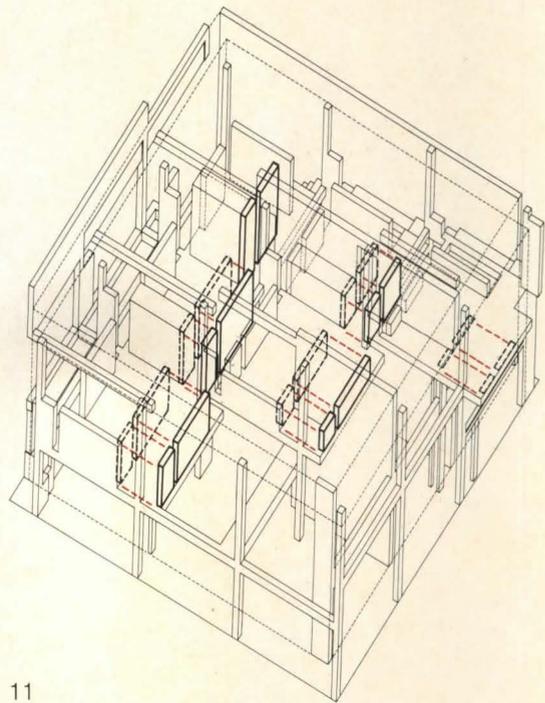
7



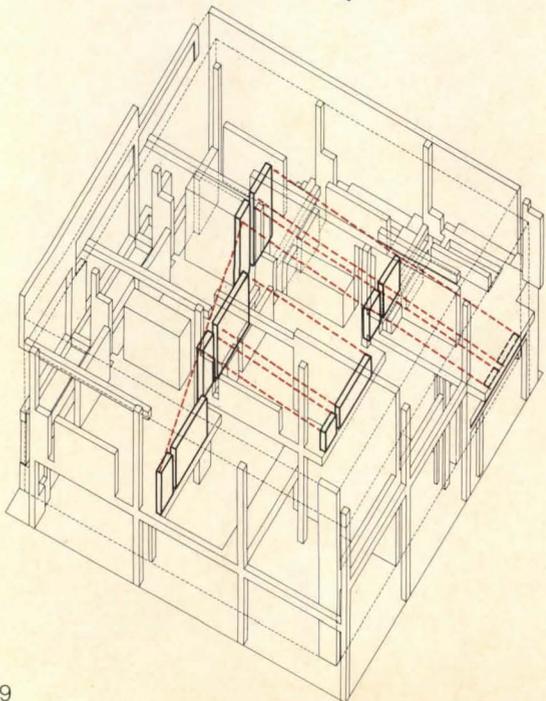
10



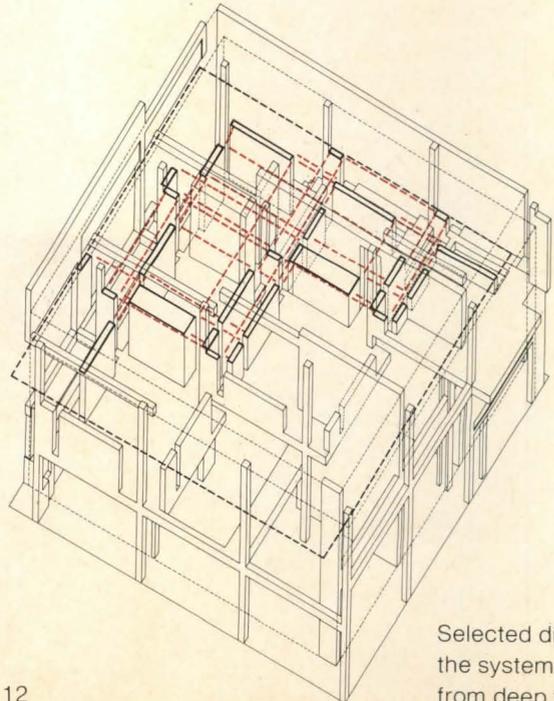
8



11

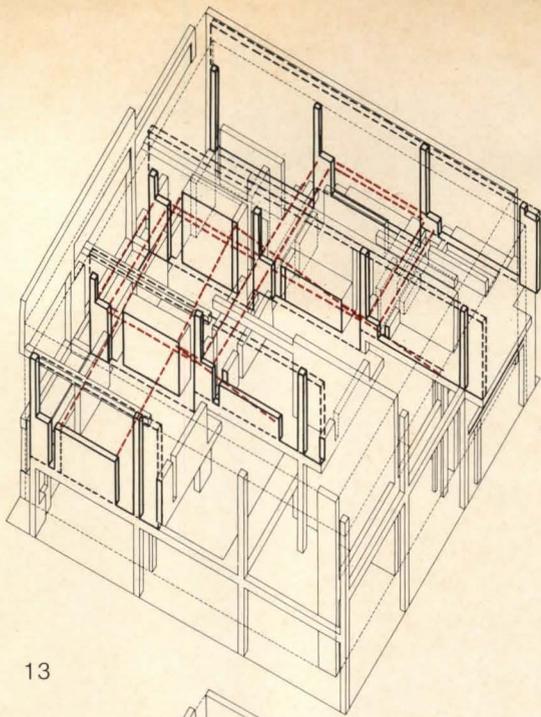


9

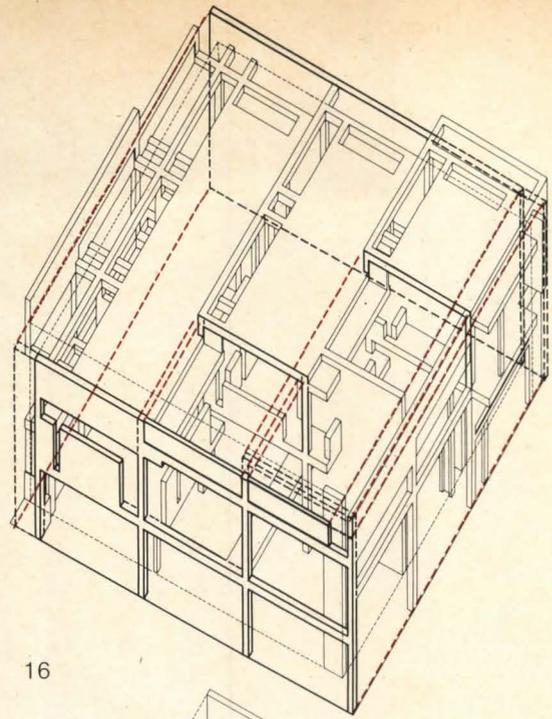


12

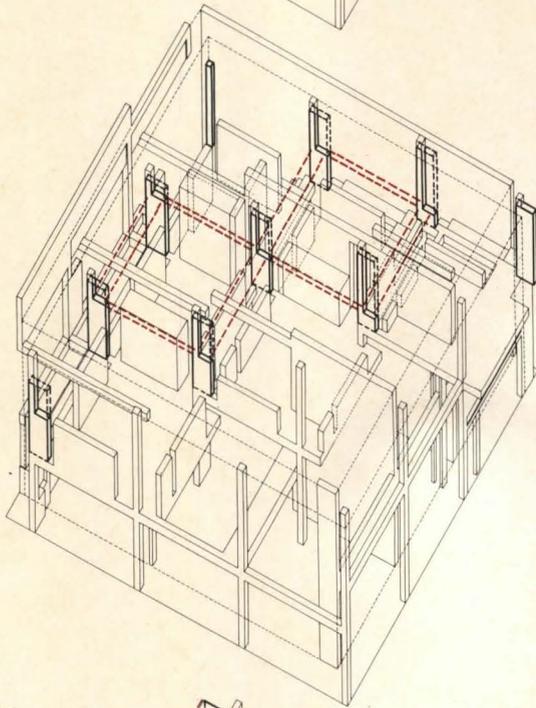
Selected drawings indicating the system of transformations from deep to surface levels.



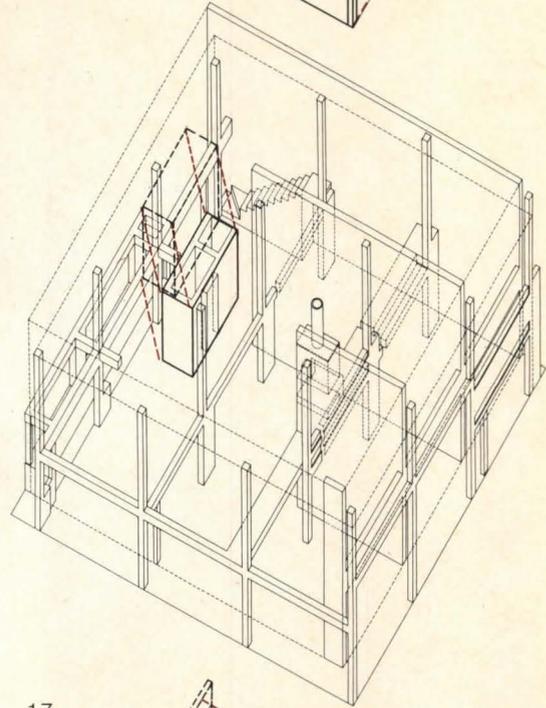
13



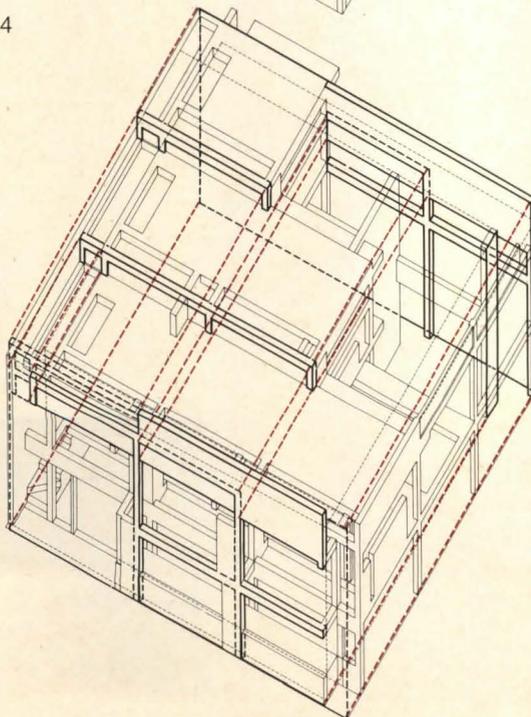
16



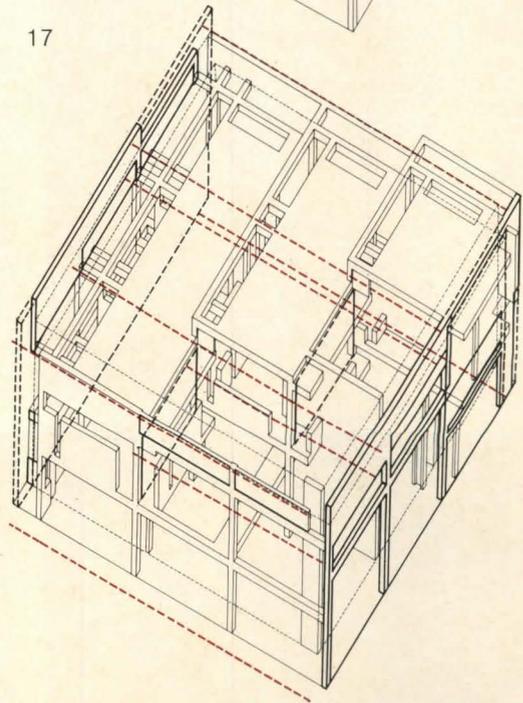
14



17



15



18

Selected drawings indicating the system of transformations from deep to surface levels.

On reading architecture

either the Classical or Cubist concept, where layering is only partially systematized and remains partly related to the physical experience. While Eisenman may use spatial constructs that are superficially familiar, they are not used for their physical implications, he says, but rather as constituents of a specific architectural system of relations, "much as a mathematical notation can be used to describe a construct in music. Layering, in this sense, becomes dominantly notational, as well as generative of the entire system because it establishes the arrangement and relationship of elements. It establishes both a formational and a transformational structure in that it gives order to a base system and generates a system of implied spatial oppositions—shear, tension, compression, centrifugal or centripetal—which are not actually in the specific forms, but which accrue to relationships developed from this layering." The result is the assembling of complex relations into an ordered series generating from a given plane or point of reference, either actual or conceptual. Within this framework, the implied movement is initiated at a precise point in time in the deep structure. From these relationships of layered spatial systems, all specific form is generated. In this method the notion of layering refers not only to the actual manifestation of explicitly layered elements, but to implicit relationships between relational elements. This form of layering requires neither a single constant 'proscenium' nor a normative plane of reference.

Double deep structure and surface level

The final and more specific notion that Eisenman introduces in his definition of the deep, or conceptual level, in his syntactic model is the notion of double-deep structure. Its analysis requires the definition of the surface level and an examination of the interrelationships between deep and surface levels.

For Eisenman, the surface level in architecture has traditionally represented only the appearance of the forms in which architecture manifests itself; the actual building has revealed none of the operations that generated its final form. Eisenman is not concerned with the surface level as a final product in itself, but with its use as a potential structure for revealing, and marking in the building, the operations and the deep structure that generated the architectural form. This represents, he believes, a transformation of the deep level of architecture to the surface level, where reading of the surface level initiates a sequence of continually deepening readings, which reveal the operations that generated the form. This, Eisenman hopes, can give "the 'reader' (myself or anyone else) . . . a greater understanding of architectural form, and perhaps a richer and more precise notion . . . about certain specific qualities of architectural space."

Based on the similarities and differences he sees between the two, Eisenman compares the reading of a building to the reading of a painting. According to him, both allow multiple spatial readings; architecture as literal space, painting as figurative space. To aid the reading of the deep structure in his architecture, he has borrowed the notion of conceptual ambiguity, as opposed to literal ambiguity, from Modern art, thus, he says, "creating a dialectic between what exists and what is implied." This dialectic is accomplished by providing,

within the object, a *double-deep structure*, which allows two different readings of the object. He notes that "One way to provide access to a conceptual relationship—to shift the primary intention from the physical object to a formal relationship—might be to provide in the object two conceptual readings, so that the object can never be held in the mind as a single entity, but rather [as] in a state of tension or [as] a dialectic between two conceptual notions. In House II, there are two alternatives posited as a neutral referent. The first, marking one of the . . . aspects of the deep level, are the shear walls, which can be read as a datum, especially when seen from the north, whereupon the columns may be read as a residue of these planes, transposed diagonally from them. Alternatively, the columns can be read as neutral, or deep level referents, especially when seen from the south, whereupon the shear wall may be read as having been shifted from the column-wall ambiguity." Other aspects of the deep level—the dialectic relationship between plane and volume—work in a similar manner.

To Eisenman, then, the notion of transformation in architecture is related to the opposition explicit/implicit, and to the notion of layering, of double-deep structure, and of reading as the mediating operations between deep and surface structure. He observes that "most transformations are those rules or moves which can take a deep structure and transform it into a surface structure or specific form. At the same time, these transformations provide one with, as it were, the framework for understanding the specific form. These transformations allow one to see the particular forms in a particular or new way."

The most important thing for Eisenman is not the finished product itself, but the operations that gave rise to it. In his desire to understand these operations, he substitutes for the traditional means of representation (plan, elevation, section and perspective) a generative sequence of axonometric perspectives related directly to representative cardboard models. He asks, "What is the reality of architecture? Is it the actual building, which is detailed and planned to look as if it were made of 'nonreal' building material, such as cardboard? Many people see photographs of House II as if they are pictures of the model, rather than the house. Thus, the actual building is, in itself, in one sense, unreal. This, in turn, poses the question, is the cardboard model of the building the reality, or is the ideal of the model and the actual building the reality?"

By separating architectural form from external reference, Eisenman is exploring an attitude that produces two complementary notions. The first is the idea of a double level structure, where the surface or the perceptible manifestation is generated by a deeper conceptual level, through specific transformations. The second is the idea of reading that reveals this mechanism through a deepening play between the explicit and the implicit, provided by the surface level.

Eisenman's approach should be differentiated from research that largely restricts itself to the empirical description of facts, which reproduces reality rather than explains it, and sometimes concludes with knowledge similar to Ptolemy's knowledge of a sun that turns around the earth. In contrast, Eisenman works through the construction of hypothetical models on the basis of existent means; his intent is to under-

On reading architecture

stand, rather than invent form, so he can "generate more rational form, that is, form designed with more precise control, which ultimately allows more precise understanding."

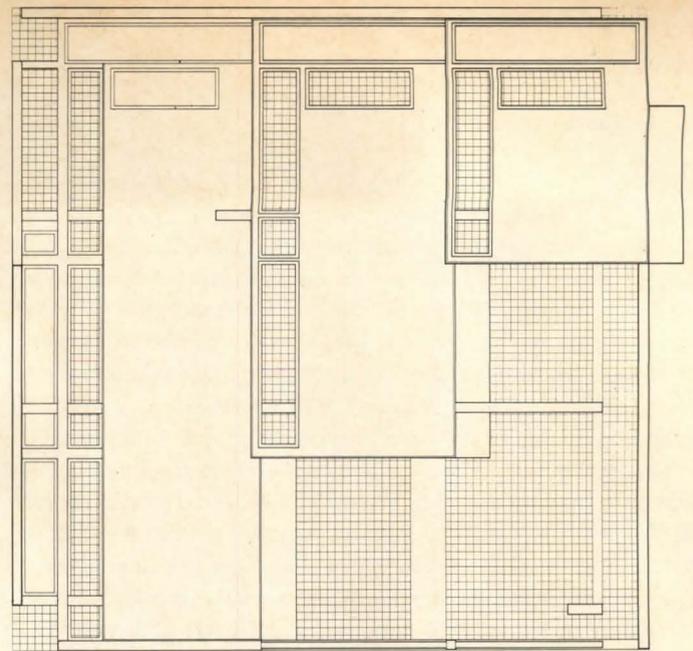
Conclusion

Objects in general, and architectural objects in particular, have traditionally been impenetrable to analysis. The tight-fitting relationship of objects to the notion of use accounts for the predominate definition of the form of the object as a representation of use. The definition of form, by its use, appears as a primary meaning in Graves' work, and appears as surface structure in Eisenman's work. This interpretation, however, opens the possibility of a more profound understanding of the essence of architectural form. The first, explicit, aspect of architectural form obscures another, much more complex, implicit aspect. This implicit aspect can be seen, in Graves' case, as the signification of architectural form; in Eisenman's case, it is seen as deep structure. Their acknowledgment of, and further development from, this fact provides a possibility for architecture to be seen as a systematic phenomenon, as a system of prescriptions that appear as "innocent" forms of description, such as "this is X"; or of "explications" such as "X is because of Y." With the conscious manipulation of this system of rules, Eisenman and Graves are part of an emerging dialectic field of analysis that is open for approval, refusal or further transformation.

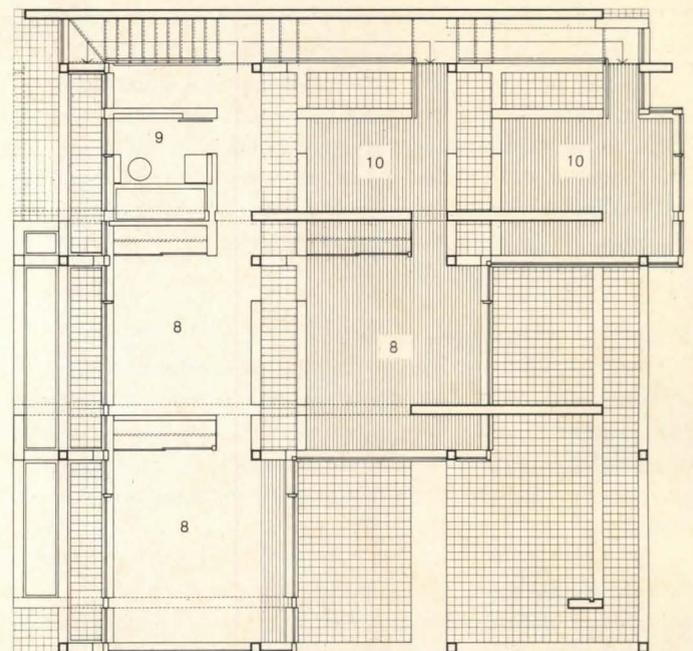
References

- 1 Julien Greimas, *Du Sens*, Editions Seuil, Paris, 1970.
- 2 Claude Lévi-Strauss, *Structural Anthropology*, Doubleday, New York, 1967.
- 3 Diana Agrest, Mario Gandelsonas, "arquitectura/Arquitectura," *Summa*, Buenos Aires, Jan. 1972.
- 4 Ferdinand de Saussure, *Course in General Linguistics*, The Philosophical Library, Inc., New York, 1959.
- 5 Charles Morris, *Foundations of the Theory of Signs*, The University of Chicago Press, 1938, 12th ed., 1970.
- 6 Umberto Eco, *La Struttura Assente*, Editoriale Bompiani, Milan, 1968.
- 7 Roman Jakobson, *Selected Writings*, Mouton, The Hague, 1962.
- 8 Greimas, op. cit.
- 9 Jakobson, op. cit.
- 10 Jakobson, op. cit.
- 11 This notion is related to J. Kristeva's notion called "Intertextualite," see *Recherches pour une Sémantologie*, Editions Seuil, Paris, 1969.
- 12 Christopher Alexander, *Notes on the Synthesis of Form*, Harvard University Press, 6th ed., 1971.
- 13 Jacques Lacan, *Écrits*, Editions Seuil, Paris, 1966.
- 14 The quotations of Peter Eisenman are from his published and unpublished writings of 1967-1971.
- 15 Noam Chomsky, *Aspects of the Theory of Syntax*, MIT Press, 1965; *Language and Mind*, Harcourt Brace & World, Inc., New York, 1968.

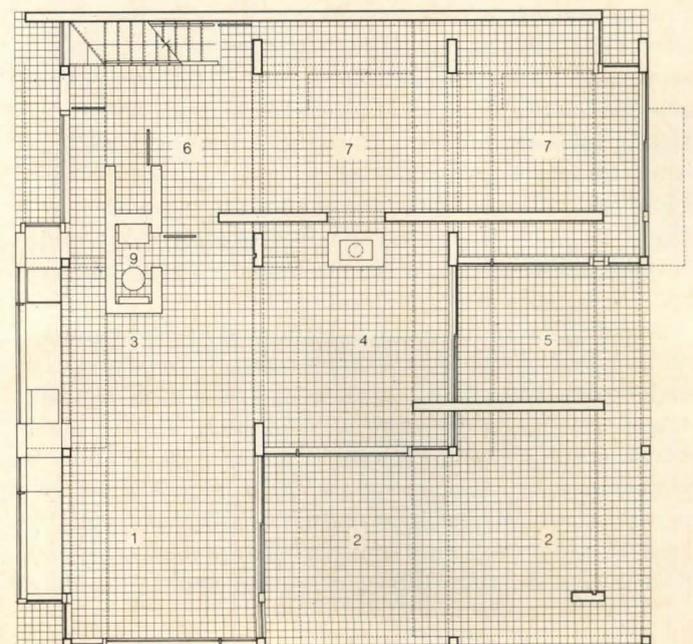
Photography: pp. 68, 70, 75 Laurin McCracken, pp. 69, 71, 80 Norman McGrath.



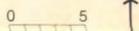
Ceiling plan

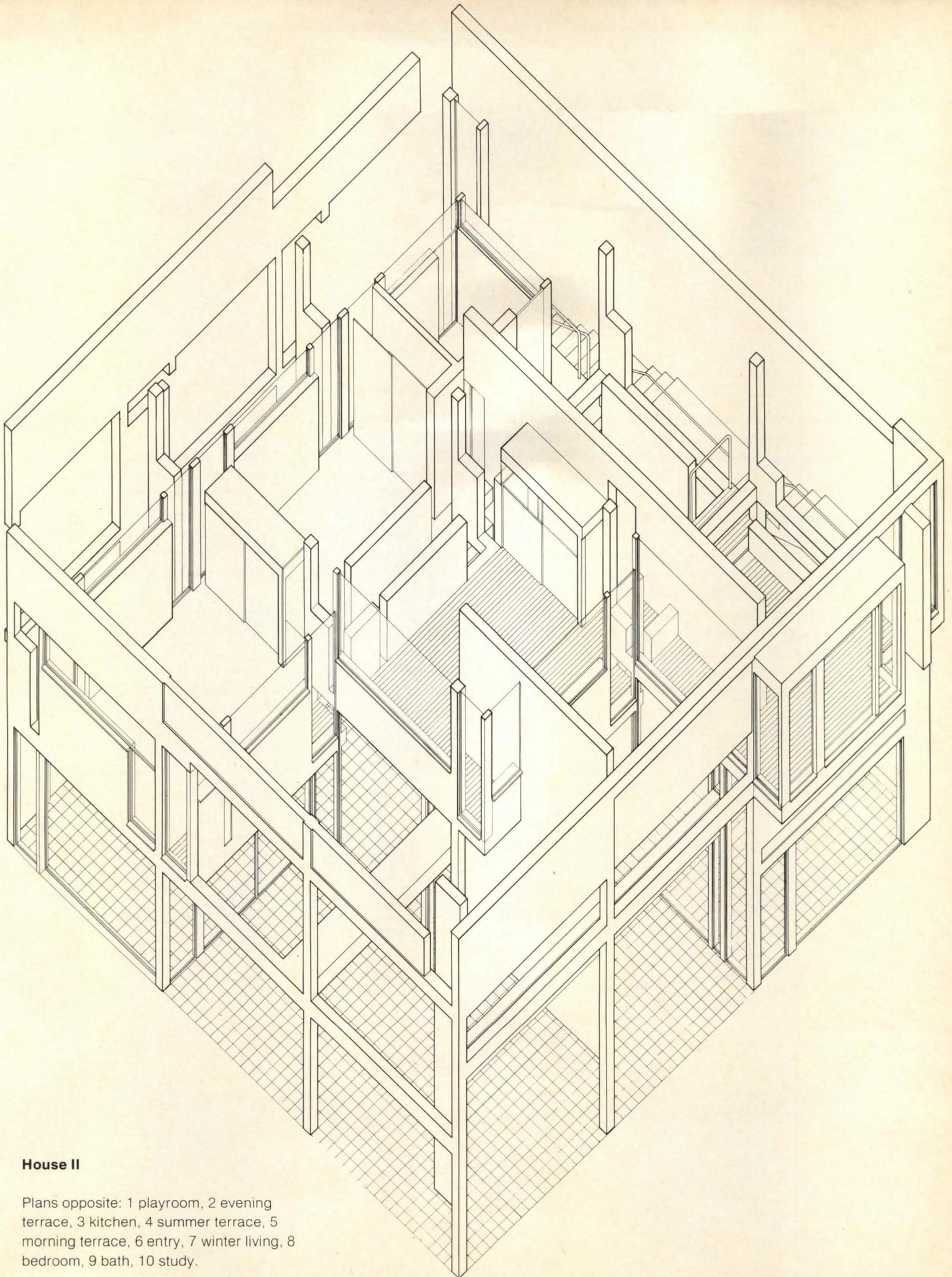


Second level



First level





House II

Plans opposite: 1 playroom, 2 evening terrace, 3 kitchen, 4 summer terrace, 5 morning terrace, 6 entry, 7 winter living, 8 bedroom, 9 bath, 10 study.

Reclaiming a riverfront

A public plaza, a P/A Design Award citation winner in 1967, gives the Genesee River back to the people of Rochester, making it a focal point of the emerging, renewed downtown

Genesee Crossroads Plaza is small, as urban renewal projects go, but it is an important benchmark in the growing movement to reclaim the nation's waterfronts from industrial and railroad clutter. Its three acres are strung out in a narrow parcel along the Genesee River in Rochester, N.Y. (P/A June 1971, p. 30). Designated in the renewal map as "public use—municipal garage and waterfront park," it is within the city's downtown 33-acre urban renewal tract.

Architect Frank Schlesinger's objective was to reconcile the scale demanded by the sweep of an urban riverfront situation with a scale conducive to human involvement—and do this without resorting to what he calls "fussy, human scale landscape devices." Determining the plaza's form were this resolution of scale, the linear shape of the parcel, its relation to the river and basic levels established by bedrock, sur-

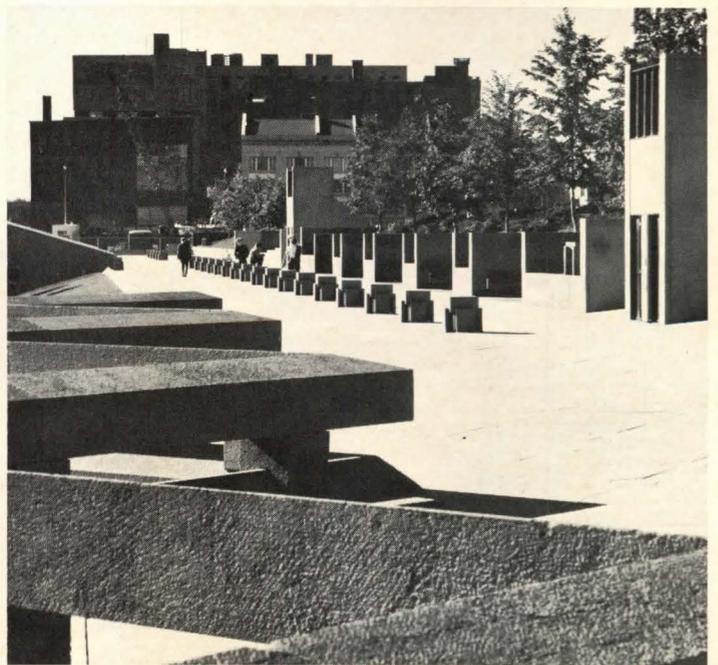
rounding streets, proposed pedestrian links from adjoining parcels and the river's flood crest.

The plaza succeeds in giving the riverfront back to the people but it also points up what Schlesinger terms the "shortcomings of the Federal Urban Renewal Program as practiced in the 50's and 60's." Project areas were neatly parceled, he says, to simplify the real estate and merchandising problems; all too often programs were approached as administrative and political problems with planning limited to designating land use.

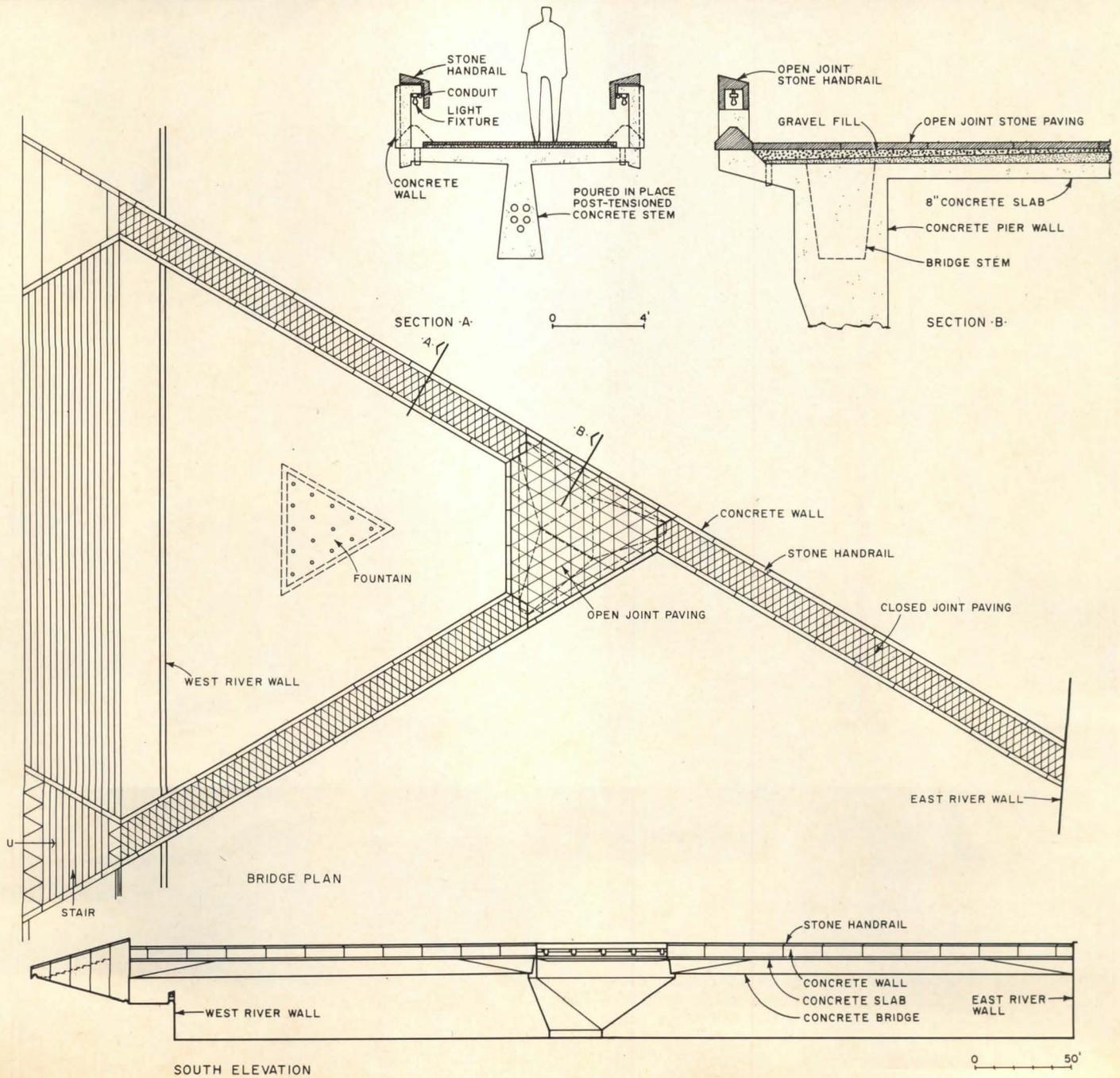
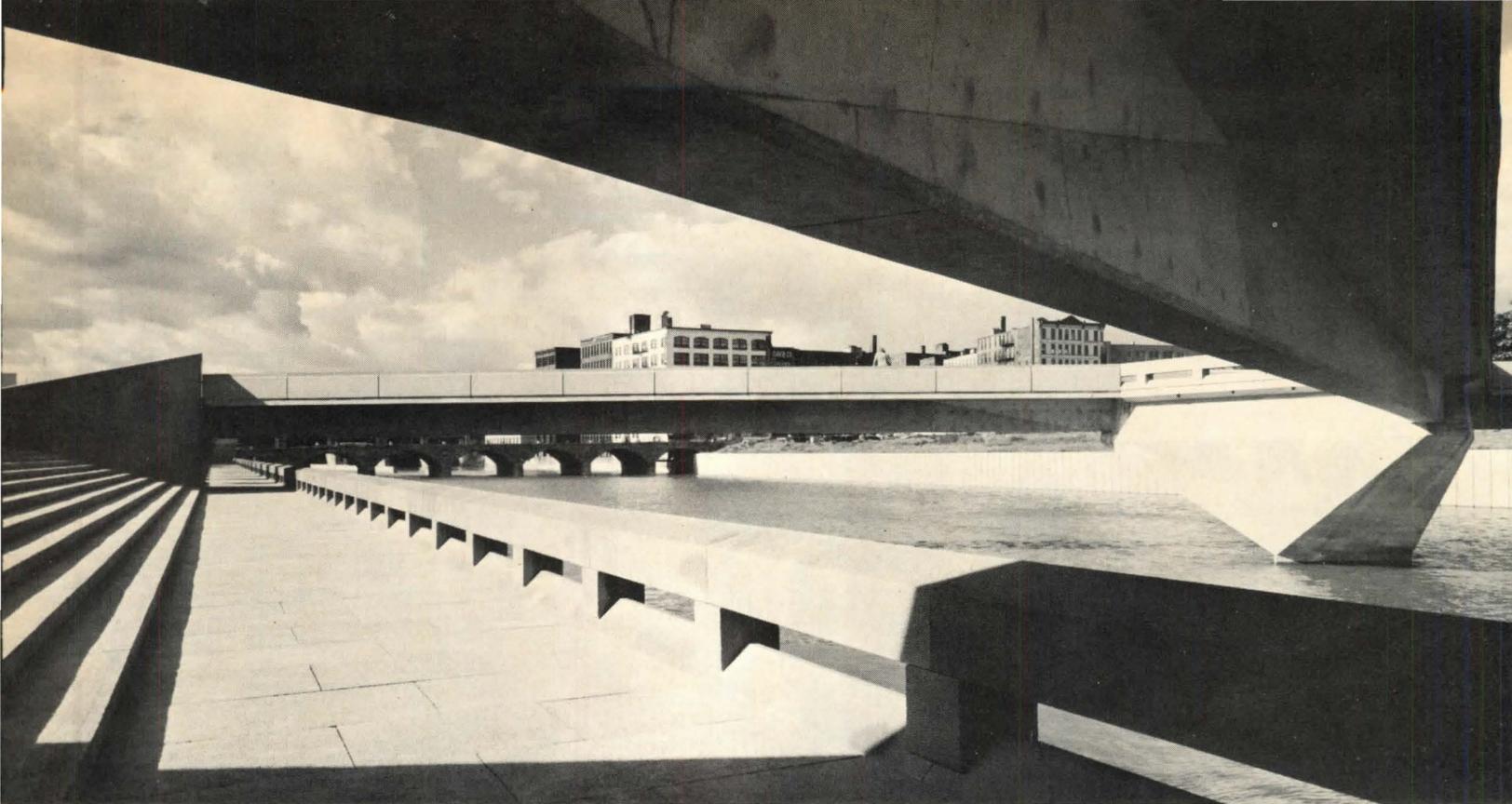
The inevitable result, according to Schlesinger, is a series of poorly related, freestanding buildings in a pattern chaotic both visually and functionally. For the Genesee Crossroads Urban Renewal Project, the city of Rochester made a significant commitment in money and design to develop its own parcel but did not, or could not, force individual developers to coordinate their individual parcels.

Schlesinger feels the answer is to extend public investment beyond "public use" parcels to a "public base" of roads, parking, walkways, terraces, etc. with air rights then sold to

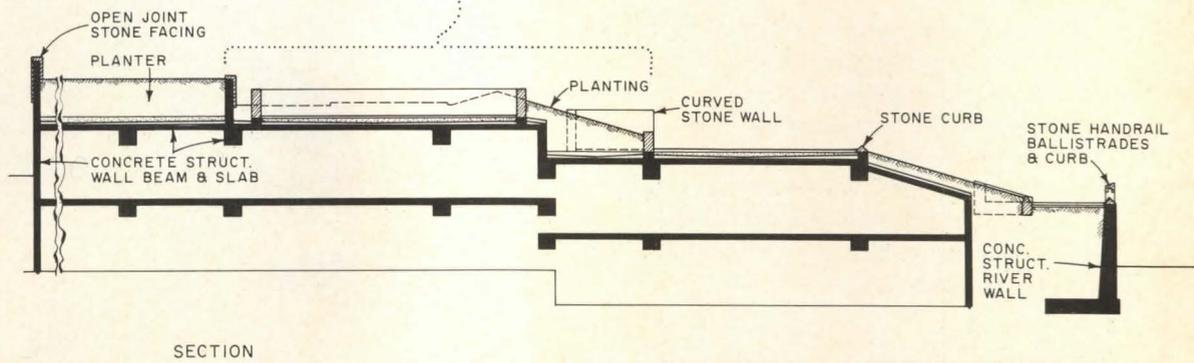
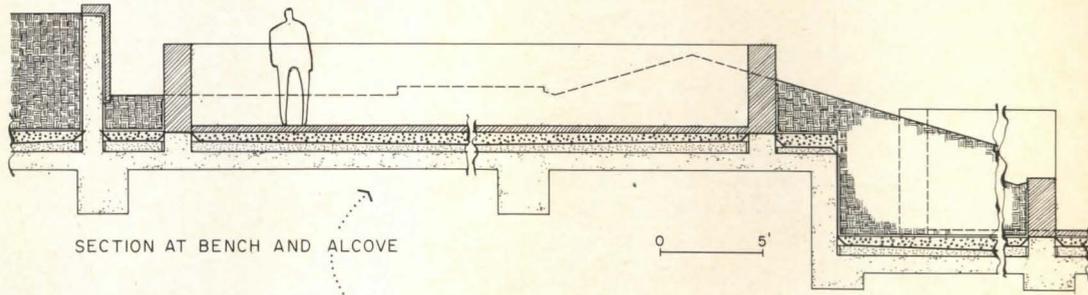
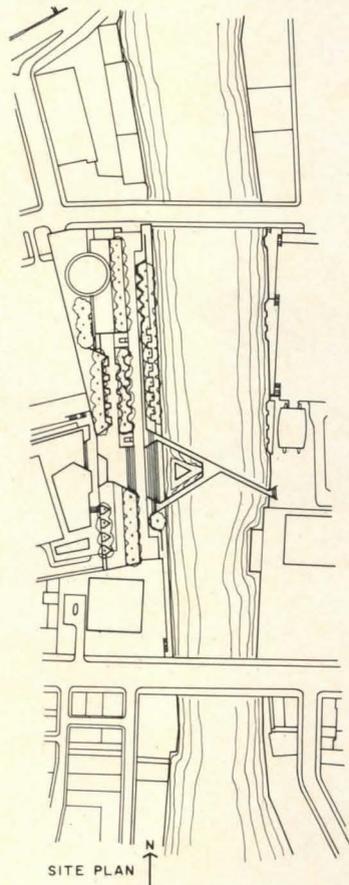
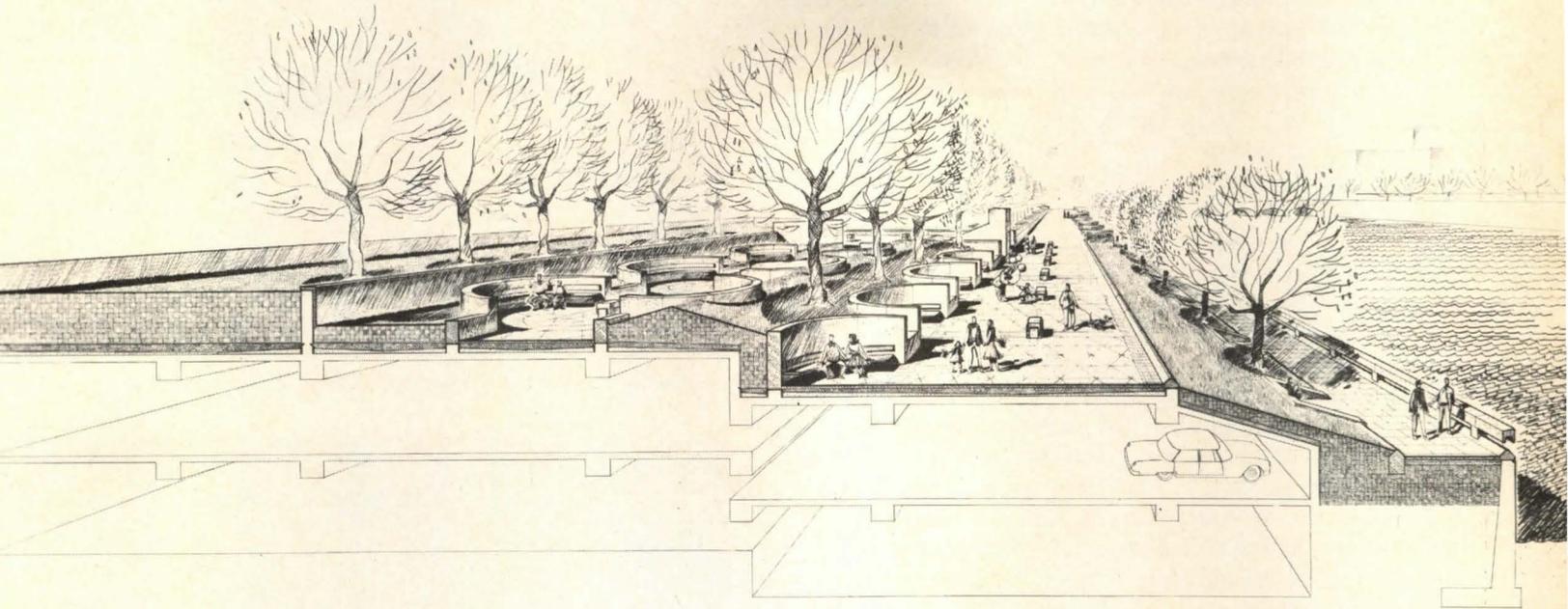




Once lined with decrepit industrial buildings, the bank of the Genesee River is now a public park built as a plaza over a municipal garage. Pedestrian bridge (left) links two parts of Rochester's downtown 33-acre urban renewal tract.



Reclaiming a riverfront



Data

Project: Genesee Crossroads Plaza, Rochester, N.Y.
Architect: Frank Schlesinger FAIA.
Program: provide municipal parking, a public park and a pedestrian bridge on 3.2 acres of a 33-acre urban renewal district.
Site: narrow parcel on west bank of the Genesee River that had been cleared of old industrial buildings.
Major materials: concrete, granite and brownstone.
Costs: \$2.5 million.
Consultants: Robert Goodall, landscape; Vinokur/Pace, mechanical; Deleuw Cather and Associates, structural.
Client: Department of Urban Renewal and Economic Development, Rochester, N.Y.
Photography: pp. 86, 89 (bottom) Ezra Stoller; all others Lawrence S. Williams.

Reclaiming a riverfront

private developers. If this could have been done at Genesee, he says, several things could have been avoided: the federal courthouse parking lot is oriented towards the plaza; a hotel adjoins the plaza with a "most timid" link; the plaza itself may be under-used because no "commercial use" is allowed on a "public parcel." He would prefer the "lure and fascination of marina and marketplace."

Hiding the garage

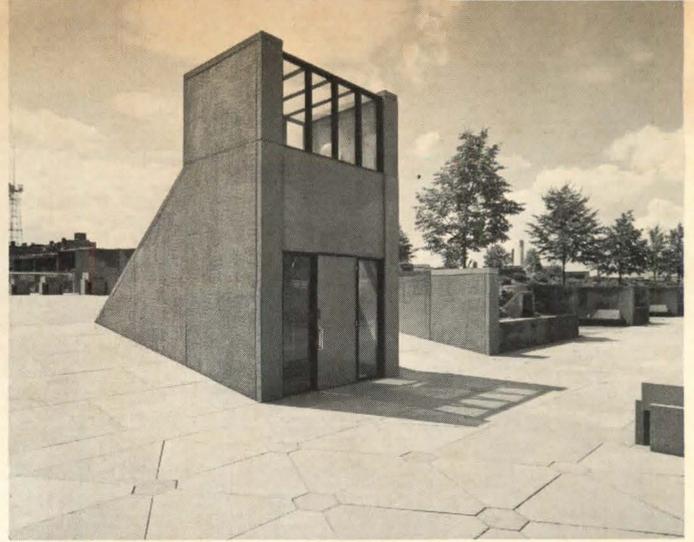
Essentially the plaza is the roof of the municipal garage. To provide a gradual stepping down to the river, the garage was designed with a staggered-floor ramp system. The half-story difference in parking deck levels also provides slopes of continuous planting pockets deep enough for full-sized trees. In addition, the face of the garage is set back from the river floor wall so that, again, full-size trees can be planted and an allée established along the main promenade paralleling the river.

A Y-shaped pedestrian bridge links the two parts of the renewal project, which straddles the river as it runs through Rochester's central business district. The bridge acts as an over-the-water extension of the Plaza, and a fountain, as yet inoperative, is located within the arms of the Y. Final design of the bridge's termination on the opposite bank will depend on further development and coordination of the redevelopment parcels on that side of the river.

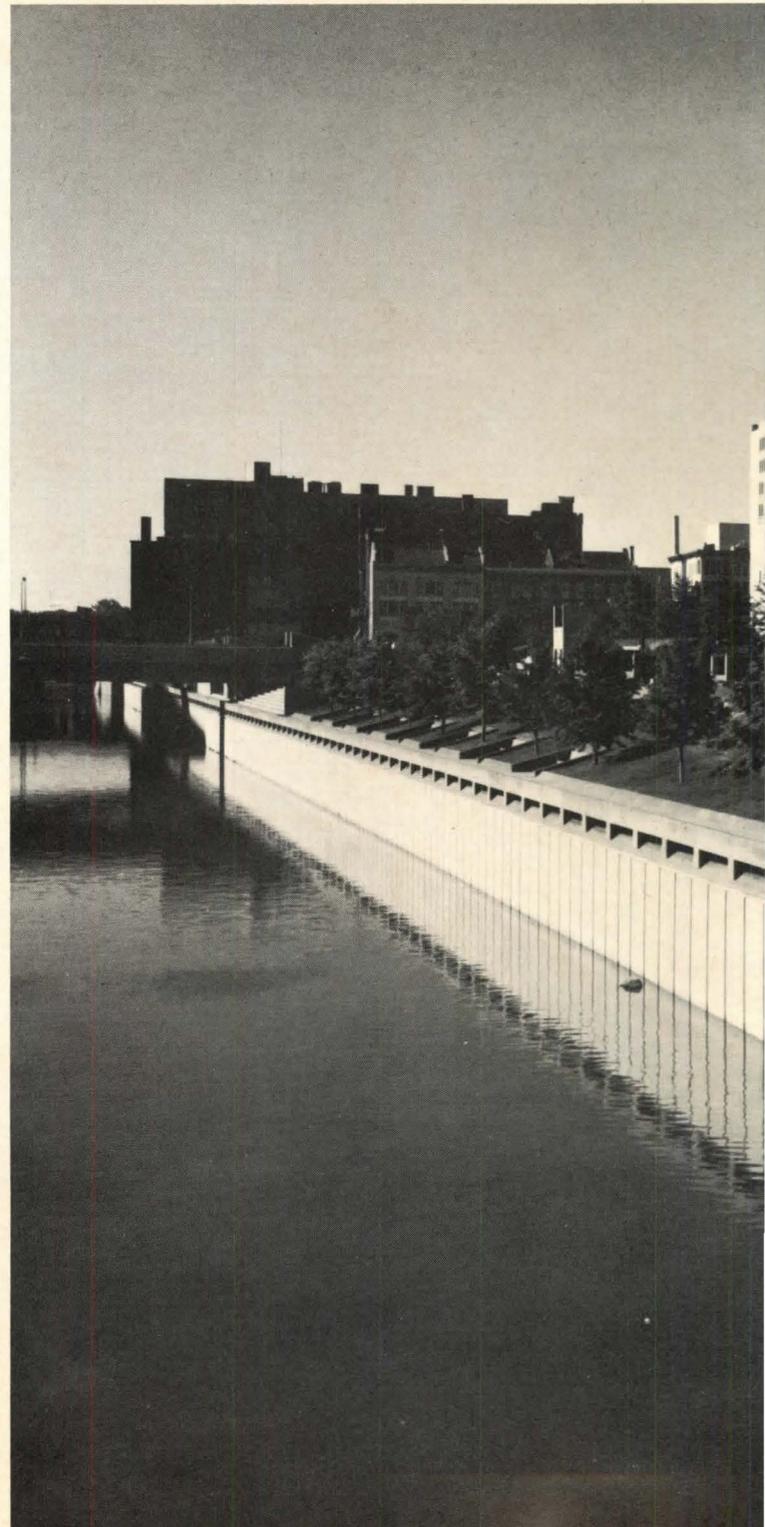
To encourage pedestrians, planting consists primarily of large grass areas; shrubs and ground cover are restricted to berms and selected planting beds. There is an irrigation system at planted areas and a snowmelting system at paved areas. All lighting is from concealed sources. During daylight hours no fixtures clutter the plaza, but at night there is ample lighting from elements within bollards, under handrails and in sunken light wells.

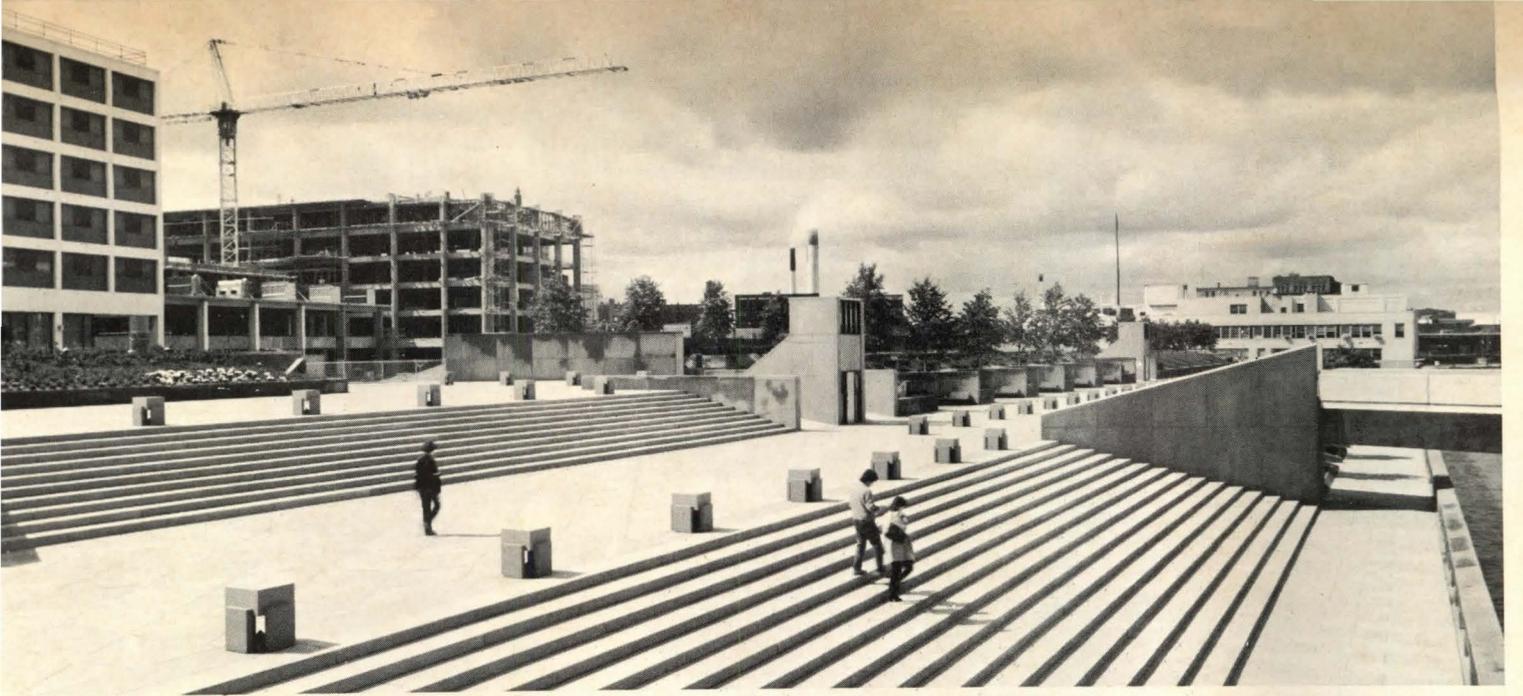
The underground garage is poured concrete. All non-planted areas of the plaza are brownstone and granite with an open joint paving pattern that allows rain to percolate through gravel drainage fill to sloped membrane waterproofing which carries it off to interior drains. The bridge spans are poured in place, post-tensioned structural tees with granite paving.

Schlesinger's office was responsible for design and execution of the plaza and bridge, and did the preliminary design of the underground garage. [RR]



Entry to below-plaza parking garage (above). Open joint paving pattern allows rain to percolate through gravel fill to interior drains. All lighting is from concealed sources so that no fixtures clutter the plaza during daylight hours.





Toward proper seamless flooring specs

Oscar L. Vaughan

This report attempts to point out the urgent need of proper seamless flooring standards so that both manufacturers and specifiers may base their evaluations on common criteria

One of the worst current dilemmas of the specifying architect or engineer is the subject of seamless flooring. The prime reason for this situation is the lack of standard criteria within the industry, compounded by the fact that there are half a dozen or more different systems on the market. Undoubtedly more systems will be developed in the near future, all of which will add to our present confusion.

Systems that we are somewhat familiar with at the moment are epoxies, phenolics, polyesters, polyurethanes, neoprenes and acrylics—all serving the same basic function: to provide a monolithic seamless flooring surface which is resilient, water-proof, sanitary and resistant to chemicals, stains, fire, abrasion and impact. All are available in attractive colors, either in solid colors or in chips. There it is, pretty much in a nutshell, and it all sounds so simple. It isn't, but it should be.

Although these systems do serve the same basic functions described above, it has been our experience that no two similar products of any kind are exactly the same and exactly equal. This is particularly true of seamless flooring. Some are more resistant to fire than others; some are odorless whereas others are not; some are more resistant to abrasion, chemicals and stains than are others. Some are applied in seven or eight trowel coats with reinforcing to a total thickness varying from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. Others are rolled on in two coats with no reinforcing to a total thickness of approximately $\frac{1}{16}$ in. Obviously, no two systems of seamless flooring are the same and equal in all respects.

If an architect-engineer is required to prepare a non-proprietary, competitive specification on seamless flooring for a governmental agency, without naming brand names, it is almost impossible to do so. The best he can do is to write a performance-descriptive type of specification on a given system—to the exclusion of all other systems—hoping that more than one company can bid on that particular system.

In private work it is relatively simple to write a brief description of the system and name the manufacturer, with no ap-

proved equals. However, this is not fair to the competition, nor is it fair to the owner. Any manufacturer who knows he has the job sewed up is not going to give his best price, as he would have to do in competitive bidding. Nor can you blame him. It is not dishonest to charge a good price for your product if you can do so, and still get the work. It does make it easier for the specifier, but this is not the way a conscientious architect-engineer wishes to operate.

Specifying the material is only part of the headache. Another problem which invariably arises is that of evaluating one product against another. We cannot recall a single instance in our office where the general contractor has not requested approval of another system in lieu of the one specified. Now the fun begins. First, we require a complete breakdown of the physical and chemical properties of the proposed material, including laboratory tests. In comparing this with the breakdown of the original material we find that different test methods have been used. Some manufacturers include abrasive resistant tests, and others do not. Some may list impact resistance, elongation or tensile strength, where others do not include them. The list of tests are seldom consistent with each other and are never in the same sequence. We know of no instance where two manufacturers have used the same test methods throughout. Without detailed descriptions of all the test methods available and on hand, an evaluation of the two products is virtually impossible.

All of this becomes frustrating and time consuming. As a last resort we try to determine the relative costs of the two materials, installed in place, on a sq-ft basis. In one instance we found that the specified material cost approximately \$2.35 per sq ft, and that the proposed material cost approximately \$1.35 per sq ft. On the basis of cost alone, the proposed material was rejected. This is simple, basic economics. Anyone knows that a \$26 pair of shoes is bound to be better than a pair costing \$16. However, it is not a fair way to evaluate materials, but in this instance we know of no other way. Had the contractor offered a fair credit to the owner for the proposed substitution it might have been accepted.

Further considerations

But it doesn't end here. After a material has been rejected the manufacturer's representative presents himself and proceeds to show us why his system is not only equal to the specified system, but far exceeds it despite the difference in cost, number of coats or mil thickness. Few of us are chem-

Author: Oscar L. Vaughan, a registered architect, is Chief Specifications Writer for Hoyle, Doran and Berry, Architects, Boston.

ical engineers, and few, if any, know the properties and relative merits of epoxies versus phenolics, polyesters versus polyurethanes, or neoprenes versus acrylics. Now we are not intending to knock the manufacturers' representatives for seamless flooring applications. We personally know a dozen or more such men, and without exception they are all fine reputable fellows, knowledgeable in their field, and trying to promote and sell a good product. The trouble is, as previously stated, lack of standard criteria within the industry.

Exactly what is needed—and is there a cure for this situation? We think there is, but it must originate within the industry itself. It is our firm conviction that a Federal Specification identifying types and classes of materials, and establishing performance standards for seamless flooring is the first step. For example, epoxies could be Type I, neoprenes Type II, and so on down the list. A brief description of each material should be included under each type. Colors could be identified under classes. Clear could be Class A, solid colors Class B and chips Class C. Possibly a classification for use and function could be established, such as operating rooms in hospitals, animal rooms, chemical laboratories, mechanical equipment rooms, garages, storehouses and so on.

Federal Specification TT-C-55a "Coating System, Glaze Interior for Masonry Surfaces" is about what we have in mind. It tells what the material is and what it is supposed to do. Physical and chemical properties are listed by reference to other Federal Specifications, Federal Standards and American Society for Testing and Materials (ASTM) publications.

A Federal Specification would do the same for the seamless flooring industry. However, this is not a task for an individual, but rather a task for the entire industry, perhaps assisted by a few architects, engineers, specifications writers and contractors on a consulting basis.

Three steps

Federal Specification TT-C-542b "Coating, Polyurethane, Oil-Free, Moist-Curing" covers only polyurethane. Possibly a separate Federal Specification for each system is the answer. However, for convenience of quick and ready reference we would prefer one specification covering all systems. The functions are the same, and all tests should be the same—only the materials are different. We have recently learned that Committee D-1 of the American Society for Testing and Materials has organized Subcommittee 47 on Seamless Floor Coatings which is currently engaged in establishing standard-

ized test methods for seamless systems. This a big step in the right direction, and should alleviate the work of setting up one Federal Specification for all seamless flooring systems.

A second step, and an important step, would be for each of the individual manufacturers to issue Spec-Data sheets following the standard form established by CSI, referring to the Federal Specifications established for seamless floors, using the same reference standards in each instance, and in the same sequence. Limitations of the material should be included on each data sheet.

The third step would be setting up a bulletin by the seamless flooring industry, possibly called "Performance Data—Seamless Flooring Materials" to be issued on an annual basis, as is done by the Acoustical and Insulating Materials Association. Each year these people issue a bulletin called "Performance Data—Architectural—Acoustical Materials." Eleven leading acoustical manufacturers contribute to this publication. If one wants to compare the products of one manufacturer against those of another, everything is there for each material including such items as manufacturer, thickness, mounting number, light reflection, flame spread and NRC specification range. Each manufacturer is listed for each product type. A complete comparison of any product or type can be made in a matter of minutes. There are many other splendid manuals of this type in the construction industry, and this is one of the better ones.

This is a pretty tall order, and would take a bit of doing. Possibly this third step is not absolutely necessary at the present time. The bulletin would be helpful at a later date. Once it is established, the annual publication of it in subsequent years would be pretty much of a repetitive process. In the meantime the Federal Specification and Spec-Data sheets would be very welcome as soon as possible.

This is not a complete panacea for all of our ills, nor is it our intent to try to tell the industry *how* these standards should be set up. Rather it attempts to point out the urgent need of such standards whereby both manufacturers and specifiers may have common criteria on which to make evaluations. It has been said many times before that a lack of proper communications within the construction industry is one of our biggest problems. Establishment of such standards throughout the entire construction field is the best means of meeting this challenge. Can the manufacturers in the seamless flooring industry cooperate together on such a project? We surely hope so, and right away soon.

Start of a new tradition: co-ed prep

The merger of two tradition-minded prep schools provides an example of new math: one tradition plus another gives another totally new tradition, plus a forward looking school

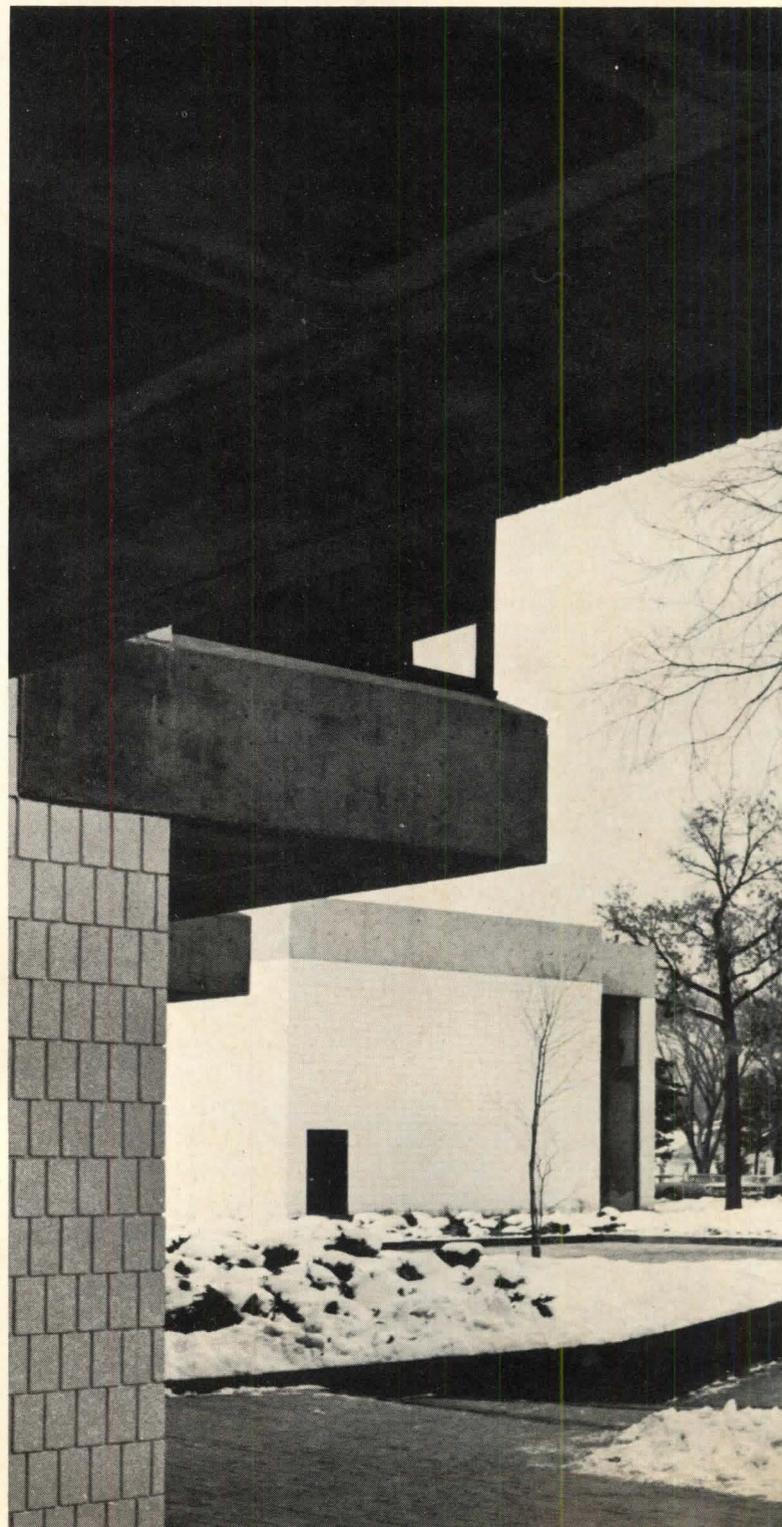
It was only natural, and perhaps inevitable, that St. Paul Academy in St. Paul, Minn. and the nearby Summit School should merge to form one coeducational school. Boys from St. Paul date girls from Summit, an equally traditional girls school, and after they marry their children go to St. Paul and Summit and the cycle starts over again.

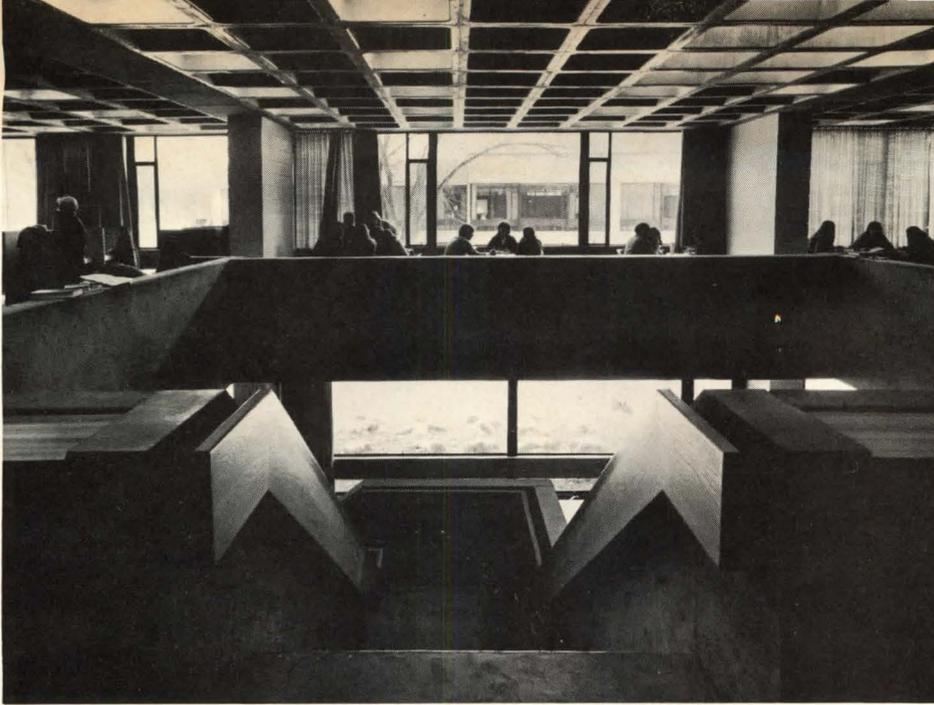
Why not merge the two schools, Benjamin Thompson asked the St. Paul board of directors in the course of urging them to broaden their thought about growth and expansion. The directors of both schools took the idea seriously, agreed and voted to go co-ed—immediately. This plunged Benjamin Thompson and Associates into a project that went beyond architecture. Instead of just designing a school building, the firm got to play a role in the design of the school itself—helping to shape its programs, its curriculum and its very nature.

In addition to being the school's architect for needed renovations and new construction, the firm served as educational consultant for the changeover. Henry Olds, a Thompson staff member with a PhD in education, worked closely with headmaster Thomas Read and the faculty of both schools while architectural planning and fund raising were going on. Now, \$1.8 million and 70,000 sq ft of new construction later (renovation cost was estimated at \$500,000 for 47,040 sq ft of space), the merger of St. Paul and Summit shows that although the most venerable traditions sometimes have to bend in the face of the facts of life, the result can be the start of good new traditions.

The changeover offered an opportunity to broaden and improve studies in the arts (particularly for St. Paul) and sciences and led to a K-12 program split between two campuses. Both schools were secondary schools, but each had its own affiliated elementary school. The combined school provides a 400-student upper school on the St. Paul campus and a lower school (K-6) down the street at the Summit campus.

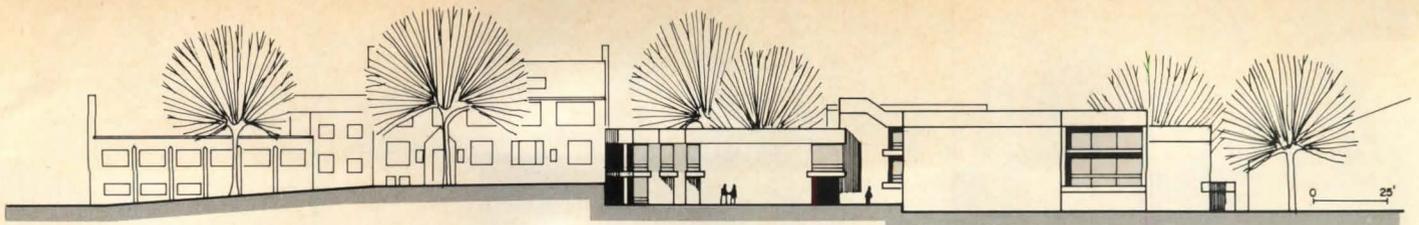
The revised building program for the St. Paul campus seemed simple at first glance. The old buildings were to be renovated and used, and new facilities were to be built. No



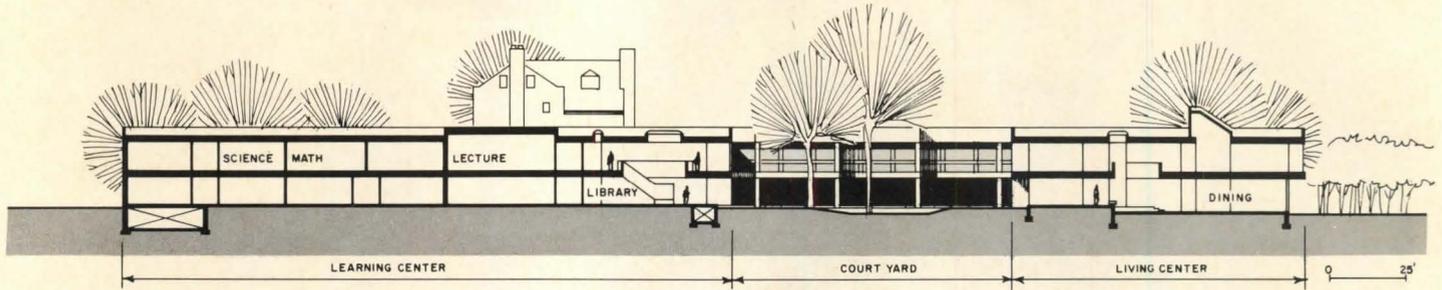


New upper school for combined St. Paul Academy and Summit School is planned around central landscaped courtyard. Major facilities, such as the library (left) overlook courtyard. Eventually all buildings will be connected at the second level; view below is across the courtyard toward library.

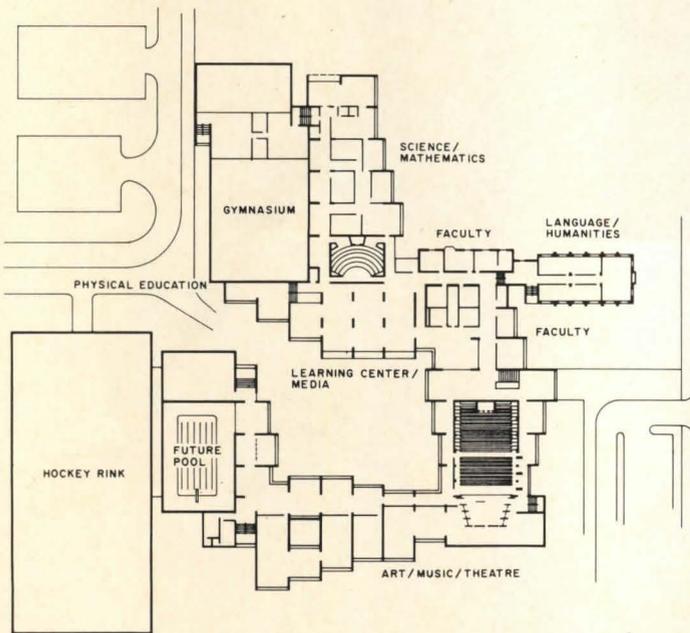




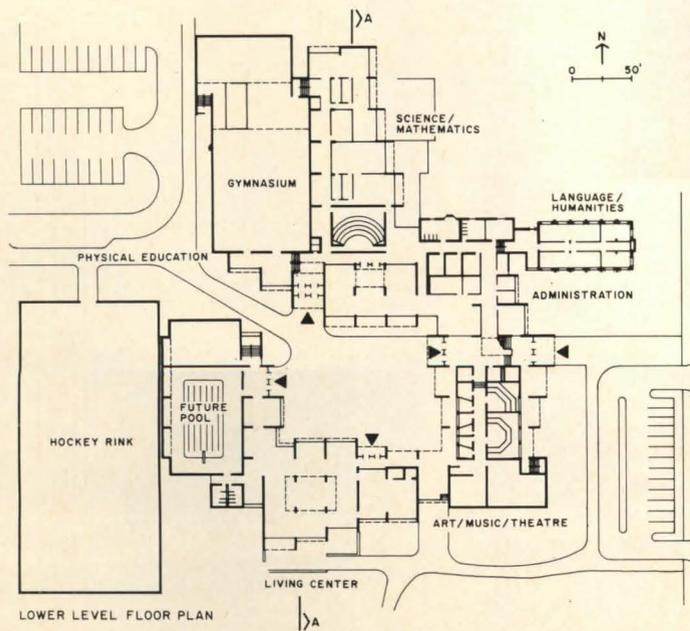
NORTH ELEVATION



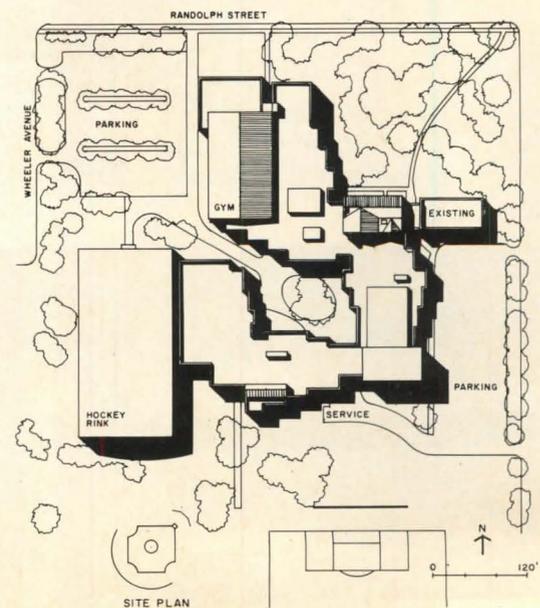
SECTION A-A



UPPER LEVEL FLOOR PLAN



LOWER LEVEL FLOOR PLAN



SITE PLAN

Start of a new tradition: co-ed prep

real problem, except that the schools had decided to go co-ed immediately: the school was to stay open during the process so that the schools could merge before the new buildings were finished.

The solution was a phased building program that started with the demolition of one building and the remodeling of the existing main building during the summer of 1969 to provide temporary teaching spaces. The second phase provided a mechanical services building, a gymnasium addition, a new library and new living center by the end of 1970. The last stage of the program will see the final renovation of the existing buildings, plus additions and renovations to the auditorium and the completion of the library and new administration area.

The 28-acre campus was completely replanned for better entrances, circulation and parking; new and old buildings were interrelated around a central court providing an enclosed landscape of trees and grass. The major facilities—new library and living center and remodeled theater and gym—are grouped in two-story buildings that open directly onto the central court. They are all connected at the second level, leaving three entrances to the court.

The library—a multimedia learning center housing tapes and films as well as books—was planned as the center of the learning process and is at the center of the school. Study space is provided for as many as 150 students, and the library's media section allows the preparation, storage and viewing of new kinds of course materials.

Behind the learning center is the math and science area. Coordination is the aim: physical and earth science share one lab complex, science and biology are in related labs and physics and chemistry are in one large lab complete with discussion areas, project areas, resources center and storage and office space. Also in the math and science complex are four math classrooms and a departmental lecture room with seats for 70 students.

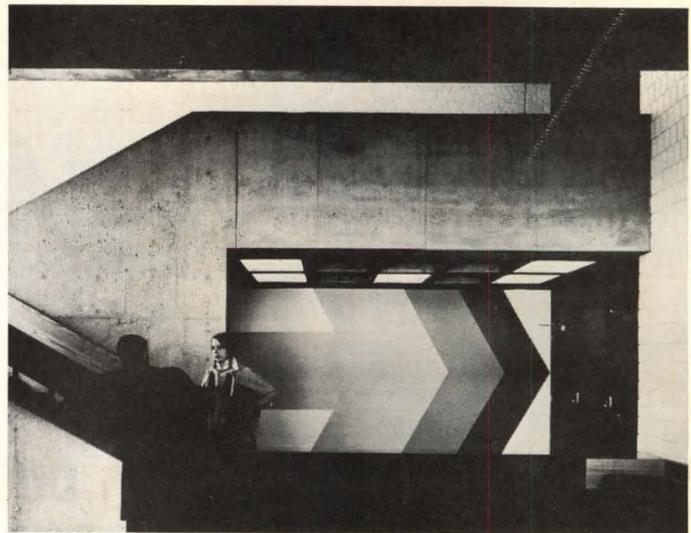
Across the court from the library is the living center, a home room for the whole school. It houses offices for student council and other organizations, a library of magazines and newspapers and a display area for a continuous show of student work and class projects. On its lower level is a 250-seat dining room for relaxed lunches; a small platform at one end allows the room to be used for meetings or debates during the rest of the day.

Theater, music and art departments are combined in renovated spaces to the east of the living center. A remodeled auditorium, equipped with a thrust stage and retractable side walls allows a variety of activities, ranging from movies to formal plays to drama workshops. Below the auditorium is a rehearsal room which can double as a drama workshop; practice rooms and an art studio are adjacent.

Physical education facilities are adjacent to the library and science and math area; to encourage spare time student use, they are set up as a health club. Activity rooms are provided for tumbling, workouts and recreational exercise. Along with the standard gymnasium facilities and ice hockey rink, there is a multipurpose room large enough for volleyball or badminton and divisible for wrestling or dance instruction. A pool is planned for the future; it will go between the hockey rink and the living center. [CP]



Dining area (above) is planned for relaxed lunches, meetings and debates; bold graphics (below) brighten interiors throughout school. Classrooms (opposite) and most other areas have carpeted floors and exposed concrete pan ceilings.



Data

Project: The Saint Paul Academy and Summit School Upper School.

Architects: Benjamin Thompson and Associates; Wold Associates, associate architects.

Program: new and renovated facilities for a coeducational upper school formed by merging two existing day schools. The Saint Paul campus was to be the site of the upper school, and a lower school was planned for the Summit School campus.

Site: a 28-acre site in an older residential neighborhood.

Structural system: poured in place concrete grid-slab and columns in new academic areas; long span concrete tees were used in secondary gymnasium.

Mechanical system: hot water fin tube radiated with central air system to provide for future air conditioning in selected areas.

Major materials: white painted scored concrete block to contrast with dark red brick of original building. Brick in other existing buildings was painted white. Interior partitions are gypsum board on steel studs; ceilings are primarily exposed and unpainted concrete, with some areas having suspended ceilings. Floors are quarry tile (first floor circulation areas) or carpeted. Dining area has floor of end grain strip block flooring.

Costs: \$2,061,750 (budgeted) including fixed equipment (not including fees, surveys, administrative costs and loose equipment); \$27.70 per sq ft (\$25.58 without fixed equipment). Actual cost through phase 2, \$1.8 million.

Consultants: structural engineers, Bakke & Kopp, Inc.; mechanical and electrical engineers, Gausman & Moore, Inc.

Client: Board of Trustees, Saint Paul Academy and Summit School, Thomas Read, Headmaster.

Photography: Balthazar Korab.

Planning for growth: managing change



Architects, used to planning projects for their clients, often find it difficult to plan the growth of their own firms. In this first article of a series on office management, P/A takes a look at growth—a natural tendency and a common goal for architectural firms. Unplanned, it can be chaotic and a source of problems; planned and controlled, it leads to broader services, larger projects, more and better work

"I don't want to know how to compete with the big firms," one architect remarked not long ago. "I want to know how to get to be one."

He's not alone. Growth is, after all, one measure of success, a goal that most architectural firms share. It's essential for survival, which is probably the first goal of any new firm; it's a natural tendency for individuals and organizations just as it is for single cells or complex organisms.

Beyond the level of simple survival, growth is all too often a response. The same old cycle of hustle some work, hire some people, hustle some more work to keep them busy prevails; there are busy spells and slack spells, the firm grows and shrinks. That's no way to grow. The architect who is past just surviving and now wants to expand really has to plan his firm's future. The problem is that not everybody knows how to plan or control growth; the inventor of some sort of archi-

tectural Wonder Bread (to help build strong offices 12 ways) would be a real hero.

Survival was their first goal, says Stanley Daniels of the Atlanta firm Jöva Daniels Busby, but they started out with at least one other basic objective: "To grow to a point where we could command commissions of size and scope." With 10 or 12 people, they felt they could tackle anything. By the end of the first year they were an organization of seven; by the end of their second year, up to 17. There are 36 staff members now, but at the 17-person level, Daniels says, "we began to realize that our growth was not totally in our own hands." He adds, however, "Our firm didn't just happen, there was some planning involved."

Another architect, Theodore Seligson, one of the partners in Seligson/Eggen Inc. admits that the growth of their small Kansas City firm wasn't planned, but "wished or hoped for." They always anticipated growth and still do; "naturally growth is relative to volume and size of work, and a lot has to do with coincidences and luck."

Driving for the pin

It sound a lot like making a hole-in-one. When Lee Trevino aces a hole, it's safe to assume that the possibility had crossed his mind beforehand: anticipation, wish, hope and a good helping of luck. There's one more thing, though: when

he teed off, he knew what his goal was. He drove for the pin. And like the hole-in-one, the growth of an architectural firm goes beyond, wishing and luck. It doesn't just happen.

Or it shouldn't, says Stephen A. Kliment, a vice president of Caudill Rowlett Scott. What is needed is a "carefully conceived development effort," one that is geared to the types of work the firm wants to do, a clear view of the potential market for its services and a sound program to promote them.

That sounds like something a vice president of a firm the size of CRS might find very easy to say, something that's easier said than done, but it is pretty much the way CRS has grown right from its start as a two-man partnership in 1946. The story is fully told in William Caudill's *Architecture by Team*, and it is very nearly a textbook example of how to practice architecture for fun and profit. Caudill and John Rowlett knew what their goals were at the start—to grow and to design schools; their experience proves, as Steve Kliment says, that

brings with it some real advantages, but what is "purely a matter of management" to one firm can become a problem of management for another.

Statistics show the growth gap

This shows up in some of P/A's own statistics. Data collected for the 1970 business survey showed a strong relationship between the number of professionals (employees and principals) in a firm and the firm's volume of business. When plotted, the data showed what statisticians might call a fairly orderly progression, except for some noticeable interruptions among firms having 5 to 17 professionals on staff. Instead of rising along with the number of professionals, volume dropped in some cases. Firms with 6 professional staff members, for instance, enjoyed an average volume of \$10,616,000; firms staffed by 7 professionals averaged only \$8,484,000. With the increase from 13 to 14 professionals, and again from 15 to 16, volume also dropped.

What this suggested was some sort of growing pains facing firms in this in-between size range. It may well be an awkward age, or awkward size, a point at which a firm is too large for the informal management that worked for a small firm, and yet too small for the management techniques of large firms.

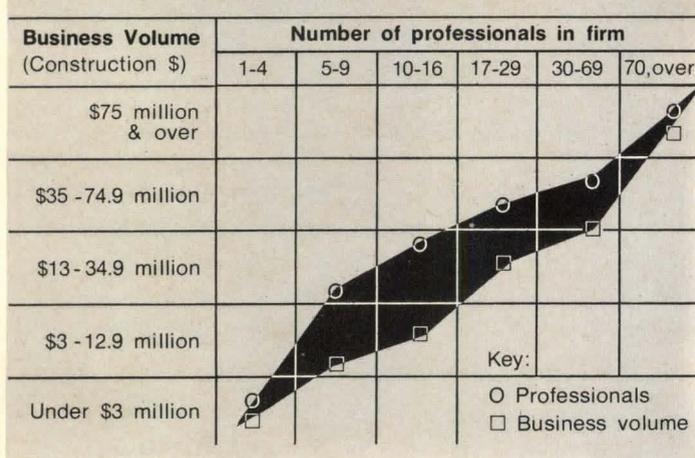
"At some point," says James Franklin, an architect in Chattanooga, "you're pushed past your own tolerance for specialization or you begin to lose identity." His firm has varied in size from as many as 15, 5 of them professionals, to as few as 7 people with 2 professionals. "In our eight years of existence, the fluctuation of available personnel and the flow of work have combined to rob our progress of any logic." One factor that does affect size, he feels, is the surrounding area: "I think the population density within a 100-mile radius of our office has a limiting effect on its size, making it difficult to ever push past about 20 people."

There's a way around that obstacle—expand geographically. A firm need not be a giant to do so: CRS opened a second office, in Oklahoma City, when it was six years old and had a staff of 18 people. That was in 1952, and in 1957 the firm opened a third office, this one in Corning, N.Y. By then, the staff totaled 43 people.

Today CRS operates out of four regional offices (Houston, New York, Los Angeles and Chicago) and a varying number of project offices. "We approach the decision to open a new office," says Kliment, "at the point where the number of projects already underway, combined with the market potential for new work in that region, are enough to open a permanent office." Sometimes the firm sets up a field office to provide local management on an individual project or series of them, but without any business development activity; when the project closes so does the office, and the staff is reassigned to one of the permanent offices.

One of these temporary project offices was set up in Baltimore, where CRS had been hired to provide management consulting services to the city school system. The assignment: a plan that would let the school system project space needs, streamline its planning and construction procedures and in general "help the city get as big a bang as possible out of an \$80 million approved bond issue." Continuing contact with city and school officials was called for. That, plus the size of the project, was enough to justify sending a CRS team there for two years. "Wherever this kind of situation requires it, we will set up a project office."

Relationship between number of professionals in firm and annual business volume



"growth, if planned, does happen."

On the other hand, unplanned growth, growth that is allowed to happen, says Kliment, "has created more difficulties for architectural firms, for their clients and for the profession than almost any other factor." Commissions don't hang on trees for the picking, he admits; but once the principals of a firm decide on some goals—size, types of projects, etc.—they can then go after them in a planned fashion.

Clear objectives are an important part of any good piece of planning. "Growth for the sake of growth isn't necessarily a good objective," says Vincent G. Kling. "It is good only if it enables you to enjoy better opportunities to do a better job. The advantage of growth is that it makes it possible to offer even more encompassing, competent and comprehensive services."

Whatever goals a firm chooses—diversity, volume of business, quality of work—eventually end up being related to the size of the firm. The way the firm is set up—single proprietorship, partnership, corporation; the market and region—small town, rural, urban area; the type of work the firm seeks—corporate, government, institutional or any combination; all these will affect the size of the firm, and be affected by it.

"There's no practical limit to size or number of offices," says Kliment. "It is purely a matter of management—management of people, a service firm's chief asset." Larger size

Planning for growth: managing change

Branch offices can pose problems. One is a sort of personal problem—the moving of staff and families—but another and more important one for the firm might be the remoteness of the branch office. This shows up especially in the matter of logistical support. The prime functions of the CRS regional offices are business development, project management and design. Most other architectural offices are self-contained, with production, specifications and other support departments in house. At CRS the support functions are presently centered in Houston and furnished as needed to the regional offices; business development is coordinated from Houston, but each branch has a senior officer who develops potential clients.

CRS sees no practical limit to number of offices. "So long as each division is managed according to sound business standards, and so long as general management provides direction and guidance to the divisions," says Kliment, "the real limit to size and number of offices is the overall goals of management, followed by volume of work."

Going under a corporate umbrella

Management goals and the available volume of work were factors in another case of geographic expansion, one that followed a slightly different course. Now operating as one of the firms under the corporate umbrella of C-E Maguire, Charles A. Maguire Associates had followed the branch office pattern for its growth throughout New England. Moving out of the New England area involved, as a first step, being acquired by Combustion Engineering, Inc. The resulting entity, C-E Maguire, became the vehicle for further expansion and further acquisitions.

Since April 1970, two more firms have come in under the C-E Maguire umbrella, and more will follow. Koebig & Koebig, a California engineering and architectural firm, with its own 62-year history of steady growth, joined C-E Maguire not too long ago, followed by a Colorado firm, Nelson, Haley Patterson & Quirk. The western emphasis was deliberate: it gives the company a nationwide, or coast-to-coast, image to counteract its New England identity. The program of acquisitions is still proceeding; according to David Claypoole (a C-E vice president) it's about 50 percent along.

There is a definite reason behind growth through acquisition instead of branch offices. The pains of becoming established in a new location can be "excruciating, lengthy and nonrewarding," says Claypoole. "Nobody knows you. We feel it's better to acquire a well-established, growing firm in the new location."

Gordon Bronson, C-E Maguire's executive vice president, says that the growth program is following a calculated master plan that is, understandably, somewhat confidential. Basically, though, the plan recognizes the "intimate nature of the business and the need for local identity"; it calls for expansion into new geographical areas, and expansion of the company's inventory of skills and services, including the broader socioeconomic areas, and expansion that Bronson says is based on the desire to "serve and capitalize" on the needs of the years to come.

During the past year or so, Vincent G. Kling and Partners has been moving ahead with its own program of planned growth, combining merger, spin-offs and just plain starting

from scratch, says Fritz Roth, Director of Design Disciplines. "Our own program has been to expand and promote former in-house departments as autonomous private centers to handle work independently. Divisions have been set up in engineering by merger, in planning by creating from scratch, in interiors by the split-off of an existing department, in computer sciences by starting from scratch and in international operations by a joint venture with a European company."

Roth echoes Gordon Bronson's view of growth by acquisition or merger: it offers geographic spread and wider services, but it isn't to be undertaken "without careful study and preparation." As C-E Maguire has shown, one advantage is that "a market already exists, which makes start-up costs less, and an experienced staff is already assembled."

The size and type of projects can also influence a firm's growth. A one- or two-man firm usually has a bigger profit margin than does a firm of 15 or 20 people, says Chattanooga architect James Franklin, but the size of the projects the firm can obtain "drops alarmingly" when the staff falls below four or five. "The variety of methods and equipment you can afford does, too; and part of the fun for us—and even some of the design quality—lies in creative Xeroxy, automatic typewriters, darkroom work and computer technology you can't afford for a two-man operation."

The main reason to hold to a medium-sized firm, he says, is the size of the jobs available. "It seems to me that the profit margin keeps falling as the overhead goes up so that only on the big jobs can we make money. The little firms fold quietly as the big firms, the bureaucracy and the package builders eat 'em up. So we keep enough people around to be able to push for the half-million to \$8-million work and we ally ourselves with enough good consultants to do well whatever jobs we can get."

Expanded services

Over the years Franklin has been trying to broaden the services his firm can offer in order to compete with larger firms. But, he says, the architecture/engineering/planning firms seem to be lopsided: one discipline or the other "dominates." "For three years we had a succession of in-house planners, lost \$10,000 a year at it, and I spent a huge percentage of my waking moments finding planning jobs or seeing that they got done. At the same time, offering bona fide planning services was a tremendous advantage in getting architectural work." While that was going on, Franklin's firm was building a good working relationship with a civil engineering firm that resulted in several joint ventures and mutual consulting jobs, with the planners figuring largely in the deal. After taking a close look at what was happening, both firms moved into the same building where they share blueprint machine, Xerox, computer and conference room. Both firms participate as limited partners in a third firm, a planning firm (not the original planner, however). They are all autonomous and free to work with other firms, but they can quote each other's services in a continuing joint venture setup. The big plus, according to Franklin, is in getting jobs: "we've not only got more to offer, we've got more people offering it. The planner, the engineer and the architect—we're all selling each other as a matter of course in order to better promote ourselves—and we're all out there pushing for new jobs out of independent necessity." So far, what Franklin terms "this year's noble experiment" works.

One very real asset of getting bigger, says Stan Daniels, is



adding these additional services. Jova Daniels Busby is primarily a design-oriented architectural firm, but it has a sizeable interior design department, and the principals are starting to think about adding some sort of planning capability. Further on in the future, says Daniels, they foresee the addition of specialists for individual building types and for internal services such as computer operations. "All this," he says, "we can expect to do while being careful not to let the tail wag the dog."

Management problems

The problem then becomes knowing when the tail is getting the upper hand. Vincent G. Kling and Partners set up its present system of studios with about 80 to 100 people on staff, says Fritz Roth. "We have found that a studio running around 40 people is a manageable size for one senior man. If you put in 10 more people, it is not big enough for two studios, but too large for one."

"There's another kind of awkward age," suggests Kling's Director of Public Affairs, Elliot Carroll. "This has to do with personnel administration. Firms whose professional personnel have matured and reached high-level plateaus to the extent that they cause excessive production costs and cut off room for advancement for younger, more dynamic personnel, experience a hardening of the arteries which can be disastrous. It can only be avoided by an objective, deliberate, intelligent approach to personnel management."

Related to that aspect of personnel administration is another problem that faces the growing firm—communications inside the office. "As the firm grows larger," says Stanley Daniels, "you one day discover that staff members feel they don't know all about what's going on. You realize that you can no longer visit every board ever day and that you can no longer personally control the entire activity of the whole office. That's when you realize that you have management problems, not just architectural problems."

James Franklin, whose firm is somewhat smaller than Jova Daniels Busby, has purposely kept his firm at a size he can manage single handedly. ("I'm in practice on my own so that I can make the major design decisions.") For Jova Daniels Busby, the solution was to restructure the firm. It wasn't exactly easy, Daniels says: "We were so used to doing everything in the office that the transition to a different structure was very painful." They eventually had to realize that the three partners could no longer keep on top of everything; management responsibilities were divided, and some were delegated to staff members. That's the only way, says Daniels, that the principals can "avoid becoming mere administrators," separated from architecture. "I think this is what every architect instinctively fears. He works hard to achieve success and with it he suddenly finds himself an administrator rather than an architect. We are trying to develop a second echelon of key people who will share responsibilities with us."

As firms get even larger, specialization is almost inevitable: it's the first characteristic of growth, Stephen Kliment suggests. "Some principals have a natural bent for management, others for design, still others for building technology, engineering, the analytics of programming, planning and so on. Management in a firm our size is a full time function. And don't leave out the possibility, and desirability, of pure business types managing various aspects of a firm's operations."

For such auxiliary services as accounting, business development and public relations, there is usually a point at which the volume of work justifies bringing specialists on board. CRS hired a full-time accountant when the firm roster totaled 18 people and volume ran about \$500,000; six years later they hired a full-time assistant.

The division of responsibilities, whether among the principals in a small firm, among principals and staff members in a larger firm or even among in-house specialists, is a start toward solving some of the other problems that plague a growing firm. "It is very important that this happen," says Elliot

Planning for growth: managing change

Carroll. "At just what specific point is difficult to say because it is a variable, depending on the people. But delegation of authority is imperative if the quality of performance and product is to be maintained." Adds Fritz Roth: "Success in growth depends on the ability of the top partners to determine when that point has arrived."

One of the most crucial problems revolves around new *business*: in a small firm the partners have to play a variety of roles, and when they are busy designing they can't be out promoting new work. Regardless of the general level of construction activity, a small firm can experience dry spells between projects, and there is also the risk that a firm will outgrow its workload altogether.

What happens when these growing pains strike, says Ted Seligson, is simple: "we pull in our belts, and everyone in the office suffers." The staff gets smaller, salaries are frozen or (heaven forbid) cut back, profits aren't distributed to principals, and time and cost are more closely controlled. The trouble with growing pains, Seligson says, is "that they can occur during busy times for the office with great potential for the future, and yet they have to be treated like a reduction of work. This means more hours, for all, at less pay per hour."

Growing is the best way to avoid the pains of growth, Seligson suggests. "The best way to avoid the pendulum is to have a larger office with a backlog of work. The smallest projects, if there are enough of them in the house, can keep a firm above water." As the firm grows, and management responsibilities are delegated, business development can become the responsibility of a partner or firm member; the largest firms, of course—and some not so large—have in-house business development executives.

Hard times

There are, of course, times when no amount of business development effort seems to develop enough business; those periods can be particularly troublesome for the medium-sized firm. Small firms can survive on small projects; large firms on their reserves; but medium-sized firms get caught in the squeeze. Unlike a simple attack of growing pains, during which the tendency is to pull in the belt another notch and keep the staff at its normal size, the reaction to a really low level of business is a cutback in personnel and overhead.

Nobody likes to hire short-term employees; most firms prefer to develop a permanent organization. But anyone who survived the past couple of years knows something about the difficulty of promising permanent employment. Besides, suggests Stan Daniels, "even if we have the financial resources to maintain a staff in hopes of better days, it's not always the wise procedure. Too much idle time creates dissatisfaction and low morale."

"The organization," says Steve Kliment, "must be constantly massaged and tuned to remain effective." One way is to speed up or slow down project schedules to avoid overstaffing or being short-handed. CRS does it by tabulating, on a weekly basis, the backlog of work that is committed, contracted or scheduled; scheduled billings for the month-to-date and for the remaining quarters of the fiscal year are also tabulated weekly. The firm can monitor weekly changes in these figures and adjust their schedule accordingly.

Management controls, which CRS executive vice president Michael Trower defines as "monitoring, direction and guidance," include establishing ahead of time the profitability for individual projects, divisions and the firm as a whole; determining the proportion of time chargeable to jobs and to overhead; comparing payroll expenses to gross billings; and scheduling project and manpower assignments. By manipulating these—massaging and turning the organization—CRS can keep abreast, or ahead, of business ups and downs.

There's another sort of massaging and tuning that's important, judging from the experience of Jim Franklin. That is the whole matter of personnel management, which Franklin says is a "ground-swell condition always underlying the stability" of his practice, and a "significant limiting factor" in its growth. The size of his firm, between its maximum of 15 and minimum of 7, has no relation to the size of the commissions, or to fringe benefits of pay, he says. "The overriding factors in keeping people in my firm seem to be that I constantly participate personally with them and that I provide them with work they feel qualified to do, are challenged by, and see stretching out in front of them for at least three secure months."

There's no front office and back office at Franklin's firm. Everybody works in a remodeled storage loft, with Franklin in the center of things: phone calls, dictation—"all the hassle it takes to keep the jobs moving out and new work and fees moving in"—everything happens in front of everybody else. Everybody knows what's going on, and everybody is a part of everything.

But there are three disadvantages. An unhappy employee can affect everyone; the noise and activity can be distracting; most seriously, however, says Franklin, is that there's no way he can hide his own frustrations or anxieties.

Managing change

The principal has to take a longer view than the employee's three secure months, which is what planned growth is all about. The difficulty with planned growth, however, is that the firms that know the most about it, and that talk most about how to do it, are ones that have already grown to a size that allows time for planning. The small- and medium-sized firms that want to grow seem to have the most trouble figuring out how they're going to do it. One way out of this dilemma is the use of a management consultant, something that is looking better and better to many firms. Jova Daniels Busby engaged a management consulting firm about a year ago. "We felt," says Daniels, "that we needed the benefit of experience beyond our own." Perhaps the best thing about a consultant is not the advice, but the firm's reaction to it. "What sold us," he says, "was their attitude that we might not necessarily agree with all of their recommendations, but we would be forced to make decisions as to what policies we would follow."

It's hard, when so much of an architect's time is spent solving today's problems, to think about tomorrow's, or next year's, but as any firm that has grown to any real size can testify, it's important. CRS' Michael Trower talks of two kinds of management—creative and responsive. "Whereas responsive management takes a picture of the firm every three months and, in effect, responds to what has already happened, creative management visualizes how we think the firm should be organized three months from now and works toward that. In other words, you try to manage change rather than have it manage you." [CP]



Building security: part II

John L. Kmetzo, PE

This second part of a discussion of centralized building security systems deals with indication and response devices and procedures. Last month the author covered the need for a thorough study of security requirements

The information gathered by detecting elements scattered throughout a building must be collected at a central point. This discussion is limited to proprietary systems where the entire system, including the central console for indicating and recording data from detectors, is located within the building.

Security functions can be incorporated into an electrical and mechanical control console. Other considerations may call for an independent security console elsewhere, such as a publicly visible location for deterrent or public relations purposes. On the other hand, security operations should be centered in a well-protected area of the building where access can be controlled with a minimum of manpower.

Each remote detecting device connected to the central console should be assigned a unique designation that can be readily interpreted by the operator. All actuations of the devices should result in an audible alerting of the operator, a visual display of the information and the printing of a permanent record.

Most security detection devices, regardless of the phenomenon they have been designed to sense, produce as their output a simple "change-of-state" which indicates that the device has gone from a normal to an alarm state. However, two classes of detectors go further.

The first is the manually activated station that incorporates voice communication. It may be used by the public to report occurrences besides fires and, unlike the traditional fire pull-box, the operator can obtain more detailed information through conversation with the caller.

Closed circuit television (CCTV) can also furnish a wealth of information, but an operator cannot be expected to become aware of abnormal occurrences through a continuing random observation of camera outputs. In general, there should be an auxiliary detector associated with each camera to alert the operator to the need for attention to that particular camera. Features within the console, such as video processors to detect man-sized movements or lapsed time recorders, can also aid in CCTV surveillance.

Just as the level of threat had to be resolved in order to determine the need for a security system, the owner must also ask himself, "If my security system indicates a possible threat, what am I going to do about it?" The most common response required will be investigation of alarms from simple detectors and a large proportion of these, such as employees taking unauthorized short cuts, will be in the nuisance category. At least two men are required in such cases, one to man the console and the other to check the detector's location. The two-way radio is an additional security device that can make these responses more efficient.

Fire threats require the most immediate response, the first step, of course, should be summoning the fire department. Public address systems are fast being considered an essential response tool in the second step, the orderly evacuation of the building.

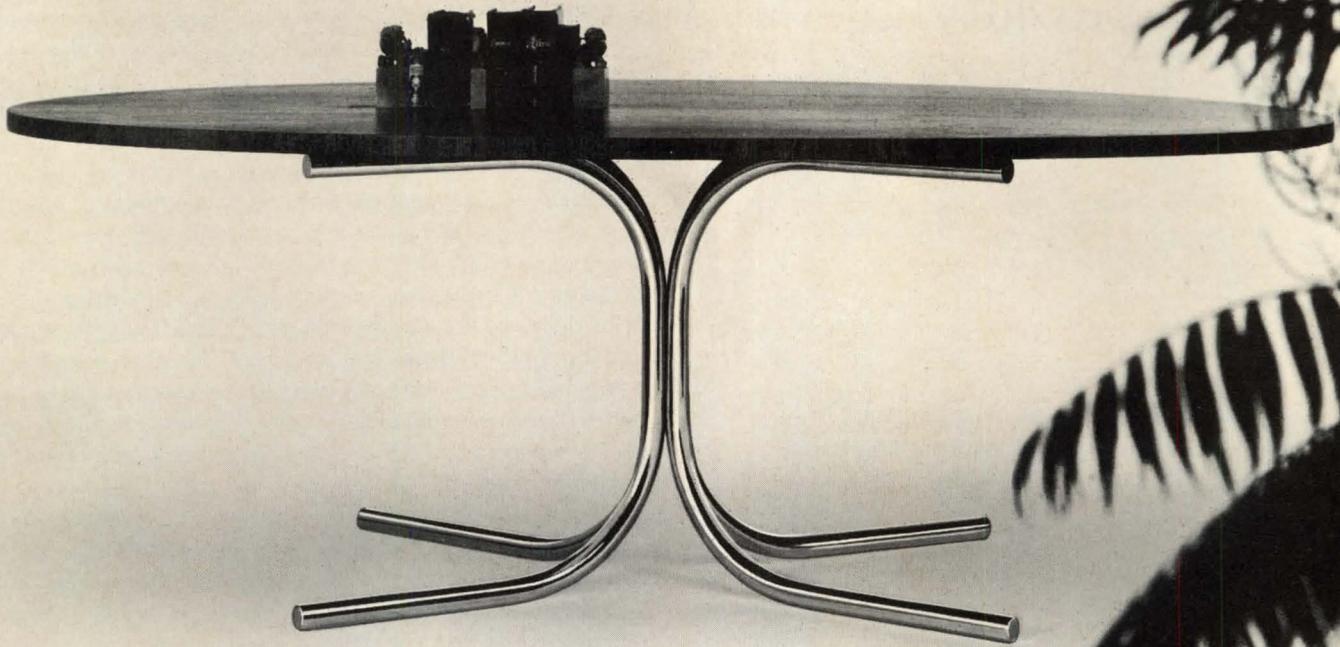
The need for a response can often be screened through features built into the console. CCTV can be used to observe protected areas to determine if there is a ready explanation for an alarm occurrence, and selected detectors such as door alarms can be remotely disabled during those hours when traffic is normal.

Finally, personnel must be properly and thoroughly instructed concerning the responses they are to make. While the console operator at least should have a manual covering as many contingencies as possible, a sophisticated system can print out instructions associated with given alarm points. Other personnel should be required to carry a pocket-sized manual covering controls on security areas and safes, fire-fighting procedures, handling injuries, arrest and detention procedures, and regulations concerning passes and permits.

That there is an increasing awareness of the need for providing building security may be seen from observation of developments in various areas of building management, such as federal government buildings, where events last year motivated the GSA to establish "Facility Self-Protection Plans."

Once a building has a security system, the owners should restrict knowledge of its detailed operation and constantly exercise it by tests, drills and games that try to compromise it.

Author: John L. Kmetzo, PE, is a senior engineer with Syska & Hennessy, Inc., Consulting Engineers, New York City.



DOMORE

The hugh acton "C" system

This new C-system was created in mirror polished solid chromed steel by Hugh Acton for executive table desks and conference tables of any size or shape.

Write for brochure.

Since 1922, distinctive office furniture setting industry standards for design and reliability.

DOMORE OFFICE FURNITURE, INC.

Elkhart, Indiana 46514

Determining combustibility of building materials

Harold J. Rosen, PE, FCSI

Various testing methods used to evaluate the combustibility of building materials, including newly developed plastics, are reviewed in this article

Manufacturers' literature discloses the variety of test methods used in reporting the combustibility of plastic and nonplastic building materials. The increasing adaptation of plastics as building materials is due in some measure to generally lower cost of production and the relative ease of casting, extruding and foaming end products. However, their performance under conditions of fire exposure should be carefully considered, along with smoke development, fuel contribution and toxicity. Unfortunately, a good deal of the literature describing combustibility is misleading; the chemists who develop these products use small-scale bench tests such as ASTM D1692 and D635 to report their combustibility.

ASTM D1692 and D635 are laboratory tests designed primarily for research and development purposes only and are not intended to be used for building code rating purposes. For example, these laboratory test procedures will classify many plastics as "nonburning" and "self-extinguishing." If untreated wood were subjected to these same procedures, the test results would indicate that untreated wood could be labeled "self-extinguishing" and yet numerous specifiers and architects have been unwittingly led into selecting and specifying plastic products that are labeled "self-extinguishing."

There are a number of methods used by various testing agencies to evaluate the combustibility of building materials. The test method referred to most universally by the major building codes is ASTM E84 "Surface Burning Characteristics of Building Materials," or the "tunnel test." In this test, an 18" x 25' sample is placed on the underside of a removable cover forming the top of a 25-ft-long test tunnel. One end of the sample is then subjected to gas flame exposure under regulated constant fuel and draft conditions. The surface burning characteristics of the test material are evaluated and measured against cement asbestos board which is rated zero and red oak which is rated 100 under these same test conditions. The tunnel has windows or portholes through which the flame spread is observed. Fuel contributed by the test sample is related to the temperature rise at the downstream end of the tunnel. Smoke density is measured by photoelectric

means. Again the test sample is rated for these values against cement asbestos board as zero and red oak as 100.

For some plastics the tunnel test is not very satisfactory. Very soon after the start of the test, the plastic may melt and drip in small pools on the floor of the furnace. Depending on the thickness and density of the plastic material, propagation of fire along the tunnel and heavy smoke evolution occur, obscuring the window and making observation and evaluation of flame travel difficult.

Many authorities question the validity of the ASTM E84 tunnel test in the evaluation of flame spread. Many question this test method especially when flooring materials are assigned flame spread ratings under building codes because it is difficult to correlate or simulate actual burning conditions of flooring materials when the material is placed under the roof of the tunnel. However, full scale studies of fire propagation in corridors by the Illinois Institute of Technology Research and the National Research Council of Canada have substantiated the opinions of those who believe that the tunnel test, despite its limitations, remains the most reliable source of information on the relative fire hazard characteristics of most materials.

Factory Mutual has devised a test method to determine the rate of heat release and its duration for a tested material designated as the FM Construction Materials Calorimeter Test. The calorimeter utilizes a firebox to test a 4' x 4' horizontal test piece. The test procedure consists of obtaining flue temperatures resulting from the combined burning of the test piece and the exposure under standard test conditions in a 10 minute test. Then with a noncombustible panel taking the place of the test piece the test is repeated adding auxiliary fuel at a recorded rate to create the same temperature measured with the test piece. The recorded auxiliary fuel data represent the actual heat released by the test piece. With these data, it is possible to compare heat-release rates and duration of burning.

In addition to the tests for combustibility outlined above, there are additional ASTM test methods used primarily for research and development studies such as E162 for evaluating flame spread of aircraft and marine lining materials and E289 for wood products.

Since the E84 test method is costly and its scope so large (18" x 25'), some experimenters are researching with 2- and 3-ft tunnels. However, not enough experience nor correlation with other test methods has been accumulated.

In selecting materials, the specifier and the architect should be concerned with meeting the combustibility requirements of the building code having jurisdiction at the project site. In the absence of stated requirements, data on building products referenced to ASTM E84 should be sought.

Author: Harold J. Rosen is Chief Specifications Writer of Skidmore, Owings & Merrill, New York City.

Professional liability

Bernard Tomson and Norman Coplan

The question of the architect's liability in relation to unsafe conditions created by the contractor is explored in a case with broad implications

The expanding area of professional liability has been a source of continuing concern to the architectural profession. The traditional rule that an architect has no responsibility for the manner in which the contractor builds and has no responsibility for safety conditions at the building site, has been weakened by court decisions which find exceptions to this principle. For example, the Illinois Supreme Court in *Miller vs. DeWitt* (226 N.E. 2d 630) has stated that the architect's right to stop and condemn defective work by the contractor subjects the architect to liability if he fails to stop the work when a dangerous condition has been created by the contractor. Liability, however, can also be founded upon the voluntary assumption of responsibility or direction of the work. A recent decision holding the city of New York responsible for the voluntary action of one of its inspectors has significant implications for the architect furnishing construction contract administration (*Smullen vs. City of New York*, 28 N.Y. 2d 66).

The *Smullen* case involved the death of an employee of an excavation subcontractor who was killed by the cave-in of a trench in which he was working. The subcontractor was engaged in the construction of a private sewer line in a city street. The jury exonerated the general contractor but awarded a verdict against the city of New York. Upon appeal, this verdict was reversed and was further appealed to the Court of Appeals, which court reinstated the jury's verdict.

Under the Industrial Code of the city of New York, the trench in question which had been excavated to a depth of over 11 ft, required bracing or shoring. Just prior to the accident, the decedent was engaged in setting a pipe in the trench but his supervisor was not at the job site. The city construction inspector who was at the site at the time said to him "it is pretty solid there" and "I do not think it needs to be shored." The issue before the court was whether such an utterance constituted an assumption of direction so as to make the city liable for the man's death.

The trial court found that while no liability would devolve upon the city for mere failure to enforce safety code provisions, the fact that the city inspector's position "gave him an

aura of assumed expertise" and his authority to stop work on the project if a dangerous condition existed was sufficient to conclude he had assumed direction over the excavator's employee and thus to support the jury's verdict against the city. The initial Appellate Court, however, in reversing the trial court, stated that the city had violated no mandatory duty imposed upon it and that the decedent was not a member of the class for whose benefit the statute involved had been adopted.

The Court of Appeals, in reversing the verdict, concluded that the utterances of the city inspector constituted an exercise of control which subjected the city to liability. The Court said, "The city correctly asserts that there can be no municipal liability for failure to perform a general protective governmental function; that an inspector's failure to ascertain a violation cannot confer liability. . . . The question here, however, goes beyond the basic failure to perceive a violation. Here a blatant violation existed; the categorical regulations did not permit the inspector to form a judgment but he nevertheless proceeded to do so and wrongly adjudged the trench to be safe and stood by while decedent, knowing of his presence and approval, entered into the perilous situation. . . ."

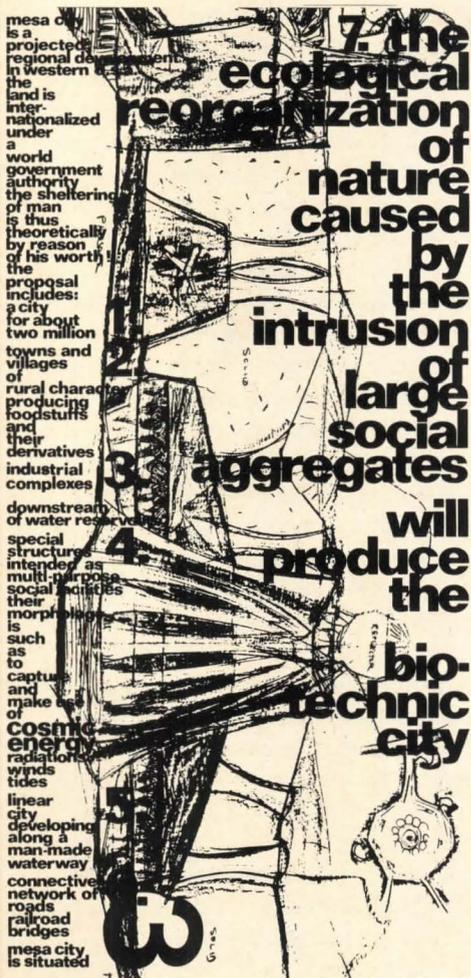
" . . . The city attempts to convince us as it did the majority below that . . . there can be no liability for failure to enforce a statute. As already noted, this is perfectly true. . . . In the case at bar, the jury was warranted in finding the type of relationship there envisioned, involving the extension of the duty to a particular individual because of acts or omissions directly affecting him. . . . Out of the facts in the instant case, there may be perceived a basis for such a special duty, created by the mere presence of the inspector and his failure to prevent decedent from entering the trench, if only by exercise of the city's undoubted power to halt the work. We are not required in this case, however, to determine whether such a basis, or perhaps tentative basis, would support a claim of liability predicated on mere inaction or passivity in the face of the mortal danger so clearly apparent; as here the liability was triggered in any event by the inspector's positive action in assuming direction and control, as the jury could reasonably find, under the court's instructions in that regard, which were charged at the city's request, to which plaintiff excepted."

The Court of Appeals was not unanimous in its conclusion. The dissenting opinion pointed out that there is a difference between the authority to stop the work because of a violation and the arrogation of authority to direct work to be done. The minority concluded that the inspector had not given a direction, but rather "he gave advice and an opinion which he was not authorized to do and for which he was neither employed nor compensated." The minority pointed out that "the exposure of the city to countless future liabilities which this precedent will entail, is unforeseeable."

The implication of this decision for the supervisory architect and his client is that a direction, or other arrogation of responsibility by the architect, relating to the construction work, which is not within his province, may result in liability to both himself and the owner. It would appear imperative that he limit his statements to those areas within his jurisdiction.

Authors: Bernard Tomson is a County Court Judge, Nassau County, N.Y. AIA. Norman Coplan, Attorney, is Counsel to the New York State Chapter of the AIA.

Medium as message



Visionary Cities: The Arcology of Paolo Soleri, by Donald Wall. New York: Praeger Publishers, Inc., 1971. \$25.

The Sketchbooks of Paolo Soleri. Cambridge: The MIT Press. 419 pp. \$27.50 cloth, \$9.95 paper.

There has been an interesting reversal in the problems of being a genius. It used to be that the fellow with a vision of the future was either ignored or made fun of. That's all changed: today's geniuses, prophets and visionaries are lionized—over-popularized and over-exposed until it's easy to lose sight of what they are really trying to do. They are victims of a good press.

Consider Fuller, who has become synonymous in the public mind, with the geodesic dome, an unusual house and a strange automobile. The same thing is happening with Paolo Soleri. It is his arcologies, as he calls them, that have captured widespread public fancy; he would, more than likely, point out that they are symbols of ideas, not structures that he recommends.

The point is that when a Fuller or a Soleri becomes a subject for everybody else's interpretation, it's hard to pin down what he's really up to. It's well nigh impossible in *Visionary Cities: The Arcology of Paolo Soleri* by Donald Wall. The problem is not that Wall misunderstands Soleri or oversimplifies his thinking, since he was curator of the Soleri retrospective at Washington's Corcoran Gallery of Art a few years back. It's just that the book gets in the way.

The publishers, in a memo to reviewers, describe it this way: "... an entirely new kind of book. It cuts across traditional boundaries separating documentation from illustration by allowing typography to serve as visual information. The design of the book presents Soleri's radical con-

cepts and graphically reflects his revolutionary philosophy in which man progresses from a chaotic level on which solutions are fragmentary, through a more sophisticated stage of patterned thought (urban sprawl), to a level where architecture is synthesized with ecology and cities are conceived as single buildings (Soleri's 'arcologies')."

Maybe so. There is a visual flow to the book that backs up that statement. But "cutting across the traditional boundaries separating documentation from illustration" means, in this case, putting type on top of type on top of photographs, which makes the type and the photographs hard to read. What's more, most of the book is printed in reverse (white on black), and a variety of type sizes are used, including one sentence in 96 point type that runs for some 20 pages. It is a strikingly designed book, no doubt about it, but the medium seems to have become the message and not a means of communication. It's no way to find out what Soleri is up to.

To do that, dip into *Sketchbooks of Paolo Soleri*, published by the MIT Press. In the 10 years or so leading up to 1970, Soleri filled six 400-page sketchbooks; material from two of them, covering the period from Oct. 1959 to April 1964, has been pulled together in the MIT version. The drawings, done for the most part with ball point pens or laundry markers, and the notes are reproduced, and for the sake of reading, the notes have also been set in type. They have also been updated. It all gives an interesting look at what Soleri has been thinking, complete with starts, stops, twists, turns, false starts, rethinking and everything else the mind does as it develops an idea. [CP]

[Continued on page 120]

Security with a touch of beauty!



The Kinnear Rolling Grille is more than a beautiful veil for entranceways after hours. It is dependable SECURITY with a touch of beauty . . . without sacrificing air, light or vision!

When the grille is closed and locked, a store's interior and merchandise displays can be readily viewed by the public—as well as seen by the night watchman. Also, it permits air circulation for the shopping mall's 24-hour climate control. At the same time, the security of the grille's mesh design of round metal bars and pressed links prevent admittance of a man's hands or other objects even as small as a golf ball.

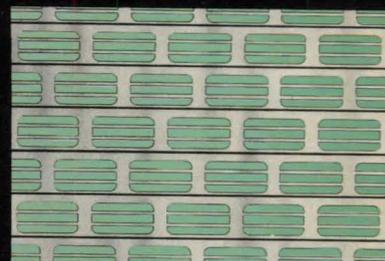
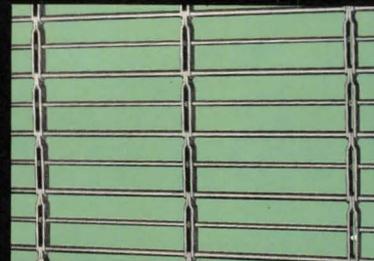
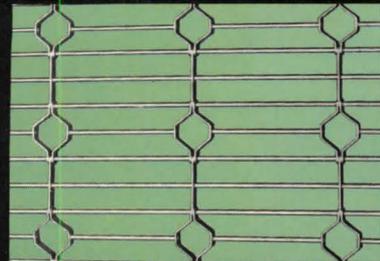
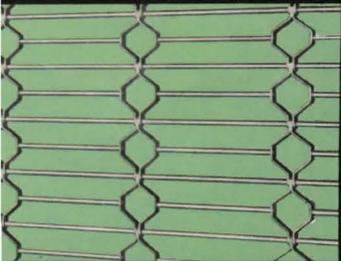
When opened, during store hours, the accurately counter-balanced grille-curtain coils like a window blind . . . com-

pletely concealed above the opening—out-of-the-way and out-of-sight. Every foot of sales and display space is conserved; right out to the lease line.

Kinnear grilles are unexcelled in architectural style and equally suited to many applications other than store fronts. They are offered in steel, aluminum or bronze in the four attractive and distinctive designs illustrated at bottom. Custom-built for the specific opening, they are available in any practical size and for either manual or motor operation.

As the pioneer and nationwide leader in Rolling Doors & Grilles—and known for 75 years of reliability—Kinnear is especially well qualified to assist you in your store closure requirements. Write Kinnear Today!

KINNEAR ROLLING GRILLES



HexLinc

LincArt

Slat-Grille

Also manufacturers of Rolling Doors, Power Operators, Automatic Rolling Fire Doors, Rolling Counter Shutters and RoL-TOP (overhead type) Wood, Steel and Fiberglass Doors.



Saving Ways in Doorways Since 1895

KINNEAR CORPORATION and Subsidiaries

1000 FIELDS AVENUE, COLUMBUS, OHIO 43216

FACTORIES:

COLUMBUS, OHIO 43216 • SAN FRANCISCO, CALIFORNIA 94124

CENTRALIA, WASHINGTON 98531 • TORONTO, ONTARIO, CANADA

OFFICES & REPRESENTATIVES IN ALL PRINCIPAL CITIES

LISTED IN YELLOW PAGES UNDER "DOORS." ALSO SEE SWEET'S

On Reader Service Card, circle no. 362



Bradley has more than



900 bright ideas. For just one reason.

So you'll never again have to specify from scattered sources to get everything you need in washroom equipment.

Washfountains . . . in all the different sizes, shapes and materials you need.

Bradpack® pre-assembled wash centers.

A choice of shower models that lets you make the best use of floor and wall space.

Single control and two-handle faucets for the bath and kitchen. The only faucets with car-

tridges guaranteed for 83 $\frac{1}{3}$ years . . . against leaking and wear-out.

Vanity tops in acrylic and simulated marble.

Design coordinated accessories for commercial, institutional and industrial washrooms and baths.

Everything you need from a single source. For just one reason. You.

Write for latest literature. Or call (414) 251-6000. Telex 2-6751.

BRADLEY WASHFOUNTAIN CO.
9109 Fountain Boulevard
Menomonee Falls, Wisconsin 53051



THE OWNER OF THIS
BUILDING WILL
SAVE \$7,600 AND REALIZE
A 45% RETURN
ON HIS INSULATION COST!

...all because someone specified ZONOLITE Masonry Fill Insulation.

No wonder he's sold on the people who advised him to insulate.

It makes sense. Masonry walls need insulation even more than wood frame walls.

ZONOLITE® Masonry Fill is a water-repellent, granular vermiculite that improves the thermal performance of masonry walls up to 50% or more. It provides increased comfort through warmer walls and uniform temperature.

Year-'round savings quickly pay for this low-cost insulation. Typical average returns on the cost of insulating with ZONOLITE Masonry Fill range from 21% to 48% over a ten-year period.

Some examples:

A Boston office building with 10,000 sq. ft. of wall area. Insulation installed: \$1,700. Estimated ten-year savings: \$6,350 for heating, \$1,250 in electricity for cooling. A 45% average annual return on insulation cost.

The same building in Atlanta: \$3,500 savings, a 21% return. In Minneapolis: \$8,150, a 48% return!

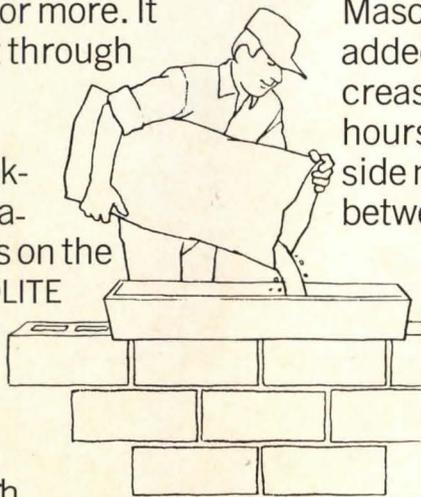
Reductions like these in fuel consumption can ease the nation's energy crisis, and reduce pollution caused by excessive fuel use.

In addition to saving money, ZONOLITE Masonry Fill Insulation provides added fire protection—actually increases fire resistance up to 6 hours, while helping to deaden outside noises and noise transmission between rooms.

It makes sense to recommend and specify ZONOLITE Masonry Fill. For more information, send the reader service card. Or, write today for brochure MF-164. It contains specific

cost data proving the savings ZONOLITE Masonry Fill Insulation offers your clients.

W. R. Grace & Co., Construction Products Division, 62 Whittemore Ave., Cambridge, Mass. 02140.



GRACE ZONOLITE

Marketing Architectural and Engineering Services by Weld Coxe. New York: Van Nostrand Reinhold Co., 1971. 195 pp. \$11.50.

There are still many architects and engineers who believe that professional services are offered, not sold. This author, however, sets out not only to prove otherwise, but to outline the whole process from preparing the office brochure to clinching the second commission.

To assuage any lingering doubts, an early chapter deals extensively with the question of ethics. Every step in the business development process is then explained in direct terms that clarify such points as the difference between bird dogging and interviewing, how to scout a building committee and what to do when someone else wins the commission.

Presentation techniques and publicity make up the third section. It is a book few architects can afford to ignore.

The Concise Townscape by Gordon Culen. New York: Van Nostrand Reinhold Co., 1971. 199 pp. \$3.95, paper.

This is a shortened, paperback version of the original *Townscape* published some 10 years ago, which was of interest to architects, planners and others concerned with what cities should look like. *Townscape* is defined as "the art of giving visual coherence and organization to the jumble of buildings, streets and spaces that make up the urban environment." The book explores the fact that certain visual effects in the groupings of buildings were, historically, based on quite definable, if often spontaneous aesthetic principles. Essentially it deals with the "art of environment," with each photograph and each of the author's drawings representing this view.

Campus Planning in an Urban Area. A Master Plan for Rensselaer Polytechnic Institute prepared by Doxiadis Associates, Inc. New York: Praeger Publishers, 1971. 101 pp. plus 26 map pp. \$17.50.

Doxiadis Associates are consultants on area development and ekistics, the science of human settlements, and have been involved in the planning of such cities as Pakistan's new capital at Islamabad and the replanning of Rio de Janeiro, Detroit and Philadelphia as well as the Rio de la Plata basin, the Great Lakes megalopolis

and other areas. This book applies ekistics to urban campus planning. It offers a comprehensive master plan for Rensselaer Polytechnic Institute, a mid-city institution. The plan is geared to accommodate the university's expanding coeducational student population, enlarge its physical facilities and achieve congenial relationships with the city in which it is located and the surrounding communities.

City Planning and Aerial Information by Melville C. Branch. Cambridge: Harvard University Press, 1971. 283 pp. \$12.50.

"No municipality can be properly analyzed and planned realistically and continuously without the overall view and vast information provided by air photos," according to Dr. Melville Branch, author of this book. Based on 35 years of experience in different forms of planning, including nine years as Los Angeles City Planning Commissioner, Dr. Branch is convinced that what he calls "continuous master city planning" must replace ineffective, one-shot dream plans.

According to Dr. Branch, communities should be studied on a worldwide basis as well, with photographs taken from satellite. [Continued on page 130]



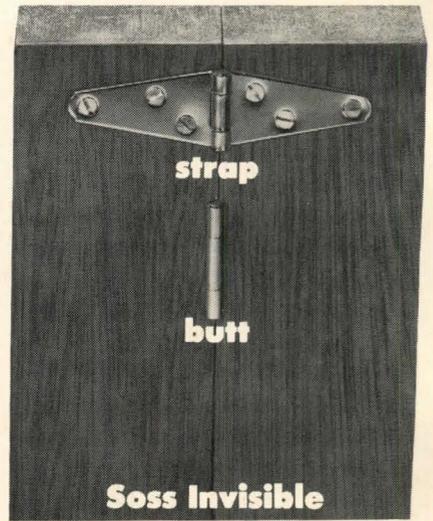
SPECIALTY TILE FROM Latco.

VENEZICO • GRANADA
AZULEJOS • JEWELS
WATERWAVE • FACET
CANDYSTICKS • VALENCIA
OSTARA • WELSH PAVER

Latco is a **specialist** in tile! With unique designs from all over the world and an inventory from all the great tile centers, Latco offers a treasurehouse of dramatic textures, special configurations, unusual motifs and rich colors. Interior or exterior, commercial or residential... Latco provides out-of-the-ordinary tiles for every purpose.

Latco PRODUCTS
3371 GLENDALE BOULEVARD • LOS ANGELES, CALIF. 90039
TELEPHONE: (213) 664-1171

Pick the hinge that hides



Compare the Soss look of invisibility with any strap or butt hinge and you'll choose The Soss Invisibles. These amazing hinges hide when closed to blend with any decor. With The Soss Invisibles you can create room, closet, or cabinet openings which are unbroken by hinges or gaps... the perfect look for doors, doorwalls, built-in bars, stereos, or T.V.'s. The Invisibles are extra strong, open a full 180 degrees, and are reversible for right or left hand openings. See listing in Sweet's or write for catalog: Soss Manufacturing Company, Division of SOS Consolidated, Inc., P.O. Box 8200, Detroit, Michigan 48213.





In schools and universities Bally Prefab Coolers and Freezers are accepted as the standard for walk-in refrigerated storage



Bally Prefabs can be assembled in any size for indoor or outdoor use from standard panels insulated with four inches of urethane foamed-in-place. Easy to add sections to enlarge . . . easy to relocate. Factory refrigeration systems for every temperature from 35° cooling to minus 40° freezing. Stainless steel, patterned aluminum or galvanized finishes. Subject to fast depreciation. (Ask your accountant.) Write for 28-page booklet and urethane wall sample. Bally Case and Cooler, Inc., Bally, Pennsylvania 19503.

There's an
evolution in the
kitchen



© 1971 ALL RIGHTS RESERVED.





Lutheran General Hospital. How Andersen Perma-Shield® helps pay the bills.

No, we're not an insurance company.

Actually, our windows are a part of a remarkable new concept in hospital patient care and plant operation.

Every patient entering Lutheran General gets a private room with TV, shower and toilet and highly personalized, individual care.

Sound expensive? It isn't.

Patients pay about the same rates other hospitals charge for double rooms.

It's possible because the hospital is planned to operate around built-in efficiencies that drastically cut costs.

This is where we get into the picture.

Andersen Perma-Shield Casements help save the hospital thousands of dollars every year.

Perma-Shield's exterior vinyl sheath combined with the building's copper and brick facing completely eliminates exterior maintenance.

All the windows can be cleaned from the inside. And the vinyl won't react with the copper as metal would.

Welded insulating glass and the extra-weather-tight quality of Andersen cut heat loss and gain considerably.

There's an inside story here too.

The natural beauty of wood helps put warmth and charm into what must necessarily be a somewhat sterile atmosphere.

And surroundings can mean quite a lot to a patient's well-being.

So you see, even though we're an old-line window company, we retain leadership with innovative ideas and concepts.

Take a good look at Perma-Shield Windows and Gliding Doors for your next job. Choose from 5 styles, hundreds of sizes and combinations.

Wherever you are, there's an Andersen dealer or distributor with all the windows you need.

And all the information you need too. Or check your Sweet's File.



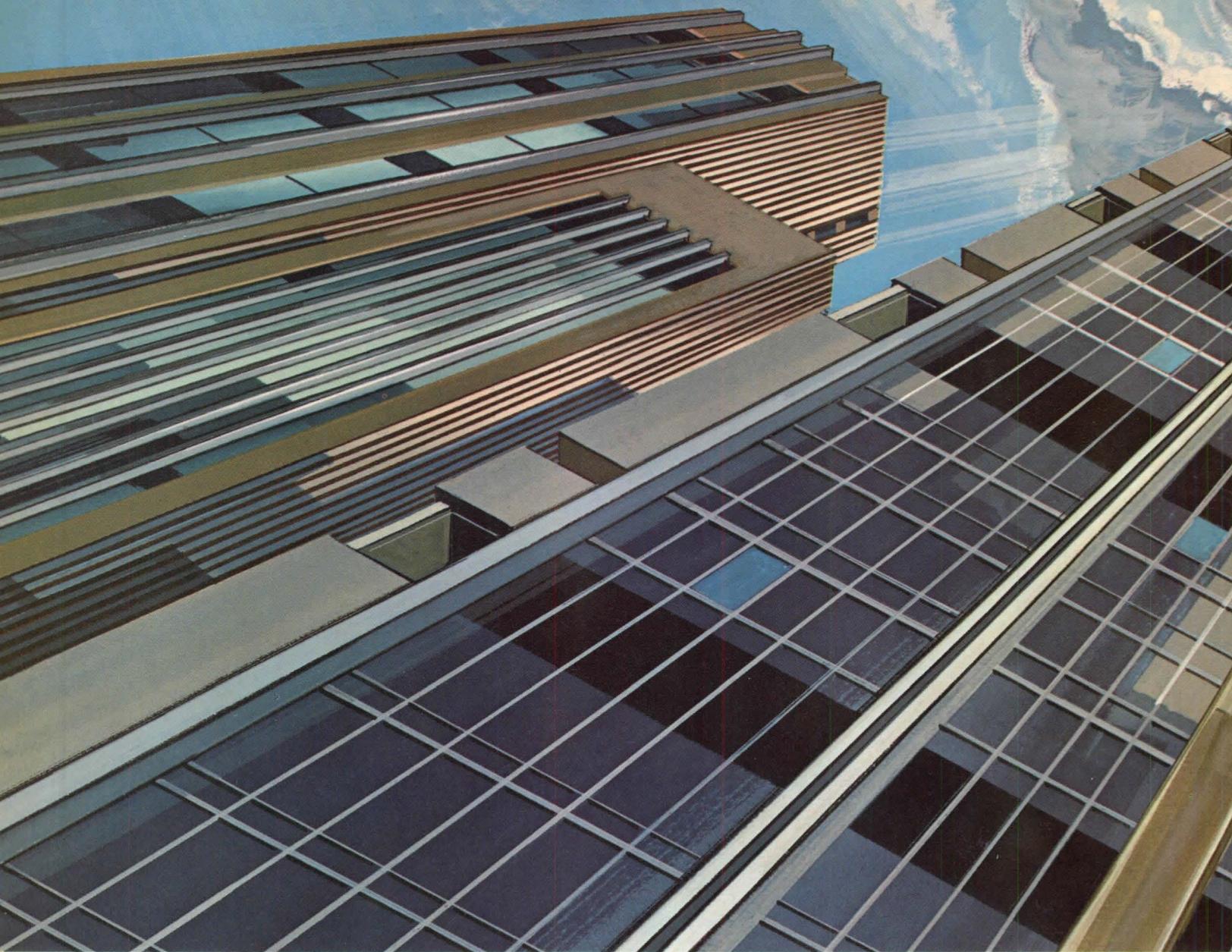
Building: Lutheran General Hospital, Omaha, Nebraska
Architect: Henningson, Durham & Richardson, Omaha, Nebraska



Andersen Windowalls®
ANDERSEN CORPORATION BAYPORT, MINNESOTA 55003



A SUBSIDIARY OF
ASmith
CORPORATION



those tall stories you're hearing about us are true.

People are talking about us. And no wonder. Armor elevators are going up faster and higher than ever before in our forty-year history. In fact, right now Armor is the fastest-growing elevator company in the United States. And we're already the second largest in Canada. But we're far

from satisfied. We've got our sights set on the very top of the elevator industry. And we're in a hurry to get there. That's why you'll never have to remind us to hurry when you need help. Just like our elevators, our people respond quickly, automatically... whether you want design assistance,

a preventive maintenance program, a completely installed system, or just a spare part. We've gained a lot of knowledge and confidence in forty years in the business. Today we know we can compete with the best of them. We can take you as high as you want to go in buildings of any size, shape or kind.

We've got the technical skills and the equipment. High-speed gearless elevators. Escalators. Geared and hydraulic elevators. Our next tall story? We'd like it to be your building. Just give us a call and watch us rise to the occasion. Armor Elevator Company, Inc., Box 584, Milwaukee, Wisconsin 53201.



Armor

ELEVATOR

Left to right: National General Building, New York, New York, Leo Kornblath Associates / First National Bank Building, Louisville, Kentucky, Harrison & Abramovitz / Queen's Park Government Building, Toronto, Ontario, Gordon S. Adamson & Associates, Allward & Gowinlock Architects, Mathers & Haldenby Architects, Shore & Moffat & Partners Architects & Engineers.



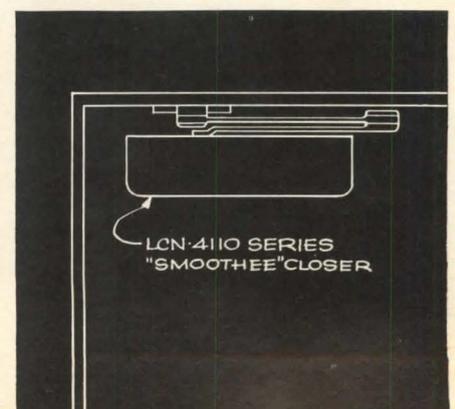
American Airlines Concourse, Washington National Airport, Washington, D.C. • Giuliani Associates/Aviation Architects and Planners, Washington, D.C.

LCN Door Closers

For smooth, efficient control of most all doors, interior or exterior . . . in heavy or light traffic areas. The one in the picture is an LCN Smoothee[®], stop-face mounted 4110 Series. It features an arm that folds parallel to the door, adjustable hydraulic back-check and adjustable spring power. For full particulars, talk to your Hardware Consultant or write LCN. Listed in Sweets, Section 8.

LCN Closers, Princeton, Illinois 61356.

On Reader Service Card, circle no. 363

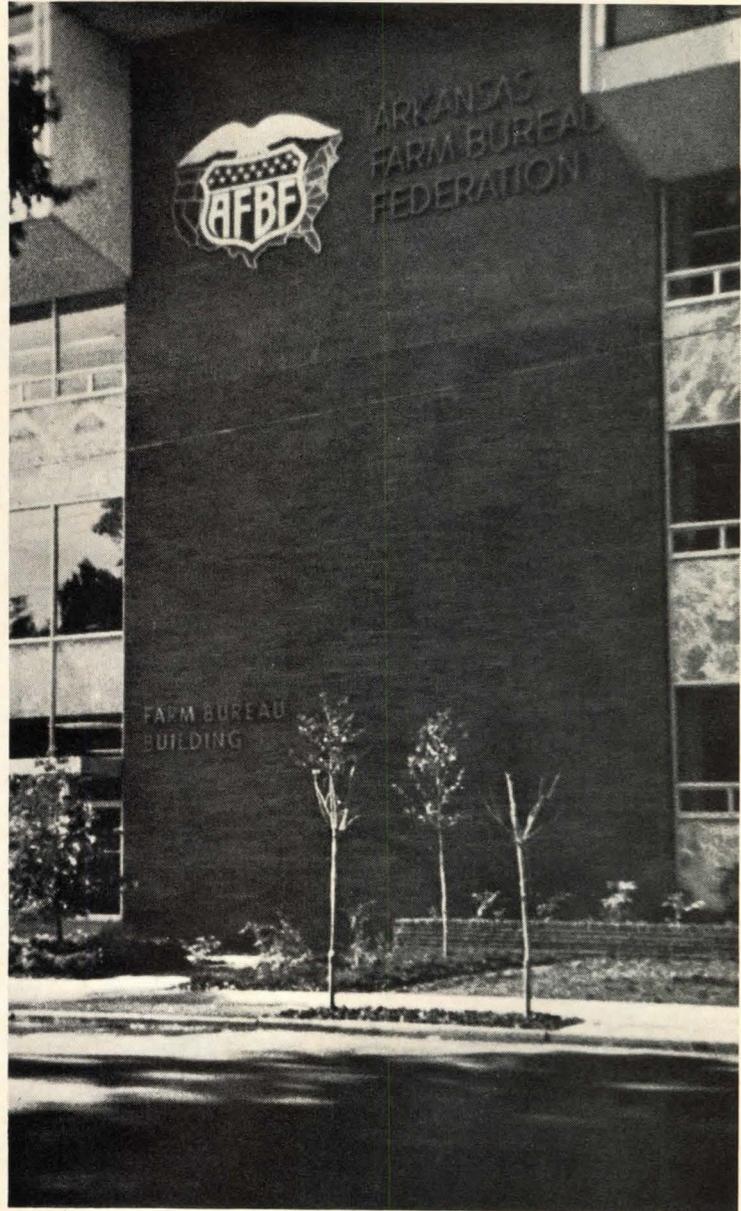


**For more profits,
identify
with metal
... and Matthews**

See us in Sweet's **S** Architectural Design File 10.14.

Want to see more dollar signs in your business? Then recommend more metal signage. Applications for metal lettering are all around you . . . in banks, offices, professional buildings, specialty shops, and other businesses requiring high quality, prestige identification. Matthews is your single source for identification in metal . . . for exterior and interior applications. Handsome bronze or aluminum letters in a wide range of sizes, finishes and baked-enamel colors. Custom-cast trademarks, symbols, tablets, plaques, signs, name plates.

And here's something else you get from Matthews: Prompt, professional design assistance on any job. Take the first step toward boosting your prestige and your profits. Write today for FREE CATALOG on Matthews' Identification-In-Metal capabilities.



JAS. H. MATTHEWS & CO.
Identification In Metal

1315 W. LIBERTY AVE., PITTSBURGH, PA. 15226

PLANTS IN PITTSBURGH, PENNSYLVANIA; SEARCY, ARKANSAS; MILTON, ONTARIO
SUN CITY, CALIFORNIA; SENECA FALLS, NEW YORK; EL MONTE, CALIFORNIA.

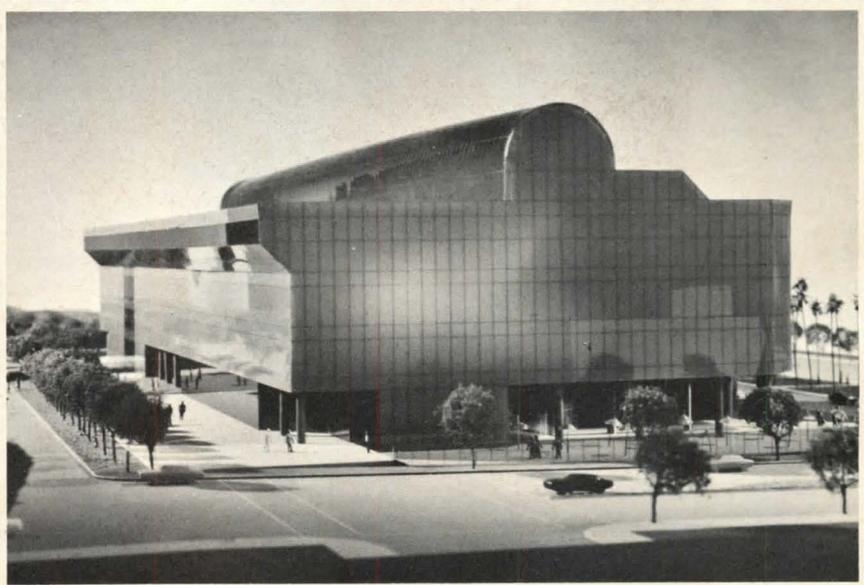
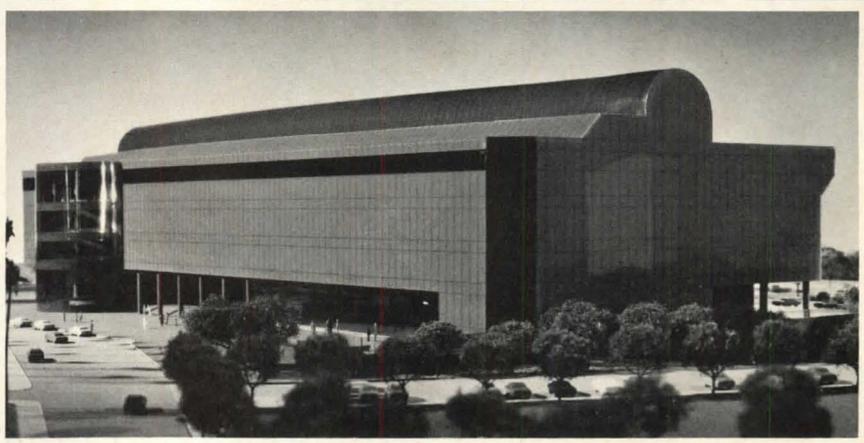
Pacific Design Center

Sequoia Pacific Realco, a Southern Pacific Company is building a 6 story, 600,000 square foot showroom and exhibit center for the Interior Design, Decoration and Furnishings trades shown here in model form.

Excellence of design and attention to the special needs of quality showroom displays will be the theme of the new Pacific Design Center situated on 19 acres of land at the intersection of Melrose Avenue and San Vicente Boulevard, extending up to Santa Monica Boulevard in "Decorators Row," Los Angeles, California.

Architects are Gruen Associates. Rex Goode Organization for Design is consultant for Interiors and Visual Communications.

For leasing information call
Mr. Murray Feldman
Executive Director of PDC, or
Mr. Ronald S. Kates, Vice President
Bert J. Friedman Associates, Inc.
Leasing Agents,
8900 Beverly Boulevard,
Los Angeles, California 90048
Telephone (213) 272-9101



On Reader Service Card, circle no. 411



Sunnyvale Library
Sunnyvale, California
Architects:
Goodwin Steinberg Assoc.
Fabricators:
San Lorenzo Mfg. Co. Inc.

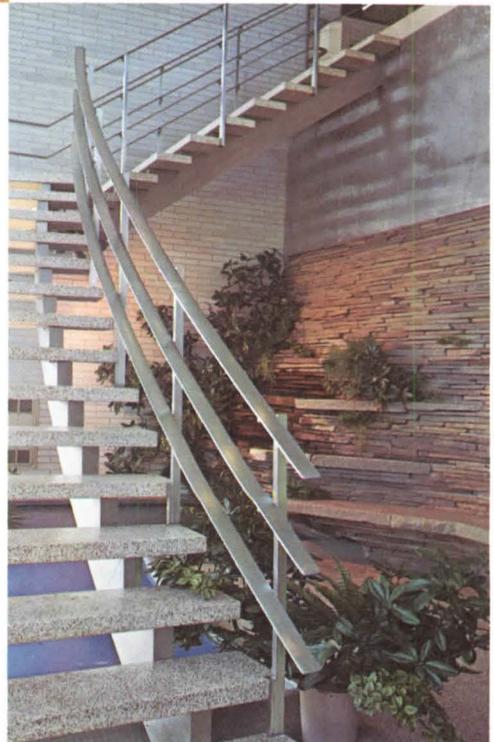
West View Authority
Water Treatment Plant
Neville Island, Pennsylvania
Architect: K. Howard Saylor
Fabricator: Architectural
Metals Corp.

Carlstadt® Railings

Designers can specify **Carlstadt** Railing for its wide selection of moulding shapes and fittings that allow custom designs for all building types and traffic exposures.

Carlstadt's rugged, engineered system is well-suited for floor, fascia or wall-mounted installations that emphasize function and durability. Its crisp styling makes it ideal for a variety of ornamental applications.

Components are available in stainless steel, bronze and aluminum from local fabricators everywhere. For a complete listing write for catalog, special bulletins, or see Sweet's Architectural File, Industrial File or Interior Design File.



JULIUS BLUM & CO., INC., CARLSTADT, NEW JERSEY 07072
N. J. (201) GE 8-4600 • N. Y. (212) OX 5-2236 • TELEX 13-3491 • TWX 710-989-0112
THE MOST COMPLETE SOURCE FOR ARCHITECTURAL METALS

Books continued from page 120

lites circling the globe 150 miles in the sky. In this way a view of exactly what is happening can be gained and ways can be determined to direct urban growth.

Up, up and away!

Documents

[The documents listed below are available from the associations and agencies cited. Request for such documents should be directed accordingly.]

Film on "Coping with Quakes." *The Portland Cement Association, A/V Communications Section, Old Orchard Road, Skokie, Ill. 60076. 16 mm., sound and color. Rental, \$5 per week; may be purchased for \$104 per copy.*

Documentary film of the recent Southern California earthquake, tells, in layman's language, the story of the quake and includes dramatic scenes of quake damage in the hard-hit areas. It discusses the earth movements that caused the damage, how they were measured and discusses advances in research, design and code provi-

sions to minimize structural damage and loss of life. Concentrating on the performance of concrete structures in the quake zone, the 15-minute film, reportedly, is of sufficient technical interest for engineers, architects and public officials.

Guide Specification for Architectural Precast Concrete. *Prestressed Concrete Institute, 20 N. Wacker Dr., Chicago, Ill. 60606. 35 cents to PCI members, 50 cents to nonmembers.*

The result of over a year's effort by a PCI Technical Committee, this 12-page "Guide Specification" is suggested as a checklist in preparing a specification draft for this section of contract documents. The system and text require the user to make the changes, additions or deletions necessary to adapt them to his specific job condition and specification format.

Guide to Alternatives for Financing School Buildings. *Educational Facilities Laboratories, 477 Madison Ave., New York, N.Y. 10022. \$2.*

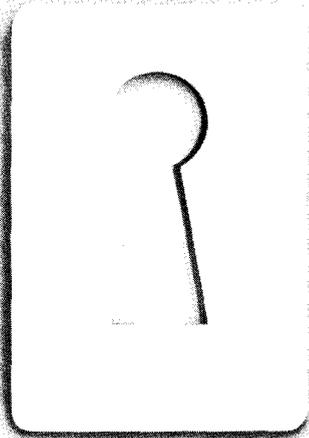
A 40-page guide suggesting financing options to administrators in planning new schools has been prepared by the Educa-

tional Facilities Laboratories (a nonprofit organization established by the Ford Foundation to improve school building).

The report documents eight workable alternatives, all of which have been used by one or more school districts. Included, in addition to conventional methods of state and federal aid, are such unconventional suggestions as selling air rights above a school, leasing an entire school—viewed as a significant option for most school districts. A 24" x 34" poster which illustrates the various decision-making routes open to administrators accompanies the report.

Project Reference File. *Urban Lane Institute, 1200 Eighteenth St. N.W., Washington, D.C. 20036. \$50 annually.*

This is a subscription service that summarizes pertinent data on successful development projects. Each subscriber receives four-page summaries of five projects a quarter, with projects covered including single family, industrial, multi-family, commercial and special use. Each summary highlights significant approaches to better land use offering economic and cost factors, planning and development [Continued on page 142]



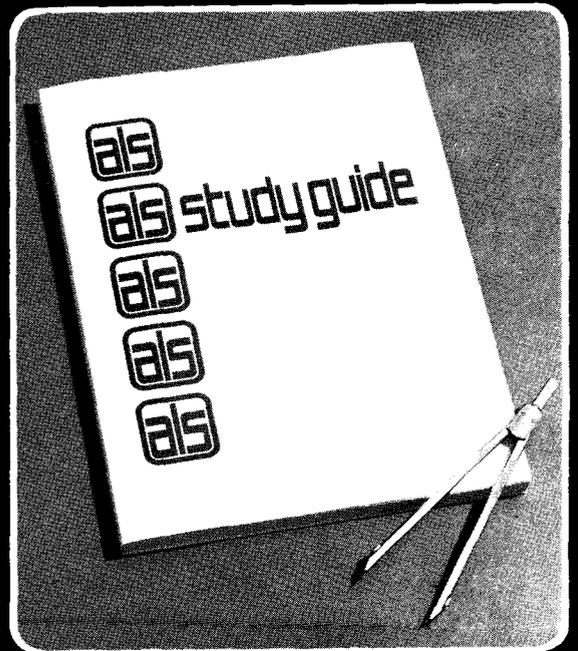
Take a last peep through old drafty.

Securiti-Card™ operated locks usher in the end of keyholes. Our card & lock combinations offer economical access controls for all levels of security — letting the card holder into the proper places at the right time.

Cardkey Systems

A Liquidonics Company

P.O. Box 369, Chatsworth, Ca. 91311 • (213) 882-8111



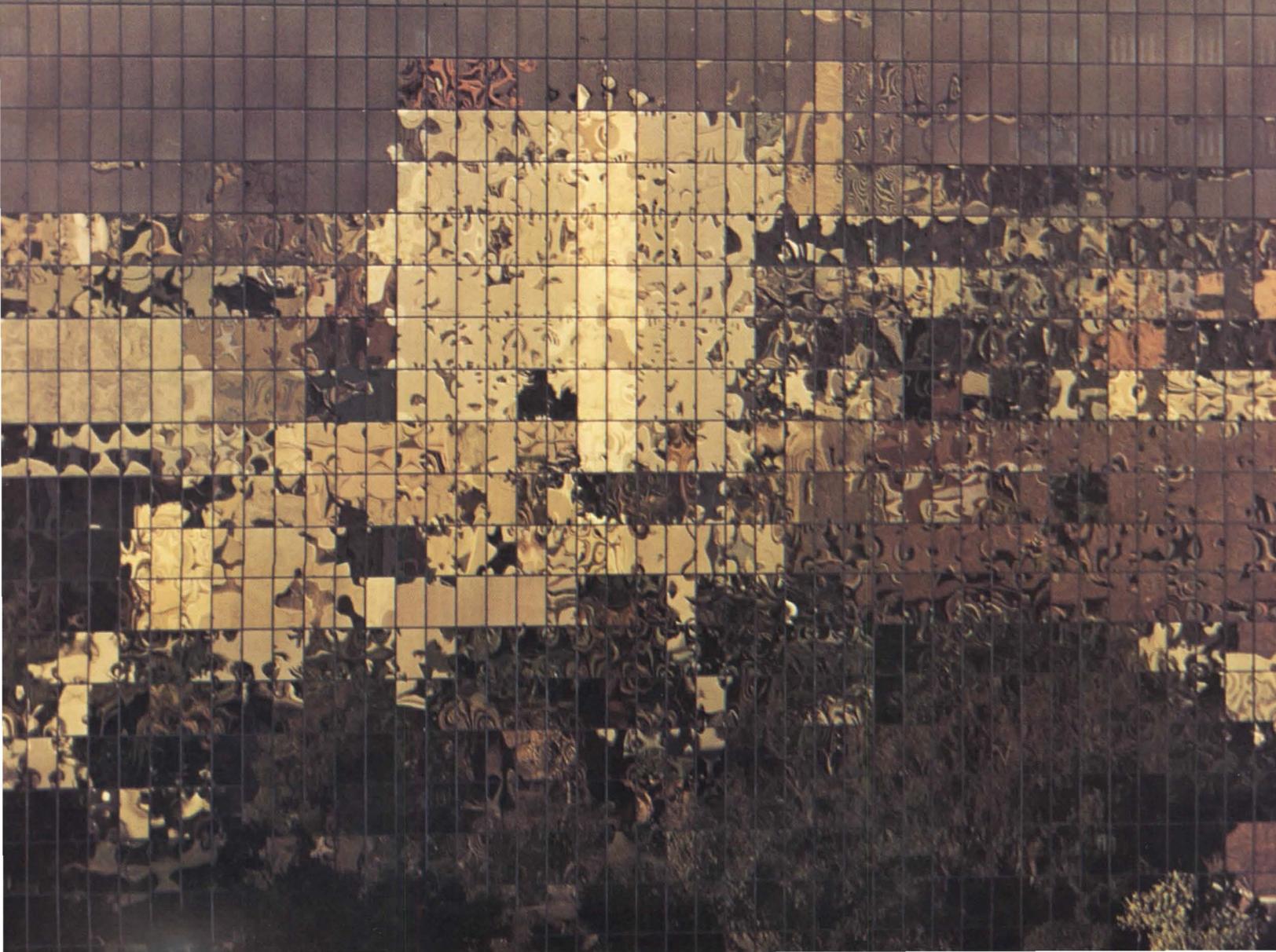
PRESENTING OUR NEWEST STUDY AID FOR THE NCARB EXAMINATIONS

ARCHITECTURAL LICENSE SEMINARS
BOX 64188, LOS ANGELES, CALIFORNIA 90064

On Reader Service Card, circle no. 336

On Reader Service Card, circle no. 326

VISUAL DRAMA WITH PPG GLASS:



PPG GLASS:

a beautiful performance in Los Angeles.

CNA Park Place was designed to disappear. The owner and architect took a potentially intrusive structure and made it enhance its surroundings, not by its presence, but by its precisely calculated near-absence.

Located adjacent to Lafayette Park, on Wilshire Boulevard, the building stands on a property that was widely assumed to be part of the park itself. To minimize the visual intrusion of the 19-story structure into this park space, the architect sheathed the building in a mirrored skin that reflects its surroundings.

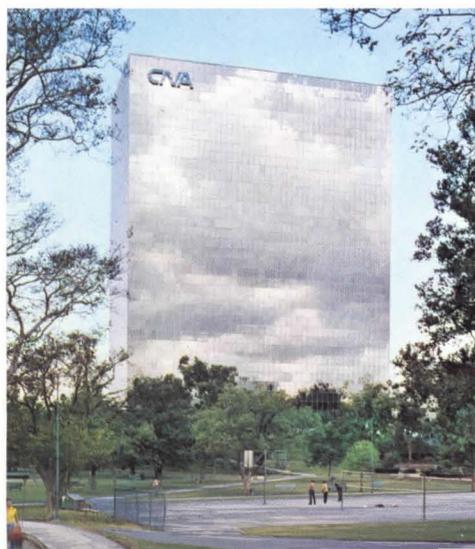
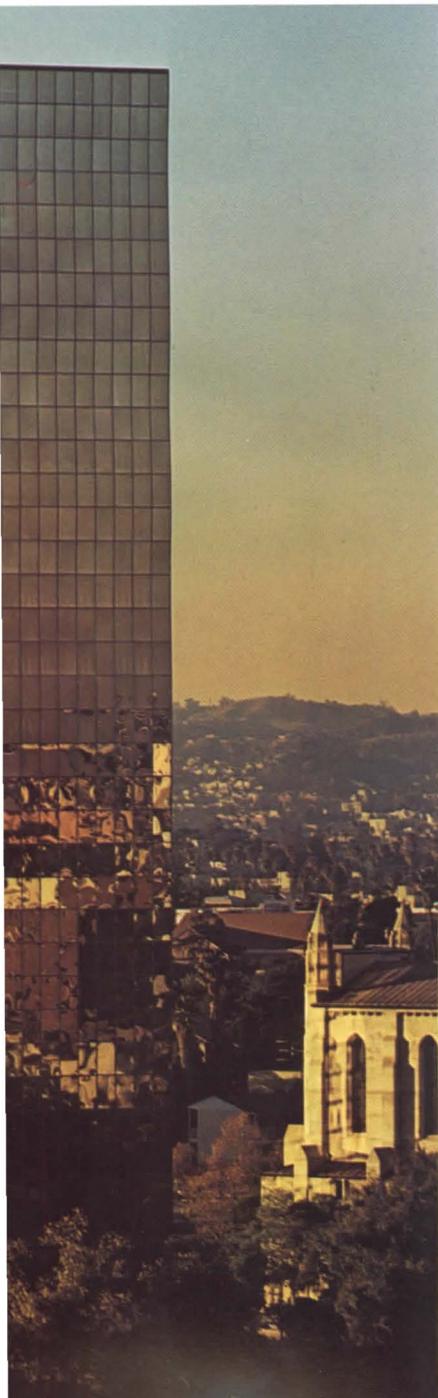
The exterior provides viewers with soft, changing reflections of the sky, occasional clouds, the park, distant hills, and nearby buildings. Sometimes it is colored blue, sometimes orange. And at other times it might be purplish, reddish, pink, or green or gold.

Paradoxically, the building that was designed to disappear may become the most photographed building in Los Angeles.





CNA Park Place is sheathed in nearly 146,000 square feet of PPG's *Solarban*[®] 480 *Twindow*[®] Insulating Glass. Its neutral gray reflectivity provides the unifying effect that makes this building a unique visual success. Its performance characteristics offset the higher cost by contributing to savings in heating and air conditioning equipment and operating costs. It is a building material ideally suited to the sunny climate and moderate building densities of Los Angeles.



Look into *Solarban Twindow Glass*—or the others in our family of Performance Glasses for your next building. Early in the design stages. There's a PPG Glass that you can use as an active design medium to meet esthetic considerations, increase occupant comfort and contribute to a return on investment.

For full details, contact your nearest PPG Architectural Representative, consult Sweet's catalog file, or write PPG INDUSTRIES, INC., One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

Owner: CNA Casualty of California, Los Angeles, California, a part of CNA Financial Corporation.
Architect: Langdon & Wilson, Los Angeles, Calif.



Professional critics have been virtually unanimous in regarding Harry Weese's Arena Stage as a major landmark in American architecture. Wholly original in concept, superbly functional, and elegant in detailing, it has "an ambiance which suggests that magic is made, after all, in a working place," as one commentator remarked. Among other significant developments which were foreshadowed in this exciting structure was the utilization of roof perimeters as an important element in contemporary design, particularly when executed in metal.

Our initial gratification when Mr. Weese and his associates selected Follansbee Terne for these roof areas has thus merely been enhanced with the passage of time. And we were therefore doubly gratified, nearly a decade later, when Terne was again specified on the adjacent Kreeger Theater, a building of comparable distinction.



FOLLANSBEE
FOLLANSBEE STEEL CORPORATION
FOLLANSBEE, WEST VIRGINIA

NORMAN R. McGRATH photo

KREEGER THEATER, WASHINGTON, D.C. WITH ARENA STAGE IN BACKGROUND.
ARCHITECT: HARRY WEESE AND ASSOCIATES, CHICAGO, ILLINOIS, WASHINGTON, D.C.
ROOFER: MATHY COMPANY, FAIRFAX, VIRGINIA.

Design out water hammer. Specify Wade Shokstops.

Water hammer is the shock caused by the sudden build-up of energy when a quick closing valve suddenly stops the flow of water in a piping system.

Specify Wade Shokstops to solve the problem.

These stainless steel water hammer arrestors are manufactured in six sizes for commercial piping systems. They can protect batteries of plumbing fixtures, or a single quick closing valve. They have been tested and certified in accordance with PDI Standard WH-201 and also conform to ASSE Standard 1010.

For piping systems larger than 2 inches (such as laundry machines), Wade offers prepressurized units in seven sizes and capacities, all designed to absorb large amounts of energy. Upon request, Wade Engineering will size and locate the units for large piping systems or for special equipment applications.

So design out the problem. Put Wade Shokstops in the specs.

For your new Wade Shokstop Specification Manual, write Box 2027, Tyler, Texas 75701.

Member,
Plumbing and Drainage Institute
© 1972 Tyler Pipe



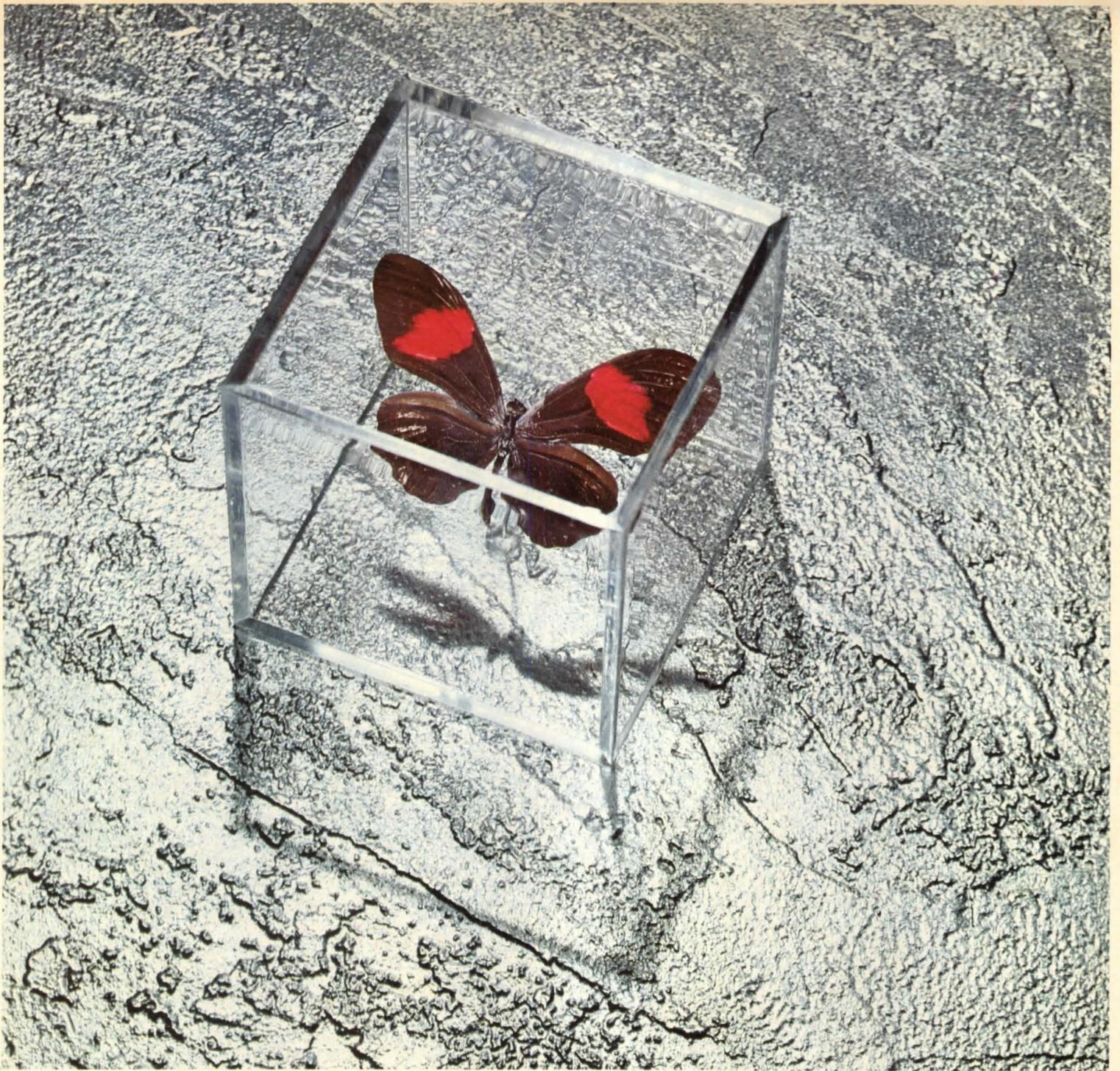
W-100

**Tyler
Pipe**
Subsidiary of
Tyler Corporation

"Wade stainless steel Shokstops shall be installed as shown on the mechanical engineering plans or shall be sized and located in accordance with Plumbing and Drainage Institute Standard WH-201."

On Reader Service Card, circle no. 391





Silver Slate, 760

The Silvery Spectacular

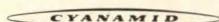
Silver Slate is a striking new dimensional laminate that can turn any surface into a shimmering swirl of color and motion. Its chrome-like brilliance and bold, deeply embossed texture bring it alive with highlights and shadows.

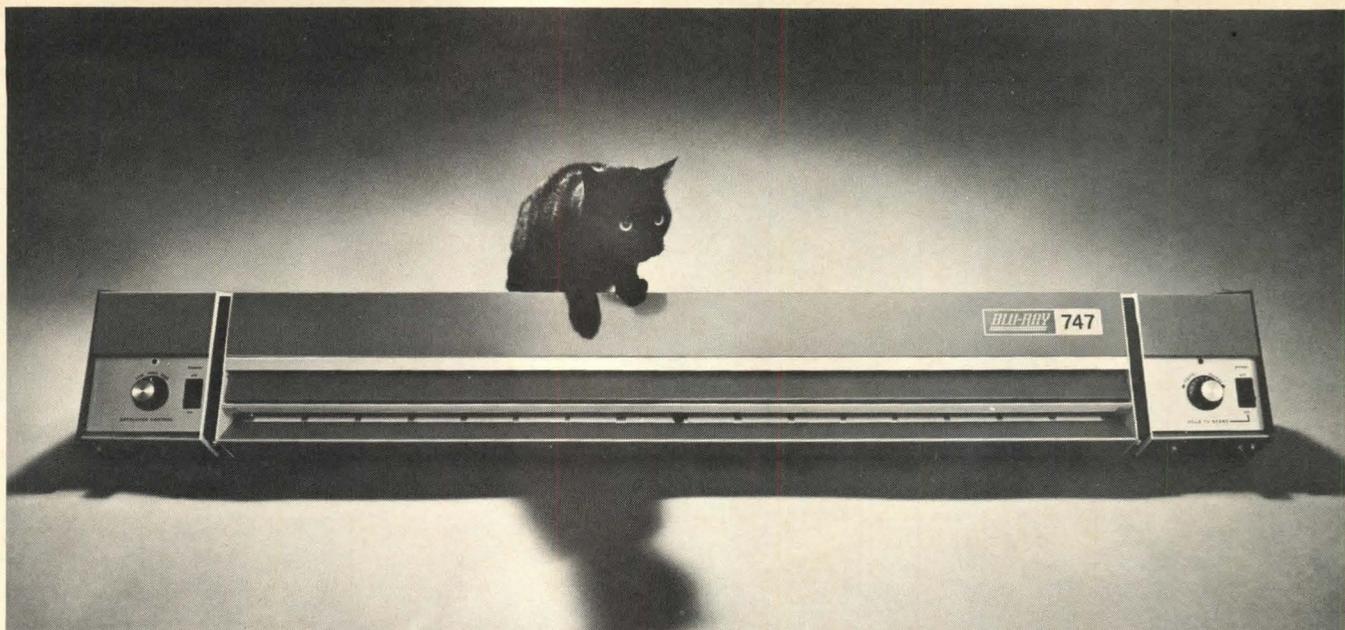
And the real beauty is that when you specify Silver Slate, you're selecting an exclusive FORMICA® brand laminate that stays bright and new looking for years. Designed for any vertical or light horizontal application, the durable surface resists scuffs, dents and scratches.

Silver Slate is one of eleven exciting new colors and patterns that make this a vintage year. Deeply textured dimensionals, fabulous Quatramatic woodgrains and subtle patterns. They're all part of the biggest laminate line available. See them all in Sweet's Architectural File 6.14/Fo. Contact your Formica representative or write Dept. PA-3

Leadership by design



© 1972 Formica Corporation, Cincinnati, Ohio 45202, subsidiary of 



We're Big in Copycats!

We sell more tabletop, diazo copiers than anybody else. And we do it with soft sell, not soft soap. Because our precision engineered whiteprinters practically sell themselves. They're dependable quality – no question. They have to be – they're the only tabletops backed by a 1-year warranty.

The whiteprinter shown here, our Model 747, has a 47-inch throat, gives you printing speeds up to 15 feet per minute, offers a selective 3-speed vapor development system which eliminates liquids in the machine. It's one of the three reasons we're the biggest in copycats. The other two: Model 146, Model 1042. Our full color brochure tells about all three. Please send for it. Blu-Ray, Incorporated, 81 Westbrook Road, Essex, Connecticut 06426. Telephone (203) 767-0141.

BLU-RAY

Copper Sovent single-stack plumbing system. The new way to cut multi-story drainage costs.



Sovent systems can be designed in 3" diameter for low rise buildings and in 4" diameter for high rise buildings. In either case the builder can expect savings over conventional drainage systems.

 **COUNT ON COPPER**

The Copper Sovent single-stack plumbing system is a major construction breakthrough... yet it's really very simple.

In this new system, the soil and vent stacks are combined into one Sovent self-ventilating stack.

What you don't need any more is a separate vent pipe.

You get more square feet of income-producing space because the Copper Sovent system takes up less space in the walls.

Plus you can put fixtures, like island sinks, where you want them. Not where the old two-pipe drainage system forced you to put them.

And because the Copper Sovent system weighs less, you get more room in your structural load estimates.

There's more room in your budget too because the Copper Sovent system is easier and cheaper to install.

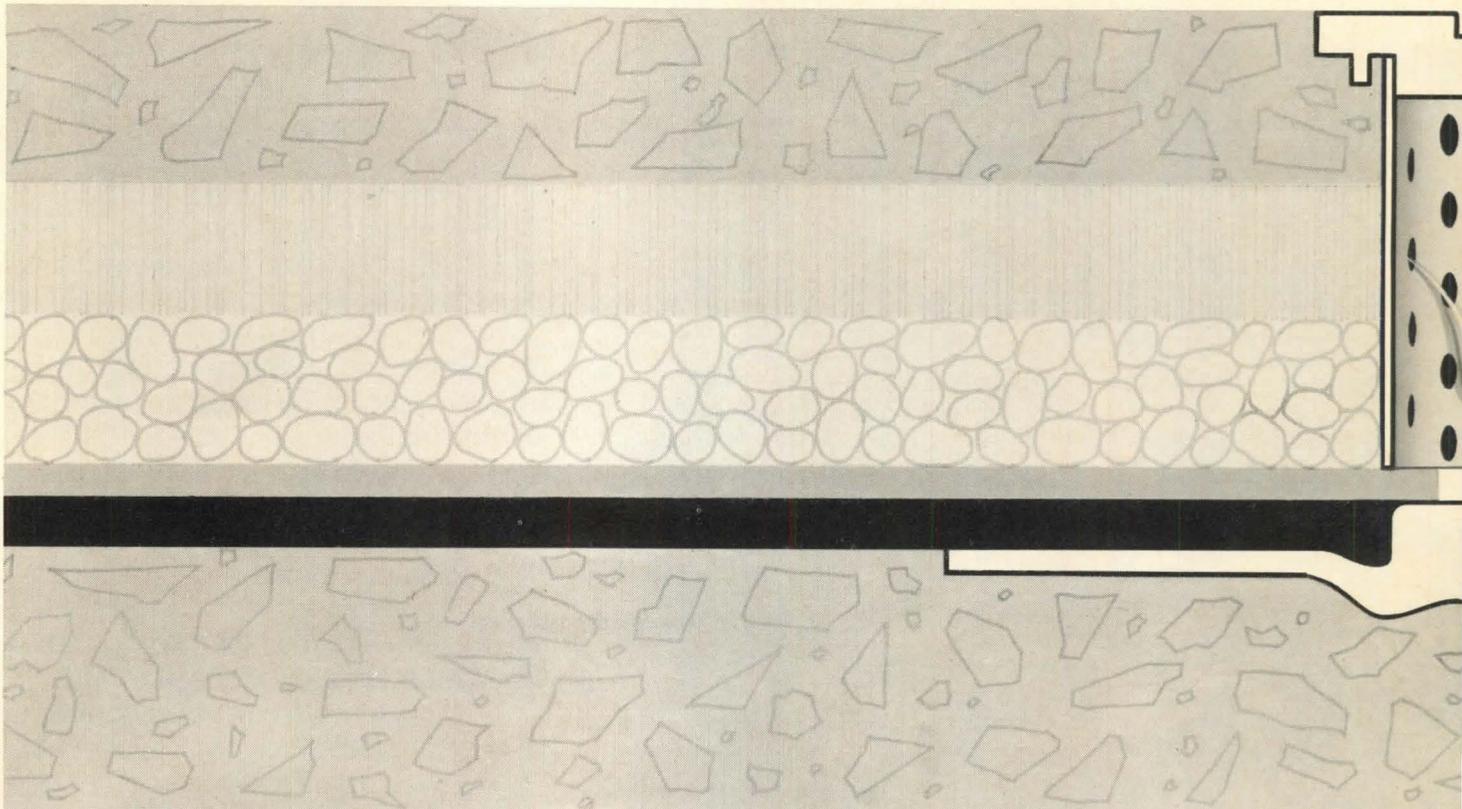
Since it was first installed in the Habitat Apartments at Montreal's Expo '67, the Copper Sovent system has been used in 30 high-rise buildings across the United States. And more than 70 additional major installations are being planned right now.

Couldn't you use more room or flexibility in your new building design?

For a detailed design handbook on the Copper Sovent single-stack plumbing system, write us: Copper Development Association Inc., 405 Lexington Ave., New York, N.Y. 10017.



How to make a waterproof deck that's really waterproof.



Almost any bitumen, elastomer or membrane is waterproof.

Trouble is, it takes more than a waterproofing product to build a leakproof deck or plaza. Since most attempts to waterproof the traffic surface are doomed to failure, we think it's more important to get rid of water from each level of deck construction.

Here's a step-by-step method that does just that.

First, use a liquid waterproofing product that can be applied to the best-engineered concrete on the job site — the structural slab. Since the liquid adheres to the slab it will eliminate any lateral migration of water . . . just in case it penetrates the seal.

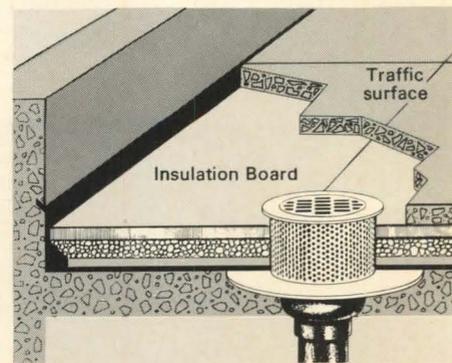
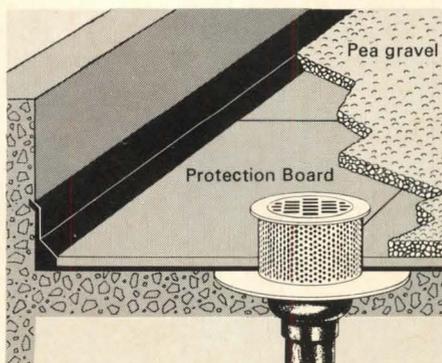
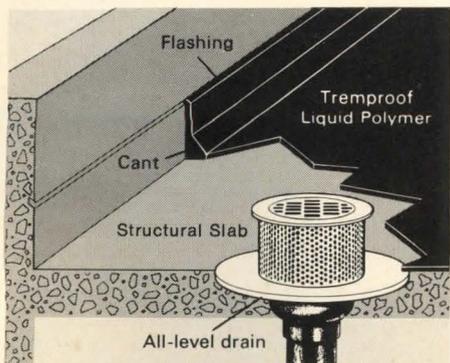
Next, protect the waterproof layer with a 1/8" thick asphalt-impregnated board. That will prevent any punctures that could otherwise

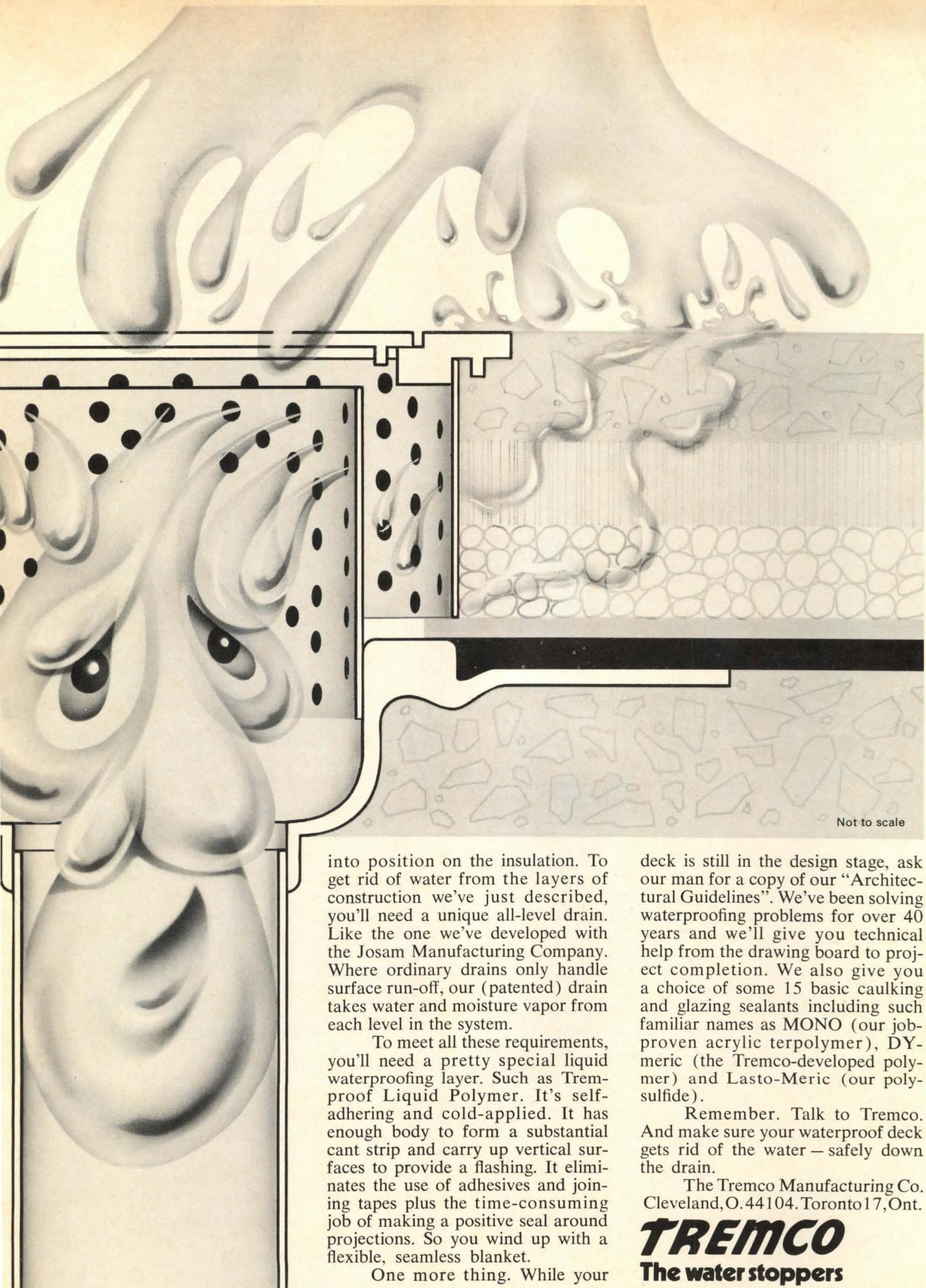
be caused by job-site activity.

Now add a 1 1/2" to 3" layer of washed pea gravel to act as a percolation layer that will collect transient water and carry it to the drain.

Then, put the insulation on top of the percolation layer. This will protect both the structural slab and the waterproofing system against stress caused by thermal variation.

Finally, put the traffic surface





into position on the insulation. To get rid of water from the layers of construction we've just described, you'll need a unique all-level drain. Like the one we've developed with the Josam Manufacturing Company. Where ordinary drains only handle surface run-off, our (patented) drain takes water and moisture vapor from each level in the system.

To meet all these requirements, you'll need a pretty special liquid waterproofing layer. Such as Tremproof Liquid Polymer. It's self-adhering and cold-applied. It has enough body to form a substantial cant strip and carry up vertical surfaces to provide a flashing. It eliminates the use of adhesives and joining tapes plus the time-consuming job of making a positive seal around projections. So you wind up with a flexible, seamless blanket.

One more thing. While your

deck is still in the design stage, ask our man for a copy of our "Architectural Guidelines". We've been solving waterproofing problems for over 40 years and we'll give you technical help from the drawing board to project completion. We also give you a choice of some 15 basic caulking and glazing sealants including such familiar names as MONO (our job-proven acrylic terpolymer), DYmeric (the Tremco-developed polymer) and Lasto-Meric (our polysulfide).

Remember. Talk to Tremco. And make sure your waterproof deck gets rid of the water — safely down the drain.

The Tremco Manufacturing Co. Cleveland, O. 44104. Toronto 17, Ont.

TREMCO
The water stoppers

features, maps, site plans, photographs, land use controls, mistakes made and experience gained and names and addresses of key persons involved.

Commercial Timbers of the World, 4th Edition, by F.H. Titmuss. 360 pp. CRC Press, Division of the Chemical Rubber Co., 18901 Cranwood Parkway, Cleveland, Ohio 44128. \$24.50.

New woodworking techniques, new adhesives and other technical advances have increased the number of timbers for commercial use to 252, all of which are described in this book. Illustrated with photomicrographs of some 38 woods most commonly used. An index lists timbers by their botanical and alternative trade or local names.

1971 Edition of the National Electrical Code (NFPA No. 70). 540 pp. National Fire Protection Association, 60 Batterymarch St., Boston, Mass. 02110. \$4.95 hardcover, \$3.50 softcover.

Updated from the 1968 edition, this Code

is concerned with installation, operation, manufacture and design of electrical wiring and equipment. It is intended for practical safeguarding of persons and of buildings and their contents from hazards arising from use of electricity for light, heat, power and other purposes.

Contractor's Management Handbook. Edited by James J. O'Brien and Robert G. Zilly. New York: McGraw-Hill Co., 1971. 608 pp. \$24.50.

This is a ready-reference handbook, essentially managerial- and business-oriented, geared to those active in construction—the superintendent, project engineer, estimator, purchasing agent, accountant. It should be interesting to architects, however, especially the coverage of the Critical Path Method of planning and scheduling.

The All-Weather Comfort Standard. The Electric Heating Association, Inc., 437 Madison Ave., New York, N. Y. 10022. 10¢ per copy.

This is the first complete revision of the "All-Weather Comfort Standard" since its original publication in 1963. In this new standard, recommended maximum allow-

able heat loss and heat gain values are lower. It is said to be responsive to energy conservation efforts.

Thermal performance values of insulation, weatherstripping and glazing practices, and vapor barrier and ventilation measures are covered.

Fiberglass Buildings by Robert B. Hartwig. P. O. Box 24980, Los Angeles, Calif. 90024. \$6.50 paperback.

According to its author, this book attempts to bridge the gap between the plastic and the building industries. It discusses "Why fiberglass buildings?" Their development, materials and manufacturing, products, prototypes, building systems and information sources.

Approach to Architectural Design by Arg Isaac. Toronto: University of Toronto Press, 1971. 112 pp. \$15.

The effect of human perception on environmental design is the main emphasis of this book. It also considers important aspects of planning, space, color, lighting, unity and scale. Architectural and design students as well as practicing architects may find it useful.

for individual random hardwood boards without the limitations of sheet paneling

plank it

And get application versatility ... beautiful reflective character ... lifetime durability ... unsurpassed design expression. Get it all, including precision-designed installations, with Townsend hardwood plank paneling. The 13 sample species of solid hardwoods in a variety of textures are offered as proof. Send for Designer's Sample Kit.



- Enclosed is my check for \$3.00 to cover cost of one sample kit.
- Please send additional literature.

Name _____ Phone _____

Firm _____

Title _____

Address _____

City _____ State _____ Zip _____



Townsend Paneling

POTLATCH FORESTS, INC. • P. O. Box 916 • Stuttgart, Arkansas 72160

Free fence spec kit saves time, trouble!



Invaluable for planning chain link fencing. Kit includes drawings on styles, wire gauges, gates, fittings, framework, lab reports, work sheets and specifications.

Page® aluminized fabric lasts 3-5 times longer than the best of galvanized. Send for your kit today. Page Fence Division of Acco (American Chain & Cable Co., Inc.), P. O. Box 430, Bridgeport, Conn. 06602

40DB.2.1



CONTROLLING
SOUND
BEAUTIFULLY



The expansive, expensive look.

Large Module ACOUSTONE* Ceiling Panels look expensive, and are! Look expensive, but aren't! Fit in beautifully to the trend toward larger-size acoustical ceiling panel and tile . . . sizes 2 x 2, 2 x 3, 2 x 4 . . . in a creative range of colors and patterns.

But ACOUSTONE is more than just another good-looking ceiling. Its mineral-wool fibers soak up noise like blotters . . . resist fire . . . and have high light reflectance.

Wrap your rooms in the big but quiet beauty of Large Module ACOUSTONE. Choose the Glacier pattern illustrated here, or in Fissured or Finesse. See your USG distributor or write to us for more information about ACOUSTONE, just one of a complete line of USG ceilings that control sound beautifully.

UNITED STATES GYPSUM
Dept. PA-32
101 S. Wacker Drive, Chicago, Ill. 60606

Please send ACOUSTONE literature to:

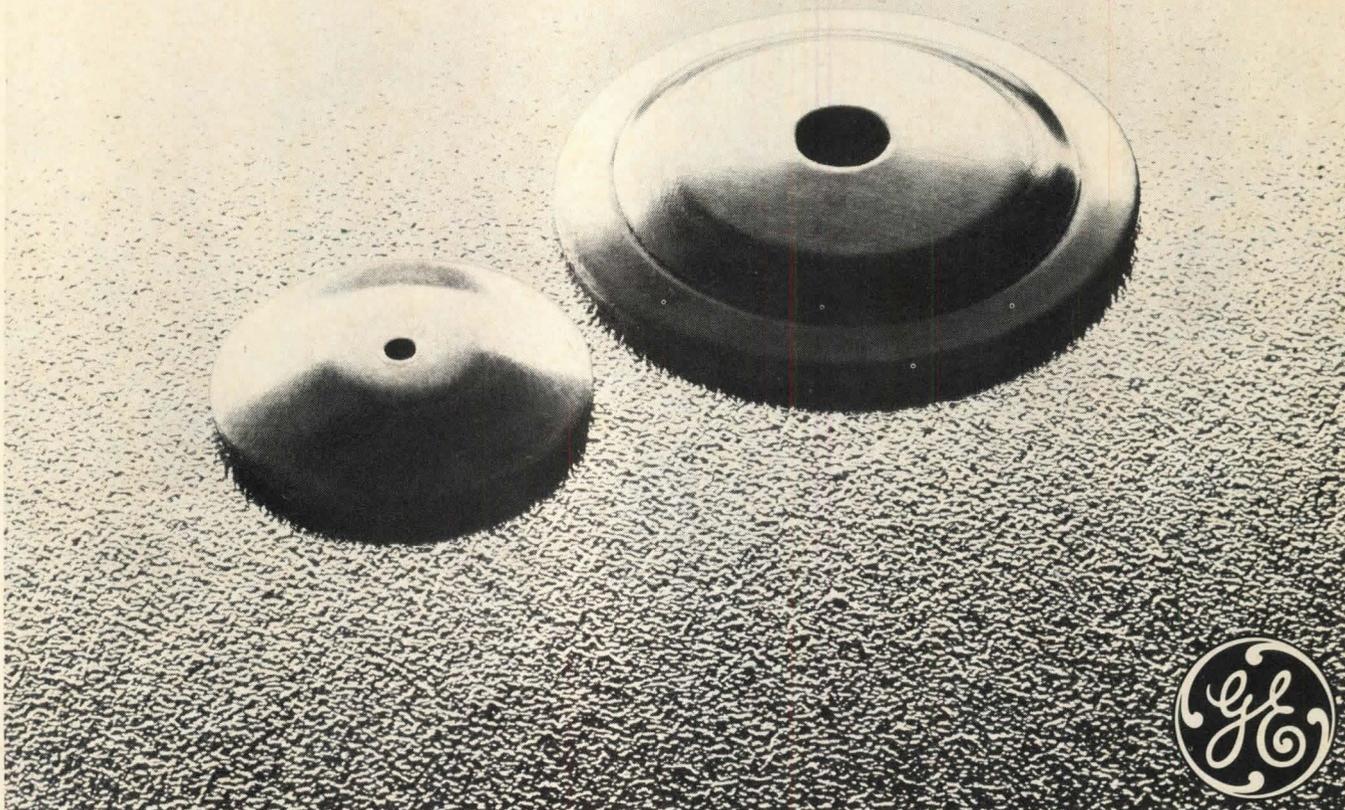
NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____

U. S. PAT. OFF.

UNITED STATES GYPSUM 
BUILDING AMERICA

On Reader Service Card, circle no. 409

All you need to convert GE's gas/electric to LPG is five minutes and two pieces of metal.



In some areas, the natural gas shortage is a heartbreak. But not to users of GE's gas/electric heating and cooling equipment.

Because, with a simple kit, GE's gas/electric units can be converted to LPG.

The kit consists of two aluminum washer-type orifices, a name plate and instructions.

The orifices go into the pipe union and meter the flow of gas to the burner.

The nameplate signifies that the unit has been converted to LPG at 2500 BTU/FT³ with parts supplied by the General

Electric Company, And that the unit does not lose its A.G.A. certification upon conversion.

It's a small plate, so there are some things we couldn't put on it.

For one thing, the unit runs at 3.5" manifold pressure, the same as natural gas, so it isn't necessary to adjust the gas input valve.

The burner is a forced combustion type, which eliminates the need for increased pressure drop, and aspiration of primary air into the gas.

The valves themselves are A.G.A. certified for natural

and LP gas regulation and control.

The combustion chamber is made with the same metal we developed for jet engines.

And finally, all our gas/electrics have the General Electric National Service Contract available at the time of installation. Service is available from the installing dealer or other authorized servicer.

For more information, call your General Electric Central Air Conditioning Dealer. He's listed in the Yellow Pages under Air Conditioning Equipment and Systems.

GENERAL  ELECTRIC



OPEN
FOR
BUSINESS
CLOSED ALL
OTHER TIMES

A Fullspace filing system eliminates permanent aisles to increase storage capacity up to 100% more than conventional shelving or file cabinets.

Fullspace storage units close together with just one aisle. With little effort, wood shelving units glide on sealed roller bearings to create an aisle where you need it.

Versatile and durable Fullspace movable storage units are designed to hold materials and records singly or in containers of all sizes and shapes. Each shelf easily holds a 500 pound distributed load. Shelf height is adjustable in one inch increments for full use of vertical space, too.

Fullspace is the single, most practical storage system for over 10,000 companies that specified this modern movable storage system. Some typical Fullspace users include hospitals, financial institutions, data processing service centers, clinics, schools, libraries, legal offices, parts storage centers, printers, utilities, insurance companies, government agencies and offices, publishing houses, retailers, manufacturers and general offices.

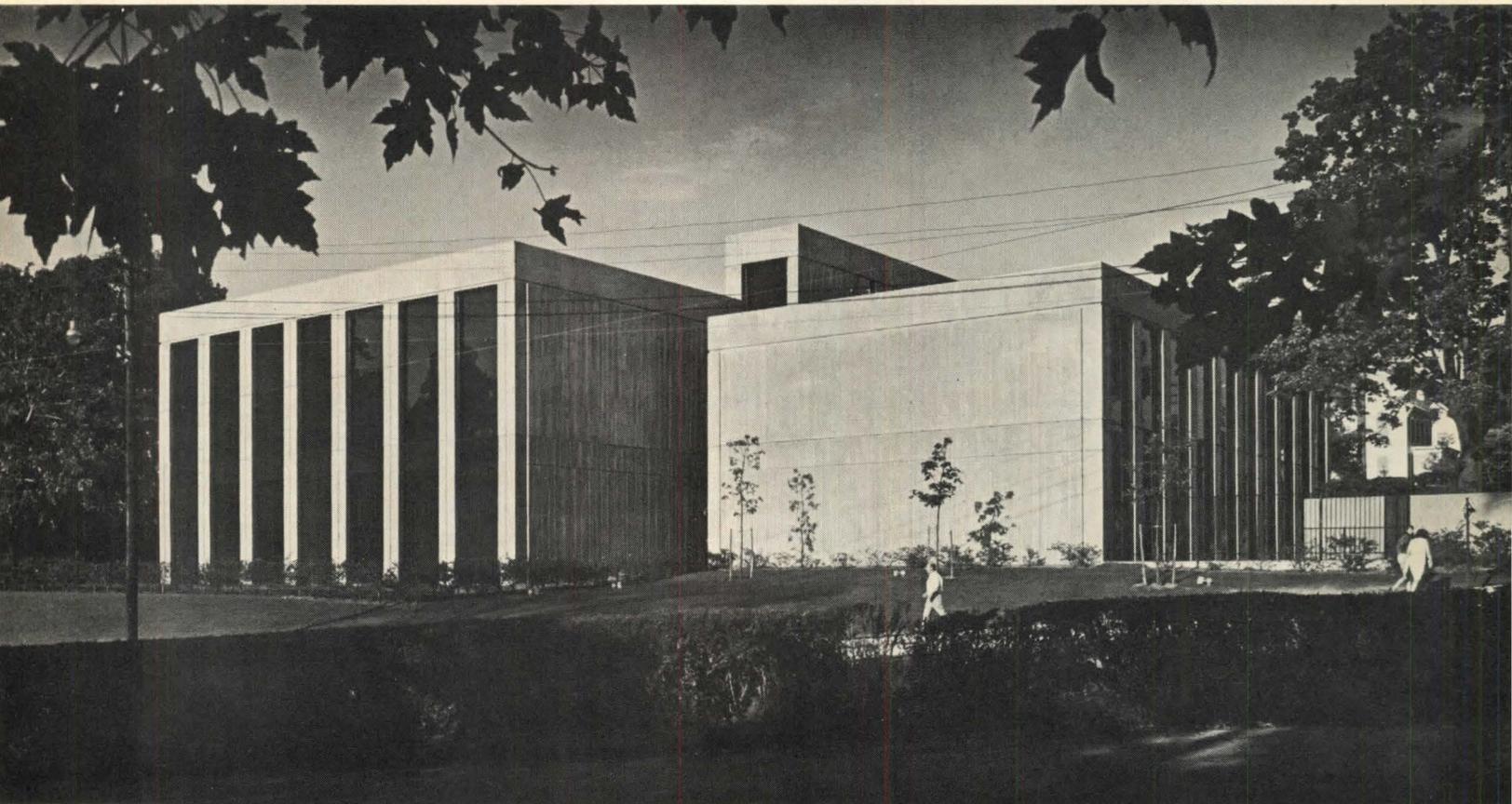
What is your need? To reduce your storage space? Or to store more in the space you have? Fullspace helps you either way.

Write today for full details, including free planning, layout and estimating.

LUNDIA, MYERS INDUSTRIES, INC.
Decatur, Illinois 62525



An award
winning library...
showcase for
concrete with
POZZOLITH admixture.



Photographs: Bill Rothschild

Owner: City of Port Washington, N.Y. Architect: Curtis and Davis. Structural Engineer: A. A. Abdalian. General Contractor: M. Stark Construction Co. POZZOLITH Ready-Mixed Concrete: Certified Industries, Division of U.S. Steel, Hicksville, N.Y.

"The most beautiful concrete job I've ever seen in my life." So said one of the committee members of the Concrete Industry Board (New York) in judging the Port Washington Public Library, Port Washington, Long Island. The structure was unanimously awarded the CIB's Annual Award for 1970.

Located on a grassy knoll overlooking Manhasset Bay, the 34,500-square foot, split-level structure displays exposed architectural concrete with formboard finish inside and out. The awards committee stated that the finish shows not the slightest imperfection throughout.

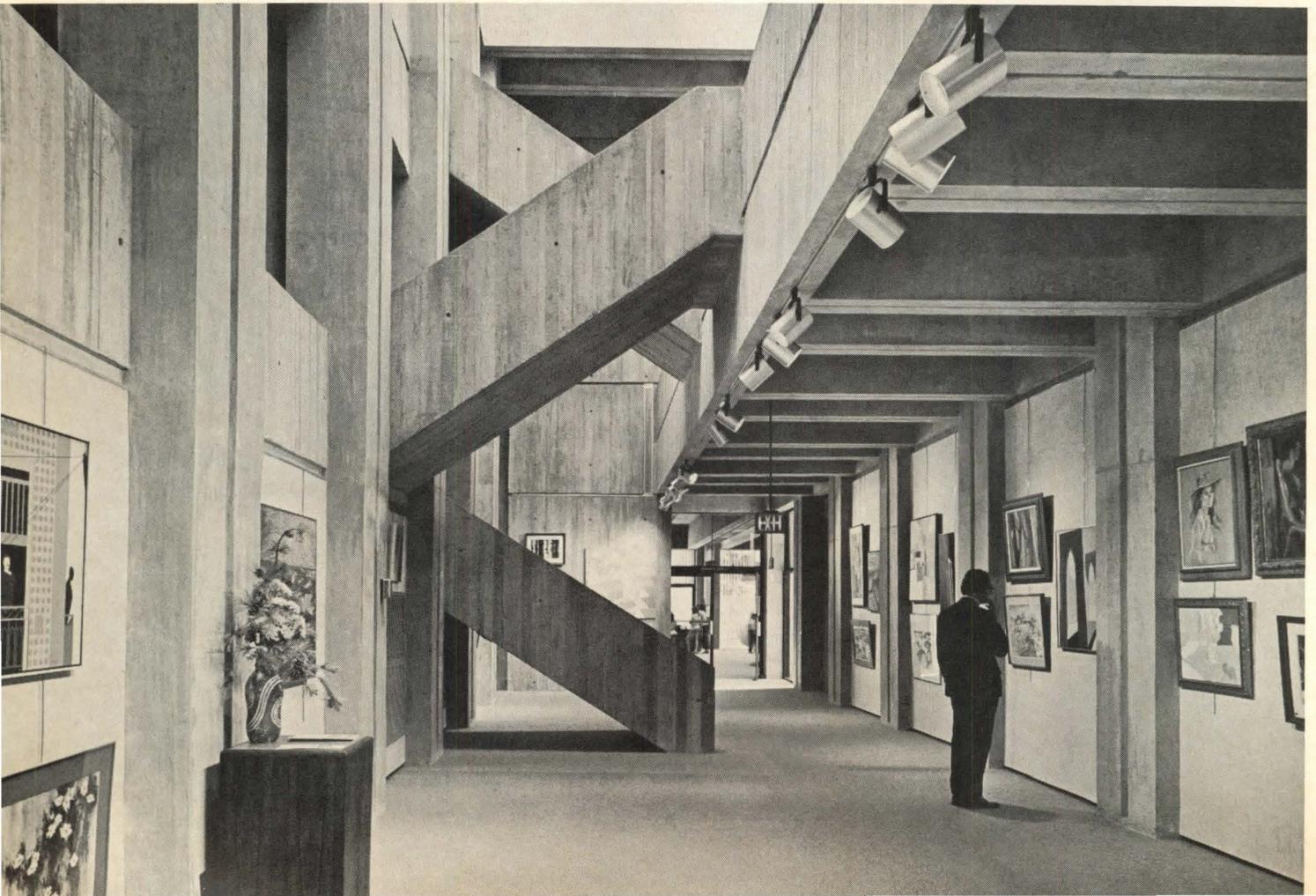
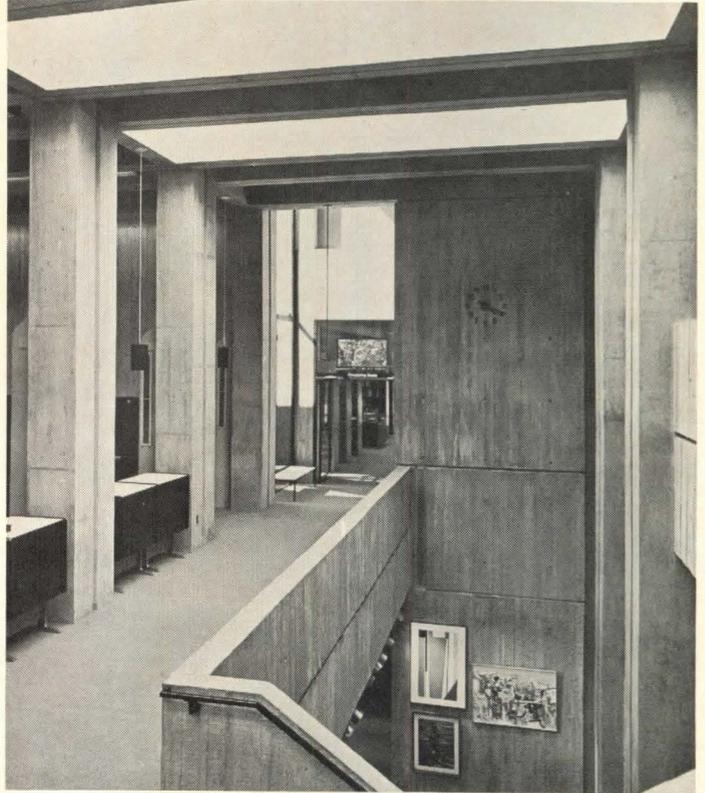
An important factor in achieving the desired concrete was the specification and use of *POZZOLITH* admixture. *POZZOLITH* helped make the high-strength concrete more placeable and workable, resulting in better consolidation in the forms. The result was concrete that faithfully reproduced the grain of the formboard and a surface dense and strong enough to retain this appearance over the years.

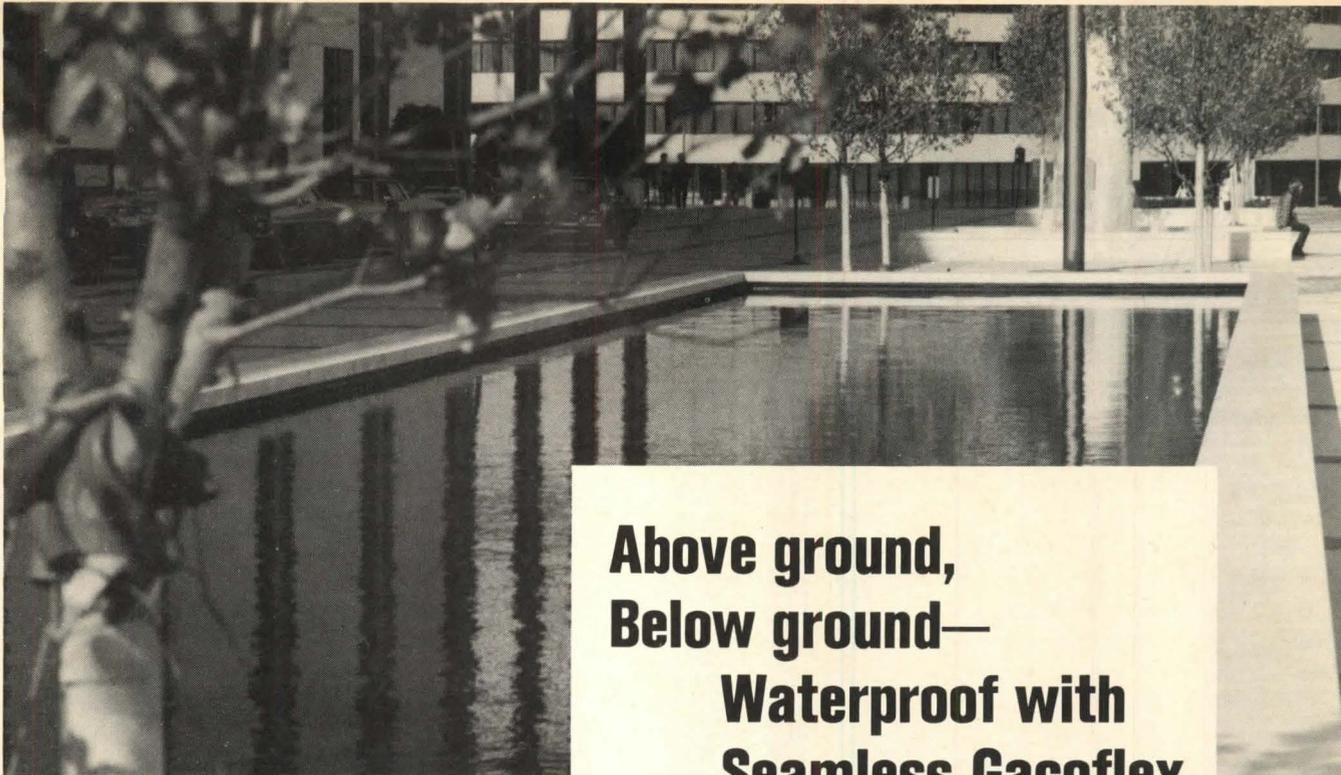
The Port Washington Library joins an already impressive list of concrete structures that reflect the performance benefits of *POZZOLITH*. And *POZZOLITH* delivers its benefits where performance counts—on the job and in the finished structure. That's why, over the years, *POZZOLITH* has earned the name "The Performance Admixture."

To learn more about *POZZOLITH* and how it makes good concrete better, call your local Master Builders field man or write Master Builders, Cleveland, Ohio 44118.



POZZOLITH*
manufactured by
MASTER BUILDERS
*POZZOLITH is a registered trademark for MASTER BUILDERS'
water-reducing, set-controlling admixture for concrete.





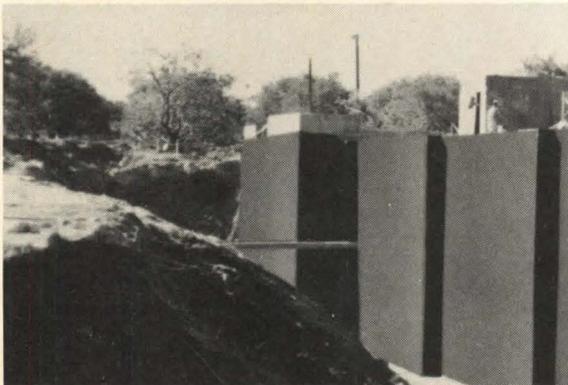
**Above ground,
Below ground—
Waterproof with
Seamless Gacoflex
UWM-28!**

Above or below ground—there's no better way to waterproof concrete than with Gacoflex UWM-28 seamless elastomer.

UWM-28 is a liquid urethane rubber that is an easy-to-use, 100% solids material. It can be used as a barrier between, concrete slabs and under asphalt paving; to waterproof pools and even as vertical flashing. It self-cures at ambient temperatures to provide a 60 mil thick, seamless elastomer membrane.

UWM-28 is a two-part, self-leveling material that can be applied with a brush, squeegee, or spray. It remains flexible down to -92°F and can withstand temperatures as high as 300°F for short periods. It is not affected by grease or aliphatic oils.

Complete details are in the current Sweets, Section 7.9 Ga. Or, write for the UWM-28 bulletin.



SCM GATES ENGINEERING—
WILMINGTON, DEL. 19899





Sherwin forest

Sherwin-Williams new stain line includes both Semi-Transparent and full-hiding Solid Colors, for exterior or interior wood surfaces. 🌀 Superior alkyd formulation – not a conventional oil stain. 🌀 Provides toughness and longer life. Won't blister, peel or crack. 🌀 Use on new wood or previously stained wood. Solid colors may also be used on previously painted wood. 🌀 No topcoat necessary. 🌀 Needs no priming. 🌀 Excellent weather resistance. 🌀 Repels moisture; mildew and mold resistant. 🌀 Easy to apply by brush, roller, spray, or dipping. 🌀 Lap marks won't show. 🌀 24 beautiful non-fading colors plus Weathering Oil® in Semi-Transparent and 24 colors plus Snowcap White in Solid Colors. 🌀 Use for wood siding, shingles, shakes, decks, porches, steps, railings, fences, benches, terrace walls . . . and for interior construction such as beams, ceilings, paneling. 🌀 Tear out and save this page, showing approximate colors, and specifications on reverse side as your guide to selection of Sherwin-Williams® Stains. For actual color card, or further information, circle inquiry card. Or write **SHERWIN-WILLIAMS**, Architectural Service Division, 101 Prospect Ave., N.W., Cleveland, Ohio 44115.




Conwed



RESISTS
ABUSE

 **Conwed**[®]

IMPACTION[™]
CEILING SYSTEMS

more.....



Conwed
IMPACTION™
CEILING
SYSTEM*

*Patent Pending

for ceilings in gyms, locker rooms, multi-purpose rooms—wherever ceilings take a beating

A ceiling that can take abuse, and snap back in place.

Some suspended ceilings take daily beatings. In school locker rooms, gymnasiums, and multi-purpose rooms, ceilings are under constant attack . . . targets of everything from basketballs and hockey sticks to pencils and paper clips shot from rubber bands.

In areas of high activity, ordinary suspended ceiling acoustical panels when under "bombardment" can be dislodged from the grid . . . sometimes they're knocked out altogether or broken. It's an expensive game no matter how you play it. Here's Conwed's answer . . .

New Conwed total Impaction Ceiling that thrives on abuse in high punishment areas

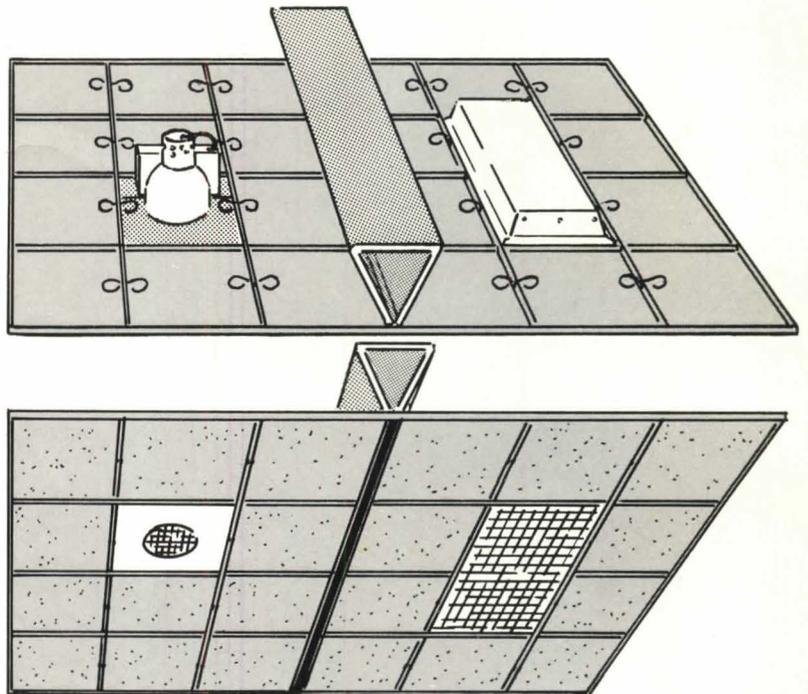
This new ceiling system combines lighting, acoustical control, air delivery and specially compounded Impaction panels with a new ingredient . . . deacceleration clips that absorb impact, then snap components back into place. Every part of this ceiling is designed to resist accidental impacts. Result: A total Impaction ceiling system from Conwed, world leader in ceilings and ceiling systems.

All Conwed components are dimensionally integrated to provide aesthetically appealing, as well as practical, ceiling packages. Several different Impaction packages are available to suit specific needs.



Bold, brawny, beautiful Rock Face pattern

Specially compounded 3/4" plus thick Impaction panels, 2' x 2', offer a deep, naturally textured, rugged white surface. Panels are acoustical, install fast, yet provide easy lift out access.



Simple Fool-Proof Impaction System

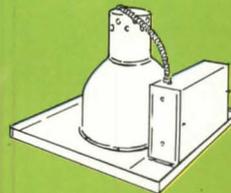
When struck by an object,

- a. Special Rock Face Impaction panels take the initial blow and are forced upwards.
- b. Impaction deacceleration clips absorb any anticipated impact.
- c. Panels snap back properly in place on grid.

Plus Lighting and Air Delivery

Mercury Vapor Light Fixture

Screened mercury vapor units are recommended to provide quality light in high ceiling situations (gymnasiums, etc.)

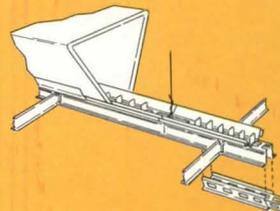


2' x 4' Fluorescent Light Fixture

Has abuse-resistant metal louver for lower ceiling height areas (multi-purpose rooms, etc.).

1200 Series Air Bar

Delivers quiet air distribution in a comfortable horizontal pattern.



For further information on Conwed Impaction Ceilings write:



Conwed Corporation, Dept. CISC
332 Minnesota Street, St. Paul, Minnesota 55101
 On Reader Service Card, Circle No. 307

The aerospace company that helped put men on the moon now buys 1/3 less drawing pencils.

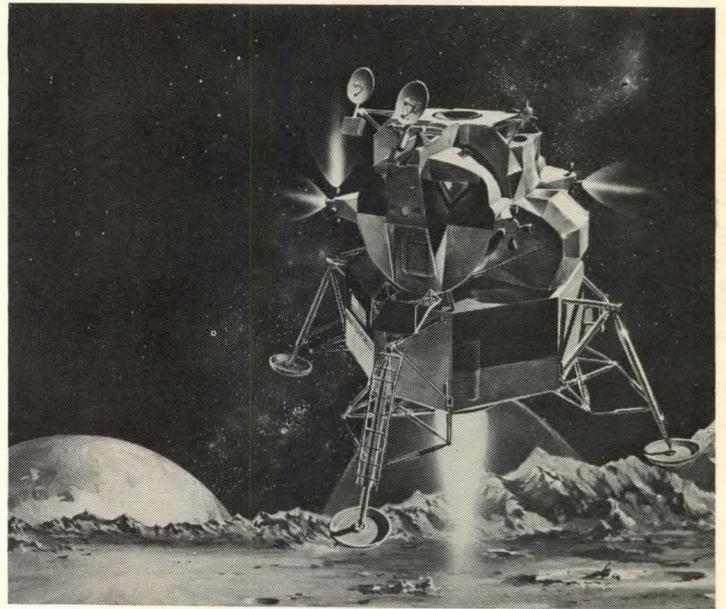
And Castell is glad.

When highly critical space engineers, designers and draftsmen tell us that after switching to Castell they have been able to reduce their orders by one-third — that's too good to keep bottled up.

You know about Castell's graphite saturation, its unvarying grading with no degree crashing, its total opacity for unsurpassed reproduction and greater than average needlepoint and chiselpoint strength. Perhaps you haven't considered *durability*, the famous Castell graphite that wears down slowly and saves you money.

Castell is a drawing pencil for *all* reasons. This is a good time to check your inventory of Castell 9000 pencils, 9030 drawing leads and Locktite lead holders

Write on your company letterhead for a free sample of Castell 9000 or 9030 in the degree of your choice. As a bonus we'll also send you a Magic Rub vinyl eraser. Non-abrasive and perfect for polyester film. A.W. Faber-Castell Pencil Co., Inc., 41-47 Dickerson Street, Newark, N.J. 07103, Los Angeles, Calif. • Toronto, Canada: A.W. Faber-Castell Canada Ltd.



A.W. Faber
Castell

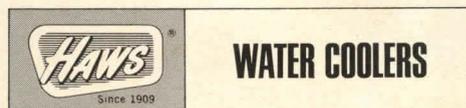


Model 2300-RC, 6 or 12 gph.
Available in choice of colors:
Antique White, Smoke Onyx,
Silvertone Gray, Terra Cotta
Beige, Laurel Green.



Recessed Refreshers

This Haws recessed water cooler in precast stone designs right into your plans . . . attractively! Leaves aisles and hallways unobstructed. Delivers plenty of precooled drinking water to meet refreshment needs. Get all the facts—write today. Haws Drinking Faucet Co., 1441 Fourth Street, Berkeley, California 94710.



drinking fountains and faucets, emergency decontamination units and water coolers

On Reader Service Card, circle no. 353

Jon E. Gravender has been named vice president in charge of architecture for Bather-Ringrose-Wolsfeld, Inc., Roseville, Minn.

William L. Pulgram has been named president and **Cecil A. Alexander** chairman of the board of Associated Space Design, Inc., Atlanta, Ga.

Roger C. Steffens and **Henry C. Luke, Jr.**, have been elected vice presidents of Reynolds, Smith and Hills, Jacksonville-based architectural, engineering and planning firm.

Edward T. Beattie, Jr. has been appointed administrative vice president for the Chicago region of A. Epstein and Sons, Inc., engineers and architects.

Roger O. Fowler has advanced to associate of Skilling, Helle, Christiansen, Robertson, structural engineers of New York and Seattle, Wash.

Benjamin Thompson & Associates, Inc., Cambridge, Mass., announce the appointment of **Thomas Green** as partner and executive vice president. **Helen Hillier** and **Jane Thompson** were appointed special associates. Named as associates were **Bruno D'Agostino**, **Edward DesJardins**, **James McNeely** and **Albert Parsons, PE**.

Broome, Selig & Oringdulph, AIA (BS & O), Portland, Ore., is now **Broome, Selig, Oringdulph and Partners, Architects & Planners** with the election of **John L. Henslee** and **Dennis J. O'Toole** as partners. Elected associates of the firm are **Donald T. Ross** and **Richard K. Spies**.

Joseph Esherick and Associates, San Francisco-based architectural and planning firm, has changed its name to **Esherick, Homsey, Dodge and Davis** following the appointment of **George Homsey**, **Peter Dodge** and **Charles Davis** as principals.

John Carney and **Clarence H. Dollmeyer** have been elected vice presidents of **Benham-Blair and Affiliates**, Oklahoma City firm of architects-engineers-consultants.

New addresses

James T. Fickes AIA Architect/Planner, 194 See Canyon Road, San Luis Obispo, Calif. 93401.

Abraham Sperling, AIA, 58 Maple Drive, Great Neck, N.Y. 11021.

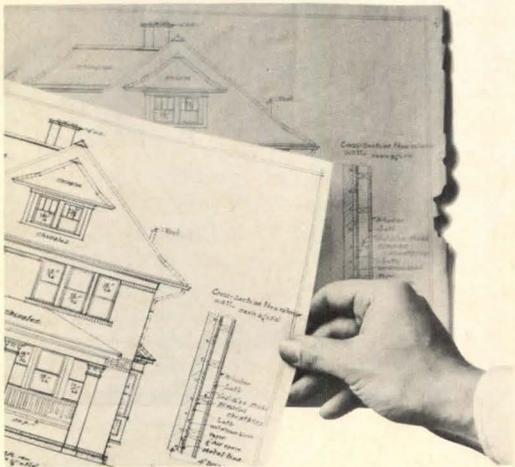
Holder, Kennedy & Co., Inc., 880 West Peachtree, N.W., Atlanta, Ga. 30309.

Expansions

Swank Gesler-Partners, AIA, Orange, Calif., has formed **California Interiors Inc.**, an interior design division.

[Continued on page 160]

"RETRACING OLD DRAWINGS IS SUCH A DRAG."



There's really no reason to waste time retracing those old, battered drawings. A much better way is to rejuvenate them by making sharp, clean photographic restorations on Kodagraph film.

You'll be amazed at the results. Weak lines come back strong and clear. Stains virtually disappear. And instead of gray on yellow, you've got sparkling, contrasty, black-on-white prints. Best of all, you not only eliminate drafting time, you save money, too.

For a full, clear picture of all the ways Kodagraph films can offer creative solutions to your drawing problems, send in the coupon.

**Save hours of drafting time
with KODAGRAPH Films.**

Please send me full details on the drawing shortcuts made possible by using Kodagraph films.

Name _____

Position _____

Company _____

Address _____

City _____ State _____ Zip _____

Eastman Kodak Company
Business Systems Markets Division
Dept. DP819, Rochester, N.Y. 14650

**DRAWING
REPRODUCTION SYSTEMS**



*"Looks pretty good—
we were smart to
economize"*

*Will you still be
proud—3 years
from now?*

No and you'll be less so as time goes by. In vinyl wallcoverings, penny-wise can be pound-foolish. With durable Vicrtex, your installation will hold up for your client — *beautifully* (10 years and more). Maintenance costs are reduced. With Vicrtex, occasional soap-and-water washings instantly restore original freshness. Spots and stains can be removed more easily, more quickly than from other vinyl wallcoverings. Insure your clients' installations by specifying high-quality, durable Vicrtex.

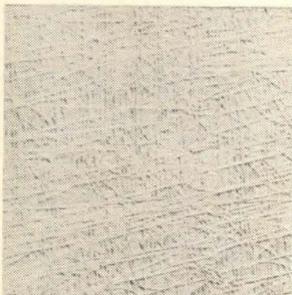
Vicrtex[®] VINYL WALLCOVERINGS

With Vicrtex, you and your client are assured:

- The Industry's most complete range of decorative patterns in a broad spectrum of colors.
- Fade-proof colors; unusually durable surfaces.
- High stain-, spot- and alkaline-resistance.
- Easy, fast cleaning for low-cost maintenance.
- 3-way mildew protection.
- Class "A" Fire Hazard Classifications.
- 1-year protection against manufacturing defects—Vicrtex Vinyl Wallcoverings are guaranteed!



STRADA



COPRA

Write today for your copy of this Practical Guide to Specification, Selection, Use and Care of Vicrtex Vinyl Wallcoverings.

L. E. CARPENTER
AND COMPANY



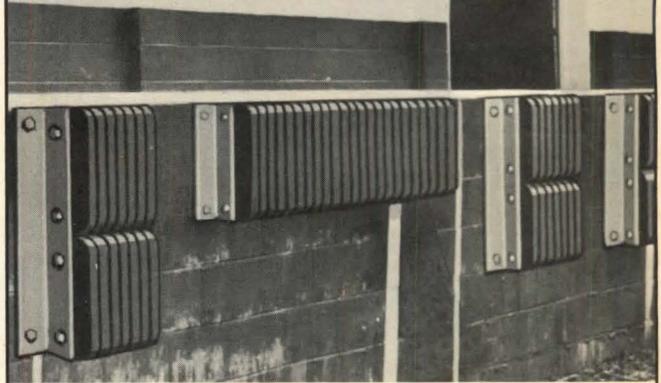
A DAYCO COMPANY

964 Third Avenue, New York, N.Y. 10022 • (212) 355-3080
Mill: Wharton, N.J. • In Canada: Gulf Oil Canada Ltd.

Distributed in Principal Cities from Hawaii to the Caribbean, by: VICRTEX SALES DIVISION: New York, Chicago, Atlanta, Los Angeles, San Francisco, Boston / HOWELLS, INC.: Salt Lake City / PAUL RASMUSSEN, INC., Honolulu / R. B. ADLER, INC.: Santurce, Puerto Rico. Also available through DWOSKIN, INC.: Atlanta, Charlotte, Dallas, Houston, Memphis, Miami, Oklahoma City, St. Louis, Washington, D.C.

MUSSON RUBBER DOCK BUMPERS

- ABSORB TRUCK IMPACT
- PREVENT DAMAGE TO DOCK, BUILDING AND TRUCKS.



**MAXIMUM PROTECTION!
LONG-LIFE ECONOMY!**

Musson Dock Bumpers, made of laminated sections of rubberized fabric in a steel frame, provide maximum resistance and tensile strength — resisting abrasion and heavy impact. Units are 4½" thick and made in 9 sizes. Five models of molded rubber bumpers also available.

Write for Catalog and Prices

THE R. C. MUSSON RUBBER CO.

1320 Archwood Ave.

Akron, Ohio 44306

On Reader Service Card, circle no. 402

ROBERT GOODMAN

"This architect, planner, teacher, and advocate of change has written a bitter indictment of his profession and its alliance with the Establishment. He charges that people are treated as objects, not as human beings, their wants ignored in favor of politics, profit and social control; that planning has become a sophisticated weapon to maintain the existing controls under a mask of rationality, efficiency and science. A must for everyone concerned with urban living conditions."

—Publishers' Weekly

AFTER THE PLANNERS

\$6.95 • SIMON AND SCHUSTER

On Reader Service Card, circle no. 381

← On Reader Service Card, circle no. 407



**“Sticky business”
that’s good business!**

Direct glue-down of carpets backed with JUTE

The system’s benefits are fully accepted

Lower cost than same carpet plus separate padding, or cushion-backed carpet with equal pile.

Easy wheel and caster mobility (no pads under secretarial chairs.)

Protection against seams opening, with no lateral stress under traffic.

Sound absorption, low-cost maintenance, aesthetics, insulation, comfort underfoot, improved morale.

Why Jute backing is vital for success

Jute’s mesh weave and fibrous composition accept and retain adhesive, for secure bond to any subfloor or previously installed hard-surface flooring.

Jute is over twice as thick as other no-pad backings. Cracks in old flooring won’t depress carpet or be felt underfoot. Greater area is provided for “beading” seam edges with adhesive.

- Unmatched dimensional stability, indispensable for floor cut-outs.
- Carpet can be pulled up, intact for re-installation.
- Helps carpets that are otherwise qualified meet fire safety codes.
- When carpet is rolled out, some floor adhesive penetrates the jute mesh to the primary backing, for additional protection against delamination.
- When “stretch” installation with separate cushion is specified for certain executive areas — in addition to glue-down for general spaces in the same site — two carpets aren’t needed. Jute works well with both methods.

**Write for free Architectural Guide
Specification and Editorial Report**

JUTE CARPET BACKING COUNCIL, INC.

25 Broadway • New York, NY 10004

On Reader Service Card, circle no. 358

American Industries, Inc. • BMT Commodity Corp. • C. G. Trading Corp. • Delca International Corp. • Dennard & Pritchard Co., Ltd. • A. de Swaan, Inc. • Robert F. Fitzpatrick & Co. • Gillespie & Co. of N. Y., Inc. • Hanson & Orth, Inc. • O. G. Innes Corp. • Jute Industries, Ltd. • Lou Meltzer Co. • Pak-Am Inc. • William E. Peck & Co. of N. Y., Inc. • R. L. Pritchard & Co. • Revonah Spinning Mills • Stein, Hall & Co., Inc. • White Lamb Finlay Inc. • Willcox Enterprises, Inc.

four good reasons for the growing popularity of InrycoTM/Milcor[®] steel studs for exterior walls.

① Fast enclosure. Framing assemblies can be prefabricated, in the shop or on the job site, for production line speed and economy. Panelization, with facing materials applied before installation, can afford further savings.

② Design freedom. Light gage steel framing adapts to any building contour... flat planes, angles, curves, recesses, reliefs... and serves both load bearing and non-load bearing conditions.

③ Economy. Initial cost is lower than many other types of construction. Light weight walls reduce footings, foundation and structural requirements. This ornamental fascia eliminated over \$170,000 of additional structural framing that pre-cast concrete panels would have required.

④ Versatility. Almost any facing material may be used. This building had metal panels and glass insets. The steel studs also provided structural support for the top three stories and a heliport.

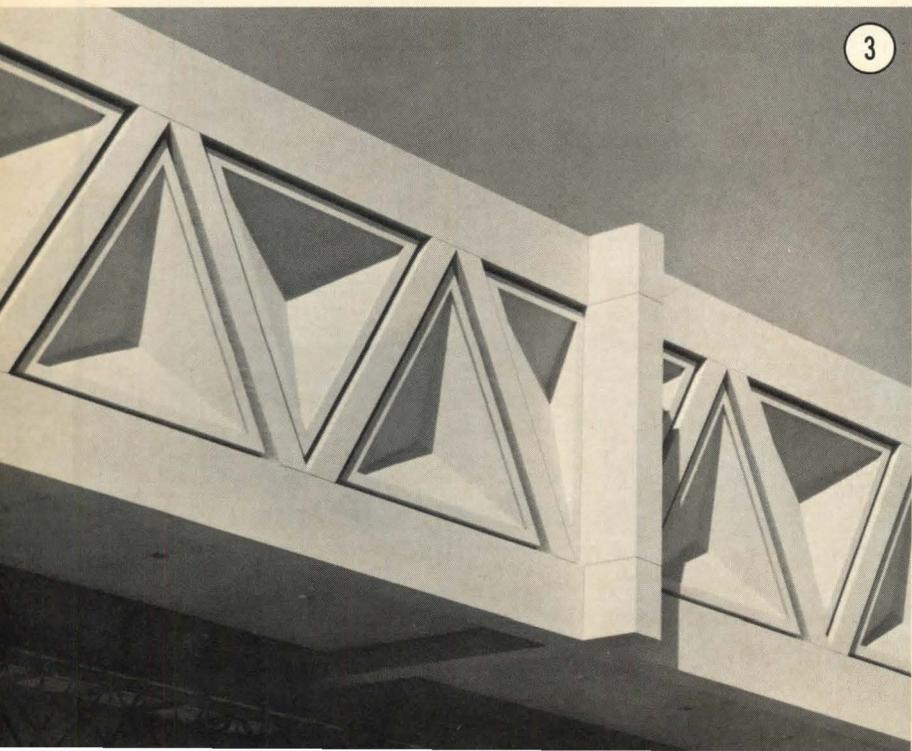
For detailed information, see Sweet's Section 5.3/In. Or write for Catalog 31-2 to Inland-Ryerson Construction Products Company, Dept. C, 4069 W. Burnham St., Milwaukee, Wis. 53201.

On Reader Service Card, circle no. 357

INLAND RYERSON

General Offices: Chicago, Illinois
Milcor Division: Milwaukee, Wis.

A member of the INLAND steel family



FLOORS • WALLS RESELECTED For Washington D. C. National Airport



Above: Concourse of the new TWA-Northwest Orient facilities where Boiardi Polyester Terrazzo Floors and Aggre-Wall were again selected for the floors and walls. Right: American Airline concourse where Boiardi Terrazzo and Aggre-Wall were installed over three years ago.



After a completely satisfactory experience with Boiardi Products at the Washington, D.C. National Airport, Joseph Giuliani & Associates, Architects of Washington, D.C., specified them for the second time around. The floors of Boiardi seamless polyester terrazzo provide a high lustrous, easily maintained finish. Seeded textured Boiardi Aggre-Wall for the walls creates a bold textured design that defies graffiti and ends monotony in concourses. Write for literature.



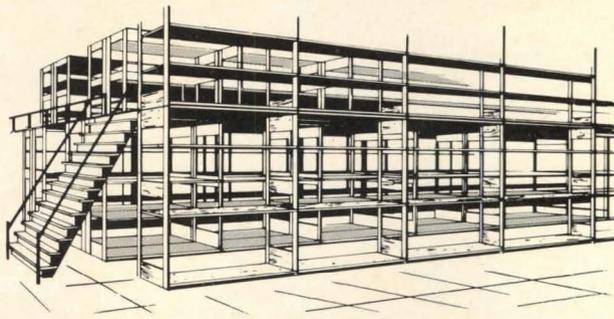
BOIARDI PRODUCTS CORPORATION

1525 FAIRFIELD AVENUE
CLEVELAND, OHIO 44113 • 861-8130

Member of National Terrazzo & Mosaic Association
And Tile Contractors Association of America

On Reader Service Card, circle no. 406

You can't *beat the system* when it's M.E.G. "SHELF-SPACE"



Selling and moving merchandise, or just keeping inventories at your fingertips requires efficient storage facilities. And that's where M.E.G. "SHELF-SPACE" provides a whole new storage scene.

So versatile, so flexible, "SHELF-SPACE" systems with self-locking uprights, shelves and accessories, assemble quickly, easily, right in your stockroom. No bolts, clamps, pins or special tools.

"SHELF-SPACE" is a proven storage system completely adaptable to single floor or double-deck application with stairs, railings and floors.

Check your present storage facilities and then check into M.E.G. "SHELF-SPACE". No obligation, naturally.

Send for Descriptive Literature



MERCHANDISING EQUIPMENT GROUP

100 Bidwell Road, P. O. Box 328
South Windsor, Connecticut 06074
Phone (203) 289-8267

The Store Fixture Divisions of Walter Kidde & Company, Inc.

On Reader Service Card, circle no. 361

"Weathering" as specified ...

Cabot's BLEACHING OIL

Architect demand is great for the unique "driftwood" look, an effect heretofore found only in seacoast areas after years of exposure to salt air. Cabot's Bleaching Oil, when applied to untreated wood surfaces, imparts a delicate gray tone which weathers in but a few months to a natural driftwood gray. Bleaching Oil, available in oil or creosote base, will not crack, peel, or blister. Everybody talks about the weather; Cabot's has done something about it.

Cabot's Stains, the original Stains and Standard for the nation since 1877.

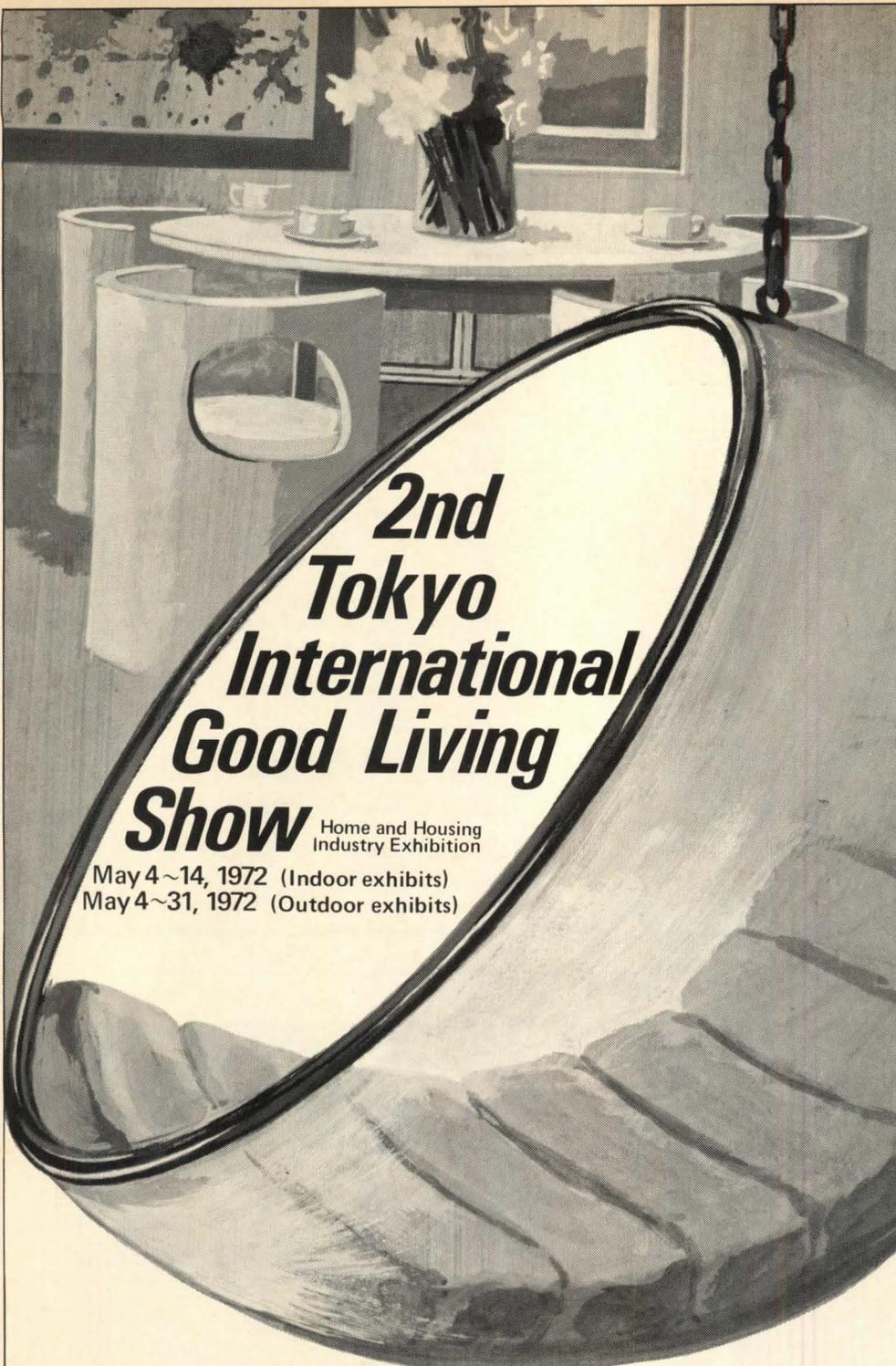
Oceanside home in Maine; Architect: Edwin A. Koch, Ogunquit, Maine; Cabot's #241 Bleaching Oil on shingles and siding.



Samuel Cabot Inc.

One Union St., Dept. 328, Boston, Mass. 02108
Please send information on Cabot's Bleaching Oil.

For wood chip samples, write on your letterhead.



**2nd
Tokyo
International
Good Living
Show**

Home and Housing
Industry Exhibition

May 4~14, 1972 (Indoor exhibits)
May 4~31, 1972 (Outdoor exhibits)

**You'll see everything for the home of your dreams
at TOKYO in 1972**

Yes, come to the 2nd Tokyo International Good Living Show and see what the latest ideas of modern technology can contribute to your way of living, bringing you the good life of the future today. Building materials, interior furnishings, exterior and interior facilities, model houses, construction machinery, etc. Information on home design, financing, maintenance, safety and other important areas. Whatever your interests, there'll be something to interest you, something you wouldn't want to miss. So make sure you don't!



TOKYO INTERNATIONAL TRADE FAIR COMMISSION
No. 16, 4-chome, Harumi, Chuo-ku, Tokyo
C.P.O. Box 1201, Tokyo, Japan Cable: TOFAIR TOKYO

Arthur L. Zigas & Associates, consulting engineers, has become the mechanical and electrical engineering department of Welton Becket and Associates' New York office.

Dames & Moore, Los Angeles consulting engineering firm, has formed a separate section specializing in ecology studies and wild-life management.

Gruber Systems, Inc. of Los Angeles has created a custom design division for architects and interior designers.

Albert C. Martin and Associates, Los Angeles, has formed a land development division headed by Radoslav L. Sutnar.

New firms

Richard A. Moren and Philip B. Anderson have formed the partnership of **Genesis Architecture** with offices at the following locations: Rt. 7, Brainerd, Minn.; Lakeshore Village, Rt. 6, Brainerd, Minn.; and 419 W. Litchfield Ave., Willmar, Minn.

Peter Munselle Architecture and Planning, 116 Lasky Dr., Beverly Hills, Calif.

Project Consultants, Inc., 22 Chambers St., Princeton, N.J.

John J. Graham, AIA, and John Culotta, AIA, have formed the firm of **Graham-Culotta Architects AIA**, 43322 Seven Mile Rd., Northville, Mich.

James W. Ellison AIA Architect, Terminal Sales Building, First Ave. and Virginia St., Seattle, Wash.

L.E. Tuckett, AIA, has joined in full partnership with Bennie Thompson to form **L. E. Tuckett & Thompson Architects**, 441 Lexington Ave., New York City.

Duchscherer and Oberst, consulting engineers, have formed a new partnership with **Edwin R. Shackleton Jr.** as full partner. The firm, **Duchscherer and Oberst and Shackleton**, will be located at 2320 Elmwood Ave., Buffalo, N.Y.

Griffith-Kendall Architects have announced the formation of **Kendall Griffith Russell Artiaga Architects Engineers Planners Inc.**, 1010 Bankers Trust Building, Des Moines, Iowa.

Name changes

Begow and Brown Architects, Inc. of Bloomfield Hills, Mich. is now known as **Jack Brown and Associates Architects, Inc.**

Lashmit Brown and Pollock Architects and Engineers of Winston-Salem, N.C. is now **Jennings Newman Van Etten Winfree Architects and Engineers.**

Guy Norman Design Enterprises Inc. of Cherry Hill, N.J. is now known as **G N Designs, Inc.**

Unatap: Turns water into money.



Come in low with a hand washing system that offers important operating savings in the bargain.

A system incorporating the Unatap spray mixing faucet.

This clever flow-governing faucet maintains an economical yet hygienic spray of water, while allowing personal control over temperature. Actually saves on hot water to the tune of two-thirds (in an independently-supervised test).

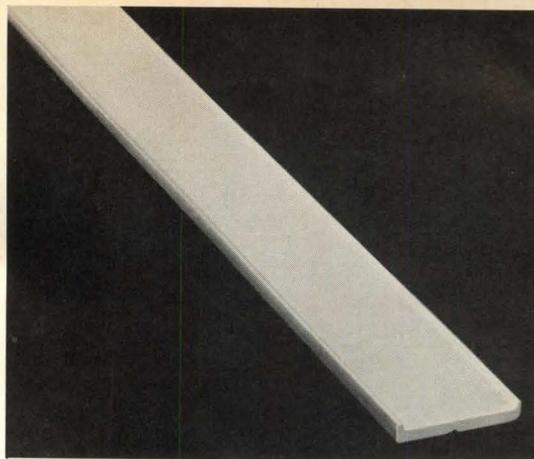
Which means a slimmed-down hot water system. Which means a lower installation cost. And lower running cost too.

Specify Unatap. You'll come in low.

Richard Fife, Inc.

1140 Broadway, New York, N.Y. 10001
Phone: (212) 683-0745

On Reader Service Card, circle no. 346



the secret

of reducing condensation damage is this unique Amarlite thermal barrier that provides maximum insulation from outside to inside metal!

The Amarlite PBS-380 Aluminum Wall System with positive thermal break is ideal for low-rise or slab construction. Provides more strength per pound of metal for big savings on large buildings. Exclusive snap-in adapter permits transition from 1-inch to 1/4-inch glass. Better appearance, faster installation, and less cost than screw-fastened adapters. In clear, anodized or Amanodic colored hardcoat finishes.

Amarlite Wall Systems offer complete design freedom from a modern low-rise to a spectacular high-rise. Write for specification file no. 8, or Sweets File 8.22 An.



AMARLITE
PRODUCTS



4785 Fulton Industrial Boulevard, S.W.
Atlanta, Georgia 30305 • Telephone: (404) 691-5750



On Reader Service Card, circle no. 399

Job mart

Situations wanted

Architect: Age 31, AIA, NCARB certificate, Ohio and West Virginia registration. Diversified experience in design and production. Seeking responsible position with progressive architectural firm or with manufacturer involved in development of building systems. Willing to relocate and or travel. Resume upon request. Reply to Box #1361-332, *Progressive Architecture*.

Architect: NCARB registration, family, 14 years diversified experience with top firms, heavy in housing and hospitals. Seek all around responsibility with a progressive firm. Reply to Box #1361-333, *Progressive Architecture*.

Architect: NCARB. Ten years diversified experience from board to client contact in midwest offices, both private firms and state education institution. Prefer position with firm utilizing or wanting to develop facility programming in project process. Interest in resource and land use conservation within profession capability. Reply to Box #1361-334, *Progressive Architecture*.

Architect: Presently engaged in small independent practice, seeks responsible position in firm preferably located in Minneapolis-Saint Paul area. Experience includes seventeen years working on all phases of the architectural services required for the creation of well designed contemporary buildings. Reply to Box #1361-343, *Progressive Architecture*.

Architect: Wide diversified European and US design experience. Highly productive. Special talents in creative and artistic project presentation rendering, models in all stages and media. Folio includes book on subject. Free lance a possibility. Reply to Box #1361-335, *Progressive Architecture*.

Architect: Seeking work for architect, large corporation, institution or government. Twenty years experience includes extensive state facilities, offices and university campus development. Available immediately. Box #1361-336, *Progressive Architecture*.

Architect/planner: Twenty years impressive international and US experience in regional, urban, resort and recreational fields of design and developments. US citizen. Family confines employment to NJ-NY metropolitan area. Speaks seven languages. Reply to Box #1361-344, *Progressive Architecture*.

Architectural team: One architect, 17 years private practice, AIA, NCARB; wife (legal secretary); one architectural draftsman, midway in registration; wife (nurse). Work in all aspects of architecture; mobile; willing to travel to most parts of the world. Reply to Box #1361-345, *Progressive Architecture*.

Chief architect/chief specifications: NCARB, AIA, CSI, 43, married, 17 years experience. Government, educational, medical, industrial,

commercial, religious projects, sizes to 20 million. Firms of 20 to 200 men. Emphasis: Building technology, specifications, drawings, contracts, trouble shooting. Seek responsibilities, partnership potential. Reply to Box #1361-337, *Progressive Architecture*.

Graduate architect: Age 27, married, M. Arch., graduate fellowship recipient, diversified research, planning and design experience, and pragmatic comprehensive interests. Seeking a responsible and challenging position with a progressive architectural/planning organization. Will relocate in United States or Europe. Personal resume upon request. Reply to Box #1361-338, *Progressive Architecture*.

Interior designer—BS interior design, 13 years comprehensive and diversified background in office furniture field including 5 years own practice and 3 years architectural experience. Single, young lady, location open. Resume on request. Reply to: 600 Kingston Place, Yukon, Oklahoma 73099

Professional engineer: 38, proficient in heating, ventilating, air conditioning, plumbing and drainage systems. Will affiliate or represent contractor, engineer or architect. Geographical area no barrier. Reply to Box #1361-314, *Progressive Architecture*.

Registered architect: Seeking position as interior space planning architect and programmer in medium to large sized office in the southwest, west, or west coast. Thirteen (13) years diversified experience with leading firms in southwest and west coast. Married, 2 children, 37. Reply to Box #1361-340, *Progressive Architecture*.

Research director, architect-engineer: (38), terminating full-time research and teaching engagement this summer, is seeking another challenging opportunity in industry, education, professional, or research organization. Interests and expertise include: Systems building, system development, information handling, industrialized housing, interdisciplinary projects, innovative education, organization of research and development for software and hardware, surveys, publication, building design and construction. Considerable intellectual independence, scope of activity and responsibility is wanted. The candidate speaks several languages and is internationally experienced. Would consider: permanent appointment in civilized surroundings, otherwise: consultancy or joint, task-oriented ventures. Reply to Box #1361-341, *Progressive Architecture*.
[continued on page 165]

Advertising Rates

Standard charge for each unit is Fifteen Dollars, with a maximum of 50 words. In counting words your complete address (any address) counts as five words, a box number as three words. Two units may be purchased for thirty dollars, with a maximum of 100 words. Check or money order should accompany advertisement and be mailed to Job Mart c/o Progressive Architecture, 600 Summer Street, Stamford, Conn. 06904. Insertions will be accepted not later than the 1st of the month preceding month of publication. Box number replies should be addressed as noted above with the box number placed in lower left hand corner of envelope.

Situations open

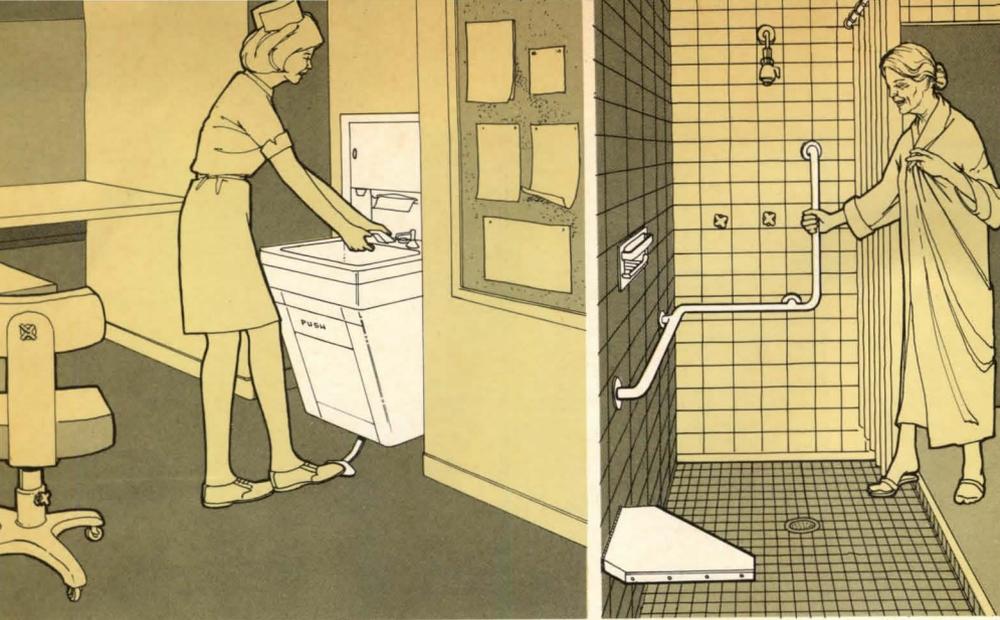
Architect: Architectural/engineering firm with excellent growth potential and individual advancement opportunities needs qualified candidate to fill key position as project architect. Must be registered and degreed. Excellent starting salary and compensation package. Send resume in confidence to Box #1361-330, *Progressive Architecture*.

Architectural designers: Experienced in design and working drawings. Degree not required. Commercial, institutional and industrial projects with challenging assignments in relocatable modular building design. Offices in the Central Florida area, near the beach and Disney World. Rush resume to: Briel Rhame & Houser, 1980 N. Atlantic Ave., Suite 718 Cocoa Beach, Fla. 32931

Design architect: An expanding upper mid plains A & E firm seeks a young, degreed architect with design imagination and ability in developing sketch-type presentation drawings of 2-3 years experience in an architectural office is desirable. Send detailed resume of education, experience and salary requirement to G. E. Galyardt, Bell, Galyardt and Wells, 1026 Jackson Blvd., Rapid City, South Dakota 57701. An Equal Opportunity Employer.

Registered architect: Experienced aggressive, professional for chief of architectural design section with well established Architectural-Engineering firm having corporate divisions in Land Development and Modular Building Manufacturing. Offices in the Central Florida area, near the beach and Disney World. Rush resume to: Briel Rhame Poynter & Houser, 1980 N. Atlantic Ave., Suite 718, Cocoa Beach, Fla. 32931

Structural/design engineer: Professionally registered engineer. Degree necessary. Experience in commercial, institutional, and mass-housing design projects. Excellent opportunity for advancement. Southwest location. Salary commensurate with experience and background. All replies will be answered in strict confidence and promptly. Box #1361-331, *Progressive Architecture*.



NEW GUIDE HELPS PLAN WASHROOMS IN HOSPITALS

Yours for the asking. Bobrick's helpful Planning Guide provides a comprehensive check list for all the washroom equipment needed in patients' rooms, patients' bathrooms, examination and treatment rooms, surgical scrub areas, laboratories, doctors' and nurses' toilets and public washrooms.

Unified design can now be readily achieved from one source. Bobrick offers everything from surgical soap dispensers to laminated plastic toilet compartments. More than 600 recessed and surface mounted stainless steel washroom equipment products. Bobrick also offers 20 different space-saving Console Units with built-in lavatories, combining up to 10 essential washroom accessories.

Send for Hospital Planning Guide to: Bobrick, Architectural Service Dept., 101 Park Avenue, New York 10017.



NEW YORK • LOS ANGELES • TORONTO
Since 1906 Designers and Manufacturers
of Washroom Equipment



On Reader Service Card, circle no. 331

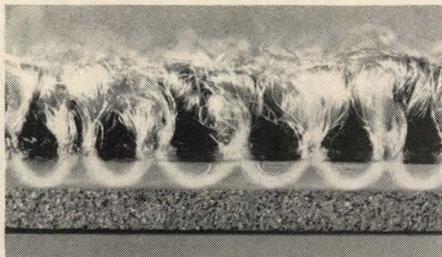
With Powerbond you don't have to decide between carpet and tile.

Powerbond pile vinyl is carpet and vinyl together! And only Collins & Aikman makes it.

A floor covering whose luxurious soft surface provides the esthetic beauty of carpet. A tough, dense pile surface made from a second generation, anti-soil nylon. Which allows for maintenance as low or lower than other floor coverings. It's fused to a closed-cell sponge vinyl that resists indentation and is virtually waterproof. And provides dimensional stability so Powerbond pile vinyl can't crawl, bag or sag. In short, with Powerbond pile vinyl you get the best of carpet fused to the best of vinyl.

And we'll also tell you about Powerbond Tex-Tiles. The 18" x 18" miracle squares of vinyl-backed carpet that need little or no adhesives for installation. You can put them down and pick them up at will. Making a truly "portable" floor covering.

Don't decide on a floor covering until you get the full Powerbond pile vinyl and Tex-Tile story. From Bill Wiegand or Harry Vorperian at (212)



371-4455. Or send in the coupon. And we'll have a man out to you in a jiffy to show you the unique floor coverings that make practical, beautiful sense. Powerbond pile vinyl and Tex-Tiles.

Collins & Aikman, 919 Third Avenue, New York, New York 10022.



P-3

Please call me for an appointment.

Name _____

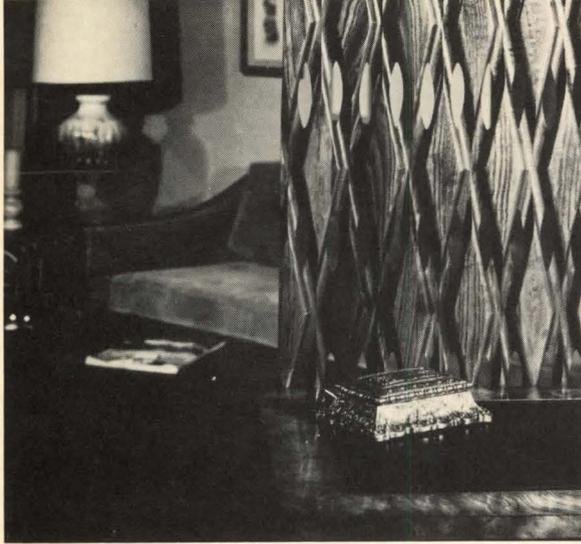
Firm _____

City _____ State _____ Zip _____

Telephone number _____

**Collins & Aikman
makes the Pile Vinyl that
makes things happen.**

SCULPTUREWOOD



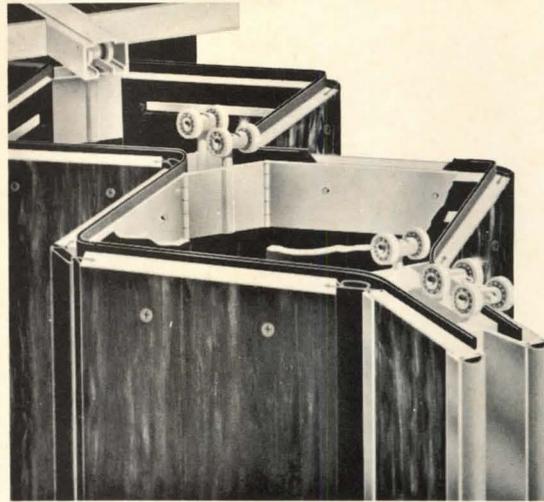
Beautiful Background—To divide a room, create a hall or panel a wall. Sculpturewood comes in 20 different patterns with a choice of walnut, birch, ash, oak, poplar and other enticing species. You can specify size, framing and finishes in 3/4" or 1/2" thicknesses. Solid and see-through patterns. Write for full color literature.

Penberthy
ARCHITECTURAL PRODUCTS

5800 So. Boyle Ave., Los Angeles, Calif. 90058 (213) 583-4511
REPRESENTATIVES IN PRINCIPAL CITIES. COVERED BY PATENT NO. 2859781

On Reader Service Card, circle no. 369

SONICWAL®



STC
40

in
WOOD

Who said you couldn't use wood folding partitions to control sound? You can now. With twin panel Sonicwal®. Look it up today in your 1972 Sweet's Architectural File 10.2 Pa. After all, wouldn't you rather work with wood?

PANELFOLD
WOOD FOLDING DOORS AND PARTITIONS
10710 N.W. 36th Avenue, Miami, Florida 33167

Panelfold

On Reader Service Card, circle no. 373

Job mart continued from page 162

Architectural services

Career Builders Inc., Agency: Complete range of Architectural and Interior Design placement under the direction of Ruth Hirsch. Apprentices to Senior Designers and Project Architects. Professional screening and personalized service. References checked. 501 Madison Ave., New York, N. Y. 10022, PL 2-7640.

Edwards & Shepard Agency: We are a design and architectural placement service uniquely equipped to locate and appraise the qualifications, experience and effectiveness of architectural and interior designers, urban planners, systems and space planners, construction specialists, exhibit, lighting and environmental designers. We know (1) what positions are available (2) who the best prospects are (3) the right approach (4) how to break negotiating gaps (5) how to save money, time and effort (6) how to simplify procedures and appointments (7) the day to day state of the market. Contact Bill Shepard at (212) 725-1280. Interviews by appointment in our "dome on the roof" at 1170 Broadway, N. Y. C., N. Y. 10001.

Larry Evans design consultant: Architectural renderings & models. Send plans or photos for estimate. We also prepare brochures, graphics & letterheads. We will telephone you with a price quotation the same day we receive the plans. Please call (415-398-8938) or write #20 Whaleship Plaza, San Francisco, Calif. 94111

Helen Hutchins Personnel Agency—Specialist: Architecture, industrial design-interior design and home furnishing. Interviews by appointment. 767 Lexington Avenue, New York, N.Y. 10021, TE 8-3070.

Naracon personnel: Architectural & engineering personnel. Naracon is your finest source for getting a new job in the right office. There is no fee. We are retained by A/E/C firms. Write to send your resume to: Naracon Personnel, 462 Germantown Pike, Lafayette Hill, Pa. 19444. No telephone calls. A professional-technical employment agency.

Salesmen: Nationally known, New York based, crafts firm active in art metal work, stained glass, mosaic, painted decoration, wood carving, lobby features, custom church furnishings, wishes local representatives in major cities. Firm design, fabricates, delivers and installs. All union. Reply to Box #1361-342, *Progressive Architecture*.

David S. Wachsman Associates, Inc.: Public relations/marketing: Is your architectural practice growing? Are you well known and highly regarded in your market? Is the best of your work published on a continuing basis? Excluding staff and clients, are at least 200 people currently familiar with your office and its work? Does your brochure represent you as well as your most successful project? If you answer "no" to any of these questions, professional public relations/marketing service may be of immense value to you. We would be pleased to discuss your growth plans. 51 East 42nd. St., New York, N.Y. 10017 (212) 678-1196.

Ritasue Siegel Agency: Comprehensive, confidential, international placement and executive search for architectural, urban, interior designers and planners by Miss Woody Gibson. Industrial, environmental and graphic design by Mrs. Siegel, (former Pratt Institute placement Director and ID graduate.) All positions fee paid. By appointment, please. (212) 684-3537, 1170 Broadway, N.Y.C. 10001.

Notice

Please address all correspondence to box numbered advertisements as follows:

Progressive Architecture
c/o Box.....
600 Summer Street
Stamford, Connecticut 06904

Advertisers

Advertising Sales Offices

Stamford, Connecticut 06904:
600 Summer Street 203-348-7531

William F. Bondlow, Jr.
Advertising Sales Manager

Michael J. Hanley, Donald C. Stanley
District Managers

Philadelphia, Pennsylvania 19107:
12 So. 12th Street 215-922-0346
John A. Teefy, District Manager

Pittsburgh, Pennsylvania 15219:
Porter Bldg.—Room 242 412-281-9421
Albert E. McClimans, District Manager

Chicago, Illinois 60603
10 So. LaSalle Street 312-726-1282
Dean E. Greener, James J. Hoverman
District Managers

Cleveland, Ohio 44114:
1717 E. 9th Street 216-771-4011-12-13
John F. Kelly, District Manager

San Francisco, California 94104:
Jobson, Jordan, Harrison & Schulz, Inc.
57 Post Street 415-392-6794
Charles S. Harrison, Cyril B. Jobson
Representatives

Los Angeles, California 90057:
Jobson, Jordan, Harrison & Schulz, Inc.
1901 W. 8th Street 213-483-8530
Kenneth E. Jordan, Peter Schulz
Representatives

Atlanta, Georgia 30308:
H. Proctor Co.
505-805 Peachtree Bldg. 404-874-6427
Harmon L. Proctor, Representative

Tokyo, Japan:
International Media Representatives, Ltd.
1, Shiba-Kotohiracho, Minatoku
Sumio Oka, Representative

Acme-National Refrigeration Co.	168
Givaudan Advertising	
Alliancewall Corp.	35
Battle Advertising, Inc.	
Amarlite/Anaconda	161
Peitscher, Janda Associates, Inc.	
American Chain & Cable Co./Page Fence Div.	142
Wilson, Haight & Welch, Inc., Advertising	
American Gas Association	12
Ketchum, MacLeod & Grove Inc.	
American Telephone & Telegraph Co.	24
N. W. Ayer & Son, Inc.	
Andersen Corp.	122, 123
Campbell-Mithun, Inc.	
Architectural License Seminars	130
Armor Elevator Div. A. O. Smith Corp.	124, 125
McCann-Erickson	
ASG Industries, Inc.	23
Liller, Neal, Battle & Lindsey Inc.	
Azrock Floor Products	Cover 2
Glenn Advertising, Inc.	
Bally Case & Cooler Inc.	121
Beaumont, Heller & Sperling, Inc.	
Bethlehem Steel Corp.	44, 45
Van Brunt & Co.	
Blum, Julius & Co., Inc.	129
Seery & Company	
Blu-Ray Co.	138
William Schaller Co., Inc.	
Bobrick Washroom Equipment, Inc.	163
Woolf Advertising Inc.	
Boiardi Products	159
Fox & Associates, Inc.	
Bradley Washfountain Co.	116, 117
Hoffman-York Inc.	
Bruce Flooring Div. Cook Industries, Inc. 47	
John Malmo Advertising, Inc.	
Cabot, Samuel Inc.	159
Donald W. Gardner Advertising Inc.	
Caradco Window & Door Div., Scovill	26
Reincke, Meyer & Finn	
Cardkey Systems, Inc.	130
Barry Advertising, Inc.	
Carpenter, L. E. & Co., Inc.	156
Harold Marshall Advertising, Inc.	
Celanese Coatings Co., Trade Sales Div. 7	
Doe-Anderson Advertising Agency, Inc.	
Celotex Corp.	109-112
Bishopric & Fielden, Inc.	
Checkmate Div. of Rixson Inc.	51
Motivation Dynamics	
Collins & Aikman	164
Gaynor & Ducas Advertising	

Conwed Corp.	151, 152
MacManus, John & Adams, Inc.	
Copper Development Association Inc. ...	139
Ross Roy of New York, Inc.	
Dap Inc.	10, 11
K H & C Advertising	
Domore Office Furniture	107
William John Upjohn Associates	
Dow Badische—Zefstat	53
deGarmo, Inc., Advertising	
Eastman Kodak Co.	155
J. Walter Thompson Co.	
Ebco Manufacturing Co.	2
Howard Swink Advertising, Inc.	
Electric Energy Association	48, 49
Compton Advertising Inc.	
Faber-Castell, A. W., Pencil Co.	153
J. M. Kesslinger & Associates	
Fife, Richard Inc.	161
Bozell & Jacobs, Inc.	
Florida Tile Industries, Inc.	31
Fry/Hammond/Barr Inc.	
Follansbee Steel Corp.	135
George Hill Co.	
Formica Corp.	137
Clinton E. Frank, Inc.	
Gaco Western Inc.	22WA
Kraft, Smith & Lowe	
Gates Engineering, Div. of SCM Corp.	148
John T. Hall & Co.	
General Electric	144
Young & Rubicam, Inc.	
Glidden Durkee Div. of SCM Corp. ...	Cover 3
Meldrum & Fewsmith, Inc.	
Grant Pulley & Hardware Co.	16
Cove & Cooper, Inc.	
Grace, W. R., & Co. Zonolite Construction Products ..	118, 119
Fuller & Smith & Ross, Inc.	
Haws Drinking Faucet Co.	154
Pacific Advertising Staff	
H. C. Products Co.	41, 42
Hult, Becht & Heinrich Inc.	
Hickman, W. P., Co.	168
John H. Rosen Advertising	
Homasote Co.	13
Richard La Fond Advertising Inc.	
Inland-Ryerson Construction Products Co., Milcor Div.	158
Hoffman-York, Inc.	

Jute Carpet Backing Council, Inc.	157
<i>Shaw & Associates, Inc.</i>	
Kawneer Architectural Products	8, 9
<i>Garrison, Jasper, Rose & Co.</i>	
Kemiko, Inc.	168
<i>Brown Clark Elkus & Moses Inc.</i>	
Kentile Floors Inc.	Cover 4
<i>Benton & Bowles, Inc.</i>	
Kidde Merchandising Equipment Group	159
<i>Gordon B. Pearl</i>	
Kinnear Corp.	115
<i>Wheeler Kight & Gainey, Inc.</i>	
LCN Closers	126
<i>Alex T. Franz, Inc.</i>	
Latco Products	120
<i>Albert Frank-Guenther Law</i>	
Libbey-Owens-Ford Co.	4, 5
<i>Cambell-Ewald Co.</i>	
Lundia, Myers Industries, Inc.	145
<i>Gardner Advertising Co., Inc.</i>	
Magee Carpet Co.	64, 65
<i>Mandarino-Gutman Advertising</i>	
Master Builders	146, 147
<i>Jayme Organization, Inc.</i>	
Matthews, James H. & Co.	127
<i>Carey Advertising, Inc.</i>	
Monsanto Co.	19-22
<i>Advertising & Promotion Services</i>	
Musson, R. C., Rubber Co.	156
<i>Fred Bock Advertising Co.</i>	
National Gypsum Co.	56, 57
<i>Fuller & Smith & Ross Inc.</i>	
Owens Corning Fiberglas Corp. ...	14, 15, 25
<i>Ogilvy & Mather, Inc.</i>	
Pacific Design Center	128
<i>Rex Goode Inc.</i>	
Pacific Drapery Walls	38
<i>Murray McBride & Associates</i>	
Page Fence Div., American Chain & Cable Co.	142
<i>Wilson, Haight & Welch, Inc., Advertising</i>	
Panelford Doors, Inc.	165
<i>Bruce Agency</i>	
Pella Rolscreen Co.	39, 40
<i>L. W. Ramsey Advertising Agency</i>	
Penberthy Lumber Co.	165
<i>Reynolds-Buker & Associates</i>	

PPG Industries, Inc.	131-134
<i>Ketchum, MacLeod & Grove Inc.</i>	
Porter, H. K., Company, Inc.	150
<i>Ketchum, MacLeod & Grove Inc.</i>	
Pratt & Lambert, Inc.	34
<i>Stahlka, Faller & Klenk, Inc.</i>	
Sargent & Co.	66
<i>Hepler & Gibney Advertising</i>	
Shatterproof Glass Inc.	55
<i>Robert L. Cohn Inc.</i>	
Sherwin-Williams, Professional Coatings Div.	149, 150
<i>Griswold-Eshleman Co.</i>	
Simon & Schuster, Inc.	156
<i>Sussman & Sugar Inc.</i>	
Singer Co.	18
<i>Meltzer, Aron, & Lemen, Inc.</i>	
Smith, A. O., Corp., Armor Elevator Div.	124, 125
<i>McCann-Erickson</i>	
Soss Mfg. Co.	120
<i>Brewer Associates Inc.</i>	
Southern Forest Products Association	36, 37
<i>Fitzgerald Advertising Inc.</i>	
Steelcraft Manufacturing Co.	1
<i>Keller-Crescent Co.</i>	
Tennessee Plastics Inc.	167
<i>Concepts, Inc.</i>	
Tokyo International Trade Fair Commission	160
<i>Asian Advertising, Inc.</i>	
Townsend Paneling, Inc.	142
<i>Biddle Advertising Co.</i>	
Tremco Mfg. Co.	140, 141
<i>Carr Liggett Advertising, Inc.</i>	
Tyler Pipe	136
<i>Walter Clark Advertising, Inc.</i>	
Uniroyal, Inc.	33
<i>Vitt Media International Inc.</i>	
United States Gypsum Co.	143
<i>Needham, Harper and Steers, Inc.</i>	
Uvalde Rock Asphalt Co.	Cover 2
<i>Glenn Advertising, Inc.</i>	
Weyerhaeuser Co.	59, 60
<i>Cole & Weber, Inc.</i>	
Wiremold Company	17
<i>Charles Brunelle Co.</i>	
Zonolite Construction Products, W. R. Grace Co.	11c
<i>Fuller & Smith & Ross, Inc.</i>	

show 'em a better way: Ra-matic thru-the-wall Heating & Air Conditioning

A better way to cool, dehumidify, heat, ventilate, and filter and circulate air in industrial, commercial and residential buildings—the Ra-matic is quiet, economical, and easily installed in new or existing structures.

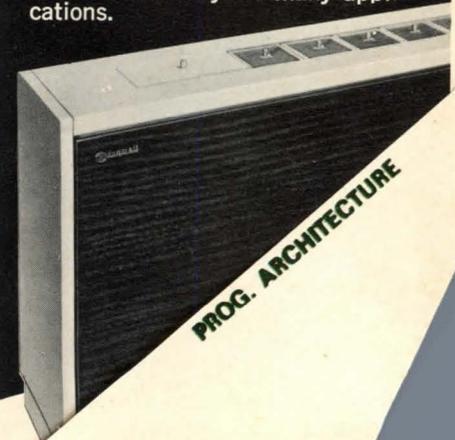
This forced air unit features a convenient push-button selection system, adjustable air flow, 208/230 volt rating, and AHAM certification.

The Ra-matic heating elements are low density totally enclosed sheath type and are equipped with thermal cutout if normal temperatures are exceeded.

The cooling system compressor is hermetically sealed and internally spring mounted with vibration isolators. The P.S.C. type motor has a capacitor and overload protection.

Convenient installation is achieved with sleeve, louver, chassis, enclosure and extender for flush mounting to any wall thickness.

Quality, convenience, and style make the Ra-matic thru-the-wall unit a better way for many applications.



PROG. ARCHITECTURE

168 ACME-19-26 Ha Progressive Archi

Another quality architectural product from Hickman . . .

ALUMINUM CONVECTOR ENCLOSURES

. . . with all the features you'd expect from Hickman. Functional, clean, free-floating design with no exposed screws. Maximum strength. Custom sizing in 9 models. Choice of finishes. Simple, economical installation.



Hickman quality products . . . Gravel Stops, Roof Expansion Joints, Fascia Panel Systems, Reglets, Convector Enclosures, Grilles.

HICKMAN

W. P. Hickman Company, Inc.
2520 Industrial Row, Troy, Michigan 48084
Phone: (313) 549-8484

On Reader Service Card, circle no. 355



LOS ANGELES CONVENTION CENTER WEARS KEMIKO CONCRETE COLORS (over 1/2 million square feet)

When a combination of beauty and durability was required for the spacious pedestrian plaza of Los Angeles' spectacular Auditorium and Exhibition Center, architect Charles Luckman & Associates and Robert E. McKee General Contractor, Inc., chose Kemiko's Permanent Concrete Stain and Col-r-tone Finishes. To achieve the striking geometric pattern illustrated, Kemiko's "Sandstone" color was combined with borders of custom mixed "Charcoal" and "Off-White". Kemiko inorganic chemical stains cannot crack, chip or peel. They become an integral part of the concrete surface. A heavy-duty Col-r-tone base topped with regular Col-r-tone will defy sun, wear and moisture for years in any climate. These Col-r-tone non-skid, glare-free finishes are easily applied by brush or roller. They may be intermixed to provide over 50 contemporary colors, typical of which is Tennis Court Green used on 90% of all Southern California tennis courts.

Write for free beautifully illustrated brochure and color chips.

KEMIKO, Inc., Dept. PA3, 2443 N. Naomi St., Burbank, Calif. 91504

Specialists in coloring concrete and asphalt since 1930.

On Reader Service Card, circle no. 359

QUALITY CONTROL STAMINA TEST '71 STYLE

ACME . . . America's Most Specified Compact Kitchens

Write for CATALOG



MODEL ROE6Y-48

NATIONAL REFRIGERATION CO., INC.
Hazen Street, Astoria, N.Y. 11105

Picture 3:72

On Reader Service Card, circle no. 320

Our 1-2 punch makes Glid-Tile the toughest on the block.

Glid-Tile[®] Epoxide is thick and tough as most 4-coat systems, but with low cost of 2 coats. The Glid-Tile polyester-epoxy finish resists years of wear and tear, stains, abrasion, impact. Tile-like nonporous Glid-Tile walls require minimum maintenance. Wide range of colors, in gloss or semi-gloss. Spatter or web finish effects, too. For commercial, institutional,

industrial surfaces of block, brick, concrete, and metal.

FREE! The Glidden Color Studio—staffed by professional designers, decorators and stylists—will color-style your facilities for safety, efficiency, and beauty. Write to us on your letterhead—we'll follow through, fast.



**GLIDDEN COATINGS & RESINS
ARCHITECTURAL & MAINTENANCE
CLEVELAND, OHIO 44115**

SCM SCM CORPORATION

On Reader Service Card, circle no. 351

1

Glid-Tile Epoxide Block-Filler: Unique epoxy-ester water-reducible material applies easily, fills porous masonry with **ONE** labor-saving coat.

2

Glid-Tile Epoxide Finish: High-solids, high-build polyester-epoxy coating. Brush, roll, or spray in **ONE** labor-saving coat.

THE GREAT DECEIVER.

As a practicing professional, you're well aware of the aura of luxury and elegance Travertine marble can add to a décor. With this in mind, Kentile now gives you something refreshingly new in flooring to work with: A remarkably authentic Travertine styling in economical $\frac{1}{8}$ " vinyl asbestos tile. We call it Regal Travertine. And, as our unre-touched photograph shows, it's a

whole new dimension in Travertine tile design. Notice the texture. Most distinctive. Observe, too, how it complements the veins of pure translucent vinyl running at random through each 12" x 12" tile. The five new Regal Travertine colors (Rust shown) are all strikingly, uniquely Kentile's. Here's a tile of majestic, three-dimensional beauty and depth, ideal for both residential and commercial use.

And remember: Because Regal Travertine won't support combustion, it's fire-safe. Ask your Kentile® Representative to show you the full line. And, of course, provide you with samples.

KENTILE
FLOORS

BROOKLYN, N.Y. 11215

On Reader Service Card, circle no. 300

