Progressive Architecture

October 1974 A Reinhold publication







ARCHITECTURAL RESOURCE CENTER College of Architecture UNC Charlotte, NC 28223

There's a lot more to Quiet Zone than meets the eye-or the ear. When you first see it, Armstrong Quiet Zone looks like a modern, attractive Armstrong Vinyl Corlon® floor. But when you walk on it, and feel its comfort, and listen to your footsteps, you might think it's carpet.

Because underneath, Quiet Zone is unlike any floor you've probably ever seen. A thick backing of Cushioncord® vinyl foam muffles foot-



steps and the clatter of dropped objects. It also cushions feet, for more walking and standing

You know how important quietness and comfort are. You know how important good design is. And you know how important practicality is.

Quiet Zone is all of that. Its rugged, heavyduty vinyl surface resists scuffs and stains. Maintenance is simple and economical. And Quiet Zone is available in two handsome patterns, which are richly textured to help disguise traffic marks and subfloor irregularities.

Install Quiet Zone. Listen to it wo information? Please mail the coupon. Install Quiet Zone. Listen to it work. More

Quiet Zone at work. You know it's vinyl, but you might think it's carpet.



83020 Brown





83024 Green



83025 Gray-Beige

The Quiet Zone pattern illustrated here is called Grand Central

For more information, send this coupon to Armstrong, 310 Watson St., Lancaster, Pa. 17604

Name_ Company_

Address_ State_

> INDOOR WORLD® OF istrong

Circle No. 326, on Reader Service Card



HOW TO MAKE A MONUMENTAL DIFFERENCE.

It's exciting, sweeping, bold, beautiful and versatile.

It's designed to take the wraps off your imagination. To make for a grand design, on a truly large scale.

The Alcan Planar Aluminum Ceiling vstem.

There's no size limitation to work around. No weight problem. No maintenance headache.

Just durable, adaptable aluminum that even holds up in high-chlorine, highhumidity environments, with a tough silicone polyester finish you only have to wipe to clean. And because it's aluminum, it makes as good a soffit as a floating ceiling. In case you want to carry the look inside to the outside, with a curtain wall or the like.

What's more, it's not a system in name only. It's all there, all in one place, all at Alcan: panels, lighting fixtures, invisible air diffusers, everything. Including sound insulation if you need it.

All of which makes our Planar Ceiling System monumentally sensational.

ALCAN

For details, write Alcan Building Products, Department I, P.O. Box 511, Warren, Ohio 44482.

ALCAN ALUMINUM

Editor

John Morris Dixon, AIA

Managing Editor

James A. Murphy, AIA

Senior Editors

David A. Morton, Features, Books Suzanne Stephens, Features

Associate Editors

Sharon Lee Ryder, Interior design Roger Yee, Technics Ann Carter, News report Charlotte VanVoorhis, Products

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

Contributing Editors

Esther McCoy, Los Angeles
George McCue, Indianapolis
Roger Montgomery, San Francisco
Sally Woodbridge, San Francisco
Norman Coplan, It's the law
Bernard Tomson, Hon. AIA, It's the law
Harold J. Rosen, PE, FCSI, Specifications clinic
Hanscomb Roy Associates, Cost analysis

Editorial Panel

William Bagnall, Dean, Boston Museum of Fine Arts School Michael Brill, President, BOSTI; Professor, SUNY, Buffalo David Crane AIA, Dean, Rice School of Architecture Craig Hodgetts, Principal, Works Theodore Liebman, New York State Urban Development Corp. Walter Netsch FAIA, Partner, Skidmore, Owings & Merrill Joseph Newman, Vice President, Tishman Research Corp. Herman Spiegel, Dean, Yale School of Architecture

Publisher

Robert N. Sillars, Jr.

Paul B. Beatty, Director of Sales
William F. Bondlow, Jr., National Accounts Manager
Burchard M. Day, Promotion Director
Joseph M. Scanlon, Production Director
Daniel H. Desimone, Production Manager
Janice Carmichael, Assistant Production Manager
Carol Zezima, Production Assistant
Marc Ross, Circulation Director
Joseph Wm. Cece, Fulfillment Manager
E. M. Dwyer, Reader Service Manager



Progressive Architecture, published monthly by Reinhold Publishing Company, Inc., a subsidiary of Litton Industries, Inc. Philip H. Hubbard, Jr., President; Harry I. Martin, Vice-President; A.E. Cook, Treasurer; Kathleen A. Starke, Secretary. Executive and editorial offices, 600 Summer Street, Stamford, Conn. 06904 (203-348-7531).

For all subscription information write Circulation Dept., Progressive Architecture, 25 Sullivan Street, Westwood, N.J. 07675 (201-262-3030). When filling a change of address, give former as well as new address, zip codes, and include recent address label if possible. Allow two months for change.

Subscriptions payable in advance. Publisher reserves right to refuse unqualified subscriptions. Professional rate (\$7 for one year) is available to architectural and architectural-engineering firm personnel and architects, designers, engineers and draftsmen employed in allied fields. Professionals outside U.S. and Canada \$18 for one year. Nonprofessionals outside U.S. and Canada: \$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 LV, No 10 Printed in U.S.A. Copyright © 1974 Reinhold Publishing Company, Inc. All rights reserved.





October 1974

Progressive Architecture

Design and planning

61 Editorial: Housing policy, housing design

62 Assessing Broadway East

New housing for low and middle income families in Kingston, N.Y. by Wells/Koetter/Dennis: an outside appraisal and a historical perspective.

72 Ten years past at Peabody Terrace

After a decade of use, a housing landmark at Harvard is examined to see how well it has actually worked for the married students who live there.

78 Standing by the Twentieth Century Brick

Although not built by industrialized methods as intended, a prototype house by Paul Rudolph demonstrates his original concept's potential.

84 Architecture and revolution: Cuba, 1959 to 1974

A rare and thorough look at the recent developments in Cuban planning and architecture, placed in the historical context of social change.

92 Interior architecture: A very lofty realm

Loft spaces, originally designed for warehousing and manufacturing, are increasingly popular for living/working quarters for varying lifestyles.

Technics

103 Specifications clinic: Fire hazards

106 The invisible architects: Automated specifications

110 Spray on, MacDuff: Sprayed fire protection

112 P/A building cost file: Wells/Koetter/Dennis housing

Departments

7	Views	130	Building materials
21	News report	142	Job mart
116	It's the law	148	Directory of advertisers
120	Books	151	Reader service card
124	Products and literature		

Cover: detail view, south façade of building one, low and middle income housing in Kingston, N.Y., by architects Wells/Koetter/Dennis (p. 62). Photo: Nathaniel Lieberman



Dover just made it easier for you to specify elevators.

With new pre-engineered models and new cab designs.

Dover now offers four completely designed and pre-engineered Oildraulic® elevators ready to fit into your building plans.

You save on design time and delivery time. Your client saves money. And each of these elevators has options in specifications and finishing techniques to give you even wider choice.

All are designed to serve low-rise buildings of various types: apartments, office and educational buildings, hospitals, and nursing homes. With the sizes and capacities available there's probably one that will suit the needs of a project on your boards right now.

Kingswood—Our biggest pre-engineered model. Capacity of 4000 lbs., car platform size 5'8" wide by 8'8" deep. Designed to accommodate hospital beds, stretchers, other medical equipment.

Marquis — Center-opening doors for quick passenger movement. Capacity is 2500 lbs., car platform 7' wide by 5' deep. Plastic laminate walls or select from a wide variety of colored and wood-grained removable wall panels.

Fleetwood—Capacity of 2000 lbs., car platform 6'4" wide by 4'7" deep. Choose either plastic laminate or removable panel walls. Stainless steel or wood-grain handrail. Single-slide doors, right-hand or left-hand.

Continental – For light-traffic situations. Capacity 1500 lbs., car platform 5'2½" wide by 4' deep. Single-slide right-hand door. Plastic laminate or removable panel walls.

Dover's pre-engineered Oildraulic elevators are manufactured to our uniform high quality standards. And that's your best guarantee of an elevator system that will give years of dependable, trouble-free service.

For complete specifications and detail drawings of Dover's time-saving preengineered elevators, Oildraulic and Traction, write Dover Corporation, Elevator Division, Dept. B-5, P.O. Box 2177, Memphis, Tennessee 38101. In Canada: Dover/Turnbull.

DOVER DEPENDABILITY It's better in the long run.

DOVER

One fixture, three lighting materials and four weeks in a municipal park.

LEXAN

No problems now or for years to come. Virtually impossible to break even at sub-zero temperatures. Truly vandal resistant and it takes high heat. So once it's up, the lights stay on. For the good of people, parks, streets, buildings, maintenance budgets. For test kit of comparative samples, manufacturers' list and data: Section 247, Engineering Polymers Product Dept., General Electric Company, One Plastics Ave., Pittsfield, Mass. 01201.

The first to go, first to leave pedestrians and motorists in the dark. Weakest lighting material of all. Costs are deceptive too. Low initially, they add up fast, replacement after replacement after replacement.

Another easy mark. Almost as fragile as glass, yet more expensive. Not recommended where breakage is a problem. Loses strength in cold, shape in heat. Not enough for the

GENERAL % ELECTRIC



World Leader in Engineering Plastics LEXAN® NORYL® GENAL® PHENOLICS VALOX®

Letters from readers

Views

July issue feedback

As one who has been in the business of publishing for many years, I am seldom moved to comment on a specific issue of a magazine. However, I cannot allow your July 1974 P/A, with its theme of "Preserving the recent past," to go by without congratulating you on a highly interesting issue.

I have a fair idea of the behind-thescenes work which must occur before so many outstanding pieces are collected between covers—my admiration of your efforts and the result is practically unbounded.

Gerre L. Jones Gaio Associates, Ltd. Washington, D.C.

We may assume, I presume, that the Papyri Family was founded by Papyrus, per Esther McCoy's report on the new-old Getty Museum (July P/A, p. 35). My sources indicate that the Villa contained an extensive library of papyrus scrolls, discovered during the earlier excavations at Herculaneum. Regrettably, none contained a bookplate of the collector-owner.

Seriously, you're to be commended for an especially interesting issue on preserving our recent past! Your color coverage of Oakland's Paramount is particularly laudable, since so much of the real impact would have been lost otherwise.

Keep up the stimulating work, including Eisenman's intriguing spatial experiments!

James R. Harrington, AID The University of Georgia Athens, Ga.

[The Papyri dynasty is strictly P/A's contribution to archaeological history, a new find that surprised even contributor Esther McCoy. The reaction of Getty Museum consultant Dr. Neuerberg, as reported by Ms. McCoy, "That's a new one. Most journalists think Papyri is a town."—Editor]

Your July issue extraordinary-rich, complex, innovative-what architectural journals should be about. As Architect

and Academic, I thank you!

Now to some less important business. On pp. 26–31 of the same issue you report on two conferences which I do not think were as divergent as your reporter suspects.

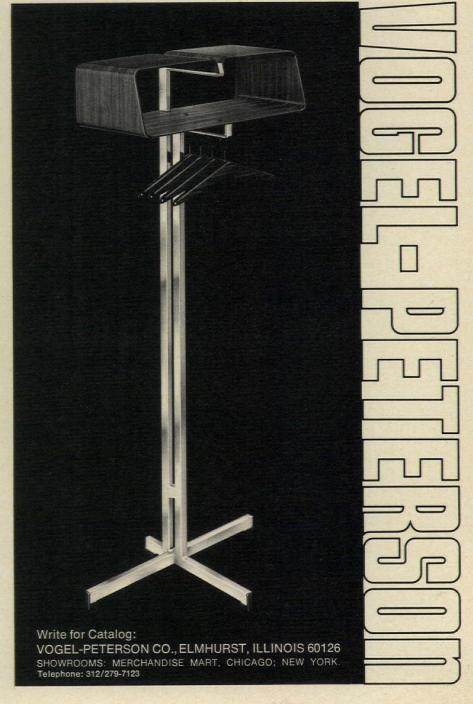
I am listed as a "grey." In fact, I was invited by the twin "Sol Huroks" of Architecture and Showbiz (Stern & Eisenman) to be a "white"—for reasons that escape even me.

Like any self-respecting "actor," I declined to be associated with this road show unless I was guaranteed more than a one-night stand. Surely Peoria, Topeka, and Kalamazoo deserve at least a look at the self-proclaimed keepers of the flame of archi-

tectural truth. My reservations were a good deal more serious than that, however, as your quotes of my rather lumpy and demagogic rantings at Harvard indicated.

Far be it for me to criticize a little innocent self-congratulatory daisychaining in the smog of L.A. Conferences of architects whose intention it
is to explore *ideas* usually degenerate
into harmless fun and games anyway,
but when systematically closed to influences from outside the "club," as
was the case at UCLA, they do not
have much of a chance.

James Stewart Polshek
New York, N.Y.
[Views continued on p. 10]



HONSTEEL FABRICATORS, INC. TAUGHT EVERYORE ALESSONATTHE HARRSBURG MIDDLE SCHOOL.

The lesson was how to cut three to six months off the design and

construction time for completing a school.

The teaching materials were Vulcraft's steel joists and joist girders as utilized in Steel Fabricators' "Fab-Lok" structural subsystem, which made "fast track" construction scheduling possible for this job.

By using Vulcraft steel joists and joist girders instead of concrete. the structural work on the building could be started before the final design was completed. Because Vulcraft's joist girder system utilizes a

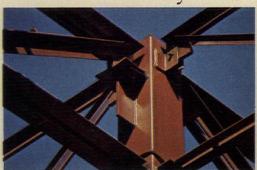
standard five-foot panel point spacing. Knowing this allowed designers to standardize lighting/ceiling components as well as heating, ventilating and air conditioning components. And layouts for wiring, ducts and pipes. Also, because Vulcraft's steel joists use an open web construction pattern, installation of all wiring, ducts and pipes goes easier and faster. They actually can pass right through the joists and joist girders.

The light weight of Vulcraft's joists and joist girders offers other advantages, too. Erection is easier and faster. Supporting columns can be spaced further apart to provide for larger bay areas. And foundation size can be decreased.

The "fast track" technique worked in Harrisburg, Pennsylvania. Plus ten other schools throughout the country where Vulcraft steel joists and joist girders have been used by Steel Fabricators, Inc.



Vulcraft's steel joists and joist girders allow a standard five-foot module between connecting points.



The standardization of column connection also speeds up construction. And requires fewer connecting bolts.



The light weight and simplicity of Vulcraft's steel joists and joist girders make erection fast and easy.



The open web feature of steel joists and joist girders allows ducts, pipes and wiring to pass directly through the steel members.



The high strength of steel joists and area, allowing larger bays.



The ease and versatility of designing joist girders provides increased clear span with steel joists and joist girders solve otherwise complex design problems.

And it can work for you. Just contact your local Vulcraft representative for your Joist Girder Specification Guide. Or write Vulcraft, P.O. Box 17656, Charlotte, North Carolina 28211 to learn how to speed up your work. Or call (704) 366-7000.

We have the know-how. And we have five plants located throughout the country to make sure your deliveries are there on time.

After all, when school time rolls around, nobody wants to be late.

VULCRAFT

Architect: William Lynch Murray & Associates, Harrisburg, Pennsylvania. Erector: Walsh Steel Services, Pittston, Pennsylvania. General Contractor: Ritter Brothers Construction, Harrisburg, Pennsylvania. Steel Fabricator: Steel Fabricators, Inc., Fort Lauderdale, Florida. Consulting Engineer: Quentin Bowers, P. E., Harrisburg, Pennsylvania.

Views continued from p. 7

Kahn: more to be said

Giurgola's rather fine eulogy of Kahn leaves me with a sense of a very important exclusion about Kahn that should also be mentioned.

There were in Kahn's work constant visual references to Wright's work including such diverse Wright works as the Larkin Building, the Martin House, Unity Temple, and the Lenkurt Electric project, to mention a few. But these references were restated in a very Ro-

man stripped-down way, minimally detailed and elemental. There also seems, through this minimality, a separation between Kahn's superb thinking and his feeling.

In this lack of feeling, Kahn was not out of step with his contemporaries. It was unfortunately a product of the powerful and rich North American culture, one from which we are only now beginning to emerge. In that sense did he very much express the culture of our time.

Kahn was a very wise man. I had through the years been impressed

with Kahn's ability to verbalize fundamental architectural concepts in poetic and elemental ways. So, therefore, with great care, on several occasions, I visited his work and listened to his words. I was always left with a certain emptiness in his buildings and absolutely swept off my feet by his verbal perceptions. It was perplexing. But one day he spoke to the architectural convention in Toronto in his usual persuasive way. He was thanked, in our British way, by an architect who said Kahn was the leader we had been looking for and Drexler's words about Mies came back to me, that Mies' great impact stems from his style's teachability. Kahn's was another generalized architecture with more of the specific than Mies, but still very much generalized, and teachable.

It seems to me that this wise and dazzling man could at the same time be leading us into rather than out of the wilderness. He spoke like a Moses but designed as if for Pharoah.

Macy DuBois

Fairfield + DuBois Architects Planners

Fairfield + DuBois Architects Planners Toronto, Canada

Value engineering

I recently completed an article in your June 1974 issue (p. 26) regarding the Construction Management Seminar as organized by Advanced Management Research Company in New York City. I noted with a mild degree of amusement the closing sentence in this article regarding the type of an individual that someday might be joining architects and contractors in the building process.

The reason for my taking note of this article was that I had just returned to my office from attending the three-day seminar that you mention. The seminar, entitled Value Engineering, was in my opinion extremely informative and provocative. Value Engineering was promoted as a tool to make professionalsbe they architect, engineer, contractor, or independent agency-more cost conscious, particularly in today's market of uncontrolled inflation. I found the seminar to be well organized and my time there well spent. Based upon my experience there, I would not hesitate to recommend any of the varied seminars that AMR produces.

James Mawson Skidmore, Owings & Merrill Buffalo, N.Y.

YOU SAVE ENERGY with KALWALL®!*





Kalwall is a complete, translucent, insulating wall

— or roof — system!

Kalwall lets you save heating and air conditioning energy — and use the sun's energy to even greater advantage to save on artificial lighting, and even pick up solar heat in the cold months! (We call this our Kalwall Solar Control System.)

You can design your buildings with a choice of key ENERGY SAVING factors:

- It can have a variety of "U" Factors ranging between .06 and .40!
- It can have a light transmission value ranging between 3% and 75%!
- It can have Shading Coefficients from .50 to less than .10!

And Kalwall can be engineered for every building situation, every location, and every exposure!

PLUS — Kalwall buildings win design awards every year!

Write or phone Mr. Bruce Keller, Vice President, for complete information.

KALWALL

CORPORATION 1111 Candia Road Manchester, N. H. 03103 Phone 603-627-3861

Patented

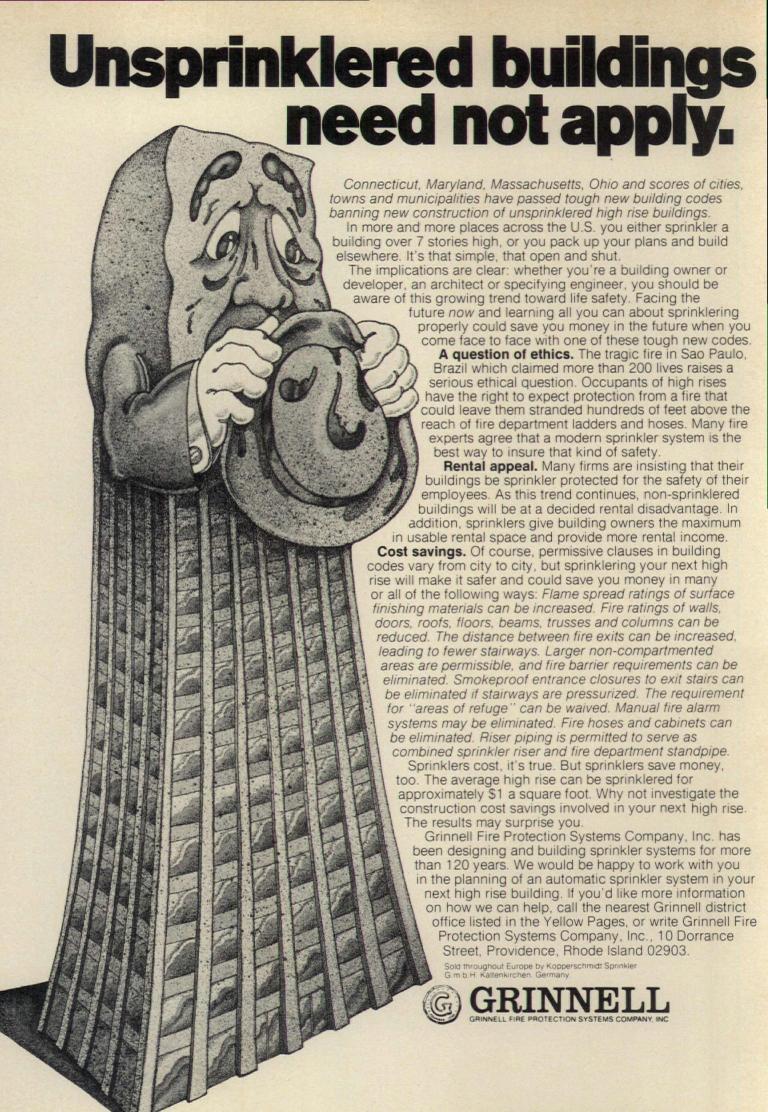
*As much as 86% energy savings over single glass!

ARPETS FOR CLASSIC DESIGNS











We've got everyone in Glen Valley surrounded.

How did we encircle an entire community of townhouses in Houston, Texas? With GAF°
Timberline® roofing. And Stratalite® siding.
And just why did the builders choose GAF?

They wanted the homes to have the warmth and

charm of wood. With none of the problems of wood.

GAF Timberline, a heavyweight asphalt
roof shingle, looks like natural wood shingles. Yet provides the freedom from maintenance of asphalt. And a self-sealing adhesive keeps each shingle in place even in the strongest winds.

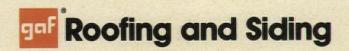
GAF Stratalite Thatch Siding with the durability of stone, looks just like natural wood shake shingles, too. Which not only makes it a great looking

siding, but a handsome accent as well.

Both GAF Timberline and GAF Stratalite are highly resistant to weather and wear. So they won't warp. Crack. Shrink. Or Split.
Good looks. Carefree maintenance. And the

GAF reputation. You couldn't ask for more beautiful surroundings.

For more information call your GAF distributor or write: GAF Corporation, Dept. PA104, 140 West 51 St., New York, New York 10020.



Why use a painter's tape to do a draftsman's job?

We make a paint masking tape that's just the ticket for painters.

But it's not designed for draftsmen or architects or designers.

For them, we make "Scotch" Brand Drafting Tape No. 230.

It not only holds the paper firmly to the drawing board, but it peels off easily without damaging the paper

damaging the paper.
"Scotch" Drafting Tape provides a smooth surface for sliding drafting machines across it. And it comes in a handy cutter-blade box

that offers a clean, straight edge on the tape, preventing loose corners, slips or torn edges on the paper.

This drafting tape is now available through your drafting products supplier. And watch for many new products 3M is developing for all kinds of drafting jobs.

For your free booklet of our entire line of drafting products, circle the reader's service number or write to: 3M Company, Dept. CVE-104, St. Paul, MN 55101.



Corbin presents the Fortune 100.

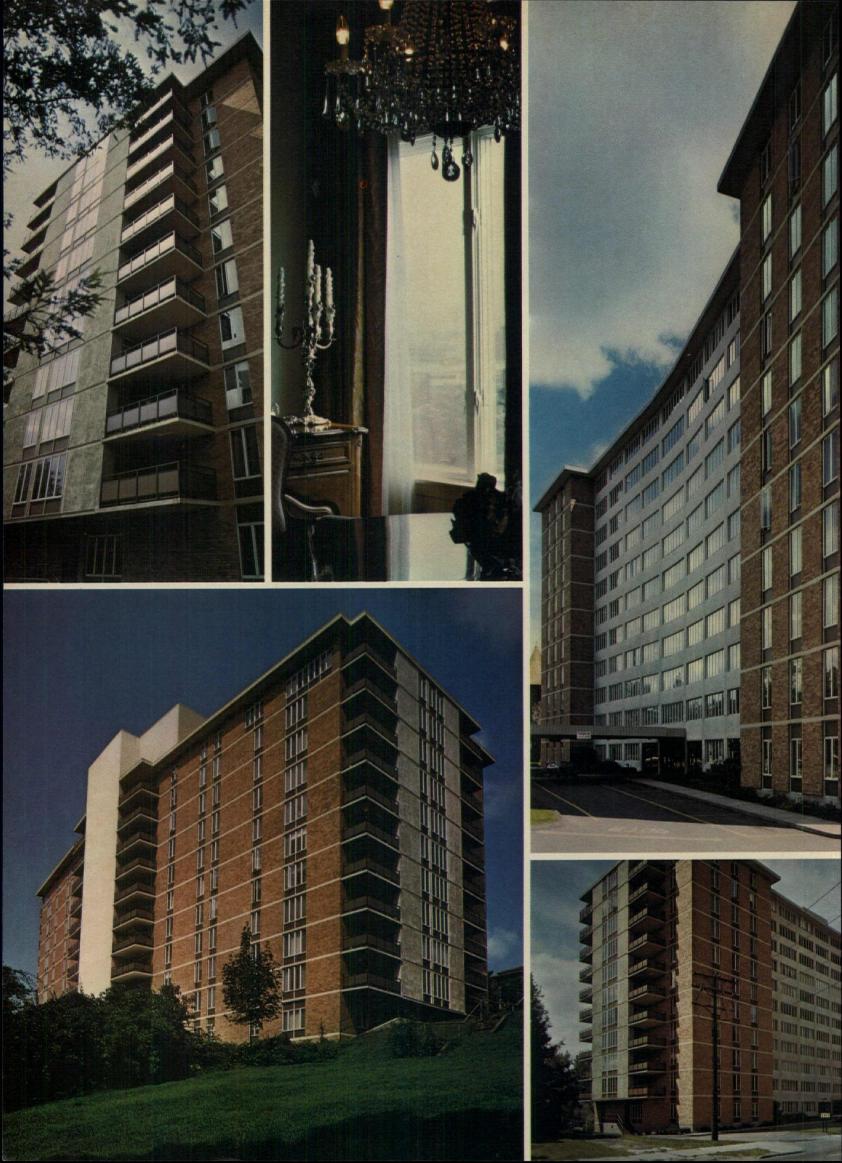


Top corporations top their doors with Corbin closers. Because Corbin's 100/110 Series matches the corporate image in style and strength. Think of it as a piece of metal sculpture beyond its basic closing function. Executive finishes in bronze, brass, aluminum and chrome. Solid rack and pinion construction absorbing busy door-to-door traffic. In short, good looks, long life. Get them into your plans and specs by reaching a Corbin distributor. Or write us direct. Fortune's looking after you.



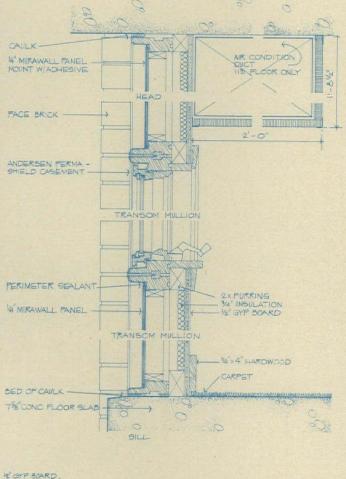
The Security Analysts.

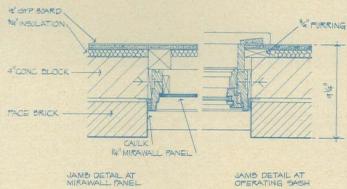
For information write P & F Corbin, Division of Emhart Corporation, Berlin, Conn. 06037. In Canada, Corbin Lock Division.



Andersen Perma-Shield Windows

CURB HIGH-RISING MAINTENANCE COSTS.





Five Riverside Towers, Binghamton, N.Y. Architect: George E. Yurchison, A.I.A., Rochester, N.Y. Five Riverside Towers is a spacious, elegantly appointed 11-story high-rise, located just three blocks from the heart of downtown Binghamton, New York.

The architect designed the apartment building for tenant comfort and convenience. And to keep owner heating and maintenance costs at a minimum.

That's why Andersen® Perma-Shield® Casement Windows were specified.

They're made of wood, one of nature's best insulators. And sheathed in low maintenance rigid vinyl that doesn't rust, pit or corrode.

Double-pane insulating glass provides the fuel-saving benefits of storm windows. With only half the glass cleaning chores.

And, unlike the leaky, drafty kind, Perma-Shield Windows are two times more weathertight than recognized air-infiltration standards. To help prevent biting outside winds from becoming chilling inside drafts.

So, if you want to keep high-rising fuel and maintenance costs under control, specify snug-fitting Andersen Perma-Shield Windows in your next building.

For more details, see Sweets, File 8P. Or call your Andersen Distributor or Dealer. He's in the Yellow Pages under "Windows, Wood." Or write us direct.

The beautiful, carefree way to save fuel.



Circle No. 383, on Reader Service Card

19



Because quality and good taste reflect a good sense for business.

It's the sensible decision for the office where decisions are made.

It's Dollars & Sense.

A heavy-traffic carpet styled for the businessman who expects more than

reslan

engineering for his carpet dollar. Who prefers the extra stature of sixty-six ounces of six-ply Creslan® acrylic fiber to the yard. Tufted in extravagant-sized rows of nubby loops. With the excellent resilience, bulk and color that comes natural with Creslan. With durability he can bank on. And a texture all its own.

Dollars & Sense is one of five commercial carpets in the Capital Assets collection available on roll or cut order basis. All practical. And all an investment in appearance well spent. Write or call for complete information and specifications.

Because we're committed to commercial quality and nothing else.

wellcoerpeteorporation



WELLCO CARPET CORPORATION | P. O. BOX 281 | CALHOUN, GEORGIA 30701 | TELEPHONE: 404/629-9276 | A WHOLLY OWNED SUBSIDIARY OF MANNINGTON MILLS, INC. SALEM, N.

News report

Contents

Calendar 40 **Personalities** 42 In perspective 46 Report from Santa Barbara 50 In progress 52 Notices 135

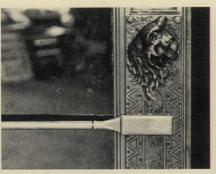
Once again: preservation's peril

About the same time that preservation became a cause célèbre in this country, some of the most venerated buildings, which few ever dreamed would be destroyed, have begun to play brinkmanship with the wrecking ball. One of these is the 80-year-old Marquette Building in Chicago by Holabird & Roche. It along with some halfdozen other notables like the Monadnock increasingly pop up in ad hoc proposals attempting to save them. Recently word was out that the Marquette's new owners, Romanek-Golub & Co., Chicago, planned to make an open plaza out of the Marquette site and erect high-rise towers on the rest of the block. The architecture firm, Perkins & Will, Chicago, was called in and proved to be "schizo on the subject" of the Marquette, said its administration vice president, Edward J. Burnell III. After all, he reasoned, it was "designed and conceived as an economic instrument in the first place." If it's outlived its function, he asked, why not "erect a pedestal in Grant Park using the (Marquette) fragments?"



Marquette may be site for future plaza. Photos: Ann Carter (above) Jerry Tomaselli (below)





Details from Marquette's revolving doors



The Landmarks Preservation Council & Service, a citizen action group, along with architect Thomas Welch and a design class at the University of Illinois, Circle Campus, prepared a proposal which showed the Marquette could be saved and high-rise towers built by linking new construction to the renovated Marquette via a pedestrian galleria. The proposal never elicited any serious reactions either from the property owners or their architects.

For the moment, it looks like the Marguette will be saved since Chicago's planning commissioner reversed his first stand and declared himself in favor of keeping the building. What made the commissioner change his mind was a recent zoning amendment which reduced the amount of land necessary for a planned unit development, thereby making the block eligible without leveling the Marquette.

Air view of Roosevelt Island looking north before construction



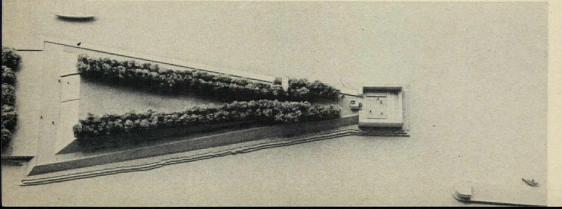
Johansen's housing behind chapel; Sert's to right. Photo: Sharon Lee Ryder





Sert's housing, right and left, looking south. Photos: Ted Liebman

Model of Kahn's Roosevelt Memorial. Photo: George Pohl



'Frightening track' meets UDC schedule

Excitement is as brisk as October air as the first 2100 of 5000 units on Roosevelt (formerly Welfare) Island in New York begin rental this month. A staff member of the Urban Development Corporation, sponsor of the development, said each time he has gone to a cocktail party friends begged to be put on the waiting list for the mixed luxury and low-income apartments—more than 10,000 inquiries in all have been received at UDC. The first occupants will move in sometime during the early months of 1975.

Meanwhile, on the southern tip of the island, the Roosevelt Memorial is set to enter construction early next year with completion due the following year. The memorial is one of the last designs by Louis Kahn.

Construction on the housing units began in the fall, 1973, and has progressed towards the finish in what UDC's chief architect Ted Liebman calls "frightening tract" construction. The second building phase consisting of 2000 units will be underway within 18 months. The overall plan for the island was by architect Philip Johnson, who had no comment on the way the development is taking shape, having had no further role after master planning. Designers of the structures were offices of Johansen-Bhavnani and Sert Jackson & Associates (see p. 77). The upper income cooperatives by Johansen have drawn criticism for their appearance, and while the firm admits the buildings have an "unselfconscious industrial look," it also points out that the controversial skin-a first use of cement asbestos hollow core panels in high-rise construction—is one of the only remaining industrialized techniques in what began as a totally systems-built development.

The structures are densely set along a narrow central street lined with stores and shops, and they step down to the edges of the island, affording the maximum possible views for rich and poor. Some existing buildings—the hospitals and rehabilitation centers which domi-

nated the island's activity—remain including the 85-year-old Chapel of the Good Shepherd left standing on what is now the main street.

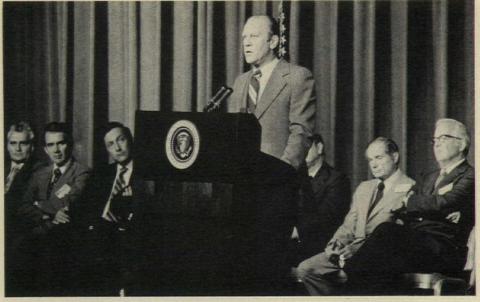
Cars are restricted to a covered parking lot that serves as a depot from which mini buses will transport people around the island. Two "ski lift" cable cars holding 125 people each will be the only immediate public transportation available except for taxis between Roosevelt Island and Manhattan. The tram will be in operation in the summer, 1975, and will offer a three-minute ride between the depot and a site in Midtown. A subway connection is planned for the 1980s.

The memorial to Franklin D. Roosevelt had a turbulent history before Kahn's design finally was approved as the Roosevelt family preferred to have a simple monument along traditional lines. The Kahn scheme for the 2.5acre triangular park is a three-sided granite room with 12-ft-high walls located on the very tip of the island with an open view south along the river. Quotations of Roosevelt will be inscribed on one wall, and a modern sculptural work will be inside the room. A realistic bust of Roosevelt will be outside the space facing towards the park. Overseeing execution of working drawings and completion of the memorial is a joint venture of David Wisdom Associates, Philadelphia led by former members of Kahn's staff, and Mitchell-Giurgola of New York.

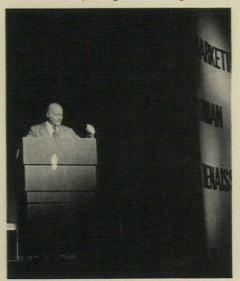
Cheers for Ford's mass transit policy

President Ford's keynote address at the 6th International Conference on Urban Transportation was punctuated by a burst of applause when he announced that the federal government would help cities with their money-losing mass transit systems. "It is my conclusion," the President stated, "that our current inflexible urban mass transit grant program encourages states and cities to adopt capital-intensive solutions, such as subways, as a response to their mass transportation problems."

To combat this inflative process and as a "compromise to long, deeply-held convictions," Ford said he would support some limited federal assistance for operating expenses under jurisdiction of local and state officials.



President Ford speaking at "Marketing Urban Renaissance" transportation conference



Mayor Alioto ribs architecture critics

Pittsburgh's Port Authority Transit chief John Mauro hailed the decision as a boon "which will put the federal government in the business for the first time."

Mayor Joseph Alioto of San Francisco spoke of new downtown development, including "Rockefeller Center West" and BART's role in fostering growth. "We have people in the county called architecture critics," the mayor said parenthetically, "who like to have an emotional catharsis in public. They almost drove David Rockefeller out of town." He went on to explain how Rockefeller was persuaded to stay, and how BART (whose last link was just opened this fall making it the first complete transit system built in the United States in 60 years) helped bring it about.

Successes of other cities were reported at the conference: Göteborg,

Sweden, which was able to almost completely reduce a severe pollution and congestion problem through better transit design; La Défense, a multifunctional, round-the-clock development in France; Norfolk, Va., where the city and a private corporation are codeveloping a downtown megastructure with a people mover similar to horizontal elevators (P/A Sept. 1974, p. 44); and the revitalization of downtown Munich which won for two German architects-Bernhard Winkler and Siegfried Merschederu-the Reynolds Award, the highest award in new urban design conferred by the American Institute of Architects.

"There is no foreseeable limit to continued growth and quality of our urban centers," declared Dr. George Jernstedt of Westinghouse Electric's Transportation Activities, who recapped the conference theme of "Marketing Urban Renaissance." Success of mass transit rests with winning public approval. "The customer must like the process of getting there."

One Chicago Transit Authority rider is satisfied: taking advantage of the new Super Transfer Pass he moved his belongings from the southside to a new northside apartment in six trips.

Parking to please

"How People Feel About Downtown Parking" is a sociological—not societal—research survey available from the Downtown Research and Development Center, 555 Madison Ave., New York, N.Y. 10022. In it, opinions about park-

News report

ing are revealed, from residents in Ohio, Indiana, New Jersey, and Arkansas. In smaller cities, the frequent shopper likes downtown parking, but the reverse is true for larger cities. People 30 years old and older don't mind walking a distance to arrive at their destination, while the younger ones do. The study also surveyed such topics as cleanliness, street lighting, and on- and off-street parking.

Orchestra Hall makes its debut

Rigorous work on the sculpturesque new home of the Minnesota Orchestra is keeping construction on time for a scheduled October 23rd opening night. Set on a diagonal, half-block site formerly occupied by the Lyceum Theater in Minneapolis, the structure will connect with downtown Nicollet Mall through an adjacent park developed by city and private funds. Across the street will be a 750-car garage also built by the city. Orchestra Hall itself will accommodate 2573 concertgoers. The interior is finished in wood with a decorative plaster ceiling. The full Minnesota Orchestra and a 160-voice chorus will be able to perform together on stage. Administrative offices will be on the Peavey Park-Plaza site facing Nicollet Mall, and studios, rehearsing, and dressing rooms will be toward the rear. Architect is the St. Paul firm, Hammel Green & Abrahamson, Inc. in association with Hardy Holzman Pfeiffer Associates of New York. Cyril M. Harris of New York is the acoustical consultant. With the new hall the orchestra will increase its season from 40 to 60 subscription concerts. Crescendo or diminuendo?

Grand opening for Tange buildings

Japanese architect Kenzo Tange's first major commission in the United States opened Aug. 25–Oct. 6 with a series of receptions and events, including an exhibition of Tange's work, staged by a proud Minneapolis. The buildings he designed are clustered in a growing arts park belonging to the



Hall shaped like its symbol (left corner of billboard). Photo: Earl Seubert



Tange's museum addition (left), Children's Theatre (right). Photo: courtesy Warren Reynolds & Associates



New courthouse faces the old (with clock tower)

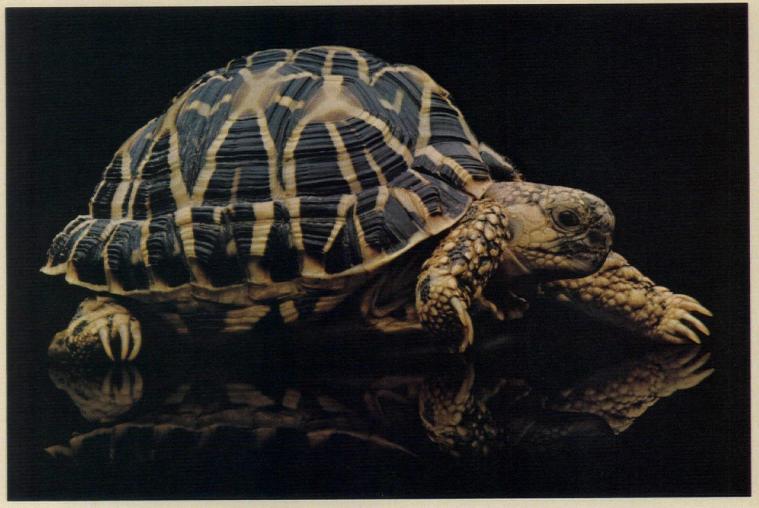
Minneapolis Society of Fine Arts less than a mile from downtown. Tange created two museum wings for Sanford White's classical Minneapolis Institute of Art. His additions adjoin each end "attempting to suggest that the façade itself is on display as an artifact as well as the museum contents," declared Tange. In a separate new building occupied for the past year is the Minneapolis College of Art and Design, a

four-story, nearly block-long structure south of the museum. Extending from the museum's east wing is the new 750-seat Children's Theatre and School which is linked to the museum through a new main entrance to the complex. On the third and fourth stories of the connecting segment are restaurants overlooking the interior courtyard. Associated architects of the \$26 million project are Parker Klein Associates of Minneapolis.

Minneapolis rising

Another major new building for Minneapolis, the \$49 million Hennepin County Government Center by John Carl Warnecke & Associates of San Francisco, will be ready for occupancy later this year. The 26-story twin towers will contain county courts and administrative offices and a 384-ft-high atrium, the world's tallest. In the court tower, public corridors will pass alongside the atrium with a railing-high glass parapet. In the administrative tower, office spaces will abut the atrium; while on the 23rd floor of both towers dormerlike windows with skylights will project out into the atrium space for visitors' viewing. Below grade are four levels and an underground passage connecting the new [News continued on page 26]

The only organic roof that might outlast the Owens-Corning all-Fiberglas roofing system.



Conventional asphalt roofing systems have organic felts. So moisture and heat can cause them to curl, wrinkle, fishmouth, char and rot. And that can lead to an early failure.

Not so with our all-Fiberglas* roofing system. Here's why

1. It begins with Fiberglas Roof Insulation. This has a bottom surface that conforms to minor roof irregularities. And a top surface that stays flat. (FM Class 1 construction. UL 1, 2, and 4. Thickness from 15/16ths to 21/4 inches. C-value certification.)

2. Fiberglas Roof Tape then provides reinforcement at the roof

insulation joints and helps reduce failures caused by normal deck movement.

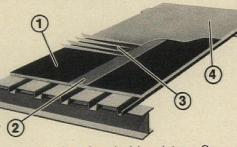
3. Fiberglas roofing felts come next. Unlike conventional felts, ours

And they're less subject to contraction and expansion due to changes in moisture.

4. Fiberglas PermaCap (where available) tops everything off. It's

surfaced with inert, noncombustible ceramic granules that help beautify the roof.

More information? Refer to our section in Sweets Catalog, Built-Up Roofing Systems 7.1/Ow, or contact your Owens-Corning representative. Or write: Architectural Products Division, Attn.: Mr. D. R. Meeks, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.



won't absorb or hold moisture. So they won't char or rot. They resist curling, wrinkles and fishmouths.

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

Owens-Corning is Fiberglas



center to the old court building to the north with its turn-of-the-century clock tower. Associate architects on the project are Peterson Clark & Associates of Minneapolis.

HUD overhaul means less federal control

There will be a whole new set of circumstances for anyone in the housing field now that the new Housing and Community Development Act has become law, consolidating some existing programs and phasing out others. (The measure started through Congress as S. 3060 and has emerged as Public Law 93-383.)

Biggest change is that the largest share—\$8.3 billion—of the \$11.1 billion will be sent as "block grants" directly to municipalities and urban counties over a three-year period, to be spent at their broad option with a minimum of say-so by the Housing and Urban Development Department. Meanwhile, a series of eight major HUD programs, including urban renewal and open space acquisition and development—will be eliminated.

The mammoth (more than 220 pages) bill contains numerous items of importance: it 1) establishes the longsought National Institute of Building Sciences with a \$5 million annual authorization; 2) authorizes HUD to conduct demonstration projects looking toward the use of solar energy for heating and cooling; 3) permits HUD to set national standards for construction and materials used in mobile homes; 4) raises mortgage interest rates and lowers downpayment requirements for FHA-guaranteed housing; 5) makes special provisions for housing for the elderly. [E.E. Halmos]

IAUS program for continuing education

The Institute for Architecture and Urban Studies's new program for continuing education in architecture, made possible with support from the N.Y. State Council on the Arts, begins Oct. 7. The six, 10-session weekly courses (each for credit, if your school agrees, and each carrying a \$60 fee) include [News continued on page 29]

DOORWAY NOTES

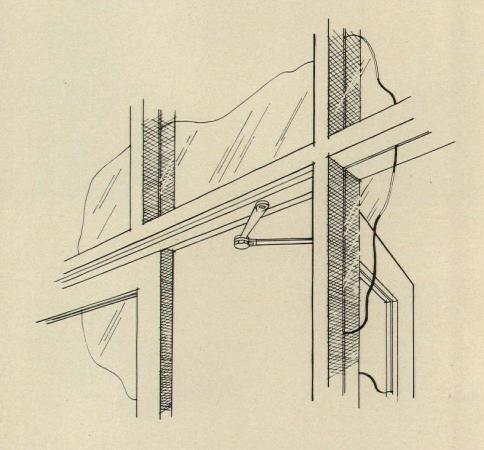
THE LCN 5030 SERIES CLOSER IS CONCEALED WITHIN THE HEADFRAME.

HYDRAULIC BACK CHECK AND ADJUSTABLE TWO SPEED CLOSING PROVIDE POSITIVE CONTROL OF OPENING AND CLOSING SWINGS.

MECHANICAL ADVANTAGES OF DOUBLE LEVER ARM AND ADJUSTABLE SPRING POWER RECOMMEND THIS CLOSER WHERE HIGH WINDS OR INTERNAL PRESSURES ARE ANTICIPATED.

UNIQUE DESIGN INCORPORATES ALL CLOSER CONTROL CHARACTERISTICS, YET FITS INSIDE 1-3/4"×4-1/2" TRANSOM BAR

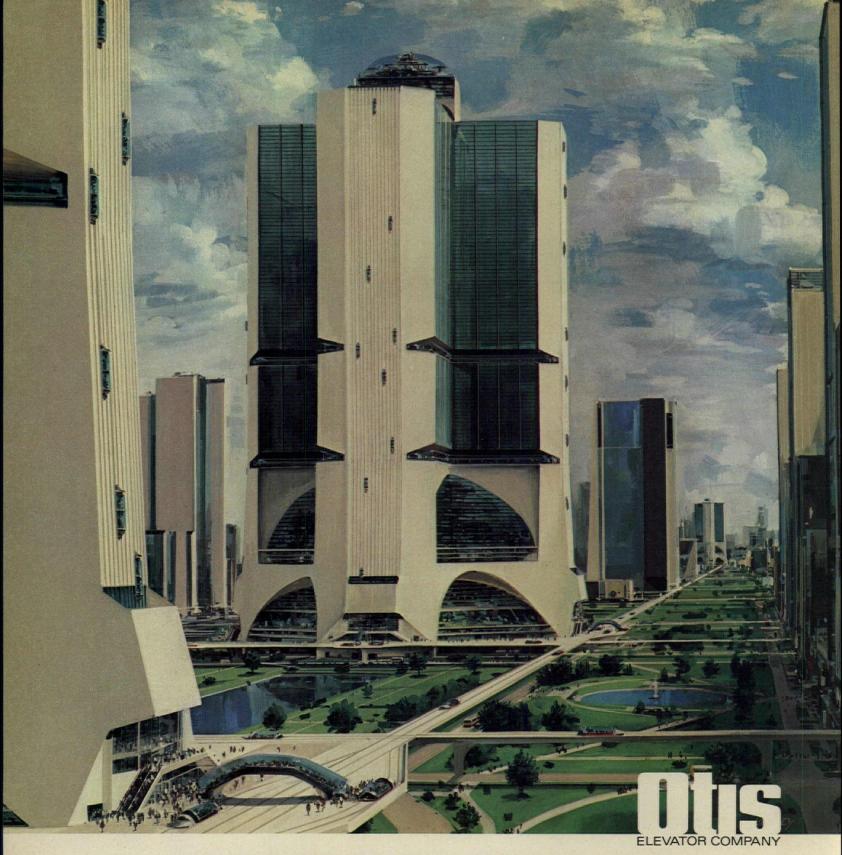
SEND FOR CATALOG. SWEET'S, SEC. 8.





LCN CLOSERS, Princeton, Illinois 61356





Our future is a building without a function

The future means eliminating single function buildings like apartments, stores, schools and office buildings. It means building complexes where you, and your family, can live, work, and play. That's why we're working on ways to move you better so you'll spend less time getting to your job, shopping, or to recreation.

Because Otis is one of the world's largest suppliers of elevators, escalators, material handling equipment and electric vehicles, we have a vast store of know-how in motion technology.

We've already put our knowledge to work to develop computer-controlled elevator systems that

use double-deck elevator cars, feeding into, and out of, sky lobbies. We're also at work on more efficient moving walks and multi-floor escalator systems.

And, at our new Product Research Center, we're investigating the theories of motion and their practical application to future products. Theories like self-propelled elevators that not only move you up and down, but sideways from building-to-building, linked to automated people mover systems.

Part of our future, and yours, are buildings that have many functions. So you can function better.

Otis, a company in motion.

News report continued from page 26

Colin Rowe on The Architecture of the Italians-The 16th Century, and Jonathan Barnett on Introduction to Urban Design. The other four courses are entitled Public Places in New York; The Background, Work, and Influence of Louis I. Kahn; Introduction to the History of Modern Architecture-1900-1920; and Human vs. Natural Environments. Each will be presented by a number of different speakers, including Jaquelin T. Robertson, William H. Whyte, Edgar Kaufman, Vincent Scully, Peter Blake, and James Marston Fitch. A spring series will also be offered. For further information contact the Institute at 8 West 40 St., New York, N.Y., 10018 (212-947-0765).

Mass transit gets \$11 billion

That mass transit funding bill finally passed by Congress didn't make anybody happy, though it was a first-blush victory for the Ford Administration. Municipal authorities philosophically accepted half a loaf (about \$11 billion from the general treasury) rather than all (\$20 billion as originally proposed) or none. Most of the money will be split between eight major metropolitan areas, and it doesn't necessarily mean more construction, since the money can be used as operating subsidies for money-losing transit systems. Thus the bill represents a real breakthrough in long-standing federal policy that operating subsidies shouldn't be paid out of the federal treasury. Good bet: having broken the ice, cities will be back for more when the new Congress is seated next January.

Wainwright finalists: 5 out of 47 entries

Five midwestern firms, most in association with other offices, are finalists in the competition which drew 47 entries to convert the threatened Wainwright Building into offices for the State of Missouri. The firms are Joseph W. Albert of Milwaukee in association with Howard, Needles, Tannen & Bergendoff of Kansas City; Perkins & Will, Chicago and New York offices, each

separately in association with William B. Ittner, St. Louis; Urban Architects, Kansas City; and Hastings & Chivetta of St. Louis in association with Mitchell-Giurgola, New York. The competition was limited to Missouri architects though the entrant could associate with an outside firm.

Jurors were E. C. Bassett, S.O.M., San Francisco: Gunnar Birkerts, Detroit; George Hoover, Muchow Associates, Denver; and Norman Pfeiffer, Hardy Holzman Pfeiffer Associates, New York. They will serve on a larger panel which will pick the winner in early October.

University of Miami receives accreditation

The National Architectural Accrediting Board has accredited the architecture program at the University of Miami, Coral Gables, Fla., retroactive for two years for state registration purposes. The architecture department, chaired by Ralph Warburton, is part of the university's School of Engineering and Environmental Design. [News continued on page 32]

All you need to save money on wood floor construction Western Wood's pocket-size Span Computer quickly figures

spans, spacing, and loading of Western lumber joists, rafters, and beams. It provides an instant readout to determine grade/species or size/spacing combinations you can use to meet clear span requirements. Often, it allows you to reduce framing lumber costs per square foot of floor area and realize a saving on joist unit costs. Send the coupon and \$1.00 for your Span Computer, today!

Circle No. 372, on Reader Service Card

Send me the Western Wood Span Computer. I am enclosing \$1.00 (check or money order only, please).

Name Title Firm Address City Zip

☐ Please have representative call.



Vestern Wood Products Association

This beach has the 3 essentials Owens-Corning has the system



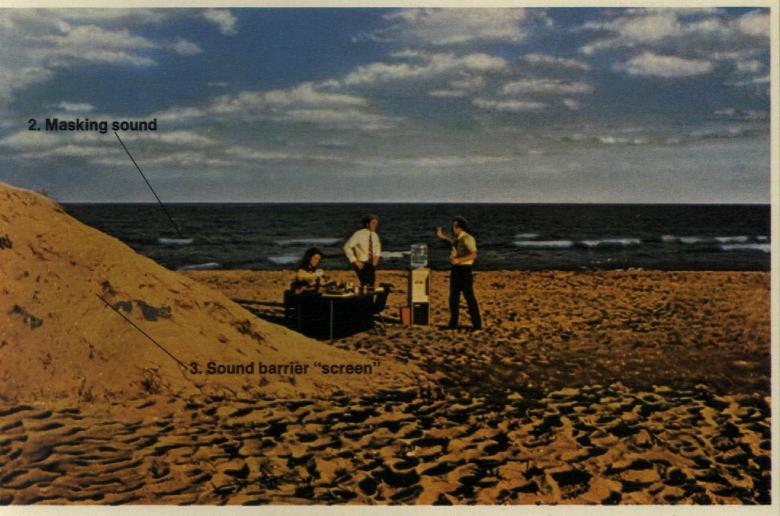


1. An acoustically non-reflective ceiling is a *must*—to keep sound from bouncing to other areas. An independent acoustical testing laboratory examined eight ceilings, including expensive coffered and baffled systems. Their verdict: Owens-Corning's Nubby II Fiberglas* Ceiling Board (left) in any standard exposed grid suspension system is *best* for achieving speech privacy at economical installed cost.



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

for speech privacy in open offices. that puts it all indoors.



2. An unobjectionable background sound helps mask distracting speech. Special electronic speakers, installed in the plenum, make it possible to hear normal conversation clearly within defined areas, without being overheard in other areas.



3. A barrier or the proper acoustical *screen* is necessary to keep unwanted speech from going *directly* between work areas.

All three essential elements should be "tuned" to work together with the help of an acoustical consultant.

For further information and our free 16-page guide, "Achieving Speech Privacy in the Open Office," write: N. M. Meeks, Architectural Products Division, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Owens-Corning is Fiberglas





SAFE, EASY WAY FOR THE PHYSICALLY LIMITED TO BATHE

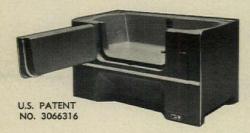


EASY TRANSFER FROM WHEEL CHAIR

Safe-T-Bath features a durable 5 ft. fiberglass tub, raised 18 inches off the floor, and laminated upon a strong steel frame. It has a water tight 30 inch door which opens 180 degrees allowing the bather to sit on the bottom of the tub, slide in, close the door and take a bath. Safe-T-Bath is designed for safety and comfort. Chip resistant and mar resistant. It's handsome, sleek and modern. Simple waxing brings out a brilliant luster. Available in four standard decorator colors.

Safe-T-Bath is guaranteed to meet or exceed all standards set forth by The American Standards and U.S. Uniform Plumbing Code and carries the UPC approval shield.

Available with right or left hand door.



APPLICATIONS

- NURSING HOMES
- · HOSPITALS
- STATE INSTITUTIONS
- RESIDENTIAL
- MOTELS- HOTELS
- · APARTMENT BUILDINGS
- · UNIVERSITY CAMPUS
- REHABILITATION CENTERS

Write for full specifications.

SAFE-T-BATH Inc.

P. O. BOX 9456 • TULSA, OKLAHOMA 74107 (918) 587-1141 News report continued from page 29



Lincoln, Neb., station recycled as branch bank. Photo: Jack Riggle



Mt. Royal Station new home for art college Photo: George Cserna

Indiana Meet Stirs Whistlestop Magic

Railroad tracks run straight to the heart of 20,000 American cities where they end at a station—sturdy but rundown, picturesque but obsolete, in a prime location but under-using valuable space. Once at the peak of the railroad era there were more than 40,000 terminals, but when the passenger train became as extinct as the passenger pigeon, stations fell victim to the real estate market.

Now they are recognized as a distinct and irreplaceable genre of American architecture. Many of those that remain are being examined for new possibilities in community service and even revival of rail transportation. A two-day workshop at Indianapolis surveyed adaptive uses of railroad stations rescued so far, and looked for the means of bringing others back to life. The National Endowment for the Arts and Educational Facilities Laboratories co-sponsored the meeting that drew planners, politicians, preservationists,



One didn't make it: Penn Station, New York

architects, bankers, entrepreneurs, and community activists.

Their manual was a new book, Reusing Railroad Stations, by architects
Hardy Holzman Pfeiffer Associates of
New York. This abundantly illustrated
report of reuse successes and cliffhanger dilemmas is published by EFL
and is available at \$4 a copy. The troubles with old railroad stations, the conference determined, are numerous but
not necessarily overwhelming. Railroad stations have a floor-area ratio
that blows the fuses of a standard
feasibility study. Usually off-center in
relation to the business core, stations
[News continued on page 35]

News report continued from page 32

also often exist in a zone of blight that may have been present even when business was good. Stations characteristically are overbuilt—an old railroad habit but one that gives them a solid structure for renewal. They are arched, vaulted, frescoed, friezed, bracketed, canopied, turreted, and rusticated in all manner of variations dear to the image-building concepts of the Victorian period.

As a counterpoint to obsolescence, the big stations share a common characteristic with their successful suburban neighbors, the modern shopping centers: both are designed for crowds moving in all directions at once. Translate "shopping center" into "multiple uses," and ideas of the classical enclosed urban mall emerge.

Stations have track space convertible into parking area, and "can make the property more rentable than anything buildable today," claimed a report by the Advanced Planning Research group. Stations have good access, can be the fulcrum for redevelopment of an entire area, and can be restored faster than new construction can be built. Moreover, there's no competition. "You have the only restored railroad station in town."

Ten stations-small, medium, and large-stand as prototypes. One is a recycled branch bank in Lincoln, Neb.; another, a Head Start school at Oberlin, Ohio; and there are shops, galleries, and offices at Fargo, N.D.; a performing arts center at Yuma, Ariz.; cultural center and railroad museum at Duluth, Minn.; architectural offices, Shanti School guarters, and depot for trains and buses at Hartford, Conn.; the Maryland Institute, College of Art, in the old Mount Royal Station, Baltimore: the spectacular Chattanooga Choo Choo adaptation into a motor inn, with rooms in Pullman cars; and the Washington, D.C., Visitor Center.

The tenth is a Romanesque revival station in Indianapolis done in 1886–1888 by Thomas Rodd in red brick and pink granite with barrel-vaulted concourses, rose windows, and a clock tower. It stands on the site of the country's first union station built in 1853. Ten different activities already are committed for the four-level com-[News continued on page 36]

Do all
vinyl wallcoverings
of equal weight offer
equal resistance
to tearing?

NO. Many VICRTEX "medium weight" vinyls offer two to three times as much resistance to initial tearing as many competitive "medium weight" vinyls.



Most tears in wallcoverings result from a glancing blow occurring on a plane parallel to the floor — such as by an attache case, shown above.

To specify the right vinyl wallcovering for the job, it's just as important to know its limitations as it is to know its advantages. Look at the results of this Impact-Scuff test shown in the insert.

Now: Know what causes tearing of a vinyl wallcovering. Get this information and other facts on Tearing . . . Stains . . . Mildew . . . Guarantees . . . Fire Hazard. You can, with the new Vicrtex Guide, "Vinyl Wallcoverings — Questions & Answers."

Write for your copy, or call your Vicrtex man!



964 Third Ave., New York, N.Y. 10022 (212) 355-3080



New Vicrtex
GUIDE
"VINYL WALLCOVERINGS —
QUESTIONS & ANSWERS"

DISTRIBUTED BY:

News report continued from page 35

plex of shops and night spots, and the program expects about \$135,000 a year in base rent.

John E. Hirten, deputy administrator of the Urban Mass Transportation Administration, urged cities considering railroad station conversion to join if possible these plans with transit service as Indianapolis is doing and as Dallas and St. Louis have under study. Hirten noted the irony of Washington's turning its Union Station into a visitor center and of building a new railroad station nearby for the city's 100 trains a day. "Combining these uses," he commented, "would have been better both for preservation and for transport." [George McCue]

Bucharest conference ends in stalemate

Diplomatic formality couldn't disguise heated emotions at the second UN World Population Conference held recently in Romania. Besides the hot temperature, tempers ran high as proand anti-population advocates met to draft a World Plan of Action that would set population policies for nations to follow. The talks ended in a stalemate, with the plan—more than a year in preparation—tabled indefinitely. Present were Vatican representatives as well as women who came to fight for a ''rights'' amendment to the plan. [Fran Hosken]

Ms. Hosken, a free-lance writer on urban planning, lives in the Boston area.



Federal Office Building, Manchester, N.H.

Practical laboratory

Nearly every inch of the seven-story Federal Office Building at Manchester, N.H., will be experimental to determine the energy-conserving efficiency of design and equipment. No windows will be on the north wall, and those on the other sides will be limited to 15 percent of the surface. Floors 1, 2, and 3 will have heating, ventilating, and air-conditioning supplied by heat pumps; the remaining floors will have the more traditional central system of boilers and chillers, but these will be modular to adjust capacity to various seasons. An optional solar collector could supply up to 30 percent of the energy for heating and cooling.

A variety of lighting systems will be examined on a floor-by-floor basis. The top floor has larger windows for experimenting with natural light. In addition to all the functional equipment, the building also will be fully instrumented to collect and evaluate data. The cost per gross sq ft is within normal range—\$39—excluding the solar collector and data-gathering devices. The building, designed by Isaak & Isaak of Manchester, will be completed by 1976 at a cost of \$6.5 million.

[News continued on page 40]

Specify MOLDED RUBBER STAIR TREADS for Beauty, Longer Wear, Greater Underfoot Safety





FLAT SURFACE TREADS

- for typical interior stairs. Put more rubber in direct contact with shoe soles for more traction, better underfoot safety . . . with no cracks or crevices to hold dust or catch heels.



ABRASIVE STRIP TREADS

— ideal for stairs near outside entrances where tracked-in snow or rain may create hazardous footing. Two highly-visible ¾" black abrasive strips, strategically embedded, provide extra protection and safety.

Choose from the industry's widest selection of color-coordinated treads, risers, tile and sheet rubber for landings, stringers and adjacent areas . . . 10 marbleized colors!

Available in light commercial, heavy-duty and pan-filled styles - square or round nose.

Write for Sample Kit and literature.



THE R.C.A. RUBBER CO.

An Ohio Corporation of Akron, Ohio 1833 E. Market Street, Akron, Ohio 44305 Phone: (216) 784-1291



Architect: Ellerbe Architects - Engineers - Planners

Builder: Bor-Son Construction Inc.

Windows: Pella Clad Fixed Units and

In between, the built-in advantages of Pella's unique Slimshade®.

The removable inside storm panel in our Double Glazing System gives you any number of interesting options. Like using our Slimshade® (c) to control sunlight, privacy and solar heat gain and loss. Housed between the panes, this fully adjustable blind remains virtually dust-free. The Double Glazing System

can also accommodate our snap-in wood muntins or privacy panels. But flexibility is not the system's only built-in advantage. The 13/16" air space between the panes also does a better job of insulating than welded insulating glass.

Afterward, the ease of washing a counterbalanced, pivoting sash double-hung window.

Window cleaning is another maintenance factor that must be considered. And here again, Pella design makes an easy job of it. Our Double-Hung Window has a spring-loaded, vinyl jamb liner which allows the sash to pivot. So the outside surfaces can be washed from inside the building. And because each

sash pivots at its center point (d), the weight of the sash is counterbalanced. Which makes the whole job just that much easier. Reglazing can also be accomplished from inside, along with sash removal.



For more detailed infor-**CLAD WINDOWS** mation, send for your SLIDING GLASS DOORS

free copy of our 24-page, full-color brochure on Pella Clad Windows & Sliding Glass Doors. See us in Sweet's Architectural File. Or look in the Yellow Pages, under "windows", for the phone number of your Pella Distributor.

Doors. I am	specifically	page broche interested in dows, Slice	n: Double	e-Hung Wir	ndows, 🔲	Casemen
Name						

Firm_

State_

Mail to: Pella Windows & Doors, Dept. T35J 100 Main St., Pella, Iowa 50219. Also Available Throughout Canada This coupon answered within 24 hours.



Designed "like a supermarket in reverse." Photo: Harry Wilks

Recycling goodwill

and

FLEXCO

makes it!

"Post consumer reusable material" is not a euphemism for garbage. If it were, the Village Green Recycling Team would be out of business. As it was, the VGRT had some opposition over a year ago from fellow residents in New York's Greenwich Village when it established a recycling center for trash (only) on triangular-shaped property owned by an adjoining hospital. Designed by architect Peter Szego according to specifications drawn by

his architect-friend Russell Childs, who is chairman of VGRT, the center during off-hours looks like any other landscaped urban space. It's tucked behind a fence of railroad ties donated by the Penn Central Transportation Company, and the ground is covered with trap-rock provided by the New York City Highways Department. In a month the volunteer-run center collects 25 tons of paper; 7 to 8 tons of glass; and 2 tons of tin and aluminum, all sold to earn enough to operate the center and to conduct an education program for the public.

Calendar

Through Oct. 30. Walter Gropius, 1883–1969, photographic retrospective exhibition, Cleveland State University.

Oct. 15–17. National member conference of the Producers' Council, Inc., Antlers Plaza Hotel, Colorado Springs. Oct. 15–Nov. 17. Visionary Projects for Buildings and Cities exhibition by Reginald Malcolmson, Museum of Science and Industry, Chicago, III. Oct. 18–19. Conference on recycling old buildings, Boston Architectural

Oct. 19–20. "Energy sources 1974, conference on applications of natural energy" sponsored by The Sierra Club, Clark University and the Worcester Consortium for Higher Education, at Clark University, Worcester, Mass. Oct. 19–22. Annual convention and exhibit of the National Office Products Association, Chicago.

Oct. 21. Deadline for submissions to AIA Honor Awards Program, Washington, D.C.

Oct. 23–25. Annual fall meeting of the Hardwood Plywood Manufacturers As-[News continued on page 42]



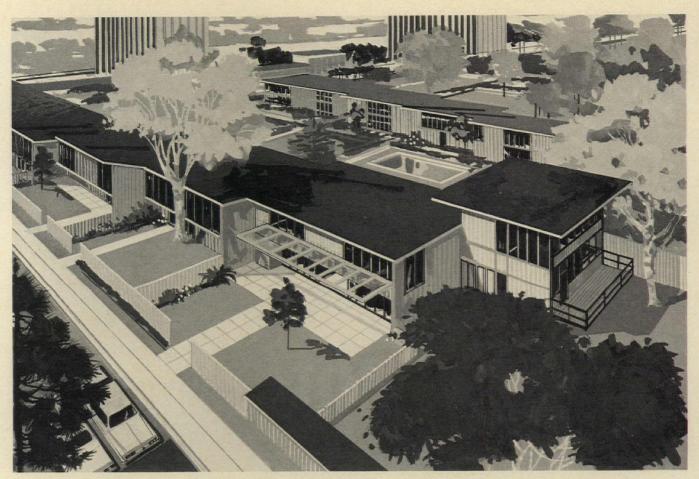
In the past few years there have been some pretty remarkable developments in resilient floors. Solid vinyl and vinyl asbestos tiles have dominated the field because of their fancy patterns and styling. Fine. For residential use. But when you get down to the nitty-gritty of commercial floors they leave something to be desired.

That's where FLEXCO Rubber Tile stands out. Its natural resilience makes it more comfortable, quieter and more slip resistant. It won't shrink so you don't have to put up with dirty, unsightly cracks around tiles. Its dense homogeneous construction has excellent resistance to cigarette burns, and its soil resistance reduces maintenance to a minimum. This is specially important in heavy traffic areas where there's little time for clean up. It's also fire resistant.

If you're concerned about good appearance as well as quality, you'll find that FLEXCO Rubber Tile makes a great looking floor. Twelve contemporary colors to complement any interior. Matching rubber stair treads and color coordinated rubber cove base, too.

Write us for architects sample kit and descriptive catalog.





Saving energy all year long with insulating glass

Insulating glass units made with LP® polysulfide polymer base sealants are conserving energy and cutting HVAC operational expenses in buildings everywhere. Doublehung units—with one of the two panes made of metalized coated glass—reduce the 1.09 heat transfer coefficient (U value) of single-pane glass dramatically by 56 percent down to 0.50. This is not too far from the 0.27 U value of the most efficient (but dehumanizing) solid masonry wall.

In the past 15 years, over 80% of all organically sealed insulating glass window units used LP polysulfide base sealants, delivering strong, flexible, long-lasting airtight bonds between glass and frame. Although LP sealed units may cost less than other organically sealed units, they will perform trouble-free for years and years.

Because replacement of only one or two insulating glass units can be very costly, you should seriously consider the outstanding, long term, proven performance of polysulfide base sealants. The present integrity, beauty and economical practicality of curtain wall construction can thus be extended through the innovative use of properly sealed insulating glass units.

Specify—and demand—insulating glass with an LP polysulfide polymer base sealant to see your way clearly through the energy crisis of today—and through whatever tomorrow may bring. For more information and help in solving your insulating glass problems, contact Thiokol/Chemical Division, P.O. Box 1296, Trenton, N.J. 08607, or phone 609-396-4001.

Thiokol

Specialty Polymers • Off-The-Road Vehicles • Synthetic Fibers & Fabrics • Sprayers • Propulsion • Educational Services Friction Materials • Ski Lifts • Pyrotechnics • Closures • Rubber and Rubber Chemicals • Medical Electronics Equipment

Lime Crest Roofing Spar

saves energy for Hampton Township!



Architects: Radey & Radey, Cherry Hill, N.J.

How? By reducing the air conditioning load in this new Marion E. McKeown Elementary School. So much so that our marble aggregate has already been specified for the roof of their new regional high school. Lime Crest Roofing Spar, with its high reflectivity, increases the effectiveness of roof insulation. It also resists weather and corrosion, defies dirt and smoke, stays bright indefinitely. What's more, Lime Crest Roofing Spar often costs less than other white aggregates, in some areas even less than slag! Let us send you a sample, so you can see for yourself.



News report continued from page 40

sociation, Hotel Bonaventure, Montreal, Canada.

Oct. 23–26. Annual convention of the Architectural Woodwork Institute, Waldorf-Astoria Hotel, New York City.

Oct. 27–30. Annual meeting of the American Institute of Planners, Denver Hilton, Denver, Colo.

Oct. 27–31. Convention of the National Electrical Contractors Association, San Francisco.

Oct. 28–29. Fall meeting of the American Consulting Engineers Council, Williamsburg, Va.

Nov. 1. Environment and safety briefing session sponsored by Bureau of National Affairs, Inc., Loew's L'Enfant Plaza Hotel, Washington, D.C. Nov. 30. Deadline for entries to the National Home Improvement Council's Chapter Award Competition, New York.

Nov. 30. Deadline for entries to the 1974 Concrete Reinforcing Steel Institute Design Awards Competition, Chicago.

Personalities

Alexander Cooper and Peter Marcuse have been appointed to the faculty of the School of Architecture and Planning of Columbia University, New York City.

Tracy Price, AIA, vice president and manager of Adrian Wilson Associates, Los Angeles, has been elected to the board of directors of the U.S. Council for Southeast Asian Trade and Investment.

Cushing N. Dolbeare has been named executive director of the National Rural Housing Coalition, Washington, D.C.

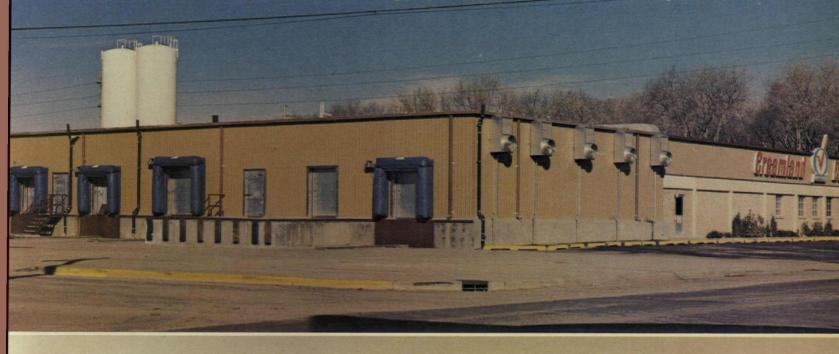
John C. Loevenguth has been elected president of the Structural Engineers Association of Southern California. He is vice president of the Los Angeles consulting structural engineering firm of Hillman, Biddison & Loevenguth.

Wayne V. Zunigha, AIP, director of planning for The Twitchell & Allen Group, Architects-Planners PA, of Sarasota, Fla., has been appointed to serve on the Joint Committee on National Minority Affairs of the American Institute of Planners and the American Society of Planning Officials.

[News continued on page 46]

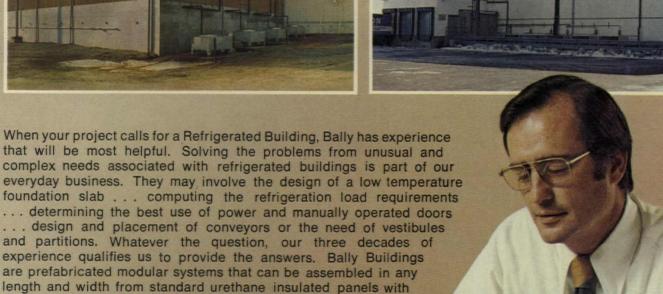
Bally Buildings belong

everywhere refrigerated storage space is a critical requirement





favorable UL and Factory Mutual listings. Refrigeration systems are available for every storage or processing need and for temperatures as low as minus 40°F. Bally's architectural metal facade in a choice of six colors can be installed on any



portion of the exterior where colorfully styled appearance is important. Write for literature and wall sample.

Bally Case & Cooler, Inc., Bally, Pa. 19503 @ 1974. ALL RIGHTS RESERVE

Address all correspondence to Dept. PA-10

E CUBE: A COMPUTER PROGRAM TO HELP YOU MAKE MONEY-SAVING, ENERGY-SAVING DECISIONS.

A THREE-PART LIFE CYCLE ANALYSIS _

1. ENERGY REQUIREMENTS.

E CUBE computes the hour-by-hour energy requirements of your building or planned building for an entire year—taking into account U.S. weather data, solar loads, building design, operating and occupancy schedules, and other operating factors. It sums them coincidentally—for single or multiple zones, even multi-building projects. And there's an easy manual check for every calculation.

2. EQUIPMENT SELECTION.

E CUBE lets you build, on the computer, a model of an energy system. Lets you "operate" that system so you can evaluate its performance. E CUBE can simulate many systems for you to compare—from all-electric to total energy, or any combination along the way—so you can choose the one that works best for you.

3. ECONOMIC COMPARISON.

E CUBE compares the total operating and capital costs of each system you study—takes project life and equipment life into account, provides for irregular and replacement expenses, and ranks the systems comparatively for life cycle costs.

E CUBE is accurate. There are other computer programs in this field, but E CUBE is by far the most advanced and has the experience of thousands of runs made by the American Gas Association member companies, industry, and people in private practice. The U.S. government is among the many successful users of E CUBE.

E CUBE is fast, private, moderately priced.

When we say it's private, we mean you give your information directly to the computer. Your project data and the results are never seen by any third party. E CUBE is available to you through the Cybernet® System of Control

Data Corporation, with installations in 44 major cities. Of course, we stand ready to provide assistance at your request.

An energy saver for new buildings and existing ones. Whether you're in the construction-planning stage, remodeling, upgrading and replacing old equipment, or simply want to check your building's efficiency, E CUBE can help you make the right decision. Right financially and right for conserving America's energy.

Helps you prepare many required reports. Here's another reason you'll find the impartially, statistically calculated results of E CUBE a tremendous help. It provides information for environmental impact statements, cash flow projections required by senior lenders, and is useful in profit planning.

For further information, mail in the coupon below or telephone Ken Cuccinelli, American Gas Association, (703) 524-2000.

1111	Kenneth T. Cuccinelli Manager, Gate/Energy Systems American Gas Association 1515 Wilson Boulevard Arlington, VA 22209
1	Name
i	Organization
1	Address
1	City
1	StateZip
1	ENERGY CONSERVATION
1	UTILIZING BETTER ENGINEERING
1	A American Gas

TEST THEIRS. O

TEST OURS.

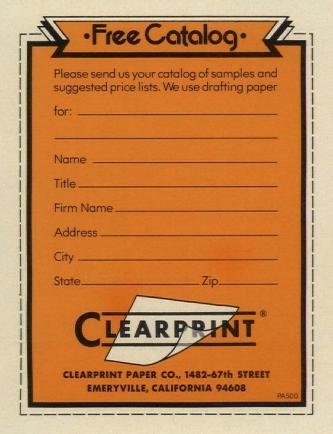
And "theirs" can be any drafting paper you choose.

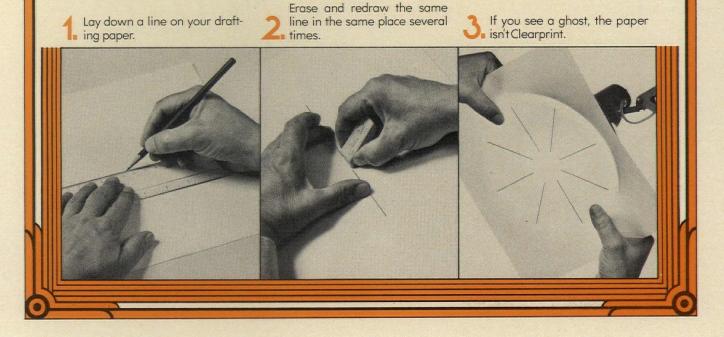
Draw a line, erase and redraw it. Then, look for ghosts. On any paper, other than Clearprint, they're almost sure to be there.

That would be the perfect moment to fill out our coupon and send for your free catalog. Then, try the same test on our paper. You won't get any ghosting. Forty years and more from now you won't see any cracking or yellowing either.

Send for your catalog today. Of course, there's no obligation — except to yourself and your company.

We perfected paper in 1933





News report

In Perspective

Four Wisconsin houses

Do architects make good neighbors? Four architects from Minneapolis voice an emphatic yes. James Stageberg, Leonard Parker, Bruce Abrahamson, and John Rauma have purchased 500 ft of lake frontage on Upper Eau Claire Lake in Wisconsin on which they have built year-round vacation homes for their families. To respect the wooded steeply sloped site, they accepted common design principles which have produced a most satisfying ensemble. All houses use: 8'-8" modules subdividing 26 ft cubes, cedar shingles and cedar boards in flush joined T&G, raised platforms, and shared site amenities (access road, water well, and dock facilities).

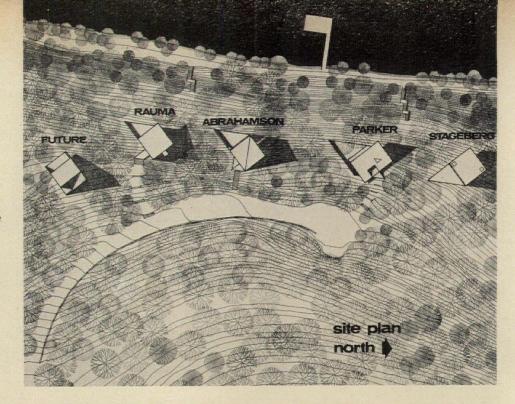
The Stageberg House is a cube whose three floors press on a corner atrium on 45 degree floor lines. A centrifugal force is felt: BRs on upper floors hover over an open plan ground floor where kitchen, dining, and formal seating revolve about the central column. Stairs are pressed into a corner.

The Parker House is formal. The shed roof encloses a two-story space which almost symmetrically flanks the living room with kitchen/dining and MBR on the ground and two BRs connected by bridge above. To counter this formalism, Parker shifts certain elements decisively. Main entrance, fire place, and deck are thrust off axis like pieces of a cam shaft.

The Abrahamson House cuts a deep V notch from the cube and shapes a strongly asymmetrical interior like the meeting of two great gables. Sleeping quarters above sit on kitchen/dining and MBR below. Space escapes everywhere, horizontally and vertically too, via the roof peak.

The Rauma House is another cube. Sleeping quarters atop a cubicle nest of kitchen, bath, and MBR send a 45 degree wedge to a corner, giving the living/dining space a gentle push to the lake. The obvious reaction is the stair tower, nudged slightly past the building line in the opposing direction.

There is a sense of calm and assurance about these homes. Following the dynamic mannerist fury of the Cali-

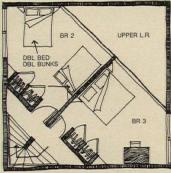




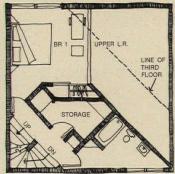
Stageberg house

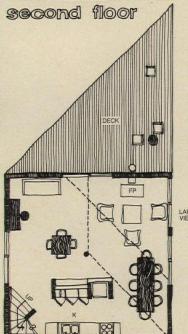


fornia shed roof style, the four come like bearers of peace. Their clear, uncomplicated parts balance an almost self-effacing exterior against a highly individualized interior architecture. They are typically American designs: thin, taut, clear forms expertly crafted (by a local master carpenter, Chester Lampert), and nestled in the almost mythical American wilderness. [RY]



third floor





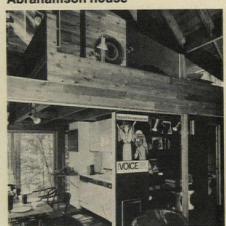
ground floor plan







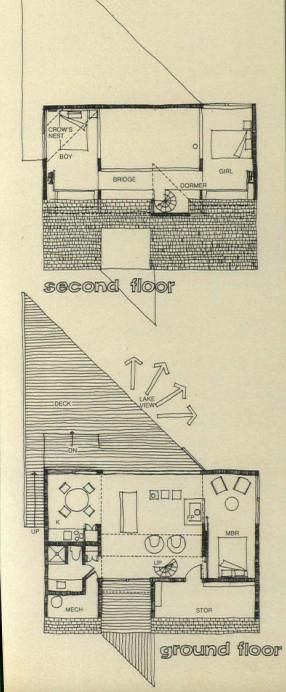
Abrahamson house

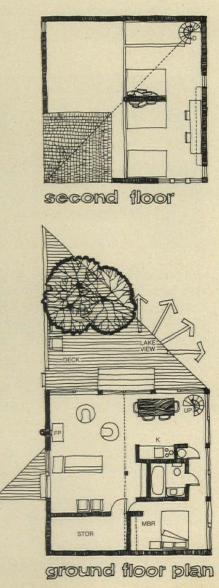


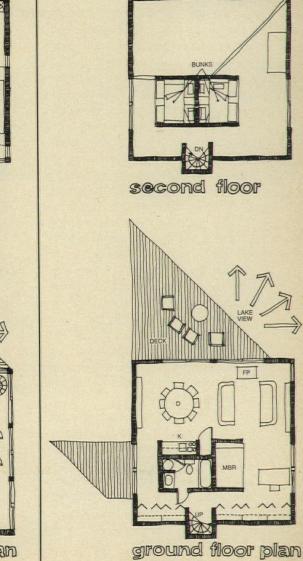


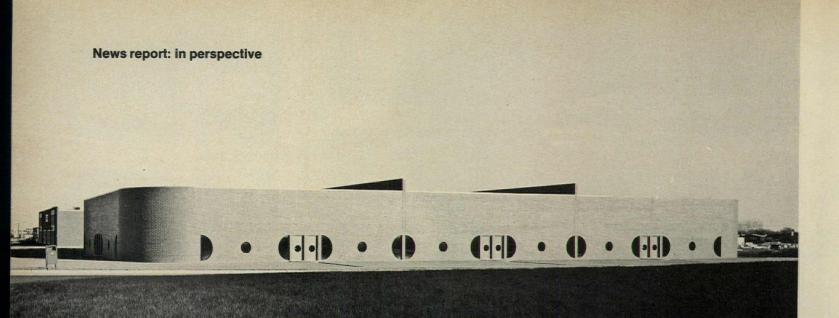
Rauma house











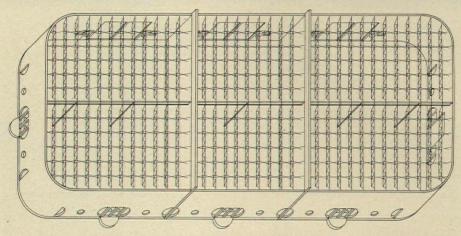
Roadside abstraction

"Incubator" buildings are well-known sights along the commercial strip and in industrial parks. Speculative buildings erected for light industrial or warehouse leasing, these structures rarely impinge on the consciousness of passers-by. They are at best boring, their \$9 per sq ft budget effectively obliterating any stamp of originality. This a nomans-land where few architects have been asked to tread.

But, as this incubator building for Kelmer Arlington Associates, realtors in Arlington Heights, Ill., shows, it's easy to get rid of a case of the blahs. The head of the company went to Chicago architectural firm, Stanley Tigerman & Associates to commission a speculative building that was to be a little different. And Tigerman even stayed within the budget—albeit by spending more time on formulating an economical design than budgeted.

The 22,000-sq-ft structure, located on a 71,000-sq-ft site in a Chicago suburb, economized on framing to keep costs down. Tigerman designed a two-span system of open web joists going from bearing wall to bearing wall. Whereas open web joists in most incubator buildings only span 30 ft, here they stretch 47½ ft to the longitudinal beam bisecting the 223-ft-long building. Thus Tigerman could get a 95-ft-wide structure with columns only down the center.

Furthermore, by welding the beam sections at points of contraflexure, he was able to create double column strength. By reducing lally columns, he pared down the footings and trimmed the weight of the steel. In addition, the





use of a metal roof deck rather than gypsum board or concrete slab meant costs could be sliced even more. (Tigerman admits that insurance rates rose because of the roof, but capital costs nevertheless were decreased. The two fire walls projecting vertically from the roof to form parapets aid in fire safety.) Another economic measure was the use of fixed glass with gaskets instead of operating sash.

All these budgetary tricks left room for design—including jumbo brick, with radial brick for the rounded corners; Duranodic coping and better quality hardware. Not only did the building rent quickly, but its formal qualities have given it something of a rarified status. Which is fine with Tigerman. He sought to achieve an abstracted image with the structure, now permeated with a scalelessness that removes it from reality. If only more of this building type could be similarly removed from reality. [SS]

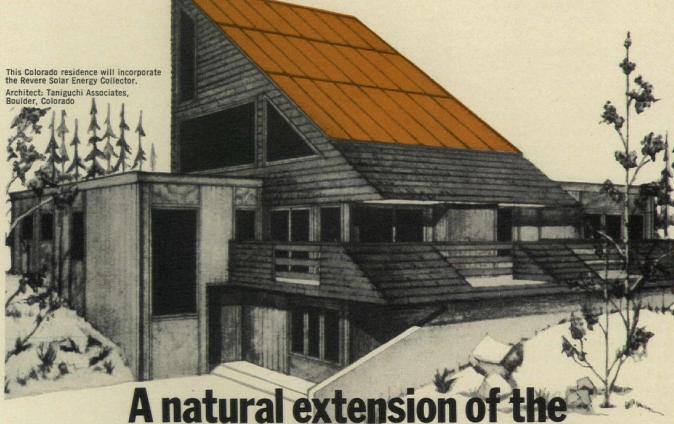
Credits

Architect: Stanley Tigerman & Associates (Anthony Saifuku and John Haley).

Structural Engineer: Raymond Beebe; Mechanical and Electrical Engineer: Wallace Migdahl.

Photographs: Philip Turner.

REVERE SOLAR ENERGY COLLECTOR



Revere Copper Laminated Panel System

Revere has applied its years of experience with copper building products to the development of a practical solar energy collector. It features:

- Significant fuel savings—in some areas of the U.S., up to 75% of the cost of heating and air conditioning both residential and commercial buildings.
- Easy installation—2 foot by 8 foot panels are quickly assembled as supporting deck, copper roofing and collector for new buildings... or they may be

installed as modular units for existing structures. Revere supplies all necessary components.

• Long life—All parts are made of quality copper which is corrosion resistant, durable and maintenance free.

Get the facts. For a new brochure on the Revere Solar Energy Collector write: Revere Copper and Brass Incorporated, 605 Third Avenue, New York, New York 10016.



News report

Report from Santa Barbara

Mention Santa Barbara to anyone familiar with the place, and you can count on a shared mental picture. It features a middle ground of varied greens punctuated by white buildings with red tile roofs. In a land of cities wracked by changing visual images, how did Santa Barbara come by such constancy?

David Gebhard, director of art galleries at the University of California in Santa Barbara, professor of architectural history and writer of numerous publications on California's architectural heritage, has been explaining the mystery of Santa Barbara to outsiders for years.

A resident of Santa Barbara since 1961, Gebhard was first attracted to the city by its single-minded devotion to the achievement of social homogeneity by the imposition of a dominant architectural style. A group of powerful citizens and wealthy dilettante architects managed to parlay the fashionable architectural persuasion of the day, Spanish Colonial Revival, into an enforceable architectural code.

While the city has had architectural controls since the end of the 1920s, there has been no set style ordinance except in the downtown historic precinct and in the exclusive residential area of Montecito. Gebhard foresees more architectural restrictions than at present and furthermore favors a style ordinance throughout Santa Barbara County for projects larger than the custom-designed, single family house. The house poses small threat, he says, because no matter what its style, it usually disappears in a few years behind a screen of vegetation.

As for the problem of making Santa Barbara out-of-bounds for original designs by individual geniuses, Gebhard is not troubled. He feels these are rare and improbable instances that can be dealt with when they occur. Meanwhile it is more important to safeguard the existing environment. If architects wish to go to Santa Barbara, let them devote their creative energies to variations on the general theme. Even a poor Span-



Santa Barbara Junior High (above), City Hall (below). Photos: Mary Louise Days





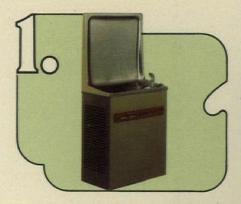
Residence—David Gebhard, designer: Photo: Julius Shulman

ish Colonial Revival design is a neutral statement, which is more than can be said for one in the contemporary, more muscle-bound idioms.

On the question of architectural review, the county board, of which Gebhard is the only non-professional member, seldom has had a divided vote on reviewed projects. However, the issues of architecture and planning have been increasingly joined due to regional development. Next to the 17-year battle over the Cross Town Freeway, which would run through Santa Barbara's Spanish Colonial heart, problems of

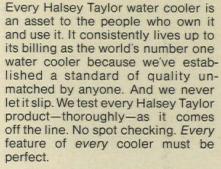
architectural control pale somewhat.

Gebhard thinks that in many ways planning has become so much more thoughtful in the past decade that it might be wise to close up shop and wait for the outcome of the next decade's ideas. The ultimate question is: for whom was this ideal community planned? Long a haven for the middle and upper classes, will it not escalate soon into an enclave for the very rich? A one-class ghetto—even for the rich—might well be culturally impoverished. Alas, Gebhard has no ready answer for this. [Sally Woodbridge]









One more thing. Halsey Taylor offers the widest selection of water coolers you'll find anywhere. Coolers for just about any application, any decor.

For details on the following, write to Halsey Taylor Division, 1554 Thomas Road, Warren, Ohio 44481.

1. New simulated semi-recessed cooler—HBW Series. Designed for today's thin-wall construction. Requires no cutout yet looks like a semi-recessed cooler. Capacity: 8 and 13 g. p. h. of 50° water.





Liquid assets.

- 2. WT Series. For wall-tight installation. Standard gray or any of 8 Polychrome colors at no extra cost. Capacity: 8 to 20 g. p. h. of 50° water.
- 3. Fully recessed RC Series. Onepiece, contour formed fountain receptor. No welds, no crevices to catch dirt. Grille vanes individually formed and fitted, not stamped out. Available in PATINA bronze-tone or satin finish stainless steel. Capacity: 8 and 12 g. p. h. of 50° water.
- 4. All-climate wall fountain No. 5905-AC. For all outdoor installations. Frost-proof supply valve and drain assembly. Vandal resistant. Other all-climate models available in fiberglass and porcelain enameled cast iron.
- 5. Wall-mounted cooler with accessory fountain—WM-BL Series. Special for small fry. Polychrome colors or vinyl-laminated steel at no extra charge. Capacity: 14 and 16 g. p. h. of 50° water.

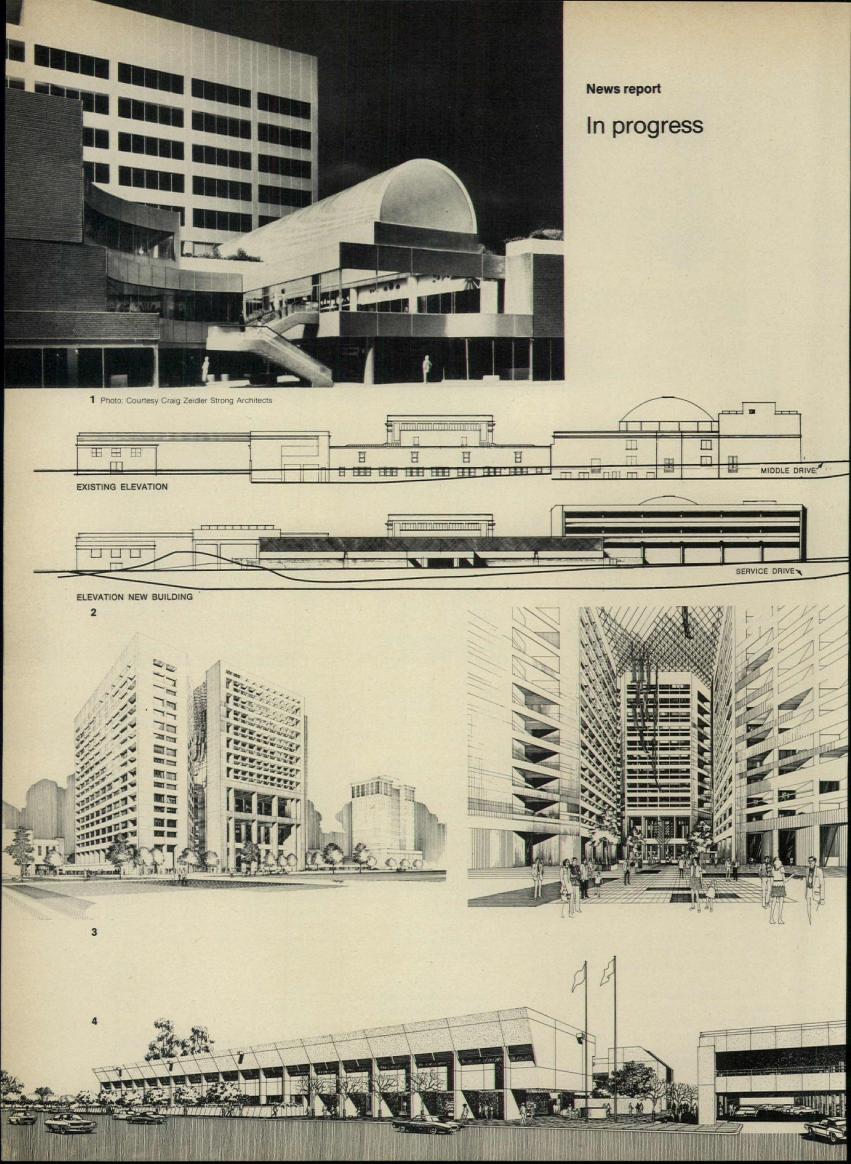






- **6. SW Series.** Just 20½" top to bottom. Can be wall-mounted at adult or child height. Famous anti-squirt, two-stream bubbler. Polychrome colors at standard cost.
- 7. Model 6800 WC fountain. Designed for wheel chair patients. Extends 19" from wall. Meets state and federal regulations for the handicapped. Lever-type control. Capacity: remote cooling units available from 5 to 19 g. p. h. of 50° water.
- 8. Outdoor fountain No. 6837. Weather resistant. Automatic stream control and positive shut-off service valve. Vandal-resistant exposed fittings. Cabinet also available in gray enamel.





- 1 St. Catharines, Ontario—The Toronto-based firm, Craig Zeidler Strong, has designed a two-story urban shopping mall to unite St. Catharines' civic district with the city's historic shopping street. The first of two stages will be completed in December and will contain both retail and office space beneath a glazed roof. The second stage will be additional commercial space on the southeast side.
- 2 California Academy of Sciences— Alterations and improvements to the academy, located in San Francisco's Golden Gate Park, will be completed by June 1975. They include an anthropological museum, fish roundabout, and an entrance gallery, which is connected to the existing aquarium by a new inner garden court with 25-ft-tall glass walls. The architect is Milton T. Pflueger, San Francisco.
- 3 Joint venture—Two Atlanta firms—Cooper, Carry & Associates and Arthur DeLoach & Associates—are architects for a two-phase revitalization of downtown Knoxville, Tenn. The first phase of the \$52 million project will be a 17-story office building and a covered parking garage. The second phase will consist of a hotel and 10-story office building. When finished in the spring of 1976, these three structures will be connected by an enclosed atrium.
- 4 Watts rebuilding—A black firm, Carey K. Jenkins Inc., of Beverly Hills, is designer of the \$7 million Los Angeles County health care facility located in the vicinity destroyed by the Watts riots nine years ago. The building is said to be the first public comprehensive health center built in the United States; it will open in January 1976.
- 5 Albuquerque's First Plaza—Harry Weese & Associates of Chicago is architect for the seven-level financial, office, and commercial block development by The First National Bank in downtown Albuquerque, New Mexico. Pierced by skylights, the structure will encompass seven acres of above and below grade construction. Completion will be this fall.
- 6 Physical education building—The form of the Physical Education Building completed this month at the University of Minnesota, Duluth campus, is a "direct response" to the structural system and the economics of construction, which come to \$32.13 per sq ft. Parker Klein Associates of Minneapolis designed the walls to cant inward minimizing the clear span of the roof truss thereby reducing weight, depth, and cost of the truss.



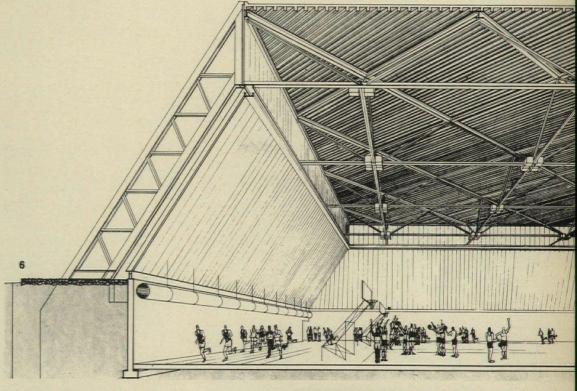
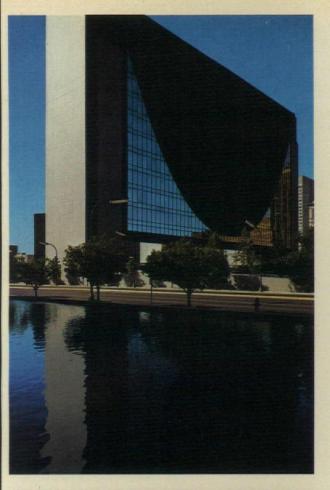




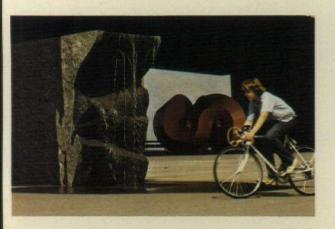


Photo: Courtesy Parker Klein Associates









Granite also opens up some interesting possibilities on the ground level.

Although granite is often selected as an exterior wall surface material, architects and building owners have found a number of additional areas where granite fits, and works, beautifully. Inside the building.

And outside.

The natural beauty of granite is that it resists weather, stains and the wear and tear of traffic as almost no other building material can. It requires virtually no maintenance. And its natural beauty will not fade or deteriorate.

Does granite have a place in your plans? Talk to our Customer Service Department about that.

Tell them what you want to do. And they'll tell you, step by step, how it can be done.

Refer to Sweet's Catalog No. 4.1/Co. Call us at (612) 685-3621. Or write.

subsidiaries:

Lake Placid Granite Company Jay, New York Texas Granite Corporation Marble Falls, Texas Raymond Granite Company Raymond, California Cold Spring Granite (Canada) Ltd. Lac Du Bonnet, Manitoba

over 20 producing quarries

Federal Reserve Bank of Minneapolis Architect: Gunnar Birkerts and Associates Landscape Architect: Charles Wood & Associates, Inc. Contractor: Knutson Construction Company



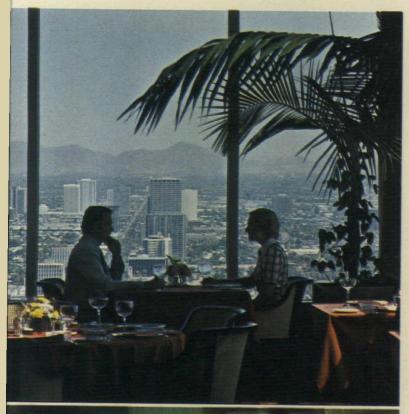
COLD SPRING GRANITE COMPANY/COLD SPRING, MINNESOTA 56320

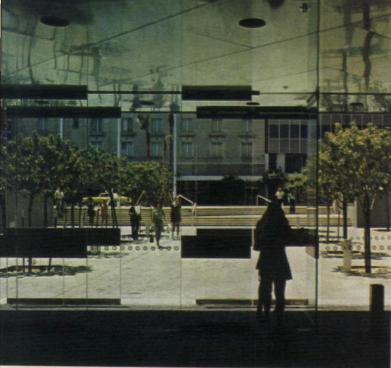
INSULATIO SEE THROUG



Valley Center, Phoenix, Arizona. Owner: Valley National Bank. Architects and engineers: Welton Becket & Associates, Los Angeles.

NYOUCAN HIFROMLOE





HOW THE RIGHT GLASS CAN SAVE ENERGY DOLLARS.

It was 114 degrees in Phoenix when the upper right photograph was taken from the Golden Eagle Restaurant in towering Valley Center. Patrons dine in air-conditioned comfort enjoying the aesthetic benefits of LOF Thermopane® insulating units of reflective Vari-Tran® glass. Valley Center's owners enjoy the practical benefits—reduced energy consumption and reduced air-conditioning costs.

Compared to ordinary tinted glass, LOF high-performance glass permitted Valley Center an estimated annual savings of \$27,500 in air-conditioning operating costs. And added efficiencies in controlling solar heat gain enabled substantial reductions in cooling equipment capacity. Initial savings, in this case, were estimated to be \$480,000. Overall, Valley Center's calculated annual energy need for heating and cooling was cut by almost 2.4 million kilowatts.

With Thermopane and Vari-Tran, annual fuel savings and cooling load reduction are precisely calculable and convincingly impressive. Contact Libbey-Owens-Ford Company, 811 Madison Avenue, Toledo, Ohio 43695. One of our architectural representatives will be glad to work with you on your particular design/energy problem.

LOF

Save time save money Reprodrafting.

Reprodrafting isn't new. It's made up of techniques you may know of but probably aren't using to the fullest extent-like paste-up drafting, photodrawing, team drafting and other photographic reproduction techniques.

Reprodrafting techniques can save you up to 80% of your drafting costs, depending on the particular job involved, and give you

better results. These techniques let draftsmen work more productively by relieving them of repetitive detail. And they can help you meet project schedules by condensing weeks of work into days.

We've collected six of these techniques in one comprehensive booklet that tells when to use them and how to use them. We'd like you to have it. It's free. Ask for it from your reproduction service, or write: Du Pont Company, Room 24031, Wilmington, Delaware 19898.



Housing policy, housing design

October 1974

This month, P/A is devoting most of an issue to the perennially frustrating subject of housing—frustrating because our economic system and our government policies (at all levels) are still incapable of delivering a safe, adequate home for every American, frustrating because architects are still uncertain how they would shape this housing if the resources were available.

The last time P/A published an issue on housing (May 1973) the Federal government had recently imposed an 18-month moratorium on subsidized housing. The private housing market seemed on the verge of a boom, but high interest rates and restricted mortgage funds soon stifled that. As this issue goes to press—almost two years after the subsidy cut-off—the Department of Housing and Urban Development is taking some cautious steps to revive housing construction, but there is no indication that these steps represent the thorough reexamination of U.S. housing policies that was the pretext for the moratorium.

Meanwhile, economic and social trends have established some strong probabilities regarding future housing: private developers will have to concentrate more and more on row-houses and apartments; a larger share of public and private effort will go into the maintenance and rehabilitation of existing housing; a larger proportion of units will be created by remodeling existing structures—residential and nonresidential; a larger proportion will be for single people and nonfamily groups or for combined living-work functions.

One housing rule has become virtually universal in the wake of Oscar Newman's book *Defensible Space* (Macmillan, 1972, summarized in P/A Oct. 1972): high-rise housing will be ruled out for families—at least for families without benefit of doormen, mothers at home, nannies, or day-care centers. Yet demand is reported high for the thousands of units of subsidized high-rise housing in New York, now becoming available to a wide range of income groups. Only experience will show whether a combination of residents' resources and operating policies can assure safety and de-

sirability to these units for family living.

Even where the accepted low-rise pattern has been applied with the best of intentions and architectural talent, as in the housing at Kingston, N.Y. (p. 62), results can be impaired by unsettled economic conditions which upset design decisions at the last minute—witness the post-construction change from hot air to electrical heating at Kingston, leaving now-unjustified mechanical rooms to block light from the kitchens. P/A senior editor David Morton reports, after his visit to Kingston, that tenants are irked by a smaller-scale flaw: the lack of screen doors (the architects were not allowed to use them) at the entrances, which prevents through ventilation. Trivial? Not in the Hudson Valley in August. Should the screen doors have been an integral part of the design, preserved at all cost? Definitely.

After talking with residents at Kingston, Morton returned with a deeper, nagging concern: Does the exceptional formal quality of this design really matter to residents? Those one meets seem mainly enthusiastic only about the individual unit plans and ample storage space. Similarily, tenants of Harvard's married student housing (p. 72), though presumably more sophisticated, seem unaware that they live in an architectural landmark. Do residents of both complexes benefit subconsciously from the organization of their environment, from its clarity of form, from design devices that make interior spaces seem less constricted? Given a chance to participate in design, would they have opted for the tack-on mansards and machine-carved entrance doors that seem to sell developer housing?

We can all be quite certain that the quality of housing depends on sound policy decisions regarding location, financing, unit density, and access to community amenities. We can be reasonably sure of the effect of certain basic planning decisions—building height and layout, for instance. But when it comes to the formal qualities most of us are committed to, we are not at all sure how they affect residents. And we still have no accepted way of finding out.

John Maris Difa

UDC housing, Kingston, N.Y.

Assessing Broadway East

New York State Urban Development Corporation's low and middle income Broadway East housing, Kingston, N.Y. is first appraised by architect Werner Seligmann, then put in historical context by Fred Koetter, partner of Wells/Koetter/Dennis, architects of the project.



Appraisal, by Werner Seligmann

Less than 10 years ago most schools of architecture considered the topic of housing hardly worthy of investigation. Since architecture schools are a reasonable barometer of professional attitudes, this lack of concern explains the few significant housing inventions and the dearth of housing models in the United States. Rather than being the fault of an apathetic architectural profession, it signifies a long (and thoroughly entrenched) anti-urban, anti-socialized housing attitude, in which the ideal has always been the individual, detached dwelling and its intrinsic lifestyle. Until only recently, the most this attitude would permit were Radburns and Greenbelts reduced to endless, boring subdivisions. Now that attitude seems to be changing; we are becoming increasingly impatient with the slowness of the change and the quality of the results.

Unfortunately, production of a standard and invention of new types are seldom instantaneous, but more likely tedious and incremental. Notable solutions may be reduced to disastrous failures by unpredictable factors extraneous to architecture. It is easy to condemn Pruitt Igoe, for instance, without understanding what contribution to high-rise housing it initially represented.

At this stage, improvement of housing can only be accomplished by a persistent and thoroughly informed effort. The tragedy of the American housing effort has been that until relatively recently commissions were generally given to those offices that were "safe" and posed the fewest questions and problems to the administering bureaucratic institutions. In this respect, the New York State Urban De-

velopment Corporation has been remarkable in giving opportunities to talented and responsive architects and in encouraging their contribution. While this has not been a bed of roses for either the UDC or the architects, the results speak for themselves: each project addresses a particular set of issues, and collectively they produce a backlog of solutions and models to build on. Most importantly, these projects solve contextual problems in housing—a concern that, except for Le Corbusier, modern architecture has shamefully ignored.

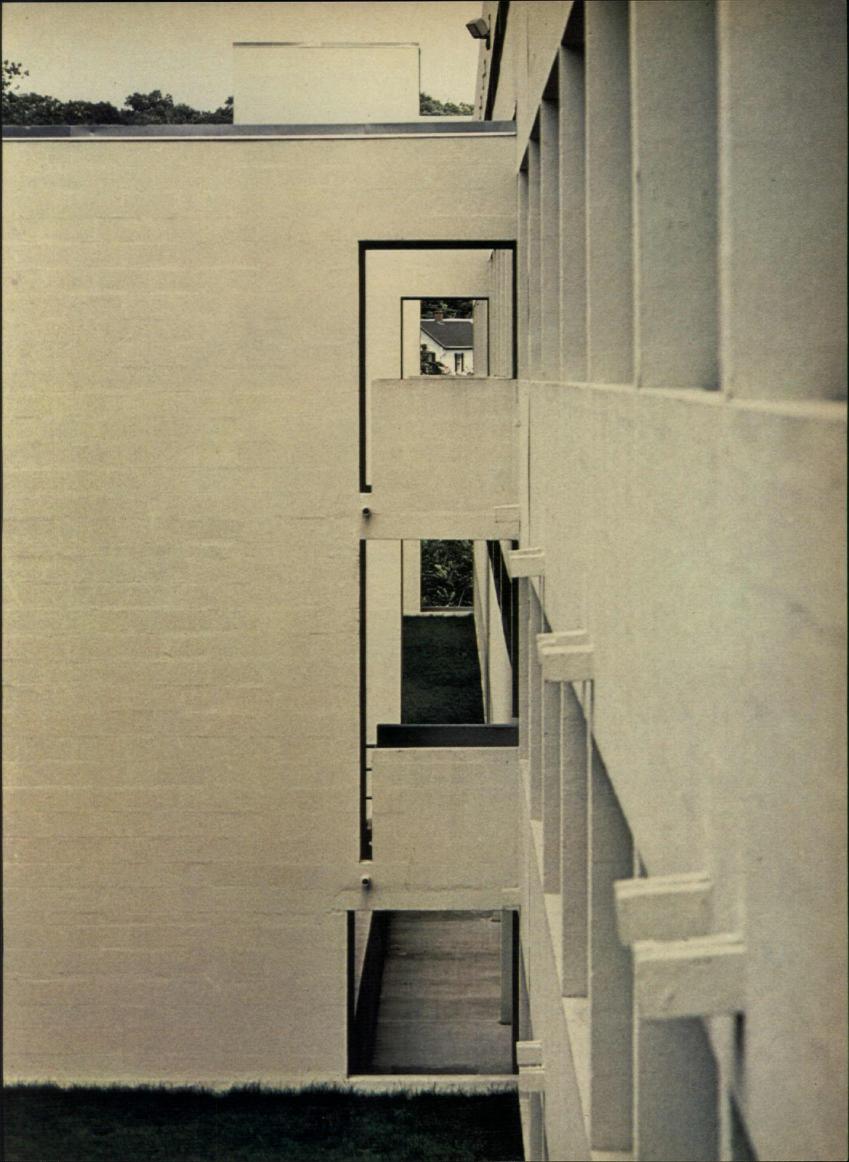
The idea that the correct statement of a problem leads directly to design solutions, coupled with the naive belief that too much familiarity with existing solutions inhibits creativity, has enjoyed great popularity in design teaching. Yet any significant contribution can only occur after thorough familiarity with and critique of existing ideas and models. Most of the existing models and concepts in housing are European, with a few notable American efforts. Together they are part of the heritage of modern architecture, and represent over 50 years of housing experiences.

On a cursory view, Broadway East presents images of European housing of the early 1930s-recalling Siemensstadt, Dammerstock, Roemerstadt, Kiefhoek, and Neubuehl-with its white buildings and ribbon windows, its long continuous wall and the Zeilenbau at the bottom of the hill. However, despite the imagery, this project should not be viewed as a reference to a particular source, but rather as a commentary on the whole body of housing precedents of modern architecture, representing a development that could not possibly have existed earlier. Just as Brahms' Haydn variations do not remain Haydn because of the intervening development, neither does the Kingston project remain architecture of the 1930s. Rather than being a pastiche, it represents a highly critical attitude that expresses coherent, well-stated arguments without inventing a new architectural language.

The building location and choice of building type were the product of prevailing site conditions. The architects were confronted with a very irregularily sloping embankment, and very poor soil conditions throughout the site, with the worst condition at the center. Two buildable areas remained: a long, relatively narrow strip at the base of the upper wooded embankment, and another almost square area at the foot of the site at the point of access.

The location at the top of the hill presented an almost ideal orientation for housing, and it has an impressive view. The architects desire to provide as many units as possible with a view, the limitations of a walk-up type building, and the particular format of the site logically led to a design solution of narrow-frontage duplex units and a gallery-type, continuous-wall building. In contrast, at the bottom of the site, without any view, it was logical to direct the units inward, leaving the unbuildable central section of the site as semi-public park.

The narrow-frontage, deep-duplex through-units of the long building are a type that has persisted throughout history. It has found particular, renewed favor in modern architecture because of the inherent, compelling simplicity of its simple parallel wall-bearing system, the repetition of identical, single-span structural members, and the potential for large apertures without structural constraints at the ends. Generally, with the use the small spans required for hous-



UDC housing

ing, the format of the units becomes long and narrow with a plan width ranging between 12 and 16 ft and lengths varying from 36 ft to approximately 65 ft. Because of the premium on sources for light and ventilation, the service, utility functions, nonhabitable areas, and circulation are relegated to the center. When used in series, the duplex unit has the advantages of linear instead of point access, through-ventilation, standardization of building elements, lack of extraneous detail conditions, minimum exterior exposure per unit, and back-to-back plumbing.

The ideas for the structure of Broadway East were originally derived from the framing of Le Corbusier's Marseille Unité, which used a structural subsystem within a threestory-high void. As the result of several studies, however, the project used a system of parallel concrete block bearing walls, 24'-8" apart, with clear-spanning plywood truss joists to accommodate the hot air system. With the introduction of the 24'-8" clear span at each floor, it was no longer necessary to adhere to the 12-ft division in plan. The original 36 ft deep bay was then extended 6 ft to give a 24'-8" x 42'-0" floor that could have both a two-and a three-bedroom unit, requiring only a minor variation of the typical two-bedroom plan. The retention of the original 12ft-wide lower floor plan resulted in a 6-ft-wide interior access gallery. The discovery of this combination enormously enriched the potential of the long building, in that the same structural unit could now not only accommodate zero-, one- and two-bedroom units but also the three-bedroom

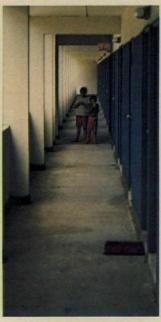
Spatially, the unit represents a strongly directional, tunnel-like space, with an implicit front and back. The duplex units are further organized into a potentially open ground floor, with a dense, compartmentalized upper plan.

The individual units, however, are disappointing in their lack of spatial quality, which was caused by a set of unfortunate circumstances beyond the architect's control. For some reason, and I am not convinced of the argument about safety, the architects were not allowed to use openriser stairs, which could have extended the sense of spaciousness. Furthermore, the developer proposed to use individual hot-air heating units for each apartment, requiring for each unit a mechanical space with direct exterior access for maintenance. This shifted the location of the kitchen to the interior, and robbed the space of a vital source of light and of a visual connection to the gallery. As a result, both floors of the unit become equally compartmentalized. This is especially unfortunate since the developer changed the project to electrical heat during the course of construction. Remnants of the original scheme are still present everywhere, making one sense what the original design could have been.

The project does attempt, however, to accommodate a great variety of units within one building, thus achieving great formal and spatial richness. By employing the very simple strategy of keeping the top row of duplex units completely uniform, only using the combination two- and three-bedroom duplex units, the designers created a strong cornice, or attic, as a datum level which can absorb below it a great variety of local incidents. The units below the attic



Building 1, south facade



A north-side gallery, building 1



Building 1 seen from courtyard between buildings 2 and 3

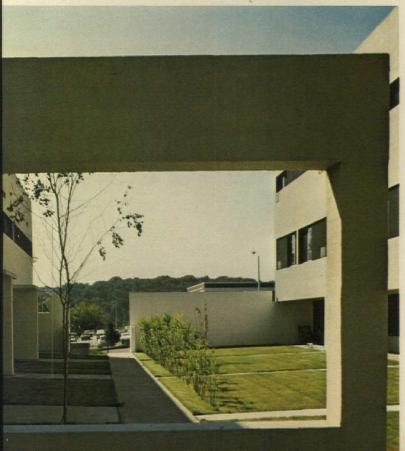


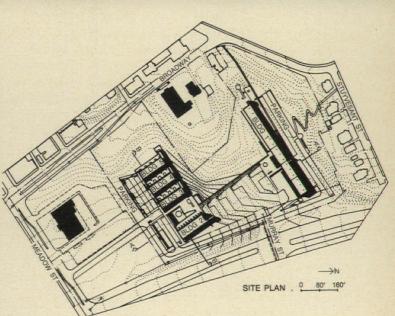


Building 1, north façade.



East façade of buildings 2, 3, 4 and 5.





Courtyard (left) typical of those between buildings 3 and 4, 4 and 5.

UDC housing

are arranged about a large, gatewaylike opening, one bay wide, which connects the park in front of the building to the internal circulation of the building and the parking area behind. The units on the west side of the opening are zero-and two-bedroom units, a variation of the normal unit with shallow porches which are designed to read effectively as loggias or pilotis. To the east of the gate are combinations of two- and three-bedroom units. Because of the slope of the site, the architects were able to provide community spaces and a maintenance area below these units, at grade access. Projecting the zone 12 feet afforded the units individual terraces, but more importantly, it provided a strong base for the building, thereby avoiding the perceptual dilemma where the building seems to slide down the hill.

The opposite side of the building, the parking lot or entrance elevation, is extremely interesting because of the inclusion of the access galleries within the volume of the building. By maintaining a strong sense of the front wall, the galleries become very effective horizontal cut-outs in the façade, which in turn are overlayed by the vertical projecting elements of the intermediate stair towers. Because the stair towers are lower than the building, and since they do not have to connect to the roof or to the bedroom floor of the top duplex units, the roof edge is allowed to read uninterruptedly, maintaining a very strong sense of the wall plane, against which the solids and voids play. The play with depth of the façade becomes heightened at the occasion of the gateway, where the distant view and the sky are introduced into the elevation, flattened out and made into an additional layer in the façade. Wherever one looks, one is confronted with an extreme richness of invention: the articulation slot of the stairs, the space within the stairs, the rhythmic divisions of the façade.

The design of the end firestairs, which is particularly skillful, can only be explained in terms of the site. At the northwest corner a path leads up to a road and to a local bar. At this end, the slope provides a natural closure. Turning the end stair in alignment with the building architecturally indicates that path. At the other end of the building, the perpendicular stair provides a strong termination of the space formed by the two-directional slope of the site and the building. It thus converts, by very simple moves, a parking lot into an architectural space.

The arrangement of the rowhouse units at the southeast end of the site presents an alternative to the usual site plan of alternating zones for automobiles and green spaces. By providing parking away from the units, the design avoids the inherent scale conflict between the greatly differing dimensional requirements for automobiles and pedestrians, albeit at the expense of immediate access from car to home. The dimensions between the rowhouses can thereby be reduced, and the spaces appropriately proportioned to the height of the buildings and the activities. This fosters a collective reading of the blocks of rowhouses as a single building, which becomes effectively strengthened by the addition of enclosing garden walls that extend from the end walls of the individual blocks. Each courtyard is accessible through a small, gatelike opening in the wall and a flight of steps that has been let into the volume to further reinforce the architectural intention.

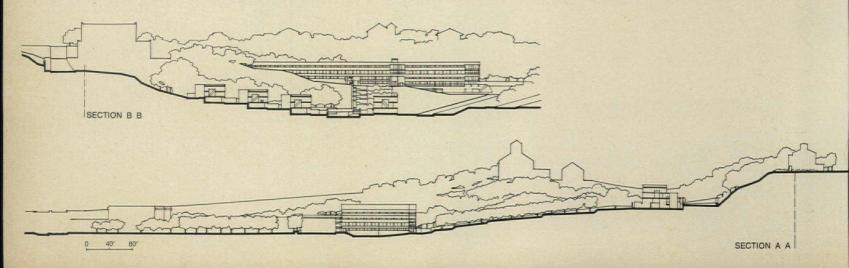
At the flattest portion of the rowhouse site, two rowhouses are spaced further apart to create a small plaza and playground with a sunken courtyard, a fountain, and benches. The space, because of its effective enclosure on three sides, extends to focus on an imposing view of the long building at the top of the large, central lawn.

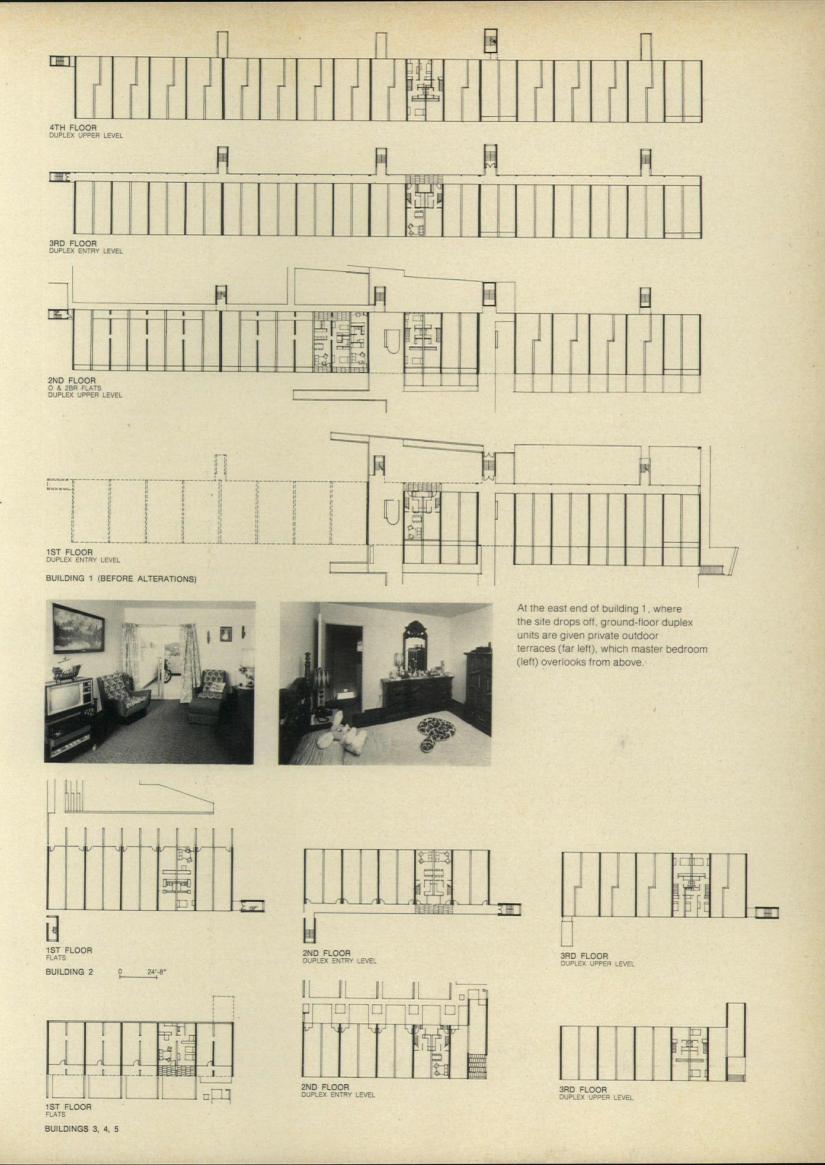
Site Organization

Composing the rowhouse units into a single architectural element was a powerful, useful compositional strategy. The simple move reduces the site problems to dealing with only two major architectural elements. The problem then becomes one of carefully adjusting the elements to each other and to the features of the site. The strategy is not a new discovery of the designers, but stems from their long interest in historical precedents of site compositions.

In the original plans the two architectural elements were connected by a concrete ramp system that extended from the small courtyard of the rowhouse units through the gate in the long building, to a circulation system at the top of the site that connected to the downtown area of Kingston. A return leg of the ramp led from the upper parking lot to the main arrival point of the long building. Here a perched platform within the opening of the gate overlooked the entire site and the distant view. This ramp had to be deleted and only an asphalt paved walk now connects the two pieces. It is surprising, however, that even without the ramp the compositional strategy works and the relationship of the two elements is strongly felt. In any event, the ramp would probably have been too literal and would have destroyed the compositional spark gap that now exists. The site organization is easily read; it is powerful and simple, yet allows for infinite nuances and episodic invention.

The project expresses an attitude born of a strong awareness of the past and of the continuity of architectural ideas. It is an attitude that is anti-picturesque, yet is as consciously perceptual as it is conceptual.





Broadway East: historical precedents, by Fred Koetter

The idea of "housing" implies, in very simple terms, a median condition existing somewhere between the problem of the individual dwelling and the requirements of its larger context. Ultimately, this condition might be examined in terms of a relationship between: the problem of repetition—the possibilities and necessities of the standard or typical part; the requirements of identification—of conceptual and perceptual legibility; and the recognition of context—of unique circumstance and existing conditions.

The problem of achieving or maintaining a balance between these co-existent and sometimes antagonistic forces is not a new one. In considering, for instance, the difficulties (both visual and social) of sustained replication of the standardized housing package, one thinks not only of the bleak anonymity of post World War II public housing and American suburbia, but also of the expanding city of the early 19th Century, of the London suburb of that date, with its endless miles of faceless residential development. There is here an obvious problem of numbers, of quantification. Housing, when projected at any substantial scale, and solely involving the use of repetitive pieces at a certain point begins to invite disorientation, loss of identification, and a collapse of the senses. While this problem of extended repetition, consequent loss of identity, and disregard of unique context has an extended history, there is also a history of examples that might serve as useful models in considering these problems.

The primary housing configurations at Bath or in Nash's London, for instance, may be seen as attempts to deal with the problem of extended repetition and great numbers through the use of large-scale, highly identifiable set pieces. The "big house" as opposed to many little houses, the terrace, the circus, the crescent, etc., were pieces that made emphatic distinctions between the public and private realms (the public façade out front, stable and predictable; the private garden out back, loose and casual). Furthermore, as elements operating at an intermediate scale, somewhere between that of the house and that of the city, they were able to produce or maintain local identity. At the same time they were important to the larger urban context; they not only were affected by, but also effected their surroundings. Related characteristics of legibility on a large scale may be found in the 19th Century American residential square or its earlier French and Dutch equivalents.

Considering the possibilities and potential manipulation of the small-scale repetitive piece itself, we could refer to the versatile brownstone, with its "loose-fit" plan and its ability, in combination, to produce larger, coherent urban figures. Also, modern architecture, by its constant pre-occupation with the repetitive or standardized element, presents many examples. Included could be Le Corbusier's "standardized house" deployed in his controversial Pessac housing, or his later 226³ framing system. In both cases, a typical piece or spatial cell lent itself to producing a wide variety of dwelling types and plan configurations.

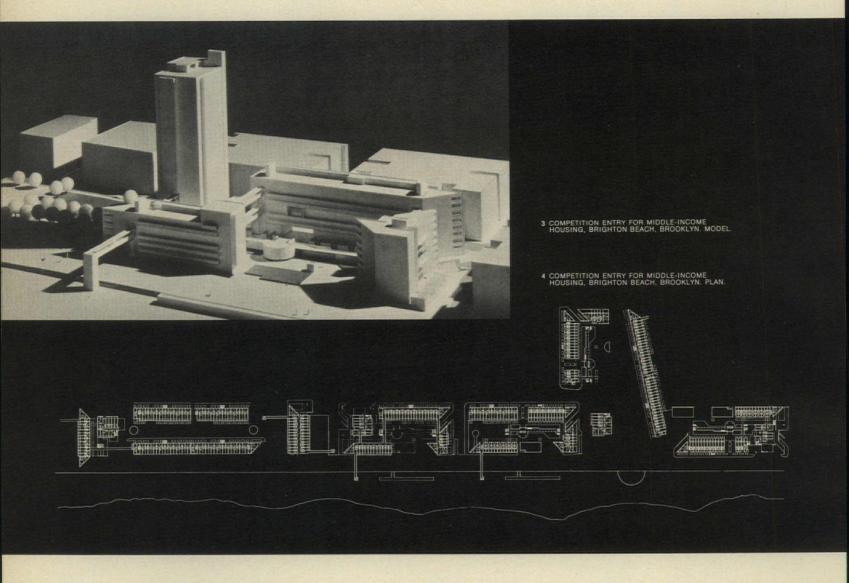
Another modern example of effective consideration of specific context, of responses to unique circumstances, might be the Frankfort works of Ernst May, particularly the housing estates of Bruchfeldstrasse and Roemerstadt, where literal and extended adherence to standardization was combined with a highly effective recognition and exploitation of context and site. In the case of Bruchfeldstrasse, a fairly dense, center-city situation led to the production of a large and highly legible residential courtyard building—a traditional urban set piece adjusted to its context-that was hard, public, and street-defining on the outside; soft, green, private on the inside. At Roemerstadt, a suburban, almost rural site was interpreted to produce a coherent and contextually sensitive large scale event-a giant terrace. This gesture not only organized the various buildings on the site, but provided an identifiable "social armature," a common park or promenade. The manipulated context, at this level, became more important than the buildings themselves.

References of this kind, all operating at various levels of generalization (the detail, the dwelling, the group of dwellings, the "neighborhood," the city, etc.), and all, in the end, according to the demands of various criteria (economic, technical, social, cultural, symbolic, etc.), might not only be considered as interdependent aspects of a complex problem. They might also be allowed to remain as an array of independent conditions, all subject to study and development to further fracturing and reassembly. And it is with reference to such issues and procedures as these that the Broadway East housing and a series of related projects may be seen.

Evolution of Broadway East

In our development in 1967-70 of an industrialized housing system (P/A, Jan. 1971, p. 86), the problems of the repetitive element and its potential flexibility at a number of levels-the details, the residential unit, the building-were of primary concern. Thus the system (illus. 1) was designed as a combination of related, but essentially independent, systems and subsystems: structural frame, closure elements, mechanical systems, etc. Beyond the somewhat measurable aspects of the problem-minimum useable dimensions, adequate storage space, internal zoning, unit type and size, access conditions and the rest-conditions that might further affect the quality and livability of the dwelling were considered. Desirable levels of internal privacy and flexibility, the provision of useable private outdoor space, the possibility of a unique and identifiable internal volume, and perhaps the image of the individual dwelling were investigated. By maintaining relative autonomy with regard to these factors, we avoided many unwarranted compromises. An insistence on a structurally coherent solution, for instance, might override or restrict a desired level of plan flexibility. At a certain point, the resultant units (illus. 2) became, in themselves, relatively independent "subsys-

1 INDUSTRIALIZED HOUSING SYSTEM EXTERIOR WALL PANELS FLOOR PANELS BASIC FRAME & PANEL SYSTEM CORE ASSEMBLY EXPLODED VIEW OF BASIC FRAME AND PANEL SYSTEM EXTENSION UNIT EXTERIOR EXTENSION SYSTEMS EXTERIOR VERTICAL CLOSURE PANELS FOUNDATION & SITE VARIATIONS 2 TYPICAL UNITS UNIT TYPE CC-1 UNIT TYPE A-1



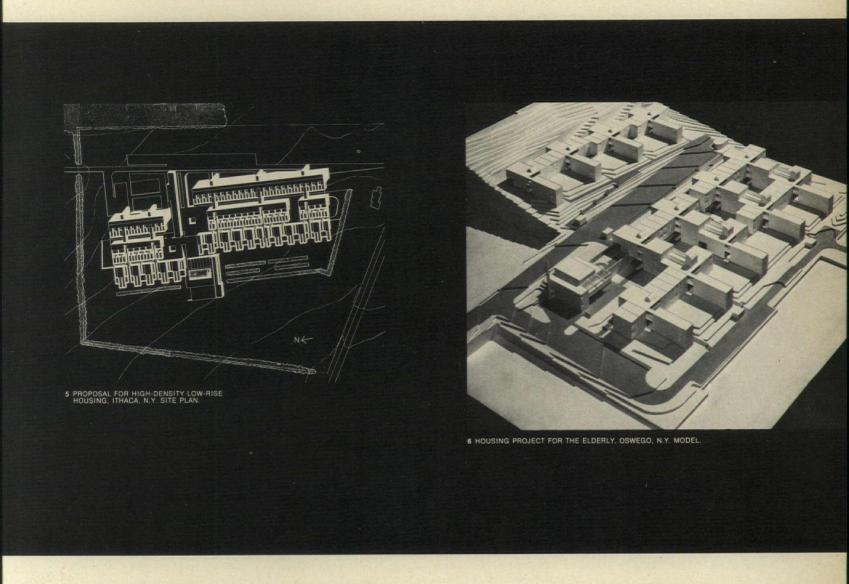
tems" in a larger context. Thus a more or less standard series of unit types was adjusted and reinterpreted for use in the production of a number of specific housing proposals, each having its unique problems.

In a competition entry for middle-income housing at Brighton Beach, Brooklyn (illus. 3), for instance, a derivative series of unit types was assembled into urban building types (illus. 4). A combination of wall and tower elements relate in type and disposition to the immediate physical surroundings (significant zone between city and sea, continuous boardwalk) which led us to the notion of a waterfront plaza. In a proposal for high density, low-rise housing in Ithaca, N.Y. (illus, 5), the standardized components became subordinated to the interests of context and larger scale identity. The site—a relatively anonymous open hillside with favorable exposure and spectacular view-supported an interpretation of the building as an artificial hill or residential "grandstand," as a superimposed and finite figure. In a recent housing project for the elderly in Oswego, N.Y. (illus. 6), something like the reverse of this strategy was attempted on a smaller scale for a reasonably well defined site (carved from the woods). The characteristic repetitive piece—a small-scale residential courtyard defined

by standardized sets of dwelling units—was proposed as a dominant theme of visual and social identification. The overall configuration—a relatively open-ended network with loose perimeters—thus became a secondary product of this repetitive courtyard theme.

At Broadway East, a highly idiosyncratic context emerged as a primary consideration. The 10.3-acre site presented several problems. The irregular topography, with an approximate total change in elevation of 120 ft, resulted in something less than 6 acres of buildable land, and even this area contained slopes of 8 to 17 percent. The western and northern edges of the site are a virtual cliff, creating a small-scale box canyon to the northwest, and generally splitting the site into two parts. Further, the proposed arterial that borders the site on the east will eventually present a barrier 15 to 20 ft above the site in some areas. These restrictions limit access to the site to the south end, between the new city hall and a new fire station.

Possibilities of orientation were also severely limited by the topography, and very poor soil conditions necessitated abnormal foundations. Consolidation of foundations and services, economy of ground coverage, and vehicular circulation were necessary, and specified building locations.



Our final proposal consisted of a group of loosely integrated traditional elements—a series of courtyards (one dominant) defined by interconnected row house blocks, a large terrace building, and a connecting stepped street with landscaped terraces (reduced later due to budget)—all relating to a large central green.

The individual dwelling units are all modifications of standard types (gallery access, through-ventilated two- and three-bedroom duplexes, one bedroom and efficiency flats). They are highly repetitive, but variety is imparted through their particular position relative to the larger context. The buildings are further seen, relative to the overall site organization, not so much as positive "figures," but as somewhat passive defining walls to the central green. Thus the space of the park assumes a dominant, perhaps a controlling, role. On this level of generalization, the particular characteristics of the buildings—the style of "art," the precision of the details, etc.—are, up to a point, of relatively little consequence.

While circumstances unfortunately prevented full development on a detail level, it is felt that on the more general and fundamental levels of concern the built project reflects the original intentions.

Data

Project: Broadway East (housing), Kingston, N.Y.

Architects: Wells/Koetter/Dennis Architects; Jerry A. Wells, partner in charge; Joel Bostick, Jan Fougner, job captains; Michael Dolinski.

Program: 122 units of low- and middle-income housing with communal facilities. Project developed by private developer with federal assistance, and designed according to FHA 221(d)3 modified (by N.Y. State Urban Development Corporation) standards.

Site: a 10.3-acre urban renewal site in a low-density area near downtown Kingston. Irregular topography, poor soil conditions, and limited access greatly influenced design.

Structural system: pile foundations, load-bearing masonry crosswalls 24 ft on center with wood truss floor and roof joists; precast concrete galleries and lower floor levels; non-load-bearing masonry longitudinal exterior walls.

Major materials: wood and steel piles; concrete block exterior walls; gypsum board interior partitions; precast concrete plank, and wood bar joist floors; wood bar joist roof; built-up roof surfacing with flood coat; gypsum board ceiling.

Mechanical system: electric baseboard heat; individual through-wall air conditioning units.

Consultants: Schumm Assoc., landscape; Galson & Galson, mechanical; Severud, Perrone, Strum, Conlin, Bandel, structural.

Client: New York State Urban Development Corporation; Leon Perlstein, developer/contractor.

Costs: see cost analysis, p. 112.

Photography: David Morton; except top two, p. 65, Nathaniel Lieberman.

Ten years past at Peabody Terrace

Jonathan Hale

Although Harvard's married student housing was aged well, close scrutiny reveals some interesting wrinkles where they are least expected or easily eradicated.

After 10 years, Harvard's Peabody Terrace Married Student Housing still glitters above the Charles River, its forms fresh and exciting, if no longer startling. During that decade, Peabody Terrace was showered with awards; it was praised not only for its visual spectacle, but also for its brilliant planning, economical construction, and sensitivity to the surrounding community. The design of Sert, Jackson & Gourley was truer and stronger than the ersatz Georgian of the nearby Harvard Houses. Its towers were the first high rises in Cambridge, Mass. with the exception of Yamasaki's smaller and less conspicuously sited William James Hall; yet they made the new scale, which everybody knew was coming, seem acceptable. Peabody Terrace's low buildings kept the complex to a human scale, and to the scale of the small wooden structures of the neighborhood. Nor did the scheme seal off the complex from the river. If other architects have not imitated it, the firm, now Sert Jackson & Associates, has used many of its principles in two large projects under construction in New York.

But how well does Peabody Terrace *really* work? When the buildings were brand new, P/A heralded its innovative structure and design (Dec. 1964 p. 122), commenting on 'its efficiently workable interior arrangement [and] more importantly a lively sequence of exterior spaces and a fluent continuity from low to high and from old to new structures.' Now 10 years later, by means of informal interviews with tenants, visits to a number of apartments, plus information gathered from surveys, it is possible to discern definite faults—but still experience its virtues.

Peabody Terrace's 500 apartments sit on six acres at the edge of the Charles River, surrounded on three sides by a low- and lower-middle income neighborhood. Owned and operated by Harvard University for its married students, the

Author: Jonathan Hale was formerly on the staff of *Architectural Record*. He is presently an architectural designer for John Sharratt & Associates in Boston.

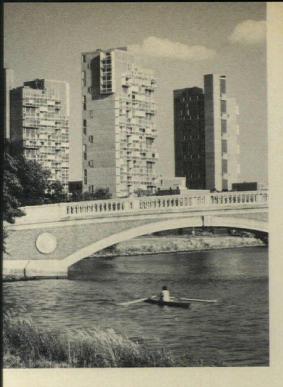
complex is near the University's neo-Georgian dormitories. Besides living units, the program called for a 300-car garage, a playground, meeting rooms, nursery school, laundromat and food store.

While the architects reinforced the sense of territoriality in their design, they also attempted to relate the complex to the surrounding community through an open space system leading to the river. Buildings are grouped around these open spaces composed principally of three large courts, each with a different character. The central court is a brick-paved plaza adjacent to the stores and community spaces, while the other two are grassed over and bordered by trees. As noted in P/A in 1964, the central square, with its public meeting rooms, drugstore and outdoor terrace, dry cleaner and laundry, was intended to attract outside neighbors as well as residents. A promenade connects this space to riverfront parks. In addition, many ground-floor apartments have their own small yards; several common roof terraces and a childrens' playground have been provided.

To acknowledge the low scale of the existing neighborhood, and still accommodate a rather high density (248 persons per acre), Sert, Jackson & Gourley proposed a scheme of towers combined with low-rise units. Harvard at first considered a 12-story horizontal slab parallel to the river as the simplest and cheapest solution. So the architects had to find a way to build varied spaces and forms for the same price. How they did it is a key to the design.

Believing that standardization is the essential ingredient of economy, they developed a standard unit three-stories high and three-bays wide, each containing six apartments. In the center of each unit is a stairway, and at the middle level, a single-loaded corridor serving all six apartments. These units could be combined into low-rise and high-rise arrangements, with elevators installed in the towers. Skipfloor elevators, stopping first at the fourth level, meant additional savings, since bridges connect towers to the low-rise buildings at the fourth and sixth floors.

The construction is simple and straightforward: reinforced concrete columns, uniform in width and varying only in depth as needed, support flat slabs; thin precast concrete infill panels form the nonloadbearing walls; windows are standard floor-to-ceiling glazed units. Flat slab construction meant ceilings and columns needed only to be





On the edge of the Charles River loom the landmark towers of Peabody Terrace, (top), part of a complex which also includes low-rise units (above right). Exterior access corridors (above) provide principal circulation for skip-floor system and connect low-rise buildings to towers at floors 4 and 6. (Vermilion-colored walls enliven streets-in-the air). Inside the apartment units (right), proportions and window walls increase space, light, and ventilation. Flat slab construction means ceilings and columns only needed to be painted.

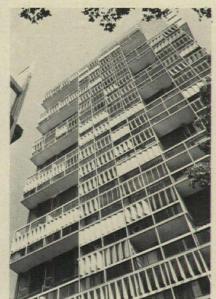
Photos: Randolph Langenbach.

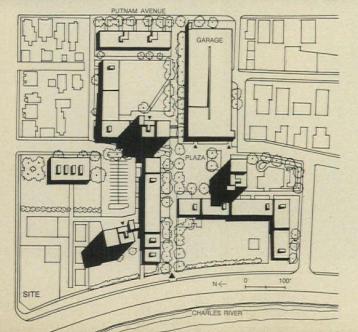




While elevations facing east and north are comparatively flat, those facing west (and the Charles) are punctuated by brise soleil metal sunscreens (top and below right). Buildings facing south depend on deep balcony overhangs for shade. Red and green ventilator panels add color to walls, in contrast with white trim, beige concrete. Photos: Randolph Langenbach.







Ten years past at Peabody Terrace

painted inside. By stacking bath and kitchen units vertically (there are only two variations in equipment), the architects further reduced costs and construction time.

Nearly everything within the apartment is white, including balcony ceilings and partitions. Only walls that protrude into the main space, such as bathrooms, kitchens, and the vertical ventilation panels, are painted deep colors. Built-in shelves, counters, drawers, and small desks increase usable space. The Corbusian Modulor proportions expand the sense of space despite small room dimensions (including a 7'-5" ceiling). The floor-through schemes for the majority of apartments (except for efficiencies and three-bedroom units) further enhance space, light, and ventilation.

An uneasy peace

At Peabody Terrace, the urban design aspects of the scheme have had ambiguous results. While the surrounding neighborhood is not walled off, it isn't invited in either. The garage faces neighboring residential blocks, providing a barrier to two of the courts; living rooms turn away from the city streets and adjacent houses. But more important is attitude: as job captain, now partner, Bill Lindemulder describes the way things have turned out, "The city's welcome to use it . . . but not exactly!" The University seems to be hostile to outsiders. The surrounding community (especially children) can use the open space, but some Peabody Terrace residents are still afraid. Vandalism takes place, though the degree to which it occurs may be exaggerated. The University reportedly removed seating in the lobby because neighborhood kids used it, and campus police are said to have ordered children off the premises. Some tenants support this line, and have suggested walling off the whole project.

Thus the partially open gesture the design makes to the neighborhood has been easily thwarted by social attitudes. Peabody Terrace has become an extension of Harvard, an emblem of power and money to the surrounding community. Neighbors worry that having taken the best riverfront property, Harvard will continue to encroach on the area. As a matter of fact, Harvard already did try hard (though unsuccessfully) to get a city-owned riverfront playground adjoining Peabody Terrace on the north, and the school is said to own many of the run-down houses in the neighborhood around the complex.

True, the architects might have designed the married student housing to open more onto the neighborhood streets, or perhaps should have included retail space in the structures facing the main throughfare, Putnam Avenue. Still, the essential issues—social ones—elude the impact of architectural decisions.

A sense of community

It would seem that if town-gown relations haven't been improved as originally intended, then at least the relations among Peabody Terrace residents would be reinforced by the design features. Yet the sense of community remains fragile. Many tenants complain of a feeling of isolation. In this case the reasons have less to do with social attitudes than with actual design features (and, of course, the pro-

gram). It is difficult to meet people despite the shared open space, community rooms, and even the homogeneous make-up of the tenants. Meeting rooms alone simply can't foster a sense of community. Peabody Terrace lacks indoor activity spaces, such as cafes where residents can hang out. Indoor recreational facilities for adults do not exist. True, the architects installed seating areas in the bridges leading to the towers, and placed laundry rooms at the top of the towers, opening out to splendid views. Yet the bridge seating goes unused because it is unconnected to any other activity. The laundry rooms, on the other hand, provide such a "fierce scene of competition," owing to the scarcity of machines, that there is little room for friendship.

Furthermore, since the apartments are remote from each other by virtue of the skip-corridor plan, tenants experience isolation as a price for their privacy. Coming out of the typical apartment, a tenant sees only the apartment across the hall; next the steps leading to a long corridor, finally the lobby. Outside, while plazas abound, some residents still find fault with the severe landscaping of the central court. But if adults find it hard to fraternize in Peabody Terrace, kids have a field day. They have plenty of company (there are many willing baby sitters), and many outdoor play spaces. The architects had designed the play areas so that a small child could move from one to another during the day without getting bored. Parents report that children respond enthusiastically to the variety of open spaces, including a court with a large spray fountain. Unfortunately, indoor facilities seem to be inadequate, especially considering Boston's severe climate. According to parents, the nursery is too small to meet the demand, and no organized day care facilities exist.

Imageability

If Peabody Terrace symbolizes power and money to the adjoining neighborhood, its meaning for residents seems ironically low key. Most of the tenants interviewed felt that Peabody Terrace is merely a place to live, convenient, cheap for Cambridge (\$175 for a 7th floor two-bedroom apartment) and well maintained. Many of the tenants never have lived in high-rise apartments before, and so had little basis for comparison. But in general, those interviewed felt little of the sense of drama the towers inspire in the outside world. In fact, several persons were surprised to hear that Peabody Terrace was well-known.

The gray concrete color bothered the neighborhood residents when the buildings were going up, and it certainly motivated the architects to dye precast concrete panels maroon, halfway through construction. Nevertheless the general tenant view is coldly pragmatic. Looks take a decidedly minor place next to convenience. It should be noted, however, that few seem to like the deep-color walls in the all-white apartments. The present "forest green" or "harvest gold," were not selected by Sert's office.

Livability

Although most tenants agree they have enough space, generally they feel severely constricted in their choice of type of apartment. In designing the housing, the architects postulated that since families vary greatly, with widely differing needs, the maximum choice of interior space, amounts of light, indoor versus outdoor space should be



The complex sits among one of Cambridge's lower-income neighborhoods (above, and below), where some of the older houses have already been bought by Harvard University.

Photos: Randolph Langenbach above; Jonathan Hale, below.



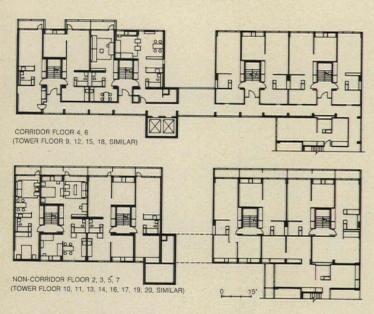
The brick-paved central plaza (below) is located at the end of a path leading from the surrounding community, past the garage (left in photo) to the river. Photo: Jonathan Hale.







Large-scale furniture and rugs (above left) have trouble fitting economically scaled apartments. Balconies are well received, although some (above, right) function more as storage closets. Already paint has begun to peel, and rust form on metal dividers and trim. Tenants complain that balcony railing obscures the views.





The kitchen unit acts as partition in small units; end wall is painted bright colors. Photos: Randolph Langenbach.

Ten years past at Peabody Terrace

available among the apartments. But most of the tenants find the waiting list long, and must settle for a very limited selection. Although apartment sizes are assigned according to the number of children, at least one family was stuck in an efficiency for a year, waiting for a bedroom unit.

The circulation system provokes loud complaints. Skip-floor plans comply least with the needs of transient university students. Since the residents are constantly moving in and out, the shared elevator arrangement and difficult access for cars and trucks raises problems. Getting upstairs and downstairs with baby carriages—especially to apartments distant from elevators—isn't easy either.

Nevertheless, the corridor system does permit through ventilation for the majority of tenants. Residents in the non-floor-through efficiencies find the tiny window panels inadequate, though, for their ventilation. They point out that there is no practical way to install an air conditioner.

Air conditioning may be nonexistent, but the heating system elicits the most heated response. Generally the apartments are too cold or too hot, since the single-pipe heating system (with hot water in the low-rise apartments and steam in the towers) cannot be adjusted. The architects wanted a system of doors on convectors, but it couldn't be done within budget.

Wear and tear

The tenants comment favorably on maintenance in the building, and it was clear that apartment equipment is holding up. So is the building. The most obvious sign of aging outside is the peeling paint on the galvanized metal of the balconies, and the rust on balcony dividers. Neither is terribly noticeable from a distance although one day the rusting dividers will have to be replaced. A more serious difficulty showed up during the first years, in the caulking around the precast panels. Due to leaks, all the panels had to be recaulked, and some apartments are still afflicted.

The legacy of Peabody Terrace

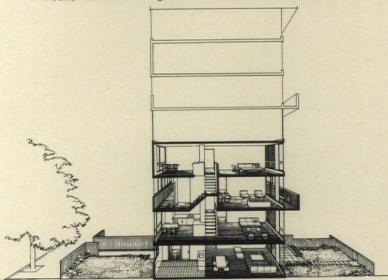
Sert, Jackson & Gourley's design for the married student housing at Harvard was to influence the later work of Sert, Jackson & Associates, such as the two housing projects in construction in Yonkers and Roosevelt Island, New York.

Both projects, sponsored by the New York State Urban Development Corporation are larger and serve a wider spectrum of residents at a much higher density (600 persons per acre). Again low-rise and high-rise elements are grouped around courts, and again the modular unit of three floors, this time two to five bays wide, is the standard "building block." The skip-corridor system has been used in both cases, but this time staircases are inserted into the apartments. To augment the sense of open space within the dwelling units, the architects have left stairways partially unenclosed, and carved large openings out of the kitchen walls that project into the main living space.

While the structure is poured concrete, brick has replaced the precast panels of Peabody Terrace, due to rising costs. Finely detailed steel windows have given way to cheaper aluminum units, and balconies are rare. Instead projections of the floor plan on the façades animate exte-



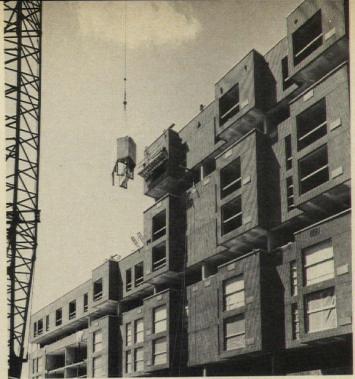
Model, Riverview Housing, Yonkers. Photo: Steve Rosenthal



rior elevations of these newer buildings.

It would be difficult to speculate about the future successes or failures of these current schemes based on the observations conducted at Harvard. Socio-economic differences, value-systems, living habits in tenant population could cause one project to be a success, the other a failure. For example, balconies so popular at Peabody Terrace may not appeal in Yonkers. What seemed to be an overemphasis on privacy in Harvard may not be adequate in Roosevelt Island. In designing the married student housing, Sert Jackson & Gourley could not have foreseen the increased tendency toward group living.

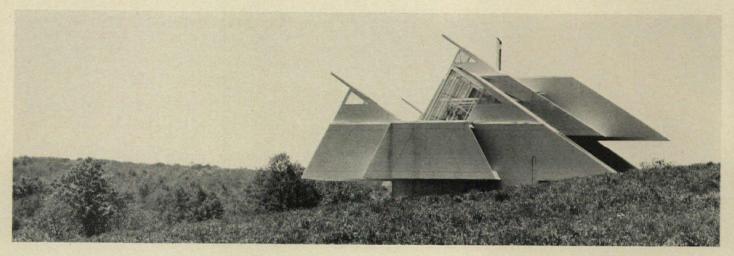
Peabody Terrace has survived a rough decade well, even so. The worst of its problems, anomie, continues to be endemic to our culture; at least the architects made efforts to counteract that problem. Nevertheless, the magical promise of the towers with their shimmering white balconies is, except for the views, unfulfilled inside. The apartments are pleasant, superior, but not magical. Inside, budget and program have ruled out the playfulness and power of the exterior. Again, that is a problem more caused by the times, than to the choice of architects. It is still to their credit that they succeeded as well as they did within these limitations, particularly in creating an exciting urban landscape.



The projects under construction in Yonkers and Roosevelt Island, New York City, indicate, Sert, Jackson & Associates has kept many of Peabody Terrace's design features, such as skip-floor corridors and modular units. Major changes are insertion of staircase inside the apartments, brick infill in concrete frame. Photos: Steve Rosenthal above; Mal Gurian Associates, below.



Standing by the Twentieth Century Brick



A house conceived as an industrialized building prototype, this project can be regarded as a metaphor for the unfulfilled promise and uncertain future of the modular housing industry in the U.S.

In light of the apparent stasis in industrialized building, one could argue that Paul Rudolph's "prototypical" modular house, the Green residence, is something of an aberration. Perched atop a grassy knoll in northeastern Pennsylvania. this house could easily symbolize a building genre that never got off the ground. It could simply stay an image. holding out the promise of future fulfillment, much like Kocher and Grey's Aluminaire House on Long Island in 1931. On the other hand, the house can just as well exemplify the beginning of a detente between those who are responsible for mass-produced housing—the manufacturers—and those who create the "custom" versions—the architects. Whether an architect of Rudolph's stature should devote himself to this area obviously cannot be determined as yet. But should his early efforts with industrialized building techniques be vindicated at some future date, Rudolph may find himself both a member of the second generation of Modern architects (as he has been) and an important part of a succeeding generation's vanguard.

Originally the Green residence was intended to be composed of fold-out modules, factory-assembled except for wiring, utilities, and finishes. Although Rudolph initially had obtained a commitment from an industrialized building manufacturer to work on this lone experiment, delays in construction eventually caused the manufacturer to turn to other jobs. Nevertheless the client and the architect both decided to stay with the concept, even if it meant a stickbuilt house constructed on site with a local contractor. Thus the house, designed in 1968, was completed in 1972.

The idealized scheme

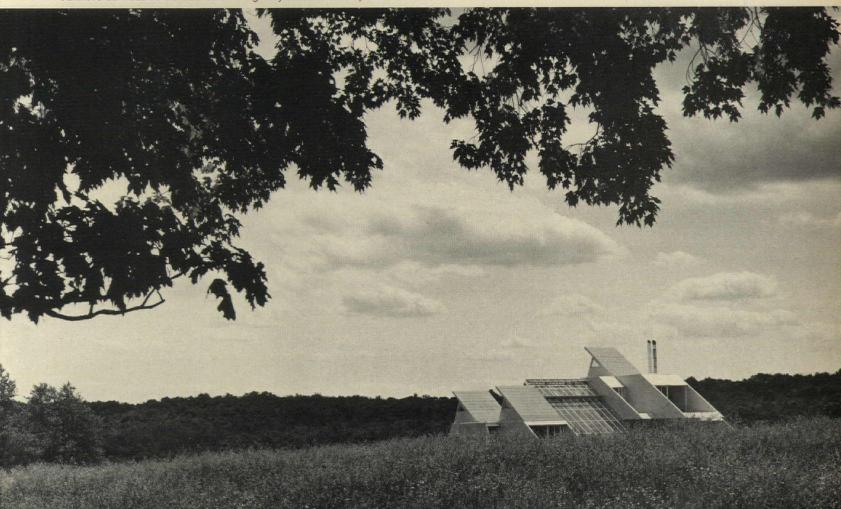
Basically the module for the industrialized scheme is a $12' \times 60'$ factory-made three-dimensional box that can be transported to the site by truck. Not satisfied with just a box, Rudolph decided to unfold it to create the housing module he wanted. The side walls of the box tip out to become floors or roof extensions, and tops tilt up to create pitched roofs for ceiling height and additional natural light.

The fold-out panels were to be attached to the boxes with piano hinges; where an expanse of wall becomes a floor or roof projection, new wall panels would be installed on site. Standard wood studs and joists and steel form the structural system for the volumetric components; the boxes in turn, sheathed in exposed cement aggregate panels could be plugged into structural/mechanical space grids.

Realized version

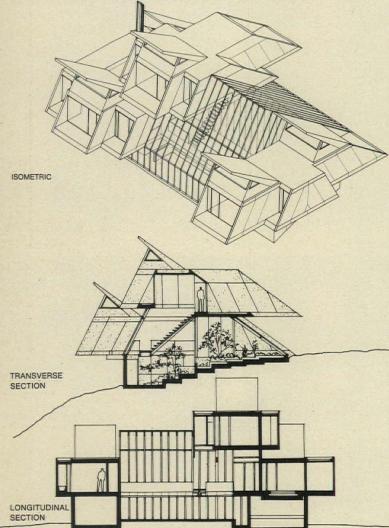
The actual "stick-built" house that was erected retains most of the materials and structure of the original scheme. Three foldout modules of steel frame, wood stud, and joist





Standing by the Twentieth Century Brick





While the modules all retain their basic 12-ft width and 9-ft height, each varies in length from 54 ft (living level top) to 52 ft (guest wing) to 45 ft (master bedroom level). Fold-out panels also differ in dimension: The main living level has 6'-6"-wide fold-out floor and roof panels; the guest wing, 4-ft fold-outs, and the master bedroom level has 5-ft fold-out parts, (isometric top). Separating the guest wing and the living wing is the 25-ft-high greenhouse (longitudinal section, above), staggered in section to fit contours of the site (transverse section, middle). The aluminum tube structure greenhouse by Lord & Burnham functions as a courtlike element; it is separated into two sections by a glass wall so that only the tropical south-facing part is open to the rest of the house.

construction with exposed aggregate panels enclose the living areas of the house. One module forms the guest room/den wing, another the living room/dining room, and the third, the master bedroom and music room. Although these fold-out parts have been custom built, they still correspond directly to the original concept, and prove that space can be manipulated in dramatic ways by breaking out of the box. The tilt-up elements in particular cause the ceiling heights to soar to 15 ft in some places, while tip-out sections can add as much as 6½ ft to either side.

Steel cantilever beams support the dynamic stacking arrangement of the modules, supplemented by trusswork where the house meets greenhouse. The inclusion of this greenhouse obviously could exist only as part of an individualized solution. Yet even though the insertion of the greenhouse suggests violation of a "generalizable" type, at least Rudolph turned to catalog parts for a standard aluminum tube greenhouse structure.

Technical trials

Because of the peculiar circumstances under which the house was built—conceived as a factory-assembled house, but finally built on site by local labor—a few kinks emerge. In its details, the house lacks the polish of much of Rudolph's other work. In fact, close up, the workmanship (such as the way the flashing meets the exterior panels) would suggest that the local labor was not as enraptured by the ''industrialized'' building concept as the architect.

Joints pose one problem, and with this particular design, there are a lot of them, which the architect admits he hasn't solved to complete satisfaction yet. Putty and lap joints were employed, but Rudolph feels he has to explore this area more extensively to find ways to "celebrate the joints." Since the exposed aggregate was applied in precut panels at the site, their application lacked the precision obtained in cutting an entire wall to fit on the job, or even the exactness achieved by panel application at a factory. The roll roofing lacks a certain refinement too, and apparently permits leakage. Some problems are directly attributable to the design: the tilt-up roof sections should have projected lips to prevent water from running down the soffits; the balconies were originally intended to drop 3 in. lower than the window walls. As it turns out, they extend out at the same level as the stop so that when rain backs up, it seeps into the rooms.

Client attitudes

Many of these flaws, of course, can be ironed out by using industrialized building methods. Others, only with design modifications. But technical imperfections hardly faze the client. He loves the house. Since the house functions as a weekend home where the client, who lives alone, raises race horses, gardens, and entertains, he finds it ideal for his specialized lifestyle. He particularly responds to the sense of space afforded by the fold-out modular design, despite rather small room dimensions. (A number of small rooms had actually been requested by the client at the outset, as was the inclusion of a greenhouse.) Furthermore, he points to the dual orientation implicit in the design of the house, which allows it to open up to the outdoors in the summer, and turn inward to the greenhouse in the winter. Thus seasonal conditions can be exploited or ignored.

Continuous tradition

Despite the specific nature of the solution as it was built, it still acts as a laboratory for Rudolph's ideas on industrialized building—as well as being a stunning piece of architecture. Here continuing notions that Rudolph has been refining are being examined for their spatial effect, functional performance, as well as technical proficiency.

Rudolph's other recent investigations in industrialized building are well known. The most familiar example is his visionary, but unrealized, Graphic Arts Center, designed for the Amalgamated Lithographers of America in 1968. This high-density modular scheme was shortly preceded by a low-density one for married students at the University of Virginia, Charlottesville, also designed in 1968. The only project actually built, however, is the Oriental Masonic Gardens in New Haven in 1972 (photos, p. 82).

Each of the schemes shares certain similarities, while exhibiting different experimental considerations. At Charlottesville and in the Graphic Arts Center design, 12' x 60' modules folded out to a 28-ft width. With Oriental Masonic Gardens, the modules do not fold out: instead Rudolph expands space vertically with vaulted plywood roofs.

The Green residence represents, in a sense, the combination and elaboration of all of these investigative maneuvers: while the house employs the fold-out concept of the Graphic Arts Center and the Charlottesville housing, here the fold-out has been more fully exploited. Only certain parts of the walls are unfolded to form both floor and roof extensions, a device that results in a more varied formal and spatial articulation. The tilt-up roof elements add ceiling height, much like the bent plywood vaults of Oriental Masonic Gardens.

The diagonal elements seemingly attaching the fold-out balcony floors to the modular boxes in the Green residence generate a slope wall configuration, appropriate to terrace housing. This kind of configuration appears frequently in Rudolph's other work such as Buffalo Waterfront Development housing (Phase I and II) for the New York State Urban Development Corporation.

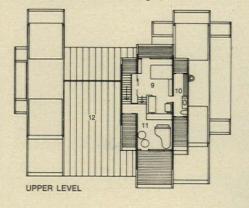
The fold-out idea was carried a step further *after* the Green residence. In Rudolph's proposal for Phase III housing of the Buffalo Waterfront Development, the 12′ x 60′ module is trucked to the site and tilted up on pilotis. Diagonal walls within the module fold out to become cantilevered floors for a three-level low-rise unit (diagram, p. 82). Unfortunately, however, the scheme was rejected by the UDC due to time and labor resistance.

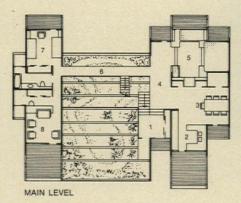
Each of these recent projects indicates a preoccupation in finding a system that not only is efficient but also allows formal complexity. The Green residence closely approximates a microcosm of all of Rudolph's recent efforts. However, Rudolph's concerns with this genre were manifested in even his earliest work—albeit to a lesser degree. Sibyl Moholy-Nagy observed in *The Architecture of Paul Rudolph* that "building for money had since the beginning of cities served as a laboratory for mass producible prototypes." And so with Rudolph and the Green house. (In fact, Rudolph, having since ceased to be excited by the prospect of designing houses, took the commission for the Green residence in order to try out certain ideas. Fortunately his motives intrigued his client.)

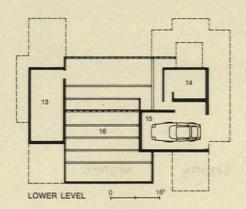
If one looks back to the Florida houses Rudolph built in



A bridge slices through the greenhouse (above and below, right) to connect the two wings, edged only by an acrylic balustrade. Lights on the underside give the bridge the same ephemeral quality by night as the open riser stair leading up to the master bedroom.









Key

- 1 Entry
- 2 Kitchen
- 3 Dining room
- 4 Gallery
- 5 Living room
- 6 Bridge
- 7 Guest bedroom
- 8 Study
- 9 Master bedroom
- 10 Sauna
- 11 Music room
- 12 Greenhouse roof 13 Cellar
- 14 Laundry
- 15 Garage
- 16 Greenhouse

Standing by the Twentieth Century Brick

the early 1950s for affluent clients, one can discern thematic elements that he has been cultivating over the years. The Ingram Hook House (1952) in Siesta Key, was his first built experiment with bent plywood spans; later the four-by-eight sheets of the Sanderling Beach Club in Siesta Key (1953) showed a move toward modular repetition. The Walker Guest House of 1953 could be argued to be the first fold-out: here in each of the three-bay-wide elevations, two bays were fitted with pivoting panels that tilted up to become sunshades and ventilating elements, or down to act as enclosing walls. Even the plug-in modular scheme of the Graphic Arts Center appeared in a nascent form in a 1954 proposal for a "Residential High-Rise" building.

Phoenix or Dodo Bird

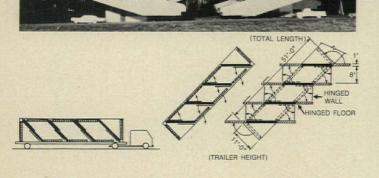
The time and cost considerations that have hampered growth in modular housing for the last few years, have de-





Modular fold-out units were used in Graphic Arts Center project, 1968 (above). Modules were suspended from trusses cantilevered from structural cores. Oriental Masonic Gardens was built in 1972 without foldout units (left). The Buffalo Waterfront proposal features foldouts that form cantilevered floors for three-level modular units; seen model (below and original diagram (bottom)

floors for three-level modular units; seen model (below) and original diagram (bottom).



terred Rudolph from working in this area since 1971. The economics of the times, the high transportation costs for modules, the multiplicity of varying local building codes, the dispersed consumer market, and the resistance of labor to factory-assembly techniques all contribute to the unful-filled promise of industrialized building in the late 1960s. For these reasons some architectural critics have suggested that if this dream hasn't come true by now, it's mostly likely not going to. Nevertheless, Rudolph's faith in his "20th Century Brick" as he has called his volumetric modular units, has not wavered. He contends that the industrialized building market will come back—and he's probably right. Meanwhile at least, codes are becoming more uniform, and resistance on the part of labor to this industry has begun to diminish.

And, while the multifamily modular housing market lies dormant (for the time being), a sibling form of modular housing—the single-family sectional—is gaining in popularity and sales. This factory-built house type, formed by modular sections 10 to 14 feet wide can be attached side by side at the site. (Sound familiar?) Of course, the single-family sectional industry still has problems with trucking long distances or competing in price with regular construction, where labor is in plentiful supply. And multifamily modular producers will have to contend with these obstacles, plus the need for a larger aggregated market. But better organization on the part of modular home manufacturers and government intervention could catalyze the congealment of a large enough market to justify the expenses incurred in the "tooling up" stage of the process.

In other words, maybe industrialized building isn't dead yet. Without the publicity and hoopla of the late 1960s, industrialized building processes might slowly and surely be solving those "insurmountable" obstacles. The architects who do not *now* confront the potential possibilities for the design professions, could well find themselves not given the opportunity later. Paul Rudolph has at least taken some significant steps—as part of an evolutionary development occurring over two decades. If he hasn't solved all the problems yet with his industrialized concepts, that doesn't really matter. He is still carrying on the tradition of his early modern predecessors in postulating the prototypes which could pave the way for genuine architectural participation in the formation of the built environment. Others should not ignore his example. [Suzanne Stephens]

Data

Project: Green residence, northeastern Pennsylvania. **Architect:** Paul Rudolph; job captain, Ralph Brescia

Program: 1400-sq-ft second home, to include 24-ft-high greenhouse.

Site: two acres of field and woods in rural location.

Structural system: wood stud and wood joist structure with steel frame and steel cantilever beams; aluminum tube structure for greenhouse; reinforced concrete block foundations.

Mechnical system: forced air induction system for heating; no air conditioning.

Major materials: exposed cement aggregate panels on exterior; gypsum drywall on interior; roll roofing.

Consultants: McCarron, Hufnagle & Vegley Assoc. Inc. Boston, electrical mechanical; Michael Jolliffe, mechanical; Nichols, Norton & Zaldistani, Inc., Boston, structural; Robert Sullivan, Boston, plumbing.

Photographs: © Yukio Futagawa, pp. 79, 80, 81; Don Luckenbill, p. 78; Joseph Molitor, p. 82 (middle); Ezra Stoller © ESTO, p. 82 (top); Tom Yee, p. 83.







Architecture and revolution: Cuba, 1959 to 1974

Susana Torre



'Society is filled with a violent desire for something which it may obtain or may not. Everything lies in that: everything depends on the effort made and the attention paid to these alarming symptoms. Architecture or revolution. Revolution can be avoided.' Le Corbusier, Towards a New Architecture

Centuries of economic and social struggle have relentlessly demonstrated that architectural utopias embodying ideal social order and design reconstructions of classless arcadias are only affairs of the mind. Utopian aspirations of social reform have in most instances included some kind of grand urban scheme which, it was assumed, would bring about social change by the example of its own absolute clarity. At their best, utopias have contained the seeds of a forceful social consciousness. At their worst, society has condemned them to oblivion, as in the past, or absorbed them into its current system of consumer choices.

Historical evidence demonstrates that without a parallel process creating the conditions of a revolutionary social change as the expression of the entire community, design utopias, however powerful and mesmerizing, do not affect reality. For "it is not design whose organization determines the social relationships [and] the distribution of power between people, but the social relationships which dictate the conceptual organization of design."

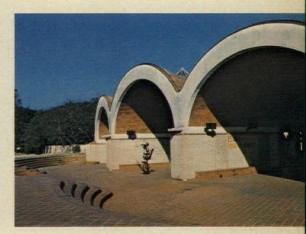
Design utopias have ignored that "the change of human associations," as well as a change in the ownership of the land and the means of production, constitute the necessary prerequisites for their materialization. They have traditionally been conceived as closed systems, or networks, which exist within or connect to the elements of a social and physical space that remains otherwise unchanged. It is important to note, however, that the elements of physical space are organized, contrary to utopian pre-emptive assumptions, in a manner that reflects the past and present political history of a social structure. In this sense, and ulti-

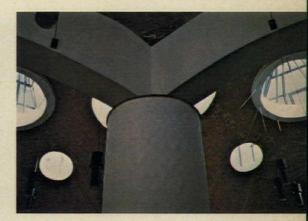
Author: Susana Torre practices architecture in New York City and is assistant professor of architectural design and theory at State University of New York, Old Westbury.



Photos: Susana Torre







Since the revolution in 1959, Cuba has seen three fairly distinct phases of architecture. The first is seen in Porro's Cubanacan School of Fine Arts (1961–1963). Castro criticized architects who produce this kind of design for using "excessively egocentric criteria" and for "pretending to make a particular case out of every building."

mately, the design and organization of the environment is seen as the offspring of political actions. While utopian and repressive political regimes alike have traditionally postulated order from without, the real challenge of social revolutions has been seen in their ability to create the necessary conditions for social order to emerge from within.

Cuba before 1959

Using the means of social revolution, Cuba has challenged the conditions of generalized poverty, economic dependence, and underdevelopment that not only characterize the Latin American situation, but which also presently rule the lives of close to three-fourths of the world's population. In Cuba, however, even if the political and economic events that created the present context for architecture and urban planning resulted from a complex system of particular circumstances, they cannot be fully understood if taken as an isolated case history.

The utter polarity between highly developed technology and the subhuman life conditions of the largest part of the world's population, which characterizes the second half of this century, has been accentuated by the penetration of neocapitalist economic ventures into archaic and underdeveloped economic structures. In such cases, the decisions of large, transnational corporations, especially in areas affecting the exploitation of natural resources and the manufacture of goods, are taken primarily in relation to a worldwide strategy, rather than in accordance with the developmental pace and social needs of the host country.

A consequence of this activity, which dates back to a condition of economic dependency on different foreign flags for two centuries, can be seen in Latin America, where 86.5 percent of the population lives on the coastal belt far removed from the resources and productive areas of the interior. The traditional metaphor of the Latin American capital city turning its back to the rest of the country (Brazil and Colombia are the sole exceptions) expresses the rigid and centralized hierarchy of the urban structure.

An analysis of the Cuban situation prior to 1959 brings into focus specific traits of these general conditions. The country's economy was underdeveloped. Through a low level of productivity, Cuba exclusively purveyed raw mate-

Architecture and revolution

rials in unilateral commercial trade (60 to 70 percent of all exports were to the U.S., the same percentage of all imported goods were from the U.S.). Land ownership was one of latifundia, and the land itself was almost exclusively (under)used for monocrops, mainly sugar.

While the low per-capita income was unequally distributed, 72 percent of the large estates, 47 percent of the sugar industry, 95 percent of the public services, and 90 percent of the banks were owned by foreign capital. The rural population, the 46 percent most severely affected by this state of affairs, received only two percent of the total national revenue. Eighty-six percent of the rural infant population was affected by parasites, while 75 percent of all medical services were concentrated in Havana; 90 percent of the rural population lived in bohios (similar to adobes), while 89 percent of the annual construction was for speculative purposes or unproductive investments, using the services of some of the 90 percent of all of the Cuban architects who practiced exclusively in the metropolitan area. All of these facts2 indicate the extreme polarity between the city and the countryside; as such indicators they are representative embodiments of the political and economic factors that organize physical space.

Effects of Soviet planning models on Cuba

The elimination of this polarity and the idea of *territorial* equipoise are deeply rooted in the materialistic conception of reality, and were first formulated by Engels in *Anti-During*. He also developed, to a certain extent, a theory of planning which called for a global strategy for an entire territory. His idea established, in the minds of his contemporaries and later generations, an inseparable association between planning and socialism. The issue of planning and, more precisely, the concept of the Master Plan, were regarded as one of the fundamental differences between socialism and capitalism.

After the October Revolution in Russia, the intention of achieving a town and country equipoise persistently appears in the first efforts of the Soviety planners. The theoretical sources for their first hypothesis of the Socialist City can be traced to the Fourierist-anarchist tradition, the Garden Cities movement, and the German planning treatises, as was made obvious in the first Moscow plan of 1918, which reflects some distinct features of anarchist thought. During the early transition years, the Soviet planners concentrated more on defining planning models than on elaborating concrete planning programs. They believed in the Plan as an ideological objective and as a somewhat magical solution for the problem of a harmonious development of the territory, but when it became increasingly evident that the Plan as an instrument for territorial reconciliation was neither sufficient nor entirely relevant to the concrete and actual circumstances, Lenin himself indicated that it wasn't yet time to elaborate rigid, all-encompassing plans: "We are poor. . . . A true master plan is today, for us, bureaucratized utopia."3

The actual "dynamics of development" defined by precise economic planning objectives and scientific analysis as the basis for regional organization, the weight and qual-

ity of production, the specific system of hierarchical relationships between local centers within the region, posed problems which were irreducible either to the inspiring utopian schemes or to traditional economic relations, such as supply vs. demand. Alternatively, Lenin suggested an "organized competition" between town and country that was closer to the real conditions. Ultimately, however, the capital city of the Soviets was to become "the city of Socialist ideology," the symbolic center of the victorious proletariat and the headquarters of political command. The rigid, centralized structure exemplified by this model resulted in a fragmentation of the soviet territory and in the concomitant establishment of a geographic and cultural hierarchy.

Cuba since 1959

The Cuban planners had a lot to learn from this first attempt to realize social planning theories, and consequently Havana and Cuba were not to experience the same fate. The organization of physical space in Havana reveals its character as a service center. Once an extensive and well-equipped Caribbean resort built to suit the "American scale," Havana's center, adjacent to the old colonial town, is a conglomerate of mostly "Miami style" buildings that had catered to the U.S. tourist industry. The sprawling city, born out of land speculation, extends beyond the city of tourism in a disorderly and piecemeal array of suburban mansions engulfing older urban conglomerates.

The present guidelines for Havana call for a limitation of the city's expansion to comply with new demographic perspectives. They also call for a limited development period to provide the much-needed new services, for the establishment of direct links within the city of those sectors and key points that could help define its new structure, and for the definition of coordinates for the transformation of the "city of symbols" into a "city of production."

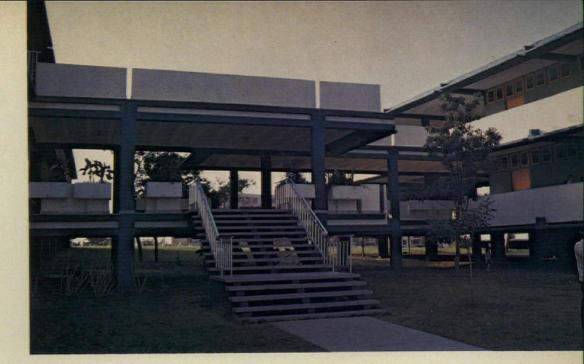
Planning in Cuba today

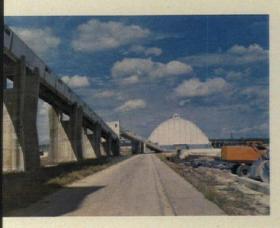
The almost complete release of urban and rural land from private ownership following the first revolutionary laws established the essential basis for accomplishing an integral planning of the territory and the massive mechanization of agricultural production. Defining the objectives of planning and getting the right distribution of scarce resources between the main sectors of the economy were the principal responsibilities of the Central Agency of Economic Planning. The question was not whether or not to plan, but how much and for what purposes.

Normative planning decisions affecting the physical environment were, in the first decade, more the results of a process that evolved from changing demands of reality than from actions regulated by a master plan. The process of planning itself had to consider society as a complex and adaptive system if it was to deal at all with the dialectical play established between national priorities, local demands, and the urgent social revindications (housing, health care, and education), which were a major part of the first revolutionary program.

Housing reform

During 1959, and within two months after Fidel Castro had assumed the post of Premier of the revolutionary government, the promulgation of a series of major laws and the

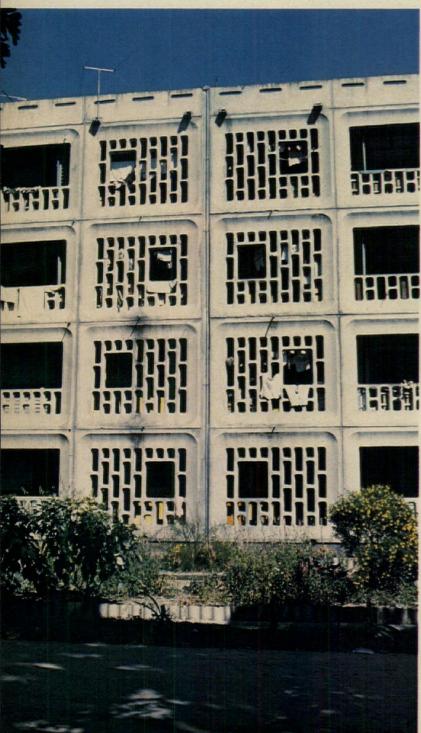




During the second phase of architecture after the revolution, most of the design and construction resources were diverted to the building of schools, following the complete eradication of illiteracy in 1968, and to the construction of factories. The Salvador Allende Grade School of 1972 (right), the Lenin Vocational High School of 1973 (top) and the Tricontinental Sugar Storage and Maritime Terminal of 1967 (above) typify buildings of the period.









The third and present phase of Cuban building has seen a return to the construction of housing and a new emphasis on reusing old buildings, such as the legendary Moncada Garrison in Santiago (above), which was transformed, like all former fortresses and prisons, into a school. New housing has been made possible largely through the creation of the "microbrigade," which began as a popular response to having so much of the resources and energies diverted into school construction. Microbrigades are groups of 33 workers who leave their regular jobs for periods of time to do construction work under trained experts. They have been responsible for projects such as Alamar (top and left), a new city near Havana that is projected to have a population of 125,000 by 1982.

Architecture and revolution

creation of new institutions endowed with planning and executory responsibilities shaped the new policies in relation to the social and physical environment. One of the first new laws, and the replacement of the abolished national lottery with an Institute for Savings and Housing, were to have immediate impact on land appropriation patterns of the city. The sale of vacant lots held by land speculators and private developers became obligatory and resulted in their reclamation for the construction of much-needed housing and commercial facilities. "There are already enough buildings in the large cities to solve immediately any housing shortage," Engels said in 1872, "if they are used rationally, [which] can only happen through expropriation from the landlords and the distribution of their houses to those who don't have one and to those workers who live in extremely crowded guarters."4 Cuba followed this advice shortly after the U.S. economic blockade was enforced. Mansions abandoned by fleeing wealthy families, as well as slums, became the state's property, and little or no compensation was granted the former owners.

The initial guidelines regarding the construction of new housing resulted in firm rent control and in a Law of Urban Reform that proclaimed housing to be an inalienable right and basic need of every human being. A three-stage method was proposed for its implementation. In the first phase, rent payments would represent the amortization of the unit's price over a period of 5 to 20 years; in the second phase, through massive state construction programs, units would be allocated permanently and paid for in monthly installments not to exceed 10 percent of the family income; in the final stage, housing would be allocated free.

National seminar on housing, 1964

Even though the construction of housing had been a pressing concern from the outset, it was not until the first housing census (carried out by neighborhood organizations) was completed in 1962 that a realistic ordering of housing priorities could be established. These priorities were formulated at the National Seminar on Housing in 1964. They called for the construction of housing needed in connection with the development of the national economy; next, for housing in rural areas neighboring the recently created farms and near existing or new industrial complexes; then, for housing to meet the demands of population growth; and last, for the replacement of old and derelict buildings.

The location preference given to dwellings in the countryside was expected to reverse, as it did, the migratory trends toward Havana and the provincial capitals. The seminar also made strong recommendations for the standardization of economical and technical indices, furnishings and equipment, modular systems, and building types.

Early models for the ideal urban residential unit, which Habana del Este exemplifies, as well as rural clusters of dispersed individual houses, had to be discontinued and replaced by schemes that took the scarcity of technical and material resources into account, "if we are to solve the housing problem in 10 instead of 30 years."

Four years later, in 1968, the demands created by the complete eradication of illiteracy (which had averaged 50

percent until 1961, and which was eliminated in one year through the services of more than 100,000 students and volunteers) caused a considerable amount of material and labor resources to be shifted from housing to educational facilities. "Is our youth going to lose its opportunity for education because the country does not have the necessary facilities . . .? 500 schools are more important for the present, and even more for the future, than 10,000 houses." The popular response to this situation was the creation of the microbrigade—a self-help group of 33 workers who take leave of their regular jobs to learn construction skills on the site under the supervision of experts. This released the professional construction force for building schools.

The rational utilization of resources

The rational utilization of resources has always been, in underdeveloped countries, a critical question that afforded little margin for the predictable errors that are made in the attempt to solve problems never encountered before. The main difficulties in the building process in Cuba, which were identified by Castro in his 1964 address to the First Congress of Builders, included the problems of idealizing the real conditions in terms of projects, materials and labor, and the use of excessively "egocentric criteria" by some architects, "who pretend to make a particular case out of every building." Castro also called attention to the general low quality of the projects, which he felt was due either to insufficient program definition by the user-sponsor and the designer, or the architect's own lack of interest in exhaustively studying the real conditions of production in order to give the most appropriate design solution.

In calling for a more integrated team collaboration between sponsors, users, and designers, Castro concluded with a series of exhortations to increase the amount of research and experimentation; to study the development of the industrial and technological sector in order to apply their new findings to the field of construction; to use computers systematically in the production aspects; to increase the typification and modular coordination of building; to learn from other international experiences; and to intensify the formation of capable cadres of workers, designers, and technology experts at all levels.

The goals of education

In Cuba today, an endeavor is made to implement José Marti's postulate that "There is no social equality without cultural equality." This is seen in every area of professional and educational activity through a combination of work and study, and in the arduous efforts to achieve the universalization of higher education. Upon the attainment of this formidable goal, it is envisioned that universities will cease to exist in their presently known form, since every organization or productive center could ideally create and impart knowledge at the level required to form qualified and competent professionals. The present university system could then be transformed into a network of research institutes which could concentrate on the production of theory.

Education of the architect

The students of architecture (who were mostly of metropolitan extraction) called to form the ranks of the Social Rural Service created in 1964, were to contribute their cre-

Architecture and revolution

ative efforts to the transformation of the actual environment while experiencing, at the same time, a personal contact with the socioeconomic reality of the majority of the population. Since most new building programs were being developed in the rural or less developed areas, a minimum of two years was to be spent working with one of these programs after graduation. Students who chose to remain longer in the assigned area could do so, and those who wished to be relocated could be transferred, but preferably at the end of their term of service.

Since 1964, mainly as the result of the foundation of two schools of architecture outside of Havana, the post-graduate program has been largely replaced by a situation where the students become involved earlier in the construction industry. The first two years of this new program might involve learning the building trade by helping a brigade construct a project which the students probably also helped to design. In later years, students would study aspects of production organization and supervision in depth.

The curriculum of the schools of architecture is in a state of flux today, and many radical departures from the traditional educational approach have already occurred. No longer is education, or the practice of architecture, centered exclusively on the design properties of the selfcontained architectural artifact and its conventional relationship with an environment considered as a "given invarient." As a result, architect-planners are actively involved in the postulation of architectural and building types, through a process of decision and policy-making that is rarely assessible to design professionals outside of socialist-oriented societies. It is recognized now that the elaboration of plans at all levels requires the coordination and specialized knowledge of various disciplines. Rather than attempting to create generalists in the areas of ecology, sociology, economics, etc., the trend now is toward the application of theoretical problems to actual planning conditions, discussed within the team structure. In this context, the role of the architect-planner is seen as that of coordinating the technological and human factors that must coalesce to achieve productive and social relationships through "Economy, Quality and Form."

Another direction in design education is seen in the creation of a "university of methods," where the learning of theory would provide students with the conceptual skills to analyze and resolve types of design problems. Because objects are primarily considered as elements of a system, existing within a context rather than as self-contained entities, the practice of solving isolated "design cases" is totally rejected. In conjunction with this, courses such as semiotics, communications theory, value theory, structural logic, psychology and political economy are included in the design curriculum along with specific design courses. In addition, students are encouraged to engage in the production of theoretical knowledge in research seminars.

Finally, there is a close maintenance of relationship between the studio projects and the fulfillment of real demands and needs in areas of research, design, technical production and supervision. Specialized personnel of the state planning organizations are encouraged to become

part of the architecture schools' faculties in order to insure this. There is a strong commitment to the idea that industrialization is not only an important and desirable factor in order to transcend the "realm of necessity to that of freedom," but that it is also, as Hannes Mayer believed, a fundamental component in the "expression of the architectural culture of our time," along with the "transformation of the new man's social life."

The scenario for today and the future

In the first decade of the revolution, Cuban architects admitted that the current architectural production, "with its heavy construction, static and rigid proportions, lack of adaptability, difficult maintenance and weak or ecclectic individual expression," s could not satisfactorily resolve the full range of individual and social demands. Castro further elaborated on this by saying: "It is obvious that in these early times we cannot satisfy our highest aspirations of esthetic quality. This is also a dialectical process, a process of change. We cannot aspire now to making things as beautiful as we will in 20 years. But we must try to avoid making them so ugly that in 20 years we will be embarrassed by what we have done today." He has further postulated, "we must not in any way think that esthetics is in conflict with economy and that esthetics is not one of the elements (which are) indispensable to man and society . . . and we must not mistake esthetics with luxury, which is a very dif-

After fifteen years of revolution, Cuban society has also begun to reach beyond the realization of its social aims for the implementation of its own cultural representations; and to reach beyond the continuous process of building, for the formulation of principles for an architecture appropriate to socialism and underdevelopment. These principles evolve from three main sources: the process of social transformations in time, the need to raise the level of productivity within the limited available resources, and socialist humanism. 10 Because "humanism" has been so deeply entrenched in the content of occidental architecture, and equally proclaimed by opposite schools of thought, the Cuban architects and theoreticians have searched to bring this ever-elusive and polysemic notion within more precise limits. The explicit recognition of the extreme complexity of human beings, both as psychological beings and as the conscious or unconscious participants in intricate social events, disposes of the transparent and bidimensional image of a "universal man" as the ideal inhabitant of architecture. At less elevated levels, criteria such as "low income" or "luxury," mainly applied to the design and marketing of human dwellings, also lack relevance within the Cuban cultural context.

Hypotheses of Cuban architecture

The hypotheses advanced by Cuban architects are best represented by the writings of Fernando Salinas, ¹¹ from which the following principles are excerpted:

The principle of adaptability. In times of social change, there is the need for an architecture whose changing form can accommodate changing functions and uses. The architectural form is seen as "the form of transformation itself." Architecturally, this would entail the development of an extensive system of movable walls, flexible space dividers and



Murals such as these: "Cleaning and Embellishment is the Task of All," (above) and "We Shall be like Him" (below) now replace commercial advertising in Cuba, often (as above) promoting the idea of collective work.

light furniture, to transform interior spaces.

The principle of economy. Production of the maximum of constructive possibilities with the minimum of resources and effort. Utilization of materials at their optimum structural and constructive conditions; the best possible planned organization of the production process and the most advanced technology available. Economical maintenance is also considered a determinant factor.

The principle of change and growth. When the pressure of solving immediate social needs is relieved, there should exist the possibility of transforming the present architecture in terms of growth and change of form and space.

The principle of variety within unity. The full development of the individual should find its correspondence in an architecture which permits, through the creative combination of elements, the expression of the particular characteristics of the individual and collective user. In this sense, the user is not seen as a "consumer of space," but as a participant in the creative process of defining space.

Whether the achievements of an architecture that takes these principles into consideration will evolve a novel esthetic of continuity and newness defined by change, growth and adaptability, depends on the extent to which these ideas are integrated into the cultural representations of the future in Cuban society. Were one to adopt a hopeful attitude, the positive contribution of these ideas could, perhaps, result in an architecture without rhetoric, an architecture which, in renouncing the need to "materialize" the illusion of eternity, might mirror and sustain the continuous unfolding of human existence.



References

¹Tzonis, A., Towards a Non-oppressive Environment.

²Garcia Vasquez, F., "El Proceso de urbanizacion en Cuba," in *La urbanizacion en America Latina*.

³Tafuri, M., "Les premières hypothèses de planifacation urbaine dans la Russie soviétique 1918-1925," in *Archithese No. 7*, 1973.

⁴Engels, F., The Housing Question.

⁶Castro, F., Closing speech, Conference of International Union of Architects, Havana, 1963.

⁶Castro, F., Speech, 8th anniversary of the Committee for the Defense of the Revolution, 1968.

⁷Collective of the faculty of Havana Architecture School, *Arquitectura y Tercer mundo.*

Castro, F., Closing speech, 1st Congress of Construction Workers, 1964.

¹⁰Segre, R., Significacion de Cuba en la cultura arquitectonica contemporania.

¹¹Salinas, F., "La arquitectura revolucionaria del Tercer mundo," in *Ensayos Sobre arquitectura e idologia en Cuba revolucionaria*.

A very lofty realm

An alternative to apartment dwelling, found in the industrial buildings of New York's cast iron district, allows occupants to build whatever they want.

Recently, in New York City, a rezoning of industrial loft buildings south of Houston St. (SOHO) was enacted, permitting their legal use for living—a use granted under pressure from organized groups of artists who lived in fear of occasional visits from the building inspector. These artists, some of whom had lived in these buildings since the early 1960s, had been looking for work/living space at a relatively low cost per sq ft, and these large, open spaces built for manufacturing or warehousing, could provide just that.

Housing, in New York as everywhere, is designed almost exclusively for residential use; work is something one goes to. Building codes, developed to raise housing above certain minimal standards, helped to codify this notion, and while we may have a choice of one, two, or three bedrooms, who is to say that we even want that choice? For an artist, being able to combine working and living is usually an economic necessity; paying rent on one large space is less expensive than paying rent on two smaller spaces. Industrial spaces, already equipped with hot and cold running water, a few rudimentary plumbing fixtures, a grid of electrical conduit and junction boxes, and some form of heating, can be divided up and organized in any way the occupant wishes to live.

The variety of treatments is about as diverse as the population of the SOHO area. Some lofts remain one space; others are divided in almost the same manner as standard apartments; some are beautifully crafted, others are roughhewn. They range in size from a little over 1000 sq ft to as large as 8000 sq ft, although the rezoning limited residential use to a maximum of 3500 sq ft. Rents, which might have been as low as \$150 for 1200 sq ft in 1970 have risen to double that and, if the space has been lived in and improved by the previous tenant, as much as \$3000 or more is often asked for "fixtures."

The rezoning of this area for legal living has caused some serious problems, the escalation of costs being only one. The effort of artist groups to remain on the fringe of established norms is usually defeated by the rubbing-

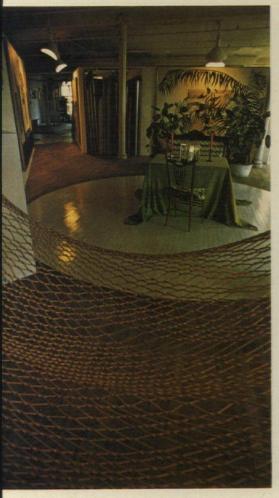
shoulders-with-the-art-world crowd who follow in hot pursuit of the latest chic-dom. Not that SOHO is likely to become the high-priced, very middle-class place that Greenwich Village is; however, Madison Ave. ad executives and speculative developers are but two types of trendy newcomers. SOHO's new boutiques and restaurants, touted by New York Magazine, attracted flocks of tourists.

Along with the new legality of loft living comes the requirement to comply with the building code for multiple dwellings. However, since people squirrel themselves away, make many of their own improvements and circumvent the building department, it becomes difficult to know who is living where and, consequently, to enforce the code. On the other hand, one New York developer who had been interested in alternative housing long before SOHO emerged, was thwarted in his attempts to provide low-rent spaces with minimal improvements (new baths and kitchens with rest of space left for tenant to use as he wishes). Forced by the code to make many alterations to the public spaces in the building (due to New York's change-of-use law) the low-rent renovations became totally unfeasible.

Beyond the immediate discussion of the pros and cons of legal loft living are some serious questions about the inflexible nature of housing on the market. At the moment, loft spaces provide some of the only alternatives, which allow the occupants to structure their surroundings to fit their lifestyle, by allocating space to various uses as it suits individual needs. The difficulty with SOHO is that it is a special situation and, as that, has become something it did not intend to be. While a great percentage of the population may be content with the housing offered on the open market, the number of loft buildings that have become cooperatives and the rate at which most lofts are sold seem to indicate that there is a demand for this type of space beyond the limited resources of SOHO. But until the rules and regulations of bureaucracy permit a broader definition of housing, alternatives outside the system will, no doubt, end up defeating their own reason for being. [Sharon Lee Ryder]

The loft of artist Lowell Nesbit is divided by 8-ft-high partitions used to display his own work. Various living areas are defined by the semi-open hexagonal spaces created by the partitions, by groupings of plants and by painted circles on the wooden flooring.





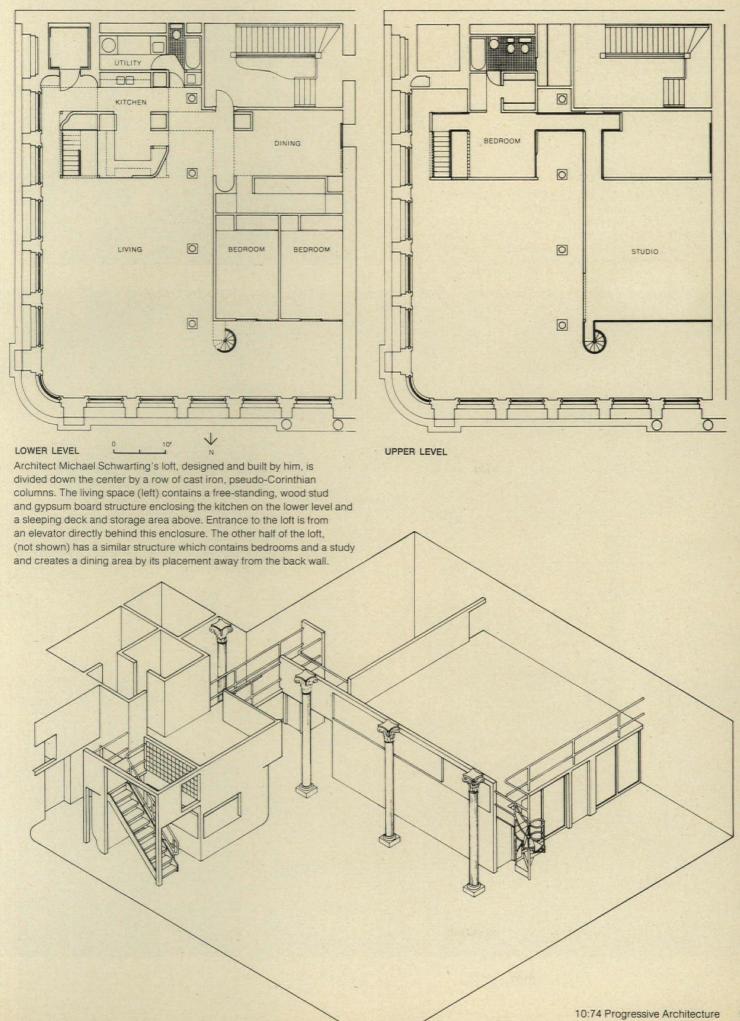








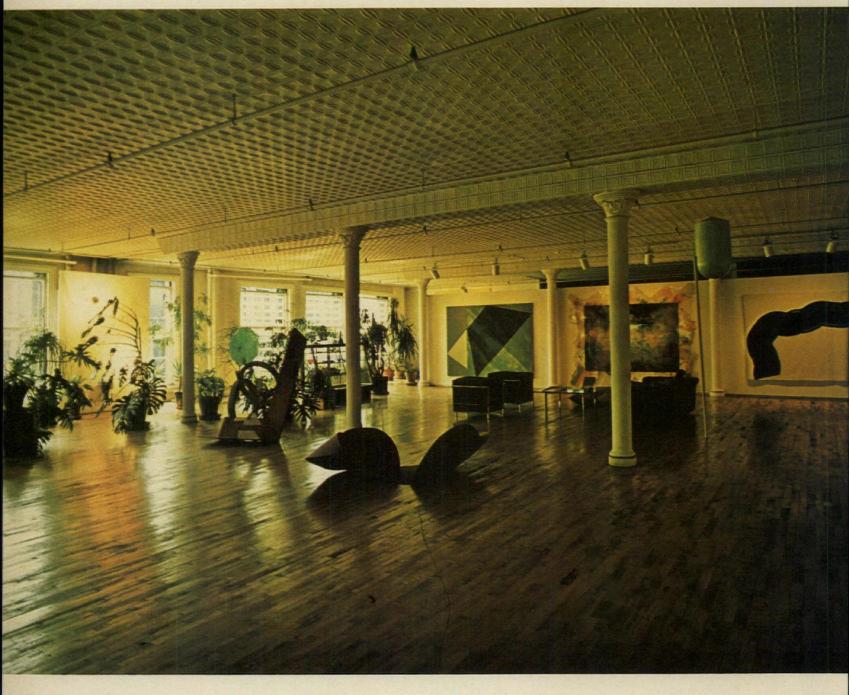
A very lofty realm

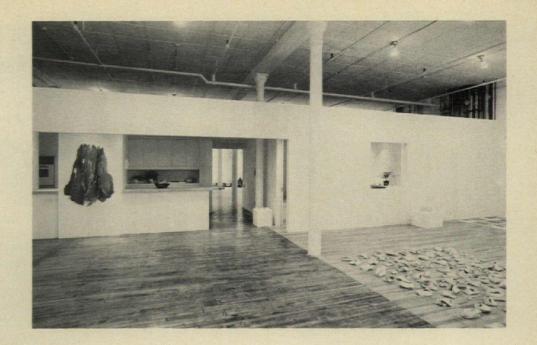


A very lofty realm

Art Forum's publisher Charles Cowles lives in the same building as Nesbit and, although both started with the identical space, the end result is radically different. Cowles left the grid of cast iron columns free standing in the space and placed two long walls at right angles just behind the columns for hanging paintings and for separating bedroom, bathroom, circulation, and kitchen from the living area.

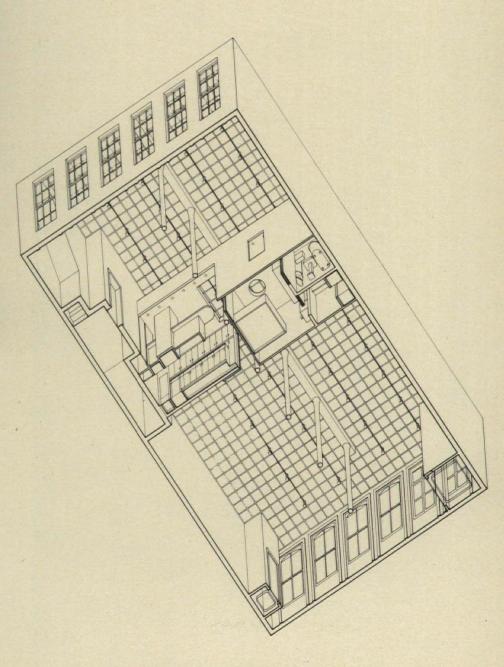








Artist Hannah Wilke's loft, designed by architect Todd Williams, is divided into living and working areas by an enclosure which the architect calls a "house." Containing the kitchen, bath, and bedroom, the house was deliberately kept low so that the ceiling is read as a continuous, connective plane.





Photograph by Lawrence Williams, Inc., Upper Darby, Pa.

Did the architects who designed this building see your advertising?

This is the Fidelity Mutual Life Building, Three Girard Plaza in Philadelphia. It was a \$30 million project designed by one of the Design and Production teams of Vincent G. Kling & Partners, also of Philadelphia. Like their counterpart in architectural firms everywhere, the Kling team specified both type and brand of building products for the building envelope, the mechanical systems (with the help of an engineering consultant) and the interiors. And in over 90% of instances, their specifications held through to purchase and construction.

If you are an advertiser in P/A, you are reaching the most important influence in the selection, specification and ultimate purchase of building products, design and production professionals like the members of the Kling team. That's because P/A reaches more individuals who practice architecture than any other magazine in the world.

The Kling Design and Production team for the Fidelity Building

Frederick G. Roth, FAIA Sr. Partner & Director of Design

Albert J. Huber, FAIA Sr. Partner & Director of Production

John Rutkowski, AIA Partner-in-charge

Eric Chung, AIA
Design Partner

Joseph Steinmetz, CSI Specifications Writer

Albert E. Beck, AIA Project Architect

Edward Corcoran

Job Captain

Don Kriebel, AIA
Director, Kling/Interior Design

Jerry Sellers Interior Designer

Progressive Architecture

Reaching more individuals who practice architecture than any other magazine in the world.

Technics: Specifications clinic

Fire hazards

Harold J. Rosen, PE, FCSI

As tragedies testify, fire safety design standards are not as rigorous as those covering phenomena like earthquakes. Present codes may mislead designers.

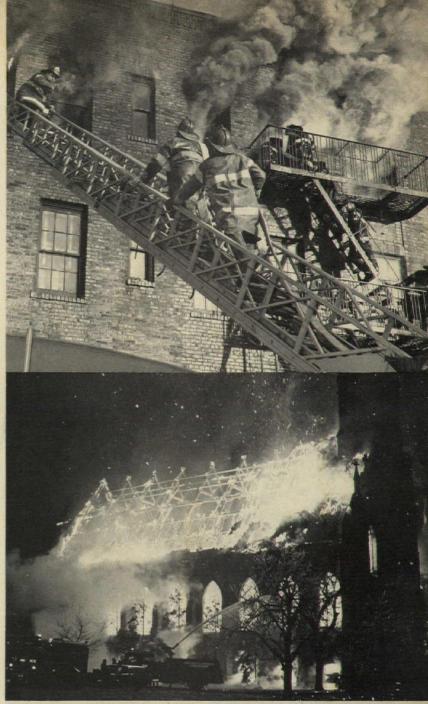
The danger of fire should be a constant concern of architects and specifiers in designing a structure and in selecting its materials. There are rational methodologies for design and engineering of wind loads, earthquakes, and environmental factors. Fire safety has none.

The architect and specifier can follow local building codes and fire codes which place heavy reliance upon passive protection such as exit requirements, rated protection of structural elements and building-to-building fire spread. However, the fire safety of the design is not consummately checked by some rational engineering method. Local codes are followed; yet some are outdated and others use unrealistic test methods developed by a multitude of standards-making agencies.

For example, two ASTM test methods designed solely for product research and development—and clearly defined in scope for this purpose alone—have been used by manufacturers to describe their products in terms related to these standards such as "nonburning" or "self-extinguishing." Until recently, these test methods, ASTM D635 Flammability of Plastics over 0.050" thickness and ASTM D1692 Flammability of Plastic, Foams, and Sheeting applied small test flames to determine if the materials were "nonburning" or "self-extinguishing" after removal of the test flame. The test materials were subject to certain parameters such as char length, flaming time, and droplet burning time. When exposed to larger heat sources, the behavior of these same materials was very different indeed. Yet some manufacturers still cite the ASTM test method and result. The architect and specifier are led to believe that the product is truly "nonburning" or "self-extinguishing" and can be used safely in design with such reassurances.

The three principal elements which determine the fire hazards of a building are: 1) contents, 2) fire resistance of

Author: Harold J. Rosen is an independent construction specifications consultant in Merrick, New York.





Firemen fight New York tenement fire (top). Mt. Loretto Church destroyed, 1973 Staten Island, N.Y. (below).

Fire hazards

structure, and 3) character of finishes.

Unfortunately, there are no laws respecting building contents like upholstered furniture, draperies, or similar contents which can create excessive fire loads. However, in 1971 New York City issued an advisory to improve fire safety in office buildings over 100 feet in height. The advisory recommended: use of carpeting and underlayments with low ratings for flame spread and for development of



smoke, with stricter standards for carpeting in exits and corridors; furniture constructed largely of noncombustible materials or of fire-retardent treated wood; self-extinguishing plastic materials and glass fiber drapery lining and curtain materials. The advisory also made recommendations for the average weight of combustibles per sq ft of areas. The advisory is laudable but doomed. Some of the test methods it refers to for flame spread are related to ASTM D635 (only recently modified), Fed. Spec. CCC-T-191 and the methenamine pill test for carpets—all dubious test methods with respect to fire spread.

The fire resistance of structures is ascertained on the basis of ASTM E119 where it is possible for the designer to measure and express the relative degree of fire resistance in terms of hours that a material or composite is capable of resisting exposure to a standard fire of controlled extent and severity—before a certain critical point is reached. However, the following point about "fire resistance" qualifies this terminology. While timber or mill construction affords some fire resistance, it does present a combustible *interior*. Similarly, steel has no *surface* combustibility, but it has a relatively low fire resistance since heat penetrates it quickly and soon impairs its structural integrity.

The third category, character of finishes, is a dangerous thicket of misinterpretation, misrepresentation, and misunderstanding of test methods. The most accepted standard used today is ASTM E84 Surface Burning Characteristics of Building Materials. Even this test probably needs re-evaluation. For example, surface finishes should be analyzed with the substrate to which they are applied. A thin combustible material on a noncombustible backing may present no hazard. The same material on a combustible backing may spread flame rapidly. An excessive number of coats of paint on an incombustible nonheat conductive material such as asbestos-cement board is not as hazardous as the same coating on metal. Metal greatly hastens flame spread because of its heat conductive property. The hazard of laminated materials is largely influenced by the character of the adhesive used between laminations. An adhesive which permits delamination (separation of the layers) contributes to a high hazard classification since the ease of ignition (ignitability) is increased.

Sirens in the night

A number of incidents has caused a restudy of the whole fire safety problem. In May 1973 the Federal Trade Commission jolted the plastics industry by complaining that the public was being misled about the fire hazards of polyurethane and polystyrene and its copolymers, and that certain flammability standards used the innocuous words "nonburning" and "self-extinguishing." There have also been fires in high-rise office buildings—ostensibly modern structures designed under our most recent codes. As a result of these fires there is a concerted move to study the nature and control of fire by augmenting building codes, reviewing test methods measuring flame spread and combustibility, and developing other criteria for determining fuel load contributed by construction materials.

In January 1973 the New York City Building Dept. promulgated Local Law No. 5 to raise fire safety requirements and controls in high-rise office buildings. Its major provisions require 1) a fire safety plan, 2) compartmentation or

containment, 3) smoke and heat venting, 4) a fire alarm signal system, and 5) the control of elevators by the fire department. Note that none of these provisions changed any materials requirements: fire resistance ratings, flame spread ratings, and measurements of fire loads. The law essentially dealt with methods of controlling and combating fires and human behavioral response to fire.

ASTM has embarked on a complete review of its standards through a new Fire Hazards Committee, E39. It could hardly do less. ASTM test methods are adopted in building codes and often cited in manufacturer's literature to illustrate conformance to a test procedure. So strongly does ASTM feel about misunderstandings that it has issued this important caveat: "No ASTM method now extant should be used as a fire hazard standard as defined in the policy standard. Until the work of the new committee is completed concerning each ASTM method now extant, no ASTM method of test should be used for determining, evaluating, predicting, or describing the burning characteristics of materials under actual fire conditions." A fire hazard standard is defined as "either 1) a means of measuring or calculating the fire hazard created by the presence in the relevant environment of a material, product, or system, or 2) a definition of practice or means of controlling or reducing the level of fire hazard in the relevant environment."

Some authorities lean toward criteria of combustibility related to "potential heat." Operation Breakthrough performance specifications and the PBS Performance Specifications for Office Buildings accept this criterion. For a structural element and its fire protection to be classified as noncombustible they must contain or contribute not more than 1000 Btu per lb and not more than 5000 Btu per sq ft of projected surface area to the fire load. Other values regulate floor-ceiling combinations and walls. (The test method to determine these values is contained in Vol. 61, ASTM Proceedings of 1961, pp 1336-1347.) The value of this measurement is twofold: quantitative results and a rational methodology to evaluate fire loads of building materials are made possible. While the concept of "potential heat" as a fire load is not new, our building code requirements have not incorporated them in any significant way.

The other products of combustion, namely smoke and toxic gases, are not frequently acknowledged by building codes. Yet there are often many more victims of smoke poisoning and toxic fumes than of heat. Smoke is visible particulate matter consisting of very fine solid particles and condensed vapor. Toxic gases resulting from combustion include carbon monoxide, hydrogen cyanide (produced from polyurethane and ABS plastics) and hydrogen chloride (produced from PVC) to name a few.

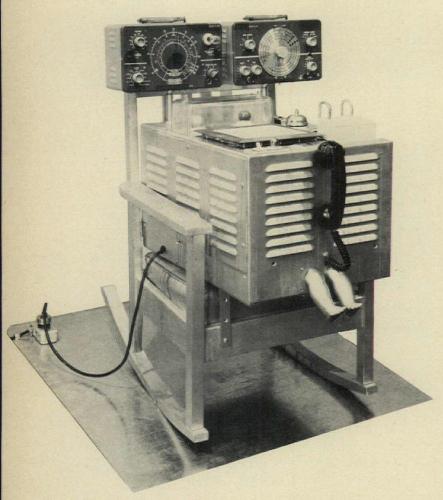
Most authorities would like to restrict the use of materials that produce large amounts of smoke and toxic gases. However, information on toxic gases produced by combustion of common building materials is still very limited. Our present knowledge of toxic combustion products is probably insufficient to guide the designer in his choice of combustible building materials.

A good deal of research and incorporation of new data into codes is required. The architect and specifier must continue to design for fire safety and to evaluate all materials they use for quality, location, and exposure. For fire still hungers for modern architecture.



For centuries man and horse drew fire fighting apparatus. Today, New York City alone employs advanced super pumper system: super pumper (diesel pump), tender (carries large diameter hose) and satellite (for large caliber streams). Photography: Fire Dept. of New York Photo Unit.

The invisible architects



Edward Kienholz, The Friendly Grey Computer, Star Gauge Model #54, 1965. Gift of Jean & Howard Lipman, The Museum of Modern Art.

Would you prepare a document hundreds of pages long to reappear frequently in similar form by typing it all out each time? If you are an architect, you would.

They are coming to architects' offices across the nation and they are invisible. Don't look now. You will notice them soon enough. "They" are an expanding array of automated procedures for architectural design and production. For now, they are busy with the specifications writer. And this is only the beginning.

Automated architecture smacks of science fiction. Drawing machines to generate buildings from doodles? Architecture is a creative endeavor with little room for mechanized procedures.

Think again. From a proper distance a great building is a tantalizing mystery of marble or marshmallows. Come much closer. As Gulliver realized in Swift's Travels, the Brobdingnagian complexion was an obstacle course of skin pores and body hair. Any building dissolves at this scale into stones, doorknobs, and roof flashing. More than the profession cares to admit, a large proportion of its work is more technical than artistic.

Placing concrete today is much like placing concrete tomorrow. No architect knows this better than the specifications writer. His voluminous specifications manuals define the general provisions, materials, and installation methods that must breathe life into tons of steel and acres of glass.

You can easily spot the specifications department in an architecture office. Surrounded by bulging picture book catalogs, salesmen with samples and brochures, and messages from trusted suppliers, contractors, and tipsters, the "spec" writer seeks to manage his projects and update his basic working knowledge. He did not create this state of siege. His inheritance worked well enough when technology spun off fewer sparks.

That a firm should rely on a set of extensively cut and pasted specs which may be unique to the office (and sometimes, baffling to others) to create contemporary architecture pays tribute to tradition and what Joseph Gascoigne, executive director of the Construction Specifications Institute, calls the "Great American Writer Complex." Almost half the design firms in the U.S. prepare copy

this way. Cut and paste necessitates massive retyping-and a project design freeze to minimize costly changes. The freeze also institutionalizes an enormous drain of office time. We see a sequence from Chaplin's Modern Times: secretaries claw typewriters; designers worry over premature decisions; spec writers stalk elusive swatches. This mayhem has been ripe for automation for years.

Renaissance

A belief that uniform construction standards and practices would stabilize spec writing and improve industry communications produced the CSI in 1948. True to its credo, CSI soon wrote a CSI Format for Construction which won public and private acclaim for its organizational logic. Then came Spec Data, a program to insure that manufacturers of building materials provide some standard of factual documentation in their products reference materials through uniform data display and content. Again, encouraging results.

In 1968, a strategy emerged to revolutionize architectural practice. CSI had previously commissioned a Stanford Research Institute study on specs and automation. Under the CSI research arm Construction Sciences Research Foundation, Stanford's implications generated CONCOM, a family of interfacing communications systems to serve the construction industry. When realized, architectural design, engineering, specifications, and construction—the CONCOM family-would converse by computer.

The birth of an architectural computer language has been foreseen by many. The Stanford report recognized six real and potential levels of sophistication in specs communications. Level 1 is cut and paste. Level 2 prints specs data from perforated tape on a robot "automatic typewriter" with limited storage and retrieval. Level 3 uses a small computer for higher storage capacity, rapid retrieval, and text editing by manipulating blocks of text and specific terms. Level 4 improves on this by coupling a typewriter terminal to a large computer capable of more complex operations. This is the state of the art. Levels 5 and 6 culminate in replacing traditional design and production methods with total computer systems techniques.

Executaries Four in Pittsburgh offers Level 2 service to Masterspec subscribers (more said on Masterspec). EF

stores master specs on tape cartridge for recording and playback on automatic typewriter. A customer selects applicable sections of Masterspec. A marked up edit copy (a "batch") is forwarded to EF for translation into tape format while additional writing is processed in-house. When the project specs are ready for automatic printout, the customer processes his own tapes or farms them to EF.

This is a useful if technically elementary procedure. It is simple. But it requires a high degree of manual processing of printed matter. In fact, EF might consult with project managers to clarify edited copy. And though automatic typing provides for simultaneous typing and storage (virtually standard in word processing systems) playback is slow by technology's standards.

At the next level, ARCOM Architectural Computer Services in Salt Lake City provides limited computer capacity to Masterspec subscribers. As before, users edit copies of needed master sections. ARCOM translates their intentions into computer language for its computer, which stores Masterspec. After users review check printouts, ARCOM produces a camera ready final copy for in-house or ARCOM printing and binding.

ARCOM still falls short of full automation. Writers cannot perform the rapid fine tuning that direct computer access would allow. Gaining this competence radically alters the relationship of architect and computer.

Conversations with computers

Three major services now operate at Level 4: WORD/ONE by Bowne Time Sharing (Bowne Inc.), New York; SPECS by Automated Procedures for Engineering Consultants (APEC), Dayton, Ohio; COMSPEC by Pacific International Computing Corp. (Bechtel Corp.), San Francisco. Their customers speak directly with large sophisticated computers (usually an IBM 360) to perform complex text manipulation and high speed printout. Each has distinctive clients.

SPECS is conceived by an engineering cooperative whose members jointly finance and develop computer software for the construction industry. SPECS is in a sense the programmer's program, written in a style that reflects its engineering origin. It boasts such features as: scanning edit and print requests for logical errors, recovering and continuing after discovery of minor data discrepancies, and password

The invisible architects

safeguard to accidental modification of permanent storage data. Since many APEC members have computer access, SPECS comes as software.

WORD/ONE appeals to architects who want computer speed without knowledge of computer programming. It can edit, format, photocompose (a process of rapid publicationquality typesetting), reduce, and print specs. WORD/ONE trains a user's staff member (often a secretary) to operate a terminal typewriter with telephone hot-line hookup to Bowne's shared time central computer, data bank, and high speed printers. Architects provide their own masters for accommodation on WORD/ONE random access disks (its 12 disks hold 465 million characters) and printing on WORD/ONE printers (425 lines/min vs 150 words/min on automatic typewriter terminal)

COMSPEC software and hardware arrangements roughly parallel those of WORD/ONE with a major exception. Qualified customers may draw on "public library" masters in PIC permanent storage. These include: Masterspec by Production Systems for Architects and Engineers (PSAE), PIC engineering specs (covering CSI Divisions 15, Mechanical and 16, Electrical), Veterans Administration Master Construction Specifications (V.A. Office of Construction, primarily for hospitals), and MFH (military family housing specs for the Dept. of Defense). There are PIC computer centers in 10 major U.S. cities.

Spec writing without scissors

Subscribers to these services (including small 15- to 25member firms) can make swift, subtle adjustments of their masters. The master is manually typed out for storage once, if ever. Not only are unrevised blocks of master sections preserved from new errors, but the calendar for final spec writing can collapse like a supernova from the typical four to six weeks to days.

At the heart of Level 4 communications are the computer languages evolved for word processing. Pioneering work was initiated by IBM's Administrative Terminal Service (ATS) in the latter half of the 1960s. SPECS and COMSPEC, specifically created for the construction industry, and WORD/ONE, serving numerous professions, are the evolutionary successors to ATS. Their operations, not necessarily featured by all three, include these partial lists.

Editing: MOVE shifts words, sentences, and paragraphs from one position in text to another; ERASE eliminates materials and closes up text; COPY duplicates repetitiously used words from one place to another; LOCATE automatically finds and points out each occurrence of a word; REPLACE changes a word to another word in one action throughout text; PROOFMARK (Bowne Time Sharing) identifies every line changed since last draft; NOTATION prints explanatory notes in working drafts which are omitted in finished copy.

Formatting: automatic structuring of lines, paragraphs, numbering, line width, page depths, and margins; right

margin justification; automatic page make-up after alterations; automatic centering; fixed line numbering.

Architecture without tears

WORD/ONE is part of its parent company's commitment to serve the business community as the nation's leading financial printer. Consequently it will continue to expand its extensive proofreading capabilities. New developments have already appeared.

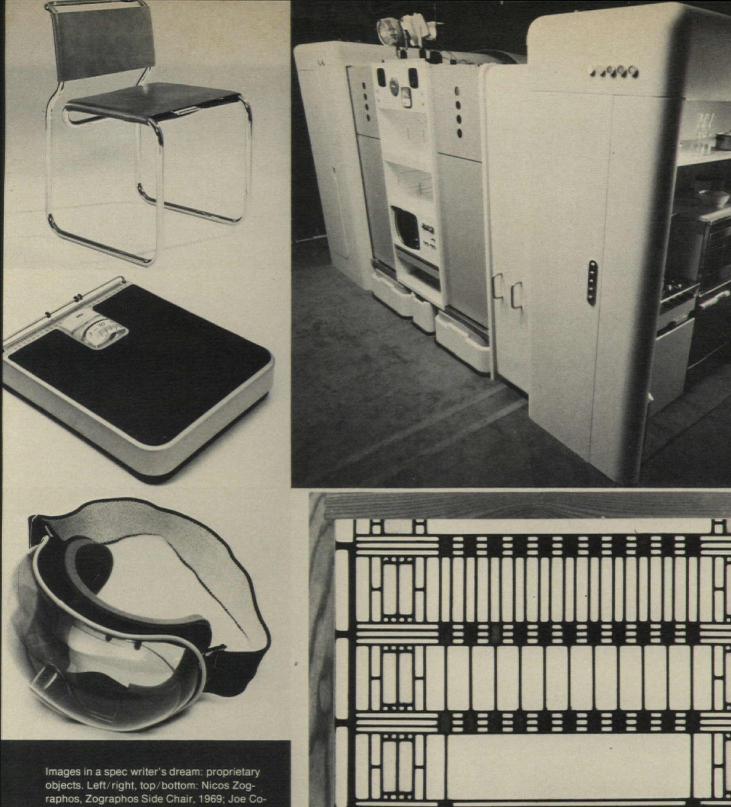
SPECS and COMSPEC will surely keep pace. Theirs is a different mission, however. Each is part of similar master plans to automate communications in the construction industry. APEC intends to design its engineering programs "under a common set of design parameters" for integration into a future system such as CABDS (Computer Aided Building Design System). Structural, civil, mechanical, and electrical engineering programs will design an entire building.

COMSPEC, the language developed for CSRF, is the cornerstone of CSI's concom. As a program of proposed research projects for systems development, CONCOM intends to store and retrieve spec and project data, develop and visualize design concepts, analyze and calculate design and planning data, estimate costs and quantities, and schedule and monitor construction—all by automation. Already its Spec Data II is one of a number of new microfilm and computer product libraries that threaten to replace multi-volume book format product catalogs.

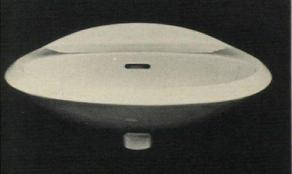
But glowering over APEC and CSI is technlogy's Tower of Babel. The birth pains of creating CABDS or CONCOM come from the fragmentation of A/E practice. Each office solves daily personal problems in its own way, often in its own computer language. Achieving compatibility among computer programs in architecture will be an awesome job.

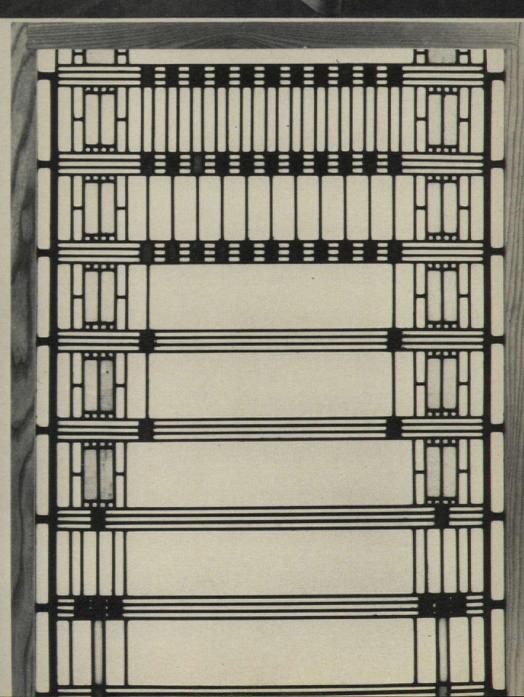
A flowerbed blooms around this tower's base. Masterspec, the AIA-sponsored program for national master specs, is making steady progress. Since its inception as a nonprofit corporation in 1969, PSAE has covered some 95 percent of CSI Divisions 2 to 14 with master sections consisting of specs (CSI three-part format), editing instructions (including product evaluations), and drawing coordination sheets. Like APEC and CSI, PSAE has its dreams: masters for details, schedules, and project manuals.

Surprise! This aspect of specs writing is performed by human hands and minds. PSAE bravely ingests alarming quantities of literature annually disgorged by U.S. manufacturers, trade associations, and standards bureaus. Gathering its own professional expertise consultants, organizations like ASTM, UL, and Factory Mutual System, and feedback from A/E subscribers and a special AIA review board, it renders needed critical judgments to guide the profession. There is still room for perfection. Written across an ungainly column and toilet stall detail in PSAE offices (at AIA headquarters, Washington, DC.) are one jurist's words: "This detail does not work!" [Roger Yee]



Images in a spec writer's dream: proprietary objects. Left/right, top/bottom: Nicos Zographos, Zographos Side Chair, 1969; Joe Colombo with Ignazia Favata, Modular living units, 1972; Braun A.G., Bathroom scale, 1969; Robert E. Smith, Anti-fog goggle, 1967; Frank Lloyd Wright, Glass window, Martin House, Buffalo (detail), 1904; Douglas Scott, Washbowl, 1963. Modular units from Italy, The New Domestic Landscape, 1972 Museum of Modern Art. Remainder: The Design Collection, Museum of Modern Art.





Technics: Sprayed fire protection

Spray on, MacDuff

Ira Hooper

Builders still spray fire protection to structures. The author offers a general review of current issues involving use and abuse of this technique.

For years, the UL Fire Resistance Index (Jan. 1974) has clearly stated that the ratings for sprayed materials require the minimum listed thickness and densities. In the early days of sprayed fire protection, these requirements were frequently ignored. As the result of concern among building officials, engineers and architects, controlled inspection of these important items has become usual practice. Inspection is performed by independent testing agencies paid by the building owners.

Although inspections are now common, authoritative standards for inspection procedure have been slow to appear. A Task Group of ASTM Committee E-6 is now completing "Proposed Methods of Tests for Sprayed Fire Resistive Material Applied to Structural Members.'

In August 1971 the Insurance Services Office (an organization of insurance rating bureaus) issued "Inspection Procedure for Field Applied Sprayed Fire Protection Materials" for use by bureau inspectors. Distribution of the procedure to the general public has been discontinued. Yet most ISO provisions are now included in a publication from the Sprayed Mineral Fiber Manufacturers Association entitled "Inspection Procedure for Field Applied Sprayed Fire Protection Materials." This covers condition of substrates, thickness and density determinations, bond strength, cracking, patching and certification. It also stipulates the number and location of tests and specimens.

Users of the SMFMA procedure should note that the bond strength has been reduced from the ISO requirement of 100 psf to 36 psf, which may or may not be sufficient to preclude loosening the spray when the floor receives an impact. Also, no provisions have been included to test for air erosion. This, some experts argue, may be significant when ceiling spaces are used for plenums.

If inspection shows deficiencies in thickness or density, or if areas of spray have been knocked off, repairs are now relatively easy to make. Before inspection became common, contractors resisted making repairs; they now include allowances in their cost estimates. Special small equipment has been developed that is much more economical for repairs than larger production units.

Sprayed fire protection costs are escalating more slowly than most other building components because of improvements in equipment and productivity. Guns and pumps are more reliable and trouble free than in the past, cutting down-time. Also, contractors have now passed through the learning stage and can perform more efficiently. Further cost reductions are possible in some buildings where the exterior wall material can serve as part of the fire protection enclosure of beams and columns, reducing members' sprayed periphery.

Tests have evaluated the "Fire Endurance of Prestressed Concrete Units Coated with Spray-Applied Insulation" (Abrams and Gustaferro, Portland Cement Assn). While the intent was not to imply that this method is necessarily the most economical way of achieving higher ratings, the data will be valuable in upgrading existing construction or correcting code infringements.

Poke-through construction has been widely used for electrical distribution, but it has been criticized for impairing the integrity of the floor as a fire and heat barrier. Recent tests have shown that sprayed protection and other techniques can successfully reconstitute the fire protection at such locations. ("Fire Tests of Poke-Thru Assemblies," Abrams and Gustaferro, Portland Cement Assn.) For holes poked through a 4 in. concrete slab, 1 in. of spray on the underside of the slab and electrical fitting provides fire ratings up to three hours, depending on installation details.

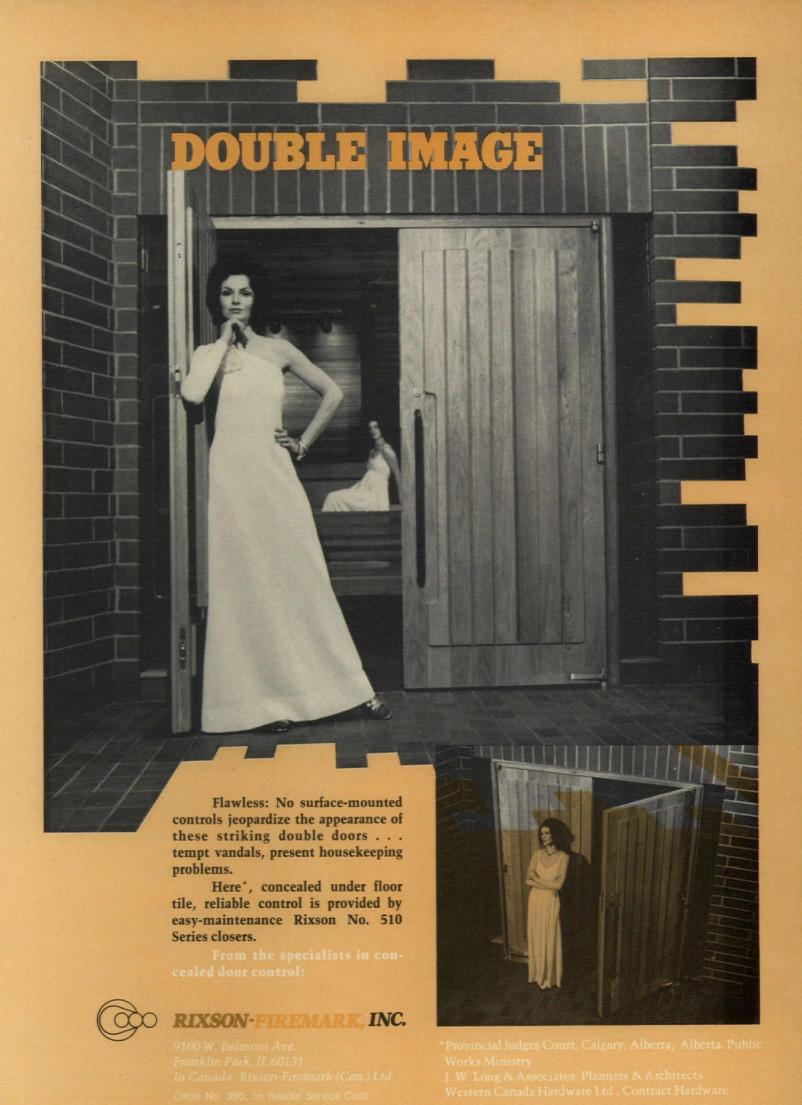
Open web steel joists have been successfully sprayed. A prime example is the World Trade Center, New York. Here, the metal floor deck was welded to 60-ft-long steel joists. Spraying the joists rather than suspending a fire rated ceiling makes it unnecessary to install both automatic dampers at duct penetrations and rated "tents" over recessed lighting. Result: increased planning flexibility.

Cellular steel floor deck has recently been improved to provide better electrical distribution at reduced costs. Prepunched holes for trench headers facilitate immediate wiring without field cutting. Cellular deck systems are practical for office buildings only when the underside is sprayed to achieve required fire ratings.

Until recently, many fire ratings were valid only for the material sizes actually tested. With the great accumulation of test data on sprayed materials, it is now possible to interpolate or extrapolate test data to evaluate resistivity of material configurations with different dimensions-by use of thermodynamic calculations and procedures developed by UL engineers and others.

Recent revision of fire test standard ASTM E 119 has attempted to account for extra fire resistance afforded by continuity or restraint of the portion of the structure upon which flames may impinge. Dual ratings are now required for floor and roof assemblies and for individual beams, depending on whether the end supports are restrained. Rules for determining when restraint occurs are not clear, and interpretations will differ. The phenomenon is complex but ASTM should improve the present formulation.

Author: Ira Hooper is vice president, Seelye Stevenson Value & Knecht, Inc., Consulting Engineers, New York.



P/A building cost analysis

Building type: Low and Middle Income Housing Classification No. 816 Location: Kingston, New York Project: Broadway East (Housing) Tender date/completion: completed, May 1974 Market conditions: N/A—negotiated bid Cost index:

Architect: Wells/Koetter/Dennis Architects, Ithaca, N.Y.
Owner: Broadway East Houses, Inc.
General Contractor: Perlstein Builders, Inc., South Fallsburg, N.Y. Performance & Specification Data

		Element cost		Element amount		Cost per sq ft		
Elemental category		Quantity	Unit Rate	Sub	Group	Sub	Group	%
100	Foundations	40,861 sq ft	11.82		482,908		3.69	14.68
110	Normal foundations	40,861 sq ft	1.22	50,000		0.38		
120	Basement excavation	137,910 cu ft	0.29	40,000		0.31		
130	Special foundations	43,000 lin ft	9.14	392,908		3.00	1	
200	Building shell	275,761 sq ft	2.94		811,454		6.21	24.68
210	Structure	123,313 sq ft	3.53	435,069		3.33		
	211 Lowest floor construction	38,828 sq ft	1.96	76,103		0.59		TON:
	212 Upper floors construction	87,482 sq ft	3.08	269,445		2.06	LANE OF	
	213 Roof construction	35,831 sq ft	2.50	89,521		0.68	THE PERSON NAMED IN	
220	Roof finishes	35,831 sq ft	0.73	26,166		0.20		
230	Exterior cladding	116,617 sq ft	2.60	303,519		2.32	No. of the	1
AND	231 Basement walls	7,172 sq ft	3.65	26,178		0.20		
	232 Exterior walls above grade	96,528 sq ft	2.40	231,767		1.77		
	233 Windows	9,052 sq ft	2.06	18,619		0.14		
	234 Entrances & storefront	3,865 sq ft	6.97	26,955		0.21		
240	Stairs	1,082 lin ft	43.16	46,700		0.36		
300	Interiors		-		459,293		3.51	13.96
310	Partitions and doors	124,499 sq ft	1.66	206,065		1.58		
320	Interior finishes	-	_	176,985		1.35		-
	321 Floor finishes	121,656 sq ft	.35	43,163		0.33		147
	322 Ceiling finishes	116,586 sq ft	.61	71,142		0.54		
	323 Wall finishes	482,156 sq ft	.13	62,680		0.48		
330	Specialties & fittings	_	-	76,243		0.58	The same	
	331 Specialties & fittings	_	_	41,188		0.31		
	332 Equipment	_	-	35,055		0.27		
400	Conveying systems	=	_		Nil		-	-
410	Elevators	_	-	-		-		
420	Moving stairs and walks	-	_	-		_		
500	Mechanical & electrical				663,730		5.07	20.18
510	Mechanical	_	_	362,415		2.77		
	511 Plumbing and drainage	538 No.	580.00	312,041		2.39		
	512 Fire protection		_	-		_		
	513 HVAC	1,387,468 cu ft	0.04	50,374		0.38		
520	Electrical	_	_	301,315		2.30		
	521 Distribution	_	_	279,896		2.14		
	522 Lighting		-	21,419		0.16		
	523 Special systems	-	-	_		_		
600	General conditions & profit		-		314,462		2.40	9.56
Net building cost: \$ 2,731,847 \$ 20.88								
900	Site development	412,294 sq ft	1.35		557,153		4.26	16.94
			Total co	F	2 290 000	7.0	25 14	7

Total cost: \$

3,289,000 \$

	Areas and volumes					
	Gross floor area (GFA): 130,847 sq ft					
	Net floor area: 98,999 sq ft Volume: 1,387,468 cu ft					
	Exterior wall area: 116,617 sq ft					
	Roof area: 35,831 sq ft No. of stories above grade: 4					
1	No. of basement levels: 1					
	Ratios					
	Net floor area/GFA — 0.76:1 Volume/GFA — 10.60:1					
	Ext. wall/GFA — 0.89:1					
	Roof/GFA — 0.27:1 Lin. ft. partitions/GFA — 0.117:1					
	Capacities Percent ext. wall glazed: 7.8%					
	Soil characteristics: fine sand,					
	soft clay, loose silt Density plumbing fixt.: 1/243 sq ft					
	Heating capacity: 17 BTU/hr/sq ft					
	Cooling capacity: None Ventilation capacity: 0.25 CFM/sq ft					
	Lighting intensity: residential standard					
	Outline specifications					
110	4000 psi conc. grade beams and pile caps.					
130	Approx. 16,000 lin. ft. 105" dia. closed end pipe piles filled with conc. av. length 60 lin. ft. and					
	approx. 27,000 lin. ft. timber friction piles av.					
211	length 55 lin. ft. 8" precast-prestressed "Spancrete" slabs with					
211	2" to 4" conc. topping.					
212	Pre-fabricated wood floor joists with 3/4" thick T. & G. plywood floor decking, "Spancrete" where					
	required, interior load bearing conc. block walls,					
213	etc. Prefabricated wood joists with ¾" T. & G. plywood					
213	decking.					
220	3-ply built-up felt roofing, vapor barrier, rigid insulation, metal flashings, and gravel.					
231	Generally poured conc. retaining walls or conc.					
232	block wall. Conc. block walls.					
232	Alum. fixed, sliding windows with \%" heavy sheet,					
004	tempered, and wire glass.					
234	Alum. sliding glass doors, hollow metal doors, and roller shutter door.					
240	262 lin. ft. metal pan exit stairs with conc. infill,					
	cast abrasive nosings, pipe handrails. 820 lin. ft. of wood interior stairs to duplex units including					
	handrails.					
310	Partitions generally wood framing with gyp. bd. and glass wool insulation as required for tenant					
	separation, wood doors and hollow metal frames					
321	to apartment units and bi-fold metal closet doors. Generally V.A.T.					
322	Generally suspended gyp. bd. and paint.					
323	Generally gyp. bd. painted and ceramic tile wainscot to bathroom walls and kitchenette.					
331	Mirror, toilet and bath accessories, kitchen					
200	cabinets, mail boxes, shades, and venetian blinds.					
332 511	Refrigerators and ranges. Building sanitary drainage, storm drainage,					
	domestic hot and cold water, gas, and all					
513	plumbing fixtures. Kitchen and bathroom exhaust fans, etc.					
	3 Electric heat, master T.V. antenna system,					
600	telephone, elec. distribution, lighting, etc. General Contractors initial mobilization,					
	supervision, overhead and profit.					
900	General site excav. and fill, grading, bituminous parking area, landscaping, conc. paving, steps,					
	retaining walls and banks, site utilities, lighting,					
	etc.					
1	Cost per cu ft: \$2.37					





Celotex ceilings combine

Next time someone says you must sacrifice overhead beauty if you want a functional ceiling—or vice versa—you can answer with one word.

The word is Celotex.

And it makes the very notion of an either/or choice between looks and utility seem old-fashioned.

Start with that name, and

you can choose a ceiling system with wide design possibilities. Without giving up beauty. Perhaps a non-directional patterned Celotex ceiling tile for a monolithic effect; or a Celotex reveal-edge lay-in panel for a bold contrast; or a design tile for that special interior.

The same reliable name will help you satisfy noise control requirements, because Celotex ceiling products can deliver Noise Reduction Coefficients to .90.

Time rated ceiling assemblies? You can get U.L. time ratings of one, two or three hours with Celotex.



beauty and performance.

Where the plan calls for complete environmental control, check Celotex Vari-Tec™ systemssound control, lighting and air handling all provided for in one beautiful, integrated ceiling system.

Which brings you back to where we started: beauty. Your Celotex ceiling can be beautiful as well as functional. Our success in delivering this valuable combination has made Celotex as popular with architects as with contractors, building owners and managers.

Consult the Celotex Acoustical System catalog. You'll find it in Sweet's Architectural and Industrial Construction Files. Or,

contact your Celotex commercial ceilings representative.



a Jim Walter company

Circle No. 330, on Reader Service Card

It's the law

Changing lifestyles may invalidate zoning regulation

Bernard Tomson and Norman Coplan

Six student-tenants of a one-family house challenge the definition of 'family' as it is used in zoning regulations. This is the first of a two-part article.

This column has discussed varying efforts of municipalities to limit land-use development by adopting restrictive zoning regulations. Although the objective generally sought is to prevent chaotic expansion, many of these efforts have been struck down by the courts as unconstitutional. One significant attempt to limit and slow down land development has been achieved by the town of Ramapo, New York, which successfully established the legality of its zoning ordinance requiring development to progress in a related pace to the construction and availability of certain municipal facilities and services necessary to support such development ("It's the law," P/A Nov., 1971, Dec., 1971, Sept., 1972 and Oct., 1972.).

The New York Times, in a recent editorial, pointed out that resistance to expansion and development has become a phenomenon in the United States, where until a few years ago, growth was deemed equivalent to progress. In its editorial comment, the Times suggested that extreme solutions such as the action of the city of St. Petersburg, which sought to establish a population limit for its community, would be of dubious legality. The Times referred to the action of Ramapo as a possible control method available. The Times also pointed out that the resistance to growth has been a guiet revolution which requires immediate attention and appropriate consideration.

One approach which might be considered in any effort to control or regulate the development of land use, when there is fear that such development might be inconsistent with the interests and desires of the residents of that community, is adopting a zoning regulation which has an aesthetic objective. Traditionally, zoning directed toward aesthetic goals, as distinguished from safety or health objectives, has been constitutionally suspect. However, in 1954, the United States Supreme Court (in Berman v. Parker, 348 U.S. 26), a landmark decision, opened the door to zoning for aesthetic purposes. In that case, the issue was whether land could be condemned and acquired by the municipality for a housing project to establish a better balanced and more attractive community. It was argued in opposition to that action that the community could only condemn and acquire such land if its purpose was solely limited to eradicating slums which were a menace to health and safety. The Court, in upholding the broader scope of permissible statutory or zoning action, stated:

"Miserable and disruptable housing conditions may do more than spread disease and crime and immorality. They may also suffocate the spirit by reducing the people who live there to the status of cattle. They may indeed make living an almost unsufferable burden. They may also be an ugly sore, a blight on the community which robs it of charm, which makes it a place from which men turn. The misery of housing may despoil a community as an open sewer may ruin a river.

"We do not sit to determine whether a particular housing project is or is not desirable. The concept of the public welfare is broad and inclusive. . . . The values it represents are spiritual as well as physical, aesthetic as well as monetary. It is within the power of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well-balanced as well as carefully patrolled.'

In 1974, the United States Supreme Court, in reliance upon its earlier determination in Berman v. Parker, upheld a municipal zoning ordinance which limited land use in the entire municipality to one-family dwellings. (Village of Belle Terre v. Boraas, 42 L.W. 4475). The ordinance had been challenged by a group of six college students who had leased a residence in that community, and who argued that the limitation of occupancy of a residence to a "family" unit was unconstitutional.

Family was defined in the ordinance as "one or more persons related by blood, adoption, or marriage, living and cooking together as a single housekeeping unit." Also included in the definition of family was not more than two persons "living and cooking together as a single housekeeping unit, though not related by blood, adoption, or marriage." The six student-tenants of the one-family home, in challenging the ordinance, argued that if two unmarried people can constitute a "family," there is no reason why three or four may not. They contended that the statute interfered with a person's right to travel; that it interfered with the right to migrate to and settle within a state; that it barred people who were uncongenial to the present residents; that it was an invasion of the right of privacy; that social homogeneity was not a legitimate interest of government; that it was no lawful concern of the residents of the village whether the members of a unit maintaining a household are married or unmarried; and that the ordinance was antithetical to the nation's ideal of an open, egalitarian, and integrated society.

We will continue our discussion of this case in next month's column.

Authors: Bernard Tomson, Hon. AlA, is a County Court Judge, Nassau County, N.Y. Norman Coplan, Attorney, is Counsel to The New York State Association of Architects, Inc. AIA.

Alcoa EZ Wall. A vertically textured facing that adds zest to wall surfaces.

The basic unit is a 12-in. striated aluminum extrusion. But there's no stereotype, no standard effect of these ribbed planks. Do you want a random effect? Alcoa® EZ Wall achieves it for you on fascia, interior wall decor, spandrels, column covers, or as curtainwall facing. If you seek a highly disciplined pattern, EZ Wall can achieve that, too, depending on the modular mix of components and colors chosen by the designer.

The point is, it's individual. Re-

strained or free. A modular surface that goes with you. Complements surrounding architecture. Enhances the vertical dimension of the building. Available in Alumilite* finish, Duranodic* bronze tones, or the brighter palette of Super Alumalure® colors. And, surprisingly low in installed cost.

For detailed information, send for our EZ Wall brochure. Write to Aluminum Company of America, 1037-K Alcoa Building, Pittsburgh, PA 15219.

*Trade Name





Last year a lot of building owners, architects and engineers were in the dark about fire protection. Until they came to Viking.

They came to Viking from every part of the world. They all knew something about fire protection. Enough to know they didn't know everything.

The rules change fast. Viking knows this. We're on top of it. We know the "ins and outs" of building codes and rules, because Viking has been consulting and designing sprinkler systems for as many decades as we've been manufacturing them.

We've saved some tall money in the skyscraping office buildings, too. And in needle-shaped restaurants and big boxy airplane hangars. In hospitals filled with people and factories packed with explosives.

We've done them all. Right down to a design which can keep a lot of money from going down the drain. And all this experience means we can help you get your next job done right, too. And show you how to save money in the process by recommending a knowledgeable contractor near you.

So when you're ready to specify fire protection, don't stay in the dark. Give us a call. Anytime. Wherever you are.

We'll shed some light on your fire protection needs.

HASTINGS, MICH., U.S.A. 49058

Call the Viking Sales Department for immediate information. (616) 945-9501



Write for this helpful 32-page book "Viking Sprinkler building owner, architect and contractor should have.



Why our five year guarantee is longer than any other five year guarantee.

Nylon carpet that won't wear more than a scant 10 percent in five years! And if any part of it does, we replace the whole carpet. Free, including installation. Our guarantee is so strong because ANSO nylon carpet lasts so long.

How can Allied make a guarantee like this? Because we make ANSO nylon. The second generation, soil-hiding nylon that's tough enough to carry a guarantee with teeth—Guaranteeth.

ANSO nylon is tough enough for a shopping center with 55,000 shoppers a day trudging through — the Northridge Fashion Center of Los Angeles. The carpet they chose

was Unanimous, from Walter Carpets by Ludlow. And Unanimous comes with Guaranteeth. The Allied Chemical guarantee with teeth.

So look for the label with the fierce little animal who symbolizes our Guaranteeth. And get the carpet with the toughest five year wear guarantee.

For a list of carpet mills, write: Allied Chemical Corporation, Fibers Division, Contract Department PA, One Times Square, New®

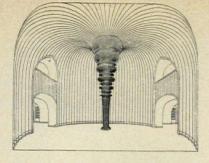
York, N.Y. 10036. Phone: (212) 736-7000 V® - \ \ | Indian



Northridge Fashion Center, L.A./10,000 yds. Unanimous/Walter Carpets by Ludlow



Books



Expressionist Architecture by Wolfgang Pehnt, translated by J. A. Underwood and Edith Kustner. New York: Praeger Publishers, 1973. 232 pp., 518 illus., \$27.50. Reviewed by Leonard K. Eaton, professor of architecture at the University of Michigan, Ann Arbor.

In the opening sentence of this large, handsomely printed, beautifully illustrated volume, the author, an editor and art critic for the Deutschlandfunk Broadcasting Corporation, writes that he has been preoccupied by his subject ever since 1958. He recalls his astonishment that historians of modern architecture at that time ignored completely an epoch to which their heroes—Peter Behrens, Walter Gropius, and to a certain extent Mies van der Rohe—had belonged. "What kind of objectivity was that," he wondered, when historians disregarded everything that did not agree with their premises? Since 1958, he notes, this curious deficiency has been partially remedied by a series of books and articles, mostly in German and Italian. In my opinion, his own book is likely to stand for some time as the definitive study of the movement in Germany.

Very appropriately, Pehnt begins his story with the inaugural performance of a Max Reinhardt production in Hans Poelzig's new Grosses Schauspielhaus in Berlin on 28 November 1919. After a thorough study of this great theater, he proceeds to an analysis of expressionist doctrine and imagery. The doctrine revolves around the theory of the building as a "total work of art" (gesamtkunstwerk), which certainly goes back into the 19th-Century and the operas of Richard Wagner. An additional significant aspect of the theory is the expressionist concept of the social function of architecture. Clearly Poelzig, Taut, and Finsterlin were as intent in saving the world with their plans and buildings as were Sir Raymond Unwin, Frank Lloyd Wright, and various other personalities of the Arts and Crafts Movement in an earlier generation. In the disordered political and economic atmosphere of Germany in the 1920s this idea acquired a particular force and significance. It was undoubtedly one of the reasons that expressionism was immediately proscribed by the Nazis after their seizure of power in 1933; after all, in National Socialist ideology, there could be only one way to save the world. It also accounts for the re-emergence of personalities such as Hans Scharoun after the second World War. His Berlin Philharmonic Hall is probably to be accounted one of the late masterpieces of the movement. In passing I might note that the expressionist attitude is possibly a more enduring feature of the German art than Dr. Pehnt is willing to admit.

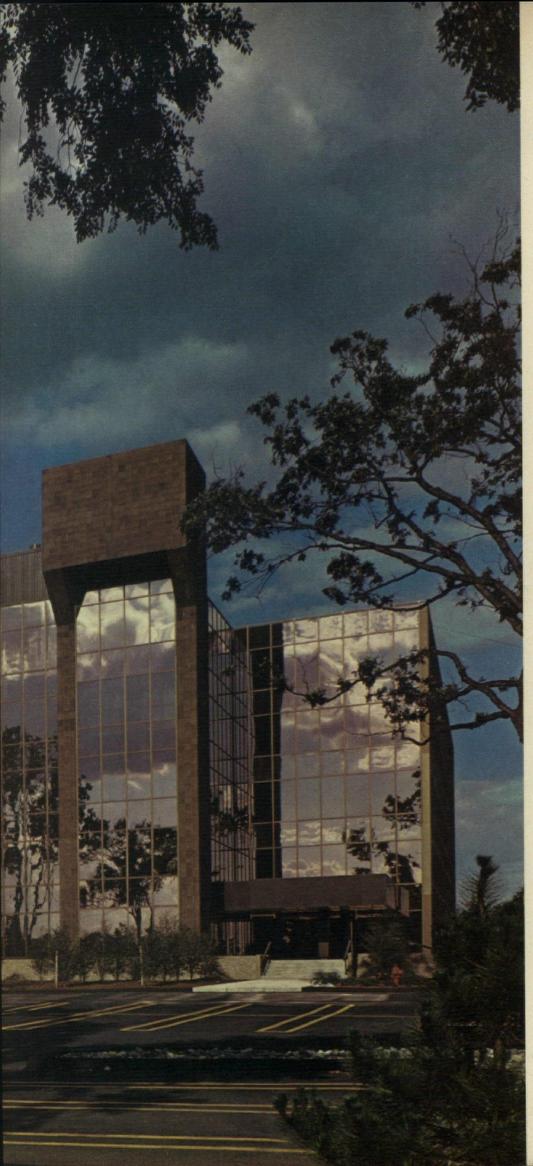
From a consideration of the social and political setting, Dr. Pehnt moves on to the movements' beliefs, writings, and most significant images. The literature is substantial, and since most of it will probably remain untranslated, we may be thankful for this analysis. The key images were certainly the crystal, the cave, and the tower. These concepts run through the work of Bruno Taut, Wassili Luckhardt, and

Hermann Finsterlin like leit-motifs through a Wagnerian opera, and indeed the concepts are cosmic and Wagnerian in dimension. Crystalline utopias crowning mountain summits, yawning caverns, and strangely shaped towers show up again and again. Mies van der Rohe's famous triangular skyscraper project of 1920 obviously fits into this last category, as does Erich Mendelsohn's astrophysical observatory for Albert Einstein. Walter Gropius, too, went through an expressionist phase, and the movement for a time had a strong influence on the Bauhaus. (American readers will be interested to learn that Adolf Meyer had the German edition of Frank Lloyd Wright's work lying open on his desk while he was designing the wooden Sommerfield house of 1920 in Berlin; his partner, Gropius, declared that "Timber is the building material of the present day.")

In retrospect, it appears that while this architecture was overwhelmingly fruitful in projects, more of it was actually built than we would at first suspect, particularly in North Germany and the Netherlands, and much of it was of high quality. This reviewer was especially impressed with the illustrations of Bernhard Hoetger's work around Bremen, and as Pehnt rightly remarks, without the Dutch, we would never know what expressionist architecture looks like on a large scale. It is somehow very revealing that most of the work of the Amsterdam school appears more livable than that of the Germans. This is a point on which the author himself is extremely sensitive. Concerning Gottfried Böhm's Old Peoples Home in Dusseldorf-Garath of 1966-68 he remarks that, "It is not an inspiring spectacle to see the inhabitants . . . walking through a Lilliputian landscape a la Gaudi"—and the accompanying illustrations are horrifyingly appropriate. Indeed, this may be the real difficulty with expressionist architecture. It was too often blandly unconscious of the real needs of the people whom it had to serve.

Notwithstanding this indictment, which is essentially that of Siegfried Giedion, the richness and power of the forms which were created are undeniable. That Giedion should have written *Space, Time and Architecture* without a single reference to the movement is almost incredible, because it was, after all, exceedingly appropriate to certain kinds of architectural problems. One could hardly imagine Rudolf Steiner's Goetheannum executed in any other manner. It is exactly right as the world headquarters of a cosmic and mystical religion.

With respect to the Goetheannum in Switzerland, as with Dr. Pehnt's knowing sections on Modernism in Catalonia and Futurism in Italy, one can only applaud the range of his scholarship. Moreover, it is always tempered with good sense, when he remarks that the amazing constructions of Gaudi and Pujol in Barcelona would have been impossible without the availability of Catalonian hand craftsmanship. The bibliography is both enormous and multilingual. The pictures, though often small, are printed with great clarity, and the difficult job of integrating them with the text is well accomplished. The only substantive point in the book on which I would offer an emendation is that Dr. Pehnt may not have sufficiently noted the influence of H.H. Richardson on Bruno Schmitz, one of the most productive Wilhelmian architects. But in summary, this is the kind of German scholarship which we were all taught to admire. It is marvelous to see it being done again.



A less expensive glass would have cost them more.

The owners of the Raleigh Office Building were developing a frankly speculative structure.

So they used highperformance glass — PPG <u>Solarban®</u> 575 <u>Twindow</u>® reflective insulating glass. And saved money.

Even though it was more expensive than plain tinted glass, <u>Solarban</u> 575 <u>Twindow</u> insulating glass permitted them significant savings on the cost of their HVAC equipment.

Not to mention the longterm savings they'll realize from lower operating costs.

Esthetically, they're getting the best looks money can buy. The reflective tones of Solarban 575 Twindow insulating glass give a building beauty that's noticeable yet not intrusive.

It gave the Raleigh Office Building a beauty that will bring them tenants.

And an economy that will

bring them smiles.

For your next building, consider <u>Solarban</u> 575 <u>Twindow</u> reflective insulating glass. A less expensive glass might cost you more.

For more information, write for our new book, "Glass and the Future." PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

Circle No. 394, on Reader Service Card

Architect: Seymour J. Levine Architects Inc. A.I.A. Developer: The Raleigh Land Company Project: The Raleigh Office Building **Progressive Architecture**

Products and literature

Rennie. Kazuhide Takahama's new chair designed in homage to Charles Rennie Mackintosh. In fabric, leather or suede over glossy polyester-lacquered wood. 24"x16"x44 high. Domus Locus, Inc.

Circle 101 on reader service card

Stacking chairs with optional fire-retardant shells of flameproof, thermoplastic meet government specifications for fire safety, states maker. Available in tangerine or walnut colors from Fixtures Manufacturing Corp.

Circle 102 on reader service card

Visual annunciator. A system for visual signaling by illuminated numbers or letters or a combination of both is available in a wide assortment of styles, engraved on sliding plastic lens. Cabinets are of walnut grain laminated steel. Each digit area is individually lighted and can be operated by matching central control luminated switch panel or by individual remote switches. Page Lite Div., Wrightco Corp. Circle 103 on reader service card

Circle 103 on reader service card

Tub/shower control can be installed back-to-back for apartment, condominium, or townhouse construction, has single push-pull operation, acrylic handle. Rockwell International.

Circle 104 on reader service card

Plastic hose that is wire reinforced is a vehicle for low pressure air movement but can also be used decoratively. Available in diameters ranging from % in. to 2½ in. in continuous lengths up to 250 ft. Dayco Corporation.

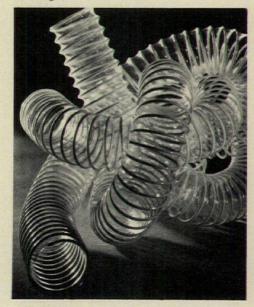
Circle 105 on reader service card



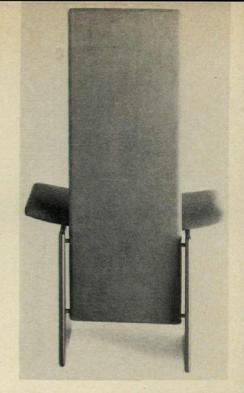
Rennie chair



Stacking chairs

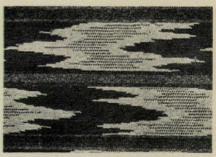


Plastic hose





Kelims



Kelims. Two narrow-width carpets have related jacquard motifs interspaced with symmetrical stripes of wool. Wilton weave has a 100 percent wool face, is 27-in. wide. Both patterns come in carnelian and garnet. Jack Lenor Larsen, Inc.

Circle 106 on reader service card

Housing Authority door. All-metal, heavy-duty screen or combination storm-screen door provides insulation and protection against vandalism and is intended specifically for Housing Authority type of applications. Variations in the basic design such as elimination of mail slot or deletion of expanded metal screen protector can be accommodated. Season-all Industries.

Circle 107 on reader service card

[continued on page 128]



FOR A NATURAL BEAUTY IN ANY CONCRETE CONSTRUCTION,

use Medusa White Portland Cement. Used naturally or color tinted, this extremely versatile true white cement meets the architect's creative needs — moldable to any shape, design or texture. And Medusa White is dependable and permanent. When specifying or using white cement, insist on Medusa quality — developed and improved by the originator of white portland cement since 1907.

Medusa would be pleased to work with you. For brochure containing specific examples of white cement construction, write Medusa Cement Company, P. O. Box 5668, Cleveland, Ohio 44101.



MEDUSA CEMENT COMPANY Division of Medusa Corporation

STEEL FRAMES FOR HOSPITALS: BECAUSE THERE'LL BE SOME CHANGES MADE!

A hospital is a very special kind of building. Through the years it must be able to adapt to many functional changes—to enlarge outpatient areas, to accommodate new equipment or new facilities, or modifications to the mechanical system. These are some of the reasons why steel is proving to be the most practical and economical structural framing system for hospitals.

Steel allows sufficient design flexibility to meet the constantly changing needs of medical facilities. Steel frames also mean competitive costs and minimum erection time.

A fine example of imaginative and economical structural steel design is the new 409-bed Presbyterian Hospital in Oklahoma City, Oklahoma. This hospital offers patient care to the general public and a full teaching pro-

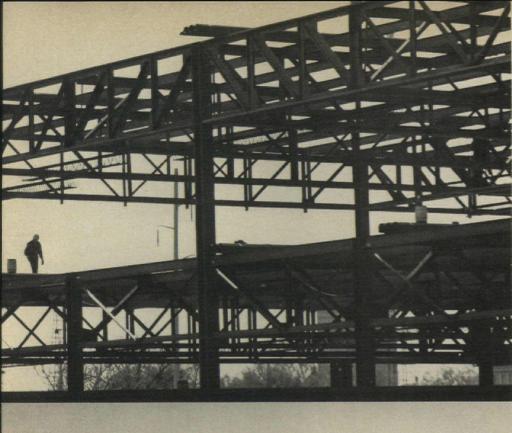
gram for medical students attending the adjacent University of Oklahoma campus.

The new facility consists of two distinct building units: an eight-story NURSING TOWER and a three-story Diagnostic/ Treatment Center, Because of the difference in function, the tower requires shorter spans and lower floor-to-floor heights than the necessarily longer spans and deeper trusses of the three-story Center. However, both of these units use a form of interstitial space design.

This technique provides a building framework that is essentially a series of structural sandwiches or full height service levels between patient floors. Within these intermediate spaces (service levels) certain equipment and virtually all mechanical, electrical and communica-

tion lines, and distribution and collection systems are housed and maintained. Thus achieving an absolute minimum of servicing interference with normal hospital functions.

The Center has 7'-0" deep interstitial spaces, while the NURSING TOWER has only 3'-6" deep spaces: The reason for the deep trusses (where men can work efficiently) is that the *functions* of the Diagnostic/Treatment Center require frequent alteration due to changing





Owner: The Presbyterian Hospital, Inc.

Architect/Engineer: (Including Mechanical and Electrical Engineering) Benham-Blair & Affiliates, Inc., Oklahoma City, Oklahoma.

Hospital Consultants: Block-McGibony+Associates, Inc., Silver Spring, Maryland.

General Contractor: Manhattan Construction Co., Muskogee, Oklahoma.

Structural Fabricator: W & W Steel Co., Oklahoma City, Oklahoma.

Steel Erector: Allied Steel Construction Co., Oklahoma City, Oklahoma.

modifications and advances in the technology of health care delivery. Conversely, the nursing function is relatively static requiring only limited access to the interstitial spaces—and that is why the height requirement of those levels is less.

The interstitial space design is a developing concept. Over the past 6 years, 35 hospitals and clinics are known to be using this system. They are finding it effective in reducing maintenance and

operating costs because of the inherent flexibility of interstitial space design functions can be modified or replaced at will. We'd like you to know more about structural steel framing for hospitals and other medical facilities and how it can accommodate long-range needs. For a copy of the Presbyterian

Hospital Structural Report (ADUSS 27-6220-01), or for any other information. contact a USS Construction Representative through your nearest U.S. Steel Sales Office, or write: United States Steel. Room C337, 600 Grant Street, Pittsburgh, Pa. 15230



United States Steel

Products continued from page 124

Havloft/Havstack consists of a 4-fthigh platform jump-tower and a resilient landing mat. The Hayloft, constructed of an aluminum platform with skid-resistant matting, supported by steel tube legs, is equipped with a staggered-rung aluminum net ladder or can be used alone. The 5-ft or 7-ft Haystack contains pieces of foam under a 1-in, foam blanket, enclosed in a woven-nylon net cover. One-ft-thick, the mat can be used separately for leaping and tumbling. Permanent and portable models for indoor or outdoor use can be purchased separately. PlayLearn Products.

Circle 108 on reader service card

Digitrac. An electronic drafting and measuring machine which mounts directly to any drawing table. Self-contained instrument is designed to directly derive data from or transfer data to drawings or plans and to translate this linear data into measurements displayed visually for the operator. The machine can internally, by use of the micro computer, use this same x and y data and translate it into a visual display of most plane geometric computations, including among others, area, perimeter, and angular measurements. Malco Industries, Inc.

Circle 109 on reader service card

Exterior signage. Graphics are permanently engraved in custom molded fiberglass form. Internally illuminated fiberglass signage available on a custom basis. Best Manufacturing Co. Circle 110 on reader service card

Modular storage. Seven basic cabinet units and five drawer sizes, interchangeable wardrobe and bulk storage units, communications center modules, overfiles, fixed shelves, rollout posting shelves, and writing or machine surface which can be integrated with file and drawer units form work stations or wall systems. All units are 18 in. deep and 30, 36, or 42 in. wide, have removable tops for stacking. Leg bases are available in mirror chrome. stainless steel, antique bronze, and smoked chrome. Units are available in a wide range of colors. GF Business Equipment, Inc.

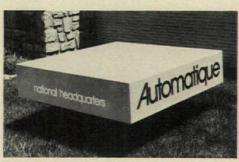
Circle 111 on reader service card



Hayloft/Haystack



Digitrac



Exterior signage



Modular storage

Mini-system CCTV. Consisting of a compact, lightweight camera and monitor, fully adjustable camera mounting bracket, interconnecting wiring and all necessary hardware, it was engineered for use in main lobby areas, side entrances, and service areas of both new and older multi-family dwellings. System may be used in conjunction with other security equipment intercom units allowing both visual and voice contact and with magnetic door latches permitting identification of callers visually and by voice and admitting them by remote control ADT.

Circle 112 on reader service card

Protective flooring. A hard rubber ½-in.-thick floor tile is designed with interlocking tabs to facilitate installation or changes in floor layouts. Comes in three shapes—beveled corner block, 12" x 12", center block, 24" x 24", and beveled edge block, 12" x 24". For use in ice skating rinks, golf locker rooms, weight rooms, football locker rooms, or any area where cleats or blades will damage floors; also protects shoes or skates. Ideal for noise control and water will not affect appearance. Pawling Rubber Corp. Circle 113 on reader service card

Dor-Surf. A heavy-duty laminated plastic for doors eliminates need for kickplates or pushplates, is available in solid colors, woodgrains, or patterns and light and heavy textured finishes. Wilson Art Co.

Circle 114 on reader service card [continued on page 130]







BINKLEY

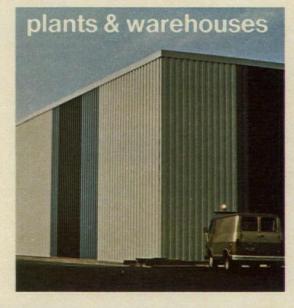
versatile metal wall systems

What types of buildings are built with Binkley Metal Wall Systems? Practically all types. What with 15 different patterns, a host of colorful finishes — and systems such as "No Girt", "Quick Wall", "Explosive", "Fired Rated", "Acoustical" and the various conventional ones — it's no wonder so many people prefer the beauty, functional efficiency and VERSATILITY by BINKLEY.

Engineering and Design services available.

Write for new Architectural Design-Detail Book.

THE BINKLEY COMPANY 331 THORNTON AVE. / ST. LOUIS, MO. 63119 / 314-968-4750





Products continued from page 128

Pedestal drinking fountain incorporates an enclosed hose bib connection. Assembly is entirely of cast bronze and has a polished door and outside frame. A special key opens the door and operates the valve. Haws Drinking Faucet Co.

Circle 115 on reader service card

Pivot filing system. A filing cabinet designed with a top and two front doors that open for access to prints allows for spreading the binders for filing and retrieval. Cabinet can hold 24 binders that accommodate sheets up to 60 in long. Up to 2400 sheets can be kept in one pivot system filing cabinet. Doors come equipped with lock and key. Plan Hold Corp.

Circle 116 on reader service card

Literature

Landscaping edging. Made from steel plate finished with a coat of paint, edging defines paths and perimeter strips, separates gravel, stone, cinders, or bark chips from planted areas, retains brick or block paving, defines and retains cinder and asphalt running tracks at educational facilities. It comes in three gauges and two edging depths. Pre-formed 3'-10" squares and 4'-10" circles for use around tree bases, texture beds, and plantings are available. Illustrated brochure. Joseph T. Ryerson & Son, Inc.

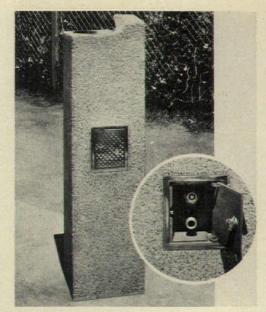
Circle 201 on reader service card

Lighting systems. Brochure presents a range of modular coffers and lighting elements that come in a wide choice of coffer size, slope angle, elements for each size and slope, and finishes to suit any interior space. Companion brochure illustrates modules that make possible many combinations in different planes. Space-frame grids help to define space or form an overall illuminated ceiling. Lightolier.

Circle 202 on reader service card

Ceramic tile. Eight-page color brochure shows 11 glazed colors and one that is unglazed in six shapes, illustrates trim shapes available, architectural specifications, and applications. American Olean Tile Co.

Circle 203 on reader service card



Pedestal drinking fountain



Pivot filing system

Contamination reduction system.

Controls the internally generated suspended submicron particles in conditioned room air—smoke, odor, and other contaminants, Cosa/Tron works with high efficiency filters so that up to 95 percent of the conditioned room air can be recirculated. Originally developed for use in hospital surgical suites and aerospace assembly plants, it is suited for use in convention centers, sports arenas, department stores, and other "people" places, according to maker. Literature is available. CRS Industries Inc.

Circle 204 on reader service card

Steel accessories for construction of drywall and plaster assemblies are described in catalog which includes load data, details on uses, sizes, styles, packaging, and weights. United States Gypsum Company.

Circle 205 on reader service card

Nurserver is a double-access cabinet which provides for the routine placement and removal of medication, clean supplies and linen from either the patient's room or the corridor. A fourpage brochure is available. Powers Regulator Company.

Circle 206 on reader service card

Waterproof system for parking garages, ramps, new construction, or rehab is described in a four-page brochure. A liquid applied PVC elastomeric becomes a waterproofing agent for resurfacing when used on a Portland cement concrete deck, together with a 65-in. asphalt roll roofing, states maker. Methods of application are pictured in brochure. Watson Bowman Associates, Inc.

Circle 207 on reader service card

Prefinished panels. 12-page color brochure contains complete product information on 4' x 8' panels, 16" x 8' planks, 16" sq ceiling blocks, tub recess kits, moldings, and caulking. Masonite Corp.

Circle 208 on reader service card

Aluminum pools. Brochure provides specifications, photos, and detail drawings about olympic, rooftop, therapy, and reflecting pools as well as pool liners and bulkheads. Overly Manufacturing Co.

Circle 209 on reader service card

Building materials

Major materials suppliers for buildings featured this month, as they were furnished to P/A by the architects

Broadway East (housing), Kingston, N.Y. (p. 62). Architects: Wells / Koetter / Dennis, Ithaca, N.Y. Precast concrete: Spancrete Northeast. Wood bar joists: Wood Fabricators. Block coating, Nu-Tex 555: Republic Powdered Metals. Vinyl asbestos tile: Kentille Floors, Inc. Built-up roof: Texas Refinery Corp. Hollow-core wood doors: Walled Lake Door Co. Rolling steel overhead doors: Cornell Iron Works. Steel entrance doors: Williamsburg Steel Products Co. Kitchen equipment: Lawndale Industries. Plumbing equipment: Gerber Plumbing Fixture Corp., Lawndale Industries.

Green residence, Northeastern Pennsylvania (p. 78). Architect: Paul Rudolph, New York City. Greenhouse: Lord & Burnham. Exposed aggregate panels: Desco. Linoleum: Armstrong Cork Co. Steel casement windows and door frames: Hope's Windows. Kitchen Equipment: Elkay Mfg. Co. Lighting fixtures: Wiremold Co.; Plumbing: Kohler Co.; Shower: Powers Regulator Co.

The new Weldwood Collection. Suddenly, anything else seems out of date.



Introducing The Weldwood Collection, from U.S. Plywood. Quite simply, the finest group of prefinished panels available anywhere in the world.

The Weldwood Collection. A paneling created exclusively for those once-in-a-lifetime opportunities when nothing less than the finest in quality is acceptable. Where superb hardwoods are crafted into face veneers worthy of the term "heirloom".

The Weldwood Collection features veneers of hickory. teak and walnut. Just these are given a formal planked effect, with slender eighth-inch-wide grooves spaced two or four inches on center. Some are medium and dark shaded. Others lighttoned for a contemporary

Three more fine woodswalnut, oak and cherry-are highlighted like fine furniture with normal random spacing and eighth-inch grooves. We also have retained the very best panels from our Charter® and Deluxe groups: Charter pecan and Gothic oak.

See this limited edition. now at your U.S. Plywood Branch Office.

> U.S. Plywood 777 Third Avenue, New York, N.Y. 10017

U.S. Plywood Division of Champion International



Only VPI Conductile gives you a choice of exclusive Micro-Squared™ tiles or a seam-welded system for a completely seamless floor. Both provide positive sterile floor capabilities. Either way, Conductile can be coved up the wall to eliminate dirt and bacteria at the critical floor/wall juncture.

A modern, subtle pattern accents four pleasing pastel colors and two new dark tones. Satisfies any decor or functional consideration.

hospital proved

Conductile has earned the confidence of Architects and Hospital Administrators alike through a quartercentury of reliable performance. Equally applicable for new construction or renovation. Easily installed over most subfloors or existing floor coverings. Minimal interruption of surgical schedules. No copper strip grid required. Guaranteed to meet NFPA code for 5 years when installed under factory

approved supervision.

Write for your new free catalog

pioneers in safety



CONDUCTILE

VINYL PLASTICS INC 3123 S. 9th ST., SHEBOYGAN, WIS. 53081 • PHONE 414-458-4664 **Just name** one place you don't want AL this in a wall!

- ☐ Costs less in-place than some walls that peel, warp, fade, rot or burn
- Never needs paint
- Wipes clean
- Meets O.S.H.A. and F.D.A. requirements as well as sanitary standards for hospitals
- Available in wide range of colors. soft textures, sizes
- □ Retains heat in winter/keeps its 'cool' in summer
- ☐ An "instok" line for shipment in one week
- Resists scratches, stains, common acids, caustics and graffiti
- Design versatility for power house or powder room
- ☐ Ideal for new building or re-building AND
- is available in a unique form that absorbs noise

You'll want to see all the forms and facts of the new structural glazed tile — the total wall system —

JUST WRITE! ceramics, inc.

CANTON, OHIO 44711



This is our new spring hinge.

Or is it this one?

Stanley's new spring hinge* is, in fact, the one on the left. But you must admit it looks as handsome as our Life Span hinge shown

on the right. Obviously, it blends in perfectly with other hinges on the job. It doesn't look bulky, out of place. It even has a concealed bearing.

Add to that, our spring hinge is UL listed, complies with codes, is

factory pre-set and permanently assembled. Because it fits a standard 4½" mortise, it's also ideal for simple replacements in existing Cut-away view of No. 2050.

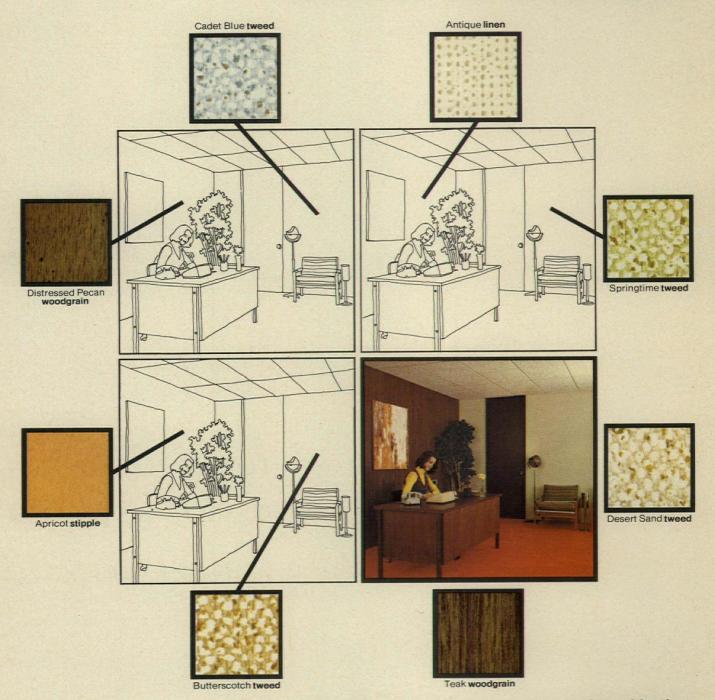
buildings.

For still more convincing facts, write Stanley Hardware, Division of The Stanley Works, New Britain, Conn. 06050. In Canada: The Stanley Works of Canada, Ltd.

helps you do things right

*Patent pending.

Elegant new way to mix or match walls with TEXTONE® tweed.



Now you can create dozens of textured combinations with TEXTONE Vinyl-faced Gypsum Panels.

Smart TEXTONE tweed patterns give you a whole new series of design options to help spark up your interiors...with texture so deep, you can even see it from across the room. They're made to mix or match with 21 solids or woodgrains for that "perfect" marriage of color and texture so popular for the 70's. These versatile panels are made of tough, wash-andwear vinyl prelaminated to fire-resistant SHEETROCK® Gypsum Panels. And they're designed to work perfectly with U.S.G. wall systems, including ULTRAWALL® and USG® Demountable Partitions. Matching moldings are available for that finishing touch. See your U.S.G. Representative for a copy of our TEXTONE brochure. Or write to us on your letterhead for sample swatches. 101 S. Wacker Dr., Chicago, Ill., 60606, Dept. PA-104.



Progressive Architecture

Notices

Appointments

Charles E. Worcester, AIA has been named an associate of Henneberg & Henneberg, Architects and City Planners, Cambridge, Mass.

Steven H. Rosenfeld, AIA has ioined Ronald S. Senseman, FAIA. Langley Park, Md., as an associate. William P. Trulio, Jr., AIA has been named an associate of the firm.

Michael C. Clarke has been appointed senior associate partner of Wallace, McHarg, Roberts & Todd, Philadelphia. George C. Toop, Jr., RA and John E. Clark, Jr., CPA are new associate partners.

Erroll R. Clark has been named architectural staff consultant for Ellis/NaevaertAssociates.Inc..Detroit.

Alan Eliot Goldberg has been made a partner in the department of architecture of Eliot Noyes & Associates, New Canaan, Conn.

S. Bartley Cannell, Jr. has been appointed vice chairman of the board of directors of Cannell & Chaffin, Inc., Los Angeles. Danford M. Baker was promoted to president. Samuel B. Cannell III was named president of Cannell & Chaffin Commercial Interiors. Inc. Bruce H. Archibald is the new executive vice president.

Charles D. Morrissey has been elected president of URS/Madigan-Praeger, Inc., New York City. Daniel W. Greenbaum was elected executive vice president.

Margo Grant has been named a vice president of Gensler & Associates, headquartered in San Francisco. Charles C. Kridler, Byron L. Linford, Steven L. Wintner and C. Val Thornton have been appointed senior associates. Lewis D. Goldhammer, D.H. Dunlop, Kathleen Parker and Roslyn Singer Brandt are new associates.

Saul Anton, AIA, Jeffrey E. Clark, James Harrison Lassiter, Angie Mills, James Moske, Michael Pinto, and Joseph Rosen have been elected associates of ISD Incorporated, Chicago.

Ernest P. Howard and Cyril Robert Shnier, AIA have been named executive architects at Charles Kober Associates, Los Angeles. Jack Dunning

Annett has joined the staff as director of architectural production.

Sumer O. Berk has been named associate of Danielian Moon Sampieri & Ilg, Newport Beach, Calif.

Martin J. Rowland was named director of business development for Lawrie & Green, Harrisburg, Pa.

Sherman K. Given has been named chief electrical engineer and head of the electrical department of Albert C. Martin & Associates, Los Angeles.

Melvin R. Witkin has been appointed vice president of marketing for Koebig & Koebig, Los Angeles.

Lester D. Young, AIA and Frederick C. Jackson, ASLA have been elected to the board of directors of

Chase Architectural Associates, North Syracuse, N.Y.

Dennis F. Walsh has been named director of architecture for Ellerbe. Bloomington, Minn.

William L. Demiene, AIA has joined Albert Kahn Associates, Inc., Architects and Engineers, Detroit, as senior architectural designer.

Joel E. Ettinger has been named vice president of David A. Mintz Inc., lighting consultant, New York City.

Richard J. Knopf has been appointed president of Dow Associates/CM Inc., Midland, Mich.

Leonard M. Markir has been named staff architect for The Herriott Com-[continued on page 136]



...he would have slept under a GACOFLEX roofing system from Gates

The General didn't have the opportunity to specify his accommodations, let alone the quality of roofing above him. Today, architects, contractors and specifiers have the opportunity to specify top performing products and systems from Gates Engineering. With Gates you get proven reliability, durability and quality materials plus in-field service. Whether it's sheet installed or liquid-applied elastomeric roofing, whether it's between slab or below grade membraning, whether it's flashing or walk deck systems, Gates will help you stay on top. The General would have slept better if he'd been drier. You'll sleep better, too, knowing your project has Gates materials. Send for your free literature, by George!

Send me the free literature as checked: UWM-28 Liquid Waterproofing Membrane System N-3S Sheet Waterproofing Membrane System CONTOURFLASH Flashing System GACOFLEX® Liquid Roofing System GACOFLEX® Sheet Roofing System GACODECK® Waterproofing Walkdeck System	
Name	
Address	
a	

Gates Engineering Company, Inc.

100 S. West St./Wilmington, DE 19899/P.O. Box 1711/(302)-656-9951

How to ship small packages



On DASH shipments Delta guarantees delivery on the flight or routing you specify between most Delta cities.

Packages accepted up to 50 lbs. with length plus width plus height not to exceed 90" total, with only one dimension exceeding 30."

Deliver to Delta's ticket counter or airport air freight terminal at least 30 minutes prior to scheduled departure time. Shipments may be picked up at either location 30 minutes after flight arrival.

Delta's exclusive "Dashboard" control procedure insures constant tracking of your shipment from delivery to pick-up.

DASH charges are nominal. Check Delta reservations for charges between specific points. Pay in cash, by company check, most generalpurpose credit cards, special credit arrangements or on government shipments by GBL. &DELTA

Rate examples (Tax included) Atlanta-Washington \$21.00 Boston-Miami\$26.25 Cincinnati-Louisville \$21.00 Cleveland-Phoenix \$26.25 Los Angeles-New Orleans . . . \$31.50 Dallas-Los Angeles \$26.25 San Francisco-Atlanta \$31.50 Philadelphia-Houston \$26.25 New York-Tampa \$26.25 For details, call Delta reservations.



Delta is ready when you are:

Notices continued from page 135

pany, Inc., Waltham, Mass.

John Matthew King, AIA and Kenneth R. Mullin, AIA have been made principals of Metz Train Olson & Youngren, Inc., Chicago. Carl J. Hunter, AIA and Robert J. Schill, AIA have been elected associates.

Arthur L. Fellner has been appointed director of the new construction management division of Joseph L. Muscarelle, Inc., Maywood, N.J.

Michael Greenberg, AIA has been named chief specifications writer of The Eggers Partnership, New York.

James W. O'Boyle has been appointed planner-in-charge of the new planning department of Smith, Miller & Associates, Inc., Kingston, Pa.

Stan Kaczmar has been named a partner of Ross & Yamane Architects. Cleveland, Ohio.

New addresses

Arthur Brown & Associates, Inc., 228 E. First St., Dayton, Ohio 45402.

Walker/Grad Inc. and The Kenneth Walker Design Group, 304 E. 45 St., New York City 10017.

Everett/Zeigel Architects, 1215 Spruce, Boulder, Colo. 80302

Peckham-Guyton, Inc., Hotel Office Level, Suite 26, Tampa International Airport, Tampa, Fla. 33607.

New firms

Jeffery Gross, Architect, 2023 Wilson St., Hollywood, Fla. 33020.

Robert S. Misere, Architect, 8200 Traphagen St. N.W., Massillon, Ohio

Brad Hokanson and Thomas Hoskens have formed Yeast, Ink... D-1103, 1630 S. Sixth St., Minneapolis, Minn. 55404.

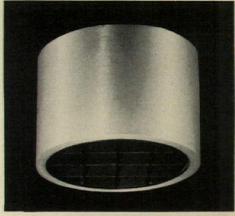
Gary K. Adams, AIA and Lynn Reynolds, AIA have formed Adams & Reynolds, Architects Planners, Inc., 2909 Lemmon Ave., Dallas, Tex.

Raymond Ziegler, FAIA, Peyton E. Kirven, AIA and E.J. Parrish, AIA have formed The Raymond Ziegler Partnership Architects, 525 S. Virgil Ave., Los Angeles 90020.

Nelson W. Aldrich & Associates, Architects, 100 Boylston St., Boston, Mass. 02167.

Robert L. Nichol, NSID and Jack L. Hillman have formed Design Group, 6560 Singletree Dr., Columbus, Ohio.

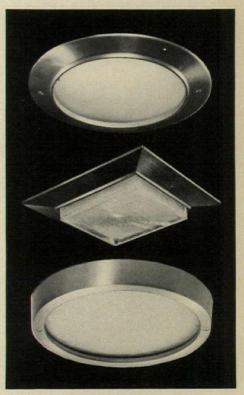
Conserving energy with Quality.



mcPhilben® wet location HID downlights



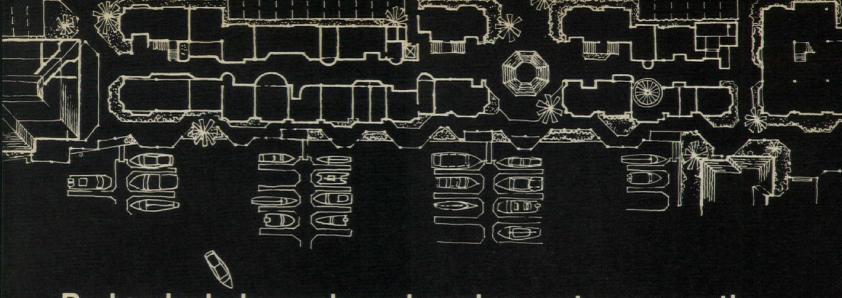
for maximum lighting performance



We didn't invent quality, we just never forgot it. ... since 1914.



Circle No. 374, on Reader Service Card



Red cedar helps make a shopping center seaworthy.



At Kaiser-Aetna's \$5 million dollar Waterfront Village near Diamond Head, two decks of shops and offices have been infused with the warmth and texture of red cedar. (2,600 squares of red cedar handsplit shakes.)

The architect's unique nautical themes are stated in crow's nests, rigging, lifeboats and a smooth, informal transition from marina to shore. What other material could offer red cedar's range of design applications? From the "thatched" mansards to intimate interior mall spaces,

red cedar has combined distinction with quiet, island informality.

And red cedar shakes will weather anything the tropical skies can bring. From heat waves to hurricanes. Red cedar's unique insulative properties make it an efficient as well as beautiful building covering.

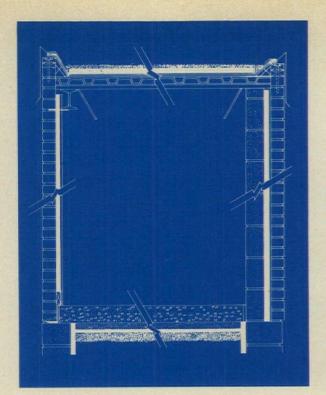
Next time you're launching a project, consider the building material with warmth, durability and almost infinite design possibilities: Red Cedar Certi-Split Shakes and Certigrade Shingles. For more details, write Red Cedar Shingle & Handsplit Shake Bureau, 5510 White Building, Seattle, Washington 98101. (In Canada: 1055 West Hastings St., Vancouver 1, B.C.)



These labels on bundles of red cedar shingles or handsplit shakes are your guarantee of Bureau-graded quality. Insist on them.

Red Cedar Shingle & Handsplit Shake Bureau

More effective building systems from Amspec



STYROFOAM insulation provides lifetime

energy savings for a wide variety of installations.

STYROFOAM* brand plastic foam insulation has a twenty-year record of proven performance throughout the country. It is accepted by all major and most local codes; just as importantly, it is accepted by builders and contractors as the best, most practical and easiest way to perform insulating jobs that must last the life of a building. And with energy becoming more costly and less available, the value and importance of STYROFOAM brand insulation will continually increase for owners of all types of buildings.

STYROFOAM is a superior insulation: It has a low and constant "K" factor; its high compressive strength makes it an excellent base for interior and exterior finishes: STYROFOAM resists sagging, compression and moisture that can lower the thermal resistance of most other insulations. STYROFOAM is its own vapor barrier, eliminating the need for a separate vapor barrier.

Although all STYROFOAM brand plastic foam insulation products sold by Amspec contain an effective fire retardant compound, STYROFOAM is . combustible. But installed properly with one of a variety of finishes, it does not present an undue safety or fire hazard.

Here are four practical, energy-saving design approaches for STYROFOAM brand insulation:

1. DRYWALL/STYROFOAM LAMINATE-This is a foolproof, proven way to create an insulated masonry wall with interior finish. STYROFOAM brand insulation is adhered directly to the brick or block with STYROFOAM brand mastic; gypsum drywall is then applied directly to the STYROFOAM with the same mastic, nailed only at the top and bottom of the wall into previously applied wood ledgers. Taping and spackling finish the wall for paint, wallpaper, or decorative paneling. This laminate of STYROFOAM and gypsum drywall eliminates insulation breaks; does away with furring strips, studs, batts and separate vapor barriers; minimizes nailing and resultant nail pops; and provides a continuous, solid, insulated wall system resistant to moisture penetration. The drywall/STYROFOAM laminate system installs quickly and easily, and is an economical and efficient way to build a fully insulated wall.

- 2. CAVITY WALL INSULATION-STYROFOAM brand insulation is the ideal material for cavity wall insulation. Because it is rigid, STYROFOAM goes into the cavity easily, with no worry of future settling. Any water which may penetrate the outer wythe will not affect STYROFOAM, because STYROFOAM is impermeable. And one inch of STYROFOAM in the cavity more than doubles the insulation value of the uninsulated wall.
- 3. PERIMETER INSULATION-STYROFOAM brand insulation performs efficiently under the worst possible conditions for insulation. Moisture, ground water under pressure, and high compressive loads of backfill and slabs present no problems for STYROFOAM. With its high compressive strength and excellent water resistant properties, STYROFOAM will provide comfort and heating efficiency for the life of the building.

4. INSULATION/SHEATHING IN FRAME CON-STRUCTION-STYROFOAM TG brand plastic foam insulation is finding increasing acceptance as a combination sheathing/insulation for frame construction with wood or metal studs. STYRO-FOAM TG is installed on the outside of the frame. insulating all of the opaque wall area including studs, sills, jambs and headers. The tongue-andgroove feature assures positive joint seal with no gaps; joints may fall on or between the studs, eliminating waste. STYROFOAM TG by itself replaces conventional sheathing, mineral wool batts, and vapor barriers.

Effective insulation plays an important role in the energy crisis. You can't afford to give a building owner anything less than an insulation that's economically installed, will perform for the life of the building, and will greatly reduce heating and cooling costs . . . an insulation such as STYROFOAM brand plastic foam insulation.

If you want to know more about STYROFOAM insulation for any of these applications, just fill out the coupon and mail it to us. We'll see that you get all the information you need.

Amspec Inc. is the exclusive national marketing organization for construction materials manufactured by The Dow Chemical Company. Amspec has its own sales force and technical service capabilities, and the products and systems Amspec markets have been proven by extensive testing and years of practical application throughout the United States.



STYROFOAM brand insulation applied to the inside of a masonry wall with STYROFOAM brand mastic No. 11. Drywall will be applied directly to the STYROFOAM with the same mastic. After taping and spackling, decorative paneling can be applied with the same technique



Cavity wall insulation with STYROFOAM. Because it is rigid board, STYROFOAM is easily installed in the cavity



STYROFOAM insulation placed along the inner surface of a foundation in a perimeter application. Backfill pressure will not affect STYROFOAM.



STYROFOAM TG insulation applied to the outside of a stud-frame commercial building. Installed in the same manner as conventional sheathing, STYROFOAM TG insulates as well as conventional sheathing and fibrous batts combined.

I want to know more about STYROFOAM brand insulation in sidewall. cavity wall, and perimeter applications

NAME.

COMPANY

ADDRESS

ZIP CITY_ STATE. PA-10/74

I'd also like information on the Amspec products and systems checked below:

- The IRMA (Insulated Roof Membrane Assembly) System.

 SARABOND* brand mortar additive
- for pre-fabricated and high strength brick walls.



1880 Mackenzie Drive Columbus, Ohio 43220

Exclusive national marketing organization for construction products manufactured by The Dow Chemical Company.

For more information on any building systems available from Amspec, just fill out and mail the coupon, or call the Amspec sales office nearest you.

Amspec sales offices: Atlanta, 404 / 261-7496 • Boston, 617 / 655-1105 • Chicago, 312 / 858-5150 • Houston, 713 / 622-8271 • New York, 212 / 594-6599 or 201 / 227-1002 • Philadelphia, 215 / 923-6248 or 609 / 234-6400 • St. Louis, 314 / 434-5100 • San Francisco, 415 / 854-2010 or 800 / 982-5818 (So. Cal.) • Columbus, 614 / 457-2580, Ext. 50.

^{*}Trademarks of The Dow Chemical Company

ovember ovember ovem

Interiors

will be covered from an unaccustomed viewpoint in P/A's November issue. A whole issue will concentrate on new ways to analyze and organize interior space. Illustrations will focus on people, not objects - people using space and altering it to suit their real needs.

First-hand reports by some key investigators may upset a few preconceptions about interior design:

The Research and Design Institute demonstrates in their design of a progressive patient care unit at South County Hospital, Rhode Island, how design can support

BOSTI, the Buffalo Organization for Social and Technological Innovation, offers insights into the design and use of office space - observations drawn from a study sponsored by the Hauserman Company.

Theodore Liebman, chief architect of the New York State Urban Development Corp., will discuss evolution of UDC's criteria for housing with superior response to resident needs.

The London office of BSD presents findings on responsive housing, pointing toward design that will resist the threat of obsolescence.

Robert Propst, noted problem-solver of the Herman Miller Research Corp., investigates the "Knowledge Worker," his procedures and his artifacts.

Keiser Associates explain their methodology for selection of an office landscape system from the many currently on the market.

Technics for November will review the characteristics of carpet and considerations behind its choice.

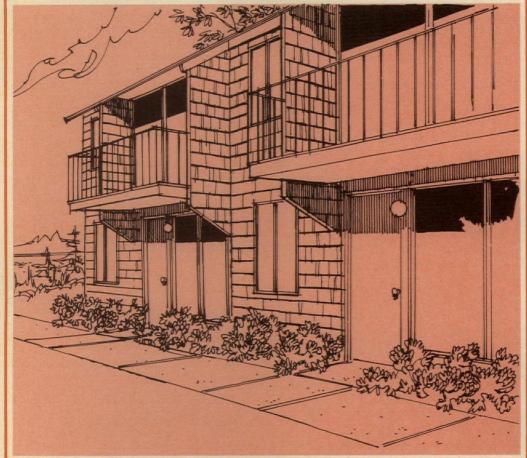
and in December

P/A will offer a variety of subjects: two buildings – a monastic assembly hall and a college music school by Mitchell/Giurgola; a conference center in Arabia under canopies by Frei Otto; a citation-winning office building by Don Hisaka; a chic shop by Stanley Tigerman; a study for the "visual detoxification" of an old New England city.

December **Technics** will include reviews of architectural sealants and high-performance metal coatings.

then in January

the 22nd P/A Awards Issue will establish a new perspective for architecture in 1975 and beyond.

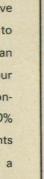






Use Shakertown shakes and shingles in panels.

Bring out all the beauty you design into your projects...from sidewalls to mansards, roofs to chimney enclosures. Shakertown 8' panels of cedar shakes and shingles give you the versatility and aesthetic appeal to achieve the exact effect you want. They can enhance the dimensional quality of your design, accent architectural details, harmonize with other materials and save up to 70% of application time on homes, apartments and commercial buildings. Specify from a range of textured shakes and shingles in Shakertown panels.



New architectural manual now available

Exciting design ideas with Shakertown panels and individual shakes and shingles are fully illustrated in this detailed, 3-ring binder. Features include complete technical data and specification sheets. Write for your free manual today!

Shakertown



Shakertown Corporation P.O. Box 400 Winlock, Washington 98596

Bestwood Industries, Ltd. P.O. Box 2042 Vancouver, B.C.



Job mart

Situations open

Architect: (Medical Projects) If you are a registered architect and have at least 5 years of medical facilities design and planning experience, we have an excellent opportunity for you as a project architect. You would be responsible for the over-all direction and completion of a large variety of medical projects, and will work with a seasoned staff of professionals. This position is a result of increased work load and offers exceptional opportunity for professional advancement. Outstanding program of benefits includes profit sharing, bonus, regular salary reviews, health, life, disability and accident insurances, and a 4-day work week. If you have the medical experience and the desire to improve your position, please send a resumé in confidence to: Cliff Schroeder, Ellerbe, Inc., Architects/Engineers/Planners, One Appletree Square, Minneapolis, Minn. 55420, Tel: (612) 853-2025, An Equal Opportunity Employer.

Architect: Progressive, growth oriented architectural and engineering firm in Southwest Virginia seeking a registered architect with a minimum of 10 years experience to manage design and production work

on a team approach. Fringe benefits include stock option, cost of living increments, fullline life and health insurance, and paid vacations. Located in the scenic mountains with fresh air, hunting, fishing, hiking, camping, etc. readily accessible. Near a major growth area. Send reply to Thompson & Litton, Inc., 113 S. Chestnut St., Marion, Virginia, 24354.

Architects: Detroit based A/E/P firm has positions for architectural designers with minimum 5 years experience. Must be capable of leading design team for major projects, of developing building programs, of conducting client meetings, of following projects through construction documents and construction. Write in confidence to: James M. Leefe, AIA, Giffels Associates, Inc., 243 W. Congress, Detroit, MI. 48226 or Call Collect (313) 961-2084, An Equal Opportunity Employer, M/F.

Assistant Vice President and Director:

Physical planning, construction, and operations-\$29,000-\$41,000. Responsible for development and administration of University policies and procedures for planning, design, budgeting, and construction of physical improvements and for operational standards for maintenance and operations of the physical plant; supervising a planning, architectural, and engineering staff in the performance of these functions for the office of the President. B.A. in Architecture or Engineering; 10 years experience with management responsibilities for supervising large scale physical planning functions of a

higher institution. Send resumes to: Dorita Crosby, University of California, Berkeley, Personnel Department, 2539 Channing Way, Berkeley, California 94720.

Design Engineer: Our company, a young, well-established leader in the institutional and contract furniture field, has a personal and professional growth opportunity for an experienced design engineer. The individual we seek will be responsible for all facets of product design and engineering. He will further coordinate new product development with Manufacturing, Marketing, and Sales. A degree, preferable technical, plus three to five years of successful design and engineering experience is preferred. Location is in a pleasant midwestern community. We offer compensation commensurate with experience, including excellent fringes and relocation assistance. Reply in confidence with complete resume. Reply to Box #1361-745, Progressive Architecture.

Faculty Position: Full time Iowa State University faculty position available now for a person with a professional degree in architecture, professionally registered, with five years experience in architecture, to develop, plan and administer a continuing educational program in architecture and related disciplines. In addition, the person appointed will cooperate with the Cooperative Extension Service, Engineering Extension, university faculty and professional organizations to develop and implement a related public education program. Position [continued on page 144]

Progressive Architecture

We are looking for an

Architect

with energy and innovative ability to join a team using the Oxford Method of building. The Oxford Method is a generalised Hospital building system for an ongoing design/construction programme. The work includes advanced component development and implementation of a comprehensive computer aided design system.

The starting salary is from 3099 to 3855 pounds (\$7,315 to \$9,097) depending on experience and qualifications. UK registration is a surmountable barrier. Travel to the UK is not re-imbursable. For more information write to Mr. J. Gibbons, Oxford Regional Health Authority, Old Road, Headington, Oxford, England.

Signs + Other Urban Graphics = Graphic Communication

Architect/planners assert a minimum philosophy Sign manufacturers assert a maximum philosophy Legislators over react
Graphic and industrial designers remain aloof

But, what is the real intent of urban graphics? Serving either profit or non-profit functions, they are a vital dimension to the life of the urban complex.

Graphic Communication: Urban Complex (1974) is a book, by environmental graphic designer Rod Malay, supported by research grants from the Canadian Council on Urban and Regional Research and the Office of Design of the Federal Government.

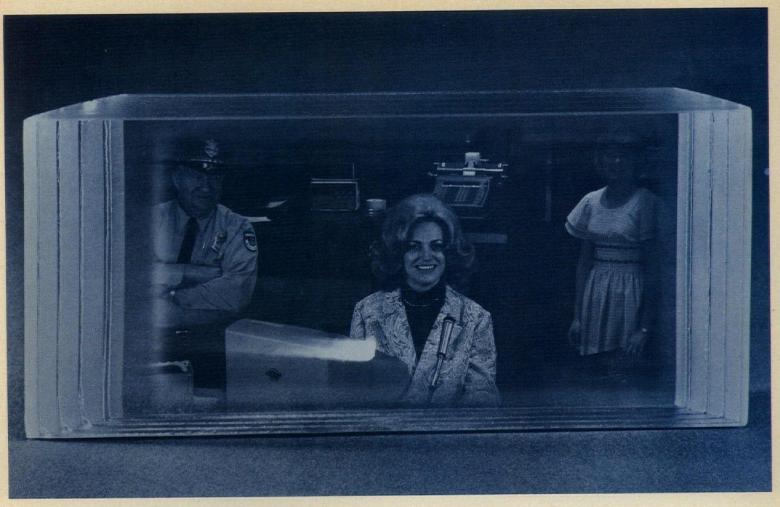
The book analyses the **intent** of exterior urban graphics, through their essential **functions**: direction, identification, information, image, entertainment and decoration.

Included in analysis:

- Traffic signs as a micro system
 Private signs as a medium of self-expression
- Billboards as a desirable graphic form
 Why signs shatter environmental harmony
 Why signs are not an "invasion of privacy"
- Neon cores as alternative environments
 Icon and symbol renaissance

The book, 120 pages with black-white and color illustrations, may be obtained for \$10.95 (check or money order) from:

Rod A. Malay, P.O. Box 235, Station G Mtl, Montreal, P. Quebec, H2W 2M9, Canada



Safelite bullet-resistant glass now gives you protection and beauty, too.

Now you can provide the security they need and the beauty you want. It's bullet resistant, UL-approved. And it comes with mitered edges for clean, clear vision. Or, sawed edges for butt glazing and a new, fresh outlook.

Safelite's riot and sound control glass utilizes a wide range of acceptable architectural colors, each at a specific light transmission, a constant U value and shading co-efficient.

Solve your security and comfort problems now. Specify Safelite for on-time deliveries, as promised, for your next project.

Write us for complete catalog or call for information.



P.O. Box 1879 / 1-800-835-2092 Wichita, Kansas 67201

Job mart continued from page 142

may also lead to some research and teaching. Salary and academic rank commensurate with qualifications. Send resume to M. D. Gehner, Professor and Head, Department of Architecture, 214 Engineering Annex, Iowa State University, Ames, Iowa 50010. An affirmative action, equal opportunity employer.

Production Director: For six man, design oriented, firm capable of taking preliminary designs and expediting production of contract drawings. Must have ability to lead, organize and train less experienced personnel. Experience and past performance essential, registration desirable but not necessary. Send resume to: Olsavsky & Ingledue, Architects, AIA, 312 North Main Street, Niles, Ohio 44446.

Restoration Architect: To advise western communities on criteria and guidelines for community restoration/rehabilitation programs and compatible modern design within historic districts. Travel 1/4 time. Two year project. Prior preservation/restoration experience and B. Architecture required, M.A. preferred. Send resume and salary requirements to National Trust for Historic Preservation, 802 Montgomery, San Francisco, CA 94133.

Volunteer Peace Corps/VISTA: Architects/ planners needed for Peace Corps projects in Latin America, Africa, Asia; VISTA projects

in 25 U.S. cities. Housing projects, design of schools, hospitals, community centers, rehab, university teaching, regional planning, etc. Expenses paid, travel, medical, vacation and living. Information: Lynn Rotenberg, ACTION, ORC Box A-2, Washington, D.C. 20525.

Situations wanted

Architect: 31, registered in Ohio. Interested in design of high quality houses. 14 years varied architectural experience. Member CSI. Reply to Box #1361-746, Progressive Architecture.

Architect: 36, M. Arch. Registered and practicing in the District of Columbia. 12 years diversified experience in U.S. and in Middle East (5 years own office there). Bilingual. Would like to associate with firm doing-or interested in doing-work in the Middle East. Reply to Box #1361-747, Progressive Architecture.

Architect: Registered in New York and Massachusetts with wide experience in own practice and recently returned from United Nations technical assistance contract as chief architect in African country. Interested in short-term overseas assignments. Experienced in low-cost housing projects. Reply to Box #1361-748, Progressive Architecture.

Architect: M. Arch., 30, registered Mass. 5 years experience: comprehensive medical facilities experience and diverse educational, residential, commercial experience as project architect and/or designer. Seeks challenging responsible position in progressive, environmentally oriented firm. Will relocate. Resume on request. Reply to Box #1361-749, Progressive Architecture.

Architect: Texas registration, 39, 12 years experience. Experience has been commercial, industrial, educational and institutional. Recent specifications concentration. Desire position as project architect, manager, or other position to operate fully as architect. Will relocate, prefer large coastal city. Resume available. Reply to Box #1361-750, Progressive Architecture.

Architect: Registered, AIA, NCARB. 23 years diversified experience in all phases of practice with internationally prominent firms. Including 8 years of foreign and tropical experience. Seeks responsible position leading to associateship or partnership in design oriented firm. Interested in overseas projects and assignments. Reply to Box #1361-751, Progressive Architecture.

Architect/Administrator: M. Arch. (Harvard), registered New York, Mass, NCARB-broad experience, from designer in private office to director of billion-dollar building program. Wishes immediate new challenge in Boston or New York areas-no illusions about salary if opportunity is right. Reply to Box #1361-752, Progressive Architecture.

Architect/Designer: Degreed, AIA, licensed 3 states, NCARB, 9 years private practice, creative instead of administrative. Want to [continued on page 146]

PLANNING

The Los Alamos Scientific Laboratory is establishing a Facilities Planning Office to meet future expansion resulting from accelerated research programs.

NEEDED-

Bachelors or Masters in Architecture, Architectural. Engineering, or Planning, with experience, to develop and apply programming methodology for construction project proposals;

Bachelors or Masters in Planning, with experience, to develop and maintain a long range master plan for facilities development.

Operated by the University of California, the Laboratory is located high in the mountains of northern New Mexico. The benefits and environment are outstanding.



Send complete resume to:

R. Lynn Wilson, Recruiting Supervisor Division 75-R Los Alamos Scientific Laboratory P. O. Box 1663 Los Alamos, New Mexico 87544

AN EQUAL OPPORTUNITY EMPLOYER U.S. CITIZENSHIP REQUIRED

ARCHITECTS

Openings for sales-oriented architects preferably with degree registration, who have past experience in selling building design and construction services. Willingness to travel in Midwest a necessity. Also openings for trainees for these sales positions.

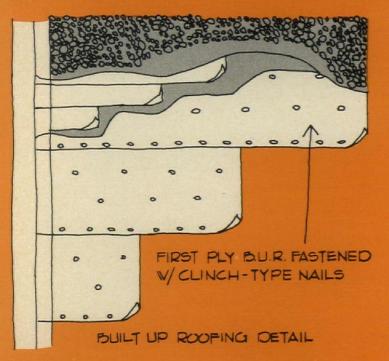
Top salary, challenging assignments. Please submit a brief resume of qualifications.

> An Equal Opportunity Employer PROGRESSIVE ARCHITECTURE Box # 1361-733 600 Summer St. Stamford, Conn. 06904

LIGHTWEIGHT SOLUTIONS TO WEIGHTY PROBLEMS

NO. 3-A IN A SERIES

Insulation for tomorrow-today.

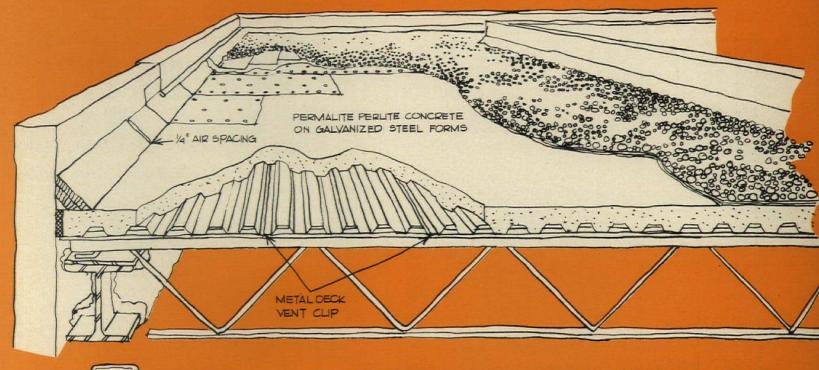


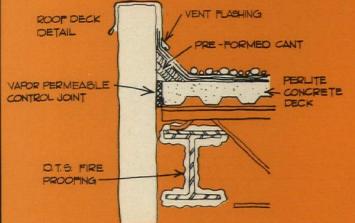
Permalite® perlite insulating concrete roof decks have stood the test of time for over 25 years. One of the first major installations was the perlite concrete roof deck of the United Nations Assembly Building erected in 1949.

Today, architects specify Permalite perlite concrete decks for fire and wind resistance, for controlled drainage, excellent insulation and permanence. There is nothing in perliteportland cement concrete to rot or decay.

New roofing systems permit quicker curing of perlite concrete. New equipment means faster, more economical placement. Franchised manufacturers assure ready availability in most major cities.

GREFCO has a data sheet for you. It details fast-drying, wind-resistant construction of roof decks of Permalite perlite concrete. It's yours for the asking.





PERMALITE PERLITE **Aggregate**

THINK OF IT AS AN ENERGY SAVER



GREFCO, Inc./ Building Products Division 3450 Wilshire Blvd., Los Angeles, CA. 90010



A subsidiary of General Refractories Company

Circle No. 375, on Reader Service Card

leave oversaturated Northeast. Currently design mgr., A/E division of international engineer/constructor company. Seeking responsible design position, with ultimate goal Director of Design. At this point in my career, to be happy and thus most productive I should dwell solely on my best talent, design, though possibly foregoing a management salary. My 11 years of P & L responsibility will keep my efforts in tune with a successful A/E firm. Prefer client contact and involvement with selling of major designs. Resume on request. Reply to Box #1361-753, Progressive Architecture.

Site Planner/Diversified Designer: 5 years experience-degree in Landscape Architecture and Horticulture. Works well with clients, has done whole projects in housing, parks, also involvement in biological sewage treatment plant design. Seeks position presently with firm offering full range of environmental design services. Reply to Box #1361-754, Progressive Architecture.

Architectural services

Affiliation: Interested in joint venture/ association with A/E firms having projects in California and Arizona. Firm resume on request. Reply to Box #1361-755, Progressive Architecture.

Career Builders, Inc., Agency: Ruth Hirsch has specialized in Architectural placement

for fifteen years, serving architects, corporations, planners, developers and interior firms. She reviews portfolios, professionally interviews designers, project architects, managers and juniors for available openings. Executive searches and personnel consultations are available to employers. Career Builders, Inc. (Agency), 501 Madison Ave., N.Y., N.Y. 10022. (212) 752-7640.

Edwards & Shepard Agency: We are a national design and architectural placement service in business to serve these professions. Bill Shepard, a Pratt graduate, is equipped to effectively evaluate the experience and qualifications of Architectural and Interior Designers, Urban Planners, Systems and Space Planners, Construction Specialists, Exhibit, Lighting and Environmental Designers. M. Shepard conducts confidential interviews, by appointment, for recent graduates to administrators. He has access to the best prospects and can be invaluable timewise in a job search. Phone (212) 725-1280 or write: 1170 Broadway, New York, N.Y. 10001.

Helen Hutchins Personnel Agency: Specialist Architecture, Industrial Design, Interior Design and Home Furnishings. Interviews by appointment. 767 Lexington Avenue, New York, N.Y. 10021. Te8-3070. Founded 1954.

RitaSue Siegel Agency: Ms. Woody Gibson introduces people with superior skills in architecture, interior, landscape, urban design, planning, programming and management to our consultant and corporate clients seeking genuine problem solvers throughout the U.S. A. RitaSue Siegel identifies and

evaluates industrial and graphic designers. You are invited to submit resumes in confidence. Our clients pay all fees. 60 W. 55th St., N. Y. C. 10019, (212) 586-4750.

Vitruvious Designs Corp.: Will handle your job's collaterals-artistic renderings, engineering and architectural models, commercial and public interiors, expressive exterior and interior lighting, in a manner wholly subordinated to your design concept; regular drafting services available. Box 1316, Radio City Station, New York, N. Y. 10019, 212-586-7382.

Notice

Please address all correspondence to box numbered advertisements as follows:

Progressive Architecture c/o Box. 600 Summer Street Stamford, Connecticut 06904

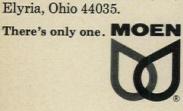
Advertising Rates

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.

HOW CAN YOU SPECIFY T FINEST PLUMBING FITTINGS **IF YOU DON'T HAVE OUR** CATALOGS?

Good looks, quality performance, single handle convenience. That's what Moen plumbing fittings offer you. That's what users and owners appreciate. But you can't specify Moen if you don't have our catalogs. So get in touch with the Moen man near you. You'll find us in SWEET'S or your Mechanical Products Catalog. Or write directly to us: Moen, a Division of Stanadyne,

There's only one. MOEN





New "Rite-On, Wipe-Off **Writing System For Schools**

System combines AllianceWall porcelain wall panels and dry marker pens to create a COMPLETELY DUST-LESS writing system. Writing dries instantly and can be erased with a dry cloth or eraser. Porcelain panels come with a special finish that enhances both writing and erasing. Every inch of every wall becomes a pro-



ductive work surface. Laminated to low-cost gypsum board, the panels are fire-proof, inexpensive to install and maintenance free. Panel also can be used as a magnetic bulletin board and projection screen. Boards guaranteed 50 YEARS and can be used with any partition system.

For complete details write

Other plants Okmulgee, Oklahoma; Genk, Belgium and Seden, Denmark.

Box 247, Alliance, Ohio 44601

*Rite-On, Wipe-Off dry marker pens are now available through local AllianceWall distributors.

ALUMINIZED VS. GALVANIZED FENCING. THE DIFFERENCE SHOWED UP IN 192 HOURS.

We say Page® aluminized chain link fence fabric will last 3 to 5 times longer than the best of galvanized. Here's proof:

In an accelerated salt spray test conducted by the Pittsburgh Testing Laboratory, galvanized fabric began to rust in 192 hours. With Page aluminized fabric, initial rust set in after 816 hours.

Type of Fabric	Wgt. oz. per sq. ft.	Hours to Initial Rust	Hours to
Galvanized			
after weaving	1.45	192	360
"	1.86	192	360
"	2.06	192	312
"	3.82	192	336
Acco Aluminized	0.48	1,920	7,032
"	0.48	1,152	5,736
"	0.52	1,968	10,488
"	0.52	816	10,986

But longer life is only one benefit of Page aluminized fabric. It's easier to erect. It requires virtually no maintenance. It has the strength of steel. And the aluminized coating actually "heals" itself when damaged.

FREE SPEC KIT. Send for it and save design time. Packed with data, drawings, the complete salt spray test report and work sheets. Write Page Fence Division of Acco, First and River Sts., Monessen, Pa. 15062.



Page Fence Division

Circle No. 320, on Reader Service Card

Advertisers

Advertising Sales Offices	Acco Page Fence Division	Lundia Myers Industries, Inc
	Div. of Alcan Aluminum Corp 2	Malay, Rod, Enterprises142
Stamford, Connecticut 06904:	Alliancewall Corp146	McPhilben Lighting136
600 Summer Street 203-348-7531	Allied Chemical119	Medusa Cement Co125
200-040-7-007	Aluminum Co. of America117	Minnesota Mining & Mfg. Co.,
Paul B. Beatty	American Cyanamid Fibers—Wellco 20	Commercial Tape Div
Director of Sales	American Gas Association 44	Moen, Div. of Stanadyne146
	Amspec, Inc	Monarch Carpet Mills11-13
William F. Bondlow, Jr.	Andersen Corp18, 19, 50R1-50R4	
National Accounts Manager	Armstrong Cork Co IFC, 1	Nucor Corp., Vulcraft Div
Donald S. Stanley,	ASG Industries, Inc	
District Manager		Otis Elevator Co 28
District Mariager	Bally Case & Cooler Inc 43	Owens-Corning Fiberglas Corp25, 30, 31
Philadelphia, Pennsylvania 19107:	Binkley Co	ewend coming ribergias corpzo, co, cr
12 So. 12th Street 215-922-0346	Bilikiey Co	Page Force Div of Acce 147
John A. Teefy, District Manager	O	Page Fence Div. of Acco
Committee Tooly, District manager	Carpenter, L. E. & Co., Inc	PPG Industries, Inc
Pittsburgh, Pennsylvania 15222:	Celotex Corp114, 115	Progressive Architecture98, 140, 150
Three Gateway Center—Room 1827	Clearprint Paper Co 45	
412-281-9421	Cold Spring Granite Co	R.C.A. Rubber Co
Robert S. McGinnis, District Manager	Collins & Aikman 34	Red Cedar Shingle & Handsplit
	Corbin, P. & F.—Emhart Corp 17	Shake Bureau137
Chicago, Illinois 60603		Revere Copper and Brass, Inc 49
10 So. LaSalle Street 312-726-1282	Delta Air Lines, Inc	Rixson-Firemark, Inc111
William F. Bondlow, Jr.	Dover Corp., Elevator Div	Rolscreen Co
Daniel G. Prisble, District Manager	Dow Badische Co	Russwin Div.—Emhart Corp
		ridooniii Dir. Ziimar Gorp
Cleveland, Ohio 44116:	duPont, E.I. de Nemours & Co 58	Safelite Industries143
21010 Center Ridge Rd. 216-331-7979		
John F. Kelly, District Manager	Flexco, Div. of Textile Rubber Co., Inc 40	Safe-T-Bath Inc
		Shakertown Corp141
Denver, Colorado	Gaco Western, Inc	Southern California Gas Co16Wb
William F. Bondlow	GAF Corp	Stanley Works—Hardware Div
National Accounts Manager	Gates Engineering Co., Inc	Stark Ceramics, Inc132
Call collect 203-348-7531	General Electric, Plastics Dept 6	Steel Joist Institute149
West Coast	General Electric—Textolite 33	
4348 Van Nuys Blvd. 213-872-1870	General Portland, Inc. Trinity DivIBC	Thiokol Corp., Chemical Div 41
Suite 205	Grefco Inc., Building Products Div 145	Tile Council of America, Inc 60
Sherman Oaks, Calif. 91403	Grinnell Fire Protection Systems Co., Inc. 14	Trinity Div., General Portland, IncIBC
Wally Gilbert, District Manager	difficilities in the recedent dystems do., me. 14	
and an arranger	Halsey Taylor 51	U. S. Gypsum Co
Atlanta, Geogia 30308:	rialsoy raylor	U. S. Plywood Div. of Champion Int'l 131
H. Proctor Co.	Johnson Service Co OBC	U. S. Steel Corp
805 Peachtree Bldg.—Room 505	Johnson Service Co	0. S. Steel Corp120-127
404-874-6427	Kelwell Core	VIII 0-
Harmon L. Proctor, Representative	Kalwall Corp	Viking Co
	Koppers Co., Inc	Vinyl Plastics, Inc
Tokyo, Japan:		Vogel-Peterson, Inc 7
International Media Representatives, Ltd.	LCN Closers	
1, Shiba-Kotohiracho, Minatoku	Libbey-Owens-Ford Co	Wellco-American Cyanamid Fibers 20
Haruo Moribayashi, Representative	Limestone Products Corp. of America 42	Western Wood Products Assoc 29



CONDOMINIUM

The opportunity of getting seven buildings completed and ready for occupancy in fast time was a principal reason open web steel joists were selected for these Longboat Harbour Condominiums in Sarasota, Florida.

Planned and constructed by I. Z. Mann & Associates, Inc., they are located in an attractive setting in the beautiful Longboat Key area. Overall economy, plus the speed of erection for floor and roof support made steel joists the structural answer to this building need. The lighter total dead load also permitted savings in foundation construction costs in the sandy soil.

Learn more about the benefits of open web steel joists. Send coupon today.



2001 Jefferson Davis Highway Arlington, Va. 22202

STEEL JOIST INSTITUTE

Suite 707-B, 2001 Jefferson Davis Hwy. Arlington, Va. 22202

Please send me your new copy of Specifications and Load Tables for Open Web Steel Joists.

Name_ Title Firm Address City___ _State ____Zip__

P/A Book Store

Described on the following pages are architectural books that are now available to you from leading publishers. Each has been selected for its use to you in the various aspects of your professional practice.

Book orders will be forwarded to the publishers who will bill you direct, including all required state and local taxes. As purchases of professional and business publications are tax deductible, we suggest that you retain a copy of the publishers invoices.

Reader Service

As a service to the profession, Progressive Architecture provides the attached easy-to-use postcards, designed to speed the latest information to you. (Note that new product and literature items and most advertisements carry a Reader Service number.)

Circle the number of the item(s) that interests you. P/A will forward your request directly to the manufacturer who will send you the information directly.

Subscribe to Progressive Architecture

To subscribe to P/A or to renew your subscription, check the appropriate boxes on the Reader Service card.

